



TRAFFIC NOISE REPORT

I-26 Connector from I-40 to US 19-23-70 North of Asheville

Buncombe County

TIP Project No. I-2513

State Project No. 34165.1.2

Federal Aid Project No. MA-NHF 26-1 (53)

Prepared By:

AECOM

August 2019

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Traffic Noise Modeler

8/22/2019

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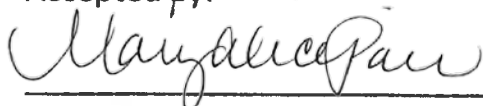


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EXECUTIVE SUMMARY

This Preliminary Traffic Noise Report (TNR) summarizes the traffic noise analysis findings for North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP) Project I-2513. Project I-2513 is approximately a 7-mile, interstate freeway project that is being proposed to connect I-26 in southwest Asheville to US 19/23/70 in northwest Asheville. NCDOT has programmed this project to upgrade and widen I-240 from I-40 to Patton Avenue, and then proceed northward from Patton Avenue on new location across the French Broad River and connect to US 19/23/70 just south of Exit 25 (Riverside Drive - Broadway - UNC-Asheville). Section A is the I-240 widening alternative, extending from just north of the I-26/I-40/I-240 interchange to just south of the US 19-23-74A/Patton Avenue interchange. Section B is on new location from just south of the Patton Avenue interchange to US 19-23-70. Section C is intended to improve the existing I-26/I-40/I-240 interchange.

A Highway Traffic Noise Analysis was previously completed for the project in March 2007 and its results were presented in the March 2008 Draft Environmental Impact Statement (DEIS). This analysis was updated in February 2010 to address revised preliminary designs and traffic data. Project alternatives in Section B were subsequently modified, and a new alternative (Alternative 3C) was developed. Additionally, NCDOT updated the traffic volumes and updated its Traffic Noise Abatement Policy in July 2011. To address these changes, a new Traffic Noise Analysis was completed in August 2015 and presented in the October 2015 DEIS. This most recent version of the Traffic Noise Report addresses more recently updated traffic data, revisions to design of the preferred alternative, and complies with the revised NCDOT Traffic Noise Policy that became effective in October 2016.

An Environmental Impact Statement (EIS) / Record of Decision (ROD) is being prepared for this project and is scheduled to be completed in 2019. Federal funding will be utilized and Federal Highway Administration (FHWA) approval will be required. Per FHWA Procedures for Abatement of Highway Noise (23 CFR 772.5(2)) and the 2016 NCDOT Traffic Noise Policy (NCDOT Policy), the proposed project is a “Type I” project.

The Date of Public Knowledge will be the approval date of the ROD. After this date, federal and state governments are no longer responsible for providing noise abatement measures for new development within the noise impact area of the proposed project. NCDOT advocates the use of local government authority to regulate land development, planning, design and construction in such a way that noise impacts are minimized.

Traffic noise impacts and temporary construction noise impacts can be a consequence of transportation projects, especially for noise-sensitive land uses in close proximity to high-volume and/or high-speed existing steady-state traffic noise sources. This Traffic Noise Report presents an analysis of probable traffic noise impacts and noise mitigation for the project alternatives. The noise analysis was performed utilizing validated computer models created with the Federal Highway Administration Traffic Noise Model® (FHWA TNM v. 2.5) to predict future noise levels and define impacted receptors along the proposed project. Under proposed conditions, 2040 Build Section A resulted in 112 impacted receptors, Section B resulted in 134 impacted receptors, and Section C resulted in 171 impacted receptors. These numbers may change based on the relocation assistance reports and right-of-way estimate reports.

Consideration for noise abatement measures was given to all impacted receptors. Following the criteria for feasibility and reasonableness as prescribed in the 2016 NCDOT Traffic Noise Policy, noise abatement for this project is likely at three locations for Section A, three locations for Section B, and two locations for Section C. ‘Likely’ does not mean a firm commitment. Additional detailed study of potential mitigation measures will be necessary subsequent to selection of the final design of this project.

Furthermore, temporary construction noise impacts may occur due to the close proximity of the noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise analysis that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

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1.0 PROJECT LOCATION, DESCRIPTION, & BACKGROUND

This report summarizes the traffic noise analysis findings for North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP) Project I-2513. Project I-2513 is approximately a 7-mile, interstate freeway project that is being proposed to connect I-26 in southwest Asheville to US 19/23/70 in northwest Asheville. NCDOT has programmed this project to upgrade and widen I-240 from I-40 to Patton Avenue (US 19-23-74A), and then proceed northward from Patton Avenue on new location across the French Broad River and connect to US 19/23/70 just south of Exit 25 (Riverside Drive - Broadway - UNC-Asheville) (see **Figure 1**). Upon completion, this project will be part of the I-26 Interstate highway that extends from Charleston, South Carolina, to connect with I-81 in Kingsport, Tennessee.

A Highway Traffic Noise Analysis was previously completed for the project in March 2007 and its results were presented in the March 2008 Draft Environmental Impact Statement (DEIS). A Highway Traffic Noise Analysis Update was completed in February 2010 using the preliminary designs and traffic data updated and available between 11/1/09 and 1/31/10. Project alternatives in Section B were subsequently modified, and a new alternative (Alternative 3C) was developed. Additionally, NCDOT updated the traffic volumes and updated its Traffic Noise Abatement Policy effective July 13, 2011. To address these changes, a new Traffic Noise Analysis was completed in August 2015 and presented in the October 2015 DEIS. The preferred alternative was selected in May 2016 and included Section A – I-240 Widening, Section B – Alternative 4B, and Section C – Alternative F-1. They are referred to as Section A, Section B, and Section C throughout this report. This most recent version of the Traffic Noise Report addresses revisions to design of the preferred alternative based upon updated traffic studies, and complies with the revised NCDOT Traffic Noise Policy that became effective in October 2016.

The currently proposed I-26 Connector in Asheville includes:

- Upgrading 4.3 miles of existing I-240 from the I-26/I-240 interchange with I-40 to the I-240 interchange with Patton Avenue, west of the French Broad River.
- Improvements to the I-26/I-240 interchange with I-40 and Brevard Road (NC 191), as well as the Amboy Road (SR 3556), Haywood Road (SR 3548/US 19/23 Business) and Patton Avenue (US 19-23) interchanges with I-26.
- Construction of the interstate on new location from the Patton Avenue interchange north for 2.6 miles across the French Broad River, tying into US 19/23/70 south of Broadway (SR 1781).
- Design speeds of 60 mph for I-26, I-26/I-240, and I-40 and 50 mph for I-240.

Section A is the I-26/I-240 widening alternative that would include a best-fit design for the widening and reconstruction of existing I-26/I-240 from a four-lane freeway to a six-lane freeway. It extends from just north of the I-26/I-40/I-240 interchange to just south of the US 19-23-74A/Patton Avenue interchange on the west side of the French Broad River.

Section B is on new location from just south of the Patton Avenue interchange to US 19-23-70. This includes modification of the existing I-240 interchange with US 19-23-74A/Patton Avenue and the extension of I-26 across the French Broad River to US 19-23-70. Local Patton Avenue traffic would be separated from the I-240 through-traffic. To create this separation the split between I-26 and I-240 would be moved to the north and the existing Captain Jeff Bowen Bridge would be converted to serve Patton Avenue traffic only.

Section C is intended to improve the existing I-26/I-40/I-240 interchange. This includes widening the interstate roadways and reconstructing the existing I-26/I-40/I-240 interchange to provide the movements that are currently not included, maintaining the same general configuration while adding the two missing movements with a loop and a ramp.

Several design refinements have been made in order to reduce impacts of the preferred alternative for each section. These refinements include:

- Reducing the number of lanes for I-26/I-240 in Section A from eight through travel lanes (four in each direction) to six through travel lanes (three in each direction).
- Eliminating the Amboy Road Extension and the connections to Fairfax and Virginia Avenues, instead providing a split diamond interchange on I-26 between Amboy Road and Brevard Road, with roundabouts at the ramp terminals.
- Positioning Amboy Road under I-26.
- Eliminating the I-40 collector/distributor roads.
- Adding a new ramp connecting westbound I-40 to northbound Smokey Park Highway at Exit 44 and revising the existing loop to serve only westbound I-40 to southbound Smokey Park Highway.
- Removing left-over turn lane for eastbound Patton Avenue traffic to access the Westgate Shopping Center, as this access is redundant.
- Realigning the West Asheville Greenway to follow the proposed ramp in the southeast quadrant of the I-26/Patton Avenue interchange instead of following and using Hazel Mill Road.

Noise Study Areas

A large portion of the land within the project study area is developed, with land uses including residential, industrial, institutional, and commercial. Noise Study Areas (NSAs) were developed to group noise-sensitive land uses (receptors) that are geographically near one another and influenced by similar noise sources. Figures 2-2 to 2-5 show the 27 proposed NSAs and each NSA is further described below. Numerous noise receptors are not included in NSAs because of their distance from the project roadway alignments, their not being impacted by traffic noise or their being relatively isolated from groups of noise-sensitive receptors. Sixteen receptors that are not included within NSAs yet are predicted to be impacted by future traffic noise are detailed in **Table 7**.

Section A

NSA A-1

NSA A-1 is located west of I-26/I-240, east of Brevard Road, and south of Brotherton Avenue. NSA A-1 contains 88 NAC B (residential) receptors, including (but not limited to) land uses along Fairfax Avenue, Dale Street, and Virginia Avenue.

NSA A-1.1

NSA A-1.1 is located south of I-40, east of Hominy Creek Road, and west of The Biltmore Estate. NSA A1.1 contains 17 NAC C receptors, representing the French Broad River Greenway and the Farm Trail at Biltmore running along both sides of the French Broad River. NSA A-1.1 includes a portion of the Biltmore Estate property, which was designated as a National Historic Landmark in 1963 and is listed in the National Register of Historic Places.

NSA A-1.2

NSA A-1.2 is located east of I-26/I-240, south of Amboy Road, and north of I-40, following the French Broad River. NSA A-1.2 contains 158 NAC C receptors, representing the French Broad River Greenway, the Farm Trail at Biltmore, Carrier Park, and Wilson’s RV Park. Land uses within NSA A-1.2 are along Amboy Road and the French Broad River.

NSA A-2

NSA A-2 is located west of I-26/I-240, east of Hudson Street, north of Virginia Avenue, and south of State Street. NSA A-2 contains 96 NAC B (residential) receptors, including (but not limited to) land uses along Hubbard Avenue, Stewart Street, and New Jersey Avenue.

NSA A-3

NSA A-3 is located east of I-26/I-240, west of Hanover Street, north of Amboy Road, and south of State Street. NSA A-3 contains 38 NAC B (residential) receptors, including (but not limited to) land uses along Kentucky Drive, Stewart Street, and Buttonwood Court.

NSA A-4

NSA A-4 is located west of I-26/I-240, east of Allen Street, north of State Street, and south of Haywood Road. NSA A-4 contains 46 NAC B (residential) receptors, including (but not limited to) land uses along Pennsylvania Avenue, Montana Avenue, and Parkman Avenue.

NSA A-5

NSA A-5 is located east of I-26/I-240, west of Michigan Avenue, north of State Street, and south Haywood Road. NSA A-5 contains 73 NAC B (residential) receptors and two NAC D equivalent receptors. NAC D equivalent receptors represent Asheville Wesleyan Church and First Church of God. Receptors within NSA A-5 include (but are not limited to) land uses along Hanover Street, Pennsylvania Avenue, and Alabama Avenue.

NSA A-6

NSA A-6 is located west of I-26/I-240, east of Baker Avenue, north of Haywood Road, and south of Downing Street. NSA A-6 contains 18 NAC B (residential) receptors and one NAC C equivalent receptor, and one NAC D equivalent receptor. NAC C and D equivalent receptors represent Calvary Baptist Church. Receptors within NSA A-6 include (but are not limited to) land uses along Burton Street, Burrough Street, and Noble Street. NSA A-6 encompasses Calvary Church (Receptor A801), which has been determined eligible for the National Register of Historic Places.

NSA A-7

NSA A-7 is located east of I-26/I-240, west of Westwood Place, north of Haywood Road, and south Wilmington Street. NSA A-7 contains 15 NAC B (residential) receptors, six NAC C equivalent receptors, and one NAC D equivalent receptor. NAC C and D equivalent receptors represent Asheville Primary School. Receptors within NSA A-7 include (but are not limited to) land uses along Argyle Lane. NSA A-7 includes a large portion of the West Asheville-Aycock School Historic District (Receptors A846-A846.6), which was designated a National Historic Landmark in 2006 and is listed in the National Register of Historic Places.

Section B

NSA B-1

NSA B-1 is located west of I-26/I-240, east of Florida Avenue, north of Baker Ave, and south of Patton Avenue. NSA B-1 contains 47 NAC B (residential) receptors, three NAC C equivalent receptors, and two NAC D equivalent receptors. NAC C and D land uses represent Burton Street Recreation Center and St. Paul's Missionary Baptist. Receptors within NSA B-1 include (but are not limited to) land uses along Ohio Street, Fayetteville Street, and Buffalo Street.

NSA B-2

NSA B-2 is located east of I-26/I-240, west of Westwood Place, north of Wilmington Street, and south of Hazel Mill Road. NSA B-2 contains 73 NAC B (residential) receptors, including (but not limited to) land uses along Richland Street, Vandalla Avenue, and Dellwood Street. NSA B-2 encompasses the William Worley House (Receptor B228), which has been determined eligible for the National Register of Historic Places.

NSA B-3.1

NSA B-4 is located along Emma Road, east of the French Broad River, and north of the proposed project's new I-26/I-240 alignment. NSA B-3.1 contains 28 NAC B (residential) receptors and one NAC D equivalent receptor. The NAC D land use represents Christian Church of Hope. Receptors within NSA B-3.1 include land uses along Boone Street, Emma Road, and Bingham Road.

NSA B-3.2

NSA B-3 is located along Resort Drive, just west of the proposed project's new I-26/I-240 alignment. NSA B-3 contains 31 NAC C equivalent receptors and 124 NAC E equivalent receptors. NAC C equivalent receptors were placed in a grid array to represent the golf course. NAC E equivalent receptors represent the Crowne Plaza Tennis and Golf Resort's hotel room balconies, outdoor uses areas, and swimming pool.

NSA B-4

NSA B-4 is located along Westwood Place, north of Westgate Regional Shopping Center, and east of the proposed project's new I-26/I-240 alignment. NSA B-4 contains 6 NAC B (residential) receptors, including land uses along Westwood Place. NSA B-4 encompasses the Freeman House (Receptor B548), which has been determined eligible for the National Register of Historic Places.

NSA B-5

NSA B-5 is located west of I-26, east of Riverside Drive, and north of I-240. NSA B-5 contains 230 NAC B (residential) receptors, one NAC C equivalent receptor, and two NAC D equivalent receptors. NAC C and D land uses represent Hillcrest Recreation Center and Hillcrest Headstart Center. Receptors within NSA B-5 include land uses along Atkinson Street, all of which are a part of Hillcrest Apartments.

NSA B-6

NSA B-6 is located east of I-26, north of Houston Circle, and south of Courtland Place. NSA B-6 contains 29 NAC B (residential) receptors, including (but not limited to) land uses along Courtland Avenue, Houston Street, and Courtland Place.

NSA B-7

NSA B-7 is located south of I-240, east of I-26, north of Patton Avenue, and west of North Ann Street. NSA B-7 contains one NAC C equivalent receptor, five NAC C equivalent receptors, and one NAC E equivalent receptors. NAC C, D, and E land uses represent The Haywood Street Congregation, Western Carolina Rescue Mission, Western North Carolina Baptist, Elk's Lodge #608, and O. Henry's. Receptors within NSA B-7 include (but are not limited to) land uses along Haywood Street and Patton Avenue. NSA B-7 encompasses the Whiteford G. Smith House (Receptor B532) and the Haywood Street Congregation (formerly Haywood Street United Methodist Church, Receptor B486), both of which have been determined eligible for the National Register of Historic Places.

NSA B-8

NSA B-8 is located east of I-26, west of Pearson Drive, north of Riverside Cemetery, and south of Pearson Drive. NSA B-8 contains 45 NAC B (residential) receptors, including (but not limited to) land uses in the Montford Hills neighborhood along Westover Drive, Sylvan Avenue, and Tacoma Circle. NSA B-8 includes a portion of the Montford Area Historic District Expansion which has been determined eligible for the National Register of Historic Places.

NSA B-8.1

NSA B-8.1 is located east of I-26, west of Pearson Drive, north of Courtland Place, and south of Westover Drive. NSA B-8.1 contains 68 NAC C equivalent receptors representing Riverside Cemetery. NSA B-8.1 includes a portion of the Montford Area Historic District which has been determined eligible for the National Register of Historic Places.

NSA B-9

NSA B-9 is located east of I-26, north of Pearson Drive, and south of Broadway Street. NSA B-9 contains 37 NAC B (residential) receptors, including (but not limited to) land uses along Klondike Avenue, Hibriten Drive, and Klondike Place. NSA B-9 includes a portion of the Montford Hills-Hibriten Drive Boundary Expansion Historic District, which has been determined eligible for the National Register of Historic Places.

NSA B-10

NSA B-10 is located north of I-240, east of I-26, and south of Houston Place. NSA B-10 contains 15 NAC B (residential) receptors, one NAC C equivalent receptor, and two NAC D equivalent receptors. NAC C and D land uses represent Hill Street Baptist Church and Fruit of the Spirit Church. Receptors within NSA B-10 include (but are not limited to) land uses along Hill Street, Greenlee Street, and Cross Place.

Section C

NSA C-1

NSA C-1 is located south of I-40, east of Smokey Park Highway, and West of Sand Hill Road. NSA C-1 contains 94 NAC B (residential) receptors, including (but not limited to) land uses along Grandview Circle, Selwyn Road, and Creasman Road.

NSA C-2

NSA C-2 is located north of I-40, east of Smokey Park Highway, and West of Sand Hill Road. NSA C-2 contains 8 NAC B (residential) receptors, including land uses along Montgomery Street.

NSA C-3

NSA C-3 is located northwest of the I-40/I-26/I-240 interchange, east of Sand Hill Road, and west of South Bear Creek Road. NSA C-3 contains 148 NAC B (residential) receptors, including (but not limited to) land uses along Monty Street, Furey Drive, and the neighborhood of Clairmont Crest Mobile Home Park.

NSA C-4

NSA C-4 is located southwest of the I-40/I-26/I-240 interchange, east of Sand Hill Road, and north of Pond Road. NSA C-4 contains 66 NAC B (residential) receptors, including (but not limited to) land uses along Sand Hill Lane, West Oakview Road, and Hazelnut Drive.

NSA C-5

NSA C-5 is located northeast of the I-40/I-26/I-240 interchange, west of Brevard Road. NSA C-5 contains 14 NAC B (residential) receptors, two NAC C equivalent receptors, and one NAC E equivalent receptor. NAC C and E land uses represent Bear Creek RV Park. Receptors within NSA C-5 include land uses along South Bear Creek Road.

NSA C-6

NSA C-6 is located southeast of the I-40/I-26/I-240 interchange, north of Pond Road, and west of Brevard Road. NSA C-6 contains 22 NAC B (residential) receptors, including land uses along East Oakview Road.

Detailed figures illustrating existing and proposed conditions within the project study area, proposed alternatives, noise study areas, modeled noise receptor locations, predicted impacts, and mitigation considerations may be found at the end of this report.

2.0 PROCEDURE

This Traffic Noise Report was prepared based on preliminary designs, after selection of a preferred alternative, and shows the traffic noise impacts and abatement recommendation for the I-26 Connector Project (TIP I-2513).

The noise analyses reported herein used noise measurement procedures that considered the methodologies contained in the FHWA publication titled *Measurement of Highway-Related Noise* (May 1996). These measurements assisted in validating the project's traffic noise prediction model. This TNR utilized validated computer models created with the Federal Highway Administration Traffic Noise Model® version 2.5 (FHWA TNM v.2.5) to predict Existing 2015 and future Design Year 2040 hourly equivalent traffic noise levels (Leq (h)), and application of NCDOT Noise Abatement Criteria (NAC) and substantial noise level increase (change in predicted over existing noise levels) criteria to identify all impacted noise-sensitive receptors along the proposed project. Evaluation of the feasibility and reasonableness of potential noise abatement measures was completed through the application of additional criteria found in the NCDOT Traffic Noise Policy. All analytical procedures are in accordance with the 2016 NCDOT Traffic Noise Policy, the 2016 NCDOT Traffic Noise Manual and Title 23 Code of Federal Regulations, Part 772 – *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, (23 CFR 772).

In accordance with the 2016 NCDOT Traffic Noise Policy, the Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the proposed highway project will be the approval date of the Record of Decision (ROD). For development occurring after this date, local governing bodies are responsible to ensure that noise compatible designs are utilized along the proposed facility.

3.0 CHARACTERISTICS OF NOISE

Noise is basically defined as unwanted sound. It is emitted from many natural and man-made sources. Highway traffic noise is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction.

The magnitude of noise is usually described by a ratio of its sound pressure to a reference sound pressure, which is usually twenty micro-Pascals (20 μ Pa). Since the range of sound pressure ratios varies greatly, over many orders of magnitude, a base-10 logarithmic scale is used to express sound levels in dimensionless units of decibels (dB). The commonly accepted limits of detectable human hearing sound magnitudes is between the threshold of hearing at 0 dB and the threshold of pain at 140 dB.

Sound frequencies are represented in units of Hertz (Hz), which correspond to the number of vibrations per second of a given tone. A cumulative “sound level” is equivalent to ten times the base-10 logarithm of the ratio of the sum of the sound pressures of all frequencies to the reference sound pressure. To simplify the mathematical process of determining sound levels, sound frequencies are grouped into ranges, or “bands.” Sound levels are then calculated by adding the cumulative sound pressure levels within each band – which are typically defined as one “octave” or “1/3-octave” of the sound frequency spectrum.

The commonly accepted limitation of human hearing to detect sound frequencies is between 20 Hz and 20,000 Hz, and human hearing is most sensitive to the frequencies between 1,000 Hz and 6,000 Hz. Although people are generally not as sensitive to lower-frequency sounds as they are to higher frequencies, most people lose the ability to hear high-frequency sounds as they age. To accommodate varying receptor sensitivities, frequency sound levels are commonly adjusted, or “filtered”, before being logarithmically added and reported as a single “sound level” magnitude of that filtering scale. The “A-weighted” decibel filtering scale applies numerical adjustments to sound levels at different frequencies to emphasize the levels in frequency ranges at which human hearing is sensitive, and to minimize the levels in frequency ranges at which human hearing is not as sensitive (refer to **Table 1** on page 8).

Examples of noise levels expressed in dB(A) are listed in **Table 2** on page 9, which demonstrates that most people are exposed to fairly high noise levels from many sources on a regular basis. In order to perceive sounds of greatly varying pressure levels, human hearing has a non-linear sensitivity to sound pressure exposure. For example, doubling the sound power (or number of identical sources) results in a three decibel change in the noise level; however, variations of three decibels (3 dB(A)) or less are commonly considered “barely perceptible” to normal human hearing. A five decibel (5 dB(A)) change is more readily noticeable. By definition, a ten-fold increase in the sound power correlates to a 10 decibel (10 dB(A)) noise level increase; however, it is judged by most people as only a doubling of the loudness – sounding “twice as loud”.

Table 1: Comparison: Unweighted vs. A-Weighted Frequency Scaling

Octave-Band Center Frequency (Hz)	A-Weighted Adjustment ¹	Sample Frequency Sound Levels (Unweighted)	Sample Frequency Sound Levels (A-Weighted)
31	-39.53	90.00	50.47
63	-26.22	80.00	53.78
125	-16.19	70.00	53.81
250	-8.68	65.00	56.32
500	-3.25	60.00	56.75
1000	0.00	60.00	60.00
2000	+1.20	60.00	61.20
4000	+0.96	55.00	55.96
8000	-1.14	50.00	48.86
16000	-6.7	45.00	38.30
Overall Sound Levels		90.48 dB²	66.32 dB(A)²

¹ Based on ANSI S1.42-2001(R2016)

² Although the energy in the unweighted sound source would create an *actual* sound level = 90.48 dB, it would be *perceived* as a sound level of 66.32 dB (A) by human hearing due to the decreased sensitivity of human hearing to sound at lower sound frequencies.

The degree of disturbance or annoyance from exposure to unwanted sound – noise – depends upon three factors:

1. The magnitude, nature, and duration of the intruding noise
2. The relationship between the intruding noise and the existing (ambient) sound environment; and
3. The situation in which the disturbing noise is heard.

In considering the first of these factors, it is important to note that individuals have varying sensitivity to noise. Loud noises bother some people more than other people. The time patterns and durations of noise(s) also affect perception as to whether or not it is offensive. For example, noises that occur during nighttime (sleeping) hours are typically considered to be more offensive than the same noises in the daytime.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). A car horn blowing at night when background noise levels are low would generally be more objectionable than one blowing in the afternoon when background noises are typically higher. The response to noise stimulus is analogous to the response to turning on an interior light. During the daytime an illuminated bulb simply adds to the

ambient light, but when eyes are conditioned to the dark of night, a suddenly illuminated bulb can be temporarily blinding.

Table 2: Common Indoor and Outdoor Noise Levels

Common Outdoor Noise Levels	Noise Level (dB(A))	Common Indoor Noise Levels
	110	Rock Band
Jet Flyover at 1,000 feet	100	Inside Subway Train (NY)
Gas Lawn Mower at 3 feet		
Diesel Truck at 50 feet	90	Food Blender at 3 feet
Noisy Urban Daytime	80	Garbage Disposal at 3 feet
Gas Lawn Mower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Small Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
	30	Bedroom at Night, Concert Hall (Background)
Quiet Rural Nighttime		
	20	Broadcast and Recording Studio
	10	
	0	Threshold of Hearing

Adapted from *Guide on Evaluation and Attenuation of Traffic Noise*, American Association of State Highway and Transportation Officials (AASHTO). 1974 (revised 1993).

The third factor – situational noise – is related to the interference of noise with activities of individuals. In a 60 dB(A) environment such as is commonly found in a large business office, normal conversation would be possible, while sleep might be difficult. Loud noises may easily interrupt activities that require a quiet setting for greater mental concentration or rest; however, the same loud noises may not interrupt activities requiring less mental focus or tranquility.

Over time, particularly if the noises occur at predicted intervals and are expected, individuals tend to accept the noises that intrude into their lives on a regular basis. However, exposure to prolonged and/or extremely loud noise(s) can prevent use of exterior and interior spaces, and has been theorized to pose health risks. Appropriately, regulations exist for noise control or mitigation from many particularly offensive sources, including airplanes, factories, railroads, and highways. For all “Type I” federal, state, or federal-aid highway projects in the State of North Carolina, traffic and construction noise impact analysis and mitigation assessment is dictated by the applicable NCDOT Traffic Noise Policy.

4.0 NOISE ABATEMENT CRITERIA

4.1 TITLE 23 CODE OF FEDERAL REGULATIONS, PART 772 (23 CFR 772)

The Federal Highway Administration (FHWA) has developed Noise Abatement Criteria (NAC) and procedures to be used in the planning and design of highways. The purpose of 23 CFR, Part 772 is:

“To provide procedures for noise studies and noise abatement measures to help protect the public’s health, welfare and livability, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways approved pursuant to title 23 U.S.C.”

The abatement criteria and procedures are set forth in Title 23 CFR, Part 772, which also states:

“In abating traffic noise impacts, a highway agency shall give primary consideration to exterior areas where frequent human use occurs.”

A summary of the NAC for various land uses is presented in **Table 3** on page 11. The L_{eq} , or equivalent sound level, is the equivalent steady-state sound pressure level which in a stated period of time contains the same acoustic energy as a time-varying sound level during the same period. With regard to traffic noise, fluctuating sound levels of traffic noise are represented in terms of L_{eq} , the steady, or “equivalent”, noise level with the same energy.

4.2 NCDOT TRAFFIC NOISE POLICY

The NCDOT Traffic Noise Policy (effective October 6, 2016) establishes official policy on highway noise. This policy describes the NCDOT process that is used in determining traffic noise impacts and abatement measures and the equitable and cost-effective expenditure of public funds for traffic noise abatement. Where the FHWA has given highway agencies flexibility in implementing the 23 CFR 772 standards, this policy describes the NCDOT approach to implementation. This policy is included as **Appendix F** of this report.

Table 3: Noise Abatement Criteria

Hourly Equivalent A-Weighted Sound Pressure Level (decibels (dB(A)))			
Activity Category	Activity Criteria ¹ L _{eq(h)} ²	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ³	67	Exterior	Residential
C ³	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section4(f) sites, schools, television studios, trails, and trail crossings
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E ³	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F	--	--	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 The L_{eq(h)} Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.

² The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with L_{eq(h)} being the hourly value of L_{eq}.

³ Includes undeveloped lands permitted for this activity category.

4.3 NOISE ABATEMENT CRITERIA

The two categories of traffic noise impacts are defined as 1) those that “approach” or exceed the FHWA NAC, as shown in **Table 3**, and 2) those that represent a “substantial increase” over existing noise levels as defined by NCDOT. An impact that represents a “substantial increase” is based on a comparison of the existing hourly noise level [Leq(h)] with the predicted increase with respect to a change to noise levels in the design year of 10 dB(A) or more.

5.0 AMBIENT NOISE LEVELS

Ambient noise is that noise which is all around us caused by natural and manmade events. It includes the wind, rain, thunder, birds chirping, insects, household appliances, commercial operations, lawn mowers, airplanes, automobiles, etc. It is all noise that is present in a particular area.

Existing traffic noise exposure varies in the vicinity of the proposed I-26 Connector project. Dominant roadway noise sources include I-26, I-40, I-240, US 19-23-70 and US 74A. Various secondary roads and residential streets may be the dominant noise source for receptors that are relatively distant from the major highways listed above.

Non-traffic noise sources in the project area include the Norfolk Southern Railway, with tracks that enter Asheville from the south and east. The tracks meet in Biltmore Village and turn north just northwest of Biltmore Village and run west of downtown, following the French Broad River north to Madison County. The railroad is an intermittent noise source which may cause receptors in its vicinity to experience significant, temporary spikes in noise levels.

Short-term noise monitoring was conducted to evaluate existing ambient noise conditions within the project study area. Data collected through noise monitoring in one-minute increments for 20 minutes is used to develop a comparison between the monitored results and the output obtained from the TNM[®] noise prediction model. This comparison is performed to validate the model to actual local conditions so that the model can be used with confidence to predict the existing and future worst-hour noise levels at desired locations throughout the project area.

Short term ambient noise monitoring data (20-minutes) was collected at 25 locations and long term ambient noise monitoring data (24-hours) was collected at four locations within the project area. The ambient noise monitoring locations are shown in **Figure 3**. The noise monitoring results, concurrent traffic counts, estimated vehicle speeds, and weather information for the monitoring sites are included in **Appendix A**.

Existing noise measurements were collected under meteorologically acceptable conditions when the pavement was dry and winds were calm or light. Additional data collected at each monitoring location included atmospheric conditions such as general wind speed, humidity, pressure, and ambient temperature. Measurements were conducted based on the acceptable collection of existing noise level readings according to the FHWA Report, FHWA-PD-96-046, “Measurement of Highway Related Noise.”

Noise level data collection was performed on June 17-19, 2014 by employees of ICA (for inclusion in the August 2015 Traffic Noise Analysis). Data collection occurred again by AECOM staff on October 11-12,

2017 for inclusion in this analysis. Type 1 precision integrating sound level meters were used during each data collection event.

Short-term noise levels collected within the project area range from 46 to 72 dB(A) and long-term noise levels range from 57 to 63 dB(A). Twenty-minute traffic data (vehicle volume, type and speed) were recorded at all measurement locations on all roadways visible from the monitoring site that significantly contributed to the overall noise level. Traffic was grouped into one of five categories: automobiles, medium trucks, heavy trucks, buses, and motorcycles, as depicted in **Table 4**. The 20-minute traffic data was converted to one hour traffic for validation of the noise model. Traffic was highly variable among the monitoring locations.

Table 4: Traffic Noise Model (TNM) Vehicle Classification Types

TNM Vehicle Type	Description
Autos	All vehicles with two axles and four tires, including passenger cars and light trucks, weighing 9,900 pounds or less
Medium Trucks	All vehicles having two axles and six tires, weighing between 9,900 and 26,400 pounds
Heavy Trucks	All vehicles having three or more axles, weighing more than 26,400 pounds
Buses	All vehicles designed to carry more than nine passengers
Motorcycles	All vehicles with two or three tires and an open-air driver / passenger compartment

Sources: FHWA *Measurement of Highway-Related Noise*, § 5.1.3 Vehicle Types.
 FHWA *Traffic Monitoring Guide*, § 4.1 Classification Schemes.

For this traffic noise analysis, loudest-hour existing noise levels were assessed as the TNM-predicted noise levels based on existing loudest-hour traffic estimates or the ambient noise levels obtained at representative locations in the field. Per 23 CFR 772.5, existing noise levels are defined as “the worst noise hour resulting from the combination of natural and mechanical sources and human activity usually present in a particular area.” If the TNM-predicted existing loudest-hour traffic noise levels are lower than the hourly-equivalent noise levels obtained in the field, then existing noise levels are assessed as the latter. Ambient noise measurements were taken throughout the project area to capture a measurement within each of the varying noise environments. Existing noise levels were assigned to each receptor by determining the closest ambient noise measurement. The range of ambient noise levels collected from within the project study area varied from 42-60 dB(A). To validate the accuracy of the model, FHWA TNM v2.5 was used to compare measured traffic noise levels to modeled noise levels at

field measurement locations. To the extent practicable, ambient noise levels collected within a specific NSA were used for all receptors in that NSA. Information regarding the collection of ambient noise levels is found in **Appendix A**. An ambient noise level of 47 dB(A) was collected at ST-25 within NSA A-6 and an ambient noise level of 59 dB(A) was collected at ST-3 in NSA A-1.2. Given the surrounding land uses, development and topography, the ambient noise level of 47 dB(A) is considered too low and the ambient noise level of 59 dB(A) is considered too high to be used for the many noise-sensitive receptors within NSAs A-2, A-3, A-4 and A-5, all of which are considerable distances from monitoring locations ST-3 and ST-25. Therefore, an average of 53 dB(A) for all receptors in NSAs A-2, A-3, A-4 and A-5 is used as a reasonable compromise between the 47 and 59 dB(A) readings for use in these NSAs. This noise level is within the range of approximately 45-55 dB(A) given for a quiet urban area in Table 3.2 of the NCDOT Noise Manual. Ambient noise levels in NSAs A-6, A-7, B-1 and B-2 are reported at 47 - 48 dB(A) due to these NSA's proximities to ambient monitoring locations ST-2 and ST-25. Likewise, ambient noise levels in NSAs A-1 and A-1.2 remain 59 -60 dB(A) due to the NSA's proximities to ambient monitoring locations ST-3 and ST-15. Ambient monitoring locations ST-2 and ST-25 are shown on Figures 3-23 and 3-20, respectively. Ambient monitoring locations ST-3 and ST-15 are shown on Figures 3-18 and 3-11, respectively.

6.0 NOISE MODEL VALIDATION

TNM model validation is the process by which the precision of the modeled relationship between traffic (classified volumes and speeds) and predicted hourly-equivalent traffic noise levels is refined and confirmed. Since TNM can only predict traffic noise levels, TNM models can only be validated for locations for which traffic was the dominant noise source.

For the short-term monitoring locations for which traffic was the dominant noise source, traffic volumes counted during the noise monitoring periods were normalized to 1-hour volumes. These normalized volumes were assigned to the corresponding project area roadways to simulate the noise source strength at the roadways during the actual measurement period.

TNM model validation is performed by comparing monitored ambient equivalent sound levels to TNM-predicted traffic noise levels generated by the classified traffic volumes. A TNM model is considered validated if it is a reasonable representation of the existing project area, and the TNM-predicted traffic noise levels are within ± 3.0 dB(A) of the monitored equivalent sound levels obtained at locations for which traffic was the dominant noise source. TNM validation was achieved for all eleven monitoring locations at which validation was sought. The validated results for FHWA TNM v2.5 models are included in **Appendix A**.

7.0 PROCEDURE FOR PREDICTING FUTURE NOISE LEVELS

Traffic noise emission is composed of several variables, including the number, types, and travel speeds of the vehicles, as well as the geometry of the roadway(s) on which the vehicles travel. Additionally, variables such as weather and intervening topography affect the transmission of traffic noise from the vehicle(s) to noise-sensitive receptors.

In accordance with industry standards and accepted best-practices, detailed computer models were created using the FHWA TNM v.2.5. The computer models were validated to within acceptable tolerances of field-monitored traffic noise data and were used to predict traffic noise levels for receptor

locations located in the vicinity of the project. More detailed information as well as visual representations of these computer models can be found in **Appendix C**.

Traffic noise consists of three primary parts: tire/pavement noise, engine noise, and exhaust noise. Of these sources, tire/pavement noise is typically the most offensive at unimpeded travel speeds. Sporadic traffic noises such as horns, squealing brakes, screeching tires, etc. are considered aberrant and are not included within the predictive model algorithm.

Traffic noise is not constant; it varies in time depending upon the number, speed, type, and frequency of vehicles that pass by a given receptor. Furthermore, since traffic noise emissions are different for various types of vehicles, the TNM algorithm distinguishes between the source emissions from the following vehicle types: automobiles, medium trucks, heavy trucks, buses, and motorcycles, as shown in **Table 4** on page 13.

The computer traffic noise prediction model uses the number and type of vehicles on the planned roadway, their speeds, the physical characteristics of the road (curves, hills, depressions, elevations, etc.), receptor location and height, and, if applicable, barrier type, barrier ground elevation, and barrier segment top elevations.

Preliminary project plans of the presently considered design were used in this traffic noise analysis. Per FHWA guidance, the predictions documented in this report are based upon the proposed roadway alignment design and Design Year 2040 build-condition traffic conditions resulting in the loudest predicted hourly-equivalent traffic noise levels for each receptor. More detailed information regarding existing and future year (2040) traffic volumes and speeds used in this analysis can be found in **Appendix E**.

8.0 TRAFFIC NOISE IMPACTS

Traffic noise impacts occur when the predicted traffic noise levels either: 1) approach or exceed the FHWA NAC (with “approach” meaning within 1 dB(A) of the NAC values listed in **Table 3** on page 11, or 2) substantially exceed the existing noise levels by 10 dB(A) or more. FHWA and NCDOT require that feasible and reasonable measures be considered to abate traffic noise at all predicted traffic noise impacts. Measures considered include highway alignment selection, traffic systems management, buffer zones, noise walls, and earth berms.

The number and types of predicted traffic noise impacts in each condition are shown in **Table 5** on page 16, with impacts designated as either approaching or exceeding the FHWA NAC, by a substantial increase in Design Year 2040 build-condition traffic noise levels over existing ambient noise levels, or by meeting both criteria. 2040 Build Section A resulted in 112 impacted receptors, Section B resulted in 134 impacted receptors, and Section C resulted in 171 impacted receptors.

Section A includes 110 receptors that are predicted to experience traffic noise levels that approach or exceed the NAC. Three (3) receptors are predicted to experience a substantial noise increase. One (1) receptor is impacted by both NAC and substantial increase criteria, resulting in 112 total impacted receptors. Three (3) noise abatement measure(s) is/are preliminarily feasible and reasonable in Section A.

Section B includes 103 receptors that are predicted to experience traffic noise levels that approach or exceed the NAC. A substantial noise level increase is predicted for 38 receptors. Eight (8) receptors are impacted by both NAC and substantial increase criteria, resulting in 134 total impacted receptors. Three (3) noise abatement measures are preliminarily feasible and reasonable in Section B.

Section C includes 171 receptors that are predicted to experience traffic noise levels that approach or exceed the NAC. Eight (8) receptors are predicted to experience a substantial noise level increase. Eight (8) receptors are impacted by both NAC and substantial increase criteria, resulting in 171 total impacted receptors. Two (2) noise abatement measures are preliminarily feasible and reasonable in Section C.

Table 5: Traffic Noise Impact Summary

Section	Approximate # of Impacted Receptors Approaching or Exceeding FHWA NAC ²							Substantial Noise Level Increase ³	Impacts Due to Both Criteria ⁴	Total Impacts ⁵ Per 23 CFR 772
	A	B	C	D	E	F	G			
Section A	0	108	2	0	0	0	0	3	1	112
Section B	0	94	6	0	3	0	0	39	8	134
Section C	0	160	11	0	0	0	0	8	8	171

¹ This table presents the number of build-condition traffic noise impacts as predicted for the build-condition alternatives.

² Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3). The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion.

³ Predicted “substantial increase” traffic noise level impact.

⁴ Predicted traffic noise level impact due to exceeding NAC and “substantial increase” in build-condition noise levels.

⁵ The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion.

Noise impacts and abatement measures are discussed in greater detail in Section 9.0 of this TNR. Existing and predicted Design Year noise levels for all noise-sensitive receptors included in this analysis are included in **Appendix B**.

9.0 POTENTIAL TRAFFIC NOISE ABATEMENT MEASURES

FHWA and NCDOT require that feasible and reasonable measures be considered and evaluated for the benefit of all predicted build condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility is the consideration as to whether noise abatement measures *can* be implemented. Reasonableness is the consideration as to whether noise abatement measures *should* be implemented. Per NCDOT Policy, the following traffic noise abatement measures may be considered: highway alignment selection, traffic systems management, buffer zones, noise barriers (earth berms and noise walls), and noise insulation of Activity Category D land use facilities.

9.1 HIGHWAY ALIGNMENT SELECTION

Highway alignment selection for traffic noise abatement measures involves modifying the horizontal and vertical geometry of the proposed facility to minimize traffic noise to noise-sensitive receptors. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. For noise abatement, horizontal alignment selection is primarily a matter of locating the roadway at a sufficient distance from noise sensitive receptors. Appreciable reductions in traffic noise transmissions to sensitive receptors can be made by adjusting the vertical highway alignment and/or section geometry. For example, lowering a roadway below existing grade creates a cut section which could act similarly as an earth berm, depending upon the relative location(s) of noise-sensitive receptor(s). For this project, altering the horizontal or vertical alignment of the proposed roadway would create more human and environmental impacts than the current designs, and could increase the cost of the project. Further, this project includes complex grade separations which have been carefully designed to meet all roadway design criteria. Because of this, shifting the alignment of the roadway was determined non-feasible.

9.2 TRAFFIC SYSTEM MANAGEMENT MEASURES

Traffic management measures such as prohibition of truck traffic, lowering speed limits, limiting of traffic volumes, and/or limiting time of operation were considered as possible traffic noise impact abatement measures. The purposes of the proposed project are to provide an I-26 freeway connection from south of Asheville to north of Asheville, improve capacity, reduce delays and congestion, and increase the remaining useful service of Jeff Bowen Bridge. The aforementioned traffic management measures would diminish the functional capacity of the freeway and are not considered practicable.

9.3 BUFFER ZONES

Buffer zones are typically not practical and/or cost effective for noise mitigation due to the substantial amount of right-of-way required and would not be a feasible noise mitigation measure for this project. Furthermore, if the acquisition of a suitable buffer zone had been feasible, the associated costs would exceed the NCDOT Policy reasonable abatement cost threshold per benefited receptor.

9.4 NOISE BARRIERS

Passive noise abatement measures are effective because they absorb sound energy, extend the source-to-receptor sound transmission path, or both. Sound absorption is a function of abatement medium (e.g. earth berms reduce more sound energy than noise walls of the same height because earth berms are more massive). The source-to-receptor path is extended by placement of an obstacle, such as a wall, that sufficiently blocks the transmission of sound waves that travel from the source to the receptor.

Highway sound barriers are primarily constructed as earth berms or solid-mass walls adjacent to limited-access freeways that are in close proximity to noise-sensitive land use(s). To be effective, a sound barrier must be long enough and tall enough to shield the impacted receptor(s). Generally, the noise wall length must be eight times the distance from the barrier to the receptor. For example, if a receptor is 200 feet from the roadway, an effective barrier would be approximately 1,600 feet long – with the receptor in the horizontal center. On roadway facilities with direct access for driveways, sound barriers are typically not feasible because the openings render the barrier ineffective in impeding the

transmission of traffic noise. Due to the requisite lengths for effectiveness, sound barriers are typically not economical for isolated or most low-density areas. However, sound barriers may be economical for the benefit of as few as two predicted traffic noise impacts if the barrier can benefit enough total receptors – impacted and non-impacted combined – to meet applicable reasonableness criteria.

NCDOT Policy requires identification whether it is “likely” or “unlikely” that noise barriers will be installed for each NSA identified. “Likely” does not mean a firm commitment. Consideration for noise abatement measures was given to all impacted receptors in the 2040 Build condition for each project alternative. Following the criteria for feasibility and reasonableness as prescribed in the 2016 NCDOT Traffic Noise Policy, noise abatement for this project was found to be preliminarily feasible and reasonable for 12 NSAs. For each noise abatement measure, feasibility is considered first, then reasonableness. If noise abatement is not feasible, then consideration of reasonableness is not warranted. Noise abatement measures in the form of noise barriers found to be feasible and reasonable are described in **Section 9.4.1**. The locations of these potential noise barriers are shown in **Figure 3**.

For some of the remaining impacted receptors, abatement was preliminarily found to not be feasible due to site access constraints where the driveways of each property and other side streets were located such that a noise wall would not be able to be constructed to adequately provide the required abatement. For other impacted receptors, abatement was preliminarily found to not be feasible because at least two impacted equivalent residences would not receive a 5 dB(A) reduction by any noise abatement measures. For abatement to be feasible, at least two impacted receptors must receive a 5 dB(A) noise level reduction. Other impacted receptors were considered isolated impacts (only one impacted equivalent residence). Therefore, abatement at these locations, detailed in **Section 9.5**, cannot provide the necessary noise reduction.

One existing noise barrier is found within the project limits, located along eastbound I-40 between the I-40/US 19-23-74A (Smokey Park Highway) interchange and the Sand Hill Road/I-40 overpass in NSA C-1. This barrier consists of four sections with maintenance breaks and is approximately 4,680 feet long, approximately 10-20 feet high and is both along the shoulder and the top of cut slopes of I-40 with transitional segments between. Dimensions of the existing noise wall were obtained from final design files of the NCDOT highway project under which the barriers were constructed. To accommodate widening of I-40 proposed in STIP Project I-2513, most, if not all, of this barrier must be removed. It is recommended this barrier be replaced as part of STIP Project I-2513, as discussed in **Section 9.4.1**.

Following are descriptions of the feasibility and reasonableness evaluations of potential noise mitigation within each of the twenty-seven (27) NSAs. These analyses are preliminary in nature and meant solely to describe noise study areas where potential noise barriers are likely and may be successfully employed in accordance with NCDOT reasonableness and feasibility criteria. While these recommendations do affirm proposed mitigation locations, they do not offer definitive or final barrier design descriptions. An eventual Design Noise Report for this project will determine these specifics, based upon final project design plans and specifications. It is expected the length and height of each barrier may vary to optimize both cost and effectiveness within acceptable limits.

9.4.1 Feasible and Reasonable Noise Barriers (Preliminary)

Section A

Barrier A-124

Barrier A-124 consists of a combination of two barriers working as one barrier system adjacent to NSAs A-1, A-2 and A-4. One barrier is located along I-26 eastbound, largely along the right-of-way, between Haywood Road and Brevard Road, as shown on Figure 3-18. The other portion of A-124 is located along the I-26 eastbound shoulder where the proposed design crosses Amboy Road. It is approximately 6,300 feet long in total, with an average height of 23 feet and a total area of 144,000 square feet. The barrier is predicted to benefit 109 receptors, including 48 predicted impacts. The 1,321 square feet per benefit is less than the maximum allowable 1,500 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for 68 receptors. Receptors near the southern terminus of Barrier A-124 (A17.1, A69, A70, A73, A76, A79, A80, and A84) were unable to benefit from the proposed barrier due to two main factors. The first of these is the receptors' locations on a steep slope above the road – averaging approximately 60 feet above the mainline (I-26). The second factor is the receptors' locations at the center of a break point in the mainline (I-26) for the Amboy Road ramp.

The proposed barrier will run adjacent to a proposed multi-use path from Shelburne Road to Amboy Road along I-26/I-240 eastbound. Constructability concerns that may arise from the placement of the barrier in conjunction with the multi-use path may require further evaluation in the DNR if the barrier is determined likely in future analyses. The barrier height may also raise constructability concerns for the portion of the barrier on bridge where the highway crosses over State Street (24 feet in height) and over Amboy Road (16 feet in height). Coordination with the NCDOT Structures Management Unit is required for barriers on structure at heights over 10 feet and should therefore be included in further evaluation, as appropriate.

Barrier A-35

Barrier A-35 is located adjacent to NSAs A-3 and A-5 along I-26 westbound between Amboy Road and Haywood Road, as shown on Figure 3-19. It is approximately 3,150 feet long, is 20 feet in height, and has a total area of 63,000 square feet. The barrier is predicted to benefit 78 receptors, including 38 predicted impacts. The 808 square feet per benefit is less than the maximum allowable 1,500 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for 57 receptors. Extending NWA-35 farther south did not result in any additional benefits for receptors A254, A255.1, or other second row receptors along Buttonwood Court such as A262, A267, A271, and A275 because of their elevation above the roadway.

Barrier A-35 crosses Stewart Street towards the barrier's southern terminus. A pedestrian bridge once connected the truncated ends of Stewart Street on each side of I-26, but the bridge is now closed and is proposed to be removed with the project. A portion of this barrier is adjacent to a retaining wall in two areas- near both the northern and southern terminus of the barrier, which creates constructability concerns. The proposed barrier height of 24 feet also raises constructability concerns for the portion of the barrier on structure where the highway crosses over State Street. Coordination with the NCDOT Structures Management Unit is required for barriers on structure at heights over 10 feet.

Barrier A-7

Barrier A-7 is located adjacent to NSA A-7 along I-26 westbound between Haywood Road and Wilmington Street, as shown on Figure 3-20. It is approximately 850 feet long, 16 feet in height, and has a total area of 13,600 square feet. This barrier is predicted to benefit 14 receptors, including nine predicted impacts. The 983 square feet per benefit is less than the maximum allowable 1,500 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for three receptors.

The proposed West Asheville Greenway near Barrier A-7 was considered in the placement of the barrier. The closest point of the noise barrier to the retaining wall directly adjacent to the greenway is approximately 12 feet, complying with the NCDOT requirement of keeping noise barriers at least 6 feet from retaining walls. The southern end of Barrier A-7 extends onto the property of Asheville Primary School, formerly known as Aycock School. The school is designated as a part of the West Asheville/Aycock School Historic District and is protected under Section 106 of the National Historic Preservation Act. Further coordination with the Historic Preservation Office (HPO) may be required before construction.

Section B

Barrier B-1

Barrier B-1 is located adjacent to NSA A-6 and B-1 along I-26 eastbound between Edgar Street and Haywood Road, as shown on Figure 3-21. It is approximately 2,800 feet long, averages 22 feet in height, and has a total area of 61,400 square feet. The barrier is predicted to benefit 43 receptors, including 24 predicted impacts. The 1,428 square feet per benefit is less than the maximum allowable 1,500 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for 28 receptors.

Barrier B-5

Barrier B-5 is located adjacent to NSA B-5, along Atkinson Street near Hillcrest Apartments, as shown on Figures 3-27A and 3-27B. It is approximately 350 feet long, is 16 feet in height, and has a total area of 5,600 square feet. The barrier is predicted to benefit 13 receptors, including seven predicted impacts. The 431 square feet per benefit is less than the maximum allowable 1,500 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for three receptors. The proposed sidewalk along Atkinson Street and Barrier B-5 was considered in the placement of the barrier. The noise barrier was modeled in between the proposed sidewalk and the proposed right of way.

Barrier B-6.1

Barrier B-6.1 is located adjacent to NSA B-6, between I-26 westbound and Courtland Place, north of the I-26/I-240/US 19-23-74 Alt interchange, as shown on Figure 3-27. It is approximately 519 feet long, is 10 feet in height, and has a total area of 5,190 square feet. The barrier is predicted to benefit four receptors, including four predicted impacts. The 1,298 square feet per benefit is less than the maximum allowable 2,000 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for three receptors. Barrier B-6.1 is near a retaining wall along westbound I-26 and on a

steep slope, both of which create potential constructability concerns. Though the barrier is preliminarily feasible and reasonable, further evaluation will be required before construction to ensure the barrier is constructible on the steep topography of the area.

Section C

Barrier C-1

Barrier C-1 is located adjacent to NSA C-1, along I-40 eastbound between Grandview Road and Sand Hill Road, as shown on Figure 3-4. It is approximately 4,050 feet long, is 24 feet in height, and has a total area of 97,200 square feet. The barrier is predicted to benefit 51 receptors, including 40 predicted impacts. The 1,906 square feet per benefit is less than the maximum allowable 2,000 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for 37 receptors.

Barrier C-3

Barrier C-3 is located adjacent to NSA C-3, along the ramp from I-26 eastbound to I-40 westbound between Sand Hill Road and South Bear Creek Road, as shown on Figure 3-9. It is approximately 4,250 feet long, is 24 feet in height, and has a total area of 102,000 square feet. The barrier is predicted to benefit 71 receptors, including 59 predicted impacts. The 1,437 square feet per benefit is less than the maximum allowable 1,500 square feet per benefit. The noise barrier is predicted to provide at least a 7 dB(A) noise level reduction for 26 receptors.

9.4.2 Not Feasible and/or Not Reasonable Noise Barriers (Preliminary)

Eighteen barriers were found not feasible and/or not reasonable. Details regarding the basis for these determinations, such as noise level reduction goals, constructability concerns, and cost effectiveness, are included in the following paragraphs.

Section A

Barrier A-1.2.1

A barrier was considered for the southern portion of NSA A-1.2 along I-40 westbound near the project's eastern terminus, just east of Brevard Road, as shown on Figure 3-15. A barrier approximately 1,000 feet long with a height of 12 feet and a total area of 12,000 square feet that would benefit 0.38 equivalent receptors was modeled in this location. A noise reduction of 5 dB(A) could not be achieved for at least two impacted receptors, deeming Barrier A-1.2.1 not feasible. The proposed barrier height of 12 feet may raise constructability concerns for the portion of the barrier on structure where the highway crosses over the French Broad River. Coordination with the NCDOT Structures Management Unit is required for barriers on structure at heights over 10 feet and should therefore be further evaluated in the DNR, as appropriate.

Barrier A-1.2.2

A barrier was considered for the northern portion of NSA A-1.2 along Amboy Road between I-26 and Short Michigan Avenue, as shown on Figure 3-17. A barrier approximately 800 feet long with a height of 14 feet and a total area of 11,200 square feet that would benefit 0.33 receptors was modeled in this location. A noise reduction of 5 dB(A) could not be achieved for at least two impacted receptors, deeming Barrier A-1.2.2 not feasible.

Section B

Barrier B-2

A barrier adjacent to NSA B-2 was considered along I-26 westbound between Wilmington Street and Hazel Mill Road, as shown on Figure 3-23. This barrier was optimally modeled at approximately 2,450 feet long with a height of 22 feet and a total area of 54,400 square feet that would benefit 31 receptors. However, the 1,755 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit. Thus, Barrier B-2 is not reasonable.

Barrier B-3.1

A barrier was considered for NSA B-3 along the ramp from I-240 westbound to Patton Avenue (US 19-23-74A, as shown on Figure 3-24. This barrier is approximately 1,000 feet long with a height of 24 feet and a total area of 24,000 square feet that would benefit approximately seven receptors. However, the 3,499 square feet per benefit is more than the maximum allowable 2,500 square feet per benefit; consequently, Barrier B-3.1 is not reasonable.

Barrier B-3.2

A second barrier was considered for NSA B-3, along the ramp from I-240 westbound to I-26 eastbound, as shown on Figure 3-24. This barrier is approximately 2,000 feet long with a height of 24 feet and a total area of 48,000 square feet and would benefit 12 receptors. However, the 4,000 square feet per benefit is more than the maximum allowable 2,500 square feet per benefit. Thus, Barrier B-3.2 is not reasonable.

Barrier B-4

A barrier was considered for NSA B-4 along the ramp from Patton Avenue to I-240 eastbound, as shown on Figure 3-24. A barrier approximately 1,100 feet long with a height of 20 feet and a total area of 22,000 square feet that would benefit two receptors was modeled in this location. However, the 4,400 square feet per benefit is more than the maximum allowable 2,500 square feet per benefit; consequently, Barrier B-4 is not reasonable.

Barrier B-5.1

A barrier was considered for NSA B-5.1 along the ramp from I-26 eastbound to Patton Avenue between Hill Street and Atkinson Street, as shown on Figure 3-27. A barrier approximately 650 feet long with a height of 24 feet and a total area of 15,600 square feet that would benefit three receptors was modeled

in this location. However, the 5,200 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit; consequently, Barrier B-5.1 is not reasonable.

Barrier B-6

A barrier was considered for NSA B-6 along Hill Street and the ramp from I-240 westbound to I-26 westbound between Courtland Avenue and Westover Drive, as shown on Figure 3-27. This barrier is approximately 2,350 feet long with a height of 24 feet and a total area of 56,400 square feet that would benefit three receptors. However, a noise reduction of 5 dB(A) could not be achieved for at least two impacted receptors, deeming Barrier B-6 not feasible.

Barrier B-8

A barrier was considered along I-26 westbound between Courtland Place and Pearson Drive for NSA B-8, as shown on Figure 3-29. A barrier approximately 2,450 feet long with a height of 22 feet and a total area of 53,900 square feet that would benefit 14 receptors was modeled in this location. However, the 3,817 square feet per benefit is more than the maximum allowable 2,000 square feet per benefit. Thus, Barrier B-8 is not reasonable.

Barrier B-9

A barrier for NSA B-9 was considered along I-26 westbound between Hibriten Drive and Broadway Street, as shown on Figure 3-31. This barrier is approximately 1,850 feet long with a height of 24 feet and a total area of 44,400 square feet and would benefit 18 receptors. However, the 2,467 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit, resulting in Barrier B-9 being not reasonable. Additionally, the very steep terrain along the barrier alignment presents considerable constructability concerns which likely would cause the proposed barrier to be not feasible.

Barrier B-10

A barrier was considered along I-240 westbound south of Hill Street to address impacts in NSA B-10, as shown on Figure 3-26. This barrier is approximately 650 feet long with a height of 24 feet and a total area of 15,600 square feet. Because this barrier was not able to benefit any receptors, Barrier B-10 is deemed not feasible. A barrier was also preliminarily considered in a slightly different location to potentially benefit NSA B-10, between Hill Street and ramp Y23E, but this barrier's location was deemed unfeasible for construction prior to modeling. The middle portion of the barrier along the ramp provides approximately seven to eight feet clearance between Hill Street and Ramp Y23. A retaining wall is also proposed within the area and the distance between Hill Street and Ramp Y23 do not allow the minimal required distance between the proposed retaining wall and Barrier B-10. Consequently, this barrier could not be modeled so that it is both constructible according to the current design and able to benefit impacted receptors.

Section C

Barrier C-2

A barrier was considered adjacent to NSA C-2, along I-40 westbound south of Montgomery Street, as shown on Figure 3-4. A barrier was modeled in this location to be approximately 1,150 feet long with a

height of 20 feet and a total area of 23,000 square feet that would benefit five receptors. However, the 4,600 square feet per benefit is more than the maximum allowable 2,000 square feet per benefit. Thus, Barrier C-2 is not reasonable.

Barrier C-4

A barrier adjacent to NSA C-4 was considered along the ramp from I-40 eastbound to I-26 eastbound between Sandhill Road and Pond Road, as shown on Figures 3-5 through 3-8. A barrier approximately 5,200 feet long with a height of 24 feet and a total area of 124,800 square feet that would benefit 22 receptors was modeled in this location. However, the 5,673 square feet per benefit are more than the maximum allowable 1,500 square feet per benefit. Thus, Barrier C-4 is not reasonable.

Barrier C-4.1

A second barrier was considered adjacent to NSA C-4, along the ramp from I-40 eastbound to I-26 eastbound between Sandhill Road and West Oakview Road, as shown on Figures 3-5 through 3-8. This barrier was modeled at a length of approximately 1,800 feet with a height of 24 feet and a total area of 43,200 square feet that would benefit ten receptors. However, the 4,320 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit. Consequently, Barrier C-4.1 is not reasonable.

Barrier C-4.2

A third barrier was considered to address predicted impacts in NSA C-4, again along the ramp from I-40 eastbound to I-26 eastbound between Sandhill Road and Pond Road, as shown on Figures 3-5 through 3-8. A barrier approximately 650 feet long with a height of 20 feet and a total area of 13,000 square feet that would benefit five receptors was modeled in this location. However, the 2,600 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit. Therefore, Barrier C-4.2 is not reasonable.

Barrier C-4.3

A fourth barrier was considered adjacent to NSA C-4, located along the ramp from I-40 eastbound to I-26 eastbound between West Oakview Road and Pond Road, as shown on Figures 3-5 through 3-8. This barrier was approximately 1,350 feet long with a height of 24 feet and a total area of 32,400 square feet and would benefit seven receptors. However, the 4,629 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit. Thus, Barrier C-4.3 is not reasonable.

Barrier C-5

A barrier was considered for NSA C-5, along the ramp from I-40 westbound to I-26 westbound between Brevard Road and South Bear Creek Road, as shown on Figure 3-11. A barrier approximately 800 feet long with a height of 24 feet and a total area of 19,200 square feet that would benefit ten receptors was modeled in this location. However, the 1,920 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit. Consequently, Barrier C-5 is not reasonable.

Barrier C-6

A barrier was considered adjacent to NSA C-6, along the ramp from I-26 westbound to I-40 eastbound near Oakview Road, as shown on Figure 3-11. A barrier approximately 1,300 feet long with a height of 24 feet and a total area of 31,200 square feet that would benefit five receptors was modeled in this location. However, the 5,200 square feet per benefit is more than the maximum allowable 1,500 square feet per benefit. Thus, Barrier C-6 is not reasonable. The barrier height of 24 feet may raise constructability concerns for the portion of the barrier on bridge where the highway crosses over Upper Hominy Creek. Coordination with NCDOT Structures Unit is required for barriers on structure at heights over 10 feet and should therefore be further evaluated appropriately in the DNR.

9.4.3 Summary

A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by the FHWA. **Table 6** summarizes the results of the evaluation.

Table 6: Noise Barrier Evaluation Results

Section NSA	Noise Barrier Name & Location	Approx. Length Height ⁴ (feet)	Approx. Area (sq ft)	Number of Impacted & Benefited Receptors	Total Number of Benefited Receptors	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely" for Construction) ¹
Section A NSA A-1.2	NWA-1.2.1 Along I-40 WB east of Brevard Road	<u>1,000</u> 12	12,000	0.29	0.38	<u>31,579</u> 1,500	No ²
Section A NSA A-1.2	NWA-1.2.2 Along Amboy Road between I-26 and Short Michigan Ave	<u>800</u> 14	11,200	0.33	0.33	<u>33,939</u> 1,500	No ²
Section A NSA A-1, A-2, A-4	NWA-124 Along I-26 EB between Haywood Road and Brevard Road	<u>6,300</u> 23	144,000	48	109	<u>1,321</u> 1,500	Yes
Section A NSA A-3, A-5	NWA-35 Along I-26 WB between Haywood Road and Wilmington Street	<u>3,150</u> 20	63,000	38	78	<u>808</u> 1,500	Yes
Section A NSA A-7	NWA-7 Along I-26 WB between Haywood Road and Wilmington Street	<u>850</u> 16	13,600	9	14	<u>983</u> 1,500	Yes

Section NSA	Noise Barrier Name & Location	Approx. Length Height ⁴ (feet)	Approx. Area (sq ft)	Number of Impacted & Benefited Receptors	Total Number of Benefited Receptors	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminary Feasible and Reasonable ("Likely" for Construction) ¹
Section B NSA B-1	NWB-1 Along I-26 EB between Haywood Road and Edgar Street	<u>2,800</u> 22	61,400	24	43	<u>1,428</u> 1,500	Yes
Section B NSA B-2	NWB-2 Along I-26 WB between Wilmington Street and Hazel Mill Road	<u>2,450</u> 22	54,400	12	31	<u>1,755</u> 1,500	No ³
Section B NSA B-3	NWB-3.1 Along I-240 WB to I- 26/I-240/Patton Avenue interchanges	<u>1,000</u> 24	24,000	6.14	6.86	<u>3,499</u> 2,500	No ³
	NWB-3.2 Along I-240 WB to I-26 EB	<u>2,000</u> 24	48,000	12	12	<u>4,000</u> 2,500	No ³
Section B NSA B-4	NWB-4 Along the Patton Avenue to I-240 EB ramp	<u>1,100</u> 20	22,000	5	5	<u>4,400</u> 2,500	No ³
Section B NSA B-5	NWB-5 Along Atkinson Street near Hillcrest Apartments	<u>350</u> 16	5,600	7	13	<u>431</u> 1,500	Yes
Section B NSA B-5.1	NWB-5.1 Along the I-26 SB ramp to Patton Ave between Hill Street and Atkinson Street	<u>650</u> 24	15,600	3	3	<u>5,200</u> 1,500	No ³
Section B NSA B-6	NWB-6 Along Hill Street and the I-240 WB to I-26 WB ramp between Courtland Avenue and Westover Drive	<u>2,350</u> 24	56,400	0	3	<u>18,800</u> 2,000	No ²

Section NSA	Noise Barrier Name & Location	Approx. Length Height ⁴ (feet)	Approx. Area (sq ft)	Number of Impacted & Benefited Receptors	Total Number of Benefited Receptors	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely" for Construction) ¹
<u>Section B</u> NSA B-6.1	NWB-6.1 Between I-26 WB and Courtland Place, north of the I-26/I-240/US 19-23-74 Alt interchange	<u>519</u> 10	5,190	4	4	<u>1,298</u> 2,000	Yes
<u>Section B</u> NSA B-8	NWB-8 Along I-26 WB between Courtland Place and Pearson Drive	<u>2,450</u> 22	53900	6	14	<u>3,828</u> 2,000	No ³
<u>Section B</u> NSA B-9	NWB-9 Along I-26 WB between Hibriten Drive and Broadway Street	<u>1,850</u> 24	44,400	7	18	<u>2,467</u> 1,500	No ³
<u>Section B</u> NSA B-10	NWB-10 Along I-240 WB south of Hill Street	<u>650</u> 24	15,600	0	0	<u>N/A</u> 1,500	No ²
<u>Section C</u> NSA C-1	NWC-1 Along I-240 EB between Grandview Road and Sand Hill Road	<u>4,050</u> 24	97,200	40	51	<u>1,906</u> 2,000	Yes
<u>Section C</u> NSA C-2	NWC-2 Along I-40 WB south of Montgomery Street	<u>1,150</u> 20	23,000	5	5	<u>4,600</u> 1,500	No ³
<u>Section C</u> NSA C-3	NWC-3 Along the I-26 EB to I- 40 WB ramp between South Bear Creek Road and Sand Hill Road	<u>4,250</u> 24	102,000	59	71	<u>1,437</u> 1,500	Yes
<u>Section C</u> NSA C-4	NWC-4 Along the I-40 EB to I- 26 EB ramp between Sand Hill Road and Pond Road	<u>5,200</u> 24	124,800	21	22	<u>5,673</u> 1,500	No ³

Section NSA	Noise Barrier Name & Location	Approx. Length Height ⁴ (feet)	Approx. Area (sq ft)	Number of Impacted & Benefited Receptors	Total Number of Benefited Receptors	Square Feet per Benefited Receptor Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely" for Construction) ¹
	NWC-4.1 Along the I-40 EB to I-26 EB ramp between Sand Hill Road and West Oakview Road	$\frac{1,800}{24}$	43,200	10	10	$\frac{4,320}{1,500}$	No ³
	NWC-4.2 Along the I-40 EB to I-26 EB ramp between Sand Hill Road and Pond Road	$\frac{650}{20}$	13,000	5	5	$\frac{2,600}{1,500}$	No ³
	NWC-4.3 Along the I-40 EB to I-26 EB ramp between West Oakview Road and Pond Road	$\frac{1,350}{24}$	32,400	6	7	$\frac{4,629}{1,500}$	No ³
Section C NSA C-5	NWC-5 Along the I-40 WB to I-26 WB ramp between Brevard Road and South Bear Creek Road	$\frac{800}{24}$	19,200	10	10	$\frac{1,920}{1,500}$	No ³
Section C NSA C-6	NWC-6 Along the I-26 WB to I-40 EB ramp from near Oakview Road	$\frac{1,300}{24}$	31,200	4	6	$\frac{5,200}{1,500}$	No ³

¹ The likelihood for barrier construction is preliminary and subject to change, pending completion of final design and the public involvement process.

² Barrier is not feasible due to an inability to achieve at least 5 dB(A) of noise reduction for at least two impacted receptors.

³ Barrier is not reasonable due to the quantity per benefited receptor exceeding the allowable quantity per benefited receptor OR Barrier is not reasonable due to an inability to achieve at least 7-dBA noise reduction for at least one benefited receptor.

⁴ Average wall height. Actual wall height at any given location may be higher or lower.

9.5 IMPACTED RECEPTORS NOT INCLUDED IN BARRIER ANALYSES

Noise abatement in the form of noise barriers was not considered for sixteen impacted receptors, based on guidance found in the Section 11 of the 2016 NCDOT Traffic Noise Manual. Justification for no further study of noise barriers for these receptors was largely due to an inability to achieve two benefited receptors. The 2016 NCDOT Traffic Noise Policy requires at least two impacted receptors receive a minimum noise level reduction of five dB(A) from a noise barrier. Achieving two benefited receptors is partial criteria for determining if a barrier will be feasible. Consequentially, because these lone impacted receptors are isolated from other impacts, it is not possible for a barrier to be considered feasible and

no further consideration occurred. The receptors found in **Table 7** on page 29 are predicted to be impacted based on the Build 2040 condition but were not included in barrier analyses due to the reasons provided.

Table 7: Impacted Receptors Not Included in Barrier Analyses

Section A	
A.E1	Only impacted receptor west of the western entrance to Carrier Park, cannot be considered for analysis due to access issues and feasibility requirements.
AG.116 - AG.121, A.U2	Receptors cannot be considered for analysis because mitigation in this area would require the purchase of additional right of way and are likely impacted by secondary traffic noise sources, not the proposed project design.
Section B	
B428	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.
B486.1	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.
B849	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.
B1004	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.
Section C	
C10	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.
C776	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.
C822	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.
CG.162	Only impacted receptor in the vicinity, cannot be considered for analysis due to feasibility requirements.

9.6 NOISE INSULATION

No traffic noise impacts for the I-26 Connector Project are predicted to occur for interior noise-sensitive receptor locations (NAC “D”). Consequently, interior noise insulation was not considered as a potential traffic noise impact mitigation measure as part of this Traffic Noise Analysis.

9.7 PARALLEL NOISE BARRIER ANALYSIS

Preliminarily feasible and reasonable noise barriers NWA-124 and NWA-35, located parallel to one another, were reviewed according to NCDOT noise policy. A parallel barrier analysis was conducted at one location to determine if there is a need for absorptive material when considering the effects of multiple noise reflections between the two noise barriers. Research has shown that the magnitude of the performance degradation associated with parallel reflective noise barriers is related to the ratio of the separation (width) between the barriers and the average height of the barriers. Parallel barrier effects should definitely be analyzed when the cross-section's width-to-height ratio (W:H) is less than 10:1. When the ratio is between 10:1 and 20:1, analysis of the cross-section with the FHWA TNM parallel barrier analysis should be considered. If the ratio is greater than 20:1, such analysis is typically not necessary, since inconsequential barrier degradation will exist.

Proposed noise barrier NWA-124 consists of two barriers working as one barrier system adjacent to NSAs A-1, A-2 and A-4 mostly along the right-of-way of eastbound I-26 between Haywood Road and Brevard Road, as shown on Figures 3-14, 3-16 and 3-18 through 3-20. Barrier NWA-124 has an average height of 23 feet. Proposed noise barrier NWA-35 is located adjacent to NSAs A-3 and A-5 along I-26 westbound between Amboy Road and Haywood Road, as shown on Figures 3-18 through 3-20. NWA-35 has an average height of 20 feet. One cross-sectional area between these barriers fell within 10:1, located approximately 200 feet south of the I-26/State Street overpass, and was chosen in order to calculate the barrier height to separation ratio. Based upon the parallel noise barrier analysis, without the use of absorptive treatment, noise increases (or decreases in noise wall effectiveness) of 0.0 to 2.4 dB(A) were calculated. This is due to the reflection of traffic noise from the inside of one barrier over the opposing barrier. This noise barrier degradation can be further assessed in more detail during completion of the Design Noise Report.

Preliminarily feasible and reasonable noise barriers NWB-1 and NWA-7 were also reviewed according to NCDOT noise policy due to their being parallel north of the Haywood Road/ I-26 interchange. However, their width to average height ratio was found to be greater than 10:1 throughout the area where the barriers are parallel and no parallel barrier analysis was found necessary.

10.0 TRAFFIC NOISE LEVELS FOR UNDEVELOPED LANDS WHERE NO BUILDING PERMITS HAVE BEEN ISSUED

10.1 NOISE LEVEL CONTOURS

Predicted Build-condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts; however, they can aid in future land use planning efforts in presently undeveloped areas. Correlating to the traffic noise impact “approach” thresholds for FHWA NAC “E” and NAC “B” and “C” land uses, the 71 dB(A) noise level contour and the 66 dB(A) contour are shown for several locations in **Table 8**.

Per 23 CFR 772.9(c) and NCDOT Policy, noise contour lines shall not be used for determining highway traffic noise impacts. However, the 71 dB(A) and 66 dB(A) noise level contour information should assist local authorities in exercising land use control over the remaining undeveloped lands, so as to avoid development of incompatible activities adjacent to the roadways within local jurisdiction. It should be noted that, due to variations in terrain, vehicle mix, and traffic volumes, traffic noise levels may vary throughout the study area. For future planning purposes, it is preliminarily recommended that detailed traffic noise studies be performed for specific project locations to determine more finite results.

Table 8: Noise Contours

SECTION	LOCATION	71 dB(A) (FT FROM EOT¹)	66 dB(A) (FT FROM EOT¹)
Section A	Along I-240/I-26 eastbound between Virginia Avenue and Fairfax Avenue	Within ROW	205
Section B	Along ramp from I-240/I-26 westbound to Patton Avenue	Within ROW	Within ROW
Section C	Along ramp from I-40 eastbound to I-26 eastbound between W Oakview Rd and McIntosh Rd	Within ROW	Within ROW

¹Feet from the edge of the travel way

10.2 NOISE-COMPATIBLE LAND USE

One of the most effective means to prevent future traffic noise impacts is noise-sensitive land-use development. The compatibility of highways and neighboring local areas is essential for continued growth, and can be achieved if local governments and developers require and practice noise-sensitive land-use planning. Although regulation of land use is not within the purview of FHWA or NCDOT, some widely accepted techniques for noise-sensitive land use planning in the vicinity of existing and proposed highway facilities include:

- Locating retail, industrial, manufacturing, and other noise-compatible land-uses adjacent to highways
- Incorporating effective traffic noise mitigating features, such as earth berms and solid-mass noise walls, as part of residential developments
- Utilization of noise-sensitive architectural design and site planning, such as the orientation of quiet spaces away from roadways
- Required use of sound insulating building materials and construction methods

As indicated in the October 2016 NCDOT Traffic Noise Policy, local jurisdictions with zoning control should use the information contained in this report to develop policies and/or ordinances to limit the growth of noise-sensitive land uses located adjacent to roadways. Furthermore, NCDOT encourages the dissemination of this information to all people who may be affected by, or who might influence others affected by, traffic noise.

11.0 CONSTRUCTION NOISE

The predominant construction activities associated with this project are expected to be earth removal, hauling, grading, bridge/grade separation construction, and paving. Temporary and localized construction noise impacts will likely occur as a result of these activities (refer to **Table 9** on page 34). During daytime hours, the predicted effects of these impacts will be temporary speech interference for passers-by and those individuals living or working near the project. During evening and nighttime hours, steady-state construction noise emissions such as from paving operations will be audible, and may cause impacts to activities such as sleep. Sporadic evening and nighttime construction equipment noise emissions such as from backup alarms, lift gate closures (“slamming” of dump truck gates), etc., will be perceived as distinctly louder than the steady-state acoustic environment, and will likely cause impacts to the general peace and usage of noise-sensitive receptors – particularly residences, hospitals, and hotels. Extremely loud construction noise activities such as usage of pile-drivers and impact-hammers (jack hammer, hoe-ram) will cause temporary, sporadic, and acute construction noise impacts in the near vicinity of those activities.

Generally, low-cost and easily implemented construction noise control measures should be incorporated into the project plans and specifications to the extent possible. These measures include, but are not limited to, work-hour limits, equipment exhaust muffler requirements, haul-road locations, elimination of “tail gate banging”, ambient-sensitive backup alarms, construction noise complaint mechanisms, and consistent and transparent community communication. Construction activities that will produce extremely loud noises should be scheduled during times of the day when such noises will create as minimal disturbance as possible.

While discrete construction noise level prediction is difficult for a particular receiver or group of receivers, it can be assessed in a general capacity with respect to distance from known or likely project activities. For this project, earth removal, grading, hauling and paving are anticipated to occur in the near vicinity of multiple residential neighborhoods and one school. Although construction noise impact mitigation should not place an undue burden upon the financial cost of the project or the project construction schedule, pursuant to the requirements of 23 CFR 772.19, it is the recommendation of this traffic noise analysis that:

- Earth removal, grading, hauling, and paving activities in the vicinity of residences on Grandview Circle, Creasman Place, Selwyn Road, Montgomery Street, Kelly Drive, Chance Cove Lane, Sand Hill Road and Sand Hill Lane along I-40 in southwest Asheville. The same is true for residences and along Furey Drive, South Bear Creek Road, and all West Asheville neighborhoods along both sides of existing I-240 between Amboy Road and Patton Avenue. Additionally, hotels along Patton Avenue and Expo Drive, Hillcrest Apartments along Atkinson Street, residences along Emma Road, Boone Street, Craven Street, Trade Street, West Haywood Street, Hill Street, Courtland Avenue, Westover Drive, Hibriten Drive and Klondyke Avenue in the vicinity of existing I-26/I-240/Patton Avenue/US 19-23-74 interchange will also be susceptible to construction noise activities. Noise-producing construction activities in these areas should be limited to weekday daytime hours.
- Earth removal, grading, hauling, and paving activities in the vicinity of Asheville Primary School and exterior play area along Argyle Lane should be performed during evening and nighttime

hours, or any hours during weekends and/or holidays. The school is designated as a part of the West Asheville/Aycock School Historic District and is protected under Section 106 of the National Historic Preservation Act. Further coordination with the Historic Preservation Office (HPO) may be required before construction.

- Usage of pile-drivers and impact-hammers for proposed bridge and noise barrier demolition and /or construction will likely create extreme noise impacts for noise-sensitive land uses such as residential areas, schools, commercial areas and recreation areas. Such areas are found along eastbound I-40 between US 19-23-Alt 74 and I-26, throughout the proposed I-26-40-240 interchange, near the Brevard Road/I-26-240 interchange, near the proposed Amboy Road interchange, along westbound I-26/eastbound I-240 between Amboy Road to north of Haywood Road, along eastbound I-26/westbound I-240 from north of Haywood Road to south of Patton Avenue (US 19-23-Alt 74), areas throughout the proposed I-26-240?Patton Avenue interchange, and areas of the Montford neighborhood located east of I-26/US 19-23. It is the recommendation of this traffic noise analysis that considerations be made for any nearby residences for all evening and/or nighttime periods (7:00 p.m. – 7:00 a.m.), and for all weekend hours throughout which extremely loud construction activities might occur.
- If meeting the project schedule requires that earth removal, grading, hauling and/or paving must occur during evening, nighttime and/or weekend hours in the vicinity of the above listed areas, the Contractor shall notify NCDOT as soon as possible. In such instance(s), all reasonable attempts shall be made to notify and to make appropriate arrangements for the mitigation of the predicted construction noise impacts upon the affected property owners and / or residents.
- If construction noise activities must occur during context-sensitive hours in the vicinity of noise-sensitive areas, discrete construction noise abatement measures including, but not limited to, portable noise barriers and / or other equipment-quieting devices shall be considered.

For additional information on construction noise, please refer to the FHWA Construction Noise Handbook (FHWA-HEP-06-015) and the Roadway Construction Noise Model (RCNM), available online at: https://www.fhwa.dot.gov/environment/noise/construction_noise/index.cfm.

Table 9: Construction Equipment Typical Noise Level Emissions¹

Equipment	Noise Level Emissions (dB(A)) at 50 Feet From Equipment ²			
	70	80	90	100
Pile Driver ³				██████████
Jack Hammer			██████████	
Tractor		██████████		
Road Grader			██████████	
Backhoe		██████████		
Truck			██████████	
Paver			██	
Pneumatic Wrench			██	
Crane		██████████		
Concrete Mixer		██████████		
Compressor		██████████		
Front-End Loader		██████████		
Generator		██████████		
Saws		██████████		
Roller (Compactor)		██		

¹ Adapted from *Noise Construction Equipment and Operations, Building Equipment, and Home Appliances*. U.S. Environmental Protection Agency. Washington D.C. 1971.

² Cited noise level ranges are typical for the equipment cited. Noise energy dissipates as a function of distance between the source and the receptor. For example, if the noise level from a pile driver at a distance of 50 feet = 100 decibels (dB(A)), then at 400 feet, it might be 82 decibels (dB(A)) or less.

³ Due to project safety and potential construction noise concerns, pile driving activities are typically limited to daytime hours.

12.0 CONCLUSION

This report summarizes the traffic noise analysis findings for NCDOT STIP Project I-2513. Project I-2513 is approximately a 7-mile, interstate freeway project that is being proposed to connect I-26 in southwest Asheville to US 19/23/70 in northwest Asheville.

Traffic noise and temporary construction noise can be a consequence of transportation projects, especially in areas in close proximity to high-volume and high-speed existing steady-state traffic noise sources. This Traffic Noise Analysis used computer models created with FHWA TNM v2.5, validated to field-collected traffic noise monitoring data, to predict future noise levels and define impacted receptors along the proposed new highway project.

A single preferred highway alignment with three sections is under current consideration. For Design Year 2040 traffic volumes, the Build condition resulted in 112 predicted traffic noise impacts within Section A, 134 predicted traffic noise impacts within Section B and 171 predicted traffic noise impacts within Section C.

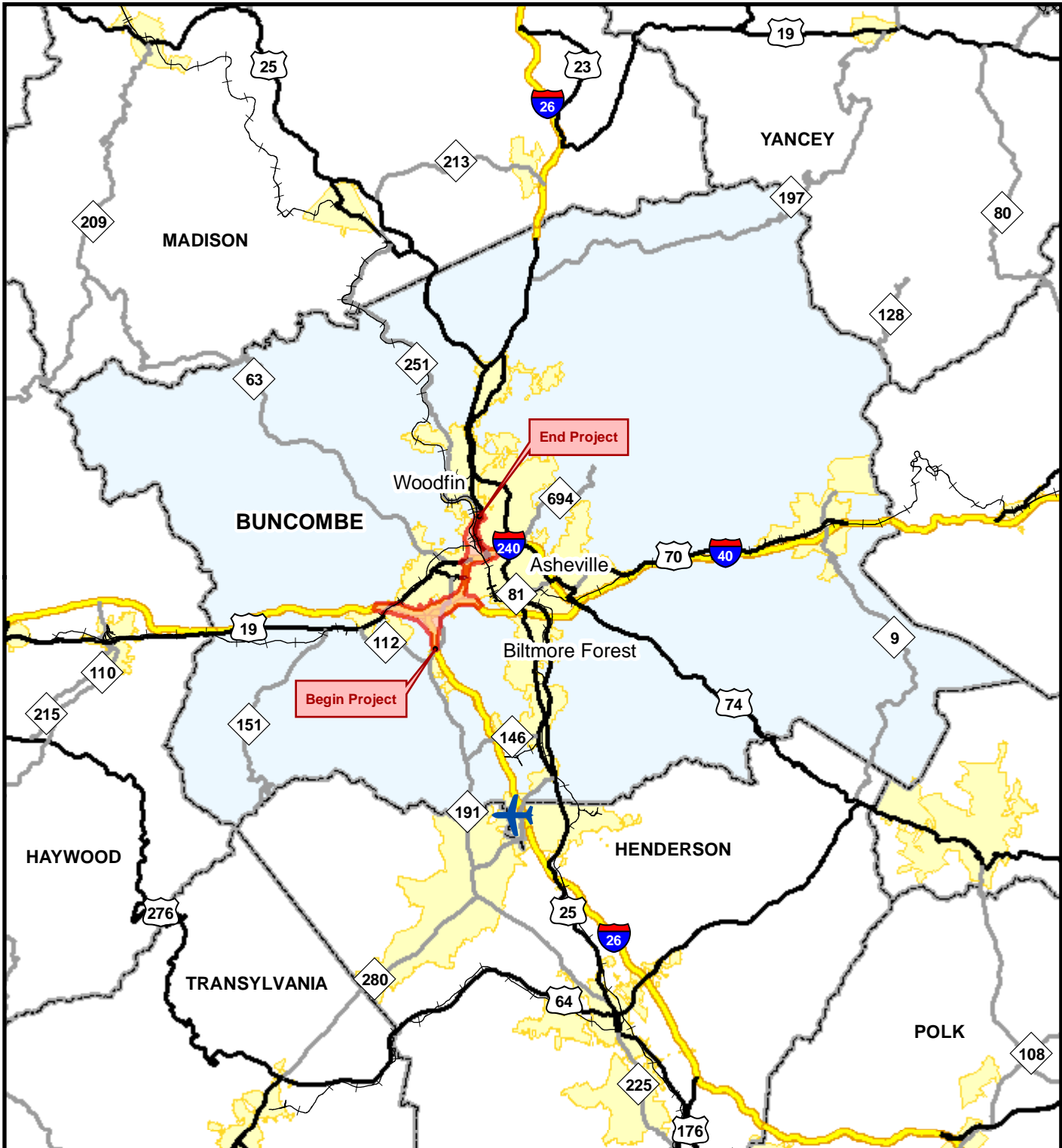
Furthermore, temporary construction noise impacts – some of them potentially substantial – may occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise analysis that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

Consideration for noise abatement measures was given to all impacted receptors. Following the criteria for feasibility and reasonableness as prescribed in the 2016 NCDOT Traffic Noise Policy, noise abatement for this project was found to be preliminarily feasible and reasonable. Noise abatement measures would likely be installed for three locations for Section A, three locations for Section B, and two locations for Section C. 'Likely' does not mean a firm commitment. Additional detailed study of potential mitigation measures at all aforementioned barrier locations will be necessary subsequent to selection of the final design of this project. The final decision on the installation of abatement measures shall be made upon completion of the project design, the public involvement process, and concurrence with the NCDOT Policy. This report completes the traffic noise requirements of the Title 23 CFR Part 772 and NCDOT Traffic Noise Policy.

13.0 REFERENCES

- Federal Highway Administration. *Analysis of Highway Construction Noise*. 1984.
- Federal Highway Administration. CFR 23 Part 772 – Procedures for Abatement of Highway Traffic Noise and Construction Noise. [75 FR 39820-39838, July 13, 2010].
- Federal Highway Administration. *Highway Traffic Noise: Analysis and Abatement Guidance*. December 2011.
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- Federal Highway Administration. *Recommended Best practices for the Use of the FHWA Traffic Noise Model (TNM)*. December 8, 2015.
- North Carolina Department of Transportation. *Traffic Noise Policy*. October 2016.
- North Carolina Department of Transportation. *Traffic Noise Manual*. October 2016.
- National Academies of Sciences, Engineering, and Medicine. *Supplemental Guidance on the Application of FHWA's Traffic Noise Model (TNM)*. Transportation Research Board NCHRP Report 791. 2014
- U.S. Environmental Protection Agency. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Washington, D.C. 1971.






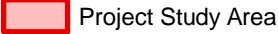


Figures



North Carolina
Department of Transportation



Legend

-  Asheville Regional Airport
-  Interstate
-  US Highway
-  NC Highway
-  Railroad
-  Project Study Area
-  County Boundary
-  Municipal Boundary



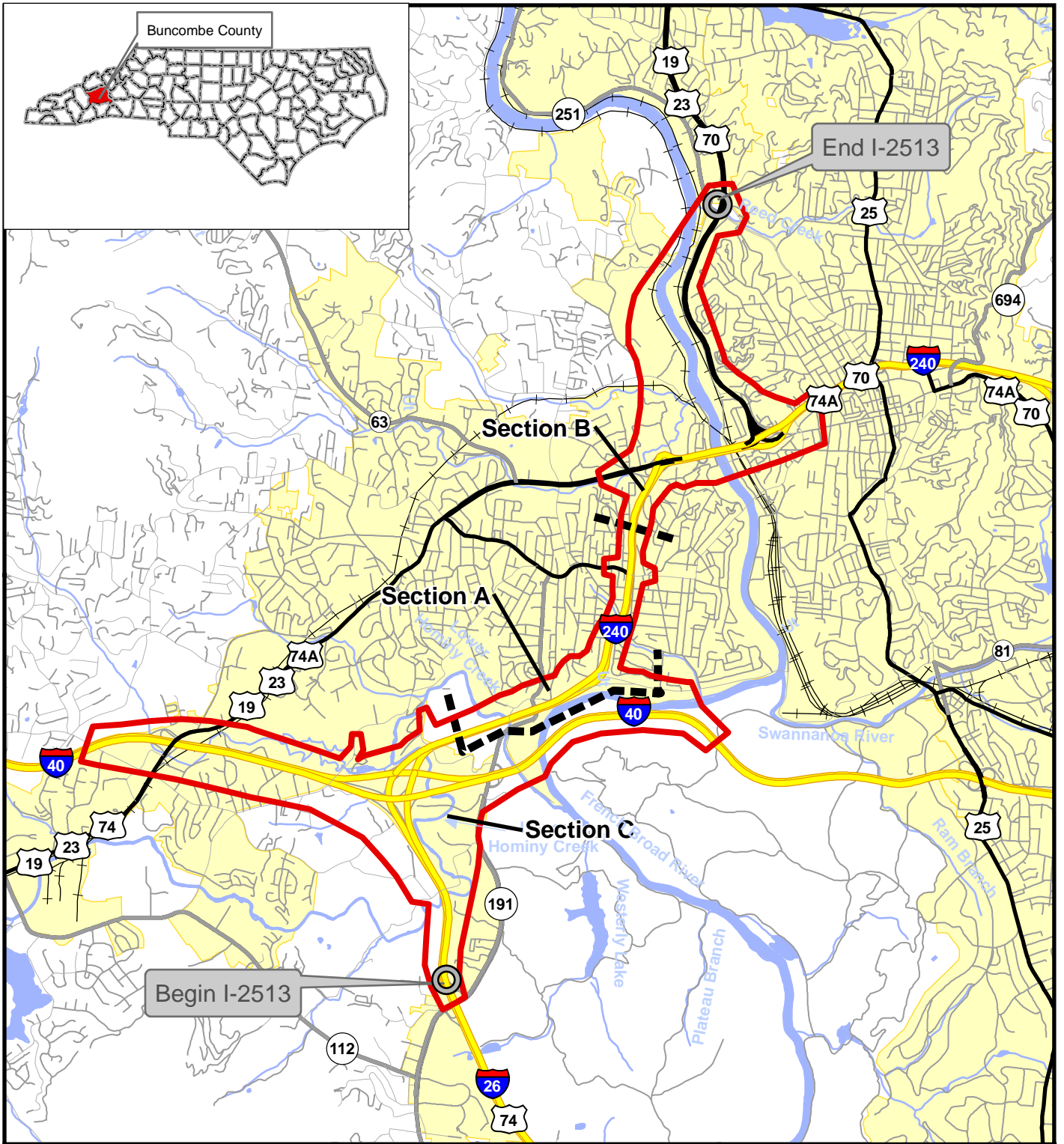
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STIP Project No. I-2513

I-26 Asheville Connector
Buncombe County

Figure 1-1

Project Vicinity Map














North Carolina
Department of Transportation



STIP Project No. I-2513

I-26 Asheville Connector
Buncombe County

Legend

-  Project Study Area
-  Section Boundaries
-  Interstate
-  US Highway
-  State Highway
-  State Route
-  Local Road
-  Railroad
-  Streams (non-delineated)
-  Water
-  Municipal Boundary

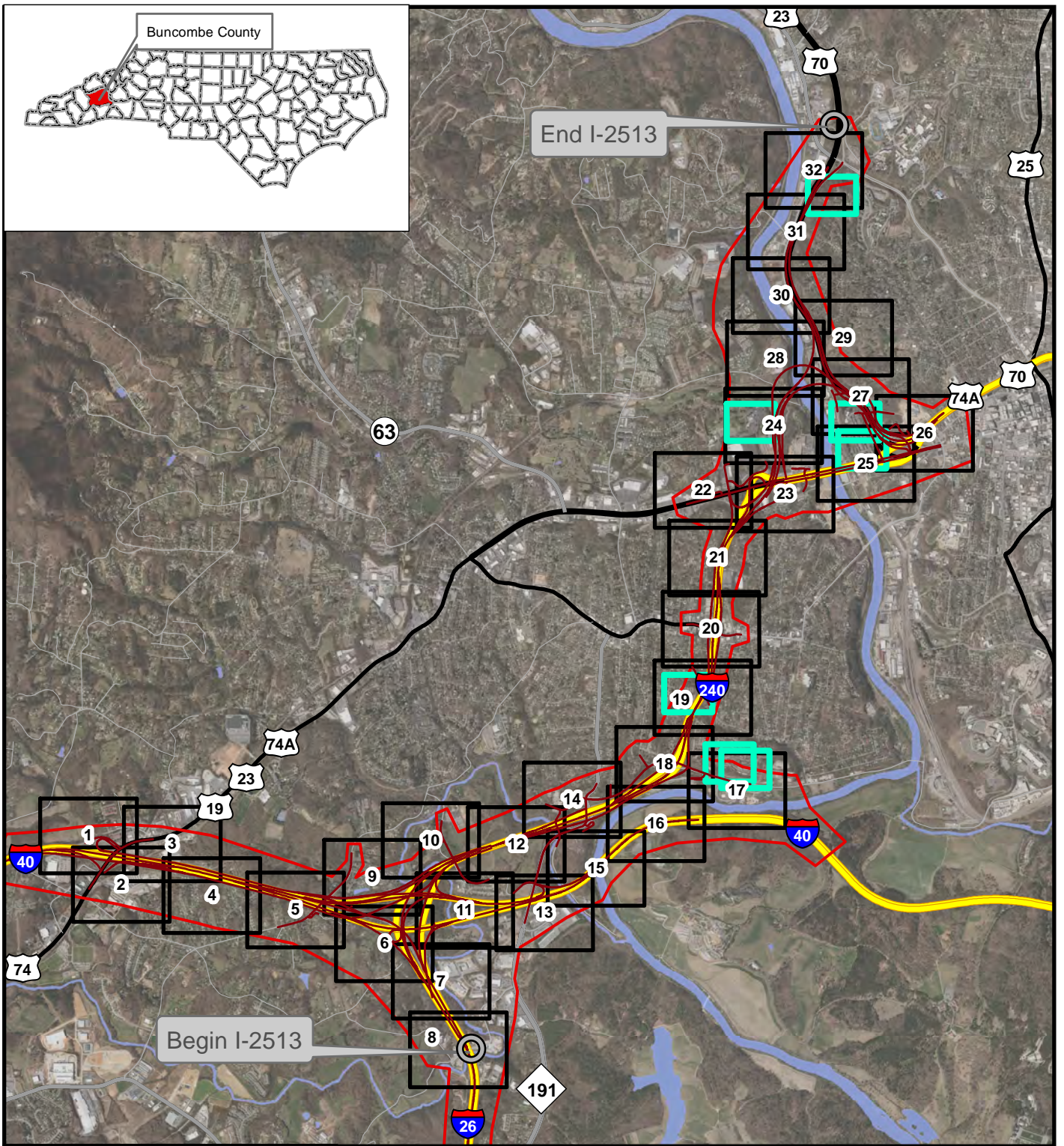
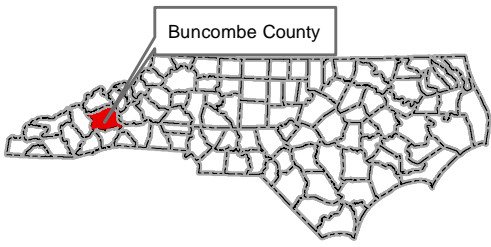
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Miles

Figure 1-2

Project Study Area

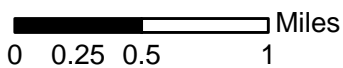


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STIP Project No. I-2513

I-26 Asheville Connector
Buncombe County



Legend

- Preferred Alternative
- Interstate
- US Highway
- State Highway
- Secondary Road
- Map Insets
- Map Sheets
- Project Study Area
- Water

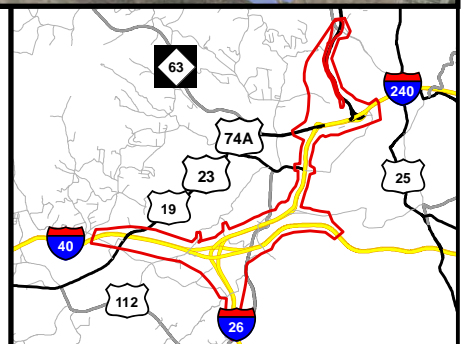
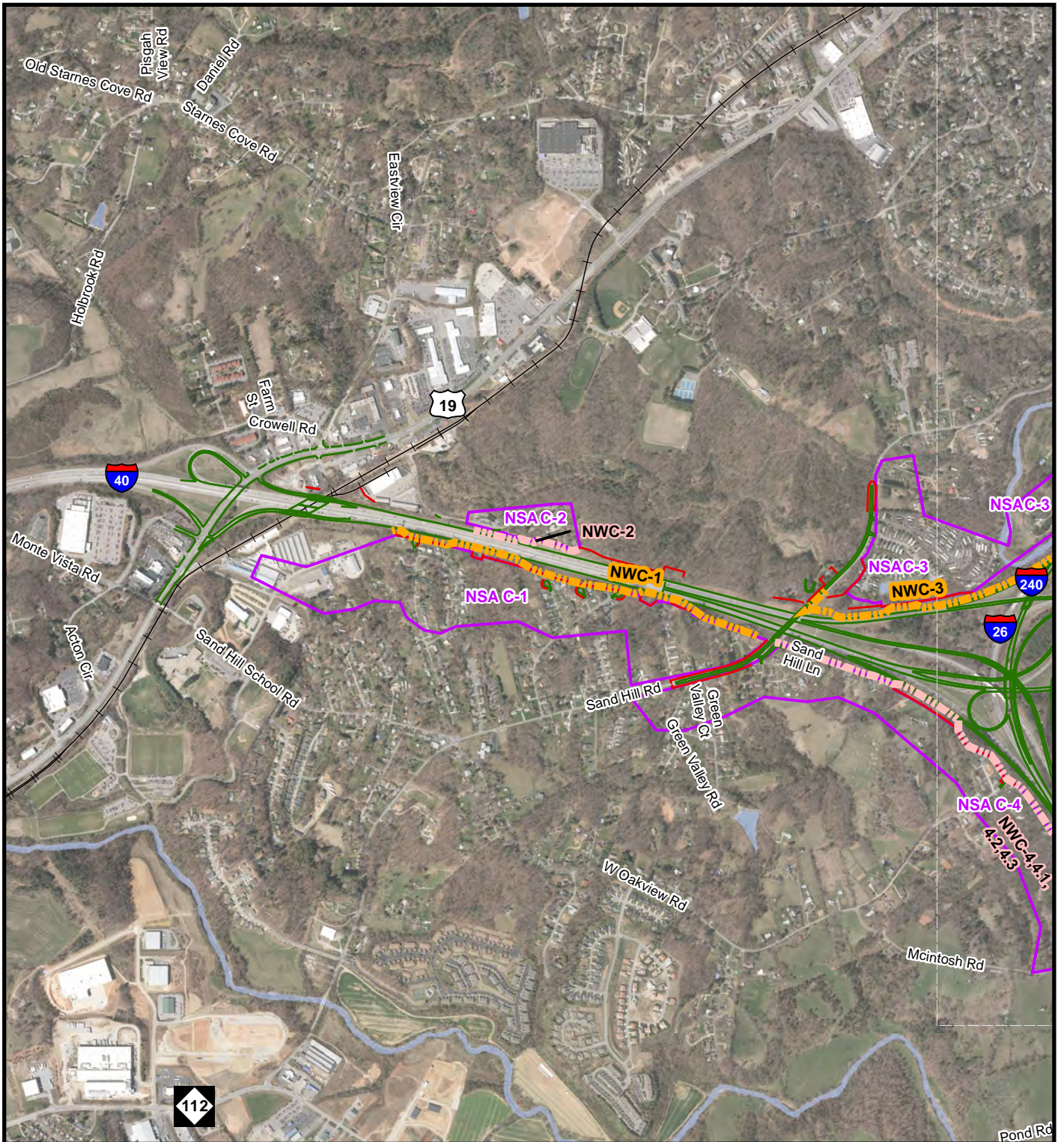


Figure 2-1
Key Map

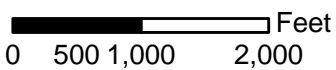


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STIP Project No. I-2513

I-26 Asheville Connector
Buncombe County



Legend

- Section Boundaries
- Likely Noise Barrier
- Not Likely Noise Barrier
- Proposed Right of Way
- Proposed Design
- Noise Study Area
- Matchline

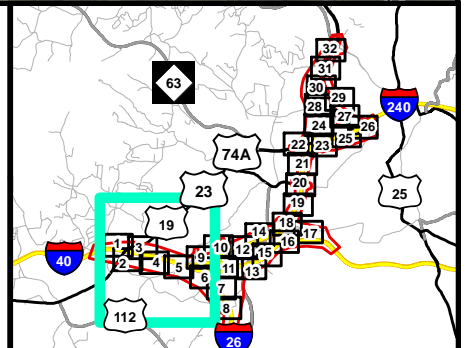
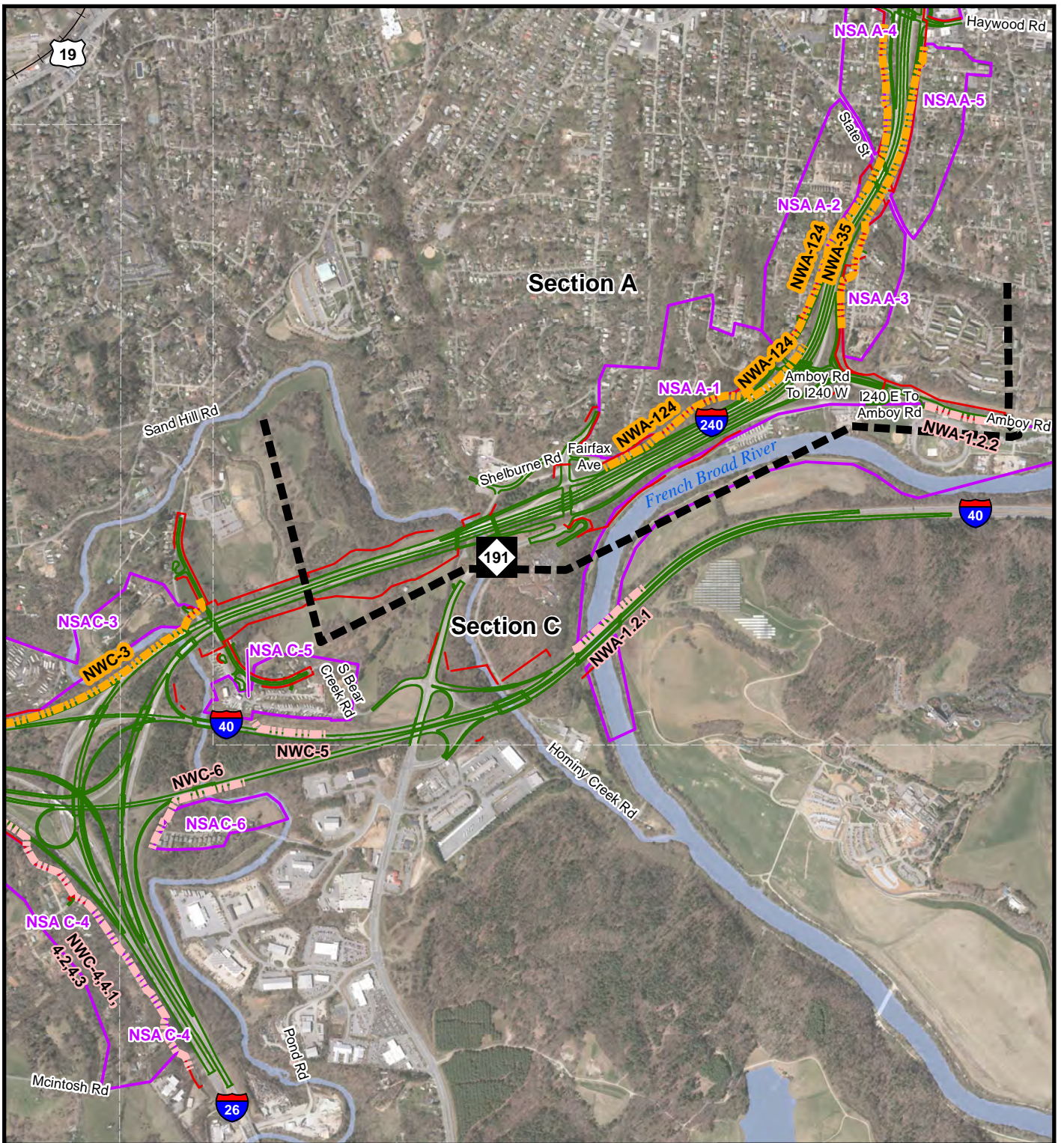


Figure 2-2
Noise Wall Locations

Section C West

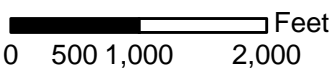


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STIP Project No. I-2513

I-26 Asheville Connector
Buncombe County



Legend

- Section Boundaries
- Likely Noise Barrier
- Not Likely Noise Barrier
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- Matchline

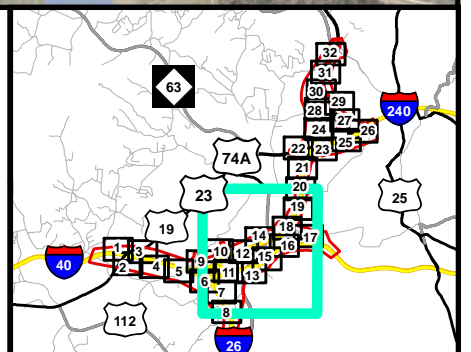
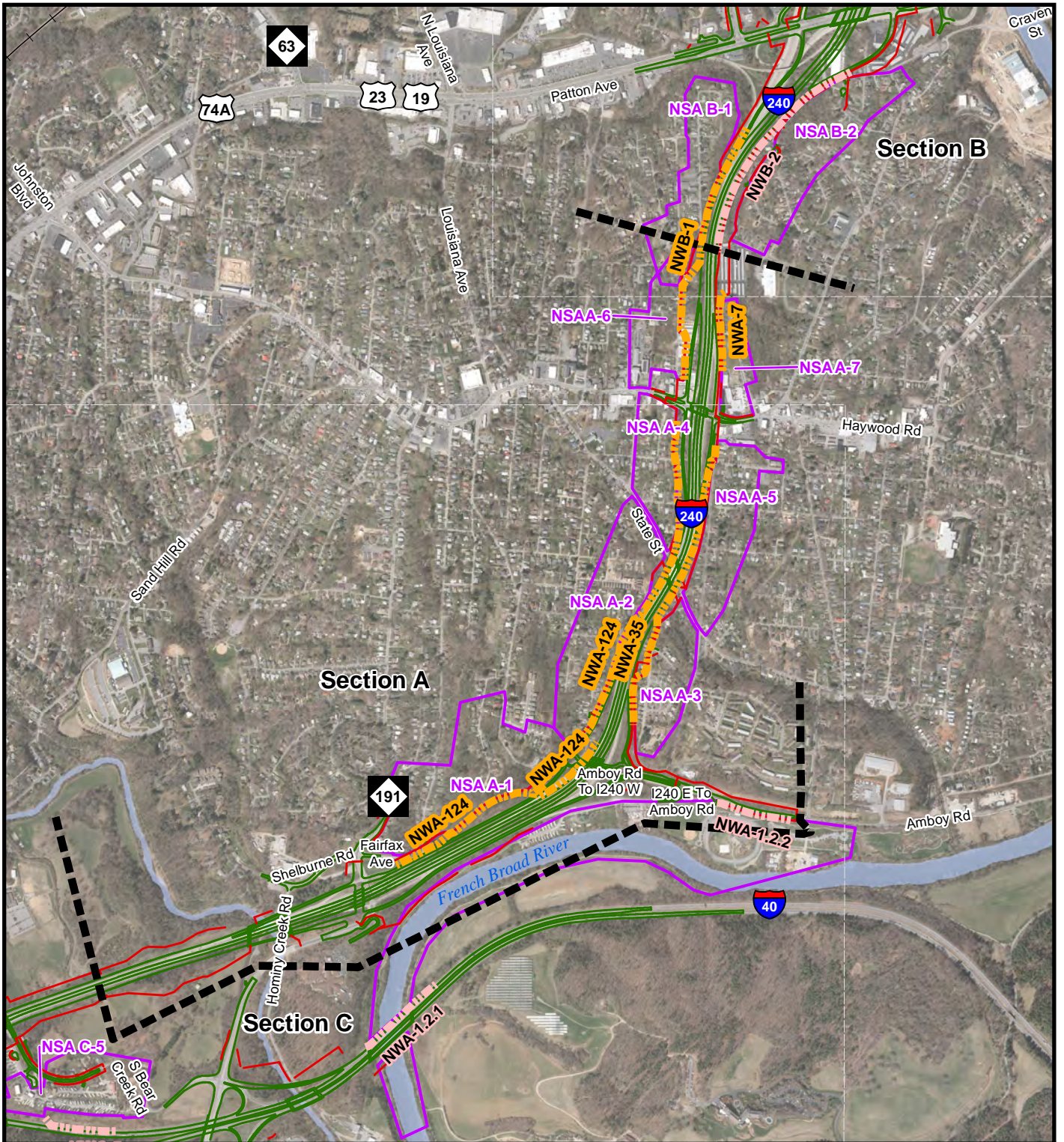


Figure 2-3
Noise Wall Locations

Section C East

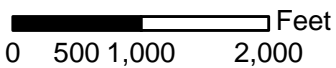


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STIP Project No. I-2513

I-26 Asheville Connector
Buncombe County



Legend

- Section Boundaries
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- Not Likely Noise Barrier
- Proposed Right of Way
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- Noise Study Area
- Matchline

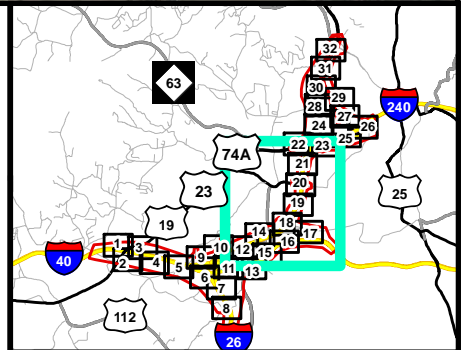
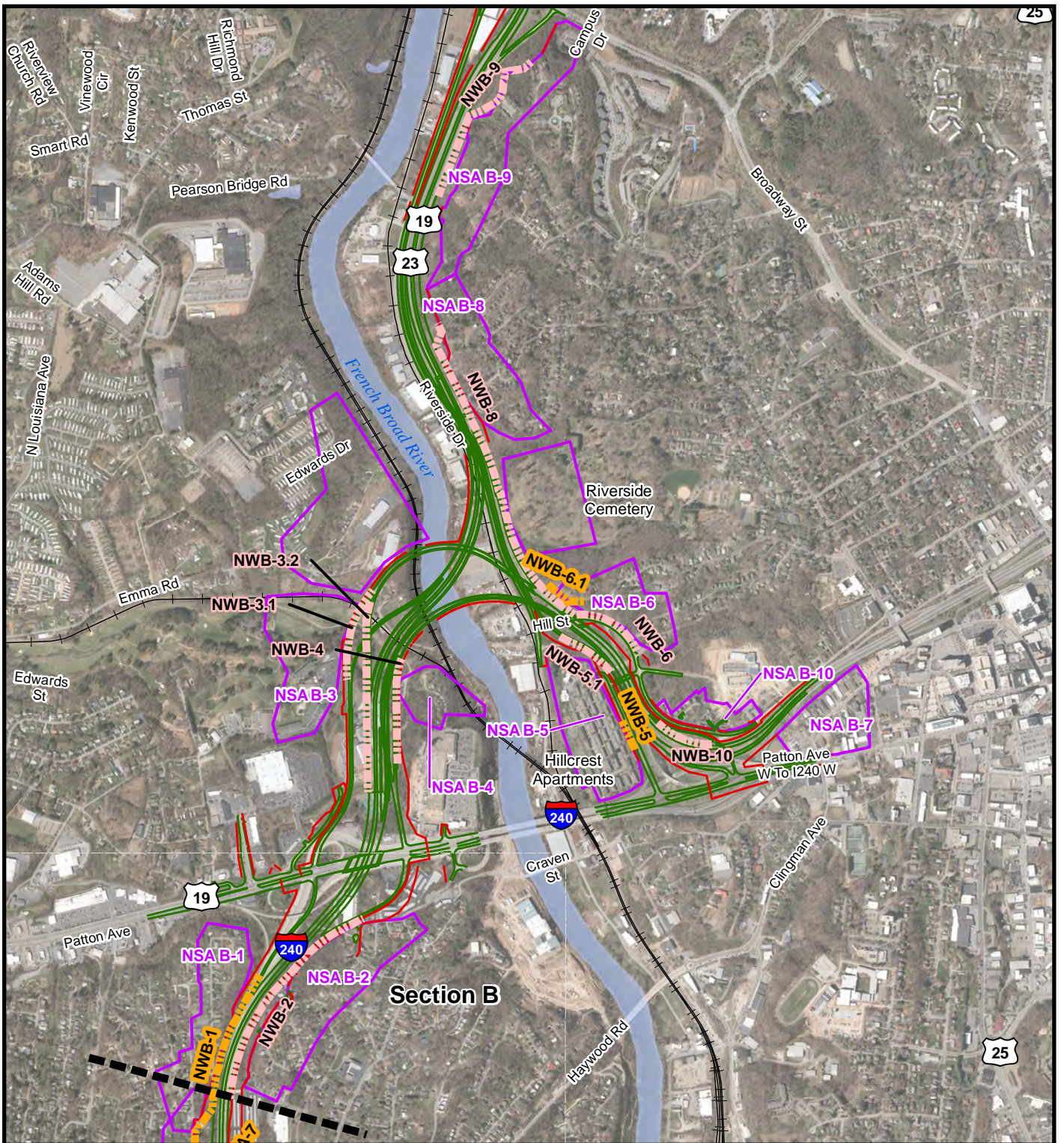


Figure 2-4
Noise Wall Locations

Section A

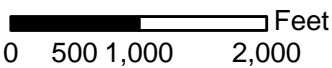


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STIP Project No. I-2513

I-26 Asheville Connector
Buncombe County



Legend

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- Likely Noise Barrier
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- Matchline

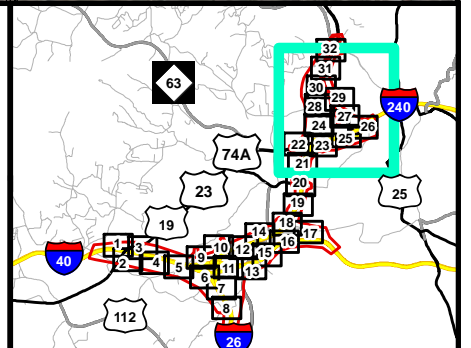


Figure 2-5
Noise Wall Locations

Section B

Noise Receptors and Detailed Study Alternatives

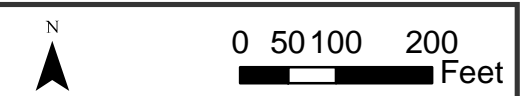
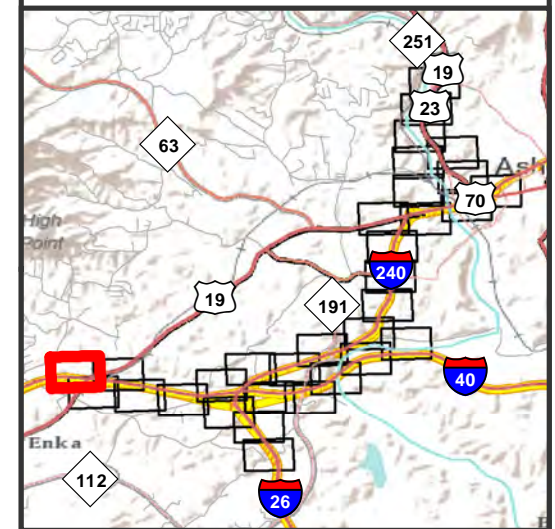
STIP Program
Project No. I-2513



Figure 3-1

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- Section Boundaries
- Proposed Curb and Gutter
- Proposed Edge of Travel
- Lane Lines
- Proposed Paved Shoulder
- Proposed Retaining Wall
- Proposed Roadway Bridge
- Proposed Roadway Culvert
- Proposed Cut Slope
- Proposed Fill Slope
- Proposed Cut/Fill Transition
- Matchline
- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



This map is for reference only.
Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.

Noise Receptors and Detailed Study Alternatives

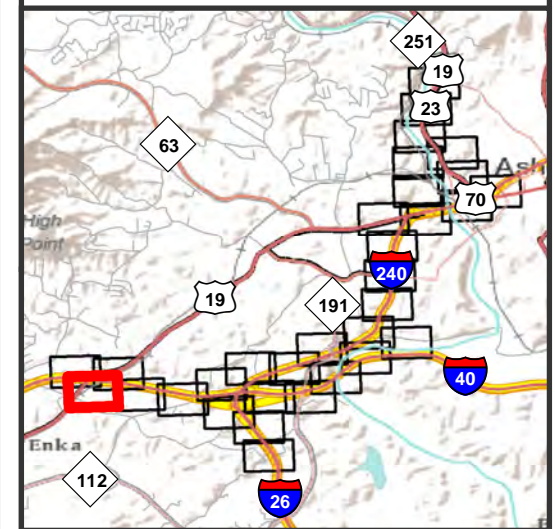
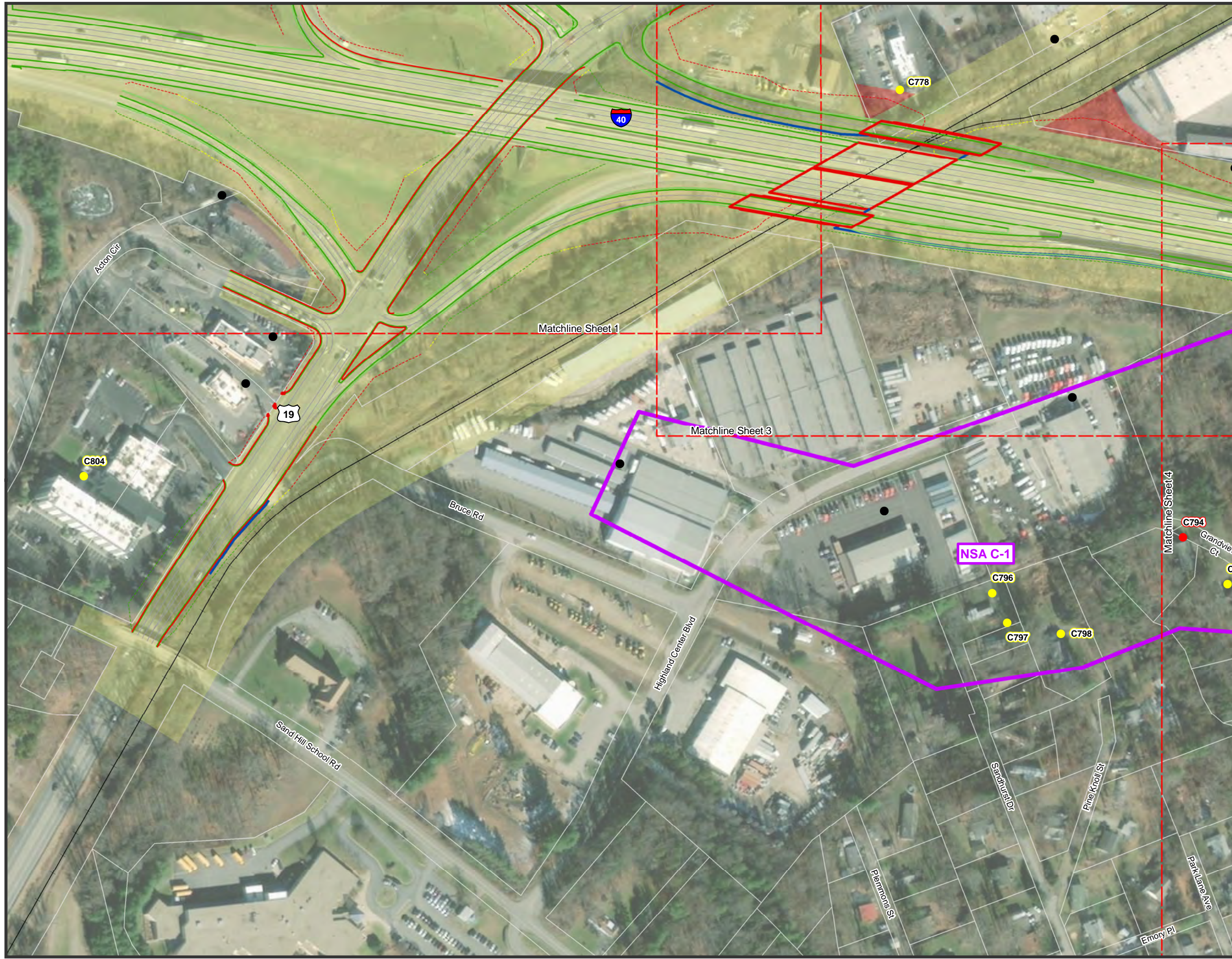
STIP Program
Project No. I-2513



Figure 3-2

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N
0 50 100 200 Feet
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Noise Receptors and Detailed Study Alternatives

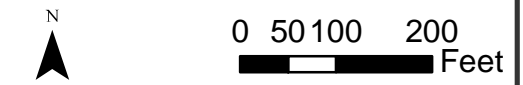
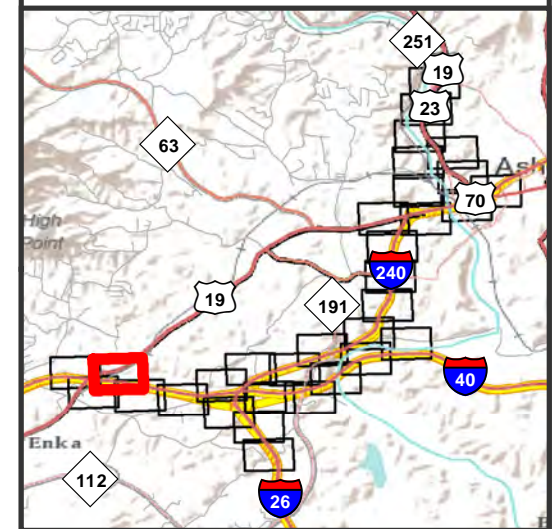
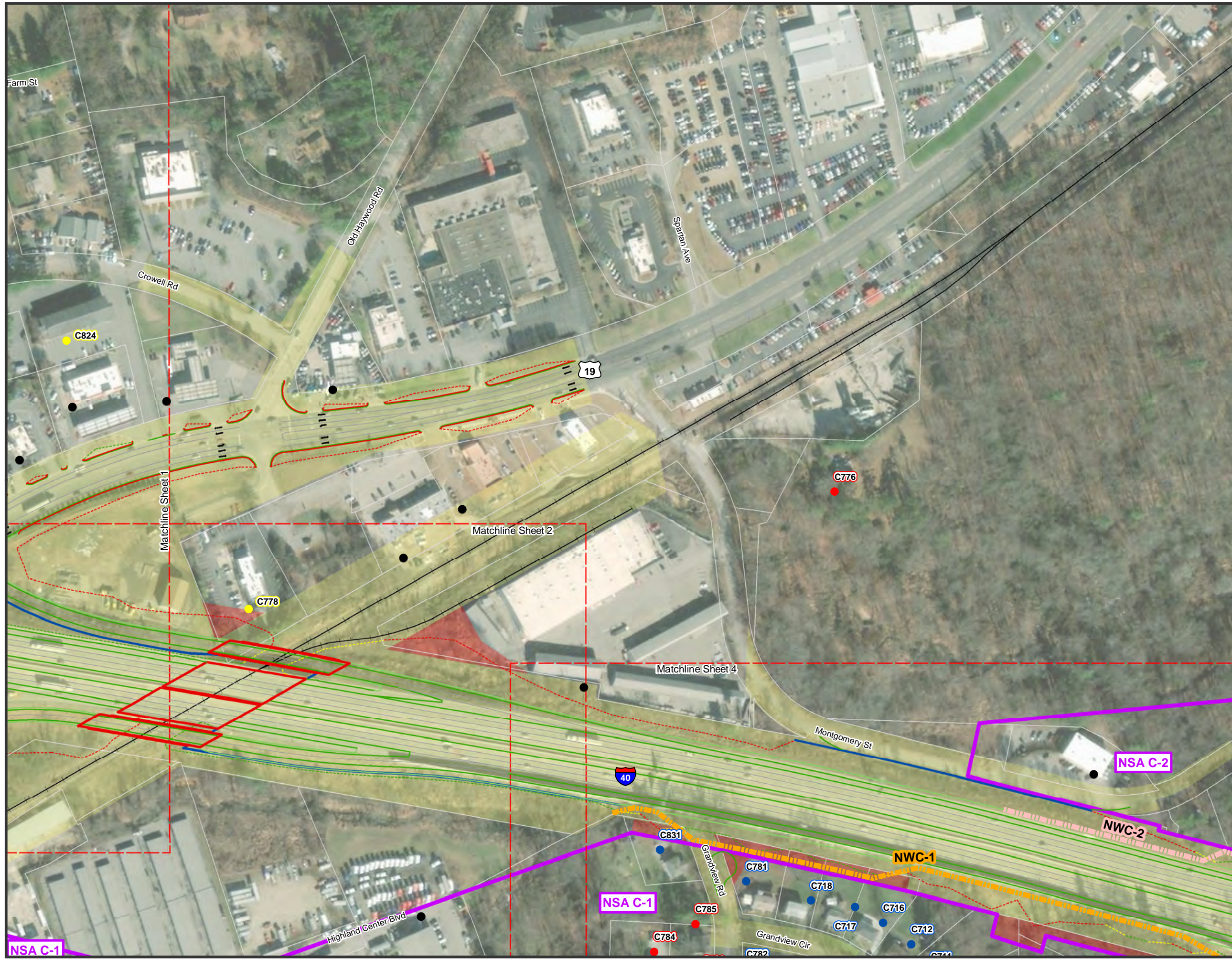
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Figure 3-3

Legend

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Noise Receptors and Detailed Study Alternatives

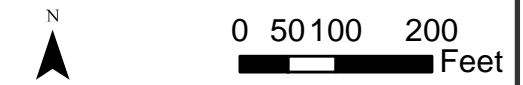
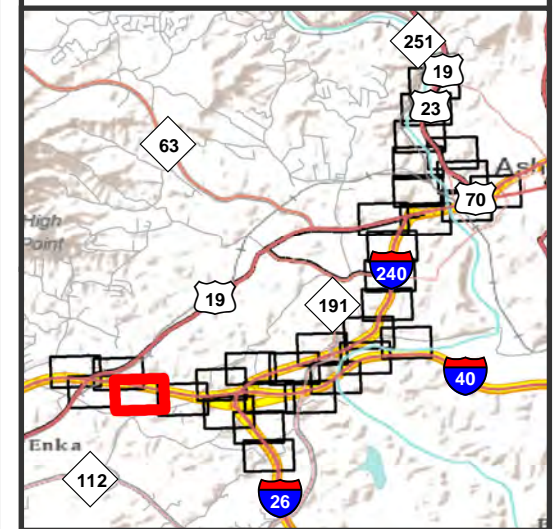
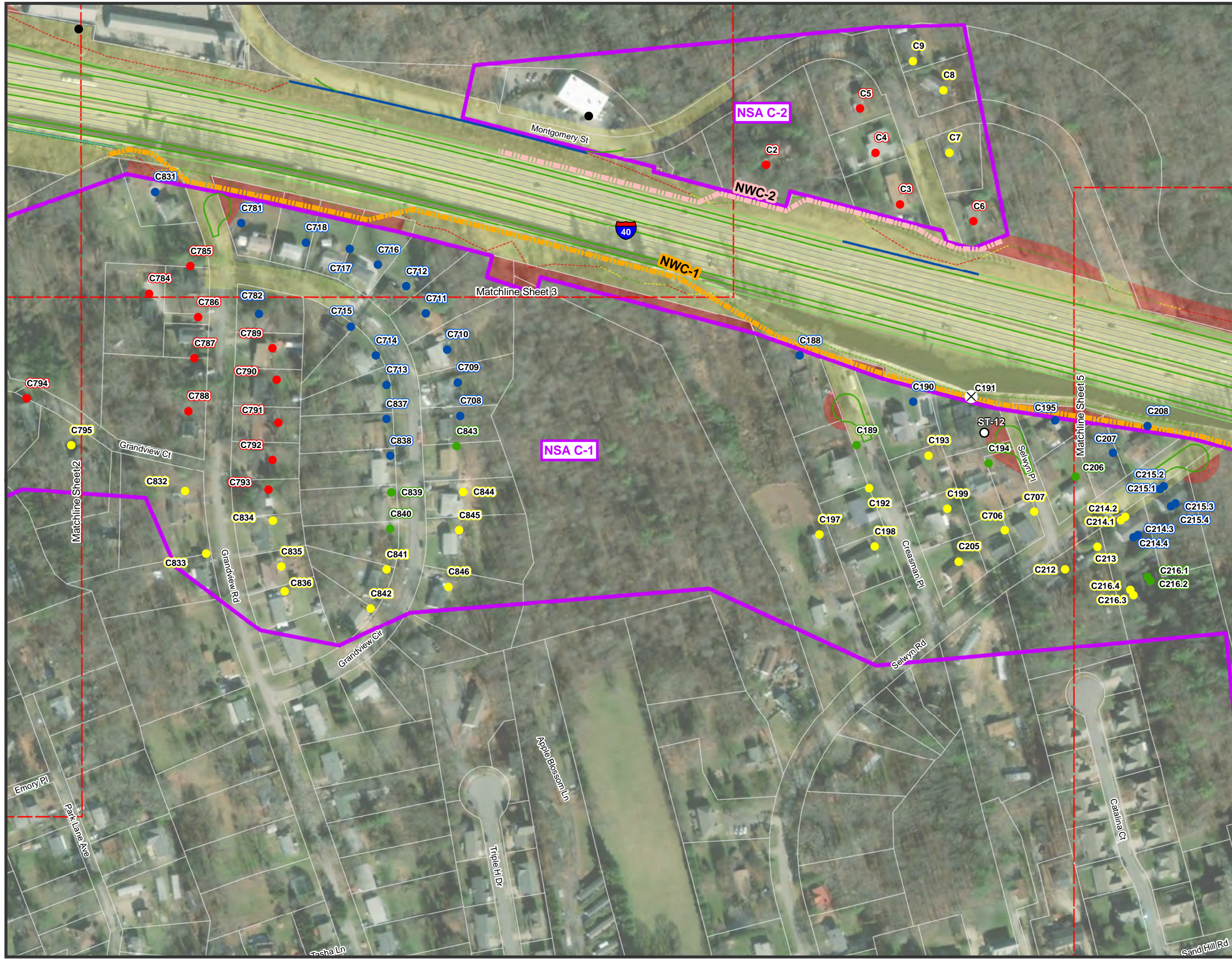
STIP Program
Project No. I-2513



Figure 3-4

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- ⊗ Right of Way Take
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Noise Receptors and Detailed Study Alternatives

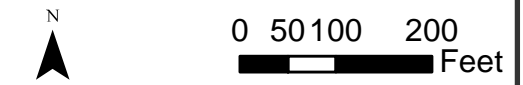
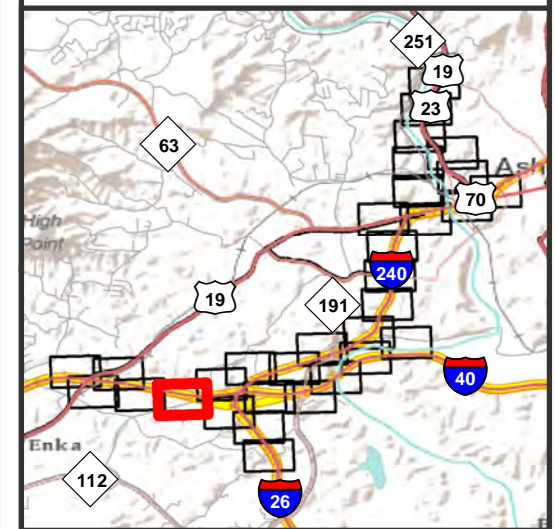
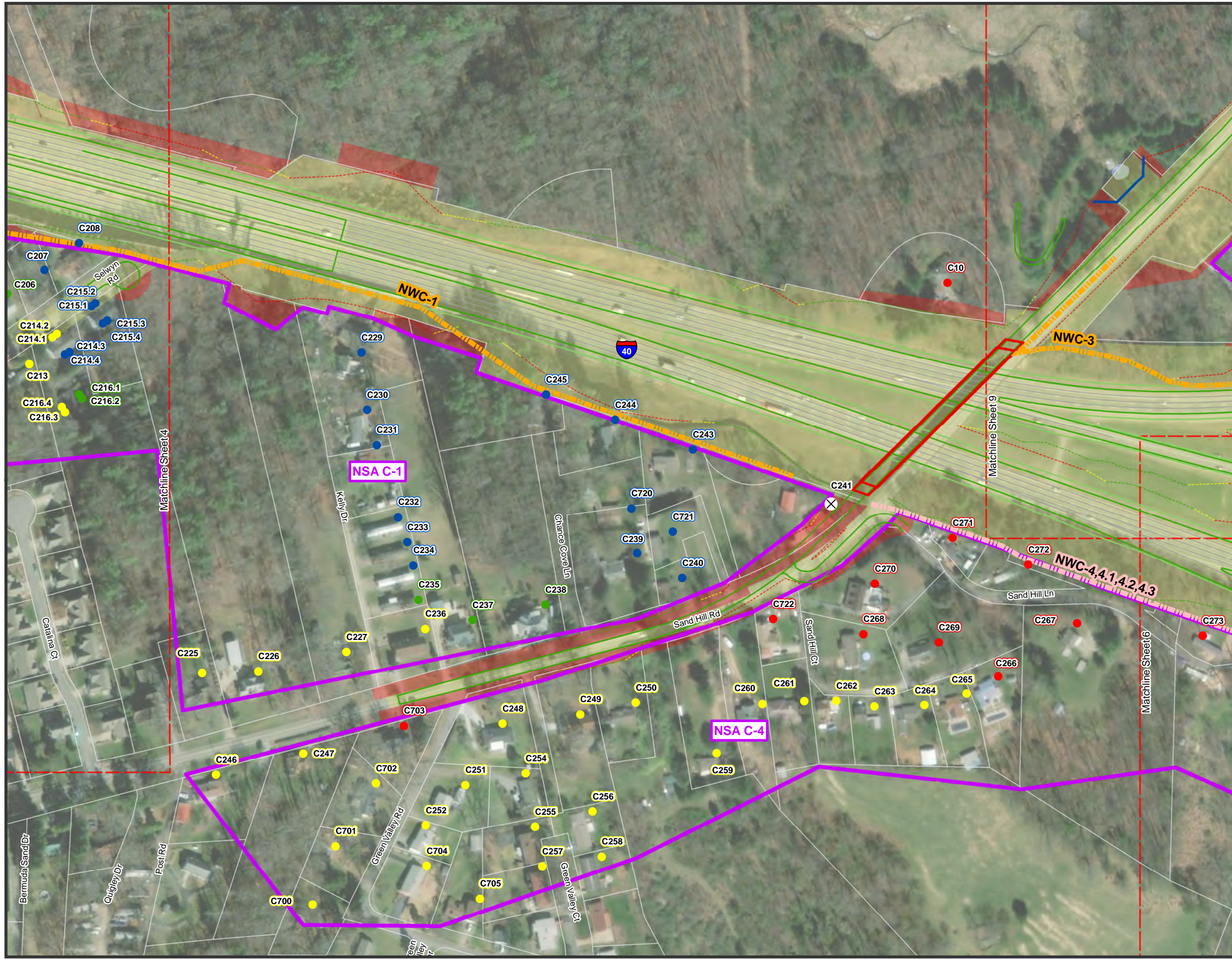
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Figure 3-5

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- Inset Matchline



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Noise Receptors and Detailed Study Alternatives

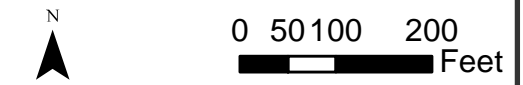
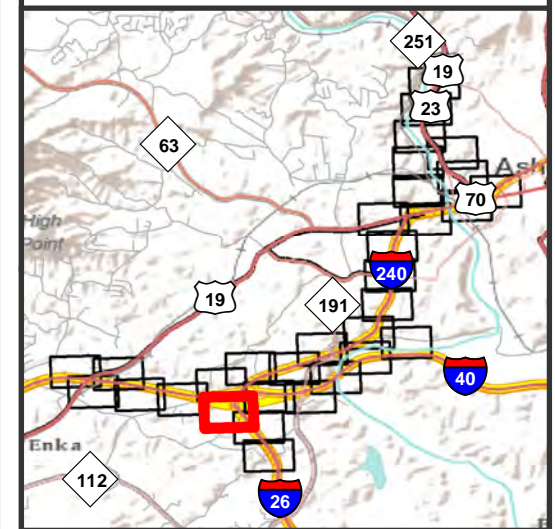
STIP Program
Project No. I-2513



Figure 3-6

Legend

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- ⊗ Right of Way Take
- Noise Measurement Locations
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August 2019

Noise Receptors and Detailed Study Alternatives

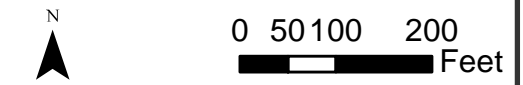
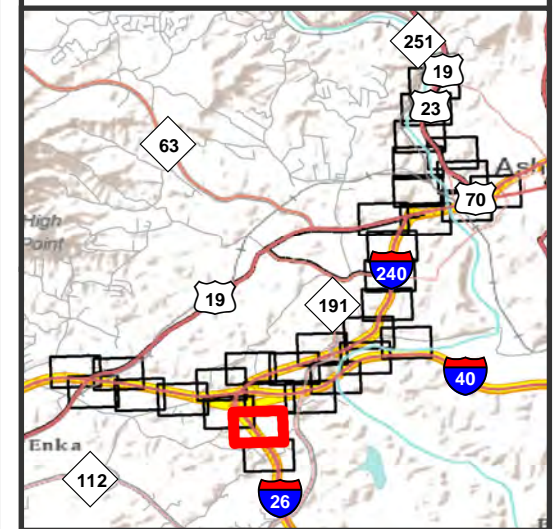
STIP Program
Project No. I-2513



Figure 3-7

Legend

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- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
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Noise Receptors and Detailed Study Alternatives

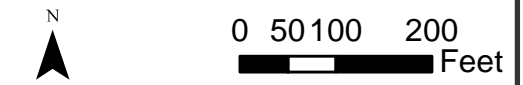
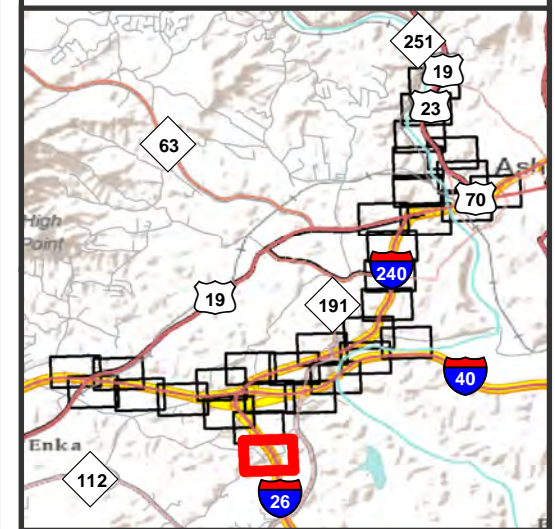
STIP Program
Project No. I-2513



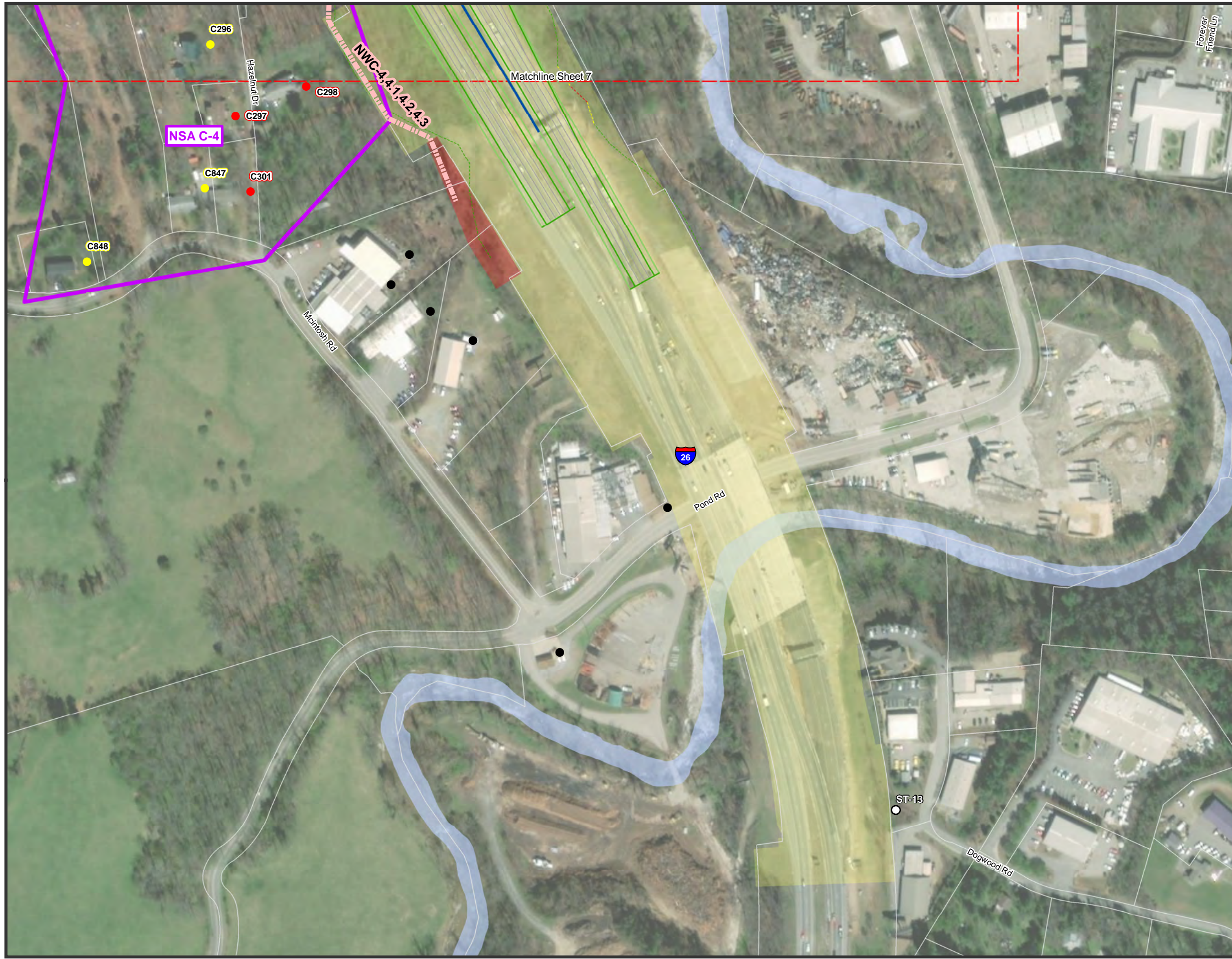
Figure 3-8

Legend

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August 2019



Noise Receptors and Detailed Study Alternatives

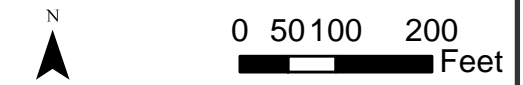
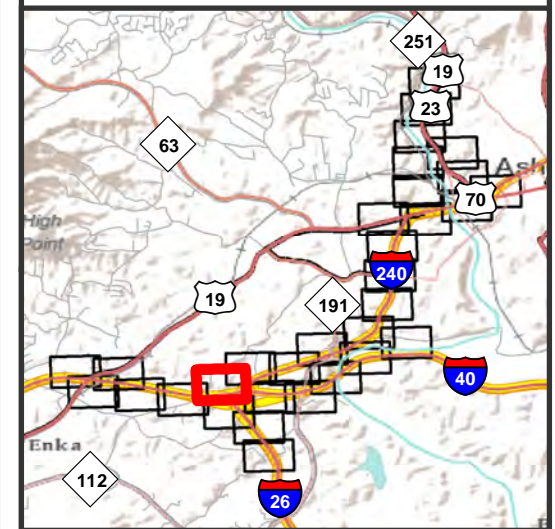
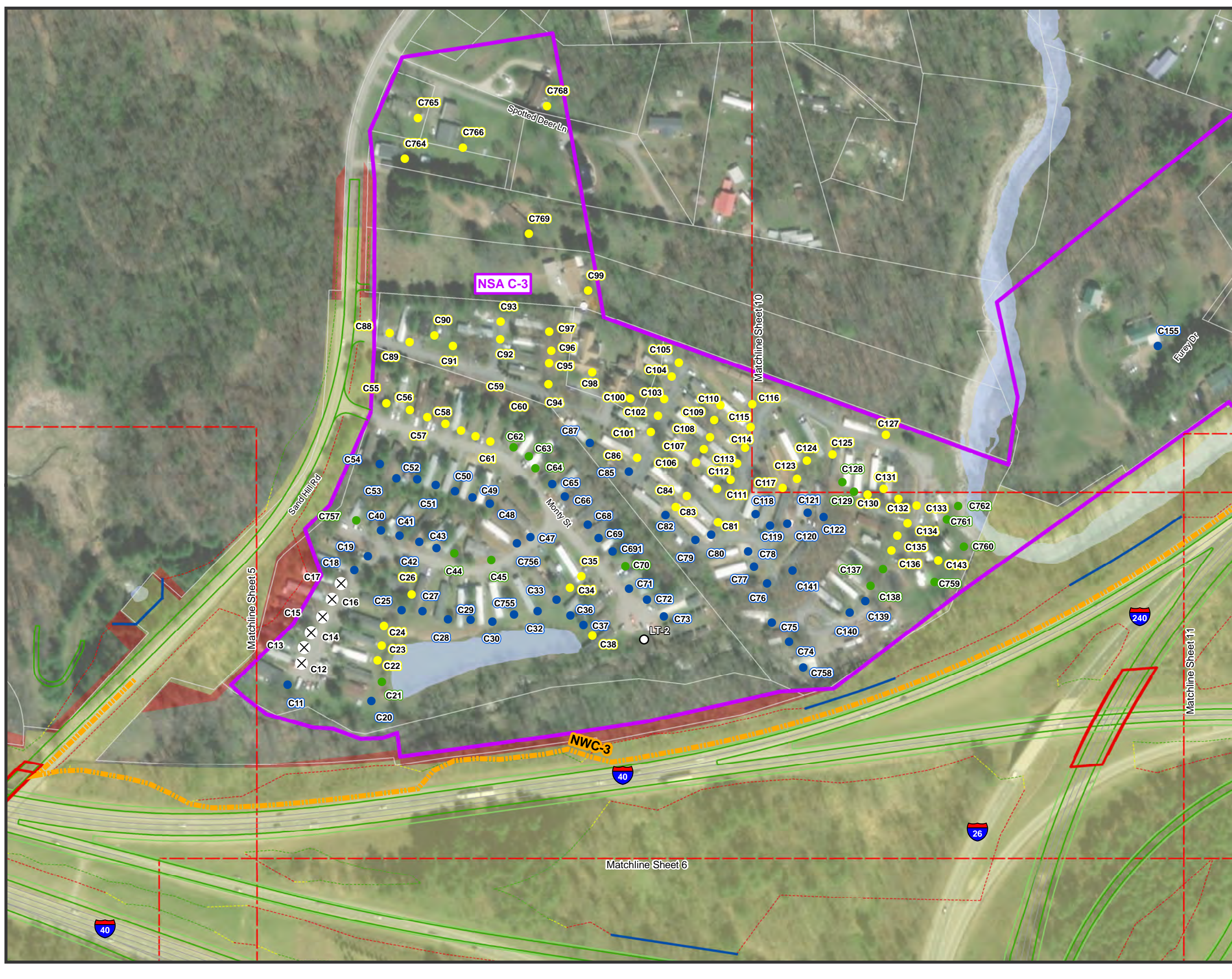
STIP Program
Project No. I-2513



Figure 3-9

Legend

- Impacted, Not Benefitted
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Noise Receptors and Detailed Study Alternatives

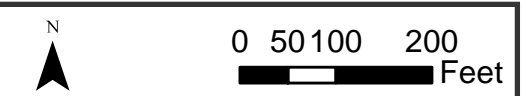
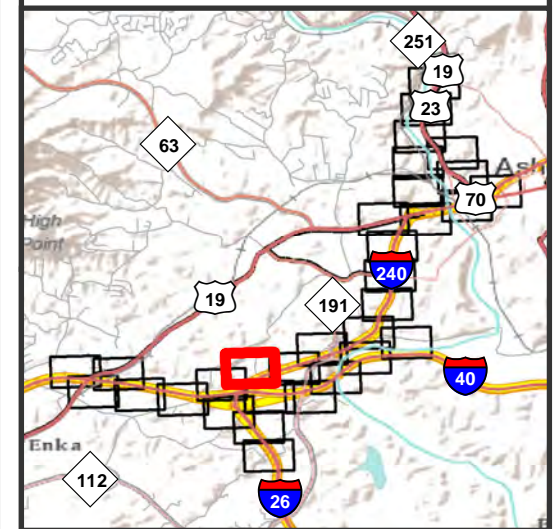
STIP Program
Project No. I-2513



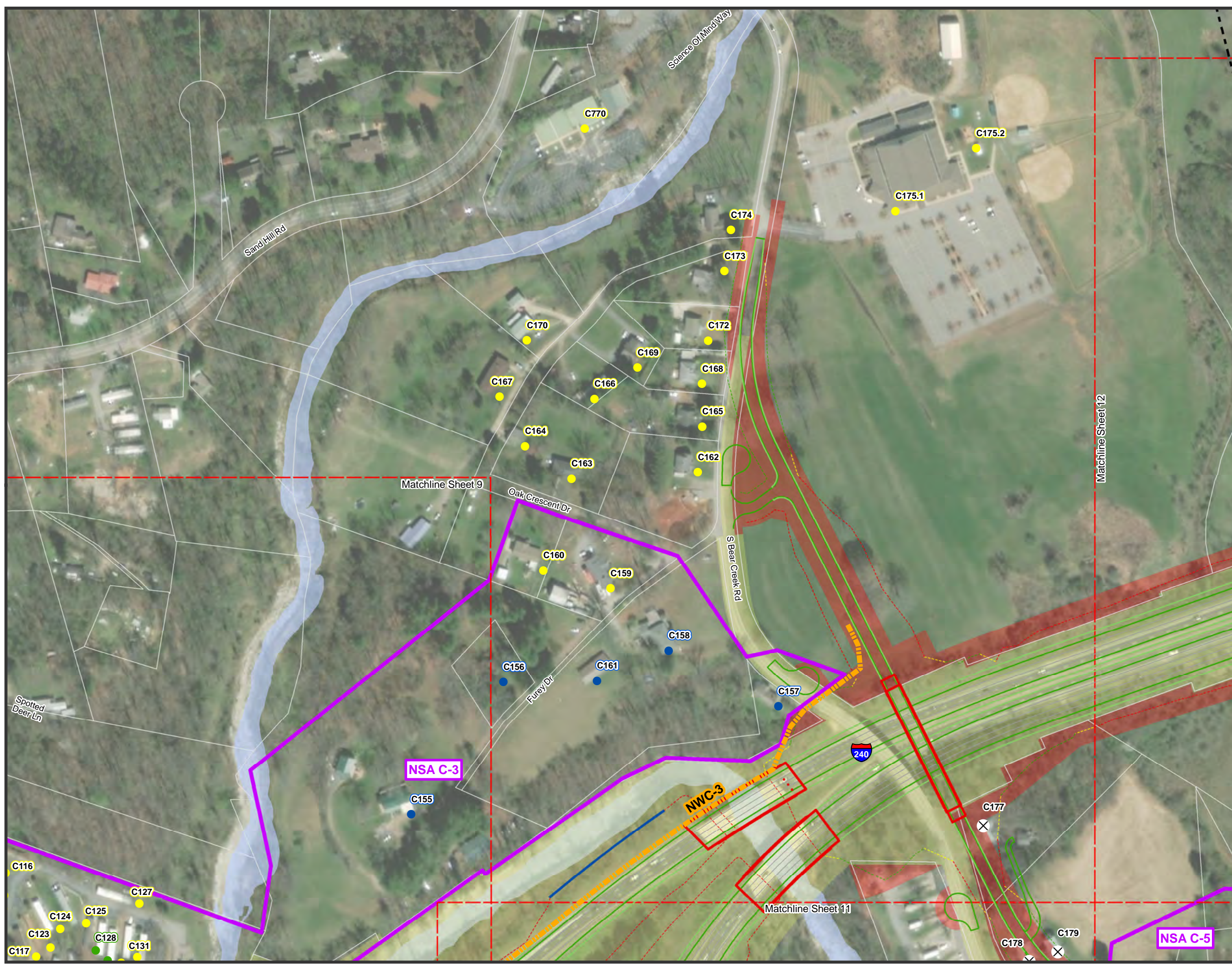
Figure 3-10

Legend

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- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
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- Lane Lines
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- Proposed Roadway Culvert
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- Proposed Fill Slope
- Proposed Cut/Fill Transition
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- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



This map is for reference only.
Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.
August 2019



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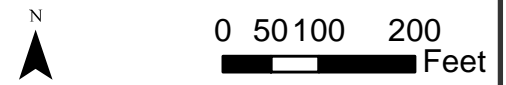
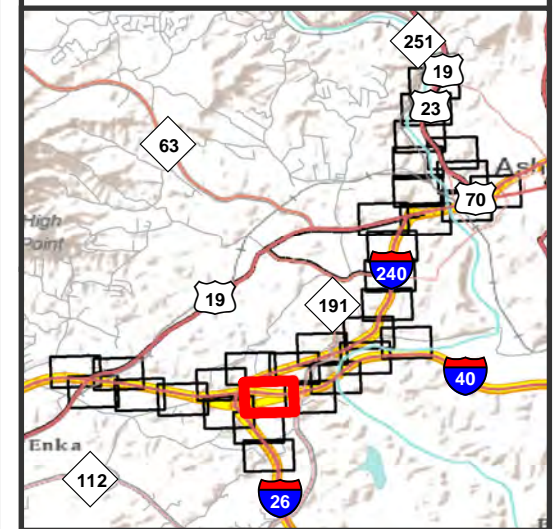
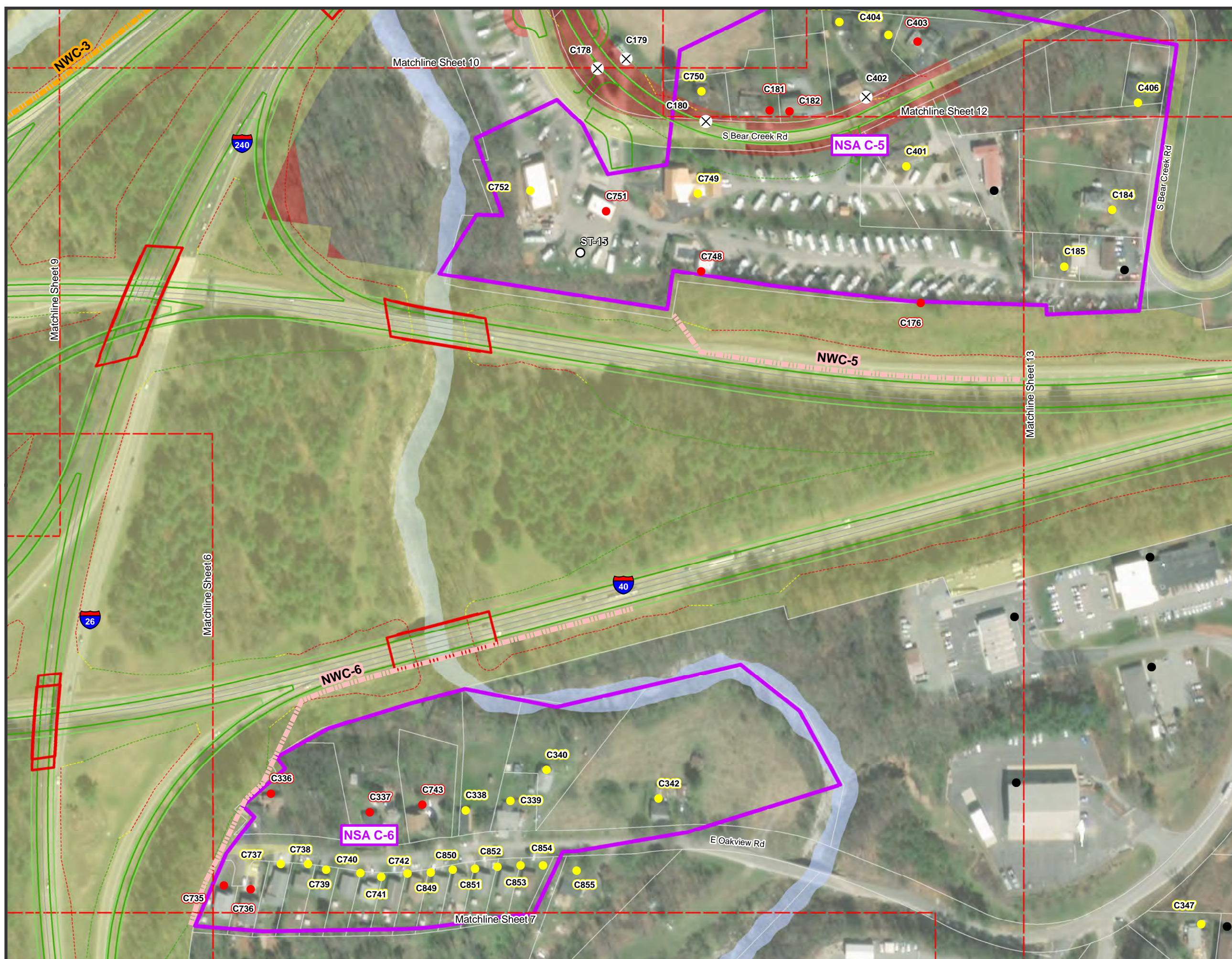
STIP Program
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Figure 3-1 I

Legend

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Noise Receptors and Detailed Study Alternatives

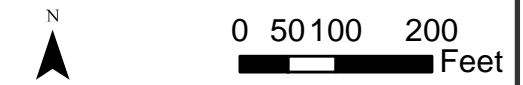
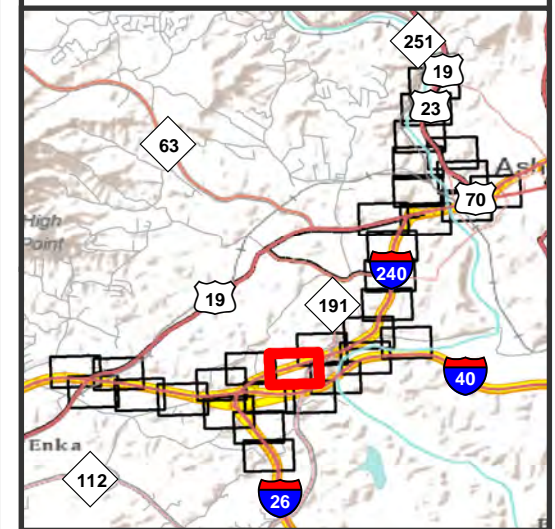
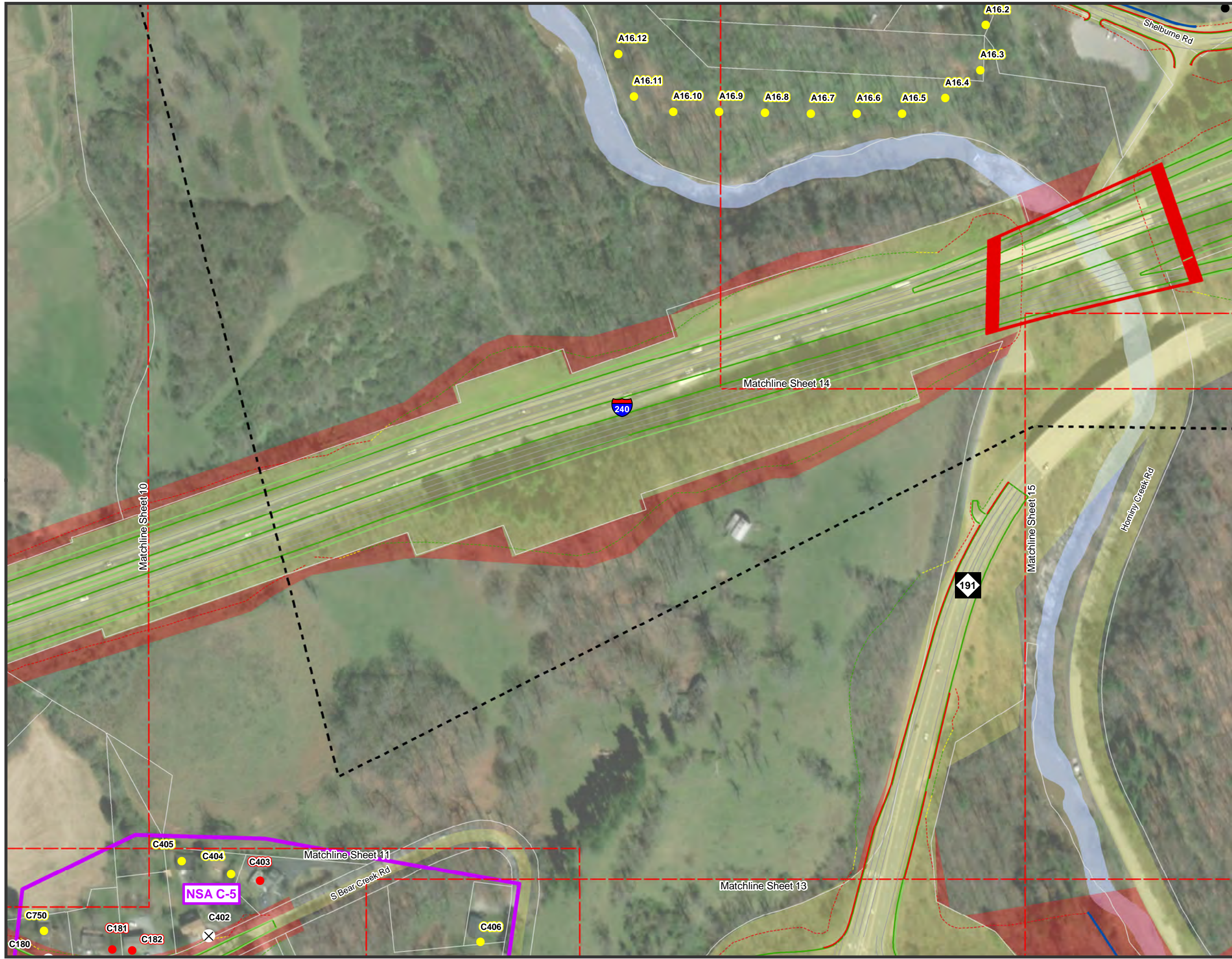
STIP Program
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Figure 3-12

Legend

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- Not Noise Sensitive
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Noise Receptors and Detailed Study Alternatives

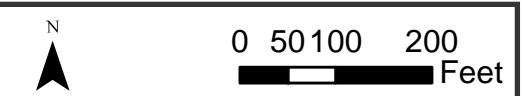
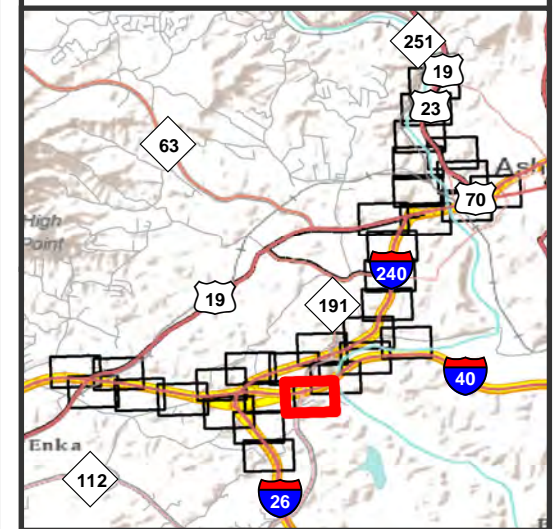
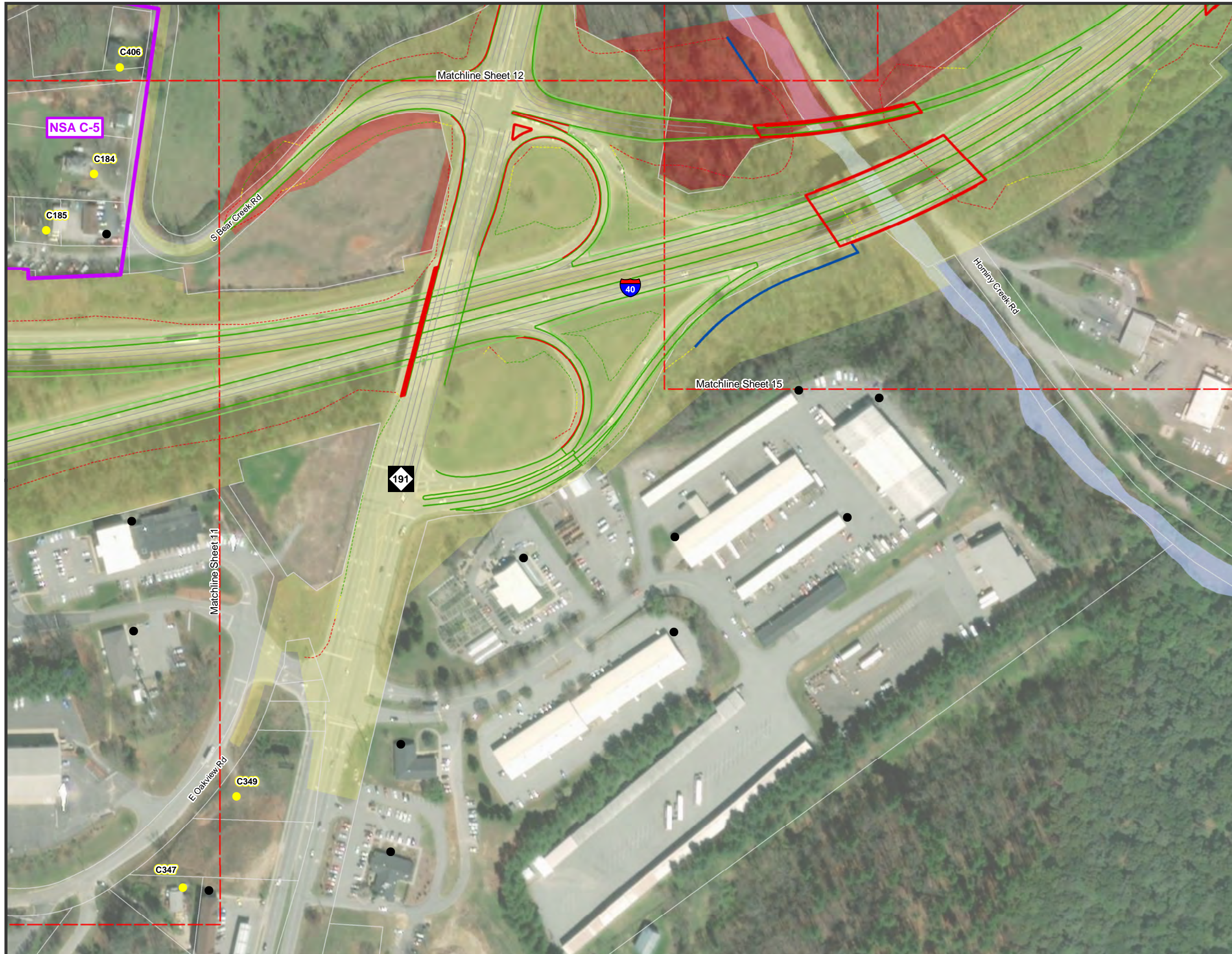
STIP Program
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Figure 3-13

Legend

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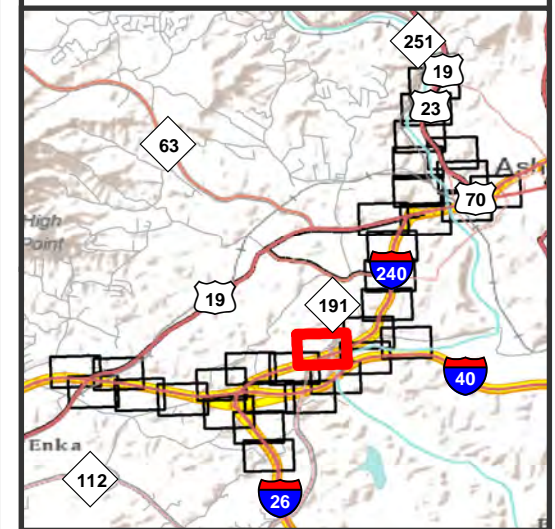
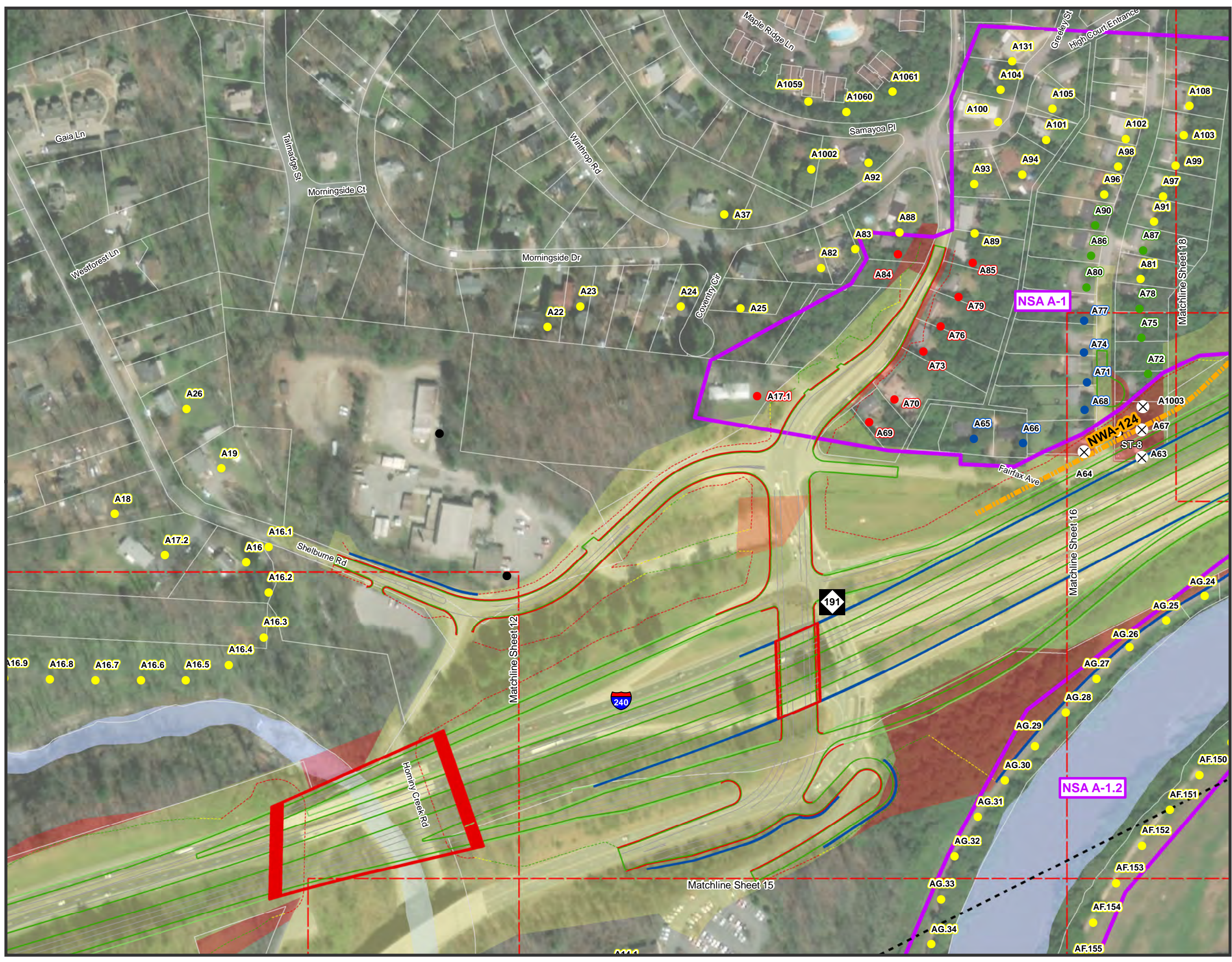
STIP Program
Project No. I-2513



Figure 3-14

Legend

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N

0 50 100 200 Feet

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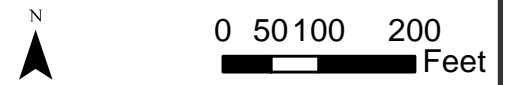
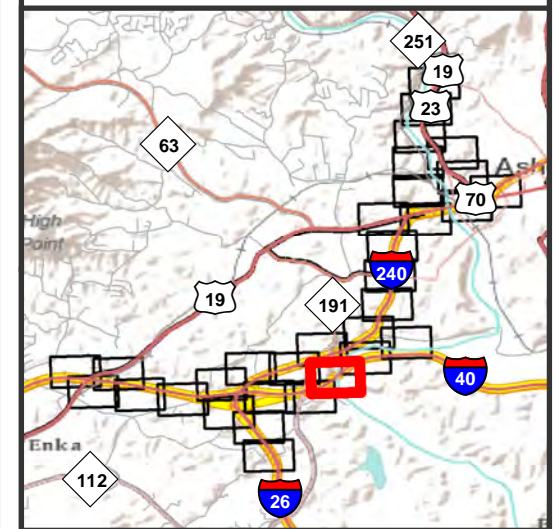
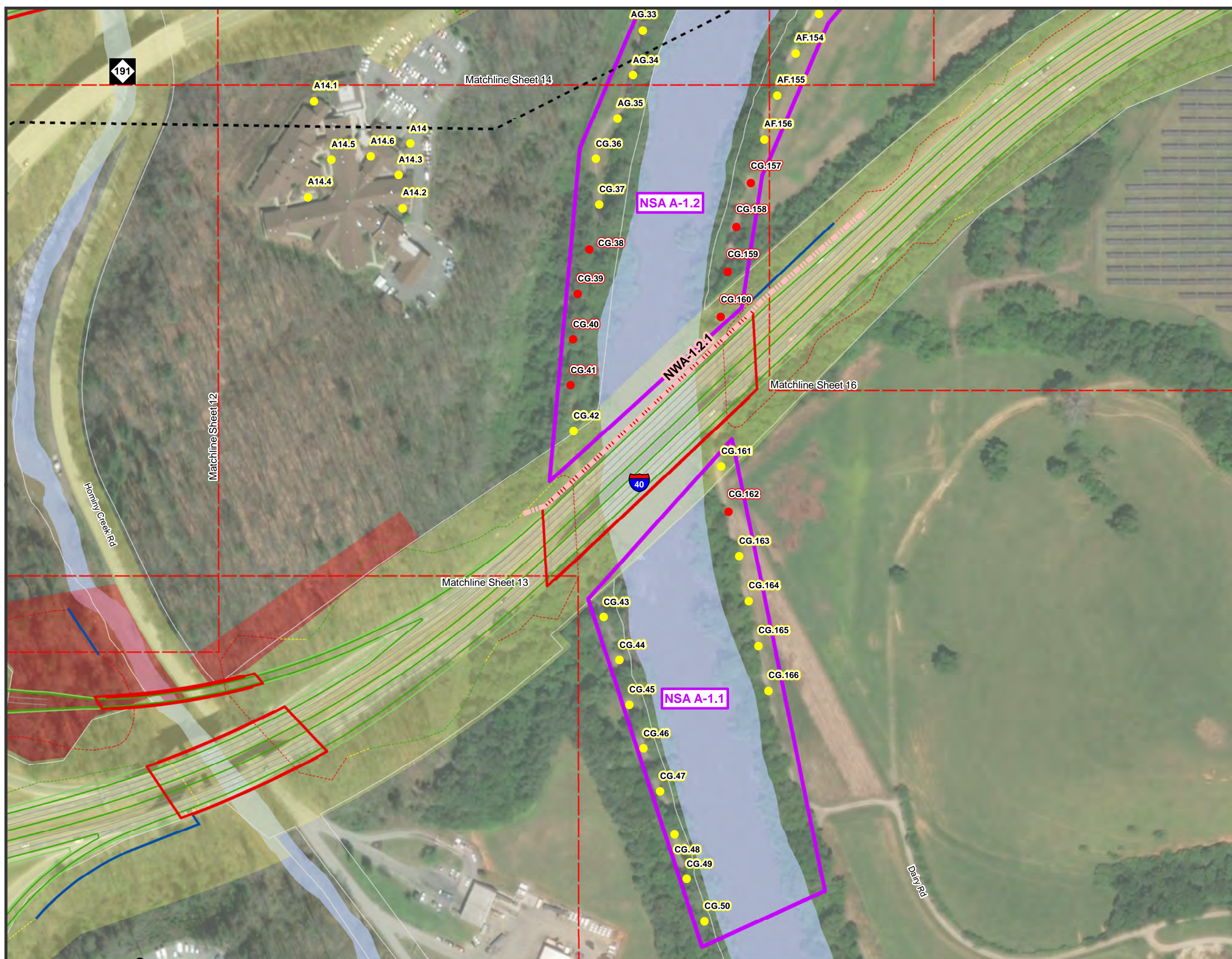
STIP Program
Project No. I-2513



Figure 3-15

Legend

- Impacted, Not Benefitted
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- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
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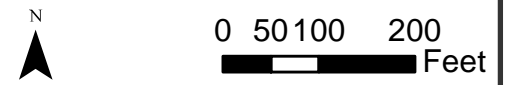
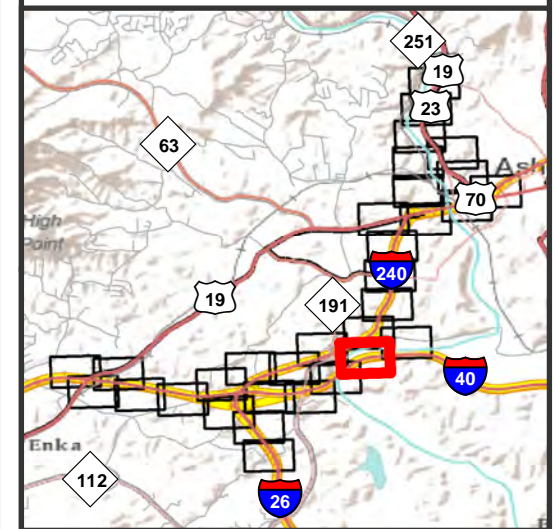
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Figure 3-16

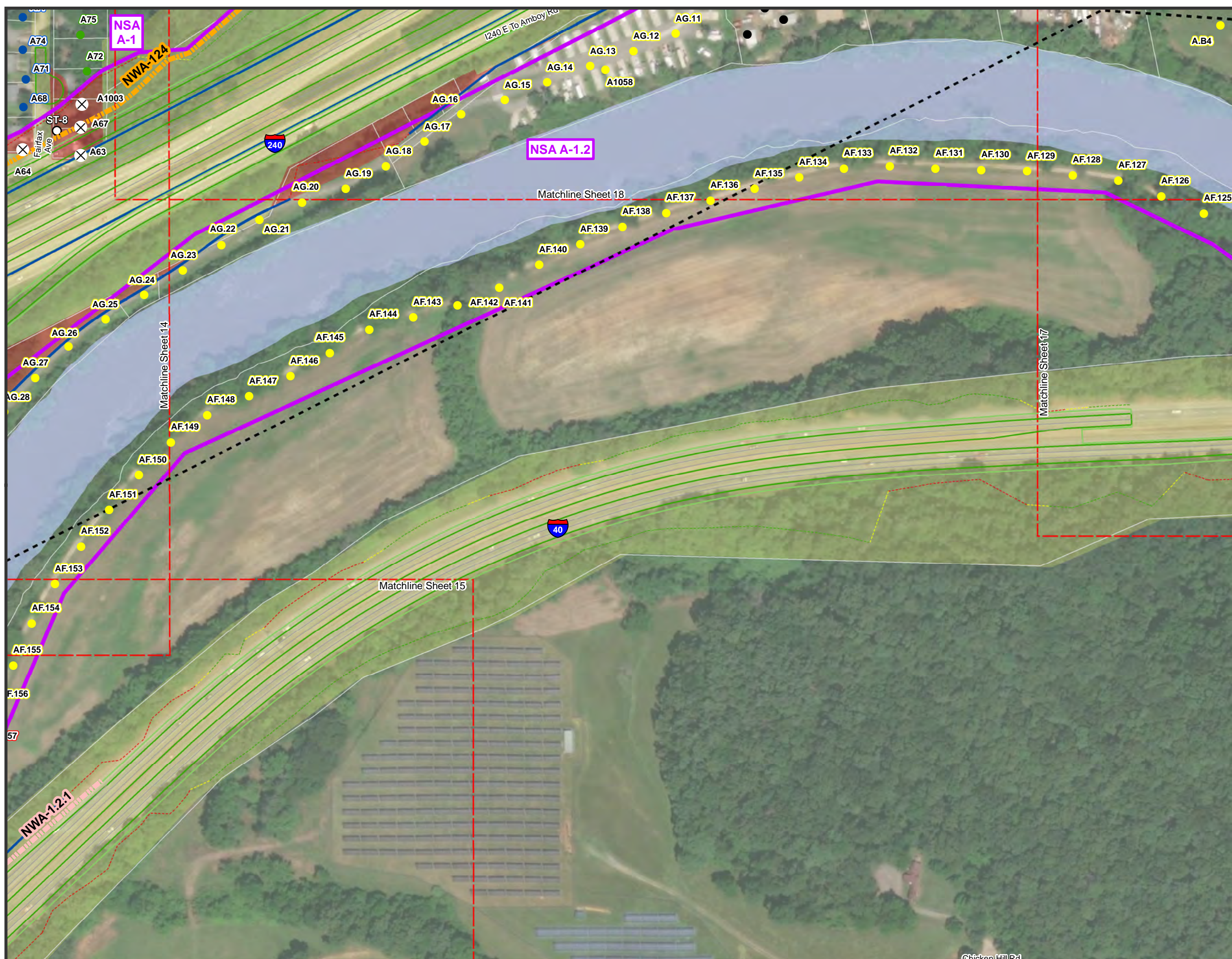
Legend

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Chicken Hill Rd

Noise Receptors and Detailed Study Alternatives

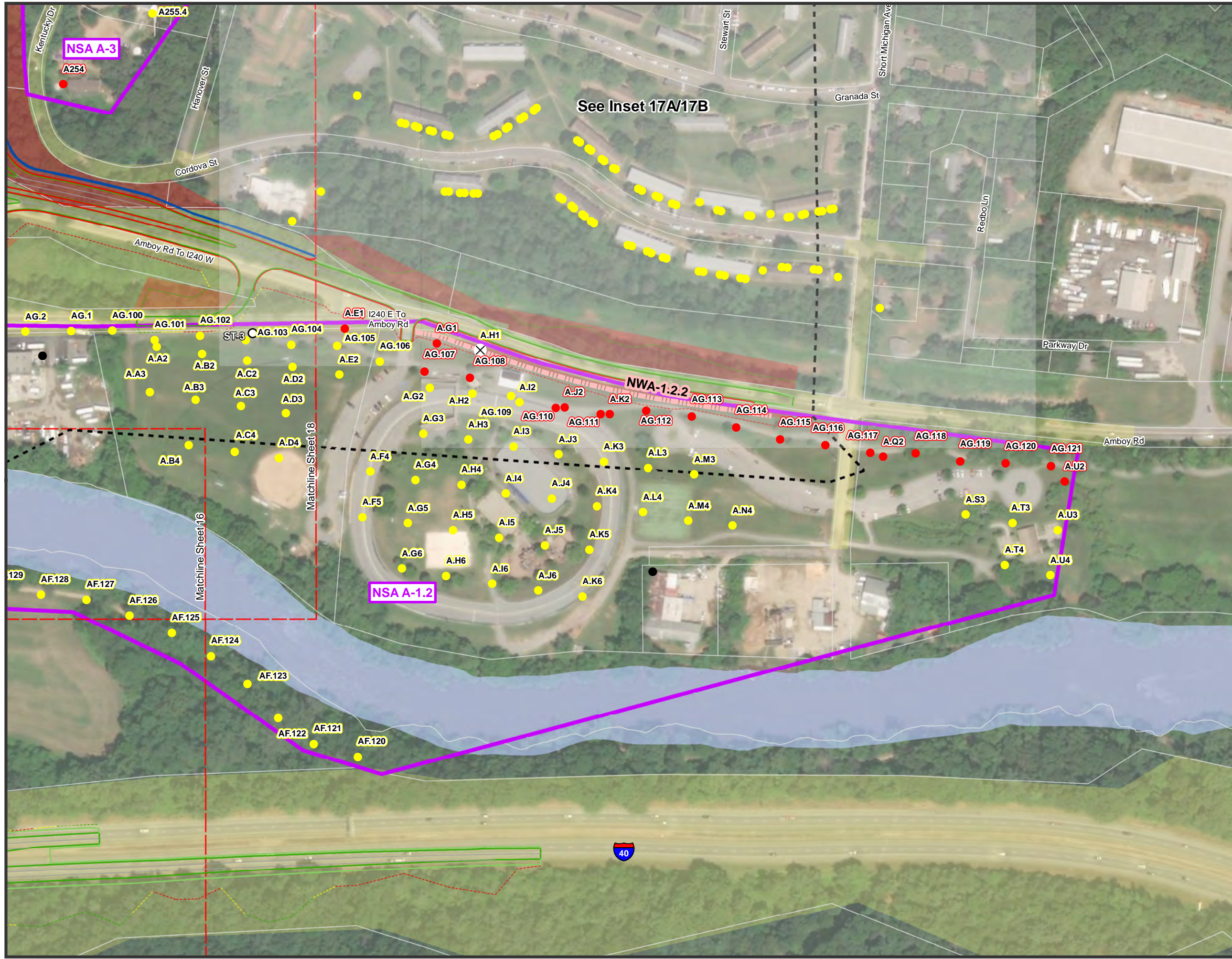
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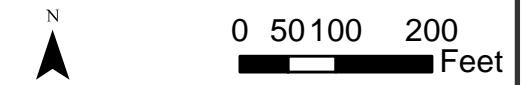
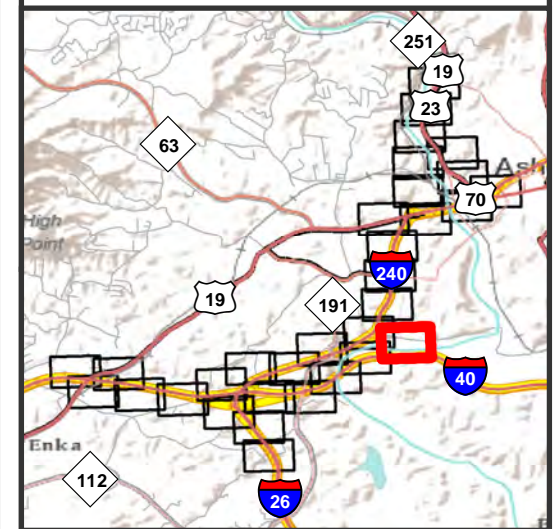
Figure 3-17

Legend

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- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
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See Inset 17A/17B



This map is for reference only.
Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.

NSA
A-3

Noise Receptors and Detailed Study Alternatives

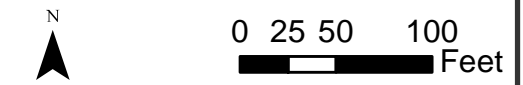
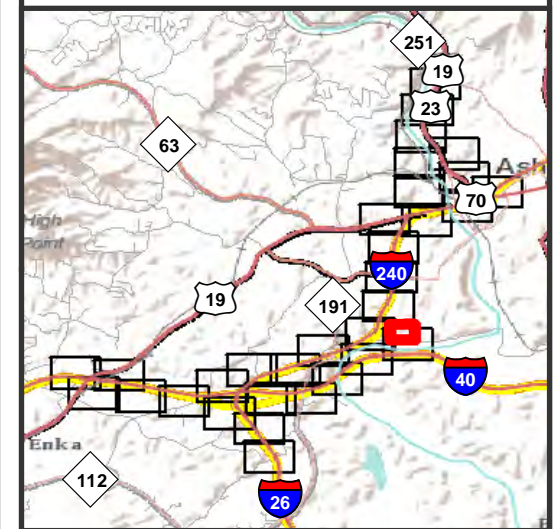
STIP Program
Project No. I-2513



Figure 3-17A

Legend

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- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
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- Existing ROW
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Sources: NCDOT, DWR, NCOneMap, ESRI
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Noise Receptors and Detailed Study Alternatives

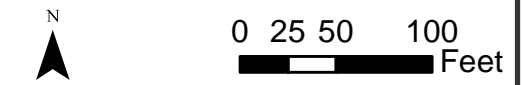
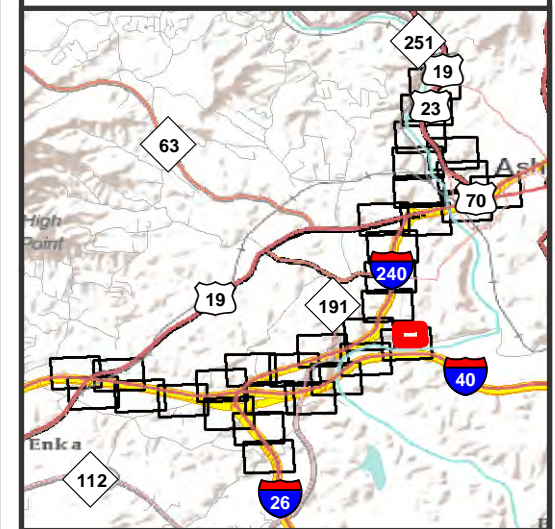
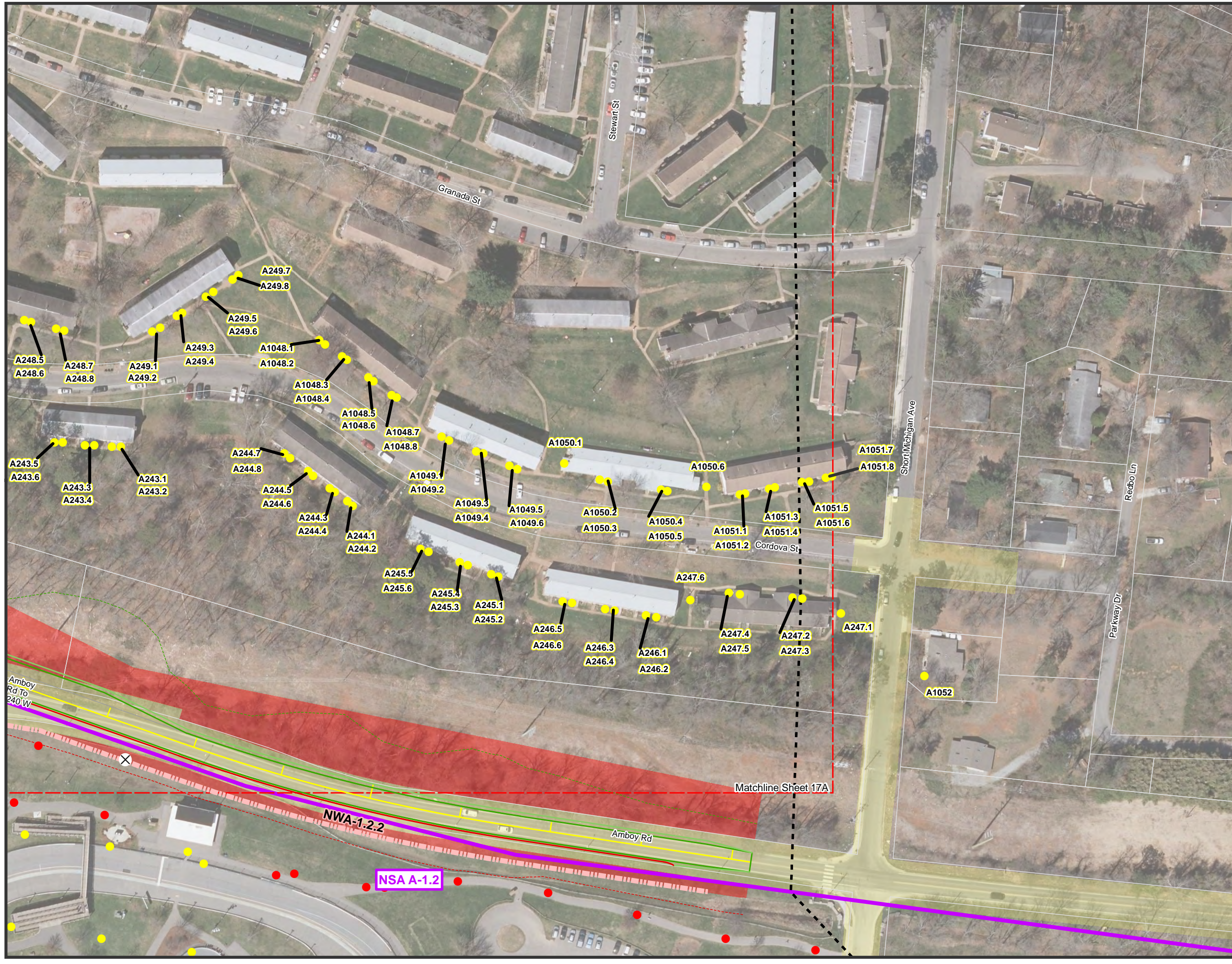
STIP Program
Project No. I-2513



Figure 3-17B

Legend

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- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- Section Boundaries
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- Proposed ROW
- Existing ROW
- Water



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Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.

Noise Receptors and Detailed Study Alternatives

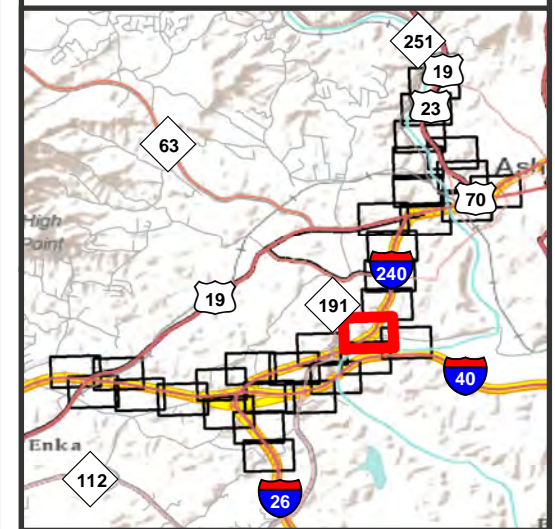
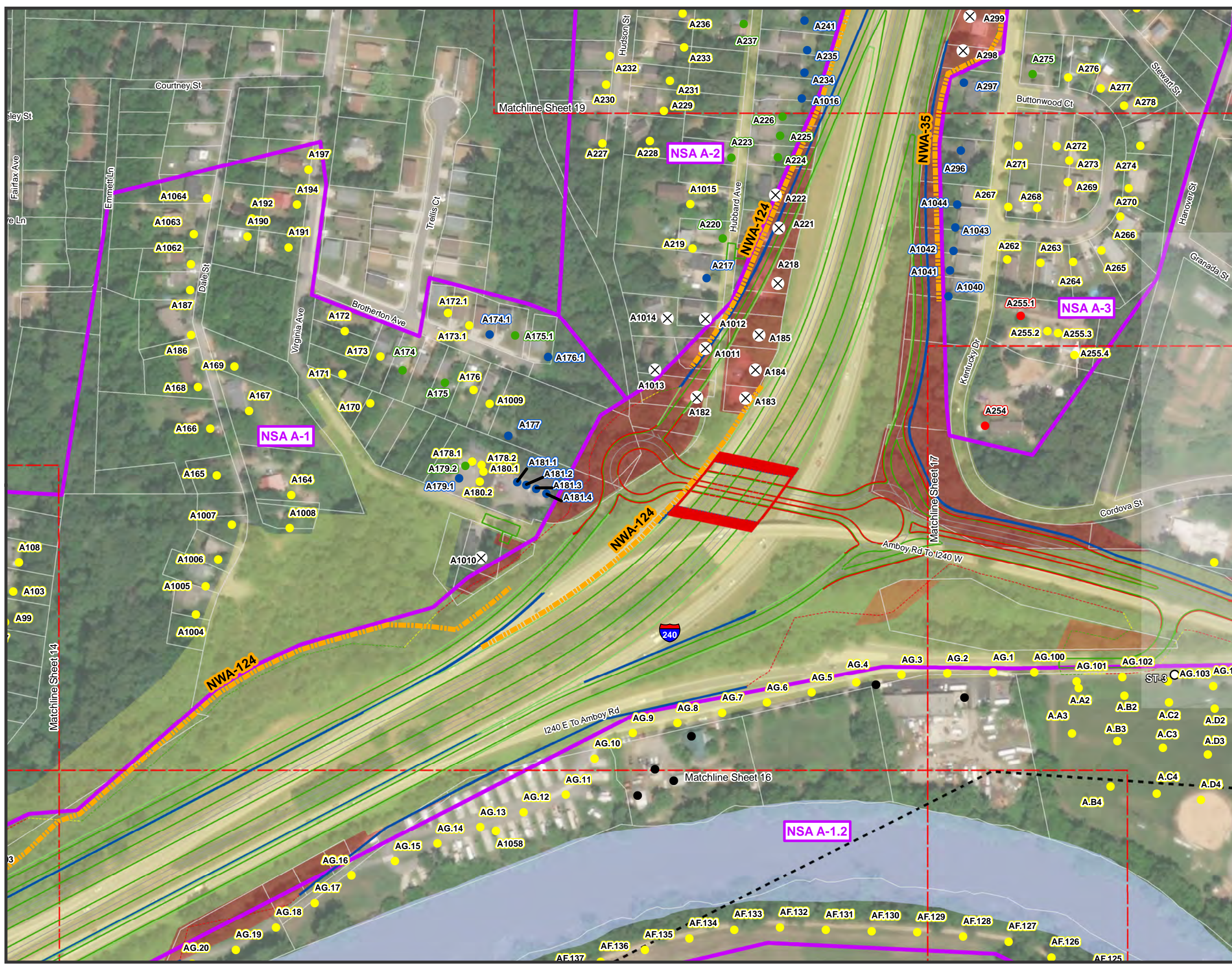
STIP Program
Project No. I-2513



Figure 3-18

Legend

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N

0 50 100 200 Feet

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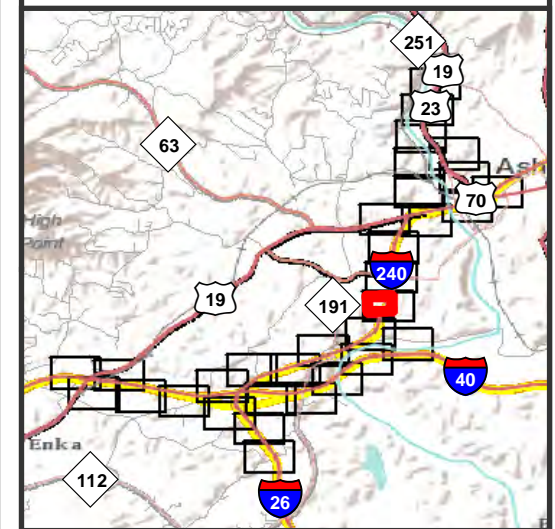
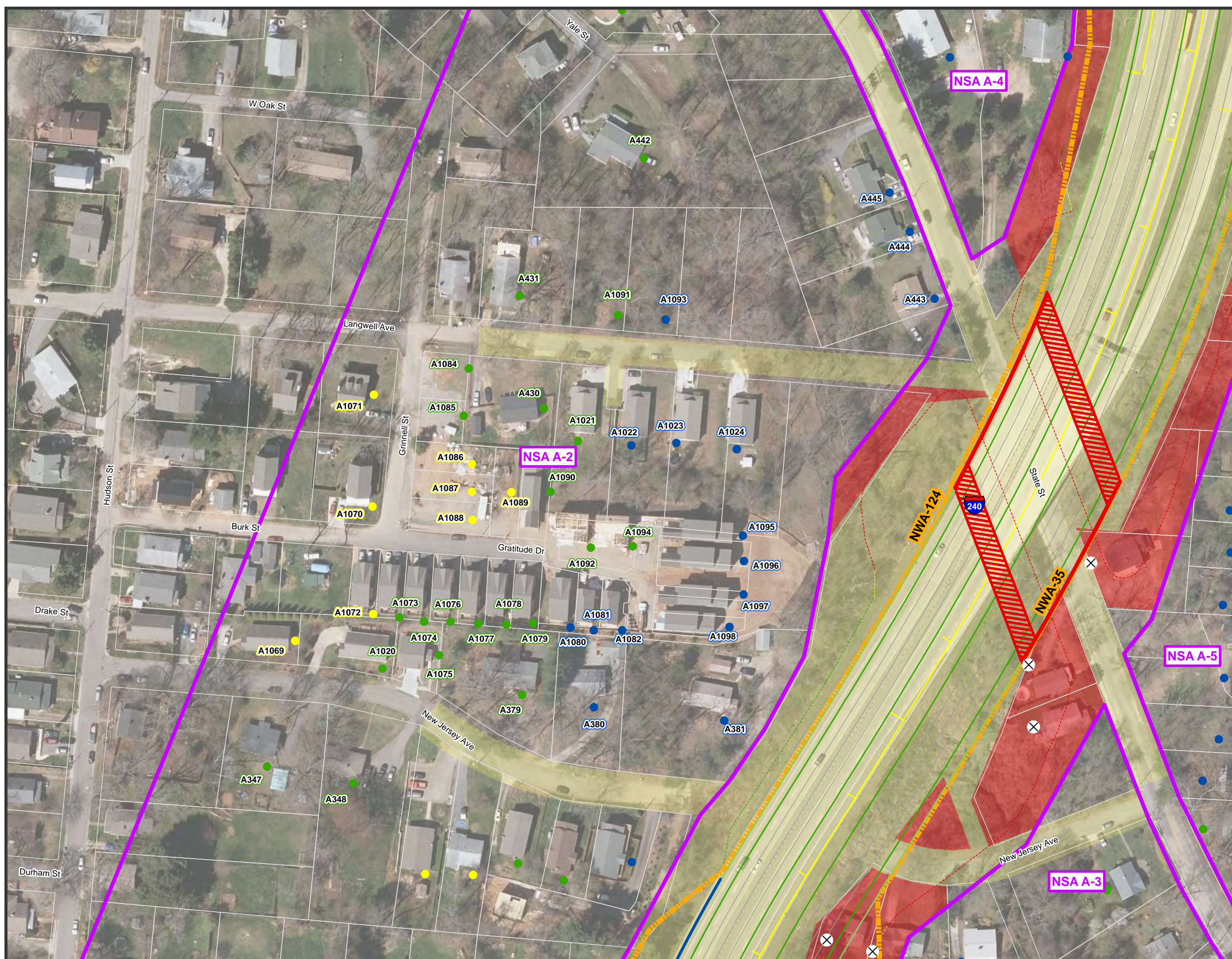
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Project No. I-2513



Figure 3-19A

Legend

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0 25 50 100 Feet

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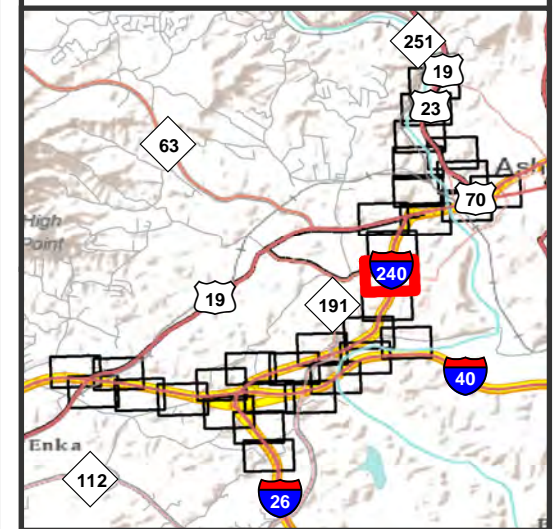
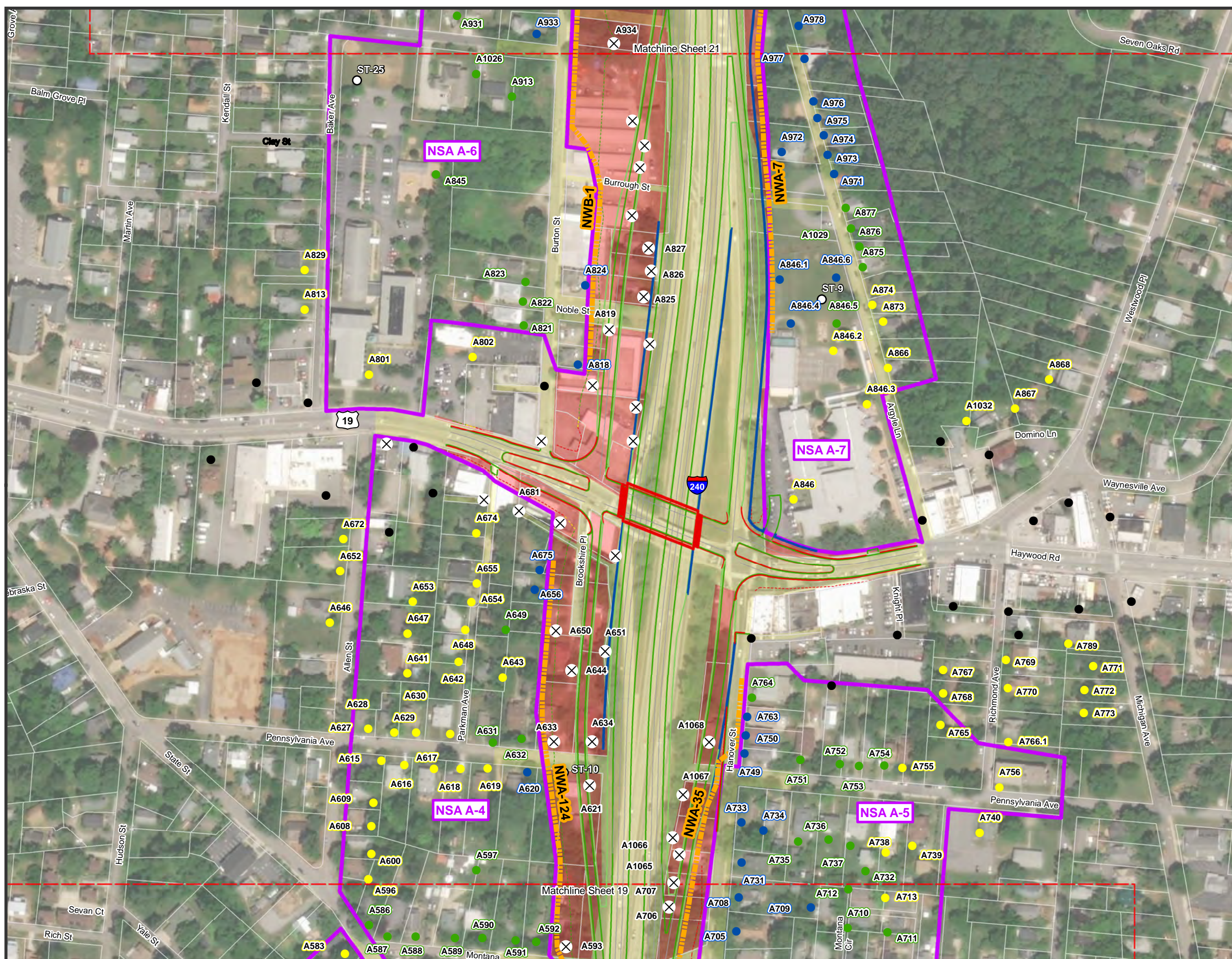
STIP Program
Project No. I-2513



Figure 3-20

Legend

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N
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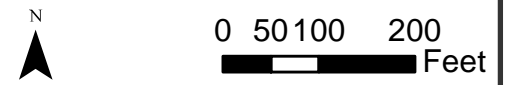
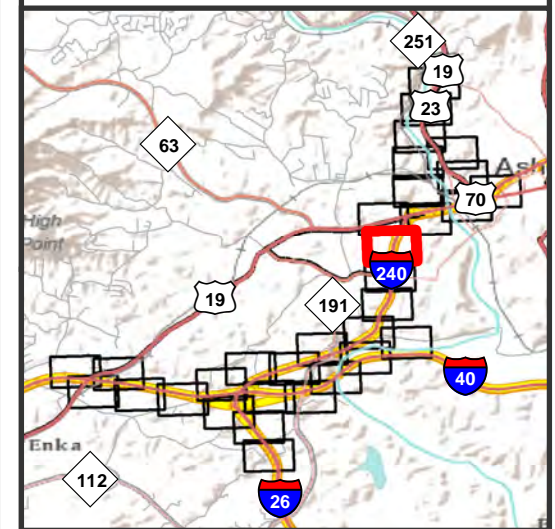
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Project No. I-2513



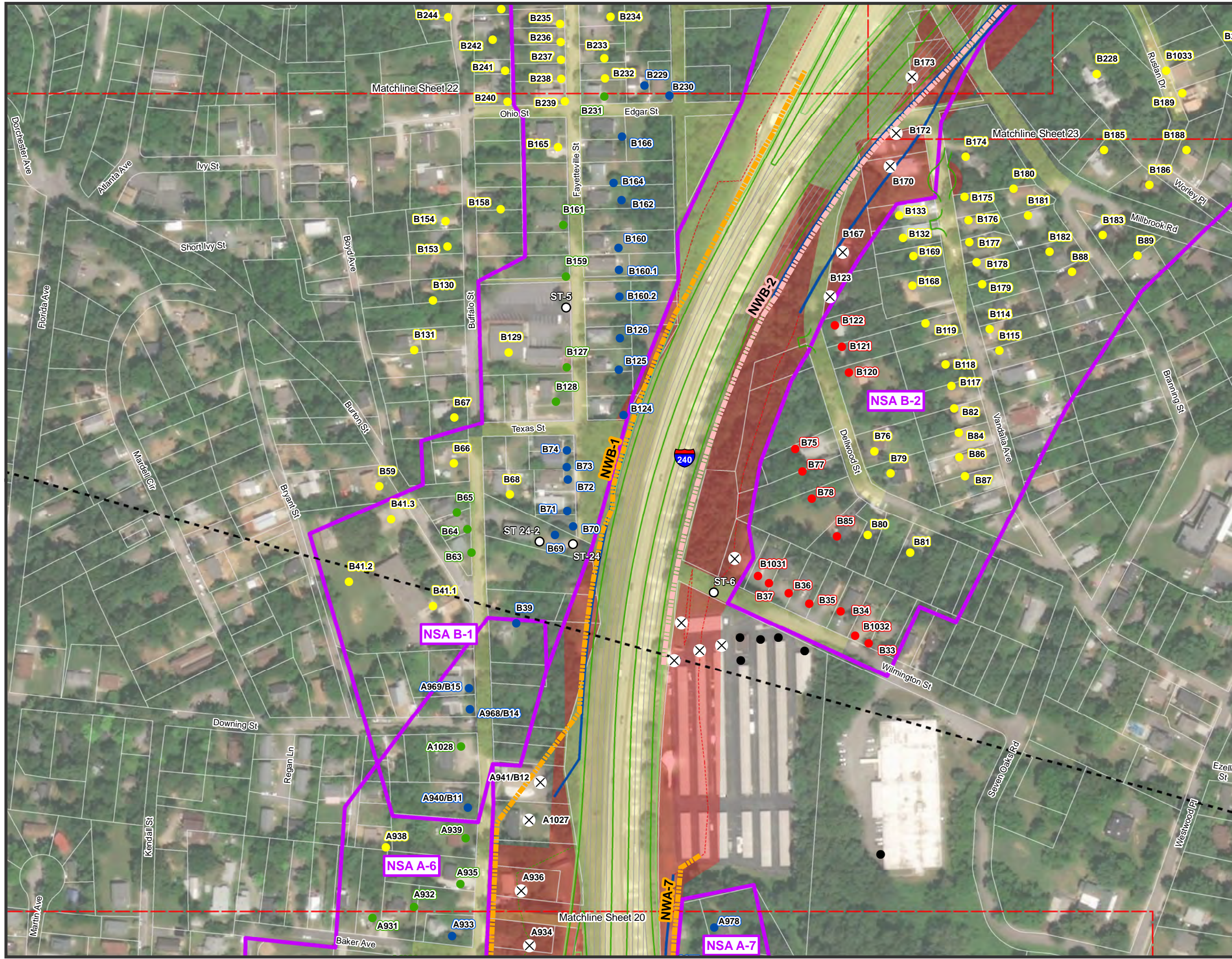
Figure 3-21

Legend

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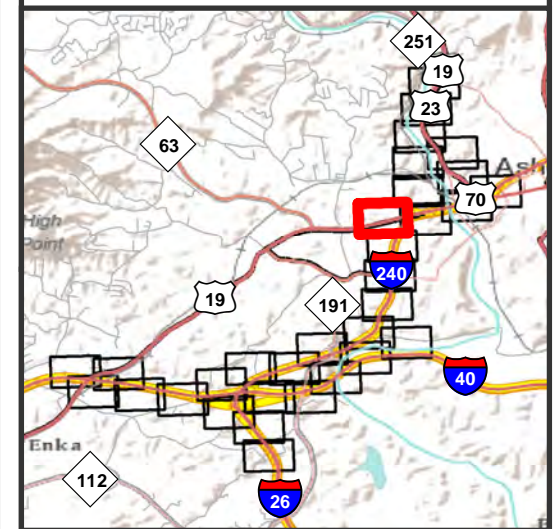
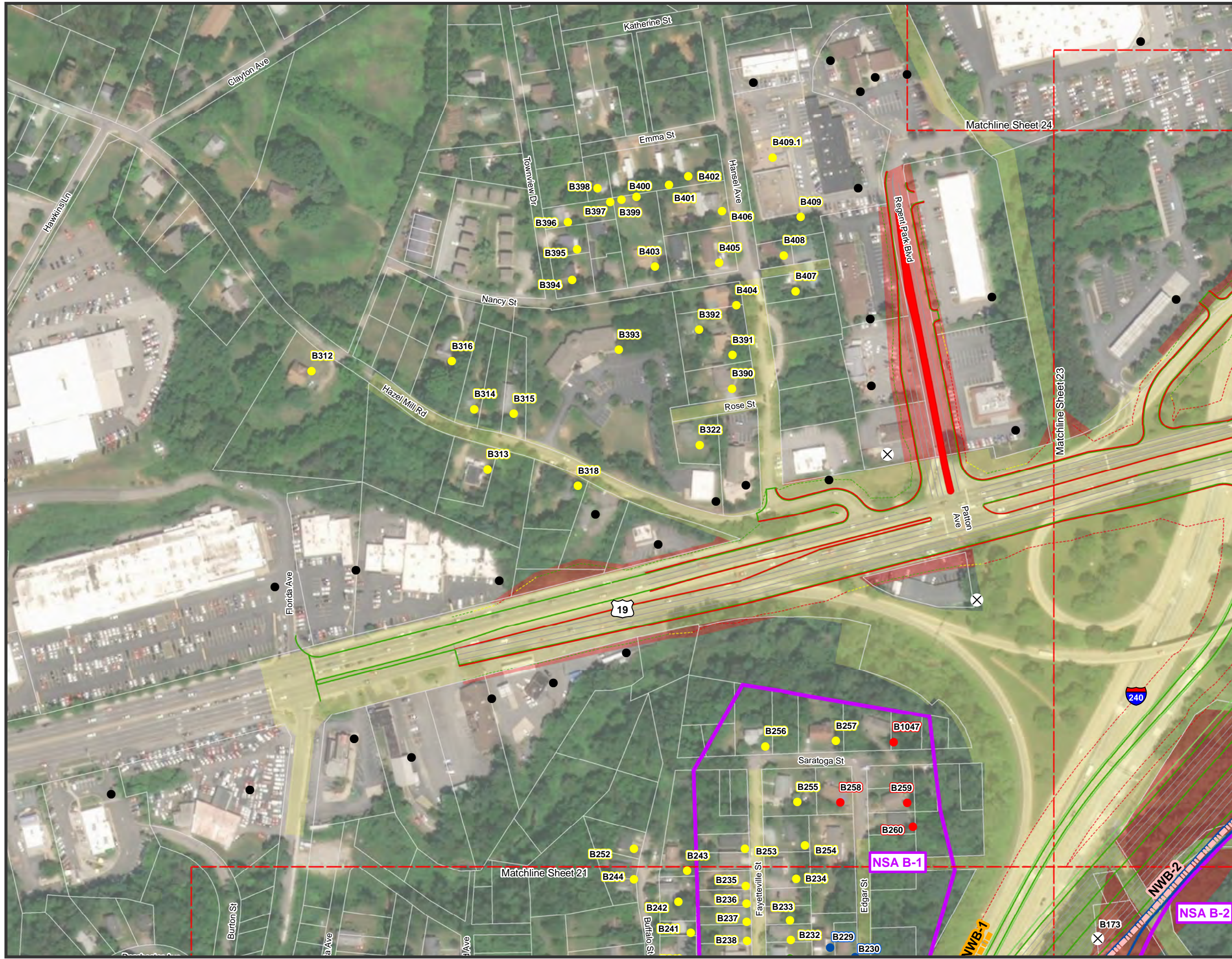
STIP Program
Project No. I-2513



Figure 3-22

Legend

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- Benefitted, Not Impacted
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- Not Noise Sensitive
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N

0 50 100 200 Feet

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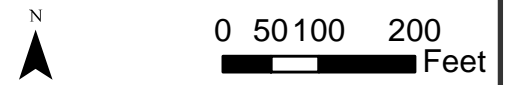
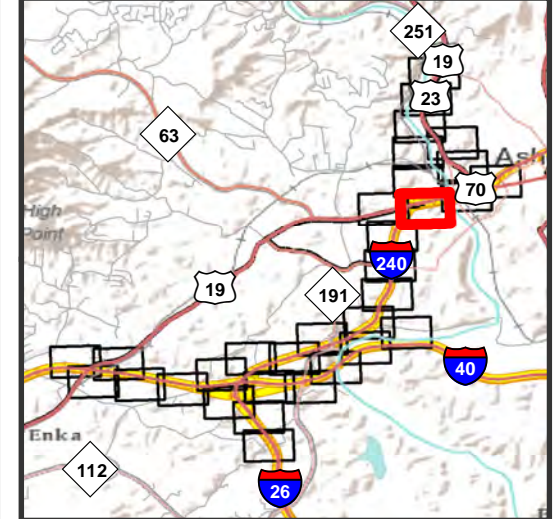
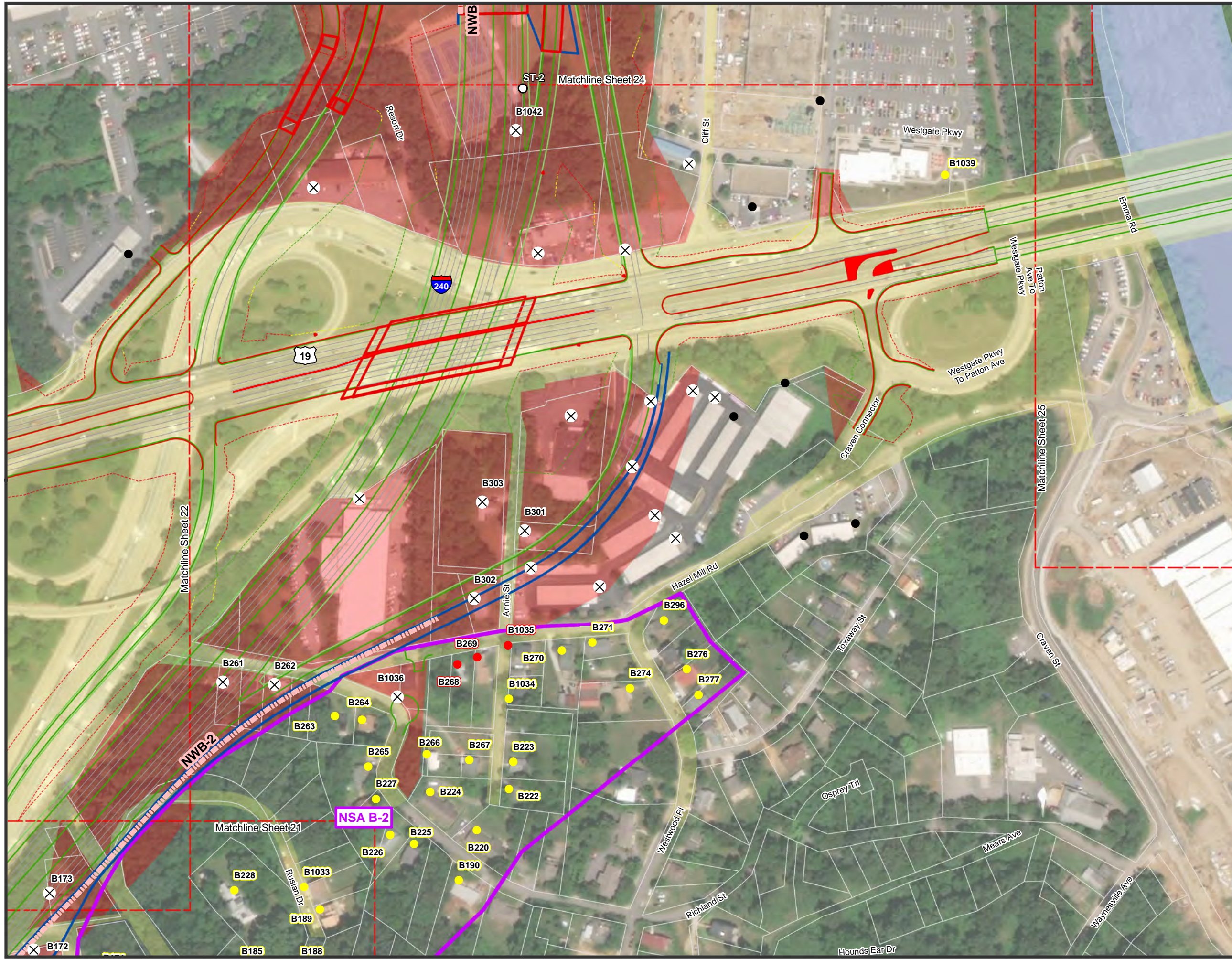
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Figure 3-23

Legend

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- Impacted and Benefitted
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Noise Receptors and Detailed Study Alternatives

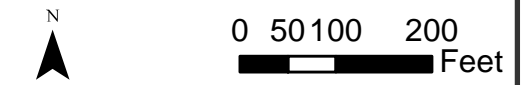
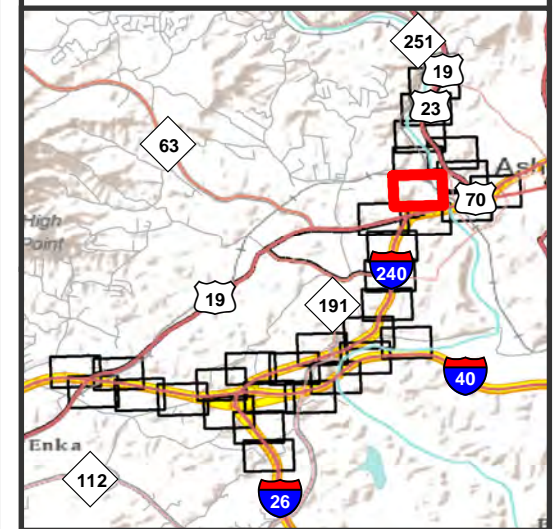
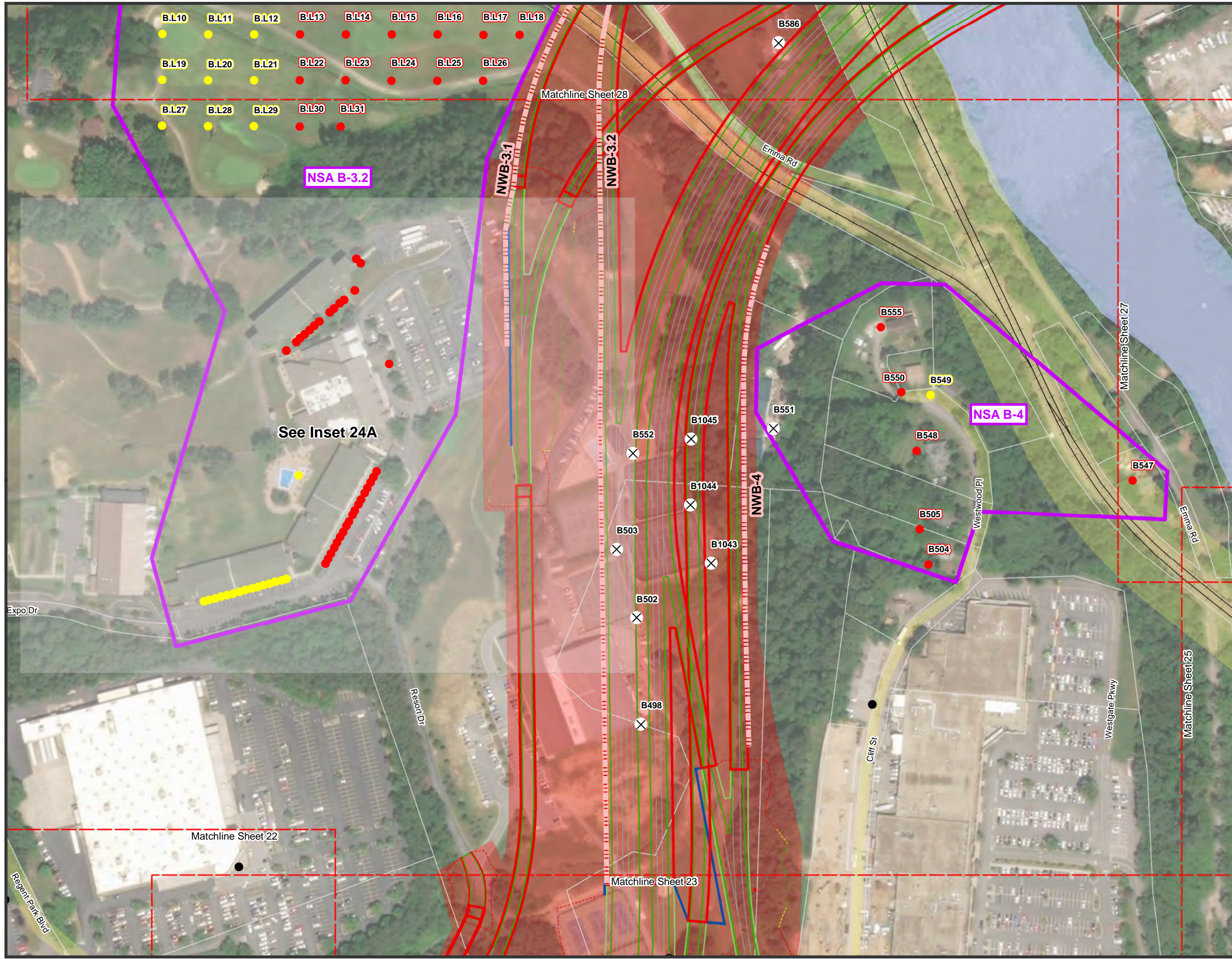
STIP Program
Project No. I-2513



Figure 3-24

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- Section Boundaries
- Proposed Curb and Gutter
- Proposed Edge of Travel
- Lane Lines
- Proposed Paved Shoulder
- Proposed Retaining Wall
- Proposed Roadway Bridge
- Proposed Roadway Culvert
- Proposed Cut Slope
- Proposed Fill Slope
- Proposed Cut/Fill Transition
- Matchline
- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



This map is for reference only.
Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.
August 2019

Noise Receptors and Detailed Study Alternatives

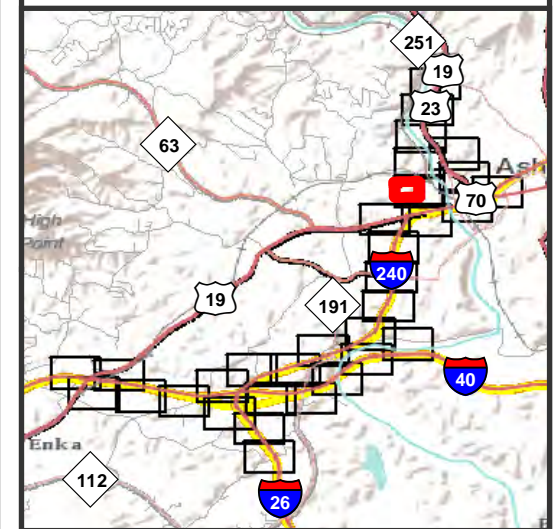
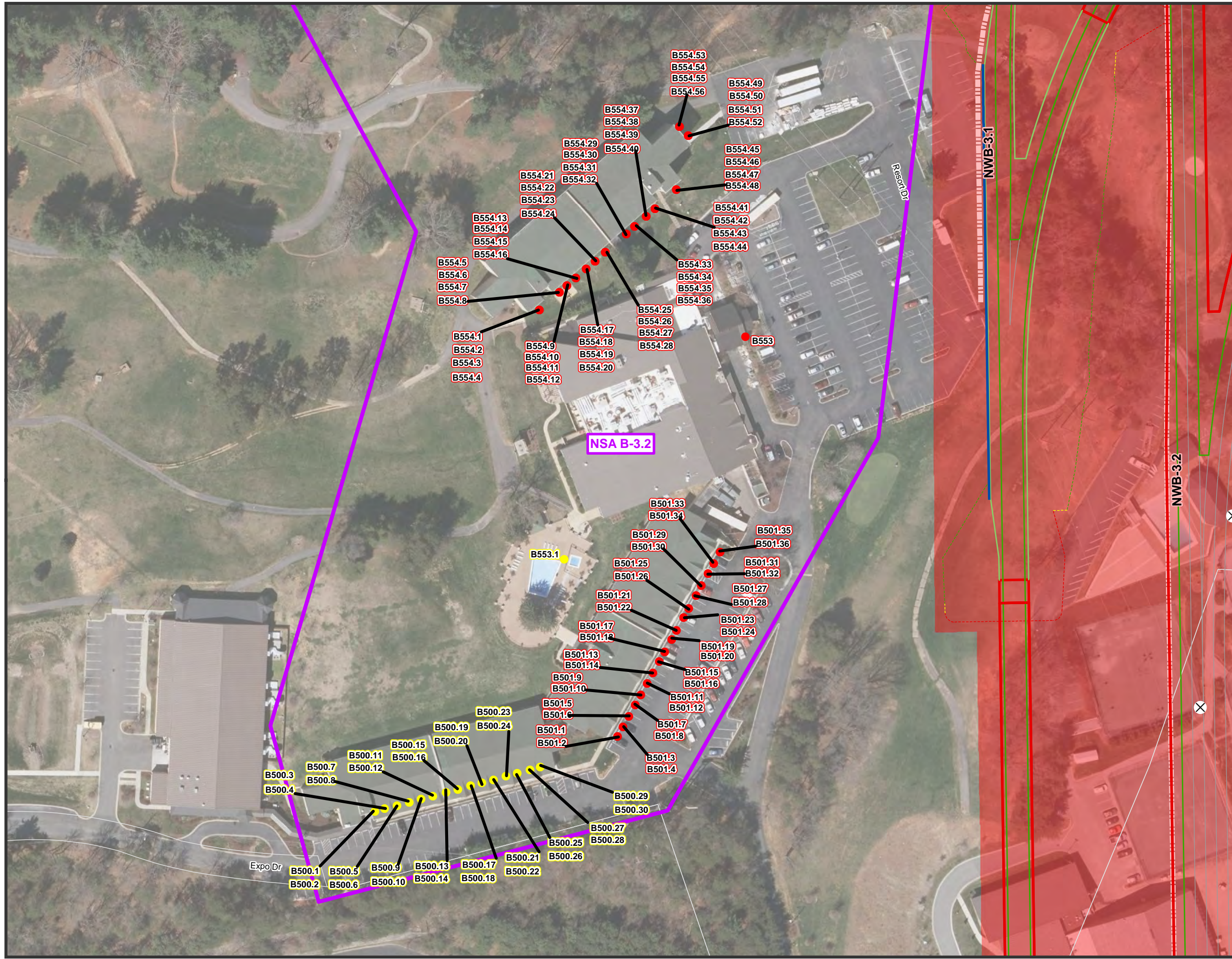
STIP Program
Project No. I-2513



Figure 3-24A

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- - - Section Boundaries
- Proposed Curb and Gutter
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- Lane Lines
- Proposed Paved Shoulder
- Proposed Retaining Wall
- Proposed Roadway Bridge
- Proposed Roadway Culvert
- Proposed Cut Slope
- Proposed Fill Slope
- Proposed Cut/Fill Transition
- Matchline
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- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water



N
0 25 50 100 Feet

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August 2019

Noise Receptors and Detailed Study Alternatives

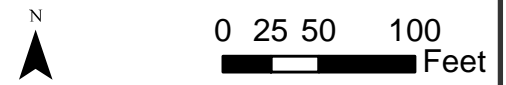
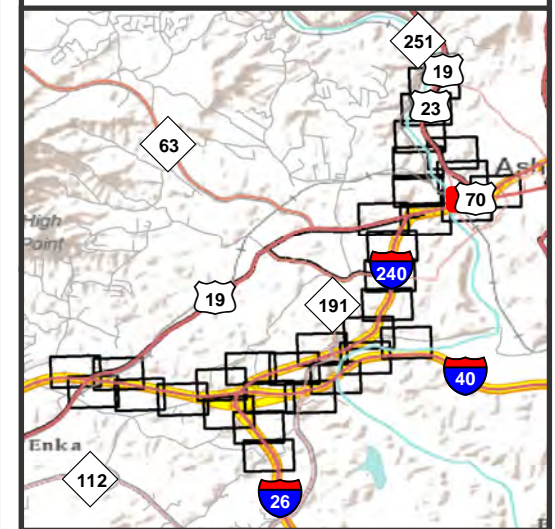
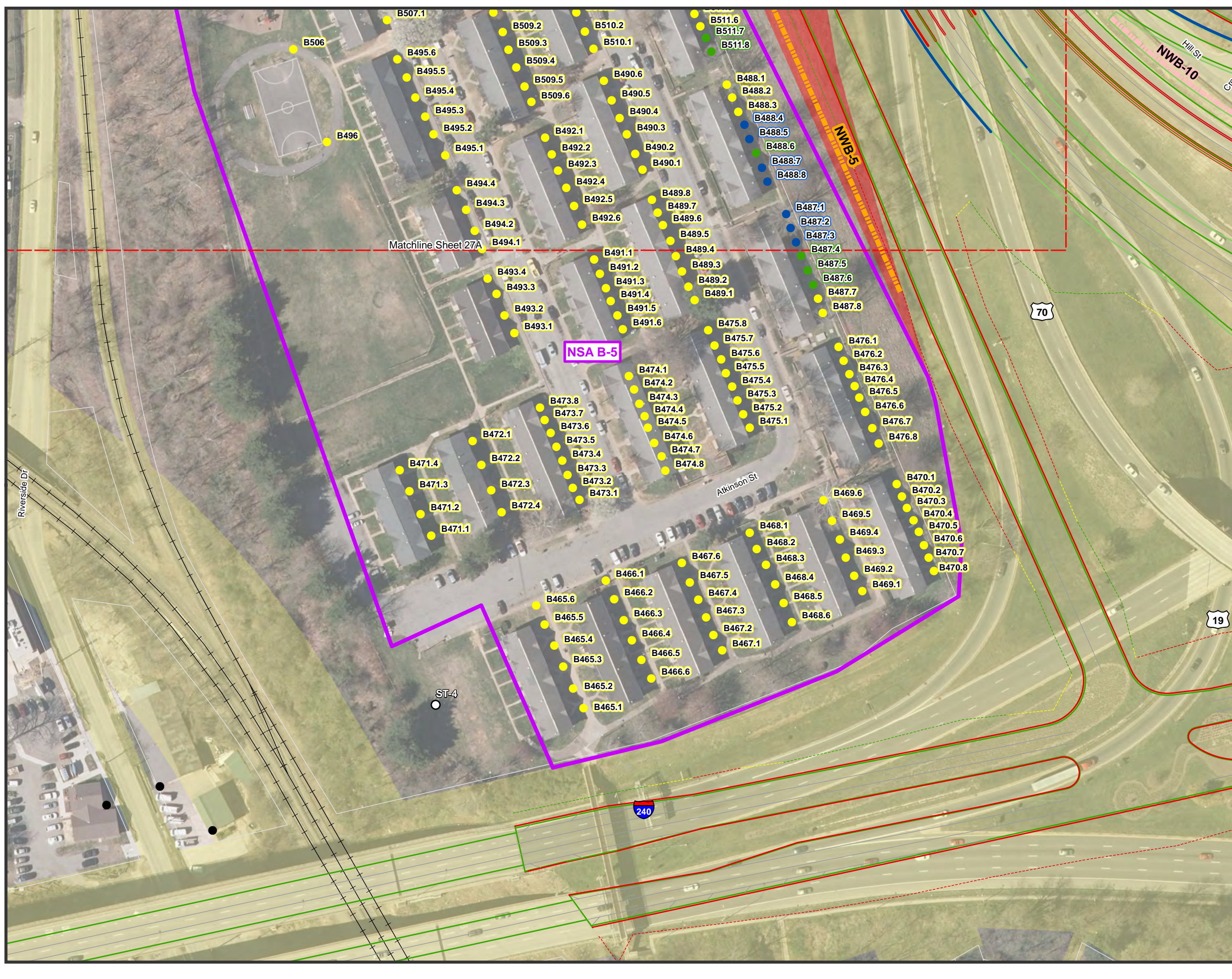
STIP Program
Project No. I-2513



Figure 3-25A

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- Section Boundaries
- Proposed Curb and Gutter
- Proposed Edge of Travel
- Lane Lines
- Proposed Paved Shoulder
- Proposed Retaining Wall
- Proposed Roadway Bridge
- Proposed Roadway Culvert
- Proposed Cut Slope
- Proposed Fill Slope
- Proposed Cut/Fill Transition
- Matchline
- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Existing ROW
- Water



This map is for reference only.
Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.

Noise Receptors and Detailed Study Alternatives

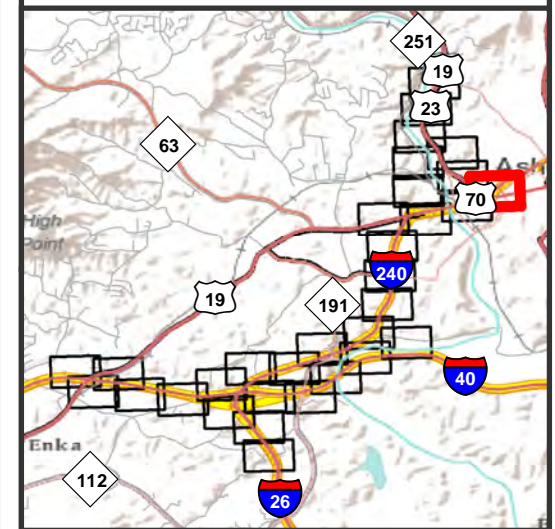
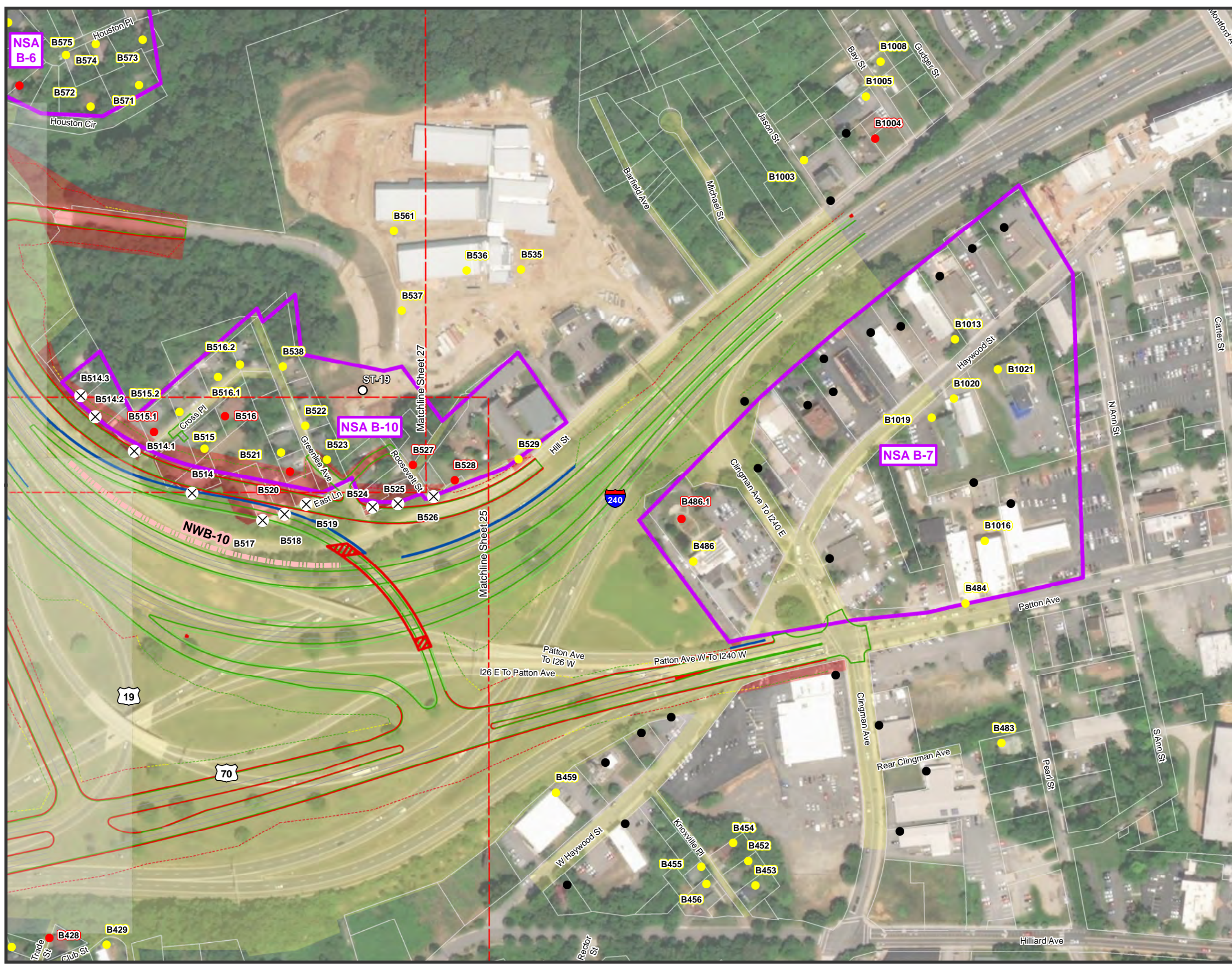
STIP Program
Project No. I-2513



Figure 3-26

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- - - Section Boundaries
- Proposed Curb and Gutter
- Proposed Edge of Travel
- Lane Lines
- Proposed Paved Shoulder
- Proposed Retaining Wall
- Proposed Roadway Bridge
- Proposed Roadway Culvert
- - - Proposed Cut Slope
- - - Proposed Fill Slope
- - - Proposed Cut/Fill Transition
- Matchline
- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



0 50 100 200 Feet

This map is for reference only.
Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.

August 2019

Noise Receptors and Detailed Study Alternatives

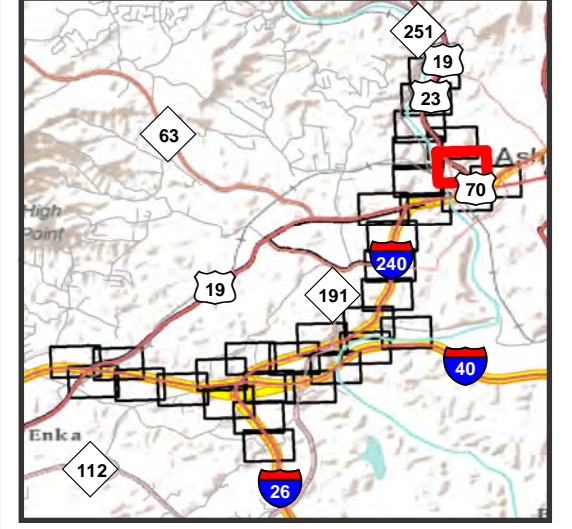
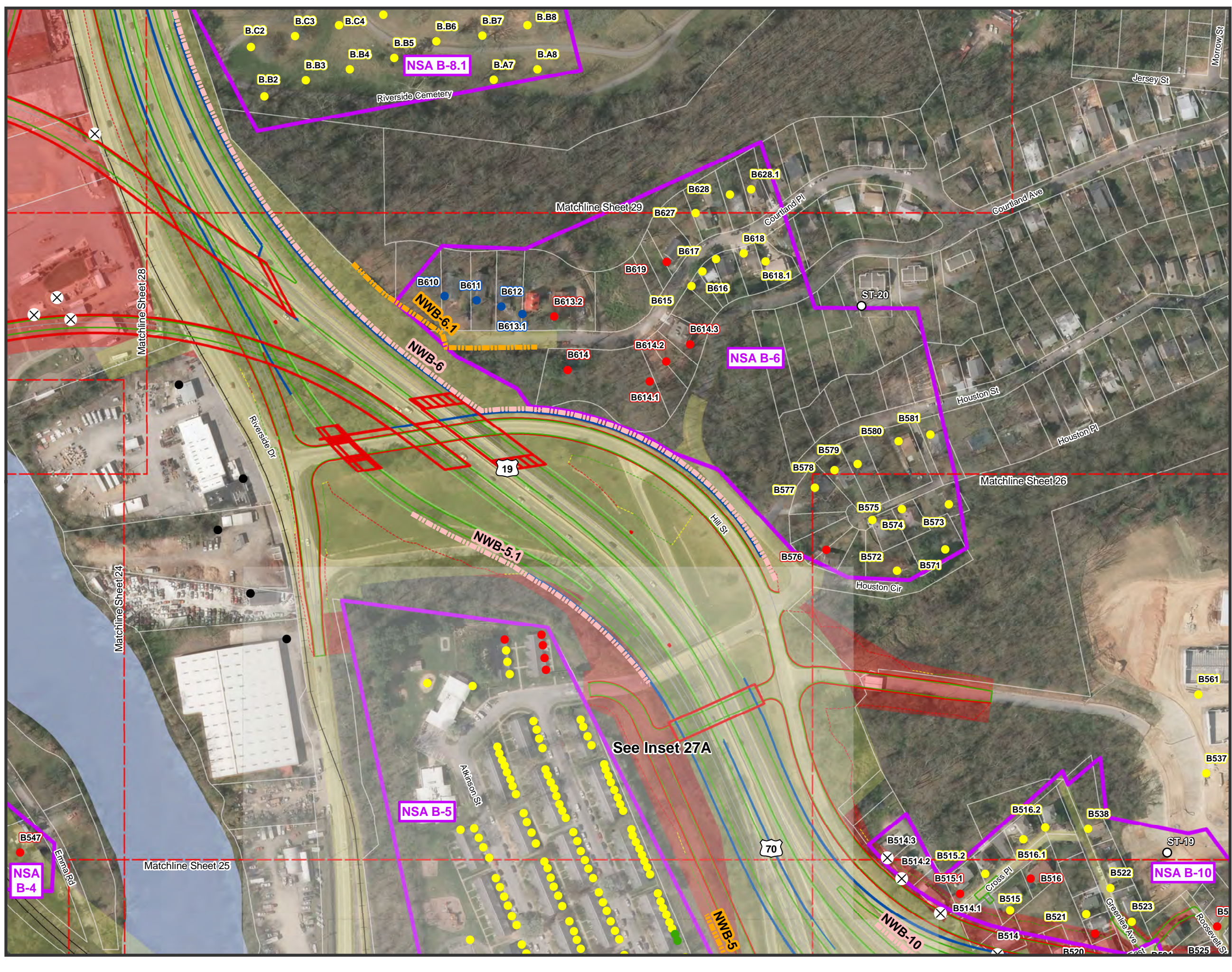
STIP Program
Project No. I-2513



Figure 3-27

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- Section Boundaries
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- Lane Lines
- Proposed Paved Shoulder
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- Proposed Fill Slope
- Proposed Cut/Fill Transition
- Matchline
- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



N

0 50 100 200 Feet

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Noise Receptors and Detailed Study Alternatives

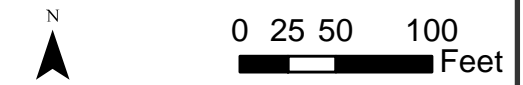
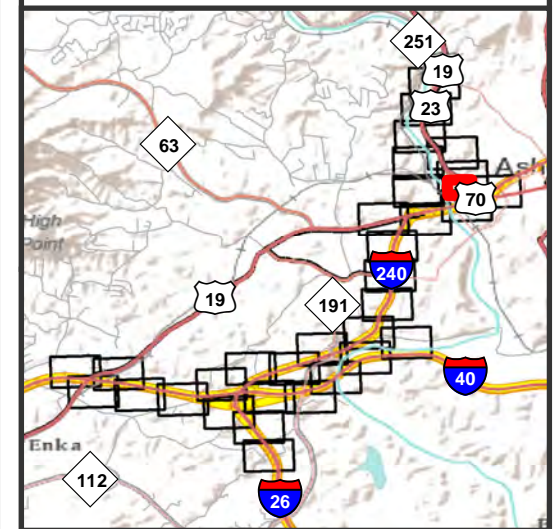
STIP Program
Project No. I-2513



Figure 3-27A

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
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- Proposed Curb and Gutter
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- Existing ROW
- Water



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Noise Receptors and Detailed Study Alternatives

STIP Program
Project No. I-2513


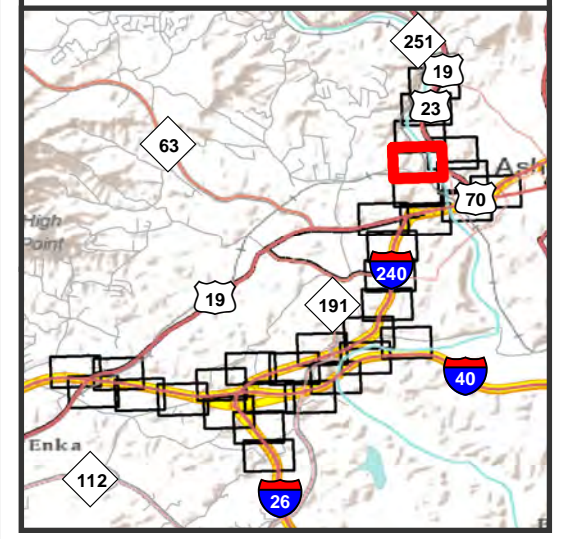
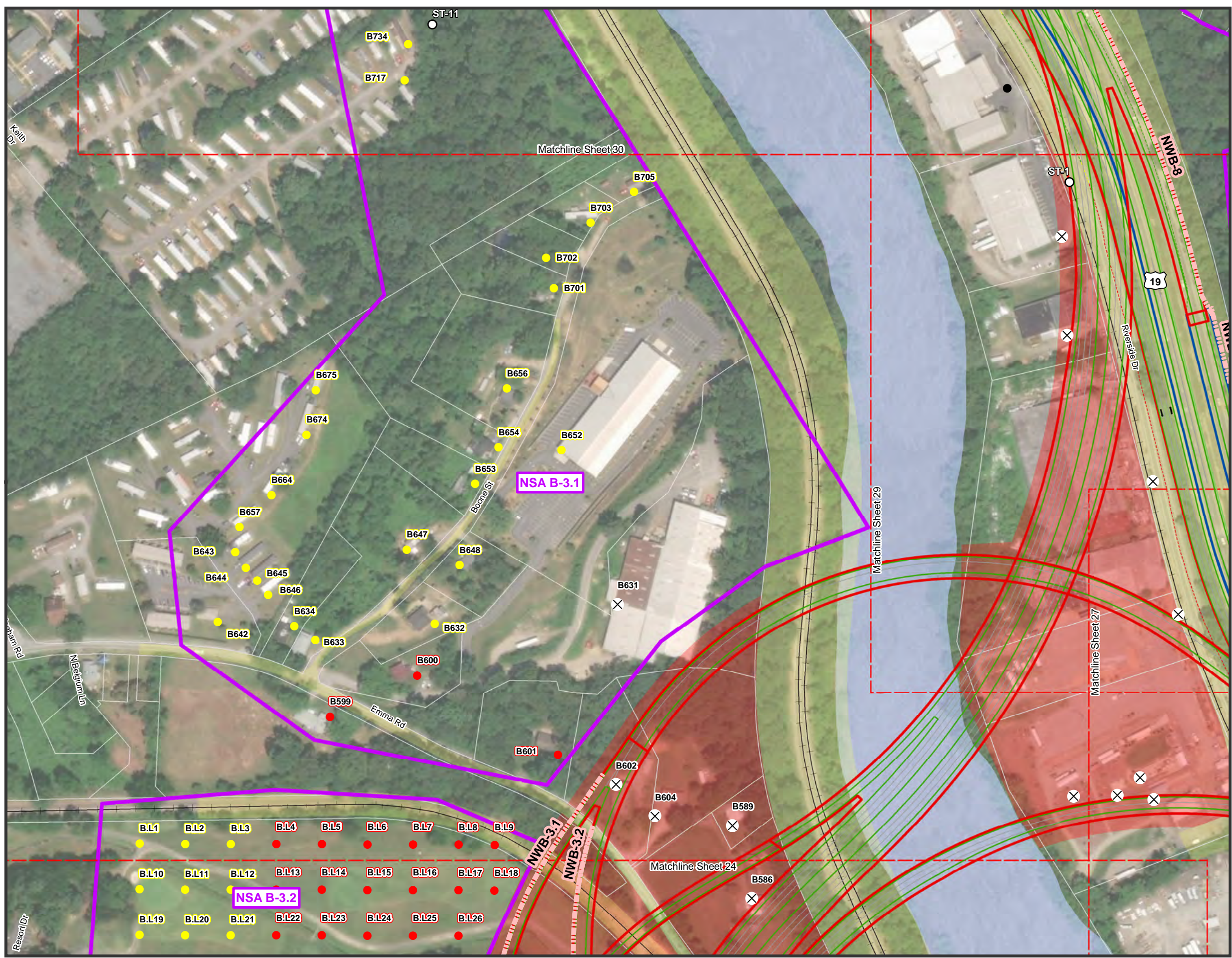


Figure 3-28

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
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- Proposed Curb and Gutter
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- Proposed Retaining Wall
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- Proposed Fill Slope
- Proposed Cut/Fill Transition
- Matchline
- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



N

0 50 100 200 Feet

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Noise Receptors and Detailed Study Alternatives

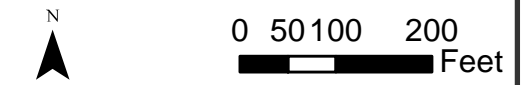
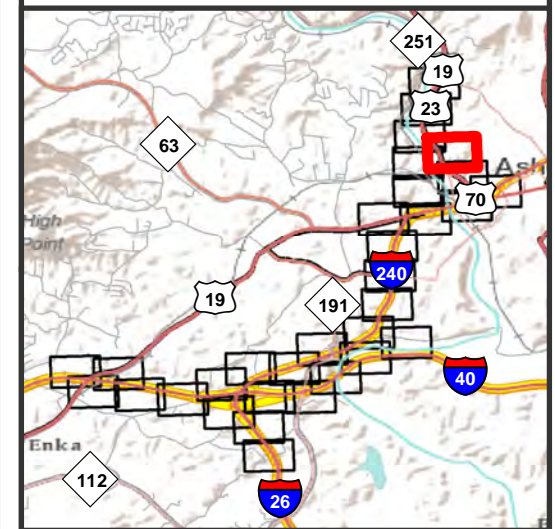
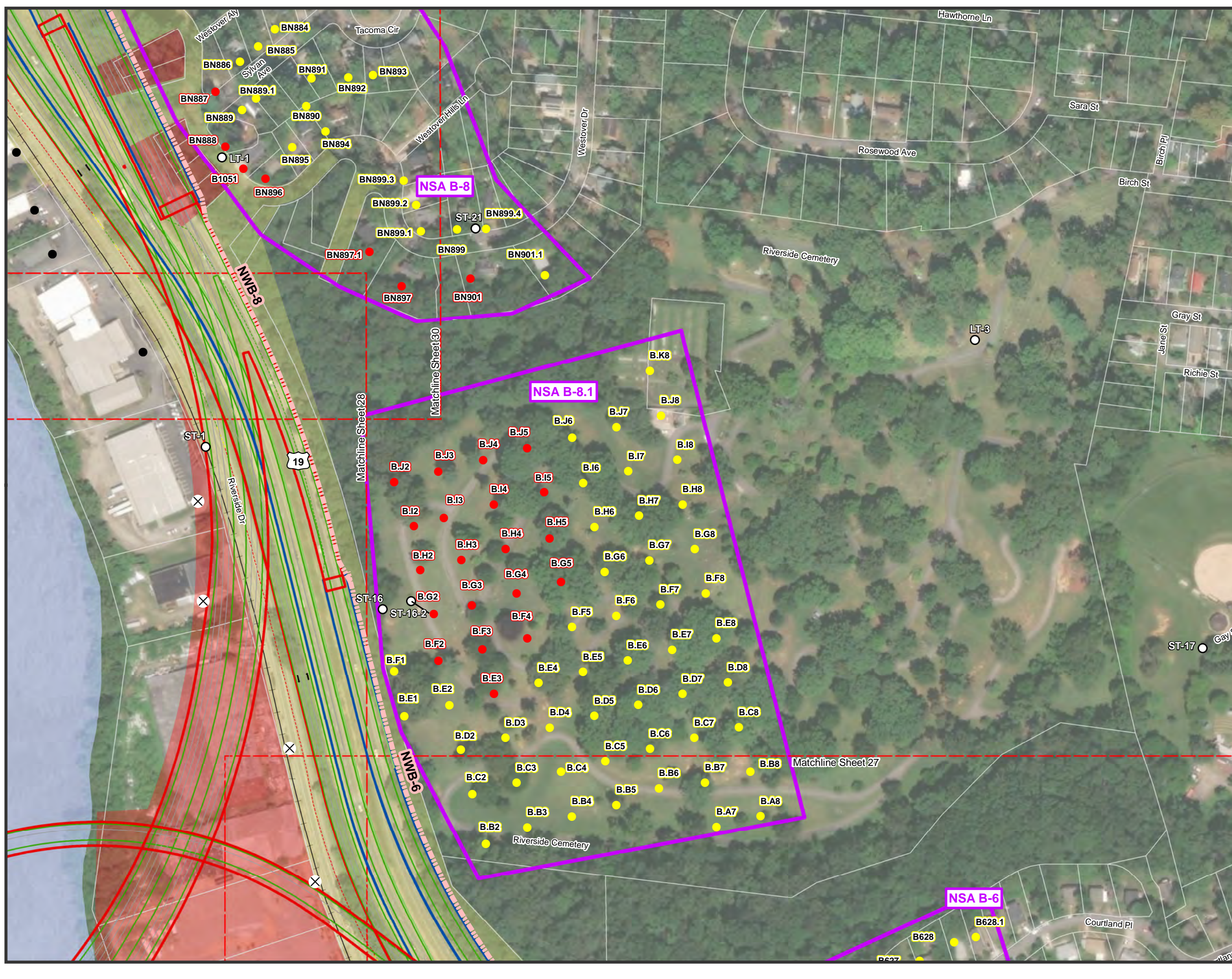
STIP Program
Project No. I-2513



Figure 3-29

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ⊗ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
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- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



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Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.

Noise Receptors and Detailed Study Alternatives

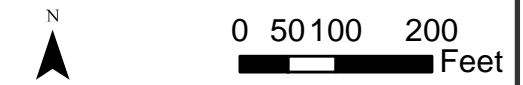
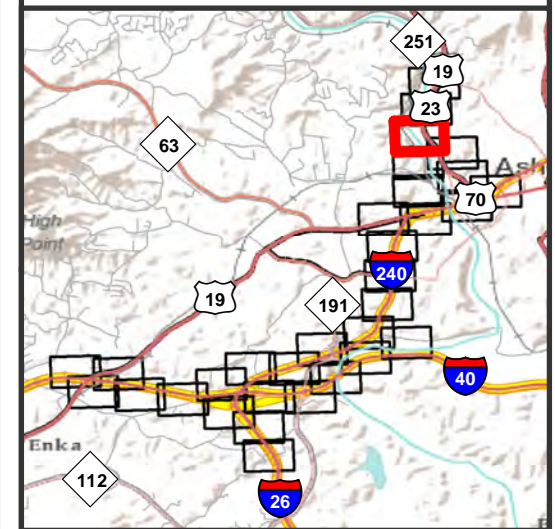
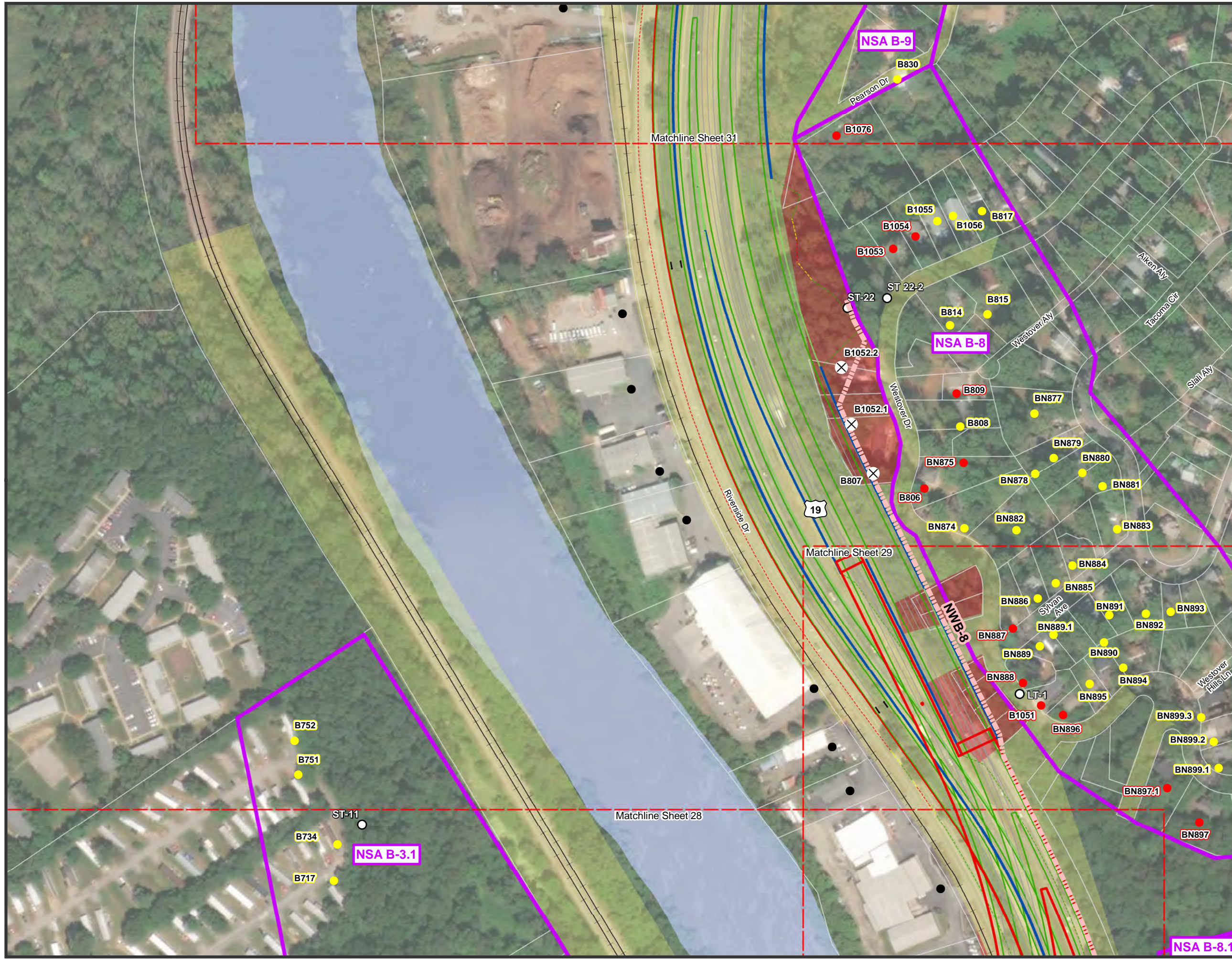
STIP Program
Project No. I-2513



Figure 3-30

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- Section Boundaries
- Proposed Curb and Gutter
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- Lane Lines
- Proposed Paved Shoulder
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- Proposed Fill Slope
- Proposed Cut/Fill Transition
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- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



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August 2019

Noise Receptors and Detailed Study Alternatives

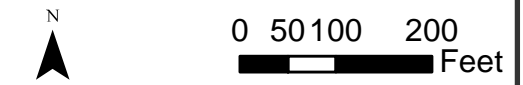
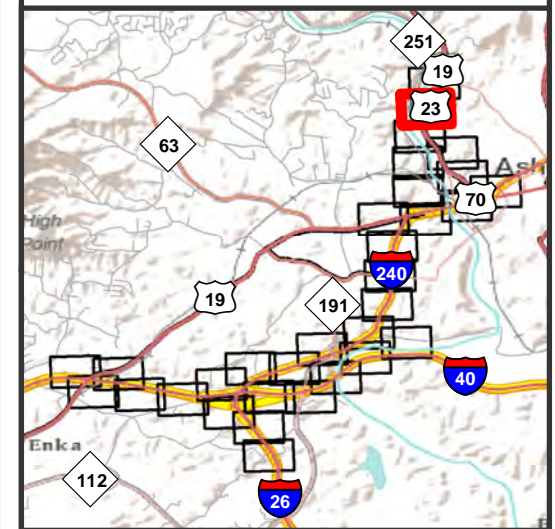
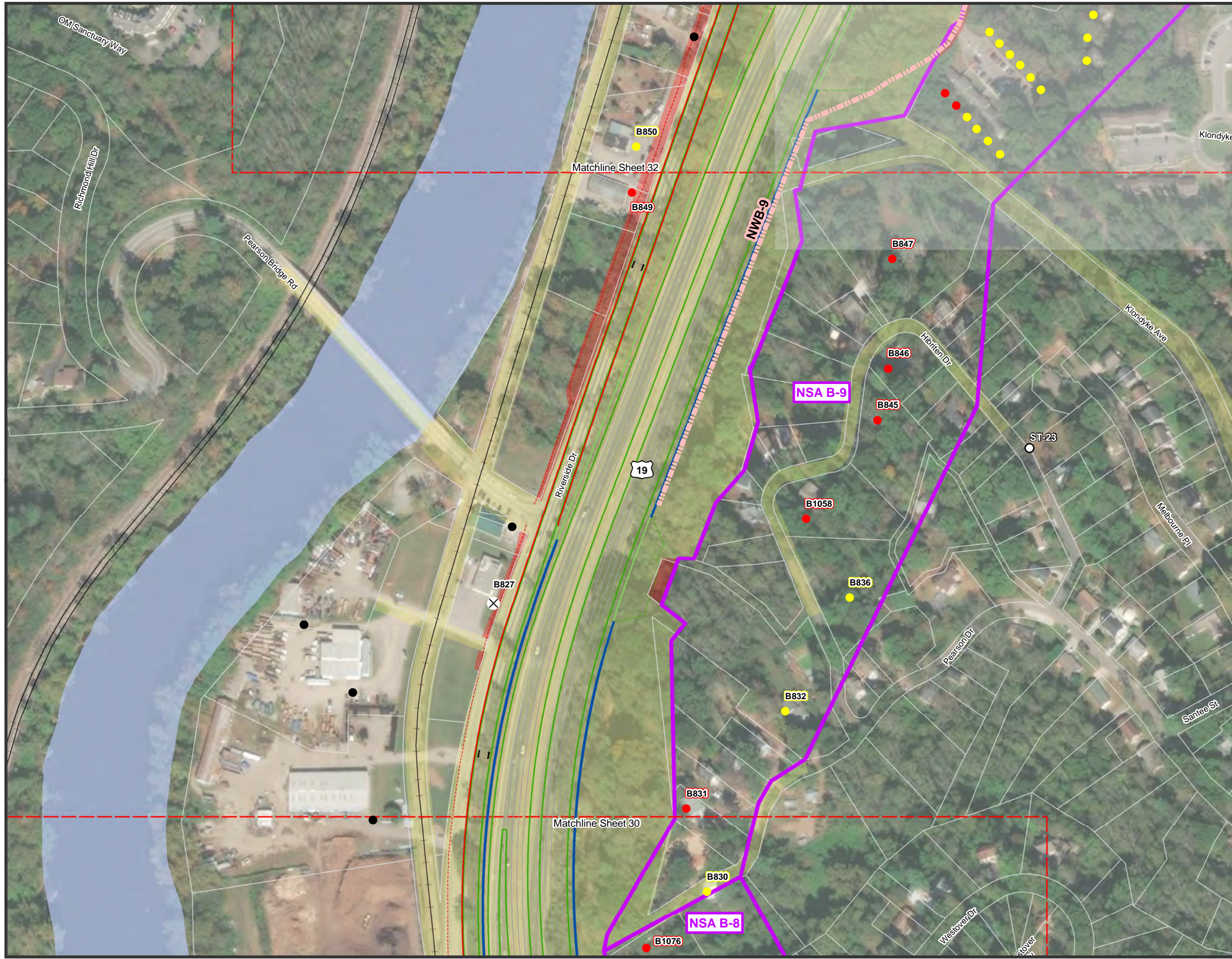
STIP Program
Project No. I-2513



Figure 3-31

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- - - Section Boundaries
- Proposed Curb and Gutter
- Proposed Edge of Travel
- Lane Lines
- Proposed Paved Shoulder
- Proposed Retaining Wall
- Proposed Roadway Bridge
- Proposed Roadway Culvert
- Proposed Cut Slope
- Proposed Fill Slope
- Proposed Cut/Fill Transition
- Matchline
- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water
- Inset Matchline



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Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.
August 2019

Noise Receptors and Detailed Study Alternatives

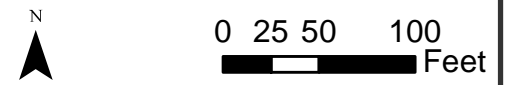
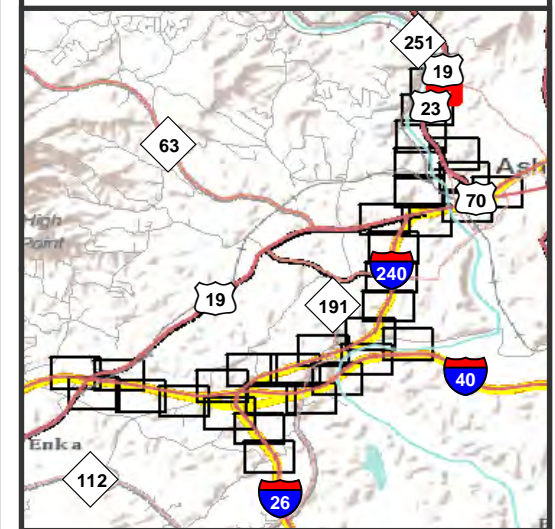
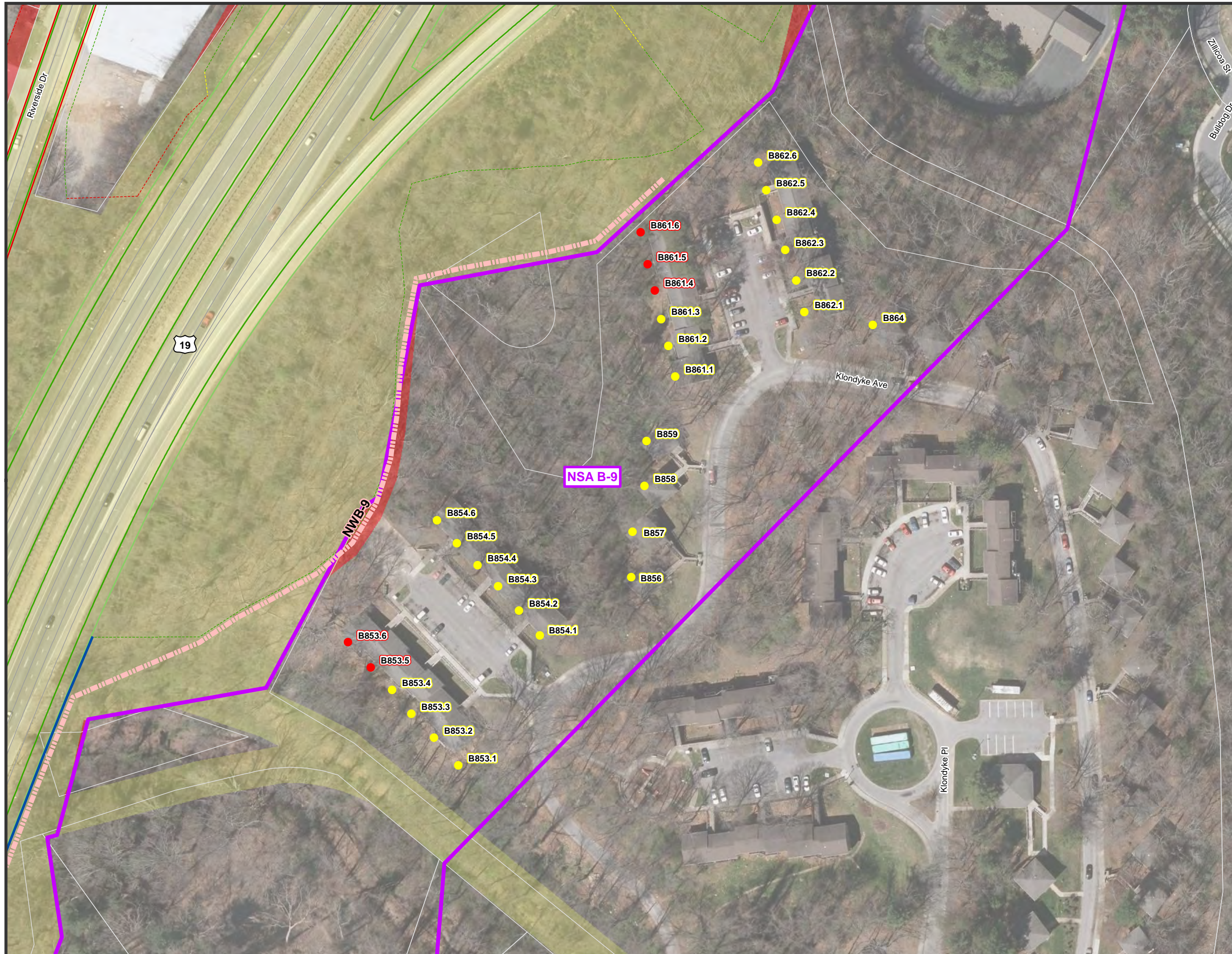
STIP Program
Project No. I-2513



Figure 3-32A

Legend

- Impacted, Not Benefitted
- Impacted and Benefitted
- Benefitted, Not Impacted
- Not Impacted, Not Benefitted
- Not Noise Sensitive
- ✕ Right of Way Take
- Noise Measurement Locations
- Likely Noise Barrier
- Not Likely Noise Barrier
- Section Boundaries
- Proposed Curb and Gutter
- Proposed Edge of Travel
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- Proposed Paved Shoulder
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- Proposed Roadway Culvert
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- Noise Study Area
- Property Boundary
- Monolithic Concrete Island
- Proposed Lane Arrow
- Proposed ROW
- Existing ROW
- Water



This map is for reference only.
Sources: NCDOT, DWR, NCOneMap, ESRI and AECOM.

Appendix A

Ambient Noise Level Monitoring

Calibration Certificate No.30614

Instrument: Sound Level Meter
Model: 118
Manufacturer: Norsonic
Serial number: 30596
Tested with: Microphone 1225 s/n 41490
Preamplifier 1206 s/n 30284
Type (class): 1
Customer: ICA Engineering
Tel/Fax: 919-851-6066

Date Calibrated: 2/21/2014 **Cal Due:**
Status:

Received	Sent
X	X

In tolerance:

X	X
---	---

Out of tolerance:

--	--

See comments:
Contains non-accredited tests: ___ Yes X No
Calibration service: ___ Basic X Standard
Address: 5121 Kingdom Way, Suite 100,
Raleigh, NC 27607

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/22/2012
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

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

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31052	Oct 7, 2013	Scantek, Inc./ NVLAP	Oct 7, 2014
DS-360-SRS	Function Generator	33584	Sep 30, 2013	ACR Env./ A2LA	Sep 30, 2015
34401A-Agilent Technologies	Digital Voltmeter	US36120731	Sep 30, 2013	ACR Env. / A2LA	Sep 30, 2014
HM30-Thommen	Meteo Station	1040170/39633	Sep 30, 2013	ACR Env./ A2LA	Sep 30, 2014
PC Program 1019 Norsonic	Calibration software	v.5.2	Validated Mar 2011	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 8, 2013	Scantek, Inc./ NVLAP	Nov 8, 2014

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

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.3 °C	100.200 kPa	41.1 %RH

Calibrated by:	Lydon Dawkins	Authorized signatory:	Mariana Buzduga
Signature	<i>Lydon Dawkins</i>	Signature	<i>Mariana Buzduga</i>
Date	2/24/2014	Date	2/24/2014

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory. This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Calibration Certificate No.29403

Instrument: Sound Level Meter
Model: 140
Manufacturer: Norsonic
Serial number: 1404748
Tested with: Microphone 1225 s/n 122800
Preamplifier 1209 s/n 14068
Type (class): 1
Customer: Scantek, Inc.
Tel/Fax: 410-290-7726 / 410-290-9167

Date Calibrated: 8/16/2013 **Cal Due:** 8/16/2014
Status:

Received	Sent
X	X

In tolerance: X
Out of tolerance:
See comments:
Contains non-accredited tests: ___ Yes No
Calibration service: ___ Basic Standard
Address: 6430 Dobbin Road, Suite C,
Columbia, MD 21045

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/22/2012
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

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

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31052	Sep 14, 2012	Scantek, Inc./ NVLAP	Sep 14, 2013
DS-360-SRS	Function Generator	33584	Sep 9, 2011	ACR Env./ A2LA	Sep 9, 2013
34401A-Agilent Technologies	Digital Voltmeter	US36120731	Sep 12, 2012	ACR Env. / A2LA	Sep 12, 2013
HM30-Thommen	Meteo Station	1040170/39633	Dec 6, 2012	ACR Env./ A2LA	Dec 6, 2013
PC Program 1019 Norsonic	Calibration software	v.5.2	Validated Mar 2011	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Dec 14, 2012	Scantek, Inc./ NVLAP	Dec 14, 2013

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

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.0 °C	100.710 kPa	53.5 %RH

Calibrated by:	Lydon Dawkins	Authorized signatory:	Mariana Buzduga
Signature	<i>Lydon Dawkins</i>	Signature	<i>Mariana Buzduga</i>
Date	8/16/2013	Date	8/16/2013

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Scantek, Inc.

CALIBRATION LABORATORY

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

NVLAP[®]

NVLAP Lab Code: 200625-0

Calibration Certificate No.29861

Instrument: Sound Level Meter
Model: 140
Manufacturer: Norsonic
Serial number: 1404750
Tested with: Microphone 1225 s/n 149384
Preamplifier 1209 s/n 14001
Type (class): 1
Customer: Scantek, Inc.
Tel/Fax: 410-290-7726 / -9167

Date Calibrated: 10/16/2013 **Cal Due:** 10/16/2014

Status:

Received	Sent
X	X

In tolerance:

Out of tolerance:

See comments:

Contains non-accredited tests: ___ Yes No

Calibration service: ___ Basic Standard

Address: 6430 Dobbin Road, Suite C
Columbia, MD 21045

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/22/2012
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

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

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	25747	Jul 2, 2013	Scantek, inc./ NVLAP	Jul 2, 2014
DS-360-SRS	Function Generator	61646	Nov 20, 2012	ACR Env./ A2LA	Nov 20, 2014
34401A-Agilent Technologies	Digital Voltmeter	MY41022043	Nov 20, 2012	ACR Env./ A2LA	Nov 20, 2013
DPI 141-Druck	Pressure Indicator	790/00-04	Nov 21, 2012	ACR Env./ A2LA	Nov 21, 2014
HMP233-Vaisala Oyj	Humidity & Temp. Transmitter	V3820001	Sep 6, 2012	ACR Env./ A2LA	Mar 6, 2014
PC Program 1019 Norsonic	Calibration software	v.5.2	Validated Mar 2011	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Dec 14, 2012	Scantek, inc./ NVLAP	Dec 14, 2013

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

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.4 °C	100.158 kPa	51.9 %RH

Calibrated by:	Valentin Buzduga	Authorized signatory:	Mariana Buzduga
Signature		Signature	
Date	10/16/2013	Date	10/16/2013

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory. This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Document stored Z:\Calibration Lab\SLM 2013\Nor140_1404750_M1.doc

Page 1 of 2

Certificate of Calibration and Conformance

This document certifies that the instrument referenced below meets published specifications per Procedure PRD-P263; ANSI S1.4-1983 (R 2006) Type 1; S1.4A-1985; S1.43-1997 Type 1; S1.11-2004 Octave Band Class 0; S1.25-1991; IEC 61672-2002 Class 1; 60651-2001 Type 1; 60804-2000 Type 1; 61260-2001 Class 0; 61252-2002.

Manufacturer:	<u>Larson Davis</u>	Temperature:	<u>73.1</u> °F
Model Number:	<u>LxT1</u>		<u>22.83</u> °C
Serial Number:	<u>4527</u>	Rel. Humidity:	<u>35.2</u> %
Customer:	<u>TMS Rental</u>	Pressure:	<u>998</u> mbars
Description:	<u>Sound Level Meter</u>		<u>998</u> hPa

Note: As Found / As Left: In Tolerance

Upon receipt for testing, this instrument was found to be:

Within the stated tolerance of the manufacturer's specification.

Calibration Date: 2/28/2017

Calibration Due: _____

Calibration Standards Used:

Manufacturer	Model	Serial Number	Cal Due
Stanford Research Systems	DS360	123270	4/19/2017
Larson Davis	2239	109	4/22/2017

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at The Modal Shop and/or Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. Calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of The Modal Shop.

Technician: Ed Devlin

Signature: _____



3149 East Kemper Road
Cincinnati, OH. 45241
Phone: (513) 351-9919
(800) 860-4867
www.modalshop.com

Certificate of Calibration and Conformance

This document certifies that the instrument referenced below meets published specifications per Procedure PRD-P263; ANSI S1.4-1983 (R 2006) Type 1; S1.4A-1985; S1.43-1997 Type 1; S1.11-2004 Octave Band Class 0; S1.25-1991; IEC 61672-2002 Class 1; 60651-2001 Type 1; 60804-2000 Type 1; 61260-2001 Class 0; 61252-2002.

Manufacturer: Larson Davis Temperature: 70.5 °F
Model Number: LxT1-SE 21.39 °C
Serial Number: 4876 Rel. Humidity: 50.8 %
Customer: TMS Rental Pressure: 993.1 mbars
Description: Sound Level Meter 993.1 hPa
Note: As Found/As Left: In Tolerance

Upon receipt for testing, this instrument was found to be:

Within the stated tolerance of the manufacturer's specification.

Calibration Date: 10/9/2017 Calibration Due: _____

Calibration Standards Used:

Manufacturer	Model	Serial Number	Cal Due
Stanford Research Systems	DS360	123270	4/25/2018

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at The Modal Shop and/or Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. Calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of The Modal Shop.

Technician: Bradly Haarmeyer

Signature: 



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Certificate of Calibration and Conformance

This document certifies that the instrument referenced below meets published specifications per Procedure PRD-P263; ANSI S1.4-1983 (R 2006) Type 1; S1.4A-1985; S1.43-1997 Type 1; S1.11-2004 Octave Band Class 0; S1.25-1991; IEC 61672-2002 Class 1; 60651-2001 Type 1; 60804-2000 Type 1; 61260-2001 Class 0; 61252-2002.

Manufacturer:	<u>Larson Davis</u>	Temperature:	<u>75.3</u> °F
Model Number:	<u>LxT1-SE</u>		<u>24.06</u> °C
Serial Number:	<u>4877</u>	Rel. Humidity:	<u>38.5</u> %
Customer:	<u>TMS Rental</u>	Pressure:	<u>997.4</u> mbars
Description:	<u>Sound Level Meter</u>		<u>997.4</u> hPa
Note:	<u>As Found/As Left: In Tolerance</u>		

Upon receipt for testing, this instrument was found to be:

Within the stated tolerance of the manufacturer's specification.

Calibration Date: 9/12/2017 Calibration Due: _____

Calibration Standards Used:

Manufacturer	Model	Serial Number	Cal Due
Stanford Research Systems	DS360	123270	4/25/2018

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at The Modal Shop and/or Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

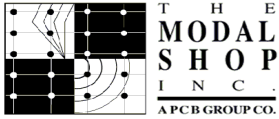
The results documented in this certificate relate only to the item(s) calibrated or tested. Calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of The Modal Shop.

Technician: Bradly Haarmeyer

Signature: 



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~Certificate of Calibration~

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Cincinnati, OH 45241
Ph : 513-351-9919
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Manufacturer: PCB
Model Number: 377B02
Serial Number: LW135768
Asset ID:
Description: Free-Field Microphone

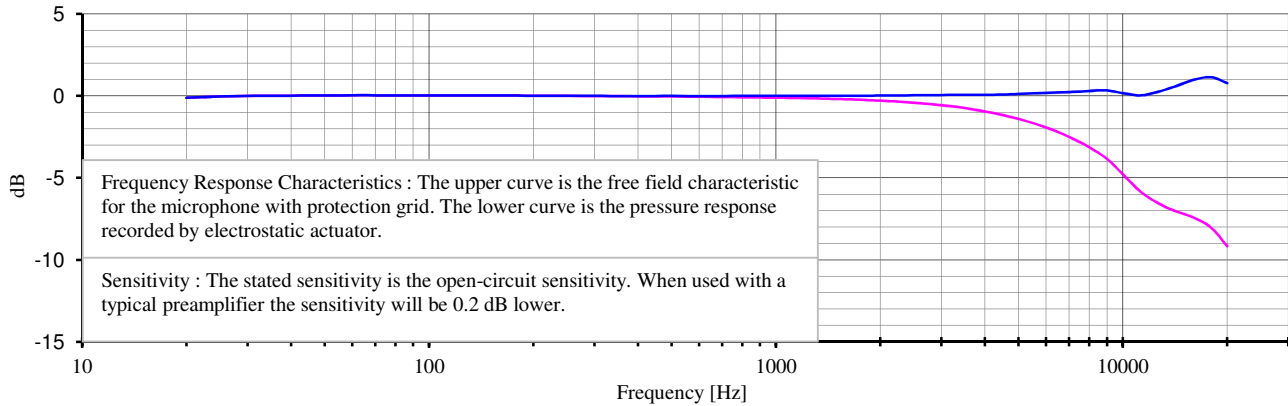
Customer: TMS Rental
Address:
Calibration Date: Jul 28, 2017 09:29:56
Due Date:

Sensitivity: **250 Hz** **1 kHz**
 -25.33 -25.44 dB re. 1V/Pa
 54.16 53.46 mV/Pa

Temperature: 75 (24) °F (°C)
Humidity: 46 %
Ambient Pressure: 989 mbar

Cal. Results: In Tolerance

Polarization Voltage: 0 VDC



Traceability: The calibration is traceable through 683/284413-14.

Notes: Calibration results relate only to the items calibrated.
This certificate may not be reproduced, except in full, without written permission.
This calibration is performed in compliance with ISO 9001, ISO 17025 and ANSI Z540.
Measurement uncertainty (250 Hz sensitivity calibration) at 95% confidence level: 0.30 dB.
Calibrated per procedure PRD-P204.

User Note: As Found / As Left: In Tolerance.

Frequency Response with reference to level at 250 Hz

Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)
20	-0.12	630	-0.02	4500	0.09		
25	-0.03	800	0.01	5000	0.12		
31.5	0.01	1000	0.01	5600	0.16		
40	0.02	1120	0.01	6300	0.20		
50	0.03	1250	0.01	7100	0.23		
63	0.04	1400	0.02	8000	0.30		
80	0.03	1600	0.01	9000	0.34		
100	0.03	1800	0.01	10000	0.17		
125	0.03	2000	0.02	11200	0.04		
160	0.02	2240	0.02	12500	0.22		
200	0.02	2500	0.04	14000	0.54		
250	0.00	2800	0.05	16000	0.98		
315	0.00	3150	0.06	18000	1.14		
400	-0.01	3550	0.06	20000	0.78		
500	0.00	4000	0.07				

Technician: Ed Devlin

Reference Equipment Used:

Approval:

Manuf.	Model	Serial	Cal. Date	Due Date
GRAS	40AG	9542	9/20/2016	9/20/2017



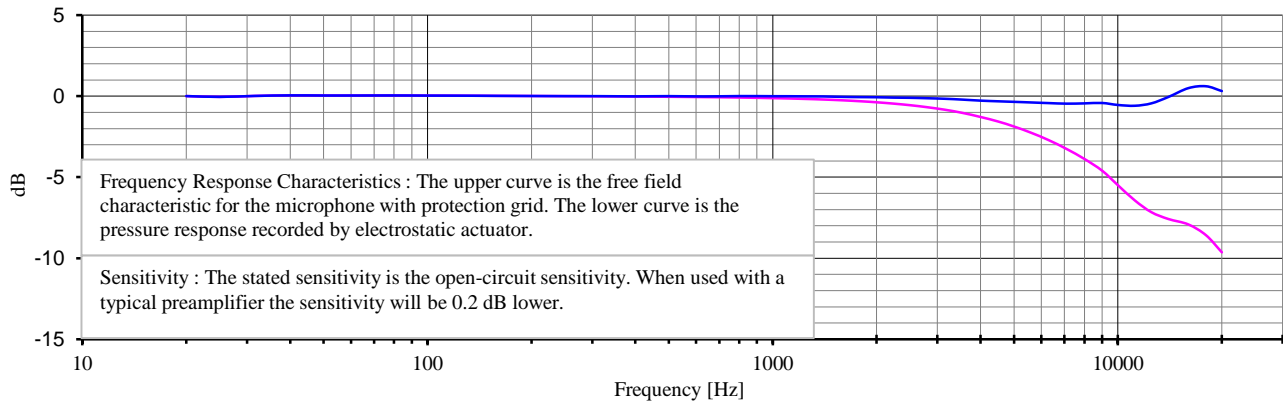


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~Certificate of Calibration~

Manufacturer: PCB Model Number: 377B02 Serial Number: 163165 Asset ID: 57514 Description: Free-Field Microphone Sensitivity: 250 Hz 1 kHz -25.27 -25.39 dB re. 1V/Pa 54.51 53.74 mV/Pa	Customer: TMS Rental Address: Calibration Date: Jul 27, 2017 10:31:39 Due Date: Temperature: 76 (24) °F (°C) Humidity: 44 % Ambient Pressure: 992.7 mbar Polarization Voltage: 0 VDC
---	---

Cal. Results: In Tolerance



Traceability: The calibration is traceable through 683/284413-14.
Notes: Calibration results relate only to the items calibrated.
 This certificate may not be reproduced, except in full, without written permission.
 This calibration is performed in compliance with ISO 9001, ISO 17025 and ANSI Z540.
 Measurement uncertainty (250 Hz sensitivity calibration) at 95% confidence level: 0.30 dB.
 Calibrated per procedure PRD-P204.

User Note: As Found / As Left: In Tolerance

Frequency Response with reference to level at 250 Hz

Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)
20	0.00	630	-0.02	4500	-0.32		
25	-0.05	800	0.00	5000	-0.35		
31.5	0.01	1000	0.00	5600	-0.39		
40	0.05	1120	-0.01	6300	-0.43		
50	0.04	1250	-0.01	7100	-0.46		
63	0.04	1400	-0.02	8000	-0.45		
80	0.04	1600	-0.05	9000	-0.42		
100	0.03	1800	-0.06	10000	-0.55		
125	0.03	2000	-0.07	11200	-0.59		
160	0.02	2240	-0.09	12500	-0.45		
200	0.01	2500	-0.10	14000	-0.05		
250	0.00	2800	-0.13	16000	0.49		
315	0.00	3150	-0.16	18000	0.61		
400	-0.01	3550	-0.21	20000	0.31		
500	0.00	4000	-0.28				

Technician: Bradly Haarmeyer

Reference Equipment Used:

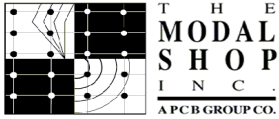
Approval:

Manuf.	Model	Serial	Cal. Date	Due Date
GRAS	40AG	58904	9/20/2016	9/20/2017



Calibration Lab

CALIBRATION CERT 2649.01



~Certificate of Calibration~

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Cincinnati, OH 45241
Ph : 513-351-9919
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Manufacturer: PCB
Model Number: 377B02
Serial Number: 162679
Asset ID:

Customer: TMS Rental
Address:

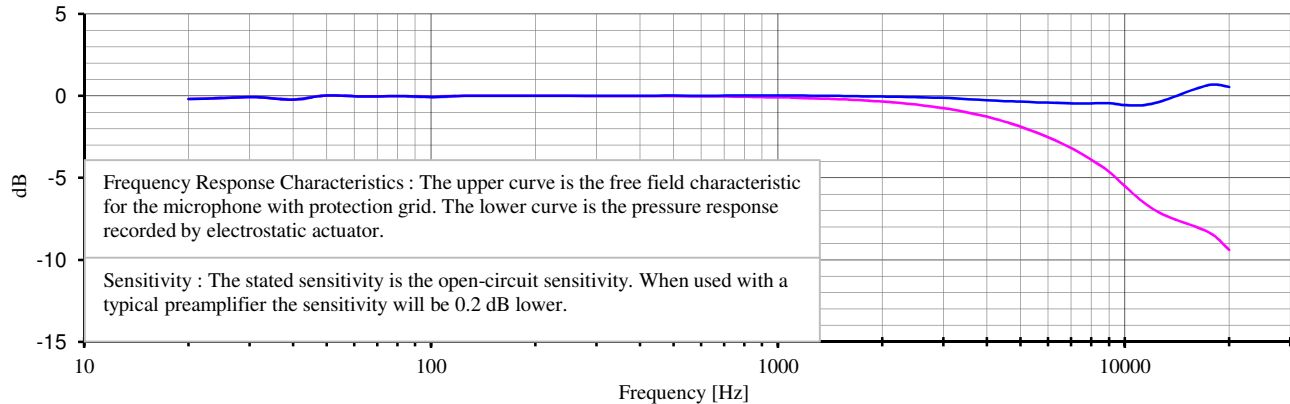
Description: Free-Field Microphone
Sensitivity: **250 Hz** **1 kHz**
 -25.84 -25.93 dB re. 1V/Pa
 51.03 50.50 mV/Pa

Calibration Date: Feb 24, 2017 12:26:38
Due Date:

Temperature: 75 (24) °F (°C)
Humidity: 54 %
Ambient Pressure: 981.5 mbar

Cal. Results: In Tolerance

Polarization Voltage: 0 VDC



Traceability: The calibration is traceable through 683/284413-14.

Notes: Calibration results relate only to the items calibrated.
This certificate may not be reproduced, except in full, without written permission.
This calibration is performed in compliance with ISO 9001, ISO 17025 and ANSI Z540.
Measurement uncertainty (250 Hz sensitivity calibration) at 95% confidence level: 0.25 dB.
Calibrated per procedure PRD-P204.

User Note: As Found / As Left: In Tolerance.

Frequency Response with reference to level at 250 Hz

Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)
20	-0.18	630	0.01	4500	-0.32		
25	-0.14	800	0.04	5000	-0.35		
31.5	-0.07	1000	0.03	5600	-0.39		
40	-0.22	1120	0.04	6300	-0.43		
50	0.03	1250	0.02	7100	-0.46		
63	-0.04	1400	0.01	8000	-0.45		
80	-0.01	1600	-0.01	9000	-0.44		
100	-0.06	1800	-0.03	10000	-0.56		
125	0.01	2000	-0.04	11200	-0.57		
160	0.01	2240	-0.06	12500	-0.38		
200	0.00	2500	-0.07	14000	-0.02		
250	0.00	2800	-0.10	16000	0.43		
315	0.00	3150	-0.14	18000	0.70		
400	0.00	3550	-0.20	20000	0.54		
500	0.02	4000	-0.26				

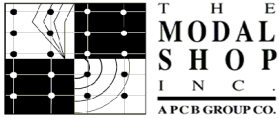
Technician: Ed Devlin

Reference Equipment Used:

Manuf.	Model	Serial	Cal. Date	Due Date
GRAS	40AG	58094	9/15/2016	9/15/2017

Approval:

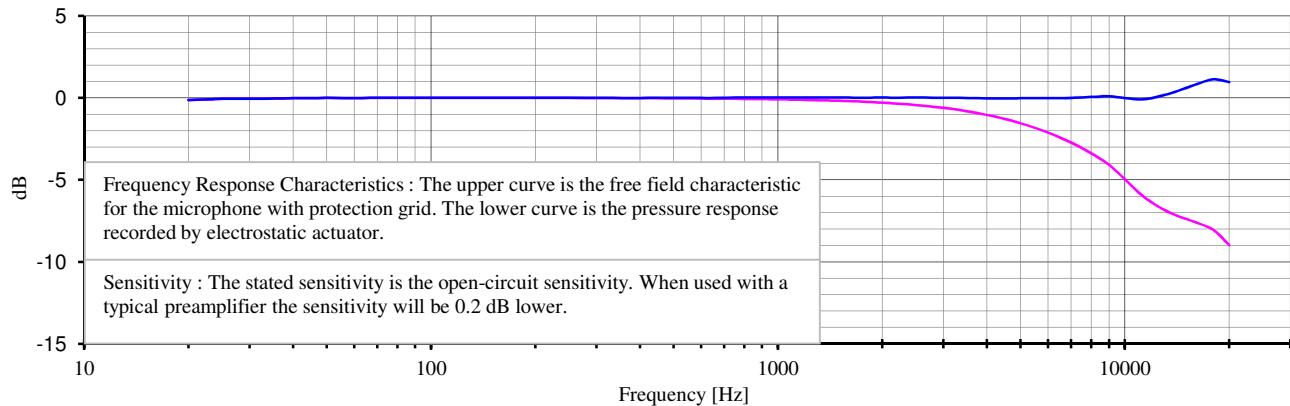




~Certificate of Calibration~

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Ph : 513-351-9919
Fax: 513-458-2172
www.modalshop.com

Manufacturer: PCB Model Number: 377B02 Serial Number: 166723 Asset ID: Description: Free-Field Microphone Sensitivity: 250 Hz 1 kHz -25.88 -25.97 dB re. 1V/Pa 50.79 50.30 mV/Pa	Customer: TMS Rental Address: Calibration Date: Jul 27, 2017 12:34:24 Due Date: Temperature: 76 (24) °F (°C) Humidity: 45 % Ambient Pressure: 992.2 mbar Polarization Voltage: 0 VDC
Cal. Results: In Tolerance	



Traceability: The calibration is traceable through 683/284413-14.
Notes: Calibration results relate only to the items calibrated.
 This certificate may not be reproduced, except in full, without written permission.
 This calibration is performed in compliance with ISO 9001, ISO 17025 and ANSI Z540.
 Measurement uncertainty (250 Hz sensitivity calibration) at 95% confidence level: 0.30 dB.
 Calibrated per procedure PRD-P204.

User Note: As Found / As Left: In Tolerance.

Frequency Response with reference to level at 250 Hz

Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)	Frequency (Hz)	Upper (dB)
20	-0.13	630	0.00	4500	-0.03		
25	-0.05	800	0.03	5000	-0.02		
31.5	-0.06	1000	0.03	5600	-0.01		
40	-0.02	1120	0.03	6300	-0.01		
50	0.00	1250	0.03	7100	0.01		
63	0.00	1400	0.03	8000	0.06		
80	0.01	1600	0.02	9000	0.10		
100	0.01	1800	0.02	10000	-0.01		
125	0.01	2000	0.02	11200	-0.09		
160	0.01	2240	0.01	12500	0.08		
200	0.00	2500	0.02	14000	0.38		
250	0.00	2800	0.02	16000	0.82		
315	0.00	3150	0.01	18000	1.13		
400	0.00	3550	-0.01	20000	0.97		
500	0.01	4000	-0.03				

Technician: Ed Devlin

Approval:

Reference Equipment Used:

<i>Manuf.</i>	<i>Model</i>	<i>Serial</i>	<i>Cal. Date</i>	<i>Due Date</i>
GRAS	40AG	9542	9/20/2016	9/20/2017

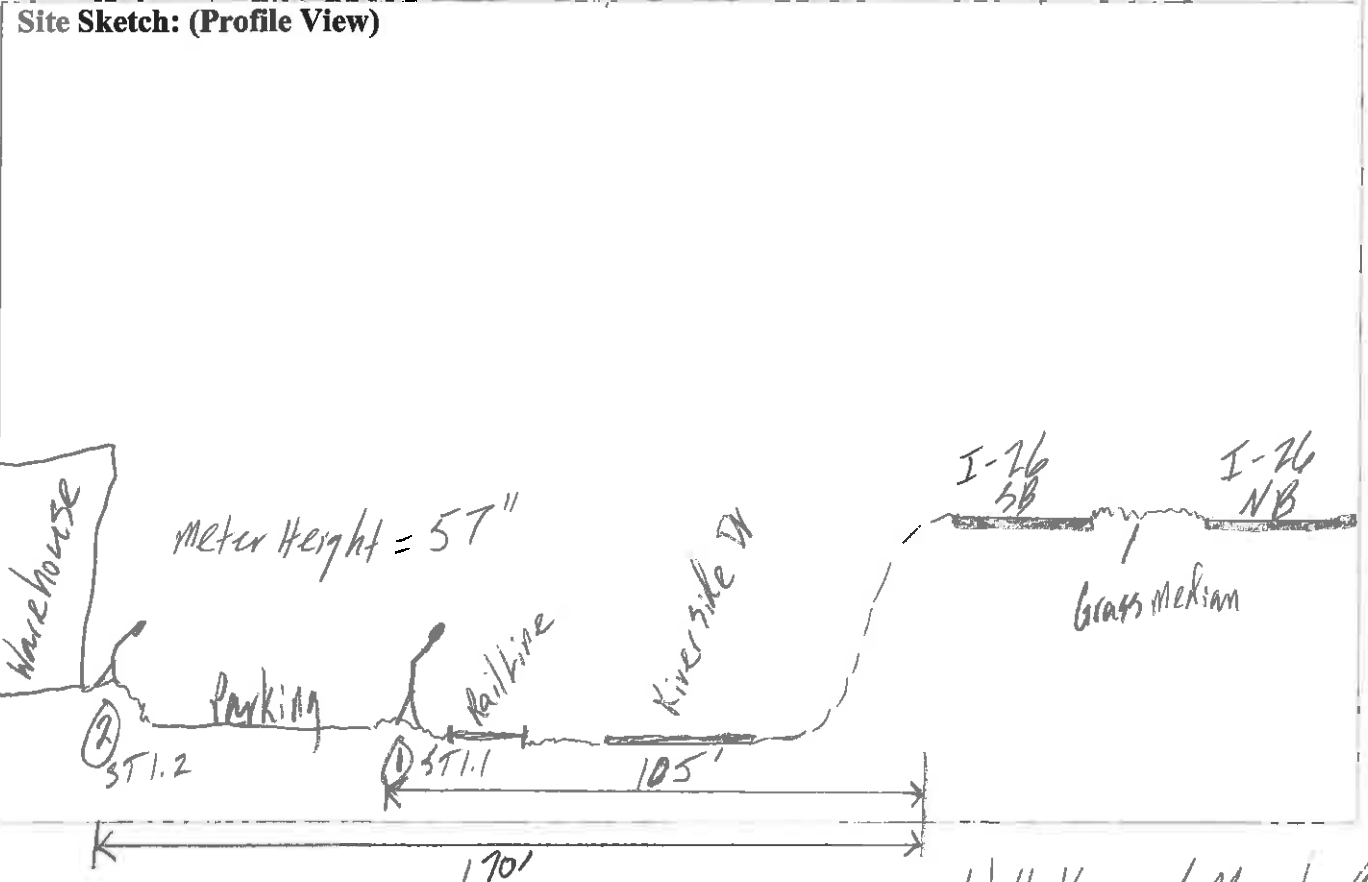
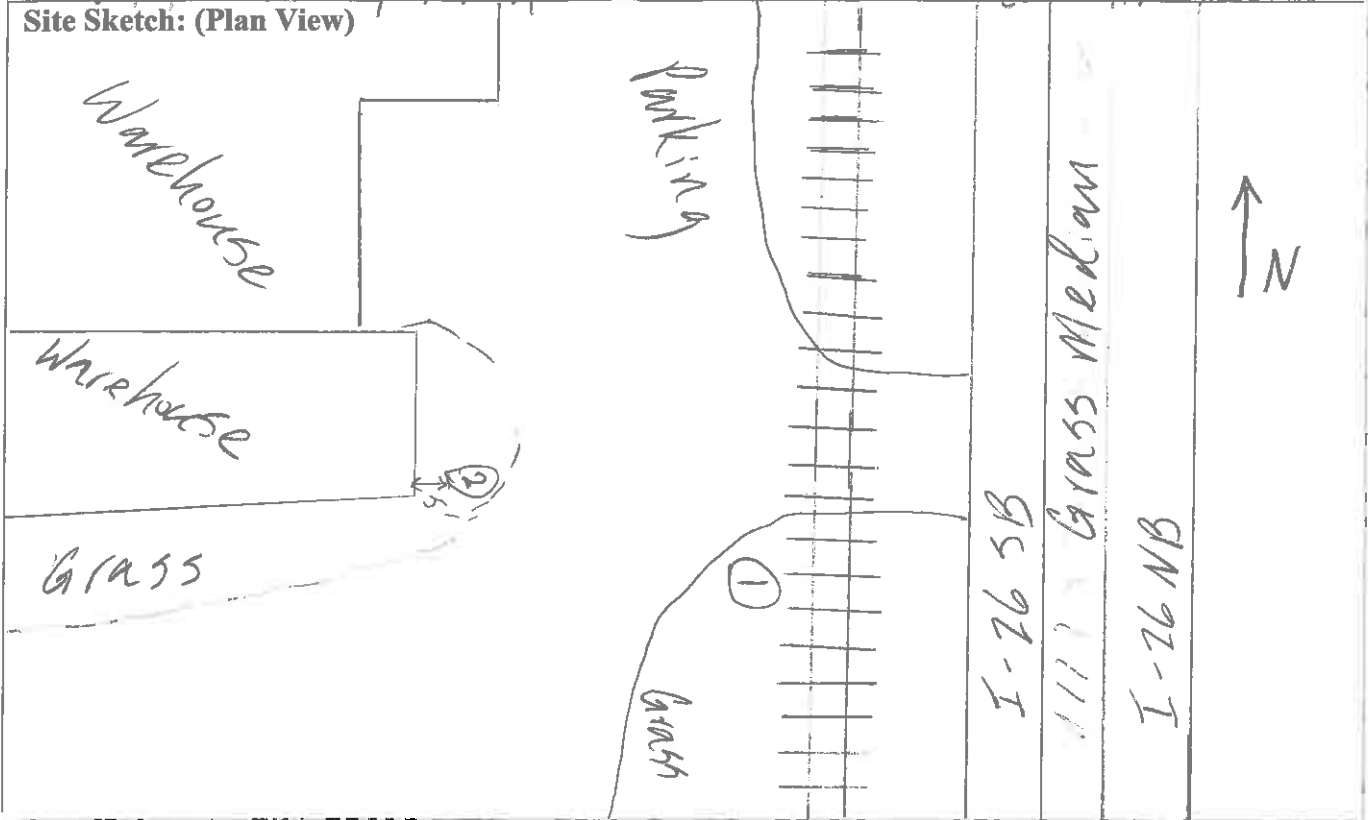


TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST1.1; ST1.2		Date: 6/18/14	
Site Description: Warehouse		Site Location: 556 Riverside Drive			
Approx. Start Time:	12:36 pm	Descriptor	Location		
Approx. End Time:	12:56 pm		ST1.1	ST1.2	
Temperature:	85	L _{eq} :	67.5 Adjusted value	65.5 Adjusted value	
Wind Speed:	2 mph	L _{min} :	57.9	56.1	
Cloud Cover:	Partly cloudy	L _{max} :	107.6	106.4	
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Train horn sounded at close proximity to ST1.1 at 12:40 for approx. 2 minutes	Traffic Counts	Direction		Direction	
	Road Name: I-26	Mainline NB	Riverside NB	Mainline SB	Riverside SB
	Autos:	535	88	730	150
Typical Section: NB – two 12-ft lanes, 8-ft outside shoulder, 4-ft inside shoulder SB - two 12-ft lanes, 8-ft outside shoulder, 4-ft inside shoulder Riverside – 2 lanes, 2-ft shoulders	Medium Trucks:	10	0	22	3
	Heavy Trucks:	27	0	27	2
	Buses:	1	0	0	0
Speed Limit: 55 mph (I-26); 45 mph Riverside Drive	Motorcycles:	4	0	6	0

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 6-18-14
 Project: I-26 Improvements
 Location: ST1-556 Riverside Drive



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

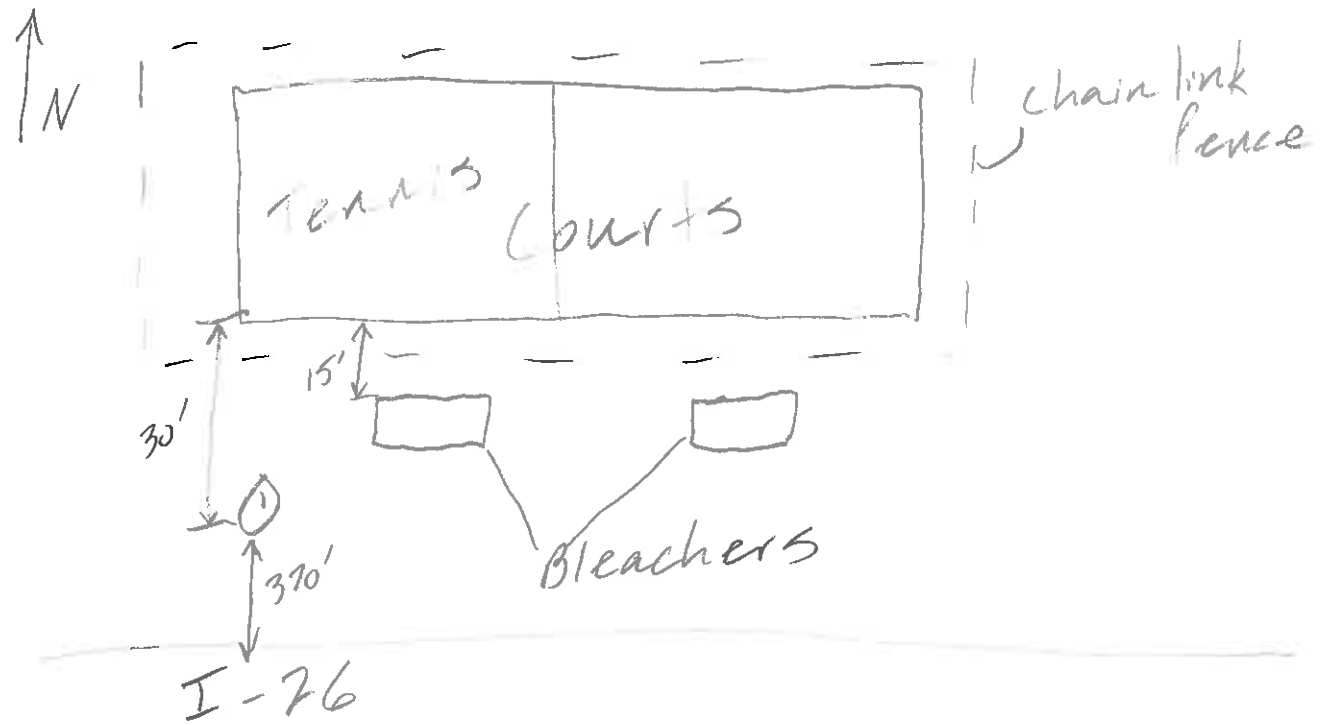
Project Name: I-26 Roadway Improvement Project		Site #: ST2		Date: 6/19/14	
Site Description: Crown Resort		Site Location: Southeast Tennis Courts			
Start Time:	8:52	Descriptor	Location		
End Time:	2:33		ST2		
Temperature:	84	L _{eq} :	48.2		
Wind Speed:	2-4 mph	L _{min} :	40.4		
Cloud Cover:	High, scattered	L _{max} :	61.3		
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Delivery trucks, breezes					
No Traffic Counts, Background Measurement					

ST2

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 6-19-14 Project: I-26 Improvements Location: Crown Resort Tennis Courts

Site Sketch: (Plan View)



Site Sketch: (Profile View)



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST3		Date: 6/19/14	
Site Description: French River Greenway		Site Location: Amboy Road/French River Greenway			
Start Time:	3:34	Descriptor	Location		
End Time:	4:03		ST3		
Temperature:	88	L _{eq} :	58.8		
Wind Speed:	0	L _{min} :	41.5		
Cloud Cover:	Scattered	L _{max} :	81.4		
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Birds, high prop plane, I-40, I-26					
No Traffic Counts, Background Measurement					

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

ST 3

Date:

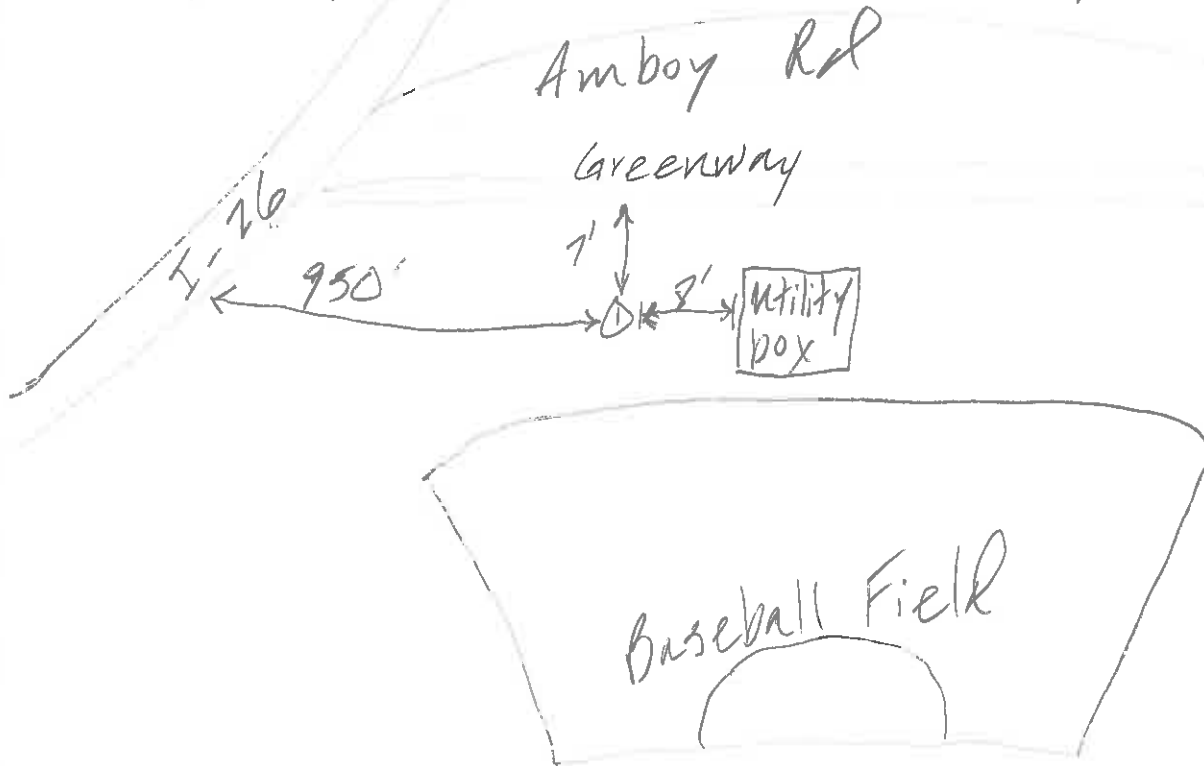
6-19-14

Project:

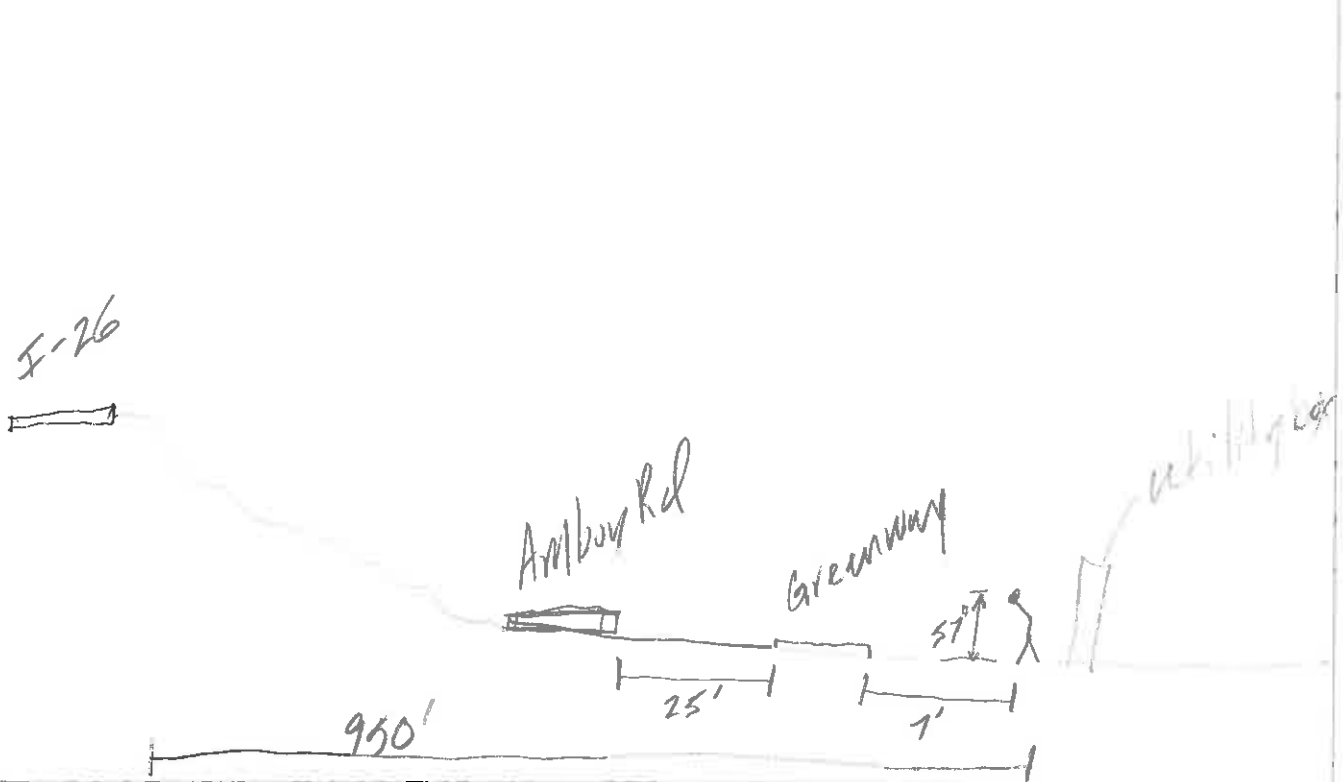
I-26 Improvements French River Greenway

Location:

Site Sketch: (Plan View)



Site Sketch: (Profile View)



Will Kerr/Mark Ross

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST4.1; ST4.2; ST4.3		Date: 6/18/14		
Site Description: Hillcrest Apartments		Site Location: Near Building No. 20				
Approx. Start Time:	8:45 am	Descriptor	Location			
Approx. End Time:	9:08 am		ST4.1	ST4.2	ST4.3	
Temperature:	70	L _{eq} :	67.3	62.1	64.1	
Wind Speed:	0 mph	L _{min} :	62.1	58.5	59.8	
Cloud Cover:	Hazy	L _{max} :	82.2	72.5	78.0	
Site Sketch: (Plan View)						
See Attached						
Site Sketch: (Profile View)						
See Attached						
Notes: Siren, Lawn mower		Traffic Counts	Direction		Direction	
Road Name: I-26			Mainline WB	Ramp	Mainline EB	Ramp
		Autos:	1294	324	1385	346
Typical Section: EB – four 12-ft lanes with 2-4 shoulders		Medium Trucks:	28	7	17	4
WB – four 12-ft lanes with 2-4 shoulders		Heavy Trucks:	20	5	25	6
		Buses:	0	0	4	1
Speed Limit: 50 mph		Motorcycles:	2	1	7	2

ST4

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:

6/18/14

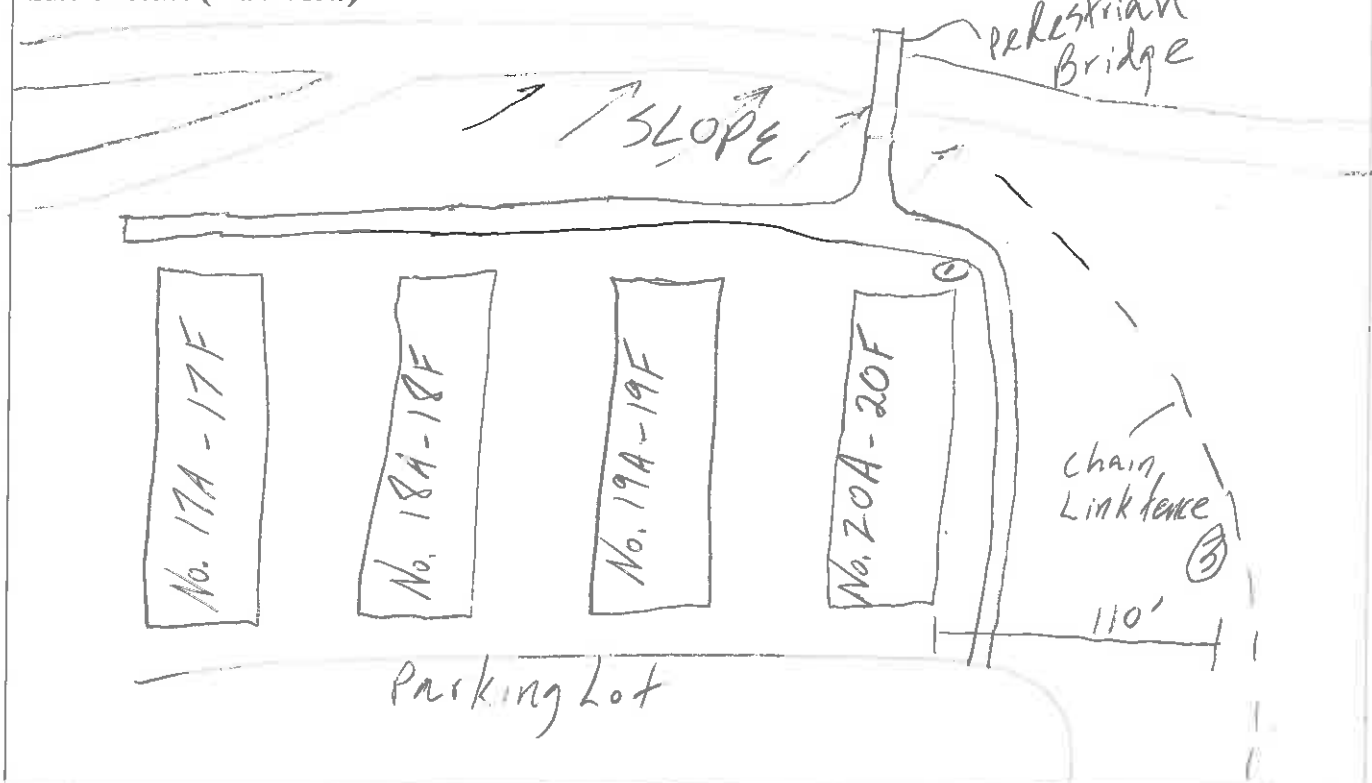
Project:

I-2513

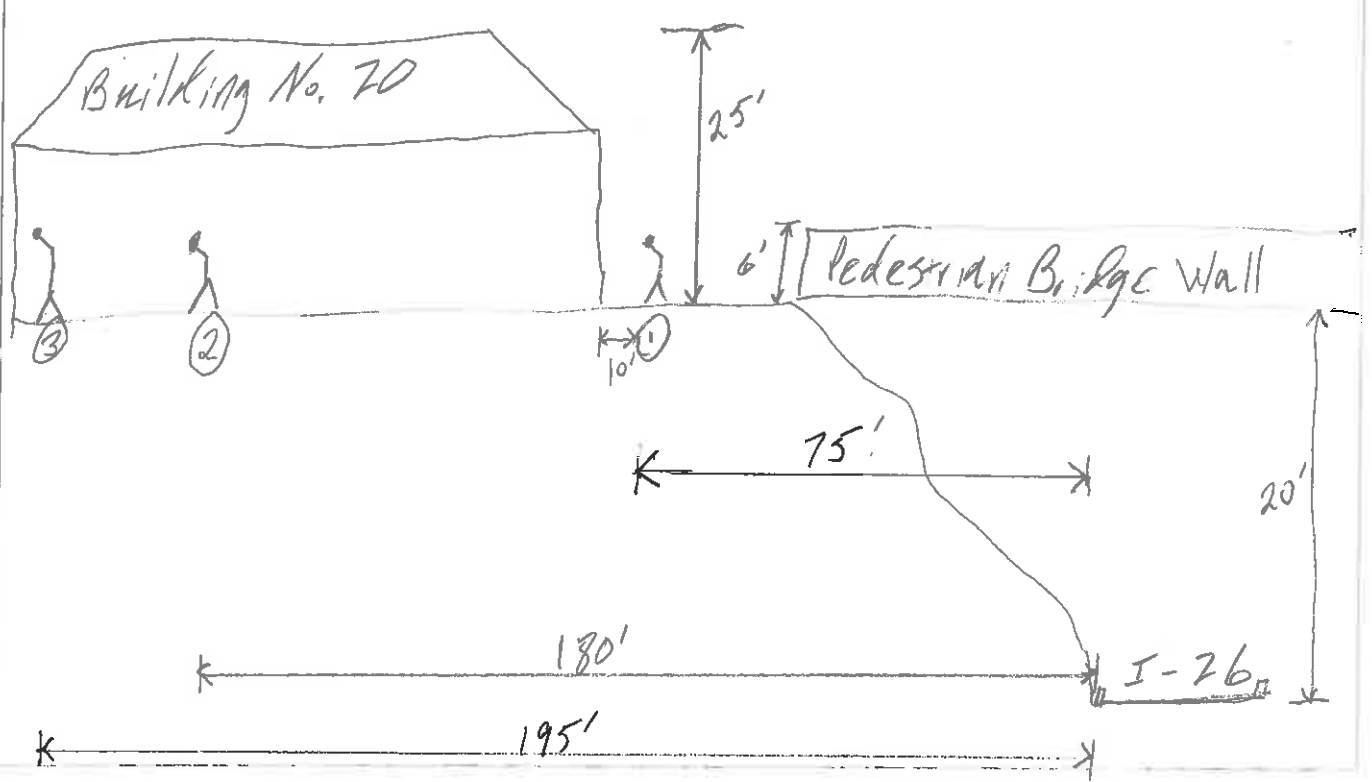
Location:

Hillcrest Apts. Bldg. No. 20

Site Sketch: (Plan View)



Site Sketch: (Profile View)



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST5.1; ST5.2; ST5.3		Date: 6/17/14	
Site Description: St. Paul's Missionary Baptist Church		Site Location: 185 Fayetteville Street			
Approx. Start Time:	9:05 am	Descriptor	Location		
Approx. End Time:	9:28 am		ST5.1	ST5.2	ST5.3
Temperature:	70	L _{eq} :	71.7	56.9	52.6
Wind Speed:	2-3 mph	L _{min} :	65.2	53.8	49.3
Cloud Cover:	Partly Cloudy	L _{max} :	78.0	60.6	64.5

Site Sketch: (Plan View)

See Attached

Site Sketch: (Profile View)

See Attached

Notes:	Traffic Counts	Direction (NB)		Direction (SB)	
		Mainline	Fayetteville	Mainline	SB Ramp
2 cars on Fayetteville Street, birds					
Road Name: I-26					
	Autos:	708	2	634	190
Typical Section: NB – two 12-ft lanes, two 9-ft shoulders SB – mainline: two 12-ft lanes, two 9-ft shoulders; ramp: one 12-ft lane, 6-ft shoulder	Medium Trucks:	26	0	7	2
	Heavy Trucks:	17	0	24	7
	Buses:	0	0	0	0
Speed Limit: 50 mph	Motorcycles:	3	0	4	1

STS

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: <i>I-2513 Asheville</i>		Site #: <i>ST 5.1, 5.2, 5.3</i>	Date: <i>6/17/14</i>
Site Description: <i>Residence, Church Parking Lot</i>		Site Location: <i>185 Fayetteville Street / St. Pauls Miss Baptist Ch.</i>	
Road Name: <i>Fayetteville St. near</i>		Begin Time: <i>9:10 am</i>	Duration: <i>23 mins</i>
Traffic Counts <i>US 19/23</i>		Direction of Travel:	<i>US 19/23 50 mph Speed</i>
Autos: <i>Plan View</i>			
Medium Trucks:			
Heavy Trucks: <i>Profile View</i>			
Buses:			
Motorcycles:			

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST6.1, ST6.2, ST6.3		Date: 6/17/14	
Site Description: Single Family Residences		Site Location: 39, 45, 51 Wilmington Street			
Approx. Start Time:	4:59 pm	Descriptor	Location		
Approx. End Time:	5:22 pm		ST6.1	ST6.2	ST6.3
Temperature:	84	L _{eq} :	66.5	63.1	64.0 Adjusted value
Wind Speed:	0 mph	L _{min} :	60.5	56.2	57.6
Cloud Cover:	High, wispy clouds	L _{max} :	70.4	74.9	70.2
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Faint sound of dog barking	Traffic Counts	Direction NB		Direction SB	
Road Name: I-26		Mainline		Mainline	
	Autos:	991		1150	
Typical Section: NB – two 12-ft lanes with 8-ft shoulders SB - two 12-ft lanes with 8-ft shoulders	Medium Trucks:	15		8	
	Heavy Trucks:	14		18	
	Buses:	0		0	
Speed Limit: 50 mph	Motorcycles:	1		4	

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 6-17-14 **Project:** I-76 Improvements **Location:** ST6 - 39-51 Wilmington St.

Site Sketch: (Plan View)



Site Sketch: (Profile View)



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

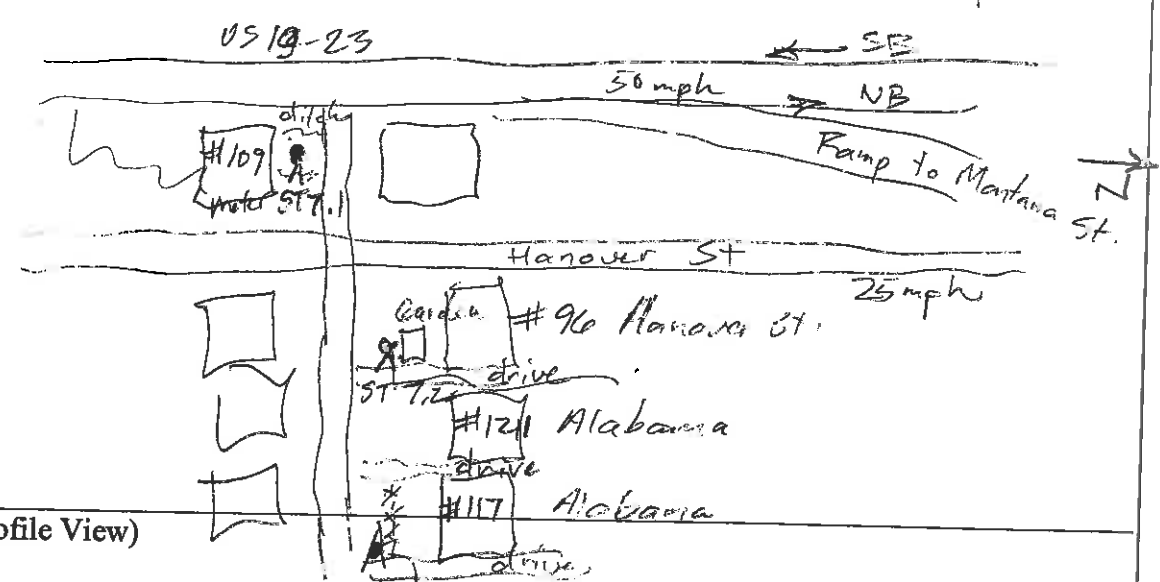
Project Name: I-26 Roadway Improvement Project		Site #: ST7.1; ST7.2; ST7.3		Date: 6/17/14		
Site Description: Single Family Residences		Site Location: Hanover Street/ Alabama Avenue				
Approx. Start Time:	10:55 am	Descriptor	Location			
Approx. End Time:	11:18 am		ST7.1	ST7.2	ST7.3	
Temperature:	75	L _{eq} :	65.4	59.9 Adjusted value	53.3 Adjusted value	
Wind Speed:	1 – 2 mph	L _{min} :	57.4	54.0	46.4	
Cloud Cover:	Sunny/No Clouds	L _{max} :	74.6	72.6	79.8	
Site Sketch: (Plan View)						
See Attached						
Site Sketch: (Profile View)						
See Attached						
Notes: 2 Backhoes traveled from Alabama Ave. to Hanover St.		Traffic Counts	Direction NB		Direction SB	
Road Name: I-26			Mainline	Hanover	Mainline	Hanover
		Autos:	579	13	457	15
Typical Section: NB – two 12-ft lanes, 8-ft shoulders SB – two 12-ft lanes, 8-ft shoulders		Medium Trucks:	18	0	6	0
		Heavy Trucks:	19	2	30	0
		Buses:	0	1	0	1
Speed Limit: 50 mph		Motorcycles:	0	0	0	0

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

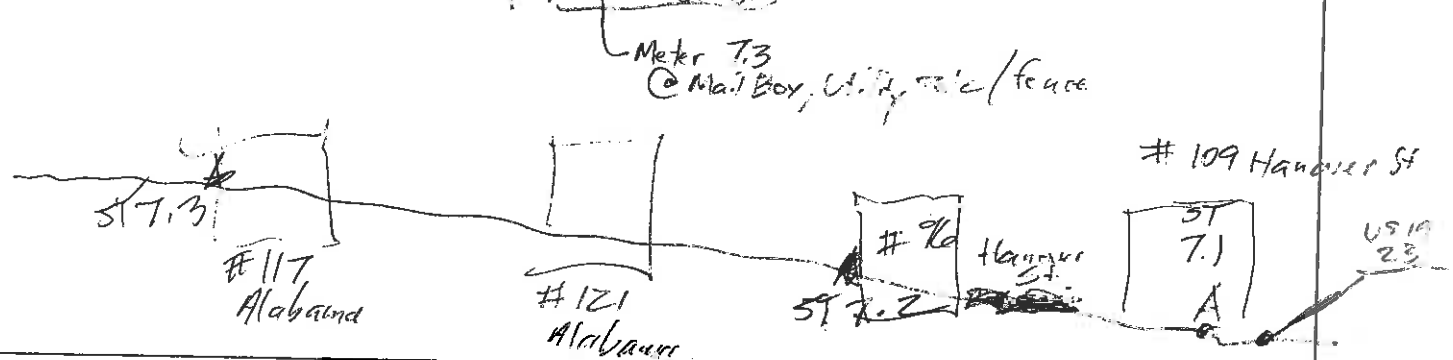
Project Name: J-2513		Site #: ST 7.1, 7.2, 7.3	Date: 6/17/14
Site Description: Hanover St / Alabama Ave.		Site Location: 7.1 #1 7.2 #12 7.3 #11	
Start Time: 10:55	End Time:	Calibration Level - Start:	
Temperature: 75.9	Wind Speed: 1-2 mph	Cloud Cover: Sunny / No Clouds	
		L _{eq} : 55.6	60.9
		L _{min} : 57.4	51.0
		L _{max} : 74.5	72.6
		Calibration Level - End:	

7.3
#11
58.8
16.2
79.8

Site Sketch: (Plan View)



Site Sketch: (Profile View)



Road Name:	Traffic Counts	Direction (NB/ EB)	Direction (SB/ WB)
	Autos:		
Typical Section:	Medium Trucks:		
	Heavy Trucks:		
	Buses:		
Speed Limit:	Motorcycles:		

1-148
2-50
3-15

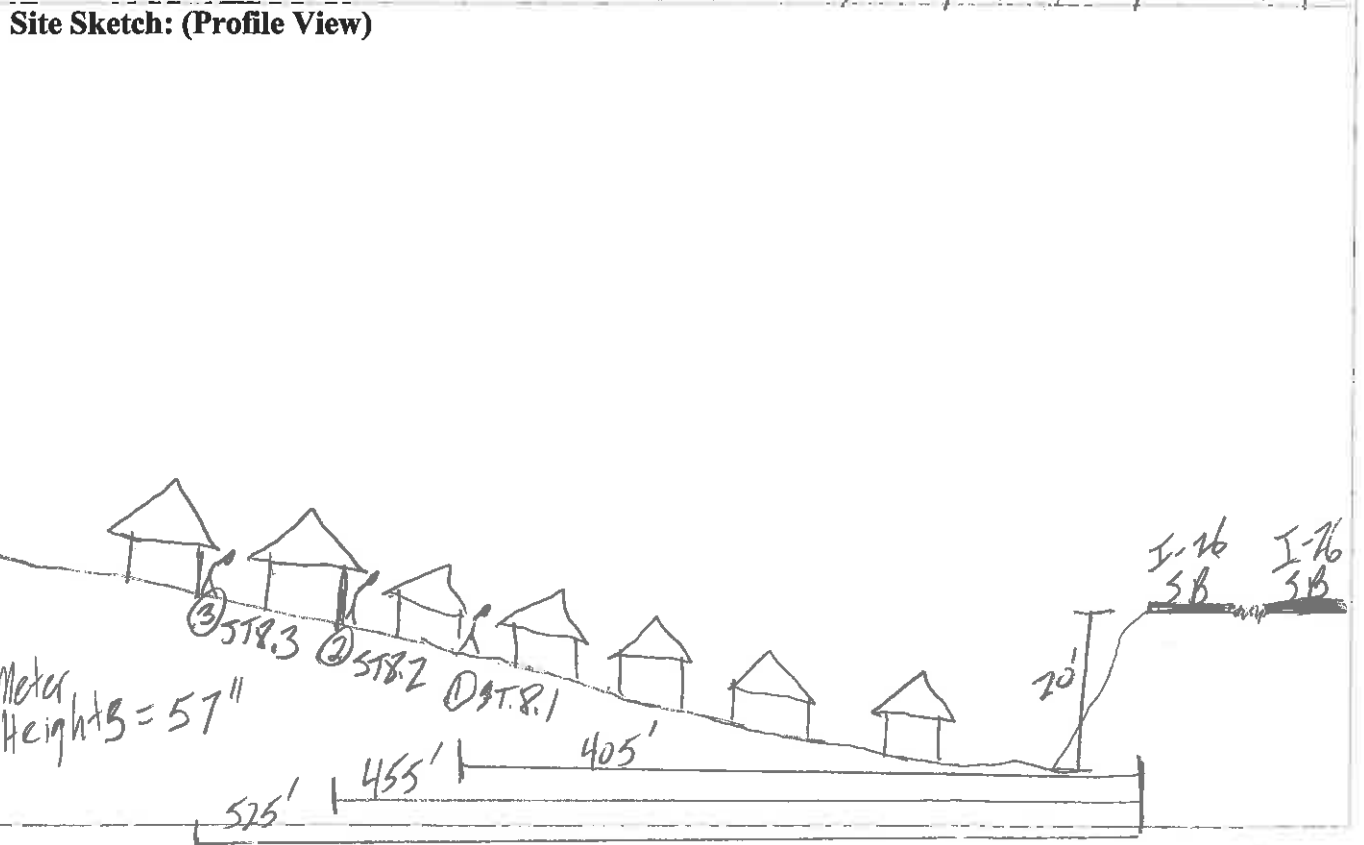
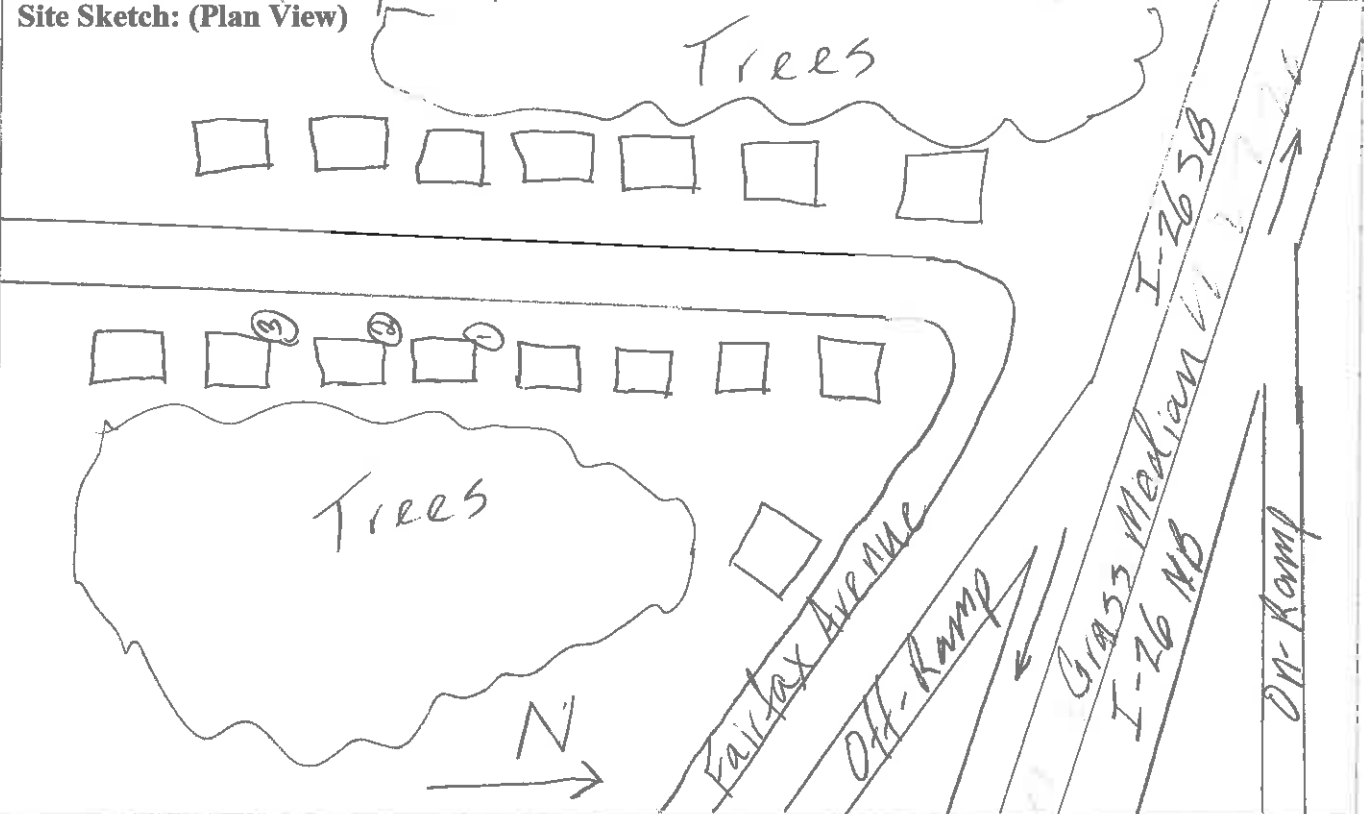
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST8.1; ST8.2; ST8.3		Date: 6/18/14	
Site Description: Single Family Residences		Site Location: Fairfax Avenue			
Approx. Start Time:	5:34 pm	Descriptor	Location		
End Time:	5:57 pm		ST8.1	ST8.2	ST8.3
Temperature:	75	L _{eq} :	60.5	58.6	59.6
Wind Speed:	0 mph	L _{min} :	53.4	53.0	42.0
Cloud Cover:	Hazy	L _{max} :	73.2	71.8	75.7
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Brief dog barking near ST8.2, Kids playing near ST8.1		Traffic Counts	Direction	Direction	
Road Name: I-26			I-26 EB	I-26 WB	
		Autos:	1000	933	
Typical Section: EB – two 12-ft lanes, one 8-ft ramp, two 2-ft shoulders WB - two 12-ft lanes, one 8-ft ramp, two 2-ft shoulders		Medium Trucks:	1	17	
		Heavy Trucks:	8	26	
		Buses:	1	4	
Speed Limit: 50 mph		Motorcycles:	2	4	

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

5T8

Date: 6-18-14 Project: I-26 Improvements Location: 310, 314, 318 Fairfax Avenue



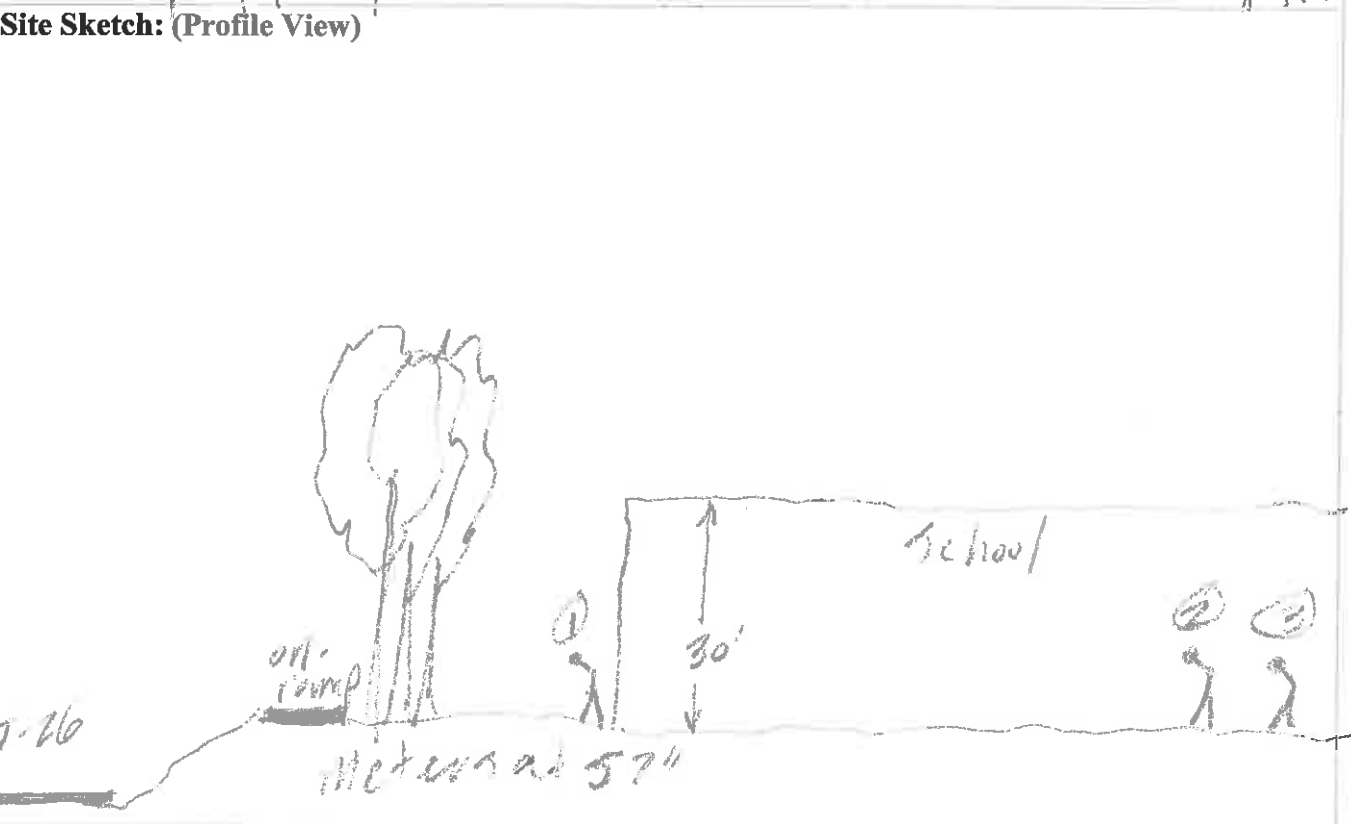
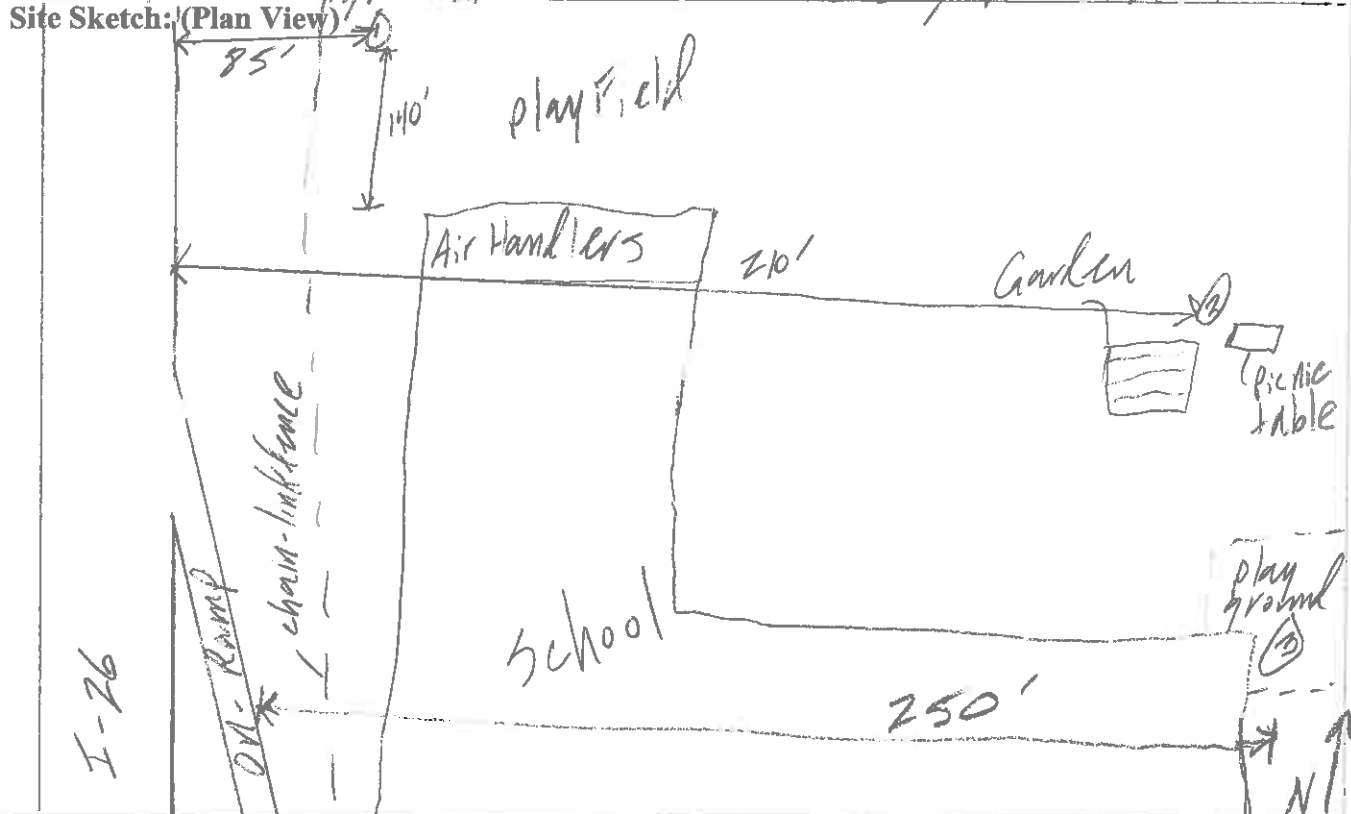
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST9.1; ST9.2; ST9.3		6/17/14	
Site Description: Preschool		Site Location: Asheville Preschool, 441 Haywood Road			
Start Time:	3:10 pm	Descriptor	Location		
End Time:	3:33 pm		ST9.1	ST9.2	ST9.3
Temperature:	75	L _{eq} :	68.3	57.4	56.2 Adjusted value
Wind Speed:	2-3 mph	L _{min} :	56.5	53.9	42.3
Cloud Cover:	Overcast/Rain	L _{max} :	73.9	70.1	68.6
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Light rain for about 10 minutes of period		Traffic Counts	Direction		Direction
Road Name: I-26			Mainline NB		Mainline SB
		Autos:	750		611
Typical Section: NB – two 12-ft lanes with 8-ft outside shoulder and 6-ft inside shoulder SB – two 12-ft lanes with 8-ft outside shoulder and 6-ft inside shoulder		Medium Trucks:	25		15
		Heavy Trucks:	19		25
		Buses:	1		1
Speed Limit: 50 mph		Motorcycles:	1		3

ST9

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date: 6-17-14	Project: I-26 Improvements	Location: Asheville City Preschool
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TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project	Site #: ST10.1; ST10.2; ST10.3	Date: 6/17/14
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Site Description: Single Family Residences	Site Location: Pennsylvania Avenue
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Approx. Start Time:	12:07 pm	Descriptor	Location		
Approx. End Time:	12:31 pm		ST10.1	ST10.2	ST10.3
Temperature:	77	L _{eq} :	54.6	51.2	48.0
Wind Speed:	0	L _{min} :	48.5	45.8	43.2
Cloud Cover:	High puffy	L _{max} :	59.3	58.4	60.4

Site Sketch: (Plan View)

See Attached

Site Sketch: (Profile View)

See Attached

Notes: Birds singing near all three meters.	Traffic Counts	Direction NB		Direction SB	
Road Name: I-26		Mainline		Mainline	Ramp
	Autos:	539		507	16
Typical Section: NB – two 12-ft lanes, 8-ft outside shoulder, 4-ft inside shoulder SB - NB – two 12-ft lanes, 8-ft outside shoulder, 4-ft inside shoulder	Medium Trucks:	9		15	12
	Heavy Trucks:	15		47	2
	Buses:	0		0	0
Speed Limit: 50 mph	Motorcycles:	5		2	1

5T10

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:

6-17-14

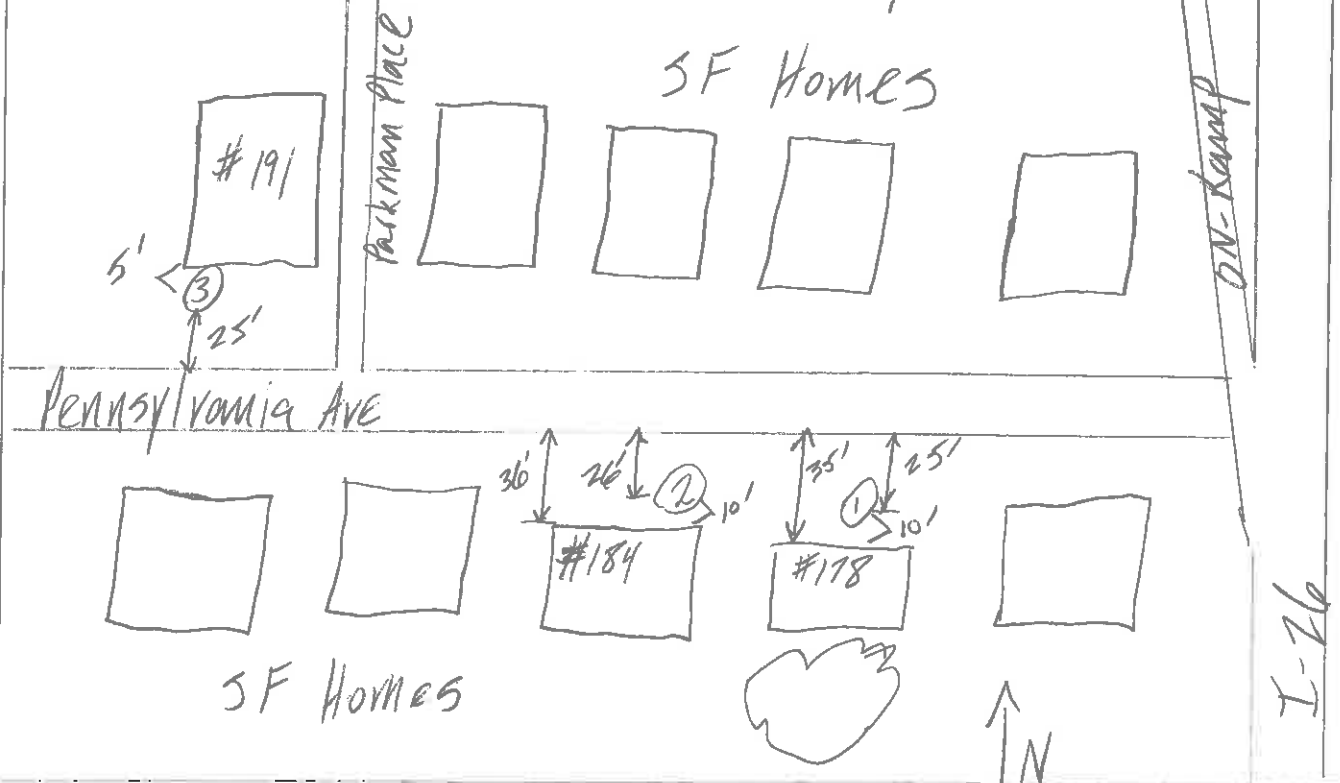
Project:

I-26 Improvements

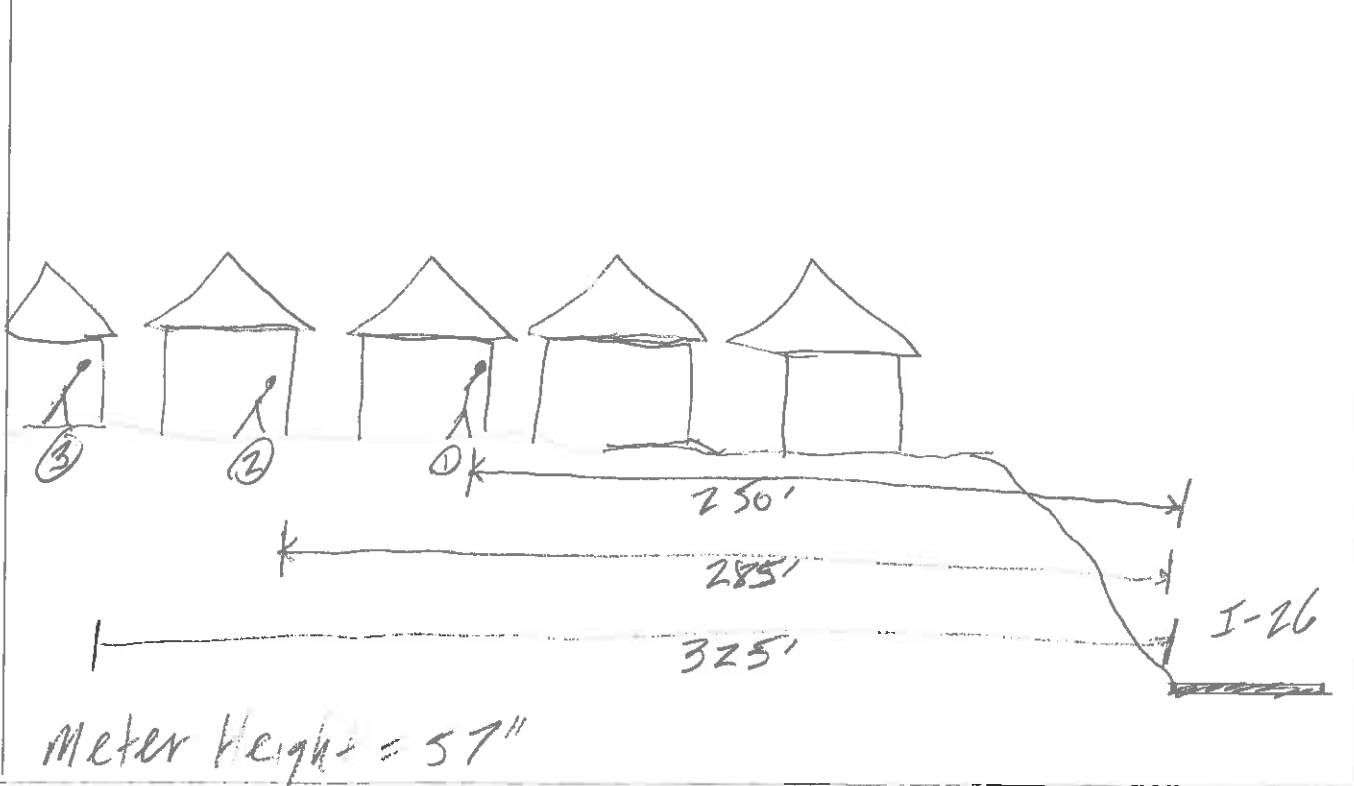
Location:

5T10 - Pennsylvania Avenue

Site Sketch: (Plan View)



Site Sketch: (Profile View)



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST11.1; ST11.2		Date: 6/18/14	
Site Description: Single Family Residences		Site Location:			
Start Time:		Descriptor	Location		
End Time:			ST11.1	ST11.2	
Temperature:	79	L _{eq} :	53.8	50.8	
Wind Speed:	0	L _{min} :	51.1	47.4	
Cloud Cover:	Cloudy, light drizzle	L _{max} :	57.4	61.0	
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Thunder in distance					
No Traffic Counts, Background Measurement					

5T11

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:

6/18/14

Project:

I-26 Improvements

Location:

#15 & #17 Emma Road

Site Sketch: (Plan View)



Site Sketch: (Profile View)



Will Kerr/Mark Reep

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST12		Date: 6/19/14	
Site Description: Single Family Residence		Site Location: 3 Selwyn Place			
Start Time:	12:06	Descriptor	Location		
End Time:	12:35		ST12		
Temperature:	81	L _{eq} :	58.5		
Wind Speed:	1 mph	L _{min} :	52.6		
Cloud Cover:	Hazy	L _{max} :	66.8		
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Birds, I-26 traffic in background					
No Traffic Counts, Background Measurement					

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

ST 12

Date:

6-19-14

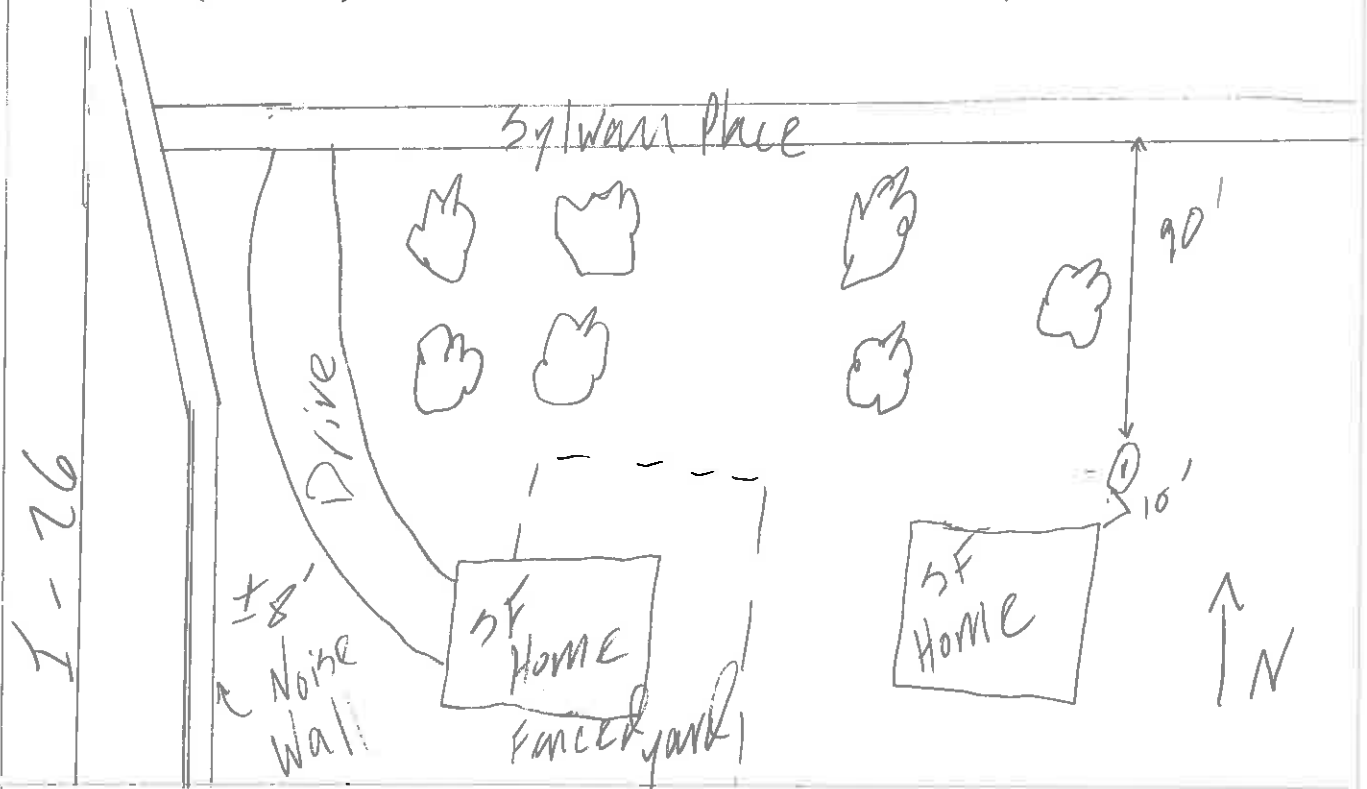
Project:

I-26 Improvements

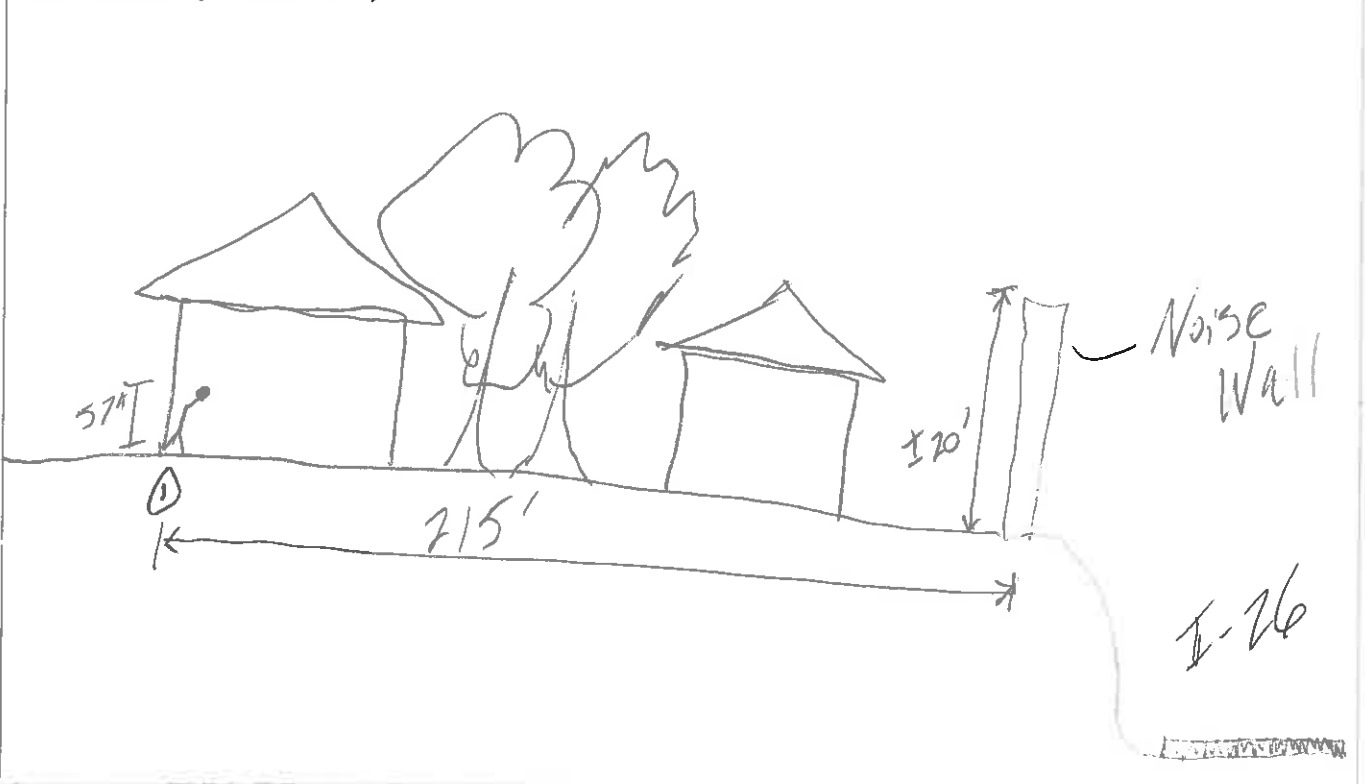
Location:

3 Selwyn Place

Site Sketch: (Plan View)



Site Sketch: (Profile View)



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name:		Site #: ST13.1; ST13.2		Date: 6/19/14	
Site Description: Schumacher Homes Office		Site Location: 98 Dogwood Road			
Approx. Start Time:	10:20 am	Descriptor	Location		
Approx. End Time:	10:40 am		ST13.1	ST13.2	
Temperature:	72	L _{eq} :	64.9	63.7	
Wind Speed:	0	L _{min} :	57.3	57.0	
Cloud Cover:	None	L _{max} :	81.7	76.2	
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Wrecking yard and cement plant at 150 yards, highway construction at +100 yards		Traffic Counts	Direction		Direction
Road Name: I-26			Mainline NB		Mainline SB
		Autos:	861		887
Typical Section: NB – two 12-ft lanes, one 8-ft shoulder, one 2-ft shoulder SB – two 12-ft lanes, one 4-ft shoulder, one 2-ft shoulder		Medium Trucks:	20		44
		Heavy Trucks:	96		86
		Buses:	2		1
Speed Limit: 55		Motorcycles:	8		5

ST13

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:

6-19-14

Project:

I-26 Improvements

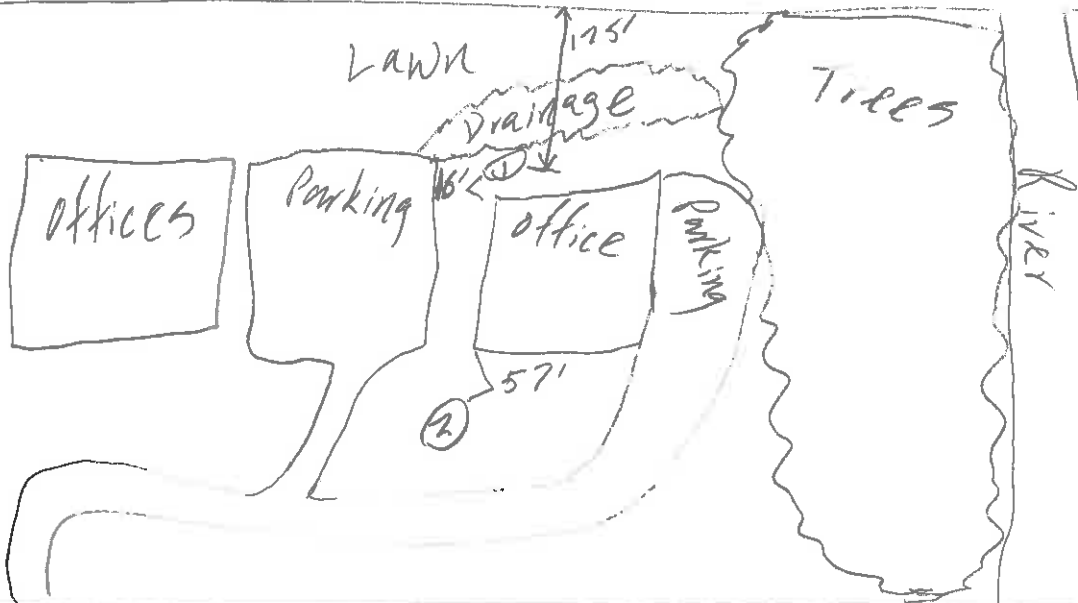
Location:

Schumacher Homes 98 Dogwood Rd

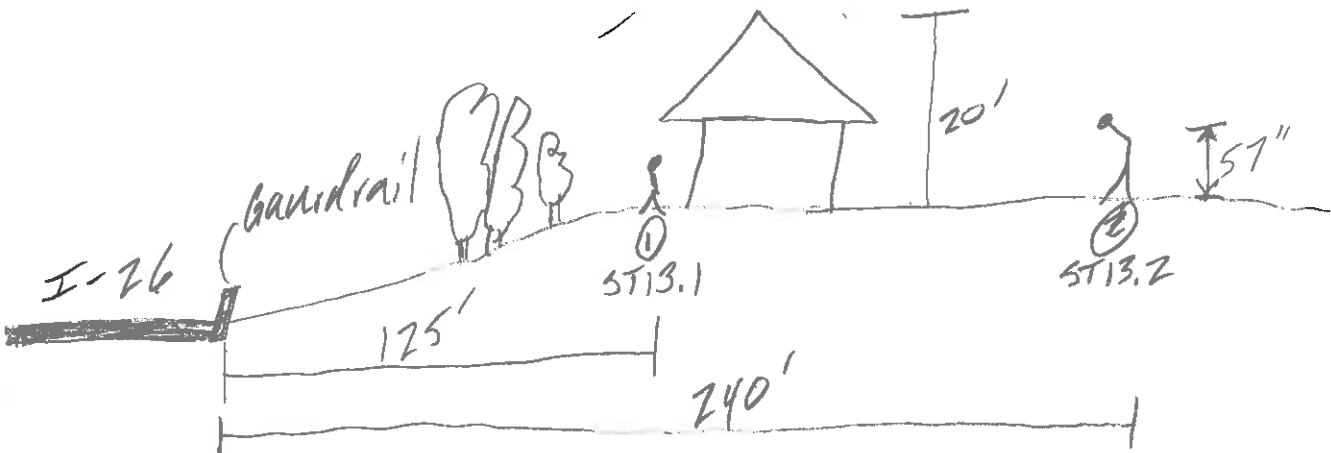
Site Sketch: (Plan View)



I-26



Site Sketch: (Profile View)



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: ST14		Date: 6/19/14	
Site Description: Single Family Residence		Site Location: 24 Hazelnut Drive			
Start Time:		Descriptor	Location		
End Time:			ST14		
Temperature:	77	L _{eq} :	58.7		
Wind Speed:	0	L _{min} :	53.9		
Cloud Cover:	0	L _{max} :	72.4		
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Lawnmower in distance					
No Traffic Counts, Background Measurement					

ST14

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:

6-19-14

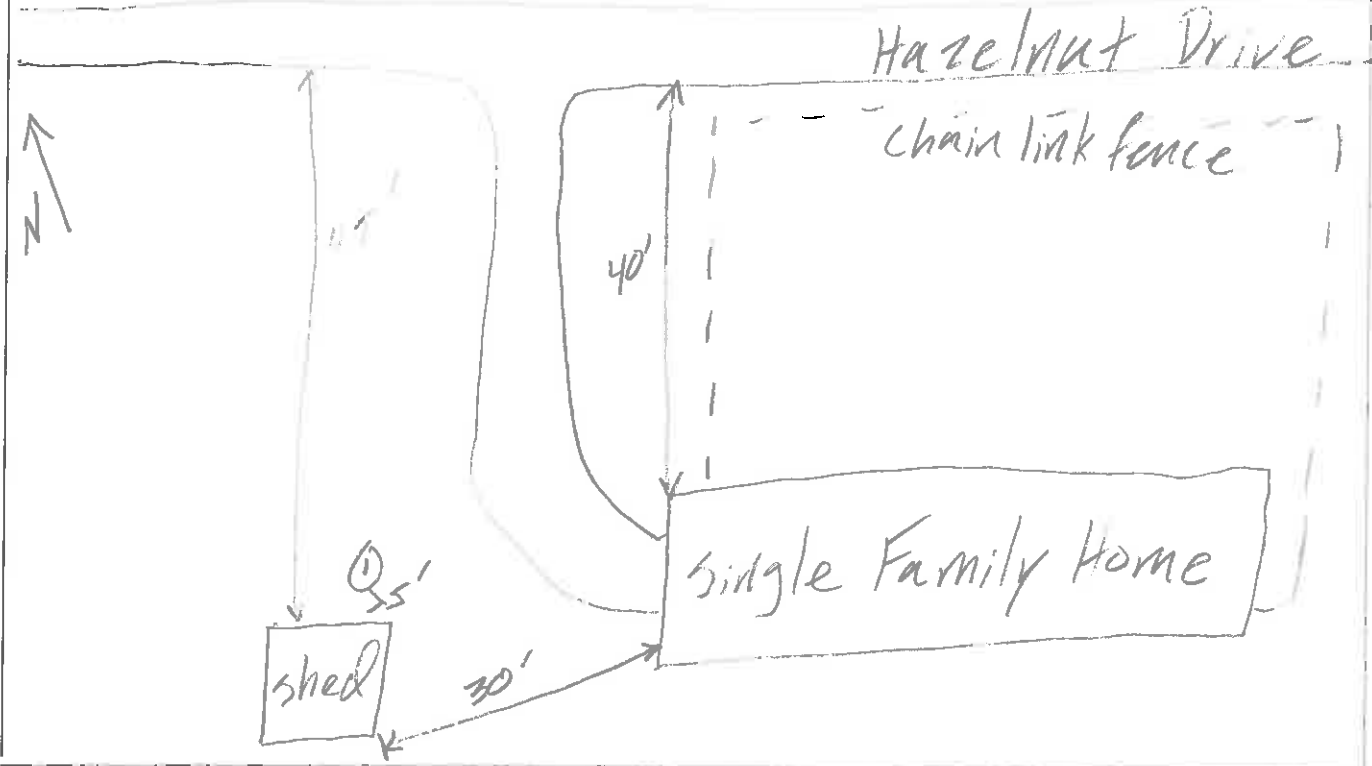
Project:

I-26 Improvements

Location:

ST14 - 24 Hazelnut Drive

Site Sketch: (Plan View)



Site Sketch: (Profile View)



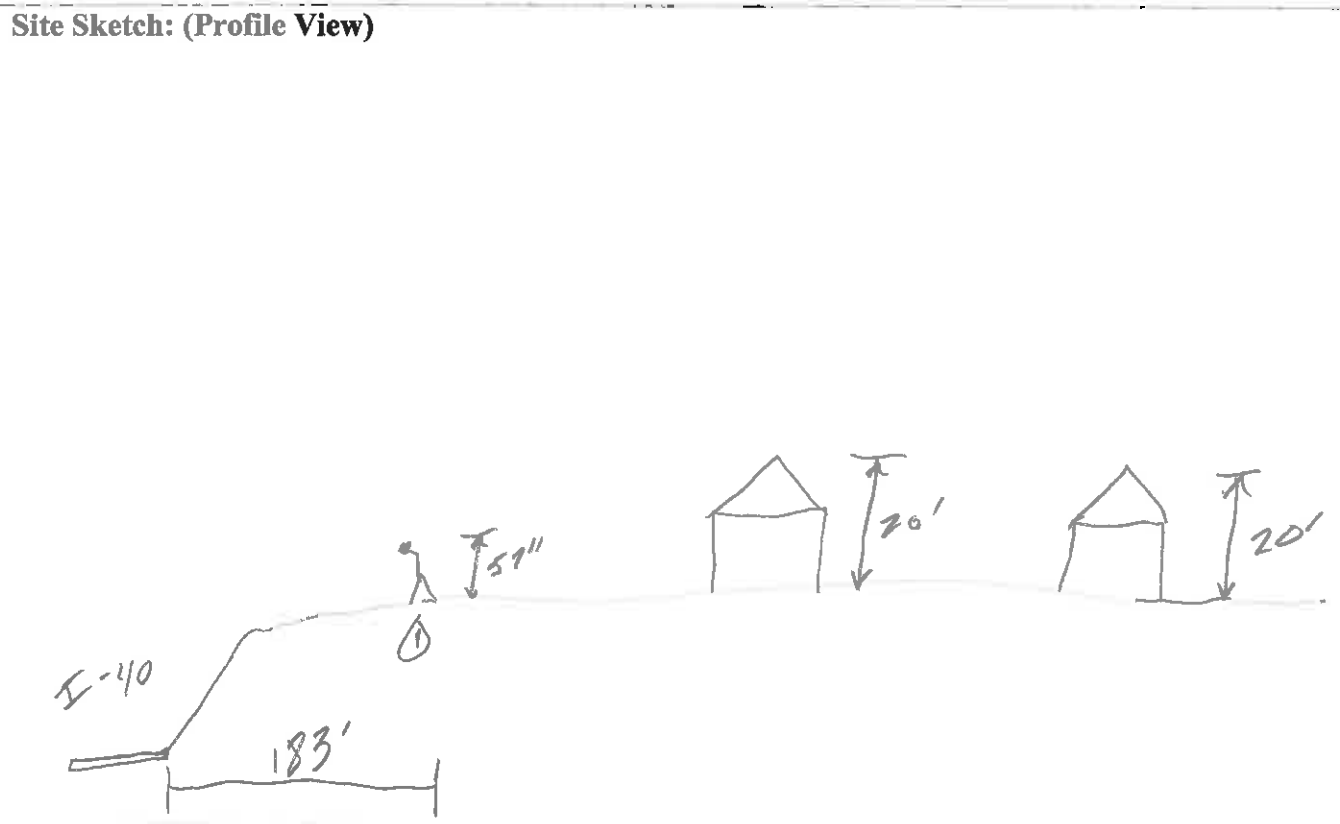
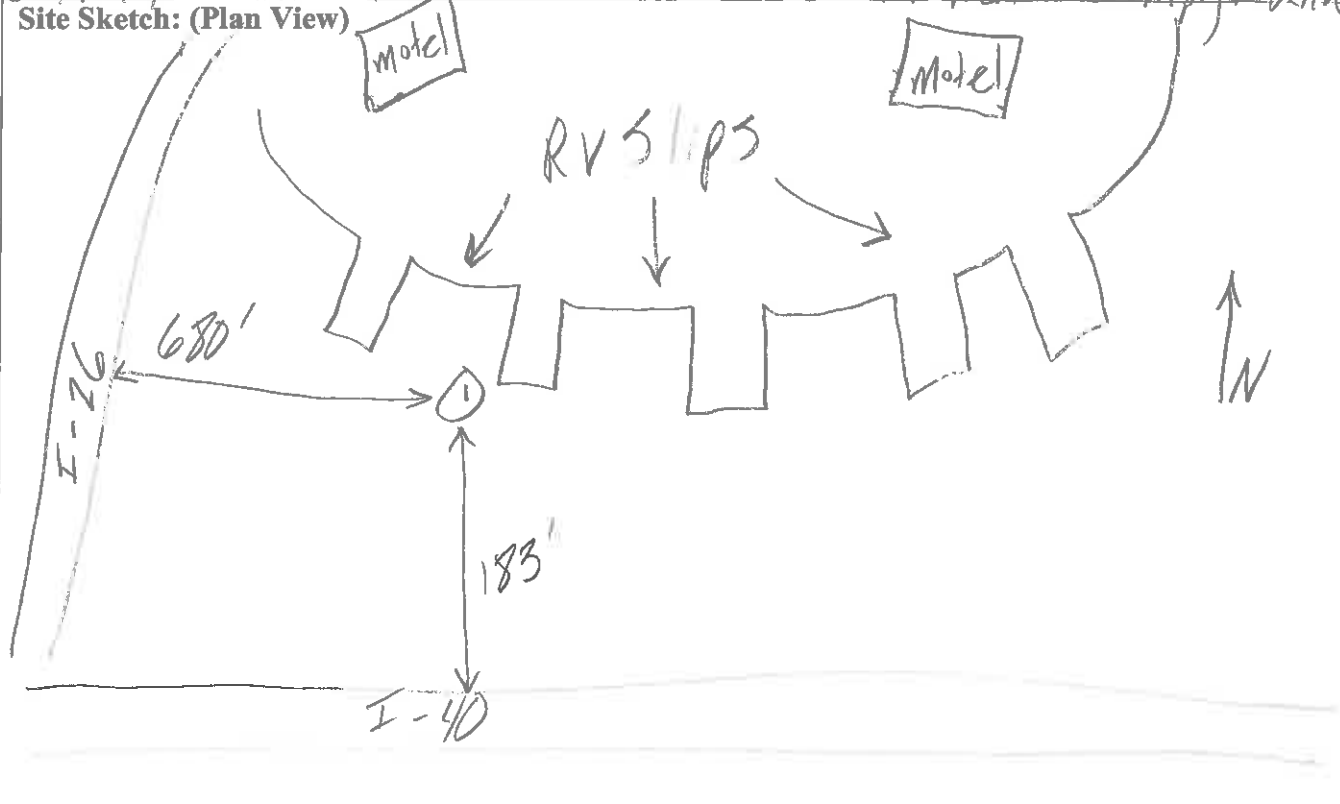
TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #:ST15		Date: 6/19/14	
Site Description: Bear Creek Recreational Vehicle Park		Site Location: Near RV Parking Slips			
Start Time:	1:07	Descriptor	Location		
End Time:	1:36		ST15		
Temperature:	82	L _{eq} :	59.7		
Wind Speed:	1-3 mph	L _{min} :	40.3		
Cloud Cover:	Low puffy	L _{max} :	74.2		
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Notes: Traffic from I-26 ramp in distance.					
No Traffic Counts, Background Measurement					

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

5T15

Date: 6-19-14 Project: I-26 Improvements Location: Bear Creek RV Park & Campground



URS Acoustics and Noise Control Practice

FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I-26 Connector Project #: 60547159 Date: 10-12-17 Page 1 of 2
 Monitoring Location: ST-16 Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4677, 4683</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: <u>Steady/Gusty/Calm</u>
Response: <u>Slow / Fast / Impl</u>	Pre-Test <u>4683, 1141</u> dBA	Precipitation: Yes (explain) <u>(No)</u>
Windscreen: <u>Yes / No (explain)</u>	Post-Test <u>1141 / 4677 = 113.9</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: <u>Flat (Hilly)</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>71°</u> RH (%): <u></u>
Terrain: <u>(Hard/Soft/Mixed/Snow)</u>		Bar Psr (Hg): <u></u> Cloud Cover (%): <u>90%</u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	<u>10:00 AM</u>								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20	<u>10:10 AM</u>								
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Roadway Name/Dir	I-26 NB	I-26 SB	compass ↑	Site Diagram:	
Speed (post/obs)*	55	55		<u>Meter</u>	<u>Location</u>
Number of Lanes	2	2		<u>Post-Test</u>	
Width (pave/row)					
1- or 2- way	1	1			
Grade					
Bus Stops	-	-			
Stoplights	-	-			
Motorcycles	-	-			
Automobiles	382	473			
Medium Trucks	19	25			
Heavy Trucks	32	3			
Buses	-	-			
Count duration	15	15			

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes / No Andrew BLM

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects
Additional Notes and Sketches on Reverse

* Moved noise meters approx 50 yds north of google map location. see Hunter Moore's photo for location.

* Both monitors were at a higher elevation than the road on the side of a hill at this location.


**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/12/2017 Page 1 of 2
 Monitoring Location: ST 16 - Riverside Cemetery Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4877, 4883</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: A / C / Flat	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/Calm
Response: Slow / Fast / Impl	Pre-Test <u>114.1</u> dBA	Precipitation: Yes (explain) / No
Windscreen : Yes / No (explain)	Post-Test <u>113.96/114.1</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: Flat / Hilly	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>71</u> RH (%): <u> </u>
Terrain: Hard/Soft/Mixed/Snow		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u>80</u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	10:00 AM	10:01 AM	68.5	71.3	62.5	71.3			
1	10:01 AM	10:02 AM	70.0	74.6	64.6	70.0			
2	10:02 AM	10:03 AM	67.8	75.2	62.6	70.5			
3	10:03 AM	10:04 AM	68.9	73.4	62.8	66.1			
4	10:04 AM	10:05 AM	69.3	77.5	62.9	68.5			
5	10:05 AM	10:06 AM	69.2	71.8	63.4	65.2			
6	10:06 AM	10:07 AM	69.9	73.3	63.5	66.5			
7	10:07 AM	10:08 AM	66.5	71.1	61.1	63.8			
8	10:08 AM	10:09 AM	68.3	72.9	62.2	65.1			
9	10:09 AM	10:10 AM	67.1	72.3	61.3	63.4			
10	10:10 AM	10:11 AM	70.9	77.8	64.7	70.2			
11	10:11 AM	10:12 AM	69.2	75.0	63.3	66.1			
12	10:12 AM	10:13 AM	68.1	72.9	62.4	65.3			
13	10:13 AM	10:14 AM	67.6	70.9	61.3	63.8			
14	10:14 AM	10:15 AM	69.4	74.8	63.7	67.7			
15	10:15 AM	10:16 AM	70.0	75.0	64.1	68.2			
16	10:16 AM	10:17 AM	68.8	72.2	63.2	65.8			
17	10:17 AM	10:18 AM	68.6	72.2	63.0	66.0			
18	10:18 AM	10:19 AM	67.9	71.3	62.4	64.3			
19	10:19 AM	10:20 AM	68.8	73.0	62.9	64.9			
20	10:20 AM	10:21 AM	67.5	71.2	61.8	64.4			
21	10:21 AM	10:22 AM	68.7	70.4	62.7	63.8			
22									
23									
24									
25									
26									
27									
28									
29									
30									
TOT			68.8	77.8	62.9	71.3			

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Roadway Name/Dir	I-26 NB	I-26 SB	<u>compass</u> 	<u>Site Diagram:</u>	
Speed (post/obs)*	55	55			
Number of Lanes	2	2			
Width (pave/row)			<u>Meter</u>	<u>Location</u>	<u>Post-Test</u>
1- or 2- way	1	1			
Grade					
Bus Stops					
Stoplights					
Motorcycles					
Automobiles	382	473			
Medium Trucks	15	25			
Heavy Trucks	32	3			
Buses					
Count duration	15	15			

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? **Yes/No**

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/Insects

Additional Notes and Sketches on Reverse

URS Acoustics and Noise Control Practice


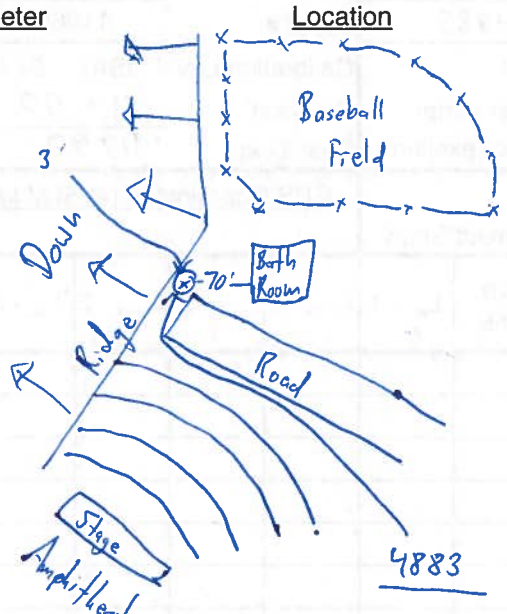
FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/11/17 Page 1 of 2
 Monitoring Location: ST-17 Amphitheater / Baseball Field Analyst: Bell Moore

Sound Level Meter Model #: <u>LD LxT</u> Serial #: <u>4883</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen: Yes / No (explain)	Field Calibration Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114.00</u> dBA Post-Test <u>113.97</u> dBA	Weather Data Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: <u>Steady/Gusty/Calm</u> Precipitation: Yes (explain) / No Avg Wind Speed/Direction: <u>5 mph</u> Temp (°F): <u>83</u> RH (%): <u>63</u> Bar Psr (Hg): <u>1016</u> Cloud Cover (%): <u>15</u>
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>	GPS Coordinates (at SLM location)#	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0									
1	<u>2:33 PM</u>								
2									
3									
4	<u>2:36 PM</u>								<u>People Passing / Talking, need to de-spike</u>
5	↓								↓
6									
7	↓	<u>2:40 PM</u>							↓
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			compass 	Site Diagram:	
Speed (post/obs)*				Meter	Location
Number of Lanes					Post-Test
Width (pave/row)					
1- or 2- way					
Grade					
Bus Stops					
Stoplights					
Motorcycles					
Automobiles					
Medium Trucks					
Heavy Trucks					
Buses					
Count duration					

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes/No 2

Additional Notes/Comments:

Crows, kids talking (first 7 min), cars in distance

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects

Additional Notes and Sketches on Reverse

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/11/2017 Page 1 of 2
 Monitoring Location: ST 17 - Amphitheater/Baseball Field Analyst: Bell/Moore

<u>Sound Level Meter</u> Model #: <u>LD LxT</u> Serial #: <u>4883</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen : Yes / No (explain)	<u>Field Calibration</u> Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114</u> dBA Post-Test <u>113.97</u> dBA	<u>Weather Data</u> Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: Steady/ Gusty /Calm Precipitation: Yes (explain) / No Avg Wind Speed/Direction: <u>5 mph</u> Temp (°F): <u>83</u> RH (%): <u>63</u> Bar Psr (Hg): <u>1016</u> Cloud Cover (%): <u>15</u>
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>	<u>GPS Coordinates (at SLM location)#</u>	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	2:33 PM	2:34 PM	46.6	50.3					
1	2:34 PM	2:35 PM	45.4	49.7					
2	2:35 PM	2:36 PM	46.3	50.7					
3	2:36 PM	2:37 PM	45.6	53.1					People passing/talking
4	2:37 PM	2:38 PM	53.8	61.0					People passing/talking
5	2:38 PM	2:39 PM	58.9	68.1					People passing/talking
6	2:39 PM	2:40 PM	60.5	75.3					People passing/talking
7	2:40 PM	2:41 PM	45.3	55.5					
8	2:41 PM	2:42 PM	43.2	49.3					
9	2:42 PM	2:43 PM	45.3	55.8					
10	2:43 PM	2:44 PM	51.5	60.1					
11	2:44 PM	2:45 PM	50.8	61.7					
12	2:45 PM	2:46 PM	44.2	54.4					
13	2:46 PM	2:47 PM	41.0	42.5					
14	2:47 PM	2:48 PM	46.4	53.8					
15	2:48 PM	2:49 PM	43.7	53.6					
16	2:49 PM	2:50 PM	44.1	54.7					
17	2:50 PM	2:51 PM	47.7	54.8					
18	2:51 PM	2:52 PM	46.8	55.9					
19	2:52 PM	2:53 PM	43.8	50.8					
20	2:53 PM	2:54 PM	41.6	43.7					
21	2:54 PM	2:55 PM	40.9	42.7					
22	2:55 PM	2:56 PM	44.0	53.1					
23	2:56 PM	2:57 PM	48.7	60.5					
24	2:57 PM	2:58 PM	43.1	46.7					
25	2:58 PM	2:59 PM	42.5	47.6					
26	2:59 PM	3:00 PM	41.7	47.1					
27	3:00 PM	3:01 PM	42.6	47.8					
28	3:01 PM	3:02 PM	42.0	45.5					
29	3:02 PM	3:03 PM	44.1	48.3					
30	3:03 PM	3:04 PM	40.4	42.7					
TOT			50.1	75.3					

URS Acoustics and Noise Control Practice


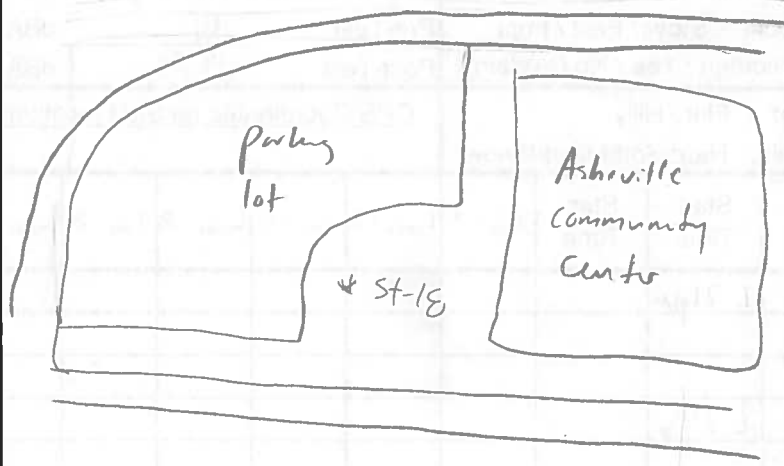
FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I-26 Connector Project #: 60547159 Date: 10-11-17 Page 1 of 2
 Monitoring Location: ST-18 Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4677</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/ <u>Calm</u>
Response: <u>Slow</u> / Fast / Impl	Pre-Test <u>114</u> dBA	Precipitation: Yes (explain) / <u>No</u>
Windscreen: <u>Yes</u> / No (explain)	Post-Test <u>113.96</u> dBA	Avg Wind Speed/Direction: <u>0°</u>
Topo: <u>Flat / Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>60°</u> RH (%): <u> </u>
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u> </u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	<u>2:21pm</u>								
1									
2									
3	<u>2:24pm</u>								<u>local four bus pulled up.</u>
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30	<u>2:51pm</u>								
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			<u>compass</u> 	<u>Site Diagram:</u>
Speed (post/obs)*				
Number of Lanes				
Width (pave/row)			<u>Meter</u>	<u>Location</u>
1- or 2- way				<u>Post-Test</u>
Grade				
Bus Stops				
Stoplights				
Motorcycles				
Automobiles				
Medium Trucks				
Heavy Trucks				
Buses				
Count duration				

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes/No

Additional Notes/Comments:

Andrew Bell

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects
Additional Notes and Sketches on Reverse

URS Acoustics and Noise Control Practice

FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/11/2017 Page 1 of 2
 Monitoring Location: ST 18 - Asheville Community Center Analyst: Bell/Moore

<u>Sound Level Meter</u> Model #: <u>LD LxT</u> Serial #: <u>4877</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen : Yes / No (explain)	<u>Field Calibration</u> Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114</u> dBA Post-Test <u>113.98</u> dBA	<u>Weather Data</u> Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: Steady/Gusty/ Calm Precipitation: Yes (explain) / No Avg Wind Speed/Direction: <u>0</u> Temp (°F): <u>80</u> RH (%): <u> </u> Bar Psr (Hg): <u> </u> Cloud Cover (%): <u> </u>
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>	<u>GPS Coordinates (at SLM location)#</u>	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	2:21 PM	2:22 PM	54.5	60.5					
1	2:22 PM	2:23 PM	54.5	61.3					
2	2:23 PM	2:24 PM	59.6	71.0					
3	2:24 PM	2:25 PM	55.1	64.6					Local tour bus pulled up
4	2:25 PM	2:26 PM	55.5	60.6					
5	2:26 PM	2:27 PM	58.0	63.7					
6	2:27 PM	2:28 PM	59.7	66.5					
7	2:28 PM	2:29 PM	55.2	57.3					
8	2:29 PM	2:30 PM	55.7	58.7					
9	2:30 PM	2:31 PM	55.5	58.6					
10	2:31 PM	2:32 PM	54.8	58.0					
11	2:32 PM	2:33 PM	54.3	57.5					
12	2:33 PM	2:34 PM	55.9	59.9					
13	2:34 PM	2:35 PM	54.5	56.8					
14	2:35 PM	2:36 PM	54.6	56.9					
15	2:36 PM	2:37 PM	56.3	62.2					
16	2:37 PM	2:38 PM	54.2	61.6					
17	2:38 PM	2:39 PM	54.7	57.4					
18	2:39 PM	2:40 PM	54.5	58.5					
19	2:40 PM	2:41 PM	54.3	57.3					
20	2:41 PM	2:42 PM	53.8	56.4					
21	2:42 PM	2:43 PM	54.0	57.7					
22	2:43 PM	2:44 PM	54.3	56.4					
23	2:44 PM	2:45 PM	55.0	58.0					
24	2:45 PM	2:46 PM	55.3	60.3					
25	2:46 PM	2:47 PM	57.1	64.4					
26	2:47 PM	2:48 PM	60.1	72.9					
27	2:48 PM	2:49 PM	53.5	56.7					
28	2:49 PM	2:50 PM	55.2	60.2					
29	2:50 PM	2:51 PM	55.9	58.0					
30	2:51 PM	2:52 PM	58.1	63.8					
TOT			56.0	72.9					


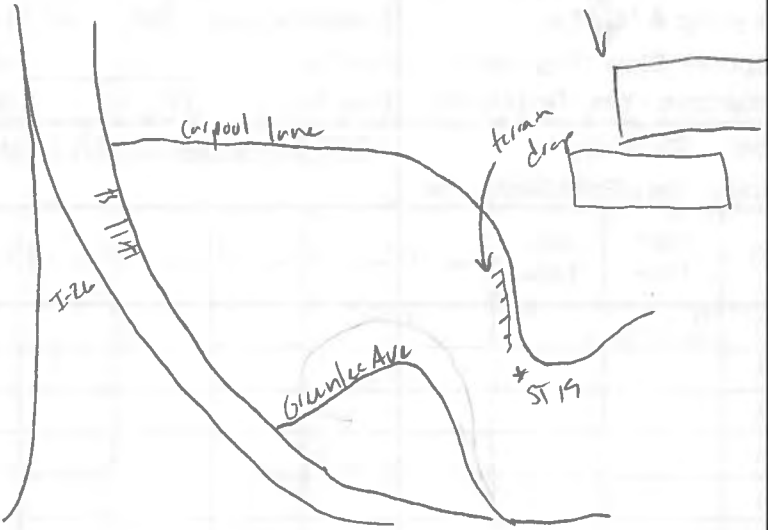
URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10-11-17 Page 1 of 2
 Monitoring Location: ST-19 Analyst: _____ Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LXT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4677</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: <u>Steady/Gusty/Calm</u>
Response: <u>Slow / Fast / Impl</u>	Pre-Test <u>114</u> dBA	Precipitation: Yes (explain) <u>No</u>
Windscreen : <u>Yes / No (explain)</u>	Post-Test <u>113.94</u> dBA	Avg Wind Speed/Direction: <u>3 mph</u>
Topo: <u>Flat / Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>81°</u> RH (%): _____
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): _____ Cloud Cover (%): <u>0</u>

ID	Start Time	Stop Time	Noise Levels (dBA)						Notes/Events
			L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	
0	<u>3:23pm</u>								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30	<u>3:53pm</u>								
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			compass 	Site Diagram:
Speed (post/obs)*				<div style="display: flex; justify-content: space-between;"> Meter Location Post-Test </div> 
Number of Lanes				
Width (pave/row)				
1- or 2- way				
Grade				
Bus Stops				
Stoplights				
Motorcycles				
Automobiles				
Medium Trucks				
Heavy Trucks				
Buses				
Count duration				

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes No *Andrew Bell*

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects
Additional Notes and Sketches on Reverse

* We moved ST-19 location based on its ward proximity to I-26. We moved the location to along the Cor pool lane of the issac dickson elementary school. See picture on Hunter's phone

* Talk to Charley Benton about Microsoft surfaces and using them to do noise field work.

URS Acoustics and Noise Control Practice

FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/11/2017 Page 1 of 2
 Monitoring Location: ST 19 - Isaac Dickson Elementary School Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4877</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: A / C / Flat	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/Calm
Response: Slow / Fast / Impl	Pre-Test <u>114</u> dBA	Precipitation: Yes (explain) / No
Windscreen : Yes / No (explain)	Post-Test <u>113.98</u> dBA	Avg Wind Speed/Direction: <u>3 mph</u>
Topo: <u>Flat / Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>81</u> RH (%): <u> </u>
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u>0</u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	3:23 PM	3:24 PM	48.5	58.7					
1	3:24 PM	3:25 PM	47.4	49.6					
2	3:25 PM	3:26 PM	45.9	46.9					
3	3:26 PM	3:27 PM	47.4	50.6					
4	3:27 PM	3:28 PM	48.0	49.7					
5	3:28 PM	3:29 PM	47.1	48.9					
6	3:29 PM	3:30 PM	47.1	49.0					
7	3:30 PM	3:31 PM	45.5	47.1					
8	3:31 PM	3:32 PM	46.8	49.8					
9	3:32 PM	3:33 PM	48.5	50.2					
10	3:33 PM	3:34 PM	47.8	50.9					
11	3:34 PM	3:35 PM	48.7	51.2					
12	3:35 PM	3:36 PM	47.3	50.3					
13	3:36 PM	3:37 PM	47.4	50.3					
14	3:37 PM	3:38 PM	47.4	51.3					
15	3:38 PM	3:39 PM	48.4	51.8					
16	3:39 PM	3:40 PM	50.7	59.1					
17	3:40 PM	3:41 PM	48.6	50.1					
18	3:41 PM	3:42 PM	47.7	49.2					
19	3:42 PM	3:43 PM	48.3	50.5					
20	3:43 PM	3:44 PM	48.2	51.2					
21	3:44 PM	3:45 PM	48.0	49.8					
22	3:45 PM	3:46 PM	48.0	50.1					
23	3:46 PM	3:47 PM	46.9	49.0					
24	3:47 PM	3:48 PM	48.5	49.9					
25	3:48 PM	3:49 PM	49.0	52.6					
26	3:49 PM	3:50 PM	49.9	53.1					
27	3:50 PM	3:51 PM	47.2	48.5					
28	3:51 PM	3:52 PM	47.3	49.3					
29	3:52 PM	3:53 PM	47.7	50.9					
30	3:53 PM	3:54 PM	47.4	49.9					
TOT			48.0	59.1					

URS Acoustics and Noise Control Practice


FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10-11-17 Page 1 of 2
 Monitoring Location: ST- 20 Analyst: Bell/Moore

<p>Sound Level Meter</p> <p>Model #: <u>LD LXT</u></p> <p>Serial #: <u>4677</u></p> <p>Weighting: A / C / Flat</p> <p>Response: Slow / Fast / Impl</p> <p>Windscreen : Yes / No (explain)</p>	<p>Field Calibration</p> <p>Model #: <u>CAL200</u></p> <p>Serial #: <u>11085</u></p> <p>Calibration Level (dBA): <u>94 / 114</u></p> <p>Pre-Test <u>114</u> dBA</p> <p>Post-Test <u>113.96</u> dBA</p>	<p>Weather Data</p> <p>Model #: <u>Wunderground</u></p> <p>Serial #: <u>N/A</u></p> <p>Wind: Steady/Gusty/Calm <u>Calm</u></p> <p>Precipitation: Yes (explain) / No <u>No</u></p> <p>Avg Wind Speed/Direction: <u>0</u></p> <p>Temp (°F): <u>80</u> RH (%): <u> </u></p> <p>Bar Psr (Hg): <u> </u> Cloud Cover (%): <u> </u></p>
<p>Topo: <u>Flat (Hilly)</u></p> <p>Terrain: <u>Hard/Soft/Mixed/Snow</u></p>		<p>GPS Coordinates (at SLM location)#</p>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	1:41 pm								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30	2:11 pm								
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			<u>compass</u> 	<u>Site Diagram:</u>		
Speed (post/obs)*						
Number of Lanes						
Width (pave/row)						
1- or 2- way						
Grade						
Bus Stops						
Stoplights						
Motorcycles						
Automobiles						
Medium Trucks						
Heavy Trucks						
Buses						
Count duration						

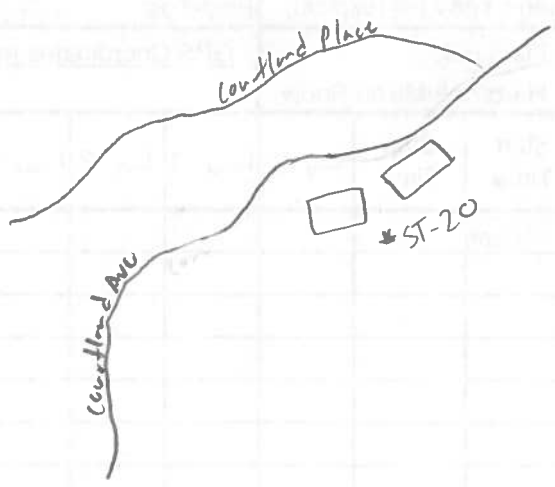
- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes / No

Additional Notes/Comments: *Andrew Bell*

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects

Additional Notes and Sketches on Reverse



** We moved this location to behind the two newly constructed duplex homes off Courtland Ave.*

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/11/2017 Page 1 of 2
 Monitoring Location: ST 20 - Courtland Avenue Analyst: Bell/Moore

<u>Sound Level Meter</u> Model #: <u>LD LxT</u> Serial #: <u>4877</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen : Yes / No (explain)	<u>Field Calibration</u> Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114</u> dBA Post-Test <u>113.98</u> dBA	<u>Weather Data</u> Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: Steady/Gusty/ Calm Precipitation: Yes (explain) / No Avg Wind Speed/Direction: <u>0</u> Temp (°F): <u>80</u> RH (%): _____ Bar Psr (Hg): _____ Cloud Cover (%): _____
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>	<u>GPS Coordinates (at SLM location)#</u>	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	1:41 PM	1:42 PM	45.4	53.3					
1	1:42 PM	1:43 PM	47.4	50.9					
2	1:43 PM	1:44 PM	46.0	51.8					
3	1:44 PM	1:45 PM	45.8	49.1					
4	1:45 PM	1:46 PM	44.9	47.0					
5	1:46 PM	1:47 PM	46.9	49.4					
6	1:47 PM	1:48 PM	44.4	47.0					
7	1:48 PM	1:49 PM	45.3	47.7					
8	1:49 PM	1:50 PM	46.2	51.4					
9	1:50 PM	1:51 PM	45.2	48.8					
10	1:51 PM	1:52 PM	46.3	49.8					
11	1:52 PM	1:53 PM	45.6	49.1					
12	1:53 PM	1:54 PM	45.3	52.1					
13	1:54 PM	1:55 PM	45.6	47.1					
14	1:55 PM	1:56 PM	46.7	50.8					
15	1:56 PM	1:57 PM	46.3	48.8					
16	1:57 PM	1:58 PM	46.7	48.9					
17	1:58 PM	1:59 PM	47.3	52.1					
18	1:59 PM	2:00 PM	46.7	53.4					
19	2:00 PM	2:01 PM	46.2	52.8					
20	2:01 PM	2:02 PM	46.2	49.2					
21	2:02 PM	2:03 PM	45.5	47.5					
22	2:03 PM	2:04 PM	48.0	53.6					
23	2:04 PM	2:05 PM	46.8	50.1					
24	2:05 PM	2:06 PM	45.8	50.1					
25	2:06 PM	2:07 PM	46.3	49.6					
26	2:07 PM	2:08 PM	46.3	49.3					
27	2:08 PM	2:09 PM	45.8	49.1					
28	2:09 PM	2:10 PM	46.1	49.1					
29	2:10 PM	2:11 PM	47.3	49.6					
30	2:11 PM	2:12 PM	45.9	46.7					
TOT			46.2	53.6					



**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10-12-17 Page 1 of 2
 Monitoring Location: ST-21 Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4877</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/ <u>Calm</u>
Response: <u>Slow</u> / Fast / Impl	Pre-Test <u>114.1</u> dBA	Precipitation: Yes (explain) <u>No</u>
Windscreen : <u>Yes</u> / No (explain)	Post-Test <u>113.96</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: <u>Flat / Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>70°</u> RH (%): <u> </u>
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u>80%</u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	9:19 AM								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13	9:32 AM								Car drove by meter on west side
14									
15									
16									
17									
18									
19	9:38 AM								truck drove by meter on west side
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31	9:50 AM								

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			<u>compass</u> 	<u>Site Diagram:</u>		
Speed (post/obs)*						
Number of Lanes						
Width (pave/row)			<u>Meter</u>	<u>Location</u>	<u>Post-Test</u>	
1- or 2- way						
Grade						
Bus Stops						
Stoplights						
Motorcycles						
Automobiles						
Medium Trucks						
Heavy Trucks						
Buses						
Count duration						

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes/No Andrew Bell

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/Insects
Additional Notes and Sketches on Reverse

* Moved ST-21 across the street from location identified on map. Be sure to update current location in google.

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/12/2017 Page 1 of 2
 Monitoring Location: ST 21 - Westover Drive South Analyst: Bell/Moore

<u>Sound Level Meter</u> Model #: <u>LD LxT</u> Serial #: <u>4877</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen : Yes / No (explain)	<u>Field Calibration</u> Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114.1</u> dBA Post-Test <u>113.96</u> dBA	<u>Weather Data</u> Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: Steady/Gusty/ Calm Precipitation: Yes (explain) / No Avg Wind Speed/Direction: <u>0</u> Temp (°F): <u>70</u> RH (%): <u> </u> Bar Psr (Hg): <u> </u> Cloud Cover (%): <u>80</u>
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>	<u>GPS Coordinates (at SLM location)#</u>	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	9:19 AM	9:20 AM	49.7	53.5					
1	9:20 AM	9:21 AM	50.2	53.7					
2	9:21 AM	9:22 AM	49.3	50.9					
3	9:22 AM	9:23 AM	49.8	52.5					
4	9:23 AM	9:24 AM	49.9	51.8					
5	9:24 AM	9:25 AM	50.1	51.7					
6	9:25 AM	9:26 AM	50.4	52.1					
7	9:26 AM	9:27 AM	50.2	53.4					
8	9:27 AM	9:28 AM	49.9	52.7					
9	9:28 AM	9:29 AM	49.4	51.4					
10	9:29 AM	9:30 AM	50.2	53.2					
11	9:30 AM	9:31 AM	51.3	56.1					
12	9:31 AM	9:32 AM	51.3	57.7					
13	9:32 AM	9:33 AM	50.0	53.2					Car drove by meter on Westover
14	9:33 AM	9:34 AM	49.8	52.6					
15	9:34 AM	9:35 AM	49.9	51.9					
16	9:35 AM	9:36 AM	50.9	54.2					
17	9:36 AM	9:37 AM	57.4	61.9					
18	9:37 AM	9:38 AM	58.0	60.3					
19	9:38 AM	9:39 AM	56.0	63.7					Truck drove by meter on Westover
20	9:39 AM	9:40 AM	53.4	57.4					
21	9:40 AM	9:41 AM	51.8	54.3					
22	9:41 AM	9:42 AM	53.5	56.9					
23	9:42 AM	9:43 AM	52.5	61.4					
24	9:43 AM	9:44 AM	51.7	57.3					
25	9:44 AM	9:45 AM	50.1	52.5					
26	9:45 AM	9:46 AM	51.3	53.6					
27	9:46 AM	9:47 AM	51.4	58.0					
28	9:47 AM	9:48 AM	49.9	51.5					
29	9:48 AM	9:49 AM	50.1	51.4					
30	9:49 AM	9:50 AM	50.0	52.8					
TOT			52.0	63.7					

URS Acoustics and Noise Control Practice


FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/12/17 Page 1 of 2
 Monitoring Location: ST-22 Analyst: Bell/Moore

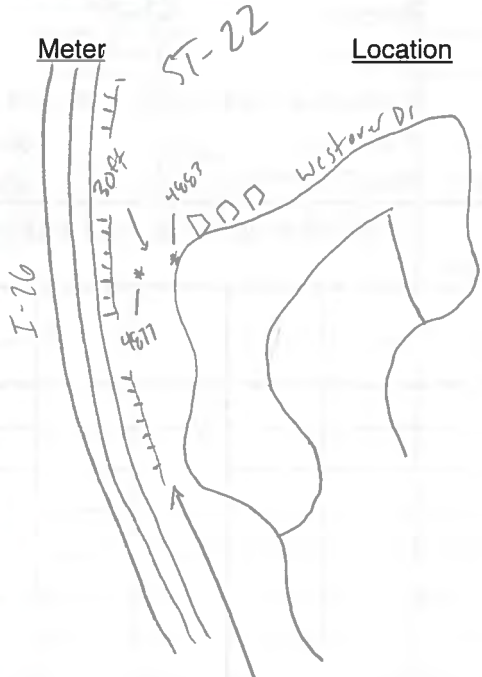
Sound Level Meter Model #: <u>LD LxT</u> Serial #: <u>4663, 4677</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen: Yes / No (explain)	Field Calibration Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114.1</u> dBA Post-Test <u>4663=114.1 4677=113.56</u> dBA	Weather Data Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: Steady/Gusty/Calm <u>Calm</u> Precipitation: Yes (explain) <u>No</u> Avg Wind Speed/Direction: <u>0</u> Temp (°F): <u>70°</u> RH (%): <u> </u> Bar Psr (Hg): <u> </u> Cloud Cover (%): <u> </u>
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>		GPS Coordinates (at SLM location)# <u> </u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	<u>6:39 am</u>								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20	<u>8:57 pm</u>								
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir	US 19-23-70 NB	US 19-23-70 SB	compass 	<u>Site Diagram:</u>
Speed (post/obs)*	55	55		
Number of Lanes	2	2		
Width (pave/row)				
1- or 2- way				
Grade				
Bus Stops				
Stoplights				
Motorcycles	-	-		
Automobiles	427	576		
Medium Trucks	26	16		
Heavy Trucks	17	19		
Buses	-	-		
Count duration	15 min	15 min		

Meter **Location** **Post-Test**



I-26

ST-22

Westover Dr

significant drop to I-26
Add terrain line

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes/No Hunter Moore

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/Insects
Additional Notes and Sketches on Reverse

URS Acoustics and Noise Control Practice


FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/12/2017 Page 1 of 2
 Monitoring Location: ST 22 - Westover Drive North Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4877, 4883</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: A / C / Flat	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/Calm
Response: Slow / Fast / Impl	Pre-Test <u>114.1</u> dBA	Precipitation: Yes (explain) / No
Windscreen : Yes / No (explain)	Post-Test <u>113.96/114.1</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: <u>Flat / Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>70</u> RH (%): <u> </u>
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u> </u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	8:39 AM	8:40 AM	64.0	65.7	58.8	60.7			
1	8:40 AM	8:41 AM	63.3	66.3	59.7	62.2			
2	8:41 AM	8:42 AM	61.9	64.5	59.2	62.2			
3	8:42 AM	8:43 AM	63.0	68.4	57.8	60.8			
4	8:43 AM	8:44 AM	63.0	65.6	58.5	62.8			
5	8:44 AM	8:45 AM	61.8	64.3	58.7	60.5			
6	8:45 AM	8:46 AM	61.3	64.2	57.3	59.4			
7	8:46 AM	8:47 AM	61.3	65.6	56.8	59.8			
8	8:47 AM	8:48 AM	61.9	64.4	57.6	61.2			
9	8:48 AM	8:49 AM	61.5	63.8	57.6	60.6			
10	8:49 AM	8:50 AM	61.5	64.1	57.0	58.4			
11	8:50 AM	8:51 AM	63.0	67.5	57.3	59.9			
12	8:51 AM	8:52 AM	62.4	66.0	58.3	63.2			
13	8:52 AM	8:53 AM	62.2	66.1	58.0	61.6			
14	8:53 AM	8:54 AM	63.2	68.0	58.2	60.6			
15	8:54 AM	8:55 AM	63.3	67.1	59.2	62.9			
16	8:55 AM	8:56 AM	62.5	65.3	58.5	62.6			
17	8:56 AM	8:57 AM	61.3	64.3	64.0	76.0			
18	8:57 AM	8:58 AM	62.0	67.1	57.3	60.0			
19	8:58 AM	8:59 AM	61.9	63.5	58.3	61.6			
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
TOT			62.4	68.4	58.7	76.0			

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Roadway Name/Dir	US 19/23/70 NB	US 19/23/70 SB	<u>compass</u> 	<u>Site Diagram:</u>		
Speed (post/obs)*	55	55				
Number of Lanes	2	2				
Width (pave/row)				<u>Meter</u>	<u>Location</u>	<u>Post-Test</u>
1- or 2- way						
Grade						
Bus Stops						
Stoplights						
Motorcycles						
Automobiles	427	576				
Medium Trucks	26	16				
Heavy Trucks	17	19				
Buses						
Count duration	15 min	15 min				

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? **Yes/No**

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/Insects

Additional Notes and Sketches on Reverse


URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10-11-17 Page 1 of 2
 Monitoring Location: ST-23 Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4877</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/ <u>Calm</u>
Response: <u>Slow</u> / Fast / Impl	Pre-Test <u>114</u> dBA	Precipitation: Yes (explain) / <u>No</u>
Windscreen : <u>Yes</u> / No (explain)	Post-Test <u>113.98</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: <u>Flat / Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>80°</u> RH (%): <u> </u>
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u> </u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	<u>4:08pm</u>								
1									
2	<u>4:10</u>								<u>vehicle passed by</u>
3									
4									
5									
6									
7	<u>4:15</u>								<u>2 vehicles drove by</u>
8	<u>4:16</u>								<u>vehicle</u>
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20	<u>4:26pm</u>								
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			<u>compass</u> 	<u>Site Diagram:</u>		
Speed (post/obs)*						
Number of Lanes						
Width (pave/row)						
1- or 2- way						
Grade						
Bus Stops						
Stoplights						
Motorcycles						
Automobiles						
Medium Trucks						
Heavy Trucks						
Buses						
Count duration						


- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes/No Hunter Moore

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects

Additional Notes and Sketches on Reverse



* Had to relocate noise meter from original location due to construction noise. Please see Hunter Moore's photo for exact location of monitor.

URS Acoustics and Noise Control Practice

FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/11/2017 Page 1 of 2
 Monitoring Location: ST 23 - Hibriten Drive Analyst: Bell/Moore

<u>Sound Level Meter</u> Model #: <u>LD LxT</u> Serial #: <u>4877</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen : Yes / No (explain)	<u>Field Calibration</u> Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114</u> dBA Post-Test <u>113.98</u> dBA	<u>Weather Data</u> Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: Steady/Gusty/ Calm Precipitation: Yes (explain) / No Avg Wind Speed/Direction: <u>0</u> Temp (°F): <u>80</u> RH (%): _____ Bar Psr (Hg): _____ Cloud Cover (%): _____
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>	<u>GPS Coordinates (at SLM location)#</u>	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	4:08 PM	4:09 PM	47.3	53.4					
1	4:09 PM	4:10 PM	46.4	51.1					
2	4:10 PM	4:11 PM	50.4	60.5					Vehicle passed by
3	4:11 PM	4:12 PM	47.1	50.9					
4	4:12 PM	4:13 PM	49.3	52.6					
5	4:13 PM	4:14 PM	47.8	51.8					
6	4:14 PM	4:15 PM	48.6	57.5					
7	4:15 PM	4:16 PM	48.7	57.3					2 vehicles drove by
8	4:16 PM	4:17 PM	49.9	57.4					Vehicle
9	4:17 PM	4:18 PM	49.1	54.5					
10	4:18 PM	4:19 PM	48.6	52.6					
11	4:19 PM	4:20 PM	49.1	53.3					
12	4:20 PM	4:21 PM	49.5	53.6					
13	4:21 PM	4:22 PM	49.1	52.6					
14	4:22 PM	4:23 PM	48.0	53.8					
15	4:23 PM	4:24 PM	48.1	52.5					
16	4:24 PM	4:25 PM	48.3	52.4					
17	4:25 PM	4:26 PM	47.0	50.3					
18	4:26 PM	4:27 PM	48.2	49.8					
19	4:27 PM	4:28 PM	48.6	55.1					
20	4:28 PM	4:29 PM	46.8	46.8					
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
TOT			48.5	60.5					


URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10-12-17 Page 1 of 2
 Monitoring Location: ST-24 Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4677, 4683</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/ <u>Calm</u>
Response: <u>Slow</u> / Fast / Impl	Pre-Test <u>114.1</u> dBA	Precipitation: Yes (explain) / <u>No</u>
Windscreen : <u>Yes</u> / No (explain)	Post-Test <u>4677=113.56 4683=114.1</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: <u>Flat</u> / <u>Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>70</u> RH (%): <u> </u>
Terrain: <u>Hard</u> / Soft / Mixed / Snow		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u>50%</u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	10:43am								
1									
2									
3	10:46am								Resident approached meter.
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20	11:03am								
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir	I-26 NB	I-26 SB	compass 	Site Diagram:	
Speed (post/obs)*	55	55			
Number of Lanes	2	2			
Width (pave/row)					
1- or 2- way	1	1			
Grade					
Bus Stops	—	—			
Stoplights	—	—			
Motorcycles	—	—			
Automobiles	531	474			
Medium Trucks	15	12			
Heavy Trucks	18	19			
Buses	—	—			
Count duration	15	15			

- note coordinate system * - Speed estimated by Radar / Driving / Observation

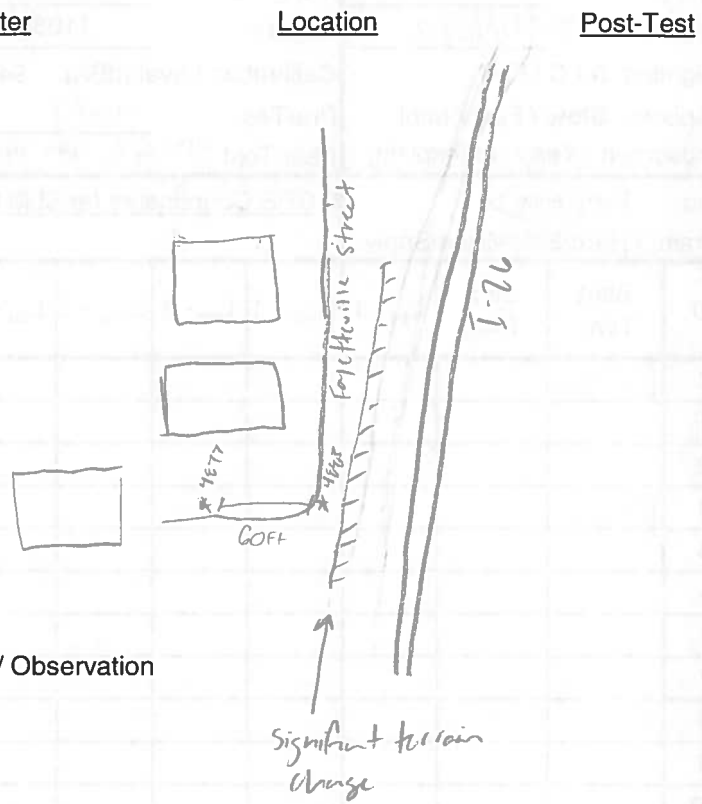
Photos Taken? Yes / No Andrew Bell

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects

Additional Notes and Sketches on Reverse

* Both monitors are at a higher elevation than the road at this location. Monitors are at the top of a hill.




**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/12/2017 Page 1 of 2
 Monitoring Location: ST 24 - Fayetteville Street Analyst: Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4877, 4883</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: A / C / Flat	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/Calm
Response: Slow / Fast / Impl	Pre-Test <u>114.1</u> dBA	Precipitation: Yes (explain) / No
Windscreen : Yes / No (explain)	Post-Test <u>113.96/114.1</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: Flat / Hilly	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>70</u> RH (%): <u> </u>
Terrain: Hard/Soft/Mixed/Snow		Bar Psr (Hg): <u> </u> Cloud Cover (%): <u>50</u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	10:43 AM	10:44 AM	62.0	66.2	54.9	59.6			
1	10:44 AM	10:45 AM	62.0	66.2	55.2	58.9			
2	10:45 AM	10:46 AM	60.6	63.1	53.4	55.2			
3	10:46 AM	10:47 AM	61.6	63.8	54.1	55.8			Resident approached meter
4	10:47 AM	10:48 AM	63.2	70.0	55.5	60.8			
5	10:48 AM	10:49 AM	65.6	73.5	59.1	67.5			
6	10:49 AM	10:50 AM	62.4	65.4	55.2	58.7			
7	10:50 AM	10:51 AM	61.6	64.5	54.8	57.6			
8	10:51 AM	10:52 AM	65.4	71.4	58.3	64.2			
9	10:52 AM	10:53 AM	62.1	64.0	55.3	57.3			
10	10:53 AM	10:54 AM	61.7	64.6	54.8	60.3			
11	10:54 AM	10:55 AM	62.0	64.6	55.0	56.5			
12	10:55 AM	10:56 AM	63.8	72.8	56.1	63.0			
13	10:56 AM	10:57 AM	62.3	64.7	55.1	57.1			
14	10:57 AM	10:58 AM	62.8	69.6	55.6	60.5			
15	10:58 AM	10:59 AM	62.6	66.3	55.5	59.1			
16	10:59 AM	11:00 AM	61.3	64.2	54.1	56.0			
17	11:00 AM	11:01 AM	61.3	64.2	54.1	56.6			
18	11:01 AM	11:02 AM	63.0	65.1	55.8	57.6			
19	11:02 AM	11:03 AM	63.1	67.9	57.7	61.9			
20	11:03 AM	11:04 AM	63.6	67.0	57.1	59.2			
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
TOT			62.8	73.5	55.8	67.5			

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Roadway Name/Dir	I-26 NB	I-26 SB	<u>compass</u> 	<u>Site Diagram:</u>		
Speed (post/obs)*	55	55				
Number of Lanes	2	2				
Width (pave/row)			<u>Meter</u>	<u>Location</u>		<u>Post-Test</u>
1- or 2- way	1	1				
Grade						
Bus Stops						
Stoplights						
Motorcycles						
Automobiles	531	474				
Medium Trucks	15	12				
Heavy Trucks	18	19				
Buses						
Count duration	15 min	15 min				

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? **Yes/No**

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/Insects

Additional Notes and Sketches on Reverse

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

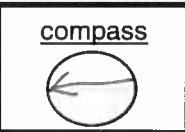
Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10-17-17 Page 1 of 2
 Monitoring Location: ST-25 Analyst: _____ Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4677</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: <u>Steady/Gusty/Calm</u>
Response: <u>Slow / Fast / Impl</u>	Pre-Test <u>114.1</u> dBA	Precipitation: Yes (explain) / <u>No</u>
Windscreen: <u>Yes / No (explain)</u>	Post-Test <u>113.96</u> dBA	Avg Wind Speed/Direction: _____
Topo: <u>Flat</u> Hilly	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>61°</u> RH (%): _____
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): _____ Cloud Cover (%): <u>0</u>

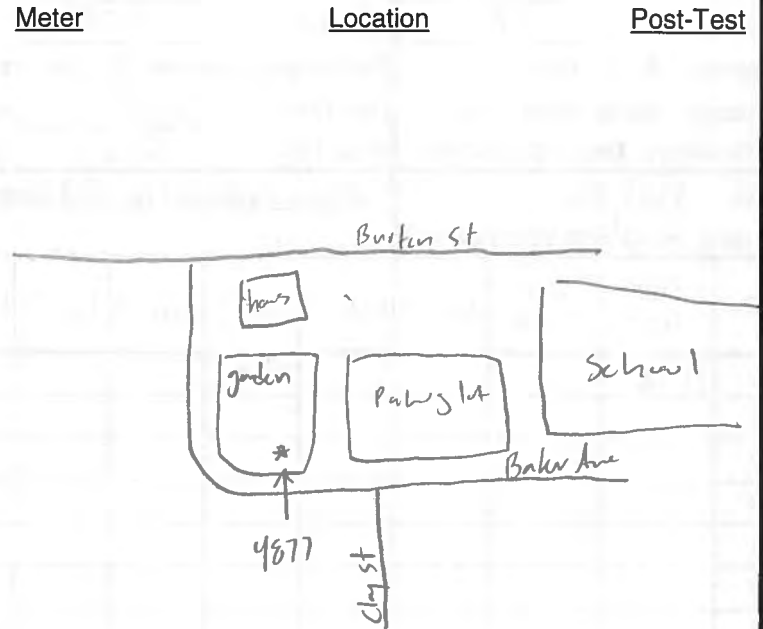
ID	Start Time	Stop Time	L _{eq} - 1		L _{eq} - 2		L _{eq} - 3		Notes/Events
			L _{max} - 1	L _{max} - 2	L _{max} - 3	L _{max} - 4			
0	<u>11:23</u>								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
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17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30	<u>11:53</u>								
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir		
Speed (post/obs)*		
Number of Lanes		
Width (pave/row)		
1- or 2- way		
Grade		
Bus Stops		
Stoplights		
Motorcycles		
Automobiles		
Medium Trucks		
Heavy Trucks		
Buses		
Count duration		



Site Diagram:



- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes / No Andrew Bell

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects
Additional Notes and Sketches on Reverse

**URS Acoustics and Noise Control Practice
FIELD NOISE MEASUREMENT DATA FORM**

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/12/2017 Page 1 of 2
 Monitoring Location: ST 25 - Baker Avenue Analyst: Bell/Moore

<u>Sound Level Meter</u> Model #: <u>LD LxT</u> Serial #: <u>4877</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen : Yes / No (explain)	<u>Field Calibration</u> Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114.1</u> dBA Post-Test <u>113.96</u> dBA	<u>Weather Data</u> Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: Steady/Gusty/Calm Precipitation: Yes (explain) / No Avg Wind Speed/Direction: <u>0</u> Temp (°F): <u>81</u> RH (%): <u> </u> Bar Psr (Hg): <u> </u> Cloud Cover (%): <u>0</u>
Topo: Flat / Hilly Terrain: Hard /Soft/Mixed/Snow	<u>GPS Coordinates (at SLM location)#</u>	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	11:23 AM	11:24 AM	45.2	46.9					
1	11:24 AM	11:25 AM	47.2	54.3					
2	11:25 AM	11:26 AM	45.2	48.6					
3	11:26 AM	11:27 AM	45.4	49.7					
4	11:27 AM	11:28 AM	46.4	49.3					
5	11:28 AM	11:29 AM	48.7	54.5					
6	11:29 AM	11:30 AM	45.1	51.1					
7	11:30 AM	11:31 AM	46.1	53.4					
8	11:31 AM	11:32 AM	45.8	49.4					
9	11:32 AM	11:33 AM	47.2	52.5					
10	11:33 AM	11:34 AM	44.4	46.7					
11	11:34 AM	11:35 AM	46.8	52.5					
12	11:35 AM	11:36 AM	49.6	55.5					
13	11:36 AM	11:37 AM	53.2	61.3					
14	11:37 AM	11:38 AM	45.0	48.3					
15	11:38 AM	11:39 AM	45.2	47.6					
16	11:39 AM	11:40 AM	45.2	48.2					
17	11:40 AM	11:41 AM	45.1	48.9					
18	11:41 AM	11:42 AM	45.1	46.8					
19	11:42 AM	11:43 AM	45.6	50.4					
20	11:43 AM	11:44 AM	44.9	46.3					
21	11:44 AM	11:45 AM	44.3	45.8					
22	11:45 AM	11:46 AM	47.8	53.9					
23	11:46 AM	11:47 AM	46.8	51.2					
24	11:47 AM	11:48 AM	47.0	55.3					
25	11:48 AM	11:49 AM	47.1	51.0					
26	11:49 AM	11:50 AM	46.5	55.4					
27	11:50 AM	11:51 AM	45.5	49.4					
28	11:51 AM	11:52 AM	48.6	55.7					
29	11:52 AM	11:53 AM	46.4	53.2					
30	11:53 AM	11:54 AM	48.0	55.3					
TOT			46.9	61.3					

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name:		Site #: LT1		Date: 6/18/14	
Site Description:		Site Location: 159 Westover Drive / Sylvan Ave			
Start Time:		Descriptor	Location		
End Time:					
Temperature:	82	L _{eq} :	58.5		
Wind Speed:	0	L _{min} :	47.9		
Cloud Cover:	Sunny, clear	L _{max} :	85.9		

Site Sketch: (Plan View)

Site Sketch: (Profile View)

	Traffic Counts	Direction NB		Direction SB	
Road Name:		Mainline		Mainline	
Typical Section:	Autos:				
	Medium Trucks:				
	Heavy Trucks:				
	Buses:				
Speed Limit:	Motorcycles:				

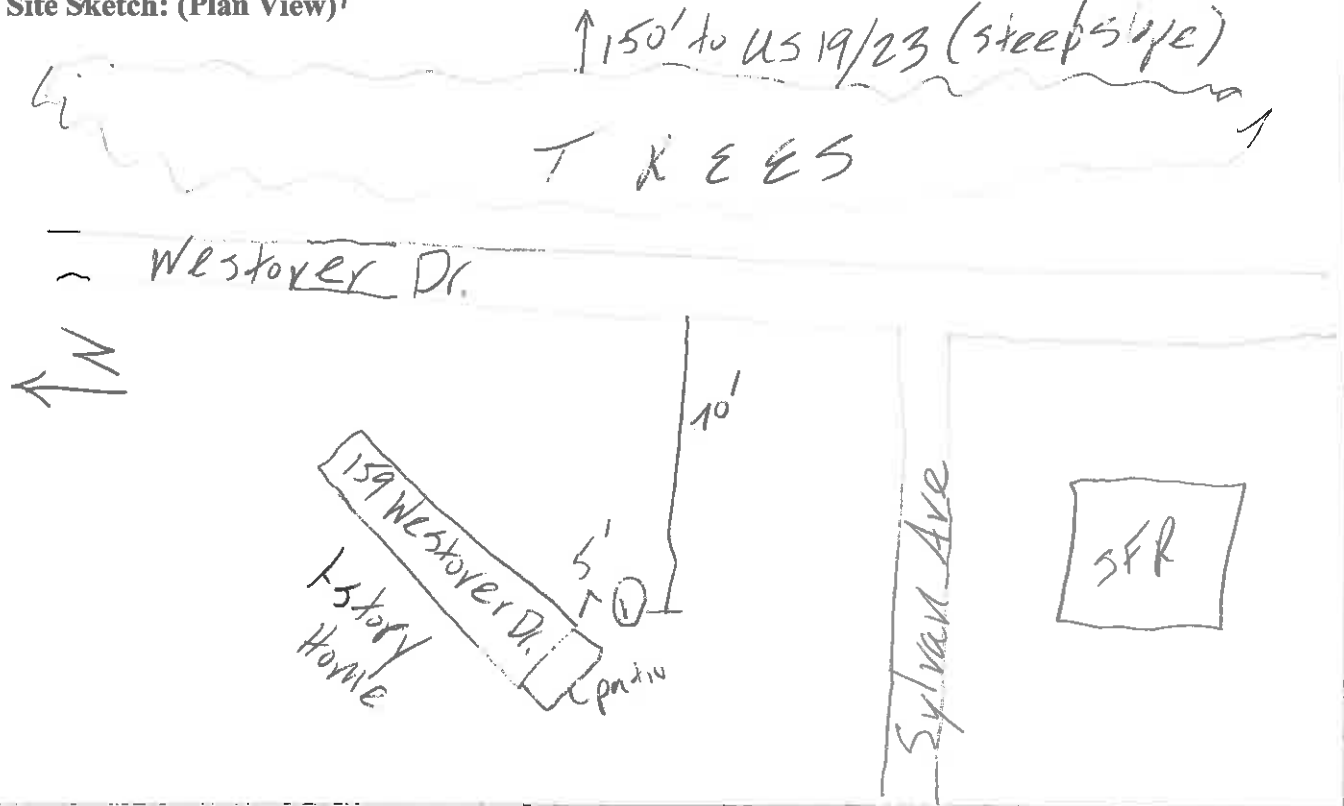
Project Name:	Site #:	Date:
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TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

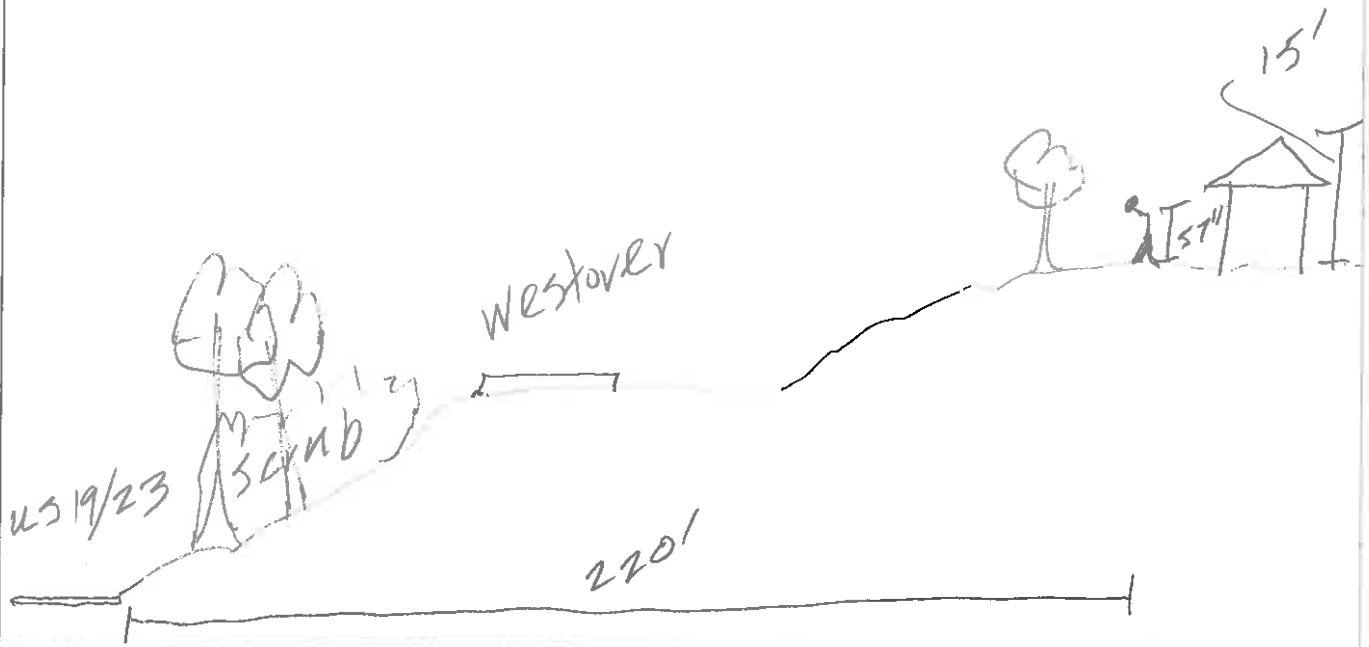
LT1

Date: 6/18/14 Project: I-26 Improvements Location: 159 Westover Dr. at Sylvan Ave.

Site Sketch: (Plan View)



Site Sketch: (Profile View)



TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Project Name: I-26 Roadway Improvement Project		Site #: LT2		Date: 6/19/14	
Site Description:		Site Location: Unit 39 Monty Willow Lake			
Start Time:		Descriptor	Location		
End Time:			LT2		
Temperature:		L _{eq} :	62.0		
Wind Speed:	0 mph	L _{min} :	44.6		
Cloud Cover:	None	L _{max} :	90.5		
Site Sketch: (Plan View)					
See Attached					
Site Sketch: (Profile View)					
See Attached					
Background Measurement					

LT2

TRAFFIC NOISE FIELD MEASUREMENT WORKSHEET

Date:

6-18-14

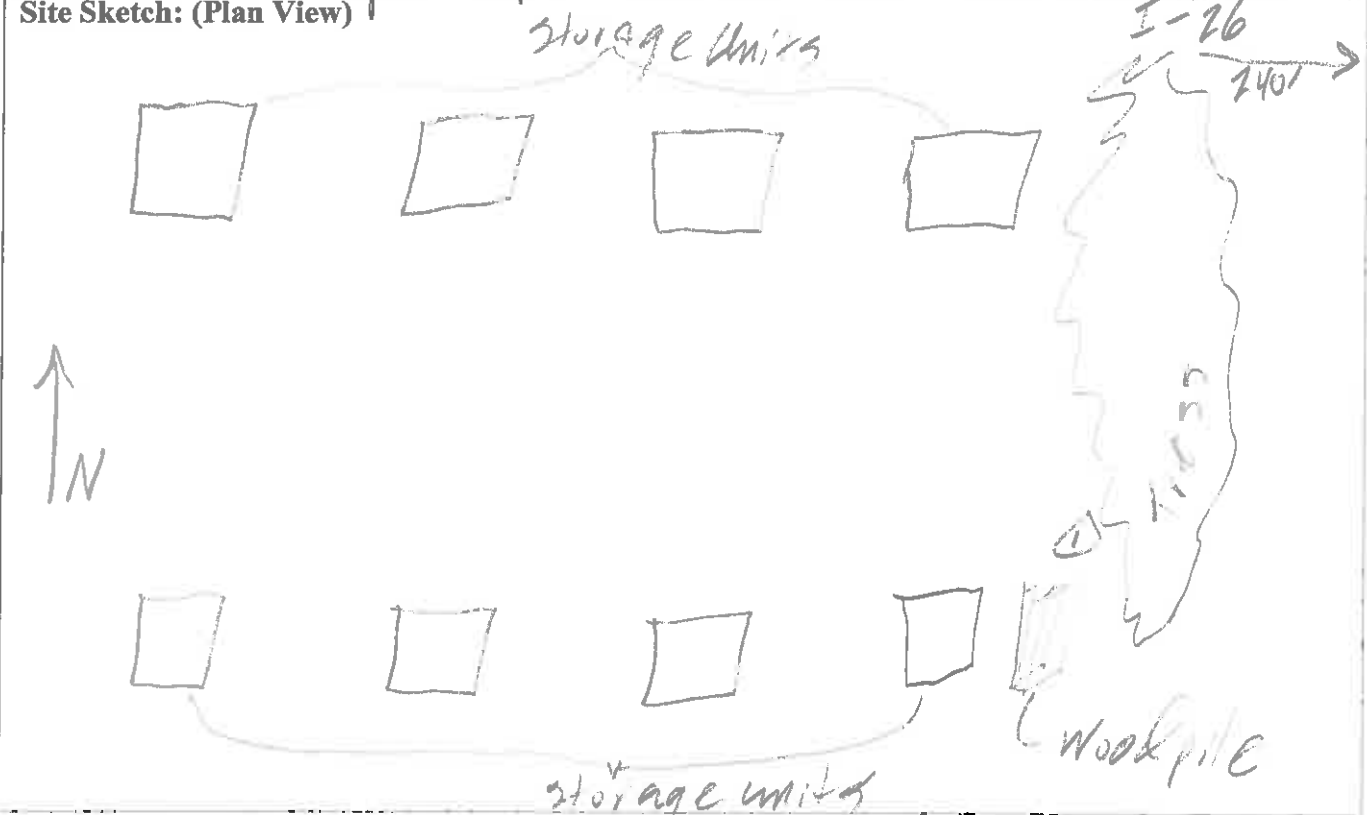
Project:

I-26 Improvements

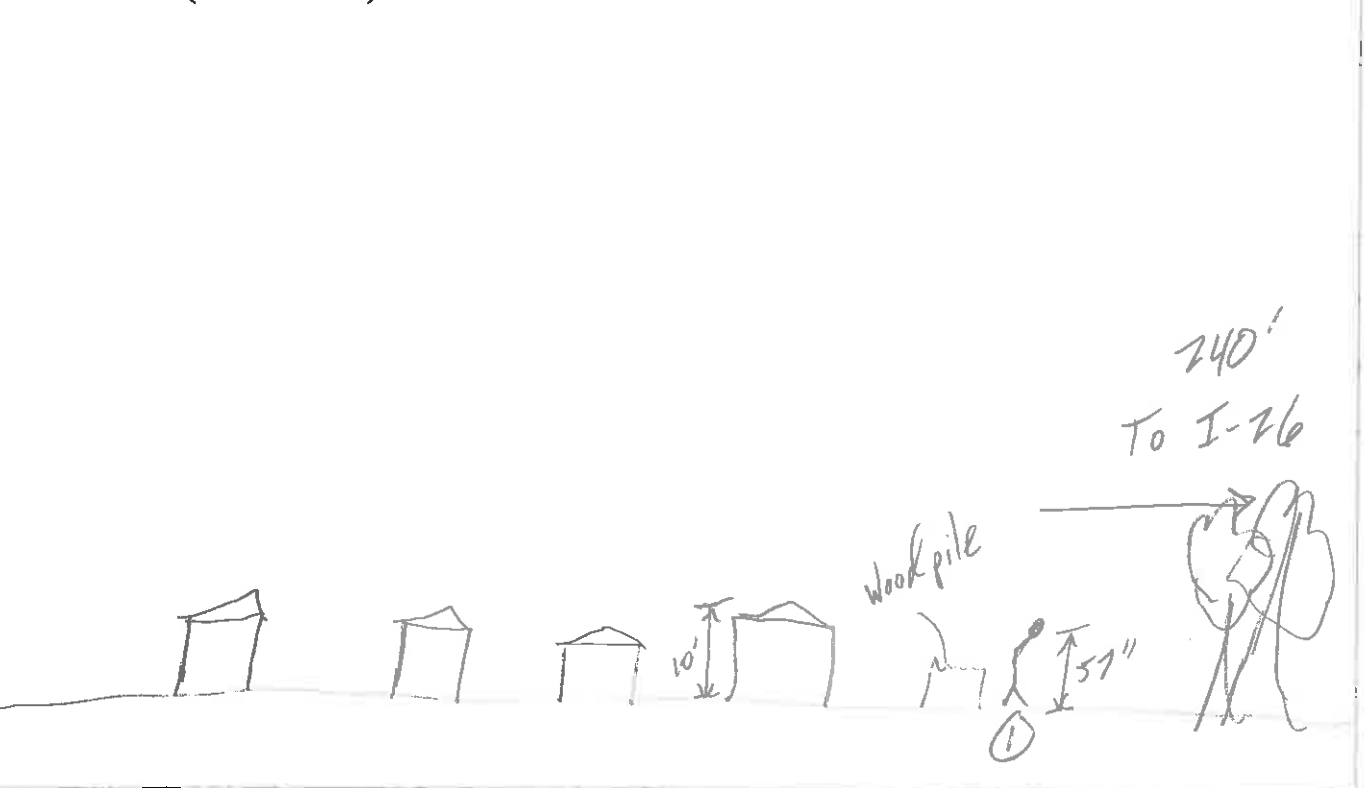
Location:

Clairmont Cres; Mobile Home Park

Site Sketch: (Plan View)



Site Sketch: (Profile View)



URS Acoustics and Noise Control Practice


FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I-26 Connector Project #: 60547159 Date: 10/11/17 Page 1 of 2
 Monitoring Location: LT-3 Analyst: _____ Bell/Moore

<u>Sound Level Meter</u>	<u>Field Calibration</u>	<u>Weather Data</u>
Model #: <u>LD LxT</u>	Model #: <u>CAL200</u>	Model #: <u>Wunderground</u>
Serial #: <u>4527</u>	Serial #: <u>11085</u>	Serial #: <u>N/A</u>
Weighting: <u>A / C / Flat</u>	Calibration Level (dBA): <u>94 / 114</u>	Wind: Steady/Gusty/ <u>Calm</u>
Response: <u>Slow / Fast / Impl</u>	Pre-Test <u>114</u> dBA	Precipitation: Yes (explain) / <u>No</u>
Windscreen : <u>Yes / No (explain)</u>	Post-Test <u>113.79</u> dBA	Avg Wind Speed/Direction: <u>0</u>
Topo: <u>Flat / Hilly</u>	<u>GPS Coordinates (at SLM location)#</u>	Temp (°F): <u>80°</u> RH (%): _____
Terrain: <u>Hard/Soft/Mixed/Snow</u>		Bar Psr (Hg): _____ Cloud Cover (%): <u>0</u>

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	<u>12:07 pm</u>	<u>10/11/17</u>							
1	↓								
2									
3									
4	<u>12:07 pm</u>	<u>2 hrs</u>	<u>10/12/17</u>						
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			<u>compass</u> 	<u>Site Diagram:</u>
Speed (post/obs)*				
Number of Lanes				
Width (pave/row)			<u>Meter</u>	<u>Location</u>
1- or 2- way				<u>Post-Test</u>
Grade				
Bus Stops				
Stoplights				
Motorcycles				
Automobiles				
Medium Trucks				
Heavy Trucks				
Buses				
Count duration				

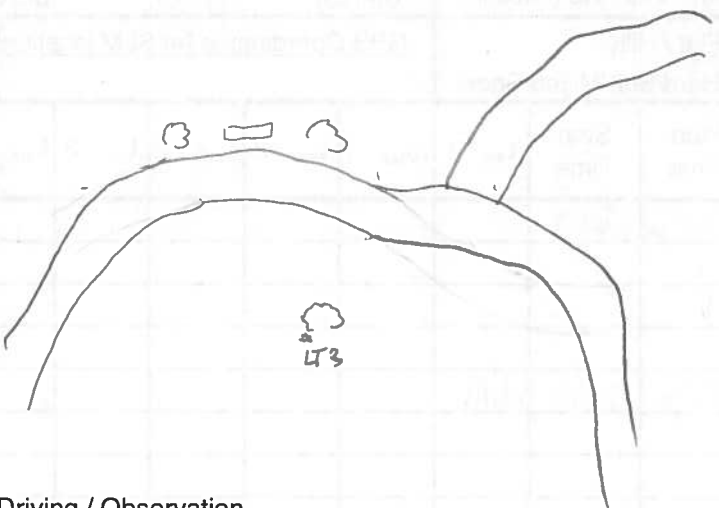
- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes/No *Andrew Bell*

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/Insects

Additional Notes and Sketches on Reverse




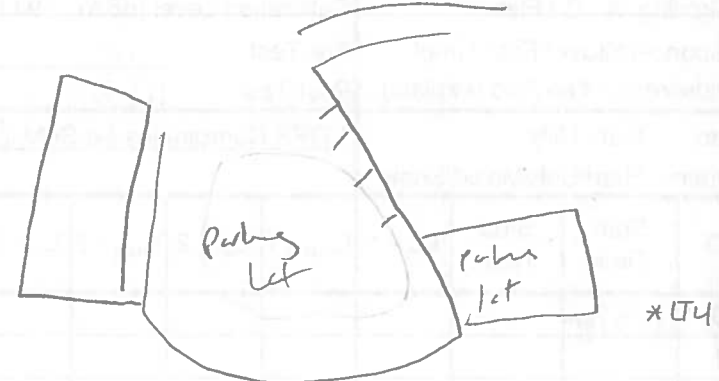
URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Project Name: I-2513 - I- 26 Connector Project #: 60547159 Date: 10/11/17 Page 1 of 2
 Monitoring Location: LT-4 Analyst: Bell/Moore

<u>Sound Level Meter</u> Model #: <u>LD LxT</u> Serial #: <u>4676</u> Weighting: A / C / Flat Response: Slow / Fast / Impl Windscreen : Yes / No (explain)	<u>Field Calibration</u> Model #: <u>CAL200</u> Serial #: <u>11085</u> Calibration Level (dBA): <u>94 / 114</u> Pre-Test <u>114</u> dBA Post-Test <u>113.63</u> dBA	<u>Weather Data</u> Model #: <u>Wunderground</u> Serial #: <u>N/A</u> Wind: <u>Steady/Gusty/Calm</u> Precipitation: Yes (explain) <u>No</u> Avg Wind Speed/Direction: <u>0</u> Temp (°F): <u>80°</u> RH (%): _____ Bar Psr (Hg): _____ Cloud Cover (%): _____
Topo: <u>Flat / Hilly</u> Terrain: <u>Hard/Soft/Mixed/Snow</u>	<u>GPS Coordinates (at SLM location)#</u>	

ID	Start Time	Stop Time	L _{eq} - 1	L _{max} - 1	L _{eq} - 2	L _{max} - 2	L _{eq} - 3	L _{max} - 3	Notes/Events
0	12:35pm								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									meter was dead upon re-arrival at 12:40pm 10-12-17
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

URS Acoustics and Noise Control Practice FIELD NOISE MEASUREMENT DATA FORM

Roadway Name/Dir			<u>compass</u> 	<u>Site Diagram:</u>
Speed (post/obs)*				
Number of Lanes				
Width (pave/row)			<u>Meter</u>	<u>Location</u>
1- or 2- way				<u>Post-Test</u>
Grade				
Bus Stops				
Stoplights				
Motorcycles				
Automobiles				
Medium Trucks				
Heavy Trucks				
Buses				
Count duration				

- note coordinate system * - Speed estimated by Radar / Driving / Observation

Photos Taken? Yes No Andrew Bell

Additional Notes/Comments:

Other Noise Sources: distant: aircraft/roadway traffic/trains/landscaping/rustling leaves/children playing/dogs barking/birds vocalizing/insects
Additional Notes and Sketches on Reverse



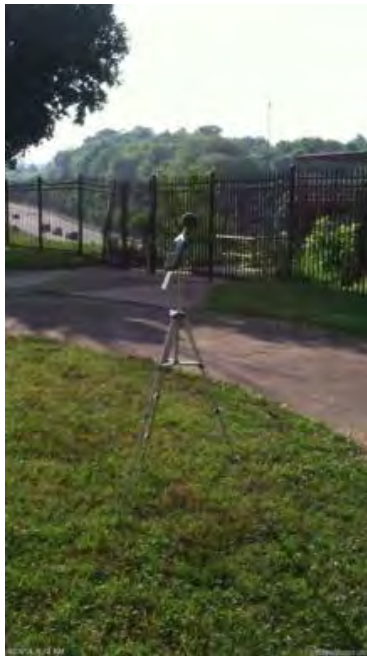
Short Term Location 1, Meters 1 and 2



Short Term Location 2, Meter 1



Short Term Location 3, Meter 1



Short Term Location 4, Meters 1, 2, and 3



Short Term Location 5, Meters 1, 2, and 3



Short Term Location 6, Meters 1, 2, and 3



Short Term Location 7, Meters 1, 2, and 3



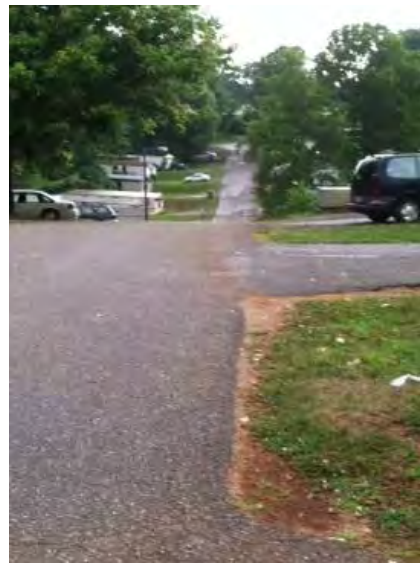
Short Term Location 8, Meters 1, 2, and 3



Short Term Location 9, Meters 1, 2, and 3



Short Term Location 10, Meters 1, 2, and 3



Short Term Location 11, Meters 1 and 2



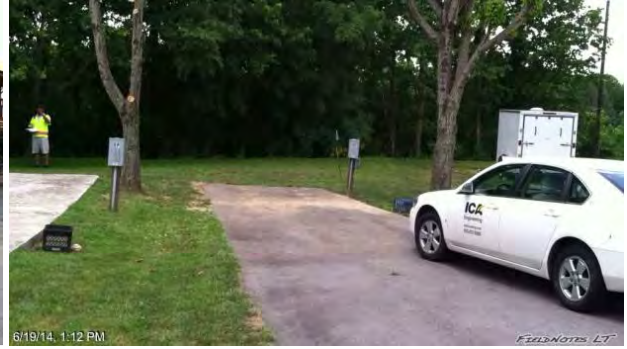
Short Term Location 12, Meter 1



Short Term Location 13, Meters 1 and 2



Short Term Location 14, Meter 1



Short Term Location 15, Meter 1



Short Term Location 16, Meters 1 and 2



Short Term Location 17, Meter 1



Short Term Location 18, Meter 1



Short Term Location 19, Meter 1



Short Term Location 20, Meter 1



Short Term Location 21, Meter 1



Short Term Location 22, Meters 1 and 2



Short Term Location 23, Meter 1



Short Term Location 24, Meters 1 and 2



Short Term Location 25, Meter 1

(No Pictures Available)

Long Term Location 1

(No Pictures Available)

Long Term Location 2



Long Term Location 3



Long Term Location 4

Table A.1
Ambient Noise Level Monitoring

ID	Location	Meter	Coordinates		Measured L _{eq}
Short Term 1	556 Riverside Drive	ST 1.1	35.601369	-82.575127	67.5*
		ST 1.2	35.601299	-82.575284	65.5*
Short Term 2	Crown Resort Tennis Courts	ST 2	35.591110	-82.577577	48.2
Short Term 3	Amboy Road/ French River Greenway	ST 3	35.566809	-82.583007	58.8
Short Term 4	Hillcrest Apts. Building No. 20	ST 4.1	35.591593	-82.569916	67.3
		ST 4.2	35.591822	-82.570178	62.1
		ST 4.3	35.591780	-82.570516	64.1
Short Term 5	St. Paul's Missionary Baptist Church	ST 5.1	35.584963	-82.582888	71.7
		ST 5.2	35.584910	-82.583403	56.9
		ST 5.3	35.584845	-82.583852	52.6
Short Term 6	Wilmington Street	ST 6.1	35.583247	-82.581955	66.5
		ST 6.2	35.583056	-82.581517	63.1
		ST 6.3	35.582929	-82.581210	64.2
Short Term 7	Hanover Street/ Alabama Avenue	ST 7.1	35.574151	-82.582786	65.4
		ST 7.2	35.574190	-82.582156	59.9*
		ST 7.3	35.574098	-82.581554	53.3*
Short Term 8	Fairfax Avenue	ST 8.1	35.565923	-82.592226	60.5
		ST 8.2	35.566100	-82.592215	58.6
		ST 8.3	35.566301	-82.592189	59.6
Short Term 9	Asheville Preschool	ST 9.1	35.579523	-82.582129	68.3
		ST 9.2	35.579109	-82.581716	57.4
		ST 9.3	35.578796	-82.581457	56.8
Short Term 10	Pennsylvania Avenue	ST 10.1	35.576511	-82.583881	54.6
		ST 10.2	35.576531	-82.584133	51.2
		ST 10.3	35.576726	-82.584426	48.0
Short Term 11	Edwards Road	ST 11.1	35.602258	-82.580094	53.8
		ST 11.2	35.602150	-82.580405	50.8
Short Term 12	3 Selwyn Place	ST 12	35.556889	-82.626351	58.5
Short Term 13	Schumacher Homes	ST 13.1	35.544271	-82.603409	64.9
		ST 13.2	35.544302	-82.603079	63.7
Short Term 14	24 Hazelnut Drive	ST 14	35.549156	-82.608208	58.7
Short Term 15	Bear Creek RV Park	ST 15	35.557475	-82.605664	59.7
Short Term 16	Riverside Cemetery	ST 16.1	35.600057	-82.573529	68.8
		ST 16.2	35.600112	-82.573294	62.9
Short Term 17	Amphitheater/ Baseball Field	ST 17	35.600009	-82.567501	50.1
Short Term 18	Asheville Community Center	ST 18	35.596893	-82.560764	56.0
Short Term 19	Isaac Dickson Elementary School	ST 19	35.594322	-82.565845	48.0
Short Term 20	Courtland Avenue	ST 20	35.597555	-82.568243	46.2
Short Term 21	Westover Drive South	ST 21	35.602360	-82.572953	52.0
Short Term 22	Westover Drive North	ST 22.1	35.605017	-82.576179	62.4
		ST 22.2	35.605079	-82.575894	58.7
Short Term 23	Hibriten Drive	ST 23	35.609107	-82.573653	48.5
Short Term 24	Fayetteville Street	ST 24.1	35.583303	-82.583185	62.8
		ST 24.2	35.583315	-82.583453	55.8
Short Term 25	Baker Avenue	ST 25	35.580628	-82.585280	46.9
Long Term 1	159 Westover Drive	LT 1	35.602734	-82.574820	58.5
Long Term 2	Clairmont Crest Mobile Home Park	LT 2	35.557457	-82.613841	62.0
Long Term 3	Riverside Cemetery	LT 3	35.601805	-82.569266	57.4
Long Term 4	Montford Avenue	LT 4	35.607391	-82.570898	62.9

* Measurement data adjusted to remove peak levels due to train noise, construction vehicles, etc.

Table A.2
Ambient Noise Level Monitoring - Traffic Counts

ID	Road Counted	Duration (min)	Veh Type	Northbound / Eastbound			Southbound / Westbound		
				Count	1 Hour eq	Speed (mph)	Count	1 Hour eq	Speed (mph)
Short Term 1	I-26 (NB/SB)	23	Auto	535	1396	55	730	1904	55
			Med Truck	10	26	55	22	57	55
			Hvy Truck	27	70	55	27	70	55
			Bus	1	3	55	0	0	0
			Motorcycle	4	10	55	6	16	55
Short Term 1	Riverside Drive (NB/SB)	23	Auto	88	230	45	150	391	45
			Med Truck	0	0	0	3	8	45
			Hvy Truck	0	0	0	2	5	45
			Bus	0	0	0	0	0	0
			Motorcycle	0	0	0	0	0	0
Short Term 4	I-26 (EB/WB)	23	Auto	1385	3613	50	867	2262	50
			Med Truck	17	44	50	19	50	50
			Hvy Truck	25	65	50	13	34	50
			Bus	4	10	50	0	0	0
			Motorcycle	7	18	50	1	3	50
Short Term 4	I-26 Ramp from US 19/23/70 (WB)	23	Auto	0	0	0	427	1114	30
			Med Truck	0	0	0	9	23	30
			Hvy Truck	0	0	0	7	18	30
			Bus	0	0	0	0	0	0
			Motorcycle	0	0	0	1	3	30
Short Term 6	I-26 (NB/SB)	23	Auto	991	2585	55	1150	3000	55
			Med Truck	15	39	55	8	21	55
			Hvy Truck	14	37	55	18	47	55
			Bus	0	0	0	0	0	0
			Motorcycle	1	3	55	4	10	55
Short Term 7	I-26 (NB/SB)	23	Auto	579	1510	55	457	1192	55
			Med Truck	18	47	55	6	16	55
			Hvy Truck	19	50	55	30	78	55
			Bus	0	0	0	0	0	0
			Motorcycle	0	0	0	0	0	0
Short Term 7	Hanover Street (NB/SB)	23	Auto	13	34	25	15	39	25
			Med Truck	0	0	0	0	0	0
			Hvy Truck	2	5	25	0	0	0
			Bus	1	3	25	1	3	25
			Motorcycle	0	0	0	0	0	0

Table A.2
Ambient Noise Level Monitoring - Traffic Counts

ID	Road Counted	Duration (min)	Veh Type	Northbound / Eastbound			Southbound / Westbound		
				Count	1 Hour eq	Speed (mph)	Count	1 Hour eq	Speed (mph)
Short Term 8	I-26 (EB/WB)	23	Auto	1000	2609	50	933	2434	50
			Med Truck	1	3	50	17	44	50
			Hvy Truck	8	21	50	26	68	50
			Bus	1	3	50	4	10	50
			Motorcycle	2	5	50	4	10	50
Short Term 9	I-26 (NB/SB)	23	Auto	611	1594	55	750	1957	55
			Med Truck	15	39	55	25	65	55
			Hvy Truck	25	65	55	19	50	55
			Bus	1	3	55	1	3	55
			Motorcycle	3	8	55	1	3	55
Short Term 9	I-26 Ramp from Haywood (NB)	23	Auto	56	146	45	0	0	0
			Med Truck	2	5	45	0	0	0
			Hvy Truck	2	5	45	0	0	0
			Bus	0	0	0	0	0	0
			Motorcycle	0	0	0	0	0	0
Short Term 10	I-26 (NB/SB)	23	Auto	539	1406	55	507	1323	55
			Med Truck	9	23	55	15	39	55
			Hvy Truck	15	39	55	47	123	55
			Bus	0	0	0	0	0	0
			Motorcycle	5	13	55	2	5	55
Short Term 10	I-26 Ramp from Haywood (SB)	23	Auto	16	42	45	0	0	0
			Med Truck	12	31	45	0	0	0
			Hvy Truck	2	5	45	0	0	0
			Bus	0	0	0	0	0	0
			Motorcycle	1	3	45	0	0	0
Short Term 13	I-26 (NB/SB)	23	Auto	861	2246	55	887	2314	55
			Med Truck	20	52	55	44	115	55
			Hvy Truck	96	250	55	86	224	55
			Bus	2	5	55	1	3	55
			Motorcycle	8	21	55	5	13	55
Short Term 16	I-26 (NB/SB)	15	Auto	382	1528	55	473	1892	55
			Med Truck	15	60	55	25	100	55
			Hvy Truck	32	128	45	3	12	45
			Bus	0	0	0	0	0	0
			Motorcycle	0	0	0	0	0	0

Table A.2
Ambient Noise Level Monitoring - Traffic Counts

ID	Road Counted	Duration (min)	Veh Type	Northbound / Eastbound			Southbound / Westbound		
				Count	1 Hour eq	Speed (mph)	Count	1 Hour eq	Speed (mph)
Short Term 22	US 19/23/70 (NB/SB)	15	Auto	427	1708	55	576	2304	55
			Med Truck	26	104	55	16	64	55
			Hvy Truck	17	68	55	19	76	55
			Bus	0	0	0	0	0	0
			Motorcycle	0	0	0	0	0	0
Short Term 24	I-26 (NB/SB)	15	Auto	531	2124	50	474	1896	50
			Med Truck	15	60	50	12	48	50
			Hvy Truck	18	72	50	19	76	50
			Bus	0	0	0	0	0	0
			Motorcycle	0	0	0	0	0	0

Table A.3
TNM2.5 Model Validation

ID	Location	Meter	Measured L _{eq}	Modeled L _{eq}	Difference	Justification
Short Term 1	556 Riverside Drive	ST 1.1	67.5	69.3	1.8	Within +/- 3.0 dB(A)
		ST 1.2	65.5	66.8	1.3	Within +/- 3.0 dB(A)
Short Term 4	Hillcrest Apts. Building No. 20	ST 4.1	67.3	69.4	2.1	Within +/- 3.0 dB(A)
		ST 4.2	62.1	62.8	0.7	Within +/- 3.0 dB(A)
		ST 4.3	64.1	64.9	0.8	Within +/- 3.0 dB(A)
Short Term 6	Wilmington Street	ST 6.1	66.5	67.0	0.5	Within +/- 3.0 dB(A)
		ST 6.2	63.1	63.6	0.5	Within +/- 3.0 dB(A)
		ST 6.3	64.2	63.5	-0.7	Within +/- 3.0 dB(A)
Short Term 7	Hanover Street/ Alabama Avenue	ST 7.1	65.4	65.9	0.5	Within +/- 3.0 dB(A)
		ST 7.2	59.9	57.1	-2.8	Within +/- 3.0 dB(A)
		ST 7.3	53.3	49.3	-4.0	Invalid location ¹
Short Term 8	Fairfax Avenue	ST 8.1	60.5	60.9	0.4	Within +/- 3.0 dB(A)
		ST 8.2	58.6	59.7	1.1	Within +/- 3.0 dB(A)
		ST 8.3	59.6	59.3	-0.3	Within +/- 3.0 dB(A)
Short Term 9	Asheville Preschool	ST 9.1	68.3	70.8	2.5	Within +/- 3.0 dB(A)
		ST 9.2	57.4	56.4	-1.0	Within +/- 3.0 dB(A)
		ST 9.3	56.8	53.7	-3.1	Within +/- 3.0 dB(A)
Short Term 10	Pennsylvania Avenue	ST 10.1	54.6	54.3	-0.3	Within +/- 3.0 dB(A)
		ST 10.2	51.2	50.3	-0.9	Within +/- 3.0 dB(A)
		ST 10.3	48.0	46.2	-1.8	Within +/- 3.0 dB(A)
Short Term 13	Schumacher Homes	ST 13.1	64.9	67.7	2.8	Within +/- 3.0 dB(A)
		ST 13.2	63.7	61.9	-1.8	Within +/- 3.0 dB(A)
Short Term 16	Riverside Cemetery	ST 16.1	68.8	71.5	2.7	Within +/- 3.0 dB(A)
		ST 16.2	62.9	65.8	2.9	Within +/- 3.0 dB(A)
Short Term 22	Westover Drive North	ST 22.1	62.4	63.9	1.5	Within +/- 3.0 dB(A)
		ST 22.2	58.7	60.0	1.3	Within +/- 3.0 dB(A)
Short Term 24	Fayetteville Street	ST 24.1	62.8	65.5	2.7	Within +/- 3.0 dB(A)
		ST 24.2	55.8	58.7	2.9	Within +/- 3.0 dB(A)

¹ Short-term 7.3 was unable to be validated in TNM. The measurement location directly adjacent to the road is an invalid location, and there was likely unrecorded activity on Alabama Avenue that contributed to the increase measurement level compared to the modeled level.

Appendix B

Hourly Equivalent Traffic Noise Level Tables

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A14	Medical Facility (Aston Park Health Care Center)	380 Brevard Rd	0.2	C	60	60	60	65	5	NO	NO
A14.1	Medical Facility (Aston Park Health Care Center)	380 Brevard Rd	1	D	25	32	32	34	2	NO	NO
A14.2	Medical Facility (Aston Park Health Care Center)	380 Brevard Rd	0.2	C	60	60	60	60	0	NO	NO
A14.3	Medical Facility (Aston Park Health Care Center)	380 Brevard Rd	0.2	C	60	60	60	60	0	NO	NO
A14.4	Medical Facility (Aston Park Health Care Center)	380 Brevard Rd	0.2	C	60	60	60	60	0	NO	NO
A14.5	Medical Facility (Aston Park Health Care Center)	380 Brevard Rd	0.2	C	60	60	60	60	0	NO	NO
A14.6	Medical Facility (Aston Park Health Care Center)	380 Brevard Rd	0.2	C	60	60	60	60	0	NO	NO
A16	Residential	106 Shelburne Rd	1	B	60	63	64	63	0	NO	NO
A16.1	Trail	Hominy Creek Greenway	0.04	C	60	62	62	62	0	NO	NO
A16.2	Trail	Hominy Creek Greenway	0.04	C	60	62	62	62	0	NO	NO
A16.3	Trail	Hominy Creek Greenway	0.04	C	60	62	62	61	-1	NO	NO
A16.4	Trail	Hominy Creek Greenway	0.04	C	60	62	62	61	-1	NO	NO
A16.5	Trail	Hominy Creek Greenway	0.04	C	60	61	61	60	-1	NO	NO
A16.6	Trail	Hominy Creek Greenway	0.04	C	60	60	60	60	0	NO	NO
A16.7	Trail	Hominy Creek Greenway	0.04	C	60	60	60	60	0	NO	NO
A16.8	Trail	Hominy Creek Greenway	0.04	C	60	60	60	60	0	NO	NO
A16.9	Trail	Hominy Creek Greenway	0.04	C	60	60	60	60	0	NO	NO
A16.10	Trail	Hominy Creek Greenway	0.04	C	60	60	60	60	0	NO	NO
A16.11	Trail	Hominy Creek Greenway	0.04	C	60	60	60	60	0	NO	NO
A16.12	Trail	Hominy Creek Greenway	0.04	C	60	60	60	60	0	NO	NO
A17.1	Residential	359 Brevard Rd	1	B	60	68	68	68	0	YES	NO
A17.2	Residential	96 Shelburne Rd	1	B	60	61	61	62	1	NO	NO
A18	Residential	120 Shelburne Rd	1	B	60	60	60	61	1	NO	NO
A19	Residential	119 Shelburne Rd	1	B	60	60	60	60	0	NO	NO
A22	Residential	163 Morningside Dr	1	B	60	60	60	60	0	NO	NO
A23	Residential	165 Morningside Dr	1	B	60	60	60	60	0	NO	NO
A24	Residential	1 Coventry Cir	1	B	60	60	60	60	0	NO	NO
A25	Residential	15 Coventry Cir	1	B	60	60	60	60	0	NO	NO
A26	Residential	123 Shelburne Rd	1	B	60	60	60	60	0	NO	NO
A37	Residential	196 Morningside Dr	1	B	60	60	60	60	0	NO	NO
A63	Residential	335 Fairfax Ave	1	B	59	65	65	R/W	N/A	N/A	NO
A64	Residential	336 Fairfax Ave	1	B	59	71	71	R/W	N/A	N/A	NO
A65	Residential	352 Fairfax Ave	1	B	59	70	70	69	-1	YES	NO
A66	Residential	348 Fairfax Ave	1	B	59	71	72	71	0	YES	NO
A67	Residential	331 Fairfax Ave	1	B	59	65	65	R/W	N/A	N/A	NO
A68	Residential	330 Fairfax Ave	1	B	59	69	69	68	-1	YES	NO
A69	Residential	362 Brevard Rd	1	B	60	68	69	69	1	YES	NO
A70	Residential	358 Brevard Rd	1	B	60	68	69	68	0	YES	NO
A71	Residential	326 Fairfax Ave	1	B	59	69	69	69	0	YES	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A72	Residential	323 Fairfax Ave	1	B	59	65	66	65	0	NO	NO
A73	Residential	354 Brevard Rd	1	B	60	67	67	67	0	YES	NO
A74	Residential	322 Fairfax Ave	1	B	59	67	67	68	1	YES	NO
A75	Residential	319 Fairfax Ave	1	B	59	62	65	65	3	NO	NO
A76	Residential	352 Brevard Rd	1	B	60	66	67	67	1	YES	NO
A77	Residential	318 Fairfax Ave	1	B	59	66	66	67	1	YES	NO
A78	Residential	315 Fairfax Ave	1	B	59	63	64	64	1	NO	NO
A79	Residential	346 Brevard Rd	1	B	60	66	66	67	1	YES	NO
A80	Residential	314 Fairfax Ave	1	B	59	64	64	65	1	NO	NO
A81	Residential	307 Fairfax Ave	1	B	59	62	63	63	1	NO	NO
A82	Residential	205 Morningside Dr	1	B	60	60	60	60	0	NO	NO
A83	Residential	209 Morningside Dr	1	B	60	60	60	60	0	NO	NO
A84	Residential	335 Brevard Rd	1	B	60	64	65	67	3	YES	NO
A85	Residential	342 Brevard Rd	1	B	60	65	66	67	2	YES	NO
A86	Residential	310 Fairfax Ave	1	B	59	64	64	65	1	NO	NO
A87	Residential	305 Fairfax Ave	1	B	59	63	64	65	2	NO	NO
A88	Residential	331 Brevard Rd	1	B	60	60	60	63	3	NO	NO
A89	Residential	336 Brevard Rd	1	B	60	63	64	65	2	NO	NO
A90	Residential	306 Fairfax Ave	1	B	59	63	63	64	1	NO	NO
A91	Residential	303 Fairfax Ave	1	B	59	62	62	63	1	NO	NO
A92	Residential	8 Samoya Pl	1	B	60	60	60	60	0	NO	NO
A93	Residential	40 High Court Entrance	1	B	59	62	62	64	2	NO	NO
A94	Residential	36 High Court Entrance	1	B	59	62	63	65	3	NO	NO
A96	Residential	302 Fairfax Ave	1	B	59	62	62	63	1	NO	NO
A97	Residential	301 Fairfax Ave	1	B	59	62	62	63	1	NO	NO
A98	Residential	298 Fairfax Ave	1	B	59	61	62	63	2	NO	NO
A99	Residential	299 Fairfax Ave	1	B	59	60	61	61	1	NO	NO
A100	Residential	43 High Court Entrance	1	B	59	59	59	61	2	NO	NO
A101	Residential	88 High Court Entrance	1	B	59	61	62	63	2	NO	NO
A102	Residential	294 Fairfax Ave	1	B	59	60	60	61	1	NO	NO
A103	Residential	297 Fairfax Ave	1	B	59	59	59	59	0	NO	NO
A104	Residential	23 High Court Entrance	1	B	59	59	59	59	0	NO	NO
A105	Residential	28 High Court Entrance	1	B	59	59	59	60	1	NO	NO
A108	Residential	295 Fairfax Ave	1	B	59	59	59	59	0	NO	NO
A131	Residential	21 High Court Entrance	1	B	59	59	59	59	0	NO	NO
A164	Residential	72 Dale St	1	B	59	59	59	62	3	NO	NO
A165	Residential	61 Dale St	1	B	59	59	59	59	0	NO	NO
A166	Residential	57 Dale St	1	B	59	59	59	60	1	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A167	Residential	52 Dale St	1	B	59	59	59	61	2	NO	NO
A168	Residential	51 A Dale St	1	B	59	59	59	59	0	NO	NO
A169	Residential	50 Dale St	1	B	59	59	59	59	0	NO	NO
A170	Residential	302 Virginia Ave	1	B	59	60	61	63	3	NO	NO
A171	Residential	300 Virginia Ave	1	B	59	59	59	62	3	NO	NO
A172	Residential	268 Virginia Ave	1	B	59	59	59	60	1	NO	NO
A173	Residential	9 Brotherton Ave	1	B	59	59	59	61	2	NO	NO
A174	Residential	15 Brotherton Ave	1	B	59	61	61	64	3	NO	NO
A175	Residential	17 Brotherton Ave	1	B	59	63	63	65	2	NO	NO
A176	Residential	19 Brotherton Ave	1	B	59	63	63	65	2	NO	NO
A172.1	Residential	3 Trellis Ct	1	B	59	60	61	64	4	NO	NO
A173.1	Residential	16 Brotherton Ave	1	B	59	61	61	64	3	NO	NO
A174.1	Residential	18 Brotherton Ave	1	B	59	62	62	66	4	YES	NO
A175.1	Residential	24 Brotherton Ave	1	B	59	62	63	65	3	NO	NO
A176.1	Residential	28 Brotherton Ave	1	B	59	63	63	66	3	YES	NO
A177	Residential	21 Brotherton Ave	1	B	59	67	67	68	1	YES	NO
A178.1	Residential	290 A Virginia Ave	1	B	59	60	60	63	3	NO	NO
A178.2	Residential	290 B Virginia Ave	1	B	59	59	60	61	2	NO	NO
A179.1	Residential	288 A Virginia Ave	1	B	59	64	65	66	2	YES	NO
A179.2	Residential	288 B Virginia Ave	1	B	59	62	62	64	2	NO	NO
A180.1	Residential	292 A Virginia Ave	1	B	59	59	59	59	0	NO	NO
A180.2	Residential	292 B Virginia Ave	1	B	59	60	60	61	1	NO	NO
A181.1	Residential	294 A Virginia Ave	1	B	59	67	67	69	2	YES	NO
A181.2	Residential	294 B Virginia Ave	1	B	59	67	67	69	2	YES	NO
A181.3	Residential	294 C Virginia Ave	1	B	59	68	68	70	2	YES	NO
A181.4	Residential	294 D Virginia Ave	1	B	59	68	68	70	2	YES	NO
A182	Residential	77 Hubbard Ave	1	B	53	68	68	R/W	N/A	N/A	NO
A183	Residential	84 Hubbard Ave	1	B	53	76	76	R/W	N/A	N/A	NO
A184	Residential	76 Hubbard Ave	1	B	53	75	75	R/W	N/A	N/A	NO
A185	Residential	74 Hubbard Ave	1	B	53	73	73	R/W	N/A	N/A	NO
A186	Residential	49 Dale St	1	B	59	59	59	59	0	NO	NO
A187	Residential	45 Dale St	1	B	59	59	59	59	0	NO	NO
A190	Residential	25 Dale St	1	B	59	59	59	59	0	NO	NO
A191	Residential	261 Virginia Ave	1	B	59	59	59	59	0	NO	NO
A192	Residential	23 Dale St	1	B	59	59	59	59	0	NO	NO
A194	Residential	251 Virginia Ave	1	B	59	59	59	59	0	NO	NO
A197	Residential	245 Virginia Ave	1	B	59	59	59	59	0	NO	NO
A217	Residential	65 Hubbard Ave	1	B	53	60	60	67	7	YES	NO
A218	Residential	72 Hubbard Ave	1	B	53	65	65	R/W	N/A	N/A	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A219	Residential	61 1/2 Hubbard Ave	1	B	53	53	53	55	2	NO	NO
A220	Residential	61 Hubbard Ave	1	B	53	59	59	65	6	NO	NO
A221	Residential	58 Hubbard Ave	1	B	53	63	63	R/W	N/A	N/A	NO
A222	Residential	30 Hubbard Ave	1	B	53	56	57	R/W	N/A	N/A	NO
A223	Residential	47 Hubbard Ave	1	B	53	53	53	58	5	NO	NO
A224	Residential	28 Hubbard Ave	1	B	53	57	57	64	7	NO	NO
A225	Residential	26 Hubbard Ave	1	B	53	53	53	62	9	NO	NO
A226	Residential	24 Hubbard Ave	1	B	53	55	55	59	4	NO	NO
A227	Residential	185 Hudson St	1	B	53	55	55	59	4	NO	NO
A228	Residential	192 Hudson St	1	B	53	56	56	59	3	NO	NO
A229	Residential	188 Hudson St	1	B	53	55	55	58	3	NO	NO
A230	Residential	181 Hudson St	1	B	53	54	54	58	4	NO	NO
A231	Residential	184 Hudson St	1	B	53	54	54	57	3	NO	NO
A232	Residential	177 Hudson St	1	B	53	54	54	58	4	NO	NO
A233	Residential	180 Hudson St	1	B	53	53	54	57	4	NO	NO
A234	Residential	16 Hubbard Ave	1	B	53	65	65	67	2	YES	NO
A235	Residential	14 Hubbard Ave	1	B	53	67	67	68	1	YES	NO
A236	Residential	174 Hudson St	1	B	53	53	53	54	1	NO	NO
A237	Residential	17 1/2 Hubbard Ave	1	B	53	55	55	59	4	NO	NO
A239	Residential	172 Hudson St	1	B	53	53	53	55	2	NO	NO
A240	Residential	15 Hubbard Ave	1	B	53	57	57	60	3	NO	NO
A241	Residential	10 Hubbard Ave	1	B	53	70	70	68	-2	YES	NO
A242	Day Care Center (Pisgah View Head Start)	27 Cordova St	1	D	18	29	31	29	0	NO	NO
A242.1	Playground (Pisgah View Head Start)	27 Cordova St	1	C	59	59	59	62	3	NO	NO
A243.1	Residential	42 A Cordova St	1	B	59	59	59	59	0	NO	NO
A243.2	Residential	42 B Cordova St	1	B	59	59	59	59	0	NO	NO
A243.3	Residential	42 C Cordova St	1	B	59	59	59	59	0	NO	NO
A243.4	Residential	42 D Cordova St	1	B	59	59	59	60	1	NO	NO
A243.5	Residential	42 E Cordova St	1	B	59	59	59	60	1	NO	NO
A243.6	Residential	42 F Cordova St	1	B	59	59	59	60	1	NO	NO
A244.1	Residential	41 A Cordova St	1	B	59	59	59	59	0	NO	NO
A244.2	Residential	41 B Cordova St	1	B	59	59	59	59	0	NO	NO
A244.3	Residential	41 C Cordova St	1	B	59	59	59	59	0	NO	NO
A244.4	Residential	41 D Cordova St	1	B	59	59	59	59	0	NO	NO
A244.5	Residential	41 E Cordova St	1	B	59	59	59	59	0	NO	NO
A244.6	Residential	41 F Cordova St	1	B	59	59	59	59	0	NO	NO
A244.7	Residential	41 G Cordova St	1	B	59	59	59	59	0	NO	NO
A244.8	Residential	41 H Cordova St	1	B	59	59	59	59	0	NO	NO
A245.1	Residential	40 A Cordova St	1	B	59	59	59	59	0	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A245.2	Residential	40 B Cordova St	1	B	59	59	59	59	0	NO	NO
A245.3	Residential	40 C Cordova St	1	B	59	59	59	59	0	NO	NO
A245.4	Residential	40 D Cordova St	1	B	59	59	59	59	0	NO	NO
A245.5	Residential	40 E Cordova St	1	B	59	59	59	59	0	NO	NO
A245.6	Residential	40 F Cordova St	1	B	59	59	59	59	0	NO	NO
A246.1	Residential	39 A Cordova St	1	B	59	59	59	59	0	NO	NO
A246.2	Residential	39 B Cordova St	1	B	59	59	59	59	0	NO	NO
A246.3	Residential	39 C Cordova St	1	B	59	59	59	59	0	NO	NO
A246.4	Residential	39 D Cordova St	1	B	59	59	59	59	0	NO	NO
A246.5	Residential	39 E Cordova St	1	B	59	59	59	59	0	NO	NO
A246.6	Residential	39 F Cordova St	1	B	59	59	59	59	0	NO	NO
A247.1	Residential	38 A Cordova St	1	B	59	59	59	59	0	NO	NO
A247.2	Residential	38 B Cordova St	1	B	59	59	59	59	0	NO	NO
A247.3	Residential	38 C Cordova St	1	B	59	59	59	59	0	NO	NO
A247.4	Residential	38 D Cordova St	1	B	59	59	59	59	0	NO	NO
A247.5	Residential	38 E Cordova St	1	B	59	59	59	59	0	NO	NO
A247.6	Residential	38 F Cordova St	1	B	59	59	59	59	0	NO	NO
A248.1	Residential	32 A Cordova St	1	B	59	59	59	59	0	NO	NO
A248.2	Residential	32 B Cordova St	1	B	59	59	59	59	0	NO	NO
A248.3	Residential	32 C Cordova St	1	B	59	59	59	59	0	NO	NO
A248.4	Residential	32 D Cordova St	1	B	59	59	59	59	0	NO	NO
A248.5	Residential	32 E Cordova St	1	B	59	59	59	59	0	NO	NO
A248.6	Residential	32 F Cordova St	1	B	59	59	59	59	0	NO	NO
A248.7	Residential	32 G Cordova St	1	B	59	59	59	59	0	NO	NO
A248.8	Residential	32 H Cordova St	1	B	59	59	59	59	0	NO	NO
A249.1	Residential	33 A Cordova St	1	B	59	59	59	59	0	NO	NO
A249.2	Residential	33 B Cordova St	1	B	59	59	59	59	0	NO	NO
A249.3	Residential	33 C Cordova St	1	B	59	59	59	59	0	NO	NO
A249.4	Residential	33 D Cordova St	1	B	59	59	59	59	0	NO	NO
A249.5	Residential	33 E Cordova St	1	B	59	59	59	59	0	NO	NO
A249.6	Residential	33 F Cordova St	1	B	59	59	59	59	0	NO	NO
A249.7	Residential	33 G Cordova St	1	B	59	59	59	59	0	NO	NO
A249.8	Residential	33 H Cordova St	1	B	59	59	59	59	0	NO	NO
A250	Residential	11 Hubbard Ave	1	B	53	53	53	60	7	NO	NO
A251	Residential	7 Hubbard Ave	1	B	53	53	53	58	5	NO	NO
A254	Residential	100 Kentucky Dr	1	B	53	67	68	67	0	YES	NO
A255.1	Residential	68 A Kentucky Dr	1	B	53	66	66	67	1	YES	NO
A255.2	Residential	68 B Kentucky Dr	1	B	53	63	64	65	2	NO	NO
A255.3	Residential	68 C Kentucky Dr	1	B	53	63	63	64	1	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A255.4	Residential	68 D Kentucky Dr	1	B	53	63	63	64	1	NO	NO
A262	Residential	22 Buttonwood Ct	1	B	53	60	61	60	0	NO	NO
A263	Residential	20 Buttonwood Ct	1	B	53	53	53	54	1	NO	NO
A264	Residential	18 Buttonwood Ct	1	B	53	53	53	54	1	NO	NO
A265	Residential	16 Buttonwood Ct	1	B	53	53	53	53	0	NO	NO
A266	Residential	14 Buttonwood Ct	1	B	53	53	53	53	0	NO	NO
A267	Residential	17 Buttonwood Ct	1	B	53	61	61	61	0	NO	NO
A268	Residential	15 Buttonwood Ct	1	B	53	55	55	56	1	NO	NO
A269	Residential	11 Buttonwood Ct	1	B	53	54	54	54	0	NO	NO
A270	Residential	12 Buttonwood Ct	1	B	53	53	53	54	1	NO	NO
A271	Residential	3 Buttonwood Ct	1	B	53	63	64	62	-1	NO	NO
A272	Residential	5 Buttonwood Ct	1	B	53	55	55	54	-1	NO	NO
A273	Residential	7 Buttonwood Ct	1	B	53	56	56	57	1	NO	NO
A274	Residential	10 Buttonwood Ct	1	B	53	54	55	53	-1	NO	NO
A275	Residential	2 Buttonwood Ct	1	B	53	59	59	59	0	NO	NO
A276	Residential	4 Buttonwood Ct	1	B	53	60	60	62	2	NO	NO
A277	Residential	6 Buttonwood Ct	1	B	53	53	53	53	0	NO	NO
A278	Residential	8 Buttonwood Ct	1	B	53	53	53	57	4	NO	NO
A296	Residential	41 Kentucky Dr	1	B	53	73	73	72	-1	YES	NO
A297	Residential	27 Kentucky Dr	1	B	53	73	74	73	0	YES	NO
A298	Residential	21 Kentucky Dr	1	B	53	74	74	R/W	N/A	N/A	NO
A299	Residential	15 Kentucky Dr	1	B	53	74	74	R/W	N/A	N/A	NO
A300	Residential	8 Hubbard Ave	1	B	53	70	70	69	-1	YES	NO
A301	Residential	3 Stewart St	1	B	53	53	53	53	0	NO	NO
A302	Residential	5 Stewart St	1	B	53	53	53	56	3	NO	NO
A303	Residential	3 Hubbard Ave	1	B	53	56	56	57	1	NO	NO
A304	Residential	2 Hubbard Ave	1	B	53	58	58	60	2	NO	NO
A305	Residential	29 Stewart St	1	B	53	64	64	68	4	YES	NO
A310	Residential	8 Stewart St	1	B	53	53	54	57	4	NO	NO
A311	Residential	14 Stewart St	1	B	53	53	53	56	3	NO	NO
A312	Residential	16 Stewart St	1	B	53	58	58	60	2	NO	NO
A313	Residential	24 Stewart St	1	B	53	53	53	57	4	NO	NO
A314	Residential	30 Stewart St	1	B	53	63	63	66	3	YES	NO
A315	Residential	38 Stewart St	1	B	53	74	74	72	-2	YES	NO
A330	Residential	65 New Jersey Ave	1	B	53	60	59	56	-4	NO	NO
A331	Residential	47 New Jersey Ave	1	B	53	61	61	57	-4	NO	NO
A347	Residential	75 New Jersey Ave	1	B	53	60	60	58	-2	NO	NO
A348	Residential	71 New Jersey Ave	1	B	53	59	59	58	-1	NO	NO
A379	Residential	30 New Jersey Ave	1	B	53	67	67	65	-2	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A380	Residential	34 New Jersey Ave	1	B	53	71	71	69	-2	YES	NO
A381	Residential	40 New Jersey Ave	1	B	53	75	75	74	-1	YES	NO
A389	Residential	11 Kentucky Dr	1	B	53	73	73	R/W	N/A	N/A	NO
A390	Residential	9 Kentucky Dr	1	B	53	73	73	R/W	N/A	N/A	NO
A391	Residential	2 Kentucky Dr	1	B	53	74	74	R/W	N/A	N/A	NO
A392	Residential	59 Stewart St	1	B	53	74	74	R/W	N/A	N/A	NO
A393	Residential	80 Stewart St	1	B	53	66	66	68	2	YES	NO
A394	Residential	82 Stewart St	1	B	53	60	60	62	2	NO	NO
A395	Residential	88 Stewart St	1	B	53	60	60	62	2	NO	NO
A396	Residential	92 Stewart St	1	B	53	53	53	53	0	NO	NO
A399	Residential	23 New Jersey Ave	1	B	53	68	68	R/W	N/A	N/A	NO
A400	Residential	17 New Jersey Ave	1	B	53	64	64	R/W	N/A	N/A	NO
A401	Residential	15 New Jersey Ave	1	B	53	63	63	67	4	YES	NO
A402	Residential	225 State St	1	B	53	60	60	62	2	NO	NO
A403	Residential	197 Hanover St	1	B	53	59	60	59	0	NO	NO
A404	Residential	193 Hanover St	1	B	53	58	58	59	1	NO	NO
A430	Residential	89 Langwell Ave	1	B	53	58	58	60	2	NO	NO
A431	Residential	86 Langwell Ave	1	B	53	60	60	62	2	NO	NO
A442	Residential	49 Yale St	1	B	53	65	65	65	0	NO	NO
A443	Residential	175 State St	1	B	53	68	68	68	0	YES	NO
A444	Residential	173 State St	1	B	53	66	67	67	1	YES	NO
A445	Residential	159 A State St	1	B	53	65	65	66	1	YES	NO
A457	Residential	44 Yale St	1	B	53	61	61	61	0	NO	NO
A459	Residential	131 State St	1	B	53	54	54	55	1	NO	NO
A460	Residential	133 State St	1	B	53	58	58	59	1	NO	NO
A461	Residential	156 State St	1	B	53	69	69	69	0	YES	NO
A462	Residential	160 State St	1	B	53	77	77	76	-1	YES	NO
A463	Residential	140 State St	1	B	53	66	66	66	0	YES	NO
A464	Residential	136 State St	1	B	53	54	55	56	2	NO	NO
A465	Residential	178 Montana Ave	1	B	53	65	65	65	0	NO	NO
A466	Residential	174 Montana Ave	1	B	53	69	69	68	-1	YES	NO
A467	Residential	170 Montana Ave	1	B	53	72	72	73	1	YES	NO
A468	Residential	166 Montana Ave	1	B	53	76	76	R/W	N/A	N/A	NO
A473	Residential	221 State St	1	B	53	61	61	64	3	NO	NO
A474	Residential	166 Hanover St	1	B	53	62	63	60	-2	NO	NO
A477	Residential	162 Hanover St	1	B	53	63	64	61	-2	NO	NO
A489	Residential	156 Hanover St	1	B	53	65	66	62	-3	NO	NO
A490	Residential	153 Hanover St	1	B	53	63	64	65	2	NO	NO
A491	Residential	149 Hanover St	1	B	53	64	64	66	2	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A492	Residential	209 State St	1	B	53	62	62	R/W	N/A	N/A	NO
A493	Residential	145 Hanover St	1	B	53	64	64	67	3	YES	NO
A494	Residential	207 State St	1	B	53	62	63	R/W	N/A	N/A	NO
A495	Residential	139 Hanover St	1	B	53	64	65	67	3	YES	NO
A496	Residential	142 Hanover St	1	B	53	65	67	62	-3	NO	NO
A497	Residential	128 Indiana Ave	1	B	53	55	55	56	1	NO	NO
A499	Residential	200 State St	1	B	53	63	64	R/W	N/A	N/A	NO
A500	Residential	135 Hanover St	1	B	53	65	65	67	2	YES	NO
A501	Residential	134 Hanover St	1	B	53	66	67	63	-3	NO	NO
A502	Residential	127 Indiana Ave	1	B	53	56	56	57	1	NO	NO
A515	Residential	125 Hanover St	1	B	53	66	66	68	2	YES	NO
A516	Residential	130 Hanover St	1	B	53	67	68	63	-4	NO	NO
A517	Residential	123 Hanover St	1	B	53	65	65	68	3	YES	NO
A518	Residential	126 Hanover St	1	B	53	67	68	65	-2	NO	NO
A519	Residential	121 Hanover St	1	B	53	67	67	70	3	YES	NO
A520	Residential	115 Hanover St	1	B	53	69	69	71	2	YES	NO
A521	Residential	116 Hanover St	1	B	53	67	69	66	-1	YES	NO
A522	Residential	111 Hanover St	1	B	53	70	70	72	2	YES	NO
A523	Residential	109 Hanover St	1	B	53	70	70	72	2	YES	NO
A524	Residential	110 Hanover St	1	B	53	66	67	68	2	YES	NO
A525	Residential	128 Alabama Ave	1	B	53	61	61	63	2	NO	NO
A526	Residential	120 Alabama Ave	1	B	53	56	57	57	1	NO	NO
A527	Residential	114 Alabama Ave	1	B	53	57	57	58	1	NO	NO
A528	Residential	109 Alabama Ave	1	B	53	53	53	56	3	NO	NO
A529	Residential	104 Montana Ave	1	B	53	53	53	55	2	NO	NO
A530	Residential	99 Montana Ave	1	B	53	54	54	54	0	NO	NO
A543	Residential	97 Hanover St	1	B	53	71	71	R/W	N/A	N/A	NO
A544	Residential	95 Hanover St	1	B	53	71	71	R/W	N/A	N/A	NO
A545	Residential	93 Hanover St	1	B	53	71	71	R/W	N/A	N/A	NO
A546	Residential	87 Hanover St	1	B	53	71	71	R/W	N/A	N/A	NO
A547	Residential	129 Alabama Ave	1	B	53	59	60	63	4	NO	NO
A548	Residential	117 Alabama Ave	1	B	53	56	56	60	4	NO	NO
A549	Residential	113 Alabama Ave	1	B	53	54	55	58	4	NO	NO
A566	Residential	88 Hanover St	1	B	53	69	70	72	3	YES	NO
A567	Residential	82 Hanover St	1	B	53	70	71	72	2	YES	NO
A568	Residential	78 Hanover St	1	B	53	70	71	71	1	YES	NO
A569	Residential	72 Hanover St	1	B	53	69	70	70	1	YES	NO
A570	Residential	126 Montana Ave	1	B	53	59	59	62	3	NO	NO
A571	Residential	126 Montana Ave	1	B	53	66	66	67	1	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A572	Residential	118 Montana Ave	1	B	53	62	63	63	1	NO	NO
A573	Residential	108 Montana Ave	1	B	53	53	53	53	0	NO	NO
A583	Residential	123 State St	1	B	53	53	54	54	1	NO	NO
A586	Residential	124 State St	1	B	53	57	58	58	1	NO	NO
A587	Residential	205 Montana Ave	1	B	53	58	58	58	0	NO	NO
A588	Residential	187 Montana Ave	1	B	53	59	59	59	0	NO	NO
A589	Residential	185 Montana Ave	1	B	53	59	59	59	0	NO	NO
A590	Residential	181 Montana Ave	1	B	53	60	60	60	0	NO	NO
A591	Residential	175 Montana Ave	1	B	53	63	63	62	-1	NO	NO
A592	Residential	169 Montana Ave	1	B	53	65	66	63	-2	NO	NO
A593	Residential	167 Montana Ave	1	B	53	72	72	R/W	N/A	N/A	NO
A596	Residential	80 Allen St	1	B	53	53	53	53	0	NO	NO
A597	Residential	185 1/2 Montana Ave	1	B	53	58	58	61	3	NO	NO
A600	Residential	76 Allen St	1	B	53	53	53	53	0	NO	NO
A608	Residential	70 Allen St	1	B	53	53	53	53	0	NO	NO
A609	Residential	62 Allen St	1	B	53	53	53	53	0	NO	NO
A615	Residential	58 Allen St	1	B	53	53	53	53	0	NO	NO
A616	Residential	200 Pennsylvania Ave	1	B	53	54	54	55	1	NO	NO
A617	Residential	194 Pennsylvania Ave	1	B	53	53	53	53	0	NO	NO
A618	Residential	190 Pennsylvania Ave	1	B	53	53	53	56	3	NO	NO
A619	Residential	184 Pennsylvania Ave	1	B	53	53	53	57	4	NO	NO
A620	Residential	178 Pennsylvania Ave	1	B	53	59	59	67	8	YES	NO
A621	Residential	174 Pennsylvania Ave	1	B	53	67	67	R/W	N/A	N/A	NO
A627	Residential	203 Pennsylvania Ave	1	B	53	53	53	53	0	NO	NO
A628	Residential	199 Pennsylvania Ave	1	B	53	53	53	53	0	NO	NO
A629	Residential	193 Pennsylvania Ave	1	B	53	53	53	53	0	NO	NO
A630	Residential	191 Pennsylvania Ave	1	B	53	53	53	53	0	NO	NO
A631	Residential	183 Pennsylvania Ave	1	B	53	56	57	61	5	NO	NO
A632	Residential	175 Pennsylvania Ave	1	B	53	57	57	65	8	NO	NO
A633	Residential	173 Pennsylvania Ave	1	B	53	58	59	R/W	N/A	N/A	NO
A634	Residential	165 Pennsylvania Ave	1	B	53	73	73	R/W	N/A	N/A	NO
A641	Residential	32 Allen St	1	B	53	53	53	53	0	NO	NO
A642	Residential	31 Parkman Ave	1	B	53	53	53	53	0	NO	NO
A643	Residential	32 Parkman Ave	1	B	53	53	53	57	4	NO	NO
A644	Residential	7 Brookshire Pl	1	B	53	59	59	R/W	N/A	N/A	NO
A646	Residential	29 Allen St	1	B	53	53	53	53	0	NO	NO
A647	Residential	28 Allen St	1	B	53	53	53	53	0	NO	NO
A648	Residential	29 Parkman Ave	1	B	53	53	53	53	0	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A649	Residential	28 Parkman Ave	1	B	53	53	53	59	6	NO	NO
A650	Residential	9 Brookshire Pl	1	B	53	56	56	R/W	N/A	N/A	NO
A651	Residential	8 Brookshire Pl	1	B	53	76	76	R/W	N/A	N/A	NO
A652	Residential	21 Allen St	1	B	53	53	53	53	0	NO	NO
A653	Residential	24 Allen St	1	B	53	53	53	53	0	NO	NO
A654	Residential	27 Parkman Ave	1	B	53	53	53	54	1	NO	NO
A655	Residential	25 Parkman Ave	1	B	53	53	53	55	2	NO	NO
A656	Residential	15 Brookshire Pl	1	B	53	55	55	65	10	NO	YES
A672	Residential	19 Allen St	1	B	53	53	53	53	0	NO	NO
A674	Residential	11 Parkman Ave	1	B	53	53	53	58	5	NO	NO
A675	Residential	492 1/2 Haywood Rd	1	B	53	54	55	64	10	NO	YES
A686	Residential	62 Hanover St	1	B	53	72	73	73	1	YES	NO
A687	Residential	121 Montana Ave	1	B	53	66	67	67	1	YES	NO
A688	Residential	119 Montana Ave	1	B	53	64	65	65	1	NO	NO
A689	Residential	115 Montana Ave	1	B	53	62	63	63	1	NO	NO
A690	Residential	111 Montana Ave	1	B	53	61	61	61	0	NO	NO
A691	Residential	109 Montana Ave	1	B	53	61	61	61	0	NO	NO
A692	Residential	103 Montana Ave	1	B	53	57	57	58	1	NO	NO
A705	Residential	60 Hanover St	1	B	53	71	72	72	1	YES	NO
A706	Residential	55 Hanover St	1	B	53	74	75	R/W	N/A	N/A	NO
A707	Residential	53 Hanover St	1	B	53	77	77	R/W	N/A	N/A	NO
A708	Residential	54 Hanover St	1	B	53	70	71	72	2	YES	NO
A709	Residential	21 Montana Cir	1	B	53	63	64	66	3	YES	NO
A710	Residential	16 Montana Cir	1	B	53	61	62	62	1	NO	NO
A711	Residential	12 Montana Cir	1	B	53	57	58	58	1	NO	NO
A712	Residential	17 Montana Cir	1	B	53	60	61	63	3	NO	NO
A713	Residential	15 Montana Cir	1	B	53	53	53	54	1	NO	NO
A731	Residential	50 Hanover St	1	B	53	69	70	71	2	YES	NO
A732	Residential	118 Pennsylvania Ave	1	B	53	61	62	63	2	NO	NO
A733	Residential	140 Pennsylvania Ave	1	B	53	68	70	70	2	YES	NO
A734	Residential	132 Pennsylvania Ave	1	B	53	64	64	68	4	YES	NO
A735	Residential	126 Pennsylvania Ave	1	B	53	62	63	65	3	NO	NO
A736	Residential	122 Pennsylvania Ave	1	B	53	61	61	63	2	NO	NO
A737	Residential	118 Pennsylvania Ave	1	B	53	62	62	64	2	NO	NO
A738	Residential	110 Pennsylvania Ave	1	B	53	53	53	55	2	NO	NO
A739	Residential	108 Pennsylvania Ave	1	B	53	53	53	53	0	NO	NO
A740	Residential	100 Pennsylvania Ave	1	B	53	53	53	53	0	NO	NO
A749	Residential	26 Hanover St	1	B	53	69	70	72	3	YES	NO
A750	Residential	24 Hanover St	1	B	53	69	70	73	4	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A751	Residential	127 Pennsylvania Ave	1	B	53	59	59	63	4	NO	NO
A752	Residential	121 Pennsylvania Ave	1	B	53	57	57	61	4	NO	NO
A753	Residential	117 Pennsylvania Ave	1	B	53	56	56	59	3	NO	NO
A754	Residential	115 Pennsylvania Ave	1	B	53	55	56	59	4	NO	NO
A755	Residential	109 Pennsylvania Ave	1	B	53	57	57	59	2	NO	NO
A756	Place of Worship (Asheville Wesleyan Church)	32 Richmond Ave	1	D	28	28	28	28	0	NO	NO
A763	Residential	22 Hanover St	1	B	53	69	70	73	4	YES	NO
A764	Place of Worship (First Church of God)	20 Hanover St	1	D	28	43	44	48	5	NO	NO
A765	Residential	29 Richmond Ave	1	B	53	53	53	53	0	NO	NO
A766.1	Residential	28 Richmond Ave	1	B	53	53	53	53	0	NO	NO
A767	Residential	23 Richmond Ave	1	B	53	53	53	53	0	NO	NO
A768	Residential	27 Richmond Ave	1	B	53	53	53	53	0	NO	NO
A769	Residential	8 Richmond Ave	1	B	53	53	53	53	0	NO	NO
A770	Residential	26 Richmond Ave	1	B	53	53	53	53	0	NO	NO
A771	Residential	15 Michigan Ave	1	B	53	53	53	53	0	NO	NO
A772	Residential	17 Michigan Ave	1	B	53	53	53	53	0	NO	NO
A773	Residential	19 Michigan Ave	1	B	53	53	53	53	0	NO	NO
A789	Residential	11 Michigan Ave	1	B	53	53	53	53	0	NO	NO
A801	Place of Worship (Calvary Baptist)	531 Haywood Rd - Sec. 4(f)	1	D	12	24	24	25	1	NO	NO
A802	Restaurant	521 Haywood Rd	1	E	47	59	60	60	1	NO	NO
A813	Residential	17 Baker Ave	1	B	47	47	48	49	2	NO	NO
A818	Residential	15 Burton St	1	B	47	58	59	72	14	YES	YES
A819	Residential	17 Burton St	1	B	47	63	64	R/W	N/A	N/A	NO
A821	Residential	22 Burton St	1	B	47	60	60	63	3	NO	NO
A822	Residential	24 Burton St	1	B	47	60	60	62	2	NO	NO
A823	Residential	30 Burton St	1	B	47	59	59	61	2	NO	NO
A824	Residential	27 Burton St	1	B	47	65	66	74	9	YES	NO
A825	Residential	14 Noble St	1	B	47	75	75	R/W	N/A	N/A	NO
A826	Residential	16 Noble St	1	B	47	75	76	R/W	N/A	N/A	NO
A827	Residential	18 Noble St	1	B	47	75	75	R/W	N/A	N/A	NO
A829	Residential	27 Baker Ave	1	B	47	47	47	48	1	NO	NO
A845	Playground (Calvary Baptist)	531 Haywood Rd - Sect. 4(f)	1	C	47	57	58	59	2	NO	NO
A846	School (Asheville Primary School)	441 Haywood Rd	1	D	12	30	31	30	0	NO	NO
A846.1	Active Sport Area (Asheville Primary School)	441 Haywood Rd	0.46	C	47	74	75	75	1	YES	NO
A846.2	Active Sport Area (Asheville Primary School)	441 Haywood Rd	0.46	C	47	61	61	60	-1	NO	NO
A846.3	Playground (Asheville Primary School)	441 Haywood Rd	0.46	C	47	58	58	58	0	NO	NO
A846.4	Active Sport Area (Asheville Primary School)	441 Haywood Rd	0.46	C	47	71	71	69	-2	YES	NO
A846.5	Active Sport Area (Asheville Primary School)	441 Haywood Rd	0.46	C	47	62	63	62	0	NO	NO
A846.6	Active Sport Area (Asheville Primary School)	441 Haywood Rd	0.46	C	47	66	66	66	0	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A866	Residential	29 Argyle Ln	1	B	47	55	55	55	0	NO	NO
A867	Residential	6 Westwood Pl	1	B	47	50	50	51	1	NO	NO
A868	Residential	12 Westwood Pl	1	B	47	50	51	51	1	NO	NO
A873	Residential	37 Argyle Ln	1	B	47	58	59	58	0	NO	NO
A874	Residential	41 Argyle Ln	1	B	47	60	60	60	0	NO	NO
A875	Residential	45 Argyle Ln	1	B	47	63	63	63	0	NO	NO
A876	Residential	47 Argyle Ln	1	B	47	61	61	61	0	NO	NO
A877	Residential	57 Argyle Ln	1	B	47	64	64	64	0	NO	NO
A913	Residential	88 Baker Ave	1	B	47	62	62	65	3	NO	NO
A931	Residential	85 Baker Ave	1	B	47	53	54	56	3	NO	NO
A932	Residential	87 Baker Ave	1	B	47	53	54	58	5	NO	NO
A933	Residential	72 Burton St	1	B	47	63	63	68	5	YES	NO
A934	Residential	79 Burton St	1	B	47	72	72	R/W	N/A	N/A	NO
A935	Residential	74 Burton St	1	B	47	57	57	65	8	NO	NO
A936	Residential	87 Burton St	1	B	47	72	72	R/W	N/A	N/A	NO
A938	Residential	94 Bryant St	1	B	47	47	48	51	4	NO	NO
A939	Residential	100 Burton St	1	B	47	54	54	63	9	NO	NO
A940/B11	Residential	102 Burton St	1	B	47	65	59	66	1	YES	NO
A941/B12	Place of Worship (Community Baptist Church)	103 Burton St	1	D	12	38	38	R/W	N/A	N/A	NO
A968/B14	Residential	114 Burton St	1	B	47	64	64	66	2	YES	NO
A969/B15	Residential	118 Burton St	1	B	47	65	65	66	1	YES	NO
A971	Residential	73 Argyle Ln	1	B	47	67	68	67	0	YES	NO
A972	Residential	70 Argyle Ln	1	B	47	75	75	75	0	YES	NO
A973	Residential	69 Argyle Ln	1	B	47	66	66	67	1	YES	NO
A974	Residential	77 Argyle Ln	1	B	47	68	68	69	1	YES	NO
A975	Residential	81 Argyle Ln	1	B	47	70	71	71	1	YES	NO
A976	Residential	83 Argyle Ln	1	B	47	71	72	72	1	YES	NO
A977	Residential	89 Argyle Ln	1	B	47	73	73	73	0	YES	NO
A978	Residential	87 Argyle Ln	1	B	47	73	73	74	1	YES	NO
A1002	Residential	16 Samoya Pl	1	B	60	60	60	60	0	NO	NO
A1003	Residential	327 Fairfax Ave	1	B	59	68	69	R/W	N/A	N/A	NO
A1004	Residential	103 Dale St	1	B	59	60	60	64	4	NO	NO
A1005	Residential	101 Dale St	1	B	59	59	59	59	0	NO	NO
A1006	Residential	99 Dale St	1	B	59	59	59	59	0	NO	NO
A1007	Residential	87 Dale St	1	B	59	59	59	59	0	NO	NO
A1008	Residential	76 Dale St	1	B	59	62	62	65	3	NO	NO
A1009	Residential	25 Brotherton Ave	1	B	59	62	62	65	3	NO	NO
A1010	Residential	321 Virginia Ave	1	B	59	64	64	R/W	N/A	N/A	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A1011	Residential	71 Hubbard Ave	1	B	53	72	72	R/W	N/A	N/A	NO
A1012	Residential	67 Hubbard Ave	1	B	53	62	62	R/W	N/A	N/A	NO
A1013	Residential	73 Hubbard Ave	1	B	53	61	61	R/W	N/A	N/A	NO
A1014	Residential	69 Hubbard Ave	1	B	53	61	61	R/W	N/A	N/A	NO
A1015	Residential	57 Hubbard Ave	1	B	53	55	55	56	1	NO	NO
A1016	Residential	22 Hubbard Ave	1	B	53	64	64	66	2	YES	NO
A1017	Residential	27 Stewart St	1	B	53	59	59	64	5	NO	NO
A1018	Residential	39 New Jersey Ave	1	B	53	62	62	58	-4	NO	NO
A1019	Residential	37 New Jersey Ave	1	B	53	66	65	61	-5	NO	NO
A1020	Residential	28 New Jersey Ave	1	B	53	61	60	59	-2	NO	NO
A1021	Residential	91 Langwell Ave	1	B	53	63	63	64	1	NO	NO
A1022	Residential	93 Langwell Ave	1	B	53	66	66	66	0	YES	NO
A1023	Residential	95 Langwell Ave	1	B	53	67	67	67	0	YES	NO
A1024	Residential	97 Langwell Ave	1	B	53	69	70	69	0	YES	NO
A1025	Residential	186 Montana Ave	1	B	53	61	61	61	0	NO	NO
A1026	Residential	80 Baker Ave	1	B	47	59	59	60	1	NO	NO
A1027	Residential	91 Burton St	1	B	47	72	72	R/W	N/A	N/A	NO
A1028	Residential	110 Burton St	1	B	47	61	61	64	3	NO	NO
A1029	Residential	51 Argyle Ln	1	B	47	65	65	64	-1	NO	NO
A1032	Residential	11 Domino Ln	1	B	47	49	50	49	0	NO	NO
A1034	Residential	121 Alabama Ave	1	B	53	59	60	63	4	NO	NO
A1035	Residential	96 Hanover St	1	B	53	66	67	70	4	YES	NO
A1036	Residential	116 A Alabama Ave	1	B	53	57	58	59	2	NO	NO
A1037	Residential	16 Clemson Ct	1	B	53	53	53	53	0	NO	NO
A1038	Residential	14 Clemson Ct	1	B	53	53	53	54	1	NO	NO
A1039	Residential	144 Hanover St	1	B	53	65	66	60	-5	NO	NO
A1040	Residential	53 Kentucky Dr	1	B	53	72	73	73	1	YES	NO
A1041	Residential	51 Kentucky Dr	1	B	53	73	73	73	0	YES	NO
A1042	Residential	49 Kentucky Dr	1	B	53	73	73	74	1	YES	NO
A1043	Residential	47 Kentucky Dr	1	B	53	73	73	74	1	YES	NO
A1044	Residential	45 Kentucky Dr	1	B	53	73	73	73	0	YES	NO
A1046	Residential (Pisgah Apts Basketball Court)	31 Granada St	1	B	59	59	59	59	0	NO	NO
A1048.1	Residential	34 A Cordova St	1	B	59	59	59	59	0	NO	NO
A1048.2	Residential	34 B Cordova St	1	B	59	59	59	59	0	NO	NO
A1048.3	Residential	34 C Cordova St	1	B	59	59	59	59	0	NO	NO
A1048.4	Residential	34 D Cordova St	1	B	59	59	59	59	0	NO	NO
A1048.5	Residential	34 E Cordova St	1	B	59	59	59	59	0	NO	NO
A1048.6	Residential	34 F Cordova St	1	B	59	59	59	59	0	NO	NO
A1048.7	Residential	34 G Cordova St	1	B	59	59	59	59	0	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A1048.8	Residential	34 H Cordova St	1	B	59	59	59	59	0	NO	NO
A1049.1	Residential	35 A Cordova St	1	B	59	59	59	59	0	NO	NO
A1049.2	Residential	35 B Cordova St	1	B	59	59	59	59	0	NO	NO
A1049.3	Residential	35 C Cordova St	1	B	59	59	59	59	0	NO	NO
A1049.4	Residential	35 D Cordova St	1	B	59	59	59	59	0	NO	NO
A1049.5	Residential	35 E Cordova St	1	B	59	59	59	59	0	NO	NO
A1049.6	Residential	35 F Cordova St	1	B	59	59	59	59	0	NO	NO
A1050.1	Residential	36 A Cordova St	1	B	59	59	59	59	0	NO	NO
A1050.2	Residential	36 B Cordova St	1	B	59	59	59	59	0	NO	NO
A1050.3	Residential	36 C Cordova St	1	B	59	59	59	59	0	NO	NO
A1050.4	Residential	36 D Cordova St	1	B	59	59	59	59	0	NO	NO
A1050.5	Residential	36 E Cordova St	1	B	59	59	59	59	0	NO	NO
A1050.6	Residential	36 F Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.1	Residential	37 A Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.2	Residential	37 B Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.3	Residential	37 C Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.4	Residential	37 D Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.5	Residential	37 E Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.6	Residential	37 F Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.7	Residential	37 G Cordova St	1	B	59	59	59	59	0	NO	NO
A1051.8	Residential	37 H Cordova St	1	B	59	59	59	59	0	NO	NO
A1052	Residential	342 Short Michigan Ave	1	B	59	59	59	59	0	NO	NO
A1058	Campground (Wilson's RV Park)	350 Amboy Rd	1	C	59	64	64	62	-2	NO	NO
A1059	Residential	57 Maple Ridge Ln	1	B	60	60	60	60	0	NO	NO
A1060	Residential	63 Maple Ridge Ln	1	B	60	60	60	60	0	NO	NO
A1061	Residential	67 Maple Ridge Ln	1	B	60	60	60	60	0	NO	NO
A1062	Residential	43 Dale St	1	B	59	59	59	59	0	NO	NO
A1063	Residential	24 Dale St	1	B	59	59	59	59	0	NO	NO
A1064	Residential	12 Dale St	1	B	59	59	59	59	0	NO	NO
A1065	Residential	41 Hanover St	1	B	53	73	73	R/W	N/A	N/A	NO
A1066	Residential	39 Hanover St	1	B	53	72	72	R/W	N/A	N/A	NO
A1067	Residential	37 Hanover St	1	B	53	77	78	R/W	N/A	N/A	NO
A1068	Residential	141 Pennsylvania Ave	1	B	53	73	73	R/W	N/A	N/A	NO
A1069	Residential	26 New Jersey Ave	1	B	53	58	58	55	-3	NO	NO
A1070	Residential	40 Burk St	1	B	53	53	53	53	0	NO	NO
A1071	Residential	85 Langwell Ave	1	B	53	53	53	53	0	NO	NO
A1072	Residential	43 Burk St	1	B	53	55	55	56	1	NO	NO
A1073	Residential	45 Burk St	1	B	53	57	57	58	1	NO	NO
A1074	Residential	5 Gratitude Dr	1	B	53	62	61	60	-2	NO	NO

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Table B.1
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Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A1075	Residential	72 New Jersey Ave	1	B	53	62	62	61	-1	NO	NO
A1076	Residential	7 Gratitude Dr	1	B	53	61	61	60	-1	NO	NO
A1077	Residential	9 Gratitude Dr	1	B	53	61	60	60	-1	NO	NO
A1078	Residential	11 Gratitude Dr	1	B	53	62	62	62	0	NO	NO
A1079	Residential	13 Gratitude Dr	1	B	53	65	65	64	-1	NO	NO
A1080	Residential	15 Gratitude Dr	1	B	53	66	66	66	0	YES	NO
A1081	Residential	5-19 Gratitude Dr	1	B	53	68	68	67	-1	YES	NO
A1082	Residential	20 Gratitude Dr	1	B	53	69	69	68	-1	YES	NO
A1083	Residential	35 New Jersey Ave	1	B	53	73	73	71	-2	YES	NO
A1084	Residential	2 Grinnell St	1	B	53	60	60	61	1	NO	NO
A1085	Residential	4 Grinnell St	1	B	53	58	59	59	1	NO	NO
A1086	Residential	6 Grinnell St	1	B	53	56	57	57	1	NO	NO
A1087	Residential	8 Grinnell St	1	B	53	53	53	53	0	NO	NO
A1088	Residential	10 Grinnell St	1	B	53	54	54	56	2	NO	NO
A1089	Residential	12 Gratitude Dr	1	B	53	53	53	53	0	NO	NO
A1090	Residential	14 Gratitude Dr	1	B	53	64	64	65	1	NO	NO
A1091	Residential	98 Langwell Ave	1	B	53	64	65	65	1	NO	NO
A1092	Residential	Grinnell St	1	B	53	59	59	58	-1	NO	NO
A1093	Residential	102 W Lincoln Ave	1	B	53	67	67	67	0	YES	NO
A1094	Residential	Grinnell St	1	B	53	63	63	61	-2	NO	NO
A1095	Residential	22 Gratitude Dr	1	B	53	72	72	71	-1	YES	NO
A1096	Residential	23 Gratitude Dr	1	B	53	73	73	72	-1	YES	NO
A1097	Residential	24 Gratitude Dr	1	B	53	73	73	72	-1	YES	NO
A1098	Residential	25 Gratitude Dr	1	B	53	73	73	73	0	YES	NO
AF.120	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.121	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.122	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.123	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.124	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.125	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.126	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.127	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.128	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.129	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.130	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.131	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	60	59	0	NO	NO
AF.132	Recreation Area	Farm Trail at Biltmore	0.02	C	59	60	61	59	-1	NO	NO
AF.133	Recreation Area	Farm Trail at Biltmore	0.02	C	59	61	62	60	-1	NO	NO
AF.134	Recreation Area	Farm Trail at Biltmore	0.02	C	59	61	62	60	-1	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
AF.135	Recreation Area	Farm Trail at Biltmore	0.02	C	59	61	62	60	-1	NO	NO
AF.136	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	60	-2	NO	NO
AF.137	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	60	-2	NO	NO
AF.138	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	61	-1	NO	NO
AF.139	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	63	61	-1	NO	NO
AF.140	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	61	-1	NO	NO
AF.141	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	61	-1	NO	NO
AF.142	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	61	-1	NO	NO
AF.143	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	61	-1	NO	NO
AF.144	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	61	-1	NO	NO
AF.145	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	61	-1	NO	NO
AF.146	Recreation Area	Farm Trail at Biltmore	0.02	C	59	61	62	61	0	NO	NO
AF.147	Recreation Area	Farm Trail at Biltmore	0.02	C	59	61	61	60	-1	NO	NO
AF.148	Recreation Area	Farm Trail at Biltmore	0.02	C	59	60	61	60	0	NO	NO
AF.149	Recreation Area	Farm Trail at Biltmore	0.02	C	59	60	60	60	0	NO	NO
AF.150	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	60	59	0	NO	NO
AF.151	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.152	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.153	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.154	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.155	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AF.156	Recreation Area	Farm Trail at Biltmore	0.02	C	59	59	59	59	0	NO	NO
AG.1	Recreation Area	FBR Greenway	0.04	C	59	71	73	59	-12	NO	NO
AG.2	Recreation Area	FBR Greenway	0.04	C	59	71	73	59	-12	NO	NO
AG.3	Recreation Area	FBR Greenway	0.04	C	59	71	73	59	-12	NO	NO
AG.4	Recreation Area	FBR Greenway	0.04	C	59	70	72	59	-11	NO	NO
AG.5	Recreation Area	FBR Greenway	0.04	C	59	69	70	60	-9	NO	NO
AG.6	Recreation Area	FBR Greenway	0.04	C	59	68	70	60	-8	NO	NO
AG.7	Recreation Area	FBR Greenway	0.04	C	59	68	69	61	-7	NO	NO
AG.8	Recreation Area	FBR Greenway	0.04	C	59	68	69	61	-7	NO	NO
AG.9	Recreation Area	FBR Greenway	0.04	C	59	67	68	61	-6	NO	NO
AG.10	Recreation Area	FBR Greenway	0.04	C	59	65	65	61	-4	NO	NO
AG.11	Recreation Area	FBR Greenway	0.04	C	59	65	65	62	-3	NO	NO
AG.12	Recreation Area	FBR Greenway	0.04	C	59	64	65	62	-2	NO	NO
AG.13	Recreation Area	FBR Greenway	0.04	C	59	64	65	62	-2	NO	NO
AG.14	Recreation Area	FBR Greenway	0.04	C	59	64	64	62	-2	NO	NO
AG.15	Recreation Area	FBR Greenway	0.04	C	59	64	64	61	-3	NO	NO
AG.16	Recreation Area	FBR Greenway	0.04	C	59	63	63	61	-2	NO	NO
AG.17	Recreation Area	FBR Greenway	0.04	C	59	62	63	61	-1	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
AG.18	Recreation Area	FBR Greenway	0.04	C	59	61	62	61	0	NO	NO
AG.19	Recreation Area	FBR Greenway	0.04	C	59	60	60	61	1	NO	NO
AG.20	Recreation Area	FBR Greenway	0.04	C	59	59	59	60	1	NO	NO
AG.21	Recreation Area	FBR Greenway	0.04	C	59	59	60	60	1	NO	NO
AG.22	Recreation Area	FBR Greenway	0.04	C	59	59	60	60	1	NO	NO
AG.23	Recreation Area	FBR Greenway	0.04	C	59	64	65	61	-3	NO	NO
AG.24	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.25	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.26	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.27	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.28	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.29	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.30	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.31	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.32	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.33	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.34	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.35	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO
AG.100	Recreation Area	FBR Greenway	0.04	C	59	71	73	59	-12	NO	NO
AG.101	Recreation Area	FBR Greenway	0.04	C	59	68	70	59	-9	NO	NO
AG.102	Recreation Area	FBR Greenway	0.04	C	59	69	71	60	-9	NO	NO
AG.103	Recreation Area	FBR Greenway	0.04	C	59	68	70	61	-7	NO	NO
AG.104	Recreation Area	FBR Greenway	0.04	C	59	67	69	62	-5	NO	NO
AG.105	Recreation Area	FBR Greenway	0.04	C	59	67	69	64	-3	NO	NO
AG.106	Recreation Area	FBR Greenway	0.04	C	59	64	66	65	1	NO	NO
AG.107	Recreation Area	FBR Greenway	0.04	C	59	64	66	66	2	YES	NO
AG.108	Recreation Area	FBR Greenway	0.04	C	59	65	67	68	3	YES	NO
AG.109	Recreation Area	FBR Greenway	0.04	C	59	59	61	62	3	NO	NO
AG.110	Recreation Area	FBR Greenway	0.04	C	59	64	66	68	4	YES	NO
AG.111	Recreation Area	FBR Greenway	0.04	C	59	66	68	69	3	YES	NO
AG.112	Recreation Area	FBR Greenway	0.04	C	59	68	70	71	3	YES	NO
AG.113	Recreation Area	FBR Greenway	0.04	C	59	68	70	72	4	YES	NO
AG.114	Recreation Area	FBR Greenway	0.04	C	59	68	70	71	3	YES	NO
AG.115	Recreation Area	FBR Greenway	0.04	C	59	66	68	69	3	YES	NO
AG.116	Recreation Area	FBR Greenway	0.04	C	59	67	69	69	2	YES	NO
AG.117	Recreation Area	FBR Greenway	0.04	C	59	66	68	69	3	YES	NO
AG.118	Recreation Area	FBR Greenway	0.04	C	59	67	69	70	3	YES	NO
AG.119	Recreation Area	FBR Greenway	0.04	C	59	67	69	70	3	YES	NO
AG.120	Recreation Area	FBR Greenway	0.04	C	59	67	69	71	4	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
AG.121	Recreation Area	FBR Greenway	0.04	C	59	67	69	71	4	YES	NO
A.A2	Recreation Area	Carrier Park	0.01	C	59	66	68	59	-7	NO	NO
A.A3	Recreation Area	Carrier Park	0.01	C	59	60	61	59	-1	NO	NO
A.B2	Recreation Area	Carrier Park	0.01	C	59	64	66	59	-5	NO	NO
A.B3	Recreation Area	Carrier Park	0.01	C	59	59	61	59	0	NO	NO
A.B4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.C2	Recreation Area	Carrier Park	0.01	C	59	63	65	60	-3	NO	NO
A.C3	Recreation Area	Carrier Park	0.01	C	59	59	60	59	0	NO	NO
A.C4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.D2	Recreation Area	Carrier Park	0.01	C	59	62	64	61	-1	NO	NO
A.D3	Recreation Area	Carrier Park	0.01	C	59	59	60	59	0	NO	NO
A.D4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.E1	Recreation Area	Carrier Park	0.01	C	59	72	74	67	-5	YES	NO
A.E2	Recreation Area	Carrier Park	0.01	C	59	62	63	62	0	NO	NO
A.F4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.F5	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.G1	Recreation Area	Carrier Park	0.01	C	59	71	73	72	1	YES	NO
A.G2	Recreation Area	Carrier Park	0.01	C	59	62	64	64	2	NO	NO
A.G3	Recreation Area	Carrier Park	0.01	C	59	59	59	60	1	NO	NO
A.G4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.G5	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.G6	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.H1	Recreation Area	Carrier Park	0.01	C	59	72	74	R/W	N/A	N/A	NO
A.H2	Recreation Area	Carrier Park	0.01	C	59	62	64	65	3	NO	NO
A.H3	Recreation Area	Carrier Park	0.01	C	59	59	60	60	1	NO	NO
A.H4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.H5	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.H6	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.I2	Recreation Area	Carrier Park	0.01	C	59	62	63	65	3	NO	NO
A.I3	Recreation Area	Carrier Park	0.01	C	59	59	60	61	2	NO	NO
A.I4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.I5	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.I6	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.J2	Recreation Area	Carrier Park	0.01	C	59	65	67	69	4	YES	NO
A.J3	Recreation Area	Carrier Park	0.01	C	59	59	60	61	2	NO	NO
A.J4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.J5	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.J6	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.K2	Recreation Area	Carrier Park	0.01	C	59	66	68	70	4	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
A.K3	Recreation Area	Carrier Park	0.01	C	59	59	60	62	3	NO	NO
A.K4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.K5	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.K6	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.L3	Recreation Area	Carrier Park	0.01	C	59	59	61	62	3	NO	NO
A.L4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.M3	Recreation Area	Carrier Park	0.01	C	59	59	61	62	3	NO	NO
A.M4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.N4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.Q2	Recreation Area	Carrier Park	0.01	C	59	66	68	68	2	YES	NO
A.S3	Recreation Area	Carrier Park	0.01	C	59	59	61	61	2	NO	NO
A.T3	Recreation Area	Carrier Park	0.01	C	59	59	60	60	1	NO	NO
A.T4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
A.U2	Recreation Area	Carrier Park	0.01	C	59	66	68	68	2	YES	NO
A.U3	Recreation Area	Carrier Park	0.01	C	59	59	60	60	1	NO	NO
A.U4	Recreation Area	Carrier Park	0.01	C	59	59	59	59	0	NO	NO
B33	Residential	37 Wilmington St	1	B	47	66	66	67	1	YES	NO
B34	Residential	41 Wilmington St	1	B	47	65	65	67	2	YES	NO
B35	Residential	43 Wilmington St	1	B	47	67	67	69	2	YES	NO
B36	Residential	45 Wilmington St	1	B	47	67	67	70	3	YES	NO
B37	Residential	47 Wilmington St	1	B	47	68	68	70	2	YES	NO
B39	Residential	125 Burton St	1	B	47	70	70	70	0	YES	NO
B41.1	Recreation Center (Burton Street Rec. Center)	134 Burton St	0.33	C	47	51	51	53	2	NO	NO
B41.2	Recreation Center (Burton Street Rec. Center)	134 Burton St	0.33	C	47	53	53	57	4	NO	NO
B41.3	Recreation Center (Burton Street Rec. Center)	134 Burton St	0.33	C	47	47	47	50	3	NO	NO
B59	Residential	158 Burton St	1	B	47	47	47	49	2	NO	NO
B63	Residential	145 Burton St	1	B	47	62	62	61	-1	NO	NO
B64	Residential	149 Burton St	1	B	47	59	59	58	-1	NO	NO
B65	Residential	153 Burton St	1	B	47	55	55	56	1	NO	NO
B66	Residential	20 Buffalo St	1	B	47	50	50	52	2	NO	NO
B67	Residential	22 Buffalo St	1	B	47	50	51	51	1	NO	NO
B68	Residential	13 Buffalo St	1	B	47	56	56	53	-3	NO	NO
B69	Residential	144 Fayetteville St	1	B	47	71	71	69	-2	YES	NO
B70	Residential	144 Fayetteville St	1	B	47	72	72	72	0	YES	NO
B71	Residential	146 Fayetteville St	1	B	47	67	67	67	0	YES	NO
B72	Residential	152 Fayetteville St	1	B	47	68	68	68	0	YES	NO
B73	Residential	156 Fayetteville St	1	B	47	67	67	67	0	YES	NO
B74	Residential	160 Fayetteville St	1	B	47	67	67	66	-1	YES	NO
B75	Residential	42 Dellwood St	1	B	47	71	71	73	2	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B76	Residential	39 Dellwood St	1	B	47	56	56	59	3	NO	NO
B77	Residential	40 Dellwood St	1	B	47	70	70	73	3	YES	NO
B78	Residential	38 Dellwood St	1	B	47	69	69	72	3	YES	NO
B79	Residential	35 Dellwood St	1	B	47	63	63	60	-3	NO	NO
B80	Residential	32 Dellwood St	1	B	47	60	60	64	4	NO	NO
B81	Residential	24 Dellwood St	1	B	47	62	62	64	2	NO	NO
B82	Residential	68 Vandalia Ave	1	B	47	61	61	64	3	NO	NO
B84	Residential	62 Vandalia Ave	1	B	47	62	62	64	2	NO	NO
B85	Residential	34 Dellwood St	1	B	47	67	67	69	2	YES	NO
B86	Residential	60 Vandalia Ave	1	B	47	59	59	61	2	NO	NO
B87	Residential	54 Vandalia Ave	1	B	47	59	59	62	3	NO	NO
B88	Residential	62 Branning St	1	B	47	50	50	50	0	NO	NO
B89	Residential	63 Branning St	1	B	47	52	53	51	-1	NO	NO
B114	Residential	81 Vandalia Ave	1	B	47	54	54	57	3	NO	NO
B115	Residential	77 Vandalia Ave	1	B	47	53	53	57	4	NO	NO
B117	Residential	72 Vandalia Ave	1	B	47	61	61	63	2	NO	NO
B118	Residential	76 Vandalia Ave	1	B	47	57	57	60	3	NO	NO
B119	Residential	84 Vandalia Ave	1	B	47	62	62	65	3	NO	NO
B120	Residential	55 Dellwood St	1	B	47	67	67	69	2	YES	NO
B121	Residential	59 Dellwood St	1	B	47	69	69	71	2	YES	NO
B122	Residential	65 Dellwood St	1	B	47	70	70	72	2	YES	NO
B123	Residential	71 Dellwood St	1	B	47	71	72	R/W	N/A	N/A	NO
B124	Residential	163 Fayetteville St	1	B	47	74	74	77	3	YES	NO
B125	Residential	171 Fayetteville St	1	B	47	73	73	74	1	YES	NO
B126	Residential	173 Fayetteville St	1	B	47	72	72	74	2	YES	NO
B127	Place of Worship (St. Paul's Missionary Baptist)	170 Fayetteville St	1	D	22	36	36	37	1	NO	NO
B128	Residential	168 Fayetteville St	1	B	47	60	61	61	1	NO	NO
B129	Place of Worship (St. Paul's Missionary Baptist)	170 Fayetteville St	---	D	22	23	24	26	3	NO	NO
B130	Residential	52 Buffalo St	1	B	47	51	51	52	1	NO	NO
B131	Residential	25 Boyd Ave	1	B	47	49	50	52	3	NO	NO
B132	Residential	98 Vandalia Ave	1	B	47	60	60	63	3	NO	NO
B133	Residential	100 Vandalia Ave	1	B	47	63	63	63	0	NO	NO
B153	Residential	58 Buffalo St	1	B	47	47	47	50	3	NO	NO
B154	Residential	60 Buffalo St	1	B	47	47	47	49	2	NO	NO
B158	Residential	59 Buffalo St	1	B	47	47	47	49	2	NO	NO
B159	Residential	186 Fayetteville St	1	B	47	57	58	60	3	NO	NO
B160	Residential	187 Fayetteville St	1	B	47	70	70	72	2	YES	NO
B160.1	Residential	185 Fayetteville St	1	B	47	70	70	73	3	YES	NO
B160.2	Residential	179 Fayetteville St	1	B	47	71	71	73	2	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B161	Residential	198 Fayetteville St	1	B	47	58	58	62	4	NO	NO
B162	Residential	199 Fayetteville St	1	B	47	69	69	71	2	YES	NO
B164	Residential	201 Fayetteville St	1	B	47	68	68	70	2	YES	NO
B165	Residential	210 Fayetteville St	1	B	47	51	51	54	3	NO	NO
B166	Residential	205 Fayetteville St	1	B	47	68	68	70	2	YES	NO
B167	Residential	77 Dellwood St	1	B	47	71	71	R/W	N/A	N/A	NO
B168	Residential	92 Vandalia Ave	1	B	47	61	61	63	2	NO	NO
B169	Residential	96 Vandalia Ave	1	B	47	57	57	61	4	NO	NO
B170	Residential	110 Vandalia Ave	1	B	47	69	69	R/W	N/A	N/A	NO
B172	Residential	114 Vandalia Ave	1	B	47	72	72	R/W	N/A	N/A	NO
B173	Residential	120 Vandalia Ave	1	B	47	73	73	R/W	N/A	N/A	NO
B174	Residential	111 Vandalia Ave	1	B	47	61	61	62	1	NO	NO
B175	Residential	99 Vandalia Ave	1	B	47	57	58	59	2	NO	NO
B176	Residential	97 Vandalia Ave	1	B	47	54	54	56	2	NO	NO
B177	Residential	95 Vandalia Ave	1	B	47	54	55	56	2	NO	NO
B178	Residential	87 Vandalia Ave	1	B	47	51	51	54	3	NO	NO
B179	Residential	85 Vandalia Ave	1	B	47	50	51	54	4	NO	NO
B180	Residential	72 Branning St	1	B	47	58	58	58	0	NO	NO
B181	Residential	207 Branning St	1	B	47	49	50	51	2	NO	NO
B182	Residential	66 Branning St	1	B	47	51	52	50	-1	NO	NO
B183	Residential	65 Branning St	1	B	47	54	54	52	-2	NO	NO
B185	Residential	2 Worley Pl	1	B	47	57	58	56	-1	NO	NO
B186	Residential	3 Worley Pl	1	B	47	57	57	59	2	NO	NO
B188	Residential	25 Worley Pl	1	B	47	57	58	60	3	NO	NO
B189	Residential	11 Ruslans Dr	1	B	47	57	58	54	-3	NO	NO
B190	Residential	160 Richland St	1	B	48	56	56	57	1	NO	NO
B220	Residential	119 Richland St	1	B	48	55	56	57	2	NO	NO
B222	Residential	19 Annie St	1	B	48	54	55	57	3	NO	NO
B223	Residential	17 Annie St	1	B	48	57	57	58	1	NO	NO
B224	Residential	121 Richland St	1	B	48	59	60	60	1	NO	NO
B225	Residential	172 Richland St	1	B	48	55	55	58	3	NO	NO
B226	Residential	176 Richland St	1	B	48	59	59	58	-1	NO	NO
B227	Residential	178 Richland St	1	B	48	54	55	58	4	NO	NO
B228	Residential (Wm Worley House)	1 Worley Pl - Sect. 4(f)	1	B	47	63	63	64	1	NO	NO
B229	Residential	213 Edgar St	1	B	47	65	65	67	2	YES	NO
B230	Residential	201 Edgar St	1	B	47	69	69	71	2	YES	NO
B231	Residential	211 Fayetteville St	1	B	47	63	63	65	2	NO	NO
B232	Residential	215 Fayetteville St	1	B	47	63	63	65	2	NO	NO
B233	Residential	217 Fayetteville St	1	B	47	60	60	63	3	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B234	Residential	223 Fayetteville St	1	B	47	57	57	58	1	NO	NO
B235	Residential	220 Fayetteville St	1	B	47	48	48	51	3	NO	NO
B236	Residential	218 Fayetteville St	1	B	47	48	49	51	3	NO	NO
B237	Residential	216 Fayetteville St	1	B	47	50	50	52	2	NO	NO
B238	Residential	214 Fayetteville St	1	B	47	48	48	51	3	NO	NO
B239	Residential	212 Fayetteville St	1	B	47	52	52	56	4	NO	NO
B240	Residential	67 Buffalo St	1	B	47	47	48	50	3	NO	NO
B241	Residential	69 Buffalo St	1	B	47	49	49	51	2	NO	NO
B242	Residential	75 Buffalo St	1	B	47	47	47	47	0	NO	NO
B243	Residential	77 Buffalo St	1	B	47	50	51	52	2	NO	NO
B244	Residential	102 Buffalo St	1	B	47	51	52	53	2	NO	NO
B252	Residential	82 Buffalo St	1	B	47	53	53	54	1	NO	NO
B253	Residential	226 Fayetteville St	1	B	47	49	50	52	3	NO	NO
B254	Residential	225 Fayetteville St	1	B	47	60	61	61	1	NO	NO
B255	Residential	235 Fayetteville St	1	B	47	59	60	59	0	NO	NO
B256	Residential	27 Saratoga St	1	B	47	59	60	58	-1	NO	NO
B257	Residential	39 Saratoga St	1	B	47	65	66	65	0	NO	NO
B258	Residential	38 Saratoga St	1	B	47	65	66	66	1	YES	NO
B259	Residential	111 Edgar St	1	B	47	68	68	69	1	YES	NO
B260	Residential	101 Edgar St	1	B	47	69	69	71	2	YES	NO
B261	Residential	164 Hazel Mill Rd	1	B	48	66	66	R/W	N/A	N/A	NO
B262	Residential	162 Hazel Mill Rd	1	B	48	64	65	R/W	N/A	N/A	NO
B263	Residential	200 Richland St	1	B	48	62	62	54	-8	NO	NO
B264	Residential	194 Richland St	1	B	48	59	60	55	-4	NO	NO
B265	Residential	180 Richland St	1	B	48	61	61	62	1	NO	NO
B266	Residential	127 Richland St	1	B	48	58	59	60	2	NO	NO
B267	Residential	18 Annie St	1	B	48	55	56	57	2	NO	NO
B268	Residential	116 Hazel Mill Rd	1	B	48	61	61	66	5	YES	NO
B269	Residential	114 Hazel Mill Rd	1	B	48	61	61	67	6	YES	NO
B270	Residential	100 Hazel Mill Rd	1	B	48	58	58	64	6	NO	NO
B271	Residential	294 Westwood Pl	1	B	48	58	59	64	6	NO	NO
B274	Residential	280 Westwood Pl	1	B	48	57	58	60	3	NO	NO
B276	Residential	281 Westwood Pl	1	B	48	57	57	56	-1	NO	NO
B277	Residential	279 Westwood Pl	1	B	48	55	55	52	-3	NO	NO
B296	Residential	293 Westwood Pl	1	B	48	56	57	57	1	NO	NO
B301	Residential	49 Annie St	1	B	48	65	65	R/W	N/A	N/A	NO
B302	Residential	107 Hazel Mill Rd	1	B	48	63	64	R/W	N/A	N/A	NO
B303	Residential	52 Annie St	1	B	48	68	69	R/W	N/A	N/A	NO
B312	Residential	264 Hazel Mill Rd	1	B	48	57	59	59	2	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B313	Residential	240 Hazel Mill Rd	1	B	48	63	65	64	1	NO	NO
B314	Residential	243 Hazel Mill Rd	1	B	48	61	64	64	3	NO	NO
B315	Residential	237 Hazel Mill Rd	1	B	48	60	63	63	3	NO	NO
B316	Residential	247 Hazel Mill Rd	1	B	48	59	60	60	1	NO	NO
B318	Residential	226 Hazel Mill Rd	1	B	48	62	65	65	3	NO	NO
B322	Residential	100 Rose St	1	B	48	61	62	63	2	NO	NO
B355	Residential	11 Park Ave N	1	B	48	48	48	48	0	NO	NO
B359	Residential	411 W Haywood St	1	B	48	58	59	55	-3	NO	NO
B360	Residential	430 W Haywood St	1	B	48	62	63	58	-4	NO	NO
B361	Residential	423 W Haywood St	1	B	48	60	60	56	-4	NO	NO
B362	Residential	439 W Haywood St	1	B	48	62	63	58	-4	NO	NO
B363	Residential	453 W Haywood St	1	B	48	61	62	57	-4	NO	NO
B364	Restaurant (White Duck Taco Shop)	1 Roberts St	1	E	48	64	63	57	-7	NO	NO
B390	Residential	18 Hansel Ave	1	B	48	61	62	63	2	NO	NO
B391	Residential	24 Hansel Ave	1	B	48	60	61	63	3	NO	NO
B392	Residential	26 Hansel Ave	1	B	48	57	58	59	2	NO	NO
B393	Nonprofit Structure (Buncombe Baptist Association)	227 Hazel Mill Rd	1	D	13	23	24	25	2	NO	NO
B394	Residential	1 Townview Dr	1	B	48	57	58	59	2	NO	NO
B395	Residential	3 Townview Dr	1	B	48	57	58	60	3	NO	NO
B396	Residential	5 Townview Dr	1	B	48	57	58	60	3	NO	NO
B397	Residential	60 Emma St	1	B	48	56	57	59	3	NO	NO
B398	Residential	60 1/2 Emma St	1	B	48	57	57	59	2	NO	NO
B399	Residential	32 6 Emma St	1	B	48	57	57	59	2	NO	NO
B400	Residential	32 5 Emma St	1	B	48	56	57	59	3	NO	NO
B401	Residential	32 3 Emma St	1	B	48	55	56	59	4	NO	NO
B402	Residential	32 1 Emma St	1	B	48	56	56	59	3	NO	NO
B403	Residential	33 Nancy St	1	B	48	56	57	59	3	NO	NO
B404	Residential	32 Hansel Ave	1	B	48	59	60	61	2	NO	NO
B405	Residential	38 Hansel Ave	1	B	48	55	56	58	3	NO	NO
B406	Residential	46 Hansel Ave	1	B	48	57	58	60	3	NO	NO
B407	Residential	33 Hansel Ave	1	B	48	59	60	62	3	NO	NO
B408	Place of Worship (Hazel Green Missionary Baptist)	35 Hansel Ave	1	D	23	32	32	35	3	NO	NO
B409	Day Care Center (Regent Park Daycare)	20 Regent Park Blvd	1	D	23	30	31	34	4	NO	NO
B409.1	Playground (Regent Park Daycare)	20 Regent Park Blvd	2	C	48	48	48	50	2	NO	NO
B423	Place of Worship (Asheville United Christian)	10 Roberts St	1	D	23	38	38	33	-5	NO	NO
B424	Residential	20 Trade St	1	B	48	61	62	57	-4	NO	NO
B425	Residential	21 Club St	1	B	48	66	67	63	-3	NO	NO
B426	Residential	19 Club St	1	B	48	69	70	63	-6	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B427	Residential	14 Club St	1	B	48	64	65	61	-3	NO	NO
B428	Residential	11 Club St	1	B	48	71	72	67	-4	YES	NO
B429	Residential	8 Club St	1	B	48	68	68	65	-3	NO	NO
B430	Residential	1 Park Ave N	1	B	48	61	62	60	-1	NO	NO
B431	Residential	344 W Haywood St	1	B	48	59	60	60	1	NO	NO
B452	Residential	10 Knoxville Pl	1	B	48	48	49	50	2	NO	NO
B453	Residential	10 1/2 Knoxville Pl	1	B	48	48	48	50	2	NO	NO
B454	Residential	28 Knoxville Pl	1	B	48	48	48	48	0	NO	NO
B455	Residential	29 Knoxville Pl	1	B	48	48	48	48	0	NO	NO
B456	Residential	17 Knoxville Pl	1	B	48	48	48	48	0	NO	NO
B459	Nonprofit Structure (Boy Scouts of America)	333 W Haywood St	1	D	23	45	46	44	-1	NO	NO
B465.1	Residential	20 A Atkinson St	1	B	48	69	70	61	-8	NO	NO
B465.2	Residential	20 B Atkinson St	1	B	48	66	66	58	-8	NO	NO
B465.3	Residential	20 C Atkinson St	1	B	48	63	63	55	-8	NO	NO
B465.4	Residential	20 D Atkinson St	1	B	48	61	61	54	-7	NO	NO
B465.5	Residential	20 E Atkinson St	1	B	48	59	59	53	-6	NO	NO
B465.6	Residential	20 F Atkinson St	1	B	48	58	58	53	-5	NO	NO
B466.1	Residential	19 A Atkinson St	1	B	48	50	51	51	1	NO	NO
B466.2	Residential	19 B Atkinson St	1	B	48	51	52	49	-2	NO	NO
B466.3	Residential	19 C Atkinson St	1	B	48	53	54	50	-3	NO	NO
B466.4	Residential	19 D Atkinson St	1	B	48	56	57	52	-4	NO	NO
B466.5	Residential	19 E Atkinson St	1	B	48	59	61	55	-4	NO	NO
B466.6	Residential	19 F Atkinson St	1	B	48	66	67	61	-5	NO	NO
B467.1	Residential	18 A Atkinson St	1	B	48	66	67	62	-4	NO	NO
B467.2	Residential	18 B Atkinson St	1	B	48	63	64	59	-4	NO	NO
B467.3	Residential	18 C Atkinson St	1	B	48	59	60	55	-4	NO	NO
B467.4	Residential	18 D Atkinson St	1	B	48	56	57	53	-3	NO	NO
B467.5	Residential	18 E Atkinson St	1	B	48	54	55	52	-2	NO	NO
B467.6	Residential	18 F Atkinson St	1	B	48	53	54	51	-2	NO	NO
B468.1	Residential	17 A Atkinson St	1	B	48	53	55	53	0	NO	NO
B468.2	Residential	17 B Atkinson St	1	B	48	55	56	54	-1	NO	NO
B468.3	Residential	17 C Atkinson St	1	B	48	56	57	54	-2	NO	NO
B468.4	Residential	17 D Atkinson St	1	B	48	59	60	56	-3	NO	NO
B468.5	Residential	17 E Atkinson St	1	B	48	63	64	59	-4	NO	NO
B468.6	Residential	17 F Atkinson St	1	B	48	67	67	62	-5	NO	NO
B469.1	Residential	16 A Atkinson St	1	B	48	67	68	62	-5	NO	NO
B469.2	Residential	16 B Atkinson St	1	B	48	64	65	59	-5	NO	NO
B469.3	Residential	16 C Atkinson St	1	B	48	61	62	57	-4	NO	NO
B469.4	Residential	16 D Atkinson St	1	B	48	58	59	55	-3	NO	NO
B469.5	Residential	16 E Atkinson St	1	B	48	56	57	53	-3	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B469.6	Residential	16 F Atkinson St	1	B	48	57	58	57	0	NO	NO
B470.1	Residential	15 A Atkinson St	1	B	48	67	67	64	-3	NO	NO
B470.2	Residential	15 B Atkinson St	1	B	48	67	67	64	-3	NO	NO
B470.3	Residential	15 C Atkinson St	1	B	48	67	68	64	-3	NO	NO
B470.4	Residential	15 D Atkinson St	1	B	48	68	68	64	-4	NO	NO
B470.5	Residential	15 E Atkinson St	1	B	48	68	69	65	-3	NO	NO
B470.6	Residential	15 F Atkinson St	1	B	48	69	69	65	-4	NO	NO
B470.7	Residential	15 G Atkinson St	1	B	48	70	70	65	-5	NO	NO
B470.8	Residential	15 H Atkinson St	1	B	48	71	71	65	-6	NO	NO
B471.1	Residential	22 A Atkinson St	1	B	48	52	52	54	2	NO	NO
B471.2	Residential	22 B Atkinson St	1	B	48	48	48	52	4	NO	NO
B471.3	Residential	22 C Atkinson St	1	B	48	48	48	52	4	NO	NO
B471.4	Residential	22 D Atkinson St	1	B	48	48	48	53	5	NO	NO
B472.1	Residential	23 A Atkinson St	1	B	48	50	50	53	3	NO	NO
B472.2	Residential	23 B Atkinson St	1	B	48	51	51	50	-1	NO	NO
B472.3	Residential	23 C Atkinson St	1	B	48	52	52	50	-2	NO	NO
B472.4	Residential	23 D Atkinson St	1	B	48	53	53	50	-3	NO	NO
B473.1	Residential	24 A Atkinson St	1	B	48	51	52	50	-1	NO	NO
B473.2	Residential	24 B Atkinson St	1	B	48	49	50	49	0	NO	NO
B473.3	Residential	24 C Atkinson St	1	B	48	48	49	49	1	NO	NO
B473.4	Residential	24 D Atkinson St	1	B	48	48	49	49	1	NO	NO
B473.5	Residential	24 E Atkinson St	1	B	48	48	49	49	1	NO	NO
B473.6	Residential	24 F Atkinson St	1	B	48	48	48	48	0	NO	NO
B473.7	Residential	24 G Atkinson St	1	B	48	48	48	48	0	NO	NO
B473.8	Residential	24 H Atkinson St	1	B	48	48	48	49	1	NO	NO
B474.1	Residential	25 A Atkinson St	1	B	48	50	51	51	1	NO	NO
B474.2	Residential	25 B Atkinson St	1	B	48	49	50	50	1	NO	NO
B474.3	Residential	25 C Atkinson St	1	B	48	50	50	50	0	NO	NO
B474.4	Residential	25 D Atkinson St	1	B	48	50	51	50	0	NO	NO
B474.5	Residential	25 E Atkinson St	1	B	48	50	51	50	0	NO	NO
B474.6	Residential	25 F Atkinson St	1	B	48	51	52	51	0	NO	NO
B474.7	Residential	25 G Atkinson St	1	B	48	52	53	51	-1	NO	NO
B474.8	Residential	25 H Atkinson St	1	B	48	53	54	52	-1	NO	NO
B475.1	Residential	14 A Atkinson St	1	B	48	52	53	52	0	NO	NO
B475.2	Residential	14 B Atkinson St	1	B	48	52	53	53	1	NO	NO
B475.3	Residential	14 C Atkinson St	1	B	48	53	54	54	1	NO	NO
B475.4	Residential	14 D Atkinson St	1	B	48	53	55	56	3	NO	NO
B475.5	Residential	14 E Atkinson St	1	B	48	54	55	57	3	NO	NO
B475.6	Residential	14 F Atkinson St	1	B	48	54	55	57	3	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B475.7	Residential	14 G Atkinson St	1	B	48	54	54	55	1	NO	NO
B475.8	Residential	14 H Atkinson St	1	B	48	52	53	52	0	NO	NO
B476.1	Residential	13 A Atkinson St	1	B	48	65	66	64	-1	NO	NO
B476.2	Residential	13 B Atkinson St	1	B	48	65	66	64	-1	NO	NO
B476.3	Residential	13 C Atkinson St	1	B	48	65	66	64	-1	NO	NO
B476.4	Residential	13 D Atkinson St	1	B	48	65	66	64	-1	NO	NO
B476.5	Residential	13 E Atkinson St	1	B	48	65	66	64	-1	NO	NO
B476.6	Residential	13 F Atkinson St	1	B	48	65	66	64	-1	NO	NO
B476.7	Residential	13 G Atkinson St	1	B	48	65	66	64	-1	NO	NO
B476.8	Residential	13 H Atkinson St	1	B	48	66	66	64	-2	NO	NO
B483	Residential	21 Pearl St	1	B	48	56	57	58	2	NO	NO
B484	Nonprofit Struct. (Western Carolina Rescue Ministries)	225 Patton Ave	1	D	23	44	45	45	1	NO	NO
B486	Place of Worship (Haywood Street Church)	297 Haywood St - Sect. 4(f)	1	D	23	42	43	44	2	NO	NO
B486.1	Playground (Haywood Street Church)	297 Haywood St - Sect. 4(f)	2	C	48	71	71	73	2	YES	NO
B487.1	Residential	11 A Atkinson St	1	B	48	65	66	66	1	YES	NO
B487.2	Residential	11 B Atkinson St	1	B	48	65	66	66	1	YES	NO
B487.3	Residential	11 C Atkinson St	1	B	48	65	66	66	1	YES	NO
B487.4	Residential	11 D Atkinson St	1	B	48	65	66	65	0	NO	NO
B487.5	Residential	11 E Atkinson St	1	B	48	65	66	65	0	NO	NO
B487.6	Residential	11 F Atkinson St	1	B	48	65	66	65	0	NO	NO
B487.7	Residential	11 G Atkinson St	1	B	48	65	66	65	0	NO	NO
B487.8	Residential	11 H Atkinson St	1	B	48	65	66	65	0	NO	NO
B488.1	Residential	9 A Atkinson St	1	B	48	65	66	65	0	NO	NO
B488.2	Residential	9 B Atkinson St	1	B	48	65	66	65	0	NO	NO
B488.3	Residential	9 C Atkinson St	1	B	48	65	66	65	0	NO	NO
B488.4	Residential	9 D Atkinson St	1	B	48	65	66	66	1	YES	NO
B488.5	Residential	9 E Atkinson St	1	B	48	65	66	66	1	YES	NO
B488.6	Residential	9 F Atkinson St	1	B	48	65	66	65	0	NO	NO
B488.7	Residential	9 G Atkinson St	1	B	48	65	66	66	1	YES	NO
B488.8	Residential	9 H Atkinson St	1	B	48	65	66	66	1	YES	NO
B489.1	Residential	12 A Atkinson St	1	B	48	50	51	51	1	NO	NO
B489.2	Residential	12 B Atkinson St	1	B	48	50	51	51	1	NO	NO
B489.3	Residential	12 C Atkinson St	1	B	48	51	52	51	0	NO	NO
B489.4	Residential	12 D Atkinson St	1	B	48	52	53	52	0	NO	NO
B489.5	Residential	12 E Atkinson St	1	B	48	52	53	54	2	NO	NO
B489.6	Residential	12 F Atkinson St	1	B	48	52	53	55	3	NO	NO
B489.7	Residential	12 G Atkinson St	1	B	48	51	52	54	3	NO	NO
B489.8	Residential	12 H Atkinson St	1	B	48	50	51	51	1	NO	NO
B490.1	Residential	10 A Atkinson St	1	B	48	50	51	51	1	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B490.2	Residential	10 B Atkinson St	1	B	48	50	51	51	1	NO	NO
B490.3	Residential	10 C Atkinson St	1	B	48	51	52	51	0	NO	NO
B490.4	Residential	10 D Atkinson St	1	B	48	51	53	52	1	NO	NO
B490.5	Residential	10 E Atkinson St	1	B	48	51	53	53	2	NO	NO
B490.6	Residential	10 F Atkinson St	1	B	48	51	52	53	2	NO	NO
B491.1	Residential	27 A Atkinson St	1	B	48	48	48	51	3	NO	NO
B491.2	Residential	27 B Atkinson St	1	B	48	48	48	51	3	NO	NO
B491.3	Residential	27 C Atkinson St	1	B	48	48	49	51	3	NO	NO
B491.4	Residential	27 D Atkinson St	1	B	48	48	49	51	3	NO	NO
B491.5	Residential	27 E Atkinson St	1	B	48	49	50	51	2	NO	NO
B491.6	Residential	27 F Atkinson St	1	B	48	50	50	51	1	NO	NO
B492.1	Residential	29 A Atkinson St	1	B	48	48	48	51	3	NO	NO
B492.2	Residential	29 B Atkinson St	1	B	48	48	48	51	3	NO	NO
B492.3	Residential	29 C Atkinson St	1	B	48	48	48	51	3	NO	NO
B492.4	Residential	29 D Atkinson St	1	B	48	48	48	51	3	NO	NO
B492.5	Residential	29 E Atkinson St	1	B	48	48	48	51	3	NO	NO
B492.6	Residential	29 F Atkinson St	1	B	48	48	48	51	3	NO	NO
B493.1	Residential	26 A Atkinson St	1	B	48	48	48	48	0	NO	NO
B493.2	Residential	26 B Atkinson St	1	B	48	48	48	48	0	NO	NO
B493.3	Residential	26 C Atkinson St	1	B	48	48	48	48	0	NO	NO
B493.4	Residential	26 D Atkinson St	1	B	48	48	48	48	0	NO	NO
B494.1	Residential	28 A Atkinson St	1	B	48	48	48	49	1	NO	NO
B494.2	Residential	28 B Atkinson St	1	B	48	48	48	49	1	NO	NO
B494.3	Residential	28 C Atkinson St	1	B	48	48	48	49	1	NO	NO
B494.4	Residential	28 D Atkinson St	1	B	48	48	48	49	1	NO	NO
B495.1	Residential	30 A Atkinson St	1	B	48	48	48	49	1	NO	NO
B495.2	Residential	30 B Atkinson St	1	B	48	48	48	49	1	NO	NO
B495.3	Residential	30 C Atkinson St	1	B	48	48	48	49	1	NO	NO
B495.4	Residential	30 D Atkinson St	1	B	48	48	48	49	1	NO	NO
B495.5	Residential	30 E Atkinson St	1	B	48	48	48	49	1	NO	NO
B495.6	Residential	30 F Atkinson St	1	B	48	48	48	49	1	NO	NO
B496	Residential (Hillcrest Apts Basketball Court)	100 Atkinson St	2	B	48	56	56	58	2	NO	NO
B498	Active Sport Area (Asheville Racquet Club)	27 Resort Dr	0.27	C	48	48	48	R/W	N/A	N/A	NO
B500.1	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	62	7	NO	NO
B500.2	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.3	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	62	7	NO	NO
B500.4	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.5	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	62	7	NO	NO
B500.6	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B500.7	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	63	8	NO	NO
B500.8	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.9	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	63	8	NO	NO
B500.10	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.11	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	63	8	NO	NO
B500.12	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.13	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	63	8	NO	NO
B500.14	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.15	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	63	8	NO	NO
B500.16	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.17	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	63	8	NO	NO
B500.18	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.19	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	63	8	NO	NO
B500.20	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	57	64	8	NO	NO
B500.21	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	63	8	NO	NO
B500.22	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	56	65	9	NO	NO
B500.23	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	63	8	NO	NO
B500.24	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	56	65	9	NO	NO
B500.25	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	63	8	NO	NO
B500.26	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	56	65	9	NO	NO
B500.27	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	64	9	NO	NO
B500.28	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	56	65	9	NO	NO
B500.29	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	64	9	NO	NO
B500.30	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	56	56	65	9	NO	NO
B501.1	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	66	12	NO	YES
B501.2	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	67	12	NO	YES
B501.3	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	66	12	NO	YES
B501.4	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	67	12	NO	YES
B501.5	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	66	12	NO	YES
B501.6	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	68	13	NO	YES
B501.7	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	66	12	NO	YES
B501.8	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	68	13	NO	YES
B501.9	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	67	13	NO	YES
B501.10	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	68	13	NO	YES
B501.11	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	54	67	13	NO	YES
B501.12	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	68	13	NO	YES
B501.13	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	54	67	13	NO	YES
B501.14	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	68	13	NO	YES
B501.15	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	54	67	13	NO	YES

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B501.16	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	68	13	NO	YES
B501.17	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	54	67	13	NO	YES
B501.18	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	56	68	13	NO	YES
B501.19	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	67	14	NO	YES
B501.20	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	68	13	NO	YES
B501.21	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	67	14	NO	YES
B501.22	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	68	13	NO	YES
B501.23	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	67	14	NO	YES
B501.24	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	68	13	NO	YES
B501.25	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	67	14	NO	YES
B501.26	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	55	55	68	13	NO	YES
B501.27	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	67	14	NO	YES
B501.28	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	68	14	NO	YES
B501.29	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	67	14	NO	YES
B501.30	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	68	14	NO	YES
B501.31	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	67	14	NO	YES
B501.32	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	69	15	NO	YES
B501.33	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	54	68	15	NO	YES
B501.34	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	69	15	NO	YES
B501.35	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	53	68	15	NO	YES
B501.36	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	54	55	69	15	NO	YES
B502	Active Sport Area (Asheville Racquet Club)	27 Resort Dr	0.27	C	48	48	48	R/W	N/A	N/A	NO
B503	Active Sport Area (Asheville Racquet Club)	49 Resort Dr	0.27	C	48	48	48	R/W	N/A	N/A	NO
B504	Residential	500 Westwood Pl	1	B	48	48	49	66	18	YES	YES
B505	Residential	502 Westwood Pl	1	B	48	48	48	66	18	YES	YES
B506	Residential (Hillcrest Apts. Playground)	100 Atkinson St	1	B	48	56	56	58	2	NO	NO
B507.1	Residential	32 A Atkinson St	1	B	48	48	48	50	2	NO	NO
B507.2	Residential	32 B Atkinson St	1	B	48	48	48	51	3	NO	NO
B507.3	Residential	32 C Atkinson St	1	B	48	48	48	51	3	NO	NO
B507.4	Residential	32 D Atkinson St	1	B	48	48	48	51	3	NO	NO
B507.5	Residential	32 E Atkinson St	1	B	48	48	48	51	3	NO	NO
B507.6	Residential	32 F Atkinson St	1	B	48	48	48	51	3	NO	NO
B508.1	Residential	33 A Atkinson St	1	B	48	48	48	53	5	NO	NO
B508.2	Residential	33 B Atkinson St	1	B	48	48	48	53	5	NO	NO
B508.3	Residential	33 C Atkinson St	1	B	48	48	48	53	5	NO	NO
B508.4	Residential	33 D Atkinson St	1	B	48	48	48	53	5	NO	NO
B508.5	Residential	33 E Atkinson St	1	B	48	48	48	53	5	NO	NO
B508.6	Residential	33 F Atkinson St	1	B	48	48	48	52	4	NO	NO
B509.1	Residential	31 A Atkinson St	1	B	48	48	48	52	4	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B509.2	Residential	31 B Atkinson St	1	B	48	48	48	52	4	NO	NO
B509.3	Residential	31 C Atkinson St	1	B	48	48	48	51	3	NO	NO
B509.4	Residential	31 D Atkinson St	1	B	48	48	48	52	4	NO	NO
B509.5	Residential	31 E Atkinson St	1	B	48	48	48	52	4	NO	NO
B509.6	Residential	31 F Atkinson St	1	B	48	48	48	51	3	NO	NO
B510.1	Residential	8 A Atkinson St	1	B	48	50	51	52	2	NO	NO
B510.2	Residential	8 B Atkinson St	1	B	48	50	51	52	2	NO	NO
B510.3	Residential	8 C Atkinson St	1	B	48	51	52	52	1	NO	NO
B510.4	Residential	8 D Atkinson St	1	B	48	52	53	53	1	NO	NO
B510.5	Residential	8 E Atkinson St	1	B	48	54	55	53	-1	NO	NO
B510.6	Residential	8 F Atkinson St	1	B	48	52	53	53	1	NO	NO
B511.1	Residential	7 A Atkinson St	1	B	48	65	66	63	-2	NO	NO
B511.2	Residential	7 B Atkinson St	1	B	48	65	65	64	-1	NO	NO
B511.3	Residential	7 C Atkinson St	1	B	48	64	65	64	0	NO	NO
B511.4	Residential	7 D Atkinson St	1	B	48	64	65	64	0	NO	NO
B511.5	Residential	7 E Atkinson St	1	B	48	64	65	64	0	NO	NO
B511.6	Residential	7 F Atkinson St	1	B	48	64	65	64	0	NO	NO
B511.7	Residential	7 G Atkinson St	1	B	48	64	65	64	0	NO	NO
B511.8	Residential	7 H Atkinson St	1	B	48	64	65	64	0	NO	NO
B512.1	Residential	6 A Atkinson St	1	B	48	50	51	53	3	NO	NO
B512.2	Residential	6 B Atkinson St	1	B	48	50	51	52	2	NO	NO
B512.3	Residential	6 C Atkinson St	1	B	48	51	51	52	1	NO	NO
B512.4	Residential	6 D Atkinson St	1	B	48	51	52	53	2	NO	NO
B512.5	Residential	6 E Atkinson St	1	B	48	52	52	53	1	NO	NO
B512.6	Residential	6 F Atkinson St	1	B	48	52	53	53	1	NO	NO
B513.1	Residential	5 A Atkinson St	1	B	48	65	66	64	-1	NO	NO
B513.2	Residential	5 B Atkinson St	1	B	48	65	65	64	-1	NO	NO
B513.3	Residential	5 C Atkinson St	1	B	48	65	66	64	-1	NO	NO
B513.4	Residential	5 D Atkinson St	1	B	48	65	66	64	-1	NO	NO
B513.5	Residential	5 E Atkinson St	1	B	48	65	66	64	-1	NO	NO
B513.6	Residential	5 F Atkinson St	1	B	48	65	66	64	-1	NO	NO
B513.7	Residential	5 G Atkinson St	1	B	48	65	66	64	-1	NO	NO
B513.8	Residential	5 H Atkinson St	1	B	48	65	66	64	-1	NO	NO
B514	Residential	7 H Atkinson St	1	B	48	63	65	R/W	N/A	N/A	NO
B514.1	Residential	8 Cross Pl	1	B	48	65	66	R/W	N/A	N/A	NO
B514.2	Residential	2 Cottage Ln	1	B	48	67	68	R/W	N/A	N/A	NO
B514.3	Residential	4 Cottage Ln	1	B	48	68	69	R/W	N/A	N/A	NO
B515	Residential	13 Cross Pl	1	B	48	55	56	62	7	NO	NO
B515.1	Residential	10 Cross Pl	1	B	48	61	61	67	6	YES	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B515.2	Residential	12 Cross Pl	1	B	48	60	61	63	3	NO	NO
B516	Residential	15 Cross Pl	1	B	48	48	49	59	11	NO	YES
B516.1	Residential	20 Cross Pl	1	B	48	57	58	59	2	NO	NO
B516.2	Residential	22 Cross Pl	1	B	48	55	56	57	2	NO	NO
B517	Residential	16 East Ln	1	B	48	68	69	R/W	N/A	N/A	NO
B518	Residential	20 East Ln	1	B	48	67	67	R/W	N/A	N/A	NO
B519	Residential	18 East Ln	1	B	48	64	65	R/W	N/A	N/A	NO
B520	Residential	28 Greenlee Ave	1	B	48	55	56	68	13	YES	YES
B521	Residential	30 Greenlee Ave	1	B	48	57	58	61	4	NO	NO
B522	Residential	31 101 Greenlee Ave	1	B	48	53	54	57	4	NO	NO
B523	Residential	25 105 Greenlee Ave	1	B	48	55	57	62	7	NO	NO
B524	Residential	21 Greenlee Ave	1	B	48	54	55	R/W	N/A	N/A	NO
B525	Residential	4 Roosevelt St	1	B	48	53	55	R/W	N/A	N/A	NO
B526	Place of Worship (Holy Tabernacle Church of God)	1 Roosevelt St	1	D	23	32	34	R/W	N/A	N/A	NO
B527	Residential	14 Roosevelt St	1	B	48	51	52	62	11	NO	YES
B528	Playground (Hill Street Baptist)	135 Hill St	3	C	48	62	63	68	6	YES	NO
B529	Place of Worship (Hill Street Baptist)	135 Hill St	1	D	23	43	44	47	4	NO	NO
B535	School (Isaac Dickson Elem)	125 Hill St	1	D	23	30	30	35	5	NO	NO
B536	School (Isaac Dickson Elem)	125 Hill St	1	D	23	27	27	31	4	NO	NO
B537	Playground (Isaac Dickson Elem)	125 Hill St	6	C	48	55	56	59	4	NO	NO
B538	Residential	37 Greenlee Ave	1	B	48	48	48	51	3	NO	NO
B539.1	Residential	3 A Atkinson St	1	B	48	65	65	65	0	NO	NO
B539.2	Residential	3 B Atkinson St	1	B	48	65	65	65	0	NO	NO
B539.3	Residential	3 C Atkinson St	1	B	48	65	65	65	0	NO	NO
B539.4	Residential	3 D Atkinson St	1	B	48	65	65	65	0	NO	NO
B539.5	Residential	3 E Atkinson St	1	B	48	65	65	64	-1	NO	NO
B539.6	Residential	3 F Atkinson St	1	B	48	65	65	64	-1	NO	NO
B539.7	Residential	3 G Atkinson St	1	B	48	65	65	64	-1	NO	NO
B539.8	Residential	3 H Atkinson St	1	B	48	65	65	64	-1	NO	NO
B540.1	Residential	1 A Atkinson St	1	B	48	66	67	65	-1	NO	NO
B540.2	Residential	1 B Atkinson St	1	B	48	66	66	65	-1	NO	NO
B540.3	Residential	1 C Atkinson St	1	B	48	65	66	64	-1	NO	NO
B540.4	Residential	1 D Atkinson St	1	B	48	65	65	64	-1	NO	NO
B541.1	Residential	2 A Atkinson St	1	B	48	56	56	55	-1	NO	NO
B541.2	Residential	2 B Atkinson St	1	B	48	57	58	56	-1	NO	NO
B541.3	Residential	2 C Atkinson St	1	B	48	60	61	58	-2	NO	NO
B541.4	Residential	2 D Atkinson St	1	B	48	62	63	59	-3	NO	NO
B542.1	Residential	4 A Atkinson St	1	B	48	50	51	52	2	NO	NO
B542.2	Residential	4 B Atkinson St	1	B	48	51	51	53	2	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B542.3	Residential	4 C Atkinson St	1	B	48	51	52	53	2	NO	NO
B542.4	Residential	4 D Atkinson St	1	B	48	51	52	53	2	NO	NO
B542.5	Residential	4 E Atkinson St	1	B	48	52	53	53	1	NO	NO
B542.6	Residential	4 F Atkinson St	1	B	48	52	52	54	2	NO	NO
B542.7	Residential	4 G Atkinson St	1	B	48	52	53	54	2	NO	NO
B542.8	Residential	4 H Atkinson St	1	B	48	52	53	54	2	NO	NO
B543.1	Residential	35 A Atkinson St	1	B	48	48	48	54	6	NO	NO
B543.2	Residential	35 B Atkinson St	1	B	48	48	48	54	6	NO	NO
B543.3	Residential	35 C Atkinson St	1	B	48	48	48	54	6	NO	NO
B543.4	Residential	35 D Atkinson St	1	B	48	48	48	53	5	NO	NO
B544.1	Residential	34 A Atkinson St	1	B	48	48	48	52	4	NO	NO
B544.2	Residential	34 B Atkinson St	1	B	48	48	48	52	4	NO	NO
B544.3	Residential	34 C Atkinson St	1	B	48	48	49	52	4	NO	NO
B544.4	Residential	34 D Atkinson St	1	B	48	48	49	52	4	NO	NO
B545.1	Residential	36 A Atkinson St	1	B	48	52	53	57	5	NO	NO
B545.2	Residential	36 B Atkinson St	1	B	48	51	52	57	6	NO	NO
B545.3	Residential	36 C Atkinson St	1	B	48	51	51	56	5	NO	NO
B545.4	Residential	36 D Atkinson St	1	B	48	51	51	56	5	NO	NO
B545.5	Residential	36 E Atkinson St	1	B	48	50	50	56	6	NO	NO
B545.6	Residential	36 F Atkinson St	1	B	48	49	50	55	6	NO	NO
B545.7	Residential	36 G Atkinson St	1	B	48	49	49	55	6	NO	NO
B545.8	Residential	36 H Atkinson St	1	B	48	48	49	55	7	NO	NO
B546	School	100 B Atkinson St	1	D	23	24	25	27	3	NO	NO
B547	Residential	120 Emma Rd	1	B	48	48	48	59	11	NO	YES
B548	Residential (Freeman House)	516 Westwood Pl - Sect. 4(f)	1	B	48	55	55	67	12	YES	YES
B549	Residential	517 Westwood Pl	1	B	48	56	56	65	9	NO	NO
B550	Residential	523 Westwood Pl	1	B	48	50	51	67	17	YES	YES
B552	Active Sport Area (Asheville Racquet Club)	27 Resort Dr	0.27	C	48	50	50	R/W	N/A	N/A	NO
B553	Hotel (Crowne Plaza Patio)	1 Resort Dr	2	E	48	51	52	68	17	NO	YES
B553.1	Hotel (Crowne Plaza Pool)	1 Resort Dr	1	E	48	48	48	55	7	NO	NO
B554.1	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	48	48	58	10	NO	YES
B554.2	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	48	48	60	12	NO	YES
B554.3	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	48	48	61	13	NO	YES
B554.4	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	50	61	11	NO	YES
B554.5	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	48	48	59	11	NO	YES
B554.6	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	48	49	61	13	NO	YES
B554.7	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	61	12	NO	YES
B554.8	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	62	12	NO	YES
B554.9	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	48	49	59	11	NO	YES

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B554.10	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	49	61	12	NO	YES
B554.11	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	50	62	12	NO	YES
B554.12	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	62	12	NO	YES
B554.13	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	49	60	11	NO	YES
B554.14	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	61	12	NO	YES
B554.15	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	50	62	12	NO	YES
B554.16	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	63	13	NO	YES
B554.17	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	49	60	11	NO	YES
B554.18	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	62	13	NO	YES
B554.19	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	62	12	NO	YES
B554.20	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	51	63	12	NO	YES
B554.21	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	49	61	12	NO	YES
B554.22	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	62	13	NO	YES
B554.23	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	63	13	NO	YES
B554.24	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	51	64	13	NO	YES
B554.25	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	49	62	13	NO	YES
B554.26	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	50	63	13	NO	YES
B554.27	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	64	14	NO	YES
B554.28	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	51	64	13	NO	YES
B554.29	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	63	14	NO	YES
B554.30	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	50	64	14	NO	YES
B554.31	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	65	15	NO	YES
B554.32	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	52	66	15	NO	YES
B554.33	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	64	15	NO	YES
B554.34	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	50	65	15	NO	YES
B554.35	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	51	65	14	NO	YES
B554.36	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	52	66	15	NO	YES
B554.37	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	65	16	NO	YES
B554.38	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	66	16	NO	YES
B554.39	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	51	66	15	NO	YES
B554.40	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	52	67	16	NO	YES
B554.41	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	49	50	65	16	NO	YES
B554.42	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	66	16	NO	YES
B554.43	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	51	67	16	NO	YES
B554.44	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	52	67	16	NO	YES
B554.45	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	51	66	15	NO	YES
B554.46	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	52	52	67	15	NO	YES
B554.47	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	52	53	67	15	NO	YES
B554.48	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	53	68	15	NO	YES

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B554.49	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	65	15	NO	YES
B554.50	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	52	67	16	NO	YES
B554.51	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	52	53	67	15	NO	YES
B554.52	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	53	67	14	NO	YES
B554.53	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	50	51	65	15	NO	YES
B554.54	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	51	52	66	15	NO	YES
B554.55	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	52	52	67	15	NO	YES
B554.56	Hotel (Crowne Plaza)	1 Resort Dr	0.25	E	48	53	53	67	14	NO	YES
B555	Residential	525 Westwood Pl	1	B	48	56	57	67	11	YES	YES
B557	Recreation Center (Hillcrest Rec. Center)	100 Atkinson St	1	D	23	36	37	39	2	NO	NO
B557.1	Playground (Hillcrest Rec. Center)	100 Atkinson St	1	C	48	62	63	65	2	NO	NO
B558.1	Residential	37 A Atkinson St	1	B	48	58	59	59	1	NO	NO
B558.2	Residential	37 B Atkinson St	1	B	48	59	59	61	2	NO	NO
B558.3	Residential	37 C Atkinson St	1	B	48	64	64	64	0	NO	NO
B558.4	Residential	37 D Atkinson St	1	B	48	68	68	68	0	YES	NO
B559.1	Residential	38 A Atkinson St	1	B	48	68	69	66	-2	YES	NO
B559.2	Residential	38 B Atkinson St	1	B	48	69	69	66	-3	YES	NO
B559.3	Residential	38 C Atkinson St	1	B	48	70	70	68	-2	YES	NO
B559.4	Residential	38 D Atkinson St	1	B	48	71	71	70	-1	YES	NO
B561	School (Isaac Dickson Elem)	125 Hill St	1	D	23	30	30	33	3	NO	NO
B571	Residential	177 Houston Cir	1	B	46	52	53	55	3	NO	NO
B572	Residential	179 Houston Cir	1	B	46	57	58	60	3	NO	NO
B573	Residential	181 Houston Pl	1	B	46	54	55	58	4	NO	NO
B574	Residential	185 Houston Pl	1	B	46	60	61	63	3	NO	NO
B575	Residential	180 Houston Pl	1	B	46	63	63	65	2	NO	NO
B576	Residential	169 Houston Cir	1	B	46	64	65	66	2	YES	NO
B577	Residential	137 Houston St	1	B	46	61	61	64	3	NO	NO
B578	Residential	135 Houston St	1	B	46	58	58	62	4	NO	NO
B579	Residential	133 Houston St	1	B	46	56	57	60	4	NO	NO
B580	Residential	119 Houston St	1	B	46	50	51	56	6	NO	NO
B581	Residential	117 Houston St	1	B	46	49	49	53	4	NO	NO
B586	Residential	225 Emma Rd	1	B	51	58	58	R/W	N/A	N/A	NO
B589	Residential	235 Emma Rd	1	B	51	51	51	R/W	N/A	N/A	NO
B599	Residential	328 Emma Rd	1	B	51	51	51	61	10	NO	YES
B600	Residential	323 Emma Rd	1	B	51	52	53	62	10	NO	YES
B601	Residential	245 Emma Rd	1	B	51	51	52	70	19	YES	YES
B602	Residential	243 Emma Rd	1	B	51	51	51	R/W	N/A	N/A	NO
B604	Residential	241 Emma Rd	1	B	51	51	51	R/W	N/A	N/A	NO
B610	Residential	238 Courtland Pl	1	B	46	65	66	71	6	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B611	Residential	236 Courtland Pl	1	B	46	64	65	69	5	YES	NO
B612	Residential	232 Courtland Pl	1	B	46	64	65	69	5	YES	NO
B613.1	Residential	230 Courtland Pl	1	B	46	65	66	70	5	YES	NO
B613.2	Residential	230 Courtland Pl	1	B	46	64	64	68	4	YES	NO
B614	Residential	229 Courtland Pl	1	B	46	70	70	72	2	YES	NO
B614.1	Residential	221 Courtland Pl	1	B	46	68	68	70	2	YES	NO
B614.2	Residential	219 Courtland Pl	1	B	46	62	63	66	4	YES	NO
B614.3	Residential	215 Courtland Pl	1	B	46	63	64	67	4	YES	NO
B615	Residential	205 Courtland Pl	1	B	46	58	58	63	5	NO	NO
B616	Residential	196 Courtland Pl	1	B	46	56	56	61	5	NO	NO
B617	Residential	197 Courtland Pl	1	B	46	53	54	59	6	NO	NO
B618	Residential	193 Courtland Pl	1	B	46	57	58	61	4	NO	NO
B618.1	Residential	187 Courtland Pl	1	B	46	48	49	56	8	NO	NO
B619	Residential	206 Courtland Pl	1	B	46	53	54	63	10	NO	YES
B627	Residential	200 Courtland Pl	1	B	46	53	53	59	6	NO	NO
B628	Residential	198 Courtland Pl	1	B	46	52	52	58	6	NO	NO
B628.1	Residential	168 Courtland Pl	1	B	46	53	54	59	6	NO	NO
B632	Residential	15 Boone St	1	B	51	53	53	59	6	NO	NO
B633	Residential	333 Emma Rd	1	B	51	51	51	58	7	NO	NO
B634	Residential	335 Emma Rd	1	B	51	51	51	55	4	NO	NO
B642	Residential	341 12 Emma Rd	1	B	51	51	51	57	6	NO	NO
B643	Residential	343 21 Emma Rd	1	B	51	51	51	59	8	NO	NO
B644	Residential	343 22 Emma Rd	1	B	51	51	51	60	9	NO	NO
B645	Residential	343 23 Emma Rd	1	B	51	51	51	59	8	NO	NO
B646	Residential	343 24 Emma Rd	1	B	51	51	51	58	7	NO	NO
B647	Residential	22 Boone St	1	B	51	51	51	53	2	NO	NO
B648	Residential	17 Boone St	1	B	51	51	51	54	3	NO	NO
B652	Place of Worship (Christian Church of Hope)	327 Emma Rd	1	D	26	26	26	35	9	NO	NO
B653	Residential	30 Boone St	1	B	51	51	51	52	1	NO	NO
B654	Residential	34 Boone St	1	B	51	52	53	56	4	NO	NO
B656	Residential	40 Boone St	1	B	51	53	53	56	3	NO	NO
B657	Residential	343 20 Emma Rd	1	B	51	53	53	61	8	NO	NO
B664	Residential	343 19 Emma Rd	1	B	51	53	54	61	8	NO	NO
B674	Residential	343 18 Emma Rd	1	B	51	54	55	60	6	NO	NO
B675	Residential	343 17 Emma Rd	1	B	51	55	55	60	5	NO	NO
B701	Residential	50 Boone St	1	B	51	56	56	59	3	NO	NO
B702	Residential	52 Boone St	1	B	51	56	56	59	3	NO	NO
B703	Residential	54 Boone St	1	B	51	58	58	61	3	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B705	Residential	64 Boone St	1	B	51	58	58	61	3	NO	NO
B717	Residential	63 52 Bingham Rd	1	B	51	61	61	64	3	NO	NO
B734	Residential	63 51 Bingham Rd	1	B	51	61	61	64	3	NO	NO
B751	Residential	63 18 Bingham Rd	1	B	51	61	61	64	3	NO	NO
B752	Residential	63 17 Bingham Rd	1	B	51	61	61	64	3	NO	NO
B806	Residential	201 Westover Dr	1	B	52	66	67	70	4	YES	NO
B807	Residential	200 Westover Dr	1	B	52	73	73	R/W	N/A	N/A	NO
B808	Residential	209 Westover Dr	1	B	52	57	59	65	8	NO	NO
B809	Residential	211 Westover Aly	1	B	52	60	61	66	6	YES	NO
B814	Residential	217 Westover Dr	1	B	52	56	58	63	7	NO	NO
B815	Residential	221 Westover Dr	1	B	52	52	52	52	0	NO	NO
B817	Residential	304 Westover Dr	1	B	52	57	57	58	1	NO	NO
B830	Residential	436 Pearson Dr	1	B	49	58	58	62	4	NO	NO
B831	Residential	435 Pearson Dr	1	B	49	63	64	67	4	YES	NO
B832	Residential	403 Pearson Dr	1	B	49	58	58	61	3	NO	NO
B836	Residential	125 Hibriten Dr	1	B	49	59	59	62	3	NO	NO
B845	Residential	71 Hibriten Dr	1	B	49	65	65	67	2	YES	NO
B846	Residential	61 Hibriten Dr	1	B	49	63	63	67	4	YES	NO
B847	Residential	72 Hibriten Dr	1	B	49	64	65	67	3	YES	NO
B849	Restaurant (Ole Shakey's)	790 Riverside Dr	3	E	49	67	68	72	5	YES	NO
B850	Restaurant (The Bywater)	796 Riverside Dr	1	E	49	66	67	70	4	NO	NO
B853.1	Residential	79 Klondyke Ave	1	B	49	59	59	62	3	NO	NO
B853.2	Residential	81 Klondyke Ae	1	B	49	60	61	63	3	NO	NO
B853.3	Residential	83 Klondyke Ave	1	B	49	62	62	64	2	NO	NO
B853.4	Residential	85 Klondyke Ave	1	B	49	63	64	65	2	NO	NO
B853.5	Residential	87 Klondyke Ae	1	B	49	64	65	66	2	YES	NO
B853.6	Residential	89 Klondyke Ave	1	B	49	65	65	67	2	YES	NO
B854.1	Residential	78 Klondyke Ave	1	B	49	49	49	49	0	NO	NO
B854.2	Residential	80 Klondyke Ave	1	B	49	49	49	49	0	NO	NO
B854.3	Residential	82 Klondyke Ave	1	B	49	49	49	49	0	NO	NO
B854.4	Residential	84 Klondyke Ave	1	B	49	51	49	52	1	NO	NO
B854.5	Residential	86 Klondyke Ave	1	B	49	56	54	57	1	NO	NO
B854.6	Residential	88 Klondyke Ave	1	B	49	63	63	64	1	NO	NO
B856	Residential	76 Klondyke Ave	1	B	49	56	57	57	1	NO	NO
B857	Residential	74 Klondyke Ave	1	B	49	58	58	58	0	NO	NO
B858	Residential	72 Klondyke Ave	1	B	49	59	60	59	0	NO	NO
B859	Residential	70 Klondyke Ave	1	B	49	61	61	61	0	NO	NO
B861.1	Residential	59 Klondyke Ave	1	B	49	63	63	63	0	NO	NO
B861.2	Residential	61 Klondyke Ave	1	B	49	64	65	64	0	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B861.3	Residential	63 Klondyke Ave	1	B	49	65	65	65	0	NO	NO
B861.4	Residential	65 Klondyke Ave	1	B	49	66	66	66	0	YES	NO
B861.5	Residential	67 Klondyke Ave	1	B	49	67	67	67	0	YES	NO
B861.6	Residential	69 Klondyke Ave	1	B	49	68	68	68	0	YES	NO
B862.1	Residential	58 Klondyke Ave	1	B	49	49	49	49	0	NO	NO
B862.2	Residential	60 Klondyke Ave	1	B	49	49	49	49	0	NO	NO
B862.3	Residential	62 Klondyke Ave	1	B	49	49	49	49	0	NO	NO
B862.4	Residential	64 Klondyke Ave	1	B	49	51	52	54	3	NO	NO
B862.5	Residential	66 Klondyke Ave	1	B	49	58	59	59	1	NO	NO
B862.6	Residential	68 Klondyke Ave	1	B	49	63	63	63	0	NO	NO
B864	Residential	56 Klondyke Ave	1	B	49	59	60	60	1	NO	NO
BN874	Residential	199 Westover Dr	1	B	52	63	63	65	2	NO	NO
BN875	Residential	203 Westover Dr	1	B	52	58	60	66	8	YES	NO
BN877	Residential	125 Tacoma Cir	1	B	52	52	52	56	4	NO	NO
BN878	Residential	127 Tacoma Cir	1	B	52	52	52	55	3	NO	NO
BN879	Residential	127 Tacoma Cir	1	B	52	52	52	52	0	NO	NO
BN880	Residential	131 Tacoma Cir	1	B	52	52	52	52	0	NO	NO
BN881	Residential	135 Tacoma Cir	1	B	52	52	52	52	0	NO	NO
BN882	Residential	195 Westover Dr	1	B	52	52	52	56	4	NO	NO
BN883	Residential	143 Tacoma Cir	1	B	52	52	52	52	0	NO	NO
BN884	Residential	11 Sylvan Ave	1	B	52	52	52	52	0	NO	NO
BN885	Residential	15 Sylvan Ave	1	B	52	52	52	52	0	NO	NO
BN886	Residential	17 Sylvan Ave	1	B	52	52	52	57	5	NO	NO
BN887	Residential	21 Sylvan Ave	1	B	52	63	63	67	4	YES	NO
BN888	Residential	159 Westover Dr	1	B	52	66	67	71	5	YES	NO
BN889	Residential	26 Sylvan Ave	1	B	52	58	59	62	4	NO	NO
BN889.1	Residential	20 Sylvan Ave	1	B	52	52	52	56	4	NO	NO
BN890	Residential	14 Sylvan Ave	1	B	52	53	54	60	7	NO	NO
BN891	Residential	8 Sylvan Ave	1	B	52	52	52	53	1	NO	NO
BN892	Residential	155 Tacoma Cir	1	B	52	57	57	62	5	NO	NO
BN893	Residential	157 Tacoma Cir	1	B	52	56	56	62	6	NO	NO
BN894	Residential	101 Westover Dr	1	B	52	61	61	65	4	NO	NO
BN895	Residential	103 Westover Dr	1	B	52	61	62	65	4	NO	NO
BN896	Residential	107 Westover Dr	1	B	52	64	65	70	6	YES	NO
BN897	Residential	92 Westover Dr	1	B	52	65	65	69	4	YES	NO
BN897.1	Residential	98 Westover Dr	1	B	52	65	66	70	5	YES	NO
BN899	Residential	93 Westover Dr	1	B	52	60	60	65	5	NO	NO
BN899.1	Residential	95 Westover Dr	1	B	52	58	59	65	7	NO	NO
BN899.2	Residential	97 Westover Dr	1	B	52	59	59	65	6	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
BN899.3	Residential	99 Westover Dr	1	B	52	59	59	64	5	NO	NO
BN899.4	Residential	81 Westover Dr	1	B	52	58	58	64	6	NO	NO
BN901	Residential	90 Westover Dr	1	B	52	61	62	66	5	YES	NO
BN901.1	Residential	82 Westover Dr	1	B	52	56	57	64	8	NO	NO
B1003	Residential	11 Jason St	1	B	56	56	56	63	7	NO	NO
B1004	Residential	61 Bay St	1	B	56	64	64	69	5	YES	NO
B1005	Residential	16 Bay St	1	B	56	58	58	62	4	NO	NO
B1008	Residential	19 Bay St	1	B	56	56	56	61	5	NO	NO
B1013	Restaurant (O. Henry's)	237 Haywood St	1	E	56	56	56	56	0	NO	NO
B1016	Nonprofit Struct. (Western Carolina Rescue Ministries)	221 Patton Ave	1	D	28	28	28	29	1	NO	NO
B1019	Place of Worship (WNC Baptist)	240 Haywood St	1	D	23	28	29	31	3	NO	NO
B1020	Place of Worship (WNC Baptist)	241 Haywood St	1	D	23	28	28	31	3	NO	NO
B1021	Meeting Room (Elk's Lodge)	232 Haywood St	1	D	23	30	30	33	3	NO	NO
B1031	Residential	49 Wilmington St	1	B	47	66	66	69	3	YES	NO
B1032	Residential	39 Wilmington St	1	B	47	65	65	67	2	YES	NO
B1033	Residential	13 Ruslan Dr	1	B	47	59	60	60	1	NO	NO
B1034	Residential	11 Annie St	1	B	48	59	59	60	1	NO	NO
B1035	Residential	9 Annie St	1	B	48	60	61	67	7	YES	NO
B1036	Residential	124 Hazel Mill Rd	1	B	48	60	61	R/W	N/A	N/A	NO
B1037	Residential	421 W Haywood St	1	B	48	58	58	54	-4	NO	NO
B1039	Restaurant (Jason's Deli)	5 115 Westgate Pkwy	1	E	48	72	73	69	-3	NO	NO
B1042	Active Sport Area (Asheville Racquet Club)	11 Resort Dr	0.27	C	48	49	49	R/W	N/A	N/A	NO
B1043	Active Sport Area (Asheville Racquet Club)	49 Resort Dr	0.27	C	48	48	48	R/W	N/A	N/A	NO
B1044	Active Sport Area (Asheville Racquet Club)	49 Resort Dr	0.27	C	48	48	48	R/W	N/A	N/A	NO
B1045	Active Sport Area (Asheville Racquet Club)	49 Resort Dr	0.27	C	48	51	51	R/W	N/A	N/A	NO
B1047	Residential	35 Saratoga St	1	B	47	67	68	67	0	YES	NO
B1051	Residential	115 Westover Dr	1	B	52	68	69	73	5	YES	NO
B1052.1	Residential	208 Westover Dr	1	B	47	69	70	R/W	N/A	N/A	NO
B1052.2	Residential	210 Westover Dr	1	B	47	71	71	R/W	N/A	N/A	NO
B1053	Residential	218 Westover Dr	1	B	47	63	64	69	6	YES	NO
B1054	Residential	220 Westover Dr	1	B	47	61	61	66	5	YES	NO
B1055	Residential	222 Westover Dr	1	B	47	60	61	63	3	NO	NO
B1056	Residential	224 Westover Dr	1	B	47	59	60	62	3	NO	NO
B1058	Residential	9 Hibriten Dr	1	B	49	63	64	67	4	YES	NO
B1076	Residential	448 Pearson Dr	1	B	49	68	68	70	2	YES	NO
B.A7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	55	56	56	1	NO	NO
B.A8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	54	54	55	1	NO	NO
B.B2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	64	64	56	-8	NO	NO
B.B3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	65	65	59	-6	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B.B4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	63	63	58	-5	NO	NO
B.B5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	61	61	59	-2	NO	NO
B.B6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	59	59	58	-1	NO	NO
B.B7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	58	58	1	NO	NO
B.B8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	58	59	2	NO	NO
B.C2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	67	67	59	-8	NO	NO
B.C3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	67	67	59	-8	NO	NO
B.C4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	64	64	59	-5	NO	NO
B.C5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	62	62	60	-2	NO	NO
B.C6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	62	62	60	-2	NO	NO
B.C7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	61	61	61	0	NO	NO
B.C8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	52	52	52	0	NO	NO
B.D2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	69	70	61	-8	NO	NO
B.D3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	66	66	62	-4	NO	NO
B.D4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	63	63	59	-4	NO	NO
B.D5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	61	61	58	-3	NO	NO
B.D6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	61	61	61	0	NO	NO
B.D7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	59	60	62	3	NO	NO
B.D8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	57	61	4	NO	NO
B.E1	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	75	75	58	-17	NO	NO
B.E2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	70	71	65	-5	NO	NO
B.E3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	66	66	67	1	YES	NO
B.E4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	62	63	65	3	NO	NO
B.E5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	60	61	59	-1	NO	NO
B.E6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	59	60	59	0	NO	NO
B.E7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	52	52	52	0	NO	NO
B.E8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	52	52	53	1	NO	NO
B.F1	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	75	75	64	-11	NO	NO
B.F2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	70	71	68	-2	YES	NO
B.F3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	65	66	69	4	YES	NO
B.F4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	63	64	68	5	YES	NO
B.F5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	58	58	63	5	NO	NO
B.F6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	58	58	61	3	NO	NO
B.F7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	57	61	4	NO	NO
B.F8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	56	56	61	5	NO	NO
B.G2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	68	68	69	1	YES	NO
B.G3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	65	65	70	5	YES	NO
B.G4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	64	64	68	4	YES	NO
B.G5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	60	61	67	7	YES	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B.G6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	58	64	7	NO	NO
B.G7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	57	62	5	NO	NO
B.G8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	56	56	62	6	NO	NO
B.H2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	66	67	68	2	YES	NO
B.H3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	65	65	69	4	YES	NO
B.H4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	63	64	68	5	YES	NO
B.H5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	62	63	67	5	YES	NO
B.H6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	58	65	8	NO	NO
B.H7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	56	56	63	7	NO	NO
B.H8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	55	56	62	7	NO	NO
B.I2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	67	67	69	2	YES	NO
B.I3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	65	65	68	3	YES	NO
B.I4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	63	63	68	5	YES	NO
B.I5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	60	61	66	6	YES	NO
B.I6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	55	55	63	8	NO	NO
B.I7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	55	55	62	7	NO	NO
B.I8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	54	54	62	8	NO	NO
B.J2	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	70	70	69	-1	YES	NO
B.J3	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	66	66	68	2	YES	NO
B.J4	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	64	64	68	4	YES	NO
B.J5	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	61	61	67	6	YES	NO
B.J6	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	57	58	64	7	NO	NO
B.J7	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	54	54	61	7	NO	NO
B.J8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	52	53	60	8	NO	NO
B.K8	Cemetery (Riverside Cemetery)	58 Birch St	0.04	C	52	53	54	62	9	NO	NO
B.L1	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	55	7	NO	NO
B.L2	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	56	8	NO	NO
B.L3	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	57	9	NO	NO
B.L4	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	59	11	NO	YES
B.L5	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	60	12	NO	YES
B.L6	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	61	13	NO	YES
B.L7	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	62	14	NO	YES
B.L8	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	64	16	NO	YES
B.L9	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	65	17	NO	YES
B.L10	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	55	7	NO	NO
B.L11	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	56	8	NO	NO
B.L12	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	57	9	NO	NO
B.L13	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	59	11	NO	YES
B.L14	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	60	12	NO	YES

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
B.L15	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	61	13	NO	YES
B.L16	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	62	14	NO	YES
B.L17	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	63	15	NO	YES
B.L18	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	63	15	NO	YES
B.L19	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	55	7	NO	NO
B.L20	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	56	8	NO	NO
B.L21	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	57	9	NO	NO
B.L22	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	59	11	NO	YES
B.L23	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	60	12	NO	YES
B.L24	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	61	13	NO	YES
B.L25	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	62	14	NO	YES
B.L26	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	63	15	NO	YES
B.L27	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	55	7	NO	NO
B.L28	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	56	8	NO	NO
B.L29	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	57	9	NO	NO
B.L30	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	59	11	NO	YES
B.L31	Active Sport Area (Golf Course)	1 Resort Dr	0.06	C	48	48	48	59	11	NO	YES
C2	Residential	19 Montgomery St	1	B	59	73	74	75	2	YES	NO
C3	Residential	13 Montgomery St	1	B	59	77	78	79	2	YES	NO
C4	Residential	15 Montgomery St	1	B	59	67	68	69	2	YES	NO
C5	Residential	17 Montgomery St	1	B	59	66	68	68	2	YES	NO
C6	Residential	12 Montgomery St	1	B	59	72	73	76	4	YES	NO
C7	Residential	14 Montgomery St	1	B	59	62	63	65	3	NO	NO
C8	Residential	16 Montgomery St	1	B	59	59	60	62	3	NO	NO
C9	Residential	18 Montgomery St	1	B	59	62	63	64	2	NO	NO
C10	Residential	741 Sand Hill Rd	1	B	59	71	72	72	1	YES	NO
C11	Residential	66 Monty St	1	B	60	64	65	66	2	YES	NO
C12	Residential	65 Monty St	1	B	60	63	65	R/W	N/A	N/A	NO
C13	Residential	64 Monty St	1	B	60	63	64	R/W	N/A	N/A	NO
C14	Residential	63 Monty St	1	B	60	63	64	R/W	N/A	N/A	NO
C15	Residential	62 Monty St	1	B	60	64	66	R/W	N/A	N/A	NO
C16	Residential	60 Monty St	1	B	60	65	66	R/W	N/A	N/A	NO
C17	Residential	58 Monty St	1	B	60	65	66	R/W	N/A	N/A	NO
C18	Residential	56 Monty St	1	B	60	65	67	66	1	YES	NO
C19	Residential	54 Monty St	1	B	60	66	67	66	0	YES	NO
C20	Residential	61 Monty St	1	B	60	66	67	67	1	YES	NO
C21	Residential	59 Monty St	1	B	60	65	66	65	0	NO	NO
C22	Residential	57 Monty St	1	B	60	62	64	62	0	NO	NO
C23	Residential	55 Monty St	1	B	60	63	64	63	0	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C24	Residential	53 Monty St	1	B	60	64	66	64	0	NO	NO
C25	Residential	51 Monty St	1	B	60	66	67	67	1	YES	NO
C26	Residential	49 Monty St	1	B	60	64	65	64	0	NO	NO
C27	Residential	47 Monty St	1	B	60	66	67	67	1	YES	NO
C28	Residential	45 Monty St	1	B	60	66	67	67	1	YES	NO
C29	Residential	43 Monty St	1	B	60	66	67	67	1	YES	NO
C30	Residential	22 Monty St	1	B	60	66	67	67	1	YES	NO
C32	Residential	26 Monty St	1	B	60	67	68	67	0	YES	NO
C33	Residential	28 Monty St	1	B	60	67	68	67	0	YES	NO
C34	Residential	30 Monty St	1	B	60	63	65	64	1	NO	NO
C35	Residential	32 Monty St	1	B	60	63	65	64	1	NO	NO
C36	Residential	34 Monty St	1	B	60	67	69	68	1	YES	NO
C37	Residential	36 Monty St	1	B	60	66	67	67	1	YES	NO
C38	Residential	38 Monty St	1	B	60	63	64	64	1	NO	NO
C40	Residential	50 Monty St	1	B	60	66	67	66	0	YES	NO
C41	Residential	48 Monty St	1	B	60	66	67	66	0	YES	NO
C42	Residential	46 Monty St	1	B	60	65	67	66	1	YES	NO
C43	Residential	44 Monty St	1	B	60	65	66	66	1	YES	NO
C44	Residential	42 Monty St	1	B	60	64	66	65	1	NO	NO
C45	Residential	20 Monty St	1	B	60	65	66	65	0	NO	NO
C47	Residential	16 Monty St	1	B	60	66	67	66	0	YES	NO
C48	Residential	14 Monty St	1	B	60	66	67	66	0	YES	NO
C49	Residential	12 Monty St	1	B	60	66	67	66	0	YES	NO
C50	Residential	10 Monty St	1	B	60	66	67	66	0	YES	NO
C51	Residential	8 Monty St	1	B	60	66	67	66	0	YES	NO
C52	Residential	6 Monty St	1	B	60	66	67	66	0	YES	NO
C53	Residential	4 Monty St	1	B	60	66	67	66	0	YES	NO
C54	Residential	2 Monty St	1	B	60	65	67	66	1	YES	NO
C55	Residential	1 Monty St	1	B	60	63	65	64	1	NO	NO
C56	Residential	3 Monty St	1	B	60	63	65	63	0	NO	NO
C57	Residential	5 Monty St	1	B	60	63	64	63	0	NO	NO
C58	Residential	7 Monty St	1	B	60	63	64	63	0	NO	NO
C59	Residential	9 Monty St	1	B	60	62	63	62	0	NO	NO
C60	Residential	11 Monty St	1	B	60	63	64	63	0	NO	NO
C61	Residential	13 Monty St	1	B	60	64	65	64	0	NO	NO
C62	Residential	15 Monty St	1	B	60	65	66	65	0	NO	NO
C63	Residential	17 Monty St	1	B	60	65	66	65	0	NO	NO
C64	Residential	19 Monty St	1	B	60	65	67	65	0	NO	NO
C65	Residential	21 Monty St	1	B	60	65	67	66	1	YES	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C66	Residential	23 Monty St	1	B	60	66	67	66	0	YES	NO
C68	Residential	27 Monty St	1	B	60	66	67	66	0	YES	NO
C69	Residential	29 Monty St	1	B	60	66	68	67	1	YES	NO
C70	Residential	33 Monty St	1	B	60	65	66	65	0	NO	NO
C71	Residential	35 Monty St	1	B	60	66	67	67	1	YES	NO
C72	Residential	37 Monty St	1	B	60	66	67	67	1	YES	NO
C73	Residential	39 Monty St	1	B	60	65	67	68	3	YES	NO
C74	Residential	710 65 Sand Hill Rd	1	B	60	65	67	68	3	YES	NO
C75	Residential	710 64 Sand Hill Rd	1	B	60	69	70	70	1	YES	NO
C76	Residential	710 32 Sand Hill Rd	1	B	60	69	70	70	1	YES	NO
C77	Residential	710 31 Sand Hill Rd	1	B	60	69	70	69	0	YES	NO
C78	Residential	710 30 Sand Hill Rd	1	B	60	69	70	69	0	YES	NO
C79	Residential	710 17 Sand Hill Rd	1	B	60	67	68	68	1	YES	NO
C80	Residential	710 25 Sand Hill Rd	1	B	60	66	67	66	0	YES	NO
C81	Residential	710 24 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C82	Residential	710 Sand Hill Rd	1	B	60	66	68	67	1	YES	NO
C83	Residential	710 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C84	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C85	Residential	710 Sand Hill Rd	1	B	60	66	67	67	1	YES	NO
C86	Residential	710 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C87	Residential	710 7 Sand Hill Rd	1	B	60	65	67	66	1	YES	NO
C88	Residential	710 52 Sand Hill Rd	1	B	60	63	64	65	2	NO	NO
C89	Residential	710 51 Sand Hill Rd	1	B	60	62	64	63	1	NO	NO
C90	Residential	710 50 Sand Hill Rd	1	B	60	62	64	63	1	NO	NO
C91	Residential	710 49 Sand Hill Rd	1	B	60	63	64	63	0	NO	NO
C92	Residential	710 48 Sand Hill Rd	1	B	60	62	63	62	0	NO	NO
C93	Residential	710 47 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C94	Residential	710 43 Sand Hill Rd	1	B	60	64	65	64	0	NO	NO
C95	Residential	710 44 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C96	Residential	710 45 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C97	Residential	710 46 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C98	Residential	710 53 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C99	Residential	708 Sand Hill Rd	1	B	60	62	63	63	1	NO	NO
C100	Residential	710 53b Sand Hill Rd	1	B	60	61	63	62	1	NO	NO
C101	Residential	710 Sand Hill Rd	1	B	60	66	67	66	0	YES	NO
C102	Residential	710 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C103	Residential	710 Sand Hill Rd	1	B	60	62	63	63	1	NO	NO
C104	Residential	710 Sand Hill Rd	1	B	60	62	63	63	1	NO	NO
C105	Residential	710 Sand Hill Rd	1	B	60	62	63	63	1	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C106	Residential	710 Sand Hill Rd	1	B	60	60	61	60	0	NO	NO
C107	Residential	710 Sand Hill Rd	1	B	60	60	61	61	1	NO	NO
C108	Residential	710 Sand Hill Rd	1	B	60	61	61	61	0	NO	NO
C109	Residential	710 Sand Hill Rd	1	B	60	61	61	61	0	NO	NO
C110	Residential	710 Sand Hill Rd	1	B	60	60	61	61	1	NO	NO
C111	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C112	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C113	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C114	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C115	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C116	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C117	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C118	Residential	710 29 Sand Hill Rd	1	B	60	67	68	68	1	YES	NO
C119	Residential	710 38 Sand Hill Rd	1	B	60	67	68	68	1	YES	NO
C120	Residential	710 37 Sand Hill Rd	1	B	60	68	69	68	0	YES	NO
C121	Residential	710 36 Sand Hill Rd	1	B	60	67	68	67	0	YES	NO
C122	Residential	710 39 Sand Hill Rd	1	B	60	67	68	67	0	YES	NO
C123	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C124	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C125	Residential	710 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C127	Residential	710 33 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C128	Residential	710 35 Sand Hill Rd	1	B	60	65	66	65	0	NO	NO
C129	Residential	710 41 Sand Hill Rd	1	B	60	65	65	65	0	NO	NO
C130	Residential	710 42 Sand Hill Rd	1	B	60	61	61	62	1	NO	NO
C131	Residential	710 54 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C132	Residential	710 55 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C133	Residential	710 56 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C134	Residential	710 57 Sand Hill Rd	1	B	60	63	64	64	1	NO	NO
C135	Residential	710 58 Sand Hill Rd	1	B	60	64	64	64	0	NO	NO
C136	Residential	710 59 Sand Hill Rd	1	B	60	64	65	64	0	NO	NO
C137	Residential	710 60 Sand Hill Rd	1	B	60	64	65	65	1	NO	NO
C138	Residential	710 61 Sand Hill Rd	1	B	60	64	65	65	1	NO	NO
C139	Residential	710 62 Sand Hill Rd	1	B	60	65	66	66	1	YES	NO
C140	Residential	710 63 Sand Hill Rd	1	B	60	65	66	66	1	YES	NO
C141	Residential	710 40 Sand Hill Rd	1	B	60	69	70	69	0	YES	NO
C143	Residential	710 58 Sand Hill Rd	1	B	60	62	63	64	2	NO	NO
C155	Residential	25 Furey Dr	1	B	60	69	69	70	1	YES	NO
C156	Residential	11 Furey Dr	1	B	60	67	67	68	1	YES	NO
C157	Residential	61 S Bear Creek Rd	1	B	60	72	73	74	2	YES	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C158	Residential	51 S Bear Creek Rd	1	B	60	68	69	70	2	YES	NO
C159	Residential	5 Furey Dr	1	B	60	64	65	65	1	NO	NO
C160	Residential	27 Oak Crescent Dr	1	B	60	61	62	62	1	NO	NO
C161	Residential	10 Furey Dr	1	B	60	68	69	70	2	YES	NO
C162	Residential	35 S Bear Creek Rd	1	B	60	63	65	60	-3	NO	NO
C163	Residential	26 Oak Crescent Dr	1	B	60	60	60	60	0	NO	NO
C164	Residential	21 Oak Crescent Dr	1	B	60	60	60	60	0	NO	NO
C165	Residential	33 S Bear Creek Rd	1	B	60	63	64	60	-3	NO	NO
C166	Residential	14 Oak Crescent Dr	1	B	60	60	60	60	0	NO	NO
C167	Residential	15 Oak Crescent Dr	1	B	60	60	60	60	0	NO	NO
C168	Residential	31 S Bear Creek Rd	1	B	60	62	64	61	-1	NO	NO
C169	Residential	6 B Oak Crescent Dr	1	B	60	60	60	60	0	NO	NO
C170	Residential	11 Oak Crescent Dr	1	B	60	60	60	60	0	NO	NO
C172	Residential	29 S Bear Creek Rd	1	B	60	61	63	62	1	NO	NO
C173	Residential	25 S Bear Creek Rd	1	B	60	62	64	64	2	NO	NO
C174	Residential	15 S Bear Creek Rd	1	B	60	62	64	61	-1	NO	NO
C175.1	Place of Worship (Crossroads Church)	20 S Bear Creek Rd	1	D	35	35	35	35	0	NO	NO
C175.2	Playground (Crossroads Church)	20 S Bear Creek Rd	1	C	60	60	60	60	0	NO	NO
C176	Campground (Bear Creek Campground)	125 S Bear Creek Rd	10	C	60	71	72	71	0	YES	NO
C177	Residential	68 S Bear Creek Rd	1	B	60	67	68	R/W	N/A	N/A	NO
C178	Residential	74 S Bear Creek Rd	1	B	60	66	68	R/W	N/A	N/A	NO
C179	Residential	76 S Bear Creek Rd	1	B	60	60	62	R/W	N/A	N/A	NO
C180	Residential	86 S Bear Creek Rd	1	B	60	61	63	R/W	N/A	N/A	NO
C181	Residential	87 S Bear Creek Rd	1	B	60	62	63	66	4	YES	NO
C182	Residential	89 A S Bear Creek Rd	1	B	60	61	62	66	5	YES	NO
C184	Residential	119 S Bear Creek Rd	1	B	60	64	65	64	0	NO	NO
C185	Residential	125 S Bear Creek Rd	1	B	60	62	63	63	1	NO	NO
C188	Residential	11 Creasman Pl	1	B	59	66	67	72	6	YES	NO
C189	Residential	7 Creasman Pl	1	B	59	61	62	65	4	NO	NO
C190	Residential	6 Creasman Pl	1	B	59	63	64	67	4	YES	NO
C191	Residential	5 Selwyn Pl	1	B	59	65	66	R/W	N/A	N/A	NO
C192	Residential	3 Creasman Pl	1	B	59	60	61	63	3	NO	NO
C193	Residential	4 Creasman Pl	1	B	59	59	59	62	3	NO	NO
C194	Residential	3 Selwyn Pl	1	B	59	59	60	65	6	NO	NO
C195	Residential	2 Selwyn Pl	1	B	59	63	64	74	11	YES	YES
C197	Residential	60 1 Selwyn Rd	1	B	59	61	62	65	4	NO	NO
C198	Residential	1 Creasman Pl	1	B	59	59	59	62	3	NO	NO
C199	Residential	2 Creasman Pl	1	B	59	59	59	59	0	NO	NO
C205	Residential	74 Selwyn Rd	1	B	59	59	59	59	0	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C206	Residential	82 Selwyn Rd	1	B	59	59	59	64	5	NO	NO
C207	Residential	84 Selwyn Rd	1	B	59	61	62	69	8	YES	NO
C208	Residential	86 Selwyn Rd	1	B	59	65	66	77	12	YES	YES
C212	Residential	81 Selwyn Rd	1	B	59	59	59	61	2	NO	NO
C213	Residential	83 Selwyn Rd	1	B	59	59	59	60	1	NO	NO
C214.1	Residential	85 A Selwyn Rd	1	B	59	59	59	61	2	NO	NO
C214.2	Residential	85 B Selwyn Rd	1	B	59	59	59	62	3	NO	NO
C214.3	Residential	85 C Selwyn Rd	1	B	59	59	59	66	7	YES	NO
C214.4	Residential	85 D Selwyn Rd	1	B	59	59	59	66	7	YES	NO
C215.1	Residential	87 A Selwyn Rd	1	B	59	59	59	67	8	YES	NO
C215.2	Residential	87 B Selwyn Rd	1	B	59	59	60	67	8	YES	NO
C215.3	Residential	87 C Selwyn Rd	1	B	59	59	59	68	9	YES	NO
C215.4	Residential	87 D Selwyn Rd	1	B	59	59	59	67	8	YES	NO
C216.1	Residential	85 E Selwyn Rd	1	B	59	59	59	65	6	NO	NO
C216.2	Residential	85 F Selwyn Rd	1	B	59	59	59	65	6	NO	NO
C216.3	Residential	85 G Selwyn Rd	1	B	59	59	59	59	0	NO	NO
C216.4	Residential	85 H Selwyn Rd	1	B	59	59	59	59	0	NO	NO
C225	Residential	821 Sand Hill Rd	1	B	59	59	59	60	1	NO	NO
C226	Residential	817 Sand Hill Rd	1	B	59	59	59	61	2	NO	NO
C227	Residential	809 Sand Hill Rd	1	B	59	59	59	61	2	NO	NO
C229	Residential	8 Kelly Dr	1	B	59	63	64	75	12	YES	YES
C230	Residential	16 Kelly Dr	1	B	59	63	64	73	10	YES	YES
C231	Residential	807 1/2 Sand Hill Rd	1	B	59	63	64	72	9	YES	NO
C232	Residential	807 D Sand Hill Rd	1	B	59	62	63	69	7	YES	NO
C233	Residential	807 C Sand Hill Rd	1	B	59	60	61	68	8	YES	NO
C234	Residential	807 B Sand Hill Rd	1	B	59	59	60	67	8	YES	NO
C235	Residential	807 A Sand Hill Rd	1	B	59	59	59	64	5	NO	NO
C236	Residential	807 Sand Hill Rd	1	B	59	59	59	63	4	NO	NO
C237	Residential	793 Sand Hill Rd	1	B	59	59	60	65	6	NO	NO
C238	Residential	791 Sand Hill Rd	1	B	59	59	61	65	6	NO	NO
C239	Residential	789 Sand Hill Rd	1	B	59	59	61	67	8	YES	NO
C240	Residential	787 Sand Hill Rd	1	B	59	61	63	69	8	YES	NO
C241	Residential	753 Sand Hill Rd	1	B	59	70	71	R/W	N/A	N/A	NO
C243	Residential	759 Sand Hill Rd	1	B	59	66	67	77	11	YES	YES
C244	Residential	29 Chance Cove Ln	1	B	59	65	67	78	13	YES	YES
C245	Residential	28 Chance Cove Ln	1	B	59	65	67	78	13	YES	YES
C246	Residential	822 Sand Hill Rd	1	B	59	61	64	65	4	NO	NO
C247	Residential	816 Sand Hill Rd	1	B	59	59	60	63	4	NO	NO
C248	Residential	794 Sand Hill Rd	1	B	59	59	59	61	2	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C249	Residential	790 Sand Hill Rd	1	B	59	59	59	61	2	NO	NO
C250	Residential	788 Sand Hill Rd	1	B	59	59	60	62	3	NO	NO
C251	Residential	10 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C252	Residential	14 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C254	Residential	6 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C255	Residential	5 Green Valley Ct	1	B	59	59	59	59	0	NO	NO
C256	Residential	6 Green Valley Ct	1	B	59	59	59	59	0	NO	NO
C257	Residential	3 Green Valley Ct	1	B	59	59	59	59	0	NO	NO
C258	Residential	4 Green Valley Ct	1	B	59	59	59	59	0	NO	NO
C259	Residential	786 Sand Hill Rd	1	B	59	59	59	59	0	NO	NO
C260	Residential	784 Sand Hill Rd	1	B	59	59	59	60	1	NO	NO
C261	Residential	782 Sand Hill Rd	1	B	59	59	59	59	0	NO	NO
C262	Residential	13 Sand Hill Ct	1	B	59	59	59	60	1	NO	NO
C263	Residential	15 Sand Hill Ct	1	B	59	59	59	62	3	NO	NO
C264	Residential	19 Sand Hill Ct	1	B	59	59	59	62	3	NO	NO
C265	Residential	25 Sand Hill Ct	1	B	59	61	63	64	3	NO	NO
C266	Residential	27 Sand Hill Ct	1	B	59	65	67	67	2	YES	NO
C267	Residential	21 Sand Hill Ln	1	B	59	71	72	72	1	YES	NO
C268	Residential	6 Sand Hill Ct	1	B	59	62	63	66	4	YES	NO
C269	Residential	28 Sand Hill Ct	1	B	59	63	64	67	4	YES	NO
C270	Residential	2 Sand Hill Ct	1	B	59	67	69	71	4	YES	NO
C271	Residential	2 Sand Hill Ln	1	B	59	75	76	76	1	YES	NO
C272	Residential	14 Sand Hill Ln	1	B	59	74	75	76	2	YES	NO
C273	Residential	40 Sand Hill Ln	1	B	59	73	75	71	-2	YES	NO
C274	Residential	39 Sand Hill Ln	1	B	59	66	67	67	1	YES	NO
C275	Residential	43 Sand Hill Ln	1	B	59	69	70	72	3	YES	NO
C276	Residential	43 Sand Hill Ln	1	B	59	72	73	74	2	YES	NO
C277	Residential	43 Sand Hill Ln	1	B	59	66	67	68	2	YES	NO
C278	Residential	42 Brownstone Dr	1	B	59	64	65	68	4	YES	NO
C279	Residential	34 Brownstone Dr	1	B	59	59	59	60	1	NO	NO
C284	Residential	158 W Oakview Rd	1	B	59	59	59	61	2	NO	NO
C285	Residential	168 W Oakview Rd	1	B	59	68	69	R/W	N/A	N/A	NO
C286	Residential	161 W Oakview Rd	1	B	59	63	63	65	2	NO	NO
C288	Residential	167 W Oakview Rd	1	B	59	66	66	69	3	YES	NO
C289	Residential	167 1/2 W Oakview Rd	1	B	59	71	71	73	2	YES	NO
C290	Residential	163 W Oakview Rd	1	B	59	65	65	70	5	YES	NO
C291	Residential	41 Hazelnut Dr	1	B	59	71	71	73	2	YES	NO
C292	Residential	34 Hazelnut Dr	1	B	59	60	60	66	6	YES	NO
C293	Residential	33 Hazelnut Dr	1	B	59	72	72	74	2	YES	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C294	Residential	54 Mcintosh Rd	1	B	59	59	59	61	2	NO	NO
C295	Residential	24 Hazelnut Dr	1	B	59	59	61	64	5	NO	NO
C296	Residential	14 Hazelnut Dr	1	B	59	59	59	62	3	NO	NO
C297	Residential	60 Mcintosh Rd	1	B	59	62	62	66	4	YES	NO
C298	Residential	11 Hazelnut Dr	1	B	59	67	67	74	7	YES	NO
C301	Residential	58 Mcintosh Rd	1	B	59	63	63	66	3	YES	NO
C336	Residential	202 E Oakview Rd	1	B	60	70	71	71	1	YES	NO
C337	Residential	210 E Oakview Rd	1	B	60	67	68	68	1	YES	NO
C338	Residential	216 E Oakview Rd	1	B	60	64	65	65	1	NO	NO
C339	Residential	220 E Oakview Rd	1	B	60	63	65	65	2	NO	NO
C340	Residential	220 1/2 E Oakview Rd	1	B	60	62	63	62	0	NO	NO
C342	Residential	236 E Oakview Rd	1	B	60	60	62	61	1	NO	NO
C347	Residential	255 E Oakview Rd	1	B	60	60	61	60	0	NO	NO
C349	Residential	261 E Oakview Rd	1	B	60	60	61	61	1	NO	NO
C401	Residential	97 S Bear Creek Rd	1	B	60	60	60	60	0	NO	NO
C402	Residential	94 S Bear Creek Rd	1	B	60	60	61	R/W	N/A	N/A	NO
C403	Residential	98 S Bear Creek Rd	1	B	60	63	64	66	3	YES	NO
C404	Residential	96 S Bear Creek Rd	1	B	60	60	61	64	4	NO	NO
C405	Residential	92 S Bear Creek Rd	1	B	60	62	62	65	3	NO	NO
C406	Residential	115 S Bear Creek Rd	1	B	60	60	61	62	2	NO	NO
C691	Residential	31 Monty St	1	B	60	66	68	67	1	YES	NO
C700	Residential	19 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C701	Residential	17 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C702	Residential	11 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C703	Residential	804 Sand Hill Rd	1	B	59	62	64	66	4	YES	NO
C704	Residential	20 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C705	Residential	28 Green Valley Rd	1	B	59	59	59	59	0	NO	NO
C706	Residential	76 Selwyn Rd	1	B	59	59	59	59	0	NO	NO
C707	Residential	1 Selwyn Pl	1	B	59	59	59	62	3	NO	NO
C708	Residential	27 Grandview Cir	1	B	59	60	61	67	7	YES	NO
C709	Residential	29 Grandview Cir	1	B	59	61	62	69	8	YES	NO
C710	Residential	31 Grandview Cir	1	B	59	63	64	71	8	YES	NO
C711	Residential	35 Grandview Cir	1	B	59	65	66	73	8	YES	NO
C712	Residential	37 Grandview Cir	1	B	59	65	67	74	9	YES	NO
C713	Residential	30 Grandview Cir	1	B	59	63	64	69	6	YES	NO
C714	Residential	34 Grandview Cir	1	B	59	63	65	70	7	YES	NO
C715	Residential	36 Grandview Cir	1	B	59	65	66	71	6	YES	NO
C716	Residential	39 Grandview Cir	1	B	59	68	69	76	8	YES	NO
C717	Residential	41 Grandview Cir	1	B	59	69	70	76	7	YES	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C718	Residential	45 Grandview Cir	1	B	59	70	71	76	6	YES	NO
C720	Residential	25 Chance Cove Ln	1	B	59	60	61	70	10	YES	YES
C721	Residential	783 Sand Hill Rd	1	B	59	62	64	71	9	YES	NO
C722	Residential	5 Sand Hill Ct	1	B	59	62	65	67	5	YES	NO
C723.1	Residential	117A Cherry Meadows Way	1	B	60	66	68	69	3	YES	NO
C723.2	Residential	117B Cherry Meadows Way	1	B	61	69	70	71	2	YES	NO
C724	Residential	123 Cherry Meadows Way	1	B	59	70	71	72	2	YES	NO
C725	Residential	122 Cherry Meadows Way	1	B	59	64	65	66	2	YES	NO
C726	Residential	21 Brownstone Dr	1	B	59	59	60	62	3	NO	NO
C727	Residential	118 Cherry Meadows Way	1	B	59	64	65	66	2	YES	NO
C728	Residential	112 Cherry Meadows Way	1	B	59	63	64	66	3	YES	NO
C729	Residential	111 Cherry Meadows Way	1	B	59	65	66	67	2	YES	NO
C730	Residential	26 Hazelnut Dr	1	B	59	61	64	68	7	YES	NO
C735	Residential	191 E Oakview Rd	1	B	60	69	70	70	1	YES	NO
C736	Residential	193 E Oakview Rd	1	B	60	66	67	68	2	YES	NO
C737	Residential	195 E Oakview Rd	1	B	60	62	64	64	2	NO	NO
C738	Residential	197 E Oakview Rd	1	B	60	62	63	63	1	NO	NO
C739	Residential	199 E Oakview Rd	1	B	60	61	62	62	1	NO	NO
C740	Residential	201 E Oakview Rd	1	B	60	62	63	63	1	NO	NO
C741	Residential	203 E Oakview Rd	1	B	60	62	63	62	0	NO	NO
C742	Residential	205 E Oakview Rd	1	B	60	62	63	62	0	NO	NO
C743	Residential	212 E Oakview Rd	1	B	60	66	67	67	1	YES	NO
C748	Pool (Bear Creek Campground)	77 S Bear Creek Rd	1	C	60	69	71	70	1	YES	NO
C749	Residential	95 S Bear Creek Rd	1	B	60	61	62	62	1	NO	NO
C750	Residential	88 S Bear Creek Rd	1	B	60	60	60	65	5	NO	NO
C751	Residential	81 S Bear Creek Rd	1	B	60	67	68	68	1	YES	NO
C752	Exterior seating (Bear Creek Campground)	79 S Bear Creek Rd	1	E	35	68	69	69	1	NO	NO
C755	Residential	24 Monty St	1	B	60	66	67	67	1	YES	NO
C756	Residential	18 Monty St	1	B	60	65	67	66	1	YES	NO
C757	Residential	52 Monty St	1	B	60	65	67	65	0	NO	NO
C758	Residential	710 65 Sand Hill Rd	1	B	60	65	66	67	2	YES	NO
C759	Residential	710 60 Sand Hill Rd	1	B	60	62	63	64	2	NO	NO
C760	Residential	710 57 Sand Hill Rd	1	B	60	62	63	64	2	NO	NO
C761	Residential	710 56 Sand Hill Rd	1	B	60	62	62	63	1	NO	NO
C762	Residential	710 56 Sand Hill Rd	1	B	60	61	62	62	1	NO	NO
C764	Residential	692 Sand Hill Rd	1	B	60	61	62	62	1	NO	NO
C765	Residential	690 B Sand Hill Rd	1	B	60	60	60	60	0	NO	NO
C766	Residential	690 A Sand Hill Rd	1	B	60	60	61	60	0	NO	NO
C768	Residential	684 Sand Hill Rd	1	B	60	60	60	60	0	NO	NO

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Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C769	Residential	706 Sand Hill Rd	1	B	60	60	61	61	1	NO	NO
C770	Place of Worship (Center for Spiritual Living)	2 Science Of Mind Way	1	D	35	35	35	35	0	NO	NO
C776	Residential	360 Asheville School Rd	1	B	59	65	66	67	2	YES	NO
C778	Restaurant (Burger King)	298 Smokey Park Hwy	1	E	59	69	70	70	1	NO	NO
C781	Residential	49 Grandview Cir	1	B	59	70	71	76	6	YES	NO
C782	Residential	89 Grandview Rd	1	B	59	68	69	72	4	YES	NO
C784	Residential	78 Grandview Rd	1	B	59	67	68	71	4	YES	NO
C785	Residential	82 Grandview Rd	1	B	59	67	68	72	5	YES	NO
C786	Residential	76 Grandview Rd	1	B	59	67	68	70	3	YES	NO
C787	Residential	72 Grandview Rd	1	B	59	64	65	67	3	YES	NO
C788	Residential	72 Grandview Rd	1	B	59	64	65	67	3	YES	NO
C789	Residential	85 Grandview Rd	1	B	59	67	68	71	4	YES	NO
C790	Residential	81 Grandview Rd	1	B	59	67	68	70	3	YES	NO
C791	Residential	77 Grandview Rd	1	B	59	66	67	69	3	YES	NO
C792	Residential	73 Grandview Rd	1	B	59	64	65	67	3	YES	NO
C793	Residential	69 Grandview Rd	1	B	59	63	64	66	3	YES	NO
C794	Residential	34 Grandview Ct	1	B	59	64	65	67	3	YES	NO
C795	Residential	33 Grandview Ct	1	B	59	60	61	64	4	NO	NO
C796	Residential	43 Sandhurst Dr	1	B	59	60	61	63	3	NO	NO
C797	Residential	41 Sandhurst Dr	1	B	59	60	61	63	3	NO	NO
C798	Residential	64 Pine Knoll St	1	B	59	59	61	63	4	NO	NO
C804	Hotel (Holiday Inn)	435 Smokey Park Hwy	1	E	59	62	64	64	2	NO	NO
C806	Hotel (Comfort Inn)	15 Crowell Rd	0.33	E	59	62	64	63	1	NO	NO
C807	Hotel (Comfort Inn)	16 Crowell Rd	0.33	E	59	63	65	64	1	NO	NO
C808	Hotel (Comfort Inn)	17 Crowell Rd	0.33	E	59	62	64	63	1	NO	NO
C809	Hotel (Comfort Inn)	18 Crowell Rd	0.33	E	59	63	64	64	1	NO	NO
C810	Hotel (Comfort Inn)	19 Crowell Rd	0.33	E	59	61	62	62	1	NO	NO
C811	Hotel (Comfort Inn)	20 Crowell Rd	0.33	E	59	62	63	63	1	NO	NO
C812	Hotel (Comfort Inn)	21 Crowell Rd	0.33	E	59	61	62	62	1	NO	NO
C813	Hotel (Comfort Inn)	22 Crowell Rd	0.33	E	59	61	63	62	1	NO	NO
C819	Residential	45 Crowell Rd	1	B	59	62	63	64	2	NO	NO
C820	Residential	50 Crowell Rd	1	B	59	60	61	61	1	NO	NO
C821	Residential	48 Crowell Rd	1	B	59	64	65	65	1	NO	NO
C822	Residential	38 Crowell Rd	1	B	59	64	66	66	2	YES	NO
C823	Hotel Pool (Comfort Inn)	15 Crowell Rd	1	E	59	63	64	64	1	NO	NO
C824	Hotel (Rodeway Inn)	8 Crowell Rd (Rodeway Inn)	1	E	59	63	64	64	1	NO	NO
C831	Residential	86 Grandview Rd	1	B	59	69	70	76	7	YES	NO
C832	Residential	70 Grandview Rd	1	B	59	62	63	64	2	NO	NO
C833	Residential	62 Grandview Rd	1	B	59	60	62	63	3	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
C834	Residential	65 Grandview Rd	1	B	59	62	63	65	3	NO	NO
C835	Residential	61 Grandview Rd	1	B	59	62	62	64	2	NO	NO
C836	Residential	57 Grandview Rd	1	B	59	60	61	63	3	NO	NO
C837	Residential	26 Grandview Cir	1	B	59	62	63	68	6	YES	NO
C838	Residential	22 Grandview Cir	1	B	59	60	61	66	6	YES	NO
C839	Residential	18 Grandview Cir	1	B	59	60	61	65	5	NO	NO
C840	Residential	14 Grandview Cir	1	B	59	59	61	65	6	NO	NO
C841	Residential	10 Grandview Cir	1	B	59	59	60	63	4	NO	NO
C842	Residential	8 Grandview Cir	1	B	59	59	59	62	3	NO	NO
C843	Residential	25 Grandview Cir	1	B	59	59	59	65	6	NO	NO
C844	Residential	23 Grandview Cir	1	B	59	59	59	62	3	NO	NO
C845	Residential	15 Grandview Cir	1	B	59	59	59	61	2	NO	NO
C846	Residential	11 Grandview Cir	1	B	59	59	59	59	0	NO	NO
C847	Residential	56 McIntosh Rd	1	B	59	59	60	62	3	NO	NO
C848	Residential	50 McIntosh Rd	1	B	59	59	59	59	0	NO	NO
C849	Residential	209 E Oakview Rd	1	B	60	61	62	62	1	NO	NO
C850	Residential	211 E Oakview Rd	1	B	60	61	62	61	0	NO	NO
C851	Residential	215 E Oakview Rd	1	B	60	61	62	62	1	NO	NO
C852	Residential	217 E Oakview Rd	1	B	60	60	61	61	1	NO	NO
C853	Residential	219 E Oakview Rd	1	B	60	60	61	60	0	NO	NO
C854	Residential	221 E Oakview Rd	1	B	60	60	61	61	1	NO	NO
C855	Residential	223 E Oakview Rd	1	B	60	60	60	60	0	NO	NO
CF.157	Recreation Area	Farm Trail at Biltmore	0.02	C	59	66	66	67	1	YES	NO
CF.158	Recreation Area	Farm Trail at Biltmore	0.02	C	59	67	67	68	1	YES	NO
CF.159	Recreation Area	Farm Trail at Biltmore	0.02	C	59	68	69	69	1	YES	NO
CF.160	Recreation Area	Farm Trail at Biltmore	0.02	C	59	69	70	67	-2	YES	NO
CF.161	Recreation Area	Farm Trail at Biltmore	0.02	C	59	69	69	65	-4	NO	NO
CF.162	Recreation Area	Farm Trail at Biltmore	0.02	C	59	67	68	66	-1	YES	NO
CF.163	Recreation Area	Farm Trail at Biltmore	0.02	C	59	66	66	64	-2	NO	NO
CF.164	Recreation Area	Farm Trail at Biltmore	0.02	C	59	64	65	64	0	NO	NO
CF.165	Recreation Area	Farm Trail at Biltmore	0.02	C	59	63	63	63	0	NO	NO
CF.166	Recreation Area	Farm Trail at Biltmore	0.02	C	59	62	62	62	0	NO	NO
CG.36	Recreation Area	FBR Greenway	0.04	C	59	62	63	64	2	NO	NO
CG.37	Recreation Area	FBR Greenway	0.04	C	59	63	64	65	2	NO	NO
CG.38	Recreation Area	FBR Greenway	0.04	C	59	64	65	66	2	YES	NO
CG.39	Recreation Area	FBR Greenway	0.04	C	59	66	66	66	0	YES	NO
CG.40	Recreation Area	FBR Greenway	0.04	C	59	66	67	66	0	YES	NO
CG.41	Recreation Area	FBR Greenway	0.04	C	59	67	67	66	-1	YES	NO
CG.42	Recreation Area	FBR Greenway	0.04	C	59	68	69	64	-4	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

Table B.1
Receptors, Noise Levels, and Noise Impacts

Rec. No.	Use	Address	ER	NAC Category	Ambient	2017 Existing dB(A)	2040 No-Build dB(A)	2040 Build dB(A)	Increase dB(A)	Impacts	
										NAC	Sub Inc
CG.43	Recreation Area	FBR Greenway	0.04	C	59	66	67	63	-3	NO	NO
CG.44	Recreation Area	FBR Greenway	0.04	C	59	64	65	63	-1	NO	NO
CG.45	Recreation Area	FBR Greenway	0.04	C	59	63	64	62	-1	NO	NO
CG.46	Recreation Area	FBR Greenway	0.04	C	59	62	62	61	-1	NO	NO
CG.47	Recreation Area	FBR Greenway	0.04	C	59	61	61	60	-1	NO	NO
CG.48	Recreation Area	FBR Greenway	0.04	C	59	60	60	60	0	NO	NO
CG.49	Recreation Area	FBR Greenway	0.04	C	59	59	60	59	0	NO	NO
CG.50	Recreation Area	FBR Greenway	0.04	C	59	59	59	59	0	NO	NO

*Interior noise levels for Activity Category D were computed by subtracting the noise reduction factor from the predicted exterior level for the building in question.

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors A14 - A14.6: Aston Park Health Care Center (828-253-4437)	
	A 139-bed nursing care facility with 200 staff that has outdoor use areas. According to the executive director, the outdoor area has an average hourly use of 15 persons and is open 12 hours a day, 7 days a week for 6 months. The recreational areas are located at ground level in between the different wings of the building and a gazebo at the entrance are available for use by all residents and their guests. The outdoor use areas facing the highway are predicted to not have future noise levels exceeding the Activity Category C NAC.	
Medical Facility (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Facility Being Evaluated		
D	Average Number of Residents Plus Staff per Day Using Exterior seating	180
E	Hours/day that Each Person Uses Exterior seating	1.0
F	Days per Week Open	7
G	Weeks per Year Open	26
H	Person-hours per Year Available for Use = D x E x F x G	32,760
I	EQUIVALENT RECEPTOR VALUE = H/C	1.2
**For the Interior Uses at the Facility Being Evaluated		
J	Average Number of Users per Day	339
K	Daily Hours Used	12
L	Days per Week Open	7
M	Weeks per Year Open	52
N	Days per Year Open = L x M	364
O	Person-hours per Year Available for Use = J x K x N	1,480,752
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors A16.1-16.12: Hominy Creek Greenway (www.fohcg.org) A trail with an average of 27 users per hour according to a staff member. The trail is open for 12 hours each day for seven days a week year-round. The trail is approximately 1200 feet long within the project study area. The trail is not predicted to be impacted by future noise levels exceeding the Activity Category C threshold.	
Trail (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Trail Area Being Evaluated		
D	Average Number of Persons per Hour Using Trail	27
E	Length of Trail Within Impacted Area (feet)	0
F	Length of Trail Within Benefited Area (feet)	0
F	Maximum of E and F	0
G	Hours that each Person is on the Impacted or Benefited Portion of the Trail (based on average of 2 mph) = (F/5280)/2	0.11
H	Hours that Trail is Available for Use per Day	12
I	Days per Week that Trail is Available for Use	7
J	Weeks per Year that Trail is Available for Use	52
K	Person-hours per Year Available for Use = D x G x H x I x J	12,973
L	EQUIVALENT RESIDENCE VALUE = K/C	0.49
M	Spacing of Receptors Used to Model Trail (feet)	100
N	Number of Receptors Used to Model Trail within Benefited Area = F/M	12
O	Equivalent Residence Value Assigned to Each Grid Point = L/N	0.04

CALCULATION OF EQUIVALENT RECEPTOR VALUE

Receptor A242: Pisgah View Head Start - (828) 252-2495 A day care with 100 children and 10 staff. It is estimated that the school operates 10 hours each day for 5 days a week year-round. The school has large exterior playgrounds immediately adjacent to the building on the north side.		
CASE: On average, each child uses the playground for 2 hours each day. The playground is not predicted to be impacted by the proposed highway project and a noise wall is not predicted to benefit any percentage of the exterior area. The structure is a masonry building with single-glazed windows and air conditioning. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.		
Day Care Facility (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Day Care Facility Being Evaluated		
D	Average Number of Children Plus Staff per Day Using Playground	120
E	Hours/day that Each Person Uses Playground	2.0
F	Days per Week Open	5
G	Weeks per Year Open	52
H	Person-hours per Year Available for Use = D x E x F x G	62,400
I	EQUIVALENT RECEPTOR VALUE = H/C	2.4
**For the Interior Uses at the Day Care Facility Being Evaluated		
J	Average Number of Users (Students and Staff) per Day	50
K	Daily Hours Used	10
L	Days per Week Open	5
M	Weeks per Year Open	52
N	Days per Year Open = L x M	260
O	Person-hours per Year Available for Use = J x K x N	130,000
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor A756: Asheville Wesleyan Church (https://www.facebook.com/ashevillewesleyan) A place of worship with an estimated 80 users. The facility operates an average of 4 hours each day for 3 days per week year-round. The building is masonry with single glazed windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	80
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	49,920
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor A764: First Church of God (828-254-3093) A place of worship with 50 users. The facility operates an average of 4 hours each day for 3 days per week year-round. The building is light frame with storm windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	50
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	31,200
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors A801 and A845 Calvary Baptist Church and Child Enrichment Center (www.calvaryasheville.com/)	
	A place of worship with 70 users. According to the office staff, the church operates an average of 3 hours each day for 5 days per week year-round. The building is masonry with double glazed windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D NAC. The church has a small playground which on average is used by 50 children for 1 hour everyday.	
Church (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Church Being Evaluated		
D	Average Number of Users per Day	50
E	Hours/day that Each Person Uses Facility	3.0
F	Days per Week Open	5
G	Weeks per Year Open	52
H	Person-hours per Year Available for Use = D x E x F x G	39,000
I	EQUIVALENT RECEPTOR VALUE = H/C	1.5
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	70
K	Daily Hours Used	3
L	Days per Week Open	5
M	Weeks per Year Open	52
N	Days per Year Open = L x M	260
O	Person-hours per Year Available for Use = J x K x N	54,600
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor A802: Zia Tacqueria (ziataco.com/avl) Restaurant with exterior seating that averages 50 guests per day with 4 staff members available, year round. Guests use this outdoor area for an average of 2 hours. Noise level predictions indicate that the exterior use area is not impacted by the proposed project. No one returned calls regarding usage, so usage was estimated from the restaurant website for the purposes of the TNR.	
Restaurant (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	0%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	50
H	Number of Staff	4
I	Total Number of Occupants per Day = G + H	54
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors A846, A846.1-846.3 Asheville Primary School and Playground (ashevilleschools.net) A primary school with 215 children and 60 staff. Based on their website the school operates 8 hours each day for 5 days a week for 36 weeks per year. The school has an exterior play area immediately adjacent to the building. On average, each child uses the playground for 1.5 hours each day. 20% of the playground is predicted to be impacted by the proposed highway project and a noise wall is predicted to benefit the impacted exterior area. The structure is a masonry building with double-glazed windows and air conditioning.	
School (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the School Facility Being Evaluated		
D	Average Number of Children Plus Staff per Day Using Playground	275
E	Hours/day that Each Person Uses Playground	1.5
F	Days per Week Open	5
G	Weeks per Year Open	36
H	Person-hours per Year Available for Use = D x E x F x G	74,250
I	EQUIVALENT RECEPTOR VALUE = H/C	2.8
**For the Interior Uses at the School Facility Being Evaluated		
J	Average Number of Users (Students and Staff) per Day	275
K	Daily Hours Used	8
L	Days per Week Open	5
M	Weeks per Year Open	52
N	Days per Year Open = L x M	260
O	Person-hours per Year Available for Use = J x K x N	572,000
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor A941:Community Baptist Church (cbcasheville.org) A place of worship with 50 users. It is estimated the facility operates an average of 4 hours each day for 3 days per week year-round. The church cannot be impacted by the proposed highway project as it will be taken under Right-of-way.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	50
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	31,200
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor A1046: Pisgah View Apartments Basketball Court (828-239-3556) A 200-unit apartment complex with an outdoor use area. Based on the Asheville Housing Authority website, the outdoor area has an average hourly use of 8 persons. The recreational area is located at ground level between the apartment building and the highway and is available for use by all apartment occupants and their guests. According to the apartment staff, the area is open 12 hours a day, 7 days a week year round. The outdoor use area facing the highway is not predicted to have future noise levels exceeding the Activity Category B NAC.	
Apartment Exterior Use Areas (Activity Category B)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Apartment Recreational Area		
D	Average Hourly Occupancy for Recreation Area	8
E	Hours Per Day Recreation Area is Available for Use	12
F	Days per Month Recreation Area is Available for Use	30
G	Months per Year Recreation Area is Available for Use	12
H	Person-hours per Year Available for Use = D x E x F x G	34,560
I	Equivalent Receptor Unit Value for Recreational Area = H/C	1.3
J	For most Recreational areas in apartment complexes, using one receptor point in TNM placed closest to the proposed highway project is sufficient. If more than one exterior receptor point was used to model large Recreational areas, enter the number of receptor points.	1
K	Equivalent Receptor Value Assigned to Each Receiver = I/J	1.3

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor A1058: Wilson's Riverfront RV Park (828-254-4676) An RV park with 28 RV rental sites and 10 staff members. According to the park manager, an average of 20 people use the park for 12 hours and it operates 24 hours each day for 7 days a week year-round. The park is not predicted to have future noise levels exceeding the Activity Category C NAC.	
Park / Recreation Area (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Park Area Being Evaluated		
D	Percent of Usable Area of Park Impacted by Project Noise	0%
E	Percent of Usable Area of Park Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	20
H	Number of Park Staff	10
I	Total Number of Occupants per Day = G + H	30
J	Average Hours per Day Used by Each Visitor	12
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors AF.120-AF.156, CF.157-CF.166: Farm Trail at Biltmore (828-225-1583) A trail with an average of 15 users per hour, according to a staff member. The trail is open for 12 hours each day for seven days a week year-round. The trail is adjacent to the proposed highway for approximately 4,700 feet within the project area. The trail is predicted to be impacted by future noise levels exceeding the Activity Category C threshold and is not predicted to be benefited by a proposed noise barrier.	
Trail (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Trail Area Being Evaluated		
D	Average Number of Persons per Hour Using Trail	15
E	Length of Trail Within Impacted Area (feet)	500
F	Length of Trail Within Benefited Area (feet)	0
F	Maximum of E and F	500
G	Hours that each Person is on the Impacted or Benefited Portion of the Trail (based on average of 2 mph) = (F/5280)/2	0.05
H	Hours that Trail is Available for Use per Day	12
I	Days per Week that Trail is Available for Use	7
J	Weeks per Year that Trail is Available for Use	52
K	Person-hours per Year Available for Use = D x G x H x I x J	3,102
L	EQUIVALENT RESIDENCE VALUE = K/C	0.12
M	Spacing of Receptors Used to Model Trail (feet)	100
N	Number of Receptors Used to Model Trail within Benefited Area = F/M	5
O	Equivalent Residence Value Assigned to Each Grid Point = L/N	0.02

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors AG.1 - AG.35, AG.100 - AG.121, and CG.36 - CG.50: French Broad River Greenway (828-259-5805)	
	A trail with an average of 27 users per hour, according to a staff member. According to the staff, the trail is open for 12 hours each day for seven days a week year-round. The trail is adjacent to the proposed highway for approximately 7,200 feet within the project area. The trail is predicted to be impacted by future noise levels exceeding the Activity Category C threshold and is not predicted to be benefited by a proposed noise barrier.	
Trail (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Trail Area Being Evaluated		
D	Average Number of Persons per Hour Using Trail	27
E	Length of Trail Within Impacted Area (feet)	1800
F	Length of Trail Within Benefited Area (feet)	0
F	Maximum of E and F	1800
G	Hours that each Person is on the Impacted or Benefited Portion of the Trail (based on average of 2 mph) = (F/5280)/2	0.17
H	Hours that Trail is Available for Use per Day	12
I	Days per Week that Trail is Available for Use	7
J	Weeks per Year that Trail is Available for Use	52
K	Person-hours per Year Available for Use = D x G x H x I x J	20,103
L	EQUIVALENT RESIDENCE VALUE = K/C	0.76
M	Spacing of Receptors Used to Model Trail (feet)	100
N	Number of Receptors Used to Model Trail within Benefited Area = F/M	18
O	Equivalent Residence Value Assigned to Each Grid Point = L/N	0.04

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors A.A2 to A.U4: Carrier Park (828-232-4526) A park with baseball field, childrens play area, and a skate park. According to a staff member, an average of 200 people and 2 staff use the park daily for an average of 2 hours, and it operates 7 days a week year-round. Approximately 10% of the park is predicted to be impacted by the proposed highway project and is not benefited by a proposed noise barrier	
Park / Recreation Area (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Park Area Being Evaluated		
D	Percent of Usable Area of Park Impacted by Project Noise	10%
E	Percent of Usable Area of Park Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	10%
G	Average Number of Visitors per Day	200
H	Number of Park Staff	2
I	Total Number of Occupants per Day = G + H	202
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	14,706
N	EQUIVALENT RESIDENCE VALUE = M/C	0.6
O	A grid of receptor points at 100-foot spacing was developed to represent the impacted or benefited park usage area.	54
P	Equivalent Residence Value Assigned to Each Grid Point = N/O	0.01

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B41.1 to B41.3: Burton Street Recreation Center (828-254-1942) A recreation center is used by an average of 50 people and 4 staff members each day. According to the staff, each visitor uses the recreation center for an average of 2 hours per day. The center is open 6 days per week year-round. An estimated 0% of the recreation center's usable area is predicted to be impacted by noise from the highway project and 0% of the usable area is predicted to benefit from a proposed noise wall.	
Park / Recreation Area (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	Receptors B41.1 to B41.3: Burton Street Recreation Center	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Park Area Being Evaluated		
D	Percent of Usable Area of Park Impacted by Project Noise	0%
E	Percent of Usable Area of Park Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	50
H	Number of Park Staff	4
I	Total Number of Occupants per Day = G + H	54
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	6
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0
O	Receptor points to represent the impacted or benefited park usage area.	3
P	Equivalent Residence Value Assigned to Each Grid Point = N/O	0.00

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B127 and B129: St. Paul's Missionary Baptist (http://www.stpaulmissionarybaptist.org) A place of worship with approximately 100 users. It is estimated that the facility operates an average of 4 hours each day for 3 days per week year-round. The building is masonry with single glazed windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	100
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	62,400
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B364: White Duck Taco Shop (whiteducktacoshop.com)	
	Restaurant with exterior seating that averages 250 guests per day with 10 staff members available, year round. Guests use this outdoor area for an average of 1 hour. Noise level predictions indicate that the exterior use area is not impacted by the proposed project. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Restaurant (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	0%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	250
H	Number of Staff	10
I	Total Number of Occupants per Day = G + H	260
J	Average Hours per Day Used by Each Visitor	1
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B393: Buncombe Baptist Association (www.buncombebaptist.org) This non-profit facility is estimated to have an average usage of 50 people per day (average visitors plus staff) and it is used for an average on 4 hours each day for 52 weeks per year. The building is masonry with single glazed windows and air conditioning. Noise level predictions indicate that the structure is not impacted by the proposed project. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Public or Nonprofit Institutional Structure (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Facility Being Evaluated		
J	Average Number of Users per Day	50
K	Daily Hours Used	4
L	Days per Week Open	5
M	Weeks per Year Open	52
N	Days per Year Open = L x M	260
O	Person-hours per Year Available for Use = J x K x N	52,000
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B408: Hazel Green Missionary Baptist Church A place of worship with 40 users. It is estimated that the facility operates an average of 4 hours each day for 3 days per week year-round. The building is light frame with storm windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D NAC. Contact information for the facility could not be found, so usage was estimated for the purposes of the TNR.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	40
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	24,960
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B409, B409.1: Regent Park Early Childhood (http://www.rpbaby.com) A daycare facility with 80 children and 20 staff. According to their website, the school operates 8 hours each day for 5 days a week year-round. The school has an exterior playground immediately adjacent to the north side of the building. On average, each child uses the playgrounds for 2 hours each day. The playground is predicted to not be impacted by the proposed highway project. The structure is a masonry building with single-glazed windows and air conditioning. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Day Care Facility (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Day Care Facility Being Evaluated		
D	Average Number of Children Plus Staff per Day Using Playground	100
E	Hours/day that Each Person Uses Playground	2.0
F	Days per Week Open	5
G	Weeks per Year Open	52
H	Person-hours per Year Available for Use = D x E x F x G	52,000
I	EQUIVALENT RECEPTOR VALUE = H/C	2.0
**For the Interior Uses at the Day Care Facility Being Evaluated		
J	Average Number of Users (Students and Staff) per Day	100
K	Daily Hours Used	8
L	Days per Week Open	5
M	Weeks per Year Open	52
N	Days per Year Open = L x M	260
O	Person-hours per Year Available for Use = J x K x N	208,000
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B423: Asheville United Christian Church (828-281-3777) A place of worship with approximately 60 users. It is estimated that the facility operates an average of 4 hours each day for 3 days per week year-round. The building is masonry with single glazed windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	60
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	37,440
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B459: Boy Scouts of America, Daniel Boone Council (828-254-9433) A non-profit facility has an average usage of 11 people per day, 5 days per week, and is used for an average on 8 hours each day for 52 weeks per year, according to a staff member. The building is masonry with single glazed windows and air conditioning. Noise level predictions indicate that the structure is not impacted by the proposed project.	
Public or Nonprofit Institutional Structure (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Facility Being Evaluated		
J	Average Number of Users per Day	11
K	Daily Hours Used	8
L	Days per Week Open	5
M	Weeks per Year Open	52
N	Days per Year Open = L x M	260
O	Person-hours per Year Available for Use = J x K x N	22,880
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B486 & B486.1: The Haywood Street Congregation (haywoodstreet.org) A place of worship with an average of 260 users, according to a staff member. The facility operates an average of four to five hours each day for seven days per week year-round. The facility has a large exterior area that is on average used by 80 people for 2 hours each day. The building is masonry with single glazed windows that face the highway. The exterior area at the church is predicted to be impacted by the proposed highway project and is not predicted to be benefited by a proposed noise barrier. The interior is not predicted to experience noise levels above the Activity Category D NAC.	
Church (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Church Being Evaluated		
D	Average Number of Users per Day	80
E	Hours/day that Each Person Uses Facility	2.0
F	Days per Week Open	7
G	Weeks per Year Open	52
H	Person-hours per Year Available for Use = D x E x F x G	58,240
I	EQUIVALENT RECEPTOR VALUE = H/C	2.2
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	260
K	Daily Hours Used	4.5
L	Days per Week Open	7
M	Weeks per Year Open	52
N	Days per Year Open = L x M	364
O	Person-hours per Year Available for Use = J x K x N	425,880
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B496: Hillcrest Apartments Basketball Court (828-239-3562)	
	A 230-unit apartment complex with an outdoor use area. It is estimated the outdoor area has an average hourly use of 10 persons. The recreational area is located at ground level and is available for use by all apartment occupants and their guests. It is estimated the area is open 12 hours a day, 7 days a week year round. The outdoor use area facing the highway is predicted to have no future noise levels exceeding the Activity Category B NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Apartment Exterior Use Areas (Activity Category B)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Apartment Recreational Area		
D	Average Hourly Occupancy for Recreation Area	10
E	Hours Per Day Recreation Area is Available for Use	12
F	Days per Month Recreation Area is Available for Use	30
G	Months per Year Recreation Area is Available for Use	12
H	Person-hours per Year Available for Use = D x E x F x G	43,200
I	Equivalent Receptor Unit Value for Recreational Area = H/C	1.6
J	For most Recreational areas in apartment complexes, using one receptor point in TNM placed closest to the proposed highway project is sufficient. If more than one exterior receptor point was used to model large Recreational areas, enter the number of receptor points.	1
K	Equivalent Receptor Value Assigned to Each Receiver = I/J	1.6

CALCULATION OF EQUIVALENT RECEPTOR VALUE

	Receptors B498, B502-503, B552, B1042-1045: Asheville Racquet Club Downtown (828-253-5874)	
CASE:	A tennis club with 10 tennis courts. It is estimated that an average of 150 people and 10 staff use the park an average of 2 hours daily, and it operates 12 hours each day for 7 days a week year-round. The park cannot be impacted by the proposed highway project as it will be taken under right-of-way.	
Park / Recreation Area (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Park Area Being Evaluated		
D	Percent of Usable Area of Park Impacted by Project Noise	0%
E	Percent of Usable Area of Park Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	150
H	Number of Park Staff	10
I	Total Number of Occupants per Day = G + H	160
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	5
L	Operational Weeks per Year	36
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0
O	A grid of receptor points at 100-foot spacing was developed to represent the impacted or benefited park usage area.	8
P	Equivalent Residence Value Assigned to Each Grid Point = N/O	0.00

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B500.1-B501.36, B553,B554.1-B554.56: Crowne Plaza Hotel and Resort (828-254-3211) A 278-unit motel with has an average occupancy rate of 50% with an average of 1.5 people per room. According to the hotel staff, there are balconies for 122 units of which 67% are predicted to be impacted by the project and that noise walls are not predicted to provide benefits to the exterior use area.	
Motel Outside Uses (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Exterior Area of Motel Being Evaluated		
D	Number of Motel Rooms	278
E	Average Number of People per Room	1.5
F	Occupany Rate (percent)	50%
G	Percent of Occupants Using Outside Facilities	75%
H	Total Number of Users per Day = D x E x F x G	156
I	Days per Month Available for Use	30
J	Months per Year Available for Use	12
K	Person-hours per year of Use = H x I x J	56,295
L	Percent of Outside Area Impacted by Project	100%
M	Percent of Outside Area Benefited by Project Abatement	0%
N	Percentage of Building Use Value = Maximum of L and M	100%
O	EQUIVALENT RECEPTOR VALUE = (K/C) x N	2.1
For the Motel Unit Balconies, Each Balcony Gets Analyzed with an Equivalent Receptor Value as Calculated Below		
S	Number of Impacted Motel Units	122
T	Number of Benefited Motel Units	0
U	Number of Hours Per Day Available for Use	24
V	Number of Days per Year Available for Use	365
W	Person-hours per year of Use for All Impacted/Benefited Units = (Maximum of S and T) x E x F x U x V	801,540
X	EQUIVALENT RECEPTOR VALUE FOR ALL IMPACTED/BENEFITED MOTEL UNITS = W/C	30.5
Y	EQUIVALENT RECEPTOR VALUE FOR EACH IMPACTED/BENEFITED MOTEL UNIT = X/ (Maximum of S and T)	0.25

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B506: Hillcrest Apartments Playground (828-239-3562)	
	An outdoor playground for a 230-unit apartment complex. It is estimated that the playground has an average hourly use of 8 persons and it is open 8 hours a day, 7 days a week for 12 months. The playground is located at ground level behind the apartments closest to the French Broad River and is available for use by all apartment occupants and their guests. The playground area is predicted to not have future noise levels exceeding the Activity Category B NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Apartment Exterior Use Areas (Activity Category B)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Apartment Recreational Area		
D	Average Hourly Occupancy for Recreation Area	8
E	Hours Per Day Recreation Area is Available for Use	8
F	Days per Month Recreation Area is Available for Use	30
G	Months per Year Recreation Area is Available for Use	12
H	Person-hours per Year Available for Use = D x E x F x G	23,040
I	Equivalent Receptor Unit Value for Recreational Area = H/C	0.9
J	For most Recreational areas in apartment complexes, using one receptor point in TNM placed closest to the proposed highway project is sufficient. If more than one exterior receptor point was used to model large Recreational areas, enter the number of receptor points.	1
K	Equivalent Receptor Value Assigned to Each Receiver = I/J	0.9

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B526 Holy Tabernacle Church of God (828-253-8509) A place of worship with approximately 50 users. It is estimated that the facility operates 4 hours each day for 3 days a week year-round. The building is light frame with storm windows that face the highway and cannot experience interior noise levels above the Activity Category D NAC as it is being taken in right-of-way.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	50
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	31,200
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B528 and B529: Hill Street Baptist Church (and Hill Street Day Care Center) (www.hillstreetbaptistchurch.org/) A place of worship with 150 users, according to a staff member. The facility operates on average 4 hours each day for 3 days a week year-round. The place of worship operates a preschool and an afterschool program Monday through Friday that has an average daily attendance of 150 children. The preschool has an outdoor playground which on average is used by 150 children and 10 staff members for 2 hours, 5 days a week. The building is masonry with storm windows that face the highway and is not predicted to experience interior noise levels above the Activity Category D NAC. The outdoor playground is predicted to be impacted by the project and is not benefited by a noise wall.	
	Church (Activity Category C/D)	
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Church Being Evaluated		
D	Average Number of Children Plus Staff per Day Using Playground	160
E	Hours/day that Each Person Uses Playground	2.0
F	Days per Week Open	5
G	Weeks per Year Open	52
H	Person-hours per Year Available for Use = D x E x F x G	83,200
I	EQUIVALENT RECEPTOR VALUE = H/C	3.2
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	150
K	Daily Hours Used	2
L	Days per Week Open	2
M	Weeks per Year Open	52
N	Days per Year Open = L x M	104
O	Person-hours per Year Available for Use = J x K x N	31,200
P	Percent of Building Use Areas Impacted by Project	50%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	50%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.6

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B535-B537, B561: Isaac Dickson Elementary School (828-350-6800) An elementary school with 462 children and 75 staff. According to a school staff member, the facility operates 10 hours each day for 5 days a week 36 weeks of the year. The facility has multiple exterior play areas adjacent to the building on the north and south sides of the building that, on average, each child uses for 1.5 hours each day. The school is not predicted to be impacted by the proposed highway project on the exterior or interior. A noise wall is not predicted to	
School (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the School Being Evaluated		
D	Average Number of Children Plus Staff per Day Using Playground	542
E	Hours/day that Each Person Uses Playground	1.5
F	Days per Week Open	5
G	Weeks per Year Open	36
H	Person-hours per Year Available for Use = D x E x F x G	146,340
I	EQUIVALENT RECEPTOR VALUE = H/C	5.6
**For the Interior Uses at the School Being Evaluated		
J	Average Number of Users (Students and Staff) per Day	542
K	Daily Hours Used	10
L	Days per Week Open	5
M	Weeks per Year Open	36
N	Days per Year Open = L x M	180
O	Person-hours per Year Available for Use = J x K x N	975,600
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B546: Hillcrest Headstart Center (828-252-7719) A pre-school with 50 students and 10 staff. It is estimated that the school operates 8 hours each day for 5 days a week year-around. The school is located within the Hillcrest Apartment complex and is a masonry building with storm windows. The building is predicted to not have noise levels above the Activity Category D threshold. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
School Interior (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the School Being Evaluated		
D	Capacity of School (maximum occupancy, including students and staff)	50
E	Current Enrollment at School (students and staff)	50
F	Total Number of Occupants per Day = Maximum of D and E	50
G	Daily Hours Used	8
H	Instructional Days per Week	5
I	Instructional Weeks per Year	52
J	Instuctional Days per Year = H X I	260
K	Person-hours per Year Available for Use = F x G x J	104,000
L	Percent of Building Use Areas Impacted by Project	0%
M	Percent of Building Use Areas Benefited by Project Abatement	0%
N	Percentage of Building Use Value = Maximum of L and M	0%
O	EQUIVALENT RECEPTOR VALUE = (K/C) x N	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B553.1: Crowne Plaza Hotel and Resort Swimming Pool (828-254-3211) A 278-unit motel has an outdoor pool area. According to the hotel staff, the pool is used by 75% of the occupants. The pool is located at ground level behind the hotel buildings that face the highway and is available for use by all hotel guests. The pool is open 8 hours a day, 7 days a week for 6 months. The pool area is not predicted to have future noise levels exceeding the Activity Category E NAC and it is not benefited by a proposed noise wall.	
Motel Outside Uses (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
For the Exterior Area of Motel Being Evaluated		
D	Number of Motel Rooms	278
E	Average Number of People per Room	2
F	Occupancy Rate (percent)	50%
G	Percent of Occupants Using Outside Facilities	75%
H	Total Number of Users per Day = D x E x F x G	209
I	Days per Month Available for Use	30
J	Months per Year Available for Use	6
K	Person-hours per year of Use = H x I x J	37,530
L	Percent of Outside Area Impacted by Project	0%
M	Percent of Outside Area Benefited by Project Abatement	0%
N	Percentage of Building Use Value = Maximum of L and M	0%
O	EQUIVALENT RECEPTOR VALUE = (K/C) x N	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B557 Hillcrest Recreation Center (828-239-3562)	
	A recreation center of a 230-unit apartment complex with an outdoor playground. It is estimated that the hourly use of the recreation center is 25 people and it is open 12 hours a day, 7 days a week for 12 months. The playground is located at ground level behind the recreation center and has an hourly use of 25 children. The recreation center and outdoor area is predicted to not have future noise levels exceeding the Activity Category B NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Recreation Center (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Recreation Center Being Evaluated		
D	Average Number of Children Plus Staff per Day Using Playground	25
E	Hours/day that Each Person Uses Playground	1.0
F	Days per Week Open	6
G	Weeks per Year Open	52
H	Person-hours per Year Available for Use = D x E x F x G	7,800
I	EQUIVALENT RECEPTOR VALUE = H/C	1.0
**For the Interior Uses at the Recreation Center Being Evaluated		
J	Average Number of Users per Day	20
K	Daily Hours Used	8
L	Days per Week Open	6
M	Weeks per Year Open	52
N	Days per Year Open = L x M	312
O	Person-hours per Year Available for Use = J x K x N	49,920
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B652: Christian Church of Hope (828-280-1083)	
	A place of worship with approximately 150 users. The facility operates an average of 4 hours each day for 3 days per week year-round. The building is light frame with storm windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	150
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	93,600
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B849: Ole Shakey's Getaway (www.oleshakeys.com/) A restaurant/bar with exterior seating. It is estimated that an average of 100 visitors per day and 5 staff members are present and average usage per guest is 2 hours. According to the website the site is open 12 hours per day year round. Noise level predictions indicate that the exterior use area will be impacted and is not benefited by a noise wall. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Restaurant (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	100%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	100%
G	Average Number of Visitors per Day	100
H	Number of Staff	5
I	Total Number of Occupants per Day = G + H	105
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	76,440
N	EQUIVALENT RESIDENCE VALUE = M/C	2.9

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B850: The Bywater (www.bywater.bar/) A bar and music venue with exterior seating. It is estimated that an average of 100 visitors per day and 10 staff members are present and average usage per guest is 2 hours. According to the website the site is open 14 hours per day year round. Noise level predictions indicate that the exterior use area will not be impacted. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Restaurant (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	0%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	80
H	Number of Staff	10
I	Total Number of Occupants per Day = G + H	90
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B1013: O.Henry's (ohenrysofasheville.com/) A restaurant/bar with exterior seating. It is estimated that an average of 50 visitors per day and 3 staff members are present and average usage per guest is 2 hours. According to the website the site is open 10 hours per day year round. Noise level predictions indicate that the exterior use area will not be impacted. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Restaurant (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	0%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	50
H	Number of Staff	3
I	Total Number of Occupants per Day = G + H	53
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor 1016: Western Carolina Rescue Ministries (828-254-1529) A non-profit facility that, according to the staff, has an average usage of 107 people per day (average visitors plus staff) and it is used for an average on 1 hour each day for 52 weeks per year. The building is light frame with ordinary sash windows and air conditioning. Noise level predictions indicate that the structure is not impacted by the proposed project.	
Public or Nonprofit Institutional Structure (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Facility Being Evaluated		
J	Average Number of Users per Day	107
K	Daily Hours Used	1
L	Days per Week Open	6
M	Weeks per Year Open	52
N	Days per Year Open = L x M	312
O	Person-hours per Year Available for Use = J x K x N	33,384
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B1019 and B1020: WNC Baptist Fellowship Church (828-575-2004) A place of worship with approximately 80 users. It is estimated that the facility operates an average of 4 hours per day for 3 days per week year-round. The building is masonry frame with storm windows that face the highway. The facility is not predicted to experience interior noise levels above the Activity Category D NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	80
K	Daily Hours Used	4
L	Days per Week Open	3
M	Weeks per Year Open	52
N	Days per Year Open = L x M	156
O	Person-hours per Year Available for Use = J x K x N	49,920
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B1021: Elk's Lodge (828-253-4731) A non-profit fraternal organization's local chapter headquarters has an average of 30 users per day for 2 hours per person. According to their website the facility is open 7 days per week year-round. The building is not predicted to receive future noise level beyond the Activity Category D NAC. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Public Meeting Room (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Facility Being Evaluated		
J	Average Number of Users per Day	30
K	Daily Hours Used	2
L	Days per Week Open	7
M	Weeks per Year Open	52
N	Days per Year Open = L x M	364
O	Person-hours per Year Available for Use = J x K x N	21,840
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor B1039: Jason's Deli (www.jasonsdeli.com/restaurants/asheville-deli) Fast-food restaurant with exterior seating that averages 25 guests per day with 1 staff member available, year round. Guests use this outdoor area for an average of 1 hour. Noise level predictions indicate that the exterior use area is not impacted by the proposed project. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Restaurant (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	0%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	25
H	Number of Staff	1
I	Total Number of Occupants per Day = G + H	26
J	Average Hours per Day Used by Each Visitor	1
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B.A7 to B.K8: Riverside Cemetery (https://www.ashevilenc.gov/departments/parks/inventory/riverside_cemetery) A cemetery with 87 acres of landscaped ground is located in the Montford Historic district. According to the cemetery supervisor, the cemetery is visited by 70 users a day for 1 hour. The cemetery operates 12 hours a day year-around with 2 maintenance staff. The cemetery is predicted to have future noise levels exceeding the Activity Category C NAC and is not predicted to be benefitted by a proposed noise barrier.	
	Park / Recreation Area (Activity Category C)	
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
	For the Park Area Being Evaluated	
D	Percent of Usable Area of Park Impacted by Project Noise	100%
E	Percent of Usable Area of Park Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	100%
G	Average Number of Visitors per Day	70
H	Number of Park Staff	2
I	Total Number of Occupants per Day = G + H	72
J	Average Hours per Day Used by Each Visitor	3
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	78,624
N	EQUIVALENT RESIDENCE VALUE = M/C	3.0
O	A grid of receptor points at 100-foot spacing was developed to represent the impacted or benefitted park usage area.	68
P	Equivalent Residence Value Assigned to Each Grid Point = N/O	0.04
Q	Number of Votes Assigned to Park in Barrier Voting Process = N	3

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors B.L1-B.L31 Crowne Plaza Resort Golf Course (828-253-5874) A 9-hole golf course at the Crowne Plaza Resort. According to the hotel staff, it is estimated that an average of 100 people and 10 staff use the golf course an average of 2 hours daily, and it operates 9 hours each day for 7 days a week year-round. The golf course is predicted to experience a substantial increase in sound levels (greater than 10 dB(A)) and is not predicted to be benefited by a proposed noise barrier.	
Park / Recreation Area (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Park Area Being Evaluated		
D	Percent of Usable Area of Park Impacted by Project Noise	61%
E	Percent of Usable Area of Park Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	61%
G	Average Number of Visitors per Day	100
H	Number of Park Staff	10
I	Total Number of Occupants per Day = G + H	110
J	Average Hours per Day Used by Each Visitor	2
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	48,849
N	EQUIVALENT RESIDENCE VALUE = M/C	1.9
O	A grid of receptor points at 100-foot spacing was developed to represent the impacted or benefited park usage area.	31
P	Equivalent Residence Value Assigned to Each Grid Point = N/O	0.06
Q	Number of Votes Assigned to Park in Barrier Voting Process = N	2

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors C175.1 and C175.2: Crossroads Asheville (828-254-6732) A place of worship with a daycare, playground, and athletic fields. According to a staff member, an average of 30 children plus 10 staff use the playground 6 days per week for 2 hours. The playground is not predicted to have future noise levels exceeding the Activity Category C NAC and is not predicted to be benefited by a proposed noise barrier. The place of worship has an estimated average of 150 users daily. The facility is used on average 2 hours each day for 7 days a week year-round. The building is light frame with storm windows that face the highway and 0 percent of the building is predicted to experience interior noise levels above the Activity Category D NAC and it is not benefited by a noise wall.	
Church (Activity Category C/D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
*For the Exterior Uses at the Church Being Evaluated		
D	Average Number of Children Plus Staff per Day Using Playground	40
E	Hours/day that Each Person Uses Playground	2.0
F	Days per Week Open	6
G	Weeks per Year Open	52
H	Person-hours per Year Available for Use = D x E x F x G	24,960
I	EQUIVALENT RECEPTOR VALUE = H/C	1.0
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	150
K	Daily Hours Used	2
L	Days per Week Open	7
M	Weeks per Year Open	52
N	Days per Year Open = L x M	364
O	Person-hours per Year Available for Use = J x K x N	109,200
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor C176: Asheville's Bear Creek RV Park and Campground (www.ashevillebearcreek.com) An RV park with 90 RV rental sites. Based upon information found on the website (ashevillebearcreek.com) it is estimated that an average of 50 visitors and 10 staff members are on the site daily. On average, each visitor is in the RV park for 12 hours, including overnight. The RV park operates 24 hours each day for 7 days a week year-round. The park is predicted to have future noise levels exceeding the Activity Category C NAC and is not predicted to be benefitted by a proposed noise barrier.	
Park / Recreation Area (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Park Area Being Evaluated		
D	Percent of Usable Area of Park Impacted by Project Noise	100%
E	Percent of Usable Area of Park Benefitted by Proposed Noise Wall	0%
F	Maximum of D and E	100%
G	Average Number of Visitors per Day	50
H	Number of Park Staff	10
I	Total Number of Occupants per Day = G + H	60
J	Average Hours per Day Used by Each Visitor	12
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	262,080
N	EQUIVALENT RESIDENCE VALUE = M/C	10.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor C748: Asheville's Bear Creek RV Park and Campground Pool (ashevillebearcreek.com) An outdoor pool area for an RV park. Based upon information found on the website it is estimated that the pool has an average daily use of 20 persons and 1 staff member. The pool is used on average by each visitor for 0.5 hour each day, and is open 7 days a week for 26 weeks. The pool is located above grade adjacent to the highway and is available for use by all visitors. The pool area is predicted to have future noise levels exceeding the Activity Category C NAC and is not predicted to be benefitted by a proposed noise barrier. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Park / Recreation Area (Activity Category C)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Park Area Being Evaluated		
D	Percent of Usable Area of Park Impacted by Project Noise	100%
E	Percent of Usable Area of Park Benefitted by Proposed Noise Wall	0%
F	Maximum of D and E	100%
G	Average Number of Visitors per Day	20
H	Number of Park Staff	1
I	Total Number of Occupants per Day = G + H	21
J	Average Hours per Day Used by Each Visitor	1
K	Operational Days per Week	7
L	Operational Weeks per Year	26
M	Person-hours per Year Available for Use = F x I x J x K x L	1,911
N	EQUIVALENT RESIDENCE VALUE = M/C	0.1

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors C751 and C752: Asheville's Bear Creek RV Park and Campground Clubhouse (ashevillebearcreek.com) A clubhouse with an exterior seating area for use by RV renters. Based upon information found on the website it is estimated that there are 3 staff members and it is open for 7 days a week for 12 hours per day, year-round. Estimated average usage is 25 people per day for 1 hour each. The exterior area is not predicted to have future noise levels exceeding the Activity Category E NAC. No one returned multiple calls in attempts to gather information regarding usage.	
Clubhouse (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	100%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	100%
G	Average Number of Visitors per Day	25
H	Number of Staff	3
I	Total Number of Occupants per Day = G + H	28
J	Average Hours per Day Used by Each Visitor	1
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	10,192
N	EQUIVALENT RESIDENCE VALUE = M/C	0.4

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor C770: Center for Spiritual Living (828-253-2325) A place of worship with approximately 75 users. According to the staff, the facility operates 3 hours each day 7 days per week year-round. The building is light frame with storm windows that face the highway and are not predicted to experience interior noise levels above the Activity Category D values.	
Church (Activity Category D)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
**For the Interior Uses at the Church Being Evaluated		
J	Average Number of Users per Day	75
K	Daily Hours Used	3
L	Days per Week Open	7
M	Weeks per Year Open	52
N	Days per Year Open = L x M	364
O	Person-hours per Year Available for Use = J x K x N	81,900
P	Percent of Building Use Areas Impacted by Project	0%
Q	Percent of Building Use Areas Benefited by Project Abatement	0%
R	Percentage of Building Use Value = Maximum of P and Q	0%
S	EQUIVALENT RECEPTOR VALUE = (O/C) x R	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor C778: Burger King (www.locations.bk.com/nc/asheville/298-smokey-park-highway.html) Fast-food restaurant with exterior seating that averages 25 guests per day with 1 staff member available, year round. Guests use this outdoor area for an average of 0.5 hour. Noise level predictions indicate that the exterior use area is not impacted by the proposed project. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
Restaurant (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8760
C	Person-hours per Year Available for Use = A x B	26280
For the Facility Being Evaluated		
D	Percent of Usable Area Impacted by Project Noise	0%
E	Percent of Usable Area Benefited by Proposed Noise Wall	0%
F	Maximum of D and E	0%
G	Average Number of Visitors per Day	25
H	Number of Staff	1
I	Total Number of Occupants per Day = G + H	26
J	Average Hours per Day Used by Each Visitor	1
K	Operational Days per Week	7
L	Operational Weeks per Year	52
M	Person-hours per Year Available for Use = F x I x J x K x L	0
N	EQUIVALENT RESIDENCE VALUE = M/C	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor C804: Holiday Inn Asheville - Biltmore West (https://www.ihg.com/holidayinn/hotels/us/en/asheville/avlpp/hoteldetail) A 100-unit motel with an average occupancy rate of 65% and an average of 1.5 people per room. It has an exterior area with a pool open 6 months per year. It is estimated that one-fourth of the guests use this outdoor area. Noise level predictions indicate that 0% of the exterior use area will be impacted by the project and that noise walls are not predicted to provide benefits to the exterior use area. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
	Motel Outside Uses (Activity Category E)	
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
	For the Exterior Area of Motel Being Evaluated	
D	Number of Motel Rooms	100
E	Average Number of People per Room	1.5
F	Occupancy Rate (percent)	65%
G	Percent of Occupants Using Outside Facilities	25%
H	Total Number of Users per Day = D x E x F x G	24
I	Days per Month Available for Use	30
J	Months per Year Available for Use	6
K	Person-hours per year of Use = H x I x J	4,388
L	Percent of Outside Area Impacted by Project	0%
M	Percent of Outside Area Benefited by Project Abatement	0%
N	Percentage of Building Use Value = Maximum of L and M	0%
O	EQUIVALENT RECEPTOR VALUE = (K/C) x N	0.0

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptors C806-C813 Comfort Inn Biltmore West Balconies and C823: Comfort Inn Biltmore West Pool (www.choicehotels.com/north-carolina/asheville/comfort-inn-hotels/nc823?source=gyxt) A 50-unit motel with an average occupancy rate of 65% and an average of 1.5 people per room. It has an exterior area with a pool open 6 months of the year. It is estimated that one-fourth of the guests use this outdoor area. Noise level predictions indicate that 0% of the exterior use area will be impacted by the project and that noise walls are not predicted to provide benefits to the exterior use area. No one returned calls regarding usage, so usage was estimated for the purposes of the TNR.	
	Motel Outside Uses (Activity Category E)	
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
	For the Exterior Area of Motel Being Evaluated	
D	Number of Motel Rooms	50
E	Average Number of People per Room	1.5
F	Occupancy Rate (percent)	65%
G	Percent of Occupants Using Outside Facilities	25%
H	Total Number of Users per Day = D x E x F x G	12
I	Days per Month Available for Use	30
J	Months per Year Available for Use	6
K	Person-hours per year of Use = H x I x J	2,194
L	Percent of Outside Area Impacted by Project	0%
M	Percent of Outside Area Benefited by Project Abatement	0%
N	Percentage of Building Use Value = Maximum of L and M	0%
O	EQUIVALENT RECEPTOR VALUE = (K/C) x N	0.0
	For the Motel Unit Balconies, Each Balcony Gets Analyzed with an Equivalent Receptor Value as Calculated Below	
S	Number of Impacted Motel Units	8
T	Number of Benefited Motel Units	0
U	Number of Hours Per Day Available for Use	24
V	Number of Days per Year Available for Use	365
W	Person-hours per year of Use for All Impacted/Benefited Units = (Maximum of S and T) x E x F x U x V	68,328
X	EQUIVALENT RECEPTOR VALUE FOR ALL IMPACTED/BENEFITED MOTEL UNITS = W/C	2.6
Y	EQUIVALENT RECEPTOR VALUE FOR EACH IMPACTED/BENEFITED MOTEL UNIT = X/ (Maximum of S and T)	0.33

CALCULATION OF EQUIVALENT RECEPTOR VALUE

CASE:	Receptor C824: Rodeway Inn (828-667-8706)	
	A 62-unit motel with an average occupancy rate of 90% and an average of 1.5 people per room, according to a staff member. It has an exterior area with benches and patio seating open 12 months of the year. It is estimated that half of guests use this outdoor area for a period of one hour per day. Noise level predictions indicate that 0% of the exterior use area will be impacted by the project and that noise walls are not predicted to provide benefits to the exterior use area.	
Motel Outside Uses (Activity Category E)		
Line	For an Average Single Family Residential Unit in North Carolina	
A	People per Residence	3.0
B	Hours Available for Use per Year	8,760
C	Person-hours per Year Available for Use = A x B	26,280
	For the Exterior Area of Motel Being Evaluated	
D	Number of Motel Rooms	62
E	Average Number of People per Room	1.5
F	Occupancy Rate (percent)	90%
G	Percent of Occupants Using Outside Facilities	50%
H	Total Number of Users per Day = D x E x F x G	42
I	Days per Month Available for Use	30
J	Months per Year Available for Use	12
K	Person-hours per year of Use = H x I x J	15,066
L	Percent of Outside Area Impacted by Project	0%
M	Percent of Outside Area Benefited by Project Abatement	0%
N	Percentage of Building Use Value = Maximum of L and M	0%
O	EQUIVALENT RECEPTOR VALUE = (K/C) x N	0.0

Appendix C

Traffic Noise Models

General

This appendix documents the TNM Model Input used in this traffic noise and abatement analysis. The TNM Models utilized five TNM object types to approximate the traffic segments assessed for the I-2513 project Traffic Noise Analysis:

Roadways

Receptors (Receivers)

Barriers

Terrain Lines

Ground Zones

Coordinate System

Each of the TNM Objects was modeled using the North American Datum 1983 (NAD83) horizontal coordinate system, and North American Vertical Datum 1988 (NAVD88).

Modeling Procedure

Roadways:

TNM Roadway Element widths were selected based upon representation of one (1) or two (2) lanes of traffic per TNM roadway element. For the proposed highway facility, TNM Roadway vertices were selected to represent interval lengths that appropriately represent fluctuations in the horizontal and vertical roadway geometry. For highways in which more than one parallel TNM roadway element were modeled, the modeled roadway lane widths were set to ensure horizontal overlapping of adjacent modeled roadway elements. Overlapping TNM roadway elements is necessary to accurately represent the contiguous paved surface. TNM roadway elements of various widths were also modeled to represent the existing local roadways. Many local roads were modeled to add additional terrain. These low volume roads were not included in the capacity analysis and therefore have no traffic volumes in TNM. These roads are not found in Appendix E but were chosen for inclusion to better represent the project area's complex terrain.

Receivers (Receptors):

TNM Receiver Elements were modeled by assigning a point location to the most sensitive likely 'area of frequent human use' for each residence, school, church, medical facility, and noise-sensitive commercial land use within the Project limits. All receivers in the TNM models were assigned a height of 4.92 feet. Given the non-homogeneous terrain and resulting inconsistent intervening source-to-receptor topography throughout the project vicinity, noise levels at each discrete receptor were determined by means of modeling an individual TNM receiver at all representative locations for 'loudest-condition' existing, design year 2040 no-build, and design year 2040 build-condition predicted traffic.

Existing Barriers:

The geometry of existing noise barriers along I-40 eastbound between I-40 / US 19-23-74 Alt and Sand Hill Road / I-40 (NSA C-1) was obtained from TNM models previously created by

ICA/HDR. The former noise modeler for ICA/HDR was contacted for verification. It is AECOM's understanding that the information contained in the earlier models was obtained from final design plans of the I-40 widening project under which the walls were constructed during 2006 -2008.

Terrain Lines (Elevation Contours):

Elevations (vertical, "Z" coordinates) were input into TNM by hand (typing) the English coordinate values of vertices that define significant changes in grades and/ or slopes throughout the study areas.

Ground Zones:

When ground surfaces other than the default ground intervene between roadway and receptors (ex. pavement and water), ground zones are used to represent oddly-shaped hard or reflective surface areas to more accurately represent the study area.

Figure C.1: 2015 Existing, Section A (A1) and 2040 No-Build, Section A (A1)

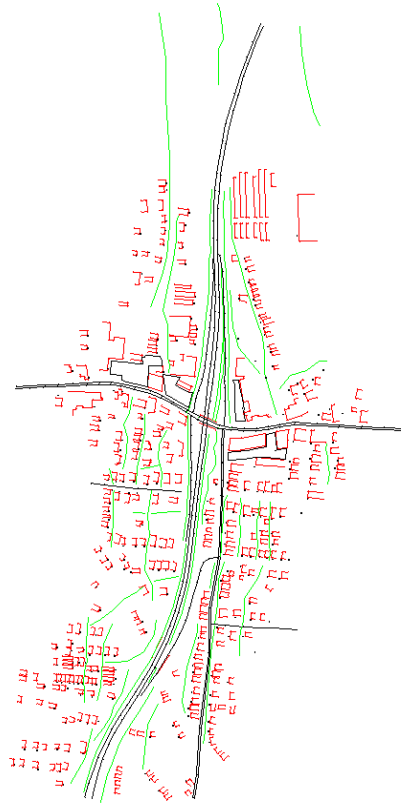


Figure C.2: 2015 Existing, Section A (A2.1) and 2040 No-Build, Section A (A2.1)

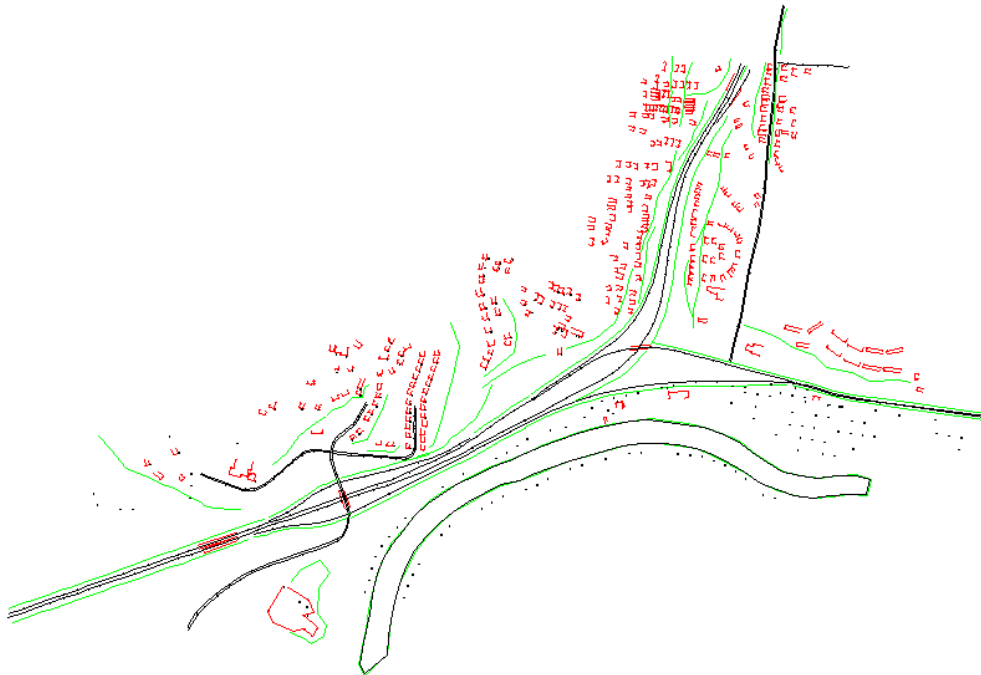


Figure C.3: 2015 Existing, Section A (A2.2) and 2040 No-Build, Section A (A2.2)



Figure C.4: 2015 Existing, Section A (A2.3) and 2040 No-Build, Section A (A2.3)



Figure C.5: 2015 Existing, Section B (B1) and 2040 No-Build, Section B (B1)

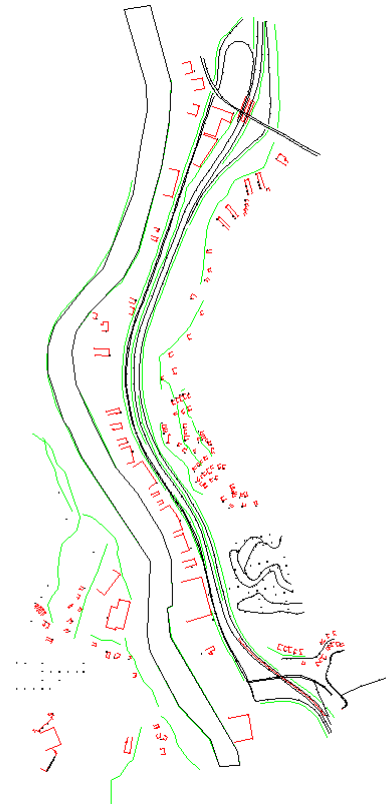


Figure C.6: 2015 Existing, Section B (B2.1) and 2040 No-Build, Section B (B2.1)

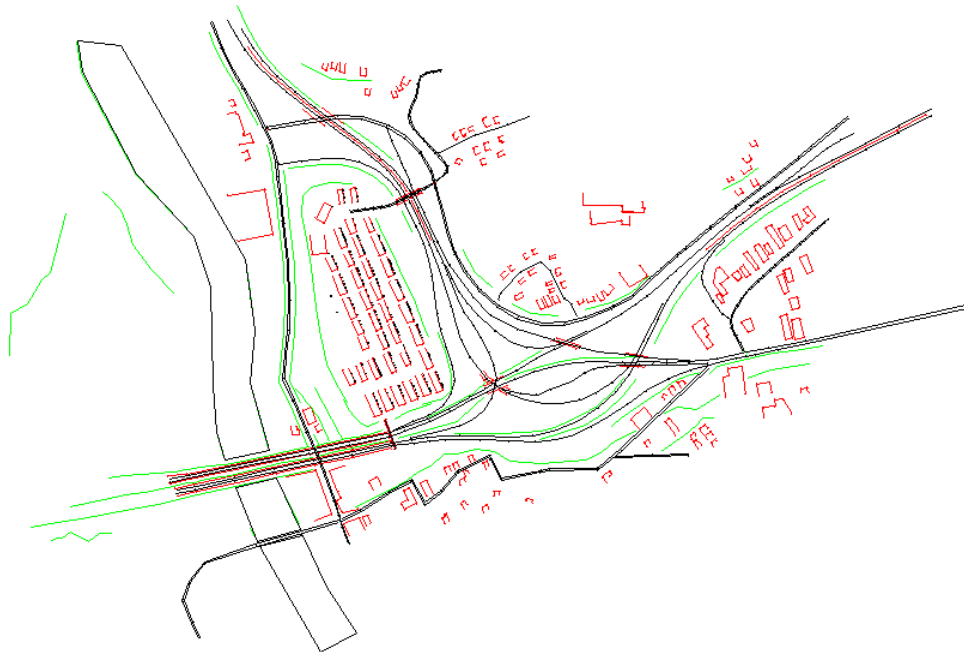


Figure C.7: 2015 Existing, Section B (B2.2) and 2040 No-Build, Section B (B2.2)

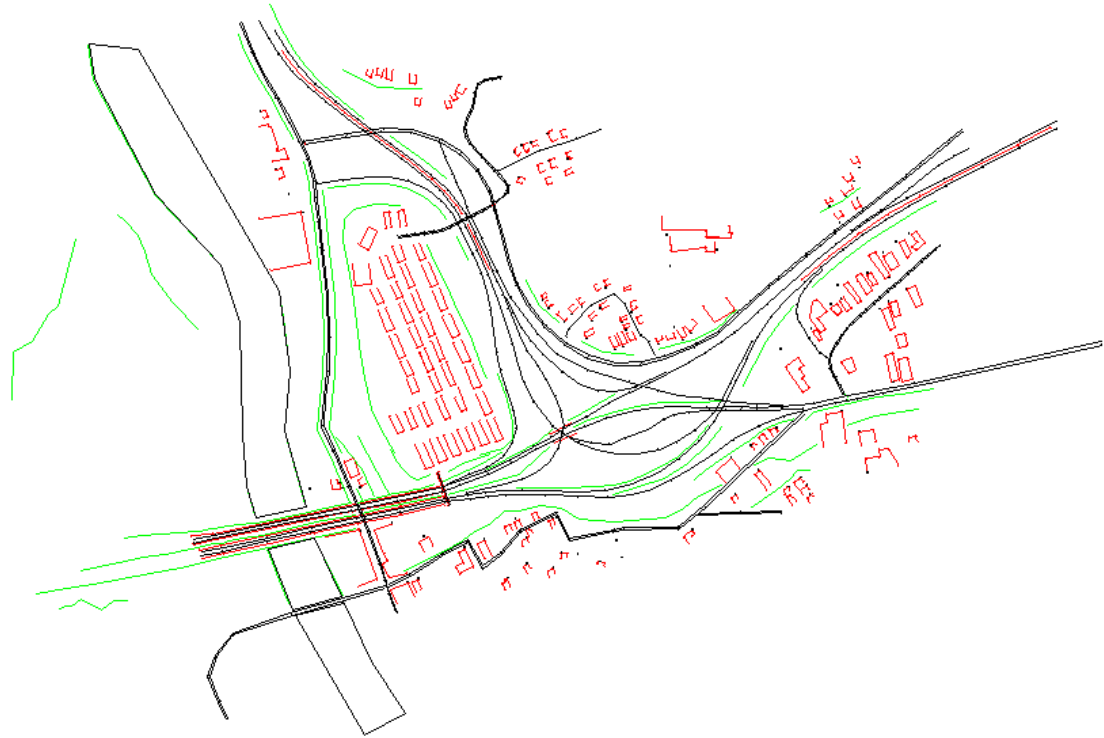


Figure C.8: 2015 Existing, Section B (B3 North) and 2040 No-Build, Section B (B3 North)

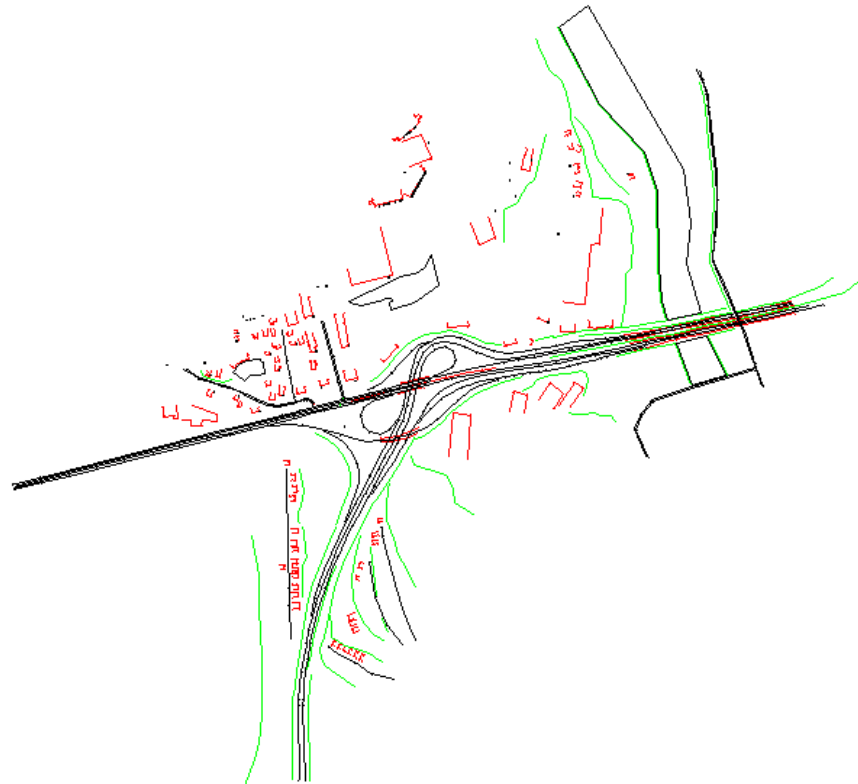


Figure C.9: 2015 Existing, Section B (B3 South) and 2040 No-Build, Section B (B3 South)

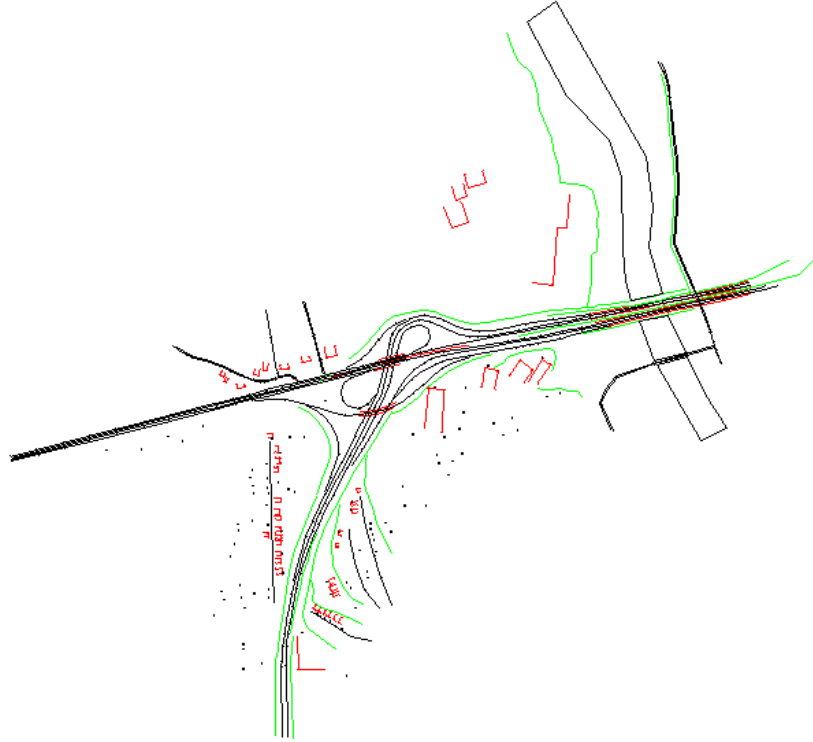


Figure C.10: 2015 Existing, Section C (C1 NW) and 2040 No-Build, Section C (C1 NW)



Figure C.11: 2015 Existing, Section C (C 2 NE) and 2040 No-Build, Section C (C 2 NE)

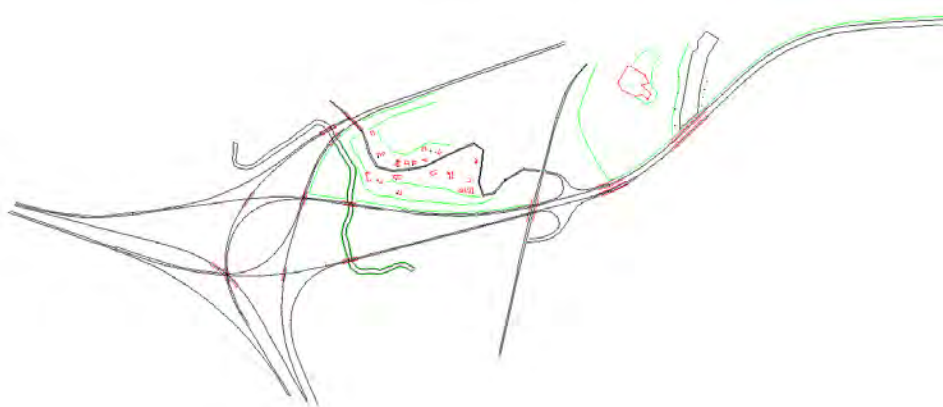


Figure C.12: 2015 Existing, Section C (C 3 SE) and 2040 No-Build, Section C (C 3 SE)



Figure C.13: 2015 Existing, Section C (C 4 SW) and 2040 No-Build, Section C (C 4 SW)

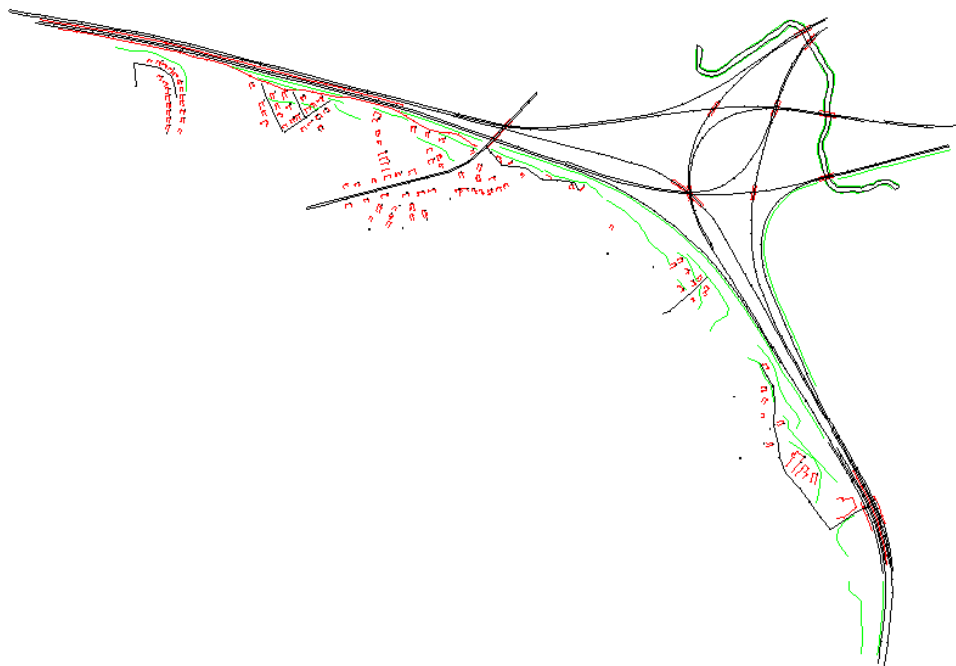


Figure C.14: 2015 Existing, Section C (C Exp Area) and 2040 No-Build, Section C (C Exp Area)

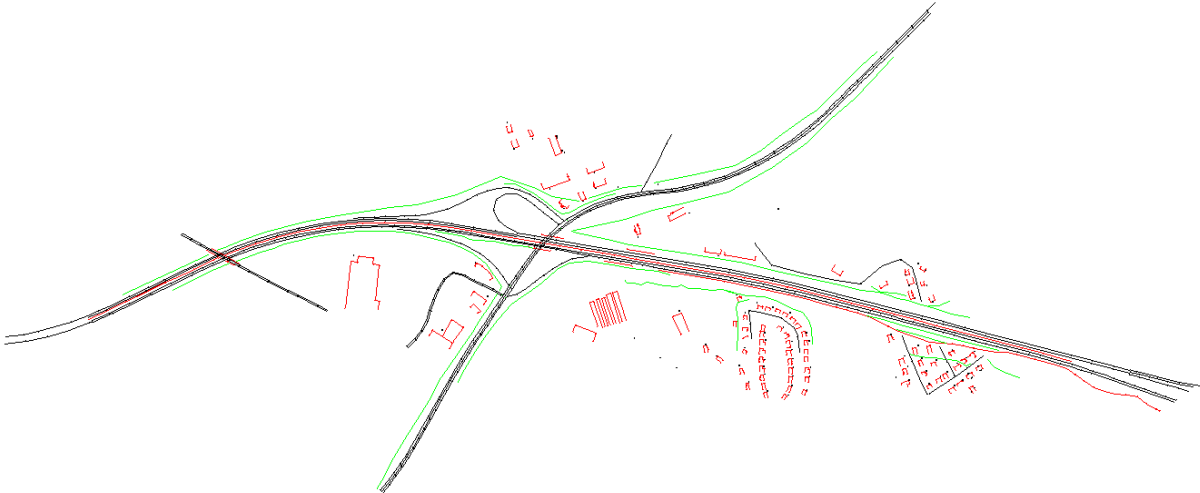


Figure C.15: 2040 Build, Section A (A Sect East 1)

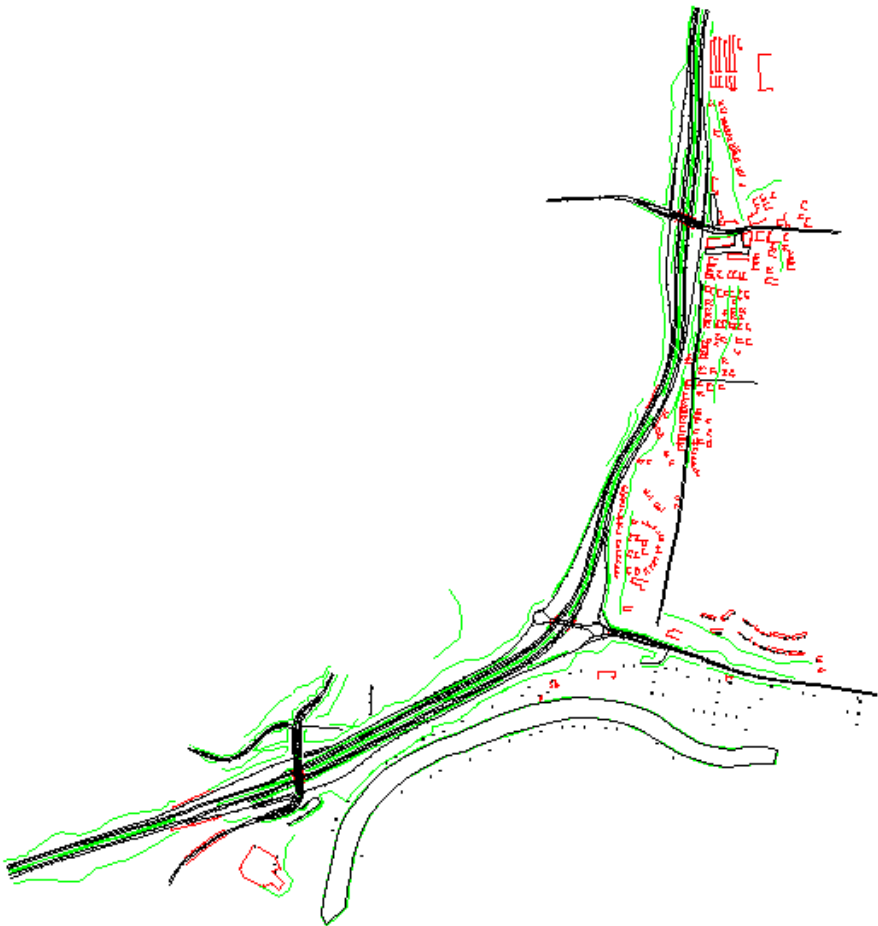


Figure C.16: 2040 Build, Section A (A Sect East 2)



Figure C.17: 2040 Build, Section A (A Sect West)

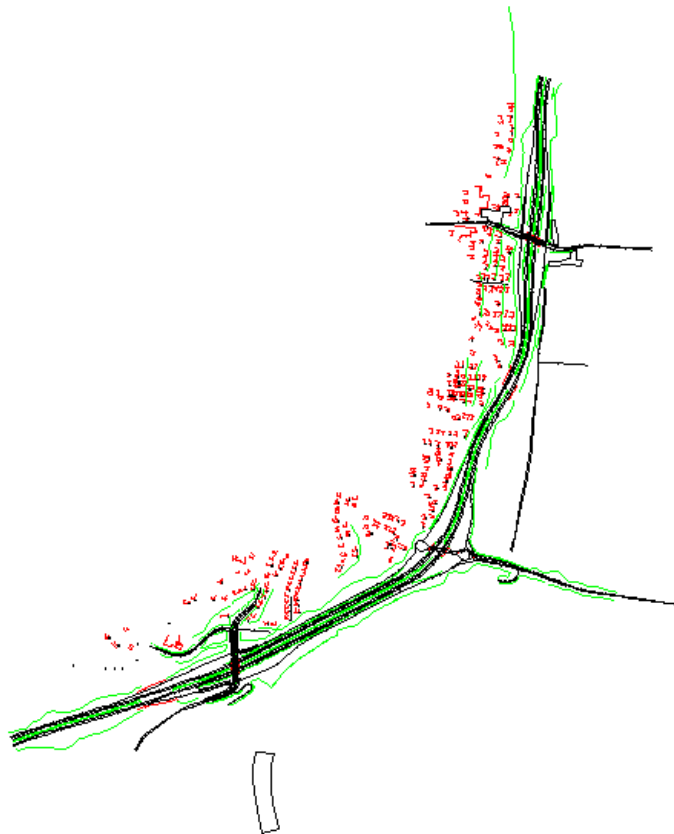


Figure C.18: 2040 Build, Section B (B 1 South)

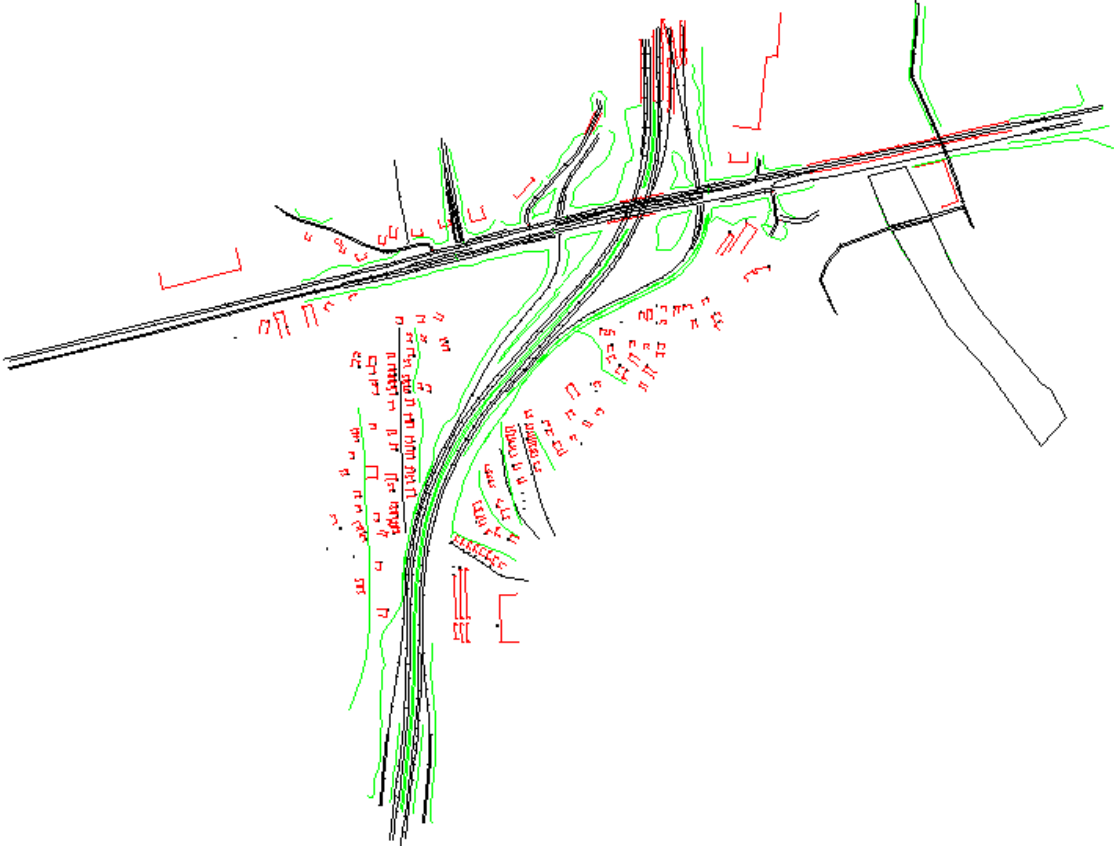


Figure C.19: 2040 Build, Section B (B 2 Center)

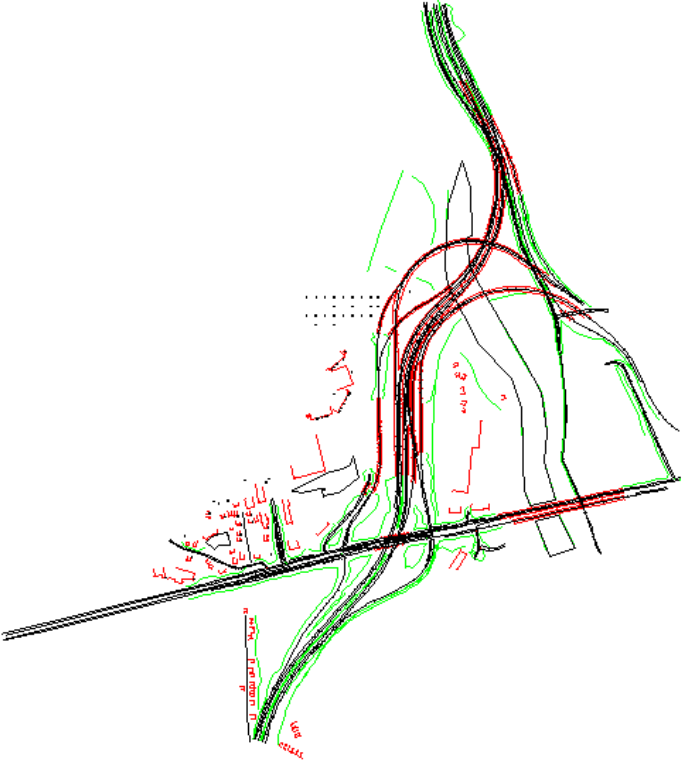


Figure C.22: 2040 Build, Section B (B 4 North)

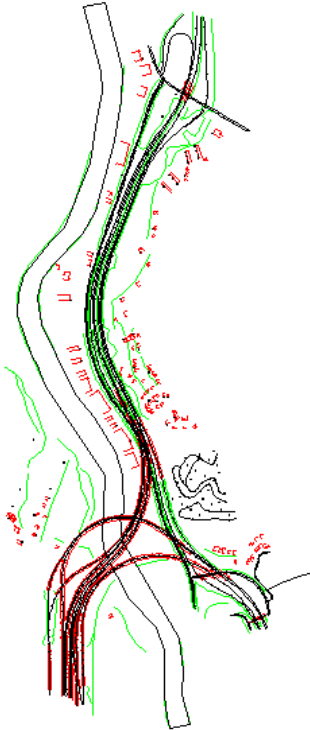


Figure C.23: 2040 Build, Section C (C 1 NW)



Figure C.24: 2040 Build, Section C (C 2 NE)



Figure C.25: 2040 Build, Section C (C 3 SE)

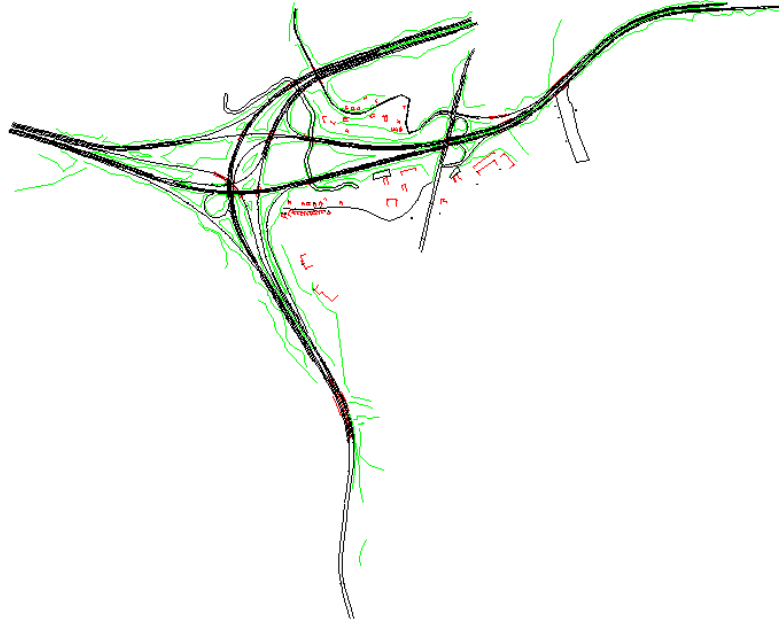


Figure C.26: 2040 Build, Section C (C 4 SW)

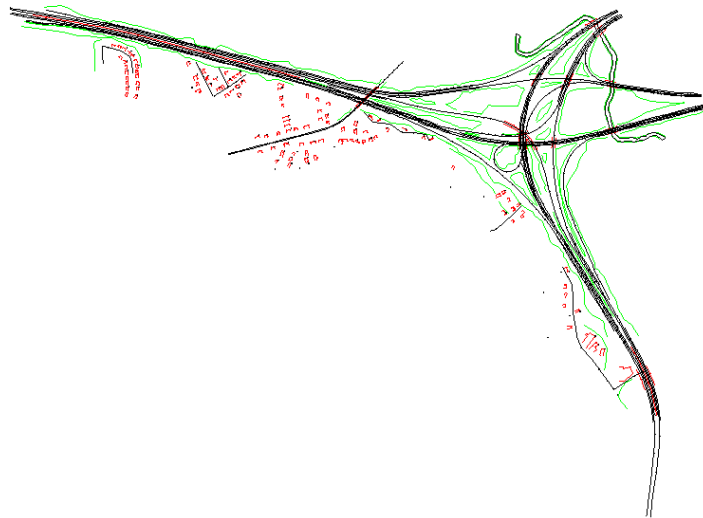


Figure C.27: 2040 Build, Section C (C Exp)



Appendix D
Noise Barrier Analysis

Noise Barrier Analysis
Section A, Barrier A-1.2.1

Section A, Barrier A-1.2.1 Acoustical Performance Summary	
Impacts: 0.26	Benefited Receptors @ ≥ 7 dB(A) NLR: 0.04
Impacted Receptors Benefited: 0.26	Total Benefits: 0.38
Non-Impacted Receptors Benefited: 0.12	

Section A, Barrier A-1.2.1 Parameters	
Length (ft): 1000	Area / Benefit (ft ²): 31579
Average Height (ft): 12	Allowable Area / Benefit (ft ²): 1500
Area (ft ²): 12000	

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
AF.142	Farm Trail at Biltmore	0.02	C	61	60	1
AF.143	Farm Trail at Biltmore	0.02	C	61	59	2
AF.144	Farm Trail at Biltmore	0.02	C	61	59	2
AF.145	Farm Trail at Biltmore	0.02	C	61	60	1
AF.146	Farm Trail at Biltmore	0.02	C	61	60	1
AF.147	Farm Trail at Biltmore	0.02	C	60	60	0
AF.148	Farm Trail at Biltmore	0.02	C	60	60	0
AF.149	Farm Trail at Biltmore	0.02	C	60	60	0
AF.150	Farm Trail at Biltmore	0.02	C	59	60	-1
AF.151	Farm Trail at Biltmore	0.02	C	59	61	-2
AF.152	Farm Trail at Biltmore	0.02	C	60	61	-1
AF.153	Farm Trail at Biltmore	0.02	C	59	62	-3
AF.154	Farm Trail at Biltmore	0.02	C	59	62	-3
AF.155	Farm Trail at Biltmore	0.02	C	60	63	-3
AF.156	Farm Trail at Biltmore	0.02	C	59	63	-4
AG.19	FBR Greenway	0.04	C	61	59	2
AG.20	FBR Greenway	0.04	C	60	60	0
AG.21	FBR Greenway	0.04	C	60	59	1
AG.22	FBR Greenway	0.04	C	60	59	1
AG.23	FBR Greenway	0.04	C	61	60	1
AG.24	FBR Greenway	0.04	C	59	59	0
AG.25	FBR Greenway	0.04	C	59	59	0
AG.26	FBR Greenway	0.04	C	59	59	0
AG.27	FBR Greenway	0.04	C	59	59	0
AG.28	FBR Greenway	0.04	C	59	59	0
AG.29	FBR Greenway	0.04	C	59	59	0
AG.30	FBR Greenway	0.04	C	59	59	0
AG.31	FBR Greenway	0.04	C	59	59	0
AG.32	FBR Greenway	0.04	C	59	59	0
AG.33	FBR Greenway	0.04	C	59	59	0
AG.34	FBR Greenway	0.04	C	59	60	-1
AG.35	FBR Greenway	0.04	C	59	60	-1
CF.157	Farm Trail at Biltmore	0.04	C	67	62	5
CF.158	Farm Trail at Biltmore	0.02	C	68	62	6
CF.159	Farm Trail at Biltmore	0.02	C	69	61	8
CF.160	Farm Trail at Biltmore	0.02	C	67	60	7
CG.36	FBR Greenway	0.04	C	64	59	5
CG.37	FBR Greenway	0.04	C	65	60	5
CG.38	FBR Greenway	0.04	C	66	60	6
CG.39	FBR Greenway	0.04	C	66	60	6
CG.40	FBR Greenway	0.04	C	66	60	6
CG.41	FBR Greenway	0.04	C	66	60	6
CG.42	FBR Greenway	0.04	C	64	59	5

Impact =
 5 to 6 dB(A) Reduction =
 ≥ 7 dB(A) Reduction =

Noise Barrier Analysis
Section A, Barrier A-1.2.1

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
NWA-1.2.1 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.						
NWA-1.2.1 is NOT likely to be incorporated into the project.						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWA-1.2.1 **COUNTY(IES)** - Buncombe

IMPACTS - 0.26 **# BENEFITS** - 0.38 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? NO
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? NO
2. Is the quantity per benefited receptor of 31579 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? NO
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section A, Barrier A-1.2.2

Section A, Barrier A-1.2.2 Acoustical Performance Summary						
Impacts: 0.41			Benefited Receptors @ ≥ 7 dB(A) NLR: 0.27			
Impacted Receptors Benefited: 0.33			Total Benefits: 0.33			
Non-Impacted Receptors Benefited: 0						
Section A, Barrier A-1.2.2 Parameters						
Length (ft): 800			Area / Benefit (ft ²): 33939			
Average Height (ft): 14			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 11200						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
AG.106	FBR Greenway	0.04	C	65	64	1
AG.107	FBR Greenway	0.04	C	66	61	5
AG.108	FBR Greenway	0.04	C	68	59	9
AG.109	FBR Greenway	0.04	C	62	60	2
AG.110	FBR Greenway	0.04	C	68	60	8
AG.111	FBR Greenway	0.04	C	69	59	10
AG.112	FBR Greenway	0.04	C	71	59	12
AG.113	FBR Greenway	0.04	C	72	60	12
AG.114	FBR Greenway	0.04	C	71	62	9
AG.115	FBR Greenway	0.04	C	69	67	2
A.F4	Carrier Park	0.01	C	60	60	0
A.F5	Carrier Park	0.01	C	59	59	0
A.G1	Carrier Park	0.01	C	72	59	13
A.G2	Carrier Park	0.01	C	64	60	4
A.G3	Carrier Park	0.01	C	60	59	1
A.G4	Carrier Park	0.01	C	59	59	0
A.G5	Carrier Park	0.01	C	60	60	0
A.G6	Carrier Park	0.01	C	59	59	0
A.H2	Carrier Park	0.01	C	65	60	5
A.H3	Carrier Park	0.01	C	60	59	1
A.H4	Carrier Park	0.01	C	59	59	0
A.H5	Carrier Park	0.01	C	59	59	0
A.H6	Carrier Park	0.01	C	59	59	0
A.I2	Carrier Park	0.01	C	65	59	6
A.I3	Carrier Park	0.01	C	61	59	2
A.I4	Carrier Park	0.01	C	59	59	0
A.I5	Carrier Park	0.01	C	59	59	0
A.I6	Carrier Park	0.01	C	59	59	0
A.J2	Carrier Park	0.01	C	69	59	10
A.J3	Carrier Park	0.01	C	61	59	2
A.J4	Carrier Park	0.01	C	59	59	0
A.J5	Carrier Park	0.01	C	59	59	0
A.J6	Carrier Park	0.01	C	59	59	0
A.K2	Carrier Park	0.01	C	70	59	11
A.K3	Carrier Park	0.01	C	62	59	3
A.K4	Carrier Park	0.01	C	59	59	0
A.K5	Carrier Park	0.01	C	59	59	0
A.K6	Carrier Park	0.01	C	59	59	0
A.L3	Carrier Park	0.01	C	62	59	3
A.L4	Carrier Park	0.01	C	59	59	0
A.M3	Carrier Park	0.01	C	62	59	3
A.M4	Carrier Park	0.01	C	59	59	0
A.N4	Carrier Park	0.01	C	59	59	0

Impact =

5 to 6 dB(A) Reduction =

≥ 7 dB(A) Reduction =

NWA-1.2.2 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.
NWA-1.2.2 is NOT likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWA-1.2.2 **COUNTY(IES)** - Buncombe

IMPACTS - 0.41 **# BENEFITS** - 0.33 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? NO
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? NO
2. Is the quantity per benefited receptor of 33939 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? NO
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section A, Barrier A-124

Section A, Barrier A-124 Acoustical Performance Summary						
Impacts: 56			Benefited Receptors @ ≥ 7 dB(A) NLR: 68			
Impacted Receptors Benefited: 48			Total Benefits: 109			
Non-Impacted Receptors Benefited: 61						
Section A, Barrier A-124 Parameters						
Length (ft): 5400+900			Area / Benefit (ft ²): 1321			
Average Height (ft): 23			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 144000						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A17.1	359 Brevard Rd	1	B	68	68	0
A065	352 Fairfax Ave	1	B	69	64	5
A066	348 Fairfax Ave	1	B	71	61	10
A068	330 Fairfax Ave	1	B	68	59	9
A069	362 Brevard Rd	1	B	69	67	2
A070	358 Brevard Rd	1	B	68	66	2
A071	326 Fairfax Ave	1	B	69	59	10
A072	323 Fairfax Ave	1	B	65	59	6
A073	354 Brevard Rd	1	B	67	64	3
A074	322 Fairfax Ave	1	B	68	59	9
A075	319 Fairfax Ave	1	B	65	59	6
A076	352 Brevard Rd	1	B	67	64	3
A077	318 Fairfax Ave	1	B	67	59	8
A078	315 Fairfax Ave	1	B	64	59	5
A079	346 Brevard Rd	1	B	67	64	3
A080	314 Fairfax Ave	1	B	65	59	6
A081	307 Fairfax Ave	1	B	63	59	4
A084	335 Brevard Rd	1	B	67	66	1
A085	342 Brevard Rd	1	B	67	65	2
A086	310 Fairfax Ave	1	B	65	59	6
A087	305 Fairfax Ave	1	B	65	59	6
A089	336 Brevard Rd	1	B	65	62	3
A090	306 Fairfax Ave	1	B	64	59	5
A091	303 Fairfax Ave	1	B	63	59	4
A094	36 High Court Entrance	1	B	65	61	4
A096	302 Fairfax Ave	1	B	63	59	4
A097	301 Fairfax Ave	1	B	63	59	4
A098	298 Fairfax Ave	1	B	63	59	4
A099	299 Fairfax Ave	1	B	61	59	2
A100	43 High Court Entrance	1	B	61	59	2
A101	88 High Court Entrance	1	B	63	59	4
A102	294 Fairfax Ave	1	B	61	59	2
A103	297 Fairfax Ave	1	B	59	59	0
A104	23 High Court Entrance	1	B	59	59	0
A105	28 High Court Entrance	1	B	60	59	1
A108	295 Fairfax Ave	1	B	59	59	0
A131	21 High Court Entrance	1	B	59	59	0
A164	72 Dale St	1	B	62	59	3
A165	61 Dale St	1	B	59	59	0
A166	57 Dale St	1	B	60	59	1
A167	52 Dale St	1	B	61	59	2
A168	51 A Dale St	1	B	59	59	0
A169	50 Dale St	1	B	59	59	0
A170	302 Virginia Ave	1	B	63	59	4
A171	300 Virginia Ave	1	B	62	59	3
A172	268 Virginia Ave	1	B	60	59	1
A173	9 Brotherton Ave	1	B	61	59	2
A174	15 Brotherton Ave	1	B	64	59	5
A175	17 Brotherton Ave	1	B	65	60	5
A176	19 Brotherton Ave	1	B	65	61	4
A172.1	3 Trellis Ct	1	B	64	60	4
A173.1	16 Brotherton Ave	1	B	64	60	4
A174.1	18 Brotherton Ave	1	B	66	61	5
A175.1	24 Brotherton Ave	1	B	65	60	5
A176.1	28 Brotherton Ave	1	B	66	61	5
A177	21 Brotherton Ave	1	B	68	63	5
A178.1	290 A Virginia Ave	1	B	63	59	4
A178.2	290 B Virginia Ave	1	B	61	59	2
A179.1	288 A Virginia Ave	1	B	66	59	7
A179.2	288 B Virginia Ave	1	B	64	59	5
A180.1	292 A Virginia Ave	1	B	59	59	0
A180.2	292 B Virginia Ave	1	B	61	59	2
A181.1	294 A Virginia Ave	1	B	69	63	6

Noise Barrier Analysis
Section A, Barrier A-124




Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A181.2	294 B Virginia Ave	1	B	69	63	6
A181.3	294 C Virginia Ave	1	B	70	64	6
A181.4	294 D Virginia Ave	1	B	70	65	5
A186	49 Dale St	1	B	59	59	0
A187	45 Dale St	1	B	59	59	0
A190	25 Dale St	1	B	59	59	0
A191	261 Virginia Ave	1	B	59	59	0
A192	23 Dale St	1	B	59	59	0
A194	251 Virginia Ave	1	B	59	59	0
A197	245 Virginia Ave	1	B	59	59	0
A217	65 Hubbard Ave	1	B	67	55	12
A219	61 1/2 Hubbard Ave	1	B	55	53	2
A220	61 Hubbard Ave	1	B	65	55	10
A223	47 Hubbard Ave	1	B	58	53	5
A224	28 Hubbard Ave	1	B	64	55	9
A225	26 Hubbard Ave	1	B	62	53	9
A226	24 Hubbard Ave	1	B	59	53	6
A227	185 Hudson St	1	B	59	55	4
A228	192 Hudson St	1	B	59	56	3
A229	188 Hudson St	1	B	58	55	3
A230	181 Hudson St	1	B	58	55	3
A231	184 Hudson St	1	B	57	54	3
A232	177 Hudson St	1	B	58	54	4
A233	180 Hudson St	1	B	57	53	4
A234	16 Hubbard Ave	1	B	67	56	11
A235	14 Hubbard Ave	1	B	68	57	11
A236	174 Hudson St	1	B	54	53	1
A237	17 1/2 Hubbard Ave	1	B	59	54	5
A239	172 Hudson St	1	B	55	53	2
A240	15 Hubbard Ave	1	B	60	55	5
A241	10 Hubbard Ave	1	B	68	57	11
A250	11 Hubbard Ave	1	B	60	53	7
A251	7 Hubbard Ave	1	B	58	53	5
A300	8 Hubbard Ave	1	B	69	56	13
A301	3 Stewart St	1	B	53	53	0
A302	5 Stewart St	1	B	56	53	3
A303	3 Hubbard Ave	1	B	57	53	4
A304	2 Hubbard Ave	1	B	60	55	5
A305	29 Stewart St	1	B	68	55	13
A310	8 Stewart St	1	B	57	53	4
A311	14 Stewart St	1	B	56	53	3
A312	16 Stewart St	1	B	60	54	6
A313	24 Stewart St	1	B	57	53	4
A314	30 Stewart St	1	B	66	55	11
A315	38 Stewart St	1	B	72	55	17
A330	65 New Jersey Ave	1	B	56	53	3
A331	47 New Jersey Ave	1	B	57	53	4
A347	75 New Jersey Ave	1	B	58	53	5
A348	71 New Jersey Ave	1	B	58	53	5
A379	30 New Jersey Ave	1	B	65	53	12
A380	34 New Jersey Ave	1	B	69	56	13
A381	40 New Jersey Ave	1	B	74	58	16
A430	89 Langwell Ave	1	B	60	53	7
A431	86 Langwell Ave	1	B	62	53	9
A442	49 Yale St	1	B	65	54	11
A443	175 State St	1	B	68	57	11
A444	173 State St	1	B	67	56	11
A445	159 A State St	1	B	66	55	11
A457	44 Yale St	1	B	61	53	8
A459	131 State St	1	B	55	53	2
A460	133 State St	1	B	59	53	6
A461	156 State St	1	B	69	57	12
A462	160 State St	1	B	76	59	17
A463	140 State St	1	B	66	55	11
A464	136 State St	1	B	56	53	3
A465	178 Montana Ave	1	B	65	55	10
A466	174 Montana Ave	1	B	68	56	12
A467	170 Montana Ave	1	B	73	58	15
A583	123 State St	1	B	54	53	1
A586	124 State St	1	B	58	53	5
A587	205 Montana Ave	1	B	58	53	5
A588	187 Montana Ave	1	B	59	53	6
A589	185 Montana Ave	1	B	59	53	6
A590	181 Montana Ave	1	B	60	53	7

Noise Barrier Analysis
Section A, Barrier A-124

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A591	175 Montana Ave	1	B	62	55	7
A592	169 Montana Ave	1	B	63	54	9
A596	80 Allen St	1	B	53	53	0
A597	185 1/2 Montana Ave	1	B	61	54	7
A600	76 Allen St	1	B	53	53	0
A608	70 Allen St	1	B	53	53	0
A609	62 Allen St	1	B	53	53	0
A615	58 Allen St	1	B	53	53	0
A616	200 Pennsylvania Ave	1	B	55	53	2
A617	194 Pennsylvania Ave	1	B	53	53	0
A618	190 Pennsylvania Ave	1	B	56	53	3
A619	184 Pennsylvania Ave	1	B	57	53	4
A620	178 Pennsylvania Ave	1	B	67	56	11
A627	203 Pennsylvania Ave	1	B	53	53	0
A628	199 Pennsylvania Ave	1	B	53	53	0
A629	193 Pennsylvania Ave	1	B	53	53	0
A630	191 Pennsylvania Ave	1	B	53	53	0
A631	183 Pennsylvania Ave	1	B	61	55	6
A632	175 Pennsylvania Ave	1	B	65	55	10
A641	32 Allen St	1	B	53	53	0
A642	31 Parkman Ave	1	B	53	53	0
A643	32 Parkman Ave	1	B	57	53	4
A646	29 Allen St	1	B	53	53	0
A647	28 Allen St	1	B	53	53	0
A648	29 Parkman Ave	1	B	53	53	0
A649	28 Parkman Ave	1	B	59	54	5
A652	21 Allen St	1	B	53	53	0
A653	24 Allen St	1	B	53	53	0
A654	27 Parkman Ave	1	B	54	53	1
A655	25 Parkman Ave	1	B	55	53	2
A656	15 Brookshire Pl	1	B	65	57	8
A672	19 Allen St	1	B	53	53	0
A674	11 Parkman Ave	1	B	58	57	1
A675	492 1/2 Haywood Rd	1	B	64	58	6
A1004	103 Dale St	1	B	64	60	4
A1005	101 Dale St	1	B	59	59	0
A1006	99 Dale St	1	B	59	59	0
A1007	87 Dale St	1	B	59	59	0
A1008	76 Dale St	1	B	65	61	4
A1009	25 Brotherton Ave	1	B	65	61	4
A1015	57 Hubbard Ave	1	B	56	53	3
A1016	22 Hubbard Ave	1	B	66	57	9
A1017	27 Stewart St	1	B	64	53	11
A1018	39 New Jersey Ave	1	B	58	53	5
A1019	37 New Jersey Ave	1	B	61	53	8
A1020	28 New Jersey Ave	1	B	59	53	6
A1021	91 Langwell Ave	1	B	64	53	11
A1022	93 Langwell Ave	1	B	66	54	12
A1023	95 Langwell Ave	1	B	67	53	14
A1024	97 Langwell Ave	1	B	69	54	15
A1025	186 Montana Ave	1	B	61	53	8
A1062	43 Dale St	1	B	59	59	0
A1063	24 Dale St	1	B	59	59	0
A1064	12 Dale St	1	B	59	59	0
A1069	26 New Jersey Ave	1	B	55	53	2
A1070	40 Burk St	1	B	53	53	0
A1071	85 Langwell Ave	1	B	53	53	0
A1072	43 Burk St	1	B	56	53	3
A1073	45 Burk St	1	B	58	53	5
A1074	5 Gratitude Dr	1	B	60	53	7
A1075	72 New Jersey Ave	1	B	61	53	8
A1076	7 Gratitude Dr	1	B	60	53	7
A1077	9 Gratitude Dr	1	B	60	53	7
A1078	11 Gratitude Dr	1	B	62	53	9
A1079	13 Gratitude Dr	1	B	64	53	11
A1080	15 Gratitude Dr	1	B	66	53	13
A1081	5-19 Gratitude Dr	1	B	67	55	12
A1082	20 Gratitude Dr	1	B	68	56	12
A1083	35 New Jersey Ave	1	B	71	57	14
A1084	2 Grinnell St	1	B	61	54	7
A1085	4 Grinnell St	1	B	59	53	6
A1086	6 Grinnell St	1	B	57	53	4
A1087	8 Grinnell St	1	B	53	53	0
A1088	10 Grinnell St	1	B	56	53	3

Noise Barrier Analysis
Section A, Barrier A-124

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A1089	12 Gratitude Dr	1	B	53	53	0
A1090	14 Gratitude Dr	1	B	65	55	10
A1091	98 Langwell Ave	1	B	65	53	12
A1092	Grinnell St	1	B	58	53	5
A1093	102 W Lincoln Ave	1	B	67	55	12
A1094	Grinnell St	1	B	61	53	8
A1095	22 Gratitude Dr	1	B	71	57	14
A1096	23 Gratitude Dr	1	B	72	57	15
A1097	24 Gratitude Dr	1	B	72	57	15
A1098	25 Gratitude Dr	1	B	73	58	15

Impact = 
 5 to 6 dB(A) Reduction = 
 ≥ 7 dB(A) Reduction = 

***The square feet shown reflects a calculation of the area of the two noise barriers combined, as two barriers work as one in this scenario due to geographic constraints. In this instance, the traditional formula for calculation of a single barrier does not apply. The barrier combination equation accounts for 108 panels at 24 feet tall (50 feet in width) along the I-26 mainline and 18 panels at 16 feet tall (50 feet in width) along the bridge over Amboy Road.**

**NWA-124 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.
 NWA-124 is likely to be incorporated into the project.**

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWA-124 **COUNTY(IES)** - Buncombe

IMPACTS - 56 **# BENEFITS** - 109 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 1321 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? YES

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? YES

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section A, Barrier A-35




Section A, Barrier A-35 Acoustical Performance Summary						
Impacts: 40			Benefited Receptors @ ≥ 7 dB(A) NLR: 57			
Impacted Receptors Benefited: 38			Total Benefits: 78			
Non-Impacted Receptors Benefited: 40						
Section A, Barrier A-35 Parameters						
Length (ft): 3150			Area / Benefit (ft ²): 808			
Average Height (ft): 20			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 63000						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A254	100 Kentucky Dr	1	B	67	67	0
A255.1	68 A Kentucky Dr	1	B	67	66	1
A255.2	68 B Kentucky Dr	1	B	65	65	0
A255.3	68 C Kentucky Dr	1	B	64	64	0
A255.4	68 D Kentucky Dr	1	B	64	64	0
A262	22 Buttonwood Ct	1	B	60	57	3
A263	20 Buttonwood Ct	1	B	54	53	1
A264	18 Buttonwood Ct	1	B	54	53	1
A265	16 Buttonwood Ct	1	B	53	53	0
A266	14 Buttonwood Ct	1	B	53	53	0
A267	17 Buttonwood Ct	1	B	61	59	2
A268	15 Buttonwood Ct	1	B	56	55	1
A269	11 Buttonwood Ct	1	B	54	53	1
A270	12 Buttonwood Ct	1	B	54	53	1
A271	3 Buttonwood Ct	1	B	62	59	3
A272	5 Buttonwood Ct	1	B	54	53	1
A273	7 Buttonwood Ct	1	B	57	54	3
A274	10 Buttonwood Ct	1	B	53	53	0
A275	2 Buttonwood Ct	1	B	59	53	6
A276	4 Buttonwood Ct	1	B	62	58	4
A277	6 Buttonwood Ct	1	B	53	53	0
A278	8 Buttonwood Ct	1	B	57	54	3
A296	41 Kentucky Dr	1	B	72	61	11
A297	27 Kentucky Dr	1	B	73	59	14
A393	80 Stewart St	1	B	68	61	7
A394	82 Stewart St	1	B	62	56	6
A395	88 Stewart St	1	B	62	56	6
A396	92 Stewart St	1	B	53	53	0
A401	15 New Jersey Ave	1	B	67	57	10
A402	225 State St	1	B	62	53	9
A403	197 Hanover St	1	B	59	53	6
A404	193 Hanover St	1	B	59	53	6
A473	221 State St	1	B	64	55	9
A474	166 Hanover St	1	B	60	53	7
A477	162 Hanover St	1	B	61	53	8
A489	156 Hanover St	1	B	62	53	9
A490	153 Hanover St	1	B	65	58	7
A491	149 Hanover St	1	B	66	59	7
A493	145 Hanover St	1	B	67	59	8
A495	139 Hanover St	1	B	67	61	6
A496	142 Hanover St	1	B	62	55	7
A497	128 Indiana Ave	1	B	56	53	3
A500	135 Hanover St	1	B	67	61	6
A501	134 Hanover St	1	B	63	59	4
A502	127 Indiana Ave	1	B	57	53	4
A515	125 Hanover St	1	B	68	62	6
A516	130 Hanover St	1	B	63	58	5
A517	123 Hanover St	1	B	68	61	7
A518	126 Hanover St	1	B	65	60	5
A519	121 Hanover St	1	B	70	64	6
A520	115 Hanover St	1	B	71	64	7
A521	116 Hanover St	1	B	66	57	9
A522	111 Hanover St	1	B	72	62	10

Noise Barrier Analysis
Section A, Barrier A-35

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A523	109 Hanover St	1	B	72	61	11
A524	110 Hanover St	1	B	68	58	10
A525	128 Alabama Ave	1	B	63	54	9
A526	120 Alabama Ave	1	B	57	53	4
A527	114 Alabama Ave	1	B	58	54	4
A528	109 Alabama Ave	1	B	56	53	3
A529	104 Montana Ave	1	B	55	53	2
A530	99 Montana Ave	1	B	54	53	1
A547	129 Alabama Ave	1	B	63	53	10
A548	117 Alabama Ave	1	B	60	53	7
A549	113 Alabama Ave	1	B	58	53	5
A566	88 Hanover St	1	B	72	60	12
A567	82 Hanover St	1	B	72	59	13
A568	78 Hanover St	1	B	71	58	13
A569	72 Hanover St	1	B	70	57	13
A570	126 Montana Ave	1	B	62	54	8
A571	126 Montana Ave	1	B	67	56	11
A572	118 Montana Ave	1	B	63	56	7
A573	108 Montana Ave	1	B	53	53	0
A686	62 Hanover St	1	B	73	59	14
A687	121 Montana Ave	1	B	67	58	9
A688	119 Montana Ave	1	B	65	54	11
A689	115 Montana Ave	1	B	63	55	8
A690	111 Montana Ave	1	B	61	53	8
A691	109 Montana Ave	1	B	61	55	6
A692	103 Montana Ave	1	B	58	53	5
A705	60 Hanover St	1	B	72	59	13
A708	54 Hanover St	1	B	72	59	13
A709	21 Montana Cir	1	B	66	58	8
A710	16 Montana Cir	1	B	62	54	8
A711	12 Montana Cir	1	B	58	53	5
A712	17 Montana Cir	1	B	63	55	8
A713	15 Montana Cir	1	B	54	53	1
A731	50 Hanover St	1	B	71	59	12
A732	118 Pennsylvania Ave	1	B	63	55	8
A733	140 Pennsylvania Ave	1	B	70	57	13
A734	132 Pennsylvania Ave	1	B	68	56	12
A735	126 Pennsylvania Ave	1	B	65	57	8
A736	122 Pennsylvania Ave	1	B	63	56	7
A737	118 Pennsylvania Ave	1	B	64	56	8
A738	110 Pennsylvania Ave	1	B	55	53	2
A739	108 Pennsylvania Ave	1	B	53	53	0
A740	100 Pennsylvania Ave	1	B	53	53	0
A749	26 Hanover St	1	B	72	59	13
A750	24 Hanover St	1	B	73	59	14
A751	127 Pennsylvania Ave	1	B	63	56	7
A752	121 Pennsylvania Ave	1	B	61	55	6
A753	117 Pennsylvania Ave	1	B	59	54	5
A754	115 Pennsylvania Ave	1	B	59	54	5
A755	109 Pennsylvania Ave	1	B	59	55	4
A756	32 Richmond Ave	1	D	28	28	0
A763	22 Hanover St	1	B	73	58	15
A764	20 Hanover St	1	D	48	37	11
A765	29 Richmond Ave	1	B	53	53	0
A766.1	28 Richmond Ave	1	B	53	53	0
A767	23 Richmond Ave	1	B	53	53	0
A768	27 Richmond Ave	1	B	53	53	0
A769	8 Richmond Ave	1	B	53	53	0
A770	26 Richmond Ave	1	B	53	53	0
A771	15 Michigan Ave	1	B	53	53	0
A772	17 Michigan Ave	1	B	53	53	0
A773	19 Michigan Ave	1	B	53	53	0
A789	11 Michigan Ave	1	B	53	53	0

Noise Barrier Analysis
Section A, Barrier A-35

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A1034	121 Alabama Ave	1	B	63	55	8
A1035	96 Hanover St	1	B	70	58	12
A1036	116 A Alabama Ave	1	B	59	54	5
A1037	16 Clemson Ct	1	B	53	53	0
A1038	14 Clemson Ct	1	B	54	53	1
A1039	144 Hanover St	1	B	60	54	6
A1040	53 Kentucky Dr	1	B	73	67	6
A1041	51 Kentucky Dr	1	B	73	62	11
A1042	49 Kentucky Dr	1	B	74	67	7
A1043	47 Kentucky Dr	1	B	74	66	8
A1044	45 Kentucky Dr	1	B	73	65	8

Impact = 
 5 to 6 dB(A) Reduction = 
 ≥ 7 dB(A) Reduction = 

NWA-35 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit not exceeding the Allowable Area/Benefit.

NWA-35 is likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWA-35 **COUNTY(IES)** - Buncombe

IMPACTS - 40 **# BENEFITS** - 78 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 808 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? YES

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? YES




PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section A, Barrier A-7

Section A, Barrier A-7 Acoustical Performance Summary	
Impacts: 9	Benefited Receptors @ ≥ 7 dB(A) NLR: 3
Impacted Receptors Benefited: 9	Total Benefits: 14
Non-Impacted Receptors Benefited: 4	

Section A, Barrier A-7 Parameters	
Length (ft): 850	Area / Benefit (ft ²): 983
Average Height (ft): 16	Allowable Area / Benefit (ft ²): 1500
Area (ft ²): 13600	

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
A846	441 Haywood Rd	1	D	30	30	0
A846.1	441 Haywood Rd	0.46	C	75	61	14
A846.2	441 Haywood Rd	0.46	C	60	56	4
A846.3	441 Haywood Rd	0.46	C	58	55	3
A846.4	442 Haywood Rd	0.46	C	69	64	5
A846.5	443 Haywood Rd	0.46	C	62	57	5
A846.6	444 Haywood Rd	0.46	C	66	59	7
A866	29 Argyle Ln	1	B	55	52	3
A867	6 Westwood Pl	1	B	51	49	2
A868	12 Westwood Pl	1	B	51	51	0
A873	37 Argyle Ln	1	B	58	55	3
A874	41 Argyle Ln	1	B	60	56	4
A875	45 Argyle Ln	1	B	63	57	6
A876	47 Argyle Ln	1	B	61	55	6
A877	57 Argyle Ln	1	B	64	57	7
A971	73 Argyle Ln	1	B	67	61	6
A972	70 Argyle Ln	1	B	75	64	11
A973	69 Argyle Ln	1	B	67	62	5
A974	77 Argyle Ln	1	B	69	64	5
A975	81 Argyle Ln	1	B	71	66	5
A976	83 Argyle Ln	1	B	72	67	5
A977	89 Argyle Ln	1	B	73	68	5
A978	87 Argyle Ln	1	B	74	68	6
A1029	51 Argyle Ln	1	B	64	58	6
A1032	11 Domino Ln	1	B	49	48	1

Impact = 
 5 to 6 dB(A) Reduction = 
 ≥ 7 dB(A) Reduction = 

NWA-7 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit not exceeding the Allowable Area/Benefit.
NWA-7 is likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWA-7 **COUNTY(IES)** - Buncombe

IMPACTS - 9 **# BENEFITS** - 14 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 983 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? YES

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? YES




PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-1

Section B, Barrier B-1 Acoustical Performance Summary						
Impacts: 28			Benefited Receptors @ ≥ 7 dB(A) NLR: 28			
Impacted Receptors Benefited: 24			Total Benefits: 43			
Non-Impacted Receptors Benefited: 19						
Section B, Barrier B-1 Parameters						
Length (ft): 2800			Area / Benefit (ft ²): 1428			
Average Height (ft): 22			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 61400						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B011/ A940	102 Burton St	1	B	66	56	10
B014/A968	114 Burton St	1	B	66	55	11
B015/ A969	118 Burton St	1	B	66	55	11
B39	125 Burton St	1	B	70	58	12
B41.1	134 Burton St	1	C	53	50	3
B41.2	134 Burton St	1	C	57	56	1
B41.3	134 Burton St	1	C	50	48	2
B59	158 Burton St	1	B	49	48	1
B63	145 Burton St	1	B	61	53	8
B64	149 Burton St	1	B	58	51	7
B65	153 Burton St	1	B	56	50	6
B66	20 Buffalo St	1	B	52	49	3
B67	22 Buffalo St	1	B	51	49	2
B68	13 Buffalo St	1	B	53	50	3
B69	144 Fayetteville St	1	B	69	62	7
B70	144 Fayetteville St	1	B	72	64	8
B71	146 Fayetteville St	1	B	67	59	8
B72	152 Fayetteville St	1	B	68	61	7
B73	156 Fayetteville St	1	B	67	60	7
B74	160 Fayetteville St	1	B	66	60	6
B124	163 Fayetteville St	1	B	77	62	15
B125	171 Fayetteville St	1	B	74	65	9
B126	173 Fayetteville St	1	B	74	65	9
B127	170 Fayetteville St	1	D	37	31	6
B128	168 Fayetteville St	1	B	61	56	5
B129	170 Fayetteville St	1	D	26	23	3
B130	52 Buffalo St	1	B	52	49	3
B131	25 Boyd Ave	1	B	52	51	1
B153	58 Buffalo St	1	B	50	48	2
B154	60 Buffalo St	1	B	49	48	1
B158	59 Buffalo St	1	B	49	47	2
B159	186 Fayetteville St	1	B	60	55	5
B160	187 Fayetteville St	1	B	72	64	8
B160.1	185 Fayetteville St	1	B	73	64	9
B160.2	179 Fayetteville St	1	B	73	63	10
B161	198 Fayetteville St	1	B	62	56	6
B162	199 Fayetteville St	1	B	71	64	7
B164	201 Fayetteville St	1	B	70	64	6
B165	210 Fayetteville St	1	B	54	50	4
B166	205 Fayetteville St	1	B	70	65	5
B229	213 Edgar St	1	B	67	60	7
B230	201 Edgar St	1	B	71	66	5
B231	211 Fayetteville St	1	B	65	58	7
B232	215 Fayetteville St	1	B	65	61	4
B233	217 Fayetteville St	1	B	63	63	0
B234	223 Fayetteville St	1	B	58	57	1
B235	220 Fayetteville St	1	B	51	49	2
B236	218 Fayetteville St	1	B	51	49	2
B237	216 Fayetteville St	1	B	52	51	1
B238	214 Fayetteville St	1	B	51	50	1

Noise Barrier Analysis
Section B, Barrier B-1

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B239	212 Fayetteville St	1	B	56	52	4
B240	67 Buffalo St	1	B	50	49	1
B241	69 Buffalo St	1	B	51	50	1
B242	75 Buffalo St	1	B	47	47	0
B243	77 Buffalo St	1	B	52	52	0
B244	102 Buffalo St	1	B	53	53	0
B252	82 Buffalo St	1	B	54	54	0
B253	226 Fayetteville St	1	B	52	50	2
B254	225 Fayetteville St	1	B	61	60	1
B255	235 Fayetteville St	1	B	59	59	0
B256	27 Saratoga St	1	B	58	59	-1
B257	39 Saratoga St	1	B	65	65	0
B258	38 Saratoga St	1	B	66	64	2
B259	111 Edgar St	1	B	69	69	0
B260	101 Edgar St	1	B	71	70	1
B1047	35 Saratoga St	1	B	67	67	0
A801	531 Haywood Rd	1	D	25	24	1
A802	521 Haywood Rd	1	E	60	58	2
A813	17 Baker Ave	1	B	49	47	2
A818	15 Burton St	1	B	72	64	8
A821	22 Burton St	1	B	63	58	5
A822	24 Burton St	1	B	62	56	6
A823	30 Burton St	1	B	61	55	6
A824	27 Burton St	1	B	74	56	18
A829	27 Baker Ave	1	B	48	47	1
A845	531 Haywood Rd	1	C	59	54	5
A913	88 Baker Ave	1	B	65	56	9
A931	85 Baker Ave	1	B	56	50	6
A932	87 Baker Ave	1	B	58	53	5
A933	72 Burton St	1	B	68	56	12
A935	74 Burton St	1	B	65	55	10
A938	94 Bryant St	1	B	51	49	2
A939	100 Burton St	1	B	63	56	7
A1026	87 Baker Ave	1	B	60	53	7
A1028	110 Burton St	1	B	64	55	9

Impact = 
5 to 6 dB(A) Reduction = 
≥ 7 dB(A) Reduction = 

NWB-1 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit not exceeding the Allowable Area/Benefit.

NWB-1 is likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-1 **COUNTY(IES)** - Buncombe

IMPACTS - 28 **# BENEFITS** - 43 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 1428 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? YES

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? YES




PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-2

Section B, Barrier B-2 Acoustical Performance Summary						
Impacts: 17			Benefited Receptors @ ≥ 7 dB(A) NLR: 14			
Impacted Receptors Benefited: 12			Total Benefits: 31			
Non-Impacted Receptors Benefited: 19						
Section B, Barrier B-2 Parameters						
Length (ft): 2450			Area / Benefit (ft ²): 1755			
Average Height (ft): 22			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 54400						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B33	37 Wilmington St	1	B	67	65	2
B34	41 Wilmington St	1	B	67	64	3
B35	43 Wilmington St	1	B	69	63	6
B36	45 Wilmington St	1	B	70	62	8
B37	47 Wilmington St	1	B	70	61	9
B75	42 Dellwood St	1	B	73	64	9
B76	39 Dellwood St	1	B	59	56	3
B77	40 Dellwood St	1	B	73	65	8
B78	38 Dellwood St	1	B	72	65	7
B79	35 Dellwood St	1	B	60	58	2
B80	32 Dellwood St	1	B	64	61	3
B81	24 Dellwood St	1	B	64	60	4
B82	68 Vandalia Ave	1	B	64	62	2
B84	62 Vandalia Ave	1	B	64	63	1
B85	34 Dellwood St	1	B	69	63	6
B86	60 Vandalia Ave	1	B	61	60	1
B87	54 Vandalia Ave	1	B	62	61	1
B88	62 Branning St	1	B	50	48	2
B89	63 Branning St	1	B	51	47	4
B114	81 Vandalia Ave	1	B	57	56	1
B115	77 Vandalia Ave	1	B	57	55	2
B117	72 Vandalia Ave	1	B	63	61	2
B118	76 Vandalia Ave	1	B	60	59	1
B119	84 Vandalia Ave	1	B	65	63	2
B120	55 Dellwood St	1	B	69	65	4
B121	59 Dellwood St	1	B	71	66	5
B122	65 Dellwood St	1	B	72	67	5
B132	98 Vandalia Ave	1	B	63	61	2
B133	100 Vandalia Ave	1	B	63	61	2
B168	92 Vandalia Ave	1	B	63	61	2
B169	96 Vandalia Ave	1	B	61	59	2
B174	111 Vandalia Ave	1	B	62	55	7
B175	99 Vandalia Ave	1	B	59	53	6
B176	97 Vandalia Ave	1	B	56	52	4
B177	95 Vandalia Ave	1	B	56	52	4
B178	87 Vandalia Ave	1	B	54	52	2
B179	85 Vandalia Ave	1	B	54	52	2
B180	72 Branning St	1	B	58	51	7
B181	207 Branning St	1	B	51	47	4
B182	66 Branning St	1	B	50	47	3
B183	65 Branning St	1	B	52	48	4
B185	2 Worley Pl	1	B	56	51	5
B186	3 Worley Pl	1	B	59	53	6
B188	25 Worley Pl	1	B	60	53	7
B189	11 Ruslans Dr	1	B	54	49	5
B190	160 Richland St	1	B	57	53	4
B220	119 Richland St	1	B	57	53	4
B222	19 Annie St	1	B	57	52	5
B223	17 Annie St	1	B	58	53	5
B224	121 Richland St	1	B	60	55	5
B225	172 Richland St	1	B	58	52	6
B226	176 Richland St	1	B	58	53	5
B227	178 Richland St	1	B	58	53	5
B228	1 Worley Pl	1	B	64	59	5

Noise Barrier Analysis
Section B, Barrier B-2

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B263	200 Richland St	1	B	54	53	1
B264	194 Richland St	1	B	55	52	3
B265	180 Richland St	1	B	62	53	9
B266	127 Richland St	1	B	60	53	7
B267	18 Annie St	1	B	57	52	5
B268	116 Hazel Mill Rd	1	B	66	58	8
B269	114 Hazel Mill Rd	1	B	67	62	5
B270	100 Hazel Mill Rd	1	B	64	64	0
B271	294 Westwood Pl	1	B	64	64	0
B274	280 Westwood Pl	1	B	60	60	0
B276	281 Westwood Pl	1	B	56	56	0
B277	279 Westwood Pl	1	B	52	52	0
B296	293 Westwood Pl	1	B	57	57	0
B1031	49 Wilmington St	1	B	69	60	9
B1032	39 Wilmington St	1	B	67	64	3
B1033	13 Ruslan Dr	1	B	60	52	8
B1034	11 Annie St	1	B	60	58	2
B1035	9 Annie St	1	B	67	65	2
B1036	124 Hazel Mill Rd	1	B	63	55	8

Impact = 
5 to 6 dB(A) Reduction = 
≥ 7 dB(A) Reduction = 

**NWB-2 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.
NWB-2 is NOT likely to be incorporated into the project.**

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-2 **COUNTY(IES)** - Buncombe

IMPACTS - 17 **# BENEFITS** - 31 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 1755 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-3.1




Section B, Barrier B-3.1 Acoustical Performance Summary						
Impacts: 29.14			Benefited Receptors @ ≥ 7 dB(A) NLR: 3.24			
Impacted Receptors Benefited: 6.14			Total Benefits: 6.86			
Non-Impacted Receptors Benefited: 0.72						
Section B, Barrier B-3.1 Parameters						
Length (ft): 1000			Area / Benefit (ft ²): 3499			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 2500			
Area (ft ²): 24000						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B500.1	1 Resort Dr	0.25	E	62	63	-1
B500.2	1 Resort Dr	0.25	E	64	63	1
B500.3	1 Resort Dr	0.25	E	62	63	-1
B500.4	1 Resort Dr	0.25	E	64	63	1
B500.5	1 Resort Dr	0.25	E	62	63	-1
B500.6	1 Resort Dr	0.25	E	64	63	1
B500.7	1 Resort Dr	0.25	E	63	63	0
B500.8	1 Resort Dr	0.25	E	64	64	0
B500.9	1 Resort Dr	0.25	E	63	63	0
B500.10	1 Resort Dr	0.25	E	64	64	0
B500.11	1 Resort Dr	0.25	E	63	63	0
B500.12	1 Resort Dr	0.25	E	64	64	0
B500.13	1 Resort Dr	0.25	E	63	63	0
B500.14	1 Resort Dr	0.25	E	64	64	0
B500.15	1 Resort Dr	0.25	E	63	63	0
B500.16	1 Resort Dr	0.25	E	64	64	0
B500.17	1 Resort Dr	0.25	E	63	63	0
B500.18	1 Resort Dr	0.25	E	64	64	0
B500.19	1 Resort Dr	0.25	E	63	63	0
B500.20	1 Resort Dr	0.25	E	64	64	0
B500.21	1 Resort Dr	0.25	E	63	64	-1
B500.22	1 Resort Dr	0.25	E	65	64	1
B500.23	1 Resort Dr	0.25	E	63	64	-1
B500.24	1 Resort Dr	0.25	E	65	64	1
B500.25	1 Resort Dr	0.25	E	63	64	-1
B500.26	1 Resort Dr	0.25	E	65	65	0
B500.27	1 Resort Dr	0.25	E	64	64	0
B500.28	1 Resort Dr	0.25	E	65	65	0
B500.29	1 Resort Dr	0.25	E	64	64	0
B500.30	1 Resort Dr	0.25	E	65	65	0
B501.1	1 Resort Dr	0.25	E	66	67	-1
B501.2	1 Resort Dr	0.25	E	67	67	0
B501.3	1 Resort Dr	0.25	E	66	67	-1
B501.4	1 Resort Dr	0.25	E	67	67	0
B501.5	1 Resort Dr	0.25	E	66	67	-1
B501.6	1 Resort Dr	0.25	E	68	67	1
B501.7	1 Resort Dr	0.25	E	66	67	-1
B501.8	1 Resort Dr	0.25	E	68	67	1
B501.9	1 Resort Dr	0.25	E	67	67	0
B501.10	1 Resort Dr	0.25	E	68	68	0
B501.11	1 Resort Dr	0.25	E	67	67	0
B501.12	1 Resort Dr	0.25	E	68	68	0
B501.13	1 Resort Dr	0.25	E	67	67	0
B501.14	1 Resort Dr	0.25	E	68	68	0
B501.15	1 Resort Dr	0.25	E	67	67	0
B501.16	1 Resort Dr	0.25	E	68	68	0
B501.17	1 Resort Dr	0.25	E	67	67	0
B501.18	1 Resort Dr	0.25	E	68	68	0
B501.19	1 Resort Dr	0.25	E	67	67	0
B501.20	1 Resort Dr	0.25	E	68	68	0

Noise Barrier Analysis
Section B, Barrier B-3.1

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B501.21	1 Resort Dr	0.25	E	67	67	0
B501.22	1 Resort Dr	0.25	E	68	68	0
B501.23	1 Resort Dr	0.25	E	67	67	0
B501.24	1 Resort Dr	0.25	E	68	68	0
B501.25	1 Resort Dr	0.25	E	67	67	0
B501.26	1 Resort Dr	0.25	E	68	68	0
B501.27	1 Resort Dr	0.25	E	67	68	-1
B501.28	1 Resort Dr	0.25	E	68	68	0
B501.29	1 Resort Dr	0.25	E	67	68	-1
B501.30	1 Resort Dr	0.25	E	68	68	0
B501.31	1 Resort Dr	0.25	E	67	68	-1
B501.32	1 Resort Dr	0.25	E	69	68	1
B501.33	1 Resort Dr	0.25	E	68	68	0
B501.34	1 Resort Dr	0.25	E	69	69	0
B501.35	1 Resort Dr	0.25	E	68	68	0
B501.36	1 Resort Dr	0.25	E	69	69	0
B553	1 Resort Dr	2	E	68	67	1
B553.1	1 Resort Dr	1	E	55	55	0
B554.1	1 Resort Dr	0.25	E	58	52	6
B554.2	1 Resort Dr	0.25	E	60	55	5
B554.3	1 Resort Dr	0.25	E	61	58	3
B554.4	1 Resort Dr	0.25	E	61	60	1
B554.5	1 Resort Dr	0.25	E	59	52	7
B554.6	1 Resort Dr	0.25	E	61	55	6
B554.7	1 Resort Dr	0.25	E	61	59	2
B554.8	1 Resort Dr	0.25	E	62	61	1
B554.9	1 Resort Dr	0.25	E	59	53	6
B554.10	1 Resort Dr	0.25	E	61	56	5
B554.11	1 Resort Dr	0.25	E	62	59	3
B554.12	1 Resort Dr	0.25	E	62	61	1
B554.13	1 Resort Dr	0.25	E	60	53	7
B554.14	1 Resort Dr	0.25	E	61	56	5
B554.15	1 Resort Dr	0.25	E	62	59	3
B554.16	1 Resort Dr	0.25	E	63	61	2
B554.17	1 Resort Dr	0.25	E	60	54	6
B554.18	1 Resort Dr	0.25	E	62	57	5
B554.19	1 Resort Dr	0.25	E	62	60	2
B554.20	1 Resort Dr	0.25	E	63	62	1
B554.21	1 Resort Dr	0.25	E	61	56	5
B554.22	1 Resort Dr	0.25	E	62	58	4
B554.23	1 Resort Dr	0.25	E	63	61	2
B554.24	1 Resort Dr	0.25	E	64	62	2
B554.25	1 Resort Dr	0.25	E	62	57	5
B554.26	1 Resort Dr	0.25	E	63	59	4
B554.27	1 Resort Dr	0.25	E	64	62	2
B554.28	1 Resort Dr	0.25	E	64	63	1
B554.29	1 Resort Dr	0.25	E	63	60	3
B554.30	1 Resort Dr	0.25	E	64	62	2
B554.31	1 Resort Dr	0.25	E	65	64	1
B554.32	1 Resort Dr	0.25	E	66	65	1
B554.33	1 Resort Dr	0.25	E	64	61	3
B554.34	1 Resort Dr	0.25	E	65	63	2
B554.35	1 Resort Dr	0.25	E	65	64	1
B554.36	1 Resort Dr	0.25	E	66	65	1
B554.37	1 Resort Dr	0.25	E	65	62	3
B554.38	1 Resort Dr	0.25	E	66	64	2
B554.39	1 Resort Dr	0.25	E	66	65	1
B554.40	1 Resort Dr	0.25	E	67	66	1
B554.41	1 Resort Dr	0.25	E	65	63	2

Noise Barrier Analysis
Section B, Barrier B-3.1

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B554.42	1 Resort Dr	0.25	E	66	64	2
B554.43	1 Resort Dr	0.25	E	67	66	1
B554.44	1 Resort Dr	0.25	E	67	66	1
B554.45	1 Resort Dr	0.25	E	66	63	3
B554.46	1 Resort Dr	0.25	E	67	65	2
B554.47	1 Resort Dr	0.25	E	67	66	1
B554.48	1 Resort Dr	0.25	E	68	67	1
B554.49	1 Resort Dr	0.25	E	65	62	3
B554.50	1 Resort Dr	0.25	E	67	64	3
B554.51	1 Resort Dr	0.25	E	67	65	2
B554.52	1 Resort Dr	0.25	E	67	66	1
B554.53	1 Resort Dr	0.25	E	65	62	3
B554.54	1 Resort Dr	0.25	E	66	64	2
B554.55	1 Resort Dr	0.25	E	67	65	2
B554.56	1 Resort Dr	0.25	E	67	66	1
B599	328 Emma Rd	1	B	61	54	7
B600	323 Emma Rd	1	B	62	61	1
B601	245 Emma Rd	1	B	70	65	5
B632	15 Boone St	1	B	59	59	0
B.L1	1 Resort Dr	0.06	C	55	49	6
B.L2	1 Resort Dr	0.06	C	56	49	7
B.L3	1 Resort Dr	0.06	C	57	49	8
B.L4	1 Resort Dr	0.06	C	59	51	8
B.L5	1 Resort Dr	0.06	C	60	51	9
B.L6	1 Resort Dr	0.06	C	61	52	9
B.L7	1 Resort Dr	0.06	C	62	53	9
B.L8	1 Resort Dr	0.06	C	64	54	10
B.L9	1 Resort Dr	0.06	C	65	52	13
B.L10	1 Resort Dr	0.06	C	55	48	7
B.L11	1 Resort Dr	0.06	C	56	49	7
B.L12	1 Resort Dr	0.06	C	57	49	8
B.L13	1 Resort Dr	0.06	C	59	51	8
B.L14	1 Resort Dr	0.06	C	60	51	9
B.L15	1 Resort Dr	0.06	C	61	52	9
B.L16	1 Resort Dr	0.06	C	62	52	10
B.L17	1 Resort Dr	0.06	C	63	51	12
B.L18	1 Resort Dr	0.06	C	63	48	15
B.L19	1 Resort Dr	0.06	C	55	48	7
B.L20	1 Resort Dr	0.06	C	56	49	7
B.L21	1 Resort Dr	0.06	C	57	50	7
B.L22	1 Resort Dr	0.06	C	59	51	8
B.L23	1 Resort Dr	0.06	C	60	51	9
B.L24	1 Resort Dr	0.06	C	61	52	9
B.L25	1 Resort Dr	0.06	C	62	51	11
B.L26	1 Resort Dr	0.06	C	63	49	14
B.L27	1 Resort Dr	0.06	C	55	48	7
B.L28	1 Resort Dr	0.06	C	56	49	7
B.L29	1 Resort Dr	0.06	C	57	51	6
B.L30	1 Resort Dr	0.06	C	59	51	8
B.L31	1 Resort Dr	0.06	C	59	52	7

Impact = 
5 to 6 dB(A) Reduction = 
≥ 7 dB(A) Reduction = 

NWB-3.1 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.
NWB-3.1 is NOT likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-3.1 **COUNTY(IES)** - Buncombe

IMPACTS - 29.14 **# BENEFITS** - 6.86 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 3499 square feet less than the maximum allowable quantity per benefited receptor of 2500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-3.2




Section B, Barrier B-3.2 Acoustical Performance Summary						
Impacts: 25			Benefited Receptors @ ≥ 7 dB(A) NLR: 1.25			
Impacted Receptors Benefited: 12			Total Benefits: 12			
Non-Impacted Receptors Benefited: 0						
Section B, Barrier B-3.2 Parameters						
Length (ft): 2000			Area / Benefit (ft ²): 4000			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 2500			
Area (ft ²): 48000						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B500.1	1 Resort Dr	0.25	E	62	60	2
B500.2	1 Resort Dr	0.25	E	64	61	3
B500.3	1 Resort Dr	0.25	E	62	60	2
B500.4	1 Resort Dr	0.25	E	64	61	3
B500.5	1 Resort Dr	0.25	E	62	60	2
B500.6	1 Resort Dr	0.25	E	64	61	3
B500.7	1 Resort Dr	0.25	E	63	60	3
B500.8	1 Resort Dr	0.25	E	64	61	3
B500.9	1 Resort Dr	0.25	E	63	61	2
B500.10	1 Resort Dr	0.25	E	64	61	3
B500.11	1 Resort Dr	0.25	E	63	61	2
B500.12	1 Resort Dr	0.25	E	64	61	3
B500.13	1 Resort Dr	0.25	E	63	61	2
B500.14	1 Resort Dr	0.25	E	64	62	2
B500.15	1 Resort Dr	0.25	E	63	61	2
B500.16	1 Resort Dr	0.25	E	64	62	2
B500.17	1 Resort Dr	0.25	E	63	61	2
B500.18	1 Resort Dr	0.25	E	64	62	2
B500.19	1 Resort Dr	0.25	E	63	61	2
B500.20	1 Resort Dr	0.25	E	64	62	2
B500.21	1 Resort Dr	0.25	E	63	61	2
B500.22	1 Resort Dr	0.25	E	65	62	3
B500.23	1 Resort Dr	0.25	E	63	61	2
B500.24	1 Resort Dr	0.25	E	65	62	3
B500.25	1 Resort Dr	0.25	E	63	61	2
B500.26	1 Resort Dr	0.25	E	65	62	3
B500.27	1 Resort Dr	0.25	E	64	61	3
B500.28	1 Resort Dr	0.25	E	65	62	3
B500.29	1 Resort Dr	0.25	E	64	61	3
B500.30	1 Resort Dr	0.25	E	65	62	3
B501.1	1 Resort Dr	0.25	E	66	62	4
B501.2	1 Resort Dr	0.25	E	67	64	3
B501.3	1 Resort Dr	0.25	E	66	62	4
B501.4	1 Resort Dr	0.25	E	67	64	3
B501.5	1 Resort Dr	0.25	E	66	62	4
B501.6	1 Resort Dr	0.25	E	68	64	4
B501.7	1 Resort Dr	0.25	E	66	62	4
B501.8	1 Resort Dr	0.25	E	68	64	4
B501.9	1 Resort Dr	0.25	E	67	62	5
B501.10	1 Resort Dr	0.25	E	68	64	4
B501.11	1 Resort Dr	0.25	E	67	62	5
B501.12	1 Resort Dr	0.25	E	68	64	4
B501.13	1 Resort Dr	0.25	E	67	62	5
B501.14	1 Resort Dr	0.25	E	68	64	4
B501.15	1 Resort Dr	0.25	E	67	62	5
B501.16	1 Resort Dr	0.25	E	68	64	4
B501.17	1 Resort Dr	0.25	E	67	62	5
B501.18	1 Resort Dr	0.25	E	68	64	4
B501.19	1 Resort Dr	0.25	E	67	62	5
B501.20	1 Resort Dr	0.25	E	68	64	4

Noise Barrier Analysis
Section B, Barrier B-3.2

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B501.21	1 Resort Dr	0.25	E	67	62	5
B501.22	1 Resort Dr	0.25	E	68	64	4
B501.23	1 Resort Dr	0.25	E	67	62	5
B501.24	1 Resort Dr	0.25	E	68	64	4
B501.25	1 Resort Dr	0.25	E	67	62	5
B501.26	1 Resort Dr	0.25	E	68	65	3
B501.27	1 Resort Dr	0.25	E	67	62	5
B501.28	1 Resort Dr	0.25	E	68	65	3
B501.29	1 Resort Dr	0.25	E	67	63	4
B501.30	1 Resort Dr	0.25	E	68	65	3
B501.31	1 Resort Dr	0.25	E	67	63	4
B501.32	1 Resort Dr	0.25	E	69	65	4
B501.33	1 Resort Dr	0.25	E	68	63	5
B501.34	1 Resort Dr	0.25	E	69	65	4
B501.35	1 Resort Dr	0.25	E	68	63	5
B501.36	1 Resort Dr	0.25	E	69	65	4
B553	1 Resort Dr	2	E	68	63	5
B553.1	1 Resort Dr	1	E	55	51	4
B554.1	1 Resort Dr	0.25	E	58	52	6
B554.2	1 Resort Dr	0.25	E	60	55	5
B554.3	1 Resort Dr	0.25	E	61	56	5
B554.4	1 Resort Dr	0.25	E	61	58	3
B554.5	1 Resort Dr	0.25	E	59	53	6
B554.6	1 Resort Dr	0.25	E	61	56	5
B554.7	1 Resort Dr	0.25	E	61	57	4
B554.8	1 Resort Dr	0.25	E	62	59	3
B554.9	1 Resort Dr	0.25	E	59	53	6
B554.10	1 Resort Dr	0.25	E	61	56	5
B554.11	1 Resort Dr	0.25	E	62	57	5
B554.12	1 Resort Dr	0.25	E	62	59	3
B554.13	1 Resort Dr	0.25	E	60	53	7
B554.14	1 Resort Dr	0.25	E	61	56	5
B554.15	1 Resort Dr	0.25	E	62	58	4
B554.16	1 Resort Dr	0.25	E	63	59	4
B554.17	1 Resort Dr	0.25	E	60	54	6
B554.18	1 Resort Dr	0.25	E	62	57	5
B554.19	1 Resort Dr	0.25	E	62	58	4
B554.20	1 Resort Dr	0.25	E	63	60	3
B554.21	1 Resort Dr	0.25	E	61	54	7
B554.22	1 Resort Dr	0.25	E	62	57	5
B554.23	1 Resort Dr	0.25	E	63	59	4
B554.24	1 Resort Dr	0.25	E	64	60	4
B554.25	1 Resort Dr	0.25	E	62	55	7
B554.26	1 Resort Dr	0.25	E	63	58	5
B554.27	1 Resort Dr	0.25	E	64	59	5
B554.28	1 Resort Dr	0.25	E	64	61	3
B554.29	1 Resort Dr	0.25	E	63	56	7
B554.30	1 Resort Dr	0.25	E	64	59	5
B554.31	1 Resort Dr	0.25	E	65	61	4
B554.32	1 Resort Dr	0.25	E	66	62	4
B554.33	1 Resort Dr	0.25	E	64	57	7
B554.34	1 Resort Dr	0.25	E	65	60	5
B554.35	1 Resort Dr	0.25	E	65	61	4
B554.36	1 Resort Dr	0.25	E	66	62	4
B554.37	1 Resort Dr	0.25	E	65	59	6
B554.38	1 Resort Dr	0.25	E	66	61	5
B554.39	1 Resort Dr	0.25	E	66	62	4
B554.40	1 Resort Dr	0.25	E	67	63	4
B554.41	1 Resort Dr	0.25	E	65	60	5

Noise Barrier Analysis
Section B, Barrier B-3.2

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B554.42	1 Resort Dr	0.25	E	66	62	4
B554.43	1 Resort Dr	0.25	E	67	63	4
B554.44	1 Resort Dr	0.25	E	67	64	3
B554.45	1 Resort Dr	0.25	E	66	60	6
B554.46	1 Resort Dr	0.25	E	67	63	4
B554.47	1 Resort Dr	0.25	E	67	64	3
B554.48	1 Resort Dr	0.25	E	68	64	4
B554.49	1 Resort Dr	0.25	E	65	60	5
B554.50	1 Resort Dr	0.25	E	67	62	5
B554.51	1 Resort Dr	0.25	E	67	63	4
B554.52	1 Resort Dr	0.25	E	67	64	3
B554.53	1 Resort Dr	0.25	E	65	60	5
B554.54	1 Resort Dr	0.25	E	66	62	4
B554.55	1 Resort Dr	0.25	E	67	63	4
B554.56	1 Resort Dr	0.25	E	67	64	3
B.L1	1 Resort Dr	0.06	C	55	52	3
B.L2	1 Resort Dr	0.06	C	56	53	3
B.L3	1 Resort Dr	0.06	C	57	54	3
B.L4	1 Resort Dr	0.06	C	59	55	4
B.L5	1 Resort Dr	0.06	C	60	57	3
B.L6	1 Resort Dr	0.06	C	61	58	3
B.L7	1 Resort Dr	0.06	C	62	59	3
B.L8	1 Resort Dr	0.06	C	64	59	5
B.L9	1 Resort Dr	0.06	C	65	60	5
B.L10	1 Resort Dr	0.06	C	55	52	3
B.L11	1 Resort Dr	0.06	C	56	52	4
B.L12	1 Resort Dr	0.06	C	57	53	4
B.L13	1 Resort Dr	0.06	C	59	55	4
B.L14	1 Resort Dr	0.06	C	60	56	4
B.L15	1 Resort Dr	0.06	C	61	57	4
B.L16	1 Resort Dr	0.06	C	62	58	4
B.L17	1 Resort Dr	0.06	C	63	59	4
B.L18	1 Resort Dr	0.06	C	63	56	7
B.L19	1 Resort Dr	0.06	C	55	51	4
B.L20	1 Resort Dr	0.06	C	56	52	4
B.L21	1 Resort Dr	0.06	C	57	54	3
B.L22	1 Resort Dr	0.06	C	59	55	4
B.L23	1 Resort Dr	0.06	C	60	56	4
B.L24	1 Resort Dr	0.06	C	61	57	4
B.L25	1 Resort Dr	0.06	C	62	57	5
B.L26	1 Resort Dr	0.06	C	63	58	5
B.L27	1 Resort Dr	0.06	C	55	52	3
B.L28	1 Resort Dr	0.06	C	56	53	3
B.L29	1 Resort Dr	0.06	C	57	54	3
B.L30	1 Resort Dr	0.06	C	59	55	4
B.L31	1 Resort Dr	0.06	C	59	56	3

Impact = 
5 to 6 dB(A) Reduction = 
≥ 7 dB(A) Reduction = 

NWB-3.2 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.
NWB-3.2 is NOT likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-3.2 **COUNTY(IES)** - Buncombe

IMPACTS - 25 **# BENEFITS** - 12 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 4000 square feet less than the maximum allowable quantity per benefited receptor of 2500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-4

Section B, Barrier B-4 Acoustical Performance Summary						
Impacts: 6			Benefited Receptors @ ≥ 7 dB(A) NLR: 1			
Impacted Receptors Benefited: 5			Total Benefits: 5			
Non-Impacted Receptors Benefited: 0						
Section B, Barrier B-4 Parameters						
Length (ft): 1100			Area / Benefit (ft ²): 4400			
Average Height (ft): 20			Allowable Area / Benefit (ft ²): 2500			
Area (ft ²): 22000						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B504	500 Westwood Pl	1	B	66	60	6
B505	502 Westwood Pl	1	B	66	59	7
B547	120 Emma Rd	1	B	59	58	1
B548	516 Westwood Pl	1	B	67	62	5
B549	517 Westwood Pl	1	B	65	61	4
B550	523 Westwood Pl	1	B	67	61	6
B555	525 Westwood Pl	1	B	67	61	6
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWB-4 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWB-4 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-4 **COUNTY(IES)** - Buncombe

IMPACTS - 6 **# BENEFITS** - 5 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 4400 square feet less than the maximum allowable quantity per benefited receptor of 2500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-5

Section B, Barrier B-5 Acoustical Performance Summary						
Impacts: 7			Benefited Receptors @ ≥ 7 dB(A) NLR: 3			
Impacted Receptors Benefited: 7			Total Benefits: 13			
Non-Impacted Receptors Benefited: 6						
Section B, Barrier B-5 Parameters						
Length (ft): 350			Area / Benefit (ft ²): 431			
Average Height (ft): 16			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 5600						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B465.1	20 A Atkinson St	1	B	61	61	0
B465.2	20 B Atkinson St	1	B	58	58	0
B465.3	20 C Atkinson St	1	B	55	55	0
B465.4	20 D Atkinson St	1	B	54	54	0
B465.5	20 E Atkinson St	1	B	53	53	0
B465.6	20 F Atkinson St	1	B	53	53	0
B466.1	19 A Atkinson St	1	B	51	51	0
B466.2	19 B Atkinson St	1	B	49	49	0
B466.3	19 C Atkinson St	1	B	50	50	0
B466.4	19 D Atkinson St	1	B	52	52	0
B466.5	19 E Atkinson St	1	B	55	55	0
B466.6	19 F Atkinson St	1	B	61	61	0
B467.1	18 A Atkinson St	1	B	62	62	0
B467.2	18 B Atkinson St	1	B	59	59	0
B467.3	18 C Atkinson St	1	B	55	55	0
B467.4	18 D Atkinson St	1	B	53	53	0
B467.5	18 E Atkinson St	1	B	52	52	0
B467.6	18 F Atkinson St	1	B	51	51	0
B468.1	17 A Atkinson St	1	B	53	53	0
B468.2	17 B Atkinson St	1	B	54	53	1
B468.3	17 C Atkinson St	1	B	54	54	0
B468.4	17 D Atkinson St	1	B	56	56	0
B468.5	17 E Atkinson St	1	B	59	59	0
B468.6	17 F Atkinson St	1	B	62	62	0
B469.1	16 A Atkinson St	1	B	62	62	0
B469.2	16 B Atkinson St	1	B	59	59	0
B469.3	16 C Atkinson St	1	B	57	57	0
B469.4	16 D Atkinson St	1	B	55	55	0
B469.5	16 E Atkinson St	1	B	53	53	0
B469.6	16 F Atkinson St	1	B	57	57	0
B470.1	15 A Atkinson St	1	B	64	64	0
B470.2	15 B Atkinson St	1	B	64	64	0
B470.3	15 C Atkinson St	1	B	64	64	0
B470.4	15 D Atkinson St	1	B	64	64	0
B470.5	15 E Atkinson St	1	B	65	65	0
B470.6	15 F Atkinson St	1	B	65	65	0
B470.7	15 G Atkinson St	1	B	65	65	0
B470.8	15 H Atkinson St	1	B	65	65	0
B471.1	22 A Atkinson St	1	B	54	54	0
B471.2	22 B Atkinson St	1	B	52	52	0
B471.3	22 C Atkinson St	1	B	52	52	0
B471.4	22 D Atkinson St	1	B	53	53	0
B472.1	23 A Atkinson St	1	B	53	53	0
B472.2	23 B Atkinson St	1	B	50	50	0
B472.3	23 C Atkinson St	1	B	50	50	0
B472.4	23 D Atkinson St	1	B	50	50	0
B473.1	24 A Atkinson St	1	B	50	50	0
B473.2	24 B Atkinson St	1	B	49	49	0
B473.3	24 C Atkinson St	1	B	49	49	0
B473.4	24 D Atkinson St	1	B	49	49	0
B473.5	24 E Atkinson St	1	B	49	49	0
B473.6	24 F Atkinson St	1	B	48	49	-1
B473.7	24 G Atkinson St	1	B	48	48	0
B473.8	24 H Atkinson St	1	B	49	49	0
B474.1	25 A Atkinson St	1	B	51	51	0
B474.2	25 B Atkinson St	1	B	50	50	0
B474.3	25 C Atkinson St	1	B	50	50	0
B474.4	25 D Atkinson St	1	B	50	50	0
B474.5	25 E Atkinson St	1	B	50	50	0




Noise Barrier Analysis
Section B, Barrier B-5

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B474.6	25 F Atkinson St	1	B	51	51	0
B474.7	25 G Atkinson St	1	B	51	51	0
B474.8	25 H Atkinson St	1	B	52	52	0
B475.1	14 A Atkinson St	1	B	52	52	0
B475.2	14 B Atkinson St	1	B	53	52	1
B475.3	14 C Atkinson St	1	B	54	52	2
B475.4	14 D Atkinson St	1	B	56	55	1
B475.5	14 E Atkinson St	1	B	57	56	1
B475.6	14 F Atkinson St	1	B	57	57	0
B475.7	14 G Atkinson St	1	B	55	55	0
B475.8	14 H Atkinson St	1	B	52	52	0
B476.1	13 A Atkinson St	1	B	64	64	0
B476.2	13 B Atkinson St	1	B	64	64	0
B476.3	13 C Atkinson St	1	B	64	64	0
B476.4	13 D Atkinson St	1	B	64	64	0
B476.5	13 E Atkinson St	1	B	64	64	0
B476.6	13 F Atkinson St	1	B	64	64	0
B476.7	13 G Atkinson St	1	B	64	64	0
B476.8	13 H Atkinson St	1	B	64	64	0
B487.1	11 A Atkinson St	1	B	66	59	7
B487.2	11 B Atkinson St	1	B	66	59	7
B487.3	11 C Atkinson St	1	B	66	59	7
B487.4	11 D Atkinson St	1	B	65	59	6
B487.5	11 E Atkinson St	1	B	65	59	6
B487.6	11 F Atkinson St	1	B	65	60	5
B487.7	11 G Atkinson St	1	B	65	61	4
B487.8	11 H Atkinson St	1	B	65	62	3
B488.1	9 A Atkinson St	1	B	65	61	4
B488.2	9 B Atkinson St	1	B	65	61	4
B488.3	9 C Atkinson St	1	B	65	61	4
B488.4	9 D Atkinson St	1	B	66	61	5
B488.5	9 E Atkinson St	1	B	66	60	6
B488.6	9 F Atkinson St	1	B	65	60	5
B488.7	9 G Atkinson St	1	B	66	60	6
B488.8	9 H Atkinson St	1	B	66	60	6
B489.1	12 A Atkinson St	1	B	51	51	0
B489.2	12 B Atkinson St	1	B	51	51	0
B489.3	12 C Atkinson St	1	B	51	51	0
B489.4	12 D Atkinson St	1	B	52	52	0
B489.5	12 E Atkinson St	1	B	54	53	1
B489.6	12 F Atkinson St	1	B	55	53	2
B489.7	12 G Atkinson St	1	B	54	52	2
B489.8	12 H Atkinson St	1	B	51	51	0
B490.1	10 A Atkinson St	1	B	51	51	0
B490.2	10 B Atkinson St	1	B	51	51	0
B490.3	10 C Atkinson St	1	B	51	51	0
B490.4	10 D Atkinson St	1	B	52	51	1
B490.5	10 E Atkinson St	1	B	53	52	1
B490.6	10 F Atkinson St	1	B	53	52	1
B491.1	27 A Atkinson St	1	B	51	51	0
B491.2	27 B Atkinson St	1	B	51	51	0
B491.3	27 C Atkinson St	1	B	51	51	0
B491.4	27 D Atkinson St	1	B	51	51	0
B491.5	27 E Atkinson St	1	B	51	51	0
B491.6	27 F Atkinson St	1	B	51	51	0
B492.1	29 A Atkinson St	1	B	51	51	0
B492.2	29 B Atkinson St	1	B	51	51	0
B492.3	29 C Atkinson St	1	B	51	51	0
B492.4	29 D Atkinson St	1	B	51	51	0
B492.5	29 E Atkinson St	1	B	51	51	0
B492.6	29 F Atkinson St	1	B	51	51	0
B493.1	26 A Atkinson St	1	B	48	48	0
B493.2	26 B Atkinson St	1	B	48	48	0
B493.3	26 C Atkinson St	1	B	48	48	0
B493.4	26 D Atkinson St	1	B	48	48	0
B494.1	28 A Atkinson St	1	B	49	49	0
B494.2	28 B Atkinson St	1	B	49	49	0
B494.3	28 C Atkinson St	1	B	49	49	0
B494.4	28 D Atkinson St	1	B	49	49	0

Noise Barrier Analysis
Section B, Barrier B-5

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B495.1	30 A Atkinson St	1	B	49	49	0
B495.2	30 B Atkinson St	1	B	49	49	0
B495.3	30 C Atkinson St	1	B	49	49	0
B495.4	30 D Atkinson St	1	B	49	49	0
B495.5	30 E Atkinson St	1	B	49	49	0
B495.6	30 F Atkinson St	1	B	49	49	0
B496	100 Atkinson St	1	B	58	58	0
B506	100 32d Atkinson St	1	B	58	58	0
B507.1	32 A Atkinson St	1	B	50	50	0
B507.2	32 B Atkinson St	1	B	51	51	0
B507.3	32 C Atkinson St	1	B	51	51	0
B507.4	32 D Atkinson St	1	B	51	51	0
B507.5	32 E Atkinson St	1	B	51	51	0
B507.6	32 F Atkinson St	1	B	51	51	0
B508.1	33 A Atkinson St	1	B	53	53	0
B508.2	33 B Atkinson St	1	B	53	53	0
B508.3	33 C Atkinson St	1	B	53	53	0
B508.4	33 D Atkinson St	1	B	53	53	0
B508.5	33 E Atkinson St	1	B	53	53	0
B508.6	33 F Atkinson St	1	B	52	52	0
B509.1	31 A Atkinson St	1	B	52	52	0
B509.2	31 B Atkinson St	1	B	52	52	0
B509.3	31 C Atkinson St	1	B	51	51	0
B509.4	31 D Atkinson St	1	B	52	52	0
B509.5	31 E Atkinson St	1	B	52	52	0
B509.6	31 F Atkinson St	1	B	51	51	0
B510.1	8 A Atkinson St	1	B	52	52	0
B510.2	8 B Atkinson St	1	B	52	52	0
B510.3	8 C Atkinson St	1	B	52	52	0
B510.4	8 D Atkinson St	1	B	53	53	0
B510.5	8 E Atkinson St	1	B	53	53	0
B510.6	8 F Atkinson St	1	B	53	53	0
B511.1	7 A Atkinson St	1	B	63	63	0
B511.2	7 B Atkinson St	1	B	64	62	2
B511.3	7 C Atkinson St	1	B	64	61	3
B511.4	7 D Atkinson St	1	B	64	61	3
B511.5	7 E Atkinson St	1	B	64	60	4
B511.6	7 F Atkinson St	1	B	64	60	4
B511.7	7 G Atkinson St	1	B	64	59	5
B511.8	7 H Atkinson St	1	B	64	59	5
B512.1	6 A Atkinson St	1	B	53	53	0
B512.2	6 B Atkinson St	1	B	52	52	0
B512.3	6 C Atkinson St	1	B	52	52	0
B512.4	6 D Atkinson St	1	B	53	53	0
B512.5	6 E Atkinson St	1	B	53	53	0
B512.6	6 F Atkinson St	1	B	53	53	0
B513.1	5 A Atkinson St	1	B	64	64	0
B513.2	5 B Atkinson St	1	B	64	64	0
B513.3	5 C Atkinson St	1	B	64	64	0
B513.4	5 D Atkinson St	1	B	64	64	0
B513.5	5 E Atkinson St	1	B	64	64	0
B513.6	5 F Atkinson St	1	B	64	64	0
B513.7	5 G Atkinson St	1	B	64	64	0
B513.8	5 H Atkinson St	1	B	64	64	0
B539.1	3 A Atkinson St	1	B	65	65	0
B539.2	3 B Atkinson St	1	B	65	65	0
B539.3	3 C Atkinson St	1	B	65	65	0
B539.4	3 D Atkinson St	1	B	65	65	0
B539.5	3 E Atkinson St	1	B	64	64	0
B539.6	3 F Atkinson St	1	B	64	64	0
B539.7	3 G Atkinson St	1	B	64	64	0
B539.8	3 H Atkinson St	1	B	64	64	0
B542.1	4 A Atkinson St	1	B	52	52	0
B542.2	4 B Atkinson St	1	B	53	53	0
B542.3	4 C Atkinson St	1	B	53	53	0
B542.4	4 D Atkinson St	1	B	53	53	0
B542.5	4 E Atkinson St	1	B	53	53	0
B542.6	4 F Atkinson St	1	B	54	54	0
B542.7	4 G Atkinson St	1	B	54	54	0

Noise Barrier Analysis
Section B, Barrier B-5

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B542.8	4 H Atkinson St	1	B	54	54	0
B543.1	35 A Atkinson St	1	B	54	54	0
B543.2	35 B Atkinson St	1	B	54	54	0
B543.3	35 C Atkinson St	1	B	54	54	0
B543.4	35 D Atkinson St	1	B	53	53	0
B544.1	34 A Atkinson St	1	B	52	52	0
B544.2	34 B Atkinson St	1	B	52	52	0
B544.3	34 C Atkinson St	1	B	52	52	0
B544.4	34 D Atkinson St	1	B	52	52	0
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWB-5 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit not exceeding the Allowable Area/Benefit.</p>						
<p>NWB-5 is likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-5 **COUNTY(IES)** - Buncombe

IMPACTS - 7 **# BENEFITS** - 13 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 431 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? YES

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? YES

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-5.1

Section B, Barrier B-5.1 Acoustical Performance Summary						
Impacts: 5			Benefited Receptors @ ≥ 7 dB(A) NLR: 1			
Impacted Receptors Benefited: 3			Total Benefits: 3			
Non-Impacted Receptors Benefited: 0						
Section B, Barrier B-5.1 Parameters						
Length (ft): 650			Area / Benefit (ft ²): 5200			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 15600						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B540.1	1 A Atkinson St	1	B	65	65	0
B540.2	1 B Atkinson St	1	B	65	64	1
B540.3	1 C Atkinson St	1	B	64	64	0
B540.4	1 D Atkinson St	1	B	64	64	0
B541.1	2 A Atkinson St	1	B	55	54	1
B541.2	2 B Atkinson St	1	B	56	55	1
B541.3	2 C Atkinson St	1	B	58	57	1
B541.4	2 D Atkinson St	1	B	59	58	1
B545.1	36 A Atkinson St	1	B	57	57	0
B545.2	36 B Atkinson St	1	B	57	57	0
B545.3	36 C Atkinson St	1	B	56	56	0
B545.4	36 D Atkinson St	1	B	56	56	0
B545.5	36 E Atkinson St	1	B	56	56	0
B545.6	36 F Atkinson St	1	B	55	55	0
B545.7	36 G Atkinson St	1	B	55	55	0
B545.8	36 H Atkinson St	1	B	55	54	1
B546	100 B Atkinson St	1	D	27	27	0
B557	100 Atkinson St	1	D	39	39	0
B557.1	100 Atkinson St	1	B	65	65	0
B558.1	37 A Atkinson St	1	B	59	58	1
B558.2	37 B Atkinson St	1	B	61	59	2
B558.3	37 C Atkinson St	1	B	64	60	4
B558.4	37 D Atkinson St	1	B	68	66	2
B559.1	38 A Atkinson St	1	B	66	63	3
B559.2	38 B Atkinson St	1	B	66	61	5
B559.3	38 C Atkinson St	1	B	68	61	7
B559.4	38 D Atkinson St	1	B	70	65	5
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWB-5.1 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWB-5.1 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-5.1 **COUNTY(IES)** - Buncombe

IMPACTS - 5 **# BENEFITS** - 3 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS




1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 5200 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-6

Section B, Barrier B-6 Acoustical Performance Summary						
Impacts: 11			Benefited Receptors @ ≥ 7 dB(A) NLR: 0			
Impacted Receptors Benefited: 0			Total Benefits: 3			
Non-Impacted Receptors Benefited: 3						
Section B, Barrier B-6 Parameters						
Length (ft): 2350			Area / Benefit (ft ²): 18800			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 2000			
Area (ft ²): 56400						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B571	177 Houston Cir	1	B	55	54	1
B572	179 Houston Cir	1	B	60	58	2
B573	181 Houston Pl	1	B	58	56	2
B574	185 Houston Pl	1	B	63	59	4
B575	180 Houston Pl	1	B	65	61	4
B576	169 Houston Cir	1	B	66	62	4
B577	137 Houston St	1	B	64	59	5
B578	135 Houston St	1	B	62	57	5
B579	133 Houston St	1	B	60	57	3
B580	119 Houston St	1	B	56	53	3
B581	117 Houston St	1	B	53	50	3
B610	238 Courtland Pl	1	B	71	68	3
B611	236 Courtland Pl	1	B	69	68	1
B612	232 Courtland Pl	1	B	69	68	1
B613.1	230 Courtland Pl	1	B	70	69	1
B613.2	230 Courtland Pl	1	B	69	68	1
B614	229 Courtland Pl	1	B	72	71	1
B614.1	221 Courtland Pl	1	B	70	70	0
B614.2	219 Courtland Pl	1	B	66	66	0
B614.3	215 Courtland Pl	1	B	67	66	1
B615	205 Courtland Pl	1	B	63	62	1
B616	196 Courtland Pl	1	B	61	60	1
B617	197 Courtland Pl	1	B	59	59	0
B618	193 Courtland Pl	1	B	61	59	2
B618.1	187 Courtland Pl	1	B	56	51	5
B619	206 Courtland Pl	1	B	63	62	1
B627	200 Courtland Pl	1	B	59	57	2
B628	198 Courtland Pl	1	B	58	55	3
B628.1	168 Courtland Pl	1	B	59	56	3
Impact =  5 to 6 dB(A) Reduction =  ≥ 7 dB(A) Reduction = 						
NWB-6 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWB-6 is NOT likely to be incorporated into the project.						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-6 **COUNTY(IES)** - Buncombe

IMPACTS - 11 **# BENEFITS** - 3 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? NO
2. Does topography negatively affect the proposed noise wall? YES
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? NO
2. Is the quantity per benefited receptor of 18800 square feet less than the maximum allowable quantity per benefited receptor of 2000 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? NO
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 07/19/2019

Noise Barrier Analysis
Section B, Barrier B-6.1

Section B, Barrier B-6.1 Acoustical Performance Summary						
Impacts: 5			Benefited Receptors @ ≥ 7 dB(A) NLR: 3			
Impacted Receptors Benefited: 4			Total Benefits: 4			
Non-Impacted Receptors Benefited: 0						
Section B, Barrier B-6.1 Parameters						
Length (ft): 519			Area / Benefit (ft ²): 1298			
Average Height (ft): 10			Allowable Area / Benefit (ft ²): 2000			
Area (ft ²): 5190						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B610	238 Courtland Pl	1	B	71	65	6
B611	236 Courtland Pl	1	B	69	62	7
B612	232 Courtland Pl	1	B	69	62	7
B613.1	230 Courtland Pl	1	B	70	62	8
B613.2	230 Courtland Pl	1	B	68	64	4
<p style="margin: 0;">Impact = </p> <p style="margin: 0;">5 to 6 dB(A) Reduction = </p> <p style="margin: 0;">≥ 7 dB(A) Reduction = </p>						
<p>NWB-6.1 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.</p> <p>NWB-6.1 is likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-6.1 **COUNTY(IES)** - Buncombe

IMPACTS - 5 **# BENEFITS** - 4 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? YES
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 1298 square feet less than the maximum allowable quantity per benefited receptor of 2000 square feet? YES

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? NO
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-8

Section B, Barrier B-8 Acoustical Performance Summary						
Impacts: 15			Benefited Receptors @ ≥ 7 dB(A) NLR: 7			
Impacted Receptors Benefited: 5.80			Total Benefits: 14			
Non-Impacted Receptors Benefited: 8						
Section B, Barrier B-8 Parameters						
Length (ft): 2450			Area / Benefit (ft ²): 3828			
Average Height (ft): 22			Allowable Area / Benefit (ft ²): 2000			
Area (ft ²): 53900						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B806	201 Westover Dr	1	B	65	61	4
B808	209 Westover Dr	1	B	65	58	7
B809	211 Westover Aly	1	B	66	61	5
B814	217 Westover Dr	1	B	63	62	1
B815	221 Westover Dr	1	B	52	52	0
B817	304 Westover Dr	1	B	58	58	0
B830	436 Pearson Dr	1	B	62	62	0
B831	435 Pearson Dr	1	B	67	67	0
B832	403 Pearson Dr	1	B	61	62	-1
BN874	199 Westover Dr	1	B	65	60	5
BN875	203 Westover Dr	1	B	66	59	7
BN877	125 Tacoma Cir	1	B	56	56	0
BN878	127 Tacoma Cir	1	B	55	53	2
BN879	127 Tacoma Cir	1	B	52	52	0
BN880	131 Tacoma Cir	1	B	52	52	0
BN881	135 Tacoma Cir	1	B	52	52	0
BN882	195 Westover Dr	1	B	56	53	3
BN883	143 Tacoma Cir	1	B	52	52	0
BN884	11 Sylvan Ave	1	B	52	52	0
BN885	15 Sylvan Ave	1	B	52	52	0
BN886	17 Sylvan Ave	1	B	57	57	0
BN887	21 Sylvan Ave	1	B	67	64	3
BN888	159 Westover Dr	1	B	71	68	3
BN889	26 Sylvan Ave	1	B	62	56	6
BN889.1	20 Sylvan Ave	1	B	56	52	4
BN890	14 Sylvan Ave	1	B	60	59	1
BN891	8 Sylvan Ave	1	B	53	52	1
BN892	155 Tacoma Cir	1	B	62	60	2
BN893	157 Tacoma Cir	1	B	62	60	2
BN894	101 Westover Dr	1	B	65	60	5
BN895	103 Westover Dr	1	B	65	61	4
BN896	107 Westover Dr	1	B	70	66	4
BN897	92 Westover Dr	1	B	69	62	7
BN897.1	98 Westover Dr	1	B	70	61	9
BN899	93 Westover Dr	1	B	65	61	4
BN899.1	95 Westover Dr	1	B	65	58	7
BN899.2	97 Westover Dr	1	B	65	60	5
BN899.3	99 Westover Dr	1	B	64	54	10
BN899.4	81 Westover Dr	1	B	64	60	4
BN901	90 Westover Dr	1	B	66	61	5
BN901.1	82 Westover Dr	1	B	64	59	5
B1051	115 Westover Dr	1	B	73	69	4
B1053	218 Westover Dr	1	B	69	69	0
B1054	220 Westover Dr	1	B	66	66	0
B1055	222 Westover Dr	1	B	63	64	-1
B1056	224 Westover Dr	1	B	62	63	-1
B1058	9 Hibriten Dr	1	B	67	68	-1
B1076	448 Pearson Dr	1	B	70	70	0
B.A7	58 Birch St	0.04	C	56	55	1
B.A8	58 Birch St	0.04	C	55	55	0
B.B2	58 Birch St	0.04	C	56	53	3
B.B3	58 Birch St	0.04	C	59	57	2
B.B4	58 Birch St	0.04	C	58	56	2
B.B5	58 Birch St	0.04	C	59	57	2
B.B6	58 Birch St	0.04	C	58	57	1
B.B7	58 Birch St	0.04	C	58	57	1
B.B8	58 Birch St	0.04	C	59	59	0
B.C2	58 Birch St	0.04	C	59	54	5
B.C3	58 Birch St	0.04	C	59	57	2
B.C4	58 Birch St	0.04	C	59	56	3

Noise Barrier Analysis
Section B, Barrier B-8

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B.C5	58 Birch St	0.04	C	60	58	2
B.C6	58 Birch St	0.04	C	60	60	0
B.C7	58 Birch St	0.04	C	61	61	0
B.C8	58 Birch St	0.04	C	52	52	0
B.D2	58 Birch St	0.04	C	61	57	4
B.D3	58 Birch St	0.04	C	62	58	4
B.D4	58 Birch St	0.04	C	59	57	2
B.D5	58 Birch St	0.04	C	58	57	1
B.D6	58 Birch St	0.04	C	61	61	0
B.D7	58 Birch St	0.04	C	62	61	1
B.D8	58 Birch St	0.04	C	61	60	1
B.E1	58 Birch St	0.04	C	58	54	4
B.E2	58 Birch St	0.04	C	65	57	8
B.E3	58 Birch St	0.04	C	67	60	7
B.E4	58 Birch St	0.04	C	65	61	4
B.E5	58 Birch St	0.04	C	59	58	1
B.E6	58 Birch St	0.04	C	59	58	1
B.E7	58 Birch St	0.04	C	52	52	0
B.E8	58 Birch St	0.04	C	53	52	1
B.F1	58 Birch St	0.04	C	64	55	9
B.F2	58 Birch St	0.04	C	68	58	10
B.F3	58 Birch St	0.04	C	69	60	9
B.F4	58 Birch St	0.04	C	68	62	6
B.F5	58 Birch St	0.04	C	63	59	4
B.F6	58 Birch St	0.04	C	61	59	2
B.F7	58 Birch St	0.04	C	61	59	2
B.F8	58 Birch St	0.04	C	61	59	2
B.G2	58 Birch St	0.04	C	69	58	11
B.G3	58 Birch St	0.04	C	70	61	9
B.G4	58 Birch St	0.04	C	68	63	5
B.G5	58 Birch St	0.04	C	67	62	5
B.G6	58 Birch St	0.04	C	64	60	4
B.G7	58 Birch St	0.04	C	62	60	2
B.G8	58 Birch St	0.04	C	62	59	3
B.H2	58 Birch St	0.04	C	68	57	11
B.H3	58 Birch St	0.04	C	69	59	10
B.H4	58 Birch St	0.04	C	68	61	7
B.H5	58 Birch St	0.04	C	67	62	5
B.H6	58 Birch St	0.04	C	65	61	4
B.H7	58 Birch St	0.04	C	63	60	3
B.H8	58 Birch St	0.04	C	62	60	2
B.I2	58 Birch St	0.04	C	69	60	9
B.I3	58 Birch St	0.04	C	68	57	11
B.I4	58 Birch St	0.04	C	68	59	9
B.I5	58 Birch St	0.04	C	66	61	5
B.I6	58 Birch St	0.04	C	63	59	4
B.I7	58 Birch St	0.04	C	62	59	3
B.I8	58 Birch St	0.04	C	62	59	3
B.J2	58 Birch St	0.04	C	69	55	14
B.J3	58 Birch St	0.04	C	68	56	12
B.J4	58 Birch St	0.04	C	68	58	10
B.J5	58 Birch St	0.04	C	67	60	7
B.J6	58 Birch St	0.04	C	64	57	7
B.J7	58 Birch St	0.04	C	61	53	8
B.J8	58 Birch St	0.04	C	60	52	8
B.K8	58 Birch St	0.04	C	62	56	6

Impact = ■
5 to 6 dB(A) Reduction = ■
≥ 7 dB(A) Reduction = ■

NWB-8 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.

NWB-8 is NOT likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-8 **COUNTY(IES)** - Buncombe

IMPACTS - 15 **# BENEFITS** - 14 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? YES
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 3828 square feet less than the maximum allowable quantity per benefited receptor of 2000 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 07/17/2019

Noise Barrier Analysis
Section B, Barrier B-9

Section B, Barrier B-9 Acoustical Performance Summary						
Impacts: 13			Benefited Receptors @ ≥ 7 dB(A) NLR: 11			
Impacted Receptors Benefited: 7			Total Benefits: 18			
Non-Impacted Receptors Benefited: 11						
Section B, Barrier B-9 Parameters						
Length (ft): 1850			Area / Benefit (ft ²): 2467			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 44400						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B814	217 Westover Dr	1	B	63	64	-1
B815	221 Westover Dr	1	B	52	52	0
B817	304 Westover Dr	1	B	58	58	0
B830	436 Pearson Dr	1	B	62	62	0
B831	435 Pearson Dr	1	B	67	66	1
B832	403 Pearson Dr	1	B	61	60	1
B836	125 Hibriten Dr	1	B	62	61	1
B845	71 Hibriten Dr	1	B	67	63	4
B846	61 Hibriten Dr	1	B	67	62	5
B847	72 Hibriten Dr	1	B	67	62	5
B853.1	79 Klondyke Ave	1	B	62	53	9
B853.2	81 Klondyke Ae	1	B	63	54	9
B853.3	83 Klondyke Ave	1	B	64	55	9
B853.4	85 Klondyke Ave	1	B	65	56	9
B853.5	87 Klondyke Ae	1	B	66	58	8
B853.6	89 Klondyke Ave	1	B	67	59	8
B854.1	78 Klondyke Ave	1	B	49	49	0
B854.2	80 Klondyke Ave	1	B	49	49	0
B854.3	82 Klondyke Ave	1	B	49	49	0
B854.4	84 Klondyke Ave	1	B	52	50	2
B854.5	86 Klondyke Ave	1	B	57	52	5
B854.6	88 Klondyke Ave	1	B	64	60	4
B856	76 Klondyke Ave	1	B	57	49	8
B857	74 Klondyke Ave	1	B	58	50	8
B858	72 Klondyke Ave	1	B	59	51	8
B859	70 Klondyke Ave	1	B	61	52	9
B861.1	59 Klondyke Ave	1	B	63	58	5
B861.2	61 Klondyke Ave	1	B	64	59	5
B861.3	63 Klondyke Ave	1	B	65	61	4
B861.4	65 Klondyke Ave	1	B	66	61	5
B861.5	67 Klondyke Ave	1	B	67	61	6
B861.6	69 Klondyke Ave	1	B	68	53	15
B862.1	58 Klondyke Ave	1	B	49	49	0
B862.2	60 Klondyke Ave	1	B	49	49	0
B862.3	62 Klondyke Ave	1	B	49	49	0
B862.4	64 Klondyke Ave	1	B	54	50	4
B862.5	66 Klondyke Ave	1	B	59	55	4
B862.6	68 Klondyke Ave	1	B	63	61	2
B864	56 Klondyke Ave	1	B	60	60	0
B1053	218 Westover Dr	1	B	69	69	0
B1054	220 Westover Dr	1	B	66	66	0
B1055	222 Westover Dr	1	B	63	64	-1
B1056	224 Westover Dr	1	B	62	63	-1
B1058	9 Hibriten Dr	1	B	67	65	2
B1076	448 Pearson Dr	1	B	70	70	0

Impact = 
5 to 6 dB(A) Reduction = 
≥ 7 dB(A) Reduction = 

Noise Barrier Analysis
Section B, Barrier B-9

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
NWB-9 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.						
NWB-9 is NOT likely to be incorporated into the project.						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-9 **COUNTY(IES)** - Buncombe

IMPACTS - 13 **# BENEFITS** - 18 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? YES
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 2467 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section B, Barrier B-10

Section B, Barrier B-10 Acoustical Performance Summary						
Impacts: 3			Benefited Receptors @ ≥ 7 dB(A) NLR: 0			
Impacted Receptors Benefited: 0			Total Benefits: 0			
Non-Impacted Receptors Benefited: 0						
Section B, Barrier B-10 Parameters						
Length (ft): 650			Area / Benefit (ft ²): N/A			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 2000			
Area (ft ²): 15600						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
B515	13 Cross Pl	1	B	62	61	1
B515.1	10 Cross Pl	1	B	67	66	1
B515.2	12 Cross Pl	1	B	63	62	1
B516	15 Cross Pl	1	B	59	59	0
B516.1	20 Cross Pl	1	B	59	59	0
B516.2	22 Cross Pl	1	B	57	57	0
B520	28 Greenlee Ave	1	B	68	68	0
B521	30 Greenlee Ave	1	B	61	61	0
B522	31 101 Greenlee Ave	1	B	57	57	0
B523	25 105 Greenlee Ave	1	B	62	62	0
B538	37 Greenlee Ave	1	B	51	51	0
<p style="margin: 0;">Impact = </p> <p style="margin: 0;">5 to 6 dB(A) Reduction = </p> <p style="margin: 0;">≥ 7 dB(A) Reduction = </p>						
<p>NWB-10 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.</p> <p>NWB-10 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWB-10 **COUNTY(IES)** - Buncombe

IMPACTS - 3 **# BENEFITS** - 0 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? NO
2. Does topography negatively affect the proposed noise wall? YES
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? NO
2. Is the quantity per benefited receptor of N/A square feet less than the maximum allowable quantity per benefited receptor of 2000 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? NO
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO




PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-1

Section C, Barrier C-1 Acoustical Performance Summary						
Impacts: 51			Benefited Receptors @ ≥ 7 dB(A) NLR: 37			
Impacted Receptors Benefited: 40			Total Benefits: 51			
Non-Impacted Receptors Benefited: 11						
Section C, Barrier C-1 Parameters						
Length (ft): 4050			Area / Benefit (ft ²): 1906			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 2000			
Area (ft ²): 97200						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C188	11 Creasman Pl	1	B	72	62	10
C189	7 Creasman Pl	1	B	65	60	5
C190	6 Creasman Pl	1	B	67	62	5
C191	5 Selwyn Pl	1	B	R/W	R/W	N/A
C192	3 Creasman Pl	1	B	63	60	3
C193	4 Creasman Pl	1	B	62	60	2
C194	3 Selwyn Pl	1	B	65	59	6
C195	2 Selwyn Pl	1	B	74	59	15
C197	60 1 Selwyn Rd	1	B	65	61	4
C198	1 Creasman Pl	1	B	62	59	3
C199	2 Creasman Pl	1	B	59	59	0
C205	74 Selwyn Rd	1	B	59	59	0
C206	82 Selwyn Rd	1	B	64	59	5
C207	84 Selwyn Rd	1	B	69	60	9
C208	86 Selwyn Rd	1	B	77	59	18
C212	81 Selwyn Rd	1	B	61	59	2
C213	83 Selwyn Rd	1	B	60	59	1
C214.1	85 A Selwyn Rd	1	B	61	59	2
C214.2	85 B Selwyn Rd	1	B	62	59	3
C214.3	85 C Selwyn Rd	1	B	66	59	7
C214.4	85 D Selwyn Rd	1	B	66	59	7
C215.1	87 A Selwyn Rd	1	B	67	59	8
C215.2	87 B Selwyn Rd	1	B	67	59	8
C215.3	87 C Selwyn Rd	1	B	68	59	9
C215.4	87 D Selwyn Rd	1	B	67	59	8
C216.1	85 E Selwyn Rd	1	B	65	59	6
C216.2	85 F Selwyn Rd	1	B	65	59	6
C216.3	85 G Selwyn Rd	1	B	59	59	0
C216.4	85 H Selwyn Rd	1	B	59	59	0
C225	821 Sand Hill Rd	1	B	60	59	1
C226	817 Sand Hill Rd	1	B	61	59	2
C227	809 Sand Hill Rd	1	B	61	59	2
C229	8 Kelly Dr	1	B	75	62	13
C230	16 Kelly Dr	1	B	73	62	11
C231	807 1/2 Sand Hill Rd	1	B	72	62	10
C232	807 D Sand Hill Rd	1	B	69	61	8
C233	807 C Sand Hill Rd	1	B	68	60	8
C234	807 B Sand Hill Rd	1	B	67	59	8
C235	807 A Sand Hill Rd	1	B	64	59	5
C236	807 Sand Hill Rd	1	B	63	59	4
C237	793 Sand Hill Rd	1	B	65	59	6
C238	791 Sand Hill Rd	1	B	65	60	5
C239	789 Sand Hill Rd	1	B	67	60	7
C240	787 Sand Hill Rd	1	B	69	64	5
C241	753 Sand Hill Rd	1	B	R/W	R/W	N/A
C243	759 Sand Hill Rd	1	B	77	60	17
C244	29 Chance Cove Ln	1	B	78	59	19
C245	28 Chance Cove Ln	1	B	78	59	19
C706	76 Selwyn Rd	1	B	59	59	0
C707	1 Selwyn Pl	1	B	62	59	3
C708	27 Grandview Cir	1	B	67	59	8
C709	29 Grandview Cir	1	B	69	59	10

Noise Barrier Analysis
Section C, Barrier C-1

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C710	31 Grandview Cir	1	B	71	59	12
C711	35 Grandview Cir	1	B	73	61	12
C712	37 Grandview Cir	1	B	74	61	13
C713	30 Grandview Cir	1	B	69	59	10
C714	34 Grandview Cir	1	B	70	60	10
C715	36 Grandview Cir	1	B	71	64	7
C716	39 Grandview Cir	1	B	76	64	12
C717	41 Grandview Cir	1	B	76	64	12
C718	45 Grandview Cir	1	B	76	65	11
C720	25 Chance Cove Ln	1	B	70	61	9
C721	783 Sand Hill Rd	1	B	71	64	7
C781	89 Grandview Rd	1	B	76	65	11
C782	89 Grandview Rd	1	B	72	67	5
C784	78 Grandview Rd	1	B	71	69	2
C785	82 Grandview Rd	1	B	72	68	4
C786	76 Grandview Rd	1	B	70	68	2
C787	72 Grandview Rd	1	B	67	65	2
C788	72 Grandview Rd	1	B	67	66	1
C789	85 Grandview Rd	1	B	71	67	4
C790	81 Grandview Rd	1	B	70	67	3
C791	77 Grandview Rd	1	B	69	66	3
C792	73 Grandview Rd	1	B	67	65	2
C793	69 Grandview Rd	1	B	66	63	3
C794	34 Grandview Ct	1	B	67	67	0
C795	33 Grandview Ct	1	B	64	64	0
C796	43 Sandhurst Dr	1	B	63	63	0
C797	41 Sandhurst Dr	1	B	63	63	0
C798	64 Pine Knoll St	1	B	63	63	0
C831	86 Grandview Rd	1	B	76	67	9
C832	70 Grandview Rd	1	B	64	64	0
C833	62 Grandview Rd	1	B	63	62	1
C834	65 Grandview Rd	1	B	65	63	2
C835	61 Grandview Rd	1	B	64	62	2
C836	57 Grandview Rd	1	B	63	61	2
C837	26 Grandview Cir	1	B	68	59	9
C838	22 Grandview Cir	1	B	66	59	7
C839	18 Grandview Cir	1	B	65	59	6
C840	14 Grandview Cir	1	B	65	59	6
C841	10 Grandview Cir	1	B	63	59	4
C842	8 Grandview Cir	1	B	62	59	3
C843	25 Grandview Cir	1	B	65	59	6
C844	23 Grandview Cir	1	B	62	59	3
C845	15 Grandview Cir	1	B	61	59	2
C846	11 Grandview Cir	1	B	59	59	0

Impact = 
5 to 6 dB(A) Reduction = 
≥ 7 dB(A) Reduction = 

NWC-1 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit not exceeding the Allowable Area/Benefit.
NWC-1 is likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-1 **COUNTY(IES)** - Buncombe

IMPACTS - 51 **# BENEFITS** - 51 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS




1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 1906 square feet less than the maximum allowable quantity per benefited receptor of 2000 square feet? YES

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? YES

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-2

Section C, Barrier C-2 Acoustical Performance Summary						
Impacts: 5			Benefited Receptors @ ≥ 7 dB(A) NLR: 3			
Impacted Receptors Benefited: 5			Total Benefits: 5			
Non-Impacted Receptors Benefited: 0						
Section C, Barrier C-2 Parameters						
Length (ft): 1150			Area / Benefit (ft ²): 4600			
Average Height (ft): 20			Allowable Area / Benefit (ft ²): 2000			
Area (ft ²): 23000						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C2	19 Montgomery St	1	B	75	62	13
C3	13 Montgomery St	1	B	79	60	19
C4	15 Montgomery St	1	B	69	63	6
C5	17 Montgomery St	1	B	68	63	5
C6	12 Montgomery St	1	B	76	62	14
C7	14 Montgomery St	1	B	65	63	2
C8	16 Montgomery St	1	B	62	61	1
C9	18 Montgomery St	1	B	64	61	3
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
NWC-2 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.						
NWC-2 is NOT likely to be incorporated into the project.						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-2 **COUNTY(IES)** - Buncombe

IMPACTS - 5 **# BENEFITS** - 5 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 4600 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-3




Section C, Barrier C-3 Acoustical Performance Summary						
Impacts: 60			Benefited Receptors @ ≥ 7 dB(A) NLR: 26			
Impacted Receptors Benefited: 59			Total Benefits: 71			
Non-Impacted Receptors Benefited: 12						
Section C, Barrier C-3 Parameters						
Length (ft): 4250			Area / Benefit (ft ²): 1437			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 102000						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C11	66 Monty St	1	B	66	60	6
C12	65 Monty St	1	B	R/W	R/W	N/A
C13	64 Monty St	1	B	R/W	R/W	N/A
C14	63 Monty St	1	B	R/W	R/W	N/A
C15	62 Monty St	1	B	R/W	R/W	N/A
C16	60 Monty St	1	B	R/W	R/W	N/A
C17	58 Monty St	1	B	R/W	R/W	N/A
C18	56 Monty St	1	B	66	60	6
C19	54 Monty St	1	B	66	60	6
C20	61 Monty St	1	B	67	60	7
C21	59 Monty St	1	B	65	60	5
C22	57 Monty St	1	B	62	60	2
C23	55 Monty St	1	B	63	60	3
C24	53 Monty St	1	B	64	60	4
C25	51 Monty St	1	B	67	60	7
C26	49 Monty St	1	B	64	60	4
C27	47 Monty St	1	B	67	60	7
C28	45 Monty St	1	B	67	60	7
C29	43 Monty St	1	B	67	60	7
C30	22 Monty St	1	B	67	60	7
C32	26 Monty St	1	B	67	60	7
C33	28 Monty St	1	B	67	60	7
C34	30 Monty St	1	B	64	60	4
C35	32 Monty St	1	B	64	60	4
C36	34 Monty St	1	B	68	60	8
C37	36 Monty St	1	B	67	60	7
C38	38 Monty St	1	B	64	60	4
C40	50 Monty St	1	B	66	60	6
C41	48 Monty St	1	B	66	60	6
C42	46 Monty St	1	B	66	60	6
C43	44 Monty St	1	B	66	60	6
C44	42 Monty St	1	B	65	60	5
C45	20 Monty St	1	B	65	60	5
C47	16 Monty St	1	B	66	60	6
C48	14 Monty St	1	B	66	60	6
C49	12 Monty St	1	B	66	60	6
C50	10 Monty St	1	B	66	60	6
C51	8 Monty St	1	B	66	60	6
C52	6 Monty St	1	B	66	60	6
C53	4 Monty St	1	B	66	60	6
C54	2 Monty St	1	B	66	60	6
C55	1 Monty St	1	B	64	60	4
C56	3 Monty St	1	B	63	60	3
C57	5 Monty St	1	B	63	60	3
C58	7 Monty St	1	B	63	60	3
C59	9 Monty St	1	B	62	60	2
C60	11 Monty St	1	B	63	60	3
C61	13 Monty St	1	B	64	60	4
C62	15 Monty St	1	B	65	60	5
C63	17 Monty St	1	B	65	60	5
C64	19 Monty St	1	B	65	60	5
C65	21 Monty St	1	B	66	60	6
C66	23 Monty St	1	B	66	60	6

Noise Barrier Analysis
Section C, Barrier C-3

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C68	27 Monty St	1	B	66	60	6
C69	29 Monty St	1	B	67	60	7
C70	33 Monty St	1	B	65	60	5
C71	35 Monty St	1	B	67	60	7
C72	37 Monty St	1	B	67	60	7
C73	39 Monty St	1	B	68	60	8
C74	710 65 Sand Hill Rd	1	B	68	60	8
C75	710 64 Sand Hill Rd	1	B	70	60	10
C76	710 32 Sand Hill Rd	1	B	70	61	9
C77	710 31 Sand Hill Rd	1	B	69	62	7
C78	710 30 Sand Hill Rd	1	B	69	63	6
C79	710 17 Sand Hill Rd	1	B	68	61	7
C80	710 25 Sand Hill Rd	1	B	66	60	6
C81	710 24 Sand Hill Rd	1	B	64	61	3
C82	710 Sand Hill Rd	1	B	67	61	6
C83	710 Sand Hill Rd	1	B	64	60	4
C84	710 Sand Hill Rd	1	B	60	60	0
C85	710 Sand Hill Rd	1	B	67	62	5
C86	710 Sand Hill Rd	1	B	64	60	4
C87	710 7 Sand Hill Rd	1	B	66	61	5
C88	710 52 Sand Hill Rd	1	B	65	63	2
C89	710 51 Sand Hill Rd	1	B	63	60	3
C90	710 50 Sand Hill Rd	1	B	63	60	3
C91	710 49 Sand Hill Rd	1	B	63	60	3
C92	710 48 Sand Hill Rd	1	B	62	60	2
C93	710 47 Sand Hill Rd	1	B	60	60	0
C94	710 43 Sand Hill Rd	1	B	64	60	4
C95	710 44 Sand Hill Rd	1	B	60	60	0
C96	710 45 Sand Hill Rd	1	B	60	60	0
C97	710 46 Sand Hill Rd	1	B	60	60	0
C98	710 53 Sand Hill Rd	1	B	64	61	3
C99	708 Sand Hill Rd	1	B	63	60	3
C100	710 53b Sand Hill Rd	1	B	62	60	2
C101	710 Sand Hill Rd	1	B	66	63	3
C102	710 Sand Hill Rd	1	B	64	61	3
C103	710 Sand Hill Rd	1	B	63	61	2
C104	710 Sand Hill Rd	1	B	63	61	2
C105	710 Sand Hill Rd	1	B	63	60	3
C106	710 Sand Hill Rd	1	B	60	60	0
C107	710 Sand Hill Rd	1	B	61	60	1
C108	710 Sand Hill Rd	1	B	61	60	1
C109	710 Sand Hill Rd	1	B	61	60	1
C110	710 Sand Hill Rd	1	B	61	60	1
C111	710 Sand Hill Rd	1	B	60	60	0
C112	710 Sand Hill Rd	1	B	60	60	0
C113	710 Sand Hill Rd	1	B	60	60	0
C114	710 Sand Hill Rd	1	B	60	60	0
C115	710 Sand Hill Rd	1	B	60	60	0
C116	710 Sand Hill Rd	1	B	60	60	0
C117	710 Sand Hill Rd	1	B	60	60	0
C118	710 29 Sand Hill Rd	1	B	68	63	5
C119	710 38 Sand Hill Rd	1	B	68	62	6
C120	710 37 Sand Hill Rd	1	B	68	62	6
C121	710 36 Sand Hill Rd	1	B	67	61	6
C122	710 39 Sand Hill Rd	1	B	67	60	7
C123	710 Sand Hill Rd	1	B	60	60	0
C124	710 Sand Hill Rd	1	B	60	60	0
C125	710 Sand Hill Rd	1	B	60	60	0
C127	710 33 Sand Hill Rd	1	B	64	60	4
C128	710 35 Sand Hill Rd	1	B	65	60	5
C129	710 41 Sand Hill Rd	1	B	65	60	5
C130	710 42 Sand Hill Rd	1	B	62	60	2
C131	710 54 Sand Hill Rd	1	B	60	60	0

Noise Barrier Analysis
Section C, Barrier C-3

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C132	710 55 Sand Hill Rd	1	B	60	60	0
C133	710 56 Sand Hill Rd	1	B	64	60	4
C134	710 57 Sand Hill Rd	1	B	64	60	4
C135	710 58 Sand Hill Rd	1	B	64	60	4
C136	710 59 Sand Hill Rd	1	B	64	60	4
C137	710 60 Sand Hill Rd	1	B	65	60	5
C138	710 61 Sand Hill Rd	1	B	65	60	5
C139	710 62 Sand Hill Rd	1	B	66	60	6
C140	710 63 Sand Hill Rd	1	B	66	60	6
C141	710 40 Sand Hill Rd	1	B	69	61	8
C143	710 58 Sand Hill Rd	1	B	64	60	4
C155	25 Furey Dr	1	B	70	61	9
C156	11 Furey Dr	1	B	68	63	5
C157	61 S Bear Creek Rd	1	B	74	66	8
C158	51 S Bear Creek Rd	1	B	70	65	5
C159	5 Furey Dr	1	B	65	63	2
C160	27 Oak Crescent Dr	1	B	62	60	2
C161	10 Furey Dr	1	B	70	64	6
C162	35 S Bear Creek Rd	1	B	60	60	0
C163	26 Oak Crescent Dr	1	B	60	60	0
C164	21 Oak Crescent Dr	1	B	60	60	0
C165	33 S Bear Creek Rd	1	B	60	60	0
C166	14 Oak Crescent Dr	1	B	60	60	0
C167	15 Oak Crescent Dr	1	B	60	60	0
C168	31 S Bear Creek Rd	1	B	61	61	0
C169	6 B Oak Crescent Dr	1	B	60	60	0
C170	11 Oak Crescent Dr	1	B	60	60	0
C172	29 S Bear Creek Rd	1	B	62	62	0
C691	31 Monty St	1	B	67	60	7
C755	24 Monty St	1	B	67	60	7
C756	18 Monty St	1	B	66	60	6
C757	52 Monty St	1	B	65	60	5
C758	710 65 Sand Hill Rd	1	B	67	60	7
C759	710 60 Sand Hill Rd	1	B	64	60	4
C760	710 57 Sand Hill Rd	1	B	64	60	4
C761	710 56 Sand Hill Rd	1	B	63	60	3
C762	710 56 Sand Hill Rd	1	B	62	60	2

Impact = 
5 to 6 dB(A) Reduction = 
≥ 7 dB(A) Reduction = 

NWC-3 does preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.

NWC-3 is likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-3 **COUNTY(IES)** - Buncombe

IMPACTS - 60 **# BENEFITS** - 71 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 1437 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? YES

C. NOISE WALL PRELIMINARY DECISION




1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? YES
3. Is the noise wall likely? YES

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-4

Section C, Barrier C-4 Acoustical Performance Summary						
Impacts: 32			Benefited Receptors @ ≥ 7 dB(A) NLR: 18			
Impacted Receptors Benefited: 21			Total Benefits: 22			
Non-Impacted Receptors Benefited: 1						
Section C, Barrier C-4 Parameters						
Length (ft):		5200		Area / Benefit (ft ²): 5673		
Average Height (ft):		24		Allowable Area / Benefit (ft ²): 1500		
Area (ft ²):		124800				
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C246	822 Sand Hill Rd	1	B	65	65	0
C247	816 Sand Hill Rd	1	B	63	63	0
C248	794 Sand Hill Rd	1	B	61	61	0
C249	790 Sand Hill Rd	1	B	61	60	1
C250	788 Sand Hill Rd	1	B	62	62	0
C251	10 Green Valley Rd	1	B	59	59	0
C252	14 Green Valley Rd	1	B	59	59	0
C254	6 Green Valley Rd	1	B	59	59	0
C255	5 Green Valley Ct	1	B	59	59	0
C256	6 Green Valley Ct	1	B	59	59	0
C257	3 Green Valley Ct	1	B	59	59	0
C258	4 Green Valley Ct	1	B	59	59	0
C259	786 Sand Hill Rd	1	B	59	59	0
C260	784 Sand Hill Rd	1	B	60	59	1
C261	782 Sand Hill Rd	1	B	59	59	0
C262	13 Sand Hill Ct	1	B	60	59	1
C263	15 Sand Hill Ct	1	B	62	59	3
C264	19 Sand Hill Ct	1	B	62	59	3
C265	25 Sand Hill Ct	1	B	64	60	4
C266	27 Sand Hill Ct	1	B	67	63	4
C267	21 Sand Hill Ln	1	B	72	63	9
C268	6 Sand Hill Ct	1	B	66	63	3
C269	28 Sand Hill Ct	1	B	67	61	6
C270	2 Sand Hill Ct	1	B	71	68	3
C271	2 Sand Hill Ln	1	B	76	59	17
C272	14 Sand Hill Ln	1	B	76	59	17
C273	40 Sand Hill Ln	1	B	71	59	12
C274	39 Sand Hill Ln	1	B	67	59	8
C275	43 Sand Hill Ln	1	B	72	59	13
C276	43 Sand Hill Ln	1	B	74	59	15
C277	43 Sand Hill Ln	1	B	68	59	9
C278	42 Brownstone Dr	1	B	68	59	9
C279	34 Brownstone Dr	1	B	60	59	1
C284	158 W Oakview Rd	1	B	61	60	1
C285	168 W Oakview Rd	1	B	R/W	R/W	N/A
C286	161 W Oakview Rd	1	B	65	64	1
C288	167 W Oakview Rd	1	B	69	66	3
C289	167 1/2 W Oakview Rd	1	B	73	66	7
C290	163 W Oakview Rd	1	B	70	68	2
C291	41 Hazelnut Dr	1	B	73	62	11
C292	34 Hazelnut Dr	1	B	66	63	3
C293	33 Hazelnut Dr	1	B	74	61	13
C294	54 Mcintosh Rd	1	B	61	61	0
C295	24 Hazelnut Dr	1	B	64	59	5
C296	14 Hazelnut Dr	1	B	62	60	2
C297	60 Mcintosh Rd	1	B	66	62	4
C298	11 Hazelnut Dr	1	B	74	65	9
C301	58 Mcintosh Rd	1	B	66	61	5

Noise Barrier Analysis
Section C, Barrier C-4

Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C700	19 Green Valley Rd	1	B	59	59	0
C701	17 Green Valley Rd	1	B	59	59	0
C702	11 Green Valley Rd	1	B	59	59	0
C703	804 Sand Hill Rd	1	B	66	66	0
C704	20 Green Valley Rd	1	B	59	59	0
C705	28 Green Valley Rd	1	B	59	59	0
C722	5 Sand Hill Ct	1	B	67	67	0
C723.1	117A Cherry Meadows Way	1	B	69	60	9
C723.2	117B Cherry Meadows Way	1	B	71	64	7
C724	123 Cherry Meadows Way	1	B	72	60	12
C725	122 Cherry Meadows Way	1	B	66	60	6
C726	21 Brownstone Dr	1	B	62	59	3
C727	118 Cherry Meadows Way	1	B	66	64	2
C728	112 Cherry Meadows Way	1	B	66	64	2
C729	111 Cherry Meadows Way	1	B	67	60	7
C730	26 Hazelnut Dr	1	B	68	61	7
C847	56 McIntosh Rd	1	B	62	60	2
C848	50 McIntosh Rd	1	B	59	59	0
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWC-4 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWC-4 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-4 **COUNTY(IES)** - Buncombe

IMPACTS - 32 **# BENEFITS** - 22 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 5673 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-4.1

Section C, Barrier C-4.1 Acoustical Performance Summary						
Impacts: 15			Benefited Receptors @ ≥ 7 dB(A) NLR: 8			
Impacted Receptors Benefited: 10			Total Benefits: 10			
Non-Impacted Receptors Benefited: 0						
Section C, Barrier C-4.1 Parameters						
Length (ft): 1800			Area / Benefit (ft ²): 4320			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 43200						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C246	822 Sand Hill Rd	1	B	65	65	0
C247	816 Sand Hill Rd	1	B	63	63	0
C248	794 Sand Hill Rd	1	B	61	61	0
C249	790 Sand Hill Rd	1	B	61	60	1
C250	788 Sand Hill Rd	1	B	62	62	0
C251	10 Green Valley Rd	1	B	59	59	0
C252	14 Green Valley Rd	1	B	59	59	0
C254	6 Green Valley Rd	1	B	59	59	0
C255	5 Green Valley Ct	1	B	59	59	0
C256	6 Green Valley Ct	1	B	59	59	0
C257	3 Green Valley Ct	1	B	59	59	0
C258	4 Green Valley Ct	1	B	59	59	0
C259	786 Sand Hill Rd	1	B	59	59	0
C260	784 Sand Hill Rd	1	B	60	59	1
C261	782 Sand Hill Rd	1	B	59	59	0
C262	13 Sand Hill Ct	1	B	60	59	1
C263	15 Sand Hill Ct	1	B	62	59	3
C264	19 Sand Hill Ct	1	B	62	59	3
C265	25 Sand Hill Ct	1	B	64	60	4
C266	27 Sand Hill Ct	1	B	67	63	4
C267	21 Sand Hill Ln	1	B	72	64	8
C268	6 Sand Hill Ct	1	B	66	63	3
C269	28 Sand Hill Ct	1	B	67	62	5
C270	2 Sand Hill Ct	1	B	71	68	3
C271	2 Sand Hill Ln	1	B	76	59	17
C272	14 Sand Hill Ln	1	B	76	59	17
C273	40 Sand Hill Ln	1	B	71	59	12
C274	39 Sand Hill Ln	1	B	67	59	8
C275	43 Sand Hill Ln	1	B	72	61	11
C276	43 Sand Hill Ln	1	B	74	60	14
C277	43 Sand Hill Ln	1	B	68	61	7
C278	42 Brownstone Dr	1	B	68	63	5
C279	34 Brownstone Dr	1	B	60	59	1
C700	19 Green Valley Rd	1	B	59	59	0
C701	17 Green Valley Rd	1	B	59	59	0
C702	11 Green Valley Rd	1	B	59	59	0
C703	804 Sand Hill Rd	1	B	66	66	0
C704	20 Green Valley Rd	1	B	59	59	0
C705	28 Green Valley Rd	1	B	59	59	0
C722	5 Sand Hill Ct	1	B	67	67	0

Impact =

5 to 6 dB(A) Reduction =

≥ 7 dB(A) Reduction =

NWC-4.1 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit.
NWC-4.1 is NOT likely to be incorporated into the project.

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-4.1 **COUNTY(IES)** - Buncombe

IMPACTS - 15 **# BENEFITS** - 10 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

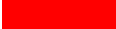


1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 4320 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-4.2

Section C, Barrier C-4.2 Acoustical Performance Summary						
Impacts: 10			Benefited Receptors @ ≥ 7 dB(A) NLR: 2			
Impacted Receptors Benefited: 5			Total Benefits: 5			
Non-Impacted Receptors Benefited: 0						
Section C, Barrier C-4.2 Parameters						
Length (ft):		650	Area / Benefit (ft ²): 2600			
Average Height (ft):		20	Allowable Area / Benefit (ft ²): 1500			
Area (ft ²):		13000				
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C284	158 W Oakview Rd	1	B	61	61	0
C285	168 W Oakview Rd	1	B	R/W	R/W	N/A
C286	161 W Oakview Rd	1	B	65	65	0
C288	167 W Oakview Rd	1	B	69	68	1
C289	167 1/2 W Oakview Rd	1	B	73	68	5
C290	163 W Oakview Rd	1	B	70	71	-1
C723.1	117A Cherry Meadows Way	1	B	69	62	7
C723.2	117B Cherry Meadows Way	1	B	71	66	5
C724	123 Cherry Meadows Way	1	B	72	62	10
C725	122 Cherry Meadows Way	1	B	66	63	3
C726	21 Brownstone Dr	1	B	62	62	0
C727	118 Cherry Meadows Way	1	B	66	65	1
C728	112 Cherry Meadows Way	1	B	66	65	1
C729	111 Cherry Meadows Way	1	B	67	61	6
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWC-4.2 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWC-4.2 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-4.2 **COUNTY(IES)** - Buncombe

IMPACTS - 10 **# BENEFITS** - 5 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS




1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 2600 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-4.3

Section C, Barrier C-4.3 Acoustical Performance Summary						
Impacts: 7			Benefited Receptors @ ≥ 7 dB(A) NLR: 4			
Impacted Receptors Benefited: 6			Total Benefits: 7			
Non-Impacted Receptors Benefited: 1						
Section C, Barrier C-4.3 Parameters						
Length (ft):		1350	Area / Benefit (ft ²): 4629			
Average Height (ft):		24	Allowable Area / Benefit (ft ²): 1500			
Area (ft ²):		32400				
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C291	41 Hazelnut Dr	1	B	73	65	8
C292	34 Hazelnut Dr	1	B	66	64	2
C293	33 Hazelnut Dr	1	B	74	61	13
C294	54 Mcintosh Rd	1	B	61	61	0
C295	24 Hazelnut Dr	1	B	64	59	5
C296	14 Hazelnut Dr	1	B	62	60	2
C297	60 Mcintosh Rd	1	B	66	61	5
C298	11 Hazelnut Dr	1	B	74	65	9
C301	58 Mcintosh Rd	1	B	66	61	5
C730	26 Hazelnut Dr	1	B	68	61	7
C847	56 McIntosh Rd	1	B	62	60	2
C848	50 McIntosh Rd	1	B	59	59	0
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWC-4.3 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWC-4.3 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-4.3 **COUNTY(IES)** - Buncombe

IMPACTS - 7 **# BENEFITS** - 7 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 4629 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-5

Section C, Barrier C-5 Acoustical Performance Summary						
Impacts: 15			Benefited Receptors @ ≥ 7 dB(A) NLR: 0			
Impacted Receptors Benefited: 10			Total Benefits: 10			
Non-Impacted Receptors Benefited: 0						
Section C, Barrier C-5 Parameters						
Length (ft): 800			Area / Benefit (ft ²): 1920			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 19200						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C176	125 S Bear Creek Rd	10	C	71	66	5
C177	68 S Bear Creek Rd	1	B	R/W	R/W	N/A
C178	74 S Bear Creek Rd	1	B	R/W	R/W	N/A
C179	76 S Bear Creek Rd	1	B	R/W	R/W	N/A
C180	86 S Bear Creek Rd	1	B	R/W	R/W	N/A
C181	87 S Bear Creek Rd	1	B	66	66	0
C182	89 A S Bear Creek Rd	1	B	66	66	0
C184	119 S Bear Creek Rd	1	B	64	64	0
C185	125 S Bear Creek Rd	1	B	63	63	0
C401	97 S Bear Creek Rd	1	B	60	60	0
C402	94 S Bear Creek Rd	1	B	R/W	R/W	N/A
C403	98 S Bear Creek Rd	1	B	66	66	0
C404	96 S Bear Creek Rd	1	B	64	64	0
C405	92 S Bear Creek Rd	1	B	65	65	0
C406	115 S Bear Creek Rd	1	B	62	62	0
C748	77 S Bear Creek Rd	1	C	70	69	1
C749	95 S Bear Creek Rd	1	B	62	63	-1
C750	88 S Bear Creek Rd	1	B	65	65	0
C751	81 S Bear Creek Rd	1	B	68	69	-1
C752	79 S Bear Creek Rd	1	E	69	70	-1
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWC-5 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWC-5 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-5 **COUNTY(IES)** - Buncombe

IMPACTS - 15 **# BENEFITS** - 10 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? NO
2. Is the quantity per benefited receptor of 1920 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO

PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Noise Barrier Analysis
Section C, Barrier C-6

Section C, Barrier C-6 Acoustical Performance Summary						
Impacts: 5			Benefited Receptors @ ≥ 7 dB(A) NLR: 3			
Impacted Receptors Benefited: 4			Total Benefits: 6			
Non-Impacted Receptors Benefited: 2						
Section C, Barrier C-6 Parameters						
Length (ft): 1300			Area / Benefit (ft ²): 5200			
Average Height (ft): 24			Allowable Area / Benefit (ft ²): 1500			
Area (ft ²): 31200						
Receptor No.	Address	E.R.s	NAC Category	Future Year Build dB(A)	dB(A) With Barrier	Noise Level Red. (dB(A))
C336	202 E Oakview Rd	1	B	71	64	7
C337	210 E Oakview Rd	1	B	68	64	4
C338	216 E Oakview Rd	1	B	65	60	5
C339	220 E Oakview Rd	1	B	65	60	5
C340	220 1/2 E Oakview Rd	1	B	62	60	2
C342	236 E Oakview Rd	1	B	61	60	1
C347	255 E Oakview Rd	1	B	60	60	0
C349	261 E Oakview Rd	1	B	61	61	0
C735	191 E Oakview Rd	1	B	70	63	7
C736	193 E Oakview Rd	1	B	68	61	7
C737	195 E Oakview Rd	1	B	64	60	4
C738	197 E Oakview Rd	1	B	63	60	3
C739	199 E Oakview Rd	1	B	62	60	2
C740	201 E Oakview Rd	1	B	63	60	3
C741	203 E Oakview Rd	1	B	62	60	2
C742	205 E Oakview Rd	1	B	62	60	2
C743	212 E Oakview Rd	1	B	67	62	5
C849	209 E Oakview Rd	1	B	62	60	2
C850	211 E Oakview Rd	1	B	61	60	1
C851	215 E Oakview Rd	1	B	62	60	2
C852	217 E Oakview Rd	1	B	61	60	1
C853	219 E Oakview Rd	1	B	60	60	0
C854	221 E Oakview Rd	1	B	61	60	1
C855	223 E Oakview Rd	1	B	60	60	0
<p>Impact = </p> <p>5 to 6 dB(A) Reduction = </p> <p>≥ 7 dB(A) Reduction = </p>						
<p>NWC-6 does NOT preliminarily meet NCDOT feasibility and reasonableness criteria due to Area/Benefit exceeding the Allowable Area/Benefit. NWC-6 is NOT likely to be incorporated into the project.</p>						

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - I-26 Connector **TIP#** - I-2513

NOISE WALL # - NWC-6 **COUNTY(IES)** - Buncombe

IMPACTS - 5 **# BENEFITS** - 6 **NAC:** A B C D E

A. FEASIBILITY:

1. Can a 5-dB(A) reduction in traffic noise levels be achieved for at least two impacted receptors? YES
2. Does topography negatively affect the proposed noise wall? NO
3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? NO
4. Is there control of access in the vicinity of the proposed noise wall? YES

B. REASONABLENESS

1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? YES
2. Is the quantity per benefited receptor of 5200 square feet less than the maximum allowable quantity per benefited receptor of 1500 square feet? NO

C. NOISE WALL PRELIMINARY DECISION

1. Is the noise wall preliminarily feasible? YES
2. Is the noise wall preliminarily reasonable? NO
3. Is the noise wall likely? NO




PREPARED BY: Hunter Moore **DATE PREPARED:** 06/07/2019

Appendix E

Predicted Traffic Volumes

I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2015 No-Build
PM Peak Hour Traffic Forecast

Notes: 1. Refer to design files for laneage information 2. Cells highlighted in yellow indicate volumes from the LOS C-D Calculator

 Mainline Interstate
 Ramp
 Y-Line

US 19/23/74A
Smokey Park Hwy

	Vol	Speed		Vol	Speed
Car	1,693	50	Car	1,132	50
Med	71	50	Med	48	50
Hvy	18	50	Hvy	12	50

	Vol	Speed		Vol	Speed
Car	1,957	50	Car	672	50
Med	82	50	Med	28	50
Hvy	21	50	Hvy	7	50

	Vol	Speed
Car	931	30
Med	39	30
Hvy	10	30

	Vol	Speed
Car	143	50
Med	6	50
Hvy	2	50

	Vol	Speed
Car	2,082	70
Med	100	70
Hvy	326	70

	Vol	Speed
Car	3,613	70
Med	122	70
Hvy	325	70



	Vol	Speed
Car	2,185	70
Med	105	70
Hvy	342	70



	Vol	Speed
Car	1,652	70
Med	80	70
Hvy	259	70

	Vol	Speed
Car	2,956	70
Med	100	70
Hvy	266	70

	Vol	Speed
Car	137	50
Med	6	50
Hvy	1	50

	Vol	Speed
Car	1,045	50
Med	44	50
Hvy	11	50

Acton Cir

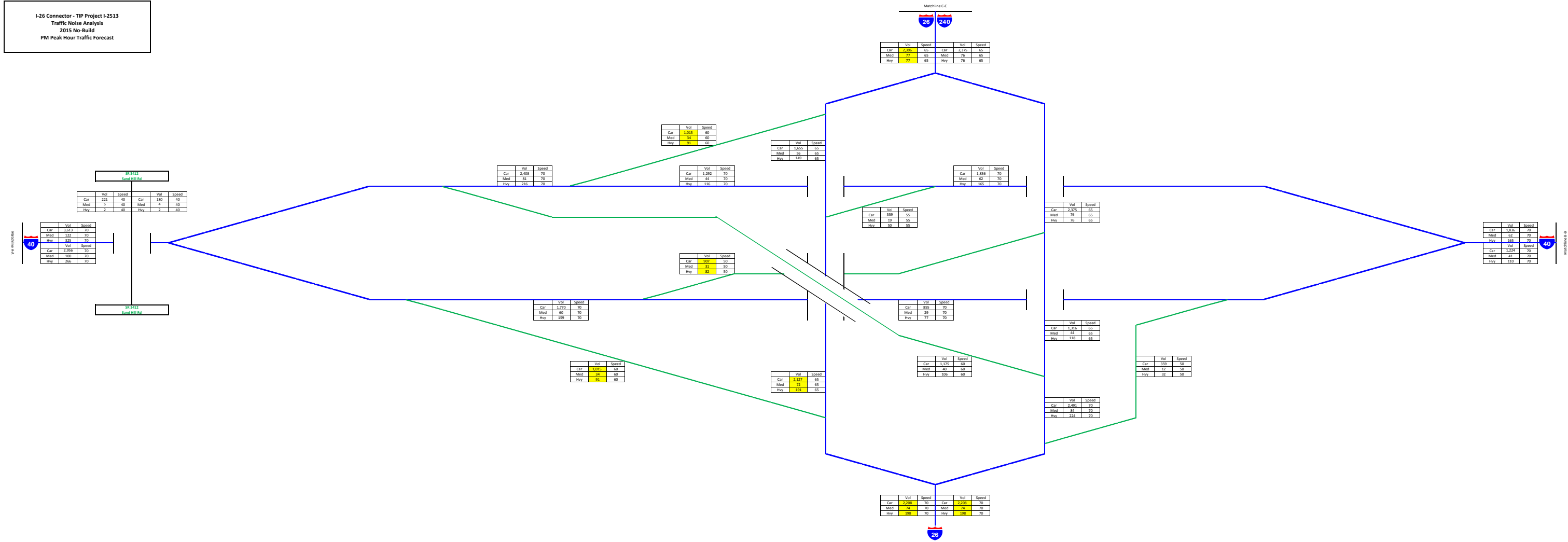
	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	437	30
Med	9	30
Hvy	5	30

	Vol	Speed		Vol	Speed
Car	1,783	50	Car	1,266	50
Med	56	50	Med	40	50
Hvy	19	50	Hvy	13	50

US 19/23/74A
Smokey Park Hwy

I-26 Connector - TIP Project I-2513
 Traffic Noise Analysis
 2015 No-Build
 PM Peak Hour Traffic Forecast



I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2015 No-Build
PM Peak Hour Traffic Forecast

NC 191
Brevard Rd

	Vol	Speed		Vol	Speed
Car	694	50	Car	1,168	50
Med	29	50	Med	49	50
Hvy	7	50	Hvy	12	50

	Vol	Speed
Car	970	50
Med	52	50
Hvy	10	50

S Bear Creek Rd

	Vol	Speed
Car	377	40
Med	8	40
Hvy	4	40

	Vol	Speed
Car	271	40
Med	6	40
Hvy	3	40

	Vol	Speed
Car	80	30
Med	4	30
Hvy	1	30

	Vol	Speed
Car	595	50
Med	32	50
Hvy	6	50

Matchline B-B

	Vol	Speed
Car	1,836	70
Med	62	70
Hvy	165	70



	Vol	Speed
Car	1,224	70
Med	41	70
Hvy	110	70

	Vol	Speed
Car	913	50
Med	49	50
Hvy	10	50

	Vol	Speed
Car	71	30
Med	4	30
Hvy	1	30

	Vol	Speed
Car	1,770	70
Med	60	70
Hvy	159	70

	Vol	Speed
Car	1,151	70
Med	39	70
Hvy	103	70

	Vol	Speed
Car	2,208	70
Med	74	70
Hvy	198	70



	Vol	Speed
Car	444	50
Med	24	50
Hvy	5	50

	Vol	Speed		Vol	Speed
Car	815	50	Car	1,246	50
Med	43	50	Med	66	50
Hvy	9	50	Hvy	13	50

E Oakview Rd

	Vol	Speed
Car	32	30
Med	11	30
Hvy	2	30

	Vol	Speed
Car	46	30
Med	15	30
Hvy	3	30

	Vol	Speed
Car	222	30
Med	12	30
Hvy	2	30

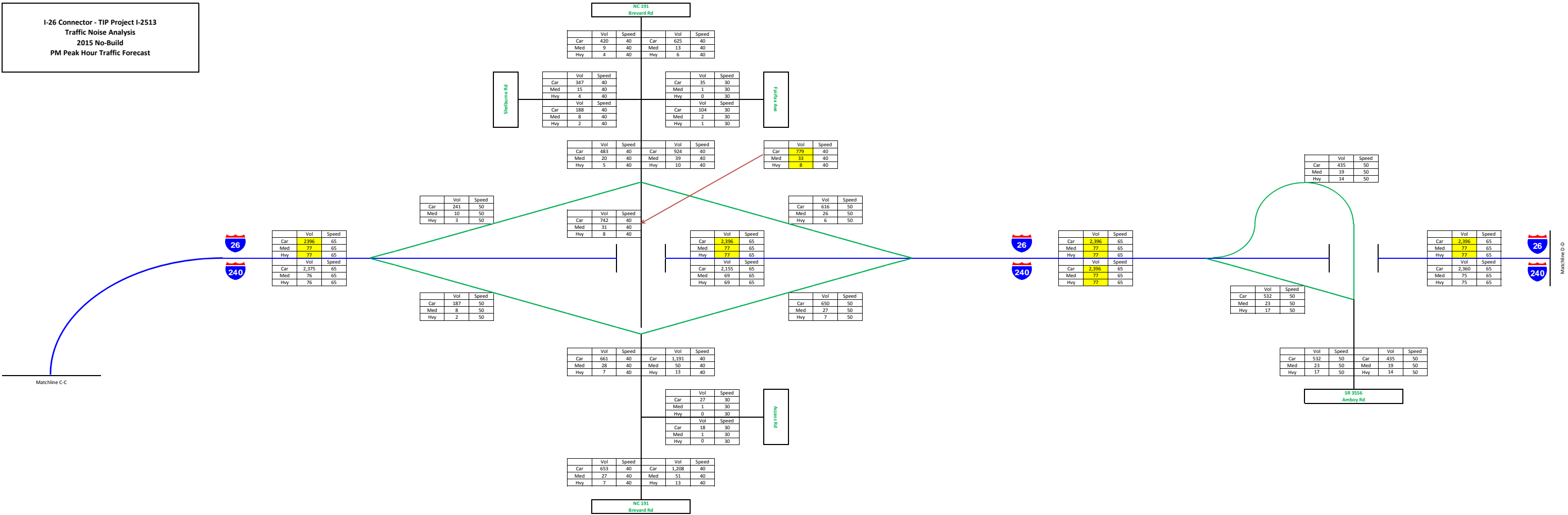
	Vol	Speed
Car	184	30
Med	10	30
Hvy	2	30

E Oakview Rd

	Vol	Speed		Vol	Speed
Car	767	50	Car	1,133	50
Med	41	50	Med	60	50
Hvy	8	50	Hvy	12	50

NC 191
Brevard Rd

I-26 Connector - TIP Project I-2513
 Traffic Noise Analysis
 2015 No-Build
 PM Peak Hour Traffic Forecast



I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2015 No-Build
PM Peak Hour Traffic Forecast

Matchline E-E



	Vol	Speed		Vol	Speed
Car	2,396	65	Car	2,396	65
Med	77	65	Med	77	65
Hvy	77	65	Hvy	77	65

Burton St

	Vol	Speed		Vol	Speed
Car	69	30	Car	102	30
Med	1	30	Med	2	30
Hvy	1	30	Hvy	1	30

	Vol	Speed
Car	469	50
Med	10	50
Hvy	5	50

	Vol	Speed
Car	427	50
Med	9	50
Hvy	4	50

Westwood Pl

	Vol	Speed		Vol	Speed
Car	280	30	Car	195	30
Med	6	30	Med	4	30
Hvy	3	30	Hvy	2	30

US 19/23 Business
Haywood Rd

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	907	30
Med	19	30
Hvy	9	30

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	595	30
Med	12	30
Hvy	6	30

SR 3548
Haywood Rd

	Vol	Speed		Vol	Speed
Car	2,396	65	Car	2,147	65
Med	77	65	Med	69	65
Hvy	77	65	Hvy	69	65

	Vol	Speed
Car	446	50
Med	9	50
Hvy	5	50

	Vol	Speed		Vol	Speed
Car	17	30	Car	18	30
Med	0	30	Med	0	30
Hvy	0	30	Hvy	0	30

Richmond Ave

	Vol	Speed		Vol	Speed
Car	128	45	Car	384	45
Med	3	45	Med	8	45
Hvy	1	45	Hvy	4	45

	Vol	Speed
Car	21	35
Med	0	35
Hvy	0	35

Montana Ave

	Vol	Speed
Car	299	50
Med	6	50
Hvy	3	50

	Vol	Speed
Car	33	35
Med	1	35
Hvy	0	35

	Vol	Speed		Vol	Speed
Car	192	45	Car	157	45
Med	4	45	Med	3	45
Hvy	2	45	Hvy	2	45

Hanover St

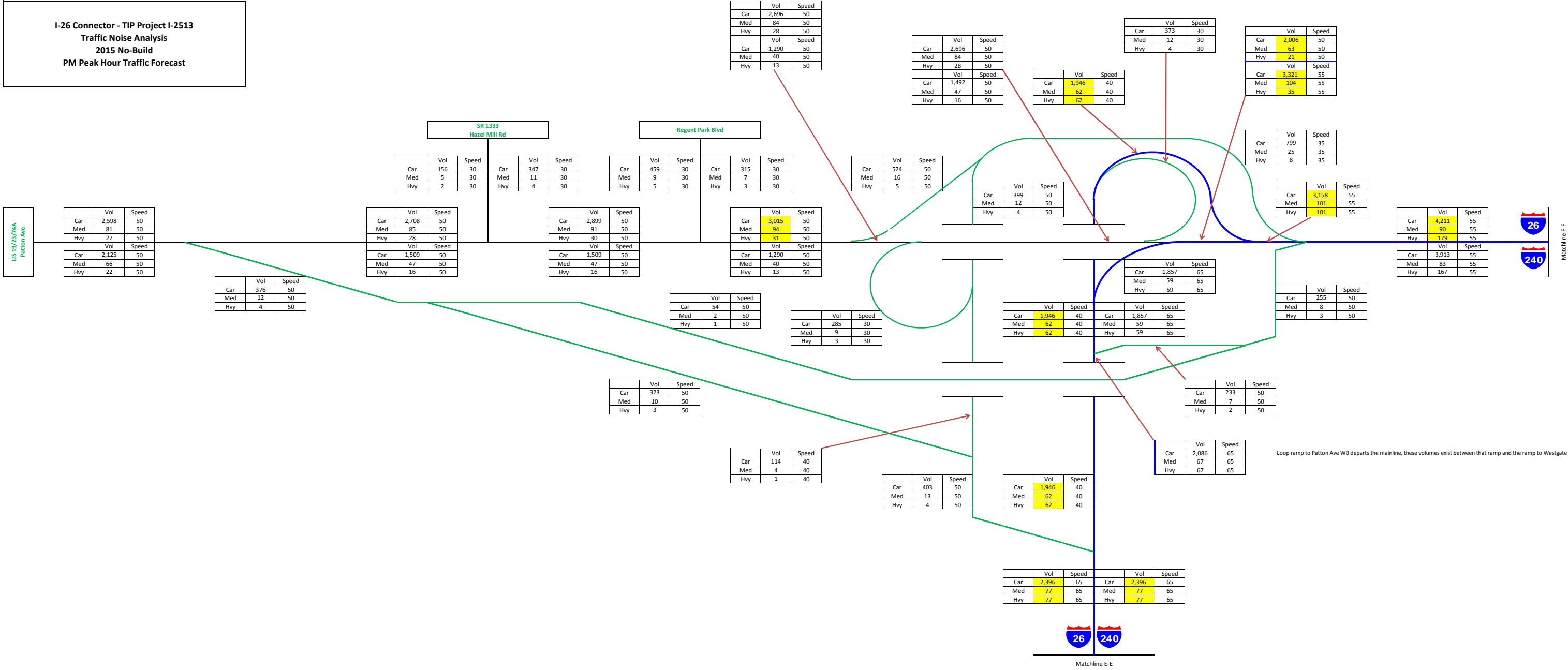
Matchline D-D



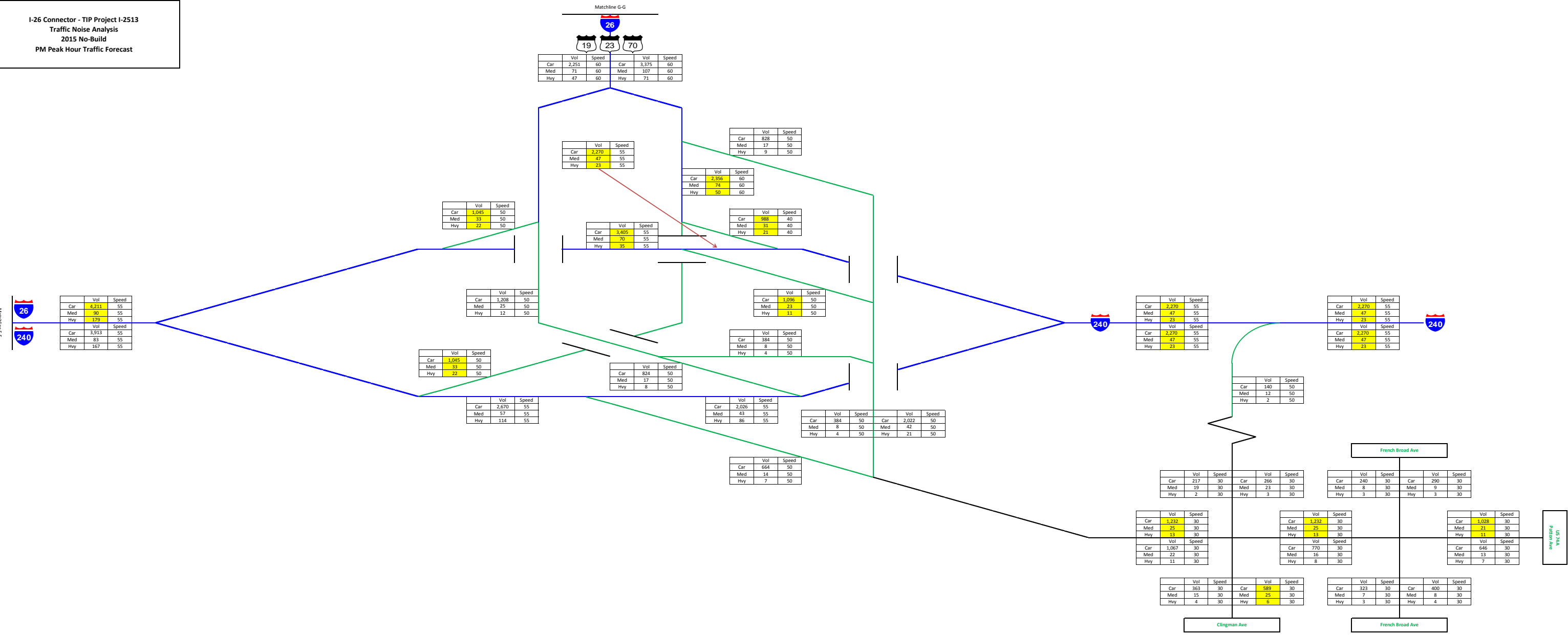
	Vol	Speed
Car	2,396	65
Med	77	65
Hvy	77	65

	Vol	Speed
Car	2,360	65
Med	75	65
Hvy	75	65

I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2015 No-Build
PM Peak Hour Traffic Forecast



I-26 Connector - TIP Project I-2513
 Traffic Noise Analysis
 2015 No-Build
 PM Peak Hour Traffic Forecast



		Speed		Speed	
		19	23	70	
Car	2,251	60	Car	3,375	60
Med	71	60	Med	107	60
Hvy	47	60	Hvy	71	60

		Speed	
Car	2,270	55	
Med	47	55	
Hvy	23	55	

		Speed	
Car	828	50	
Med	17	50	
Hvy	9	50	

		Speed	
Car	2,356	60	
Med	74	60	
Hvy	50	60	

		Speed	
Car	988	40	
Med	31	40	
Hvy	21	40	

		Speed	
Car	3,405	55	
Med	70	55	
Hvy	35	55	

		Speed	
Car	1,045	50	
Med	33	50	
Hvy	22	50	

		Speed	
Car	1,208	50	
Med	25	50	
Hvy	12	50	

		Speed	
Car	1,096	50	
Med	23	50	
Hvy	11	50	

		Speed	
Car	384	50	
Med	8	50	
Hvy	4	50	

		Speed	
Car	824	50	
Med	17	50	
Hvy	8	50	

		Speed	
Car	2,026	55	
Med	43	55	
Hvy	86	55	

		Speed		Speed	
Car	384	50	Car	2,022	50
Med	8	50	Med	42	50
Hvy	4	50	Hvy	21	50

		Speed	
Car	664	50	
Med	14	50	
Hvy	7	50	

		Speed	
Car	2,270	55	
Med	47	55	
Hvy	23	55	

		Speed	
Car	2,270	55	
Med	47	55	
Hvy	23	55	

		Speed	
Car	140	50	
Med	12	50	
Hvy	2	50	

		Speed		Speed	
Car	217	30	Car	266	30
Med	19	30	Med	23	30
Hvy	2	30	Hvy	3	30

		Speed		Speed	
Car	240	30	Car	290	30
Med	8	30	Med	9	30
Hvy	3	30	Hvy	3	30

		Speed	
Car	1,232	30	
Med	25	30	
Hvy	13	30	

		Speed	
Car	1,232	30	
Med	25	30	
Hvy	13	30	

		Speed	
Car	1,028	30	
Med	21	30	
Hvy	11	30	

		Speed	
Car	1,067	30	
Med	22	30	
Hvy	11	30	

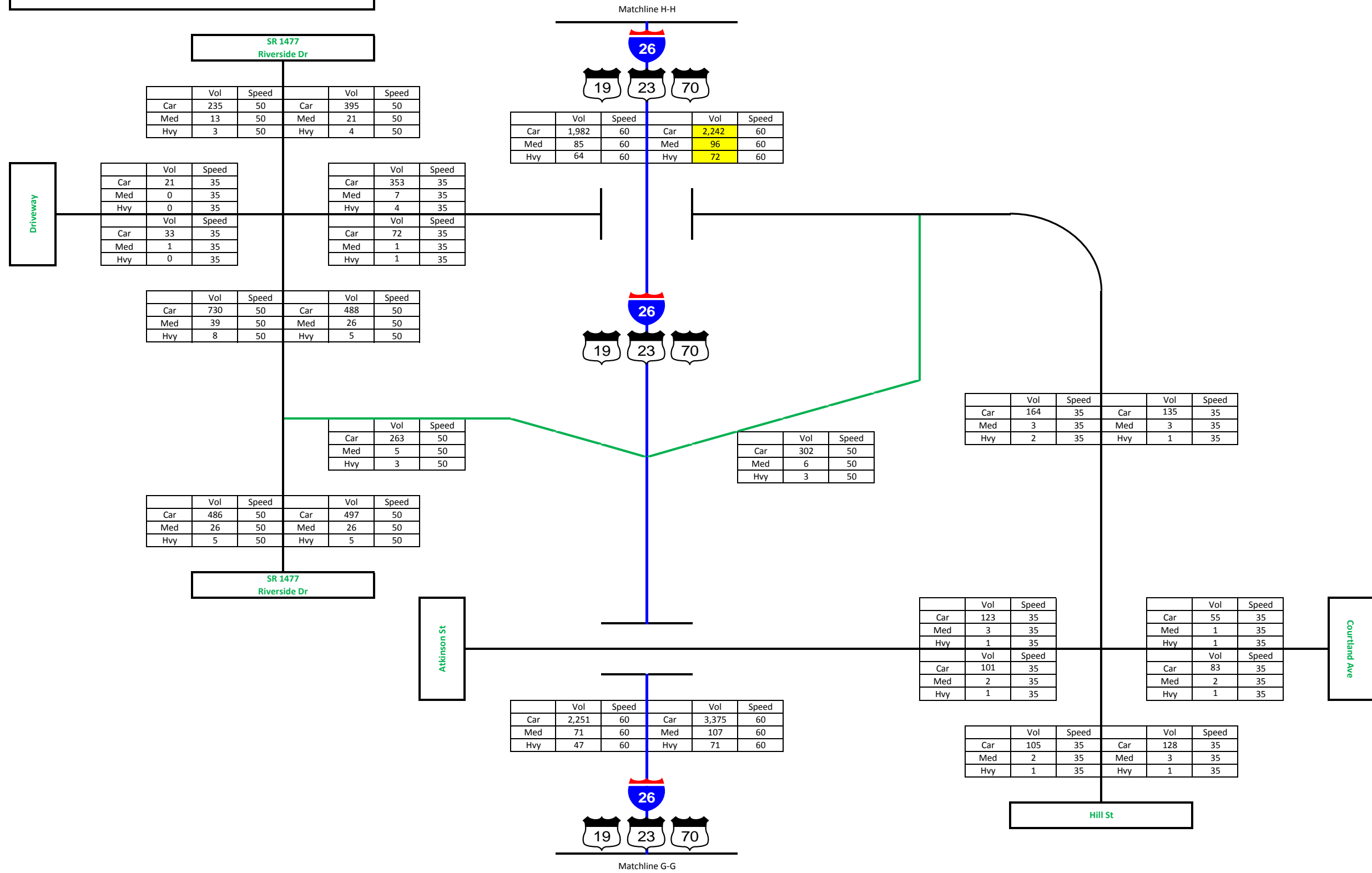
		Speed	
Car	770	30	
Med	16	30	
Hvy	8	30	

		Speed	
Car	646	30	
Med	13	30	
Hvy	7	30	

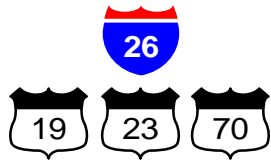
		Speed		Speed	
Car	363	30	Car	589	30
Med	15	30	Med	25	30
Hvy	4	30	Hvy	6	30

		Speed		Speed	
Car	323	30	Car	400	30
Med	7	30	Med	8	30
Hvy	3	30	Hvy	4	30

**I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2015 No-Build
PM Peak Hour Traffic Forecast**



I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2015 No-Build
PM Peak Hour Traffic Forecast



	Vol	Speed		Vol	Speed
Car	2,009	60	Car	2,343	60
Med	86	60	Med	101	60
Hvy	65	60	Hvy	76	60

	Vol	Speed
Car	323	50
Med	10	50
Hvy	3	50

	Vol	Speed
Car	311	50
Med	10	50
Hvy	3	50

	Vol	Speed		Vol	Speed
Car	1,726	60	Car	2,343	60
Med	74	60	Med	101	60
Hvy	56	60	Hvy	76	60

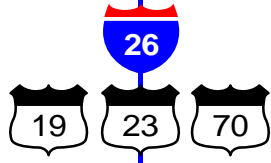
	Vol	Speed
Car	234	30
Med	7	30
Hvy	2	30

	Vol	Speed
Car	644	40
Med	20	40
Hvy	7	40

	Vol	Speed	Speed
Car	913	40	
Med	29	40	
Hvy	10	40	

	Vol	Speed		Vol	Speed
Car	692	40	Car	795	40
Med	14	40	Med	16	40
Hvy	7	40	Hvy	8	40

	Vol	Speed		Vol	Speed
Car	1,982	60	Car	2,242	60
Med	85	60	Med	96	60
Hvy	64	60	Hvy	72	60



Matchline H-H

NC 251
Riverside Dr

	Vol	Speed
Car	598	40
Med	19	40
Hvy	6	40

	Vol	Speed
Car	676	40
Med	21	40
Hvy	7	40

NC 251
Riverside Dr

Campus Dr

	Vol	Speed		Vol	Speed
Car	118	25	Car	64	25
Med	2	25	Med	1	25
Hvy	1	25	Hvy	1	25

	Vol	Speed
Car	671	40
Med	14	40
Hvy	7	40

	Vol	Speed
Car	992	40
Med	20	40
Hvy	10	40

	Vol	Speed
Car	603	40
Med	12	40
Hvy	6	40

	Vol	Speed
Car	911	40
Med	19	40
Hvy	9	40

SR 1781
Broadway




	Vol	Speed		Vol	Speed
Car	212	25	Car	141	25
Med	4	25	Med	3	25
Hvy	2	25	Hvy	1	25

Zillicoa St

	Vol	Speed
Car	360	50
Med	11	50
Hvy	4	50

I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2040 No-Build
PM Peak Hour Traffic Forecast

Notes: 1. Refer to design files for laneage information 2. Cells highlighted in yellow indicate volumes from the LOS C-D Calculator

 Mainline Interstate
 Ramp
 Y-Line

US 19/23/74A
Smokey Park Hwy

	Vol	Speed		Vol	Speed
Car	1,957	50	Car	1,651	50
Med	82	50	Med	70	50
Hvy	21	50	Hvy	17	50

	Vol	Speed		Vol	Speed
Car	1,957	50	Car	972	50
Med	82	50	Med	41	50
Hvy	21	50	Hvy	10	50

	Vol	Speed
Car	931	30
Med	39	30
Hvy	10	30

	Vol	Speed
Car	273	50
Med	11	50
Hvy	3	50

	Vol	Speed
Car	2,863	70
Med	138	70
Hvy	449	70

	Vol	Speed
Car	4,414	70
Med	149	70
Hvy	397	70

	Vol	Speed
Car	2,863	70
Med	138	70
Hvy	449	70

	Vol	Speed
Car	2,648	70
Med	128	70
Hvy	415	70

	Vol	Speed
Car	4,102	70
Med	138	70
Hvy	369	70

	Vol	Speed
Car	235	50
Med	10	50
Hvy	2	50

	Vol	Speed
Car	1,045	50
Med	44	50
Hvy	11	50

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed		Vol	Speed
Car	1,896	50	Car	1,372	50
Med	59	50	Med	43	50
Hvy	20	50	Hvy	14	50

	Vol	Speed
Car	601	30
Med	12	30
Hvy	6	30

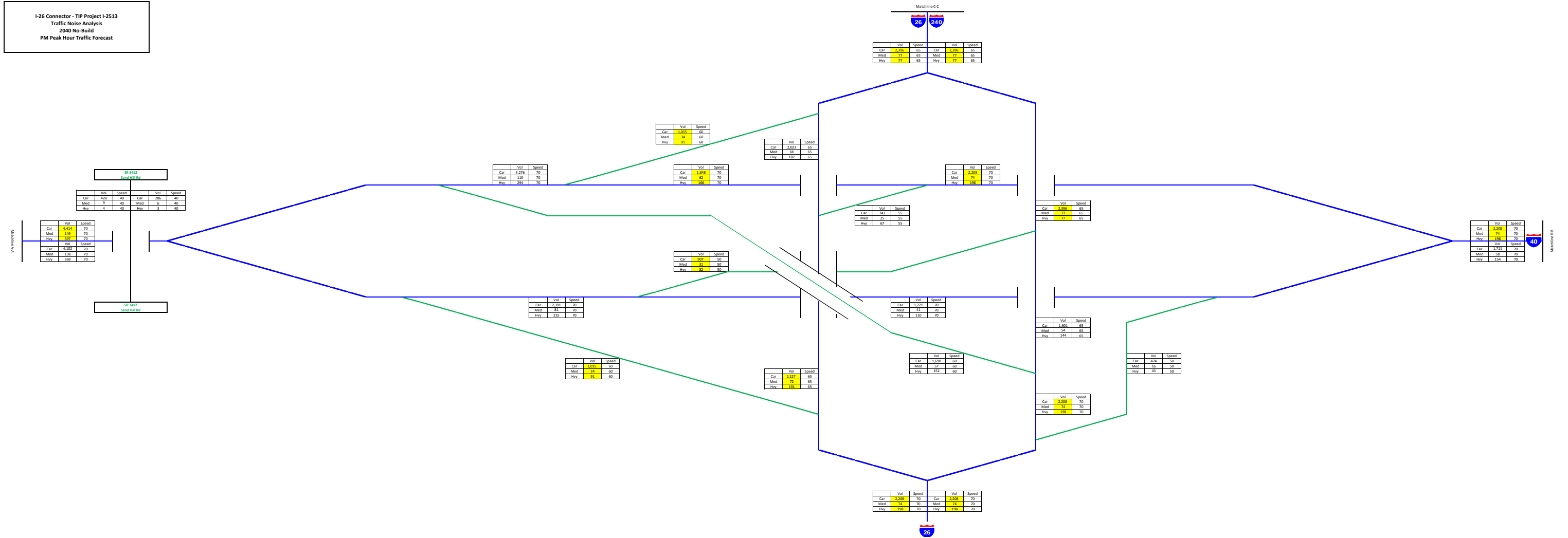
Acton Cir

US 19/23/74A
Smokey Park Hwy



Matchline A-A

I-26 Connector - TIP Project I-2513
 Traffic Noise Analysis
 2040 No-Build
 PM Peak Hour Traffic Forecast



I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2040 No-Build
PM Peak Hour Traffic Forecast

NC 191
Brevard Rd

	Vol	Speed		Vol	Speed
Car	950	50	Car	1,600	50
Med	40	50	Med	67	50
Hvy	10	50	Hvy	17	50

	Vol	Speed
Car	1,476	50
Med	79	50
Hvy	16	50

S Bear Creek Rd

	Vol	Speed
Car	613	40
Med	13	40
Hvy	6	40
	Vol	Speed
Car	439	40
Med	9	40
Hvy	5	40

	Vol	Speed
Car	142	30
Med	8	30
Hvy	2	30

	Vol	Speed
Car	823	50
Med	44	50
Hvy	9	50

Matchline B-B

	Vol	Speed
Car	2,208	70
Med	74	70
Hvy	198	70
	Vol	Speed
Car	1,711	70
Med	58	70
Hvy	154	70

	Vol	Speed
Car	1,346	50
Med	72	50
Hvy	14	50

	Vol	Speed
Car	118	30
Med	6	30
Hvy	1	30

	Vol	Speed
Car	2,208	70
Med	74	70
Hvy	198	70
	Vol	Speed
Car	1,585	70
Med	53	70
Hvy	142	70

	Vol	Speed
Car	2,208	70
Med	74	70
Hvy	198	70
	Vol	Speed
Car	2,172	70
Med	73	70
Hvy	195	70



	Vol	Speed		Vol	Speed
Car	1,268	50	Car	1,908	50
Med	67	50	Med	102	50
Hvy	13	50	Hvy	20	50

E Oakview Rd

	Vol	Speed
Car	53	30
Med	18	30
Hvy	3	30
	Vol	Speed
Car	78	30
Med	26	30
Hvy	4	30

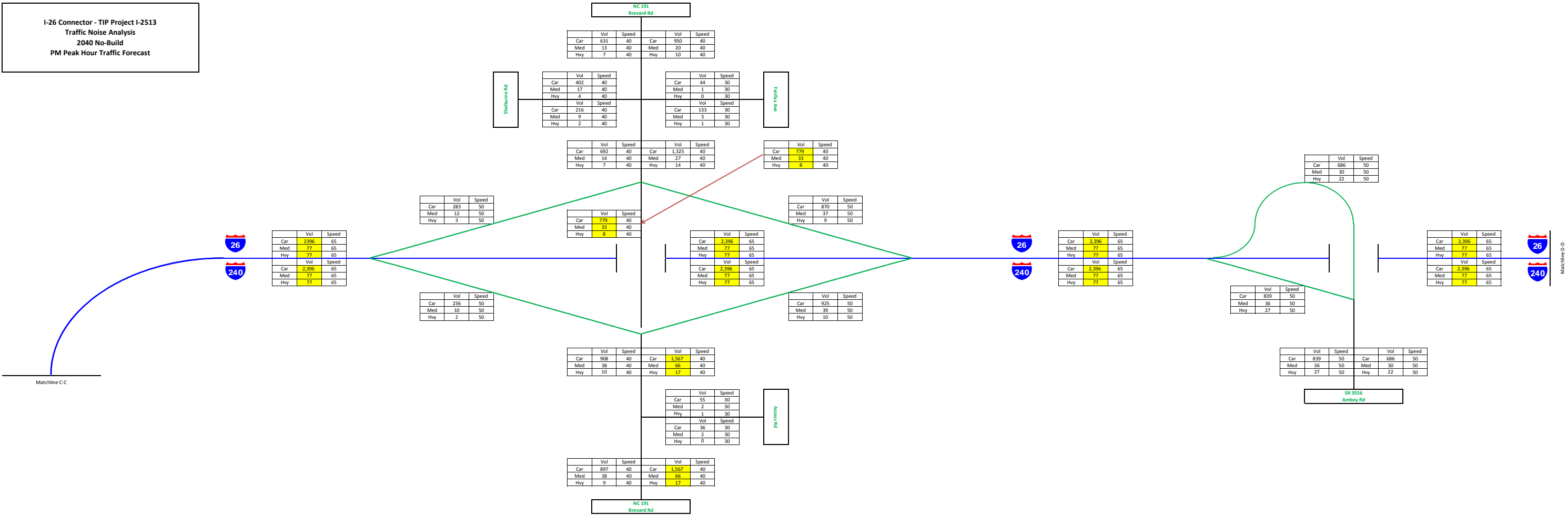
	Vol	Speed
Car	332	30
Med	18	30
Hvy	4	30
	Vol	Speed
Car	277	30
Med	15	30
Hvy	3	30

E Oakview Rd

	Vol	Speed		Vol	Speed
Car	1,220	50	Car	1,794	50
Med	65	50	Med	95	50
Hvy	13	50	Hvy	19	50

NC 191
Brevard Rd

I-26 Connector - TIP Project I-2513
 Traffic Noise Analysis
 2040 No-Build
 PM Peak Hour Traffic Forecast



I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2040 No-Build
PM Peak Hour Traffic Forecast

Matchline E-E



	Vol	Speed		Vol	Speed
Car	2,396	65	Car	2,396	65
Med	77	65	Med	77	65
Hvy	77	65	Hvy	77	65

Burton St

	Vol	Speed		Vol	Speed
Car	104	30	Car	152	30
Med	2	30	Med	3	30
Hvy	1	30	Hvy	2	30

	Vol	Speed
Car	617	50
Med	13	50
Hvy	6	50

	Vol	Speed
Car	544	50
Med	11	50
Hvy	6	50

Westwood Pl

	Vol	Speed		Vol	Speed
Car	503	30	Car	353	30
Med	10	30	Med	7	30
Hvy	5	30	Hvy	4	30

US 19/23 Business
Haywood Rd

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	1,232	30
Med	25	30
Hvy	13	30

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

SR 3548
Haywood Rd

	Vol	Speed		Vol	Speed
Car	2,396	65	Car	2,396	65
Med	77	65	Med	77	65
Hvy	77	65	Hvy	77	65

	Vol	Speed
Car	446	50
Med	9	50
Hvy	5	50

	Vol	Speed		Vol	Speed
Car	22	30	Car	24	30
Med	0	30	Med	1	30
Hvy	0	30	Hvy	0	30

Richmond Ave

	Vol	Speed		Vol	Speed
Car	235	45	Car	559	45
Med	5	45	Med	12	45
Hvy	2	45	Hvy	6	45

	Vol	Speed
Car	25	35
Med	1	35
Hvy	0	35

Montana Ave

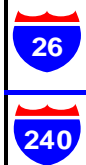
	Vol	Speed
Car	370	50
Med	8	50
Hvy	4	50

	Vol	Speed
Car	36	35
Med	1	35
Hvy	0	35

	Vol	Speed		Vol	Speed
Car	262	45	Car	227	45
Med	5	45	Med	5	45
Hvy	3	45	Hvy	2	45

Hanover St

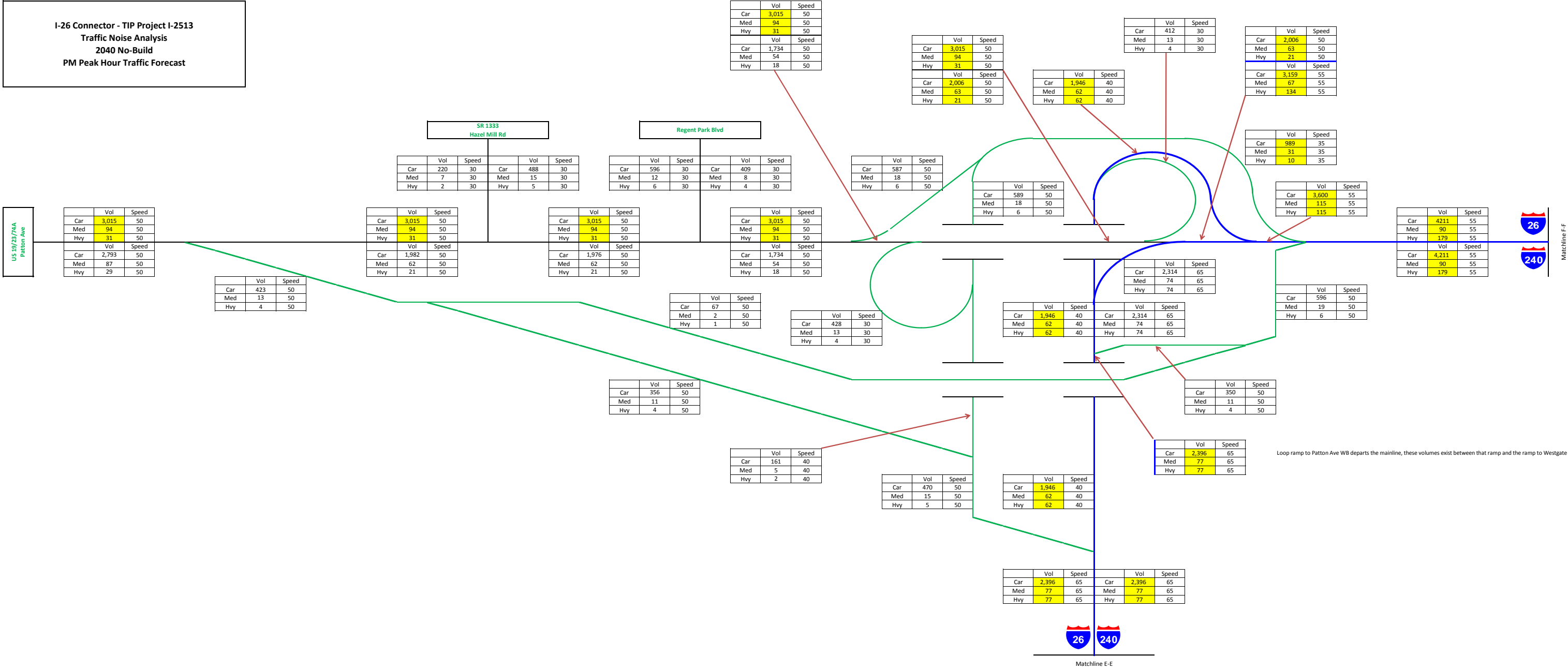
Matchline D-D



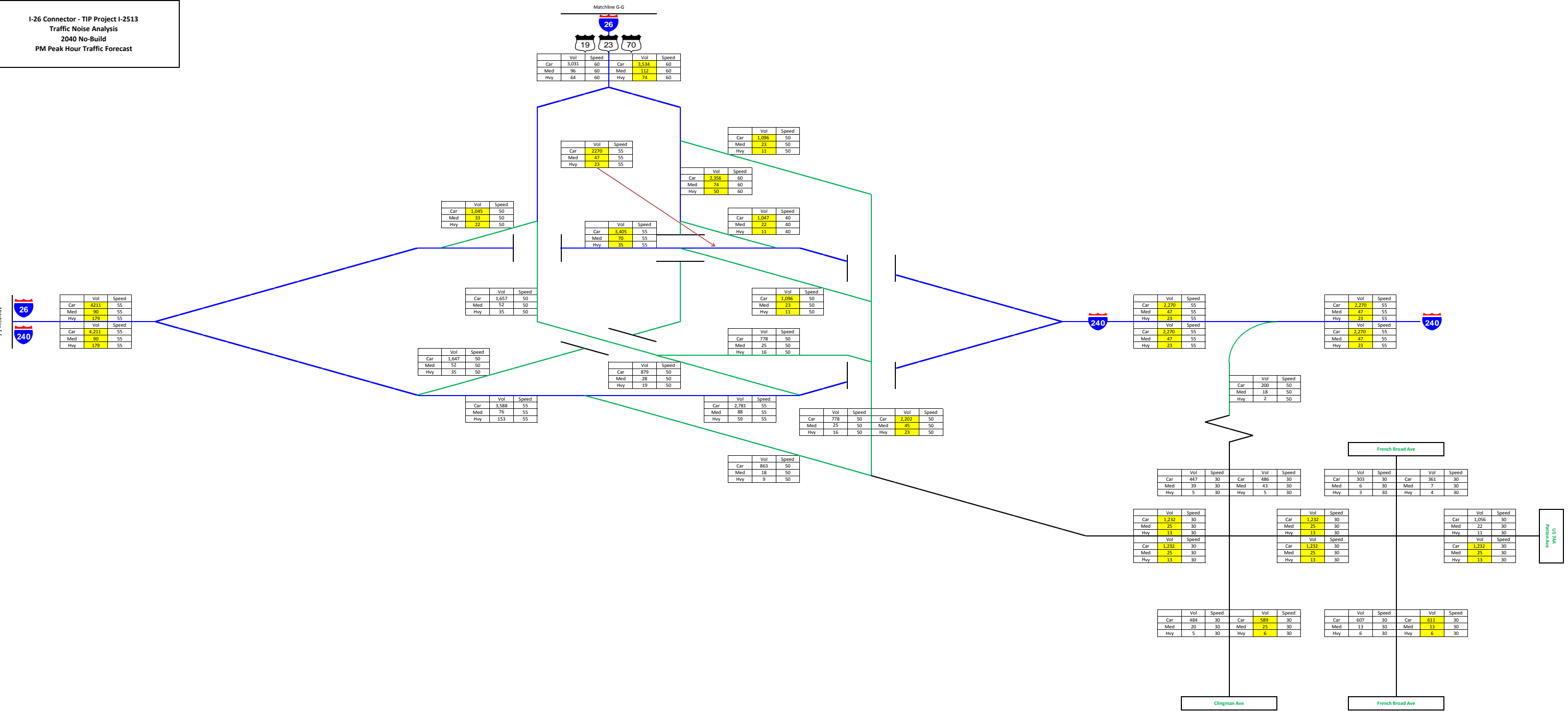
	Vol	Speed
Car	2,396	65
Med	77	65
Hvy	77	65

	Vol	Speed
Car	2,396	65
Med	77	65
Hvy	77	65

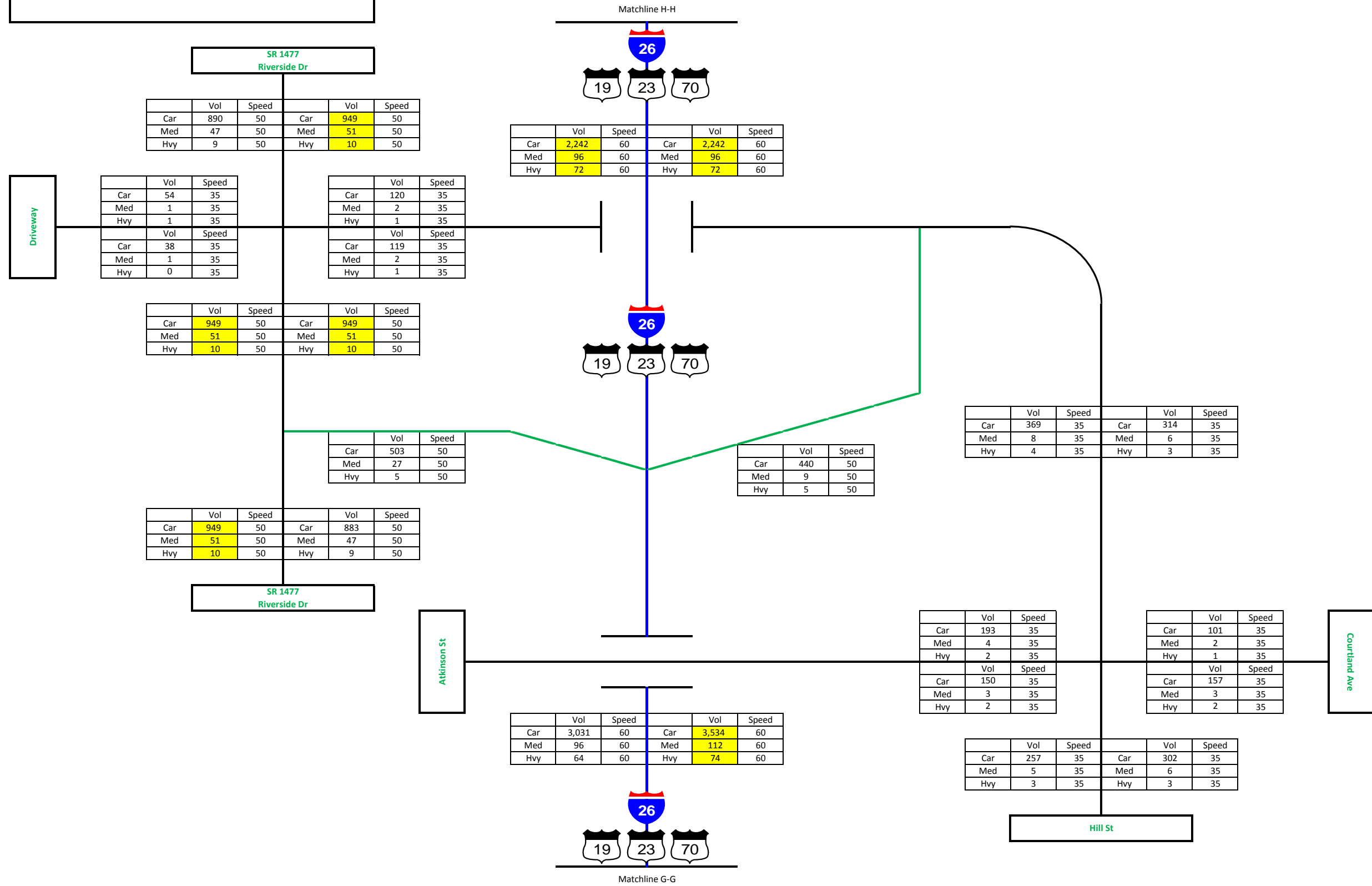
I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2040 No-Build
PM Peak Hour Traffic Forecast



I-26 Connector - TIP Project I-2513
 Traffic Noise Analysis
 2040 No-Build
 PM Peak Hour Traffic Forecast



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	Vol	Speed		Vol	Speed
Car	890	50	Car	949	50
Med	47	50	Med	51	50
Hvy	9	50	Hvy	10	50

	Vol	Speed		Vol	Speed
Car	2,242	60	Car	2,242	60
Med	96	60	Med	96	60
Hvy	72	60	Hvy	72	60

	Vol	Speed
Car	54	35
Med	1	35
Hvy	1	35

	Vol	Speed
Car	120	35
Med	2	35
Hvy	1	35

	Vol	Speed
Car	38	35
Med	1	35
Hvy	0	35

	Vol	Speed
Car	119	35
Med	2	35
Hvy	1	35

	Vol	Speed		Vol	Speed
Car	949	50	Car	949	50
Med	51	50	Med	51	50
Hvy	10	50	Hvy	10	50

	Vol	Speed
Car	503	50
Med	27	50
Hvy	5	50

	Vol	Speed
Car	440	50
Med	9	50
Hvy	5	50

	Vol	Speed		Vol	Speed
Car	369	35	Car	314	35
Med	8	35	Med	6	35
Hvy	4	35	Hvy	3	35

	Vol	Speed		Vol	Speed
Car	949	50	Car	883	50
Med	51	50	Med	47	50
Hvy	10	50	Hvy	9	50

	Vol	Speed
Car	193	35
Med	4	35
Hvy	2	35

	Vol	Speed
Car	101	35
Med	2	35
Hvy	1	35

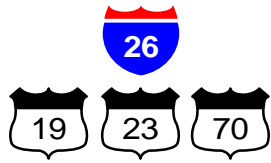
	Vol	Speed		Vol	Speed
Car	3,031	60	Car	3,534	60
Med	96	60	Med	112	60
Hvy	64	60	Hvy	74	60

	Vol	Speed
Car	150	35
Med	3	35
Hvy	2	35

	Vol	Speed
Car	157	35
Med	3	35
Hvy	2	35

	Vol	Speed		Vol	Speed
Car	257	35	Car	302	35
Med	5	35	Med	6	35
Hvy	3	35	Hvy	3	35

I-26 Connector - TIP Project I-2513
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	Vol	Speed		Vol	Speed
Car	2,343	60	Car	2,343	60
Med	101	60	Med	101	60
Hvy	76	60	Hvy	76	60

	Vol	Speed
Car	966	50
Med	30	50
Hvy	10	50

	Vol	Speed
Car	972	50
Med	30	50
Hvy	10	50

	Vol	Speed		Vol	Speed
Car	2,038	60	Car	2,343	60
Med	88	60	Med	101	60
Hvy	66	60	Hvy	76	60

	Vol	Speed
Car	613	30
Med	19	30
Hvy	6	30

	Vol	Speed
Car	898	40
Med	28	40
Hvy	9	40

	Vol	Speed	Speed
Car	1,529	40	
Med	48	40	
Hvy	16	40	

Campus Dr

	Vol	Speed		Vol	Speed
Car	169	25	Car	92	25
Med	3	25	Med	2	25
Hvy	2	25	Hvy	1	25

	Vol	Speed
Car	1,003	40
Med	21	40
Hvy	10	40

	Vol	Speed
Car	897	40
Med	19	40
Hvy	9	40

	Vol	Speed
Car	1,486	40
Med	31	40
Hvy	15	40

	Vol	Speed
Car	1,364	40
Med	28	40
Hvy	14	40

**NC 251
Riverside Dr**

	Vol	Speed
Car	797	40
Med	25	40
Hvy	8	40

	Vol	Speed
Car	797	40
Med	25	40
Hvy	8	40

	Vol	Speed		Vol	Speed
Car	797	40	Car	797	40
Med	25	40	Med	25	40
Hvy	8	40	Hvy	8	40

**NC 251
Riverside Dr**

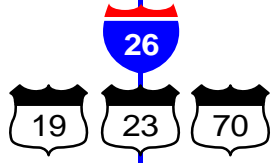
**SR 1781
Broadway**

	Vol	Speed		Vol	Speed
Car	271	25	Car	178	25
Med	6	25	Med	4	25
Hvy	3	25	Hvy	2	25

Zillicoa St

	Vol	Speed
Car	795	50
Med	25	50
Hvy	8	50




	Vol	Speed		Vol	Speed
Car	2,242	60	Car	2,242	60
Med	96	60	Med	96	60
Hvy	72	60	Hvy	72	60

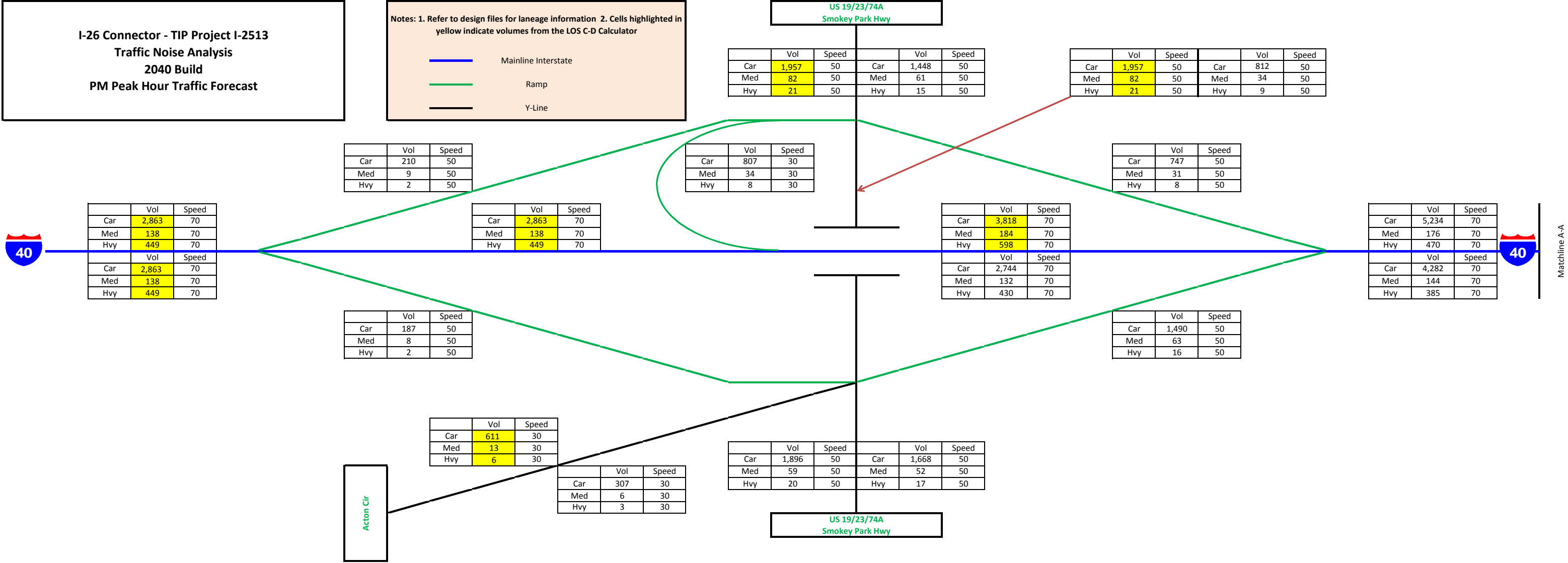


Matchline H-H

I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2040 Build
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Notes: 1. Refer to design files for laneage information 2. Cells highlighted in yellow indicate volumes from the LOS C-D Calculator

 Mainline Interstate
 Ramp
 Y-Line



	Vol	Speed
Car	2,863	70
Med	138	70
Hvy	449	70

	Vol	Speed
Car	2,863	70
Med	138	70
Hvy	449	70

	Vol	Speed
Car	210	50
Med	9	50
Hvy	2	50

	Vol	Speed
Car	2,863	70
Med	138	70
Hvy	449	70

	Vol	Speed
Car	187	50
Med	8	50
Hvy	2	50

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	307	30
Med	6	30
Hvy	3	30

	Vol	Speed
Car	807	30
Med	34	30
Hvy	8	30

US 19/23/74A Smokey Park Hwy					
	Vol	Speed		Vol	Speed
Car	1,957	50	Car	1,448	50
Med	82	50	Med	61	50
Hvy	21	50	Hvy	15	50

	Vol	Speed
Car	3,818	70
Med	184	70
Hvy	598	70

	Vol	Speed
Car	2,744	70
Med	132	70
Hvy	430	70

US 19/23/74A Smokey Park Hwy					
	Vol	Speed		Vol	Speed
Car	1,896	50	Car	1,668	50
Med	59	50	Med	52	50
Hvy	20	50	Hvy	17	50

	Vol	Speed		Vol	Speed
Car	1,957	50	Car	812	50
Med	82	50	Med	34	50
Hvy	21	50	Hvy	9	50

	Vol	Speed
Car	747	50
Med	31	50
Hvy	8	50

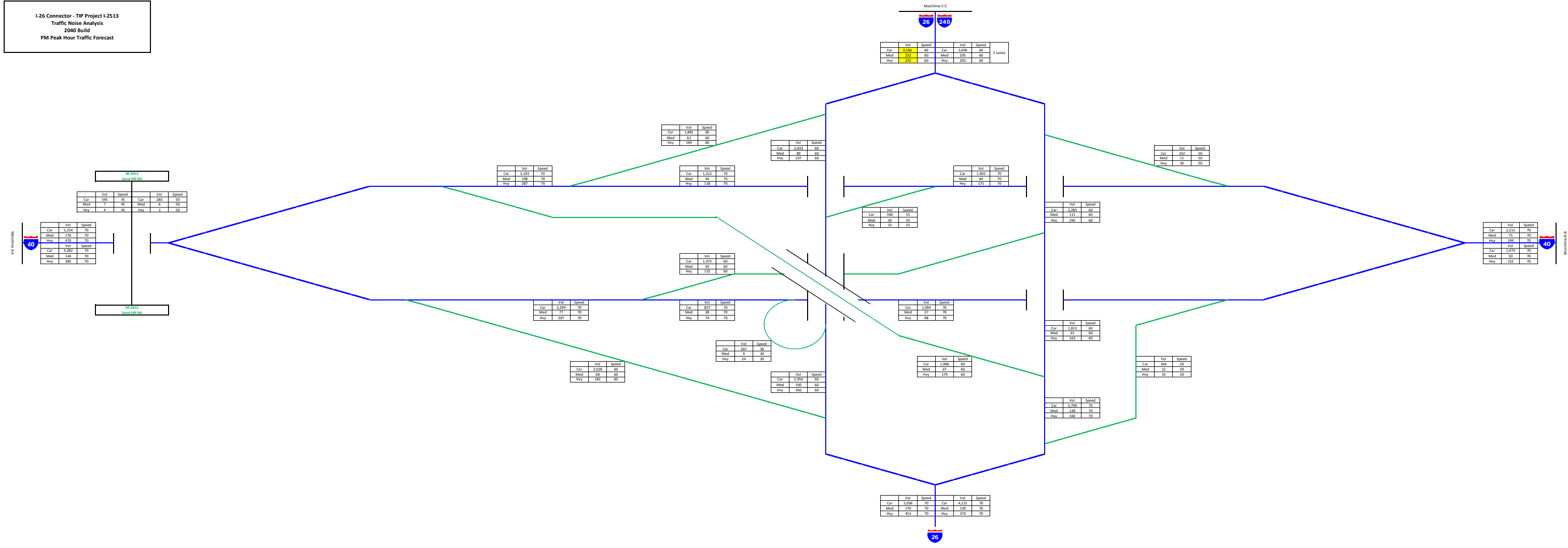
	Vol	Speed
Car	1,490	50
Med	63	50
Hvy	16	50

	Vol	Speed
Car	5,234	70
Med	176	70
Hvy	470	70

	Vol	Speed
Car	4,282	70
Med	144	70
Hvy	385	70

Matchline A-A

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NC 191
Brevard Rd

	Vol	Speed		Vol	Speed
Car	811	50	Car	1,360	50
Med	34	50	Med	57	50
Hvy	9	50	Hvy	14	50

	Vol	Speed
Car	905	50
Med	48	50
Hvy	10	50

S Bear Creek Rd

	Vol	Speed
Car	565	40
Med	12	40
Hvy	6	40

	Vol	Speed
Car	406	40
Med	8	40
Hvy	4	40

	Vol	Speed
Car	51	30
Med	3	30
Hvy	1	30

	Vol	Speed
Car	1,021	50
Med	54	50
Hvy	11	50

Matchline B-B

	Vol	Speed
Car	2,211	70
Med	75	70
Hvy	199	70

	Vol	Speed
Car	1,474	70
Med	50	70
Hvy	132	70

	Vol	Speed
Car	1,179	50
Med	63	50
Hvy	13	50

	Vol	Speed
Car	43	30
Med	2	30
Hvy	0	30

	Vol	Speed
Car	2,189	70
Med	74	70
Hvy	197	70

	Vol	Speed
Car	1,416	70
Med	48	70
Hvy	127	70

	Vol	Speed
Car	3,192	70
Med	108	70
Hvy	287	70

	Vol	Speed
Car	2,127	70
Med	72	70
Hvy	191	70



	Vol	Speed
Car	904	50
Med	48	50
Hvy	10	50

	Vol	Speed
Car	1,365	50
Med	73	50
Hvy	15	50

	Vol	Speed
Car	904	50
Med	48	50
Hvy	10	50

	Vol	Speed
Car	1,365	50
Med	73	50
Hvy	15	50

E Oakview Rd

	Vol	Speed
Car	53	30
Med	18	30
Hvy	3	30

	Vol	Speed
Car	76	30
Med	25	30
Hvy	4	30

	Vol	Speed
Car	331	30
Med	18	30
Hvy	4	30

	Vol	Speed
Car	277	30
Med	15	30
Hvy	3	30

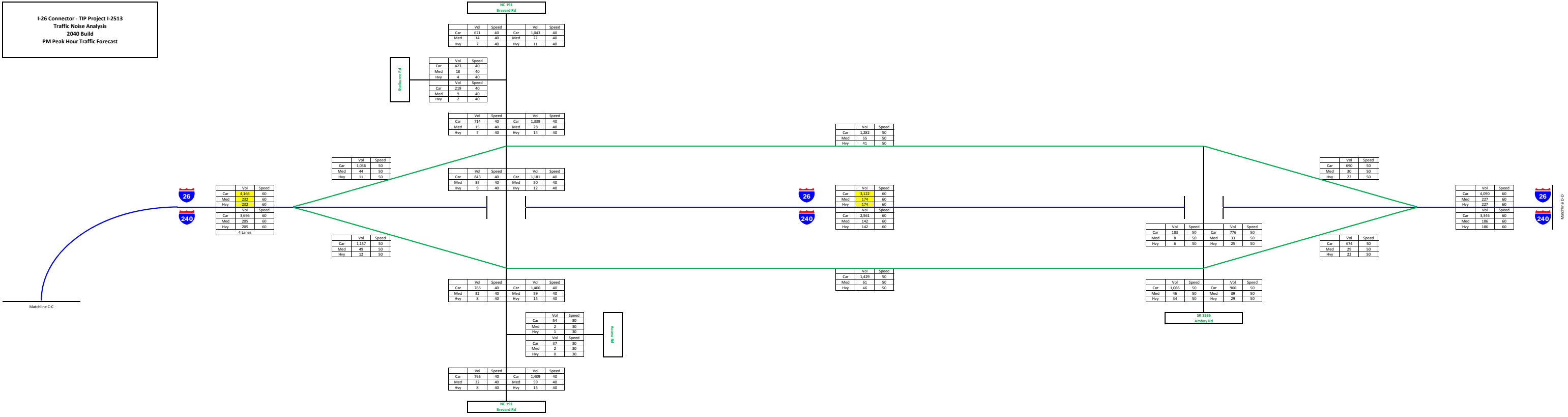
E Oakview Rd

	Vol	Speed
Car	854	50
Med	45	50
Hvy	9	50

	Vol	Speed
Car	1,248	50
Med	66	50
Hvy	13	50

NC 191
Brevard Rd

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I-26 Connector - TIP Project I-2513
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2040 Build
PM Peak Hour Traffic Forecast

Matchline E-E



	Vol	Speed		Vol	Speed
Car	4,206	60	Car	3,441	60
Med	234	60	Med	191	60
Hvy	234	60	Hvy	191	60

Burton St

	Vol	Speed		Vol	Speed
Car	104	30	Car	152	30
Med	2	30	Med	3	30
Hvy	1	30	Hvy	2	30

	Vol	Speed
Car	539	50
Med	11	50
Hvy	6	50

	Vol	Speed
Car	490	50
Med	10	50
Hvy	5	50

Westwood Pl

	Vol	Speed		Vol	Speed
Car	586	30	Car	410	30
Med	12	30	Med	8	30
Hvy	6	30	Hvy	4	30

US 19/23 Business
Haywood Rd

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	1,232	30
Med	25	30
Hvy	13	30

4 Lanes

	Vol	Speed
Car	3,699	60
Med	206	60
Hvy	206	60

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

	Vol	Speed
Car	611	30
Med	13	30
Hvy	6	30

SR 3548
Haywood Rd

	Vol	Speed
Car	1,194	30
Med	25	30
Hvy	12	30

3 Lanes

	Vol	Speed
Car	3,122	60
Med	174	60
Hvy	174	60

	Vol	Speed
Car	2,992	60
Med	166	60
Hvy	166	60

	Vol	Speed
Car	22	30
Med	0	30
Hvy	0	30

	Vol	Speed
Car	24	30
Med	1	30
Hvy	0	30

Richmond Ave

	Vol	Speed
Car	429	50
Med	9	50
Hvy	4	50

	Vol	Speed
Car	376	50
Med	8	50
Hvy	4	50

	Vol	Speed		Vol	Speed
Car	4,090	60	Car	3,346	60
Med	227	60	Med	186	60
Hvy	227	60	Hvy	186	60

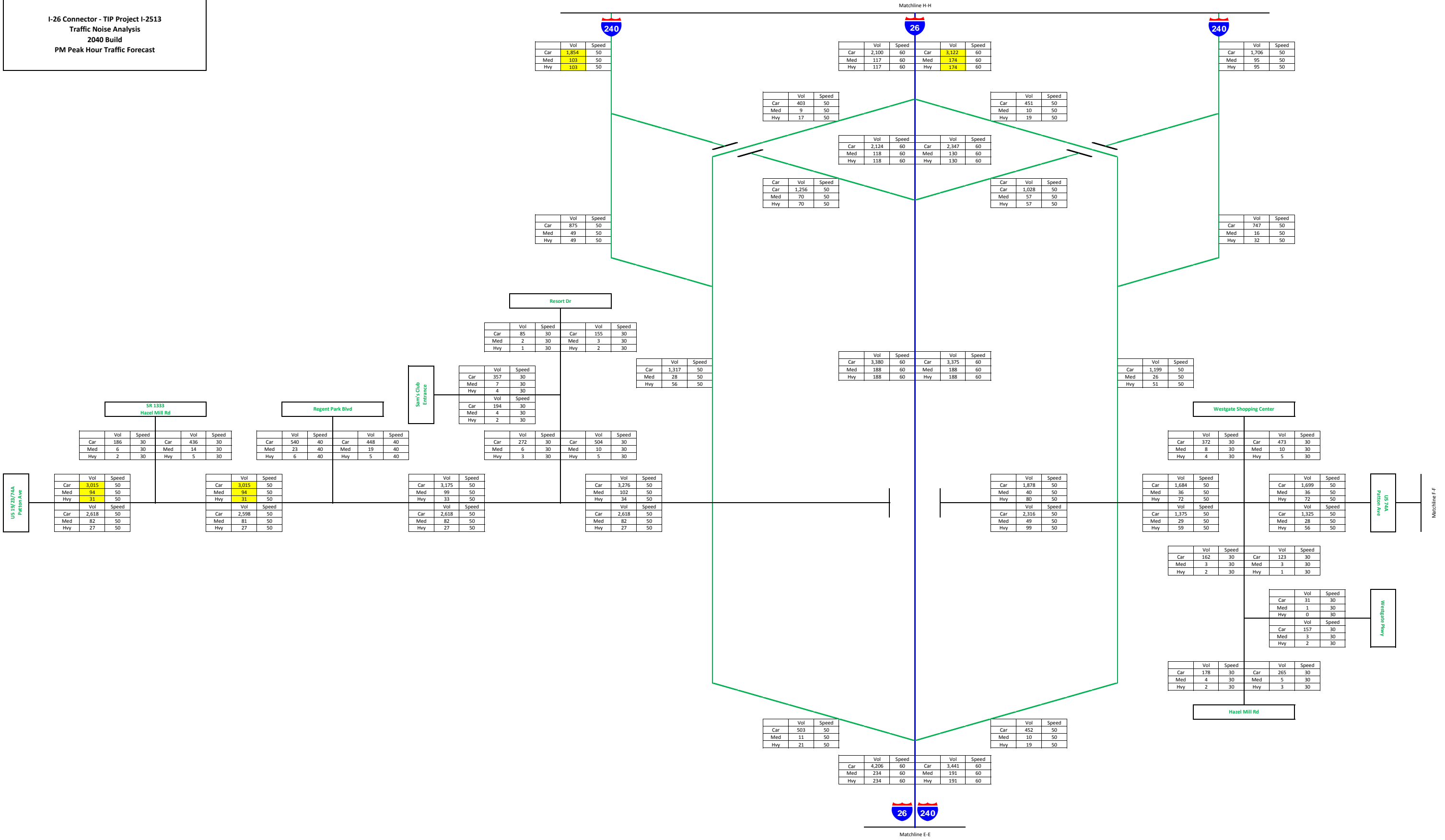


Matchline D-D

	Vol	Speed
Car	2,396	65
Med	77	65
Hvy	77	65

	Vol	Speed
Car	2,360	65
Med	75	65
Hvy	75	65

I-26 Connector - TIP Project I-2513
 Traffic Noise Analysis
 2040 Build
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	Vol	Speed
Car	1,854	50
Med	103	50
Hvy	103	50

	Vol	Speed	Car	Vol	Speed
Car	2,100	60	3,122	60	
Med	117	60	174	60	
Hvy	117	60	174	60	

	Vol	Speed
Car	1,706	50
Med	95	50
Hvy	95	50

	Vol	Speed
Car	403	50
Med	9	50
Hvy	17	50

	Vol	Speed
Car	451	50
Med	10	50
Hvy	19	50

	Vol	Speed	Car	Vol	Speed
Car	2,124	60	2,347	60	
Med	118	60	130	60	
Hvy	118	60	130	60	

	Vol	Speed
Car	1,256	50
Med	70	50
Hvy	70	50

	Vol	Speed
Car	1,028	50
Med	57	50
Hvy	57	50

	Vol	Speed
Car	875	50
Med	49	50
Hvy	49	50

	Vol	Speed
Car	247	50
Med	16	50
Hvy	32	50

Resort Dr

	Vol	Speed	Car	Vol	Speed
Car	85	30	155	30	
Med	2	30	3	30	
Hvy	1	30	2	30	

	Vol	Speed
Car	1,317	50
Med	28	50
Hvy	56	50

	Vol	Speed	Car	Vol	Speed
Car	3,380	60	3,375	60	
Med	188	60	188	60	
Hvy	188	60	188	60	

	Vol	Speed
Car	1,199	50
Med	26	50
Hvy	51	50

SR 1333
Hazel Mill Rd

	Vol	Speed	Car	Vol	Speed
Car	186	30	436	30	
Med	6	30	14	30	
Hvy	2	30	5	30	

Regent Park Blvd

	Vol	Speed	Car	Vol	Speed
Car	540	40	448	40	
Med	23	40	19	40	
Hvy	6	40	5	40	

Sam's Club Entrance

	Vol	Speed
Car	357	30
Med	7	30
Hvy	4	30

	Vol	Speed	Car	Vol	Speed
Car	194	30	504	30	
Med	4	30	10	30	
Hvy	2	30	5	30	

	Vol	Speed
Car	272	30
Med	6	30
Hvy	3	30

	Vol	Speed	Car	Vol	Speed
Car	3,276	50	3,276	50	
Med	99	50	102	50	
Hvy	33	50	34	50	

Westgate Shopping Center

	Vol	Speed	Car	Vol	Speed
Car	372	30	473	30	
Med	8	30	10	30	
Hvy	4	30	5	30	

	Vol	Speed
Car	1,878	50
Med	40	50
Hvy	80	50

	Vol	Speed
Car	1,684	50
Med	36	50
Hvy	72	50

	Vol	Speed
Car	1,699	50
Med	36	50
Hvy	72	50

	Vol	Speed
Car	2,316	50
Med	49	50
Hvy	99	50

	Vol	Speed
Car	1,375	50
Med	29	50
Hvy	59	50

	Vol	Speed
Car	1,325	50
Med	28	50
Hvy	56	50

	Vol	Speed	Car	Vol	Speed
Car	162	30	123	30	
Med	3	30	3	30	
Hvy	2	30	1	30	

	Vol	Speed
Car	31	30
Med	1	30
Hvy	0	30

	Vol	Speed
Car	157	30
Med	3	30
Hvy	2	30

	Vol	Speed	Car	Vol	Speed
Car	178	30	265	30	
Med	4	30	5	30	
Hvy	2	30	3	30	

Hazel Mill Rd

	Vol	Speed
Car	503	50
Med	11	50
Hvy	21	50

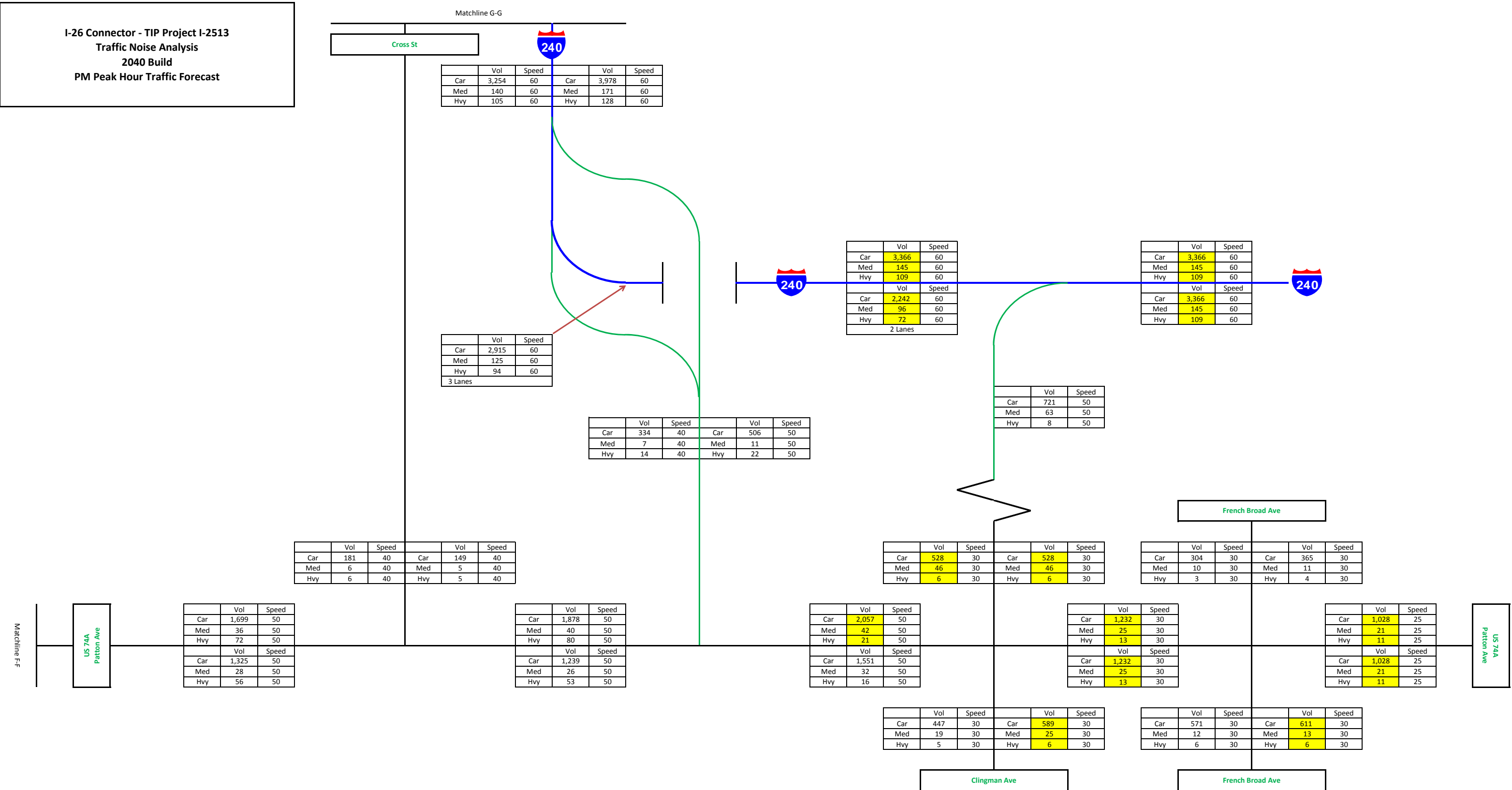
	Vol	Speed
Car	452	50
Med	10	50
Hvy	19	50

	Vol	Speed	Car	Vol	Speed
Car	4,206	60	3,441	60	
Med	234	60	191	60	
Hvy	234	60	191	60	

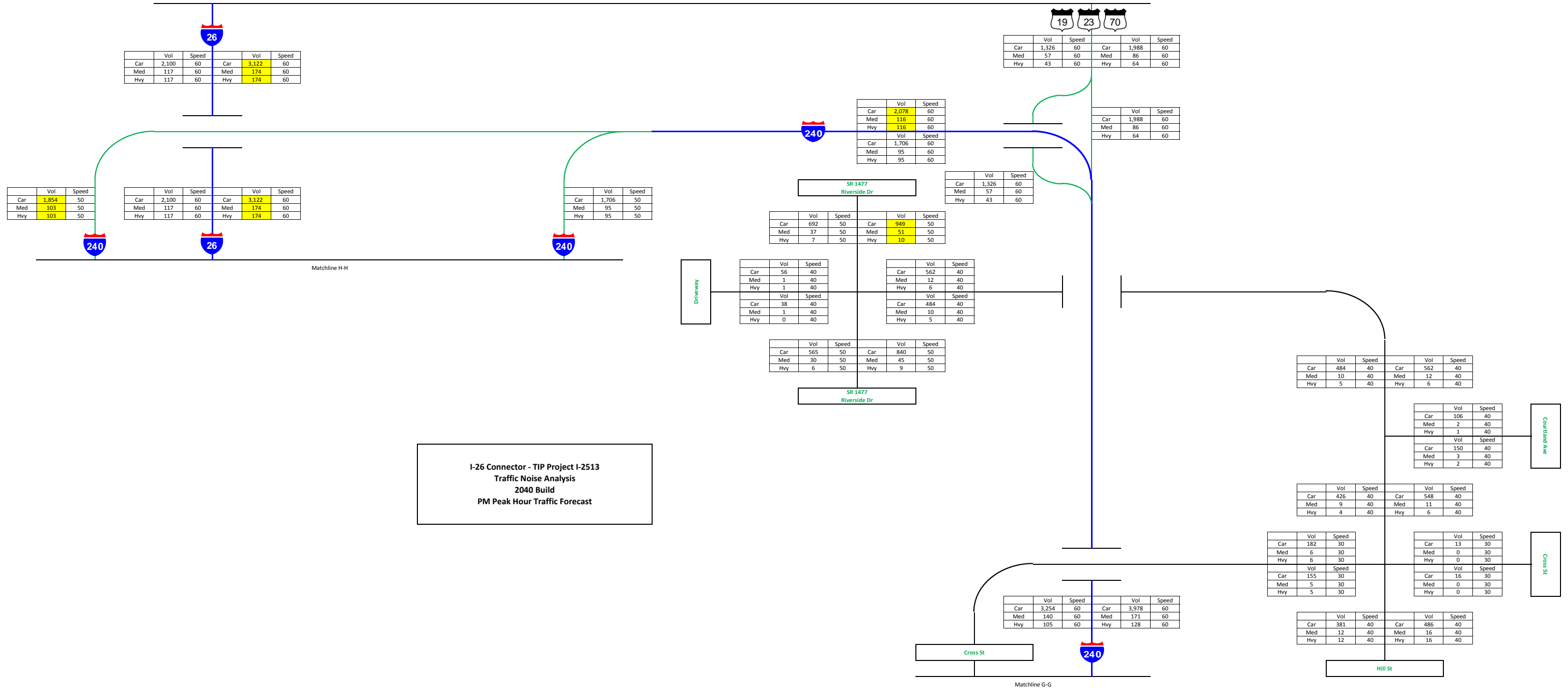


Matchline E-E

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Matchline I-I



I-26 Connector - TIP Project I-2513
Traffic Noise Analysis
2040 Build
PM Peak Hour Traffic Forecast

	Vol	Speed		Vol	Speed
Car	2,100	60	Car	3,122	60
Med	117	60	Med	174	60
Hvy	117	60	Hvy	174	60

	Vol	Speed		Vol	Speed
Car	1,326	60	Car	1,988	60
Med	57	60	Med	86	60
Hvy	43	60	Hvy	64	60

	Vol	Speed
Car	1,854	50
Med	103	50
Hvy	103	50

	Vol	Speed		Vol	Speed
Car	2,100	60	Car	3,122	60
Med	117	60	Med	174	60
Hvy	117	60	Hvy	174	60

	Vol	Speed
Car	1,706	50
Med	95	50
Hvy	95	50

	Vol	Speed
Car	2,078	60
Med	116	60
Hvy	116	60

	Vol	Speed
Car	1,988	60
Med	86	60
Hvy	64	60

	Vol	Speed
Car	1,326	60
Med	57	60
Hvy	43	60

	Vol	Speed		Vol	Speed
Car	692	50	Car	949	50
Med	37	50	Med	51	50
Hvy	7	50	Hvy	10	50

Driveway

	Vol	Speed
Car	56	40
Med	1	40
Hvy	1	40

	Vol	Speed
Car	562	40
Med	12	40
Hvy	6	40

	Vol	Speed
Car	484	40
Med	10	40
Hvy	5	40

	Vol	Speed		Vol	Speed
Car	565	50	Car	840	50
Med	30	50	Med	45	50
Hvy	6	50	Hvy	9	50

SR 1477 Riverside Dr

	Vol	Speed		Vol	Speed
Car	484	40	Car	562	40
Med	10	40	Med	12	40
Hvy	5	40	Hvy	6	40

	Vol	Speed
Car	106	40
Med	2	40
Hvy	1	40

Courtland Ave

	Vol	Speed		Vol	Speed
Car	426	40	Car	548	40
Med	9	40	Med	11	40
Hvy	4	40	Hvy	6	40

	Vol	Speed
Car	182	30
Med	6	30
Hvy	6	30

	Vol	Speed
Car	150	40
Med	3	40
Hvy	2	40

Cross St

	Vol	Speed		Vol	Speed
Car	3,254	60	Car	3,978	60
Med	140	60	Med	171	60
Hvy	105	60	Hvy	128	60

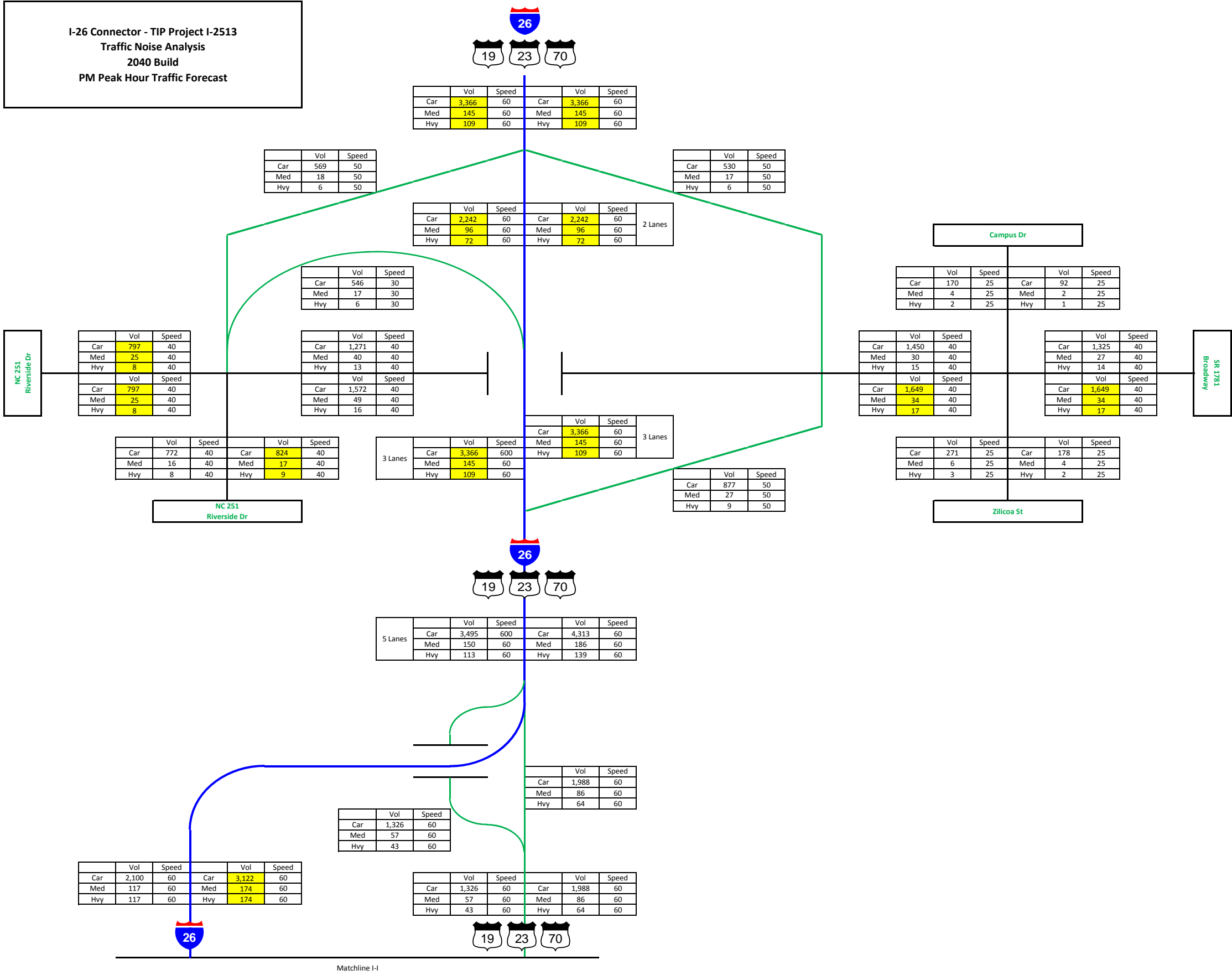
Cross St

	Vol	Speed		Vol	Speed
Car	381	40	Car	486	40
Med	12	40	Med	16	40
Hvy	12	40	Hvy	16	40

Hill St

Matchline G-G

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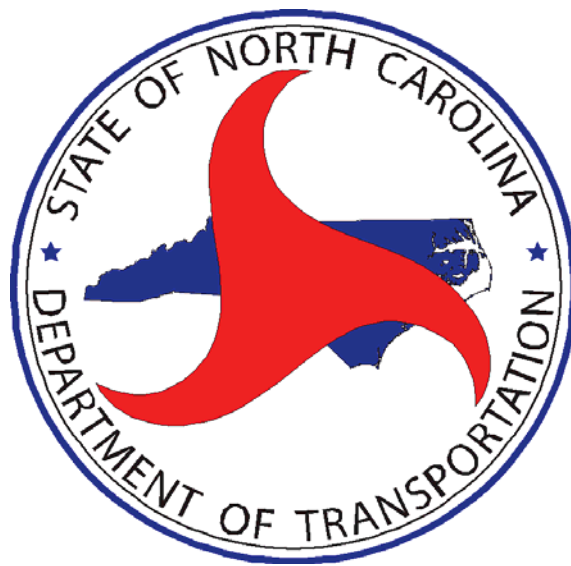
Appendix F

North Carolina Department of Transportation

Traffic Noise Policy

**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

TRAFFIC NOISE POLICY




Effective Date: October 6, 2016

Noise Policy Committee: Glenn Mumford, PERoadway Design Unit
Drew Joyner, PE.....Human Environment Section
Brian Hanks, PE.....Structures Management Unit
Daniel Keel, PE.....Division of Highways
Mike Mills, PE.....Division Engineer
Pat Ivey, PE.....Division Engineer
Greg Smith, PE.....Human Environment Section

Sponsors: Clarence Coleman, PEFederal Highway Administration
Felix Davila, PE.....Federal Highway Administration
Edward L. Curran.....Board of Transportation

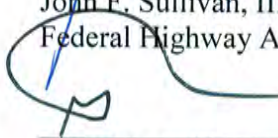
APPROVED BY:

10-6-16
Date of Approval



John F. Sullivan, III, PE, Division Administrator
Federal Highway Administration

10.6.16
Date of Approval



Nicholas J. Tennyson
Secretary of Transportation

10-8-16
Date of Approval



Edward L. Curran, Chairman
Board of Transportation

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DEFINITIONS

- a) **Decibel (dB)** - The logarithmic unit for measuring sound pressure levels. For traffic noise measurements, decibels are most commonly reported in terms of the A-weighting frequency scale, which best includes the frequencies to which human hearing is typically most sensitive and is denoted by the abbreviation dB(A).
- b) **Leq** – The equivalent steady -state sound level which, in a defined period of time, contains the same amount of acoustic energy as a time-varying sound level during the same period of time.
- c) **Receptor** – Any location that receives traffic noise.
- d) **Impacted Receptor** – A receptor for which the predicted hourly equivalent traffic noise level 1) meets or exceeds the approach criteria value found in Table 1 of this policy or 2) exceeds the existing ambient noise level by 10 dB(A) or more.
- e) **Benefited Receptor** - All receptors, both impacted and non-impacted, that receive a noise level reduction of 5 dB(A) or more through placement of a noise abatement measure.
- f) **Noise Abatement Measure** – Any method used to reduce traffic noise levels, such as noise walls and earthen berms.
- g) **Worst Noise Hour** – The hour within a day in which the highest magnitude hourly equivalent sound level occurs. The worst traffic noise hour typically occurs when traffic is flowing freely at a high volume relative to the peak traffic hour volume, with a high percentage of trucks.
- h) **Practicable** – Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

INTRODUCTION

This document represents the North Carolina Department of Transportation (hereinafter NCDOT) policy on highway traffic noise and construction noise and describes the implementation of the requirements of the Federal Highway Administration (hereinafter FHWA) Noise Standard at 23 Code of Federal Regulations Part 772 (23 CFR 772) as they relate to federal-aid and select state-funded highway construction in North Carolina. This policy was developed by the NCDOT and reviewed and approved by the FHWA.

The North Carolina Department of Transportation Traffic Noise Manual and 23 CFR 772 are intended to be companion documents to this policy.

PURPOSE

This policy describes the NCDOT process that is used in determining traffic noise impacts and abatement measures and the equitable and cost-effective expenditure of public funds for noise abatement. Where the FHWA has given highway agencies flexibility in implementing the 23 CFR 772 standards, this policy describes the NCDOT approach to implementation.

APPLICABILITY

Projects with a Date of Public Knowledge on or after the effective date of this policy shall comply with the criteria of this policy.

Federal–Aid Projects

This policy applies to all "Type I" federal or federal-aid highway projects in the State of North Carolina, including federal projects that are administered by local public agencies. Therefore, this policy applies to any highway project that is funded with federal-aid highway funds or requires FHWA approval regardless of funding sources. NCDOT does not participate in nor fund Type II (retrofit) projects along existing transportation facilities. Noise analyses are not required for Type III projects. Each of these project types are defined below. This policy shall be applied uniformly and consistently to all Type I federal projects throughout North Carolina.

Type I Project

- (a) The construction of a highway on new location; or,
- (b) The physical alteration of an existing highway where there is either:
 - (i) Substantial Horizontal Alteration. A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or,
 - (ii) Substantial Vertical Alteration. A project that removes shielding, therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor; or,
- (c) The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a HOV lane, High-Occupancy Toll (HOT) lane, bus lane, or truck climbing lane; or,
- (d) The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or,
- (e) The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or,
- (f) Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane; or,
- (g) The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza.
- (h) If a project is determined to be a Type I project under this definition then the entire project area as defined in the environmental document is a Type I project.

Type II Project.

A Federal or Federal-aid highway project for noise abatement on an existing highway. For a Type II project to be eligible for Federal-aid funding, the highway agency must develop and implement a Type II program in accordance with 23 CFR 772.7(e).

Type III Project

A Federal or Federal-aid highway project that does not meet the classifications of a Type I or Type II project. Type III projects do not require a noise analysis.

The highway traffic noise prediction requirements, noise analyses, noise abatement criteria, and requirements for informing local officials in 23 CFR 772 and this policy constitute the noise standards mandated by 23 U.S.C. 109(1). All federally-funded highway projects which are developed in conformance with this policy shall be deemed to be in accordance with the FHWA noise standards.

State-Funded Projects

Projects that are State funded do not use the federal project type designation for applicability.

This policy will apply to State funded projects located on a US or Interstate route that is full control of access where the project involves adding a through-traffic lane.

All other State-funded projects for which a State Environmental Assessment (EA) or State Environmental Impact Statement (EIS) is prepared will comply with the North Carolina Environmental Policy Act (SEPA) and the North Carolina Administrative Code. For these projects, noise barriers will be considered where practicable.

DATE OF PUBLIC KNOWLEDGE

The Date of Public Knowledge of the location and potential noise impacts of a proposed highway project is the approval date of the final environmental document, e.g., Categorical Exclusion (CE), State or Federal Finding of No Significant Impact (FONSI) or State or Federal Record of Decision (ROD).

NCDOT is not responsible for evaluating or implementing any noise barriers to protect developed lands that were not permitted before the Date of Public Knowledge.

The criterion for determining when undeveloped land is permitted for development is the approval date of a building permit for an individual lot or site. Approval of a development plat or any other development plan does not meet the permitted criteria.

NCDOT advocates use of local government authority to regulate land development, planning, design and construction in such a way that noise impacts are minimized.

TRAFFIC NOISE PREDICTION

All traffic noise analyses performed by or for NCDOT must utilize the most current version of the FHWA Traffic Noise Model (TNM®) or any other model determined by the FHWA to be consistent with the methodology of the TNM® model, pursuant to 23 CFR 772.9.

Average pavement type shall be used in the FHWA TNM® for future noise level prediction.

Noise contour lines may be used only for project alternative screening or for providing information to local officials for their land use planning efforts associated with undeveloped lands as per 23 CFR 772.17. Noise contours shall not be used for determining highway traffic noise impacts or assessing noise barriers.

Traffic characteristics that yield the worst noise hour equivalent traffic noise levels, expressed in Leq(h), for the Design Year shall be used in predicting noise levels and assessing noise impacts.

Traffic noise prediction must adhere to all direction contained in the NCDOT Traffic Noise Manual.

NOISE IMPACT DETERMINATION

Noise abatement measures for NCDOT highway projects must be considered when traffic noise impacts are created by either of the following two conditions:

- (a) The predicted worst noise hour Leq(h) traffic noise levels for the Design Year approach (reach one decibel less than) or exceed the Noise Abatement Criteria (NAC) contained in 23 CFR 772 and in Table 1, found on page 4 of this policy, OR
- (b) The predicted worst noise hour Leq(h) traffic noise levels for the Design Year substantially exceed existing noise by 10 dB(A) or more.

A receptor is a discrete or representative location within a noise sensitive area(s) for any of the land uses listed in Table 1. For multifamily dwellings, each residence shall be counted as one receptor when determining impacted and benefited receptors. Non-residential receptors shall be represented by Equivalent Receptors calculated according to direction contained in the NCDOT Traffic Noise Manual.

Primary consideration shall be given to exterior areas where frequent human use occurs in the determination of traffic noise impacts.

A traffic noise analysis shall be completed for each project alternative under detailed study and for all receptors and Equivalent Receptors defined to represent land use activities A, B, C, D, and E listed in Table 1 that are present in the study area. FHWA approval is required for designating a Category A Activity on federally-funded projects. Traffic noise analyses are not required for Activity Category F land uses. Noise predictions are required for Activity Category G land uses to the extent needed to develop estimated noise levels to provide to local officials for planning purposes.

Table 1			
Noise Abatement Criteria			
Hourly Equivalent A-Weighted Sound Level (decibels (dB(A)))			
Activity Category	Activity Criteria¹ Leq(h)²	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ³	67	Exterior	Residential
C ³	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section4(f) sites, schools, television studios, trails, and trail crossings
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E ³	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F	--	--	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 The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.

² The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with Leq(h) being the hourly value of Leq.

³ Includes undeveloped lands permitted for this activity category.

ANALYSIS OF NOISE ABATEMENT MEASURES

When traffic noise impacts are identified, noise abatement measures shall be considered and evaluated for feasibility for all impacted receptors and reasonableness for all benefited receptors. All of the following conditions must be met in order for noise abatement measures to be justified and incorporated into project design, as applicable. Failure to achieve any single element of feasibility or reasonableness will result in the noise abatement measure being deemed not feasible or not reasonable, whichever applies.

NCDOT will provide noise barriers for all possible impacted receptors that meet the feasibility and reasonableness criteria found in this policy. Noise barriers will not be extended solely to provide noise reduction for non-impacted receptors. Benefits for non-impacted receptors will only occur when they are incidental in noise barriers designed for impacted receptors.

Feasibility

The combination of acoustical and engineering factors considered in the evaluation of a noise barrier.

- (a) Any receptor that receives a minimum noise level reduction of five dB(A) due to a noise barrier shall be considered a benefited receptor. Noise reduction of five dB(A) must be achieved for at least two impacted receptors.
- (b) Engineering feasibility of noise barriers shall consider adverse impacts created by or upon property access, drainage, topography, utilities, safety, and maintenance requirements.

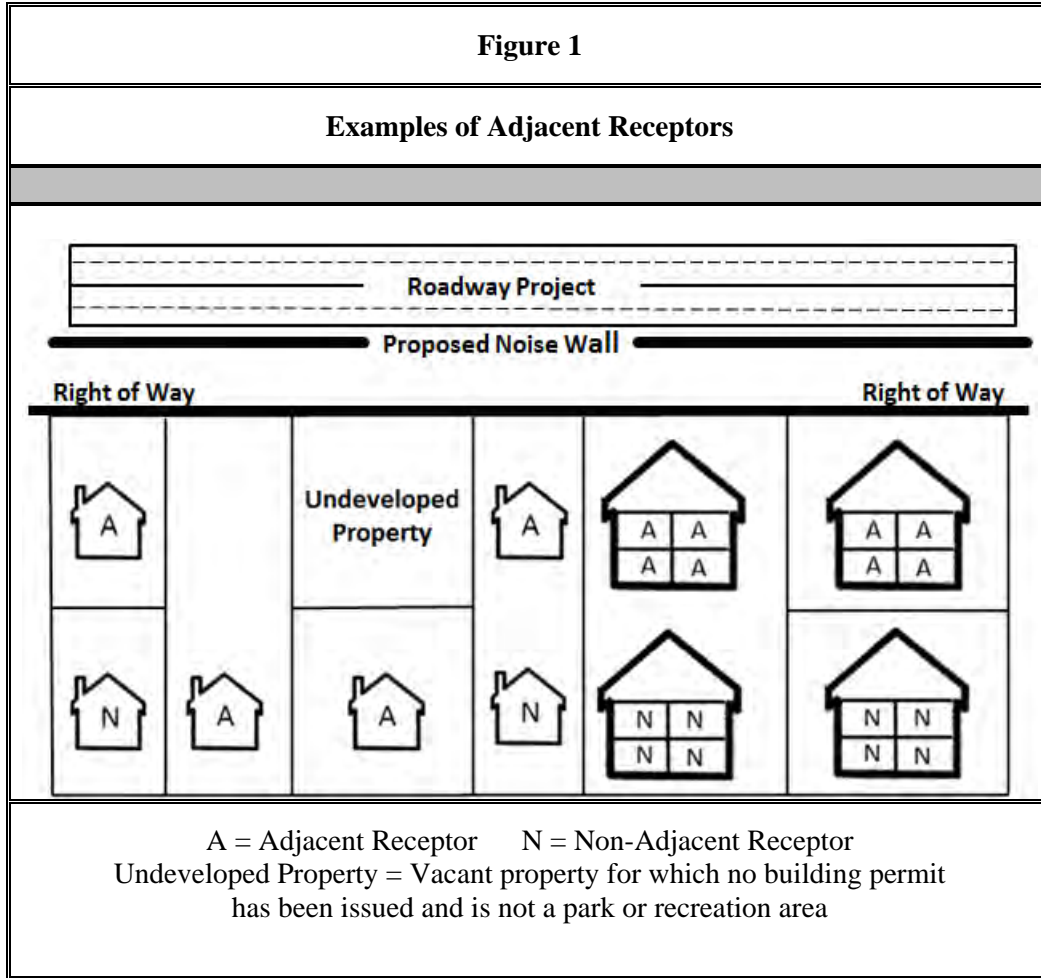
Reasonableness

The combination of social, economic, and environmental factors considered in the evaluation of a noise barrier.

- (a) Property owners and tenants of all benefited receptors shall be solicited to obtain their preferences for or against a proposed noise barrier. No tenant ballots are distributed for vacant rental property. Points per ballot shall be distributed in the following weighted manner:
 - 5 points/ballot for adjacent property owners who reside at property
 - 4 points/ballot for adjacent property owners who rent property to others
 - 3 points/ballot for all non-adjacent property owners who reside at property
 - 2 points/ballot for all non-adjacent property owners who rent property to others
 - 1 point/ballot vote for all tenants of rental property

Adjacent Receptor is a benefited receptor that 1) represents a property that abuts the highway right of way or 2) has no benefited receptor between it and the highway. Where multiple buildings containing benefited receptors are on the same property, such as an apartment or condominium complex, only the building closest to the highway is an adjacent receptor. Adjacent receptors will most often, but not always, be part of the front row of benefited receptors. Figure 1 provides graphic examples of Adjacent Receptors.

Owners of multi-unit rental locations will receive the applicable number of owner points for each individual benefited receptor (rental unit) owned.



If 50% or greater of all possible voting points from benefited receptors for each noise barrier are received on the first solicitation, a simple majority of voting points cast will be used to determine if the proposed noise barrier will be constructed.

If less than 50% of all possible points for each noise barrier are received on the first solicitation, a second solicitation will be sent to benefited receptors who did not respond to the first solicitation.

If a second solicitation is conducted and 50% or greater of all possible voting points for each noise barrier are received after the second solicitation, a simple majority of voting points cast will be used to determine whether or not the proposed noise barrier will be constructed.

If less than 50% of total possible points for a noise barrier are received after the second solicitation, the noise barrier will not be constructed.

Noise barriers will be constructed in the case of a tie (equal number of points for and against a noise barrier).

All balloting soliciting the viewpoints of benefited property owners and applicable residents/tenants that occurs after the effective date of this policy, regardless of the Date of Public Knowledge, shall comply with the criteria of this policy.

- (b) The allowable quantities for noise barriers per benefited receptor, with allowances for incremental increases based upon existing and predicted noise levels of all impacted receptors within each noise study area, are shown in Table 2.

For the purpose of calculating the incremental increase, the Noise Abatement Criteria (NAC) values for Activity Categories A, B, C, D, and E, as shown in Table 1, are to be used and not the NCDOT “approach” values used in traffic noise impact determinations.

Table 2			
Allowable Noise Barrier Base Quantities			
Maximum Allowable Base Quantity	Noise Level Consideration	Noise Wall	Earthen Berm
		1,500 ft ²	4,200 yd ³
Average dB(A) Increase Between Existing and Future Build for All Impacted Receptors	< 5 dB(A)	+ 0 ft ²	+ 0 yd ³
	5-10 dB(A)	+ 500 ft ²	+ 1,400 yd ³
	> 10 dB(A)	+ 1,000 ft ²	+ 2,800 yd ³
Average Exposure to Absolute Noise Levels for All Impacted Receptors	< 5 dB(A) Over NAC Activity Category	+ 0 ft ²	+ 0 yd ³
	5-10 dB(A) Over NAC Activity Category	+ 500 ft ²	+ 1,400 yd ³
	> 10 dB(A) Over NAC Activity Category	+ 1,000 ft ²	+ 2,800 yd ³

- (c) A noise reduction design goal of at least 7 dB(A) must be evaluated for all benefited receptors. At least one benefited receptor must achieve the noise reduction design goal of 7 dB(A) to indicate the proposed noise barrier effectively reduces traffic noise.

Other Considerations

Prior to CE approval or issuance of a FONSI or ROD, NCDOT shall identify in all applicable environmental documents:

- (a) Noise barriers that are feasible and reasonable,
- (b) Noise impacts for which no noise barrier appears to be feasible and reasonable;

- (c) Locations where noise impacts will occur, where noise barriers are feasible and reasonable, and the locations that have no feasible and reasonable noise barriers.
- (d) Whether it is “likely” or “unlikely” that noise barriers will be installed for each noise sensitive area identified. “Likely” does not mean a firm commitment. The final decision on the installation of noise barriers shall be made upon completion of the project design, the public involvement process, compliance with the NCDOT Policy, and FHWA approval.

Third Party Participation

- (a) Third party funding of noise barriers cannot be used to make up the difference between the reasonable quantity allowance and the actual quantity of noise barriers. Third party funding is allowed only by local, state and federal government agencies, and can only be used to pay for additional features such as landscaping and aesthetic treatments for noise barriers that meet all feasible and reasonable criteria previously detailed in this policy. Private parties may freely enter into agreements with government agencies to develop noise barrier enhancements; however, all funding for enhancements paid to NCDOT must come from government agencies
- (b) Traditional highway construction resources pay for required noise barriers. Should a local government request that materials be used that are more costly than the standard materials proposed by NCDOT, the requesting entity must assume 100% of the actual additional construction cost.
- (c) If a local government insists on the provision of a noise barrier deemed not reasonable by NCDOT, a noise barrier may be installed provided the local government assumes 100% of the costs and obtains an encroachment permit from NCDOT to perform the work. These costs include, but are not limited to, preliminary and final engineering, actual construction and all related maintenance. In addition, local governments must ensure that NCDOT's material, design and construction specifications are met. The local government must also assume 100% of the liability associated with the measure and hold harmless the NCDOT.
- (d) For (b) and (c) above, the settlement agreement shall be signed before third party noise barrier design begins and payment shall be made to NCDOT in accordance with N.C.G.S. 136-66.3(e).

ARCHITECTURAL TREATMENT OF NOISE WALLS

The standard noise wall architectural treatment consists of:

- (a) Concrete columns; Steel piles may be used when necessary to address site conditions adverse to the use of concrete columns;
- (b) Precast concrete panels textured on both sides;
- (c) No texture on the uppermost foot of each wall segment;
- (d) A single color of stain in brown or gray tones applied to both sides of textured panels;
- (e) No stain applied to the uppermost foot of each wall segment and the concrete columns.

All enhancements to this standard noise wall must be paid for in accordance with Third Party Participation provisions in this policy.

NCDOT Division Engineers are responsible for determining noise wall textures and colors in their respective Divisions.

PUBLIC INVOLVEMENT

Communication with the community regarding noise impacts and possible noise abatement shall occur at the start of the noise study process and continue throughout the development of the project. NCDOT will communicate with citizens to present information on the nature of highway traffic noise and discuss the effects of noise abatement and how public preferences for noise abatement is solicited via a balloting process.

Noise study areas showing “likely” noise barriers and/or proposed locations of any “recommended” noise barriers will be presented and discussed when holding Public Hearings and Public Meetings. Likely noise barriers are based on preliminary design traffic noise analyses and are described in environmental documents. Recommended noise barriers are based on final design noise analyses and are usually identified after the environmental document is completed. Property owners and tenants who are being balloted for a recommended noise barrier will be provided a visual of the noise barrier location prior to their casting a ballot.

COORDINATION WITH LOCAL OFFICIALS

NCDOT will provide all traffic noise analyses to local government officials within whose jurisdiction a highway project is proposed as early in the project planning process as possible to protect future development from becoming incompatible with traffic noise levels. Specifically, environmental documents and design noise reports will contain information identifying areas that may be impacted by traffic noise, predicted noise level contour information, the best estimation of future noise levels for developed and undeveloped lands or properties in the immediate vicinity of the project and other appropriate design information. If requested, NCDOT will assist local officials with coordination and distribution of this information to residents, property owners and developers. NCDOT will provide information to assist local jurisdictions in the development of local noise controls, when requested. NCDOT strongly advocates the planning, design and construction of noise-compatible development and encourage its practice among planners, building officials, developers and others.

CONSTRUCTION NOISE

To minimize the impacts of construction noise on the public, NCDOT shall:

- (a) Identify land uses or activities that may be affected by noise from construction of the project.
- (b) Determine the measures that are needed in the plans and specifications to minimize or eliminate adverse construction noise impacts to the community. This determination shall consider the benefits achieved and the overall adverse social, economic, and environmental effects and costs of the abatement measures.
- (c) Consider construction techniques and scheduling to reduce construction noise impacts to nearby receptors and incorporate the needed abatement measures in the project plans and specifications.

FEDERAL PARTICIPATION

The costs of noise barriers may be included in federal-aid participating project costs with the federal share being the same as that for the system on which the project is located when:

- (a) Traffic noise impacts have been identified; and
- (b) Noise barriers have been determined to be feasible and reasonable pursuant to 23 CFR 772 and this policy.

REVIEW OF POLICY

This policy shall be reviewed by the NCDOT Board of Transportation at least every five years.