Noise Technical Report

November 2022

Interstate 64 Improvements:

Exit 205 to Exit 234

PRELIMINARY NOISE STUDY

Noise Technical Report

UPC # 109885

Project #: 00064-800-25632396

New Kent County and James City County, Virginia

November 2022

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1.0 Executive Summary

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is studying the environmental consequences of the proposed widening of Interstate 64 (I-64) from Exit 205 – Route 33/New Kent Highway to 1.15 miles west of Exit 234 – Route 199/646/Humelsine Parkway/Newman Road (MM 204.96 to MM 233.26) from four to six lanes. The study corridor encompasses approximately 30 miles along I-64 within New Kent County and James City County, Virginia. The widening will take place in the median of I-64 within the existing right-of-way and will avoid impacts to existing interchanges.

The widening of I-64 from Exit 205 to 1.15 miles west of Exit 234 will tie into the following recently completed widening projects along I-64:

- Widening I-64 from four to six lanes from Exit 200 – I-295 to Exit 205 – Route 33 at the western terminus; and
- Widening I-64 from four to six lanes from approximately 1.15 miles west of Exit 234 – Route 199 to 1.05 miles west of Exit 242 – Route 199 at the eastern terminus.

The project scope does not include improvements to the interchanges within the study area, except for improvements to the auxiliary lanes along I-64 at the Exit 205 interchange at the western project terminus. It is assumed that all other auxiliary lanes along I-64 will remain in their current configuration.

This Preliminary Noise Study is being prepared in accordance with the Virginia *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)[1]. The current VDOT *State Noise Abatement Policy* became effective on July 13, 2011 and was last updated on February 15, 2022. The results are summarized in the Categorical Exclusion (CE) prepared for this project pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, and in accordance with FHWA regulations[2]. The purpose of this project is to improve traffic operations and safety on I-64 from MM 204.96 to MM 233.96. The corridor in this area has recurring congestion, including congestion resulting from incidents along I-64, and high crash frequency and crash severity. The project proposes to provide an additional travel lane in each direction along eastbound and westbound I-64. Based on this information, as well as the proposed improvement, in accordance with 23 CFR 772, this project is considered a Type I project and requires noise analysis.

This Noise Technical Report evaluates potential traffic noise impacts and abatement measures associated with the proposed project. Potential traffic noise impacts are assessed within the construction limits of the project, in accordance with the procedures and criteria approved by FHWA and VDOT. This report documents predicted noise levels associated with the improvements outlined in the Interstate 64 Improvements: Exit 205 to Exit 234 project for the Existing Conditions (2019), Future Design Year (2048)

[1] Title 23 of the Code of Federal Regulations (CFR) Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise.

[2] NEPA and FHWA's regulations for Environmental Impact and Related Procedures can be found at 42 USC § 4332(c), as amended, and 23 CFR § 771, respectively.

No-Build Alternative, and the Future Design Year (2048) Build Alternative. Since the future design year Build Alternative noise levels are predicted to exceed the Noise Abatement Criteria (NAC), noise mitigation must be evaluated in accordance with Virginia *State Noise Abatement Policy* and guidance. This report describes the corridor and the evaluated noise mitigation in three segments – Segment A is between MM 204.9 and MM 215.6; Segment B is between MM 215.6 and MM 225.4; and Segment C is between MM 225.4 and MM 234.

Existing noise levels were assessed using field monitoring and FHWA's Traffic Noise Model (TNM). The field monitoring consisted of short-term ambient noise monitoring sessions. These sessions were conducted to assess the existing noise environment and provide a reference for testing the accuracy of TNM simulation. In total, noise monitoring was conducted at 36 locations. These locations were then modelled within TNM simulation, along with the existing roadway elements and topography. The existing condition TNM simulation did not include any existing noise barriers.

Following the completion of the field sampling, the noise measurements collected were used to validate the existing condition TNM simulation. The validation exercise found consistent agreement between the noise levels measured in the field and those predicted by TNM. The mean difference between the measured and modeled existing noise levels was 1.4 dB(A).

Once model validation was achieved, the existing condition TNM run was modified to reflect the proposed improvements. The effect of the proposed improvements on traffic noise levels included noise sensitive properties within approximately 500 feet of the proposed edge of pavement. Sites at greater distances were evaluated as needed to determine the edge of predicted traffic noise impact. Noise sensitive receptors were identified within this study area using recent aerial photographs and field reconnaissance (conducted in 2022). Receivers (or modeling sites) were placed into TNM to represent these receptors (discrete noise sensitive sites), either individually or in groups. A total of 378 receivers were created to represent 381 noise receptors. Of the modeled receivers:

- 326 receivers were used to study 329 residential receptors;
- 51 receivers were used to study 51 receptors located within outdoor use areas at community facilities; and
- One receiver was used to study interior noise impact at one interior receptor[3];

Under existing conditions, the TNM simulation indicates that noise levels range from 45 to 74 dB(A), with impacts predicted at 62 receivers. This group includes 60 residential receptors and 4 community facility receptors. Under the No-Build Alternative exterior noise levels are predicted to range from 47 to 74 dB(A), with impacts predicted at 76 receivers, including 68 residential receptors and 10 community facility receptors. Under the Build Alternative, exterior noise levels are predicted to range from 48 to 74 dB(A), with impacts predicted at 112 receivers, including 97 residential receptors and 17 community facility receptors. **Table 1-1** provides a summary of predicted noise level ranges and total noise impacts. All noise impacts are due to levels approaching or exceeding the applicable NAC. Predicted noise levels for all noise

[3] Exterior receptor sites were used to evaluate the interior noise levels within the project area. A noise reduction factor was applied to each interior site based on the building material and window type/condition per Table 6 of the 2011 FHWA Highway Traffic Noise Analysis and Abatement Policy and Guidance.

sensitive receptors are discussed for affected Common Noise Environments (CNE) in **Section 6.0** and shown in **Appendix B.**

Table 1-1: Summary of Sound Levels and Traffic Noise Impacts

Range of Predicted Exterior Sound Levels (dB(A))			Total Number of Noise Impacts (Receptors with Predicted Noise Levels that Approach or Exceed NAC)		
Existing Conditions (2019)	Future Design Year No Build Alternative (2048)	Future Design Year Build Alternative (2048)	Existing Conditions (2019)	Future Design Year No Build Alternative (2048)	Future Design Year Build Alternative (2048)
45 to 74	47 to 74	48 to 74	64	78	114

Thirty-four (34) new noise barriers were evaluated for areas predicted to be impacted by traffic noise under the Build Alternative. As shown in **Table 1-2**, five of the 34 barriers met the feasible and reasonable criteria. The table based the cost of each barrier using a unit cost of $42 per square feet (material and installation costs), with the total cost based on the total area of the barrier multiplied by the unit cost. No additional engineering costs (e.g., retaining walls, utility relocation, right-of-way acquisition, drainage considerations, etc.) were included. The noise barrier locations are shown on the graphics located in **Appendix A**. Refer to **Section 7.0** for a discussion regarding the design and evaluation of noise abatement.

Table 1-2: Evaluated Noise Barriers

Barrier Name	CNE	Total Benefited Receptors	Average Noise Reduction (dB(A))[1]	Barrier Length (ft.)	Average Barrier Height (ft.)	Barrier Surface Area (SF)	Surface Area per Benefited Receptor (sq.ft./BR)	Barrier Cost ($42/sq.ft.)	Feasible and Reasonable
Segment A									
Barrier A	***A***	***49***	***7***	***3,560***	***20.2***	***71,994***	***1,469***	***$3,023,748***	***Yes***
Barrier A1	***A***	***10***	***8***	***713***	***22.3***	***15,905***	***1,591***	***$668,010***	***Yes***
Barrier A2	A	1	7	454	26.0	11,771	11,771	$494,382	No
Barrier B	***B***	***20***	***8***	***1,838***	***16.4***	***30,168***	***1,508***	***$1,267,056***	***Yes***
Barrier C	C	2	6	748	16.0	11,999	6,000	$503,958	No
Barrier D1	D	1	7	1,563	24.7	38,637	38,637	$1,622,754	No
Barrier D2	D	2	8	1,152	20.0	23,002	11,501	$966,084	No
Barrier E	E	2	6	1,345	18.0	24,291	12,146	$1,020,222	No
Barrier F	F	3	7	1,752	19.6	34,305	11,435	$1,440,810	No
Barrier H1	H	2	8	499	12.0	5,999	3,000	$251,958	No
Barrier H2	H	3	6	1,548	16.3	25,307	8,436	$1,062,894	No
Barrier H3	H	4	5	1,850	22.0	40,665	10,166	$1,707,930	No
Barrier I1	I	2	6	849	20.2	17,198	8,599	$722,316	No
Barrier I2	I	2	6	949	22.0	20,889	10,445	$877,338	No
Barrier J	J	9	7	1,604	23.9	38,315	4,257	$1,609,230	No
Barrier K	K	1	7	498	20.0	10,002	10,002	$420,084	No
Barrier L	L	1	7	807	14.0	11,287	11,287	$474,054	No
Segment B									
Barrier M	M	3	5	1,199	24.0	28,793	9,598	$1,209,306	No
Barrier N	N	2	7	1,019	22.0	22,439	11,220	$942,438	No
Barrier P	P	3	7	1,373	30.0	41,132	13,711	$1,727,544	No
Segment C									
Barrier S	S	11	6	1,380	21.2	29,270	2,661	$1,229,340	No
Barrier V	V	1	7	770	18.0	13,882	13,882	$583,044	No
Barrier W1	W	14	6	3,500	15.4	54,042	3,860	$2,269,764	No

Barrier Name	CNE	Total Benefited Receptors	Average Noise Reduction (dB(A))[1]	Barrier Length (ft.)	Average Barrier Height (ft.)	Barrier Surface Area (SF)	Surface Area per Benefited Receptor (sq.ft./BR)	Barrier Cost ($42/sq.ft.)	Feasible and Reasonable
Barrier W2	W	2	6	1,348	19.1	25,615	12,808	$1,075,830	No
Barrier X	X	2	6	1,915	13.6	26,193	13,097	$1,100,106	No
Barrier Y1	Y	1	7	1,263	28.4	35,866	35,866	$1,506,372	No
Barrier Y2	Y	2	6	1,813	15.4	28,063	14,032	$1,178,646	No
Barrier Y3	Y	1	7	813	25.2	20,448	20,448	$858,816	No
Barrier Z	***Z***	***26***	***6***	***1,545***	***26.3***	***40,657***	***1,564***	***$1,707,594***	***Yes***
Barrier AA	AA	4	6	1,170	16.5	19,359	4,840	$813,078	No
Barrier AB	AB	15	6	4,490	12.7	56,852	3,790	$2,387,784	No
Barrier AC	***AC***	***6***	***5***	***890***	***10.8***	***9,595***	***1,599***	***$402,990***	***Yes***
Extended Barrier AC	AC, AE	10	6	2,669	11.3	29,932	2,993	$1,257,144	No
Barrier AD	AD	2	6	1,270	24.0	30,461	15,231	$1,279,362	No

1 Average reduction for benefited receptors.

A more detailed assessment of noise impacts will be completed during final design. As such, noise barriers that are found to be feasible and reasonable by this assessment may also not be recommended for further consideration in the future. Conversely, noise barriers that were not considered feasible and reasonable may meet the established criteria and be recommended for construction. Additional noise abatement considerations (i.e., rail noise, noise reflection from proposed wall structures, commitments for further evaluation based on new design information, and alternatives to proposed noise barrier placement) will be addressed during the final design phase.

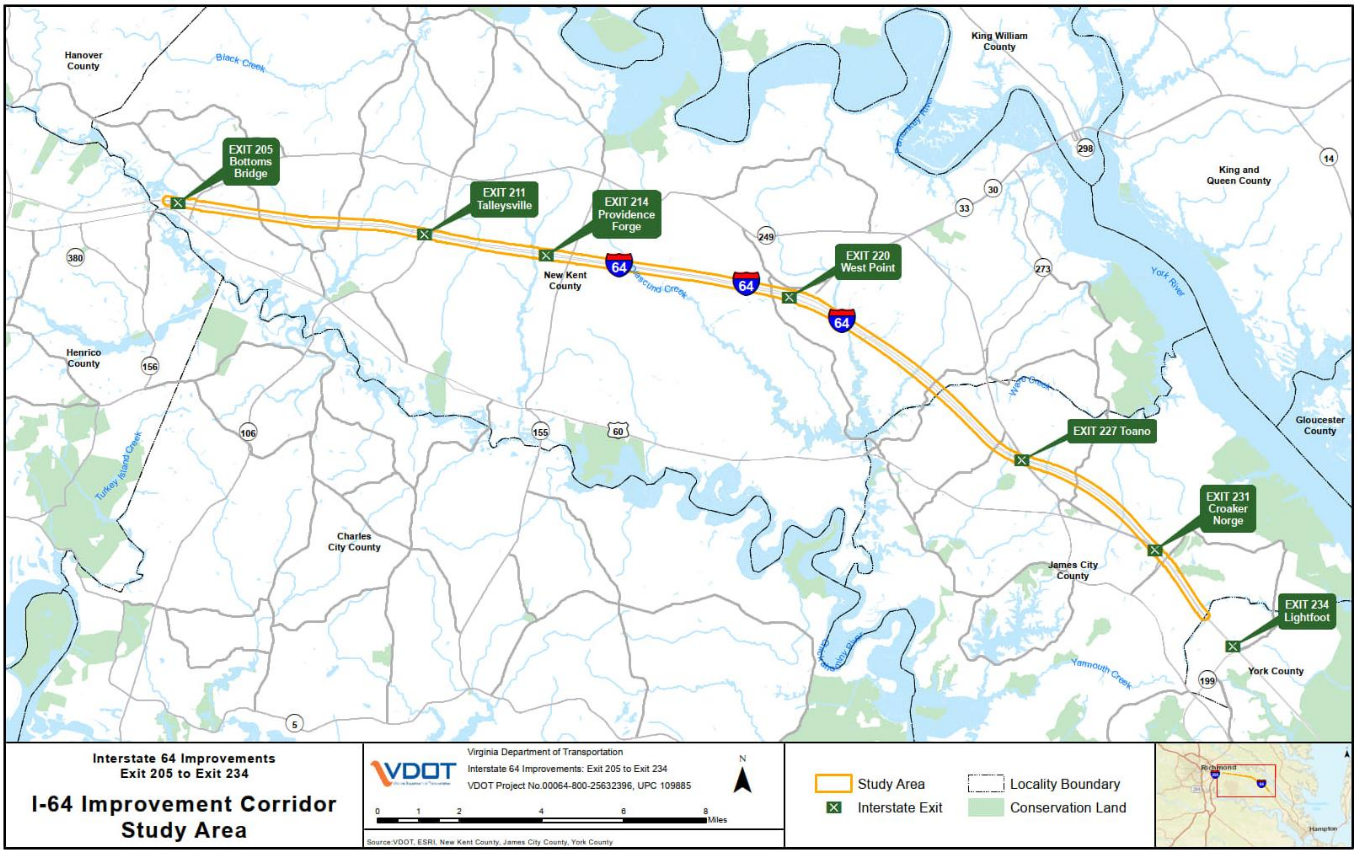
Noise generated during project construction was not included in the TNM simulations. However, construction activities may cause intermittent fluctuations in noise levels. To help reduce the impact of construction noise, this report identifies reasonable measures that can be taken to minimize noise impact from these activities. The discussion of construction noise is provided in **Section 8.0**.

2.0 Introduction

2.1 Project Description & Termini

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA), as the lead federal agency, is preparing a Categorical Exclusion (CE) for the I-64 Improvements: Exit 205 to Exit 234 project. The project would take place in New Kent County and James City County, Virginia. The project limits extend from the I-64 interchanges at Exit 205 (Route 33/New Kent Highway, MM 204.96) to 1.15 miles west of Exit 234 (Route 199/646/Humelsine Parkway/Newman Road), MM 233.26), as shown in **Figure 2-1**.

Figure 2-1. Noise Analysis Study Area Boundaries



The total project length is approximately 30 miles. The primary scope of work involves widening I-64 from four to six lanes between the project limits. The widening will take place in the median of I-64, within the existing right-of-way and will avoid impacts to existing interchanges. This Preliminary Noise Study is being prepared in accordance with the Virginia *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)[4]. The current VDOT *State Noise Abatement Policy* became effective on July 13, 2011, it and was last updated on February 15, 2022. Pursuant to the NEPA, as amended, and in accordance with FHWA regulations[5], a CE is being prepared to analyze the potential social, economic, and environmental effects associated with the proposed improvements.

2.2 Study Area

The study corridor for the proposed project encompasses approximately 30 miles along I-64. The widening will take place in the median of I-64 within the existing right-of-way and will avoid impacts to existing interchanges. The widening of I-64 from Exit 205 to 1.15 miles west of Exit 234 will tie into the following recently completed widening project along I-64:

- Widening I-64 from four to six lanes from Exit 200 – I-295 to Exit 205 – Route 33 at the western terminus; and
- Widening I-64 from four to six lanes from approximately 1.15 miles west of Exit 234 – Route 199 to 1.05 miles west of Exit 242 – Route 199 at the eastern terminus.

2.3 Project Purpose and Need

The purpose of this project is to improve traffic operations and safety on I-64 from MM 204.96 to MM 233.26. The corridor in this area has recurring congestion, including congestion resulting from incidents along I-64 and high crash frequency and crash severity.

2.4 Scope of the Preliminary Noise Analysis

Impacts associated with traffic noise are often of prime concern when evaluating roadway improvement projects. Roadway construction on new location or improvements to the existing transportation network may cause impacts to the noise-sensitive environment located adjacent to the project corridor. For this reason, FHWA has issued guidelines for noise evaluation as established in 23 CFR 772. Highway traffic noise studies, noise abatement procedures, coordination requirements and design noise levels in 23 CFR 772 constitute the noise standards mandated by 23 United States Code (U.S.C.) 109(i). FHWA and VDOT have established a noise analysis methodology and associated noise level criteria to assess the potential noise impacts associated with the construction and use of transportation related projects.

In accordance with 23 CFR 772, this project is considered a Type I project and requires a noise analysis. As part of the project design process, this Preliminary Noise Study evaluates potential traffic noise impacts and abatement measures associated with the widening of I-64 required for the I-64 Improvements: Exit 205 to Exit 234 project. Potential traffic noise impacts are assessed within the direct construction limits of the project, in accordance with the procedures and criteria approved by FHWA and VDOT.

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[4] Title 23 of the Code of Federal Regulations (CFR) Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise.

[5] NEPA and FHWA's regulations for Environmental Impact and Related Procedures can be found at 42 USC § 4332(c), as amended, and 23 CFR § 771, respectively.

This Noise Technical Report documents the steps involved in the Preliminary Noise Analysis for the I-64 Improvements project, including:

- a description of noise terminology,
- the applicable standards and criteria,
- results of ambient noise monitoring and validation efforts,
- a description of the computations of existing and future noise levels,
- identification of potential noise impacts,
- evaluation of measures to mitigate noise impacts,
- noise abatement evaluation and design,
- a discussion of construction noise, and
- a discussion of the public involvement process.

This report documents predicted noise levels associated with the improvements for the Existing Conditions (2019), Future Design Year (2048) No-Build Alternative and the Future Design Year (2048) Build Alternative.

2.4.1 Preliminary Noise Analysis Study Area

Consistent with FHWA/VDOT noise policy and guidance, the study area of the Preliminary Noise Study (hereafter referred to as "noise study area") is limited to 500 feet (or farther as needed to determine the edge of predicted traffic noise impact) from the proposed edge of pavement of the roadway improvements as defined by the roadway construction limits, unless otherwise extended for neighborhood continuity. This area includes approximately 30 miles of I-64 between Exit 205 (Route 33/New Kent Highway) to 1.15 miles west of Exit 234 (Route 199/646/Humelsine Parkway/Newman Road). Intersecting roadways and interchanges included in the noise study area are also shown in **Figure 2-1.**

2.5 Existing Conditions

The existing I-64 facility within the study area currently consists of two eastbound and two westbound lanes, supplemented in several locations by auxiliary lanes, and acceleration/deceleration lanes at on/off-ramps. Grade-separated interchanges provide access to and from I-64 at: Route 33/New Kent Highway; Route 609 (Emmaus Church Road); and Route 199/646/Humelsine Parkway/Newman Road. I-64 connects Richmond, VA west of the noise study area to Williamsburg, VA east of the noise study area. The posted speed limit is 70 mph.

The western portion of the Study Area, between Exit 205 and Exit 211, is predominately medium density residential with multi-family housing and single-family homes. Two recreation areas are also located within this area; Brookwoods Golf Club near VA 665/ North Henpeck Road and Pine Fork Park, near Route 609. The center portion of the Study Area, between Exit 211 to Exit 231, is mostly rural, with neighborhoods interspersed along roads connecting SR 60 to the south to Route 249 to the north intersecting the I-64 project corridor. Two recreation areas are also located within this area; Stonehouse Golf Course and Williamsburg RV and Camping Resort. The eastern portion of the Study Area, between Exit 231 and Exit 234, is more densely populated near the communities of Toano, Norge, and Lightfoot before entering the City of Williamsburg. One recreation area is also located within this area; Williamsburg

Recreational Vehicles (RV) and Camping Resort. Recently, projects to widen I-64 between Exits 234 to Exit 255 in Newport News were completed and added an additional 12-foot travel lane in each direction.

2.6 Alternatives

Based on the project's purpose and need, VDOT developed two alternatives: one build alternative and the No-Build alternative. The Build Alternative includes the proposed widening of I-64 from four to six lanes. The No-Build Alternative[6] assumes that VDOT takes no action to address the project purpose and need, other than those typically completed as part of existing system preservation (i.e., resurfacing, landscape management, sign replacement, etc.). There are no related projects that would influence the Build or No-Build Alternatives.

2.6.1 No-Build Alternative

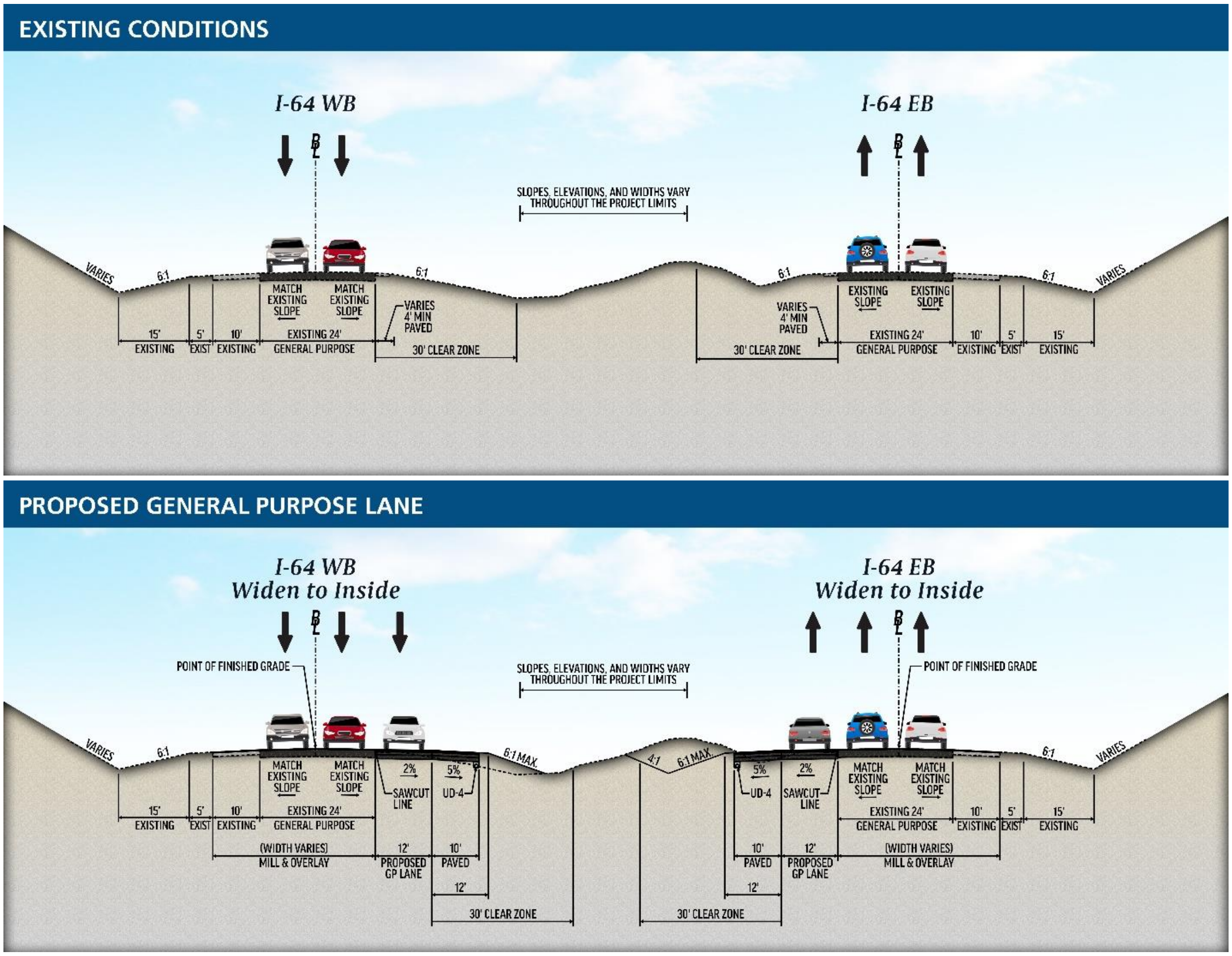
For the Preliminary Noise Study, the No-Build Alternative was modeled and evaluated for noise impact and to assess "constructive use" for Section 4(f) properties identified within the study area, consistent with 23 CFR 774.15, *Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f)) – Constructive Use Determinations*.

2.6.2 Build Alternative

The proposed improvements include adding one general purpose (GP) lane in each direction along the I-64 corridor. The GP lanes will tie into the recently completed widening of I-64 from four to six GP lanes from Exit 200 – I-295 to Exit 205 – Route 33 at the western terminus and the widening of I-64 from four to six lanes from approximately 1.15 miles west of Exit 234 – Route 199 to 1.05 miles west of Exit 242 – Route 199 at the eastern terminus. The new GP lanes will be completed largely within the existing I-64 median. The project scope does not include improvements to the interchanges within the study area, with the exception of improvements to the auxiliary lanes along I-64 at the Exit 205 interchange at the western project terminus. It is assumed that all other auxiliary lanes along I-64 will remain in their current configuration. **Figure 2-2** shows the existing and proposed typical sections.

[6] According to FHWA guidelines, the consideration of a No-Build Alternative is a requirement under NEPA. The Build Alternative must be reasonable and practicable enough to dismiss the No-Build Alternative (FHWA, 1990).

Figure 2-2. Existing and Build Condition Typical Sections



3.0 Legislation and Noise Fundamentals

3.1 Regulatory Requirements

The Noise Control Act of 1972 gives the US Environmental Protection Agency (USEPA) the authority to establish noise regulations to control major noise sources, including motor vehicles and construction equipment. Furthermore, the USEPA is required to set noise emission standards for motor vehicles used for interstate commerce and the FHWA is required to enforce the USEPA noise emission standards through the Office of Motor Carrier Safety. NEPA gives broad authority and responsibility to Federal agencies to evaluate and mitigate adverse environmental impacts caused by Federal actions. FHWA is required to comply with NEPA including mitigating adverse highway traffic noise effects. The Federal-Aid Highway Act of 1970 mandates FHWA to develop standards for mitigating highway traffic noise. It also requires that FHWA establish traffic noise level criteria for various types of land uses. The Act prohibits FHWA from approving federal-aid highway projects unless adequate consideration has been made for noise abatement measures to comply with the standards. FHWA's highway regulations contain NAC, which represent the maximum acceptable level of highway traffic noise for specific types of land uses. The regulation does not mandate that the NAC be met in all situations, but rather that reasonable and feasible efforts be made to provide noise mitigation when the NAC are approached or exceeded (23 CFR § 772, 2010).

VDOT's *State Noise Abatement Policy* was developed to implement the requirements of 23 CFR 772[7], FHWA's *Highway Traffic Noise Analysis and Abatement Policy and Guidance*[8], and the noise-related requirements of NEPA. The current VDOT *State Noise Abatement Policy* became effective on July 13, 2011 and was last updated on February 15, 2022. The methodologies applied to the noise analysis for the I-64 Improvements project are in accordance with VDOT's *State Noise Abatement Policy*, and VDOT's *Highway Traffic Noise Guidance Manual*[9]. This policy is applicable to Type I federal-aid highway projects. Since the proposed project consists of the addition of travel lanes, the proposed project is classified as a Type I project and requires a noise study.

3.2 Sound Level Metrics

Noise is generally defined as an unwanted or annoying sound. Airborne sound occurs by a rapid fluctuation of air pressure above and below atmospheric pressure. Sound pressure levels are usually measured and expressed in decibels (dB). The decibel scale is logarithmic and expresses the ratio of the sound pressure unit being measured to a standard reference level.

Most sounds occurring in the environment do not consist of a single frequency, but rather a broad band of differing frequencies. Because the human ear does not respond to all frequencies equally, the method commonly used to quantify environmental noise consists of evaluating all the frequencies of a sound per a-weighting system. It has been found that the A-weighted filter on a sound level meter, which includes circuits to differentially measure selected audible frequencies, best approximates the frequency response

7 Effective date: July 13, 2011.
8 Revision date: December, 2011.
9 Updated: February 15, 2022.

of the human ear and has been found to strongly correlate with human perceptions of traffic noise. Consequently, A-weighted decibels (dB(A)) are used by FHWA.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources, creating a relatively steady background noise in which no specific source is identifiable. To describe the time-varying character of traffic noise, a statistical noise descriptor called the equivalent hourly sound level, or $L_{eq(1h)}$, is commonly used. $L_{eq(1h)}$ describes a noise sensitive receptor's cumulative exposure from all noise-producing events over a one-hour period (herein referenced as "L_{eq}").

Because decibels are logarithmic units, sound levels cannot be added by ordinary arithmetic means. The following general relationships provide a basic understanding of sound generation and propagation:

- An increase, or decrease, of 10-dB will be perceived by a receptor to be a doubling, or halving, of the sound level, respectively;
- Doubling the distance between a highway and receptor will produce a 3-dB sound level decrease; and
- A 3-dB sound level increase is barely perceptible by the human ear.

4.0 Noise Abatement Criteria & Methodology

4.1 Noise Abatement Criteria

The *State Noise Abatement Policy* has adopted the NAC established by FHWA (23 CFR 772) for determining traffic noise impacts for a variety of land uses. The NAC listed in **Table 4-1** represent the upper limit of acceptable traffic noise conditions and a balancing of that which may be desirable with that which may be achievable.

Table 4-1: FHWA Noise Abatement Criteria

Hourly A Weighted Sound Level Decibels (dB(A))			
Activity Category	**Activity $L_{eq(h)}$**	**Evaluation Location**	**Description Of Activity Category**
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B*	67	Exterior	Residential
C*	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E*	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	---	Exterior	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical) and warehousing
G	---	---	Undeveloped lands that are not permitted
* Includes undeveloped lands permitted for this activity category			

Source: FHWA, 23 CFR 772

The NAC applies to areas having frequent human use and where lowered noise levels are desired. They do not apply to the entire tract of land on which the activity is based, but only to that portion where the activity takes place. The NAC is given in terms of the hourly, A-weighted, equivalent sound level in decibels (dB(A)). The conclusions presented in this noise impact assessment are based on the guidelines listed in **Table 4-1.**

4.2 Definition of Traffic Noise Impact

This first phase of the traffic noise abatement process is to determine if highway traffic noise abatement consideration is warranted for the affected communities and receptors. Traffic noise impacts most frequently occur if either of the following two conditions are met:

- The predicted traffic noise levels approach or exceed the NAC, as shown **Table 4-1**. The VDOT *State Noise Abatement Policy* defines that the approach shall be one dB(A) less than the NAC for Activity Categories A to E. For example, for a NAC B receptor, 66 dB(A) would approach 67 dB(A) and would be considered an impact. If predicted design year noise levels "approach or exceed" the NAC, then the receptor is considered to be an impact.

- The predicted design year (Build Alternative) traffic noise levels are substantially higher than the existing year (Existing Conditions) noise levels. VDOT's *State Noise Abatement Policy* defines a substantial noise increase as a predicted (Build Alternative) traffic noise levels which exceeds existing year (Existing Conditions) noise levels by 10 dB(A) or more. For example, if a receptor's predicted noise level under the Existing Conditions is 50 dB(A) and the predicted noise level under the Build Alternative is 60 dB(A), then it would be considered to "substantially exceed" existing year noise levels and would be considered an impact. Predicted noise levels do not have to exceed the appropriate NAC to be considered a substantial increase impact.

If traffic noise impacts are identified under either criterion, then the consideration of noise abatement measures is necessary. The final decision on whether to provide noise abatement will consider the feasibility of the design and overall cost weighted against the environmental benefit of the proposed abatement (FHWA, 2011).

4.2.1 Section 4(f) Noise Impacts

Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966 which makes provisions for the preservation of:

- Publicly owned public parks, recreation areas, and wildlife or waterfowl refuges; and
- Publicly or privately-owned historic site listed or eligible for listing on the National Register of Historic Places (NRHP).

Under Section 4(f), FHWA cannot approve a transportation project that uses a Section 4(f) property, as defined in 23 CFR 774.17, unless a determination is made that:

- There is no feasible and prudent avoidance 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 (23 CFR 774.3(a)); or
- The use of the Section 4(f) property, including any measures to minimize harm (such as avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, would have a *de minimis* impact on the property (23 CFR 774.3(b)).

Under Section 4(f), a use of a Section 4(f) property occurs (23 CFR 774.17):

- When land is permanently incorporated into a transportation facility;
- When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or
- When there is constructive use of land.

A *de minimis* use of a public park, recreational area, wildlife and waterfowl refuge, or historic site is defined as that which does not "*adversely affect the features, attributes or activities qualifying the property for protection under Section 4(f)*". This determination can be made only with the concurrence of the official with jurisdiction over the property and can be made only after an opportunity for public review and comment after the proposed determination has been provided.

The requirements of Section 4(f) are separate from 23 CFR 772, but may also call for consideration of noise impacts to lands subject to Section 4(f). A noise impact does not necessarily constitute a Section 4(f) use. However, even when noise increases do not constitute a Section 4(f) use, noise impacts may still require consideration for abatement under 23 CFR 772. Proposed abatement measures may result in additional impacts that require consideration under Section 4(f), NEPA, and Section 106.

FHWA's regulations governing implementation of Section 4(f) includes specific discussion to aid in assessing whether noise impacts would constitute a constructive use and require a Section 4(f) evaluation. In general, a constructive use occurs when, "*The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a property protected by Section 4(f)*" (23 CFR § 774, 2018).

Conversely, 23 CFR 774.15(f) states that a constructive use does not occur when:

- The impact of projected (predicted) traffic noise levels of the proposed highway project on a noise-sensitive activity does not exceed the NAC, as shown in **Table 4-1**; and
- The projected (predicted) noise levels exceed the NAC of this section because of high existing noise, but the increase in the projected (predicted) noise levels if the proposed project is constructed (Build Alternative), when compared with the projected noise levels if the project is not built (No-Build Alternative), is barely perceptible (3 dB(A) or less).

As with Section 4(f), the consideration of historic properties under Section 106 of the Historic Preservation Act is a separate requirement but may be related to the assessment of noise impacts under 23 CFR 772. To qualify for protection under Section 106, a resource must be listed on the National Register of Historic Properties (NRHP) or be determined eligible to be listed. The determination of eligibility is made by the State Historic Preservation Officer (SHPO). At present, there is no metric for analyzing when a change in noise constitutes an effect under the regulations implementing Section 106. A metric has not been established because the assessment of noise impacts on historic resources is highly dependent on the characteristics which made it eligible for listing on the NRHP (see 36 C.F.R. § 800, 2012). Some properties, such as designed or cultural landscapes where the landscape itself is the significant feature or where the setting is especially important, may be extremely sensitive to any change that can be perceived by the human ear. Refer to **Section 4.4.5** for the discussion of Section 4(f) Properties that were identified. Refer to **Sections 6.2** and **6.3** for the results of the Section 4(f) noise analysis.

4.3 Highway Noise Computation Model

A review of the noise study area has established roadway traffic as the dominant source of noise for the project. Since roadway noise can be predicted accurately through computer modeling techniques for areas that are dominated by road traffic, existing and future design year traffic noise calculations have been predicted using FHWA's Traffic Noise Model (TNM) Version 2.5, which is an approved version and required under 23 CFR 772[10]. TNM estimates vehicle noise emissions and resulting noise levels based on reference energy mean emission levels. The existing and proposed alignments (horizontal and vertical)

[10] TNM was developed and sponsored by the U.S. Department of Transportation and John A. Volpe National Transportation Systems Center, Acoustics facility.

are input into the model, along with the receptor locations, traffic volumes of cars, medium trucks (vehicles with two axles and six tires), heavy trucks, average vehicle speeds, and any traffic control devices. TNM utilizes acoustic algorithms to predict noise levels at the selected receptor locations by considering sound propagation variables such as atmospheric absorption, divergence, intervening ground, barriers, building rows, and sometimes heavy vegetation (FHWA, 2004).

4.4 Data Sources

4.4.1 Roadways and Design Files

Existing roadways were located and digitized using survey data provided by VDOT. The build alternative was obtained by placing a third lane to the inside using similar elevations to the existing left lane.

4.4.2 Existing Shielding and Terrain Features

Existing shielding and terrain features such as existing retaining walls, building rows, and terrain lines were incorporated to account for shielding effects of these existing features within the project corridor. Elevation data for these features were generally obtained through a combination of data triangulated 3D surface derived from LiDAR data provided by VDOT. This noise study area does not contain any existing noise barriers.

4.4.3 Traffic Volumes and Flow Control

Traffic data for this noise study was prepared by WRA, consisting of hourly volumes and design-operational speeds by roadway segment for the Existing Conditions, No-Build Alternative, and Build Alternative. In situations where design-operational speeds were not available, posted speed limits were used. The traffic data was prepared for all interstate mainline segments, interchange ramps, and adjacent arterial roadways (i.e., roadways with Average Daily Traffic (ADT)>3000), within the noise study area. The traffic data is displayed in **Appendix E.**

4.4.4 TNM Receivers and Representative Receptors

Receptors are defined as a discrete or representative location of a noise sensitive area(s) for any of the land uses described in **Table 4-1** (VDOT, 2022). TNM receiver inputs were used to represent predicted noise receptors and in some cases were used to represent multiple noise receptors. Receptors were primarily identified within approximately 500 feet of the proposed edge of pavement based on an aerial photo review and confirmed during the site visit associated with the noise monitoring effort. A default height of 4.92 feet above the base ground elevation was used for all ground level receptors; 14.92 and 24.92 were used for second and third floor balconies of multi-family housing. Specific receptor placement was generally based on exterior areas where there is frequent human use.

4.4.5 Identification of Section 4(f) Sites

Based on FHWA regulations and guidance, a review of parcel and land use data within the noise study area was conducted to identify potential Section 4(f) sites. The following resources were evaluated to identify Section 4(f) resources in the noise study area:

- Aerial images and internet resources;

- Virginia Cultural Resource Information System (V-CRIS) online application;
- Recreational facility/park lists; and
- Comprehensive plans.

It was determined that there are no wildlife or waterfowl refuges. The only type of recreational resource that was identified is a local park, Pine Fork Park and a future field at Pine Fork Park.

Coordination with the project team confirmed that no historic sites were identified within the noise study area of the project:

Section 6.3 of the report discusses the results of the constructive use evaluation for receptors located within the study area.

4.4.6 Undeveloped Lands and Permitted Developments

Highway traffic noise analyses are (and would be) performed for developed lands as well as undeveloped lands if they are considered "permitted." Undeveloped lands are deemed to be permitted when there is a definite commitment to develop land with an approved specific design of land use activities as evidenced by the issuance of at least one building permit. In accordance with the VDOT *Traffic Noise Policy and Guidance Manual,* an undeveloped lot is planned, designed, and programmed if a building permit has been issued by the local authorities prior to the Date of Public Knowledge for the relevant project. VDOT considers the "Date of Public Knowledge" as the date that the final NEPA approval is made. VDOT has no obligation to provide noise mitigation for any undeveloped land that is permitted or constructed after the date of public knowledge. The project currently does not have a NEPA approval date.

Coordination was performed in May 2022 with New Kent County, James City County, and York County to identify areas of planned and future development (although work is not planned within York County, the 500-foot study area extends into York County). Based on the information provided by New Kent County, James City County, and York County, there is one planned development within the noise study area that is anticipated to receive its building permit prior to the anticipated date of public knowledge. Hearth at Patriots Landing is an apartment complex proposed in the southeast quadrant of the I-64/New Kent Highway interchange (Exit 205) in New Kent County. A total of 27 receivers were modeled for receptors within the noise study area. Coordination with the local jurisdictions will occur again in Final Design to ensure that all noise sensitive land uses are evaluated in the Final Design noise analysis where building permits have been issued prior to the NEPA document approval date. Correspondence regarding undeveloped lands is included in **Appendix K**.

5.0 Existing Noise Environment

5.1 Noise Monitoring

To assess existing noise conditions within the noise study area, short-term monitoring was conducted. Short-term monitoring, described in **Section 5.1.1**, was conducted to evaluate the accuracy of the noise prediction model. As noted previously, a windshield survey of noise-sensitive land uses and identification of major sources of acoustical shielding was conducted to inform the mapping of noise sensitive receptors and the selection of noise monitoring locations.

5.1.1 Short-Term Noise Monitoring

The purpose of short-term noise monitoring is to gather data that is used to develop a comparison between the monitored results and the output obtained from the noise prediction model. This validation exercise is required[11] so that TNM can be used with confidence to determine the loudest hour noise levels, predict the existing / future noise levels, assess noise impacts, and design and evaluate potential noise attenuation alternatives (i.e., noise barriers/berms). Short-term noise monitoring is not a process to determine design year noise impacts or barrier locations. Short-term noise monitoring provides a level of consistency between what is present in real-world situations and how that is represented in the computer noise model. Short-term monitoring does not need to occur within every CNE to validate the computer noise model.

A noise monitoring plan consistent with guidance from FHWA's *Noise Measurement Handbook* (FHWA, 2018) was developed to identify candidate noise monitoring sites, access locations, and traffic collection sites. Field reconnaissance was conducted to confirm monitoring site access (including scheduling access for selected sites) and address any potential safety issues associated with the monitoring sites. Optimum locations were also confirmed for the placement of the video equipment used for collection of traffic data during the monitoring sessions.

Short-term noise measurements of 20 minutes duration were obtained at 36 locations within the noise study area on April 12-13, 2022. The short-term noise measurements were collected using Rion NL42 and Casella 633-1A sound level meters. Rion NC-74 and Quest QC10 Acoustical Calibrators were used for field calibrations. Refer to **Appendix C** for calibration certificates of the sound level meters and calibrator.

Readings were taken on the A-weighted scale and reported in dB(A). The data collection procedure involved the collection of L_{eq} measurements in consecutive 10-second intervals. This method allowed for individual time intervals that include noise events unrelated to traffic noise (such as aircraft over flights) to be excluded from consideration for model validation purposes. Data collected by the noise meter included time, L_{eq}, minimum noise level (L_{min}), maximum noise level (L_{max}), percentile sound levels (e.g. L_5, L_{10}, L_{50}, L_{90}, L_{95}), and the SEL for each interval. $L_{eq(1h)}$ values were derived at each location from the 20-minute L_{eq} values. Existing noise measurements were collected under meteorologically acceptable conditions when the pavement was dry and winds were calm or light. Additional data collected at each monitoring location included atmospheric conditions and the observation of non-traffic noise events.

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[11] TNM Validation is required by 23 CFR 772.11(d)(2).

The monitoring schedule included a total of 36 monitoring sites. These sites were divided into 19 traffic count sessions, based upon similar sources of traffic noise. During each session, traffic conditions on the dominant highway noise sources were counted and compiled by field personnel. Traffic was grouped into one of the three categories: automobiles (Class 2 and 3), medium trucks (Class 5) and heavy trucks (Class 6 through 13), per FHWA vehicle classifications. Buses (Class 4) were combined with the medium trucks and motorcycles (Class 1) were included with the automobiles (FHWA, 2016).

The field data sheets, datalogger outputs (raw and adjusted), and the traffic observed with each monitoring session are presented in **Appendix D**. The location of each short-term noise monitoring site in relation to the project, is shown on the graphics located in **Appendix A.**

A summary of the short-term noise monitoring results[12] are presented in **Table 5-1.** For each site, the table lists:

- the assigned monitoring site number,
- the location of the monitoring site,
- a description of the associated land use for each site,
- the dominant sources of noise at each site, and
- the monitored sound levels.

The monitored L_{eq} in the study corridor ranged from 56.6 dB(A) to 69.4 dB(A). I-64 was the dominant source of noise within the noise study area.

Table 5-1: Short-term Noise Monitoring Summary

Site	Location	Land use Description	Dominant Sources of Noise	Monitored Noise Level L_{eq} (dB(A))
ST-1	2710 Kings Cross Quay	Single-Family Home	I-64	60.8
ST-2	7921 Patriots Landing Place	Single-Family Home	I-64	62.8
ST-3	7510 Winding Jasmine Road	Single-Family Home	I-64	62.0
ST-4	7503 Fairway Ridge Drive	Single-Family Home	I-64	67.9
ST-5	2901 Walnut Drive	Single-Family Home	I-64	68.5
ST-6	7701 Walnut Drive	Single-Family Home	I-64	63.1
ST-7	3875 Autumn Hills Lane	Single-Family Home	I-64	61.5
ST-8	4790 Old Field Lane	Single-Family Home	I-64	62.0
ST-9	Ashland Farm Road	Agriculture	I-64	62.7
ST-10	7400 Airport Road	Single-Family Home	I-64	61.4
ST-11	5800 Pine Fork Road	Single-Family Home	I-64	66.4
ST-12	9000 Piney Branch Lane	Single-Family Home	I-64	63.7
ST-13	14375 Maine Corps Drive	Single-Family Home	I-64	64.1
ST-14	5801 Good Hope Road	Single-Family Home	I-64	66.2
JAC-1	3700 Ropers Church Road	Camp/ conference center	I-64	56.6
JAC-2	17025 Wedgewood Court	Single-Family Home	I-64	58.0
JAC-3	3800 Ropers Church Road	Single-Family Home	I-64	60.3
JAC-4	3855 Ropers Church Road	Single-Family Home	I-64	61.1
JAC-6	101 Racefield Drive	Single-Family Home	I-64	57.4
JAC-9	111 Racefield Drive	Single-Family Home	I-64	60.0

[12] Short-term noise monitoring is not a process to determine design year noise impacts or barrier locations. Short-term noise monitoring provides a level of consistency between what is present in real-world situations and how that is represented in the computer noise model. Short-term monitoring does not need to occur within every CNE to validate the computer noise model.

Site	Location	Land use Description	Dominant Sources of Noise	Monitored Noise Level L_{eq} (dB(A))
JAC-13	122 Racefield Drive	Single-Family Home	I-64	62.5
JAC-19	3544 Merestep Way	Single-Family Home	I-64	62.1
JAC-20	4001 Mt Laurel Road	Single-Family Home	I-64	62.5
JAC-22	169 Sand Hill Road	Single-Family Home	I-64	60.3
JAC-25	319 Louise Lane	Single-Family Home	I-64	61.9
JAC-28	4224 Cedar Point Lane	Single-Family Home	I-64	65.3
JAC-31	4301 Rochambeau Drive	RV Campground	I-64	57.6
JAC-31B	4301 Rochambeau Drive	RV Campground	I-64	64.5
JAC-32	4107 Rochambeau Drive	Church	I-64	66.4
JAC-33	4391 Cedar Point Lane	Single-Family Home	I-64	58.7
JAC-37	4531 Cloverleaf Lane	Single-Family Home	I-64	62.8
JAC-38	4600 Rochambeau Drive	Single-Family Home	I-64	68.6
JAC-39	4650 Fenton Mill Road	Single-Family Home	I-64	66.3
JAC-44	4797 Fenton Mill Road	Single-Family Home	I-64	69.4
JAC-45	101 Wilderness Lane	Single-Family Home	I-64	63.1
JAC-47	4801 Fenton Mill Road	Single-Family Home	I-64	63.8

5.2 Noise Model Validation

Computer modeling is the accepted technique for predicting noise levels associated with traffic-induced noise for the Existing Conditions and the Build Alternative. The modeling process begins with model validation, per FHWA/VDOT requirements. This is accomplished by comparing the monitored noise levels and the noise levels predicted by TNM, using traffic volumes and speeds that were observed during the monitoring process (i.e., 20-minute traffic data was converted to one-hour traffic data for validation of the model). This validation ensures that reported changes between the existing and future design year conditions are due to changes in traffic, and not discrepancies between monitoring and/or modeling techniques. According to FHWA guidance and VDOT policy and guidance, a difference of plus or minus 3 dB(A) or less between the monitored and modeled levels is considered to be acceptable since this is the limit of change that is barely perceptible by a typical human ear (FHWA, 2011 and VDOT, 2022). A summary of the model validation is provided in **Table 5-2**.

As shown, for all sites, the difference between the modeled and monitored noise levels range from -2.2 to +2.4 dB(A). The predicted levels that were modeled in TNM can differ from the recorded levels due to several factors. Such factors include:

- atmospheric conditions[13] (upwind, neutral, or downwind) (NCHRP, 2018),
- existing shielding by structures that may be difficult to model,
- limited survey data,
- pavement properties that differ from the average pavement required for use in TNM,

[13] Sound levels on the down-wind side of a sound source are often considerably higher than sound levels on the upwind side. On the downwind side, sound rays are curved downward which could allow multiple sound rays to arrive at a receiver. On the upwind side, sound rays are curved upward, which causes a sound shadow (zone) to occur. Sound rays enter the shadow region primarily due to a scattering of sound waves by atmospheric turbulence. Similar to the influence of wind, sound rays are curved by temperature variations in the atmosphere. Consequently, since specific atmospheric conditions are not modeled in TNM, predicted noise levels would most likely deviate from observed noise monitoring results.

- complex roadway and/or receptor geometry[14] (FWHA, 2004), and
- the representativeness of louder vehicles which pass by the sound level meter during the measurement period.

Other types of environmental factors (i.e., non-traffic related noise) were witnessed during the monitoring events that cannot be replicated in TNM. This non-traffic related noise can even include the following: airplane overflights, compression release engine brakes (commonly known as Jake or Jacobs Brakes), transit events, emergency sirens, HVAC systems, lawnmowers (i.e., motorized lawn care activities), or backup alarms. The noise from these external environmental factors was removed from the noise monitoring data when it had a noticeable effect on the monitored noise levels. There are also factors in the noise model that may cause differences with the measured noise levels including level of detail in terrain modeling, and the degree of inclusion of smaller elements such as hard ground zones, tree zones and sparse rows of buildings.

Table 5-2: Noise Model Validation

Site	Monitored Noise Level L_{eq} (dB(A))	Predicted Noise Level Leq (dB(A))	Difference (Predicted Monitored) L_{eq} (dB(A))
ST-1	60.8	62.5	1.7
ST-2	62.8	65.7	2.9
ST-3	62.0	64.8	2.8
ST-4	67.9	70.0	2.1
ST-5	68.5	68.4	-0.1
ST-6	63.1	61.1	-2.0
ST-7	61.5	63.2	1.7
ST-8	62.0	64.1	2.1
ST-9	62.7	63.5	0.8
ST-10	61.4	63.8	2.4
ST-11	66.4	68.3	1.9
ST-12	63.7	63.6	-0.1
ST-13	64.1	65.5	1.4
ST-14	66.2	64.8	-1.4
JAC-1	56.6	58.4	1.8
JAC-2	58.0	59.9	1.9
JAC-3	60.3	60.0	-0.3
JAC-4	61.1	61.5	0.4
JAC-6	57.4	55.9	-1.5
JAC-9	60.0	61.4	1.4
JAC-13	62.5	63.0	0.5
JAC-19	62.1	64.4	2.3
JAC-20	62.5	61.3	-1.2
JAC-22	60.3	62.5	2.2
JAC-25	61.9	61.4	-0.5

[14] Limits have been placed on the number of barriers and the number of ground points that are calculated in TNM. TNM has been designed to handle up to two barrier objects (i.e. existing barriers / retaining walls, multi-story residential / commercial / industrial buildings, objects input using TNM's barrier input tool) located within the source-receiver path. If three or more barrier type objects are encountered, TNM will choose the most effective pair of barriers based on their input heights and then discards all other barrier objects for the remainder of the analysis. TNM next determines how many points in the geometry cause the shortest path from the source to receiver to diffract downward. These "highest path points" (HPPs) could be barriers or ground points, which could be associated with berms, terrain lines or roadways. If three or more HPPs are encountered, TNM will not compute diffraction from all of them, and only the most effective pair is retained for calculation.

Site	Monitored Noise Level L_{eq} (dB(A))	Predicted Noise Level Leq (dB(A))	Difference (Predicted Monitored) L_{eq} (dB(A))
JAC-28	65.3	66.7	1.4
JAC-31	57.6	58.1	0.5
JAC-31B	64.5	65.6	1.1
JAC-32	66.4	66.3	-0.1
JAC-33	58.7	60.2	1.5
JAC-37	62.8	64.3	1.5
JAC-38	68.6	69.7	1.1
JAC-39	66.3	67.9	1.6
JAC-44	69.4	69.8	0.4
JAC-45	63.1	64.3	1.2
JAC-47	63.8	65.2	1.4
		Mean Difference (dB)	**1.4**

The predicted noise level for all 36 monitoring sites was within 3 dB(A) of the monitored levels. This meets the criteria for validation of the TNM models.

5.3 Common Noise Environments

The noise study area was delineated by extending a 500-foot buffer around the proposed edge of pavement of the roadway improvements as defined by the roadway construction limits. This study area was divided into 31 CNEs. CNEs are a group of receptors that are exposed to similar noise sources and levels; traffic volumes, traffic mix, and speed; and topographic features. **Table 5-3** describes the location of each CNE, as well as the land uses found therein. **Appendix A** contains graphics with all the modeled receiver locations by CNE.

Table 5-3. CNE Descriptions

CNE ID	Land Use Description
	Segment A
A	This CNE is located on the eastbound side of I-64, from VA 33/ New Kent Highway to just east of VA 665/ North Henpeck Road. The CNE is comprised of a mix of medium and low density residential suburban lots in the Patriots Landing and Five Lakes subdivisions (NAC B), outdoor recreation facilities at Brookwoods Golf Club (NAC C), and undeveloped woodlands (NAC G). There is an apartment complex, the Hearth at Patriots Landing, planned at the west end of CNE A adjacent to the VA 33/ New Kent Highway interchange. The CNE's noise sensitive land uses include 86 single-family homes, 27 multi-family units, and five golf course tees/holes.
B	This CNE is located on the westbound side of I-64 and extends from VA 33/ New Kent Highway eastward approximately 0.75 miles. The CNE is comprised of low-density residential lots (NAC B) along Walnut Drive, Timber Drive, and Woodbrook Road, and undeveloped woodlands (NAC G). The CNE's noise sensitive land uses include 28 residences, all single-family homes.
C	This CNE is located on the westbound side of I-64, from the west side of VA 665/ North Henpeck Road eastward approximately 0.5 miles. The CNE is comprised of low-density residential lots (NAC B) along Autumn Hills Lane. The CNE's noise sensitive land uses include 10 residences, all single-family homes.
D	This CNE is located on the eastbound side of I-64, from 0.5 miles east of VA 665/ North Henpeck Road to VA 640/ Old Roxbury Road. The CNE is comprised of low-density residential lots (NAC B) and undeveloped woodlands (NAC G). The CNE's noise sensitive land uses include four residences, all single-family homes.
E	This CNE is located on the westbound side of I-64, from just west of VA 640/ Old Roxbury Road eastward approximately 0.2 miles. The CNE is comprised of low-density residential lots (NAC B) and undeveloped woodlands (NAC G). The CNE's noise sensitive land uses include five residences, all single-family homes.
F	This CNE is located on the eastbound side of I-64, from east of VA 640/ Old Roxbury Road eastward approximately 0.4 miles. The CNE is comprised of low-density residential lots (NAC B) accessed from Old Field Lane. The CNE's noise sensitive land uses include seven residences, all single-family homes.

CNE ID	Land Use Description
G	This CNE is located on the westbound side of I-64, from VA 612/ Airport Road westward approximately 0.2 miles. The CNE is comprised of a low-density residential lot (NAC B). The CNE's noise sensitive land use includes one residence, a single-family home.
H	This CNE is located on the westbound side of I-64, from VA 612/ Airport Road eastward approximately 1.3 miles. The CNE is comprised of low-density residential lots (NAC B) along VA 610/ Pine Fork Road. The CNE's noise sensitive land uses include 17 residences, all single-family homes.
I	This CNE is located on the eastbound side of I-64, from VA 612/ Airport Road eastward approximately 0.9 miles. The CNE is comprised of low-density residential lots (NAC B) and agricultural lands (NAC F) accessed from VA 676/ Ashland Farm Road. The CNE's noise sensitive land uses include seven residences, all single-family homes.
J	This CNE is located on the westbound side of I-64, from 0.9 miles west of VA 609/ Emmaus Church Road eastward approximately 0.4 miles. The CNE is comprised of low-density residential lots (NAC B) and Pine Fork Park recreation facilities (NAC C) accessed from VA 610/ Pine Fork Road. Additionally, an area identified as fields at Pine Fork Park is adjacent to the existing developed park. The CNE's noise sensitive land uses include four residences, all single-family homes and a recreational trail.
K	This CNE is located on the eastbound side of I-64, from VA 618/ Olivet Church Road eastward approximately 0.45 miles. The CNE is comprised of low density residential (NAC B) and undeveloped woodlands (NAC G) accessed from VA 677/ Piney Branch Lane. The CNE's noise sensitive land uses include eight residences, all single-family homes.
L	This CNE is located on the eastbound side of I-64, from 0.3 miles west to 1.05 miles east of VA 155/ North Courthouse Road. The CNE is comprised of one low-density residential lot (NAC B), agriculture lands (NAC F), and undeveloped woodlands (NAC G). The CNE's noise sensitive land use includes one residence, a single-family home.
Segment B	
M	This CNE is located on the westbound side of I-64, from VA 627/ Good Hope Road eastward approximately 0.3 miles. The CNE is comprised of low to medium density residential lots (NAC B) and undeveloped woodlands (NAC G). The CNE's noise sensitive land uses include three residences, all single-family homes.
N	This CNE is located on the eastbound side of I-64 from the I-64/ VA 33/ Eltham Road interchange westward approximately 0.3 miles. The CNE is comprised of low density residential (NAC B) electrical transmission facilities (NAC F), undeveloped woodlands (NAC G), and an outdoor recreational use, New Kent Paintball. The CNE's noise sensitive land uses include one single-family home and one recreational use.
O	This CNE is located on the westbound side of I-64 from 0.2 miles west of the I-64/ VA 33/ Eltham Road interchange westward approximately 0.2 miles. The CNE is comprised of low density residential (NAC B), electrical transmission facilities (NAC F), and undeveloped woodlands (NAC G). The CNE's noise sensitive land uses include two residences, both single-family homes.
P	This CNE is located on the westbound side of I-64 and from approximately 0.3 miles west of VA 620/ Homestead Road to 0.25-mile east of VA 621/ Ropers Church Road. The CNE is entirely comprised of low-density rural land uses. The CNE's noise sensitive land uses include six residences, all of which are single-family homes (NAC B).
Q	This CNE is located on the eastbound side of I-64, between Diascund Creek Reservoir and VA 621/ Ropers Church Road. The CNE is comprised of a single property which is permitted to operate as a campground by New Kent County (NAC C). The portion of the campground which lies within the study area does not contain areas of frequent human use; however, a receptor was included to estimate sound levels within the study area.
R	This CNE is located on the eastbound side of I-64, from Ropers Church Road eastward 0.2 miles. The CNE is comprised of an undeveloped lot (NAC G) and a property containing a single-family home (NAC B).
Segment C	
S	This CNE is located on the eastbound side of I-64, from VA 601/ Barnes Road westward approximately 1.0 miles. The CNE is comprised of a mix of undeveloped woodlands (NAC G), low density rural homesteads (NAC B and G), and medium-density suburban land uses (NAC B). The CNE's noise sensitive land uses include 26 parcels containing residences. All 26 are single-family homes.
T	This CNE is located on the westbound side of I-64, from VA 601/ Barnes Road westward approximately 0.5 miles. The CNE is comprised of a single, large property that contains a single-family home (NAC B).
U	This CNE is located on the westbound side of I-64 between VA 601/ Barnes Road and VA 30/ Old Stage Road. The CNE contains a single, large property that contains a single-family home (NAC B). The remaining areas are occupied by undeveloped woodlands (NAC G).
V	This CNE is located on the westbound side of I-64 from VA 30/ Old Stage Road eastward approximately 0.6 miles. The CNE contains the southernmost portion of the Stonehouse Golf Course (NAC C). Specifically, the CNE includes three areas which are considered noise sensitive: one tee box and two putting greens. The remaining areas are occupied by a parking lot (NAC F) and undeveloped woodlands (NAC G).

CNE ID	Land Use Description
W	This CNE is located on the eastbound side of I-64, from VA 600/ Six Mt. Zion Road to Sand Hill Road. The CNE is comprised mostly of low-density rural land uses, including twenty parcels containing residences. All twenty residences are single-family homes (NAC B). The remaining area is occupied by undeveloped woodlands (NAC G).
X	This CNE is located on the eastbound side of I-64, from US 30/ Rochambeau Drive westward approximately 0.3 miles. The CNE is comprised of rural homesteads (NAC-B), agricultural fields (NAC F), and undeveloped woodland (NAC G). The CNE's noise sensitive land uses include two residences, all single-family homes.
Y	This CNE is located on the westbound side of I-64, from VA 607/ Croaker Road westward approximately 1.1 miles. The CNE is comprised of a mix of rural homesteads (NAC B), agricultural fields (NAC F), and undeveloped woodlands. The CNE's noise sensitive properties include seven residences, all single-family homes.
Z	This CNE is located on the eastbound side of I-64, from VA 607/ Croaker Road westward approximately 0.5 miles. This CNE includes one property containing a single-family home (NAC B), the grounds surrounding the Faith Baptist Church (NAC D), and the northern half of the Williamsburg RV and Camping Resort (NAC C). There are no outdoor areas of frequent human use at the Faith Baptist Church; therefore, the corner of the church was assessed to determine interior sound levels. The portion of the Campground that falls within the CNE boundary includes outdoor recreation facilities (e.g., mini-golf course, horseshoe pits, shuffleboard court, etc.), an indoor pool, six rental cabins, permanent housing for the campground's staff, and numerous sites for RVs.
AA	This CNE is located on the westbound side of I-64 between 0.4 mile east of VA 607/ Croaker Road to 0.2 mi west of Fenton Mill Road. The CNE is comprised of undeveloped woodlands (NAC G) and medium-density suburban land uses (NAC B). The CNE's noise sensitive land uses include four residences, all of which are single family homes.
AB	This CNE is located on the eastbound side of I-64 between VA 607/ Croaker Road and 0.2 miles east of Wilderness Lane. The CNE is comprised of undeveloped woodlands (NAC G) and medium-density suburban land uses (NAC B). The CNE's noise sensitive land uses include 26 residences, all of which are single family homes.
AC	This CNE is located on the westbound side of I-64 from Fenton Mill Road eastward approximately 0.3 miles. The CNE is comprised of a mix of undeveloped woodlands (NAC G) and medium density suburban lots (NAC B). The CNE's noise sensitive land uses include 15 residences, all single-family homes.
AD	The CNE is located on the eastbound side of I-64, from 0.2 miles east of Wilderness Lane eastward approximately 0.5 miles. The CNE is comprised of undeveloped woodlands (NAC G) and low density suburban lots (NAC B). The CNE's noise sensitive land uses include two residences, both of which are single family homes.
AE	The CNE is located on the westbound side of I-64, from 0.4 miles east of Wilderness Lane eastward approximately 0.4 miles. The CNE is comprised of undeveloped woodlands (NAC G) and medium density suburban lots (NAC B). The CNE's noise sensitive land uses include two residences, both of which are single family homes.

All residential receptors were modeled under NAC B. Receptors at outdoor recreational areas were modeled under NAC C. Interior noise levels for places of worship were modeled under NAC D[15]. **Appendix A** contains graphics with all the modeled receiver locations by CNE.

5.4 Selection of the Loudest Noise Hour

As required by FHWA and VDOT, the noise analysis was performed for the loudest "worst noise" hour of the day. According to FHWA guidance, the "worst hourly traffic noise impact" occurs at a time when truck volumes and vehicle speeds are the greatest, typically when traffic is free flowing and at or near level of service (LOS) C conditions (FHWA, 2011).

While the peak traffic hour often coincides with the loudest noise hour of the day, there are some conditions which would require the evaluation of non-peak traffic hours to determine the loudest noise hour of the day. Specifically, this can occur when the combination of peak hour traffic volumes and

[15] Exterior receptors were used to evaluate the interior noise levels within the project area. Since the exterior for the evaluated buildings are largely composed of masonry material and appear to have modern air conditioning installed, the reduction in noise levels in the interior as a result of the building is predicted to be 25 dB(A) (FHWA, 2011).

operational speeds approach the capacity of a facility (LOS E or worse), or when there are substantial differences in truck percentages between the peak and off-peak hours (FHWA, 2015).

5.4.1 Methodology

Traffic data for the traffic noise study were developed using the VDOT ENTRADA: Environmental Traffic Data Tool, with traffic data prepared by WRA in coordination with VDOT (VDOT, 2020). The ENTRADA output was imported into VDOT's web application Loudest Hour Determination Tool for identifying loudest hours for noise modeling purposes. This predictive screening tool calculates reference L_{eq}'s at 50 feet for the most common TNM[16] vehicle types (e.g. autos, medium trucks, and heavy trucks), utilizing interrupted operational speeds and hourly peak-hour volumes (for each hour of the day) over flat ground. The data from the loudest hour spreadsheet was then used to estimate the total sound levels associated with both directions of the Interstate by using the following methodology.

- For receptors on the westbound side of I-64, it was assumed that the westbound roadway (the near roadway) was 50 feet from the representative receptor, while the eastbound roadway (the far roadway) was 175 feet from the receptor (using the following formula [*change in sound level = 10Log (distance 2/distance 1) where distance 1 = 50 feet and distance 2 = 175 feet]*). Then the sound levels for each side were logarithmically added to estimate the total sound level.
- For receptors on the eastbound side of I-64, it was assumed that the eastbound roadway (the near roadway) was 50 feet from the representative receptor, while the westbound roadway (the far roadway) was 175 feet from the receptor. Then the sound levels for each side were logarithmically added to estimate the total sound level.

A screening worksheet that was prepared for the Build (2048) condition shows the predicted total sound level for each side of the roadway for each hour of the day, then compares those results to the identified maximum level (see **Appendix K**). The hours of 7:00 AM, 8:00 AM, 3:00 PM, and 4:00 PM were identified as the loudest hours in each condition.

Data from these four hours was then further evaluated in TNM for the segments most likely to warrant noise abatement consideration, Exit 205 to 211 (EB 4 and WB 7), Exit 220 to 227 (EB 7 and WB 4), Exit 227 to 231 (EB 8 and WB 3), and Exit 231 to 234 (EB 9 and WB 2) (see **Figure 5-1** and **Table 5-4**). The loudest hour determination process considered the number of receptors within each CNE, giving more consideration to those with more receptors, the loudest hours of the adjacent segments, and how close the results were among the evaluated hours, with the understanding that a difference of 3 dB(A) is considered to be barely perceptible to the human ear.

[16] Federal Highway Administration's (FHWA) Traffic Noise Model (TNM), version 2.5.

Figure 5-1. Traffic Segments

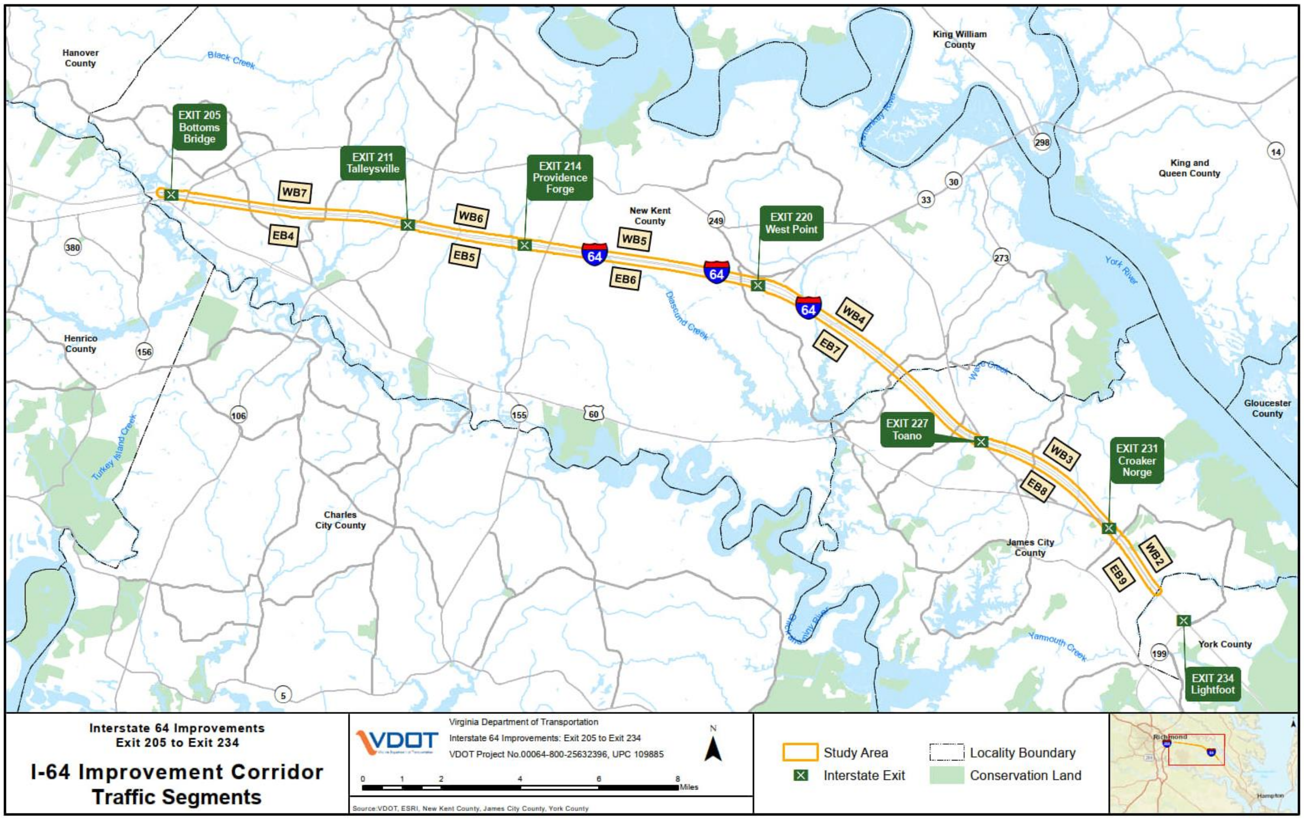

Table 5-4: TNM Results for Loudest Hour Analysis

Segment	Direction	Receptor	# of receptors in CNE	TNM Results (dB(A))					Difference from MAX			
				7:00 AM	8:00 AM	3:00 PM	4:00 PM	MAX	7:00 AM	8:00 AM	3:00 PM	4:00 PM
Exit 205 to 211 (EB4 and WB7)	EB	A-19	93	68.90	69.20	69.10	69.10	69.20	0.3	0	0.1	0.1
	EB	A-49		72.80	73.10	73.00	73.10	73.10	0.3	0	0.1	0
	WB	B-10	28	69.10	69.30	69.20	68.80	69.30	0.2	0	0.1	0.5
	WB	C-07	10	59.70	60.00	59.90	59.60	60.00	0.3	0	0.1	0.4
	EB	F-06	7	67.10	67.40	66.90	66.80	67.40	0.3	0	0.5	0.6
	WB	H-14	17	65.20	65.40	65.30	65.00	65.40	0.2	0	0.1	0.4
Exit 220 to 227) EB7 and WB4	EB	S-14	27	66.90	67.40	67.30	67.00	67.40	0.5	0	0.1	0.4
	EB	S-26		56.50	57.20	56.90	56.30	57.20	0.7	0	0.3	0.9
Exit 227 to 231) EB8 and WB3	EB	W-03	20	68.60	68.80	68.40	68.20	68.80	0.2	0	0.4	0.6
	EB	W-10		66.60	66.80	65.90	65.70	66.80	0.2	0	0.9	1.1
	WB	Y-07	7	63.10	63.40	63.50	63.20	63.50	0.4	0.1	0	0.3
	EB	Z-04	34*	60.70	61.00	60.10	59.70	61.00	0.3	0	0.9	1.3
Exit 231 to 234 (EB9 and WB2)	WB	AA-04	5	69.10	69.50	70.00	69.90	70.00	0.9	0.5	0	0.1
	WB	AA-05		66.80	67.20	67.30	67.20	67.30	0.5	0.1	0	0.1
	EB	AB-11	26	70.00	71.20	70.60	70.50	71.20	1.2	0	0.6	0.7
	EB	AB-17		64.90	65.20	64.20	63.90	65.20	0.3	0	1	1.3
	EB	AB-18		65.90	66.20	65.30	65.10	66.20	0.3	0	0.9	1.1
	EB	AB-20		69.70	69.90	69.10	69.00	69.90	0.2	0	0.8	0.9
	WB	AC-01	15	68.00	68.30	68.90	68.80	68.90	0.9	0.6	0	0.1
	WB	AC-04		67.00	67.40	67.90	67.70	67.90	0.9	0.5	0	0.2
	WB	AC-05		64.50	65.00	65.60	65.30	65.60	1.1	0.6	0	0.3

* Sample receptors used in the LHD may differ from the number of modeling receptors used in the noise impact assessment.

**CNE ZK-04 consists of an RV camping area with 3422 receptors, based upon a 100 x 100- foot grid pattern of receptors representing the area as described in Appendix E of the VDOT Highway Traffic Noise Guidance Manual.

5.4.2 Summary of Loudest Noise Hour

The loudest hours within Exit 205 to 211 (EB 4 and WB 7), in the western portion of the study area, generally occurred in the 8:00 AM and 7:00 AM hours. Since the majority of Segment 4 receptors (60%) are located in CNE A and there is only a difference of 0.3 dB(A) or less between the 7:00 AM hour and the adjacent loudest hours, the 7:00 AM hour was determined to best represent the loudest hour for the western portion of the study area.

The loudest hours within Exit 220 to 227 (EB 7 and WB 4), Exit 227 to 231 (EB 8 and WB 3), and Exit 231 to 234 (EB 9 and WB 2), the eastern portion of the study area, were also generally in the 8:00 AM and 7:00 AM hours. Since CNEs Z and AB have the greatest number of receptors in the eastern portion of the study area and there is only a difference of 1.2 dB(A) or less between the 7:00 AM hour and the adjacent loudest hours, the 7:00 AM hour was determined to best represent the loudest hour for the eastern portion of the study area.

In conclusion, the 7:00 AM is being used as the loudest hour for the entire study corridor.

5.5 Receptor Identification and NAC Categorization

Per the VDOT *Traffic Noise Policy and Guidance Manual*, Section 7.3.7 states that noise analysis is not required for land use Activity Category F as it is not sensitive to highway traffic noise, while Section 7.3.8 states that undeveloped lands per land use Activity Category G are not considered noise sensitive unless there are active building permits predating the Date of Public Knowledge. If an active building permit is identified on undeveloped land, then the land use will be assessed under the appropriate Activity Category. There was one Activity Category G land use with an anticipated building permit identified in this study. The permitted development proposes 27 new residences, which were incorporated into the analysis of CNE A.

A total of 378 noise receivers were modeled to represent 381 noise receptors to predict how the proposed improvements would affect the noise levels throughout the project area. Of the modeled receivers:

- 326 modeled receivers were created to represent 329 residential receptors (NAC B),
- 51 modeled receivers were created to represent 51 receptors located in community facilities with exterior use areas (NAC C),
- 1 modeled receiver was created to represent one interior receptors (NAC D),

Table 5-5 provides a list of receptors and receivers located in each CNE by NAC category. The location of all the receptors modeled in TNM are shown in **Appendix A**.

Table 5-5. Receptor and Receiver Summary by CNE and NAC

CNE	NAC Activity Category (Receiver / Receptor)					
	All	A	B	C	D	E
A	118	-	113	5	-	-
B	28	-	28	-	-	-
C	10	-	10	-	-	-
D	4	-	4	-	-	-
E	5	-	5	-	-	-
F	7	-	7	-	-	-
G	1	-	1	-	-	-
H	17	-	17	-	-	-
I	7	-	7	-	-	-
J	17	-	4	13	-	-
K	8	-	8	-	-	-
L	1	-	1	-	-	-
M	3	-	3	-	-	-
N	2	-	1	1	-	-
O	2	-	2	-	-	-
P	6	-	6	-	-	-
Q	1	-	-	1	-	-
R	1	-	1	-	-	-
S	26	-	26	-	-	-
T	1	-	1	-	-	-
U	1	-	1	-	-	-
V	3	-	-	3	-	-
W	20	-	20	-	-	-
X	2	-	2	-	-	-
Y	7	-	7	-	-	-
Z	34	-	5	28	1	-
AA	4	-	4	-	-	-
AB	26	-	26	-	-	-
AC	12 / 15	-	12 / 15	-	-	-
AD	2	-	2	-	-	-
AE	2	-	2	-	-	-
Total	**378 / 381**	**-**	**326 / 329**	**51**	**1**	**-**

Segment A

CNE A contains 118 receptors, 86 are associated with single-family homes, 27 are associated with a planned three-story apartment complex, and five are associated with Stonehouse Golf Course. Receptors A-55 and A-57 are located within putting greens, and Receptors A-54, A-56, and A-63 are located on tee boxes. A detailed map of CNE A can be found in Figures A-2 to A-4 located in Appendix A.

CNE B contains 28 noise receptors, all of which are associated with single-family homes. A detailed map of CNE B can be found in Figures A-2 and A-3 located in Appendix A.

CNE C contains 10 noise receptors, all of which are associated with single-family homes. A detailed map of CNE C can be found in Figures A-4 and A-5 located in Appendix A.

CNE D contains four noise receptors, all of which are associated with single-family homes. A detailed map of CNE D can be found in Figure A-5 located in Appendix A.

CNE E contains five noise receptors, all of which are associated with single-family homes. A detailed map of CNE E can be found in Figure A-5 and A-6 located in Appendix A.

CNE F contains seven noise receptors. Five of the receptors are associated with single-family homes. The remaining two receptors (F-01 and F-07) are associated with large homesteads which contain residential structures. A detailed map of CNE F can be found in Figures A-5 and A-6 located in Appendix A.**CNE G** contains one noise receptor, which is associated with a single-family home. A detailed map of CNE G can be found in Figure A-7 located in Appendix A.

CNE H includes 17 noise receptors. Sixteen of the receptors are associated with single-family homes. The remaining receptor (H-05) is associated with a large homestead which contains a residential structure. A detailed map of CNE H can be found in Figures A-7 and A-8 located in Appendix A.

CNE I contains seven receptors noise receptors, all of which are associated with single-family homes. A detailed map of CNE I can be found in Figures A-7 and A-8 located in Appendix A.

CNE J contains 17 receptors noise receptors, four of which are associated with single-family homes, 12 are associated with Pine Forest Park, and one is associated with an area identified as fields at Pine Forest Park adjacent to the existing developed park. The park and the planned field are Section 4(f) resources. A detailed map of CNE J can be found in Figure A-9 located in Appendix A.

CNE K contains eight noise receptors, all of which are associated with single-family homes. A detailed map of CNE K can be found in Figures A-12 and A-13 located in Appendix A.

CNE L contains one noise receptor which is associated with a single-family home. A detailed map of CNE L can be found in Figures A-15 and A-16 located in Appendix A.

Segment B

CNE M contains three noise receptors, all of which are associated with single-family homes. A detailed map of CNE M can be found in Figures A-21 and A-22 located in Appendix A.

CNE N contains two noise receptors, one of which is a single-family home and one is a community facility. A detailed map of CNE N can be found in Figure A-22 located in Appendix A.

CNE O contains two receptors, all of which are associated with single-family homes. A detailed map of CNE O can be found in Figure A-22 located in Appendix A.

CNE P contains six receptors, all of which are associated with single-family homes. A detailed map of CNE P is provided in Figures A-26 to A-28 in Appendix A**.**

CNE Q contains one receptor which is associated with a structure located near the campground's entrance. The receptor is located on the grounds surrounding one of the campground's structures. The portion of the campground which lies within the study area does not contain areas of frequent human use; however, this receptor was included to estimate sound levels within the study area. A detailed review of this area's usage will be evaluated in final design. A detailed map of CNE Q is provided in Figure A-27 in Appendix A.

CNE R contains one receptor which is associated with a single-family home. A detailed map of CNE R is provided in Figures A-27 and A-28 in Appendix A.

Segment C

CNE S contains 26 receptors. Twenty-five of the receptors are associated with single-family homes. The remaining receptor (S-02) is associated with a large homestead which contains a residential structure. A detailed map of CNE S is provided in Figures A-29 and A-30 in Appendix A.

CNE T contains one receptor which is associated with a single-family home. A detailed map of CNE T is provided in Figure A-30 in Appendix A.

CNE U contains one receptor which is associated with a single-family home. A detailed map of CNE T is provided in Figures A-30 and A-31 in Appendix A**.**

CNE V contains three receptors, all of which are associated with portions of the Stonehouse Golf Course. Receptors V-01 and V-02 are located within putting greens, and Receptor V-03 is located on a tee box. A detailed map of CNE V is provided in Figures A-31 and A-32 in Appendix A.

CNE W contains 20 receptors, all of which are associated with single-family homes. A detailed map of CNE W is provided in Figures A-33 and A-34 in Appendix A.

CNE X contains two receptors, both of which are associated with a single-family home. A detailed map of CNE X is provided in Figure A-35 in Appendix A.

CNE Y contains seven receptors. Five of the receptors are associated with single-family homes. The remaining two receptors (Y-02 and Y-05) are associated with large homesteads which contain residential structures. A detailed map of CNE Y is provided in Figures A-34 to A-36 in Appendix A.

CNE Z contains a total of 34 receptors. Receptor Z-1 is in the grounds of the Faith Baptist Church. Since the grounds do not contain areas of frequent human use, this receptor was not used to make impact or abatement determinations. Receptor Z-02 is associated with a single-family home. The remaining receptors are associated with use areas throughout the Williamsburg RV and Camping Resort. Receptors Z-07, Z-08, Z-16, and Z-22 are associated with permanent housing used by the Resort's staff. The permanent housing consists of four mobile homes used by the campground's caretakers year-round. The remaining receptors are associated with communal use areas (*i.e.,* recreational facilities, fire pits, and picnic areas), camp sites, and rental cabins. A detailed review of this area's usage will be evaluated in final design. A detailed map of CNE Z is provided in Figures A-35 and A-36 in Appendix A.

CNE AA contains four receptors, all of which are associated with single-family homes. A detailed map of CNE AA is provided in Figures A-37 and A-38 in Appendix A.

CNE AB contains 26 receptors, all of which are associated with single-family homes. A detailed map of CNE AB is provided in Figures A-37 and A-38 in Appendix A**.**

CNE AC contains 12 receptors, representing 15 single-family homes. A detailed map of CNE AC is provided in Figures A-37 and A-38 in Appendix A.

CNE AD contains two receptors, both of which are associated with single-family homes. A detailed map of CNE AD is provided in Figure A-38 in Appendix A.

CNE AE contains two receptors, both of which are associated with single-family homes. A detailed map of CNE AE is provided in Figure A-38 in Appendix A.

6.0 Noise Impact Evaluation

Assessment of traffic noise impact requires these comparisons:

- The noise levels under Existing conditions must be compared to those under the Build Alternative. This comparison shows the change in noise levels that would occur between the existing year and the design year if the project is constructed, to determine if the substantial increase impact criteria has been met; and
- The noise levels under Build Alternative must be compared to the applicable NAC. This comparison determines if the impact criteria has been met under the Build Alternative and can be used to assist in noise compatible land use planning.

6.1 Evaluation of the No-Build Alternative

An evaluation of the No-Build Alternative was completed per Section 6.4.7 of VDOT's *Highway Traffic Noise Guidance Manual*. Under the NEPA requirements, the No-Build Alternative analysis assists with making informed decisions on whether future increases in noise levels (i.e., associated with the Build Alternative) over the No-Build Alternative would be considered "significant." The noise increase in the Build Alternative over the No-Build Alternative per receptor would average 0.6 dB(A). All noise impacts in the No Build Alternative would also be present in the Build Alternative. Under the No Build Alternative, exterior noise levels are predicted to range from 47 to 74 dB(A), with impacts predicted at 76 receivers, including 68 residential receptors and 10 community facility receptors. Predicted sound levels for every receptor in the No-Build Alternative are provided in **Appendix B**.

6.2 Evaluation of the Build Alternative

Noise levels in the noise study area were predicted using separate TNM runs for the Existing Conditions (2019), the No Build Alternative (2048) and the Build Alternative (2048)[17]. For all modeled receptors, the Build Alternative noise levels are predicted to range from 48 to 74 dB(A). Most CNEs show a slight increase in sound levels between the No Build and Build Alternatives. This increase is caused by the distribution of traffic volumes over three lanes instead of two lanes, with the third lane being further from the receptors and the median berm being removed in most locations.

The Build Alternative is predicted to impact 112 receivers, representing 97 residential receptors and 17 community facility receptors. None of the sites are predicted to be impacted under the substantial increase criterion. The following section describes the loudest hour sound levels expected to occur at each CNE in the Build Year (2048) condition if the proposed improvements are implemented. **Table 6-1** provides a summary of how noise conditions are expected to change in each CNE if the proposed improvements are completed.

[17] The TNM files are retained in VDOT's technical files.

Table 6-1. Build Condition Predicted Sound Levels

CNE	Map Figure Number(s) Appendix A	Number of Receptors	NAC Activity Category	Predicted Range of Sound Levels (dB(A))[1]	Predicted Increase over Existing Conditions (dB(A))	Predicted Increase over No Build Alternative[2] (dB(A))	Total Number of Impacted Receptors
				Segment A			
A	A-2 to A-4	118	B, C	48 to 74	0.7 to 2.0	0.6 to 3.1	16
B	A-2 to A-3	28	B	55 to 73	1.2 to 2.8	-0.2 to 1.1	11
C	A-4 to A-5	10	B	56 to 68	1.5 to 2.7	0.3 to 1.1	1
D	A-5	4	B	58 to 69	1.4 to 1.8	-0.3 to 0.4	3
E	A-5 and A-6	5	B	62 to 66	1.3 to 1.7	-0.2 to 0.2	1
F	A-5 and A-6	7	B	58 to 68	1.5 to 1.9	-0.2 to 0.3	1
G	A-7	1	B	63	1.4	0.3	0
H	A-7 and A-8	17	B	55 to 73	0.9 to 3	-0.1 to 1.7	5
I	A-7 and A-8	7	B	59 to 70	1.7 to 2.2	0.3 to 1	2
J	A-9	17	B, C	60 to 68	1.5 to 2.3	0.2 to 1	6
K	A-12 and A-13	8	B	57 to 69	0.7 to 2.6	-0.3 to 1.5	1
L	A-15 and A-16	1	B	70	1.3	0.2	1
				Segment B			
M	A-21 and A-22	3	B	64 to 70	1.2 to 1.3	0.1 to 0.2	2
N	A-22	2	B, C	66 to 69	1.0 to 1.5	0 to 0.5	2
O	A-22	2	B	57	1.7 to 1.9	0.4 to 0.7	0
P	A-26 to A-28	6	B	58 to 67	1.0 to 2.8	0.1 to 1.9	2
Q	A-27	1	C	63	2.2	1.2	0
R	A-27 and A-28	1	B	60	1.8	0.8	0
				Segment C			
S	A-29 and A-30	26	B	54 to 68	1.4 to 2.9	0.4 to 1.5	3
T	A-30	1	B	60	2.5	1.3	0
U	A-30 and A-31	1	B	65	1.3	0.2	0
V	A-31 and A-32	3	C	50 to 71	1.7 to 2.1	0.2 to 0.8	1
W	A-33 and A-34	20	B	57 to 70	2.0 to 4.6	0.9 to 3.3	12
X	A-35	2	B	68 to 69	2.1 to 2.6	1.0 to 1.4	2
Y	A-34 to A-36	7	B	62 to 73	1.8 to 3.1	0.7 to 1.7	4
Z	A-35 and A-36	34	B, C, D	56 to 69	1.7 to 2.9	0 to 1.3	10
AA	A-37 and A-38	4	B	68 to 72	2.8 to 3.9	1.8 to 3.3	4
AB	A-37 and A-38	26	B	61 to 73	2.0 to 4.6	0.6 to 4.8	14
AC	A-37 and A-38	15	B	59 to 71	2.8 to 3.6	1.7 to 2.8	8
AD	A-38	2	B	64 to 70	3.6 to 3.7	4.2 to 4.9	1
AE	A-38	2	B	65 to 67	3.2 to 3.3	3.0 to 3.3	1
TOTALS				**48 to 74**	**0.7 to 4.6**	**-0.3 to 4.9**	**114**

[1] Sound level ranges for interior NAC D sites are shown as the exterior equivalent sound level. A 25 dB(A) noise reduction factor was applied to the one interior site based on the building material and window type/condition per FHWA guidance. This calculated sound level was compared to the NAC to identify impacts. Refer to Appendix B for the predicted sound levels.

For a detailed list of existing, no build, and build condition noise levels by receptor, see **Appendix B**. Figures displaying the location of each receptor are provided in **Appendix A**. The graphics in **Appendix A** also illustrate the noise study area boundary as well as the modeled results for the 2048 Build Alternative.

Segment A

CNE A contains 118 receivers, representing 113 residential receptors and five recreational receptors (see **Table 5-5** and **Figures A-2 to A-4**). Under existing year (2019) conditions, five residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, 9 receptors representing 9 residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, 16 receptors representing 16 residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE A and is discussed in Section 7.4 below.

CNE B contains 28 receivers, representing 28 residential receptors (see **Table 5-5** and **Figures A-2 and A-3**). Under existing year (2019) conditions, 11 residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, 11 receptors representing 11 residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, 11 receptors representing 11 residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE B and is discussed in Section 7.4 below.

CNE C contains 10 receivers, representing 10 residential receptors (see **Table 5-5** and **Figures A-4 and A-5**). Under existing year (2019) conditions, one residential receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE C and is discussed in Section 7.4 below.

CNE D contains four receivers, representing four residential receptors (see **Table 5-5** and **Figure A-5**). Under existing year (2019) conditions, three residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, three receptors representing three residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, three receptors representing three residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE D and is discussed in Section 7.4 below.

CNE E contains five receivers, representing five residential receptors (see **Table 5-5** and **Figures A-5 and A-6**). Under existing year (2019) conditions, no residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE E and is discussed in Section 7.4 below.

CNE F contains seven receivers, representing seven residential receptors (see **Table 5-5** and **Figures A-5 and A-6**). Under existing year (2019) conditions, one residential receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE F and is discussed in Section 7.4 below.

CNE G contains one receiver, representing one residential noise receptor (see **Table 5-5** and **Figure A-7**). Under existing year (2019) conditions, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no-build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were not found to exceed the NAC, consideration of noise abatement is not warranted for CNE G and is not discussed in Section 7.4 below.

CNE H contains 17 receivers, representing 17 residential receptors (see **Table 5-5** and **Figures A-7 and A-8**). Under existing year (2019) conditions, three residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, four receptors representing four residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, five receptors representing five residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE H and is discussed in Section 7.4 below.

CNE I contains seven receivers, representing seven residential receptors (see **Table 5-5** and **Figures A-7 and A-8**). Under existing year (2019) conditions, one residential receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE I and is discussed in Section 7.4 below.

CNE J contains 17 receivers, representing four residential receptors and 13 recreational receptors (see **Table 5-5** and **Figure A-9**). Under existing year (2019) conditions, no residential or recreational receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, four receptors representing four recreational sites are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, six receptors representing six recreational sites are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE J and is discussed in Section 7.4 below.

CNE K contains eight receivers, representing eight residential receptors (see **Table 5-5** and **Figures A-12 and A-13**). Under existing year (2019) conditions, one residential receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE K and is discussed in Section 7.4 below.

CNE L contains one receiver representing a single residential receptor (see **Table 5-5** and **Figures A-15 and A-16**). Under existing year (2019) conditions, one residential receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE L and is discussed in Section 7.4 below.

Segment B

CNE M contains three receivers, representing three residential receptors (see **Table 5-5** and **Figures A-21 and A-22**). Under existing year (2019) conditions, two residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE M and is discussed in Section 7.4 below.

CNE N contains two receivers, representing one residential receptor and one recreational receptor (see **Table 5-5** and **Figure A-22**). Under existing year (2019) conditions, one residential receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under design year (2048) no-build condition, two receptors representing one residence and one recreational site facility are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under design year (2048) build condition, two receptors representing one residence and one recreational site are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE N and is discussed in Section 7.4 below.

CNE O contains two receivers, representing two residential receptors (see **Table 5-5** and **Figure A-22**). Under existing year (2019) conditions, none of the residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year

(2048) no-build condition, the residential receptors are not expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, the residential receptors are not expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were not found to exceed the NAC, consideration of noise abatement is not warranted for CNE O and is not discussed in Section 7.4 below.

CNE P contains six receivers, representing six residential receptors (see **Table 5-5** and **Figure A-26 to A-28**). Under the existing year (2019) conditions, none of the residential receptors is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE P and is discussed in Section 7.4 below.

CNE Q contains one receiver, representing one recreational receptor (see **Table 5-5** and **Figure A-27**). Under the existing year (2019) conditions, the recreational receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, the recreational receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, the recreational receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were not found to exceed the NAC, consideration of noise abatement is not warranted for CNE Q and is not discussed in Section 7.4 below.

CNE R contains one receiver, representing one residential receptor (see **Table 5-5** and **Figures A-27 and A-28**). Under the existing year (2019) conditions, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were not found to exceed the NAC, consideration of noise abatement is not warranted for CNE R and is not discussed in Section 7.4 below.

Segment C

CNE S contains 26 receivers, representing 26 residential receptors (see **Table 5-5** and **Figures A-29 and A-30**). Under the existing year (2019) conditions, two residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, three receptors representing three residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE S and is discussed in Section 7.4 below.

CNE T contains one receiver, representing one residential receptor (see **Table 5-5** and **Figure A-30**). Under the existing year (2019) conditions, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were not found to exceed the NAC, consideration of noise abatement is not warranted for CNE T and is not discussed in Section 7.4 below.

CNE U contains one receiver, representing one residential receptor (see **Table 5-5** and **Figures A-30 and A-31**). Under the existing year (2019) conditions, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, the residential receptor is not expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were not found to exceed the NAC, consideration of noise abatement is not warranted for CNE U and is not discussed in Section 7.4 below.

CNE V contains three receivers, representing three recreational receptors (see **Table 5-5** and **Figures A-31 and A-32**). Under the existing year (2019) conditions, one recreational receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, one receptor representing one recreational site is expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, one receptor representing one recreational site is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE V and is discussed in Section 7.4 below.

CNE W contains 20 receiver(s), representing 20 residential receptors (see **Table 5-5** and **Figures A-33 and A-34**). Under the existing year (2019) conditions, six residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, eight receptors representing eight residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, 12 receptors representing 12 residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE W and is discussed in Section 7.4 below.

CNE X contains two receivers, representing two residential receptors (see **Table 5-5** and **Figure A-35**). Under the existing year (2019) conditions, two residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, two receptors representing two residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE X and is discussed in Section 7.4 below.

CNE Y contains seven receivers, representing seven residential receptors (see **Table 5-5** and **Figures A-34 to A-36**). Under the existing year (2019) conditions, four residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, four receptors representing four residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, four receptors representing four residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE Y and is discussed in Section 7.4 below.

CNE Z contains 34 receiver(s), representing five residential receptors, 28 recreational receptors, and one interior receptor (see **Table 5-5** and **Figures A-35 and A-36**). Under the existing year (2019) conditions, three recreational receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, five receptors representing one residence and four recreational sites are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, 10 receptors representing one residential and nine recreational sites are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE Z and is discussed in Section 7.4 below.

CNE AA contains four receivers, representing four residential receptors (see **Table 5-5** and **Figures A-37 and A-38**). Under the existing year (2019) conditions, three residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, four receptors representing four residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, four receptors representing four residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE AA and is discussed in Section 7.4 below.

CNE AB contains 26 receivers, representing 26 residential receptors (see **Table 5-5** and **Figures A-37 and A-38**). Under the existing year (2019) conditions, six residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, three receptors representing three residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, 14 receptor(s) representing 14 residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE AB and is discussed in Section 7.4 below.

CNE AC contains 12 receivers, representing 15 residential receptors (see **Table 5-5** and **Figures A-37 and A-38**). Under the existing year (2019) conditions, four receivers representing six residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, four receptors representing six residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, six receptors representing eight residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE AC and is discussed in Section 7.4 below.

CNE AD contains two receiver(s), representing two residential receptors (see **Table 5-5 and Figure A-38**). Under the existing year (2019) conditions, one residential receptor is expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, neither of the receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE AD and is discussed in Section 7.4 below.

CNE AE contains two receivers, representing two residential receptors (see **Table 5-5 and Figure A-38**). Under the existing year (2019) conditions, neither of the residential receptors are expected to experience noise levels which approach or exceed the applicable NAC criterion (see Appendix B). Under the design year (2048) no build condition, neither of the receptors representing residences are expected to experience noise levels which approach or exceed the applicable NAC criterion. Under the design year (2048) build condition, one receptor representing one residence is expected to experience noise levels which approach or exceed the applicable NAC criterion. Since design year build noise levels were found to exceed the NAC, consideration of noise abatement is warranted for CNE AE and is discussed in Section 7.4 below.

6.3 Constructive Use Evaluation of Section 4(f) Properties

23 CFR 774.15(f) states that a noise-related constructive use does not occur if one of two conditions are meet. The first condition is that the predicted noise levels do not exceed the applicable NAC. The second condition is that, if the projected noise levels exceed the relevant NAC because of high existing noise, the increase in the projected noise levels if the proposed project is constructed, when compared with the projected noise levels if the project is not built, is barely perceptible (3 dB(A) or less). Based on these conditions, none of the Section 4(f) properties located within the study area are expected to experience a constructive use due to the presence of intensification of highway noise (see **Table 6-2**).

Table 6-2. Noise Condition Summary for Section 4(f) Resources

4(f) Property	Representative Receptor	Loudest Hour Noise Levels			
		Existing	No Build Alternative	Build Alternative (2048)	Relative Change Between No Build and Build
Pine Forest Park	J-05	59	60	61	1
	J-06	61	62	63	1
	J-07	62	63	64	1
	J-08	62	63	64	1
	J-09	62	64	65	1
	J-10	64	65	66	1
	J-11	65	66	67	1
	J-12	65	66	67	1
	J-13	65	67	68	1
	J-14	65	66	67	1
	J-15	63	65	66	1
	J-16	61	63	64	1
Area Identified as Fields at Pine Forest Park	J-17	59	61	61	0

7.0 Noise Abatement Determination

Noise Abatement Determination has three phases. The first phase determines if highway traffic noise abatement consideration is warranted for the affected communities and/or affected receptors. The warranted criterion specifically pertains to traffic noise impacted receptors, defined back in **Section 6.0**. Since predicted noise levels for the future design year (2048) build condition either approach or exceed the NAC, per VDOT's *State Noise Abatement Policy*, noise abatement considerations are warranted for these impacted noise sensitive areas.

Once noise abatement consideration is determined to be warranted, the process proceeds to Phases 2 and 3. These phases address the feasibility and reasonableness, respectively, of the noise abatement measures being considered. The criteria associated with these measures is discussed in **Sections 7.1** and **7.2**. Following the completion of all three phases, a determination can be made regarding the feasibility and reasonableness of the noise abatement options.

7.1 Abatement Measures Evaluation

FHWA/VDOT guidelines recommend a variety of mitigation measures that should be considered in response to transportation-related noise impacts. While noise barriers and/or earth berms are generally the most effective form of noise mitigation, additional mitigation measures exist which have the potential to provide considerable noise reductions, under certain circumstances. Mitigation measures considered for this project include:

- Traffic control measures;
- Alteration of horizontal and vertical alignments;
- Acoustical insulation of public use and non-profit facilities;
- Acquisition of buffering land;
- Construction of noise barriers; and
- Construction of earth berms.

Additionally, the Noise Policy Code of Virginia (HB 2577, as amended by HB 2025) states:

> *"Whenever the Commonwealth Transportation Board or the Department plan for or undertake any highway construction or improvement project and such project includes or may include the requirement for the mitigation of traffic noise impacts, first consideration should be given to the use of noise reducing design and low noise pavement materials and techniques in lieu of construction of noise walls or sound barriers. Vegetative screening, such as the planting of appropriate conifers, in such a design would be utilized to act as a visual screen if visual screening is required. Consideration will be given to these measures during the final design stage, where feasible."*

7.1.1 Traffic Control Measures (TCM)

Traffic control measures, such as speed limit restrictions, truck traffic restrictions, and other traffic control measures that may be considered for the reduction of noise emission levels are not practical for this project. These traffic control measures would be counterproductive to the project's objective of alleviating traffic and reducing congestion. Reducing speeds will not be an effective noise mitigation measure since a substantial decrease in speed is necessary to provide adequate noise reduction. Typically, a 10-mph reduction in speed will result in only a 2 dB(A) decrease in noise level, which would not effectively reduce impacts.

7.1.2 Alteration of Horizontal and Vertical Alignments

The alteration of the horizontal and vertical alignment has been considered to reduce or eliminate the impacts created by the proposed project. Shifting the horizontal alignment to the outside or inside will create undesirable impacts such as right-of-way acquisition, temporary/permanent easements, and retaining walls. Furthermore, shifting the roadway alignment away from the impacted residences will increase impacts to other residences located on the opposite side of the interstate.

7.1.3 Acoustical Insulation of Public Use and Non-Profit Facilities

This noise abatement measure option applies only to public and institutional use buildings. Since no public use or institutional structures are anticipated to have interior noise levels exceeding FHWA's interior NAC, this noise abatement option will not be applied.

7.1.4 Acquisition of Buffering Land

The purchase of property for the creation of a "buffer zone" to reduce noise impacts is only considered for predominantly unimproved properties. This is because the amount of property required for this option to be effective can create significant additional impacts (e.g., in terms of residential displacements). In urbanized areas, the social and financial cost of displacements outweigh the acoustic benefits.

7.1.5 Construction of Berms & Noise Barriers

Construction of noise barriers can be an effective way to reduce noise levels in areas of outdoor activity. Noise barriers can be wall structures, earthen berms, or a combination of the two. The effectiveness of a noise barrier depends on the distance and elevation difference between roadway and receptor and the available placement location for a barrier. Gaps between overlapping noise barriers also decrease the effectiveness of the barrier, as opposed to a single continuous barrier. The barrier's ability to attenuate noise decreases as the gap width increases.

Noise barriers and earth berms are often implemented into the highway design in response to the identified noise impacts. The effectiveness of a freestanding (post and panel) noise barrier and an earth berm of equivalent height are relatively consistent; however, an earth berm is perceived as a more aesthetically pleasing option. In contrast, the use of earth berms is not always an option due to the excessive space they require adjacent to the roadway. At a standard slope of 2:1, every foot in height would require four feet of horizontal width. This requirement becomes more difficult to meet in urban settings where residential properties often abut the target roadway. In these situations, implementation of earth berms can require significant property acquisitions to accommodate noise mitigation, and the cost associated with the acquisition of property to construct a berm can significantly increase the total cost to implement this form of noise mitigation to the point it becomes unreasonable.

Availability of fill material to construct the berm also needs to be considered. On proposed projects where proposed grading yields excess waste material, earth berms can often be a cost-effective mitigation option. On balance or borrow projects the implementation of earth berms is often an expensive solution due to the need to identify, acquire, and transport the material to the project site. Earth berms may be considered a viable mitigation option throughout the project area and would be evaluated further where possible in the final design stage.

As a general practice, noise barriers are most effective when placed at a relatively high point between the roadway and the impacted noise sensitive land use. To achieve the greatest benefit from a potential noise barrier, the goal of the barrier should focus on breaking the line-of-sight (to the greatest degree possible) from the roadway to the receptor. In roadway fill conditions, where the highway is above the natural grade, noise barriers are typically most effective when placed on the edge of the roadway shoulder or on top of the fill slope. In roadway cut conditions, where the roadway is located below the natural grade, barriers are typically most effective when placed at the top of the cut slope. Engineering and safety issues have the potential to alter these typical barrier locations.

7.2 Feasibility Criterion for Noise Barriers

All receptors that meet the warranted criterion must progress to the "feasible" phase. Phase 2 of the noise abatement criteria requires that both of the following acoustical and engineering conditions be met:

- At least a 5 dB(A) highway traffic noise reduction at impacted receptors. Per 23 CFR 772, FHWA requires the highway agency to determine the number of impacted receptors required to achieve at least 5 dB(A) of reduction. VDOT requires that fifty percent (50%) or more of the impacted receptors experience five (5) dB(A) or more of insertion loss to be feasible; and
- The determination that it is possible to design and construct the noise abatement measure. Factors related to the design and construction would include safety, barrier height, topography, drainage, utilities, and maintenance of the abatement measure, maintenance access to adjacent properties, and general access to adjacent properties (i.e., arterial widening projects).

The noise abatement measure is said to be feasible if it meets both criteria.

7.3 Reasonableness Criteria

All receptors that meet the feasibility criterion must progress to the "reasonableness" phase. Phase 3 of the noise abatement criteria requires that all of the following conditions be considered:

- VDOT's Noise Reduction Design Goal,
- Cost-effectiveness Value, and
- The viewpoints of the Benefited Receptors.

7.3.1 Noise Reduction Design Goal

The design goal is a reasonableness factor indicating a specific reduction in noise levels that VDOT uses to identify that a noise abatement measure effectively reduces noise. The design goal establishes a criterion, selected by VDOT, which noise abatement must achieve. VDOT's noise reduction design goal is defined as a 7 dB(A) of insertion loss for at least one impacted receptor, meaning that at least one impacted receptor is predicted to achieve a 7 dB(A) or greater noise reduction with the proposed barrier in place. The design goal is not the same as acoustic feasibility, which defines the minimum level of effectiveness for a noise abatement measure. Acoustic feasibility indicates that the noise abatement measure can, at a minimum, achieve a discernible reduction in noise levels.

Noise reduction is measured by comparing the future design year build condition pre-and post-barrier noise levels. This difference between unabated and abated noise levels is known as “insertion loss” (IL). It is important to optimize the noise barrier design to achieve the most effective noise barrier in terms of both noise reduction (insertion losses) and cost. Although at least a 5 dB(A) reduction is required to meet the feasibility criteria, the following tiered noise barrier abatement goals are used to govern barrier design and optimization:

- Reduction of future highway traffic noise by 7 dB(A) at one (1) or more of the impacted receptor sites (required criterion),
- Reduction of future highway traffic noise levels to the low-60-decibel range when practical (desirable), and
- Reduction of future highway traffic noise levels to existing noise levels when practical (desirable).

7.3.2 Cost-effectiveness

Typically, the limiting factor related to barrier reasonableness is the cost effectiveness value, where the total surface area of the barrier is divided by the number of benefited receptors receiving at least a five dB(A) reduction in noise level. VDOT’s approved cost is based on a maximum square footage of abatement per benefited receptor, a maximum value of 1,600 square feet per benefited receptor (SF/BR).

Where multi-family housing includes balconies at elevations that exceed a 30-foot-high noise barrier or the topography causes receptors to be above the elevation of a 30-foot barrier, these receptors are not assessed for barrier benefits and are not included in the computation of the barrier’s reasonableness.

For non-residential properties such as parks and public use facilities, a special calculation is performed to quantify the type and duration of activity and compare to the cost effectiveness criterion. The determination is based on cost, severity of impact (both in terms of noise levels and the size of the impacted area and the activity it contains), and amount of noise reduction.

7.3.3 The Viewpoints of the Benefited Receptors

VDOT shall solicit the viewpoints of all benefited receptors through certified mailings and obtain enough responses to document a decision as to whether there is a desire for the proposed noise abatement measure. Fifty percent (50%) or more of the respondents shall be required to favor the noise abatement measure in determining reasonableness. Community views in and of themselves are not sufficient for a barrier to be found reasonable if one or both of the other two reasonableness criteria are not satisfied.

7.4 Noise Barrier Evaluation

Of the 34 noise barriers assessed in this preliminary study, five new noise barriers evaluated in the Build alternative were found to be both feasible and reasonable per the VDOT three-phased approach to noise abatement determination and, as such, are recommended for further consideration during final design. The abatement determinations made in this section will be re-evaluated when the project enters final design.

At an average of 1,563 square feet of abatement per benefited receptor, the five recommended barriers total 8,546 feet in length and 168,319 square feet in area and would benefit 23 recreational locations and 73 residences. Of the 44 impacted receptors benefited by the recommended barriers, 73 percent, or 32 receptors, would receive the desired noise reduction design goal of 7-dB(A) insertion loss.

Noise barriers have the potential to reflect sound from the highway; this effect typically occurs with parallel noise barriers (*i.e.*, a barrier located on both sides of the highway) or combinations of noise barriers and retaining walls. Typically, reflected noise occurs when the distance between reflective surfaces is less than 20 times the height of the barriers. At this distance, the barriers can create reverberations by reflecting sound back and forth across a roadway multiple times, potentially increasing noise levels at receptors and degrading acoustical performance in both barriers. As currently proposed, there are two proposed barriers that would fall under the definition of parallel noise barriers. The distance between Barriers A and B is less than 20 times the height and therefore absorptive materials are recommended for Barrier A and Barrier B. The location of barriers will be reassessed during final design to identify any potential for reflective noise.

The proposed barrier locations are shown on the graphics located in **Appendix A**. A summary of the evaluated proposed barriers is shown in **Table 7-1**. **Appendix H** lists the Build Alternative (2048) noise levels, the abated noise levels, and the net insertion losses for the proposed barriers and barrier systems that were evaluated. Also, **Appendix H** contains start-end coordinates, top and bottom elevations, and absolute elevation and heights of all proposed noise barriers at per-panel resolution. Warranted, Feasible, and Reasonable Worksheets for the evaluated barriers are included in **Appendix I**.

Table 7-1. Summary of Evaluated Noise Barriers

Barrier Name	CNE	Total Benefited Receptors	Average Noise Reduction (dB(A))[1]	Barrier Length (ft.)	Barrier Height Range (ft.)	Average Barrier Height (ft.)	Barrier Surface Area (SF)	Surface Area per Benefited Receptor (sq.ft./BR)	Barrier Cost ($42/sq.ft.)	Feasible	Reasonable
					Segment A						
Barrier A	***A***	***49***	***7***	***3,560***	***12 to 26***	***20.2***	***71,994***	***1,469***	***$3,023,748***	***Yes***	***Yes***
Barrier A1	***A***	***10***	***8***	***713***	***12 to 30***	***22.3***	***15,905***	***1,591***	***$668,010***	***Yes***	***Yes***
Barrier A2	A	1	7	454	26	26.0	11,771	11,771	$494,382	Yes	No
Barrier B	***B***	***20***	***8***	***1,838***	***12 to 18***	***16.4***	***30,168***	***1,508***	***$1,267,056***	***Yes***	***Yes***
Barrier C	C	2	6	748	16	16.0	11,999	6,000	$503,958	Yes	No
Barrier D1	D	1	7	1,563	24 to 26	24.7	38,637	38,637	$1,622,754	Yes	No
Barrier D2	D	2	8	1,152	20	20.0	23,002	11,501	$966,084	Yes	No
Barrier E	E	2	6	1,345	18	18.0	24,291	12,146	$1,020,222	Yes	No
Barrier F	F	3	7	1,752	16 to 20	19.6	34,305	11,435	$1,440,810	Yes	No
Barrier H1	H	2	8	499	12	12.0	5,999	3,000	$251,958	Yes	No
Barrier H2	H	3	6	1,548	16 to 18	16.3	25,307	8,436	$1,062,894	Yes	No
Barrier H3	H	4	5	1,850	22	22.0	40,665	10,166	$1,707,930	Yes	No
Barrier I1	I	2	6	849	12 to 30	20.2	17,198	8,599	$ 722,316	Yes	No
Barrier I2	I	2	6	949	22	22.0	20,889	10,445	$877,338	Yes	No
Barrier J	J	9	7	1,604	18 to 26	23.9	38,315	4,257	$1,609,230	Yes	No
Barrier K	K	1	7	498	20	20.0	10,002	10,002	$420,084	Yes	No
Barrier L	L	1	7	807	14	14.0	11,287	11,287	$474,054	Yes	No
					Segment B						
Barrier M	M	3	5	1,199	24	24.0	28,793	9,598	$1,209,306	Yes	No
Barrier N	N	2	7	1,019	22	22.0	22,439	11,220	$942,438	Yes	No
Barrier P	P	3	7	1,373	30	30.0	41,132	13,711	$1,727,544	Yes	No
					Segment C						
Barrier S	S	11	6	1,380	16 to 30	21.2	29,270	2,661	$1,229,340	Yes	No
Barrier V	V	1	7	770	18	18.0	13,882	13,882	$583,044	Yes	No
Barrier W1	W	14	6	3,500	8 to 24	15.4	54,042	3,860	$2,269,764	Yes	No
Barrier W2	W	2	6	1,348	16 to 20	19.1	25,615	12,808	$1,075,830	Yes	No
Barrier X	X	2	6	1,915	8 to 20	13.6	26,193	13,097	$1,100,106	Yes	No
Barrier Y1	Y	1	7	1,263	22 to 30	28.4	35,866	35,866	$1,506,372	Yes	No
Barrier Y2	Y	2	6	1,813	12 to 20	15.4	28,063	14,032	$1,178,646	Yes	No
Barrier Y3	Y	1	7	813	20 to 30	25.2	20,448	20,448	$858,816	Yes	No
Barrier Z	***Z***	***26***	***6***	***1,545***	***20 to 30***	***26.3***	***40,657***	***1,564***	***$1,707,594***	***Yes***	***Yes***
Barrier AA	AA	4	6	1,170	12 to 20	16.5	19,359	4,840	$813,078	Yes	No
Barrier AB	AB	15	6	4,490	8 to 16	12.7	56,852	3,790	$2,387,784	Yes	No
Barrier AC	***AC***	***6***	***5***	***890***	***9 to 13***	***10.8***	***9,595***	***1,599***	***$402,990***	***Yes***	***Yes***
Extended Barrier AC	AC, AE	10	6	2,669	10 to 16	11.3	29,932	2,993	$1,257,144	Yes	No
Barrier AD	AD	2	6	1,270	20 to 30	24.0	30,461	15,231	$1,279,362	Yes	No

1 Average reduction for benefited receptors.

Segment A

Barrier A

Barrier A, shown on Figures A-2 and A-3, was evaluated to address 11 impacted residential receptors in CNE A. Barrier A is located along the eastbound travel lanes of I-64 and extends east of New Kent Highway. Barrier A is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 12 to 26 feet and has an average height of 20.2 feet. The evaluated barrier has a length of 3,560 feet and a total surface area of 71,994 square feet. Barrier A benefits all 11 impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier A also benefits 38 non-impacted receptors. Based on current design documents, Barrier A does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier A satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of 66 benefited receptors, Barrier A is considered reasonable since the square footage per benefited receptor ratio is 1,469 SF/BR, which is less than the maximum SF/BR of 1,600.

Based on the current design information, Barrier A meets VDOT's feasibility and reasonableness criterion and therefore is recommended for further consideration during final design.

Barrier A1

Barrier A1, shown on Figure A-4, was evaluated to address four impacted residential receptors in CNE A. Barrier A1 is located along the eastbound travel lanes of I-64 and extends west from Henpeck Road. Barrier A1 is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 12 to 30 feet, then tapers to ground at the western edge, and has an average height of 22.3 feet. The evaluated barrier has a length of 713 feet and a total surface area of 15,905 square feet. Barrier A1 benefits all four impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier A1 also benefits six non-impacted receptors. Based on current design documents, Barrier A1 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier A1 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of 10 benefited receptors, Barrier A1 is considered reasonable since the square footage per benefited receptor ratio is 1,591 SF/BR, which is less than the maximum SF/BR of 1,600.

Based on the current design information, Barrier A1 meets VDOT's feasibility and reasonableness criterion and therefore is recommended for further consideration during final design.

Barrier A2

Barrier A2, shown on Figure A-4, was evaluated to address a single impacted residential receptor in CNE A. Barrier A2 is located along the eastbound travel lanes of I-64 and extends east from Henpeck Road. Barrier A2 is comprised of a single and continuous ground-mounted noise wall. The barrier height is 26 feet. The evaluated barrier has a length of 454 feet and a total surface area of 11,771 square feet. Barrier A2 benefits the one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier A2 does not benefit any non-impacted receptors. Based on current design documents, Barrier A2 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier A2 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of one benefited receptor, Barrier A2 is not considered reasonable since the square footage per benefited receptor ratio is 11,771 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier A2 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier B

Barrier B, shown on Figures A-2 and A-3, was evaluated to address 11 impacted residential receptors in CNE B. Barrier B is located along the westbound travel lanes of I-64 and extends east of New Kent Highway. Barrier B is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 12 to 18 feet and has an average height of 16.4 feet. The evaluated barrier has a length of 1,838 feet and a total surface area of 30,168 square feet. Barrier B benefits all 11 impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier B also benefits nine non-impacted receptors. Based on current design documents, Barrier B does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier B satisfies VDOT's noise reduction design goal by providing a 7 a dB(A) noise reduction to at least one impacted receptor. With a total of 20 benefited receptors, Barrier B is considered reasonable since the square footage per benefitted receptor ratio is 1,508 SF/BR, which is less than the maximum SF/BR of 1,600.

Based on the current design information, Barrier B meets VDOT's feasibility and reasonableness criterion and therefore is recommended for further consideration during final design.

Barrier C

Barrier C, shown on Figure A-4, was evaluated to address a single impacted residential receptor in CNE C. Barrier C is located along the westbound travel lanes of I-64 and extends west from Henpeck Road. Barrier C is comprised of a single and continuous ground-mounted noise wall. The barrier height is 16 feet. The evaluated barrier has a length of 748 feet and a total surface area of 11,999 square feet. Barrier C benefits the one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier C also benefits one non-impacted receptor. Based on current design documents, Barrier C does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier C satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier C is not considered reasonable since the square footage per benefited receptor ratio is 6,000 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier C meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier D1

Barrier D1, shown on Figure A-5, was evaluated to address a single impacted residential receptor in CNE D. Barrier D1 is located along the eastbound travel lanes of I-64 between Henpeck Road and Old Roxbury Road. Barrier D1 is comprised of two overlapping ground-mounted noise walls that allow existing drainage features to remain in place. The barrier ranges in height from 24 to 26 feet and has an average height of

24.7 feet. The evaluated barrier has a length of 1,563 feet and a total surface area of 38,637 square feet. Barrier D1 benefits the one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier D1 does not benefit any non-impacted receptors. Based on current design documents, Barrier D1 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier D1 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of one benefited receptor, Barrier D1 is not considered reasonable since the square footage per benefited receptor ratio is 38,637 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier D1 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier D2

Barrier D2, shown on Figures A-5 and A-6, was evaluated to address two impacted residential receptors in CNE D. Barrier D2 is located along the eastbound travel lanes of I-64 west of Old Roxbury Road. Barrier D2 is comprised of a single ground-mounted noise wall. The barrier height is 20 feet. The evaluated barrier has a length of 1,152 feet and a total surface area of 23,002 square feet. Barrier D2 benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier D2 does not benefit any non-impacted receptors. Based on current design documents, Barrier D2 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier D2 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier D2 is not considered reasonable since the square footage per benefited receptor ratio is 11,501 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier D2 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier E

Barrier E, shown on Figures A-5 and A-6, was evaluated to address a single impacted residential receptor in CNE E. Barrier E is located along the westbound travel lanes of I-64 east of Old Roxbury Road. Barrier E is comprised of two overlapping ground-mounted noise walls that allow existing drainage features to remain in place. The barrier height is 18 feet. The evaluated barrier has a length of 1,345 feet and a total surface area of 24,291 square feet. Barrier E benefits the one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier E also benefits one non-impacted receptor. Based on current design documents, Barrier E does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier E satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier E is not considered reasonable since the square footage per benefited receptor ratio is 12,146 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier E meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier F

Barrier F, shown on Figure A-6, was evaluated to address a single impacted residential receptor in CNE F. Barrier F is located along the eastbound travel lanes of I-64 east of Old Roxbury Road. Barrier F is comprised of two overlapping ground-mounted noise walls that allow existing drainage features to remain in place. The barrier ranges in height from 16 to 20 feet and has an average height of 19.6 feet. The evaluated barrier has a length of 1,752 feet and a total surface area of 34,305 square feet. Barrier F benefits the one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier F also benefits two non-impacted receptors. Based on current design documents, Barrier F does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier F satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of three benefited receptors, Barrier F is not considered reasonable since the square footage per benefited receptor ratio is 11,435 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier F meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier H1

Barrier H1, shown on Figure A-7, was evaluated to address two impacted residential receptors in CNE H. Barrier H1 is located along the westbound travel lanes of I-64 east of Airport Road. Barrier H1 is comprised a single ground-mounted noise wall. The barrier height is 12 feet. The evaluated barrier has a length of 499 feet and a total surface area of 5,999 square feet. Barrier H1 benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier H1 does not benefit any non-impacted receptors. Based on current design documents, Barrier H1 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier H1 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier H1 is not considered reasonable since the square footage per benefited receptor ratio is 3,000 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier H1 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier H2

Barrier H2, shown on Figure A-8, was evaluated to address two impacted receptors in CNE H. Barrier H2 is located along the westbound travel lanes of I-64 east of Airport Road. Barrier H2 is comprised of three overlapping ground-mounted noise walls that allow existing drainage features to remain in place. The barrier ranges in height from 16 to 18 feet and has an average height of 16.3 feet. The evaluated barrier has a length of 1,548 feet and a total surface area of 25,307 square feet. Barrier H2 benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier H2 also benefits one non-impacted receptor. Based on current design documents, Barrier H2 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier H2 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of three benefited receptors, Barrier H2 is not considered reasonable since the square footage per benefited receptor ratio is 8,436 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier H2 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier H3

Barrier H3, shown on Figure A-8, was evaluated to address one impacted receptor in CNE H. Barrier H3 is located along the westbound travel lanes of I-64 east of Airport Road. Barrier H3 is comprised of a single ground-mounted noise wall. The barrier height is 22 feet. The evaluated barrier has a length of 1,850 feet and a total surface area of 40,665 square feet. Barrier H3 benefits one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier H3 also benefits three non-impacted receptors. Based on current design documents, Barrier H3 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier H3 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of four benefited receptors, Barrier H2 is not considered reasonable since the square footage per benefited receptor ratio is 10,166 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier H3 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier I1

Barrier I1, shown on Figure A-7, was evaluated to address a single impacted residential receptor in CNE I. Barrier I1 is located along the eastbound travel lanes of I-64 and extends east from Airport Road. Barrier I1 is comprised of a single ground-mounted noise wall. The barrier ranges in height from 12 to 30 feet and has an average height of 20.2 feet. The evaluated barrier has a length of 849 feet and a total surface area of 17,198 square feet. Barrier I1 benefits the one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier I1 also benefits one non-impacted receptor. Based on current design documents, Barrier I1 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier I1 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier I1 is not considered reasonable since the square footage per benefited receptor ratio is 8,599 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier I1 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier I2

Barrier I2, shown on Figure A-8, was evaluated to address a single impacted residential receptor in CNE I. Barrier I2 is located along the eastbound travel lanes of I-64 east of Airport Road. Barrier I2 is comprised of a single ground-mounted noise wall. The barrier height is 22 feet. The evaluated barrier has a length of

949 feet and a total surface area of 20,889 square feet. Barrier I2 benefits the one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier I2 also benefits one non-impacted receptor. Based on current design documents, Barrier I2 does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier I2 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier I2 is not considered reasonable since the square footage per benefited receptor ratio is 10,445 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier I2 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier J

Barrier J, shown on Figure A-9, was evaluated to address six impacted community recreational receptors in CNE J. Barrier J is located along the westbound travel lanes of I-64 west of Emmaus Church Road. Barrier J is comprised of two overlapping ground-mounted noise walls that allow existing drainage features to remain in place. The barrier ranges in height from 18 to 26 feet and has an average height of 23.9 feet. The evaluated barrier has a length of 1,604 feet and a total surface area of 38,315 square feet. Barrier J benefits six impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier J also benefits three non-impacted receptors. Based on current design documents, Barrier J does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier J satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of nine benefited receptors, Barrier J is not considered reasonable since the square footage per benefited receptor ratio is 4,257 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier J meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier K

Barrier K, shown on Figure A-12, was evaluated to address a single impacted residential receptor in CNE K. Barrier K is located along the eastbound travel lanes of I-64 and extends east from Olivet Church Road. Barrier K is comprised of a single ground-mounted noise wall. The barrier height is 20 feet. The evaluated barrier has a length of 498 feet and a total surface area of 10,002 square feet. Barrier K benefits one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier K does not benefit any non-impacted receptors. Based on current design documents, Barrier K does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier K satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of one benefited receptor, Barrier K is not considered reasonable since the square footage per benefited receptor ratio is 10,002 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier K meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier L

Barrier L, shown on Figures A-15 and A-16, was evaluated to address a single impacted residential receptor in CNE L. Barrier L is located along the eastbound travel lanes of I-64 east of North Courthouse Road. Barrier L is comprised of a single ground-mounted noise wall. The barrier height is 14 feet. The evaluated barrier has a length of 807 feet and a total surface area of 11,287 square feet. Barrier L benefits one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier L does not benefit any non-impacted receptors. Based on current design documents, Barrier L does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier L satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of one benefited receptor, Barrier L is not considered reasonable since the square footage per benefited receptor ratio is 11,287 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier L meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

<u>Segment B</u>

Barrier M

Barrier M, shown on Figures A-21 and A-22, was evaluated to address two impacted residential receptors in CNE M. Barrier M is located along the westbound travel lanes of I-64 and extends east from Good Hope Road. Barrier M is comprised of a single ground-mounted noise wall. The barrier height is 24 feet. The evaluated barrier has a length of 1,199 feet and a total surface area of 28,793 square feet. Barrier M benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier M also benefits one non-impacted receptor. Based on current design documents, Barrier M does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier M satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of three benefited receptors, Barrier M is not considered reasonable since the square footage per benefited receptor ratio is 9,598 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier M meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier N

Barrier N, shown on Figure A-22, was evaluated to address two impacted receptors (one residential and one community facility) in CNE N. Barrier N is located along the eastbound travel lanes of I-64 east of Good Hope Road. Barrier N is comprised of a single ground-mounted noise wall. The barrier height is 22 feet. The evaluated barrier has a length of 1,019 feet and a total area of 22,439 square feet. Barrier N benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier N does not benefit any non-impacted receptors. Based on current design documents, Barrier N does not contain any site features that would appear to affect the engineering feasibility of construction. Barrier N satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier N is not considered reasonable since the square footage per benefited receptor ratio is 11,220 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier N meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier P

Barrier P, shown on Figure A-27, was evaluated to address two impacted residential receptors in CNE P. Barrier P is located along the westbound travel lanes of I-64 and extends west from Ropers Church Road. Barrier P is comprised of a single and continuous ground-mounted noise wall. The barrier height is 30 feet. The evaluated barrier has a length of 1,373 feet and a total surface area of 41,132 square feet. Barrier P benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier P also benefits one non-impacted receptors. Based on current design documents, Barrier P does not contain any site features that would affect the engineering feasibility of construction. Barrier P does not satisfy VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of three benefited receptors, Barrier P is not considered reasonable since the square footage per benefited receptor ratio is 13,711 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier P meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness and noise reduction. However, this barrier will be reevaluated during final design.

Segment C

Barrier S

Barrier S, shown on Figures A-29 and A-30, was evaluated to address three impacted residential receptors in CNE S. Barrier S is located along the eastbound travel lanes of I-64 northwest of Barnes Road. Barrier S is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 16 to 30 feet and has an average height of 21.2 feet. The evaluated barrier has a length of 1,380 feet and a total surface area of 29,270 square feet. Barrier S benefits three impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier S also benefits eight non-impacted receptors. Based on current design documents, Barrier S does not contain any site features that would affect the engineering feasibility of construction. Barrier S satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of 11 benefited receptors, Barrier S is not considered reasonable since the square footage per benefited receptor ratio is 2,661 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier S meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier V

Barrier V, shown on Figure A-32, was evaluated to address one impacted recreational receptor in CNE V. Barrier V is located along the westbound travel lanes of I-64 southeast of Old Stage Road. Barrier V is comprised of a single and continuous ground-mounted noise wall. The barrier height is 18 feet. The evaluated barrier has a length of 770 feet and a total surface area of 13,882 square feet. Barrier V benefits one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier V does not benefit any non-impacted receptors. Based on current design documents, Barrier V does not contain any site features that would affect the engineering feasibility of construction. Barrier V satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of one benefited receptor, Barrier V is not considered reasonable since the square footage per benefited receptor ratio is 13,882 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier V meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier W1

Barrier W1, shown on Figures A-33 and A-34, was evaluated to address ten impacted residential receptors in CNE W. Barrier W1 is located along the eastbound travel lanes of I-64 southeast of Six Mt Zion Road. Barrier W1 is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 8 to 24 feet and has an average height of 15.4 feet. The evaluated barrier has a length of 3,500 feet and a total surface area of 54,042 square feet. Barrier W1 benefits ten impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier W1 also benefits four non-impacted receptors. Based on current design documents, Barrier W1 does not contain any site features that would affect the engineering feasibility of construction. Barrier W1 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of 14 benefited receptors, Barrier W1 is not considered reasonable since the square footage per benefited receptor ratio is 3,860 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier W1 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier W2

Barrier W2, shown on Figure A-34, was evaluated to address two impacted residential receptors in CNE W. Barrier W2 is located along the eastbound travel lanes of I-64 southeast of Six Mt Zion Road near Sand Hill Road. Barrier W2 is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 16 to 20 feet and has an average height of 19.1 feet. The evaluated barrier has a length of 1,348 feet and a total surface area of 25,615 square feet. Barrier W2 benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier W2 does not benefit any non-impacted receptors. Based on current design documents, Barrier W2 does not contain any site features that would affect the engineering feasibility of construction. Barrier W2 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier W2 is not considered reasonable since the square footage per benefited receptor ratio is 12,808 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier W2 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier X

Barrier X, shown on Figures A-35 and A-36, was evaluated to address two impacted residential receptors in CNE X. Barrier X is located along the eastbound travel lanes of I-64 northwest of Croaker Road. Barrier X is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 8 to 20 feet and has an average height of 13.5 feet. The evaluated barrier has a length of 1,915 feet and a total surface area of 26,193 square feet. Barrier X benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier X does not benefit any non-impacted receptors. Based on current design documents, Barrier X does not contain any site features that would affect the engineering feasibility of construction. Barrier X satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier X is not considered reasonable since the square footage per benefited receptor ratio is 13,097 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier X meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier Y1

Barrier Y1, shown on Figures A-34 and A-35, was evaluated to address one impacted residential receptor in CNE Y. Barrier Y1 is located along the westbound travel lanes of I-64 and extends southeast of Six Mt Zion Road. Barrier Y1 is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 22 to 30 feet and has an average height of 28.4 feet. The evaluated barrier has a length of 1,263 feet and a total surface area of 35,866 square feet. Barrier Y1 benefits one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier Y1 does not benefit any non-impacted receptors. Based on current design documents, Barrier Y1 does not contain any site features that would affect the engineering feasibility of construction. Barrier Y1 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of one benefited receptor, Barrier Y1 is not considered reasonable since the square footage per benefited receptor ratio is 35,866 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier Y1 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier Y2

Barrier Y2, shown on Figures A-35 through A-36, was evaluated to address two impacted residential receptors in CNE Y. Barrier Y2 is located along the westbound travel lanes of I-64 northwest of Croaker Road. Barrier Y2 is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 12 to 20 feet and has an average height of 15.4 feet. The evaluated barrier has a length of 1,813 feet and a total surface area of 28,063 square feet. Barrier Y2 benefits two impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier Y2 does not benefit any non-impacted receptors. Based on current design documents, Barrier Y2 does not contain any site features that would affect the engineering feasibility of construction. Barrier Y2 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier Y2 is not considered reasonable since the square footage per benefited receptor ratio is 14,032 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier Y2 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier Y3

Barrier Y3, shown on Figure A-36, was evaluated to address one impacted residential receptor in CNE Y. Barrier Y3 is located along the westbound travel lanes of I-64 and extends northwest from Croaker Road. Barrier Y3 is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 20 to 30 feet and has an average height of 25.2 feet. The evaluated barrier has a length of 813 feet and a total surface area of 20,448 square feet. Barrier Y3 benefits one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier Y3 does not benefit any non-impacted receptors. Based on current design documents, Barrier Y3 does not contain any site features that would affect the engineering feasibility of construction. Barrier Y3 satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of one benefited receptor, Barrier Y3 is not considered reasonable since the square footage per benefited receptor ratio is 20,448 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier Y3 meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier Z

Barrier Z, shown on Figure A-36, was evaluated to address one impacted residential receptor and nine impacted recreational receptors in CNE Z. Barrier Z is located along the eastbound travel lanes of I-64 and extends northwest from Croaker Road. Barrier Z is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 20 to 30 feet and has an average height of 26.3 feet. The evaluated barrier has a length of 1,545 feet and a total surface area of 40,657 square feet. Barrier Z benefits ten impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier Z also benefits 16 non-impacted receptors. Based on current design documents, Barrier Z does not contain any site features that would affect the engineering feasibility of construction. Barrier Z satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of 26 benefited receptors, Barrier Z is considered reasonable since the square footage per benefited receptor ratio is 1,564 SF/BR, which is less than the maximum SF/BR of 1,600.

Based on the current design information, Barrier Z meets VDOT's feasibility and reasonableness criteria and therefore is recommended for further consideration during final design.

Barrier AA

Barrier AA, shown on Figure A-37, was evaluated to address four impacted residential receptors in CNE AA. Barrier AA is located along the westbound travel lanes of I-64 southeast of Croaker Road. Barrier AA is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 12 to 20 feet and has an average height of 16.5 feet. The evaluated barrier has a length of 1,170 feet and a total surface area of 19,359 square feet. Barrier AA benefits four impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier AA does not benefit any non-impacted receptors. Based on current design documents, Barrier AA does not contain any site features that would affect the engineering feasibility of construction. Barrier AA satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of four benefited receptors, Barrier AA is not considered reasonable since the square footage per benefited receptor ratio is 4,840 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier AA meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier AB

Barrier AB, shown on Figures A-37 and A-38, was evaluated to address 14 impacted residential receptors in CNE AB. Barrier AB is located along the eastbound travel lanes of I-64 and extends southeast from Croaker Road. Barrier AB is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 8 to 16 feet and has an average height of 12.7 feet. The evaluated barrier has a length of 4,490 feet and a total surface area of 56,852 square feet. Barrier AB benefits 14 impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier AB also benefits one non-impacted receptors. Based on current design documents, Barrier AB does not contain any site features that would affect the engineering feasibility of construction. Barrier AB satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of 15 benefited receptors, Barrier AB is not considered reasonable since the square footage per benefited receptor ratio is 3,790 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier AB meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier AC

Barrier AC, shown on Figure A-38, was evaluated to address six impacted residential receptors in CNE AC. Barrier AC is located along the westbound travel lanes of I-64 south of Croaker Road. Barrier AC is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 9 to 13 feet and has an average height of 10.8 feet. The evaluated barrier has a length of 890 feet and a total surface area of 9,595 square feet. Barrier AC benefits six impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier AC does not benefit any non-impacted receptors. Based on current design documents, Barrier AC does not contain any site features that would affect the engineering feasibility of construction. Barrier AC satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of six benefited receptors, Barrier AC is considered reasonable since the square footage per benefited receptor ratio is 1,599 SF/BR, which is less than the maximum SF/BR of 1,600.

Based on the current design information, Barrier AC meets VDOT's feasibility and reasonableness criteria and therefore is recommended for further consideration during final design.

Extended Barrier AC

Extended Barrier AC, shown on Figure A-38, was evaluated to address nine impacted residential receptors in CNE AC. Extended Barrier AC is located along the westbound travel lanes of I-64 south of Croaker Road. Extended Barrier AC is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 10 to 16 feet and has an average height of 11.3 feet. The evaluated barrier has a length of 2,669 feet and a total surface area of 29,932 square feet. Extended Barrier AC benefits nine impacted receptors, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Extended Barrier AC benefits one non-impacted receptor. Based on current design documents, Extended Barrier AC does not contain any site features that would affect the engineering feasibility of construction. Extended Barrier AC satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of ten benefited receptors, Barrier AC is not considered reasonable since the square footage per benefited receptor ratio is 2,993 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Extended Barrier AC meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

Barrier AD

Barrier AD, shown on Figure A-38, was evaluated to address one impacted residential receptor in CNE AD. Barrier AD is located along the eastbound travel lanes of I-64 south of Wilderness Lane. Barrier AD is comprised of a single and continuous ground-mounted noise wall. The barrier ranges in height from 20 to 30 feet and has an average height of 24.0 feet. The evaluated barrier has a length of 1,270 feet and a total surface area of 30,461 square feet. Barrier AD benefits one impacted receptor, satisfying VDOT's acoustic feasibility criterion by providing at least a 5 dB(A) noise reduction to at least 50% of the CNE's impacted receptors. Barrier AD also benefits one non-impacted receptor. Based on current design documents, Barrier AD does not contain any site features that would affect the engineering feasibility of construction.

Barrier AD satisfies VDOT's noise reduction design goal by providing a 7 dB(A) noise reduction to at least one impacted receptor. With a total of two benefited receptors, Barrier AD is not considered reasonable since the square footage per benefited receptor ratio is 15,231 SF/BR, which is more than the maximum SF/BR of 1,600.

Based on the current design information, Barrier AD meets VDOT's feasibility criterion but fails to satisfy its reasonableness criterion for cost-effectiveness. However, this barrier will be reevaluated during final design.

8.0 CONSTRUCTION NOISE CONSIDERATIONS

VDOT is also concerned with noise generated during the construction phase of the proposed project. While the degree of construction noise impact will vary, it is directly related to the types and number of equipment used and the proximity to the noise-sensitive land uses within the project area. Land uses that are sensitive to traffic noise are also potentially sensitive to construction noise. Any construction noise impacts that do occur because of roadway construction measures are anticipated to be temporary in nature and will cease upon completion of the project construction phase. One method of controlling construction noise is to establish the maximum level of noise that construction operations can generate. In view of this, VDOT has developed and FHWA has approved a specification that establishes construction noise limits. This specification can be found in VDOT's *2020 Road and Bridge Specifications*, Section 107.16(b.3), “Noise” (VDOT, 2020). The contractor will be required to conform to this specification to reduce the impact of construction noise on the surrounding community. The specifications have been reproduced below:

- The Contractor’s operations shall be performed so that exterior noise levels measured during a noise-sensitive activity shall not exceed 80 decibels. Such noise level measurements shall be taken at a point on the perimeter of the construction limit that is closest to the adjoining property on which a noise-sensitive activity is occurring. A noise sensitive activity is any activity for which lowered noise levels are essential if the activity is to serve its intended purpose and not present an unreasonable public nuisance. Such activities include, but are not limited to, those associated with residences, hospitals, nursing homes, churches, schools, libraries, parks, and recreational areas.
- VDOT may monitor construction-related noise. If construction noise levels exceed 80 decibels during noise sensitive activities, the Contractor shall take corrective action before proceeding with operations. The Contractor shall be responsible for costs associated with the abatement of construction noise and the delay of operations attributable to noncompliance with these requirements.
- VDOT may prohibit or restrict to certain portions of the project any work that produces objectionable noise between 10 PM and 6 AM. If other hours are established by local ordinance, the local ordinance shall govern.
- Equipment shall in no way be altered to result in noise levels that are greater than those produced by the original equipment.
- When feasible, the Contractor shall establish haul routes that direct his vehicles away from developed areas and ensure that noise from hauling operations is kept to a minimum.
- These requirements shall not be applicable if the noise produced by sources other than the Contractor’s operation at the point of reception is greater than the noise from the Contractor’s operation at the same point.

9.0 PUBLIC INVOLVEMENT PROCESS

FHWA and VDOT policies require that VDOT provides certain information to local officials within whose jurisdiction the highway project is located, to minimize future traffic noise impacts of Type I projects on currently undeveloped lands. (Type I projects involve highway improvements with noise analysis.) This information must include details on noise-compatible land-use planning and noise impact zones for undeveloped lands within the project corridor. Additional information about VDOT's noise abatement program has also been included in this section.

9.1 Noise Compatible Land Use Planning

Sections 12.1 and 12.2 of VDOT's *Highway Traffic Noise Guidance Manual* outlines VDOT's approach to communication with local officials and provide information and resources on highway noise and noise-compatible land-use planning. VDOT's intention is to assist local officials in planning the uses of undeveloped land adjacent to highways to minimize the potential impacts of highway traffic noise (VDOT, 2022).

Entering the Quiet Zone (FHWA 2002) is a brochure that provides general information and examples to elected officials, planners, developers, and the general public about the problem of traffic noise and effective responses to it. A link to this brochure on FHWA's website is provided:

http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/land_use/qz00.cfm

A wide variety of administrative strategies may be used to minimize or eliminate potential highway noise impacts, thereby preventing the need or desire for costly noise abatement structures such as noise barriers in future years. There are five broad categories of such strategies:

- Zoning,
- Other legal restrictions (subdivision control, building codes, health codes),
- Municipal ownership or control of the land,
- Financial incentives for compatible development, and
- Educational and advisory services.

The Audible Landscape: A Manual for Highway and Land Use (FHWA 1974) is a very well-written and comprehensive guide addressing these noise-compatible land use planning strategies, with significant detailed information.

FHWA/VDOT noise policy and guidance also require that estimates of future design noise levels at distances where they meet NAC approach limits, for exterior land uses be provided. To estimate these distances, noise levels are predicted at various distances from the edge of the project roadways for undeveloped[18] and other exterior noise sensitive areas within the noise study area. Then, the distances from the edge of the roadway to the NAC approach sound levels are determined through interpolation.

[18] With respect to undeveloped lands, future design year 66 dB(A) noise contours are shown on the graphics based on the existing terrain. If such lands were to be developed (e.g., site grading, cut/fill activities) the location of the impact contour may change. As such, noise contours are only to be used as a planning level tool.

Distances vary in the project corridor due to changes in traffic volumes, terrain features, or existing structures, and noise barriers. Based on the interpolation of distances to the appropriate NAC approach limits, the approximate location of the 66 dB(A) noise contours for NAC B/C receptors is represented in the graphics in **Appendix A**[19].

9.2 VDOT's Noise Abatement Program

Information on VDOT's noise abatement program is available on VDOT's Website, at: http://www.virginiadot.org/projects/pr-noise-walls-about.asp. The site provides information on VDOT's noise program and policies, noise walls, and a downloadable noise wall brochure.

9.3 Voting Procedures

For noise barriers determined to be feasible and reasonable in the final design phase, the affected public that would be benefited by the proposed mitigation will be given an opportunity to decide whether they are in favor of construction of the noise barrier. A final determination to construct a barrier will be made after the design public hearing process. Before final decisions and approvals can be made to construct a noise barrier, a final design noise analysis will be performed. For barriers that are determined to be feasible and reasonable, input from the owners and residents of those receptor units that will be benefited by the proposed mitigation may vote by completing and returning the noise barrier survey form that they receive in the mail. The initial citizen survey is sent out as certified mail so the disposition of the letters can be tracked. Of the votes tallied, 50 percent or more must be in favor of a proposed noise barrier in order for that barrier to be considered further. Upon completion of the citizen survey, the VDOT Noise Abatement staff will make recommendations to the Chief Engineer for approval. Approved barriers will be incorporated into the road project plans. A technical memorandum of the results of the public survey will be prepared and submitted to FHWA.

9.3.1 Public Preference Surveys

Property owners and residents, including tenants, of all properties that would be benefited by the recommended noise barrier will be sent survey letters by certified mail. Twenty-one (21) calendar days from the anticipated delivery date is required to provide the recipients ample time to review and respond to the survey. The letters and surveys will ask the respondents to indicate whether they wished to have the proposed noise barriers constructed or not. In these mailings, barrier details, contact information, a survey form and return envelope will be provided to homeowners and residents. The mailings will give the affected property owners/residents an understanding of the proposed barriers, an opportunity to ask questions, and a formal survey form for expressing their views. Only the owners and residents of those receptor units that will be benefited by the proposed mitigation may vote on whether the proposed noise

[19] While noise contour lines are useful for screening and to provide information to local officials (23 CFR 772.17), FHWA guidance states that noise contours shall not be used for the determination of traffic-noise impacts (FHWA, 2011). The 66 dB(A) contour line is assumed to represent first floor noise levels, including any existing noise barriers or shielding effects. Due to this fact, future design year impacts identified in Appendix B may not always correlate to the color-coding of the receptors shown in the Appendix A graphics. Areas with receptors located on the second floor (or higher) or for CNEs where an in-kind noise barrier extension was evaluated (because the existing noise barrier is removed for the analysis) may be different than future design year noise impacts in the study area. The noise contours are only shown where they extend past the proposed right-of-way.

barrier should be constructed. The owner/resident of each benefited receptor unit shall be entitled to one weighted vote, regardless of the number of owners of that receptor unit unless they are the owners of a rental facility or the developer of lands.

Survey recipients will be informed that to register a vote in favor of the barrier, a "YES" survey form would have to be returned. In addition, a non-response does not assume that the survey recipient is in favor of the barrier's construction. Votes will be tallied on a noise barrier by noise barrier basis, so it is recommended that the project team tally the votes and summarize the results on a project map showing votes by location. Final interpretation of the voting results will be made by VDOT and its consultants, considering all the feedback gained during the public involvement process. The weighting system used during the voting process is provided in **Table 9-1**.

Table 9-1. Public Opinion Survey Weighting System

Public Opinion Survey Weighting System[6]				
Impact and Benefit Category	**Activity Category[4]**	**Owner and Resident**	**Non Resident Owner**	**Renter[5]**
Impacted & Benefited	A	See note below		
Not Impacted & Benefited				
Impacted & Benefited	B[1]	5	3	2
Not Impacted & Benefited	B[1]	3	2	1
Impacted & Benefited	C[2]		5	
Not Impacted & Benefited	C[2]		3	
Impacted & Benefited	D		2	
Not Impacted & Benefited	D		1	
Impacted & Benefited	E		2	
Not Impacted & Benefited	E		1	

1. *For activity Category B Receptors only one vote per single family unit will be counted. However, the owner of a multiple-family dwelling unit will be granted one vote per benefited unit. In addition, the developer of permitted lands will also be granted one vote per benefited lot of the permitted phase where construction has not occurred.*
2. *For activity Category C Receptors only 1 vote per facility will be granted.*

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APPENDICES

Appendix A: Graphics (2048 Build Alternative)

Appendix B: Summary of Predicted Sound Levels

Appendix C: Calibration Certificates

Appendix D: Short-Term Monitoring Data

Appendix E: TNM Traffic Inputs

Appendix F: Loudest Hour Memo

Appendix G: Alternative Mitigation Measures Response

Appendix H: Predicted Noise Barrier Insertion Loss (Build Alternative)

Appendix I: Warranted, Feasible and Reasonable Worksheets

Appendix J: List of Preparers/Reviewers

Appendix K: Correspondence Regarding Undeveloped Lands

Appendix A: Graphics (2048 Build Alternative)

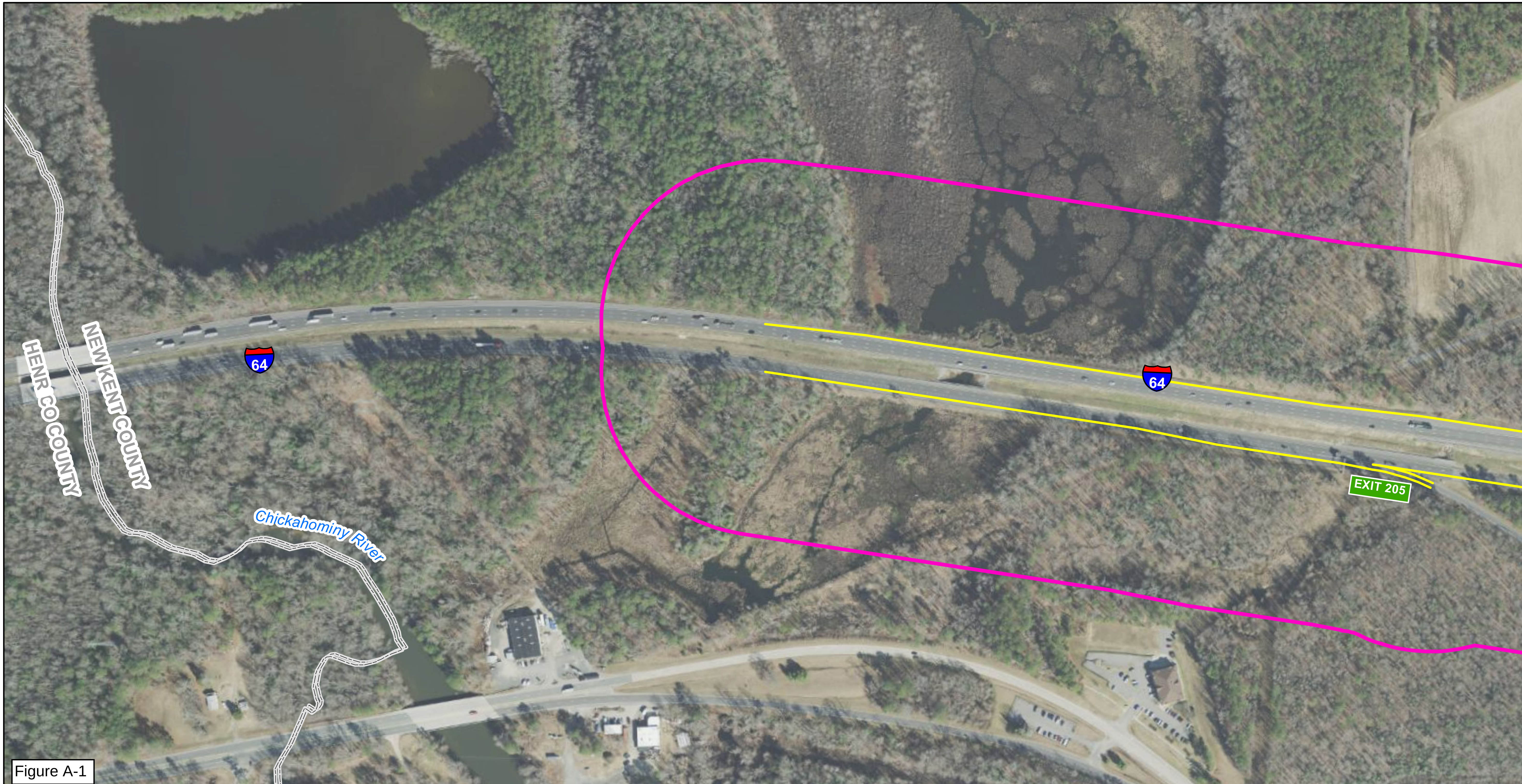


Figure A-1

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

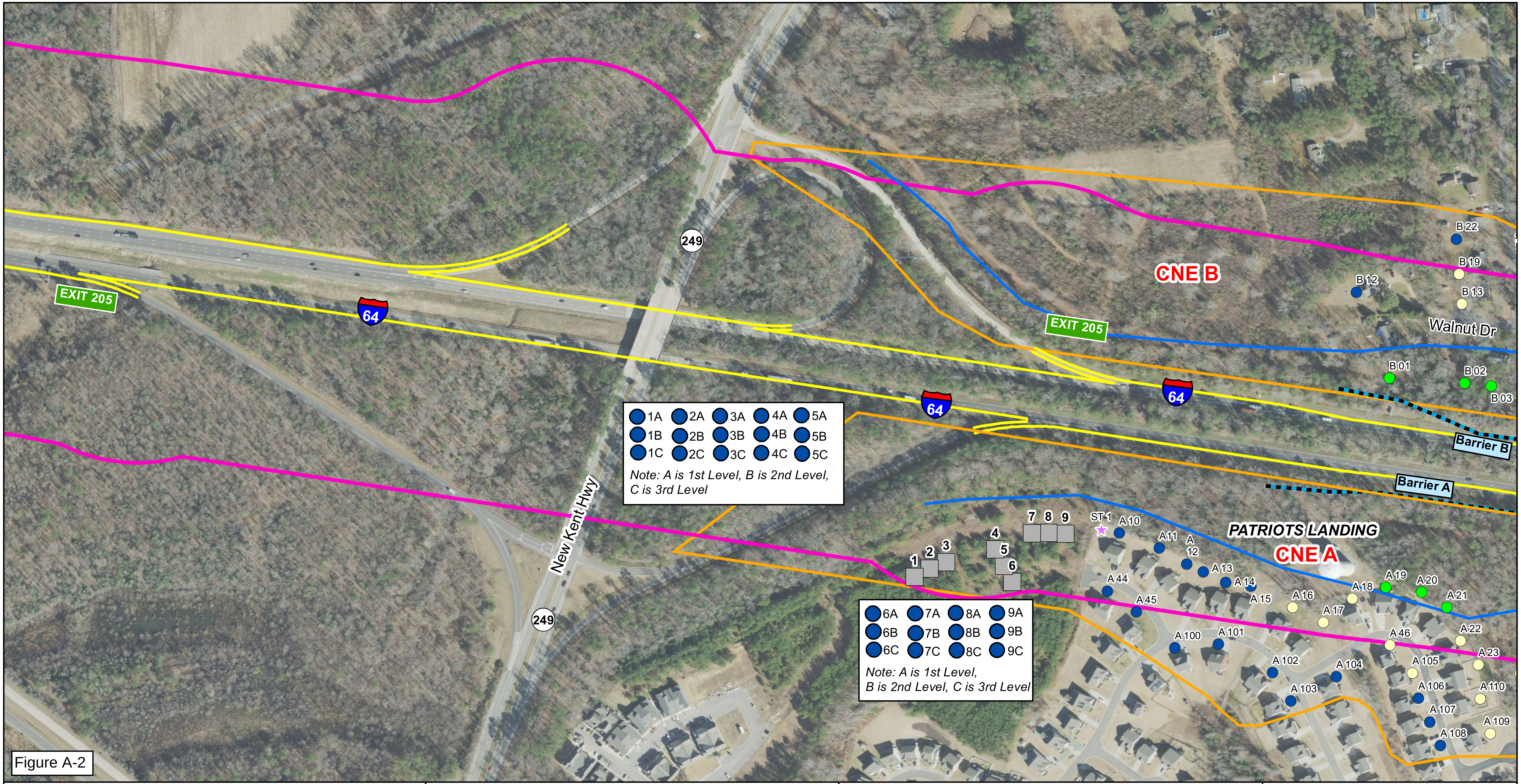
VDOT Project No.00064-800-25632396, UPC 109885

0 410 820
Feet

N

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor
Modeled Noise Receptors
Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

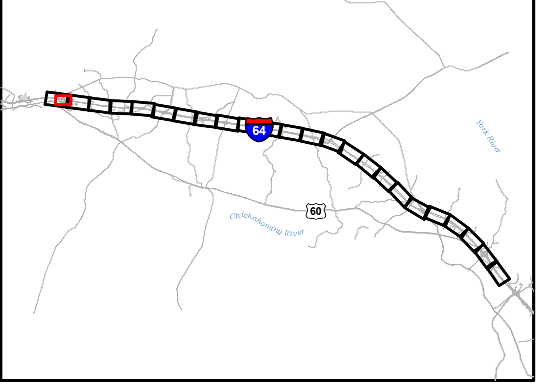
0 400 800
Feet

N

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors
Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



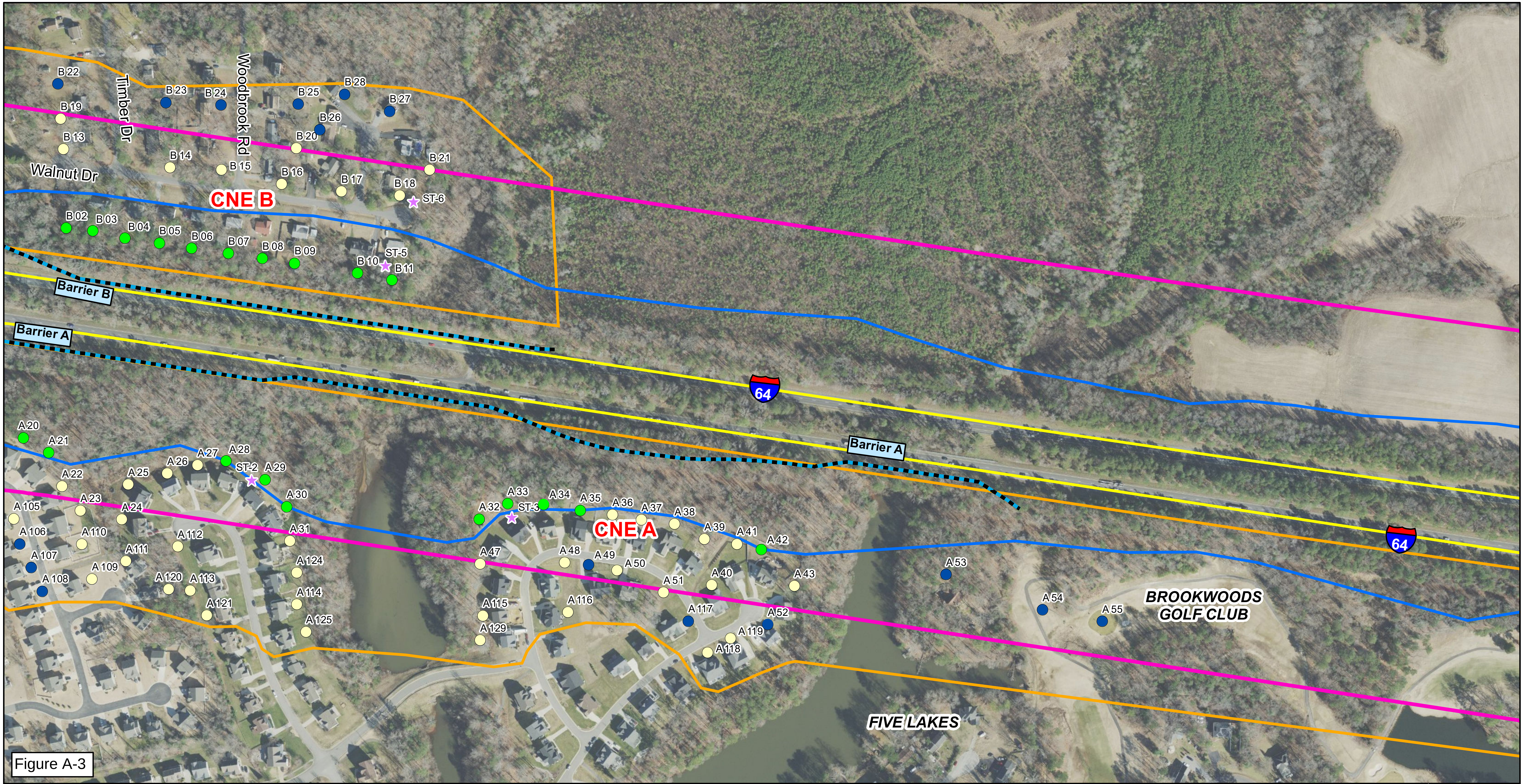


Figure A-3

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

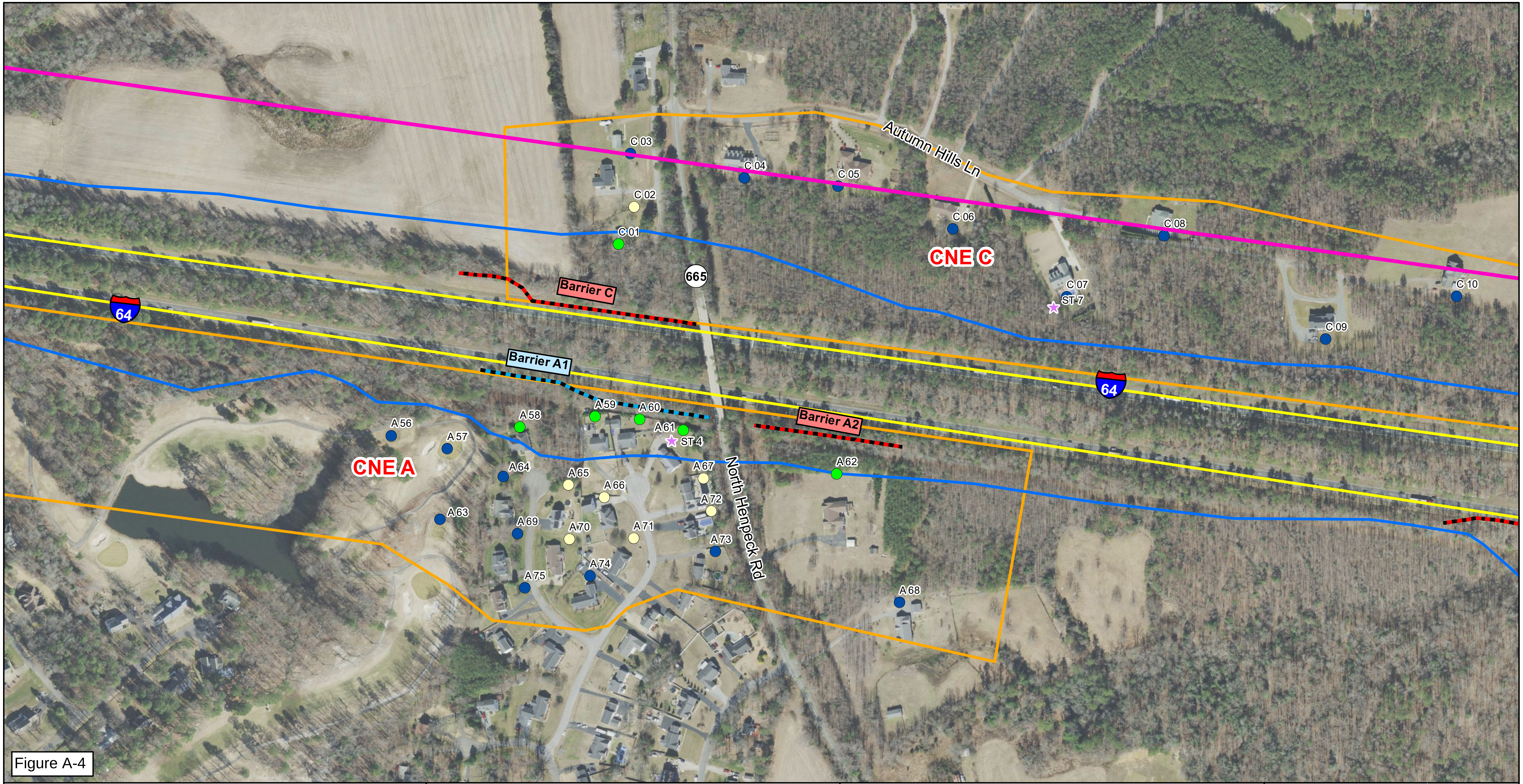
N

0 400 800
Feet

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors
- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

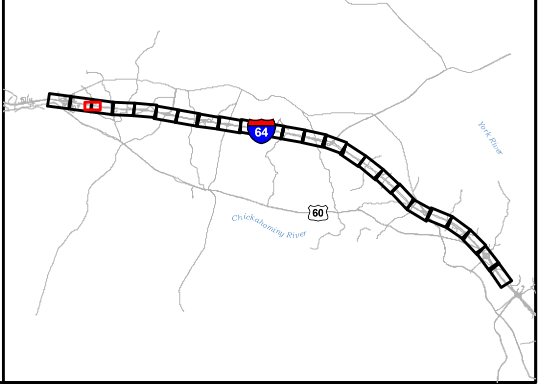
0 400 800
Feet

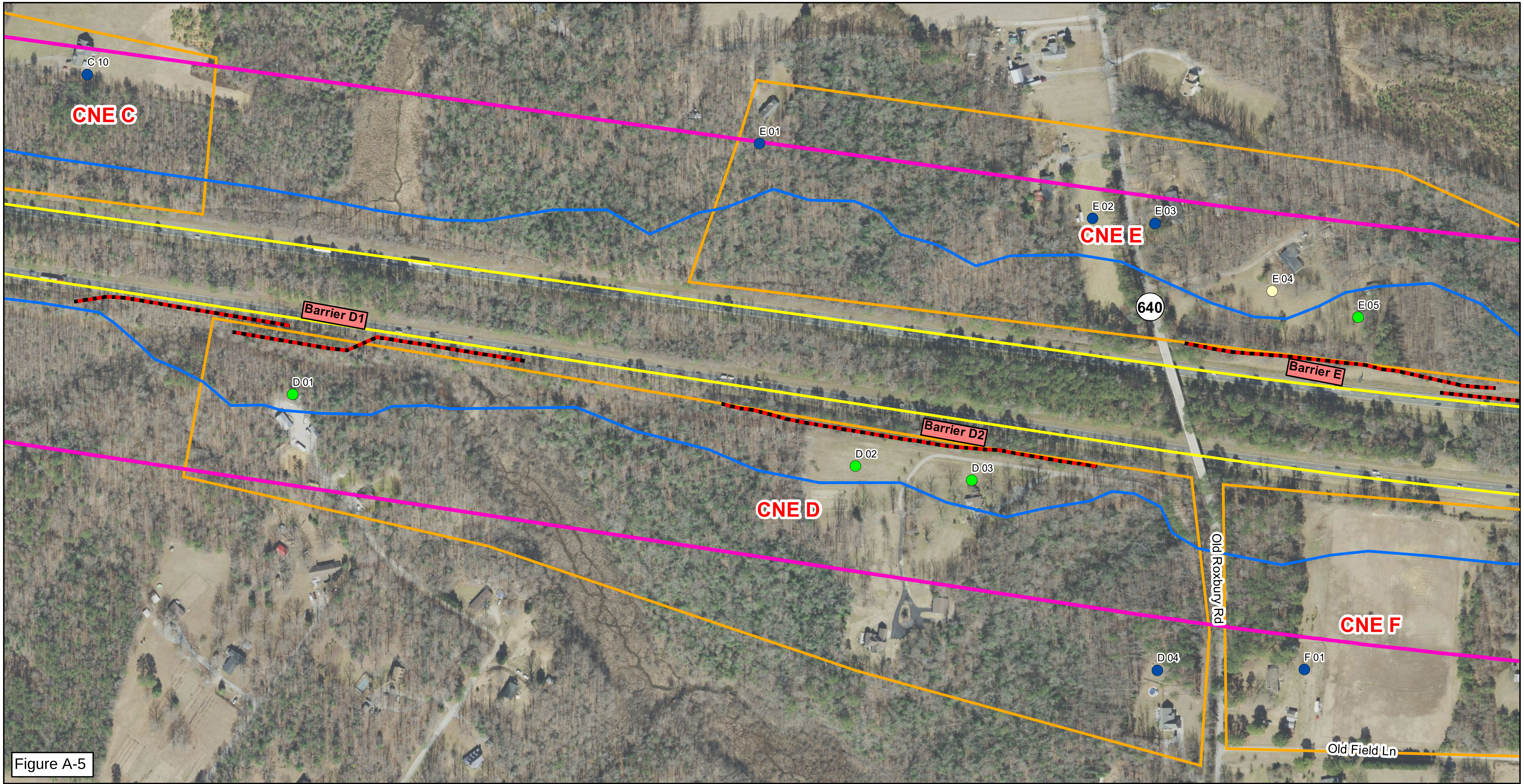
Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800

Feet

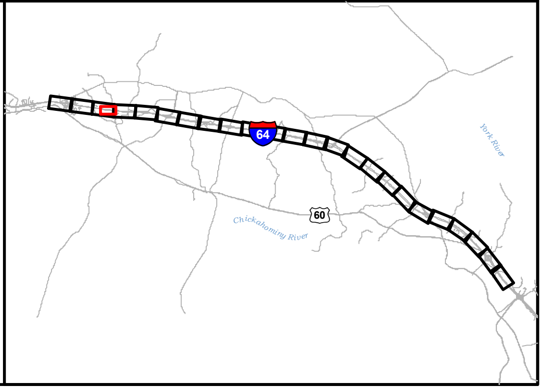
N

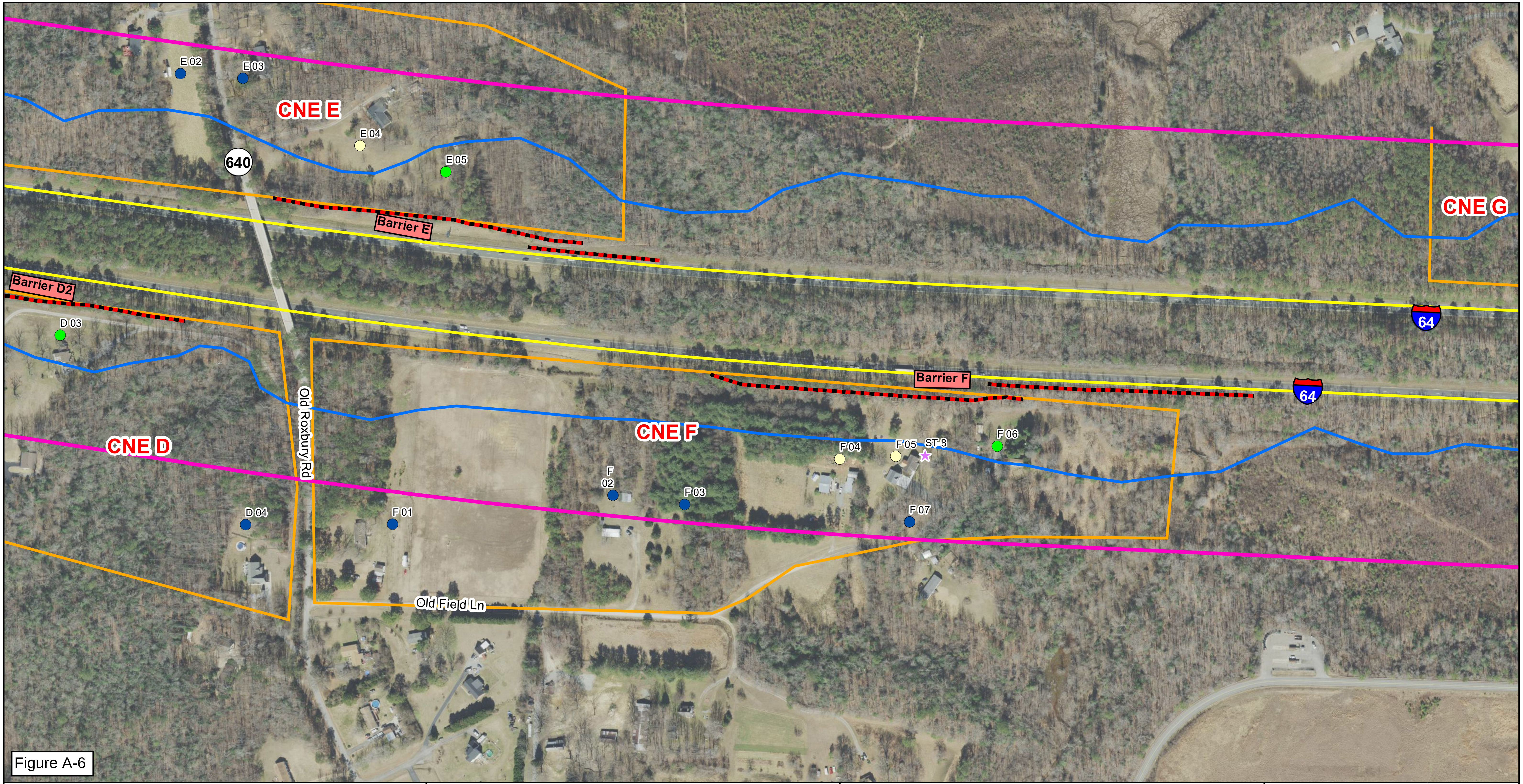
Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800

Feet

N

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited

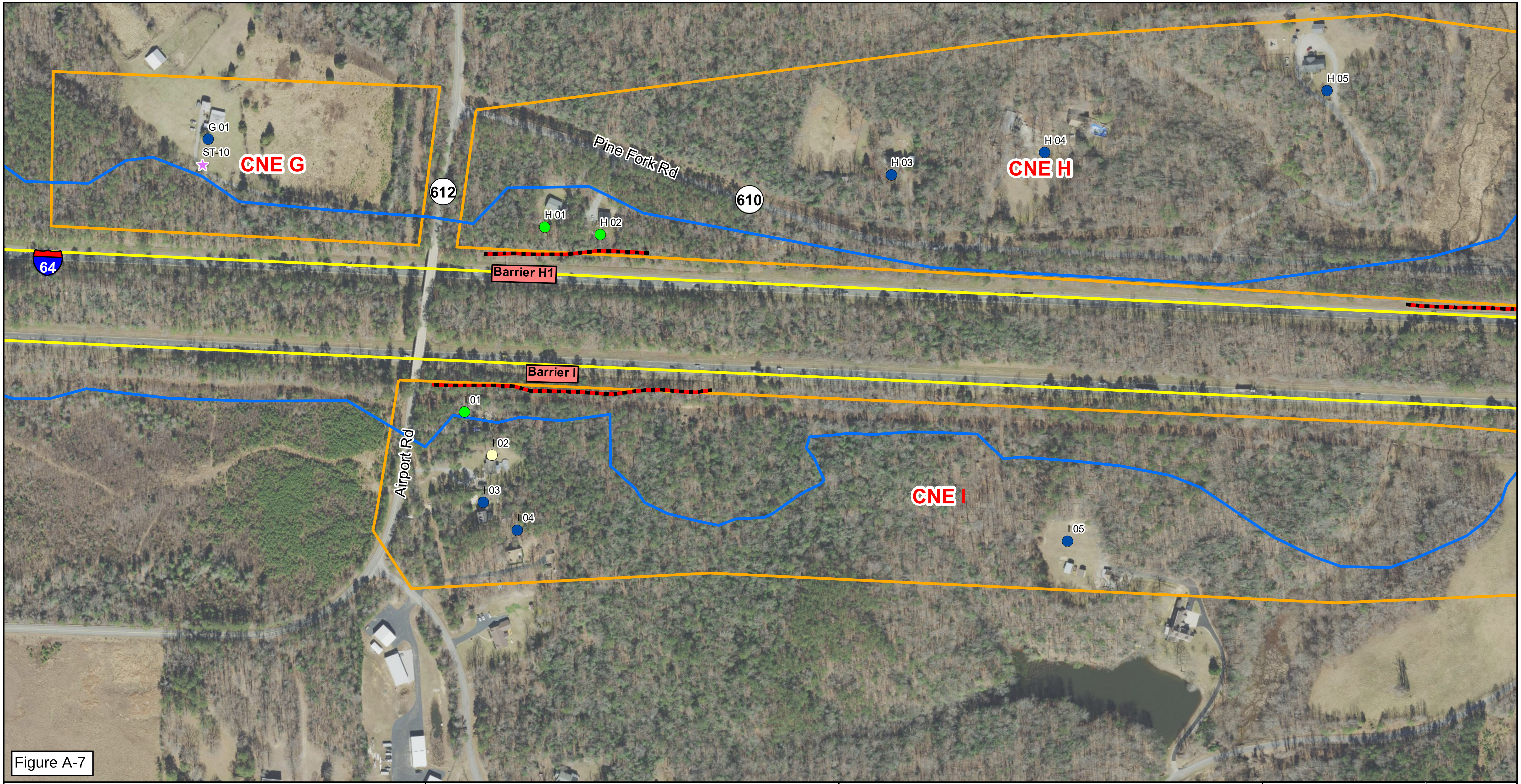


Figure A-7

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

N

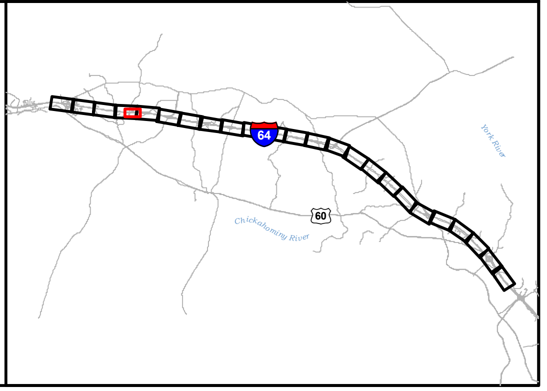
Source:VDOT, VGIN

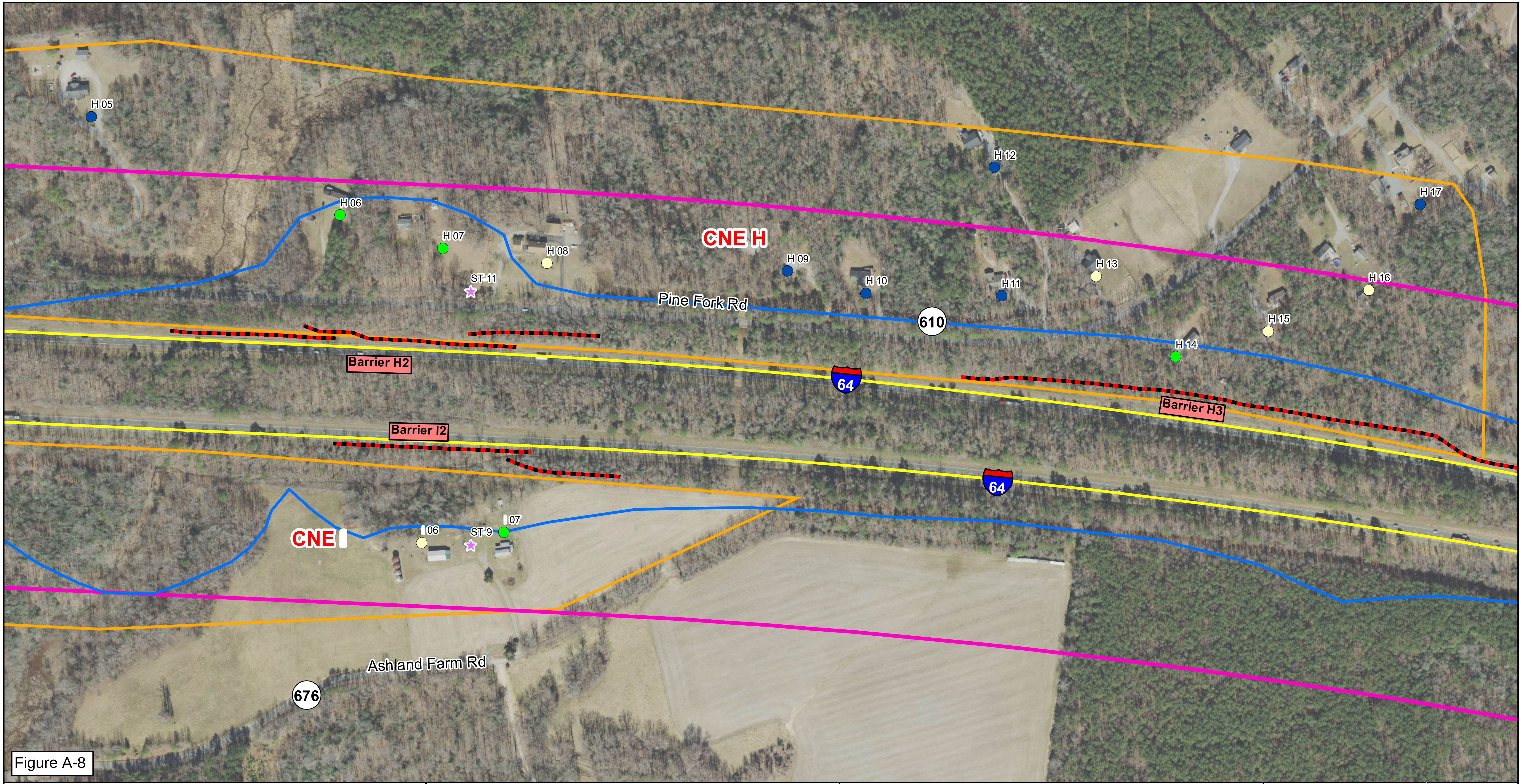
Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier

66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

0 400 800
Feet

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited

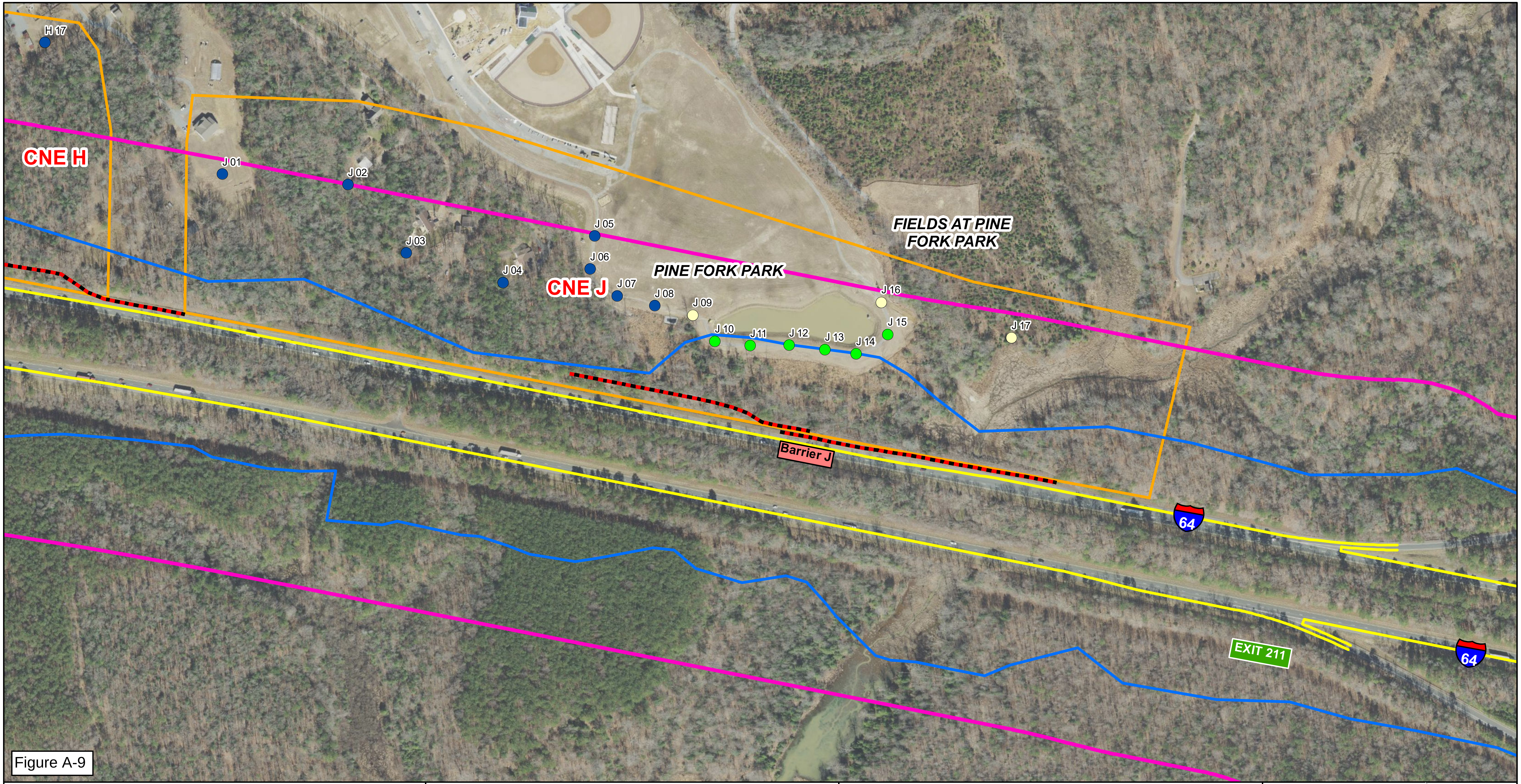


Figure A-9

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

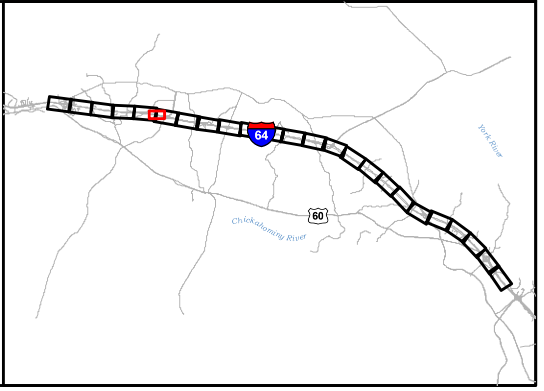
N

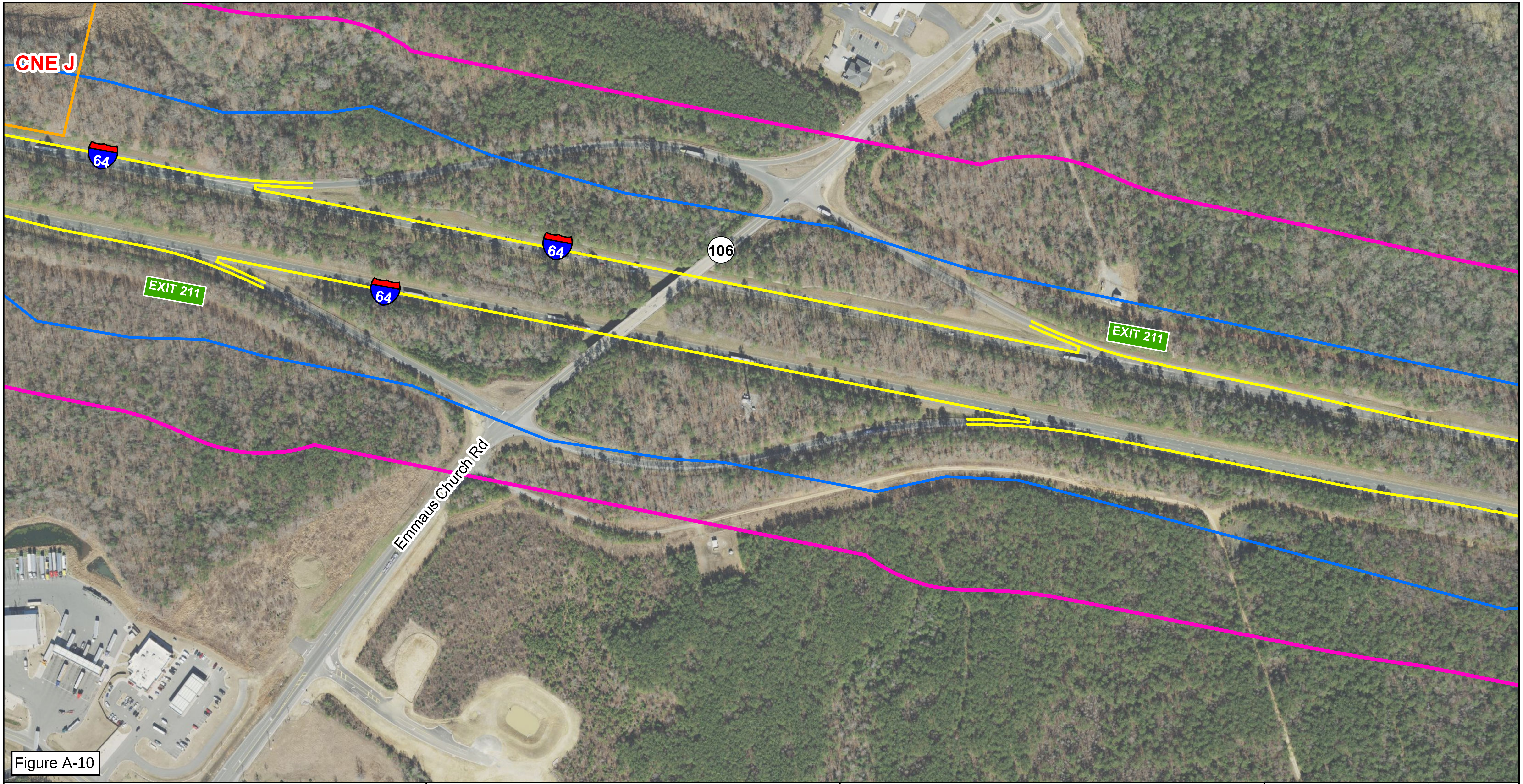
Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800

Feet

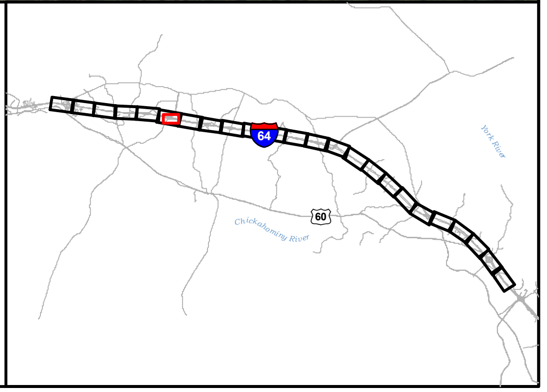
N

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



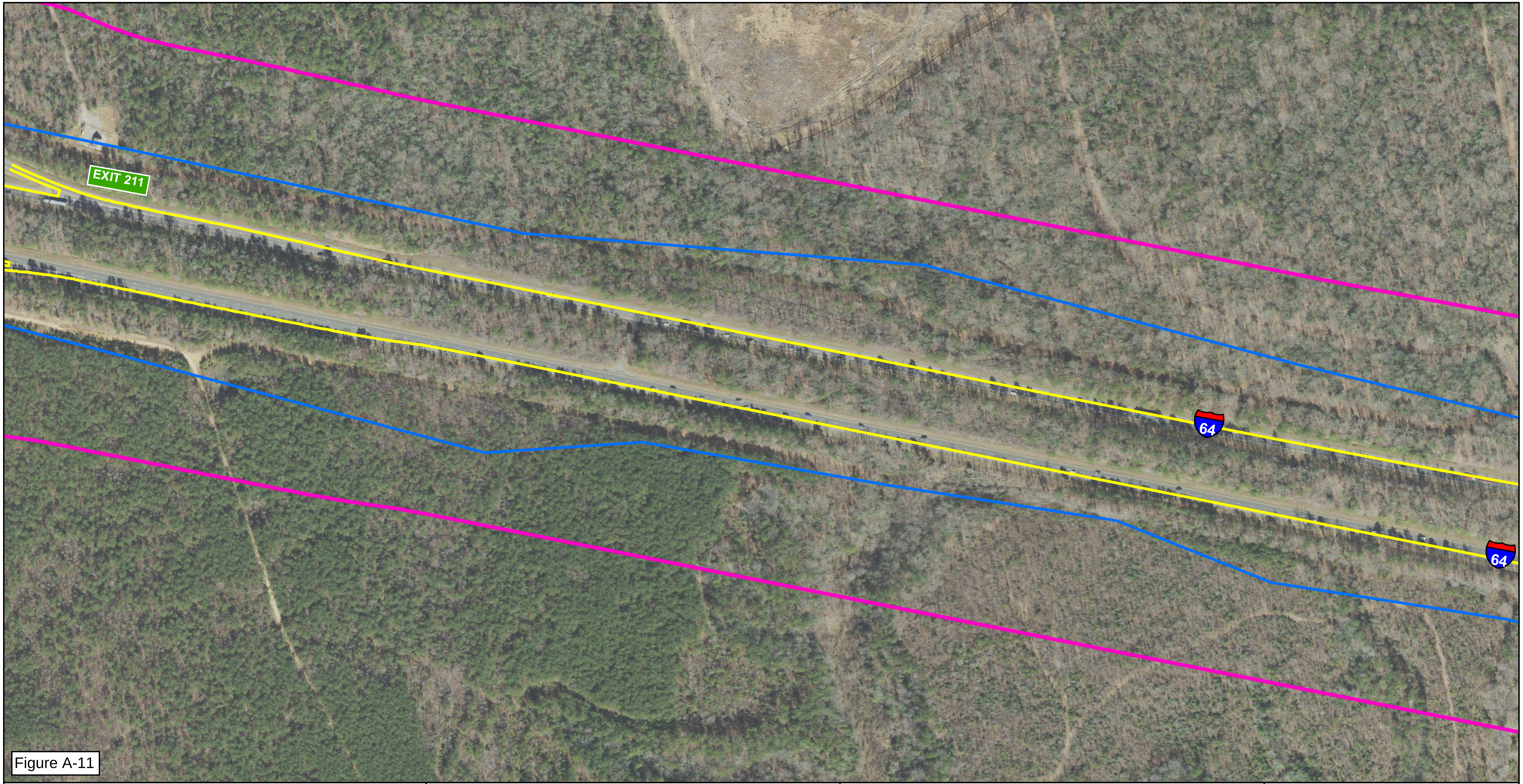


Figure A-11

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

0 400 800

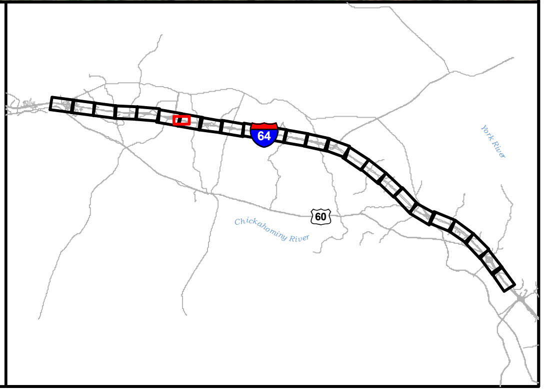
Feet

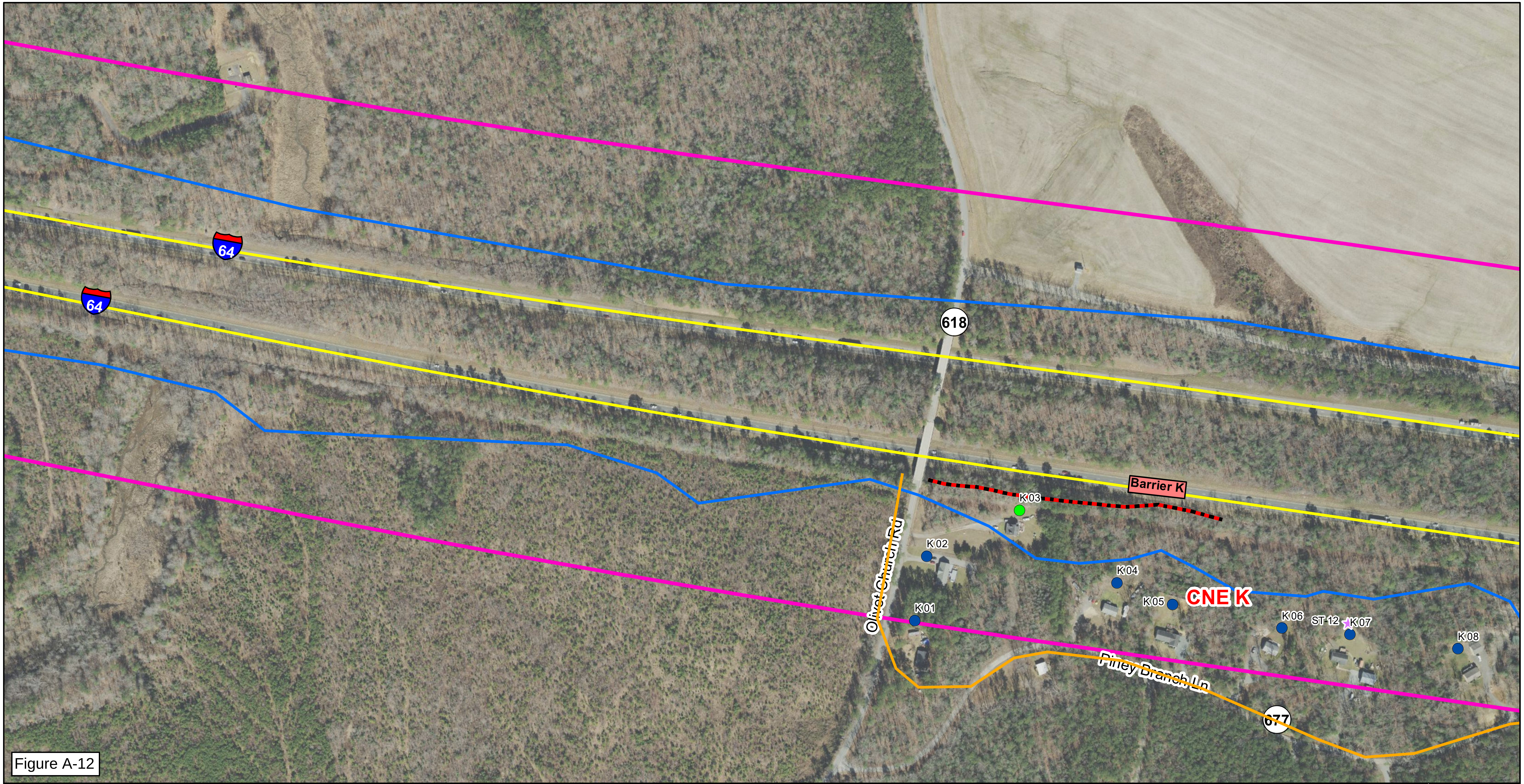
Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

0 400 800

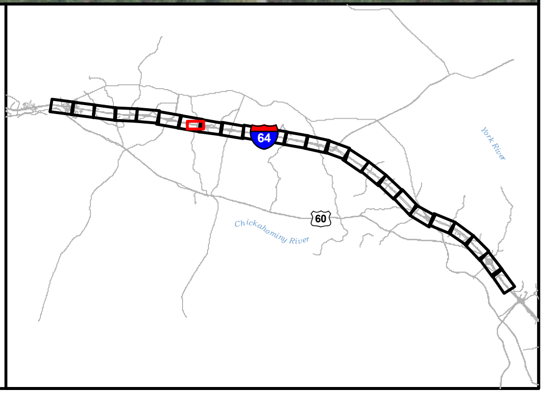
Feet

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



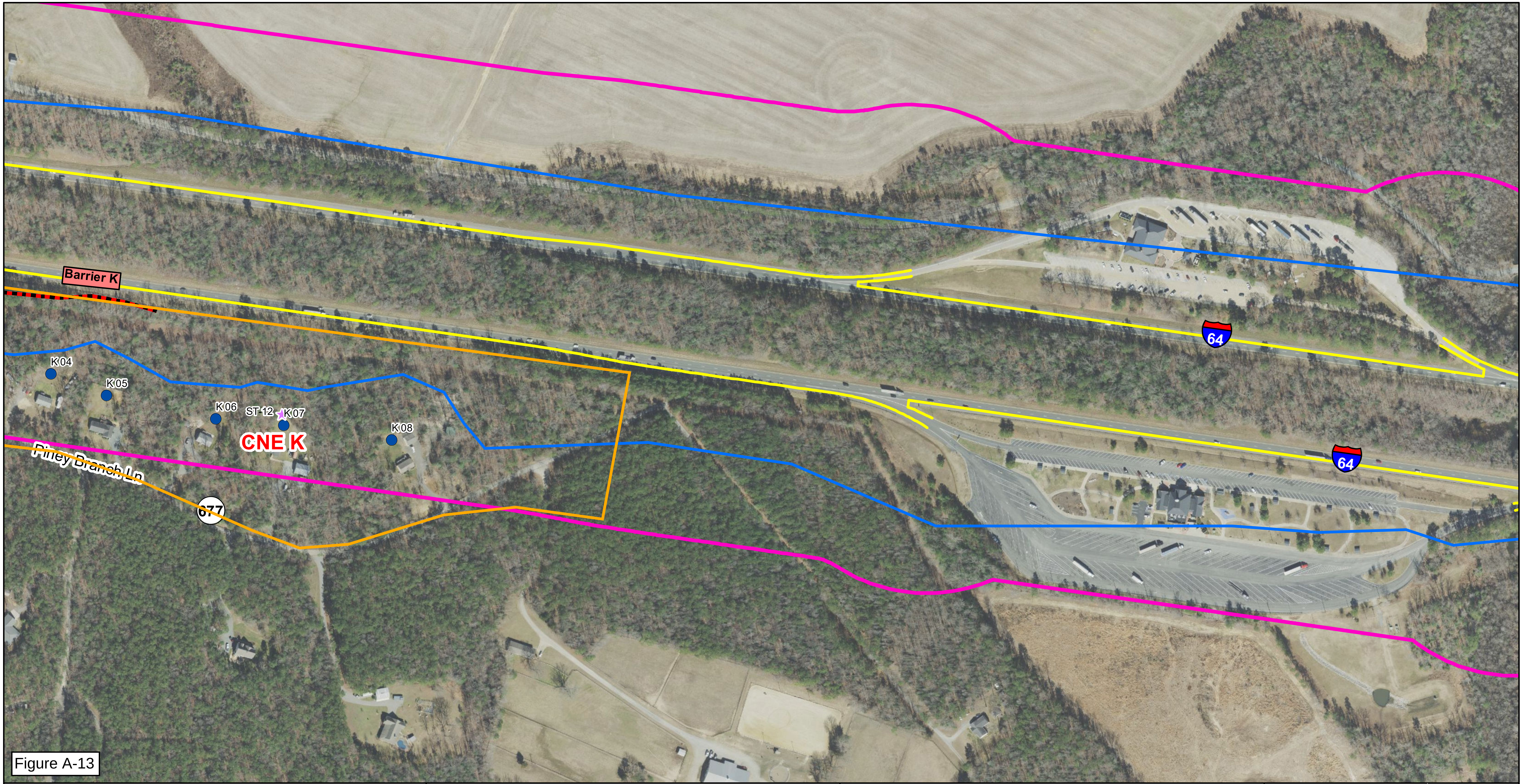


Figure A-13

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

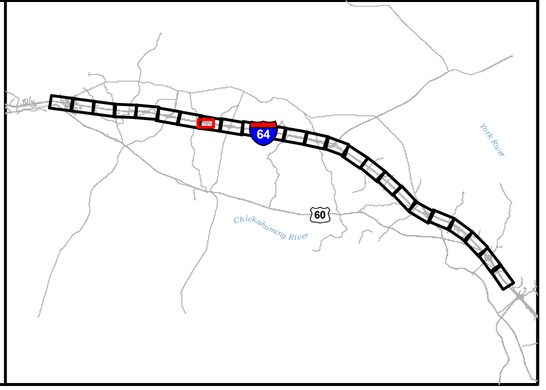
VDOT Project No.00064-800-25632396, UPC 109885

N

0 400 800
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor
Modeled Noise Receptors
Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



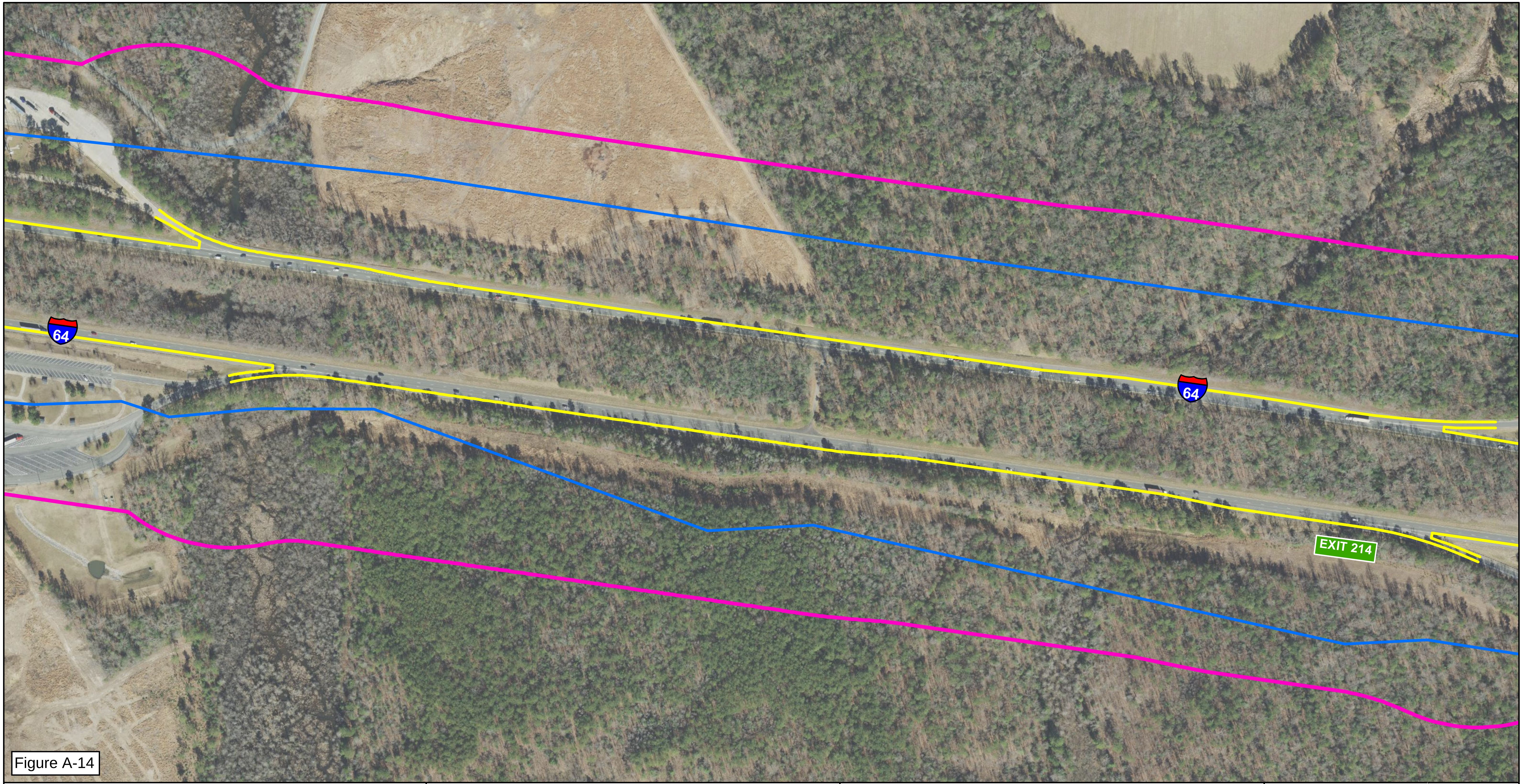


Figure A-14

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

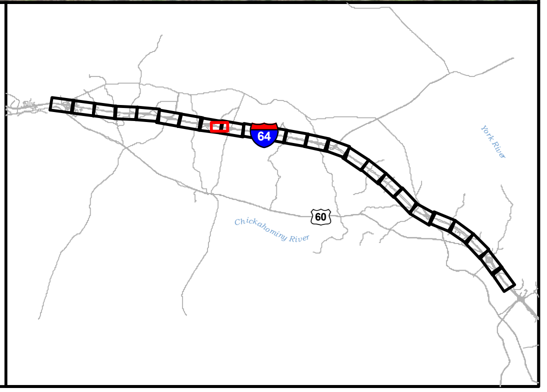
0 400 800
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



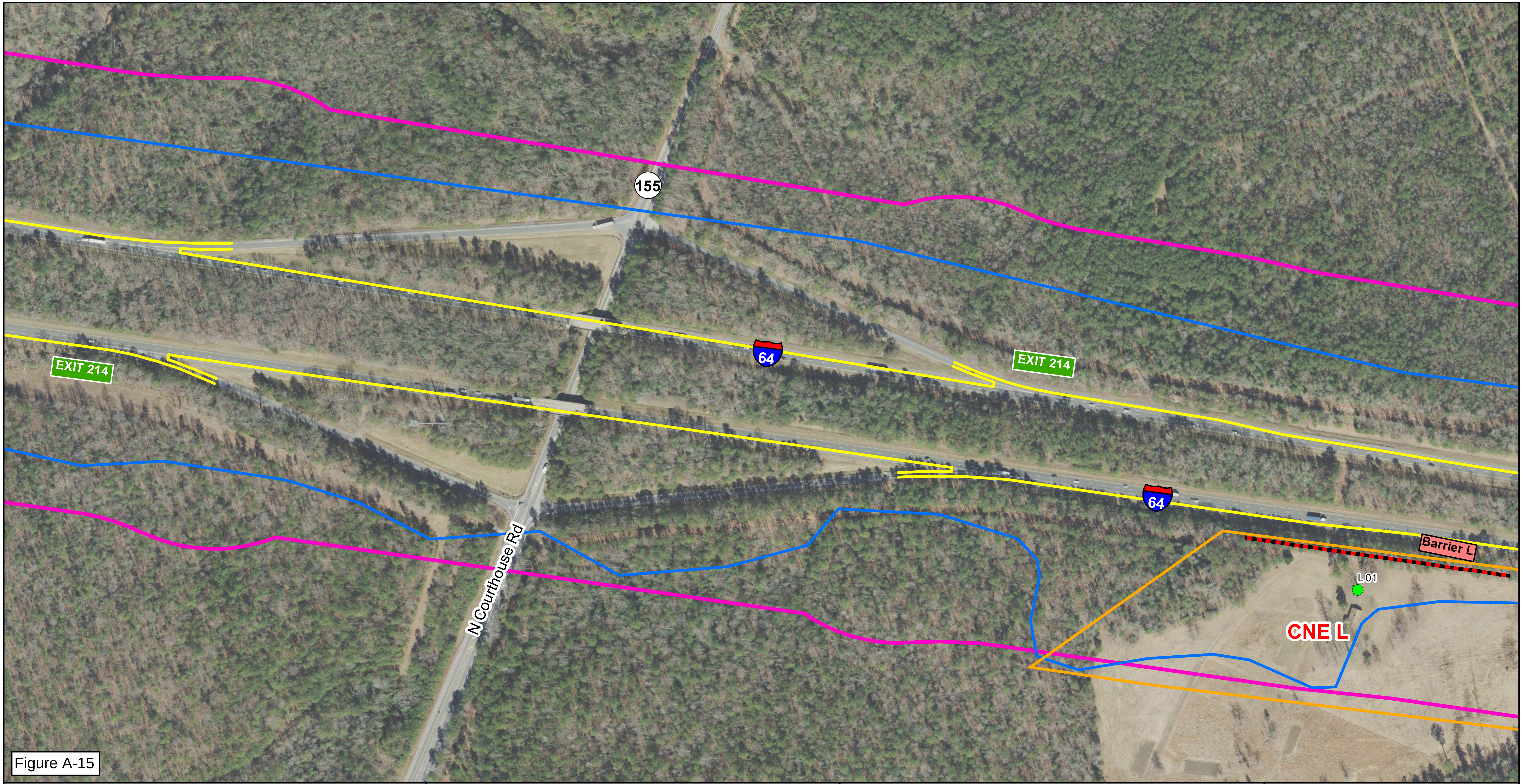


Figure A-15

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment A

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

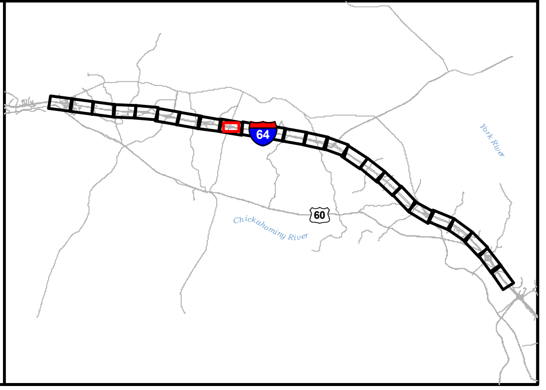
0 400 800
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



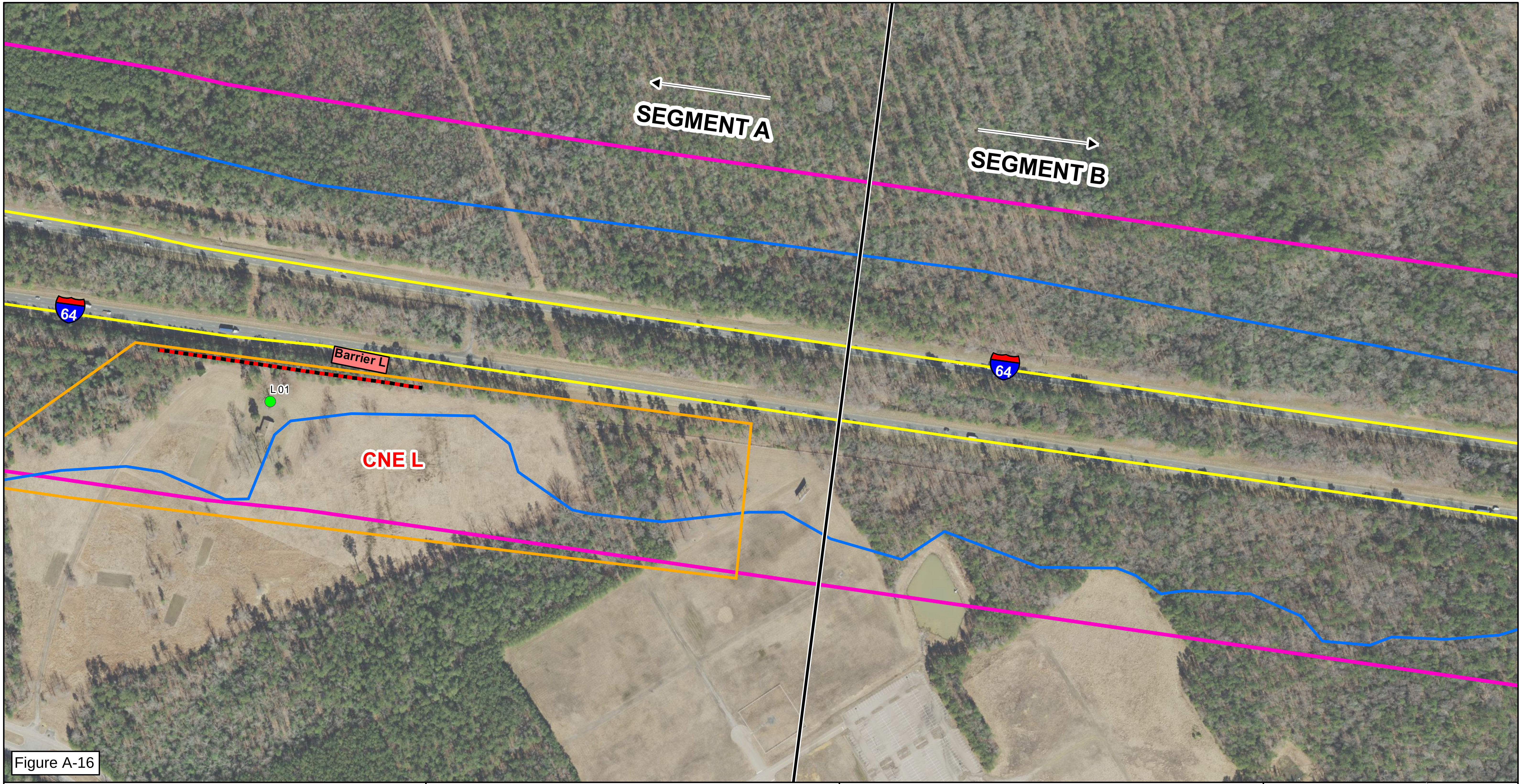


Figure A-16

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segments A & B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

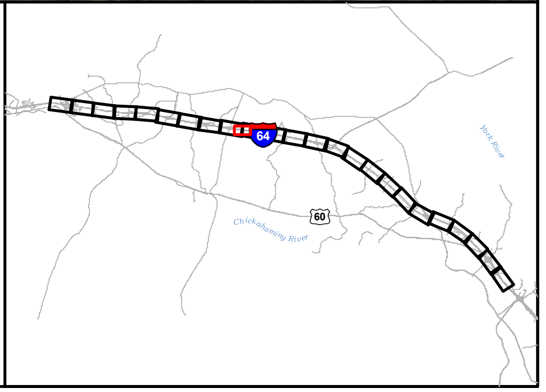
N

0 400 800
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors
Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



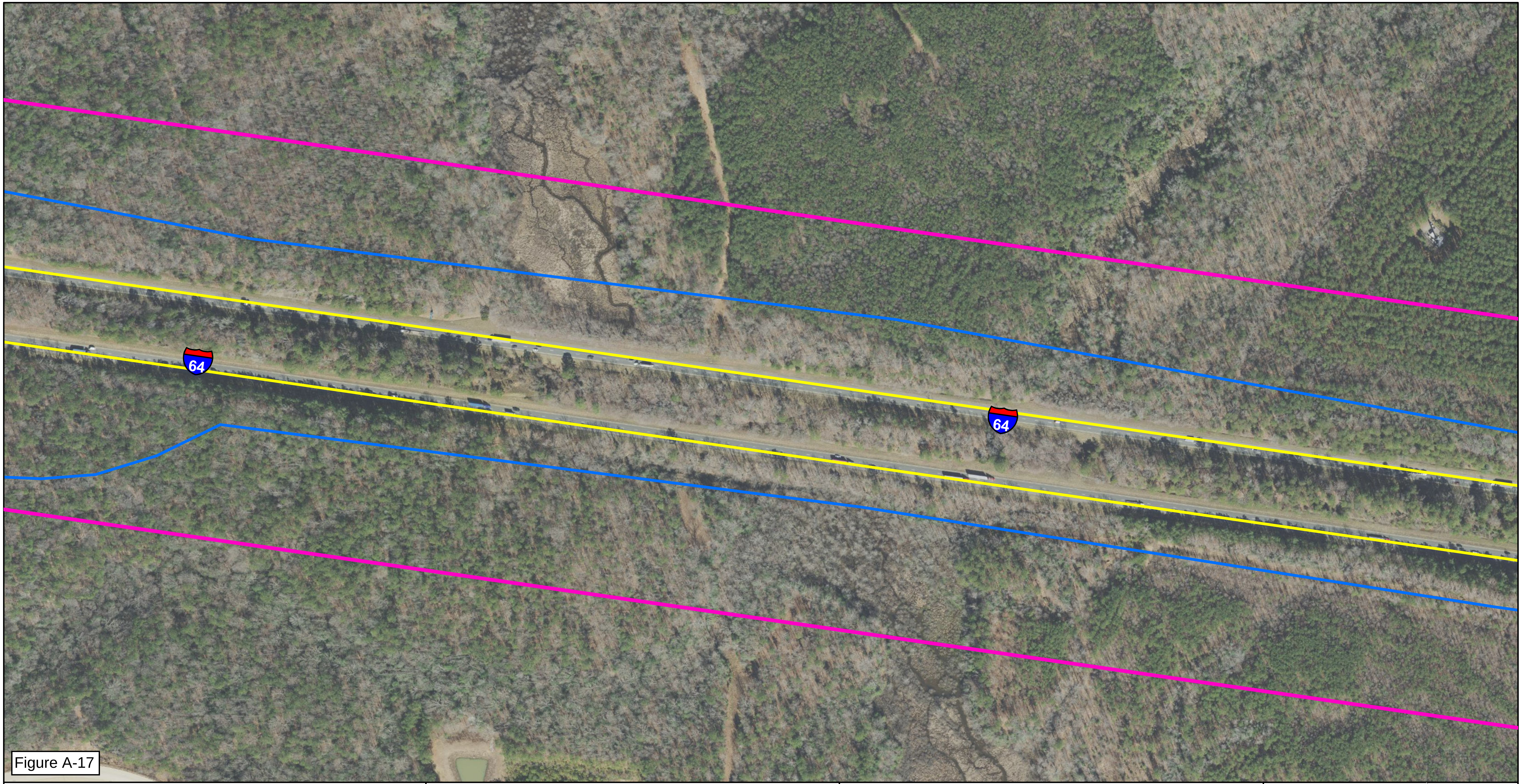


Figure A-17

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

0 400 800

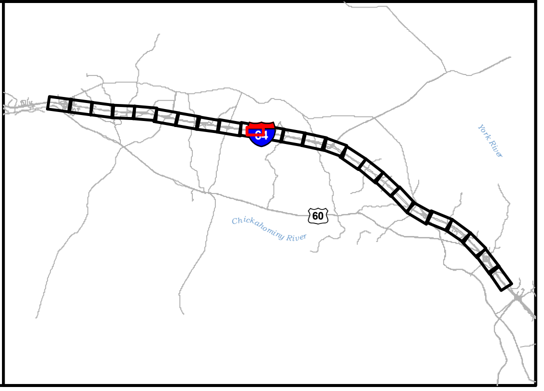
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



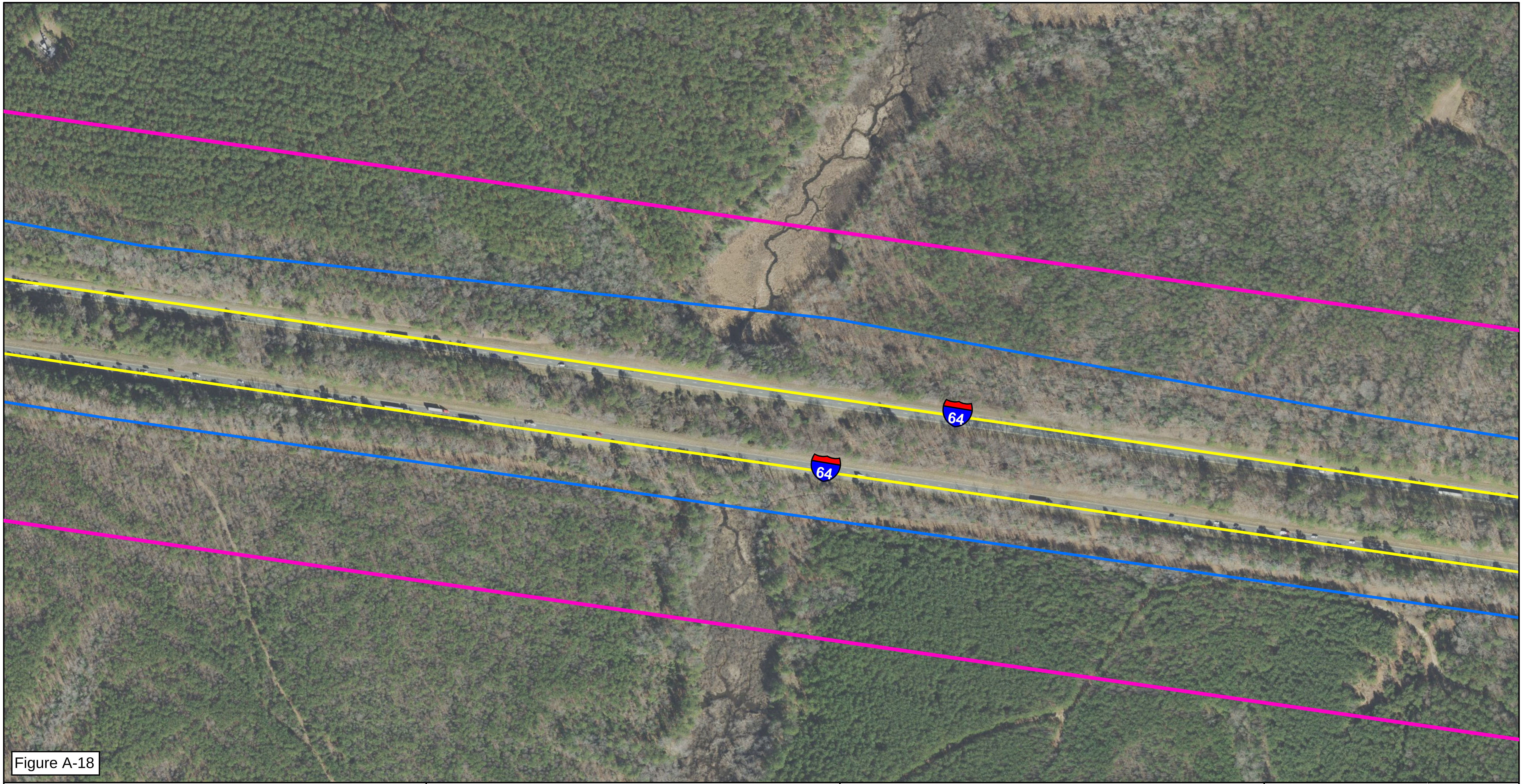


Figure A-18

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

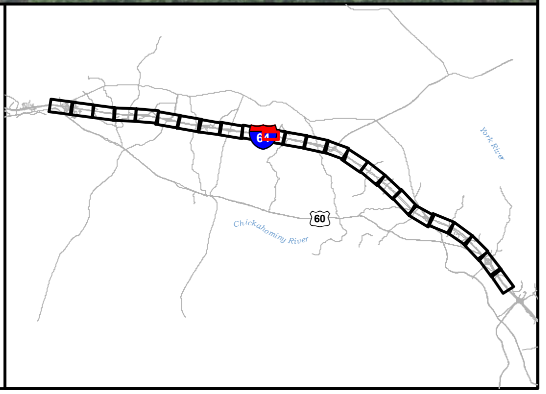
N

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



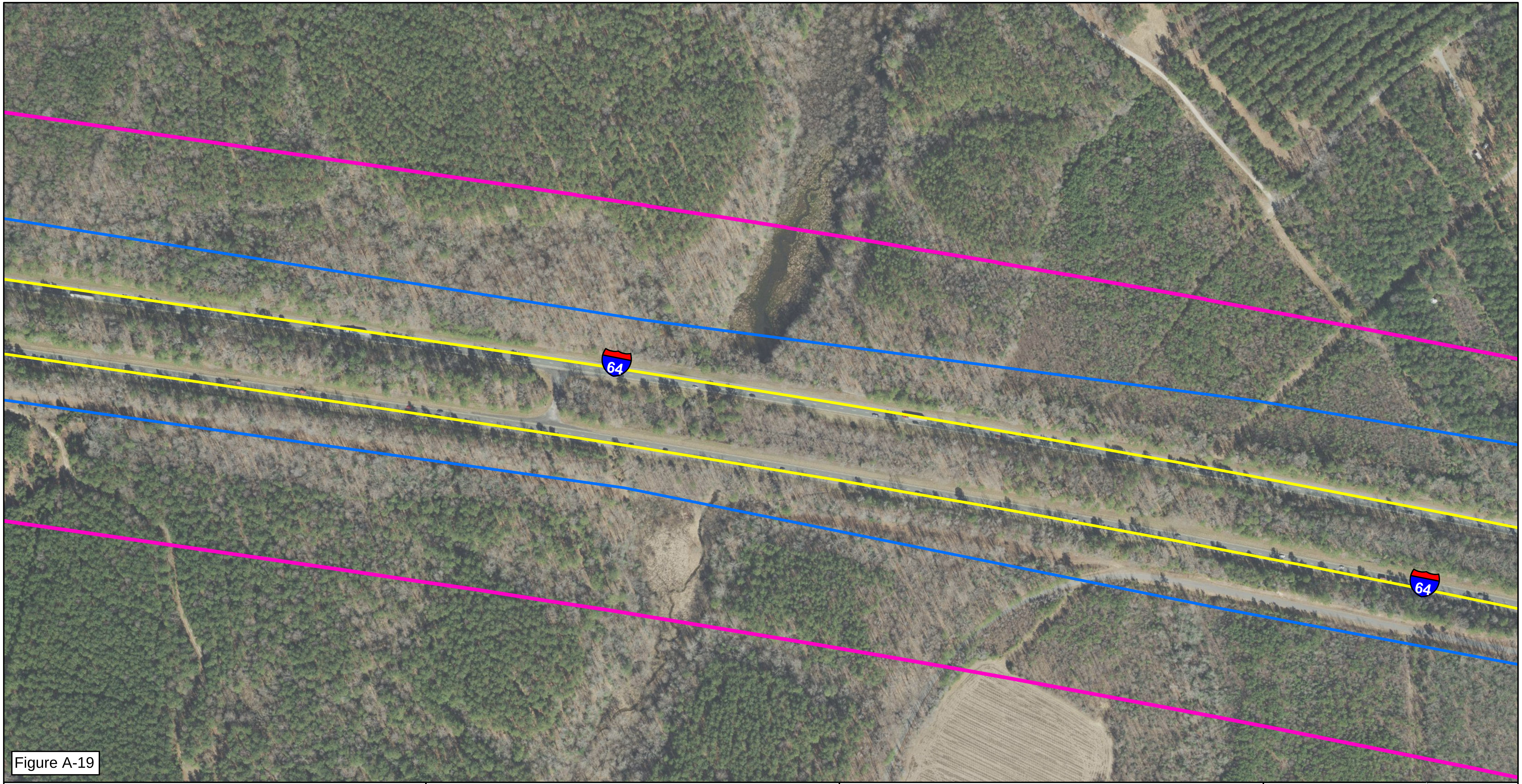


Figure A-19

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

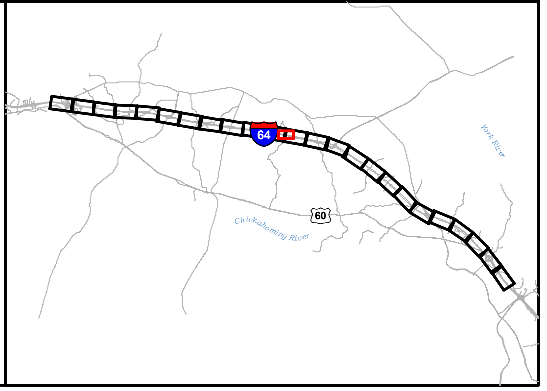
0 400 800
Feet

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

0 400 800

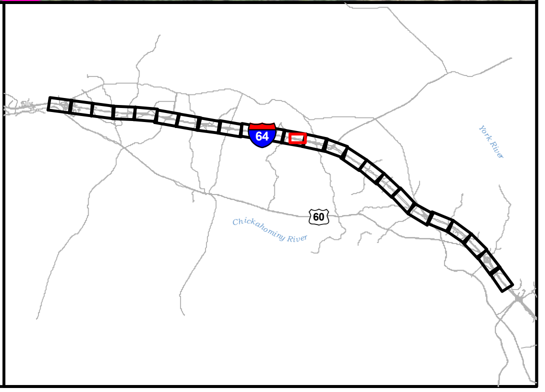
Feet

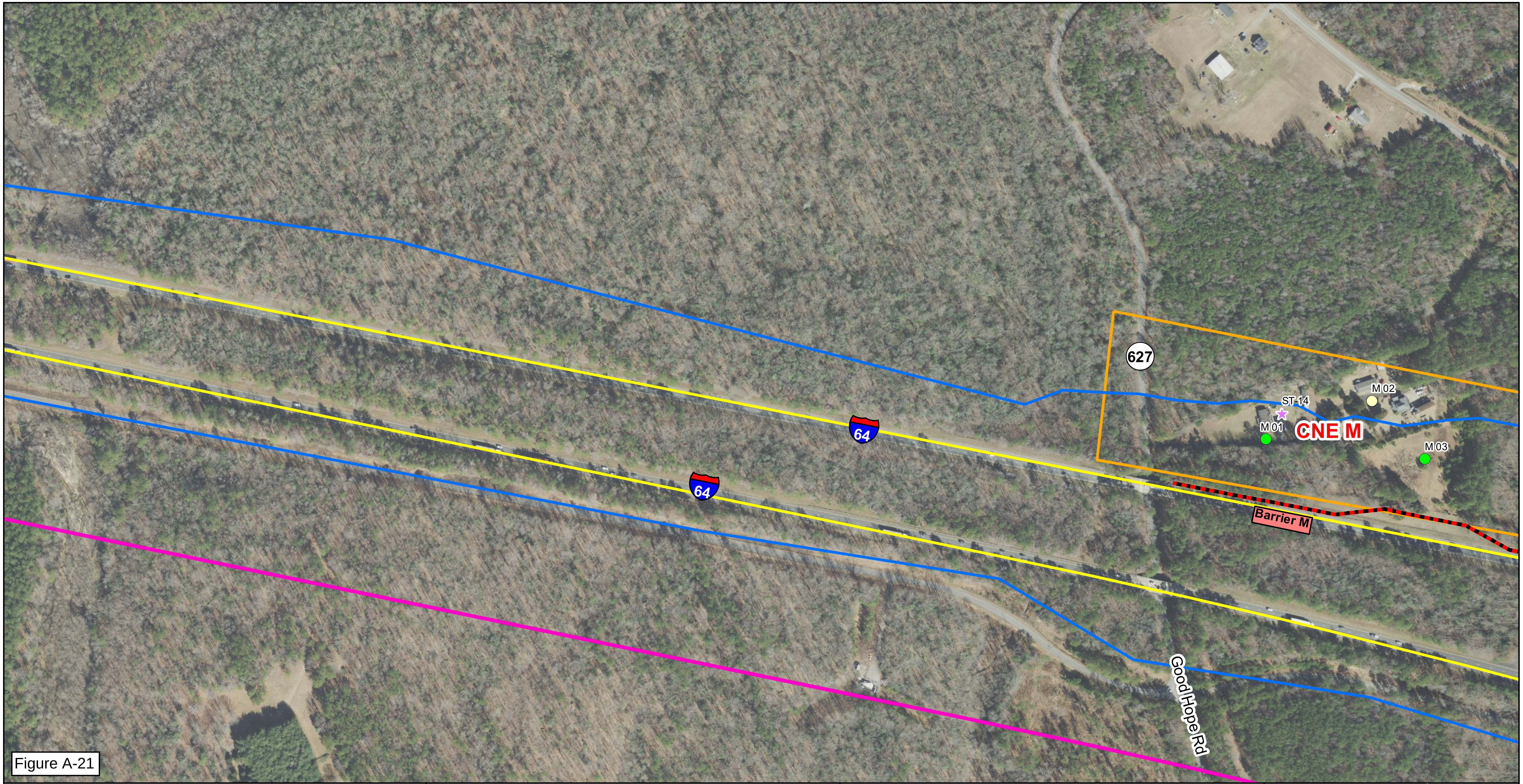
Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

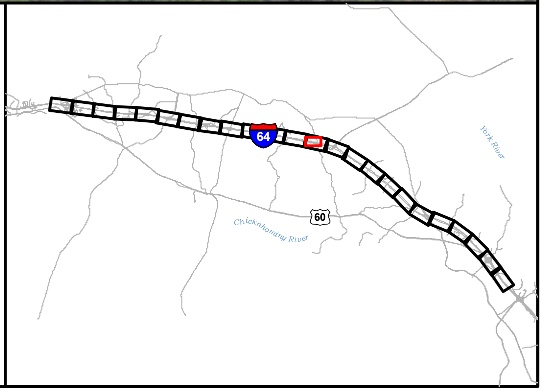
0 400 800
Feet

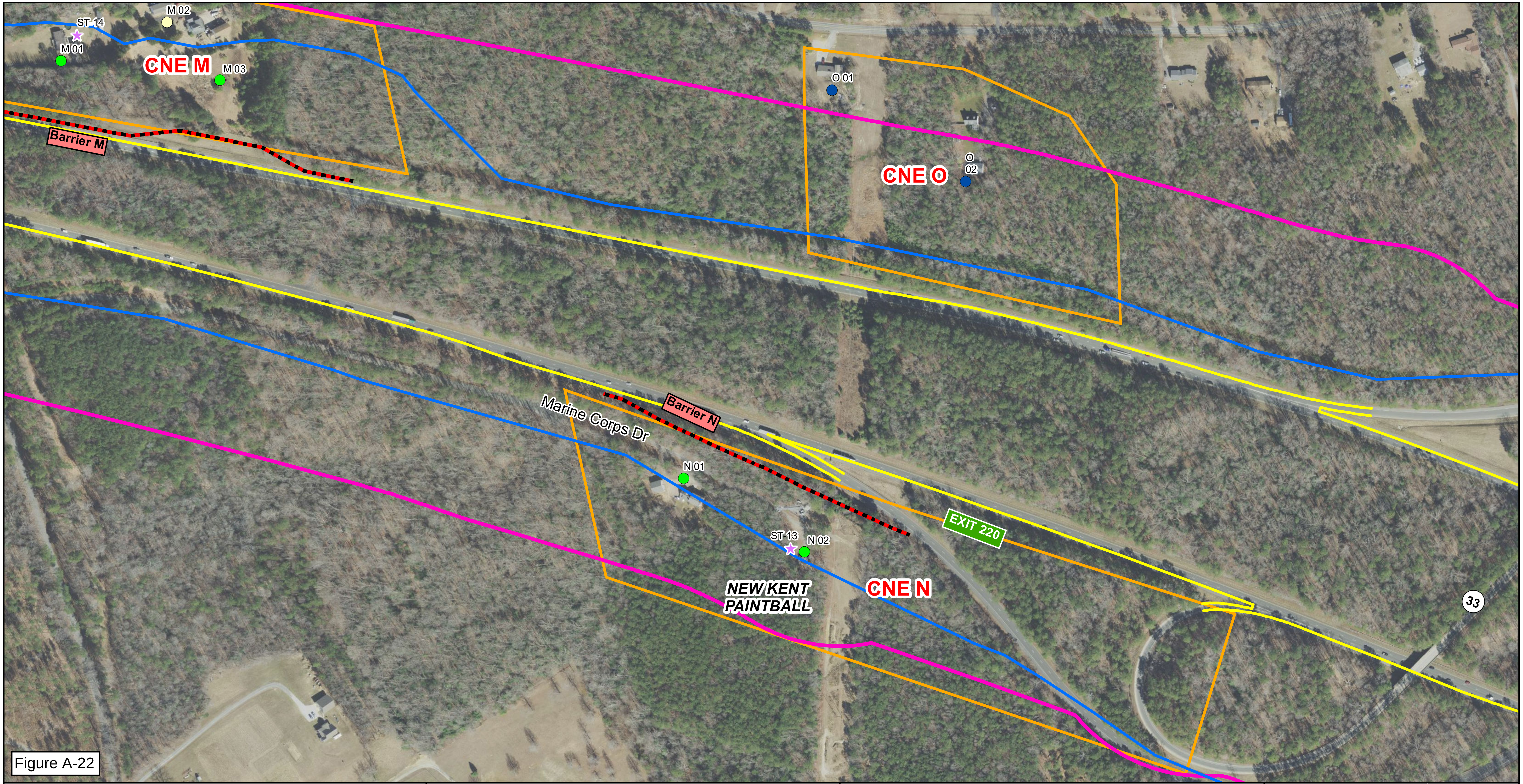
Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800

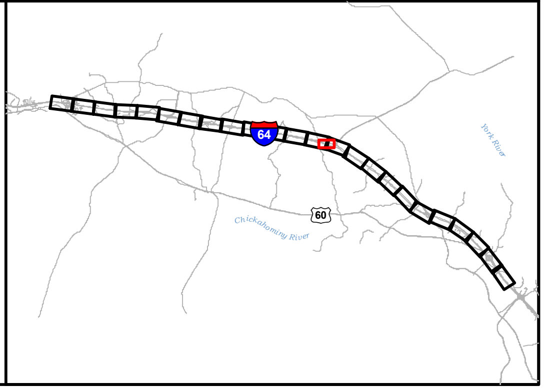
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

N

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited

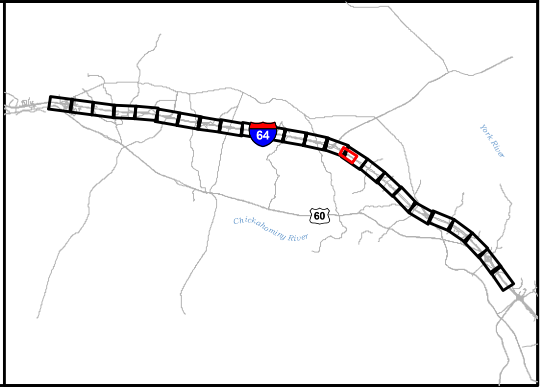


Figure A-25

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

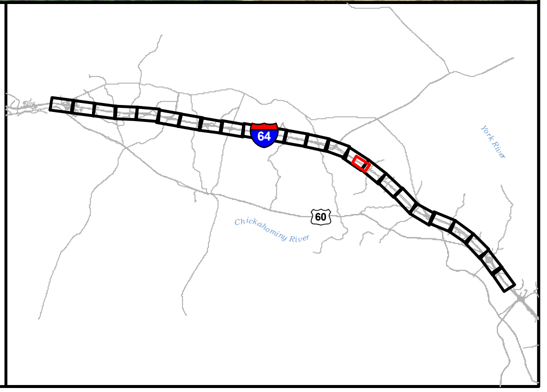
0 400 800
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



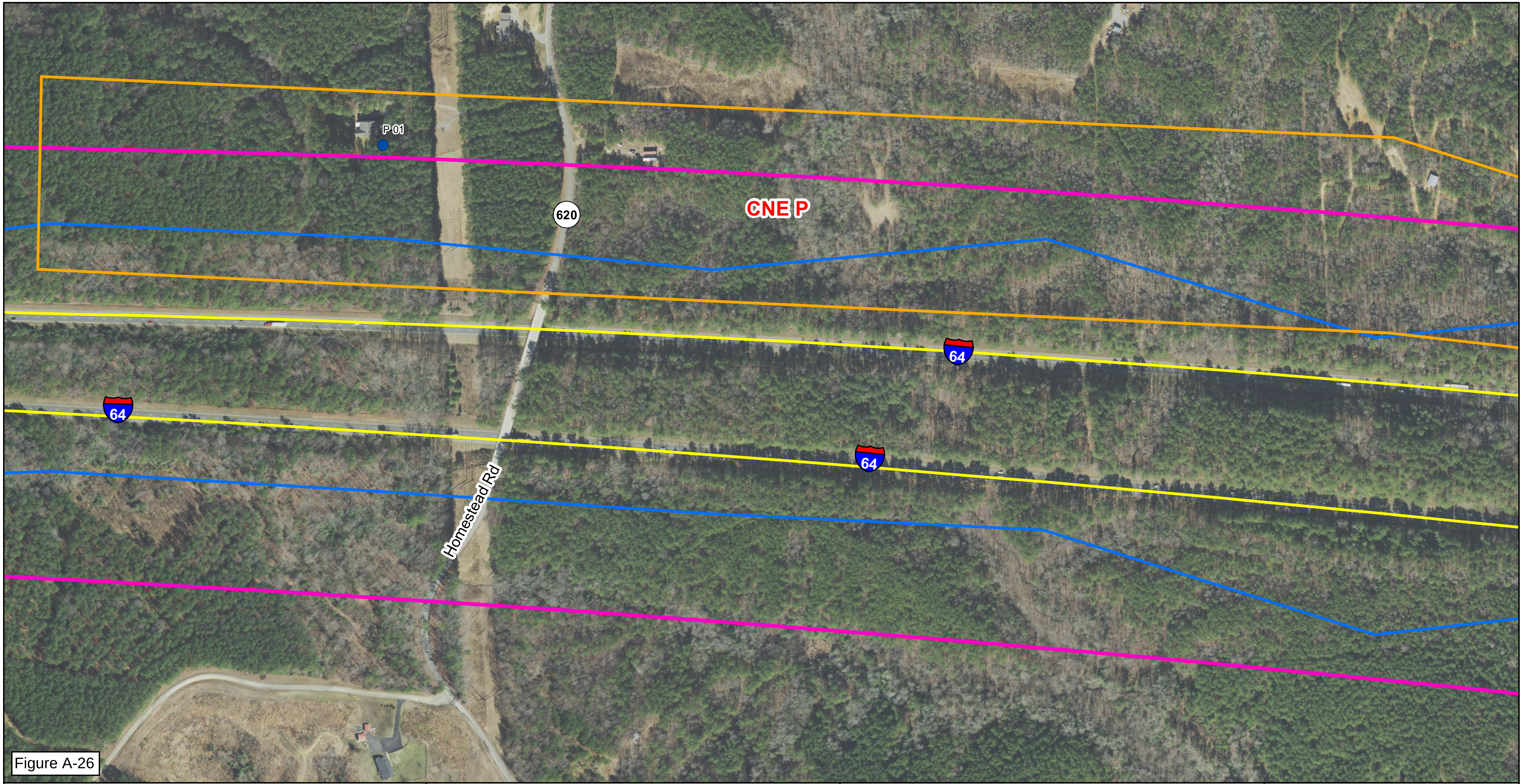


Figure A-26

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

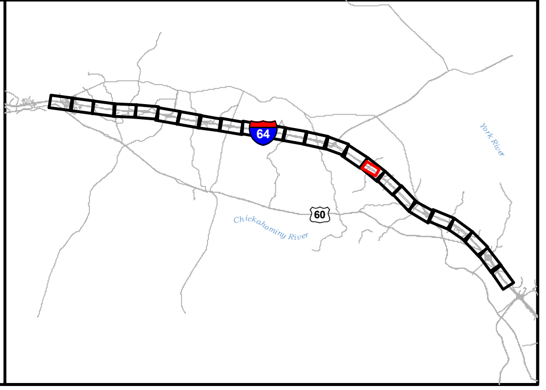
N

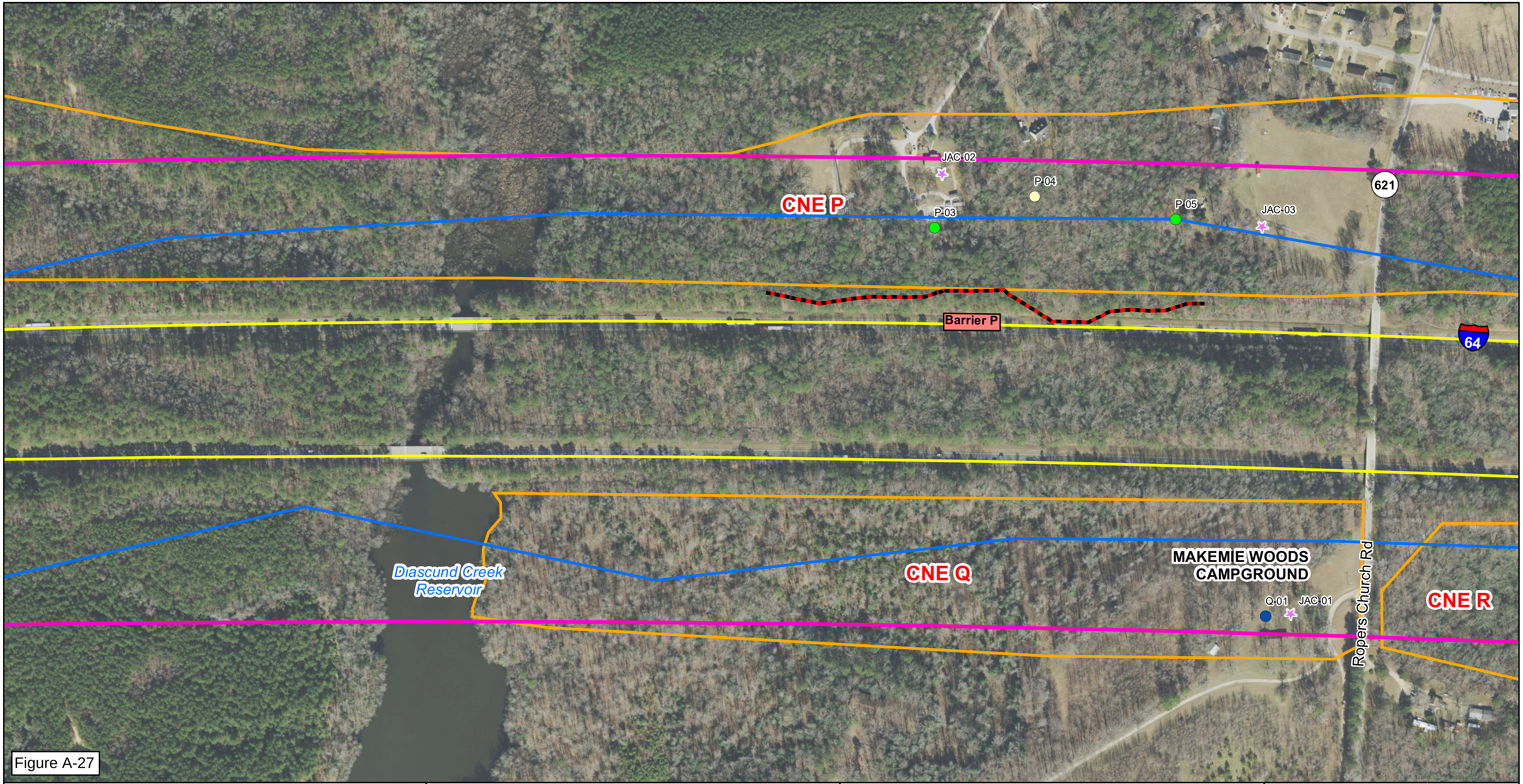
Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment B

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

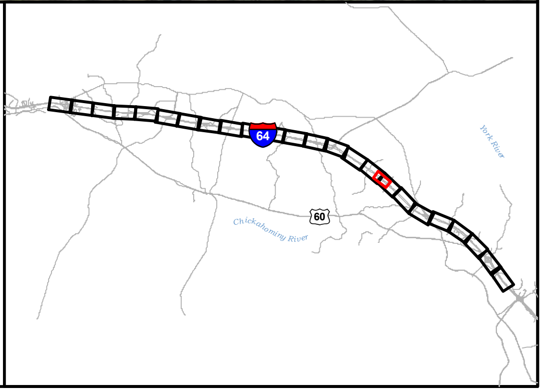
0 400 800
Feet

N

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors
- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



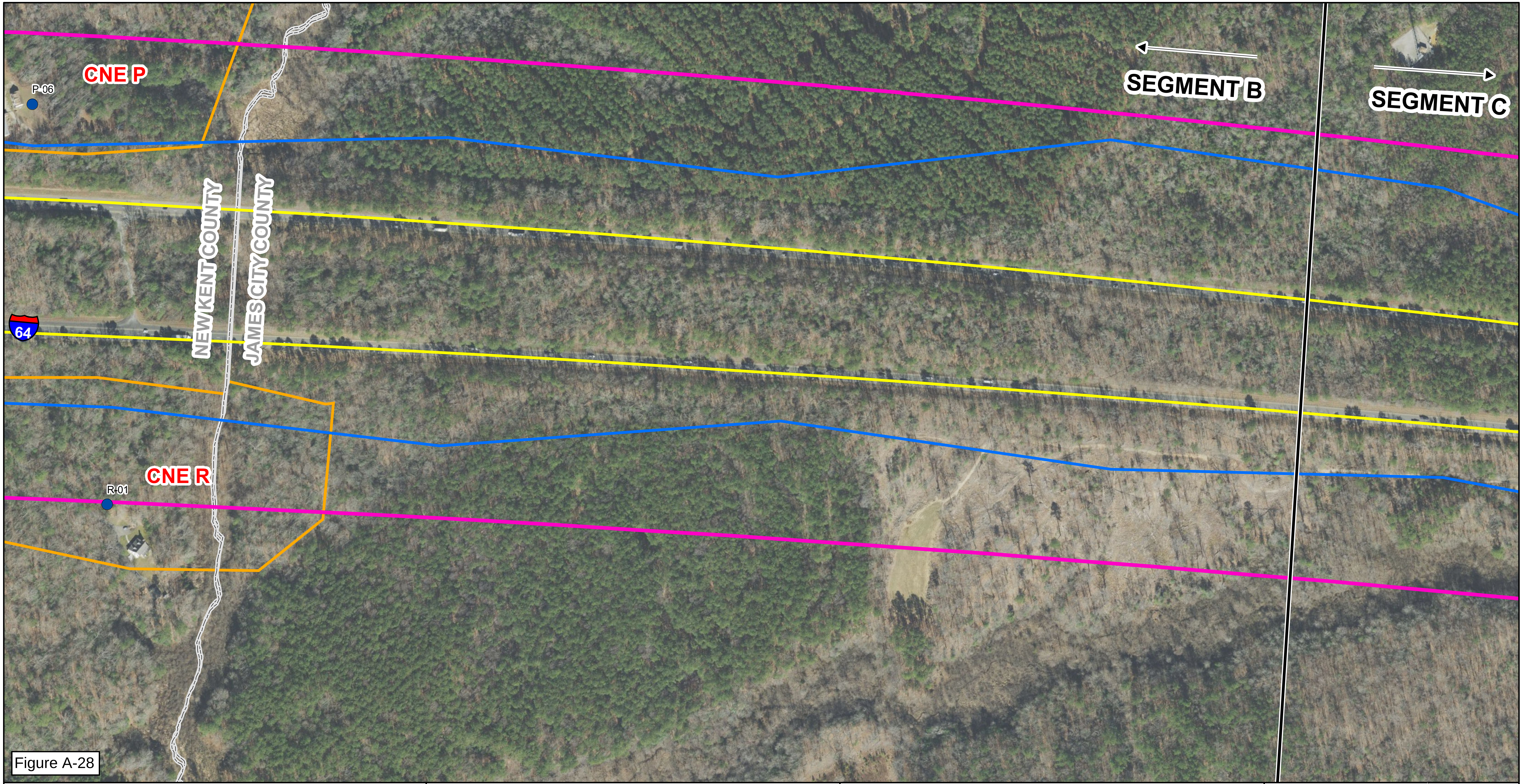


Figure A-28

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segments B and C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

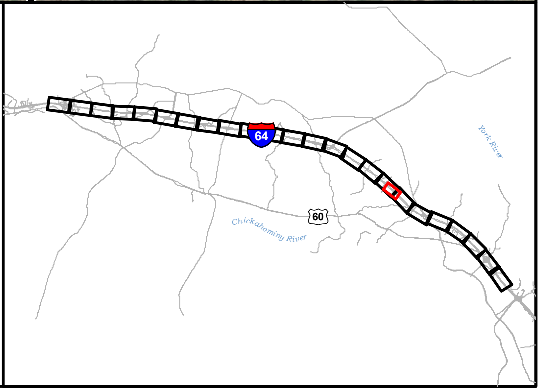
Source:VDOT, VGIN

N

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



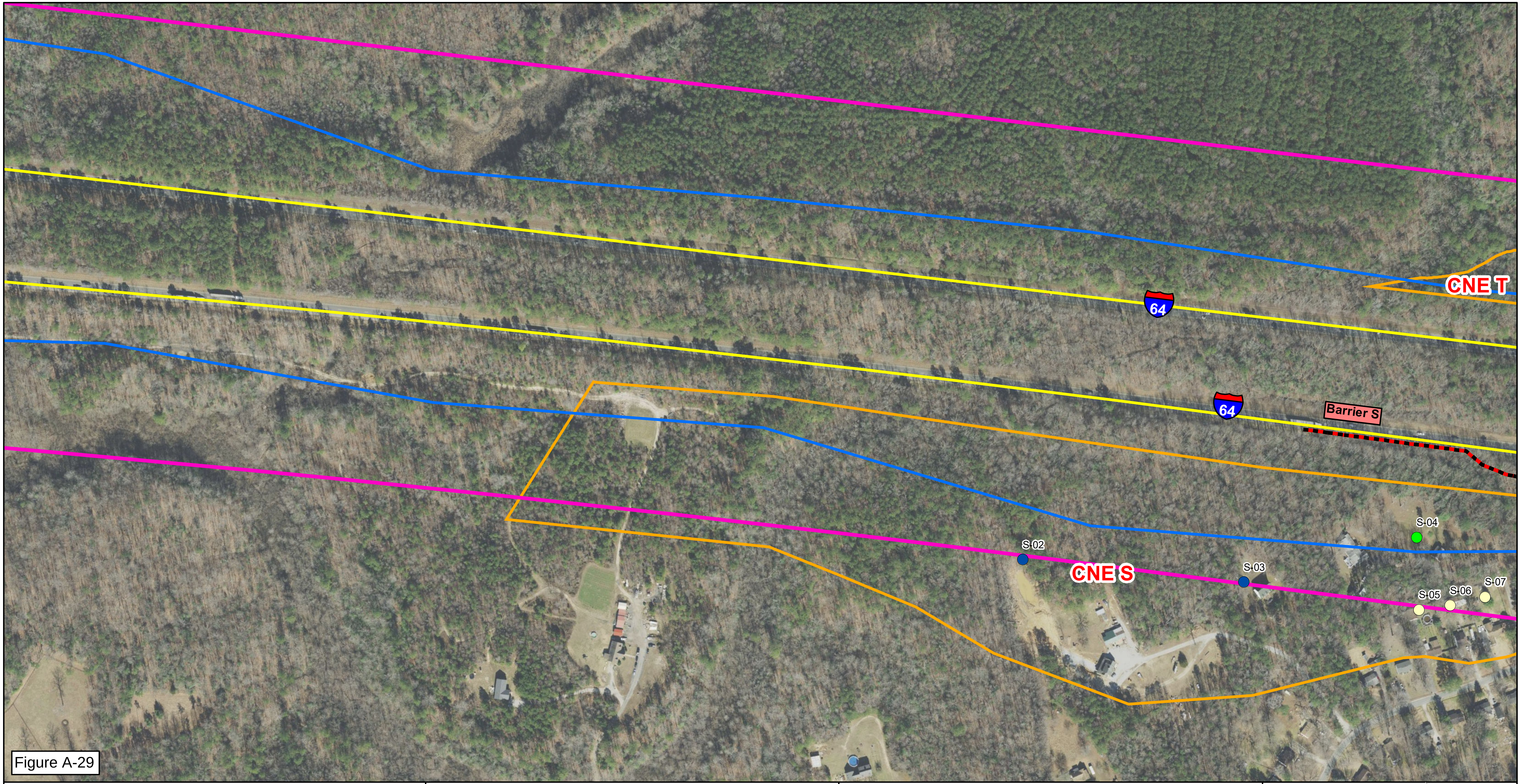


Figure A-29

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

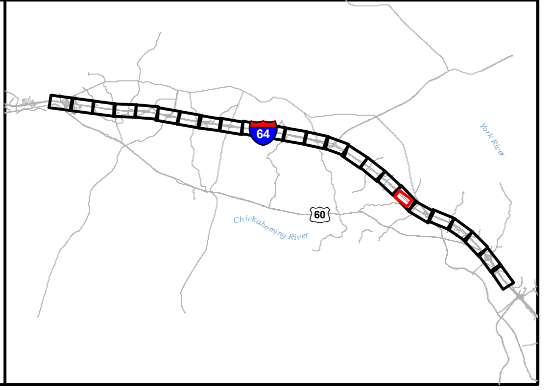
N

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



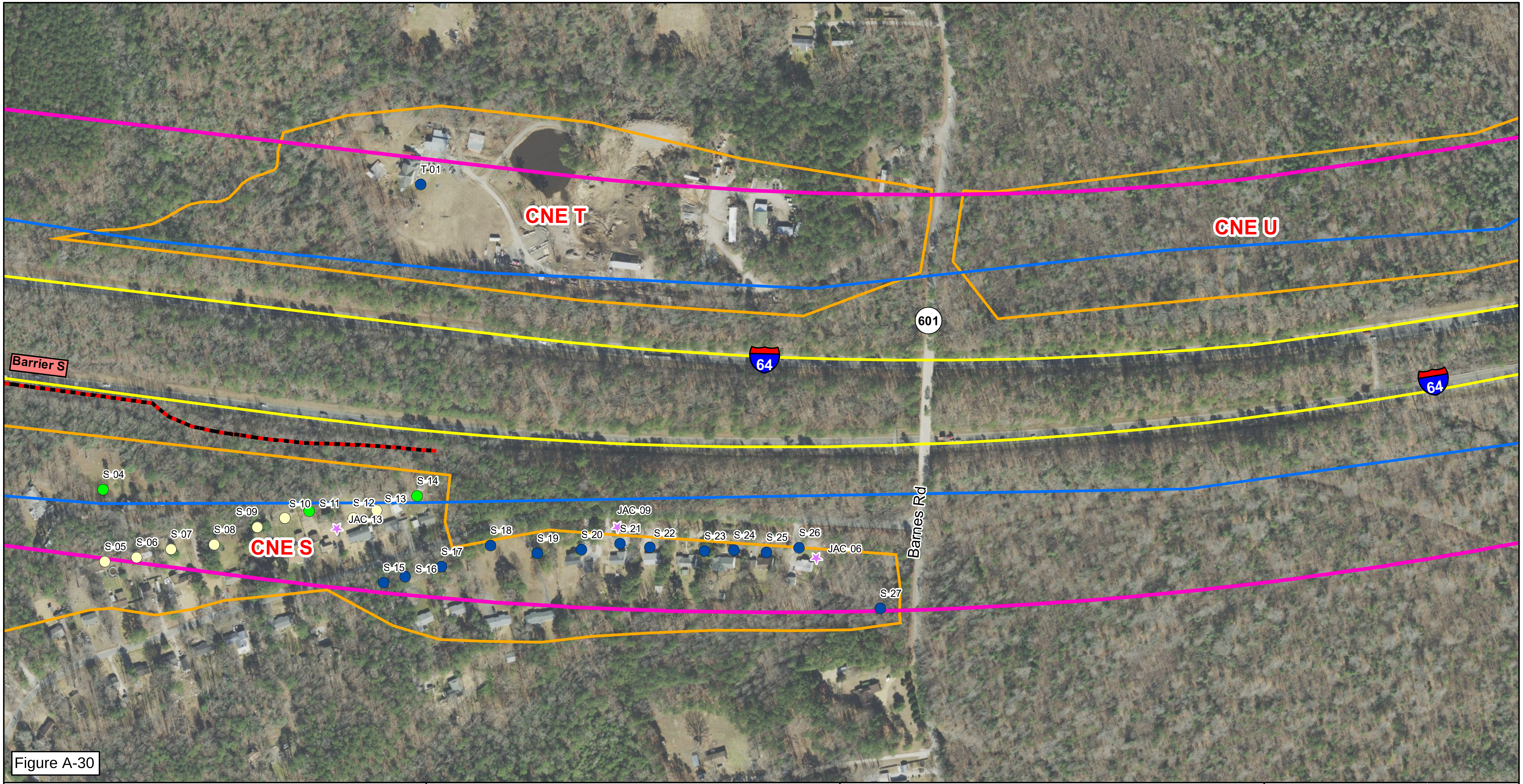


Figure A-30

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800

Feet

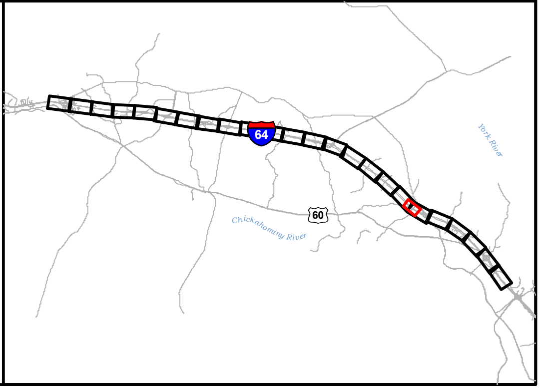
Source:VDOT, VGIN

N

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



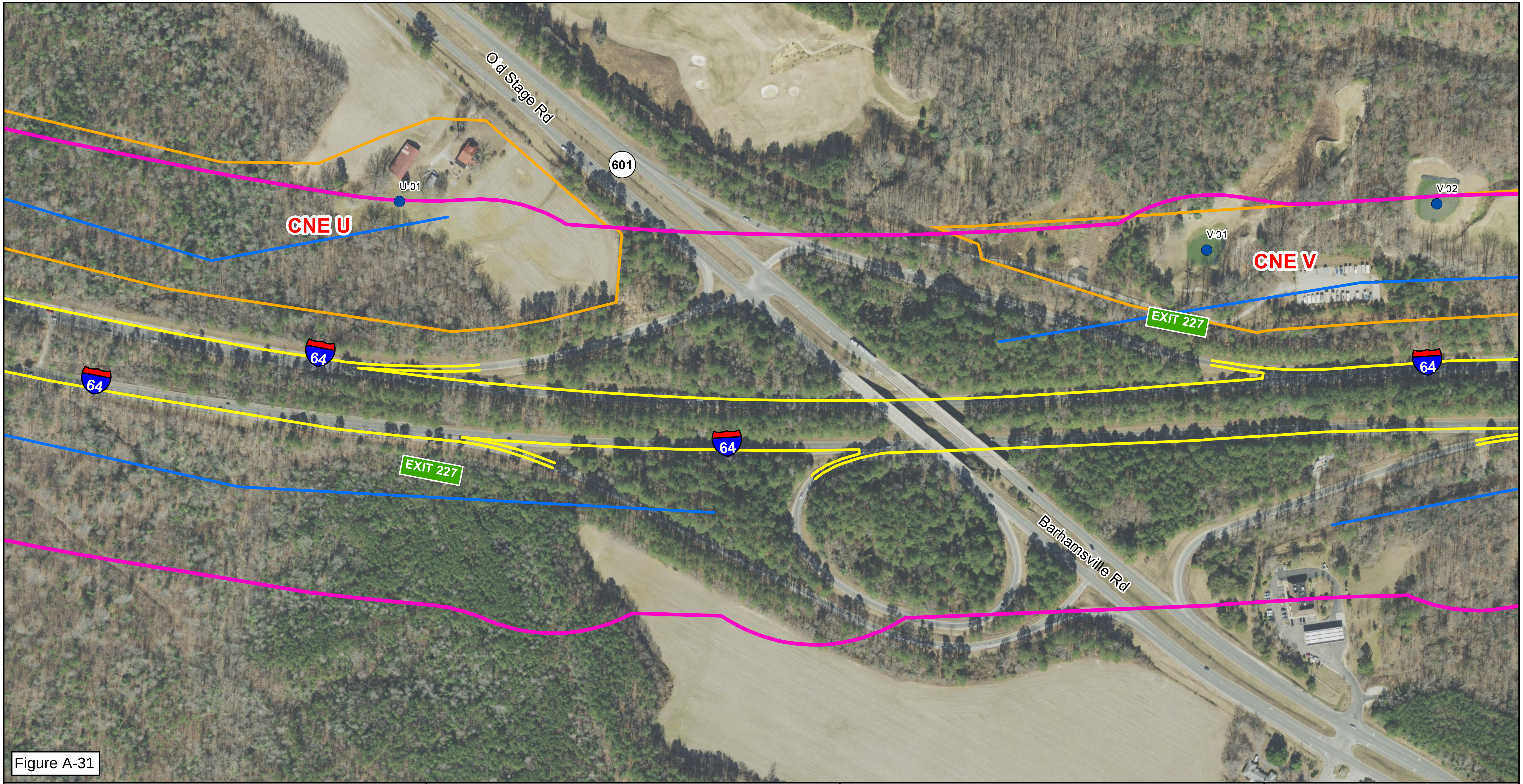


Figure A-31

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

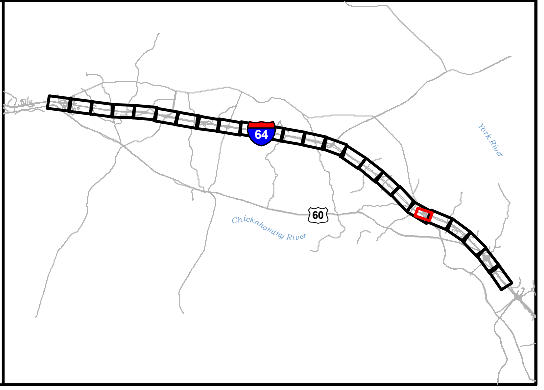
N

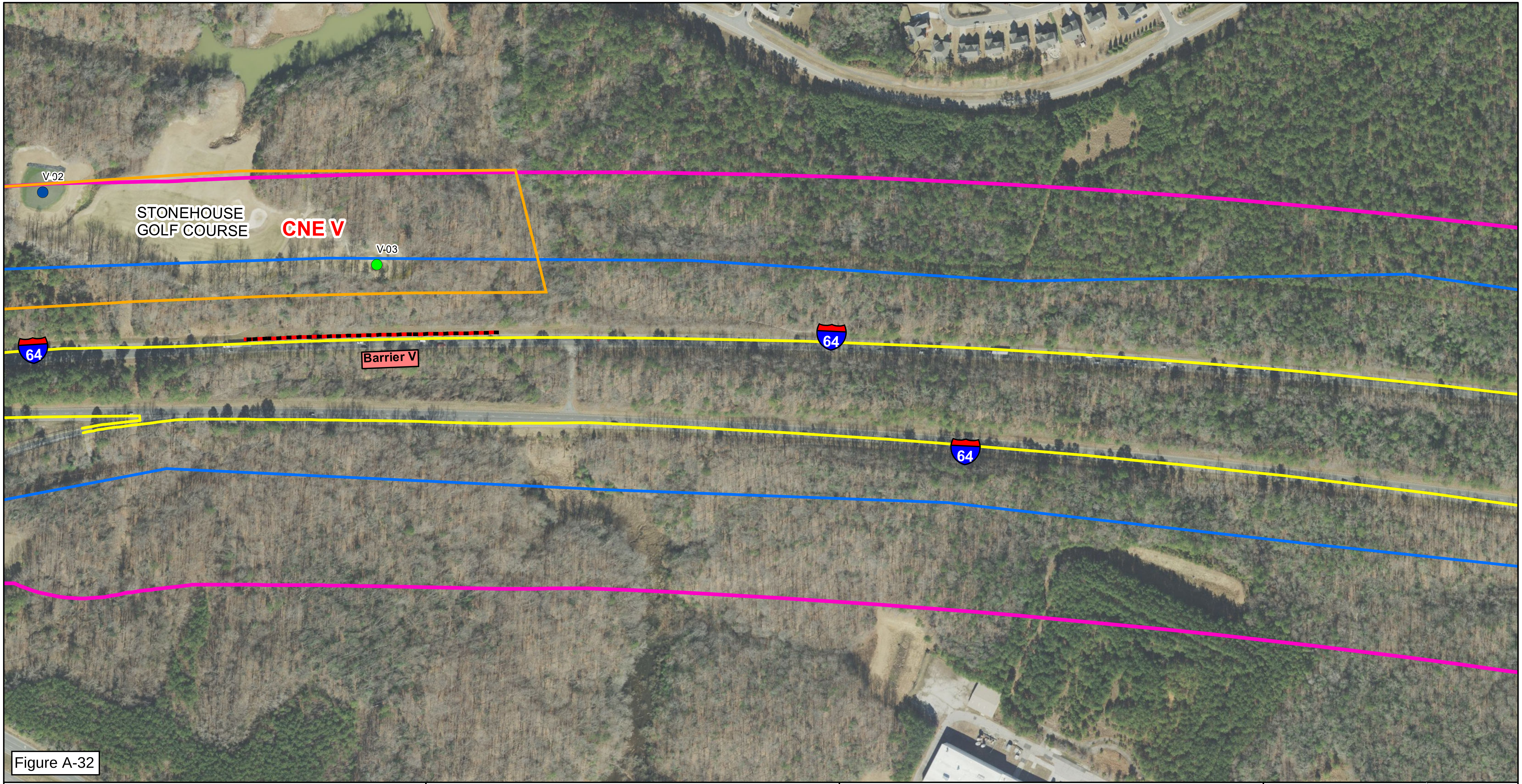
Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

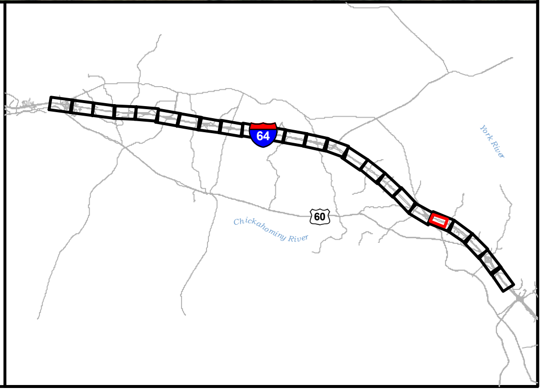
N

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited



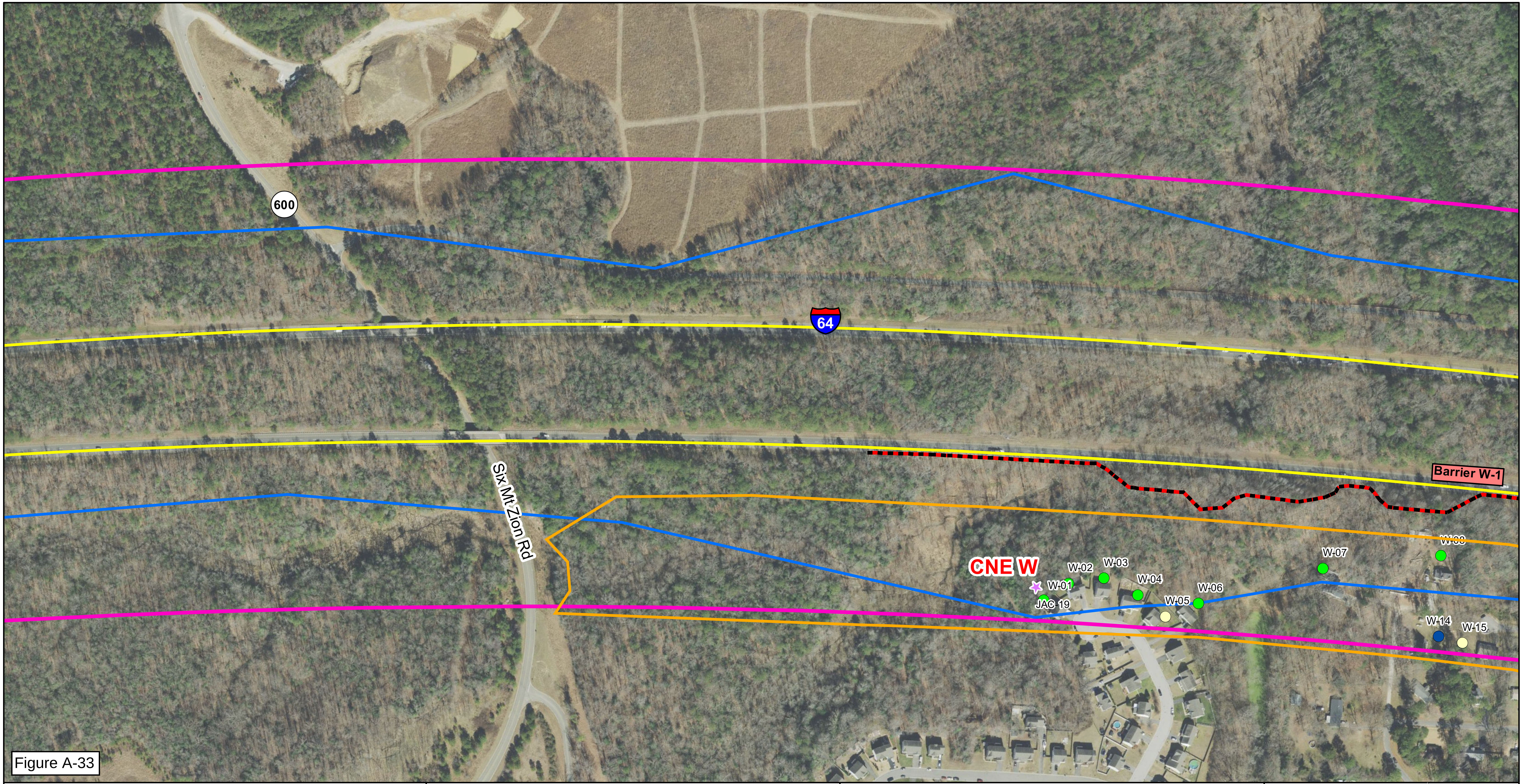


Figure A-33

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

N

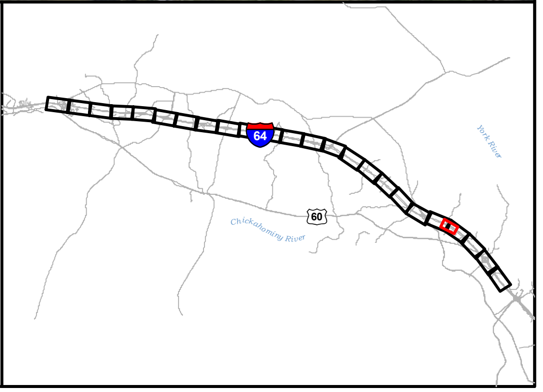
0 400 800
Feet

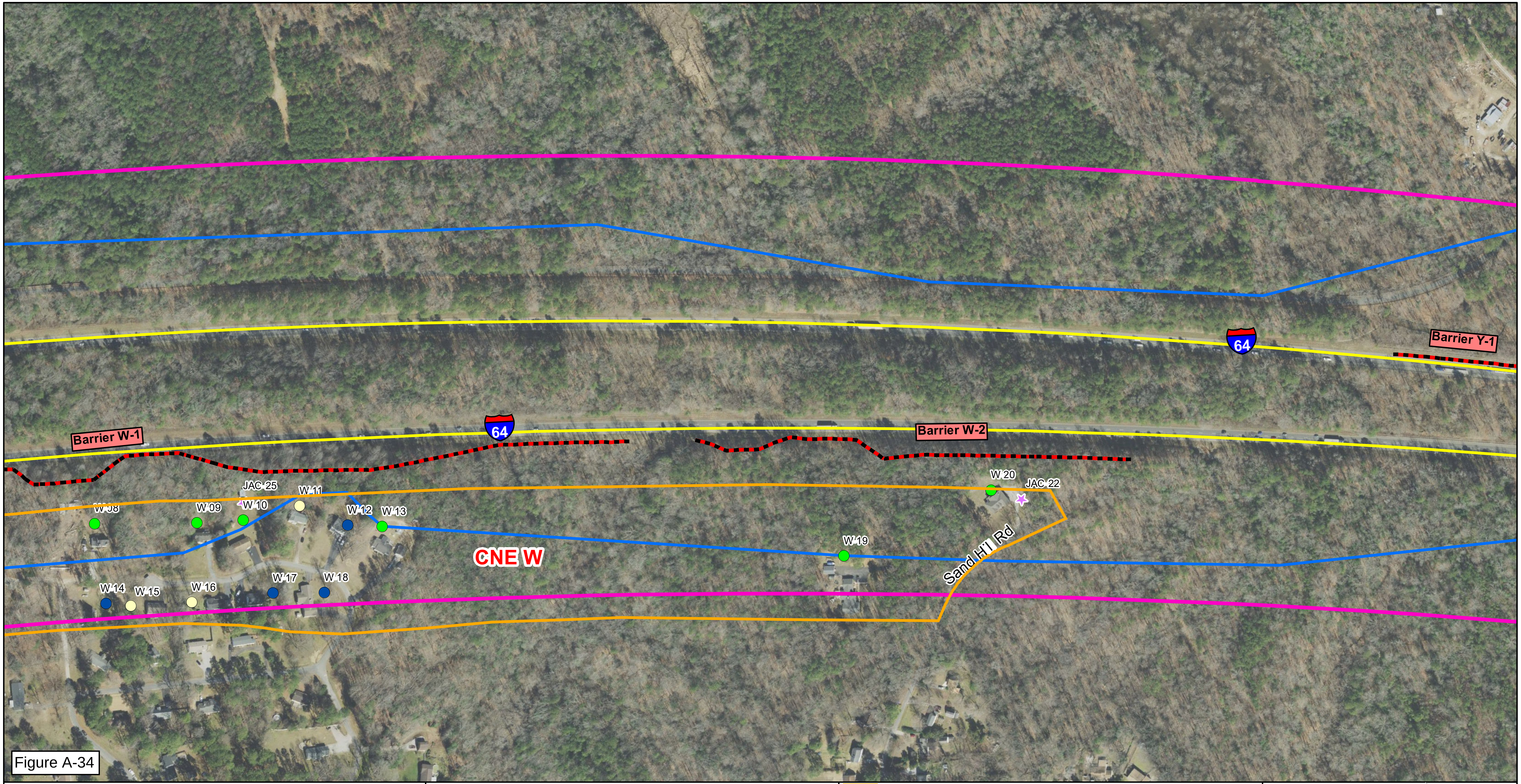
Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

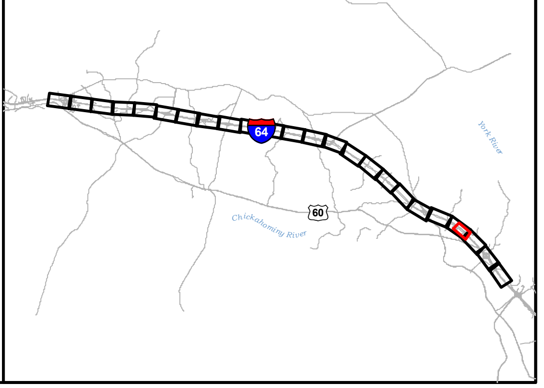
VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors
- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited



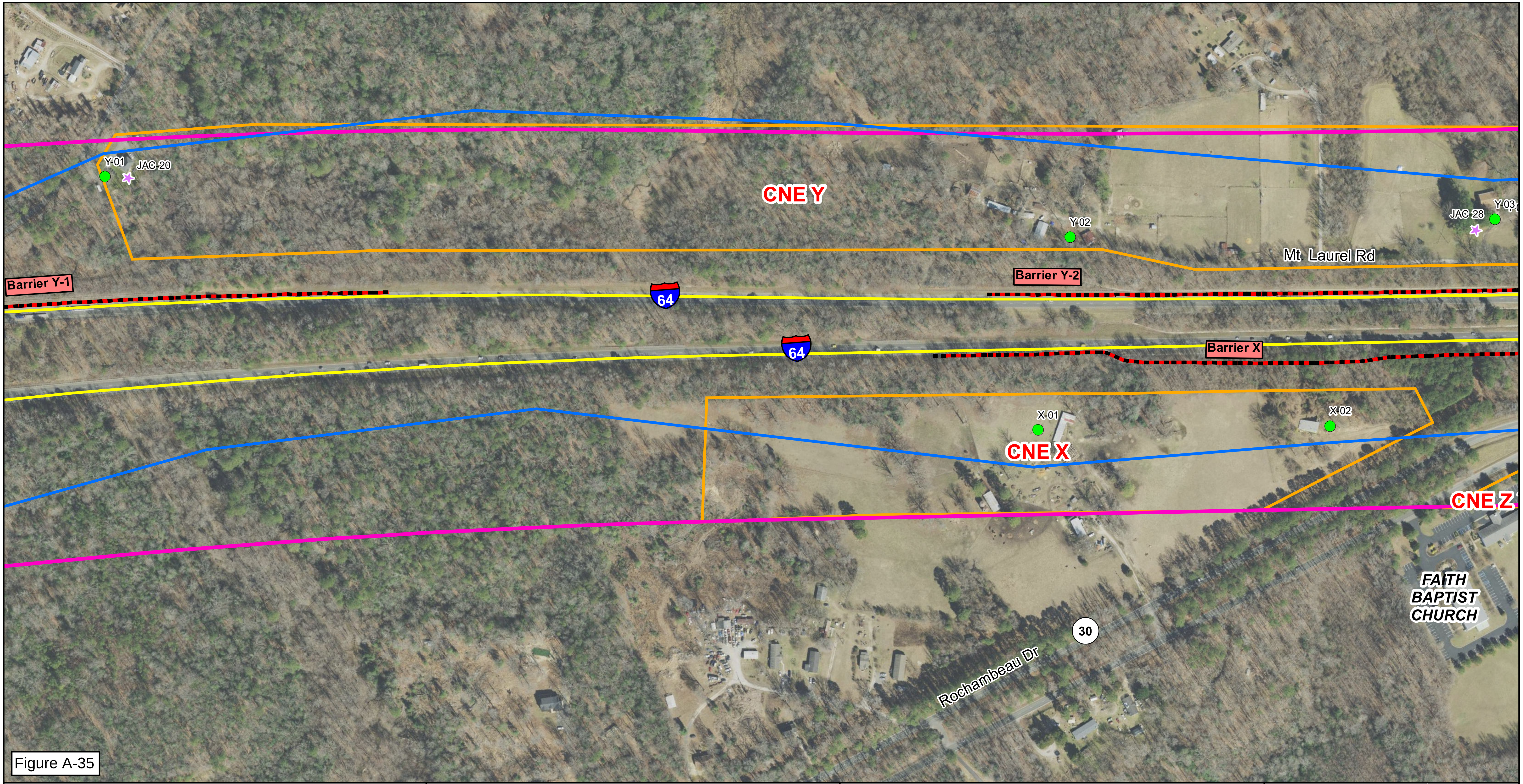


Figure A-35

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

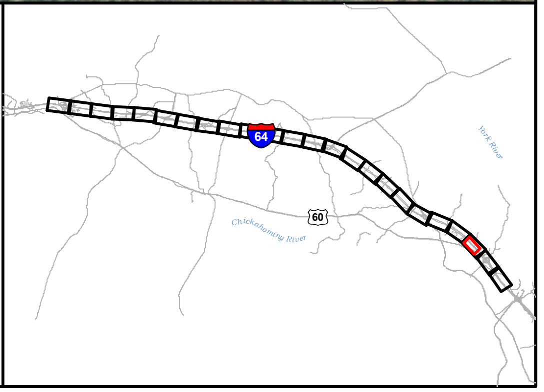
N

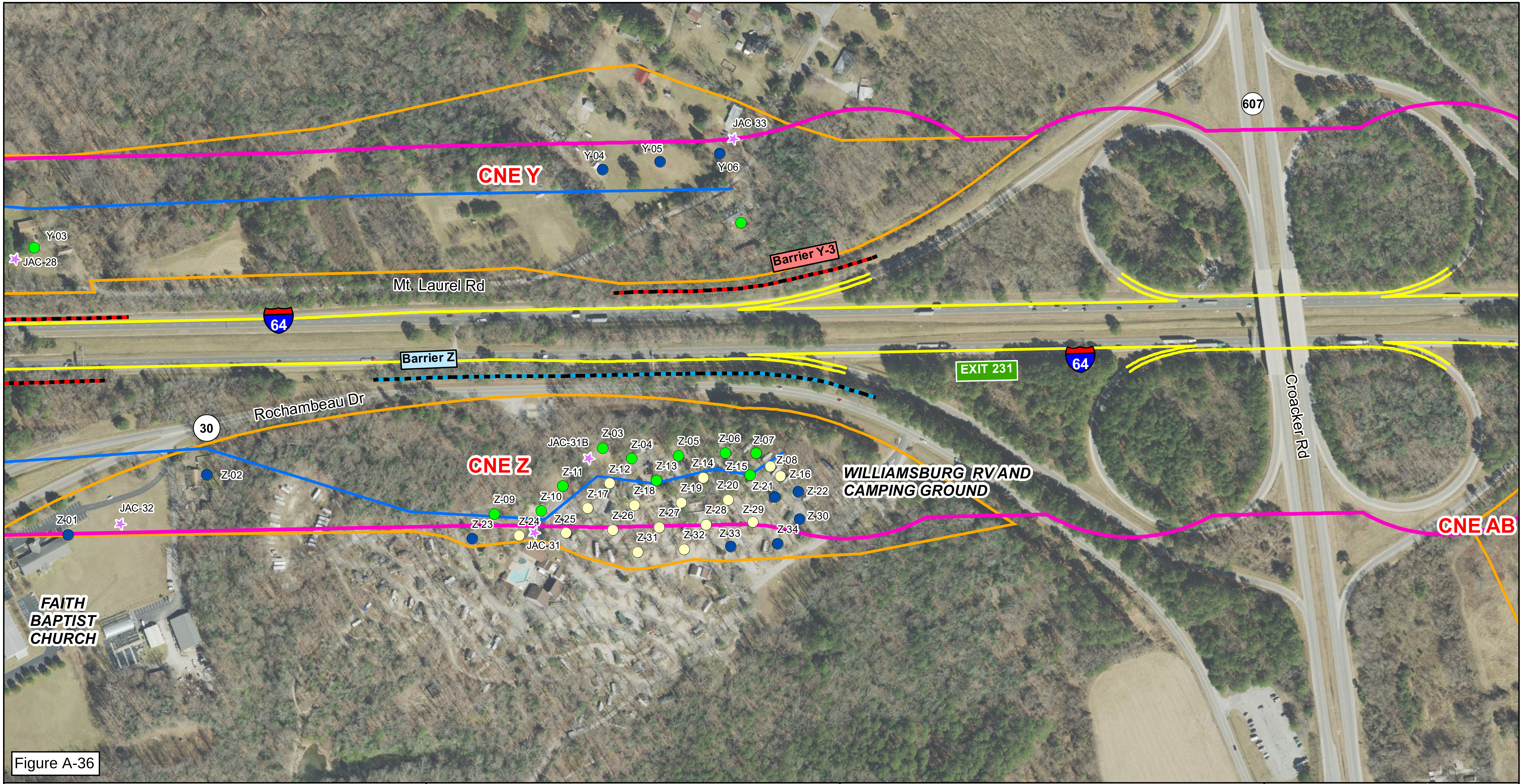
0 400 800
Feet

Source:VDOT, VGIN

Common Noise Environment
Proposed Edge of Pavement
County Boundary
500-ft Buffer
Barrier Feasible, Not Reasonable
Barrier Feasible and Reasonable
Extension Analyzed, Not Included with Optimized Barrier
66 Decibel Contour Line
Noise Measurement Site
Multi-Family Receptor

Modeled Noise Receptors
Impacted, Benefited
Impacted, Not Benefited
Not Impacted, Benefited
Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

Source:VDOT, VGIN

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited

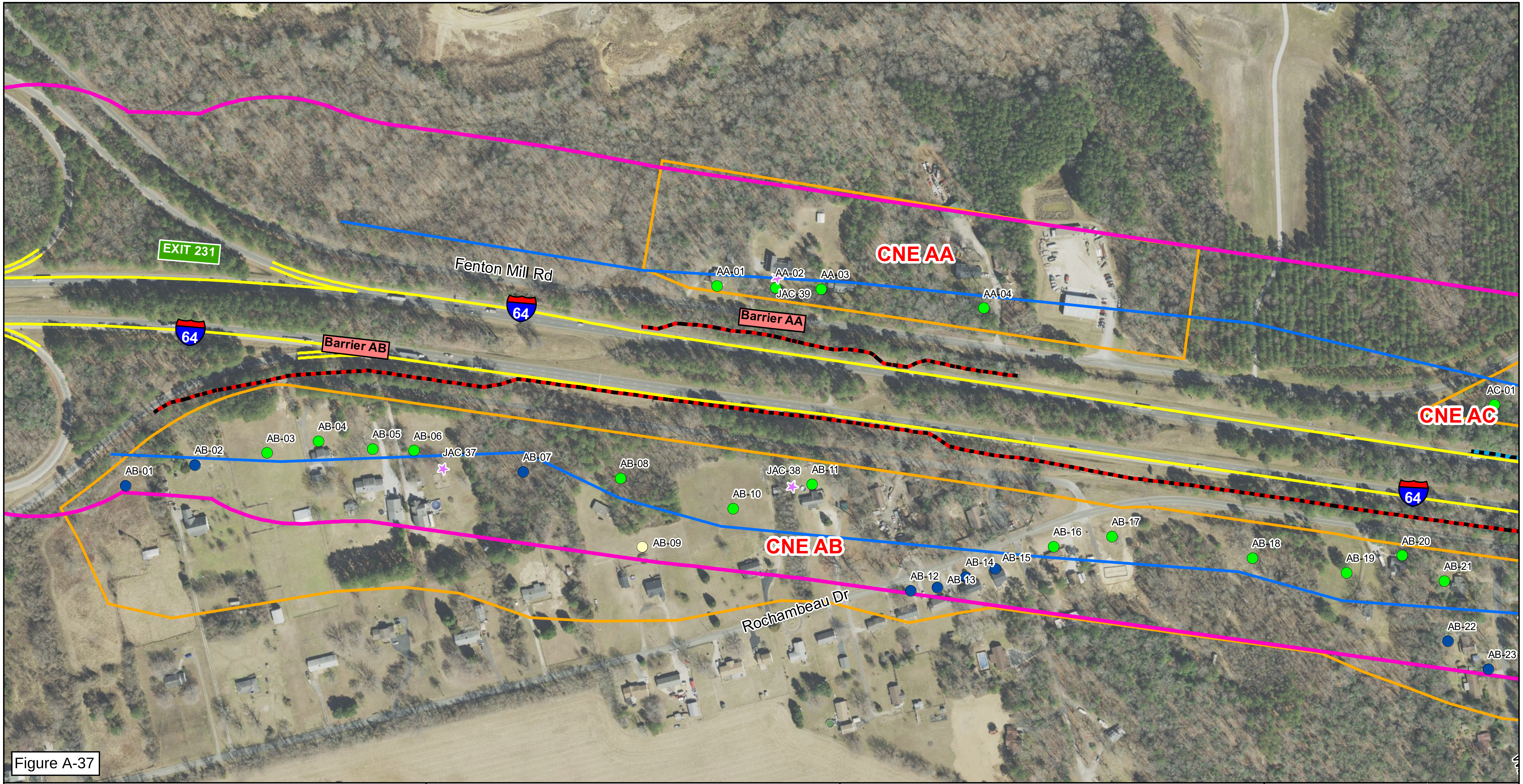


Figure A-37

Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers

Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 400 800
Feet

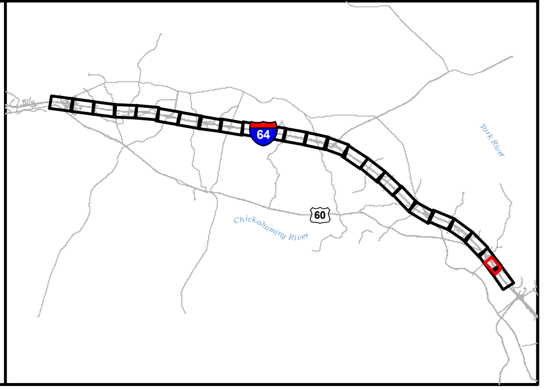
Source:VDOT, VGIN

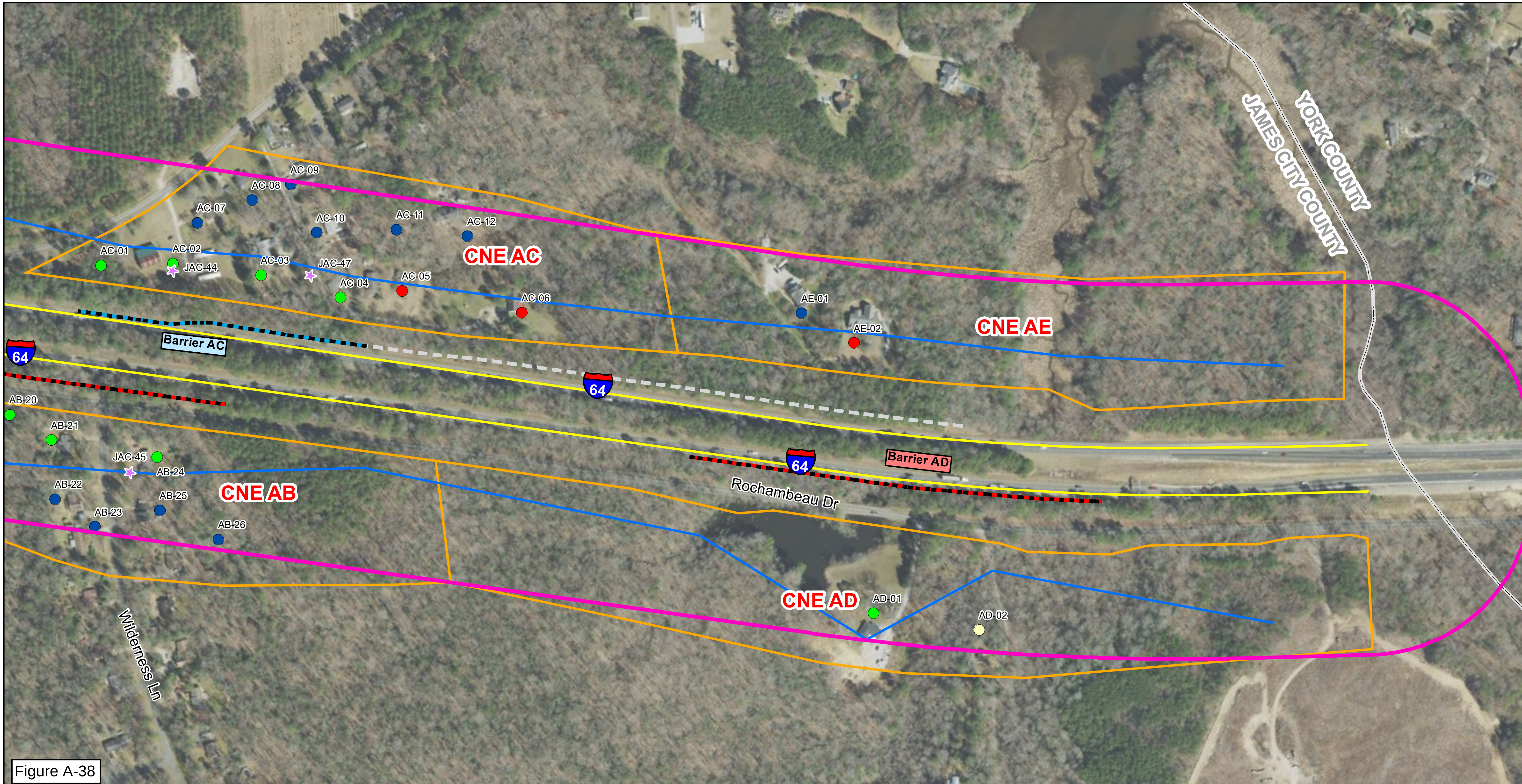
N

- Common Noise Environment
- Proposed Edge of Pavement
- County Boundary
- 500-ft Buffer
- Barrier Feasible, Not Reasonable
- Barrier Feasible and Reasonable
- Extension Analyzed, Not Included with Optimized Barrier
- 66 Decibel Contour Line
- Noise Measurement Site
- Multi-Family Receptor

Modeled Noise Receptors

- Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Benefited
- Not Impacted, Not Benefited





Interstate 64 Improvements
Exit 205 to Exit 234

Common Noise Environments, Noise Receptors and Proposed Barriers
Segment C

Virginia Department of Transportation

Interstate 64 Improvements: Exit 205 to Exit 234

VDOT Project No.00064-800-25632396, UPC 109885

0 410 820

Feet

Source:VDOT, VGIN

Common Noise Environment

Proposed Edge of Pavement

County Boundary

500-ft Buffer

Barrier Feasible, Not Reasonable

Barrier Feasible and Reasonable

Extension Analyzed, Not Included with Optimized Barrier

66 Decibel Contour Line

Noise Measurement Site

Multi-Family Receptor

Modeled Noise Receptors

Impacted, Benefited

Impacted, Not Benefited

Not Impacted, Benefited

Not Impacted, Not Benefited

Appendix B: Summary of Predicted Sound Levels

Appendix B - Summary of Predicted Sound Levels

Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A)) Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)	Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
CNE A								
A-01A	B	Residential	1	54	55	56	66	No
A-01B	B	Residential	1	58	59	60	66	No
A-01C	B	Residential	1	61	63	63	66	No
A-02A	B	Residential	1	53	55	55	66	No
A-02B	B	Residential	1	57	59	59	66	No
A-02C	B	Residential	1	61	62	63	66	No
A-03A	B	Residential	1	53	55	55	66	No
A-03B	B	Residential	1	57	58	59	66	No
A-03C	B	Residential	1	61	62	63	66	No
A-04A	B	Residential	1	50	52	53	66	No
A-04B	B	Residential	1	54	55	57	66	No
A-04C	B	Residential	1	58	60	61	66	No
A-05A	B	Residential	1	49	51	52	66	No
A-05B	B	Residential	1	52	53	55	66	No
A-05C	B	Residential	1	56	57	58	66	No
A-06A	B	Residential	1	48	50	51	66	No
A-06B	B	Residential	1	50	52	53	66	No
A-06C	B	Residential	1	53	55	56	66	No
A-07A	B	Residential	1	53	55	56	66	No
A-07B	B	Residential	1	58	59	60	66	No
A-07C	B	Residential	1	62	64	65	66	No
A-08A	B	Residential	1	53	55	56	66	No
A-08B	B	Residential	1	58	59	60	66	No
A-08C	B	Residential	1	62	64	65	66	No
A-09A	B	Residential	1	53	55	56	66	No
A-09B	B	Residential	1	58	60	61	66	No
A-09C	B	Residential	1	63	64	65	66	No
A-10	B	Residential	1	61	63	64	66	No
A-11	B	Residential	1	59	61	62	66	No
A-12	B	Residential	1	58	59	61	66	No
A-13	B	Residential	1	57	59	60	66	No
A-14	B	Residential	1	57	59	60	66	No
A-15	B	Residential	1	59	60	61	66	No
A-16	B	Residential	1	58	60	61	66	No
A-17	B	Residential	1	58	59	60	66	No
A-18	B	Residential	1	60	62	63	66	No
A-19	B	Residential	1	63	64	66	66	Yes
A-20	B	Residential	1	63	65	66	66	Yes
A-21	B	Residential	1	63	64	66	66	Yes
A-22	B	Residential	1	60	62	63	66	No
A-23	B	Residential	1	58	60	60	66	No
A-24	B	Residential	1	55	57	58	66	No
A-25	B	Residential	1	60	61	62	66	No

Appendix B - Summary of Predicted Sound Levels

Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
A-26	B	Residential	1	61	63	64	66	No
A-27	B	Residential	1	62	64	65	66	No
A-28	B	Residential	1	63	65	66	66	Yes
A-29	B	Residential	1	65	67	68	66	Yes
A-30	B	Residential	1	63	64	66	66	Yes
A-31	B	Residential	1	60	62	63	66	No
A-32	B	Residential	1	66	67	68	66	Yes
A-33	B	Residential	1	65	66	67	66	Yes
A-34	B	Residential	1	65	66	66	66	Yes
A-35	B	Residential	1	64	65	66	66	No
A-36	B	Residential	1	64	65	65	66	No
A-37	B	Residential	1	63	65	65	66	No
A-38	B	Residential	1	63	65	65	66	No
A-39	B	Residential	1	62	64	64	66	No
A-40	B	Residential	1	52	53	54	66	No
A-41	B	Residential	1	63	64	65	66	No
A-42	B	Residential	1	64	65	66	66	Yes
A-43	B	Residential	1	63	65	65	66	No
A-44	B	Residential	1	52	53	55	66	No
A-45	B	Residential	1	50	52	53	66	No
A-46	B	Residential	1	53	55	56	66	No
A-47	B	Residential	1	62	63	64	66	No
A-48	B	Residential	1	54	56	56	66	No
A-49	B	Residential	1	52	53	54	66	No
A-50	B	Residential	1	52	54	55	66	No
A-51	B	Residential	1	53	54	55	66	No
A-52	B	Residential	1	49	51	52	66	No
A-53	B	Residential	1	63	64	65	66	No
A-54	C	Community Facility	1	60	61	62	66	No
A-55	C	Community Facility	1	57	59	59	66	No
A-56	C	Community Facility	1	63	64	64	66	No
A-57	C	Community Facility	1	64	65	65	66	No
A-58	B	Residential	1	69	70	70	66	Yes
A-59	B	Residential	1	73	74	74	66	Yes
A-60	B	Residential	1	74	74	74	66	Yes
A-61	B	Residential	1	71	72	72	66	Yes
A-62	B	Residential	1	64	66	66	66	Yes
A-63	C	Community Facility	1	59	61	61	66	No
A-64	B	Residential	1	61	62	63	66	No
A-65	B	Residential	1	61	63	63	66	No
A-66	B	Residential	1	60	61	62	66	No
A-67	B	Residential	1	63	64	64	66	No
A-68	B	Residential	1	54	56	57	66	No
A-69	B	Residential	1	56	58	58	66	No

Appendix B - Summary of Predicted Sound Levels

Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
A-70	B	Residential	1	56	57	57	66	No
A-71	B	Residential	1	56	57	58	66	No
A-72	B	Residential	1	58	59	60	66	No
A-73	B	Residential	1	55	56	57	66	No
A-74	B	Residential	1	53	55	55	66	No
A-75	B	Residential	1	52	54	54	66	No
A-100	B	Residential	1	46	48	48	66	No
A-101	B	Residential	1	50	52	52	66	No
A-102	B	Residential	1	46	47	48	66	No
A-103	B	Residential	1	45	47	48	66	No
A-104	B	Residential	1	50	51	52	66	No
A-105	B	Residential	1	51	53	54	66	No
A-106	B	Residential	1	48	50	51	66	No
A-107	B	Residential	1	50	52	52	66	No
A-108	B	Residential	1	51	53	54	66	No
A-109	B	Residential	1	54	56	57	66	No
A-110	B	Residential	1	55	57	58	66	No
A-111	B	Residential	1	55	57	58	66	No
A-112	B	Residential	1	56	57	59	66	No
A-113	B	Residential	1	56	57	58	66	No
A-114	B	Residential	1	58	60	61	66	No
A-115	B	Residential	1	58	59	60	66	No
A-116	B	Residential	1	51	53	54	66	No
A-117	B	Residential	1	50	52	53	66	No
A-118	B	Residential	1	55	56	56	66	No
A-119	B	Residential	1	55	56	57	66	No
A-120	B	Residential	1	55	57	58	66	No
A-121	B	Residential	1	56	58	59	66	No
A-124	B	Residential	1	59	61	62	66	No
A-125	B	Residential	1	57	59	60	66	No
A-129	B	Residential	1	56	57	58	66	No
CNE B								
B-01	B	Residential	1	70	71	72	66	Yes
B-02	B	Residential	1	69	70	71	66	Yes
B-03	B	Residential	1	69	71	71	66	Yes
B-04	B	Residential	1	70	71	72	66	Yes
B-05	B	Residential	1	70	71	72	66	Yes
B-06	B	Residential	1	70	71	72	66	Yes
B-07	B	Residential	1	71	72	73	66	Yes
B-08	B	Residential	1	71	72	73	66	Yes
B-09	B	Residential	1	71	72	73	66	Yes
B-10	B	Residential	1	67	69	69	66	Yes
B-11	B	Residential	1	69	71	71	66	Yes
B-12	B	Residential	1	58	60	61	66	No

Appendix B - Summary of Predicted Sound Levels

Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
B-13	B	Residential	1	58	59	60	66	No
B-14	B	Residential	1	59	61	62	66	No
B-15	B	Residential	1	59	61	62	66	No
B-16	B	Residential	1	59	60	61	66	No
B-17	B	Residential	1	61	62	63	66	No
B-18	B	Residential	1	60	61	62	66	No
B-19	B	Residential	1	56	57	58	66	No
B-20	B	Residential	1	57	59	60	66	No
B-21	B	Residential	1	57	59	60	66	No
B-22	B	Residential	1	54	55	56	66	No
B-23	B	Residential	1	53	55	55	66	No
B-24	B	Residential	1	53	55	55	66	No
B-25	B	Residential	1	54	55	56	66	No
B-26	B	Residential	1	56	57	58	66	No
B-27	B	Residential	1	53	55	56	66	No
B-28	B	Residential	1	52	54	55	66	No
CNE C								
C-01	B	Residential	1	67	68	68	66	Yes
C-02	B	Residential	1	62	64	64	66	No
C-03	B	Residential	1	58	59	59	66	No
C-04	B	Residential	1	57	59	59	66	No
C-05	B	Residential	1	57	59	59	66	No
C-06	B	Residential	1	59	60	61	66	No
C-07	B	Residential	1	62	63	65	66	No
C-08	B	Residential	1	53	55	56	66	No
C-09	B	Residential	1	58	60	61	66	No
C-10	B	Residential	1	59	61	61	66	No
CNE D								
D-01	B	Residential	1	67	69	69	66	Yes
D-02	B	Residential	1	67	68	68	66	Yes
D-03	B	Residential	1	68	69	69	66	Yes
D-04	B	Residential	1	56	58	58	66	No
CNE E								
E-01	B	Residential	1	60	62	62	66	No
E-02	B	Residential	1	61	62	62	66	No
E-03	B	Residential	1	60	62	62	66	No
E-04	B	Residential	1	63	64	64	66	No
E-05	B	Residential	1	65	66	66	66	Yes
CNE F								
F-01	B	Residential	1	57	59	58	66	No
F-02	B	Residential	1	59	61	61	66	No
F-03	B	Residential	1	59	61	61	66	No
F-04	B	Residential	1	63	64	65	66	No
F-05	B	Residential	1	63	65	65	66	No

Appendix B - Summary of Predicted Sound Levels

Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
F-06	B	Residential	1	66	68	68	66	Yes
F-07	B	Residential	1	56	58	58	66	No
CNE G								
G-01	B	Residential	1	61	62	64	66	No
CNE H								
H-01	B	Residential	1	69	71	71	66	Yes
H-02	B	Residential	1	72	73	73	66	Yes
H-03	B	Residential	1	60	62	62	66	No
H-04	B	Residential	1	61	62	62	66	No
H-05	B	Residential	1	62	63	63	66	No
H-06	B	Residential	1	65	66	66	66	Yes
H-07	B	Residential	1	67	68	68	66	Yes
H-08	B	Residential	1	64	65	65	66	No
H-09	B	Residential	1	62	63	65	66	No
H-10	B	Residential	1	59	61	62	66	No
H-11	B	Residential	1	59	60	61	66	No
H-12	B	Residential	1	52	54	55	66	No
H-13	B	Residential	1	58	59	61	66	No
H-14	B	Residential	1	64	65	67	66	Yes
H-15	B	Residential	1	59	61	61	66	No
H-16	B	Residential	1	58	60	60	66	No
H-17	B	Residential	1	55	56	57	66	No
CNE I								
I-01	B	Residential	1	67	69	70	66	Yes
I-02	B	Residential	1	62	63	64	66	No
I-03	B	Residential	1	57	59	59	66	No
I-04	B	Residential	1	58	59	60	66	No
I-05	B	Residential	1	60	62	62	66	No
I-06	B	Residential	1	63	65	65	66	No
I-07	B	Residential	1	64	66	67	66	Yes
CNE J								
J-01	B	Residential	1	60	62	62	66	No
J-02	B	Residential	1	59	60	60	66	No
J-03	B	Residential	1	63	64	65	66	No
J-04	B	Residential	1	64	65	65	66	No
J-05	C	Community Facility	1	59	60	61	66	No
J-06	C	Community Facility	1	61	62	63	66	No
J-07	C	Community Facility	1	62	63	64	66	No
J-08	C	Community Facility	1	62	63	64	66	No
J-09	C	Community Facility	1	62	64	65	66	No
J-10	C	Community Facility	1	64	65	66	66	Yes
J-11	C	Community Facility	1	65	66	67	66	Yes
J-12	C	Community Facility	1	65	66	67	66	Yes
J-13	C	Community Facility	1	65	67	68	66	Yes

Appendix B - Summary of Predicted Sound Levels

Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
J-14	C	Community Facility	1	65	66	67	66	Yes
J-15	C	Community Facility	1	63	65	66	66	Yes
J-16	C	Community Facility	1	61	63	64	66	No
J-17	C	Community Facility	1	59	61	61	66	No
CNE K								
K-01	B	Residential	1	55	56	57	66	No
K-02	B	Residential	1	60	61	62	66	No
K-03	B	Residential	1	67	68	69	66	Yes
K-04	B	Residential	1	64	65	65	66	No
K-05	B	Residential	1	64	65	64	66	No
K-06	B	Residential	1	63	64	64	66	No
K-07	B	Residential	1	64	65	65	66	No
K-08	B	Residential	1	63	64	64	66	No
CNE L								
L-01	B	Residential	1	68	70	70	66	Yes
CNE M								
M-01	B	Residential	1	69	70	70	66	Yes
M-02	B	Residential	1	63	64	64	66	No
M-03	B	Residential	1	66	67	68	66	Yes
CNE N								
N-01	B	Residential	1	68	69	69	66	Yes
N-02	C	Community Facility	1	65	66	66	66	Yes
CNE O								
O-01	B	Residential	1	55	56	57	66	No
O-02	B	Residential	1	55	56	57	66	No
CNE P								
P-01	B	Residential	1	57	59	60	66	No
P-03	B	Residential	1	65	66	67	66	Yes
P-04	B	Residential	1	59	60	61	66	No
P-05	B	Residential	1	63	64	66	66	Yes
P-06	B	Residential	1	61	62	62	66	No
P-07	B	Residential	1	56	57	58	66	No
CNE Q								
Q-01	C	Community Facility	1	60	61	63	66	No
CNE R								
R-01	B	Residential	1	58	59	60	66	No
CNE S								
S-02	B	Residential	1	61	62	62	66	No
S-03	B	Residential	1	62	63	63	66	No
S-04	B	Residential	1	66	67	68	66	Yes
S-05	B	Residential	1	60	61	62	66	No
S-06	B	Residential	1	61	62	63	66	No
S-07	B	Residential	1	61	62	63	66	No
S-08	B	Residential	1	62	63	64	66	No

Appendix B - Summary of Predicted Sound Levels

Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A)) Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)	Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
S-09	B	Residential	1	62	63	65	66	No
S-10	B	Residential	1	63	64	65	66	No
S-11	B	Residential	1	64	65	66	66	Yes
S-12	B	Residential	1	63	64	65	66	No
S-13	B	Residential	1	63	64	65	66	No
S-14	B	Residential	1	66	67	68	66	Yes
S-15	B	Residential	1	57	59	59	66	No
S-16	B	Residential	1	58	60	61	66	No
S-17	B	Residential	1	59	61	62	66	No
S-18	B	Residential	1	60	62	63	66	No
S-19	B	Residential	1	60	62	63	66	No
S-20	B	Residential	1	61	62	64	66	No
S-21	B	Residential	1	61	62	64	66	No
S-22	B	Residential	1	60	61	63	66	No
S-23	B	Residential	1	56	58	59	66	No
S-24	B	Residential	1	57	58	60	66	No
S-25	B	Residential	1	56	58	58	66	No
S-26	B	Residential	1	56	57	58	66	No
S-27	B	Residential	1	52	53	54	66	No
CNE T								
T-01	B	Residential	1	57	59	60	66	No
CNE U								
U-01	B	Residential	1	64	65	65	66	No
CNE V								
V-01	C	Community Facility	1	48	50	50	66	No
V-02	C	Community Facility	1	60	61	62	66	No
V-03	C	Community Facility	1	70	71	71	66	Yes
CNE W								
W-01	B	Residential	1	66	67	68	66	Yes
W-02	B	Residential	1	67	68	69	66	Yes
W-03	B	Residential	1	67	68	69	66	Yes
W-04	B	Residential	1	64	66	67	66	Yes
W-05	B	Residential	1	59	61	64	66	No
W-06	B	Residential	1	62	63	66	66	Yes
W-07	B	Residential	1	64	65	66	66	Yes
W-08	B	Residential	1	68	69	70	66	Yes
W-09	B	Residential	1	66	67	68	66	Yes
W-10	B	Residential	1	65	66	67	66	Yes
W-11	B	Residential	1	63	64	65	66	No
W-12	B	Residential	1	62	63	64	66	No
W-13	B	Residential	1	63	65	66	66	Yes
W-14	B	Residential	1	58	59	61	66	No
W-15	B	Residential	1	59	60	62	66	No
W-16	B	Residential	1	59	61	62	66	No

Appendix B - Summary of Predicted Sound Levels

Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
W-17	B	Residential	1	54	56	57	66	No
W-18	B	Residential	1	56	57	58	66	No
W-19	B	Residential	1	63	64	66	66	Yes
W-20	B	Residential	1	66	67	69	66	Yes
CNE X								
X-01	B	Residential	1	67	68	69	66	Yes
X-02	B	Residential	1	66	67	68	66	Yes
CNE Y								
Y-01	B	Residential	1	66	67	68	66	Yes
Y-02	B	Residential	1	72	73	73	66	Yes
Y-03	B	Residential	1	66	67	69	66	Yes
Y-04	B	Residential	1	61	62	64	66	No
Y-05	B	Residential	1	60	61	62	66	No
Y-06	B	Residential	1	59	61	62	66	No
Y-07	B	Residential	1	67	68	69	66	Yes
CNE Z								
Z-01	D	Interior	1	61 (36)	63 (38)	63 (38)	51	No
Z-02	B	Residential	1	63	64	64	66	No
Z-03	C	Community Facility	1	66	67	69	66	Yes
Z-04	C	Community Facility	1	67	68	69	66	Yes
Z-05	C	Community Facility	1	66	67	68	66	Yes
Z-06	C	Community Facility	1	65	67	68	66	Yes
Z-07	B	Residential	1	64	66	67	66	Yes
Z-08	B	Residential	1	62	64	65	66	No
Z-09	C	Community Facility	1	64	65	67	66	Yes
Z-10	C	Community Facility	1	64	65	66	66	Yes
Z-11	C	Community Facility	1	64	65	66	66	Yes
Z-12	C	Community Facility	1	62	63	64	66	No
Z-13	C	Community Facility	1	63	65	66	66	Yes
Z-14	C	Community Facility	1	63	64	65	66	No
Z-15	C	Community Facility	1	63	65	66	66	Yes
Z-16	B	Residential	1	59	61	62	66	No
Z-17	C	Community Facility	1	62	64	65	66	No
Z-18	C	Community Facility	1	61	63	64	66	No
Z-19	C	Community Facility	1	61	63	64	66	No
Z-20	C	Community Facility	1	62	64	65	66	No
Z-21	C	Community Facility	1	58	60	60	66	No
Z-22	B	Residential	1	57	59	59	66	No
Z-23	C	Community Facility	1	62	63	64	66	No
Z-24	C	Community Facility	1	61	63	64	66	No
Z-25	C	Community Facility	1	61	62	63	66	No
Z-26	C	Community Facility	1	60	62	63	66	No
Z-27	C	Community Facility	1	60	61	62	66	No
Z-28	C	Community Facility	1	60	61	62	66	No

Appendix B - Summary of Predicted Sound Levels

Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
Z-29	C	Community Facility	1	59	61	62	66	No
Z-30	C	Community Facility	1	54	56	57	66	No
Z-31	C	Community Facility	1	59	60	61	66	No
Z-32	C	Community Facility	1	59	60	62	66	No
Z-33	C	Community Facility	1	58	60	61	66	No
Z-34	C	Community Facility	1	54	56	56	66	No
CNE AA								
AA-01	B	Residential	1	68	69	71	66	Yes
AA-02	B	Residential	1	68	68	72	66	Yes
AA-03	B	Residential	1	65	66	68	66	Yes
AA-04	B	Residential	1	68	69	72	66	Yes
CNE AB								
AB-01	B	Residential	1	59	60	63	66	No
AB-02	B	Residential	1	61	61	65	66	No
AB-03	B	Residential	1	63	62	66	66	Yes
AB-04	B	Residential	1	63	63	67	66	Yes
AB-05	B	Residential	1	63	62	66	66	Yes
AB-06	B	Residential	1	63	63	66	66	Yes
AB-07	B	Residential	1	62	62	65	66	No
AB-08	B	Residential	1	67	65	70	66	Yes
AB-09	B	Residential	1	62	61	65	66	No
AB-10	B	Residential	1	66	64	69	66	Yes
AB-11	B	Residential	1	69	68	73	66	Yes
AB-12	B	Residential	1	62	63	64	66	No
AB-13	B	Residential	1	61	62	63	66	No
AB-14	B	Residential	1	62	63	64	66	No
AB-15	B	Residential	1	62	63	64	66	No
AB-16	B	Residential	1	65	65	67	66	Yes
AB-17	B	Residential	1	65	65	67	66	Yes
AB-18	B	Residential	1	65	64	68	66	Yes
AB-19	B	Residential	1	66	65	68	66	Yes
AB-20	B	Residential	1	69	68	72	66	Yes
AB-21	B	Residential	1	67	66	70	66	Yes
AB-22	B	Residential	1	59	58	61	66	No
AB-23	B	Residential	1	58	58	61	66	No
AB-24	B	Residential	1	65	65	68	66	Yes
AB-25	B	Residential	1	60	60	63	66	No
AB-26	B	Residential	1	59	59	62	66	No
CNE AC								
AC-01	B	Residential	1	67	69	71	66	Yes
AC-02	B	Residential	3	66	67	69	66	Yes
AC-03	B	Residential	1	66	67	69	66	Yes
AC-04	B	Residential	1	66	67	70	66	Yes
AC-05	B	Residential	1	64	65	66	66	Yes

Appendix B - Summary of Predicted Sound Levels

Noise level approaching or exceeding the NAC								
*Dwelling Units may refer to residential and/or recreational sites								
**Criteria based on NAC or substantial increase, whichever is lower								
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))			Noise Abatement Criteria** (Leq (dB(A))	Barrier (or Berm) Considered
				Existing Conditions (2019)	No-Build Alternative (2048)	Build Alternative (2048)		
AC-06	B	Residential	1	65	65	68	66	Yes
AC-07	B	Residential	1	60	61	63	66	No
AC-08	B	Residential	1	58	59	61	66	No
AC-09	B	Residential	2	57	58	60	66	No
AC-10	B	Residential	1	59	60	62	66	No
AC-11	B	Residential	1	59	60	62	66	No
AC-12	B	Residential	1	56	58	59	66	No
CNE AD								
AD-01	B	Residential	1	66	65	70	66	Yes
AD-02	B	Residential	1	60	59	64	66	No
CNE AE								
AE-01	B	Residential	1	62	62	65	66	No
AE-02	B	Residential	1	64	64	67	66	Yes

Appendix C: Calibration Certificates

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.47177

Instrument:	**Sound Level Meter**	*Date Calibrated:* **11/24/2021**	*Cal Due:* **11/24/2023**	
Model:	**NL42**	*Status:*	**Received**	**Sent**
Manufacturer:	**Rion**	*In tolerance:*	**X**	**X**
Serial number:	**01022322**	*Out of tolerance:*		
Tested with:	**Microphone UC52 s/n 142231** **Preamplifier NH24 s/n 22370**	*See comments:*		
Type (class):	**2**	*Contains non-accredited tests:* __ **Yes** _X_ **No**		
Customer:	**Whitman, Requardt & Associates, LLP**	*Calibration service:* __ **Basic** _X_ **Standard**		
Tel/Fax:	**410-246-3439**	*Address:* **801 South Caroline Street, Baltimore, MD 21231**		

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Nov 8, 2021	Scantek, Inc./ NVLAP	Nov 8, 2022
DS-360-SRS	Function Generator	88077	Dec 3, 2020	ACR Env./ A2LA	Dec 3, 2022
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Feb 4, 2021	ACR Env. / A2LA	Feb 4, 2022
PTU300-Vaisala	EnvironmentalMonitor	P5011262	Sept 10, 2021	ACR Env./ A2LA	Sept 10, 2022
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Oct 27, 2021	Scantek, Inc./ NVLAP	Oct 27, 2022
4226-Brüel&Kjær	Multifunction calibrator	2305103	Oct 8, 2021	B&K / DANAK	Oct 8, 2022

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.6	101.69	31.2

Calibrated by:	Bailey Partoza	**Authorized signatory:**	William Gallagher
Signature		Signature	William W Gallagher
Date	11/24/21	Date	11/28/2021

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Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.47178

Instrument:	**Sound Level Meter**	*Date Calibrated:* **11/24/2021**	*Cal Due:* **11/24/2023**
Model:	**NL42**	*Status:*	**Received** / **Sent**
Manufacturer:	**Rion**	*In tolerance:*	X / X
Serial number:	**00873028**	*Out of tolerance:*	
Tested with:	**Microphone UC52 s/n 171561** **Preamplifier NH24 s/n 73304**	*See comments:*	
		Contains non-accredited tests:	__ **Yes** _X_ **No**
Type (class):	**2**	*Calibration service:*	__ **Basic** _X_ **Standard**
Customer:	**Whitman, Requardt & Associates, LLP**	*Address:*	**801 South Caroline Street, Baltimore, MD 21231**
Tel/Fax:	**410-246-3439**		

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2020	Scantek, Inc./ NVLAP	Oct 31, 2021
DS-360-SRS	Function Generator	88077	Dec 3, 2020	ACR Env./ A2LA	Dec 3, 2022
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Feb 4, 2021	ACR Env. / A2LA	Feb 4, 2022
PTU300-Vaisala	EnvironmentalMonitor	P5011262	Sept 10, 2021	ACR Env./ A2LA	Sept 10, 2022
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Oct 26, 2020	Scantek, Inc./ NVLAP	Oct 26, 2021
4226-Brüel&Kjær	Multifunction calibrator	2305103	Oct 8, 2021	B&K / DANAK	Oct 8, 2022

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.6	101.69	31.2

Calibrated by:	Bailey Partoza	**Authorized signatory:**	William Gallagher
Signature		Signature	
Date	11/24/21	Date	11/28/2021

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Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.47179

Instrument:	**Sound Level Meter**	*Date Calibrated:* **11/29/2021**	*Cal Due:* **11/29/2023**
Model:	**NL42**	*Status:*	**Received** / **Sent**
Manufacturer:	**Rion**	*In tolerance:*	X / X
Serial number:	**00873027**	*Out of tolerance:*	
Tested with:	**Microphone UC52 s/n 171560** **Preamplifier NH24 s/n 73303**	*See comments:*	
		Contains non-accredited tests: __ **Yes** _X_ **No**	
Type (class):	**2**	*Calibration service:* __ **Basic** _X_ **Standard**	
Customer:	**Whitman, Requardt & Associates, LLP**	*Address:*	**801 South Caroline Street, Baltimore, MD 21231**
Tel/Fax:	**410-246-3439**		

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Nov 8, 2021	Scantek, Inc./ NVLAP	Nov 8, 2022
DS-360-SRS	Function Generator	88077	Dec 3, 2020	ACR Env./ A2LA	Dec 3, 2022
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Feb 4, 2021	ACR Env. / A2LA	Feb 4, 2022
PTU300-Vaisala	EnvironmentalMonitor	P5011262	Sept 10, 2021	ACR Env./ A2LA	Sept 10, 2022
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Oct 27, 2021	Scantek, Inc./ NVLAP	Oct 27, 2022
4226-Brüel&Kjær	Multifunction calibrator	2305103	Oct 8, 2021	B&K / DANAK	Oct 8, 2022

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.0	100.22	34.5

Calibrated by:	Bailey Partoza	**Authorized signatory:**	William Gallagher
Signature	[signature]	Signature	[signature]
Date	11 / 29 / 21	Date	11/29/2021

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Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43924

Instrument:	**Acoustical Calibrator**	*Date Calibrated:* **11/15/2019** *Cal Due:* **11/15/2021**			
Model:	**NC-74**	*Status:*	**Received**	**Sent**	
Manufacturer:	**Rion**	*In tolerance:*	**X**	**X**	
Serial number:	**34825736**	*Out of tolerance:*			
Class (IEC 60942):	**1**	*See comments:*			
Barometer type:		*Contains non-accredited tests:* __**Yes** _**X**_ **No**			
Barometer s/n:					
Customer:	**Whitman, Requardt & Associates, LLP**	*Address:*	**801 South Caroline Street, Baltimore, MD 21231**		
Tel/Fax:	**410-246-3439 /**				

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
140-Norsonic	Real Time Analyzer	1406423	Oct 31, 2019	Scantek / NVLAP	Oct 31, 2020
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Oct 23, 2019	Scantek, Inc. / NVLAP	Oct 23, 2020
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	Steven E. Marshall
Signature	Lydon Dawkins	Signature	Steven E Marshall
Date	11/15/2019	Date	11/18/2019

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INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, Inc

Instrument ID R11668
Description Quest QC-10 Acoustic Calibrator
Calibrated 1/18/2022

Manufacturer Quest
Model Number QC-10
Serial Number QIK100022
Location New Jersey
Temp 66

Classification
Status pass
Frequency Yearly
Department Lab
Humidity 23

Calibration Specifications

Group # 1
Group Name Acoustic Tests Performed
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration

Test Instrument ID	Description	Manufacturer	Serial Number	Last Cal Date (As Of Cal Entry Date)	Next Cal Date
B&K 4226	Brüel & Kjær 4226	Brüel & Kjær	2590968	7/27/2021	7/27/2022
B&K 4228	Brüel & Kjær 4228	Brüel & Kjær	2667476	7/27/2021	7/27/2022
SOUNDPRO DL-1-1/3	3M SoundPro DL-1-1/3	Quest Technologies	BLL070002	2/19/2021	2/19/2022

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated David Galego

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, Inc

Instrument ID R220141
Description CEL-63X Sound Level Meter
Calibrated 10/8/2021

Manufacturer	Casella	**Classification**	
Model Number	CEL-63X	**Status**	pass
Serial Number	2145345	**Frequency**	Yearly
Location	New Jersey	**Department**	Lab
Temp	77	**Humidity**	34

Calibration Specifications

Group # 1
Group Name Acoustic Tests Performed
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration

Test Instrument ID	Description	Manufacturer	Serial Number	Last Cal Date (As Of Cal Entry Date)	Next Cal Date (As Of Cal Entry Date)
B&K 4226	Brüel & Kjær 4226	Brüel & Kjær	2590968	7/27/2021	7/27/2022
B&K 4228	Brüel & Kjær 4228	Brüel & Kjær	2667476	7/27/2021	7/27/2022

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated David Galego

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, Inc

Instrument ID	R197576
Description	CEL-63X Sound Level Meter
Calibrated	3/11/2022

Manufacturer	Casella	**Classification**	
Model Number	CEL-63X	**Status**	pass
Serial Number	4637978	**Frequency**	Yearly
Location	New Jersey	**Department**	Lab
Temp	70	**Humidity**	20

Calibration Specifications

Group # 1

Group Name Acoustic Tests Performed

Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration

Test Instrument ID	Description	Manufacturer	Serial Number	Last Cal Date (As Of Cal Entry Date)	Next Cal Date (As Of Cal Entry Date)
B&K 4226	Brüel & Kjær 4226	Brüel & Kjær	2590968	7/27/2021	7/27/2022
B&K 4228	Brüel & Kjær 4228	Brüel & Kjær	2667476	7/27/2021	7/27/2022

Notes about this calibration

Calibration Result Calibration Successful

Who Calibrated David Galego

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

Pine Environmental Services, Inc.

Instrument ID	R197576
Description	Casella 63x
Calibrated	3/24/2022 11:24:59AM

Manufacturer	Casella	**State Certified**	
Model Number	63x	**Status**	Pass
Serial Number/ Lot Number	4637978	**Temp °C**	20
Location	New Jersey	**Humidity %**	23
Department			

Calibration Specifications

Group # 1
Group Name 114db
Test Performed: N/A **As Found Result:** **As Left Result:**

Test Instruments Used During the Calibration

(As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Edward J. Rosario

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

Pine Environmental Services, Inc.

Instrument ID	R220141
Description	Casella CEL-63x Sound Level Meter
Calibrated	3/30/2022 9:11:17AM

Manufacturer	Casella	**State Certified**	
Model Number	CEL-63X	**Status**	Pass
Serial Number/ Lot Number	2145345	**Temp °C**	22
Location	New Jersey	**Humidity %**	19
Department			

Calibration Specifications

Group # 1
Group Name 114dB Calibration
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Edward J. Rosario

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

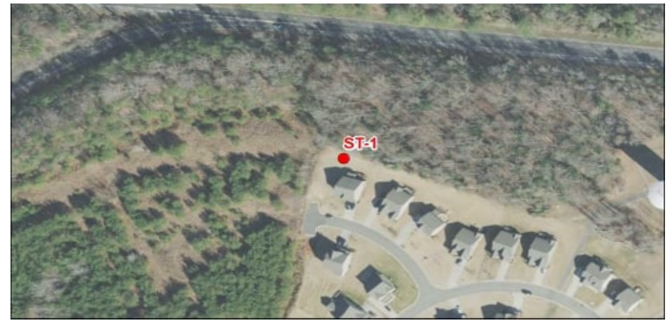
Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

Appendix D: Short-Term Monitoring Data

Measurement Site:	ST-1	Project Name:	Interstate 64 Improvements
Data Location:	2710 King Cross Qy	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Back yard of residence in large neighborhood, dead end of King Cross Qy, south side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	3:29 PM	3:49 PM	OFF	93.9	93.9
L_{min}(A)	L_{95}(A)	L_{90}(A)	L_{50}(A)	L_{10}(A)	L_{5}(A)	L_{max}(A)
57.7	59.5	59.8	60.8	61.9	61.9	63.4
L_{eq}(A)	L_{pk}(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
60.8			83.0	28.5	3.6 mph	Partly cloudy
Roadway	I-64					
Direction	EB	WB				
Cars	645	565				
Medium Truck	33	50				
Heavy Truck	58	87				
Speed (mph)	70	70				

Site Plan



Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-2	Project Name:	Interstate 64 Improvements
Data Location:	7921 Patriots Landing Pl	Project Number:	45615-008
Technician:	K. Glinkin	Site Description:	Back yard of residence in large neighborhood, south side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	4:03 PM	4:23 PM	OFF	93.8	93.8
$L_{min}(A)$	$L_{95}(A)$	$L_{90}(A)$	$L_{50}(A)$	$L_{10}(A)$	$L_{5}(A)$	$L_{max}(A)$
59.4	61.4	61.7	62.8	64.1	64.1	65.6
$L_{eq}(A)$	$L_{pk}(A)$	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.8			82.9	28.0	1.1 mph	Partly cloudy
Roadway	I-64					
Direction	EB	WB				
Cars	757	650				
Medium Truck	19	43				
Heavy Truck	40	78				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-3	Project Name:	Interstate 64 Improvements
Data Location:	7510 Windine Jasmine Rd	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Back yard of residence in large neighborhood, south side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	4:03 PM	4:23 PM	OFF	93.9	93.9
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
58.5	60.6	60.9	62	63.3	63.3	64.7
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.0			82.9	28.0	1.1 mph	Partly cloudy
Roadway	I-64					
Direction	EB	WB				
Cars	757	650				
Medium Truck	19	43				
Heavy Truck	40	78				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-4	Project Name:	Interstate 64 Improvements
Data Location:	7503 Fairway Ridge Dr	Project Number:	45615-008
Technician:	K. Glinkin	Site Description:	Residential back yard, south side of I-64, near Hen Peck Rd overpass

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	3:29 PM	3:49 PM	OFF	93.8	93.8
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
61.6	64.5	65.1	67.5	70.6	70.6	72.7
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
67.9			83.0	28.5	3.6 mph	Partly cloudy
Roadway	I-64					
Direction	EB	WB				
Cars	1,686	1,662				
Medium Truck	60	42				
Heavy Truck	75	114				
Speed (mph)	68	72				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-5	Project Name:	Interstate 64 Improvements
Data Location:	2901 Walnut Dr	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Back yard of residence at dead end of Walnut Dr, north side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	2:46 PM	3:06 PM	OFF	93.8	93.8
L_{min}(A)	L_{95}(A)	L_{90}(A)	L_{50}(A)	L_{10}(A)	L_5(A)	L_{max}(A)
61.3	64.9	65.5	68.1	70.9	70.9	73.3
L_{eq}(A)	L_{pk}(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
68.5			81.7	28.2	2.6 mph	Partly cloudy
Roadway	I-64					
Direction	EB	WB				
Cars	689	543				
Medium Truck	14	55				
Heavy Truck	54	76				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-6	Project Name:	Interstate 64 Improvements
Data Location:	7701 Walnut Dr	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Front yard of residence at dead end of Walnut Dr, north side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	2:47 PM	3:07 PM	OFF	93.8	93.8
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
58.4	60.8	61.3	63	64.8	64.8	66.9
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
63.1			81.7	28.2	2.6 mph	Partly cloudy
Roadway	I-64					
Direction	EB	WB				
Cars	689	543				
Medium Truck	14	55				
Heavy Truck	54	76				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-7	Project Name:	Interstate 64 Improvements	
Data Location:	3875 Autumn Hills Ln	Project Number:	45615-008	
Technician:	K. Glinkin	Site Description:	Back yard, north side of I-64, east of Hen Peck Rd overpass	

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	2:46 PM	3:06 PM	OFF	93.8	93.8
L_{min}(A)	L_{95}(A)	L_{90}(A)	L_{50}(A)	L_{10}(A)	L_{5}(A)	L_{max}(A)
56.9	59.6	59.9	61.6	62.9	62.9	64.3
L_{eq}(A)	L_{pk}(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
61.5			81.7	28.2	2.6 mph	Partly cloudy
Roadway	I-64					
Direction	EB	WB				
Cars	689	543				
Medium Truck	14	55				
Heavy Truck	54	76				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-8	Project Name:	Interstate 64 Improvements
Data Location:	4790 Old Field Ln	Project Number:	45615-008
Technician:	K. Glinkin	Site Description:	Located in the back yard of residence at the end of Old Field Ln, south side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	12:05 PM	12:25 PM	OFF	93.8	93.8
L_{min}(A)	L_{95}(A)	L_{90}(A)	L_{50}(A)	L_{10}(A)	L_5(A)	L_{max}(A)
58.7	60.5	60.8	62.0	63.0	63.0	64.2
L_{eq}(A)	L_{pk}(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.0			77.7	33.5	3.5 mph	Overcast

Site Plan

Roadway	I-64	
Direction	EB	WB
Cars	526	489
Medium Truck	26	53
Heavy Truck	79	81
Speed (mph)	70	70

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-9	Project Name:	Interstate 64 Improvements
Data Location:	Ashland Farm Rd	Project Number:	45615-008
Technician:	K. Glinkin	Site Description:	Residential/agricultural property, south side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	11:25 AM	11:45 PM	OFF	93.8	93.8
$L_{min}(A)$	$L_{95}(A)$	$L_{90}(A)$	$L_{50}(A)$	$L_{10}(A)$	$L_{5}(A)$	$L_{max}(A)$
58.7	60.9	61.2	62.5	64.2	64.2	65.8
$L_{eq}(A)$	$L_{pk}(A)$	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.7			74.9	36.9	3.6 mph	Overcast
Roadway	I-64					
Direction	EB	WB				
Cars	555	509				
Medium Truck	30	61				
Heavy Truck	63	63				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-10	Project Name:	Interstate 64 Improvements
Data Location:	7400 Airport Rd	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Rural residential property, near driveway, north side of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	12:05 PM	12:25 PM	OFF	93.9	93.9
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
56.5	58.7	59.2	60.7	62.4	62.4	64.1
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
61.4			77.7	33.5	3.5 mph	Overcast
Roadway	I-64					
Direction	EB	WB				
Cars	526	489				
Medium Truck	26	53				
Heavy Truck	79	81				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-11	Project Name:	Interstate 64 Improvements
Data Location:	5800 Pine Fork Rd	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Rural residential, north side of Pine Fork Rd to the north of I-64

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	11:25 AM	11:45 AM	OFF	93.9	93.9
L_{min}(A)	L_{95}(A)	L_{90}(A)	L_{50}(A)	L_{10}(A)	L_{5}(A)	L_{max}(A)
60.9	63.4	63.9	66	68.3	68.3	70.6
L_{eq}(A)	L_{pk}(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
66.4			74.9	36.9	3.6 mph	Overcast
Roadway	I-64					
Direction	EB	WB				
Cars	555	509				
Medium Truck	30	61				
Heavy Truck	63	63				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-12	Project Name:	Interstate 64 Improvements
Data Location:	9000 Piney Branch Ln	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Back yard of residence at tree line, south side of I-64 east of Olivet Church Rd overpass

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	10:32AM	10:52AM	OFF	93.9	93.9
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
57.8	61.2	61.7	63.5	65.7	65.7	67.5
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
63.7			69.2	43	2.2	Overcast

Roadway	I-64					
Direction	EB	WB				
Cars	474	472				
Medium Truck	22	27				
Heavy Truck	79	69				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-13	Project Name:	Interstate 64 Improvements
Data Location:	14375 Marine Corps Dr	Project Number:	45615-008
Technician:	B. Minor	Site Description:	Near cell phone tower and utility easement, south side of I-64 west of Route 33 interchange

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	9:23 AM	9:32 AM	OFF	93.9	93.9
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
58.4	62.0	62.5	63.9	65.5	65.5	67.1
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
64.1			67.4	49.4	1.3 mph	Overcast
Roadway	I-64					
Direction	EB	WB				
Cars	507	533				
Medium Truck	40	23				
Heavy Truck	1	0				
Speed (mph)	70	70				

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	ST-14	Project Name:	Interstate 64 Improvements	
Data Location:	5801 Good Hope Rd	Project Number:	45615-008	
Technician:	K. Glinkin	Site Description:	Rural residential property located on the east side of Good Hope Rd north of I-64	

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	20 min	9:23 AM	9:43 AM	OFF	93.8	93.8
L_{min}(A)	L_{95}(A)	L_{90}(A)	L_{50}(A)	L_{10}(A)	L_5(A)	L_{max}(A)
61.4	64.4	64.8	66.2	67.5	67.5	69.3
L_{eq}(A)	L_{pk}(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
66.2			67.4	49.4	1.3 mph	Overcast
Roadway	I-64					
Direction	EB	WB				
Cars	507	533				
Medium Truck	40	23				
Heavy Truck	91	70				
Speed (mph)	70	70				

Site Plan

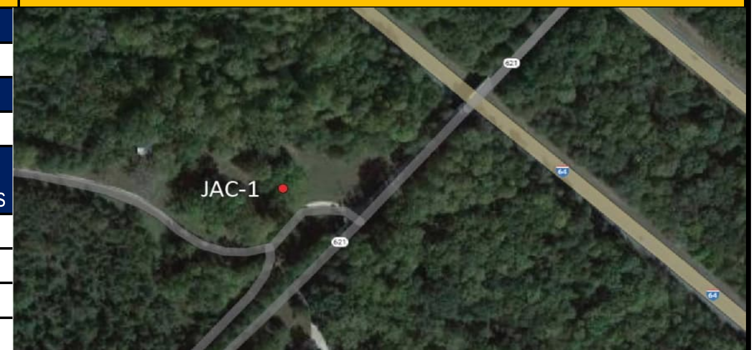
Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-01	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	3700 Ropers Church Road	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Near campground lodge (TMS 1.2)

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	10:30	10:45	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
56.6			64	54	Low	Cloudy
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	181	142	221	120		
Medium Truck	5	9	3	12		
Heavy Truck	6	40	13	51		
Speed (mph)	70	70	70	70		

Site Plan



Monitoring Notes

TIME	COMMENT
10:41 AM	Mail truck passed on Ropers Church Road

Measurement Site:	JAC-02	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	17025 Wedgewood Rd	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Single Family Home - Backyard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	9:55	10:10	Off Peak	113.8	114
L_{min}(A)	L_{95}(A)	L_{90}(A)	L_{50}(A)	L_{10}(A)	L_{5}(A)	L_{max}(A)
L_{eq}(A)	L_{pk}(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
58			64	54	Low	Cloudy
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	213	144	149	127		
Medium Truck	3	18	5	21		
Heavy Truck	11	53	12	36		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-03	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	3800 Ropers Church Road	Project Number:	00064-800-25632396
Technician:	W.Tardy	Site Description:	Single Family Home - Front Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	10:30	10:45	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
60.3			64	54	Low	Cloudy
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	181	142	221	120		
Medium Truck	5	9	3	12		
Heavy Truck	6	40	13	51		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-04	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	3855 Ropers Church Road	Project Number:	00064-800-25632396
Technician:	W.Tardy	Site Description:	Single Family Home - Front Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	9:50	10:05	Off Peak	113.5	114
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
61.1			64	54	Low	Cloudy
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	213	144	149	127		
Medium Truck	3	18	5	21		
Heavy Truck	11	53	12	36		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-06	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	101 Racefield Road	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	Single Family Home - Front Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	11:20	11:35	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
57.4			64	54	Low	Cloudy

Roadway	I-64		I-64		Racefield Road
Direction	NB - IL	NB - OL	SB - IL	SB - OL	Both
Cars	221	159	198	155	6
Medium Truck	6	15	1	7	8
Heavy Truck	22	45	13	40	0
Speed (mph)	70	70	70	70	25

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-09	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	111 Racefield Road	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	Single Family Home - Front Yard (TMS-2.2)

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	11:50	12:05	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
60			70	60	Low	Cloudy
Roadway	I-64		I-64		Racefield Road	
Direction	NB - IL	NB - OL	SB - IL	SB - OL	Both	
Cars	207	134	218	175	5	
Medium Truck	3	17	1	7	0	
Heavy Truck	10	49	9	39	0	
Speed (mph)	70	70	70	70	25	

Site Plan

Monitoring Notes

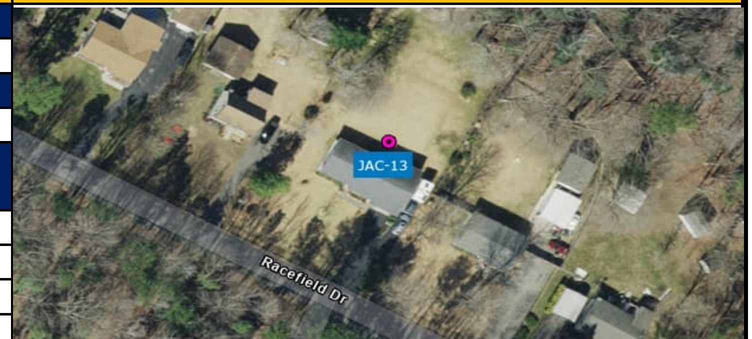
TIME	COMMENT

Measurement Site:	JAC-13	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	122 Racefield Drive	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Single Family Home - Backyard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	11:20	11:35	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.5			67	54	Low	Cloudy

Roadway	I-64		I-64		Racefield Road
Direction	NB - IL	NB - OL	SB - IL	SB - OL	Both
Cars	221	159	198	155	0
Medium Truck	6	15	1	7	0
Heavy Truck	22	45	13	40	0
Speed (mph)	70	70	70	70	25

Site Plan



Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-19	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	3544 Merestep Way	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Backyard (TMS 3.1)

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	12:37	12:52	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.1			75	48	Low	Clear

Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	213	151	162	162		
Medium Truck	6	18	4	4		
Heavy Truck	13	47	49	49		
Speed (mph)	70	70	70	70		

Site Plan

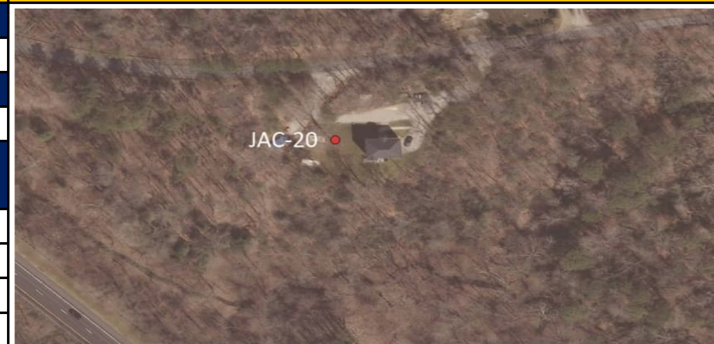
Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-20	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4001 Mt Laurel Rd	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Single Family Home - Side yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	13:10	13:25	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.5			77	41	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	186	154	267	165		
Medium Truck	3	15	5	5		
Heavy Truck	11	34	10	45		
Speed (mph)	70	70	70	70		

Site Plan



Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-22	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	169 Sand Hill Rd	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	Single Family Home - Side Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15	13:10	13:25	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
60.3			77	41	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	186	154	267	165		
Medium Truck	3	15	5	5		
Heavy Truck	11	34	10	45		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-25	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234	WRA
Data Location:	319 Louise Lane	Project Number:	00064-800-25632396	
Technician:	W. Tardy	Site Description:	Single Family Backyard	

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	12:37	12:52	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
61.9			75	48	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	213	151	162	162		
Medium Truck	6	18	4	4		
Heavy Truck	13	47	49	49		
Speed (mph)	70	70	70	70		

Site Plan

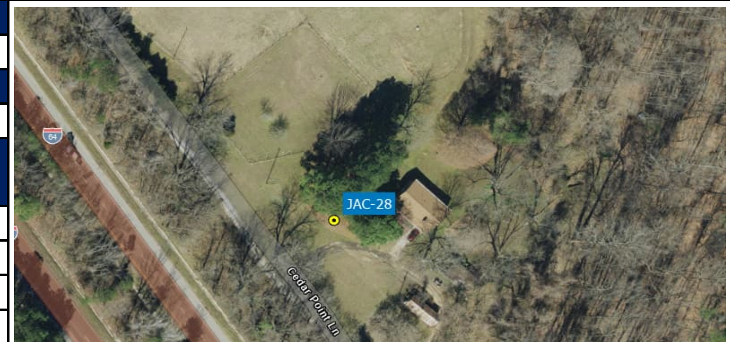
Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-28	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4224 Cedar Point Lane	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Single Family Home - Front Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	15:51	16:06	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
65.3			81	33	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	323	191	238	198		
Medium Truck	4	7	2	5		
Heavy Truck	7	41	3	23		
Speed (mph)	70	70	70	70		

Site Plan



Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-31	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4301 Rochambeau Dr	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	RV Campground - Recreation Area

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	15:51	16:06	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
57.6			81	33	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	291	157	233	169		
Medium Truck	3	8	1	6		
Heavy Truck	13	51	1	28		
Speed (mph)	70	70	70	70		

Site Plan

Note: During the monitoring session, the tripod broke and the meter was held by the technician over the table

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-31B	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4301 Rochambeau Dr	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	RV Campground - Fire Pit

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	16:22	16:37	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
64.5			81	33	Low	Clear

Roadway	I-64			I-64		
Direction	NB - IL	NB - OL	On Ramp	SB - IL	SB - OL	Off Ramp
Cars	323	191	10	238	198	15
Medium Truck	4	7	0	2	5	0
Heavy Truck	7	41	1	3	23	0
Speed (mph)	70	70	45	70	70	70

Site Plan

Note: During the monitoring session, the tripod broke and the meter was held by the technician while standing in the fire ring

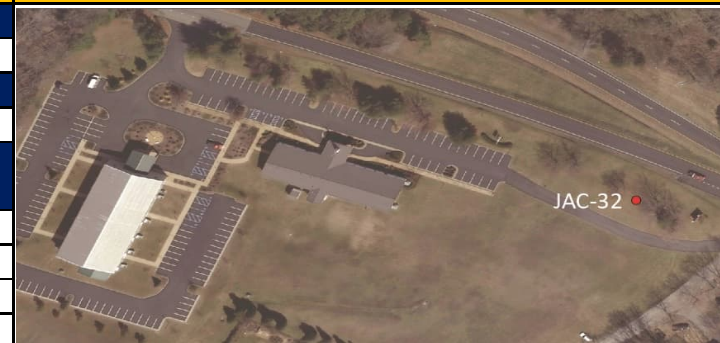
Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-32	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234	WRA
Data Location:	Faith Baptist Church of Williamsburg	Project Number:	00064-800-25632396	
Technician:	W. Tardy	Site Description:	Front Yard	

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	15:21	15:36	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
66.4			80	34	Low	Clear
Roadway	I-64			I-64		
Direction	NB - IL	NB - OL	On Ramp	SB - IL	SB - OL	Off Ramp
Cars	283	176	9	233	171	12
Medium Truck	5	2	0	1	6	0
Heavy Truck	9	52	0	5	34	0
Speed (mph)	70	70	45	70	70	70

Site Plan



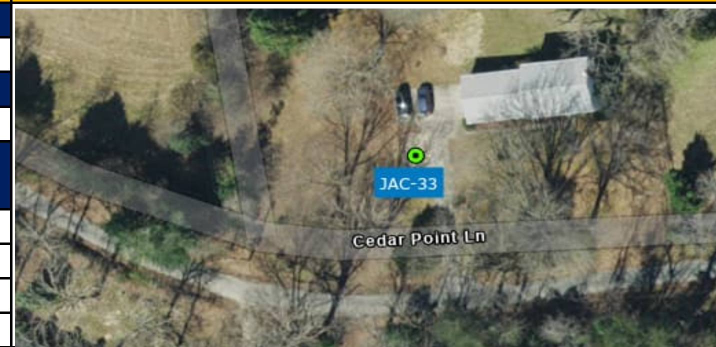
Monitoring Notes

TIME	COMMENT
	Additional Traffic Counts
	Roadway: Rochambeau Drive
	Direction: Both
	Cars: 167
	Medium Trucks: 2
	Heavy Trucks: 1

Measurement Site:	JAC-33	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4400 Cedar Point Lane	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Single Family Home - Front Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/12/2022	15 min	15:21	15:36	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
58.7			80	34	Low	Clear
Roadway	I-64			I-64		
Direction	NB - IL	NB - OL	On Ramp	SB - IL	SB - OL	Off Ramp
Cars	283	176	9	233	171	12
Medium Truck	5	2	0	1	6	0
Heavy Truck	9	52	0	5	34	0
Speed (mph)	70	70	45	70	70	70

Site Plan



Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-37	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4531 Cloverleaf Lane	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	Single Family Home - Front Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/13/2022	15 min	9:42	9:57	Off Peak	113.5	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
62.8			72	63	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	248	173	265	211		
Medium Truck	2	15	2	12		
Heavy Truck	11	42	10	45		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-38	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	6800 Rochambeau Lane	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	Single Family Home - Backyard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/13/2022	15 min	9:12	9:27	Off Peak	113.5	114
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
68.6			69	70	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	223	179	265	228		
Medium Truck	4	3	7	15		
Heavy Truck	7	41	14	47		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes	
TIME	COMMENT

Measurement Site:	JAC-39	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234	WRA
Data Location:	4650 Fenton Mill Rd	Project Number:	00064-800-25632396	
Technician:	S. Margherita	Site Description:	Single Family Home - Front Yard	

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/13/2022	15 min	9:12	9:27	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
66.3			69	70	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	223	179	265	228		
Medium Truck	4	3	7	15		
Heavy Truck	7	41	14	47		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-44	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4793 Fenton Mill	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Single Family Home - Side Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/13/2022	15 min	9:42	9:57	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
69.4			72	63	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	248	173	265	211		
Medium Truck	2	15	2	12		
Heavy Truck	11	42	10	45		
Speed (mph)	70	70	70	70		

Site Plan

Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-45	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	101 Wilderness Lane	Project Number:	00064-800-25632396
Technician:	W. Tardy	Site Description:	Single Family Home - Front Yard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/13/2022	15 min	10:14	10:29	Off Peak	113.5	114
$L_{min(A)}$	$L_{95(A)}$	$L_{90(A)}$	$L_{50(A)}$	$L_{10(A)}$	$L_{5(A)}$	$L_{max(A)}$
$L_{eq(A)}$	$L_{pk(A)}$	$SEL_{(A)}$	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
63.1			72	61	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	206	176	264	206		
Medium Truck	2	8	3	13		
Heavy Truck	11	30	13	44		
Speed (mph)	70	70	70	70		

Site Plan

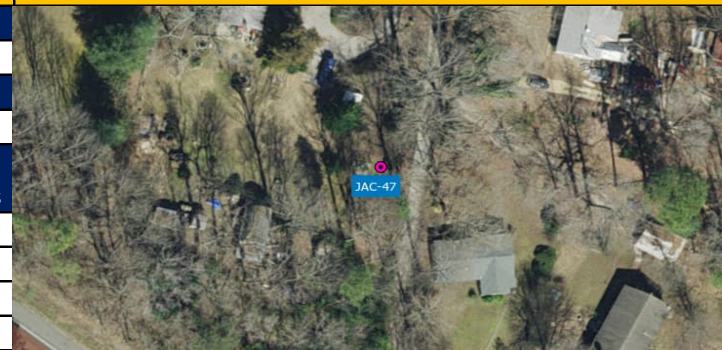
Monitoring Notes

TIME	COMMENT

Measurement Site:	JAC-47	Project Name:	Interstate 64 Improvements: Exit 205 to Exit 234
Data Location:	4807 Fenton Mill Road	Project Number:	00064-800-25632396
Technician:	S. Margherita	Site Description:	Single Family Home -Backyard

					Calibration Data	
Date	Duration	Start Time	End Time	On/Off Peak	Begin dBA	End dBA
4/13/2022	15 min	10:14	10:29	Off Peak	113.8	114
Lmin(A)	L95(A)	L90(A)	L50(A)	L10(A)	L5(A)	Lmax(A)
Leq(A)	Lpk(A)	SEL(A)	Temp.(°F)	Humidity(%)	Wind Speed/Dir.	Weather Conditions
63.8			72	61	Low	Clear
Roadway	I-64		I-64			
Direction	NB - IL	NB - OL	SB - IL	SB - OL		
Cars	206	176	264	206		
Medium Truck	2	8	3	13		
Heavy Truck	11	30	13	44		
Speed (mph)	70	70	70	70		

Site Plan



Monitoring Notes

TIME	COMMENT
	A large shed located in the backyard may be blocking some highway noise.

Appendix E: TNM Traffic Inputs

I-64 FORECASTING
2048 No Build and Build Forecasts
JUNE 2022

	Roadway / Intechange	From	To	Direction	EXISTING COUNTS 2019 DAILY	7-8 AM COUNTS	Speed	FINAL FORECASTS 2048 NO BUILD DAILY	7-8 AM VOLUMES	Speed	FINAL FORECASTS 2048 BUILD DAILY	7-8 AM VOLUMES	Speed	Speed Source	Daily Total Truck Percent	Daily Medium Truck Percent	Daily Heavy Truck Percent
MAINLINE	I-64 EB	Route 33/249/New Kent Hwy	Route 106/609/Emmaus Church Rd	Exit 205 to 211	30,660	1,720	71	46,800	2,620	67	48,300	2,710	67	ENTRADA	14.2	3.5	10.7
		Route 106/609/Emmaus Church Rd	Route 155/Courthouse Road	Exit 211 to 214	31,160	1,800	72	47,200	2,730	67	49,000	2,825	67	ENTRADA	14.2	3.5	10.7
		Route 155/Courthouse Road	Route 33/Eltham Rd	Exit 214 to 220	30,300	1,820	72	46,200	2,780	67	47,700	2,870	67	ENTRADA	14.2	3.5	10.7
		Route 33/Eltham Rd	Route 30/Stage Road	Exit 220 to 227	27,900	1,705	73	42,800	2,615	67	44,500	2,700	67	ENTRADA	12.6	3.1	9.5
		Route 30/Stage Road	Route 607/Croaker Rd	Exit 227 to 231	30,400	2,070	72	49,100	3,530	65	52,700	3,830	67	ENTRADA	12.6	3.1	9.5
		Route 607/Croaker Rd	Route 199/646/Humelsine Rd/Newman Rd	Exit 231 to 234	34,030	2,545	65	52,300	3,990	44	56,200	4,335	64	ENTRADA	12.6	3.1	9.5
	I-64 WB	Route 33/249/New Kent Hwy	Route 106/609/Emmaus Church Rd	Exit 205 to 211	30,250	2,345	72	46,000	3,675	67	47,300	3,815	67	ENTRADA	7.7	1.6	6.1
		Route 106/609/Emmaus Church Rd	Route 155/Courthouse Road	Exit 211 to 214	30,650	2,310	72	46,400	3,610	67	48,200	3,760	67	ENTRADA	7.7	1.6	6.1
		Route 155/Courthouse Road	Route 33/Eltham Rd	Exit 214 to 220	29,490	2,145	72	45,200	3,390	67	46,600	3,505	67	ENTRADA	7.7	1.6	6.1
		Route 33/Eltham Rd	Route 30/Stage Road	Exit 220 to 227	25,460	1,855	73	40,200	3,025	67	41,600	3,140	67	ENTRADA	6.8	1.4	5.4
		Route 30/Stage Road	Route 607/Croaker Rd	Exit 227 to 231	27,760	1,845	71	44,000	2,985	67	46,700	3,175	67	ENTRADA	6.8	1.4	5.4
		Route 607/Croaker Rd	Route 199/646/Humelsine Rd/Newman Rd	Exit 231 to 234	26,460	1,990	66	43,200	3,235	62	45,800	3,445	66	ENTRADA	6.8	1.4	5.4
RAMPS	Exit 205 Ramps	EB I-64	NB/SB Route 33/249 New Kent Hwy	EB to NB/SB	6,340	255	34	10,300	415	34	10,000	400	34	FFS	1	0.9	0.3
		NB/SB Route 33/249 New Kent Hwy	EB I-64	NB/SB to EB	1,800	160	44	2,200	195	44	2,800	250	44	FFS	2	No Data Available	
		WB I-64	NB/SB Route 33/249 New Kent Hwy	WB to NB/SB	1,600	85	38	2,000	105	38	2,100	110	38	FFS	25	3.4	21.2
		EB Route 249 New Kent Hwy	WB I-64	NB to WB	2,800	490	37	5,300	930	37	4,800	840	37	FFS	25	3.4	21.2
		WB Route 33 New Kent Kwy	WB I-64	SB to WB	3,200	590	52	4,900	905	52	4,600	860	52	FFS	25	3.4	21.2
	Exit 211 Ramps	EB I-64	NB/SB Route 609 Emmaus Church Rd	EB to NB/SB	1,500	65	45	2,700	115	45	2,800	140	45	FFS	3	1.1	1.7
		NB/SB Route 609 Emmaus Church RD	EB I-64	NB/SB to EB	2,000	145	33	3,100	225	33	3,500	255	33	FFS	3	1.1	1.7
		WB I-64	NB/SB Route 609 Emmaus Church Rd	WB to NB/SB	1,900	85	45	2,700	120	45	3,500	155	45	FFS	21	3.8	17.6
		NB/SB Route 609 Emmaus Church Rd	WB I-64	NB/SB to WB	1,500	120	48	2,300	185	48	2,600	210	48	FFS	21	3.8	17.6
	New Kent Rest Area Ramps	EB I-64	EB I-64	EB to EB	1,900	80	26	2,900	120	26	3,000	125	26	FFS	9	1.7	7.4
		WB I-64	WB I-64	WB to WB	2,000	100	37	3,000	150	37	3,100	155	37	FFS	9	1.7	7.2
	Exit 214 Ramps	EB I-64	NB/SB Route 155 Courthouse Rd	EB to NB/SB	1,800	55	50	2,700	85	50	3,000	90	50	FFS	3	No Data Available	
		NB/SB Route 155 Courthouse Rd	EB I-64	NB/SB to EB	940	75	41	1,700	135	41	1,700	135	41	FFS	3	No Data Available	
		WB I-64	NB/SB Route 155 Courthouse Rd	WB to NB/SB	840	30	50	1,600	55	50	1,600	55	50	FFS	3	No Data Available	
		NB/SB Route 155 Courthouse Rd	WB I-64	NB/SB to WB	2,000	195	40	2,800	275	40	3,200	310	40	FFS	3	No Data Available	
	Exit 220 Ramps	EB I-64	NB Route 33 Eltham Rd	EB to NB	3,500	170	57	4,900	240	57	5,100	265	57	FFS	4	2.2	1.5
		SB Route 33 Eltham Rd	EB I-64	SB to EB	1,100	55	41	1,500	75	41	1,900	95	41	FFS	4	2.2	1.5
		WB I-64	NB Route 33 Eltham Rd	WB to NB	670	40	49	1,200	70	49	1,500	90	49	FFS	0	0.3	0.1
		SB Route 33 Eltham Rd	WB I-64	SB to WB	4,700	330	60	6,200	435	60	6,500	455	60	FFS	0	0.3	0.1
	Exit 227 Ramps	EB I-64	NB/SB Route 30 Old Stage Rd	EB to NB/SB	1,900	145	48	3,700	280	48	3,300	250	48	FFS	3	No Data Available	
		SB Route 30 Old Stage Rd	EB I-64	SB to EB	3,300	405	38	8,800	1,080	38	10,300	1,265	38	FFS	3	No Data Available	
		NB Route 30 Old Stage Rd	EB I-64	NB to EB	1,100	105	47	1,200	115	47	1,200	115	47	FFS	3	No Data Available	
		WB I-64	NB/SB Route 30 Old Stage Rd	WB to NB/SB	4,100	170	55	7,200	300	55	8,100	335	55	FFS	3	No Data Available	
		NB/SB Route 30 Old Stage Rd	WB I-64	NB/SB to WB	1,800	180	47	3,400	340	47	3,000	300	47	FFS	3	No Data Available	
	Exit 231 Ramps	EB I-64	SB Route 607 Croaker Rd	EB to SB	850	40	46	1,300	60	46	1,400	70	46	FFS	3	No Data Available	
		SB Route 607 Croaker Rd	EB I-64	SB to EB	1,200	115	38	1,300	125	38	1,400	145	38	FFS	3	No Data Available	
		EB I-64	NB Route 607 Croaker Rd	EB to NB	420	30	48	600	45	48	600	45	48	FFS	3	No Data Available	
		NB Route 607 Croaker Rd	EB I-64	NB to EB	3,700	430	46	3,800	440	46	4,100	475	46	FFS	3	No Data Available	
		WB I-64	NB Route 607 Croaker Rd	WB to NB	1,000	60	47	1,100	65	47	1,100	65	47	FFS	3	No Data Available	
		NB Route 607 Croaker Rd	WB I-64	NB to WB	3,100	65	39	3,200	65	39	3,500	75	39	FFS	3	No Data Available	
		WB I-64	SB Route 607 Croaker Rd	WB to SB	1,300	190	39	2,200	320	39	2,400	350	39	FFS	3	No Data Available	
		SB Route 607 Croaker Rd	WB I-64	SB to WB	500	40	47	900	70	47	900	70	47	FFS	3	No Data Available	
	Exit 234 Ramps	EB I-64	NB/SB Route 199/646 Humelsine Pkwy/ Newman Rd	EB to NB/SB	7,900	615	46	8,800	685	46	11,000	855	46	FFS	3	No Data Available	
		NB/SB Route 199/646 Humelsine Pkwy/ Newman Rd	EB I-64	NB/SB to EB	6,100	540	47	10,100	895	47	9,600	850	47	FFS	3	No Data Available	
		WB I-64	NB Route 646 Newman Rd	WB to NB	1,000	40	45	1,100	45	45	1,100	45	45	FFS	3	No Data Available	
		NB Route 199 Humelsine Pkwy	WB I-64	NB to WB	6,300	430	39	8,500	580	39	10,300	705	39	FFS	3	No Data Available	
		WB I-64	SB Route 199 Humelsine Pkwy	WB to SB	6,200	405	40	10,100	660	40	9,900	645	40	FFS	3	No Data Available	
		SB Route 646 Newman Rd	WB I-64	SB to WB	360	30	50	400	35	50	400	35	50	FFS	3	No Data Available	
	RT 156, Airport Dr	Exit 197 - South of I-64		NB/SB	39,320	2,440	45	57,600	3,575	45	57,500	3,570	45	Posted	5.7	2	3.7
	RT 156, Airport Dr	Exit 197 - North of 64		NB/SB	22,290	1,470	45	31,000	2,045	45	30,900	2,040	45	Posted	4.2	1.7	2.5
	RT 156, Airport Dr	Exit 197 - North of 33, North of 64		NB/SB	17,605	1,490	55	25,700	2,175	55	25,700	2,175	55	Posted	7.6	2	5.7
	RT 33, Nine Mile Rd	Exits 197-200 - North of 64, North of 156		NB/SB	19,125	1,045	40	25,900	1,415	40	25,900	1,415	40	Posted	2.4	1.7	0.8
	RT 33, Nine Mile Rd	Exits 197-200 - North of 64, North of 156		NB/SB	13,210	750	40	20,700	1,175	40	20,700	1,175	40	Posted	3.4	2.7	0.7
	RT 33, Nine Mile Rd	Exits 197-200 - South of 64		NB/SB	5,870	330	40	10,600	595	40	10,600	595	40	Posted	3.4	2.7	0.7
	I-295 SB	Exit 200 - North of 64		SB	37,030	1,815	70	62,100	3,045	70	62,100	3,045	70	Posted	9.8	1.6	8.2
	I-295 NB	Exit 200 - North of 64		NB	37,100	2,580	70	62,000	4,310	70	62,000	4,310	70	Posted	10.3	1.5	8.8
	I-295 SB	Exit 200 - South of 64		SB	13,415	900	70	23,800	1,595	70	23,900	1,605	70	Posted	24.7	1.5	23.2

	Roadway / Intechange	From	To	Direction	EXISTING COUNTS 2019 DAILY	7-8 AM COUNTS	Speed	FINAL FORECASTS 2048 NO BUILD VOLUMES DAILY	7-8 AM	Speed	FINAL FORECASTS 2048 BUILD VOLUMES DAILY	7-8 AM	Speed	Speed Source	Daily Total Truck Percent	Daily Medium Truck Percent	Daily Heavy Truck Percent
ARTERIALS (FOR NOISE ANALYSIS)	**I-295 SB**	Exit 200 - South of 64, South of 60		SB	22,135	1,520	70	40,300	2,765	70	40,400	2,775	70	Posted	24.7	1.5	23.2
	I-295 NB	Exit 200 - South of 64		NB	13,125	945	70	23,000	1,655	70	23,000	1,655	70	Posted	22.2	1.6	20.6
	I-295 NB	Exit 200 - South of 64, South of 60		NB	21,935	1,570	70	39,800	2,850	70	40,100	2,870	70	Posted	22.2	1.6	20.6
	RT 156, Elko Rd	Exits 200-205 - South of 64, South of 60		NB/SB	5,565	410	45	9,000	665	45	9,000	665	45	Posted	4.1	2.9	1.2
	RT 33, New Kent Hwy	Exit 205 - South of 64, North of 60		NB/SB	20,115	1,360	45	26,500	1,790	45	26,000	1,760	45	Posted	5.5	2.2	3.3
	RT 249, New Kent Hwy	Exit 205 - North of 64		NB/SB	12,115	940	45	18,400	1,430	45	18,100	1,405	45	Posted	2.3	1.4	0.9
	RT 106, Emmaus Church Rd	Exit 211 - North of 64		NB/SB	3,220	280	45	5,700	495	45	5,900	515	45	Posted	4.4	2	2.4
	RT 155, N Courthouse Rd	Exit 214 - South of 64, South of 666		NB/SB	3,245	185	55	5,000	285	55	4,800	275	55	Posted	5.4	2.1	3.3
	RT 155, Courthouse Rd	Exit 214 - North of 64, South of 249		NB/SB	4,185	520	55	5,800	720	55	6,400	795	55	Posted	4	2.7	1.4
	RT 33, Eltham Rd	Exit 220 - North of 64, North of 632		NB/SB	11,690	965	55	15,300	1,265	55	15,700	1,295	55	Posted	15	2.3	12.7
	RT 30, Old Stage Hwy	Exit 227 - North of 64, South of 601		NB/SB	11,470	905	50	17,700	1,395	50	17,500	1,380	50	Posted	10.4	2.5	7.9
	RT 30, Barhamsville Rd	Exit 227 - South of 64, South of 746		NB/SB	10,505	745	55	14,500	1,030	55	13,200	935	55	Posted	4.9	1.6	3.3
	RT 607, Croaker Rd	Exit 231 - South of 64, North of 60		NB/SB	9,915	675	45	11,500	785	45	11,500	785	45	Posted	3.7	2	1.7
	RT 607, Croaker Rd	Exit 231 - South of 64, South of 758		NB/SB	9,615	670	45	15,900	1,110	45	17,100	1,190	45	Posted	3.7	2	1.7
	RT 607, Croaker Rd	Exit 231 - North of 64, South of 602		NB/SB	6,120	410	45	8,400	565	45	8,200	550	45	Posted	5	2.9	2.1
	RT 607, Croaker Rd	Exit 231 - North of 64, North of 602		NB/SB	3,220	210	45	3,400	220	45	3,300	215	45	Posted	5	2.9	2.1
	RT 199	Exit 234 - South of 64		NB/SB	12,790	45	60	20,300	70	60	22,200	80	60	Posted	2.9	1.1	1.8
	RT 143, Merrimac Trail	Exit 238 - South of 64		NB/SB	15,820	915	55	21,900	1,265	55	23,000	1,330	55	Posted	1.9	1.2	0.7
	RT 143, Merrimac Trail	Exit 238 - North of 64		NB/SB	3,230	355	55	3,500	385	55	3,500	385	55	Posted	1.9	1.2	0.7
	Rochambeau Dr	US 60 Richmond Rd	47-607 Croaker Rd	NB/SB	9830	860	55	15200	1330	55	14000	1225	55	Posted	3	2.2	1
	Rochambeau Dr	SR 30; 47-607 Croaker Rd	FR-137 Cloverleaf Lane	NB/SB	1772	155	45	2700	240	45	2500	220	45	Posted	3	2.2	1
	Rochambeau Dr	47-755; Cloverleaf Lane	York County Line	NB/SB	827	70	55	1280	110	55	1180	100	55	Posted	3	2.2	1
	Rochambeau Dr	York County Line	Lightfoot Road	NB/SB	9330	815	55	14400	1260	55	13300	1160	55	Posted	3	2.2	1

Appendix F: Loudest Hour Memo

Whitman, Requardt & Associates, LLP
Engineers · Architects · Environmental Planners Est. 1915

MEMORANDUM

Date: June 29, 2022

To: Ross Hudnall (VDOT)

From: Kim Glinkin (WRA)

Subject: Loudest Hour Determination

CC: Andrew Pike (VDOT)
Jim Ponticello (VDOT)
Nicholas Nies (WRA)

Project Number: UPC 109885

Project: Interstate 64 Improvements – Exit 205 to Exit 234

Introduction

This memorandum describes the methodology used to determine the loudest hour for the Existing Condition and Design Year (2048) Alternatives (No Build and Build) for the preliminary noise analysis for this project.

Environmental Traffic Data (ENTRADA)

Traffic data for the traffic noise study were developed using ENTRADA, prepared by WRA in coordination with VDOT, consisting of hourly volumes and interrupted operational speeds by roadway segment for the Existing Condition (2019) and the Design Year (2048) Alternatives (No Build and Build). The ENTRADA also provided the breakdown in volumes between autos, medium trucks, and heavy trucks and posted speeds for each roadway link. ENTRADA was prepared for all interstate mainline segments, with each eastbound and westbound segment having a separate output file. Additional traffic data will be provided for interchange ramps and adjacent arterial roadways (i.e. roadways with Average Daily Traffic (ADT)>3000) within the project study area once the loudest hour is determined.

Loudest-Hour Determination Methodology

The ENTRADA output was imported into VDOT's web application Loudest Hour Determination Tool for identifying loudest hours for noise modeling purposes (ENTRADA data was developed for 10 segments; however, the noise analysis only includes data within eastbound segments 4 through 9 and westbound segments 2 through 7 [see Figure 1 at the end of this memo]). This predictive screening tool calculates reference L_{eq}'s at 50 feet for the most common TNM[1] vehicle types (e.g. autos, medium trucks, and heavy trucks), utilizing interrupted operational speeds and hourly peak-hour volumes (for each hour of the day) over flat ground. The data from the loudest hour spreadsheet was then used to estimate the total sound levels associated with both directions of the Interstate by using the following methodology.

- For receptors on the WB side, it was assumed that the WB roadway (the near roadway) was 50 feet from the representative receptor, while the EB roadway (the far roadway) was 175 feet from the receptor (using the following formula [*change in sound level = 10Log (distance 2/distance 1) where distance 1 = 50 feet and distance 2 = 175 feet]*). Then the sound levels for each side were logarithmically added to estimate the total sound level.

- For receptors on the EB side, it was assumed that the EB roadway (the near roadway) was 50 feet from the representative receptor, while the WB roadway (the far roadway) was 175 feet from the

[1] Federal Highway Administration's (FHWA) Traffic Noise Model (TNM), version 2.5.

receptor. Then the sound levels for each side were logarithmically added to estimate the total sound level.

A screening worksheet was prepared for the Build condition that shows the predicted total sound level for each side of the roadway for each hour of the day, then compares those results to the identified maximum level (see Figure 2 at the end of this memo). Those highlighted in green are within 1 dBA of the maximum sound level; those in yellow are within 2 dBA of the maximum sound level; and those in pink are within 3 dBA of the maximum sound level. The hours of 7:00 AM, 8:00 AM, 3:00 PM, and 4:00 PM generally appear to be the loudest hours for the Build condition.

Data from these four hours was then further evaluated in TNM for the segments most likely to result in the evaluation of noise barriers, Exit 205 to 211 (EB 4 and WB 7), Exit 220 to 227 (EB 7 and WB 4), Exit 227 to 231 (EB 8 and WB 3), and Exit 231 to 234 (EB 9 and WB 2). Table 1 shows the predicted results for each evaluated hour, highlighting the loudest hour for each evaluated receptor. The table also compares the results of each hour to the loudest hour, showing differences ranging from 0.1 to 1.3 dB(A). The determination of loudest hour evaluation considered the number of receptors within each CNE, giving more consideration to those with more receptors, the loudest hours of the adjacent segments, and how close the results were among the evaluated hours, with the understanding that a difference of 3 dBA is considered to be barely perceptible to the human ear.

The loudest hours within Exit 205 to 211 (EB 4 and WB 7), in the western portion of the study area, generally occurred in the 8:00 AM and 7:00 AM hours. Since the majority of Segment 4 receptors (60%) are located in CNE A and there is only a difference of 0.3 dBA or less between the 8:00 AM hour and the adjacent loudest hours, the 7:00 AM hour was determined to best represent the loudest hour for the western portion of the study area.

The loudest hours within Exit 220 to 227 (EB 7 and WB 4), Exit 227 to 231 (EB 8 and WB 3), and Exit 231 to 234 (EB 9 and WB 2), the eastern portion of the study area, were generally in the 7:00 AM and 8:00 AM hours. Since CNE Z and CNE AB have the greatest number of receptors in the eastern portion of the study area and there is only a difference of 1.2 dBA or less between the 7:00 AM hour and the adjacent loudest hours, the 7:00 AM hour was determined to best represent the loudest hour for the eastern portion of the study area.

To summarize, WRA recommends using 7:00 AM as the loudest hour for the entire corridor. Please let us know if you concur with our recommendations.

Table 1: Recommended Loudest Hour by Segment and By Condition

Segment	Direction	Receptor	# of receptors in CNE	TNM Results 7:00 AM	8:00 AM	3:00 PM	4:00 PM	MAX	Difference from MAX 7:00 AM	8:00 AM	3:00 PM	4:00 PM
Exit 205 to 211 (EB4 and WB7)	EB	A-19	93	68.90	69.20	69.10	69.10	69.20	0.3	0	0.1	0.1
	EB	A-49		72.80	73.10	73.00	73.10	73.10	0.3	0	0.1	0
	WB	B-10	28	69.10	69.30	69.20	68.80	69.30	0.2	0	0.1	0.5
	WB	C-07	10	59.70	60.00	59.90	59.60	60.00	0.3	0	0.1	0.4
	EB	F-06	7	67.10	67.40	66.90	66.80	67.40	0.3	0	0.5	0.6
	WB	H-14	17	65.20	65.40	65.30	65.00	65.40	0.2	0	0.1	0.4
Exit 220 to 227) EB7 and WB4	EB	S-14	27	66.90	67.40	67.30	67.00	67.40	0.5	0	0.1	0.4
	EB	S-26		56.50	57.20	56.90	56.30	57.20	0.7	0	0.3	0.9
Exit 227 to 231) EB8 and WB3	EB	W-03	20	68.60	68.80	68.40	68.20	68.80	0.2	0	0.4	0.6
	EB	W-10		66.60	66.80	65.90	65.70	66.80	0.2	0	0.9	1.1
	WB	Y-07	7	63.10	63.40	63.50	63.20	63.50	0.4	0.1	0	0.3
	EB	Z-04	34*	60.70	61.00	60.10	59.70	61.00	0.3	0	0.9	1.3
Exit 231 to 234 (EB9 and WB2)	WB	AA-04	5	69.10	69.50	70.00	69.90	70.00	0.9	0.5	0	0.1
	WB	AA-05		66.80	67.20	67.30	67.20	67.30	0.5	0.1	0	0.1
	EB	AB-11	26	70.00	71.20	70.60	70.50	71.20	1.2	0	0.6	0.7
	EB	AB-17		64.90	65.20	64.20	63.90	65.20	0.3	0	1	1.3
	EB	AB-18		65.90	66.20	65.30	65.10	66.20	0.3	0	0.9	1.1
	EB	AB-20		69.70	69.90	69.10	69.00	69.90	0.2	0	0.8	0.9
	WB	AC-01	15	68.00	68.30	68.90	68.80	68.90	0.9	0.6	0	0.1
	WB	AC-04		67.00	67.40	67.90	67.70	67.90	0.9	0.5	0	0.2
	WB	AC-05		64.50	65.00	65.60	65.30	65.60	1.1	0.6	0	0.3

*CNE Z includes an RV camping area, 34 receptors includes a portion of receptors that are based upon the 100-foot grid pattern for the area.

Figure 1: Build – Loudest Hour Data by Segment Based Upon ENTRADA Data

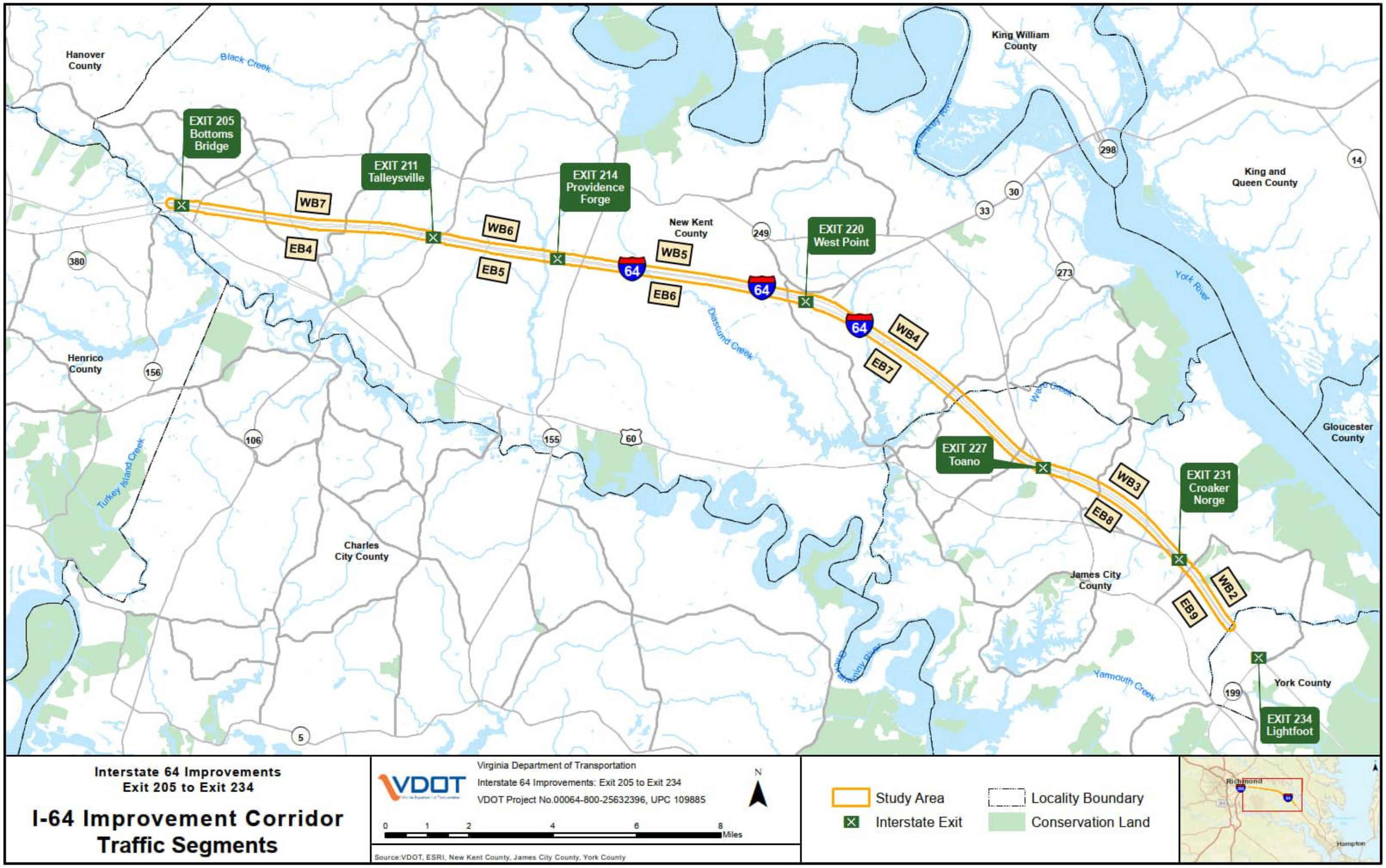


Figure 2: Build – Loudest Hour Data by Segment Based Upon ENTRADA Data

	Exits 205 to 211 (EB4 and WB7)		Exits 211 to 214 (EB5 and WB6)		Exits 214 to 220 (EB6 and WB5)		Exits 220 to 227 (EB7 and WB4)		Exits 227 to 231 (EB8 and WB3)		Exits 231 to 234 (EB9 and WB2)	
TIME	WB receptor	EB receptor	WB receptor	EB receptor	WB receptor	EB receptor	WB receptor	EB receptor	WB receptor	EB receptor	WB receptor	EB receptor
0:00	71.70	72.58	71.73	72.32	71.46	72.32	70.59	71.73	71.38	72.72	70.50	71.33
1:00	71.06	72.68	71.35	72.48	71.07	72.52	70.48	71.79	70.98	72.92	69.96	71.38
2:00	71.79	73.03	71.88	72.87	71.63	72.96	71.07	72.16	71.58	73.28	70.74	72.11
3:00	72.56	74.22	72.72	74.19	72.56	73.94	71.95	72.91	72.33	74.31	71.14	73.44
4:00	73.60	75.36	73.63	75.24	73.49	75.20	72.84	74.12	73.30	75.99	72.40	75.91
5:00	75.49	76.75	75.76	76.66	75.52	76.62	74.69	75.30	75.15	77.04	75.09	77.90
6:00	77.58	77.65	77.66	77.75	77.32	77.77	76.36	76.35	76.74	78.48	76.42	79.12
7:00	78.46	78.45	78.43	78.65	77.97	78.58	76.86	77.35	77.13	79.25	76.72	79.34
8:00	78.63	78.74	78.57	78.87	78.32	78.85	77.27	77.81	77.61	79.45	77.17	79.57
9:00	78.62	78.85	78.57	78.92	78.45	78.85	77.70	77.91	78.15	79.28	77.46	78.98
10:00	78.68	78.83	78.74	78.78	78.65	78.76	77.93	78.04	78.26	79.01	77.64	78.85
11:00	78.67	78.81	78.80	78.82	78.78	78.71	78.03	78.20	78.48	78.86	77.76	78.69
12:00	78.93	78.69	78.96	78.62	78.90	78.54	78.14	78.09	78.61	78.73	77.99	78.47
13:00	78.89	78.65	78.93	78.64	78.84	78.55	78.20	78.21	78.58	78.61	78.03	78.38
14:00	78.74	78.46	78.87	78.55	78.77	78.44	78.10	78.02	78.49	78.50	78.34	77.89
15:00	78.76	78.15	78.88	78.21	78.76	78.06	78.11	77.49	78.76	77.92	78.49	77.56
16:00	78.42	78.13	78.60	78.16	78.48	77.91	77.76	77.14	78.45	77.59	78.31	77.36
17:00	77.97	77.98	78.17	78.05	78.13	77.74	77.49	76.96	78.27	77.55	78.21	77.51
18:00	77.27	77.11	77.38	77.23	77.31	77.03	76.43	76.71	77.10	76.96	77.08	76.86
19:00	75.95	76.27	76.07	76.41	76.02	76.24	75.17	76.19	75.86	76.16	75.61	75.22
20:00	75.16	75.59	75.19	75.77	75.03	75.60	74.34	75.75	75.01	75.40	74.63	74.14
21:00	74.04	74.77	74.24	74.89	74.16	74.75	73.38	75.01	74.05	74.75	73.96	73.73
22:00	73.06	73.99	73.22	74.32	73.12	74.36	72.68	74.95	73.16	74.38	73.00	73.44
23:00	71.98	72.94	72.11	73.18	71.89	73.12	71.14	73.58	71.33	73.19	71.11	72.66
Max	*78.93*	*78.85*	*78.96*	*78.92*	*78.90*	*78.85*	*78.20*	*78.21*	*78.76*	*79.45*	*78.49*	*79.57*
	< 1 dB of max	< 2 dB of max	< 3 dB of max									

Appendix G: Alternative Mitigation Measures Response

COMMONWEALTH of VIRGINIA

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

Stephen Brich, P.E.
Commissioner

June 8, 2022

MEMORANDUM

TO: File

FROM: T. Ross Hudnall, Noise Abatement Coordinator, VDOT

SUBJECT: Interstate 64 Improvements – Exit 205 to Exit 234, UPC 109885

The 2009 General Assembly passed Chapter 120 (HB 2577, as amended by HB2025), which amends the Code of Virginia by adding in Article 15 of Chapter 1 of Title 33.1 a section numbered 33.1-223.2:21, relating to highway noise abatement.

House Bill 2025 States: Requires that whenever the Commonwealth Transportation Board or the Department plan for or undertake any highway construction or improvement project and such project includes or may include the requirement for the mitigation of traffic noise impacts, first consideration should be given to the use of noise reducing design and low noise pavement materials and techniques in lieu of construction of noise walls or sound barriers. Vegetative screening, such as the planting of appropriate conifers, in such a design would be utilized to act as a visual screen if visual screening is required.

In an effort to honor the intent of HB 2025 we are asking for your input (per Chapter VI of Materials Division's Manual of Instruction and Section 2B-3 Determination of Roadway Design of the VDOT Road Design manual (pages 2B-5 and 2B-6)). As part of the Noise Technical Report and technical files, we are seeking your professional opinion by providing comments for the project noted above. Please distribute this memorandum to the appropriate District staff and combine all responses into one response.

Should you have any questions, please contact me at (804) 371-6829. Thank you for your time and consideration regarding this request.

Comment: Is noise reducing design feasible in lieu of construction of noise walls or sound barriers? For example, the roadway alignment can be shifted away from noise sensitive receptors or the roadway can be placed in deep cut (Location & Design to address)

Response: Noise reduction from roadway design is not feasible. The project encompasses widening to accommodate an additional lane in both directions along the existing alignment of Interstate 64. This is a constrained environment and there are no feasible options to deviate from the existing alignment or introduce deep cuts for the roadway widening. However, wherever possible, roadway elements may be adjusted to reduce noise impacts (T. Ross Hudnall, VDOT).

Comment: Can the project support the use of low noise pavement in lieu of construction of noise walls or sound barriers? (Materials Division to address)

Response: The Virginia Department of Transportation is not authorized by the Federal Highway Administration to use "quiet pavement" at this time as a form of noise mitigation. Upon completion of the Quiet Pavement Pilot Program and approval from FHWA, the use of "quiet pavement" will be given consideration. *T. Ross Hudnall, VDOT*

Comment: Can landscaping be utilized to act as a visual screen if visual screening is required? (Location & Design to address)

Response: Landscaping can be used as a visual screen if required. The landscaping must be placed outside the clear zone, must not decrease driver sight distance and must not require additional right-of-way. *T. Ross Hudnall, VDOT*

Appendix H: Predicted Noise Barrier Insertion Loss (Build Alternative)

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	**NAC**	**Land Use**	**No. of Representative Receptors***	**Predicted Noise Levels Leq (dB(A))**		**Predicted Insertion Loss (IL)***
				Build Alternative (2048) No Barrier	**Build Alternative (2048) With Barrier**	
Barrier A						
A-01A	B	Residential	1	56	56	0
A-01B	B	Residential	1	60	60	0
A-01C	B	Residential	1	63	63	0
A-02A	B	Residential	1	55	55	0
A-02B	B	Residential	1	59	59	0
A-02C	B	Residential	1	63	63	0
A-03A	B	Residential	1	55	55	0
A-03B	B	Residential	1	59	59	0
A-03C	B	Residential	1	63	63	0
A-04A	B	Residential	1	53	53	0
A-04B	B	Residential	1	57	57	0
A-04C	B	Residential	1	61	61	0
A-05A	B	Residential	1	52	52	0
A-05B	B	Residential	1	55	55	0
A-05C	B	Residential	1	58	58	0
A-06A	B	Residential	1	51	51	0
A-06B	B	Residential	1	53	53	0
A-06C	B	Residential	1	56	56	0
A-07A	B	Residential	1	56	56	0
A-07B	B	Residential	1	60	60	0
A-07C	B	Residential	1	65	65	0
A-08A	B	Residential	1	56	56	0
A-08B	B	Residential	1	60	60	0
A-08C	B	Residential	1	65	65	0
A-09A	B	Residential	1	56	56	0
A-09B	B	Residential	1	61	60	0*
A-09C	B	Residential	1	65	65	0
A-10	B	Residential	1	64	64	0
A-11	B	Residential	1	62	61	1
A-12	B	Residential	1	61	59	2
A-13	B	Residential	1	60	58	2
A-14	B	Residential	1	60	58	3*
A-15	B	Residential	1	61	58	4*
A-16	B	Residential	1	61	56	5
A-17	B	Residential	1	60	55	5
A-18	B	Residential	1	63	57	6
A-19	B	Residential	1	66	59	7

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	**NAC**	**Land Use**	**No. of Representative Receptors***	**Predicted Noise Levels Leq (dB(A))**		**Predicted Insertion Loss (IL)***
				Build Alternative (2048) No Barrier	**Build Alternative (2048) With Barrier**	
A-20	B	Residential	1	66	59	7
A-21	B	Residential	1	66	58	7*
A-22	B	Residential	1	63	56	7
A-23	B	Residential	1	60	54	7*
A-24	B	Residential	1	58	52	6
A-25	B	Residential	1	62	55	7
A-26	B	Residential	1	64	56	8
A-27	B	Residential	1	65	56	8*
A-28	B	Residential	1	66	57	9
A-29	B	Residential	1	68	57	11
A-30	B	Residential	1	66	55	11
A-31	B	Residential	1	63	53	10
A-32	B	Residential	1	68	58	10
A-33	B	Residential	1	67	58	9
A-34	B	Residential	1	66	59	8*
A-35	B	Residential	1	66	60	5*
A-36	B	Residential	1	65	61	5*
A-37	B	Residential	1	65	61	5*
A-38	B	Residential	1	65	60	5
A-39	B	Residential	1	64	59	6*
A-40	B	Residential	1	54	50	5*
A-41	B	Residential	1	65	58	6*
A-42	B	Residential	1	66	59	7
A-43	B	Residential	1	65	58	8*
A-44	B	Residential	1	55	54	0*
A-45	B	Residential	1	53	52	0*
A-46	B	Residential	1	56	50	6
A-47	B	Residential	1	64	54	10
A-48	B	Residential	1	56	52	5*
A-49	B	Residential	1	54	52	2
A-50	B	Residential	1	55	50	5
A-51	B	Residential	1	55	49	6
A-52	B	Residential	1	52	51	1
A-100	B	Residential	1	48	48	0
A-101	B	Residential	1	52	50	2
A-102	B	Residential	1	48	45	3
A-103	B	Residential	1	48	46	2
A-104	B	Residential	1	52	50	2

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A)) Build Alternative (2048) No Barrier	Predicted Noise Levels Leq (dB(A)) Build Alternative (2048) With Barrier	Predicted Insertion Loss (IL)*
Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
A-105	B	Residential	1	54	49	5
A-106	B	Residential	1	51	49	2
A-107	B	Residential	1	52	50	2
A-108	B	Residential	1	54	53	1
A-109	B	Residential	1	57	51	6
A-110	B	Residential	1	58	52	6
A-111	B	Residential	1	58	52	6
A-112	B	Residential	1	59	51	8
A-113	B	Residential	1	58	51	7
A-114	B	Residential	1	61	51	10
A-115	B	Residential	1	60	50	10
A-116	B	Residential	1	54	49	5
A-117	B	Residential	1	53	50	3
A-118	B	Residential	1	56	51	5
A-119	B	Residential	1	57	50	7
A-120	B	Residential	1	58	51	7
A-121	B	Residential	1	59	52	7
A-124	B	Residential	1	62	52	10
A-125	B	Residential	1	60	51	9
A-129	B	Residential	1	58	49	9
Barrier A1						
A-56	C	Community Facility	1	64	64	0
A-57	C	Community Facility	1	65	64	1
A-58	B	Residential	1	70	64	6
A-59	B	Residential	1	74	62	12
A-60	B	Residential	1	74	60	14
A-61	B	Residential	1	72	59	13
A-63	C	Community Facility	1	61	60	1
A-64	B	Residential	1	63	61	2
A-65	B	Residential	1	63	57	6
A-66	B	Residential	1	62	57	5
A-67	B	Residential	1	64	57	8*
A-69	B	Residential	1	58	55	3
A-70	B	Residential	1	57	53	5*
A-71	B	Residential	1	58	53	5
A-72	B	Residential	1	60	55	5
A-73	B	Residential	1	57	54	2*

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))		Predicted Insertion Loss (IL)*
				Build Alternative (2048) No Barrier	Build Alternative (2048) With Barrier	
A-74	B	Residential	1	55	52	4*
A-75	B	Residential	1	54	52	2
Barrier A2						
A-62	B	Residential	1	66	59	7
A-68	B	Residential	1	56	56	0
Barrier B						
B-01	B	Residential	1	72	62	10
B-02	B	Residential	1	71	60	11
B-03	B	Residential	1	71	61	11*
B-04	B	Residential	1	72	61	11
B-05	B	Residential	1	72	61	11
B-06	B	Residential	1	72	62	11*
B-07	B	Residential	1	73	64	9
B-08	B	Residential	1	73	64	9
B-09	B	Residential	1	73	63	10
B-10	B	Residential	1	69	60	8*
B-11	B	Residential	1	71	61	10
B-12	B	Residential	1	61	58	2*
B-13	B	Residential	1	60	55	5
B-14	B	Residential	1	62	56	5*
B-15	B	Residential	1	62	56	6
B-16	B	Residential	1	61	56	5
B-17	B	Residential	1	63	58	5
B-18	B	Residential	1	62	57	5
B-19	B	Residential	1	58	53	5
B-20	B	Residential	1	60	54	5*
B-21	B	Residential	1	60	55	5
B-22	B	Residential	1	56	53	3
B-23	B	Residential	1	55	52	3
B-24	B	Residential	1	55	52	4*
B-25	B	Residential	1	56	53	3
B-26	B	Residential	1	58	55	3
B-27	B	Residential	1	56	53	3
B-28	B	Residential	1	55	52	2*
Barrier C						
C-01	B	Residential	1	68	61	7

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))		Predicted Insertion Loss (IL)*
				Build Alternative (2048) No Barrier	Build Alternative (2048) With Barrier	
C-02	B	Residential	1	64	59	5
C-03	B	Residential	1	59	57	3*
Barrier D1						
D-01	B	Residential	1	69	62	7
Barrier D2						
D-02	B	Residential	1	68	61	7
D-03	B	Residential	1	69	61	8
D-04	B	Residential	1	58	57	1
Barrier E						
E-01	B	Residential	1	62	62	0
E-02	B	Residential	1	62	62	0
E-03	B	Residential	1	62	61	1
E-04	B	Residential	1	64	59	5
E-05	B	Residential	1	66	60	7*
Barrier F						
F-01	B	Residential	1	58	58	0
F-02	B	Residential	1	61	61	0
F-03	B	Residential	1	61	60	1
F-04	B	Residential	1	65	60	5
F-05	B	Residential	1	65	59	6
F-06	B	Residential	1	68	59	9
F-07	B	Residential	1	58	54	4
Barrier H1						
H-01	B	Residential	1	71	64	7
H-02	B	Residential	1	73	64	9
Barrier H2						
H-03	B	Residential	1	62	61	0
H-04	B	Residential	1	62	62	0
H-05	B	Residential	1	63	62	1
H-06	B	Residential	1	66	61	5
H-07	B	Residential	1	68	61	7
H-08	B	Residential	1	65	61	5*
H-09	B	Residential	1	65	65	0
H-10	B	Residential	1	62	62	0
Barrier H3						
H-10	B	Residential	1	62	61	0

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))		Predicted Insertion Loss (IL)*
				Build Alternative (2048) No Barrier	Build Alternative (2048) With Barrier	
H-11	B	Residential	1	61	58	3
H-12	B	Residential	1	55	53	2
H-13	B	Residential	1	61	56	5
H-14	B	Residential	1	67	60	7
H-15	B	Residential	1	61	57	5
H-16	B	Residential	1	60	56	5
H-17	B	Residential	1	57	54	3
Barrier I1						
I-01	B	Residential	1	70	63	7
I-02	B	Residential	1	64	59	5
I-03	B	Residential	1	59	58	2
I-04	B	Residential	1	60	56	3
Barrier I2						
I-06	B	Residential	1	65	60	5
I-07	B	Residential	1	67	60	7
Barrier J						
J-09	C	Community Facility	1	65	59	5*
J-10	C	Community Facility	1	66	59	6*
J-11	C	Community Facility	1	67	60	8*
J-12	C	Community Facility	1	67	59	8
J-13	C	Community Facility	1	68	60	8
J-14	C	Community Facility	1	67	59	8
J-15	C	Community Facility	1	66	59	6*
J-16	C	Community Facility	1	64	58	5*
J-17	C	Community Facility	1	61	56	5
Barrier K						
K-01	B	Residential	1	57	56	1
K-02	B	Residential	1	62	60	2
K-03	B	Residential	1	69	62	7
K-04	B	Residential	1	65	65	0
K-05	B	Residential	1	64	64	0
K-06	B	Residential	1	64	64	0
K-07	B	Residential	1	65	65	0
K-08	B	Residential	1	64	64	0
Barrier L						
L-01	B	Residential	1	70	63	7

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))		Predicted Insertion Loss (IL)*
				Build Alternative (2048) No Barrier	Build Alternative (2048) With Barrier	
Barrier M						
M-01	B	Residential	1	70	65	5
M-02	B	Residential	1	64	59	5
M-03	B	Residential	1	68	61	7
Barrier N						
N-01	B	Residential	1	69	63	6
N-02	B	Residential	1	66	60	7*
Barrier P						
P-03	B	Residential	1	67	61	6
P-04	B	Residential	1	61	52	9
P-05	B	Residential	1	66	59	6*
Barrier S						
S-01	B	Residential	0	60	60	0
S-02	B	Residential	1	62	62	0
S-03	B	Residential	1	63	61	2
S-04	B	Residential	1	68	60	8
S-05	B	Residential	1	62	58	5*
S-06	B	Residential	1	63	58	5
S-07	B	Residential	1	63	58	5
S-08	B	Residential	1	64	59	5
S-09	B	Residential	1	65	59	6
S-10	B	Residential	1	65	59	6
S-11	B	Residential	1	66	60	6
S-12	B	Residential	1	65	60	5
S-13	B	Residential	1	65	59	6
S-14	B	Residential	1	68	64	5*
S-15	B	Residential	1	59	58	1
S-16	B	Residential	1	61	59	2
S-17	B	Residential	1	62	60	2
S-18	B	Residential	1	63	62	1
S-19	B	Residential	1	63	62	1
S-20	B	Residential	1	64	63	1
S-21	B	Residential	1	64	63	0*
S-22	B	Residential	1	63	62	0*
S-23	B	Residential	1	59	59	0
S-24	B	Residential	1	60	59	0*

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC

Noise reduction of 5+ dBA

Noise reduction of 7+ dBA

*Predicted insertion loss (IL) may be different due to rounding

Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A)) Build Alternative (2048) No Barrier	Predicted Noise Levels Leq (dB(A)) Build Alternative (2048) With Barrier	Predicted Insertion Loss (IL)*
S-25	B	Residential	1	58	58	0
S-26	B	Residential	1	58	57	0*
S-27	B	Residential	1	54	54	0
Barrier V						
V-01	C	Community Facility	1	50	50	0
V-02	C	Community Facility	1	62	61	1
V-03	C	Community Facility	1	71	65	7*
Barrier W1						
W-01	B	Residential	1	68	62	6
W-02	B	Residential	1	69	63	6
W-03	B	Residential	1	69	64	5
W-04	B	Residential	1	67	62	5
W-05	B	Residential	1	64	58	7*
W-06	B	Residential	1	66	61	5
W-07	B	Residential	1	66	61	6*
W-08	B	Residential	1	70	64	6
W-09	B	Residential	1	68	57	11
W-10	B	Residential	1	67	58	9
W-11	B	Residential	1	65	60	5
W-12	B	Residential	1	64	60	4
W-13	B	Residential	1	66	61	5
W-14	B	Residential	1	61	57	4
W-15	B	Residential	1	62	57	5
W-16	B	Residential	1	62	55	7
W-17	B	Residential	1	57	53	4
W-18	B	Residential	1	58	55	3
Barrier W2						
W-19	B	Residential	1	66	61	5
W-20	B	Residential	1	69	61	8
Barrier X						
X-01	B	Residential	1	69	65	5*
X-02	B	Residential	1	68	61	7
Barrier Y1						
Y-01	B	Residential	1	68	62	7*
Barrier Y2						
Y-02	B	Residential	1	73	66	7

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	**NAC**	**Land Use**	**No. of Representative Receptors***	**Predicted Noise Levels Leq (dB(A))**		**Predicted Insertion Loss (IL)***
				Build Alternative (2048) No Barrier	**Build Alternative (2048) With Barrier**	
Y-03	B	Residential	1	69	64	5
Barrier Y3						
Y-04	B	Residential	1	64	62	1*
Y-05	B	Residential	1	62	60	2
Y-06	B	Residential	1	62	60	3*
Y-07	B	Residential	1	69	62	7
Barrier Z						
Z-01	D	Interior	1	63 (38)	63 (38)	0
Z-02	B	Residential	1	64	64	0
Z-03	C	Community Facility	1	69	63	6
Z-04	C	Community Facility	1	69	62	7
Z-05	C	Community Facility	1	68	60	8
Z-06	C	Community Facility	1	68	61	7
Z-07	B	Residential	1	67	60	7
Z-08	B	Residential	1	65	59	6
Z-09	C	Community Facility	1	67	62	5
Z-10	C	Community Facility	1	66	61	6*
Z-11	C	Community Facility	1	66	62	5*
Z-12	C	Community Facility	1	64	59	5
Z-13	C	Community Facility	1	66	60	6
Z-14	C	Community Facility	1	65	59	6
Z-15	C	Community Facility	1	66	59	7
Z-16	B	Residential	1	62	57	5
Z-17	C	Community Facility	1	65	59	6
Z-18	C	Community Facility	1	64	59	5
Z-19	C	Community Facility	1	64	58	6
Z-20	C	Community Facility	1	65	59	6
Z-21	C	Community Facility	1	60	56	4
Z-22	B	Residential	1	59	55	4
Z-23	C	Community Facility	1	64	61	4*
Z-24	C	Community Facility	1	64	59	5
Z-25	C	Community Facility	1	63	58	6*
Z-26	C	Community Facility	1	63	57	5*
Z-27	C	Community Facility	1	62	57	5
Z-28	C	Community Facility	1	62	57	5
Z-29	C	Community Facility	1	62	57	5

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Receiver Number	NAC	Land Use	No. of Representative Receptors*	Predicted Noise Levels Leq (dB(A))		Predicted Insertion Loss (IL)*
				Build Alternative (2048) No Barrier	Build Alternative (2048) With Barrier	
Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Z-30	C	Community Facility	1	57	53	3*
Z-31	C	Community Facility	1	61	56	5
Z-32	C	Community Facility	1	62	57	5
Z-33	C	Community Facility	1	61	57	4
Z-34	C	Community Facility	1	56	53	3
Barrier AA						
AA-01	B	Residential	1	71	66	6*
AA-02	B	Residential	1	72	65	7
AA-03	B	Residential	1	68	62	6
AA-04	B	Residential	1	72	66	6
Barrier AB						
AB-01	B	Residential	1	63	63	1*
AB-02	B	Residential	1	65	62	3
AB-03	B	Residential	1	66	62	5*
AB-04	B	Residential	1	67	61	5*
AB-05	B	Residential	1	66	61	5
AB-06	B	Residential	1	66	61	6*
AB-07	B	Residential	1	65	61	4
AB-08	B	Residential	1	70	63	7
AB-09	B	Residential	1	65	60	5
AB-10	B	Residential	1	69	64	5
AB-11	B	Residential	1	73	66	6*
AB-12	B	Residential	1	64	63	1
AB-13	B	Residential	1	63	61	2
AB-14	B	Residential	1	64	62	2
AB-15	B	Residential	1	64	61	3
AB-16	B	Residential	1	67	62	5
AB-17	B	Residential	1	67	61	6
AB-18	B	Residential	1	68	61	7
AB-19	B	Residential	1	68	61	7
AB-20	B	Residential	1	72	64	8
AB-21	B	Residential	1	70	63	7
AB-22	B	Residential	1	61	57	4
AB-23	B	Residential	1	61	59	2
AB-24	B	Residential	1	68	63	5
AB-25	B	Residential	1	63	61	2

Appendix H - Predicted Noise Barrier Insertion Loss (Build Alternative)

Noise level approaching or exceeding the NAC						
Noise reduction of 5+ dBA						
Noise reduction of 7+ dBA						
*Predicted insertion loss (IL) may be different due to rounding						
Receiver Number	**NAC**	**Land Use**	**No. of Representative Receptors***	**Predicted Noise Levels Leq (dB(A))**		**Predicted Insertion Loss (IL)***
				Build Alternative (2048) No Barrier	**Build Alternative (2048) With Barrier**	
AB-26	B	Residential	1	62	60	2
Barrier AC						
AC-01	B	Residential	1	71	66	5
AC-02	B	Residential	3	69	63	7*
AC-03	B	Residential	1	69	63	6
AC-04	B	Residential	1	70	65	5
AC-05	B	Residential	1	66	65	1
AC-06	B	Residential	1	68	68	0
AC-07	B	Residential	1	63	60	3
AC-08	B	Residential	1	61	58	3
AC-09	B	Residential	2	60	58	2
AC-10	B	Residential	1	62	59	3
AC-11	B	Residential	1	62	61	1
AC-12	B	Residential	1	59	59	1*
Extended Barrier AC						
AC-01	B	Residential	1	71	66	5
AC-02	B	Residential	3	69	63	7*
AC-03	B	Residential	1	69	63	6
AC-04	B	Residential	1	70	63	7
AC-05	B	Residential	1	66	61	5
AC-06	B	Residential	1	68	62	6
AC-07	B	Residential	1	63	60	3
AC-08	B	Residential	1	61	57	4
AC-09	B	Residential	2	60	57	3
AC-10	B	Residential	1	62	58	4
AC-11	B	Residential	1	62	57	4*
AC-12	B	Residential	1	59	55	4
AE-01	B	Residential	1	65	60	5
AE-02	B	Residential	1	67	62	5
Barrier AD						
AD-01	B	Residential	1	70	63	7
AD-02	B	Residential	1	64	58	6

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
Barrier A Height = 12 ft to 26 ft, Length = 3,560 ft						
978	11864817.00	3713658.50	136.50	12.00	148.50	49
979	11864866.00	3713654.20	134.50	14.00	148.50	50
980	11864916.00	3713649.80	131.00	16.00	147.00	50
981	11864966.00	3713645.00	128.00	16.00	144.00	50
982	11865016.00	3713640.00	125.00	18.00	143.00	50
983	11865066.00	3713640.00	122.50	18.00	140.50	50
984	11865116.00	3713640.80	120.00	18.00	138.00	50
985	11865166.00	3713637.50	119.00	18.00	137.00	50
986	11865215.00	3713630.20	119.00	18.00	137.00	50
987	11865264.00	3713622.80	118.00	18.00	136.00	51
988	11865314.00	3713615.20	118.00	18.00	136.00	50
989	11865363.00	3713607.80	117.00	16.00	133.00	51
990	11865413.00	3713600.50	116.50	16.00	132.50	50
991	11865462.00	3713593.00	115.50	18.00	133.50	51
992	11865512.00	3713585.50	114.00	20.00	134.00	50
993	11865561.00	3713578.00	113.00	22.00	135.00	51
994	11865611.00	3713570.50	112.00	24.00	136.00	50
995	11865660.00	3713563.00	111.00	26.00	137.00	51
996	11865710.00	3713555.50	110.00	24.00	134.00	50
997	11865759.00	3713548.20	108.00	22.00	130.00	50
998	11865808.00	3713540.80	107.00	22.00	129.00	51
999	11865858.00	3713533.20	105.00	24.00	129.00	50
1000	11865907.00	3713525.80	102.00	24.00	126.00	51
1001	11865957.00	3713518.50	99.00	24.00	123.00	50
1003	11866006.00	3713511.00	97.00	26.00	123.00	52
1004	11866058.00	3713515.80	97.00	26.00	123.00	48
1005	11866106.00	3713520.20	98.10	24.00	122.10	50
1006	11866155.00	3713512.50	97.00	22.00	119.00	50
1007	11866204.00	3713505.00	96.90	22.00	118.90	51
1008	11866254.00	3713497.20	95.80	22.00	117.80	50
1009	11866303.00	3713489.80	94.70	24.00	118.70	51
1010	11866353.00	3713482.20	94.30	24.00	118.30	50
1011	11866402.00	3713474.50	93.80	24.00	117.80	51
1012	11866452.00	3713467.00	93.40	24.00	117.40	50
1013	11866501.00	3713459.50	93.00	24.00	117.00	50
1014	11866550.00	3713452.00	93.00	24.00	117.00	51
1015	11866600.00	3713444.50	93.00	24.00	117.00	50
1016	11866649.00	3713437.00	93.00	24.00	117.00	51
1017	11866699.00	3713429.50	93.00	22.00	115.00	50
1018	11866746.00	3713412.50	94.00	20.00	114.00	50
1019	11866792.00	3713393.50	101.00	16.00	117.00	50

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
1020	11866838.00	3713374.50	109.00	16.00	125.00	50
1021	11866884.00	3713355.50	116.00	16.00	132.00	50
1022	11866931.00	3713337.50	119.50	18.00	137.50	50
1023	11866979.00	3713322.80	122.00	18.00	140.00	50
1024	11867027.00	3713310.00	124.00	18.00	142.00	50
1025	11867076.00	3713300.00	125.00	18.00	143.00	50
1026	11867126.00	3713294.00	126.00	20.00	146.00	50
1027	11867176.00	3713288.00	126.00	20.00	146.00	49
1028	11867225.00	3713281.80	126.00	20.00	146.00	50
1029	11867275.00	3713275.50	126.00	18.00	144.00	50
1030	11867325.00	3713273.00	123.50	16.00	139.50	50
1031	11867375.00	3713273.00	121.50	16.00	137.50	50
1032	11867425.00	3713272.20	119.00	18.00	137.00	50
1033	11867475.00	3713269.50	117.50	18.00	135.50	50
1034	11867525.00	3713266.80	116.00	20.00	136.00	49
1035	11867574.00	3713262.50	114.00	22.00	136.00	50
1036	11867624.00	3713256.20	111.00	20.00	131.00	50
1037	11867674.00	3713251.00	107.00	20.00	127.00	49
1038	11867723.00	3713258.00	101.00	20.00	121.00	50
1039	11867773.00	3713265.00	102.50	22.00	124.50	50
1040	11867822.00	3713257.50	104.00	20.00	124.00	51
1041	11867872.00	3713249.80	105.30	20.00	125.30	50
1042	11867921.00	3713242.20	105.80	20.00	125.80	50
1043	11867970.00	3713234.80	106.30	22.00	128.30	100
1044	11868069.00	3713220.00	107.40	22.00	129.40	51
1050	11868119.00	3713212.50	107.70	22.00	129.70	50
1051	11868168.00	3713205.00	108.00	22.00	130.00	50
1052	11868211.00	3713179.00	110.00	20.00	130.00	50
1053	11868253.00	3713151.50	116.00	18.00	134.00	50
1054	11868293.00	3713122.20	119.50	18.00	137.50	-
Barrier A1 Height = 12 ft to 30 ft, Length = 713 ft						
932	11870517.00	3712847.50	133.85	12.00	145.85	51
933	11870567.00	3712839.50	134.15	14.00	148.15	50
934	11870616.00	3712831.50	134.53	16.00	150.53	50
935	11870665.00	3712823.50	134.88	18.00	152.88	51
936	11870715.00	3712815.50	135.29	20.00	155.29	43
937	11870758.00	3712809.00	135.63	22.00	157.63	53
938	11870805.00	3712785.20	135.98	24.00	159.98	37
939	11870839.00	3712770.50	138.00	26.00	164.00	37
940	11870873.00	3712756.00	138.00	24.00	162.00	51
941	11870923.00	3712748.20	138.00	24.00	162.00	50
942	11870972.00	3712740.50	138.00	26.00	164.00	50

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
943	11871021.00	3712732.50	138.00	28.00	166.00	51
944	11871071.00	3712724.80	138.00	30.00	168.00	50
945	11871120.00	3712717.00	138.00	28.00	166.00	51
946	11871170.00	3712709.20	142.00	26.00	168.00	38
947	11871208.00	3712703.20	148.50	26.00	174.50	-
Barrier A2 Height = 26 ft, Length = 454 ft						
point1024	11871343.00	3712680.80	148.20	26.00	174.20	51
point961	11871394.00	3712673.80	148.40	26.00	174.40	51
point962	11871444.00	3712666.50	148.60	26.00	174.60	51
point963	11871495.00	3712659.50	148.80	26.00	174.80	51
point964	11871546.00	3712652.50	149.00	26.00	175.00	53
point965	11871598.00	3712644.80	148.30	26.00	174.30	52
point966	11871649.00	3712636.80	147.70	26.00	173.70	53
point967	11871701.00	3712629.00	147.00	26.00	173.00	46
point968	11871746.00	3712622.30	146.00	26.00	172.00	46
point958	11871791.00	3712615.30	145.00	26.00	171.00	-
Barrier B Height = 12 ft to 18 ft, Length = 1,838 ft						
930	11865078.00	3713935.30	127.00	16.00	143.00	51
932	11865128.00	3713927.50	124.00	16.00	140.00	50
933	11865177.00	3713919.50	123.00	18.00	141.00	50
934	11865226.00	3713911.80	121.00	18.00	139.00	51
935	11865276.00	3713904.00	121.00	18.00	139.00	34
936	11865310.00	3713898.50	120.50	18.00	138.50	53
937	11865360.00	3713882.00	118.50	18.00	136.50	51
938	11865405.00	3713858.80	114.75	18.00	132.75	53
939	11865452.00	3713834.00	113.90	18.00	131.90	51
940	11865502.00	3713826.30	113.10	18.00	131.10	50
941	11865551.00	3713818.80	112.12	18.00	130.12	50
942	11865600.00	3713811.30	111.33	18.00	129.33	51
943	11865650.00	3713803.80	110.30	18.00	128.30	50
944	11865699.00	3713796.30	109.16	18.00	127.16	51
945	11865749.00	3713788.80	107.98	18.00	125.98	50
946	11865798.00	3713781.00	106.73	18.00	124.73	51
947	11865848.00	3713773.50	105.31	16.00	121.31	50
948	11865897.00	3713766.00	103.89	16.00	119.89	50
949	11865946.00	3713758.50	102.57	16.00	118.57	51
950	11865996.00	3713751.00	101.31	16.00	117.31	50
951	11866045.00	3713743.50	99.92	16.00	115.92	51
952	11866095.00	3713736.00	98.70	16.00	114.70	50
953	11866144.00	3713728.50	97.68	16.00	113.68	51
954	11866194.00	3713720.80	96.91	16.00	112.91	50

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
955	11866243.00	3713713.30	96.21	16.00	112.21	50
956	11866292.00	3713705.80	95.56	16.00	111.56	51
957	11866342.00	3713698.30	95.13	16.00	111.13	50
958	11866391.00	3713690.80	94.65	16.00	110.65	51
959	11866441.00	3713683.30	94.17	16.00	110.17	50
960	11866490.00	3713675.80	94.31	16.00	110.31	51
961	11866540.00	3713668.50	94.48	16.00	110.48	50
962	11866589.00	3713661.00	94.72	16.00	110.72	51
963	11866639.00	3713653.50	94.72	16.00	110.72	50
964	11866688.00	3713646.00	95.02	16.00	111.02	51
965	11866739.00	3713651.50	95.51	14.00	109.51	51
966	11866789.00	3713643.50	95.99	12.00	107.99	49
967	11866838.00	3713649.30	102.00	12.00	114.00	33
931	11866871.00	3713653.00	106.00	12.00	118.00	-
Barrier C Height = 16 ft, Length = 748 ft						
point930	11870452.00	3713141.00	137.00	16.00	153.00	50
point932	11870502.00	3713135.30	137.99	16.00	153.99	49
point933	11870551.00	3713132.00	137.88	16.00	153.88	50
point934	11870600.00	3713122.00	137.03	16.00	153.03	51
point935	11870643.00	3713095.50	134.03	16.00	150.03	50
point936	11870674.00	3713056.50	132.58	16.00	148.58	50
point937	11870724.00	3713049.50	132.88	16.00	148.88	49
point938	11870773.00	3713042.50	133.04	16.00	149.04	50
point939	11870823.00	3713035.50	133.33	16.00	149.33	50
point940	11870872.00	3713028.30	133.68	16.00	149.68	50
point941	11870922.00	3713021.30	134.08	16.00	150.08	50
point942	11870971.00	3713014.00	134.25	16.00	150.25	50
point943	11871021.00	3713007.00	134.42	16.00	150.42	49
point944	11871070.00	3713000.00	134.66	16.00	150.66	50
point945	11871120.00	3712993.00	134.88	16.00	150.88	50
point931	11871169.00	3712985.80	134.94	16.00	150.94	-
Barrier D1 Height = 24 ft to 26 ft, Length = 1,563 ft						
point1191	11874074.00	3712312.50	112.00	26.00	138.00	50
point1197	11874025.00	3712320.80	109.00	26.00	135.00	50
point1198	11873976.00	3712329.00	108.00	26.00	134.00	51
point1199	11873926.00	3712337.30	107.00	26.00	133.00	50
point1200	11873877.00	3712345.50	106.00	26.00	132.00	50
point1201	11873828.00	3712354.00	105.00	26.00	131.00	51
point1202	11873778.00	3712362.30	104.00	26.00	130.00	50
point1203	11873729.00	3712370.50	103.00	26.00	129.00	50
point1204	11873680.00	3712378.80	102.00	26.00	128.00	51

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point1205	11873630.00	3712387.00	102.00	26.00	128.00	50
point1206	11873581.00	3712395.30	100.00	26.00	126.00	58
point1207	11873523.00	3712400.30	100.00	26.00	126.00	50
point1208	11873474.00	3712392.30	100.00	26.00	126.00	51
point1192	11873424.00	3712384.50	99.00	26.00	125.00	-
point1193	11874337.00	3712277.50	98.00	24.00	122.00	47
point1209	11874294.00	3712258.00	100.00	24.00	124.00	50
point1210	11874248.00	3712238.30	114.00	24.00	138.00	50
point1211	11874198.00	3712243.00	119.00	24.00	143.00	50
point1212	11874149.00	3712251.50	119.00	24.00	143.00	50
point1213	11874100.00	3712259.80	119.00	24.00	143.00	51
point1214	11874050.00	3712268.30	120.00	24.00	144.00	50
point1215	11874001.00	3712276.50	118.00	24.00	142.00	50
point1216	11873952.00	3712285.00	115.00	24.00	139.00	51
point1194	11873902.00	3712293.30	105.00	24.00	129.00	-
point1195	11874341.00	3712277.50	98.31	24.00	122.31	49
point1217	11874389.00	3712269.50	97.85	24.00	121.85	51
point1218	11874439.00	3712261.80	97.56	24.00	121.56	50
point1219	11874488.00	3712254.00	97.55	24.00	121.55	50
point1220	11874537.00	3712246.00	97.82	24.00	121.82	51
point1221	11874587.00	3712238.00	97.84	24.00	121.84	50
point1222	11874636.00	3712230.00	97.99	24.00	121.99	51
point1223	11874686.00	3712222.00	98.13	24.00	122.13	50
point1224	11874735.00	3712214.00	98.24	24.00	122.24	50
point1196	11874784.00	3712206.00	98.42	24.00	122.42	-
Barrier D2 Height = 20 ft, Length = 1,152 ft						
point1191	11876510.00	3711887.80	116.42	20.00	136.42	50
point1193	11876460.00	3711894.80	116.51	20.00	136.51	49
point1194	11876411.00	3711901.80	117.04	20.00	137.04	51
point1195	11876361.00	3711910.50	117.86	20.00	137.86	50
point1196	11876312.00	3711919.30	119.44	20.00	139.44	50
point1197	11876263.00	3711928.00	120.35	20.00	140.35	50
point1198	11876214.00	3711936.80	120.61	20.00	140.61	50
point1199	11876164.00	3711939.50	121.08	20.00	141.08	50
point1200	11876114.00	3711944.00	122.25	20.00	142.25	50
point1201	11876064.00	3711948.50	122.29	20.00	142.29	50
point1202	11876015.00	3711956.50	122.20	20.00	142.20	50
point1203	11875966.00	3711964.50	121.79	20.00	141.79	50
point1204	11875916.00	3711971.30	121.46	20.00	141.46	50
point1205	11875867.00	3711979.50	120.31	20.00	140.31	51

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point1206	11875817.00	3711988.00	119.60	20.00	139.60	50
point1207	11875768.00	3711996.30	117.50	20.00	137.50	50
point1208	11875719.00	3712004.50	115.62	20.00	135.62	50
point1209	11875670.00	3712013.00	115.00	20.00	135.00	51
point1210	11875620.00	3712021.30	117.34	20.00	137.34	50
point1211	11875571.00	3712031.80	118.21	20.00	138.21	50
point1212	11875523.00	3712045.00	117.15	20.00	137.15	50
point1213	11875475.00	3712057.50	114.40	20.00	134.40	51
point1214	11875425.00	3712065.00	112.17	20.00	132.17	49
point1192	11875377.00	3712076.80	108.35	20.00	128.35	-
Barrier E Height = 18 ft, Length = 1,345 ft						
point1191	11876774.00	3712259.80	120.00	18.00	138.00	50
point1195	11876823.00	3712250.50	120.00	18.00	138.00	50
point1196	11876872.00	3712241.00	121.00	18.00	139.00	51
point1197	11876922.00	3712232.50	121.00	18.00	139.00	49
point1198	11876971.00	3712228.50	122.00	18.00	140.00	50
point1199	11877021.00	3712224.80	123.00	18.00	141.00	50
point1200	11877071.00	3712221.00	123.00	18.00	141.00	50
point1201	11877121.00	3712215.50	123.00	18.00	141.00	49
point1202	11877170.00	3712210.00	123.00	18.00	141.00	50
point1203	11877220.00	3712204.50	123.00	18.00	141.00	50
point1204	11877270.00	3712199.00	123.00	18.00	141.00	50
point1205	11877320.00	3712193.80	123.00	18.00	141.00	50
point1206	11877368.00	3712181.50	120.00	18.00	138.00	50
point1207	11877418.00	3712175.00	119.00	18.00	137.00	49
point1208	11877466.00	3712164.00	118.00	18.00	136.00	50
point1209	11877515.00	3712153.30	117.00	18.00	135.00	50
point1210	11877564.00	3712142.30	115.00	18.00	133.00	50
point1211	11877613.00	3712131.50	114.00	18.00	132.00	50
point1212	11877663.00	3712127.50	113.00	18.00	131.00	49
point1192	11877712.00	3712123.50	112.00	18.00	130.00	-
point1193	11877544.00	3712110.30	114.00	18.00	132.00	50
point1213	11877594.00	3712105.00	113.00	18.00	131.00	49
point1214	11877643.00	3712099.80	113.00	18.00	131.00	50
point1215	11877693.00	3712094.50	113.00	18.00	131.00	50
point1216	11877743.00	3712089.50	112.00	18.00	130.00	49
point1217	11877792.00	3712085.00	111.50	18.00	129.50	50
point1218	11877842.00	3712080.30	111.00	18.00	129.00	50
point1219	11877892.00	3712075.80	110.00	18.00	128.00	50
point1194	11877942.00	3712071.30	109.50	18.00	127.50	-
Barrier F						

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
Height = 16 ft to 20 ft, Length = 1,752 ft						
point1191	11878096.00	3711726.80	110.72	16.00	126.72	51
point1195	11878144.00	3711711.00	112.37	18.00	130.37	49
point1196	11878191.00	3711695.80	115.01	20.00	135.01	50
point1197	11878241.00	3711692.30	115.27	20.00	135.27	50
point1198	11878291.00	3711688.80	114.99	20.00	134.99	50
point1199	11878341.00	3711685.30	114.61	20.00	134.61	50
point1200	11878391.00	3711681.50	114.62	20.00	134.62	50
point1201	11878441.00	3711678.00	114.39	22.00	136.39	49
point1202	11878490.00	3711674.50	114.46	20.00	134.46	50
point1203	11878540.00	3711671.00	114.57	20.00	134.57	50
point1204	11878590.00	3711667.50	114.86	20.00	134.86	50
point1205	11878640.00	3711664.00	115.46	20.00	135.46	50
point1206	11878690.00	3711660.50	115.53	20.00	135.53	50
point1207	11878740.00	3711657.00	114.87	20.00	134.87	50
point1208	11878790.00	3711654.30	113.99	20.00	133.99	50
point1209	11878840.00	3711651.30	112.45	20.00	132.45	50
point1210	11878890.00	3711648.50	110.74	20.00	130.74	49
point1211	11878939.00	3711655.50	106.41	20.00	126.41	50
point1212	11878989.00	3711657.00	100.00	20.00	120.00	50
point1192	11879039.00	3711651.30	92.00	20.00	112.00	-
point1193	11878932.00	3711698.00	99.54	20.00	119.54	50
point1213	11878982.00	3711693.80	98.92	20.00	118.92	49
point1214	11879031.00	3711691.00	98.36	20.00	118.36	50
point1215	11879081.00	3711688.30	97.49	20.00	117.49	50
point1216	11879131.00	3711685.80	97.14	20.00	117.14	50
point1217	11879181.00	3711683.00	96.63	20.00	116.63	55
point1218	11879236.00	3711680.00	96.34	20.00	116.34	50
point1219	11879286.00	3711680.00	96.37	20.00	116.37	50
point1220	11879336.00	3711678.00	96.35	20.00	116.35	50
point1221	11879386.00	3711676.00	96.33	20.00	116.33	50
point1222	11879436.00	3711674.00	96.57	20.00	116.57	50
point1223	11879486.00	3711672.00	96.65	20.00	116.65	50
point1224	11879536.00	3711670.00	96.91	20.00	116.91	50
point1225	11879586.00	3711668.00	97.32	18.00	115.32	50
point1226	11879636.00	3711666.00	97.70	16.00	113.70	50
point1227	11879686.00	3711664.00	97.98	16.00	113.98	50
point1194	11879736.00	3711662.00	98.60	16.00	114.60	-
Barrier H1 **Height = 12 ft, Length = 499 ft**						
point1191	11881574.00	3711925.00	132.64	12.00	144.64	50
point1193	11881624.00	3711925.30	133.47	12.00	145.47	50

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point1194	11881674.00	3711925.50	135.47	12.00	147.47	50
point1195	11881724.00	3711923.50	136.81	12.00	148.81	50
point1196	11881774.00	3711923.00	138.54	12.00	150.54	50
point1197	11881824.00	3711922.80	139.74	12.00	151.74	50
point1198	11881874.00	3711928.80	141.43	12.00	153.43	50
point1199	11881924.00	3711934.50	142.98	12.00	154.98	49
point1200	11881973.00	3711932.30	143.09	12.00	155.09	50
point1201	11882023.00	3711930.00	143.20	12.00	155.20	50
point1192	11882073.00	3711926.80	145.13	12.00	157.13	-
Barrier H2 Height = 16 ft to 18 ft, Length = 1,548 ft						
point1203	11884361.00	3711771.50	106.85	16.00	122.85	50
point1204	11884411.00	3711767.00	107.31	16.00	123.31	50
point1205	11884461.00	3711765.00	107.20	16.00	123.20	50
point1206	11884511.00	3711763.00	107.47	16.00	123.47	50
point1207	11884561.00	3711762.80	106.94	16.00	122.94	50
point1208	11884611.00	3711760.80	107.10	16.00	123.10	50
point1209	11884661.00	3711758.80	107.17	16.00	123.17	50
point1210	11884711.00	3711756.50	107.36	16.00	123.36	49
point1211	11884760.00	3711752.80	108.02	16.00	124.02	50
point1212	11884810.00	3711750.30	108.34	16.00	124.34	50
point1213	11884860.00	3711748.80	108.32	16.00	124.32	-
point1193	11884764.00	3711786.80	107.00	16.00	123.00	50
point1235	11884811.00	3711769.80	109.94	16.00	125.94	50
point1236	11884861.00	3711768.00	110.60	16.00	126.60	50
point1237	11884911.00	3711766.00	109.31	16.00	125.31	50
point1238	11884958.00	3711748.30	108.11	16.00	124.11	50
point1239	11885008.00	3711745.80	108.20	16.00	124.20	50
point1240	11885058.00	3711743.30	108.76	16.00	124.76	50
point1241	11885108.00	3711741.00	109.58	16.00	125.58	49
point1242	11885157.00	3711735.50	110.46	16.00	126.46	50
point1243	11885207.00	3711731.50	111.15	16.00	127.15	50
point1244	11885257.00	3711729.30	111.23	16.00	127.23	50
point1245	11885307.00	3711727.00	111.70	16.00	127.70	50
point1246	11885357.00	3711724.80	112.03	16.00	128.03	50
point1194	11885407.00	3711722.50	112.50	16.00	128.50	-
point1247	11885660.00	3711755.00	128.06	16.00	144.06	50
point1249	11885610.00	3711757.50	127.23	16.00	143.23	50
point1250	11885560.00	3711760.50	126.31	16.00	142.31	50
point1251	11885510.00	3711763.00	125.55	18.00	143.55	50
point1252	11885460.00	3711764.50	123.92	18.00	141.92	50

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point1253	11885410.00	3711765.80	122.60	18.00	140.60	50
point1254	11885360.00	3711766.80	121.46	18.00	139.46	50
point1255	11885310.00	3711765.00	118.03	18.00	136.03	50
point1248	11885260.00	3711760.50	115.00	18.00	133.00	-
Barrier H3 Height = 22 ft, Length = 1,850 ft						
point1197	11888559.00	3711332.50	119.00	22.00	141.00	50
point1198	11888510.00	3711341.80	119.00	22.00	141.00	50
point1199	11888461.00	3711350.80	120.00	22.00	142.00	50
point1200	11888412.00	3711360.00	120.00	22.00	142.00	51
point1201	11888362.00	3711369.00	120.00	22.00	142.00	49
point1202	11888314.00	3711379.50	120.00	22.00	142.00	51
point1203	11888267.00	3711398.00	119.00	22.00	141.00	50
point1204	11888226.00	3711426.00	124.00	22.00	146.00	50
point1205	11888184.00	3711453.50	129.00	22.00	151.00	49
point1207	11888136.00	3711463.00	131.00	22.00	153.00	50
point1208	11888087.00	3711470.80	132.00	22.00	154.00	51
point1209	11888037.00	3711478.80	133.00	22.00	155.00	50
point1210	11887988.00	3711486.50	134.00	22.00	156.00	51
point1211	11887938.00	3711493.80	135.00	22.00	157.00	49
point1212	11887889.00	3711500.80	135.00	22.00	157.00	50
point1213	11887840.00	3711508.50	136.00	22.00	158.00	51
point1214	11887790.00	3711518.50	137.00	22.00	159.00	50
point1215	11887741.00	3711527.00	138.00	22.00	160.00	50
point1216	11887692.00	3711535.50	140.00	22.00	162.00	50
point1217	11887642.00	3711541.50	140.00	22.00	162.00	50
point1218	11887593.00	3711550.00	140.00	22.00	162.00	50
point1219	11887545.00	3711563.00	141.00	22.00	163.00	51
point1220	11887495.00	3711571.30	142.00	22.00	164.00	50
point1221	11887446.00	3711579.00	143.00	22.00	165.00	50
point1222	11887397.00	3711586.50	143.00	22.00	165.00	50
point1223	11887347.00	3711593.50	141.50	22.00	163.50	50
point1224	11887297.00	3711595.00	139.00	22.00	161.00	49
point1225	11887248.00	3711601.80	136.00	22.00	158.00	50
point1226	11887198.00	3711607.50	133.00	22.00	155.00	50
point1227	11887148.00	3711612.30	131.00	22.00	153.00	50
point1228	11887098.00	3711617.00	130.00	22.00	152.00	50
point1229	11887048.00	3711620.80	129.00	22.00	151.00	49
point1230	11886999.00	3711624.00	128.00	22.00	150.00	50
point1231	11886949.00	3711627.50	126.00	22.00	148.00	50
point1232	11886899.00	3711631.00	125.00	22.00	147.00	50
point1233	11886849.00	3711624.00	123.00	22.00	145.00	50
point1234	11886799.00	3711626.80	122.00	22.00	144.00	49

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point1192	11886750.00	3711632.00	122.00	22.00	144.00	-
Barrier I1 Height = 12 ft to 30 ft, Length = 849 ft						
point1191	11881417.00	3711529.30	146.00	20.00	166.00	50
point1193	11881467.00	3711526.30	144.00	22.00	166.00	50
point1194	11881517.00	3711526.50	143.00	22.00	165.00	50
point1195	11881567.00	3711526.50	143.00	28.00	171.00	50
point1196	11881617.00	3711526.50	141.00	30.00	171.00	50
point1197	11881667.00	3711524.00	140.00	30.00	170.00	50
point1198	11881715.00	3711510.80	140.00	28.00	168.00	50
point1199	11881765.00	3711509.80	140.00	24.00	164.00	50
point1200	11881815.00	3711508.50	140.00	24.00	164.00	50
point1201	11881865.00	3711507.00	140.00	24.00	164.00	50
point1202	11881915.00	3711503.30	140.00	18.00	158.00	50
point1203	11881965.00	3711500.00	140.00	14.00	154.00	50
point1204	11882014.00	3711507.30	140.00	12.00	152.00	50
point1205	11882064.00	3711512.80	135.00	12.00	147.00	50
point1206	11882114.00	3711513.80	137.00	12.00	149.00	50
point1207	11882164.00	3711509.50	140.00	12.00	152.00	50
point1208	11882214.00	3711506.30	140.00	12.00	152.00	49
point1192	11882263.00	3711513.30	135.00	12.00	147.00	-
Barrier I2 Height = 22 ft, Length = 949 ft						
point1199	11885451.00	3711404.30	109.00	22.00	131.00	49
point1200	11885402.00	3711406.50	109.00	22.00	131.00	50
point1201	11885352.00	3711408.50	108.50	22.00	130.50	50
point1202	11885302.00	3711410.80	108.00	22.00	130.00	50
point1203	11885252.00	3711413.00	107.50	22.00	129.50	50
point1204	11885202.00	3711415.00	107.00	22.00	129.00	50
point1205	11885152.00	3711417.30	107.00	22.00	129.00	50
point1206	11885102.00	3711419.50	106.50	22.00	128.50	50
point1207	11885052.00	3711421.80	106.00	22.00	128.00	50
point1208	11885002.00	3711424.00	106.00	22.00	128.00	50
point1209	11884952.00	3711426.00	105.00	22.00	127.00	50
point1210	11884902.00	3711428.30	105.00	22.00	127.00	50
point1211	11884852.00	3711430.50	104.00	22.00	126.00	50
point1197	11885377.00	3711383.50	110.00	22.00	132.00	50
point1220	11885423.00	3711364.00	116.00	22.00	138.00	50
point1221	11885471.00	3711349.50	119.00	22.00	141.00	51
point1222	11885521.00	3711342.30	120.00	22.00	142.00	50
point1223	11885571.00	3711339.80	122.00	22.00	144.00	49
point1224	11885620.00	3711336.80	122.00	22.00	144.00	50

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point1225	11885670.00	3711333.80	122.50	22.00	144.50	50
point1226	11885720.00	3711330.50	123.00	22.00	145.00	-
Barrier J Height = 18 ft to 26 ft, Length = 1,604 ft						
point1191	11889722.00	3711152.50	121.75	24.00	145.75	50
point1195	11889771.00	3711143.00	122.35	24.00	146.35	50
point1196	11889820.00	3711133.50	121.99	24.00	145.99	51
point1197	11889870.00	3711124.00	121.70	24.00	145.70	50
point1198	11889919.00	3711114.30	121.82	24.00	145.82	50
point1199	11889968.00	3711104.80	122.18	26.00	148.18	50
point1200	11890017.00	3711095.30	121.80	26.00	147.80	50
point1201	11890066.00	3711085.50	121.37	26.00	147.37	50
point1202	11890115.00	3711076.00	120.93	24.00	144.93	50
point1203	11890164.00	3711064.80	118.95	24.00	142.95	50
point1204	11890212.00	3711051.30	114.61	26.00	140.61	50
point1205	11890259.00	3711034.30	107.90	26.00	133.90	50
point1206	11890301.00	3711007.00	103.68	26.00	129.68	49
point1207	11890349.00	3710996.00	103.19	26.00	129.19	51
point1208	11890399.00	3710987.50	102.65	24.00	126.65	50
point1192	11890448.00	3710978.50	100.68	24.00	124.68	-
point1193	11890358.00	3710977.00	104.00	24.00	128.00	51
point1209	11890408.00	3710968.00	103.00	24.00	127.00	50
point1210	11890457.00	3710959.30	102.00	24.00	126.00	49
point1211	11890505.00	3710948.00	101.00	24.00	125.00	50
point1212	11890554.00	3710938.50	101.00	24.00	125.00	51
point1213	11890604.00	3710929.00	100.00	24.00	124.00	50
point1214	11890653.00	3710921.30	100.00	24.00	124.00	50
point1215	11890702.00	3710913.50	99.00	24.00	123.00	51
point1216	11890752.00	3710905.80	99.00	24.00	123.00	50
point1217	11890801.00	3710896.50	99.00	24.00	123.00	50
point1218	11890850.00	3710886.30	99.00	24.00	123.00	50
point1219	11890899.00	3710877.30	99.00	24.00	123.00	50
point1220	11890948.00	3710868.30	99.00	24.00	123.00	50
point1221	11890997.00	3710859.50	99.00	22.00	121.00	51
point1222	11891047.00	3710850.80	100.00	20.00	120.00	50
point1223	11891096.00	3710842.00	100.00	20.00	120.00	50
point1224	11891145.00	3710833.30	100.00	18.00	118.00	50
point1194	11891194.00	3710823.30	100.00	18.00	118.00	-
Barrier K Height = 20 ft, Length = 498 ft						
point39	11901399.00	3708497.50	135.02	16.00	151.02	51
point41	11901448.00	3708485.30	135.30	16.00	151.30	49

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point42	11901497.00	3708479.30	130.70	16.00	146.70	50
point43	11901547.00	3708476.00	129.59	16.00	145.59	50
point44	11901596.00	3708466.30	133.03	16.00	149.03	50
point45	11901645.00	3708454.30	135.10	16.00	151.10	49
point46	11901694.00	3708447.80	135.01	16.00	151.01	50
point47	11901744.00	3708441.50	134.51	16.00	150.51	50
point48	11901794.00	3708436.00	131.51	16.00	147.51	49
point49	11901843.00	3708430.30	130.29	16.00	146.29	50
point50	11901893.00	3708425.50	128.36	16.00	144.36	-
Barrier L Height = 14 ft, Length = 807 ft						
point128	11913265.00	3706765.50	132.96	14.00	146.96	50
point130	11913314.00	3706758.00	133.81	14.00	147.81	51
point131	11913364.00	3706750.80	134.62	14.00	148.62	49
point132	11913413.00	3706743.80	135.02	14.00	149.02	51
point133	11913463.00	3706736.50	135.20	14.00	149.20	6
point134	11913469.00	3706735.80	135.25	14.00	149.25	50
point135	11913518.00	3706728.50	135.02	14.00	149.02	50
point136	11913568.00	3706721.50	134.24	14.00	148.24	50
point137	11913617.00	3706714.30	132.08	14.00	146.08	51
point138	11913667.00	3706707.00	130.81	14.00	144.81	49
point139	11913716.00	3706700.00	129.32	14.00	143.32	51
point140	11913766.00	3706692.80	129.94	14.00	143.94	49
point141	11913815.00	3706685.80	129.11	14.00	143.11	51
point142	11913865.00	3706678.50	126.71	14.00	140.71	49
point143	11913914.00	3706671.50	123.05	14.00	137.05	50
point144	11913964.00	3706665.00	121.89	14.00	135.89	50
point145	11914013.00	3706657.00	121.24	14.00	135.24	50
point129	11914063.00	3706650.00	120.49	14.00	134.49	-
Barrier M Height = 24 ft, Length = 1,199 ft						
point128	11937097.00	3703176.00	100.55	24.00	124.55	50
point130	11937146.00	3703166.50	100.93	24.00	124.93	50
point131	11937195.00	3703157.00	101.16	24.00	125.16	50
point132	11937244.00	3703147.50	101.23	24.00	125.23	50
point133	11937293.00	3703138.00	101.40	24.00	125.40	50
point134	11937342.00	3703128.80	101.52	24.00	125.52	50
point135	11937391.00	3703119.30	101.93	24.00	125.93	50
point136	11937440.00	3703109.80	101.83	24.00	125.83	51
point137	11937490.00	3703100.30	102.44	24.00	126.44	50
point138	11937539.00	3703090.80	102.35	24.00	126.35	50
point139	11937588.00	3703081.30	102.73	24.00	126.73	49
point140	11937637.00	3703086.80	101.97	24.00	125.97	50

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point141	11937687.00	3703092.30	104.22	24.00	128.22	50
point142	11937737.00	3703097.00	104.46	24.00	128.46	50
point143	11937786.00	3703087.00	104.80	24.00	128.80	50
point144	11937835.00	3703077.30	104.58	24.00	128.58	50
point145	11937884.00	3703067.30	104.58	24.00	128.58	50
point146	11937933.00	3703057.30	104.56	24.00	128.56	50
point147	11937982.00	3703047.50	104.26	24.00	128.26	50
point148	11938026.00	3703023.30	102.50	24.00	126.50	49
point149	11938069.00	3702999.00	101.57	24.00	125.57	50
point150	11938113.00	3702974.80	104.51	24.00	128.51	50
point151	11938162.00	3702964.80	104.63	24.00	128.63	50
point152	11938211.00	3702954.50	104.84	24.00	128.84	50
point129	11938260.00	3702944.50	104.85	24.00	128.85	-
Barrier N **Height = 22 ft, Length = 1,019 ft**						
point128	11939015.00	3702303.30	104.00	22.00	126.00	60
point130	11939072.00	3702286.00	104.04	22.00	126.04	60
point131	11939125.00	3702257.30	101.69	22.00	123.69	60
point132	11939177.00	3702228.30	103.74	22.00	125.74	60
point133	11939231.00	3702201.50	106.15	22.00	128.15	60
point134	11939286.00	3702176.50	108.26	22.00	130.26	60
point135	11939340.00	3702150.50	111.73	22.00	133.73	60
point136	11939394.00	3702125.30	113.43	22.00	135.43	60
point137	11939449.00	3702101.00	111.44	22.00	133.44	60
point138	11939504.00	3702077.30	110.14	22.00	132.14	60
point139	11939558.00	3702050.30	108.66	22.00	130.66	59
point140	11939611.00	3702023.50	108.49	22.00	130.49	60
point141	11939666.00	3701998.50	107.97	22.00	129.97	60
point142	11939720.00	3701973.50	107.01	22.00	129.01	60
point143	11939775.00	3701948.50	104.74	22.00	126.74	60
point144	11939830.00	3701923.50	101.94	22.00	123.94	60
point145	11939884.00	3701898.50	96.65	22.00	118.65	60
point129	11939940.00	3701876.00	99.54	22.00	121.54	-
Barrier P **Height = 30 ft, Length = 1373 ft**						
6016+28.46	11957549.00	3691451.00	77.06	30.00	107.06	22
6016+06.46	11957532.00	3691465.00	75.77	30.00	105.77	15
6015+91.53	11957520.00	3691474.00	73.99	30.00	103.99	14
6015+77.35	11957509.00	3691483.00	72.21	30.00	102.21	23
6015+55.88	11957488.00	3691491.50	68.00	30.00	98.00	24
6015+33.61	11957466.00	3691500.00	63.78	30.00	93.78	23
6015+12.25	11957445.00	3691508.30	59.56	30.00	89.56	24
6014+88.58	11957426.00	3691522.50	58.06	30.00	88.06	24

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6014+64.89	11957407.00	3691536.80	56.55	30.00	86.55	19
6014+46.34	11957393.00	3691549.00	56.04	30.00	86.04	18
6014+28.49	11957380.00	3691561.30	55.54	30.00	85.54	18
6014+10.71	11957367.00	3691573.50	55.04	30.00	85.04	22
6013+88.92	11957349.00	3691586.00	54.96	30.00	84.96	22
6013+67.25	11957331.00	3691598.30	54.87	30.00	84.87	22
6013+45.45	11957313.00	3691610.80	54.79	30.00	84.79	18
6013+29.32	11957295.00	3691614.50	53.16	30.00	83.16	19
6013+12.23	11957276.00	3691618.50	51.53	30.00	81.53	18
6012+95.89	11957258.00	3691622.50	52.78	30.00	82.78	18
6012+79.56	11957240.00	3691626.50	54.03	30.00	84.03	22
6012+57.54	11957223.00	3691640.50	53.71	30.00	83.71	22
6012+35.53	11957206.00	3691654.50	53.39	30.00	83.39	21
6012+14.28	11957190.00	3691668.50	53.06	30.00	83.06	22
6011+92.27	11957173.00	3691682.50	52.74	30.00	82.74	22
6011+70.26	11957156.00	3691696.50	52.42	30.00	82.42	17
6011+55.84	11957151.00	3691713.00	50.97	30.00	80.97	18
6011+40.65	11957145.00	3691729.50	49.52	30.00	79.52	17
6011+26.04	11957140.00	3691746.30	53.42	30.00	83.42	18
6011+10.87	11957134.00	3691762.80	57.32	30.00	87.32	24
6010+90.52	11957126.00	3691785.00	63.66	30.00	93.66	24
6010+70.10	11957118.00	3691807.30	69.99	30.00	99.99	24
6010+49.76	11957110.00	3691829.50	76.33	30.00	106.33	17
6010+36.27	11957106.00	3691845.80	80.41	30.00	110.41	17
6010+22.84	11957102.00	3691862.00	84.48	30.00	114.48	20
6010+02.90	11957086.00	3691874.00	84.72	30.00	114.72	21
6009+82.20	11957069.00	3691886.00	84.96	30.00	114.96	19
6009+63.35	11957054.00	3691897.50	83.86	30.00	113.86	19
6009+44.49	11957039.00	3691909.00	82.76	30.00	112.76	24
6009+20.47	11957020.00	3691923.80	80.13	30.00	110.13	23
6008+97.27	11957002.00	3691938.50	77.49	30.00	107.49	19
6008+78.11	11956987.00	3691950.50	74.63	30.00	104.63	18
6008+59.83	11956973.00	3691962.30	71.76	30.00	101.76	19
6008+40.92	11956958.00	3691974.00	68.89	30.00	98.89	19
6008+22.55	11956940.00	3691981.00	66.42	30.00	96.42	20
6008+03.71	11956921.00	3691987.80	63.94	30.00	93.94	19
6007+85.51	11956903.00	3691994.50	61.47	30.00	91.47	25
6007+61.03	11956884.00	3692010.00	59.17	30.00	89.17	25
6007+35.91	11956864.00	3692025.30	56.87	30.00	86.87	24
6007+11.62	11956845.00	3692040.50	54.58	30.00	84.58	18
6006+93.33	11956831.00	3692052.30	52.02	30.00	82.02	19
6006+74.47	11956816.00	3692063.80	49.47	30.00	79.47	19
6006+55.97	11956802.00	3692076.00	50.88	30.00	80.88	19

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6006+36.75	11956787.00	3692088.00	52.29	30.00	82.29	19
6006+18.14	11956773.00	3692100.30	53.71	30.00	83.71	20
6005+98.89	11956756.00	3692110.00	53.10	30.00	83.10	19
6005+80.22	11956740.00	3692120.00	52.49	30.00	82.49	20
6005+60.76	11956723.00	3692130.00	51.88	30.00	81.88	19
6005+42.20	11956707.00	3692139.80	51.27	30.00	81.27	20
6005+22.80	11956690.00	3692149.80	45.98	30.00	75.98	9
6005+13.40	11956682.00	3692154.80	45.56	30.00	75.56	24
6004+89.45	11956661.00	3692167.00	47.57	30.00	77.57	24
6004+66.09	11956641.00	3692179.50	49.58	30.00	79.58	22
6004+44.32	11956627.00	3692196.80	51.43	30.00	81.43	22
6004+22.62	11956613.00	3692214.00	53.29	30.00	83.29	23
6004+00.09	11956598.00	3692231.30	55.14	30.00	85.14	22
6003+78.48	11956584.00	3692248.50	58.24	30.00	88.24	22
6003+56.51	11956570.00	3692266.00	61.35	30.00	91.35	22
6003+34.77	11956556.00	3692283.30	64.45	30.00	94.45	15
6003+20.26	11956546.00	3692294.00	66.90	30.00	96.90	14
6003+06.68	11956537.00	3692304.50	69.35	30.00	99.35	-
Barrier S **Height = 16 ft to 30 ft, Length = 1380 ft**						
2104+78.65	11963835.00	3684841.30	81.83	20.00	101.83	25
2105+04.10	11963853.00	3684823.30	82.24	20.00	102.24	25
2105+28.86	11963870.00	3684805.30	82.65	20.00	102.65	25
2105+53.62	11963887.00	3684787.30	83.05	20.00	103.05	25
2105+78.24	11963904.00	3684769.50	83.46	22.00	105.46	25
2106+02.99	11963921.00	3684751.50	83.87	22.00	105.87	25
2106+27.75	11963938.00	3684733.50	84.27	22.00	106.27	25
2106+53.20	11963956.00	3684715.50	84.68	22.00	106.68	25
2106+77.96	11963973.00	3684697.50	85.09	22.00	107.09	25
2107+02.72	11963990.00	3684679.50	85.49	22.00	107.49	25
2107+27.26	11964007.00	3684661.80	85.90	22.00	107.90	25
2107+52.02	11964024.00	3684643.80	86.31	22.00	108.31	25
2107+76.78	11964041.00	3684625.80	86.72	22.00	108.72	25
2108+01.54	11964058.00	3684607.80	87.12	22.00	109.12	25
2108+26.99	11964076.00	3684589.80	87.53	22.00	109.53	25
2108+51.60	11964093.00	3684572.00	87.94	22.00	109.94	25
2108+76.36	11964110.00	3684554.00	88.34	22.00	110.34	25
2109+01.12	11964127.00	3684536.00	88.75	22.00	110.75	25
2109+25.88	11964144.00	3684518.00	89.16	22.00	111.16	25
2109+50.64	11964161.00	3684500.00	89.56	22.00	111.56	25
2109+76.09	11964179.00	3684482.00	89.97	22.00	111.97	18
2109+90.92	11964182.00	3684464.30	89.12	22.00	111.12	18
2110+06.52	11964186.00	3684446.50	88.27	22.00	110.27	14

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2110+17.63	11964188.00	3684433.00	90.03	22.00	112.03	14
2110+29.43	11964191.00	3684419.50	91.80	22.00	113.80	15
2110+43.44	11964198.00	3684406.80	93.78	22.00	115.78	15
2110+57.51	11964205.00	3684394.00	95.76	22.00	117.76	24
2110+81.11	11964217.00	3684372.80	97.22	22.00	119.22	24
2111+04.23	11964228.00	3684351.30	98.68	22.00	120.68	23
2111+27.09	11964243.00	3684334.00	99.96	20.00	119.96	22
2111+49.19	11964257.00	3684316.80	101.23	20.00	121.23	22
2111+71.37	11964271.00	3684299.50	102.51	20.00	122.51	23
2111+94.16	11964286.00	3684282.30	103.79	18.00	121.79	19
2112+13.48	11964299.00	3684268.00	102.58	18.00	120.58	19
2112+32.58	11964312.00	3684254.00	101.38	18.00	119.38	20
2112+52.52	11964326.00	3684239.80	100.17	18.00	118.17	19
2112+71.62	11964339.00	3684225.80	98.97	18.00	116.97	19
2112+90.94	11964352.00	3684211.50	100.87	16.00	116.87	19
2113+10.04	11964365.00	3684197.50	102.77	16.00	118.77	20
2113+29.84	11964379.00	3684183.50	104.67	16.00	120.67	23
2113+52.82	11964395.00	3684167.00	104.65	16.00	120.65	24
2113+76.50	11964412.00	3684150.50	104.63	16.00	120.63	23
2113+99.43	11964428.00	3684134.00	104.61	16.00	120.61	24
2114+22.71	11964445.00	3684117.80	104.59	16.00	120.59	23
2114+45.52	11964461.00	3684101.30	104.57	16.00	120.57	21
2114+66.41	11964477.00	3684087.50	104.19	16.00	120.19	21
2114+87.09	11964493.00	3684074.00	103.81	16.00	119.81	21
2115+07.78	11964509.00	3684060.50	103.44	16.00	119.44	21
2115+28.62	11964525.00	3684046.80	103.06	16.00	119.06	20
2115+48.62	11964540.00	3684033.30	102.68	16.00	118.68	21
2115+69.54	11964556.00	3684019.50	102.31	16.00	118.31	21
2115+90.61	11964572.00	3684005.50	102.62	16.00	118.62	21
2116+11.82	11964588.00	3683991.30	102.93	16.00	118.93	21
2116+33.11	11964604.00	3683977.00	103.24	30.00	133.24	21
2116+54.19	11964620.00	3683963.00	103.56	30.00	133.56	19
2116+73.17	11964634.00	3683950.00	103.40	30.00	133.40	19
2116+92.28	11964648.00	3683936.80	103.25	30.00	133.25	19
2117+11.26	11964662.00	3683923.80	103.09	30.00	133.09	19
2117+30.24	11964676.00	3683910.80	102.93	30.00	132.93	22
2117+52.59	11964692.00	3683895.00	103.36	30.00	133.36	22
2117+74.73	11964708.00	3683879.50	103.79	30.00	133.79	22
2117+96.86	11964724.00	3683864.00	104.22	30.00	134.22	23
2118+19.72	11964741.00	3683848.50	104.65	30.00	134.65	22
2118+42.00	11964757.00	3683832.80	105.08	30.00	135.08	-
Barrier V Height = 18 ft, Length = 770 ft						

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6204+81.18	11972422.00	3680503.80	77.14	18.00	95.14	24
6204+57.11	11972399.00	3680511.00	77.22	18.00	95.22	24
6204+33.10	11972376.00	3680518.00	77.29	18.00	95.29	24
6204+09.09	11972353.00	3680525.00	77.36	18.00	95.36	24
6203+84.99	11972330.00	3680532.30	77.43	18.00	95.43	24
6203+60.98	11972307.00	3680539.30	77.50	18.00	95.50	24
6203+36.90	11972284.00	3680546.50	77.57	18.00	95.57	24
6203+12.89	11972261.00	3680553.50	77.64	18.00	95.64	24
6202+88.78	11972238.00	3680560.80	77.71	18.00	95.71	24
6202+64.85	11972215.00	3680567.80	77.78	18.00	95.78	24
6202+40.70	11972192.00	3680575.00	77.85	18.00	95.85	23
6202+17.63	11972170.00	3680582.00	77.93	18.00	95.93	24
6201+93.62	11972147.00	3680589.00	78.00	18.00	96.00	24
6201+69.51	11972124.00	3680596.30	78.07	18.00	96.07	24
6201+45.50	11972101.00	3680603.30	78.14	18.00	96.14	24
6201+21.43	11972078.00	3680610.50	78.21	18.00	96.21	24
6200+97.40	11972055.00	3680617.50	78.28	18.00	96.28	24
6200+73.39	11972032.00	3680624.50	78.41	18.00	96.41	25
6200+48.42	11972008.00	3680631.50	78.54	18.00	96.54	24
6200+24.41	11971985.00	3680638.50	78.68	18.00	96.68	24
6200+00.39	11971962.00	3680645.50	78.81	18.00	96.81	24
6199+76.38	11971939.00	3680652.50	78.94	18.00	96.94	25
6199+51.41	11971915.00	3680659.50	79.07	18.00	97.07	24
6199+27.30	11971892.00	3680666.80	79.20	18.00	97.20	24
6199+03.29	11971869.00	3680673.80	79.33	18.00	97.33	24
6198+79.27	11971846.00	3680680.80	79.46	18.00	97.46	25
6198+54.44	11971822.00	3680687.30	79.68	18.00	97.68	23
6198+31.47	11971800.00	3680694.00	79.90	18.00	97.90	25
6198+06.64	11971776.00	3680700.50	80.12	18.00	98.12	24
6197+82.68	11971753.00	3680707.30	80.34	18.00	98.34	24
6197+58.80	11971730.00	3680713.80	80.56	18.00	98.56	24
6197+34.88	11971707.00	3680720.50	80.78	18.00	98.78	24
6196+87.04	11971684.00	3680727.00	81.00	18.00	99.00	-
Barrier W1 Height = 8 ft to 24 ft, Length = 3500 ft						
2258+57.70	11977327.00	3677838.00	52.75	16.00	68.75	24
2258+82.00	11977348.00	3677825.80	52.40	16.00	68.40	23
2259+05.51	11977368.00	3677813.50	52.05	16.00	68.05	24
2259+29.81	11977389.00	3677801.30	51.71	16.00	67.71	23
2259+53.31	11977409.00	3677789.00	51.36	16.00	67.36	24
2259+77.62	11977430.00	3677776.80	51.01	16.00	67.01	23
2260+01.12	11977450.00	3677764.50	50.67	16.00	66.67	24
2260+25.42	11977471.00	3677752.30	50.32	16.00	66.32	23

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2260+48.92	11977491.00	3677740.00	49.97	18.00	67.97	25
2260+73.75	11977512.00	3677726.80	49.77	18.00	67.77	25
2260+98.63	11977533.00	3677713.50	49.57	22.00	71.57	25
2261+23.45	11977554.00	3677700.30	49.37	22.00	71.37	25
2261+48.33	11977575.00	3677687.00	49.17	22.00	71.17	25
2261+73.32	11977596.00	3677673.50	48.98	22.00	70.98	25
2261+98.15	11977617.00	3677660.30	48.78	22.00	70.78	25
2262+23.03	11977638.00	3677647.00	48.58	22.00	70.58	25
2262+47.86	11977659.00	3677633.80	48.38	22.00	70.38	25
2262+72.74	11977680.00	3677620.50	48.18	22.00	70.18	24
2262+96.88	11977700.00	3677607.00	47.98	22.00	69.98	25
2263+21.71	11977721.00	3677593.80	47.78	22.00	69.78	25
2263+46.59	11977742.00	3677580.50	47.58	22.00	69.58	25
2263+71.42	11977763.00	3677567.30	47.38	22.00	69.38	25
2263+96.30	11977784.00	3677554.00	47.18	22.00	69.18	25
2264+21.29	11977805.00	3677540.50	46.98	24.00	70.98	25
2264+46.12	11977826.00	3677527.30	46.78	24.00	70.78	25
2264+71.00	11977847.00	3677514.00	46.58	24.00	70.58	25
2264+95.83	11977868.00	3677500.80	46.38	22.00	68.38	25
2265+20.72	11977889.00	3677487.50	46.18	22.00	68.18	15
2265+35.29	11977902.00	3677480.80	46.36	20.00	66.36	15
2265+49.92	11977915.00	3677474.00	46.53	20.00	66.53	19
2265+66.42	11977924.00	3677457.50	44.82	22.00	66.82	19
2265+83.60	11977934.00	3677441.30	43.12	20.00	63.12	9
2265+90.89	11977937.00	3677432.50	44.14	20.00	64.14	19
2266+06.27	11977944.00	3677415.00	49.08	18.00	67.08	19
2266+21.66	11977951.00	3677397.50	54.02	18.00	72.02	19
2266+37.06	11977958.00	3677380.00	58.95	18.00	76.95	19
2266+52.47	11977965.00	3677362.50	63.89	18.00	81.89	15
2266+67.05	11977977.00	3677354.30	65.99	16.00	81.99	14
2266+80.84	11977988.00	3677346.00	68.08	16.00	84.08	19
2267+00.15	11978004.00	3677335.30	68.74	14.00	82.74	19
2267+19.51	11978020.00	3677324.50	69.39	14.00	83.39	18
2267+37.98	11978035.00	3677313.80	70.05	12.00	82.05	18
2267+56.23	11978050.00	3677303.50	69.79	12.00	81.79	18
2267+74.43	11978065.00	3677293.30	69.54	10.00	79.54	18
2267+92.68	11978080.00	3677283.00	69.29	10.00	79.29	13
2268+05.87	11978091.00	3677275.80	67.71	8.00	75.71	13
2268+19.12	11978102.00	3677268.50	66.14	8.00	74.14	23
2268+36.08	11978108.00	3677246.80	64.27	8.00	72.27	23
2268+53.11	11978114.00	3677225.00	62.40	8.00	70.40	14
2268+63.62	11978118.00	3677212.00	62.79	8.00	70.79	13
2268+73.31	11978121.00	3677199.00	63.19	8.00	71.19	23

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2268+96.19	11978142.00	3677189.50	64.58	8.00	72.58	22
2269+18.06	11978162.00	3677180.30	65.96	8.00	73.96	22
2269+39.99	11978182.00	3677171.00	67.35	8.00	75.35	22
2269+56.50	11978204.00	3677174.50	66.10	8.00	74.10	21
2269+72.15	11978225.00	3677178.00	64.85	8.00	72.85	19
2269+90.38	11978244.00	3677173.80	66.62	8.00	74.62	20
2270+09.60	11978264.00	3677169.30	68.39	8.00	76.39	20
2270+29.52	11978280.00	3677157.50	69.32	8.00	77.32	20
2270+49.56	11978296.00	3677145.50	70.25	8.00	78.25	20
2270+69.59	11978312.00	3677133.50	71.18	8.00	79.18	25
2270+94.47	11978332.00	3677118.80	71.66	8.00	79.66	25
2271+19.40	11978352.00	3677104.00	72.14	8.00	80.14	25
2271+44.45	11978372.00	3677089.00	72.62	8.00	80.62	25
2271+69.33	11978392.00	3677074.30	73.10	10.00	83.10	24
2271+92.97	11978415.00	3677066.30	69.34	8.00	77.34	18
2272+10.65	11978432.00	3677060.00	64.88	10.00	74.88	19
2272+28.98	11978450.00	3677054.00	60.42	10.00	70.42	19
2272+47.43	11978468.00	3677047.80	55.96	12.00	67.96	17
2272+62.39	11978485.00	3677046.30	51.49	12.00	63.49	17
2272+77.35	11978502.00	3677044.80	47.02	14.00	61.02	14
2272+83.27	11978514.00	3677052.00	45.01	14.00	59.01	7
2272+86.11	11978520.00	3677055.80	46.37	14.00	60.37	17
2273+02.48	11978535.00	3677048.80	46.89	14.00	60.89	16
2273+18.74	11978550.00	3677042.00	47.40	14.00	61.40	21
2273+39.68	11978567.00	3677029.80	47.51	14.00	61.51	21
2273+60.68	11978584.00	3677017.50	47.63	14.00	61.63	20
2273+80.97	11978600.00	3677005.00	47.74	14.00	61.74	18
2273+94.27	11978604.00	3676987.30	46.20	14.00	60.20	14
2274+04.38	11978607.00	3676973.80	52.21	14.00	66.21	14
2274+13.67	11978609.00	3676960.30	58.22	12.00	70.22	16
2274+26.29	11978614.00	3676945.30	63.36	12.00	75.36	16
2274+39.10	11978619.00	3676930.00	68.49	12.00	80.49	17
2274+56.36	11978633.00	3676920.00	70.30	12.00	82.30	17
2274+73.61	11978647.00	3676910.00	72.11	12.00	84.11	13
2274+87.08	11978658.00	3676902.30	72.24	10.00	82.24	12
2274+99.61	11978668.00	3676894.80	72.37	10.00	82.37	22
2275+21.31	11978686.00	3676882.80	71.37	10.00	81.37	22
2275+43.01	11978704.00	3676870.80	70.37	10.00	80.37	21
2275+64.60	11978722.00	3676859.00	69.37	12.00	81.37	18
2275+82.97	11978737.00	3676848.50	67.52	14.00	81.52	19
2276+01.99	11978753.00	3676838.30	65.68	14.00	79.68	18
2276+20.24	11978768.00	3676828.00	63.83	12.00	75.83	20
2276+37.01	11978788.00	3676827.50	61.36	14.00	75.36	25

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2276+57.87	11978813.00	3676827.00	55.76	16.00	71.76	25
2276+78.71	11978838.00	3676826.50	50.16	16.00	66.16	10
2276+87.05	11978848.00	3676826.30	49.51	18.00	67.51	20
2277+03.76	11978868.00	3676825.80	51.08	18.00	69.08	20
2277+21.49	11978888.00	3676823.50	52.66	18.00	70.66	22
2277+44.00	11978906.00	3676810.00	52.79	18.00	70.79	23
2277+66.58	11978925.00	3676797.80	52.93	18.00	70.93	23
2277+90.08	11978944.00	3676784.00	53.07	18.00	71.07	22
2278+12.59	11978962.00	3676770.50	53.21	18.00	71.21	23
2278+36.03	11978981.00	3676756.80	53.34	18.00	71.34	23
2278+59.54	11979000.00	3676743.00	53.48	18.00	71.48	22
2278+82.05	11979018.00	3676729.50	53.62	18.00	71.62	24
2279+04.88	11979032.00	3676709.80	52.69	18.00	70.69	24
2279+27.62	11979046.00	3676690.30	51.75	16.00	67.75	24
2279+50.36	11979060.00	3676670.80	54.46	16.00	70.46	24
2279+72.48	11979060.00	3676670.80	57.17	14.00	71.17	19
2279+90.47	11979084.00	3676635.50	60.44	14.00	74.44	19
2280+08.59	11979095.00	3676619.80	63.71	14.00	77.71	19
2280+26.60	11979106.00	3676604.30	66.98	14.00	80.98	22
2280+48.17	11979121.00	3676588.30	69.60	14.00	83.60	22
2280+69.75	11979136.00	3676572.30	72.23	14.00	86.23	21
2280+90.52	11979150.00	3676556.30	74.85	14.00	88.85	22
2281+11.99	11979165.00	3676540.50	77.47	14.00	91.47	21
2281+32.77	11979179.00	3676524.50	80.10	14.00	94.10	22
2281+54.88	11979197.00	3676511.80	80.99	14.00	94.99	21
2281+76.23	11979214.00	3676499.00	81.89	14.00	95.89	21
2281+97.41	11979231.00	3676486.50	82.78	14.00	96.78	25
2282+22.49	11979251.00	3676471.50	82.33	14.00	96.33	24
2282+46.77	11979270.00	3676456.50	81.88	14.00	95.88	23
2282+69.46	11979288.00	3676442.80	82.63	14.00	96.63	22
2282+91.41	11979305.00	3676429.00	83.37	14.00	97.37	22
2283+13.99	11979323.00	3676415.50	84.12	14.00	98.12	23
2283+36.69	11979341.00	3676401.80	84.86	14.00	98.86	22
2283+58.64	11979358.00	3676388.00	85.61	14.00	99.61	23
2283+81.34	11979376.00	3676374.30	86.35	14.00	100.35	23
2284+04.10	11979394.00	3676360.50	87.10	14.00	101.10	18
2284+22.26	11979408.00	3676349.00	87.64	14.00	101.64	18
2284+40.54	11979422.00	3676337.30	88.19	14.00	102.19	18
2284+58.08	11979435.00	3676325.50	88.73	14.00	102.73	20
2284+77.77	11979452.00	3676315.50	86.82	14.00	100.82	21
2284+98.26	11979470.00	3676305.50	84.91	14.00	98.91	20
2285+17.95	11979487.00	3676295.50	83.00	14.00	97.00	20
2285+37.63	11979504.00	3676285.50	81.08	14.00	95.08	19

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2285+56.83	11979521.00	3676276.30	78.35	14.00	92.35	20
2285+76.89	11979539.00	3676267.00	75.62	14.00	89.62	19
2285+95.96	11979556.00	3676258.00	72.89	14.00	86.89	22
2286+18.04	11979576.00	3676248.00	71.40	14.00	85.40	21
2286+39.31	11979595.00	3676238.00	69.91	14.00	83.91	21
2286+60.58	11979614.00	3676228.00	68.42	14.00	82.42	21
2286+81.84	11979633.00	3676218.00	66.93	14.00	80.93	21
2287+03.10	11979652.00	3676208.00	65.44	14.00	79.44	21
2287+24.35	11979671.00	3676198.00	63.95	14.00	77.95	20
2287+44.19	11979689.00	3676189.00	62.13	14.00	76.13	19
2287+63.22	11979706.00	3676180.00	60.31	14.00	74.31	20
2287+83.06	11979724.00	3676171.00	58.49	14.00	72.49	20
2288+02.88	11979742.00	3676162.00	56.67	14.00	70.67	20
586	11979760.00	3676152.80	55.00	20.00	75.00	20
587	11979778.00	3676143.50	55.00	20.00	75.00	20
588	11979795.00	3676133.50	55.00	22.00	77.00	20
589	11979810.00	3676121.00	55.00	22.00	77.00	20
590	11979826.00	3676108.80	55.00	20.00	75.00	20
591	11979842.00	3676096.80	55.00	20.00	75.00	20
592	11979858.00	3676085.00	55.00	20.00	75.00	20
593	11979874.00	3676073.30	55.00	20.00	75.00	20
594	11979890.00	3676061.00	55.00	20.00	75.00	20
595	11979906.00	3676048.80	55.00	20.00	75.00	20
596	11979922.00	3676036.50	55.00	20.00	75.00	20
597	11979938.00	3676024.30	55.00	20.00	75.00	20
598	11979954.00	3676012.00	55.00	20.00	75.00	20
599	11979970.00	3675999.80	55.00	18.00	73.00	19
600	11979985.00	3675987.50	55.00	16.00	71.00	20
601	11980001.00	3675975.30	55.00	14.00	69.00	20
602	11980017.00	3675963.00	55.00	14.00	69.00	20
603	11980033.00	3675950.80	55.00	14.00	69.00	19
604	11980048.00	3675938.50	55.00	12.00	67.00	20
605	11980064.00	3675926.30	55.00	12.00	67.00	20
606	11980080.00	3675914.00	55.00	12.00	67.00	24
237	11980099.00	3675899.30	55.00	12.00	67.00	-
Barrier W2 Height = 16 ft to 20 ft, Length = 1,348 ft						
point600	11980257.00	3675777.30	54.00	16.00	70.00	25
point616	11980272.00	3675757.00	56.00	16.00	72.00	25
point601	11980287.00	3675736.80	58.00	16.00	74.00	25
point617	11980298.00	3675714.80	61.00	16.00	77.00	25
point602	11980310.00	3675692.80	64.00	16.00	80.00	25
point618	11980330.00	3675678.50	64.00	16.00	80.00	26

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
point603	11980351.00	3675664.00	64.00	16.00	80.00	25
point619	11980370.00	3675648.50	64.00	16.00	80.00	25
point604	11980390.00	3675633.00	64.00	16.00	80.00	25
point620	11980414.00	3675626.50	62.00	16.00	78.00	26
point605	11980439.00	3675619.80	60.00	18.00	78.00	25
point621	11980462.00	3675611.00	57.50	18.00	75.50	26
point606	11980486.00	3675602.30	55.00	18.00	73.00	25
point622	11980504.00	3675584.50	54.50	18.00	72.50	25
point607	11980521.00	3675566.80	54.00	18.00	72.00	24
point623	11980540.00	3675551.50	54.00	18.00	72.00	25
point608	11980560.00	3675536.30	54.00	18.00	72.00	26
point624	11980580.00	3675520.00	54.00	20.00	74.00	25
point609	11980599.00	3675504.00	54.00	20.00	74.00	25
point625	11980618.00	3675487.50	54.00	20.00	74.00	25
point610	11980636.00	3675470.80	54.00	20.00	74.00	25
point626	11980643.00	3675446.80	56.00	20.00	76.00	25
point611	11980650.00	3675422.80	58.00	20.00	78.00	25
point627	11980657.00	3675398.80	61.35	20.00	81.35	25
2300+17.89	11980664.00	3675374.80	64.69	20.00	84.69	25
2300+42.64	11980685.00	3675361.50	68.36	20.00	88.36	24
2300+66.55	11980705.00	3675348.30	72.03	20.00	92.03	24
2300+90.51	11980725.00	3675335.00	74.05	20.00	94.05	24
2301+14.60	11980745.00	3675321.50	76.07	20.00	96.07	19
2301+33.68	11980761.00	3675311.00	75.69	20.00	95.69	23
2301+56.99	11980779.00	3675296.30	74.86	20.00	94.86	23
2301+80.37	11980797.00	3675281.50	74.04	20.00	94.04	23
2302+03.68	11980815.00	3675266.80	73.22	20.00	93.22	23
2302+27.06	11980833.00	3675252.00	72.39	20.00	92.39	23
2302+49.60	11980850.00	3675237.30	71.57	20.00	91.57	23
2302+72.97	11980868.00	3675222.50	70.74	20.00	90.74	23
2302+96.48	11980886.00	3675207.50	70.60	20.00	90.60	23
2303+19.79	11980904.00	3675192.80	70.47	20.00	90.47	23
2303+42.53	11980921.00	3675177.80	70.33	20.00	90.33	23
2303+65.90	11980939.00	3675163.00	70.19	20.00	90.19	23
2303+88.64	11980956.00	3675148.00	70.05	20.00	90.05	23
2304+12.14	11980974.00	3675133.00	69.91	20.00	89.91	23
2304+35.45	11980992.00	3675118.30	69.77	20.00	89.77	23
2304+58.95	11981010.00	3675103.30	69.63	20.00	89.63	23
2304+81.56	11981027.00	3675088.50	69.49	20.00	89.49	23
2305+05.07	11981045.00	3675073.50	69.35	20.00	89.35	23
2305+28.37	11981063.00	3675058.80	69.22	20.00	89.22	23
2305+51.11	11981080.00	3675043.80	69.08	20.00	89.08	22
2305+73.39	11981097.00	3675029.50	67.98	20.00	87.98	22

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2305+95.81	11981114.00	3675015.00	66.89	20.00	86.89	22
2306+18.22	11981131.00	3675000.50	65.80	20.00	85.80	22
2306+40.44	11981148.00	3674986.30	64.70	20.00	84.70	24
2306+64.79	11981166.00	3674970.00	64.73	20.00	84.73	24
2306+88.95	11981184.00	3674954.00	64.75	20.00	84.75	25
2307+13.86	11981203.00	3674938.00	64.78	20.00	84.78	24
2307+38.02	11981221.00	3674922.00	64.80	20.00	84.80	15
2307+52.73	11981232.00	3674912.30	63.99	20.00	83.99	15
2307+67.31	11981243.00	3674902.80	63.18	20.00	83.18	-
Barrier X Height = 8 ft to 20 ft, Length = 1915 ft						
2344+21.17	11983880.00	3672386.00	70.48	8.00	78.48	24
2344+44.89	11983896.00	3672368.50	70.80	8.00	78.80	24
2344+68.60	11983912.00	3672351.00	71.11	8.00	79.11	24
2344+92.31	11983928.00	3672333.50	71.43	8.00	79.43	24
2345+16.17	11983944.00	3672315.80	71.75	8.00	79.75	24
2345+39.88	11983960.00	3672298.30	72.06	8.00	80.06	24
2345+63.59	11983976.00	3672280.80	72.38	10.00	82.38	24
2345+87.31	11983992.00	3672263.30	72.70	12.00	84.70	24
2346+11.02	11984008.00	3672245.80	73.02	14.00	87.02	24
2346+34.73	11984024.00	3672228.30	73.33	14.00	87.33	24
2346+58.44	11984040.00	3672210.80	73.65	14.00	87.65	24
2346+82.16	11984056.00	3672193.30	73.97	14.00	87.97	24
2347+05.87	11984072.00	3672175.80	74.28	14.00	88.28	24
2347+29.58	11984088.00	3672158.30	74.64	14.00	88.64	24
2347+53.97	11984105.00	3672140.80	74.99	14.00	88.99	24
2347+78.36	11984122.00	3672123.30	75.34	14.00	89.34	24
2348+02.75	11984139.00	3672105.80	75.70	14.00	89.70	24
2348+26.46	11984155.00	3672088.30	76.05	14.00	90.05	24
2348+50.85	11984172.00	3672070.80	76.41	14.00	90.41	24
2348+75.24	11984189.00	3672053.30	76.76	12.00	88.76	22
2348+97.02	11984204.00	3672037.50	77.02	12.00	89.02	22
2349+18.65	11984218.00	3672021.00	77.28	12.00	89.28	21
2349+40.05	11984232.00	3672004.80	77.53	12.00	89.53	12
2349+51.16	11984237.00	3671994.30	76.94	12.00	88.94	13
2349+63.28	11984241.00	3671981.50	76.35	12.00	88.35	18
2349+79.17	11984246.00	3671964.50	73.51	12.00	85.51	18
2349+95.06	11984251.00	3671947.50	79.58	12.00	91.58	19
2350+13.91	11984262.00	3671932.00	82.05	12.00	94.05	19
2350+32.91	11984273.00	3671916.30	82.64	12.00	94.64	20
2350+52.66	11984285.00	3671900.50	83.23	12.00	95.23	21
2350+74.06	11984299.00	3671884.30	82.42	12.00	94.42	22
2350+96.36	11984314.00	3671867.80	81.61	12.00	93.61	21

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2351+17.84	11984328.00	3671851.50	80.80	12.00	92.80	22
2351+40.14	11984343.00	3671835.00	79.98	14.00	93.98	25
2351+64.95	11984359.00	3671816.00	80.90	14.00	94.90	25
2351+90.22	11984376.00	3671797.30	81.82	14.00	95.82	25
2352+14.89	11984392.00	3671778.50	82.74	14.00	96.74	25
2352+39.71	11984408.00	3671759.50	83.66	14.00	97.66	25
2352+64.98	11984425.00	3671740.80	84.58	14.00	98.58	25
2352+89.65	11984441.00	3671722.00	85.49	14.00	99.49	25
2353+14.46	11984457.00	3671703.00	86.41	16.00	102.41	25
2353+39.74	11984474.00	3671684.30	87.33	16.00	103.33	25
2353+64.40	11984490.00	3671665.50	88.25	16.00	104.25	25
2353+89.22	11984506.00	3671646.50	89.17	16.00	105.17	25
2354+13.81	11984522.00	3671627.80	90.09	16.00	106.09	20
2354+33.96	11984536.00	3671613.30	91.04	16.00	107.04	20
2354+53.66	11984549.00	3671598.50	91.99	16.00	107.99	20
2354+73.81	11984563.00	3671584.00	92.94	16.00	108.94	19
2354+93.28	11984576.00	3671569.50	93.89	16.00	109.89	18
2355+11.34	11984588.00	3671556.00	94.41	16.00	110.41	18
2355+28.87	11984599.00	3671542.30	94.92	16.00	110.92	18
2355+46.93	11984611.00	3671528.80	95.44	18.00	113.44	23
2355+70.13	11984627.00	3671512.00	95.40	18.00	113.40	22
2355+92.57	11984642.00	3671495.30	95.37	20.00	115.37	23
2356+15.77	11984658.00	3671478.50	95.33	20.00	115.33	23
2356+39.12	11984674.00	3671461.50	95.30	20.00	115.30	23
2356+62.24	11984690.00	3671444.80	95.26	20.00	115.26	23
2356+85.44	11984706.00	3671428.00	95.23	20.00	115.23	23
2357+08.56	11984722.00	3671411.30	95.19	18.00	113.19	23
2357+31.33	11984739.00	3671396.00	95.15	18.00	113.15	23
2357+54.56	11984757.00	3671381.00	95.11	18.00	113.11	24
2357+77.94	11984775.00	3671365.80	95.07	16.00	111.07	24
2358+01.39	11984793.00	3671350.50	95.03	16.00	111.03	23
2358+24.51	11984809.00	3671333.80	95.18	16.00	111.18	23
2358+47.86	11984825.00	3671316.80	95.34	14.00	109.34	23
2358+71.05	11984841.00	3671300.00	95.49	14.00	109.49	23
2358+94.40	11984857.00	3671283.00	95.65	12.00	107.65	23
2359+17.74	11984873.00	3671266.00	95.80	12.00	107.80	23
2359+41.09	11984889.00	3671249.00	95.96	12.00	107.96	24
2359+64.89	11984906.00	3671232.30	96.11	12.00	108.11	23
2359+88.23	11984922.00	3671215.30	96.27	12.00	108.27	22
2360+10.75	11984937.00	3671198.50	96.43	12.00	108.43	22
2360+33.20	11984952.00	3671181.80	96.59	12.00	108.59	23
2360+56.39	11984968.00	3671165.00	96.75	12.00	108.75	23
2360+79.74	11984984.00	3671148.00	96.91	12.00	108.91	22

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2361+02.19	11984999.00	3671131.30	97.07	12.00	109.07	22
2361+24.70	11985014.00	3671114.50	97.22	12.00	109.22	25
2361+49.46	11985031.00	3671096.50	96.12	12.00	108.12	25
2361+74.00	11985048.00	3671078.80	95.02	12.00	107.02	25
2361+98.61	11985065.00	3671061.00	95.08	12.00	107.08	25
2362+23.37	11985082.00	3671043.00	95.13	12.00	107.13	25
2362+47.90	11985099.00	3671025.30	96.38	12.00	108.38	25
2362+72.51	11985116.00	3671007.50	97.64	12.00	109.64	19
2362+91.77	11985129.00	3670993.30	97.87	12.00	109.87	19
2363+11.09	11985142.00	3670979.00	98.11	12.00	110.11	20
2363+31.24	11985156.00	3670964.50	98.35	12.00	110.35	-
Barrier Y1 Height = 22 ft to 30 ft, Length = 1263 ft						
6318+45.56	11982060.00	3674651.00	40.04	30.00	70.04	24
6318+69.92	11982078.00	3674634.50	39.87	30.00	69.87	24
6318+93.59	11982095.00	3674618.00	39.71	30.00	69.71	24
6319+17.39	11982112.00	3674601.30	39.54	30.00	69.54	24
6319+41.05	11982129.00	3674584.80	39.38	30.00	69.38	24
6319+64.71	11982146.00	3674568.30	39.22	30.00	69.22	24
6319+88.59	11982163.00	3674551.50	39.16	30.00	69.16	24
6320+12.25	11982180.00	3674535.00	39.11	30.00	69.11	23
6320+35.35	11982196.00	3674518.30	39.06	30.00	69.06	24
6320+59.22	11982213.00	3674501.50	39.00	30.00	69.00	24
6320+83.02	11982230.00	3674484.80	38.95	30.00	68.95	24
6321+06.89	11982247.00	3674468.00	38.90	30.00	68.90	24
6321+30.55	11982264.00	3674451.50	38.84	30.00	68.84	24
6321+54.36	11982281.00	3674434.80	38.79	30.00	68.79	23
6321+77.65	11982297.00	3674417.80	38.77	30.00	68.77	24
6322+01.67	11982314.00	3674400.80	38.75	30.00	68.75	24
6322+25.90	11982331.00	3674383.50	38.74	30.00	68.74	24
6322+49.92	11982348.00	3674366.50	38.72	30.00	68.72	23
6322+73.23	11982364.00	3674349.50	38.70	30.00	68.70	24
6322+97.25	11982381.00	3674332.50	38.68	30.00	68.68	24
6323+21.25	11982398.00	3674315.50	38.66	30.00	68.66	23
6323+44.57	11982414.00	3674298.50	38.64	30.00	68.64	24
6323+68.72	11982431.00	3674281.30	38.62	30.00	68.62	23
6323+91.68	11982447.00	3674264.80	38.77	30.00	68.77	23
6324+14.86	11982463.00	3674248.00	38.92	30.00	68.92	23
6324+37.81	11982479.00	3674231.50	39.07	28.00	67.07	23
6324+60.91	11982495.00	3674214.80	39.21	28.00	67.21	23
6324+84.08	11982511.00	3674198.00	39.36	28.00	67.36	23
6325+07.03	11982527.00	3674181.50	39.51	28.00	67.51	23
6325+30.14	11982543.00	3674164.80	39.66	28.00	67.66	23

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6325+53.10	11982559.00	3674148.30	39.80	28.00	67.80	23
6325+76.28	11982575.00	3674131.50	39.95	28.00	67.95	24
6326+00.31	11982591.00	3674113.50	40.19	28.00	68.19	25
6326+25.06	11982608.00	3674095.50	40.43	28.00	68.43	24
6326+49.22	11982624.00	3674077.30	40.68	28.00	68.68	25
6326+73.97	11982641.00	3674059.30	40.92	28.00	68.92	24
6326+98.22	11982657.00	3674041.00	41.16	28.00	69.16	25
6327+22.96	11982674.00	3674023.00	41.40	28.00	69.40	25
6327+47.45	11982691.00	3674005.30	41.64	28.00	69.64	25
6327+72.53	11982709.00	3673987.80	41.88	28.00	69.88	25
6327+97.36	11982726.00	3673969.80	42.12	28.00	70.12	23
6328+20.11	11982741.00	3673952.50	42.37	28.00	70.37	24
6328+43.81	11982757.00	3673935.00	42.60	28.00	70.60	24
6328+67.95	11982774.00	3673917.80	42.83	28.00	70.83	24
6328+91.86	11982790.00	3673900.00	43.06	28.00	71.06	23
6329+14.60	11982806.00	3673883.80	43.29	28.00	71.29	25
6329+39.59	11982822.00	3673864.50	43.52	28.00	71.52	23
6329+62.70	11982838.00	3673847.80	43.75	26.00	69.75	22
6329+84.25	11982853.00	3673832.30	43.98	26.00	69.98	26
6330+10.07	11982870.00	3673812.80	44.21	24.00	68.21	24
6330+33.63	11982886.00	3673795.50	44.44	22.00	66.44	24
6330+57.08	11982902.00	3673778.30	44.67	22.00	66.67	24
6330+80.63	11982918.00	3673761.00	44.90	22.00	66.90	24
6331+04.10	11982934.00	3673743.80	45.14	22.00	67.14	-
Barrier Y2 Height = 12 ft to 20 ft, Length = 1813 ft						
6349+08.69	11984126.00	3672388.30	68.82	16.00	84.82	25
6349+33.81	11984143.00	3672369.80	69.15	18.00	87.15	24
6349+58.13	11984159.00	3672351.50	69.48	18.00	87.48	24
6349+82.60	11984175.00	3672333.00	69.81	18.00	87.81	24
6350+07.06	11984191.00	3672314.50	70.14	18.00	88.14	24
6350+31.31	11984207.00	3672296.30	70.47	18.00	88.47	24
6350+55.76	11984223.00	3672277.80	70.80	20.00	90.80	25
6350+80.75	11984240.00	3672259.50	71.13	20.00	91.13	24
6351+05.21	11984256.00	3672241.00	71.46	20.00	91.46	24
6351+29.68	11984272.00	3672222.50	71.79	20.00	91.79	24
6351+54.14	11984288.00	3672204.00	72.12	20.00	92.12	24
6351+78.39	11984304.00	3672185.80	72.45	18.00	90.45	24
6352+02.85	11984320.00	3672167.30	72.78	18.00	90.78	24
6352+27.17	11984336.00	3672149.00	73.11	18.00	91.11	25
6352+52.30	11984353.00	3672130.50	73.44	18.00	91.44	24
6352+76.76	11984369.00	3672112.00	73.77	18.00	91.77	23
6353+00.11	11984385.00	3672095.00	74.10	18.00	92.10	25

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6353+25.33	11984402.00	3672076.30	74.40	18.00	92.40	25
6353+50.07	11984418.00	3672057.50	74.71	18.00	92.71	23
6353+72.90	11984433.00	3672040.30	75.01	18.00	93.01	25
6353+98.40	11984450.00	3672021.30	75.32	18.00	93.32	24
6354+22.72	11984466.00	3672003.00	75.62	18.00	93.62	24
6354+46.81	11984482.00	3671985.00	75.92	16.00	91.92	22
6354+69.12	11984497.00	3671968.50	76.23	16.00	92.23	26
6354+95.29	11984515.00	3671949.50	76.55	16.00	92.55	24
6355+19.16	11984531.00	3671931.80	76.88	16.00	92.88	26
6355+45.03	11984548.00	3671912.30	77.20	16.00	93.20	24
6355+68.67	11984564.00	3671895.00	77.53	16.00	93.53	24
6355+92.10	11984580.00	3671877.80	77.85	16.00	93.85	26
6356+18.20	11984597.00	3671858.00	78.18	16.00	94.18	24
6356+42.44	11984613.00	3671839.80	78.50	16.00	94.50	25
6356+67.42	11984630.00	3671821.50	78.83	14.00	92.83	24
6356+91.51	11984646.00	3671803.50	79.15	14.00	93.15	24
6357+15.23	11984662.00	3671786.00	79.48	12.00	91.48	25
6357+40.74	11984679.00	3671767.00	79.80	12.00	91.80	24
6357+64.83	11984695.00	3671749.00	80.13	12.00	92.13	25
6357+89.73	11984712.00	3671730.80	80.45	12.00	92.45	24
6358+13.82	11984728.00	3671712.80	80.78	12.00	92.78	25
6358+38.81	11984745.00	3671694.50	81.10	12.00	93.10	24
6358+62.90	11984761.00	3671676.50	81.43	12.00	93.43	24
6358+87.14	11984777.00	3671658.30	81.75	12.00	93.75	25
6359+12.13	11984794.00	3671640.00	82.08	12.00	94.08	24
6359+36.21	11984810.00	3671622.00	82.40	12.00	94.40	25
6359+61.12	11984827.00	3671603.80	82.73	12.00	94.73	24
6359+85.44	11984843.00	3671585.50	83.05	12.00	95.05	25
6360+10.19	11984860.00	3671567.50	83.38	12.00	95.38	24
6360+34.43	11984876.00	3671549.30	83.70	12.00	95.70	25
6360+59.42	11984893.00	3671531.00	84.03	12.00	96.03	25
6360+84.55	11984910.00	3671512.50	84.35	12.00	96.35	25
6361+09.68	11984927.00	3671494.00	84.68	12.00	96.68	25
6361+34.82	11984944.00	3671475.50	85.01	14.00	99.01	24
6361+59.05	11984960.00	3671457.30	85.33	16.00	101.33	25
6361+84.19	11984977.00	3671438.80	85.66	16.00	101.66	25
6362+09.17	11984994.00	3671420.50	85.98	16.00	101.98	25
6362+34.31	11985011.00	3671402.00	86.31	16.00	102.31	25
6362+59.43	11985028.00	3671383.50	86.64	16.00	102.64	25
6362+84.35	11985045.00	3671365.30	86.96	16.00	102.96	25
6363+09.49	11985062.00	3671346.80	87.29	16.00	103.29	25
6363+34.62	11985079.00	3671328.30	87.62	16.00	103.62	25
6363+59.60	11985096.00	3671310.00	87.94	16.00	103.94	25

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6363+84.74	11985113.00	3671291.50	88.27	16.00	104.27	25
6364+09.87	11985130.00	3671273.00	88.59	16.00	104.59	24
6364+34.11	11985146.00	3671254.80	88.92	16.00	104.92	25
6364+59.24	11985163.00	3671236.30	89.25	16.00	105.25	25
6364+84.37	11985180.00	3671217.80	89.57	14.00	103.57	25
6365+09.34	11985197.00	3671199.50	89.90	14.00	103.90	25
6365+34.44	11985214.00	3671181.00	90.23	14.00	104.23	24
6365+58.32	11985230.00	3671163.30	90.53	14.00	104.53	25
6365+82.94	11985247.00	3671145.50	90.84	14.00	104.84	24
6366+06.79	11985263.00	3671127.80	91.15	14.00	105.15	25
6366+31.40	11985280.00	3671110.00	91.45	14.00	105.45	24
6366+55.26	11985296.00	3671092.30	91.76	14.00	105.76	25
6366+79.87	11985313.00	3671074.50	92.07	14.00	106.07	24
6367+03.69	11985329.00	3671056.80	92.37	14.00	106.37	25
6367+28.33	11985346.00	3671039.00	92.68	14.00	106.68	-
Barrier Y3 **Height = 20 ft to 30 ft, Length = 813 ft**						
6389+91.08	11986983.00	3669470.50	113.07	20.00	133.07	18
6389+74.50	11986967.00	3669478.30	113.40	22.00	135.40	22
6389+53.38	11986948.00	3669489.50	114.57	22.00	136.57	21
6389+32.73	11986930.00	3669501.00	115.75	22.00	137.75	22
6389+11.39	11986911.00	3669512.50	116.92	22.00	138.92	22
6388+90.06	11986892.00	3669524.00	118.09	22.00	140.09	21
6388+69.55	11986874.00	3669535.30	119.27	22.00	141.27	21
6388+49.06	11986857.00	3669547.50	119.65	22.00	141.65	21
6388+28.72	11986840.00	3669559.50	120.03	22.00	142.03	21
6388+08.15	11986823.00	3669571.80	120.41	22.00	142.41	21
6387+87.66	11986806.00	3669584.00	120.79	22.00	142.79	22
6387+66.63	11986788.00	3669596.00	121.18	22.00	143.18	21
6387+46.06	11986771.00	3669608.30	121.56	24.00	145.56	21
6387+25.62	11986754.00	3669620.50	121.51	24.00	145.51	20
6387+05.62	11986738.00	3669632.80	121.46	26.00	147.46	21
6386+85.19	11986721.00	3669645.00	121.41	24.00	147.41	21
6386+64.62	11986704.00	3669657.30	121.36	26.00	147.36	20
6386+44.81	11986688.00	3669669.50	121.31	28.00	149.31	24
6386+21.36	11986670.00	3669684.80	120.78	28.00	148.78	23
6385+98.81	11986653.00	3669699.80	120.25	28.00	148.25	24
6385+75.43	11986635.00	3669715.00	119.72	28.00	147.72	24
6385+51.42	11986618.00	3669732.00	118.91	30.00	148.91	24
6385+27.40	11986601.00	3669749.00	118.10	30.00	148.10	24
6385+03.15	11986584.00	3669766.30	117.28	28.00	147.28	24
6384+79.13	11986567.00	3669783.30	116.47	28.00	144.47	24
6384+55.11	11986550.00	3669800.30	115.66	28.00	143.66	24

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6384+31.09	11986533.00	3669817.30	114.85	28.00	142.85	23
6384+08.28	11986518.00	3669834.50	113.87	28.00	141.87	24
6383+84.56	11986502.00	3669852.00	112.89	28.00	140.89	23
6383+61.68	11986487.00	3669869.30	111.91	28.00	139.91	24
6383+37.82	11986471.00	3669887.00	111.59	26.00	139.59	24
6383+13.43	11986454.00	3669904.50	111.27	26.00	137.27	24
6382+89.50	11986438.00	3669922.30	110.95	26.00	136.95	25
6382+64.96	11986421.00	3669940.00	110.64	24.00	136.64	25
6382+40.21	11986404.00	3669958.00	110.51	24.00	134.51	25
6382+14.78	11986386.00	3669976.00	110.39	22.00	134.39	25
6381+90.02	11986369.00	3669994.00	110.27	22.00	132.27	-
Barrier Z Height = 20 ft to 30 ft, Length = 1545 ft						
2371+16.44	11,985,678.00	3,670,377.80	105.77	20.00	125.77	23
2371+39.64	11,985,694.00	3,670,361.00	106.13	22.00	128.13	23
2371+62.62	11,985,710.00	3,670,344.50	106.49	22.00	128.49	19
2371+82.09	11,985,723.00	3,670,330.00	106.35	22.00	128.35	20
2372+02.24	11,985,737.00	3,670,315.50	106.20	22.00	128.20	20
2372+21.86	11,985,750.00	3,670,300.80	106.06	22.00	128.06	21
2372+43.28	11,985,765.00	3,670,285.50	106.65	22.00	128.65	22
2372+64.84	11,985,780.00	3,670,270.00	107.25	22.00	129.25	22
2372+86.40	11,985,795.00	3,670,254.50	107.84	22.00	129.84	23
2373+09.53	11,985,811.00	3,670,237.80	108.26	22.00	130.26	22
2373+32.05	11,985,826.00	3,670,221.00	108.69	22.00	130.69	23
2373+55.17	11,985,842.00	3,670,204.30	109.11	22.00	131.11	23
2373+78.37	11,985,858.00	3,670,187.50	109.53	22.00	131.53	23
2374+01.03	11,985,873.00	3,670,170.50	109.95	24.00	133.95	23
2374+24.16	11,985,889.00	3,670,153.80	110.37	24.00	134.37	22
2374+46.68	11,985,904.00	3,670,137.00	110.79	24.00	134.79	23
2374+69.80	11,985,920.00	3,670,120.30	111.21	24.00	135.21	22
2374+92.32	11,985,935.00	3,670,103.50	111.63	24.00	135.63	23
2375+15.67	11,985,951.00	3,670,086.50	112.05	24.00	136.05	23
2375+38.33	11,985,966.00	3,670,069.50	112.37	24.00	136.37	22
2375+60.78	11,985,981.00	3,670,052.80	112.69	24.00	136.69	23
2375+83.45	11,985,996.00	3,670,035.80	113.01	24.00	137.01	23
2376+06.79	11,986,012.00	3,670,018.80	113.33	24.00	137.33	23
2376+29.46	11,986,027.00	3,670,001.80	113.65	24.00	137.65	23
2376+52.12	11,986,042.00	3,669,984.80	113.97	24.00	137.97	22
2376+74.64	11,986,057.00	3,669,968.00	114.30	24.00	138.30	23
2376+97.31	11,986,072.00	3,669,951.00	114.62	26.00	140.62	23
2377+19.98	11,986,087.00	3,669,934.00	114.94	26.00	140.94	22
2377+41.91	11,986,102.00	3,669,918.00	115.04	26.00	141.04	22
2377+63.84	11,986,117.00	3,669,902.00	115.15	26.00	141.15	21

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2377+85.09	11,986,131.00	3,669,886.00	115.26	28.00	143.26	22
2378+07.02	11,986,146.00	3,669,870.00	115.36	28.00	143.36	22
2378+28.96	11,986,161.00	3,669,854.00	115.47	28.00	143.47	25
2378+53.71	11,986,178.00	3,669,836.00	114.74	28.00	142.74	25
2378+78.62	11,986,195.00	3,669,817.80	114.01	28.00	142.01	25
2379+03.60	11,986,212.00	3,669,799.50	113.28	28.00	141.28	24
2379+27.68	11,986,228.00	3,669,781.50	112.55	28.00	140.55	20
2379+47.83	11,986,242.00	3,669,767.00	113.11	28.00	141.11	20
2379+67.45	11,986,255.00	3,669,752.30	113.67	30.00	143.67	20
2379+87.60	11,986,269.00	3,669,737.80	114.22	30.00	144.22	25
2380+12.57	11,986,286.00	3,669,719.50	113.49	30.00	143.49	24
2380+36.65	11,986,302.00	3,669,701.50	112.76	30.00	142.76	23
2380+59.32	11,986,317.00	3,669,684.50	112.99	30.00	142.99	22
2380+81.77	11,986,332.00	3,669,667.80	113.22	30.00	143.22	23
2381+04.96	11,986,348.00	3,669,651.00	113.44	30.00	143.44	22
2381+27.41	11,986,363.00	3,669,634.30	113.67	30.00	143.67	22
2381+49.93	11,986,378.00	3,669,617.50	113.90	28.00	141.90	23
2381+72.60	11,986,393.00	3,669,600.50	114.13	28.00	142.13	22
2381+95.04	11,986,408.00	3,669,583.80	114.36	28.00	142.36	22
2382+17.56	11,986,423.00	3,669,567.00	114.58	28.00	142.58	22
2382+40.01	11,986,438.00	3,669,550.30	114.81	28.00	142.81	22
2382+62.53	11,986,453.00	3,669,533.50	115.04	28.00	143.04	20
2382+82.15	11,986,466.00	3,669,518.80	114.78	28.00	142.78	20
2383+02.30	11,986,480.00	3,669,504.30	114.52	28.00	142.52	23
2383+24.93	11,986,493.00	3,669,485.50	114.35	28.00	142.35	23
2383+48.03	11,986,507.00	3,669,467.00	114.17	28.00	142.17	23
2383+71.27	11,986,521.00	3,669,448.30	114.00	28.00	142.00	23
2383+93.68	11,986,534.00	3,669,429.80	113.82	28.00	141.82	24
2384+17.05	11,986,547.00	3,669,410.00	113.94	28.00	141.94	24
2384+40.57	11,986,560.00	3,669,390.00	114.05	28.00	142.05	23
2384+63.19	11,986,572.00	3,669,370.30	114.17	28.00	142.17	24
2384+86.56	11,986,585.00	3,669,350.50	114.29	28.00	142.29	23
2385+09.40	11,986,597.00	3,669,330.50	114.41	28.00	142.41	22
2385+30.57	11,986,606.00	3,669,310.00	114.25	28.00	142.25	22
2385+51.75	11,986,615.00	3,669,289.50	114.09	28.00	142.09	23
2385+73.07	11,986,624.00	3,669,268.80	113.94	28.00	141.94	24
2385+96.02	11,986,634.00	3,669,246.80	114.87	28.00	142.87	24
2386+18.98	11,986,644.00	3,669,224.80	115.80	28.00	143.80	19
2386+37.49	11,986,652.00	3,669,207.00	115.34	28.00	143.34	19
2386+55.78	11,986,660.00	3,669,189.50	114.88	28.00	142.88	-
Barrier AA Height = 12 ft to 20 ft, Length = 1170 ft						
point1761	11,989,773.00	3,665,691.50	89.75	12.00	101.75	22

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6436+60.14	11,989,760.00	3,665,709.50	89.29	12.00	101.29	22
6436+37.97	11,989,747.00	3,665,727.50	88.82	12.00	100.82	22
6436+15.67	11,989,735.00	3,665,746.30	88.07	12.00	100.07	22
6435+93.45	11,989,723.00	3,665,765.00	87.32	14.00	101.32	22
6435+71.14	11,989,711.00	3,665,783.80	86.57	16.00	102.57	22
6435+48.93	11,989,699.00	3,665,802.50	85.82	16.00	101.82	22
6435+26.87	11,989,687.00	3,665,821.00	85.07	16.00	101.07	18
6435+09.14	11,989,678.00	3,665,836.30	85.64	16.00	101.64	18
6434+91.49	11,989,669.00	3,665,851.50	86.21	14.00	100.21	17
6434+74.01	11,989,660.00	3,665,866.50	86.77	14.00	100.77	23
6434+50.59	11,989,649.00	3,665,887.30	88.05	14.00	102.05	23
6434+27.24	11,989,638.00	3,665,908.00	89.34	14.00	103.34	23
6434+04.06	11,989,627.00	3,665,928.50	90.62	16.00	106.62	18
6433+88.07	11,989,612.00	3,665,937.80	87.81	16.00	103.81	18
6433+72.17	11,989,597.00	3,665,947.00	85.00	16.00	101.00	13
6433+61.85	11,989,585.00	3,665,951.50	86.09	16.00	102.09	13
6433+51.28	11,989,573.00	3,665,956.30	87.18	16.00	103.18	25
6433+26.43	11,989,560.00	3,665,977.50	87.01	16.00	103.01	25
6433+01.19	11,989,546.00	3,665,998.50	86.84	14.00	100.84	25
6432+76.50	11,989,533.00	3,666,019.50	86.68	12.00	98.68	19
6432+60.03	11,989,532.00	3,666,038.50	84.56	14.00	98.56	19
6432+44.28	11,989,532.00	3,666,057.30	82.44	16.00	98.44	9
6432+36.03	11,989,531.00	3,666,066.50	82.74	16.00	98.74	25
6432+11.65	11,989,520.00	3,666,088.50	87.57	16.00	103.57	18
6431+93.15	11,989,510.00	3,666,104.00	88.50	16.00	104.50	19
6431+74.16	11,989,499.00	3,666,119.50	89.42	16.00	105.42	19
6431+55.17	11,989,488.00	3,666,135.00	90.34	16.00	106.34	17
6431+38.98	11,989,476.00	3,666,146.50	87.53	16.00	103.53	16
6431+23.09	11,989,465.00	3,666,158.30	84.71	18.00	102.71	24
6430+99.20	11,989,453.00	3,666,179.00	85.12	18.00	103.12	24
6430+75.22	11,989,441.00	3,666,199.80	85.53	18.00	103.53	24
6430+51.33	11,989,429.00	3,666,220.50	85.95	18.00	103.95	24
6430+27.73	11,989,418.00	3,666,241.50	86.36	18.00	104.36	19
6430+90.00	11,989,409.00	3,666,258.00	87.41	18.00	105.41	19
6429+90.01	11,989,400.00	3,666,274.80	88.46	20.00	108.46	19
6429+71.10	11,989,391.00	3,666,291.50	89.51	20.00	109.51	19
6429+52.37	11,989,382.00	3,666,308.00	90.57	20.00	110.57	22
6429+30.87	11,989,371.00	3,666,326.50	90.88	20.00	110.88	21
6429+10.06	11,989,361.00	3,666,344.80	91.20	20.00	111.20	22
6428+88.44	11,989,349.00	3,666,362.80	90.65	20.00	110.65	21
6428+67.35	11,989,338.00	3,666,380.80	90.10	18.00	108.10	20
6428+47.65	11,989,326.00	3,666,396.50	89.80	18.00	107.80	20
6428+27.70	11,989,314.00	3,666,412.50	89.50	18.00	107.50	20

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6428+07.73	11,989,302.00	3,666,428.50	89.20	18.00	107.20	21
6427+87.20	11,989,292.00	3,666,446.50	89.12	18.00	107.12	21
6427+66.11	11,989,281.00	3,666,464.50	89.04	18.00	107.04	21
6427+45.02	11,989,270.00	3,666,482.50	88.96	18.00	106.96	21
6427+23.94	11,989,259.00	3,666,500.50	88.88	18.00	106.88	22
6427+02.35	11,989,246.00	3,666,517.80	86.74	18.00	104.74	22
6426+80.84	11,989,233.00	3,666,535.00	84.60	18.00	102.60	22
6426+59.25	11,989,220.00	3,666,552.30	82.47	18.00	100.47	22
6426+37.74	11,989,207.00	3,666,569.50	80.33	18.00	98.33	19
6426+21.04	11,989,191.00	3,666,579.00	81.70	18.00	99.70	19
6426+04.35	11,989,175.00	3,666,588.50	83.08	18.00	101.08	19
6425+87.66	11,989,159.00	3,666,598.00	84.45	18.00	102.45	24
point1762	11,989,146.00	3,666,618.50	84.56	18.00	102.56	25
6425+38.41	11,989,132.00	3,666,639.30	84.66	18.00	102.66	-
Barrier AB Height = 8 ft to 16 ft, Length = 4490 ft						
2407+51.22	11987962.00	3667569.80	96.31	12.00	108.31	20
2407+68.22	11987981.00	3667563.80	95.90	12.00	107.90	19
2407+84.77	11987999.00	3667557.50	95.48	12.00	107.48	20
2408+01.84	11988018.00	3667551.30	95.06	14.00	109.06	18
2408+19.85	11988033.00	3667540.80	93.73	14.00	107.73	13
2408+33.12	11988044.00	3667533.00	94.48	14.00	108.48	14
2408+46.54	11988055.00	3667525.00	95.24	12.00	107.24	14
2408+59.92	11988067.00	3667517.80	95.93	12.00	107.93	15
2408+73.98	11988080.00	3667510.50	96.61	12.00	108.61	24
2408+97.59	11988100.00	3667496.80	98.69	14.00	112.69	25
2409+22.01	11988121.00	3667482.80	100.77	14.00	114.77	25
2409+46.22	11988142.00	3667469.00	102.86	12.00	114.86	25
2409+70.55	11988161.00	3667453.50	103.68	10.00	113.68	25
2409+95.45	11988181.00	3667438.00	104.49	10.00	114.49	25
2410+19.70	11988200.00	3667422.50	105.31	10.00	115.31	25
2410+44.51	11988220.00	3667407.00	106.13	10.00	116.13	25
2410+68.67	11988239.00	3667391.50	106.95	10.00	116.95	23
2410+90.89	11988258.00	3667378.30	105.76	10.00	115.76	23
2411+13.14	11988277.00	3667365.00	104.57	10.00	114.57	22
2411+34.68	11988295.00	3667351.80	103.38	10.00	113.38	23
2411+56.84	11988314.00	3667338.50	102.18	10.00	112.18	24
2411+81.04	11988332.00	3667322.00	102.30	10.00	112.30	24
2412+04.64	11988349.00	3667305.50	102.42	10.00	112.42	24
2412+27.95	11988366.00	3667289.30	102.54	10.00	112.54	21
2412+49.33	11988381.00	3667274.00	102.20	10.00	112.20	21
2412+70.45	11988396.00	3667259.00	101.86	10.00	111.86	21
2412+91.71	11988411.00	3667243.80	101.51	10.00	111.51	24

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2413+15.42	11988428.00	3667227.00	100.40	10.00	110.40	24
2413+39.26	11988445.00	3667210.00	99.28	10.00	109.28	19
2413+57.84	11988458.00	3667196.50	99.15	10.00	109.15	19
2413+76.03	11988471.00	3667183.30	99.03	10.00	109.03	19
2413+95.01	11988485.00	3667169.80	98.90	10.00	108.90	23
2414+17.73	11988497.00	3667150.50	99.11	10.00	109.11	23
2414+40.75	11988510.00	3667131.50	99.31	10.00	109.31	23
2414+63.77	11988523.00	3667112.50	99.51	10.00	109.51	23
2414+86.41	11988535.00	3667093.30	99.71	10.00	109.71	23
2415+09.68	11988548.00	3667074.00	99.92	10.00	109.92	22
2415+32.14	11988560.00	3667055.00	100.12	10.00	110.12	24
2415+56.55	11988574.00	3667035.00	99.62	10.00	109.62	24
2415+80.40	11988587.00	3667015.00	99.12	10.00	109.12	24
2416+04.25	11988600.00	3666995.00	98.62	10.00	108.62	24
2416+28.11	11988613.00	3666975.00	98.12	10.00	108.12	24
2416+52.13	11988626.00	3666954.80	97.62	10.00	107.62	24
2416+76.53	11988640.00	3666934.80	97.12	10.00	107.12	24
2417+00.39	11988653.00	3666914.80	96.62	10.00	106.62	24
2417+24.24	11988666.00	3666894.80	96.12	10.00	106.12	24
2417+48.09	11988679.00	3666874.80	95.62	10.00	105.62	25
2417+72.06	11988699.00	3666859.30	93.73	10.00	103.73	25
2417+95.73	11988718.00	3666843.50	91.85	10.00	101.85	19
2418+12.49	11988734.00	3666834.00	88.46	10.00	98.46	19
2418+29.66	11988750.00	3666824.00	89.71	10.00	99.71	19
2418+46.42	11988766.00	3666814.50	90.96	10.00	100.96	25
2418+70.99	11988780.00	3666794.30	90.91	12.00	102.91	24
2418+95.10	11988793.00	3666774.00	90.87	12.00	102.87	24
2419+18.95	11988806.00	3666754.00	90.82	12.00	102.82	25
2419+43.52	11988820.00	3666733.80	90.77	12.00	102.77	24
2419+67.37	11988833.00	3666713.80	90.72	12.00	102.72	25
2419+92.03	11988847.00	3666693.50	90.67	12.00	102.67	24
2420+15.88	11988860.00	3666673.50	90.62	12.00	102.62	25
2420+40.46	11988874.00	3666653.30	90.57	10.00	100.57	24
2420+64.56	11988887.00	3666633.00	90.53	10.00	100.53	24
2420+88.41	11988900.00	3666613.00	90.48	10.00	100.48	25
2421+12.99	11988914.00	3666592.80	90.43	10.00	100.43	24
2421+37.09	11988927.00	3666572.50	90.38	12.00	102.38	24
2421+61.49	11988941.00	3666552.50	90.33	12.00	102.33	24
2421+85.51	11988954.00	3666532.30	90.28	12.00	102.28	24
2422+09.92	11988968.00	3666512.30	90.23	12.00	102.23	24
2422+34.02	11988981.00	3666492.00	90.19	12.00	102.19	24
2422+57.88	11988994.00	3666472.00	90.14	12.00	102.14	25
2422+82.45	11989008.00	3666451.80	90.09	12.00	102.09	23

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2423+05.89	11989021.00	3666432.30	90.13	10.00	100.13	23
2423+29.16	11989034.00	3666413.00	90.17	10.00	100.17	23
2423+52.59	11989047.00	3666393.50	90.22	10.00	100.22	24
2423+76.58	11989061.00	3666374.00	90.26	10.00	100.26	23
2423+99.77	11989074.00	3666354.80	90.30	10.00	100.30	23
2424+23.20	11989087.00	3666335.30	90.34	10.00	100.34	23
2424+46.47	11989100.00	3666316.00	90.39	10.00	100.39	23
2424+69.91	11989113.00	3666296.50	90.43	10.00	100.43	23
2424+93.35	11989126.00	3666277.00	90.47	10.00	100.47	24
2425+17.34	11989140.00	3666257.50	90.52	10.00	100.52	23
2425+40.52	11989153.00	3666238.30	90.56	10.00	100.56	23
2425+63.96	11989166.00	3666218.80	90.60	10.00	100.60	23
2425+87.23	11989179.00	3666199.50	90.64	10.00	100.64	24
2426+11.22	11989193.00	3666180.00	90.73	10.00	100.73	24
2426+35.21	11989207.00	3666160.50	90.82	10.00	100.82	23
2426+58.64	11989220.00	3666141.00	90.90	10.00	100.90	24
2426+82.63	11989234.00	3666121.50	90.99	10.00	100.99	24
2427+06.62	11989248.00	3666102.00	91.08	10.00	101.08	24
2427+30.61	11989262.00	3666082.50	91.16	10.00	101.16	25
2427+55.60	11989276.00	3666061.80	91.25	8.00	99.25	23
2427+78.62	11989289.00	3666042.80	91.33	8.00	99.33	24
2428+02.30	11989302.00	3666023.00	91.42	8.00	99.42	23
2428+25.07	11989315.00	3666004.30	91.51	8.00	99.51	26
2428+50.98	11989329.00	3665982.50	91.59	10.00	101.59	25
2428+75.97	11989343.00	3665961.80	91.67	12.00	103.67	26
2429+01.88	11989357.00	3665940.00	91.76	14.00	105.76	24
2429+26.15	11989370.00	3665919.50	91.84	14.00	105.84	26
2429+52.10	11989385.00	3665898.30	91.92	14.00	105.92	24
2429+76.51	11989399.00	3665878.30	92.00	14.00	106.00	23
2429+99.81	11989411.00	3665858.30	92.09	14.00	106.09	27
2430+26.44	11989426.00	3665836.30	92.17	14.00	106.17	24
2430+49.99	11989438.00	3665816.00	92.25	16.00	108.25	27
2430+77.03	11989453.00	3665793.50	92.34	16.00	108.34	24
2431+00.77	11989467.00	3665774.30	92.42	16.00	108.42	22
2431+20.73	11989471.00	3665753.00	91.09	16.00	107.09	22
2431+39.93	11989473.00	3665731.30	89.76	16.00	105.76	13
2431+52.12	11989475.00	3665718.00	91.41	16.00	107.41	13
2431+64.06	11989477.00	3665705.00	93.06	16.00	109.06	21
2431+85.42	11989487.00	3665686.00	94.53	16.00	110.53	21
2432+06.78	11989497.00	3665667.00	95.99	16.00	111.99	23
2432+29.84	11989509.00	3665647.30	96.63	16.00	112.63	23
2432+52.97	11989521.00	3665627.50	97.26	16.00	113.26	23
2432+76.02	11989533.00	3665607.80	97.89	16.00	113.89	23

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2432+99.32	11989545.00	3665587.80	98.53	16.00	114.53	24
2433+23.14	11989559.00	3665568.50	98.49	16.00	114.49	23
2433+46.16	11989572.00	3665549.50	98.44	16.00	114.44	24
2433+69.90	11989586.00	3665530.30	98.40	16.00	114.40	21
2433+91.12	11989598.00	3665512.80	98.60	16.00	114.60	20
2434+11.62	11989609.00	3665495.50	98.80	16.00	114.80	21
2434+32.28	11989620.00	3665478.00	98.99	16.00	114.99	19
2434+51.56	11989630.00	3665461.50	97.95	16.00	113.95	19
2434+70.59	11989640.00	3665445.30	96.90	16.00	112.90	24
2434+94.56	11989652.00	3665424.50	97.02	16.00	113.02	24
2435+18.83	11989665.00	3665404.00	97.13	16.00	113.13	24
2435+42.54	11989677.00	3665383.50	97.24	16.00	113.24	24
2435+66.81	11989690.00	3665363.00	97.36	16.00	113.36	24
2435+90.53	11989702.00	3665342.50	97.47	16.00	113.47	24
2436+14.25	11989714.00	3665322.00	97.58	16.00	113.58	24
2436+38.13	11989726.00	3665301.30	97.70	16.00	113.70	22
2436+60.60	11989738.00	3665282.30	97.18	16.00	113.18	22
2436+82.52	11989749.00	3665263.30	96.65	16.00	112.65	22
2437+04.98	11989761.00	3665244.30	96.13	16.00	112.13	22
2437+26.90	11989772.00	3665225.30	95.61	16.00	111.61	20
2437+47.28	11989784.00	3665208.80	95.53	16.00	111.53	20
2437+66.94	11989795.00	3665192.50	95.44	16.00	111.44	20
2437+86.78	11989806.00	3665176.00	95.36	16.00	111.36	20
2438+07.16	11989818.00	3665159.50	95.27	16.00	111.27	20
2438+26.74	11989829.00	3665143.30	95.85	16.00	111.85	20
2438+46.96	11989841.00	3665127.00	96.43	16.00	112.43	20
2438+66.79	11989852.00	3665110.50	97.00	16.00	113.00	20
2438+87.17	11989864.00	3665094.00	97.58	16.00	113.58	24
2439+11.02	11989877.00	3665074.00	97.44	16.00	113.44	24
2439+35.04	11989890.00	3665053.80	97.31	16.00	113.31	24
2439+59.45	11989904.00	3665033.80	97.17	16.00	113.17	24
2439+83.55	11989917.00	3665013.50	97.03	16.00	113.03	24
2440+07.96	11989931.00	3664993.50	96.90	16.00	112.90	24
2440+31.98	11989944.00	3664973.30	96.76	16.00	112.76	25
2440+56.63	11989958.00	3664953.00	97.34	16.00	113.34	24
2440+80.49	11989971.00	3664933.00	97.93	16.00	113.93	24
2441+04.51	11989984.00	3664912.80	97.38	16.00	113.38	25
2441+29.16	11989998.00	3664892.50	96.83	16.00	112.83	24
2441+53.18	11990011.00	3664872.30	96.29	16.00	112.29	24
2441+77.29	11990024.00	3664852.00	95.74	16.00	111.74	25
2442+01.86	11990038.00	3664831.80	95.19	16.00	111.19	24
2442+25.96	11990051.00	3664811.50	94.65	16.00	110.65	23
2442+48.98	11990064.00	3664792.50	95.11	16.00	111.11	22

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2442+71.20	11990076.00	3664773.80	95.57	16.00	111.57	22
2442+93.50	11990088.00	3664755.00	96.03	16.00	112.03	22
2443+15.97	11990100.00	3664736.00	96.48	14.00	110.48	22
2443+38.18	11990112.00	3664717.30	96.94	14.00	110.94	23
2443+61.04	11990125.00	3664698.50	97.40	14.00	111.40	22
2443+83.50	11990137.00	3664679.50	97.86	14.00	111.86	20
2444+03.34	11990148.00	3664663.00	97.36	14.00	111.36	19
2444+22.36	11990158.00	3664646.80	96.86	14.00	110.86	20
2444+42.20	11990169.00	3664630.30	96.36	14.00	110.36	20
2444+62.03	11990180.00	3664613.80	99.38	14.00	113.38	24
2444+86.30	11990193.00	3664593.30	99.38	14.00	113.38	25
2445+10.95	11990207.00	3664573.00	99.39	14.00	113.39	23
2445+34.39	11990220.00	3664553.50	98.72	14.00	112.72	23
2445+57.82	11990233.00	3664534.00	98.05	14.00	112.05	23
2445+80.46	11990245.00	3664514.80	97.39	14.00	111.39	23
2446+03.90	11990258.00	3664495.30	96.72	14.00	110.72	23
2446+27.17	11990271.00	3664476.00	96.05	14.00	110.05	23
2446+50.60	11990284.00	3664456.50	95.38	14.00	109.38	23
2446+74.04	11990297.00	3664437.00	94.71	14.00	108.71	23
2446+97.47	11990310.00	3664417.50	94.05	14.00	108.05	24
2447+21.33	11990323.00	3664397.50	94.00	14.00	108.00	24
2447+45.73	11990337.00	3664377.50	93.96	14.00	107.96	24
2447+69.59	11990350.00	3664357.50	93.92	14.00	107.92	24
2447+93.99	11990364.00	3664337.50	93.88	14.00	107.88	24
2448+18.01	11990377.00	3664317.30	93.84	14.00	107.84	24
2448+42.42	11990391.00	3664297.30	93.80	12.00	105.80	24
2448+66.27	11990404.00	3664277.30	93.75	12.00	105.75	25
2448+90.93	11990418.00	3664257.00	93.71	12.00	105.71	23
2449+14.11	11990431.00	3664237.80	94.35	12.00	106.35	23
2449+37.38	11990444.00	3664218.50	95.00	12.00	107.00	23
2449+60.82	11990457.00	3664199.00	95.64	12.00	107.64	23
2449+84.26	11990470.00	3664179.50	96.28	12.00	108.28	23
2450+07.44	11990483.00	3664160.30	96.93	10.00	106.93	22
2450+29.08	11990495.00	3664142.30	96.64	10.00	106.64	21
2450+50.54	11990507.00	3664124.50	96.35	10.00	106.35	21
2450+71.63	11990518.00	3664106.50	96.07	10.00	106.07	22
2450+93.26	11990530.00	3664088.50	95.78	10.00	105.78	22
2451+14.89	11990542.00	3664070.50	95.49	10.00	105.49	25
2451+39.71	11990556.00	3664050.00	95.67	10.00	105.67	25
2451+64.54	11990570.00	3664029.50	95.84	10.00	105.84	25
2451+89.36	11990584.00	3664009.00	96.02	10.00	106.02	25
2452+14.18	11990598.00	3663988.50	96.19	10.00	106.19	-
Barrier AC						

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
Height = 9 ft to 13 ft, Length = 890 ft						
6459+58.33	11991016.00	3663784.80	88.17	9.00	97.17	23
6459+34.89	11991003.00	3663804.30	88.71	9.00	97.71	22
6459+13.26	11990991.00	3663822.30	89.13	10.00	99.13	22
6458+91.63	11990979.00	3663840.30	89.56	10.00	99.56	22
6458+70.00	11990967.00	3663858.30	89.99	10.00	99.99	22
6458+48.37	11990955.00	3663876.30	90.42	10.00	100.42	22
6458+26.74	11990943.00	3663894.30	90.85	9.00	99.85	20
6458+07.22	11990932.00	3663910.50	90.79	9.00	99.79	19
6457+87.88	11990922.00	3663927.00	90.73	10.00	100.73	20
6457+68.21	11990911.00	3663943.30	90.67	9.00	99.67	20
6457+48.39	11990900.00	3663959.80	90.61	10.00	100.61	20
6457+28.39	11990889.00	3663976.50	91.31	9.00	100.31	20
6457+08.31	11990878.00	3663993.30	92.01	9.00	101.01	20
6456+88.86	11990868.00	3664010.00	92.71	9.00	101.71	23
6456+65.40	11990855.00	3664029.50	92.87	10.00	102.87	23
6456+42.54	11990843.00	3664049.00	93.02	10.00	103.02	24
6456+18.85	11990830.00	3664068.80	93.17	10.00	103.17	23
6455+95.96	11990818.00	3664088.30	93.32	10.00	103.32	23
6455+72.53	11990805.00	3664107.80	93.47	10.00	103.47	23
6455+49.48	11990793.00	3664127.50	93.62	10.00	103.62	23
6455+26.05	11990780.00	3664147.00	93.77	10.00	103.77	23
6455+03.15	11990768.00	3664166.50	93.92	10.00	103.92	23
6454+80.26	11990756.00	3664186.00	94.07	11.00	105.07	23
6454+57.84	11990741.00	3664203.00	93.32	12.00	105.32	22
6454+36.11	11990727.00	3664219.80	92.56	13.00	105.56	22
6454+13.94	11990712.00	3664236.50	91.81	13.00	104.81	19
6453+95.15	11990698.00	3664249.80	92.28	13.00	105.28	19
6453+76.61	11990684.00	3664262.80	92.75	12.00	104.75	18
6453+58.62	11990671.00	3664275.80	93.22	12.00	105.22	24
6453+34.48	11990657.00	3664295.50	93.38	12.00	105.38	24
6453+10.79	11990644.00	3664315.30	93.54	12.00	105.54	24
6452+87.19	11990631.00	3664335.00	93.71	12.00	105.71	24
6452+63.33	11990618.00	3664355.00	93.87	12.00	105.87	23
6452+39.90	11990605.00	3664374.50	94.03	12.00	106.03	24
6452+16.05	11990592.00	3664394.50	94.19	12.00	106.19	24
6451+91.82	11990578.00	3664414.30	94.35	12.00	106.35	24
6451+68.22	11990565.00	3664434.00	94.52	12.00	106.52	23
6451+44.91	11990553.00	3664454.00	94.68	12.00	106.68	25
6451+19.42	11990539.00	3664475.30	94.63	12.00	106.63	24
6450+95.02	11990525.00	3664495.30	94.58	12.00	106.58	24
6450+70.58	11990512.00	3664516.00	94.52	12.00	106.52	-
Extended Barrier AC						

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
Height = 10 ft to 16 ft, Length = 2669 ft						
6459+58.33	11991016.00	3663784.80	88.17	10.00	98.17	23
6459+34.89	11991003.00	3663804.30	88.71	10.00	98.71	22
6459+13.26	11990991.00	3663822.30	89.13	10.00	99.13	22
6458+91.63	11990979.00	3663840.30	89.56	10.00	99.56	22
6458+70.00	11990967.00	3663858.30	89.99	10.00	99.99	22
6458+48.37	11990955.00	3663876.30	90.42	10.00	100.42	22
6458+26.74	11990943.00	3663894.30	90.85	10.00	100.85	20
6458+07.22	11990932.00	3663910.50	90.79	10.00	100.79	19
6457+87.88	11990922.00	3663927.00	90.73	10.00	100.73	20
6457+68.21	11990911.00	3663943.30	90.67	10.00	100.67	20
6457+48.39	11990900.00	3663959.80	90.61	10.00	100.61	20
6457+28.39	11990889.00	3663976.50	91.31	10.00	101.31	20
6457+08.31	11990878.00	3663993.30	92.01	10.00	102.01	20
6456+88.86	11990868.00	3664010.00	92.71	10.00	102.71	23
6456+65.40	11990855.00	3664029.50	92.87	10.00	102.87	23
6456+42.54	11990843.00	3664049.00	93.02	10.00	103.02	24
6456+18.85	11990830.00	3664068.80	93.17	10.00	103.17	23
6455+95.96	11990818.00	3664088.30	93.32	10.00	103.32	23
6455+72.53	11990805.00	3664107.80	93.47	10.00	103.47	23
6455+49.48	11990793.00	3664127.50	93.62	10.00	103.62	23
6455+26.05	11990780.00	3664147.00	93.77	10.00	103.77	23
6455+03.15	11990768.00	3664166.50	93.92	10.00	103.92	23
6454+80.26	11990756.00	3664186.00	94.07	12.00	106.07	23
6454+57.84	11990741.00	3664203.00	93.32	12.00	105.32	22
6454+36.11	11990727.00	3664219.80	92.56	12.00	104.56	22
6454+13.94	11990712.00	3664236.50	91.81	12.00	103.81	19
6453+95.15	11990698.00	3664249.80	92.28	12.00	104.28	19
6453+76.61	11990684.00	3664262.80	92.75	12.00	104.75	18
6453+58.62	11990671.00	3664275.80	93.22	12.00	105.22	24
6453+34.48	11990657.00	3664295.50	93.38	12.00	105.38	24
6453+10.79	11990644.00	3664315.30	93.54	12.00	105.54	24
6452+87.19	11990631.00	3664335.00	93.71	12.00	105.71	24
6452+63.33	11990618.00	3664355.00	93.87	12.00	105.87	23
6452+39.90	11990605.00	3664374.50	94.03	12.00	106.03	24
6452+16.05	11990592.00	3664394.50	94.19	12.00	106.19	24
6451+91.82	11990578.00	3664414.30	94.35	12.00	106.35	24
6451+68.22	11990565.00	3664434.00	94.52	12.00	106.52	23
6451+44.91	11990553.00	3664454.00	94.68	12.00	106.68	25
6451+19.42	11990539.00	3664475.30	94.63	12.00	106.63	24
6450+95.02	11990525.00	3664495.30	94.58	12.00	106.58	24
6450+70.58	11990512.00	3664516.00	94.52	12.00	106.52	-

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6469+54.98	11991574.00	3662958.80	68.87	10.00	78.87	16
6469+39.01	11991565.00	3662972.00	68.83	10.00	78.83	16
6469+22.78	11991556.00	3662985.50	68.79	10.00	78.79	23
6469+00.19	11991543.00	3663004.00	69.83	10.00	79.83	22
6468+78.13	11991531.00	3663022.50	70.86	10.00	80.86	23
6468+55.54	11991518.00	3663041.00	71.90	10.00	81.90	22
6468+33.49	11991506.00	3663059.50	72.94	10.00	82.94	21
6468+12.87	11991494.00	3663076.30	72.93	10.00	82.93	20
6467+93.04	11991483.00	3663092.80	72.92	10.00	82.92	20
6467+73.21	11991472.00	3663109.30	72.91	10.00	82.91	20
6467+53.38	11991461.00	3663125.80	72.90	10.00	82.90	23
6467+29.94	11991448.00	3663145.30	73.90	10.00	83.90	23
6467+07.06	11991436.00	3663164.80	74.89	10.00	84.89	24
6466+83.45	11991423.00	3663184.50	75.89	10.00	85.89	22
6466+61.15	11991411.00	3663203.30	76.02	10.00	86.02	23
6466+38.39	11991398.00	3663222.00	76.16	10.00	86.16	22
6466+15.86	11991386.00	3663241.00	76.29	10.00	86.29	22
6465+93.61	11991374.00	3663259.80	76.43	10.00	86.43	23
6465+70.85	11991361.00	3663278.50	77.26	10.00	87.26	22
6465+48.55	11991349.00	3663297.30	78.09	10.00	88.09	23
6465+25.79	11991336.00	3663316.00	78.93	10.00	88.93	22
6465+03.31	11991324.00	3663335.00	79.76	10.00	89.76	22
6464+81.01	11991312.00	3663353.80	80.59	10.00	90.59	23
6464+58.25	11991299.00	3663372.50	81.42	10.00	91.42	22
6464+35.96	11991287.00	3663391.30	82.25	10.00	92.25	24
6464+12.1	11991274.00	3663411.30	82.06	10.00	92.06	24
6463+87.95	11991260.00	3663431.00	81.86	10.00	91.86	24
6463+64.09	11991247.00	3663451.00	82.43	10.00	92.43	24
6463+39.7	11991233.00	3663471.00	82.99	10.00	92.99	24
6463+15.84	11991220.00	3663491.00	83.56	10.00	93.56	24
6462+91.99	11991207.00	3663511.00	84.13	10.00	94.13	25
6462+67.46	11991192.00	3663530.50	84.09	10.00	94.09	24
6462+43.24	11991178.00	3663550.30	84.05	10.00	94.05	24
6462+19.09	11991164.00	3663570.00	84.02	10.00	94.02	24
6461+95.1	11991150.00	3663589.50	83.98	10.00	93.98	24
6461+70.88	11991136.00	3663609.30	83.94	10.00	93.94	24
6461+46.73	11991122.00	3663629.00	83.90	10.00	93.90	23
6461+23.29	11991109.00	3663648.50	84.44	10.00	94.44	23
6460+99.86	11991096.00	3663668.00	84.97	10.00	94.97	24
6460+75.88	11991082.00	3663687.50	85.50	10.00	95.50	23
6460+52.45	11991069.00	3663707.00	86.04	10.00	96.04	23
6460+29.01	11991056.00	3663726.50	86.57	10.00	96.57	23
6460+05.58	11991043.00	3663746.00	87.10	10.00	97.10	24

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
6459+81.6	11991029.00	3663765.50	87.64	10.00	97.64	23
6459+58.33	11991016.00	3663784.80	88.17	12.00	100.17	-
point1766	11991575.00	3662956.00	69.00	12.00	81.00	20
point1768	11991586.00	3662939.50	69.00	12.00	81.00	20
point1769	11991597.00	3662923.00	69.00	12.00	81.00	21
point1770	11991609.00	3662906.30	69.00	12.00	81.00	20
point1771	11991620.00	3662889.80	69.00	12.00	81.00	20
point1772	11991631.00	3662873.30	69.00	12.00	81.00	20
point1773	11991642.00	3662856.80	70.00	12.00	82.00	21
point1774	11991654.00	3662840.00	70.00	12.00	82.00	20
point1775	11991665.00	3662823.50	70.00	12.00	82.00	20
point1776	11991676.00	3662807.00	70.00	12.00	82.00	20
point1777	11991687.00	3662790.50	70.00	12.00	82.00	20
point1778	11991698.00	3662774.00	69.00	12.00	81.00	21
point1779	11991710.00	3662757.30	69.00	12.00	81.00	20
point1780	11991721.00	3662740.80	68.00	12.00	80.00	20
point1781	11991732.00	3662724.30	67.00	12.00	79.00	20
point1782	11991743.00	3662707.50	66.50	12.00	78.50	20
point1783	11991754.00	3662691.00	66.00	12.00	78.00	20
point1784	11991766.00	3662674.50	66.00	14.00	80.00	20
point1785	11991777.00	3662658.00	65.00	14.00	79.00	20
point1786	11991788.00	3662641.30	65.00	14.00	79.00	20
point1787	11991799.00	3662624.80	64.00	16.00	80.00	20
point1788	11991810.00	3662608.00	62.00	16.00	78.00	20
point1789	11991822.00	3662591.50	60.00	16.00	76.00	20
point1790	11991833.00	3662575.00	60.00	16.00	76.00	20
point1791	11991844.00	3662558.30	59.00	16.00	75.00	20
point1792	11991855.00	3662541.80	60.00	16.00	76.00	20
point1793	11991866.00	3662525.00	61.00	14.00	75.00	20
point1794	11991877.00	3662508.50	62.00	14.00	76.00	20
point1795	11991888.00	3662492.00	62.00	14.00	76.00	21
point1796	11991900.00	3662475.30	62.00	14.00	76.00	20
point1797	11991911.00	3662458.80	61.00	14.00	75.00	20
point1798	11991922.00	3662442.30	61.00	14.00	75.00	20
point1799	11991933.00	3662425.80	60.00	14.00	74.00	20
point1800	11991944.00	3662409.30	60.00	12.00	72.00	21
point1801	11991956.00	3662392.50	60.00	12.00	72.00	20
point1802	11991966.00	3662375.50	58.00	12.00	70.00	20
point1803	11991976.00	3662358.00	57.00	12.00	69.00	20
point1804	11991986.00	3662340.80	55.00	12.00	67.00	20
point1805	11991995.00	3662323.00	53.00	12.00	65.00	20
point1806	11992004.00	3662305.30	51.00	12.00	63.00	

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
Barrier AD Height = 20 ft to 30 ft, Length = 1270 ft						
2466+62.44	11991417.00	3662822.80	57.85	20.00	77.85	24
2466+86.84	11991430.00	3662802.50	57.25	20.00	77.25	24
2467+10.69	11991444.00	3662782.50	56.65	20.00	76.65	24
2467+34.71	11991457.00	3662762.50	56.04	20.00	76.04	24
2467+58.57	11991470.00	3662742.30	55.44	20.00	75.44	24
2467+82.67	11991483.00	3662722.30	54.84	22.00	76.84	24
2468+07.49	11991496.00	3662702.00	54.23	22.00	76.23	25
2468+32.32	11991510.00	3662681.50	53.62	22.00	75.62	25
2468+56.75	11991524.00	3662661.00	53.00	22.00	75.00	24
2468+81.58	11991537.00	3662640.30	52.38	24.00	76.38	25
2469+06.10	11991551.00	3662619.80	51.76	24.00	75.76	24
2469+30.92	11991564.00	3662599.00	51.15	24.00	75.15	25
2469+55.19	11991578.00	3662578.50	50.53	24.00	74.53	24
2469+79.34	11991591.00	3662558.00	49.91	26.00	75.91	24
2470+03.03	11991605.00	3662538.30	49.53	26.00	75.53	24
2470+26.47	11991618.00	3662518.50	49.14	26.00	75.14	23
2470+50.07	11991631.00	3662499.00	48.75	26.00	74.75	24
2470+73.76	11991644.00	3662479.30	48.37	26.00	74.37	24
2470+97.12	11991657.00	3662459.50	47.98	26.00	73.98	23
2471+21.18	11991670.00	3662440.00	47.59	26.00	73.59	24
2471+44.78	11991684.00	3662420.30	47.20	28.00	75.20	24
2471+68.28	11991697.00	3662400.50	46.82	28.00	74.82	24
2471+91.87	11991710.00	3662380.80	46.43	28.00	74.43	24
2472+15.21	11991723.00	3662361.00	46.04	28.00	74.04	23
2472+39.28	11991736.00	3662341.50	45.66	28.00	73.66	24
2472+62.86	11991750.00	3662321.80	45.27	30.00	75.27	24
2472+86.20	11991763.00	3662302.00	44.88	30.00	74.88	23
2473+09.69	11991776.00	3662282.50	44.50	26.00	70.50	24
2473+33.26	11991789.00	3662262.80	44.11	24.00	68.11	24
2473+57.74	11991802.00	3662243.00	43.72	24.00	67.72	25
2473+82.39	11991817.00	3662223.50	43.57	26.00	69.57	25
2474+06.29	11991832.00	3662203.80	43.41	26.00	69.41	24
2474+30.78	11991846.00	3662184.30	43.25	24.00	67.25	25
2474+54.93	11991861.00	3662164.80	43.09	24.00	67.09	24
2474+79.42	11991875.00	3662145.00	42.93	26.00	68.93	25
2475+03.33	11991890.00	3662125.50	42.77	26.00	68.77	24
2475+27.99	11991904.00	3662106.00	42.62	26.00	68.62	25
2475+52.49	11991919.00	3662086.30	42.46	24.00	66.46	25
2475+76.38	11991934.00	3662066.80	42.30	24.00	66.30	24
2476+01.12	11991948.00	3662047.30	42.14	24.00	66.14	25
2476+25.01	11991963.00	3662027.50	41.98	24.00	65.98	24

Appendix H - Noise Barrier Information By Segment

Point	Coordinates					Segment Length (ft)
	X	Y	Z Bottom	Height (ft)	Z Top (ft)	
2476+49.51	11991977.00	3662008.00	41.83	22.00	63.83	25
2476+74.16	11991992.00	3661988.50	41.67	22.00	63.67	25
2476+98.04	11992007.00	3661968.80	41.51	22.00	63.51	24
2477+22.53	11992021.00	3661949.30	41.35	22.00	63.35	25
2477+44.69	11992036.00	3661929.80	41.19	22.00	63.19	22
2477+66.76	11992050.00	3661912.50	41.15	22.00	63.15	22
2477+88.92	11992064.00	3661895.30	41.11	22.00	63.11	22
2478+10.37	11992078.00	3661878.00	41.07	22.00	63.07	22
2478+33.54	11992091.00	3661860.80	41.03	22.00	63.03	23
2478+56.01	11992106.00	3661843.00	40.99	22.00	62.99	23
2478+78.54	11992120.00	3661825.30	40.95	20.00	60.95	23
2479+01.64	11992134.00	3661807.50	40.90	20.00	60.90	23
2479+47.49	11992149.00	3661789.80	40.86	20.00	60.86	-

Appendix I: Warranted, Feasible, and Reasonable Worksheets

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	4-Nov-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier A
Community Name and/or CNE#	CNE A
Noise Abatement Category(s)	B
Design phase:	Preliminary design

		Warranted	
1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

		Feasibility	
1		Impacted receptor units	
	a.	Number of impacted receptor units:	11
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	11
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	71,994 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	11
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	38
d.	Total number of benefited receptors.	49
e.	Surface Area per benefited receptor unit. (ft^2/BR)	1,469 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	Yes
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	3,560 ft
b.	Height range of the proposed noise barrier. (ft)	12-26 ft
c.	Average height of the proposed noise barrier. (ft)	20 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$3,023,748
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	Yes

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	26-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier A1
Community Name and/or CNE#	CNE A
Noise Abatement Category(s)	B, C
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	4
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	4
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1	**Surface Area (Square foot)-Benefit Factors**		
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	15,905 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	4
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	6
	d.	Total number of benefited receptors.	10
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	1,591 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	Yes
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**		
	a.	Length of the proposed noise barrier. (ft)	713 ft
	b.	Height range of the proposed noise barrier. (ft)	12-30 ft
	c.	Average height of the proposed noise barrier. (ft)	22 ft
	d.	Cost per square foot. ($/$ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$668,010
	f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**		
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	Yes

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	26-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier A2
Community Name and/or CNE#	CNE A
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	1
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

		Reasonableness	
1		**Surface Area (Square foot)-Benefit Factors**	
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	11,771 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
	d.	Total number of benefited receptors.	1
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	11,771 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2		**Additional Noise Barrier Details**	
	a.	Length of the proposed noise barrier. (ft)	454 ft
	b.	Height range of the proposed noise barrier. (ft)	26 ft
	c.	Average height of the proposed noise barrier. (ft)	26 ft
	d.	Cost per square foot. ($/ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$494,382
	f.	Barrier Material	NA
3		**Community Desires Related to the Barrier**	
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No
Additional Reasons for Decision:	

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier B
Community Name and/or CNE#	CNE B
Noise Abatement Category(s)	B
Design phase:	Preliminary design

		Warranted	
1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

		Feasibility	
1		Impacted receptor units	
	a.	Number of impacted receptor units:	11
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	11
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1	**Surface Area (Square foot)-Benefit Factors**		
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)		30,168 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.		11
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.		9
d.	Total number of benefited receptors.		20
e.	Surface Area per benefited receptor unit. (ft^2/BR)		1,508 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?		Yes
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?		Yes
2	**Additional Noise Barrier Details**		
a.	Length of the proposed noise barrier. (ft)		1,838 ft
b.	Height range of the proposed noise barrier. (ft)		12-18 ft
c.	Average height of the proposed noise barrier. (ft)		16 ft
d.	Cost per square foot. ($/ft^2$)		$42.0
e.	Total Barrier Cost ($)		$1,267,056
f.	Barrier Material		NA
3	**Community Desires Related to the Barrier**		
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”		

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	Yes

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier C
Community Name and/or CNE#	CNE C
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	1
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1		**Surface Area (Square foot)-Benefit Factors**	
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	11,999 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	d.	Total number of benefited receptors.	2
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	6,000 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2		**Additional Noise Barrier Details**	
	a.	Length of the proposed noise barrier. (ft)	748 ft
	b.	Height range of the proposed noise barrier. (ft)	16 ft
	c.	Average height of the proposed noise barrier. (ft)	16 ft
	d.	Cost per square foot. ($/ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$503,958
	f.	Barrier Material	NA
3		**Community Desires Related to the Barrier**	
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier D1
Community Name and/or CNE#	CNE D
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	1
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1	**Surface Area (Square foot)-Benefit Factors**		
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	38,637 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
	d.	Total number of benefited receptors.	1
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	38,637 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**		
	a.	Length of the proposed noise barrier. (ft)	1,563 ft
	b.	Height range of the proposed noise barrier. (ft)	24-26 ft
	c.	Average height of the proposed noise barrier. (ft)	25 ft
	d.	Cost per square foot. ($/$ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$1,622,754
	f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**		
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier D2
Community Name and/or CNE#	CNE D
Noise Abatement Category(s)	B
Design phase:	Preliminary design

		Warranted	
1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

		Feasibility	
1		Impacted receptor units	
	a.	Number of impacted receptor units:	2
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	23,002 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	11,501 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,152 ft
b.	Height range of the proposed noise barrier. (ft)	20 ft
c.	Average height of the proposed noise barrier. (ft)	20 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$966,084
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier E
Community Name and/or CNE#	CNE E
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	1
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1 **Surface Area (Square foot)-Benefit Factors**

a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	24,291 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	12,146 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes

2 **Additional Noise Barrier Details**

a.	Length of the proposed noise barrier. (ft)	1,345 ft
b.	Height range of the proposed noise barrier. (ft)	18 ft
c.	Average height of the proposed noise barrier. (ft)	18 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,020,222
f.	Barrier Material	NA

3 **Community Desires Related to the Barrier**

Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier F
Community Name and/or CNE#	CNE F
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	1
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	34,305 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
d.	Total number of benefited receptors.	3
e.	Surface Area per benefited receptor unit. (ft^2/BR)	11,435 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,752 ft
b.	Height range of the proposed noise barrier. (ft)	16 to 20 ft
c.	Average height of the proposed noise barrier. (ft)	20 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,440,810
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier H1
Community Name and/or CNE#	CNE H
Noise Abatement Category(s)	B
Design phase:	Preliminary design

		Warranted	
1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

		Feasibility	
1		Impacted receptor units	
	a.	Number of impacted receptor units:	2
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	5,999 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	3,000 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	499 ft
b.	Height range of the proposed noise barrier. (ft)	12 ft
c.	Average height of the proposed noise barrier. (ft)	12 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$251,958
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier H2
Community Name and/or CNE#	CNE H
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	2
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1 **Surface Area (Square foot)-Benefit Factors**

a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	25,307 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
d.	Total number of benefited receptors.	3
e.	Surface Area per benefited receptor unit. (ft^2/BR)	8,436 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes

2 **Additional Noise Barrier Details**

a.	Length of the proposed noise barrier. (ft)	2 ft
b.	Height range of the proposed noise barrier. (ft)	16 to 18 ft
c.	Average height of the proposed noise barrier. (ft)	16 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,062,894
f.	Barrier Material	NA

3 **Community Desires Related to the Barrier**

Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier H3
Community Name and/or CNE#	CNE H
Noise Abatement Category(s)	B
Design phase:	Preliminary design

	Warranted	
1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

	Feasibility	
1	Impacted receptor units	
a.	Number of impacted receptor units:	1
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	40,665 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	3
d.	Total number of benefited receptors.	4
e.	Surface Area per benefited receptor unit. (ft^2/BR)	10,166 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,850 ft
b.	Height range of the proposed noise barrier. (ft)	22 ft
c.	Average height of the proposed noise barrier. (ft)	22 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,707,930
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier** Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	5-Jul-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier I1
Community Name and/or CNE#	CNE I
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	1
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	17,198 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	8,599 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	849 ft
b.	Height range of the proposed noise barrier. (ft)	12-30 ft
c.	Average height of the proposed noise barrier. (ft)	20 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$722,316
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier I2
Community Name and/or CNE#	CNE I
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	1
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	20,889 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	10,445 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	949 ft
b.	Height range of the proposed noise barrier. (ft)	22 ft
c.	Average height of the proposed noise barrier. (ft)	22 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$877,338
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier** Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier J
Community Name and/or CNE#	CNE J
Noise Abatement Category(s)	C
Design phase:	Preliminary design

	Warranted	
1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

	Feasibility	
1	Impacted receptor units	
a.	Number of impacted receptor units:	6
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	6
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	38,315 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	6
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	3
d.	Total number of benefited receptors.	9
e.	Surface Area per benefited receptor unit. (ft^2/BR)	4,257 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,604 ft
b.	Height range of the proposed noise barrier. (ft)	18-26 ft
c.	Average height of the proposed noise barrier. (ft)	24 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,609,230
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier** Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	6-Jul-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier K
Community Name and/or CNE#	CNE K
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	1
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

		Reasonableness	
1		**Surface Area (Square foot)-Benefit Factors**	
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	10,002 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
	d.	Total number of benefited receptors.	1
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	10,002 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2		**Additional Noise Barrier Details**	
	a.	Length of the proposed noise barrier. (ft)	498 ft
	b.	Height range of the proposed noise barrier. (ft)	20 ft
	c.	Average height of the proposed noise barrier. (ft)	20 ft
	d.	Cost per square foot. ($/$ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$420,084
	f.	Barrier Material	NA
3		**Community Desires Related to the Barrier**	
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	20-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier L
Community Name and/or CNE#	CNE L
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	1
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1 Surface Area (Square foot)-Benefit Factors

a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	11,287 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	1
e.	Surface Area per benefited receptor unit. (ft^2/BR)	11,287 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes

2 Additional Noise Barrier Details

a.	Length of the proposed noise barrier. (ft)	807 ft
b.	Height range of the proposed noise barrier. (ft)	14 ft
c.	Average height of the proposed noise barrier. (ft)	14 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$474,054
f.	Barrier Material	NA

3 Community Desires Related to the Barrier

Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	20-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier M
Community Name and/or CNE#	CNE M
Noise Abatement Category(s)	B
Design phase:	Preliminary design

		Warranted	
1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

		Feasibility	
1		Impacted receptor units	
	a.	Number of impacted receptor units:	2
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	28,793 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
d.	Total number of benefited receptors.	3
e.	Surface Area per benefited receptor unit. (ft^2/BR)	9,598 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,199 ft
b.	Height range of the proposed noise barrier. (ft)	24 ft
c.	Average height of the proposed noise barrier. (ft)	24 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,209,306
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	20-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier N
Community Name and/or CNE#	CNE N
Noise Abatement Category(s)	B, C
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	2
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	22,439 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	11,220 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,019 ft
b.	Height range of the proposed noise barrier. (ft)	22 ft
c.	Average height of the proposed noise barrier. (ft)	22 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$942,438
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	New Kent
District:	Richmond
Barrier System ID:	Barrier P
Community Name and/or CNE#	CNE P
Noise Abatement Category(s)	B
Design phase:	Preliminary design

		Warranted	
1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

		Feasibility	
1		Impacted receptor units	
	a.	Number of impacted receptor units:	2
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	41,132 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
d.	Total number of benefited receptors.	3
e.	Surface Area per benefited receptor unit. (ft^2/BR)	13,711 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	No
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,373 ft
b.	Height range of the proposed noise barrier. (ft)	30 ft
c.	Average height of the proposed noise barrier. (ft)	30 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,727,544
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier S
Community Name and/or CNE#	CNE S
Noise Abatement Category(s)	B
Design phase:	Preliminary design

	Warranted	
1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

	Feasibility	
1	Impacted receptor units	
a.	Number of impacted receptor units:	3
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	3
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1	**Surface Area (Square foot)-Benefit Factors**		
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	29,270 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	3
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	8
	d.	Total number of benefited receptors.	11
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	2,661 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**		
	a.	Length of the proposed noise barrier. (ft)	1,380 ft
	b.	Height range of the proposed noise barrier. (ft)	16-30 ft
	c.	Average height of the proposed noise barrier. (ft)	21 ft
	d.	Cost per square foot. ($/$ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$1,229,340
	f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**		
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to "decision" block and answer "no" to reasonableness question. As the reason for this decision, state that "The majority of the impacted receptor unit owners do not desire the barrier."	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	19-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier V
Community Name and/or CNE#	CNE V
Noise Abatement Category(s)	C
Design phase:	Preliminary design

	Warranted	
1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

	Feasibility	
1	Impacted receptor units	
a.	Number of impacted receptor units:	1
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

		Reasonableness	
1		**Surface Area (Square foot)-Benefit Factors**	
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	13,882 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
	d.	Total number of benefited receptors.	1
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	13,882 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2		**Additional Noise Barrier Details**	
	a.	Length of the proposed noise barrier. (ft)	770 ft
	b.	Height range of the proposed noise barrier. (ft)	18 ft
	c.	Average height of the proposed noise barrier. (ft)	18 ft
	d.	Cost per square foot. ($/ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$583,044
	f.	Barrier Material	NA
3		**Community Desires Related to the Barrier**	
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	7-Nov-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier W1
Community Name and/or CNE#	CNE W
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	10
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	10
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1	**Surface Area (Square foot)-Benefit Factors**		
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	54,042 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	10
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	4
	d.	Total number of benefited receptors.	14
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	3,860 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**		
	a.	Length of the proposed noise barrier. (ft)	3,500 ft
	b.	Height range of the proposed noise barrier. (ft)	8-24 ft
	c.	Average height of the proposed noise barrier. (ft)	15 ft
	d.	Cost per square foot. ($/$ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$2,269,764
	f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**		
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier W2
Community Name and/or CNE#	CNE W
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	2
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1 **Surface Area (Square foot)-Benefit Factors**

a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	25,615 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	12,808 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes

2 **Additional Noise Barrier Details**

a.	Length of the proposed noise barrier. (ft)	1,348 ft
b.	Height range of the proposed noise barrier. (ft)	16-20 ft
c.	Average height of the proposed noise barrier. (ft)	19 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,075,830
f.	Barrier Material	NA

3 **Community Desires Related to the Barrier**

Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier X
Community Name and/or CNE#	CNE X
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	2
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

		Reasonableness	
1		**Surface Area (Square foot)-Benefit Factors**	
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	26,193 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
	d.	Total number of benefited receptors.	2
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	13,097 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2		**Additional Noise Barrier Details**	
	a.	Length of the proposed noise barrier. (ft)	1,915 ft
	b.	Height range of the proposed noise barrier. (ft)	14 ft
	c.	Average height of the proposed noise barrier. (ft)	8-20 ft
	d.	Cost per square foot. ($/ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$1,100,106
	f.	Barrier Material	NA
3		**Community Desires Related to the Barrier**	
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	20-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier Y1
Community Name and/or CNE#	CNE Y
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	1
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	35,866 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	1
e.	Surface Area per benefited receptor unit. (ft^2/BR)	35,866 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,263 ft
b.	Height range of the proposed noise barrier. (ft)	22-30 ft
c.	Average height of the proposed noise barrier. (ft)	28 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,506,372
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to "decision" block and answer "no" to reasonableness question. As the reason for this decision, state that "The majority of the impacted receptor unit owners do not desire the barrier."	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier Y2
Community Name and/or CNE#	CNE Y
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	2
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	2
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	28,063 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	2
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	2
e.	Surface Area per benefited receptor unit. (ft^2/BR)	14,032 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,813 ft
b.	Height range of the proposed noise barrier. (ft)	12-20 ft
c.	Average height of the proposed noise barrier. (ft)	15 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,178,646
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier Y3
Community Name and/or CNE#	CNE Y
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	1
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1	**Surface Area (Square foot)-Benefit Factors**		
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	20,448 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
	d.	Total number of benefited receptors.	1
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	20,448 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**		
	a.	Length of the proposed noise barrier. (ft)	813 ft
	b.	Height range of the proposed noise barrier. (ft)	20-30 ft
	c.	Average height of the proposed noise barrier. (ft)	25 ft
	d.	Cost per square foot. ($\$/ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$858,816
	f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**		
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No
Additional Reasons for Decision:	

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier Z
Community Name and/or CNE#	CNE Z
Noise Abatement Category(s)	B, C, D
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	10
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	10
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	40,657 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	10
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	16
d.	Total number of benefited receptors.	26
e.	Surface Area per benefited receptor unit. (ft^2/BR)	1,564 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	Yes
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	1,545 ft
b.	Height range of the proposed noise barrier. (ft)	20-30 ft
c.	Average height of the proposed noise barrier. (ft)	26 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,707,594
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	Yes

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier AA
Community Name and/or CNE#	CNE AA
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	4
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	4
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

		Reasonableness	
1		**Surface Area (Square foot)-Benefit Factors**	
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	19,359 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	4
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
	d.	Total number of benefited receptors.	4
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	4,840 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2		**Additional Noise Barrier Details**	
	a.	Length of the proposed noise barrier. (ft)	1,170 ft
	b.	Height range of the proposed noise barrier. (ft)	12-20 ft
	c.	Average height of the proposed noise barrier. (ft)	17 ft
	d.	Cost per square foot. ($/$ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$813,078
	f.	Barrier Material	NA
3		**Community Desires Related to the Barrier**	
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier AB
Community Name and/or CNE#	CNE AB
Noise Abatement Category(s)	Barrier AB
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	14
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	14
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

		Reasonableness	
1		**Surface Area (Square foot)-Benefit Factors**	
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	56,852 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	14
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	d.	Total number of benefited receptors.	15
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	3,790 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2		**Additional Noise Barrier Details**	
	a.	Length of the proposed noise barrier. (ft)	4,490 ft
	b.	Height range of the proposed noise barrier. (ft)	8-16 ft
	c.	Average height of the proposed noise barrier. (ft)	13 ft
	d.	Cost per square foot. ($/$ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$2,387,784
	f.	Barrier Material	NA
3		**Community Desires Related to the Barrier**	
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier AC
Community Name and/or CNE#	CNE AC
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to “Decision” block and answer “no” to warranted question. As the reason for this decision, state that “Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate.”	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1	Impacted receptor units	
a.	Number of impacted receptor units:	8
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	6
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	75%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness	
1	**Surface Area (Square foot)-Benefit Factors**	
a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	9,595 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	6
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	6
e.	Surface Area per benefited receptor unit. (ft^2/BR)	1,599 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	Yes
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**	
a.	Length of the proposed noise barrier. (ft)	890 ft
b.	Height range of the proposed noise barrier. (ft)	9-13 ft
c.	Average height of the proposed noise barrier. (ft)	11 ft
d.	Cost per square foot. ($/ft^2$)	$42.0
e.	Total Barrier Cost ($)	$402,990
f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**	
	Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	Yes

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Extended Barrier AC
Community Name and/or CNE#	CNEs AC, AE
Noise Abatement Category(s)	B
Design phase:	Preliminary design

Warranted

1		Community Documentation (if applicable)	
	a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
	b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
	c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2		Criteria requiring consideration of noise abatement	
	a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
	b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

Feasibility

1		Impacted receptor units	
	a.	Number of impacted receptor units:	9
	b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	9
	c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
	d.	Is the percentage 50 or greater?	Yes
2		Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3		Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4		Will placement of the noise barrier conflict with existing utility locations?	No

Reasonableness

1 **Surface Area (Square foot)-Benefit Factors**

a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	29,932 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	9
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
d.	Total number of benefited receptors.	10
e.	Surface Area per benefited receptor unit. (ft^2/BR)	2,993 SF/BR
f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes

2 **Additional Noise Barrier Details**

a.	Length of the proposed noise barrier. (ft)	2,669 ft
b.	Height range of the proposed noise barrier. (ft)	10-16 ft
c.	Average height of the proposed noise barrier. (ft)	11 ft
d.	Cost per square foot. ($/$ft^2$)	$42.0
e.	Total Barrier Cost ($)	$1,257,144
f.	Barrier Material	NA

3 **Community Desires Related to the Barrier**

Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.” ________

Decision

Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No

Additional Reasons for Decision:

VDOT Highway Traffic Noise Abatement
Warranted, Feasible, and Reasonable Worksheet

Note: Not all questions apply depending on the design phase which may cause differing answers between preliminary and final design phase. Answers to the questions may change depending on the design phase of the project.

Date:	21-Oct-22
Project No. and UPC:	00064-800-25632396; 109885
County:	James City
District:	Hampton Roads
Barrier System ID:	Barrier AD
Community Name and/or CNE#	CNE AD
Noise Abatement Category(s)	B
Design phase:	Preliminary design

	Warranted	
1	Community Documentation (if applicable)	
a.	Date community was permitted. (Per 23CFR 772 this is the date the building permit was issued).	NA
b.	Date of approval for the Categorical Exclusion (CE), Record of Decision (ROD), or Finding of No Significant Impact (FONSI):	NA
c.	Does the date in 1.a precede the date in 1.b? If yes, proceed to Warranted Item 2. If no, consideration of noise abatement is not warranted. Proceed to "Decision" block and answer "no" to warranted question. As the reason for this decision, state that "Community was permitted after the date of approval of CE, ROD, or FONSI, as appropriate."	NA
2	Criteria requiring consideration of noise abatement	
a.	Project causes design year noise levels to approach or exceed the Noise Abatement Criteria?	Yes
b.	Project causes a substantial noise increase of 10 dB(A) or more?	No

	Feasibility	
1	Impacted receptor units	
a.	Number of impacted receptor units:	1
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	1
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	100%
d.	Is the percentage 50 or greater?	Yes
2	Will placement of the noise barrier cause engineering or safety conflicts, e.g drainage issues or site distance issues?	No
3	Will placement of the noise barrier restrict access to vehicular or pedestrian travel?	No
4	Will placement of the noise barrier conflict with existing utility locations?	No

	Reasonableness		
1	**Surface Area (Square foot)-Benefit Factors**		
	a.	Surface Area (Total square foot) of the proposed noise barrier. (ft^2)	30,461 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	d.	Total number of benefited receptors.	2
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	15,231 SF/BR
	f.	Is (1e) less than or equal to the maximum square feet per benefited receptor (MaxSF/BR) value of 1600?	No
	g.	Does the barrier provide an IL of at least 7 dB(A) for at least one impacted receptor in the design year?	Yes
2	**Additional Noise Barrier Details**		
	a.	Length of the proposed noise barrier. (ft)	1,270 ft
	b.	Height range of the proposed noise barrier. (ft)	20-30 ft
	c.	Average height of the proposed noise barrier. (ft)	24 ft
	d.	Cost per square foot. ($/ft^2$)	$42.0
	e.	Total Barrier Cost ($)	$1,279,362
	f.	Barrier Material	NA
3	**Community Desires Related to the Barrier**		
		Do at least 50 percent of the benefited receptor unit owner(s) and renters desire the noise barrier? If yes, continue to "decision" block. If no, the barrier can be considered not to be reasonable. Proceed to “decision” block and answer “no” to reasonableness question. As the reason for this decision, state that “The majority of the impacted receptor unit owners do not desire the barrier.”	

Decision	
Is the Noise Barrier(s) WARRANTED?	Yes
Is the Noise Barrier(s) FEASIBLE?	Yes
Is the Noise Barrier(s) REASONABLE?	No
Additional Reasons for Decision:	

Appendix J: List of Preparers

List of Preparers/ Reviewers

Whitman, Requardt & Associates, LLP

Kim Glinkin, AICP
Project Manager
Education: B.A., Economics, M.A., Environmental Management
Professional Experience: 32 years
Role: Noise Monitoring, Impact and Abatement Analysis, Report Preparation

Mark Reep, PE
Design Engineer
Education: B.S., Civil Engineering,
Professional Experience: 33 years
Role: Impact and Abatement Analysis, Report Preparation

David Robinson
Project Environmental Planner
Education: B.A. Psychology, Communication Studies, M.S. Natural Resources / GIS Concentration
Professional Experience: 12 years
Role: Noise Monitoring, Model Development, Report Preparation, Graphics

Bill Minor, PE
Noise Specialist
Education: B.C.E. Civil Engineering, M.C.E., Civil Engineering
Professional Experience: 11 years
Role: Noise Monitoring, Model Development, Impact and Abatement Analysis, Report Preparation

Ken Bauer, PE
Design Engineer
Education: B.S. Civil Engineering
Professional Experience: 23 years
Role: QA/QC

Jacobs Engineering

Miles Cheang
Principal Noise & Air
Education: B.A., Urban Planning
Professional Experience: 17 Years
Role: Model Development, Impact and Abatement Analysis, Report Preparation

William Tardy
Environmental Planner
Education: B.S., Ecology; M.U.P, Urban and Regional Planning
Professional Experience: 13 years
Role: Report Preparation, QA/QC

Steven Margherita
Environmental Planner
Education: B.A., GIS
Professional Experience: 4 Years
Role: Model Development, Report Preparation, Graphics

Appendix K: Correspondence Regarding Undeveloped Lands

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

Stephen C. Brich, P.E.
Commissioner

1401 East Broad Street
Richmond, Virginia 23219

May 3, 2022

Mr. Gregory Revels
Building Official, Henrico County
4301 East Parham Road
Henrico, VA 23228

Re: Interstate 64 Improvements Study, Exits 205 to 234 – Noise Analysis

Dear Mr. Revels:

I am writing to request information from Henrico County to support analysis for the Interstate 64 Improvements Study. The Study is being pursued to consider adding capacity to I-64 between Exit 205 and Exit 234. Based on the improvements being considered, VDOT has determined that a highway noise analysis is required and has contracted with Whitman, Requardt, and Associates, LLP to complete the study.

The purpose of this letter is to determine if undeveloped lands located within the highway noise analysis study area have active building permits which would allow property owners to develop noise sensitive land uses. Examples of noise sensitive land uses include residences, educational facilities, places of worship, and community centers, medical facilities, recreation facilities (private and public), hotels, campgrounds, and restaurants with outdoor dining.

Based on a review of aerial photography and Henrico County's GIS resources, the project team has identified two (2) parcels located near I-64 which appear to be undeveloped or used for agriculture. Table 1 provides the GPINs for all the parcels being investigated

Information regarding ongoing development is important because it allows VDOT to identify acoustic impacts to properties that have initiated but have not yet completed the development process. In addition, VDOT will only consider noise abatement for noise-sensitive uses which were granted a building permit prior to the Project's Date of Public Knowledge. The date of public knowledge is the date that the Federal Highway Administration (FHWA) approves the Project's final environmental document. Since this approval has not yet been secured, please identify any permits that have been granted approval as of the date shown on this letter. We would appreciate your response by May 18, 2022.

If you have any questions or concerns about the format or scope of the permit information requested, please contact Kim Glinkin at kglinkin@wrallp.com or 973-568-6796. If you have any questions regarding the project, please contact Andrew Pike at Andrew.pike@vdot.virginia.gov or 804-786-2360.

Sincerely,

Andrew A. Pike

Andrew Pike
VDOT Project Manager

Enclosures: Table 1. GPINs for Undeveloped Parcels Under Investigation

cc: Nicholas Nies, WRA Project Manager
Kimberly Glinkin, WRA Associate

Table 1. GPINs for Undeveloped Parcels Under Investigation

856-715-0618	856-713-5980		

Glinkin, Kimberly

From:	Andrew Pike <andrew.pike@vdot.virginia.gov>
Sent:	Monday, May 16, 2022 12:33 PM
To:	Nies, Nicholas; Glinkin, Kimberly; Barkley, Joyce
Subject:	Fwd: I64 Improvement Study - Exits 205 to 234

FYI, Henrico County's response re: undeveloped lands.

---------- Forwarded message ---------
From: McMillion, Michael <mcm46@henrico.us>
Date: Mon, May 16, 2022 at 12:04 PM
Subject: I64 Improvement Study - Exits 205 to 234
To: andrew.pike@vdot.virginia.gov <andrew.pike@vdot.virginia.gov>

Andrew,

I wanted to take a moment to follow up on an information request you sent to Greg Revels regarding the I64 Improvement Study. Based on our records, both GPINS you provided currently do not have any active building permits.

Please let me know if you have any questions.

Michael McMillion

Building Inspections Business Manager

Office Phone (804) 501-4759

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

Stephen C. Brich, P.E.
Commissioner

1401 East Broad Street
Richmond, Virginia 23219

May 3, 2022

Ms. Kelli Le Duc
Principal Planner, New Kent County
PO Box 150
New Kent, VA 23124

Re: Interstate 64 Improvements Study, Exits 205 to 234 – Noise Analysis

Dear Ms. Le Duc:

I am writing to request information from New Kent County to support analysis for the Interstate 64 Improvements Study. The Study is being pursued to consider adding capacity to I-64 between Exit 205 and Exit 234. Based on the improvements being considered, VDOT has determined that a highway noise analysis is required and has contracted with Whitman, Requardt, and Associates, LLP to complete the study.

The purpose of this letter is to determine if undeveloped lands located within the highway noise analysis study area have active building permits which would allow property owners to develop noise sensitive land uses. Examples of noise sensitive land uses include residences, educational facilities, places of worship, and community centers, medical facilities, recreation facilities (private and public), hotels, campgrounds, and restaurants with outdoor dining.

Based on a review of aerial photography and New Kent County's GIS resources, the project team has identified 157 parcels located near I-64 which appear to be undeveloped or used for agriculture. Table 1 provides the GPINs for all the parcels being investigated

Information regarding ongoing development is important because it allows VDOT to identify acoustic impacts to properties that have initiated but have not yet completed the development process. In addition, VDOT will only consider noise abatement for noise-sensitive uses which were granted a building permit prior to the Project's Date of Public Knowledge. The date of public knowledge is the date that the Federal Highway Administration (FHWA) approves the Project's final environmental document. Since this approval has not yet been secured, please identify any permits that have been granted approval as of the date shown on this letter. We would appreciate your response by May 18, 2022.

If you have any questions or concerns about the format or scope of the permit information requested, please contact Kim Glinkin at kglinkin@wrallp.com or 973-568-6796. If you have any questions regarding the project, please contact Andrew Pike at Andrew.pike@vdot.virginia.gov or 804-786-2360.

Sincerely,

Andrew A. Pike

Andrew Pike
VDOT Project Manager

Enclosures: Table 1. GPINs for Undeveloped Parcels Under Investigation
cc: Nicholas Nies, WRA Project Manager
Kimberly Glinkin, WRA Associate

Table 1. GPINs for Undeveloped Parcels Under Investigation

E23-3591-2368	H24-1304-4421	I19-2549-1537	J12-1740-0776
F27-2593-3021	H24-1948-4204	I19-3605-1117	J12-2865-2502
F27-2593-3021	H24-2234-4146	I20-0453-0176	J12-3013-0591
F27-2847-4426	H24-2896-4077	I20-0732-1193	J13-2466-1400
F28-0899-4895	H24-3940-1213	I20-1248-3968	J14-2435-1050
F28-1790-3493	H24-3940-1213	I20-1771-0743	J15-2588-2049
F28-1790-3493	H25-1588-3314	I20-2249-0351	J15-3471-1130
F28-3151-0990	H25-1588-3314	I20-3151-1128	K04-2176-3530
F28-3151-0990	H25-1909-0888	I20-3299-0182	K04-2746-1359
F29-0310-1712	H25-1909-0888	I21-0656-0330	K04-4119-0477
G25-3558-4425	H25-2929-1605	I21-1412-0137	K05-0600-1661
G25-3558-4425	H25-2929-1605	I21-3658-1464	K05-1899-0092
G26-2814-2030	H25-3372-3606	I22-1838-1240	K05-2503-1498
G26-2814-2030	H25-3372-3606	I22-3031-2413	K05-2563-0096
G26-2982-3284	H25-3762-2189	I22-3984-0089	K05-2616-1251
G26-2982-3284	H25-3762-2189	J05-3848-4781	K05-2665-1458
G27-0591-3754	H26-0841-1486	J05-4124-3127	K05-2679-0512
G27-0591-3754	H26-0841-1486	J06-0879-4618	K05-2807-1218
G27-0921-1847	H26-2724-0563	J06-1061-4615	K05-2951-1338
G27-0921-1847	H26-2724-0563	J06-1173-4408	K05-3084-1333
G27-1347-1914	I13-0958-4889	J06-1191-4566	K05-3093-0548
G27-2613-0976	I13-3790-4958	J06-1496-4717	K05-3189-1324
G27-2613-0976	I14-2072-4712	J06-1606-4654	K05-3437-0297
G27-3174-1265	I15-1330-4696	J06-1764-4535	K05-3485-0320
G27-3433-0692	I15-1375-4712	J07-1138-4310	K05-3495-1470
H21-2913-4577	I15-2144-2290	J07-3568-3167	K05-3558-0350
H22-0832-4916	I15-2543-4167	J08-0147-3430	K05-3649-0340
H22-1833-4835	I16-1404-5339	J08-3573-3052	K05-3732-0287
H22-2002-3790	I16-2258-2878	J09-0386-2923	K05-3760-0190
H22-2373-3755	I16-2813-4936	J09-2267-2720	K06-0285-0343
H22-2716-3724	I16-3897-1504	J09-2771-2900	K06-0914-0023
H22-3310-3037	I17-1840-2861	J09-3951-3657	K06-0959-1062
H22-3673-3228	I17-2930-4653	J10-0675-2650	K06-1008-0070
H23-0137-3795	I17-3832-1870	J10-3835-0745	K06-1378-0027
H23-1231-3697	I18-1010-4896	J11-2701-3278	K06-1822-0046
H23-2631-3244	I19-0087-2115	J11-2800-1343	K06-2414-1462
H23-3385-5012	I19-1608-1372	J11-3637-3912	K10-1106-0413
H23-3566-2900	I19-1899-3038	J12-0191-1194	
H24-0165-2947	I19-2128-3692	J12-0406-4515	
H24-0799-4381	I19-2265-2026	J12-0659-1807	

Glinkin, Kimberly

From:	Andrew Pike <andrew.pike@vdot.virginia.gov>
Sent:	Tuesday, May 10, 2022 9:10 AM
To:	Nies, Nicholas; Glinkin, Kimberly; Barkley, Joyce
Subject:	Fwd: Response to letter
Attachments:	VDOT letter_response.pdf

Hi all,

Sharing New Kent County's response to the letter on undeveloped lands. Please let me know if there are any follow-up questions for New Kent County.

Thanks,
Andrew

---------- Forwarded message ---------
From: **Kelli Le Duc** <kleduc@newkent-va.us>
Date: Mon, May 9, 2022 at 4:51 PM
Subject: Response to letter
To: andrew.pike@vdot.virginia.gov <andrew.pike@vdot.virginia.gov>

Hi Andrew –

Our Building permit technician gathered the attached information on the listed GPINS, as requested. See pages 3 and 4 of the attached.

Kelli Le Duc

Principal Planner

New Kent County

Department of Planning

P.O. Box 150

New Kent, VA 23124

(804) 966-9690 office

GPIN	NOTES	GPIN	NOTES
E23-3591-2368		I19-2549-1537	
F27-2593-3021		I19-3605-1117	
F27-2593-3021		I20-0453-0176	
F27-2847-4426	EXISTING HOME	I20-0732-1193	
F28-0899-4895		I20-1248-3968	
F28-1790-3493		I20-1771-0743	
F28-1790-3493		I20-2249-0351	
F28-3151-0990		I20-3151-1128	
F28-3151-0990		I20-3299-0182	
F29-0310-1712	EXISTING HOME	I21-0656-0330	
G25-3558-4425		I21-1412-0137	
G25-3558-4425		I21-3658-1464	
G26-2814-2030		I22-1838-1240	
G26-2814-2030		I22-3031-2413	
G26-2982-3284	DRAGON'S RIDGE PUD	I22-3984-0089	
G26-2982-3284	DRAGON'S RIDGE PUD	J05-3848-4781	PATRIOT'S LANDING COMMON AREA
G27-0591-3754	DRAGON'S RIDGE PUD	J05-4124-2137	PATRIOT'S LANDING COMMON AREA
G27-0591-3754	DRAGON'S RIDGE PUD	J06-0879-4618	EXISTING HOME
G27-0921-1847		J06-1061-4615	EXISTING HOME
G27-0921-1847		J06-1173-4408	PATRIOT'S LANDING COMMON AREA
G27-1347-1914	EXISTING HOME	J06-1191-4566	EXISTING HOME
G27-2613-0976		J06-1496-4717	EXISTING HOME
G27-2613-0976		J06-1606-4654	EXISTING HOME
G27-3174-1265		J06-1764-4535	EXISTING HOME
G27-3433-0692	EXISTING HOME	J07-1138-4310	
H21-2913-4577		J07-3568-3167	
H22-0832-4916		J08-0147-3430	
H22-1833-4835		J08-3573-3052	
H22-2002-3790		J09-0386-2923	EXISTING HOME
H22-2373-3755		J09-2267-2720	RT. 612 REFUSE CENTER
H22-2716-3724		J09-2771-2900	
H22-3310-3037		J09-3951-3657	DOES NOT EXIST
H22-3673-3228		J10-0675-2650	
H23-0137-3795		J10-3835-0745	
H23-1231-3697		J11-2701-3278	EXISTING HOME
H23-2631-3244		J11-2800-1343	
H23-3385-5012		J11-3637-3912	PINE FORK PARK
H23-3566-2900	EXISTING HOME	J12-0191-1194	
H24-0165-2947		J12-0406-4515	FIELDS @ PINE FORK REC AREA
H24-0799-4381		J12-0659-1807	
H24-1304-4421		J12-1740-0776	
H24-1948-4204		J12-2865-2502	ALL AMERICAN MINI STORAGE IV
H24-2234-4146		J12-3013-0591	
H24-2896-4077		J13-2466-1400	LANDBAY 5 PUD
H24-3940-1213		J14-2435-1050	
H24-3940-1213		J15-2588-2049	

GPIN	NOTES	GPIN	NOTES
H25-1588-3314		J15-3471-1130	
H25-1588-3314		K04-2176-3530	EXISTING HOME
H25-1909-0888		K04-2746-1359	
H25-1909-0888		K04-4119-0477	
H25-2929-1605		K05-0600-1661	
H25-2929-1605		K05-1899-0092	CUMBERLAND APARTMENTS
H25-3372-3606	DOES NOT EXIST	K05-2503-1498	
H25-3372-3606	DOES NOT EXIST	K05-2563-0096	PATRIOT'S LANDING COMMON AREA
H25-3762-2189		K05-2616-1251	
H25-3762-2189		K05-2665-1458	
H26-0841-1486	DRAGON'S RIDGE PUD	K05-2679-0512	PATRIOT'S LANDING COMMON AREA
H26-0841-1486	DRAGON'S RIDGE PUD	K05-2807-1218	
H26-2724-0563	DRAGON'S RIDGE PUD	K05-2951-1338	
H26-2724-0563	DRAGON'S RIDGE PUD	K05-3084-1333	
I13-0958-4889		K05-3093-0548	PATRIOT'S LANDING COMMON AREA
I13-3790-4958		K05-3189-1324	
I14-2072-4712		K05-3437-0297	PATRIOT'S LANDING COMMON AREA
I15-1330-4696		K05-3485-0320	EXISTING HOME
I15-1375-4712		K05-3495-1470	
I15-2144-2290		K05-3558-0350	EXISTING HOME
I15-2543-4167		K05-3649-0340	EXISTING HOME
I16-1404-5339		K05-3732-0287	EXISTING HOME
I16-2258-2878		K05-3760-0190	EXISTING HOME
I16-2813-4936		K06-0285-0343	PATRIOT'S LANDING COMMON AREA
I16-3897-1504	KENTLAND PUD	K06-0914-0023	EXISTING HOME
I17-1840-2861	KENTLAND PUD	K06-0959-1062	
I17-2930-4653		K06-1008-0070	EXISTING HOME
I17-3832-1870	KENTLAND PUD	K06-1378-0027	EXISTING HOME
I18-1010-4896		K06-1822-0046	PATRIOT'S LANDING COMMON AREA
I19-0087-2115		K06-2414-1462	
I19-1608-1372		K10-1106-0413	
I19-1899-3038			
I19-2128-3692			
I19-2265-2026			

Glinkin, Kimberly

From:	Glinkin, Kimberly
Sent:	Tuesday, July 5, 2022 11:02 AM
To:	Glinkin, Kimberly
Subject:	RE: I-64 Improvements (Exit 205 to 234) - Noise Study - Request for more information

---

From: Robinson, David
Sent: Monday, May 16, 2022 3:52 PM
To: Glinkin, Kimberly <kglinkin@wrallp.com>; Minor, William <wminor@wrallp.com>; Reep, Mark <mreep@wrallp.com>
Subject: RE: I-64 Improvements (Exit 205 to 234) - Noise Study - Request for more information

All,

I spoke with Ms. Le Duc of New Kent County. Some notes and a synopsis of our discussion are provided below with mapping references attached.

Apartments at Patriot's Landing (K05-1899-0092) – Exit 205

- Identified by the county
- Based on county identification, receptors A01-A09 were subsequently added with assumed location and quantity based on density of housing to the east.
- Ms. Le Duc noted that this parcel is slated for 16 apartment buildings (see Patriots Landing attachment for location mapping and site plan provided by Ms. Le Duc subsequent to our phone call). Building permits have not yet been applied for / approved, but they are anticipated in the near future.

Landbay 5 PUD (J13-2466-1400) – Exit 211

- Identified by the county. Also known as Farms of New Kent
- The parcel on which J17 sits is the designated open space for the residential development to the north.
- There are no site plans, building permits, etc. for Farms at New Kent (Exit 211). Commercial is the envisioned future land use, and nothing has been conceptualized at this time.

Kentland PUD (I16-3897-1504, I17-1840-2861, I-17-3832-1870, I17-3832-1870) – Exit 214

- Identified by the county.
- Based on county identification, residential use was assumed and receptors L01-L23 were added based on assumed density and location.
- There must have been some miscommunication or possible error, as Ms. Le Duc noted that these parcels adjacent to the interchange have not actually been identified for any type of development and therefore no building permits exist.

Please let me know if additional information is needed, or what changes should be made to the receptors in light of this new information.

Thank you.

David Robinson | *Project Environmental Planner*

Whitman, Requardt & Associates, LLP
1201 Edwards Mill Road, Suite 320
Raleigh, NC 27607
(Direct) 984.389.1742
(Fax) 919.859.0807

drobinson@wrallp.com

www.wrallp.com

From: Robinson, David
Sent: Monday, May 16, 2022 1:42 PM
To: klleduc@newkent-va.us
Cc: Glinkin, Kimberly <kglinkin@wrallp.com>; Minor, William <wminor@wrallp.com>; Reep, Mark <mreep@wrallp.com>
Subject: I-64 Improvements (Exit 205 to 234) - Noise Study - Request for more information

Good afternoon Ms. Le Duc,

This email follows the voicemail I left a few moments ago.

I am on the project team assisting VDOT on a traffic noise analysis for the I-64 Improvements (Exit 205 to Exit 234) project.

Last week your office responded to a request for information on undeveloped lands along the project corridor. We have some follow up questions that are posed below:

Landbay 5 PUD (J13-2466-1400) – located at the Rt 609 interchange

- Can you confirm building permits have been issued on this parcel? Or, is the project currently in the concept phase?
- If approved, are there phases of the development with different states of approval?
- Is this development exclusively residential?
- Is a site plan available?

Kentland PUD (I16-3897-1504, I17-1840-2861, I-17-3832-1870, I17-3832-1870) – located at the Rt 155 interchange

- Can you confirm building permits have been issued on this parcel? Or, is the project currently in the concept phase?
- If approved, are there phases of the development with different states of approval?
- Is this development exclusively residential?
- Is a site plan available?

This additional information well help us to appropriately and correctly evaluate potential noise impacts. Thank you very much for your assistance. Have a great day.

David Robinson | *Project Environmental Planner*

Whitman, Requardt & Associates, LLP
1201 Edwards Mill Road, Suite 320
Raleigh, NC 27607
(Direct) 984.389.1742
(Fax) 919.859.0807

drobinson@wrallp.com
www.wrallp.com

HEARTH AT PATRIOTS LANDING

DISTRICT 2

NEW KENT COUNTY, VIRGINIA

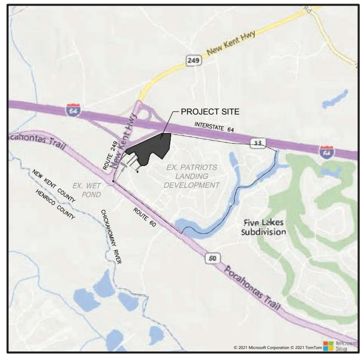
GENERAL NOTES:

1. OWNER: TERRY-PETERSON RESIDENTIAL THIRTY-ONE, LLC
   4705 COLUMBUS STREET, SUITE 150
   VIRGINIA BEACH, VA 23462
   CONTACT PERSON: RICHARD "TUCK" BOWIE
   EMAIL: tuckbow@terrypeterson.com
   TELEPHONE: (757) 460-1770
   FAX: (757) 460-2336
2. ENGINEER: TIMMONS GROUP
   1001 BOULDERS PARKWAY, SUITE 300
   RICHMOND, VA 23225
   CONTACT PERSON: ANDREW CAMPBELL, P.E.
   EMAIL: andrew.campbell@timmons.com
   TELEPHONE: (804) 200-6492
   FAX: (804) 560-1016
3. SOURCE OF TITLE: THE BOUNDARY SURVEY WAS PERFORMED BY YOUNGBLOOD, TYLER & ASSOC., P.C. WITH THE LATEST REVISION DATE OF 9/22/04. THE TITLE REPORT REFERENCED WAS FURNISHED BY FIDELITY NATIONAL TITLE COMPANY CASE NO. 28367 FIRST REISSUE EFFECTIVE DATE 6/4/04
4. GPIN #: K05-1899-0092
   PLAT BOOK #: 498
   PAGE #: 584
5. ZONING: PUD-2-03
   ZONING ORDINANCE: 0-16-03
   TAX MAP #: 19G1-2-A
6. TOTAL SITE AREA: 19.47 ACRES
   IMPERVIOUS AREA: 7.63 ACRES
   AREA OF DISTURBANCE: 12.05 ACRES
   AREA OF RPA DISTURBANCE: 0 SQ. FT.
7. WETLANDS & W.O.U.S.: THE ONSITE JURISDICTIONAL WETLANDS DELINEATED BY TIMMONS GROUP AND CONFIRMED BY USCOE **ARE NOT TO BE DISTURBED.**
   RECEIVING WATERS: CHICKAHOMINY RIVER
   HYDRAULIC UNIT CODE: 02080206
   LATITUDE: N37.5124
   LONGITUDE: W77.1885
8. PROPOSED USE: MULTI-FAMILY RESIDENTIAL COMMUNITY (216 UNITS)
9. BUILDING STATISTICS:

BUILDING STATISTICAL SUMMARY

	BUILDING USE	# OF FLOORS	FLOOR AREA (SF)	HEIGHT (FT)
BLDG 1	MULTI-FAMILY	3	6,914	42
BLDG 2	MULTI-FAMILY	3	9,015	42
BLDG 3	MULTI-FAMILY	3	6,914	42
BLDG 4	MULTI-FAMILY	3	9,015	42
BLDG 5	MULTI-FAMILY	3	6,914	42
BLDG 6	MULTI-FAMILY	3	6,914	42
BLDG 7	MULTI-FAMILY	3	9,015	42
BLDG 8	MULTI-FAMILY	3	9,015	42
BLDG 9	MULTI-FAMILY	3	9,015	42
BLDG 10	MULTI-FAMILY	3	9,015	42
BLDG 11	MULTI-FAMILY	3	9,015	42
BLDG 12	MULTI-FAMILY	3	9,015	42
BLDG 13	GARAGE	1	2,429	17
BLDG 14	GARAGE	1	2,429	17
BLDG 15	GARAGE	1	3,390	17
BLDG 16	GARAGE	1	3,346	17
CLUBHOUSE	CLUBHOUSE	1	5,200	
POOL ROOM	POOL ROOM	1	500	

10. PARKING TABULATION: RESIDENTIAL, MULTI-FAMILY:
    MIN. REQ'D SPACES: 2 SPACES/UNIT X 216 = **432 SPACES**
    MIN. REQ'D FOR COMMUNITY CENTER = 1 per every 6 persons at maximum legal occupancy limit = XX SPACES
    TOTAL PARKING SPACES PROVIDED: 468 SPACES
    HANDICAP SPACES REQ'D: 9 SPACES (2 VAN ACCESSIBLE)
    HANDICAP SPACES PROVIDED: 15 (VAN) SPACES
11. DRAINAGE: CURB & GUTTER (ROAD SYSTEM)
12. SANITARY: COUNTY SYSTEM
13. WATER: COUNTY SYSTEM
14. THERE ARE NO RPA AREAS ON SITE BUT PORTIONS OF THE SITE ARE WITHIN RMA AREAS.
15. ALL NEW OR RELOCATED UTILITIES SHALL BE PLACED UNDERGROUND INCLUDING ELECTRIC, TELEPHONE, AND CATV.
16. EXISTING INFORMATION SHOWN ON THE PLANS IS A COMBINATION OF A GROUND SURVEY COMPLETED BY TIMMONS GROUP IN FEBRUARY 2016. AS WELL AS PROPOSED GEOMETRICS FROM PREVIOUSLY APPROVED PATRIOTS LANDING QUAD CONDOS PLANS.
17. THE TOPOGRAPHY FOR THIS PROJECT IS FROM A GROUND SURVEY PROVIDED BY TIMMONS GROUP, COMPLETED UNDER THE SUPERVISION OF CHARLES F. DAVIDSON IN FEBRUARY 2016.
18. NO WORK IS TO BEGIN ON THE SITE WITHOUT A COPY OF SIGNED DEVELOPMENT PLANS FROM THE NEW KENT COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT. A PERMIT MUST BE OBTAINED FROM VDOT BEFORE DOING ANY WORK IN A VDOT ROW.
19. ANY AMENDMENT OR DEVIATION HENCEFORTH FROM THIS FINAL APPROVED SITE PLAN SHALL BE SUBMITTED TO THE PLANNING DEPARTMENT FOR SUPPLEMENTAL REVIEW AND APPROVAL.
20. TIMMONS GROUP SHALL NOT HAVE AUTHORITY OVER CONTRACTOR'S WORK, SAFETY PRECAUTIONS, SCHEDULES, OR COMPLIANCE WITH LAWS AND REGULATIONS. WE SHALL NOT ASSUME RESPONSIBILITY FOR ANY CONSTRUCTION PRIOR TO PLAN APPROVAL



VICINITY MAP

SCALE: 1" = 2,000'

TERRY-PETERSON RESIDENTIAL THIRTY-ONE, LLC

OWNER/DEVELOPER

1/28/2022

UNDERGROUND UTILITIES MAY BE IN THE CONSTRUCTION AREA, THE CONTRACTOR SHALL CALL "MISS UTILITY" AT 1-800-552-7001 48 HOURS PRIOR TO THE START OF EXCAVATION. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES IN AREA OF CONSTRUCTION PRIOR TO STARTING WORK.

Sheet List Table

COUNTY APPROVALS

EROSION CONTROL: ____________
SEWER: ____________
WATER: ____________
ROADS & DRAINAGE: ____________
VDOT: ____________
SHD: ____________
SWCB: ____________

COUNTY USE

INSPECTOR: ____________
CONTRACTOR: ____________
FOREMAN: ____________
NOTICE TO PROCEED: ____________
DATE STARTED: ____________
DATE COMPLETED: ____________

COUNTY CONTRACT NO.

____

COMMONWEALTH OF VIRGINIA
GREGORY A. ROGERS
Lic. No. 059488
1/28/2022
PROFESSIONAL ENGINEER

THIS DRAWING PREPARED AT THE **CORPORATE OFFICE**
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

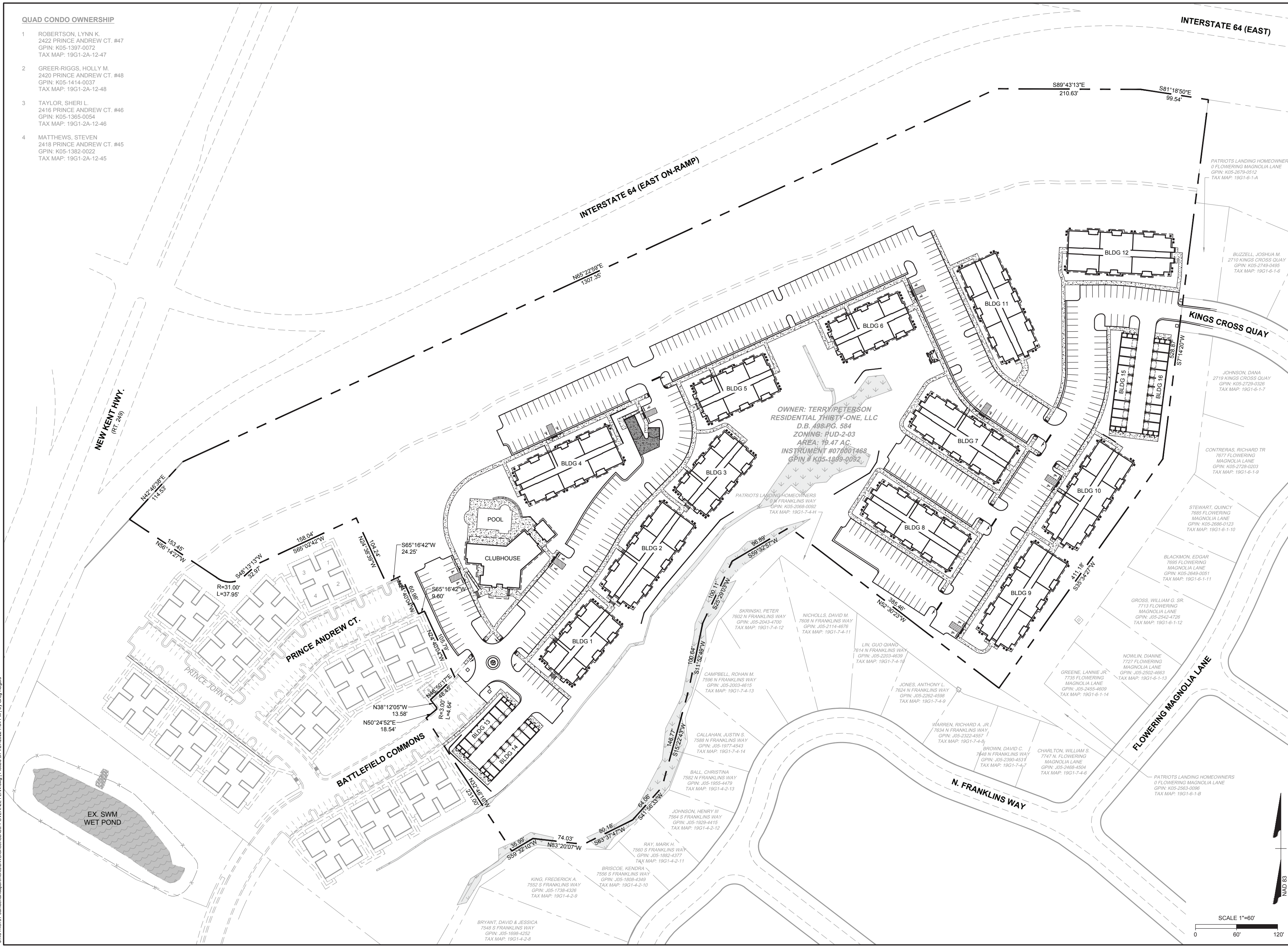
DATE	REVISION DESCRIPTION

TIMMONS GROUP

DATE	1/28/2022
DRAWN BY	J. KIEFER
DESIGNED BY	G. ROGERS
CHECKED BY	A. CAMPBELL
SCALE	N/A

HEARTH AT PATRIOTS LANDING
DISTRICT 2 - NEW KENT COUNTY - VIRGINIA
COVER SHEET

JOB NO. 49757
SHEET NO. C0.0



TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

THIS DRAWING PREPARED AT THE **CORPORATE OFFICE**
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

COMMONWEALTH OF VIRGINIA
GREGORY A. ROGERS
Lic. No. 059488
1/28/2022
PROFESSIONAL ENGINEER

DATE	REVISION DESCRIPTION

HEARTH AT PATRIOTS LANDING

DISTRICT 2 - NEW KENT COUNTY - VIRGINIA

OVERALL PLAN

DATE	1/28/2022
DRAWN BY	J. KIEFER
DESIGNED BY	G. ROGERS
CHECKED BY	A. CAMPBELL
SCALE	1" = 60'
JOB NO.	49757
SHEET NO.	C0.1

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

Stephen C. Brich, P.E.
Commissioner

1401 East Broad Street
Richmond, Virginia 23219

May 3, 2022

Mr. Tom Coghill
Director, James City County
PO Box 8784
Williamsburg, VA 23185

Re: Interstate 64 Improvements Study, Exits 205 to 234 – Noise Analysis

Dear Mr. Coghill:

I am writing to request information from James City County to support analysis for the Interstate 64 Improvements Study. The Study is being pursued to consider adding capacity to I-64 between Exit 205 and Exit 234. Based on the improvements being considered, VDOT has determined that a highway noise analysis is required and has contracted with Whitman, Requardt, and Associates, to complete the study.

The purpose of this letter is to determine if undeveloped lands located within the highway noise analysis study area have active building permits which would allow property owners to develop noise sensitive land uses. Examples of noise sensitive land uses include residences, educational facilities, places of worship, and community centers, medical facilities, recreation facilities (private and public), hotels, campgrounds, and restaurants with outdoor dining.

Based on a review of aerial photography and James City County's GIS resources, the project team has identified 55 parcels located near I-64 which appear to be undeveloped or used for agriculture. Table 1 provides the GPINs for all the parcels being investigated

Information regarding ongoing development is important because it allows VDOT to identify acoustic impacts to properties that have initiated but have not yet completed the development process. In addition, VDOT will only consider noise abatement for noise-sensitive uses which were granted a building permit prior to the Project's Date of Public Knowledge. The date of public knowledge is the date that the Federal Highway Administration (FHWA) approves the Project's final environmental document. Since this approval has not yet been secured, please identify any permits that have been granted approval as of the date shown on this letter. We would appreciate your response by May 18, 2022.

If you have any questions or concerns about the format or scope of the permit information requested, please contact Kim Glinkin at kglinkin@wrallp.com or 973-568-6796. If you have any questions regarding the project, please contact Andrew Pike at Andrew.pike@vdot.virginia.gov or 804-786-2360.

Sincerely,

Andrew Pike
VDOT Project Manager

Enclosures: Table 1. GPINs for Undeveloped Parcels Under Investigation
cc: Nicholas Nies, WRA Project Manager
Kimberly Glinkin, WRA Associate

Table 1. GPINs for Undeveloped Parcels Under Investigation

0320100001	0540100002	1310200020	1430100042B
0320100002	0540100016	1310200033	2410100002
0320100002A	0640100001	1320100018	2410100004
0320100003A	0640100003	1320100020	2410100005
0340100012D	1210100045	1320100021	2420100002
0410100010	1210100047	1320100022	2420100003
0410100025	1220400039	1320100024	2420100026
0410100026	1220600001B	1320100026	2420100026A
0430100001	1310100001A	1340100003B	2420300003
0430100017	1310100001F	1340100005	
0430700004	1310100014B	1340100011	
0440100013	1310100015B	1430100030	
0440100025	1310100019	1430100031	
0440100032	1310100019A	1430100040	
0530100002	1310100019B	1430100042A	
0320100001	1310100023	1310200020	

Glinkin, Kimberly

From:	Andrew Pike <andrew.pike@vdot.virginia.gov>
Sent:	Tuesday, June 28, 2022 1:53 PM
To:	Glinkin, Kimberly; will.tardy@jacobs.com
Cc:	Nies, Nicholas
Subject:	Fwd: [External]Re: [External]Re: Scoping: I-64 Improvements: Exit 205 to Exit 234
Attachments:	Parcel Research - Noise Analysis.pdf

Hi Kim and Will,

See attached for undeveloped lands response from James City County. If you have any questions, please let me know, and I can reach out to James City/connect y'all directly.

Thanks,
Andrew

---------- Forwarded message ---------
From: Thomas Leininger <Tom.Leininger@jamescitycountyva.gov>
Date: Tue, Jun 28, 2022 at 1:46 PM
Subject: RE: [External]Re: [External]Re: Scoping: I-64 Improvements: Exit 205 to Exit 234
To: Andrew Pike <andrew.pike@vdot.virginia.gov>
Cc: Tammy Rosario <Tammy.Rosario@jamescitycountyva.gov>, Paul Holt <Paul.Holt@jamescitycountyva.gov>, Scott Stevens <Scott.Stevens@jamescitycountyva.gov>

Good afternoon, Andrew,

I have reviewed each of the parcels identified in your letter. In the attached PDF, I have pulled all the building and land disturbance permits that have been approved, plus any site plans, special use permits or rezonings that have also been recently approved as those may result in building permit applications in the near future. If you have any questions on any of the properties, please let me know and I'll be happy to provide you with additional information.

Thank you,
Tom

Tom Leininger

Principal Planner

Community Development

101-A Mounts Bay Road
Williamsburg, VA 23185
P: 757-253-6795

F: 757-253-6822

jamescitycountyva.gov

From: Andrew Pike <andrew.pike@vdot.virginia.gov>
Sent: Monday, June 27, 2022 10:25 AM
To: Scott Stevens <Scott.Stevens@jamescitycountyva.gov>
Cc: Thomas Leininger <Tom.Leininger@jamescitycountyva.gov>; Tammy Rosario <Tammy.Rosario@jamescitycountyva.gov>; Paul Holt <Paul.Holt@jamescitycountyva.gov>
Subject: [External]Re: [External]Re: Scoping: I-64 Improvements: Exit 205 to Exit 234

Thanks so much, Scott.

On Mon, Jun 27, 2022 at 10:23 AM Scott Stevens <Scott.Stevens@jamescitycountyva.gov> wrote:

> Andrew,
>
> Good morning.
>
> We will see if we can provide an answer by Wednesday.
>
> Scott

From: Andrew Pike <andrew.pike@vdot.virginia.gov>
Sent: Monday, June 27, 2022 10:20 AM
To: Scott Stevens <Scott.Stevens@jamescitycountyva.gov>; Thomas Leininger <Tom.Leininger@jamescitycountyva.gov>
Subject: [External]Re: Scoping: I-64 Improvements: Exit 205 to Exit 234

Hi Scott and Tom,

I received out of office responses from your colleagues and see whether you all could help with this request. Please let me know if you have any questions.

Thanks,

Andrew Pike

--

Andrew Pike
NEPA Project Manager, Environmental Division
Virginia Department of Transportation
(804) 786-2360 | andrew.pike@vdot.virginia.gov

On Mon, Jun 27, 2022 at 10:17 AM Andrew Pike <andrew.pike@vdot.virginia.gov> wrote:

> Mr. Holt,
>
> I wanted to follow up with you on one additional item related to this proposed project--undeveloped lands within James City County along the I-64 corridor. Can you review the attached letter and provide the requested information by Wednesday, if at all possible? Thank you.
>
> Please let me know if you have any questions.
>
> Sincerely,
>
> Andrew Pike

Interstate 64 Noise Analysis - Parcel Research				
GPIN/Parcel	Permit Type	Notes	Plan Type	Notes
0320100001	None	None	Agricultural & Forestal District (AFD)	Renewal of AFD - Pending Approval
0320100002	None	None	Agricultural & Forestal District (AFD)	Renewal of AFD - Pending Approval
0320100002A	None	None	Agricultural & Forestal District (AFD)	Renewal of AFD - Pending Approval
0320100003A	None	None	Agricultural & Forestal District (AFD)	Renewal of AFD - Pending Approval
0340100012D	None	None	None	None
0410100010	Building Permit (BLDC-21-0070)	Completed (Cell Tower) - Approved 5/4/2021	Site Plan Amendment	Cell Tower - Approved 09/27/2019
0410100025	None	None	None	None
0410100026	None	None	None	None
0430100001	None	None	None	None
0430100017	None	None	None	None
0430700004	None	None	None	None
0440100013	None	None	Special Use Permit (SUP-19-0005) and Rezoning (Z-19-0006)	Hazelwood Enterprise Center Approved 2/8/22
0440100025	Building Permit (BLDC-22-0015) and Land Disturbance (LDSW-22-0020)	Temp. Sales Trailer - Pending Approval	None	None
0440100032	None	None	Special Use Permit	Fast Food Restaurant - Approved 4/10/18
0530100002	None	None	None	None
0320100001	None	None	Agricultural & Forestal District (AFD)	Renewal of AFD - Pending Approval
0540100002	Land Disturbance (LDSW-22-0020)	180 single family homes - Review not started	None	None
0540100016	None	None	Subdivision Construction Plan (SPLN-22-0003)	Stonehouse - Tract 11A - Phase 1- In Review
0640100001	None	None	None	None
0640100003	None	None	None	None
1210100045	None	None	None	None
1210100047	None	None	None	None
1220400039	None	None	None	None
1220600001B	None	None	None	None
1310100001A	None	None	None	None
1310100001F	None	None	None	None
1310100014B	None	None	None	None
1310100015B	None	None	None	None
1310100019	None	None	None	None
1310100019A	None	None	None	None
1310100019B	None	None	None	None
1310100023	None	None	None	None
1310200020	None	None	None	None
1310200033	None	None	None	None
1320100018	None	None	Agricultural & Forestal District (AFD)	Renewal of AFD - Pending Approval
1320100020	None	None	None	None
1320100021	None	None	None	None

1320100022	None	None	None	None
1320100024	None	None	None	None
1320100026	None	None	None	None
1340100003B	None	None	None	None
1340100005	None	None	None	None
1340100011	None	None	None	None
1430100030	None	None	None	None
1430100031	Electrical (ELEC-19-0103)	Install Generator - Issued 2019	None	None
1430100040	None	None	None	None
1430100042A	None	None	None	None
1310200020	None	None	None	None
1430100042B	None	None	None	None
2410100002	None	None	None	None
2410100004	None	None	Agricultural & Forestal District (AFD)	Renewal of AFD - Pending Approval
2410100005	Building Permit (BLDC-21-0226) and Land Disturbance Permit (LDSW-21-0014)	Issued 3/29/2021	Special Use Permit/Site Plan	Solar Farm - Approved in 2021
2420100002	None	None	None	None
2420100003	None	None	None	None
2420100026	None	None	None	None
2420100026A	None	None	None	None
2420300003	None	None	None	None

Glinkin, Kimberly

From: Tardy, Will N. <Will.Tardy@jacobs.com>
Sent: Thursday, June 30, 2022 10:21 PM
To: Glinkin, Kimberly
Subject: James City County Undeveloped Lands Coordination
Attachments: Attachment 1 - Parcel Research - Noise Analysis.pdf; Attachment 2 - StoneHouse_Master_Plan.pdf

Ms. Glinkin: After receiving James City County's response regarding undeveloped lands, I called the Department of Building Safety and Permits to gain additional information on the status of Parcel 540100002 (see Attachment 1). This parcel is located directly to southwest of the Stonehouse Golf Course (located in Common Noise Environment V). The parcel in question is a part of collection of planned unit developments (PUDs) which comprise the Stonehouse Virginia site (see Attachment 2). In the Stonehouse Virginia Master Plan, Parcel 540100002 is identified at Tracts 10A and 10B. As of July 2019, both tracts were classified as PUD-R, which refers to the development of residential land uses. The spreadsheet provided by James City County (see Attachment 1) shows that the developer has applied for a land disturbance permit. On June 29th, a representative from the James City County's Department of Building Safety and Permits stated that the permit application was still under review. If it is approved, the developer will be able to clear vegetation, move earth, construct roads, install stormwater management facilities, and complete similar site development activities. The land disturbance permit does not allow for the construction of any structures or buildings. As on June 29th, no building permits had been submitted by the developer for Parcel 540100002. Based on this information, Parcel 540100002 does not meet VDOT's requirements for noise abatement consideration.

Sincerely

Will Tardy | Jacobs | Environmental Planner

O: 410.837.5840 | D: 740.707.7734 | will.tardy@jacobs.com
100 South Charles Street, Tower Two - Suite 100 | Baltimore, MD, 21201 | USA

STONEHOUSE VIRGINIA

REZONING AND MASTER PLAN RESUBMITTAL
JAMES CITY COUNTY, VA
JULY 2019
(ORIGINAL SUBMITTAL: DECEMBER 2018)

SHEET #	***SHEET NAME***
1	MASTER PLAN (COLOR)
2	MASTER PLAN - TABLE A ENLARGEMENT
3	ZONING MAP

Table A: Permitted Use Categories By Tract

Parcel Number	Area [0] (Gross Acres)	Area [0] (Net Acres)	Open Space in Resource Protection Areas [0]	Open Space Outside of Resource Protection Areas [0] [4]	Maximum Density		Maximum Square Footage of Non-Residential Uses (Not including recreational uses)	Permitted Uses	Zoning
					Units Per Net Acre [2]	2018 Total Density	2018 Density FAR		
Land Bay 3	19.13	12.44	1.69	5	2.0	0	NA	A,I,J	PUD-R
Land Bay 5	67.81	50.05	18.34	10.7 [4]	4.0	180	NA	A,B,C,I,J	PUD-R
Land Bay 8	18.73	11.43	3.30	4	4.0	8	NA	A,B,I,J	PUD-R
Land Bay 14	70.51	18.68	33.03	18.8 [4]	2.0	4	NA	A,I,J	PUD-R
Tract 2	326.84	115.68	165.16	46	4.0	400	NA	A,B,C,D,I,J	PUD-R
Tract 3	264.83	107.72	112.61	44.5	4.0	350	NA	A,B,C,D,I,J	PUD-R
Tract 10A	51.95	24.53	15.92	11.5	8.0	200	NA	A,B,C,D,I,J	PUD-R [7]
Tract 10B	47.09	30.77	5.32	11	5.0	100	120,000	A,B,C,D,E,G,I,J	PUD-R [7]
Tract 11A	132.46	73.19	37.27	22	4.0	320	NA	A,B,C,I,J	PUD-R [7]
Tract 11B	503.51	273.77	189.74	40	6.0	530	200,000	A,B,C,I,J, RV Storage	PUD-R [7]
Tract S (School)	178.94	113.38	65.56	0 [4]	4.0	300	NA	A,B,C,D,I,J	PUD-R
Tract 1A	254.86	106.97	62.56	449.5	0.33	15	130,000	A1 Ordinance Uses	A1 [6]
Tract 1B	97.44	36.36	33.75						A1 [6]
Tract 4	189.64	45.66	125.48						A1 [6]
Tract 5	493.00	264.99	122.01						A1 [6]
Tract 6	1006.16	412.44	429.22						A1 [6]
Tract 7	257.14	115.5	95.14						A1 [6]
Tract 8	361.31	93.12	231.19	37	0.33	4	NA	A1 Ordinance Uses	A1 [6]
Tract 13	95.12	48.86	26.26	20	NA	NA	420,000	E,F,G,H,J	PUD-C
Tract 9	88.73	33.49	41.24	0	NA	NA	School [5]	School,I,J	PUD-C
Recreation Areas [3]	47.64	28.35	16.36	10.5	NA	NA	NA	Recreation Facility,I,J	NA
TOTAL	4,572.84 acres gross	2,017.38 acres net	1,831.15 acres	730.50 acres		2,411 2,411 maximum permitted [1]	870,000 Total maximum square footage shown is 870,000 square feet. 600,000 square feet of floor area exists in commerce park currently.		
PUD / A1 TOTALS	PUD - 1,913.29 ac A1 - 2,659.55 ac	PUD - 942.34 ac A1 - 1,075.04 ac	PUD - 731.8 ac A1 - 1,099.35 ac	PUD - 244 ac A1 - 486.5 ac		PUD - 2,392 units A1 - 19 units	PUD - 740,000 sf A1 - 130,000 sf		

Stonehouse Preserve
Riverfront Preserve

Table A Notes:
[0] **All acreage based on James City County GIS information only.** All acreage indicated as presented in approved Master Plan dated January 2008. More detailed information will be provided at the site/subdivision stage.
[1] A maximum of 2,411 residential units are allowed. Except the proposed A-1 Tracts, the actual number of units developed on each individual Tract/Land Bay may vary from the numbers listed in the "2018 Total Density" column above, as the number of units may be transferred between Tract/Land Bay in connection with final design, but the number of units on any given Tract/Land Bay will not exceed the corresponding density listed in the "Units Per Net Acre" column. The maximum units for proposed A-1 Tracts shall not exceed the number shown in the 2018 Total Density column.
[2] The net acreage of each tract is based on GIS information, and may change when site/subdivision plans are submitted.
[3] Recreation Areas will be provided as outlined in the proffers. Final size and locations of the facilities and their footprints will be defined as the program, amenities and proffers are finalized.
[4] Open space outside of RPAs has been reallocated between Land Bay 5 and Land Bay 14. The total acreage of open space outside of RPAs remains 651.50 acres as in the approved Master Plan dated January 2008.
[5] Williamsburg - James City County Schools will determine the design of the school site.
[6] Land Bay 1 and Tract 12 are excluded from application. Stonehouse Preserve and Riverfront Preserve will be submitted in separate application.
[7] Tracts 10A, 10B, 11A and 11B to be amended from a PUD-C zoning classification (per the approved Master Plan dated January 2008) to a PUD-R zoning classification.
[-] All roads will be public roads.
[-] All common open space areas, private recreation areas, sidewalks outside of the public right-of-way, and other privately owned but common facilities will be maintained by the homeowners' association.
[-] Tract 11B will contain RV and boat storage as a recreational use for the Stonehouse HOA.
[-] For development phasing, see the sewer and water phasing maps, as well as the proffers and the Fiscal Impact report provided by the Applicant.
[-] Tracts 1 and 11 have been divided into two tracts to better reflect the planned use. However, the number of units and the square footage of the non-residential uses remain as one for the entire tract and will be determined at the site/subdivision stage.
[-] Mixed use buildings will be permitted in the appropriate areas in Stonehouse should the James City County Zoning Ordinance be amended to permit such buildings in the PUD-C or PUD-R zoning districts.
[-]The amount of RPA is based on available mapping data and is subject to change with field delineation. Accordingly, the actual amount of Open Space inside the RPA and the actual amount of Open Space outside of the RPA at the time of development may vary from that shown in the 2 associated columns above, but the total amount of Open Space acreage determined by adding the 2 columns above shall be provided (e.g., if the actual amount of RPA on a particular tract increases with field delineation then amount of Open Space within the RPA shall similarly increase over the acreage shown above and the amount of Open Space outside of RPA will proportionately decrease from the acreage shown above, but the total amount of Open Space determined by adding the 2 columns above shall be provided).

LAND DESIGNATION KEY

A,B,C,D,I,J
A,B,C,I,J
A,I,J
A,B,I, J
A,B,C,I,J
A,B,C,D,E,G,I,J
E,F,G,H,J
SCHOOL,I,J
A,B,E,I,J
A,B,E,I,J

MASTERPLAN NOTES:

1) THIS DOCUMENT IS A MASTERPLAN AMENDMENT TO THE ORIGINAL STONEHOUSE MASTERPLAN BY GS STONEHOUSE GREEN LAND SUB LLC. ORIGINAL BINDING PRODUCED BY SELLS DESIGN STUDIO (JAN, 2008).

2) ALL PROPERTY LINES, RIGHT-OF-WAYS, EASEMENTS, BUFFERS, STREAMS, ROADS, AND OTHER LINEWORK ARE SOURCED FROM JAMES CITY COUNTY GIS DATA. MAP DATA NOT FIELD VERIFIED.

3) THE DRAWINGS, EXHIBITS AND DESIGN SHOWN THERON ARE THE INSTRUMENTS OF COLEJENEST & STONE, P.A.. THE REPRODUCTION OR UNAUTHORIZED USE OF THE DOCUMENTS WITHOUT CONSENT OF COLEJENEST & STONE, P.A. IS PROHIBITED.

LEGEND

WATERBODIES
RESOURCE PROTECTION AREA BUFFERS (RPA)
RECREATION AREA
STONEHOUSE DEVELOPMENT AREA - PHASE I
RV STORAGE
PRESERVE ACCESS POINT (S)

AREA DESIGNATIONS	TYPE OF DEVELOPMENT
A	SINGLE-FAMILY
B	ATTACHED STRUCTURES CONTAINING TWO TO FOUR DWELLING UNITS
C	ATTACHED STRUCTURES LESS THAN THREE STORIES AND CONTAINING MORE THAN FOUR DWELLING UNITS
D	ATTACHED STRUCTURES OF THREE OR MORE STORIES CONTAINING MORE THAN FOUR DWELLING UNITS
E	COMMERCIAL USES
F	WHOLESALE AND WAREHOUSE USES
G	OFFICE USES
H	LIGHT INDUSTRIAL USES
I	INSTITUTIONAL OR PUBLIC USES
J	AREAS OF COMMON OPEN SPACE, WITH RECREATION AREAS AS NOTED

*NOTE: AREA DESIGNATIONS RELATED TO LAND DESIGNATION KEY ONLY.

STONEHOUSE MASTERPLAN

JAMES CITY COUNTY, VA
07/26/2019

ColeJenest & Stone

BINDING

1" = 1000'
0' 500' 1000' 2000'

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STONEHOUSE MASTERPLAN - TABLE A ENLARGEMENT

JAMES CITY COUNTY, VA
07/26/2019

ColeJenest & Stone

BINDING

STONEHOUSE MASTERPLAN

ZONING EXHIBIT

JAMES CITY COUNTY, VA

07/26/2019

ColeJenest & Stone

BINDING

1" = 1000'

0' 500' 1000' 2000'

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

Stephen C. Brich, P.E.
Commissioner

1401 East Broad Street
Richmond, Virginia 23219

May 3, 2022

Mr. Timothy Cross
Deputy Director of Planning & Development Services, York County
PO Box 532
Yorktown, VA 23690

Re: Interstate 64 Improvements Study, Exits 205 to 234 – Noise Analysis

Dear Mr. Cross:

I am writing to request information from York County to support analysis for the Interstate 64 Improvements Study. The Study is being pursued to consider adding capacity to I-64 between Exit 205 and Exit 234. Based on the improvements being considered, VDOT has determined that a highway noise analysis is required and has contracted with Whitman, Requardt, and Associates, to complete the study.

The purpose of this letter is to determine if undeveloped lands located within the highway noise analysis study area have active building permits which would allow property owners to develop noise sensitive land uses. Examples of noise sensitive land uses include residences, educational facilities, places of worship, and community centers, medical facilities, recreation facilities (private and public), hotels, campgrounds, and restaurants with outdoor dining.

Based on a review of aerial photography and York County's GIS resources, the project team has identified 23 parcels located near I-64 which appear to be undeveloped or used for agriculture. Table 1 provides the GPINs for all the parcels being investigated

Information regarding ongoing development is important because it allows VDOT to identify acoustic impacts to properties that have initiated but have not yet completed the development process. In addition, VDOT will only consider noise abatement for noise-sensitive uses which were granted a building permit prior to the Project's Date of Public Knowledge. The date of public knowledge is the date that the Federal Highway Administration (FHWA) approves the Project's final environmental document. Since this approval has not yet been secured, please identify any permits that have been granted approval as of the date shown on this letter. We would appreciate your response by May 18, 2022.

If you have any questions or concerns about the format or scope of the permit information requested, please contact Kim Glinkin at kglinkin@wrallp.com or 973-568-6796. If you have any questions regarding the project, please contact Andrew Pike at Andrew.pike@vdot.virginia.gov or 804-786-2360.

Sincerely,

Andrew A. Pike

Andrew Pike
VDOT Project Manager

Enclosures: Table 1. GPINs for Undeveloped Parcels Under Investigation
cc: Nicholas Nies, WRA Project Manager
Kimberly Glinkin, WRA Associate

Table 1. GPINs for Undeveloped Parcels Under Investigation

B20b-3185-4888	C20a-0758-3553	C20a-1428-2982	C20c-1236-0152
B20b-4407-3129	C20a-0880-3412	C20a-1711-3207	C20c-1997-0991
B21d-2961-0385	C20a-0969-3323	C20a-2223-3156	C20c-2412-0774
B21d-3372-1982	C20a-1239-3091	C20c-0743-2182	C20d-2945-1791
C20a-0685-3652	C20a-1259-3614	C20c-0880-1911	C20d-4157-0590
C20a-0731-2553	C20a-1318-3035	C20c-1210-1808	

Department of Planning & Development Services

Director
Susan D. Kassel

Deputy Director
Timothy C. Cross, AICP

York County
VIRGINIA
America's Future Since 1781

Building Safety
Development Services
Planning

May 10, 2022

Andrew Pike
VDOT Project Manager
Virginia Department of Transportation
1401 East Broad Street
Richmond, Virginia 23219

Dear Mr. Pike:

SUBJECT: Interstate 64 Improvements Study, Exits 205 to 234 – Noise Analysis

I am writing in response to your May 3, 2022, letter asking for the County's assistance with the noise analysis associated with the referenced project. We have reviewed our building permit records and determined that none of the 23 parcels identified in your letter have active building permits. Please note, however, that three of these parcels are, in fact, developed:

- 601 East Rochambeau Drive (GPIN C20c-1236-0152) – occupied by Casey Toyota auto dealership built in 2012
- 5005 Rochambeau Drive (GPIN B20b-3185-4888) – occupied by a single-family detached dwelling built in 1995 and assessed at $548,700 (improvement value only)
- 105 J. Farm Lane (C20a-1711-3207) – occupied by a single-family detached dwelling built in 1985 and assessed at $275,300 (improvement value only)

Please feel free to contact me if I can be of any further assistance.

Sincerely,

Timothy C. Cross, AICP
Deputy Director of Planning and Development Services

TCC

100 County Drive • P.O. Box 532 • Yorktown, Virginia 23690-0532 • (757) 890-3404
Fax: (757) 890-3418 • Email: planning@yorkcounty.gov
A Hampton Roads Community

Glinkin, Kimberly

From:	Andrew Pike <andrew.pike@vdot.virginia.gov>
Sent:	Tuesday, July 5, 2022 11:28 AM
To:	Glinkin, Kimberly
Subject:	Fwd: I-64 Response Letter

---------- Forwarded message ---------
From: Andrew Pike <andrew.pike@vdot.virginia.gov>
Date: Fri, May 13, 2022 at 11:34 AM
Subject: Re: I-64 Response Letter
To: Cross, Tim <tcross@yorkcounty.gov>

Hi Tim,

Thank you so much for the quick response. To answer your question, the limits of each study overlap to allow for the new segment to tie in to the existing segment. Additionally, noise studies typically extend 500 feet further along the highway to ensure all impacts associated with the project are identified. However, no changes are anticipated along the recently completed Segment III area.

Thanks. Let me know if you have any additional questions.

Sincerely,
Andrew Pike

--
Andrew Pike
NEPA Project Manager, Environmental Division
Virginia Department of Transportation
(804) 786-2360 | andrew.pike@vdot.virginia.gov

On Tue, May 10, 2022 at 9:10 AM Cross, Tim <tcross@yorkcounty.gov> wrote:

> Mr. Pike,
>
> My response to your May 3 letter regarding building permit information for the future I-64 widening between Lightfoot and Richmond is attached. A hard copy is going out to you in today's mail. If you have any questions or need additional information, please let me know.
>
> I do have one question. Several of the parcels identified in your letter are along the recently completed I-64 Segment III widening and presumably were previously included in the Noise Analysis for that project. Why are they included in the Noise Analysis for widening west of the Lightfoot interchange?

Regards,

Tim Cross

Timothy C. Cross, AICP | Deputy Director of Planning and Development Services | County of York, Virginia | P.O. Box 532 | Yorktown VA 23690 | Phone: 757.890.3496 | tcross@yorkcounty.gov