PREFERRED ALTERNATIVE REPORT

For

ADMINISTRATIVE ACTION
ENVIRONMENTAL IMPACT STATEMENT

Wake and Johnston Counties

STIP Project Nos. R-2721, R-2828, and R-2829
State Project Nos. 6.401078, 6.401079, and 6.401080
Federal Aid Project Nos. STP-0540(19), STP-0540(20), and STP-0540(21)
WBS Nos. 37673.1.TA2, 35516.1.TA2, and 35517.1.TA1

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TABLE OF CONTENTS

Complete 540 - Triangle Expressway Southeast Extension
Preferred Alternative Report
NCDOT STIP Project Nos. R-2721, R-2828, R-2829
Wake and Johnston Counties

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1 INTRODUCTION

1.1 PROPOSED ACTION

The North Carolina Department of Transportation (NCDOT), in cooperation with the Federal Highway Administration (FHWA), proposes transportation improvements in the project study area and surrounding region to address transportation needs as defined in the project's *Purpose and Need Statement* (Lochner, 2011). The focus of these improvements is a potential extension of the Triangle Expressway (NC 540) from its current terminus at the NC 55 Bypass in Apex to the US 64/US 264 Bypass in Knightdale. This action, known as the Complete 540 Triangle Expressway Extension project, is designated as three projects in the NCDOT 2016-2025 State Transportation Improvement Program (STIP): R- 2721, R-2828, and R-2829. Together, these STIP projects would combine to complete the 540 Outer Loop around the Raleigh metropolitan area. NCDOT established a protected corridor for the project (R-2721 and R-2828) between NC 55 Bypass and I-40 in 1996 and 1997, under the State's Transportation Corridor Official Map Act (Map Act) (GS §136-44.50). The Map Act permits the preservation of a highway corridor when specific conditions are met; however, it does not require the selection of that corridor following the NEPA process. For purposes of meeting the requirements of NEPA, all three projects are being examined in the current study as a single and complete project. It is likely that the Complete 540 project would be constructed in phases, depending on the availability of funding.

1.2. PROJECT PURPOSE

Two primary purposes have been established for the Complete 540 project, based on general transportation problems in the Raleigh area and specific, more localized needs. The first purpose is to improve mobility within or through the study area during peak travel periods. The second purpose is to reduce forecast congestion on the existing roadway network within the project study area.

A secondary purpose of the project is to improve system linkage in the regional roadway network by completing the 540 outer loop around the greater Raleigh area—a goal sought by area planners for more than 40 years. It is expected that construction of this remaining 540 link would benefit local commuters living south and east of Raleigh as well as motorists making longer trips through the Triangle Region to and from points south and east.

1.3 PROJECT STATUS

In January 2014, NCDOT and FHWA selected the Detailed Study Alternatives (DSA) for the project. This selection was made after extensive agency and local government coordination as well as much public involvement. The development and selection of the DSAs is documented in the *Alternatives Development and Analysis Report* (Lochner, 2014). A full range of alternatives was developed and evaluated against the purpose and need for the project. This included build options, widening of existing routes options, hybrid options, and non-highway transportation options. Through a tiered evaluation process the various options were screened and those that best met the project's purpose and need were retained for detailed study. In conjunction with this screening process, agency and local government coordination was instrumental in determining the alternatives that advanced to more detailed study. Additionally, public opinion was received as the various options were considered.

The Draft Environmental Impact Statement (EIS) for the Complete 540 project, was signed on November 2, 2015, and subsequently made available for public and agency review on the NCDOT

website on November 6, 2015. A notice of availability was published in the Federal Register on Friday, November 20, 2015 (Federal Register Vol. 80, No. 224, Pg. 72719). Copies of the document were distributed to public review locations and agencies between November 7 and 13, 2015. Public meetings were held on December 7, 8 and 9, 2015, and a Public Hearing was held on December 9, 2015. The public comment period for the Draft EIS ended on January 8, 2016.

A Draft Preferred Alternative Report, identifying DSA 2 as NCDOT's recommended Preferred Alternative, was submitted to the environmental resource and regulatory agencies in February 2016. Two Interagency Meetings were held to discuss the recommended Preferred Alternative, in February and March 2016. No Issues of Concern, as defined in the project's Section 6002 Coordination Plan, have been raised by any of the agencies on the recommended Preferred Alternative. **DSA 2 is now the Preferred Alternative for the Complete 540 project**.

Next steps in the project process include:

- Design refinements to the Preferred Alternative
- Publishing the Final EIS, including responses to comments on the Draft EIS
- Publishing the Record of Decision
- Award of Design-Build Contract

1.4 DETAILED STUDY ALTERNATIVES

As shown in **Figure 1**, the Detailed Study Alternatives (DSAs) for Complete 540 consist of 10 color-coded corridors that can be combined in various ways to form 17 different end-to-end project alternatives. Five of the color-coded corridor segments are generally located west of I-40 (Orange, Red, Purple, Blue, and Lilac) and five corridors are east of I-40 (Green, Mint, Tan, Brown, and Teal). Each of the DSAs would be a controlled-access toll facility on new location. An individual map of each DSA is shown in **Appendix A**.

Each DSA would consist of six lanes, with three 12-foot lanes in each direction of travel, separated by a 70-foot median. The proposed mainline design speed is 70 miles per hour (mph). Proposed interchange locations (depending on the DSA) include:

- NC 55 Bypass
- Holly Springs Road
- Bells Lake Road
- US 401
- Old Stage Road
- NC 50
- White Oak Road
- I-40
- US 70 Bypass
- Old Baucom Road
- Auburn Knightdale Road
- Poole Road
- US 64/US 264 Bypass

1.5 SUMMARY OF IMPACTS

Appendix B includes a detailed impact summary table from the Draft EIS (pages 107-109). More information about the potential impacts of each of the 17 DSAs is available in the Draft EIS (Chapter 5, page 69). **Table 1** highlights the potential impacts for each of the DSAs for several key impact categories. While many other impact categories were examined and are addressed in the Draft EIS, the categories listed in **Table 1** are those categories where there was a notable difference in the relative impacts among the different DSAs or that are typically considered a key impact category. In addition

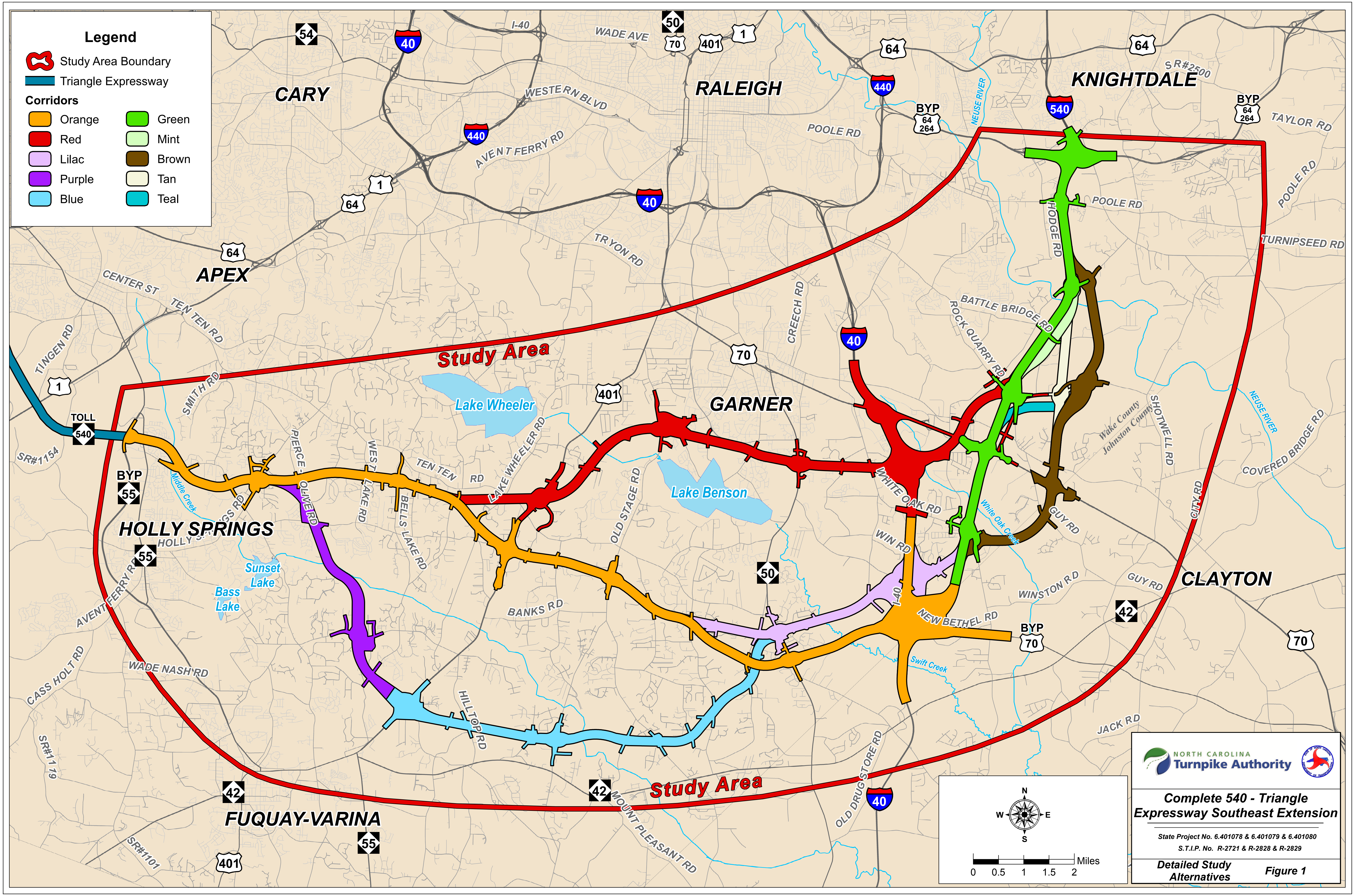

Legend
Study Area Boundary
Triangle Expressway
Corridors
Orange
Red
Lilac
Purple
Blue
Green
Mint
Brown
Tan
Teal
CARY
RALEIGH
KNIGHTDALE
APEX
GARNER
HOLLY SPRINGS
CLAYTON
FUQUAY-VARINA
Study Area
Study Area
Lake Wheeler
Lake Benson
Sunset Lake
Bass Lake
WADE AVE
WESTERN BLVD
AVENT FERRY RD
POOLE RD
TAYLOR RD
TURNIPSEED RD
TRYON RD
CENTER ST
TEN TEN RD
TINGEN RD
SMITH RD
PIERCE OLIVE RD
WEST LAKE RD
BELLS LAKE RD
LAKE WHEELER RD
OLD STAGE RD
CREECH RD
BATTLE BRIDGE RD
ROCK QUARRY RD
HODGE RD
WHITE OAK RD
WIN RD
GUY RD
WINSTON RD
NEW BETHEL RD
SHOTWELL RD
COVERED BRIDGE RD
CITY RD
JACK RD
BANKS RD
HOLLY SPRINGS RD
AVENT FERRY RD
WADE NASH RD
CASS HOLT RD
HILLTOP RD
MOUNT PLEASANT RD
OLD DRUG STORE RD
SR#1154
SR#1119
SR#1101
SR#2500
NEUSE RIVER
Middle Creek
White Oak Creek
Swift Creek
Wake County
Johnston County
TOLL 540
BYP 55
BYP 70
BYP 64 264
I-40
N
W
E
S
Miles
0 0.5 1 1.5 2
NORTH CAROLINA Turnpike Authority
Complete 540 - Triangle Expressway Southeast Extension
State Project No. 6.401078 & 6.401079 & 6.401080
S.T.I.P. No. R-2721 & R-2828 & R-2829
Detailed Study Alternatives
Figure 1

Table 1

COMPARATIVE EVALUATION MATRIX

DSAs and Key Impact Categories

DEGREE OF VARIATION IN IMPACTS ACROSS THE ALTERNATIVES

Percent difference from lowest value in category, illustrated by color gradient

0% — 135%

"EITHER/OR" IMPACTS

Would the alternative affect the resource?

Yes — No

Corridor Segments	DETAILED STUDY ALTERNATIVE	LENGTH	ESTIMATED PROJECT COSTS		LAND ACQUISITION		PARCELS		RELOCATIONS		STREAMS		WETLANDS		SWIFT CREEK WATERSHED CRITICAL AREA		HISTORIC SITES		SECTION 4(f) RESOURCES (Non de minimis)		DETAILED STUDY ALTERNATIVE
		miles	$M	% Δ from lowest	acres	% Δ from lowest	number	% Δ from lowest	number	% Δ from lowest	linear feet	% Δ from lowest	acres	% Δ from lowest	acres	impact?	acres	impact?	number	impact?	
O G	ALTERNATIVE 1	28.3	2,195	0.8	1,830	4.5	741	3.1	278	14.4	67,967	31.8	75.6	47.1	0	no	0	no	0	no	ALTERNATIVE 1
O G M G	ALTERNATIVE 2	28.4	2,178	0.0	1,823	4.1	744	3.5	281	15.6	65,810	27.6	74.3	44.6	0	no	0	no	0	no	ALTERNATIVE 2
O B T G	ALTERNATIVE 3	29.1	2,188	0.5	1,802	2.8	754	4.9	265	9.1	68,130	32.1	73.5	43.0	0	no	5.9	yes	1	yes	ALTERNATIVE 3
O B G	ALTERNATIVE 4	29.4	2,189	0.5	1,818	3.8	719	0.0	243	0.0	61,322	18.9	71.6	39.3	0	no	0	no	0	no	ALTERNATIVE 4
O G TL B G	ALTERNATIVE 5	29.3	2,191	0.6	1,843	5.2	737	2.5	272	11.9	65,180	26.4	74.2	44.3	0	no	0	no	0	no	ALTERNATIVE 5
O R G	ALTERNATIVE 6	25.2	2,317	6.4	1,753	0.1	993	38.1	449	84.8	53,014	2.8	52.0	1.1	6.7	yes	32.7	yes	4	yes	ALTERNATIVE 6
O R M G	ALTERNATIVE 7	25.3	2,315	6.3	1,752	0.0	995	38.4	451	85.6	51,582	0.0	51.4	0.0	6.7	yes	32.7	yes	4	yes	ALTERNATIVE 7
O PU BL L G	ALTERNATIVE 8	30.9	2,566	17.8	2,135	21.9	1,213	68.7	566	132.9	77,724	50.7	57.5	11.9	0	no	0	no	1	yes	ALTERNATIVE 8
O PU BL L G M G	ALTERNATIVE 9	31.0	2,547	17.0	2,128	21.5	1,216	69.1	569	134.2	75,566	46.5	56.2	9.4	0	no	0	no	1	yes	ALTERNATIVE 9
O PU BL L B T G	ALTERNATIVE 10	31.6	2,550	17.1	2,092	19.4	1,230	71.1	556	128.8	78,087	51.4	63.0	22.6	0	no	5.9	yes	2	yes	ALTERNATIVE 10
O PU BL L B G	ALTERNATIVE 11	32.0	2,549	17.0	2,108	20.3	1,195	66.2	534	119.8	71,278	38.2	61.1	18.9	0	no	0	no	1	yes	ALTERNATIVE 11
O PU BL L G TL B G	ALTERNATIVE 12	31.9	2,559	17.5	2,148	22.6	1,209	68.2	560	130.5	74,936	45.3	56.1	9.2	0	no	0	no	1	yes	ALTERNATIVE 12
O L G	ALTERNATIVE 13	27.6	2,362	8.5	1,960	11.9	984	36.9	481	97.9	68,604	33.0	66.7	29.9	0	no	0	no	0	no	ALTERNATIVE 13
O L G M G	ALTERNATIVE 14	27.7	2,344	7.6	1,953	11.5	987	37.3	484	99.2	66,447	28.8	65.5	27.4	0	no	0	no	0	no	ALTERNATIVE 14
O L B T G	ALTERNATIVE 15	28.3	2,346	7.7	1,917	9.4	1,001	39.2	471	93.8	68,967	33.7	72.3	40.6	0	no	5.9	yes	1	yes	ALTERNATIVE 15
O L B G	ALTERNATIVE 16	28.7	2,346	7.7	1,933	10.3	966	34.4	449	84.8	62,159	20.5	70.4	36.9	0	no	0	no	0	no	ALTERNATIVE 16
O L G TL B G	ALTERNATIVE 17	28.6	2,356	8.2	1,973	12.6	980	36.3	475	95.5	65,817	27.6	65.3	27.1	0	no	0	no	0	no	ALTERNATIVE 17

Corridor Segment Key

O Orange — PU Purple — L Lilac — TL Teal — B Brown

G Green — BL Blue — R Red — T Tan — M Mint

to the quantified impacts shown in **Table 1**, there is an indicator of the degree in variation in impacts or a yes/no indication of impact as appropriate. The green through yellow to red color scheme provides a visual gradient to view relative impacts.

Some of the key conclusions from **Table 1** include:

- There is a wide range in the potential relocation effects of the different DSAs.
    - DSAs 1 through 5, which use the full Orange Corridor, would require substantially fewer relocations than the other DSAs. DSAs 8 through 12, which use the Purple and Blue Corridor, would require over twice as many relocations as DSAs 1 through 5.
    - DSAs 6 and 7 (Red Corridor) and 13 through 17 (Lilac Corridor) would all require almost twice as many relocations as the DSA that would require the fewest relocations (DSA 4).
    - The corridor segments east of I-40 have relatively small differences in required relocations. For this reason, there is a relatively small difference in relocation impacts among the DSAs in each group using a particular corridor segment west of I-40 (Orange, Red, Purple/Blue or Lilac).
- The percent difference among the DSAs in potential effects on wetlands and streams is notably smaller than the percent difference in relocations.
    - DSAs 1 through 5 would affect the largest amount of wetlands, affecting an average of 43 percent more wetlands than DSAs 6 and 7, which would affect the smallest amount of wetlands.
    - DSAs 8 through 12 would affect the most linear feet of streams, averaging about 44 percent greater linear feet of stream impacts than DSAs 6 and 7, which would affect the lowest amount.
    - The corridor segments east of I-40 have relatively small differences in wetland and stream impacts. For this reason, there are relatively small differences in wetland and stream impacts among the DSAs in each group using a particular corridor segment west of I-40.
- The estimated cost of the most expensive alternative (DSA 8) is about 17.8 percent greater than the least expensive option (DSA 2).
- DSAs 6 and 7 are the only options that would affect the Swift Creek Critical Watershed Area.
- DSAs 6 and 7 would affect the largest total acreage of historic sites in the project area affecting two separate sites. DSAs 3, 10, and 15, which use the Tan Corridor east of I-40, would each also affect an historic site.
- DSAs 6 and 7 (Red Corridor) would have greater than *de minimis* (minor) effects on four Section 4(f) resources (two historic sites and two planned parks). The Tan Corridor (DSAs 3, 10, and 15) and the Purple Corridor (DSAs 8 through 12) would each also affect a Section 4(f) resource. Tan impacts an historic site and Purple impacts a planned park.
- DSAs 8-12 (Purple/Blue Corridor) would likely shift development farther to the south into more rural areas, possibly increasing the overall effects of the project on induced land development, and leading to development patterns that would diverge more notably from those envisioned in local plans. DSAs 1-5 (Orange Corridor) have the greatest potential to support growth and development in accordance with local plans.

In addition to examining an impact matrix, it is also useful to review a qualitative summary of the potential benefits and constraints of each option under consideration. **Table 2** provides this summary, breaking the description into the corridor groupings west and east of I-40.

1.6 ADDITIONAL CONSIDERATIONS

The following are impact areas that have been identified as potentially important for recommending a Preferred Alternative. Each of these has been addressed in the Draft EIS and pertinent technical reports. None of these impacts are primary differentiators in recommending a Preferred Alternative.

- While there are two communities in the DSAs that qualify as environmental justice communities, these would not be disproportionally impacted.
    - All of the DSAs except those using the Purple/Blue Corridor (DSAs 8-12) would require 17 relocations from a mobile home park on Rhodes Road.
    - All of the DSAs would require 6 relocations from a mobile home park on Knightdale Estate Drive east of Hodge Road, near the eastern terminus of the project.
- All 17 DSAs would provide nearly identical levels of service in the design year (2035). The analysis conducted for interchanges and intersections shows that each would provide at least a level of service of D or better. This suggests that the project would provide acceptable levels of service on the study area's future roadway network during peak travel hours. Each of the DSAs would meet the need for the project by improving mobility and providing better connections between other transportation routes in and near the project study area.
- Qualitative assessment of the project's potential indirect and cumulative impacts indicates that each of the DSAs would likely lead to induced land development and higher concentrations of high-density and more intense land uses in the vicinity of the DSAs, especially near interchange areas. Planners interviewed for this analysis almost universally indicated they anticipate a continued strong market for development, regardless of whether the Complete 540 project is built. In other words, the area is expected to experience growth and land use change under either the build or no-build scenarios. Compared to the no-build scenario, however, the build scenarios could lead to more rapid growth and more intense development in some areas near proposed interchanges. However, given that local land use plans anticipate that the Complete 540 project will help concentrate higher-density, mixed use development in key locations, it is possible that the no-build scenario would promote future development patterns that differ from those envisioned in local land use plans.

1.7 PREFERRED ALTERNATIVE

Based on the information available to date (including the Draft EIS and comments on the project from agencies, local government, other organizations, and citizens), the **FHWA, NCDOT, and NCTA recommend DSA 2 as the Preferred Alternative for the Complete 540 project**. This alternative follows the Orange Corridor west of I-40, and then follows the Mint Corridor east of I-40 (using the southern and northern ends of the Green Corridor to complete the end-to-end alignment). Factors that influenced this decision are detailed in **Sections 2-7** of this report.

Table 2: Detailed Study Alternatives – Constraints and Benefits

Corridor Alternative	Constraints/Issues	Benefits
Corridors West of I-40		
Orange Corridor (DSAs 1-5)	• Crosses Swift Creek downstream of Lake Benson dam (dwarf wedgemussel habitat) • Impacts more acres of wetlands than other options • Higher stream impacts than DSAs 6-7 (Red Corridor)	• Broad public support • Formally supported by nearly all local governments • Substantially fewer relocations than other options • Limited development activity since corridor was protected • Extensive public awareness • Foundation of several local land use plans • Avoids non-*de minimis* impacts to Section 4(f) resources • Fewest involvements with potential hazardous material sites • Least costly
Red Corridor (DSAs 6 & 7)	• Nearly twice as many relocations as DSAs 1-5 (Orange Corridor) • Crosses numerous established Garner subdivisions • Impacts Greenfield South Business Park • Only option that crosses Swift Creek Critical Watershed Area • Formally opposed by Raleigh, Wake County, Garner and CAMPO • Broad public opposition • Impacts four Section 4(f)-applicable resources; more than other options • Greatest impacts to historic sites • Would limit the ability of Garner to achieve its land use planning objectives	• Shortest option • Crosses Swift Creek upstream of Lake Benson dam, avoiding/minimizing impacts to protected dwarf wedgemussel habitat • Minimizes total wetlands impacts • Minimizes total stream impacts
Purple-Blue-Lilac Corridor (DSAs 8-12)	• Over twice as many relocations as DSAs 1-5 (Orange Corridor) • Impacts more linear feet of streams than other options • Requires the most land acquisition • Crosses Swift Creek downstream of Lake Benson dam (dwarf wedgemussel habitat) • Greater potential for induced development • Formally opposed by Wake County, Holly Springs, and Fuquay-Varina • Broad public opposition • Is the most costly alternative • Bisects planned Sunset Oaks Park, a Section 4(f) resource • Has the potential to impact the Southeast Wake County Park • Crosses water treatment facility sprayfield area and impacts a portion of one 25 acre holding pond • Would limit the ability of Holly Springs and Fuquay-Varina to achieve their land use planning objectives	• Potential to serve traffic in growing areas near Fuquay-Varina

Table 2: Detailed Study Alternatives – Constraints and Benefits

Corridor Alternative	Constraints/Issues	Benefits
Lilac Corridor (DSAs 13-17)	• Crosses Swift Creek downstream of Lake Benson dam (dwarf wedgemussel habitat) • Nearly twice as many relocations as DSAs 1-5 (Orange Corridor) • Impacts 27% more linear feet of streams and 32% more acres of wetlands than DSAs 6 & 7 (Red Corridor) • Crosses water treatment facility sprayfield area and impacts a portion of one 25 acre holding pond • Formally opposed by Raleigh and Garner	• Impacts slightly fewer acres of wetlands than DSAs 1-5 (Orange Corridor) • Crosses a narrower portion of Swift Creek and adjacent wetlands than DSAs 1-5 (Orange Corridor) • Avoids non-*de minimis* impacts to Section 4(f) resources
Corridors East of I-40		
Green Corridor (DSAs 1, 6, 8, & 13)	• Bisects the Randleigh Farm planned development of Raleigh and Wake County • Formally opposed by Raleigh • Alignment is in close proximity to an anchor and guying wire for a communications tower	• Avoids Clemmons Educational State Forest • Avoids non-*de minimis* impacts to Section 4(f) resources • Avoids wastewater treatment biosolids facility sprayfield area • Avoids police training center on Battle Bridge Road • Formally supported by Wake County
Mint Corridor (DSAs 2, 7, 9, & 14)	• Impacts Randleigh Farm property but less than Green Corridor (DSAs 1, 6, 8, & 13) • Alignment is in close proximity to an anchor and guying wire for a communications tower	• Shifts impacts on Randleigh Farm property further to the east • The least costly options • Formally supported by Raleigh • Avoids Clemmons Educational State Forest • Avoids non-*de minimis* impacts to Section 4(f) resources • Avoids wastewater treatment biosolids facility sprayfield area • Avoids police training center on Battle Bridge Road
Tan Corridor (DSAs 3, 10, & 15)	• Impacts Randleigh Farm property but less than Green Corridor (DSAs 1, 6, 8, & 13) • Impacts a historic site, subject to Section 4(f) protection • Formally opposed by Raleigh, and Wake County and CAMPO • Impacts Clemmons Educational State Forest	• Shifts impact on Randleigh Farm property to east parcel area • Avoids communications tower anchor and guying wire • Avoids wastewater treatment biosolids facility sprayfield area • Avoids police training center on Battle Bridge Road
Brown Corridor (DSAs 4, 11, & 16)	• Impacts wastewater treatment biosolids facility sprayfield area • Impacts police training center on Battle Bridge Road • Has the greatest impact on the Neuse River greenways trail • Impacts Clemmons Educational State Forest • Impacts the Watershed Extension Loop Trail in Clemmons • Formally opposed by Raleigh	• Avoids impacts to Randleigh Farm property • Avoids communications tower anchor • Fewer relocations than DSAs using other options east of I-40 • Has the lowest impact on floodplains
Teal to Brown Corridor (DSAs 5, 12, & 17)	• Alignment is in close proximity to an anchor and guying wire for a communications tower • Impacts wastewater treatment biosolids facility sprayfield area • Impacts police training center on Battle Bridge Road • Formally opposed by Raleigh	• Avoids impacts to Randleigh Farm property • Avoids Clemmons Educational State Forest

2 OVERVIEW OF PUBLIC INVOLVEMENT

2.1 PUBLIC MEETINGS AND PUBLIC HEARING

NCDOT held three public meetings and a formal Public Hearing in December 2015 to present details on the DSAs under consideration for the project and the findings of the Draft EIS and its associated technical studies. The meetings and the Public Hearing served as opportunities for the public and other project stakeholders to review the project DSAs and the findings of the Draft EIS. Displays at these meetings included maps showing the preliminary functional designs for each of the DSAs, information summarizing the potential impacts of each DSA, an illustration of the proposed typical section, and information on the project's purpose and need. A brief informational video providing an overview of the study process and the project DSAs was shown on a continuous loop at each meeting. A handout brochure with information about each of the DSAs, potential impacts, the study process, and the project schedule, was distributed. All displays and meeting materials were, and continue to be, available on the project website (www.ncdot.gov/projects/complete540). **Table 3** summarizes public participation for the meetings and Public Hearing.

2.2 PUBLIC COMMENTS

During the comment period for the Draft EIS, from early November 2015 through January 8, 2016, comments addressing the DSAs, the Draft EIS, or other substantive project issues were received from 1,476 commenters. The comments included 255 individual written comment forms plus one completed comment form photocopied and signed by 527 different individuals, 387 emails, 6 letters, and a petition with 239 signatures. The petition received was signed by residents of Holly Springs, Apex and Cary expressing support for the Orange Corridor and opposition to the Purple and Blue Corridors. The photocopied completed comment form supported DSA #1 (Orange Corridor/Green Corridor) and opposed the Red Corridor and was individually signed by 527 area residents associated with Springfield Baptist Church.

Table 3: Public Participation at Public Meetings and Public Hearing

Date	Type of Meeting	Location	Time	Number of Attendees	Number of Written Comments Received at Meeting	Number of Oral Comments Recorded at Meeting
12/7/15	Public Meeting	Barwell Road Elementary School, Raleigh	6:00 – 8:00 pm	210	12	5
12/8/15	Public Meeting	Holly Springs High School	6:00 – 8:00 pm	264	37	
12/9/15	Public Meeting	Wake Technical Community College, Raleigh	4:00 – 6:30 pm	532	85	34
	Public Hearing		7:00 – 9:30 pm			

There were also 34 people who gave oral comments during the Public Hearing and 5 people who gave oral comments at the public meetings on the preceding days. There were also 23 people who submitted comments via NCDOT's mySidewalk site. Most of the comments expressed support for and/or opposition to various project alternatives or specific color-coded corridor segments.

The written comment forms included check boxes for commenters to indicate their preferred DSAs. Commenters could indicate more than one preferred DSA. Most commenters did indicate preferred DSAs; two comment forms indicated a preference for improving existing roadways instead of building a new roadway. While selection of a Preferred Alternative is not by popular vote, it is notable that DSA 1 (Orange Corridor/Green Corridor) was preferred by the most respondents (680 of 782 comments forms indicated support for DSA 1). This includes 153 individual comment forms and the 527 identical, photocopied comment forms.

Emailed comments, letters, and the petition generally cited only particular color-coded corridor segments, rather than end-to-end DSAs, when indicating preferences and opposition. Some comments indicated both opposed and preferred corridor segments, while others indicated only one or the other. Many comments indicated more than one corridor segment that were preferred or opposed. Key conclusions from a review of expressed preferences and opposition in all of the comments include the following:

- There is overwhelming support for the Orange Corridor west of I-40. About 93 percent of submitted comments (those stating support for a color corridor west of I-40) expressed a clear preference for the Orange Corridor.
- Support for the Red, Purple/Blue, and Lilac Corridors was at 2 percent, 4 percent, and 2 percent, respectively.
- There is widespread opposition to the Red (58 percent of those stating opposition to a color corridor west of I-40) and Purple/Blue Corridors (34 percent of those stating opposition to a color corridor west of I-40).
- There is also notable opposition to the Lilac Corridor, with 7 percent of those stating opposition to a color corridor west of I-40.
- Only 1 percent of those stating opposition to a color corridor west of I-40 are opposed to the Orange Corridor.
- There is less of a clear pattern of support and opposition to corridors east of I-40, with most comments not specifically addressing these options. However, among comments that specifically addressed the corridors east of I-40, the Green Corridor was most commonly preferred. The Brown Corridor and the Tan Corridor were most commonly opposed.

While some of the written comments indicated only route preferences, without citing specific reasons for those preferences, most of the comments that gave specific reasons cited concern about potential effects on their neighborhoods, communities, and homes, in indicating support for the Orange Corridor and opposition to other corridors. Many of these responders cited the fact that communities have planned around the Orange Corridor and residents have made location decisions based on the Orange Corridor since its protection in 1996 and 1997. Many responders also indicated an opinion that minimizing impacts on homes, businesses, and neighborhoods should take precedence over minimizing impacts on natural resources. For the smaller number of responders that specifically mentioned considerations east of I-40, many also indicated that since a route similar to the Green Corridor has been shown on planning maps for the past two decades, they have also made location decisions based on that assumed location for completing the 540 outer loop.

Among the small number of respondents (4 percent) expressing support for the Purple and/or Blue Corridors west of I-40, many typically mentioned that growth and traffic patterns have resulted in a greater need for the project farther south than the Orange Corridor. Among the respondents who expressed support for the Red Corridor (2 percent) and those who expressed support for the Lilac Corridor (2 percent), many typically cited potential environmental and/or neighborhood effects as their reasons.

While the large majority of public comments dealt with preference for or opposition to certain DSAs or color-coded corridor segments, other issues were cited in some of the public comments. Some of the more common issues raised include:

- Questions about whether traffic/toll revenue on the existing portions of NC 540 is meeting the levels predicted by NCDOT.
- Concern about the perceived unfairness of tolling the extension of the 540 Outer Loop into southern Wake County when the northern sections of the Outer Loop are not tolled.
- Statements citing the fact that, since the mid-1990s, the decisions local residents have been making about where to live and local governments have been making about future land use plans have been based on the belief that the project would be constructed along the protected corridor (Orange Corridor).
- Questions about why the project has taken so long and why NCDOT didn't start the environmental documentation process after the protected corridor was established.
- Questions about why NCDOT can't just widen existing roads (e.g., NC 55, NC 42, Ten Ten Road) instead of building a new road.
- Questions about where noise barriers will be constructed and when a noise impact study will be done.

2.3 PREVIOUS PUBLIC COMMENTS

There have been two previous series of public meetings held for the public to review potential routes under consideration and other study materials. Large numbers of public comments were submitted around the time each of those series of public meetings were held. The first series of meetings was held in September and December 2010; over 2,300 comments were received during or following those meetings. Like the current public meetings and Public Hearing, most comments from 2010 addressed route preferences or opposition, with about 90 percent of comments expressing support for the Orange Corridor and large numbers expressing opposition to the Blue, Purple, Red, and Tan Corridors. The second series of meetings was held in October 2013; over 1,100 comments were received during or following those meetings, with most expressing support for the Orange Corridor and opposition to the Purple, Blue, Lilac, Red, and/or Tan Corridors.

In addition to comments submitted during comment periods following these public meetings, local residents used many other methods to stress support for the Orange Corridor and opposition to the Purple, Blue, Lilac, Red, and/or Tan Corridors. These included submitting e-mails to complete540@ncdot.gov, calling the project's toll-free telephone hotline, and submitting organized petitions. More detailed information about public comments generated prior to November 2015 can be found in the project's *Stakeholder Involvement Report* (Lochner, 2015).

2.4 PUBLIC COMMENT SUMMARY

When considered together over the five years of soliciting public comments on potential routes under consideration for the Complete 540 project, there is a clear pattern of overwhelming support for the Orange Corridor west of I-40. There is also a clear pattern of opposition to the Purple, Blue, Lilac, Red and Tan Corridors. Throughout this time, comments have continued to cite concern about potential

effects on neighborhoods and communities in indicating support for the Orange Corridor and opposition to other corridors. Comments have continued to cite the fact that communities have planned around the Orange Corridor and residents have made location decisions based on the Orange Corridor since its protection in 1996 and 1997. Commenters have also often indicated an opinion that minimizing impacts on homes, businesses, and neighborhoods should take precedence over minimizing impacts on natural resources.

3 OVERVIEW OF OTHER LOCAL INVOLVEMENT

3.1 LOCAL GOVERNMENT COMMENTS

Several local governments in the Complete 540 project area submitted formal comments and/or passed official resolutions concerning the project. Copies of these comments are in **Appendix C**. Most of these comments and resolutions specifically addressed the project's DSAs. Local government comments and resolutions addressing the project's DSAs are noted in **Table 4**. Most of the comments from the local governments expressed clear support for project overall and specific color-coded corridors.

Table 4: Local Government Comments/Resolutions on DSAs

Local Government	DSA/Corridor Preference?	Opposed DSAs/Corridors	Other Information
Holly Springs (Resolution – 6/16/15)	Orange Corridor	None noted	• Purple and Blue Corridors would be more disruptive to Holly Springs and Fuquay-Varina and would eliminate parkland. • Town has utilized the Protected Corridor (Orange) to plan for existing and future development.
Fuquay-Varina (Resolution – 6/16/15)	Orange Corridor	None noted	• Purple and Blue Corridors would have greater expense and human impact on the residents of Fuquay-Varina. • Town has utilized the Protected Corridor (Orange) to plan for existing and future development.
Garner (Resolution – 7/7/15)	Orange Corridor	None noted	• Town has utilized the Protected Corridor (Orange) to plan for existing and future development.
Wake County Board of Commissioners (Resolution – 9/8/15)	Orange Corridor	Blue, Purple, Red, and Lilac Corridors	• County has utilized the Protected Corridor (Orange) to plan for existing and future development. • County landowners have relied upon the protected Orange Corridor for many years as they have made investment decisions.
Wake County Mayors' Association (Resolution – 9/23/2015)	Orange Corridor	None noted	• Purple and Blue Corridors would appear to be more disruptive to residents of Wake County and eliminate parkland.

Table 4: Local Government Comments/Resolutions on DSAs

Local Government	DSA/Corridor Preference?	Opposed DSAs/Corridors	Other Information
Garner (Letter – 12/16/15)	Orange Corridor	Red and Lilac Corridors	• Red Corridor would negatively impact a large number of neighborhoods and residences in Garner. • Red Corridor would negatively affect town parks and other facilities. • Red Corridor would negatively affect existing and planned commercial areas, thereby negatively affecting the town's tax base. • Lilac Corridor would cause a large number of residential relocations in Garner area and would affect the City of Raleigh Wastewater Biosolids facility.
Raleigh (letter – 1/5/16)	DSA #2 (Orange Corridor and Mint Corridor)	Red, Lilac, Green, Brown, and Tan Corridors	• Red Corridor would directly affect the Swift Creek Watershed Area, a critical water source. • Lilac Corridor would directly affect water treatment sprayfields and an associated holding pond. • Green Corridor would affect the proposed school sites in Randleigh Farm and would affect more of Randleigh Farm than other options. • Brown Corridor would negatively affect the Neuse River Wastewater Treatment Plant and a City/County Law Enforcement Training Center shooting range. • City opposes Tan Corridor due to community impacts.
Benson (letter – 1/7/16)	Orange Corridor	None noted	• Orange Corridor would decrease commute times and would better serve truck traffic heading west from Benson than existing I-40.

Note: NCDOT also received e-mail correspondence from the Town of Cary on 1/7/16, but this did not specifically address support for or opposition to project DSAs.

City of Raleigh staff met with USACE representatives and members of the project team on March 3, 2016, to discuss the relative impacts of the Orange, Lilac, Teal, and Brown Corridors on city-owned wastewater and water treatment infrastructure in the project area. During this meeting, City staff provided detailed information on the potential for the Lilac, Teal, and Brown Corridors to jeopardize the current and long-term ability of the City to provide both potable water and domestic wastewater treatment services. Following this meeting, the City of Raleigh submitted a letter to NCDOT on March 17, 2016, summarizing this information. A copy of the letter is in **Appendix C**.

3.2 PREVIOUS LOCAL GOVERNMENT COMMENTS

Local governments have provided comments relating to the project's DSAs at various points in the project study. In particular, local governments provided comments throughout the project development process and following release of the project's *Draft Alternatives Development and Analysis Report*

(Lochner, 2012). Local governments have passed numerous resolutions and sent numerous letters addressing the project's DSAs throughout the study. **Table 5** summarizes this local input during the project development. Consistently there has been local government support for the Orange Corridor and strong local government opposition to the Red, Purple/Blue, and Lilac Corridors. More detailed information about the previous agency comments generated can be found in the project's *Stakeholder Involvement Report* (Lochner, 2015).

Table 5: Previous Local Government Resolutions

Local Government	DSA/Corridor Preference?	Opposed DSAs/Corridors
Holly Springs (Resolution – 9/21/2010)	Orange Corridor	None noted
Garner (Resolution – 10/4/2010)	Orange Corridor	Red Corridor
Wake County Board of Commissioners (Resolution – 10/18/2010)	Orange Corridor	Blue, Purple, and Red Corridors
Fuquay-Varina (Resolution – 10/19/2010)	Orange Corridor	None noted
Knightdale (Resolution – 10/20/2010)	None noted (general project support)	None noted
Capital Area MPO (Resolution – 10/20/2010)	Orange Corridor	None noted
Capital Area MPO (Resolution – 3/16/2011)	None noted	Red and Tan Corridors
Capital Area MPO (Resolution – 5/16/2012)	None noted (general project support)	None noted
Holly Springs (Resolution – 10/1/2013)	Orange Corridor	None noted
Wake County Board of Commissioners (Resolution – 10/21/2013)	Orange and Green Corridors	None noted
Garner (Resolution – 10/22/2013)	Orange Corridor	None noted
Capital Area MPO (Resolution – 11/20/2013)	Orange Corridor	None noted

3.3 COMMENTS FROM OTHER ORGANIZATIONS

The Regional Transportation Alliance and the Morrisville Chamber of Commerce submitted comments expressing clear support for project overall. The Garner Chamber of Commerce has stated its formal opposition to the Red Corridor. The YMCA of Garner has stated its formal support for the Orange Corridor and opposition to the Red Corridor.

The Southern Environmental Law Center submitted a letter detailing their concerns about the analyses used in the project, indicating a clear opposition to a new location roadway alternative for the project,

and suggesting that NCDOT give greater consideration to other options, such as improving existing roadways.

4 OVERVIEW OF AGENCY INVOLVEMENT

4.1 AGENCY COORDINATION MEETINGS

Agency coordination meetings have been held throughout the project development process to present information about the project, receive comments on project studies, and solicit issues and concerns from the federal, state, and local resource and regulatory agencies participating in the Complete 540 study process. **Table 6** summarizes the resource and regulatory agency meetings that have been held for the project.

Table 6: Summary of Resource and Regulatory Agency Meetings

Agency Meeting Date	Purpose
December 8, 2009	Introduce project, draft project study area, Notice of Intent, and draft Section 6002 Coordination Plan
February 16, 2010	Scoping meeting – discussed project study area environmental features and community characteristics and potential issues of concern
August 10, 2010	Discuss draft Purpose and Need Statement, alternatives screening process, preliminary study alternatives, and draft Section 6002 Coordination Plan
September 8, 2010	Continue discussion on draft Purpose and Need Statement, alternatives screening, and preliminary study alternatives
November 2, 2010	Continue discussion on alternatives screening and discuss results of Public Informational Meetings, including public comments
January 20, 2011	Continue discussion of alternatives development and analysis
August 22, 2012	Discuss project advancement
December 12, 2012	Discuss project status
September 19, 2013	Discuss revised Draft Alternatives Development and Analysis Report and recommended Detailed Study Alternatives
December 12, 2013	Finalize Detailed Study Alternatives
November 13, 2014	Discuss appropriate locations and lengths of bridges over natural resources along the project's DSAs
December 2, 2014	Field review meeting to reach agreement on appropriate hydraulic conveyance structure at four sites
August 19, 2015	Discuss project status and reader friendly format for Draft EIS
February 17, 2016	Discuss Draft Preferred Alternative Report
March 16, 2016	Informational meeting on development of functional preliminary plans for DSAs

4.2 AGENCY COMMENTS ON DRAFT EIS

Following publication of the Draft EIS, NCDOT received formal review comments from several federal and state agencies. **Table 7** lists each of the four agencies that submitted comments specifically addressing the project's DSAs, notes whether the agency indicated any preference among the project's

DSAs, and indicates other key information the agency provided about its perspective on the DSAs. Copies of all the comments received from federal and state agencies are in **Appendix C**.

Table 7: Federal and State Agency Review Comments on DSAs

Agency	DSA Preference?	Comments
US Fish & Wildlife Service (11/25/15)	None noted	• DSAs 6 and 7 (Red Corridor) have lowest impacts on wetlands & streams and the least direct and indirect effects on the dwarf wedgemussel (DWM). • USFWS understands the intense opposition to the Red Corridor due to its disproportionate impacts on the human environment. • DSAs 1 through 5 (Orange Corridor) greatly minimize impacts to human environment; however, they have great potential to adversely affect the DWM. USFWS finds the Orange Corridor very problematic. • DSAs 8 through 17 (Lilac Corridor) would have very similar, albeit somewhat lesser adverse effects on the DWM. • Ability to propagate DWM and augment the population in Swift Creek will factor significantly in analysis to determine whether the Complete 540 project will jeopardize the continued existence of the species. • USFWS would prefer that the Clemmons Educational State Forest not be impacted.
US Environmental Protection Agency (1/4/16)	None noted	• Notes that DSAs 6 and 7 "appear to most closely meet the Complete 540's 'Purpose and Need." • Environmentally prefers DSAs 6 and 7 as having least impacts to jurisdictional streams and wetlands. • Finds DSAs 8-17 problematic because they would have the most potential to induce indirect effects.
National Marine Fisheries Service (12/15/15)	DSAs 6 & 7	• Prefers DSAs 6 and 7 because they avoid impacts to shad and striped bass and their habitats in Swift Creek, would have smaller impacts to the Neuse River, and would impact the smallest amount of wetlands and streams.
NC Wildlife Resources Commission (12/9/15)	None noted	• Indirect and cumulative effects of the project on induced land development will be a key aspect in selecting the Least Environmentally Damaging Practicable Alternative (LEDPA). • NCWRC has concerns about the effect of continued development in the lower Swift Creek watershed, below the Lake Benson dam, on long-term viability of the DWM and other sensitive aquatic species.

Note: NCDOT also received comment letters from the U.S. Department of the Interior, U.S. Department of Agriculture, North Carolina Division of Water Resources, and North Carolina Division of Waste Management. These comment letters did not specifically address support for or opposition to project DSAs but they are included in Appendix C

4.3 AGENCY COMMENTS ON DRAFT PREFERRED ALTERNATIVE REPORT

Following distribution of the Draft Preferred Alternative Report, NCDOT received written comments from several federal and state agencies. Copies of these comments are in **Appendix C**. **Table 8** lists each of the agencies that submitted comments on the Draft Preferred Alternative Report and summarizes those comments. None of the agencies identified any Issues of Concern relative to selection of DSA 2

as the Preferred Alternative for the Complete 540 project, either in written comments or in oral comments at Interagency Meetings.

Table 8: Federal and State Agency Review Comments on Draft Preferred Alternative Report

Agency	Comments
NC Wildlife Resources Commission (2/23/16)	• Concerned that potential negative effects in area watersheds will continue to degrade aquatic habitat • Concerned about high wetland, stream, and buffer impacts.
NC Division of Water Resources (2/25/16)	• Avoidance of Water Supply Critical Area watersheds by DSA 2 is a positive. • Concerned about high wetland, stream, and buffer impacts.
US Environmental Protection Agency (3/10/16)*	• Would like to see information on impacts to forested land, floodways, and 500-year floodplain. • Would like to see preliminary designs for DSA 2 and DSA 7. • Would like to see quantitative information on indirect and cumulative effects. • Would like to see information on predicted pollutant loading and avoidance/minimization measures to reduce this effect.
US Army Corps of Engineers (3/18/16)	• No objections to proceeding with DSA 2 as the Preferred Alternative.

* Preliminary designs were presented to the agencies at the March 16, 2016, informational Interagency Meeting. A quantitative assessment of indirect and cumulative effects is being prepared to compare the build to the no-build scenario; the results will be included in the Final EIS. Impacts to forested land, floodways, and the 500-year floodplain were not a notable factor in comparing the project DSAs; these items, along with more information about minimization of pollutant loading, will be included in the Final EIS.

4.4 PREVIOUS AGENCY COMMENTS

Agencies have provided comments relating to the project's DSAs at various points in the project study. In particular, federal and state agencies provided comments following release of the project's *Draft Alternatives Development and Analysis Report* (Lochner, 2012). More detailed information about the previous agency comments generated can be found in the project's *Stakeholder Involvement Report* (Lochner, 2015).

5 SUMMARY OF COMMENTS RELEVANT TO THE RECOMMENDATION OF THE PREFERRED ALTERNATIVE

All comments were reviewed. The comments related to the recommendation of the Preferred Alternative or include a request for additional information by a commenting agency are included below.

Other substantive comments that were received, including those related to purpose and need, alternatives development, preliminary designs, construction, the study process, Draft EIS format, project finance, neighborhoods, natural resources, traffic, and interagency coordination will be addressed in the Final EIS. There were also editorial comments received about the Draft EIS – these will also be addressed in the Final EIS.

The following additional studies will be completed and discussed with the agencies prior to completing the Final EIS:

- Updated traffic forecast and analysis for the Preferred Alternative.
- Findings of detailed archaeological field surveys.
- Additional findings of dwarf wedgemussel viability studies and related research.
- Mainline and crossroad design refinements and associated changes in right-of-way and impacts in response to comments on the Draft EIS, as well as addition and modification of service roads.
- Quantitative study of the indirect and cumulative effects of the Preferred Alternative on land use and water quality.

Comment: *Climate change/greenhouse gas emissions should be addressed, incorporating scenarios from the National Climate Assessment.*

Response: This topic will be investigated further for possible inclusion in the Final EIS. Based on current understanding, this topic would not have a marked impact on the selection of a Preferred Alternative as all DSAs would have comparable results.

Comment: *Insufficient information is provided about demographics, including presences of and effects on environmental justice communities.*

Response: Pages 74 and 75 in the Draft EIS report a summary of potential relocation effects to communities meeting the criteria for environmental justice consideration. The *Community Impact Assessment* (Lochner, 2015) fully documents the community demographics within the project study area. FHWA and NCDOT consider the methodology used to identify potential environmental justice communities to be sufficient. These standard study procedures have been used on all recent and current studies of this nature. Two mobile home parks would have relocations impacts. One is located along all corridors except the Purple/Blue Corridor and the other is located along the Green Corridor where it is common the all DSAs. The relocation impacts are 17 and 6, respectively. These impacts have been shown to not be disproportional with other communities along the DSAs.

Comment: *Address impacts to floodways, the 500-year floodplain, terrestrial forests, unique farmlands, soils/minerals, and community cohesion.*

Response: Floodplain impacts are described on pages 93 and 94 of the Draft EIS; potential impacts to the 100-year floodplain are reported in the Comparative Evaluation Matrix on page 108. Impacts to the floodway and the 500-year floodplain will be addressed in the Final EIS.

Pages 29 and 94 in the Draft EIS address terrestrial habitat, which is addressed in greater detail in the *Natural Resources Technical Report* (Mulkey, 2014).

Pages 98 and 100 in the Draft EIS summarize potential impacts to farmlands and prime farmland soils are included in the Comparative Evaluation Matrix on page 109. This topic is further discussed in the *Community Impact Assessment* (Lochner, 2015); Appendix F of this report includes the farmland conversion impact rating forms, developed in collaboration with the National Resources Conservation Service (NRCS). NRCS did not distinguish between prime and unique farmland soils.

Other than farmland soils, no other soils/minerals are included in any applicable Executive Order or regulation, and these have not been raised as an issue that will affect project decision making by any agency or the public. For this reason, it was not included in the Draft EIS.

Community cohesion effects are described on pages 80 and 91 of the Draft EIS, with greater detail in the *Community Impact Assessment* (Lochner, 2015).

Comment: *Address study area population's use and consumption of environmental resources.*

Response: Use and consumption of environmental resources is not included in any applicable Executive Order or regulation, and has not been raised as an issue that will affect project decision making by any agency or the public. For this reason, it was not included in the Draft EIS.

Comment: *Address impacts to future land use and transportation plans, commercial corridors and nodes, emergency services, and relocations (ability to secure affordable housing), mobility, and access.*

Response: All of these items are discussed in Chapter 5 of the Draft EIS, with much greater detail presented in the *Community Impact Assessment* (Lochner, 2015).

Comment: *Impacts to planned Holly Springs Park should be considered Section 4(f).*

Response: As described in the Draft EIS, impacts to the planned Sunset Oaks Park in Holly Springs are indeed considered Section 4(f) impacts.

Comment: *Address impacts to Neuse River WWTP guardhouse and City of Raleigh solar array (Brown Corridor).*

Response: These potential impacts will be verified and applicable information will be updated in the Final EIS and on project maps. However, the current preliminary functional plans for the Brown Corridor do not impact either of these resources.

6 MINIMIZATION EFFORTS AND IMPACT REDUCTION

All 17 DSAs already incorporate some measures to avoid and minimize impacts. As would be expected with the placement of a six-lane divided, controlled-access highway in an urban or urbanizing setting, complete avoidance of resources is not possible. However, alignments were adjusted for each color-coded corridor segment to avoid or minimize impacts. Additionally, interchange configurations were developed and reviewed to meet traffic needs as well as to avoid and minimize impacts. Further measures to avoid and minimize impacts will be incorporated into the final design of the highway facility to the maximum extent practicable. Measures to mitigate for unavoidable impacts will also be incorporated into the project.

6.1 WETLANDS, STREAMS, AND PONDS

Initial alignments for the 17 DSAs were established to avoid known, mapped natural resources as much as possible. As technical studies generated more detailed information for these resources, preliminary functional designs were further adjusted and refined to minimize impacts to these resources.

Various configurations were considered for each planned interchange location. Avoidance and minimization of impacts to wetlands, streams, and ponds was a key factor in selecting which interchange configuration to incorporate at each location along with traffic operational characteristics of the interchange and its ability serve traffic needs.

There are a total of over 1,200 natural system sites, which include wetlands, streams and ponds, inside the study corridors along the roughly 100 total miles of the DSAs. To further address avoidance and minimization of impacts to the sites along the 17 DSAs, the study team met with environmental resource and regulatory agencies at interagency meetings on November 13 and December 2, 2014, to discuss bridging decisions and review alignments. The alignment modifications and bridging changes made to the DSAs as a result of this coordination further minimized impacts to streams and wetlands beyond the basic requirements for hydraulic conveyance. **Table 9** shows the 17 locations along the various color-coded corridor segments where bridging has been incorporated to avoid or minimize stream and wetland impacts, along with the estimated impact reductions for each bridge.

The additional bridging along DSA 2 (recommendation for the Preferred Alternative) reduces wetland impacts by 24.5 acres and reduces stream impacts by 5,289 linear feet. Additional impact reductions will be examined during final design of the project. This effort will be coordinated with environmental resource and regulatory agencies.

Table 9: Impact Reductions Associated with Bridging

Site Number and Stream Crossing	Corridor and DSA	Hydraulically Required Structure	Agreed upon Structure	Stream Impact Reduction (linear feet)	Wetland Impact Reduction (acres)
1 Middle Creek	Orange DSA 1-17	Culvert	Bridge	136	–
1A Middle Creek	Orange DSA 1-17	Culvert	Bridge	164	–
8 Tributary to Middle Creek	Orange DSA 1-7 & 13-17	Culvert	Bridge	–	2.3
16 Juniper Branch	Orange DSA 1-5 & 13-17	Culvert	Bridge	451	1.8
21 Tributary to Swift Creek	Orange DSA 1-5	Culvert	Bridge	2,411	6.4
24 Tributary to Swift Creek	Orange DSA 1-5	Culvert	Culvert and Bridges	1,846	10.4
33 Tributary to Neuse River	Green DSA 1-17	Culvert	Bridge	281	2.7
35 Yates Branch	Red DSA 6-7	Bridge	Longer Bridge	–	13.9
41 Mahlers Creek	Red DSA 6-7	Bridge	Longer Bridge	387	2.1
43 White Oak Creek	Red DSA 6-7	Culvert	Bridge	1,126	6.4
45 White Oak Creek	Brown DSA 3-4, 10-11, & 15-16	Bridge	Longer Bridge	722	2.4
46 Little Creek	Brown DSA 3-4, 10-11, & 15-16	Culvert	Bridge	147	4.2
49 Tributary to Neuse River	Brown DSA 4-5, 11-12, & 16-17	Culvert	Bridge	565	2.2
54 Swift Creek	Lilac DSA 8-17	Bridge	Longer Bridge	76	0.5
63 Tributary to Swift Creek	Orange DSA 1-5	Bridge	Longer Bridge	–	0.9
68 Terrible Creek	Purple DSA 8-12	Bridge	Longer Bridge	106	2.0
74 Little Creek	Blue DSA 8-12	Culvert	Bridge	434	0.1
TOTALS				**8,853**	**58.4**

6.2 SWIFT CREEK WATERSHED CRITICAL AREA

DSAs 6 and 7 (Red Corridor) impact the Swift Creek Watershed Critical Area. All other DSAs (1-5 and 8-17) avoid impacting this watershed critical area. Efforts have been made with the preliminary

functional plans for DSAs 6 and 7 to minimize this unavoidable impact. Bridges are proposed at Swift Creek both for hydraulic conveyance as well as reducing impacts to the watershed critical area. Lengthening these bridges has also reduced this impact. DSA 2, the recommendation for the Preferred Alternative, has no impact on this critical watershed area.

Water quality impact minimization will be achieved through effective use of appropriate best management practices during construction and operation of this highway. Details on these best management practices will be developed as the project development process continues through coordination with appropriate environmental resource and regulatory agencies.

6.3 DWARF WEDGEMUSSEL

The recommendation for the Preferred Alternative (DSA 2) as well all other DSAs except DSAs 6 and 7 (Red Corridor) have direct impact to suitable habitat for the federally protected dwarf wedgemussel (DWM) in and along Swift Creek. Coordination efforts are in progress with the US Fish and Wildlife Service (USFWS) on suitable mechanisms for protecting the viability of DWM in Swift Creek. DSAs 6 and 7 cross Swift Creek upstream of the Lake Benson dam, avoiding direct impacts to DWM habitat. DSAs 6 and 7 do cross streams that feed into Swift Creek below Lake Benson, such as Mahler Creek and White Oak Creek, but these crossings are near the headwaters of these streams near the limits of the Swift Creek watershed.

Based on DWM and water quality analysis performed for this project, the long term viability of the DWM population in Swift Creek appears to be threatened. However, active management and increased habitat protection may increase the chances for long term viability. Management being considered to promote long term DWM viability include in-stream habitat monitoring, population augmentation using captive propagation techniques, continued targeted water quality monitoring, and establishing a DWM-focused stakeholder group in the lower Swift Creek watershed. Appropriate management strategies will be determined through continued coordination with USFWS.

Water quality impact minimization will be achieved through effective use of appropriate best management practices during construction and operation of this highway. Details on these best management practices will be developed as the project development process continues through coordination with appropriate environmental resource and regulatory agencies.

7 CONCLUSION

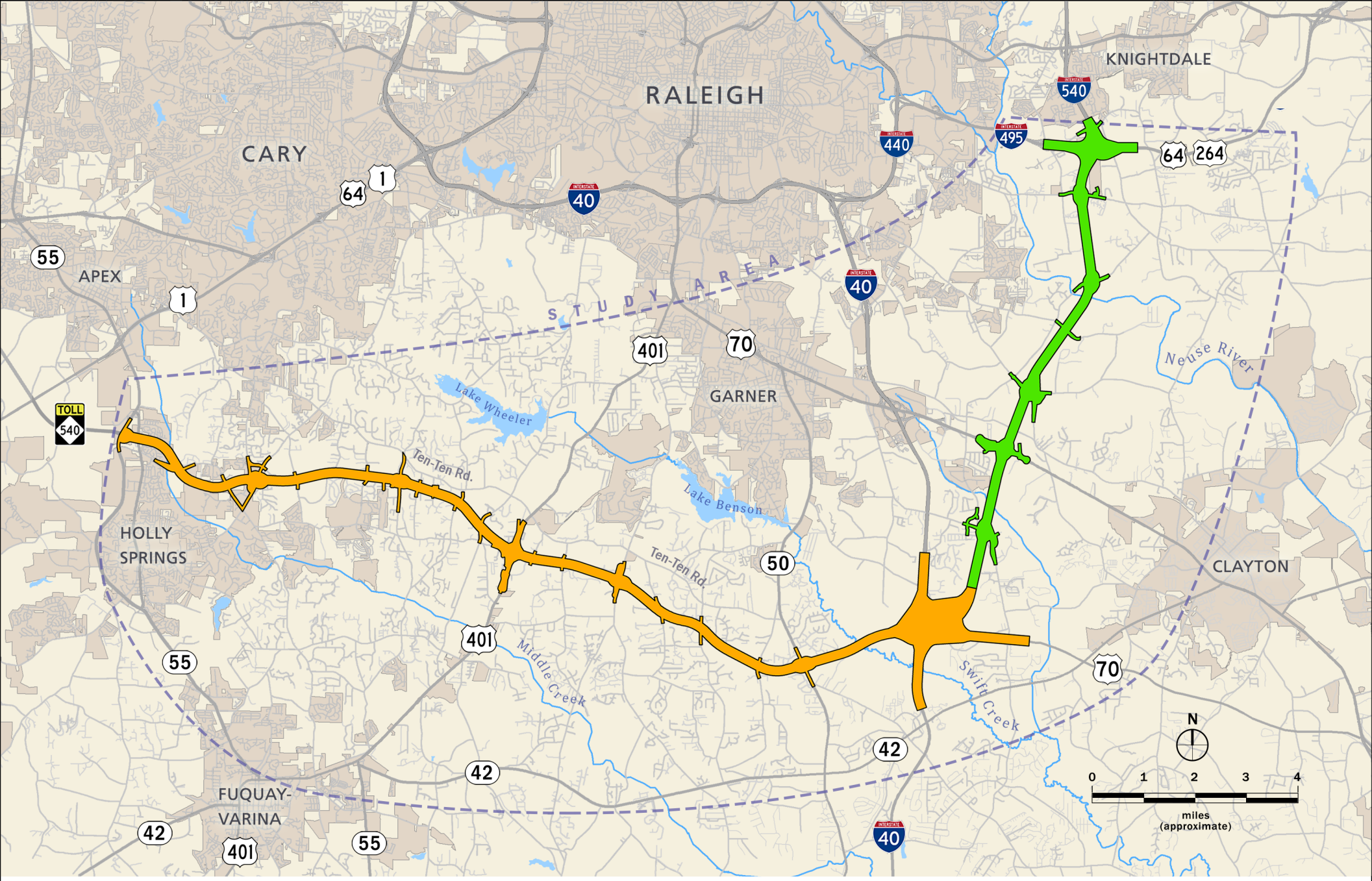
The key considerations in identifying DSA 2 as the Preferred Alternative are listed below. This list does not represent all the benefits or effects of DSA 2, but instead focuses on those elements that differentiated DSA 2 compared to the other DSAs.

- Because DSA 2 follows the Orange Corridor west of I-40, it is part of the group of DSAs that would require substantially fewer relocations than the groups of DSAs following the Red, Purple/Blue, or Lilac Corridors west of I-40. DSAs using the Red, Purple/Blue, or Lilac Corridors would result in 60 to 100 percent more relocations than DSA 2.
- DSA 2 would avoid all historic sites and all non-*de minimis* impacts to Section 4(f) resources.
- DSA 2 would avoid the Swift Creek Critical Watershed Area.
- DSA 2 would avoid impacts to the Neuse wastewater treatment sprayfields in the project area and would also avoid impacts to the Raleigh police training center on Battle Bridge Road.

- DSA 2 would affect a smaller number of linear feet of streams than 11 of the other 16 DSAs.
- The Orange Corridor has broad public support and has been formally supported by nearly all local governments.
- Because it follows the Orange Corridor, DSA 2 would have a lower potential to induce development conflicting with local plans than options using the Purple/Blue Corridor.
- By following the Mint Corridor, DSA 2 would result in slightly smaller impacts to streams and wetlands than the similar DSA 1.
- While both the Green and Mint Corridors would affect the planned Randleigh Farm development, the Mint Corridor would shift the impacts closer to the edge of the property, allowing more of the property to be developed according to existing plans.
- The Mint Corridor is the only option east of I-40 that has not been formally opposed by any of the local governments in the project area and has been formally supported by the City of Raleigh.
- DSA 2 would be the least costly alternative.
- None of the environmental resource and regulatory agencies has identified any Issues of Concern with respect to selecting DSA 2 as the Preferred Alternative.

APPENDIX A

Individual Maps of the Detailed Study Alternatives

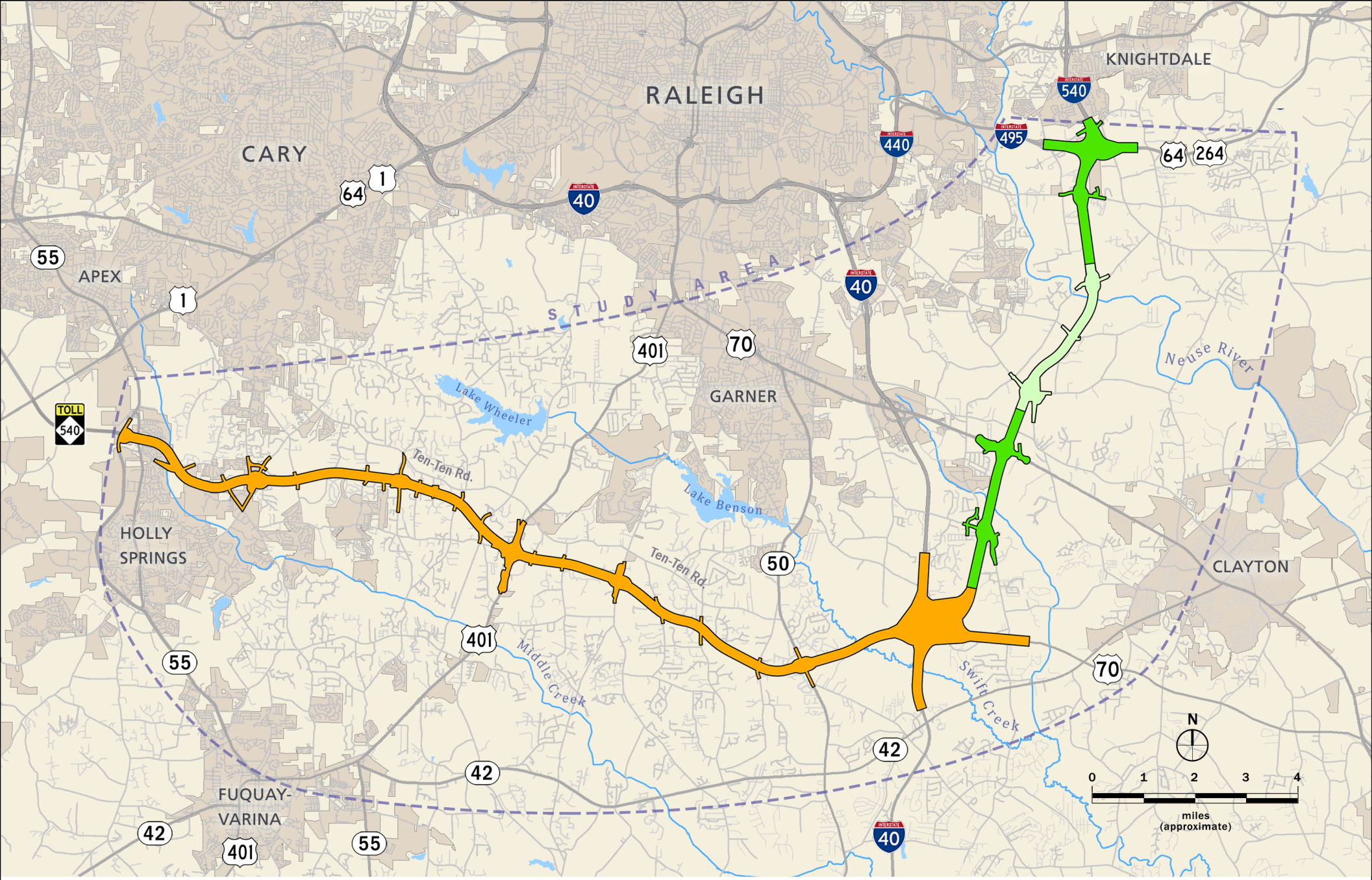


Detailed Study Alternative No. 1

This DSA uses these corridor segments:

Orange Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

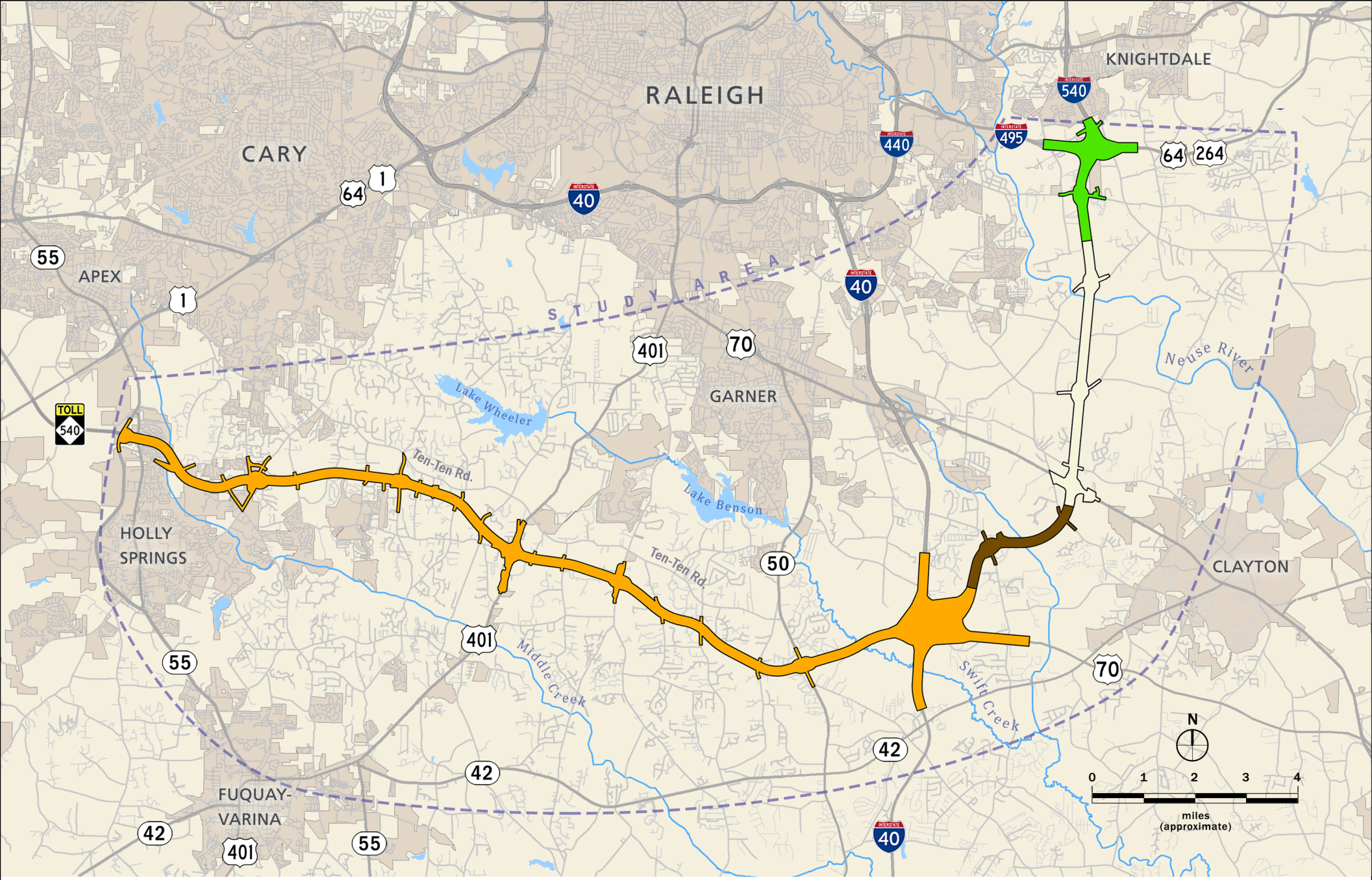


Detailed Study Alternative No. 2

This DSA uses these corridor segments:

Orange Green Mint

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

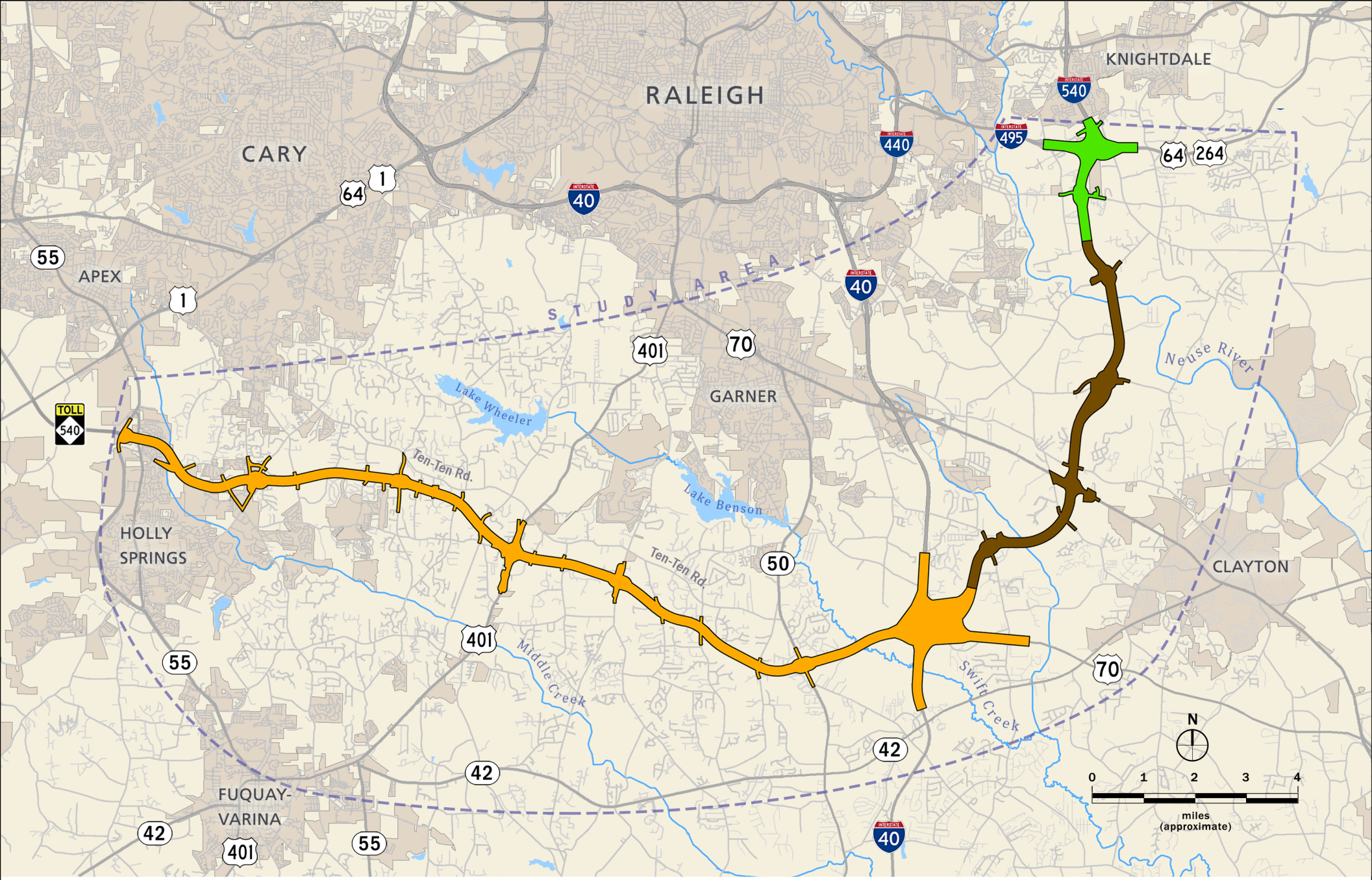


Detailed Study Alternative No. 3

This DSA uses these corridor segments:

Orange Brown Tan Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

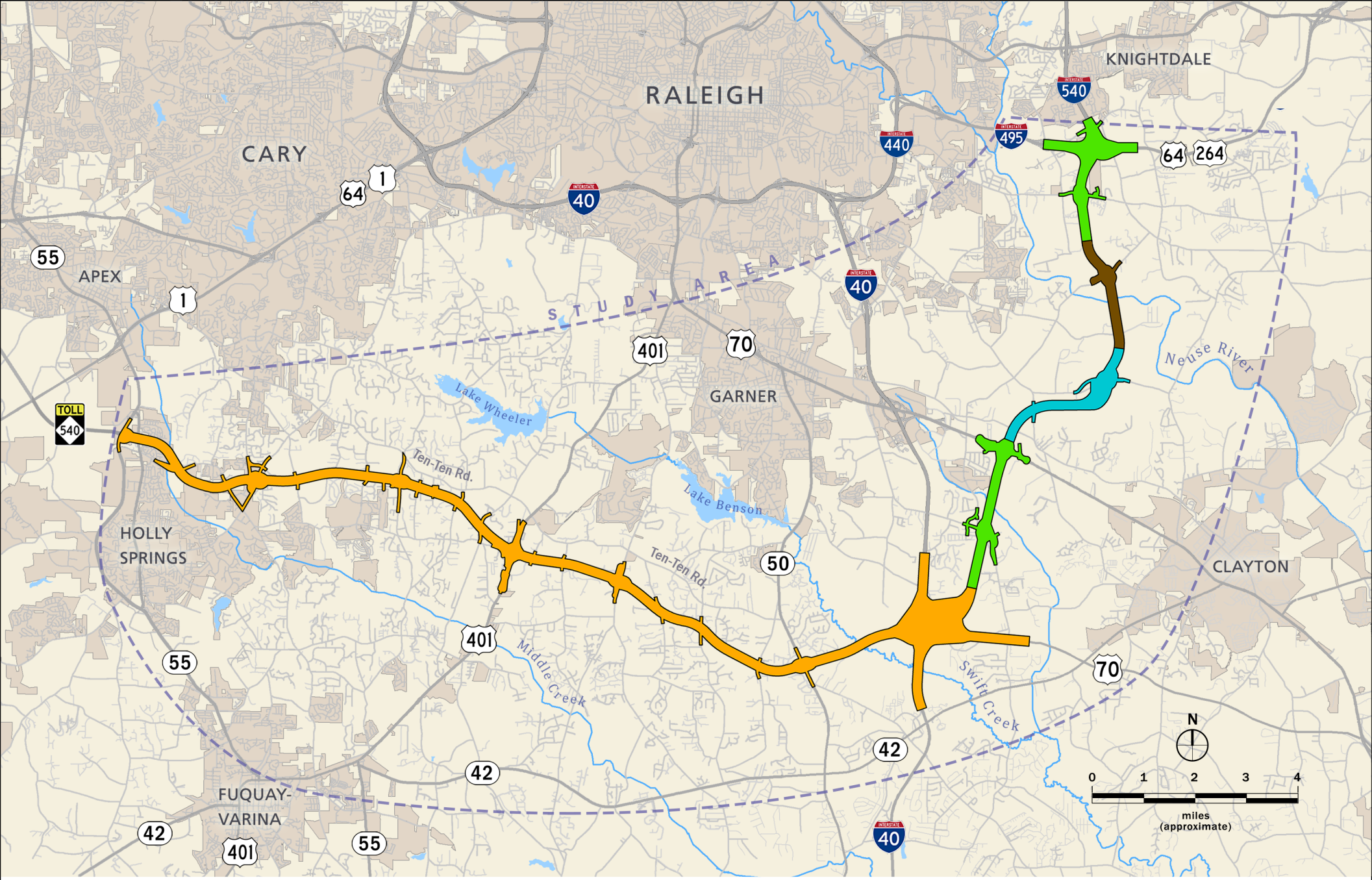


Detailed Study Alternative No. 4

This DSA uses these corridor segments:

Orange Brown Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

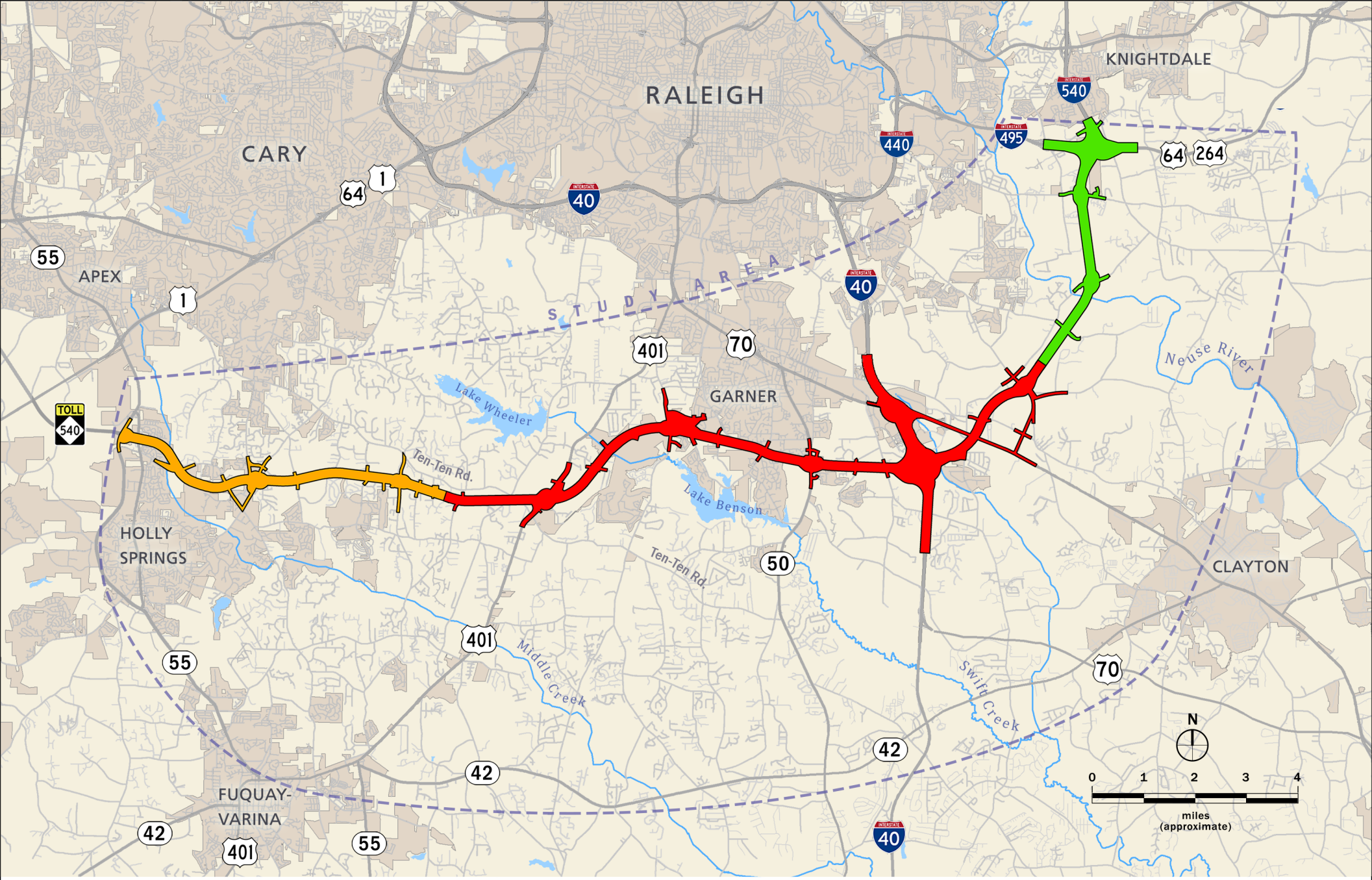


Detailed Study Alternative No. 5

This DSA uses these corridor segments:

Orange Green Teal Brown

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

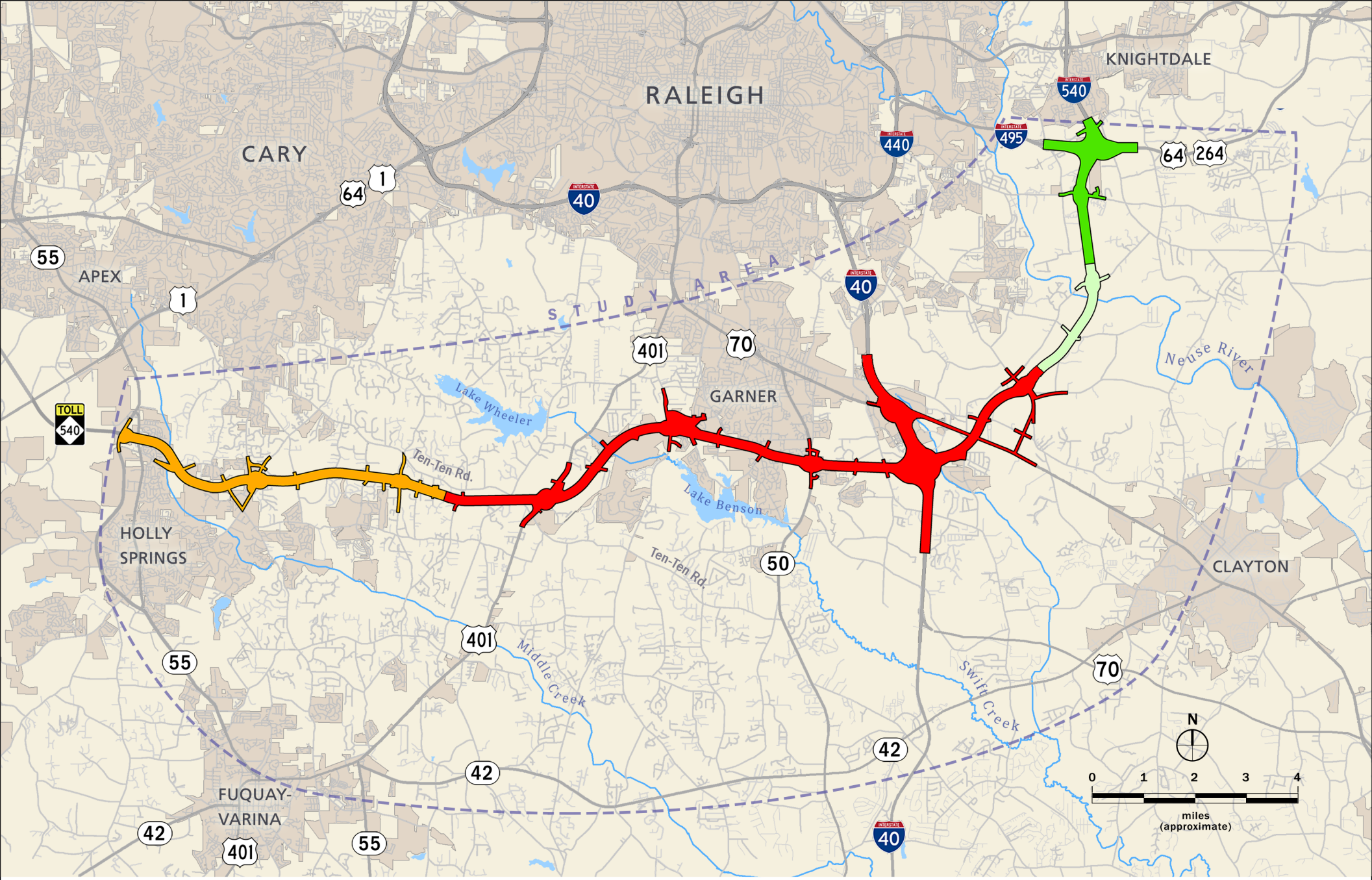


Detailed Study Alternative No. 6

This DSA uses these corridor segments:

Orange Red Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

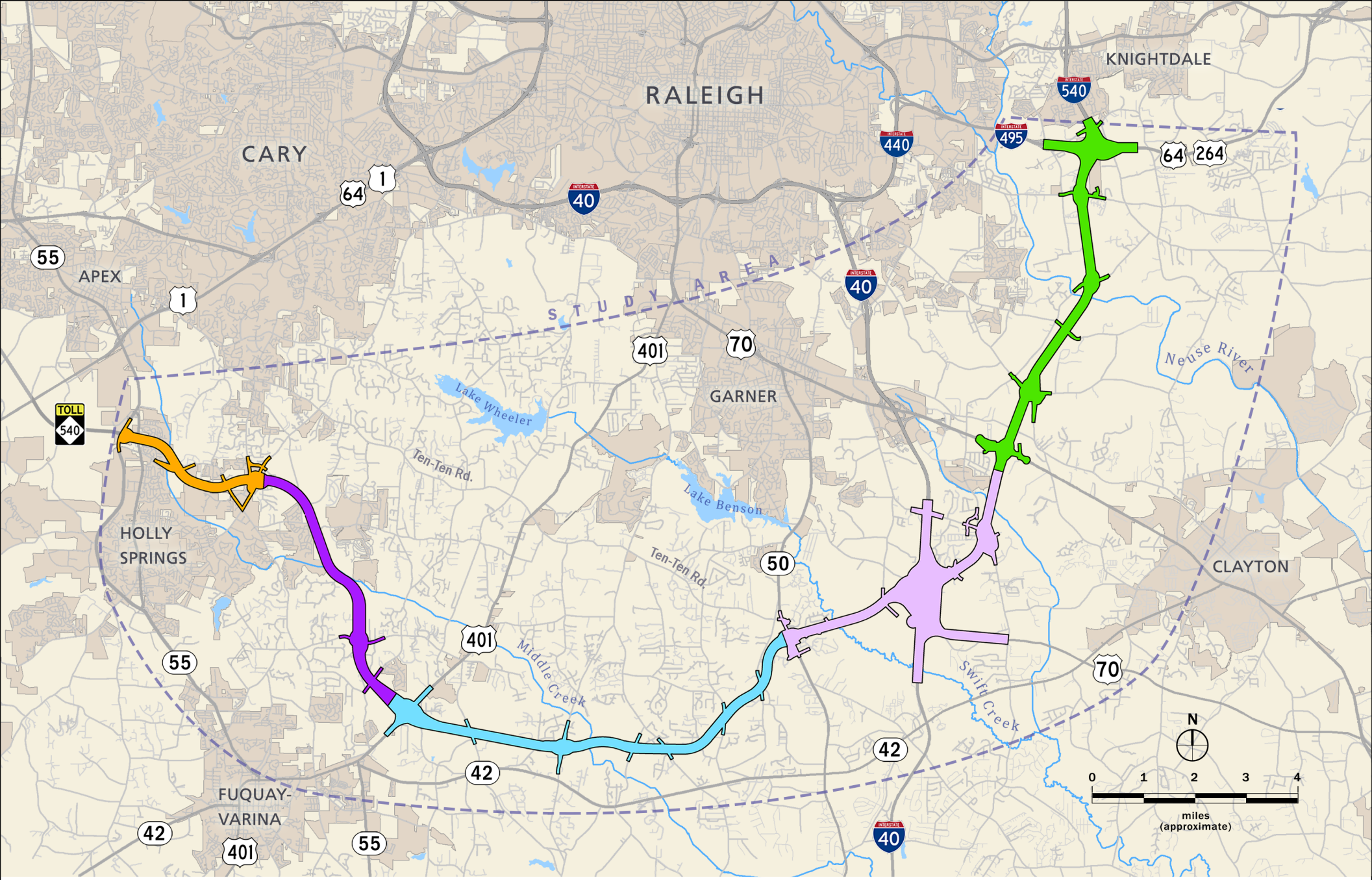


Detailed Study Alternative No. 7

This DSA uses these corridor segments:

Orange Red Mint Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

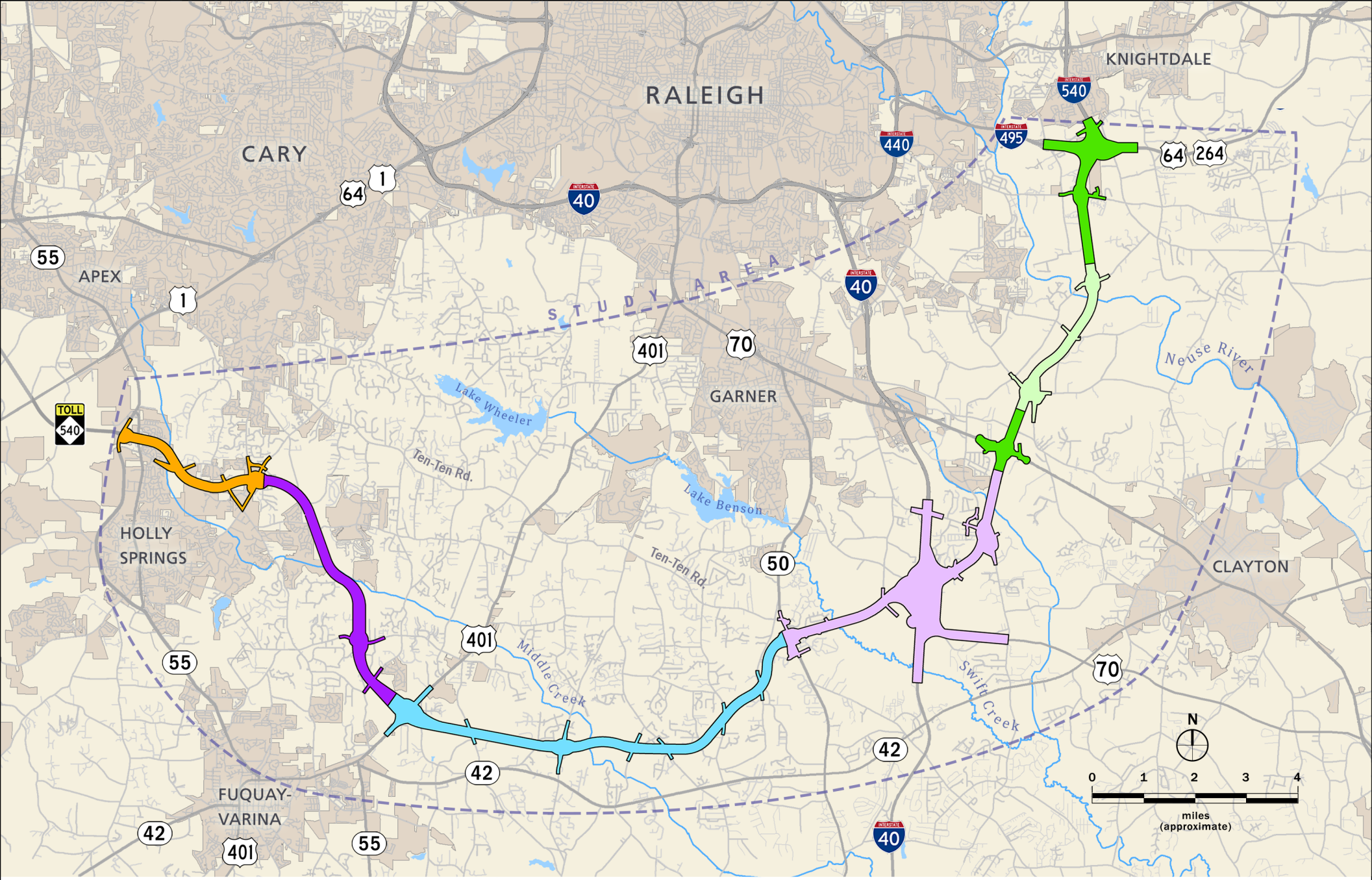


Detailed Study Alternative No. 8

This DSA uses these corridor segments:

Orange Purple Blue Lilac Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

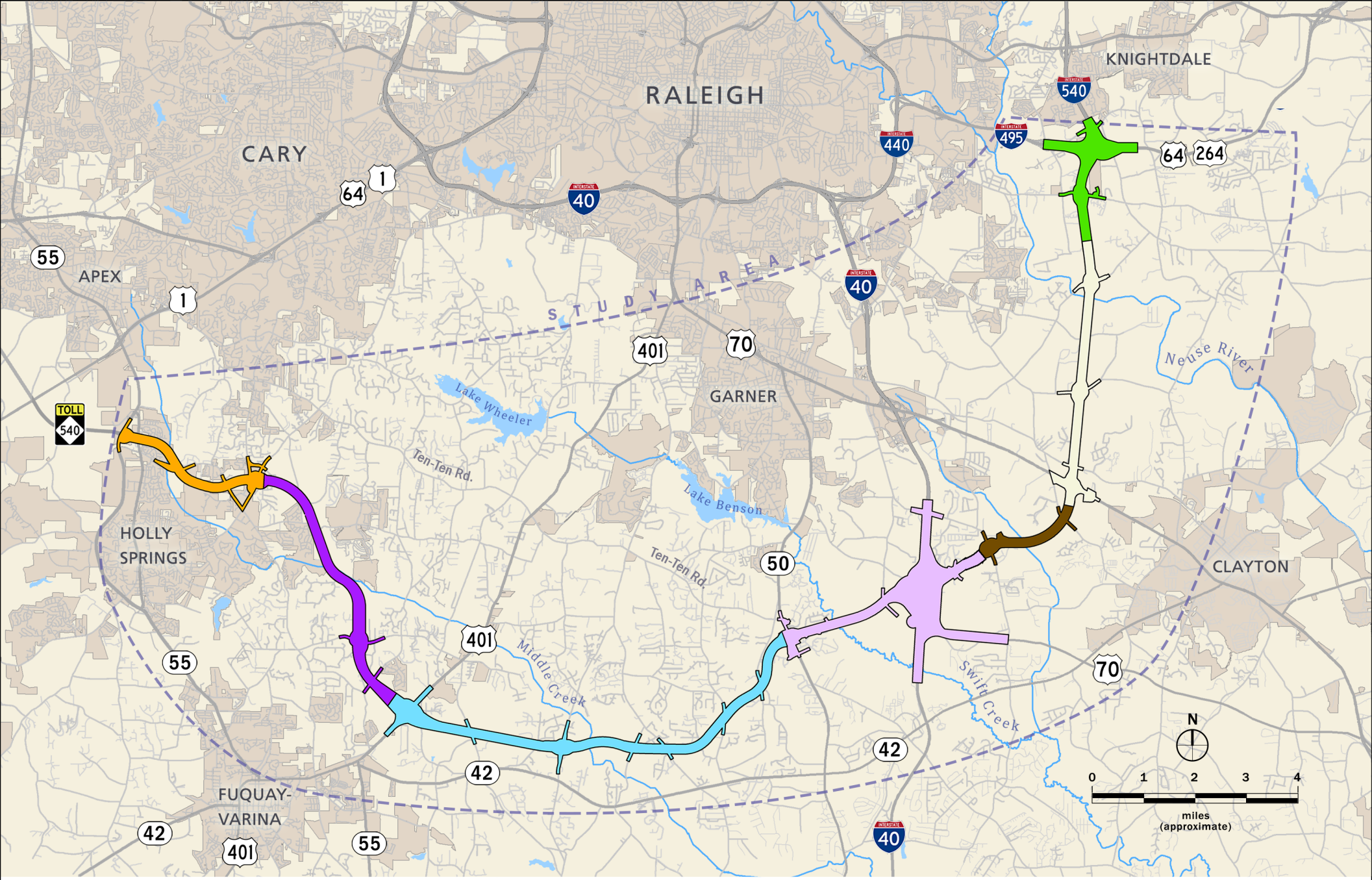


Detailed Study Alternative No. 9

This DSA uses these corridor segments:

Orange Purple Blue Lilac Green Mint

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

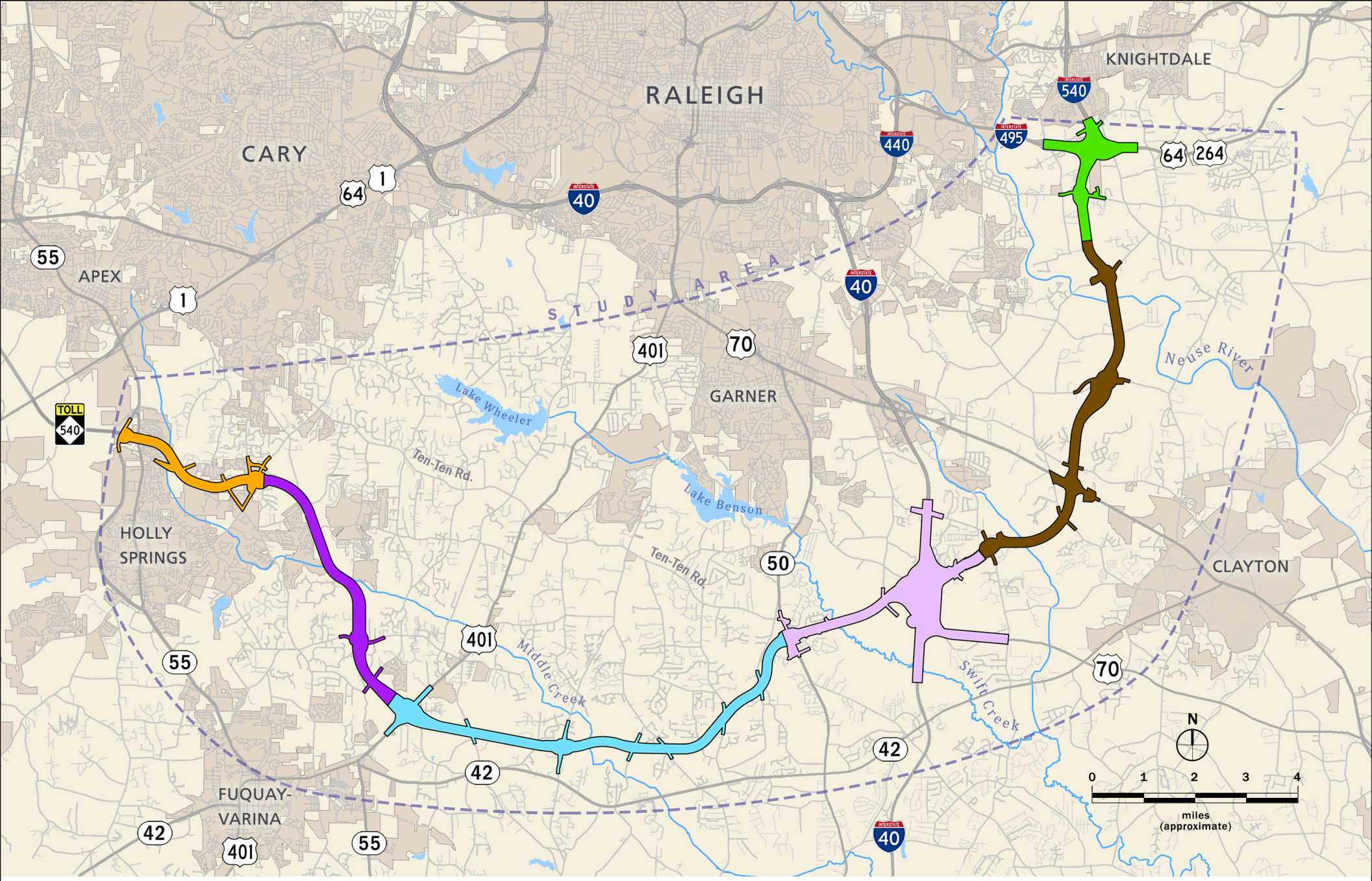


Detailed Study Alternative No. 10

This DSA uses these corridor segments:

Orange | Purple | Blue | Lilac | Brown | Tan | Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

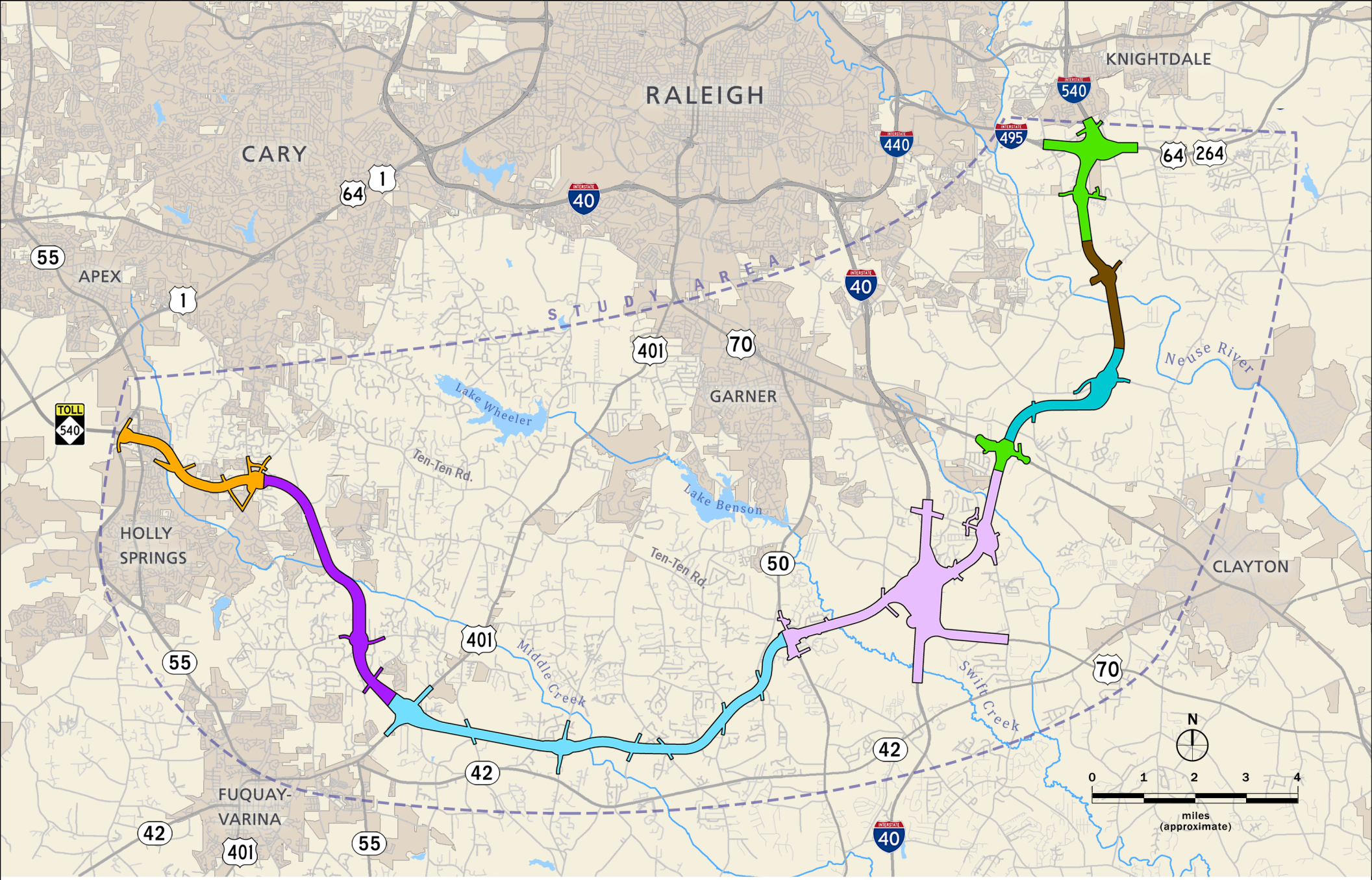


Detailed Study Alternative No. 11

This DSA uses these corridor segments:

Orange | Purple | Blue | Lilac | Brown | Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

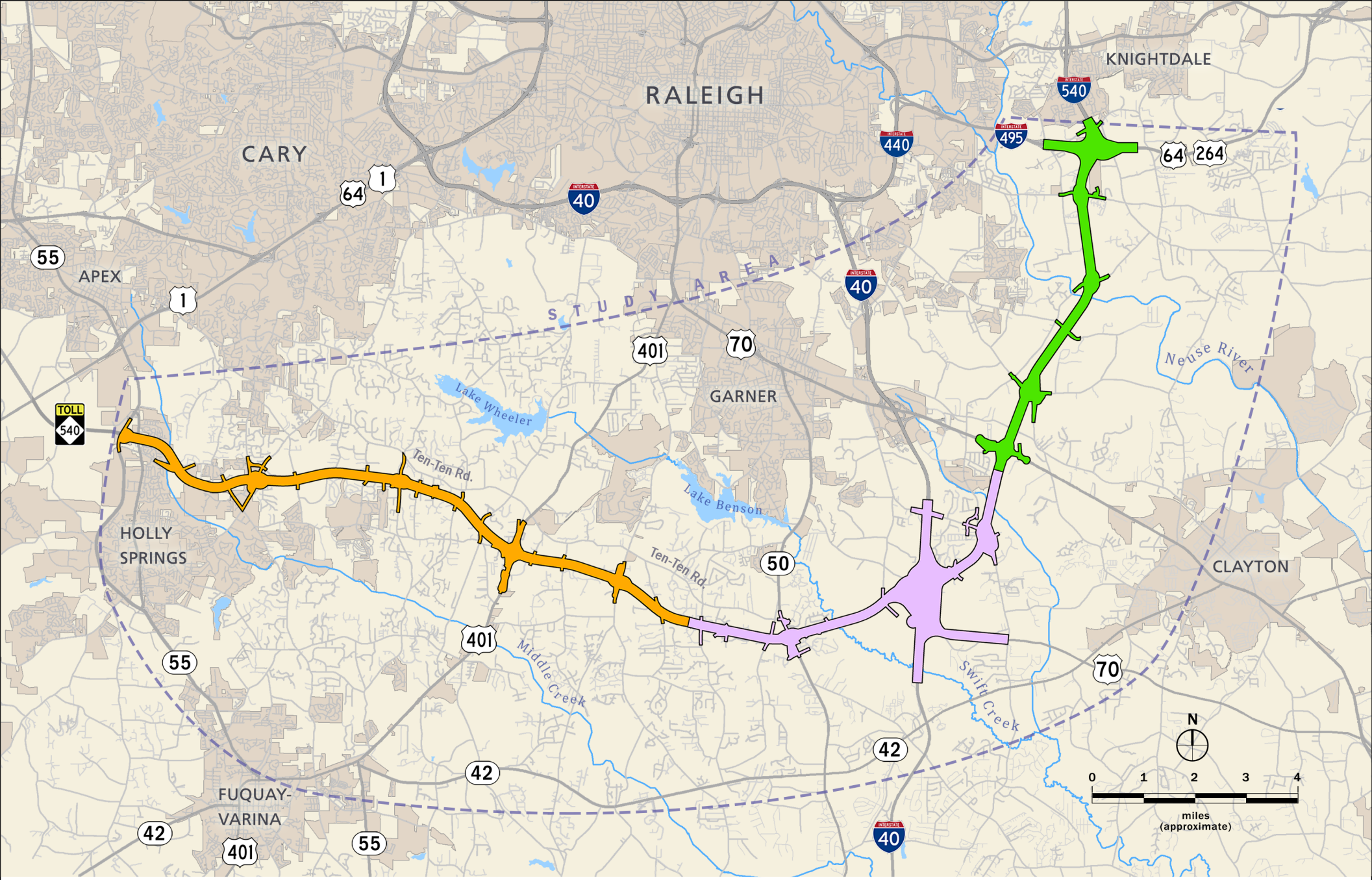


Detailed Study Alternative No. 12

This DSA uses these corridor segments:

Orange | Purple | Blue | Lilac | Green | Teal | Brown

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

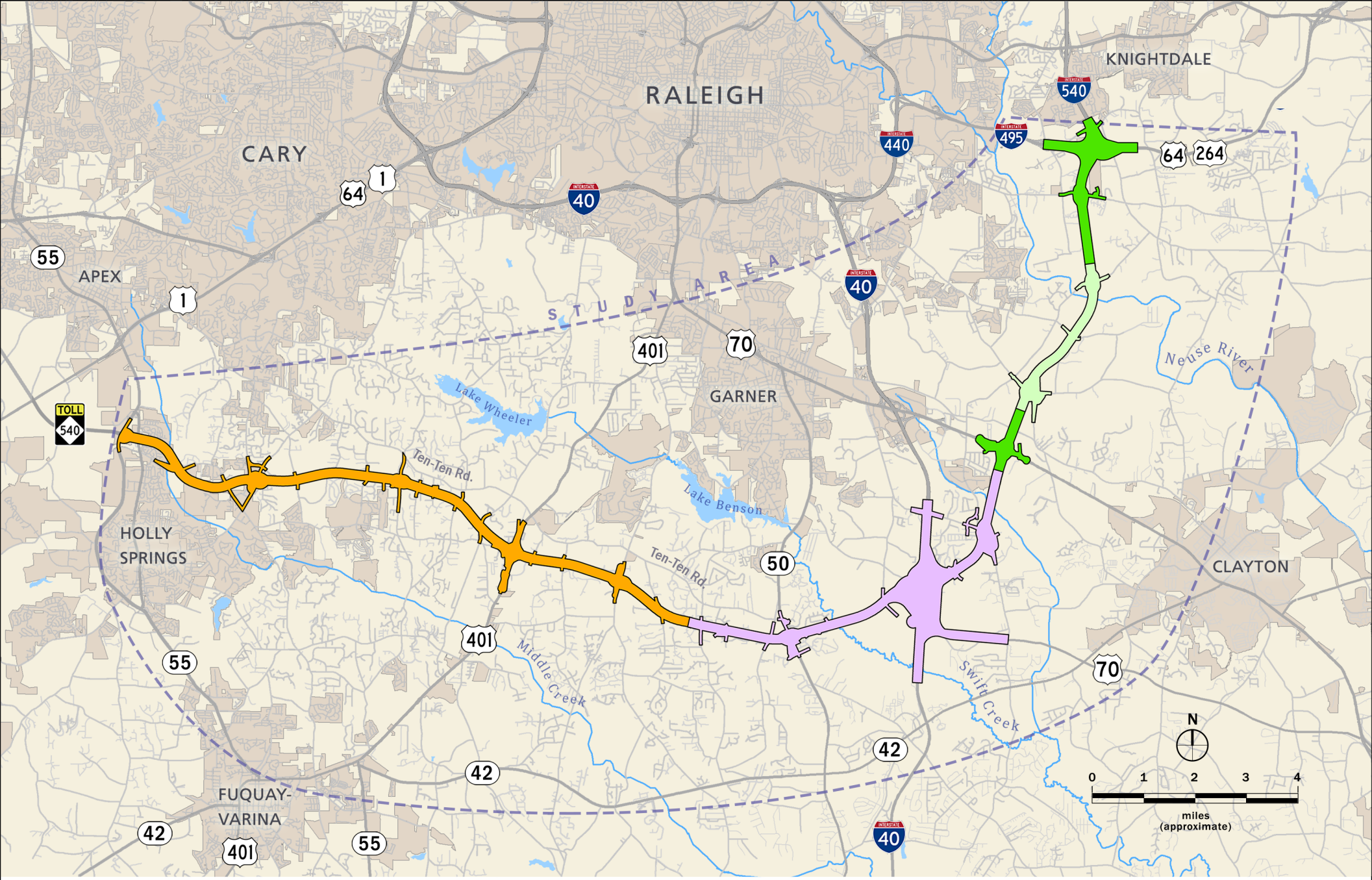


Detailed Study Alternative No. 13

This DSA uses these corridor segments:

Orange Lilac Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

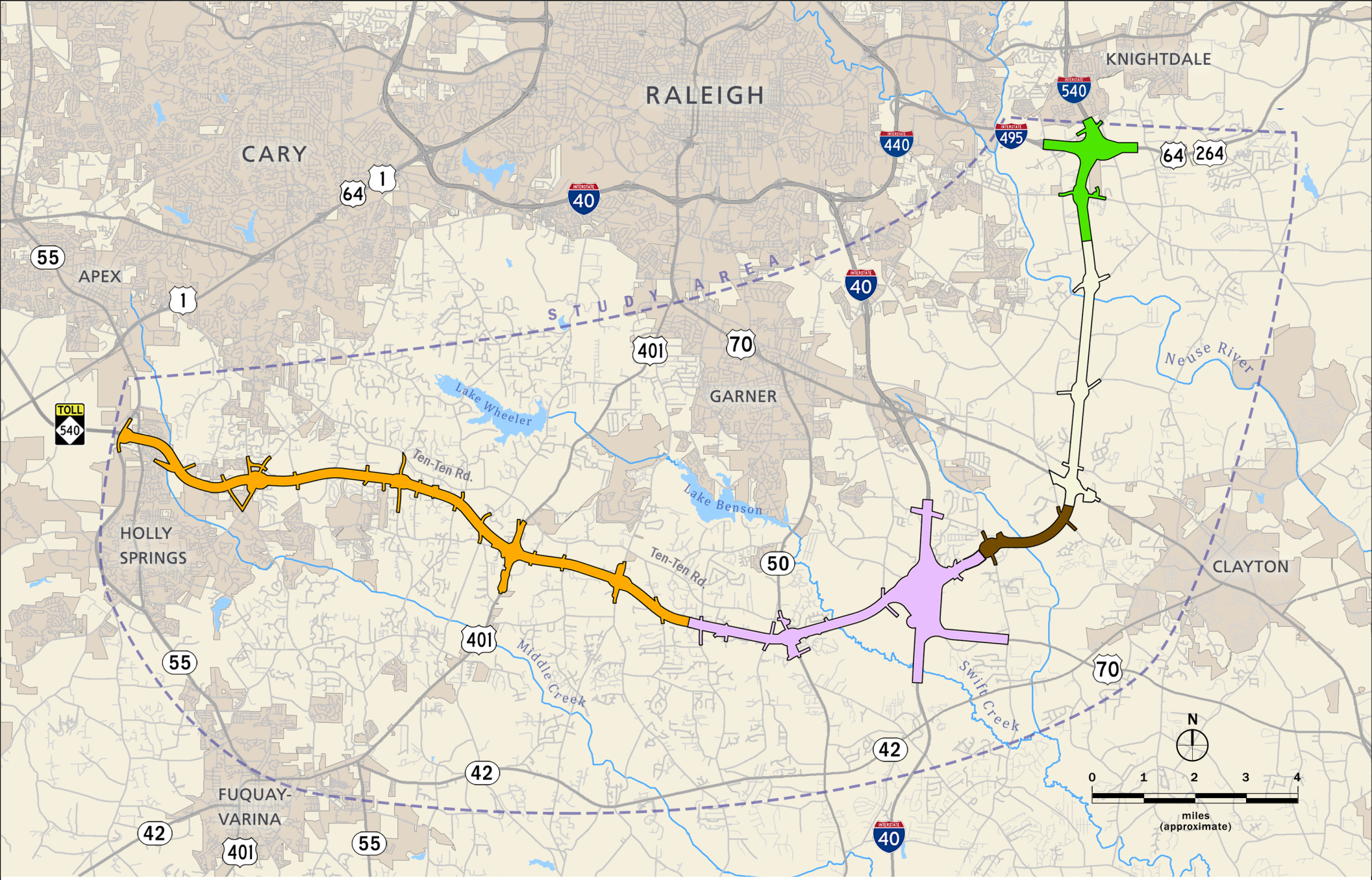


Detailed Study Alternative No. 14

This DSA uses these corridor segments:

Orange Lilac Green Mint

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

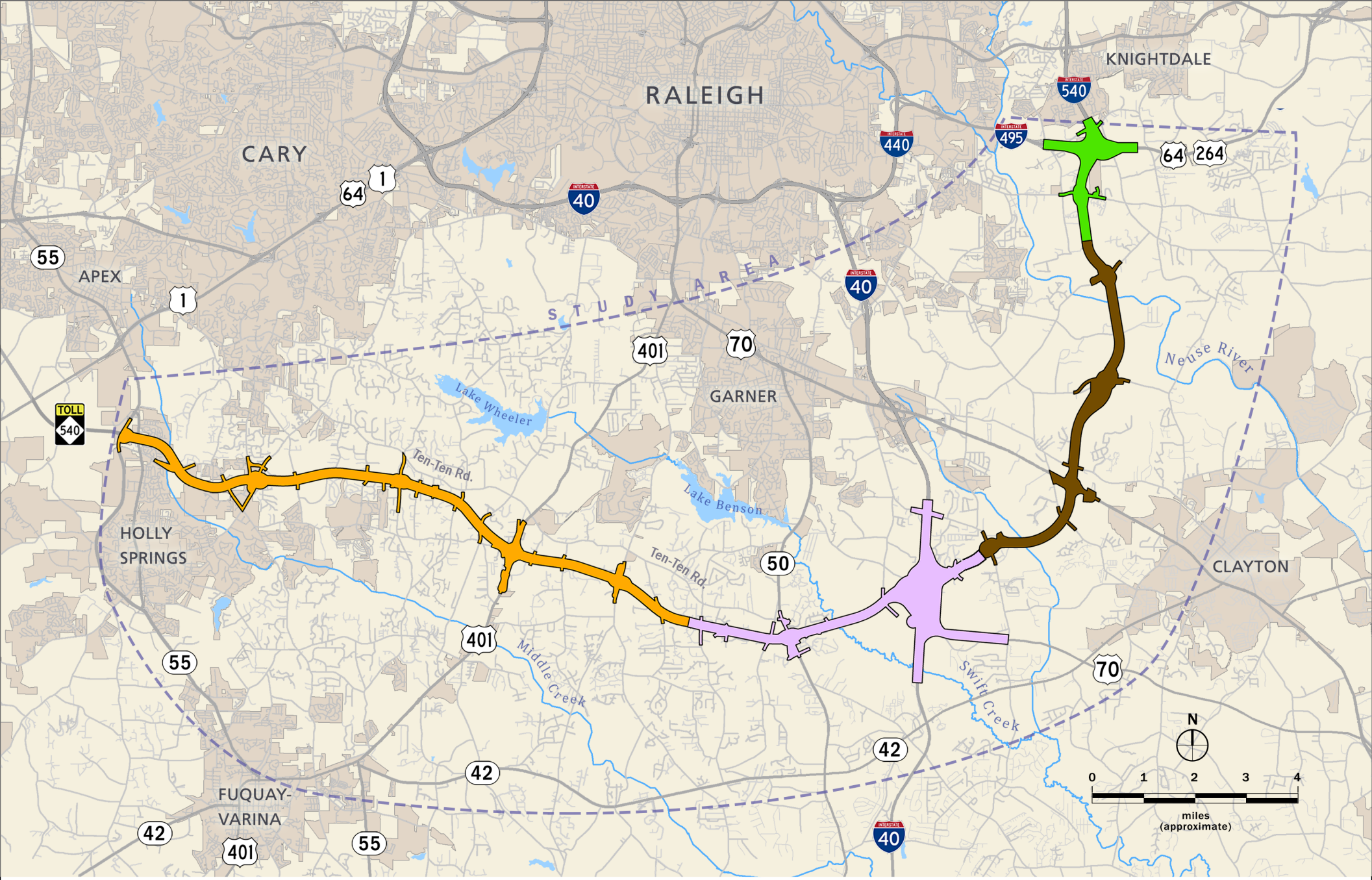


Detailed Study Alternative No. 15

This DSA uses these corridor segments:

Orange Lilac Brown Tan Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

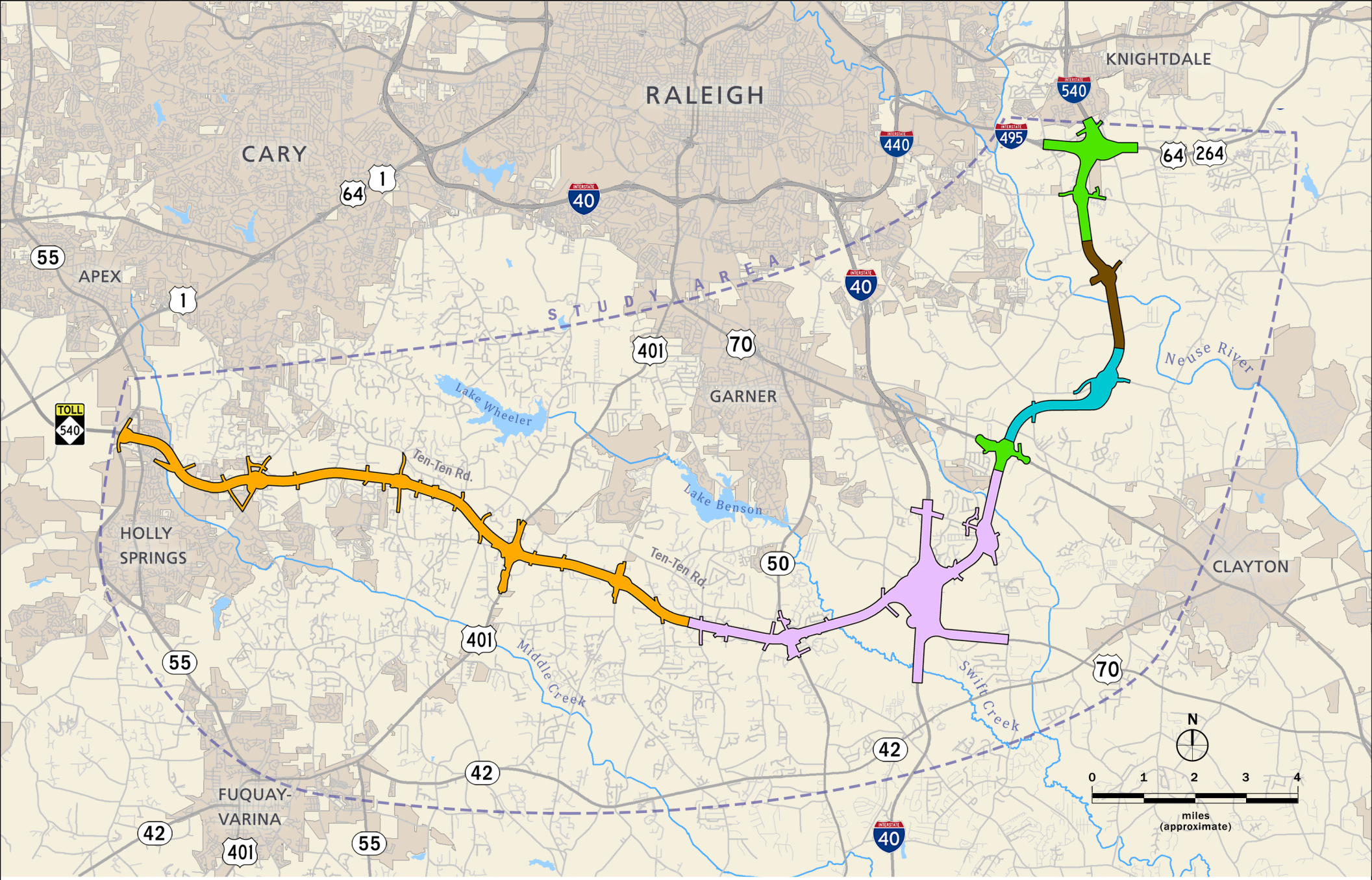


Detailed Study Alternative No. 16

This DSA uses these corridor segments:

Orange Lilac Brown Green

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.



Detailed Study Alternative No. 17

This DSA uses these corridor segments:

Orange Lilac Green Teal Brown

For illustration purposes, the scale of the DSA shown here is approximate. The corridor segments are generally 1,000 feet in width, except at potential interchange locations where they are wider. The actual highway right-of-way width would likely be substantially less than the corridor width (approximately one-third of the corridor width). The small corridor stubs or spurs along the DSA indicates where cross street modifications may be required to have local roads cross either over or under the new highway, or at potential interchange locations.

APPENDIX B

Comparative Evaluation Matrix

COMPARATIVE EVALUATION MATRIX

DSAs and Key Impact Categories (page 1 of 3)

Corridor Segments and DSAs		LENGTH	ESTIMATED PROJECT COSTS					LAND ACQUISITION ITEMS					RELOCATIONS				
		TOTAL	TOTAL	Construction	Right-of-Way Acquisition and Relocation	Utility Relocation	Environmental Mitigation	TOTAL	TOTAL	Commercial	Residental	Vacant	Total	Residental	Business	Farm	Non-Profit Organizations
		miles	$ million					acres	number of parcels				number of relocations				
O G	1	28.3	2,195	1,757	296	66	75	1,830	741	38	510	193	278	269	6	0	3
O G M G	2	28.4	2,178	1,744	295	66	73	1,823	744	38	511	195	281	271	6	1	3
O B T G	3	29.1	2,188	1,765	282	66	75	1,802	754	44	509	201	265	256	5	1	3
O B G	4	29.4	2,189	1,776	262	83	68	1,818	719	44	484	191	243	234	5	1	3
O G TL B G	5	29.3	2,191	1,746	291	82	72	1,843	737	40	506	191	272	263	6	0	3
O R G	6	25.2	2,317	1,798	439	24	57	1,753	993	63	673	257	449	435	12	0	2
O R M G	7	25.3	2,315	1,786	442	31	56	1,752	995	63	673	259	451	437	12	0	2
O PU BL L G	8	30.9	2,566	1,902	541	41	81	2,135	1,213	57	861	295	566	548	15	2	1
O PU BL L G M G	9	31.0	2,547	1,887	541	41	79	2,128	1,216	57	862	297	569	550	15	3	1
O PU BL L B T G	10	31.6	2,550	1,897	530	41	83	2,092	1,230	63	862	305	556	537	15	3	1
O PU BL L B G	11	32.0	2,549	1,907	510	57	75	2,108	1,195	63	837	295	534	515	15	3	1
O PU BL L G TL B G	12	31.9	2,559	1,890	538	57	75	2,148	1,209	59	857	293	560	542	15	2	1
O L G	13	27.6	2,362	1,784	407	96	74	1,960	984	45	765	174	481	466	14	0	1
O L G M G	14	27.7	2,344	1,769	406	96	72	1,953	987	45	766	176	484	468	14	1	1
O L B T G	15	28.3	2,346	1,779	395	96	76	1,917	1,001	51	766	184	471	455	14	1	1
O L B G	16	28.7	2,346	1,789	375	113	68	1,933	966	51	741	174	449	433	14	1	1
O L G TL B G	17	28.6	2,356	1,772	403	112	68	1,973	980	47	761	172	475	460	14	0	1

CONTINUED ON NEXT PAGE

Corridor Segment Key

O Orange	PU Purple	L Lilac	TL Teal	B Brown
G Green	BL Blue	R Red	T Tan	M Mint

Note: Preliminary cost estimates are in anticipated year-of-expenditure dollars.

COMPARATIVE EVALUATION MATRIX

DSAs and Key Impact Categories (page 2 of 3)

CONTINUED FROM PREVIOUS PAGE

Corridor Segments and DSAs		STREAMS					WETLANDS		HYDRAULIC				CULTURAL RESOURCES			
		Crossings of Stream Segments	Stream Impacts	Section 303(d) Impaired Stream	Zone 1 Riparian Buffers	Zone 2 Riparian Buffers	Wetlands	Wetlands Impacts	Ponds		100 Year Floodplain	Swift Creek Critical Watershed	NRHP Listed and Eligible Sites with Adverse Effects		Existing and Planned Public Parks and Recreational Facilities	
		num.	linear feet		acres		num.	acres	num.	acres	acres		num.	acres	num.	acres
O G	1	142	67,967	525	97.9	63.9	153	75.6	41	24.9	85.4	0	0	0	1	1.6
O G M G	2	139	65,810	525	95.2	62.3	149	74.3	38	23.2	87.1	0	0	0	1	1.6
O B T G	3	140	68,130	1,154	99.9	65.3	139	73.5	40	23.9	85.7	0	1	5.9	2	8.6
O B G	4	132	61,322	1,231	89.1	58.3	135	71.6	38	26.1	58.8	0	0	0	2	19.2
O G TL B G	5	142	65,180	525	94.9	62.4	149	74.2	44	27.6	64.9	0	0	0	1	1.6
O R G	6	109	53,014	875	34.4	22.9	113	52.0	28	20.0	84.9	6.7	2	32.7	3	16.7
O R M G	7	106	51,582	875	37.1	24.7	111	51.4	25	17.7	86.6	6.7	2	32.7	3	16.7
O PU BL L G	8	139	77,724	106	114.3	75.5	161	57.5	37	19.7	101.7	0	0	0	1	9.6
O PU BL L G M G	9	136	75,566	106	111.5	73.8	157	56.2	34	18.0	103.4	0	0	0	1	9.6
O PU BL L B T G	10	137	78,087	735	115.9	76.8	146	63.0	35	18.0	102.0	0	1	5.9	2	16.6
O PU BL L B G	11	129	71,278	812	105.0	69.8	142	61.1	33	20.2	75.1	0	0	0	2	27.2
O PU BL L G TL B G	12	139	74,936	106	111.3	73.9	157	56.1	40	22.4	81.2	0	0	0	1	9.6
O L G	13	133	68,604	525	101.2	67.1	154	66.7	36	22.8	75.7	0	0	0	1	1.6
O L G M G	14	130	66,447	525	98.4	65.5	150	65.5	33	21.2	77.4	0	0	0	1	1.6
O L B T G	15	131	68,967	1,154	102.8	68.4	139	72.3	34	21.2	76.0	0	1	5.9	2	8.6
O L B G	16	123	62,159	1,231	91.9	61.4	135	70.4	32	23.4	49.0	0	0	0	2	19.2
O L G TL B G	17	133	65,817	525	98.2	65.6	150	65.3	39	25.6	55.1	0	0	0	1	1.6

CONTINUED ON NEXT PAGE

Corridor Segment Key

O	Orange	PU	Purple	L	Lilac	TL	Teal	B	Brown
G	Green	BL	Blue	R	Red	T	Tan	M	Mint

Note: For categories where the unit of measure is either acres or linear feet, the impact calculations were based on the width of functional designs prepared for each DSA, plus a 40-foot additional width on each side.

NRHP = National Register of HIstoric Places

COMPARATIVE EVALUATION MATRIX

DSAs and Key Impact Categories (page 3 of 3)

CONTINUED FROM PREVIOUS PAGE

Corridor Segments and DSAs		NOISE		PRIME FARMLAND SOIL				OTHER						
		Receptors Impacted	Likely Noise Barriers	TOTAL	Wake County	Johnston County	F.C.I.R. Total Points	Interchanges	Railroad Crossings	Dempsey Benton WTP Sprayfields	Neuse River WWTP Sprayfields	Randleigh Farm	City of Raleigh Law Enforcement Training Center	Potential Hazardous Materials Sites
		number		acres			points	number		acres				num.
O G	1	540	22	2,051	1,954	97	116	13	2	10.8	0	62.1	0	4
O G M G	2	539	22	2,040	1,943	97	117	13	2	10.8	0	29.5	0	4
O B T G	3	565	24	2,035	1,862	173	128	13	2	10.8	0	29.7	0	5
O B G	4	551	24	2,049	1,876	173	128	13	2	10.8	87.2	0	9.1	3
O G TL B G	5	541	22	2,056	1,959	97	118	13	2	10.8	81.5	0	9.1	4
O R G	6	804	20	1,972	1,972	0	101	13	4	0	0	62.1	0	12
O R M G	7	804	20	1,949	1,949	0	103	13	4	0	0	29.5	0	12
O PU BL L G	8	454	16	2,328	2,288	40	129	13	1	88.7	0	62.1	0	8
O PU BL L G M G	9	454	16	2,310	2,270	40	128	13	1	88.7	0	29.5	0	8
O PU BL L B T G	10	480	18	2,286	2,170	116	136	13	1	88.7	0	29.7	0	11
O PU BL L B G	11	510	18	2,300	2,184	116	136	13	1	88.7	87.2	0	9.1	9
O PU BL L G TL B G	12	456	16	2,332	2,292	40	128	13	1	88.7	81.5	0	9.1	8
O L G	13	598	23	2,175	2,135	40	121	13	2	88.7	0	62.1	0	8
O L G M G	14	597	23	2,165	2,125	40	121	13	2	88.7	0	29.5	0	8
O L B T G	15	624	25	2,122	2,006	116	128	13	2	88.7	0	29.7	0	11
O L B G	16	610	25	2,146	2,030	116	128	13	2	88.7	87.2	0	9.1	9
O L G TL B G	17	600	23	2,164	2,124	40	120	13	2	88.7	81.5	0	9.1	8

Corridor Segment Key

O Orange · PU Purple · L Lilac · TL Teal · B Brown
G Green · BL Blue · R Red · T Tan · M Mint

Abbreviations:
F.C.I.R. = Farmland Conversion Impact Rating
WWTP = Wastewater Treatment Plant
WTP = Water Treatment Plant

APPENDIX C

Correspondence

TOWN OF

Holly Springs

Resolution No.: 15-23
Date Adopted: June 16, 2015

RESOLUTION REAFFIRMING THE TOWN OF HOLLY SPRINGS TOWN COUNCIL'S SUPPORT REGARDING THE ALIGNMENT OF THE SOUTH EAST EXTENSION OF I-540

WHEREAS, the Holly Springs Town Council strongly supports the construction of the I-540 Triangle Expressway Southeast Extension and in October 2013 expressed its favor for the orange route illustrated on N.C. Transit Authority study maps; and

WHEREAS, the proposed I-540 Triangle Expressway Southeast Extension has been a fundamental transportation facility underpinning for more than 21 years of local land use and transportation decisions of the Town of Holly Springs and other local governments of southern Wake County; and

WHEREAS, the Town of Holly Springs historically has utilized the protected I-540 corridor proposed in earlier designs to plan for both existing and future development in Town; and

WHEREAS, the corridor illustrated in study maps as purple and blue would be more disruptive to residents of Holly Springs and Fuquay-Varina and eliminate parkland;

NOW THEREFORE BE IT RESOLVED that the Town Council of the Town of Holly Springs hereby reaffirms its support of the original protected corridor design as illustrated in orange on N.C. Transit Authority maps for the construction of the I-540 Triangle Expressway Southeast Extension.

Adopted this, the 16th day of June 2015.

ATTEST:

Dick Sears, Mayor

Joni Powell, Town Clerk

Office *of* the Mayor
128 S. Main Street • P.O. Box 8 • Holly Springs, NC 27540 • (919) 557-3901 • (919) 552-0654 *fax*
dick.sears@hollyspringsnc.us • www.hollyspringsnc.us

FUQUAY-VARINA
NORTH CAROLINA

Town Commission
Resolution

RESOLUTION NO. 15-1362

A RESOLUTION ADOPTED BY THE BOARD OF COMMISSIONERS OF THE TOWN OF FUQUAY-VARINA, NC REAFFIRMING ITS SUPPORT OF THE "ORANGE ROUTE" REGARDING ALIGNMENT OF THE SOUTHEAST EXTENSION OF I-540

WHEREAS, the Governing Body of the Town of Fuquay-Varina, North Carolina believes that the "orange route" alignment for the southeast extension of I-540 is the alignment that would have the least negative impact on citizens in the community; and

WHEREAS, the proposed I-540 Triangle Expressway Southeast Extension has been a fundamental transportation facility underpinning for more than 21 years of local land use and transportation decisions of all the local governments in southern Wake County while the newer purple-blue route recently was added; and

WHEREAS, the Town of Fuquay-Varina historically has utilized the protected I-540 corridor proposed in earlier designs to plan for both existing and future development in Fuquay-Varina; and

WHEREAS, the purple-blue route is expected to have greater expense and human impact on the residents of Fuquay-Varina than the proposed orange route.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Commissioners of the Town of Fuquay-Varina that the Governing Board does hereby express support of the original protected corridor design as illustrated in orange on the N.C. Transit Authority maps for the construction of the I-540 Triangle Expressway Southeast Extension.

BE IT FURTHER RESOLVED, by the Board of Commissioners of the Town of Fuquay-Varina that this resolution shall take effect immediately upon its adoption.

Adopted this the 16th day of June 2015 in Fuquay-Varina, North Carolina.

FUQUAY-VARINA, NORTH CAROLINA

John W. Byrne, Mayor

ATTEST:

Rose H. Rich, Town Clerk

(TOWN SEAL)

TOWN OF FUQUAY-VARINA, N.C. INCORPORATED 1909

RESOLUTION NO. (2015) 2257

A RESOLUTION OF THE TOWN OF GARNER EXPRESSING SUPPORT FOR THE "ORANGE ROUTE" REGARDING THE ALIGNMENT OF THE SOUTHEAST EXTENSION OF I-540

WHEREAS, the governing body of the Town of Garner believes that the "orange route" alignment for the southeast extension of I-540 is the alignment that would have the least negative impact on citizens in this community; and

WHEREAS, the proposed I-540 Triangle Expressway Southeast Extension has been a fundamental transportation facility underpinning for more than 21 years of local land use and transportation decisions of all the local governments in southern Wake County; and

WHEREAS, the Town of Garner historically has utilized the protected I-540 corridor proposed in earlier designs to plan for both existing and future development in Garner; and

WHEREAS, the Town of Garner has supplied a great deal of commentary and evidence regarding why the orange route is a superior choice.

NOW THEREFORE BE IT RESOLVED that the governing body of the Town of Garner hereby expresses support of the original protected corridor design as illustrated in orange on N.C. Transit Authority maps for the construction of the I-540 Triangle Expressway Southeast Extension.

Adopted this, the 7th day of July, 2015.

ATTEST

Judy Bass
Town Clerk

TOWN OF GARNER CORPORATE SEAL 1905 N.C.

Ronnie S. Williams
Mayor

A RESOLUTION BY THE WAKE COUNTY BOARD OF COMMISSIONERS REGARDING THE ALIGNMENT OF THE TRIANGLE EXPRESSWAY SOUTHEAST EXTENSION OF NC-540

WHEREAS, the proposed Triangle Expressway Southeast Extension has been a fundamental transportation facility underpinning for more than 20 years of local land use and transportation decisions for Wake County and other local governments of Wake County; and

WHEREAS, Wake County historically has utilized the protected "orange" corridor in earlier efforts to make key planning decisions for both existing and future development in Wake County; and

WHEREAS, numerous Wake County homeowners and landowners have relied upon the protected "orange" corridor for many years as they have made investment decisions; and

WHEREAS, the proposed alternative alignments that would relocate the roadway away from the protected "orange" corridor will have an adverse impact on communities in Wake County; and

WHEREAS, the proposed alternative alignments illustrated as "blue", "purple", "lilac" and "red" on North Carolina Department of Transportation maps will have a greater impact on Wake County's designated priority stream corridors and proposed Southeast Wake County Park than the previously protected "orange" corridor; and

WHEREAS, the Towns of Fuquay-Varina, Garner, and Holly Springs have recently adopted similar resolutions in support of the "orange" corridor; and

WHEREAS, Wake County has adopted similar resolutions in support of the "orange" corridor on October 18, 2010 and October 21, 2013.

NOW, THEREFORE, BE IT RESOLVED that Wake County reaffirms its support of the protected corridor as illustrated in "orange" on the North Carolina Department of Transportation maps as the preferred choice for the development and construction of the Triangle Expressway Southeast Extension.

Adopted this 8th day of September 2015.

James West

James West, Chairman
Board of Commissioners

ATTEST: Denise Hogan

Denise Hogan
Clerk to the Board

Wake County Mayors' Association

Date Adopted: September 23, 2015

RESOLUTION AFFIRMING THE WAKE COUNTY MAYORS' ASSOCIATION SUPPORT REGARDING THE ALIGNMENT OF THE SOUTH EAST EXTENSION OF I-540

WHEREAS, the Wake County Mayors' Association supports the construction of the I-540 Triangle Expressway Southeast Extension and, in particular, the orange route illustrated on N.C. Transit Authority study maps; and

WHEREAS, the proposed I-540 Triangle Expressway Southeast Extension has been a fundamental transportation facility underpinning for more than 21 years of local land use and transportation decisions for other local governments in Wake County; and

WHEREAS, the corridor illustrated in study maps as purple and blue would appear to be more disruptive to residents of Wake County and eliminate parkland;

NOW THEREFORE BE IT RESOLVED that the Wake County Mayors' Association hereby affirms its support of the original protected corridor design as illustrated in orange on N.C. Transit Authority maps for the construction of the I-540 Triangle Expressway Southeast Extension.

Adopted this, the 23rd day of September, 2015.

ATTEST:

Russell B . Killen
President, Wake County Mayors' Association

Ronnie S. Williams
MAYOR

Town of Garner
900 7th Avenue · Garner, North Carolina 27529
Phone (919) 772-4688 · Fax (919) 662-8874 · www.GarnerNC.gov

December 16, 2015

Eric Midkiff, P.E.
Project Development - Western Region
North Carolina Department of Transportation
1548 Mail Center
Raleigh, NC 27699-1548

Re: Draft Environmental Impact Statement
Complete 540 Triangle Expressway Southeast Extension Study
Town of Garner Comments

Dear Mr. Midkiff:

This letter presents an official list of the Town of Garner concerns regarding the above referenced matter. The following points are major reasons why the Town of Garner believes why the North Carolina Department of Transportation should remove the red and lilac corridors from further study.

1. **The red corridor is extremely detrimental to current and future parks and recreation facilities in the Town of Garner.**

   The red corridor impacts the northern edge of the recently opened **White Deer Nature Park**, the Town's first LEED Gold certified facility. This is a passive park facility with an environmental education center, trails, picnic shelters, and playgrounds.

   The red corridor will also obstruct and wipe out a portion of the **South Garner Greenway** leading from Timber Drive to **White Deer Park**. This greenway facility connects 4.2 miles of a neighborhood loop sidewalk in central Garner with a 2.8 mile greenway trail through **White Deer and Lake Benson Parks**. The red corridor completely severs the pedestrian connection between these parks and the 4.2 mile sidewalk loop serving hundreds of homes in central Garner.

   The red route obliterates and eliminates **George W. Bryan Nature Park**. Bryan Nature Park is a 20-acre nature park facility located east of Highway 50 near the South Creek neighborhood.

   The red corridor will also impede and negatively impact the Town's 35-acre **Timber Drive Park property**, designated as a future site of an aquatics facility and/or community center.

The **Triangle Area YMCA** owns a tract of land on Aversboro Road that will be the location of a new Poole Family YMCA. The plans have been submitted to the Town for review. Construction is planned to begin in 2016. The red corridor will impact this property's availability for use as a community recreation facility.

2. **The red corridor will disrupt long-range and orderly growth in areas designated for future development by the Town's *Comprehensive Growth Plan*.**

   The Town's major future growth area is generally referred to as the White Oak area. It lies south of US 70, west of I-40, east of Highway 50, and north of Clifford Road. Significant infrastructure investment and planning decisions have been made to promote future growth and development in this area. Capital investments of over 3 million dollars have been made in roads, major water lines, and sewer trunk lines in this portion of the community to support future development. Tremendous uncertainty exists if the red corridor effectively bisects this future growth district.

   The Town's ***Comprehensive Growth Plan*** and the ***2010 Garner Transportation Plan*** both recommend a new interchange at I-40 and White Oak Road to serve an emerging Regional White Oak Mixed Use Center. The red corridor would likely prevent this future interchange from ever occurring while creating some challenges for future growth in this important section of Town that will require significant additional study if the red corridor is selected.

3. **The red corridor severely damages the Town's primary industrial recruitment area.**

   The red corridor obliterates **Greenfield South Business Park**, one of Garner's premiere locations for jobs and industry. As a result, the red corridor will create a loss of significant tax base and the community will witness the demise of an area that has been programmed for non-residential growth that is vital to the Town.

   In 2015, 151 acres of this park was inducted in to the Duke Site Readiness Program. This program helps communities, such as Garner, develop their economic development assets by providing professional assistance and counsel on how to make properties market ready for development. This site has potential to be one of Garner's largest employment centers and will play a key role to a brighter economic future for our community. The Red Route, if chosen, would have a tremendous negative impact on this site rendering the Town's and our partner's efforts in developing one of the largest contiguous sites in Wake County and make it unsuitable for large industrial and commercial development.

   There are 26 commercial/industrial lots (developed & vacant) impacted by the red corridor with a total Wake County tax value of over 30 million dollars.

4. **The red corridor splits and disconnects the Town of Garner again.**

   US Highway 70 split the Town of Garner and literally divided the town into two sections in the 1950's. The community has been striving to recover from this poor

planning decision since that time. Garner cannot afford to be divided again by a road as large as the Triangle Expressway. If the orange protected corridor is selected as the preferred route, the Town can naturally grow towards the new expressway in a managed fashion over the next 25-35 years. Deference should be given to wise long-range planning as exemplified in the protected orange corridor route.

5. **The red corridor will have negative water quality impacts to Lake Benson.**

   The red corridor crosses into portions of the critical areas of **Lake Benson** and **Swift Creek**. The corridor is located immediately upstream of Lake Benson and crosses the majority of the tributaries feeding the lake. This location and proximity would increase the likelihood of potential drinking water contamination. Any spill from a roadway disaster would drain directly into Lake Benson. With the completion of the $90 million **Dempsey Benton Water Treatment Plant**, this lake serves as a substantial potable water supply for the Metro Raleigh area.

   Correspondingly, the road construction impact on **Lake Benson** is an area of concern with the red corridor. The aforementioned proximity and drainage flow direction could lead to lake contamination and/or potential reduction in the safe yield of the lake due to potential sedimentation as a result of the construction process.

   In addition to the lake itself the red corridor will negatively impact the existing water transmission and distribution infrastructure associated with the new water treatment plant. This is also a concern for the existing wastewater collection infrastructure located in the red corridor.

6. **The red corridor fails to provide adequate access to the Clayton Bypass facility.**

   The red corridor fails to provide efficient and effective transportation by not directly servicing traffic generation from the Clayton, Smithfield, Selma and the eastern Johnston County region.

   Pushing traffic via a more northern route as depicted by the red corridor does not accomplish needed goals of accommodating travelers from areas south of Garner that need to travel westward towards Holly Springs, Morrisville and Research Triangle Park.

   The red corridor also puts an interchange that would be just over one mile from the existing I-40/US 70 interchange. This would appear to create difficulty for proper traffic circulation and flow for the traveling public.

7. **The red corridor will have significant and direct impacts on thirteen (13) Garner neighborhoods.**

   The following neighborhoods are directly impacted by the red corridor: Lakewood; Heather Hills; Breezeway; Vandora Pines; Camelot; Breezeway West; Breezeway East; Summer's Walk; Van Story Hills; Heather Ridge; Heather Woods, Forest Landing; and the Village at Aversboro.

We estimate approximately 510 residential lots in Garner could be impacted by the red corridor representing a tax value of over $106,500,000. This represents a significant cost to the Garner community in terms displacement and relocation of numerous families but also a significant impact to our tax base.

8. **The following points summarize the Town's concerns regarding the lilac corridor, especially the portions nearest the Garner Town Limits:**

    - It would remove significant portions of the Town's industrial tax base;
    - It causes a large number of residential relocations for persons in the Greater Garner area;
    - It traverses directly through a City of Raleigh Wastewater Biosolids facility located just south of the Garner Town Limits;
    - It changes land use for a large segment of our Town's future growth area and;
    - It fails to connect directly with the Clayton Bypass.

The Town of Garner is fundamentally opposed to both the red and lilac corridors illustrated on the 2015 Corridor Public Hearing Maps. Therefore, the Town strongly requests that both corridors be eliminated from further consideration at this time. The Town of Garner strongly supports the original protected corridor as illustrated by the Orange Corridor on the 2015 Corridor Public Hearing Maps as the preferred choice for the development and construction of the I-540 Triangle Expressway Southeast Extension. The community has long expected growth along this protected corridor and has planned for it appropriately.

Many land use decisions have been made based upon citizens and community leaders assumptions about the protected corridor and its future use. We respectfully request the North Carolina Department of Transportation's formal and serious consideration of our concerns regarding this matter.

Sincerely,

Ronnie S. Williams
Mayor

Hardin Watkins
Town Manager

cc: Town Council Members

RESOLUTION NO. (2015) 2277

A RESOLUTION STATING THE TOWN OF GARNER TOWN COUNCIL'S POSITION REGARDING ALIGNMNENT OF TRIANGLE EXPRESWAY SOUTHEAST EXTENSION

WHEREAS, the proposed 540 Triangle Expressway has been a fundamental transportation facility underpinning for more than 20 years of local land use and transportation decisions of the Town of Garner and other local governments of Wake County;

WHEREAS, the Town of Garner historically has utilized the protected 540 corridor proposed in earlier designs to make key planning decisions for both existing and future development in Garner; and

WHEREAS, any change in plans to relocate this roadway away from its previously designated location (orange route) will have an adverse impact on the Garner community; and

WHEREAS, the "red" route shown on **2015 Corridor Public Hearing Maps** with a course north of Lake Benson is a very poor land use decision that will cause tremendous disruption to existing homes and businesses in Garner; and

WHEREAS, numerous Garner homeowners and landowners have relied upon the protected corridor route (orange) for many years as they have made investment decisions. A change to the planned route will be burdensome, chaotic, and unfair; and

NOW THEREFORE, BE IT RESOLVED, the Town of Garner would like to see the Triangle Expressway Southeast Extension constructed, however, the Town is fundamentally opposed to the "red route" north of Lake Benson; and

BE IT FURTHER RESOLVED that the Town Council supports use of the original protected corridor design as illustrated in orange on the 2015 Corridor Public Hearing Maps as the preferred choice for the development and construction of the I-540 Triangle Expressway Southeast Extension.

Adopted this 15th day of December 2015.

TOWN OF GARNER CORPORATE SEAL 1905 N.C.
(TOWN SEAL)

Ronnie S. Williams, Mayor

ATTEST:

Stella Gibson, Interim Town Clerk

City Of Raleigh
North Carolina

Nancy McFarlane
Mayor

January 5, 2016

Mr. Jamille Robbins
NC Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1598

SUBJECT: Comments on Draft EIS, Complete 540 Triangle Expressway Southeast Extension

Mr. Robbins,

Transportation options are of utmost importance to the continued success and growth of the Triangle region. The City's Strategic Plan not only focuses on "Transportation & Transit" as one of six key focus areas, but highlights the need for resilient and sustainable public infrastructure in objectives under the "Growth & Natural Resources" and "Economic Development & Innovation" areas. It is with this strategic emphasis on mobility that the City of Raleigh continues to strongly support and encourage the Complete 540 effort by NCDOT and the future construction of the southern and eastern segments of the NC 540 Triangle Expressway. Our City Council reaffirmed the Eastern Wake Expressway (TIP Project R-2829) as its top priority request to NCDOT in your Transportation Improvement Program at our March 17, 2015 meeting.

City staff has reviewed the draft Environmental Impact Statement and its supporting technical reports to better understand the potential impacts associated with each study alternative. The City of Raleigh has concerns over potential impacts highlighted in the document and would like to submit comments on the following color-coded segments evaluated for the freeway corridor:

- **Red Route:** The City is concerned that the Red Route directly impacts the Swift Creek Watershed Area, a critical water source for Raleigh and Wake County residents, as well as the treatment and distribution infrastructure operated by the City in the Garner area. Based on these impacts, the City opposes all alternatives that utilize the Red Route.
- **Lilac Route:** The Lilac Route directly impacts 88.7 acres at our Public Utilities facility located off Wrenn Road, including water treatment sprayfields & at least one of two 25-acre holding ponds. The City opposes all alternatives that use the Lilac route.
- **Green Route**: The Randleigh Farm property represents a significant investment in the future by the City and Wake County as a site for proposed schools and potential development. The Green Route impacts those school sites and twice as much land area on the property,

Telephone: 919.996.3050
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therefore the City opposes alternatives that use this route across the property, unless compelling evidence to the contrary is presented for this alignment.

- **Brown Route**: The Brown Route represents significant impacts to the City's operations at the Neuse River Wastewater Treatment Plant (NRWWTP), including more than 80 acres of sprayfields and biosolids application fields and potentially the facility guardhouse. The route would also require the relocation of the City/County Law Enforcement Training Center shooting range where officers train to serve and protect the city's and county's residents. Based these impacts and potential impact to the City's solar array located near Brownfield Road, the City opposes alternatives that use the Brown Route north of Old Baucom Road.

The City would also like to express concern that the draft EIS and Utilities Impact technical report do not account for numerous water and sewer lines serving Garner, Wendell, and Raleigh that cross the corridor. These include a 30" force main along Raynor and Auburn-Knightdale Roads and two 72" mains along the Neuse River serving the NRWWTP, as well as a planned 96" line to the plant. The City will need to retain access in the project corridor to maintain and repair those lines in their current locations. The City requests NCDOT to update the Utility Impact Report and draft EIS to (a) identify impacts to water and sewer infrastructure on all routes and (b) revise or account for those impacts in future designs for the expressway.

The City also requests NCDOT consider alternative designs for the Auburn-Knightdale Road interchange. The existing designs do not account for the Hodge Road extension as shown in Raleigh and CAMPO transportation plans. The City requests NCDOT investigate interchange options that would facilitate the proposed Hodge Road extension to Auburn-Knightdale Road.

In light of these concerns, the City views the Orange Route as the least impactful to City interests and therefore recommends its endorsement as the preferred route for the portion of the Outer Loop west of I-40. East of I-40, the impacts to the City's wastewater treatment operations and the Law Enforcement Training Center (Brown Route) outweigh those impacts to the Randleigh Farm property (Green, Mint, and Tan segments). The Council has taken previous action in January 2011 opposing the Tan Route due to community impacts (see attached). The Mint Route minimizes the impacts to the Randleigh property and proposed school sites, and therefore is the City's preferred route for the Eastern Wake Expressway. Based on these preferred routes and segments, the City endorses Detail Study Alternative 2 as the preferred alternative for this project.

The City would like to thank NCDOT for the opportunity to submit our comments and endorsements based on review of the draft EIS. City staff will be providing additional technical comments on the document and the supporting reports. If you have questions about this letter or the City's comments, please contact Todd Delk at 919-996-2661 or todd.delk@raleighnc.gov.

Sincerely,

Nancy McFarlane

Nancy McFarlane
Mayor

Attachment
NM/td

Cc: Nick Tennyson, NC Secretary of Transportation
Beau Memory, NC Turnpike Authority Executive Director
Joey Hopkins, NCDOT Division 5 Engineer
Jim Hartmann, Wake County Manager
Chris Lukasina, CAMPO Executive Director

City Of Raleigh
North Carolina

Charles Meeker
Mayor

January 11, 2011

David W. Joyner, Executive Director
NC Turnpike Authority
1578 Mail Service Center
Raleigh, NC 27699-1578

SUBJECT: Comments on TIP Project R-2829, Eastern Wake Expressway

Dear Mr. Joyner:

At our January 4, 2011 meeting, the Raleigh City Council received comments from the general public regarding alternatives under consideration for the Southeast Extension of the Triangle Expressway. The portion of your project within the City's jurisdiction falls under TIP Project R-2829 (Eastern Wake Expressway). These residents spoke out specifically in opposition to the Tan Corridor that has been developed by the NC Turnpike Authority for this segment of the project.

I understand that your project team has met with City staff from multiple departments on several occasions to discuss alignment issues along the Eastern Wake Expressway. Working out the details on a final alignment for this corridor has been a priority for the City for many years, especially with regards to getting out ahead of growth in this area and providing County residents with improved predictability.

The City Council voted unanimously to oppose the Tan Corridor as it is currently proposed, and we have requested that City staff continue to work with your project team to develop viable alternatives for consideration in your Environmental Impact Statement (EIS). We understand that the EIS process is technical in nature, but we urge you continue to take the concerns of area residents into account as you proceed with your study. The completion of the Eastern Wake Expressway as part of the larger Raleigh Outer Loop is important to the continued growth of the City and its neighboring communities. We appreciate the efforts of the Turnpike Authority to move this project forward.

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If you have additional questions about our comments, please contact Eric Lamb at (919) 516-2161 or by email at eric.lamb@raleighnc.gov.

Sincerely,

Charles C. Meeker
Mayor

CCM/ejl

Cc: City Councilors
J. Russell Allen – Raleigh City Manager
David Cooke – Wake County Manager
Mitchell Silver, AICP – Raleigh Planning Director
Carl R. Dawson, Jr., PE – Raleigh Public Works Director
Brad Bass, AICP –Garner Planning Director

City of Raleigh
North Carolina

January 8, 2016

MEMORANDUM

TO: Mr. Jamille Robbins, PE, NCDOT

FROM: Todd Delk, PE, Senior Planning Engineer

RE: Comments on NC 540 Draft Environmental Impact Statement

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the Complete 540 project. As stated in the Mayor's letter to NCDOT, staff from multiple City departments have coordinated to review the document and its supporting technical reports in order to better understand the findings and potential impacts associated each study alternative.

City staff has concerns over the potentially major impacts to City facilities, operations, and other interests within our planning jurisdiction as outlined below.

PUBLIC UTILITIES

Water Supply Infrastructure: The Red Route (Alternatives 6, 7) directly impacts numerous City of Raleigh water transmission/distribution mains, particularly where the City provides service in the Garner area & near Dempsey Benton Treatment Plant. While some of these impacts may be below the $250,000 relocation cost threshold to be reported in the Utility Impact report, discussion of the impacts are not acknowledged nor accounted for in DEIS or Utility Impact Report.

The Red Route also directly impacts 6.7 acres of critical watershed area for Swift Creek and Lake Benson, the primary water source for the City's Dempsey Benton Water Treatment Plant. As noted in the DEIS, the watershed is managed through a NCDEQ management plan adopted by General Assembly in 1998 to limit development and protect water quality. The City would request to be part of the "extensive coordination with NCDEQ & USEPA officials to reach agreement for protection" noted in the DEIS.

Sewer Infrastructure: The DEIS and Utility Impact Report fails to identify several major sewer pipelines that will be impacted by Triangle Expressway Southeast Extension:

- The Red Route crosses the NC Highway 50 sewer force main (30") adjacent to Raynor Road. Designs for the NC 540 overpass at this location will need to ensure future access to the line for operations and maintenance.
- The Green, Mint, Tan, and Brown Routes all cross two parallel 72" sewer interceptors located south of the Neuse River. The City is also planning for a future 96" interceptor

north of the Neuse River to serve the Neuse River Wastewater Treatment Plant (NRWWTP). The lines are not accounted for in DEIS or Utility Impact Report and the current roadway designs will require revisions to provide access for operation and maintenance of the lines. Due to the volume handled by the existing interceptors, relocations are not advised.

Water Treatment Sprayfields & Holding Ponds at Wrenn Road Facility: The DEIS and Utility Impact Report identify the Orange Route (Alts. 1-5) directly impacts 10.8 acres of water treatment sprayfields on the site, and the Lilac Route (Alts. 8-17) directly impacts 88.7 acres including water treatment sprayfields & at least one of two 25-acre holding ponds. Based on the designs shown in the public hearing maps, we request confirmation that the Lilac Route would avoid impacts to either holding pond.

Wastewater Sprayfields, Biosolids Fields, and facilities at NRWWTP: The DEIS and Utility Impact Report identify that the Teal and Brown routes (Alts. 4, 5, 11, 12, 16, 17) would directly impact 81.5 and 87.2 acres, respectively, of wastewater treatment sprayfields & permitted biosolids application fields, as well as agricultural activities on fields.

Not noted in the DEIS, the Brown Route may also impact the NRWWTP facility guardhouse located on Battle Bridge Road and a city-owned solar array southeast of the intersection of Brown Field and Battle Bridge Roads.

Based on the impacts above, the City of Raleigh Public Utilities Department requests a coordination meeting with NCDOT and its consultants to discuss utility impacts along the routes listed above. The City also requests that the Utility Impact Report, as well as the subsequent information and cost estimates reported in the DEIS, be updated to include the Public Utilities Department in the Utility Contact Lists and to include those water and sewer infrastructure impacts overlooked in the report's analysis.

COMMUNITY IMPACTS

Randleigh Farm property: The DEIS identifies that the Green Route (Alts. 1, 6, 8, 13) impacts 62.1 of 415-acre site owned by the City and Wake County for future development. The route effectively bisects the property, and impacts two proposed Wake County Public School System school sites. The Tan and Mint Routes (Alts. 2, 3, 9, 10, 14, 15) reduce the impacts to Randleigh Farm by nearly half with little or no impact to proposed school sites.

City/County Law Enforcement Training Facility: The Brown Route (Alts. 4, 5, 11, 12, 16, 17) directly impacts the 9.14 acres of public safety training campus, including a 42-lane outdoor firing range and a live-fire shoot house facility. While the DEIS states that the facility "could likely still function in its current use," the loss of the firing ranges would significantly impact training and certification activities that take place on the site, according to the Raleigh Police Department.

Neuse River Greenway Trail: The Mint, Tan, and Brown Routes (Alts. 2, 3, 7, 9, 10, 14, 15) all relocate the Neuse River Greenway Trail through a culvert under the proposed expressway. If one of these routes is chosen, the City requests that NCDOT investigate bridging options where the greenway and the sewer lines discussed earlier in the Public Utilities section could be co-located. With the Brown Route, staff from the Parks, Recreation, and Cultural Resources

(PRCR) Department has no objection to the proposed relocation of the greenway to the east side of NC 540 from its current location adjacent to Brown Field Road.

PRCR staff requests that the design plans account for all future greenway corridors in municipal plans crossing the NC 540 alignment and consider the provision of greenways or easements within the future rights-of-way to link these crossings.

Cemetery: Please note there is a cemetery located on the east side of 2898 Brown Field Road. This is a potential impact that should be accounted for in the DEIS.

Residential relocations associated with Tan Route: City Council took action in January 2011 opposing the Tan Route due to community impacts. The letter to NCDOT is attached to the Mayor's letter.

TRANSPORTATION

Hodge Road Extension: The DEIS fails to acknowledge the planned extension of Hodge Road, which is shown as a proposed major thoroughfare in the adopted CAMPO Comprehensive Transportation Plan and as a proposed four-lane avenue in the City of Raleigh's 2030 Comprehensive Plan. For all of the eastern routes except the Brown Route, the DEIS and designs should account for this proposed street extension. The interchange design plans at/near Auburn-Knightdale Road should be revised to better facilitate the proposed street connection, with consideration of moving the southbound ramps from the northwest quadrant to the southwest quadrant that could align opposite from the Hodge Road extension at Auburn-Knightdale Road.

INDIRECT AND CUMULATIVE IMPACTS

The City's Long Range Planning staff concurs with the findings that the Red and Purple/Blue routes would encourage development patterns different from those envisioned in the local plans of our neighboring communities. The City has concerns that the Red Route would encourage and induce more development in the Swift Creek Watershed, potentially impacting water quality and increasing water treatment costs for the City. The City has concerns that the Purple/Blue Route will encourage more suburban growth patterns counter to area land use plans, increasing regional VMT and congestion.

OTHER DEIS COMMENTS

One page 15, please note and describe what scenario the 2035 network figure represents (Existing Network, Existing Network + Committed Projects, MTP, or other scenario).

On page 40, the discussion that the capital, operating, and maintenance costs of transit improvements not being fully funded by the fares is not valid when discussing the proposed tollway improvements where the construction, operations, and maintenance of the facility will not be covered by toll revenues and require gap funding.

Again, thank you for the opportunity to provide comments on the DEIS. If you have questions or need clarification on our comments, please contact me at 919-996-2661 or at todd.delk@raleighnc.gov.

Cc: Tansy Hayward – Assistant City Manager
Ken Bowers – City Planning Director
Eric Lamb – Transportation Planning Manager
Robert Massengill – Public Utilities Director
Diane Sauer – Parks, Recreation & Community Resources Director
Joseph Perry – Deputy Chief, Raleigh Police Department
Mike Kennon – Traffic Operations Manager, Public Works

TOWN OF BENSON
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Mr. Jamille Robbins
Complete 540 Project
NC Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1598

January 7, 2016

Dear Mr. Robbins,

Thank you for your consideration of our support for the Complete 540 Project. The Town of Benson is committed to the vitality of its citizens and sustainable planning and development. The Complete 540 Project is an important component to the ease of access and quality of life for our citizens and businesses. While no one route is devoid of impacting the natural and human environments, construction of the route is necessary with increased growth and traffic congestion in the Triangle region.

Benson supports the proposed "orange" corridor. This corridor would assist our citizens that work in Wake County and RTP by decreasing their commute time. Furthermore, truck traffic heading west from Benson will find the "orange" corridor less encumbering than traveling through I-40 during peak commute times.

We will continue to follow information related to Complete 540 as it becomes available. This project plays a critical role in our strategic planning efforts and we look forward to its construction. If you have any questions or comments, please do not hesitate to contact us.

Best Regards,

Karissa Bergene

Karissa Bergene
Economic Development Director
Town of Benson
kbergene@townofbenson.com

From: Tyler Bray <Tyler.Bray@townofcary.org> on behalf of Tyler Bray
Sent: Thursday, January 7, 2016 2:13 PM
To: complete540@ncdot.gov
Subject: DRAFT EIS Comments: Town of Cary

Greetings,
The following comments are submitted on the Complete540 DRAFT EIS to NCDOT from the Town of Cary. If you have any questions or need additional information, please do not hesitate to contact me.
Thank you,
Tyler Bray

- Page 31: The heading at the bottom of the page should be moved to the top of the next page.
- Page 32: The heading on the bottom left should be moved to the top right.
- Page 73: There should be a dash '-' after the word Services instead of a period '.'.
- Page 81: The word 'are' in the last paragraph should read 'area'.
- Page 87: The heading is missing the word 'on'.
- There are two greenways in the Town of Cary that are affected by the proposed Orange Route. They are the Optimist Farm Greenway and the Camp Branch Greenway. Please ensure that connections are shown and constructed so that these greenways will be accommodated with a grade separation across/under NC540 if it is designed/constructed in this location. The Town of Cary specifications calls for culverts with this recommendation to be a 12'x12' box culvert poured in place.

Tyler Bray, PE
Transportation Planning Engineer
Transportation & Facilities Department
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City of Raleigh
North Carolina

March 17, 2016

Via Electronic and USPS Delivery

Mr. Rodger Rochelle, PE
NCDOT - Administrator of Technical Services Division
1516 Mail Service Center
Raleigh, NC 27699-1516

RE: Clarification of Importance of the City of Raleigh Wastewater Treatment Facilities within the Triangle Expressway Southeast Extension (Complete 540) Corridors

Dear Mr. Rochelle,

Please accept this correspondence restating and expanding on our prior comments regarding the importance of existing wastewater treatment facilities which will potentially be impacted by the Triangle Expressway Southeast Extension (Complete 540) project (STIP Nos. R-2721, R-2828, R-2829).

City staff provided written comments in January 2016 on the Draft Environmental Impact Statement (EIS) for the project and further explanation of those comments at the March 3, 2016 meeting between the City, the North Carolina Department of Transportation (NCDOT), the United States Army Corps of Engineers (USACE), the Federal Highway Administration (FHWA) and supporting consultants. The Orange, Lilac, Teal, and Brown corridor segments have various, sometimes significant impacts on the City investments in regional wastewater and water treatment facilities located within the general corridors under consideration for the Triangle Expressway Southeast Extension (Complete 540). Some of those impacts (Lilac, Teal and Brown corridor segments) may jeopardize the current and long-term ability of the City to provide both potable water and domestic wastewater treatment services.

The City of Raleigh Public Utilities Department (CORPUD) is the *regional utility* that unites the municipalities of Garner, Knightdale, Rolesville, Wake Forest, Wendell and Zebulon with the City itself and our collective 530,000 citizens, customers, businesses and institutions. The most important mission of this regional utility is to meet our collective water and sewer resource needs today and into the future. The current facilities are uniquely situated to meet this and other important missions of CORPUD. The facility locations were well-established and are resources that may be impossible to replicate. The

facilities impacted by STIP Nos. R-2828, R-2829, the Wrenn Road Spray Irrigation Facility (WRSIF) and Neuse River Resource Recovery Facility (or NRRRF, formally the Neuse River Wastewater Treatment Plant), are critically important to meeting those regional needs.

As noted in the Draft EIS, the WRSIF is a 600-acre site that is made up of receiving and holding ponds, a liquid distribution or "spray" system and receiving agricultural fields. The facility is dedicated to the disposal of industrial discharge from the D.E. Benton Water Treatment Plant (DEBWTP). Opened in 2010, the DEBWTP is one of the most advanced potable water treatment facilities of its size and type in Southeastern United States. Collecting water from the impaired Swift Creek watershed (Lake Benson and Lake Wheeler) and with a maximum treatment capacity of 20 million gallons per day (mgd), this facility was designed with emerging contaminates of concern in mind. In fact, in the future this facility may receive treated effluent from the NRRRF to use as supplemental source water. The impaired status of the Neuse Estuary for nitrogen loading makes it necessary that the City have capacity for land application rather than having to use scarce nitrogen credits for a discharge. In addition, the Endangered Species Protection for the dwarf wedgemussel population in Swift Creek prevents a discharge of evenly highly treated wastewater to surface waters from the DEBWTP.

The DEBWTP, like all potable water treatment facilities, produces as industrial wastewater discharge made up of water treatment coagulants and the organic/inorganic constituents removed from the source water. This industrial waste, which can represent 5-10% of total treated flow, must have a final disposal option; said another way, a potable water treatment plant cannot operate without an approved, permitted disposal site for its industrial waste. The WRSIF is the approved, permitted disposal option for the industrial waste produced by the DEBWTP. There are no readily available alternatives in terms of land or point source disposal. Because this industrial waste contains organic matter, it is a source of nitrogen and any point source disposal option would require a nitrogen allocation; something that is not readily available in the Neuse River basin at this time. The "Lilac" corridor segment directly impacts 88.7 acres of the WRSIF, including the treatment sprayfields and at least one of two 25-acre holding ponds, effectively removing the facility from operation. The "Orange" corridor segment will still directly impact 10.8 acres of the WRSIF, but will avoid the collection and spray irrigation components of the facility. The City has both limited time and resources to evaluate the potential costs associated with the loss of this facility, but staff considers the estimates provided in the Draft EIS to be on the extreme low end of the probable range of costs, as the Utility Impact Report cited in the Draft EIS underestimates utility impacts, in terms of number, location size and criticality, in its evaluation of water and sewer infrastructure. For the City, this raise concerns regarding the accuracy of impact estimates related to water and sewer infrastructure.

Alternative disposal options are not readily available around or near the DEBWTP or the WRSIF, necessitating off site acquisition, permitting and construction cost of unknown magnitude. Complicating the matter, the City of Raleigh may not purchase or acquire through eminent domain land in Johnston County without the express permission of the Johnston County Commissioners, further limiting alternatives (N.C.G.S. 153A-15). Accordingly any proposed mitigation of this impact by substitute fields may require use of the eminent domain powers of NCDOT.

Also noted in the Draft DEIS, the NRRRF is a 60 mgd advanced biological treatment facility which is in the final stages of an expansion to 75 mgd. This facility receives and processes up to 90% of the wastewater generated by the regional utility customer base, is 49% percent of the 7Q10 of the Neuse

River at discharge and is subject to stringent effluent standards for nutrients as a result of the Neuse River Estuary Nutrient Management Strategy and Total Maximum Daily Load (TMDL) for nitrogen. Service area wide studies in August, 2008 (CDM/Hazen and Sawyer) and August, 2014 (Black & Veatch) confirmed 2040 projected flows for this facility of 86.95 mgd, with preliminary engineering reports for the ongoing expansion (February 2009, CDM/Hazen and Sawyer) and current water supply planning (December 2015, Hazen and Sawyer) supporting the assumption of 50-year flows in the range of 90-115 mgd. The facility produces Type II quality reclaimed water for distribution off site and reclaimed water is utilized on site in an ever expanding spray irrigation system on approximately 300 acres of the 1,100 acre facility.

Currently, the facility is permitted as a *non-conjunctive* use, meaning the utilization of reclaimed water either off site or on site as irrigation for the farming activities is not necessary for compliance with the facility's National Pollution Discharge Elimination System (NPDES) permit. However, as the NRRRF discharge comprises 49% of the 7Q10 today and further expansions will only increase that ratio, it is possible, even probable, that the City will need to exercise a *conjunctive* wastewater disposal option to continue to meet the projected needs of the regional utility in an ever evolving regulatory climate. The City recently selected Black & Veatch Consultants to lead a wastewater master plan that will include the consideration of conjunctive use options for future compliance challenges.

The Draft EIS notes direct impacts by the "Brown" route equal to 87.2 acres of the NRRRF, with most acreage composed of sprayfields and biosolid or residual land application sites. The Utility Impact Report cited in the Draft EIS didn't assess planned future use of this acreage in the context of regional wastewater treatment. The City has both limited time and resources to evaluate the potential costs associated with the loss of this acreage at this facility but staff considers the estimates provided in the Draft EIS to be on the extreme low end of probable range of costs for replacement of land for both biosolids application and sprayfields suitable for conjunctive wastewater disposal. The Utility Impact Report cited in the Draft EIS underestimates utility impacts in its evaluation. For the City, this raise concerns regarding the accuracy of impact estimates related to water and sewer infrastructure.

As stated before, alternative disposal options are not readily available around or near the facility, necessitating off site acquisition, permitting and construction. Complicating the matter, the City of Raleigh may not purchase or acquire through eminent domain land in Johnston County without the express permission of the Johnston County Commissioners, further limiting alternatives (N.C.G.S. 153A-15). Accordingly any proposed mitigation of this impact by substitute fields may require use of the eminent domain powers of NCDOT.

In conclusion, it is the opinion of staff at the City of Raleigh that the effects of certain routes on the operations and future utilization of the WRSIF and the NRRRF have been underestimated in terms of regional impact and cost. If a preferred alternative is selected that includes the Red, Lilac, or Brown corridor segments, the City will request and require that information concerning impacts and relocation being fully addressed in the final EIS, and that any final determination of LEDPA be held until more complete information can be adequately reviewed and vetted by all involved agencies. We thank NCDOT, FHWA and USACE for the opportunity to offer this correspondence clarifying the importance of existing wastewater treatment facilities within the Triangle Expressway Southeast Extension (Complete 540) corridors.

Respectfully Submitted,

Kenneth R. Waldroup, P.E.
Assistant Public Utilities Director

Todd B. Delk, P.E.
Senior Planning Engineer, City Planning

Cc: Tansy Hayward, Assistant City Manager
Robert Massengill, P.E. Public Utilities Director
Aaron Brower, P.E. Assistant Public Utilities Director
TJ Lynch, P.E. Assistant Public Utilities Director
Daniel F. McLawhorn, Associate City Attorney
Kenneth Bowers, AICP, City Planning Director
Eric Lamb, P.E., Transportation Planning Manager
Rob Hanson, P.E., NCDOT Project Development and Environmental Analysis
Brian Yamamoto, P.E., NCDOT Project Development and Environmental Analysis
Nora McCann, NCDOT Project Development and Environmental Analysis
Eric Alsmeyer, US Army Corps of Engineers
Donnie Brew, Federal Highway Administration

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

November 25, 2015

Richard W. Hancock, PE
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

This letter is in response to your November 13, 2015 letter which requested comments from the U.S. Fish and Wildlife Service (Service) on the Federal Draft Environmental Impact Statement (DEIS) for the Complete 540 Triangle Expressway Southeast Extension in Wake and Johnston Counties, North Carolina (TIP Nos. R-2721, R-2828, R-2829). These comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

The North Carolina Department of Transportation (NCDOT) and Federal Highway Administration (FHWA) propose to build a new, limited-access highway from NC 55 in Apex to US 64/US 264 Bypass (I-495) in Knightdale – a distance of approximately 27 miles. The Complete 540 project would complete the I-540 outer loop that currently exists on the north and west sides of Raleigh.

General Comments

Overall, the project will have very substantial impacts on fish and wildlife resources, including impacts to streams, wetlands, upland forest and other habitat types. These impacts will be in the form of direct loss of habitat and habitat fragmentation effects on remaining habitat. Although these habitats are already fragmented by suburban development and other land uses in the project area, additional cumulative habitat fragmentation effects will occur. In addition, indirect habitat loss is expected due to secondary development induced by the new road facility.

Comments on the Dwarf Wedgemussel

In previous correspondence and during the Service's participation in interagency meetings, the Service has frequently stated its concern regarding the likely adverse effects of the project on the federally endangered dwarf wedgemussel (DWM, *Alasmidonta heterodon*) within the Swift Creek watershed (Neuse River basin). It is anticipated that the FHWA, as the lead federal action agency, will initiate formal Section 7 consultation by submitting to the Service an initiation package which includes a Biological Assessment (BA). In return, the Service will conduct an analysis to determine if the project will jeopardize the continued existence of the DWM and

issue a Biological Opinion (BO). Since there was a significant lack of information needed to develop the Environmental Baseline portions of the BA and BO, the NCDOT and FHWA agreed to fund additional studies within the Swift Creek watershed to fill in the information gaps.

The Service has reviewed the "Dwarf Wedgemussel Viability Study: Phase 1" report and found the information to be very helpful and well presented. The information provided addresses some of the critical information needs we have. However, we understand this information to be an interim report of tasks completed thus far, with subsequent tasks and analysis to be provided at a later date in Phase 2. Conclusive answers to questions regarding the viability of the DWM and its habitat in the Swift Creek watershed are yet forthcoming.

In order to avoid a Jeopardy BO, the action agency must not "engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." In order for the Service to ultimately recover the DWM, the 1993 Dwarf Wedgemussel Recovery Plan requires, among other criteria, that a viable population (i.e. a population containing a sufficient number of reproducing adults to maintain genetic variability and annual recruitment adequate to maintain a stable population) occur in Swift Creek. Therefore, maintaining such a population in the post-project Swift Creek watershed is vitally important. We cannot understate the significance of this issue.

Since the DWM was first discovered in Swift Creek in 1991, rapid development within the watershed below the Lake Benson Dam has severely impacted the DWM. Mussel survey data from this timeframe shows a declining catch per unit effort (CPUE), implying a declining population. Although preliminary indicators of the long-term viability of the DWM in Swift Creek are mixed, one positive note is the evidence of recent reproduction. However, it is unclear whether this reproduction is sufficient to maintain population viability.

A North Carolina DWM work group has concluded that population augmentation through captive propagation is an essential component of management strategies to ensure DWM persistence in North Carolina (Smith et al. 2015). This is especially true with the population in Swift Creek where the Allee effect (high risk of demographic extirpation due to low population abundance and lack of dispersal) is one of the major limiting factors of population viability.

Though much of the technical and procedural knowledge for propagating DWM has previously been developed (Beck and Neves 2001), the Service and our partners lack a dedicated facility and staff to conduct DWM propagation on a large scale. As stated on page 95 of the DEIS, targeted efforts to propagate the DWM and augment the existing population in Swift Creek could improve the chances of maintaining the species' viability in the watershed. As a project conservation measure, the Service recommends that the NCDOT and FHWA provide assistance in developing a dedicated captive propagation facility in order to produce DWMs for augmenting the declining population within Swift Creek. The ability, or the lack thereof, to propagate DWMs and augment the population in Swift Creek will factor significantly in our analysis to determine whether the Complete 540 project will jeopardize the continued existence of the species.

Comments on Alternatives

Detailed study alternatives that include the Red Corridor segment clearly have the lowest impacts on wetlands and streams. The Red Corridor would have the least direct and indirect effects on the DWM and its habitat since it crosses Swift Creek upstream of Lake Benson – outside the known range of the species in the watershed. However, the Service acknowledges and understands the intense opposition to the Red Corridor segment due to its disproportionate impacts on the human environment.

Detailed study alternatives that include the Orange Corridor segment, being the protected corridor with right-of-way purchases made many years ago prior to any comprehensive environmental analysis, greatly minimize impacts to the human environment. However, the Orange Corridor segment has great potential to adversely affect the DWM since it crosses Swift Creek, tributaries to Swift Creek, and a significant portion of the watershed all downstream of Lake Benson – within the known occupied range of the species. The Orange Corridor segment connects to I-40 at a particularly unfavorable location for the DWM. This location puts the interchanges with I-40 and US 70 Bypass on top of several tributaries to Swift Creek and also is in close proximity to the Swift Creek main stem. The DWM is at risk from direct effects associated with construction of the project (e.g. erosion and siltation from construction) and from indirect effects associated with the degradation of water quality from secondary development induced by the new road. Increased impervious surface and storm water runoff from additional development would likely further degrade the water quality of Swift Creek and its tributaries. Also, other proposed projects within the study area such as the proposed widening of I-40 (TIP No. I-5111) and bridge replacements on Swift Creek could cumulatively contribute to a decline in habitat quality for the DWM. The Service finds the Orange Corridor very problematic.

Detailed study alternatives that include the Lilac Corridor segment would have very similar, albeit somewhat lesser adverse effects on the DWM. These somewhat lesser effects would be due to the fact that the interchange with I-40 would be farther removed from Swift Creek and its tributaries.

Other Species

The DEIS renders a biological conclusion of "no effect" for the federally endangered red-cockaded woodpecker (*Picoides borealis*) and Michaux's sumac (*Rhus michauxii*). Based on the survey results, the Service concurs with these "no effect" conclusions. The DEIS renders a "May Affect, Likely to Adversely Affect" conclusion for the northern long-eared bat (*Myotis septentrionalis*). As stated in the DEIS, formal Section 7 consultation has already been completed for this species through a Programmatic Biological Opinion adopted on May 4, 2015. As stated in the DEIS, Section 7 is yet unresolved for the DWM and Tar River spinymussel (*Elliptio steinstansana*). However, the Service believes that the project is unlikely to have adverse effects on the Tar River spinymussel.

There is a possibility that up to three additional mussel species may be listed as federally endangered or threatened prior to the completion of the Complete 540 project – the Atlantic pigtoe (*Fusconaia masoni*), yellow lance (*Elliptio lanceolata*), and green floater (*Lasmigona subviridis*). Conclusions and recommendations for the dwarf wedgemussel may be relevant to these additional species. In addition, the Carolina madtom (*Noturus furiosus,* a fish species) and

the Neuse River waterdog (*Necturus lewisi,* an amphibian) may also be federally listed as threatened or endangered prior to the completion of the project.

Other Miscellaneous Comments

Page 29 states "...the dwarf wedgemussel...could be directly affected by the proposed project." While true, the Service believes that indirect effects from road-induced development are the greater concern.

Page 97 incorrectly states "An incidental take is when a non-federal activity will result in the loss, or "take" of a threatened or endangered animal." As per 50 CFR 17.3, an incidental take is "any taking otherwise prohibited, if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." For the purposes of Section 7, this would only include federal activities. For Section 10 of the ESA, incidental take would only include non-federal activities.

The Clemmons Educational State Forest is referenced several times in the DEIS. The Service prefers that this forest not be impacted. At only 825 acres, this state forest is relatively small and already exists in a fragmented context. Even small impacts to this forest could substantially degrade the wildlife habitat value of this public land.

The Service believes that this DEIS and its accompanying technical reports adequately address the existing fish and wildlife resources, the waters and wetlands of the United States, and the potential impacts of this proposed project on these resources. The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,

Gary Jordan

for Pete Benjamin
Field Supervisor

Literature cited:

Beck, K.M. and R.J. Neves. 2001. Propagation studies of the endangered dwarf wedgemussel. Final Report to the North Carolina Department of Transportation, Raleigh, NC. 63 pp.

Smith, D.R., S.E. McRae, T. Augspurger, J.A. Ratcliffe, R.B. Nichols, C.B. Eads, T. Savidge, and A.E. Bogan. 2015. Developing a conservation strategy to maximize persistence of an endangered freshwater mussel species while considering management effectiveness and cost. Freshwater Science 34(4):000-000.

Electronic copy provided to:

Eric Alsmeyer, USACE, Wake Forest, NC
Cynthia Van Der Wiele, USEPA, Raleigh, NC
Travis Wilson, NCWRC, Creedmoor, NC
George Hoops, FHWA, Raleigh, NC
Donnie Brew, FHWA, Raleigh, NC
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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JAN 04 2016

Mr. Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Re: Federal Draft Environmental Impact Statement (DEIS) and Draft §4(f) Evaluation for the Complete 540 [Triangle Expressway Southeast Extension] Project, Wake and Johnston Counties, North Carolina; ERP No.: FHW-E40852-NC; CEQ No.: 20150323; NC Department of Transportation (NCDOT) TIP Project Nos.: R-2721, R-2828, and R-2829

Dear Mr. Hancock:

The U.S. Environmental Protection Agency Region 4 Office has received and reviewed the subject document and is commenting in accordance with §309 of the Clean Air Act (CAA) and §102(2)(C) of the National Environmental Policy Act (NEPA). The NEPA process provides decision-makers the type and quality of information needed to make informed decisions about where and how to implement the subject project, or whether to proceed with the project at all. The Complete 540 Federal Draft Environmental Impact Statement (DEIS) proposes an approximately 27-mile, 4-lane divided, limited-access toll highway originating at NC 55 in Apex, North Carolina and connecting to US 64/US 264 Bypass (I-495) in Knightdale, North Carolina.

Although this project is not included in the NCDOT's NEPA/§404 Merger process, the EPA staff has been an active participant in the MAP-21 §6002 coordination plan for the proposed project, including purpose and need, detailed study alternatives to be carried forward and alignment review.

The Complete 540 DEIS represents a novel approach to creating a streamlined, reader-friendly document. The EPA welcomes innovative approaches to describe and discuss the proposed actions in a concise and straightforward manner. The primary function of a DEIS is to explain how decisions about the project were made and to convey the information that was used to inform those decisions. Numerous technical reports were cited and linked within the DEIS. However, the information from these reports such as the findings, conclusions, and/or recommendations, which are essential in conveying the basis for decision making, were not included. Thus, the EPA rated the DEIS as 'Environmental Concerns' (EC-2), indicating that our review identified environmental impacts within the project study area that should be avoided in order to fully protect the environment. The '2' rating indicates that the DEIS document does not

contain adequate information in order to sufficiently assess all of the environmental impacts and allowing the EPA to be able to identify an environmentally-preferred alternative.

Climate change could have potential effects on transportation infrastructure. We recommend that the NCDOT, in concert with the Federal Highway Administration (FHWA), incorporate scenarios from the National Climate Assessment (NCA), released by the U.S. Global Change Resource Program[1] as a prediction of how climate change may impact this particular transportation facility. Based on future scenarios, it may be appropriate to incorporate resiliency features to withstand more frequent and/or more intense storm events as well as the impact of temperature extremes on pavement and infrastructure.

Specific technical review comments on the DEIS are enclosed to this letter (See enclosure).The EPA recommends that all of the technical comments in the enclosure be addressed in the Final EIS (FEIS). Additionally, we also recommend that all impacts to the human and natural environment that have not been disclosed in the DEIS or covered in the FEIS be addressed in additional NEPA documentation prior to the issuance of a Record of Decision (ROD).

Dr. Cynthia F. Van Der Wiele, of my staff, will continue to work with you as part of the NCDOT Interagency Team in the identification of reasonable and feasible alternatives. Should you have any questions concerning these comments, please feel free to contact her at: vanderwiele.cynthia@epa.gov or (919) 450-6811. We appreciate the opportunity to comment on the proposed Complete 540 project.

Sincerely,

G. Alan Farmer
Director
Resource Conservation and Restoration Division

Enclosure

cc: John F. Sullivan, III, P.E, FHWA- NC
Eric Alsmeyer, USACE Raleigh Field Office
Gary Jordan, USFWS Raleigh Field Office
Rob Ridings, NCDEQ, DWR
Travis Wilson, NCWRC

[1] http://nca2014.globalchange.gov/

ENCLOSURE

Draft Environmental Impact Statement
Complete 540 (Triangle Expressway Southeast Extension) Project
Wake and Johnston County
ERP No.: FHW- E40852-NC; CEQ No.: 20150323

Potential Impacts from the Proposed Project

The Complete 540 Project assesses 17 Detailed Study Alternatives (DSAs), consisting of 1000-foot corridors on new location—ranging from 25.2 to 32.0 miles in length. Residential relocations range from 234 (DSA 4) to 550 (DSA 9) and business relocations range from 8 (DSA 3 & 4) to 16 (DSAs 8 – 12). Agri-businesses impacted by the project range from none (DSAs 1, 5-7, 13, and 17) to 3 (DSAs 9 – 11), with losses in prime farmland soils ranging from 1,949 acres (DSA 7) to 2,332 acres (DSA 12). The Clean Water Act Section 404 impacts range from 51,582 (DSA 7) to 78,087 linear feet (DSA 10) of streams; 51.4 acres (DSA 7) to 75.6 acres (DSA 1) of wetlands; and 49.0 to 103.4 acres of 100-year floodplains. Cultural resource impacts include up to 2 National Register of Historic Places (NHRP)-listed sites with adverse effects (DSAs 6 and 7) and up to 27.2 acres of impacts to Department of Transportation Act of 1966 §4(f) public parks and recreation facilities. The impacts of this project on floodways, the 500-year floodplain, terrestrial forests, unique farmlands, soils/minerals, greenhouse gases and climate change, community cohesion, future local and regional land use plans, and on Environmental Justice (EJ) communities is unclear. See Comparative Evaluation Matrix on pages 107-109 of the Draft Environmental Impact Statement (DEIS).

Summary

The DEIS did not include an 'Executive Summary' section.

EPA Recommendation: An Executive Summary section is used to succinctly and accurately summarize the EIS including the purpose and need, major conclusions—particularly the environmental impacts of all alternatives (e.g., a table of impacts), areas of controversy, issues raised by agencies and the public, issues to be resolved, and the choice among alternatives and identification of a preferred alternative (CEQ reference 40 CFR §1502.12). It is recommended that an executive summary and table of all key natural and human resource impacts be included in the Final Environmental Impact Statement (FEIS).

Study Overview

Chapter 1 provided an overview and history of the proposed project, including a useful graphic of the project location, and an overview of National Environmental Policy Act (NEPA).

EPA Comment: The study overview chapter is useful for public outreach in explaining the project context.

Project Purpose and Need

Two primary purposes of the Complete 540 project were established: 1) *improve mobility* within or through the study area during peak travel periods, and 2) *reduce forecast[ed] congestion on the existing roadway network* within the project study area.

The needs for the proposed project include: 1) *more route choices* and 2) *congestion on the existing roadway network.*

The Capital Area Metropolitan Planning Organization (CAMPO) notes that the "*Triangle is one of the nation's most sprawling regions…a key challenge is to match our vision for how our communities should grow with the transportation investments to support this growth*" (p. 14 emphasized in red bold). The EPA supports the principles of sustainable community development[2].

EPA Comment: The transportation agencies might wish to consider the potential indirect and cumulative effects from the various alternatives in the identification of a preferred alternative and the potential negative environmental consequences of 'sprawl'.

The Study Area and Its Features

This chapter aims to describe the information collected by the study team.

EPA Recommendations: The DEIS chapter on the affected environment should concisely describe the human and natural environment of the area to be affected by the DSAs under consideration. This chapter should concentrate future planning and documentation effort and attention on important environmental issues, particularly the presence or absence of significant human and natural resources.

The Land Use and Population Characteristics section of the DEIS provides a substantial narrative on suburban development and limited information on community characteristics. The findings, conclusions, and recommendations of the *Community Impact Assessment* (CIA, June 2015) technical report were not included in the DEIS. The CIA and the DEIS both do not provide sufficient information pertaining to the existing land use and demographics. Of primary concern to the EPA regards not including the six (6) demographic indicators for identifying EJ communities[3] (i.e., minority, low-income populations, over 65 years old, under 5 years old, less than a high school education, and linguistically-isolated populations). A summary and/or graphic of EJ populations within the detailed study area should be included in order to be able to fully understand the demographic characteristics within the study area. Additionally, the DEIS also did not include a description, findings, or summary of the study area population's use and consumption of environmental resources, neighborhoods, or reference existing or future land use plans. The CIA report, however, substantiates the fact that while the project itself does not

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[2] See Guiding Principles, http://www.epa.gov/smartgrowth/hud-dot-epa-partnership-sustainable-communities#Livability_Principles.

[3] See: http://www.epa.gov/ejscreen/overview-demographic-indicators-ejscreen

conflict with any local land use plans or with any of the jurisdictions' desired development patterns, each particular DSA would have potentially negative effects on local land use plans and planning objectives (CIA, page E-5).

Tables listing park and recreation facilities, historic properties and districts, and other significant public or semi-public land uses/buildings located within the study area are a useful way of summarizing information in a succinct manner.

The Economic Characteristics section of the DEIS does not provide specificity with regards to median income levels within the study area (i.e., does not include percentages or figures but uses the terms "somewhat higher" or "smaller percentage" and does not identify specific block groups). Similarly, the Racial/Ethnic Percentages section does not provide sufficient information regarding census block groups or concentrations of communities of concern. It is unclear whether there are significant block groups of EJ communities of concern as there was no discussion of this in the chapter. As such, the EPA is unable to make a determination at this time regarding which DSA would have the least impact to EJ communities. The EPA suggests that the transportation agencies consider utilizing the 'EJ Screening and Mapping' tool at: http://www.epa.gov/ejscreen for the FEIS.

The project study area includes 445 jurisdictional streams and 543 jurisdictional wetlands. The DEIS Water Resources section did not include any tabular information summarizing stream or wetlands findings (e.g., NC Stream Assessment Method (NC SAM) and NC Wetland Assessment Method (NC WAM) ratings, water quality class, etc.), or other data regarding the quality and integrity of these systems. Some of this data, however, can be found in the *Waters Report* (September 2014). The EPA recommends that detailed information on jurisdictional resources be included and presented in a comparative form based upon the DSAs in the FEIS.

The DEIS section on Protected Species describes several species that are located within central and/or eastern North Carolina. However, it was unclear as to whether or not there are species of concern present located within the project study area. The referenced *Natural Resources Technical Report* provides some additional detail. The EPA requests that a summary of key protected species and the potential effects based upon the DSAs be included in the FEIS.

This chapter also lacked cross-cutting NEPA information regarding: floodplains (E.O. 11988; 10 CFR Part 1022); natural resources (e.g., timber, soils, minerals, fish, wildlife, etc.; Council on Environmental Quality regulations at 40 CFR §1508.8); prime/unique farmland (Farmland Protection Policy Act of 1981: 7 USC §4201); and migratory birds (Responsibilities of Federal Agencies to Protect Migratory Birds, E.O. 13186). The EPA requests that the transportation agencies include this information in the FEIS and also make it available to resource and permitting agencies during the Interagency Coordination Team meetings.

Detailed Study Alternatives

The DEIS Selection of a Build Alternative was based on several key factors: logical termini/independent utility, roadway design criteria/typical sections, and study alternatives for each section. The range of build alternatives was reduced to seventeen (17) 1,000-foot wide DSA corridors which are comprised of various combinations of 10 discrete color-coded corridor

segments. A substantial portion of the "Orange Corridor" segment was established through right-of-way acquisitions by the NCDOT as a protected corridor for the project in the mid-1990s, in order to protect it from large-scale development. This pre-NEPA action could be regarded as being pre-decisional based upon the information provided in the DEIS. The Orange Corridor crosses a portion of the Swift Creek watershed that provides habitat for the federally-protected Dwarf wedgemussel (*Alasmidonta heterodon*) and has more wetland impacts than the other corridors under consideration.

EPA Recommendations: Color maps of each of the 17 DSAs were included in the DEIS but did not provide the length (mileage) of each alternative. A table of each DSA and how each one compares to the project's purpose and need would facilitate comparison of the alternatives (CEQ reference §1502.14). Although the DEIS describes the color-coded segments, information on each DSA is not provided. Consequently, this makes it difficult for the EPA to fully assess each alternative in a comparable fashion.

From the information provided, DSAs 6 and 7 appear to *most closely* meet the Complete 540's 'Purpose and Need' as these alternatives best facilitate the ability to provide other route choices due to their proximity to other major highways within the existing network (thus, alleviating congestion on existing roadways). DSAs 6 and 7 would be the most viable 'jumping on/off points' to the majority of commuters within the study area. The EPA notes that these alternatives include the "Red Corridor" segment. NC General Assembly Session Laws 2013-94 and 2013-183 removed previous restrictions on considering this segment as reasonable and feasible alternatives that meet the Complete 540's 'Purpose and Need'.

Additionally, the EPA also finds that DSAs 8 – 17 as being very problematic as these alternatives are the most distant from existing road networks and would be less able to meet the 'Purpose and Need' as stated (i.e., increase mobility and reduce congestion on the existing roadway network as a commuter would have to drive substantially further to access the Interstate 540 toll facility). Furthermore, DSAs 8 – 17 would have the most potential induce low-density development in an area that is currently rural/agricultural and have the highest impacts on habitat connectivity, §404 jurisdictional streams and wetlands, threatened/endangered species, farmlands, and residential relocations.

Because all of the 17 DSAs for the Complete 540 project are entirely on new location, the EPA advises that wildlife 'hotspot' areas be fully identified in the FEIS. Furthermore, the EPA encourages additional collaboration with the NC Wildlife Resources Commission (NCWRC) and the U.S. Fish & Wildlife Service (USFWS) to design appropriate underpasses and/or overpasses to reduce large mammal mortality with vehicle collisions, and increase safety and reliability.

Expected Effects of Each Alternative

This chapter aims to describe the DSAs and the resulting direct and indirect impacts on the human and natural environment. The graphics provided facilitate understanding of relocation impacts and neighborhood effects.

EPA Recommendations: The DEIS describes the process for determining the effects and discusses impacts in a general sense, but does not explicitly discuss direct or indirect impacts on:

- future land use and transportation planning
- commercial corridors and nodes
- police, fire, and emergency services (e.g. response times)
- relocations in terms of securing affordable housing; mobility, and access
- community effects (i.e., high benefit from project versus high burden)

With the exception of some EJ issues, most of the impacts of the Complete 540 project can be located within the technical reports provided on a compact disc (CD). The main findings, conclusions, and recommendations from these technical reports would be beneficial to include in the FEIS.

Cultural Resources and Public Facilities: The EPA encourages the transportation agencies to continue coordination efforts to avoid and minimize impacts to parks and recreational facilities and historic properties.

Noise: The EPA understands that a more detailed review of specific noise barrier locations will be performed during the final design process. The EPA encourages the transportation agencies to consider the design and implementation of evergreen roadside vegetation in locations that do not meet the threshold for noise barriers. The use of vegetative roadside screening ameliorates noise impact issues, visual quality impacts, as well as provides some potential beneficial effects for downwind vehicle emissions from near-roadway air pollutants.

Jurisdictional Resources: Impacts to floodways or the 500-year floodplain were not included in the DEIS. Floodways and floodplains are vital to reducing the likelihood of localized flooding during storm events, particularly as the study area continues to urbanize. The EPA environmentally prefers bridges to culverts at major hydraulic crossings. The EPA encourages engineering designs that incorporates resiliency strategies into the Complete 540 project to mitigate the likelihood of flooding in low-lying, flood-prone areas in addition to the identified FEMA 100-year floodplain. Such a design will ensure that the project's 'Purpose and Need' is met with regard to a robust, reliable transportation system as well as potentially mitigate for extreme weather events that are anticipated to increase as a result of climate change.

The EPA environmentally prefers DSAs 6 and 7 as the alternatives as having the least impacts to jurisdictional streams and wetlands based upon the information from the DEIS. DSAs 1 – 4 and 8 – 17 have the highest stream impacts while DSAs 1 – 5 and 15 - 17 have the highest wetland impacts. Further avoidance and minimization during final design should be considered in order to reduce impacts to aquatic resources. The EPA has environmental concerns about the potential impacts from some of the DSAs with respect to the Swift Creek Watershed critical area and streams and wetlands that have higher quality ratings using the NC SAM and the NC WAM methods, respectively.

Protected Species: The EPA encourages further collaboration with the USFWS and the NCWRC during final design to avoid and minimize impacts to threatened and endangered species. There is potential for adverse biological effects as a result of the proposed Complete 540 project.

Several recent studies have examined the use of bridges and culverts as [day and night] bat roosting habitat[4]. The structural design of bridges and culverts with regard to the Northern long-eared bat (*Myotis septentrionalis*) might be considered during final design as a way to benefit and/or promote recovery of the species within the project study area.

Climate Change Adaption: The DEIS did not address climate change/greenhouse gas emissions. We recommend considering climate adaption measures based on how future climate scenarios may impact the proposed project in the FEIS. The National Climate Assessment (NCA) contains scenarios for regions and sectors, including transportation. Using the NCA or other peer review-reviewed climate scenarios to inform alternatives analysis and possible changes to the proposal can improve resilience and preparedness for climate change. Changing climate conditions can affect a proposed project as well as the project's ability to meet the designated purpose and need. For additional information, the transportation agencies may wish to refer to: https://www.whitehouse.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf

[4] See: http://www.icoet.net/downloads/99paper21.pdf

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

December 15, 2015 F/SER47: KH/pw

(Sent via Electronic Mail)

Col. Kevin P. Landers, Commander
U.S. Army Corps of Engineers, Wilmington District
69 Darlington Avenue
Wilmington, North Carolina 28403-1398

Attention: Eric Alsmeyer

Dear Colonel Landers:

NOAA's National Marine Fisheries Service (NMFS) reviewed the public notice for Action ID # SAW-2009-02240[1], dated November 16, 2015. The North Carolina Department of Transportation (NCDOT) is examining alternatives for the Triangle Expressway Southeast Extension – Complete 540 in Wake and Johnston Counties. The Wilmington District is soliciting comments on seventeen (17) alignment alternatives evaluated in a Draft Environmental Impact Statement (DEIS) prepared by the Federal Highway Administration (FHWA), dated November 2, 2015. The proposed expressway is not within areas designated essential fish habitat, and the NMFS offers no comments under the authorities of the Magnuson-Stevens Fishery Conservation and Management Act. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the NMFS provides the following comments and recommendations pursuant to authorities of the Fish and Wildlife Coordination Act.

The NCDOT proposes to complete the outer loop around the greater Raleigh area in Wake and Johnston Counties by connecting the existing NC 540 toll road at NC 55 in Apex to the existing I-540 at the US 64/US 264 Bypass (I-495) in Knightdale, a distance of approximately 27 miles. The proposed project, called the "Triangle Expressway Southeast Extension – Complete 540," would have six travel lanes divided by a 70-foot-wide median, which is consistent with the built portions of NC 540 and I-540. The Triangle Expressway Southeast Extension would be within the Neuse River Basin.

All of the expressway alternatives presented would cross the Neuse River and most would cross Swift Creek. The Neuse River and Swift Creek include spawning, foraging, or migration habitat for American shad (*Alosa sapidissima*), striped bass (*Morone saxatilis*), and American eel (*Anguilla rostrata*). Anthropogenic impacts, including noise disturbance, sediment and toxicant input into streams and rivers, and direct physical injury, are threats to these fish and their habitats. These impacts can directly affect individuals and spawning aggregations as well as permanently eliminate nursery, foraging, and spawning areas. At the ecosystem level, the loss of freshwater wetlands can adversely affect water quality as this habitat filters pollutants and facilitates transport of organic material and impacts to streams can permanently eliminate habitats used by aquatic organisms.

Within the 17 Detailed Study Alternative (DSA), the number of wetland impacts ranges from 111 to 161, the acreage of wetland impacts ranges from 51.4 to 75.6 acres, the number of stream crossings ranges from 106 to 142, and the length of the stream crossings ranges from 51,582 to 78,087 linear feet. All of

[1] The NCDOT 2016-2025 State Transportation Improvement Program (STIP) as project numbers for the work are R-2721, R-2828, and R-2829.

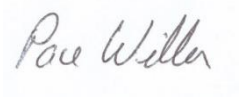
the alternatives presented would require seasonal, in-water work moratoria and other restrictions to avoid and minimize potential impacts to diadromous fish and their habitat.

The NMFS prefers DSA No. 6 or No. 7 because these alignments avoid impacts to shad and striped bass and their habitats in Swift Creek. DSAs No. 6 and No. 7 cross Swift Creek upstream of Lake Benson and the Lake Benson Dam, which represents the upstream limit of these fish in Swift Creek. The NMFS also prefers these alternatives because of the smaller impacts to the Neuse River compared to the other 15 DSAs. Additionally, DSAs No. 6 and No. 7 would impact the fewest wetlands (113 and 111, respectively), least wetland acres (52.0 and 51.4 acres, respectively), fewest streams (109 and 106 crossings, respectively), and fewest stream linear feet (53,014 and 51,582 linear feet, respectively).

In summary, all of the expressway alternatives presented would temporarily and permanently impact streams, wetlands, and open water ponds and would alter or eliminate the functions of these habitats. Selection of DSA No. 6 or No. 7 would avoid and minimize impacts diadromous fish habitat due to the comparatively small impacts to streams, wetlands, ponds, and the Neuse River and the potential avoidance of impacts to shad and striped bass and their habitat in Swift Creek. The NMFS recommends DSA No. 6 or No. 7 as the Least Environmentally Damaging Practicable Alternative (LEDPA).

The NMFS appreciates the opportunity to provide these comments. Please direct related questions or comments to the attention of Keith M. Hanson at our Charleston Area Office, 219 Fort Johnson Road, Charleston, South Carolina 29412-9110, Keith.Hanson@noaa.gov or by phone at (843)762-8622.

Sincerely,



/ for

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

cc: COE, Eric.C.Alsmeyer@usace.army.mil
EPA, Vanderwiele.Cynthia@epa.gov
FWS, Gary.Jordan@fws.gov
NCWRC, Travis.Wilson@ncwildlife.org
F/SER4, David.Dale@noaa.gov
F/SER47, Fritz.Rhode@noaa.gov, Keith.Hanson@noaa.gov

USDA

United States Department of Agriculture

Natural Resources
Conservation Service

North Carolina
State Office

4407 Bland Road
Suite 117
Raleigh, NC 27609
Voice 919-873-2100
Fax 844-325-6833

DEC 17 2015

Mr. Eric Midiff, P.E.
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27601-1418

Dear Mr. Midkiff:

Thank you for providing the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), an opportunity to review and comment on the Draft Environmental Impact Statement *Complete 540 - Triangle Expressway Southeast Extension* (the DEIS).

We have reviewed our records and determined, as of this date, that NRCS:

1. Holds no conservation easements inside the DEIS Study Area; and
2. Is not in the process of acquiring conservation easements inside the DEIS Study Area.

We encourage the Department of Transportation to use NRCS developed soils data to identify, avoid, and minimize conversion of Prime Farmland soils to non-agricultural uses to the greatest extent possible, as those soils represent an irreplaceable resource. Technical interpretations of soil properties, including Farmland Classification interpretations are provided on the NRCS Web Soil Survey at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

If you would like further assistance from NRCS please contact Matthew Flint, Assistant State Conservationist for Technology, at matt.flint@nc.usda.gov, or (919) 873-2124.

Sincerely,

Timothy A. Beard
State Conservationist

cc:
Matthew Flint, Assistant State Conservationist for Technology, NRCS, Raleigh, NC
Kent Clary, State Soil Scientist, NRCS, Raleigh, NC

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Richard B. Russell Federal Building
75 Ted Turner Drive, S.W., Suite 1144
Atlanta, Georgia 30303

ER 15/0641
9043.1

December 31, 2015

Mr. Eric Midkiff
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Re: Comments and Recommendations on the Draft Environmental Impact Statement and Section 4(f) Evaluation for the Complete 540 Triangle Expressway Southeast Extension, Wake and Johnston Counties, NC

Dear Mr. Midkiff:

The U. S. Department of the Interior (Department) has reviewed the Complete 540 Triangle Expressway Southeast Extension in Wake and Johnston Counties, North Carolina. We offer the following comments:

The North Carolina Department of Transportation (NCDOT) and Federal Highway Administration (FHWA) propose to build a new, limited-access highway from NC 55 in Apex, to US 64/US 264 Bypass (I-495) in Knightdale for a distance of approximately 27 miles. The proposed highway, known as Complete 540–Triangle Expressway Southeast Extension, is being proposed as a toll facility.

Section 4(f) Evaluation

There is an extensive record of coordination with land owners and managers of 4(f) properties as well as the State Historic Preservation Office (SHPO) for this project. The potential uses of these resources were discussed, avoidance alternatives and other measures to minimize harm to the resources are identified and coordination with the public official having jurisdiction over each resource is documented. Section 4(f) resources that have the potential to be impacted are listed below:

Complete 540 Triangle Expressway Southeast Extension - ER 15-0641

Dr. L.J. Faulhaber Farm
Bryan Farms Historic District
Baucom-Stallings House, Middle Creek School Park, Planned Sunset Oaks Park,
White Deer Park Expansion Area
Planned Bryan Road Nature Park
Watershed Extension Loop Trail (Clemmons)
Neuse River Trail

Since a preferred alternative has not been identified at this time, we cannot concur that the Section 4(f) Evaluation includes all planning to avoid, minimize and mitigate all harm to 4(f) resources and that there is no other prudent or feasible alternative at this time.

The Department has no objection to the demimimis determination provided that a MOA is developed identifying who is responsible for each avoidance, minimization and mitigation effort and the MOA is signed by the SHPO, land owners and managers.

Thank you for the opportunity to review and provide comments. If you have any questions concerning these comments please, contact Anita Barnett at (404) 507-5706. I can be reached on (404) 331-4524 or via email at joyce_stanley@ios.doi.gov.

Sincerely,

Joyce Stanley, MPA
Regional Environmental Protection Specialist

cc: Christine Willis – FWS
Gary LeGain - USGS
Anita Barnett – NPS
Chester McGhee – BIA
Robin Ferguson – OSMRE
OEPC – WASH

North Carolina
Department of Administration

Pat McCrory, Governor

Bill Daughtridge, Jr., Secretary

December 18, 2015

Mr. Eric Midkiff, PE
North Carolina Department of Transportation
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Re: SCH File # 16-E-4220-0134; DEIS; Proposed project is for the Complete 540 Triangle Expressway Southeast Extension, TIP Projects R-2721, R-2828 and R-2829.

Dear Mr. Midkiff, PE:

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,

Crystal Best

Crystal Best
State Environmental Review Clearinghouse

Attachments

cc: Region J

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919)807-2425
Fax (919)733-9571
State Courier #51-01-00
e-mail state.clearinghouse@doa.nc.gov

Location Address:
116 West Jones Street
Raleigh, North Carolina

Environmental Quality

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

MEMORANDUM

To: Crystal Best
State Clearinghouse Coordinator
Department of Administration

FROM: Lyn Hardison
Division of Environmental Assistance and Customer Service
Permit Assistance & Project Review Coordinator

RE: 16-0134
Draft Environmental Impact Statement
Proposed project is for the Complete 540 Triangle Expressway Southeast Extension, TIP Projects – R-2721, R-2828 and R-2829
Wake and Johnston Counties

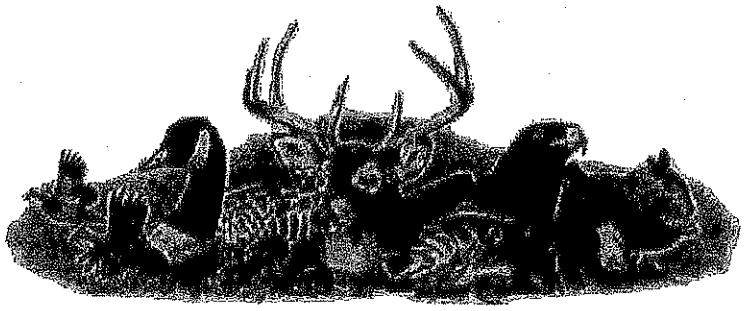
Date: December 17, 2015

The Department of Environmental Quality has reviewed the proposal for the referenced project. Based on the information provided, several of our agencies have identified permits that may be required and offered some guidance to minimize impacts to the natural resources within the project area. The comments are attached for the applicant's consideration.

The Department encourages the applicant to continue to work with our agencies during the NEPA Merger Process and as this project moves forward.

Thank you for the opportunity to respond.

Attachment



North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

MEMORANDUM

TO: Lyn Hardison, Environmental Assistance Coordinator
Division of Environmental Assistance and Outreach, DENR

FROM: Travis Wilson, Highway Project Coordinator
Habitat Conservation Program

DATE: December 9, 2015

SUBJECT: North Carolina Department of Transportation (NCDOT) Draft Environmental Impact Statement (DEIS) for the proposed Complete 540 Triangle Expressway Southeast Extension in Wake and Johnston Counties, North Carolina. TIP Nos. R-2721/R-2828/R-2829. SCH Project No. 16-0134

Staff biologists with the N. C. Wildlife Resources Commission have reviewed the subject DEIS and are familiar with habitat values in the project area. The purpose of this review was to assess project impacts to fish and wildlife resources. Our comments are provided in accordance with certain provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

NCDOT is proposing the construction of a limited access facility on new location from NC 55 in Apex to US 64/US264 Bypass (I-495) in Knightdale. Known as the Complete 540-Triangle Expressway Southeast Extension, it is proposed as a toll facility. The approximate 27 mile long facility will have extensive direct impacts to the natural environment as well as secondary and cumulative impacts within the project area.

The DEIS identifies 17 detailed study alternatives (DSAs) with approximated impacts ranging from 51,582 to 78,087 linear feet of stream, wetland impacts of 51.4 to 75.6 acres, as well as substantial upland habitat removal. The DEIS references the value of maintaining habitat connectivity in this already fragmented landscape. As with any multi-lane new location highway facility this project will result in further fragmenting the habitat throughout the proposed 27 mile corridor.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

As stated under the Indirect Effects and Cumulative Impacts section of this document. (p. 105)

> *"...the build scenarios could lead to more rapid growth and more intense development in some areas near proposed interchanges. In this way, each of the DSAs would likely lead induced land development and higher concentrations of high-density and more intense land uses in the vicinity of the DSA, especially near interchange areas".*

This will be a key aspect in selecting the Least Environmentally Damaging Practicable Alternative.

Likewise (p. 106)

> *"Continued development in the lower Swift Creek watershed, below the Lake Benson dam, may pose challenges for the long-term viability of dwarf wedgemussel habitat in this area.... The addition of the Complete 540 project to this area has the potential to add to the cumulative effects of other past and planned future projects on the long-term viability of the species in the lower Swift Creek watershed. Continued growth under either the build or no-build scenarios will have the potential to contribute to forest fragmentation and wildlife habitat disturbance. Combined with the effects of past and planned future projects, the Complete 540 project could shift these effects farther to the south and east."*

These are concerns shared by the NCWRC not only for dwarf wedgemussel (Alasmidonta heterodon) but also other sensitive aquatic species found in the Swift Creek watershed. WRC will assess potential minimization and conservation measures to address these concerns.

WRC has participated in stakeholder meetings as well as interagency coordination that has occurred during the planning of this project. That involvement has allowed us to express concerns involving the potential direct and indirect impacts associated with all the alternatives under consideration. As we continue through the coordination process and the alternative selection we will work with NCDOT to avoid and minimize impacts to natural resources in the project area. Thank you for the opportunity to comment. If we can be of any further assistance please contact me at (919) 707-0370.

cc: Gary Jordan, USFWS
Rob Ridings, NCDWR
Eric Alsmeyer, USACE
Cynthia Van Der Wiele, USEPA

MEMORANDUM

TO: Linda Culpepper, Division Director through Sharon Brinkley

FROM: Dennis Shackelford, Eastern District Supervisor
Solid Waste Section

Digitally signed by Dennis Shackelford
DN: cn=Dennis Shackelford, o=Division of Waste Management - Solid Waste Section, ou=DENR, email=dennis.shackelford@ncdenr.gov, c=US
Date: 2015.12.10 15:20:50 -05'00'

DATE: December 10, 2015

SUBJECT: NEPA Review: Project # 16-0134 Wake/Johnston County
540 Triangle Expressway Southeast Extension

The Division of Waste Management, Solid Waste Section (Division) has reviewed the Draft Environmental Impact Statement for the complete 540 Triangle Expressway Southeastern Extension, Transportation Improvement Projects R 2721, R 2828 and R 2829. The Division has seen no adverse impact on the surrounding community and likewise knows of no situations in the community, which would affect this project.

During construction the North Carolina Department of Transportation (NCDOT) should make every feasible effort to minimize the generation of waste, to recycle materials for which viable markets exist, and to use recycled products and materials in the development of this project where suitable. Any waste generated by this project that cannot be beneficially reused or recycled must be disposed of at a solid waste management facility permitted by the Division. The Division strongly recommends that the NCDOT require all Contractors to provide proof of proper disposal for all waste generated. Eight Permitted Facilities in Wake County are as follows: 9226-CDLF-2001, 9227-TRANSFER-2012, 9228-CDLF-2001, 9229T-TRANSFER-2009, 9230-CDLF-2000, 9231-CDLF-2012, 9234-TRANSFER-2012 and 9237T-TRANSFER-2010. Additional permitted facilities are listed on the Division of Waste Management, Solid Waste Section portal site at: http://portal.ncdenr.org/web/wm/sw/facilitylist.

Questions regarding solid waste management should be directed to Liz Patterson, Environmental Senior Specialist, Solid Waste Section, at (919-707-8286).

cc: Jason Watkins, Field Operations Branch Head
Liz Patterson, Environmental Senior Specialist
Jessica Montie, Compliance Officer

Fayetteville Regional Office
225 Green Street, Suite 714, Fayetteville, North Carolina 28301-5095
Main Phone: 910-433-3300 \ Internet: http://www.ncdenr.gov

Waste Management
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

LINDA CULPEPPER
Director

December 11, 2015

To: Linda Culpepper, Director
Division of Waste Management

From: Jenny Patterson, Environmental Senior Specialist, Compliance Branch Jenny Patterson
Hazardous Waste Section

Subject: Hazardous Waste Section Comments on the Complete 540 - Triangle Expressway Southeast Extension (Wake and Johnston Counties)
Project Number: 16-0134

The Hazardous Waste Section (HWS) has reviewed the subject Environmental Assessment for the proposed project for the construction of the Complete 540 – Triangle Expressway Southeast Extension project which would extend the existing Triangle Expressway, from NC 55 Bypass in Apex to the US 64/US 264 Bypass in Knightdale, completing the 540 Outer Loop around the Raleigh metropolitan area.

Any hazardous waste generated from demolition, construction, operation, or maintenance and/or remediation (e.g. excavated soil) from the proposed project must be managed in accordance with the North Carolina Hazardous Waste Rules. The demolition, construction, operation, maintenance; and remediation activities conducted will most likely generate a solid waste, and a determination must be made whether it is a hazardous waste. If a project site generates more than 220 pounds of hazardous waste in a calendar month, the HWS must be notified, and the site must comply with the small quantity generator requirements. If a project site generates more than 2200 pounds of hazardous waste in a calendar month, the HWS must be notified, and the site must comply with the large quantity generator requirements.

Should any questions arise, please contact me at 336-767-0031.

North Carolina Department of Environmental Quality

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

Date: December 7, 2015

To: Linda Culpepper, Director
Division of Waste Management

Through: Jim Bateson, Superfund Section Chief

From: Adam Ulishney, Inactive Hazardous Sites Branch

Subject: SEPA Project Number #16-0134: Complete 540 Triangle Expressway Southeast Extension-Wake and Johnston Counties, North Carolina

I have completed a database review of sites under the jurisdiction of the Superfund Section, and thirty (30) sites are located either within the study area or within a one mile search radius of the study area boundary. The identified sites are listed on the attached spreadsheet and shown on the attached map.

Files for the attached sites can be accessed by following the "Access Online Files" link on the Superfund Section website: http://portal.ncdenr.org/web/wm/sf-file-records. If you have any questions, please contact me at (919) 707-8210 or via email at adam.ulishney@ncdenr.gov.

Ec: Jim Bateson
Qu Qi
Pete Dorn

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-707-8200 \ Internet: http://portal.ncdenr.org/web/wm

Site Name	Site ID	Program	Site Address	City	County
CARRIAGE HOUSE CLEANERS	DC920051	DSCA	537 Plaza CIR	Garner	Wake
JOY CLEANERS	DC920028	DSCA	4503 Fayetteville Rd	Raleigh	Wake
GREENBRIER CLEANERS	DC920032	DSCA	4207 Fayetteville Rd	Raleigh	Wake
Con-Agra	15036-11-92	BFA	4851 Jones Sausage Rd	Garner	Wake
Walmart – Garner	10066-06-92	BFA	4500 Fayetteville Rd	Garner	Wake
Purser Drive	10067-06-92	BFA	816 Purser Drive	Garner	Wake
Baker Property, Former	11018-07-92	BFA	Newspaper Way	Holly Springs	Wake
Clayton Ball Field	NCD980844732	PRLF	City Road	Clayton	Johnston
Elwood Pines Dump	NONCD0000729	PRLF	180 Newspaper Way	Holly Springs	Wake
Garner Trash Dump	NONCD0000604	PRLF	3175 Benson Rd	GARNER	Wake
Holly Springs Dump	NONCD0000605	PRLF	BASS LAKE RD	HOLLY SPRINGS	Wake
old holly springs dump/ Cary sanitary LF	NONCD0000665	PRLF	Holly Springs Rd	HOLLY SPRINGS	Wake
OLD RALEIGH LF #12	NONCD0000694	PRLF	SHIRLEY ST	RALEIGH	WAKE
WE Buffaloe, JR private dump	NONCD0000667	PRLF	US-70	GARNER	wake
CONAGRA FOODS, INC	NCD982116477	IHSB	4851 JONES SAUSAGE RD	GARNER	WAKE
CP&L NORTHERN DIVISION COMPLEX	NONCD0001061	IHSB	902 WITHERS RD; SR 1466	GARNER	WAKE
GUILFORD MILLS PLANT	NONCD0001064	IHSB	200 DICKENS ROAD	FUQUAY-VARINA	WAKE
BARWELL ROAD WELLS	NONCD0001322	IHSB	CHARLES ST & ANN AVE	RALEIGH	Wake
LAN-O-SHEEN, INC.	NONCD0001980	IHSB	201 DICKENS RD	FUQUAY-VARINA	Wake
MANGUM,MARY RESI./PRINCES GRO	NONCD0002029	IHSB	456 MAIN STREET	APEX	Wake
NAPA/LOCKAMY'S BODY SHOP (FORMER)	NONCD0002116	IHSB	1301 HIGHWAY 70 WEST	GARNER	Wake
NEWS & OBSERVER MECH BLV-SPILL	NONCD0002201	IHSB	1400 MECHANICAL BLVD.	GARNER	Wake
RALEIGH NEUSE RIVER WWTP METHANOL RELEAS	NONCD0002363	IHSB	NEUSE RIVER WWTP	RALEIGH	Wake
W.E. GARRISON COMPANY	NONCD0002683	IHSB	5820 FAYETTEVILLE ROAD	RALEIGH	Wake

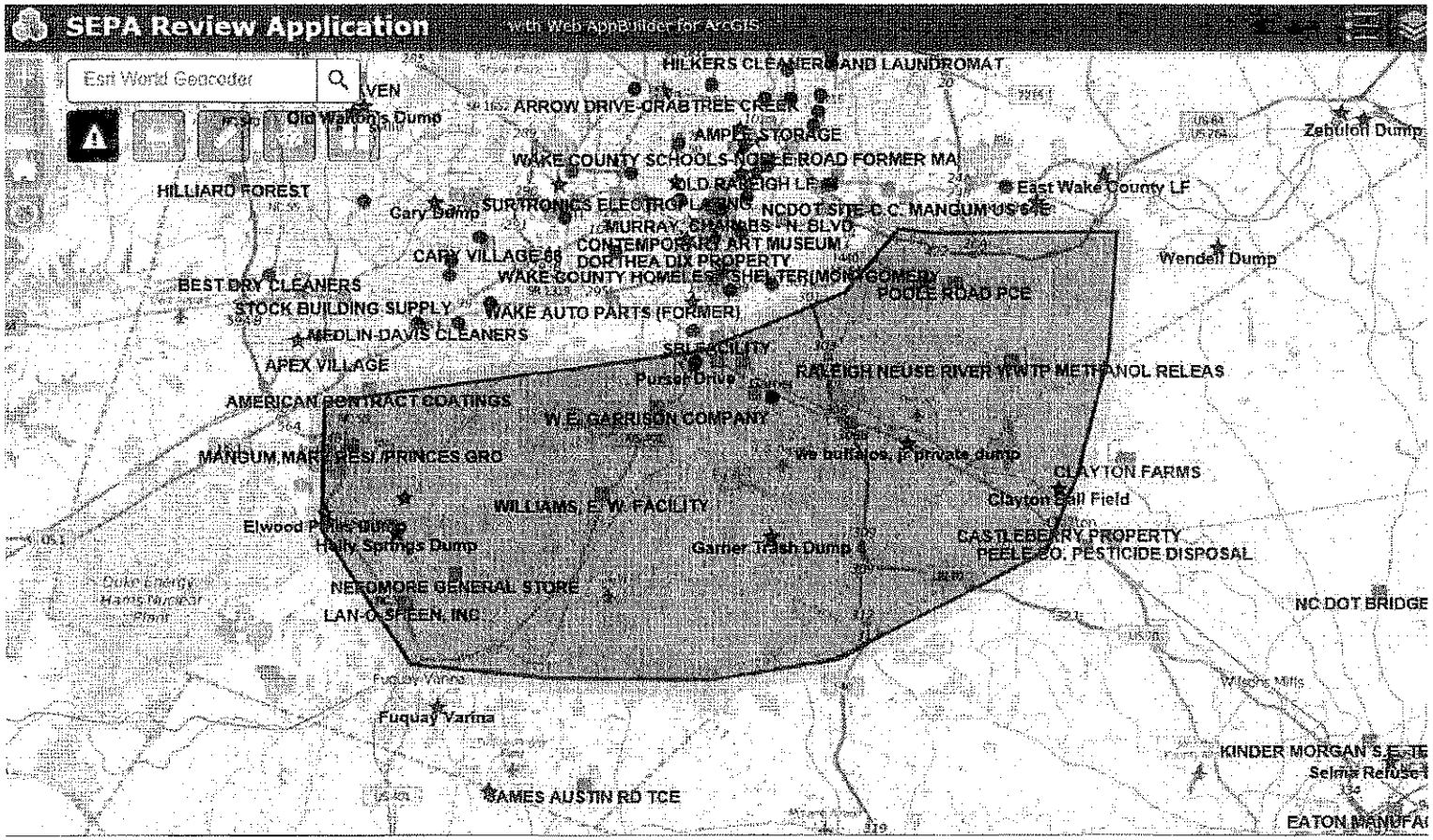
Site Name	Site ID	Program	Site Address	City	County
WILLIAMS, E. W. FACILITY	NONCD0002728	IHSB	8200 FAYETTEVILLE ROAD	RALEIGH	Wake
NEEDMORE GENERAL STORE	NONCD0002882	IHSB	1921 BASS LAKE RD	FUQUAY-VARINA	WAKE
POOLE ROAD PCE	NONCD0002943	IHSB	POOLE RD	RALEIGH	WAKE
AMERICAN CONTRACT COATINGS	NONCD0001033	IHSB	HWY 55	APEX	WAKE
SBI FACILITY	NONCD0002448	IHSB	121 EAST TRYON STREET	RALEIGH	Wake
CASTLEBERRY PROPERTY	NONCD0001463	IHSB	451 EAST MAIN STREET	CLAYTON	Johnston

*DSCA-Dry-Cleaning Program

*BFA-Brownfields Program

*PRLF-Pre-Regulatory Landfill Program

*IHSB-Inactive Hazardous Sites Program



- Brownfields Sites
- Federal Remediation Branch Sites
- Pre-Regulatory Landfill Sites
- Dry-Cleaning Solvent Cleanup Act Sites
- Inactive Hazardous Sites

Water Resources
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

S. JAY ZIMMERMAN
Director

December 7, 2015

MEMORANDUM

To: Lyn Hardison, Environmental Coordinator, Office of Legislative and Intergovernmental Affairs

Through: Amy Chapman, Supervisor, Transportation Permitting Unit, Division of Water Resources

From: Rob Ridings, Division of Water Resources, Transportation Permitting Unit

Subject: Comments on the Draft Environmental Impact Statement, related to proposed NC 540 Triangle Expressway Southeast Extension from NC 55 to US 264, Wake County, Federal Aid Project No. STP-0540(19-21) State Project No. 6.401078, 6.401079 & 6.401080; TIPs R-2721/R-2828/R-2829., State Clearinghouse Project No. 16-0134.

This office has reviewed the referenced document received December 1, 2015. The NC Division of Water Resources (NCDWR) is responsible for the issuance of the Section 401 Water Quality Certification for activities that impact Waters of the U.S., including wetlands. It is our understanding that the project as presented will result in impacts to jurisdictional wetlands, streams, and other surface waters. The NCDWR offers the following comments based on review of the aforementioned document:

Project Specific Comments:

1. This project is being planned as part of the 404/NEPA Merger and Section 6002 Coordination Process. As a participating team member, the NCDWR will continue to work with the team.

2. Streams in the project area include NSW waters of the State. The NCDWR is very concerned with sediment and erosion impacts that could result from this project. The NCDWR recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to these streams and their tributaries. Additionally, to meet the requirements of NCDOT's NPDES permit NCS0000250, the NCDWR requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual.

3. Numerous streams and tributaries in the Project Area are impaired 303(d) waters of the State.. The NCDWR is very concerned with sediment and erosion impacts that could result from this project. The NCDWR recommends that the most protective sediment and erosion control BMPs be implemented in accordance with *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) to reduce the risk of further impairment to these waters. Additionally, the NCDWR requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual.

State of North Carolina | Environmental Quality | Water Resources
1617 Mail Service Center, Raleigh, North Carolina 27699-1617
Phone: 919-807-6300

4. Review of the project reveals the presence of surface waters classified as Water Supply Critical Area in the project study area. Given the potential for impacts to these resources during the project implementation, the NCDWR requests that the NCDOT strictly adhere to North Carolina regulations entitled *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) throughout design and construction of the project. This would apply for any area that drains to streams having WS CA(Water Supply Critical Area) classifications.

5. Should the project include bridges located within the Critical Area of a Water Supply, the NCDOT may be required to design, construct, and maintain hazardous spill catch basins in the project area. The number of catch basins installed should be determined by the design of the bridge, so that runoff would enter said basin(s) rather than flowing directly into the stream, and in consultation with the NCDWR.

6. This project is within the Neuse River Basin. Riparian buffer impacts shall be avoided and minimized to the greatest extent possible pursuant to 15A NCAC 2B.0233. New development activities located in the protected 50-foot wide riparian areas within the basin shall be limited to "uses" identified within and constructed in accordance with 15A NCAC .02B .0295. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, coordinated with the North Carolina Division of Mitigation Services, must be provided to the NCDWR prior to approval of the Water Quality Certification. Buffer mitigation may be required for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A buffer mitigation plan, coordinated with the North Carolina Division of Mitigation Services, must be provided to the NCDWR prior to approval of the Water Quality Certification.

General Comments:

7. The environmental documents should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H.0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

6. Environmental impact statement alternatives shall consider design criteria that reduce the impacts to streams and wetlands from storm water runoff. To meet the requirements of NCDOT's NPDES permit NCS0000250, these alternatives should include road designs that allow for treatment of the storm water runoff through best management practices as detailed in the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual, which includes BMPs such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.

8. After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, the NCDOT is respectfully reminded that they will need to demonstrate the avoidance and minimization of impacts to wetlands (and streams) to the maximum extent practical. In accordance with the Environmental Management Commission's Rules (15A NCAC 2H.0506[h]), mitigation will be required for impacts of greater than 1 acre to wetlands. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The North Carolina Division of Mitigation Services may be available to assist with wetland mitigation.

9. In accordance with the Environmental Management Commission's Rules (15A NCAC 2H.0506[h]), mitigation will be required for impacts of greater than 150 linear feet to any single stream. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The North Carolina Division of Mitigation Services may be available to assist with stream mitigation.

10. Future documentation, including the 401 Water Quality Certification Application, shall continue to include an itemized listing of the proposed wetland and stream impacts with corresponding mapping.

11. The NCDWR is very concerned with sediment and erosion impacts that could result from this project. The NCDOT shall address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.

12. An analysis of cumulative and secondary impacts anticipated as a result of this project is required. The type and detail of analysis shall conform to the NC Division of Water Resources Policy on the assessment of secondary and cumulative impacts dated April 10, 2004.

13. The NCDOT is respectfully reminded that all impacts, including but not limited to, bridging, fill, excavation and clearing, and rip rap to jurisdictional wetlands, streams, and riparian buffers need to be included in the final impact calculations. These impacts, in addition to any construction impacts, temporary or otherwise, also need to be included as part of the 401 Water Quality Certification Application.

14. Where streams must be crossed, the NCDWR prefers bridges be used in lieu of culverts. However, we realize that economic considerations often require the use of culverts. Please be advised that culverts should be countersunk to allow unimpeded passage by fish and other aquatic organisms. Moreover, in areas where high quality wetlands or streams are impacted, a bridge may prove preferable. When applicable, the NCDOT should not install the bridge bents in the creek, to the maximum extent practicable.

15. Whenever possible, the NCDWR prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges shall allow for human and wildlife passage beneath the structure. Fish passage and navigation by canoeists and boaters shall not be blocked. Bridge supports (bents) should not be placed in the stream when possible.

15. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. To meet the requirements of NCDOT's NPDES permit NCS0000250, please refer to the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual for approved measures.

16. Sediment and erosion control measures should not be placed in wetlands or streams.

17. Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas will need to be presented in the 401 Water Quality Certification and could precipitate compensatory mitigation.

18. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater shall not be permitted to discharge directly into streams or surface waters.

19. Based on the information presented in the document, the magnitude of impacts to wetlands and streams may require an Individual Permit (IP) application to the Corps of Engineers and corresponding 401 Water Quality Certification. Please be advised that a 401 Water Quality Certification requires satisfactory protection of water quality to ensure that water quality standards are met and no wetland or stream uses are lost. Final permit authorization will require the submittal of a formal application by the NCDOT and written concurrence from the NCDWR. Please be aware that any approval will be contingent on appropriate avoidance and minimization of wetland and stream impacts to the maximum extent practical, the development of an acceptable stormwater management plan, and the inclusion of appropriate mitigation plans where appropriate.

20. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

21. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody

species shall be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.

22. Unless otherwise authorized, placement of culverts and other structures in waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required.

23. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation, floodplain benches, and/or sills may be required where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

24. If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 3883/Nationwide Permit No. 6 for Survey Activities.

25. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.

26. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of the NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

27. While the use of National Wetland Inventory (NWI) maps, NC Coastal Region Evaluation of Wetland Significance (NC-CREWS) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

28. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

29. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.

30. Riparian vegetation (native trees and shrubs) shall be preserved to the maximum extent possible. Riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

The NCDWR appreciates the opportunity to provide comments on your project. Should you have any questions or require any additional information, please contact Rob Ridings at 919-707-8786.

Electronic copy only distribution:

Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
Dr. Cynthia Van Der Wiele, US Environmental Protection Agency
File Copy

State of North Carolina
Department of Environment and Natural Resources
INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Reviewing Office: Raleigh

Project Number 16-0134 Due Date: 12/10/2015
County Wake (Johnston)

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☐	Permit to construct & operate Transportation Facility as per 15A NCAC (2D.0800, 2Q.0601	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
☒	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☒	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☐	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of **$65** for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☒	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
☐	Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)

County Wake (Johnston)		Project Number: 16-0134 Due Date: 12/10/2015	Normal Process Time (statutory time limit)
PERMITS		SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days N/A
☐	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
☐	State Lakes Construction Permit	Application fee based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days N/A
☐	401 Water Quality Certification	N/A	60 days (130 days)
☐	CAMA Permit for MAJOR development	$250.00 fee must accompany application	55 days (150 days)
☐	CAMA Permit for MINOR development	$50.00 fee must accompany application	22 days (25 days)
☐	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611		
☐	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☒	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☐	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
☐	Catawba, Jordan Lake, Randalman, Tar Pamlico or Neuse Riparian Buffer Rules required.		
☐	Plans and specifications for the construction, expansion, or alteration of a public water system must be approved by the Division of Water Resources/Public Water Supply Section prior to the award of a contract or the initiation of construction as per 15A NCAC 18C .0300 et. seq. Plans and specifications should be submitted to 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. All public water supply systems must comply with state and federal drinking water monitoring requirements. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☐	If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources/Public Water Supply Section at 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days

Other comments (attach additional pages as necessary, being certain to cite comment authority)

Division	Initials	No comment	Comments	Date Review
DAQ	ddm	☐		11/25/98
DWR-WQROS (Aquifer & Surface)	ds	☐ ☐	Project will need to comply with the following: • Section 404 Permit Conditions, Nationwide Permit Conditions, Regional Conditions, • Section 401 Water Certification Conditions, • measures detailed in NCDOT's Best Management Practices for the Protection of Surface Waters1, • Comply with riparian buffer rules. • Comply with erosion control requirements during construction and individual issued state stormwatewr permit. • Water supply waters, buffers and endangered species will be issues with certain proposed routes	12/14/15 / /
DWR-PWS		☐		/ /
DEMLR (LQ & SW)	JLH	☐	While it is clear that potential sediment issues are being addressed, it should be noted that the ultimate projects will need detailed construction plans addressing S&E control as well as work that may be associated with dam removal at pond sites impacted by the construction activities.	12/14/15
DWM - UST	MRP	☐	Notify the UST Section at the proper regional office if petroleum-contaminated soil or groundwater is discovered during excavation.	12/11/15

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
2090 US Highway 70

☐ **Mooresville Regional Office**
610 East Center Avenue, Suite 301

☐ **Wilmington Regional Office**
127 Cardinal Drive Extension

February 11, 2015

Swannanoa, NC 28778
(828) 296-4500

☐ **Fayetteville Regional Office**
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

Mooresville, NC 28115
(704) 663-1699

☒ **Raleigh Regional Office**
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

☐ **Washington Regional Office**
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481

Wilmington, NC 28405
(910) 796-7215

☐ **Winston-Salem Regional Office**
450 West Hanes Mill Road, Suite 300
Winston-Salem, NC 27105
(336) 771-9800

Rupa / Desai

NORTH C LINA STATE CLEARINGHOUSE
DEP ENT OF ADMINISTRATION
I GOVERNMENTAL REVIEW

COUNTY: WAKE
JOHNSTON

F02: HIGHWAYS AND ROADS

STATE NUMBER: 16-E-4220-0134
DATE RECEIVED: 11/16/2015
AGENCY RESPONSE: 12/11/2015
REVIEW CLOSED: 12/16/2015

MS CARRIE ATKINSON
CLEARINGHOUSE COORDINATOR
DEPT OF TRANSPORTATION
STATEWIDE PLANNING - MSC #1554
RALEIGH NC

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DEPT OF CULTURAL RESOURCES
DEPT OF TRANSPORTATION
DPS - DIV OF EMERGENCY MANAGEMENT
TRIANGLE J COG

PROJECT INFORMATION

APPLICANT: NC Department of Transportation
TYPE: National Environmental Policy Act
Draft Environmental Impact Statement

DESC: Proposed project is for the Complete 540 Triangle Expressway Southeast Extension, TIP Projects R-2721, R-2828 and R-2829.

CROSS-REFERENCE NUMBER: 10-E-4220-0283

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: [X] NO COMMENT [ ] COMMENTS ATTACHED

SIGNED BY: Rupa DATE: 12/3/15

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: WAKE
JOHNSTON

F02: HIGHWAYS AND ROADS

STATE NUMBER: 16-E-4220-0134
DATE RECEIVED: 11/16/2015
AGENCY RESPONSE: 12/11/2015
REVIEW CLOSED: 12/16/2015

MS ELIZABETH HEATH
CLEARINGHOUSE COORDINATOR
DEPT OF AGRICULTURE
1001 MSC - AGRICULTURE BLDG
RALEIGH NC

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DEPT OF TRANSPORTATION
DPS - DIV OF EMERGENCY MANAGEMENT
TRIANGLE J COG

PROJECT INFORMATION

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TYPE: National Environmental Policy Act
Draft Environmental Impact Statement

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If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: [/] NO COMMENT [ ] COMMENTS ATTACHED

SIGNED BY: _____ DATE: 11/24/2015

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: WAKE
JOHNSTON

F02: HIGHWAYS AND ROADS

STATE NUMBER: 16-E-4220-0134
DATE RECEIVED: 11/16/2015
AGENCY RESPONSE: 12/11/2015
REVIEW CLOSED: 12/16/2015

MS CAROLYN PENNY
CLEARINGHOUSE COORDINATOR
DPS - DIV OF EMERGENCY MANAGEMENT
FLOODPLAIN MANAGEMENT PROGRAM
MSC # 4218
RALEIGH NC

NOV 19 2015

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DEPT OF TRANSPORTATION
DPS - DIV OF EMERGENCY MANAGEMENT
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If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: [X] NO COMMENT [ ] COMMENTS ATTACHED

SIGNED BY: John D Brubaker DATE: 23 NOV 2015

DEC 2015

Maseman, Kristin

From: Bruce, Roy
Sent: Wednesday, February 24, 2016 4:51 PM
To: Maseman, Kristin
Subject: Fwd: Complete 540 (R-2721, R-2828, R-2829) - "Interagency Meeting to Review the Recommendation for the Preferred Alternative"
Attachments: image001.jpg; image002.jpg; image003.jpg; image004.jpg

Roy Bruce
LOCHNER

Begin forwarded message:

> **From:** Kiersten Bass <kbass@hntb.com>
> **Date:** February 24, 2016 at 2:17:53 PM EST
> **To:** Roy Bruce <rbruce@hwlochner.com>
> **Subject: Fwd: Complete 540 (R-2721, R-2828, R-2829) - "Interagency Meeting to Review the Recommendation for the Preferred Alternative"**
>
> Regards, Kiersten Bass
> Planning Services Manager, HNTB
>
> **Pardon typos, sent from my iPhone**
>
> Begin forwarded message:
>
> > **From:** "Wilson, Travis W." <travis.wilson@ncwildlife.org>
> > **Date:** February 23, 2016 at 9:18:18 AM EST
> > **To:** Kiersten Bass <kbass@hntb.com>
> > **Cc:** "Brew, Donnie (Donnie.brew@fhwa.dot.gov)" <Donnie.brew@fhwa.dot.gov>, "gary_jordan@fws.gov" <gary_jordan@fws.gov>, "Eric.C.Alsmeyer@usace.army.mil" <Eric.C.Alsmeyer@usace.army.mil>, "Van Der Wiele, Cynthia (VanDerWiele.Cynthia@epa.gov)" <VanDerWiele.Cynthia@epa.gov>, "Ridings, Rob" <rob.ridings@ncdenr.gov>
> > **Subject: RE: Complete 540 (R-2721, R-2828, R-2829) - "Interagency Meeting to Review the Recommendation for the Preferred Alternative"**
> >
> > Kiersten, in accordance with the Section 6002 process, the NC Wildlife Resources Commission does not have permitting or regulatory authority that may affect NCDOT's proposed project. We have provide comments throughout the planning for this project, and our concerns have not diminished. We remain concerned the potential negative effects in the watersheds impacted from this project will continue to degrade aquatic habitat utilized by state and federal listed aquatic species. Those concerns apply to all alternatives. NCDOT should not equate WRC's lack of comments on the preferred

alternative as not having concerns with the project. WRC will continue to coordinate with NCDOT during the planning of this project to address those issues.

Travis W. Wilson
Eastern Region Highway Project Coordinator
Habitat Conservation Program

NC Wildlife Resources Commission
1718 Hwy 56 West
Creedmoor, NC 27522
Phone: 919-707-0370
Fax: 919-528-2524
Travis.Wilson@ncwildlife.org

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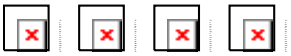

From: Kiersten Bass [mailto:kbass@hntb.com]
Sent: Monday, February 22, 2016 1:49 PM
To: 'eric.c.alsmeyer@usace.army.mil' (eric.c.alsmeyer@usace.army.mil) <eric.c.alsmeyer@usace.army.mil>; Ridings, Rob <rob.ridings@ncdenr.gov>; Van Der Wiele, Cynthia <VanDerWiele.Cynthia@epa.gov>; Wilson, Travis W. <travis.wilson@ncwildlife.org>; Gledhill-earley, Renee <renee.gledhill-earley@ncdcr.gov>; 'Chris.Lukasina@campo-nc.us' (Chris.Lukasina@campo-nc.us) <Chris.Lukasina@campo-nc.us>; Houser, Anthony A <thouser@ncdot.gov>; Teague, Jeff L <jlteague@ncdot.gov>; Huang, Herman <hfhuang@ncdot.gov>; Hopkins, Joey <jhopkins@ncdot.gov>; Lauffer, Matthew S <mslauffer@ncdot.gov>; Elam, William H <belam@ncdot.gov>; Joyner, Drew <djoyner@ncdot.gov>; Robbins, Jamille A <jarobbins@ncdot.gov>; Marshall, Harrison <hmarshall@ncdot.gov>; Furr, Mary Pope <mfurr@ncdot.gov>; Mellor, Colin <cmellor@ncdot.gov>; Medlin, Kenneth N <knmedlin@ncdot.gov>; Hauser, James W <jhauser@ncdot.gov>; Staley, Mark K <mstaley@ncdot.gov>; Stanley, Mike <mtstanley@ncdot.gov>; Ishak, Doumit Y <dishak@ncdot.gov>; Childrey, Tom <tchildrey@ncdot.gov>; Paugh, Leilani Y <lpaugh@ncdot.gov>; Pilipchuk, John L <jpilipchuk@ncdot.gov>; Chapman, Amy <amy.chapman@ncdenr.gov>; Jernigan, Dennis W <dwjernigan@ncdot.gov>; Shapiro, Alan W <awshapiro@ncdot.gov>; Lee, Craig J <cjlee@ncdot.gov>; keith.hanson@noaa.gov; Desai, Rupal P <rpdesai@ncdot.gov>; Pleasant, Kyle A <kpleasant@ncdot.gov>; ken.riley@noaa.gov
Cc: Donnie.Brew@dot.gov; Midkiff, Eric <emidkiff@ncdot.gov>; Jennifer Harris <jhharris@HNTB.com>; Roy Bruce <rbruce@hwlochner.com>; Kristin Maseman <kmaseman@hwlochner.com>; fred.skaer@gmail.com; 'John Studt (jfstudt@gmail.com)' <jfstudt@gmail.com>; Hancock, Ronald A <rhancock@ncdot.gov>; Hanson, Robert P <rhanson@ncdot.gov>; 'gary_jordan@fws.gov' <gary_jordan@fws.gov>
Subject: RE: Complete 540 (R-2721, R-2828, R-2829) - “Interagency Meeting to Review the Recommendation for the Preferred Alternative”

Maseman, Kristin

From: Bruce, Roy
Sent: Thursday, March 31, 2016 1:52 PM
To: Maseman, Kristin
Subject: FW: FW: Comments for Complete 540 Preferred Alternative

WRC Comments

From: Kiersten Bass [mailto:kbass@hntb.com]
Sent: Thursday, February 25, 2016 12:33 PM
To: emidkiff@ncdot.gov; byamamoto@ncdot.gov; namccann@ncdot.gov; rbruce@hwlochner.com
Cc: jhharris@HNTB.com
Subject: FW: Comments for Complete 540 Preferred Alternative

FYI

From: Ridings, Rob [mailto:rob.ridings@ncdenr.gov]
Sent: Thursday, February 25, 2016 12:31 PM
To: Kiersten Bass; Midkiff, Eric
Cc: Brew, Donnie (Donnie.brew@fhwa.dot.gov); Wilson, Travis W.; gary_jordan@fws.gov; Eric.C.Alsmeyer@usace.army.mil; Van Der Wiele, Cynthia (VanDerWiele.Cynthia@epa.gov)
Subject: Comments for Complete 540 Preferred Alternative

Kiersten,

The NC Division of Water Resources understands that under the Section 6002 process, unlike Merger, we do not sign off or approve a Preferred Alternative for this project. At this time, we feel all the alternatives had various pros and cons, including NCDOT's Preferred alignment.

On the positive side, we are very glad that Water Supply Critical Area watersheds will be avoided.

However on the negative side, we are concerned about the high wetland, stream, and buffer impacts that would be found in the Preferred Alternative.
In accordance with Section 6002 process, we do not currently see issues that will halt the process or future permitting of the project. But we will continue to coordinate with NCDOT and other agencies during the process to find as many ways as possible to avoid and minimize these impacts to wetlands, streams, and buffers; also including comprehensive and successful mitigation, and thorough stormwater treatment.

The more successful NCDOT is at minimizing and lowering impacts to these resources, and ensuring preserved water quality in the project area, the more confident our agency will be going forward in the permitting process.

Thank you for the opportunity to comment,

Rob Ridings
Environmental Specialist
Transportation Permitting Unit, Division of Water Resources
NC Department of Environmental Quality

919-707-8786 office
rob.ridings@ncdenr.gov

512 North Salisbury Street, 12th Floor
1617 Mail Service Center
Raleigh, NC 27699

From: Kiersten Bass [mailto:kbass@hntb.com]
Sent: Monday, February 22, 2016 1:49 PM
To: 'eric.c.alsmeyer@usace.army.mil' (eric.c.alsmeyer@usace.army.mil) <eric.c.alsmeyer@usace.army.mil>; Ridings, Rob <rob.ridings@ncdenr.gov>; Van Der Wiele, Cynthia <VanDerWiele.Cynthia@epa.gov>; Wilson, Travis W. <travis.wilson@ncwildlife.org>; Gledhill-earley, Renee <renee.gledhill-earley@ncdcr.gov>; 'Chris.Lukasina@campo-nc.us' (Chris.Lukasina@campo-nc.us) <Chris.Lukasina@campo-nc.us>; Houser, Anthony A <thouser@ncdot.gov>; Teague, Jeff L <jlteague@ncdot.gov>; Huang, Herman <hfhuang@ncdot.gov>; Hopkins, Joey <jhopkins@ncdot.gov>; Lauffer, Matthew S <mslauffer@ncdot.gov>; Elam, William H <belam@ncdot.gov>; Joyner, Drew <djoyner@ncdot.gov>; Robbins, Jamille A <jarobbins@ncdot.gov>; Marshall, Harrison <hmarshall@ncdot.gov>; Furr, Mary Pope <mfurr@ncdot.gov>; Mellor, Colin <cmellor@ncdot.gov>; Medlin, Kenneth N <knmedlin@ncdot.gov>; Hauser, James W <jhauser@ncdot.gov>; Staley, Mark K <mstaley@ncdot.gov>; Stanley, Mike <mtstanley@ncdot.gov>; Ishak, Doumit Y <dishak@ncdot.gov>; Childrey, Tom <tchildrey@ncdot.gov>; Paugh, Leilani Y <lpaugh@ncdot.gov>; Pilipchuk, John L <jpilipchuk@ncdot.gov>; Chapman, Amy <amy.chapman@ncdenr.gov>; Jernigan, Dennis W <dwjernigan@ncdot.gov>; Shapiro, Alan W <awshapiro@ncdot.gov>; Lee, Craig J <cjlee@ncdot.gov>; keith.hanson@noaa.gov; Desai, Rupal P <rpdesai@ncdot.gov>; Pleasant, Kyle A <kpleasant@ncdot.gov>; ken.riley@noaa.gov
Cc: Donnie.Brew@dot.gov; Midkiff, Eric <emidkiff@ncdot.gov>; Jennifer Harris <jhharris@HNTB.com>; Roy Bruce <rbruce@hwlochner.com>; Kristin Maseman <kmaseman@hwlochner.com>; fred.skaer@gmail.com; 'John Studt (jfstudt@gmail.com)' <jfstudt@gmail.com>; Hancock, Ronald A <rhancock@ncdot.gov>; Hanson, Robert P <rhanson@ncdot.gov>; 'gary_jordan@fws.gov' <gary_jordan@fws.gov>
Subject: RE: Complete 540 (R-2721, R-2828, R-2829) - "Interagency Meeting to Review the Recommendation for the Preferred Alternative"

All – thank you for attending the interagency meeting (February 17, 2016) regarding the draft Preferred Alternative Report for Complete 540 project. Attached for your review is a draft summary of the subject meeting. Please review and provide your comments on the draft summary by Monday, February 29th. A revised final summary will be distributed soon afterward.

If I have missed anyone or you feel others should be included in this review, please let me know so that I can share the draft and final versions with them.

If you have any questions regarding the project or this summary, please do not hesitate to contact me.

Thank you,
Kiersten R. Bass
Planning Services Manager
HNTB North Carolina, P.C.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA GEORGIA 30303-8960

March 10, 2016

Ms. Kiersten Bass, Planning Services Manager
HNTB North Carolina, P.C.
343 East Six Forks Road, Suite 200
Raleigh, North Carolina 27609

SUBJECT: Comments on Preferred Alternative for Complete 540 [Triangle Expressway Southeast Extension] Project, Wake and Johnston Counties, North Carolina; ERP No.: FHW-E40852-NC; CEQ No.: 20150323; NC Department of Transportation (NCDOT) TIP Project Nos.: R-2721, R-2828, and R-2829

Dear Ms. Bass:

The U.S. Environmental Protection Agency (USEPA) Region 4 Office has received and reviewed the information package regarding the NCDOT's preferred alternative for the Complete 540 project.

Although the Complete 540 project has not been included in the NCDOT's NEPA/§404 Merger process, the USEPA staff has been an active participant in the MAP-21 §6002 coordination plan for the proposed project. The USEPA provided comments on the Draft Environmental Impact Statement (DEIS), however, our comments and concerns were not fully addressed in the project package or at the informational meeting on February 17, 2016.

The Complete 540 Project included 17 Detailed Study Alternatives (DSAs), consisting of 1000-foot corridors on new location—ranging from 25.2 to 32.0 miles in length. Potential impacts stemming from the 28.4-mile NCDOT Preferred Route, DSA 2, include: 281 relocations, including a farm/agri-business; §404 impacts consisting of 65,810 linear feet of jurisdictional streams, 74.3 acres of wetlands, 95.2 acres of zone 1 riparian buffers, 62.3 acres of zone 2 riparian buffers, and 87.1 acres of 100-year floodplains; 2,040 acres of prime farmland soils, 10.8 acres of sprayfields, and 1 park/recreation facility. In comparison, the proposed impacts from DSA 7 include: 451 relocations; §404 impacts consisting of 51,582 linear feet of jurisdictional streams, 54.4 acres of wetlands, 6.7 acres of Swift Creek Watershed Critical Area, 37.1 acres of zone 1 riparian buffers, 24.7 acres of zone 2 riparian buffers, and 86.6 acres of 100-year floodplains; 1,949 acres of prime farmland soils, 2 National Register of Historic Places (NRHP)-listed sites with adverse effects, and 3 park/recreation facilities.

The USEPA has identified the following concerns regarding the Complete 540 project and our ability to identify an environmentally-preferred alternative:

Detailed Study Alternatives (DSAs) and Impacts to Resources

The 17 DSAs were based on several key factors: logical termini/independent utility, roadway design criteria/typical sections, and study alternatives for each section. The USEPA understands that the actual right-of-way will occupy a 300-foot wide corridor and that the impacts listed in the Comparative Evaluation Matrix represent an initial "best fit" within the 1000-foot corridor. Preliminary design was not provided during the February 17, 2016 meeting; consequently, the engineering decision-making process remains unclear in how / where specific resources were avoided or minimized during the development of the preliminary design. Interchange designs, in particular, can have substantial impacts. In addition, the potential impacts on the various alternatives to floodways, the 500-year floodplain, and terrestrial habitat/forests (impact on habitat connectivity at a landscape scale) still remain unclear. Floodways and floodplains are vital to reducing the likelihood of localized flooding during storm events, particularly as the project study area continues to urbanize.

USEPA Recommendations:

- Please include a summary of the impacts to forested land, floodways, and the 500-year floodplain.
- Provide a preliminary design of the project for DSA 2 (NCDOT preferred alternative) and DSA 7 (lowest jurisdictional stream and wetland impacts as well as impacts to the dwarf wedgemussel) to enable a comparison between these two alternatives.

Aquatic Resources and Indirect/Cumulative Impacts

The Complete 540 project has the potential to incur substantial impacts to aquatic resources, including §303(d)-listed [impaired] waters and essential habitat for the dwarf wedgemussel. It remains unclear how these impaired streams will be protected from further degradation as both local and state riparian buffer protections that historically have been relied upon to reduce pollutants loads into receiving streams have been weakened (see NCGS §143-214.23A]. It is also unclear how the Swift Creek Land Management Plan, prepared by Wake County, will serve to limit indirect/cumulative impacts within the watershed. Finally, it remains unclear whether impacts to dwarf wedgemussel habitat will be sufficiently mitigated to prevent a jeopardy determination.

With regard to indirect and cumulative impacts (ICI), it remains unclear where development and 'sprawl' will occur along the proposed DSAs. The USEPA is concerned with increased impervious surfaces and ICIs to streams and wetlands from induced growth near interchanges and intersections. The DEIS did not provide a quantitative assessment of ICIs.

USEPA Recommendations:

- Please provide quantitative information regarding indirect and cumulative impacts.
- Please provide information on predicted pollutant loading and measures taken to avoid and reduce these impacts to receiving waters.
- These issues should be further evaluated by the transportation agencies as the proposed project proceeds in the NCDOT interagency team process and information provided to team representatives.

I will continue to work with you as part of the NCDOT Interagency Team in the identification of reasonable and feasible alternatives. Should you have any questions concerning these comments, please feel free to contact me at vanderwiele.cynthia@epa.gov or (919) 450-6811. We appreciate the opportunity to comment on the proposed Complete 540 project.

Sincerely,

Cynthia F. Van Der Wiele, Ph.D.
USEPA Region 4, NEPA Program Office
Resource Conservation and Restoration Division

cc: Donnie Brew, FHWA- NC
Eric Alsmeyer, USACE Raleigh Field Office
Gary Jordan, USFWS Raleigh Field Office
Rob Ridings, NCDEQ, DWR
Travis Wilson, NCWRC

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

REPLY TO
ATTENTION OF

March 18, 2016

Regulatory Division/1200A

Action ID No. SAW-2009-02240

Mr. Phil Harris, P.E.
North Carolina Department of Transportation (NCDOT)
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Harris:

In February 2016, the North Carolina Turnpike Authority submitted a Draft Preferred Alternative Report (DPAR), for the proposed Complete 540, Triangle Expressway Southeast Extension (STIP Project Numbers R-2721, R-2828, and R-2829) in Wake and Johnston Counties, North Carolina (AID SAW-2009-02240). On February 17, 2016, the participating agencies met with your staff and consultants to discuss the PDAR. On March 3, 2016, we met with your staff, the Federal Highway Administration, your consultants, and the City of Raleigh, to discuss questions we had concerning your justification for selecting Detailed Study Alternative (DSA) 2 as the preferred alternative, as compared to DSA 4, which has the lowest number of relocations, and also has lower stream and wetland impacts with no effects to the watershed critical area, historic sites, and likely only de minimis impacts to 4f resources. The City of Raleigh submitted a letter dated March 17, 2016, which further clarified the impacts to City of Raleigh facilities by DSA 4.

After consideration of all the available information on the DSA's, we have determined that we have no significant objections or Issues of Concern, and have no objection to your proceeding forward with identifying the Preferred Alternative.

Eric Alsmeyer is responsible for processing your application and is available to assist you at telephone (919) 554-4884, extension 23, if you have any questions or comments.

Sincerely,

Monte Matthews
Lead Regulatory Project Manager
Wilmington District

Copies furnished:

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Ms. Renee Gledhill-Early
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Mr. Gary Jordan
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Fish and Wildlife Enhancement
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Raleigh, North Carolina 27636-3726