



FEASIBILITY STUDY

Upgrade US 64 to Interstate (Future I-87 / I-495)

from SR 1003 (Rolesville Rd) [EXIT 430] in Wendell
to US 13 / US 17 [EXIT 515] in Williamston

Wake, Franklin, Nash, Edgecombe, and Martin
Divisions 5, 4, and 1

FS-1504A



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1. GENERAL DESCRIPTION

The feasibility study addresses upgrading 86 miles of US 64 to interstate from SR 1003 (Rolesville Road) [Exit 430] in Wendell, Wake County to US 13/17 [Exit 515] in Williamston, Martin County, as shown on **Figure 1: Project Overview Map** below. US 64 from I-540 in Raleigh to I-95 is signed as future Interstate 495. The entire project is part of the identified “Raleigh-Norfolk” High Priority Corridor on the National Highway System under the 2015 FAST Act [1] and has been designated as future Interstate 87. This project is located within the Capital Area MPO, Upper Coastal Plain RPO, Rocky Mount MPO, and Mid-East RPO areas [2]. The feasibility study level Purpose and Need is to upgrade the facility to interstate standards (to fulfill the specifications of the FAST Act), to improve regional mobility (from Raleigh, NC to Norfolk/Hampton Roads, VA), to enhance safety and travel times, and to promote economic opportunities. The project has the support of North Carolina and Virginia elected officials, business leaders, and the Regional Transportation Alliance (RTA) [3].

It should be noted that a Feasibility Study is a preliminary document that is the initial step in the planning and design process for a candidate project and not the product of exhaustive environmental or design investigations. The purpose of the study is to describe the proposed project including cost, and identify potential problems that may require consideration in the planning and design phases.

Once a candidate project is identified for funding in the STIP, the Feasibility Study is followed by a rigorous planning and design process that meets the requirements of the National Environmental Policy Act (NEPA) (or State Environmental Policy Act (SEPA) as applicable), where either an Environmental Impact Statement (EIS) or an Environmental Assessment (EA) is done.

Note on **Figure 1** below that US 64 has been broken into 8 sections, A through H, for this study.

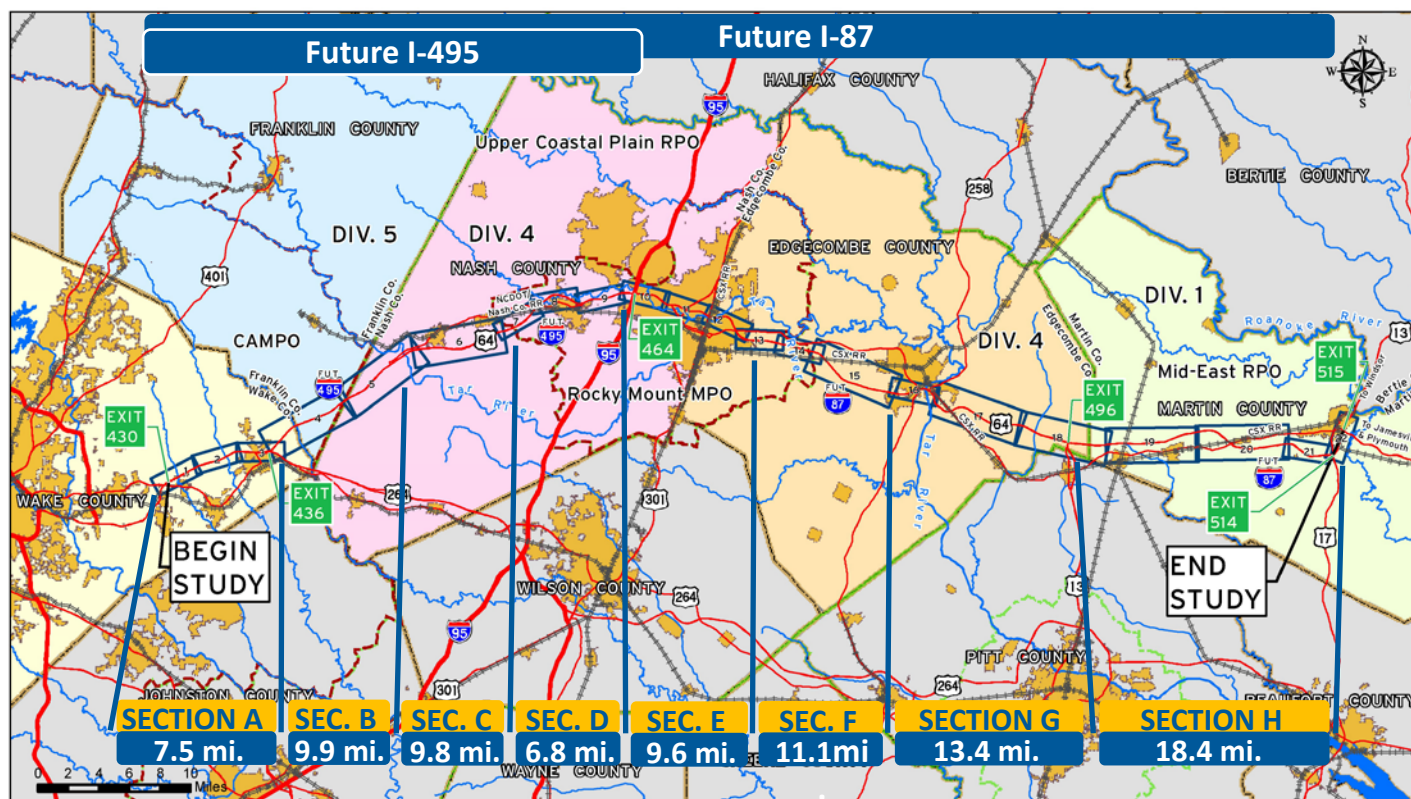


FIGURE 1. PROJECT OVERVIEW MAP



2. EXECUTIVE SUMMARY AND PROJECT COSTS

Based on the improvements described herein, it is estimated that it will cost **\$266.8M** to **\$369.3M** to upgrade the approximately 86 miles of US 64 from Wendell to Williamston to interstate standards. Multiple alternatives and line item options are included based on input from the Department and from external partners.

The three lower cost alternatives, or **Minimum Upgrades Alternatives**, shown below in **Table 1. Project Cost Estimates**, include the minimum improvements needed based on AASHTO and NCDOT guidelines to upgrade US 64 to interstate standards – such as paved shoulders, bridge clearances and offsets, median protection, signing, and ramp widths – that would be mostly contained within existing right-of-way. They also include replacing any bridges older than 1970 or with poor sufficiency ratings. An inventory of the affected bridges is provided in **Appendix C**.

The three higher cost alternatives, or **Enhanced Upgrades Alternatives**, shown below include additional improvements that may not be necessary to meet AASHTO interstate standards but would be desirable improvements based on NCDOT standards and guidelines – and would require additional proposed right-of-way. This includes providing minimum 30 mph loops (with 230' radii) at interchanges throughout the project and providing a minimum 46' median *or* a narrow concrete barrier median along the project corridor. The portions of the project through Nashville (Section D) and from Wendell to Zebulon (Section A) have existing medians less than 46' wide. Nine interchanges in Sections A, E, F and H have loop-ramps that are not 30-mph loops (with 230' radii). The interchange reconstruction costs for these have been broken out separately so that they could be added in individually if desired.

An additional improvement that is also included with the **Enhanced Upgrades Alternatives**, based on a recommendation from the RTA, is upgrading the section through the Rocky Mount city limits (Section E) to a 70-mph posted speed limit. (It is the only portion of the 86-mile study corridor that is not currently posted 70 mph.) Based on as-built plans for the section, there are two Sag Vertical Curves and one Horizontal Curve in Section E that are estimated to cost about \$5.6M to upgrade to posted 70 mph as part of this project.

A summary of the overall project costs is included below in **Table 1. Project Costs**:

Alternative	Length (Miles)	Constr.*	ROW *	Business/Residential Relocations	ITS	Subtotal:
Minimum Upgrades Alt. 1	86.4	\$249.2 M	\$8.1 M	1	\$9.5 M	\$266.8 M
Minimum Upgrades Alt. 2	86.4	\$259.7 M	\$8.1 M	1	\$9.5 M	\$277.3 M
Minimum Upgrades Alt. 3	86.4	\$281.9 M	\$8.1 M	1	\$9.6 M	\$299.6 M
Enhanced Upgrades Alt. 1 **	86.4	\$291.2 M	\$23.5 M	50	\$9.5 M	\$324.2 M
Enhanced Upgrades Alt. 2 **	86.4	\$301.7 M	\$23.5 M	50	\$9.5 M	\$334.7 M
Enhanced Upgrades Alt. 3 **	86.4	\$328.1 M	\$24.0 M	50	\$9.6 M	\$361.7 M

* Utility Construction is included in the Construction Cost. Utility ROW is included in the Right-of-Way Cost.

** Enhanced Upgrades include desirable interchange improvements, desirable median widths, and upgrades to a 70-mph speed limit through Rocky Mount as described above.

SECTION ALTERNATIVES AND ANALYSIS RESULTS

Widening alternatives, as described below, are included in the **Section A** portion of the project, which begins at the east end of the US 64 Knightdale Bypass in Wendell and continues along US 64 for 7.5 miles to the US 264 split in Zebulon (Exit 430 to Exit 436):

- **Section A Alternative 1 (4 LN + Aux)** – Add Auxiliary Lanes between interchanges west of NC 96 Arendell Avenue to the existing 4-lane divided freeway and includes the minimum “lower cost” improvements.
- **Section A Alternative 2 (6 LN)** – Widen the existing 4-lane divided freeway to a 6-lane divided interstate with a narrow concrete barrier median or a narrow median with guardrail.
- **Section A Alternative 3 (8 LN)** – Widen the existing 4-lane divided freeway to an 8-lane divided interstate with a narrow concrete barrier median.

These Section A improvements are included in the study based on the capacity and level-of-service (LOS) deficiencies indicated by the preliminary traffic analysis. Although the 4-Lane + Auxiliary Lanes alternative costs less, it does not provide the long-term capacity benefits that the 6-Lane and 8-Lane alternatives are anticipated to provide. The 6-Lane alternative achieves acceptable LOS along the mainline freeway in 2040, but it is predicted to fall below LOS D within a few years after 2040. Based on a rough estimation, the 8 LN option could operate at acceptable LOS for an additional 20 years.

The remainder of the project, from east of the US 264 split in Zebulon to US 13/17 in Williamston, are included in **Sections B through H** and do not include any additional through lanes. The existing 4-lane divided freeway is anticipated to operate at LOS D or better through 2040. In fact, the majority of the corridor is anticipated to operate at LOS A or B, with the exception of the I-95/Rocky Mount portion in Section E.

Each of the various improvements and analysis results above are described in greater detail in the subsequent sections of the report, and shown on **Plan Sheets 1 through 22** at the end of the report. A copy of the traffic forecast is included in **Appendix A** and **Appendix B** shows the LOS results of the preliminary traffic analysis.

TABLE OF CONTENTS

- 1. General Description..... 1
- 2. Executive Summary and Project Costs.....2
- 3. Safety, Noise, and Traffic..... 5
 - 3.1 Work Zone Safety & Mobility.....5
 - 3.2 Safety Analysis..... 5
 - 3.3 Noise..... 8
 - 3.4 Traffic Analysis.....8
- 4. Description of Alternatives..... 12
 - 4.1 Section A (Wendell to Zebulon)..... 13
 - 4.2 Section B (Bunn Lake).....16
 - 4.3 Section C (Spring Hope, Momemeyer).....16
 - 4.4 Section D (Nashville).....17
 - 4.5 Section E (I-95, Rocky Mount).....18
 - 4.6 Section F (Western Edgecombe County).....21
 - 4.7 Section G (Tarboro, Princeville, Eastern Edgecombe County).....22
 - 4.8 Section H (Martin County)..... 23
- 5. Human and Natural Environment..... 24
- 6. Project Costs & Programming Recommendations..... 28
- 7. Additional Comments..... 30
- 8. Footnotes..... 30
- Figures 2 and 3 – Typical Sections
- Plan Sheets 1 through 22
- Appendix A – Traffic Forecast
- Appendix B – Traffic Analysis
- Appendix C – Bridge Improvements Inventory
- Appendix D – Conceptual Environmental Impacts



3. SAFETY, NOISE, AND TRAFFIC

3.1 Work Zone Safety & Mobility

According to the Work Zone Safety and Mobility Policy this will be a “significant” (Level 1 Activity) project; with anticipated “adverse impacts to the traveling public... and have a high level of public interest”, and be a “statewide tier” project ^[4]. Analysis in the subsequent stages of the project is needed to ensure that work zone impacts are identified and traffic management strategies are initiated. The need for bicycle and pedestrian accommodations in the work zone shall be assessed during the subsequent planning stages of the project.

3.2 Safety Analysis

The crash data and analysis provided by the Traffic Safety Unit along the US 64 study corridor is broken out by county. The five-year period for the analysis was January 1, 2011 to December 31, 2015. Based on the data, the AADT’s and total vehicle exposure rates (in million vehicle miles traveled (MVMT)) were as follows:

County	Annual ADT	Total Length (Miles)	Total Vehicle Exposure (MVMT)
Wake	42,300	9.454	730.30
Franklin	20,000	3.639	132.90
Nash	26,000	26.906	1,277.39
Edgecombe	16,800	27.916	856.50
Martin	8,500	16.828	261.22

In each of the following study corridor County segments, the crash rates were compared with the critical crash rates. Critical crash rates are based on segment vehicle exposure rates and on 2013-2015 statewide crash rates for Rural US Routes with “4 or more lanes divided” and “full control of access”.

There is a concerning trend along the whole project with each segment having crash rates that are higher than the critical crash rates. Each segment should be examined more closely in the subsequent planning and design phases of the project to ensure that the existing roadway features are safe, in good condition, and meet current standards. The predominant types of crashes, especially in the more rural areas of Nash, Edgecombe and Martin Counties, were “run off road-left”/hitting “fixed objects in the median” and hitting animals. The conditions of median protection guardrails/guidrails and existing C/A fence should be evaluated. There are also some indications of a higher number of crashes in wet conditions during the day; hydroplaning/pavement cross-slopes should also be evaluated. It may also be beneficial to investigate whether the higher 70 mph posted speed limit has trended towards a higher crash rate, and whether the Open Graded Friction Course utilized in Division 4 has been effective, especially as considerations are being given towards increasing the posted speed limit up to 70 mph through Rocky Mount. The proposed improvements, such as wider paved shoulders, concrete barrier, or new bridges with wider offsets, have the potential to help reduce the frequency and severity of crashes.

Wake County

In the Wake County portion of the US 64 study corridor, a total of 668 crashes were reported during the five-year period; resulting in a crash rate of 91.47 crashes per 100 MVMT. The Total Crash Rate (and all but one of the subcategory rates) are above the critical crash rates for this type of facility; the Wet Crashes subcategory rates are less than the critical rates. The proposed improvements along the Wake County portion of the project, including all of Section A, have the potential to reduce crashes with congestion mitigation, improved loop ramps, and improved ramp configurations at the US 264 split in Zebulon.

Table 3. Crash Rates (Wake County)			
RATE	CRASHES	CRASHES PER 100 MILLION VEHICLE MILES (MVM)	CRITICAL CRASH RATE *
Total	668	91.47	68.83
Fatal	5	0.68	0.61
Non-Fatal	163	22.32	13.89
Night	231	31.63	29.45
Wet	118	16.16	21.81
Property Damage Only	500	<i>N/A</i>	<i>N/A</i>

* Critical Crash Rates are based on Total Vehicle Exposure and on 2013-2015 Statewide Accident Rates for Rural US Routes with 4 or more lanes divided and full control of access.

Franklin County

In the Franklin County portion of the US 64 study corridor, a total of 101 crashes were reported; resulting in a crash rate of 76.0 crashes per 100 MVMT. Although zero fatalities occurred, the Total Crash Rate (and other subcategory rates) are above the critical crash rates for this type of facility. This short segment should be examined more closely in the subsequent planning and design phases of the project, as the reason for the higher crash rates is not obvious.

Table 4. Crash Rates (Franklin County)			
RATE	CRASHES	CRASHES PER 100 MILLION VEHICLE MILES (MVM)	CRITICAL CRASH RATE *
Total	101	76.00	69.51
Fatal	0	0.00	0.67
Non-Fatal	22	16.55	14.19
Night	49	36.87	29.89
Wet	34	25.58	22.20
Property Damage Only	79	<i>N/A</i>	<i>N/A</i>

* Critical Crash Rates are based on Total Vehicle Exposure and on 2013-2015 Statewide Accident Rates for Rural US Routes with 4 or more lanes divided and full control of access.

Nash County

In the Nash County portion of the US 64 study corridor, a total of 994 crashes were reported; resulting in a crash rate of 77.81 crashes per 100 MVMT. The Total Crash Rate (and all but one of the subcategory rates) are above the critical crash rates for this type of facility. Clusters of crashes have occurred at the Nashville, I-95, and Rocky Mount interchanges. The proposed improvements, including the new positive separation between the collector-distributor roads and US 64 at the I-95 interchange instead of a deep open paved ditch, have the potential to reduce the frequency and severity of crashes along this segment. See [Table 5](#) below:

Table 5. Crash Rates (Nash County)

RATE	CRASHES	CRASHES PER 100 MILLION VEHICLE MILES (MVM)	CRITICAL CRASH RATE *
Total	994	<i>77.81</i>	68.71
Fatal	13	<i>1.02</i>	0.59
Non-Fatal	217	<i>16.99</i>	13.83
Night	424	<i>33.19</i>	29.37
Wet	247	<i>19.34</i>	21.74
Property Damage Only	764	<i>N/A</i>	<i>N/A</i>

*Critical Crash Rates are based on Total Vehicle Exposure and on 2013-2015 Statewide Accident Rates for Rural US Routes with 4 or more lanes divided and full control of access.

Edgecombe County

In the Edgecombe County portion of the US 64 study corridor, a total of 754 crashes were reported; resulting in a crash rate of 88.03 crashes per 100 MVMT. The Total Crash Rate (and all of the subcategory rates) are above the critical crash rates for this type of facility. Clusters of crashes occurred at the Rocky Mount, and Tarboro/Princeville interchanges. The proposed improvements, such as wider paved shoulders and an improved Tarboro interchange, have the potential to help reduce crashes on this segment.

Table 6. Crash Rates (Edgecombe County)

RATE	CRASHES	CRASHES PER 100 MILLION VEHICLE MILES (MVM)	CRITICAL CRASH RATE *
Total	754	<i>88.03</i>	68.80
Fatal	7	<i>0.82</i>	0.60
Non-Fatal	153	<i>17.86</i>	13.87
Night	358	<i>41.80</i>	29.42
Wet	200	<i>23.35</i>	21.79
Property Damage Only	594	<i>N/A</i>	<i>N/A</i>

*Critical Crash Rates are based on Total Vehicle Exposure and on 2013-2015 Statewide Accident Rates for Rural US Routes with 4 or more lanes divided and full control of access.

Martin County

In the Martin County portion of the US 64 study corridor, a total of 538 crashes were reported; resulting in a crash rate of 205.96 crashes per 100 MVMT. The Total Crash Rate (and all the subcategory rates) are much higher than the critical crash rates for this type of facility. In this segment, crashes were not clustered as distinctly at interchanges as they are in the other segments, but rather some concerning trends were found in the crash data that seemed to be located throughout the segment east of the Edgecombe County line. The data tends to show a distinct increase in accidents related to run off road into the median and into fixed objects. A noticeable amount of these crashes occurred during the day in wet conditions. This may indicate hydroplaning or speeding problems for passenger cars and SUV's. Further examination is needed in the subsequent planning and design phases of the project to ensure that the existing roadway is safe, in good condition, and meets current standards. See [Table 7](#) below:

Table 7. Crash Rates (Martin County)

RATE	CRASHES	CRASHES PER 100 MILLION VEHICLE MILES (MVM)	CRITICAL CRASH RATE *
Total	538	205.96	69.17
Fatal	2	0.77	0.64
Non-Fatal	76	29.09	14.04
Night	174	66.61	29.67
Wet	348	133.22	22.00
Property Damage Only	460	<i>N/A</i>	<i>N/A</i>

*Critical Crash Rates are based on Total Vehicle Exposure and on 2013-2015 Statewide Accident Rates for Rural US Routes with 4 or more lanes divided and full control of access.

3.3 Noise

No potential noise abatement has been included in the study. However, care should be taken in the subsequent planning and design stages of the project or projects regarding how the project(s) are segmented and programmed and regarding evaluating potential noise abatement areas. Federal guidelines for the definition of Type I Projects can be found within the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise, 23 CFR 772.5 *Type I Project*. Although it is anticipated that the improvements recommended in Section A of the feasibility study would require a Type I Project noise impact analysis, noise abatement is not anticipated at this time. Type I Project noise impact analysis requirements should also be considered with the interchange improvements considered in the study, especially through the more developed city of Rocky Mount. It should be noted that the FHWA regulation and the NCDOT Traffic Noise Abatement Policy will apply to the US 64 Upgrade to Interstate project because the roadway is a US or Interstate route. Per the policy, if any of the Type I Project actions occur anywhere within the project limits defined by the environmental document(s), then every noise-sensitive location within those project limits must be evaluated for potential noise impact and mitigation.

3.4 Traffic Analysis

All traffic analyses for this feasibility study were completed in a manner consistent with NCDOT Congestion Management Guidelines and the Highway Capacity Manual. Synchro and HCS software tools and HCM formulas were used to analyze traffic components. The selection and use of traffic control devices should be based on the future engineering study of traffic conditions and physical characteristics of the location. These analyses are preliminary and should be examined in greater detail in the subsequent stages of the project.

Base year 2015 No Build and future year 2040 Build forecasts for the annual average daily traffic (AADT) were provided by the NCDOT Transportation Planning Branch. A copy of the November 30, 2015 traffic forecast is included in **Appendix A**. The forecast predicts future 2040 daily traffic volumes that vary from 12,900 to 101,200; with the highest volumes (101,200) occurring in between Wendell and Zebulon, Wake County and at I-95/Rocky Mount, Nash County (65,100), and the lowest volumes occurring between Zebulon and Spring Hope, Franklin and Nash Counties (33,600) and between Tarboro and Williamston, Edgecombe and Martin Counties (12,900).

Preliminary traffic analysis results for the 2040 No Build and Build scenarios for each Section of the study corridor are described below and graphically represented on **Figures B.1 through B.4** in **Appendix B**.

Section A

Three widening/improvement alternatives are considered in Section A, from Exit 430 (SR 1003) in Wendell to Exit 436 (US 264) in Zebulon:

- **Section A Alternative 1 (4 LN + Aux)**: Four-lane alternative with additional auxiliary lanes between interchanges. (No additional through lanes.)
- **Section A Alternative 2 (6 LN)**: Six-lane widening alternative.
- **Section A Alternative 3 (8 LN)**: Eight-lane widening alternative.

The forecast future year 2040 AADT in Section A ranges from 88,200 to 101,200 vehicles per day (vpd) west of the US 64/264 split; and drops to 40,200 east of the split. See **Appendix A, Sheets A.7 and A.8**. Trucks are estimated to comprise up to 13% (7% Duals and 6 % TTST's) of the total daily traffic.

All of the freeway, merge, diverge and weave segments in **Section A** between Exit 430 (SR 1003 Rolesville Road) and Exit 436 (US 264) are anticipated to fall to failing LOS (**LOS E** or lower) by future year 2040. See also **Appendix B, Figure B.1** for level-of-service (LOS) results.

For the **A1 (4 LN + Aux)** alternative, most of the freeway segments, AM and PM peak hours, are anticipated to operate at a **LOS F** in future year 2040. Most of the interchange ramp merges and diverges are anticipated to operate at a **LOS F** in future year 2040 as well. The WB weave between Exit 436 (US 264) and Exit 435 (NC 96 Arendell Ave.) is anticipated to operate at **LOS F** in future year 2040. The basic freeway segments where auxiliary lanes are added, between Exits 430 and 432 and Exits 432 and 435, do improve to **LOS D** in 2040. See also **Appendix B, Figure B.4** for LOS results.

All **A2 (6 LN)** freeway segments, AM and PM peak hours, are anticipated to operate at a **LOS D** or better in future year 2040. All interchange ramp merges and diverges are anticipated to operate at a **LOS D** or better in future year 2040 as well. The WB weave between Exit 436 (US 264) and Exit 435 (NC 96 Arendell Ave.) is anticipated to operate at **LOS C** in future year 2040. Although the mainline achieves acceptable LOS in 2040, the 6 LN option is predicted to fall below LOS D within a few years after 2040. See also **Appendix B, Figure B.3**.

Almost all of the **A3 (8 LN)** freeway segments, AM and PM peak hours, are anticipated to operate at a **LOS C** or better in future year 2040. Almost all of the interchange ramp merges and diverges are anticipated to operate at a **LOS C** or better in future year 2040 as well. The WB weave between Exit 436 (US 264) and Exit 435 (NC 96 Arendell Ave.) is anticipated to operate at **LOS B** in future year 2040. Based on rough estimations, the 8 LN option is predicted to operate at acceptable LOS through 2060. See also **Appendix B, Figure B.3**.

Section A - Exit 435 - NC 96 N. Arendell Avenue Interchange

Although not required for meeting interstate standards, constructing the Exit 435 interchange improvements are anticipated to yield significant capacity benefits in 2040 at the signalized ramp intersections. It is anticipated that the Exit 435 eastbound and westbound ramp intersections can be improved from failing to acceptable LOS in future year 2040 (with new timings, lane configurations and loop-ramp). See also **Appendix B**.

Section A - Exit 435 & 436 Weaving Section

Moving the Exit 435 eastbound on-ramp to a loop-ramp will increase the eastbound weaving distance from about 2,900' to 4,200' and improve the anticipated 2040 LOS to acceptable levels in combination with the

6- and 8-lane mainline widening. The westbound movements between the interchanges are anticipated to achieve acceptable LOS in 2040 in conjunction with the 6- and 8-lane mainline improvements.

Section A – Exit 436 US 264 Interchange

Another improvement is to change the US 264 eastbound exit from a single-lane to a two-lane exit with an interior shared optional/choice lane. This is anticipated to significantly improve operations between these two interchanges during the PM peak hour, which currently experiences congestion on a regular basis. The additional exit lane is proposed to be carried through the interchange and past the Gannon Ave NC 97 Exit 20 off-ramp for the 6- and 8-lane mainline alternatives. Note the triangular labels showing the number of lanes at each merge and diverge on the plan sheets.

Sections B through H

No additional through lanes are recommended east of Exit 436 (US 264), and therefore the preliminary analysis LOS results are the same as the 2040 No Build. It is anticipated that the existing 4 lane freeway will operate at acceptable **LOS D** or better through 2040 east of US 264. The vast majority of the US 64 corridor is anticipated to operate at **LOS A or B** with the exception of the I-95/Rocky Mount portion of the project in Section E. See also **Appendix B, Figures B.1 and B.2**. Portions of the corridor that were not analyzed in Edgecombe and Martin Counties are forecast to have very low volumes are anticipated to operate at **LOS A** in 2040.

Section B

The forecast 2040 ADT ranges from 33,600 to 40,200 vpd in Section B (from east of Exit 436 (US 264), through Franklin County, to NC 231 in Nash County). See **Appendix A, Sheet A.8**. Trucks are estimated to be 16% (7% Duals and 9 % TTST's) of the total daily traffic. All freeway segments, AM and PM peak hours, are anticipated to operate at a **LOS B** in future year 2040. See also **Appendix B, Figure B.1**.

Section C

The forecast 2040 ADT ranges from 36,000 to 38,700 vpd in Section C (from east of NC 231, past Spring Hope and Momeyer, to west of Exit 458 (US 64A) in Nash County). See **Appendix A, Sheet A.9**. Trucks are estimated to be 16% (7% Duals and 9 % TTST's) of the total daily traffic. All freeway segments, AM and PM peak hours, are anticipated to operate at a **LOS B** in future year 2040. See also **Appendix B, Figure B.1**.

Section D

Section D includes the portion of US 64 from Exit 458 (US 64A) through Nashville to just west Exit 464 (I-95) in Nash County. The future year 2040 ADT in Section D ranges from 38,700 to 61,400 vpd, with the heaviest volumes at I-95 (**Appendix A, Sheet A.9**). Trucks are estimated to be 16% (7% Duals and 9 % TTST's) of the total daily traffic. Freeway segments through Nashville are anticipated to operate at **LOS C** or better in 2040. The weaving segments just west of I-95, with existing auxiliary lanes, are anticipated to operate at **LOS D** in the heavier peak hour of 2040 (and LOS C in the off-peak). See **Appendix B, Figure B.1**.

Section E

Section E includes the portion of US 64 from Exit 464 (I-95) eastward to the Rocky Mount city limits just past Exit 472 (US 64A), in Nash and Edgecombe Counties. The future year 2040 ADT in Section E ranges from 33,100 to 65,100 vpd, with the heaviest volumes at I-95 (**Appendix A, Sheets A.9 and A.10**). Trucks are estimated

to be 14% (7% Duals and 7 % TTST's) of the total traffic. Freeway segments, ramp weaves, merges, and diverges through Rocky Mount (including the I-95 cloverleaf interchange and collector-distributor roads) are anticipated to operate at **LOS D** or better in 2040. With additional auxiliary lanes at the weaving segments east of I-95 (between Exits 464 and 466), the level of service is anticipated to improve by half a letter grade, almost achieving **LOS C** in the heavier peak hour of 2040. See [Appendix B, Figures B.1 and B.2](#).

Section E – Exits 467, 468A, 468B, 469, 470

Although reconstruction of several interchange loops have been included in the study in Section E, none of the existing configurations have been modified and therefore no additional analysis is included here.

Section F

The predicted ADT ranges from 26,500 to 33,100 vpd in future year 2040 in Section F ([Appendix A, Sheet A.11](#)). Trucks are estimated to comprise up to 16% (7% Duals and 9 % TTST's) of the total traffic. Section F includes the portion of US 64 in Edgecombe County from the eastern Rocky Mount city limits to the western Tarboro city limits. All freeway segments, merges and diverges between Rocky Mount and Tarboro are anticipated to operate at **LOS B** or better in 2040. See [Appendix B, Figure B.2](#).

Section G

The forecast ADT ranges from 16,900 to 31,500 vpd in future year 2040 ([Appendix A, Sheet A.11](#)). Trucks are estimated to comprise up to 17% (8% Duals and 9 % TTST's) of the total traffic. Section G includes the portion of US 64 through Tarboro/Princeville in Edgecombe County eastward to the Martin County line just east of Exit 496 (US 13/NC 11). All freeway segments and ramp merges and diverges are anticipated to operate at a **LOS A** in future year 2040. The eastbound and westbound weaving segments between Exit 485 (US 258/US 64 Alt.) and Exit 486 (US258/NC 11/NC 122) are anticipated to operate at **LOS A and B**, respectively, in future year 2040. See [Appendix B, Figure B.2](#).

Section H

The forecast ADT ranges from 13,000 to 15,500 vpd in 2040 ([Appendix A, Sheets A.11 and A.12](#)). Trucks are estimated to be 22% (10% Duals and 12 % TTST's) of the total traffic. Section H includes the remaining portion of the US 64 study corridor from the Edgecombe/Martin County line eastward to Exit 515 (US 13/17) in Williamston. All freeway segments, merges and diverges from the Edgecombe County line to Williamston are anticipated to operate at **LOSA** in 2040. See [Appendix B, Figure B.2](#).

Section H – Exit 512

Although reconstruction of the loops has been included in the study at Exit 512, the existing configuration has not been modified and therefore no additional analysis is included.

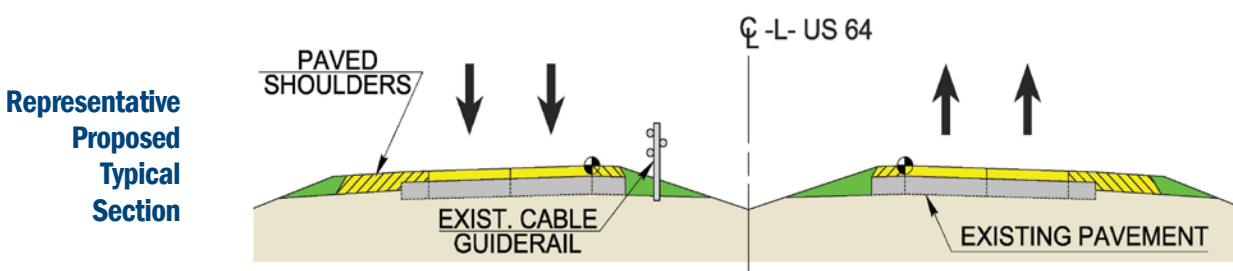
4. DESCRIPTION OF ALTERNATIVES

The main types of improvements identified to bring this 86-mile section of US 64 up to interstate standards are: 1) Signing, 2) Bridge (vertical and horizontal clearances), 3) Paved Shoulder (roadway typical section), and 4) Interchange improvements (such as ramp lane widths). Proposed improvements for each Section of the study corridor are described in greater detail below. Alternatives with proposed additional through lanes were included in Section A based on the traffic forecast and preliminary traffic analyses ([Appendix A - Traffic Forecast](#) and [Appendix B - Traffic Analysis](#)).

Criteria for proposed improvements are based on standards and guidelines from the NCDOT Design Manual, AASHTO Green Book (2011, 6th ed.), and AASHTO Interstate Guide (May 2016).

In addition, existing bridges that are older than 1970, are functionally obsolete, and/or have poor sufficiency ratings have been identified and are proposed to be replaced. Two existing bridges in Section C have been retained that are just shy (< 3") of having the AASHTO required 16'-0" minimum vertical clearance for interstates. Since US 64 has asphalt pavement it can likely be milled and adjusted 3" or less. Bridges that are in good condition are proposed to be retained or widened. Existing bridge conditions were identified and inventoried based on current Bridge Inspection Reports. [Appendix C - Bridge Inventory](#) lists the bridges that are affected by these criteria and are proposed to be widened or replaced.

The basic [Proposed Typical Section](#) for the project is a four lane divided interstate with appropriate median protection and paved shoulder upgrades to meet interstate standards. Proposed typical sections for all sections and alternatives are shown on [Figures 2 and 3](#) at the end of the report. Based on the forecast truck traffic, 12-foot wide outside paved shoulders are recommended from the beginning of the project to the eastern Rocky Mount city limits (Sections A through E); otherwise, the recommended outside paved shoulders are 10 feet wide (Sections F, G and H).



Note that 12-foot wide paved shoulders are needed on the median *and* outside shoulders where six or more through lanes are proposed and where truck traffic volumes are higher.

Certain additional improvements, above the “baseline” improvements described above, are included in the study based on input from NCDOT and its external partners/stakeholders:

- NCDOT Roadway Design requested that the future interstate corridor have a minimum 46-foot wide median (or narrow concrete barrier median). There are existing medians less than 46' wide in Section A (Wendell to Zebulon) and Section D (Nashville), and the alternatives described below include median improvements in those sections.

- Roadway Design also requested that the proposed improvements include reconstruction of any substandard loops; meaning loop-ramps that have a design speed less than 30 mph (radii less than 230'). Reconstruction of nine interchanges' loop-ramps are included in the Section A, E, F and H proposed improvements described below. These improvements will require additional right-of-way.
- Another additional improvement this study considers, at the request of the Regional Transportation Alliance, is upgrading the section of US 64 through Rocky Mount from a posted speed limit of 65 mph to 70 mph. Details of this upgrade are included in Section E below.

Please refer to **Plan Sheets 1 through 22** at the end of the report for functional design concepts associated with each Section's proposed improvements described below. The NC Center for Geographic Information and Analysis (CGIA) and county GIS offices provided the GIS data and NC OneMap provided the statewide orthophotography (2012-2013) shown on the plan sheets.

4.1 SECTION A - US 64 from SR 1003 (Rolesville Rd) [Exit 430] to east of US 64/264 split [Exit 436]

Section A is 7.5 miles long and includes the US 64 corridor from Wendell to Zebulon. The posted speed limit is 70 mph. See **Plan Sheets 1-4LN+, 1-6LN, 1-8LN, 2-4LN+, 2-6LN, 2-8LN, 3-4LN+, 3-6LN, and 3-8LN**. Three alternatives were considered in Section A:

- **Section A - Alternative 1 (4 LN + Aux)**: Four-lane alternative with widened paved shoulders and additional auxiliary lanes between interchanges. (No additional through lanes.)
- **Section A - Alternative 2 (6 LN)**: Six-lane alternative with paved shoulder improvements and construction of additional lanes in the median.
- **Section A - Alternative 3 (8 LN)**: Eight-lane alternative with paved shoulder improvements and construction of additional lanes (some widening inside and out, and some with most of the widening in the median)

The **A1 (4 LN + Aux)** alternative includes constructing auxiliary lanes between Exits 430 and 432, auxiliary lanes between Exits 432 and 435, 12-foot mainline outside paved shoulders (based on high truck volumes), and widening two sets of dual bridges over Buffalo Creek and Little River (between Wendell and Zebulon) to accommodate the additional auxiliary lanes and wider offsets. The **A2 (6 LN)** alternative includes constructing additional through lanes in the median, 12-foot mainline inside and outside paved shoulders, and widening two sets of dual bridges over Buffalo Creek and Little River (between Wendell and Zebulon) to accommodate the additional lanes and wider offsets. The **A3 (8 LN)** alternative includes, in addition to the previously mentioned improvements, replacing three overpass bridges (SR 2300 Edgemont Rd., NC 96 Arendell Ave., and SR 2406 Shephard School Rd.) to accommodate the eight-lane section.

There are existing ITS features located on this section of US 64 (and labelled on the plan sheets) that have been taken into account in the ITS cost estimates below.

The following **Section A** costs have been determined based on the proposed improvements described herein and shown on the design concept maps:

Sec. A (4 LN+)	Construction.....	\$ 32,800,000
	Right-of-Way.....	\$ 0
	ITS.....	\$ 200,000
	Total Cost (Section A - 4 LN + Aux)	\$ 33,000,000

It is anticipated that **Section A (4 LN + Aux)** will require 0 relocations, can be constructed within existing rights-of-way, and will cost a total of \$33,000,000. It is estimated that ITS deployment for **Section A (4 LN + Aux)**, including Fiber Optic Communications/Conduit, 1 CCTV, 1 MVD and 1 Overhead DMS, will cost \$ 200,000.

Sec. A (6 LN)	Construction.....	\$ 43,300,000
	Right-of-Way.....	\$ 0
	ITS.....	\$ 200,000
	Total Cost (Section A - 6 LN)	\$ 43,500,000

It is anticipated that **Section A (6 LN)** will require 0 relocations, can be constructed within existing rights-of-way, and will cost a total of \$43,500,000. It is estimated that ITS deployment for **Section A (6 LN)**, including Fiber Optic Communications/Conduit, 1 CCTV, 2 MVD’s and 1 Overhead DMS will cost \$ 200,000.

Sec. A (8 LN)	Construction.....	\$ 65,500,000
	Right-of-Way.....	\$ 0
	ITS.....	\$ 300,000
	Total Cost (Section A - 8 LN)	\$ 65,800,000

It is anticipated that **Section A (8 LN)** will require 0 relocations, can be constructed within existing rights-of-way, and will cost a total of \$65,800,000. It is estimated that ITS deployment for **Section A (8 LN)**, including Fiber Optic Communications/Conduit, 2 CCTV’s, 5 MVD’s and 1 Overhead DMS, will cost \$ 300,000.

INTERCHANGE RECONSTRUCTION OPTION: SECTION A – EXIT 435 – NC 96 N. Arendell Avenue Interchange

In addition to the recommended Section A improvements described above, an interchange reconstruction option was evaluated at **Exit 435 (NC 96)**, the NC 96 N. Arendell Avenue interchange in Zebulon. See **Plan Sheets 3-4LN+, 3-6LN, and 3-8LN**.

Although not required for meeting interstate standards, constructing the interchange improvements are anticipated to yield significant operational benefits in 2040 at the signalized ramp intersections and in the weaving sections between Exit 435 and Exit 436 (US 264), especially in the eastbound weaving section in the PM peak hour. See Chapter 3.4 page 8 of the report for more information on the analysis results.

The basic roadway improvements include replacing the eastbound on-ramp with a loop-ramp in southwest quadrant “C”, and widening/shifting the existing loop-ramp in northwest quadrant “B” to a 30 mph, 230’ radius. The loop B improvements can be mostly accomplished within existing rights-of-way. The installation of loop-ramp C will impact the Glaxo-Smith-Kline property and entrance closest to the interchange. Depending on the location of the eastbound ramp terminal, the shopping center access may be affected as well. The current concept ties in the new loop-ramp intersection at Wakelon Street and retains shopping center access at its current location. The Zebulon Municipal Complex is also located in close proximity to the expanded



interchange. Additional studies are needed in the subsequent planning and design stages of this interchange improvement to best balance interstate access, safety and operations with existing business property impacts.

The following costs have been determined based on the **Exit 435 (NC 96)** proposed improvements described here and shown on the design concept maps:

Exit 435 (4 LN+) & (6 LN)	Construction.....	\$ 3,600,000
	Right-of-Way.....	\$ 3,600,000
	ITS.....	\$ 0
	Total Cost (Exit 435 – NC 96 Option - 4 LN+/6 LN).....	\$ 7,200,000
Exit 435 (8 LN)	Construction.....	\$ 7,800,000
	Right-of-Way.....	\$ 4,100,000
	ITS.....	\$ 0
	Total Cost (Exit 435 – NC 96 Option - 6 LN).....	\$ 11,900,000

It is anticipated that the **Exit 435 (NC 96)** interchange improvements option will range in cost from \$ 7,200,000 to \$ 11,900,000, and require 0 relocations. The ITS and bridge replacement costs associated with the 4-LN+, 6-LN and 8-LN mainline alternatives are included in the Section A costs previously listed.

INTERCHANGE RECONSTRUCTION OPTION: SECTION A – EXIT 436 – US 264 Interchange

In addition to the recommended Section A improvements described previously, an interchange reconstruction option was evaluated at **Exit 436 (US 264)**, the US 264 interchange in Zebulon. See **Plan Sheets 3-4LN+, 3-6LN, and 3-8LN**.

The interchange improvements include rebuilding the existing loop-ramp to a 30 mph, 230’ radius. The loop-ramp improvements will push the flyover ramp out and require new rights-of-way, impacting properties along the north side of the flyover. The existing bridges at the flyover and at Old Bunn Rd. (SR 2320) will be retained.

The interchange improvements also include reconfiguring the eastbound exit ramp from a single-lane to a two-lane exit with an interior shared optional/choice lane. This is anticipated to significantly improve eastbound operations between the two interchanges during the PM peak hour, which currently experiences congestion on a regular basis. The additional exit lane is proposed to be carried through the interchange and past the Gannon Ave NC 97 Exit 20 off-ramp with the 6- and 8-lane mainline alternatives. Note the triangular labels showing the number of lanes at each merge and diverge on the plan sheets.

The following costs have been determined based on the **Exit 436 (US 264)** proposed improvements described here and shown on the design concept maps:

Construction.....	\$ 2,300,000
Right-of-Way.....	\$ 800,000
ITS.....	\$ 0
Total Cost (Exit 436 – US 264 Option).....	\$ 3,100,000



It is anticipated that the **Exit 436 (US 264)** interchange improvements option will cost \$ 3,100,000, and require 2 residential relocations. This cost is the same with each of the 4-LN+, 6-LN and 8-LN mainline alternatives. The ITS costs associated with the mainline alternatives are included in the Section A costs.

4.2 SECTION B – US 64 from east of US 64/264 split [Exit 436] to east of NC 231 interchange

Section B is 9.9 miles long. This section includes the portion of US 64 east of Exit 436 (US 264), across Bunn Lake, through Franklin County, and to NC 231 in Nash County. The posted speed limit is 70 mph. **Plan Sheets 3, 4 and 5** at the end of the report show the Section B design concepts.

The recommended **Section B** improvements include widening the mainline outside paved shoulders to 12 feet (based on high truck volumes). They also include replacing three bridges based on criteria described previously on page 11. Replacing the Bunn Lake bridges at the Wake/Franklin county line can be accomplished by using median crossovers, on-site detours, and a temporary two-lane two-way pattern to maintain traffic. The NC 231 overpass bridge can be replaced by building it on permanent relocation on the west side of the existing bridge.

The following **Section B** costs have been determined based on the proposed improvements described herein and shown on the design concept maps:

Section B	Construction.....	\$ 25,700,000
	Right-of-Way.....	\$ 100,000
	ITS.....	\$ 1,300,000
	Total Cost (Section B)	\$ 27,100,000

It is anticipated that **Section B** will require 0 relocations, require some proposed right-of-way for the NC 231 bridge replacement, and will cost a total of \$27,100,000. It is estimated that ITS deployment for **Section B**, including Fiber Optic Communications/Conduit, 2 CCTV’s and 1 Overhead DMS, will cost \$ 1,300,000.

4.3 SECTION C – US 64 from east of NC 231 interchange to west of US 64A interchange [Exist 458] in Nashville

Section C is 9.8 miles long. This section includes the portion of US 64 near Spring Hope and Mommyer to west of Exit 458 (US 64A) in Nash County. The posted speed limit is 70 mph. **Plan Sheets 5, 6 and 7** show the Section C design concepts.

The recommended **Section C** improvements include widening the mainline outside paved shoulders to 12 feet (based on high truck volumes). They also include (based on criteria described previously on page 11) widening the dual bridges over the Tar River and replacing the SR 1144 (Pine St.) overpass bridge (with an off-site detour). SR 1148 (Big Woods Rd.) overpass bridges no. 45 and 46 (southwest of Spring Hope) are both deficient on vertical clearances, but are proposed to be retained with mainline pavement milling to achieve minimum vertical clearance.

The following **Section C** costs have been determined based on the proposed improvements described herein and shown on the design concept maps:

Section C	Construction.....	\$ 45,000,000
	Right-of-Way.....	\$ 0
	ITS.....	\$ 1,000,000
	Total Cost (Section B)	\$ 46,000,000

It is anticipated that **Section C** will require 0 relocations, can be constructed within existing rights-of-way, and will cost a total of \$46,000,000. It is estimated that ITS deployment for **Section C**, including Fiber Optic Communications/Conduit and 1 CCTV, will cost \$ 1,000,000.

4.4 SECTION D – US 64 from west of US 64A interchange [Exist 458] in Nashville to west of I-95 [Exit 464]

Section D is 6.8 miles long and includes the portion of US 64 around Nashville to west of I-95. The posted speed limit is 70 mph. See **Plan Sheets 7, 8-1, 8-2, 9-1 and 9-2**.

In addition to widening the mainline outside paved shoulders to 12 feet (based on high truck volumes), the **Section D** improvements include replacing or widening all the bridges around Nashville [Exits 458, 459 and 461] and SR 1603 Old Carriage Rd. [Exit 463], based on age and sufficiency ratings. The US 64A [Exit 458] overpass bridge can be replaced on permanent relocation on the north side. Median crossovers and a two-way two-lane on-site detour pattern can be used to replace the 3 sequential US 64 eastbound bridges at one time, while off-site detours can be used to replace the N. Alston St. and N. 1st St. overpass bridges. The remaining bridges in Nashville can most likely be widened under traffic with lane width reductions. The SR 1603 Old Carriage Rd. overpass bridge can be replaced on permanent relocation on the east side with a minor amount of proposed right-of-way and no relocations.

SECTION D – ALT. 1 – Maintain Existing Median Width (36’ Minimum)

Alternative 1 includes all the improvements described above and maintains the existing US 64 median widths throughout Section D; which is approximately 68’ wide west of NC 58 (Exit 459), and 36’ wide for the remainder of Section D. See **Plan Sheets 8-1 and 9-1**.

The following costs have been determined based on the **Section D - Alt. 1** proposed improvements described herein and shown on the design concept maps:

Construction.....	\$ 31,500,000
Right-of-Way.....	\$ 400,000
ITS.....	\$ 1,000,000
Total Cost (Section D - Alt. 1).....	\$ 32,900,000

It is anticipated that **Section D - Alt. 1** will require 0 relocations and cost a total of \$32,900,000. A minor amount of proposed right-of-way is needed to replace the SR 1603 Old Carriage Rd. overpass bridge.

SECTION D – ALT. 2 – Proposed Median Width (46’ Minimum / 26’ Concrete Barrier Median)

Alternative 2 includes all the paved shoulder and bridge improvements described previously. Based on NCDOT Roadway Design’s request to meet desirable median width design criteria, Alternative 2 also includes a proposed narrow 26’ concrete barrier median in place of the existing 36’ wide median. Initially, widening out to a 46’ wide median was considered. However, the impacts through Nashville were undesirable, including potential impacts to Forest Hills Cemetery (near Station 1630+00) and a neighborhood adjacent to US 64 (Stations 1710+00 to 1730+00+/-) and the potential for needing proposed right-of-way along US 64. Other alternatives may be considered in the subsequent planning stages, but at this time a narrow concrete barrier



median is proposed to replace the 36’ wide median portion to keep construction within existing rights-of-way. See **Plan Sheets 8-2 and 9-2**.

The following costs have been determined based on the **Section D - Alt. 2** proposed improvements described herein and shown on the design concept maps:

Construction.....	\$ 43,900,000
Right-of-Way.....	\$ 400,000
ITS.....	\$ 1,000,000
Total Cost (Section D - Alt. 2)	\$ 45,300,000

It is anticipated that **Section D - Alt. 2** will require 0 relocations and cost a total of \$45,300,000. A minor amount of proposed right-of-way is needed to replace the SR 1603 Old Carriage Rd. overpass bridge.

It is estimated that ITS deployment for each alternative in **Section D**, including Fiber Optic Communications/Conduit, 4 CCTV’s and 1 Overhead DMS, will cost \$ 1,000,000.

4.5 SECTION E – US 64 from west of I-95 [Exit 464] to the eastern city limits of Rocky Mount [east of Exit 472]

Section E is 9.6 miles long. Section E includes the portion of US 64 across I-95 and through Rocky Mount. The speed limit is posted 65 mph through Rocky Mount. Rocky Mount straddles the Nash/Edgecombe County line. See **Plan Sheets 10-1 through 12-2**.

In addition to widening the mainline outside paved shoulders to 12 feet (based on high truck volumes), the recommended **Section E** improvements include replacing the eastbound bridge over Stony Creek, and widening both the eastbound and westbound bridges to accommodate the recommended auxiliary lanes between Exits 464 and 466, widening the eastbound bridge over SR 1616 Country Club Road, widening the eastbound bridge over US 301, and widening the eastbound and westbound bridges over SR 1243 Leggett Road. The Exit 464-466 auxiliary lanes are recommended, as described above, based on the anticipated operational improvements in 2040. The eastbound Stony Creek bridge replacement is needed based on its age and rating and can be replaced using an on-site detour to the south.

An additional safety improvement has been included in the cost estimates: The I-95 interchange has no positive separation between the US 64 through lanes and the collector-distributor roads; there are deep open paved ditches. This study recommends and includes costs for constructing concrete barrier (and needed drainage revisions) between the US 64 through lanes and collector-distributor roads through the I-95 interchange.

SECTION E – ALT. 1 – Maintain Existing 65 mph Speed Limit through Rocky Mount

Alternative 1 includes all the improvements described above and maintains the existing speed limit through Section E. Based on the recommended improvements described above and shown on the design concept maps, the following costs have been determined for **Section E - Alt. 1**:

Construction.....	\$ 26,000,000
Right-of-Way.....	\$ 100,000
ITS.....	\$ 1,200,000
Total Cost (Section E - Alt. 1)	\$ 27,300,000



It is anticipated that **Section E - Alt. 1** will require 0 relocations and will cost a total of \$27,300,000. A minor amount of proposed construction easement is needed for the eastbound Stony Creek bridge on-site detour. It is estimated that ITS deployment for **Section E - Alt. 1**, including Fiber Optic Communications/Conduit and 1 Overhead DMS, will cost \$ 1,200,000.

SECTION E – ALT. 2 – Upgrade Existing to 70 mph Speed Limit through Rocky Mount

Alternative 2 includes all the paved shoulder and bridge improvements described previously. It also includes upgrading the existing freeway to meet design criteria for posted 70 mph. Based on old as-built plans provided by the Division, and based on available Lidar digital terrain data, at least 3 spots have been identified as needing improvements to meet these criteria: two sag vertical curves (Vertical Curve #1 & Vertical Curve #2) and one horizontal curve (Horizontal Curve #3). See **Plan Sheet 9-3**. Costs for improving the two vertical curves and one horizontal curve are included below. Vertical Curve #2 also affects the Stony Creek bridges. Therefore, both the eastbound and westbound bridges are recommended to be replaced with Alternative 2 to upgrade to posted 70 mph. See **Plan Sheet 10-2**.

Based on the recommended improvements described above and shown on the design concept maps, the following costs have been determined for **Section E - Alt. 2**:

Construction.....	\$ 31,500,000
Right-of-Way.....	\$ 200,000
ITS.....	\$ 1,200,000
Total Cost (Section E - Alt. 2).....	\$ 32,900,000

It is anticipated that **Section E - Alt. 2** will require 0 relocations and will cost a total of \$ 32,900,000. A minor amount of proposed construction easement is needed for the Stony Creek bridges’ on-site detours. It is estimated that ITS deployment for **Section E - Alt. 2**, including Fiber Optic Communications/Conduit and 1 Overhead DMS, will cost \$ 1,200,000.

INTERCHANGE RECONSTRUCTION OPTIONS: SECTION E – EXITS 467, 468A, 468B, 469, 470

Improvements to eight (8) loop-ramps at Exits 467, 468A, 468B, 469 and 470 that are less than 30 mph (230’ radius) loops are included in the following interchange reconstruction options. The human and natural environment impacts expected from improving these loops would be significant and costly. The ITS costs associated with the mainline alternatives are included in the Section E costs described previously. See **Plan Sheets 11-2 and 12-2**.

SECTION E – EXIT 467– US 64 Business (Buck Leonard Blvd.)

Improving the loop ramp (and pushing the flyover ramp out) is anticipated to impact numerous duplex townhomes and single family homes off of Nicodemus Mile Road (SR 1615), Irene Court and Shawn Court in Rocky Mount. The following costs have been determined based on the **Exit 467** proposed improvements:

Construction.....	\$ 2,300,000
Right-of-Way.....	\$ 9,000,000
ITS.....	\$ 0
Total Cost (Exit 467 Option).....	\$ 11,300,000



It is anticipated that the **Exit 467** interchange improvements option will cost \$ 11,300,000, and require 40 residential relocations.

SECTION E – EXIT 468A – US 301 Bypass (Wesleyan Blvd.)

Improving the loop ramp is not expected to impact the overhead powerline, Word Tabernacle Church or Creekside Crossings shopping center located adjacent to the interchange. It may require realignment of Rowe Drive to the relocated ramp terminal. The following costs have been determined based on the **Exit 468A** proposed improvements:

Construction.....	\$ 1,500,000
Right-of-Way.....	\$ 100,000
ITS.....	\$ 0
Total Cost (Exit 468A Option).....	\$ 1,600,000

It is anticipated that the **Exit 468A** interchange improvements option will cost \$ 1,600,000, and require 0 relocations.

SECTION E – EXIT 468B – NC 43 / NC 48 (Benvenue Rd.)

Improving the westbound loop ramp is expected to impact the Rocky Mount Premiere Theatre parking lot and the Hunter Hill Road intersection. It is not expected to impact the Tar River Baptist Church. Improving the eastbound loop ramp is not anticipated to substantially affect the Stonewall Drive access to the Stonewall Manor historic house (on the National Register). Some clearing and new fence will be required between the rebuilt ramps and Stonewall Drive. The following costs have been determined based on the **Exit 468B** proposed improvements:

Construction.....	\$ 2,400,000
Right-of-Way.....	\$ 1,000,000
ITS.....	\$ 0
Total Cost (Exit 468B Option).....	\$ 3,400,000

It is anticipated that the **Exit 468B** interchange improvements option will cost \$ 3,400,000, and require 0 relocations.

SECTION E – EXIT 469 – US 301 Business (Church St.)

Improving the westbound loop ramp is not expected to impact Barnum Road or the sports fields adjacent to the westbound ramps; it is expected to be accomplished within existing rights-of-way. Improving the eastbound loop ramp is anticipated to encroach on the Tar River floodway and parallel greenway; the rebuilt eastbound ramps are proposed to be bridged over the floodway and greenway, as reflected in the costs below. The following costs have been determined based on the **Exit 469** proposed improvements:

Construction.....	\$ 5,400,000
Right-of-Way.....	\$ 0
ITS.....	\$ 0
Total Cost (Exit 469 Option).....	\$ 5,400,000



It is anticipated that the **Exit 469** interchange improvements option will cost \$ 5,400,000, and require 0 relocations.

SECTION E – EXIT 470 – NC 97 (Atlantic Ave.)

Improving the westbound loop ramp is anticipated to impact the existing Tar River bridge carrying the US 64 westbound travel lanes and exit ramp, and vice versa for the eastbound direction. Based on the good condition of the existing bridge, the westbound improvements include retaining the portion of the existing bridge carrying the westbound US 64 travel lanes, cutting the existing structure, and constructing a new ramp bridge over the Tar River to the north. Based on the good condition of the existing eastbound bridge, the improvements include retaining the portion of the existing bridge carrying the eastbound US 64 travel lanes, cutting the existing structure, and widening the Tar River bridge on the south side. The following costs have been determined based on the **Exit 470** proposed improvements:

Construction.....	\$ 4,700,000
Right-of-Way.....	\$ 200,000
ITS.....	\$ 0
Total Cost (Exit 470 Option).....	\$ 4,900,000

It is anticipated that the **Exit 470** interchange improvements option will cost \$ 4,900,000, and require 0 relocations.

4.6 SECTION F – US 64 from Rocky Mount [east of Exit 472] to the Tarboro city limits [west of Exit 485]

Section F is 11.1 miles long. The posted speed limit is 70 mph. See **Plan Sheets 13 through 16**. Based on the forecast truck volumes, wider 12-foot outside paved shoulders are not needed; 10-foot wide outside paved shoulders are sufficient.

In addition to widening the existing mainline outside paved shoulders to 10 feet, the recommended **Section F** improvements include widening the US 64 eastbound bridges over the SCL/CSX railroad and over SR 1208 Howard Ave. Extension (**Sheet 15**).

The ramps of each of the two diamond interchanges in Section F (at Exits 478 and 484) were found to be less than 16’ wide and costs for widening these ramps are included below.

The following **Section F** costs have been determined based on the proposed improvements described herein and shown on the design concept maps:

Construction.....	\$ 26,000,000
Right-of-Way.....	\$ 0
ITS.....	\$ 1,200,000
Total Cost (Section F).....	\$ 27,200,000

It is anticipated that **Section F** will require 0 relocations and will cost a total of \$27,200,000. It is estimated that the ITS deployment for **Section F**, including Fiber Optic Communications/Conduit, will cost \$ 1,200,000.



4.7 SECTION G - US 64 from Tarboro [west of Exit 485] to the Edgembe/Martin County line

Section G is 13.4 miles long. The posted speed limit is 70 mph. See **Plan Sheets 16, 17 and 18**. Based on the forecast truck volumes, 10-foot wide outside paved shoulders are sufficient.

The mainline outside paved shoulders in **Section G** only need improvements (widening to 10 feet) west of the Tar River bridges (**Sheet 16**). The recommended improvements also include widening the US 64 eastbound bridge over the CSX railroad spur, replacing the Exit 485 (US 258/US 64 Alt.) bridge over US 64, and replacing the (approximately 500' long) US 64 eastbound bridge over the Tar River. The Exit 485 bridge needs replacement based on the sufficiency rating, age, and vertical clearance. The eastbound bridge over the Tar River needs replacement based on the sufficiency rating and age. The eastbound bridge over the Tar River can be replaced by using median crossovers and a temporary two-way two-lane traffic pattern. The replacement of the Exit 485 bridge over US 64 can be accomplished by staging the construction on the east side of the existing bridge.

In combination with constructing the new Exit 485 bridge it is recommended that the substandard loop be reconstructed to desirable interstate standards (30 mph, 230' radius). See **Plan Sheet 16**. The loop reconstruction will require proposed right-of-way and impact two businesses (a hotel and a gas station) adjacent to the existing eastbound off-ramp at Exit 485. It is anticipated that the interchange improvements will also have water, sewer, and overhead utility impacts in the southwest and southeast quadrants. Although costs for impacting a private sewer lift station on Sewer Plant Road have been included in this estimate, it is possible that the eastbound on-ramp could be removed and the traffic placed on the reconstructed loop-ramp; resulting in a three-quadrant interchange and a significant reduction in costs and impacts (potential \$5M savings). Subsequent planning and design studies should consider how to minimize/avoid this impact.

The improvements described above occur in the Tarboro portion of **Section G**, with the remaining 12 miles of the section not requiring any roadway or bridge improvements. ITS and signing improvements are recommended throughout the section. The existing outside interchange ramps to remain in place in Section G (at Exits 485, 486, 487, 488, 491, 494, and 496) were found to be less than 16' wide and costs for widening these ramps are included as well.

The following **Section G** costs have been determined based on the proposed improvements described herein and shown on the design concept maps:

Construction.....	\$ 36,500,000
Right-of-Way.....	\$ 7,500,000
ITS.....	\$ 1,400,000
Total Cost (Section G).....	\$ 45,400,000

It is anticipated that **Section G** will cost a total of \$45,400,000, require 1 hotel business relocation, impact 1 gas station property, and have significant utility impacts associated with the Exit 485 (US 258/US 64 Alt.) bridge replacement and interchange reconstruction. It is estimated that ITS deployment for **Section G**, including Fiber Optic Communications/Conduit and 1 CCTV assembly, will cost \$ 1,400,000.

4.8 SECTION H - US 64 from the Edgecombe/Martin County line to Williamston [Exit 515]

Section H is 18.4 miles long. See **Plan Sheets 18, 19, 20, 21-1, and 22**. Based on the forecast truck volumes, the existing 10-foot wide outside paved shoulders are sufficient.

There are no mainline roadway or bridge improvements recommended in **Section H**. ITS and signing improvements are included. The existing outside ramps of each of the interchanges in Section H (at Exits 502, 505, 507, 512, and 514) were found to be less than 16’ wide and costs for widening these ramps are included.

The following **Section H** costs have been determined based on the proposed improvements described herein and shown on the design concept maps:

Construction.....	\$ 25,700,000
Right-of-Way.....	\$ 0
ITS.....	\$ 2,200,000
Total Cost (Section H)	\$ 27,900,000

It is anticipated that **Section H** will require 0 relocations and will cost a total of \$27,900,000. It is estimated that ITS deployment for **Section H**, including Fiber Optic Communications/Conduit, 3 CCTV’s and 1 Overhead DMS, will cost \$ 2,200,000.

INTERCHANGE RECONSTRUCTION OPTION: SECTION H - EXIT 512 - NC 125 (Prison Camp Road) Interchange

Improvements to the two (2) loop-ramps at Exit 512 that are less than 30 mph (230’ radius) loops are included in this interchange reconstruction option. See **Plan Sheet 21-2**.

The following costs have been determined based on the **Exit 512** proposed improvements described here and shown on the design concept maps:

Construction.....	\$ 1,900,000
Right-of-Way.....	\$ 600,000
ITS.....	\$ 0
Total Cost (Exit 512 Option)	\$ 2,500,000

It is anticipated that the **Exit 512** interchange improvements option will cost \$ 2,500,000, and require 7 residential relocations (modular homes). The ITS costs associated with the mainline alternative are included in the Section H costs above.



5. HUMAN AND NATURAL ENVIRONMENT

An environmental screening was conducted to identify potential environmental issues; including occurrences of threatened or endangered species, stream and wetland impacts, and human environment issues.

The NC Center for Geographic Information and Analysis (CGIA) and county GIS offices provided the GIS data and NC OneMap provided the statewide orthophotography (2012-2013) shown on **Plan Sheets 1 through 22**.

NATURAL ENVIRONMENT

The US 64 study corridor crosses many water features located in the Neuse, Tar-Pamlico and Roanoke river basins through the counties of Wake, Franklin, Nash, Edgecombe and Martin. **Table 8** below provides a summary of the overall relocations and stream and wetland impacts anticipated as a result of the proposed conceptual improvements described herein. Note that these impacts are approximate only and are based on available GIS data and aerial photography. Additional details of the stream and wetland impacts per crossing/location are provided in **Appendix D**.

Table 8. Project Environmental Impacts			
Alternative	Business/ Residential Relocations	Stream Impacts (LF)	Wetland Impacts (AC)
Minimum Upgrades Alt. 1	1	50	1.8
Minimum Upgrades Alt. 2	1	50	1.8
Minimum Upgrades Alt. 3	1	50	1.8
Enhanced Upgrades Alt. 1 *	50	775	3.5
Enhanced Upgrades Alt. 2 *	50	775	3.5
Enhanced Upgrades Alt. 3 *	50	775	3.5

* Enhanced Upgrades include desirable interchange improvements, desirable median widths, and upgrades to a 70-mph speed limit through Rocky Mount.

The NC Department of Environmental Quality, Division of Water Resources has provided the waters' primary classifications. In addition, some are listed as 303(d) impaired waters within the study area.

The US Fish and Wildlife Service provided the National Wetlands Inventory (NWI) used in this study. Wetlands and streams will be impacted by this project. State and local buffer rules should be followed. Appropriate permitting and mitigation measures should be taken.

The NC Department of Natural and Cultural Resources – Natural Heritage Program indicates that there are three occurrences of threatened or endangered species within the project area. They are described below in Sections A, C and G.

Provided below are high-level descriptions of the natural environment features and potential impacts within each section of the study corridor, based on the conceptual proposed improvements described herein:

SECTION A – Exit 430 (SR 1003) in Wendell to Exit 436 (US 264) in Zebulon, Wake County

Section A includes areas within the Neuse river basin. Buffalo Creek and Little River (Moores Pond, Mitchell Mill Pond) are 303(d) Listed. The Little River crossing at US 64 is within a water supply watershed area, but is just outside of the Critical Watershed Area (which is on the south side of the corridor). The Little River crossing at US 64 also has a Natural Heritage Program current listed occurrence of endangered Dwarf Wedgemussel.

Based on the proposed improvements of **Section A Alternative 1 (4 LN + Aux)** and **Section A Alternative 2 (6 LN)** it is anticipated that there will be **0 Linear Feet (LF)** of stream impacts and approximately **1.0 Acre** of wetland impacts. The **Section A Alternative 3 (8 LN)** improvements are anticipated to have **450 LF** of stream impacts and **1.2 Acres** of wetland impacts.

SECTION B – East of Exit 436 (US 264) in Wake County, through Franklin County, to NC 231 in Nash County

Section B includes areas within the Neuse river basin. The **Section B** improvements are anticipated to have **0 LF** of stream impacts and **less than 0.5 Acres** of wetland impacts.

SECTION C – East of NC 231, past Spring Hope and Momeyer, to west of Exit 458 (US 64A), Nash County

Section C includes areas within the Tar-Pamlico river basin. The Tar River crossing of US 64 southwest of Spring Hope has a Natural Heritage Program historical listing of endangered Tar River Spiny mussel. The **Section C** improvements are anticipated to have **0 LF** of stream impacts and **less than 0.25 Acres** of wetland impacts.

SECTION D – West of Exit 458 (US 64A) to west of I-95, Nash County

Section D includes areas within the Tar-Pamlico river basin. The **Section D Alternative 1** improvements are anticipated to have **0 LF** of stream impacts and **less than 0.25 Acres** of wetland impacts. The **Section D Alternative 2** improvements are anticipated to have **0 LF** of stream impacts and **less than 0.5 Acres** of wetland impacts.

SECTION E – West of I-95 through Rocky Mount, Nash and Edgecombe Counties

Section E includes areas within the Tar-Pamlico river basin. Stony Creek (Boddies Millpond) under US 64 Bridges #172 and #176 (just east of I-95) is 303(d) Listed. The **Section E Alternative 1** improvements are anticipated to have approximately **50 LF** of stream impacts and **0 Acres** of wetland impacts. The **Section E Alternative 2** improvements are anticipated to have approximately **325 LF** of stream impacts and approximately **0.25 Acres** of wetland impacts.

SECTION F – Eastern Rocky Mount City Limit to Western Tarboro City Limit, Edgecombe County

Section F includes areas within the Tar-Pamlico river basin. The Walnut Creek and Penders Mill Run (Harts Mill Run) crossings of US 64 west of Tarboro and the Tar River are both within a water supply watershed area. The **Section F** improvements are anticipated to have **0 LF** of stream impacts and **0 Acres** of wetland impacts.

SECTION G – Western Tarboro City Limit, Edgecombe County to Martin County Line

Section G includes areas within the Tar-Pamlico river basin. The Tar River crossing of US 64 in Tarboro/Princeville has a Natural Heritage Program current listing of endangered Tar River Spiny mussel. Ballahack Canal, east of Chinquapin Road Exit 491, is 303(d) Listed. The **Section G** improvements are anticipated to have **0 LF** of stream impacts and **less than 0.5 Acres** of wetland impacts.

SECTION H – Edgecombe/Martin County Line to Exit 515, Martin County

Section H includes areas within the Tar-Pamlico and Roanoke river basins. The **Section H** improvements are anticipated to have **0 LF** of stream impacts and **less than 1.0 Acres** of wetland impacts.

HUMAN ENVIRONMENT

In addition to the Natural Environment issues described above, there are Human Environment features that will be impacted by this project. There are relatively very few human environment impacts along the 86-mile corridor, as the vast majority of the proposed improvements can occur within existing rights-of-way. There are no cemetery, church or school impacts anticipated with the proposed improvements described herein to upgrade US 64 to interstate standards.

As indicated previously, it is anticipated that the Minimum Upgrades alternative will require approximately one (1) relocation (in Section G, Tarboro) and that the Enhanced Upgrades alternative (including Interchange Upgrades) will require approximately fifty (50) relocations throughout the project corridor. Forty (40) of those occur in Rocky Mount as a result of the Enhanced Upgrades Alternative interchange improvements. Each project section is described below:

SECTION A – Exit 430 (SR 1003) in Wendell to Exit 436 (US 264) in Zebulon, Wake County

There are no relocations anticipated with Section A: Minimum Upgrades. However, approximately two (2) relocations are anticipated with the Exit 436 (US 264) Interchange Improvements where the flyover is pushed out to provide an interstate-speed loop ramp. Also, although no relocations are anticipated, the Exit 435 (NC 96 N. Arendell Avenue) Interchange Improvements are anticipated to impact the Glaxo-Smith-Kline property with the construction of a new loop-ramp for the eastbound-entering traffic. As stated in chapters 3.4 and 4.1, the interchange improvements in Zebulon are anticipated to yield significant operational and safety benefits. Additional studies are needed in the subsequent planning and design stages of the interchange improvements in order to best balance interstate access, safety and operations with existing business property impacts.

SECTIONS B AND C

No relocations or significant human environment impacts are anticipated in Sections B and C of the project.

SECTION D – West of Exit 458 (US 64A) to west of I-95, Nash County

No relocations or significant human environment impacts are anticipated in Section D of the project. However, it is worth noting that there is a segment of US 64 around the town of Nashville with an existing median width that is less than the desirable 46'-wide median (based on NCDOT Design Manual standards and guidance). Several options were considered, but the narrow concrete barrier median is included in the

Section D Alternative 2 concept to *avoid* undesirable impacts through Nashville; including potential impacts to Forest Hills Cemetery, residential impacts along Regency Drive (east of Exit 461), and the additional right-of-way needed if a wider median were constructed. See **Sheets 8-2 and 9-2**.

SECTION E – West of I-95 through Rocky Mount, Nash and Edgecombe Counties

No relocations or significant human environment impacts are anticipated with the Section E: Minimum Upgrades Alternative. However, as noted previously, the Section E: Enhanced Upgrades that include the interchange improvements are anticipated to have significant impacts. The Exit 467 (US 64 Business/Buck Leonard Blvd.) interchange improvements are anticipated to impact 40 duplex townhomes and single-family homes off Nicodemus Mile Road (SR 1615), Irene Court and Shawn Court in Rocky Mount (See **Sheet 11-2**).

Approximately 400 LF of the existing Tar River Trail greenway, located in between the Battle Park boat ramp and the US 301 Business (N. Church St.) Exit 469 eastbound off-ramp, is anticipated to be impacted/affected by the Interchange Upgrades. See **Sheet 12-2**.

Exit 468A – US 301 Bypass (Wesleyan Blvd.): Improving the loop ramp is not expected to impact the overhead powerline, Word Tabernacle Church or Creekside Crossings shopping center located adjacent to the interchange. Realignment of Rowe Drive (which leads to Fire Station #6) may be required.

Exit 468B – NC 43 / NC 48 (Benvenue Rd.): Improving the westbound loop ramp is expected to impact the Rocky Mount Premiere Theatre parking lot and the Hunter Hill Road intersection. It is not expected to impact Tar River Baptist Church. Improving the eastbound loop ramp is not anticipated to significantly affect the Stonewall Drive access to the Stonewall Manor historic house (on the National Register). Some clearing and new fence will be required between the rebuilt ramps and Stonewall Drive.

SECTION F – Eastern Rocky Mount City Limit to Western Tarboro City Limit, Edgecombe County

No relocations or significant human environment impacts are anticipated in Section F of the project.

SECTION G – Western Tarboro City Limit, Edgecombe County to Martin County Line

One (1) relocation is anticipated in Section G of the project in association with the Exit 485 bridge replacement and loop-ramp improvements. See **Sheet 16**. The loop reconstruction will require proposed right-of-way and impact two businesses adjacent to the eastbound off-ramp. The gas station parking lot will be impacted but is anticipated to stay operational. The hotel structure is anticipated to be impacted by the loop and ramp reconstruction. The costs for impacting a private sewer lift station on Sewer Plant Road have been included in the cost estimate, but it is possible that this impact may be reduced or eliminated. Subsequent planning and design studies should consider how to minimize/avoid this impact.

SECTION H – Edgecombe/Martin County Line to Exit 515, Martin County

No relocations or significant human environment impacts are anticipated with the Section H: Minimum Upgrades Alternative. However, the Section H: Enhanced Upgrades Alternative that includes Exit 512 (NC 125 Prison Camp Rd.) interchange improvements is anticipated to require 7 (modular home) residential relocations. See **Sheet 21-2**.

6. PROJECT COSTS AND PROGRAMMING RECOMMENDATIONS

Based on the alternatives presented in this study, and as shown in **Table 1. Project Costs** on p.2, it is estimated that it will cost **\$266.8M to \$369.3M** to upgrade the approximately 86 miles of US 64 from Wendell to Williamston to interstate standards. Multiple alternatives and line item options were included based on input from the Department and from external partners. **Table 9** below presents the itemized project costs:

Table 9. Itemized Project Costs

Section / Alternative	Length (Miles)	Constr.*	ROW*	Relocations	ITS	Subtotal:
Section A - Alt. 1 (4 LN+Aux)	7.5	\$ 32.8 M	\$ 0 M	0	\$ 0.2 M	\$ 33.0 M
Exit 435 Interchange	-	\$ 3.6 M	\$ 3.6 M	0	-	\$ 7.2 M
Exit 436 Interchange	-	\$ 2.3 M	\$ 0.8 M	2	-	\$ 3.1 M
Sec. A - Alt. 1 (4 LN+Aux +Interch.'s)	7.5	\$ 38.7 M	\$ 3.6 M	2	\$ 0.2 M	\$ 43.3 M
Section A - Alt. 2 (6 LN)	7.5	\$ 43.3 M	\$ 0 M	0	\$ 0.2 M	\$ 43.5 M
Exit 435 Interchange	-	\$ 3.6 M	\$ 3.6 M	0	-	\$ 7.2 M
Exit 436 Interchange	-	\$ 2.3 M	\$ 0.8 M	2	-	\$3.1 M
Section A - Alt. 2 (6 LN + Interch.'s)	7.5	\$ 49.2 M	\$ 3.6 M	2	\$ 0.2 M	\$ 53.8 M
Section A - Alt. 3 (8 LN)	7.5	\$ 65.5 M	\$ 0 M	0	\$ 0.3 M	\$ 65.8 M
Exit 435 Interchange	-	\$ 7.8 M	\$ 4.1 M	0	-	\$ 11.9 M
Exit 436 Interchange	-	\$ 2.3 M	\$ 0.8 M	2	-	\$ 3.1 M
Section A - Alt. 3 (6 LN + Interch.'s)	7.5	\$ 75.6 M	\$ 12.5 M	2	\$ 0.3 M	\$ 80.8 M
Section B	9.9	\$ 25.7 M	\$ 0.1 M	0	\$ 1.3 M	\$ 27.1 M
Section C	9.8	\$ 45.0 M	\$ 0 M	0	\$ 1.0 M	\$ 46.0 M
Section D - Alt. 1 (Exist. Median)	6.8	\$ 31.5 M	\$ 0.4 M	0	\$ 1.0 M	\$ 32.9 M
Section D - Alt. 2 (Prop. Conc. Barr.)	6.8	\$ 43.9 M	\$ 0.4 M	0	\$ 1.0 M	\$ 45.3 M
Section E - Alt. 1 (Exist. 65 mph)	9.6	\$ 26.0 M	\$ 0.1 M	0	\$ 1.2 M	\$ 27.3 M
Section E - Alt. 2 (Prop. 70 mph)	9.6	\$ 31.5 M	\$ 0.2 M	0	\$ 1.2 M	\$ 32.9 M
Exit 467 Interchange	-	\$ 2.3 M	\$ 9.0 M	40	-	\$ 11.3 M
Exit 468A Interchange	-	\$ 1.5 M	\$ 0.1 M	0	-	\$ 1.6 M
Exit 468B Interchange	-	\$ 2.4 M	\$ 1.0 M	0	-	\$ 3.4 M
Exit 469 Interchange	-	\$ 5.4 M	\$ 0 M	0	-	\$ 5.4 M
Exit 470 Interchange	-	\$ 4.7 M	\$ 0.2 M	0	-	\$ 4.9 M
Section E - Alt. 1 + Interch.'s	9.6	\$ 42.3 M	\$ 10.4 M	40	\$ 1.2 M	\$ 53.9 M
Section E - Alt. 2 + Interch.'s	9.6	\$ 47.8 M	\$ 10.5 M	40	\$ 1.2 M	\$ 59.5 M
Section F	11.1	\$ 26.0 M	\$ 0 M	0	\$ 1.2 M	\$ 27.2 M
Section G **	13.4	\$ 36.5 M	\$ 7.5 M **	1	\$ 1.4 M	\$ 45.4 M
Section H	18.4	\$ 25.7 M	\$ 0 M	0	\$ 2.2 M	\$ 27.9 M
Exit 512 Interchange	-	\$ 1.9 M	\$ 0.6 M	7	-	\$ 2.5 M
Section H + Interch.	18.4	\$ 27.6 M	\$ 0.6 M	7	\$ 2.2 M	\$ 30.4 M

* Utility Construction is included in the Construction Cost. Utility ROW is included in the Right-of-Way Cost.

** Section G ROW: potential \$\$M reduction by avoiding SS Lift Station, Sheet 16, Exit 485, SE quadrant.

Based on the data gathered through this feasibility study, the following recommendations are made for the subsequent programming, planning and design of the US 64 Upgrade to Interstate project(s):

Section A

In **Section A** from Wendell to Zebulon, it is recommended that the Alt. 2 6-Lane and Alt. 3 8-Lane alternatives, and the Exit 435 and Exit 436 interchange improvements be carried forward for consideration in the subsequent stages of the project. The Alt. 1 4-Lane + Auxiliary Lanes alternative could be considered as an interim project if needed. However, like the no build scenario, it is not anticipated to provide acceptable LOS in design year 2040.

Sections B and C

In **Sections B and C** from east of Zebulon to west of Nashville, it is recommended that these proposed improvements be carried forward in the subsequent stages of the project.

Section D

In **Section D** through Nashville to west of I-95, it is recommended that both alternatives be carried forward for further study. However, there is a potential significant cost savings (up to \$ 12 M) if the existing median width can be retained.

Section E

In **Section E** from I-95 through Rocky Mount, it is recommended that both mainline alternatives be carried forward for further consideration in the subsequent programming, planning and design stages of the project.

Regarding the interchange improvements, these should be studied, but may be too impactful and costly to construct. In that case, all the other features (such as lane widths, acceleration/deceleration lane lengths, and median protection) should be carefully evaluated to ensure that the roadway is safe, in good condition, and meets current standards.

Regarding upgrading the Rocky Mount section to posted 70 mph (Section E - Alt. 2), the existing highway features should be evaluated carefully when more detailed surveys and design data are available, to ensure that they meet the required safety and design criteria for the higher posted speed. Some of the crash data on the existing corridor are concerning, and the higher speed may increase the severity of potential crashes.

If the speed is not increased through the urban area and the interchanges are not reconstructed there is the potential for significant cost savings and impact reduction (up to \$ 35 M, 40 relocations, and floodway, stream, wetland and greenway areas).

Sections F, G and H

In **Sections F, G and H** from east of Rocky Mount, through Tarboro, to the end of the project in Williamston, it is recommended that these proposed improvements be carried forward for the subsequent programming, planning and design of the US 64 Upgrade to Interstate project(s).

7. ADDITIONAL COMMENTS

The following items should receive attention in the subsequent planning and design stages of the project(s):

Safety Analysis

The Total Crash Rates are higher than the critical crash rates for the entire corridor (for Rural US Routes with “4 or more lanes divided” and “full control of access”). It is unclear what the contributing factors are, whether the higher 70-mph posted speed or wet pavement conditions, etc., or if some safety mitigation is needed. More detailed studies of the crash data and the corridor should be performed to ensure that the future interstate will operate safely and efficiently. This is also important when considering raising the existing posted speed through Rocky Mount (Section E - Alt. 2).

Noise

Care should be taken in the subsequent planning and design stages of the project or projects regarding how the project(s) are segmented and programmed in regards to evaluating potential noise abatement areas. The federal and state noise impact analysis and abatement requirements should be considered with the widening alternatives and interchange improvements considered in the study, especially through the more developed city of Rocky Mount.

Section A - Exit 435 - NC 96 N. Arendell Avenue Interchange

More detailed studies are needed in the subsequent development of the Exit 435 interchange improvements in order to best balance interstate access, safety and operations with existing business property impacts.

Section A - Exit 436 - US 264 Interchange (and weaving segments)

Although widening the mainline will provide operational benefits, the Exit 435 and Exit 436 interchange improvements should be examined closely to improve operations and mitigate congestion experienced regularly along this section of US 64, especially along the eastbound direction in the PM peak hour at the US 264 exit.

Section G - Exit 485 - US 258/US 64 Alt.

More detailed studies are needed in the subsequent development of the Exit 485 (US 258/US 64 Alt.) interchange improvements in Section G to determine how to best minimize/avoid impacts to the private sewer lift station on Sewer Plant Road. (A potential \$ 5 M savings.)

FOOTNOTES

Page 1. ^[1] Bill H.R.22 Fixing America's Surface Transportation Act or the FAST Act

<https://www.congress.gov/bill/114th-congress/house-bill/22>

Page 1. ^[2] Capital Area MPO <http://www.campo-nc.us/>, Upper Coastal Plain RPO <http://www.ucprpo.org/>,

Rocky Mount MPO <http://rockymountsportscomplex.com/mpo/>, and Mid-East RPO, <http://www.mideastcom.org/>

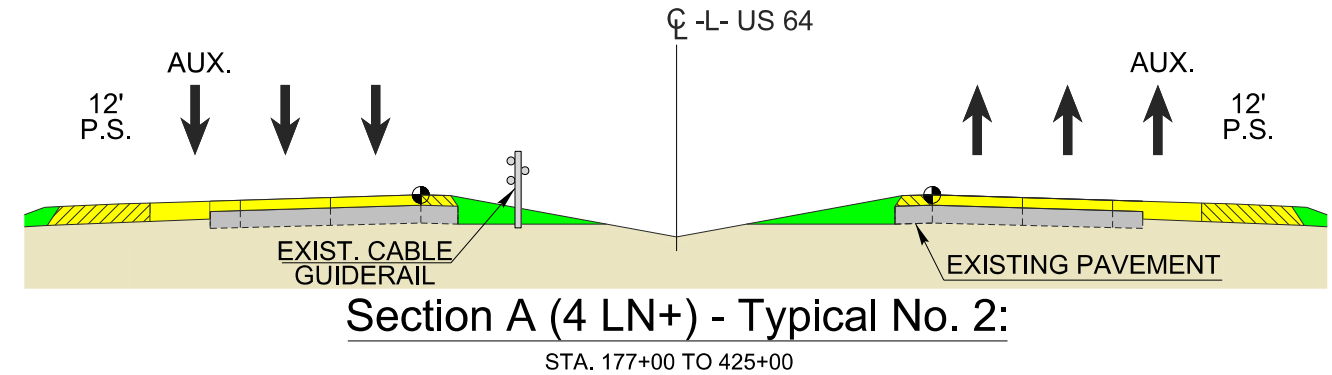
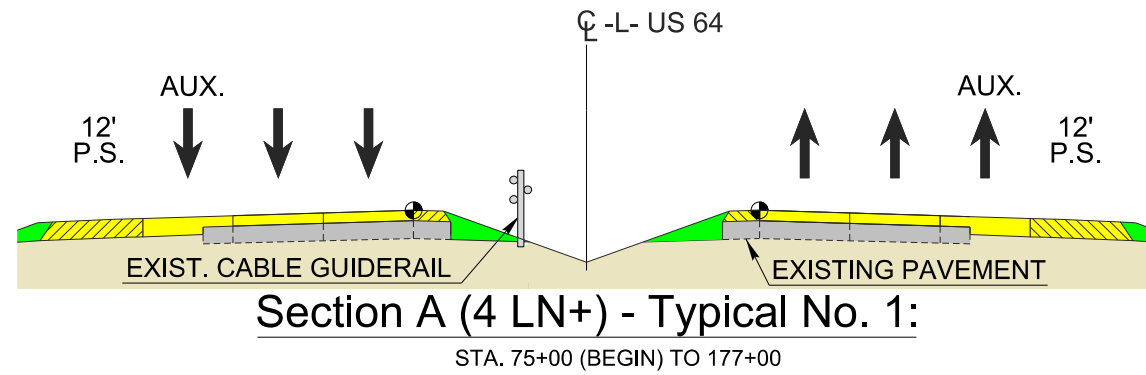
Page 1. ^[3] Bill H.R.22 F Regional Transportation Alliance, Future I-87/I-495 Action,

<http://letsgetmoving.org/priorities/freeways/interstate-87/i-495-future-i-44-learn-more/>

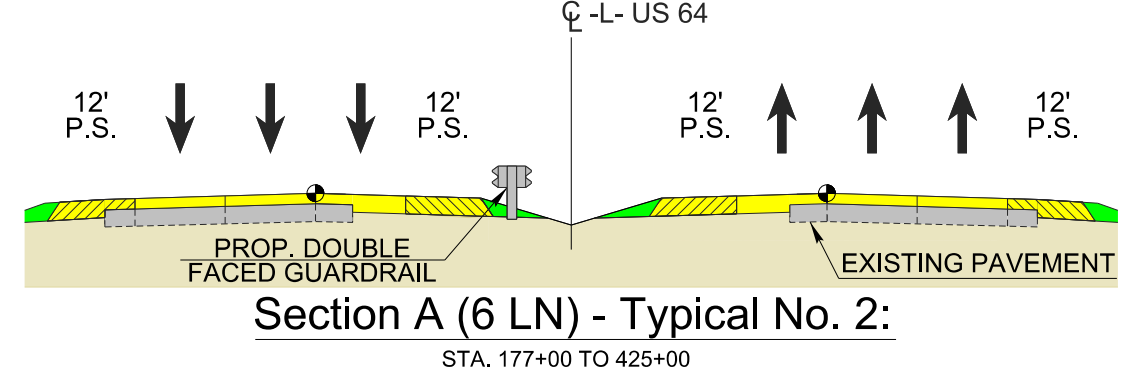
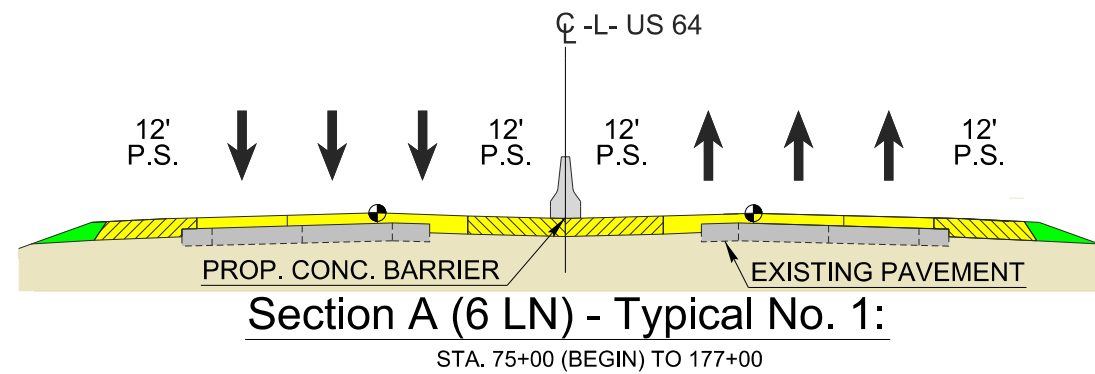
Page 6. ^[4] NCDOT [Work Zone Safety and Mobility Policy and Guidelines](#) (2007),

<https://connect.ncdot.gov/projects/WZTC/Pages/default.aspx>.

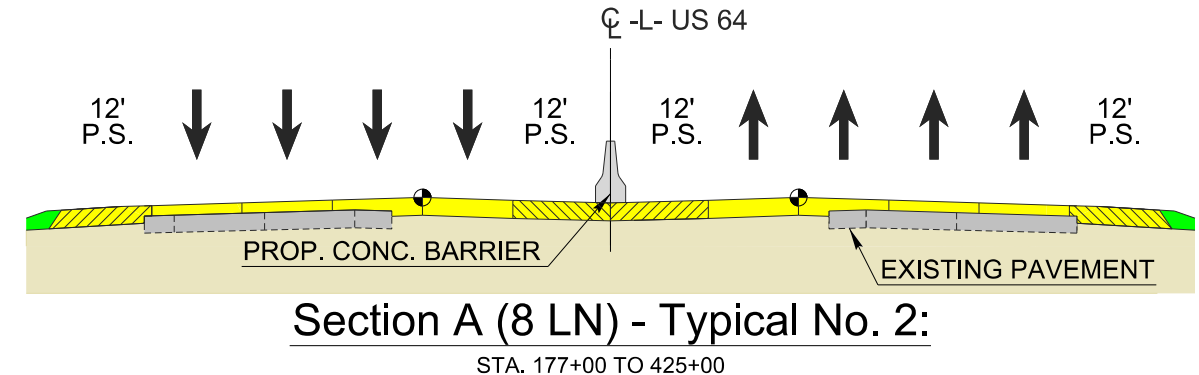
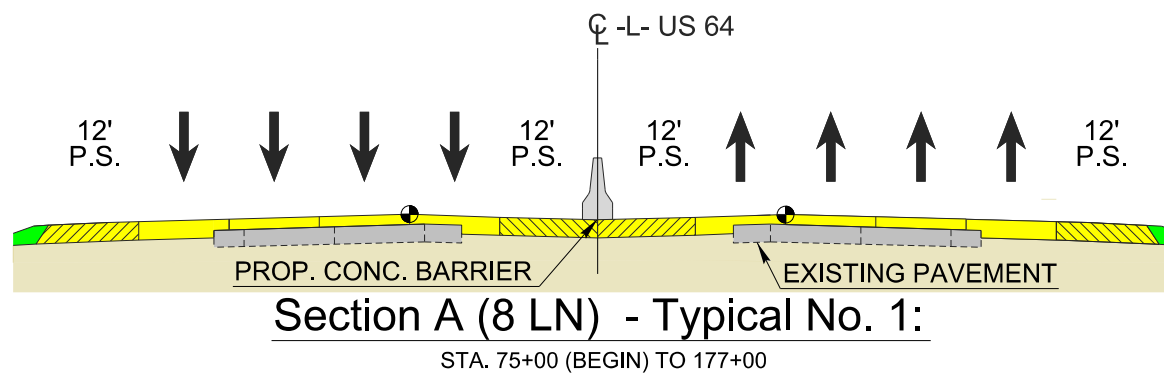
**4 LN
+ AUX**



6 LN



8 LN

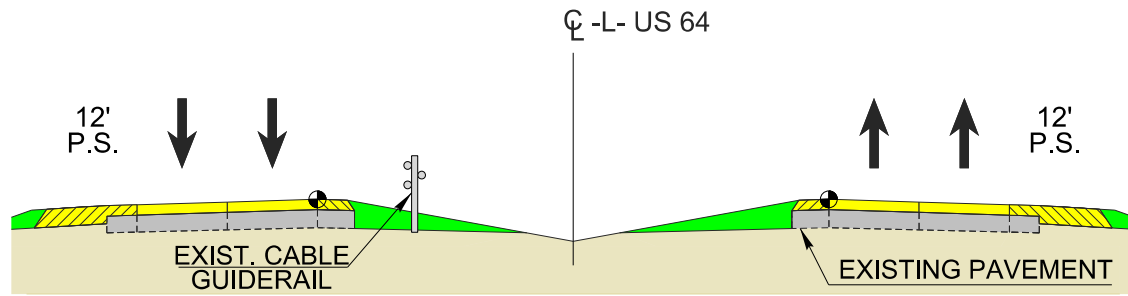


SECTION A TYPICAL SECTIONS

FIGURE 2
FS-1504A
Typical Sections

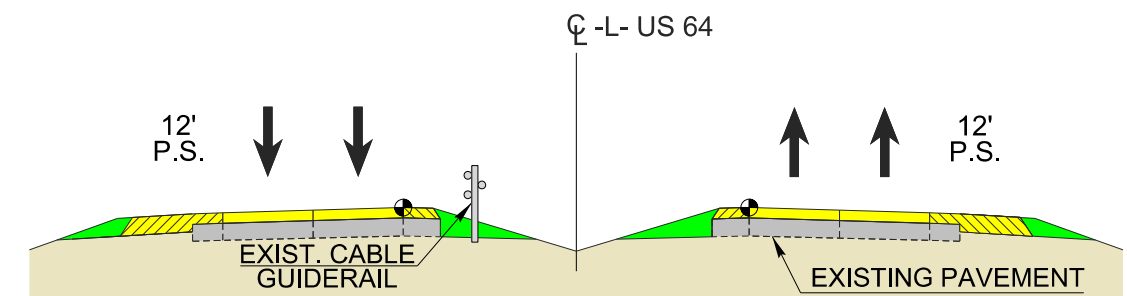
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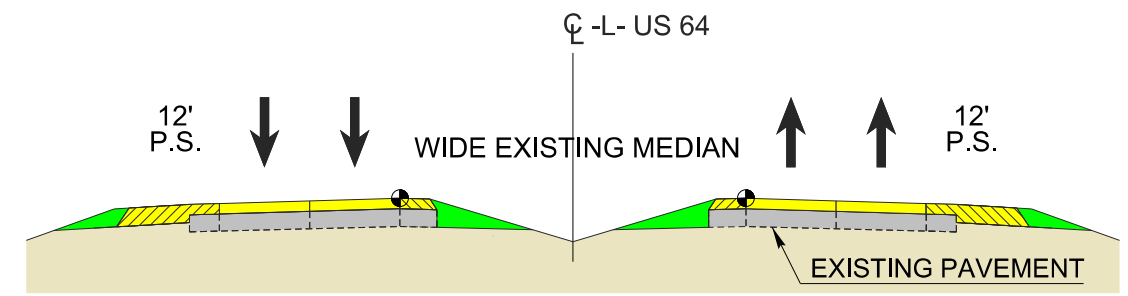
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Section B,C,D - Typical No. 3:
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 STA. 1264+00 TO 1345+00
 STA. 1480+00 TO 1597+00



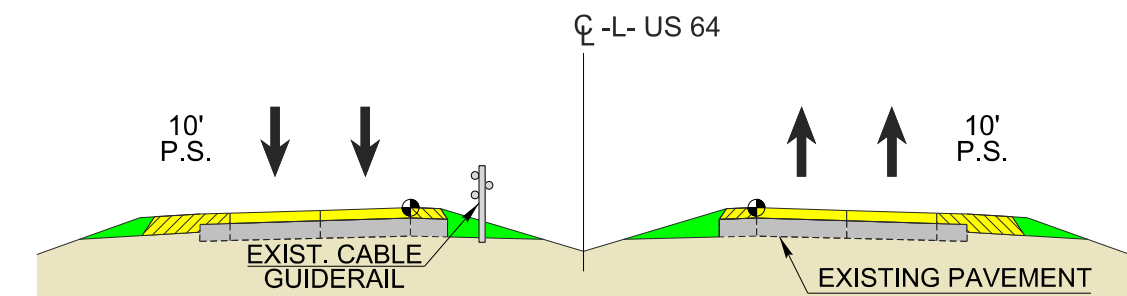
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 STA. 2170+00 TO 2283+00



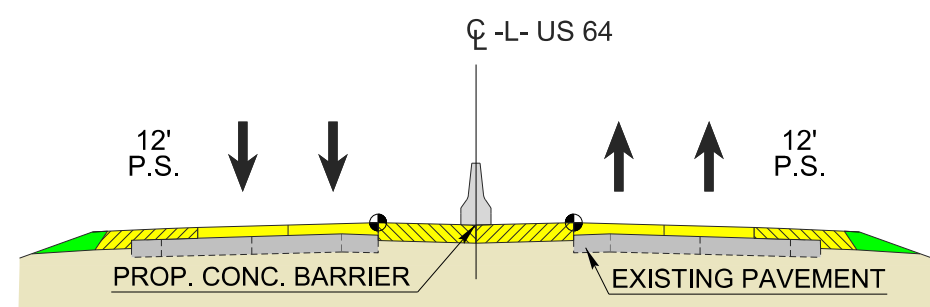
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Section C,D,E - Typical No. 4:
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 STA. 1345+00 TO 1480+00
 STA. 2263+00 TO 2345+00



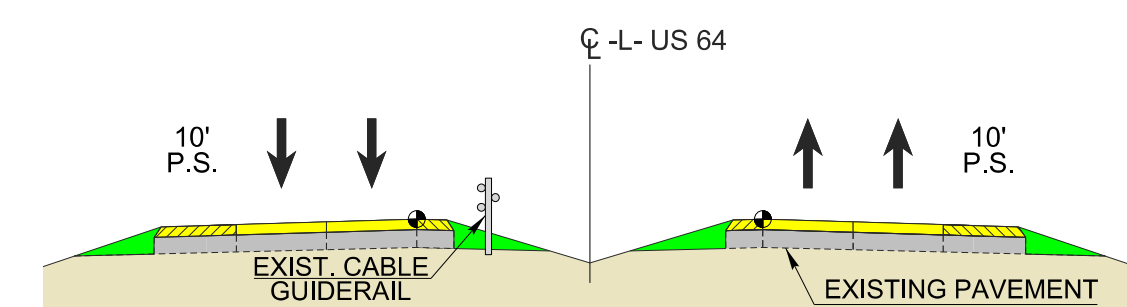
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Section F, G - Typical No. 7:
 STA. 2345+00 TO 3008+00



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Section D,E - Typical No. 5:
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 STA. 1833+00 TO 1853+00 *
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 STA. 2000+00 TO 2170+00

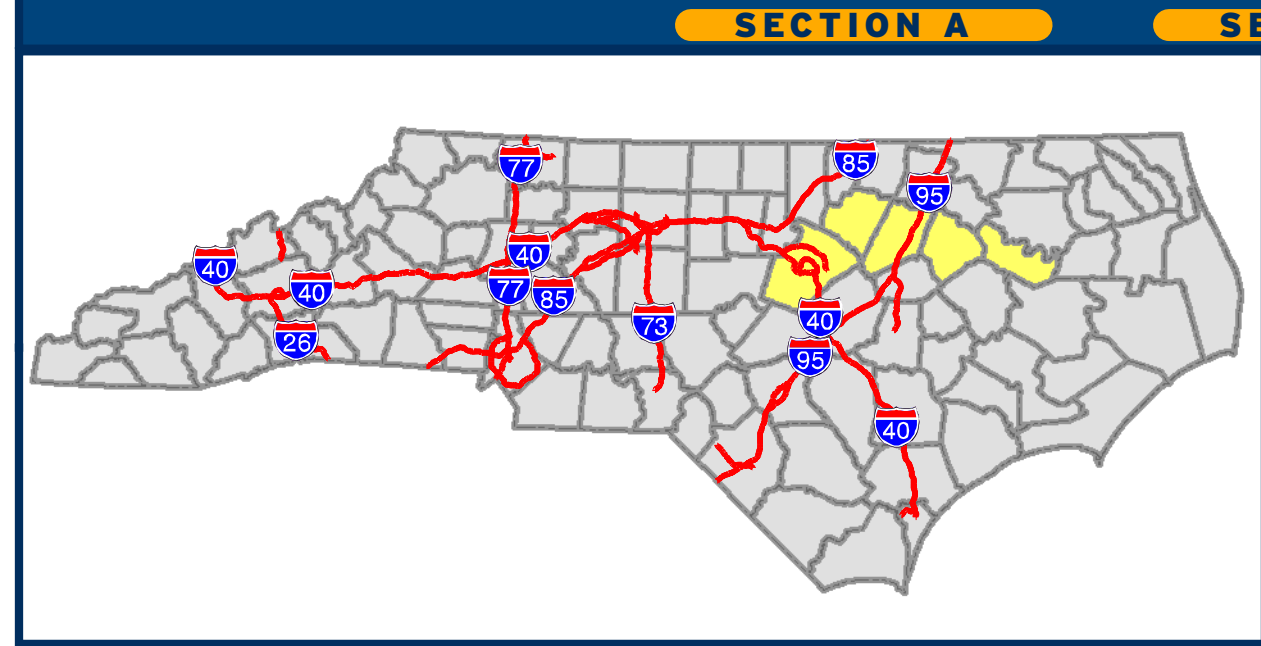
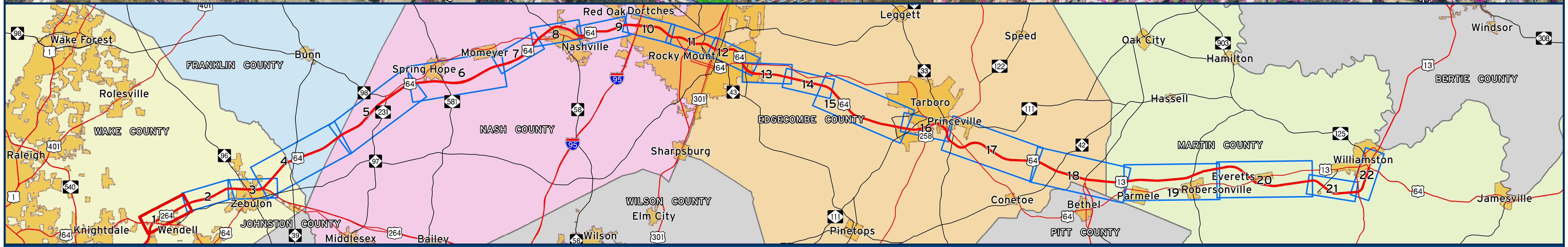
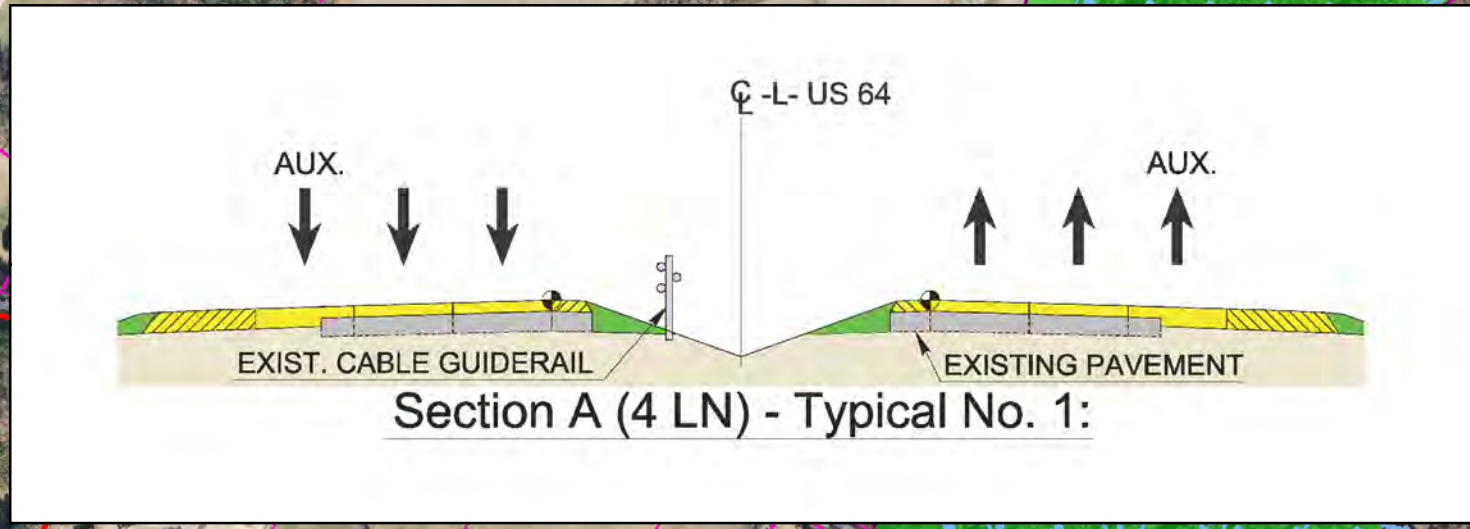
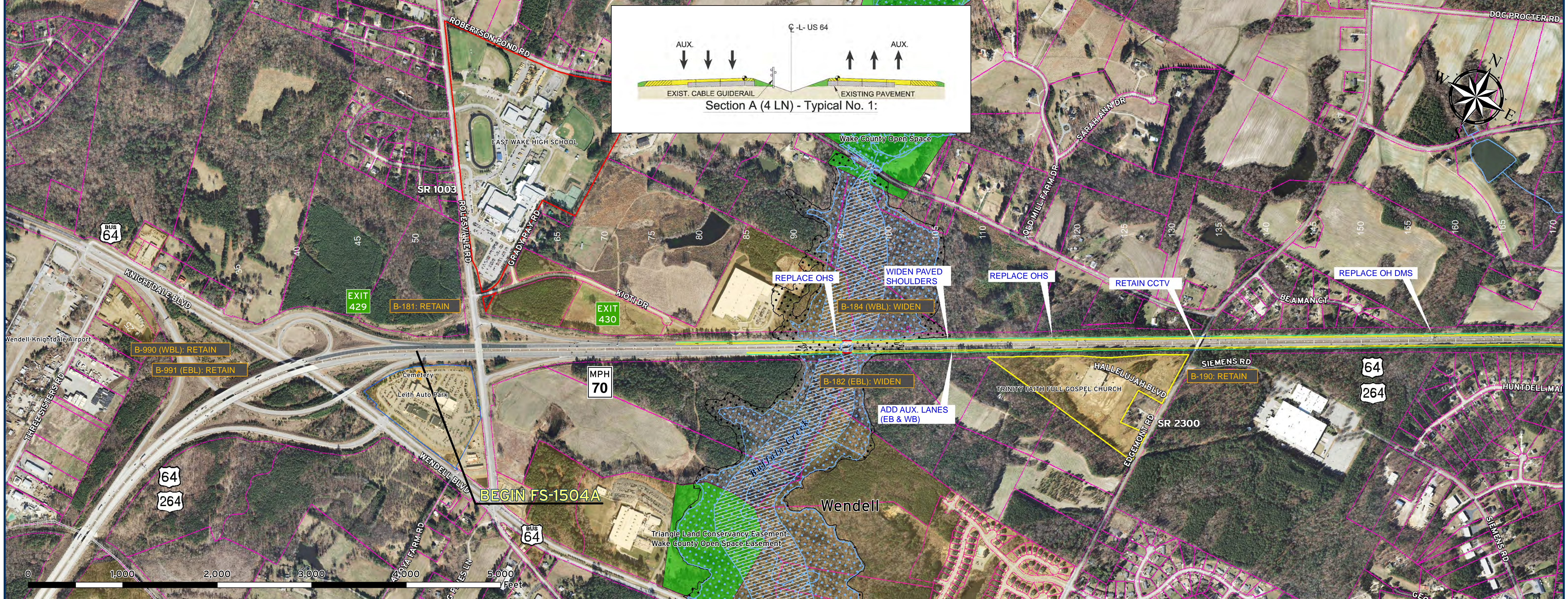


Section G,H - Typical No. 8:

Section G,H- Typical No. 8:
 STA. 3008+00 TO 4610+00 (END)

SECTIONS B - H TYPICAL SECTIONS

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LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		Open Space
	Library		Park
	State Managed Land		School
	Golf Course		Parcel Boundaries
	Hospital		Railroad
			Stream
			County Boundary
			Municipal Boundary
			100 Year Floodplain
			500 Year Floodplain
			FEMA Floodway

PREPARED FOR:

FEASIBILITY STUDIES UNIT
N.C. DEPT OF TRANSPORTATION
RALEIGH, NORTH CAROLINA
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PREPARED BY:

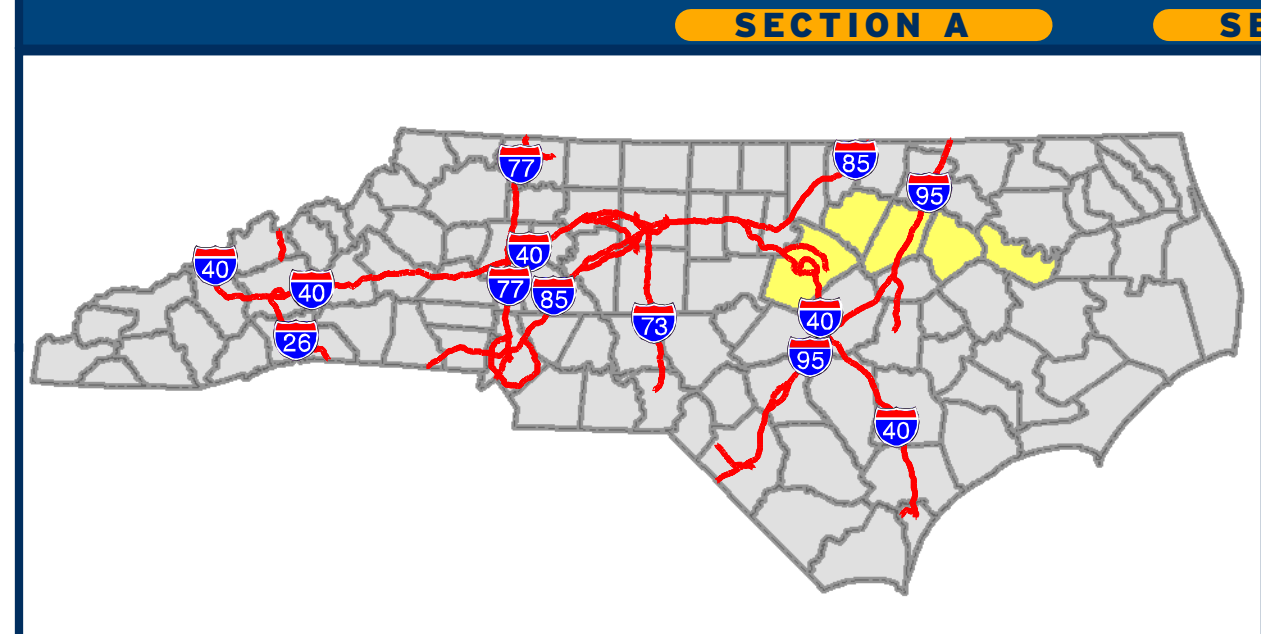
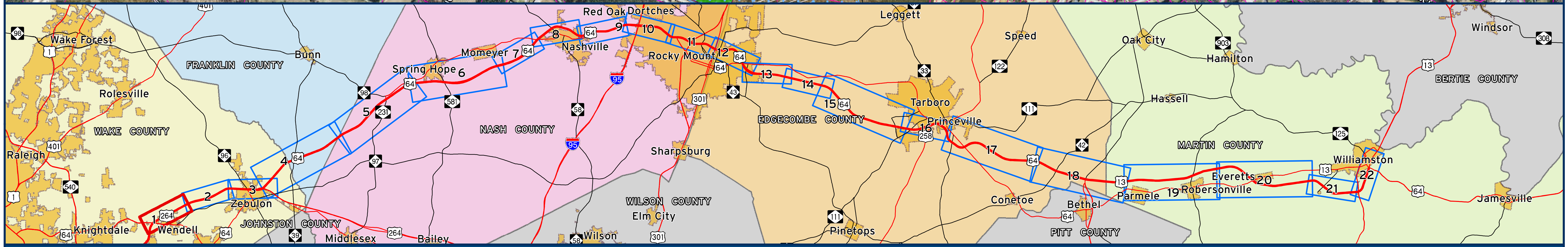
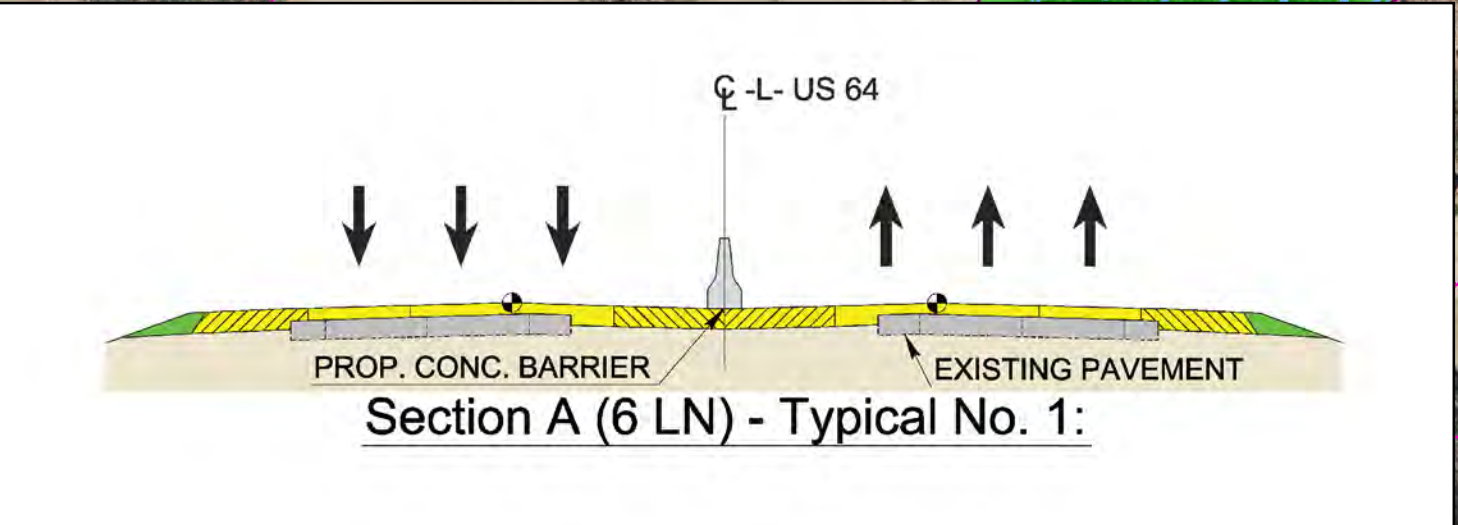
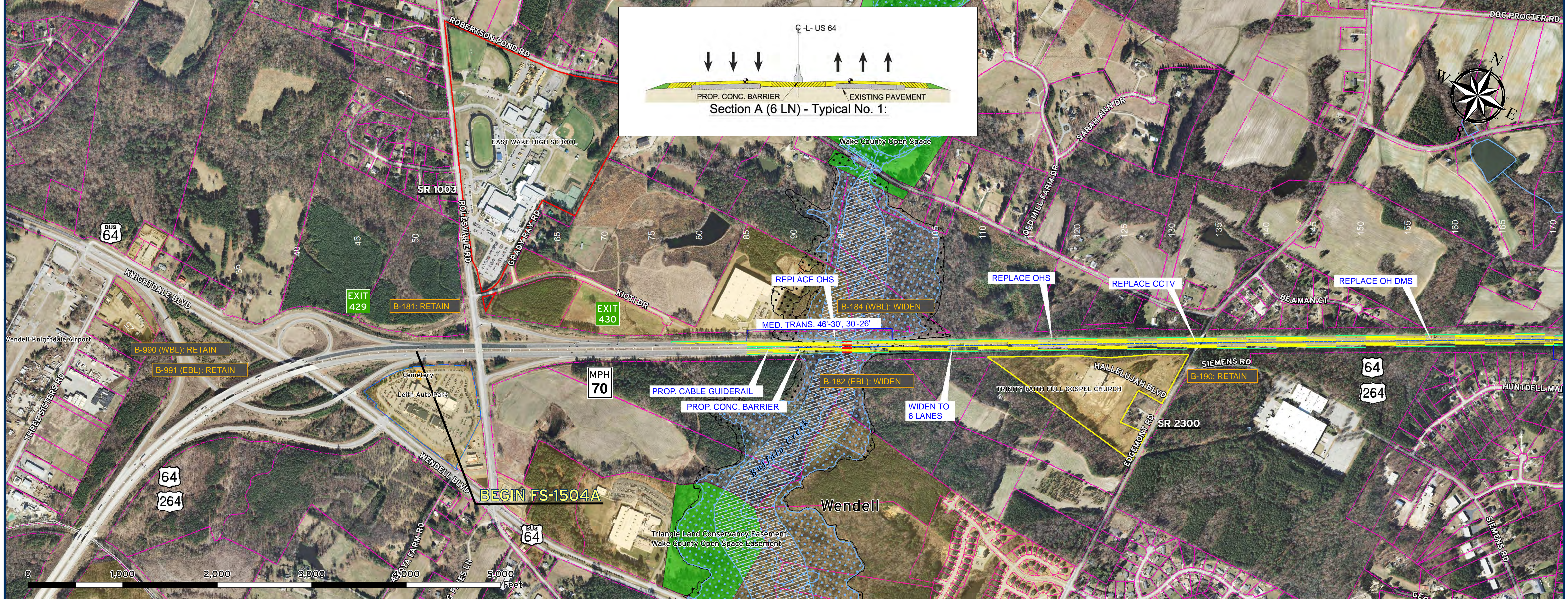
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Conceptual Design Subject to Change without Notice
For Feasibility Study Purposes Only

FS-1504A SHEET 1-4LN+

Section A Alt.1 (4 Lane + Aux.)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND

Airport	Open Space	Railroad
Business	Park	Stream
Cemetery	School	County Boundary
Church	Parcel Boundaries	Municipal Boundary
Greenway	State Managed Land	100 Year Floodplain
Library	Golf Course	500 Year Floodplain
	Hospital	FEMA Floodway

DESIGN ELEMENTS

Proposed Bridges
Proposed Roadway / Detours
Proposed Paved Shoulders
Proposed ROW / CA

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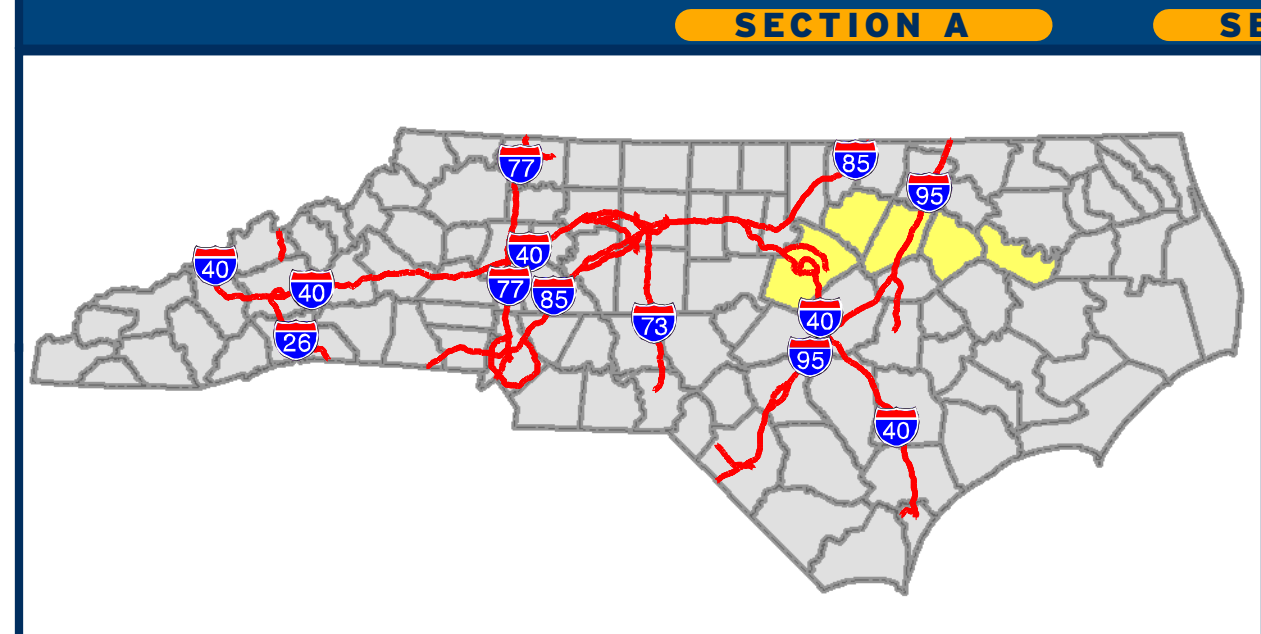
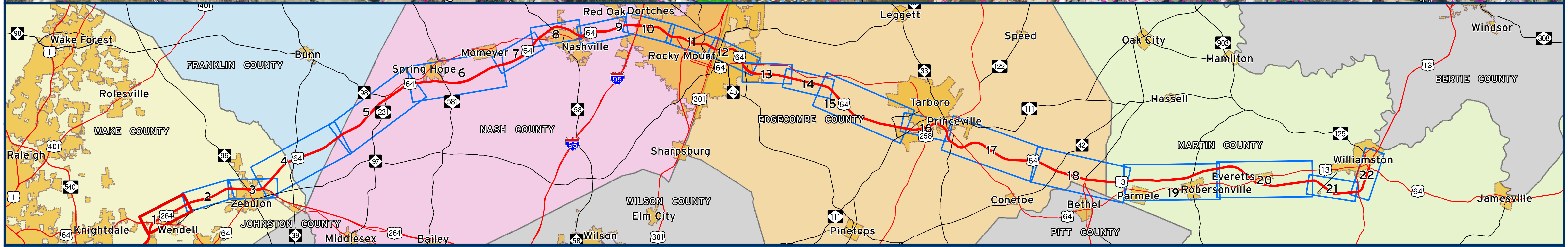
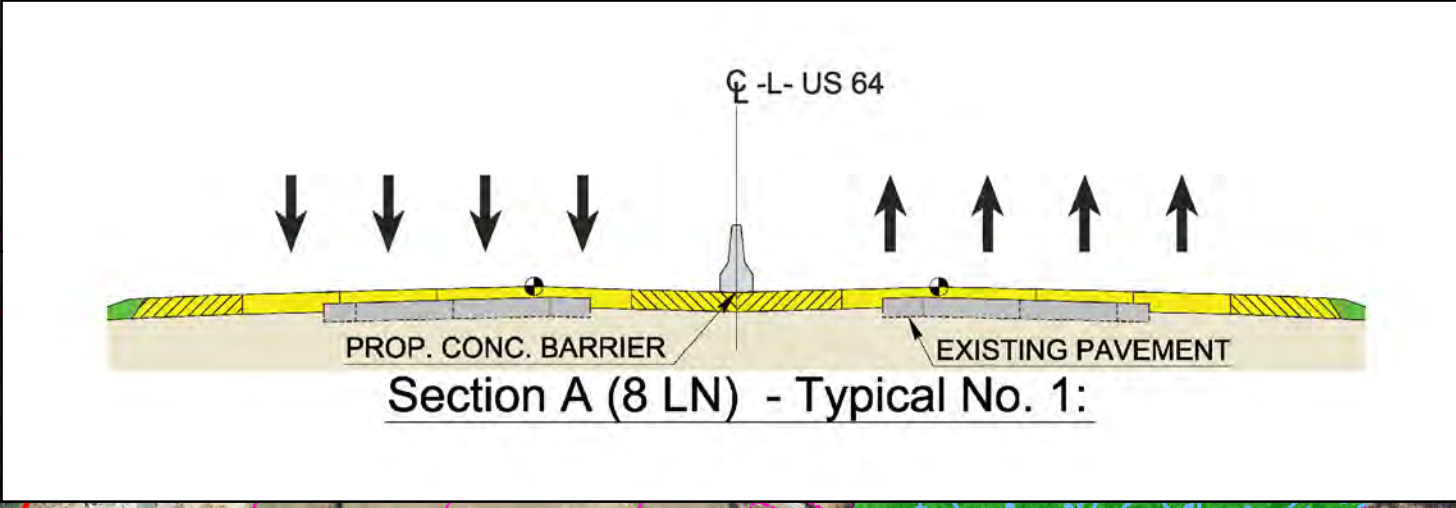
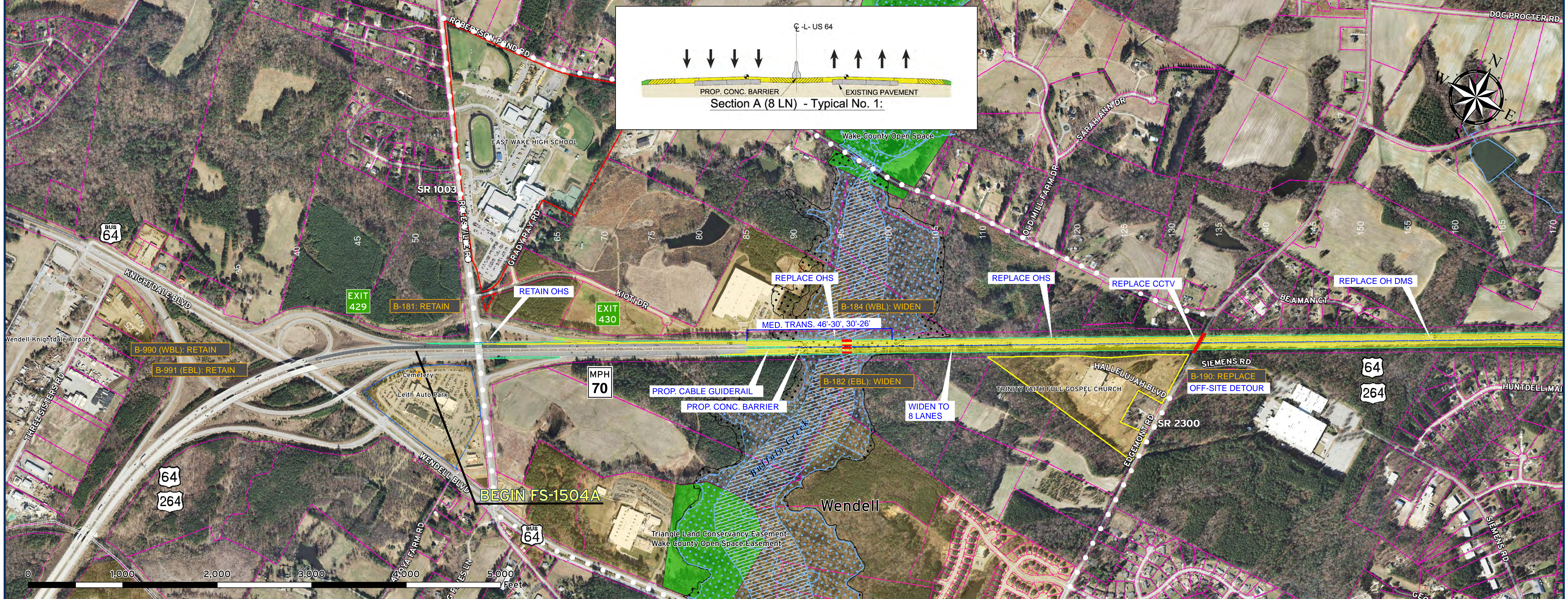
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FS-1504A SHEET 1-6LN

Section A Alt. 2 (6 Lane)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		100 Year Floodplain
	Library		500 Year Floodplain
	Open Space		FEMA Floodway
	Park		Railroad
	School		Stream
	State Managed Land		County Boundary
	Golf Course		Municipal Boundary
	Hospital		

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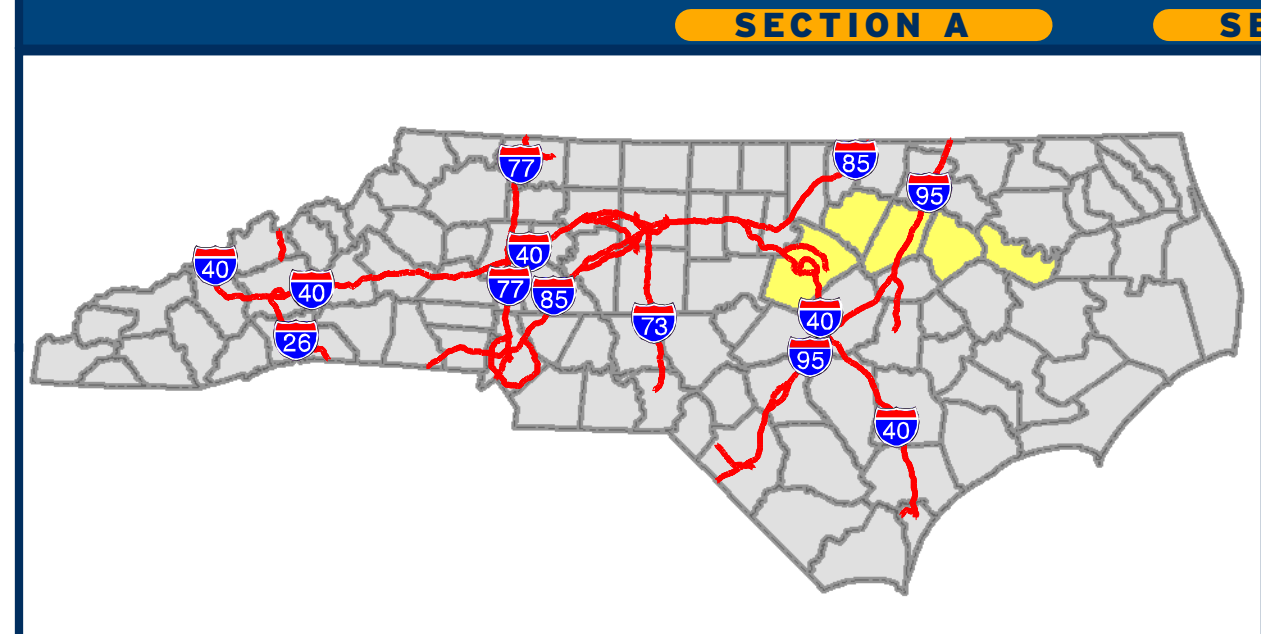
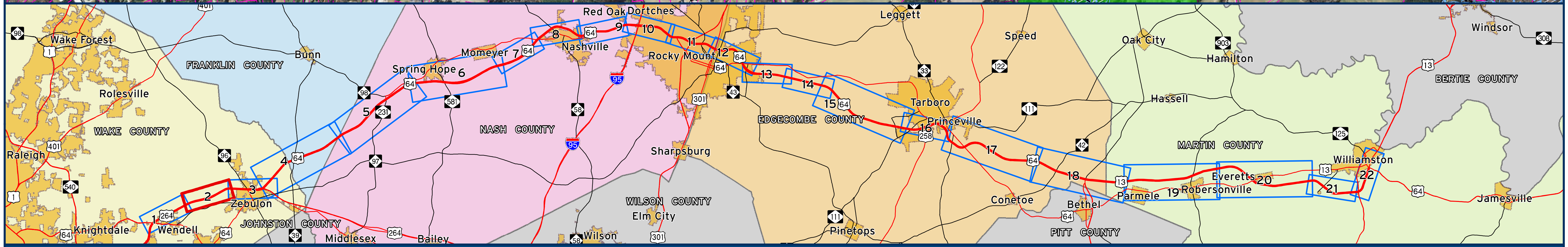
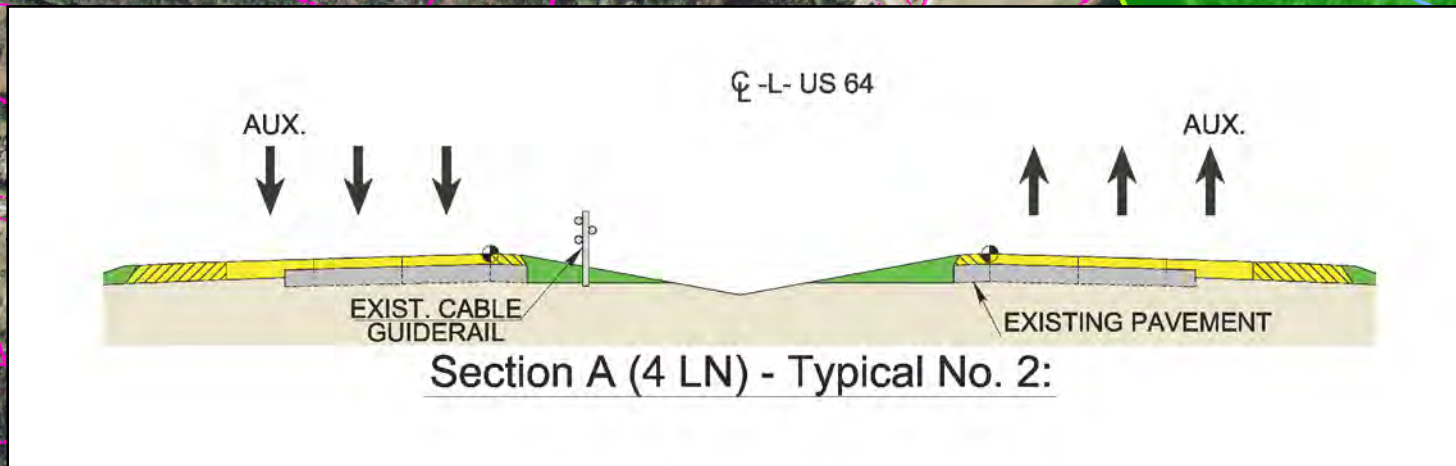
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FS-1504A SHEET 1-8LN

Section A Alt. 3 (8 Lane)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Airport	Open Space	Proposed Bridges	Proposed Roadway / Detours
Business	Park	Proposed Paved Shoulders	Proposed ROW / CA
Cemetery	School	Railroad	
Church	Parcel Boundaries	Stream	
Greenway	State Managed Land	County Boundary	
Library	Golf Course	Municipal Boundary	
Hospital	100 Year Floodplain	500 Year Floodplain	
	FEMA Floodway		

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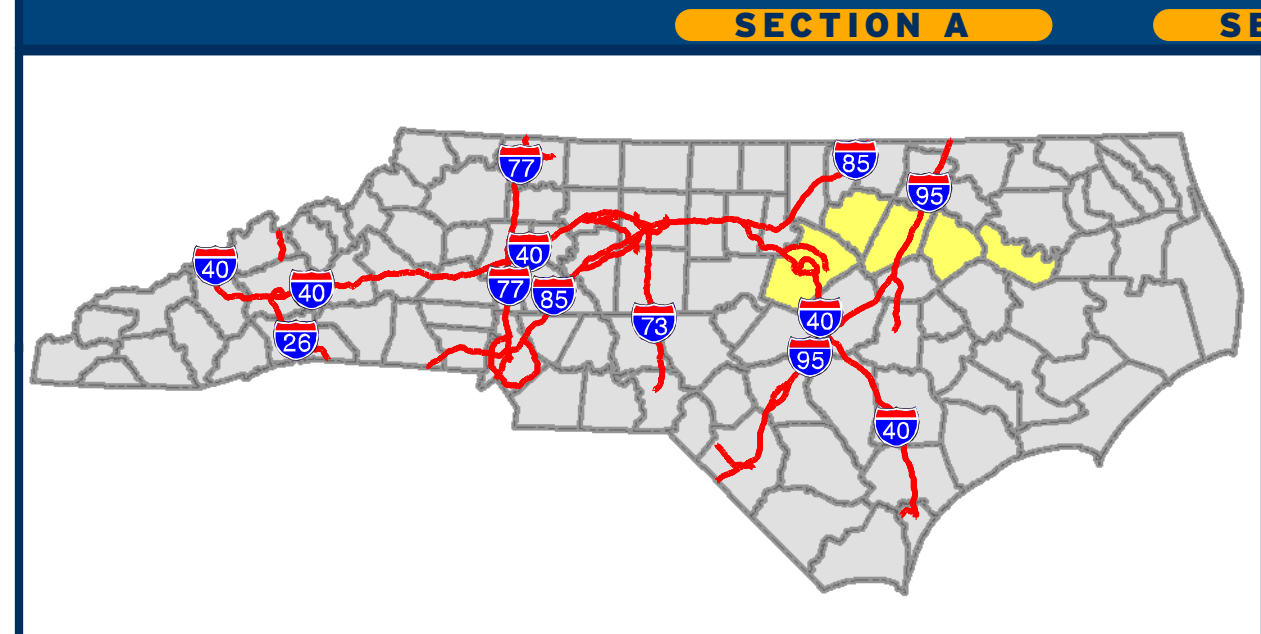
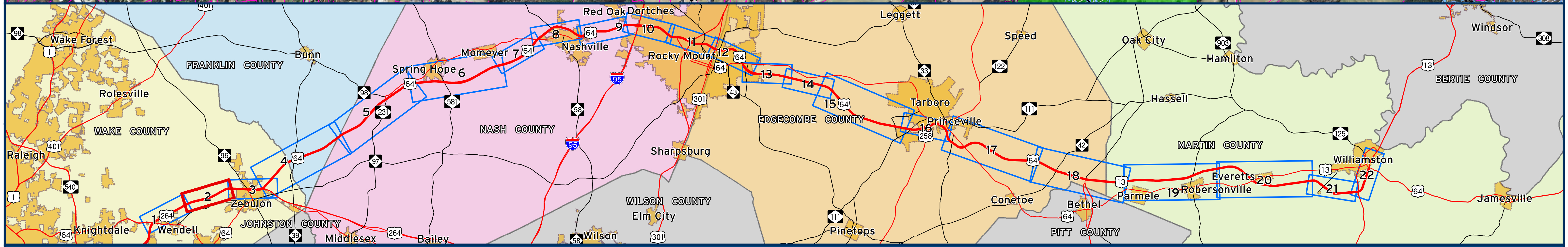
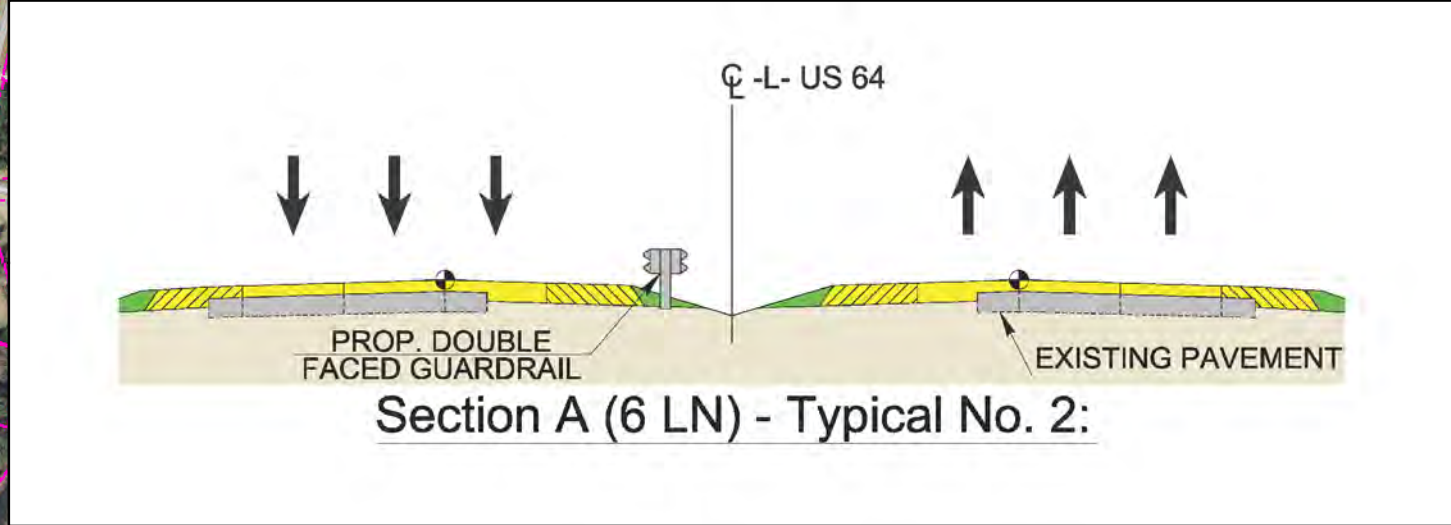
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FS-1504A **SHEET 2-4LN+**

Section A Alt.1 (4 Lane + Aux.)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Airport		Proposed Roadway / Detours
	Business		Proposed Paved Shoulders
	Cemetery		Proposed ROW / CA
	Church		100 Year Floodplain
	Greenway		500 Year Floodplain
	Library		FEMA Floodway
	School		Railroad
	State Managed Land		Stream
	Golf Course		County Boundary
	Hospital		Municipal Boundary

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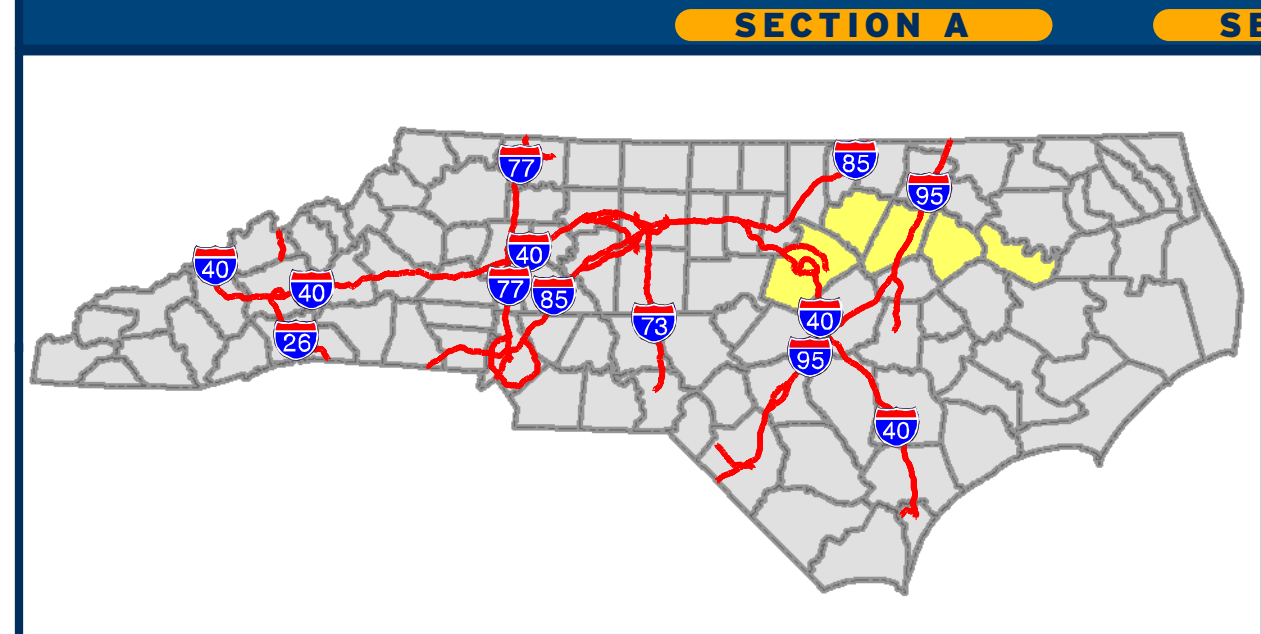
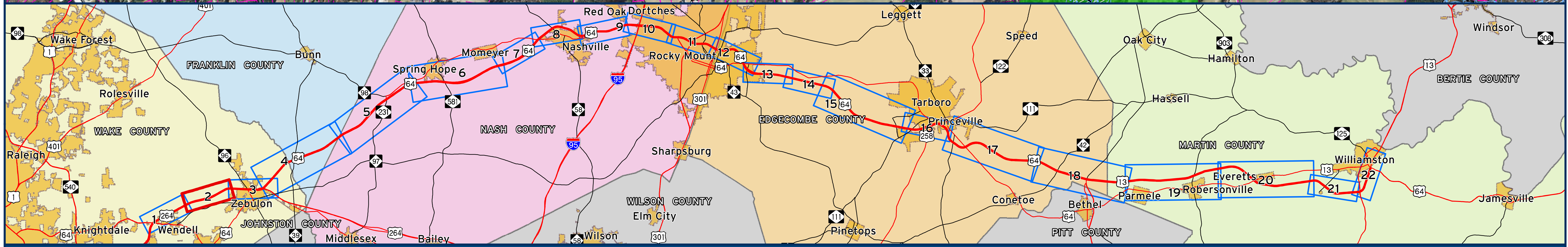
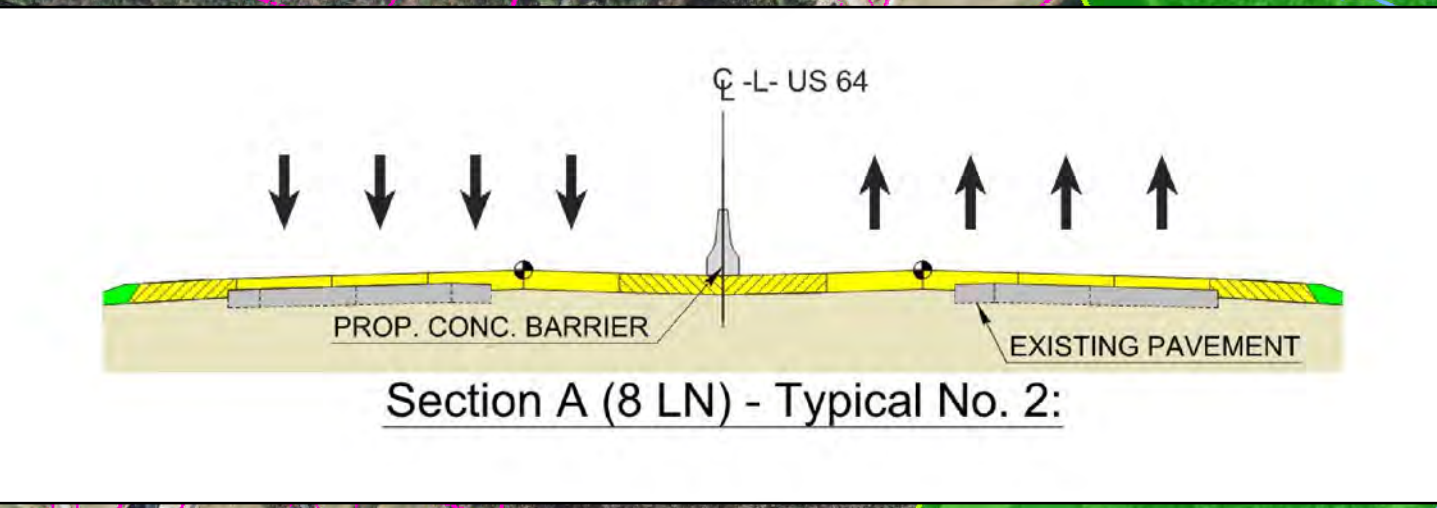
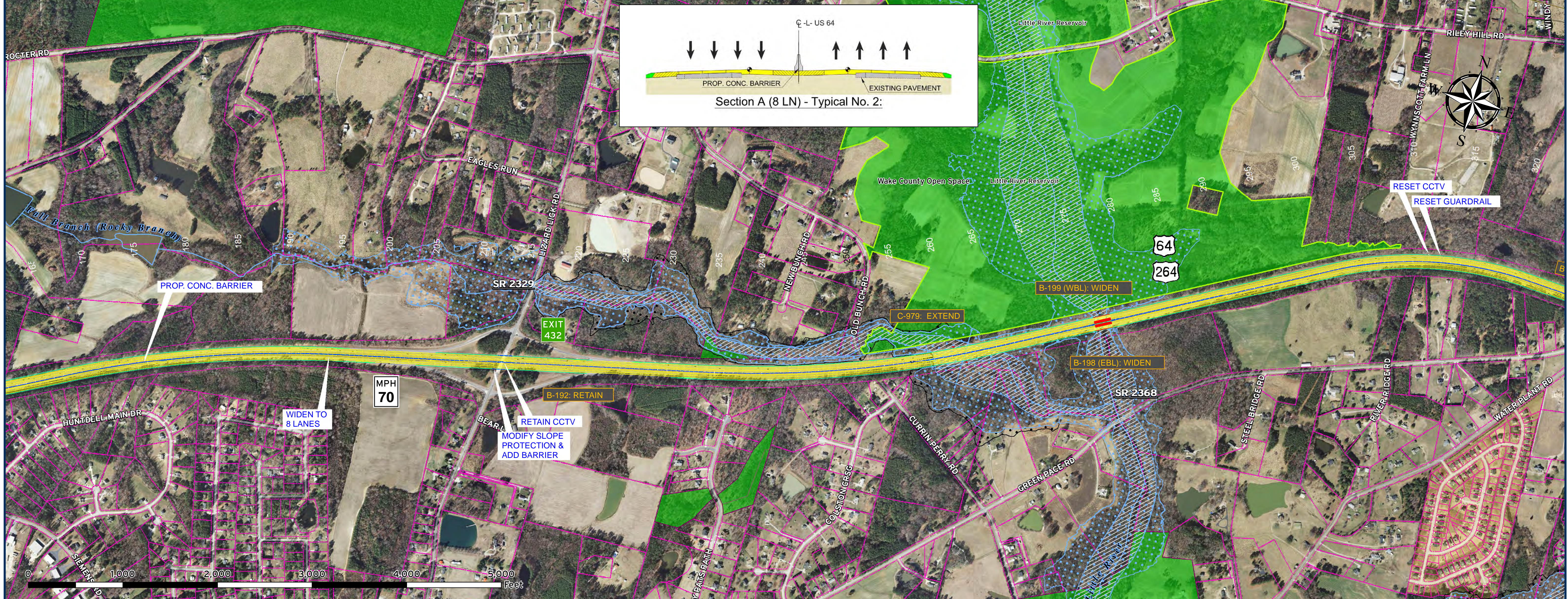
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FS-1504A **SHEET 2-6LN**

Section A Alt. 2 (6 Lane)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Airport	Open Space	Proposed Bridges	Proposed Roadway / Detours
Business	Park	Proposed Paved Shoulders	Proposed ROW / CA
Cemetery	School	100 Year Floodplain	
Church	Parcel Boundaries	500 Year Floodplain	
Greenway	State Managed Land	FEMA Floodway	
Library	Golf Course		
	Hospital		
	Railroad		
	Stream		
	County Boundary		
	Municipal Boundary		

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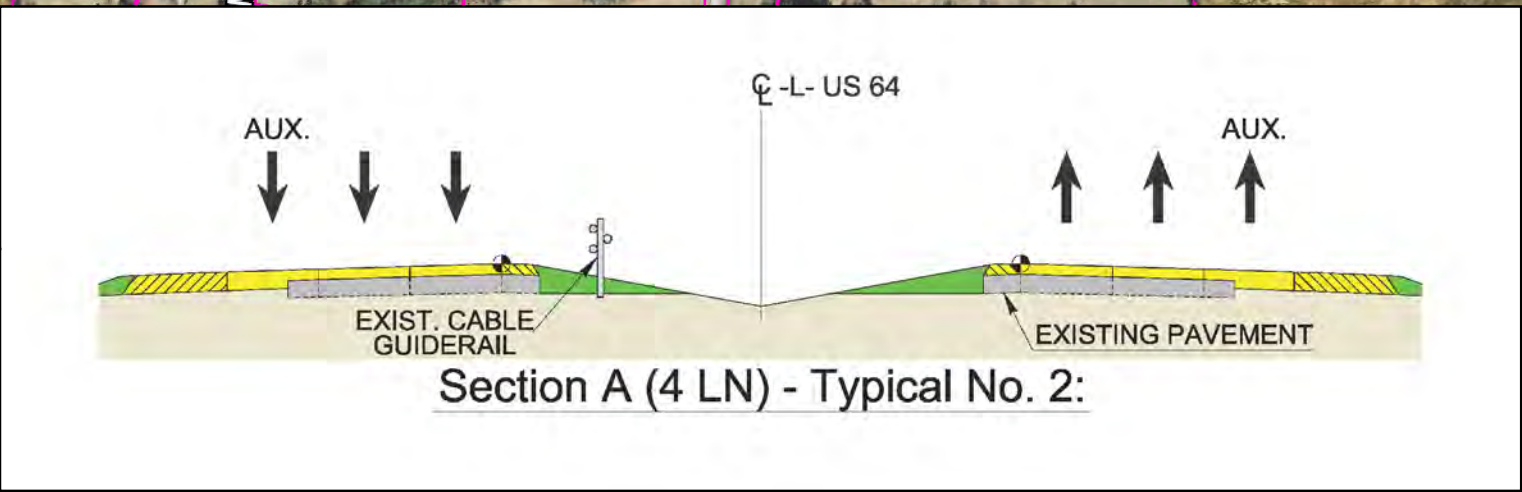
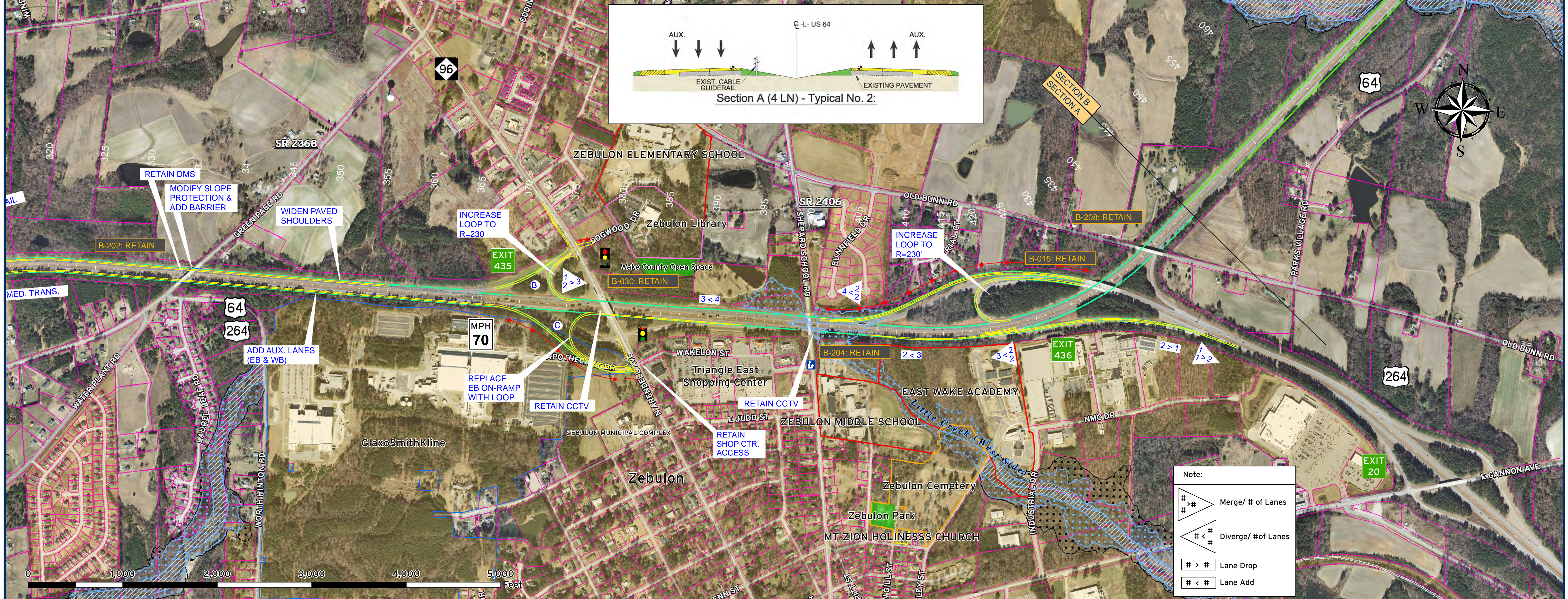
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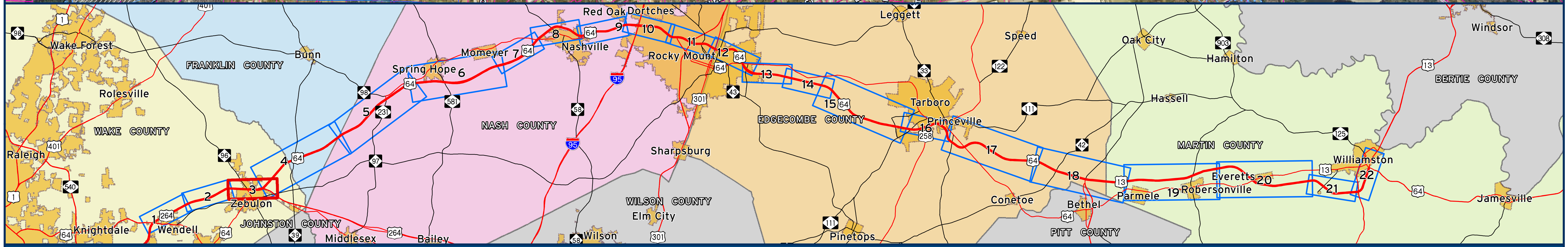
Section A Alt. 3 (8 Lane)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES

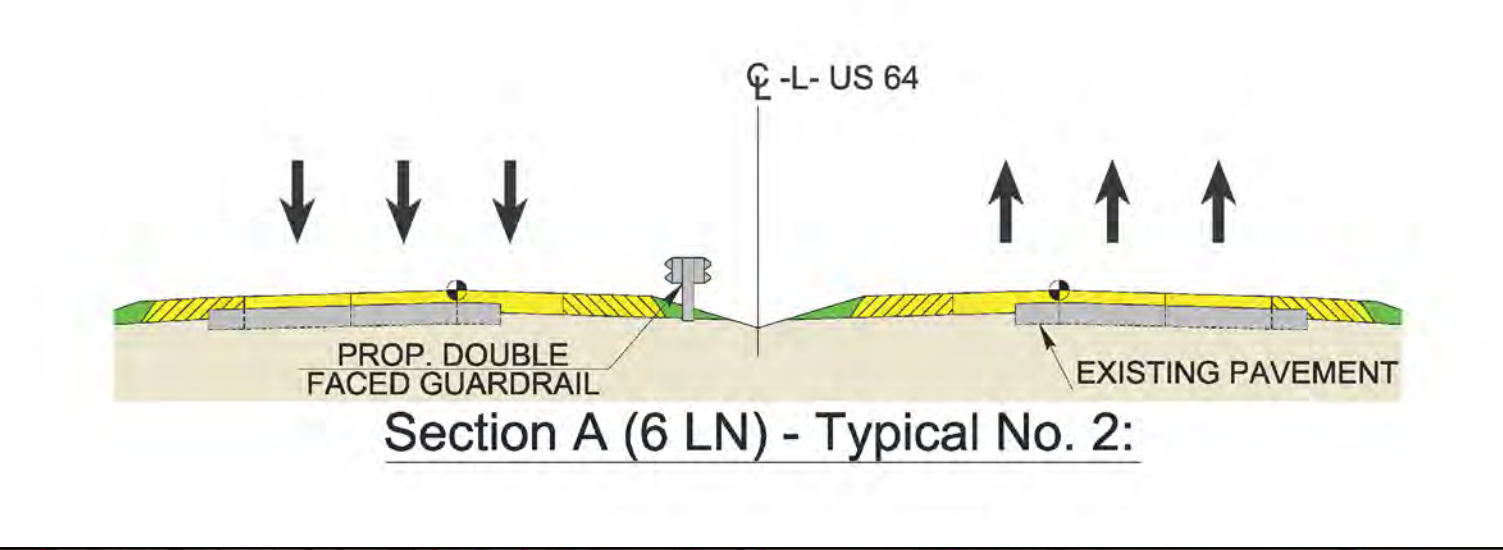


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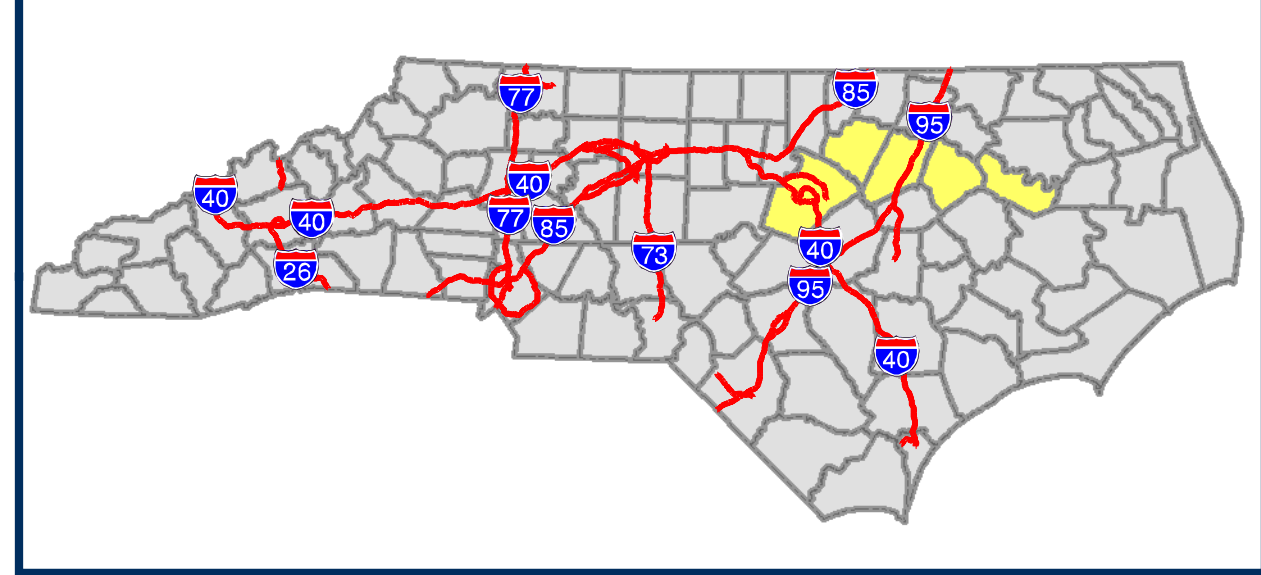
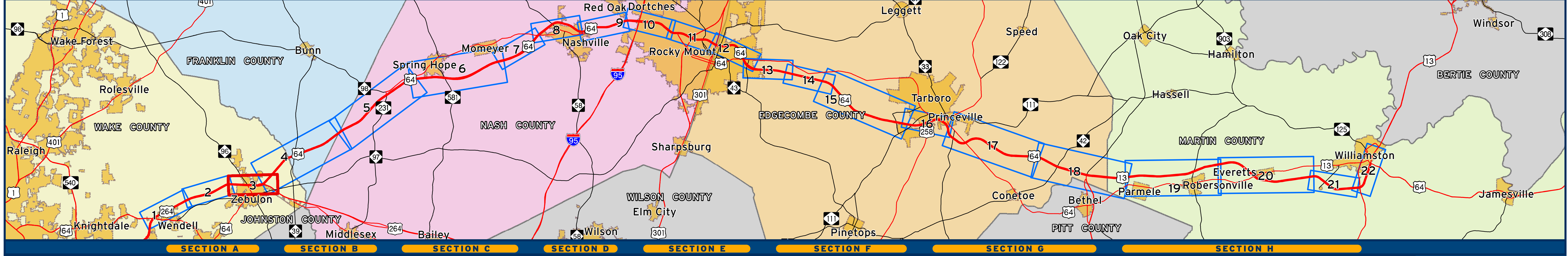


	LEGEND <ul style="list-style-type: none"> Airport Business Cemetery Church Greenway Library Open Space Park School Parcel Boundaries State Managed Land Golf Course Hospital Railroad Stream County Boundary Municipal Boundary 100 Year Floodplain 500 Year Floodplain FEMA Floodway 	DESIGN ELEMENTS <ul style="list-style-type: none"> Proposed Bridges Proposed Roadway / Detours Proposed Paved Shoulders Proposed ROW / CA 	PREPARED FOR: FEASIBILITY STUDIES UNIT N.C. DEPT OF TRANSPORTATION RALEIGH, NORTH CAROLINA www.ncdot.gov	FS-1504A SHEET 3-4LN+ Section A Alt. 1 (4 Lane + Aux.) Upgrade US 64 to Interstate FROM SR 1003 (ROLESVILLE RD) [EXIT 430] TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES
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Note:

- # > # Merge / # of Lanes
- # < # Diverge / # of Lanes
- # > # Lane Drop
- # < # Lane Add



LEGEND

Airport	Open Space	Railroad
Business	Park	Stream
Cemetery	School	County Boundary
Church	Parcel Boundaries	Municipal Boundary
Greenway	State Managed Land	100 Year Floodplain
Library	Golf Course	500 Year Floodplain
	Hospital	FEMA Floodway

DESIGN ELEMENTS

- Proposed Bridges
- Proposed Roadway / Detours
- Proposed Paved Shoulders
- Proposed ROW / CA

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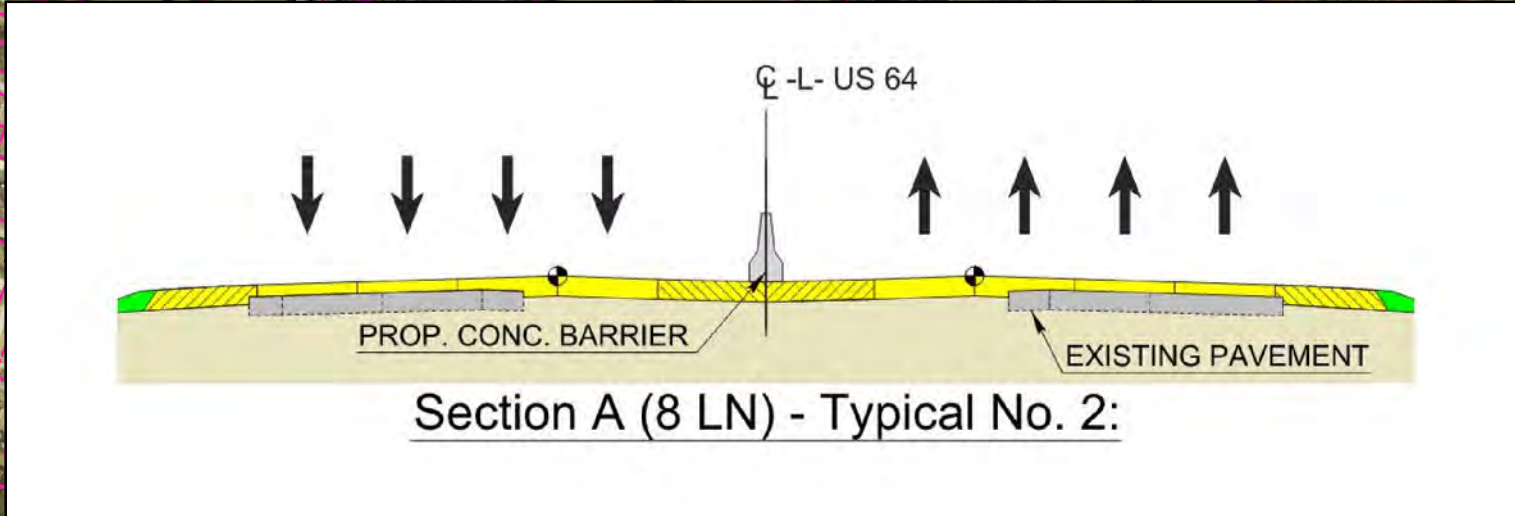
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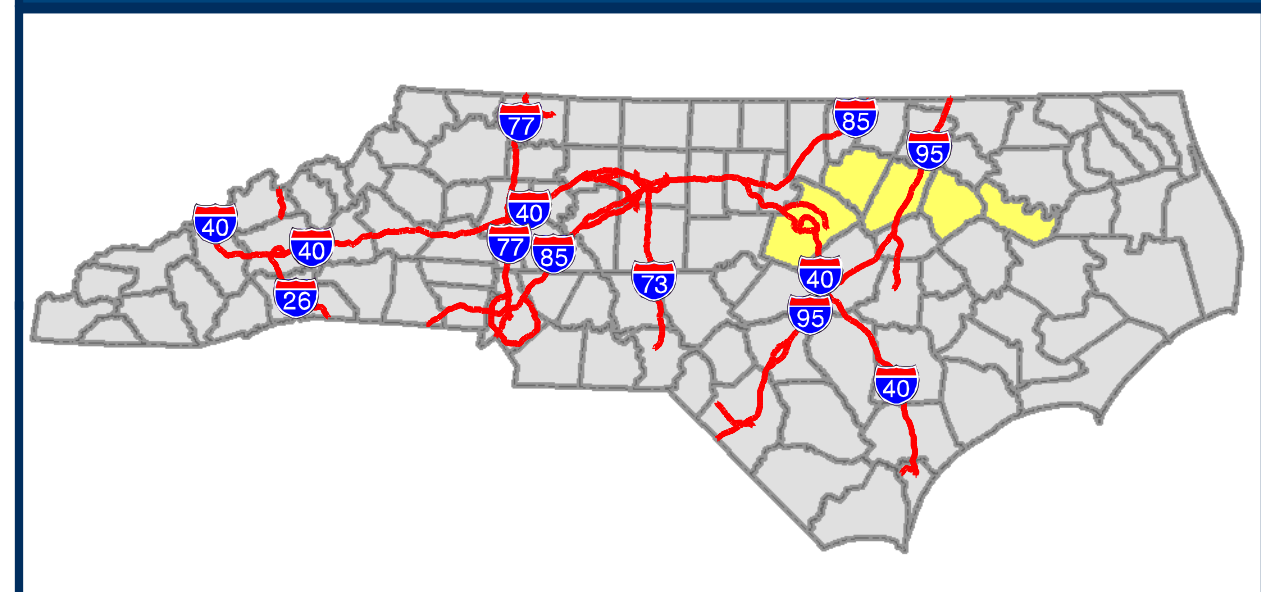
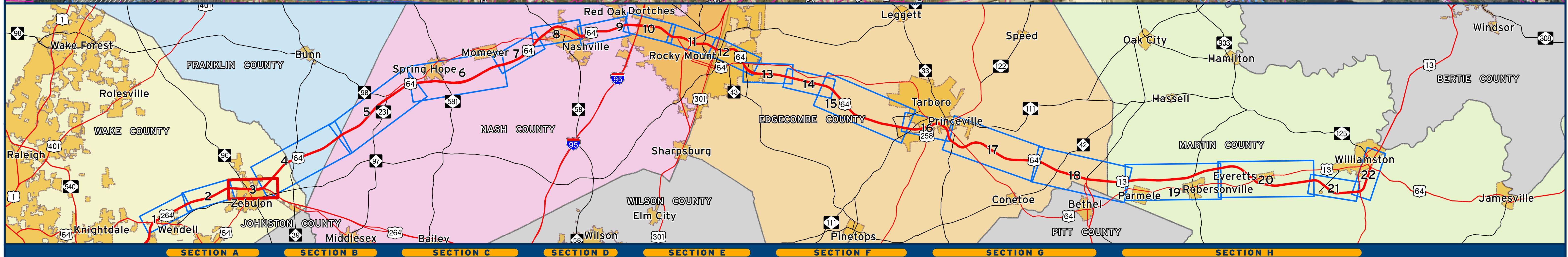
Section A Alt. 2 (6 Lane)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



Note:

# > #	Merge / # of Lanes
# < #	Diverge / # of Lanes
# > #	Lane Drop
# < #	Lane Add



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		
	Library		
	Open Space		100 Year Floodplain
	Park		500 Year Floodplain
	School		FEMA Floodway
	Parcel Boundaries		Railroad
	State Managed Land		Stream
	Golf Course		County Boundary
	Hospital		Municipal Boundary

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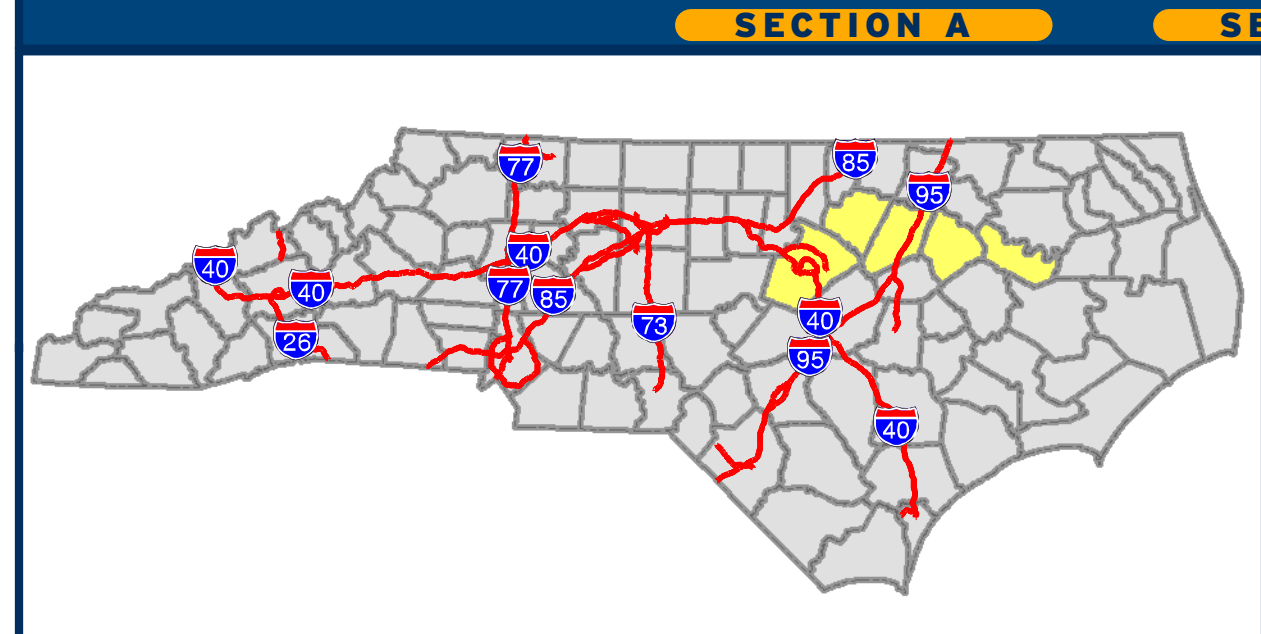
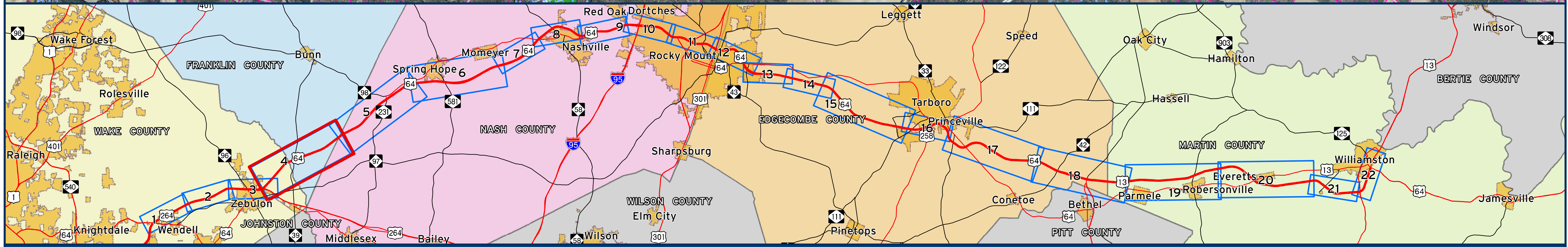
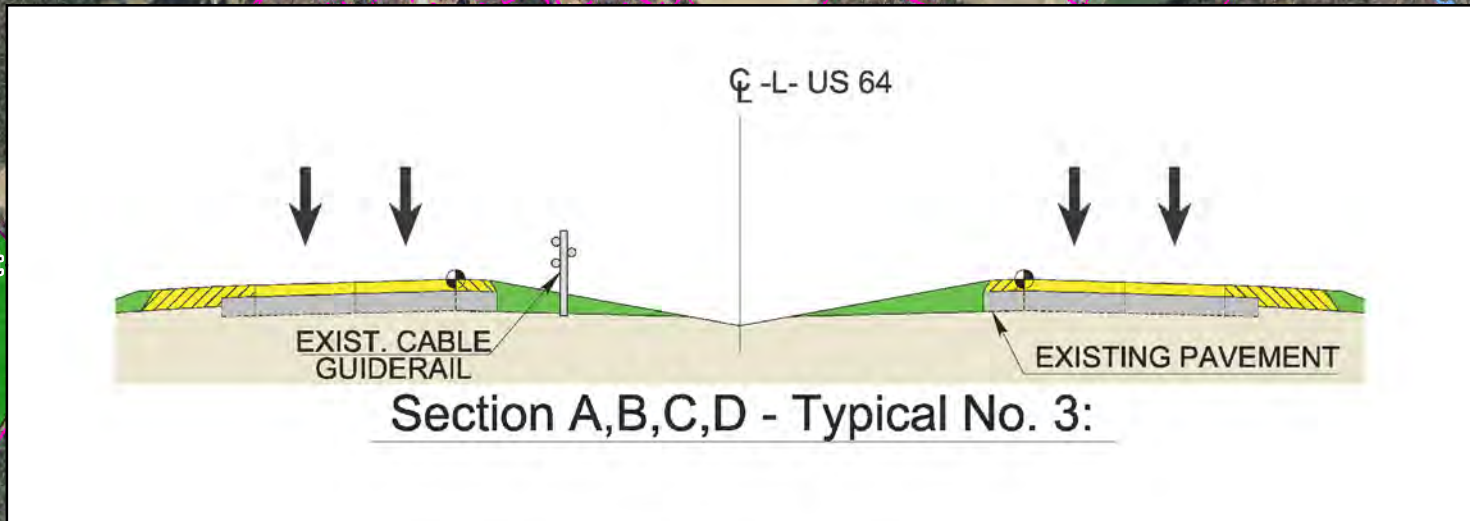
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Section A Alt. 3 (8 Lane)

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Airport		Proposed Roadway / Detours
	Business		Proposed Paved Shoulders
	Cemetery		Proposed ROW / CA
	Church		100 Year Floodplain
	Greenway		500 Year Floodplain
	Library		FEMA Floodway
	School		Railroad
	Parcel Boundaries		Stream
	State Managed Land		County Boundary
	Golf Course		Municipal Boundary
	Hospital		

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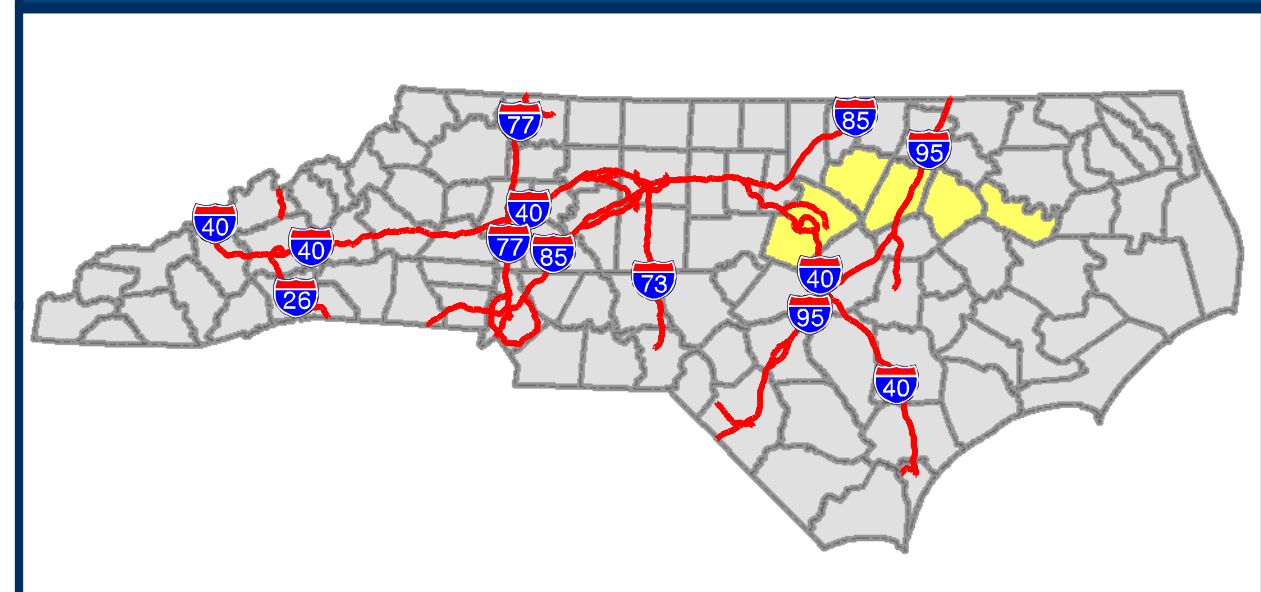
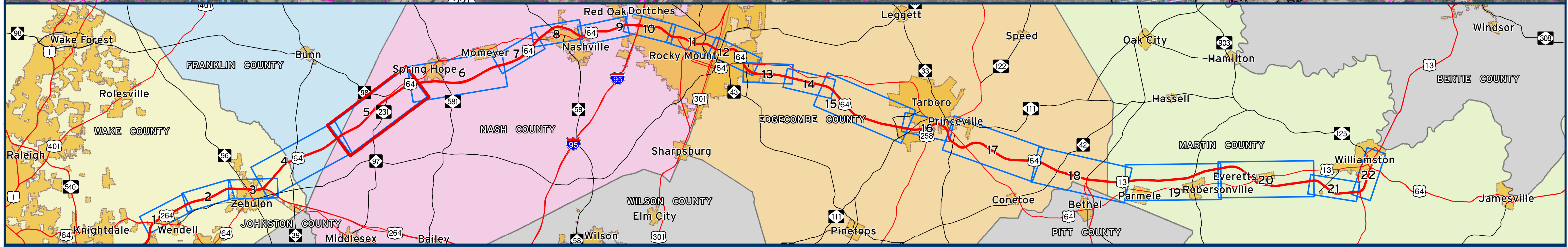
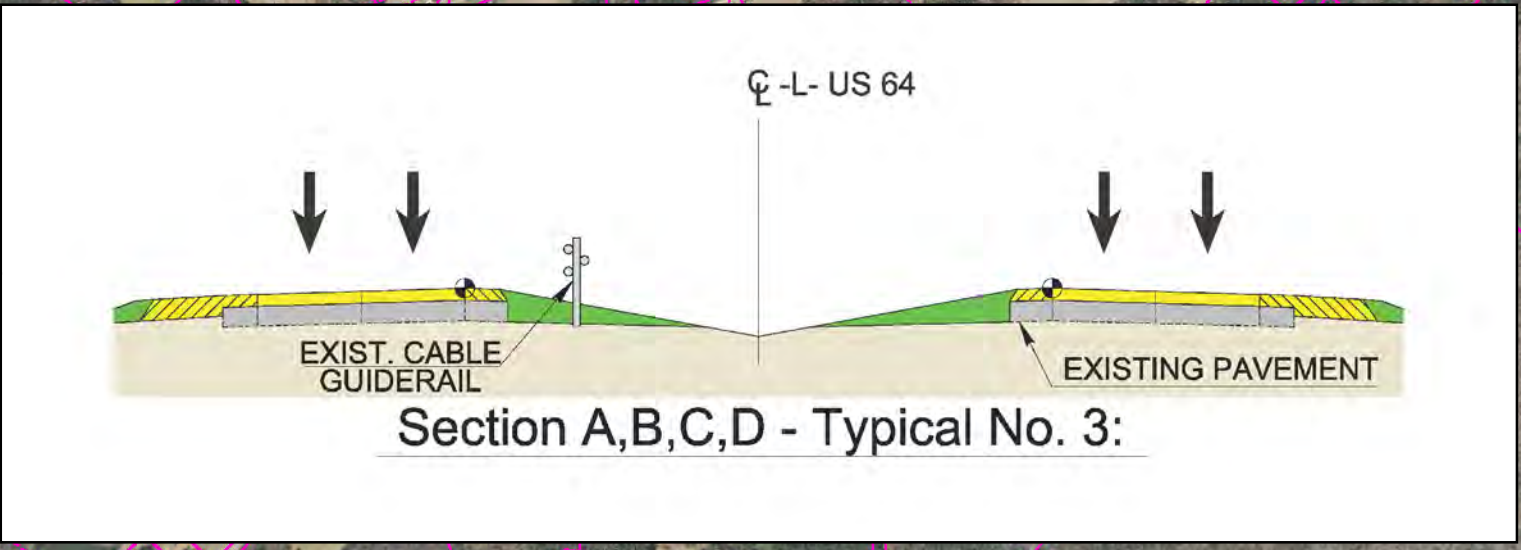
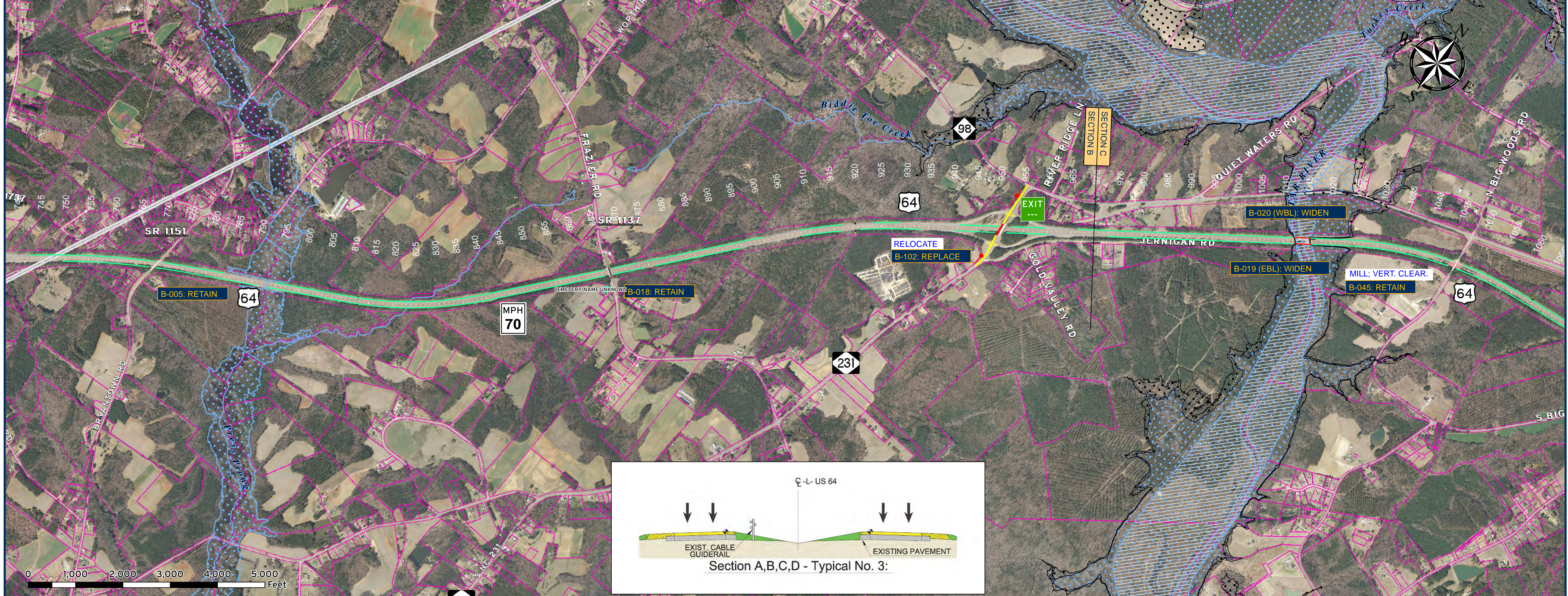
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Section B

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Open Space		Proposed Roadway / Detours
	Park		Proposed Paved Shoulders
	School		Proposed ROW / CA
	Church		100 Year Floodplain
	Greenway		500 Year Floodplain
	Library		FEMA Floodway
	Hospital		County Boundary
	State Managed Land		Municipal Boundary
	Golf Course		Railroad
	Parcel Boundaries		Stream

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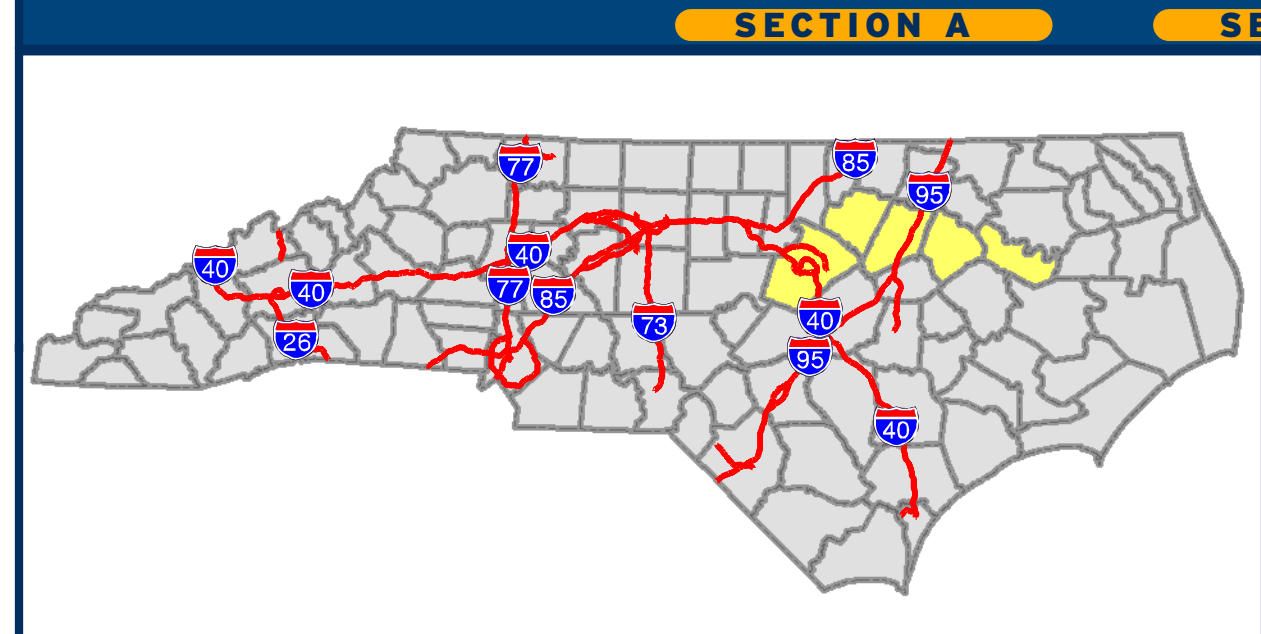
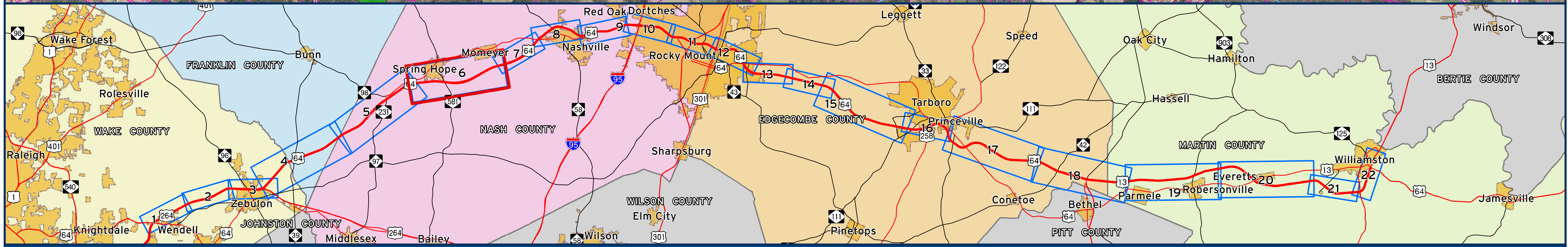
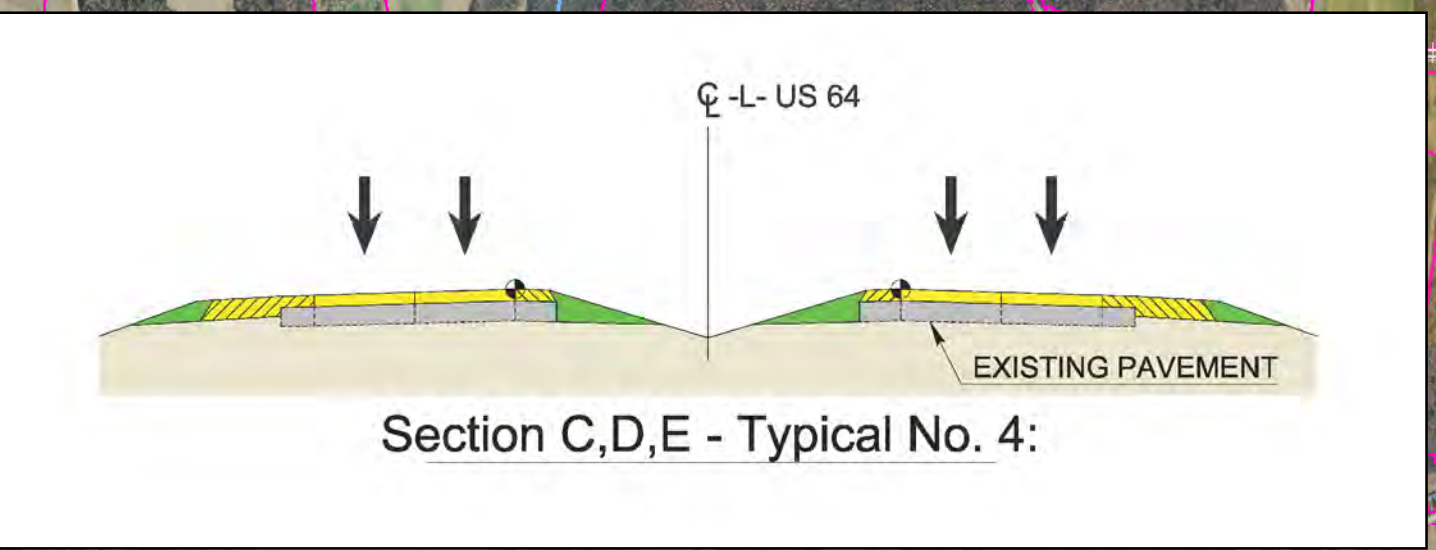
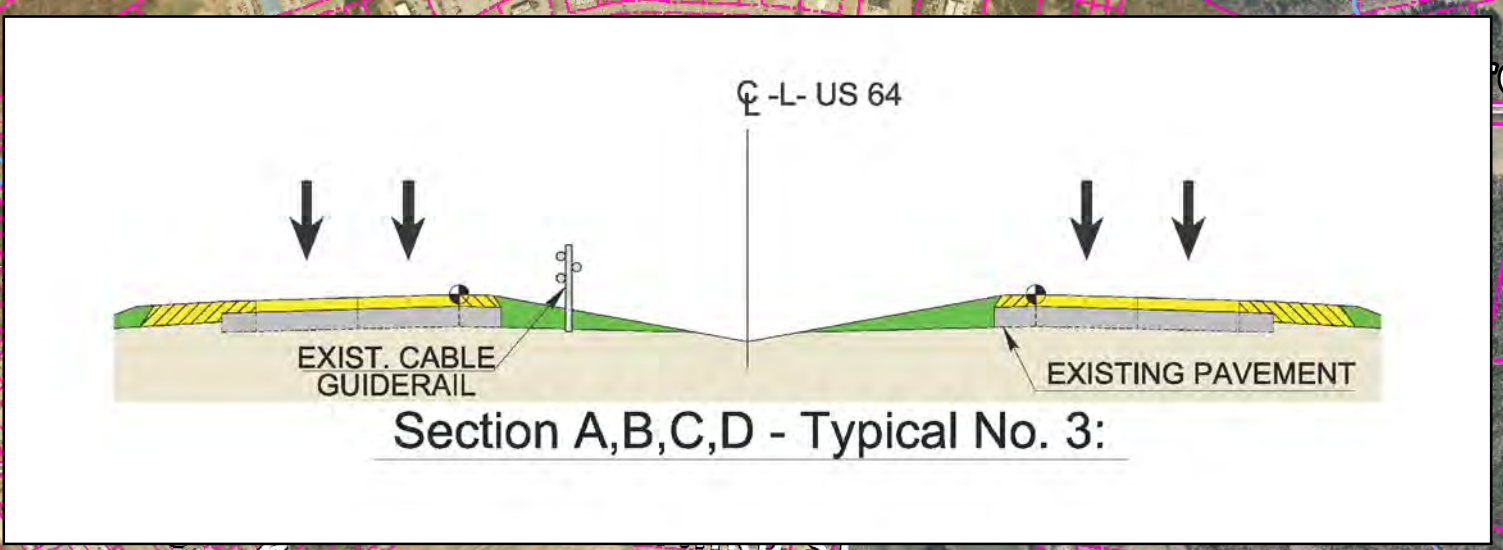
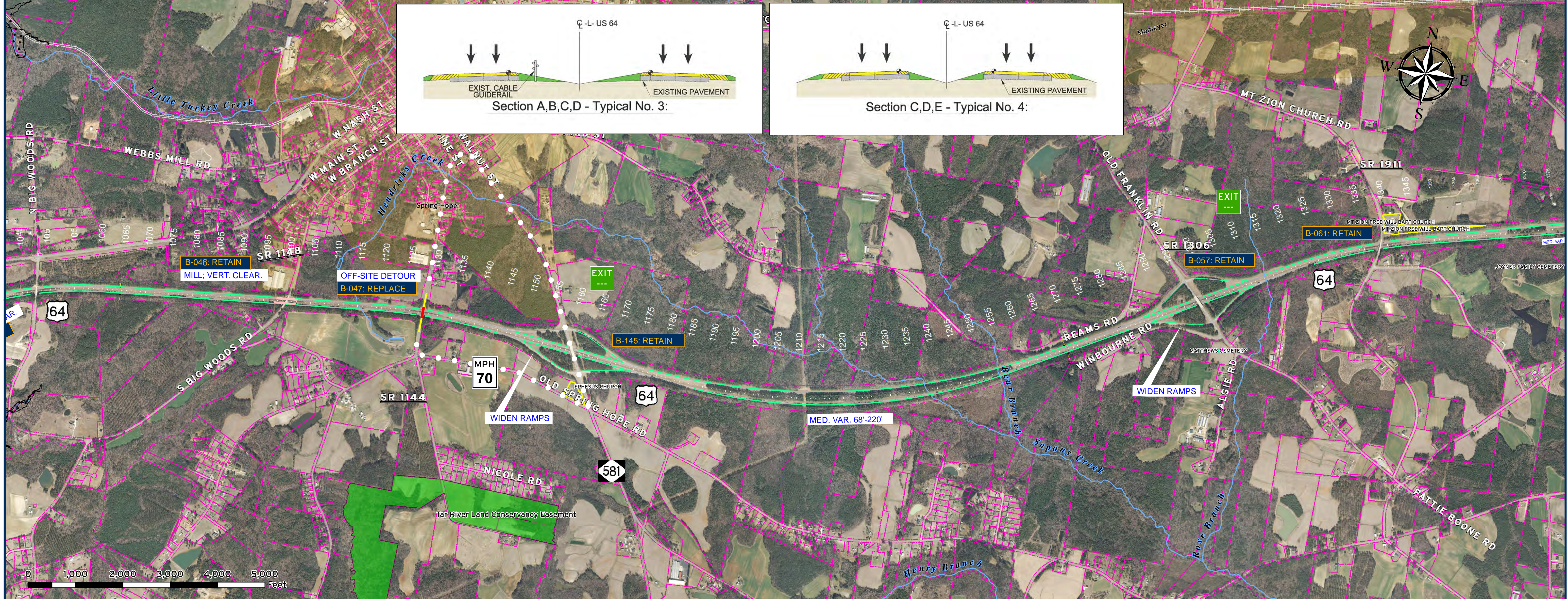
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Section B, C

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Airport	Open Space	Proposed Bridges	Proposed Roadway / Detours
Business	Park	Proposed Paved Shoulders	Proposed ROW / CA
Cemetery	School	Railroad	
Church	Parcel Boundaries	County Boundary	
Greenway	State Managed Land	100 Year Floodplain	
Library	Golf Course	500 Year Floodplain	
	Hospital	FEMA Floodway	
		Municipal Boundary	

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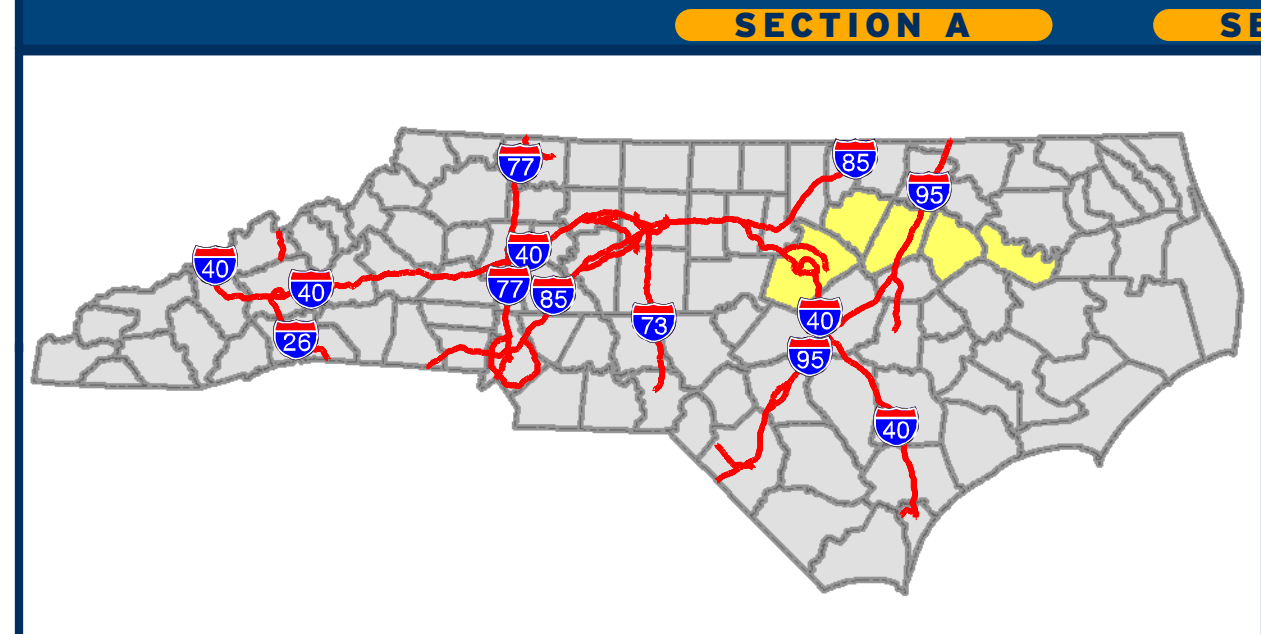
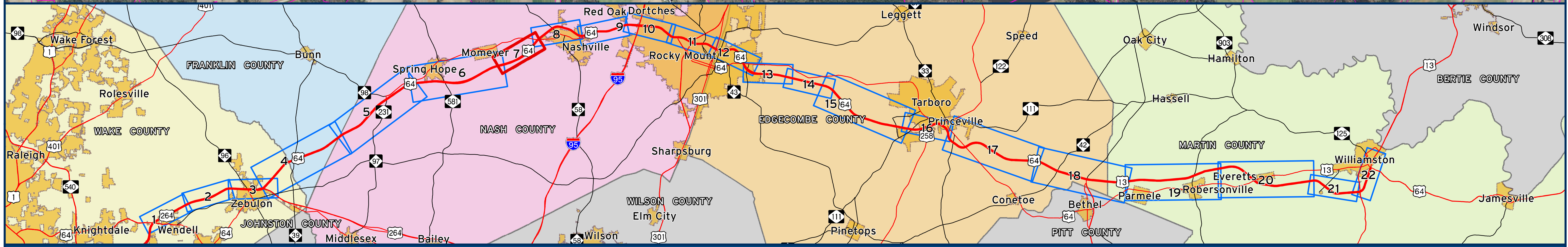
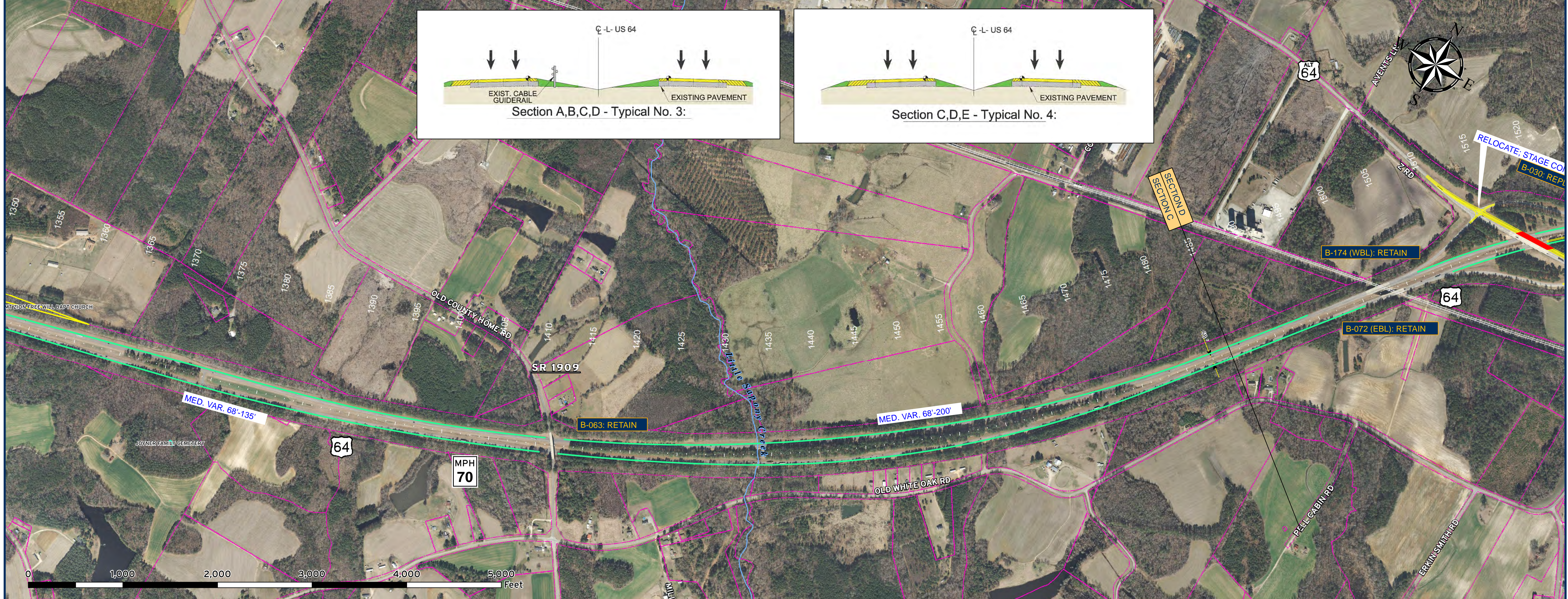
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Section C

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Open Space	Park	Proposed Bridges	Proposed Roadway / Detours
Airport	School	Proposed Paved Shoulders	Proposed ROW / CA
Business	Parcel Boundaries	100 Year Floodplain	
Cemetery	State Managed Land	500 Year Floodplain	
Church	Golf Course	FEMA Floodway	
Greenway	Hospital	Railroad	
Library	County Boundary	Municipal Boundary	

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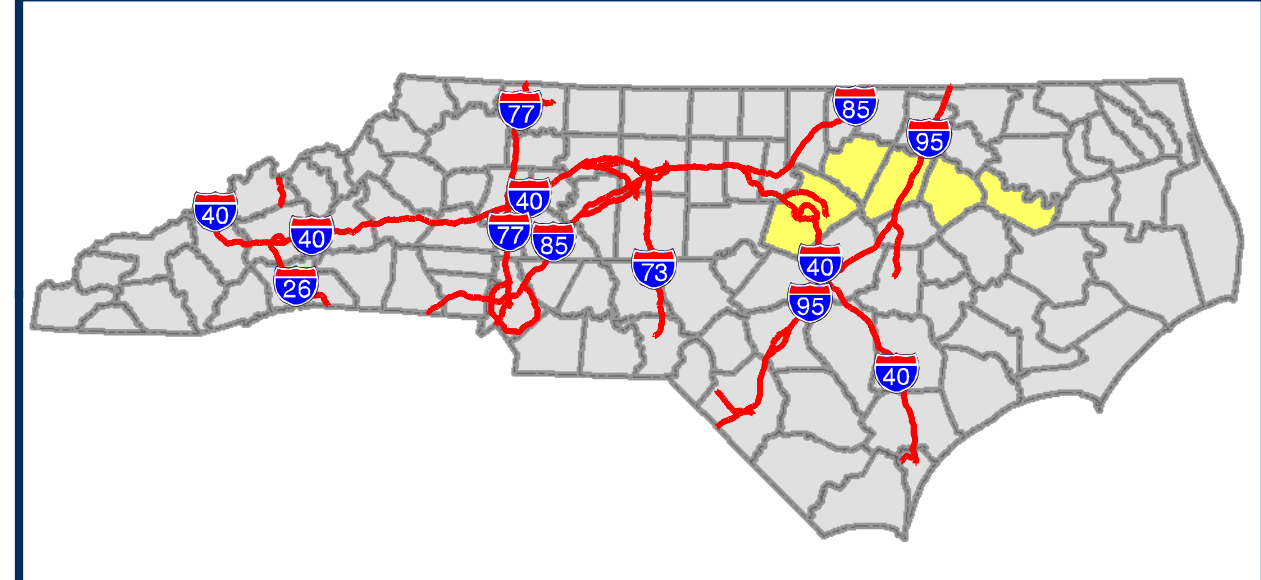
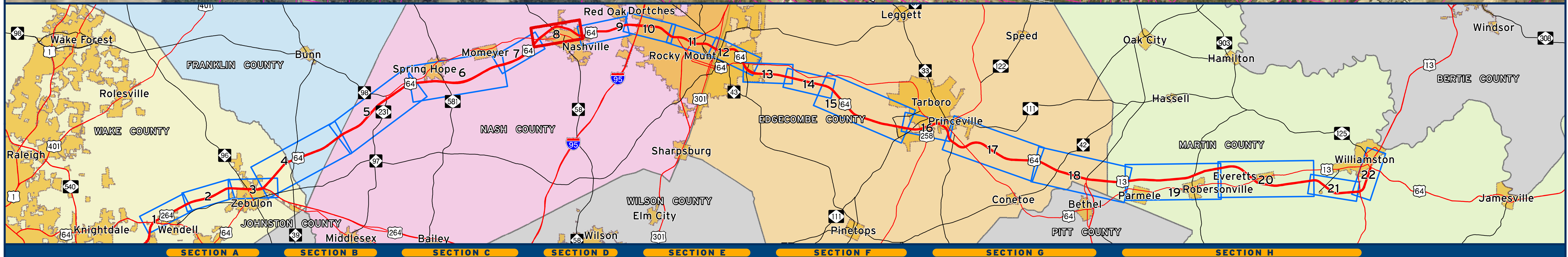
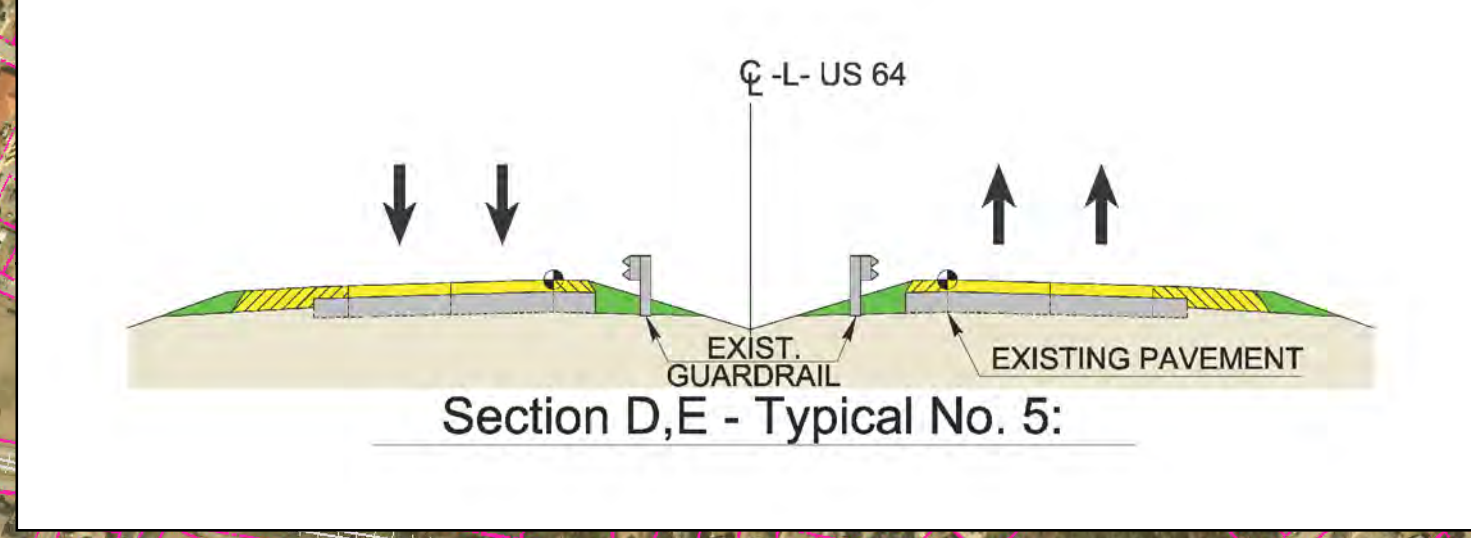
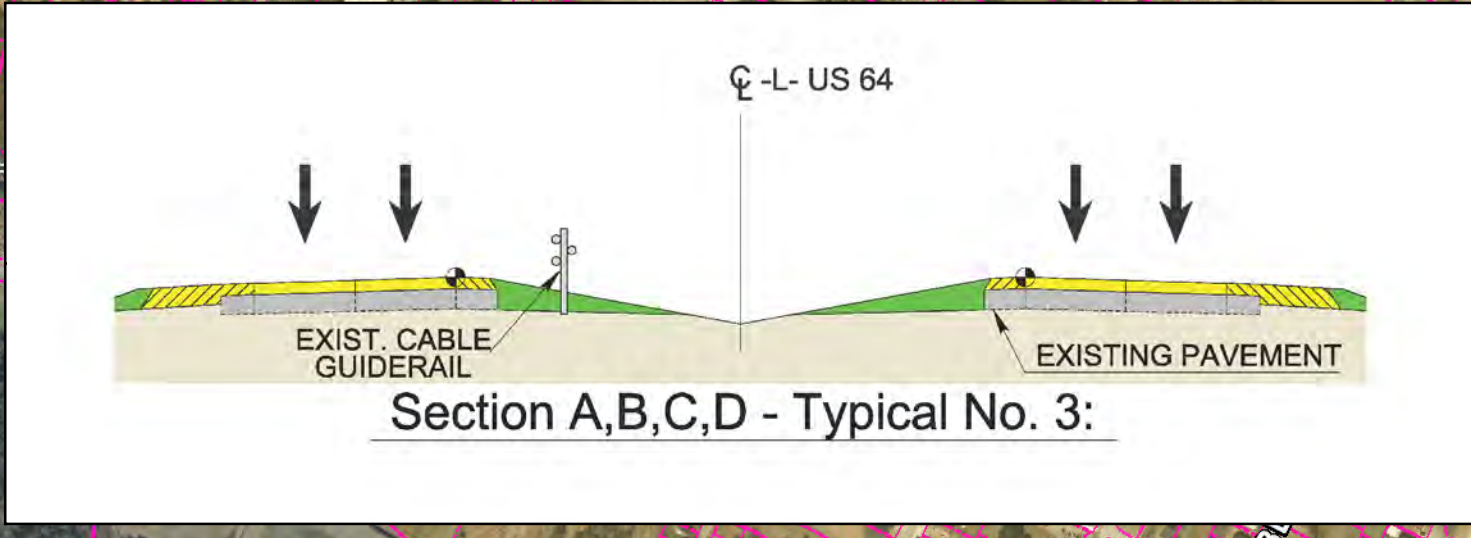
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Section C

Upgrade US 64 to Interstate
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TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGEcombe, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		100 Year Floodplain
	Library		500 Year Floodplain
	Open Space		FEMA Floodway
	Park		Railroad
	School		Stream
	Parcel Boundaries		County Boundary
	State Managed Land		Municipal Boundary
	Golf Course		
	Hospital		

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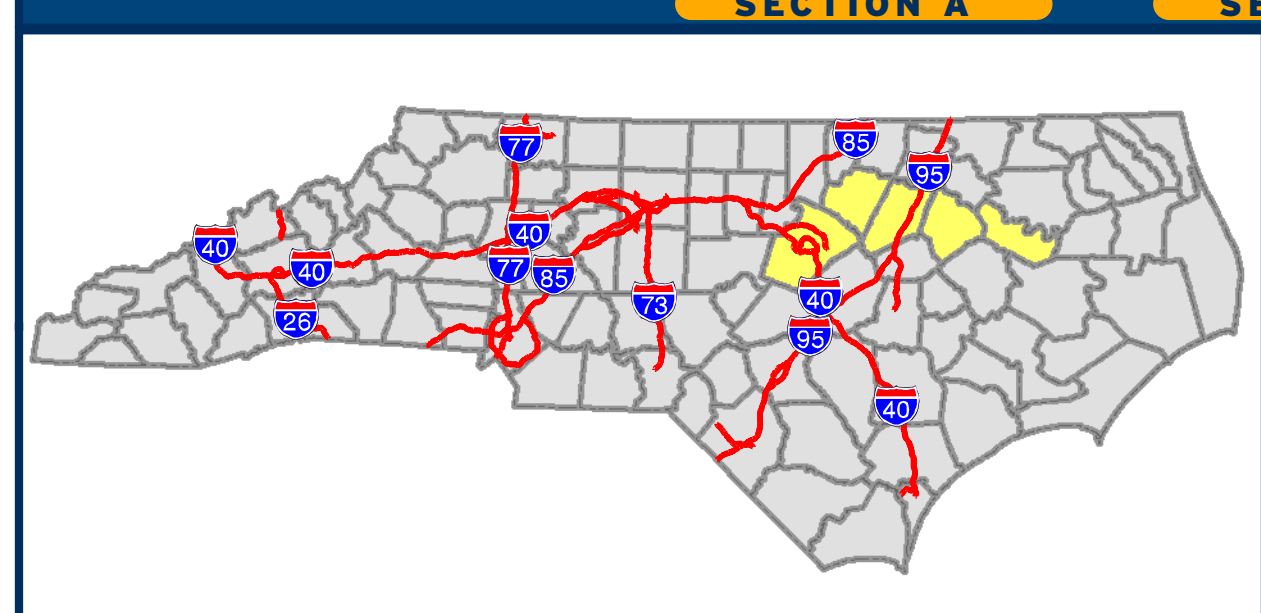
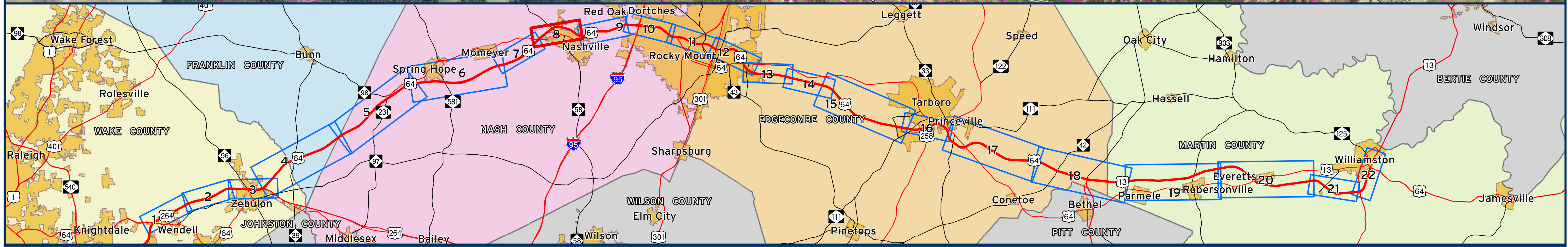
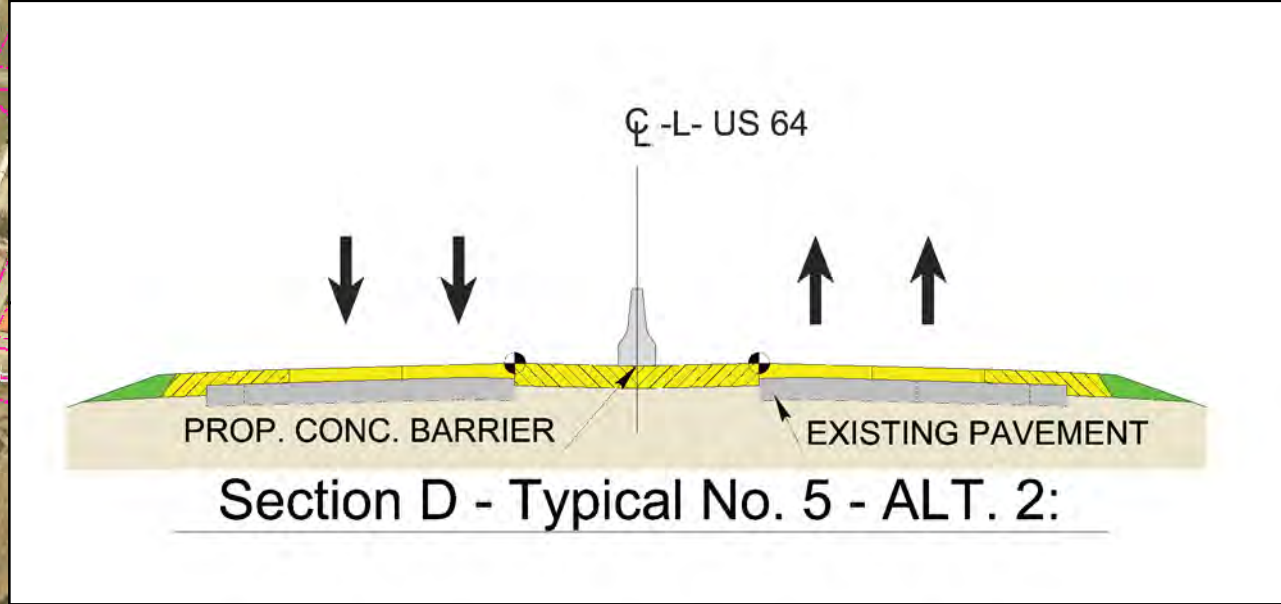
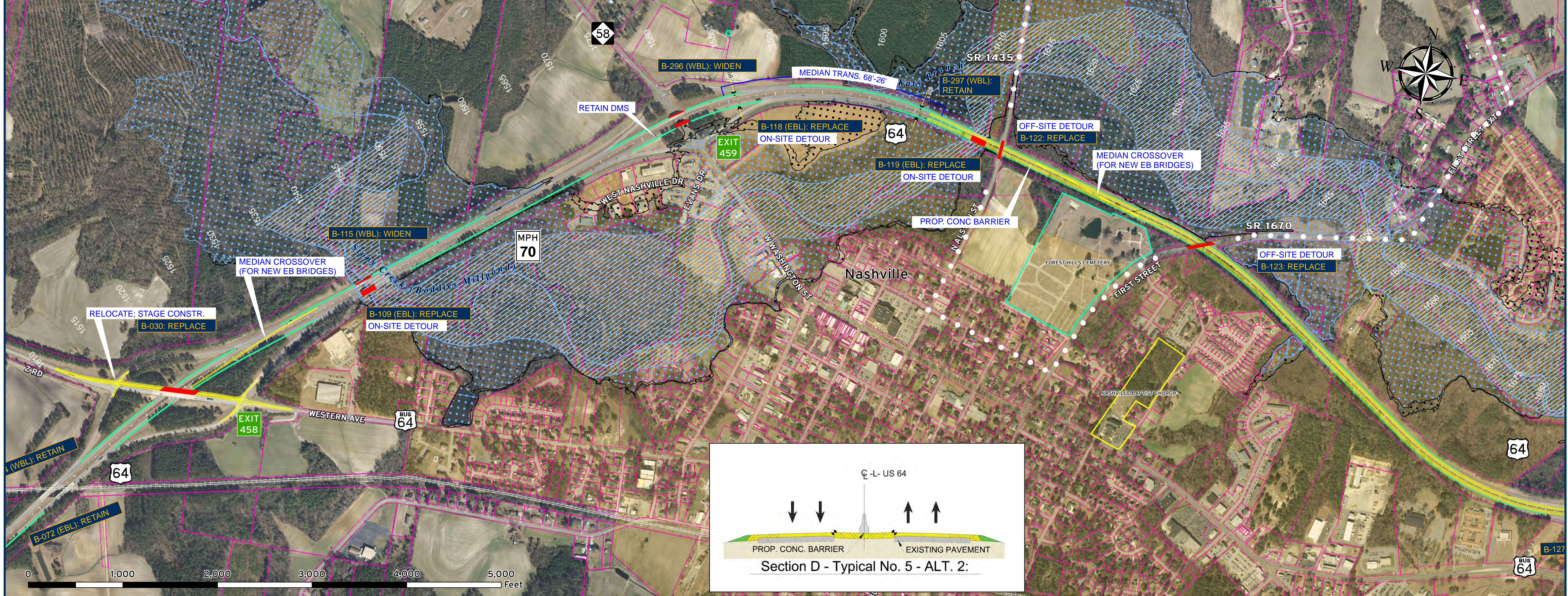
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Section D Alternative 1

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND

	Airport		Open Space		Railroad
	Business		Park		Stream
	Cemetery		School		County Boundary
	Church		Parcel Boundaries		Municipal Boundary
	Greenway		State Managed Land		100 Year Floodplain
	Library		Golf Course		500 Year Floodplain
			Hospital		FEMA Floodway

DESIGN ELEMENTS

	Proposed Bridges
	Proposed Roadway / Detours
	Proposed Paved Shoulders
	Proposed ROW / CA

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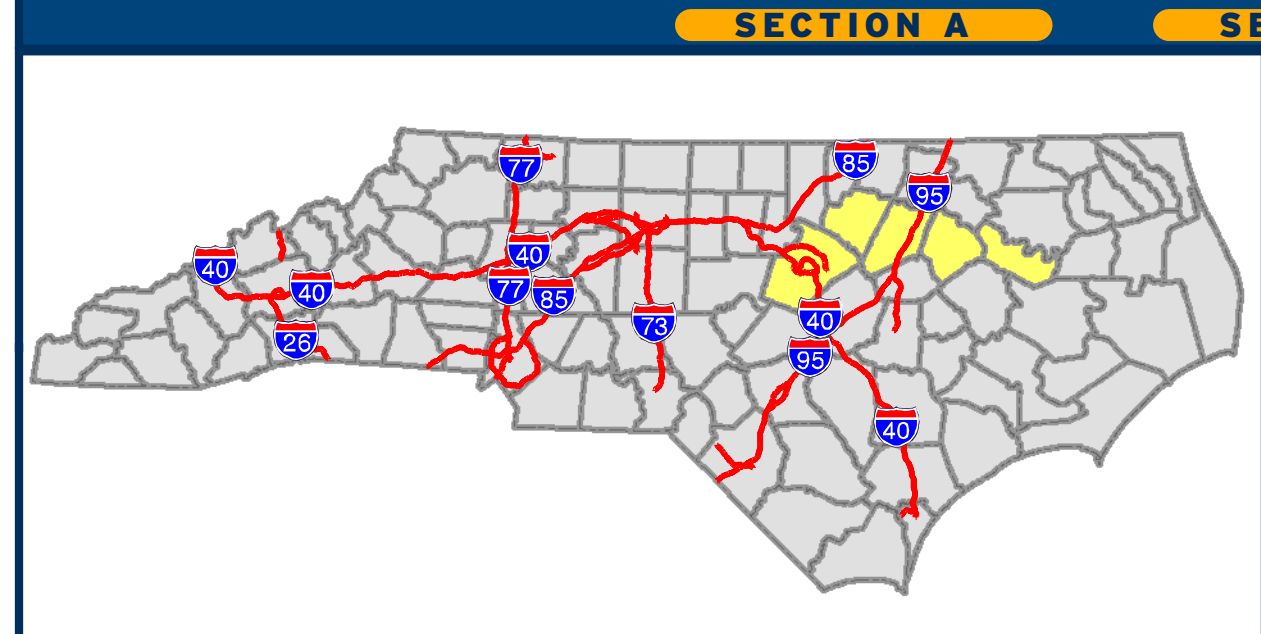
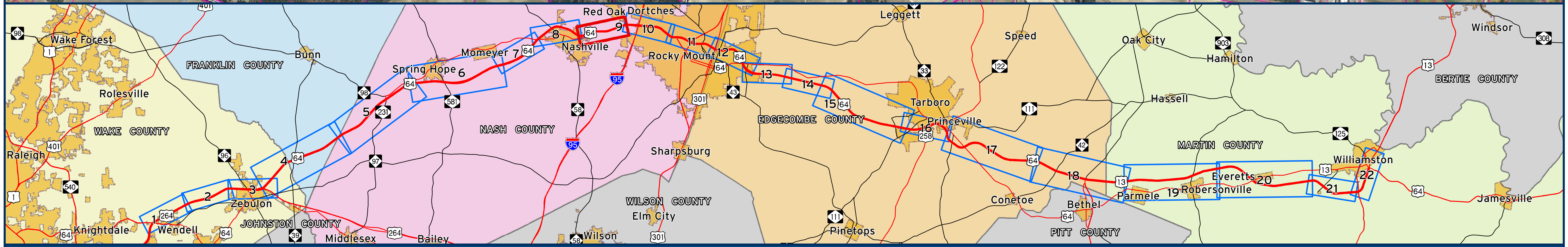
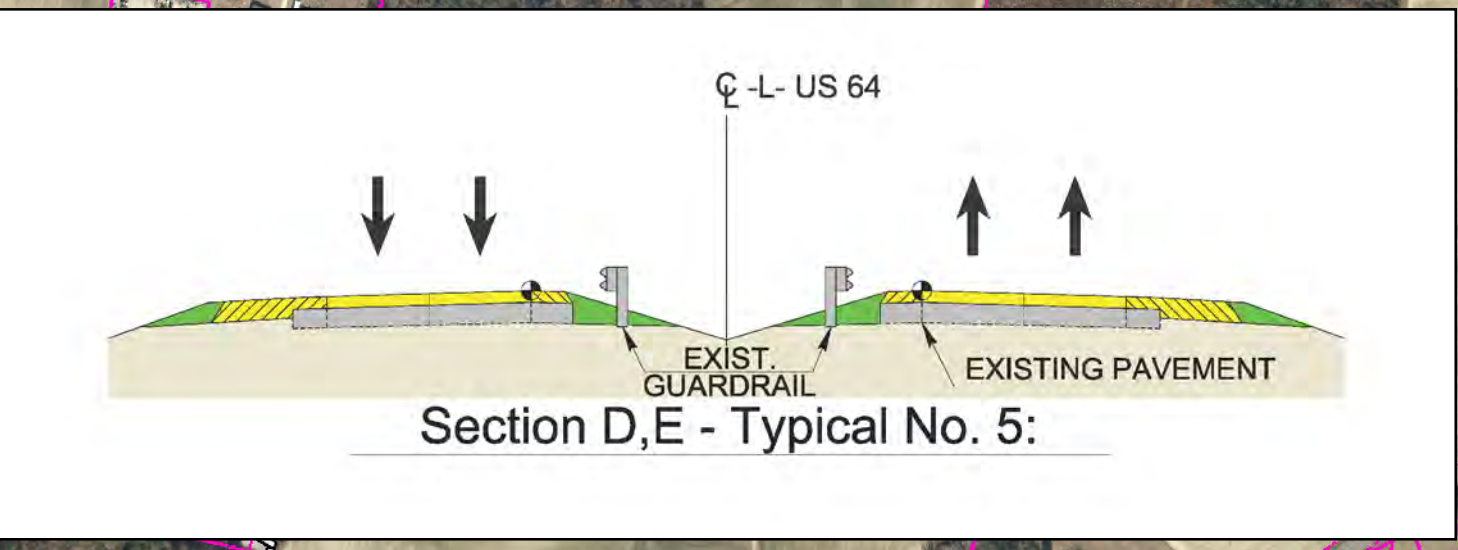
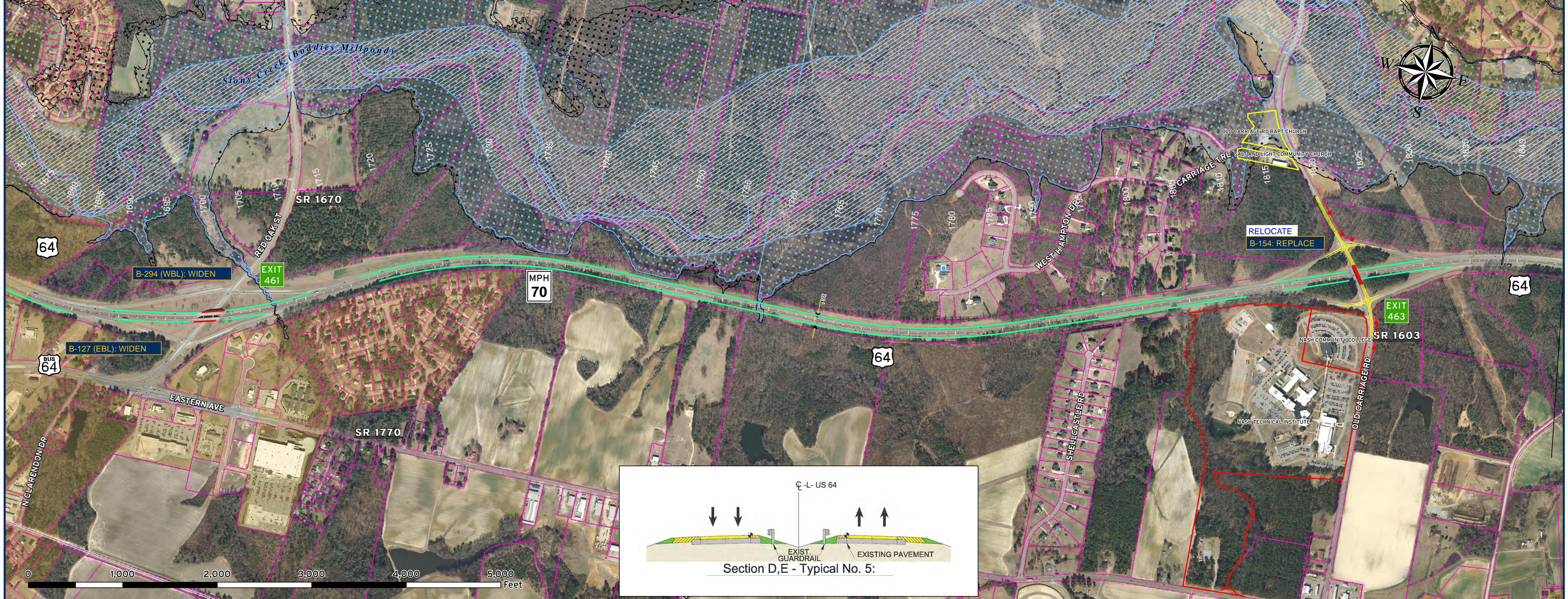
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Section D Alternative 2

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Airport		Proposed Roadway / Detours
	Business		Proposed Paved Shoulders
	Cemetery		Proposed ROW / CA
	Church		
	Greenway		
	Library		
	Park		
	School		
	Parcel Boundaries		
	State Managed Land		
	Golf Course		
	Hospital		
	Railroad		
	Stream		
	County Boundary		
	Municipal Boundary		
	100 Year Floodplain		
	500 Year Floodplain		
	FEMA Floodway		

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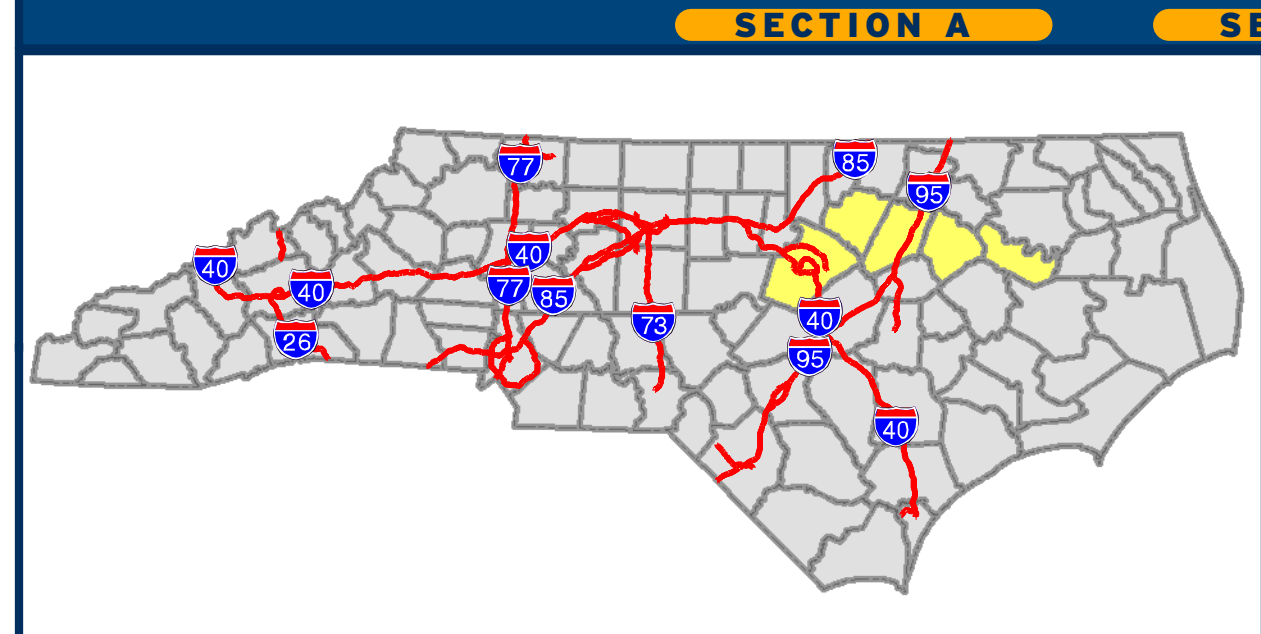
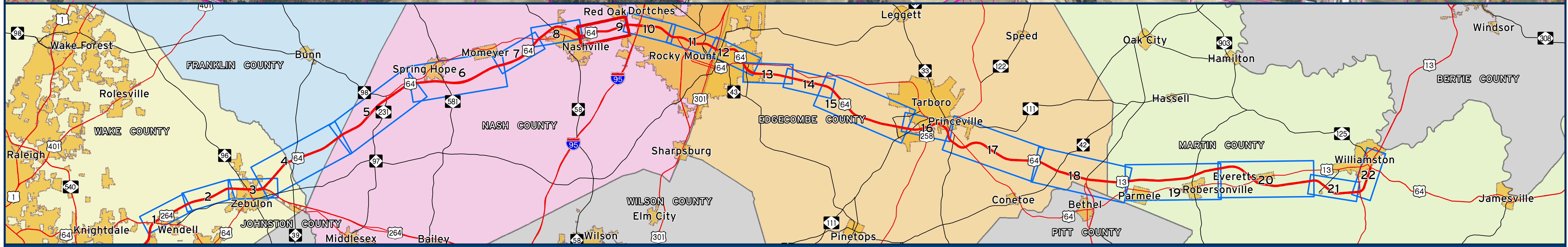
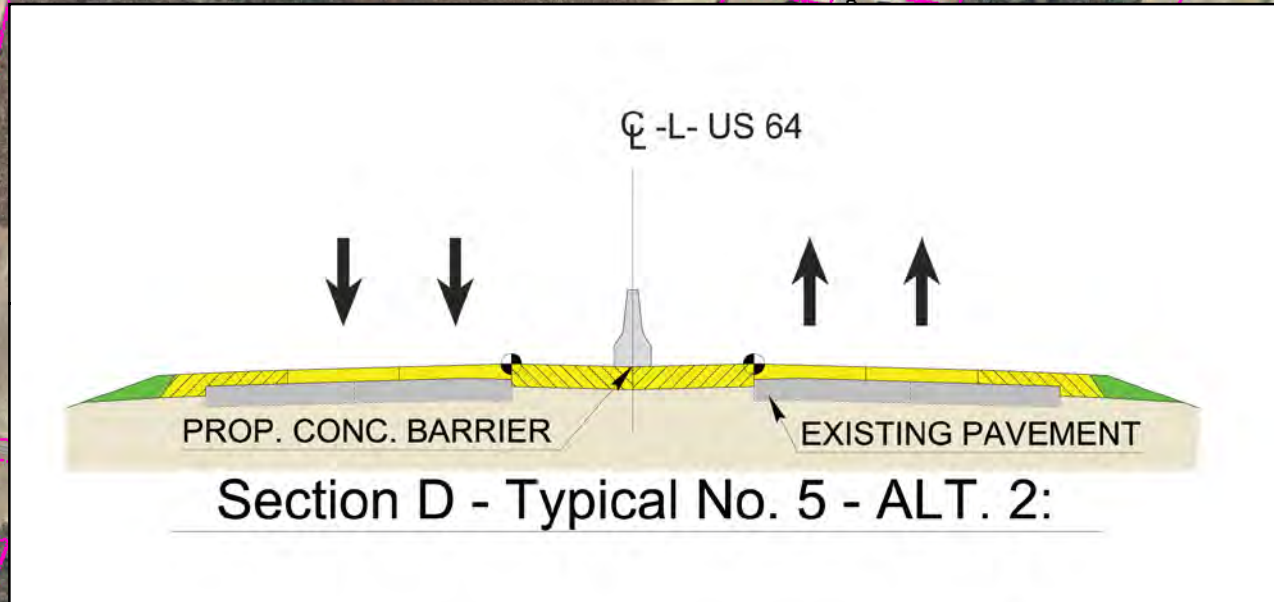
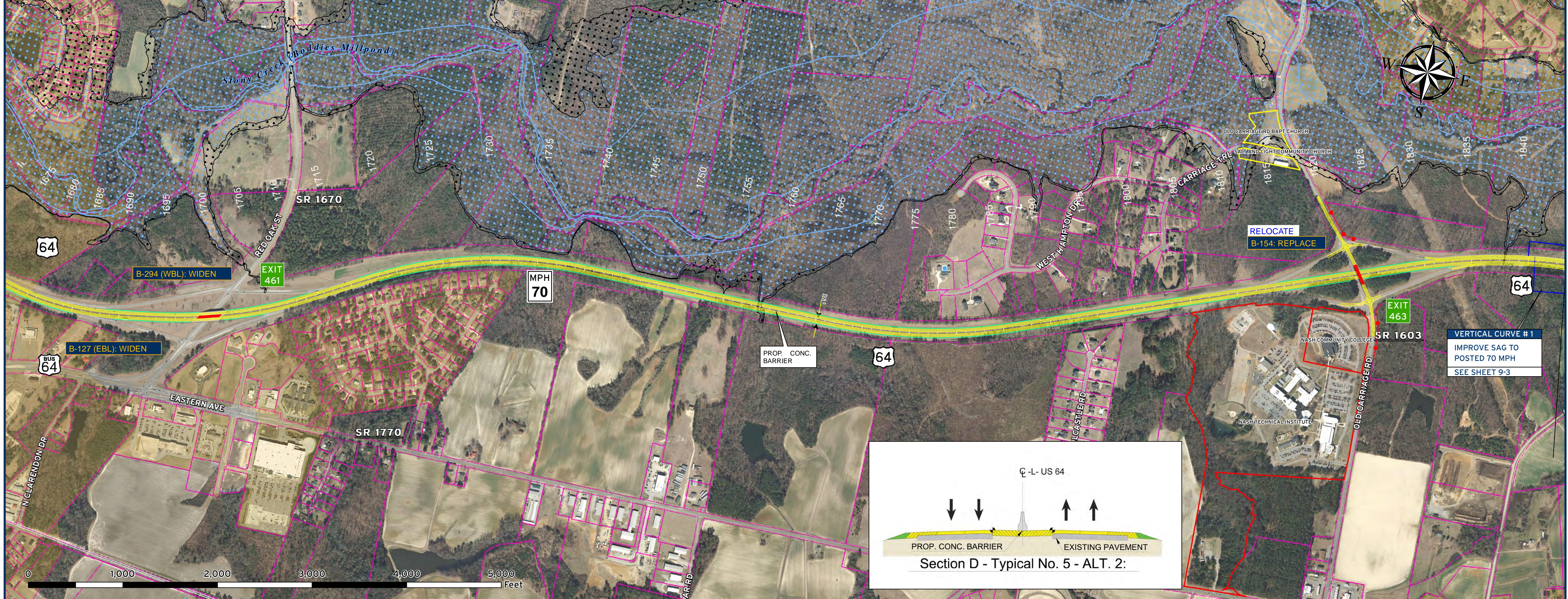
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FS-1504A SHEET 9-1

Section D Alternative 1

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		100 Year Floodplain
	Library		500 Year Floodplain
	Open Space		FEMA Floodway
	Park		Railroad
	School		Stream
	Parcel Boundaries		County Boundary
	State Managed Land		Municipal Boundary
	Golf Course		
	Hospital		

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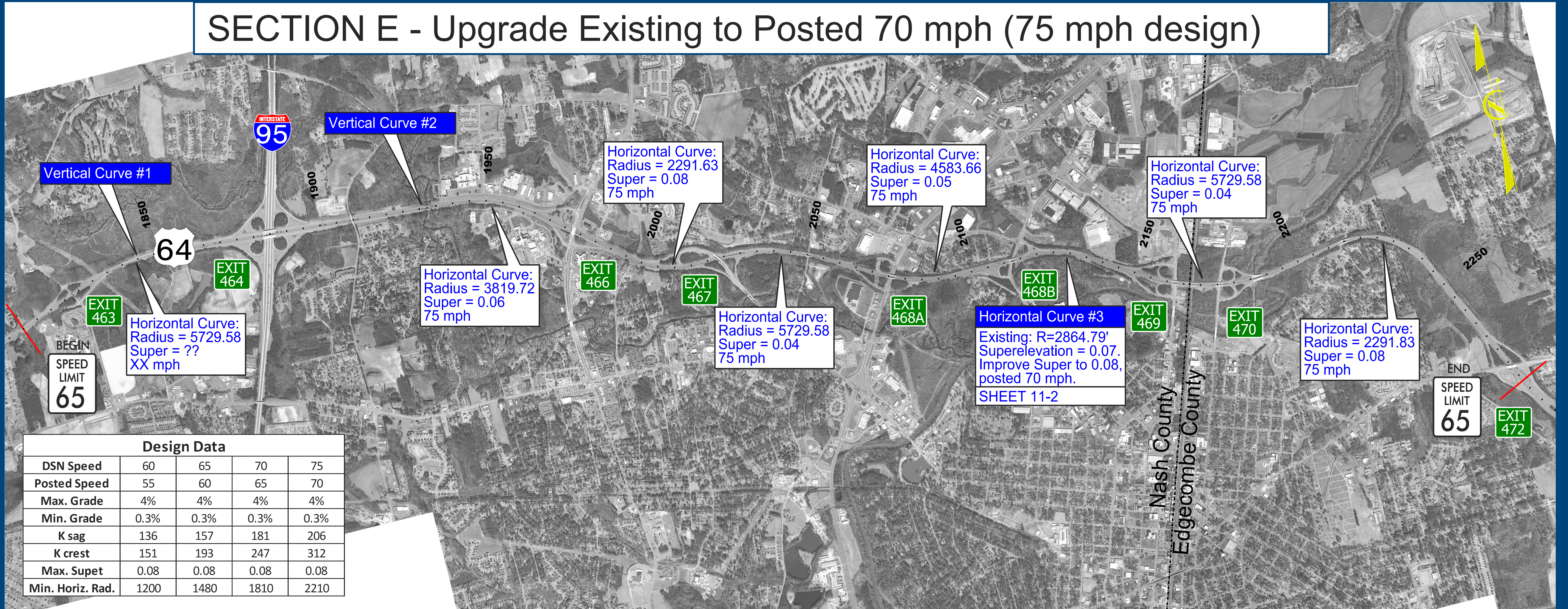
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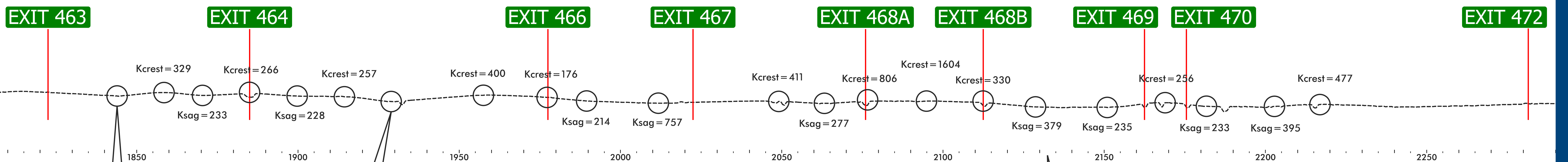
Section D Alternative 2

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES

SECTION E - Upgrade Existing to Posted 70 mph (75 mph design)



Design Data				
DSN Speed	60	65	70	75
Posted Speed	55	60	65	70
Max. Grade	4%	4%	4%	4%
Min. Grade	0.3%	0.3%	0.3%	0.3%
K sag	136	157	181	206
K crest	151	193	247	312
Max. Supet	0.08	0.08	0.08	0.08
Min. Horiz. Rad.	1200	1480	1810	2210



Vertical Curve #1
Existing: K sag 135, 60 mph.
Improve Sag Curve to Posted 70 mph.
SHEET 9-2, 10-2

Vertical Curve #2
Existing: K sag 144, 60 mph.
Improve Sag Curve to Posted 70 mph.
SHEET 10-2

Horizontal Curve #3

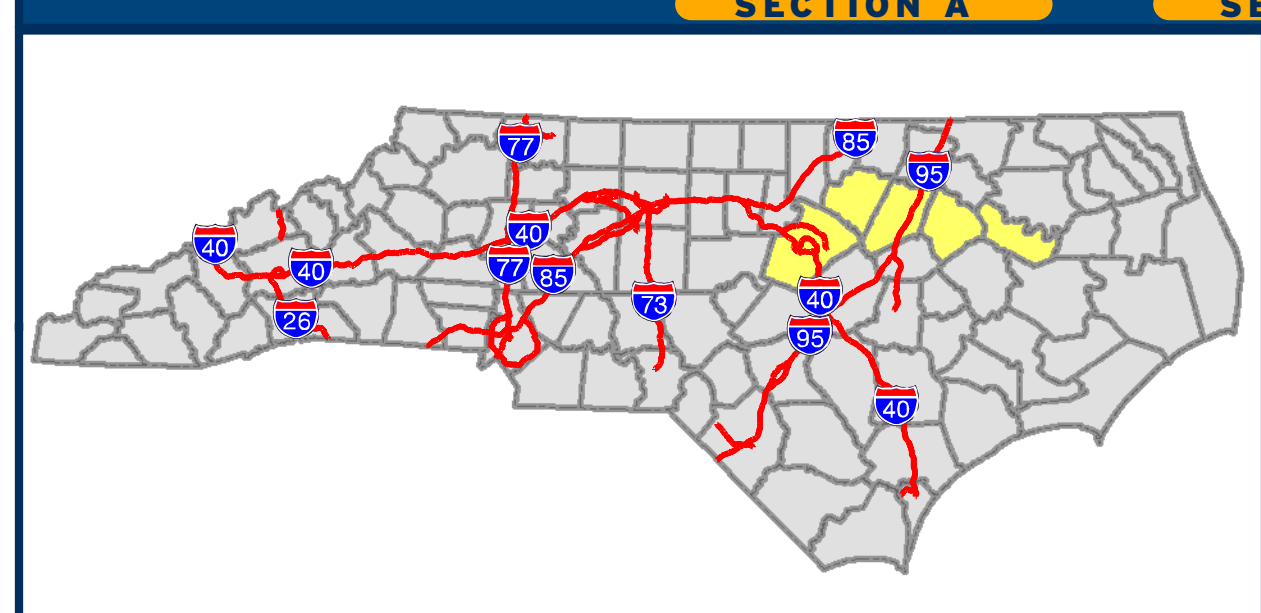
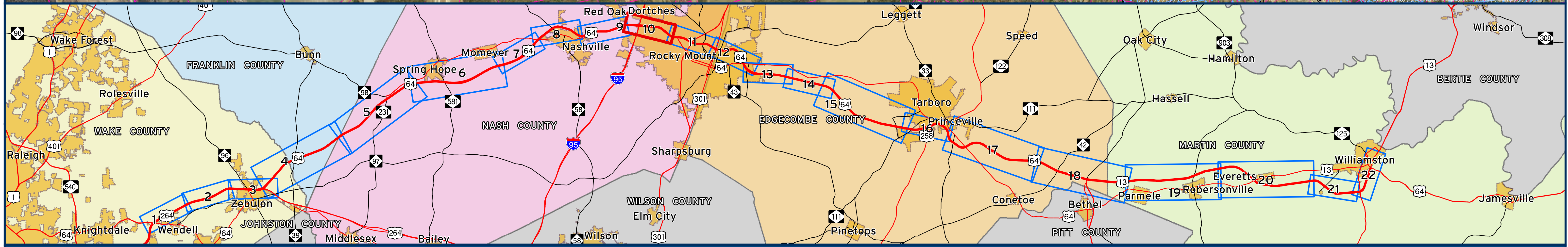
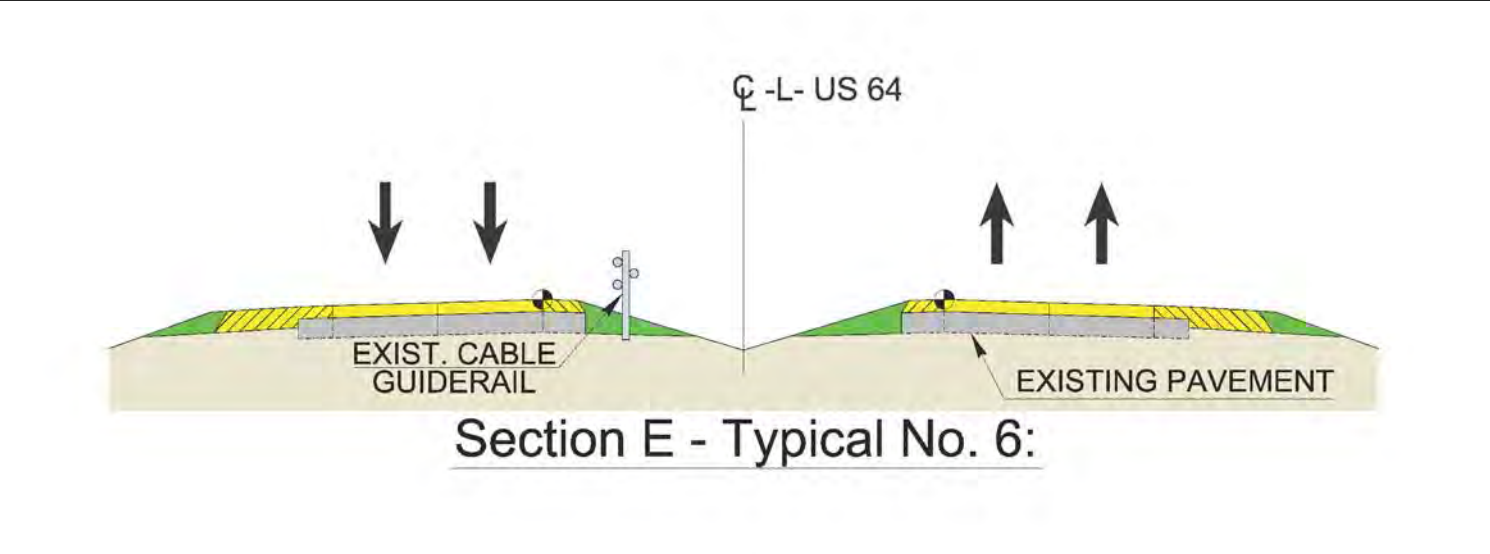


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SHEET 9-3
FS-1504A
Upgrade US 64 to
Interstate Standards
WAKE, FRANKLIN, NASH,
EDGECOMBE, MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Airport		Proposed Roadway / Detours
	Business		Proposed Paved Shoulders
	Cemetery		Proposed ROW / CA
	Church		
	Greenway		
	Library		
	Park		
	School		
	Parcel Boundaries		
	State Managed Land		
	Golf Course		
	Hospital		
	Railroad		
	Stream		
	County Boundary		
	Municipal Boundary		
	100 Year Floodplain		
	500 Year Floodplain		
	FEMA Floodway		

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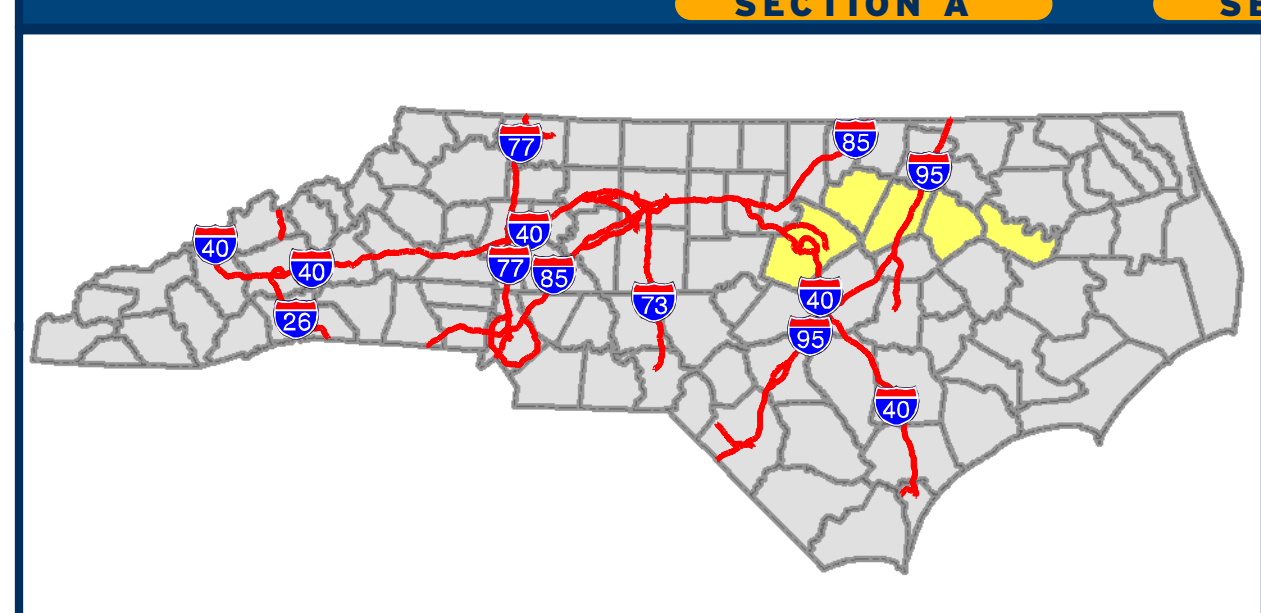
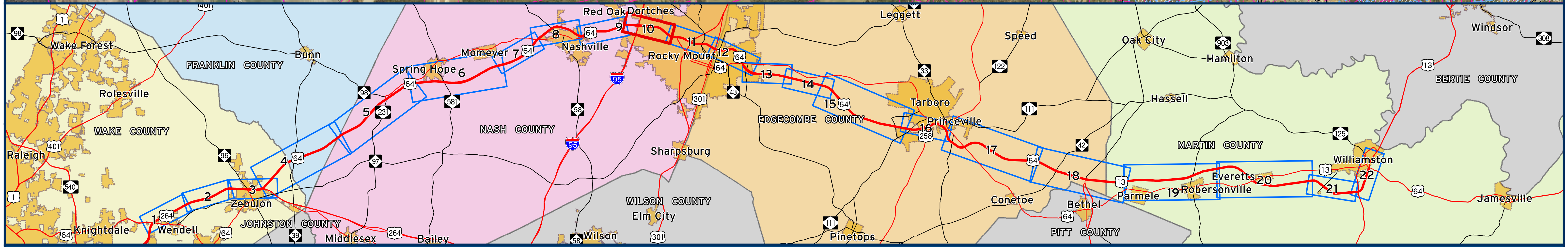
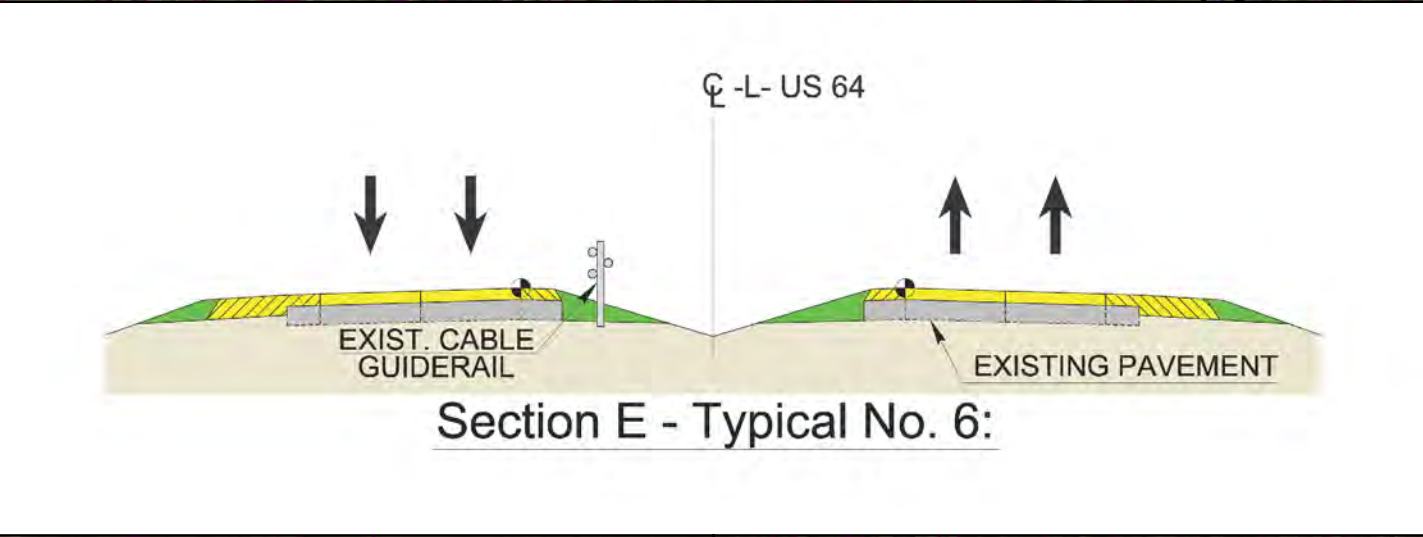
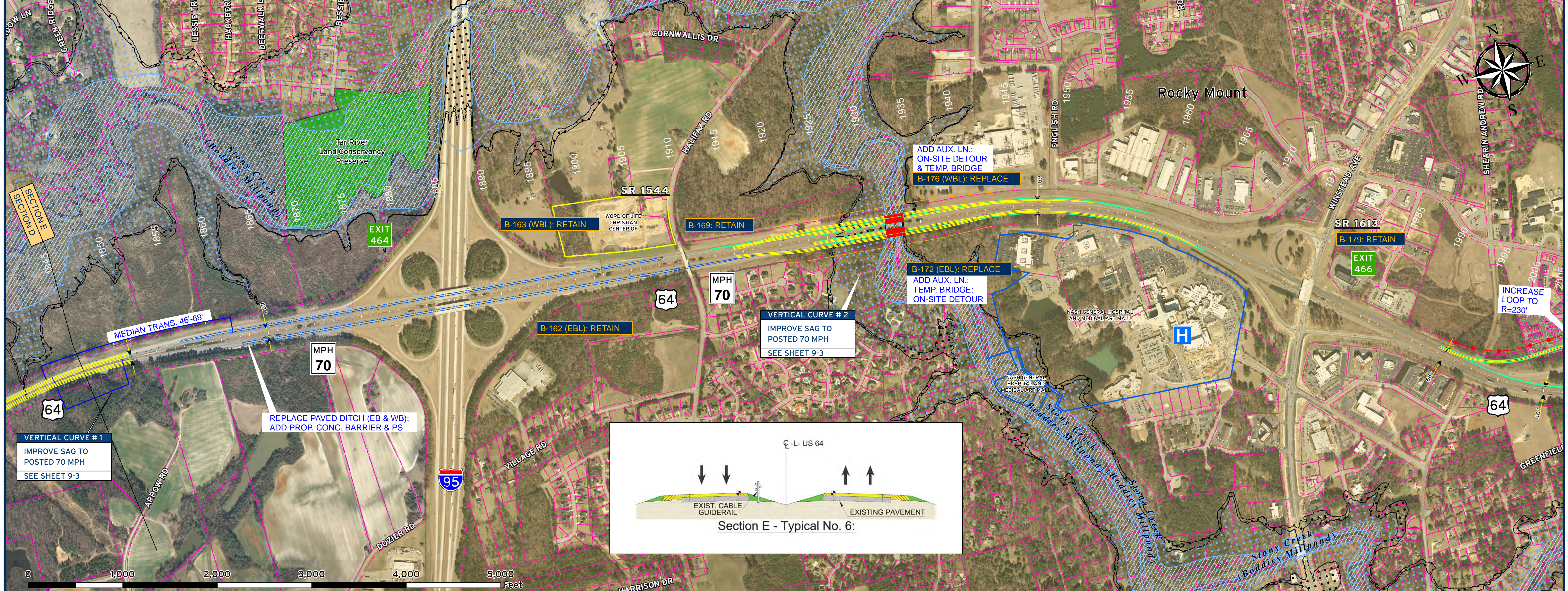
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Section E Alternative 1

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Park		Proposed Roadway / Detours
	Airport		Proposed Paved Shoulders
	Business		Proposed ROW / CA
	Cemetery		100 Year Floodplain
	Church		500 Year Floodplain
	Greenway		FEMA Floodway
	Library		100 Year Floodplain
	Parcel Boundaries		500 Year Floodplain
	State Managed Land		FEMA Floodway
	Golf Course		FEMA Floodway
	Hospital		FEMA Floodway
	Railroad		FEMA Floodway
	Stream		FEMA Floodway
	County Boundary		FEMA Floodway
	Municipal Boundary		FEMA Floodway

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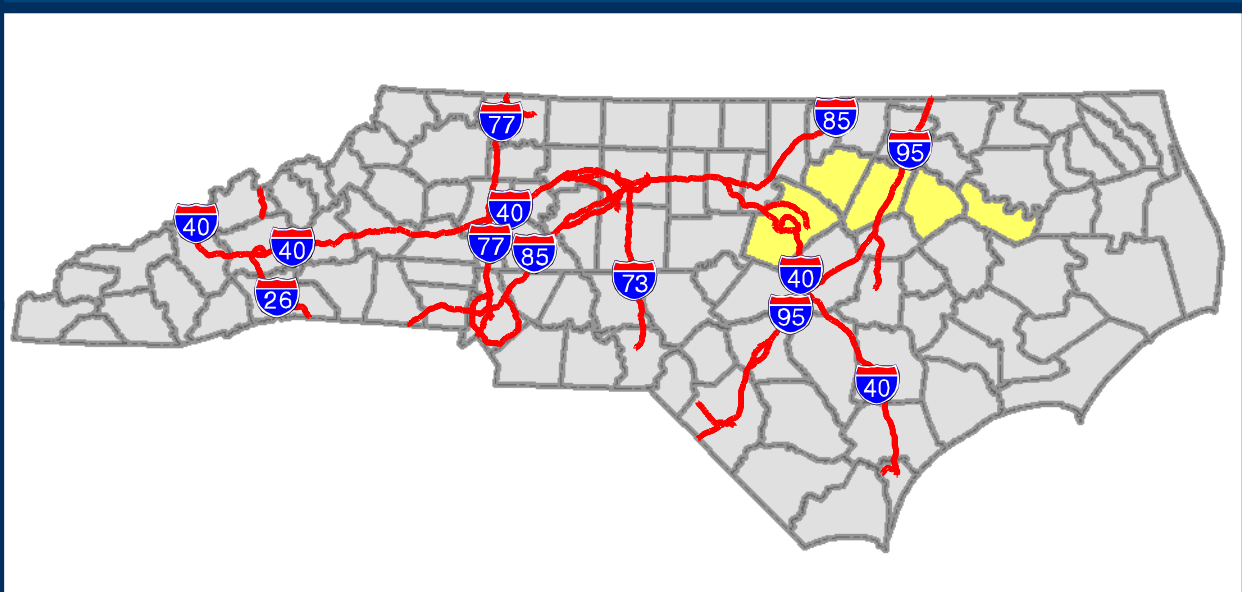
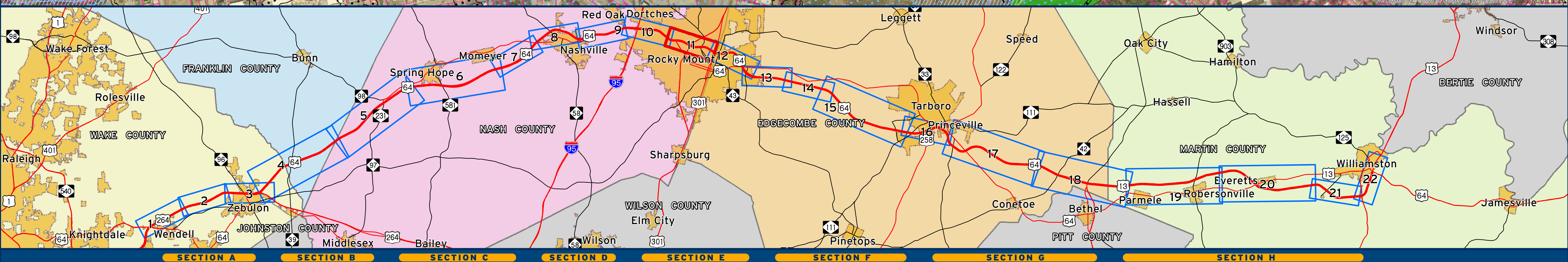
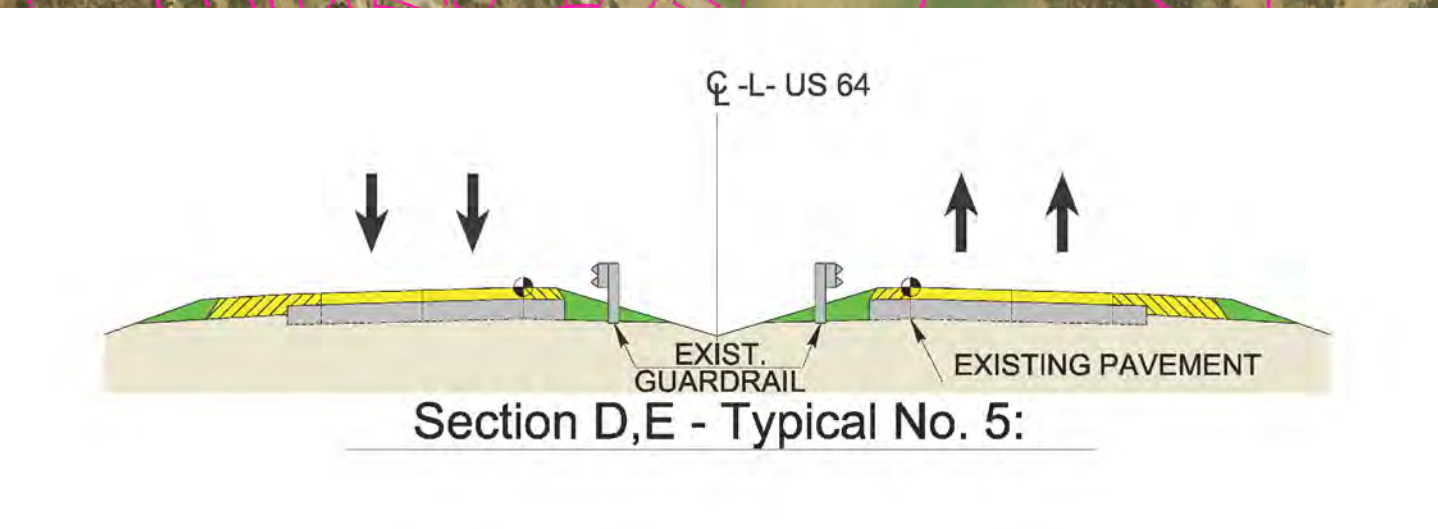
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Section E Alternative 2

Upgrade US 64 to Interstate
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TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND	
	Open Space
	Park
	Airport
	Business
	Cemetery
	Church
	Greenway
	Library
	School
	Parcel Boundaries
	State Managed Land
	Golf Course
	Hospital
	Railroad
	Stream
	County Boundary
	Municipal Boundary
	100 Year Floodplain
	500 Year Floodplain
	FEMA Floodway

DESIGN ELEMENTS	
	Proposed Bridges
	Proposed Roadway / Detours
	Proposed Paved Shoulders
	Proposed ROW / CA

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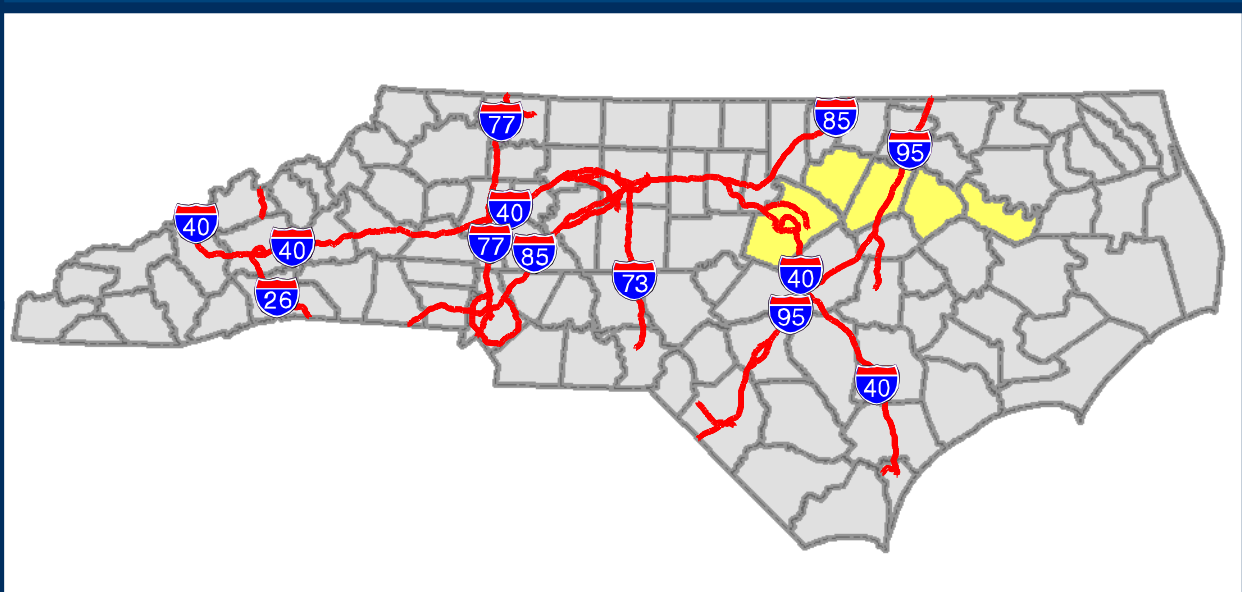
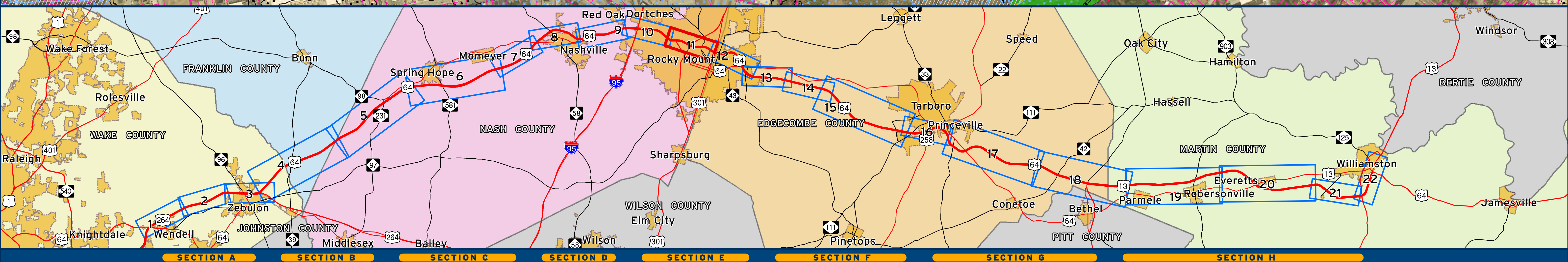
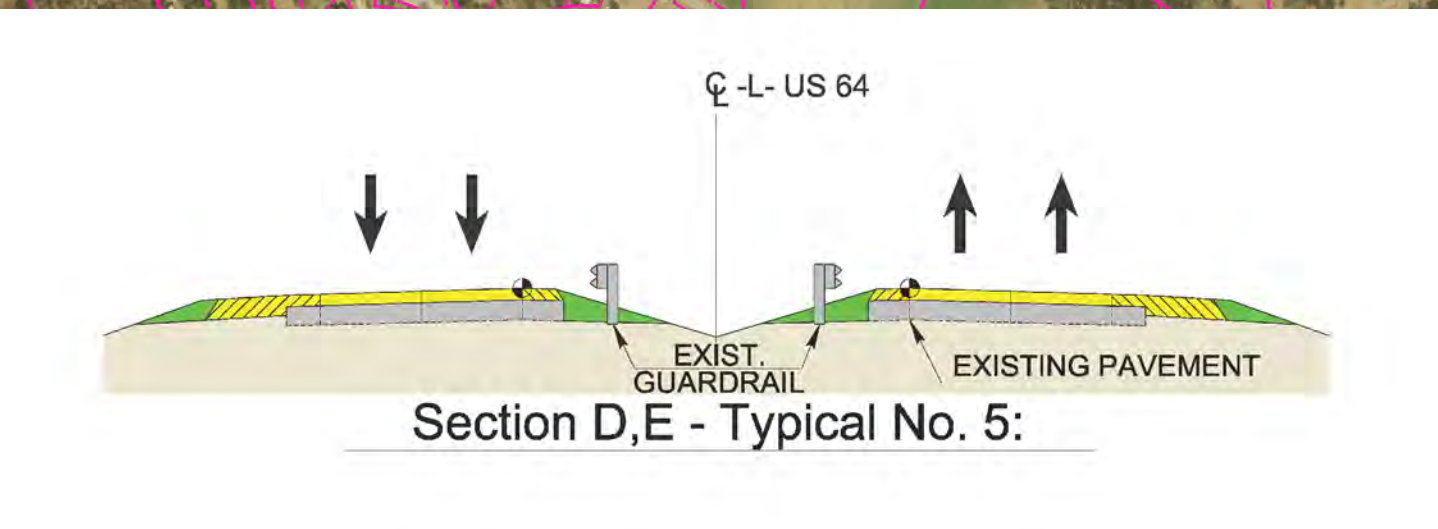
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Section E Alternative 1

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Open Space	Airport	Proposed Bridges	Proposed Roadway / Detours
Park	Business	Proposed Paved Shoulders	Proposed ROW / CA
School	Cemetery	100 Year Floodplain	
Parcel Boundaries	Church	500 Year Floodplain	
State Managed Land	Greenway	FEMA Floodway	
Golf Course	Library		
Hospital			
Railroad			
Stream			
County Boundary			
Municipal Boundary			

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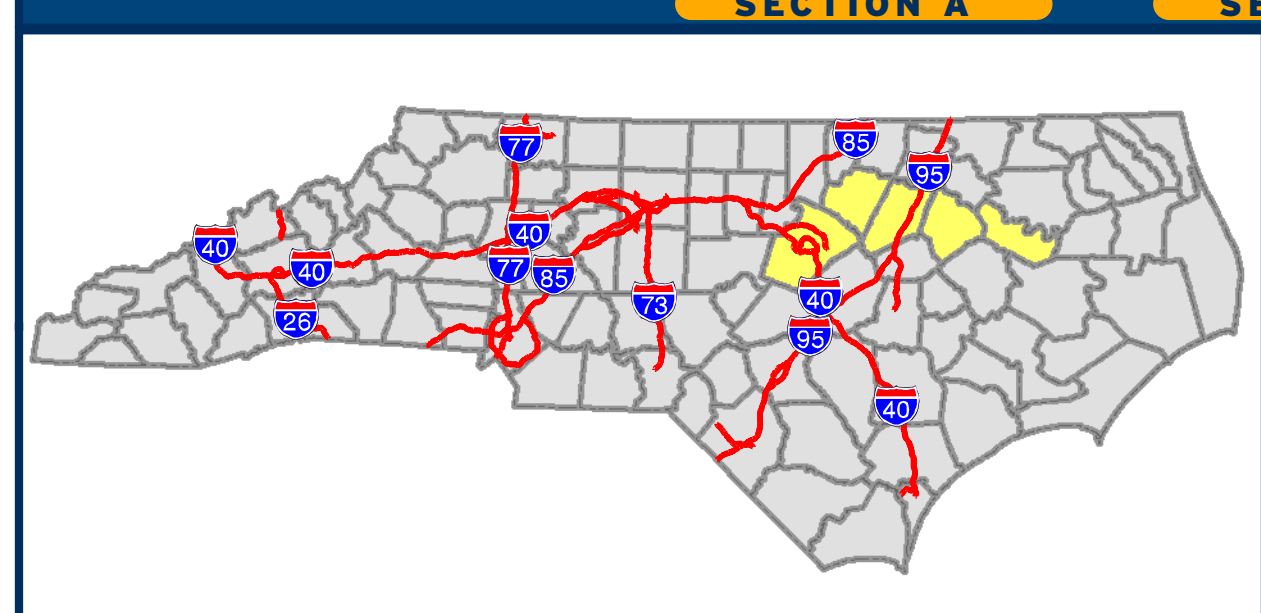
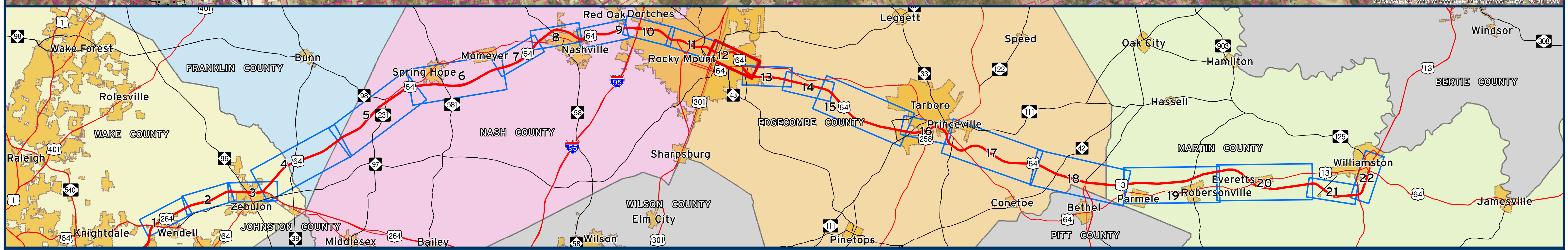
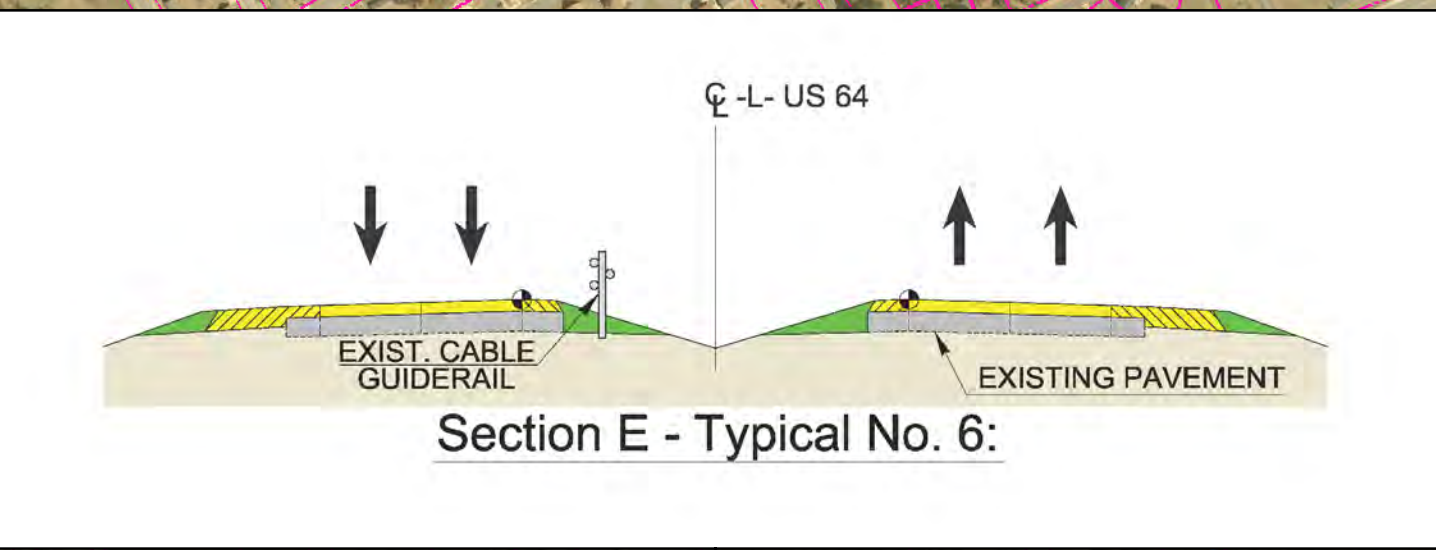
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Section E Alternative 2

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND	
	Airport
	Business
	Cemetery
	Church
	Greenway
	Library
	Open Space
	Park
	School
	Parcel Boundaries
	State Managed Land
	Golf Course
	Hospital
	Railroad
	Stream
	County Boundary
	Municipal Boundary
	100 Year Floodplain
	500 Year Floodplain
	FEMA Floodway

DESIGN ELEMENTS	
	Proposed Bridges
	Proposed Roadway / Detours
	Proposed Paved Shoulders
	Proposed ROW / CA

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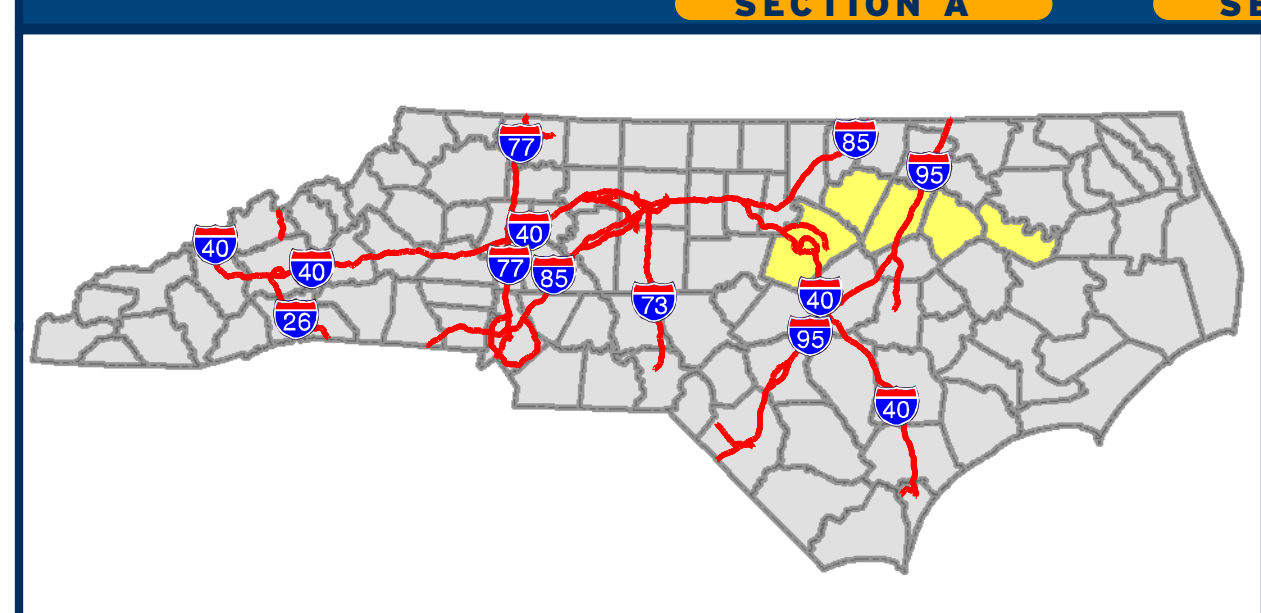
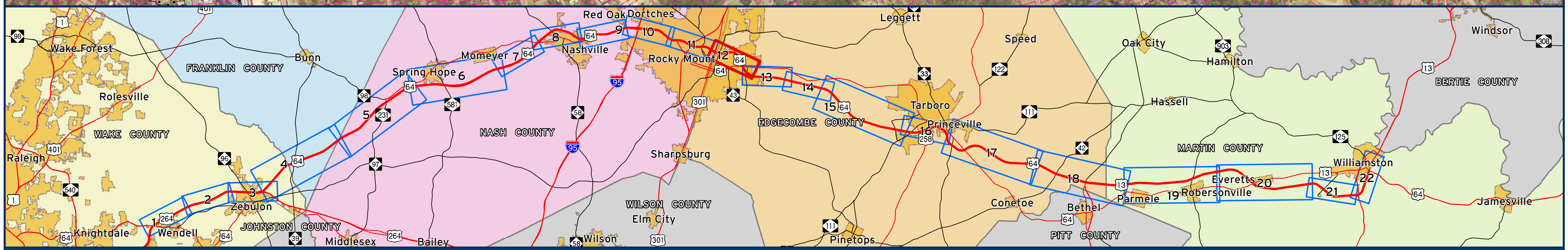
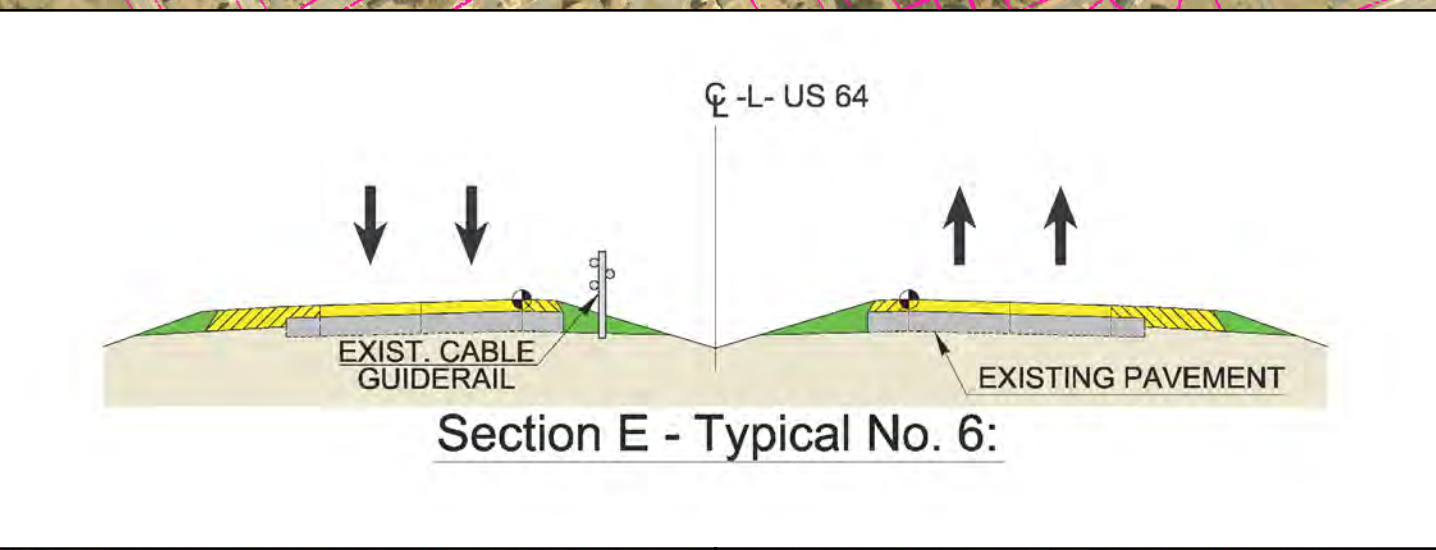
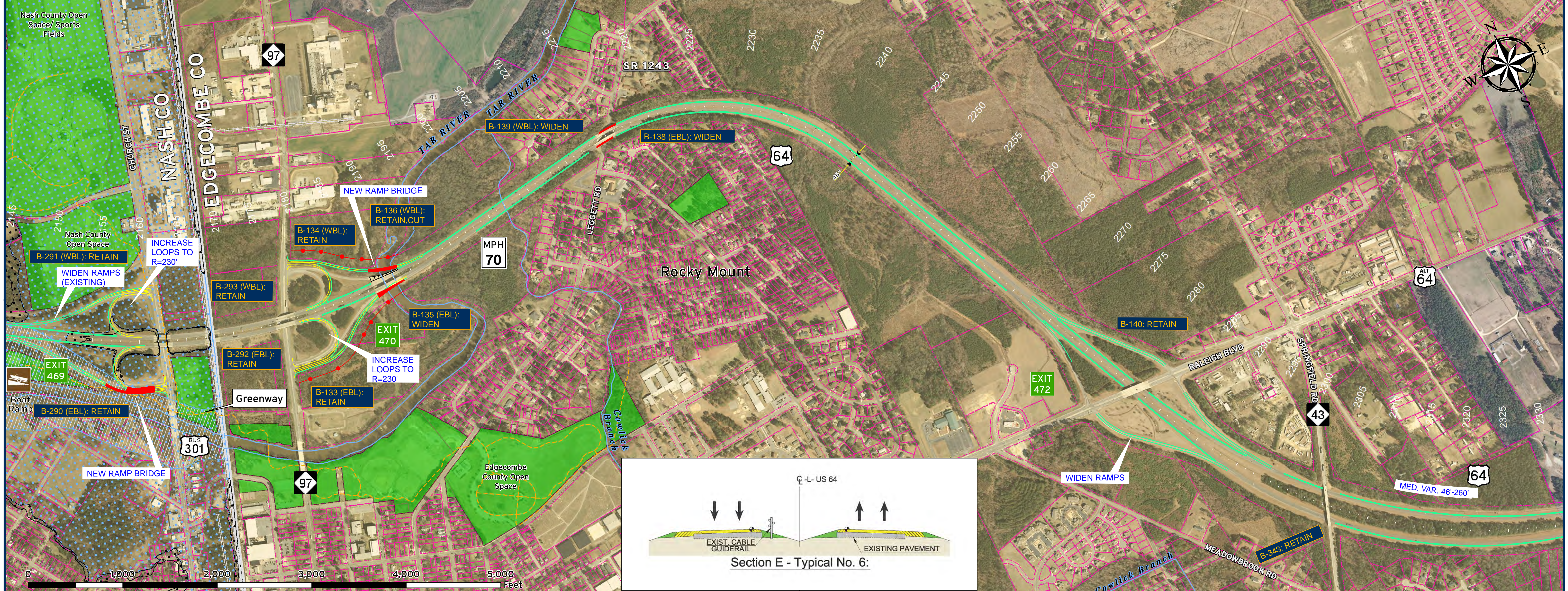
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Section E Alternative 1

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		100 Year Floodplain
	Library		500 Year Floodplain
	Open Space		FEMA Floodway
	Park		Railroad
	School		Stream
	Parcel Boundaries		County Boundary
	State Managed Land		Municipal Boundary
	Golf Course		
	Hospital		

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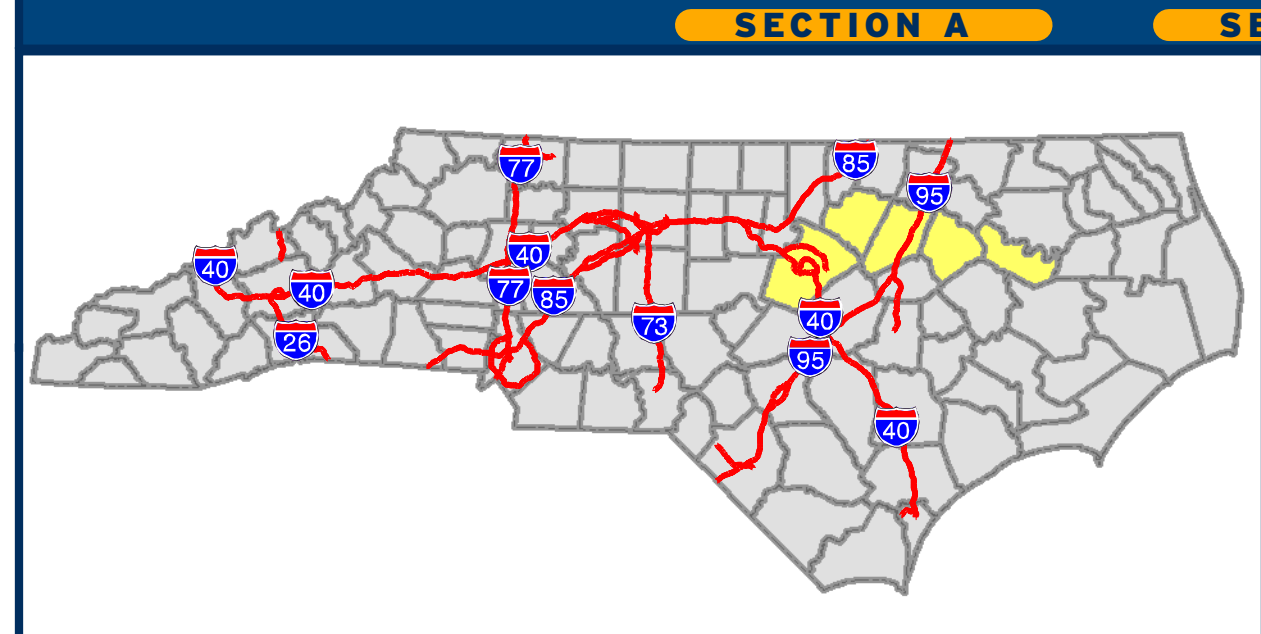
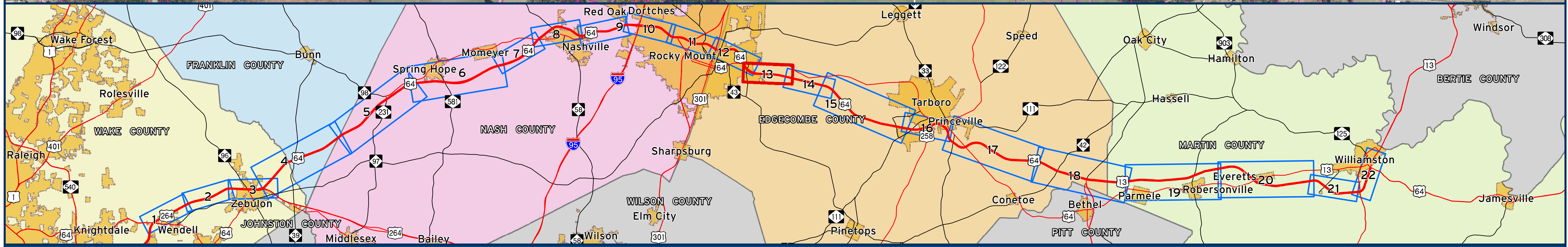
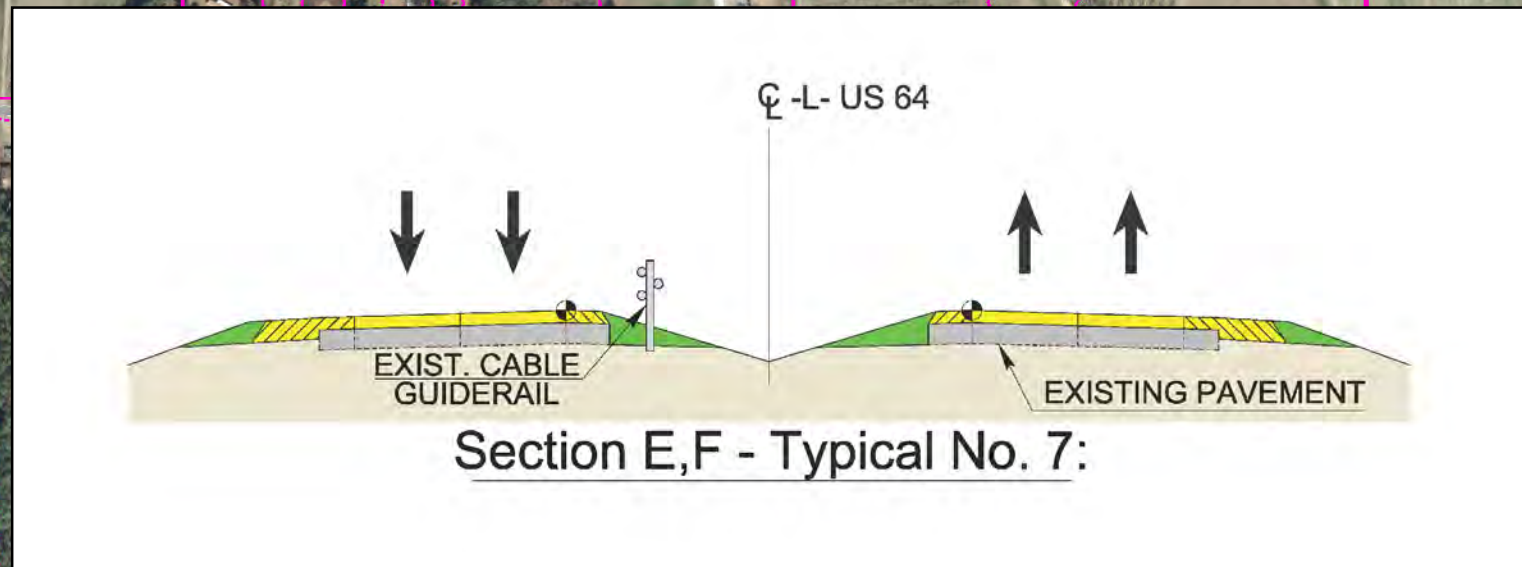
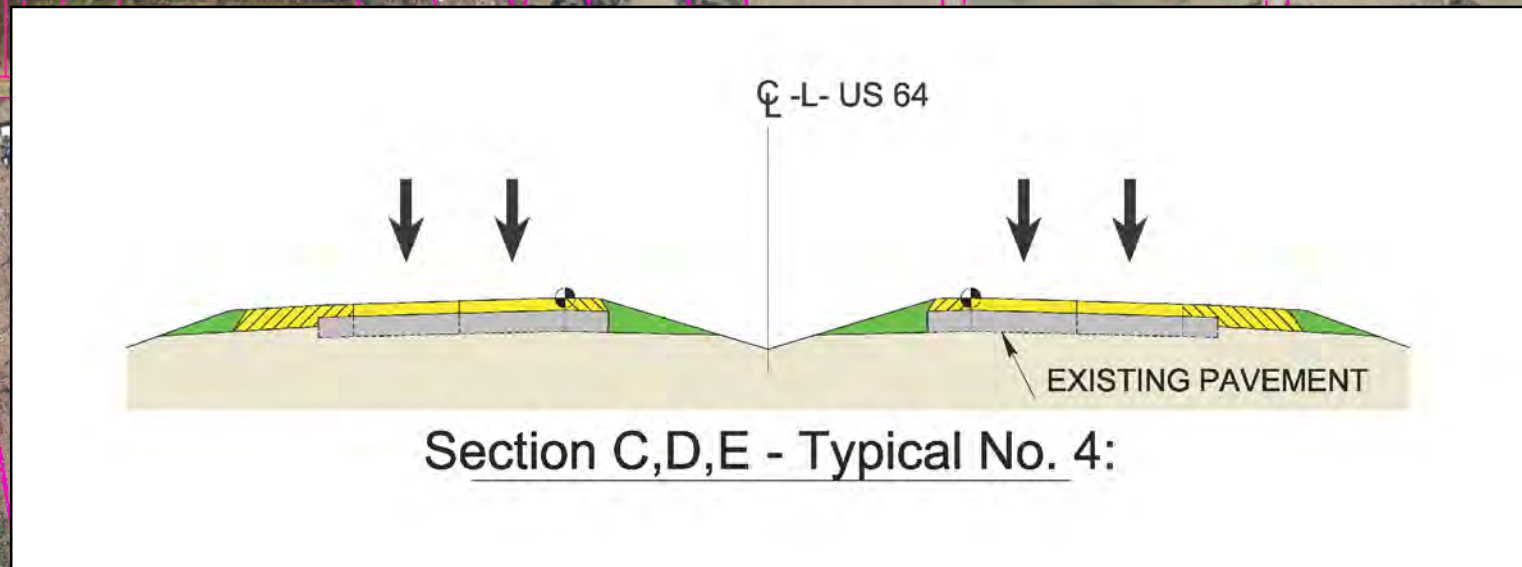
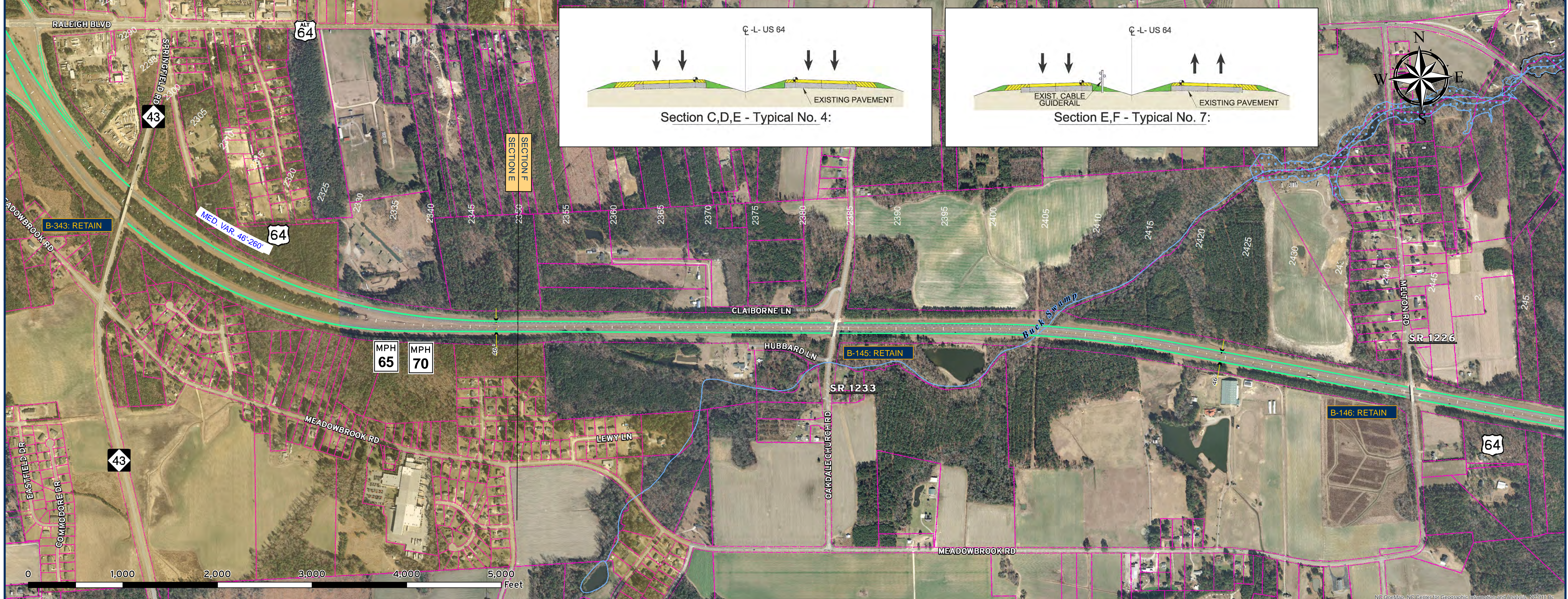
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Section E Alternative 2

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Airport		Proposed Roadway / Detours
	Business		Proposed Paved Shoulders
	Cemetery		Proposed ROW / CA
	Church		
	Greenway		
	Library		
	Park		Railroad
	School		Stream
	Parcel Boundaries		County Boundary
	State Managed Land		Municipal Boundary
	Golf Course		100 Year Floodplain
	Hospital		500 Year Floodplain
			FEMA Floodway

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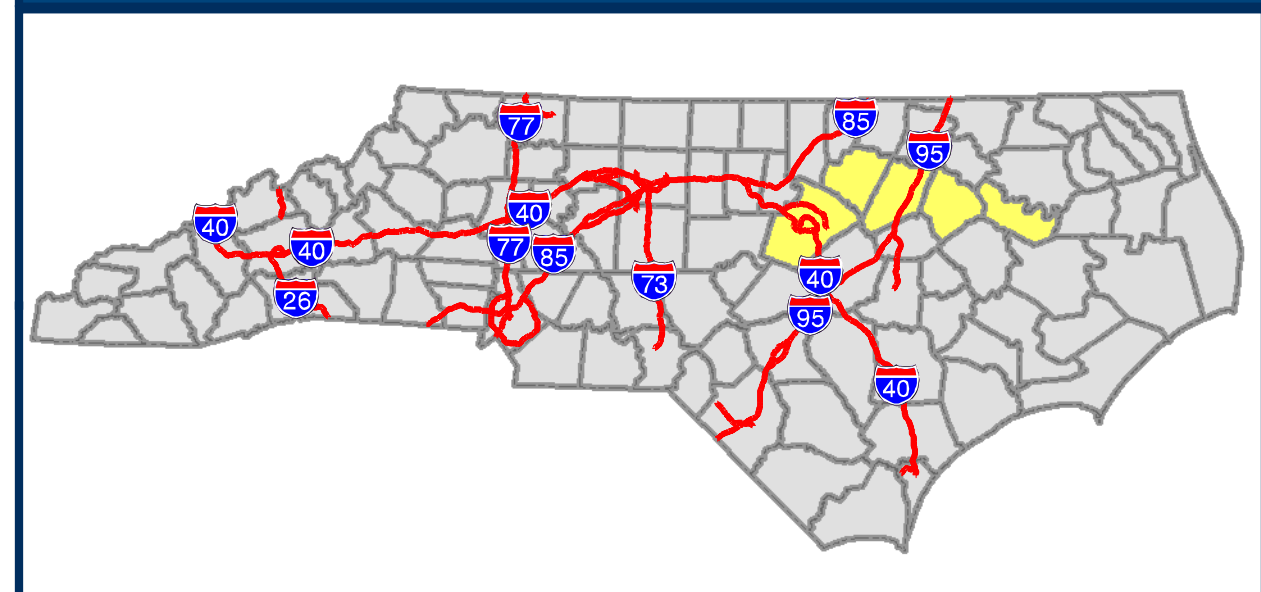
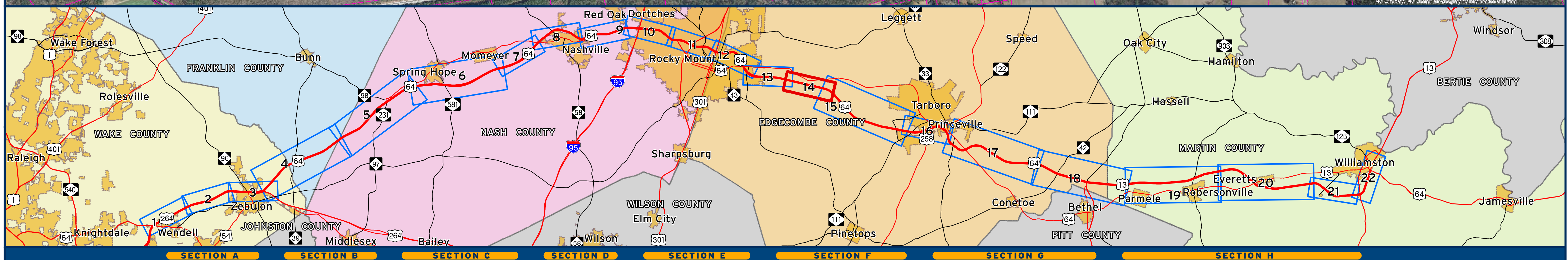
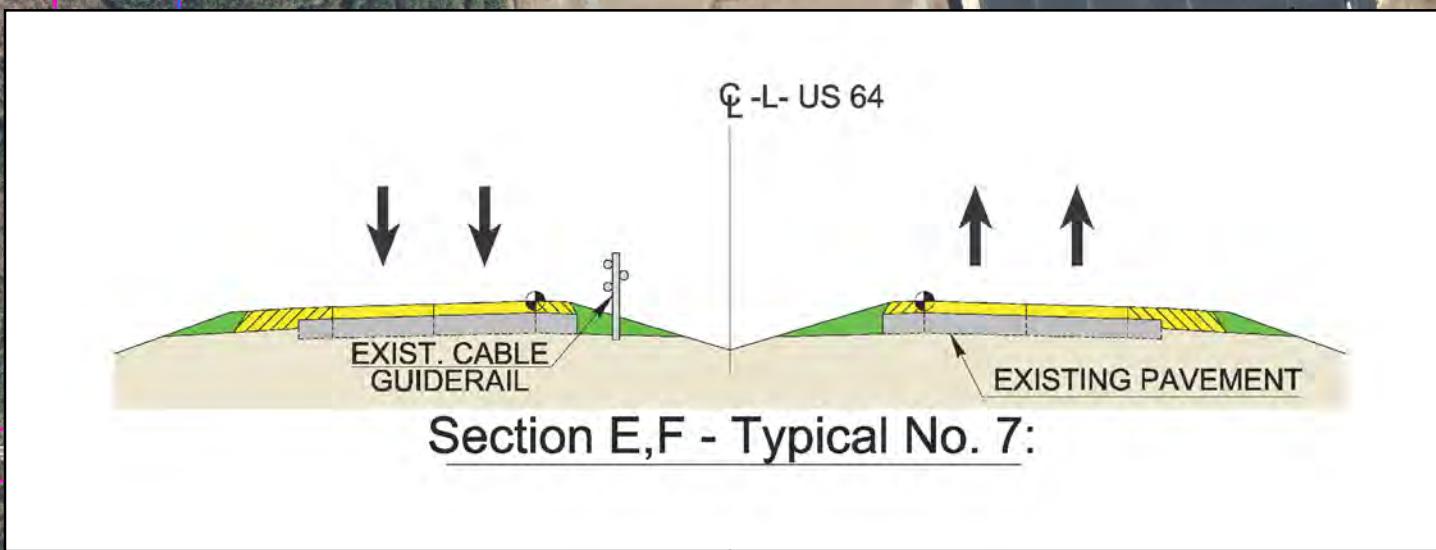
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FS-1504A SHEET 13 OF 22

Section F

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Open Space	Park	Proposed Bridges	Proposed Roadway / Detours
Airport	School	Proposed Paved Shoulders	Proposed ROW / CA
Business	Parcel Boundaries	100 Year Floodplain	
Cemetery	State Managed Land	500 Year Floodplain	
Church	Golf Course	FEMA Floodway	
Greenway	Hospital	Railroad	
Library	County Boundary	Stream	
	Municipal Boundary		

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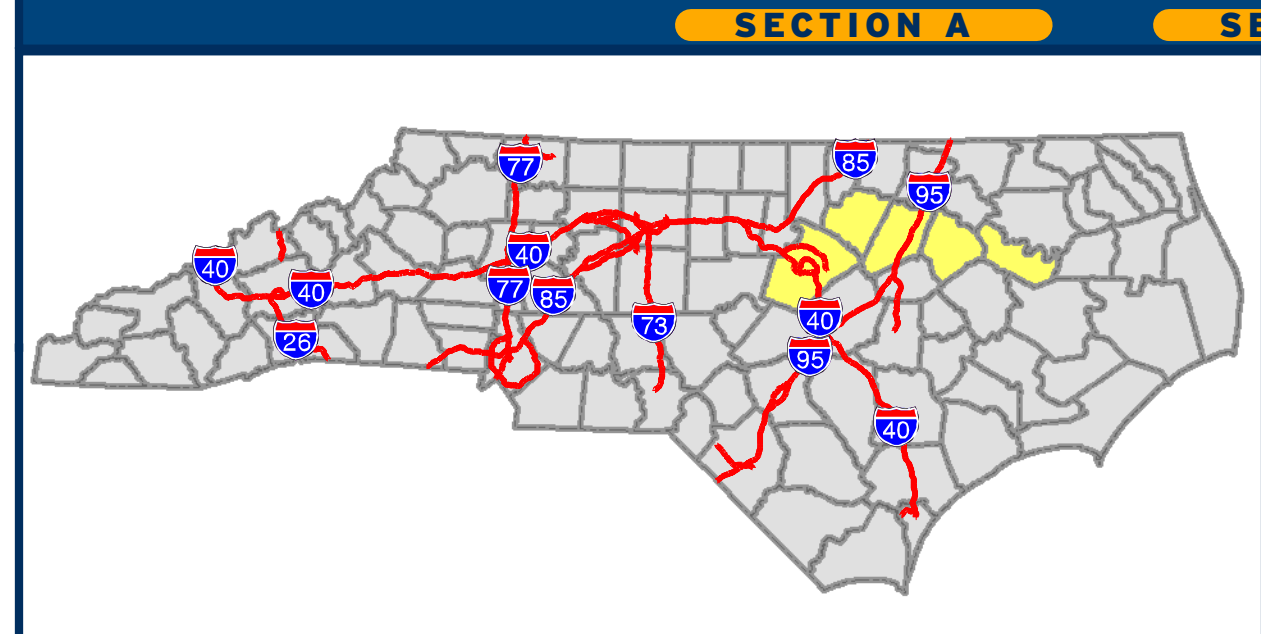
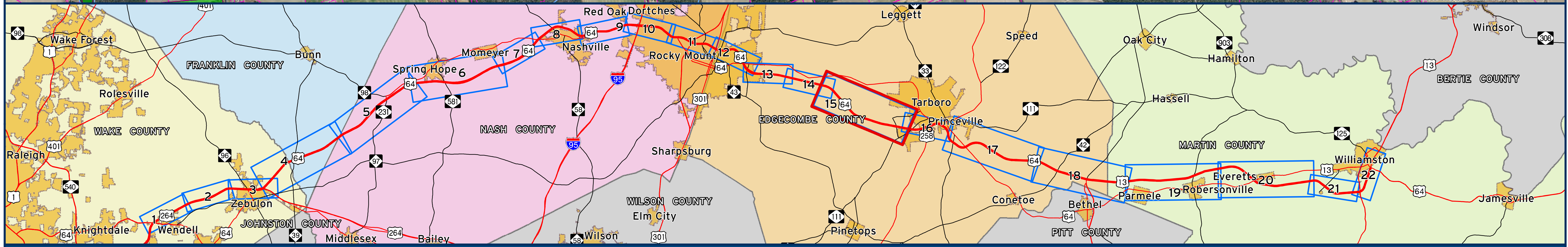
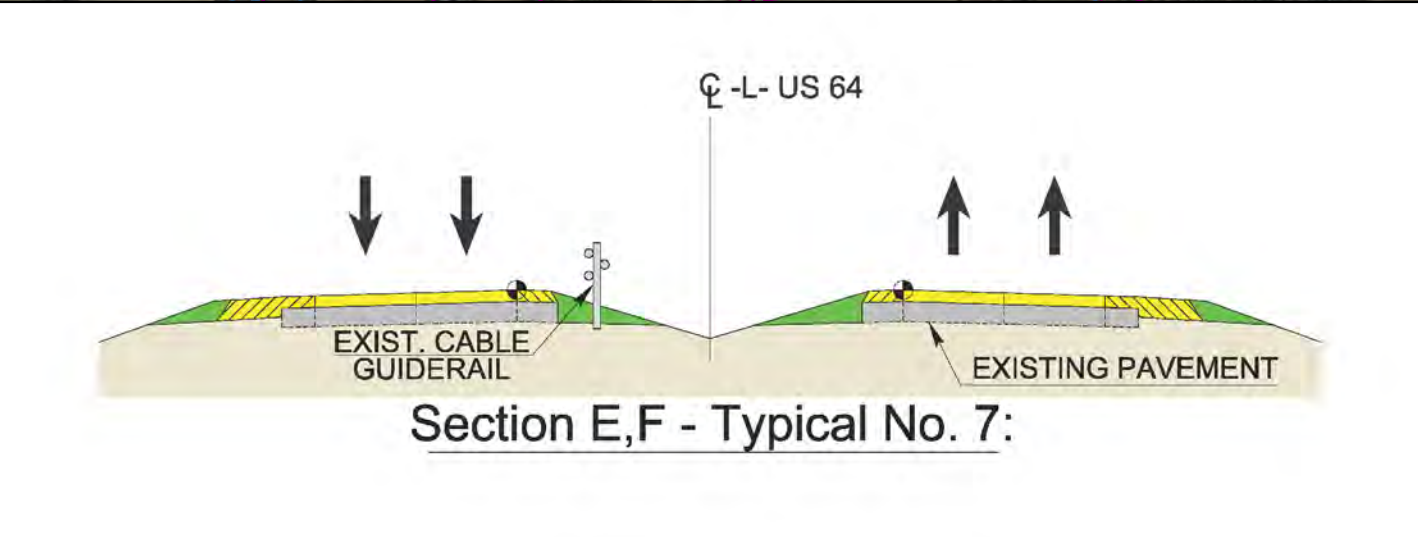
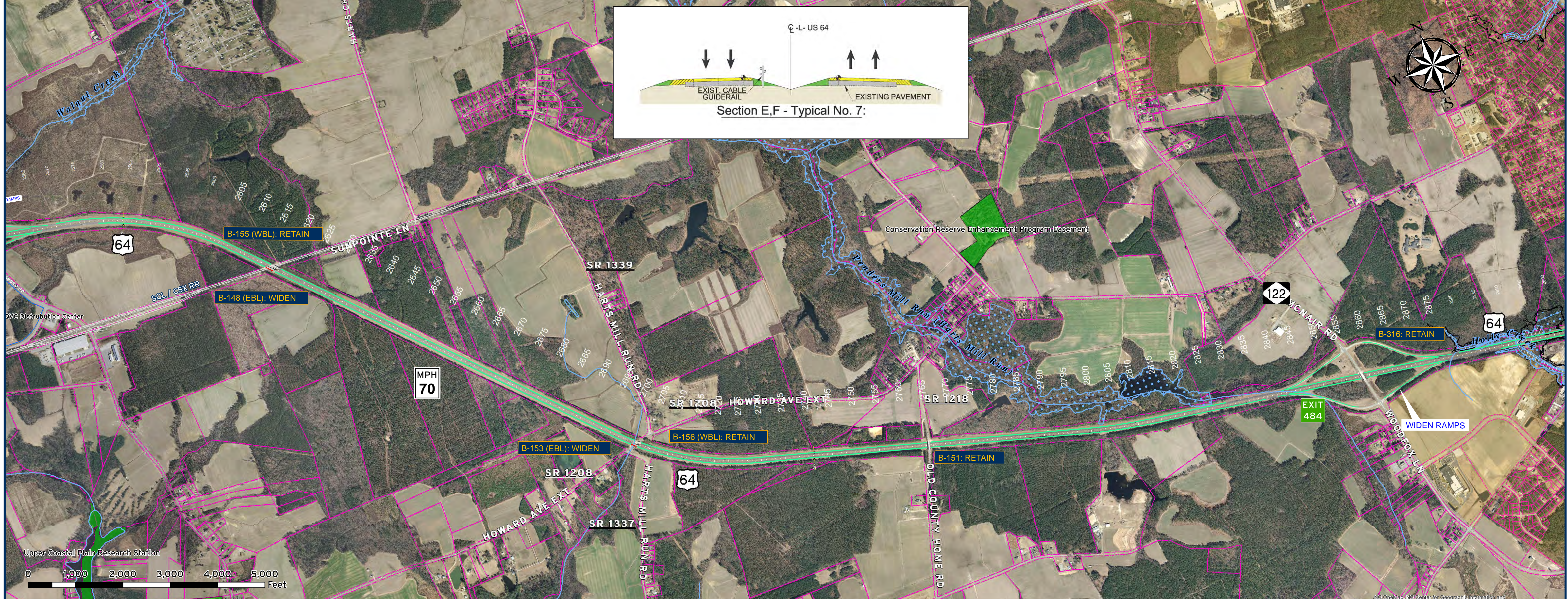
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Section F

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Park		Proposed Roadway / Detours
	Airport		Proposed Paved Shoulders
	Business		Proposed ROW / CA
	Cemetery		
	Church		
	Greenway		
	Library		
	Parcel Boundaries		
	State Managed Land		
	Golf Course		
	Hospital		
	Railroad		
	Stream		
	County Boundary		
	Municipal Boundary 100		
	Year Floodplain		
	500 Year Floodplain		
	FEMA Floodway		

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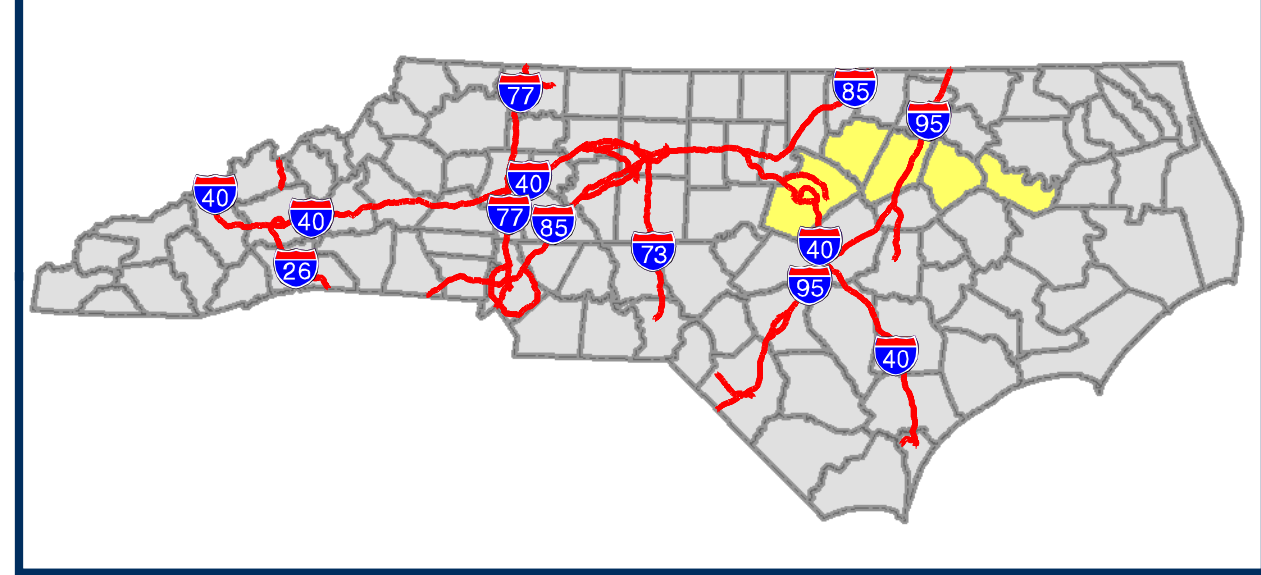
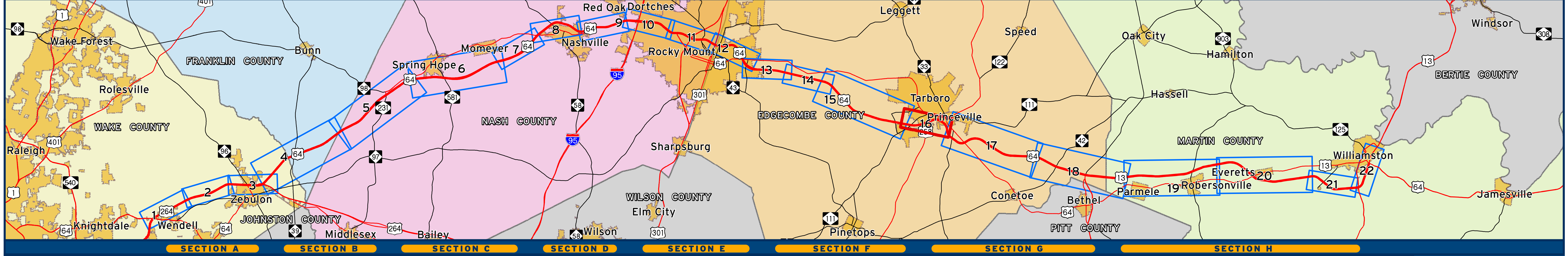
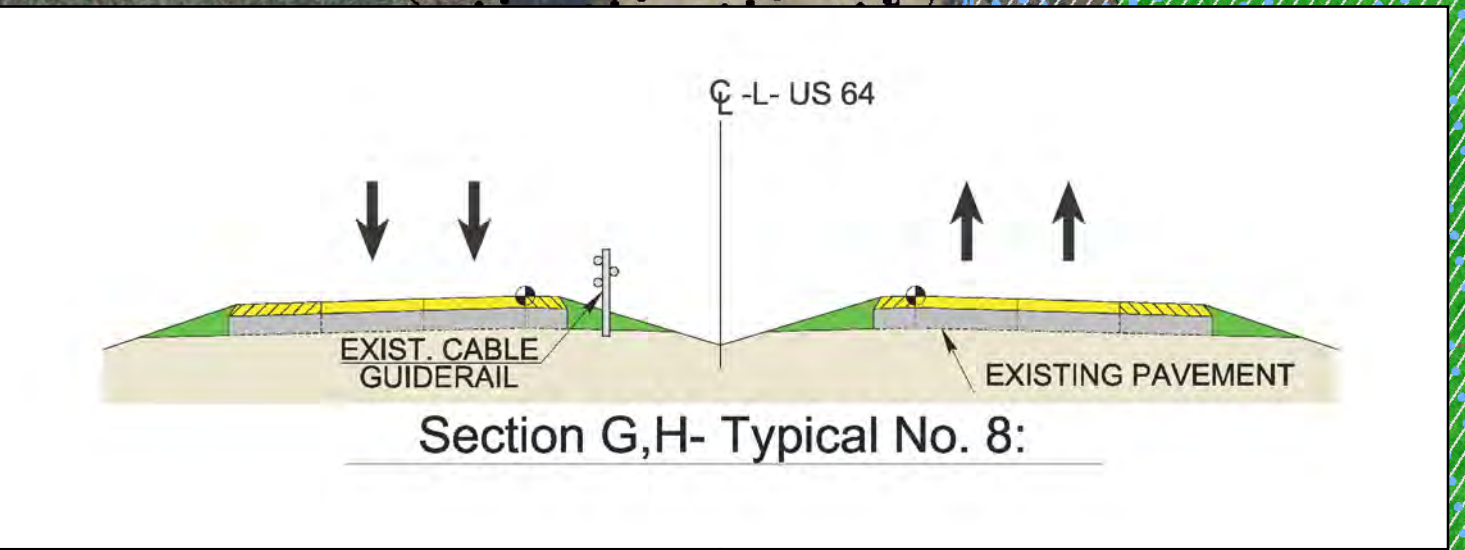
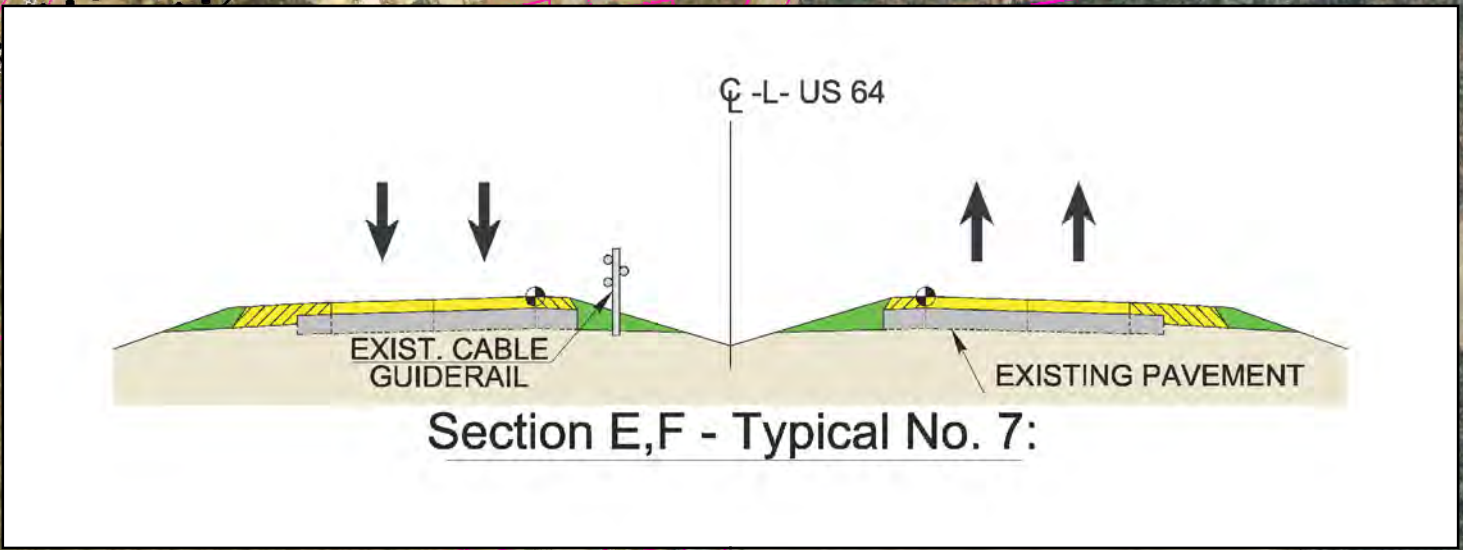
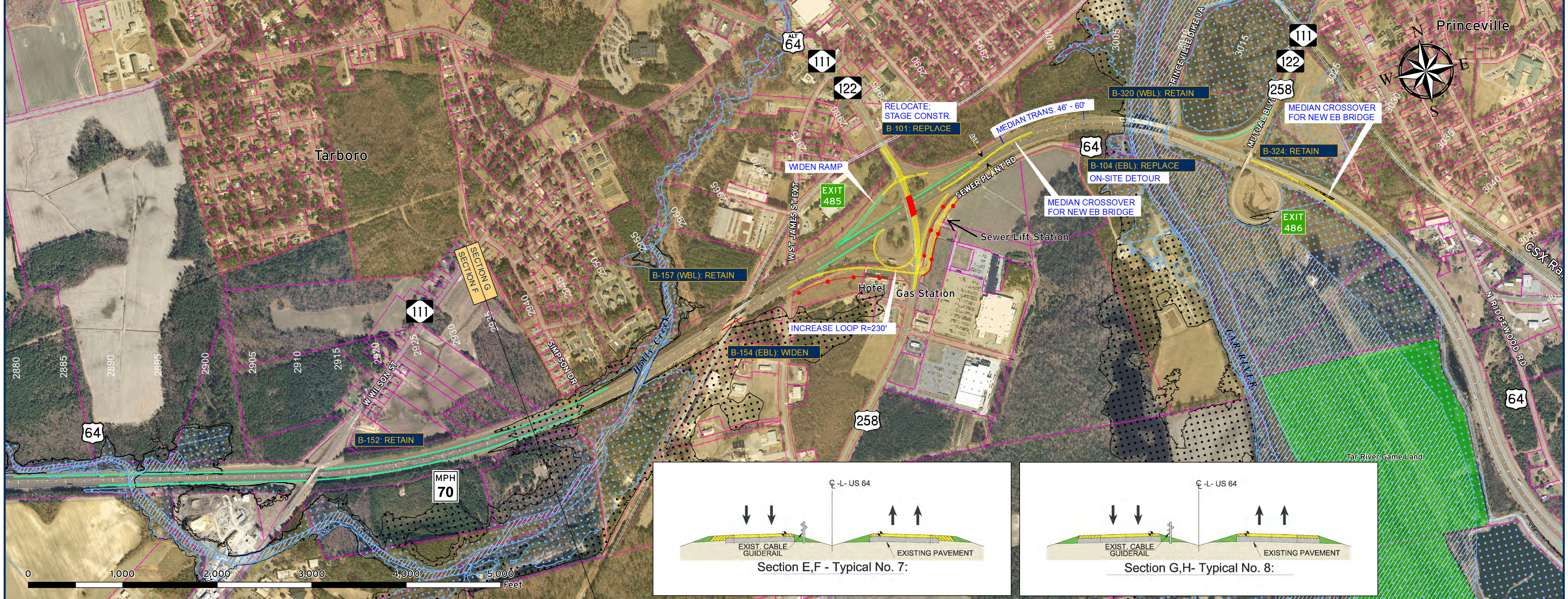
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FS-1504A SHEET 15 OF 22

Section F

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Park		Proposed Roadway / Detours
	Airport		Proposed Paved Shoulders
	Business		Proposed ROW / CA
	Cemetery		100 Year Floodplain
	Church		500 Year Floodplain
	Greenway		FEMA Floodway
	Library		100 Year Floodplain
	School		500 Year Floodplain
	Parcel Boundaries		FEMA Floodway
	State Managed Land		FEMA Floodway
	Golf Course		FEMA Floodway
	Hospital		FEMA Floodway
	Railroad		FEMA Floodway
	Stream		FEMA Floodway
	County Boundary		FEMA Floodway
	Municipal Boundary		FEMA Floodway

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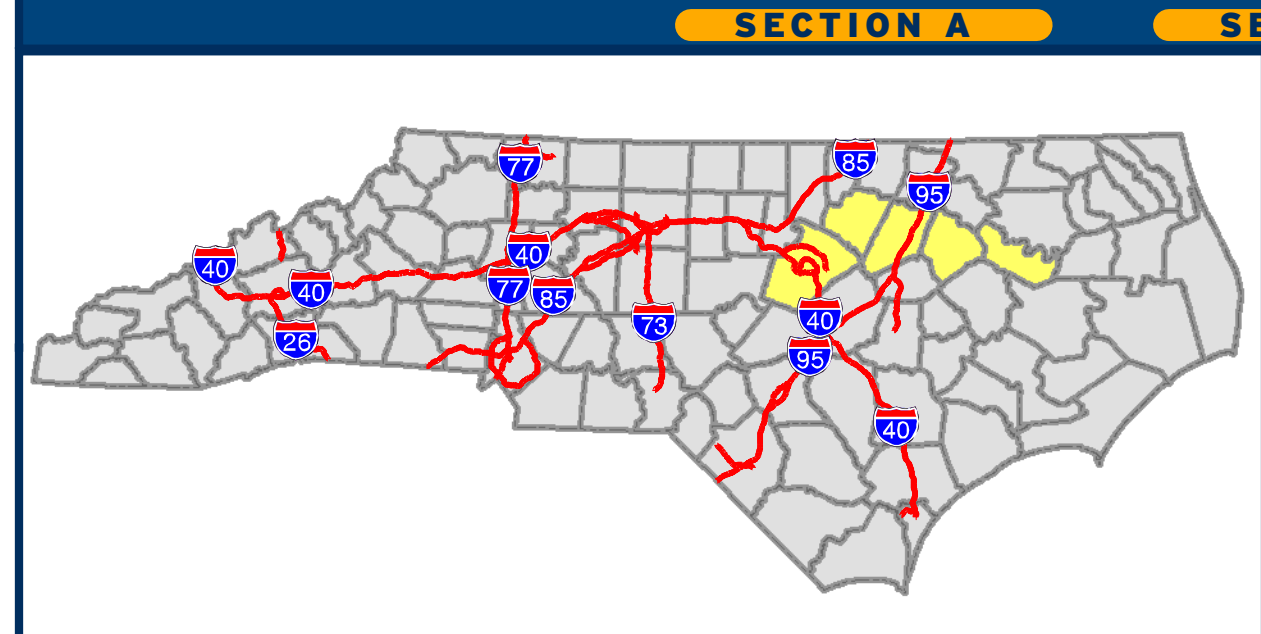
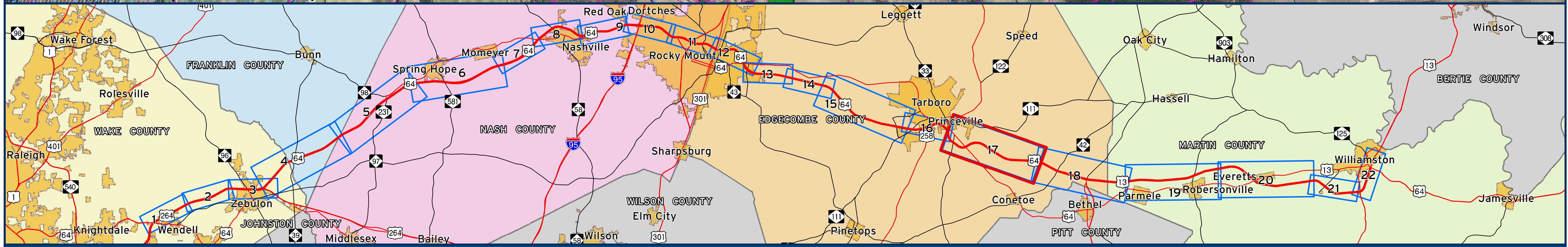
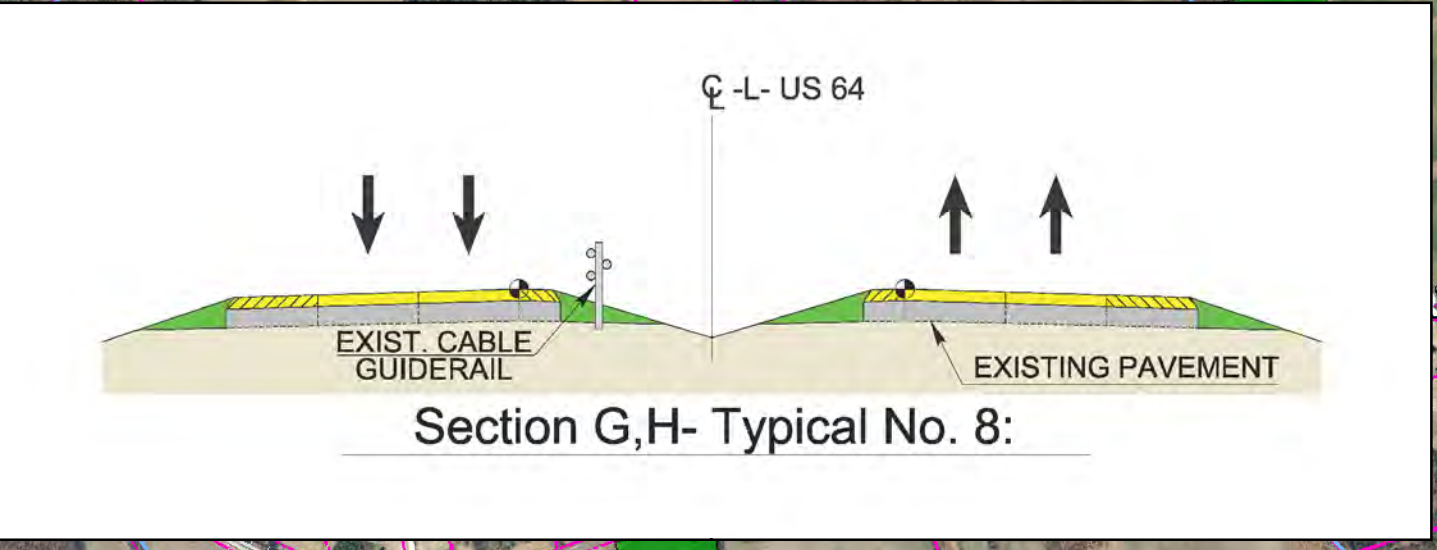
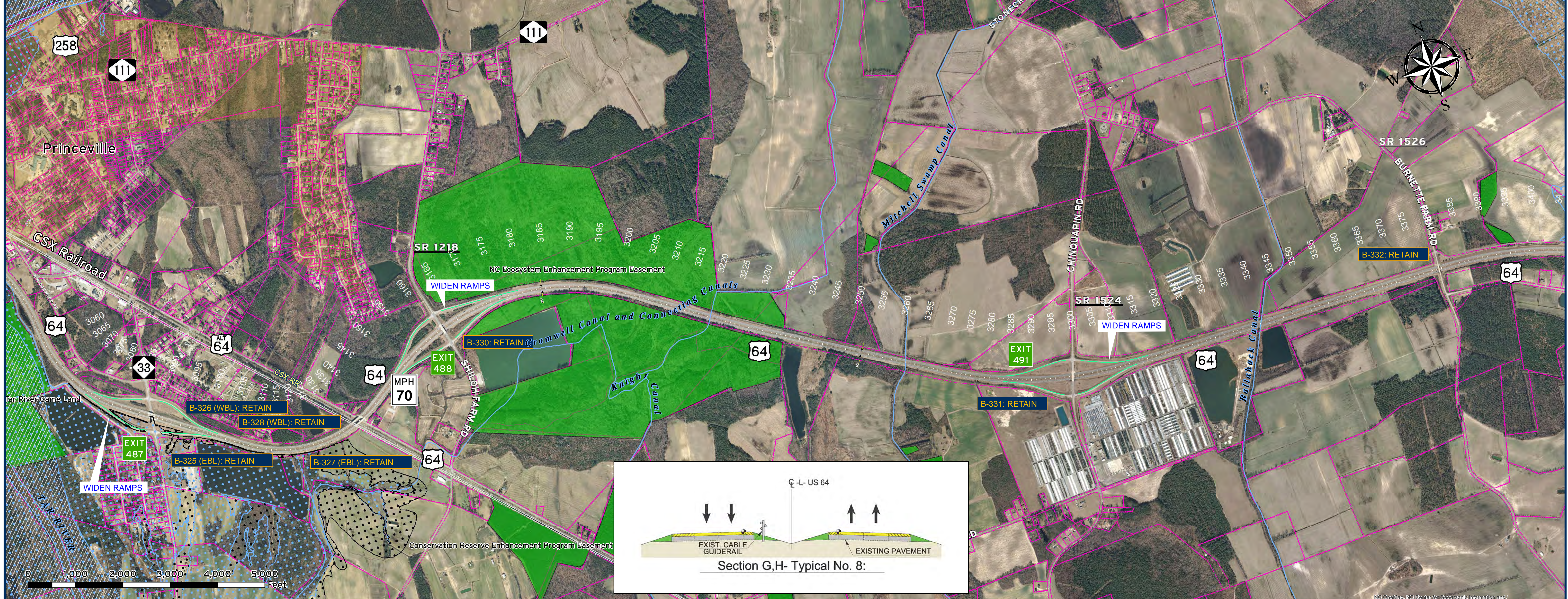
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FS-1504A SHEET 16 OF 22

Section F, G

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Open Space	Park	Proposed Bridges	Proposed Roadway / Detours
Airport	School	Proposed Paved Shoulders	Proposed ROW / CA
Cemetery	Parcel Boundaries	100 Year Floodplain	
Church	State Managed Land	500 Year Floodplain	
Greenway	Golf Course	FEMA Floodway	
Library	Hospital	Railroad	
		Stream	
		County Boundary	
		Municipal Boundary	

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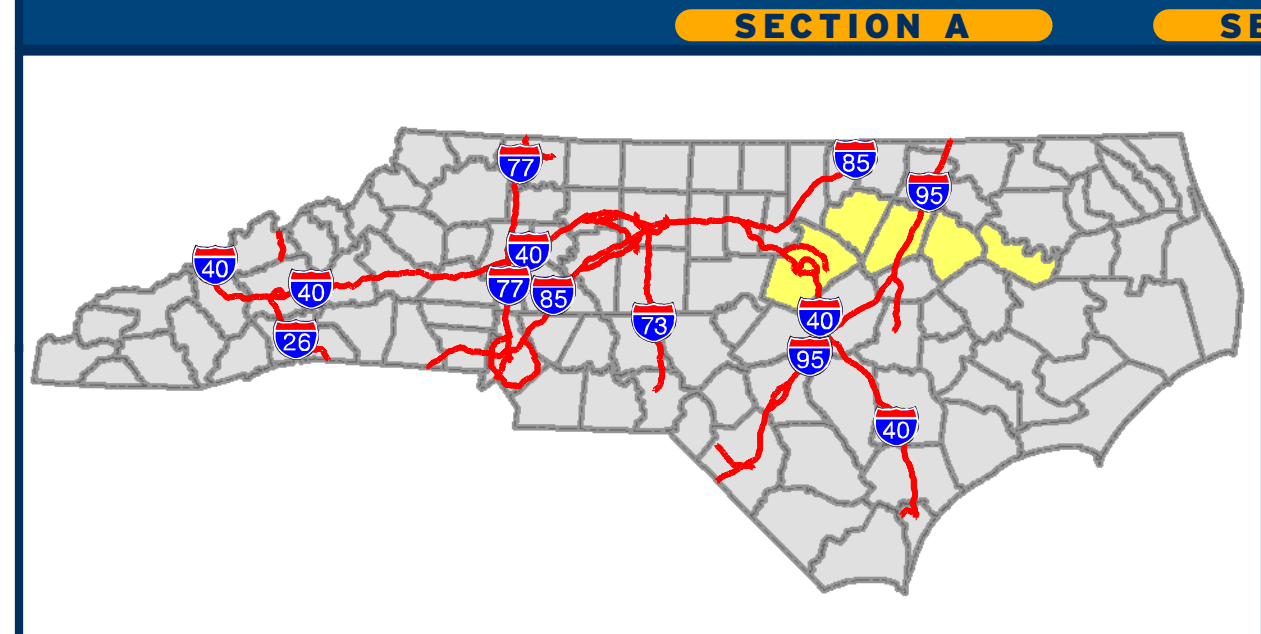
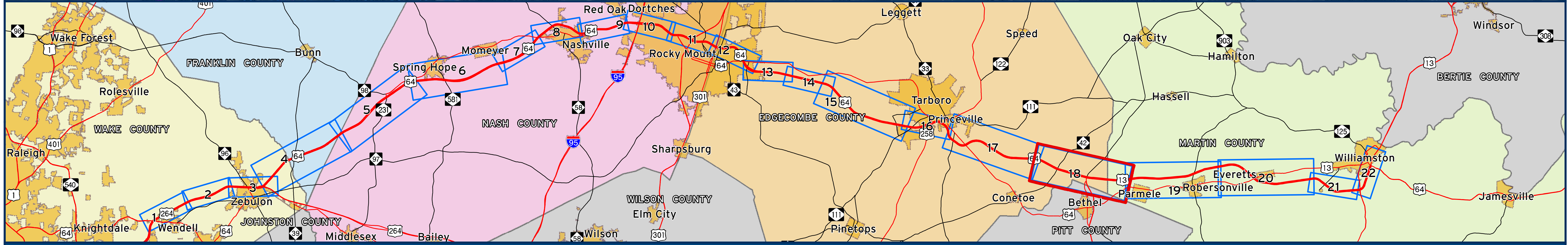
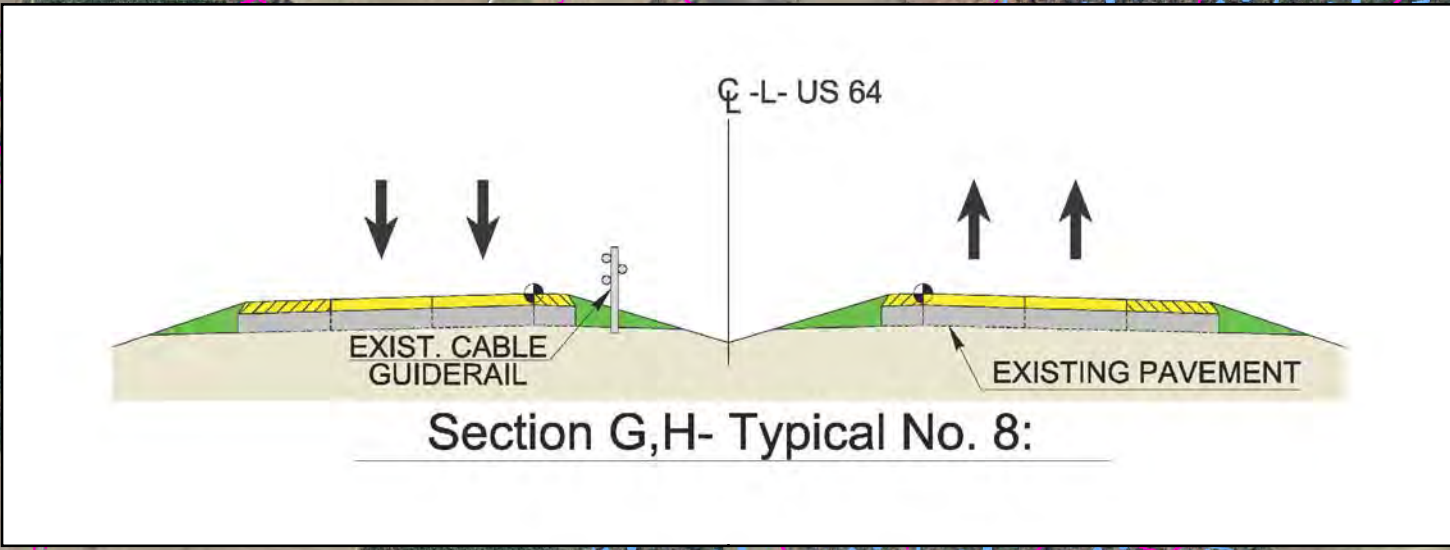
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FS-1504A SHEET 17 OF 22

Section G

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Open Space		Proposed Roadway / Detours
	Park		Proposed Paved Shoulders
	School		Proposed ROW / CA
	Church		100 Year Floodplain
	Greenway		500 Year Floodplain
	Library		FEMA Floodway
	State Managed Land		Railroad
	Golf Course		Stream
	Hospital		County Boundary
	Hospital		Municipal Boundary

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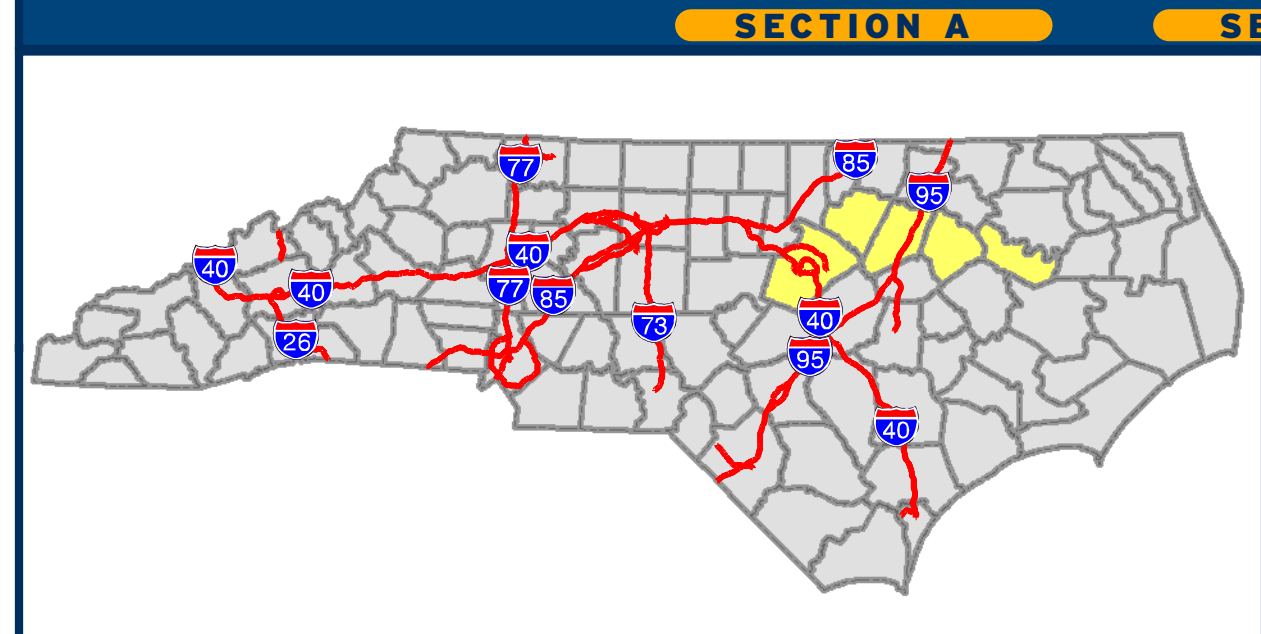
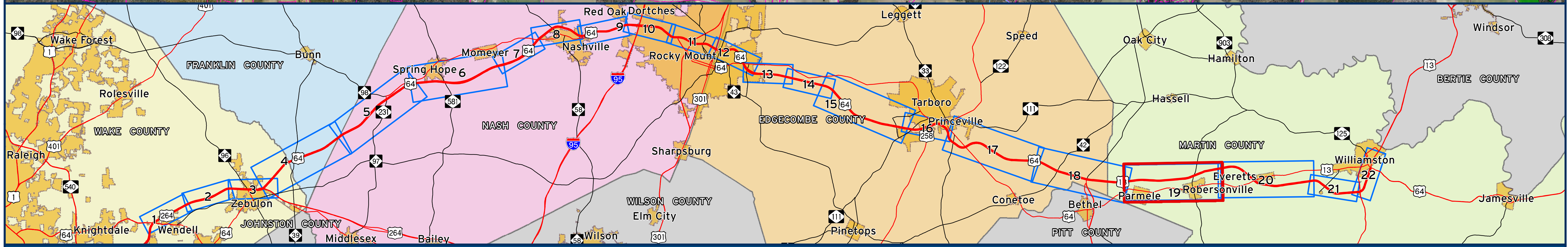
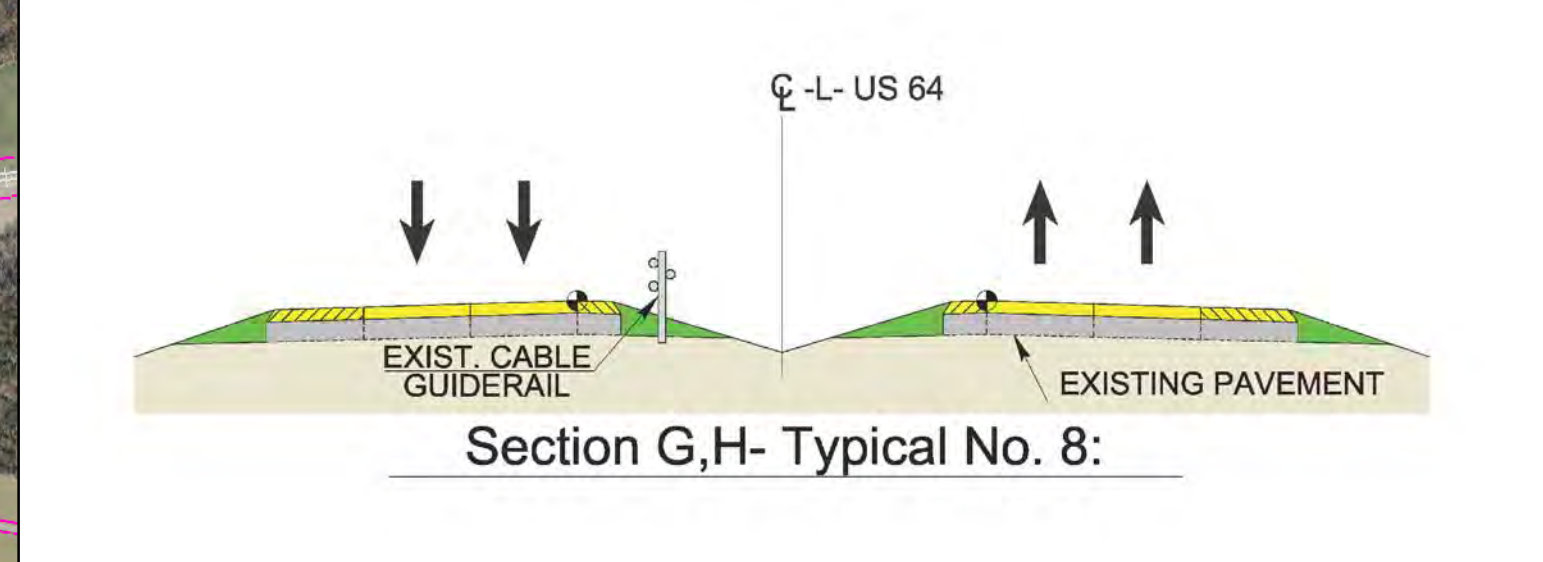
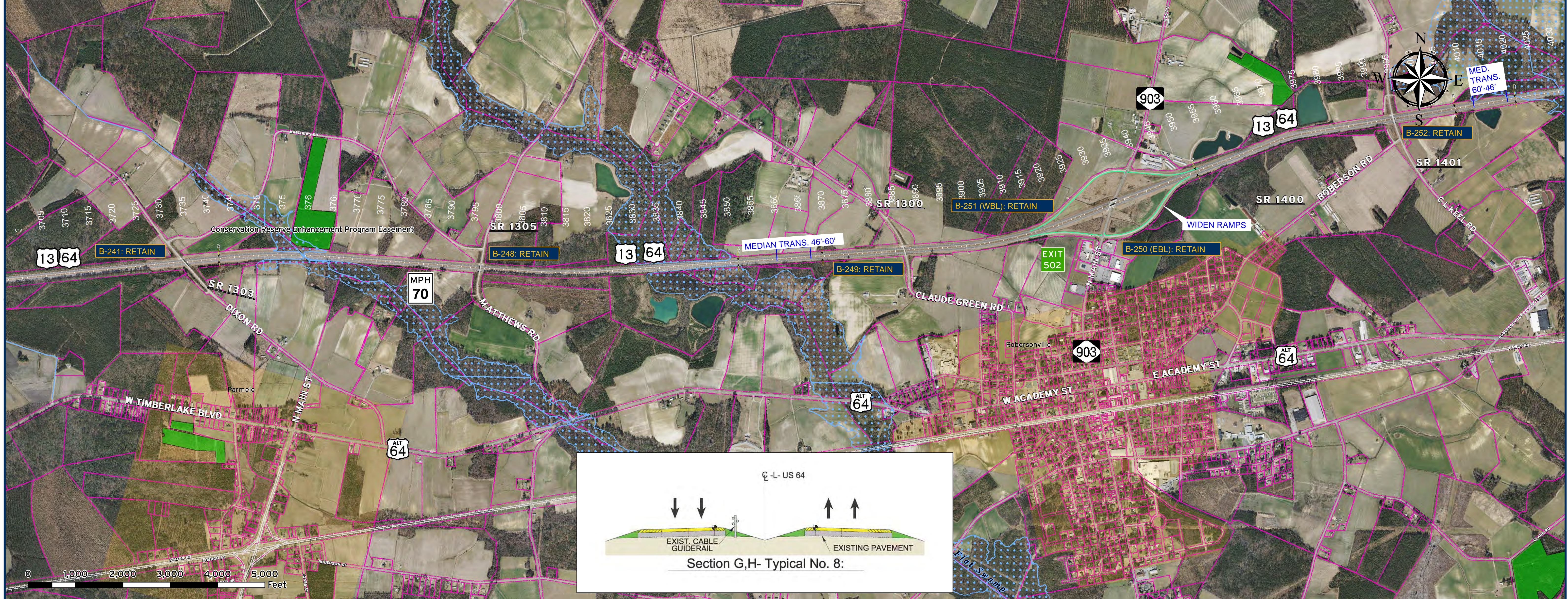
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Section G, H

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		100 Year Floodplain
	Library		500 Year Floodplain
	Open Space		FEMA Floodway
	Park		Railroad
	School		Stream
	State Managed Land		County Boundary
	Golf Course		Municipal Boundary
	Hospital		

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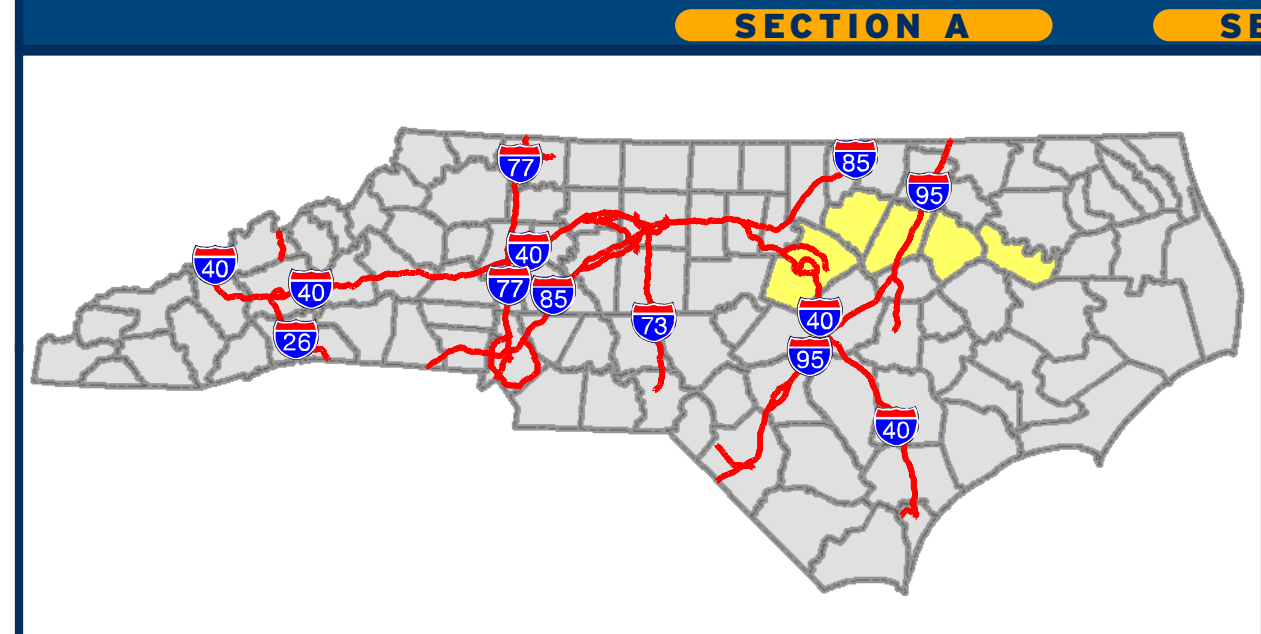
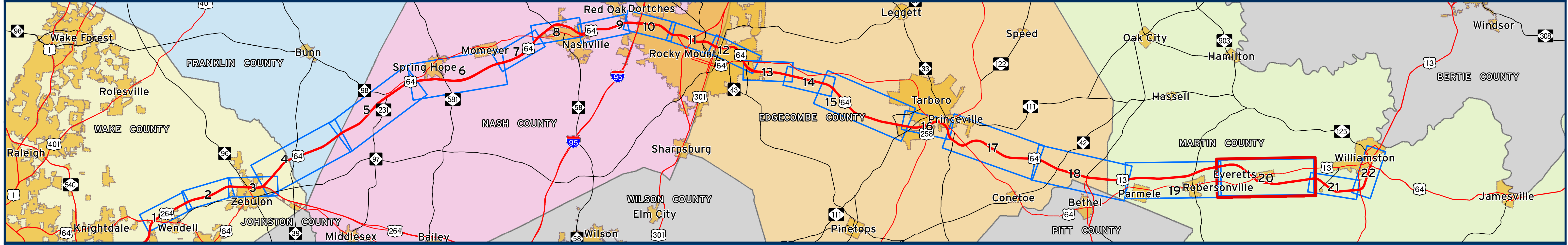
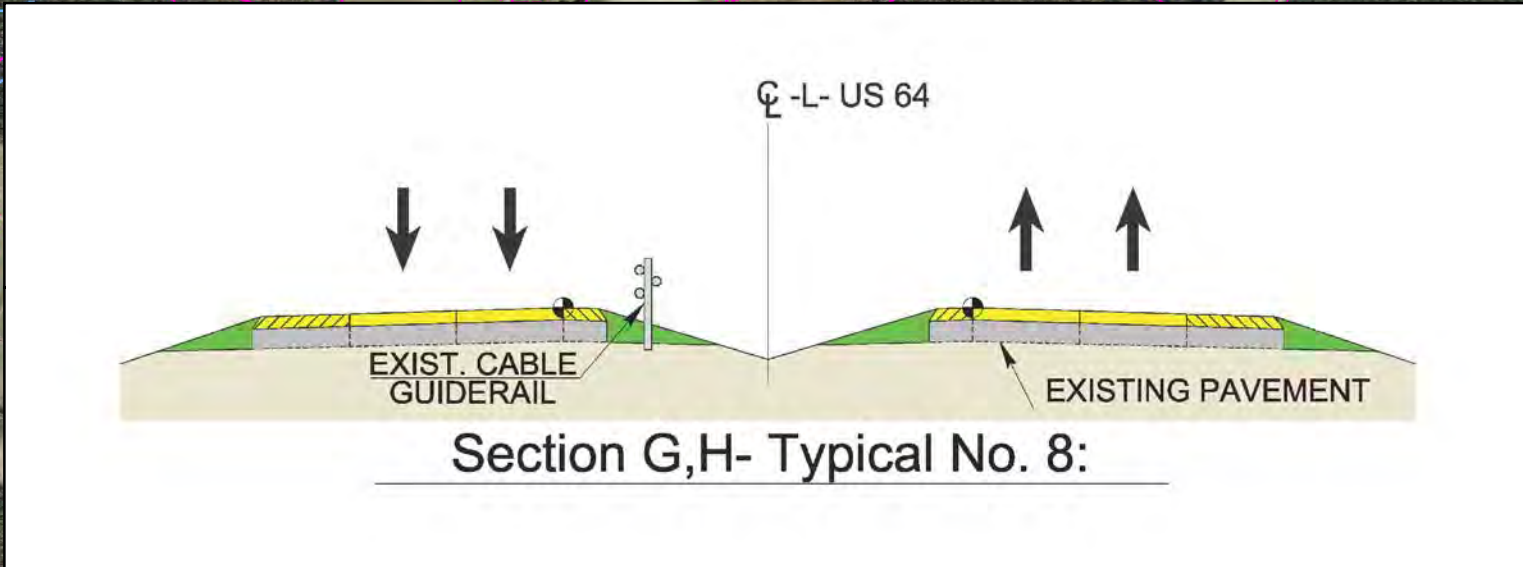
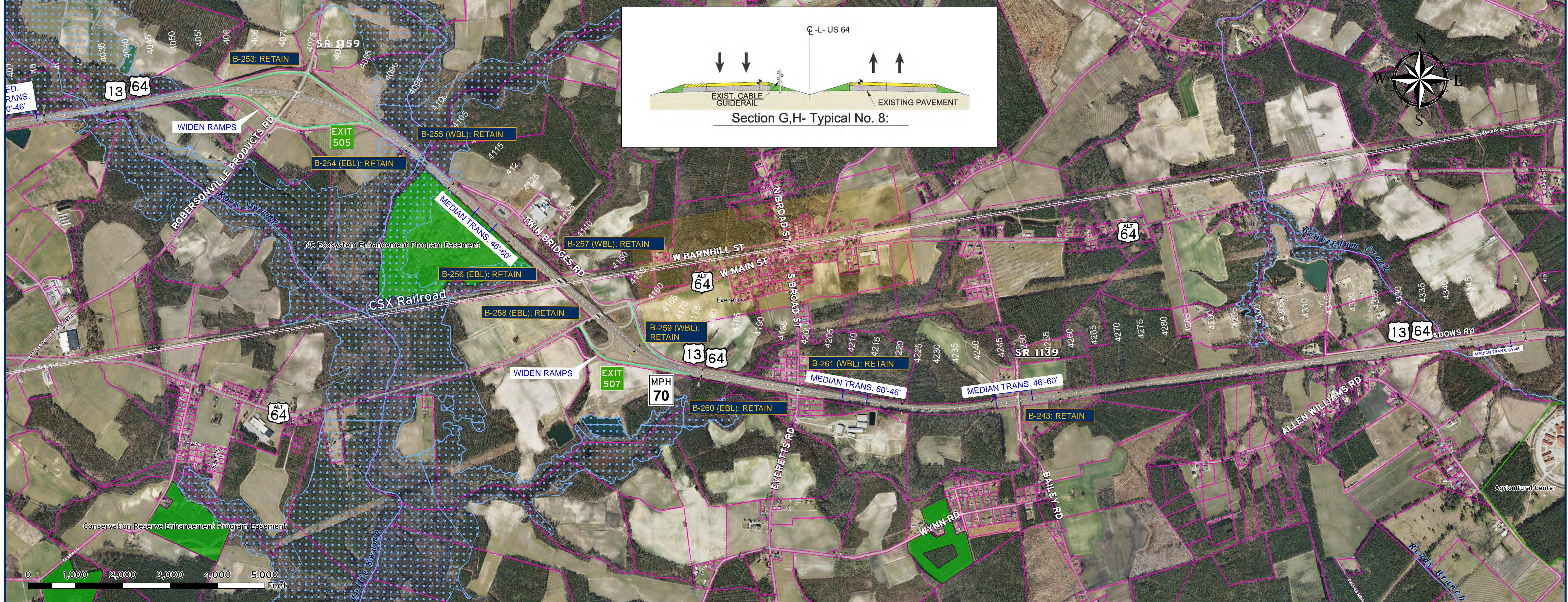
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FS-1504A SHEET 19 OF 22

Section H

Upgrade US 64 to Interstate
 FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
 TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
 WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Airport		Proposed Bridges
	Business		Proposed Roadway / Detours
	Cemetery		Proposed Paved Shoulders
	Church		Proposed ROW / CA
	Greenway		100 Year Floodplain
	Library		500 Year Floodplain
	Open Space		FEMA Floodway
	Park		Railroad
	School		Stream
	Parcel Boundaries		County Boundary
	State Managed Land		Municipal Boundary
	Golf Course		
	Hospital		

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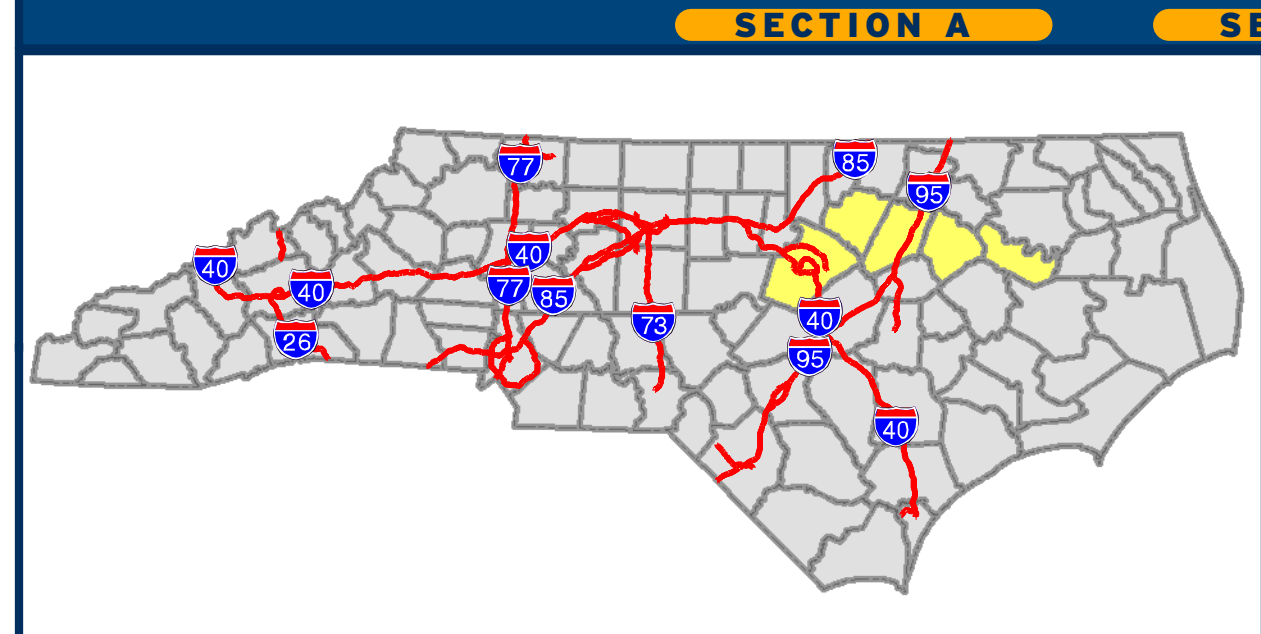
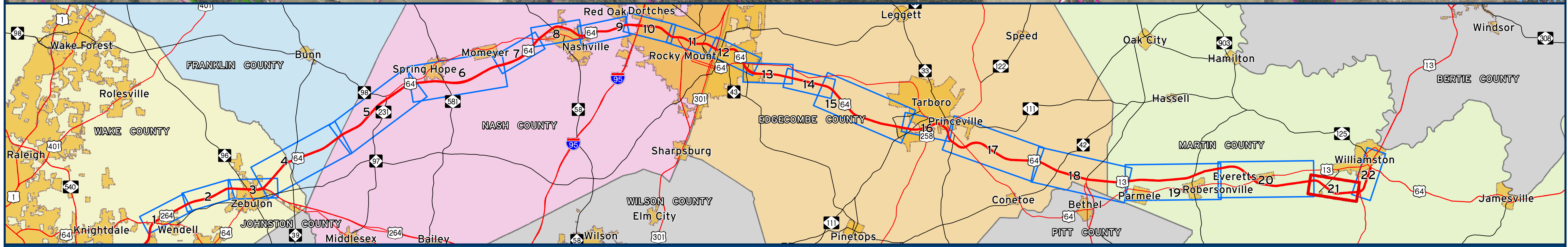
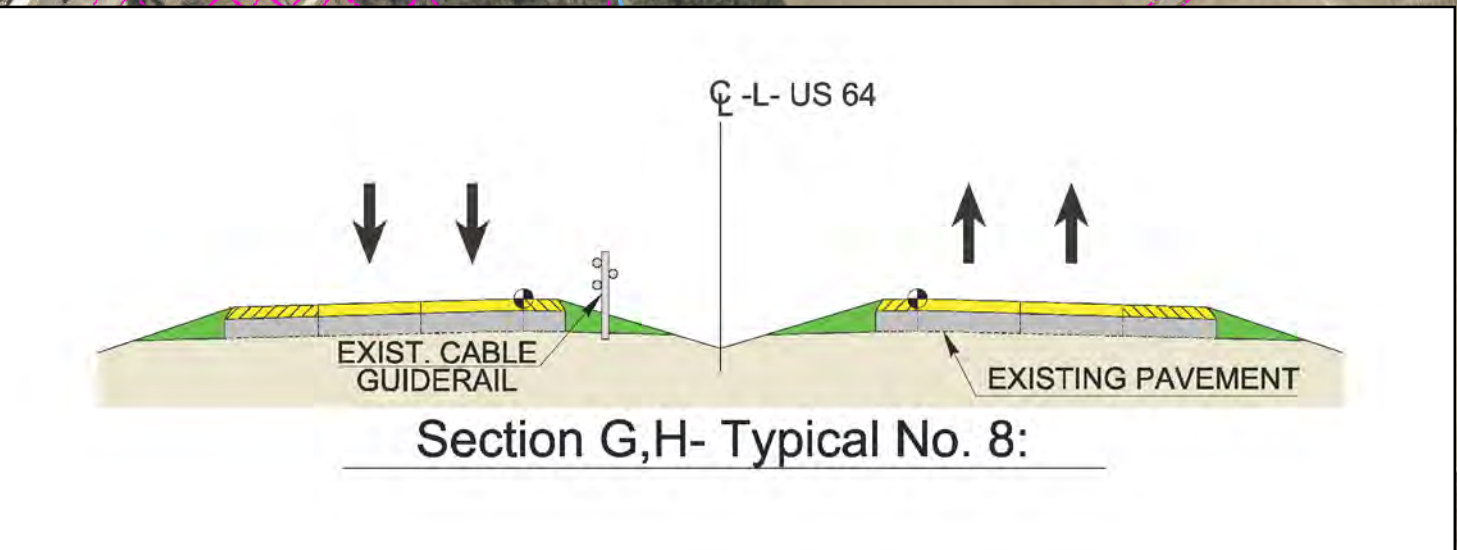
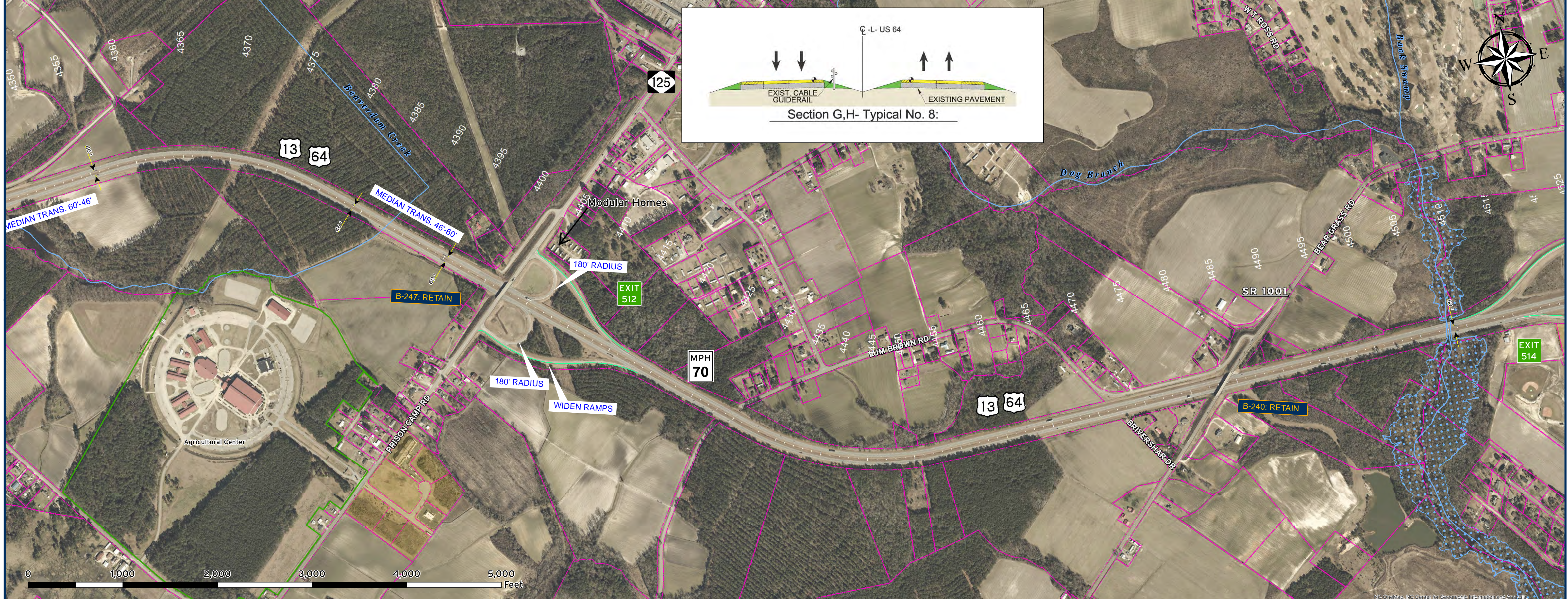
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FS-1504A SHEET 20 OF 22

Section H

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Airport		Proposed Roadway / Detours
	Business		Proposed Paved Shoulders
	Cemetery		Proposed ROW / CA
	Church		
	Greenway		
	Library		
	Park		
	School		
	Parcel Boundaries		
	State Managed Land		
	Golf Course		
	Hospital		
	Railroad		
	Stream		
	County Boundary		
	Municipal Boundary		
	100 Year Floodplain		
	500 Year Floodplain		
	FEMA Floodway		

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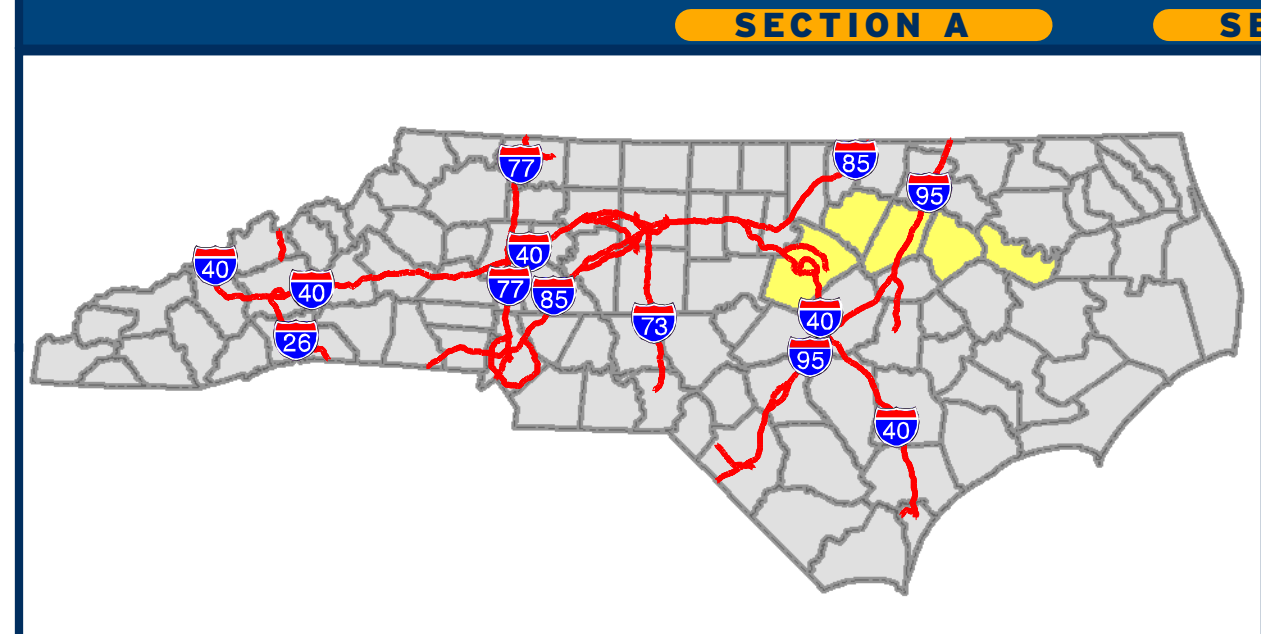
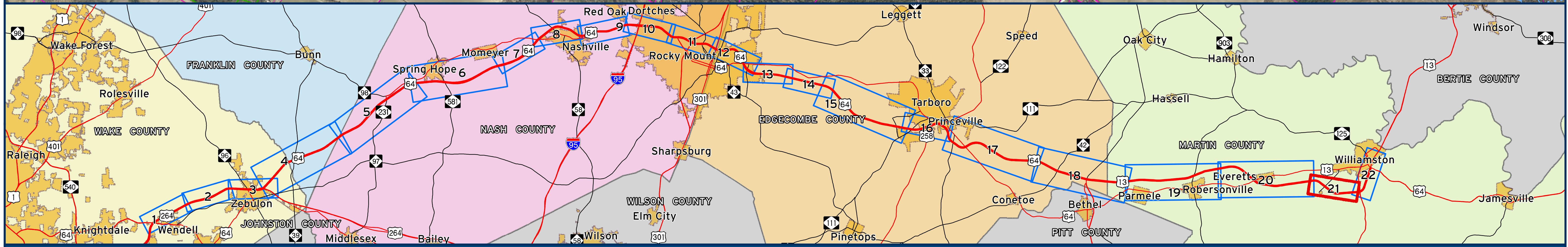
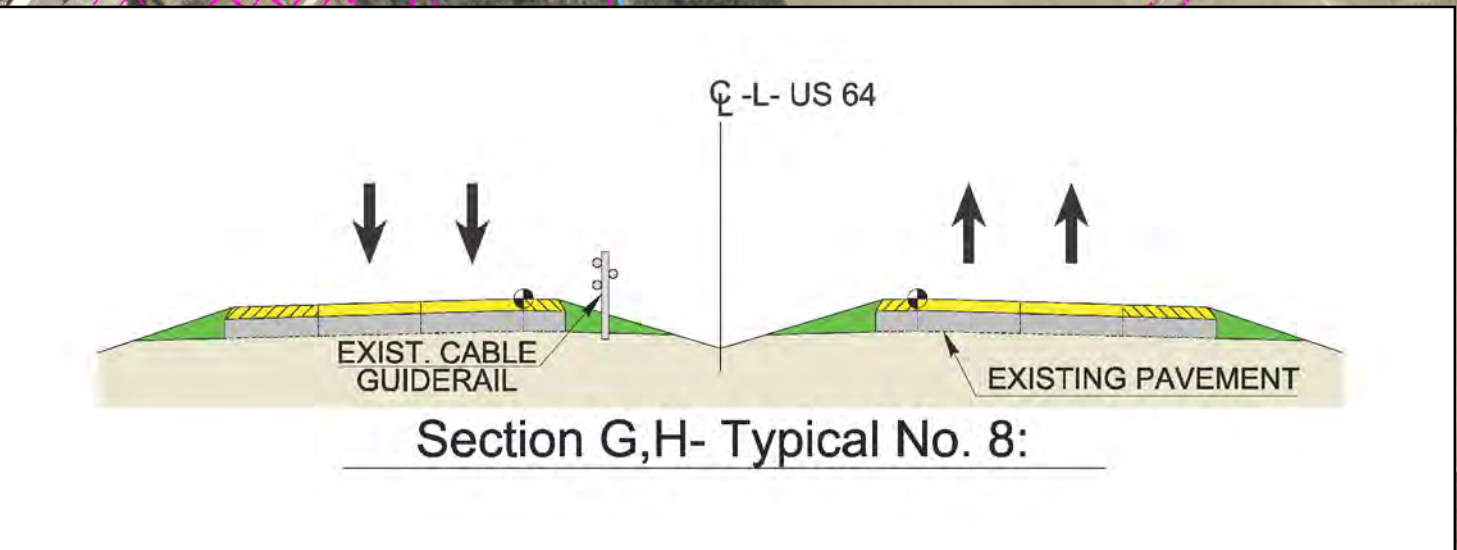
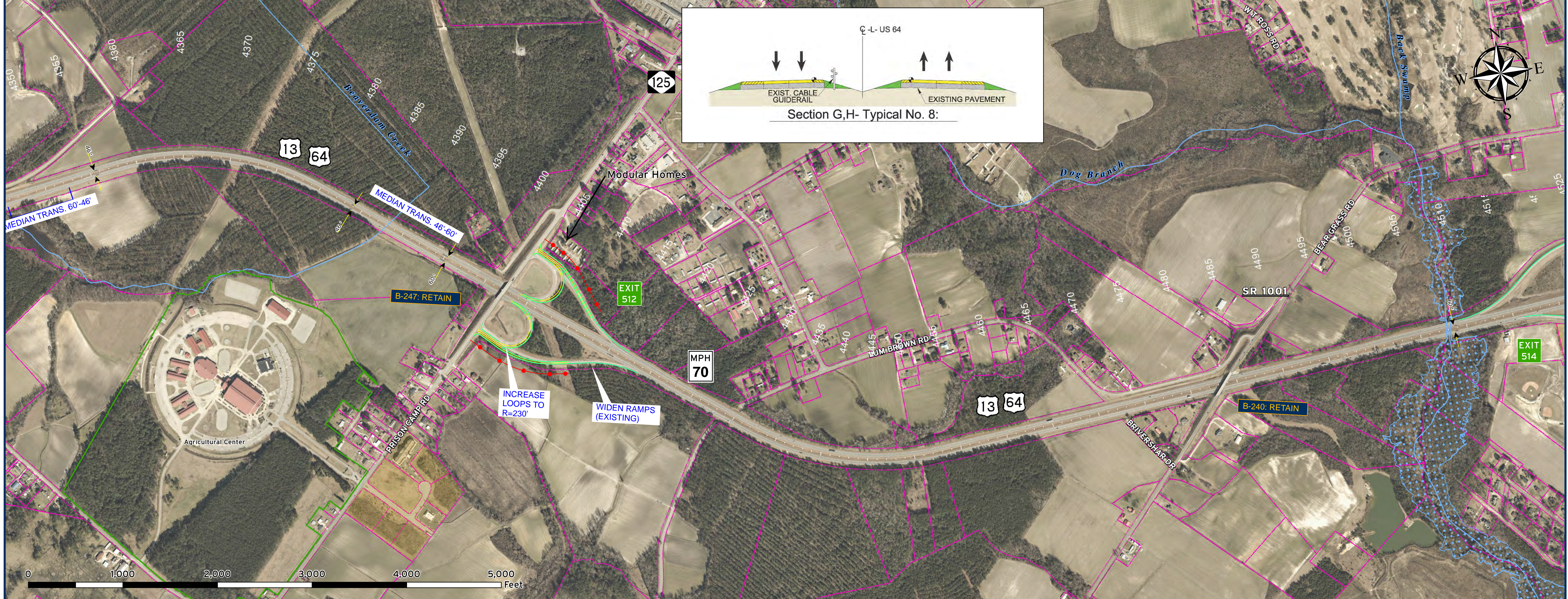
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Section H Alternative 1

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
	Open Space		Proposed Bridges
	Airport		Proposed Roadway / Detours
	Business		Proposed Paved Shoulders
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	Park		Railroad
	School		Stream
	Parcel Boundaries		County Boundary
	State Managed Land		Municipal Boundary
	Golf Course		
	Hospital		

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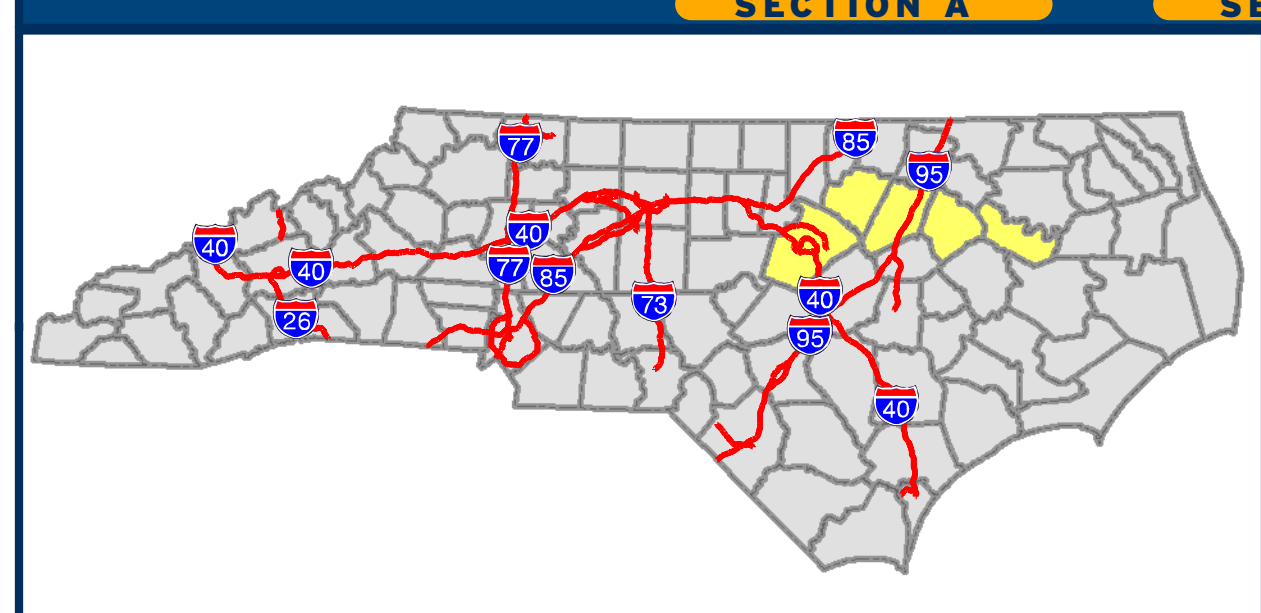
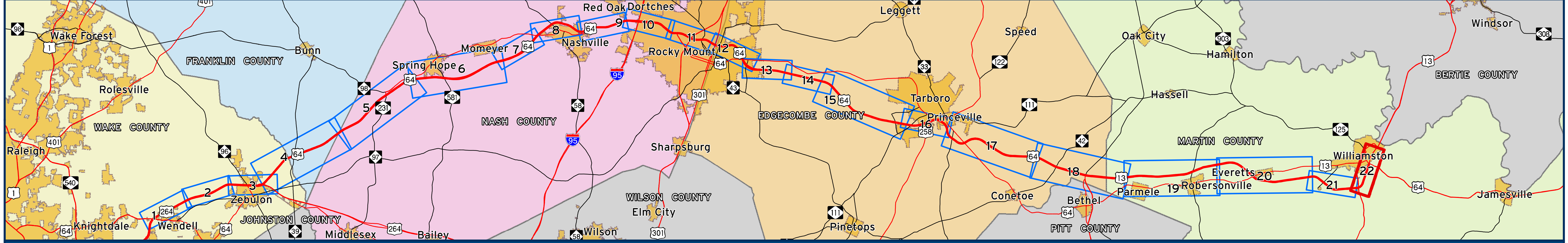
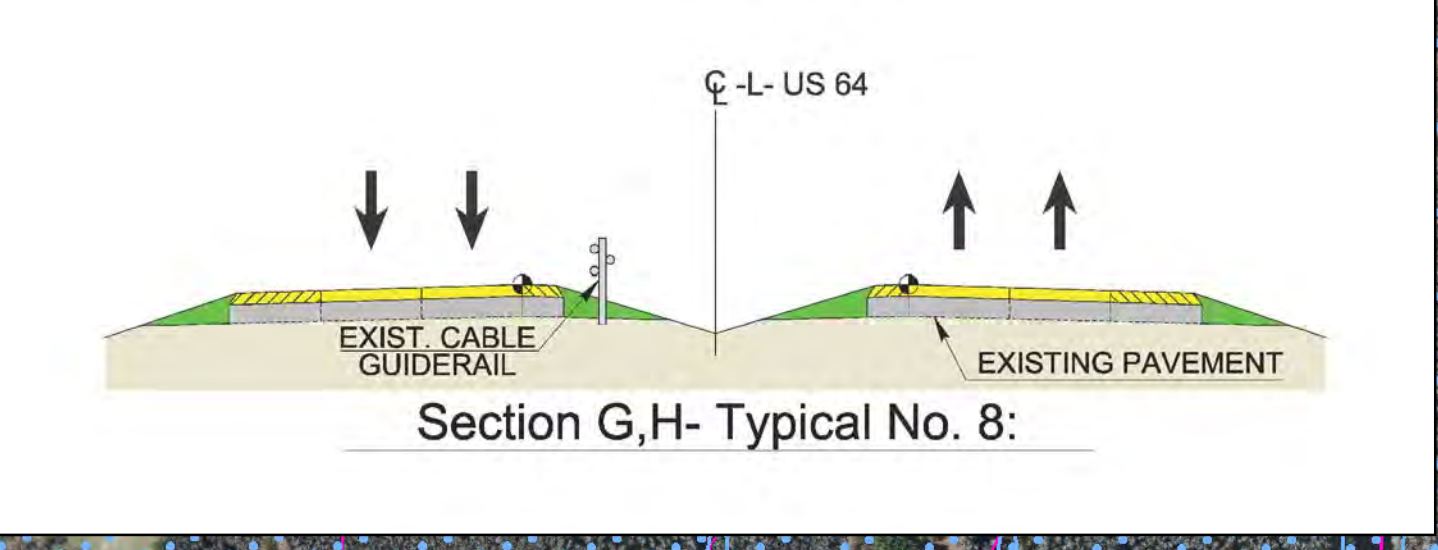
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FS-1504A SHEET 21-2

Section H Alternative 2

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES



LEGEND		DESIGN ELEMENTS	
Open Space	Park	Proposed Bridges	Proposed Roadway / Detours
Airport	School	Proposed Paved Shoulders	Proposed ROW / CA
Business	Parcel Boundaries	100 Year Floodplain	
Cemetery	State Managed Land	500 Year Floodplain	
Church	Golf Course	FEMA Floodway	
Greenway	Hospital		
Library			
	Railroad		
	Stream		
	County Boundary		
	Municipal Boundary		

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FS-1504A SHEET 22 OF 22

Section H

Upgrade US 64 to Interstate
FROM SR 1003 (ROLESVILLE RD) [EXIT 430]
TO US 13/ US 17 [EXIT 515] IN WILLIAMSTON
WAKE, FRANKLIN, NASH, EDGECOMBE, AND MARTIN COUNTIES

Appendix A:

Traffic Forecast



PAT McGRATH
JAMES L. TARRANT

November 30, 2015

MEMORANDUM TO: Lynnise Hawes
Program Development Branch

FROM: Jamie V. Moore
Transportation Planning Branch

SUBJECT: Traffic Forecast for FS-1504A
Edgecombe, Franklin, Martin, Nash and Wake Counties
Upgrade US 64 from SR 1003 (Rolesville Road) in Knightdale to
US 17 in Williamston to Interstate Standards

Please find attached the 2015/2040 traffic forecast for the above mentioned project. Feasibility Study FS-1504 is defined as the upgrading of US 64, from SR 1003 (Rolesville Road) to US 17, to interstate standards. This is the first forecast completed for this project. This project lies within the Capital Area Metropolitan Planning Organization Area (MPO), Rocky Mount Urban Area MPO, Upper Coastal Plain Rural Planning Organization Area (RPO), Kerr Tar RPO, and the Mid-East RPO.

Various planners from the Transportation Planning Branch, each MPO and RPO area, each county, city/town, and division were contacted. Information on growth and area development was received from these sources.

The following scenarios are provided:

- 2015 Base Year No Build
- 2040 Future Year Build

Certain Assumptions were made during the development of this forecast:

Fiscal Constraint:

Within an MPO, the future year forecasts assume construction of projects as listed within the MPO's Metropolitan Transportation Plan (MTP). This forecast is consistent with the Rocky Mount Urban Area MPO's current 2040 MTP, adopted May 20, 2013, and also the Capital Area MPO's current 2040 MTP, adopted April 10, 2013. For areas falling outside an MPO, forecasts are fiscally constrained to the State TIP. This means that in the future year, any project which has some construction money scheduled in the STIP is considered to be constructed by the future year. This forecast is also consistent with the current STIP.

Development Activity:

Information was collected from various planners regarding development within the project area. The largest development is the Wendell Falls Development located on SR 2502 (Wendell Falls

Parkway) south of US 64. The Traffic Impact Analysis, completed in 2006, and the updated trip generation, completed in 2008, was used as a tool in determining generated traffic for the future year. Other developments are described in the full traffic forecast report.

Methodology:

The Base Year No Build was developed primarily based upon traffic counts taken for this forecast. Future Year Build traffic volumes were calculated by applying the selected growth rates to the Base Year No Build volumes using a linear growth formula. Additional traffic volumes were added to SR 2502 (Wendell Falls Parkway) to take into account the build-out of the Wendell Falls Development.

Interpolation:

To determine any intermediate years, straight-line interpolation may be used. AADT volumes may be extrapolated for up to two years immediately following 2040. If it is determined that any of these assumptions have become inconsistent with the project and surrounding area activity, please request updated projections at this location.

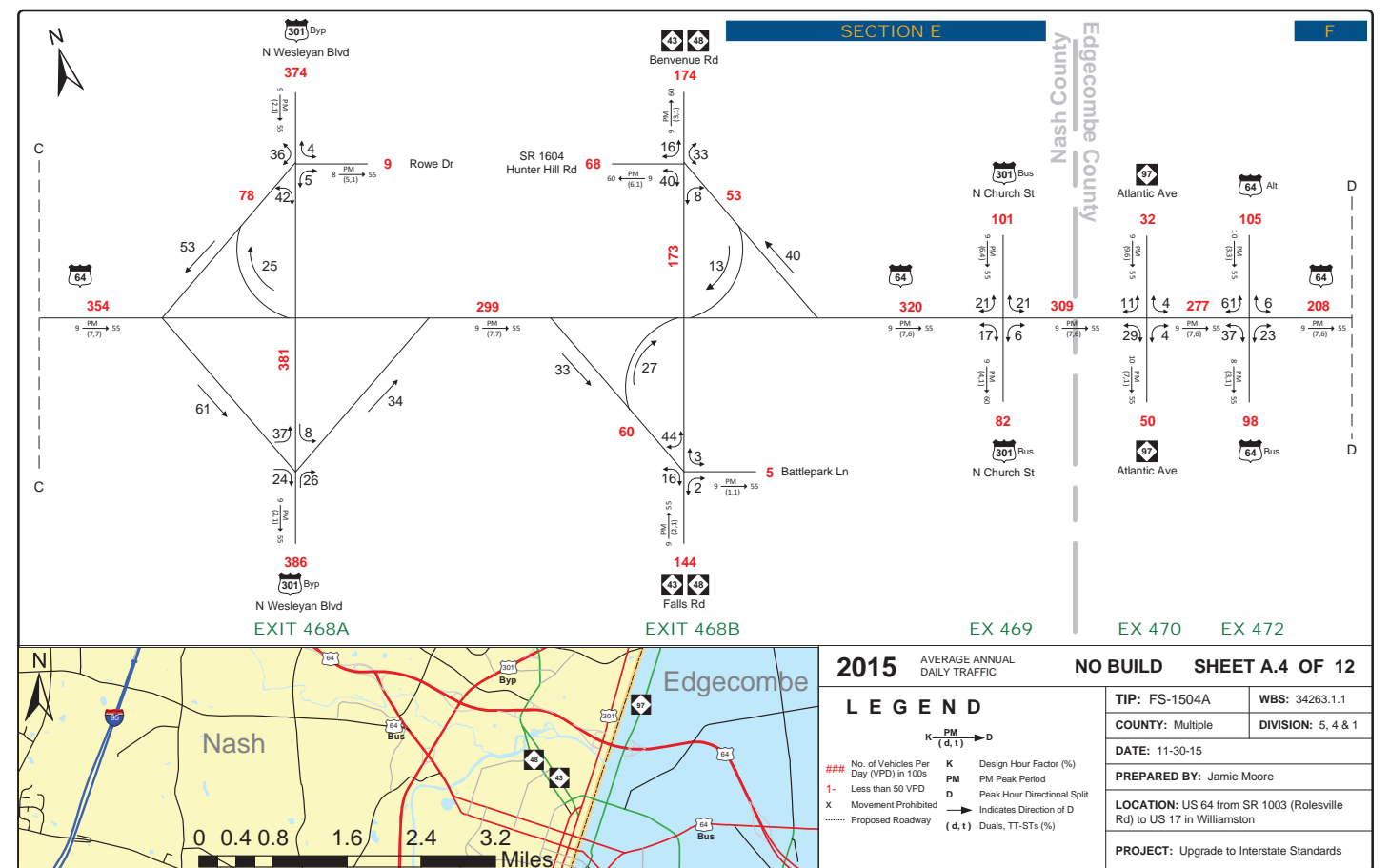
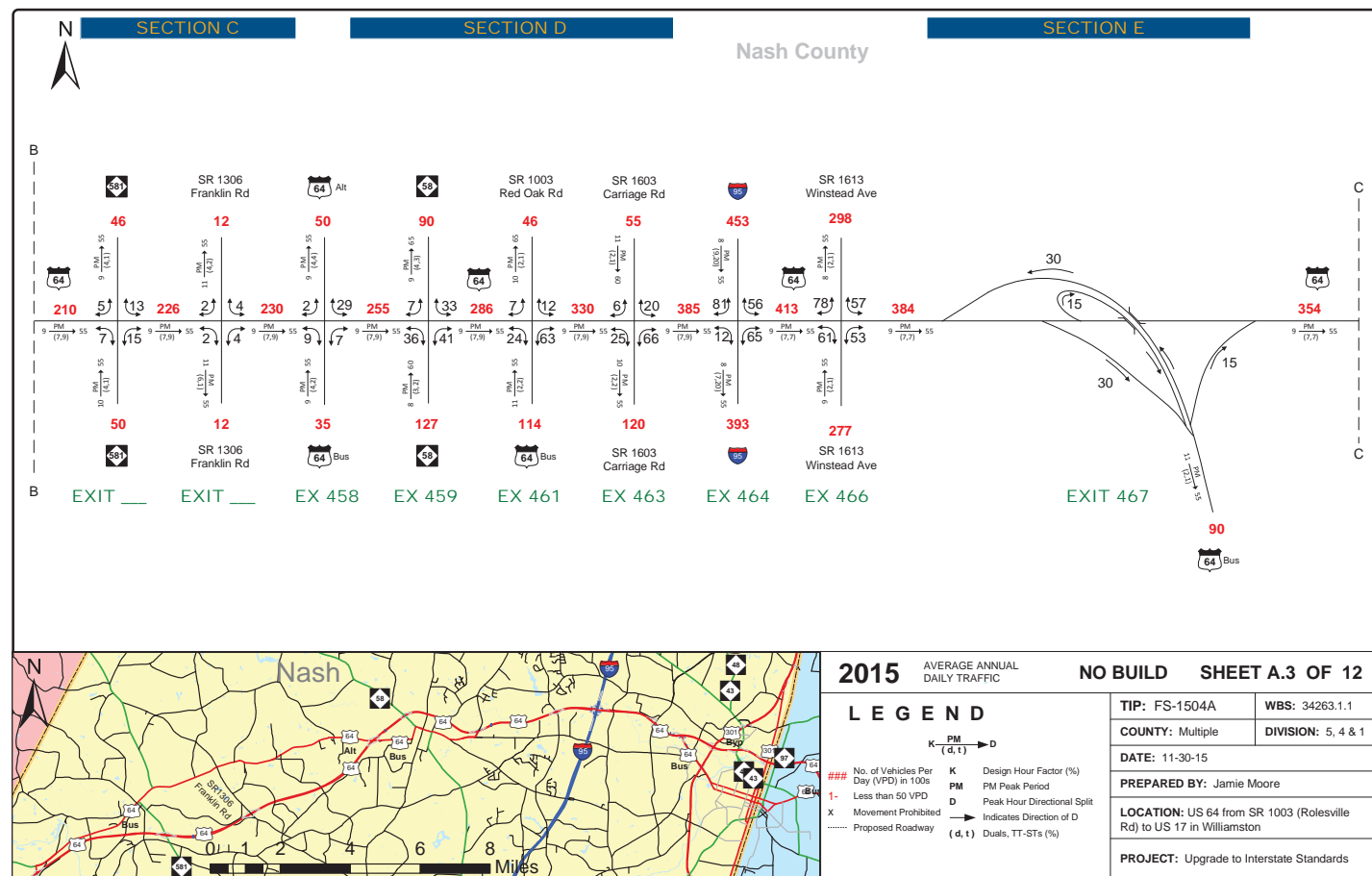
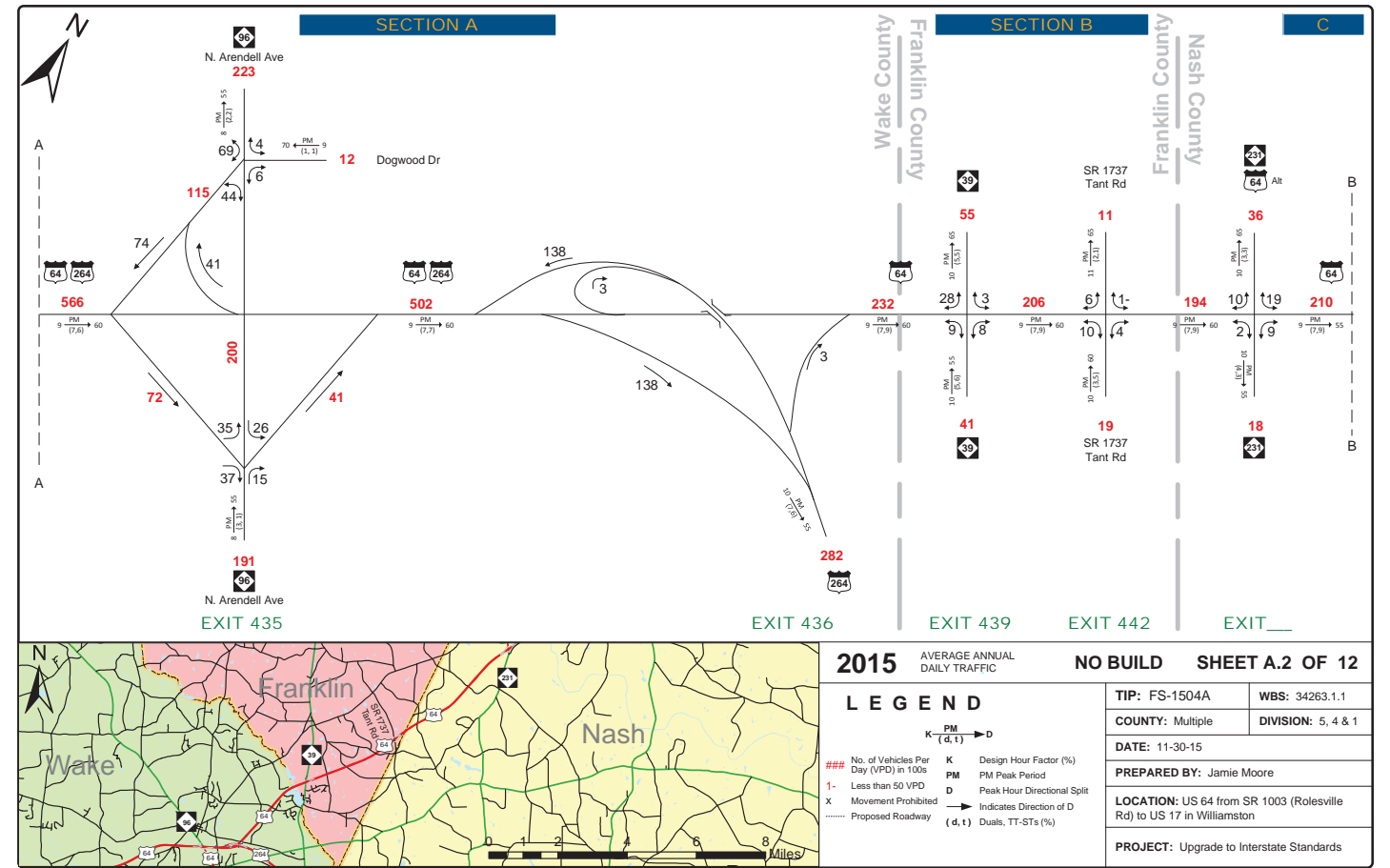
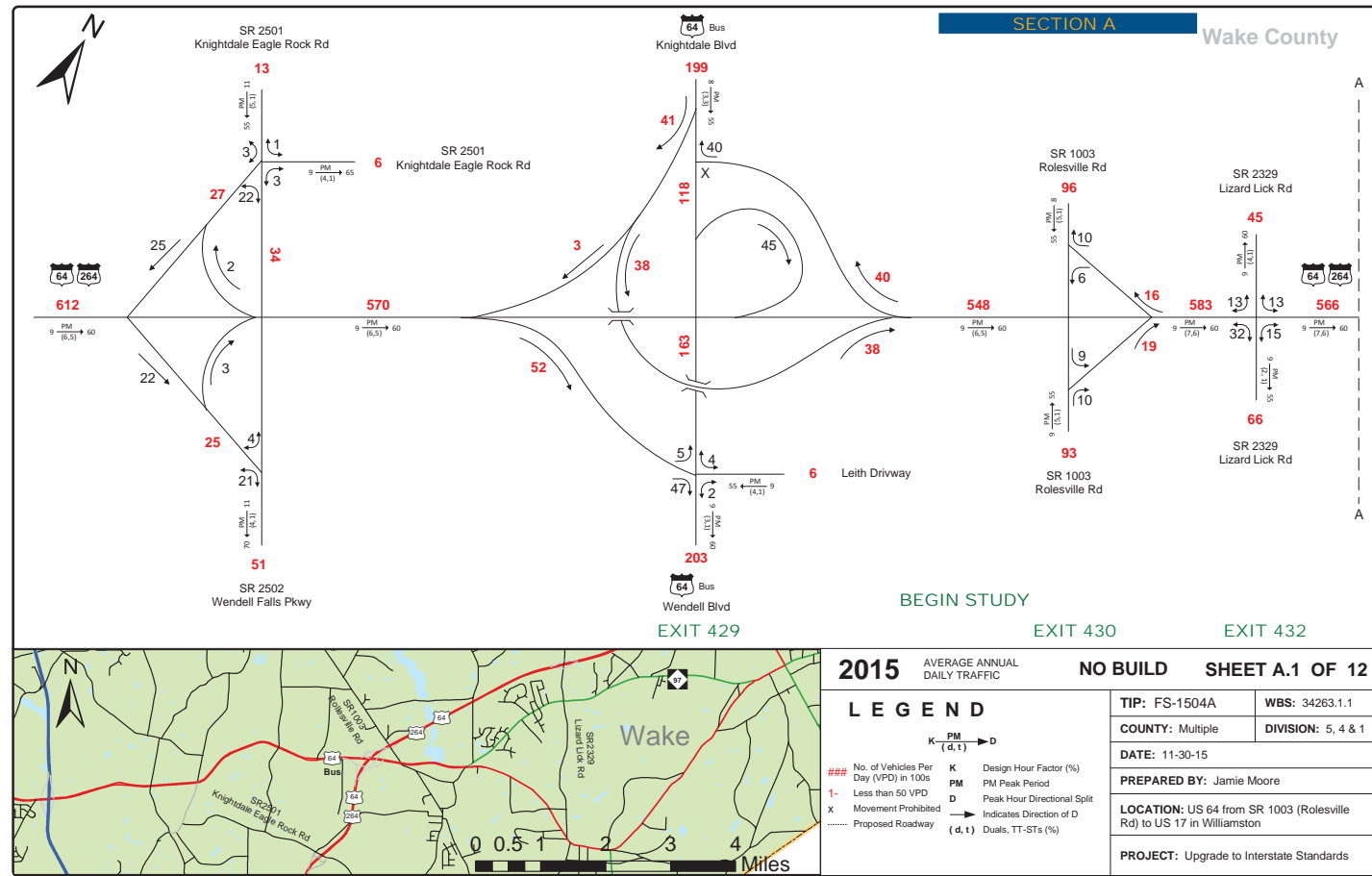
If you have any questions, or I can be of any further assistance on this project, please do not hesitate to contact me at 919-707-0937, email: jvmoore@ncdot.gov.

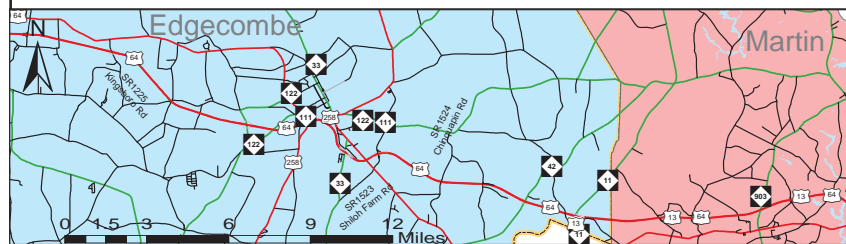
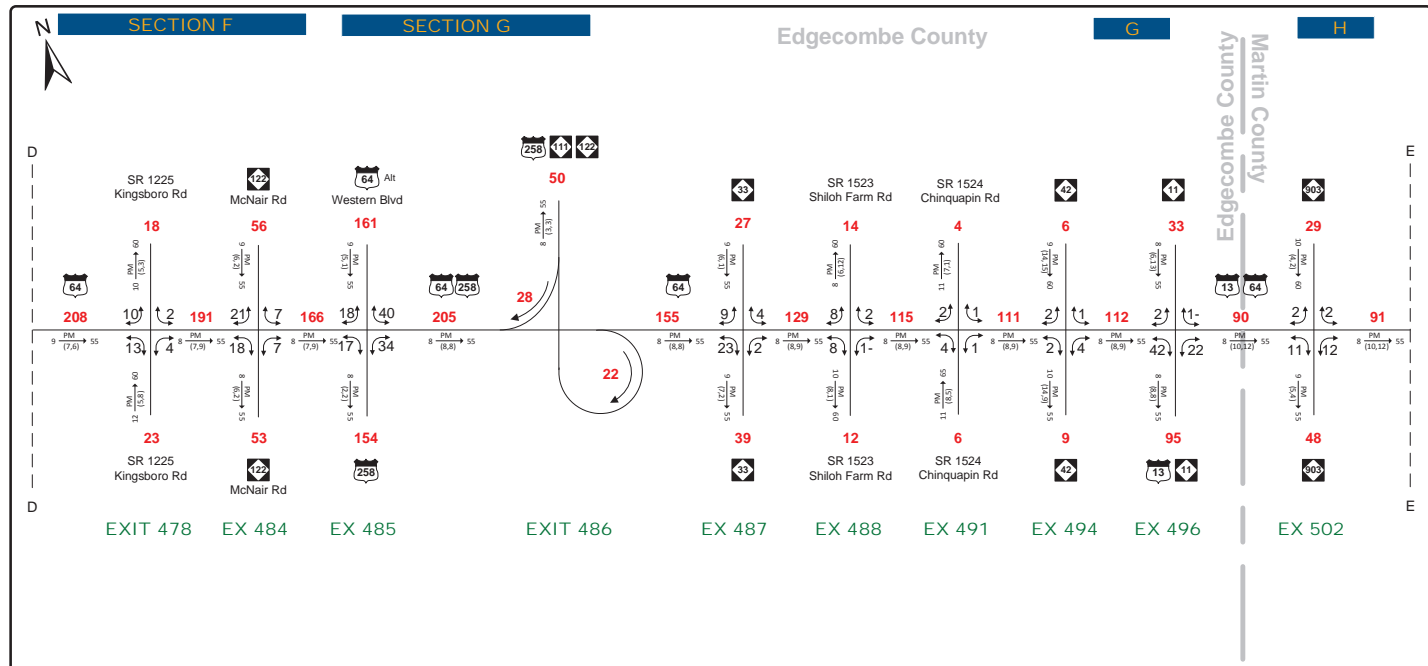
cc : FILE (Wake/Franklin/Nash/Edgecombe/Martin, Project FS-1504A)

cc: (via e-mail as PDF Attachments):

Brian Wert, PE, Transportation Planning Branch
Scott Walston, PE, Transportation Planning Branch
Behshad Norowzi, Transportation Planning Branch
James Dunlop, PE, Congestion Management Section
Doumit Y. Ishak, Congestion Management Section
Clark S. Morrison, Ph.D., PE, Pavement Management Unit
Karen Roberson, Transportation Planning Branch
Glenn W. Mumford, PE, Roadway Design Unit
Gretchen Byrum, PE, Division of Highways – Division 1
Jimmy Eatmon, PE, Division of Highways – Division 4
David Keilson, PE, Division of Highways – Division 5
Chris Lukasina, Capital Area MPO
Bob League, Rocky Mount Urban Area MPO
James Salmons, PLS, Upper Coastal Plain RPO
Ann Stroobant, Kerr Tar RPO
Bryant Buck, Mid-East RPO





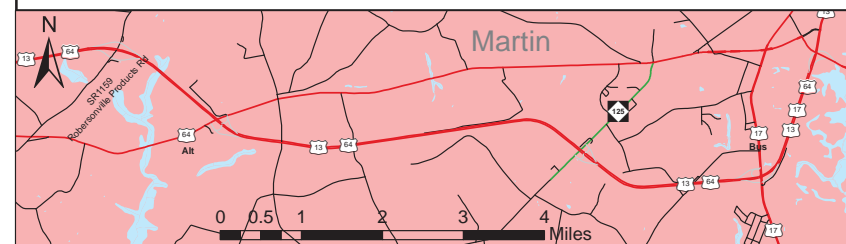
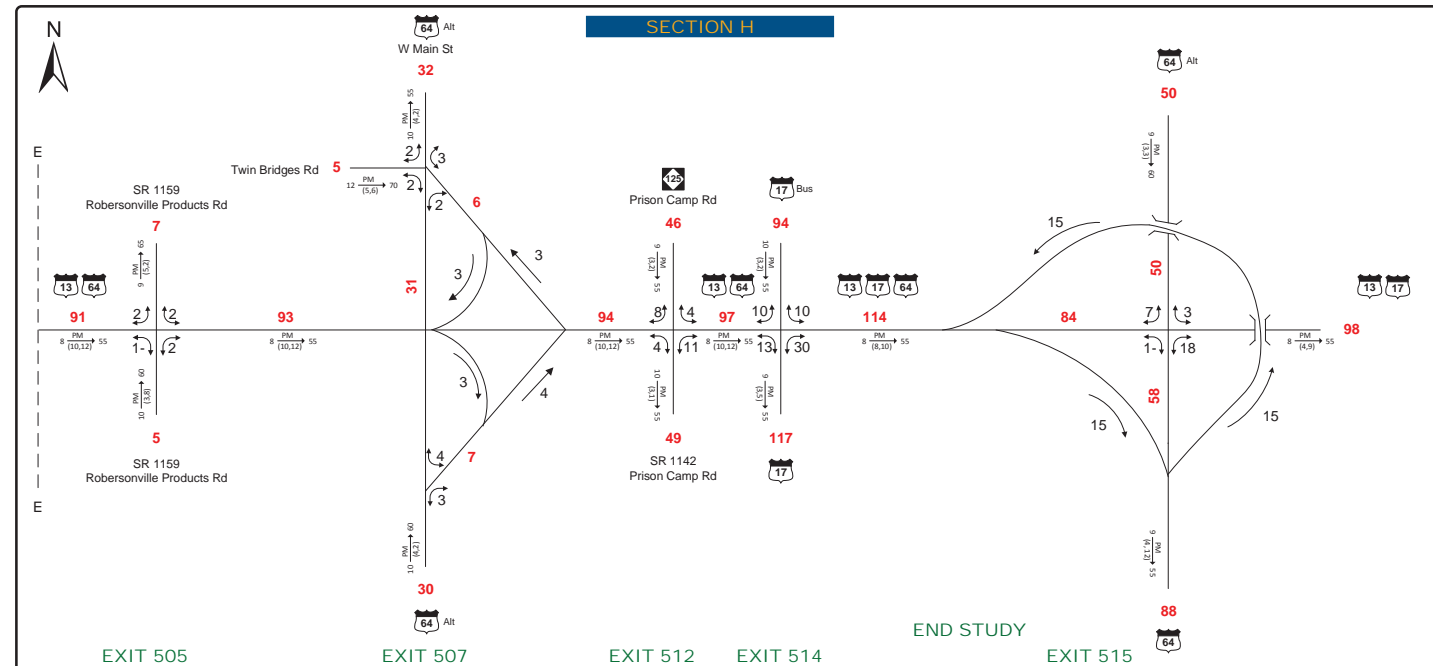


2015 AVERAGE ANNUAL DAILY TRAFFIC **NO BUILD** SHEET A.5 OF 12

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: FS-1504A WBS: 34263.1.1
 COUNTY: Multiple DIVISION: 5, 4 & 1
 DATE: 11-30-15
 PREPARED BY: Jamie Moore
 LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston
 PROJECT: Upgrade to Interstate Standards

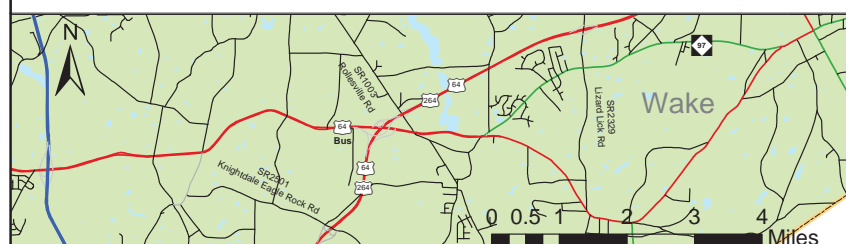
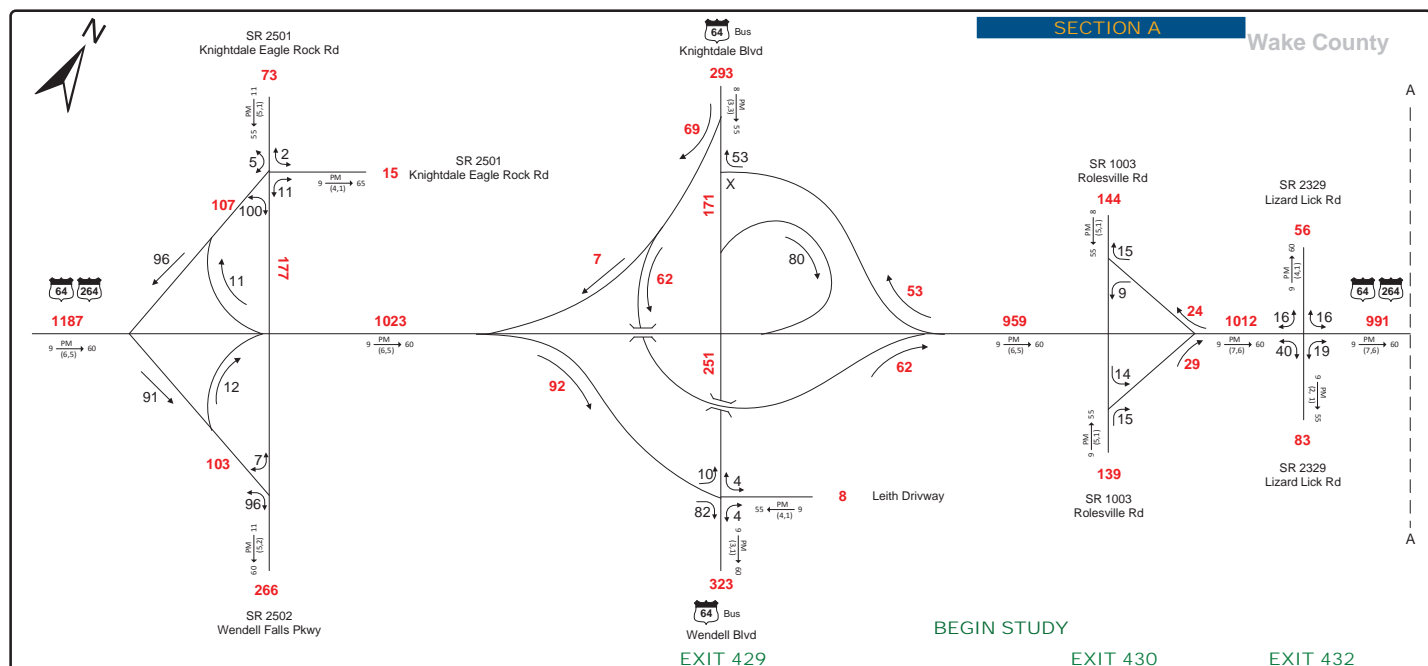


2015 AVERAGE ANNUAL DAILY TRAFFIC **NO BUILD** SHEET A.6 OF 12

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: FS-1504A WBS: 34263.1.1
 COUNTY: Multiple DIVISION: 5, 4 & 1
 DATE: 11-30-15
 PREPARED BY: Jamie Moore
 LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston
 PROJECT: Upgrade to Interstate Standards

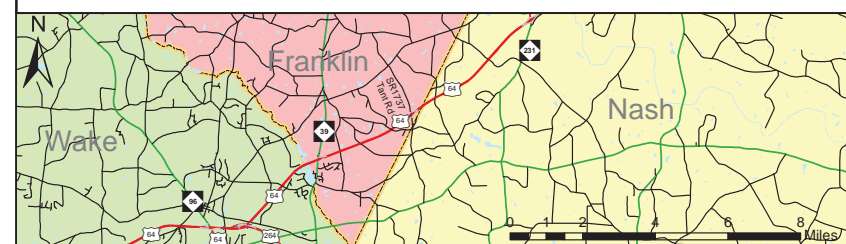
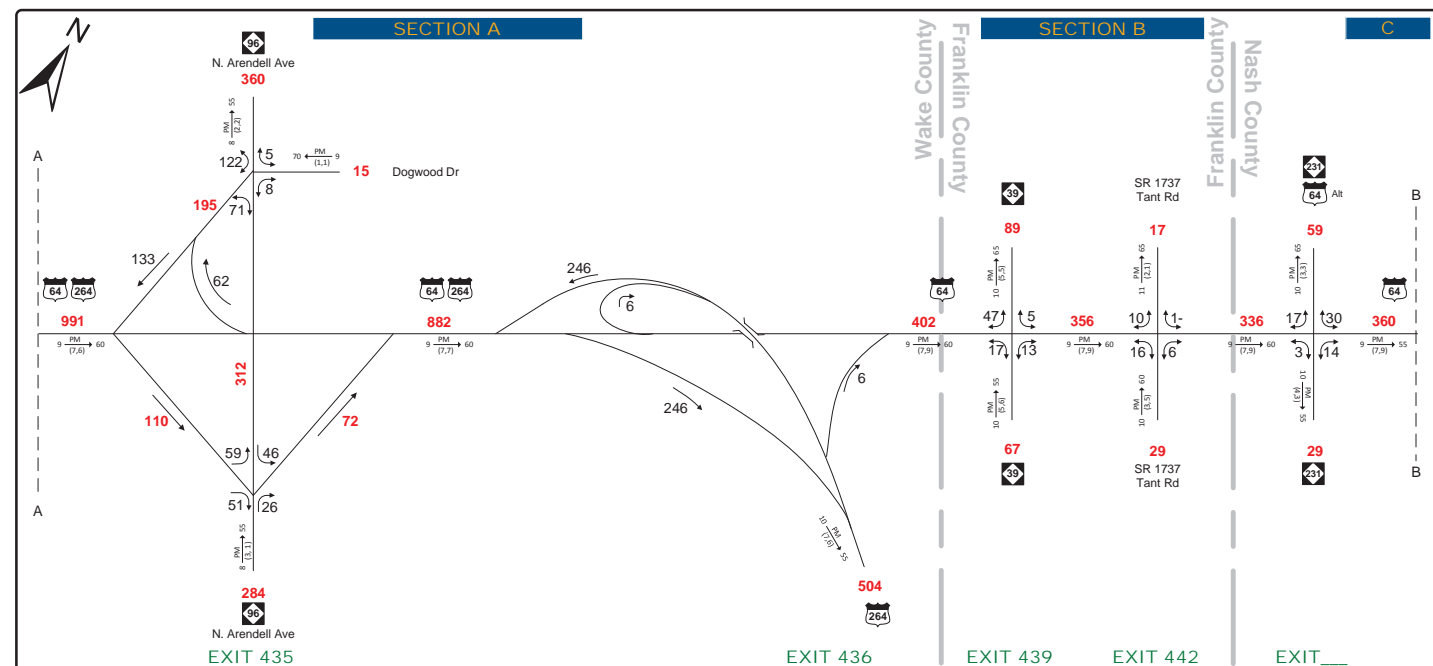


2040 AVERAGE ANNUAL DAILY TRAFFIC **BUILD** SHEET A.7 OF 12

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: FS-1504A WBS: 34263.1.1
 COUNTY: Multiple DIVISION: 5, 4 & 1
 DATE: 11-30-15
 PREPARED BY: Jamie Moore
 LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston
 PROJECT: Upgrade to Interstate Standards

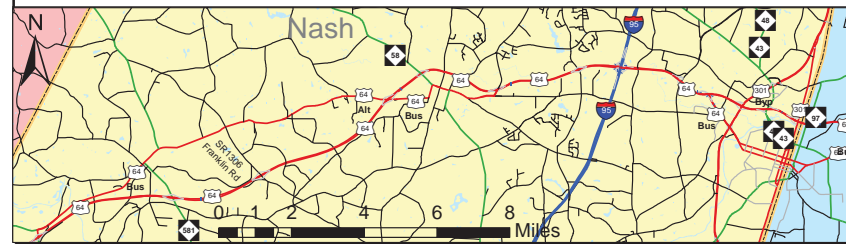
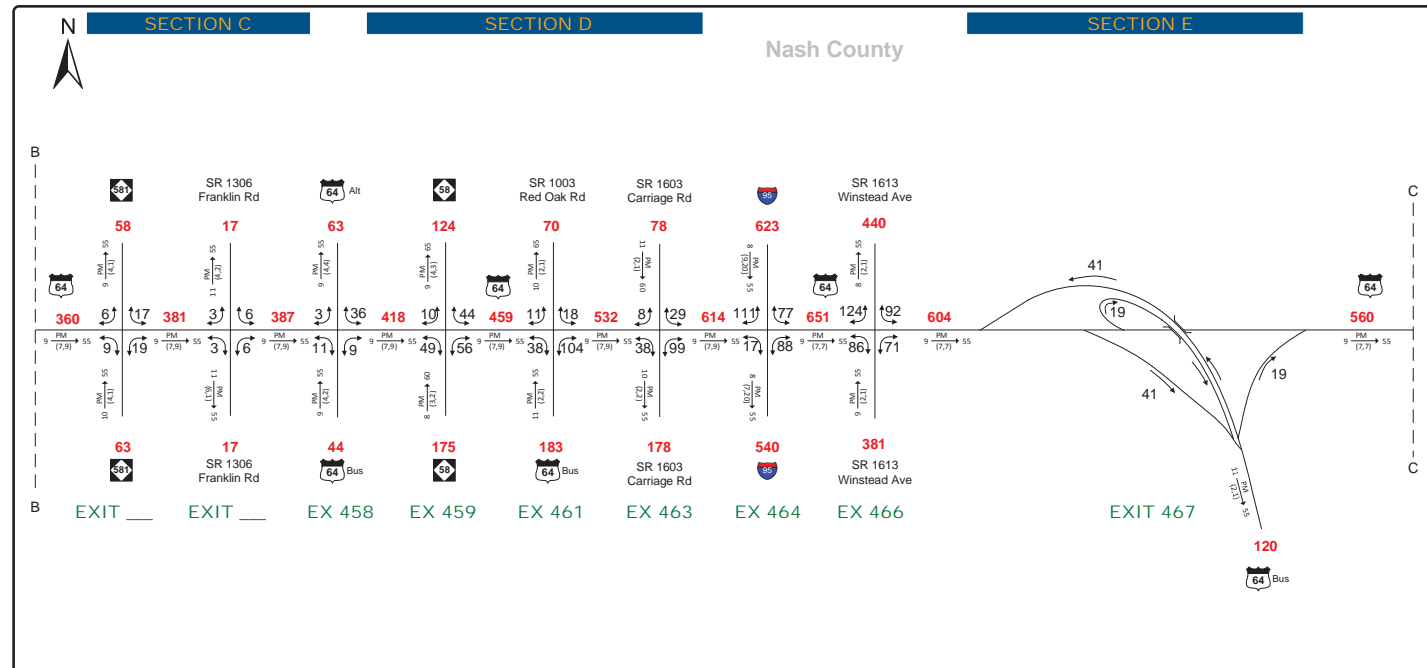


2040 AVERAGE ANNUAL DAILY TRAFFIC **BUILD** SHEET A.8 OF 12

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: FS-1504A WBS: 34263.1.1
 COUNTY: Multiple DIVISION: 5, 4 & 1
 DATE: 11-30-15
 PREPARED BY: Jamie Moore
 LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston
 PROJECT: Upgrade to Interstate Standards



2040 AVERAGE ANNUAL DAILY TRAFFIC

LEGEND

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

BUILD SHEET A.9 OF 12

TIP: FS-1504A WBS: 34263.1.1

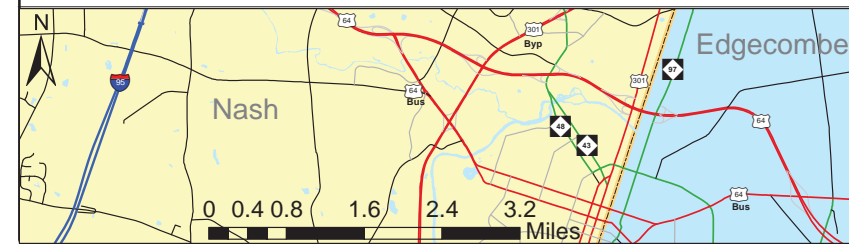
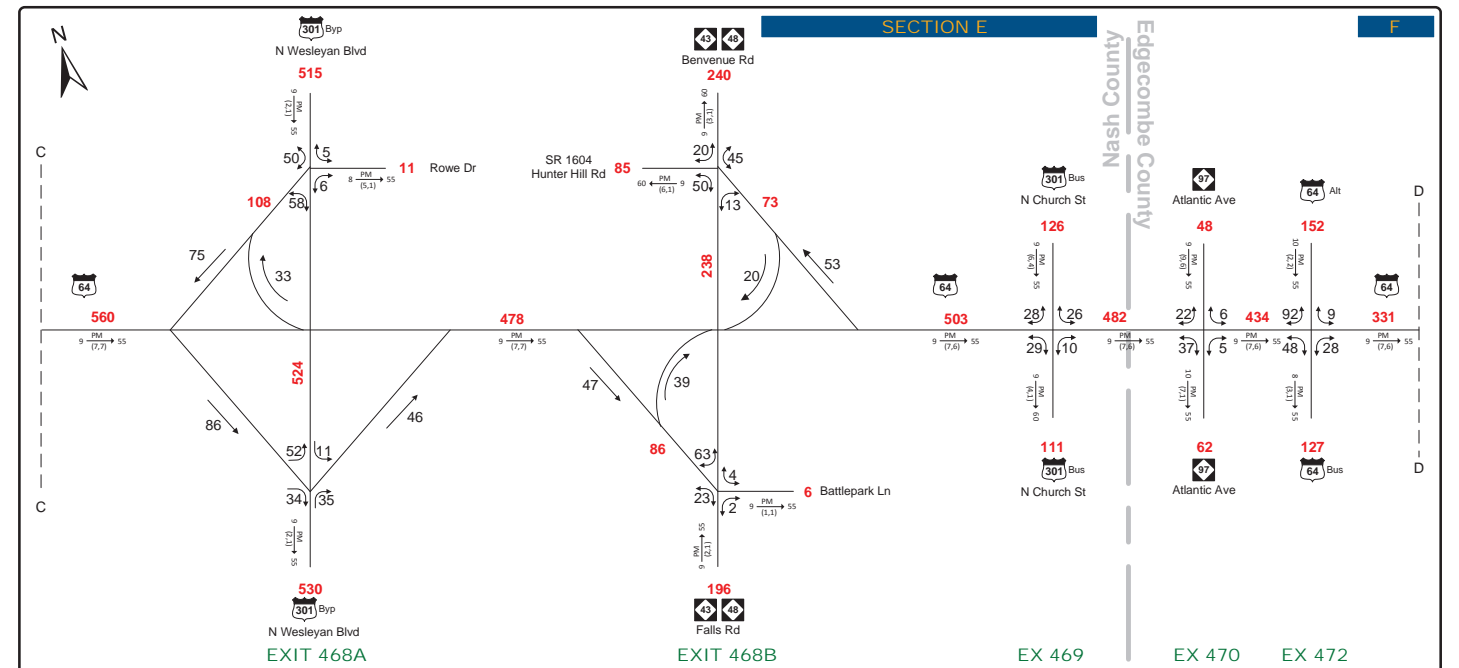
COUNTY: Multiple DIVISION: 5, 4 & 1

DATE: 11-30-15

PREPARED BY: Jamie Moore

LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston

PROJECT: Upgrade to Interstate Standards



2040 AVERAGE ANNUAL DAILY TRAFFIC

LEGEND

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

BUILD SHEET A.10 OF 12

TIP: FS-1504A WBS: 34263.1.1

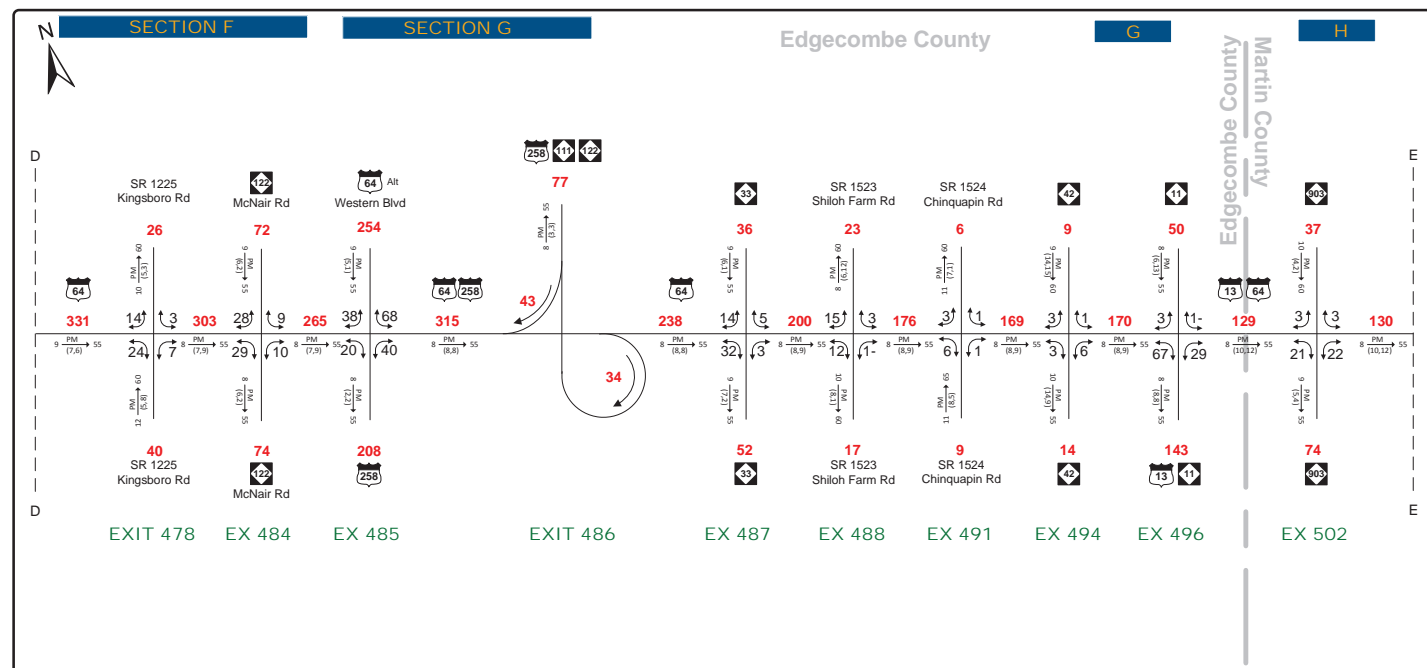
COUNTY: Multiple DIVISION: 5, 4 & 1

DATE: 11-30-15

PREPARED BY: Jamie Moore

LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston

PROJECT: Upgrade to Interstate Standards



2040 AVERAGE ANNUAL DAILY TRAFFIC

LEGEND

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

BUILD SHEET A.11 OF 12

TIP: FS-1504A WBS: 34263.1.1

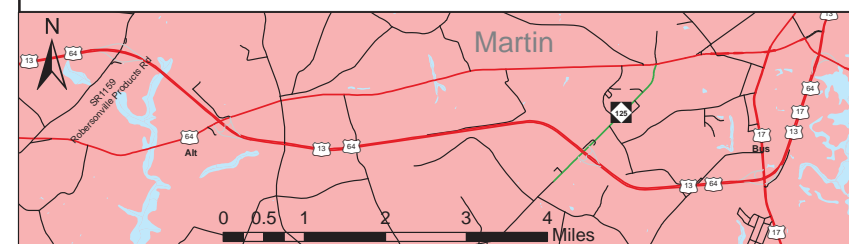
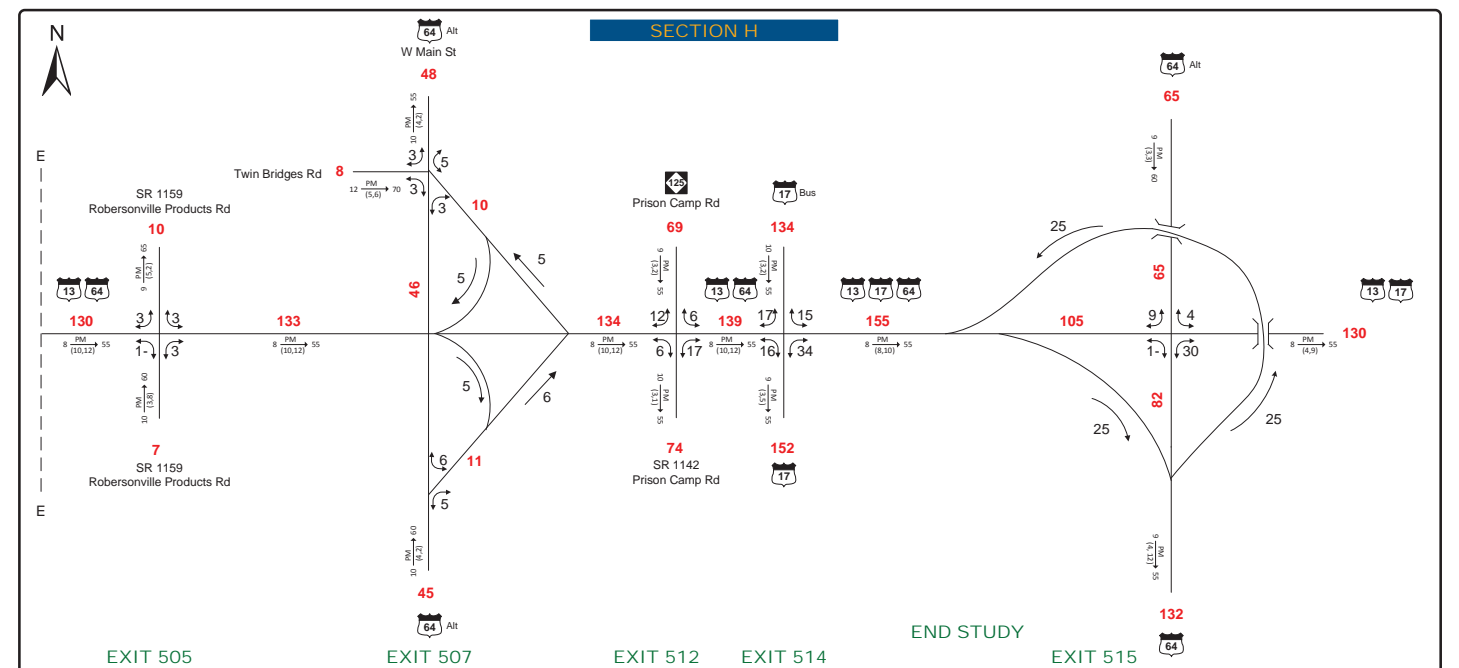
COUNTY: Multiple DIVISION: 5, 4 & 1

DATE: 11-30-15

PREPARED BY: Jamie Moore

LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston

PROJECT: Upgrade to Interstate Standards



2040 AVERAGE ANNUAL DAILY TRAFFIC

LEGEND

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

BUILD SHEET A.12 OF 12

TIP: FS-1504A WBS: 34263.1.1

COUNTY: Multiple DIVISION: 5, 4 & 1

DATE: 11-30-15

PREPARED BY: Jamie Moore

LOCATION: US 64 from SR 1003 (Rolesville Rd) to US 17 in Williamston

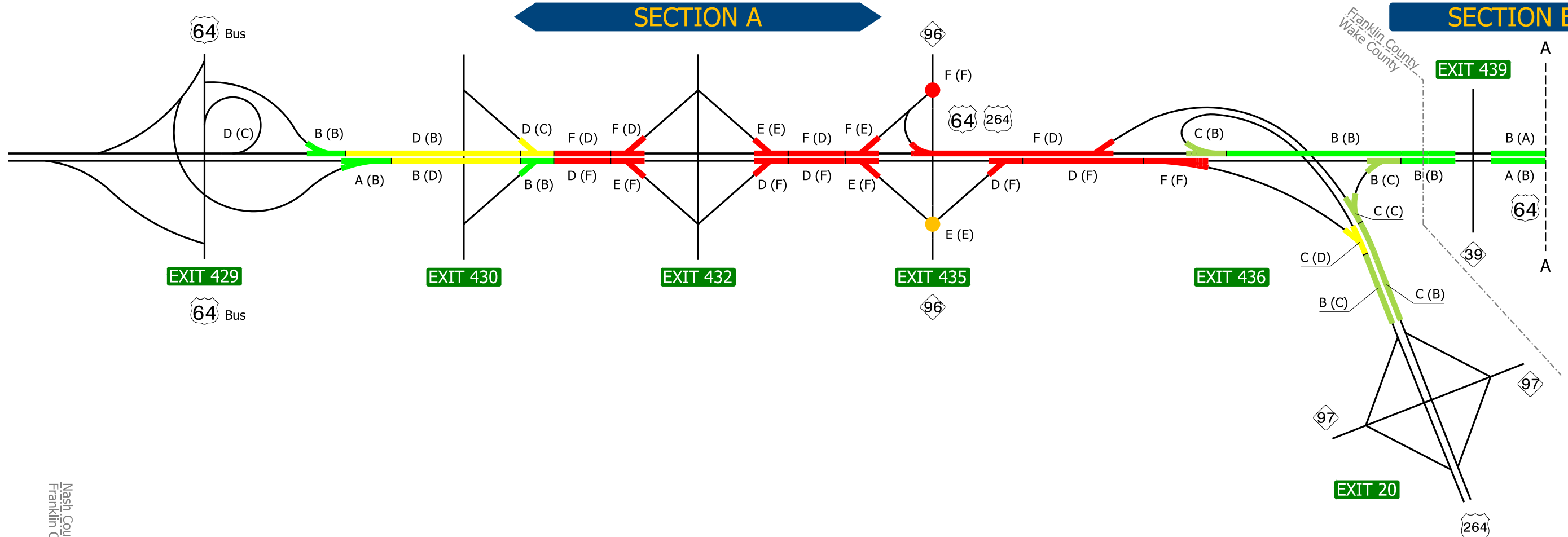
PROJECT: Upgrade to Interstate Standards

Appendix B:

Traffic Analysis

SECTION A

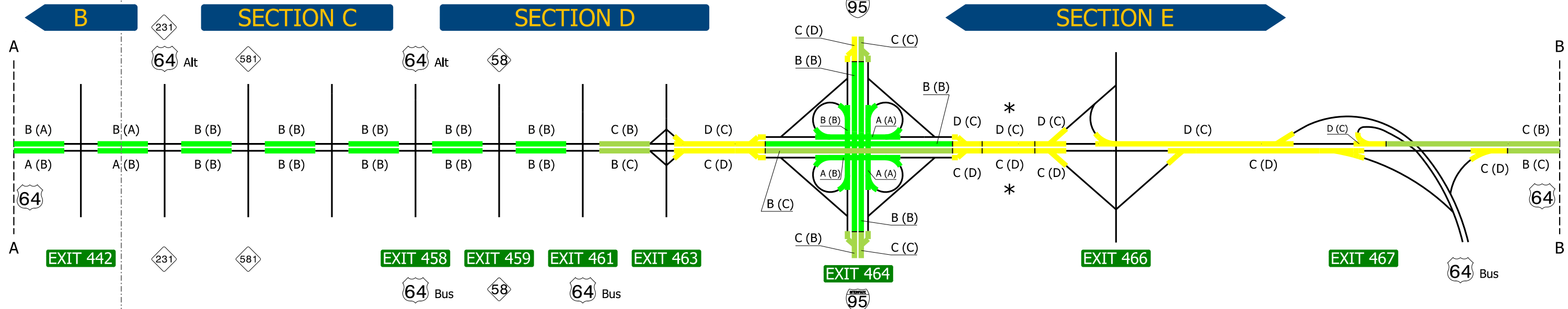
SECTION B



SECTION C

SECTION D

SECTION E



Level of Service (LOS)
AM (PM)

- LOS A, B
- LOS C
- LOS D
- LOS E
- LOS F

- FREEWAY SEGMENT
- MERGE
- DIVERGE
- WEAVE
- INTERSECTION

CONCEPTUAL

SUBJECT TO CHANGE WITHOUT NOTICE.
FOR FEASIBILITY STUDY PURPOSES ONLY.

2040 NO-BUILD

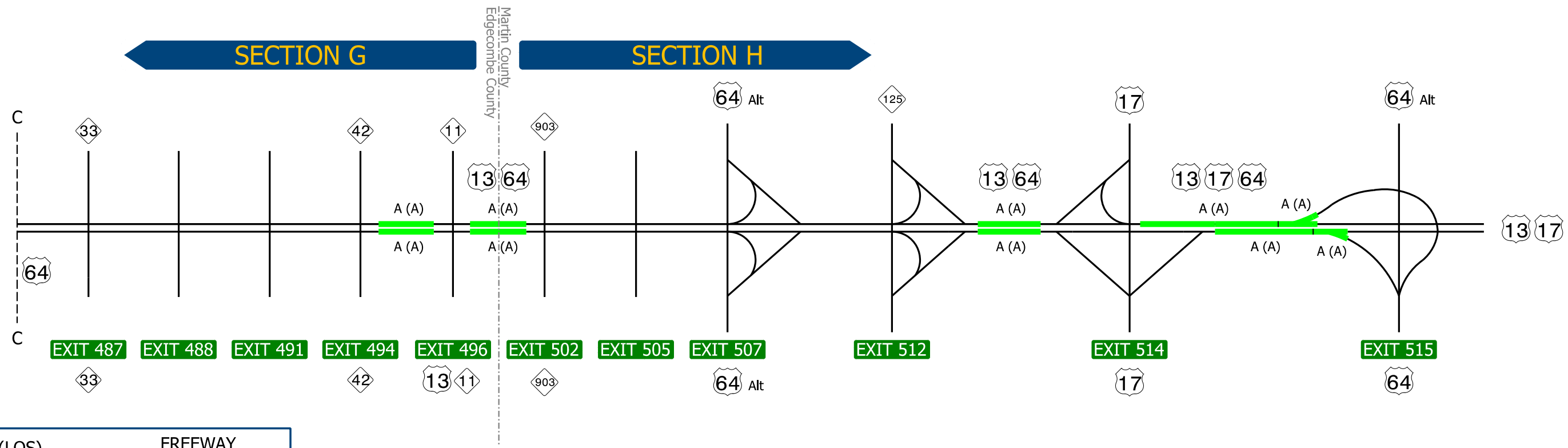
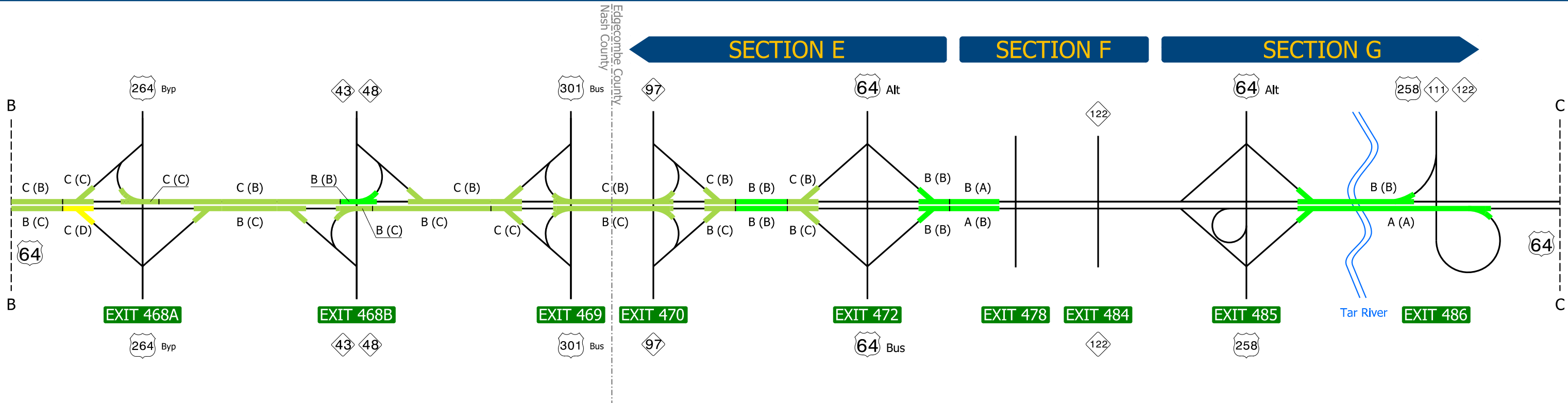
NOT TO SCALE

* The EB Weave is anticipated to operate at at LOS = C+ (D+) And the WB Weave at LOS = D+ (C+) If Auxiliary Lanes are added between I-95 and Exit 466.

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Figure B.1
FS-1504A
Upgrade US 64 to interstate standards
Level of Service (LOS)
WAKE, FRANKLIN, NASH,
EDGEcombe, MARTIN COUNTIES



Level of Service (LOS)
AM (PM)

- █ LOS A, B
- █ LOS C
- █ LOS D
- █ LOS E
- █ LOS F

- ▬ FREEWAY SEGMENT
- ↗ MERGE
- ↘ DIVERGE
- ↔ WEAVE
- INTERSECTION

CONCEPTUAL
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2040 NO-BUILD

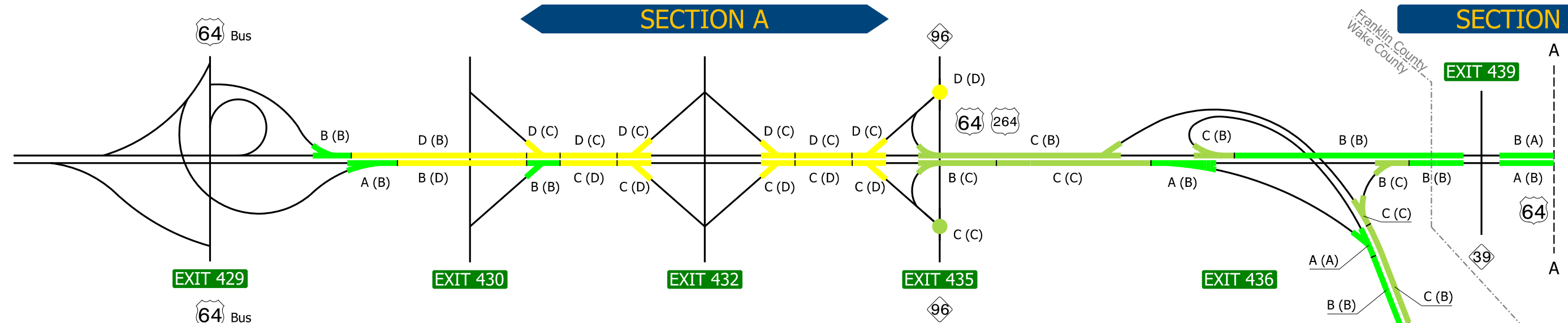


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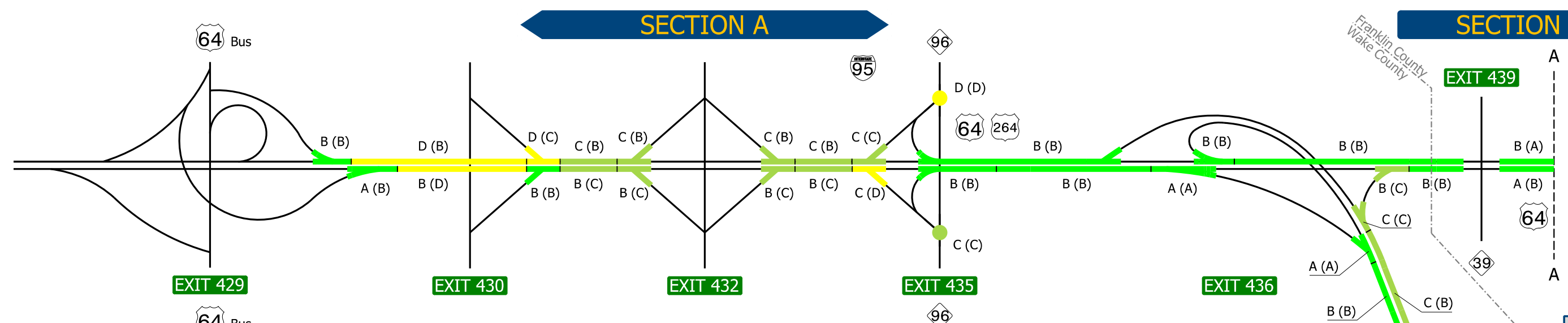
Figure B.2
FS-1504A
Upgrade US 64 to interstate standards
Level of Service (LOS)
WAKE, FRANKLIN, NASH,
EDGEcombe, MARTIN COUNTIES

1/26/2017 FS-1504A-tr-01-LOS-SHEETS.dgn



6-LANE

NOTE: Estimated Failing LOS in 2041, 2042.



8-LANE

NOTE: Estimated Acceptable LOS through 2060.

Level of Service (LOS)
AM (PM)

- █ LOS A, B
- █ LOS C
- █ LOS D
- █ LOS E
- █ LOS F

- FREEWAY SEGMENT
- ↘ MERGE
- ↗ DIVERGE
- ↔ WEAVE
- INTERSECTION

NOT TO SCALE

CONCEPTUAL

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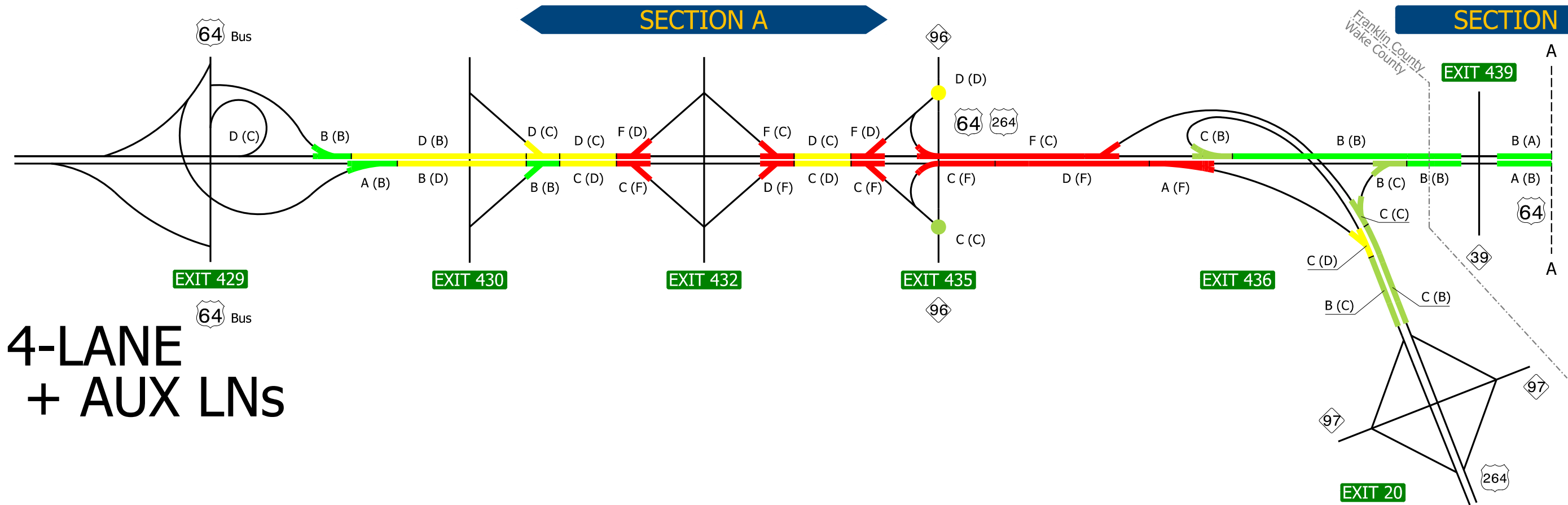
2040 BUILD

Figure B.3
FS-1504A
Upgrade US 64 to interstate standards
Level of Service
WAKE, FRANKLIN, NASH,
EDGEcombe, MARTIN COUNTIES

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4-LANE
+ AUX LNS

Level of Service (LOS)	
█	LOS A, B
█	LOS C
█	LOS D
█	LOS E
█	LOS F

—	FREEWAY SEGMENT
	MERGE
	DIVERGE
	WEAVE
●	INTERSECTION



CONCEPTUAL
SUBJECT TO CHANGE WITHOUT NOTICE.
FOR FEASIBILITY STUDY PURPOSES ONLY.

2040 BUILD

Figure B.4

FS-1504A
Upgrade US 64 to
interstate standards
Level of Service
WAKE, FRANKLIN, NASH,
EDGEcombe, MARTIN COUNTIES

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Appendix C:

Bridge

Improvements

Inventory

FS-1504A (Upgrade US 64 to Interstate) -- Bridge Improvements Inventory

	EXIT	COUNTY	Other Location Descrip.	BRDG_NBR	Struc_Num	F_CARRIED	FTR_INTRSC	BRDG_TYP_N	Year Built	Structurally Deficient	Functionally Obsolete	Sufficiency Rating	Posted SV	Posted TTST	FS-1504A	Remarks/Notes
Sec. A - 4 LN + Aux.		WAKE	E of Exit 430 in Wendell	910182	B-182	US64	BUFFALO CREEK	BRIDGE	1973	N	N	85	Not Posted	Not Posted	WIDEN	Widen to Outside for Proposed Aux. Lanes
		WAKE	E of Exit 430 in Wendell	910184	B-184	US64	BUFFALO CREEK	BRIDGE	1973	N	N	85	Not Posted	Not Posted	WIDEN	Widen to Outside for Proposed Aux. Lanes
		WAKE	E of Exit 432 in Lizard Lick	910198	B-198	US64 EBL	LITTLE RIVER	BRIDGE	1973	N	N	97.18	Not Posted	Not Posted	WIDEN	Widen to Outside for Proposed Aux. Lanes
		WAKE	E of Exit 432 in Lizard Lick	910199	B-199	US64 WBL	LITTLE RIVER	BRIDGE	1973	N	N	97.18	Not Posted	Not Posted	WIDEN	Widen to Outside for Proposed Aux. Lanes
Sec. A - 6 LN		WAKE	E of Exit 430 in Wendell	910182	B-182	US64	BUFFALO CREEK	BRIDGE	1973	N	N	85	Not Posted	Not Posted	WIDEN	Widen to Median for Proposed 6-Lanes
		WAKE	E of Exit 430 in Wendell	910184	B-184	US64	BUFFALO CREEK	BRIDGE	1973	N	N	85	Not Posted	Not Posted	WIDEN	Widen to Median for Proposed 6-Lanes
		WAKE	E of Exit 432 in Lizard Lick	910198	B-198	US64 EBL	LITTLE RIVER	BRIDGE	1973	N	N	97.18	Not Posted	Not Posted	WIDEN	Widen to Median for Proposed 6-Lanes
		WAKE	E of Exit 432 in Lizard Lick	910199	B-199	US64 WBL	LITTLE RIVER	BRIDGE	1973	N	N	97.18	Not Posted	Not Posted	WIDEN	Widen to Median for Proposed 6-Lanes
Sec. A - 8 LN		WAKE	E of Exit 430 in Wendell	910182	B-182	US64	BUFFALO CREEK	BRIDGE	1973	N	N	85	Not Posted	Not Posted	WIDEN	Widen inside and out for Proposed 8-Lanes
		WAKE	E of Exit 430 in Wendell	910184	B-184	US64	BUFFALO CREEK	BRIDGE	1973	N	N	85	Not Posted	Not Posted	WIDEN	Widen inside and out for Proposed 8-Lanes
		WAKE	E of Exit 432 in Lizard Lick	910198	B-198	US64 EBL	LITTLE RIVER	BRIDGE	1973	N	N	97.18	Not Posted	Not Posted	WIDEN	Widen inside and out for Proposed 8-Lanes
		WAKE	E of Exit 432 in Lizard Lick	910199	B-199	US64 WBL	LITTLE RIVER	BRIDGE	1973	N	N	97.18	Not Posted	Not Posted	WIDEN	Widen inside and out for Proposed 8-Lanes
	435	WAKE	NC 96 (N. Arendell Ave.) over US 64 in Zebulon	910030	B-030	NC96	US64	BRIDGE	1973	N	N	84.89	Not Posted	Not Posted	REPLACE	Replace to accommodate 8-Lanes
		WAKE	Shepherd School Rd. over US 64 in Zebulon	910204	B-204	SR2406	US64	BRIDGE	1973	N	N	95.1	Not Posted	Not Posted	REPLACE	Replace to accommodate 8-Lanes
Section B		WAKE	W of Exit 439	910217	B-217	US64 (EBL)	BUNN LAKE	BRIDGE	1973	SD	FO	38.79	Not Posted	Not Posted	REPLACE	8' offsets / HS-1/ 20 yrs
		WAKE	W of Exit 439	910219	B-219	US64 (WBL)	BUNN LAKE	BRIDGE	1972	SD	FO	38.79	Not Posted	Not Posted	REPLACE	8' outside offset with -4' interior offset/ HS-1/ 20 yrs
	--	FRANKLIN														
	NASH		NC 231 over US 64	630102	B-102	NC231	US 64	BRIDGE	1973	N	N	98	Not Posted	Not Posted	REPLACE	Beam 6, Span 3 min. vert. clearance is 15'-7". Need 16'.
Section C		NASH	E of NC 231	630019	B-019	US64 EBL	TAR RIVER	BRIDGE	1977	N	N	99.29	Not Posted	Not Posted	WIDEN	outside offset. Need 12'.
		NASH	E of NC 231	630020	B-020	US64 WBL	TAR RIVER	BRIDGE	1977	N	N	98.28	Not Posted	Not Posted	WIDEN	outside offset. Need 12'.
		NASH	N Big Woods Rd. over US 64	630045	B-045	SR1148	US64	BRIDGE	1977	N	N	94.89	Not Posted	Not Posted	MILL	Beam 1, Span 1 min. vert. clearance is 15'-11".
		NASH	S Big Woods Rd./W Branch St. over US 64 in Spring Hope	630046	B-046	SR1148	US64	BRIDGE	1977	N	N	86.52	Not Posted	Not Posted	MILL	Beam 1, Span 2 min. vert. clearance is 15'-11".
		NASH	S Pine St./Warren Rd. over US 64 in Spring Hope	630047	B-047	SR1144	US64	BRIDGE	1978	N	N	97.75	Not Posted	Not Posted	REPLACE	Beam 1, Span 2 min. vert. clearance is 15'-9". Need 16'.
Section D (Alts. 1 and 2)	458	NASH	Western Ave. over US 64 in Nashville	630030	B-030	US64A	US64	BRIDGE	1977	N	N	86.65	Not Posted	Not Posted	REPLACE	Beam 8, Span 2 min. vert. clearance is 15'-6". Need 16'.
		NASH	in Nashville	630109	B-109	US64BYP EB	STONE CREEK	BRIDGE	1960	N	N	94.08	Not Posted	Not Posted	REPLACE	8' outside offset. Built in 1960s.
		NASH	in Nashville	630115	B-115	US64BYP WB	STONE CREEK	BRIDGE	1977	N	N	97.64	Not Posted	Not Posted	WIDEN	outside offset. Need 12'.
	459	NASH	US 64 over Washington St. in Nashville	630118	B-118	US64 EBL	NC58	BRIDGE	1960	N	FO	66.78	Not Posted	Not Posted	REPLACE	Smaller than minimum offsets, both sides./ HS-31/ 10 yrs. Built in 1960s.
		NASH	US 64 over Washington St. in Nashville	630296	B-296	US64 WBL	NC58	BRIDGE	1983	N	N	100	Not Posted	Not Posted	WIDEN	8' outside offset. Need 12'.
		NASH	in Nashville	630119	B-119	US64 EBL	STONE CREEK	BRIDGE	1966	N	FO	78.88	Not Posted	Not Posted	REPLACE	Smaller than minimum offsets, both sides./ HS-51 / 12 yrs. Built in 1960s.
		NASH	Alston St. over US 64 in Nashville	630122	B-122	SR1435	US64	BRIDGE	1960	N	N	84.61	Not Posted	Not Posted	REPLACE	Beam 1, Span 3 min. vert. clearance is 15'-7". Built in 1960s.
		NASH	First Street over US 64 in Nashville	630123	B-123	SR1670	US64	BRIDGE	1960	N	N	73.66	Not Posted	Not Posted	REPLACE	Built in 1960s.
	461	NASH	US 64 over Red Oak Rd./US 64 Bus. in Nashville	630127	B-127	US64 EBL	SR1003	BRIDGE	1982	N	N	100	Not Posted	Not Posted	WIDEN	Alt.1 Widen outside for 12' offset. Alt.2 Widen to Median for Barrier/Offsets
		NASH	US 64 over Red Oak Rd./US 64 Bus. in Nashville	630294	B-294	US64 WBL	SR1003	BRIDGE	1982	N	N	100	Not Posted	Not Posted	WIDEN	Alt.1 Widen outside for 12' offset. Alt.2 Widen to Median for Barrier/Offsets
463	NASH	Old Carriage Rd./Nash Comm College	630154	B-154	SR1603	US64	BRIDGE	1960	N	N	69	Not Posted	Not Posted	REPLACE	Built in 1960s., Sufficiency Rating.	

FS-1504A (Upgrade US 64 to Interstate) -- Bridge Improvements Inventory

	EXIT	COUNTY	Other Location Descrip.	BRDG_NBR	Struc_Num	F_CARRIED	FTR_INTRSC	BRDG_TYP_N	Year Built	Structurally Deficient	Functionally Obsolete	Sufficiency Rating	Posted SV	Posted TTST	FS-1504A	Remarks/Notes
Section E	464	NASH	Rocky Mount	630162	B-162	US64 EBL	I95	BRIDGE	1977	N	N	100	Not Posted	Not Posted	RETAIN	4' outside offset. (OK, Aux Lane.) Add Barrier separation.
		NASH	Rocky Mount	630163	B-163	US64 WBL	I95	BRIDGE	1977	N	N	100	Not Posted	Not Posted	RETAIN	6' outside offset. (OK, Aux Lane.) Add Barrier separation.
		NASH	E of I-95, Rocky Mount	630172	B-172	US64BYP EB	STONE CREEK	BRIDGE	1960	N	N	86.21	Not Posted	Not Posted	REPLACE	Built in 1960s. ALSO, add Aux. Lane b/w EXIT 464, 466.
		NASH	E of I-95, Rocky Mount	630176	B-176	US64 BYP W	STONE CREEK	BRIDGE	1972	N	N	98.18	Not Posted	Not Posted	WIDEN	Alt. 1 Widen for Aux. Lane b/w EXIT 464, 466
		NASH	E of I-95, Rocky Mount	630176	B-176	US64 BYP W	STONE CREEK	BRIDGE	1972	N	N	98.18	Not Posted	Not Posted	REPLACE	Alt.2 Replace for Posted 70 mph Upgrade (Includes Aux. Lane b/w EXIT 464, 466)
		NASH	EB US 64 over Country Club Rd. in Rocky Mount	630209	B-209	US64 EBL	SR1616	BRIDGE	1980	N	N	98.65	Not Posted	Not Posted	WIDEN	outside offset. Need 12'.
	468A	NASH	EB US 64 over Wesleyan Blvd. in Rocky Mount	630214	B-214	US64 EBL	US301 BYPASS	BRIDGE	1980	N	N	100	Not Posted	Not Posted	WIDEN	outside offset. Need 12'.
Section F		EDGEcombe	US 64 over Leggett Rd. in Rocky Mount	320138	B-138	US64 EBL	SR1243	BRIDGE	1981	N	N	98.91	Not Posted	Not Posted	WIDEN	outside offset. Need 12'.
		EDGEcombe	US 64 over Leggett Rd. in Rocky Mount	320139	B-139	US64WBL	SR1243	BRIDGE	1981	N	N	96.88	Not Posted	Not Posted	WIDEN	outside offset. Need 12'.
		EDGEcombe	EB US 64 over RR, W of Tarboro	320148	B-148	US64 EBL	SCLRR/CSX	BRIDGE	1987	N	N	94.67	Not Posted	Not Posted	WIDEN	8' outside offset. Need 10'.
		EDGEcombe	EB US 64 over Howard Ave. Ext., W of Tarboro	320153	B-153	US64 EBL	SR1208	BRIDGE	1986	N	N	97.23	Not Posted	Not Posted	WIDEN	8' outside offset. Need 10'.
Section G		EDGEcombe	EB US 64 over RR, Tarboro	320154	B-154	US64 EBL	C.&O.RR	BRIDGE	1986	N	N	82.95	Not Posted	Not Posted	WIDEN	8' outside offset. Need 10'.
	485	EDGEcombe	Western Blvd. over US 64 in Tarboro	320101	B-101	US64ALT	US64BYP	BRIDGE	1967	N	FO	66	Not Posted	Not Posted	REPLACE	Beam #8, Span #3, min. vert. clearance = 15'-4" / HS-33/ 15 yrs / SR=66. Built in 1960s.
		EDGEcombe	EB US 64 over Tar River in Tarboro	320104	B-104	US64 EBL	TAR RIVER	BRIDGE	1967	N	N	72.89	Not Posted	Not Posted	REPLACE	4' inside offset. Built in 1960s.
H		MARTIN														

Appendix D:

Conceptual Environmental Impacts

FS-1504A (Upgrade US 64 to Interstate) -- Conceptual Environmental Impacts

ALT.	SEC.	SHEET	Stream Name	DWQ Stream Classification	303(d) List	River Basin	County	Comment	Stream Impact (LF)
4L,6L	A	1	Buffalo Creek	B NSW	303(d) Listed	Neuse	Wake	Work is within existing ROW. Assume Bridge work spans creek. No stream impact anticipated.	0
4L,6L	A	2	Fall Branch (Rocky Branch)	WS-II HQW NSW		Neuse	Wake	Just outside Critical Area, but within water supply watershed. Existing RCBC. Mainline Road Work within Existing ROW. No stream impact anticipated.	0
4L,6L	A	2	Little River	WS-II HQW NSW	303(d) Listed	Neuse	Wake	Mainline Road Work within Existing ROW. Median bridge work. Assume Bridge work spans creek. No stream impact anticipated.	0
4L,6L	A	3	Ut Little Creek (West Side)	C NSW		Neuse	Wake	4L/6L Work within Ex ROW, No stream impact anticipated.	0
8L	A	1	Buffalo Creek	B NSW	303(d) Listed	Neuse	Wake	Work is within existing ROW. Assume Bridge work spans creek. No stream impact anticipated.	0
8L	A	2	Fall Branch (Rocky Branch)	WS-II HQW NSW		Neuse	Wake	Just outside Critical Area, but within water supply watershed. Extend existing RCBC on each end. Mainline Road Work within Existing ROW. Stream impact anticipated. SAY IMPACT QTY = 50 LF	50
8L	A	2	Little River	WS-II HQW NSW	303(d) Listed	Neuse	Wake	Just outside Critical Area, but within water supply watershed. Mainline Road Work within Existing ROW. Median & Outside bridge work. Assume Bridge work spans creek. No stream impact anticipated.	0
8L	A	3	Ut Little Creek (West Side)	C NSW		Neuse	Wake	8L/Exit 436 Upgrades/Replace Shep Sch Rd Bridge # 204. Likely impacts from on-site detour/bridge. SAY IMPACT QTY = 400 LF	400
1	B	4	Beaverdam Creek	C NSW		Neuse	Wake	No Impact anticipated.	0
1	B	4	Moccasin Creek/Bunn Lake	C NSW		Neuse	Wake/Franklin	Replace Bridges # 217, # 219 within existing ROW. Assume Bridge work spans creek. No stream impact anticipated.	0
1	B	4	Wolfharbor Branch	C NSW		Neuse	Franklin	No Impact anticipated.	0
1	B	4	Turkey Creek	C NSW		Neuse	Franklin	No Impact anticipated.	0
1	B	5	Press Prong	C NSW		Neuse	Nash	No Impact anticipated.	0
1	C	5	Tar River	WS-V NSW		Tar-Pamlico	Nash	Widen Outside Bridges # 19, # 20 within existing ROW. Assume Bridge work spans river. No stream impact anticipated.	0
1	C	6	Hendricks Creek	C NSW		Tar-Pamlico	Nash	No Impact anticipated.	0
1	C	6	Sapony Creek	C NSW		Tar-Pamlico	Nash	No Impact anticipated.	0
1	C	6	Bear Branch	C NSW		Tar-Pamlico	Nash	No Impact anticipated.	0
1	C	6	Rose Branch	C NSW		Tar-Pamlico	Nash	No Impact anticipated.	0
1	C	6	Little Sapony Creek	C NSW		Tar-Pamlico	Nash	RCBC. No Impact anticipated.	0
1 & 2	D	7	Stoney Creek	C NSW		Tar-Pamlico	Nash	Replace Bridge #109, Widen Bridge #115 within existing ROW. Assume Bridge work spans creek. No impact anticipated.	0
1	D	8-1	Stoney Creek	C NSW		Tar-Pamlico	Nash	Replace Bridge #119 (Retain Bridge #297), within existing ROW. Assume Bridge work spans creek. No impact anticipated.	0
2	D	8-2	Stoney Creek	C NSW		Tar-Pamlico	Nash	Replace Bridge #119 (Retain Bridge #297), within existing ROW. Assume Bridge work spans creek. No impact anticipated.	0
1	E	10-1	Stoney Creek	C NSW	303(d) Listed	Tar-Pamlico	Nash	Replace Bridge #172, Onsite Detour + Temp Bridge + Constr Easement. Widen Bridge #176, within existing ROW. SAY IMPACT QTY = 50 LF	50
2	E	10-2	Stoney Creek	C NSW	303(d) Listed	Tar-Pamlico	Nash	Replace Bridge #172 & #176, 2 Onsite Detours + 2 Temp Bridges + Constr Easement. SAY IMPACT QTY = 100 LF	100
1	E	11-1	Goose Branch	C NSW		Tar-Pamlico	Nash	RCBC. No Impact anticipated.	0
2	E	11-2	Goose Branch	C NSW		Tar-Pamlico	Nash	Upgrade to 70 mph superelevation. May impact RCBC north end. SAY IMPACT QTY = 25 LF	25
1	E	11-1	Tar River	C NSW		Tar-Pamlico	Nash	Exit 469: Widen EB Off Ramp. No Impact anticipated.	0
2	E	11-2	Tar River	C NSW		Tar-Pamlico	Nash	Exit 469: Reconstruct EB Loop/Ramp. Construct Ramp Bridge. Assume ramp Bridge spans river. No stream impact anticipated.	0
1	E	12-1	Tar River	C NSW		Tar-Pamlico	Edgecombe	Retain Bridges #135 & #136. No Impact anticipated.	0
2	E	12-2	Tar River	C NSW		Tar-Pamlico	Edgecombe	Retain/Widen/Modify Bridges #135 & #136. Build new WB off-Ramp Bridge. Impacts anticipated. SAY IMPACT QTY = 200 LF.	200
1 & 2	E	12-1, 12-2	Cowlick Branch	C NSW		Tar-Pamlico	Edgecombe	Retain RCBC. No Impact Anticipated.	0

Wetlands	Wetland Impact (AC)
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= (12.5'*2)x600'=0.34 AC	0.34
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= (8'*2)x600'=0.22 AC	0.22
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 16'x600'=0.22 AC	0.22
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= (18'*2)x600'=0.50 AC	0.5
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= (12.5'*2)x600'=0.34 AC	0.34
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= (12.5'*2)x600'=0.34 AC	0.34
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 8'x600'=0.11 AC	0.11
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 8'x600'=0.11 AC	0.11
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 8'x600'=0.11 AC	0.11
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 8'x600'=0.11 AC	0.11
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Potential Impacts -L- RT. SAY IMPACT QTY= 8'x300'=0.11 AC	0.11
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 8'x600'=0.11 AC	0.11
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 8'x600'=0.11 AC	0.11
NWI Wetlands. Potential Impacts. SAY IMPACT QTY= 16'x600'=0.22 AC	0.22
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Potential Impacts. SAY IMPACT QTY = 12'x300'=0.1 AC	0.1
NWI Wetlands. Potential Impacts. SAY IMPACT QTY = 50' w x 150' l = 0.17 AC	0.17

FS-1504A (Upgrade US 64 to Interstate) -- Conceptual Environmental Impacts

ALT.	SEC.	SHEET	Stream Name	DWQ Stream Classification	303(d) List	River Basin	County	Comment	Stream Impact (LF)
1	F	13	Buck Swamp	C NSW		Tar-Pamlico	Edgecombe	Retain RCBC. No Impact Anticipated.	0
1	F	14	Walnut Creek	WS-IV NSW		Tar-Pamlico	Edgecombe	Multiple RCBC's across Exit 478 Interchange. In Water Supply Watershed. No impact anticipated.	0
1	F	15	Millpond Branch (Nobles Millpond)	C NSW		Tar-Pamlico	Edgecombe	Stream Crosses under SR 1208 Howard Ave Ext and US 64 grade separation. Widen Bridge #153. No impact anticipated.	0
1	F	15	Penders Mill Run (Harts Mill Run)	WS-IV NSW		Tar-Pamlico	Edgecombe	Multiple Pipes/RCBC across Exit 484 Interchange. In Water Supply Watershed. No impact anticipated.	0
1	F	15	Holly Creek	C NSW		Tar-Pamlico	Edgecombe	No Impact Anticipated.	0
1	G	16	Holly Creek	C NSW		Tar-Pamlico	Edgecombe	No Impact Anticipated.	0
1	G	16	Tar River	C NSW		Tar-Pamlico	Edgecombe	Replace Bridge #104. Retain Bridge #320. Assume Bridge spans river. No Impacts anticipated.	0
1	G	17	Cromwell Canal	C NSW		Tar-Pamlico	Edgecombe	Retain RCBC. No Impact Anticipated.	0
1	G	17	Mitchell Swamp Canal	C NSW		Tar-Pamlico	Edgecombe	Retain RCBC. No Impact Anticipated.	0
1	G	17	Ballahack Canal	C NSW	303(d) Listed	Tar-Pamlico	Edgecombe	Retain RCBC. No Impact Anticipated.	0
1	G	18	Conetoe Creek	C NSW		Tar-Pamlico	Edgecombe	Retain RCBC. No Impact Anticipated.	0
1	G	18	Crisp Creek	C NSW		Tar-Pamlico	Edgecombe	Retain RCBC. No Impact Anticipated.	0
1	H	19	Flat Swamp	C Sw NSW		Tar-Pamlico	Martin	Retain RCBC. No Impact Anticipated.	0
1	H	19	Flat Swamp tributary (no blue line, just NWI wetlands)			Tar-Pamlico	Martin	Retain RCBC. No Impact Anticipated.	0
1	H	20	Ross Swamp	C Sw NSW		Tar-Pamlico	Martin	Retain RCBC. No Impact Anticipated.	0
1	H	20	Huskanaw Swamp	C Sw NSW		Tar-Pamlico	Martin	Retain Bridges #254 & #255. No Impact.	0
1	H	20	Collie Swamp tributary (no blue line, just NWI wetlands)			Tar-Pamlico	Martin	Retain RCBC. No Impact.	0
1	H	20	Beaverdam Creek	C		Roanoke	Martin	Retain RCBC. No Impact.	0
1	H	21-1	Beaverdam Creek	C		Roanoke	Martin	Retain RCBC. No Impact.	0
1	H	21-1	(no blue line stream, NWI wetlands only.)				Martin		0
2	H	21-2	(no blue line stream, NWI wetlands only.)				Martin		0
1	H	21-1, 21-2, 22	Ready Branch/Back Swamp	C		Roanoke	Martin	Retain RCBC. No Impact Anticipated.	0
Min. Upgrades Subtotal (LF):									50
Enhanced Upgrades Subtotal (LF):									775

Wetlands	Wetland Impact (AC)
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Potential Impacts. SAY IMPACT QTY = 50' w x 250' l = 0.29 AC	0.29
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. No Impact Anticipated.	0
NWI Wetlands. Exit 512 Interchange, minor Ramp widening only. No Impact Anticipated.	0
NWI Wetlands. Exit 512 Ramp/Loop Reconstruction. Impacts Anticipated. SAY IMPACT QTY = 50'x800' = 0.9 AC	0.9
Min. Upgrades Subtotal (AC):	1.8
Enhanced Upgrades Subtotal (AC):	3.5