



TRAFFIC NOISE REPORT

US 70 Widening & Freeway Upgrade

(STIP Project R-5777C)

Craven County

WBS No. 44648.1.4

September 2020

Prepared for:

North Carolina Department of Transportation
Environmental Analysis Unit
Traffic Noise & Air Quality Group

Prepared by:



Gannett Fleming

Excellence Delivered As Promised

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Date: 09/09/2020

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Date: 9/18/2020

Accepted By NCDOT Environmental Analysis Unit
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Date: 09/09/2020

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Executive Summary

The purpose of this Traffic Noise Report (TNR) is to examine and document traffic noise impacts and potential noise mitigation measures associated with project TIP No. R-5777C in Craven County. The project includes improvement to US 70 from south of the E. Thurman Road intersection to the terminus of the proposed Havelock Bypass, TIP R-1015. This analysis considers the over with roundabouts alternative, which is the likely preferred alternative. The proposed improvements will help facilitate better traffic flow, decrease congestion, and accommodate future interstate standards (Future I-42). Upgrading US 70 to Interstate standards will require that median openings, driveway connections, and at-grade intersections be reconfigured. Grade-separated interchanges and service road connections will be complete to provide the required access. The general location of the project area phases is shown on **Figure 1**. US 70 will have a posted speed limit of 60 mph and a design speed of 60 mph after completion of the proposed improvements.

This Traffic Noise Report considered impacts and mitigation at all noise sensitive land uses for the R-5777C project limits. Federal funding will be used on this project and NCDOT will prepare a Type III CE to document environmental impacts of the proposed project. In accordance with the NCDOT Noise Manual, this analysis considers all land uses permitted as of the approval date of the Type III CE, which is the Date of Public Knowledge for this project. After that Date of Public Knowledge, 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. It is the responsibility of local governments and private landowners to ensure noise-compatible designs are used for development with an approved building permit after the Date of Public Knowledge. 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.

Design Year (2045) Build noise levels were predicted at each modeled receptor under the proposed improvements. Design Year (2045) Build noise levels are predicted to approach or exceed the NCDOT Noise Abatement Criteria within ten NSAs. This Final Design Noise Analysis predicts 30 traffic noise impacts. Impacted receptors are those which have design year build levels that exceed 66 dB(A) (criteria impacts) or those which have an increase of 10 dB(A) between Existing (2019) and Design Year (2045) Build levels (substantial increase impacts). All 30 impacted receptors are predicted to approach or exceed NCDOT's and FHWA's noise abatement criteria and no receptors will be impacted due to a substantial increase in predicted noise levels over existing. These impacted receptors represent 30 single family residential land uses. Details on how impacts were totaled can be found in **Appendix 2**. This TNR uses model validation data from the TNR developed for STIP Projects U-5713 and R-5777A&B dated March 2019.

All impacts are given consideration for noise abatement; unless noise abatement does not meet NCDOT Traffic Noise Policy feasibility criterion (a) that noise reduction of five dB(A) must be achieved for at least two impacted receptors for impacted receptors that are isolated by distance, roadways, or other intervening features. In accordance with NCDOT feasibility criteria, ten NSA's (NSA 1, 2, 6, 8, 9, 11, 13, 14, 19, 20), accounting for 30 impacted sites, are eligible for consideration for noise abatement measures. Noise barriers were evaluated and are likely in NSAs 2, 11 and 14 pending any engineering, structural or environmental concerns (**Table 1**). Any noise impacts that

occur because of roadway construction measures are anticipated to be temporary in nature and will cease upon completion of the project construction phase.

This final design traffic noise analysis, documented in a Traffic Noise Report, was completed using the NCDOT Traffic Noise Policy (October 6, 2016) (*Appendix 6*) and the NCDOT Traffic Noise Manual (January 27, 2017); hereinafter referred to as the Policy and the Manual, respectively. NCDOT Policy requires the identification as to whether it is “likely” or “unlikely” that noise abatement measures will be installed for each noise sensitive area identified. “Likely” does not mean a firm commitment. The final decision on the installation of the abatement measures shall be made upon completion of the public involvement process, project final design and NCDOT acceptance.

Table 1: Preliminary Feasible and Reasonable (Likely) Noise Barriers

Noise Barrier ID	NSA	Location	Length	Height Range	Average Height	Area	Number of Benefited Receptors	Area per Benefited Receptor
NW2	NSA 2	Approximately one mile south of Thurman Rd and one mile north of E. Camp Kiro Rd on the east side of US 70, Sta 326+00-308+09	1,791’	8-10’	9.1’	16,331 SF	11	1,485 SF
NW11	NSA 11	Approximately 1500ft south of E. Fisher Ave to 800ft south of Arabica Ln on the east side of US 70, Ramp C Sta 13+00 - US 70 Sta 141+00	2,349’	14-16’	15.9’	37,378 SF	25	1,495 SF
NW14	NSA14	Approximately 500ft north of Falcon Bridge Dr to Connors Way on the east side of US 70, Sta 123+00-97+00	2,574’	14-16’	15.7’	40,385 SF	27	1,496 SF

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Appendix 2: Noise Analysis Results

Appendix 3: Noise Barrier Results

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1.0 Project Location, Description and Background

The purpose of this Traffic Noise Report (TNR) is to examine and document traffic noise impacts and potential noise mitigation measures associated project TIP No. R-5777C. This TNR presents a detailed analysis of noise receptors and recommended noise mitigation measures within the project's study area. This TNR is based upon the preliminary design and has been prepared in accordance with 23 CFR 772, NCDOT Policy and the Manual. General location of the project area is shown on **Figure I**. This analysis is towards completion of the upgrade for US 70 to interstate standards from Thurman Road to the Havelock Bypass and is approximately 6.5 miles in length. The project will alleviate congestion along US 70 and improve connectivity and mobility in the area. Specifically, connectivity between Raleigh and the Morehead City seaport, military bases in Havelock and Goldsboro, and Kinston's Global Transpark will be improved. A railroad track runs parallel to the project on the eastern side of US 70. This track has potential to impact the noise environment, but at the time of field measurements no railroad activity occurred. This area is listed as a high priority project in the 2015 Fixing America's Surface Transportation Act and will be a part of future interstate I-42. The stretch of roadway also serves as a hurricane evacuation route between the coast and I-95. The project has a posted speed of 55 mph and design speed of 60 mph.

This analysis considers the over with roundabouts alternative, which is the likely preferred alternative. This alternative adds interchanges at Camp Kiro Rd., Fisher Rd. and Stately Pines Rd. and carries US 70 over these roadways and adds roundabouts and intersections with on and off ramps, and service roads. Remaining connections and at grade crossings with US 70 are eliminated and connected to service roads. See **Figure 1** for an overview of the project area.

This Traffic Noise Report considered impacts and mitigation at all noise sensitive land uses within R-5777C project limits. There are twenty Noise Study Areas (NSAs), numbered NSA 1-20. The following paragraphs contain a detailed description each NSA. See **Table 6** for consolidated documentation of the land use found in each NSA.

NSA 1

NSA 1 is located between Thurman Rd. and W. Camp Kiro Rd. on the west side of US 70. NSA 1 contains 2 sites representing 2 mixed use commercial/residential properties. The location of the receptors is shown in **Figure 3**. Modeled Design year (2045) Build noise levels were shown to impact 1 site within NSA 1. The project will take mixed use commercial/residential property in this NSA (R1.2). The noise levels associated with the impacted receptor are found in **Appendix 2**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 2

NSA 2 is located between Thurman Rd. and E. Camp Kiro Rd. on the east side of US 70. NSA 2 contains 25 sites that represent 23 single-family residences and 2 mixed use commercial and single-family residences. The location of the receptors is shown in **Figures 3 & 4**. Modeled Design year (2045) Build noise levels were shown to impact 11 sites within NSA 2. The project will take 2 properties in this NSA comprised of one mixed use commercial/residential (R2.24) and one

single-family residential (R2.25). The noise level associated with the receptors can be found in **Appendices 2 & 3**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 3

NSA 3 is located east of Old Cherry Point Rd and US 70 and north of E. Camp Kiro Rd. NSA 3 contains 24 sites that represent 22 single family residences, 1 mixed use commercial and residence, and one place of worship. The location of the receptors is shown in **Figure 4**. Modeled Design year (2045) Build noise levels were not shown to impact any sites within NSA 3. The project will take 8 properties in this NSA comprised of 7 single-family residences (R3.14, R3.16, R3.18, R3.19, R3.20, R3.23, R3.24), and 1 place of worship (R3.17). The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 4

NSA 4 is located north of W. Camp Kiro Rd with US 70 to the east, Wilcox Rd to the west. NSA 4 contains 8 sites representing 6 single-family residences and 2 mixed use commercial/residential properties. The location of the receptors is shown in **Figure 4**. Modeled Design year (2045) Build noise levels were not shown to impact any sites within NSA 4. The project will take 6 properties in this NSA comprised of 4 single-family residences (R4.2, R4.3, R4.6, R4.7), and 2 mixed use commercial/residential properties (R4.4, R4.5). The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 5

NSA 5 is located east of US 70 and south of E. Camp Kiro Rd. NSA 5 contains 4 single-family residential receptors. The location of the receptors is shown in **Figures 4 & 5**. Modeled Design year (2045) Build noise levels will not result in design year impacts NSA 5. The project will take 2 properties in this NSA comprised of 2 single-family residences (R5.1, R5.2). The noise level associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 6

NSA 6 is located west of US 70 and south of W. Camp Kiro Rd. NSA 6 contains 15 single family residences and 3 mixed use commercial/residential. The location of the receptors is shown in **Figure 5**. Modeled Design year (2045) Build noise levels were shown to impact 2 sites within NSA 6. The project will take 4 properties in this NSA comprised of 1 single-family residences (R6.16), and 3 commercial/residential properties (R6.13, R6.14, R6.15). The noise levels associated with the receptors can be found in **Appendices 2 & 3**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over

the existing noise levels.

NSA 7

NSA7 is located east of US 70 and south of E. Camp Kiro Rd. NSA 7 contains 7 single-family residential receptors. The location of the receptors is shown in **Figure 6**. Modeled Design year (2045) Build noise levels will not result in design year impacts NSA 7. The noise level associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 8

NSA 8 is located west of US 70 and north of Riverdale Rd. NSA 8 contains 7 sites that represent 4 single family residences, 2 mixed use commercial/residential and 1 place of worship. The location of the receptors is shown in **Figure 6**. Modeled Design year (2045) Build noise levels were shown to impact 1 site within NSA 8. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 9

NSA 9 is located west of US 70 and north of W. Fisher Ave. NSA 9 contains 17 single family residential receptors. The location of the receptors is shown in **Figure 7**. Modeled Design year (2045) Build noise levels were shown to impact 1 site within NSA 9. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 10

NSA 10 is located west of US 70 and south of W. Fisher Ave. NSA 10 contains 29 single family residential receptors. The location of the receptors is shown in **Figures 7-9**. Modeled Design year (2045) Build noise levels were not shown to impact sites within NSA 10. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 11

NSA 11 is located east of US 70 and south of W. Fisher Ave. NSA 11 contains 75 sites that represent 73 single family residences, 1 place of worship and 1 community pool. The location of the receptors is shown in **Figures 7-10**. Modeled Design year (2045) Build noise levels were shown to impact 4 sites within NSA 11. The noise levels associated with the receptors can be found in **Appendices 2 & 3**. The project will take 26 single-family residential properties (R11.15-R11.29, R11.32, R11.34-R11.37, R11.66-R11.68, R11.70, R11.74, R11.75). Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 12

NSA 12 is located west of Countyline Rd. and north of Catfish Lake Rd. NSA 12 contains 11 single family residential receptors. The location of the receptors is shown in **Figure 10**. Modeled Design year (2045) Build noise levels were not shown to impact sites within NSA 12. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 13

NSA 13 is located west of US 70 and north of Catfish Lake Rd. NSA 13 contains 3 sites that represent 1 single family residence, 1 playground associated with a place of worship and 1 place of worship. The location of the receptors is shown in **Figure 10**. Modeled Design year (2045) Build noise levels were shown to impact 1 site within NSA 13. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 14

NSA 14 is located east of US 70 and north of Stately Pine Rd. NSA 14 contains 46 single family residential receptors. The location of the receptors is shown in **Figures 10 & 11**. The project will take 13 single family residential properties (R14.1, R14.6, R14.15, R14.18, R14.36-R14.42, R14.44, R14.45). Modeled Design year (2045) Build noise levels were shown to impact 3 sites within NSA 14. The noise levels associated with the receptors can be found in **Appendices 2 & 3**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 15

NSA 15 is located east of US 70 and north of Stately Pine Rd. NSA 15 contains 3 single family residential receptors. The location of the receptors is shown in **Figure 12**. Modeled Design year (2045) Build noise levels were not shown to impact sites within NSA 15. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 16

NSA 16 is located east of US 70 and south of Stately Pine Rd. NSA 16 contains 3 single family residential receptors. The location of the receptors is shown in **Figure 12**. Modeled Design year (2045) Build noise levels were not shown to impact sites within NSA 16. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 17

NSA 17 is located east of US 70 and north of Carolina Pines Blvd. NSA 17 contains 2 single family residences. The location of the receptors is shown in **Figure 13**. Modeled Design year (2045) Build noise levels were not shown to impact sites within NSA 17. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 18

NSA 18 is located east of US 70 and south of Carolina Pines Blvd. NSA 18 contains 2 single family residences and 1 place of worship. The location of the receptors is shown in **Figure 13**. Modeled Design year (2045) Build noise levels were not shown to impact sites within NSA 18. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is not warranted since predicted design year noise levels do not approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 19

NSA 19 is located east of US 70 and south of Lewis Farm Rd. NSA 19 contains 12 single family residential receptors. The location of the receptors is shown in **Figure 13**. Modeled Design year (2045) Build noise levels were shown to impact 1 site within NSA 19. The noise levels associated with the receptors can be found in **Appendix 2**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

NSA 20

NSA 20 is located west of US 70 and south of Stately Pines Rd. NSA 20 contains 5 single family residential receptors. The location of the receptors is shown in **Figure 13**. Modeled Design year (2045) Build noise levels were shown to impact 5 sites within NSA 20. The noise levels associated with the receptors can be found in **Appendices 2 & 3**. Consideration for noise abatement is warranted since predicted design year noise levels approach or exceed the NAC or are a substantial increase over the existing noise levels.

2.0 Procedure

This section outlines the policy and technical procedures used to evaluate noise impacts. Per FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise found at Title 23 Code of Federal Regulations Part 772 (23 CFR 772.5(2)) and NCDOT Traffic Noise Policy (NCDOT Policy), the proposed project is classified as Type I. A noise analysis is required for all Type I highway projects - including federal projects that are administered by local public agencies - and for any highway project or multimodal project that requires FHWA approval regardless of funding sources. The NCDOT Policy effective October 6th, 2016 describes the NCDOT process used to determine traffic noise impacts and abatement measures. This report documents the methodologies, results, and recommendations in compliance with 23 CFR 772, NCDOT Policy, and the accompanying NCDOT Traffic Noise Manual (Manual). Additionally, noise measurement

procedures considered the methodologies contained in FHWA Measurement of Highway-Related Noise (FHWA-PD-96-046).

According to the NCDOT Highway Traffic Noise Manual (2016), noise abatement must be feasible and reasonable to be included in a project. Abatement is feasible if it achieves a reduction of at least 5 d(B) at two or more impacted receptors. Reasonableness assesses noise reduction, cost effectiveness and views of the benefited residents and property owners about noise abatement. Section 10 provides details on NCDOT policy requirements for feasibility and reasonableness.

Highway and construction noise impacts can be a consequence of transportation projects. These impacts cause concern for those who use lands near traffic noise sources. To quantify the potential for impacts resulting from the proposed project the loudest hourly-equivalent traffic noise levels were assessed for 304 receptors, representing 297 residential land uses, five places of worship, a playground associated with a place of worship, and one community pool. Equivalent Receptor (ER) calculations were not required, as there were no impacts to non-residential land uses.

The analysis concluded that Design Year 2045 build condition traffic noise is predicted to impact 30 receptors, representing 30 residential land uses. These properties are shown on *Figures 2 to 13*. The analysis team used TNM 2.5 to predict Design Year 2045 Build-condition hourly-equivalent traffic noise levels, $L_{eq(h)}$ for noise-sensitive receptors within the project area (refer to *Appendix 2*). A total of five noise barriers were assessed and three barriers are considered to meet feasibility and reasonableness criteria.

In addition to reporting, the analysis team used portions of the completed TNR for STIP R-5777A&B to validate the models for this project as discussed in section 6.0 Noise Model Validation (see also *Appendix 1*).

3.0 Characteristics of Noise

Noise is unwanted sound. It is emitted from many sources including airplanes, factories, railroads, commercial businesses, and highway vehicles. Steady-state highway traffic noise is predominantly a composite of noises from engine exhaust, drive train, and tire-roadway interaction.

The magnitude of sound (and noise) is described by the logarithm of the ratio of the sound pressure to a reference sound pressure of twenty micro-Pascals ($20\mu\text{Pa}$). Since the range of sound pressure ratios varies over 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 human hearing to detect magnitudes of sound are between the threshold of hearing at 0 decibels and the threshold of pain at 140 decibels.

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’ (L_{eq}) 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’, each typically representing either one ‘octave’ or ‘1/3 octave’ of the sound frequency spectrum. Since the cumulative sound level is a representation of the total sound pressure (energy), cumulative sound levels are then calculated by adding all the sound pressure levels of each band and multiplying the logarithm of the ratio of the result and the reference sound pressure level (e.g., $20\mu\text{Pa}$) by ten.

The common accepted limits of human hearing to detect sound frequencies are between 20 Hz and 20,000 Hz, and human hearing is most sensitive to the frequencies between 1,000 Hz – 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 frequencies to emphasize the frequencies at which human hearing is sensitive, and to minimize the frequencies to which human hearing is not as sensitive (refer to **Table 2**). The A-weighted scale is used in highway traffic noise studies because it best represents human hearing. Several examples of noise levels, expressed in dB(A), are listed in **Table 3**. A review of **Table 3** indicates that most individuals are exposed to high noise levels from many sources on a regular basis.

Individuals have varying sensitivity to noise. Loud noises bother some people more than other people, and some individuals become increasingly upset if an unwanted noise persists. The time patterns of noise also influence perception as to whether a noise is annoying. For example, in many circumstances noises that occur during nighttime (sleeping) cause more annoyance than in the daytime. People often judge the annoyance of a noise relative to noise from other sources (background noise). A car horn blowing at night when background noise levels are lower causes greater annoyance than a horn blowing in the afternoon when background noise levels are higher. While some people may come to accept noise exposure, prolonged loud noise may limit use of exterior and interior spaces. Therefore, regulations exist for noise control or mitigation from many noise sources.

Table 2: Comparison: Flat vs. A-Weighted Frequency Scaling			
Octave-Band Center Frequency (Hz)	A-Weighted Adjustment¹	Sample Frequency Sound Levels (Flat)	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	48.83
16000	-6.7	45.00	38.30
Overall Sound Levels:		90.48 dB²	66.32 dB(A)²
<small>Based on the ISO 226:2003 standard for normal equal-loudness contours, the A-weighted decibel network filtering scale is defined for a frequency, f, by the equation: $20 \times \log_{10} (A(f) / A(1000))$, where $A(f) = [12,200^2 \times f^4] / [(f^2 + 20.6^2) \times (f^2 + 12,200^2) \times (f^2 + 107.7^2)^{0.5} \times (f^2 + 737.9^2)^{0.5}]$. 2. Although the energy in the flat sound source would create an <i>actual</i> sound level = 90.48 dB, it would be <i>perceived</i> as a sound level of 66.32 dB(A) by human hearing due to the decreased sensitivity of human hearing to lower sound frequencies.</small>			

Table 3: 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	
Quiet Urban Daytime	50	Large Business Office
		Dishwasher Next Room
Quiet Urban Nighttime	40	Small theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
	30	
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (Background)
	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).

4.0 Noise Abatement Criteria

Section 4.1 through *Section 4.3* discuss the federal and state regulations for noise abatement in the state of North Carolina.

4.1 Title 23 Code of Federal Regulations, Part 772

Title 23 Code of Federal Regulations, Part 772 (23CFR 772) are the Federal Highway Administration (FHWA) procedures to use in the planning and design of highways. 23CFR772 provides 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. (23CFR772.1).

The Federal Highway Administration (FHWA) has developed Noise Abatement Criteria (NAC) to identify noise impact thresholds for various land uses. **Table 4** documents the NAC for the associated activity land use category shown in the adjacent column. The abatement criteria and procedures are set forth in Title 23 CFR Part 772.11. The regulations state that in determining traffic noise impacts, a highway agency shall give primary consideration to exterior areas where frequent human use occurs (23 CFR 772.11(b) and 23 CFR 772.13(b)). Implementation of the regulation is the responsibility of the states through an FHWA approved noise policy.

4.2 North Carolina Department of Transportation Traffic Noise Policy

The North Carolina Department of Transportation Traffic Noise Policy effective October 6, 2016 establishes official state policy on highway noise. This policy describes the NCDOT process used to determine traffic noise impacts and abatement measures and the equitable and cost-effective expenditure of public funds for traffic noise abatement. The policy describes the NCDOT approach to implementation and is included as **Appendix 6** of this report.

4.3 Noise Abatement Criteria

The NAC are given in terms of an hourly, A-weighted, equivalent noise level (**Table 4**). The A-weighted noise level frequency is used for human use areas because it best represents human hearing. Highway traffic noise is categorized as a linear noise source, where varying noise levels occur at a fixed point during a single vehicle pass by. It is acceptable to characterize these fluctuating noise levels with a single number known as the equivalent noise level $L_{eq(h)}$, which is the value of a steady noise level that would represent the same acoustic energy as the actual time-varying sound evaluated over one hour.

Sound levels that approach or exceed the FHWA Noise Abatement Criteria (NAC) are shown in **Table 4**. The NCDOT noise policy defines approach as a level within 1 dB of the NAC for a given land use category.

4.4 Substantial Increase Impact

Sound levels that represent a substantial increase over existing noise levels are defined by NCDOT as a 10 dB(A) increase when comparing predicted existing conditions to the predicted design year build condition. A receptor can be both a criteria impact and substantial increase impact.

Table 4: Noise Abatement Criteria

Hourly Equivalent A-Weighted Sound Level (decibels (dB(A)))			
Activity Category	Activity Criteria ¹ 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, 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 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.

5.0 Ambient Noise Levels

Ambient noise is the combination of all noise sources that occur in an area and can include noise generated from human-influenced sources such as vehicle traffic, air conditioners, aircraft, construction, and recreation. Ambient noise can also include natural sources such as wildlife, insects, wind through leaves and running water. In the project area there are areas of development separated by natural and agricultural areas. Each area has its own ambient noise composition.

The short term data collected was used in the validation of the noise model and to establish loudest-hour ambient noise levels where traffic is not the major noise source. Long-term measurements were taken in order to establish a diurnal curve and find the loudest hour of the day for rural and suburban locations. The Gannett Fleming. March 2019. “Traffic Noise Report, US 70 Widening & Freeway Upgrade.” (*March 2019, TNR*) for R-5777A&B details information regarding short and long-term data collection for model validation. Because portions of the project scoped for analysis in R-5777A&B overlapped with a portion of R-5777C, NCDOT agreed to use validation completed for the overlapping section for R-5777C since the topography and roadway characteristics are similar.

See *Appendix 1* for detailed information for each measurement including start and stop times of the measurements, durations, weather conditions, traffic data collected during the measurements, photographs of the meter set-ups, calibration certificates and documentation of any other contributing noise sources or events.

6.0 Noise Model Validation

All validation modeling was completed as part of the *March 2019, TNR* and can be found in *Appendix 1*. The noise measurements validated use of the FHWA Traffic Noise Model, Version 2.5 (TNM) as appropriate for use in determining the traffic generated noise levels. The model accounts for such factors as ground absorption, roadway geometry, receptor distance, existing buildings, topography, vehicle volumes and speeds, and volumes of medium trucks (vehicles with 2 axles/6 tires) and heavy trucks (3 axles or more) (see **Table 5**). These locations where ambient noise was dominant were used as the ambient levels throughout the project.

Validation is accomplished by comparing the monitored noise levels with noise levels generated in TNM2.5 using the classified traffic volumes and speeds that occurred during each measurement period. This comparison ensures that reported changes in noise levels are due to changes in traffic conditions and not to discrepancies between monitoring and modeling techniques. A difference of +/- 3.0 dB(A) or less between the monitored and modeled level is within tolerance according to the NCDOT noise manual. Validation tables are in *Appendix 1*. Since each of the 3 measurement sites show less than a +/-3.0 dB(A) difference between the monitored and modeled noise levels, the model is considered a valid representation of existing conditions throughout the project area.

Table 5: 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*

7.0 Procedure for Predicting Existing Noise Levels

Traffic noise emissions are composed of several variables, including the number, types, and travel speeds of the vehicles, as well as the geometry of the roadways on which the vehicles travel. Additionally, variables such as weather and intervening topography affect the transmission of traffic noise from the vehicles to noise sensitive receptors.

In accordance with industry standards and accepted best-practices, detailed computer models were created using the FHWA TNM 2.5. The short term data collected was used in the validation of the noise model and to establish loudest-hour ambient noise levels where traffic is not the major noise source. Long-term measurements were taken in order to establish a diurnal curve and find the loudest hour of the day for rural and suburban locations. The Gannett Fleming. March 2019. “Traffic Noise Report, US 70 Widening & Freeway Upgrade.” (March 2019, TNR) for R-5777A&B details information regarding short and long-term data collection for model validation.

The computer models were validated to within acceptable tolerances of field monitored traffic noise data and were used to predict Existing (2019) traffic noise levels for receptor locations in the vicinity of the proposed project. 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 highway 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 5**. The computer traffic noise prediction model uses the number and type of vehicles on the planned

roadway, vehicle 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.

Many of the land uses in the project are residential and categorized as a Category B land use. However, this project area also consisted of 12 mixed use commercial/residential Category B, two recreational Category C and five Category D land uses. Equivalent Receptor (ER) calculations were not required, as there were no impacts to non-residential land uses. Please see section **1.0 Project Location, Description and Background** for detailed paragraphs of each NSA. Below is a consolidated table of NSA descriptions:

Table 6: NSA Description

<i>NSA</i>	<i>NAC</i>	<i>Description</i>
1	B/C	NSA 1 contains 2 sites representing 2 mixed use commercial/residential properties.
2	B/C	NSA 2 contains 25 sites that represent 23 single-family residences and two mixed use commercial and single-family residences.
3	B/C/D	NSA 3 contains 24 sites that represent 22 single family residences, one mixed use commercial and residence, and one place of worship.
4	B/C	NSA 4 contains 8 sites representing 6 single-family residences and 2 mixed use commercial/residential properties.
5	B	NSA 5 contains 4 single-family residences.
6	B/C	NSA 6 contains 15 single family residences and 3 mixed use commercial/residential.
7	B	NSA 7 contains 7 single-family residential receptors.
8	B/C/D	NSA 8 contains 7 sites that represent 4 single family residences, 2 mixed use commercial/residential and 1 place of worship.
9	B	NSA 9 contains 17 single family residential receptors
10	B	NSA 10 contains 29 single family residential receptors
11	B/C/D	NSA 11 contains 75 sites that represent 73 single family residences, 1 place of worship and 1 community pool.
12	B	NSA 12 contains 11 single family residential receptors
13	B/C/D	NSA 13 contains 3 sites that represent 1 single family residence, 1 playground associated with a place of worship and one place of worship.
14	B	NSA 14 contains 46 single family residential receptors
15	B	NSA 15 contains 3 single family residences
16	B	NSA 16 contains 3 single family residential receptors
17	B	NSA 17 contains 2 single family residential receptors
18	B/C/D	NSA 18 contains 2 single family residences and 1 place of worship
19	B	NSA 19 contains 12 single family residential receptors
20	B	NSA 20 contains 5 single family residential receptors

8.0 Procedure for Predicting Future Noise Levels

Following the development of the existing conditions model and the prediction of Existing (2019) loudest hourly-equivalent traffic noise levels, the assessment continued with the prediction of Design Year (2045) No-Build and Build noise levels. Design Year (2045) No-Build noise levels were predicted without the proposed project improvements in place. Design Year (2045) Build noise levels were predicted by accounting for the proposed project improvements and applying Design Year (2045) traffic volumes, vehicle composition, and speeds to the computer models.

Traffic consultants provided detailed traffic data for the Existing (2019), Design Year (2045) No-Build, and Design Year (2045) Build conditions. Traffic forecast diagrams and tables can be found in **Appendix 5**. The diagrams for the Existing (2019) and Design Year (2045) No-Build show the project corridor as an unlimited access highway with associated traffic flow. The proposed improvements to US 70 in the Design Year (2045) Build condition show a limited access highway utilizing on/off ramps at three intersecting roadways: East Camp Kiro Road, East Fisher Avenue and Stately Pines Road.

The forecasted/LOS C volume (whichever was the lesser) was used for the NB/SB per-lane directional flow. This volume was then balanced based on the forecasted entrance/exit ramps being added/subtracted along highway segments. This methodology was used to represent an accurate balanced flow of traffic since the design was constructed to represent controlled access.

The vehicle class breakdown formulas pertaining to each section were provided by NCDOT for Existing (2019), No-build (2045), and Build (2045) scenarios. The formulas contained within the traffic diagrams sent by NCDOT were used to calculate the vehicle composition applied to the roadway segments within TNM. If the LOS C volume was lesser than the forecasted volume, the LOS C value was used. The LOS C table used is included in **Appendix 5**.

9.0 Traffic Noise Impacts

Traffic noise impacts occur when the predicted traffic noise levels either approach or exceed the FHWA noise abatement criteria (with "approach" meaning within 1 dB(A) of the NAC values listed in **Table 4**) or substantially exceed the existing noise levels. FHWA and NCDOT require consideration of noise abatement measures for all impacted receptors. Abatement measures eligible for federal funding include construction of noise barriers (walls or berms), traffic management measures, alteration of the vertical or horizontal alignment of the highway, acquisition of real property to serve as buffer zones, and noise insulation of NAC Activity Category D lands.

Predicted noise levels were predicted to approach or exceed NCDOT noise abatement criteria under the Design Year (2045) Build Conditions. The potential number and types of predicted traffic noise impacts from the project are shown in **Table 7** with impacts delineated by type of impact.

Table 7: Traffic Noise Impact Summary

Study Alternative	Reason for Noise Impacts	Noise Abatement Criteria Impact by Activity Category ¹							
		A	B	C	D	E	F ⁵	G ⁶	All Activity Categories
Design Year 2045 Build	NAC Only ¹	0	30	0	0	0	0	0	30
	Substantial Increase Only ²	0	0	0	0	0	0	0	0
	By Both Criteria ³	0	0	0	0	0	0	0	0
	TOTAL IMPACTS⁴	0	30	0	0	0	0	0	30
<ol style="list-style-type: none"> 1. Predicted traffic noise impacts due to Design Year loudest hourly equivalent noise levels that approach or exceed Noise Abatement Criteria (refer to Table 4). 2. Predicted traffic noise impacts due to Design Year loudest hourly equivalent noise levels that are a “Substantial Increase” over base year levels. 3. Predicted traffic noise level impacts due to both 1 and 2 above. 4. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC and Substantial Increase, it is counted as only one impact). 5. There are no impact criteria for NAC F land use facilities; no analysis of noise impacts is required. 6. There are no impact criteria for undeveloped lands; however, appropriate predicted traffic noise level contours are provided to local officials to aid in future land use planning efforts. 									

10.0 Potential Traffic Noise Abatement Measures

Per NCDOT Policy, the following traffic noise abatement measures are to be considered when impacts are predicted: 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.

10.1 Highway Alignment Selection

Highway alignment selection for traffic noise abatement measures involves modifying the horizontal and vertical geometry of the proposed facility to minimize the impact of traffic noise on 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 that could act like an earth berm depending upon the relative location(s) of noise-sensitive receptor(s).

Development adjacent to northbound and southbound US 70 includes noise sensitive land uses. Changes to the horizontal alignment would result in shifting or increasing the number of impacts on one side of the highway to reduce the number of impacts on the other side of the highway. The

analyzed alternative includes changes to the vertical alignment to new interchanges. These changes in horizontal alignment were included to meet the project purpose and need rather than as noise abatement, which would have required additional lowering of the roadway profile over greater distances. This would result in significant increases in project costs and significant design considerations due to the low elevation and potential for flooding; therefore this abatement measure is not feasible or reasonable.

10.2 Traffic Systems 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 purpose of the project is to improve connectivity and continuity in the area. Prohibition of truck traffic, reduction of the speed limit below typical controlled-access highway speed limits or screening total traffic volumes would diminish the functional capacity of the highway facility and are not considered practicable. For this reason, this abatement measure is not feasible or reasonable.

10.3 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 costs to acquire buffer zones for impacted receptors would likely exceed maximum allowable cost. The NCDOT base dollar value for a buffer zone is \$22,500 per benefited receptor plus the incremental increase of \$7,500 per dB(A) average increase between 5-10 dB(A) and \$15,000 per dB(A) average increase above 10 dB(A) in the modeled exterior noise levels of the impacted receptors of the area. For this reason, this abatement measure is unreasonable.

10.4 Noise Barriers

Passive noise abatement measures are effective because they may 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 absorb 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 noise barriers are primarily constructed as earth berms or solid-mass walls adjacent to controlled-access freeways that are near noise-sensitive land use(s). To be effective, a noise barrier must be long enough and tall enough to shield the benefitted receptors. For this project, Gannett Fleming did not find earthen berms to be a viable abatement measure at any location because the proposed barrier locations are too narrow for efficient earthen berms. Generally, the noise wall length must be eight times the distance from the barrier to the receptor. For example, if receptors were 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, noise 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, noise barriers are typically not economical for isolated or most low-density areas.

However, noise 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.

10.5 Noise Insulation

Insulating buildings can greatly reduce highway traffic noise, especially when windows are sealed, and cracks and other openings filled. Noise-absorbing material can be placed in the walls of new buildings during construction but is rarely retrofitted into existing buildings. While federal-aid highway project dollars can be used for noise insulation of public-use or non-profit institutional structures, the typical beneficiaries of this type of abatement are school facilities where no other type of abatement is possible.

There were three receptors in the study that represented the interior areas of adjacent structures (Activity Category D). None of the interior receptors were predicted to have design year 2045 noise impacts. The NCDOT Noise Manual includes building noise reduction factors to apply to the predicted noise level to estimate interior noise levels in these scenarios. The interior noise level is predicted by subtracting the applicable building noise reduction factor from the noise level predicted in TNM. **Table 8** shows the building noise reduction factors used for the four interior noise locations. Riverdale United Methodist Church (R8.5) is a masonry (brick) building with a building noise reduction factor of 25 dB. New Jerusalem Apostolic Outreach Church (R11.5) Croatan Presbyterian Church (R13.3) and Croatan Free Will Baptist Church (R18.1) with building noise reduction factors of 20 dB since they were determined to be light frame construction and it was unclear whether there were storm windows on the buildings. The Croatan Presbyterian Church has a playground, which is an exterior area of frequent human use, but since it is not immediately adjacent to the property it was treated as a separate receptor (R13.2).

Table 8: Building Noise Reduction Factors

Building Type	Window Condition	Noise Reduction Due to Exterior of the Structure
All	Open	10 dB
Light Frame	Ordinary Sash (closed)	20 dB
	Storm Windows	25 dB
Masonry	Single Glazed	25 dB
	Double Glazed	35 dB
*The windows shall be considered open unless there is firm knowledge that the windows are in fact kept closed almost every day of the year.		

Sources: NCDOT Traffic Noise Manual, 2016, p. 56.

10.6 Feasibility and Reasonableness Determination

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. The following conditions must be met 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.

10.7 Feasibility

The assessment of feasibility is a consideration of the engineering factors involved in the evaluation of a noise abatement measure. Per NCDOT noise policy, a noise reduction of 5 dB(A) must be achieved for at least two impacted receptors. Engineering feasibility of the noise abatement measure(s) considers the adverse impacts created by or upon property access, drainage, topography, utilities, safety, and maintenance requirements. The effects of secondary traffic noise (e.g., non-project traffic noise) and non-traffic noise sources on attainable Noise Level Reduction shall be considered when developing effective noise abatement measures.

10.8 Reasonableness

Reasonableness is the combination of social, economic, and environmental factors considered in the evaluation of a noise abatement measure. Reasonableness considerations apply to receptors predicted to benefit from a noise abatement measure. Any receptor that receives a noise level reduction of 5 dB or more from noise abatement shall be considered a benefited receptor.

- a) Viewpoints of the property owners and residents of all benefited receptors shall be solicited. One owner ballot and one resident ballot shall be solicited for each benefited receptor. 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
 - 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
 - 1 point/ballot for all tenants of rental property

Where an adjacent receptor is a benefited receptor that either represents a property that shares the highway right of way or has no benefited receptor between it and the highway.

- b) The maximum allowable base quantity of noise walls and/or earthen berms per benefited receptor shall not exceed 1,500 ft² and 4,200 yd³, respectively. Additionally, an incremental increase of 500 ft² for noise walls and 1,400 yd³ for earthen berms shall be added to the

base quantity per the average increase in dB(A) of 5-10 dB(A) between existing and predicted exterior noise levels of all impacted receptors within each noise sensitive area.

An incremental increase of 1,000 ft² for noise walls and 2,800 yd³ for earthen berms shall be added to the base quantity per the average noise increase in dB(A) of greater than 10 dB(A) between existing and predicted exterior noise levels of impacted receptors. A base dollar value of \$22,500 plus an incremental increase of \$7,500 for a 5-10 dB(A) increase or \$15,000 for an increase exceeding 10 dB(A) (as defined earlier in Section 8.3) shall be used to determine reasonableness of buffer zones and noise insulation.

- 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 noise abatement measure effectively reduces traffic noise.

10.9 Noise Barrier Recommendations

The Design Year Build 2045 condition is predicted to impact 30 noise receptors, all of which exceed the NAC criteria. There are no substantial increase impacts. Of the 30 sites, 25 sites were considered for noise abatement measures. Sites in NSA 1, 8, 9, 13 and 19 were considered for abatement because each of these NSAs had one impacted receptor and the NCDOT feasibility criteria requires that at least two impacted receptors receive a benefit from noise abatement. **Table 9** includes the number of impacts and the number of noise walls evaluated. Of the five walls evaluated (NW2, NW6, NW11, NW14, and NW20), three walls were considered feasible and reasonable (NW2, NW11 and NW 14) and are recommended. **Table 9** also includes the analysis outcome for the 5 barriers analyzed. Barrier specifics can be found within **Appendix 3**.

Noise Study Area 2 – Barrier NW2

NSA 2 is located between Thurman Rd. and E. Camp Kiro Rd. on the east side of US 70. NSA 2 contains 25 sites that represent 23 single-family residences and 2 mixed use commercial and single-family residences. The project will take 2 properties in this NSA comprised of one single-family residential (R2.25) and one mixed use commercial/residential (R2.24).

A noise barrier was investigated to provide noise abatement of traffic noise impacts in NSA 2. The barrier is located between US 70 and the service road and extends from approximately Sta. 326+00-Y-308+09. The barrier was evaluated to abate predicted traffic noise impacts for receptors R2.1-R2.11.

Barrier NW2 is 1,791 feet long with an average height of 9.1 feet, an area of 16,331 square feet and is predicted to provide a 7 dB(A) to 8 dB(A) reduction at 11 impacted receptors with a total of 11 receptors benefiting. This includes 11 receptors getting a reduction of 7 dB(A) or more. The maximum wall allowance for this barrier is 1,500 square feet per benefited receptor and the wall would be approximately 1,485 square feet per benefited receptor. This barrier is preliminarily considered feasible and reasonable and is recommended for further consideration.

See Figure 3 and Appendix 3 for further information.

Noise Study Area 6 - Barrier NW6

NSA 6 is located west of US 70 and south of W. Camp Kiro Rd. NSA 6 contains 15 single family residences and 3 mixed use commercial/residential. Modeled Design year (2045) Build noise levels were shown to impact 2 sites within NSA 6. The project will take 4 properties in this NSA comprised of 1 single-family residences (R6.16), and 3 commercial/residential properties (R6.13, R6.14, R6.15)

A noise barrier was investigated to provide noise abatement of traffic noise impacts in NSA 6. The evaluated barrier is located between US 70 and the southbound on ramp from W. Camp Kiro Rd. from approximately Sta. 242+00-Y-229+00. The barrier was evaluated to abate predicted traffic noise impacts for receptors R6.17 and R6.18. Barrier NW6 is 1,300 feet long, with an average height of 8 feet and an area of 10,400 square feet. NW6 would provide a 5 dB(A) or greater reduction in noise levels at 2 impacted receptors. Both receptors getting a 5 dB(A) reduction count as benefited. One benefited receptor obtains a reduction of 7 dB(A) or more. However, the area per benefited receptor is 5,200 square feet, which exceeds the allowable area per benefited receptor of 1,500 square feet. This barrier is not reasonable and is not recommended for further consideration.

See Figures 5 & 6 and Appendix 3 for further information.

Noise Study Area 11 - Barrier NW11

NSA 11 is located east of US 70 and south of W. Fisher Ave. NSA 11 contains 75 sites that represent 73 single family residences, 1 place of worship and 1 community pool. The project will take 27 single-family residential properties (R11.15-R11.29, R11.32, R11.34-R11.37, R11.66-R11.68, R11.70, R11.74, R11.75).

A noise barrier was investigated to provide noise abatement of traffic noise impacts in NSA 11. The evaluated barrier is located along US 70, south of E. Fisher Avenue, from approximately Ramp C Sta. 13+00-Y-US 70 Sta. 141+00. The barrier was evaluated to abate the predicted traffic noise impacts at 4 impacted residential receptors (R11.30, R11.33, R11.43, and R11.44) in this NSA. Barrier NW11 is 2,349 feet long, with an average height of 15.9 feet, an area of 37,378 square feet and would provide a 5 dB(A) or greater reduction in noise levels at 4 impacted receptors. An additional 21 nonimpacted receptors also benefit from the barrier with 20 benefited receptors getting a reduction of 7-13 dB(A). This barrier is feasible because it meets the NCDOT policy requires that at least two impacted receptors be benefited by abatement to meet feasibility requirements. The maximum wall allowance for this barrier is 1,500 square feet per benefited receptor and the wall would be approximately 1,495 square feet per benefited receptor. This barrier is preliminarily considered feasible and reasonable and is recommended for further consideration.

See Figure 8 and Appendix 3 for further information.

Noise Study Area 14 - Barrier NW14

NSA 14 is located east of US 70 and north of Stately Pine Rd. NSA 14 contains 46 single family residential receptors. The project will take 12 single family residential properties (R14.1, R14.6, R14.15, R14.36-R14.42, R14.44, R14.45).

A noise barrier was investigated to provide noise abatement of traffic noise impacts in NSA 14. The evaluated barrier is located along US 70, south of E. Fisher Avenue, from approximately Sta. 123+00-Y-97+00. The barrier was evaluated to abate the predicted traffic noise impacts at 3 impacted residential receptors (R14.19, R14.33, and R14.34) in this NSA. Barrier NW14 is 2,574 feet long, with an average height of 15.7 feet, an area of 40,385 square feet and would provide a 5 dB(A) or greater reduction in noise levels at 3 impacted receptors. An additional 24 nonimpacted receptors also benefit from the barrier with 15 benefited receptors getting a reduction of 7-12 dB(A). This barrier is feasible because it meets the NCDOT policy requires that at least two impacted receptors be benefited by abatement to meet feasibility requirements. The maximum wall allowance for this barrier is 1,500 square feet per benefited receptor and the wall would be approximately 1,496 square feet per benefited receptor. This barrier is preliminarily considered feasible and reasonable and is recommended for further consideration.

See Figure 10 and Appendix 3 for further information.

Noise Study Area 20 - Barrier NW20

NSA 20 is located west of US 70 and south of Stately Pines Rd. NSA 20 contains 5 single family residential receptors. Modeled Design year (2045) Build noise levels were shown to impact 5 sites within NSA 20. A noise barrier was investigated to provide noise abatement of traffic noise impacts in NSA 20. The barrier was evaluated to abate predicted traffic noise impacts for receptors R20.1-R20.5. Barrier NW20 is 596 feet long, with an average height of 12 feet and an area of 7,155 square feet. NW20 would provide a 5 dB(A) or greater reduction in noise levels at 2 impacted receptors. Both receptors getting a 5 dB(A) reduction count as benefited. One benefited receptor obtains a reduction of 7 dB(A) or more; however, the area per benefited receptor is 3,578 square feet, which exceeds the allowable area per benefited receptor of 1,500 square feet. This barrier is not reasonable and is not recommended for further consideration.

See Figure 13 and Appendix 3 for further information.

Table 9: Noise Barrier Analysis Summary								
Noise Wall Analysis	Noise Analysis Summary			Abatement Analysis Summary				
	Impacts	Benefits		Length (ft)	Area (ft ²)	Area / Benefit (ft ²)	Allowed Area / Benefit (ft ²)	Feasible & Reasonable
		5-6 dB(A)	≥7 dB(A)					
NW 2	11	0	11	1,791	16,331	1,485	1,500	Yes
NW 6	2	1	1	1,300	10,400	5,200	1,500	No
NW 11	4	7	19	2,349	37,378	1,438	1,500	Yes
NW 14	3	12	15	2,574	40,385	1,496	1,500	Yes
NW 20	5	1	1	596	7,155	3,578	1,500	No
<i>(Null)¹</i>	5	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>			
Totals	30	21	47					

1. NSA 1, 8, 9, 13 and 19 were not considered for abatement because each of these NSAs had one impacted receptor and the NCDOT feasibility criteria requires that at least two impacted receptors receive a benefit from noise abatement.

11.0 Traffic Noise Levels for Undeveloped Lands Where No Building Permits Have Been Issued

Use of predicted design year build-condition traffic noise level contours are not a definitive means to assess traffic noise level impacts; however, they can aid in future land use planning efforts in undeveloped areas. Correlating to NCDOT’s traffic noise impact threshold for NAC “B”, “C”, and “D” land uses, it is expected that the 66 dB(A) contour changes in distance parallel to US 70 (See *Table 10*).

Many variations in terrain, development types and density contribute to the general distance at which these noise thresholds are likely to occur. Thus, per 23 CFR 772.9(c) and NCDOT Policy, noise contour lines shall not be used for determining highway traffic noise impacts. However, the 66 dB(A) and 71 dB(A) noise level contour information should assist local authorities in exercising land use control over the remaining undeveloped lands, to avoid development of incompatible activities adjacent to the roadways within local jurisdictions.

11.1 Information for Local Officials

The North Carolina Department of Transportation (NCDOT) strongly advocates the planning, design, and construction of noise-compatible development and encourages its practice among planners, building officials, developers, and others. Consideration for noise-compatible development is a shared responsibility among local, state, and federal agencies. NCDOT plans its highway construction in consideration of traffic noise impacts it may cause to noise-sensitive land uses. Likewise, local governments ideally plan their noise-sensitive land uses in consideration of existing sources of traffic noise.

As part of that shared responsibility, NCDOT provides information to local officials with

responsibility for planning decisions with an estimate of future noise levels on undeveloped lands that lie within project boundaries. This information may be used to help guide land use planning decisions to help avoid future traffic noise impacts.

Although regulation of land use is not within the purview of NCDOT, some widely accepted techniques for noise-sensitive land use planning near existing and proposed highway facilities include:

- Locating commercial retail, industrial, manufacturing, warehousing 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.

The table below provides information to local officials about the best estimate of future noise levels on undeveloped lands as required in 23CFR772.17. The distances shown represent a conservative estimate based on the results of the traffic noise analysis.

It is noted herein that this contour information is for general informational purposes only. Therefore, detailed traffic noise studies should be performed based on specific project locations and proposed development grading plans and survey information to determine more finite results.

Table 10: Estimate of Future Noise Levels on Undeveloped Lands

Location	Predicted Contour Distances From US-70 Center Median (feet)	
	66 dB(A)	71 dB(A)
Between Thurman Road and East Camp Kiro Road, West of US 70	N/A ¹	N/A ¹
Adjacent to River Bluffs Drive, East of US 70	N/A ¹	N/A ¹
Between East Camp Kiro Road and Riverdale Road, West of US 70	210ft	120ft
Between East Fisher Ave and Arabica Lane, East of US 70	250ft	155ft
Adjacent to Flanners Beach Road, East of US 70	250ft	150ft
Between Stately Pines Road and Carolina Pines Blvd, East of US 70	270ft	N/A ¹
1. Areas denoted with “N/A” did not reach 66dB(A) or 71dB(A) sound levels.		

12.0 Construction Noise

The predominant construction activities associated with this project are expected to be earth removal, hauling, grading, and paving. These activities may result in temporary and localized construction noise impacts. During daytime hours, the predicted effects of these impacts will be temporary speech interference for 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 result in sleep disturbance. Sporadic evening and nighttime construction equipment noise emissions such as from backup alarms, lift gate closures (“slamming” of dump truck gates), etc., may be perceived as distinctly louder than the steady-state acoustic environment, and may cause impacts to users of noise-sensitive areas.

Loud construction noise activities such as usage of impact-hammers (jackhammer, hoe- ram) may provide sporadic and temporary construction noise impacts in the near vicinity of those activities (refer to Table 11).

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.

While discrete construction noise level prediction is difficult for a receptor or group of receptors, 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 is anticipated to occur in the near

vicinity of numerous noise-sensitive receptors. 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 near residences should be limited to weekday daytime hours.

If meeting the project schedule requires that earth removal, grading, hauling and / or paving must occur during evening, nighttime and / or weekend hours near residences neighborhoods, 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 near 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.
- Some construction activities may create extreme noise impacts for nearby noise-sensitive land uses. It is the recommendation of this Traffic Noise Report that considerations be made for any nearby residences for all potentially affected time periods throughout which extremely loud construction activities might occur.

Table 11: 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.

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/.

13.0 Conclusion

Traffic noise and construction noise can be a consequence of transportation projects, especially in areas near high-volume, existing steady-state traffic noise sources. This Traffic Noise Report for NCDOT STIP R-5777C utilized computer models created using TNM 2.5, to predict future noise levels and identify impacted receptors along the proposed project.

Under the Design Year (2045) Build conditions there are 30 predicted traffic noise impacts. Of these

receptors, all 30 will approach or exceed NCDOT's and FHWA's noise abatement criteria. These impacted receptors represent 30 residential land uses. Noise abatement was considered for 25 of the impacted receptors in five NSAs. Of the five walls evaluated, three walls were considered feasible and reasonable (NW2, NW11 and NW14) and are recommend for construction. Barrier specifics can be found within **Appendix 3**. The final decision on the installation of an abatement measure shall be made upon completion of the project design, the public involvement process, and concurrence with the NCDOT Policy.

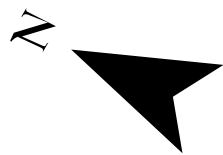
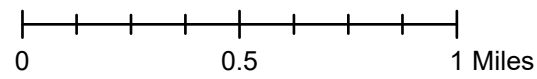
14.0 References

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- 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 Policy and Guidance. Original June 2010 and revised December 2010.
- Federal Highway Administration. *Highway Traffic Noise Analysis: Reasonableness and Feasibility of Abatement*. U.S. Department of Transportation. Washington, D.C. 1992.
- Gannett Fleming. March 2019. "Traffic Noise Report, US 70 Widening & Freeway Upgrade."
- North Carolina Department of Transportation. *Traffic Noise Policy*. October 2016.
- North Carolina Department of Transportation. *Traffic Noise Manual*. October 2016, Rev. January 2017.
- North Carolina Department of Transportation. *Level of Service C Volumes for Traffic Noise Modeling*. September 2018
- U.S. Environmental Protection Agency. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Washington, D.C. 1971.

FIGURES



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



- ▭ Project Study Area
- ▲ Havelock Bypass Terminus, TIP R-1015
- ~ Havelock Bypass Proposed Horizontal Alignment, TIP R-1015

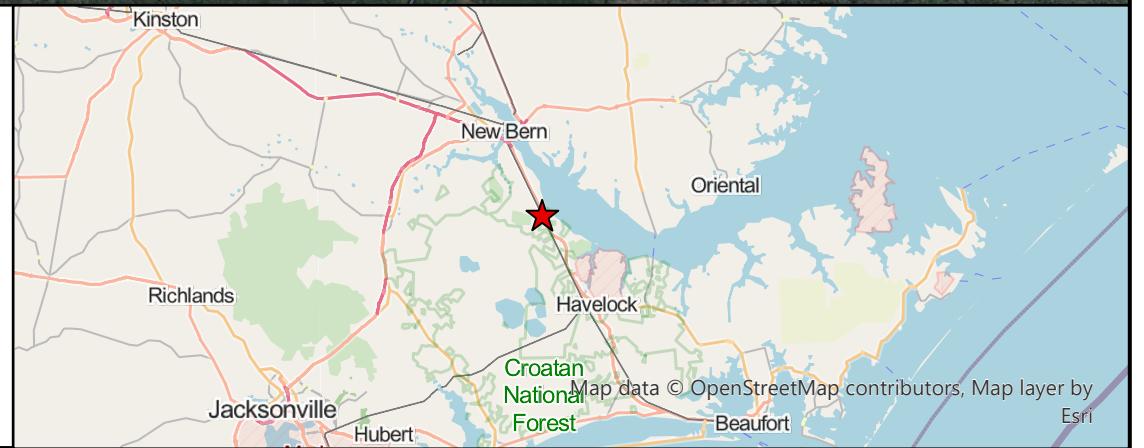


Figure 1: Vicinity Map

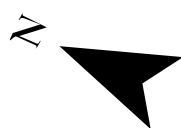
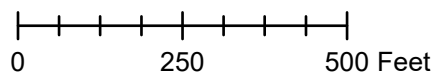
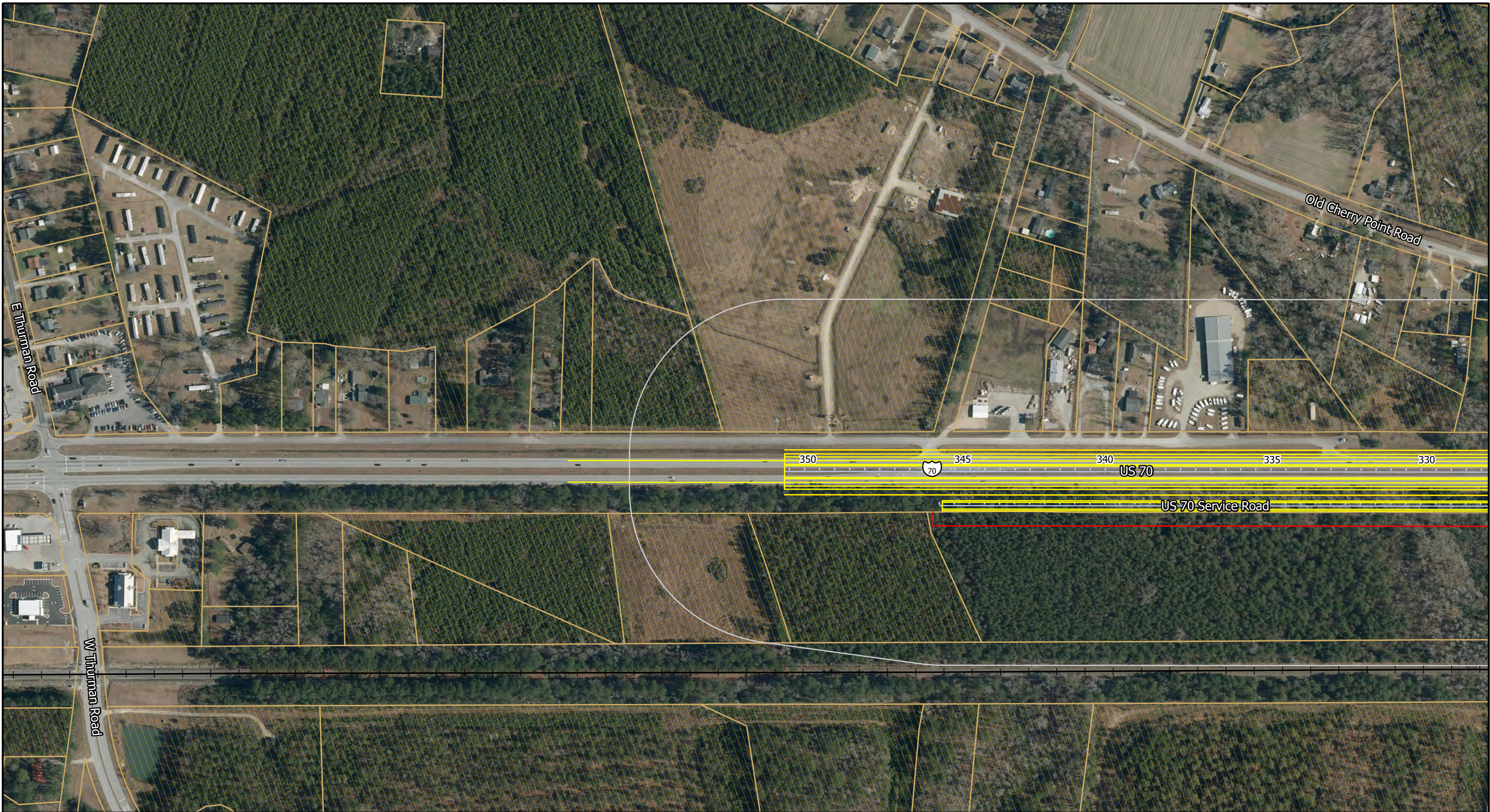
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 US 70 Improvements Project
 Craven County, NC



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Receptor Classifications

- Impacted, Benefitted
- Benefitted, Not Impacted
- Impacted, Not Benefitted
- Not Impacted, Not Benefitted
- Non-Noise Sensitive
- + Acquired

Measurement Locations


- Project Buffer, 500ft
- ~ US-70 Design
- NSAs
- Craven County Parcels

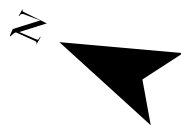
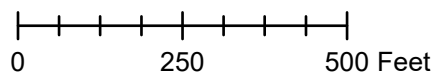
Vacant Parcels

- Vacant Parcels
- Barriers
- Feasible but not Reasonable
- + Stationing
- + Railroad



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Figure 2
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 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations

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Receptor Classifications

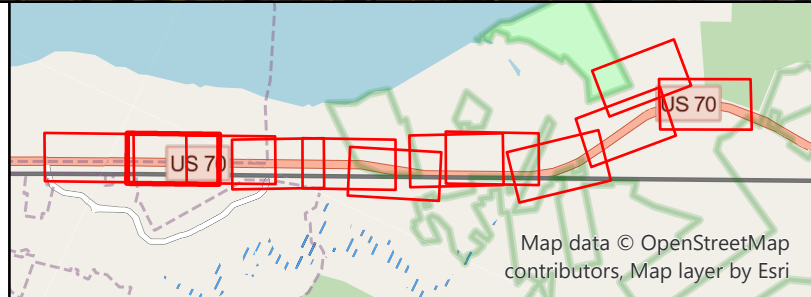
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- Non-Noise Sensitive
- + Acquired

Measurement Locations

- Project Buffer, 500ft
- ~ US-70 Design
- NSAs
- Craven County Parcels

Vacant Parcels

- Vacant Parcels
- Barriers
- Feasible and Reasonable
- Feasible but not Reasonable
- Stationing
- +— Railroad

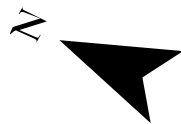
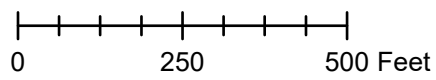
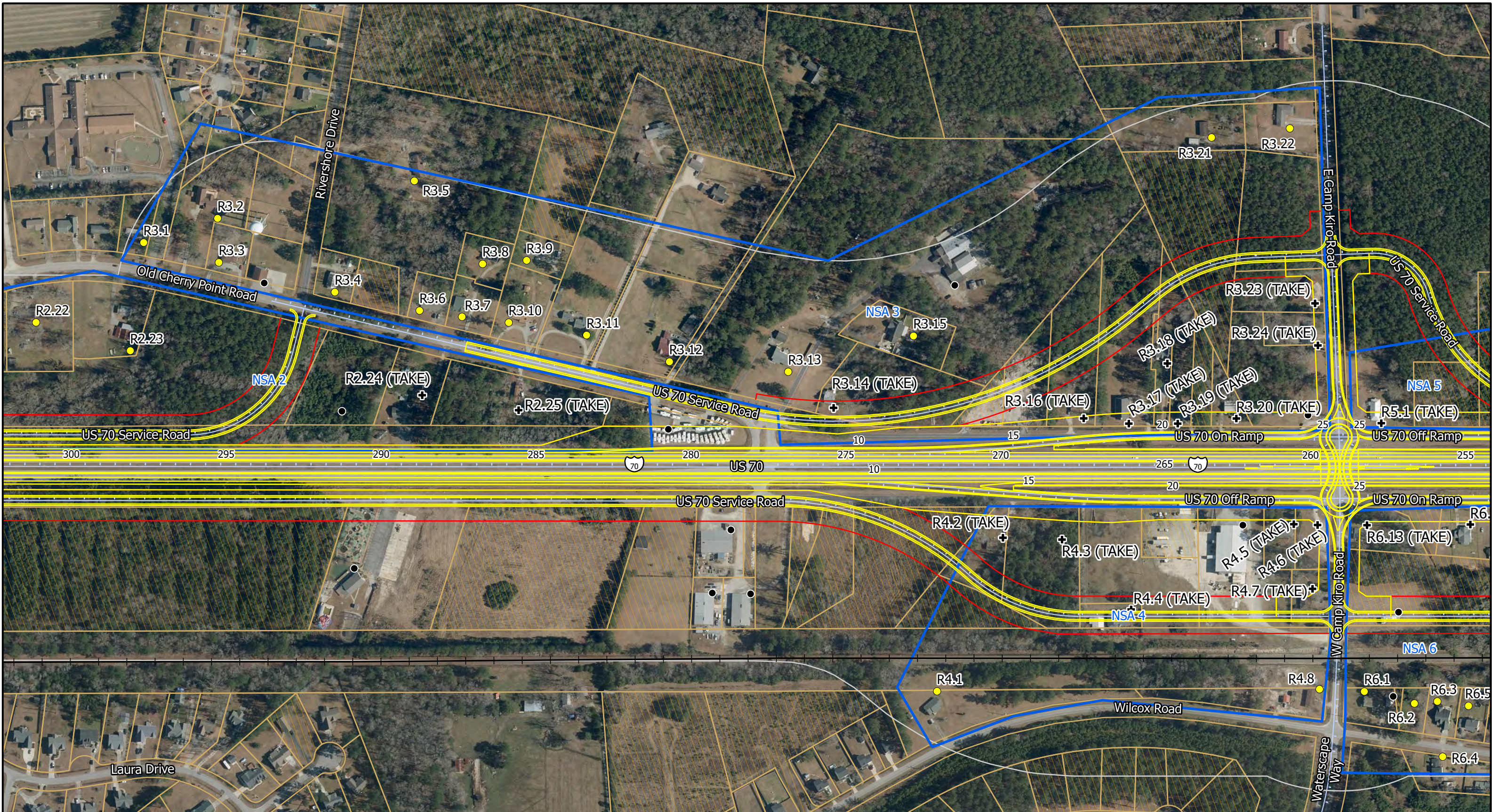


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Figure 3

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 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations
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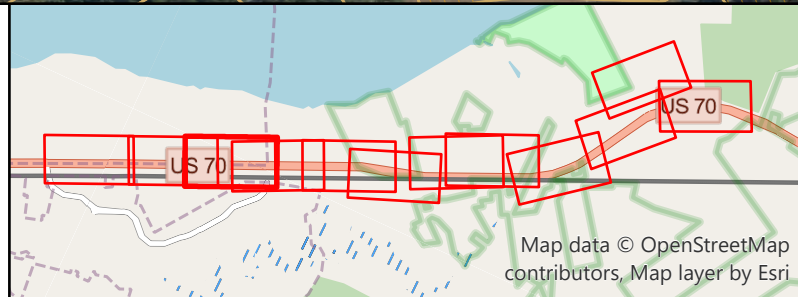


Receptor Classifications

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- Non-Noise Sensitive
- + Acquired

- Measurement Locations
- Project Buffer, 500ft
- US-70 Design
- NSAs
- Craven County Parcels

- Vacant Parcels
- Barriers
- Feasible and Reasonable
- Feasible but not Reasonable
- Stationing
- Railroad



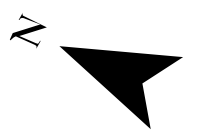
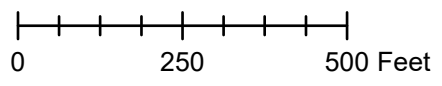
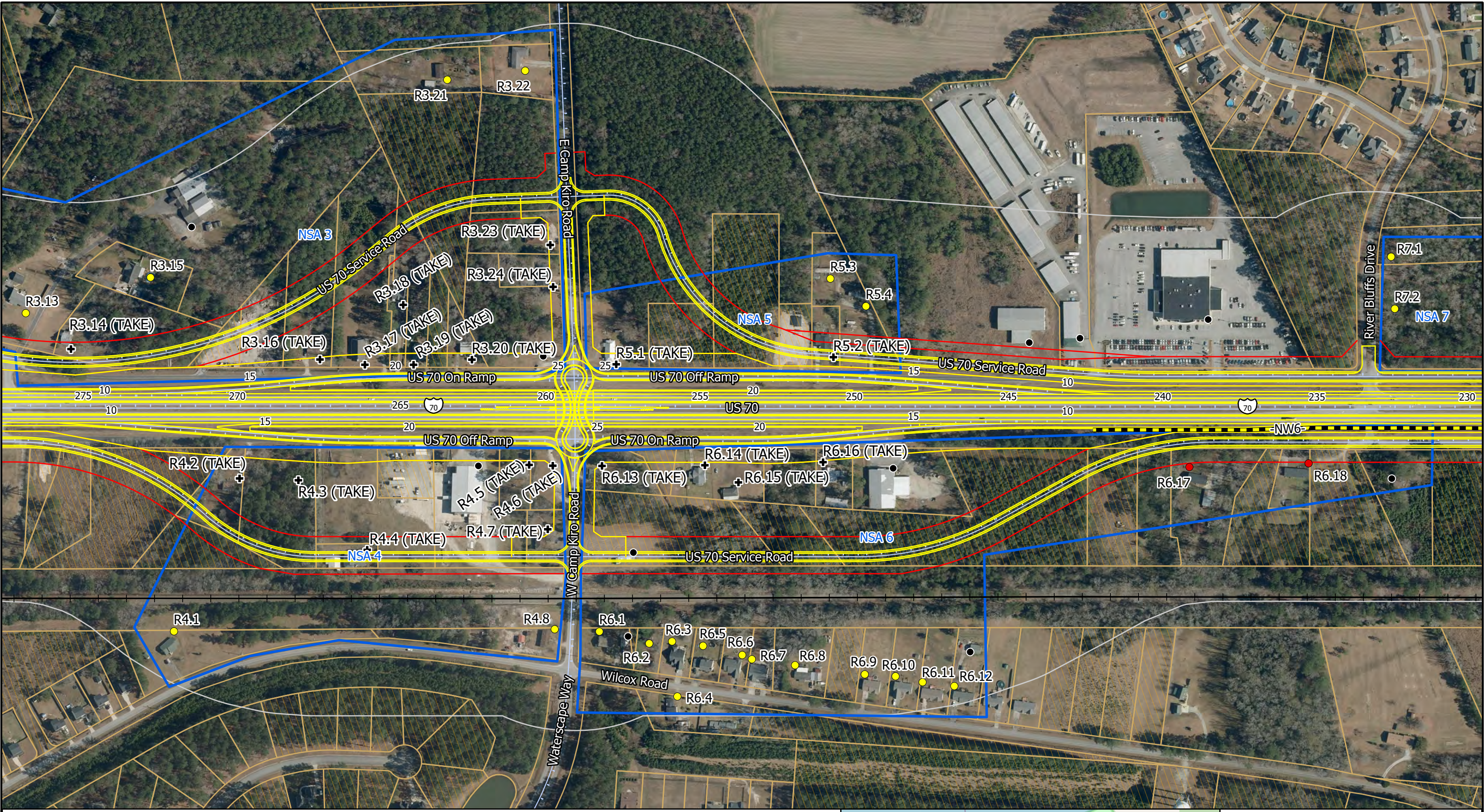
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Figure 4

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 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations



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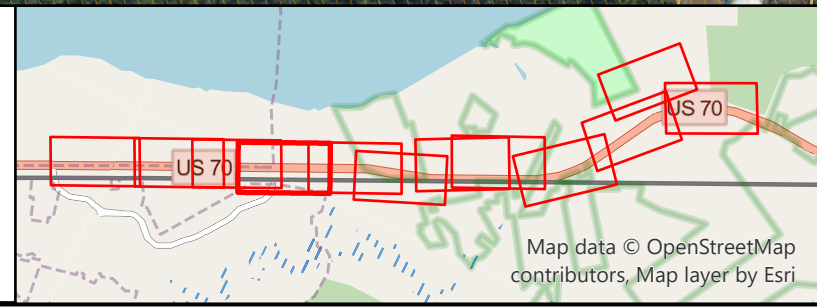

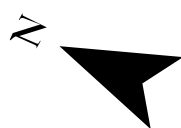
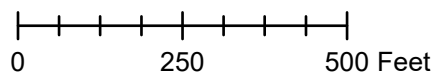


Figure 5
 STIP Project No. R-5777C
 US 70 Improvements Project
 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations

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Receptor Classifications

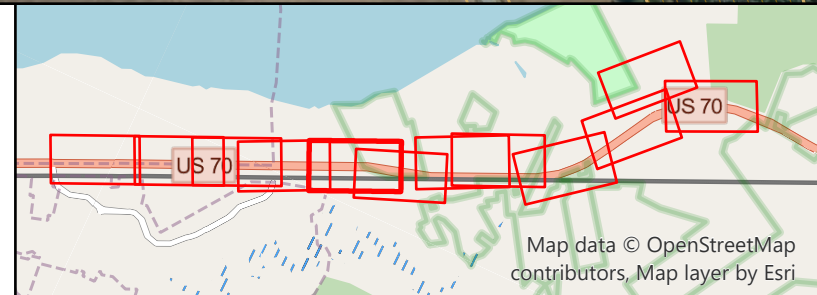
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- Non-Noise Sensitive
- + Acquired

Measurement Locations


- Project Buffer, 500ft
- US-70 Design
- NSAs
- Craven County Parcels

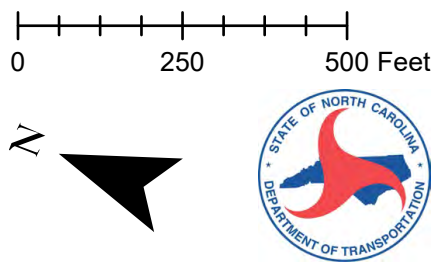
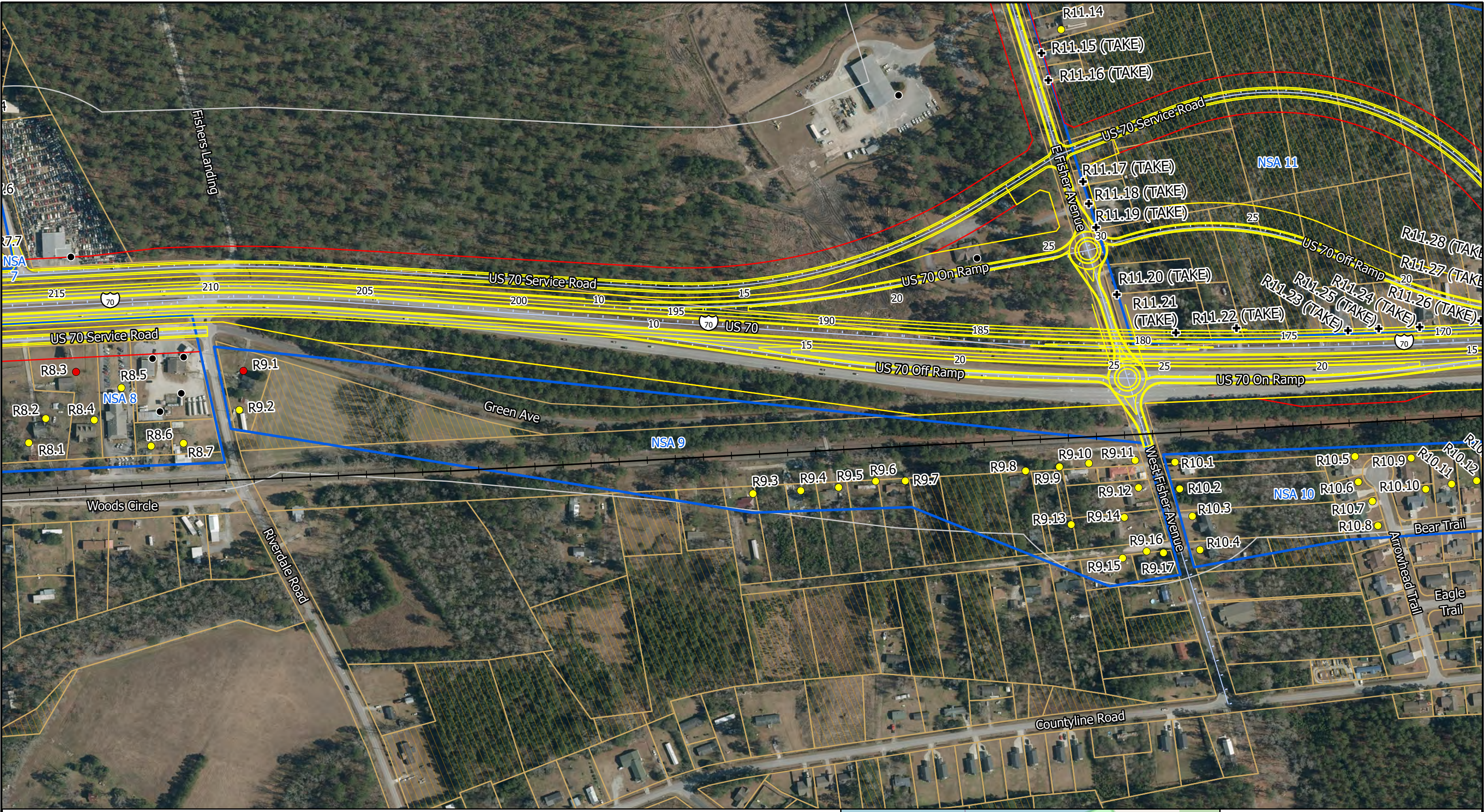
Vacant Parcels

- Vacant Parcels
- Barriers Feasible and Reasonable
- Barriers Feasible but not Reasonable
- Stationing
- Railroad



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Figure 6
 STIP Project No. R-5777C
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2045 Build Alternative
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| Receptor Classifications | ○ Measurement Locations | ▨ Vacant Parcels |
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| ● Acquired | | |

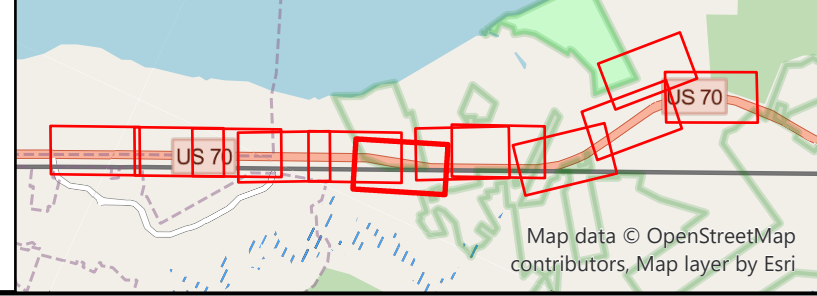
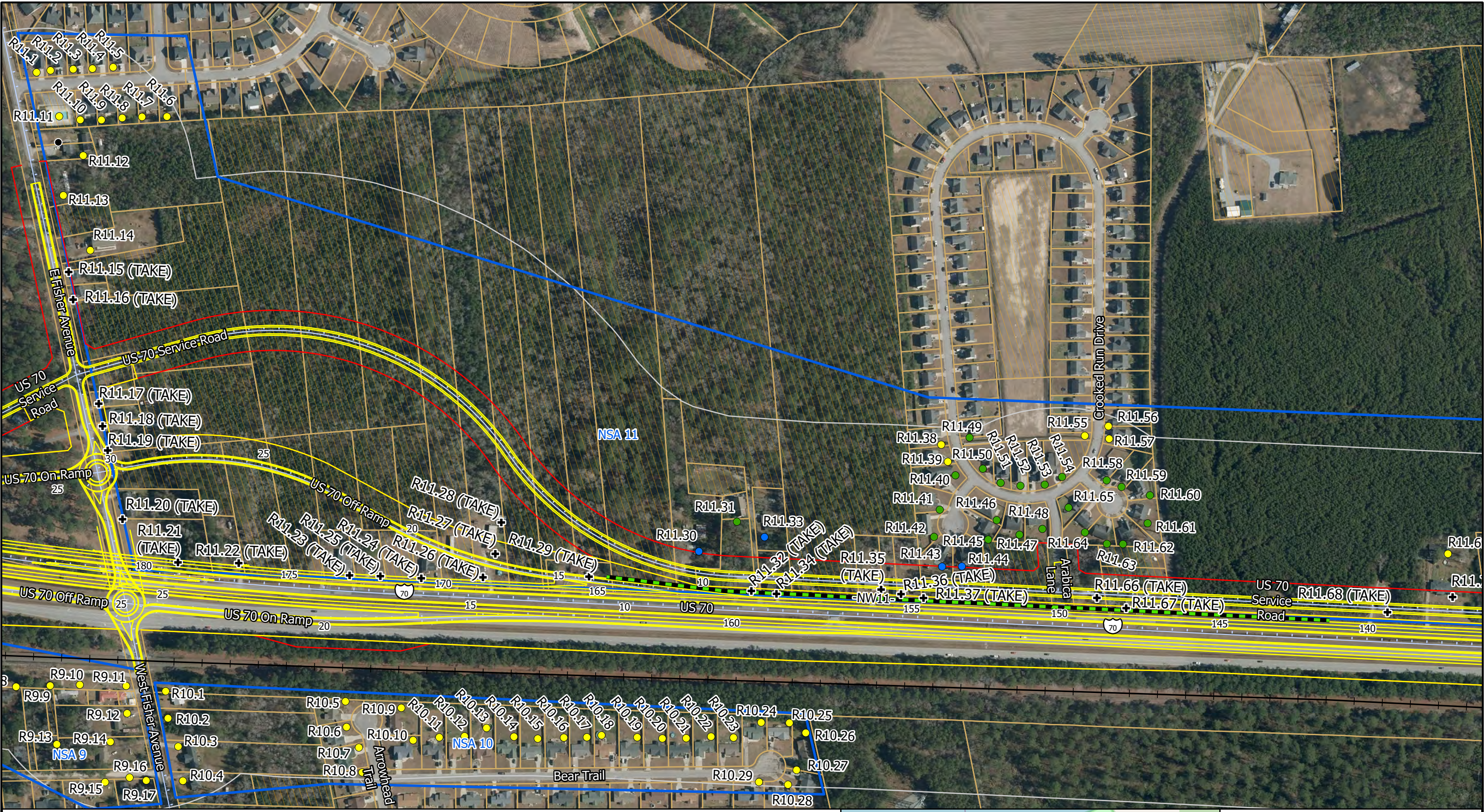
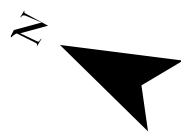


Figure 7
 STIP Project No. R-5777C
 US 70 Improvements Project
 Craven County, NC
2045 Build Alternative
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0 250 500 Feet



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| Receptor Classifications
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Feasible and Reasonable Feasible but not Reasonable Stationing Railroad |
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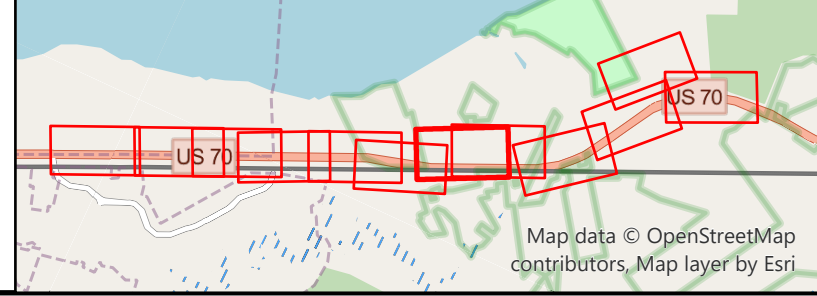
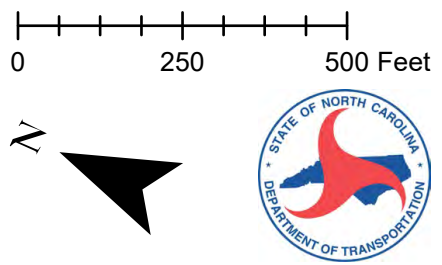
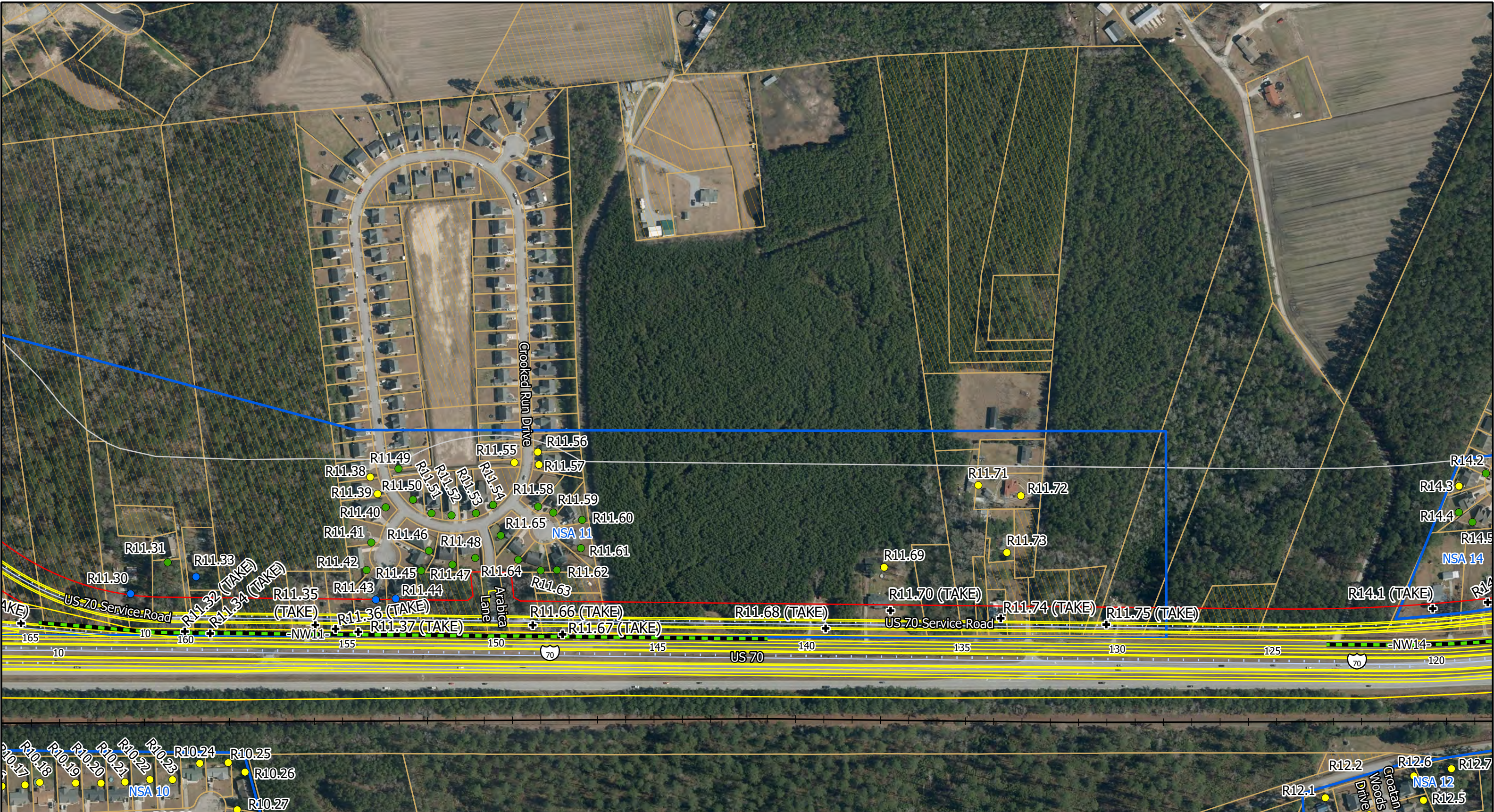


Figure 8
 STIP Project No. R-5777C
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 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations

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Receptor Classifications	○ Measurement Locations	▭ Vacant Parcels
● Impacted, Benefitted	□ Project Buffer, 500ft	▭ Barriers
● Benefitted, Not Impacted	~ US-70 Design	▭ Feasible and Reasonable
● Impacted, Not Benefitted	▭ NSAs	▭ Feasible but not Reasonable
● Not Impacted, Not Benefitted	▭ Craven County Parcels	▭ Stationing
● Non-Noise Sensitive		▭ Railroad
● Acquired		

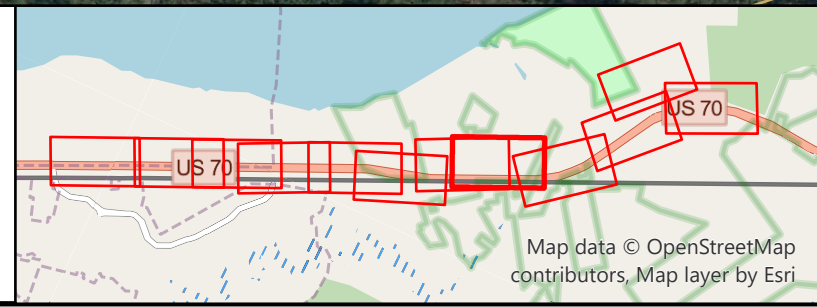
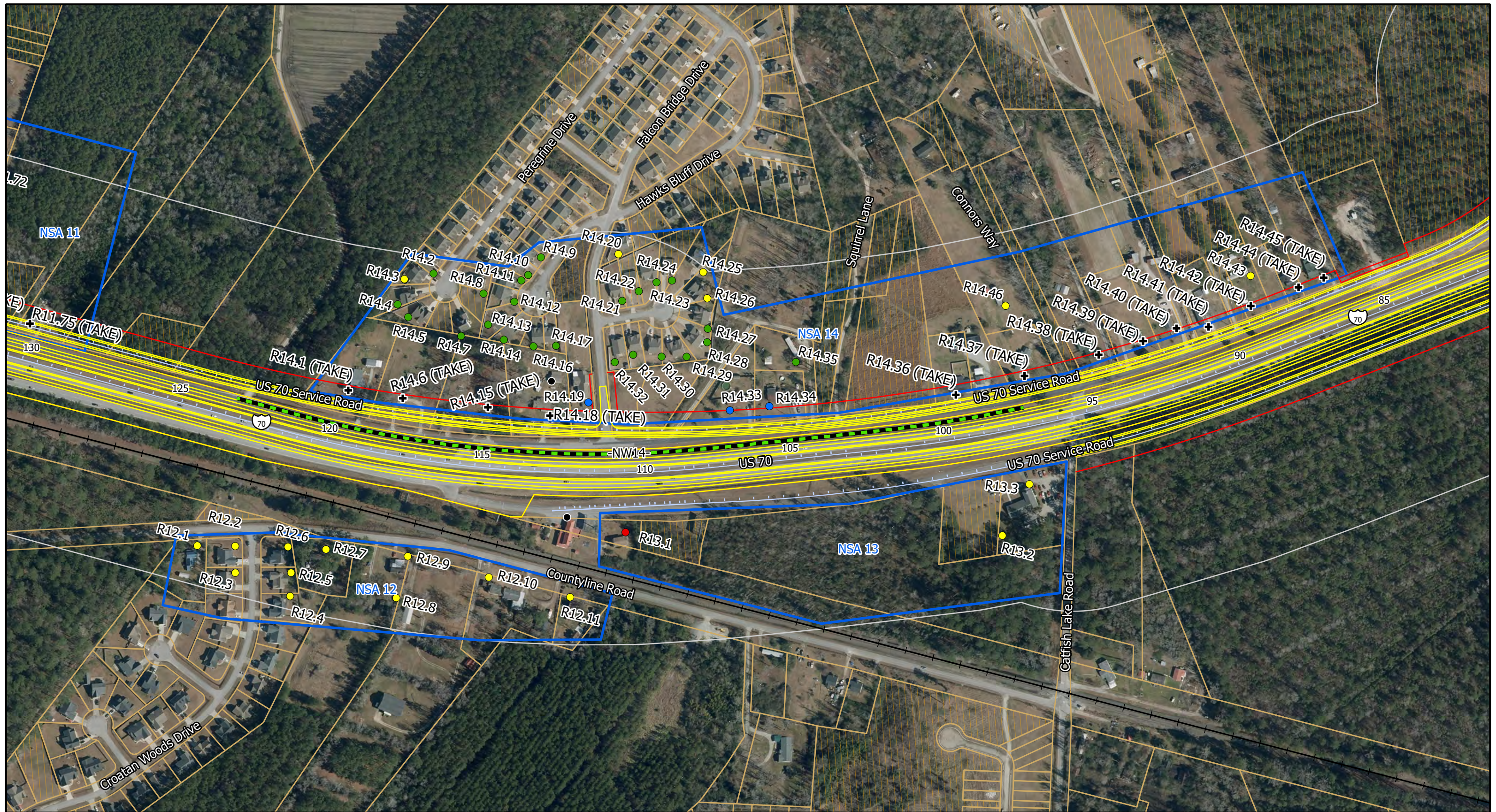
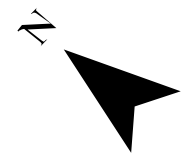


Figure 9
 STIP Project No. R-5777C
 US 70 Improvements Project
 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations
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0 250 500 Feet

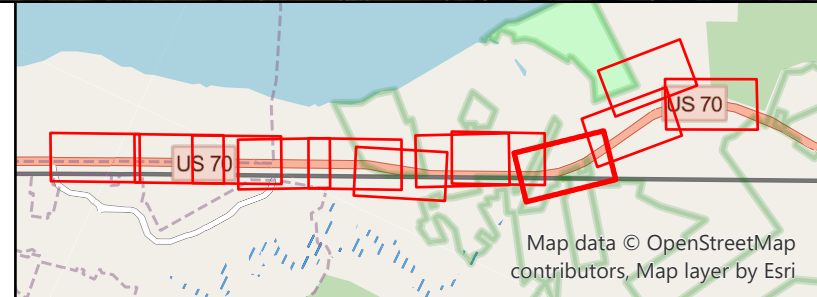


Receptor Classifications

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- Non-Noise Sensitive
- Acquired

- Measurement Locations
- Project Buffer, 500ft
- ~ US-70 Design
- ▭ NSAs
- ▭ Craven County Parcels

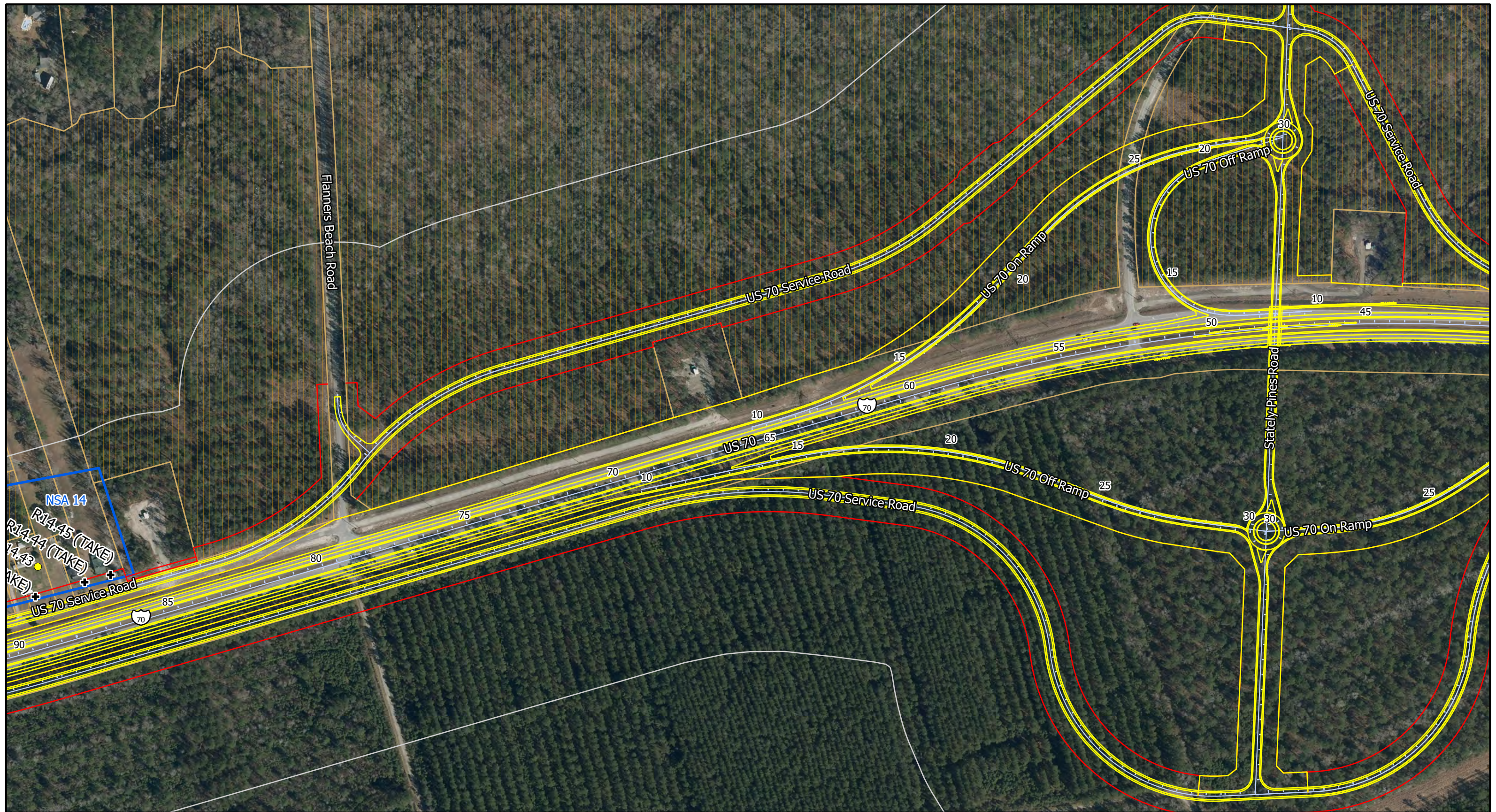
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- ▭ Barriers
 - ▭ Feasible and Reasonable
 - ▭ Feasible but not Reasonable
- Stationing
- Railroad



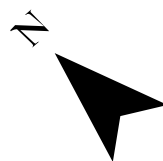
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Figure 10
 STIP Project No. R-5777C
 US 70 Improvements Project
 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations

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0 250 500 Feet



Receptor Classifications

- Impacted, Benefitted
- Benefitted, Not Impacted
- Impacted, Not Benefitted
- Not Impacted, Not Benefitted
- Non-Noise Sensitive
- + Acquired

- Measurement Locations
- Project Buffer, 500ft
- US-70 Design
- NSA NSAs
- Parcel Craven County Parcels

- Parcel Vacant Parcels
- Barriers
- Feasible and Reasonable
- Feasible but not Reasonable
- Stationing
- Railroad



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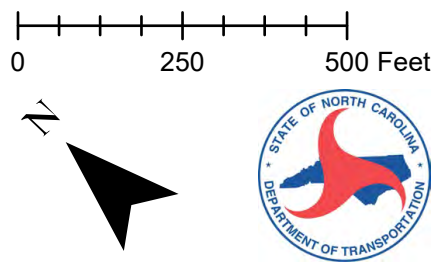
Figure 11

STIP Project No. R-5777C
 US 70 Improvements Project
 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations



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| Receptor Classifications
<ul style="list-style-type: none"> ● Impacted, Benefitted ● Benefitted, Not Impacted ● Impacted, Not Benefitted ● Not Impacted, Not Benefitted ● Non-Noise Sensitive + Acquired | <ul style="list-style-type: none"> ○ Measurement Locations Project Buffer, 500ft US-70 Design NSAs Craven County Parcels | <ul style="list-style-type: none"> Vacant Parcels Barriers
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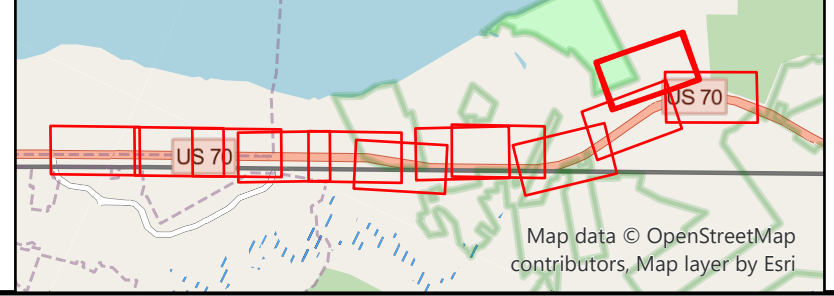

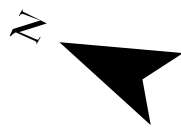
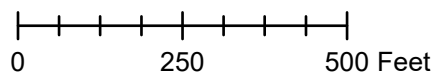
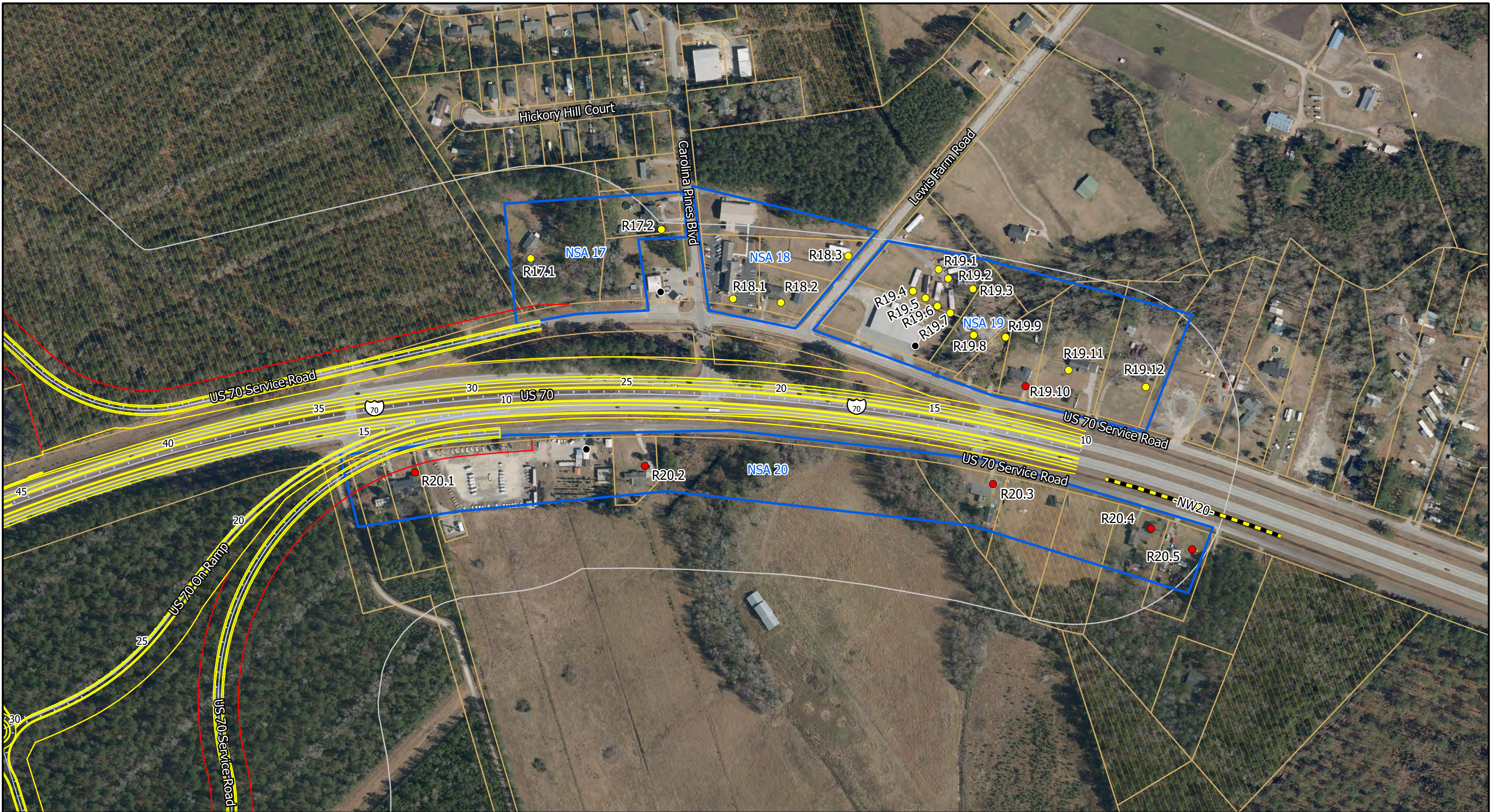


Figure 12
 STIP Project No. R-5777C
 US 70 Improvements Project
 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations

Excellence Delivered As Promised
 Date: 8/11/2020

Map data © OpenStreetMap contributors, Map layer by Esri



Receptor Classifications

- Impacted, Benefitted
- Benefitted, Not Impacted
- Impacted, Not Benefitted
- Not Impacted, Not Benefitted
- Non-Noise Sensitive
- + Acquired

Measurement Locations

- Project Buffer, 500ft
- US-70 Design
- NSAs
- Craven County Parcels

Vacant Parcels

- Vacant Parcels
- Barriers
- Feasible and Reasonable
- Feasible but not Reasonable
- Stationing
- Railroad



Map data © OpenStreetMap contributors, Map layer by Esri

Figure 13

STIP Project No. R-5777C
 US 70 Improvements Project
 Craven County, NC
2045 Build Alternative
 Noise Barrier Recommendations



Excellence Delivered *As Promised*

Date: 8/11/2020

APPENDICES

APPENDIX 1

NOISE MEASUREMENTS AND MODEL VALIDATION RESULTS FROM GANNETT FLEMING TNR, MARCH 2019

R-5777C US 70 VALIDATION MODEL SUMMARY

Site ID	Address	Monitored Sound Level L_{eq}	Modeled Sound Level L_{eq}	DIFFERENCE +/- 3 dB	VALIDATED Y/N
<i>M37</i>	<i>4400 Old Cherry Point Rd.</i>	<i>64.3</i>	<i>63.1</i>	<i>-1.2</i>	<i>Y</i>
<i>M38</i>	<i>4406 E US 70 HWY</i>	<i>68.9</i>	<i>67.1</i>	<i>-1.8</i>	<i>Y</i>
<i>M39</i>	<i>4415 E US 70 HWY</i>	<i>73.8</i>	<i>72.4</i>	<i>-1.4</i>	<i>Y</i>

Scantek, Inc.

CALIBRATION LABORATORY

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



Calibration Certificate No.38744

Instrument: Acoustical Calibrator **Date Calibrated:** 6/19/2017 **Cal Due:** 6/19/2018
Model: NC-74 **Status:**

Received	Sent
X	X

Manufacturer: Rion **In tolerance:**

X	X
---	---

Serial number: 01200033 **Out of tolerance:**

--	--

Class (IEC 60942): 1 **See comments:**

--	--

Barometer type: **Contains non-accredited tests:** Yes No
Barometer s/n:
ID number: 80289.000
Customer: Environmental Acoustics **Address:** 207 Senate Avenue
Tel/Fax: 717-763-7212 x2480 / 717-763-8150 **Camp Hill, PA 17011**

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

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

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31061	Jul 27, 2016	Scantek, Inc. / NVLAP	Jul 27, 2017
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2017
HM30-Thommen	Meteo Station	1040170/39633	Nov 1, 2016	ACR Env./ A2LA	Nov 1, 2017
140-Norsonic	Real Time Analyzer	1403978	Mar 22, 2017	Scantek, Inc. / NVLAP	Mar 22, 2018
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4192-Brüel&Kjær	Microphone	2854675	Nov 11, 2016	Scantek, Inc. / NVLAP	Nov 11, 2017
1203-Norsonic	Preamplifier	92268	Oct 17, 2016	Scantek, Inc. / NVLAP	Oct 17, 2017

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

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	6/19/17	Date	6/19/2017

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.

Scantek, Inc.

CALIBRATION LABORATORY

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



Calibration Certificate No.38749

Instrument:	Sound Level Meter	Date Calibrated:	6/19/2017	Cal Due:	6/19/2018
Model:	831	Status:	Received	Sent	
Manufacturer:	Larson Davis	In tolerance:	X	X	
Serial number:	0004228	Out of tolerance:			
Tested with:	Microphone 377C20 s/n 163246 Preamplifier PRM831 s/n 046381	See comments:			
Type (class):	1	Contains non-accredited tests:	Yes	X	No
Customer:	Environmental Acoustics	Calibration service:	Basic	X	Standard
Tel/Fax:	717-763-7212 x2480 / 717-763-8150	Address:	207 Senate Avenue Camp Hill, PA 17011		

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

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

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31061	Jul 27, 2016	Scantek, Inc./ NVLAP	Jul 27, 2017
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2017
HM30-Thommen	Meteo Station	1040170/39633	Nov 1, 2016	ACR Env./ A2LA	Nov 1, 2017
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2016	Scantek, Inc./ NVLAP	Nov 10, 2017

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

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.4	99.40	53.5

Calibrated by:	Jeremy Gptwalt	Authorized signatory:	Steven E. Marshall
Signature	<i>[Signature]</i>	Signature	<i>[Signature]</i>
Date	6/19/17	Date	6/19/2017

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.

Scantek, Inc.

CALIBRATION LABORATORY

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

NVLAP[®]

CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.38750

Instrument: Microphone
Model: 377C20
Manufacturer: PCB Piezotronics
Serial number: 163246
Composed of:

Date Calibrated: 6/19/2017 **Cal Due:** 6/19/2018

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes X No

Customer: Environmental Acoustics
Tel/Fax: 717-763-7212 x2480/717-763-8150


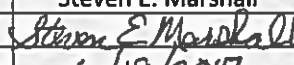
Address: 207 Senate Avenue
Camp Hill, PA 17011

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31061	Jul 27, 2016	Scantek, Inc./ NVLAP	Jul 27, 2017
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2017
HM30-Thommen	Meteo Station	1040170/39633	Nov 1, 2016	ACR Env./ A2LA	Nov 1, 2017
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2016	Scantek, Inc./ NVLAP	Nov 10, 2017
1203-Norsonic	Preamplifier	92268	Oct 17, 2016	Scantek, Inc./ NVLAP	Oct 17, 2017
4180-Brüel&Kjær	Microphone	2246115	Oct 26, 2015	NPL-UK / UKAS	Oct 26, 2017

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	6/19/17	Date	6/19/2017

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Scantek, Inc.

CALIBRATION LABORATORY

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



Calibration Certificate No.38751

LIMITED USE

Instrument: Sound Level Meter	Date Calibrated: 6/19/2017	Cal Due: 6/19/2018				
Model: 831	Status: <table border="1"><tr><td>Received</td><td>Sent</td></tr><tr><td></td><td></td></tr></table>	Received	Sent			
Received	Sent					
Manufacturer: Larson Davis	In tolerance: <table border="1"><tr><td></td><td></td></tr></table>					
Serial number: 0004229	Out of tolerance: <table border="1"><tr><td>X</td><td>X</td></tr></table>	X	X			
X	X					
Tested with: Microphone 377C20 s/n 163243 Preamplifier PRM831 s/n 046380	See comments: X					
Type (class): 1	Contains non-accredited tests: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Customer: Environmental Acoustics	Calibration service: <input type="checkbox"/> Basic <input checked="" type="checkbox"/> Standard					
Tel/Fax: 717-763-7212 x2480 / 717-763-8150	Address: 207 Senate Avenue Camp Hill, PA 17011					

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

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

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31061	Jul 27, 2016	Scantek, Inc./ NVLAP	Jul 27, 2017
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2017
HM30-Thommen	Meteo Station	1040170/39633	Nov 1, 2016	ACR Env./ A2LA	Nov 1, 2017
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2016	Scantek, Inc./ NVLAP	Nov 10, 2017

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

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.7	99.54	55.4

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	6/19/17	Date	6/19/2017

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Scantek, Inc.

CALIBRATION LABORATORY

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

NVLAP[®]

CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.38752

Instrument: Microphone
Model: 377C20
Manufacturer: PCB Piezotronics
Serial number: 163243
Composed of:

Date Calibrated: 6/19/2017 **Cal Due:** 6/19/2018

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: Yes No

Customer: Environmental Acoustics
Tel/Fax: 717-763-7212 x2480/717-763-8150

Address: 207 Senate Avenue
Camp Hill, PA 17011

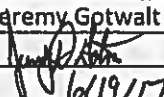
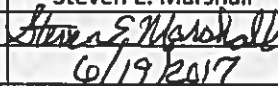
Tested in accordance with the following procedures and standards:

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31061	Jul 27, 2016	Scantek, Inc./ NVLAP	Jul 27, 2017
D5-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2017
HM30-Thommen	Meteo Station	1040170/39633	Nov 1, 2016	ACR Env./ A2LA	Nov 1, 2017
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2016	Scantek, Inc./ NVLAP	Nov 10, 2017
1203-Norsonic	Preamplifier	92268	Oct 17, 2016	Scantek, Inc./ NVLAP	Oct 17, 2017
4180-Brüel&Kjær	Microphone	2246115	Oct 26, 2015	NPL-UK / UKAS	Oct 26, 2017

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	6/19/17	Date	6/19/2017

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Highway Noise Monitoring Sheet

DATE: 2/27/2018



ADDRESS: 4400 Old Cherry Point Rd.

PROJECT: U.S. 70 Improvements James City

New Bern NC, 28560

JOB # U - 5713

SITE ID M37

Gannett
Fleming, Inc.

Meter Storage # (M37)

TYPE Residential Commercial Religion Educational Other _____

Measurement Data

Photograph #'s See below

SLM NO. 4228 SLM Calibration before after _____ GPS PT N/A (Reference Figure)

Weather: temperature 47 wind speed 1mph cloud cover Clear

Time: 1st start 8:46am stop 9:06am total 20 Min

2nd start _____ stop _____ total _____

Data: 1st Leq 64.3 Lmax _____ Lmin _____ SEL _____

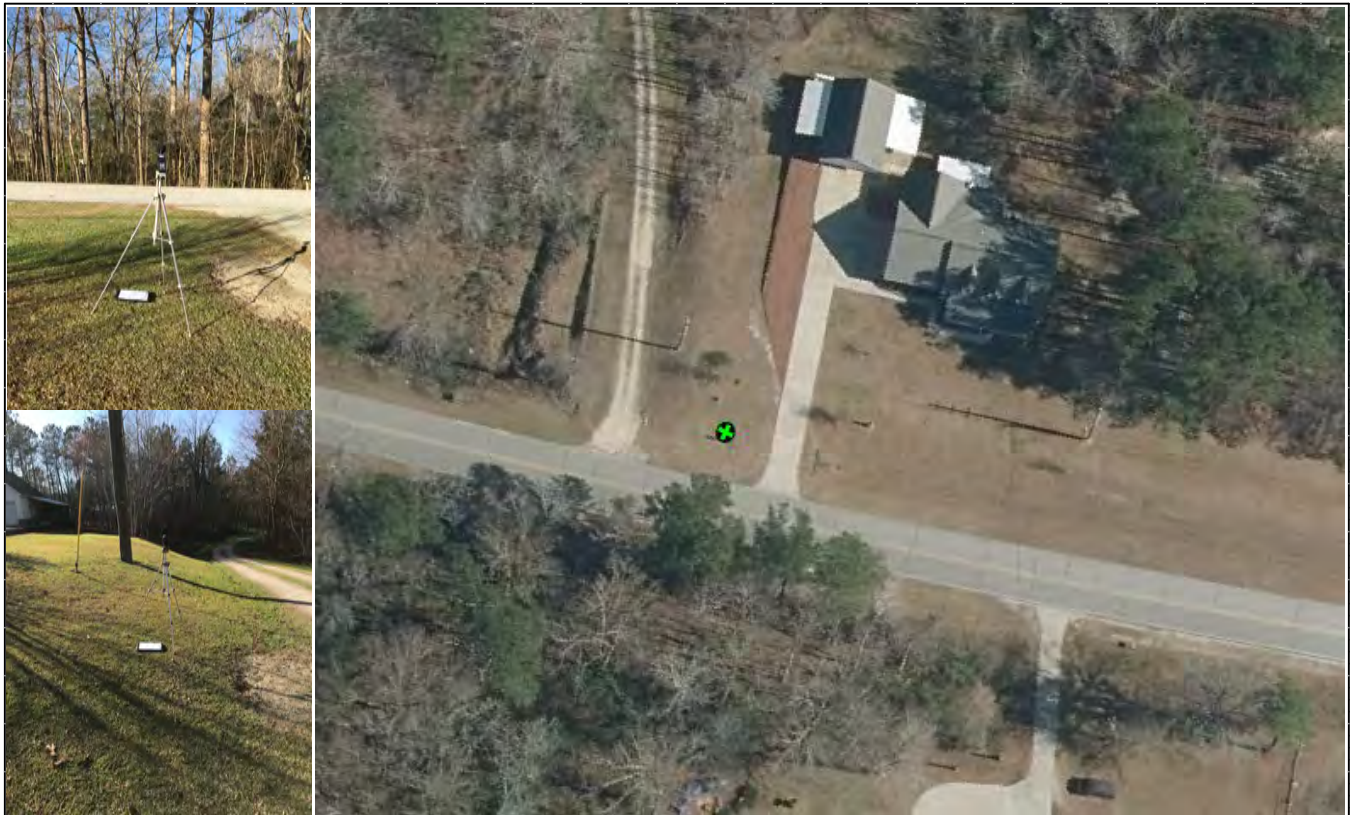
2nd Leq _____ Lmax _____ Lmin _____ SEL _____

Traffic Data

Roadway#1 <u>Old Cherry Point Rd.</u>	Roadway#2 <u>US 70</u>	Roadway#3 _____	Roadway#4 _____
Direction <u>Combined</u>	Direction <u>NB SB</u>	Direction _____	Direction _____
	1st 2nd	1st 2nd	1st 2nd
auto	<u>50</u> <u> </u>	auto <u>288</u> <u>192</u>	auto _____ _____
med. trk.	<u>5</u> <u> </u>	med. trk. <u>6</u> <u>19</u>	med. trk. _____ _____
hvy trk.	_____ _____	hvy trk. <u>15</u> <u>25</u>	hvy trk. _____ _____
bus	_____ _____	bus <u>1</u> <u>0</u>	bus _____ _____
motorcycle	_____ _____	motorcycle <u>1</u> <u>0</u>	motorcycle _____ _____

NOTES: Bird in woods very loud, Resident drove up in ATV to talk.

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 2/27/2018



ADDRESS: 4406 E US 70 HWY

PROJECT: U.S. 70 Improvements James City

New Bern NC, 28560

JOB # U - 5713

SITE ID M38

Meter Storage # (M38)

Gannett
Fleming, Inc.

TYPE Residential Commercial Religion Educational Other _____

Measurement Data

Photograph #'s See below

SLM NO. 4229 SLM Calibration before after _____ GPS PT N/A (Reference Figure)

Weather: temperature 47 wind speed 2mph cloud cover Clear

Time: 1st start 8:46am stop 9:06am total 20 Min

2nd start _____ stop _____ total _____

Data: 1st Leq 68.9 Lmax _____ Lmin _____ SEL _____

2nd Leq _____ Lmax _____ Lmin _____ SEL _____

Traffic Data

Roadway#1	<u>Old Cherry Point Rd.</u>		Roadway#2	<u>US 70</u>		Roadway#3	_____		Roadway#4	_____	
Direction	<u>Combined</u>		Direction	<u>NB</u>	<u>SB</u>	Direction	_____		Direction	_____	
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	50		auto	288	192	auto			auto		
med. trk.	5		med. trk.	6	19	med. trk.			med. trk.		
hvy trk.			hvy trk.	15	25	hvy trk.			hvy trk.		
bus			bus	1	0	bus			bus		
motorcycle			motorcycle	1	0	motorcycle			motorcycle		

NOTES:

SITE SKETCH



Highway Noise Monitoring Sheet

DATE: 2/27/2018

ADDRESS: 4415 E US 70 HWY

PROJECT: U.S. 70 Improvements James City

New Bern NC, 28562

JOB # U - 5713



SITE ID M39

Meter Storage # (M39)

TYPE Residential Commercial Religion Educational Other _____

Measurement Data

Photograph #'s See below

SLM NO. 4228 SLM Calibration before after _____ GPS PT N/A (Reference Figure)

Weather: temperature 47 wind speed 2mph cloud cover Clear

Time: 1st start 7:59am stop 8:19am total 20 Min

2nd start _____ stop _____ total _____

Data: 1st Leq 73.8 Lmax _____ Lmin _____ SEL _____

2nd Leq _____ Lmax _____ Lmin _____ SEL _____

Traffic Data

Roadway#1	<u>US 70</u>		Roadway#2	_____		Roadway#3	_____		Roadway#4	_____	
Direction	NB	SB	Direction	_____		Direction	_____		Direction	_____	
	1st	2nd		1st	2nd		1st	2nd		1st	2nd
auto	356	277	auto			auto			auto		
med. trk.	15	18	med. trk.			med. trk.			med. trk.		
hvy trk.	14	17	hvy trk.			hvy trk.			hvy trk.		
bus	0	1	bus			bus			bus		
motorcycle	3	0	motorcycle			motorcycle			motorcycle		

NOTES:

SITE SKETCH



APPENDIX 2 NOISE ANALYSIS RESULTS

US70 Improvements, STIP #R-5777C Noise Levels and Noise Impacts

Receptors					Predicted Noise Levels, L _{avg} (dB(A))								
NSA	Receptor Number	Land Use	NAC	ERs	Property Address	2019 Existing (AM)	2019 Existing (PM)	Loudest Hour	2045 No Build (AM)	2045 No Build (PM)	Loudest Hour	Build (2045) No Barrier	Change (Bld-Ex)
1	R1.1	Commercial w/Res Use	Category B	1	4401 E US 70 Hwy, New Bern, NC 28560	64	64	PM	65	65	PM	66	2
1	R1.2 (TAKE)	Commercial w/Res Use	Category B	1	4415 E US 70 Hwy, New Bern, NC 28560	68	68	PM	69	69	PM	66	0
2	R2.1	Residential One Family Unit	Category B	1	4404 E US 70 Hwy, New Bern, NC 28560	65	66	PM	66	67	PM	67	0
2	R2.2	Residential One Family Unit	Category B	1	4406 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM	69	2
2	R2.3	Residential One Family Unit	Category B	1	4408 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM	70	2
2	R2.4	Residential One Family Unit	Category B	1	4410 E US 70 Hwy, New Bern, NC 28560	67	68	PM	68	69	PM	70	2
2	R2.5	Residential One Family Unit	Category B	1	4412 E US 70 Hwy, New Bern, NC 28560	67	68	PM	68	69	PM	70	2
2	R2.6	Residential One Family Unit	Category B	1	4414 E US 70 Hwy, New Bern, NC 28560	67	68	PM	68	68	PM	70	2
2	R2.7	Residential One Family Unit	Category B	1	4416 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM	70	3
2	R2.8	Residential One Family Unit	Category B	1	4418 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM	70	3
2	R2.9	Residential One Family Unit	Category B	1	4420 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM	70	3
2	R2.10	Residential One Family Unit	Category B	1	4422 E US 70 Hwy, New Bern, NC 28560	67	67	PM	68	68	PM	69	2
2	R2.11	Residential One Family Unit	Category B	1	4424 E US 70 Hwy, New Bern, NC 28560	67	67	PM	68	68	PM	69	2
2	R2.12	Residential One Family Unit	Category B	1	4401 Old Cherry Point Rd, New Bern, NC 28560	58	59	PM	59	60	PM	62	3
2	R2.13	Residential One Family Unit	Category B	1	4407 Old Cherry Point Rd, New Bern, NC 28560	57	58	PM	58	59	PM	60	2
2	R2.14	Residential One Family Unit	Category B	1	4409 Old Cherry Point Rd, New Bern, NC 28560	55	56	PM	56	56	PM	58	2
2	R2.15	Residential One Family Unit	Category B	1	4413 Old Cherry Point Rd, New Bern, NC 28560	56	57	PM	57	57	PM	59	2
2	R2.16	Residential One Family Unit	Category B	1	4415 Old Cherry Point Rd, New Bern, NC 28560	57	58	PM	58	59	PM	60	2
2	R2.17	Residential One Family Unit	Category B	1	4417 Old Cherry Point Rd, New Bern, NC 28560	57	58	PM	58	58	PM	60	2
2	R2.18	Residential One Family Unit	Category B	1	4419 Old Cherry Point Rd, New Bern, NC 28560	58	59	PM	59	60	PM	61	2
2	R2.19	Residential One Family Unit	Category B	1	4425 Old Cherry Point Rd, New Bern, NC 28560	60	61	PM	61	62	PM	60	-1
2	R2.20	Residential One Family Unit	Category B	1	4498 Old Cherry Point Rd, New Bern, NC 28560	61	61	PM	62	62	PM	61	0
2	R2.21	Commercial w/Res Use	Category B	1	4450 E US 70 Hwy, New Bern, NC 28560	65	66	PM	66	67	PM	64	-2
2	R2.22	Residential One Family Unit	Category B	1	4515 Old Cherry Point Rd, New Bern, NC 28560	57	58	PM	58	59	PM	59	1
2	R2.23	Residential One Family Unit	Category B	1	4519 Old Cherry Point Rd, New Bern, NC 28560	59	59	PM	60	60	PM	61	2
2	R2.24 (TAKE)	Commercial w/Res Use	Category B	1	4615 Old Cherry Point Rd, New Bern, NC 28560	61	62	PM	62	63	PM	61	2
2	R2.25 (TAKE)	Residential One Family Unit	Category B	1	4604 E US 70 Hwy, New Bern, NC 28560	65	66	PM	66	67	PM	66	0
3	R3.1	Residential One Family Unit	Category B	1	4520 Old Cherry Point Rd, New Bern, NC 28560	58	59	PM	59	59	PM	62	3
3	R3.2	Residential One Family Unit	Category B	1	4524 Old Cherry Point Rd, New Bern, NC 28560	52	53	PM	53	54	PM	57	4
3	R3.3	Residential One Family Unit	Category B	1	4526 Old Cherry Point Rd, New Bern, NC 28560	59	60	PM	60	60	PM	63	3
3	R3.4	Residential One Family Unit	Category B	1	4600 Old Cherry Point Rd, New Bern, NC 28560	60	61	PM	61	62	PM	64	3
3	R3.5	Residential One Family Unit	Category B	1	335 Rivershore Dr, New Bern, NC 28560	50	51	PM	51	51	PM	53	2
3	R3.6	Residential One Family Unit	Category B	1	4606 Old Cherry Point Rd, New Bern, NC 28560	59	61	PM	60	61	PM	63	2
3	R3.7	Residential One Family Unit	Category B	1	4610 Old Cherry Point Rd, New Bern, NC 28560	59	60	PM	60	61	PM	62	2
3	R3.8	Residential One Family Unit	Category B	1	4612 Old Cherry Point Rd, New Bern, NC 28560	53	53	PM	54	54	PM	58	5
3	R3.9	Residential One Family Unit	Category B	1	4617 Old Cherry Point Rd, New Bern, NC 28560	53	53	PM	54	54	PM	55	2
3	R3.10	Residential One Family Unit	Category B	1	4616 Old Cherry Point Rd, New Bern, NC 28560	59	60	PM	60	60	PM	61	1
3	R3.11	Residential One Family Unit	Category B	1	4618 Old Cherry Point Rd, New Bern, NC 28560	59	60	PM	60	60	PM	61	1
3	R3.12	Residential One Family Unit	Category B	1	4624 Old Cherry Point Rd, New Bern, NC 28560	61	61	PM	62	62	PM	63	2
3	R3.13	Commercial w/Res Use	Category B	1	4634 Old Cherry Point Rd, New Bern, NC 28560	62	62	PM	62	63	PM	64	2
3	R3.14 (TAKE)	Residential One Family Unit	Category B	1	4702 Old Cherry Point Rd, New Bern, NC 28560	66	67	PM	67	68	PM	66	0
3	R3.15	Residential One Family Unit	Category B	1	4636 Old Cherry Point Rd, New Bern, NC 28560	59	59	PM	59	60	PM	60	1
3	R3.16 (TAKE)	Residential One Family Unit	Category B	1	4714 Old Cherry Point Rd, New Bern, NC 28560	67	69	PM	68	69	PM	69	0
3	R3.17 (TAKE)	Place of Worship	Category C/D	1	4718 Old Cherry Point Rd, New Bern, NC 28560	69	70	PM	69	70	PM	69	0
3	R3.18 (TAKE)	Residential One Family Unit	Category B	1	4722 Old Cherry Point Rd, New Bern, NC 28560	59	60	PM	60	60	PM	60	0
3	R3.19 (TAKE)	Residential One Family Unit	Category B	1	4722A Old Cherry Point Rd, New Bern, NC 28560	69	70	PM	69	70	PM	69	0
3	R3.20 (TAKE)	Residential One Family Unit	Category B	1	4726 Old Cherry Point Rd, New Bern, NC 28560	68	69	PM	69	70	PM	69	0
3	R3.21	Residential One Family Unit	Category B	1	310 E Camp Kiro Rd, New Bern, NC 28560	49	50	PM	50	51	PM	53	3
3	R3.22	Residential One Family Unit	Category B	1	308 E Camp Kiro Rd, New Bern, NC 28560	50	51	PM	51	51	PM	54	3
3	R3.23 (TAKE)	Residential One Family Unit	Category B	1	316 E Camp Kiro Rd, New Bern, NC 28560	57	58	PM	58	58	PM	58	0
3	R3.24 (TAKE)	Residential One Family Unit	Category B	1	318 E Camp Kiro Rd, New Bern, NC 28560	60	61	PM	61	61	PM	61	0
4	R4.1	Residential One Family Unit	Category B	1	4660 Wilcox Rd, New Bern, NC 28560	54	55	PM	55	56	PM	57	2
4	R4.2 (TAKE)	Residential One Family Unit	Category B	1	4731 E US 70 Hwy, New Bern, NC 28560	64	64	PM	65	65	PM	65	0
4	R4.3 (TAKE)	Residential One Family Unit	Category B	1	4735 E US 70 Hwy, New Bern, NC 28560	63	63	PM	64	64	PM	64	0
4	R4.4 (TAKE)	Commercial w/Res Use	Category B	1	4757 E US 70 Hwy, New Bern, NC 28560	57	58	PM	58	59	PM	59	0
4	R4.5 (TAKE)	Commercial w/Res Use	Category B	1	4781 E US 70 Hwy, New Bern, NC 28560	68	68	PM	68	68	PM	68	0
4	R4.6 (TAKE)	Residential One Family Unit	Category B	1	4785 E US 70 Hwy, New Bern, NC 28560	68	68	PM	69	69	PM	69	0
4	R4.7 (TAKE)	Residential One Family Unit	Category B	1	400 W Camp Kiro Rd, New Bern, NC 28560	61	62	PM	62	63	PM	63	0
4	R4.8	Residential One Family Unit	Category B	1	4790 Wilcox Rd, New Bern, NC 28560	59	61	PM	61	63	PM	63	2
5	R5.1 (TAKE)	Residential One Family Unit	Category B	1	327 E Camp Kiro Rd, New Bern, NC 28560	70	71	PM	71	71	PM	71	0
5	R5.2 (TAKE)	Residential One Family Unit	Category B	1	4854 E US 70 Hwy, New Bern, NC 28560	66	68	PM	67	68	PM	68	0
5	R5.3	Residential One Family Unit	Category B	1	4860 E US 70 Hwy, New Bern, NC 28560	58	58	PM	59	59	PM	60	2
5	R5.4	Residential One Family Unit	Category B	1	4860 E US 70 Hwy, New Bern, NC 28560	60	60	PM	61	61	PM	62	2
6	R6.1	Residential One Family Unit	Category B	1	4816 Wilcox Rd, New Bern, NC 28560	57	58	PM	58	59	PM	60	2
6	R6.2	Residential One Family Unit	Category B	1	4820 Wilcox Rd, New Bern, NC 28560	55	56	PM	56	57	PM	58	2
6	R6.3	Residential One Family Unit	Category B	1	4828 Wilcox Rd, New Bern, NC 28560	54	55	PM	55	56	PM	57	2
6	R6.4	Residential One Family Unit	Category B	1	4827 Wilcox Rd, New Bern, NC 28560	59	62	PM	60	63	PM	63	1
6	R6.5	Residential One Family Unit	Category B	1	4830 Wilcox Rd, New Bern, NC 28560	53	54	PM	54	54	PM	56	2
6	R6.6	Residential One Family Unit	Category B	1	4834 Wilcox Rd, New Bern, NC 28560	53	54	PM	54	55	PM	57	3
6	R6.7	Residential One Family Unit	Category B	1	4840 Wilcox Rd, New Bern, NC 28560	53	54	PM	54	55	PM	57	3
6	R6.8	Residential One Family Unit	Category B	1	4850 Wilcox Rd, New Bern, NC 28560	53	54	PM	54	55	PM	57	3
6	R6.9	Residential One Family Unit	Category B	1	4870 Wilcox Rd, New Bern, NC 28560	53	54	PM	54	54	PM	56	2
6	R6.10	Residential One Family Unit	Category B	1	4880 Wilcox Rd, New Bern, NC 28560	52	53	PM	53	54	PM	56	3
6	R6.11	Residential One Family Unit	Category B	1	4890 Wilcox Rd, New Bern, NC 28560	52	53	PM	53	54	PM	57	4
6	R6.12	Residential One Family Unit	Category B	1	4900 Wilcox Rd, New Bern, NC 28560	52	53	PM	53	53	PM	57	4
6	R6.13 (TAKE)	Commercial w/Res Use	Category B	1	4787 E US 70 Hwy, New Bern, NC 28560	67	67	PM	68	68	PM	68	0
6	R6.14 (TAKE)	Commercial w/Res Use	Category B	1	4845 E US 70 Hwy, New Bern, NC 28560	65	65	PM	66	66	PM	66	0
6	R6.15 (TAKE)	Commercial w/Res Use	Category B	1	4845 E US 70 Hwy, New Bern, NC 28560	62	63	PM	63	63	PM	63	0
6	R6.16 (TAKE)	Residential One Family Unit	Category B	1	4865 E US 70 Hwy, New Bern, NC 28560	66	66	PM	67	67	PM	67	0
6	R6.17	Residential One Family Unit	Category B	1	5025 E US 70 Hwy, New Bern, NC 28560	66	66	PM	67	67	PM	69	3
6	R6.18	Residential One Family Unit	Category B	1	5027 E US 70 Hwy, New Bern, NC 28560	68	68	PM	68	68	PM	67	-1
7	R7.1	Residential One Family Unit	Category B	1	405 River Bluffs Dr, New Bern, NC 28560	59	58	AM	59	59	PM	57	-1
7	R7.2	Residential One Family Unit	Category B	1	409 River Bluffs Dr, New Bern, NC 28560	62	62	PM	63	63	PM	58	-4
7	R7.3	Residential One Family Unit	Category B	1	4787 E US 70 Hwy, New Bern, NC 28560	63	64	PM	64	65	PM	59	-5
7	R7.4	Residential One Family Unit	Category B	1	5070 E US 70 Hwy, New Bern, NC 28560	53	53	PM	53	54	PM	54	1
7	R7.5	Residential One Family Unit	Category B	1	5186 E US 70 Hwy, New Bern, NC 28560	54	55	PM	55	55	PM	55	0
7	R7.6	Residential One Family Unit	Category B	1	5180 E US 70 Hwy, New Bern, NC 28560	58	59	PM	59	59	PM	58	-1
7	R7.7	Residential One Family Unit	Category B	1	5184 E US 70 Hwy, New Bern, NC 28560	67	68	PM	67	68	PM	63	-5
8	R8.1	Commercial w/Res Use	Category B	1	170 Woods Cir, New Bern, NC 28560	56	57	PM	57	58	PM	57	0
8	R8.2	Commercial w/Res Use	Category B	1	170 Woods Cir, New Bern, NC 28560	59	60	PM	60	60	PM	60	0
8	R8.3	Residential One Family Unit	Category B	1	160 Woods Cir, New Bern, NC 28560	65	65	PM	65	65	PM	66	1
8	R8.4	Residential One Family Unit	Category B	1	160 Woods Cir, New Bern, NC 28560	58	59	PM	59	59	PM	59	0
8	R8.5	Place of Worship	Category D	1	5195 E US 70 Hwy, New Bern, NC 28560	37	37	PM	38	38	PM	38	1
8	R8.6	Residential One Family Unit	Category B	1	130 Woods Cir, New Bern, NC 28560	53	54	PM	54	55	PM	55	1
8	R8.7	Residential One Family Unit	Category B	1	120 Woods Cir, New Bern, NC 28560	56	58	PM	57	58	PM	58	0
9	R9.1	Residential One Family Unit	Category B	1	110 Green Ave, New Bern, NC 28560	65	65	PM	66	66	PM	67	2
9	R9.2	Residential One Family Unit	Category B	1	110 Green Ave, New Bern, NC 28560	62	63	PM	63	64	PM	64	1
9	R9.3	Residential One Family Unit	Category B	1	260 Green Ave, New Bern, NC 28560	58	59	PM	59	60	PM	59	0
9	R9.4	Residential One Family Unit	Category B	1	280 Green Ave, New Bern, NC 28560	58	59	PM	59	60	PM	59	0
9	R9.5	Residential One Family Unit	Category B	1	300 Green Ave, New Bern, NC 28560	59	60	PM	59	60	PM	59	-1
9	R9.6	Residential One Family Unit	Category B	1	302 Green Ave, New Bern, NC 2856								

US70 Improvements, STIP #R-5777C Noise Levels and Noise Impacts

Receptors						Predicted Noise Levels, L _{avg} (dB(A))							
NSA	Receptor Number	Land Use	NAC	ERs	Property Address	2019 Existing (AM)	2019 Existing (PM)	Loudest Hour	2045 No Build (AM)	2045 No Build (PM)	Loudest Hour	Build (2045) No Barrier	Change (Bld-Ex)
9	R9.11	Residential One Family Unit	Category B	1	110 W Fisher Ave, New Bern, NC 28560	65	66	PM	66	66	PM	65	-1
9	R9.12	Residential One Family Unit	Category B	1	113 W Fisher Ave, New Bern, NC 28560	58	59	PM	59	60	PM	62	3
9	R9.13	Residential One Family Unit	Category B	1	170 W Fisher Ave, New Bern, NC 28560	56	56	PM	56	57	PM	59	3
9	R9.14	Residential One Family Unit	Category B	1	134 W Fisher Ave, New Bern, NC 28560	55	55	PM	55	56	PM	58	3
9	R9.15	Residential One Family Unit	Category B	1	160 W Fisher Ave, New Bern, NC 28560	53	54	PM	54	54	PM	57	3
9	R9.16	Residential One Family Unit	Category B	1	155 W Fisher Ave, New Bern, NC 28560	55	55	PM	55	56	PM	60	5
9	R9.17	Residential One Family Unit	Category B	1	155 W Fisher Ave, New Bern, NC 28560	59	60	PM	59	60	PM	64	4
10	R10.1	Residential One Family Unit	Category B	1	125 W Fisher Ave, New Bern, NC 28560	65	65	PM	65	66	PM	64	-1
10	R10.2	Residential One Family Unit	Category B	1	135 W Fisher Ave, New Bern, NC 28560	62	62	PM	63	63	PM	64	2
10	R10.3	Residential One Family Unit	Category B	1	145 W Fisher Ave, New Bern, NC 28560	60	60	PM	61	61	PM	64	4
10	R10.4	Residential One Family Unit	Category B	1	155 W Fisher Ave, New Bern, NC 28560	58	58	PM	59	59	PM	64	6
10	R10.5	Residential One Family Unit	Category B	1	117 Arrowhead Trail, New Bern, NC 28560	62	63	PM	63	63	PM	61	-2
10	R10.6	Residential One Family Unit	Category B	1	115 Arrowhead Trail, New Bern, NC 28560	58	59	PM	59	59	PM	58	-1
10	R10.7	Residential One Family Unit	Category B	1	113 Arrowhead Trail, New Bern, NC 28560	56	57	PM	57	58	PM	58	1
10	R10.8	Residential One Family Unit	Category B	1	111 Arrowhead Trail, New Bern, NC 28560	54	55	PM	55	56	PM	56	1
10	R10.9	Residential One Family Unit	Category B	1	116 Arrowhead Trail, New Bern, NC 28560	62	62	PM	62	63	PM	61	-1
10	R10.10	Residential One Family Unit	Category B	1	201 Bear Trail, New Bern, NC 28560	58	59	PM	58	59	PM	59	0
10	R10.11	Residential One Family Unit	Category B	1	203 Bear Trail, New Bern, NC 28560	59	60	PM	60	60	PM	59	-1
10	R10.12	Residential One Family Unit	Category B	1	205 Bear Trail, New Bern, NC 28560	59	60	PM	60	61	PM	60	0
10	R10.13	Residential One Family Unit	Category B	1	207 Bear Trail, New Bern, NC 28560	60	61	PM	61	61	PM	60	-1
10	R10.14	Residential One Family Unit	Category B	1	209 Bear Trail, New Bern, NC 28560	59	60	PM	60	61	PM	60	0
10	R10.15	Residential One Family Unit	Category B	1	211 Bear Trail, New Bern, NC 28560	59	60	PM	60	61	PM	59	-1
10	R10.16	Residential One Family Unit	Category B	1	213 Bear Trail, New Bern, NC 28560	59	60	PM	60	61	PM	60	0
10	R10.17	Residential One Family Unit	Category B	1	215 Bear Trail, New Bern, NC 28560	60	60	PM	60	61	PM	60	0
10	R10.18	Residential One Family Unit	Category B	1	217 Bear Trail, New Bern, NC 28560	60	60	PM	60	61	PM	60	0
10	R10.19	Residential One Family Unit	Category B	1	219 Bear Trail, New Bern, NC 28560	60	60	PM	60	61	PM	59	-1
10	R10.20	Residential One Family Unit	Category B	1	221 Bear Trail, New Bern, NC 28560	60	60	PM	60	61	PM	59	-1
10	R10.21	Residential One Family Unit	Category B	1	223 Bear Trail, New Bern, NC 28560	60	60	PM	60	61	PM	59	-1
10	R10.22	Residential One Family Unit	Category B	1	225 Bear Trail, New Bern, NC 28560	60	60	PM	60	61	PM	59	-1
10	R10.23	Residential One Family Unit	Category B	1	227 Bear Trail, New Bern, NC 28560	59	60	PM	60	60	PM	58	-2
10	R10.24	Residential One Family Unit	Category B	1	229 Bear Trail, New Bern, NC 28560	61	61	PM	62	62	PM	60	-1
10	R10.25	Residential One Family Unit	Category B	1	231 Bear Trail, New Bern, NC 28560	61	62	PM	62	62	PM	60	-2
10	R10.26	Residential One Family Unit	Category B	1	233 Bear Trail, New Bern, NC 28560	60	61	PM	61	61	PM	60	-1
10	R10.27	Residential One Family Unit	Category B	1	236 Bear Trail, New Bern, NC 28560	54	55	PM	55	56	PM	57	2
10	R10.28	Residential One Family Unit	Category B	1	224 Bear Trail, New Bern, NC 28560	54	53	AM	54	54	PM	54	1
10	R10.29	Residential One Family Unit	Category B	1	222 Bear Trail, New Bern, NC 28560	53	54	PM	54	55	PM	55	1
11	R11.1	Residential One Family Unit	Category B	1	111 Lynden Lane, New Bern, NC 28560	61	62	PM	61	62	PM	63	1
11	R11.2	Residential One Family Unit	Category B	1	103 Lynden Lane, New Bern, NC 28560	55	55	PM	55	56	PM	57	2
11	R11.3	Residential One Family Unit	Category B	1	105 Lynden Lane, New Bern, NC 28560	50	50	PM	50	51	PM	52	2
11	R11.4	Residential One Family Unit	Category B	1	107 Lynden Lane, New Bern, NC 28560	48	48	PM	48	49	PM	50	2
11	R11.5	Residential One Family Unit	Category B	1	109 Lynden Lane, New Bern, NC 28560	46	46	PM	46	47	PM	48	2
11	R11.6	Residential One Family Unit	Category B	1	200 Lynden Lane, New Bern, NC 28560	47	47	PM	47	47	PM	51	4
11	R11.7	Residential One Family Unit	Category B	1	110 Lynden Lane, New Bern, NC 28560	47	47	PM	47	48	PM	51	4
11	R11.8	Residential One Family Unit	Category B	1	108 Lynden Lane, New Bern, NC 28560	47	47	PM	48	48	PM	51	4
11	R11.9	Residential One Family Unit	Category B	1	106 Lynden Lane, New Bern, NC 28560	48	48	PM	49	49	PM	51	3
11	R11.10	Residential One Family Unit	Category B	1	104 Lynden Lane, New Bern, NC 28560	51	52	PM	52	52	PM	54	2
11	R11.11	Community Pool	Category C	1	100 Lynden Lane, New Bern, NC 28560	55	55	PM	55	56	PM	57	2
11	R11.12	Residential One Family Unit	Category B	1	220 E Fisher Ave, New Bern, NC 28560	51	52	PM	52	52	PM	54	2
11	R11.13	Residential One Family Unit	Category B	1	200 E Fisher Ave, New Bern, NC 28560	61	62	PM	59	62	PM	63	1
11	R11.14	Place of Worship	Category D	1	194 E Fisher Ave, New Bern, NC 28560	35	36	PM	41	36	AM	38	2
11	R11.15 (TAKE)	Residential One Family Unit	Category B	1	190 E Fisher Ave, New Bern, NC 28560	65	66	PM	66	67	PM		
11	R11.16 (TAKE)	Residential One Family Unit	Category B	1	180 E Fisher Ave, New Bern, NC 28560	66	67	PM	66	68	PM		
11	R11.17 (TAKE)	Residential One Family Unit	Category B	1	160 E Fisher Ave, New Bern, NC 28560	65	66	PM	66	66	PM		
11	R11.18 (TAKE)	Residential One Family Unit	Category B	1	150 E Fisher Ave, New Bern, NC 28560	65	66	PM	65	67	PM		
11	R11.19 (TAKE)	Residential One Family Unit	Category B	1	140 E Fisher Ave, New Bern, NC 28560	66	66	PM	66	67	PM		
11	R11.20 (TAKE)	Residential One Family Unit	Category B	1	110 E Fisher Ave, New Bern, NC 28560	67	67	PM	66	68	PM		
11	R11.21 (TAKE)	Residential One Family Unit	Category B	1	5610 E US 70 Hwy, New Bern, NC 28560	68	69	PM	67	69	PM		
11	R11.22 (TAKE)	Residential One Family Unit	Category B	1	5620 E US 70 Hwy, New Bern, NC 28560	66	67	PM	69	68	AM		
11	R11.23 (TAKE)	Residential One Family Unit	Category B	1	5630 E US 70 Hwy, New Bern, NC 28560	67	68	PM	67	69	PM		
11	R11.24 (TAKE)	Residential One Family Unit	Category B	1	5640 E US 70 Hwy, New Bern, NC 28560	67	68	PM	68	69	PM		
11	R11.25 (TAKE)	Residential One Family Unit	Category B	1	5650 E US 70 Hwy, New Bern, NC 28560	67	68	PM	68	69	PM		
11	R11.26 (TAKE)	Residential One Family Unit	Category B	1	5680 E US 70 Hwy, New Bern, NC 28560	66	68	PM	68	68	PM		
11	R11.27 (TAKE)	Residential One Family Unit	Category B	1	5680 E US 70 Hwy, New Bern, NC 28560	62	63	PM	67	63	AM		
11	R11.28 (TAKE)	Residential One Family Unit	Category B	1	5680 E US 70 Hwy, New Bern, NC 28560	59	60	PM	63	60	AM		
11	R11.29 (TAKE)	Residential One Family Unit	Category B	1	5710 E US 70 Hwy, New Bern, NC 28560	65	67	PM	60	67	PM		
11	R11.30	Residential One Family Unit	Category B	1	5730 E US 70 Hwy, New Bern, NC 28560	61	62	PM	66	62	AM	69	7
11	R11.31	Residential One Family Unit	Category B	1	5754 E US 70 Hwy, New Bern, NC 28560	58	59	PM	62	60	AM	64	5
11	R11.32 (TAKE)	Residential One Family Unit	Category B	1	5740 E US 70 Hwy, New Bern, NC 28560	68	69	PM	59	70	PM		
11	R11.33	Residential One Family Unit	Category B	1	5750 E US 70 Hwy, New Bern, NC 28560	59	60	PM	69	61	AM	66	6
11	R11.34 (TAKE)	Residential One Family Unit	Category B	1	5758 E US 70 Hwy, New Bern, NC 28560	69	70	PM	60	71	PM		
11	R11.35 (TAKE)	Residential One Family Unit	Category B	1	5770 E US 70 Hwy, New Bern, NC 28560	67	69	PM	70	70	PM		
11	R11.36 (TAKE)	Residential One Family Unit	Category B	1	5780 E US 70 Hwy, New Bern, NC 28560	68	70	PM	68	70	PM		
11	R11.37 (TAKE)	Residential One Family Unit	Category B	1	5782 E US 70 Hwy, New Bern, NC 28560	67	69	PM	69	69	PM		
11	R11.38	Residential One Family Unit	Category B	1	180 Crooked Run Dr, New Bern, NC 28560	49	49	PM	68	50	AM	52	3
11	R11.39	Residential One Family Unit	Category B	1	182 Crooked Run Dr, New Bern, NC 28560	47	48	PM	49	48	AM	50	2
11	R11.40	Residential One Family Unit	Category B	1	100 Cona Ct, New Bern, NC 28560	52	53	PM	48	53	PM	56	3
11	R11.41	Residential One Family Unit	Category B	1	102 Cona Ct, New Bern, NC 28560	55	55	PM	53	56	PM	59	4
11	R11.42	Residential One Family Unit	Category B	1	104 Cona Ct, New Bern, NC 28560	56	57	PM	55	57	PM	63	6
11	R11.43	Residential One Family Unit	Category B	1	106 Cona Ct, New Bern, NC 28560	61	62	PM	57	63	PM	70	8
11	R11.44	Residential One Family Unit	Category B	1	105 Cona Ct, New Bern, NC 28560	61	62	PM	62	63	PM	70	8
11	R11.45	Residential One Family Unit	Category B	1	103 Cona Ct, New Bern, NC 28560	59	59	PM	62	60	AM	64	5
11	R11.46	Residential One Family Unit	Category B	1	101 Cona Ct, New Bern, NC 28560	57	57	PM	59	58	AM	60	3
11	R11.47	Residential One Family Unit	Category B	1	188 Crooked Run Dr, New Bern, NC 28560	59	59	PM	57	60	PM	64	5
11	R11.48	Residential One Family Unit	Category B	1	190 Crooked Run Dr, New Bern, NC 28560	59	59	PM	60	60	PM	63	4
11	R11.49	Residential One Family Unit	Category B	1	179 Crooked Run Dr, New Bern, NC 28560	49	50	PM	59	50	AM	53	3
11	R11.50	Residential One Family Unit	Category B	1	183 Crooked Run Dr, New Bern, NC 28560	51	51	PM	50	52	PM	54	3
11	R11.51	Residential One Family Unit	Category B	1	185 Crooked Run Dr, New Bern, NC 28560	52	52	PM	52	53	PM	55	3
11	R11.52	Residential One Family Unit	Category B	1	187 Crooked Run Dr, New Bern, NC 28560	53	53	PM	52	54	PM	56	3
11	R11.53	Residential One Family Unit	Category B	1	189 Crooked Run Dr, New Bern, NC 28560	54	54	PM	54	55	PM	56	2
11	R11.54	Residential One Family Unit	Category B	1	101 Crooked Run Dr, New Bern, NC 28560	53	54	PM	54	54	PM	56	2
11	R11.55	Residential One Family Unit	Category B	1	107 Crooked Run Dr, New Bern, NC 28560	50	51	PM	54	52	AM	54	3
11	R11.56	Residential One Family Unit	Category B	1	106 Crooked Run Dr, New Bern, NC 28560	48	48	PM	51	49	AM	50	2
11	R11.57	Residential One Family Unit	Category B	1	104 Crooked Run Dr, New Bern, NC 28560	49	50	PM	48	51	PM	53	3
11	R11.58	Residential One Family Unit	Category B	1	101 Mocha Ct, New Bern, NC 28560	52	53	PM	50	54	PM	56	3
11	R11.59	Residential One Family Unit	Category B	1	103 Mocha Ct, New Bern, NC 28560	53	53	PM	53	54	PM	56	3
11	R11.60	Residential One Family Unit	Category B	1	105 Mocha Ct, New Bern, NC 28560	55	55	PM	53	55	PM	57	2
11	R11.61	Residential One Family Unit	Category B	1	107 Mocha Ct, New Bern, NC 28560	58	58	PM	55	59	PM	61	3
11	R11.62	Residential One Family Unit	Category B	1	106 Mocha Ct, New Bern, NC 28560	59	60	PM	59	61	PM	64	4
11	R11.63	Residential One Family Unit	Category B	1	104 Mocha Ct, New Bern, NC 28560	59	60	PM	60	61	PM	64	4
11	R11.64	Residential One Family Unit	Category B	1	102 Mocha Ct, New Bern, NC 28560	59	59	PM	60	60	PM	63	4
11	R11.65	Residential One Family Unit	Category B	1	100 Mocha Ct, New Bern, NC 28560	56	57	PM	59				

US70 Improvements, STIP #R-5777C Noise Levels and Noise Impacts

Receptors					Predicted Noise Levels, L _{eq} (dB(A))								
NSA	Receptor Number	Land Use	NAC	ERs	Property Address	2019 Existing (AM)	2019 Existing (PM)	Loudest Hour	2045 No Build (AM)	2045 No Build (PM)	Loudest Hour	Build (2045) No Barrier	Change (Bld-Ex)
11	R11.70 (TAKE)	Residential One Family Unit	Category B	1	5960 E US 70 Hwy, New Bern, NC 28560	65	65	PM	59	66	PM	53	2
11	R11.71	Residential One Family Unit	Category B	1	6020 E US 70 Hwy, New Bern, NC 28560	50	51	PM	65	52	AM	53	2
11	R11.72	Residential One Family Unit	Category B	1	6020 E US 70 Hwy, New Bern, NC 28560	55	56	PM	51	57	PM	57	1
11	R11.73	Residential One Family Unit	Category B	1	6010 E US 70 Hwy, New Bern, NC 28560	59	59	PM	56	60	PM	62	3
11	R11.74 (TAKE)	Residential One Family Unit	Category B	1	5990 E US 70 Hwy, New Bern, NC 28560	67	68	PM	60	69	PM		
11	R11.75 (TAKE)	Residential One Family Unit	Category B	1	6060 E US 70 Hwy, New Bern, NC 28560	67	69	PM	68	69	PM		
12	R12.1	Residential One Family Unit	Category B	1	6125 County Line Rd, New Bern, NC 28560	61	62	PM	62	62	PM	62	0
12	R12.2	Residential One Family Unit	Category B	1	100 Croatan Woods Rd, New Bern, NC 28560	62	62	PM	62	62	PM	62	0
12	R12.3	Residential One Family Unit	Category B	1	102 Croatan Woods Rd, New Bern, NC 28560	55	56	PM	56	57	PM	56	0
12	R12.4	Residential One Family Unit	Category B	1	101 Croatan Woods Rd, New Bern, NC 28560	56	57	PM	57	57	PM	55	-2
12	R12.5	Residential One Family Unit	Category B	1	103 Croatan Woods Rd, New Bern, NC 28560	56	57	PM	57	57	PM	57	0
12	R12.6	Residential One Family Unit	Category B	1	105 Croatan Woods Rd, New Bern, NC 28560	62	63	PM	63	63	PM	62	-1
12	R12.7	Residential One Family Unit	Category B	1	6175 County Line Rd, New Bern, NC 28560	63	63	PM	63	63	PM	63	0
12	R12.8	Residential One Family Unit	Category B	1	6191 County Line Rd, New Bern, NC 28560	58	59	PM	59	59	PM	58	-1
12	R12.9	Residential One Family Unit	Category B	1	6191 County Line Rd, New Bern, NC 28560	64	64	PM	64	64	PM	64	0
12	R12.10	Residential One Family Unit	Category B	1	6209 County Line Rd, New Bern, NC 28560	62	62	PM	63	63	PM	62	0
12	R12.11	Residential One Family Unit	Category B	1	6231 County Line Rd, New Bern, NC 28560	61	61	PM	61	62	PM	61	0
13	R13.1	Residential One Family Unit	Category B	1	6257 E US 70 Hwy, New Bern, NC 28560	67	67	PM	67	67	PM	68	1
13	R13.2	Place of Worship (Playground)	Category C	1	6375 E US 70 Hwy, New Bern, NC 28560	61	62	PM	62	63	PM	62	0
13	R13.3 ¹	Place of Worship (Church)	Category D	1	6375 E US 70 Hwy, New Bern, NC 28560	48	47	AM	48	48	PM	49	2
14	R14.1 (TAKE)	Residential One Family Unit	Category B	1	6160 E US 70 Hwy, New Bern, NC 28560	64	65	PM	65	66	PM		
14	R14.2	Residential One Family Unit	Category B	1	407 Peregrine Ridge Dr, New Bern, NC 28560	54	54	PM	55	55	PM	56	2
14	R14.3	Residential One Family Unit	Category B	1	405 Peregrine Ridge Dr, New Bern, NC 28560	52	53	PM	53	53	PM	54	1
14	R14.4	Residential One Family Unit	Category B	1	403 Peregrine Ridge Dr, New Bern, NC 28560	57	57	PM	57	57	PM	58	1
14	R14.5	Residential One Family Unit	Category B	1	401 Peregrine Ridge Dr, New Bern, NC 28560	57	57	PM	58	58	PM	59	2
14	R14.6 (TAKE)	Residential One Family Unit	Category B	1	6180 E US 70 Hwy, New Bern, NC 28560	64	65	PM	65	66	PM		
14	R14.7	Residential One Family Unit	Category B	1	402 Peregrine Ridge Dr, New Bern, NC 28560	58	58	PM	59	59	PM	60	2
14	R14.8	Residential One Family Unit	Category B	1	406 Peregrine Ridge Dr, New Bern, NC 28560	53	54	PM	54	55	PM	55	1
14	R14.9	Residential One Family Unit	Category B	1	212 Kestrel Ct, New Bern, NC 28560	53	53	PM	53	54	PM	56	3
14	R14.10	Residential One Family Unit	Category B	1	214 Kestrel Ct, New Bern, NC 28560	52	52	PM	53	53	PM	54	2
14	R14.11	Residential One Family Unit	Category B	1	216 Kestrel Ct, New Bern, NC 28560	50	51	PM	51	51	PM	52	1
14	R14.12	Residential One Family Unit	Category B	1	218 Kestrel Ct, New Bern, NC 28560	51	51	PM	51	52	PM	54	3
14	R14.13	Residential One Family Unit	Category B	1	220 Kestrel Ct, New Bern, NC 28560	57	57	PM	57	58	PM	58	1
14	R14.14	Residential One Family Unit	Category B	1	222 Kestrel Ct, New Bern, NC 28560	57	58	PM	58	58	PM	60	2
14	R14.15 (TAKE)	Residential One Family Unit	Category B	1	6220 E US 70 Hwy, New Bern, NC 28560	65	66	PM	66	67	PM		
14	R14.16	Residential One Family Unit	Category B	1	224 Kestrel Ct, New Bern, NC 28560	57	58	PM	58	59	PM	60	2
14	R14.17	Residential One Family Unit	Category B	1	226 Kestrel Ct, New Bern, NC 28560	57	57	PM	58	58	PM	60	3
14	R14.18 (TAKE)	Residential One Family Unit	Category B	1	6230 E US 70 Hwy, New Bern, NC 28560	65	67	PM	66	67	PM		
14	R14.19	Residential One Family Unit	Category B	1	6248 E US 70 Hwy, New Bern, NC 28560	63	64	PM	64	65	PM	62	3
14	R14.20	Residential One Family Unit	Category B	1	200 Hawks Bluff Dr, New Bern, NC 28560	49	49	PM	49	50	PM	51	2
14	R14.21	Residential One Family Unit	Category B	1	101 Hawks Bluff Dr, New Bern, NC 28560	53	54	PM	54	54	PM	54	0
14	R14.22	Residential One Family Unit	Category B	1	103 Hawks Bluff Dr, New Bern, NC 28560	53	54	PM	54	54	PM	54	0
14	R14.23	Residential One Family Unit	Category B	1	105 Hawks Bluff Dr, New Bern, NC 28560	51	52	PM	52	52	PM	53	1
14	R14.24	Residential One Family Unit	Category B	1	107 Hawks Bluff Dr, New Bern, NC 28560	52	52	PM	52	53	PM	52	0
14	R14.25	Residential One Family Unit	Category B	1	109 Hawks Bluff Dr, New Bern, NC 28560	52	53	PM	53	53	PM	54	1
14	R14.26	Residential One Family Unit	Category B	1	111 Hawks Bluff Dr, New Bern, NC 28560	52	53	PM	53	53	PM	54	1
14	R14.27	Residential One Family Unit	Category B	1	110 Hawks Bluff Dr, New Bern, NC 28560	56	56	PM	56	57	PM	57	1
14	R14.28	Residential One Family Unit	Category B	1	108 Hawks Bluff Dr, New Bern, NC 28560	58	58	PM	59	59	PM	59	1
14	R14.29	Residential One Family Unit	Category B	1	106 Hawks Bluff Dr, New Bern, NC 28560	59	59	PM	60	60	PM	61	2
14	R14.30	Residential One Family Unit	Category B	1	104 Hawks Bluff Dr, New Bern, NC 28560	59	59	PM	59	60	PM	61	2
14	R14.31	Residential One Family Unit	Category B	1	102 Hawks Bluff Dr, New Bern, NC 28560	58	59	PM	59	59	PM	60	1
14	R14.32	Residential One Family Unit	Category B	1	100 Hawks Bluff Dr, New Bern, NC 28560	59	59	PM	59	60	PM	61	2
14	R14.33	Residential One Family Unit	Category B	1	6260 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM	68	2
14	R14.34	Residential One Family Unit	Category B	1	6280 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM	69	2
14	R14.35	Residential One Family Unit	Category B	1	6278 E US 70 Hwy, New Bern, NC 28560	59	60	PM	60	61	PM	62	2
14	R14.36 (TAKE)	Residential One Family Unit	Category B	1	6294 E US 70 Hwy, New Bern, NC 28560	67	69	PM	68	69	PM		
14	R14.37 (TAKE)	Residential One Family Unit	Category B	1	6304 E US 70 Hwy, New Bern, NC 28560	66	67	PM	67	68	PM		
14	R14.38 (TAKE)	Residential One Family Unit	Category B	1	6320 E US 70 Hwy, New Bern, NC 28560	67	68	PM	67	68	PM		
14	R14.39 (TAKE)	Residential One Family Unit	Category B	1	6340 E US 70 Hwy, New Bern, NC 28560	66	68	PM	67	68	PM		
14	R14.40 (TAKE)	Residential One Family Unit	Category B	1	6380 E US 70 Hwy, New Bern, NC 28560	65	67	PM	66	67	PM		
14	R14.41 (TAKE)	Residential One Family Unit	Category B	1	6390 E US 70 Hwy, New Bern, NC 28560	67	69	PM	68	69	PM		
14	R14.42 (TAKE)	Residential One Family Unit	Category B	1	6410 E US 70 Hwy, New Bern, NC 28560	66	68	PM	67	68	PM		
14	R14.43	Residential One Family Unit	Category B	1	6400 E US 70 Hwy, New Bern, NC 28560	60	61	PM	61	61	PM	65	4
14	R14.44 (TAKE)	Residential One Family Unit	Category B	1	6420 US 70 Hwy, New Bern, NC 28560	66	68	PM	67	68	PM		
14	R14.45 (TAKE)	Residential One Family Unit	Category B	1	6430 US 70 Hwy, New Bern, NC 28560	66	68	PM	67	68	PM		
14	R14.46	Residential One Family Unit	Category B	1	135 Connors Way, New Bern, NC 28560	59	59	PM	59	59	PM	61	2
15	R15.1	Residential One Family Unit	Category B	1	101 Hunting Wood Ln, New Bern, NC 28560	47	47	PM	47	47	PM	50	3
15	R15.2	Residential One Family Unit	Category B	1	411 Statley Pines Rd, New Bern, NC 28560	52	52	PM	52	52	PM	52	0
15	R15.3	Residential One Family Unit	Category B	1	415 Statley Pines Rd, New Bern, NC 28560	51	51	PM	51	51	PM	51	0
16	R16.1	Residential One Family Unit	Category B	1	416 Statley Pines Rd, New Bern, NC 28560	51	51	PM	51	52	PM	51	0
16	R16.2	Residential One Family Unit	Category B	1	414 Statley Pines Rd, New Bern, NC 28560	51	52	PM	51	52	PM	52	0
16	R16.3	Residential One Family Unit	Category B	1	410 Statley Pines Rd, New Bern, NC 28560	52	53	PM	53	53	PM	53	0
17	R17.1	Residential One Family Unit	Category B	1	6960 E US 70 Hwy, New Bern, NC 28560	60	60	PM	60	60	PM	60	0
17	R17.2	Residential One Family Unit	Category B	1	102 Carolina Pines Blvd, New Bern, NC 28560	59	59	PM	59	59	PM	60	1
18	R18.1 ¹	Place of Worship	Category C/D	1	7028 E US 70 Hwy, New Bern, NC 28560	63	64	PM	64	64	PM	65	1
18	R18.2	Residential One Family Unit	Category B	1	7030 E US 70 Hwy, New Bern, NC 28560	62	63	PM	63	63	PM	64	1
18	R18.3	Residential One Family Unit	Category B	1	125 Lewis Rd, New Bern, NC 28560	56	57	PM	57	57	PM	58	1
19	R19.1	Residential One Family Unit	Category B	1	130 Lewis Farm Rd, New Bern, NC 28560	54	54	PM	54	54	PM	56	2
19	R19.2	Residential One Family Unit	Category B	1	130 Lewis Farm Rd, New Bern, NC 28560	56	56	PM	56	57	PM	58	2
19	R19.3	Residential One Family Unit	Category B	1	130 Lewis Farm Rd, New Bern, NC 28560	58	58	PM	58	58	PM	60	2
19	R19.4	Residential One Family Unit	Category B	1	130 Lewis Farm Rd, New Bern, NC 28560	58	58	PM	58	59	PM	61	3
19	R19.5	Residential One Family Unit	Category B	1	130 Lewis Farm Rd, New Bern, NC 28560	59	59	PM	59	60	PM	61	2
19	R19.6	Residential One Family Unit	Category B	1	130 Lewis Farm Rd, New Bern, NC 28560	60	60	PM	60	61	PM	62	2
19	R19.7	Residential One Family Unit	Category B	1	130 Lewis Farm Rd, New Bern, NC 28560	60	61	PM	61	61	PM	62	1
19	R19.8	Residential One Family Unit	Category B	1	7090 E US 70 Hwy, New Bern, NC 28560	63	64	PM	63	64	PM	65	1
19	R19.9	Residential One Family Unit	Category B	1	7100 E US 70 Hwy, New Bern, NC 28560	62	63	PM	62	63	PM	64	1
19	R19.10	Residential One Family Unit	Category B	1	7120 E US 70 Hwy, New Bern, NC 28560	68	69	PM	68	69	PM	71	2
19	R19.11	Residential One Family Unit	Category B	1	7130 E US 70 Hwy, New Bern, NC 28560	63	64	PM	63	64	PM	65	1
19	R19.12	Residential One Family Unit	Category B	1	7140 E US 70 Hwy, New Bern, NC 28560	63	64	PM	63	64	PM	65	1
20	R20.1	Residential One Family Unit	Category B	1	6955 E US 70 Hwy, New Bern, NC 28560	67	66	AM	67	67	PM	68	2
20	R20.2	Residential One Family Unit	Category B	1	7015 E US 70 Hwy, New Bern, NC 28560	64	64	PM	64	64	PM	66	2
20	R20.3	Residential One Family Unit	Category B	1	7115 E US 70 Hwy, New Bern, NC 28560	68	68	PM	69	69	PM	69	1
20	R20.4	Residential One Family Unit	Category B	1	7155 E US 70 Hwy, New Bern, NC 28560	67	66	AM	67	67	PM	69	3
20	R20.5	Residential One Family Unit	Category B	1	7165 E US 70 Hwy, New Bern, NC 28560	65	65	PM	65	65	PM	67	2

1. Noise levels highlighted in red for the 'Build' column are levels above the Noise Abatement Criteria.
 2. Noise levels highlighted in red for the 'Change' column are levels above the Substantial Increase Criteria.
 3. Interior noise levels reduced for Land Use D receptors by 20-25 dB(A) based on building material type.
 4. ER calculations were based on a decimal value. Combined impacts for sites with decimal ER units were rounded up to the nearest whole number by NSA.

APPENDIX 3

NOISE BARRIER RESULTS

-NW2- Acoustical Performance Summary

Impacts: 11 Impacted Receptors Benefited: 11 Non-Impacted Receptors Benefited: 0	Benefited Receptors @ ≥ 7 dB(A) NLR: 11 Total Benefits: 11
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**-NW2- Parameters
Figure 3**

Length: 1,791 ft Average Height: 9.1 ft Area: 16,331 ft ²	Area / Benefit: 1,485 ft ² Allowable Area / Benefit: 1,500 ft ² Preliminary Recommendation: Feasible and Reasonable
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Receptors						Noise Wall Performance		
Rec. No.	NSA	Use	NAC	E.R.s	Address	Build	With Wall	NLR
R2.1	2	Residential One Family Unit	Category B	1	4404 E US 70 Hwy, New Bern, NC 28560	66	59	7
R2.2	2	Residential One Family Unit	Category B	1	4406 E US 70 Hwy, New Bern, NC 28560	67	60	7
R2.3	2	Residential One Family Unit	Category B	1	4408 E US 70 Hwy, New Bern, NC 28560	69	61	8
R2.4	2	Residential One Family Unit	Category B	1	4410 E US 70 Hwy, New Bern, NC 28560	70	62	8
R2.5	2	Residential One Family Unit	Category B	1	4412 E US 70 Hwy, New Bern, NC 28560	70	62	8
R2.6	2	Residential One Family Unit	Category B	1	4414 E US 70 Hwy, New Bern, NC 28560	70	62	8
R2.7	2	Residential One Family Unit	Category B	1	4416 E US 70 Hwy, New Bern, NC 28560	70	63	7
R2.8	2	Residential One Family Unit	Category B	1	4418 E US 70 Hwy, New Bern, NC 28560	70	63	7
R2.9	2	Residential One Family Unit	Category B	1	4420 E US 70 Hwy, New Bern, NC 28560	70	62	8
R2.10	2	Residential One Family Unit	Category B	1	4422 E US 70 Hwy, New Bern, NC 28560	69	62	7
R2.11	2	Residential One Family Unit	Category B	1	4424 E US 70 Hwy, New Bern, NC 28560	69	61	8
R2.12	2	Residential One Family Unit	Category B	1	4401 Old Cherry Point Rd, New Bern, NC 28560	62	58	4
R2.13	2	Residential One Family Unit	Category B	1	4407 Old Cherry Point Rd, New Bern, NC 28560	60	58	2
R2.14	2	Residential One Family Unit	Category B	1	4409 Old Cherry Point Rd, New Bern, NC 28560	58	56	2
R2.15	2	Residential One Family Unit	Category B	1	4413 Old Cherry Point Rd, New Bern, NC 28560	59	57	2
R2.16	2	Residential One Family Unit	Category B	1	4415 Old Cherry Point Rd, New Bern, NC 28560	60	58	2
R2.17	2	Residential One Family Unit	Category B	1	4417 Old Cherry Point Rd, New Bern, NC 28560	60	58	2
R2.18	2	Residential One Family Unit	Category B	1	4419 Old Cherry Point Rd, New Bern, NC 28560	61	58	3
R2.19	2	Residential One Family Unit	Category B	1	4425 Old Cherry Point Rd, New Bern, NC 28560	60	59	1
R2.20	2	Residential One Family Unit	Category B	1	4498 Old Cherry Point Rd, New Bern, NC 28560	61	59	2
R2.21	2	Commerical w/Res Use	Category B	1	4450 E US 70 Hwy, New Bern, NC 28560	64	64	0
R2.22	2	Residential One Family Unit	Category B	1	4515 Old Cherry Point Rd, New Bern, NC 28560	59	59	0
R2.23	2	Residential One Family Unit	Category B	1	4519 Old Cherry Point Rd, New Bern, NC 28560	61	61	0

-NW2- Predicted Build Condition With-Wall Benefits¹ 11

Impact =		5 to 6 dB(A) NLR =		≥7 dB(A) NLR =	
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1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - US 70 Widening **TIP#** - R-5777C

NOISE WALL # - 2 **COUNTY(IES)** - Craven

IMPACTS - 11 **# BENEFITS** - 11 **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? | <u>YES</u> |
| 2. Does topography negatively affect the proposed noise wall? | <u>NO</u> |
| 3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? | <u>NO</u> |
| 4. Is there control of access in the vicinity of the proposed noise wall? | <u>YES</u> |

B. REASONABLENESS

- | | |
|--|------------|
| 1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? | <u>YES</u> |
| 2. Is the quantity per benefited receptor of <u>1,485</u> square feet less than the maximum allowable quantity per benefited receptor of <u>1,500</u> square feet? | <u>YES</u> |

C. NOISE WALL PRELIMINARY DECISION

- | | |
|--|------------|
| 1. Is the noise wall preliminarily feasible? | <u>YES</u> |
| 2. Is the noise wall preliminarily reasonable? | <u>YES</u> |
| 3. Is the noise wall likely? | <u>YES</u> |

PREPARED BY: Adam Alexander **DATE PREPARED:** July 30, 2020

-NW6- Acoustical Performance Summary

Impacts: 2 Impacted Receptors Benefited: 2 Non-Impacted Receptors Benefited: 0	Benefited Receptors @ ≥ 7 dB(A) NLR: 1 Total Benefits: 2
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**-NW6- Parameters
Figures 5 & 6**

Length: 1,300 ft Average Height: 8 ft Area: 10,400 ft ²	Area / Benefit: 5,200 ft ² Allowable Area / Benefit: 1,500 ft ² Preliminary Recommendation: Feasible/Not Reasonable
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Receptors					Noise Wall Performance			
Rec. No.	NSA	Use	NAC	E.R.s		Build	With Wall	NLR
R6.17	6	Residential One Family Unit	Category B	1	4401 Old Cherry Point Rd, New Bern, NC 28560	69	61	8
R6.18	6	Residential One Family Unit	Category B	1	4407 Old Cherry Point Rd, New Bern, NC 28560	67	62	5
-NW6- Predicted Build Condition With-Wall Benefits¹								2

Impact =		5 to 6 dB(A) NLR =		≥ 7 dB(A) NLR =	
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1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - US 70 **TIP# -** R-5777C

NOISE WALL # - 6 **COUNTY(IES) -** Craven

IMPACTS - 2 **# BENEFITS -** 2 **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? | <u>YES</u> |
| 2. | Does topography negatively affect the proposed noise wall? | <u>NO</u> |
| 3. | Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? | <u>NO</u> |
| 4. | Is there control of access in the vicinity of the proposed noise wall? | <u>YES</u> |

B. REASONABLENESS

- | | | |
|----|---|------------|
| 1. | Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? | <u>YES</u> |
| 2. | Is the quantity per benefited receptor of <u>5,200</u> square feet less than the maximum allowable quantity per benefited receptor of <u>1,500</u> square feet? | <u>NO</u> |

C. NOISE WALL PRELIMINARY DECISION

- | | | |
|----|---|------------|
| 1. | Is the noise wall preliminarily feasible? | <u>YES</u> |
| 2. | Is the noise wall preliminarily reasonable? | <u>NO</u> |
| 3. | Is the noise wall likely? | <u>NO</u> |

PREPARED BY: Adam Alexander **DATE PREPARED:** July 30, 2020

-NW11- Acoustical Performance Summary

Impacts: 4 Impacted Receptors Benefited: 4 Non-Impacted Receptors Benefited: 21	Benefited Receptors @ ≥ 7 dB(A) NLR: 20 Total Benefits: 25
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**-NW11- Parameters
Figure 8**

Length: 2,349 ft Average Height: 15.9 ft Area: 37,378 ft ²	Area / Benefit: 1,495 ft ² Allowable Area / Benefit: 1,500 ft ² Preliminary Recommendation: Feasible and Reasonable
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Receptors						Noise Wall Performance		
Rec. No.	NSA	Use	NAC	E.R.s	Address	Build	With Wall	NLR
R11.30	11	Residential One Family Unit	Category B	1	5730 E US 70 Hwy, New Bern, NC 28560	69	59	10
R11.31	11	Residential One Family Unit	Category B	1	5754 E US 70 Hwy, New Bern, NC 28560	64	54	10
R11.33	11	Residential One Family Unit	Category B	1	5750 E US 70 Hwy, New Bern, NC 28560	66	56	10
R11.38	11	Residential One Family Unit	Category B	1	180 Crooked Run Dr, New Bern, NC 28560	52	48	4
R11.39	11	Residential One Family Unit	Category B	1	182 Crooked Run Dr, New Bern, NC 28560	50	46	4
R11.40	11	Residential One Family Unit	Category B	1	100 Cona Ct, New Bern, NC 28560	56	49	7
R11.41	11	Residential One Family Unit	Category B	1	102 Cona Ct, New Bern, NC 28560	59	52	7
R11.42	11	Residential One Family Unit	Category B	1	104 Cona Ct, New Bern, NC 28560	63	54	9
R11.43	11	Residential One Family Unit	Category B	1	106 Cona Ct, New Bern, NC 28560	70	57	13
R11.44	11	Residential One Family Unit	Category B	1	105 Cona Ct, New Bern, NC 28560	70	57	13
R11.45	11	Residential One Family Unit	Category B	1	103 Cona Ct, New Bern, NC 28560	64	55	9
R11.46	11	Residential One Family Unit	Category B	1	101 Cona Ct, New Bern, NC 28560	60	51	9
R11.47	11	Residential One Family Unit	Category B	1	188 Crooked Run Dr, New Bern, NC 28560	64	55	9
R11.48	11	Residential One Family Unit	Category B	1	190 Crooked Run Dr, New Bern, NC 28560	63	55	8
R11.49	11	Residential One Family Unit	Category B	1	179 Crooked Run Dr, New Bern, NC 28560	52	48	4
R11.50	11	Residential One Family Unit	Category B	1	183 Crooked Run Dr, New Bern, NC 28560	55	48	7
R11.51	11	Residential One Family Unit	Category B	1	185 Crooked Run Dr, New Bern, NC 28560	55	49	6
R11.52	11	Residential One Family Unit	Category B	1	187 Crooked Run Dr, New Bern, NC 28560	56	49	7
R11.53	11	Residential One Family Unit	Category B	1	189 Crooked Run Dr, New Bern, NC 28560	56	50	6
R11.54	11	Residential One Family Unit	Category B	1	101 Crooked Run Dr, New Bern, NC 28560	56	49	7
R11.55	11	Residential One Family Unit	Category B	1	107 Crooked Run Dr, New Bern, NC 28560	53	50	3
R11.56	11	Residential One Family Unit	Category B	1	106 Crooked Run Dr, New Bern, NC 28560	51	47	4
R11.57	11	Residential One Family Unit	Category B	1	104 Crooked Run Dr, New Bern, NC 28560	53	49	4
R11.58	11	Residential One Family Unit	Category B	1	101 Mocha Ct, New Bern, NC 28560	56	50	6
R11.59	11	Residential One Family Unit	Category B	1	103 Mocha Ct, New Bern, NC 28560	56	49	7
R11.60	11	Residential One Family Unit	Category B	1	105 Mocha Ct, New Bern, NC 28560	57	52	5
R11.61	11	Residential One Family Unit	Category B	1	107 Mocha Ct, New Bern, NC 28560	61	55	6
R11.62	11	Residential One Family Unit	Category B	1	106 Mocha Ct, New Bern, NC 28560	64	56	8
R11.63	11	Residential One Family Unit	Category B	1	104 Mocha Ct, New Bern, NC 28560	64	56	8
R11.64	11	Residential One Family Unit	Category B	1	102 Mocha Ct, New Bern, NC 28560	63	54	9
R11.65	11	Residential One Family Unit	Category B	1	100 Mocha Ct, New Bern, NC 28560	59	51	8

-NW11- Predicted Build Condition With-Wall Benefits¹

Impact =		5 to 6 dB(A) NLR =		≥ 7 dB(A) NLR =		25
----------	--	-----------------------	--	----------------------	--	-----------

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - US 70 **TIP#** - R-5777C

NOISE WALL # - 11 **COUNTY(IES)** - Craven

IMPACTS - 4 **# BENEFITS** - 25 **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? | <u>YES</u> |
| 2. Does topography negatively affect the proposed noise wall? | <u>NO</u> |
| 3. Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? | <u>NO</u> |
| 4. Is there control of access in the vicinity of the proposed noise wall? | <u>YES</u> |

B. REASONABLENESS

- | | |
|--|------------|
| 1. Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? | <u>YES</u> |
| 2. Is the quantity per benefited receptor of <u>1,495</u> square feet less than the maximum allowable quantity per benefited receptor of <u>1,500</u> square feet? | <u>YES</u> |

C. NOISE WALL PRELIMINARY DECISION

- | | |
|--|------------|
| 1. Is the noise wall preliminarily feasible? | <u>YES</u> |
| 2. Is the noise wall preliminarily reasonable? | <u>YES</u> |
| 3. Is the noise wall likely? | <u>YES</u> |

PREPARED BY: Adam Alexander **DATE PREPARED:** July 30, 2020

-NW14- Acoustical Performance Summary

Impacts: 3 Impacted Receptors Benefited: 3 Non-Impacted Receptors Benefited: 24	Benefited Receptors @ ≥ 7 dB(A) NLR: 15 Total Benefits: 27
---	--

**-NW14- Parameters
Figure 10**

Length: 2,574 ft Average Height: 15.7 ft Area: 40,385 ft ²	Area / Benefit: 1,496 ft ² Allowable Area / Benefit: 1,500 ft ² Preliminary Recommendation: Feasible and Reasonable
---	--

Receptors						Noise Wall Performance		
Rec. No.	NSA	Use	NAC	E.R.s	Address	Build	With Wall	NLR
R14.2	14	Residential One Family Unit	Category B	1	407 Peregrine Ridge Dr, New Bern, NC 28560	56	49	7
R14.3	14	Residential One Family Unit	Category B	1	405 Peregrine Ridge Dr, New Bern, NC 28560	54	52	2
R14.4	14	Residential One Family Unit	Category B	1	403 Peregrine Ridge Dr, New Bern, NC 28560	58	53	5
R14.5	14	Residential One Family Unit	Category B	1	401 Peregrine Ridge Dr, New Bern, NC 28560	59	53	6
R14.7	14	Residential One Family Unit	Category B	1	402 Peregrine Ridge Dr, New Bern, NC 28560	60	53	7
R14.8	14	Residential One Family Unit	Category B	1	406 Peregrine Ridge Dr, New Bern, NC 28560	55	49	6
R14.9	14	Residential One Family Unit	Category B	1	212 Kestrel Ct, New Bern, NC 28560	56	49	7
R14.10	14	Residential One Family Unit	Category B	1	214 Kestrel Ct, New Bern, NC 28560	54	48	6
R14.11	14	Residential One Family Unit	Category B	1	216 Kestrel Ct, New Bern, NC 28560	52	47	5
R14.12	14	Residential One Family Unit	Category B	1	218 Kestrel Ct, New Bern, NC 28560	54	48	6
R14.13	14	Residential One Family Unit	Category B	1	220 Kestrel Ct, New Bern, NC 28560	58	50	8
R14.14	14	Residential One Family Unit	Category B	1	222 Kestrel Ct, New Bern, NC 28560	60	53	7
R14.16	14	Residential One Family Unit	Category B	1	224 Kestrel Ct, New Bern, NC 28560	60	54	6
R14.17	14	Residential One Family Unit	Category B	1	226 Kestrel Ct, New Bern, NC 28560	60	53	7
R14.19	14	Residential One Family Unit	Category B	1	6248 E US 70 Hwy, New Bern, NC 28560	67	56	11
R14.20	14	Residential One Family Unit	Category B	1	200 Hawks Bluff Dr, New Bern, NC 28560	51	48	3
R14.21	14	Residential One Family Unit	Category B	1	101 Hawks Bluff Dr, New Bern, NC 28560	54	49	5
R14.22	14	Residential One Family Unit	Category B	1	103 Hawks Bluff Dr, New Bern, NC 28560	54	48	6
R14.23	14	Residential One Family Unit	Category B	1	105 Hawks Bluff Dr, New Bern, NC 28560	53	48	5
R14.24	14	Residential One Family Unit	Category B	1	107 Hawks Bluff Dr, New Bern, NC 28560	52	47	5
R14.25	14	Residential One Family Unit	Category B	1	109 Hawks Bluff Dr, New Bern, NC 28560	54	50	4
R14.26	14	Residential One Family Unit	Category B	1	111 Hawks Bluff Dr, New Bern, NC 28560	54	50	4
R14.27	14	Residential One Family Unit	Category B	1	110 Hawks Bluff Dr, New Bern, NC 28560	57	51	6
R14.28	14	Residential One Family Unit	Category B	1	108 Hawks Bluff Dr, New Bern, NC 28560	59	52	7
R14.29	14	Residential One Family Unit	Category B	1	106 Hawks Bluff Dr, New Bern, NC 28560	61	53	8
R14.30	14	Residential One Family Unit	Category B	1	104 Hawks Bluff Dr, New Bern, NC 28560	61	53	8
R14.31	14	Residential One Family Unit	Category B	1	102 Hawks Bluff Dr, New Bern, NC 28560	60	52	8
R14.32	14	Residential One Family Unit	Category B	1	100 Hawks Bluff Dr, New Bern, NC 28560	61	53	8
R14.33	14	Residential One Family Unit	Category B	1	6260 E US 70 Hwy, New Bern, NC 28560	69	57	12
R14.34	14	Residential One Family Unit	Category B	1	6280 E US 70 Hwy, New Bern, NC 28560	69	58	11
R14.35	14	Residential One Family Unit	Category B	1	6278 E US 70 Hwy, New Bern, NC 28560	62	54	8
R14.43	14	Residential One Family Unit	Category B	1	6400 E US 70 Hwy, New Bern, NC 28560	65	65	0
R14.46	14	Residential One Family Unit	Category B	1	135 Connors Way, New Bern, NC 28560	61	59	2

-NW14- Predicted Build Condition With-Wall Benefits¹

27

Impact = 	5 to 6 dB(A)	 	≥ 7 dB(A) NLR =
--	--------------	--	--

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - US 70 **TIP#** - R-5777C
NOISE WALL # - 14 **COUNTY(IES)** - Craven
IMPACTS - 3 **# BENEFITS** - 27 **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? | <u>YES</u> |
| 2. | Does topography negatively affect the proposed noise wall? | <u>NO</u> |
| 3. | Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? | <u>NO</u> |
| 4. | Is there control of access in the vicinity of the proposed noise wall? | <u>YES</u> |

B. REASONABLENESS

- | | | |
|----|---|------------|
| 1. | Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? | <u>YES</u> |
| 2. | Is the quantity per benefited receptor of <u>1,496</u> square feet less than the maximum allowable quantity per benefited receptor of <u>1,500</u> square feet? | <u>YES</u> |

C. NOISE WALL PRELIMINARY DECISION

- | | | |
|----|---|------------|
| 1. | Is the noise wall preliminarily feasible? | <u>YES</u> |
| 2. | Is the noise wall preliminarily reasonable? | <u>YES</u> |
| 3. | Is the noise wall likely? | <u>YES</u> |

PREPARED BY: Adam Alexander **DATE PREPARED:** July 30, 2020

-NW20- Acoustical Performance Summary

Impacts: 5 Impacted Receptors Benefited: 2 Non-Impacted Receptors Benefited: 0	Benefited Receptors @ ≥ 7 dB(A) NLR: 1 Total Benefits: 2
--	--

**-NW20- Parameters
Figure 13**

Length: 596 ft Average Height: 12 ft Area: 7,155 ft ²	Area / Benefit: 3,578 ft ² Allowable Area / Benefit: 1,500 ft ² Preliminary Recommendation: Feasible/Not Reasonable
--	--

Receptors						Noise Wall Performance		
Rec. No.	NSA	Use	NAC	E.R.s	Address	Build	With Wall	NLR
R20.1	20	Residential One Family Unit	Category B	1	6955 E US 70 Hwy, New Bern, NC 28560	68	68	0
R20.2	20	Residential One Family Unit	Category B	1	7015 E US 70 Hwy, New Bern, NC 28560	66	66	0
R20.3	20	Residential One Family Unit	Category B	1	7115 E US 70 Hwy, New Bern, NC 28560	69	69	0
R20.4	20	Residential One Family Unit	Category B	1	7155 E US 70 Hwy, New Bern, NC 28560	69	62	7
R20.5	20	Residential One Family Unit	Category B	1	7165 E US 70 Hwy, New Bern, NC 28560	67	61	6

-NW1-2- Predicted Build Condition With-Wall Benefits¹

Impact =		5 to 6 dB(A) NLR =		≥ 7 dB(A) NLR =	
----------	--	-----------------------	--	----------------------	--

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

**NCDOT NOISE WALL
FEASIBILITY & REASONABLENESS WORKSHEET**

PROJECT - US 70 **TIP#** - R-5777C

NOISE WALL # - 20 **COUNTY(IES)** - Craven

IMPACTS - 5 **# BENEFITS** - 2 **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? | <u>YES</u> |
| 2. | Does topography negatively affect the proposed noise wall? | <u>NO</u> |
| 3. | Does the proposed noise wall negatively affect property access, drainage, utilities or maintenance requirements? | <u>NO</u> |
| 4. | Is there control of access in the vicinity of the proposed noise wall? | <u>YES</u> |

B. REASONABLENESS

- | | | |
|----|---|------------|
| 1. | Can a 7- dB(A) reduction in traffic noise levels be achieved for at least one benefited receptor? | <u>YES</u> |
| 2. | Is the quantity per benefited receptor of <u>3,578</u> square feet less than the maximum allowable quantity per benefited receptor of <u>1,500</u> square feet? | <u>NO</u> |

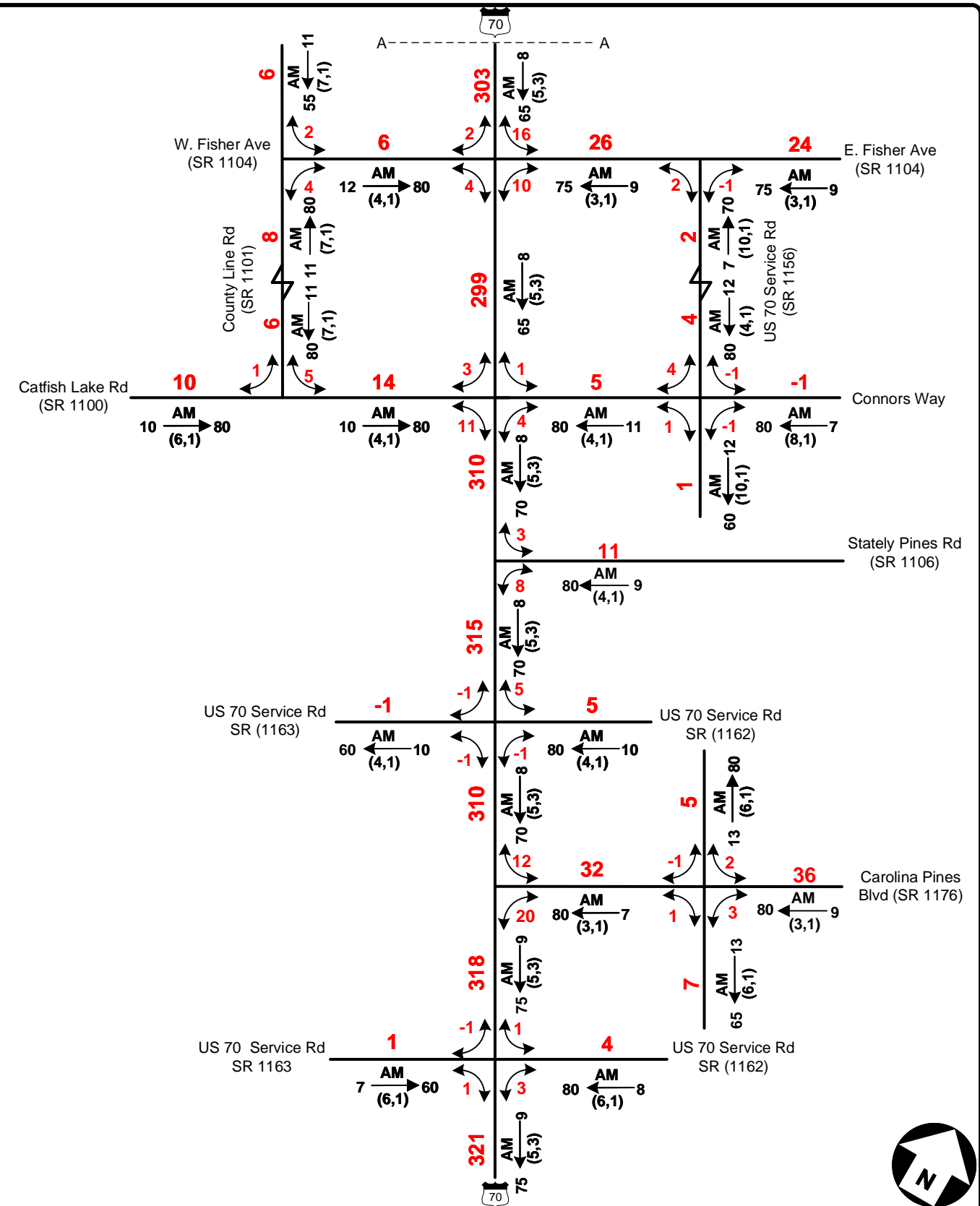
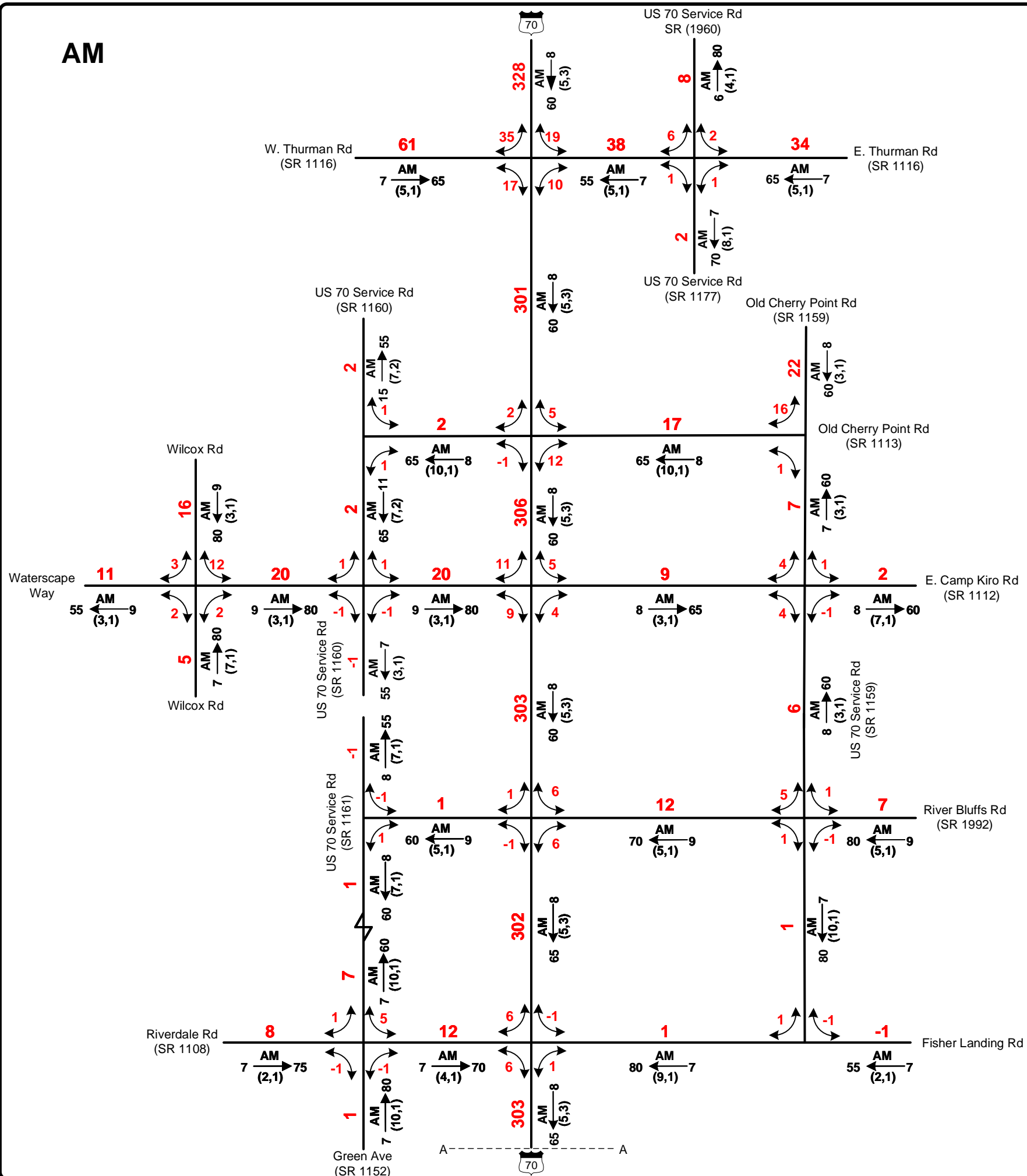
C. NOISE WALL PRELIMINARY DECISION

- | | | |
|----|---|------------|
| 1. | Is the noise wall preliminarily feasible? | <u>YES</u> |
| 2. | Is the noise wall preliminarily reasonable? | <u>NO</u> |
| 3. | Is the noise wall likely? | <u>NO</u> |

PREPARED BY: Adam Alexander **DATE PREPARED:** July 30, 2020

APPENDIX 4 TRAFFIC USED IN ANALYSIS

AM



2019 AVERAGE ANNUAL DAILY TRAFFIC

2019 Base Year No-Build SHEET 1 OF 1

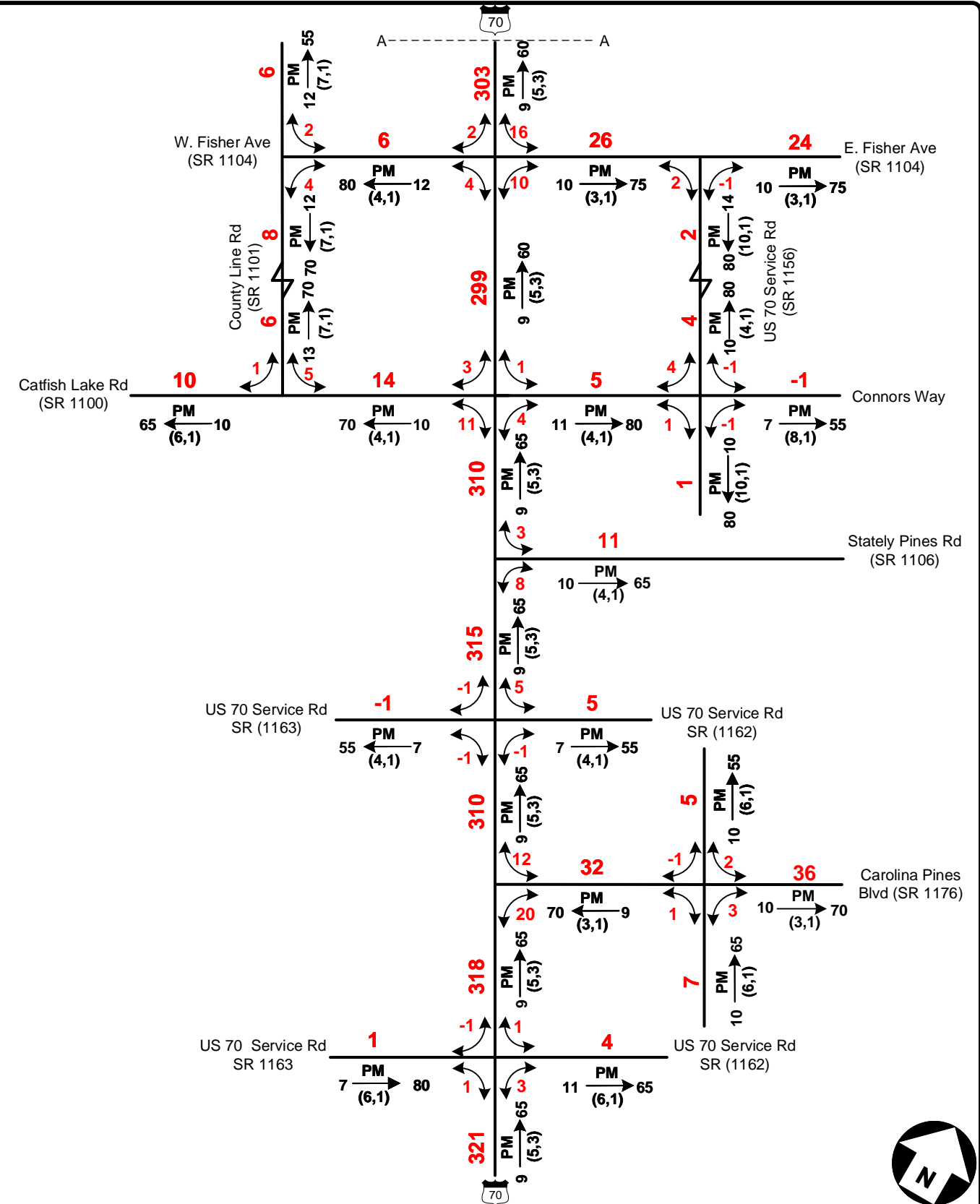
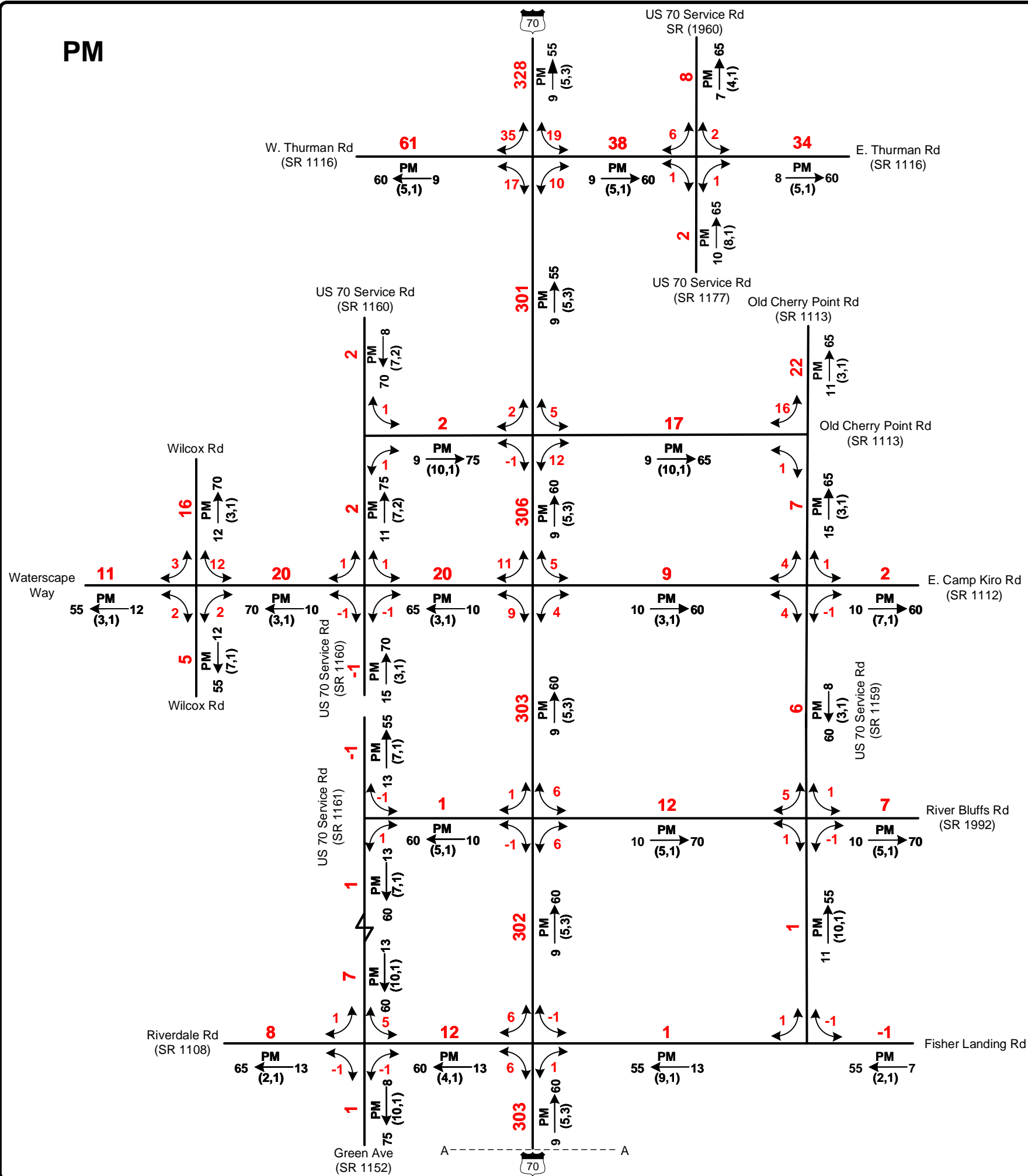
LEGEND

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
x	Movement Prohibited	D	Peak Hour Directional Split
.....	Proposed Roadway	→	Indicates Direction of D
		(d, t)	Duals, TT-STs (%)

TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	



PM



2019 AVERAGE ANNUAL DAILY TRAFFIC

2019 Base Year No-Build SHEET 1 OF 1

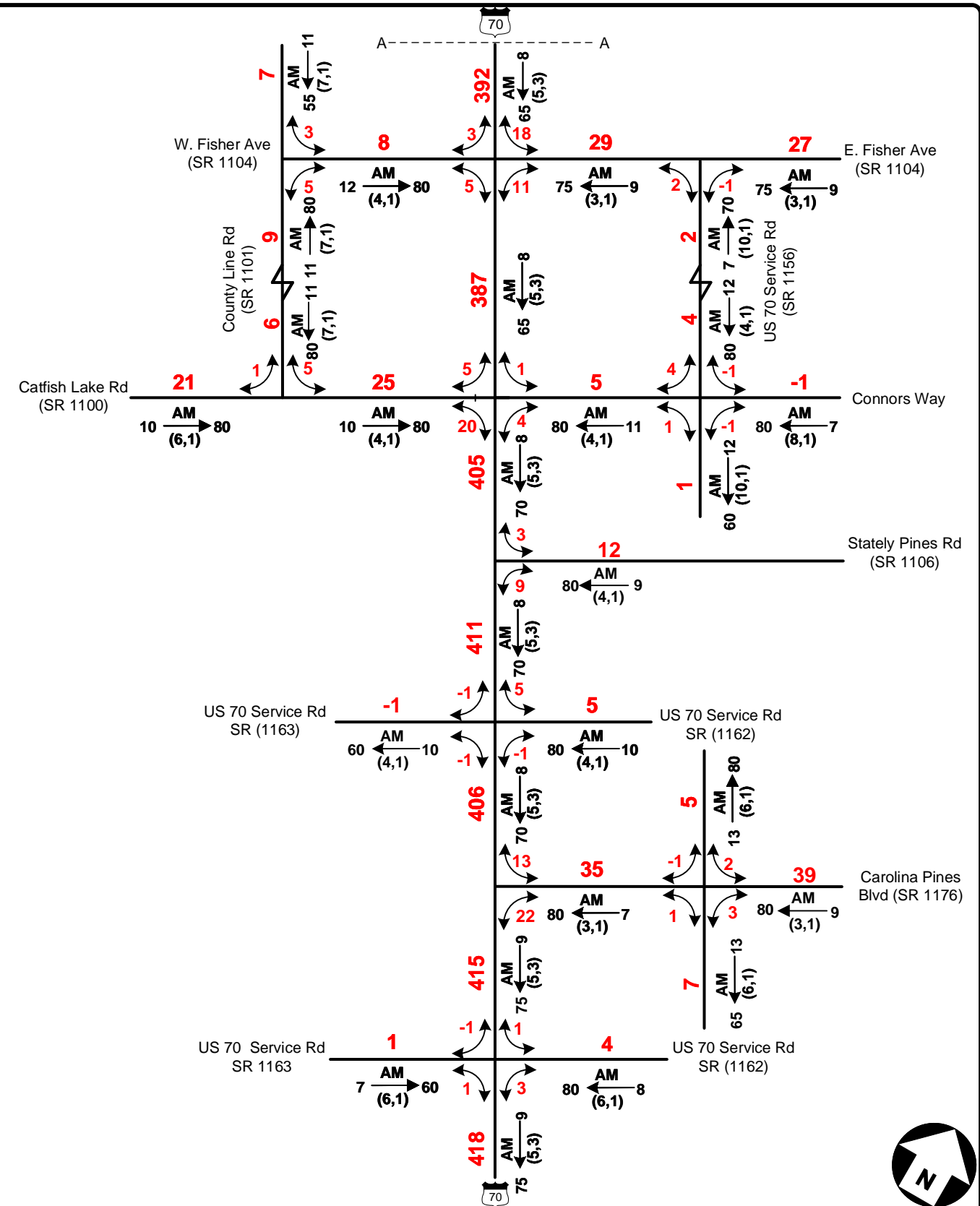
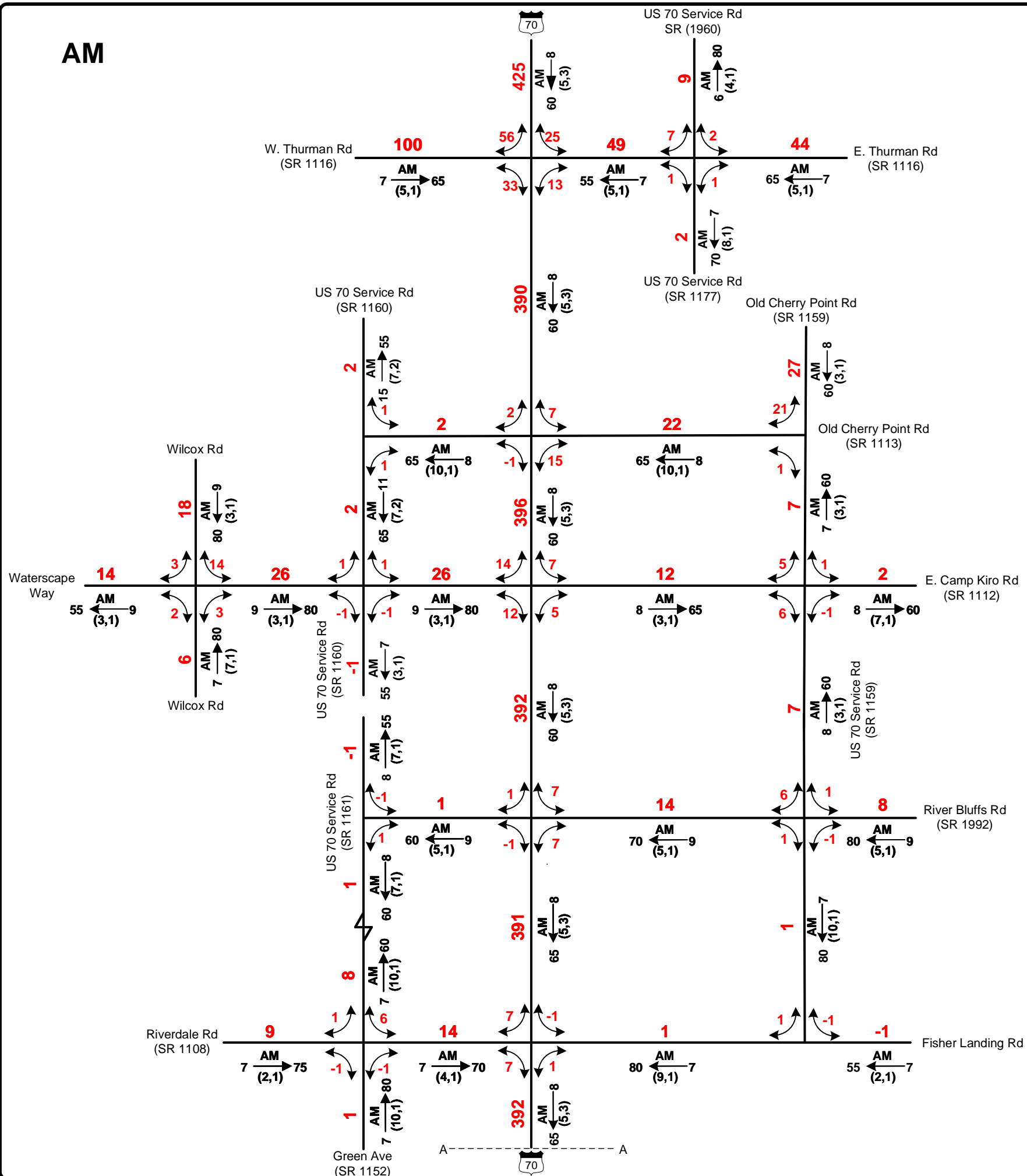
LEGEND

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- x Movement Prohibited
- Proposed Roadway
- K Design Hour Factor (%)
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d, t) Duals, TT-STs (%)

TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	



AM



2045 AVERAGE ANNUAL DAILY TRAFFIC

2045 Future Year Build SHEET 1 OF 1

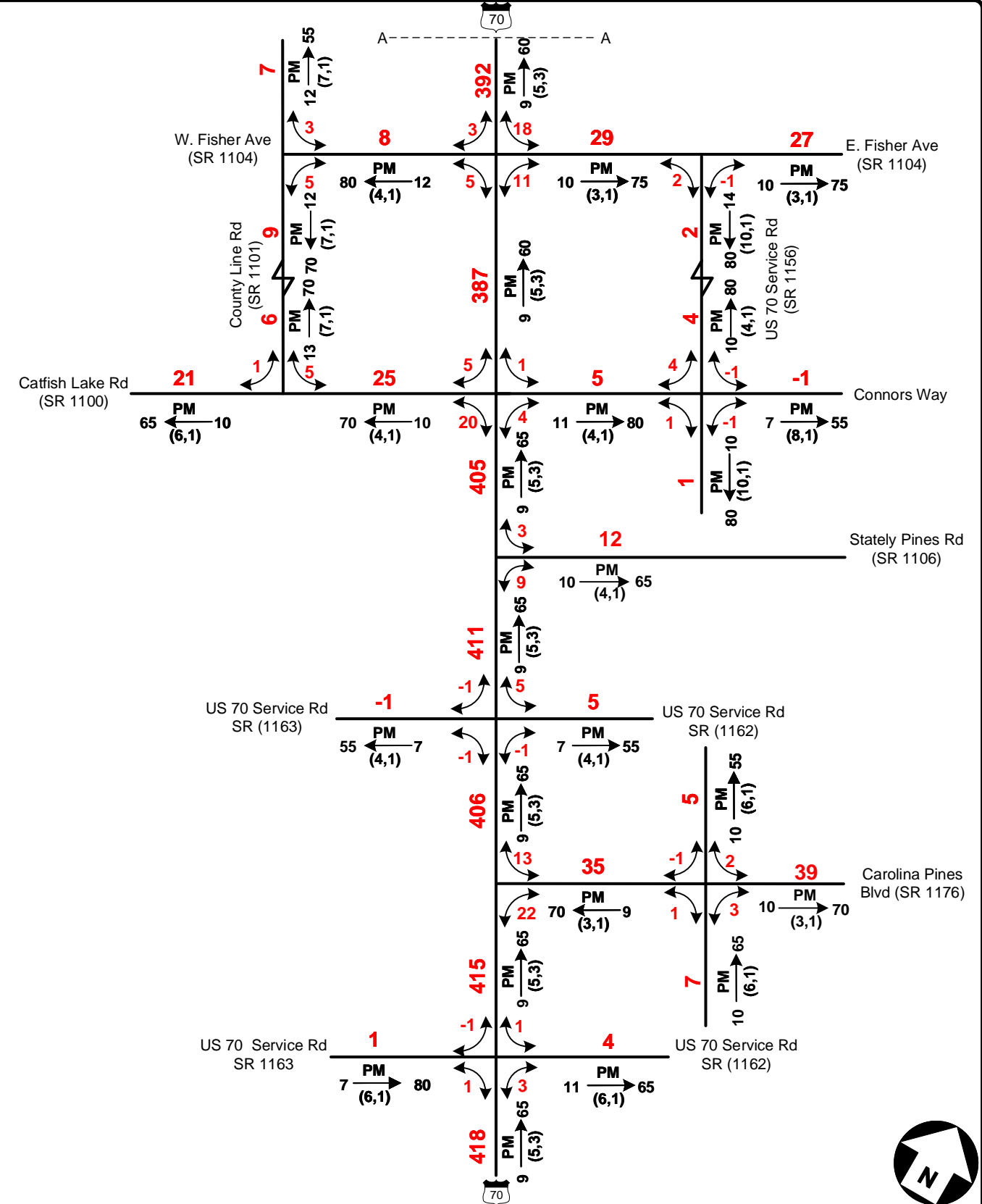
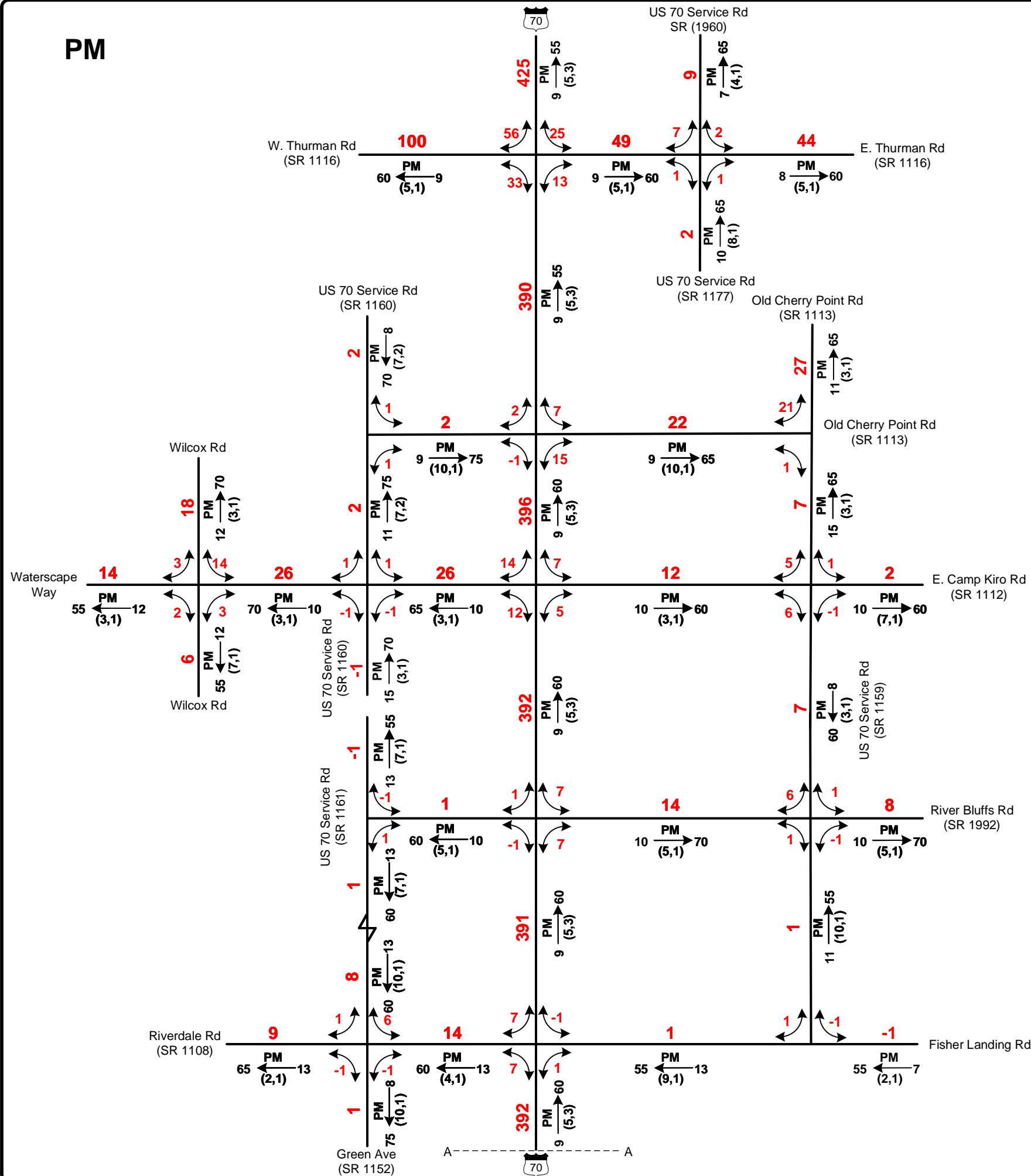
LEGEND

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- x Movement Prohibited
- Proposed Roadway
- K Design Hour Factor (%)
- AM AM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d, t) Duals, TT-STs (%)

TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	



PM



2045 AVERAGE ANNUAL DAILY TRAFFIC

2045 Future Year Build SHEET 1 OF 1

LEGEND

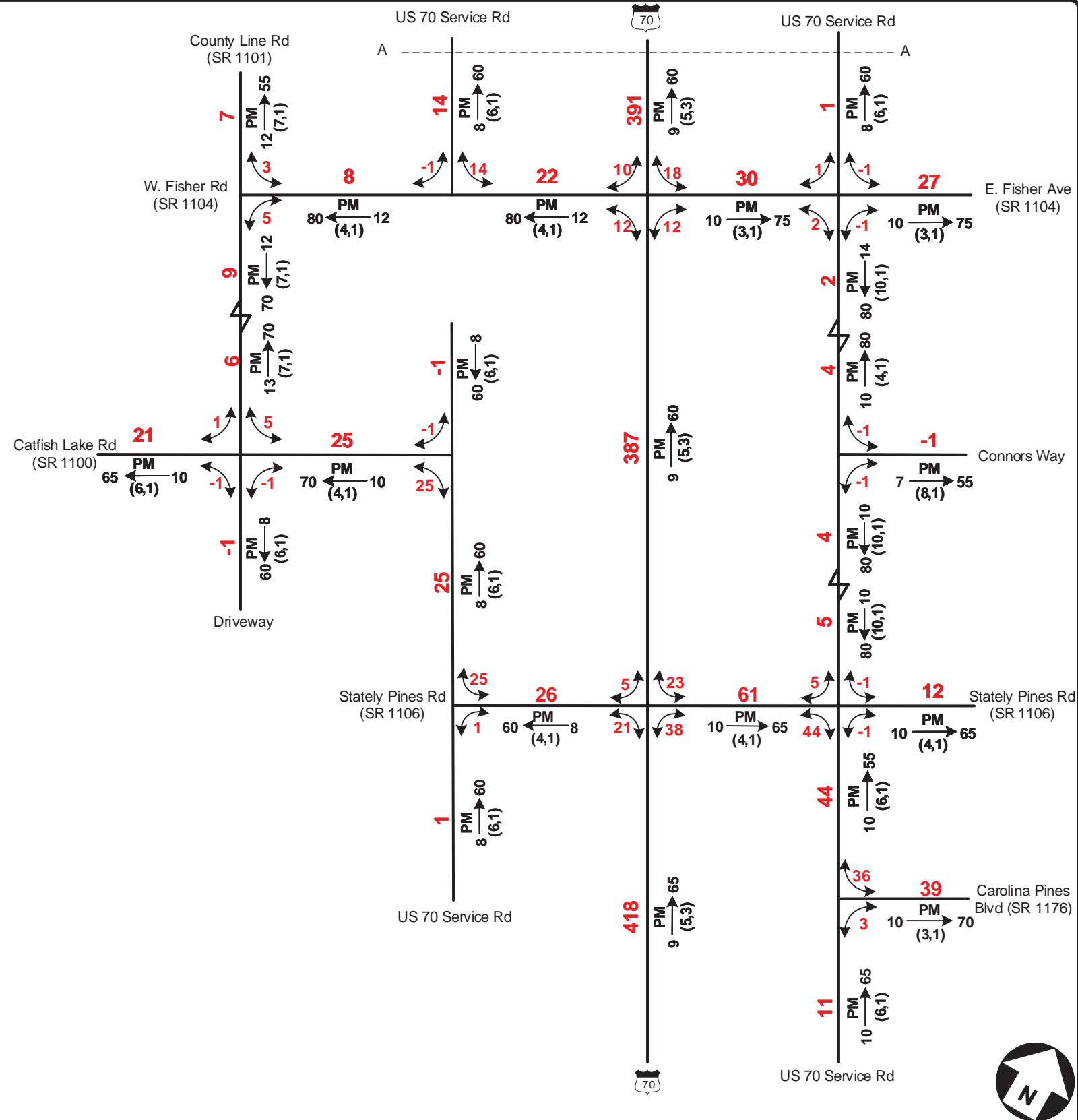
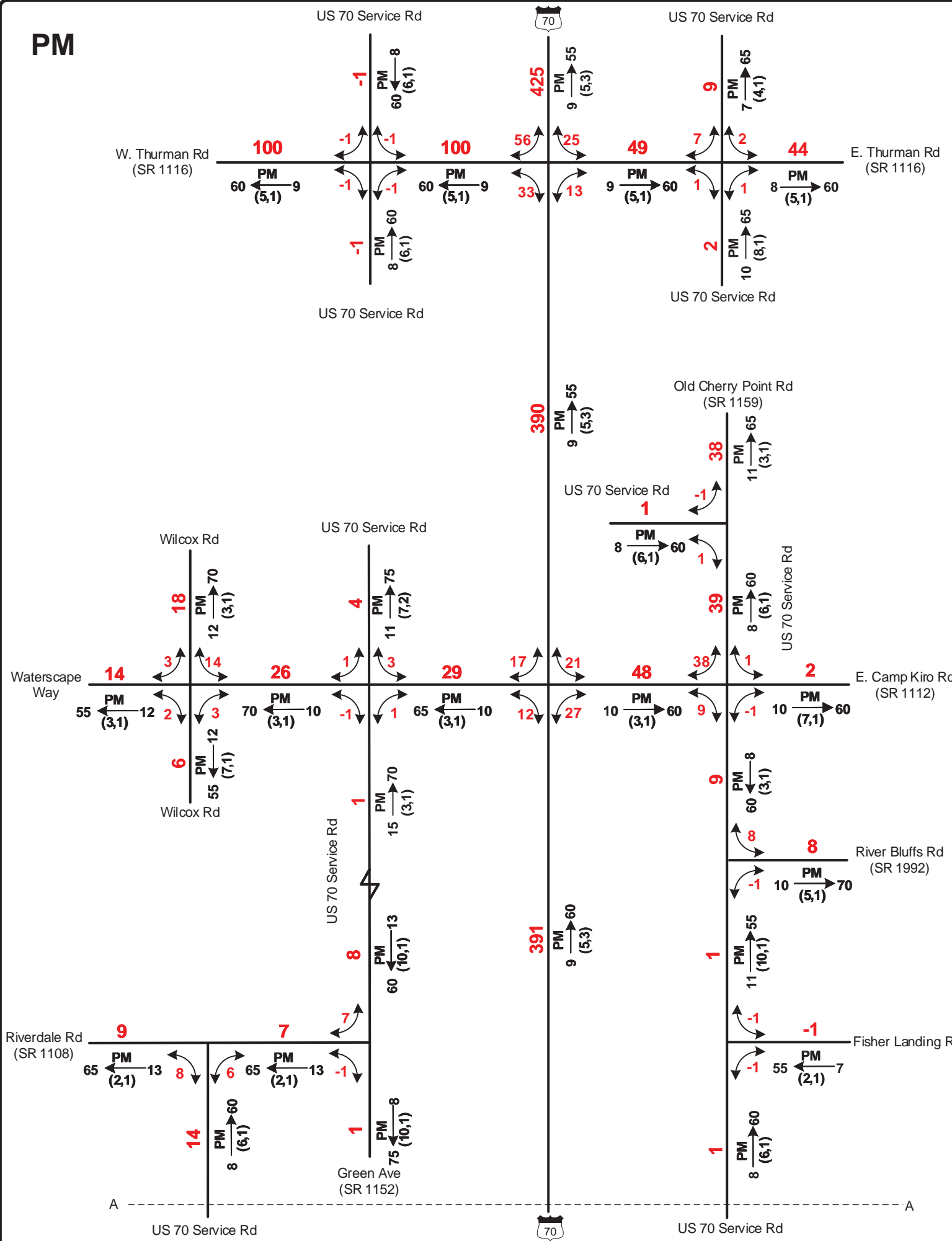
- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- x Movement Prohibited
- Proposed Roadway

- K $\frac{PM}{(d, t)}$ D Design Hour Factor (%)
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d, t) Duals, TT-STs (%)

TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	



PM



2045 AVERAGE ANNUAL DAILY TRAFFIC

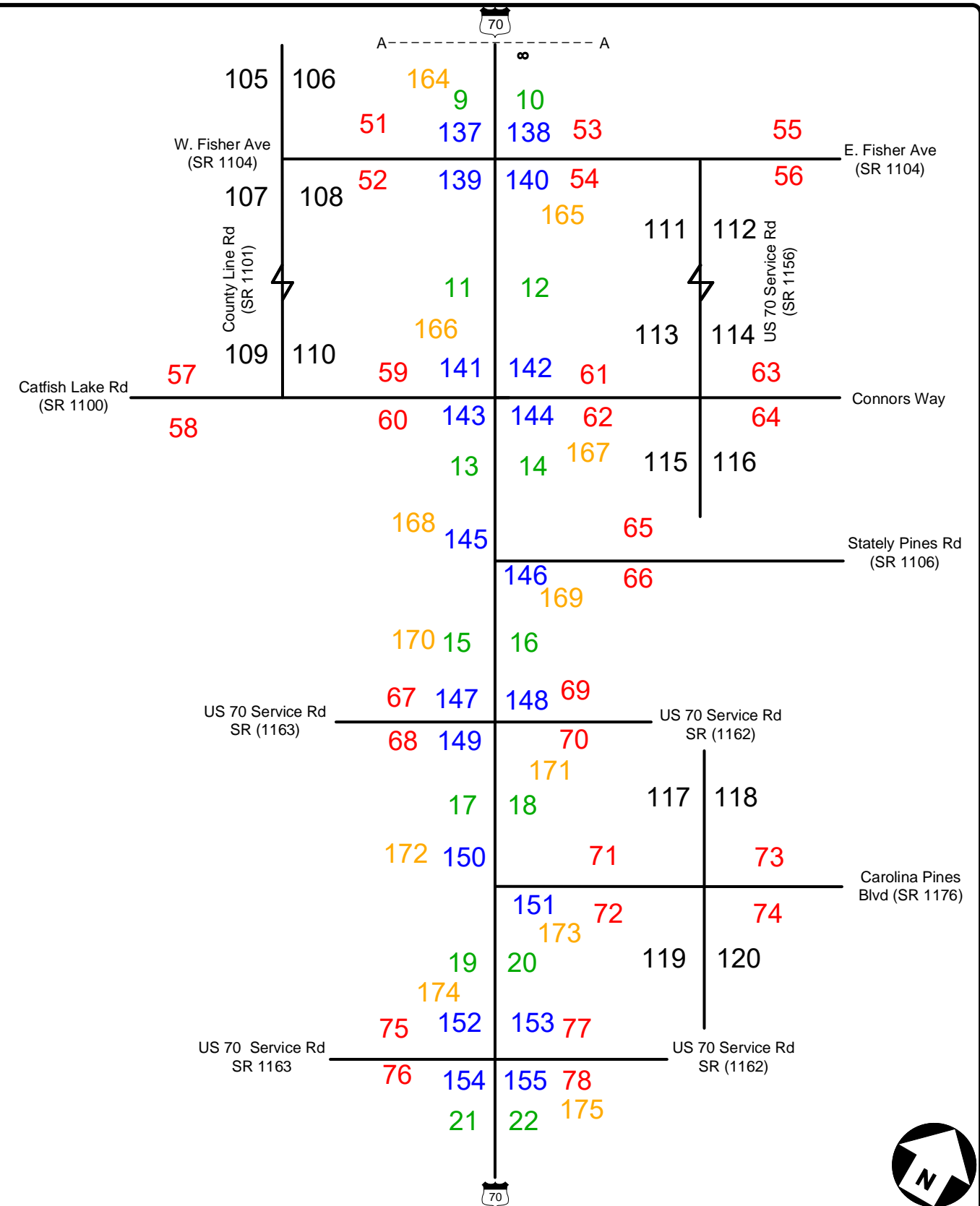
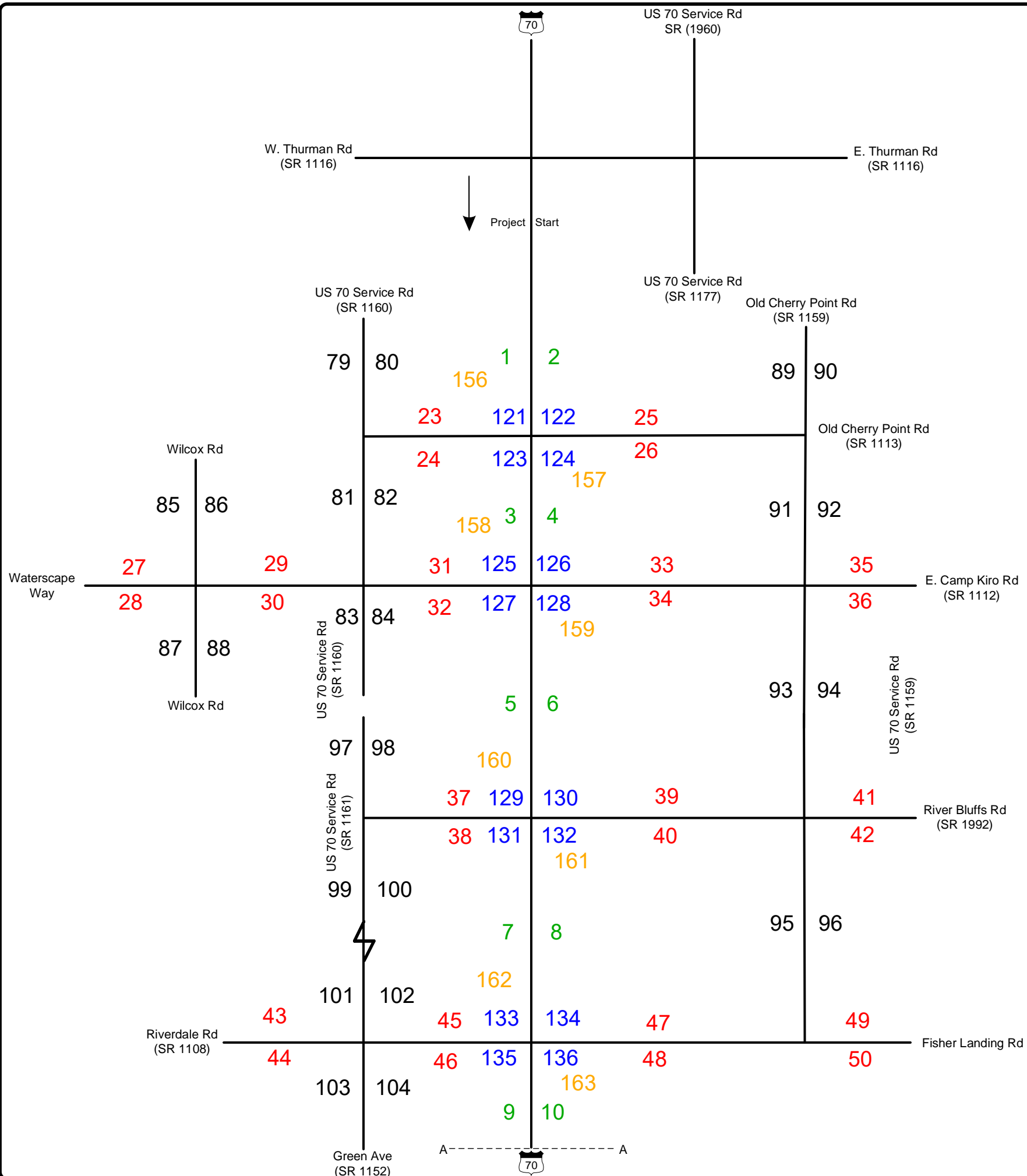
2045 Future Year Build SHEET 1 OF 1

LEGEND

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- x Movement Prohibited
- Proposed Roadway
- K Design Hour Factor (%)
- PM PM Peak Period
- D Peak Hour Directional Split
- Indicates Direction of D
- (d, t) Duals, TT-STs (%)

TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	



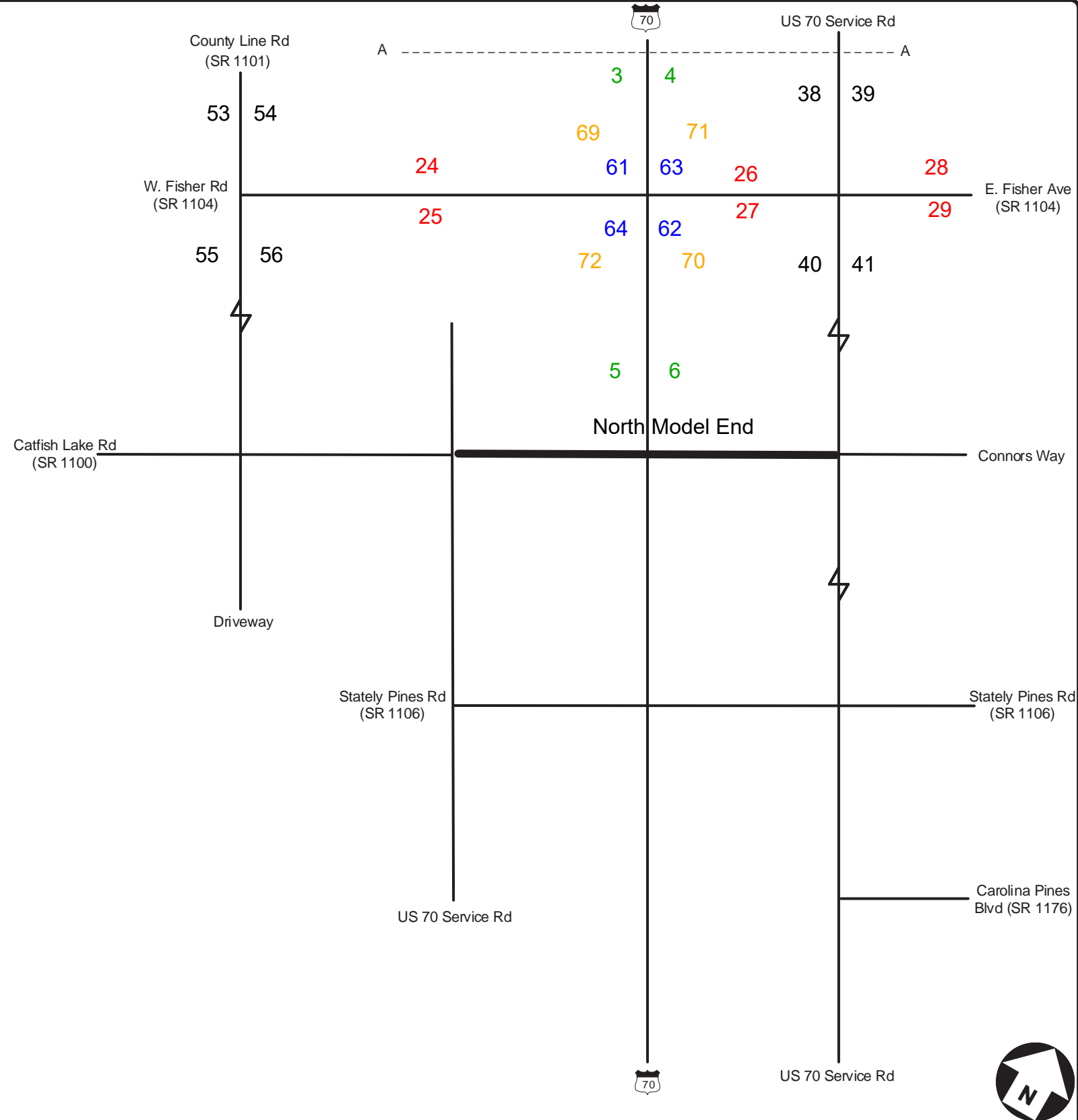
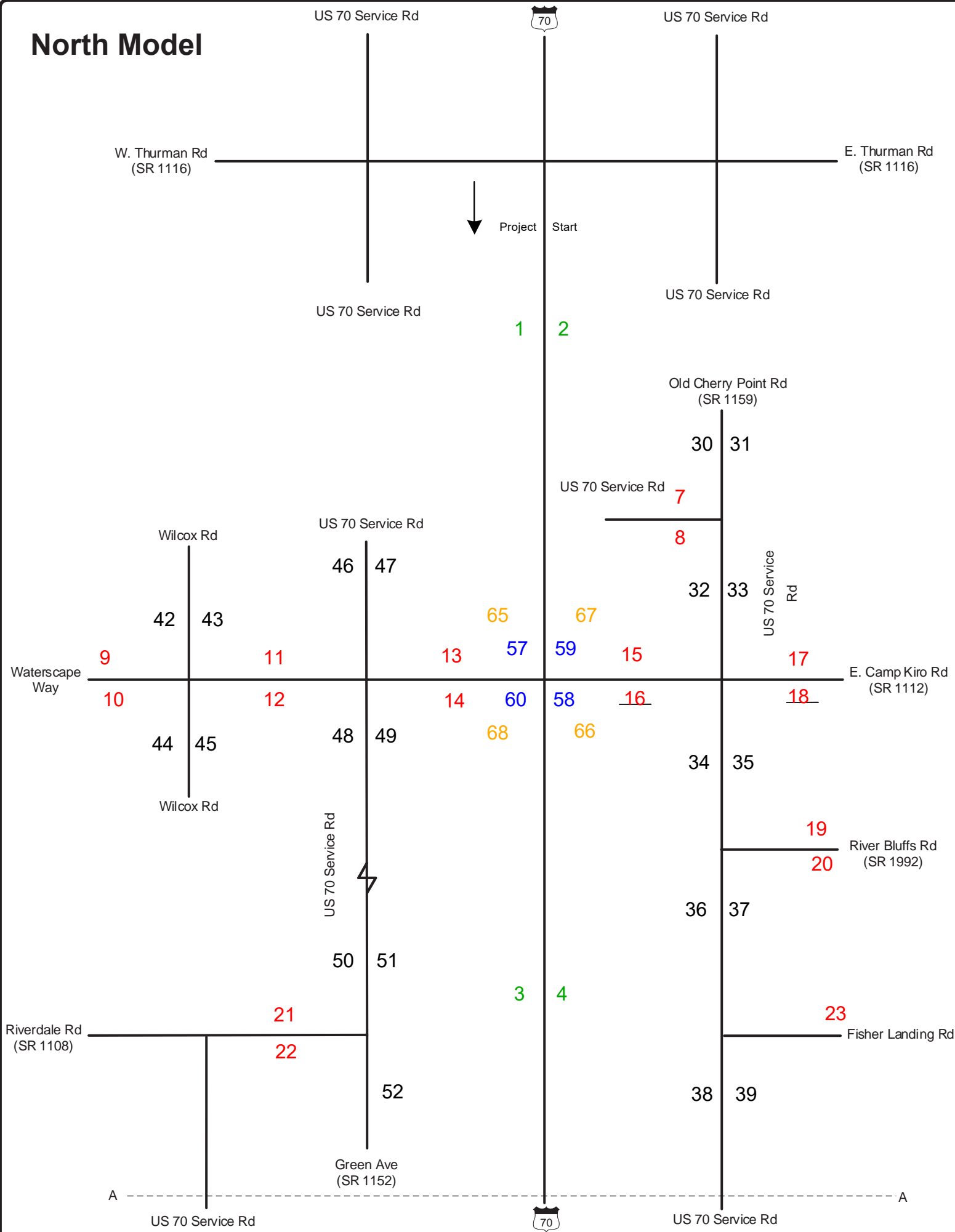


Numbering Scheme

- LEGEND**
- Mainline
 - Perpendicular Secondary
 - Parallel Secondary
 - Turn Motions
 - Mainline - Turn Motions

Existing and No Build	
SHEET 1 OF 1	
TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	

North Model

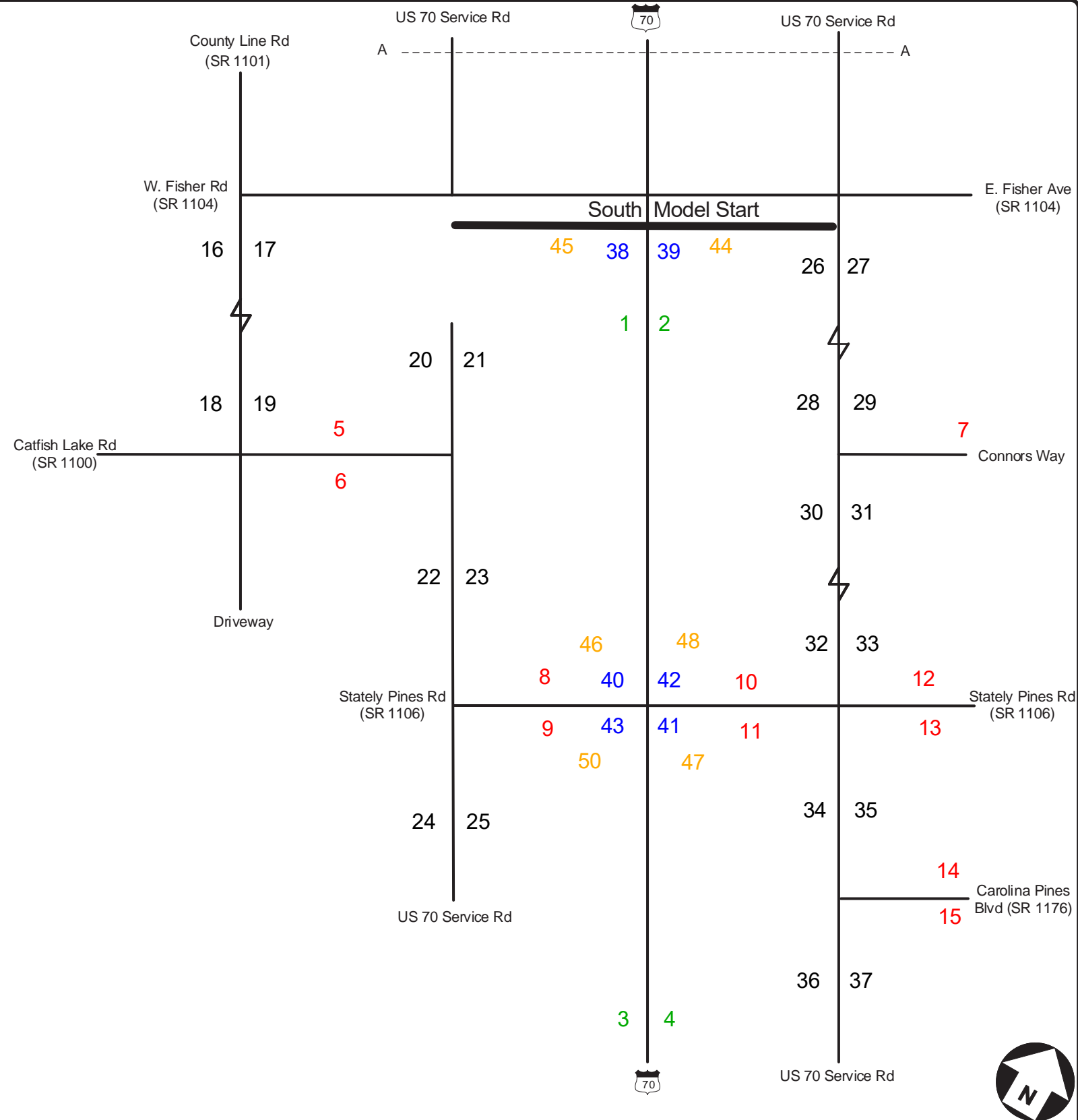
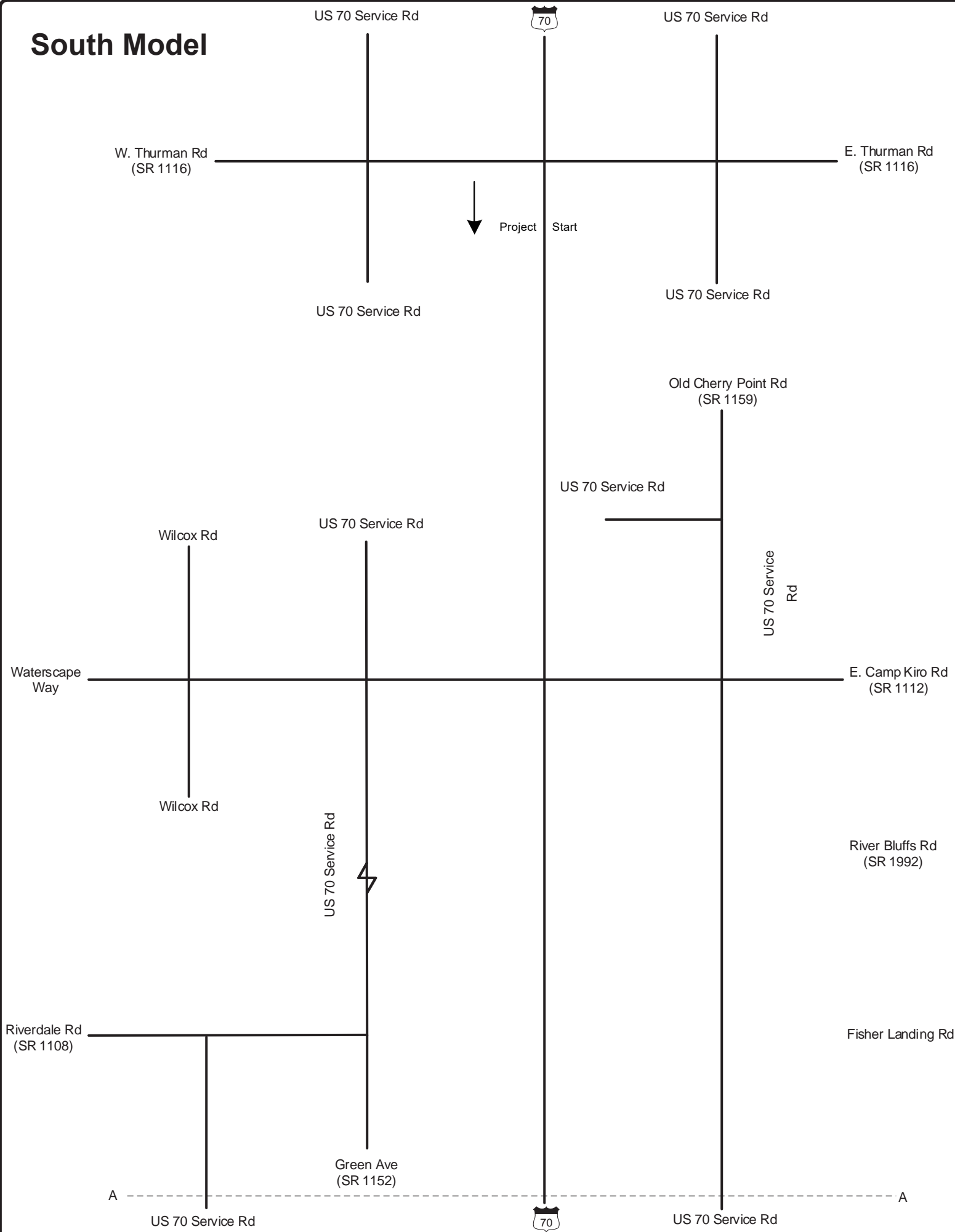


Numbering Scheme

- LEGEND**
- Mainline
 - Perpendicular Secondary
 - Parallel Secondary
 - Turn Motions
 - Mainline - Turn Motions

2045 Future Year Build	
SHEET 1 OF 1	
TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	

South Model



Numbering Scheme

- LEGEND**
- Mainline
 - Perpendicular Secondary
 - Parallel Secondary
 - Turn Motions
 - Mainline - Turn Motions

2045 Future Year Build	
SHEET 1 OF 1	
TIP: R-5777C	WBS: 44648.1.4
COUNTY: Craven	DIVISION: 2
DATE: July 2019	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 70 from SR 1116 (Thurman Road) to the Havelock Bypass	
PROJECT: US 70 Upgrade to Interstate Standards	

R577C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
1	US 70 South right lane 01, US 70 South Left lane 01	AUTO	1329	60	2	665
		MT	72			36
		HT	43			22
2	US 70 North Left lane 01, US 70 North Right lane 01	AUTO	886	60	2	443
		MT	48			24
		HT	29			14
3	US 70 South right lane 02, US 70 South Left lane 02	AUTO	1351	60	2	676
		MT	73			37
		HT	44			22
4	US 70 North Left lane 02, US 70 North Right lane 02	AUTO	901	60	2	450
		MT	49			24
		HT	29			15
5	US 70 South right lane 03, US 70 South Left lane 03	AUTO	1338	60	2	669
		MT	73			36
		HT	44			22
6	US 70 North Left lane 03, US 70 North Right lane 03	AUTO	892	60	2	446
		MT	48			24
		HT	29			15
7	US 70 South right lane 04, US 70 South Left lane 04	AUTO	1445	60	2	722
		MT	79			39
		HT	47			24
8	US 70 North Left lane 04, US 70 North Right lane 04	AUTO	778	60	2	389
		MT	42			21
		HT	25			13
9	US 70 South right lane 05, US 70 South Left lane 05	AUTO	1450	60	2	725
		MT	79			39
		HT	47			24
10	US 70 North Left lane 05, US 70 North Right lane 05	AUTO	781	60	2	390
		MT	42			21
		HT	25			13
11	US 70 South right lane 06, US 70 South Left lane 06	AUTO	1430	60	2	715
		MT	78			39
		HT	47			23
12	US 70 North Left lane 06, US 70 North Right lane 06	AUTO	770	60	2	385
		MT	42			21
		HT	25			13
13	US 70 South right lane 07, US 70 South Left lane 07	AUTO	1597	60	2	799
		MT	87			43
		HT	52			26
14	US 70 North Left lane 07, US 70 North Right lane 07	AUTO	684	60	2	342
		MT	37			19
		HT	22			11
15	US 70 South right lane 08, US 70 South Left lane 08	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
16	US 70 North Left lane 08, US 70 North Right lane 08	AUTO	696	60	2	348
		MT	38			19
		HT	23			11
17	US 70 South right lane 09, US 70 South Left lane 09	AUTO	1597	60	2	799
		MT	87			43
		HT	52			26
18	US 70 North Left lane 09, US 70 North Right lane 09	AUTO	684	60	2	342
		MT	37			19
		HT	22			11
19	US 70 South right lane 10, US 70 South Left lane 10	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
20	US 70 North Left lane 10, US 70 North Right lane 10	AUTO	658	60	2	329
		MT	36			18
		HT	21			11
21	US 70 South right lane 11, US 70 South Left lane 11	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
22	US 70 North Left lane 11, US 70 North Right lane 11	AUTO	664	60	2	332
		MT	36			18
		HT	22			11

R5777C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
23	S. US 70 off Road West 01	AUTO	9	50	1	9
		MT	1			1
		HT	0			0
24	S. US 70 ofn Road East 01	AUTO	5	50	1	5
		MT	1			1
		HT	0			0
25	Old Cherry Point Rd to US 70 (1)	AUTO	79	50	1	79
		MT	9			9
		HT	1			1
26	Old Cherry Point Road from US 70	AUTO	42	50	1	42
		MT	5			5
		HT	0			0
27	Waterscape way west	AUTO	52	40	1	52
		MT	2			2
		HT	1			1
28	Waterscape way east	AUTO	43	40	1	43
		MT	1			1
		HT	0			0
29	W Camp Kiro Rd West 01	AUTO	35	40	1	35
		MT	1			1
		HT	0			0
30	W Camp Kiro Rd East 01	AUTO	138	40	1	138
		MT	4			4
		HT	1			1
31	W Camp Kiro Rd West 02	AUTO	35	40	1	35
		MT	1			1
		HT	0			0
32	W Camp Kiro Rd East 02	AUTO	138	40	1	138
		MT	4			4
		HT	1			1
33	E Camp Kiro Rd West (2)	AUTO	24	50	1	24
		MT	1			1
		HT	0			0
34	E Camp Kiro Rd East (2)	AUTO	45	50	1	45
		MT	1			1
		HT	0			0
35	E Camp Kiro Rd West (1)	AUTO	6	50	1	6
		MT	0			0
		HT	0			0
36	E Camp Kiro Rd East (1)	AUTO	9	50	1	9
		MT	1			1
		HT	0			0
37	S. US 70 Off Road West 02	AUTO	5	30	1	5
		MT	0			0
		HT	0			0
38	S. US 70 On Road East 02	AUTO	3	30	1	3
		MT	0			0
		HT	0			0
39	N. US 70 On Road West 01	AUTO	71	30	1	71
		MT	4			4
		HT	1			1
40	N. US 70 Off Rd West 01	AUTO	30	30	1	30
		MT	2			2
		HT	0			0
41	River Bluffs Dr West	AUTO	47	30	1	47
		MT	3			3
		HT	1			1
42	River Bluffs Dr East	AUTO	12	30	1	12
		MT	1			1
		HT	0			0
43	Riverdale Road West 02	AUTO	14	60	1	14
		MT	0			0
		HT	0			0
44	Riverdale Rd East 02	AUTO	41	60	1	41
		MT	1			1
		HT	0			0

R5777C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
45	Riverdale Road West 01	AUTO	24	60	1	24
		MT	1			1
		HT	0			0
46	Riverdale Rd East 01	AUTO	56	60	2	56
		MT	2			2
		HT	1			1
47	N. US 70 On Rd West 02	AUTO	5	30	2	5
		MT	1			1
		HT	0			0
48	N. US 70 Off Rd East 02	AUTO	1	30	2	1
		MT	0			0
		HT	0			0
49	Fishers Landing Rd (Volumes Combined)	AUTO	2	30	2	2
		MT	0			0
		HT	0			0
50	Fishers Landing Rd (Volumes Combined)	AUTO	1	30	2	1
		MT	0			0
		HT	0			0
51	W Fisher Rd West	AUTO	14	60	2	14
		MT	1			1
		HT	0			0
52	W Fisher Rd East	AUTO	55	60	2	55
		MT	2			2
		HT	1			1
53	E Fisher Ave West 01	AUTO	168	60	1	168
		MT	5			5
		HT	2			2
54	E Fisher Ave East 01	AUTO	56	60	1	56
		MT	2			2
		HT	1			1
55	E Fisher Ave West 02	AUTO	156	60	1	156
		MT	5			5
		HT	2			2
56	E Fisher Ave East 02	AUTO	52	60	1	52
		MT	2			2
		HT	1			1
57	NOT MODELED (beyond project scope)	AUTO	19	40	1	19
		MT	1			1
		HT	0			0
58	NOT MODELED (beyond project scope)	AUTO	74	40	1	74
		MT	5			5
		HT	1			1
59	Catfish Lake Rd West	AUTO	27	40	1	27
		MT	1			1
		HT	0			0
60	Catfish Lake Rd East	AUTO	106	40	1	106
		MT	4			4
		HT	1			1
61	N. US 70 On Rd West 03	AUTO	42	30	1	42
		MT	2			2
		HT	0			0
62	N. US 70 Off Rd East 03	AUTO	10	30	1	10
		MT	0			0
		HT	0			0
63	Connors way (Volumes Combined)	AUTO	2	30	1	2
		MT	0			0
		HT	0			0
64	Connors way (Volumes Combined)	AUTO	1	30	1	1
		MT	0			0
		HT	0			0
65	Stately Pines Rd West	AUTO	75	40	1	75
		MT	3			3
		HT	1			1
66	Stately Pines Rd East	AUTO	19	40	1	19
		MT	1			1
		HT	0			0

R5777C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
67	S. US 70 Off Rd West 04	AUTO	3	40	1	3
		MT	0			0
		HT	0			0
68	S. US 70 On Rd East 04	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
69	N. US 70 Off Rd West 04	AUTO	38	40	1	38
		MT	2			2
		HT	0			0
70	S. US 70 Off Rd East 03	AUTO	10	40	1	10
		MT	0			0
		HT	0			0
71	Carolina Pines Blvd West 01	AUTO	172	40	1	172
		MT	5			5
		HT	2			2
72	Carolina Pines Blvd East 01	AUTO	43	40	1	43
		MT	1			1
		HT	0			0
73	Carolina Pines Blvd West 02	AUTO	249	40	1	249
		MT	8			8
		HT	3			3
74	Carolina Pines Blvd East 02	AUTO	62	40	1	62
		MT	2			2
		HT	1			1
75	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	3	40	1	3
		MT	0			0
		HT	0			0
76	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
77	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	24	40	1	24
		MT	2			2
		HT	0			0
78	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	6	40	1	6
		MT	0			0
		HT	0			0
79	US 70 Service Rd South 01	AUTO	12	40	1	12
		MT	1			1
		HT	0			0
80	US 70 Service Rd North 01	AUTO	15	40	1	15
		MT	1			1
		HT	0			0
81	US 70 Service Rd South 02	AUTO	13	40	1	13
		MT	1			1
		HT	0			0
82	US 70 Service Rd North 02	AUTO	7	40	1	7
		MT	1			1
		HT	0			0
83	US 70 Service Rd South 03	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
84	US 70 Service Rd North 03	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
85	Wilcox Rd South 01	AUTO	111	50	1	111
		MT	3			3
		HT	1			1
86	Wilcox Rd North 01	AUTO	28	50	1	28
		MT	1			1
		HT	0			0
87	Wilcox Rd South 02	AUTO	6	60	1	6
		MT	0			0
		HT	0			0
88	Wilcox Rd North 02	AUTO	26	60	1	26
		MT	2			2
		HT	0			0

R577C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
89	Old Cherry Point Road South 01	AUTO	101	50	1	101
		MT	3			3
		HT	1			1
90	Old Cherry Point Road North 01	AUTO	68	50	1	68
		MT	2			2
		HT	1			1
91	Old Cherry Point Road South 02	AUTO	19	60	1	19
		MT	1			1
		HT	0			0
92	Old Cherry Point Road North 02	AUTO	28	60	1	28
		MT	1			1
		HT	0			0
93	Old Cherry Point Road South 03	AUTO	18	40	1	18
		MT	1			1
		HT	0			0
94	Old Cherry Point Road North 03	AUTO	28	40	1	28
		MT	1			1
		HT	0			0
95	Old Cherry Point Road South 04	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
96	Old Cherry Point Road North 04	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
97	NOT MODELED, roadway not needed	AUTO	2	20	1	2
		MT	0			0
		HT	0			0
98	NOT MODELED, roadway not needed	AUTO	2	20	1	2
		MT	0			0
		HT	0			0
99	US 70 Service Rd (4) South 01	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
100	US 70 Service Rd (4) North 01	AUTO	3	40	1	3
		MT	0			0
		HT	0			0
101	US 70 Service Rd (4) South 02	AUTO	17	40	1	17
		MT	2			2
		HT	0			0
102	US 70 Service Rd (4) North 02	AUTO	26	40	1	26
		MT	3			3
		HT	0			0
103	Green Ave (Volumes Combined)	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
104	Green Ave (Volumes Combined)	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
105	County Line Rd South 01	AUTO	33	50	1	33
		MT	3			3
		HT	0			0
106	County Line Rd North 01	AUTO	27	50	1	27
		MT	2			2
		HT	0			0
107	County Line Rd South 02	AUTO	16	50	1	16
		MT	1			1
		HT	0			0
108	County Line Rd North 02	AUTO	65	50	1	65
		MT	5			5
		HT	1			1
109	County Line Rd South 03	AUTO	49	50	1	49
		MT	4			4
		HT	1			1
110	County Line Rd North 03	AUTO	12	50	1	12
		MT	1			1
		HT	0			0

R5777C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
111	US 70 Service Rd (5) South 01	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
112	US 70 Service Rd (5) North 01	AUTO	9	40	1	9
		MT	1			1
		HT	0			0
113	US 70 Service Rd (5) South 02	AUTO	9	40	1	9
		MT	0			0
		HT	0			0
114	US 70 Service Rd (5) North 02	AUTO	36	40	1	36
		MT	2			2
		HT	0			0
115	US 70 Service Rd (5) South 03	AUTO	6	40	1	6
		MT	1			1
		HT	0			0
116	US 70 Service Rd (5) North 03	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
117	US 70 Service Rd South (8)	AUTO	12	40	1	12
		MT	1			1
		HT	0			0
118	US 70 Service Rd North (8)	AUTO	48	40	1	48
		MT	3			3
		HT	1			1
119	US 70 Service Rd South (9)	AUTO	55	40	1	55
		MT	4			4
		HT	1			1
120	US 70 Service Rd North (9)	AUTO	30	40	1	30
		MT	2			2
		HT	0			0
121	US 70 South turnlane 2	AUTO	9	60	1	9
		MT	0			0
		HT	0			0
122	US 70 South turnlane 1	AUTO	22	60	1	22
		MT	1			1
		HT	1			1
123	US 70 North turnlane 3	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
124	US 70 North turnlane 2	AUTO	35	60	1	35
		MT	2			2
		HT	1			1
125	US 70 South turnlane 4	AUTO	49	60	1	49
		MT	3			3
		HT	2			2
126	US 70 South turnlane 3	AUTO	22	60	1	22
		MT	1			1
		HT	1			1
127	US 70 North turnlane 5	AUTO	26	60	1	26
		MT	1			1
		HT	1			1
128	US 70 North turnlane 4	AUTO	12	60	1	12
		MT	1			1
		HT	0			0
129	DO NOT MODEL	AUTO	0	60	1	0
		MT	0			0
		HT	0			0
130	US 70 South turnlane 5	AUTO	26	60	1	26
		MT	1			1
		HT	1			1
131	US 70 North turnlane 7	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
132	US 70 North turnlane 6	AUTO	15	60	1	15
		MT	1			1
		HT	1			1

R5777C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
133	US 70 South turnlane 7	AUTO	29	60	1	29
		MT	2			2
		HT	1			1
134	US 70 South turnlane 6	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
135	US 70 North turnlane 9	AUTO	15	60	1	15
		MT	1			1
		HT	1			1
136	US 70 North turnlane 8	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
137	US 70 South turnlane 9	AUTO	10	60	1	10
		MT	1			1
		HT	0			0
138	US 70 South turnlane 8	AUTO	77	60	1	77
		MT	4			4
		HT	2			2
139	US 70 North turnlane 11	AUTO	10	60	1	10
		MT	1			1
		HT	0			0
140	US 70 North turnlane 10	AUTO	26	60	1	26
		MT	1			1
		HT	1			1
141	US 70 South turnlane 12	AUTO	14	60	1	14
		MT	1			1
		HT	0			0
142	US 70 South turnlane 13	AUTO	5	60	1	5
		MT	0			0
		HT	0			0
143	US 70 North turnlane 17	AUTO	24	60	1	24
		MT	1			1
		HT	1			1
144	US 70 North turnlane 16	AUTO	9	60	1	9
		MT	0			0
		HT	0			0
145	US 70 South turnlane 14	AUTO	15	60	1	15
		MT	1			1
		HT	1			1
146	US 70 North turnlane 20	AUTO	18	60	1	18
		MT	1			1
		HT	1			1
147	US 70 South turnlane 16	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
148	US 70 South turnlane 15	AUTO	26	60	1	26
		MT	1			1
		HT	1			1
149	US 70 North turnlane 22	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
150	US 70 South turnlane 17	AUTO	25	60	1	25
		MT	3			3
		HT	2			2
151	US 70 North turnlane 23	AUTO	41	60	1	41
		MT	2			2
		HT	1			1
152	US 70 South turnlane 19	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
153	US 70 South turnlane 18	AUTO	6	60	1	6
		MT	0			0
		HT	0			0
154	US 70 North turnlane 26	AUTO	2	60	1	2
		MT	0			0
		HT	0			0

R577C Existing AM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
155	US 70 North turnlane 25	AUTO	6	60	1	6
		MT	0			0
		HT	0			0
156	US 70 South right lane 01 -T, US 70 South Left lane 01 -T	AUTO	1298	60	2	649
		MT	6			3
		HT	2			1
157	US 70 North Left lane 02 -T, US 70 North Right lane 02 -T	AUTO	864	60	2	432
		MT	47			23
		HT	28			14
158	US 70 South right lane 02 -T, US 70 South Left lane 02 -T	AUTO	1281	60	2	640
		MT	70			35
		HT	42			21
159	US 70 North Left lane 03 -T, US 70 North Right lane 03 -T	AUTO	854	60	2	427
		MT	46			23
		HT	28			14
160	US 70 South right lane 03 -T, US 70 South Left lane 03 -T	AUTO	1312	60	2	656
		MT	71			36
		HT	43			21
161	US 70 North Left lane 04 -T, US 70 North Right lane 04 -T	AUTO	761	60	2	381
		MT	41			21
		HT	25			12
162	US 70 South right lane 04 -T, US 70 South Left lane 04 -T	AUTO	1414	60	2	707
		MT	77			38
		HT	46			23
163	US 70 North Left lane 05 -T, US 70 North Right lane 05 -T	AUTO	762	60	2	381
		MT	41			21
		HT	25			12
164	US 70 South right lane 05 -T, US 70 South Left lane 05 -T	AUTO	1363	60	2	682
		MT	74			37
		HT	44			22
165	US 70 North Left lane 06 -T, US 70 North Right lane 06 -T	AUTO	734	60	2	367
		MT	40			20
		HT	24			12
166	US 70 South right lane 06 -T, US 70 South Left lane 06 -T	AUTO	1411	60	2	706
		MT	77			38
		HT	46			23
167	US 70 North Left lane 07 -T, US 70 North Right lane 07 -T	AUTO	651	60	2	326
		MT	35			18
		HT	21			11
168	US 70 South right lane 07 -T, US 70 South Left lane 07 -T	AUTO	1582	60	2	791
		MT	86			43
		HT	52			26
169	US 70 North Left lane 08 -T, US 70 North Right lane 08 -T	AUTO	678	60	2	339
		MT	37			18
		HT	22			11
170	US 70 South right lane 08 -T, US 70 South Left lane 08 -T	AUTO	1617	60	2	808
		MT	88			44
		HT	53			26
171	US 70 North Left lane 09 -T, US 70 North Right lane 09 -T	AUTO	683	60	2	342
		MT	37			19
		HT	22			11
172	US 70 South right lane 09 -T, US 70 South Left lane 09 -T	AUTO	1572	60	2	786
		MT	83			42
		HT	50			25
173	US 70 North Left lane 10 -T, US 70 North Right lane 10 -T	AUTO	617	60	2	308
		MT	34			17
		HT	20			10
174	US 70 South right lane 10 -T, US 70 South Left lane 10 -T	AUTO	1610	60	2	805
		MT	87			44
		HT	52			26
175	US 70 North Left lane 11 -T, US 70 North Right lane 11 -T	AUTO	656	60	2	328
		MT	36			18
		HT	21			11

R577C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
1	US 70 South right lane 01, US 70 South Left lane 01	AUTO	1122	60	2	561
		MT	61			30
		HT	37			18
2	US 70 North Left lane 01, US 70 North Right lane 01	AUTO	1371	60	2	685
		MT	74			37
		HT	45			22
3	US 70 South right lane 02, US 70 South Left lane 02	AUTO	1013	60	2	507
		MT	55			28
		HT	33			17
4	US 70 North Left lane 02, US 70 North Right lane 02	AUTO	1520	60	2	760
		MT	83			41
		HT	50			25
5	US 70 South right lane 03, US 70 South Left lane 03	AUTO	1004	60	2	502
		MT	55			27
		HT	33			16
6	US 70 North Left lane 03, US 70 North Right lane 03	AUTO	1505	60	2	753
		MT	82			41
		HT	49			25
7	US 70 South right lane 04, US 70 South Left lane 04	AUTO	1000	60	2	500
		MT	54			27
		HT	33			16
8	US 70 North Left lane 04, US 70 North Right lane 04	AUTO	1500	60	2	750
		MT	82			41
		HT	49			24
9	US 70 South right lane 05, US 70 South Left lane 05	AUTO	1004	60	2	502
		MT	55			27
		HT	33			16
10	US 70 North Left lane 05, US 70 North Right lane 05	AUTO	1505	60	2	753
		MT	82			41
		HT	49			25
11	US 70 South right lane 06, US 70 South Left lane 06	AUTO	990	60	2	495
		MT	54			27
		HT	32			16
12	US 70 North Left lane 06, US 70 North Right lane 06	AUTO	1485	60	2	743
		MT	81			40
		HT	48			24
13	US 70 South right lane 07, US 70 South Left lane 07	AUTO	898	60	2	449
		MT	49			24
		HT	29			15
14	US 70 North Left lane 07, US 70 North Right lane 07	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
15	US 70 South right lane 08, US 70 South Left lane 08	AUTO	913	60	2	456
		MT	50			25
		HT	30			15
16	US 70 North Left lane 08, US 70 North Right lane 08	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
17	US 70 South right lane 09, US 70 South Left lane 09	AUTO	898	60	2	449
		MT	49			24
		HT	29			15
18	US 70 North Left lane 09, US 70 North Right lane 09	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
19	US 70 South right lane 10, US 70 South Left lane 10	AUTO	922	60	2	461
		MT	50			25
		HT	30			15
20	US 70 North Left lane 10, US 70 North Right lane 10	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
21	US 70 South right lane 11, US 70 South Left lane 11	AUTO	930	60	2	465
		MT	51			25
		HT	30			15
22	US 70 North Left lane 11, US 70 North Right lane 11	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26

R5777C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
23	S. US 70 off Road West 01	AUTO	4	50	1	4
		MT	0			0
		HT	0			0
24	S. US 70 off Road East 01	AUTO	12	50	1	12
		MT	1			1
		HT	0			0
25	Old Cherry Point Rd to US 70 (1)	AUTO	48	50	1	48
		MT	5			5
		HT	1			1
26	Old Cherry Point Road from US 70	AUTO	89	50	1	89
		MT	10			10
		HT	1			1
27	Waterscape way west	AUTO	70	40	1	70
		MT	2			2
		HT	1			1
28	Waterscape way east	AUTO	57	40	1	57
		MT	2			2
		HT	1			1
29	W Camp Kiro Rd West 01	AUTO	134	40	1	134
		MT	4			4
		HT	1			1
30	W Camp Kiro Rd East 01	AUTO	58	40	1	58
		MT	2			2
		HT	1			1
31	W Camp Kiro Rd West 02	AUTO	125	40	1	125
		MT	4			4
		HT	1			1
32	W Camp Kiro Rd East 02	AUTO	67	40	1	67
		MT	2			2
		HT	1			1
33	E Camp Kiro Rd West (2)	AUTO	35	50	1	35
		MT	1			1
		HT	0			0
34	E Camp Kiro Rd East (2)	AUTO	52	50	1	52
		MT	2			2
		HT	1			1
35	E Camp Kiro Rd West (1)	AUTO	7	50	1	7
		MT	1			1
		HT	0			0
36	E Camp Kiro Rd East (1)	AUTO	11	50	1	11
		MT	1			1
		HT	0			0
37	S. US 70 Off Rd West 02	AUTO	6	30	1	6
		MT	0			0
		HT	0			0
38	S. US 70 On Rd East 02	AUTO	4	30	1	4
		MT	0			0
		HT	0			0
39	N. US 70 On Rd West 01	AUTO	34	30	1	34
		MT	2			2
		HT	0			0
40	N. US 70 Off Rd East 01	AUTO	79	30	1	79
		MT	4			4
		HT	1			1
41	River Bluffs Dr West	AUTO	20	30	1	20
		MT	1			1
		HT	0			0
42	River Bluffs Dr East	AUTO	46	30	1	46
		MT	2			2
		HT	0			0
43	Riverdale Road West 02	AUTO	66	60	1	66
		MT	1			1
		HT	1			1
44	Riverdale Rd East 02	AUTO	35	60	1	35
		MT	1			1
		HT	0			0

R5777C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
45	Riverdale Road West 01	AUTO	89	60	1	89
		MT	4			4
		HT	1			1
46	Riverdale Rd East 01	AUTO	59	60	2	59
		MT	2			2
		HT	1			1
47	N. US 70 On Rd West 02	AUTO	6	30	2	6
		MT	1			1
		HT	0			0
48	N. US 70 Off Rd East 02	AUTO	5	30	2	5
		MT	1			1
		HT	0			0
49	Fishers Landing Rd (Volumes Combined)	AUTO	2	30	2	2
		MT	0			0
		HT	0			0
50	Fishers Landing Rd (Volumes Combined)	AUTO	1	30	2	1
		MT	0			0
		HT	0			0
51	W Fisher Rd West	AUTO	55	60	2	55
		MT	2			2
		HT	1			1
52	W Fisher Rd East	AUTO	14	60	2	14
		MT	1			1
		HT	0			0
53	E Fisher Ave West 01	AUTO	62	60	1	62
		MT	2			2
		HT	1			1
54	E Fisher Ave East 01	AUTO	187	60	1	187
		MT	6			6
		HT	2			2
55	E Fisher Ave West 02	AUTO	58	60	1	58
		MT	2			2
		HT	1			1
56	E Fisher Ave East 02	AUTO	173	60	1	173
		MT	5			5
		HT	2			2
57	NOT MODELED (beyond project scope)	AUTO	60	40	1	60
		MT	4			4
		HT	1			1
58	NOT MODELED (beyond project scope)	AUTO	33	40	1	33
		MT	2			2
		HT	0			0
59	Catfish Lake Rd West	AUTO	130	40	1	130
		MT	5			5
		HT	1			1
60	Catfish Lake Rd East	AUTO	56	40	1	56
		MT	2			2
		HT	1			1
61	N. US 70 On Rd West 03	AUTO	10	30	1	10
		MT	0			0
		HT	0			0
62	N. US 70 Off Rd East 03	AUTO	42	30	1	42
		MT	2			2
		HT	0			0
63	Connors way (Volumes Combined)	AUTO	1	30	1	1
		MT	0			0
		HT	0			0
64	Connors way (Volumes Combined)	AUTO	2	30	1	2
		MT	0			0
		HT	0			0
65	Stately Pines Rd West	AUTO	37	40	1	37
		MT	2			2
		HT	0			0
66	Stately Pines Rd East	AUTO	68	40	1	68
		MT	3			3
		HT	1			1

R5777C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
67	S. US 70 Off Rd West 04	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
68	S. US 70 On Rd East 04	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
69	N. US 70 Off Rd West 04	AUTO	15	40	1	15
		MT	1			1
		HT	0			0
70	S. US 70 Off Rd East 03	AUTO	18	40	1	18
		MT	1			1
		HT	0			0
71	Carolina Pines Blvd West 01	AUTO	194	40	1	194
		MT	6			6
		HT	2			2
72	Carolina Pines Blvd East 01	AUTO	83	40	1	83
		MT	3			3
		HT	1			1
73	Carolina Pines Blvd West 02	AUTO	104	40	1	104
		MT	3			3
		HT	1			1
74	Carolina Pines Blvd East 02	AUTO	242	40	1	242
		MT	8			8
		HT	3			3
75	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
76	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	5		1	5
		MT	0			0
		HT	0			0
77	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	14	40	1	14
		MT	1			1
		HT	0			0
78	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	27		1	27
		MT	2			2
		HT	0			0
79	US 70 Service Rd South 01	AUTO	10	40	1	10
		MT	1			1
		HT	0			0
80	US 70 Service Rd North 01	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
81	US 70 Service Rd South 02	AUTO	5	40	1	5
		MT	0			0
		HT	0			0
82	US 70 Service Rd North 02	AUTO	15	40	1	15
		MT	1			1
		HT	0			0
83	US 70 Service Rd South 03	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
84	US 70 Service Rd North 03	AUTO	5	40	1	5
		MT	0			0
		HT	0			0
85	Wilcox Rd South 01	AUTO	55	50	1	55
		MT	2			2
		HT	1			1
86	Wilcox Rd North 01	AUTO	129	50	1	129
		MT	4			4
		HT	1			1
87	Wilcox Rd South 02	AUTO	30	60	1	30
		MT	2			2
		HT	0			0
88	Wilcox Rd North 02	AUTO	25	60	1	25
		MT	2			2
		HT	0			0

R5777C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
89	Old Cherry Point Road South 01	AUTO	81	50	1	81
		MT	3			3
		HT	1			1
90	Old Cherry Point Road North 01	AUTO	151	50	1	151
		MT	5			5
		HT	2			2
91	Old Cherry Point Road South 02	AUTO	35	60	1	35
		MT	1			1
		HT	0			0
92	Old Cherry Point Road North 02	AUTO	66	60	1	66
		MT	2			2
		HT	1			1
93	Old Cherry Point Road South 03	AUTO	28	40	1	28
		MT	1			1
		HT	0			0
94	Old Cherry Point Road North 03	AUTO	18	40	1	18
		MT	1			1
		HT	0			0
95	Old Cherry Point Road South 04	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
96	Old Cherry Point Road North 04	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
97	NOT MODELED, roadway not needed	AUTO	3	20	1	3
		MT	0			0
		HT	0			0
98	NOT MODELED, roadway not needed	AUTO	3	20	1	3
		MT	0			0
		HT	0			0
99	US 70 Service Rd (4) South 01	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
100	US 70 Service Rd (4) North 01	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
101	US 70 Service Rd (4) South 02	AUTO	49	40	1	49
		MT	5			5
		HT	1			1
102	US 70 Service Rd (4) North 02	AUTO	32	40	1	32
		MT	4			4
		HT	0			0
103	Green Ave (Volumes Combined)	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
104	Green Ave (Volumes Combined)	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
105	County Line Rd South 01	AUTO	30	50	1	30
		MT	2			2
		HT	0			0
106	County Line Rd North 01	AUTO	36	50	1	36
		MT	3			3
		HT	0			0
107	County Line Rd South 02	AUTO	62	50	1	62
		MT	5			5
		HT	1			1
108	County Line Rd North 02	AUTO	26	50	1	26
		MT	2			2
		HT	0			0
109	County Line Rd South 03	AUTO	22	50	1	22
		MT	2			2
		HT	0			0
110	County Line Rd North 03	AUTO	50	50	1	50
		MT	4			4
		HT	1			1

R5777C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
111	US 70 Service Rd (5) South 01	AUTO	20	40	1	20
		MT	2			2
		HT	0			0
112	US 70 Service Rd (5) North 01	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
113	US 70 Service Rd (5) South 02	AUTO	8	40	1	8
		MT	0			0
		HT	0			0
114	US 70 Service Rd (5) North 02	AUTO	30	40	1	30
		MT	1			1
		HT	0			0
115	US 70 Service Rd (5) South 03	AUTO	7	40	1	7
		MT	1			1
		HT	0			0
116	US 70 Service Rd (5) North 03	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
117	US 70 Service Rd South (8)	AUTO	21	40	1	21
		MT	1			1
		HT	0			0
118	US 70 Service Rd North (8)	AUTO	26	40	1	26
		MT	2			2
		HT	0			0
119	US 70 Service Rd South (9)	AUTO	23	40	1	23
		MT	1			1
		HT	0			0
120	US 70 Service Rd North (9)	AUTO	42	40	1	42
		MT	3			3
		HT	0			0
121	US 70 South turnlane 2	AUTO	7	60	1	7
		MT	0			0
		HT	0			0
122	US 70 South turnlane 1	AUTO	19	60	1	19
		MT	1			1
		HT	1			1
123	US 70 North turnlane 3	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
124	US 70 North turnlane 2	AUTO	60	60	1	60
		MT	3			3
		HT	2			2
125	US 70 South turnlane 4	AUTO	36	60	1	36
		MT	2			2
		HT	1			1
126	US 70 South turnlane 3	AUTO	17	60	1	17
		MT	1			1
		HT	1			1
127	US 70 North turnlane 5	AUTO	45	60	1	45
		MT	2			2
		HT	1			1
128	US 70 North turnlane 4	AUTO	20	60	1	20
		MT	1			1
		HT	1			1
129	DO NOT MODEL	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
130	US 70 South turnlane 5	AUTO	20	60	1	20
		MT	1			1
		HT	1			1
131	US 70 North turnlane 7	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
132	US 70 North turnlane 6	AUTO	30	60	1	30
		MT	2			2
		HT	1			1

R5777C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
133	US 70 South turnlane 7	AUTO	20	60	1	20
		MT	1			1
		HT	1			1
134	US 70 South turnlane 6	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
135	US 70 North turnlane 9	AUTO	30	60	1	30
		MT	2			2
		HT	1			1
136	US 70 North turnlane 8	AUTO	5	60	1	5
		MT	0			0
		HT	0			0
137	US 70 South turnlane 9	AUTO	7	60	1	7
		MT	0			0
		HT	0			0
138	US 70 South turnlane 8	AUTO	53	60	1	53
		MT	3			3
		HT	2			2
139	US 70 North turnlane 11	AUTO	20	60	1	20
		MT	1			1
		HT	1			1
140	US 70 North turnlane 10	AUTO	50	60	1	50
		MT	3			3
		HT	2			2
141	US 70 South turnlane 12	AUTO	10	60	1	10
		MT	1			1
		HT	0			0
142	US 70 South turnlane 13	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
143	US 70 North turnlane 17	AUTO	55	60	1	55
		MT	3			3
		HT	2			2
144	US 70 North turnlane 16	AUTO	20	60	1	20
		MT	1			1
		HT	1			1
145	US 70 South turnlane 14	AUTO	9	60	1	9
		MT	0			0
		HT	0			0
146	US 70 North turnlane 20	AUTO	43	60	1	43
		MT	2			2
		HT	1			1
147	US 70 South turnlane 16	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
148	US 70 South turnlane 15	AUTO	14	60	1	14
		MT	1			1
		HT	0			0
149	US 70 North turnlane 22	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
150	US 70 South turnlane 17	AUTO	128	60	1	128
		MT	2			2
		HT	1			1
151	US 70 North turnlane 23	AUTO	108	60	1	108
		MT	6			6
		HT	4			4
152	US 70 South turnlane 19	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
153	US 70 South turnlane 18	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
154	US 70 North turnlane 26	AUTO	5	60	1	5
		MT	0			0
		HT	0			0

R577C Existing PM (2019) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
155	US 70 North turnlane 25	AUTO	16	60	1	16
		MT	1			1
		HT	1			1
156	US 70 South right lane 01 -T, US 70 South Left lane 01 -T	AUTO	1095	60	2	548
		MT	2			1
		HT	0			0
157	US 70 North Left lane 02 -T, US 70 North Right lane 02 -T	AUTO	1458	60	2	729
		MT	79			40
		HT	48			24
158	US 70 South right lane 02 -T, US 70 South Left lane 02 -T	AUTO	960	60	2	480
		MT	52			26
		HT	31			16
159	US 70 North Left lane 03 -T, US 70 North Right lane 03 -T	AUTO	1441	60	2	720
		MT	78			39
		HT	47			23
160	US 70 South right lane 03 -T, US 70 South Left lane 03 -T	AUTO	984	60	2	492
		MT	53			27
		HT	32			16
161	US 70 North Left lane 04 -T, US 70 North Right lane 04 -T	AUTO	1468	60	2	734
		MT	80			40
		HT	48			24
162	US 70 South right lane 04 -T, US 70 South Left lane 04 -T	AUTO	979	60	2	489
		MT	53			27
		HT	32			16
163	US 70 North Left lane 05 -T, US 70 North Right lane 05 -T	AUTO	1471	60	2	735
		MT	80			40
		HT	48			24
164	US 70 South right lane 05 -T, US 70 South Left lane 05 -T	AUTO	944	60	2	472
		MT	51			26
		HT	31			15
165	US 70 North Left lane 06 -T, US 70 North Right lane 06 -T	AUTO	1416	60	2	708
		MT	77			38
		HT	46			23
166	US 70 South right lane 06 -T, US 70 South Left lane 06 -T	AUTO	977	60	2	489
		MT	53			27
		HT	32			16
167	US 70 North Left lane 07 -T, US 70 North Right lane 07 -T	AUTO	1545	60	2	772
		MT	84			42
		HT	50			25
168	US 70 South right lane 07 -T, US 70 South Left lane 07 -T	AUTO	890	60	2	445
		MT	48			24
		HT	29			15
169	US 70 North Left lane 08 -T, US 70 North Right lane 08 -T	AUTO	1576	60	2	788
		MT	86			43
		HT	51			26
170	US 70 South right lane 08 -T, US 70 South Left lane 08 -T	AUTO	911	60	2	456
		MT	50			25
		HT	30			15
171	US 70 North Left lane 09 -T, US 70 North Right lane 09 -T	AUTO	1617	60	2	808
		MT	88			44
		HT	53			26
172	US 70 South right lane 09 -T, US 70 South Left lane 09 -T	AUTO	770	60	2	385
		MT	47			23
		HT	28			14
173	US 70 North Left lane 10 -T, US 70 North Right lane 10 -T	AUTO	1512	60	2	756
		MT	82			41
		HT	49			25
174	US 70 South right lane 10 -T, US 70 South Left lane 10 -T	AUTO	917	60	2	459
		MT	50			25
		HT	30			15
175	US 70 North Left lane 11 -T, US 70 North Right lane 11 -T	AUTO	1598	60	2	799
		MT	87			43
		HT	52			26

R577C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
1	US 70 South right lane 01, US 70 South Left lane 01	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
2	US 70 North Left lane 01, US 70 North Right lane 01	AUTO	1148	60	2	574
		MT	62			31
		HT	37			19
3	US 70 South right lane 02, US 70 South Left lane 02	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
4	US 70 North Left lane 02, US 70 North Right lane 02	AUTO	1166	60	2	583
		MT	63			32
		HT	38			19
5	US 70 South right lane 03, US 70 South Left lane 03	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
6	US 70 North Left lane 03, US 70 North Right lane 03	AUTO	1154	60	2	577
		MT	63			31
		HT	38			19
7	US 70 South right lane 04, US 70 South Left lane 04	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
8	US 70 North Left lane 04, US 70 North Right lane 04	AUTO	1007	60	2	504
		MT	55			27
		HT	33			16
9	US 70 South right lane 05, US 70 South Left lane 05	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
10	US 70 North Left lane 05, US 70 North Right lane 05	AUTO	1010	60	2	505
		MT	55			27
		HT	33			16
11	US 70 South right lane 06, US 70 South Left lane 06	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
12	US 70 North Left lane 06, US 70 North Right lane 06	AUTO	997	60	2	498
		MT	54			27
		HT	33			16
13	US 70 South right lane 07, US 70 South Left lane 07	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
14	US 70 North Left lane 07, US 70 North Right lane 07	AUTO	894	60	2	447
		MT	49			24
		HT	29			15
15	US 70 South right lane 08, US 70 South Left lane 08	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
16	US 70 North Left lane 08, US 70 North Right lane 08	AUTO	907	60	2	454
		MT	49			25
		HT	30			15
17	US 70 South right lane 09, US 70 South Left lane 09	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
18	US 70 North Left lane 09, US 70 North Right lane 09	AUTO	896	60	2	448
		MT	49			24
		HT	29			15
19	US 70 South right lane 10, US 70 South Left lane 10	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
20	US 70 North Left lane 10, US 70 North Right lane 10	AUTO	859	60	2	430
		MT	47			23
		HT	28			14
21	US 70 South right lane 11, US 70 South Left lane 11	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
22	US 70 North Left lane 11, US 70 North Right lane 11	AUTO	865	60	2	433
		MT	47			24
		HT	28			14
23	S. US 70 off Road West 01	AUTO	9	50	1	9
		MT	1			1
		HT	0			0
24	S. US 70 ofn Road East 01	AUTO	5	50	1	5
		MT	1			1
		HT	0			0

R5777C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
25	Old Cherry Point Rd to US 70 (1)	AUTO	102	50	1	102
		MT	11			11
		HT	1			1
26	Old Cherry Point Road from US 70	AUTO	55	50	1	55
		MT	6			6
		HT	1			1
27	Waterscape way west	AUTO	67	40	1	67
		MT	2			2
		HT	1			1
28	Waterscape way east	AUTO	54	40	1	54
		MT	2			2
		HT	1			1
29	W Camp Kiro Rd West 01	AUTO	45	40	1	45
		MT	1			1
		HT	0			0
30	W Camp Kiro Rd East 01	AUTO	180	40	1	180
		MT	6			6
		HT	2			2
31	W Camp Kiro Rd West 02	AUTO	45	40	1	45
		MT	1			1
		HT	0			0
32	W Camp Kiro Rd East 02	AUTO	180	40	1	180
		MT	6			6
		HT	2			2
33	E Camp Kiro Rd West (2)	AUTO	32	50	1	32
		MT	1			1
		HT	0			0
34	E Camp Kiro Rd East (2)	AUTO	60	50	1	60
		MT	2			2
		HT	1			1
35	E Camp Kiro Rd West (1)	AUTO	6	50	1	6
		MT	0			0
		HT	0			0
36	E Camp Kiro Rd East (1)	AUTO	9	50	1	9
		MT	1			1
		HT	0			0
37	S. US 70 Off Road West 02	AUTO	5	30	1	5
		MT	0			0
		HT	0			0
38	S. US 70 On Road East 02	AUTO	3	30	1	3
		MT	0			0
		HT	0			0
39	N. US 70 On Road West 01	AUTO	83	30	1	83
		MT	4			4
		HT	1			1
40	N. US 70 Off Rd West 01	AUTO	36	30	1	36
		MT	2			2
		HT	0			0
41	River Bluffs Dr West	AUTO	54	30	1	54
		MT	3			3
		HT	1			1
42	River Bluffs Dr East	AUTO	14	30	1	14
		MT	1			1
		HT	0			0
43	Riverdale Road West 02	AUTO	15	60	1	15
		MT	0			0
		HT	0			0
44	Riverdale Rd East 02	AUTO	46	60	1	46
		MT	1			1
		HT	0			0
45	Riverdale Road West 01	AUTO	28	60	1	28
		MT	1			1
		HT	0			0
46	Riverdale Rd East 01	AUTO	65	60	2	65
		MT	3			3
		HT	1			1
47	N. US 70 On Rd West 02	AUTO	5	30	2	5
		MT	1			1
		HT	0			0
48	N. US 70 Off Rd East 02	AUTO	1	30	2	1
		MT	0			0
		HT	0			0

R5777C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
49	Fishers Landing Rd (Volumes Combined)	AUTO	2	30	2	2
		MT	0			0
		HT	0			0
50	Fishers Landing Rd (Volumes Combined)	AUTO	1	30	2	1
		MT	0			0
		HT	0			0
51	W Fisher Rd West	AUTO	18	60	2	18
		MT	1			1
		HT	0			0
52	W Fisher Rd East	AUTO	73	60	2	73
		MT	3			3
		HT	1			1
53	E Fisher Ave West 01	AUTO	188	60	1	188
		MT	6			6
		HT	2			2
54	E Fisher Ave East 01	AUTO	63	60	1	63
		MT	2			2
		HT	1			1
55	E Fisher Ave West 02	AUTO	175	60	1	175
		MT	5			5
		HT	2			2
56	E Fisher Ave East 02	AUTO	58	60	1	58
		MT	2			2
		HT	1			1
57	NOT MODELED (beyond project scope)	AUTO	39	40	1	39
		MT	3			3
		HT	0			0
58	NOT MODELED (beyond project scope)	AUTO	156	40	1	156
		MT	10			10
		HT	2			2
59	Catfish Lake Rd West	AUTO	48	40	1	48
		MT	2			2
		HT	1			1
60	Catfish Lake Rd East	AUTO	190	40	1	190
		MT	8			8
		HT	2			2
61	N. US 70 On Rd West 03	AUTO	42	30	1	42
		MT	2			2
		HT	0			0
62	N. US 70 Off Rd East 03	AUTO	10	30	1	10
		MT	0			0
		HT	0			0
63	Connors way (Volumes Combined)	AUTO	2	30	1	2
		MT	0			0
		HT	0			0
64	Connors way (Volumes Combined)	AUTO	1	30	1	1
		MT	0			0
		HT	0			0
65	Stately Pines Rd West	AUTO	82	40	1	82
		MT	3			3
		HT	1			1
66	Stately Pines Rd East	AUTO	21	40	1	21
		MT	1			1
		HT	0			0
67	S. US 70 Off Rd West 04	AUTO	3	40	1	3
		MT	0			0
		HT	0			0
68	S. US 70 On Rd East 04	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
69	N. US 70 Off Rd West 04	AUTO	38	40	1	38
		MT	2			2
		HT	0			0
70	S. US 70 Off Rd East 03	AUTO	10	40	1	10
		MT	0			0
		HT	0			0
71	Carolina Pines Blvd West 01	AUTO	188	40	1	188
		MT	6			6
		HT	2			2
72	Carolina Pines Blvd East 01	AUTO	47	40	1	47
		MT	1			1
		HT	0			0

R577C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
73	Carolina Pines Blvd West 02	AUTO	270	40	1	270
		MT	8			8
		HT	3			3
74	Carolina Pines Blvd East 02	AUTO	67	40	1	67
		MT	2			2
		HT	1			1
75	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	3	40	1	3
		MT	0			0
		HT	0			0
76	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	4		1	4
		MT	0			0
		HT	0			0
77	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	24	40	1	24
		MT	2			2
		HT	0			0
78	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	6		1	6
		MT	0			0
		HT	0			0
79	US 70 Service Rd South 01	AUTO	12	40	1	12
		MT	1			1
		HT	0			0
80	US 70 Service Rd North 01	AUTO	15	40	1	15
		MT	1			1
		HT	0			0
81	US 70 Service Rd South 02	AUTO	13	40	1	13
		MT	1			1
		HT	0			0
82	US 70 Service Rd North 02	AUTO	7	40	1	7
		MT	1			1
		HT	0			0
83	US 70 Service Rd South 03	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
84	US 70 Service Rd North 03	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
85	Wilcox Rd South 01	AUTO	124	50	1	124
		MT	4			4
		HT	1			1
86	Wilcox Rd North 01	AUTO	31	50	1	31
		MT	1			1
		HT	0			0
87	Wilcox Rd South 02	AUTO	8	60	1	8
		MT	1			1
		HT	0			0
88	Wilcox Rd North 02	AUTO	31	60	1	31
		MT	2			2
		HT	0			0
89	Old Cherry Point Road South 01	AUTO	124	50	1	124
		MT	4			4
		HT	1			1
90	Old Cherry Point Road North 01	AUTO	83	50	1	83
		MT	3			3
		HT	1			1
91	Old Cherry Point Road South 02	AUTO	19	60	1	19
		MT	1			1
		HT	0			0
92	Old Cherry Point Road North 02	AUTO	28	60	1	28
		MT	1			1
		HT	0			0
93	Old Cherry Point Road South 03	AUTO	22	40	1	22
		MT	1			1
		HT	0			0
94	Old Cherry Point Road North 03	AUTO	32	40	1	32
		MT	1			1
		HT	0			0
95	Old Cherry Point Road South 04	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
96	Old Cherry Point Road North 04	AUTO	5	40	1	5
		MT	1			1
		HT	0			0

R5777C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
97	NOT MODELED, roadway not needed	AUTO	2	20	1	2
		MT	0			0
		HT	0			0
98	NOT MODELED, roadway not needed	AUTO	2	20	1	2
		MT	0			0
		HT	0			0
99	US 70 Service Rd (4) South 01	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
100	US 70 Service Rd (4) North 01	AUTO	3	40	1	3
		MT	0			0
		HT	0			0
101	US 70 Service Rd (4) South 02	AUTO	20	40	1	20
		MT	2			2
		HT	0			0
102	US 70 Service Rd (4) North 02	AUTO	30	40	1	30
		MT	3			3
		HT	0			0
103	Green Ave (Volumes Combined)	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
104	Green Ave (Volumes Combined)	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
105	County Line Rd South 01	AUTO	39	50	1	39
		MT	3			3
		HT	0			0
106	County Line Rd North 01	AUTO	32	50	1	32
		MT	2			2
		HT	0			0
107	County Line Rd South 02	AUTO	18	50	1	18
		MT	1			1
		HT	0			0
108	County Line Rd North 02	AUTO	73	50	1	73
		MT	6			6
		HT	1			1
109	County Line Rd South 03	AUTO	49	50	1	49
		MT	4			4
		HT	1			1
110	County Line Rd North 03	AUTO	12	50	1	12
		MT	1			1
		HT	0			0
111	US 70 Service Rd (5) South 01	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
112	US 70 Service Rd (5) North 01	AUTO	9	40	1	9
		MT	1			1
		HT	0			0
113	US 70 Service Rd (5) South 02	AUTO	9	40	1	9
		MT	0			0
		HT	0			0
114	US 70 Service Rd (5) North 02	AUTO	36	40	1	36
		MT	2			2
		HT	0			0
115	US 70 Service Rd (5) South 03	AUTO	6	40	1	6
		MT	1			1
		HT	0			0
116	US 70 Service Rd (5) North 03	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
117	US 70 Service Rd South (8)	AUTO	12	40	1	12
		MT	1			1
		HT	0			0
118	US 70 Service Rd North (8)	AUTO	48	40	1	48
		MT	3			3
		HT	1			1
119	US 70 Service Rd South (9)	AUTO	55	40	1	55
		MT	4			4
		HT	1			1
120	US 70 Service Rd North (9)	AUTO	30	40	1	30
		MT	2			2
		HT	0			0

R577C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
121	US 70 South turnlane 2	AUTO	9	60	1	9
		MT	0			0
		HT	0			0
122	US 70 South turnlane 1	AUTO	31	60	1	31
		MT	2			2
		HT	1			1
123	US 70 North turnlane 3	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
124	US 70 North turnlane 2	AUTO	44	60	1	44
		MT	2			2
		HT	1			1
125	US 70 South turnlane 4	AUTO	62	60	1	62
		MT	3			3
		HT	2			2
126	US 70 South turnlane 3	AUTO	31	60	1	31
		MT	2			2
		HT	1			1
127	US 70 North turnlane 5	AUTO	35	60	1	35
		MT	2			2
		HT	1			1
128	US 70 North turnlane 4	AUTO	15	60	1	15
		MT	1			1
		HT	0			0
129	DO NOT MODEL	AUTO	0	60	1	0
		MT	0			0
		HT	0			0
130	US 70 South turnlane 5	AUTO	31	60	1	31
		MT	2			2
		HT	1			1
131	US 70 North turnlane 7	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
132	US 70 North turnlane 6	AUTO	18	60	1	18
		MT	1			1
		HT	1			1
133	US 70 South turnlane 7	AUTO	33	60	1	33
		MT	2			2
		HT	1			1
134	US 70 South turnlane 6	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
135	US 70 North turnlane 9	AUTO	18	60	1	18
		MT	1			1
		HT	1			1
136	US 70 North turnlane 8	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
137	US 70 South turnlane 9	AUTO	14	60	1	14
		MT	1			1
		HT	0			0
138	US 70 South turnlane 8	AUTO	86	60	1	86
		MT	5			5
		HT	3			3
139	US 70 North turnlane 11	AUTO	13	60	1	13
		MT	1			1
		HT	0			0
140	US 70 North turnlane 10	AUTO	28	60	1	28
		MT	2			2
		HT	1			1
141	US 70 South turnlane 12	AUTO	24	60	1	24
		MT	1			1
		HT	0			0
142	US 70 South turnlane 13	AUTO	5	60	1	5
		MT	0			0
		HT	0			0
143	US 70 North turnlane 17	AUTO	44	60	1	44
		MT	2			2
		HT	1			1
144	US 70 North turnlane 16	AUTO	9	60	1	9
		MT	0			0
		HT	0			0

R577C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
145	US 70 South turnlane 14	AUTO	15	60	1	15
		MT	1			1
		HT	1			1
146	US 70 North turnlane 20	AUTO	20	60	1	20
		MT	1			1
		HT	1			1
147	US 70 South turnlane 16	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
148	US 70 South turnlane 15	AUTO	26	60	1	26
		MT	1			1
		HT	1			1
149	US 70 North turnlane 22	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
150	US 70 South turnlane 17	AUTO	23	60	1	23
		MT	4			4
		HT	2			2
151	US 70 North turnlane 23	AUTO	46	60	1	46
		MT	2			2
		HT	1			1
152	US 70 South turnlane 19	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
153	US 70 South turnlane 18	AUTO	6	60	1	6
		MT	0			0
		HT	0			0
154	US 70 North turnlane 26	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
155	US 70 North turnlane 25	AUTO	6	60	1	6
		MT	0			0
		HT	0			0
156	US 70 South right lane 01 -T, US 70 South Left lane 01 -T	AUTO	1579	60	2	790
		MT	6			3
		HT	2			1
157	US 70 North Left lane 02 -T, US 70 North Right lane 02 -T	AUTO	1120	60	2	560
		MT	61			30
		HT	37			18
158	US 70 South right lane 02 -T, US 70 South Left lane 02 -T	AUTO	1526	60	2	763
		MT	83			41
		HT	50			25
159	US 70 North Left lane 03 -T, US 70 North Right lane 03 -T	AUTO	1104	60	2	552
		MT	60			30
		HT	36			18
160	US 70 South right lane 03 -T, US 70 South Left lane 03 -T	AUTO	1588	60	2	794
		MT	86			43
		HT	52			26
161	US 70 North Left lane 04 -T, US 70 North Right lane 04 -T	AUTO	988	60	2	494
		MT	54			27
		HT	32			16
162	US 70 South right lane 04 -T, US 70 South Left lane 04 -T	AUTO	1583	60	2	792
		MT	86			43
		HT	52			26
163	US 70 North Left lane 05 -T, US 70 North Right lane 05 -T	AUTO	989	60	2	495
		MT	54			27
		HT	32			16
164	US 70 South right lane 05 -T, US 70 South Left lane 05 -T	AUTO	1519	60	2	759
		MT	83			41
		HT	50			25
165	US 70 North Left lane 06 -T, US 70 North Right lane 06 -T	AUTO	956	60	2	478
		MT	52			26
		HT	31			16
166	US 70 South right lane 06 -T, US 70 South Left lane 06 -T	AUTO	1590	60	2	795
		MT	86			43
		HT	53			26
167	US 70 North Left lane 07 -T, US 70 North Right lane 07 -T	AUTO	841	60	2	421
		MT	46			23
		HT	27			14
168	US 70 South right lane 07 -T, US 70 South Left lane 07 -T	AUTO	1604	60	2	802
		MT	87			44
		HT	52			26

R5777C No Build AM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
169	US 70 North Left lane 08 -T, US 70 North Right lane 08 -T	AUTO	888	60	2	444
		MT	48			24
		HT	29			14
170	US 70 South right lane 08 -T, US 70 South Left lane 08 -T	AUTO	1617	60	2	808
		MT	88			44
		HT	53			26
171	US 70 North Left lane 09 -T, US 70 North Right lane 09 -T	AUTO	895	60	2	448
		MT	49			24
		HT	29			15
172	US 70 South right lane 09 -T, US 70 South Left lane 09 -T	AUTO	1596	60	2	798
		MT	84			42
		HT	51			25
173	US 70 North Left lane 10 -T, US 70 North Right lane 10 -T	AUTO	814	60	2	407
		MT	44			22
		HT	27			13
174	US 70 South right lane 10 -T, US 70 South Left lane 10 -T	AUTO	1610	60	2	805
		MT	87			44
		HT	52			26
175	US 70 North Left lane 11 -T, US 70 North Right lane 11 -T	AUTO	857	60	2	428
		MT	47			23
		HT	28			14

R5777C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
1	US 70 South right lane 01, US 70 South Left lane 01	AUTO	1453	60	2	727
		MT	79			39
		HT	47			24
2	US 70 North Left lane 01, US 70 North Right lane 01	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
3	US 70 South right lane 02, US 70 South Left lane 02	AUTO	1312	60	2	656
		MT	71			36
		HT	43			21
4	US 70 North Left lane 02, US 70 North Right lane 02	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
5	US 70 South right lane 03, US 70 South Left lane 03	AUTO	1298	60	2	649
		MT	71			35
		HT	42			21
6	US 70 North Left lane 03, US 70 North Right lane 03	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
7	US 70 South right lane 04, US 70 South Left lane 04	AUTO	1295	60	2	647
		MT	70			35
		HT	42			21
8	US 70 North Left lane 04, US 70 North Right lane 04	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
9	US 70 South right lane 05, US 70 South Left lane 05	AUTO	1298	60	2	649
		MT	71			35
		HT	42			21
10	US 70 North Left lane 05, US 70 North Right lane 05	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
11	US 70 South right lane 06, US 70 South Left lane 06	AUTO	1282	60	2	641
		MT	70			35
		HT	42			21
12	US 70 North Left lane 06, US 70 North Right lane 06	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
13	US 70 South right lane 07, US 70 South Left lane 07	AUTO	1174	60	2	587
		MT	64			32
		HT	38			19
14	US 70 North Left lane 07, US 70 North Right lane 07	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
15	US 70 South right lane 08, US 70 South Left lane 08	AUTO	1191	60	2	596
		MT	65			32
		HT	39			19
16	US 70 North Left lane 08, US 70 North Right lane 08	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
17	US 70 South right lane 09, US 70 South Left lane 09	AUTO	1177	60	2	588
		MT	64			32
		HT	38			19
18	US 70 North Left lane 09, US 70 North Right lane 09	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
19	US 70 South right lane 10, US 70 South Left lane 10	AUTO	1203	60	2	601
		MT	65			33
		HT	39			20
20	US 70 North Left lane 10, US 70 North Right lane 10	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
21	US 70 South right lane 11, US 70 South Left lane 11	AUTO	1211	60	2	606
		MT	66			33
		HT	40			20
22	US 70 North Left lane 11, US 70 North Right lane 11	AUTO	1619	60	2	810
		MT	88			44
		HT	53			26
23	S. US 70 off Road West 01	AUTO	4	50	1	4
		MT	0			0
		HT	0			0
24	S. US 70 ofn Road East 01	AUTO	12	50	1	12
		MT	1			1
		HT	0			0

R5777C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
25	Old Cherry Point Rd to US 70 (1)	AUTO	62	50	1	62
		MT	7			7
		HT	1			1
26	Old Cherry Point Road from US 70	AUTO	115	50	1	115
		MT	13			13
		HT	1			1
27	Waterscape way west	AUTO	89	40	1	89
		MT	3			3
		HT	1			1
28	Waterscape way east	AUTO	73	40	1	73
		MT	2			2
		HT	1			1
29	W Camp Kiro Rd West 01	AUTO	175	40	1	175
		MT	5			5
		HT	2			2
30	W Camp Kiro Rd East 01	AUTO	75	40	1	75
		MT	2			2
		HT	1			1
31	W Camp Kiro Rd West 02	AUTO	162	40	1	162
		MT	5			5
		HT	2			2
32	W Camp Kiro Rd East 02	AUTO	87	40	1	87
		MT	3			3
		HT	1			1
33	E Camp Kiro Rd West (2)	AUTO	46	50	1	46
		MT	1			1
		HT	0			0
34	E Camp Kiro Rd East (2)	AUTO	69	50	1	69
		MT	2			2
		HT	1			1
35	E Camp Kiro Rd West (1)	AUTO	7	50	1	7
		MT	1			1
		HT	0			0
36	E Camp Kiro Rd East (1)	AUTO	11	50	1	11
		MT	1			1
		HT	0			0
37	S. US 70 Off Road West 02	AUTO	6	30	1	6
		MT	0			0
		HT	0			0
38	S. US 70 On Road East 02	AUTO	4	30	1	4
		MT	0			0
		HT	0			0
39	N. US 70 On Road West 01	AUTO	39	30	1	39
		MT	2			2
		HT	0			0
40	N. US 70 Off Rd West 01	AUTO	92	30	1	92
		MT	5			5
		HT	1			1
41	River Bluffs Dr West	AUTO	23	30	1	23
		MT	1			1
		HT	0			0
42	River Bluffs Dr East	AUTO	53	30	1	53
		MT	3			3
		HT	1			1
43	Riverdale Road West 02	AUTO	74	60	1	74
		MT	2			2
		HT	1			1
44	Riverdale Rd East 02	AUTO	40	60	1	40
		MT	1			1
		HT	0			0
45	Riverdale Road West 01	AUTO	104	60	1	104
		MT	4			4
		HT	1			1
46	Riverdale Rd East 01	AUTO	69	60	2	69
		MT	3			3
		HT	1			1
47	N. US 70 On Rd West 02	AUTO	6	30	2	6
		MT	1			1
		HT	0			0
48	N. US 70 Off Rd East 02	AUTO	5	30	2	5
		MT	1			1
		HT	0			0

R5777C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
49	Fishers Landing Rd (Volumes Combined)	AUTO	2	30	2	2
		MT	0			0
		HT	0			0
50	Fishers Landing Rd (Volumes Combined)	AUTO	1	30	2	1
		MT	0			0
		HT	0			0
51	W Fisher Rd West	AUTO	73	60	2	73
		MT	3			3
		HT	1			1
52	W Fisher Rd East	AUTO	18	60	2	18
		MT	1			1
		HT	0			0
53	E Fisher Ave West 01	AUTO	70	60	1	70
		MT	2			2
		HT	1			1
54	E Fisher Ave East 01	AUTO	209	60	1	209
		MT	7			7
		HT	2			2
55	E Fisher Ave West 02	AUTO	65	60	1	65
		MT	2			2
		HT	1			1
56	E Fisher Ave East 02	AUTO	194	60	1	194
		MT	6			6
		HT	2			2
57	NOT MODELED (beyond project scope)	AUTO	127	40	1	127
		MT	8			8
		HT	1			1
58	NOT MODELED (beyond project scope)	AUTO	68	40	1	68
		MT	4			4
		HT	1			1
59	Catfish Lake Rd West	AUTO	233	40	1	233
		MT	10			10
		HT	2			2
60	Catfish Lake Rd East	AUTO	100	40	1	100
		MT	4			4
		HT	1			1
61	N. US 70 On Rd West 03	AUTO	10	30	1	10
		MT	0			0
		HT	0			0
62	N. US 70 Off Rd East 03	AUTO	42	30	1	42
		MT	2			2
		HT	0			0
63	Connors way (Volumes Combined)	AUTO	1	30	1	1
		MT	0			0
		HT	0			0
64	Connors way (Volumes Combined)	AUTO	2	30	1	2
		MT	0			0
		HT	0			0
65	Stately Pines Rd West	AUTO	40	40	1	40
		MT	2			2
		HT	0			0
66	Stately Pines Rd East	AUTO	74	40	1	74
		MT	3			3
		HT	1			1
67	S. US 70 Off Rd West 04	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
68	S. US 70 On Rd East 04	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
69	N. US 70 Off Rd West 04	AUTO	15	40	1	15
		MT	1			1
		HT	0			0
70	S. US 70 Off Rd East 03	AUTO	18	40	1	18
		MT	1			1
		HT	0			0
71	Carolina Pines Blvd West 01	AUTO	212	40	1	212
		MT	7			7
		HT	2			2
72	Carolina Pines Blvd East 01	AUTO	91	40	1	91
		MT	3			3
		HT	1			1

R5777C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
73	Carolina Pines Blvd West 02	AUTO	112	40	1	112
		MT	4			4
		HT	1			1
74	Carolina Pines Blvd East 02	AUTO	262	40	1	262
		MT	8			8
		HT	3			3
75	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
76	S. US 70 On Rd East 05 (Volumes Combined)	AUTO	5		1	5
		MT	0			0
		HT	0			0
77	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	14	40	1	14
		MT	1			1
		HT	0			0
78	N. US 70 On Rd West 05 (Volumes Combined)	AUTO	27		1	27
		MT	2			2
		HT	0			0
79	US 70 Service Rd South 01	AUTO	10	40	1	10
		MT	1			1
		HT	0			0
80	US 70 Service Rd North 01	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
81	US 70 Service Rd South 02	AUTO	5	40	1	5
		MT	0			0
		HT	0			0
82	US 70 Service Rd North 02	AUTO	15	40	1	15
		MT	1			1
		HT	0			0
83	US 70 Service Rd South 03	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
84	US 70 Service Rd North 03	AUTO	5	40	1	5
		MT	0			0
		HT	0			0
85	Wilcox Rd South 01	AUTO	62	50	1	62
		MT	2			2
		HT	1			1
86	Wilcox Rd North 01	AUTO	145	50	1	145
		MT	5			5
		HT	2			2
87	Wilcox Rd South 02	AUTO	36	60	1	36
		MT	3			3
		HT	0			0
88	Wilcox Rd North 02	AUTO	30	60	1	30
		MT	2			2
		HT	0			0
89	Old Cherry Point Road South 01	AUTO	100	50	1	100
		MT	3			3
		HT	1			1
90	Old Cherry Point Road North 01	AUTO	185	50	1	185
		MT	6			6
		HT	2			2
91	Old Cherry Point Road South 02	AUTO	35	60	1	35
		MT	1			1
		HT	0			0
92	Old Cherry Point Road North 02	AUTO	66	60	1	66
		MT	2			2
		HT	1			1
93	Old Cherry Point Road South 03	AUTO	32	40	1	32
		MT	1			1
		HT	0			0
94	Old Cherry Point Road North 03	AUTO	22	40	1	22
		MT	1			1
		HT	0			0
95	Old Cherry Point Road South 04	AUTO	4	40	1	4
		MT	0			0
		HT	0			0
96	Old Cherry Point Road North 04	AUTO	5	40	1	5
		MT	1			1
		HT	0			0

R5777C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
97	NOT MODELED, roadway not needed	AUTO	3	20	1	3
		MT	0			0
		HT	0			0
98	NOT MODELED, roadway not needed	AUTO	3	20	1	3
		MT	0			0
		HT	0			0
99	US 70 Service Rd (4) South 01	AUTO	7	40	1	7
		MT	1			1
		HT	0			0
100	US 70 Service Rd (4) North 01	AUTO	5	40	1	5
		MT	0			0
		HT	0			0
101	US 70 Service Rd (4) South 02	AUTO	56	40	1	56
		MT	6			6
		HT	1			1
102	US 70 Service Rd (4) North 02	AUTO	37	40	1	37
		MT	4			4
		HT	0			0
103	Green Ave (Volumes Combined)	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
104	Green Ave (Volumes Combined)	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
105	County Line Rd South 01	AUTO	35	50	1	35
		MT	3			3
		HT	0			0
106	County Line Rd North 01	AUTO	43	50	1	43
		MT	3			3
		HT	0			0
107	County Line Rd South 02	AUTO	70	50	1	70
		MT	5			5
		HT	1			1
108	County Line Rd North 02	AUTO	30	50	1	30
		MT	2			2
		HT	0			0
109	County Line Rd South 03	AUTO	22	50	1	22
		MT	2			2
		HT	0			0
110	County Line Rd North 03	AUTO	50	50	1	50
		MT	4			4
		HT	1			1
111	US 70 Service Rd (5) South 01	AUTO	20	40	1	20
		MT	2			2
		HT	0			0
112	US 70 Service Rd (5) North 01	AUTO	5	40	1	5
		MT	1			1
		HT	0			0
113	US 70 Service Rd (5) South 02	AUTO	8	40	1	8
		MT	0			0
		HT	0			0
114	US 70 Service Rd (5) North 02	AUTO	30	40	1	30
		MT	1			1
		HT	0			0
115	US 70 Service Rd (5) South 03	AUTO	7	40	1	7
		MT	1			1
		HT	0			0
116	US 70 Service Rd (5) North 03	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
117	US 70 Service Rd South (8)	AUTO	21	40	1	21
		MT	1			1
		HT	0			0
118	US 70 Service Rd North (8)	AUTO	26	40	1	26
		MT	2			2
		HT	0			0
119	US 70 Service Rd South (9)	AUTO	23	40	1	23
		MT	1			1
		HT	0			0
120	US 70 Service Rd North (9)	AUTO	42	40	1	42
		MT	3			3
		HT	0			0

R577C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
121	US 70 South turnlane 2	AUTO	7	60	1	7
		MT	0			0
		HT	0			0
122	US 70 South turnlane 1	AUTO	26	60	1	26
		MT	1			1
		HT	1			1
123	US 70 North turnlane 3	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
124	US 70 North turnlane 2	AUTO	75	60	1	75
		MT	4			4
		HT	2			2
125	US 70 South turnlane 4	AUTO	46	60	1	46
		MT	3			3
		HT	2			2
126	US 70 South turnlane 3	AUTO	23	60	1	23
		MT	1			1
		HT	1			1
127	US 70 North turnlane 5	AUTO	60	60	1	60
		MT	3			3
		HT	2			2
128	US 70 North turnlane 4	AUTO	25	60	1	25
		MT	1			1
		HT	1			1
129	DO NOT MODEL	AUTO	0	60	1	0
		MT	0			0
		HT	0			0
130	US 70 South turnlane 5	AUTO	23	60	1	23
		MT	1			1
		HT	1			1
131	US 70 North turnlane 7	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
132	US 70 North turnlane 6	AUTO	35	60	1	35
		MT	2			2
		HT	1			1
133	US 70 South turnlane 7	AUTO	23	60	1	23
		MT	1			1
		HT	1			1
134	US 70 South turnlane 6	AUTO	2	60	1	2
		MT	0			0
		HT	0			0
135	US 70 North turnlane 9	AUTO	35	60	1	35
		MT	2			2
		HT	1			1
136	US 70 North turnlane 8	AUTO	5	60	1	5
		MT	0			0
		HT	0			0
137	US 70 South turnlane 9	AUTO	10	60	1	10
		MT	1			1
		HT	0			0
138	US 70 South turnlane 8	AUTO	60	60	1	60
		MT	3			3
		HT	2			2
139	US 70 North turnlane 11	AUTO	25	60	1	25
		MT	1			1
		HT	1			1
140	US 70 North turnlane 10	AUTO	55	60	1	55
		MT	3			3
		HT	2			2
141	US 70 South turnlane 12	AUTO	17	60	1	17
		MT	1			1
		HT	0			0
142	US 70 South turnlane 13	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
143	US 70 North turnlane 17	AUTO	99	60	1	99
		MT	5			5
		HT	3			3
144	US 70 North turnlane 16	AUTO	20	60	1	20
		MT	1			1
		HT	1			1

R5777C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
145	US 70 South turnlane 14	AUTO	9	60	1	9
		MT	0			0
		HT	0			0
146	US 70 North turnlane 20	AUTO	48	60	1	48
		MT	3			3
		HT	2			2
147	US 70 South turnlane 16	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
148	US 70 South turnlane 15	AUTO	14	60	1	14
		MT	1			1
		HT	0			0
149	US 70 North turnlane 22	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
150	US 70 South turnlane 17	AUTO	135	60	1	135
		MT	2			2
		HT	1			1
151	US 70 North turnlane 23	AUTO	118	60	1	118
		MT	6			6
		HT	4			4
152	US 70 South turnlane 19	AUTO	1	60	1	1
		MT	0			0
		HT	0			0
153	US 70 South turnlane 18	AUTO	3	60	1	3
		MT	0			0
		HT	0			0
154	US 70 North turnlane 26	AUTO	5	60	1	5
		MT	0			0
		HT	0			0
155	US 70 North turnlane 25	AUTO	16	60	1	16
		MT	1			1
		HT	1			1
156	US 70 South right lane 01 -T, US 70 South Left lane 01 -T	AUTO	1420	60	2	710
		MT	2			1
		HT	0			0
157	US 70 North Left lane 02 -T, US 70 North Right lane 02 -T	AUTO	1542	60	2	771
		MT	84			42
		HT	50			25
158	US 70 South right lane 02 -T, US 70 South Left lane 02 -T	AUTO	1242	60	2	621
		MT	68			34
		HT	41			20
159	US 70 North Left lane 03 -T, US 70 North Right lane 03 -T	AUTO	1535	60	2	767
		MT	83			42
		HT	50			25
160	US 70 South right lane 03 -T, US 70 South Left lane 03 -T	AUTO	1275	60	2	638
		MT	69			35
		HT	42			21
161	US 70 North Left lane 04 -T, US 70 North Right lane 04 -T	AUTO	1582	60	2	791
		MT	86			43
		HT	52			26
162	US 70 South right lane 04 -T, US 70 South Left lane 04 -T	AUTO	1270	60	2	635
		MT	69			35
		HT	41			21
163	US 70 North Left lane 05 -T, US 70 North Right lane 05 -T	AUTO	1579	60	2	790
		MT	86			43
		HT	52			26
164	US 70 South right lane 05 -T, US 70 South Left lane 05 -T	AUTO	1229	60	2	614
		MT	67			33
		HT	40			20
165	US 70 North Left lane 06 -T, US 70 North Right lane 06 -T	AUTO	1540	60	2	770
		MT	84			42
		HT	50			25
166	US 70 South right lane 06 -T, US 70 South Left lane 06 -T	AUTO	1262	60	2	631
		MT	69			34
		HT	42			21
167	US 70 North Left lane 07 -T, US 70 North Right lane 07 -T	AUTO	1500	60	2	750
		MT	82			41
		HT	49			24
168	US 70 South right lane 07 -T, US 70 South Left lane 07 -T	AUTO	1165	60	2	582
		MT	63			32
		HT	38			19

R5777C No Build PM (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
169	US 70 North Left lane 08 -T, US 70 North Right lane 08 -T	AUTO	1571	60	2	785
		MT	85			43
		HT	51			26
170	US 70 South right lane 08 -T, US 70 South Left lane 08 -T	AUTO	1190	60	2	595
		MT	65			32
		HT	39			19
171	US 70 North Left lane 09 -T, US 70 North Right lane 09 -T	AUTO	1617	60	2	808
		MT	88			44
		HT	53			26
172	US 70 South right lane 09 -T, US 70 South Left lane 09 -T	AUTO	1042	60	2	521
		MT	62			31
		HT	37			19
173	US 70 North Left lane 10 -T, US 70 North Right lane 10 -T	AUTO	1501	60	2	750
		MT	82			41
		HT	49			24
174	US 70 South right lane 10 -T, US 70 South Left lane 10 -T	AUTO	1198	60	2	599
		MT	65			33
		HT	39			20
175	US 70 North Left lane 11 -T, US 70 North Right lane 11 -T	AUTO	1598	60	2	799
		MT	87			43
		HT	52			26

R5777C Build North (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
1	S. US 70 Right Lane 01, S. US 70 Left Lane 01	AUTO	1453	60	2	727
		MT	79			39
		HT	47			24
2	N. US 70 Left Lane 01, N. US 70 Right Lane 01	AUTO	1776	60	2	888
		MT	97			48
		HT	58			29
3	S. US 70 Right Lane 02, S. US 70 Left Lane 02	AUTO	1295	60	2	647
		MT	70			35
		HT	42			21
4	N. US 70 Left Lane 02, N. US 70 Right Lane 02	AUTO	1942	60	2	971
		MT	106			53
		HT	63			32
5	S. US 70 Right Lane 03, S. US 70 Left Lane 03	AUTO	1282	60	2	641
		MT	70			35
		HT	42			21
6	N. US 70 Left Lane 03, N. US 70 Right Lane 03	AUTO	1923	60	2	961
		MT	104			52
		HT	63			31
7	NB Service Rd from Rivershore DR	AUTO	3	45	1	3
		MT	0			0
		HT	0			0
8	SB Service Rd to Rivershore DR	AUTO	4	45	1	4
		MT	0			0
		HT	0			0
9	Waterscape Way WB 01	AUTO	89	40	1	89
		MT	3			3
		HT	1			1
10	Waterscape Way EB 01	AUTO	73	40	1	73
		MT	2			2
		HT	1			1
11	W Camp Kiro Rd West 01	AUTO	175	40	1	175
		MT	5			5
		HT	2			2
12	W Camp Kiro Rd East 01	AUTO	75	40	1	75
		MT	2			2
		HT	1			1
13	W Camp Kiro Rd West 02	AUTO	181	35	1	181
		MT	6			6
		HT	2			2
14	W Camp Kiro Rd East 02	AUTO	97	35	1	97
		MT	3			3
		HT	1			1
15	E Camp Kiro Rd West 01	AUTO	184	45	1	184
		MT	6			6
		HT	2			2
16	E Camp Kiro Rd East 01	AUTO	276	45	1	276
		MT	9			9
		HT	3			3
17	E Camp Kiro Rd West 02	AUTO	7	50	1	7
		MT	1			1
		HT	0			0
18	E Camp Kiro Rd East 02	AUTO	11	50	1	11
		MT	1			1
		HT	0			0
19	River Bluff Dr Exit	AUTO	23	30	1	23
		MT	1			1
		HT	0			0
20	River Bluffs Dr Entrance	AUTO	53	30	1	53
		MT	3			3
		HT	1			1
21	Riverdale Road West	AUTO	131	60	1	131
		MT	3			3
		HT	1			1
22	Riverdale Road East	AUTO	71	60	1	71
		MT	1			1
		HT	1			1
23	Fishers Landing Rd	AUTO	3	30	1	3
		MT	0			0
		HT	0			0
24	WB W Fisher Ave 01	AUTO	201	60	1	201
		MT	8			8
		HT	2			2

R5777C Build North (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
25	EB W Fisher Ave 01	AUTO	50	60	1	50
		MT	2			2
		HT	1			1
26	WB E Fisher Ave 01	AUTO	72	55	1	72
		MT	2			2
		HT	1			1
27	EB E Fisher Ave 01	AUTO	216	55	1	216
		MT	7			7
		HT	2			2
28	WB E Fisher Ave 02	AUTO	65	55	1	65
		MT	2			2
		HT	1			1
29	EB E Fisher Ave 02	AUTO	194	55	1	194
		MT	6			6
		HT	2			2
30	Old Cherry Point Road South 01	AUTO	140	50	1	140
		MT	4			4
		HT	1			1
31	Old Cherry Point Road North 01	AUTO	261	50	1	261
		MT	8			8
		HT	3			3
32	Old Cherry Point Road South 02	AUTO	116	55	1	116
		MT	7			7
		HT	1			1
33	Old Cherry Point Road North 02	AUTO	174	55	1	174
		MT	11			11
		HT	2			2
34	SB SRC FROM CAMPKIRO TO FISHER 01	AUTO	41	35	1	41
		MT	1			1
		HT	0			0
35	NB SR FROM FISHER TO CAMPKIRO 01	AUTO	28	35	1	28
		MT	1			1
		HT	0			0
36	SB SRC FROM CAMPKIRO TO FISHER 02	AUTO	4	35	1	4
		MT	0			0
		HT	0			0
37	NB SR FROM FISHER TO CAMPKIRO 02	AUTO	5	35	1	5
		MT	1			1
		HT	0			0
38	SB SRC FROM CAMPKIRO TO FISHER 03	AUTO	3	35	1	3
		MT	0			0
		HT	0			0
39	NB SR FROM FISHER TO CAMPKIRO 03	AUTO	4	35	1	4
		MT	0			0
		HT	0			0
40	S. SR FROM FISHER AVE 01	AUTO	20	35	1	20
		MT	2			2
		HT	0			0
41	NB SR TO FISHER RD 01	AUTO	5	35	1	5
		MT	1			1
		HT	0			0
42	Wilcox Rd South 01	AUTO	62	50	1	62
		MT	2			2
		HT	1			1
43	Wilcox Rd North 01	AUTO	145	50	1	145
		MT	5			5
		HT	2			2
44	Wilcox Rd South 02	AUTO	36	60	1	36
		MT	3			3
		HT	0			0
45	Wilcox Rd North 02	AUTO	30	60	1	30
		MT	2			2
		HT	0			0
46	W. Service Rd A (3) South 01	AUTO	10	35	2	10
		MT	1			1
		HT	0			0
47	W. Service Rd A (3) North 01	AUTO	30	35	2	30
		MT	2			2
		HT	1			1
48	W. Service Rd A (3) South 02	AUTO	4	35	2	4
		MT	0			0
		HT	0			0

R5777C Build North (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
49	W. Service Rd A (3) North 02	AUTO	10	35	2	10
		MT	0			0
		HT	0			0
50	W. Service Rd A (3) South 03	AUTO	56	35	2	56
		MT	6			6
		HT	1			1
51	W. Service Rd A (3) North 03	AUTO	37	35	2	37
		MT	4			4
		HT	0			0
52	Green Ave	AUTO	7	40	2	7
		MT	1			1
		HT	0			0
53	County Line Rd South 01	AUTO	35	50	1	35
		MT	3			3
		HT	0			0
54	County Line Rd North 01	AUTO	43	50	1	43
		MT	3			3
		HT	0			0
55	County Line Rd South 02	AUTO	70	50	1	70
		MT	5			5
		HT	1			1
56	County Line Rd North 02	AUTO	30	50	1	30
		MT	2			2
		HT	0			0
57	S. US 70 Off Ramp A (3)	AUTO	206	60	1	206
		MT	11			11
		HT	7			7
58	N. US 70 Off Ramp C (3)	AUTO	242	60	1	242
		MT	13			13
		HT	8			8
59	N. US 70 On Ramp D	AUTO	81	60	1	81
		MT	3			3
		HT	1			1
60	S. US 70 On Ramp B (3)	AUTO	40	60	1	40
		MT	1			1
		HT	0			0
61	N. US 70 Off Ramp A (2)	AUTO	169	60	1	169
		MT	9			9
		HT	6			6
62	N. US 70 Off Ramp C (2)	AUTO	216	60	1	216
		MT	12			12
		HT	7			7
63	N. US 70 On Ramp D (2)	AUTO	43	60	1	43
		MT	1			1
		HT	0			0
64	S. US 70 On ramp B (2)	AUTO	27	60	1	27
		MT	1			1
		HT	0			0
65	S. US 70 Right Lane 01-TM, S. US 70 Left Lane 01-TM	AUTO	1247	60	2	624
		MT	68			34
		HT	41			20
66	N. US 70 Left Lane 02-TM, N. US 70 Right Lane 02-TM	AUTO	1701	60	2	850
		MT	92			46
		HT	55			28
67	E Camp Kiro Rd West 01-TM	AUTO	104	20	1	104
		MT	3			3
		HT	1			1
68	W Camp Kiro Rd East 02-TM	AUTO	57	20	1	57
		MT	2			2
		HT	1			1
69	S. US 70 Right Lane 02-TM, S. US 70 Left Lane 02-TM	AUTO	1126	60	2	563
		MT	61			31
		HT	37			18
70	N. US 70 Left Lane 03-TM, N. US 70 Right Lane 03-TM	AUTO	1706	60	2	853
		MT	93			46
		HT	56			28
71	WB E Fisher Ave 01-TM	AUTO	29	20	1	29
		MT	1			1
		HT	0			0
72	EB W Fisher Ave 01-TM	AUTO	23	20	1	23
		MT	1			1
		HT	0			0

R5777C Build (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
1	S. US 70 Right Lane 03, S. US 70 Left Lane 03	AUTO	1282	60	2	641
		MT	70			35
		HT	42			21
2	N. US 70 Left Lane 03, N. US 70 Right Lane 03	AUTO	1923	60	2	961
		MT	104			52
		HT	63			31
3	S. US 70 Right Lane 04, S. US 70 Left Lane 04	AUTO	1211	60	2	606
		MT	66			33
		HT	40			20
4	N. US 70 Left Lane 04, N. US 70 Right Lane 04	AUTO	2250	60	2	1125
		MT	122			61
		HT	73			37
5	Catfish Lake Rd West	AUTO	166	40	1	166
		MT	7			7
		HT	2			2
6	Catfish Lake Rd East	AUTO	71	40	1	71
		MT	3			3
		HT	1			1
7	Connors Way	AUTO	3	30	1	3
		MT	0			0
		HT	0			0
8	WB STATELY PINES 03	AUTO	119	35	1	119
		MT	5			5
		HT	1			1
9	EB STATELY PINES 01	AUTO	79	35	1	79
		MT	3			3
		HT	1			1
10	WB STATELY PINES 02	AUTO	203	35	1	203
		MT	9			9
		HT	2			2
11	EB STATELY PINES 02	AUTO	377	35	1	377
		MT	16			16
		HT	4			4
12	WB STATELY PINES 01	AUTO	40	35	1	40
		MT	2			2
		HT	0			0
13	EB STATELY PINES 03	AUTO	74	35	1	74
		MT	3			3
		HT	1			1
14	WB Carolina Pines Blvd	AUTO	112	40	1	112
		MT	4			4
		HT	1			1
15	EB Carolina Pines Blvd	AUTO	262	40	1	262
		MT	8			8
		HT	3			3
16	County Line Rd South 02	AUTO	70	50	1	70
		MT	5			5
		HT	1			1
17	County Line Rd North 02	AUTO	30	50	1	30
		MT	2			2
		HT	0			0
18	County Line Rd South 03	AUTO	22	50	1	22
		MT	2			2
		HT	0			0
19	County Line Rd North 03	AUTO	50	50	1	50
		MT	4			4
		HT	1			1
20	S Service Rd A 01	AUTO	2	40	1	2
		MT	0			0
		HT	0			0
21	N Service Rd A 01	AUTO	1	40	1	1
		MT	0			0
		HT	0			0
22	S Service Rd A 02	AUTO	74	35	1	74
		MT	5			5
		HT	1			1
23	N Service Rd A 02	AUTO	112	35	1	112
		MT	7			7
		HT	1			1
24	S Service Rd B 01	AUTO	3	35	1	3
		MT	0			0
		HT	0			0
25	N Service Rd B 01	AUTO	4	35	1	4
		MT	0			0
		HT	0			0

R5777C Build (2045) TNM Traffic Inputs

Seg	TNM Name	TYPE	VOLUME	SPEED	NUMBER OF LANES	TNM Inputs
26	SB Service Rd D (01)	AUTO	20	35	1	20
		MT	2			2
		HT	0			0
27	NB Service Rd D (01)	AUTO	5	35	1	5
		MT	1			1
		HT	0			0
28	SB Service Rd D (02)	AUTO	8	35	1	8
		MT	0			0
		HT	0			0
29	NB Service Rd D (02)	AUTO	30	35	1	30
		MT	1			1
		HT	0			0
30	SB Service Rd D (03)	AUTO	28	35	1	28
		MT	3			3
		HT	0			0
31	NB Service Rd D (03)	AUTO	7	35	1	7
		MT	1			1
		HT	0			0
32	SB Service Rd D (04)	AUTO	36	35	1	36
		MT	4			4
		HT	0			0
33	NB Service Rd D (04)	AUTO	9	35	1	9
		MT	1			1
		HT	0			0
34	S. Service Rd C 01	AUTO	184	35	1	184
		MT	12			12
		HT	2			2
35	N. Service Rd C 01	AUTO	225	35	1	225
		MT	15			15
		HT	2			2
36	Existing SB Service Rd	AUTO	36	40	1	36
		MT	2			2
		HT	0			0
37	Existing NB Service Rd	AUTO	66	40	1	66
		MT	4			4
		HT	1			1
38	S. US 70 On ramp B (2)	AUTO	27	60	1	27
		MT	1			1
		HT	0			0
39	N. US 70 Off Ramp C (2)	AUTO	216	60	1	216
		MT	12			12
		HT	7			7
40	S. US 70 Off Ramp A	AUTO	138	60	1	138
		MT	8			8
		HT	5			5
41	N. US 70 Off Ramp C (1)	AUTO	354	60	1	354
		MT	19			19
		HT	12			12
42	N. US 70 On Ramp D (1)	AUTO	76	60	1	76
		MT	3			3
		HT	1			1
43	S. US 70 On Ramp B (1)	AUTO	64	60	1	64
		MT	3			3
		HT	1			1
44	N. US 70 Left Lane 03-TM, N. US 70 Right Lane 03-TM	AUTO	1706	60	2	853
		MT	93			46
		HT	56			28
45	S. US 70 Right Lane 02-TM, S. US 70 Left Lane 02-TM	AUTO	1126	60	2	563
		MT	61			31
		HT	37			18
46	S. US 70 Right Lane 03-TM, S. US 70 Left Lane 03-TM	AUTO	1144	60	2	572
		MT	62			31
		HT	37			19
47	N. US 70 Left Lane 04-TM, N. US 70 Right Lane 04-TM	AUTO	1895	60	2	948
		MT	103			52
		HT	62			31
48	WB STATELY PINES 02-TM	AUTO	126	20	1	126
		MT	5			5
		HT	1			1
49	WB STATELY PINES 02+TM	AUTO	126	20	1	126
		MT	5			5
		HT	1			1
50	EB STATELY PINES 01-TM	AUTO	15	20	1	15
		MT	1			1
		HT	0			0

APPENDIX 5 TRAFFIC NOISE MODELS

General

The TNM Inputs used in this Traffic Noise Report (TNR) as follows below. The modeling utilized various TNM object types to aid in the accuracy of the prediction of traffic noise for the US 70 Widening project TNR.

- Roadways
- Receivers (Receptors)
- Barriers
- Ground Zones
- Tree Zones (Only Validation)
- Terrain Lines

Worst Noise Hour

Since forecast traffic was used for this analysis, AM and PM traffic conditions were modeled in the Existing (2015) and No Build (2045) scenarios to see which resulted in the highest noise levels. All analyzed receptors except 4 had higher PM levels and the differences for each receptor with higher levels in the AM scenario was 1 dB. All analyzed receptors had higher noise levels in the No Build (2045) scenario. This evaluation lead to a determination to limit consideration in the Build (2045) scenario to PM traffic.

Coordinate System

Each of the TNM Objects was modeled using the North American Datum 1983 (NAD83) horizontal coordinate system, and North Carolina State Plane 1983 US Feet.

Modeling Procedure

Roadways:

TNM roadway elements widths were selected based upon representation of one (1) or two (2) lanes of traffic per TNM roadway element plus width added to lanes to accommodate paved shoulders. For the proposed roadway facility, TNM roadway vertices were selected to represent interval lengths that appropriately represented fluctuations in the horizontal and vertical roadway geometry. TNM roadway elements of various widths were also modeled to represent the existing local roadways. Deceleration for US 70 off ramps was modeled in accordance with NCHRP Report 791, Chapter 3 / NCHRP Report 311. This applies to intersections at Camp Kiro Rd, Fisher Ave, and Stately Pines Rd. Design year 2045 peak hour traffic was added to the roadway elements to determine the potential noise impacts. Detailed traffic information is provided in *Appendix 2*.

Receivers (Receptors):

TNM receiver elements were modeled by assigning a point location to the most sensitive likely “area of frequent human use” or the corner of each residence and recreational land use within the project limits. Receivers in the models were assigned a height of 4.92 feet unless designated as a multi-story unit. Due to the ambient nature of this project being proposed on existing alignment, noise levels at each discrete receptor were determined by means of modeling individual TNM receivers at all representative location for “Loudest-condition” Existing (2019), No-Build (2045) and Design year (2045) build-condition predicted traffic. Due to the models complexity, multiple models were created per condition to analyze traffic noise impacts along the project corridor.

Several receivers in NSA 9 and NSA 10 recorded Invalid Receiver results due to segmentation errors caused by nearby building barriers. Results for these receivers were calculated using

versions of the respective models that removed the building barriers that caused the segmentation error.

Barriers:

TNM Barrier elements were used to model buildings throughout the project area. The barriers were given various heights depending on the estimated height of the structure. Traffic noise abatement measures are feasible for the project. Sound barriers were modeled in nine locations and found to be feasible and reasonable in six locations generally parallel to U.S. 70.

Ground Zones:

TNM ground zone elements were added in open areas covered by a single surface type. The surface types modeled by ground zones for this noise report were pavement and lawn. The ground zones were drawn by referencing aerial imagery and the design. The ground zones were modeled to represent center medians, open areas of pavement such as parking lots, and open grassy areas.

Tree Zones:

No TNM tree zone elements were used in the Existing, No Build or Build models.

Terrain Lines:

Terrain lines were input into TNM to define significant changes in grades and /or slopes throughout the noise study areas. The terrain lines were based on elevation data contained in the downloaded contour data associated with the project. For the design, corridor modeling .tin files provided by the design consultant were used to accurately represent the design elevation.

TNM Traffic Noise Level Assessment

The TNM Traffic noise level assessment is divided into five tasks:

1. Creation of TNM Validation Model.
2. Assessment of Predicted Loudest-Hour Existing (2019) condition levels
3. Assessment of Predicted Loudest-Hour No-Build (2045) condition levels
4. Assessment of Predicted Loudest-Hour Build (2045) condition Without-Barrier levels
5. Assessment of Predicted Loudest-Hour Build (2045) condition With-Barrier levels



Existing 2019 Model





No-Build 2045 Model



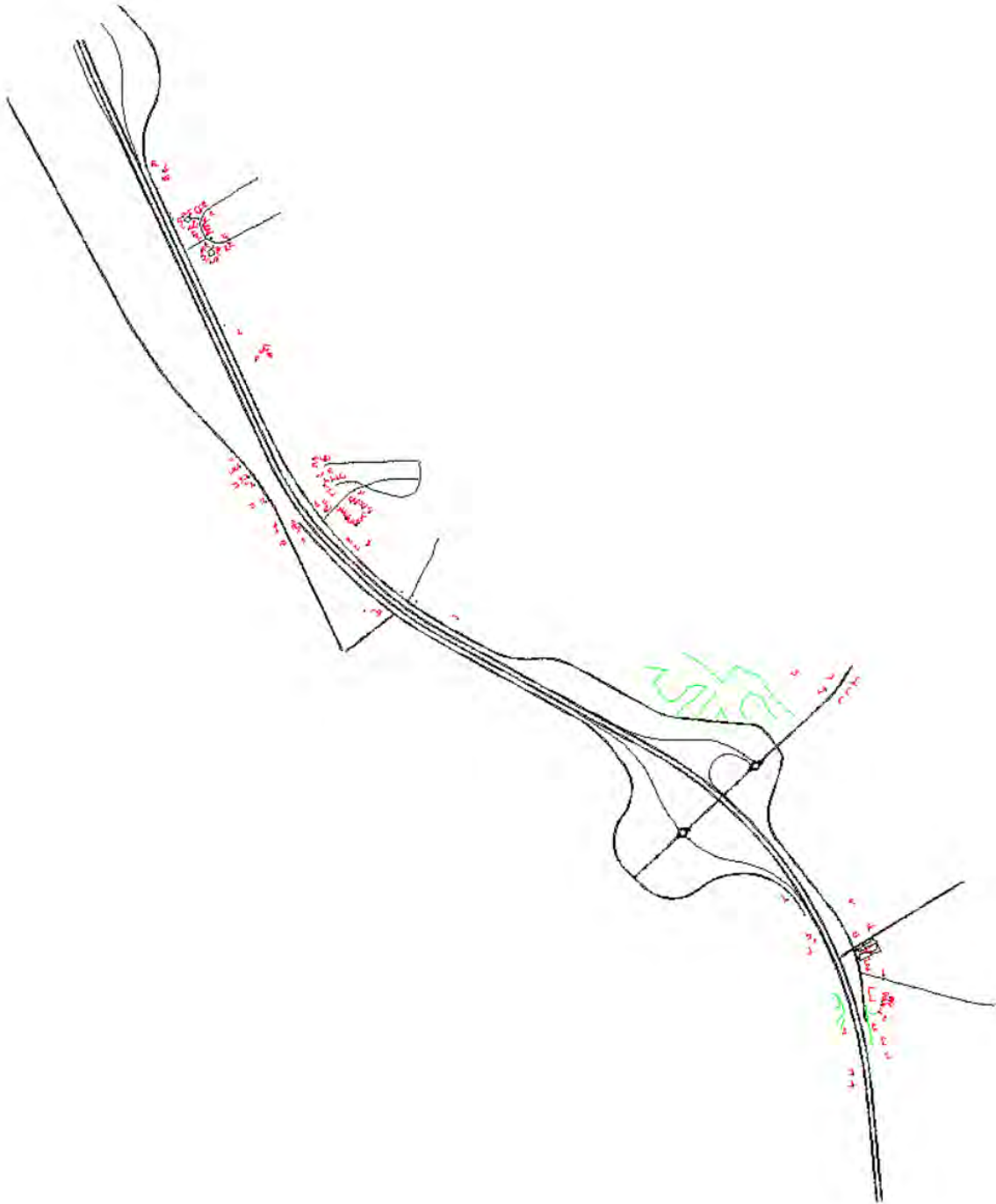


Build 2045 North Model





Build 2045 South Model



HOURLY VOLUMES FOR LEVEL OF SERVICE C

The following table contains the maximum expected hourly traffic volumes per lane for Level of Service (LOS) C. The reported traffic volumes represent the LOS C/D threshold.

Hourly Volume (vehicles/lane/hour) for Level of Service (LOS) C

Percent Trucks	Freeway Volume (veh/ln/hr)	Free Flow Multilane Highway (veh/ln/hr)	Signalized Superstreet (veh/ln/hr)	Signalized Arterial (veh/ln/hr)	Unsignalized Two-Lane Highway (veh/ln/hr)	Service Interchange Entrance Ramp (veh/ln/hr)	Service Interchange Exit Ramp (veh/ln/hr)
0%	1,580	1,340	1,100	940	790	920	680
2%	1,550	1,310	1,080	930	780	900	670
4%	1,520	1,290	1,060	910	780	890	660
6%	1,490	1,260	1,040	900	780	870	640
8%	1,460	1,240	1,020	880	780	850	630
10%	1,440	1,220	1,000	870	780	840	620
12%	1,410	1,200	990	850	780	820	610
14%	1,390	1,170	970	840	770	810	600
16%	1,360	1,150	950	820	770	790	580
18%	1,340	1,130	930	810	770	780	570
20%	1,320	1,120	910	800	770	770	560
25%	1,260	1,070	870	760	770	740	530
30%	1,220	1,030	820	720	760	710	500

Notes/Implementation Guidance:

- For traffic noise modeling purposes, base truck percentages on the project’s traffic forecast.
- Two-lane highway LOS is based on average travel speed.
- Service interchange exit ramp analysis should be applied to all intersection control types (e.g., signalized, stop-controlled, yield-controlled, roundabouts).

Source of Analysis Information:

Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis. Transportation Research Board. 2016.

Source of Default Values:

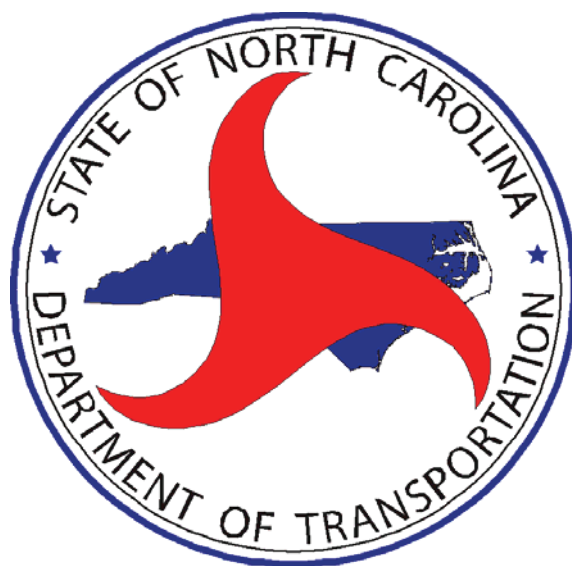
Comprehensive Transportation Planning Manual. North Carolina Department of Transportation.

NCLOS Program 2010 Update. Institute for Transportation Research and Education. June 21, 2013.

APPENDIX 6
NCDOT TRAFFIC NOISE POLICY

**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

TRAFFIC NOISE POLICY



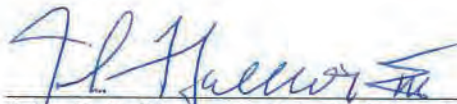
Effective Date: October 6, 2016

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

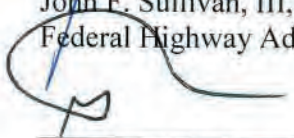
APPROVED BY:

10-6-16
Date of Approval



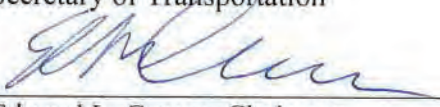
John F. Sullivan, III, PE, Division Administrator
Federal Highway Administration

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

Person Responsible
for Policy:

Traffic Noise & Air Quality Supervisor
Human Environment Section
1598 Mail Service Center
Raleigh, North Carolina 27699-1598
(919) 707-6087

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 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 Criteria ¹ 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.

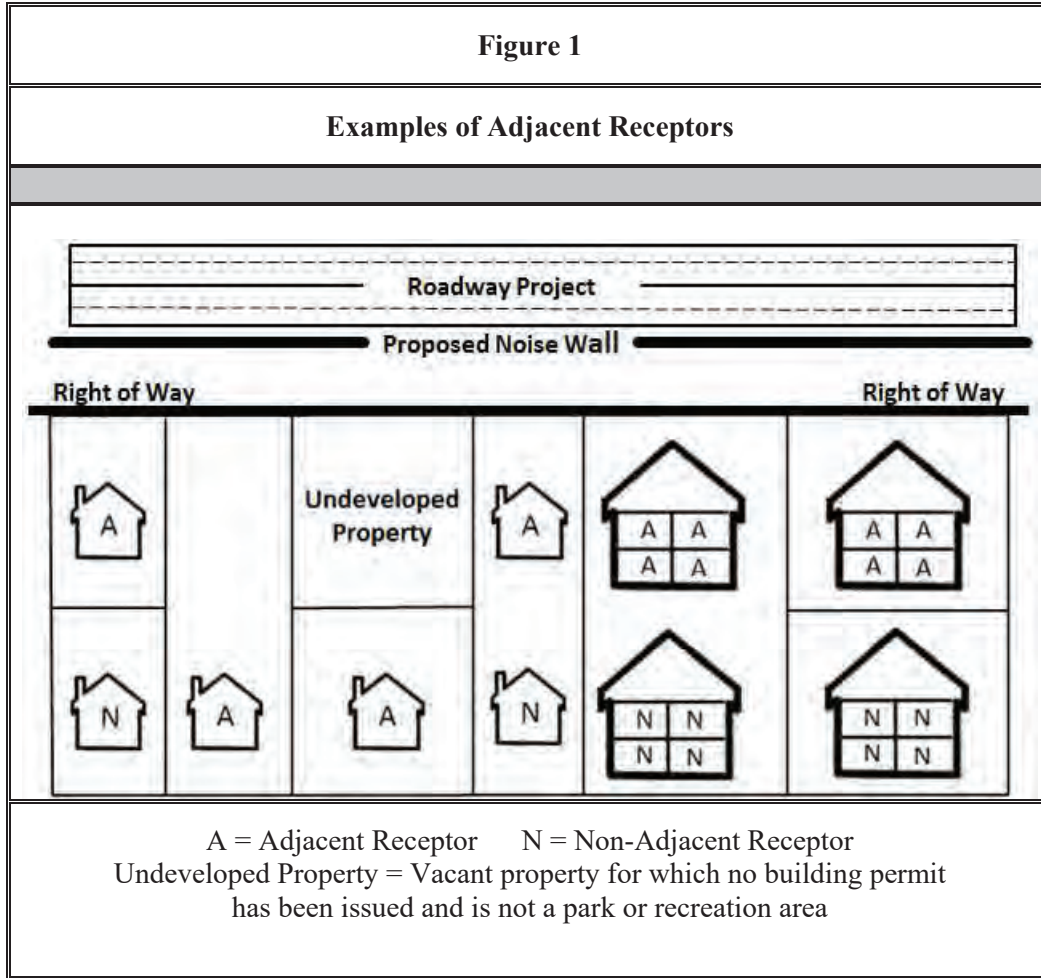
Reasonableness

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.