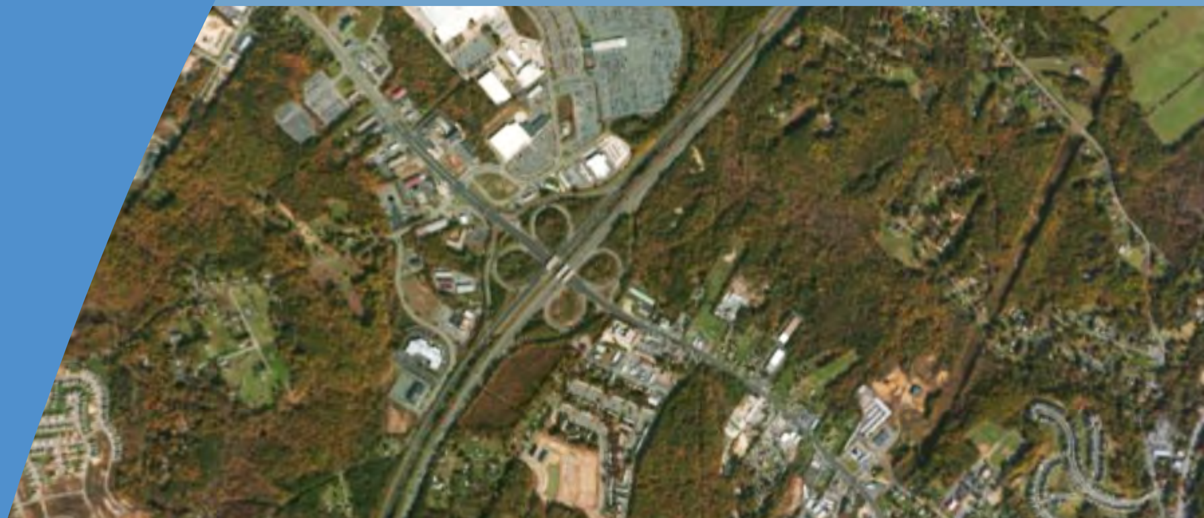
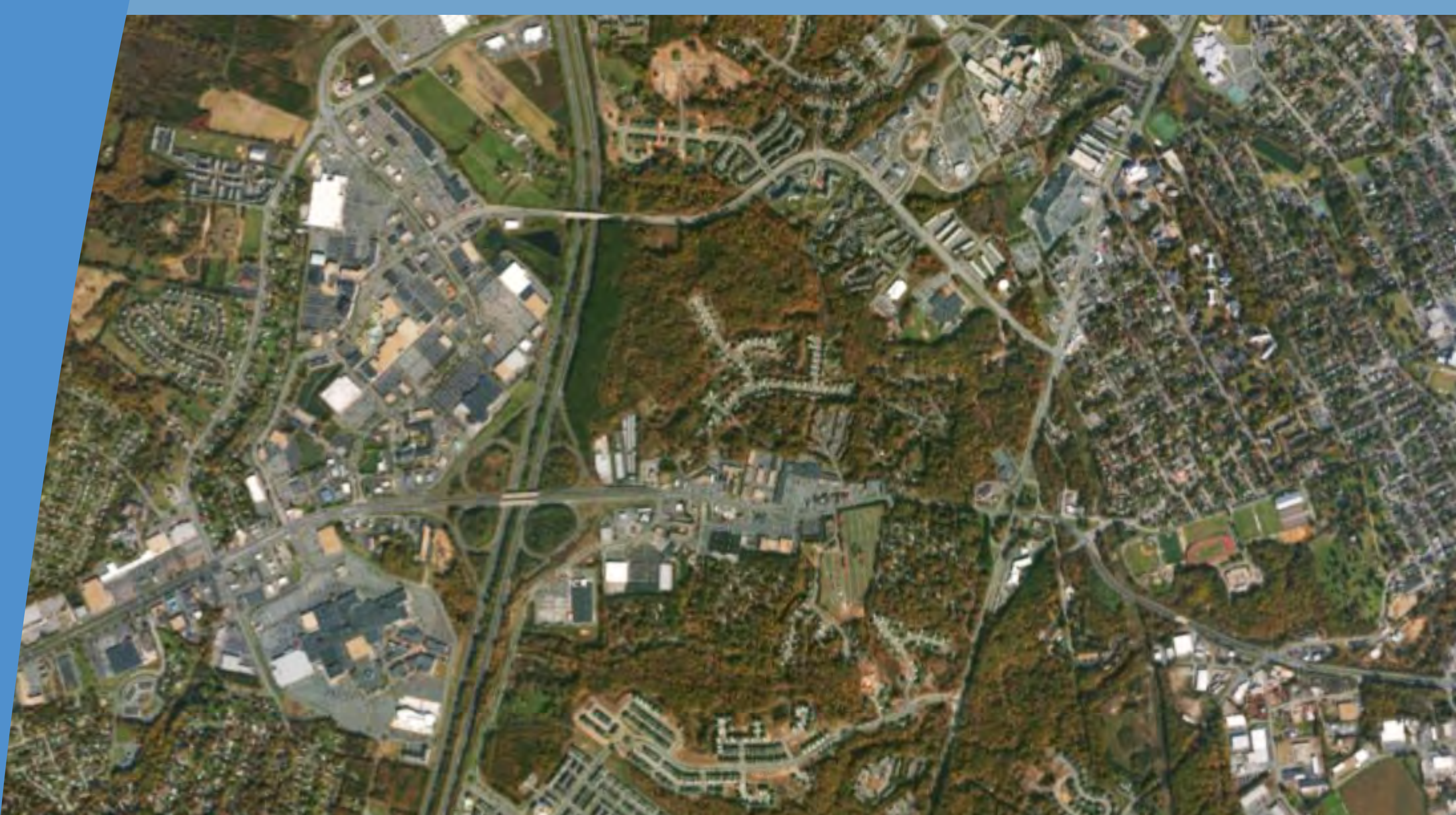
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
VIRGINIA DEPARTMENT OF TRANSPORTATION



Preliminary Noise Analysis

I-95 RAPPAHANNOCK RIVER CROSSING

City of Fredericksburg
Stafford County
Spotsylvania County
State Project No.: 0095-111-259, P101
UPC 101595
0095-111-270, P101
UPC 105510



Virginia Department of Transportation
Rappahannock River Crossing Project

VDOT Project 0095-111-259,
P101; UPC #101595

Stafford County, Spotsylvania County, and the City of Fredericksburg, Virginia

PRELIMINARY NOISE ANALYSIS

Submitted to:

Virginia Department of Transportation
Environmental Division
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Glen Allen, VA 23060

September 2014

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I. Executive Summary

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is conducting a preliminary design noise analysis to assess and document noise impacts and potential noise mitigation measures associated with the Rappahannock River Crossing Project in Stafford and Spotsylvania Counties and the City of Fredericksburg, Virginia. The Rappahannock River Crossing Project is evaluating potential transportation improvements to address traffic conditions along an approximate three-mile section of the Interstate 95 (I-95) corridor, from the VA 3 Interchange (Exit 130) to just north of the US 17 Interchange (Exit 133) in the City of Fredericksburg, Stafford, and Spotsylvania Counties as shown in ***Figure 1***.

The noise analysis in this document will focus solely on the Common Noise Environments, referred to as CNEs. Noise sensitive receptors within 500 feet of the proposed improvements were considered for this evaluation. This report documents the Existing (2013) and Design Year (2040) Build and No-Build noise levels associated with the Rappahannock River Crossing Project. A project field view was performed to thoroughly review the project area. During this field view, major sources of acoustic shielding (e.g., terrain lines, building rows, etc.) adjacent to the project corridor were noted for inclusion into the noise modeling effort. Noise monitoring was performed at nine locations, while noise modeling was conducted for 183 additional sites to gain a thorough understanding of the existing noise environment and to determine how the proposed improvements would change the noise levels throughout the project area. Monitored sites were not used as modeling sites for predicting impacts.

Noise modeling was completed for Existing (2013) and Design Year (2040) Build and No-Build conditions. Design Year (2040) Build and No-Build noise levels were predicted at each modeled receptor site under each of the proposed improvements. Under Design Year (2040) Build conditions for the Build Alternative, a total of 45 receptors within CNEs B, C, D, E, F, G, and K representing 59 residences, two playgrounds, three outdoor seating areas, one hotel patio, and two picnic areas are predicted to experience noise impacts. Noise barriers were evaluated for CNEs B, C, D, E, F, G, and K. Two barriers benefitting CNEs C and E were determined to be both feasible and reasonable. A detailed discussion of the noise abatement evaluation follows in ***Section VII*** of this report.

The findings in this document are based on conceptual information. Therefore, noise barriers that are found to be feasible and reasonable during the preliminary noise analysis may not be found to be feasible and reasonable during the Final Design Noise Analysis. Conversely, noise barriers that were not considered feasible and reasonable may meet the established criteria and be recommended for construction. A Final Design Noise Analysis would be performed for this project based on detailed engineering information and ENTRADA traffic data. Thus, any conclusions derived in the report should be considered preliminary in nature and subject to change.

No considerable, long-term construction related noise impacts are anticipated. Any noise impacts that do occur as a result of roadway construction measures are anticipated to be temporary in nature and would cease upon completion of the project construction phase.

II. Introduction and Background

Impacts associated with noise are often a prime concern when evaluating roadway improvement projects. Roadway construction at a 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 and VDOT have established a noise analysis methodology and associated noise level criteria to assess the potential noise impacts attributed to the construction and use of transportation related projects.

This report details the steps involved in the preliminary noise analysis for the Rappahannock River Crossing Project, including noise monitoring, noise modeling methodologies, results, and impact evaluation. The regional study area can be seen in ***Figure 1***. Relevant information that was incorporated into the noise modeling process is included in this report's appendices.

Purpose and Need

The project area has seen tremendous population and job growth throughout the past number of decades. This growth, combined with regional travel patterns, has led to increased traffic volumes, congestion and safety concerns on the roadway network, particularly I-95. This project was initiated with the specific intent of improving local and through traffic conditions on I-95 between and within the VA 3 and US 17 Interchanges and increasing access between I-95 and key residential and commercial areas in the project area, both north and south of the Rappahannock River. Based on the existing and future needs, the purpose of the proposed project is to improve the Level of Service (LOS) on I-95 by providing additional capacity and improving mobility and to improve safety by reducing conflict points between local and through traffic.

Proposed Alternatives

A number of possible solutions to address the needs described above were evaluated during the preparation of the June 30, 2014 draft of the *I-95 Interchange Modification Report , Improvements to I-95 between Exit 133 and Exit 130* (IMR). As a result of the alternative investigations, one Build Alternative and a No-Build Alternative are being carried forward for further analysis in the Environmental Assessment. The goals are to develop solutions that meet the project purpose and need while avoiding and/or minimizing impacts to the human and natural environments. The following are the alternatives being carried forward in this study.

<u>No-Build Alternative</u>

The No-Build Alternative serves as a baseline of conditions for the comparison of the Build Alternative. This alternative represents no modifications to the interstate or arterial roadway system other than the already planned and programmed improvements identified in the Fredericksburg Area Metropolitan Planning Organization (FAMPO) 2040 Constrained Long-Range Plan (CLRP) and VDOT's Six Year Improvement Program (SYIP). However, it would allow for short-term restoration types of activities (safety and maintenance improvements, etc.)

that maintain continuing operation of the existing interstate facility. The I-95 Express Lanes are expected to be operational during the Design Year (2040) No-Build condition of this project, therefore were included in the modeling, as such. Furthermore, the preliminary noise analysis conducted for the Fall Hill Avenue Widening and Bridge Replacement Project (UPC 88699) studied a barrier at the same location as Barrier E and which was determined to be feasible and reasonable, and a barrier at the same location as Barrier C which was found to be feasible but not reasonable.

Build Alternative

The Build Alternative would include the construction of parallel two-lane collector-distributor (C-D) lanes in each direction between the VA 3 and US 17 interchanges on I-95 with a pair of braided ramps to separate heavy VA 3 and US 17 ramp volumes. The I-95 northbound C-D Road would start at the VA 3 eastbound to I-95 northbound on-ramp and end at the new I-95 northbound to US 17 westbound/northbound flyover. The southbound C-D Road would start just south of US 17 and end at the I-95 southbound off-ramp to westbound VA 3. The project would also include new I-95 bridges in each direction across the Rappahannock River, reconstruction of the US 17 interchange (Exit 133), improvements to both VA 3 and the VA 3 interchange (Exit 130) and improvements to the Virginia Welcome Center, as described further in the I-95 IMR and the Alternatives section of the Environmental Assessment.

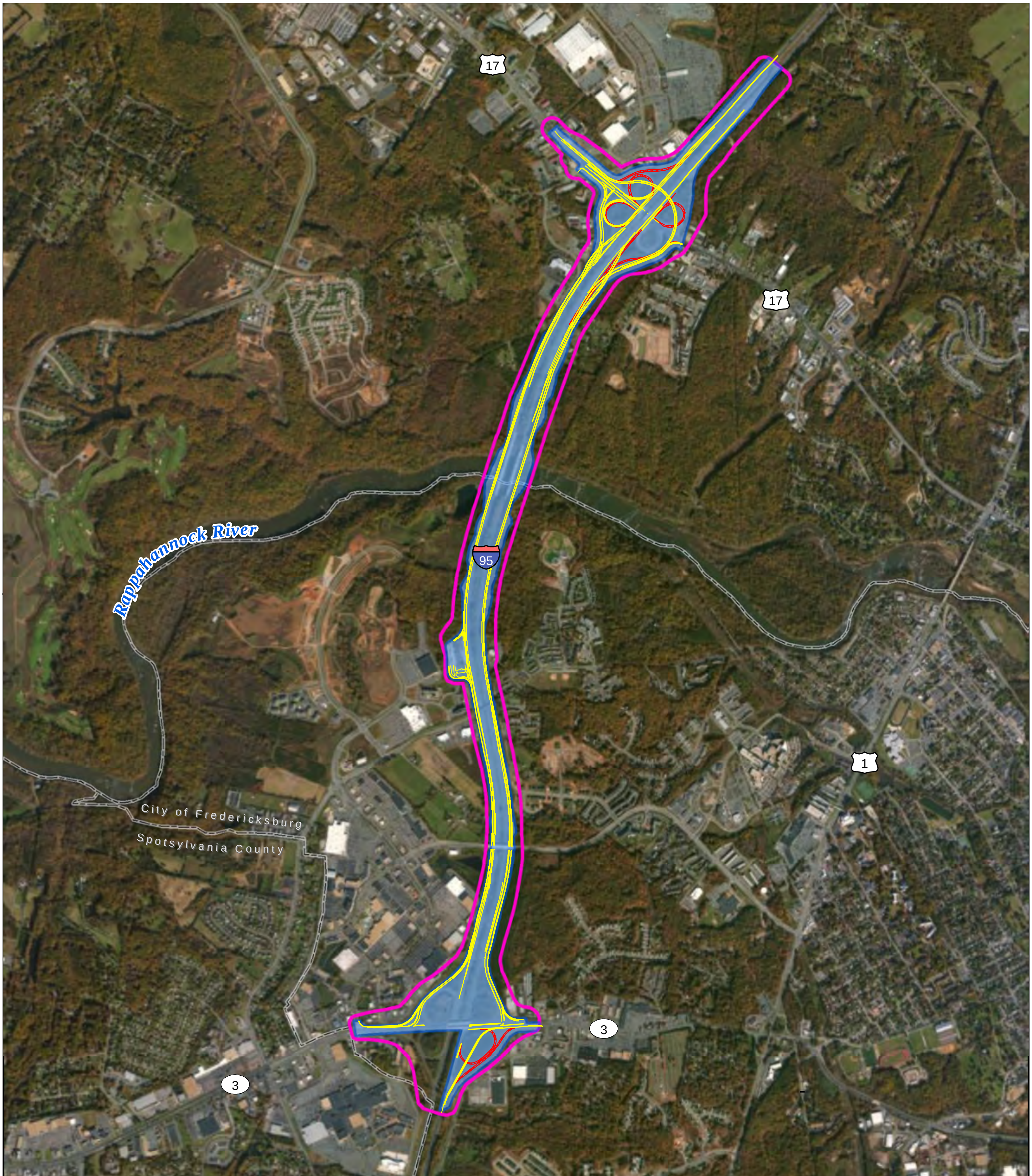
III. Noise Analysis Methodology, Terminology and Criteria

The methodologies applied to the noise analysis for the Rappahannock River Crossing Project are in accordance with VDOT's "*State Noise Abatement Policy*", effective July 13, 2011, and updated July 2014. VDOT guidelines are based on Title 23 of the Code of Federal Regulations, Part 772 and the Procedures for Abatement of Highway Traffic Noise and Construction Noise, (23 CFR 772).

To determine the degree of highway noise impact, Noise Abatement Criteria (NAC) has been established for a number of different land use categories. ***Table 1*** documents the NAC for the associated activity land use category shown in the adjacent column. One hundred and thirty-two of the noise sensitive receptor sites in the project area are considered Category B (representing a total of 232 residences), twenty-three noise sensitive land uses are considered Category C (representing three playgrounds, one volleyball court, three basketball courts, and sixteen outdoor seating area), one noise sensitive land use is considered Category D (representing the interior of one nonprofit institution), and ten noise sensitive land uses are considered Category E (representing nine hotel and hotel outdoor activity areas and an outdoor seating area associated with an IHOP Restaurant). Cowan Boulevard Trail is a shared use path that runs adjacent to Cowan Boulevard and connects the residential areas east of I-95 to the Central Park shopping center. The trail is considered by the City of Fredericksburg as a utilitarian route without opportunities for vistas or interpretive panels and is therefore considered a transportation-related land use and is not considered a noise sensitive land use.

Category D addresses interior noise levels associated with hospitals, libraries, schools, medical facilities, places of worship, public or nonprofit institutions, etc. There is one nonprofit institution located within the project corridor. For the Bragg Hill Family Life Center, the associated playground and outdoor seating area were also evaluated for potential noise impacts due to their proximity to the proposed project they represent the worst-case use area on the property. Interior noise level impacts in the project area were analyzed. To assess potential interior noise impacts, modeling sites are placed in close proximity to the existing structure. The standard noise reduction for masonry construction with modern windows is 25 dBA when comparing exterior versus interior sound levels. Both exterior and interior sound levels will be quoted in ***Table 3*** in this document.

The NAC are given in terms of an hourly, A-weighted, equivalent sound level. The A-weighted sound level frequency is used for human use areas because it is comprised of the sound level frequencies that are most easily distinguished by the human ear, out of the entire sound level spectrum. Highway traffic noise is categorized as a linear noise source, where varying noise levels occur at a fixed point during a single vehicle pass by. It is acceptable to characterize these fluctuating noise levels with a single number known as the equivalent noise level (L_{eq}). The L_{eq} is the value of a steady sound level that would represent the same sound energy as the actual time-varying sound evaluated over the same time period. For highway noise assessments, L_{eq} is typically evaluated over a one-hour period.



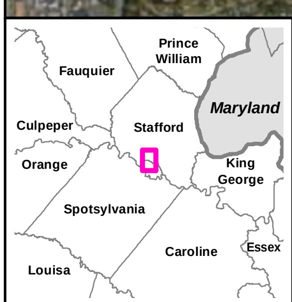


Figure 1

Regional Location Map
Rappahannock River Crossing

VDOT Project 0095-111-259, P101, UPC 101595

Stafford and Spotsylvania Counties and the City of Fredericksburg, Virginia
(Source: Esri & Digital Globe; 2013)

N

Study Area

Proposed Build Alternative

Proposed Demolition

0 0.25 0.5 Miles

TABLE 1
Rappahannock River Crossing Project
FHWA/VDOT Noise Abatement Criteria
Hourly-A-Weighted Sound Level in Decibels (dB(A))[1]

Activity Category	Activity L_{eq} (h)[4]	Criteria[2] L10 (h)	Evaluation Location	Description of Activity Category
A	57	60	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[3]	67	70	Exterior	Residential.
C[3]	67	70	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 non-profit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	55	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, schools, and television studios.
E[3]	72	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties of 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.

1 Either Leq (h) or L10 (h) (but not both) may be used on a project.
2 The Leq (h) and L10 (h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measure.
3 Includes undeveloped lands permitted for this Activity Criteria.
4 VDOT utilizes the Leq(h) designation.

Source: VDOT Highway Traffic Noise Manual, July 14, 2014

Noise abatement determination is based on VDOT's three-phase approach. The first phase (**Phase 1**) distinguishes if a sensitive receptor within a project corridor warrants highway traffic noise abatement. The following describes the **Phase 1** warranted criterion, as discussed in VDOT policy. Receptors that satisfy either condition warrants consideration of highway traffic noise abatement.

- Predicted highway traffic noise levels (for the design year) approach or exceed the highway traffic noise abatement criteria in ***Table 1***. "Approach" has been defined by VDOT as 1 dB(A) below the noise abatement criteria.

~or~

- A substantial noise increase has been defined by VDOT as a 10 dB(A) increase above existing noise levels for all noise-sensitive exterior activity categories. A 10 dB(A) increase in noise reflects the generally accepted range of a perceived doubling of the loudness.

If traffic noise impact is identified within the project corridor, then consideration of noise abatement measures is necessary. The final decision on whether or not to provide noise abatement along a project corridor will take into account the feasibility of the design and overall cost weighted against the benefit.

Phase 2 and **Phase 3** of the three-phased approach will be discussed in the noise abatement evaluation, located in ***Section VII*** of this report.

The identification of noise-sensitive land uses guided the selection of noise monitoring locations along the project corridor. In order to validate the noise models, noise monitoring was conducted at nine representative noise sensitive receptor sites. ***Figures 2-1*** through ***2-6*** show an overview of the Build Alternative and identify the project area and the locations of the nine noise monitoring sites.

Monitoring was performed at each of the selected noise sensitive receptors using Metrosonics dB-3080 noise meters. The noise meters were placed at each receptor site in a manner that would yield a typical absolute ambient environment noise reading, and allowed for minimal influence from atypical background noise sources. Readings were taken on the A-weighted scale and reported in decibels (dB(A)). Prior to noise monitoring, noise meters were calibrated using a Metrosonics cl-304 acoustical calibrator. The noise monitoring equipment meets all requirements of the American National Standard Specifications for Sound Level Meters, ANSI S1.4-1983 (R1991), Type 2, and meets all requirements as defined by FHWA. Noise monitoring was conducted in accordance with the methodologies contained in FHWA-PD-96-046, *Measurement of Highway-Related Noise*, (FHWA, May 1996).

Monitoring Sites (R# & ST#)

- ★ Monitoring Site

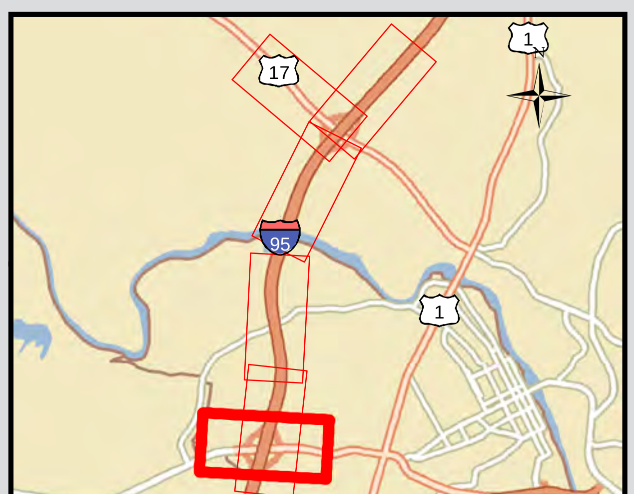
Modeled Receivers (A-K#)

- Not Impacted not Benefited
- Benefited not Impacted
- Impacted and Benefited
- Impacted not Benefited

- Jurisdiction
- CNE
- 500' Boundary from EOP
- 66 dB(A) Contour Line*
- Roadway Design EOP
- Barrier Feasible and Reasonable
- Barrier Feasible not Reasonable
- Barrier not Feasible

N W E S

0 500 1,000 2,000 Feet
0 125 250 500 Meters



Rappahannock River Crossing Project

Preliminary Noise Analysis

VDOT Project 0095-111-259, P101; UPC #101595
From: Route 3 Interchange To: Route 17 Interchange
Stafford and Spotsylvania Counties and the City of Fredericksburg

Figure: 2 - 1

Noise Receptor Location Map

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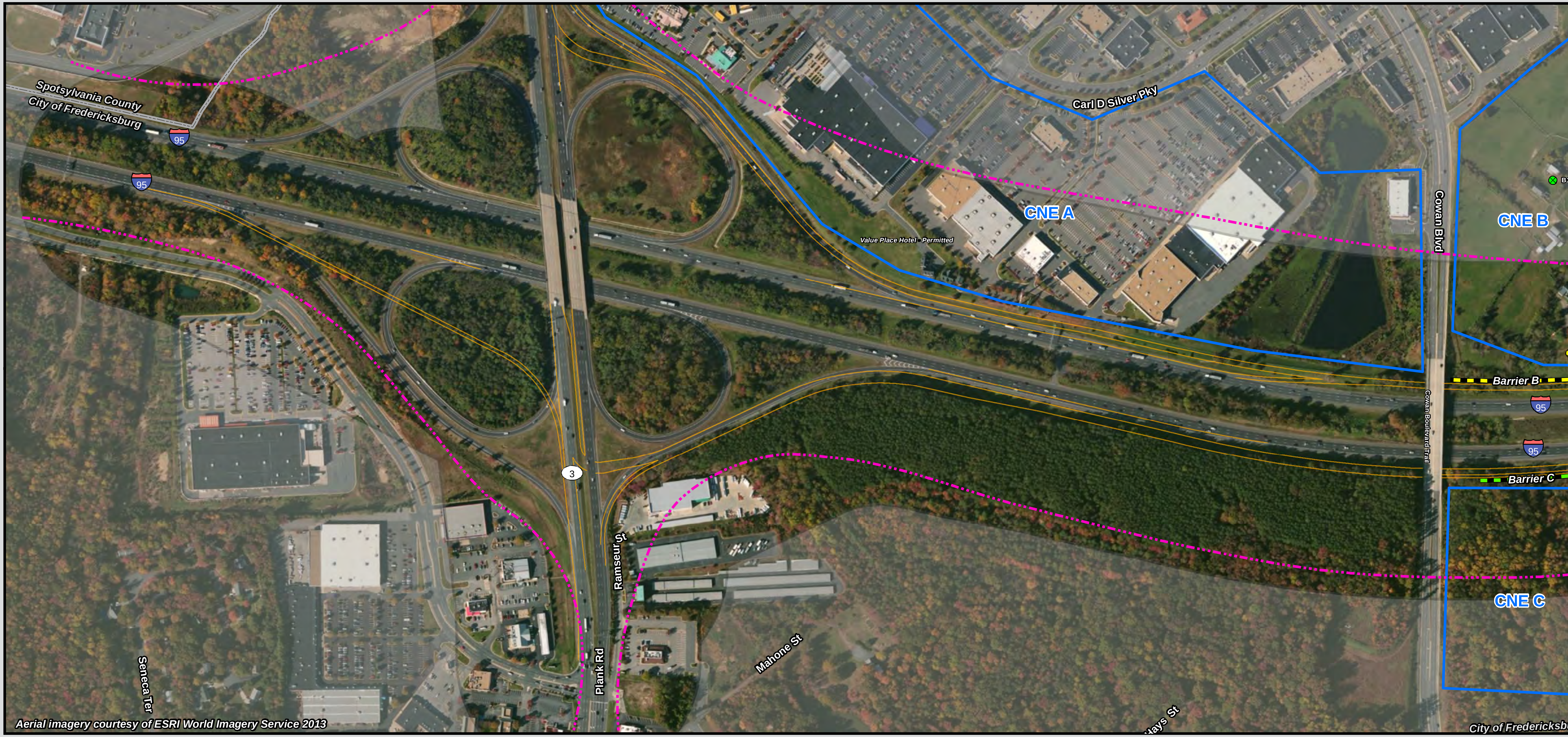
*Ground level 66 dB(A) contour shown

Service Layer Credits: Sources: Esri 2013



Monitoring Sites (R# & ST#)

★ Monitoring Site

Modeled Receivers (A-K#)

- Not Impacted not Benefited
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- Impacted and Benefited
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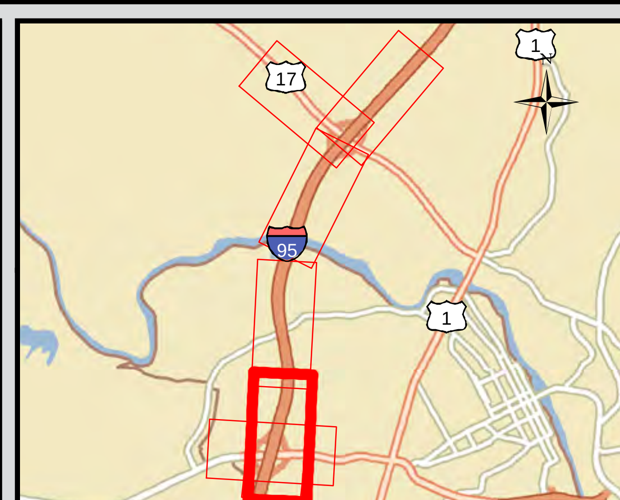
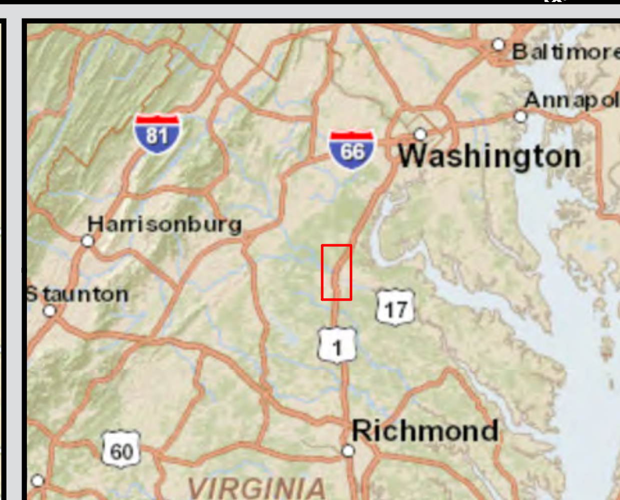
0 500 1,000 2,000 Feet
0 125 250 500 Meters





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From: Route 3 Interchange To: Route 17 Interchange
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Figure: 2 - 2

Noise Receptor Location Map

*Ground level 66 dB(A) contour shown

Service Layer Credits: Sources: Esri 2013

Date Saved: 9/12/2014 4:58:07 PM

Monitoring Sites (R# & ST#)

★ Monitoring Site

Modeled Receivers (A-K#)

- Not Impacted not Benefited
- Benefited not Impacted
- Impacted and Benefited
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- Barrier Feasible and Reasonable
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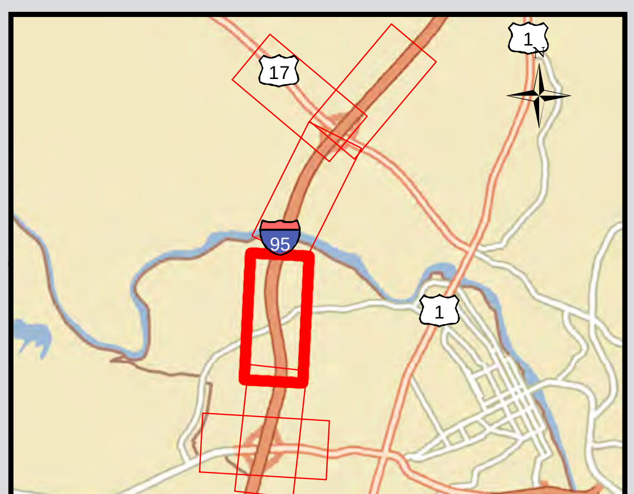
0 500 1,000 2,000 Feet

0 125 250 500 Meters



Rappahannock River Crossing Project

Preliminary Noise Analysis

VDOT Project 0095-111-259, P101; UPC #101595

From: Route 3 Interchange To: Route 17 Interchange

Stafford and Spotsylvania Counties and the City of Fredericksburg

Figure: 2 - 3

Noise Receptor Location Map

*Ground level 66 dB(A) contour shown

Service Layer Credits: Sources: Esri 2013

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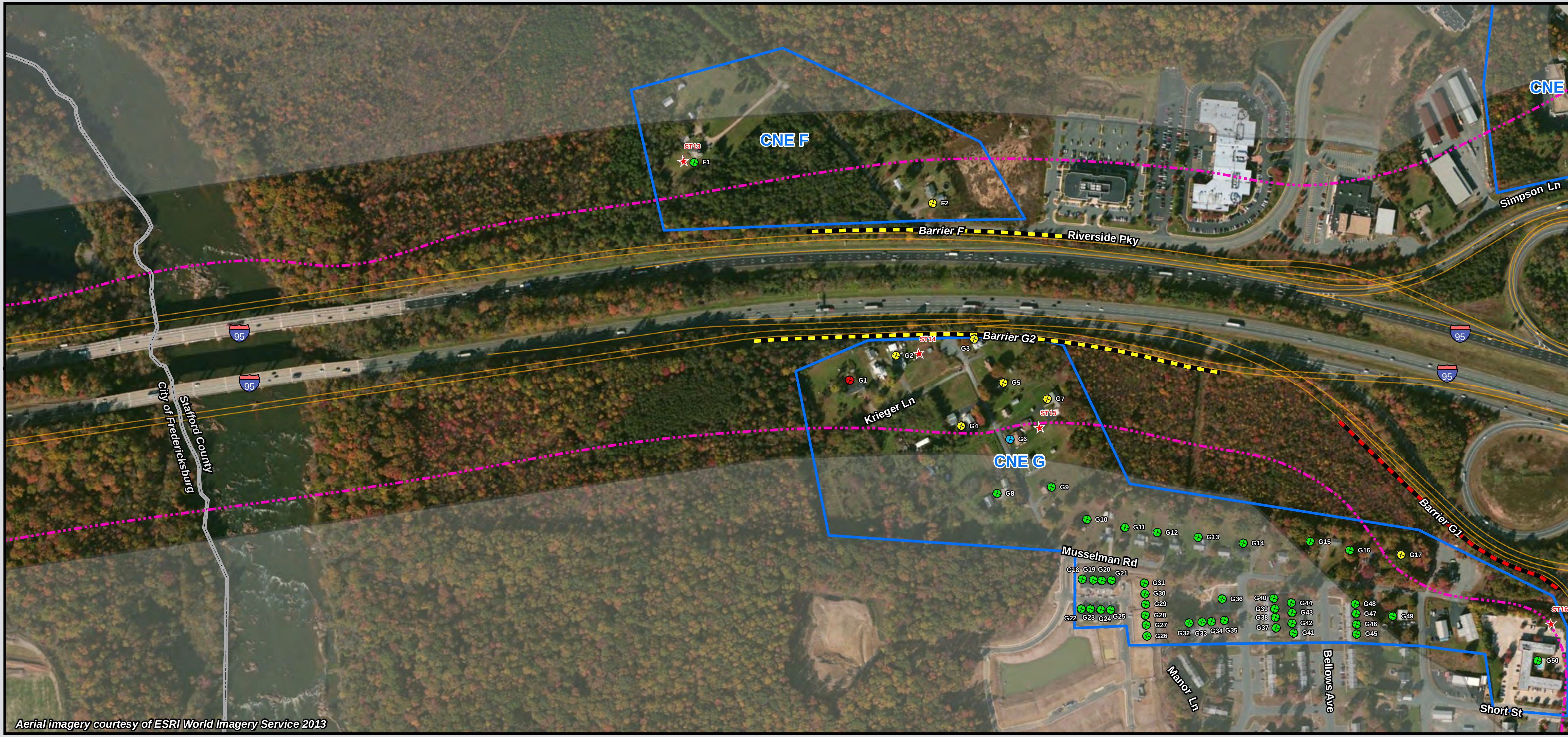

Monitoring Sites (R# & ST#)

★ Monitoring Site

Modeled Receivers (A-K#)

- Not Impacted not Benefited
- Benefited not Impacted
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- Impacted not Benefited

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- Roadway Design EOP
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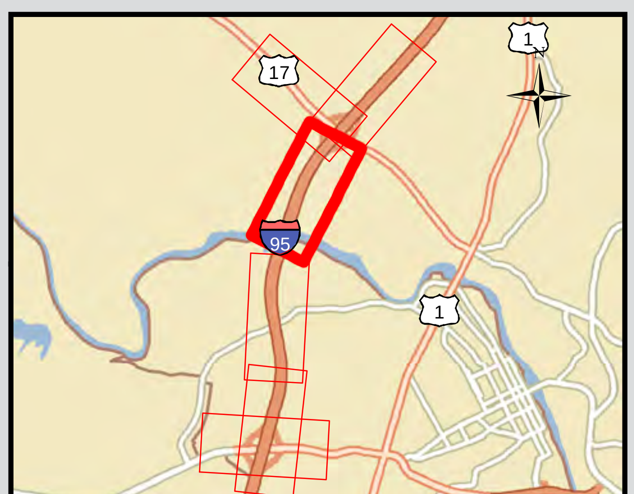
- Barrier Feasible not Reasonable
- Barrier not Feasible

0 500 1,000 2,000 Feet

0 125 250 500 Meters



Rappahannock River Crossing Project

Preliminary Noise Analysis

VDOT Project 0095-111-259, P101; UPC #101595
From: Route 3 Interchange To: Route 17 Interchange
Stafford and Spotsylvania Counties and the City of Fredericksburg

Figure: 2 - 4

Noise Receptor Location Map

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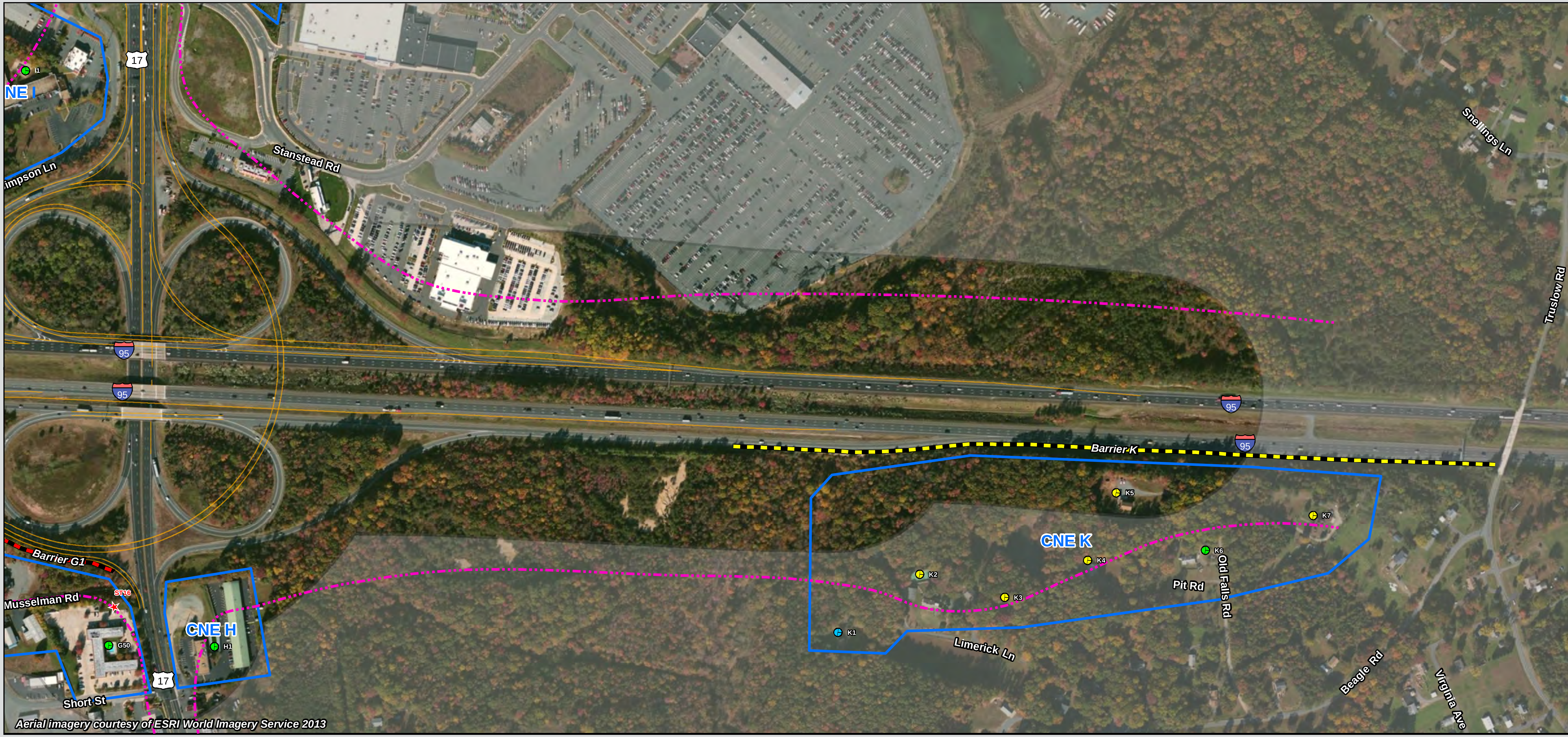
*Ground level 66 dB(A) contour shown

Service Layer Credits: Sources: Esri 2013



Monitoring Sites (R# & ST#)

★ Monitoring Site

Modeled Receivers (A-K#)

- Not Impacted not Benefited
- Benefited not Impacted
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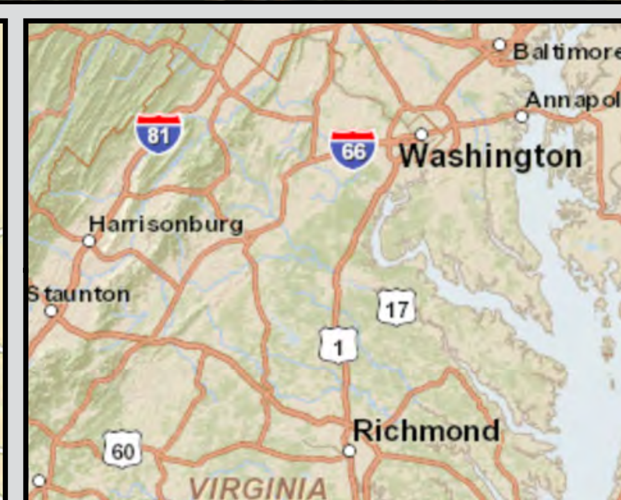
0 500 1,000 2,000 Feet

0 125 250 500 Meters



Rappahannock River Crossing Project

Preliminary Noise Analysis

VDOT Project 0095-111-259, P101; UPC #101595
From: Route 3 Interchange To: Route 17 Interchange
Stafford and Spotsylvania Counties and the City of Fredericksburg

Figure: 2 - 5

Noise Receptor Location Map

Date Saved: 9/12/2014 4:58:07 PM

*Ground level 66 dB(A) contour shown

Service Layer Credits: Sources: Esri 2013

Monitoring Sites (R# & ST#)

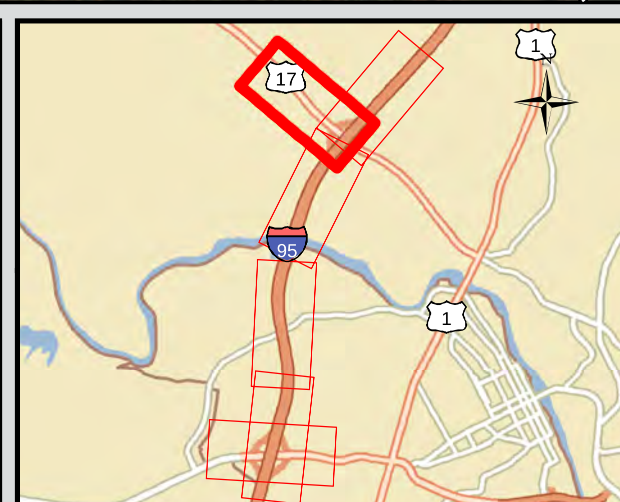
★ Monitoring Site

Modeled Receivers (A-K#)

- Not Impacted not Benefited
- Benefited not Impacted
- Impacted and Benefited
- Impacted not Benefited

- Jurisdiction
- CNE
- 500' Boundary from EOP
- 66 dB(A) Contour Line*
- Roadway Design EOP
- Barrier Feasible and Reasonable
- Barrier Feasible not Reasonable
- Barrier not Feasible

0 500 1,000 2,000 Feet
0 125 250 500 Meters



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VDOT Project 0095-111-259, P101; UPC #101595
From: Route 3 Interchange To: Route 17 Interchange
Stafford and Spotsylvania Counties and the City of Fredericksburg

Figure: 2 - 6

Noise Receptor Location Map

Date Saved: 9/12/2014 4:58:07 PM

*Ground level 66 dB(A) contour shown

Service Layer Credits: Sources: Esri 2013

Short-term noise monitoring was performed in two stages in the project area. The first monitoring sessions occurred on January 1, 2012, between 9 AM and 11 AM and were originally intended to validate the previous I-95 Access Study Project (Sites ST13-ST19). Additional monitoring was conducted to supplement the I-95 Access Study monitoring sites on May 13, 2014, between 11 AM and 1 PM (Sites M1 & M2). Receptor sites were selected based on their proximity to I-95, the dominant traffic noise source in the project area, and the proposed improvements. Noise levels were recorded at 15 second intervals over the course of 15 minutes (Sites ST13, ST14, ST15, ST17, ST18, & ST19), at 15 second intervals over the course of 10 minutes (Site ST16), and at 10 second intervals over 15 minutes (Sites M1 and M2). Data collected by the sound analyzers included time, average noise level (L_{av}), maximum noise level (L_{max}), and instantaneous peak noise level (L_{pk}) for each recorded interval. The output of the noise meters is L_{av}, which is the average noise level over the duration of the monitoring test. This data is then converted into an average, hourly sound level (L_{eq}), for assessment purposes. Additional data collected at each monitoring location included atmospheric conditions, wind speed, background noise sources, and unusual/atypical noise events. Traffic data (vehicle volume and speed) were also recorded on all roadways, which were visible from the monitoring sites and substantially contributed to the overall noise levels. Traffic was grouped into one of three categories: cars, medium trucks and heavy trucks, per VDOT procedures. Combined, this data is used during the noise model validation process.

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 Common Noise Environment (CNE) to validate the computer noise model. CNEs are groupings of receptor sites that, by location, form distinct communities within the project area. These areas are used to evaluate traffic noise impacts and potential noise mitigation options to residential developments or communities as a whole, as well as for consideration of feasibility and reasonableness of possible noise abatement measures for specific communities.

IV. Undeveloped Lands and Permitted Developments

Highway traffic noise analyses are and will 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 State Noise Policy*, an undeveloped lot is considered to be 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 National Environmental Policy Act (NEPA) approval is made. VDOT has no obligation to provide noise mitigation for any undeveloped land that is permitted or constructed after this date. The project has not yet received NEPA approval and therefore does not have a Date of Public Knowledge.

Coordination with Spotsylvania County, Stafford County, and the City of Fredericksburg was conducted in May and June of 2014 to determine whether any undeveloped permitted land uses were present within the project corridor, including Category G. Category G represents undeveloped lands with no permits. One permitted land use in the project corridor, a Value Place Hotel, was identified during the coordination process to be located at 1455 Carl D. Silver Parkway in the City of Fredericksburg. After reviewing the plans submitted to the City, it was determined that there will be no exterior activity areas and therefore it was not considered to be noise sensitive and will not be evaluated in this analysis. It was determined that no other permitted undeveloped land uses are present, nor are there any pending requests for zoning change. Coordination should occur during the Final Design Noise Analysis to ensure that these same changes have not occurred up to the Date of Public Knowledge for the project.

V. Validation and Existing (2013) Conditions

Computer modeling is the accepted technique for predicting Existing (2013) and Design Year (2040) noise levels associated with traffic-induced noise. Currently, the FHWA Traffic Noise Model (TNM 2.5) is the approved highway noise prediction model. The Traffic Noise Model has been established as a reliable tool for representing noise generated by highway traffic. The information applied to the modeling effort includes the following: highway design files (existing and proposed conceptual design), traffic data, roadway cross-sections, and surveying of terrain. Base mapping and aerial photography were used to identify noise-sensitive land uses within the corridor and any terrain features that may shield roadway noise. The majority of the land uses in the project area are residential and categorized as a Category B land use.

The modeling process begins with model validation, as per VDOT requirements. This is accomplished by comparing the monitored noise levels with noise levels generated by the computer model, using the traffic volumes, speeds, and composition that were witnessed during the monitoring effort. This comparison ensures that reported changes in noise levels between Existing (2013) and Design Year (2040) conditions are due to changes in traffic conditions and not to discrepancies between monitoring and modeling techniques. A difference of three dB(A) or less between the monitored and modeled level is considered acceptable, since this is the limit of change detectable by the typical human ear. ***Table 2*** provides a summary of the model validation for the existing monitored conditions. Column 4 represents the difference between the modeled levels produced by the noise model (Column 3) and the monitored level (Column 2). Since the analyzed receptor shows less than a 3 dB(A) difference between the monitored and modeled noise levels, the model is considered an accurate representation of actual existing conditions throughout the project area.

TABLE 2 *Rappahannock River Crossing* *TNM Validation*				
	1	2	3	4
CNE	**Site**	**Monitored (2013) Noise Level dB(A)**	**Modeled Noise Level dB(A)**	**Difference (Mod. - Mon.)**
C	M1	63.4	66.3	**2.9**
	M2	60.2	60.5	**0.3**
	ST18	60.7	61.5	**0.8**
	ST19	62.0	62.8	**0.8**
E	ST17	62.7	61.7	**-1.0**
F	ST13	56.4	59.3	**2.9**
G	ST14	62.2	64.6	**2.4**
	ST15	59.2	61.1	**1.9**
	ST16	62.5	63.2	**0.7**

*Green cells indicate site validates

There are many factors that influence the measured noise levels that may cause differences with computed noise levels of several decibels. Such factors included atmospheric conditions (upwind, neutral or downwind), shielding by structures that may be difficult to model, and the representation of louder vehicles passing during the measurement period.

The validated noise model was the base noise model for the remainder of the noise analysis. Modeling sites were added to the validated model to thoroughly predict Existing (2013) noise levels throughout the project corridor. Additional noise modeling was then performed for existing conditions using 2013 traffic data supplied by the project team (see ***Appendix D***). This modeling step was performed to predict Existing (2013) worst-case noise levels associated with existing worst-case traffic volumes and composition. Column 4 of ***Table 3*** provides a summary of the Existing (2013) worst-case noise levels.

Analysis locations were grouped into 11 CNEs which are groupings of receptor sites that, by location, form distinct communities within the project area and have a common noise environment. These areas were used to evaluate traffic noise impacts and potential noise abatement options and to assess the feasibility and reasonableness of potential noise abatement measures for specific communities. Where residential communities or groupings of noise-sensitive land use areas exist, both noise monitoring and noise modeling-only sites were grouped into a CNE. A detailed discussion of each CNE and its respective, predicted sound levels is contained in ***Section VI*** of this report.

Table 3 *Rappahannock River Crossing* *Noise Impact Summary by CNE*										
1	2	3	4	5	6	7	8	9	10	11
CNE	**Site representation**	**Existing Noise Level Range (dB(A))**			**No Build Noise Level Range (dB(A))**			**Build Noise Level Range (dB(A))**		
		Min	**Max**	**# Impacts**	**Min**	**Max**	**# Impacts**	**Min**	**Max**	**# Impacts**
A	1 Hotel Pool, IHOP picnic area	53	65	None	54	67	None	55	68	None
B	7 Residences	57	72	2 Residences	60	74	4 Residences	61	74	4 Residences
C	43 Residences, 1 Basketball Court, 1 Playground, 1 Volleyball Court, 12 Outdoor Seating Areas, 1 Courtyard	46	70	6 Residences, 1 Outdoor Seating Area	48	73	11 Residences, 2 Outdoor Seating Areas	49	75	13 Residences, 2 Outdoor Seating Areas
D	2 Hotel Pools, 1 Hotel Patio, 2 Picnic Areas	51	72	1 Hotel Patio, 2 Picnic Areas	53	75	1 Hotel Patio, 2 Picnic Areas	57	76	1 Hotel Patio, 2 Picnic Areas
E	85 Residences, 2 Playgrounds, 1 Basketball Court, 1 Outdoor Seating Area, Bragg Hill Family Life Center	47 (40)*	69	3 Residences, 1 Playground, 1 Outdoor Seating Area	49 (43)*	72	13 Residences, 1 Playground, 1 Outdoor Seating area	50 (46)*	80	25 Residences, 2 Playgrounds, 1 Outdoor Seating area
F	3 Residences	61	70	2 Residences	64	73	2 Residences	63	75	2 Residences
G	88 Residences, 1 Basketball Court, 1 Motel Pool	45	74	6 Residences	46	76	6 Residences	49	82	10 Residences
H	1 Motel Pool	-	60	None	-	62	None	-	65	None
I	1 Motel Pool	-	63	None	-	65	None	-	66	None
J	1 Motel Pool	-	59	None	-	61	None	-	61	None
K	7 Residences	62	70	2 Residences	63	71	5 Residences	63	71	5 Residences

*Denotes interior noise level

VI. Evaluation of Design Year Noise Levels and Noise Impact Assessment

Following the development of the existing conditions model and the prediction of Existing (2013) worst-case noise levels, the assessment continued with the prediction of Design Year (2040) No-Build and Build noise levels. Design Year (2040) No-Build noise levels were predicted without the conceptual improvements in place. Design Year (2040) Build sound levels were predicted by accounting for the proposed improvements and applying Design Year (2040) traffic volumes and composition to the validated computer model. Design Year (2040) Build noise levels were predicted with the conceptual improvements of the Build Alternative in place and in use.

The next step in the noise analysis is to determine if future noise levels at the noise sensitive receptors would approach or exceed the FHWA/VDOT NAC. If the criteria are approached or exceeded at any receptor, noise mitigation would be considered and evaluated in an attempt to reduce future noise to acceptable levels. The minimum and maximum noise levels associated with the Design Year (2040) No-Build modeling analysis are summarized in Columns 6 and 7 of ***Table 3***. The minimum and maximum noise levels associated with the Design Year (2040) Build modeling analysis are summarized in Column 9 and 10 of ***Table 3***. Noise levels at each receptor site for the Existing (2013) and Design Year (2040) No-Build and Build Conditions are shown in ***Appendix G***.

Design Year (2040) Build traffic volumes, vehicle composition, and speeds were assigned to proposed roadways. Traffic data used in the Design Year (2040) noise analyses were provided by the project team (refer to ***Appendix D***). Detailed traffic data was only developed for AM and PM peak hour volumes for the Existing (2013), Design Year (2040) Build, and Design Year (2040) No-Build. A sensitivity analysis was conducted in order to determine the loudest peak hour comparing the AM and PM Design Year (2040) Build traffic volumes and vehicle compositions. The AM peak hour was determined to be the loudest hour and therefore used in this analysis. In addition, in order to determine the traffic breakdown (percent of heavy trucks, medium trucks, and passenger cars), automatic count data collected for the project was analyzed and sorted based on FHWA vehicle classifications. The traffic breakdown can be seen in ***Appendix D***. Operational speeds determined in the Draft I-95 IMR were applied to roadways in the TNM when greater than the posted speed, otherwise posted speeds were applied to modeled roadways.

Federal regulations (23 CFR Part 772) state that if a noise level at any given receptor approaches or exceeds the appropriate abatement criterion, or if predicted traffic noise levels substantially exceed the Existing (2013) noise levels (by 10 dB(A)), abatement considerations are warranted. ***Table 1*** summarizes the federal and State criteria for a variety of activity categories. One hundred and sixty-six of the noise sensitive receptor sites in the project area are considered Category B (representing a total of 151 residences), seven noise sensitive land uses are considered Category C (representing three playgrounds, three basketball courts, and one outdoor seating area), one noise sensitive land use is considered Category D (representing the interior of one nonprofit institution), and nine noise sensitive land uses are considered Category E (representing eight hotel and hotel outdoor activity areas).

The following describes the predicted sound levels for each of the CNEs within the Rappahannock River Crossing Project study area.

<u>CNE A</u>

CNE A is located west of I-95, north of VA 3, east of Carl D Silver Parkway, and south of Cowan Boulevard encompassing the eastern portion of the Central Park shopping center. CNE contains two modeling-only sites (A1-A2), which represent a hotel pool and an IHOP picnic area. CNE A also contains a permitted, but not yet built, Value Place Hotel, which does not have any planned outdoor use areas according to plans submitted by the City of Fredericksburg and is not considered to be a noise sensitive land use and therefore, was not modeled. The locations of the receptor sites and permitted Value Place Hotel are shown in ***Figures 2-1*** and ***2-2***. Modeled Existing (2013) noise levels within CNE A were predicted to range from 53-65 dB(A) as shown in Column 3 and 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to range from 54-67 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source within CNE A is I-95. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to range from 55-68 dB(A), with no noise impacts predicted. Since sound levels do not exceed the NAC, noise abatement is not warranted and will not be discussed in the following section of this report.

CNE B

CNE B is located along Briscoe Lane, west of I-95, north of Cowan Boulevard, and south of Fall Hill Avenue. CNE B contains four modeling-only sites (B1-B4) which represent seven residences. The locations of these receptor sites are shown in ***Figure 2-3***. Existing (2013) worst-case noise levels within CNE B were predicted to range from 57-72 dB(A), as shown in Columns 3 and 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to range from 60-74 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source for the receptors in CNE B is I-95. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to range from 61-74 dB(A), with noise impacts predicted at two receptors representing four residences. Since sound levels exceed the NAC, noise abatement is warranted and will be discussed in the following section of the report.

CNE C

CNE C is located east of I-95, south of Fall Hill Avenue, and north of Cowan Boulevard. CNE C contains four monitoring sites (M1, M2, ST18, and ST19) and forty-two modeling-only sites (C1-C42), which represent forty-three residences, twelve outdoor seating areas, one courtyard, one playground, one volleyball court, and one basketball court. The locations of these receptor sites are shown in ***Figure 2-3***. Modeled Existing (2013) worst-case noise levels within CNE C were found to range from 46-70 dB(A), as shown in Columns 3 and 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to range from 48-73 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source within CNE C is I-95. CNE C contains five modeled receptors with Existing (2013) noise levels that are predicted to exceed the NAC. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to range from 49-75 dB(A), with noise impacts predicted at 10 receptors representing 13 residences and 2 outdoor seating areas. Since sound levels exceed the NAC, noise abatement is warranted and will be discussed in the following section of the report.

CNE D

CNE D is located west of I-95, north of Fall Hill Avenue, and just south of the rest area and contains hotels along Hospitality Lane. CNE D contains five modeling-only sites (D1-D5), which represent two pools, one patio at three hotels, and two picnic areas in the Virginia Welcome Center rest area. The locations of these receptor sites are shown in ***Figure 2-3***. Modeled Existing (2013) worst-case noise levels within CNE D were found to range from 51-72 dB(A), as shown in Columns 3 and 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to range from 53-75 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source within CNE D is I-95. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to range from 57-76 dB(A), with noise impacts predicted at three receptor representing one hotel patio and two picnic areas. Since sound levels exceed the NAC, noise abatement is warranted and will be discussed in the following section of the report.

CNE E

CNE E is located east of I-95 north of Fall Hill Avenue and contains the Bragg Hill Family Life Center. CNE E contains one monitoring site (ST17) and 51 modeling-only sites (E1-E51), which represents 85 residences, a community playground, and a community basketball court, as well as an exterior playground and outdoor seating area associated with the Bragg Hill Family Life Center. The interior location at the Family Life Center is categorized as a Category D receptor, thus an analysis of interior sound levels is appropriate. ***Table 3*** shows the interior sound levels for the Bragg Hill Family Life Center in CNE E. The locations of these receptor sites are shown in ***Figure 2-3***. Modeled Existing (2013) worst-case exterior noise levels within CNE E were found to range from 47-69 dB(A), as shown in Columns 3 and 4 of ***Table 3***. Design Year (2040) No-Build exterior sound levels are predicted to range from 49-72 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source within CNE E is I-95. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040) Build exterior sound levels are predicted to range from 50-80 dB(A), with noise impacts predicted at 16 receptors representing 25 residences, one community playground, and a playground and outdoor seating area associated with the Bragg Hill Family Life Center. Since sound levels exceed the NAC, noise abatement is warranted and will be discussed in the following section of the report

CNE F

CNE F is located west of I-95 along Riverside Parkway. CNE F contains one monitoring site (ST13) and two modeling-only sites (F1-F2), which represent three residences. The locations of these receptor sites are shown in ***Figure 2-4***. Modeled Existing (2013) worst-case noise levels within CNE F were found to range from 61-70 dB(A), as shown in Columns 3 and 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to range from 64-73 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source within CNE F is I-95. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to range from 63-75 dB(A), with noise impacts predicted at one receptor representing two residences. Since sound levels exceed the NAC, noise abatement is warranted and will be discussed in the following section of the report.

CNE G

CNE G is located east of I-95 and south of US 17 and is comprised of a hotel pool and residences along Short Street, Musselman Road, and Krieger Lane. CNE G contains three monitoring sites (ST14-ST16) and 50 modeling-only sites (F1-F50) which represent 48 residences, one basketball court, and one hotel pool. The locations of these receptor sites are shown in ***Figure 2-4***. Modeled Existing (2013) worst-case noise levels within CNE G were found to range from 45-74 dB(A), as shown in Columns 3 and 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to range from 46-76 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source within CNE G is I-95. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040)

Build sound levels are predicted to range from 49-82 dB(A), with noise impacts predicted at seven receptors representing ten residences. Since sound levels exceed the NAC, noise abatement is warranted and will be discussed in the following section of the report.

<u>CNE H</u>

CNE H is located east of I-95 and north of US 17 and is comprised of one hotel with an outdoor pool. For reference, there are no balconies present on the two-story hotel, only covered walkways to access each unit. Therefore, the VDOT balcony evaluation methods were not utilized for this area, since the walkways are not categorized as a viable outdoor use area. CNE H contains one modeling-only site (H1). The location of the receptor site is shown in ***Figure 2-5***. Modeled Existing (2013) worst-case noise levels within CNE H were found to be 60 dB(A), as shown in Column 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to be 62 dB(A), as shown in Column 7 of ***Table 3***. The dominant noise source within CNE H is I-95. As shown in Column 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to be 65 dB(A), with no noise impacts predicted. Since sound levels do not exceed the NAC, noise abatement is not warranted and will not be discussed in the following section of this report.

<u>CNE I</u>

CNE I is located west of I-95 and south of US 17 and is comprised of one hotel with an outdoor pool. For reference, there are no balconies present on the two-story hotel, only covered walkways to access each unit. Therefore, the VDOT balcony evaluation methods were not utilized for this area, since the walkways are not categorized as a viable outdoor use area. CNE I contains one modeling-only site (I1). The location of the receptor site is shown in ***Figure 2-6***. Modeled Existing (2013) worst-case noise levels within CNE I were found to be 63 dB(A), as shown in Column 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to be 65 dB(A), as shown in Column 7 of ***Table 3***. The dominant noise source within CNE I is I-95. As shown in Column 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to be 66 dB(A), with no noise impacts predicted. Since sound levels do not exceed the NAC, noise abatement is not warranted and will not be discussed in the following section of this report.

<u>CNE J</u>

CNE J is located west of I-95, north of US 17, and east of McLane Drive and is comprised of one hotel with an outdoor pool. For reference, there are no balconies present on the two-story hotel, only covered walkways to access each unit. Therefore, the VDOT balcony evaluation methods were not utilized for this area, since the walkways are not categorized as a viable outdoor use area. CNE J contains one modeling-only site (J1). The location of the receptor site is shown in ***Figure 2-6***. Modeled Existing (2013) worst-case noise levels within CNE J were found to be 59 dB(A), as shown in Column 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to be 61 dB(A), as shown in Column 7 of ***Table 3***. The dominant noise source within CNE J is I-95. As shown in Column 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to be 61 dB(A), with no noise impacts predicted. Since sound levels do not exceed the

NAC, noise abatement is not warranted and will not be discussed in the following section of this report.

CNE K

CNE K is located east of I-95 and north of US 17 and is comprised of residences along Limerick Lane, Pit Road, and Old Falls Road. CNE K contains 7 modeling-only sites (K1-K7). The locations of these receptor sites are shown in ***Figure 2-5***. Modeled Existing (2013) worst-case noise levels within CNE K were found to range from 62-70 dB(A), as shown in Columns 3 and 4 of ***Table 3***. Design Year (2040) No-Build sound levels are predicted to range from 63-71 dB(A), as shown in Columns 6 and 7 of ***Table 3***. The dominant noise source within CNE K is I-95. As shown in Columns 9 and 10 of ***Table 3***, Design Year (2040) Build sound levels are predicted to range from 63-71 dB(A), with noise impacts predicted at five receptors representing five residences. Since sound levels exceed the NAC, noise abatement is warranted and will be discussed in the following section of the report.

VII. Noise Abatement Evaluation

Design Year (2040) Build and No-Build noise levels are predicted to exceed the NAC in CNEs B, C, D, E, F, G and K therefore, as per FHWA/VDOT procedures, noise abatement considerations are warranted, as discussed in **Phase 1** of VDOT's three-phased approach, for the impacted properties within these CNEs.

Phase 2 and **Phase 3** of VDOT's three-phased approach to considering noise abatement and determining the feasibility and reasonableness of noise barriers is discussed below in detail.

Phase 2: Feasibility Criteria 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 considered:

- 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 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. The factors related to the design and construction include: safety, barrier height, topography, drainage, utilities, 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.

FHWA and VDOT guidelines recommend a variety of abatement measures which 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 abatement, additional abatement measures exist which have the potential to provide considerable noise reductions, under certain circumstances.

FHWA and VDOT guidelines recommend a variety of abatement 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 abatement, additional abatement measures exist that have the potential to provide considerable noise reductions, under certain circumstances. A brief depiction of VDOT-approved noise abatement is below:

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. Reducing speeds would 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 would result in only a 2 dBA decrease in noise level, would not effectively reduce impacts. Additionally, a reduction in speed is not practical for this project since the posted speed is already 65 miles per hour.

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. The condensed nature of the project area does not allow for significant shifts in the horizontal or vertical alignment. 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. Shifting the roadway alignment away from the impacted residences will increase impacts to other residences located on the opposite side of the interstate.

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.

Acquisition of Buffering Land: The purchase of property for noise barrier construction or the creation of a "buffer zone" to reduce noise impacts is only considered for predominantly unimproved properties because the amount of property required for this option to be effective would create significant additional impacts (e.g., in terms of residential displacements), which were determined to outweigh the benefits of land acquisition.

Construction of Berms / Noise Barriers: Construction of noise barriers can be an effective way to reduce noise levels at 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 walls 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 corridor. At a standard slope of 2:1, every one-foot in height would require four feet of horizontal width. This requirement becomes more complex in urban settings where residential properties often abut the proposed roadway corridor. 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 costs to implement this form of noise mitigation and make it 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.

Additionally, the Code of Virginia (§33.1-223.2:21) 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." Since there is a noise impact, HB 2577 requires coordination with the Project Manager and Environmental Contact to inquire about the possibility of noise reducing design, the usage of low noise pavement, and visual screening. The HB 2577 documentation for this project can be seen in ***Appendix E***. Detailed engineering has not been done because this project is a location study; therefore, methods to reduce noise through engineering will be looked at during the design phase of the project.

In summary, noise barriers and/or earth berms were considered the only form of abatement having the potential to reduce Design Year (2040) Build noise levels.

Phase 3: Reasonableness Criteria for Noise Barriers

A determination of noise barrier reasonableness will include the consideration of the parameters listed below. The parameters used during the NEPA process are also used during the final design phase when making a determination of noise barrier reasonableness. All of the reasonableness factors must collectively be achieved in order for a noise abatement measure to be deemed reasonable.

- **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 or not 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.

- **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 5 dB(A) reduction in noise level. VDOT's approved cost is based on a maximum square footage of abatement per benefited receptor, a value of 1,600 square feet per benefited receptor.

  Where multi-family housing includes balconies at elevations that exceed a 30-ft high barrier or the topography causes receptors to be above the elevation of a 30-ft 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 preformed in order 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.

- **Noise Reduction Design Goals**
  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).
- Reduction of future highway traffic noise levels to existing noise levels when practical (desirable).

The following is a discussion of the potential abatement measures for CNEs B, C, D, E, F, G, and K. Noise abatement was evaluated where noise impacts are predicted to occur. Where a noise barrier was evaluated the effectiveness was measured in terms of achievable insertion loss. Noise abatement measures in the project area were evaluated at heights ranging from 10 to 30 feet, at two-foot increments. ***Appendix H*** shows the Design Year (2040) Build sound levels the abated sound levels, and the net insertion losses for the barriers that were determined to be feasible and reasonable. Feasible and reasonable noise abatement was optimized based on constructability, line-of-sight, and the VDOT acoustic design goals. Noise abatement was determined to be feasible and reasonable for CNEs C and E. Further study is required in Final Design to refine the abatement options and no commitments on noise abatement are made until the Final Design phase of the project. ***Appendix F*** provides completed warranted, feasible, and reasonable worksheets.

<u>CNE B</u>

Design Year (2040) Build noise levels are predicted to exceed the NAC at two modeling sites representing four residences at the end of Briscoe Lane. A barrier was evaluated for CNE B along the shoulder of the proposed I-95 southbound C-D lanes. In total, the preliminary barrier has a length of 971 feet (see ***Table 4***). The barrier has an average height of 26 feet. The noise barrier achieves feasible (>5 dB(A)) noise reductions at both impacted receptor sites and achieves the design goal of an insertion loss of 7 dB(A) at one receptor site as shown in ***Appendix H***. The total area for the CNE B barrier is 25,042 square feet. It is not considered reasonable due to its MaxSF/BR value of 6,261, which is above the MaxSF/BR value of 1,600. Therefore, the barrier for CNE B is considered feasible but not reasonable at this time and is not recommended for further consideration. A summary of the abatement for CNE B is shown in ***Table 4***.

<u>CNE C</u>

Design Year (2040) Build noise levels are predicted to exceed the NAC at 10 modeling sites representing 13 residences and 2 outdoor seating areas in CNE C. A barrier system was evaluated along the edge of shoulder of the proposed I-95 northbound C-D lanes. In total, the combined preliminary barrier system has a length of 2,811 feet (see ***Table 4***). The barrier system has an average height of 17 feet. In CNE C, the noise barrier system achieves feasible (>5 dB(A)) noise reductions at 18 receptor sites and achieves the design goal of an insertion loss of 7 dB(A) at 6 receptor sites as shown ***Appendix H.*** The total area for Barrier C is 47,956 square feet. It is considered reasonable due to its MaxSF/BR value of 1,599 which is below the MaxSF/BR value of 1,600. Therefore, Barrier C is considered feasible and reasonable at this time and is recommended for further consideration. A summary of the abatement for CNE C is shown in ***Table 4***.

CNE D

Design Year (2040) Build noise levels are predicted to exceed the NAC at three modeling sites representing the patio of the Hilton Garden Inn located on Hospitality Lane and two picnic areas located at the Virginia Welcome Center. The VDOT Noise Section acting as the agency decision authority does not desire a noise barrier for the Virginia Welcome Center at this time therefore the two impacted picnic area receptors where not considered in the barrier analysis. The single impacted receptor methodology was used to evaluate the impacted patio receptor per VDOT guidelines. Five auxiliary receptors were placed around the perimeter of the active use area associated with site D2 to ensure the extent of the outdoor use area is benefited. A barrier was evaluated for CNE D along the shoulder of the proposed I-95 southbound C-D lanes. In total, the preliminary barrier has a length of 276 feet (see ***Table 4***). The barrier has an average height of 30 feet. The noise barrier neither achieves feasible (>5 dB(A)) noise reductions at all six receptor sites around the extent of the outdoor use area associated with the impacted receptor nor does it achieve the design goal of an insertion loss of 7 dB(A) at any of the six receptor sites around the extent of the outdoor use area associated with the impacted receptor as shown in ***Appendix H***. The total area for the CNE D barrier system is 8,290 square feet. It is not considered reasonable due to its MaxSF/BR value of 8,290, which is above the MaxSF/BR value of 1,600. Therefore, the barrier for CNE D is considered not feasible and not reasonable at this time and is not recommended for further consideration. A summary of the abatement for CNE D is shown in ***Table 4***.

CNE E

Design Year (2040) Build noise levels are predicted to exceed the NAC at 10 modeling sites representing 25 residences and 2 playgrounds, and an outdoor seating area in CNE E. A barrier was evaluated along the edge of shoulder of the proposed I-95 northbound C-D lanes. In total, the preliminary barrier has a length of 1,974 feet (see ***Table 4***). The barrier has an average height of 19 feet. In CNE E, the noise barrier achieves feasible (>5 dB(A)) noise reductions at 30 receptor sites and achieves the design goal of an insertion loss of 7 dB(A) at 17 receptor sites as shown ***Appendix H.*** The total area for Barrier E is 36,637 square feet. It is considered reasonable due to its MaxSF/BR value of 678 which is below the MaxSF/BR value of 1,600. Therefore, Barrier E is considered feasible and reasonable at this time and is recommended for further consideration. A summary of the abatement for CNE E is shown in ***Table 4***.

CNE F

Design Year (2040) Build noise levels are predicted to exceed the NAC at one modeling site representing two residences on Riverside Parkway. The single impacted receptor methodology was used to evaluate the impacted patio receptor per VDOT guidelines. Five auxiliary receptors were placed around the perimeter of the active use area associated with site F2 to ensure the extent of the outdoor use area is benefited. A barrier was evaluated for CNE F along the shoulder of the proposed I-95 southbound C-D lanes. In total, the preliminary barrier has a length of 1,069 feet (see ***Table 4***). The barrier has an average height of 21.5 feet. The noise barrier achieves feasible (>5 dB(A)) noise reductions at all six receptor sites around the extent of the outdoor use area associated with the single impacted receptor. It also achieves the design goal of an insertion loss) of 7 dB(A) at four of the six receptor sites around the extent of the outdoor use area associated with the single impacted receptor as shown in ***Appendix H***. The total area for the CNE F barrier is 22,943 square feet. It is not considered reasonable due to its /BR value of 11,472, which is above the MaxSF/BR value of 1,600. Therefore, the barrier for CNE F is considered feasible but not reasonable at this time and is not recommended for further consideration. A summary of the abatement for CNE F is shown in ***Table 4***.

CNE G

Design Year (2040) Build noise levels are predicted to exceed the NAC at seven modeling sites representing ten residences in CNE G. Two barriers were evaluated separately for CNE G.

Barrier G1 is located along the shoulder of the proposed I-95 northbound to US 17 eastbound ramp where noise levels are predicted to exceed the NAC at one modeling site representing one residence at the intersection of Musselman Road and Short Road. Barrier G1 has a length of 1,149 feet (see ***Table 4***). The barrier has an average height of 24 feet. The noise barrier achieves feasible (>5 dB(A)) noise reductions at one receptor site. It does not achieve the design goal of an insertion loss of 7 dB(A) at any receptor sites as shown in ***Appendix H***. The single impacted receptor methodology was not used to evaluate the impact at modeling site G17; adjacent modeling sites were used to evaluate barrier effectiveness. The total area for the CNE G1 barrier system is 27,570 square feet. It is not considered reasonable due to its MaxSF/BR value of 27,570, which is above the MaxSF/BR value of 1,600. Therefore, the Barrier G1 is considered not feasible and not reasonable at this time and is not recommended for further consideration.

Barrier G2 is located along the I-95 northbound C-D lanes where noise levels are predicted to exceed the NAC at six modeling sites representing nine residences along Musselman Road and Krieger Lane. Barrier G2 has a length of 1,928 (see ***Table 4***). The barrier has an average height of 18 feet. The noise barrier achieves feasible (>5 dB(A)) noise reductions at six receptor sites representing 8 residences. It also achieves the design goal of an insertion loss of 7 dB(A) at four of the sites as shown in ***Appendix H.*** The total area for the Barrier G2 is 34,546 square feet. It is not considered reasonable due to its MaxSF/BR value of 4,318, which is above the MaxSF/BR value of 1,600. Therefore, the barrier system for CNE G2 is considered feasible but not reasonable at this time and is not recommended for further consideration. A summary of the abatement for CNE G is shown in ***Table 4***.

CNE K

Design Year (2040) Build noise levels are predicted to exceed the NAC at five modeling sites representing five residences. Site K7 is well outside of the 500 foot study area however was still evaluated due to its close proximity to the corridor, and the proposed barrier was extended to address the impact at this site. A barrier was evaluated for CNE K along the shoulder of I-95 northbound. In total, the preliminary barrier has a length of 3,001 feet (see ***Table 4***). The barrier has an average height of 28 feet. The noise barrier achieves feasible (>5 dB(A)) noise reductions at six receptor sites representing six residences. The barrier achieves the design goal of an insertion loss of 7 dB(A) at two receptor sites as shown in ***Appendix H***. The total area for the CNE K barrier is 82,808 square feet. It is not considered reasonable due to its MaxSF/BR value of 13,801, which is above the MaxSF/BR value of 1,600. Therefore, the barrier for CNE K is considered feasible but not reasonable at this time and is not recommended for furtherconsideration. A summary of the abatement for CNE K is shown in Table 4.

TABLE 4
Rappahannock River Crossing
Noise Abatement Reasonableness Evaluation

CNE	Barrier	Number of Benefited Land Uses	Combined Noise Barrier Length (ft.)	Average Noise Barrier Height (ft.)	Maximum Square Footage (MaxSF)	MaxSF per Benefited Land Use	Barrier Cost ($31 ft^2)[1]	Feasible	Reasonable
B	B	4	971	26	25,042	6,261	$776,302	Y	N
C	C	30	2,811	17	47,956	1,599	$1,486,636	Y	Y
D	D	1	276	30	8,290	8,290	$256,990	N	N
E	E	54	1,974	19	36,637	678	$1,135,747	Y	Y
F	F	2	1,069	22	22,943	11,472	$711,233	Y	N
G	G1	1	1,149	24	27,570	27,570	$854,670	N	N
	G2	8	1,928	18	34,546	4,318	$1,070,926	Y	N
K	K	6	3,001	28	82,808	13,801	$2,567,048	Y	N

48.50/ft^2 for projects with less than 50,000ft^2 of barrier construction, and $31/ft^2 for projects with more than 50,000ft^2 of feasible/reasonable barriers.
[1] Reduced cost of $31/ft^2 only applicable when barriers are considered both feasible and reasonable.

VIII. Construction Noise

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 as a result of roadway construction measures are anticipated to be temporary in nature and will cease upon completion of the project construction phase. A 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 2007 *Road and Bridge Specifications, Section 107.16(b.3), "Noise"*. 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 so as 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.

IX. Public Involvement/Local Officials Coordination

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. The aforementioned details are provided below and shown on the graphics in ***Figures 2-1*** through ***2-6***. Additional information about VDOT's noise abatement program has also been included in this section.

Sections 12.1 and 12.2 of VDOT's 2011 Highway Traffic Noise Impact Analysis Guidance Manual outline 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.

Entering the Quiet Zone 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 the noise. The following is a link to this brochure on FHWA's website: 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 is a very well-written and comprehensive guide addressing these noise-compatible land use planning strategies, with detailed information. This document is available through FHWA's website, at http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/audible_landscape/al00.cfm.

Also required under the revised FHWA and VDOT noise policies is information on the noise impact zones adjacent to project roadways in undeveloped lands. To determine these zones, noise levels are computed at various distances from the edge of the project roadways in each of the undeveloped areas of the project study area. The distances from the edge of the roadway to the NAC sound levels are then determined through interpolation. Distances vary in the project corridor due to changes in traffic volumes or terrain features. The distances for this project are summarized in ***Table 5.*** Any noise sensitive sites within these zones should be considered noise impacted if no barrier is present to reduce sound levels.

Noise level contours are lines of equal noise exposure that typically parallel roadway alignments. Highway traffic noise is considered a linear noise source and sound levels can drop considerably over distance. The degree that sound levels decrease can vary based on a number of different factors including objects that shield the roadway noise, terrain features and ground cover type (e.g., pavement, grass or snow). The use of noise level contours have become increasingly popular over the last several years, as they have been implemented in planning programs for undeveloped areas with roadway noise influence. Through conscious planning efforts and noise contour generation, municipal officials can restrict future development inside the noise impact zone (i.e., the area within the 66 dB(A) noise contour). ***Figures 2-1*** through ***2-6*** show the approximate 66 dB(A) noise level contours when considering the improvements made to the Rappahannock River Crossing Project with the Design Year (2040) traffic volumes, speeds and composition. ***Table 5*** shows the approximate distance of the 66 dB(A) contour line from the centerline of the Build Alternative to each CNE throughout the project area.

TABLE 5
Rappahannock River Crossing
CNE Specific 66 dB(A) Noise Contour Distances

CNE	Distance (feet)*
A	135 - 555
B	415 - 520
C	315 - 415
D	340 - 350
E	195 - 490
F	190 - 310
G	150 - 430
H	380
I	350 - 380
J	70 - 130
K	300 - 685

* Distance is from design edge of pavement

X.Conclusion

In summary, for the Build Alternative, a total of 45 receptors within CNEs B, C, D, E, F, G, and K representing 59 residences, two playgrounds, three outdoor seating areas, one hotel patio, and two picnic areas are predicted to experience noise impacts. Noise barriers were evaluated for CNEs B, C, D, E, F, G, and K. A total of two barriers benefitting CNEs C and E were determined to be both feasible and reasonable, as shown in ***Figures 2-1*** through ***2-6***. The findings in this report are based on conceptual and preliminary design information. Firm commitments on noise abatement will not be made until the Final Design phase of the project.

APPENDIX A

NOISE METER & ACOUSTICAL CALIBRATOR CALIBRATION CERTIFICATES

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

ACOUSTICAL CALIBRATOR

Manufactured by:	METROSONICS
Model No:	CL304
Serial No:	4583
Calibration Recall No:	20965

Submitted By:

Customer:	CHUCK WEAVER
Company:	MCCORMICK TAYLOR
Address:	509 S EXETER STREET/ 4TH FLOOR
	BALTIMORE MD 21202

The subject instrument was calibrated to the indicated specification using standards traceable to the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. CL304 METR

Upon receipt for Calibration, the instrument was found to be:

Within (X) see attached Report of Calibration.

the tolerance of the indicated specification.

West Caldwell Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL STD 45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025

Note: With this Certificate, Report of Calibration is included.

Approved by:

Calibration Date: 27-Jun-11

Fc

Certificate No: 20965 - 7

Felix Christopher
Quality Manager

QA Doc. #1051 Rev. 2.0 10/1/01

Certificate Page 1 of 1

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.
Calibration Traceable To N. I. S. T.
ACCREDITED
Phone: (585) 586-3900 Fax.: (585) 586-4327

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

METROLOGGER

Manufactured by:	METROSONICS
Model No:	db-3080
Serial No:	2555
Calibration Recall No:	20965

Submitted By:

Customer:	CHUCK WEAVER
Company:	MCCORMICK TAYLOR
Address:	509 S EXETER STREET/ 4TH FLOOR
	BALTIMORE MD 21202

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the tolerance of the indicated specification.

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Approved by:

FC

Felix Christopher
Quality Manager

Calibration Date: 27-Jun-11

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ACCREDITATION ISO/IEC 17025 ACCREDITED 1533.01

Phone: (585) 586-3900 Fax.: (585) 586-4327

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

METROLOGGER

Manufactured by:	METROSONICS
Model No:	db-3080
Serial No:	2556
Calibration Recall No:	20965

Submitted By:

Customer:	CHUCK WEAVER
Company:	MCCORMICK TAYLOR
Address:	509 S EXETER STREET/ 4TH FLOOR
	BALTIMORE MD 21202

The subject instrument was calibrated to the indicated specification using standards traceable to the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

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Upon receipt for Calibration, the instrument was found to be:

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the tolerance of the indicated specification.

West Caldwell Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL STD 45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025

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Approved by:

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Felix Christopher
Quality Manager

Calibration Date: 27-Jun-11

Certificate No: 20965 - 2

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Calibration Traceable To N. I. S. T.
ACCREDITATION ISO/IEC 17025 ACCREDITED 1533.01
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West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

METROLOGGER

Manufactured by:	METROSONICS
Model No:	db-3080
Serial No:	2558
Calibration Recall No:	20965

Submitted By:

Customer:	CHUCK WEAVER
Company:	MCCORMICK TAYLOR
Address:	509 S EXETER STREET/ 4TH FLOOR
	BALTIMORE MD 21202

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West Caldwell Calibration Laboratories' calibration control system meets the following requirements, ISO 10012-1 MIL STD 45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025

Note: With this Certificate, Report of Calibration is included.

Approved by:

Calibration Date: 27-Jun-11

Certificate No: 20965 - 4

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Felix Christopher
Quality Manager

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ACCREDITATION ISO/IEC 17025 ACCREDITED 1533.01

Phone: (585) 586-3900 Fax.: (585) 586-4327

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

METROLOGGER

Manufactured by:	METROSONICS
Model No:	db-3080
Serial No:	2559
Calibration Recall No:	20965

Submitted By:

Customer:	CHUCK WEAVER
Company:	MCCORMICK TAYLOR
Address:	509 S EXETER STREET/ 4TH FLOOR
	BALTIMORE MD 21202

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West Caldwell Calibration Laboratories Procedure No. db-3080 METR

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Calibration Date: 27-Jun-11

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Approved by:

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Felix Christopher
Quality Manager

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ACCREDITED

Phone: (585) 586-3900 Fax.: (585) 586-4327

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

ACOUSTICAL CALIBRATOR

Manufactured by:	METROSONICS
Model No:	CL304
Serial No:	4583
Calibration Recall No:	23199

Submitted By:

Customer:	JACK CRAMER	
Company:	McCORMICK TAYLOR, INC.	
Address:	5 CAPITAL DRIVE	
	HARRISBURG	PA 17110

The subject instrument was calibrated to the indicated specification using standards traceable to the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. CL304 METR

Upon receipt for Calibration, the instrument was found to be:

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Note: With this Certificate, Report of Calibration is included.

Approved by:

Calibration Date: 09-Aug-13

FC

Certificate No: 23199 - 6

Felix Christopher (QA Mgr.)

QA Doc. #1051 Rev. 2.0 10/1/01

Certificate Page 1 of 1

ISO/IEC 17025:2005

West Caldwell Calibration Laboratories, Inc.

uncompromised calibration

1575 State Route 96, Victor, NY 14564, U.S.A.

ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

METROLOGGER

Manufactured by:	**METROSONICS**
Model No:	**db-3080**
Serial No:	**2557**
Calibration Recall No:	**23199**

Submitted By:

Customer:	**JACK CRAMER**
Company:	**McCORMICK TAYLOR, INC.**
Address:	**5 CAPITAL DRIVE**
	HARRISBURG PA 17110

The subject instrument was calibrated to the indicated specification using standards traceable to the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. db-3080 METR

Upon receipt for Calibration, the instrument was found to be:

Outside (X) see attached Report of Calibration.

the tolerance of the indicated specification.

West Caldwell Calibration Laboratories' calibration control system meets the requirements, ISO 10012-1 MIL-STD-45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025.

Note: With this Certificate, Report of Calibration is included.

Approved by:

Calibration Date: 12-Aug-13

FC

Certificate No: 23199 - 3

Felix Christopher (QA Mgr.)

ISO/IEC 17025:2005

QA Doc. #1051 Rev. 2.0 10/1/01

Certificate Page 1 of 1

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1575 State Route 96, Victor, NY 14564, U.S.A.

ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

PERMISSIBLE SOUND LEVEL METER

Manufactured by:	METROSONICS
Model No:	db-3080
Serial No:	3905
Calibration Recall No:	23131

Submitted By:

Customer:	JACK CRAMER
Company:	McCORMICK TAYLOR, INC.
Address:	5 CAPITAL DRIVE
	HARRISBURG PA 17110

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West Caldwell Calibration Laboratories Procedure No. db-3080 METR

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the tolerance of the indicated specification.

West Caldwell Calibration Laboratories' calibration control system meets the requirements, ISO 10012-1 MIL-STD-45662A, ANSI/NCSL Z540-1, IEC Guide 25, ISO 9001:2008 and ISO 17025.

Note: With this Certificate, Report of Calibration is included.

Approved by:

Calibration Date: 26-Jun-13

FC

Certificate No: 23131 - 3

Felix Christopher (QA Mgr.)

ISO/IEC 17025:2005

QA Doc. #1051 Rev. 2.0 10/1/01

Certificate Page 1 of 1

West Caldwell Calibration Laboratories, Inc.

uncompromised calibration

1575 State Route 96, Victor, NY 14564, U.S.A.

ACCREDITED

Calibration Lab. Cert. # 1533.01

APPENDIX B
NOISE MONITORING DATA FORMS

Rappahannock River Crossing

Site # ST13 **Description :** 247 Riverside Pkwy, Fredericksburg, VA 22406

Done By: TRH/RVH

Meter: → 2556

Monitoring Data:

Date	1/10/12		
Start Time	11:19 AM		
End Time	11:34 AM		
Duration	15 MIN	MIN	MIN
Leq.	56.4		

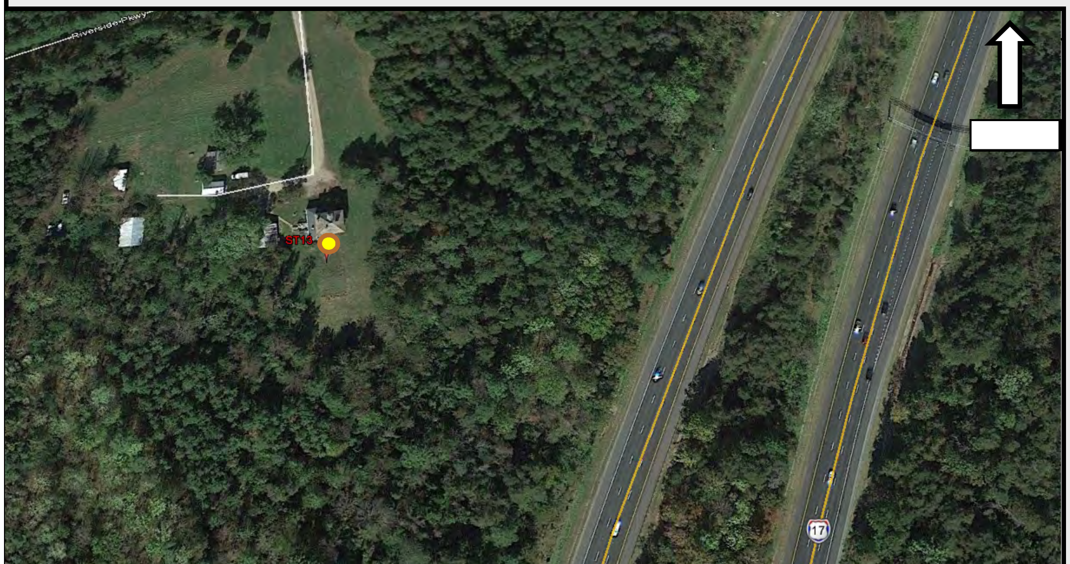
Atmospheric Data	
Wind Speed (mph)	N/A
Temp. (°F)	N/A
Humidity (%)	N/A

Traffic Data

Roadway	I-95					
Direction	NB	SB				
Traffic Total:	696	873	0	0	0	0
Cars	593	715				
MT	8	27				
HT	94	130				
Buses	1	1				
Motorcycles	0	0				

Weather Conditions

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____



Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

Profile View:

McCormick Taylor, Inc

Rappahannock River Crossing

Site # ST14 **Description :** 8 Krieger Lane, Fredericksburg, VA 22405

Done By: TRH/RVH

Meter: → 2559

Monitoring Data:

				Atmospheric Data
Date	1/10/12			Wind Speed (mph): N/A
Start Time	9:00 AM			Temp. (°F): N/A
End Time	9:15 AM			Humidity (%): N/A
Duration	15 MIN	MIN	MIN	
Leq.	**62.2**			

Traffic Data

Roadway	I-95		Warrenton			
Direction	NB	SB				
Traffic Total:	937	708	475	0	0	0
Cars	804	610	440			
MT	38	4	25			
HT	95	90	10			
Buses	0	4				
Motorcycles	0	0				

Weather Conditions

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____

Profile View:

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

McCormick Taylor, Inc

Rappahannock River Crossing

Site # ST15 **Description :** 118 Musselman Rd, Fredericksburg, VA 22405

Done By: TRH/RVH

Meter: → 2558

Monitoring Data:

Date	1/10/12		
Start Time	9:00 AM		
End Time	9:15 AM		
Duration	15 MIN	MIN	MIN
Leq.	**59.2**		

Atmospheric Data	
Wind Speed (mph)	N/A
Temp. (°F)	N/A
Humidity (%)	N/A

Traffic Data

Roadway	I-95		Warrenton			
Direction	NB	SB				
Traffic Total:	937	708	475	0	0	0
Cars	804	610	440			
MT	38	4	25			
HT	95	90	10			
Buses	0	4				
Motorcycles	0	0				

Weather Conditions

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

Profile View:

McCormick Taylor, Inc

Rappahannock River Crossing

Site # ST16 **Description :** 401 Short St, Fredericksburg, VA 22405

Done By: TRH/RVH

Meter: → 2555

Monitoring Data:						
Date	1/10/12					
Start Time	9:05 AM					
End Time	9:15 AM					
Duration	10 MIN		MIN		MIN	
Leq.	62.5					
Traffic Data						
Roadway	I-95		Warrenton			
Direction	NB	SB				
Traffic Total:	937	708	475	0	0	0
Cars	804	610	440			
MT	38	4	25			
HT	95	90	10			
Buses	0	4				
Motorcycles	0	0				
Weather Conditions						

Atmospheric Data	
Wind Speed (mph)	N/A
Temp. (°F)	N/A
Humidity (%)	N/A

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____

Profile View:

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

McCormick Taylor, Inc

Rappahannock River Crossing

Site # ST17 **Description :** 152 Hughey Ct, Fredericksburg, VA 22401

Done By: TRH/RVH

Meter: → 2559

Monitoring Data:

Date	1/10/12		
Start Time	10:20 AM		
End Time	10:35 AM		
Duration	15 MIN	MIN	MIN
Leq.	**62.7**		

Atmospheric Data

Wind Speed (mph)	N/A
Temp. (°F)	N/A
Humidity (%)	N/A

Traffic Data

Roadway	I-95					
Direction	NB	SB				
Traffic Total:	696	873	0	0	0	0
Cars	593	715				
MT	8	27				
HT	94	130				
Buses	1	1				
Motorcycles	0	0				

Weather Conditions

Site Data: Site Surface (alpha): ___ Shielding Factor : ___ Pavement Type : ___

Profile View:

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

McCormick Taylor, Inc

Rappahannock River Crossing

Site # ST18 **Description :** 1002 Heritage Park Dr, Fredericksburg, VA 22401

Done By: TRH/RVH

Meter: → 2558

Monitoring Data:			
Date	1/10/12		
Start Time	10:20 AM		
End Time	10:35 AM		
Duration	15 MIN	MIN	MIN
Leq.	**60.7**		

Atmospheric Data	
Wind Speed (mph)	N/A
Temp. (°F)	N/A
Humidity (%)	N/A

Traffic Data

Roadway	I-95					
Direction	NB	SB				
Traffic Total:	696	873	0	0	0	0
Cars	593	715				
MT	8	27				
HT	94	130				
Buses	1	1				
Motorcycles	0	0				

Weather Conditions

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____

Profile View:

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

McCormick Taylor, Inc

Rappahannock River Crossing

Site # ST19 **Description :** 1010 Heritage Park Dr, Fredericksburg, VA 22401

Done By: TRH/RVH

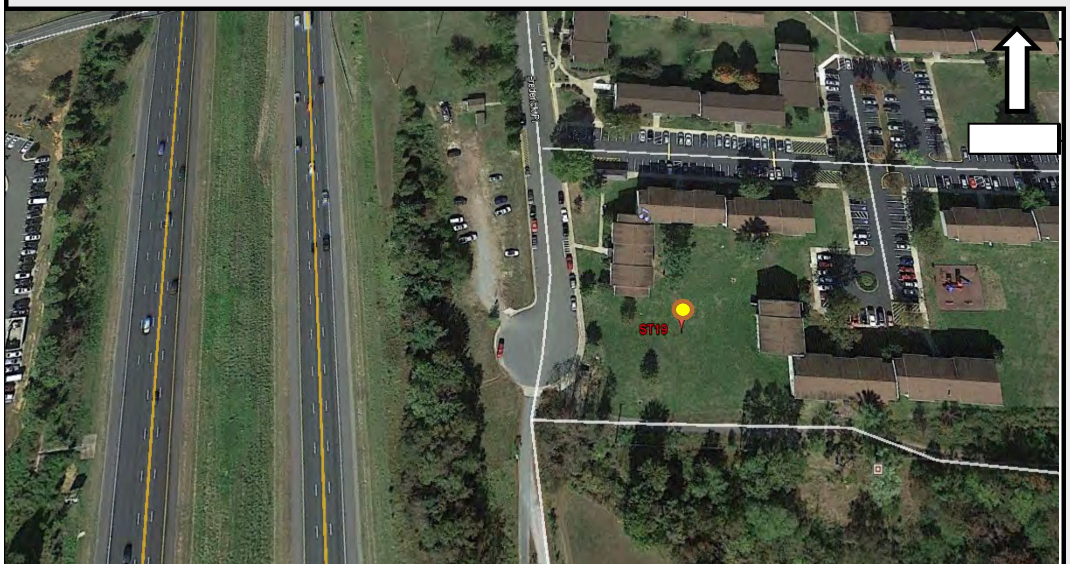
Meter: → 2555

Monitoring Data:				
Date	1/10/12			
Start Time	10:20 AM			
End Time	10:35 AM			
Duration	15 MIN	MIN		MIN
Leq.	**62.0**			

Atmospheric Data
Wind Speed (mph)
N/A
Temp. (°F)
N/A
Humidity (%)
N/A

Traffic Data						
Roadway	I-95					
Direction	NB	SB				
Traffic Total:	696	873	0	0	0	0
Cars	593	715				
MT	8	27				
HT	94	130				
Buses	1	1				
Motorcycles	0	0				
Weather Conditions						

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____



Profile View:

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

McCormick Taylor, Inc

Rappahannock River Crossing

Site # M1 **Description :** 1419 Preserve Lane, Fredericksburg, VA 22401

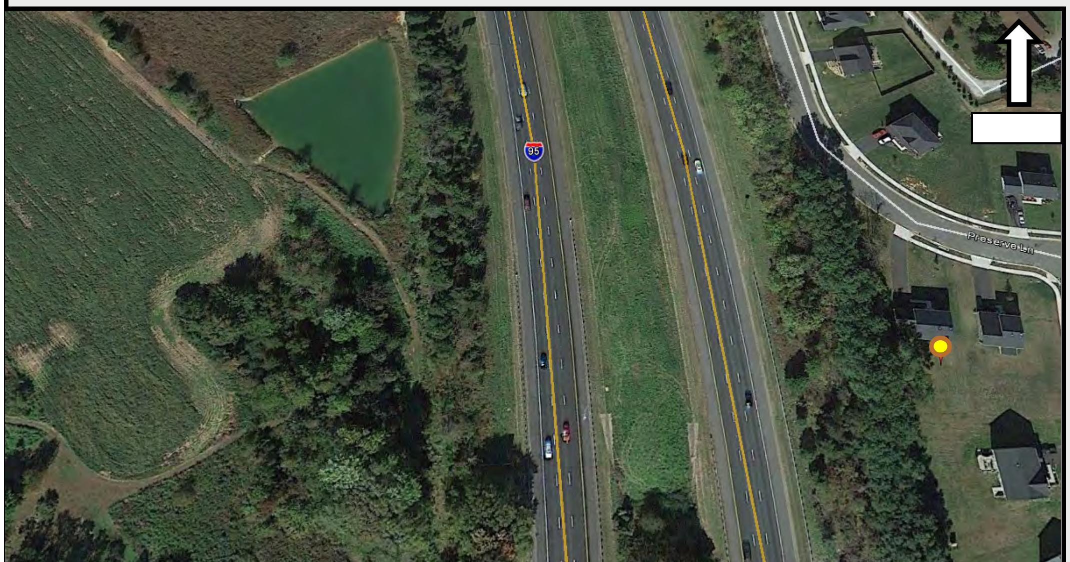
Done By: TRH

Meter: → 3905

Monitoring Data:						
Date	5/13/14					
Start Time	11:55 AM					
End Time	12:10 PM					
Duration	15 MIN		MIN		MIN	
Leq.	**63.4**					
Traffic Data						
Roadway	I-95					
Direction	NB/EB					
Traffic Total:	962	0	0	0	0	0
Cars	812					
MT	43					
HT	101					
Buses	3					
Motorcycles	3					
Weather Conditions						

Atmospheric Data
Wind Speed (mph): **N/A**
Temp. (°F): **N/A**
Humidity (%): **N/A**

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____



Profile View:

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

McCormick Taylor, Inc

Rappahannock River Crossing

Site # M2 **Description :** 1416 Preserve Lane, Fredericksburg, VA 22401

Done By: TRH

Meter: → 2557

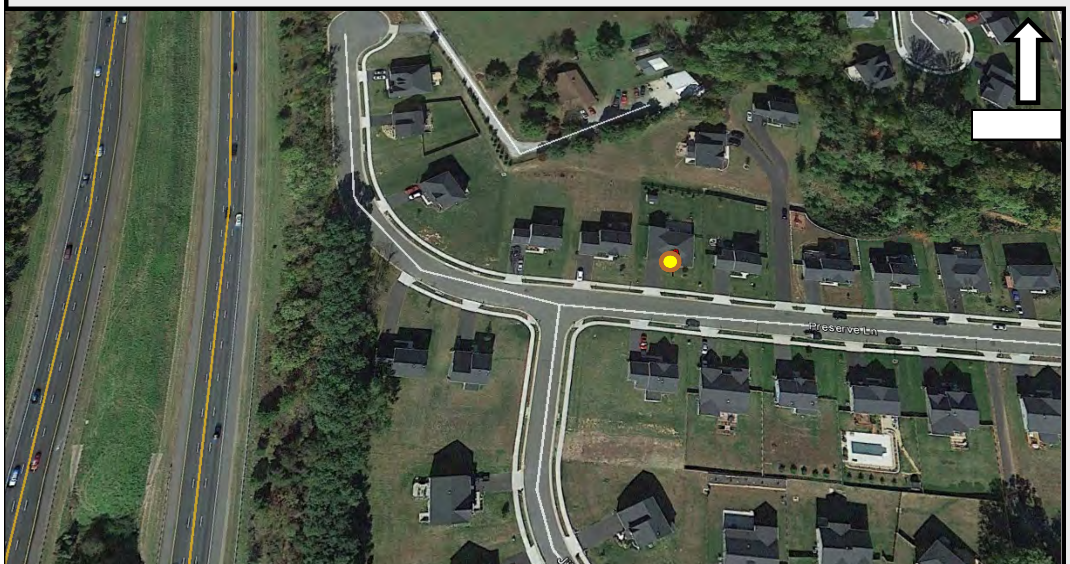
Monitoring Data:				
Date	5/13/14			
Start Time	11:55 AM			
End Time	12:10 PM			
Duration	15 MIN		MIN	MIN
Leq.	**60.2**			

Atmospheric Data
Wind Speed (mph)
N/A
Temp. (°F)
N/A
Humidity (%)
N/A

Traffic Data						
Roadway	I-95					
Direction	NB/EB					
Traffic Total:	962	0	0	0	0	0
Cars	812					
MT	43					
HT	101					
Buses	3					
Motorcycles	3					

Weather Conditions

Site Data: Site Surface (alpha): ____ Shielding Factor : ____ Pavement Type : ____



Profile View:

Monitoring Notes

AM Peak:

Off-Peak:

PM Peak

APPENDIX C
NOISE MONITORING DATA (2012 & 2014)

****************************** ******** ******* ***************
Filename..............2556
Test Location..........
Employee Name..........
Employee Number........
Department............

Calibrator Type........
Calibrator Cal. Date...
****************************** ******** ******* ***************

METROSONICS db-3080 V1.11 SERI AL # 2556
REPORT PRINTED ON 01/11/12 at 10 :27:57

User ID: ________________________ _______

LOGGING STARTED......01/10/12 at 11:19:00
TOTAL LOGGING TIME...0 DAYS 00:1 5:13
LOGGING STOPPED......01/10/12 at 11:34:13
TOTAL INTERVALS......61
INTERVAL LENGTH......00:00:15

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME....01/ 10/12 AT 0 :27
PRE-TEST CALIBRATION RANGE...39. 6 TO 139.6 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav ...NONE

<<< SUMMARY REPORT FOR TEST NUMB ER 2 OF 4 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80dB 90 dB
CEILING...............115dB

DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 56.4dB
Lav (80)...... 39.6dB
Lav (90)...... 39.6dB
SEL............ 85.9dB

TWA............ 41.5dB
TWA (80)...... 39.6dB
TWA (90)...... 39.6dB

Lmax........... 61.6dB 01/10/1 2 at 11:32:53
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)........ 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)........ 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 2 >>>

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA	dBA		dBC	dBA	dBA
1/10/2012					
11:19:00	55.1	56.8	UNDER	56.6	54.6
11:19:15	56.5	57.2	UNDER	56.6	55.6
11:19:30	55.9	56.6	UNDER	56.6	55.6
11:19:45	55.9	56.9	UNDER	56.6	55.6
11:20:00	56.2	57.2	UNDER	56.6	55.6
11:20:15	55.7	56.1	UNDER	56.6	55.6
11:20:30	56.1	56.9	UNDER	56.6	55.6
11:20:45	55.1	56.0	UNDER	55.6	54.6
11:21:00	54.8	55.7	UNDER	55.6	54.6
11:21:15	56.0	56.7	UNDER	56.6	55.6
11:21:30	53.8	55.4	UNDER	54.6	52.6
11:21:45	55.0	55.5	UNDER	55.6	53.6
11:22:00	55.6	57.1	UNDER	56.6	53.6
11:22:15	55.4	56.3	UNDER	56.6	54.6
11:22:30	56.9	57.7	UNDER	57.6	56.6
11:22:45	57.6	58.4	UNDER	58.6	56.6
11:23:00	57.6	58.8	UNDER	58.6	56.6
11:23:15	58.2	59.0	UNDER	58.6	57.6
11:23:30	58.6	59.7	UNDER	59.6	57.6
11:23:45	56.3	57.6	UNDER	57.6	55.6

TIME	Lav	Lmax		Lpk	L -10	L(99.9)
dBA	dBA			dBC	dBA	dBA
			1/10/2012			
11:24:00	56.7	57.2		UNDER	56.6	56.6
11:24:15	57.4	60.4		UNDER	59.6	55.6
11:24:30	57.2	59.0		UNDER	58.6	56.6
11:24:45	57.6	58.8		UNDER	58.6	56.6
11:25:00	56.6	57.7		UNDER	57.6	55.6
11:25:15	57.3	57.9		UNDER	57.6	56.6
11:25:30	57.4	57.7		UNDER	57.6	56.6
11:25:45	57.2	58.4		UNDER	58.6	54.6
11:26:00	55.4	56.1		UNDER	56.6	54.6
11:26:15	55.7	56.5		UNDER	56.6	54.6
11:26:30	56.2	56.8		UNDER	56.6	55.6
11:26:45	57.6	58.1		UNDER	58.6	56.6
11:27:00	57.1	57.9		UNDER	57.6	56.6
11:27:15	56.5	57.6		UNDER	57.6	55.6
11:27:30	56.2	56.7		UNDER	56.6	55.6
11:27:45	55.2	56.0		UNDER	55.6	54.6
11:28:00	55.4	56.8		UNDER	56.6	54.6
11:28:15	56.2	56.9		UNDER	56.6	55.6
11:28:30	56.8	57.6		UNDER	57.6	56.6
11:28:45	57.4	58.2		UNDER	58.6	56.6
11:29:00	56.8	57.3		UNDER	57.6	56.6
11:29:15	56.3	57.7		UNDER	57.6	55.6
11:29:30	56.9	57.5		UNDER	57.6	55.6
11:29:45	55.5	56.8		UNDER	56.6	55.6
11:30:00	56.1	58.0		UNDER	57.6	54.6
11:30:15	56.8	57.8		UNDER	57.6	55.6
11:30:30	56.9	58.4		UNDER	58.6	55.6
11:30:45	55.4	57.2		UNDER	56.6	54.6
11:31:00	57.3	58.1		UNDER	58.6	55.6
11:31:15	57.0	57.7		UNDER	57.6	56.6
11:31:30	56.2	57.3		UNDER	57.6	55.6
11:31:45	54.7	55.8		UNDER	55.6	54.6
11:32:00	55.3	56.0		UNDER	55.6	54.6
11:32:15	55.0	55.8		UNDER	55.6	54.6
11:32:30	55.7	57.9		UNDER	57.6	54.6
11:32:45	58.8	61.6		UNDER	61.6	55.6
11:33:00	54.9	55.9		UNDER	55.6	54.6
11:33:15	56.5	57.4		UNDER	57.6	55.6
11:33:30	55.2	56.4		UNDER	55.6	54.6
11:33:45	55.1	55.9		UNDER	55.6	54.6
11:34:00	54.9	56.0		UNDER	55.6	53.6

****************************** ******** ******* ***************

Filename..............2559
Test Location..........
Employee Name..........
Employee Number........
Department............

Calibrator Type........
Calibrator Cal. Date...

****************************** ******** ******* ***************

METROSONICS db-3080 V1.11 SERI AL # 2559
REPORT PRINTED ON 01/11/12 at 10 :44:15

User ID: ________________________ _______

LOGGING STARTED......01/10/12 at 9:00:00
TOTAL LOGGING TIME...0 DAYS 00:1 5:00
LOGGING STOPPED......01/10/12 at 9:15:00
TOTAL INTERVALS......60
INTERVAL LENGTH......00:00:15

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME....01/ 10/12 AT 0 :05
PRE-TEST CALIBRATION RANGE...37. 9 TO 137.9 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav ...NONE

<<< SUMMARY REPORT FOR TEST NUMB ER 1 OF 5 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80dB 90 dB
CEILING...............115dB

DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 62.2dB
Lav (80)...... 37.9dB
Lav (90)...... 37.9dB
SEL............ 91.6dB

TWA............ 47.2dB
TWA (80)...... 37.9dB
TWA (90)...... 37.9dB

Lmax........... 68.5dB 01/10/1 2 at 09:12:19
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)........ 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)........ 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 1 >>>

TIME	Lav	Lmax	Lpk L	-10	L(99.9)
dBA	dBA		dBC	dBA	dBA
1/10/2012					
09:00:00	61.5	63.0	UNDER	62.9	59.9
09:00:15	61.9	64.4	UNDER	64.9	59.9
09:00:30	63.2	64.8	UNDER	64.9	61.9
09:00:45	62.5	63.2	UNDER	63.9	62.9
09:01:00	62.9	63.8	UNDER	63.9	62.9
09:01:15	63.0	64.7	UNDER	64.9	61.9
09:01:30	62.9	64.0	UNDER	63.9	62.9
09:01:45	62.9	63.8	UNDER	63.9	62.9
09:02:00	62.5	63.5	UNDER	62.9	61.9
09:02:15	61.0	61.5	UNDER	61.9	60.9
09:02:30	62.6	64.5	UNDER	64.9	60.9
09:02:45	60.9	61.8	UNDER	61.9	60.9
09:03:00	59.6	60.6	UNDER	60.9	58.9
09:03:15	60.0	60.8	UNDER	60.9	59.9
09:03:30	61.4	62.0	UNDER	61.9	60.9
09:03:45	60.0	61.3	UNDER	61.9	59.9
09:04:00	60.5	62.0	UNDER	62.9	59.9
09:04:15	61.6	62.5	UNDER	62.9	60.9
09:04:30	62.5	63.1	UNDER	62.9	61.9
09:04:45	61.0	62.5	UNDER	62.9	59.9

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA	dBA		dBC	dBA	dBA
		1/10/2012			
09:05:00	60.9	62.4	UNDER	62.9	60.9
09:05:15	62.2	62.9	UNDER	62.9	60.9
09:05:30	59.4	60.4	UNDER	59.9	58.9
09:05:45	60.1	61.6	UNDER	61.9	57.9
09:06:00	60.6	62.2	UNDER	62.9	57.9
09:06:15	61.3	61.7	UNDER	61.9	60.9
09:06:30	59.9	61.7	UNDER	61.9	57.9
09:06:45	62.0	62.5	UNDER	62.9	61.9
09:07:00	61.8	62.6	UNDER	62.9	61.9
09:07:15	61.9	62.9	UNDER	62.9	60.9
09:07:30	62.8	64.4	UNDER	63.9	61.9
09:07:45	62.1	63.9	UNDER	63.9	61.9
09:08:00	61.8	62.9	UNDER	62.9	61.9
09:08:15	63.3	65.2	UNDER	65.9	62.9
09:08:30	62.1	64.6	UNDER	64.9	60.9
09:08:45	63.7	66.4	UNDER	66.9	61.9
09:09:00	61.8	63.7	UNDER	62.9	60.9
09:09:15	63.0	64.0	UNDER	63.9	61.9
09:09:30	64.1	65.2	UNDER	64.9	62.9
09:09:45	61.7	64.4	UNDER	63.9	60.9
09:10:00	62.9	66.0	UNDER	65.9	61.9
09:10:15	60.2	62.0	UNDER	61.9	58.9
09:10:30	62.6	63.4	UNDER	63.9	61.9
09:10:45	65.0	66.4	UNDER	66.9	61.9
09:11:00	64.3	66.3	UNDER	64.9	61.9
09:11:15	61.7	62.5	UNDER	62.9	60.9
09:11:30	61.5	62.2	UNDER	62.9	61.9
09:11:45	61.8	62.5	UNDER	62.9	61.9
09:12:00	61.8	62.8	UNDER	62.9	60.9
09:12:15	65.2	68.5	UNDER	67.9	61.9
09:12:30	62.0	63.2	UNDER	62.9	61.9
09:12:45	61.1	61.6	UNDER	61.9	60.9
09:13:00	61.9	63.3	UNDER	63.9	60.9
09:13:15	61.3	62.4	UNDER	62.9	59.9
09:13:30	62.1	62.9	UNDER	62.9	60.9
09:13:45	60.5	62.4	UNDER	61.9	59.9
09:14:00	63.0	63.6	UNDER	63.9	62.9
09:14:15	62.5	63.6	UNDER	63.9	61.9
09:14:30	63.5	64.6	UNDER	64.9	62.9
09:14:45	62.7	63.6	UNDER	63.9	61.9

****************************** ******** ******* ***************

Filename..............2558
Test Location..........
Employee Name..........
Employee Number........
Department............

Calibrator Type........
Calibrator Cal. Date...

****************************** ******** ******* ***************

METROSONICS db-3080 V1.11 SERI AL # 2558
REPORT PRINTED ON 01/11/12 at 10 :34:07

User ID: ________________________ _______

LOGGING STARTED......01/10/12 at 9:00:00
TOTAL LOGGING TIME...0 DAYS 00:1 5:00
LOGGING STOPPED......01/10/12 at 9:15:00
TOTAL INTERVALS......60
INTERVAL LENGTH......00:00:15

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME....01/ 10/12 AT 0 :26
PRE-TEST CALIBRATION RANGE...40. 3 TO 140.3 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav ...NONE

<<< SUMMARY REPORT FOR TEST NUMB ER 1 OF 5 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80dB 90 dB
CEILING...............115dB

DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 59.2dB
Lav (80)...... 40.3dB
Lav (90)...... 40.3dB
SEL............ 88.6dB

TWA............ 44.2dB
TWA (80)...... 40.3dB
TWA (90)...... 40.3dB

Lmax........... 62.4dB 01/10/1 2 at 09:11:05
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)........ 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)........ 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 1 >>>

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA	dBA		dBC	dBA	dBA
		1/10/2012			
09:00:00	60.0	61.3	UNDER	61.3	58.3
09:00:15	57.6	58.8	UNDER	58.3	56.3
09:00:30	60.7	62.0	UNDER	61.3	58.3
09:00:45	59.2	61.6	UNDER	60.3	58.3
09:01:00	59.5	60.0	UNDER	60.3	59.3
09:01:15	60.5	61.2	UNDER	61.3	59.3
09:01:30	58.6	59.9	UNDER	59.3	57.3
09:01:45	59.2	59.6	UNDER	59.3	58.3
09:02:00	59.4	60.4	UNDER	60.3	58.3
09:02:15	58.5	60.0	UNDER	60.3	57.3
09:02:30	59.0	60.4	UNDER	59.3	58.3
09:02:45	59.0	60.4	UNDER	60.3	57.3
09:03:00	58.4	59.6	UNDER	59.3	57.3
09:03:15	56.7	57.6	UNDER	57.3	56.3
09:03:30	57.4	58.4	UNDER	58.3	56.3
09:03:45	58.1	58.8	UNDER	58.3	56.3
09:04:00	57.0	58.1	UNDER	57.3	56.3
09:04:15	58.6	59.4	UNDER	59.3	58.3
09:04:30	58.3	59.4	UNDER	59.3	57.3
09:04:45	59.3	59.6	UNDER	59.3	58.3

TIME dBA	Lav dBA	Lmax		Lpk dBC	L dBA	-10	L(99.9) dBA
			1/10/2012				
09:05:00	57.5	58.8		UNDER		58.3	56.3
09:05:15	58.8	60.4		UNDER		60.3	56.3
09:05:30	58.5	60.4		UNDER		59.3	57.3
09:05:45	57.9	58.8		UNDER		58.3	57.3
09:06:00	56.4	57.6		UNDER		57.3	55.3
09:06:15	58.4	59.2		UNDER		59.3	56.3
09:06:30	57.3	59.2		UNDER		58.3	54.3
09:06:45	58.0	60.0		UNDER		59.3	55.3
09:07:00	59.2	60.0		UNDER		60.3	58.3
09:07:15	59.6	60.0		UNDER		60.3	58.3
09:07:30	59.7	60.4		UNDER		60.3	59.3
09:07:45	60.4	61.2		UNDER		61.3	59.3
09:08:00	59.6	60.4		UNDER		60.3	58.3
09:08:15	60.2	61.2		UNDER		61.3	58.3
09:08:30	60.5	62.0		UNDER		61.3	58.3
09:08:45	59.7	60.4		UNDER		60.3	58.3
09:09:00	60.6	62.3		UNDER		62.3	58.3
09:09:15	59.0	59.8		UNDER		59.3	58.3
09:09:30	60.5	61.6		UNDER		61.3	59.3
09:09:45	60.6	61.6		UNDER		61.3	58.3
09:10:00	58.6	59.6		UNDER		59.3	57.3
09:10:15	59.0	59.6		UNDER		59.3	57.3
09:10:30	58.8	60.8		UNDER		60.3	56.3
09:10:45	59.5	60.8		UNDER		60.3	58.3
09:11:00	61.3	62.4		UNDER		62.3	60.3
09:11:15	59.5	61.3		UNDER		61.3	57.3
09:11:30	59.3	60.4		UNDER		60.3	58.3
09:11:45	58.9	59.5		UNDER		59.3	58.3
09:12:00	59.2	59.9		UNDER		59.3	58.3
09:12:15	59.4	61.6		UNDER		61.3	58.3
09:12:30	60.3	62.0		UNDER		61.3	58.3
09:12:45	58.8	59.2		UNDER		59.3	58.3
09:13:00	58.5	58.9		UNDER		58.3	58.3
09:13:15	58.6	59.6		UNDER		59.3	57.3
09:13:30	59.4	60.1		UNDER		60.3	58.3
09:13:45	59.0	59.7		UNDER		59.3	58.3
09:14:00	59.2	60.1		UNDER		59.3	58.3
09:14:15	59.2	59.6		UNDER		59.3	58.3
09:14:30	59.5	60.8		UNDER		60.3	58.3
09:14:45	59.8	60.8		UNDER		60.3	58.3

****************************** ******** ******* ***************
Filename..............2555
Test Location..........
Employee Name..........
Employee Number........
Department............

Calibrator Type........
Calibrator Cal. Date...
****************************** ******** ******* ***************

METROSONICS db-3080 V1.11 SERI AL # 2555
REPORT PRINTED ON 01/11/12 at 10 :15:45

User ID: ________________________ _______

LOGGING STARTED......01/10/12 at 9:05:00
TOTAL LOGGING TIME...0 DAYS 00:1 0:00
LOGGING STOPPED......01/10/12 at 9:15:00
TOTAL INTERVALS......40
INTERVAL LENGTH......00:00:15

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME....01/ 10/12 AT 0 :28
PRE-TEST CALIBRATION RANGE...39. 1 TO 139.1 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav ...NONE

<<< SUMMARY REPORT FOR TEST NUMB ER 1 OF 5 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80dB 90 dB
CEILING...............115dB

DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 62.5dB
Lav (80)...... 39.1dB
Lav (90)...... 39.1dB
SEL............ 90.2dB

TWA............ 45.8dB
TWA (80)...... 39.1dB
TWA (90)...... 39.1dB

Lmax........... 67.6dB 01/10/1 2 at 09:11:05
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)........ 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)........ 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 1 >>>

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA	dBA		dBC	dBA	dBA
1/10/2012					
09:05:00	64.0	65.4	UNDER	64.1	62.1
09:05:15	61.2	62.8	UNDER	62.1	59.1
09:05:30	60.7	62.0	UNDER	61.1	59.1
09:05:45	60.7	61.5	UNDER	61.1	60.1
09:06:00	60.9	62.2	UNDER	62.1	60.1
09:06:15	63.4	64.9	UNDER	64.1	61.1
09:06:30	62.2	63.9	UNDER	63.1	60.1
09:06:45	61.7	62.7	UNDER	62.1	60.1
09:07:00	62.3	63.1	UNDER	63.1	60.1
09:07:15	61.7	62.9	UNDER	62.1	61.1
09:07:30	62.8	63.7	UNDER	63.1	61.1
09:07:45	61.6	62.8	UNDER	62.1	60.1
09:08:00	63.6	66.4	UNDER	65.1	61.1
09:08:15	65.5	66.4	UNDER	66.1	63.1
09:08:30	63.2	65.1	UNDER	64.1	61.1
09:08:45	62.1	62.6	UNDER	62.1	61.1
09:09:00	62.3	63.5	UNDER	63.1	60.1
09:09:15	62.8	64.0	UNDER	63.1	61.1
09:09:30	62.1	63.0	UNDER	62.1	61.1
09:09:45	63.5	65.5	UNDER	65.1	61.1

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA	dBA		dBC	dBA	dBA
1/10/2012					
09:10:00	63.4	64.1	UNDER	63.1	62.1
09:10:15	61.5	63.0	UNDER	62.1	60.1
09:10:30	62.9	63.5	UNDER	63.1	61.1
09:10:45	62.1	63.6	UNDER	63.1	61.1
09:11:00	65.1	67.6	UNDER	67.1	62.1
09:11:15	61.7	62.8	UNDER	62.1	61.1
09:11:30	63.4	64.9	UNDER	64.1	61.1
09:11:45	61.7	62.4	UNDER	62.1	60.1
09:12:00	61.2	62.4	UNDER	62.1	60.1
09:12:15	63.1	64.8	UNDER	64.1	61.1
09:12:30	61.8	63.1	UNDER	62.1	60.1
09:12:45	60.7	61.5	UNDER	61.1	60.1
09:13:00	62.2	63.6	UNDER	63.1	60.1
09:13:15	62.3	63.8	UNDER	63.1	61.1
09:13:30	62.1	64.6	UNDER	63.1	60.1
09:13:45	61.0	62.8	UNDER	62.1	59.1
09:14:00	63.8	65.1	UNDER	64.1	61.1
09:14:15	62.2	63.2	UNDER	63.1	61.1
09:14:30	61.3	62.2	UNDER	61.1	60.1
09:14:45	63.2	63.9	UNDER	63.1	62.1

****************************** ******** ******* ***************
Filename..............2559
Test Location..........
Employee Name..........
Employee Number........
Department.............

Calibrator Type........
Calibrator Cal. Date...
****************************** ******** ******* ***************

METROSONICS db-3080 V1.11 SERI AL # 2559
REPORT PRINTED ON 01/11/12 at 10 :44:44

User ID: ________________________ _______

LOGGING STARTED......01/10/12 at 10:20:00
TOTAL LOGGING TIME...0 DAYS 00:1 5:00
LOGGING STOPPED......01/10/12 at 10:35:00
TOTAL INTERVALS......60
INTERVAL LENGTH......00:00:15

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME....01/ 10/12 AT 0 :05
PRE-TEST CALIBRATION RANGE...37. 9 TO 137.9 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav ...NONE

<<< SUMMARY REPORT FOR TEST NUMB ER 2 OF 5 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80dB 90 dB
CEILING...............115dB

DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 62.7dB
Lav (80)...... 37.9dB
Lav (90)...... 37.9dB
SEL............ 92.1dB

TWA............ 47.7dB
TWA (80)...... 37.9dB
TWA (90)...... 37.9dB

Lmax........... 68.8dB 01/10/1 2 at 10:30:42
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)........ 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)........ 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 2 >>>

TIME	Lav	Lmax	Lpk L	-10	L(99.9)
dBA	dBA		dBC	dBA	dBA
		1/10/2012			
10:20:00	63.5	65.2	UNDER	64.9	62.9
10:20:15	64.2	65.6	UNDER	65.9	63.9
10:20:30	63.8	65.2	UNDER	64.9	60.9
10:20:45	60.8	62.4	UNDER	62.9	59.9
10:21:00	59.0	62.0	UNDER	61.9	55.9
10:21:15	61.6	64.7	UNDER	63.9	59.9
10:21:30	62.4	64.4	UNDER	64.9	61.9
10:21:45	64.0	65.7	UNDER	65.9	61.9
10:22:00	64.4	65.6	UNDER	65.9	62.9
10:22:15	61.1	64.3	UNDER	62.9	59.9
10:22:30	62.5	64.4	UNDER	64.9	59.9
10:22:45	62.1	63.3	UNDER	63.9	59.9
10:23:00	62.9	63.6	UNDER	63.9	61.9
10:23:15	63.0	65.3	UNDER	65.9	61.9
10:23:30	63.6	64.8	UNDER	64.9	61.9
10:23:45	64.5	66.0	UNDER	65.9	62.9
10:24:00	62.4	64.0	UNDER	63.9	60.9
10:24:15	58.1	61.2	UNDER	60.9	56.9
10:24:30	59.2	61.3	UNDER	61.9	56.9
10:24:45	59.5	60.5	UNDER	60.9	58.9

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA	dBA		dBC	dBA	dBA
		1/10/2012			
10:25:00	61.3	64.0	UNDER	63.9	59.9
10:25:15	61.3	65.1	UNDER	64.9	57.9
10:25:30	63.1	64.9	UNDER	64.9	60.9
10:25:45	63.6	66.4	UNDER	66.9	61.9
10:26:00	63.1	66.3	UNDER	65.9	60.9
10:26:15	59.1	61.9	UNDER	61.9	56.9
10:26:30	62.2	64.0	UNDER	63.9	58.9
10:26:45	63.0	64.0	UNDER	63.9	61.9
10:27:00	63.7	65.1	UNDER	64.9	61.9
10:27:15	60.6	61.8	UNDER	61.9	58.9
10:27:30	60.5	62.0	UNDER	61.9	58.9
10:27:45	63.8	66.6	UNDER	66.9	59.9
10:28:00	64.6	66.1	UNDER	65.9	62.9
10:28:15	62.9	65.6	UNDER	64.9	61.9
10:28:30	63.3	66.0	UNDER	65.9	60.9
10:28:45	64.4	65.6	UNDER	65.9	61.9
10:29:00	62.1	66.1	UNDER	65.9	56.9
10:29:15	62.7	65.3	UNDER	65.9	60.9
10:29:30	61.9	64.8	UNDER	64.9	56.9
10:29:45	63.9	66.9	UNDER	66.9	62.9
10:30:00	63.4	66.4	UNDER	65.9	61.9
10:30:15	59.2	61.2	UNDER	60.9	58.9
10:30:30	65.7	68.8	UNDER	68.9	58.9
10:30:45	64.7	66.4	UNDER	66.9	62.9
10:31:00	63.2	67.6	UNDER	66.9	59.9
10:31:15	62.2	65.2	UNDER	64.9	59.9
10:31:30	59.3	64.7	UNDER	61.9	57.9
10:31:45	63.0	66.8	UNDER	66.9	60.9
10:32:00	61.0	64.6	UNDER	64.9	58.9
10:32:15	61.0	64.5	UNDER	63.9	59.9
10:32:30	60.0	63.1	UNDER	61.9	57.9
10:32:45	63.9	66.1	UNDER	65.9	61.9
10:33:00	63.8	67.1	UNDER	66.9	58.9
10:33:15	56.5	60.8	UNDER	58.9	53.9
10:33:30	63.7	64.6	UNDER	64.9	60.9
10:33:45	64.0	66.1	UNDER	66.9	62.9
10:34:00	62.3	63.4	UNDER	63.9	61.9
10:34:15	64.1	66.0	UNDER	65.9	62.9
10:34:30	63.4	65.6	UNDER	65.9	60.9
10:34:45	61.4	64.0	UNDER	63.9	57.9

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Filename..............2558
Test Location..........
Employee Name..........
Employee Number........
Department.............

Calibrator Type........
Calibrator Cal. Date...

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METROSONICS db-3080 V1.11 SERI	AL # 2558
REPORT PRINTED ON 01/11/12 at 10	:35:30
User ID: ________________________	_______

LOGGING STARTED......01/10/12 at	10:20:00
TOTAL LOGGING TIME...0 DAYS 00:1	5:00
LOGGING STOPPED......01/10/12 at	10:35:00
TOTAL INTERVALS......60	
INTERVAL LENGTH......00:00:15	

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME....01/	10/12 AT 0 :26
PRE-TEST CALIBRATION RANGE...40.	3 TO 140.3 dB
POST-TEST CALIBRATION NOT DONE	
CUTOFF USED FOR TIME HISTORY Lav	...NONE

<<< SUMMARY REPORT FOR TEST NUMB	ER 2 OF 5 >>>

EXCHANGE RATE..........3dB	
CUTOFFS................ 80dB 90	dB
CEILING...............115dB	

DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 60.7dB
Lav (80)...... 40.3dB
Lav (90)...... 40.3dB
SEL............ 90.2dB

TWA............ 45.7dB
TWA (80)...... 40.3dB
TWA (90)...... 40.3dB

Lmax........... 66.1dB 01/10/1 2 at 10:31:45
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)........ 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)........ 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 2 >>>

TIME dBA	Lav dBA	Lmax	Lpk dBC	L dBA -10	L(99.9) dBA
1/10/2012					
10:20:00	61.7	64.3	UNDER	63.3	60.3
10:20:15	61.1	62.0	UNDER	61.3	60.3
10:20:30	61.7	62.6	UNDER	62.3	60.3
10:20:45	59.5	60.8	UNDER	60.3	58.3
10:21:00	60.1	62.1	UNDER	61.3	58.3
10:21:15	60.7	61.6	UNDER	61.3	59.3
10:21:30	60.2	64.4	UNDER	62.3	57.3
10:21:45	61.3	64.0	UNDER	63.3	59.3
10:22:00	61.7	63.2	UNDER	62.3	58.3
10:22:15	60.3	62.9	UNDER	62.3	58.3
10:22:30	61.5	63.6	UNDER	62.3	60.3
10:22:45	60.3	61.2	UNDER	60.3	59.3
10:23:00	60.3	61.6	UNDER	61.3	59.3
10:23:15	61.1	62.8	UNDER	62.3	60.3
10:23:30	60.4	62.8	UNDER	62.3	58.3
10:23:45	60.6	61.6	UNDER	61.3	59.3
10:24:00	59.8	61.3	UNDER	60.3	58.3
10:24:15	59.7	60.9	UNDER	60.3	58.3
10:24:30	59.5	60.8	UNDER	60.3	57.3
10:24:45	57.9	59.2	UNDER	58.3	57.3

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA	dBA		dBC	dBA	dBA
1/10/2012					
10:25:00	59.0	60.4	UNDER	60.3	57.3
10:25:15	59.2	60.0	UNDER	59.3	58.3
10:25:30	60.9	63.5	UNDER	62.3	58.3
10:25:45	60.6	63.6	UNDER	62.3	58.3
10:26:00	61.2	64.0	UNDER	63.3	58.3
10:26:15	58.6	59.6	UNDER	59.3	57.3
10:26:30	60.1	61.2	UNDER	61.3	58.3
10:26:45	59.8	61.6	UNDER	60.3	59.3
10:27:00	62.3	64.4	UNDER	64.3	60.3
10:27:15	59.2	60.4	UNDER	60.3	58.3
10:27:30	61.0	62.0	UNDER	61.3	60.3
10:27:45	62.3	64.8	UNDER	64.3	60.3
10:28:00	61.5	63.2	UNDER	62.3	60.3
10:28:15	62.0	64.1	UNDER	63.3	60.3
10:28:30	61.3	64.0	UNDER	63.3	59.3
10:28:45	62.6	63.6	UNDER	63.3	61.3
10:29:00	61.3	63.2	UNDER	62.3	60.3
10:29:15	60.5	62.0	UNDER	61.3	59.3
10:29:30	61.5	63.6	UNDER	62.3	60.3
10:29:45	60.1	62.4	UNDER	61.3	58.3
10:30:00	60.8	61.6	UNDER	61.3	59.3
10:30:15	60.3	61.6	UNDER	61.3	58.3
10:30:30	61.7	62.8	UNDER	62.3	60.3
10:30:45	61.2	62.0	UNDER	61.3	60.3
10:31:00	60.6	61.6	UNDER	61.3	59.3
10:31:15	60.6	61.6	UNDER	61.3	60.3
10:31:30	61.6	66.0	UNDER	64.3	59.3
10:31:45	61.3	66.1	UNDER	64.3	58.3
10:32:00	59.5	60.8	UNDER	60.3	58.3
10:32:15	59.0	60.7	UNDER	60.3	57.3
10:32:30	59.7	61.6	UNDER	61.3	58.3
10:32:45	61.4	62.4	UNDER	62.3	60.3
10:33:00	61.4	62.4	UNDER	62.3	59.3
10:33:15	59.2	60.4	UNDER	59.3	58.3
10:33:30	60.1	61.2	UNDER	60.3	59.3
10:33:45	59.4	61.2	UNDER	60.3	58.3
10:34:00	60.3	61.6	UNDER	61.3	58.3
10:34:15	61.8	63.3	UNDER	62.3	60.3
10:34:30	61.1	62.1	UNDER	62.3	59.3
10:34:45	60.9	62.0	UNDER	61.3	60.3

****************************** ******** ******* ***************
Filename..............2555
Test Location..........
Employee Name..........
Employee Number........
Department............

Calibrator Type........
Calibrator Cal. Date...
****************************** ******** ******* ***************

METROSONICS db-3080 V1.11 SERI AL # 2555
REPORT PRINTED ON 01/11/12 at 10 :19:59

User ID: ________________________ _______

LOGGING STARTED......01/10/12 at 10:20:00
TOTAL LOGGING TIME...0 DAYS 00:1 5:00
LOGGING STOPPED......01/10/12 at 10:35:00
TOTAL INTERVALS......60
INTERVAL LENGTH......00:00:15

AUTO STOP...........NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME....01/ 10/12 AT 0 :28
PRE-TEST CALIBRATION RANGE...39. 1 TO 139.1 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav ...NONE

<<< SUMMARY REPORT FOR TEST NUMB ER 2 OF 5 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80dB 90 dB
CEILING...............115dB

DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 62.0dB
Lav (80)...... 39.1dB
Lav (90)...... 39.1dB
SEL............ 91.4dB

TWA............ 47.0dB
TWA (80)...... 39.1dB
TWA (90)...... 39.1dB

Lmax........... 67.0dB 01/10/1 2 at 10:27:20
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)........ 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)........ 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 2 >>>

TIME	Lav	Lmax	Lpk L	-10	L(99.9)
dBA	dBA		dBC	dBA	dBA
		1/10/2012			
10:20:00	62.1	63.1	UNDER	62.1	60.1
10:20:15	61.5	62.8	UNDER	62.1	60.1
10:20:30	61.4	62.4	UNDER	62.1	60.1
10:20:45	63.2	65.5	UNDER	65.1	60.1
10:21:00	61.0	62.2	UNDER	61.1	60.1
10:21:15	60.8	61.9	UNDER	61.1	59.1
10:21:30	63.1	65.7	UNDER	65.1	60.1
10:21:45	60.0	61.0	UNDER	60.1	58.1
10:22:00	61.7	62.5	UNDER	62.1	60.1
10:22:15	61.0	61.7	UNDER	61.1	60.1
10:22:30	60.7	61.3	UNDER	61.1	60.1
10:22:45	62.7	64.8	UNDER	64.1	61.1
10:23:00	61.7	62.5	UNDER	62.1	61.1
10:23:15	62.1	63.7	UNDER	63.1	60.1
10:23:30	59.8	60.8	UNDER	60.1	58.1
10:23:45	58.7	59.2	UNDER	59.1	58.1
10:24:00	59.9	61.1	UNDER	60.1	58.1
10:24:15	59.2	59.5	UNDER	59.1	58.1
10:24:30	60.1	61.3	UNDER	61.1	59.1
10:24:45	61.0	62.6	UNDER	62.1	59.1

TIME dBA	Lav dBA	Lmax	Lpk dBC	L dBA	-10 L(99.9) dBA
1/10/2012					
10:25:00	62.6	65.0	UNDER	63.1	60.1
10:25:15	62.0	64.9	UNDER	63.1	60.1
10:25:30	61.7	64.2	UNDER	63.1	60.1
10:25:45	59.9	61.1	UNDER	60.1	58.1
10:26:00	62.1	62.8	UNDER	62.1	59.1
10:26:15	62.8	63.1	UNDER	63.1	62.1
10:26:30	63.1	64.1	UNDER	63.1	61.1
10:26:45	61.6	64.8	UNDER	63.1	59.1
10:27:00	61.5	62.8	UNDER	62.1	60.1
10:27:15	64.0	67.0	UNDER	66.1	62.1
10:27:30	63.2	63.6	UNDER	63.1	62.1
10:27:45	62.6	64.0	UNDER	63.1	61.1
10:28:00	63.5	65.6	UNDER	65.1	62.1
10:28:15	63.0	63.8	UNDER	63.1	62.1
10:28:30	62.5	63.9	UNDER	63.1	61.1
10:28:45	62.6	64.5	UNDER	64.1	61.1
10:29:00	62.7	64.5	UNDER	63.1	61.1
10:29:15	62.3	63.4	UNDER	63.1	61.1
10:29:30	61.4	62.6	UNDER	62.1	60.1
10:29:45	62.0	65.7	UNDER	64.1	60.1
10:30:00	64.7	65.6	UNDER	65.1	62.1
10:30:15	63.6	66.7	UNDER	66.1	61.1
10:30:30	62.8	64.3	UNDER	64.1	61.1
10:30:45	61.9	63.0	UNDER	62.1	61.1
10:31:00	61.1	63.1	UNDER	62.1	59.1
10:31:15	61.2	63.1	UNDER	62.1	59.1
10:31:30	61.0	62.9	UNDER	62.1	59.1
10:31:45	60.5	61.6	UNDER	61.1	59.1
10:32:00	60.2	62.7	UNDER	61.1	58.1
10:32:15	61.4	62.8	UNDER	62.1	60.1
10:32:30	62.9	64.1	UNDER	63.1	61.1
10:32:45	62.4	64.1	UNDER	63.1	61.1
10:33:00	63.6	64.9	UNDER	64.1	62.1
10:33:15	61.8	62.8	UNDER	62.1	60.1
10:33:30	61.8	63.4	UNDER	62.1	61.1
10:33:45	62.3	64.4	UNDER	64.1	61.1
10:34:00	62.0	62.8	UNDER	62.1	61.1
10:34:15	60.5	62.8	UNDER	62.1	58.1
10:34:30	61.4	63.5	UNDER	62.1	59.1
10:34:45	64.1	65.6	UNDER	65.1	62.1

************************* ****** ******** ****** ****************

Filename..............RRC 3905
Test Location..........
Employee Name..........
Employee Number........
Department.............

Calibrator Type........
Calibrator Cal. Date...

************************* ****** ******** ****** ****************

METROSONICS db-3080 V1.20 SERI AL # 3905
REPORT PRINTED ON 05/19/14 at 14 :17:18

User ID: ___________________ ______ ________

LOGGING STARTED......05/13 /14 at 11:07:40
TOTAL LOGGING TIME...0 DAY S 01:1 9:58
LOGGING STOPPED......05/13 /14 at 12:27:38
TOTAL INTERVALS......480
INTERVAL LENGTH......00:00 :10

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME. ...05/ 13/14 AT 1 :56
PRE-TEST CALIBRATION RANGE ...39. 1 TO 139.1 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTO RY Lav ...NONE

<<< SUMMARY REPORT FOR TES T NUMB ER 1 OF 1 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80 dB 90 dB
CEILING...............115 dB

DOSE CRITERION LEVEL... 90 dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 62.9dB
Lav (80)...... 39.1dB
Lav (90)...... 39.1dB
SEL............ 99.6dB

TWA............ 55.2dB
TWA (80)...... 39.1dB
TWA (90)...... 39.1dB

Lmax........... 72.3dB 0 ######## 4 at 11:45:09
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00 0

DOSE (80)........ 0.00 %
PROJ. DOSE (80).. 0.00 %
DOSE (90)........ 0.00 %
PROJ. DOSE (90).. 0.00 %

<<< TIME HISTORY REPORT FO R TEST NUMBER 1 >>>

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA		dBA	dBC	dBA	dBA
5/13/2014					
11:07:40	63.7	66.4	UNDER	64.1	62.1
11:07:50	63.1	66.5	UNDER	66.1	60.1
11:08:00	62.0	64.1	UNDER	63.1	58.1
11:08:10	62.0	64.9	UNDER	63.1	58.1
11:08:20	63.4	66.4	UNDER	66.1	60.1
11:08:30	61.7	62.7	UNDER	62.1	60.1
11:08:40	60.0	62.5	UNDER	62.1	57.1
11:08:50	61.4	63.6	UNDER	63.1	58.1
11:09:00	63.0	64.4	UNDER	64.1	61.1
11:09:10	64.6	68.9	UNDER	66.1	62.1
11:09:20	68.1	70.7	UNDER	70.1	63.1
11:09:30	62.2	63.9	UNDER	63.1	59.1
11:09:40	62.5	64.6	UNDER	63.1	59.1
11:09:50	62.6	65.5	UNDER	64.1	61.1
11:10:00	60.0	61.4	UNDER	60.1	59.1
11:10:10	59.7	60.4	UNDER	60.1	58.1
11:10:20	62.1	64	UNDER	63.1	59.1
11:10:30	63.1	64.8	UNDER	64.1	60.1
11:10:40	60.4	61.4	UNDER	61.1	59.1
11:10:50	66.1	69.2	UNDER	69.1	60.1

TIME	Lav		Lmax	Lpk	L	-10	L(99.9)
dBA			dBA	dBC	dBA		dBA
		5/13/2014					
11:11:00	64.4		67.9	UNDER		67.1	58.1
11:11:10	62.2		64.9	UNDER		64.1	58.1
11:11:20	62.1		63.6	UNDER		62.1	61.1
11:11:30	63.9		65.2	UNDER		64.1	63.1
11:11:40	64.3		66.6	UNDER		66.1	62.1
11:11:50	63.1		64.4	UNDER		64.1	62.1
11:12:00	64.8		66.8	UNDER		66.1	61.1
11:12:10	66.6		68.8	UNDER		68.1	64.1
11:12:20	66.1		67	UNDER		66.1	64.1
11:12:30	64.9		66.2	UNDER		65.1	64.1
11:12:40	63.9		66.4	UNDER		66.1	60.1
11:12:50	60.8		61.3	UNDER		61.1	60.1
11:13:00	62.2		63.9	UNDER		63.1	60.1
11:13:10	63.2		64	UNDER		63.1	62.1
11:13:20	64.9		65.8	UNDER		65.1	63.1
11:13:30	62.2		64.4	UNDER		64.1	59.1
11:13:40	62.8		63.8	UNDER		63.1	59.1
11:13:50	61.2		62.3	UNDER		62.1	60.1
11:14:00	61.0		63.6	UNDER		62.1	59.1
11:14:10	66.8		68.4	UNDER		68.1	63.1
11:14:20	64.8		66.4	UNDER		65.1	62.1
11:14:30	61.5		63.1	UNDER		62.1	59.1
11:14:40	62.2		63.2	UNDER		63.1	60.1
11:14:50	61.5		62.7	UNDER		62.1	60.1
11:15:00	60.3		62	UNDER		61.1	59.1
11:15:10	62.7		64	UNDER		63.1	61.1
11:15:20	63.1		64.6	UNDER		64.1	61.1
11:15:30	63.5		64.4	UNDER		64.1	61.1
11:15:40	60.3		63.2	UNDER		62.1	58.1
11:15:50	63.7		66.5	UNDER		66.1	60.1
11:16:00	60.3		62.4	UNDER		61.1	58.1
11:16:10	61.3		64.3	UNDER		63.1	57.1
11:16:20	63.7		64.5	UNDER		64.1	62.1
11:16:30	64.5		66.3	UNDER		66.1	63.1
11:16:40	63.4		65.9	UNDER		64.1	61.1
11:16:50	64.2		66.4	UNDER		66.1	61.1
11:17:00	64.0		65.2	UNDER		64.1	61.1
11:17:10	62.4		62.8	UNDER		62.1	61.1
11:17:20	64.7		66.8	UNDER		66.1	62.1
11:17:30	61.8		62.8	UNDER		62.1	60.1
11:17:40	62.9		65	UNDER		64.1	60.1
11:17:50	62.4		64.4	UNDER		64.1	60.1
11:18:00	61.5		63.2	UNDER		62.1	58.1
11:18:10	57.7		60.4	UNDER		59.1	56.1

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:18:20	63.2		64.7	UNDER	64.1	60.1
11:18:30	63.1		64.8	UNDER	64.1	61.1
11:18:40	61.8		62.8	UNDER	62.1	59.1
11:18:50	62.3		65.2	UNDER	64.1	58.1
11:19:00	61.9		64	UNDER	63.1	60.1
11:19:10	63.4		64.4	UNDER	64.1	61.1
11:19:20	61.3		63.8	UNDER	62.1	60.1
11:19:30	63.0		64.8	UNDER	64.1	61.1
11:19:40	62.5		64.1	UNDER	64.1	61.1
11:19:50	61.4		62.1	UNDER	62.1	60.1
11:20:00	63.3		65.2	UNDER	65.1	60.1
11:20:10	61.7		63	UNDER	62.1	60.1
11:20:20	62.2		63.6	UNDER	63.1	60.1
11:20:30	66.0		69.7	UNDER	69.1	61.1
11:20:40	59.8		64	UNDER	62.1	57.1
11:20:50	63.1		65	UNDER	64.1	61.1
11:21:00	62.9		65.2	UNDER	64.1	61.1
11:21:10	64.1		65.2	UNDER	64.1	62.1
11:21:20	63.8		64.4	UNDER	64.1	62.1
11:21:30	62.2		63.4	UNDER	63.1	61.1
11:21:40	62.0		62.9	UNDER	62.1	60.1
11:21:50	61.8		62.8	UNDER	62.1	60.1
11:22:00	63.0		64.6	UNDER	64.1	61.1
11:22:10	61.3		61.8	UNDER	61.1	60.1
11:22:20	64.1		66.8	UNDER	66.1	60.1
11:22:30	64.8		66.4	UNDER	66.1	63.1
11:22:40	64.2		65.2	UNDER	65.1	62.1
11:22:50	63.5		64.6	UNDER	64.1	62.1
11:23:00	61.4		63.9	UNDER	63.1	58.1
11:23:10	59.1		60.4	UNDER	60.1	58.1
11:23:20	63.1		66	UNDER	65.1	59.1
11:23:30	60.0		63.2	UNDER	62.1	59.1
11:23:40	60.9		63.6	UNDER	62.1	58.1
11:23:50	63.2		65	UNDER	64.1	59.1
11:24:00	62.1		63.6	UNDER	63.1	59.1
11:24:10	61.2		62.4	UNDER	62.1	59.1
11:24:20	59.6		60.4	UNDER	60.1	59.1
11:24:30	59.6		60.5	UNDER	60.1	58.1
11:24:40	59.8		60.8	UNDER	60.1	58.1
11:24:50	60.6		62	UNDER	61.1	59.1
11:25:00	62.0		62.8	UNDER	62.1	61.1
11:25:10	62.7		63.6	UNDER	63.1	61.1
11:25:20	59.1		61.4	UNDER	60.1	57.1
11:25:30	59.8		60.9	UNDER	60.1	58.1

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:25:40	60.3		61.2	UNDER	60.1	59.1
11:25:50	62.8		64.5	UNDER	64.1	61.1
11:26:00	61.9		65.6	UNDER	63.1	61.1
11:26:10	63.9		66.4	UNDER	65.1	61.1
11:26:20	64.0		65.6	UNDER	65.1	62.1
11:26:30	60.3		62.8	UNDER	62.1	58.1
11:26:40	64.1		65.8	UNDER	65.1	62.1
11:26:50	64.7		66.1	UNDER	66.1	63.1
11:27:00	60.8		63.6	UNDER	62.1	58.1
11:27:10	61.8		64	UNDER	63.1	58.1
11:27:20	63.6		65.2	UNDER	64.1	60.1
11:27:30	61.1		62	UNDER	61.1	60.1
11:27:40	60.3		61.6	UNDER	61.1	59.1
11:27:50	65.1		66.4	UNDER	66.1	61.1
11:28:00	65.2		67.6	UNDER	67.1	63.1
11:28:10	62.0		63.8	UNDER	63.1	59.1
11:28:20	61.2		63.6	UNDER	63.1	58.1
11:28:30	65.7		66.8	UNDER	66.1	63.1
11:28:40	64.5		66	UNDER	65.1	63.1
11:28:50	63.9		66.5	UNDER	66.1	61.1
11:29:00	64.3		65.2	UNDER	64.1	62.1
11:29:10	63.9		66.6	UNDER	65.1	62.1
11:29:20	64.6		65.3	UNDER	65.1	63.1
11:29:30	64.6		67.4	UNDER	67.1	62.1
11:29:40	62.1		66.3	UNDER	65.1	59.1
11:29:50	61.0		62.8	UNDER	62.1	59.1
11:30:00	61.2		63.9	UNDER	62.1	60.1
11:30:10	64.5		66.9	UNDER	66.1	61.1
11:30:20	63.6		64.4	UNDER	64.1	61.1
11:30:30	63.9		64.8	UNDER	64.1	62.1
11:30:40	64.1		66.4	UNDER	65.1	62.1
11:30:50	64.4		67.6	UNDER	67.1	61.1
11:31:00	62.5		65.2	UNDER	64.1	59.1
11:31:10	57.6		59.6	UNDER	59.1	56.1
11:31:20	63.2		65.5	UNDER	65.1	56.1
11:31:30	65.5		67.2	UNDER	67.1	62.1
11:31:40	62.1		64	UNDER	63.1	60.1
11:31:50	62.4		66.2	UNDER	65.1	59.1
11:32:00	63.4		66.4	UNDER	66.1	61.1
11:32:10	60.8		62.8	UNDER	62.1	59.1
11:32:20	60.0		61.1	UNDER	60.1	59.1
11:32:30	61.5		61.9	UNDER	61.1	61.1
11:32:40	60.3		61.6	UNDER	61.1	58.1
11:32:50	59.6		61.1	UNDER	60.1	58.1

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:33:00	59.6		61.2	UNDER	61.1	58.1
11:33:10	62.6		65.2	UNDER	64.1	59.1
11:33:20	64.3		65.5	UNDER	65.1	61.1
11:33:30	61.5		62.4	UNDER	62.1	60.1
11:33:40	61.2		62.3	UNDER	62.1	60.1
11:33:50	60.7		62	UNDER	62.1	59.1
11:34:00	61.2		62.8	UNDER	62.1	60.1
11:34:10	59.4		60.4	UNDER	60.1	57.1
11:34:20	59.2		60	UNDER	59.1	57.1
11:34:30	63.4		65.5	UNDER	65.1	60.1
11:34:40	62.7		65.1	UNDER	64.1	61.1
11:34:50	63.1		65.1	UNDER	64.1	60.1
11:35:00	59.7		61.1	UNDER	60.1	58.1
11:35:10	61.2		62.4	UNDER	62.1	59.1
11:35:20	60.5		62.4	UNDER	62.1	58.1
11:35:30	63.3		64.2	UNDER	64.1	62.1
11:35:40	62.2		63.7	UNDER	63.1	61.1
11:35:50	64.7		66.4	UNDER	66.1	61.1
11:36:00	65.6		66.8	UNDER	66.1	63.1
11:36:10	66.7		68	UNDER	67.1	64.1
11:36:20	63.7		64.8	UNDER	64.1	62.1
11:36:30	65.4		68.3	UNDER	67.1	61.1
11:36:40	60.5		62.4	UNDER	62.1	59.1
11:36:50	64.5		66.4	UNDER	66.1	62.1
11:37:00	65.2		67.6	UNDER	67.1	62.1
11:37:10	65.1		66.5	UNDER	65.1	63.1
11:37:20	63.1		64.8	UNDER	64.1	58.1
11:37:30	59.3		63.6	UNDER	61.1	57.1
11:37:40	63.9		65.6	UNDER	65.1	62.1
11:37:50	63.6		65.6	UNDER	65.1	62.1
11:38:00	62.7		64	UNDER	63.1	60.1
11:38:10	59.9		61.1	UNDER	60.1	58.1
11:38:20	61.6		63.3	UNDER	63.1	59.1
11:38:30	61.4		61.7	UNDER	61.1	61.1
11:38:40	61.6		62	UNDER	62.1	61.1
11:38:50	61.5		62	UNDER	61.1	60.1
11:39:00	63.4		65.4	UNDER	65.1	60.1
11:39:10	61.9		63.6	UNDER	63.1	60.1
11:39:20	60.6		60.9	UNDER	60.1	60.1
11:39:30	62.2		64.3	UNDER	64.1	60.1
11:39:40	61.3		64	UNDER	63.1	59.1
11:39:50	63.2		65.8	UNDER	65.1	60.1
11:40:00	64.7		67.1	UNDER	66.1	62.1
11:40:10	60.1		63.6	UNDER	62.1	57.1

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:40:20	60.7		63.2	UNDER	62.1	58.1
11:40:30	64.1		65.6	UNDER	65.1	62.1
11:40:40	64.5		65.6	UNDER	65.1	62.1
11:40:50	64.0		65.6	UNDER	65.1	62.1
11:41:00	61.8		64.4	UNDER	63.1	59.1
11:41:10	63.4		64.4	UNDER	64.1	61.1
11:41:20	61.8		63.6	UNDER	62.1	60.1
11:41:30	63.2		64.4	UNDER	64.1	61.1
11:41:40	64.5		65.7	UNDER	65.1	62.1
11:41:50	61.5		64.8	UNDER	64.1	59.1
11:42:00	58.7		60.6	UNDER	60.1	57.1
11:42:10	59.1		60	UNDER	59.1	58.1
11:42:20	60.2		62.4	UNDER	62.1	58.1
11:42:30	61.8		64.7	UNDER	63.1	59.1
11:42:40	65.3		68.6	UNDER	68.1	60.1
11:42:50	61.5		63.3	UNDER	63.1	59.1
11:43:00	62.3		64.5	UNDER	63.1	60.1
11:43:10	65.2		67.4	UNDER	67.1	59.1
11:43:20	57.5		59.5	UNDER	58.1	56.1
11:43:30	61.2		63.2	UNDER	63.1	58.1
11:43:40	63.0		64.9	UNDER	64.1	60.1
11:43:50	60.1		62.4	UNDER	62.1	58.1
11:44:00	63.0		64	UNDER	63.1	61.1
11:44:10	58.2		61	UNDER	60.1	56.1
11:44:20	64.6		67.2	UNDER	66.1	59.1
11:44:30	58.5		61	UNDER	60.1	57.1
11:44:40	59.7		63.2	UNDER	61.1	58.1
11:44:50	65.2		66.3	UNDER	66.1	63.1
11:45:00	67.2		72.3	UNDER	71.1	63.1
11:45:10	64.9		70.9	UNDER	68.1	61.1
11:45:20	65.0		65.9	UNDER	65.1	64.1
11:45:30	65.0		65.8	UNDER	65.1	64.1
11:45:40	62.4		64.2	UNDER	63.1	60.1
11:45:50	62.5		63.7	UNDER	63.1	61.1
11:46:00	61.9		62.9	UNDER	62.1	61.1
11:46:10	61.2		62.9	UNDER	62.1	59.1
11:46:20	59.0		60.4	UNDER	59.1	58.1
11:46:30	62.2		64	UNDER	63.1	59.1
11:46:40	62.6		63.3	UNDER	63.1	62.1
11:46:50	60.6		62	UNDER	61.1	59.1
11:47:00	61.4		63.2	UNDER	62.1	60.1
11:47:10	63.7		65.7	UNDER	65.1	61.1
11:47:20	64.0		65.7	UNDER	65.1	61.1
11:47:30	62.3		64	UNDER	63.1	61.1

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:47:40	63.5		64.8	UNDER	64.1	62.1
11:47:50	63.4		65.8	UNDER	65.1	61.1
11:48:00	62.8		64.1	UNDER	63.1	61.1
11:48:10	62.7		63.2	UNDER	63.1	61.1
11:48:20	62.2		63.4	UNDER	63.1	61.1
11:48:30	63.6		64.8	UNDER	64.1	62.1
11:48:40	63.3		64.3	UNDER	64.1	62.1
11:48:50	61.8		63.6	UNDER	62.1	60.1
11:49:00	62.4		63.6	UNDER	63.1	61.1
11:49:10	61.3		62	UNDER	61.1	60.1
11:49:20	62.7		63.6	UNDER	63.1	61.1
11:49:30	64.3		68	UNDER	67.1	60.1
11:49:40	63.2		66.4	UNDER	64.1	60.1
11:49:50	62.8		63.2	UNDER	63.1	62.1
11:50:00	63.9		64.8	UNDER	64.1	63.1
11:50:10	62.7		63.7	UNDER	63.1	62.1
11:50:20	66.5		69.2	UNDER	69.1	62.1
11:50:30	61.1		62.6	UNDER	61.1	60.1
11:50:40	63.5		64.8	UNDER	64.1	60.1
11:50:50	63.0		64.4	UNDER	64.1	61.1
11:51:00	62.5		66	UNDER	65.1	60.1
11:51:10	64.7		66.4	UNDER	66.1	61.1
11:51:20	61.5		65.3	UNDER	63.1	59.1
11:51:30	65.4		68.8	UNDER	68.1	63.1
11:51:40	65.9		69.1	UNDER	68.1	61.1
11:51:50	63.0		63.9	UNDER	63.1	62.1
11:52:00	65.2		67.3	UNDER	67.1	62.1
11:52:10	62.8		63.8	UNDER	63.1	61.1
11:52:20	63.4		67.6	UNDER	65.1	60.1
11:52:30	67.0		68.1	UNDER	68.1	64.1
11:52:40	64.3		66	UNDER	65.1	61.1
11:52:50	64.2		65.9	UNDER	65.1	62.1
11:53:00	63.5		65.3	UNDER	64.1	61.1
11:53:10	64.8		65.6	UNDER	65.1	64.1
11:53:20	64.6		66.2	UNDER	66.1	62.1
11:53:30	64.9		67.4	UNDER	67.1	59.1
11:53:40	61.3		63.2	UNDER	62.1	60.1
11:53:50	61.9		63.8	UNDER	63.1	61.1
11:54:00	62.0		63.6	UNDER	62.1	61.1
11:54:10	64.5		65.8	UNDER	65.1	63.1
11:54:20	62.7		65	UNDER	64.1	61.1
11:54:30	67.7		70.2	UNDER	69.1	63.1
11:54:40	63.2		64.8	UNDER	64.1	61.1
11:54:50	65.0		66.4	UNDER	66.1	64.1

TIME dBA	Lav		Lmax dBA	Lpk dBC	L dBA	-10 L(99.9) dBA
		5/13/2014				
11:55:00	64.4		65.4	UNDER	64.1	63.1
11:55:10	61.3		64.4	UNDER	64.1	58.1
11:55:20	66.0		69.6	UNDER	69.1	59.1
11:55:30	58.7		63.2	UNDER	61.1	56.1
11:55:40	61.6		63	UNDER	62.1	56.1
11:55:50	60.5		62.7	UNDER	61.1	59.1
11:56:00	64.7		66.8	UNDER	66.1	62.1
11:56:10	60.7		62.8	UNDER	62.1	58.1
11:56:20	60.9		62.4	UNDER	61.1	59.1
11:56:30	61.9		62.5	UNDER	62.1	61.1
11:56:40	61.6		63.1	UNDER	62.1	60.1
11:56:50	64.4		67.5	UNDER	67.1	60.1
11:57:00	66.1		67.3	UNDER	67.1	64.1
11:57:10	63.8		65.2	UNDER	64.1	62.1
11:57:20	62.6		64.1	UNDER	64.1	60.1
11:57:30	60.7		61.8	UNDER	61.1	60.1
11:57:40	60.7		61.9	UNDER	61.1	59.1
11:57:50	62.1		64.3	UNDER	64.1	60.1
11:58:00	60.4		62.9	UNDER	62.1	59.1
11:58:10	62.0		64.8	UNDER	64.1	59.1
11:58:20	62.7		64.2	UNDER	64.1	60.1
11:58:30	62.6		63.2	UNDER	63.1	61.1
11:58:40	62.0		63.2	UNDER	62.1	61.1
11:58:50	61.4		64.5	UNDER	62.1	59.1
11:59:00	62.8		64.6	UNDER	63.1	61.1
11:59:10	62.2		63.6	UNDER	63.1	60.1
11:59:20	63.1		66	UNDER	65.1	61.1
11:59:30	63.4		65	UNDER	64.1	62.1
11:59:40	63.8		65.8	UNDER	64.1	62.1
11:59:50	66.1		69.6	UNDER	69.1	60.1
12:00:00	61.9		63.6	UNDER	63.1	60.1
12:00:10	62.0		66.1	UNDER	64.1	60.1
12:00:20	63.6		66.7	UNDER	66.1	60.1
12:00:30	63.0		65.2	UNDER	65.1	60.1
12:00:40	63.3		64.5	UNDER	64.1	62.1
12:00:50	63.6		65.1	UNDER	64.1	61.1
12:01:00	62.1		63.9	UNDER	63.1	60.1
12:01:10	66.9		71.6	UNDER	70.1	63.1
12:01:20	65.3		70.7	UNDER	69.1	59.1
12:01:30	61.1		65.3	UNDER	63.1	59.1
12:01:40	64.4		67.2	UNDER	66.1	61.1
12:01:50	60.9		62.4	UNDER	62.1	60.1
12:02:00	60.2		61.2	UNDER	60.1	59.1
12:02:10	64.7		66.9	UNDER	66.1	61.1

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
12:02:20	64.5		65.6	UNDER	65.1	63.1
12:02:30	62.1		63.3	UNDER	63.1	60.1
12:02:40	60.9		62.4	UNDER	62.1	59.1
12:02:50	57.4		60.6	UNDER	60.1	55.1
12:03:00	61.0		65.2	UNDER	64.1	55.1
12:03:10	64.9		66.5	UNDER	66.1	63.1
12:03:20	64.2		65.6	UNDER	65.1	63.1
12:03:30	64.1		67.3	UNDER	66.1	61.1
12:03:40	61.5		66	UNDER	64.1	58.1
12:03:50	60.7		62.8	UNDER	62.1	58.1
12:04:00	61.5		63.8	UNDER	63.1	58.1
12:04:10	61.6		63.2	UNDER	62.1	59.1
12:04:20	59.6		60.9	UNDER	60.1	58.1
12:04:30	62.0		63.7	UNDER	63.1	60.1
12:04:40	62.1		63.6	UNDER	63.1	61.1
12:04:50	62.4		65	UNDER	64.1	60.1
12:05:00	65.7		67.6	UNDER	67.1	62.1
12:05:10	63.7		65.2	UNDER	64.1	62.1
12:05:20	61.0		62.8	UNDER	62.1	59.1
12:05:30	62.3		64	UNDER	63.1	60.1
12:05:40	63.8		65.6	UNDER	65.1	60.1
12:05:50	62.3		64	UNDER	63.1	60.1
12:06:00	63.7		64.4	UNDER	64.1	62.1
12:06:10	64.7		66	UNDER	66.1	61.1
12:06:20	62.9		65.2	UNDER	64.1	60.1
12:06:30	60.3		61.9	UNDER	61.1	59.1
12:06:40	59.5		61.2	UNDER	60.1	58.1
12:06:50	62.3		66.1	UNDER	65.1	59.1
12:07:00	65.8		67.5	UNDER	67.1	63.1
12:07:10	60.4		63.8	UNDER	63.1	57.1
12:07:20	63.2		66	UNDER	65.1	58.1
12:07:30	63.6		66	UNDER	66.1	61.1
12:07:40	61.8		62.4	UNDER	62.1	61.1
12:07:50	62.8		64.3	UNDER	64.1	60.1
12:08:00	62.7		63.6	UNDER	63.1	61.1
12:08:10	62.1		62.9	UNDER	62.1	61.1
12:08:20	63.1		64	UNDER	63.1	61.1
12:08:30	61.3		63.7	UNDER	63.1	60.1
12:08:40	60.9		63.8	UNDER	62.1	58.1
12:08:50	63.2		65.2	UNDER	64.1	61.1
12:09:00	65.0		66	UNDER	66.1	61.1
12:09:10	60.8		61.8	UNDER	61.1	59.1
12:09:20	61.2		63.6	UNDER	63.1	58.1
12:09:30	62.1		64.8	UNDER	64.1	60.1

TIME	Lav	Lmax	Lpk	L -10	L(99.9)
dBA		dBA	dBC	dBA	dBA
	5/13/2014				
12:09:40	60.2	61.4	UNDER	60.1	59.1
12:09:50	59.7	62.4	UNDER	61.1	58.1
12:10:00	62.6	64.9	UNDER	64.1	60.1
12:10:10	63.1	64.4	UNDER	64.1	62.1
12:10:20	63.5	67.2	UNDER	65.1	61.1
12:10:30	64.3	67.5	UNDER	67.1	61.1
12:10:40	61.5	64.4	UNDER	64.1	58.1
12:10:50	63.7	65.7	UNDER	65.1	60.1
12:11:00	62.8	65.6	UNDER	64.1	61.1
12:11:10	62.7	64.8	UNDER	64.1	60.1
12:11:20	63.4	64.8	UNDER	64.1	62.1
12:11:30	61.2	62.8	UNDER	62.1	60.1
12:11:40	61.7	64.1	UNDER	63.1	59.1
12:11:50	63.9	66.3	UNDER	65.1	59.1
12:12:00	61.4	63.8	UNDER	62.1	59.1
12:12:10	59.9	61.3	UNDER	61.1	57.1
12:12:20	58.8	60.4	UNDER	59.1	57.1
12:12:30	60.3	61	UNDER	60.1	59.1
12:12:40	61.9	62.8	UNDER	62.1	60.1
12:12:50	61.5	63.6	UNDER	63.1	58.1
12:13:00	59.8	61.3	UNDER	61.1	58.1
12:13:10	62.0	63.6	UNDER	63.1	61.1
12:13:20	61.3	63.4	UNDER	63.1	60.1
12:13:30	63.3	64.8	UNDER	64.1	62.1
12:13:40	61.9	63.7	UNDER	62.1	60.1
12:13:50	62.2	65.5	UNDER	65.1	60.1
12:14:00	64.5	66.2	UNDER	65.1	62.1
12:14:10	63.7	66.4	UNDER	65.1	60.1
12:14:20	61.8	62.6	UNDER	62.1	60.1
12:14:30	61.0	61.8	UNDER	61.1	60.1
12:14:40	60.7	62.2	UNDER	62.1	59.1
12:14:50	62.0	63.6	UNDER	63.1	60.1
12:15:00	61.9	63.8	UNDER	63.1	60.1
12:15:10	62.7	64.4	UNDER	64.1	60.1
12:15:20	64.4	65.9	UNDER	65.1	63.1
12:15:30	64.5	65.6	UNDER	65.1	63.1
12:15:40	66.1	67.2	UNDER	66.1	64.1
12:15:50	63.9	66.8	UNDER	66.1	60.1
12:16:00	61.5	62.1	UNDER	62.1	60.1
12:16:10	61.5	62.2	UNDER	62.1	60.1
12:16:20	62.0	65.6	UNDER	65.1	58.1
12:16:30	63.5	65.5	UNDER	65.1	61.1
12:16:40	62.2	64.4	UNDER	63.1	61.1
12:16:50	60.9	64.1	UNDER	63.1	58.1

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
12:17:00	62.8		64.4	UNDER	64.1	60.1
12:17:10	63.1		64.8	UNDER	64.1	60.1
12:17:20	61.4		62.3	UNDER	62.1	60.1
12:17:30	61.2		63.2	UNDER	62.1	60.1
12:17:40	62.8		64	UNDER	63.1	61.1
12:17:50	65.7		66.8	UNDER	66.1	63.1
12:18:00	62.0		63.2	UNDER	62.1	60.1
12:18:10	64.0		65.4	UNDER	65.1	61.1
12:18:20	62.9		63.7	UNDER	63.1	62.1
12:18:30	63.5		64.3	UNDER	64.1	62.1
12:18:40	60.7		62.6	UNDER	62.1	59.1
12:18:50	63.2		64	UNDER	64.1	61.1
12:19:00	62.5		64.3	UNDER	64.1	60.1
12:19:10	61.8		62.8	UNDER	62.1	60.1
12:19:20	62.6		63.7	UNDER	63.1	61.1
12:19:30	62.0		62.7	UNDER	62.1	61.1
12:19:40	60.3		61.6	UNDER	61.1	58.1
12:19:50	61.0		63.1	UNDER	62.1	58.1
12:20:00	62.2		64.4	UNDER	64.1	58.1
12:20:10	60.2		62.8	UNDER	61.1	58.1
12:20:20	61.3		64	UNDER	63.1	58.1
12:20:30	59.7		61.5	UNDER	60.1	57.1
12:20:40	64.6		66.3	UNDER	66.1	61.1
12:20:50	63.1		64.8	UNDER	64.1	61.1
12:21:00	65.1		65.6	UNDER	65.1	64.1
12:21:10	64.7		66.3	UNDER	66.1	61.1
12:21:20	61.3		61.9	UNDER	61.1	60.1
12:21:30	61.9		62.6	UNDER	62.1	60.1
12:21:40	61.5		62.8	UNDER	62.1	60.1
12:21:50	61.2		62	UNDER	62.1	59.1
12:22:00	65.0		66.6	UNDER	66.1	60.1
12:22:10	62.7		65.3	UNDER	64.1	61.1
12:22:20	63.0		63.9	UNDER	63.1	61.1
12:22:30	64.8		66.4	UNDER	66.1	62.1
12:22:40	60.2		62.3	UNDER	61.1	58.1
12:22:50	58.9		60.5	UNDER	60.1	57.1
12:23:00	60.8		62	UNDER	61.1	59.1
12:23:10	60.6		62	UNDER	61.1	58.1
12:23:20	61.8		64.4	UNDER	63.1	60.1
12:23:30	61.3		64.4	UNDER	63.1	55.1
12:23:40	60.5		64.3	UNDER	62.1	55.1
12:23:50	66.7		69.6	UNDER	69.1	61.1
12:24:00	60.7		61.5	UNDER	61.1	59.1
12:24:10	61.2		63.5	UNDER	62.1	59.1

TIME	Lav		Lmax	Lpk	L	-10	L(99.9)
dBA			dBA	dBC	dBA		dBA
		5/13/2014					
12:24:20	61.6		63.2	UNDER		62.1	60.1
12:24:30	62.8		64.2	UNDER		63.1	61.1
12:24:40	62.5		63.4	UNDER		63.1	61.1
12:24:50	60.4		62.8	UNDER		62.1	58.1
12:25:00	63.2		65.2	UNDER		64.1	59.1
12:25:10	62.0		63.6	UNDER		63.1	60.1
12:25:20	63.4		65	UNDER		64.1	59.1
12:25:30	63.0		66.4	UNDER		65.1	58.1
12:25:40	63.2		65.2	UNDER		64.1	61.1
12:25:50	63.6		65.6	UNDER		65.1	61.1
12:26:00	61.2		62	UNDER		62.1	60.1
12:26:10	63.9		67.6	UNDER		65.1	61.1
12:26:20	66.3		68.7	UNDER		68.1	62.1
12:26:30	62.9		63.7	UNDER		63.1	61.1
12:26:40	62.5		63.4	UNDER		63.1	61.1
12:26:50	61.8		62.8	UNDER		62.1	61.1
12:27:00	61.4		62.4	UNDER		62.1	60.1
12:27:10	62.4		66.8	UNDER		65.1	59.1
12:27:20	65.3		66.5	UNDER		66.1	63.1
12:27:30	59.5		62.8	UNDER		61.1	57.1

************************* ****** ************* ****** ****************

Filename..............RRC 2557
Test Location..........
Employee Name..........
Employee Number........
Department.............

Calibrator Type........
Calibrator Cal. Date...

************************* ****** ************* ****** ****************

METROSONICS db-3080 V1.12 SERI AL # 2557
REPORT PRINTED ON 05/19/14 at 14 :16:57

User ID: __________________ ______ _______

LOGGING STARTED......05/13 /14 at 11:20:20
TOTAL LOGGING TIME...0 DAY S 01:0 4:01
LOGGING STOPPED......05/13 /14 at 12:24:21
TOTAL INTERVALS......385
INTERVAL LENGTH......00:00 :10

AUTO STOP............NO
CLOCK SYNCH..........YES
RESPONSE RATE........SLOW
FILTER...............A WT.

PRE-TEST CALIBRATION TIME. ...05/ 13/14 AT 10:35 :58
PRE-TEST CALIBRATION RANGE ...39. 9 TO 139.9 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTO RY Lav ...NONE

<<< SUMMARY REPORT FOR TES T NUMB ER 1 OF 1 >>>

EXCHANGE RATE..........3dB
CUTOFFS................ 80 dB 90 dB
CEILING...............115 dB

DOSE CRITERION LEVEL... 90 dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav............ 56.4dB
Lav (80)...... 39.9dB
Lav (90)...... 39.9dB
SEL............ 92.1dB

TWA............ 47.7dB
TWA (80)...... 39.9dB
TWA (90)...... 39.9dB

Lmax........... 68.4dB 0 5/13/2001 4 at 12:09:15
Lpk............UNDER RANGE
TIME OVER 115dB...00:00:00 0

DOSE (80)........ 0.00 %
PROJ. DOSE (80).. 0.00 %
DOSE (90)........ 0.00 %
PROJ. DOSE (90).. 0.00 %

<<< TIME HISTORY REPORT FO R TEST NUMBER 1 OF 1 >>>

TIME	Lav	Lmax	Lpk L	-10	L(99.9)
dBA		dBA	dBC	dBA	dBA
	5/13/2014				
11:20:20	58.6	59.1	UNDER	58.9	57.9
11:20:30	56.6	58	UNDER	57.9	55.9
11:20:40	56.9	57.7	UNDER	57.9	56.9
11:20:50	57.1	57.8	UNDER	57.9	56.9
11:21:00	55.9	56.5	UNDER	56.9	54.9
11:21:10	55.9	57.2	UNDER	57.9	54.9
11:21:20	56.7	57.7	UNDER	57.9	55.9
11:21:30	55.9	56.5	UNDER	56.9	55.9
11:21:40	58.3	62.4	UNDER	61.9	56.9
11:21:50	57.7	61.1	UNDER	60.9	53.9
11:22:00	55.8	56.6	UNDER	56.9	53.9
11:22:10	56.2	56.7	UNDER	56.9	55.9
11:22:20	57.7	58.4	UNDER	58.9	56.9
11:22:30	57.9	58.3	UNDER	58.9	57.9
11:22:40	57.4	60	UNDER	59.9	56.9
11:22:50	57.9	58.9	UNDER	58.9	56.9
11:23:00	57.4	58.8	UNDER	58.9	56.9
11:23:10	59.2	60.8	UNDER	60.9	57.9
11:23:20	57.5	59.3	UNDER	58.9	56.9
11:23:30	57.2	58.7	UNDER	58.9	55.9

TIME	Lav		Lmax	Lpk L	-10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:23:40	59.1		59.6	UNDER	59.9	58.9
11:23:50	58.3		59.5	UNDER	59.9	57.9
11:24:00	57.3		58.2	UNDER	57.9	56.9
11:24:10	57.5		58.3	UNDER	58.9	55.9
11:24:20	53.7		55.2	UNDER	54.9	53.9
11:24:30	54.4		56.3	UNDER	55.9	53.9
11:24:40	55.8		58.4	UNDER	57.9	53.9
11:24:50	53.4		54.8	UNDER	54.9	52.9
11:25:00	56.5		57.5	UNDER	57.9	54.9
11:25:10	55.1		56.6	UNDER	55.9	54.9
11:25:20	55.9		56.8	UNDER	56.9	54.9
11:25:30	53.0		53.9	UNDER	53.9	52.9
11:25:40	53.1		53.7	UNDER	53.9	52.9
11:25:50	52.8		53.6	UNDER	53.9	52.9
11:26:00	53.9		54.8	UNDER	54.9	53.9
11:26:10	54.4		55.5	UNDER	55.9	53.9
11:26:20	55.7		56.4	UNDER	56.9	55.9
11:26:30	59.7		65.4	UNDER	64.9	55.9
11:26:40	60.0		65.4	UNDER	64.9	54.9
11:26:50	54.0		54.5	UNDER	54.9	53.9
11:27:00	54.9		55.9	UNDER	55.9	53.9
11:27:10	55.1		55.9	UNDER	55.9	54.9
11:27:20	57.3		59.7	UNDER	59.9	55.9
11:27:30	57.1		57.9	UNDER	57.9	55.9
11:27:40	55.2		56.7	UNDER	56.9	52.9
11:27:50	56.3		57.6	UNDER	57.9	52.9
11:28:00	58.3		59	UNDER	58.9	57.9
11:28:10	56.3		57.5	UNDER	57.9	54.9
11:28:20	58.8		61.5	UNDER	61.9	54.9
11:28:30	57.4		58.5	UNDER	58.9	56.9
11:28:40	55.6		56.5	UNDER	56.9	55.9
11:28:50	55.3		56.3	UNDER	56.9	54.9
11:29:00	56.5		59.1	UNDER	58.9	54.9
11:29:10	58.8		59.3	UNDER	59.9	58.9
11:29:20	56.5		58.1	UNDER	57.9	55.9
11:29:30	54.6		55.6	UNDER	55.9	53.9
11:29:40	57.7		58.8	UNDER	58.9	55.9
11:29:50	57.9		58.7	UNDER	58.9	57.9
11:30:00	57.7		58.1	UNDER	58.9	56.9
11:30:10	57.0		58	UNDER	57.9	56.9
11:30:20	57.2		58.1	UNDER	57.9	56.9
11:30:30	57.7		59	UNDER	58.9	55.9
11:30:40	56.6		57.5	UNDER	57.9	56.9
11:30:50	56.4		57.6	UNDER	57.9	54.9

TIME	Lav		Lmax	Lpk L	-10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:31:00	54.6		55.2	UNDER	55.9	54.9
11:31:10	54.1		55.3	UNDER	55.9	53.9
11:31:20	57.5		58.3	UNDER	58.9	55.9
11:31:30	56.9		58	UNDER	57.9	55.9
11:31:40	57.2		58.5	UNDER	58.9	56.9
11:31:50	62.9		66.7	UNDER	66.9	57.9
11:32:00	57.9		59.2	UNDER	58.9	56.9
11:32:10	56.2		56.7	UNDER	56.9	55.9
11:32:20	53.3		55.5	UNDER	54.9	51.9
11:32:30	53.7		56.3	UNDER	56.9	51.9
11:32:40	57.8		58.7	UNDER	58.9	56.9
11:32:50	56.2		57.6	UNDER	57.9	54.9
11:33:00	53.8		54.8	UNDER	54.9	53.9
11:33:10	56.7		57.7	UNDER	57.9	54.9
11:33:20	55.3		55.7	UNDER	55.9	54.9
11:33:30	54.3		54.8	UNDER	54.9	53.9
11:33:40	54.2		54.9	UNDER	54.9	53.9
11:33:50	54.7		55.6	UNDER	55.9	54.9
11:34:00	58.3		60.7	UNDER	60.9	54.9
11:34:10	53.4		54.4	UNDER	54.9	52.9
11:34:20	53.3		54.8	UNDER	54.9	51.9
11:34:30	56.6		57.5	UNDER	57.9	54.9
11:34:40	55.6		57.2	UNDER	57.9	54.9
11:34:50	54.5		55.1	UNDER	55.9	54.9
11:35:00	54.3		55.1	UNDER	55.9	53.9
11:35:10	54.7		55.2	UNDER	55.9	54.9
11:35:20	54.4		55.5	UNDER	55.9	53.9
11:35:30	53.3		54.2	UNDER	54.9	52.9
11:35:40	56.2		59.4	UNDER	57.9	54.9
11:35:50	62.0		65.5	UNDER	65.9	56.9
11:36:00	56.4		57.5	UNDER	57.9	55.9
11:36:10	54.6		56	UNDER	55.9	53.9
11:36:20	55.1		55.9	UNDER	55.9	53.9
11:36:30	53.7		55.1	UNDER	54.9	52.9
11:36:40	56.3		57.1	UNDER	57.9	54.9
11:36:50	56.4		57.4	UNDER	56.9	55.9
11:37:00	56.3		57.2	UNDER	57.9	55.9
11:37:10	57.3		57.9	UNDER	57.9	56.9
11:37:20	58.9		60	UNDER	59.9	57.9
11:37:30	56.3		58.4	UNDER	57.9	54.9
11:37:40	56.8		58.3	UNDER	58.9	55.9
11:37:50	55.3		57.1	UNDER	57.9	53.9
11:38:00	55.5		57.1	UNDER	56.9	54.9
11:38:10	57.4		58.3	UNDER	58.9	56.9

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:38:20	57.6		58.7	UNDER	58.9	56.9
11:38:30	57.2		58.3	UNDER	58.9	55.9
11:38:40	53.8		55.6	UNDER	55.9	52.9
11:38:50	55.6		57	UNDER	56.9	53.9
11:39:00	56.3		56.9	UNDER	56.9	55.9
11:39:10	57.2		57.5	UNDER	57.9	56.9
11:39:20	54.7		56.8	UNDER	56.9	53.9
11:39:30	54.4		55.9	UNDER	55.9	53.9
11:39:40	55.4		56.3	UNDER	56.9	54.9
11:39:50	55.1		55.5	UNDER	55.9	54.9
11:40:00	55.2		55.5	UNDER	55.9	54.9
11:40:10	55.9		58	UNDER	57.9	54.9
11:40:20	59.9		62.8	UNDER	62.9	55.9
11:40:30	54.6		55.5	UNDER	55.9	53.9
11:40:40	54.4		54.9	UNDER	54.9	54.9
11:40:50	55.1		55.9	UNDER	55.9	53.9
11:41:00	55.0		57.2	UNDER	56.9	53.9
11:41:10	58.4		59.5	UNDER	59.9	56.9
11:41:20	55.4		56.2	UNDER	55.9	54.9
11:41:30	54.1		55.5	UNDER	55.9	53.9
11:41:40	56.3		57.1	UNDER	56.9	55.9
11:41:50	57.4		58	UNDER	57.9	56.9
11:42:00	58.0		59.1	UNDER	58.9	56.9
11:42:10	55.3		56.3	UNDER	56.9	54.9
11:42:20	56.1		56.8	UNDER	56.9	54.9
11:42:30	55.5		56.3	UNDER	55.9	55.9
11:42:40	55.9		56.4	UNDER	56.9	55.9
11:42:50	57.1		57.7	UNDER	57.9	55.9
11:43:00	57.2		58.5	UNDER	58.9	54.9
11:43:10	53.2		54.3	UNDER	54.9	52.9
11:43:20	52.1		52.7	UNDER	52.9	51.9
11:43:30	53.9		55.1	UNDER	54.9	52.9
11:43:40	55.5		56	UNDER	55.9	54.9
11:43:50	57.0		59.3	UNDER	59.9	54.9
11:44:00	54.9		58.3	UNDER	56.9	53.9
11:44:10	54.9		55.5	UNDER	55.9	54.9
11:44:20	57.3		58.8	UNDER	58.9	55.9
11:44:30	54.4		57.2	UNDER	56.9	52.9
11:44:40	53.7		54.9	UNDER	54.9	52.9
11:44:50	55.3		56.3	UNDER	55.9	54.9
11:45:00	55.9		57.1	UNDER	56.9	54.9
11:45:10	56.9		57.9	UNDER	57.9	55.9
11:45:20	55.2		57.6	UNDER	56.9	52.9
11:45:30	55.4		58	UNDER	57.9	52.9

TIME	Lav		Lmax	Lpk L	-10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
11:45:40	55.3		58.3	UNDER	58.9	51.9
11:45:50	52.3		53.6	UNDER	53.9	51.9
11:46:00	56.8		58.3	UNDER	58.9	53.9
11:46:10	56.5		57.2	UNDER	57.9	55.9
11:46:20	58.8		61.1	UNDER	60.9	55.9
11:46:30	57.0		58.1	UNDER	58.9	55.9
11:46:40	56.8		57.5	UNDER	57.9	56.9
11:46:50	56.1		57.2	UNDER	57.9	53.9
11:47:00	54.6		55.2	UNDER	55.9	53.9
11:47:10	54.5		55.1	UNDER	54.9	54.9
11:47:20	54.0		54.5	UNDER	54.9	53.9
11:47:30	53.0		53.9	UNDER	53.9	51.9
11:47:40	53.4		55.1	UNDER	54.9	51.9
11:47:50	55.3		56.4	UNDER	56.9	54.9
11:48:00	54.1		55.1	UNDER	54.9	52.9
11:48:10	53.1		54.1	UNDER	53.9	52.9
11:48:20	55.3		56.3	UNDER	56.9	54.9
11:48:30	57.5		58.4	UNDER	58.9	56.9
11:48:40	54.5		56.7	UNDER	56.9	53.9
11:48:50	55.0		55.9	UNDER	55.9	54.9
11:49:00	56.0		57.9	UNDER	57.9	55.9
11:49:10	54.2		55.2	UNDER	54.9	53.9
11:49:20	55.0		55.6	UNDER	55.9	54.9
11:49:30	54.6		54.9	UNDER	54.9	54.9
11:49:40	55.2		56.5	UNDER	55.9	54.9
11:49:50	55.8		56.5	UNDER	56.9	55.9
11:50:00	54.9		56.2	UNDER	56.9	53.9
11:50:10	55.0		55.5	UNDER	55.9	53.9
11:50:20	54.8		55.7	UNDER	55.9	53.9
11:50:30	55.9		56.2	UNDER	56.9	55.9
11:50:40	55.2		56	UNDER	55.9	54.9
11:50:50	56.7		58.2	UNDER	58.9	54.9
11:51:00	55.1		55.9	UNDER	55.9	54.9
11:51:10	55.7		56.3	UNDER	56.9	55.9
11:51:20	55.8		56.7	UNDER	56.9	54.9
11:51:30	56.8		59.5	UNDER	58.9	54.9
11:51:40	56.1		58.7	UNDER	58.9	53.9
11:51:50	54.6		55.9	UNDER	55.9	53.9
11:52:00	56.5		57.1	UNDER	57.9	55.9
11:52:10	55.3		56.3	UNDER	55.9	54.9
11:52:20	57.3		59.1	UNDER	58.9	55.9
11:52:30	54.8		57.1	UNDER	56.9	53.9
11:52:40	56.6		58.7	UNDER	58.9	53.9
11:52:50	59.0		60.7	UNDER	60.9	56.9

TIME	Lav		Lmax	Lpk	L	-10	L(99.9)
dBA			dBA	dBC		dBA	dBA
		5/13/2014					
11:53:00	55.5		56.7	UNDER		56.9	54.9
11:53:10	56.4		57.9	UNDER		57.9	55.9
11:53:20	56.7		57.9	UNDER		57.9	55.9
11:53:30	56.1		56.7	UNDER		56.9	55.9
11:53:40	58.4		59.5	UNDER		59.9	55.9
11:53:50	57.7		59.6	UNDER		59.9	56.9
11:54:00	57.1		57.6	UNDER		57.9	56.9
11:54:10	57.4		58	UNDER		57.9	56.9
11:54:20	57.5		58.7	UNDER		58.9	56.9
11:54:30	57.5		58.6	UNDER		58.9	56.9
11:54:40	58.2		59.2	UNDER		58.9	56.9
11:54:50	55.4		58	UNDER		57.9	54.9
11:55:00	56.2		58.4	UNDER		57.9	54.9
11:55:10	54.9		55.5	UNDER		55.9	54.9
11:55:20	56.5		57.3	UNDER		57.9	55.9
11:55:30	57.7		60.4	UNDER		59.9	55.9
11:55:40	57.6		59.4	UNDER		59.9	55.9
11:55:50	57.9		61.1	UNDER		60.9	55.9
11:56:00	56.5		57.5	UNDER		57.9	55.9
11:56:10	57.8		58.2	UNDER		58.9	56.9
11:56:20	58.4		61.3	UNDER		60.9	56.9
11:56:30	56.5		60.7	UNDER		58.9	53.9
11:56:40	57.5		60.8	UNDER		60.9	53.9
11:56:50	53.7		55.1	UNDER		54.9	52.9
11:57:00	54.5		55.3	UNDER		55.9	53.9
11:57:10	56.0		57.6	UNDER		57.9	53.9
11:57:20	55.9		57.8	UNDER		57.9	53.9
11:57:30	53.7		55	UNDER		54.9	52.9
11:57:40	54.5		55.3	UNDER		55.9	53.9
11:57:50	54.4		55.2	UNDER		55.9	53.9
11:58:00	54.6		57	UNDER		56.9	53.9
11:58:10	58.1		58.9	UNDER		58.9	57.9
11:58:20	56.7		57.9	UNDER		57.9	55.9
11:58:30	56.5		57.1	UNDER		56.9	56.9
11:58:40	54.5		56	UNDER		55.9	53.9
11:58:50	54.1		54.9	UNDER		54.9	53.9
11:59:00	54.4		56.7	UNDER		56.9	53.9
11:59:10	54.8		56	UNDER		55.9	53.9
11:59:20	54.2		55.1	UNDER		54.9	53.9
11:59:30	55.3		55.6	UNDER		55.9	54.9
11:59:40	55.8		56.6	UNDER		56.9	55.9
11:59:50	55.5		56	UNDER		55.9	55.9
12:00:00	56.0		57.1	UNDER		56.9	54.9
12:00:10	56.0		56.7	UNDER		56.9	54.9

TIME	Lav		Lmax	Lpk	L	-10	L(99.9)
dBA			dBA	dBC	dBA		dBA
		5/13/2014					
12:00:20	55.6		56	UNDER		55.9	54.9
12:00:30	54.0		54.8	UNDER		54.9	53.9
12:00:40	55.5		56.5	UNDER		56.9	54.9
12:00:50	56.5		57.5	UNDER		57.9	55.9
12:01:00	58.7		60.8	UNDER		60.9	55.9
12:01:10	55.6		58.2	UNDER		56.9	54.9
12:01:20	54.6		55.3	UNDER		55.9	53.9
12:01:30	57.0		58.9	UNDER		58.9	55.9
12:01:40	54.4		55.5	UNDER		55.9	53.9
12:01:50	56.7		57.6	UNDER		57.9	55.9
12:02:00	56.5		57.1	UNDER		57.9	55.9
12:02:10	55.9		56.4	UNDER		56.9	55.9
12:02:20	61.5		64.7	UNDER		64.9	55.9
12:02:30	60.3		62.7	UNDER		62.9	56.9
12:02:40	54.7		56.1	UNDER		55.9	53.9
12:02:50	57.2		58.7	UNDER		58.9	54.9
12:03:00	55.1		57.8	UNDER		56.9	53.9
12:03:10	52.9		54	UNDER		53.9	52.9
12:03:20	54.6		56.5	UNDER		56.9	52.9
12:03:30	57.0		57.4	UNDER		57.9	56.9
12:03:40	56.6		57.2	UNDER		57.9	55.9
12:03:50	54.8		55.6	UNDER		55.9	54.9
12:04:00	54.5		55.5	UNDER		55.9	51.9
12:04:10	52.7		54.7	UNDER		54.9	51.9
12:04:20	57.6		58.8	UNDER		58.9	54.9
12:04:30	58.3		59.1	UNDER		58.9	57.9
12:04:40	55.8		57.3	UNDER		56.9	55.9
12:04:50	55.6		56.3	UNDER		56.9	53.9
12:05:00	52.9		53.9	UNDER		53.9	51.9
12:05:10	53.4		54	UNDER		53.9	52.9
12:05:20	54.8		55.5	UNDER		55.9	53.9
12:05:30	52.5		53.6	UNDER		53.9	51.9
12:05:40	52.9		53.8	UNDER		53.9	51.9
12:05:50	55.5		56.5	UNDER		56.9	53.9
12:06:00	54.0		54.7	UNDER		54.9	53.9
12:06:10	58.5		61.9	UNDER		61.9	54.9
12:06:20	56.0		58.7	UNDER		57.9	54.9
12:06:30	54.8		55.1	UNDER		55.9	54.9
12:06:40	54.6		55.4	UNDER		55.9	54.9
12:06:50	56.4		57.6	UNDER		57.9	55.9
12:07:00	54.6		56.1	UNDER		55.9	53.9
12:07:10	55.5		56.2	UNDER		55.9	55.9
12:07:20	56.5		57.5	UNDER		57.9	56.9
12:07:30	54.8		56.4	UNDER		56.9	53.9

TIME	Lav		Lmax	Lpk	L	-10	L(99.9)
dBA			dBA	dBC		dBA	dBA
		5/13/2014					
12:07:40	53.5		54.8	UNDER		54.9	52.9
12:07:50	53.8		55.1	UNDER		54.9	52.9
12:08:00	54.5		56	UNDER		55.9	53.9
12:08:10	56.9		58	UNDER		57.9	53.9
12:08:20	56.1		57.5	UNDER		57.9	53.9
12:08:30	53.7		55.9	UNDER		55.9	52.9
12:08:40	57.7		59	UNDER		58.9	55.9
12:08:50	55.5		57.6	UNDER		56.9	54.9
12:09:00	55.7		59.1	UNDER		57.9	54.9
12:09:10	66.5		68.4	UNDER		68.9	59.9
12:09:20	61.9		67.2	UNDER		66.9	55.9
12:09:30	58.7		61.1	UNDER		60.9	54.9
12:09:40	57.0		59.9	UNDER		59.9	54.9
12:09:50	53.2		53.9	UNDER		53.9	52.9
12:10:00	54.4		54.9	UNDER		54.9	52.9
12:10:10	57.2		58.3	UNDER		57.9	54.9
12:10:20	56.3		58.2	UNDER		57.9	54.9
12:10:30	54.9		56.2	UNDER		55.9	54.9
12:10:40	55.5		56.3	UNDER		56.9	54.9
12:10:50	56.4		58.3	UNDER		57.9	55.9
12:11:00	59.1		61.3	UNDER		60.9	56.9
12:11:10	61.2		64.7	UNDER		63.9	58.9
12:11:20	63.3		66.6	UNDER		65.9	59.9
12:11:30	60.3		64.3	UNDER		62.9	57.9
12:11:40	57.4		59.1	UNDER		58.9	55.9
12:11:50	55.3		57.1	UNDER		56.9	53.9
12:12:00	55.3		56	UNDER		55.9	54.9
12:12:10	56.7		57.5	UNDER		57.9	54.9
12:12:20	55.0		56.4	UNDER		56.9	53.9
12:12:30	56.3		57.1	UNDER		56.9	54.9
12:12:40	55.2		56.3	UNDER		56.9	54.9
12:12:50	55.0		55.7	UNDER		55.9	54.9
12:13:00	54.9		57.2	UNDER		56.9	53.9
12:13:10	56.7		58.7	UNDER		58.9	54.9
12:13:20	53.8		54.3	UNDER		54.9	53.9
12:13:30	52.3		53.6	UNDER		53.9	51.9
12:13:40	56.2		62.3	UNDER		60.9	52.9
12:13:50	59.0		63.1	UNDER		62.9	54.9
12:14:00	55.0		55.7	UNDER		55.9	54.9
12:14:10	53.4		54.3	UNDER		53.9	52.9
12:14:20	54.8		55.7	UNDER		55.9	53.9
12:14:30	54.4		55.5	UNDER		55.9	53.9
12:14:40	55.3		56.2	UNDER		56.9	53.9
12:14:50	55.9		56.5	UNDER		56.9	54.9

TIME	Lav	Lmax	Lpk L	-10	L(99.9)
dBA		dBA	dBC	dBA	dBA
	5/13/2014				
12:15:00	54.8	55.1	UNDER	55.9	54.9
12:15:10	56.7	58	UNDER	57.9	54.9
12:15:20	57.4	58.3	UNDER	58.9	56.9
12:15:30	60.9	63.9	UNDER	63.9	56.9
12:15:40	58.6	60.4	UNDER	60.9	55.9
12:15:50	54.8	56	UNDER	55.9	54.9
12:16:00	55.4	56.3	UNDER	56.9	54.9
12:16:10	56.4	57.1	UNDER	57.9	55.9
12:16:20	55.1	57.5	UNDER	56.9	53.9
12:16:30	57.5	59.4	UNDER	58.9	56.9
12:16:40	57.5	57.9	UNDER	57.9	56.9
12:16:50	57.6	58.3	UNDER	58.9	56.9
12:17:00	58.2	59.6	UNDER	59.9	56.9
12:17:10	54.9	56.1	UNDER	55.9	54.9
12:17:20	54.9	55.5	UNDER	55.9	54.9
12:17:30	54.0	54.8	UNDER	54.9	52.9
12:17:40	56.1	57.2	UNDER	57.9	53.9
12:17:50	54.9	55.5	UNDER	55.9	54.9
12:18:00	55.1	55.9	UNDER	55.9	53.9
12:18:10	53.5	55.1	UNDER	54.9	52.9
12:18:20	55.5	56.7	UNDER	56.9	54.9
12:18:30	56.3	57.5	UNDER	57.9	54.9
12:18:40	55.0	55.2	UNDER	55.9	54.9
12:18:50	55.1	55.5	UNDER	55.9	54.9
12:19:00	57.1	58.8	UNDER	58.9	55.9
12:19:10	56.5	58.7	UNDER	58.9	54.9
12:19:20	56.1	58.3	UNDER	57.9	54.9
12:19:30	55.8	57.9	UNDER	56.9	54.9
12:19:40	55.9	56.7	UNDER	56.9	54.9
12:19:50	55.3	56.2	UNDER	56.9	54.9
12:20:00	55.0	56.3	UNDER	55.9	54.9
12:20:10	57.1	61.9	UNDER	59.9	55.9
12:20:20	54.5	55.6	UNDER	55.9	53.9
12:20:30	53.9	54.4	UNDER	54.9	53.9
12:20:40	54.8	55.1	UNDER	55.9	54.9
12:20:50	54.7	55.2	UNDER	55.9	53.9
12:21:00	53.2	53.9	UNDER	53.9	52.9
12:21:10	53.5	54.4	UNDER	54.9	52.9
12:21:20	54.5	55.9	UNDER	55.9	52.9
12:21:30	53.6	54.7	UNDER	54.9	52.9
12:21:40	53.0	54.1	UNDER	53.9	52.9
12:21:50	55.0	56.3	UNDER	55.9	53.9
12:22:00	56.9	57.6	UNDER	57.9	55.9
12:22:10	56.4	57.9	UNDER	57.9	55.9

TIME	Lav		Lmax	Lpk	L -10	L(99.9)
dBA			dBA	dBC	dBA	dBA
		5/13/2014				
12:22:20	57.4		58	UNDER	57.9	57.9
12:22:30	55.2		57.1	UNDER	57.9	53.9
12:22:40	53.9		54.7	UNDER	54.9	53.9
12:22:50	54.5		55.2	UNDER	55.9	53.9
12:23:00	54.7		55.3	UNDER	55.9	53.9
12:23:10	54.6		57.1	UNDER	56.9	53.9
12:23:20	56.2		57.6	UNDER	57.9	54.9
12:23:30	54.5		55.9	UNDER	55.9	53.9
12:23:40	56.5		57.5	UNDER	57.9	55.9
12:23:50	56.8		57.6	UNDER	57.9	55.9
12:24:00	53.7		54.8	UNDER	54.9	53.9
12:24:10	54.3		56.3	UNDER	55.9	53.9
12:24:20	57.0		57.4	UNDER	57.9	56.9

APPENDIX D
TRAFFIC DATA SUMMARY

I-95 Interchange Modification Report

Improvements to I-95 between Exit 133 and Exit 130

Volume II - Report Figures

Wdzyŝ ол, 2014

Prepared by:

Baker

Michael Baker Jr., Inc.

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
I	270	(240)	[3900]
J	1920	(900)	[20200]
K	280	(490)	[6500]
L	830	(490)	[9100]
M	610	(2250)	[22500]
N	140	(270)	[3300]
O	400	(570)	[7600]
P	320	(630)	[8200]

I-95 Interchange Modification Report

Figure 2-6A: 2013 Traffic Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2013 Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
A	120	(180)	[2900]
B	610	(340)	[6600]
C	1500	(1150)	[18300]
D	410	(330)	[6100]
E	420	(470)	[7400]
F	110	(140)	[2100]
G	340	(470)	[6400]
H	830	(1590)	[21100]

I-95 Interchange Modification Report

Figure 2-6B: 2013 Traffic Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2013 Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

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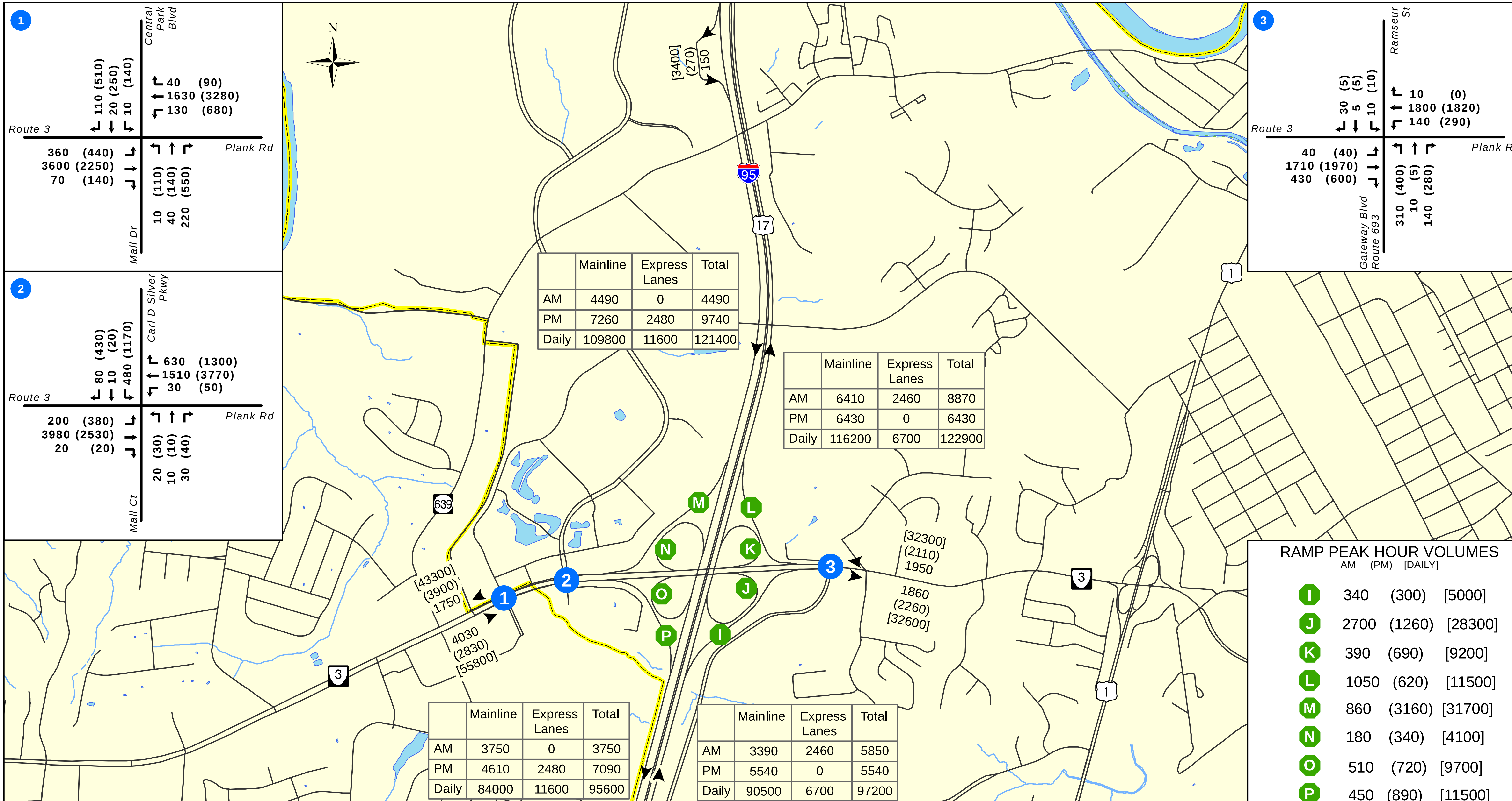


	Mainline	Express Lanes	Total
AM	4490	0	4490
PM	7260	2480	9740
Daily	109800	11600	121400

	Mainline	Express Lanes	Total
AM	6410	2460	8870
PM	6430	0	6430
Daily	116200	6700	122900

	Mainline	Express Lanes	Total
AM	3750	0	3750
PM	4610	2480	7090
Daily	84000	11600	95600

	Mainline	Express Lanes	Total
AM	3390	2460	5850
PM	5540	0	5540
Daily	90500	6700	97200

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
I	340	(300)	[5000]
J	2700	(1260)	[28300]
K	390	(690)	[9200]
L	1050	(620)	[11500]
M	860	(3160)	[31700]
N	180	(340)	[4100]
O	510	(720)	[9700]
P	450	(890)	[11500]

I-95 Interchange Modification Report

Figure 3-4A: 2040 No-Build Traffic Volumes

Legend

- Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2040 No-Build Traffic Volumes

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker

	Mainline	Express Lanes	Total
AM	4130	0	4130
PM	5850	2480	8330
Daily	92900	11600	104500

	Mainline	Express Lanes	Total
AM	5330	2460	7790
PM	5280	0	5280
Daily	101100	6700	107800

	Mainline	Express Lanes	Total
AM	4490	0	4490
PM	7260	2480	9740
Daily	109800	11600	121400

	Mainline	Express Lanes	Total
AM	6410	2460	8870
PM	6430	0	6430
Daily	116200	6700	122900

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
A	170	(250)	[4100]
B	1020	(570)	[11100]
C	2510	(1930)	[30600]
D	580	(460)	[8500]
E	700	(790)	[12500]
F	150	(200)	[2900]
G	480	(660)	[8900]
H	1390	(2660)	[35400]

I-95 Interchange Modification Report

Figure 3-4B: 2040 No-Build Conditions Peak Hour Volumes

Legend

- # Analyzed Intersection
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2040 No-Build

AM Volume (PM Volume) [Daily Volume]

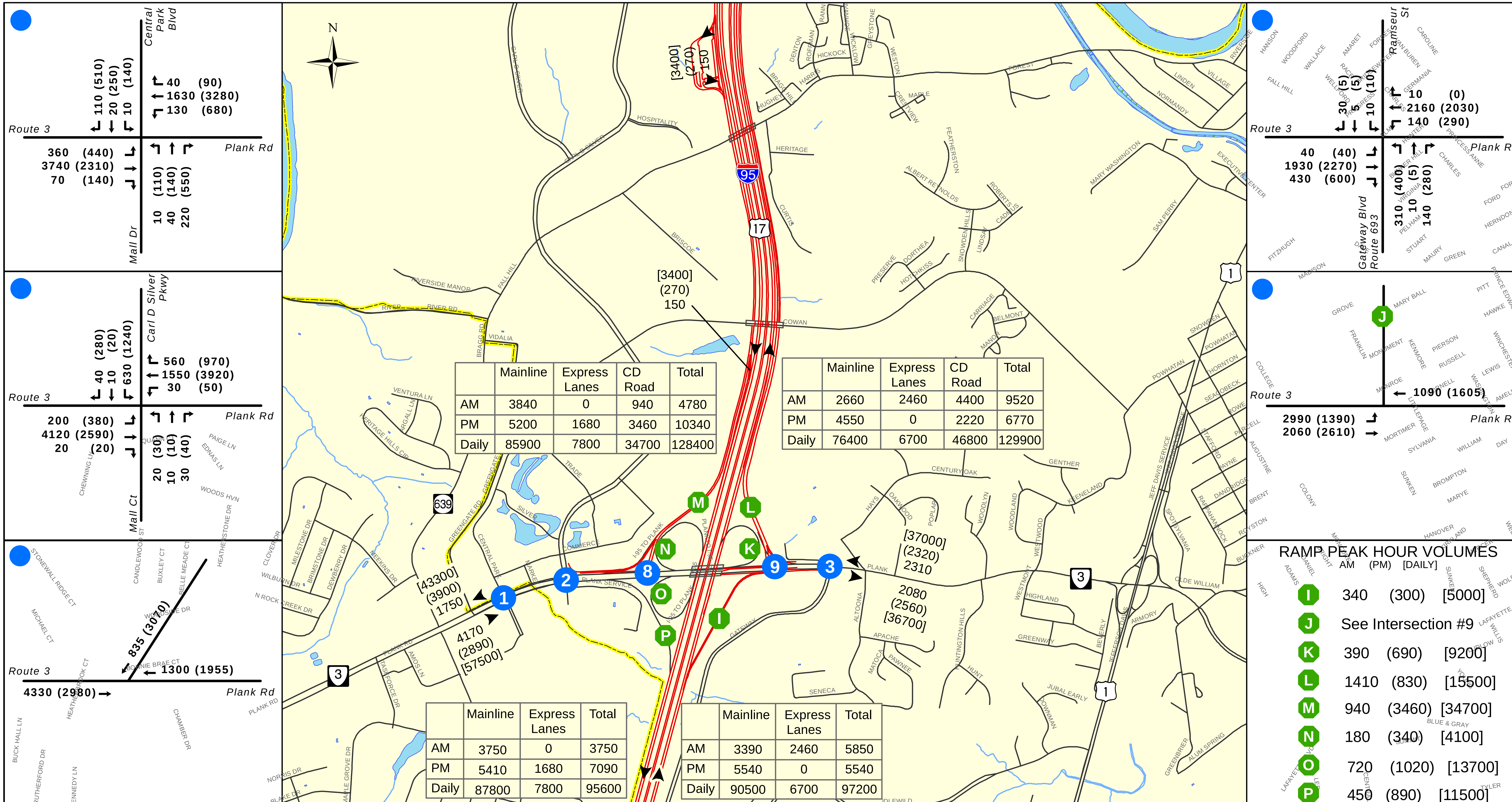
2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker

I-95 Interchange Modification Report

Figure 6-10A: 2040 Build Conditions Peak Hour Traffic Volumes



	Mainline	Express Lanes	CD Road	Total
AM	3840	0	940	4780
PM	5200	1680	3460	10340
Daily	85900	7800	34700	128400

	Mainline	Express Lanes	CD Road	Total
AM	2660	2460	4400	9520
PM	4550	0	2220	6770
Daily	76400	6700	46800	129900

	Mainline	Express Lanes	Total
AM	3750	0	3750
PM	5410	1680	7090
Daily	87800	7800	95600

	Mainline	Express Lanes	Total
AM	3390	2460	5850
PM	5540	0	5540
Daily	90500	6700	97200

RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
I	340	(300)	[5000]
J	See Intersection #9		
K	390	(690)	[9200]
L	1410	(830)	[15500]
M	940	(3460)	[34700]
N	180	(340)	[4100]
O	720	(1020)	[13700]
P	450	(890)	[11500]

Legend

- Analyzed Intersection
- Traffic Analysis Design
- Structures
- Corporate Boundary
- Roadways
- Streams
- Water
- Wetlands

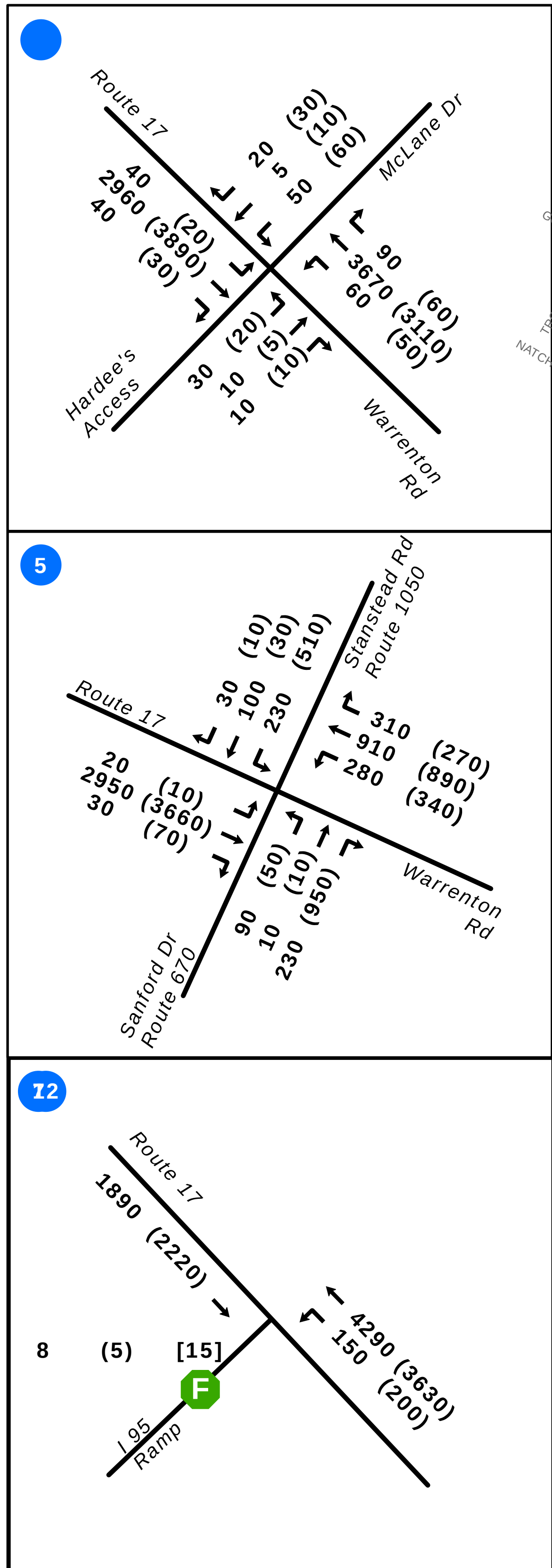
2040 Build

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker

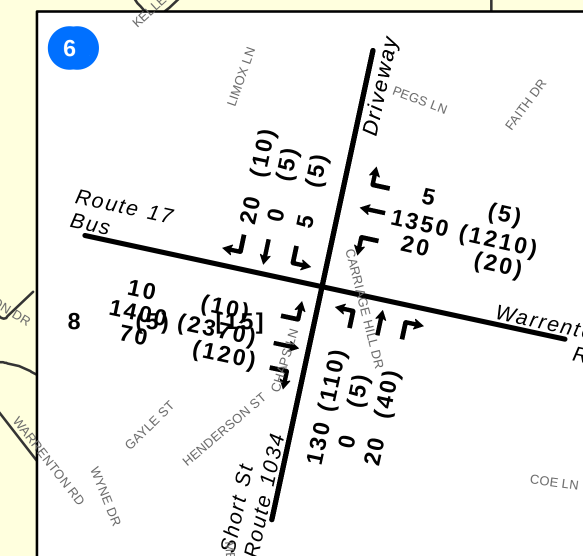


	Mainline	Express Lanes	Total
AM	4250	0	4250
PM	6950	1680	8630
Daily	99700	7800	107500

	Mainline	Express Lanes	Total
AM	5670	2460	8130
PM	5380	0	5380
Daily	104100	6700	110800

	Mainline	Express Lanes	CD Road	Total
AM	3690	0	1090	4780
PM	4930	1680	3730	10340
Daily	82600	7800	38000	128400

	Mainline	Express Lanes	CD Road	Total
AM	2660	2460	4400	9520
PM	4550	0	2220	6770
Daily	76400	6700	46800	129900



RAMP PEAK HOUR VOLUMES

	AM	(PM)	[DAILY]
A	170	(250)	[4100]
B	1020	(570)	[11100]
C	2770	(2130)	[33700]
D	530	(420)	[7700]
E	700	(790)	[12500]
F	See Intersection #7		
G	440	(600)	[8100]
H	1520	(2900)	[38600]

I-95 Interchange Modification Report

Figure 6-10B: 2040 Build Conditions Peak Hour Traffic Volumes

Legend

- # Analyzed Intersection
- Traffic Analysis Design
- Structures
- Corporate Boundary
- Roadways
- Streams
- Water
- Wetlands

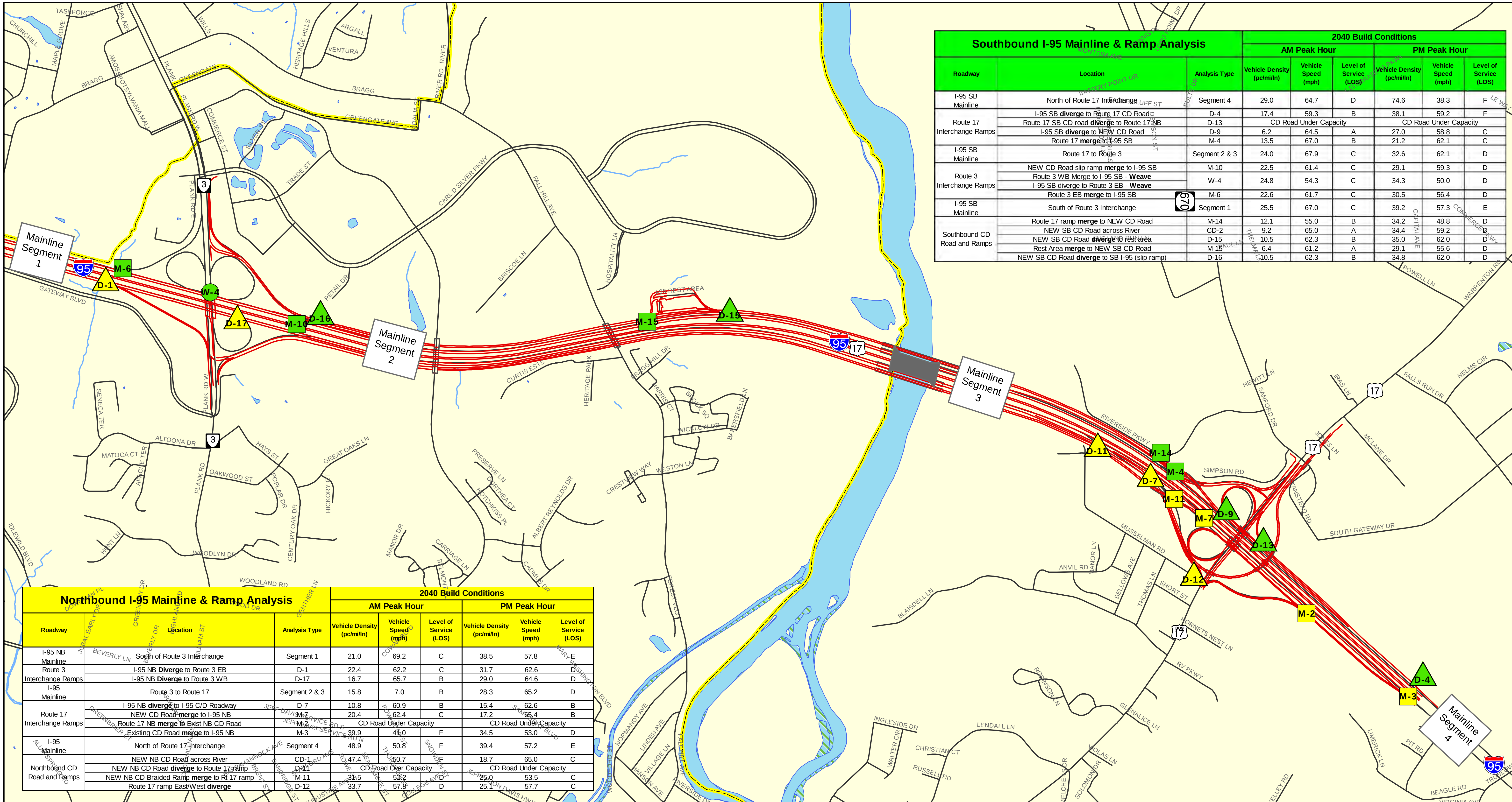
2040 Build

AM Volume (PM Volume) [Daily Volume]

2,000 1,000 0 2,000 Feet

Note: Intersection volumes may not exactly balance between intersection due to driveways and variance in actual peak hour (worst case analyzed)

Baker



Southbound I-95 Mainline & Ramp Analysis

Roadway	Location	Analysis Type	2040 Build Conditions – AM Peak Hour: Vehicle Density (pc/mi/ln)	AM: Vehicle Speed (mph)	AM: Level of Service (LOS)	PM Peak Hour: Vehicle Density (pc/mi/ln)	PM: Vehicle Speed (mph)	PM: Level of Service (LOS)
I-95 SB Mainline	North of Route 17 Interchange	Segment 4	29.0	64.7	D	74.6	38.3	F
Route 17 Interchange Ramps	I-95 SB **diverge** to Route 17 CD Road	D-4	17.4	59.3	B	38.1	59.2	F
	Route 17 SB CD road **diverge** to Route 17 NB	D-13	CD Road Under Capacity			CD Road Under Capacity		
	I-95 SB **diverge** to NEW CD Road	D-9	6.2	64.5	A	27.0	58.8	C
	Route 17 **merge** to I-95 SB	M-4	13.5	67.0	B	21.2	62.1	C
I-95 SB Mainline	Route 17 to Route 3	Segment 2 & 3	24.0	67.9	C	32.6	62.1	D
Route 3 Interchange Ramps	NEW CD Road slip ramp **merge** to I-95 SB	M-10	22.5	61.4	C	29.1	59.3	D
	Route 3 WB Merge to I-95 SB - **Weave** I-95 SB diverge to Route 3 EB - **Weave**	W-4	24.8	54.3	C	34.3	50.0	D
	Route 3 EB **merge** to I-95 SB	M-6	22.6	61.7	C	30.5	56.4	D
I-95 SB Mainline	South of Route 3 Interchange	Segment 1	25.5	67.0	C	39.2	57.3	E
Southbound CD Road and Ramps	Route 17 ramp **merge** to NEW CD Road	M-14	12.1	55.0	B	34.2	48.8	D
	NEW SB CD Road across River	CD-2	9.2	65.0	A	34.4	59.2	D
	NEW SB CD Road **diverge** to rest area	D-15	10.5	62.3	B	35.0	62.0	D
	Rest Area **merge** to NEW SB CD Road	M-15	6.4	61.2	A	29.1	55.6	D
	NEW SB CD Road **diverge** to SB I-95 (slip ramp)	D-16	10.5	62.3	B	34.8	62.0	D

Northbound I-95 Mainline & Ramp Analysis

Roadway	Location	Analysis Type	2040 Build Conditions – AM Peak Hour: Vehicle Density (pc/mi/ln)	AM: Vehicle Speed (mph)	AM: Level of Service (LOS)	PM Peak Hour: Vehicle Density (pc/mi/ln)	PM: Vehicle Speed (mph)	PM: Level of Service (LOS)
I-95 NB Mainline	South of Route 3 Interchange	Segment 1	21.0	69.2	C	38.5	57.8	E
Route 3 Interchange Ramps	I-95 NB **Diverge** to Route 3 EB	D-1	22.4	62.2	C	31.7	62.6	D
	I-95 NB **Diverge** to Route 3 WB	D-17	16.7	65.7	B	29.0	64.6	D
I-95 Mainline	Route 3 to Route 17	Segment 2 & 3	15.8	7.0	B	28.3	65.2	D
Route 17 Interchange Ramps	I-95 NB **diverge** to I-95 C/D Roadway	D-7	10.8	60.9	B	15.4	62.6	B
	NEW CD Road **merge** to I-95 NB	M-7	20.4	62.4	C	17.2	65.4	B
	Route 17 NB **merge** to Exist NB CD Road	M-2	CD Road Under Capacity			CD Road Under Capacity		
	Existing CD Road **merge** to I-95 NB	M-3	39.9	41.0	F	34.5	53.0	D
I-95 Mainline	North of Route 17 Interchange	Segment 4	48.9	50.8	F	39.4	57.2	E
Northbound CD Road and Ramps	NEW NB CD Road across River	CD-1	47.4	50.7	F	18.7	65.0	C
	NEW NB CD Road **diverge** to Route 17 ramp	D-11	CD Road Over Capacity			CD Road Under Capacity		
	NEW NB CD Braided Ramp **merge** to Rt 17 ramp	M-11	31.5	52.2	D	25.0	53.5	C
	Route 17 ramp East/West **diverge**	D-12	33.7	57.8	D	25.1	57.7	C

I-95 Interchange Modification Report

Figure 6-11: 2040 Build Traffic Operations

Legend

- Traffic Analysis Design
- Structures
- Roadways
- Corporate Boundary
- Streams
- Water
- Wetlands

2040 Build Traffic Operations

NB	SB	
D-3	D-3	Diverge Junction
M-3	M-3	Merge Junction
W-3	W-3	Weave Junction

N

1,600 800 0 1,600 Feet

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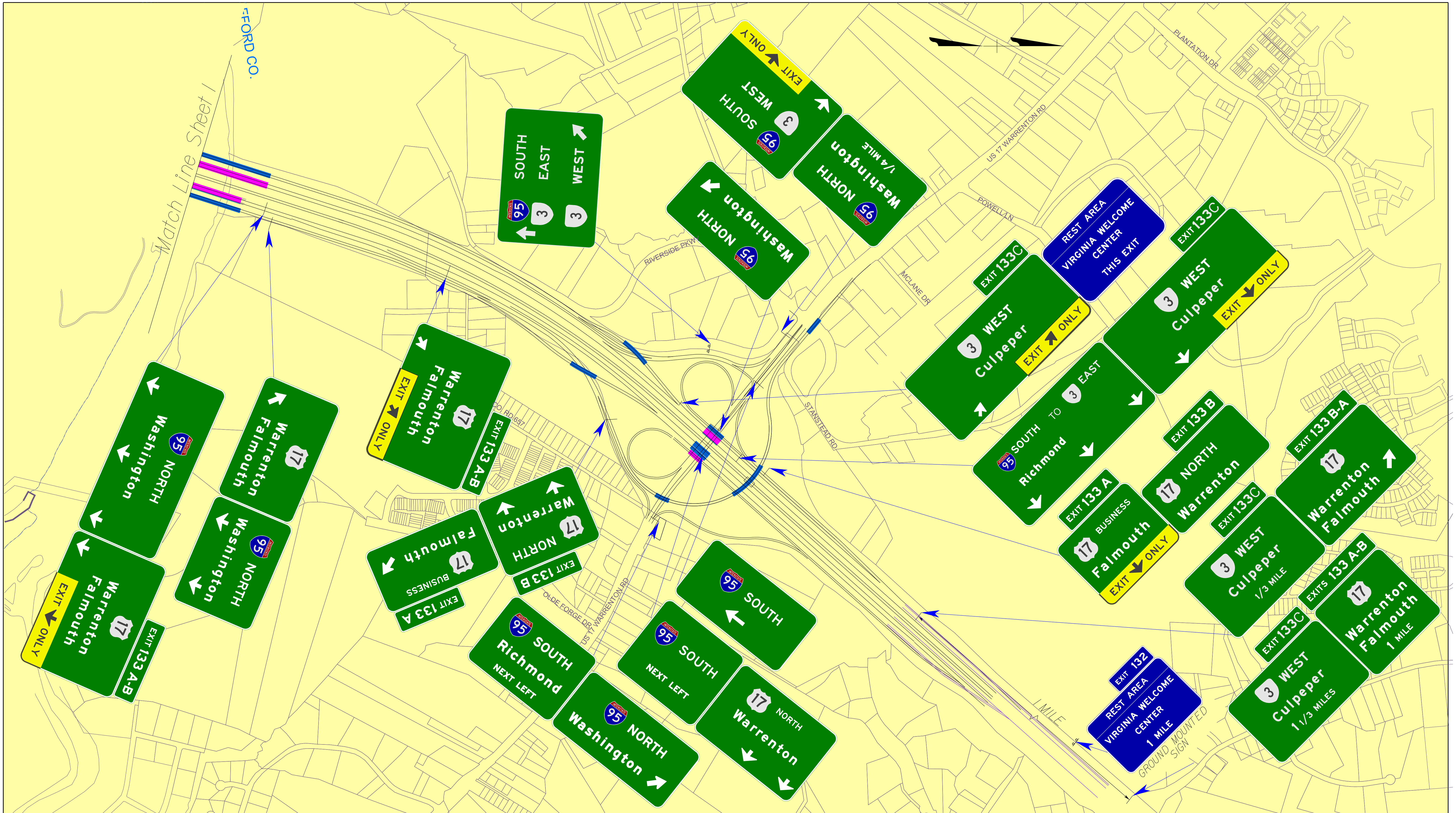
I-95 Interchange Modification Report
CONCEPTUAL SIGNING PLAN

Figure 6-12
(SHEET 1 OF 2)

SCALE
0 300' 600' 900'



I-95 Interchange Modification Report

CONCEPTUAL SIGNING PLAN

Figure 6-12

(SHEET 2 OF 2)

SCALE

0 300' 600' 900'

2013 Existing

Segment	Total Trucks	Medium (2 Axle)	Heavy (3+ Axle)	Bus
95 Northbound AM	13.70%	2.00%	11.70%	n/a
95 Southbound AM	17.20%	2.10%	15.50%	n/a
Route 3 @ Carl D Silver Pkwy*	1.90%	0.95%	0.95%	n/a
Route 3 @ Central Park Blvd*	2.60%	1.30%	1.30%	n/a
Route 3 @ Gateway Blvd*	4.90%	2.45%	2.45%	n/a
Route 17 @ Short Rd and East	2.60%	1.30%	1.30%	n/a
Route 17 West of Short Rd**	17%	1%	15%	1%

* No split between Medium and Heavy, 50/50 split assumed

**VDOT Traffic Engineering annual average daily traffic volume estimates by section of route

2040 No-Build

Segment	Total Trucks	Medium (2 Axle)	Heavy (3+ Axle)	Bus
95 Northbound	13.70%	2.00%	11.70%	n/a
95 Southbound	17.20%	2.10%	15.50%	n/a
Express lanes AM (Same as 95 Northbound)	13.70%	2.00%	11.70%	n/a
Route 3 @ Carl D Silver Pkwy*	1.90%	0.95%	0.95%	n/a
Route 3 @ Central Park Blvd*	2.60%	1.30%	1.30%	n/a
Route 3 @ Gateway Blvd*	4.90%	2.45%	2.45%	n/a
Route 17 @ Short Rd and East	2.60%	1.30%	1.30%	n/a
Route 17 West of Short Rd**	17%	1%	15%	1%

* No split between Medium and Heavy, 50/50 split assumed

**VDOT Traffic Engineering annual average daily traffic volume estimates by section of route

2040 Build

Segment	Total Trucks	Medium (2 Axle)	Heavy (3+ Axle)	Bus
95 Northbound	13.70%	2.00%	11.70%	n/a
95 Southbound	17.20%	2.10%	15.50%	n/a
Express lanes AM (Same as 95 Northbound)	13.70%	2.00%	11.70%	n/a
Route 3 @ Carl D Silver Pkwy*	1.90%	0.95%	0.95%	n/a
CD Lanes Northbound	12%	6%	6%	n/a
CD Lanes Northbound	12%	6%	6%	n/a
Route 3 @ Central Park Blvd*	2.60%	1.30%	1.30%	n/a
Route 3 @ Gateway Blvd*	4.90%	2.45%	2.45%	n/a
Route 17 @ Short Rd and East	2.60%	1.30%	1.30%	n/a
Route 17 West of Short Rd**	17%	1%	15%	1%

* No split between Medium and Heavy, 50/50 split assumed

**VDOT Traffic Engineering annual average daily traffic volume estimates by section of route

APPENDIX E
HB 2577 DOCUMENTATION

COMMONWEALTH of VIRGINIA

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

Charles A. Kilpatrick, P.E.
Commissioner

August 21, 2014

MEMORANDUM

TO: **David Beardsley**, Project Manager
Patrick Hughes, Environmental Contact

FROM: Josh Kozlowski, Noise Abatement Specialist

SUBJECT: UPC 101595 and UPC 105510

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 (Effective October 1, 2014 Title § 33.2-276), 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 projects 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: The projects are located along the I-95 corridor, mostly within existing right of way, and which is narrow and well defined. The avoidance or abatement method will be part of a combination of roadway design, wetland and stream impact minimization, minimization of right of way costs, minimization and avoidance of noise abatement costs, etc.

The Design-Builder (DB) will be responsible for establishing the alignment, and thus for creating or avoiding potential impacts. As such, the DB will have to mitigate any potential impacts. The Technical Requirements require the DB to comply with the VDOT State Noise Abatement Policy. The Technical Requirements do not specify the method. The avoidance or abatement method will be part of a combination of roadway design, wetland and stream impact minimization, minimization of right of way costs, minimization and avoidance of noise abatement costs, etc. (Dave Beardsley, Project Manager)

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 additional consideration. (Virginia Department of Transportation)

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

Response: The following is the text for aesthetics in the Technical Requirements:

3.13 Aesthetics

A. The Design-Builder will consider context sensitive solutions in its design. Additional information is available at http://www.fhwa.dot.gov/csd/index.cfm. The Project will be designed to harmonize with the local Environment as well as the developed themes of the local setting. The Design-Builder will coordinate with Governmental Units to develop a Project concept to achieve this harmonization. The Design-Builder will submit an aesthetics concept plan to the Private Party for review and approval. The Project concept will include (but not be limited to) the following elements to be incorporated into the final Design Documentation.

B. Landscape

1. Develop planting themes that utilize native-area and/or naturalized plant materials that exhibit good drought tolerance to the extent possible.

2. Identify existing natural, Environment assets and avoid negative impacts to the extent possible.

3. Emphasize and enhance the existing natural context and landscape to the extent possible.

4. Preserve existing trees to the extent possible.

5. Ensure that contour grading, slope rounding, channel treatment, and drainage match existing slopes and landscaping.

6. Ensure that the restoration of slopes, including regular seeding and planting of vegetation can be carried out in accordance with the Standard Documents.

C. Aesthetic Treatments

1. Aesthetic treatments will be designed to harmonize with the local landscape and architecture, as well as the developed themes of the local setting. As part of the Project design, the Design- Builder will coordinate with Governmental Units to develop an aesthetic concept to achieve this harmonization, including coordination with the Noise Abatement Committee and State Historic Preservation Office ("SHPO") as applicable.

2. The following items will be considered in defining the aesthetics concepts for the Project design:

    a. material, finish, color, and texture of sound walls, retaining walls, bridge barriers, parapet walls, abutments, wingwalls, and piers;
    b. consideration of alternative sound wall types, such as "living walls";
    c. paved and/or planted slope treatments and hardscapes at interchanges and intersections;
    d. median or other specialty paving, including material, finish and color;
    e. fencing;
    f. signage (including overhead, attached, ground-mounted, and gantries);
    g. toll equipment gantries;
    h. stormwater management and detention basins;
    i. lighting poles and lamps;
    j. camera poles and cameras; and
    k. any permanent building construction for the Project, including ancillary support, operational, rest areas and toll collections.

3. Graphics, signage, and lighting should be consistent along the entire length of the Project.

4. Aesthetic elements should be consistent throughout the corridor.

(Dave Beardsley, Project Manager)

APPENDIX F

WARRANTED, FEASIBLE, & 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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE 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:	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)	25,042 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)	6,261 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)	971 ft
	b.	Height range of the proposed noise barrier. (ft)	24 to 28
	c.	Average height of the proposed noise barrier. (ft)	26 ft
	d.	Cost per square foot. ($/$ft^2$)	$31/SF
	e.	Total Barrier Cost ($)	$776,302
	f.	Barrier Material	Absorptive
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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE C
Community Name and/or CNE#	CNE C
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:	15
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	15
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)	47,956 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	15
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	15
d.	Total number of benefited receptors.	30
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)	2,811 ft
b.	Height range of the proposed noise barrier. (ft)	12 to 18
c.	Average height of the proposed noise barrier. (ft)	17 ft
d.	Cost per square foot. ($/$ft^2$)	$31/SF
e.	Total Barrier Cost ($)	$1,486,636
f.	Barrier Material	Absorptive
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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE D
Community Name and/or CNE#	CNE D
Noise Abatement Category(s)	E
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)	8,290 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)	8,290 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)	276 ft
b.	Height range of the proposed noise barrier. (ft)	30 to 30
c.	Average height of the proposed noise barrier. (ft)	30 ft
d.	Cost per square foot. ($/$ft^2$)	$31/SF
e.	Total Barrier Cost ($)	$256,990
f.	Barrier Material	Absorptive
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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE E
Community Name and/or CNE#	CNE E
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:	28
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	28
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)	36,637 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	28
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	26
d.	Total number of benefited receptors.	54
e.	Surface Area per benefited receptor unit. (ft^2/BR)	678 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)	1,974 ft
b.	Height range of the proposed noise barrier. (ft)	16 to 20
c.	Average height of the proposed noise barrier. (ft)	19 ft
d.	Cost per square foot. ($\$/ft^2$)	$31/SF
e.	Total Barrier Cost ($)	$1,135,747
f.	Barrier Material	Absorptive
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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE 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:	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)	22,943 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)	11,472 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)	1,069 ft
	b.	Height range of the proposed noise barrier. (ft)	12 to 22
	c.	Average height of the proposed noise barrier. (ft)	21 ft
	d.	Cost per square foot. ($/$ft^2$)	$31/SF
	e.	Total Barrier Cost ($)	$711,233
	f.	Barrier Material	Absorptive
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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE G1
Community Name and/or CNE#	CNE G
Noise Abatement Category(s)	B, E
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)	27,570 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)	27,570 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)	1,149 ft
b.	Height range of the proposed noise barrier. (ft)	24 to 24
c.	Average height of the proposed noise barrier. (ft)	24 ft
d.	Cost per square foot. ($/ft^2$)	$31/SF
e.	Total Barrier Cost ($)	$854,670
f.	Barrier Material	Absorptive
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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE G2
Community Name and/or CNE#	CNE G
Noise Abatement Category(s)	B, E
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):	8
c.	Percentage of impacted receptor units receiving 5 dB(A) or more IL	89%
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)	34,546 SF
b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	8
c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	0
d.	Total number of benefited receptors.	8
e.	Surface Area per benefited receptor unit. (ft^2/BR)	4,318 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)	1,928 ft
b.	Height range of the proposed noise barrier. (ft)	16 to 18
c.	Average height of the proposed noise barrier. (ft)	18 ft
d.	Cost per square foot. ($/$ft^2$)	$31/SF
e.	Total Barrier Cost ($)	$1,070,926
f.	Barrier Material	Absorptive
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:	12-Sep-14
Project No. and UPC:	0095-111-259, P101 UPC 101595
County:	
District:	
Barrier System ID:	CNE 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:	5
b.	Number of impacted receptor units receiving 5 dB(A) or more insertion loss (IL):	5
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)	82,808 SF
	b.	Impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	5
	c.	Non-impacted noise sensitive receptor(s) receiving 5 dB(A) IL or more.	1
	d.	Total number of benefited receptors.	6
	e.	Surface Area per benefited receptor unit. (ft^2/BR)	13,801 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)	3,001 ft
	b.	Height range of the proposed noise barrier. (ft)	20 to 30
	c.	Average height of the proposed noise barrier. (ft)	28 ft
	d.	Cost per square foot. ($/ft^2$)	$31/SF
	e.	Total Barrier Cost ($)	$2,567,048
	f.	Barrier Material	Absorptive
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 G
SOUND LEVELS TABLE

Rappahannock River Crossing

Sound Levels Table Summary

CNE	Classification	Site Name	NAC Category	Criteria	Existing (2013)	No-Build (2040)	Build (2040)
CNE A	Hotel Pool	A1	E	71	53	54	55
	IHOP Picnic Area	A2	E	71	65	67	68
CNE B	1 Residential	B1	B	66	58	60	62
	2 Residential	B2	B	66	65	**68**	**68**
	2 Residential	B3	B	66	57	60	61
	2 Residential	B4	B	66	**72.1**	**74.3**	**74.4**
CNE C	2 Residential	C1	B	66	**69**	**70**	**75**
	2 Residential	C2	B	66	**70**	**72**	**75**
	1 Residential	C3	B	66	**70**	**72**	**73**
	1 Residential	C4	B	66	**70**	**73**	**75**
	1 Residential	C5	B	66	65	**67**	**70**
	2 Residential	C6	B	66	64	**66**	**68**
	2 Residential	C7	B	66	65	**66**	**67**
	3 Residential	C8	B	66	60	63	64
	2 Residential	C9	B	66	62	64	**66**
	1 Residential	C10	B	66	62	63	65
	2 Residential	C11	B	66	56	58	59
	3 Residential	C12	B	66	59	61	61
	3 Residential	C13	B	66	54	56	58
	1 Residential	C14	B	66	54	56	57
	1 Residential	C15	B	66	52	54	54
	1 Residential	C16	B	66	53	55	56
	1 Residential	C17	B	66	57	59	60
	2 Residential	C18	B	66	58	60	61
	1 Residential	C19	B	66	61	63	63
	3 Residential	C20	B	66	59	61	62
	3 Residential	C21	B	66	52	54	55
	1 Residential	C22	B	66	51	53	54
	1 Residential	C23	B	66	53	55	56
	1 Residential	C24	B	66	54	57	57
	1 Residential	C25	B	66	54	56	57
	1 Residential	C26	B	66	52	54	55
	Outdoor Seating	C27	C	66	50.5	52.8	53.2
	Playground	C28	C	66	51.9	54.4	54.5
	Outdoor Seating	C29	C	66	50.5	52.7	53.4
	Outdoor Seating	C30	C	66	53.4	55.4	56.1
	Outdoor Seating	C31	C	66	57	59.7	58.4
	Vollyball Court	C32	C	66	49.4	51.6	51.7
	Outdoor Seating	C33	C	66	**67.8**	**70.2**	**70.8**
	Outdoor Seating	C34	C	66	58.3	60.1	61.7
	Outdoor Seating	C35	C	66	60	61.9	63.7
	Outdoor Seating	C36	C	66	46	48.1	48.5
	Outdoor Seating	C37	C	66	59.4	61.6	61.6
	Outdoor Seating	C38	C	66	64.7	**67**	**68**
	Courtyard	C39	C	66	54.1	56.2	57.3
	Outdoor Seating	C40	C	66	55.6	57.5	60.2
	Outdoor Seating	C41	C	66	58	59.9	61.6

Rappahannock River Crossing

Sound Levels Table Summary

CNE	Classification	Site Name	NAC Category	Criteria	Existing (2013)	No-Build (2040)	Build (2040)
CNE C	Basketball Court	C42	C	66	60.4	62.4	63.5
CNE D	Hotel Pool	D1	E	71	61	63	69
	Hotel Patio	D2	E	71	**71**	**74**	**76**
	Hotel Pool	D3	E	71	51	53	57
	Rest Area Picnic	D4	C	66	**72.2**	**74.9**	**75.1**
	Rest Area Picnic	D5	C	66	**71.9**	**73.8**	**73.8**
CNE E	2 Residential	E1	B	66	59	62	**72**
	2 Residential	E2	B	66	55	57	**66**
	2 Residential	E3	B	66	54	56	63
	2 Residential	E4	B	66	54	56	61
	1 Residential	E5	B	66	53	55	60
	2 Residential	E6	B	66	53	55	59
	2 Residential	E7	B	66	53	55	58
	2 Residential	E8	B	66	53	55	57
	2 Residential	E9	B	66	53	54	57
	1 Residential	E10	B	66	52	54	56
	2 Residential	E11	B	66	65	**67**	**80**
	2 Residential	E12	B	66	**66**	**68**	**80**
	2 Residential	E13	B	66	65	**68**	**80**
	2 Residential	E14	B	66	65	**67**	**79**
	1 Residential	E15	B	66	**67**	**68**	**77**
	2 Residential	E16	B	66	61	63	**69**
	2 Residential	E17	B	66	62	64	**70**
	2 Residential	E18	B	66	62	65	**70**
	2 Residential	E19	B	66	55	56	62
	2 Residential	E20	B	66	53	55	60
	2 Residential	E21	B	66	53	55	59
	2 Residential	E22	B	66	52	54	58
	2 Residential	E23	B	66	52	54	57
	2 Residential	E24	B	66	63	**66**	**70**
	2 Residential	E25	B	66	64	**66**	**71**
	2 Residential	E26	B	66	62	65	**71**
	2 Residential	E27	B	66	51	53	54
	2 Residential	E28	B	66	48	50	50
	2 Residential	E29	B	66	47	49	50
	Playground	E30	C	66	61	64	**68**
	Basketball	E31	C	66	59	62	64
	2 Residential	E32	B	66	55	58	60
	2 Residential	E33	B	66	55	58	60
	2 Residential	E34	B	66	57	60	61
	1 Residential	E35	B	66	55	58	59
	2 Residential	E36	B	66	54	57	59
	2 Residential	E37	B	66	55	58	59
	2 Residential	E38	B	66	55	58	60
	2 Residential	E39	B	66	58	60	61
	2 Residential	E40	B	66	59	61	63
	2 Residential	E41	B	66	59	62	63
	1 Residential	E42	B	66	59	62	63
	2 Residential	E43	B	66	59	61	63

Rappahannock River Crossing

Sound Levels Table Summary

CNE	Classification	Site Name	NAC Category	Criteria	Existing (2013)	No-Build (2040)	Build (2040)
CNE E	2 Residential	E44	B	66	60	62	64
	1 Residential	E45	B	66	60	62	64
	2 Residential	E46	B	66	61	63	65
	2 Residential	E47	B	66	62	64	65
	1 Residential	E48	B	66	62	64	65
	Playground	E49	C	66	**68**	**72**	**77**
	Comm. Center	E50	D	51	65 (40)	67 (43)	71 (46)
	Outdoor Seating	E51	C	66	**69**	**71**	**72**
CNE F	1 Residential	F1	B	66	61	64	63
	2 Residential	F2	B	66	**70**	**73**	**75**
CNE G	1 Residential	G1	B	66	61	63	**69**
	2 Residential	G2	B	66	**67**	**69**	**78**
	1 Residential	G3	B	66	**74**	**76**	**82**
	2 Residential	G4	B	66	62	64	**66**
	2 Residential	G5	B	66	**67**	**69**	**71**
	1 Residential	G6	B	66	62	63	65
	1 Residential	G7	B	66	**67**	**68**	**69**
	1 Residential	G8	B	66	57	59	61
	2 Residential	G9	B	66	58	60	61
	2 Residential	G10	B	66	53	55	57
	2 Residential	G11	B	66	53	54	57
	3 Residential	G12	B	66	52	54	57
	2 Residential	G13	B	66	52	54	58
	2 Residential	G14	B	66	53	55	60
	2 Residential	G15	B	66	54	56	63
	2 Residential	G16	B	66	55	57	63
	1 Residential	G17	B	66	59	60	**67**
	2 Residential	G18	B	66	52	53	56
	2 Residential	G19	B	66	51	53	56
	2 Residential	G20	B	66	51	53	55
	2 Residential	G21	B	66	51	53	56
	2 Residential	G22	B	66	49	51	53
	2 Residential	G23	B	66	45	47	51
	Hotel Pool	G24	E	71	48	49	55
	1 Residential	G25	B	66	45	47	49
	2 Residential	G26	B	66	48	49	53
	2 Residential	G27	B	66	49	50	54
	2 Residential	G28	B	66	49	51	54
	1 Residential	G29	B	66	49	51	55
	2 Residential	G30	B	66	50	51	55
	2 Residential	G31	B	66	51	53	56
	2 Residential	G32	B	66	50	52	56
	2 Residential	G33	B	66	50	51	55
	2 Residential	G34	B	66	50	51	55
	2 Residential	G35	B	66	50	52	56
	Basketball	G36	C	66	51	53	57
	2 Residential	G37	B	66	48	50	55
	2 Residential	G38	B	66	49	51	56
	2 Residential	G39	B	66	50	52	57

Rappahannock River Crossing

Sound Levels Table Summary

CNE	Classification	Site Name	NAC Category	Criteria	Existing (2013)	No-Build (2040)	Build (2040)
CNE G	2 Residential	G40	B	66	52	54	58
	2 Residential	G41	B	66	45	46	50
	2 Residential	G42	B	66	46	48	51
	2 Residential	G43	B	66	46	48	52
	2 Residential	G44	B	66	49	51	56
	2 Residential	G45	B	66	56	58	62
	2 Residential	G46	B	66	56	58	62
	2 Residential	G47	B	66	56	58	62
	2 Residential	G48	B	66	57	58	62
	2 Residential	G49	B	66	58	60	63
	Hotel Pool	G50	E	71	62	63	62
CNE H	Hotel Pool	H1	E	71	60	62	65
CNE I	Hotel Pool	I1	E	71	63	65	66
CNE J	Hotel Pool	J1	E	71	59	61	61
CNE K	1 Residential	K1	B	66	62	63	63
	1 Residential	K2	B	66	**67**	**68**	**68**
	1 Residential	K3	B	66	65	**66**	**67**
	1 Residential	K4	B	66	65	**66**	**66**
	1 Residential	K5	B	66	**70**	**71**	**71**
	1 Residential	K6	B	66	62	63	63
	1 Residential	K7	B	66	65	**67**	**67**

Impacted Receptor

Benefited Receptor

* Criteria based on levels "approaching" the absolute criteria or that meets the "substantial Land use Activity Category

APPENDIX H

ABATED (2040) SOUND LEVELS TABLE

Abatement Summary Table *Rappahannock River Crossing* *Abated Noise Levels (dB(A))*					
1	2	3	4	5	6
CNE Descriptor	**Site Descriptor**	**Site Representation**	**Build (2040) Noise Level**	**Abated (2040) Noise Level**	**Net Insertion Loss**
Barrier B	B2	2 Residential	**68**	63	**5**
	B4	2 Residential	**74**	64	**10**
Barrier C	C1	2 Residential	**75**	63	**12**
	C2	2 Residential	**75**	66	**10**
	C3	1 Residential	**73**	66	**8**
	C4	1 Residential	**75**	70	**5**
	C5	1 Residential	**70**	65	**5**
	C6	2 Residential	**68**	60	**8**
	C7	2 Residential	**67**	61	**6**
	C8	3 Residential	64	59	**5**
	C9	2 Residential	**66**	61	**5**
	C10	1 Residential	65	59	**6**
	C11	2 Residential	59	54	**5**
	C12	3 Residential	61	56	**6**
	C13	3 Residential	58	54	4
	C14	1 Residential	57	53	4
	C15	1 Residential	54	52	3
	C16	1 Residential	56	53	3
	C17	1 Residential	60	57	3
	C18	2 Residential	61	58	3
	C19	1 Residential	63	59	4
	C20	3 Residential	62	57	**5**
	C21	3 Residential	55	51	4
	C22	1 Residential	54	51	3
	C23	1 Residential	56	52	3
	C24	1 Residential	57	54	3
	C25	1 Residential	57	54	3
	C26	1 Residential	55	52	3
	C27	Outdoor Seating	53	51	2
	C28	Playground	55	53	2
	C29	Outdoor Seating	53	51	2
	C30	Outdoor Seating	56	52	4
	C31	Outdoor Seating	58	54	4
	C32	Vollyball Court	52	50	2
	C33	Outdoor Seating	**71**	64	**7**
	C34	Outdoor Seating	62	56	**6**
	C35	Outdoor Seating	64	58	**5**
	C36	Outdoor Seating	49	47	2

Abatement Summary Table *Rappahannock River Crossing* *Abated Noise Levels (dB(A))*					
1	2	3	4	5	6
CNE Descriptor	**Site Descriptor**	**Site Representation**	**Build (2040) Noise Level**	**Abated (2040) Noise Level**	**Net Insertion Loss**
Barrier C	C37	Outdoor Seating	62	57	**5**
	C38	Outdoor Seating	**68**	61	**7**
	C39	Outdoor Seating	57	54	4
	C40	Outdoor Seating	60	59	1
	C41	Outdoor Seating	62	60	2
	C42	Basketball Court	64	60	4
Barrier E	E1	2 Residential	**72**	65	**7**
	E2	2 Residential	**66**	61	**5**
	E3	2 Residential	63	59	4
	E4	2 Residential	61	58	4
	E5	1 Residential	60	57	3
	E6	2 Residential	59	57	2
	E7	2 Residential	58	56	2
	E8	2 Residential	57	56	2
	E9	2 Residential	57	55	2
	E10	1 Residential	56	55	1
	E11	2 Residential	**80**	67	**12**
	E12	2 Residential	**80**	67	**13**
	E13	2 Residential	**80**	66	**14**
	E14	2 Residential	**79**	65	**14**
	E15	1 Residential	**77**	64	**13**
	E16	2 Residential	**69**	63	**6**
	E17	2 Residential	**70**	63	**6**
	E18	2 Residential	**70**	62	**8**
	E19	2 Residential	62	53	**8**
	E20	2 Residential	60	53	**7**
	E21	2 Residential	59	53	**6**
	E22	2 Residential	58	52	**6**
	E23	2 Residential	57	52	**6**
	E24	2 Residential	**70**	59	**11**
	E25	2 Residential	**71**	59	**12**
	E26	2 Residential	**71**	59	**11**
	E27	2 Residential	54	50	**5**
	E28	2 Residential	50	49	1
	E29	2 Residential	50	48	1
	E30	Playground	**68**	58	**10**
	E31	Basketball	64	57	**7**
	E32	2 Residential	60	55	**5**

Abatement Summary Table *Rappahannock River Crossing* *Abated Noise Levels (dB(A))*					
1	2	3	4	5	6
CNE Descriptor	**Site Descriptor**	**Site Representation**	**Build (2040) Noise Level**	**Abated (2040) Noise Level**	**Net Insertion Loss**
Barrier E	E33	2 Residential	60	55	**6**
	E34	2 Residential	61	56	**5**
	E35	1 Residential	59	55	4
	E36	2 Residential	59	53	**6**
	E37	2 Residential	59	53	**6**
	E38	2 Residential	60	54	**6**
	E39	2 Residential	61	57	4
	E40	2 Residential	63	59	4
	E41	2 Residential	63	59	4
	E42	1 Residential	63	59	4
	E43	2 Residential	63	60	4
	E44	2 Residential	64	60	4
	E45	1 Residential	64	60	4
	E46	2 Residential	65	61	4
	E47	2 Residential	65	61	4
	E48	1 Residential	65	61	4
	E49	Playground	**77**	63	**14**
	E50	Comm. Center	71 (46)	60	**11**
	E51	Outdoor Seating	**72**	65	**7**
Barrier D	D2	Hotel Patio	**76**	70	**5**
Barrier F	F2	2 Residential	**75**	65	**10**
Barrier G1	G15	2 Residential	63	60	3
	G16	2 Residential	63	59	4
	G17	1 Residential	**67**	61	**5**
	G45	2 Residential	62	59	3
	G46	2 Residential	62	59	3
	G47	2 Residential	62	59	3
	G48	2 Residential	62	59	3
	G49	2 Residential	63	60	3
Barrier G2	G1	1 Residential	**69**	68	1
	G2	2 Residential	**78**	72	**6**
	G3	1 Residential	**82**	66	**16**
	G4	2 Residential	**66**	59	**7**
	G5	2 Residential	**71**	62	**10**
	G6	1 Residential	65	59	**6**
	G7	1 Residential	**69**	62	**8**
	G8	1 Residential	61	57	4
	G9	2 Residential	61	57	4

Abatement Summary Table

Rappahannock River Crossing

Abated Noise Levels (dB(A))

1	2	3	4	5	6
CNE Descriptor	**Site Descriptor**	**Site Representation**	**Build (2040) Noise Level**	**Abated (2040) Noise Level**	**Net Insertion Loss**
Barrier G2	G10	Basketball	57	54	3
	G11	2 Residential	57	55	2
	G12	3 Residential	57	55	2
	G13	2 Residential	58	57	1
	G14	2 Residential	60	59	1
	G18	2 Residential	56	54	2
	G19	2 Residential	56	54	2
	G20	2 Residential	55	54	2
	G21	2 Residential	56	54	2
	G29	1 Residential	55	54	1
	G30	2 Residential	55	54	1
	G31	2 Residential	56	54	1
Barrier K	K1	1 Residential	63	58	**5**
	K2	1 Residential	**68**	60	**8**
	K3	1 Residential	**67**	60	**6**
	K4	1 Residential	**66**	60	**6**
	K5	1 Residential	**71**	64	**7**
	K6	1 Residential	63	61	3
	K7	1 Residential	**67**	62	**5**

Impacted Receptor

* Orange cells indicate site approaches or exceeds FHWA / VDOT NAC or is a substantial increase

Benefited

* Blue Cells indicate site is benefited by proposed noise barrier

7 dBA or More

* Green Cells indicate site achieves design goal of 7 dB(A) or more insertion loss (IL)

* Indicates discrepancy due to rounding

APPENDIX I
REFERENCES

References

- Procedures for Abatement of Highway Traffic Noise and Construction Noise 23 CFR 772. 2011.

- U.S. Department of Transportation, Federal Highway Administration, *Highway Traffic Noise: Analysis and Abatement Guidance*, FHWA Report No. FHWA-HEP-10-025, December 2011.

- U.S. Department of Transportation, Federal Highway Administration, *Measurement of Highway-Related Noise,* FHWA Report No. FHWA-PD-96-046, May 1996.

- Virginia State Noise Abatement Policy, "effective July 13th, 2011, updated July 2014."

- Code of Virginia Noise Abatement Practices and Technologies, Section 33.1-223.2:21. 2013, (HB 2577).

- Virginia Department of Transportation, *Highway Traffic Noise Impact Analysis Guidance Manual*, approved March 15, 2011, effective July 13, 2011, updated July 14th, 2014.

- Virginia Department of Transportation, 2007 *Road and Bridge Specifications*, Section 107.16(b.3) "Noise."

- *I-95 Interchange Modification Report, Improvements to I-95 between Exit 133 and Exit 130*, Draft dated June 30th, 2014.

APPENDIX J
LIST OF PREPARERS & REVIEWERS

List of Preparers / Reviewers

McCormick Taylor, Inc.

Rich A. Butala
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Education: B.S., Environmental Resource Management
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Role: QA/QC

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M.S., Geo-Environmental Studies
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Virginia Department of Transportation (VDOT)

Lovejoy Muchenje, P.E.
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Professional Experience: 5 Years
Role: Project Manager

Patrick Hughes
VDOT Location Studies Project Manager
Role: Project Management, QA/QC

APPENDIX K
NOISE REPORT GUIDANCE & ACCOUNTABILITY CHECKLIST

VIRGINIA DEPARTMENT OF TRANSPORTATION
NOISE REPORT GUIDANCE AND ACCOUNTABILITY CHECKLIST

VERSION 1.0

This checklist is not an inclusive document that accounts for all projects. However this guidance checklist outlines the most common items that will be reviewed during VDOT's review process. This checklist follows guidance set forth in VDOT's Highway Traffic Noise Manual.

Checked Items are Required	Preliminary	Final Design		
			UPC:	**101595**
			Completed By:	**McCormick Taylor Inc.**
			Date:	**9/12/2014**

Symbol	Meaning
✘	This Item has been verified by the document writer
N/A	This item is "Not/Applicable" to this project
D	This Item is Project Dependent

No.	Checked	Preliminary	Final Design	Item
1.0				**TITLE PAGE**
1.1	X	✓	✓	- Report is Appropriately Named, with Correct Project Limits, Project Number(s), UPC(s) (Universal Project Code), and Submission Date
1.2	X	✓	✓	- Person Performing the Noise Analysis is Prequalified in the State of Virginia
2.0				**TABLE OF CONTENTS (TOC)**
2.1	X	✓	✓	- Items listed in TOC are Accurately Numbered, Including the Report Sections, Tables, Figures, Graphics, and Appendices
3.0				**EXECUTIVE SUMMARY**
3.1	X	✓	✓	- Brief Project Description provided with Project Location Information
3.2	X	✓	✓	- Summary of the Number (and sound level ranges) of Impacts for Existing, No-Build (if applicable), and the Future Design Year
3.3	X	✓	✓	- Noise Abatement Summary and Barrier Analyses Summary - (If Future Design Year Impacts are Predicted)
3.4	X	✓		- "Conversely . . . " Statement Added
3.5	X	✓	✓	- Construction Noise Summary
3.6	X	✓		- Discussion of Futher Noise Abatement Considerations during Final Design - eg. Rail noise, Aviation noise, Reflected Noise from Existing or Proposed Barriers / Retaining Walls, Commitments for further evaluation based on new design information, Alternatives to proposed noise barrier placement. . .
4.0				**INTRODUCTION**
4.1	X	✓	✓	- Discussion of the Project Description of the Proposed Project. Should include the Project Limits, Number of Proposed Lanes and/or Proposed Modification, Lane Widths etc . . .
4.2	X	✓	✓	- Discussion of the History of the Project, Background, Future Design Year, Specific Pertanent Project Details, Including the Preferred Alternative and other Road Improvements.

Checked Items are Required		Preliminary	Final Design	UPC:	101595	✗	This Item has been verified by the document writer
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				Date:	9/12/2014	D	This Item is Project Dependent

4.3	X	✓	✓	- Project Location Figure (See VDOT's Noise Report Development and Guidance Document)
4.4		D	D	- Additional NEPA documentation (If Necessary - Documents to support an older ROD or Date of Public Knowledge)

5.0 METHODOLOGY

5.1	X	✓	✓	- FHWA and State Policy Discussion and Compliance Regulations
5.2	X	✓	✓	- Sound Level Metrics Defined
5.3	X	✓	✓	- NAC Defined
5.4	X	✓	✓	- Definiton of Noise Impact
5.5	X	✓	✓	- Analysis Proceedure Defined
5.6	X	✓	✓	- TNM Model Version Defined and Program Overview Description given

Source of Model Inputs Documented

5.7	X	✓	✓	- Discussion of the Source of Design Files / Typical Sections/ Profiles / Cross Sections, or Study Corridor Limits if Engineering is not Available
5.8	X	✓	✓	- Discussion of Traffic Volumes / Speeds / Truck %'s
5.9	X	✓	✓	- Document the Source of Survey Information
5.10		D	D	- Additional Data (Existng or Proposed Retaining Walls, Existing Noise Barriers or Berms, GIS Layers and/or Supplemental Elevation Data)

6.0 EXISTING NOISE ENVIRONMENT

6.1 NOISE MONITORING

6.1.1	X	✓	✓	- Noise Monitoring Methodology is Clearly Defined
6.1.2	X	✓	✓	- The Date(s) of Monitoring are Documented
6.1.3	X	✓	✓	- Type of Meter is Noted and Pertainent Calibration Information is Included
6.1.4	X	✓	✓	- Number of Sites (Short-term or Long-term) are Identified and Located on Figure

Checked Items are Required		Preliminary	Final Design	UPC:	101595	✘	This Item has been verified by the document writer
				Completed By:	McCormick Taylor Inc.	N/A	This item is "Not/Applicable" to this project
				Date:	9/12/2014	D	This Item is Project Dependent

6.1.5	X	✓	✓	- Documentation of Noise Monitoring Data Sheets and other monitoring factors such sampling interval, weather . . .
6.1.6	X	✓	✓	- Table and Discussion of Ambient Noise Monitoring Results and Required Sample Text Regarding Monitoring
6.1.7	X	✓	✓	- Table and Discussion of Noise Validation Results
6.2	**UNDEVELOPED LANDS AND PERMITTED DEVELOPMENTS**			
6.2.1	X	✓	✓	- "Undeveloped Lands and Permitted Developments" Sample Text Added
6.2.2	X	✓	✓	- Documentation of the Coordination Dates and Contact Information for the Undeveloped Lands and Permitted Developments Search
6.3	**COMMON NOISE ENVIRONMENT (CNE) DETERMINATION**			
6.3.1	X	✓	✓	- Are all Noise Sensitive Receptors within at least 500 feet of the Proposed Edge of Pavement Considered for Evaluation?
6.3.2	X	✓	✓	- Discussion of Existing Land Uses for each CNE
6.3.3	X	✓	✓	- Are all non noise sensitive land uses addressed in the report (reasons why they are not noise sensitive)?
6.3.4	X	✓	✓	- CNE's Boundaries Located on Figure
6.4	**WORST NOISE HOUR**			
6.4.1	X	✓	✓	- The Worst Noise Hour selected needs to be the same for ALL roadways. Review to ensure this is accurate.
6.4.2	X	✓	✓	- Discussion of the Selection of the Worst Noise Hour
6.4.3	X	✓	✓	- Was 24-Hour (Long Term Monitoring) Utilized to Determine the Worst Noise Hour
6.4.4	X	**D**	**D**	- State if Multiple Sets of TNM runs were Created / Modeled to Determine the Worst Noise Hour (or were there dual worst noise hours)
6.4.5		**D**	**D**	- Were other Factors Considered for the Selection of the Worst Noise Hour
6.5	**RECEPTOR IDENTIFICATION AND NAC CATEGORIZATION**			
	If NAC A's are present, is the Criteria met and the Items Listed Below are Discussed:			
6.5.1		**D**	**D**	- Are these Lands on which Serenity and Quiet are of Extraordinary Significance
6.5.2		**D**	**D**	- Do these Lands Serve an Important Public Need

6.5.3		D	D	-	Is the Preservation of these Qualities Essential for the Area to Continue to Serve its Intended Purpose
6.5.4		D	D	-	Is the FHWA Supporting Documentation Included

If NAC B's are present, is the Criteria met and the Items Listed Below are Discussed:

6.5.5	X	D	D	-	Are the Number of Receptors Equal to or Representative to a Number of Dwelling Units
6.5.6	X	D	D	-	Are there Multi-floor Residential Units and do they have Outdoor Use Areas
6.5.7		D	D	-	Are Outdoor Use Areas (Balconies) Identified and Discussed

If NAC C's are present, is the Criteria met and the Items Listed Below are Discussed:

6.5.8	X	D	D	-	Are the Outdoor Use Areas Documented for Each of the Identified Receptors
6.5.9		D	D	-	Was the "Grid system" Used and Shown on Figures for Recreational Areas, Trails, Campgrounds, Cemeteries, etc. . .

If NAC D's are present, is the Criteria met and the Item Listed Below is Discussed:

6.5.10	X	D	D	-	Discuss the Building Materials and Interior Reduction Factor for each Identified Receptor

If NAC E's are present, is the Criteria met and the Item Listed Below is Discussed:

6.5.11	X	D	D	-	Are Outdoor Use Areas Identified and Discussed
6.5.12		D	D	-	If "No", Text Should be Provided that the Land Use was Identified but not Evaluated due to the Lack of Outdoor Use

Historic Properties

6.5.13		D	D	-	Discuss if any Section 106 (Historic) Properties were Identified
6.5.14		D	D	-	Discuss if any Section 4(f) Properties were Identified
6.5.15		D	D	-	If Section 4(f) Properties are Identified, Does it Constitute a "Constructive Use" Determination

6.6 MODELED EXISTING ENVIRONMENT

6.6.1	X	✓	D	-	Are Existing and Future Design Years Stated

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				Date:	9/12/2014	D	This Item is Project Dependent

6.6.2		D	D	- Are Existing Noise Barriers Present within the Proposed Project Area
6.6.3		D	D	- If Existing Noise Barriers are Present, Does the Project Involve In-Kind Barrier Replacement
6.6.4	X	✓	✓	- Discussion of the Overall Numbers of Existing Condition Impacts and Sound Level Ranges (all CNEs)
6.6.5	X	✓	✓	- Discussion of the Determination and Identification of Noise Impacts (by CNE under Existing Condition)
6.6.6	X	✓	D	- Existing Noise Environment discussion

7.0 FUTURE NOISE ENVIRONMENT

7.1 MODELED FUTURE ENVIRONMENT

7.1.1	X	✓	✓	- Is there Documentation why a No-Build Condition evaluation was/wasn't warranted?
7.1.2	X	D	D	- Discussion of the Overall Numbers of No-Build Condition Impacts and Sound Level Ranges (all CNEs)
7.1.3	X	D	D	- Discussion of the Determination and Identification of Noise Impacts (by CNE under No-Build Condition)
7.1.4	X	✓	✓	- Discussion of the Overall Numbers of Build Condition Impacts and Sound Level Ranges (all CNEs)
7.1.5	X	✓	✓	- Discussion of the Determination and Identification of Noise Impacts (by CNE under Build Condition)
7.1.6	X	✓	D	- Comparison of existing and future total noise levels for all identified receptors
7.1.7	X	✓	✓	- Future Noise Environment Discussion
7.1.8	X	✓	✓	- Table of Predicted Noise Levels (By CNE)

7.2 NOISE ABATEMENT DETERMINATION

7.2.1	X	✓	✓	- Alternative Abatement Measures Discussion

WARRANTED CRITERIA

7.2.2	X	✓	✓	- NAC Impact Definition ("Approach or Exceed") Provided
7.2.3	X	✓	✓	- Substantial Increase Impact Definiton Provided

Checked Items are Required		Preliminary	Final Design	UPC:	101595	✘	This Item has been verified by the document writer
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				Date:	9/12/2014	D	This Item is Project Dependent

7.2.4	X	✓	✓	- Has the NAC for Each Evaluated Land Use Category been Defined
	FEASIBILITY CRITERIA			
7.2.5	X	✓	✓	- Is Feasibility Defined
	REASONABLENESS CRITERIA			
7.2.6	X	✓	✓	- Is Reasonableness Defined
	NOISE REDUCTION GOALS			
7.2.7	X	✓	✓	- Are Noise Reduction Goals Defined
	NOISE BARRIER EVALUATION			
7.2.8	X	✓	✓	- Barrier Documentation should Include: Discussion of Total Number of Impacts, Benefitted Impacts, Additional Benefits, Total Benefits, Feasibility, Reasonablity, Barrier Length, Range of Panel Heights, Barrier Location, Ground or Structure Mounted, Barrier Systems, etc. . .
7.2.9	X	✓	✓	- Reason for Barrier Placement, Barrier Termini, Barrier Location etc. . .
7.2.10	X	✓	✓	- All Evaluated Barrriers shown on Figures
7.2.11			✓	- Barriers were Optimized to Maximize Benefits while Minimizing Cost (Diminishing Returns)
7.2.12	X	✓	✓	- Table was included that shows the Barrier name, Insertion Loss, Panel Height Range, Total Length, Total Surface Area, Total Benefits, Total sq.ft. / no. of benefits, Cost (for Planning Purposes Only)
7.2.13	X	✓	✓	- Table that shows the Sound Levels, Barrier Insertion Loss for each Receptor included in the Barrier Analysis
7.2.14		D	✓	- Table that shows the Approximate Stationing, Northing, Easting, Bottom and Top of barrier, Panel Heights by Segment
7.2.15		D	D	- Does the Barrier (System) Work Independently or is it Dependent on Another Barrier (Existing or Proposed)
8.0	**CONSTRUCTION NOISE**			
8.1	X	✓	✓	- Construction Noise Discussion

Checked Items are Required		Preliminary	Final Design	UPC:	101595		
				Completed By:	McCormick Taylor Inc.	N/A	This item is "Not/Applicable" to this project
				Date:	9/12/2014	D	This Item is Project Dependent

✘ This Item has been verified by the document writer

9.0 PUBLIC INVOLVEMENT PROCESS

9.1 NOISE COMPATIBLE CONTOURS

9.1.1	X	✓	✓	- 66 dBA Contour Discussion and Shown on Figure(s)
9.1.2		D	D	- Discussion of Public Involvement Efforts (including Community Information Meetings, Individual Meetings, and Special Coordination)

9.2 VOTING PROCEEDURES

9.2.1	X	✓	✓	- Voting Process Defined?
9.2.2			✓	- How many / when were Certified Letters Sent?
9.2.3			✓	- What were the Voting Results Related to Desire for a Barrier?
9.2.4			✓	- Summary of Barrier Survey Results and Comments?
9.2.5			✓	- How many Surveys were Unresponsive or Undeliverable?
9.2.6			✓	- Voting Graphic showing the Results of the Barrier Survey?
9.2.7			✓	- Were there any Special Abatement Commitments / Acoustic Profiles/ Aesthetics Considerations
9.2.8			✓	- Is this an Addendum Report with Revised Impact / Barrier Results

10.0 OTHER CONSIDERATIONS

10.1	X	D	D	- Absorptive or Reflective Noise Barriers Proposed?
10.2		D	D	- Was Reflection Noise Considered?
10.3		D	D	- Was Structure Noise Considered?
10.4		D	D	- Was Rail or Aviation Noise Considered?

11.0 APPENDICES

11.1	X	✓	✓	- List of References
11.2	X	✓	✓	- List of Preparers / Reviewers

Checked Items are Required		Preliminary	Final Design					
				UPC:	101595		✘	This Item has been verified by the document writer
				Completed By:	McCormick Taylor Inc.		N/A	This item is "Not/Applicable" to this project
				Date:	9/12/2014		D	This Item is Project Dependent

11.3	X	✓	✓	- Traffic Data
11.4	X	✓	✓	- Noise Monitoring Field Logs
11.5	X	✓	✓	- Warranted, Feasible, Reasonable, Worksheets
11.6	X	✓	✓	- Alternative Mitigation Measures Response Form from Project Manager
11.7	X	✓	✓	- Other Site Sketches of Monitored Locations, Noise Meter Printouts, Noise Meter Calibration Reports, Pertinent Correspondance
11.8	X	✓	✓	- TNM Certification Certificates
11.9	X	✓	✓	- Noise Report Guidance and Accountability Form

12.0 TNM RUNS

12.1	X	✓	✓	- Actual TNM Runs (Electronic Files) must be Submitted for Review with Report, TNM Output Tables are Not Required for Inclusion into the Report, However a Copy of the Printed Modeling Information shall be Supplied Upon Request

13.0 GENERAL

13.1	X	✓	✓	- Figures were Developed in Accordance with VDOT's Noise Report Development and Guidance Document