Access 540

STIP Project Number R-2635D
WBS Number 35520.1.FS3

Proposed Interchange at the Triangle Expressway (Toll NC 540)
and Old Holly Springs-Apex Road (SR 1153)
Wake County

ADMINISTRATIVE ACTION

STATE ENVIRONMENTAL ASSESSMENT/
FINDING OF NO SIGNIFICANT IMPACT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Submitted pursuant to the North Carolina State Environmental Policy Act

APPROVED:

3-18-2015
Date

Richard W. Hancock, PE
Unit Head
Project Development and Environmental Analysis Unit, NCDOT

Access 540

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and Old Holly Springs-Apex Road (SR 1153)
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FINDING OF NO SIGNIFICANT IMPACT

March 2015

Documentation prepared for the Project Development and Environmental Analysis Unit:

3.18.2015
Date

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3/18/15
Date

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HNTB North Carolina, P.C.

NORTH CAROLINA PROFESSIONAL SEAL 19824 ENGINEER ENRICO A. ROQUE

PROJECT COMMITMENTS

Access 540

STIP Project Number R-2635D
WBS Number 35520.1.FS3
Proposed Interchange at the Triangle Expressway (Toll NC 540)
and Old Holly Springs-Apex Rod (SR 1153)

Wake County

March 2015

The following special commitments have been agreed to by NCDOT

Division 5 Construction

- NCDOT will evaluate options to minimize disruptions to bicycle mobility along Old Holly Springs-Apex Road during construction.

Transportation Program Management

- NCDOT will coordinate with the Town of Apex to prepare a municipal agreement for the construction of a sidewalk along Old Holly Springs-Apex Road.
- 2:1 slopes will be utilized in jurisdictional wetland fill areas.

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Access 540

STIP Project Number R-2635D
WBS Number 35520.1.FS3
Proposed Interchange at the Triangle Expressway (Toll NC 540)
and Old Holly Springs-Apex Road (SR 1153)
Wake County

Summary

1. Type of Action

This is a State Environmental Assessment/Finding of No Significant Impact (EA/FONSI).

2. Description of Proposed Action

North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP) Project No. R-2635D (referred to herein as the "Access 540" project) is the conversion of the grade separation at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) to an interchange. The project also includes the conversion of the existing outside shoulders along the Triangle Expressway – between the NC 55 Bypass and US 1 – to auxiliary lanes and the construction of new shoulders.

3. Project Benefits

The proposed project would have a positive overall impact by providing improved access and enhanced roadway linkage in response to planned and anticipated growth in southern Apex.

4. Summary of Environmental Effects

No residential or business relocations are anticipated due to the Access 540 project. Land uses in the area would not be adversely impacted. There are no historic architectural or archaeological resources that would be impacted. No parks, recreational facilities, wildlife or waterfowl refuges would be impacted. No effects on federally protected plant or animal species are expected. There would be approximately 0.12 acres of wetland impacts, 738 feet of stream impacts and 2.96 acres of pond impacts as a result of the proposed improvements. There would be no traffic noise impacts. The project would not have an adverse effect on air quality. No adverse impacts to the community or environmental justice populations are expected.

5. Anticipated Permits

An Individual Section 404 Permit issued by the US Army Corps of Engineers and a 401 Water Quality Certification issued by the NC Department of Environment and Natural Resources, Division of Water Resources are anticipated to be required for this project.

6. Coordination

Several federal, state, and local agencies were consulted during the preparation of this document. Comments were provided by the following agencies:

Federal Highway Administration
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
N.C. Wildlife Resources Commission
N.C. Division of Coastal Management
N.C. Division of Water Resources
N.C. Department of Cultural Resources – State Historic Preservation Office
Town of Apex
Town of Holly Springs
Wake County

7. Additional Information

Additional information concerning the proposed project and assessment can be obtained by contacting:

Jennifer Harris, PE
Western Region/Turnpike Project Development Section Head
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548
Telephone: (919) 707-6025

Access 540

STIP Project Number R-2635D
WBS Number 35520.1.FS3
Proposed Interchange at the Triangle Expressway (Toll NC 540)
and Old Holly Springs-Apex Road (SR 1153)
Wake County

1.0 General Description

North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP) Project No. R-2635D (referred to herein as the "Access 540" project) is the conversion of the grade separation at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) to an interchange. The project also includes conversion of the existing outside shoulders along the Triangle Expressway – between the NC 55 Bypass and US 1 – to auxiliary lanes and the construction of new shoulders. Located in southwestern Wake County, Old Holly Springs-Apex Road is currently a two-lane undivided roadway with a grade-separated crossing and no direct access to Triangle Expressway. Due to the current lack of direct access, as well as forecasted growth of traffic as a result of continuing residential growth and the planned Veridea development utilizing Old Holly Springs-Apex Road, NCDOT proposes to provide an additional interchange on the Triangle Expressway for vehicles to obtain direct access to and from Old Holly Springs-Apex Road. Veridea is a proposed approximately 1,000-acre mixed-use development expected to have 10 million square feet of office, 3.5 million square feet of retail and approximately 2 million square feet of manufacturing space, in addition to 8,000 residential units at build-out. The Access 540 project would provide an important access point to the Triangle Expressway from Old Holly Springs-Apex Road, and would enhance the interconnectivity of the roadway system and provide additional transportation options. The purpose of the proposed project is to provide improved access and enhanced roadway linkage in response to planned and anticipated growth in southern Apex.

This environmental document has been prepared in accordance with the North Carolina State Environmental Policy Act of 1971 (SEPA) and is intended for use by both decision makers and the public. It includes the disclosure of relevant environmental information regarding the proposed project.

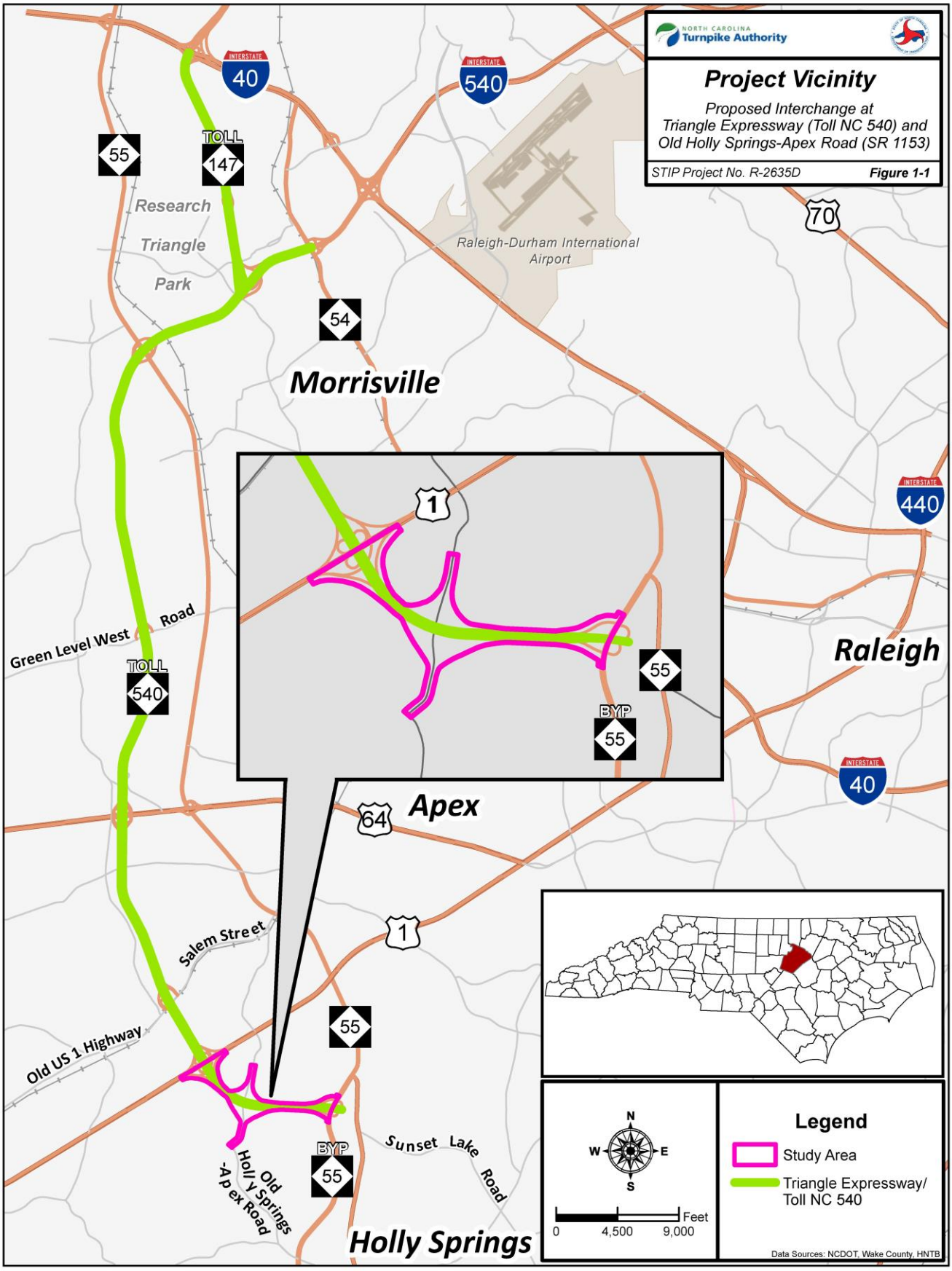
1.1 Project Setting

Old Holly Springs-Apex Road has a grade separation, but no direct access, with the Triangle Expressway. The Triangle Expressway is an 18.8-mile, six-lane toll facility that extends from the I-40/NC 147 interchange in Durham County to the NC 55 Bypass near Apex in Wake County. The Triangle Expressway partially completes the "Outer Loop" around the greater Raleigh, North Carolina area. North of the Triangle Expressway, Old Holly Springs-Apex Road travels north, crossing - but with no direct access to - US 1 into Apex. South of the Triangle Expressway, Old Holly Springs-Apex Road travels south towards Holly Springs where it terminates at New Hill Road.

Old Holly Springs-Apex Road is a 3.6-mile south-north facility with its southern terminus located at New Hill Road (SR 1152) in Holly Springs, traveling to its northern terminus where it becomes Tingen Road (continuing SR 1153) in Apex. For residents residing in the area south of the proposed interchange, they must first travel southeast to access NC 55 Bypass or west to access US 1 before they can then travel north on these facilities to reach Apex or access the Triangle Expressway via US 1. For residents of the area north of the proposed interchange, they must first travel north into Apex, then west along Salem Street (SR 1011), before they can access the Triangle Expressway, as there is no access to US 1 from Old Holly Springs-Apex Road. Also of note, Old Holly Springs-Apex Road currently provides an alternate route for local residents to travel between Holly Springs and Apex when they elect to avoid the more congested facilities of NC 55 Bypass, NC 55, and US 1. A project vicinity map is shown on **Figure 1-1**.

Land use throughout the vicinity of the Access 540 project is mostly rural in nature, consisting of large areas of vacant, wooded land with scattered large-lot residential parcels as well as a few parcels with agricultural uses. Higher-density residential areas are located south of the project, as this portion begins to include northern Holly Springs and its residential subdivisions and retail centers. The land area adjacent to and just south of the Triangle Expressway consists of the privately-owned Highway 55 Landfill, as well as the Wake County-owned Feltonsville Landfill and the South Wake Landfill. Wake County also owns the Firearms Education and Training Center that is located approximately one mile south of the existing grade separation along Old Holly Springs-Apex Road. In the area northeast of the project, just north of the Triangle Expressway, is the information technology services provider EMC Corporation. A sizeable portion of the existing land in the vicinity of the proposed project is owned by and planned for the Veridea mixed-use development. The bulk of the area west of the project is mostly wooded with sparse residential parcels.

Old Holly Springs-Apex Road at the Triangle Expressway


NORTH CAROLINA Turnpike Authority
Project Vicinity
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D
Figure 1-1
INTERSTATE 40
INTERSTATE 540
55
TOLL 147
Research Triangle Park
Raleigh-Durham International Airport
70
54
Morrisville
1
INTERSTATE 440
Green Level West Road
TOLL 540
Raleigh
55
BYP 55
INTERSTATE 40
64
Apex
1
Salem Street
Old US 1 Highway
55
BYP 55
Sunset Lake Road
Old Holly Springs-Apex Road
Holly Springs
N
W
E
S
0
4,500
9,000
Feet
Legend
Study Area
Triangle Expressway/
Toll NC 540
Data Sources: NCDOT, Wake County, HNTB

2.0 Purpose of and Need for Action

The Access 540 project is a proposal by the North Carolina Department of Transportation (NCDOT) to convert the existing grade separation at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) to an interchange. The project also includes conversion of the existing outside shoulders along the Triangle Expressway – between the NC 55 Bypass and US 1 – to auxiliary lanes and the construction of new shoulders. The proposed action is included in the NCDOT's 2012-2018 STIP, the 2040 Metropolitan Transportation Plan (Capital Area Metropolitan Planning Organization, 2013), the Apex Transportation Plan (Town of Apex, 2011) and the Holly Springs Comprehensive Transportation Plan (Town of Holly Springs, 2013). This statement of purpose and need explains why improvements to the transportation system in the study area (the proposed action) should be considered and implemented.

2.1 Study Area

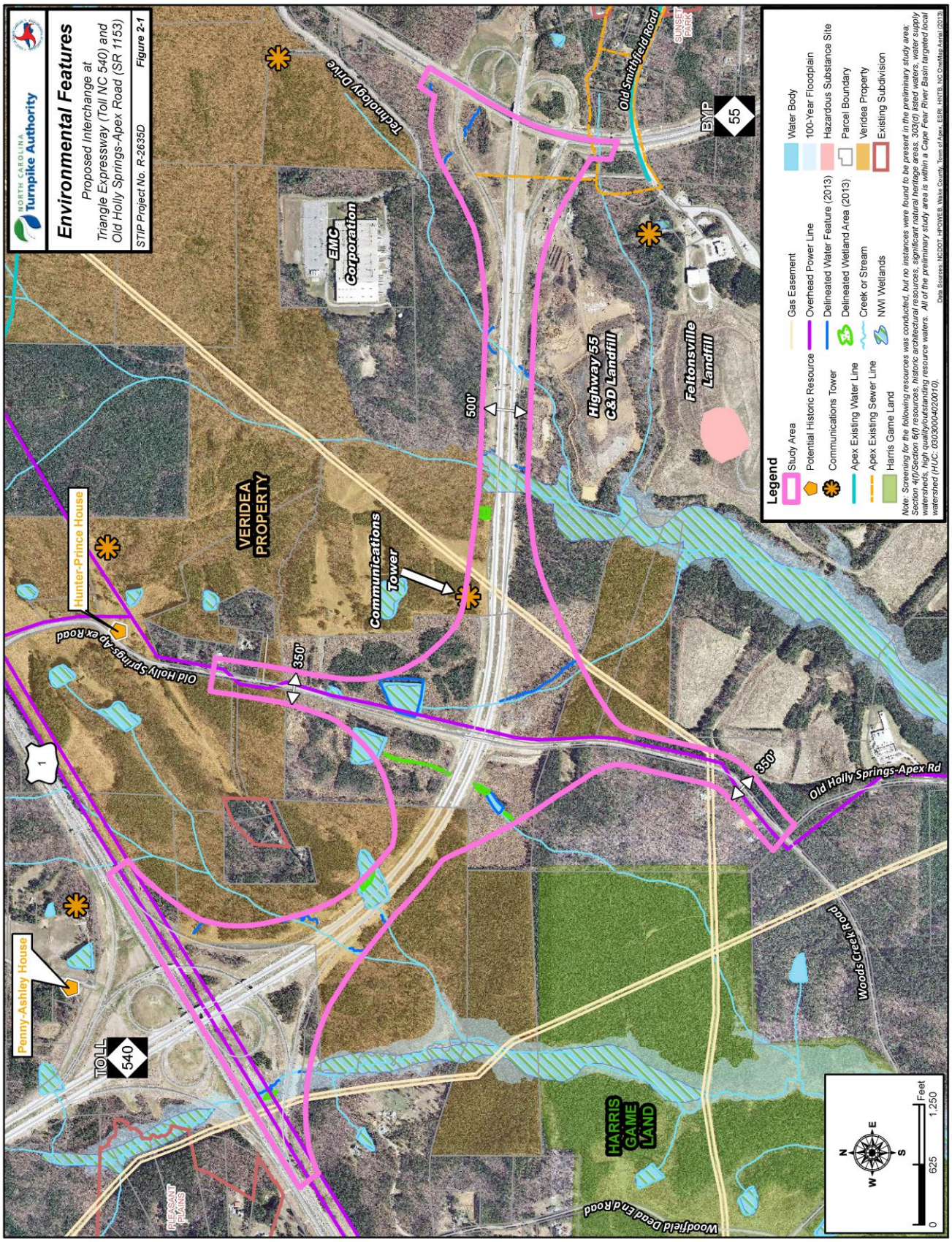
The study area is located in southern Apex in western Wake County. The study area encompasses an approximately two-mile section of the Triangle Expressway and a one-mile section of Old Holly Springs-Apex Road. The study area is bound to the east by the NC 55 Bypass interchange and to the west by the US 1 interchange. Land use in the vicinity of the study area is predominately rural with scattered residential and agricultural uses. However, according to the Peak Plan 2030, The Apex Comprehensive Plan (Town of Apex, 2013), this portion of Apex is designated as a future Regional Mixed-Use node with the proposed development of the approximately 1,000-acre Veridea development. The proposed project would provide an important access point to the Triangle Expressway from Old Holly Springs-Apex Road. This new access would enhance the interconnectedness of the roadway system and provide additional transportation options. The general environmental features of the study area are depicted in **Figure 2-1**.

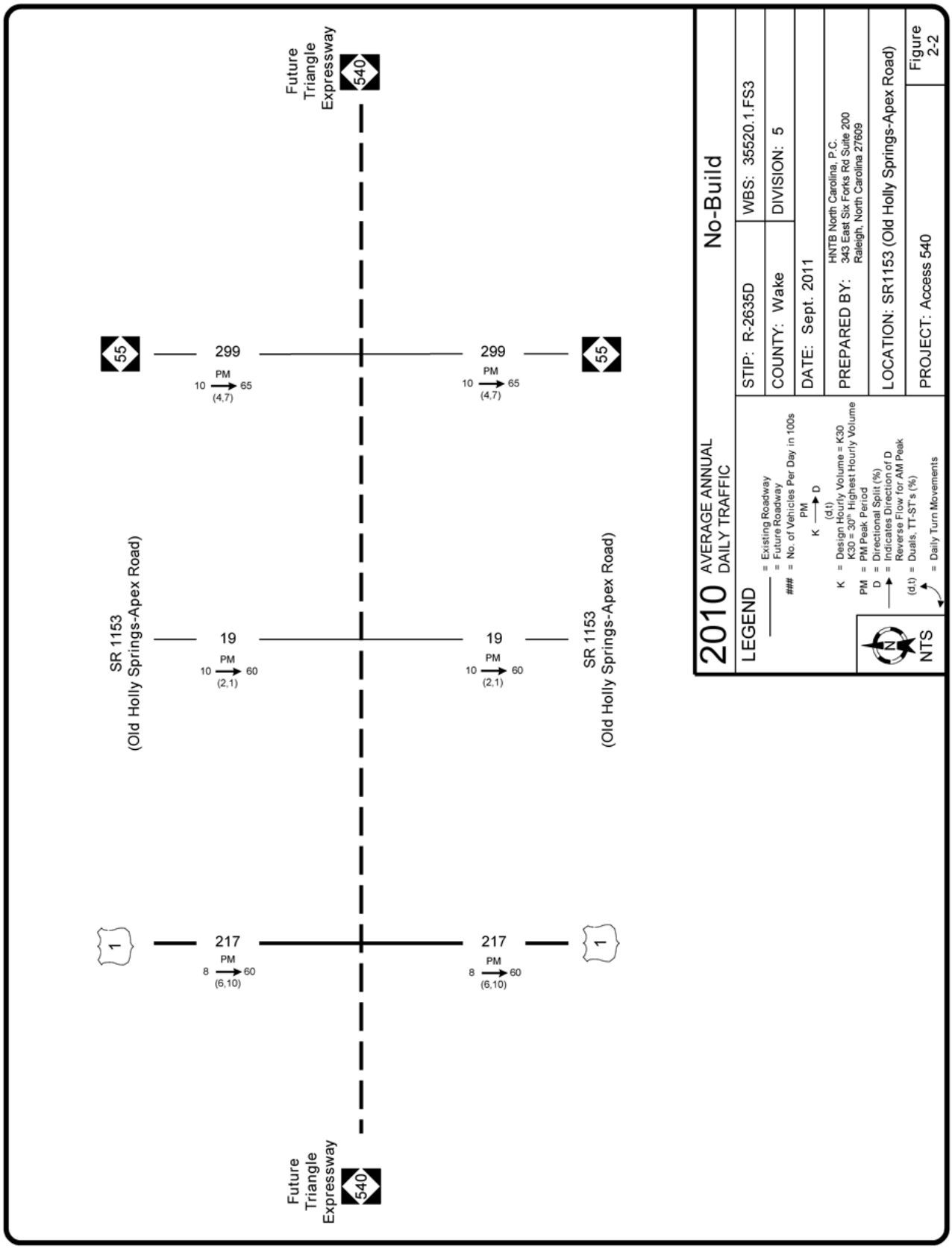
2.2 Project Needs

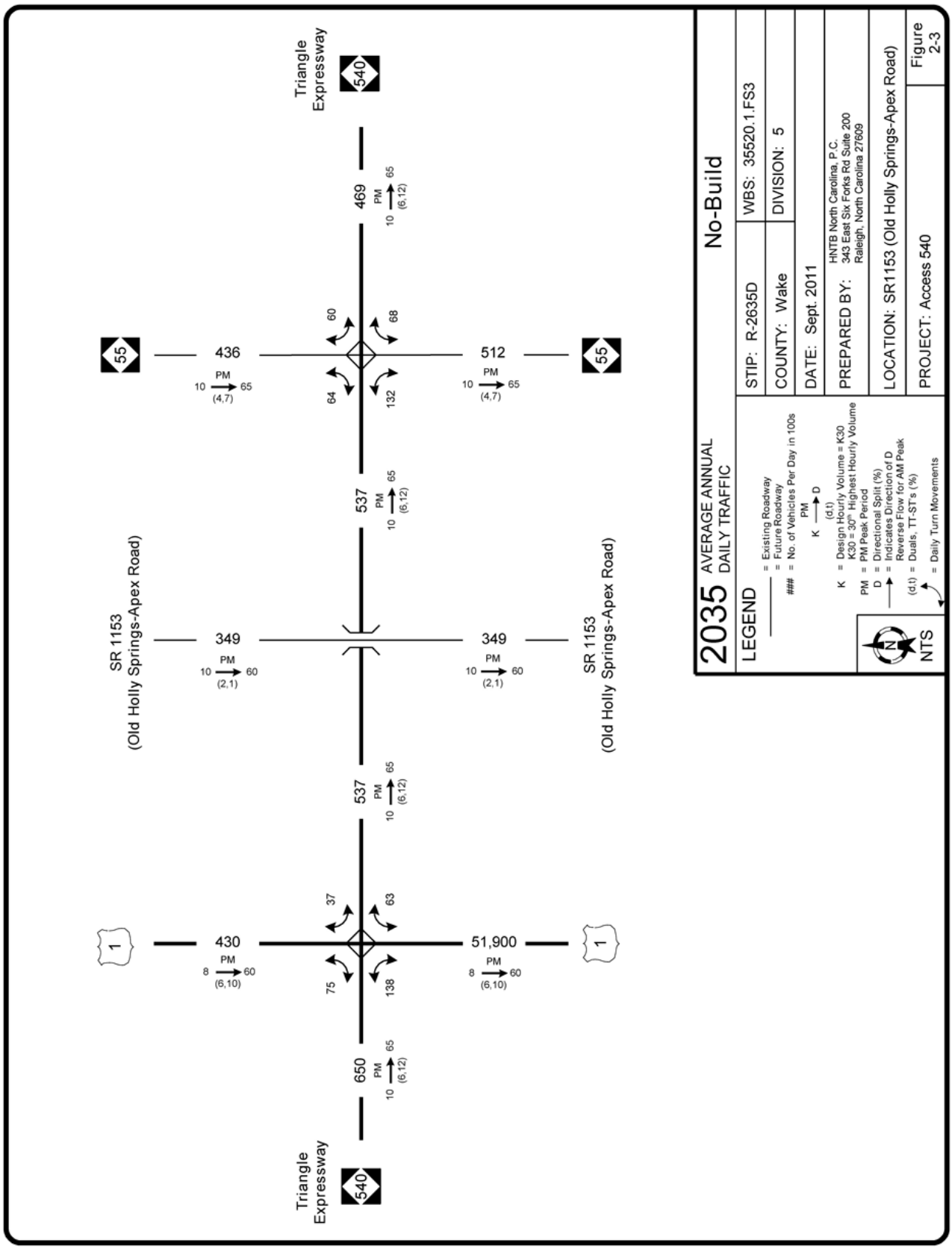
The proposed action responds to the following transportation need:

- ***No direct link exists between the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153). The existing interchanges along the Triangle Expressway do not provide adequate accessibility for planned and anticipated growth in southern Apex.***

The Triangle Expressway is a major north-south freeway facility in western Wake County and southern Durham County. The Triangle Expressway offers a high degree of mobility and convenient access between the towns of Holly Springs, Apex, Cary, and Morrisville and other regional roads such as NC 55, US 1, US 64, I-40, I-540 and NC 147. According to the NC 540 Western Wake Freeway / Old Holly Springs Apex Road Interchange Final Traffic Forecast Technical Memorandum (HNTB, September 2011) prepared for the Access 540 project, traffic along Old Holly Springs-Apex Road is projected to increase substantially – from 1,900 AADT (Average Annual Daily Traffic) in 2010 (**Figure 2-2**) to 34,900 AADT in 2035 (**Figure 2-3**). The increase in traffic is largely due to planned and anticipated growth in southern Apex. Due to the deficiency in roadway linkage, motorists desiring to access the Triangle Expressway from Old Holly Springs-Apex Road have to drive 4.5 to 5.5 miles depending on the route chosen (route options include Tingen Road, Apex Peakway, US 1, NC 55, Woods Creek Road, Friendship Road and Old US 1).


NORTH CAROLINA Turnpike Authority
Environmental Features
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D
Figure 2-1
Legend
Study Area
Potential Historic Resource
Communications Tower
Apex Existing Water Line
Apex Existing Sewer Line
Harris Game Land
Gas Easement
Overhead Power Line
Delineated Water Feature (2013)
Delineated Wetland Area (2013)
Creek or Stream
NWI Wetlands
Water Body
100-Year Floodplain
Hazardous Substance Site
Parcel Boundary
Veridea Property
Existing Subdivision
Penny-Ashley House
Hunter-Prince House
VERIDEA PROPERTY
Communications Tower
EMC Corporation
Technology Drive
Old Smithfield Road
SUNSET PARK
BYP 55
Highway 55 C&D Landfill
Feltonsville Landfill
500'
350'
350'
Old Holly Springs-Apex Rd
Old Holly Springs-Apex Road
TOLL 540
HARRIS GAME LAND
Woods Creek Road
Woodfield Pond End Road
PLEASANT PLAINS
N
E
S
W
0
625
1,250
Feet


Future Triangle Expressway
540
55
299
PM
10 → 65
(4,7)
299
PM
10 → 65
(4,7)
55
SR 1153
(Old Holly Springs-Apex Road)
19
PM
10 → 60
(2,1)
19
PM
10 → 60
(2,1)
SR 1153
(Old Holly Springs-Apex Road)
1
217
PM
8 → 60
(6,10)
217
PM
8 → 60
(6,10)
1
Future Triangle Expressway
540
2010 AVERAGE ANNUAL DAILY TRAFFIC
No-Build
LEGEND
= Existing Roadway
= Future Roadway
= No. of Vehicles Per Day in 100s
PM
K → D
(d,t)
K = Design Hourly Volume = K30
K30 = 30th Highest Hourly Volume
PM = PM Peak Period
D = Directional Split (%)
= Indicates Direction of D Reverse Flow for AM Peak
(d,t) = Duals, TT-ST's (%)
= Daily Turn Movements
N
NTS
STIP: R-2635D
WBS: 35520.1.FS3
COUNTY: Wake
DIVISION: 5
DATE: Sept. 2011
PREPARED BY:
HNTB North Carolina, P.C.
343 East Six Forks Rd Suite 200
Raleigh, North Carolina 27609
LOCATION: SR1153 (Old Holly Springs-Apex Road)
PROJECT: Access 540
Figure 2-2


2035 AVERAGE ANNUAL DAILY TRAFFIC
No-Build
LEGEND
= Existing Roadway
= Future Roadway
= No. of Vehicles Per Day in 100s
PM
K → D
(d,t)
K = Design Hourly Volume = K30
K30 = 30th Highest Hourly Volume
PM = PM Peak Period
D = Directional Split (%)
= Indicates Direction of D
Reverse Flow for AM Peak
(d,t) = Duals, TT-ST's (%)
= Daily Turn Movements
NTS
STIP: R-2635D
WBS: 35520.1.FS3
COUNTY: Wake
DIVISION: 5
DATE: Sept. 2011
PREPARED BY: HNTB North Carolina, P.C.
343 East Six Forks Rd Suite 200
Raleigh, North Carolina 27609
LOCATION: SR1153 (Old Holly Springs-Apex Road)
PROJECT: Access 540
Figure 2-3
Triangle Expressway
540
55
1
SR 1153
(Old Holly Springs-Apex Road)
436
PM
10 → 65
(4,7)
512
PM
10 → 65
(4,7)
469
PM
10 → 65
(6,12)
537
PM
10 → 65
(6,12)
650
PM
10 → 65
(6,12)
349
PM
10 → 60
(2,1)
430
PM
8 → 60
(6,10)
51,900
PM
8 → 60
(6,10)
60
68
64
132
37
63
75
138

2.3 Project Purpose

Given the need described above, the purpose of the proposed action is to:

- ***Improve accessibility and north-south connectivity within southern Apex by providing a direct local link between the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153).***

The Access 540 project would offer enhanced roadway connectivity of regional importance by providing improved access to the Triangle Expressway to accommodate planned and anticipated residential and commercial growth.

2.4 Project Description

2.4.1 Setting and Land Use

Land use in the vicinity of the Access 540 study area is mostly rural in nature, consisting of large areas of vacant, wooded land with scattered large-lot residential parcels as well as a few parcels with agricultural uses. Higher-density residential areas are located along Old Holly Springs-Apex Road approximately 1.5 miles south of the Triangle Expressway, as this portion begins to include northern Holly Springs and its residential subdivisions and retail centers. The land area adjacent to and just south of the Triangle Expressway consists of the privately-owned Highway 55 Landfill, as well as the Wake County-owned Feltonsville Landfill and the South Wake Landfill. Wake County also owns the Firearms Education and Training Center that is located along Old Holly Springs-Apex Road, approximately one-mile south of the Triangle Expressway. Just north of the Triangle Expressway, between Old Holly Springs-Apex Road and the NC 55 Bypass, is the EMC Corporation facility, an information technology services provider. A large portion of land southwest of the Access 540 study area is comprised of a segment of the Harris Game Land with a few residential parcels. These features are depicted on **Figure 2-1**.

Substantial growth is anticipated throughout the vicinity of the Access 540 study area. This is evidenced by the Town of Apex's rezoning approval in 2011 of the proposed Veridea development, an approximately 1,000-acre sustainable mixed-use community in southern Apex, and its designation in the Apex Comprehensive Plan as a Regional Mixed-Use node. Veridea is expected to have 10 million square feet of office, 3.5 million square feet of retail, 2 million square feet of manufacturing space, and 8,000 residential units at build out. Other development is already occurring, such as the residential areas of Forest Springs in Holly Springs and Salem Village in Apex.

2.4.2 Project History

The Triangle Expressway opened to traffic in phases beginning in December 2011 with the final phase opening in December 2012. Old Holly Springs-Apex Road was constructed with a grade-separated crossing of the Triangle Expressway but was envisioned to be converted to an interchange in the future as a separate project. The existing grade separation was designed and constructed for future modification to an interchange and the existing outside shoulders along the Triangle Expressway – between the NC 55 Bypass and US 1 – were constructed full depth to allow future conversion to auxiliary lanes.

The Access 540 project was added to the 2012-2018 STIP in September 2013. The project is funded for right-of-way and construction and has a let date of May 2015. The procurement contract method will be design-build.

In June 2013, the North Carolina General Assembly and the Governor approved House Bill 817 entitled "An Act to Strengthen the Economy through Strategic Transportation Investments." The Strategic Transportation Investments Law (STI) allows the NCDOT to maximize North Carolina's existing transportation funding to enhance the states infrastructure and support economic growth, job creation, and high quality of life. The STI law established the Strategic Mobility Formula, a new way of allocating available revenues based on data-driven scoring and local input. The Access 540 project has been identified as a 'transitional' project under STI, meaning that it is not subject to STI analysis since the project is scheduled for construction let before July 1, 2015.

2.4.3 System Linkage

2.4.3.1 Existing Road Network

The Triangle Expressway at Old Holly Springs-Apex Road

The Access 540 project would increase accessibility to the Triangle Expressway, an important north-south thoroughfare for regional traffic to and from the study area. The Triangle Expressway is a six-lane median-divided toll facility with a posted speed of 70 miles per hour. Old Holly Springs-Apex Road is a north-south two-lane facility with a posted speed of 35 miles per hour. The existing road network within the study area also includes the NC 55 Bypass and US 1. The NC 55 Bypass is a north-south four-lane divided facility with a posted speed of 55 miles per hour. The NC 55 Bypass has an interchange with the Triangle Expressway that is slightly over one mile from Old Holly Springs-Apex Road. US 1 is an east-west four-lane divided facility with a posted speed of 65 miles per hour. US 1 has an interchange with the Triangle Expressway that is less than one mile from Old Holly Springs-Apex Road.

2.4.3.2 Other Modes of Transportation

Airport – The Raleigh-Durham International Airport lies approximately 12.5 miles northeast of the study area and is an approximately 17-mile drive from the proposed Access 540 project. The proposed interchange would increase accessibility to the Triangle Expressway, which provides a major regional connection to and from the airport.

Bicycle and Pedestrian – There are no pedestrian or bicycle facilities within the study area. However, the east side of the existing bridge carrying Old Holly Springs-Apex Road over the Triangle Expressway features a bicycle-safe rail and sufficient shoulder width for future sidewalk installation. Although there are no bicycle facilities, moderate bicycle activity occurs along Old Holly Springs-Apex Road.

The Bicycle, Pedestrian, and Equestrian Plan (Town of Apex, 2013), a component of the Apex Transportation Plan, calls for Old Holly Springs-Apex Road to feature sidewalks and wide outside lanes for bicycle use. A greenway is also planned in the northwest quadrant of the proposed interchange.

The Holly Springs Comprehensive Transportation Plan (CTP) (Town of Holly Springs, 2013) calls for two greenways in the study area. Each would cross the Triangle Expressway via an underpass or overpass. One greenway would cross the Triangle Expressway just to the west of Old Holly Springs-Apex Road and the other would cross about half-way between Old Holly Springs-Apex Road and the NC 55 Bypass.

Transit Services – There are no fixed-route transit services in the study area. The nearest bus service is offered by Triangle Transit along Route 305 and Route 311. Route 305 provides service between Apex and Cary, downtown Raleigh and Research Triangle Park. Route 311 provides service between Apex and Research Triangle Park. Both routes operate approximately every 30 minutes during morning and evening peak hours. According to Triangle Transit Planning Services, bus service is planned to increase and/or expand in the area of the Access 540 project; however, no timeline has been established for the expansion of services.

According to the Apex Transportation Plan (Town of Apex, 2011), a potential transit center and possible light rail corridor are planned near Old Holly Springs-Apex Road north of the Triangle Expressway. The light rail would connect to the existing CSX Railroad that parallels Old US 1 (South Salem Street) which is also an Amtrak Corridor.

According to the Holly Springs CTP, Route 305 and Route 311 are proposed to add commuter express service from Holly Springs to Research Triangle Park, NC State University and downtown Raleigh. Both routes would utilize the Triangle Expressway though the study area. A fixed-guideway concept is also contemplated in the vicinity of the study area.

Wake Coordinated Transportation Service operates the Transportation and Rural Access or TRACS general transportation program. TRACS provides service to the residents of the non-urbanized areas of Wake County with on-demand transit service.

Railroads – There are no rail facilities in the study area. The closest railroad is owned by CSX and is located approximately 1.7 miles from Old Holly Springs-Apex Road where it crosses the Triangle Expressway at the Old US 1 (South Salem Street) interchange.

2.4.4 Social and Economic Conditions

2.4.4.1 Existing Conditions

The southern Apex area, in which the study area is located, is predominately rural with scattered residential and agricultural land uses, although new residential subdivisions are under construction. The

land area adjacent to and just south of the Triangle Expressway consists of the privately-owned Highway 55 Landfill, as well as the Wake County-owned Feltonsville Landfill and the South Wake Landfill. Wake County also owns the Firearms Education and Training Center that is located approximately one mile south of the existing grade separation along Old Holly Springs-Apex Road. Just north of the Triangle Expressway is the IT-services provider EMC Corporation.

2.4.4.2 Future Development

The Apex Peak Plan 2030 (Town of Apex, 2013) identifies the planned mixed-use development in southern Apex known as Veridea. The largest portion of the Veridea project is encompassed by the Triangle Expressway to the south, NC 55 Bypass to the east, and US 1 to the north and west, with additional parcels adjacent to and south of the Triangle Expressway. Also of note, Old Holly Springs-Apex Road is planned to be the main north-south facility within the development, and the proposed interchange with the Triangle Expressway would provide direct access to that facility. The Apex Peak Plan considers Veridea a major component of a future Regional Mixed-Use node. Mixed-use nodes are prime areas located at the intersection of major regional thoroughfares because they provide the high visibility and accessibility sought by large-scale retailers and businesses.

2.4.4.3 Land Use Plans

The study area is located entirely within Apex's zoning jurisdiction. Land use in Apex is guided by the Apex Peak Plan and the Unified Development Ordinance (UDO). The Apex Peak Plan is a policy document intended to guide development in the Town of Apex to desired community outcomes. The UDO establishes allowable uses by zoning district and sets forth provisions for development design, such as standards for subdivisions and commercial centers. There are no small area plans in the study area.

2.4.5 Transportation Planning

2.4.5.1 Overview of the Thoroughfare Planning Process

The thoroughfare planning process is a comprehensive transportation planning process that integrates urban area planning practices with local, regional, and statewide transportation planning practices. The process identifies transportation planning needs by evaluating land development and population growth trends in rural counties and urbanized areas. The process begins through a cooperative effort between NCDOT's Transportation Planning Branch and local planning officials. Socio-economic data is collected, including business and residential area inventories, existing street inventories, identification of environmental constraints, and historical growth information. A base (existing) year transportation model is built. Utilizing input from local planning officials, land development and population growth trends are projected and applied to the model. Through this modeling process and local knowledge of the area's socio-economic conditions, the thoroughfare planning team identifies transportation deficiencies and determines short- and long-term solutions for eliminating or diminishing those deficiencies.

2.4.5.2 CAMPO and Town of Apex Transportation Planning

The project is included in the Capital Area Metropolitan Planning Organization's (CAMPO) 2040 Metropolitan Transportation Plan and 2012-2018 Metropolitan Transportation Improvement Program, the Apex Transportation Plan and the Holly Springs CTP. Old Holly Springs-Apex Road is designated as a

future thoroughfare that will be widened to a multi-lane facility with accommodations for sidewalks and bicycles. A future interchange with the Triangle Expressway is also anticipated.

2.4.5.3 Other Proposed Road Improvements

The project is included as STIP Project No. R-2635D in the 2012-2018 STIP. Right-of-way acquisition and construction are scheduled for state fiscal year (SFY) 2015. The 2012-2018 STIP includes $4.6 million for right-of-way acquisition and $15 million for construction, for a total of $19.6 million. The project is anticipated to follow the design-build procurement process.

The additional transportation improvement projects listed in the 2012-2018 STIP associated with the network serving or feeding the study area are identified in **Table 2-1** below.

Table 2-1: Nearby STIP Projects

STIP Project No.	Description	Schedule (Fiscal Year)
R-2721, R-2828 and R-2829	"Complete 540" - extend the Triangle Expressway from the NC 55 Bypass in Apex to the US 64/US 264 Bypass in Knightdale. Freeway on new location (27.3 miles).	Planning/design – underway Right-of-way – unfunded Construction – unfunded *Note: The Draft 2015-2025 STIP was released in December 2014 and indicates that segments of the project have been proposed for funding.*
U-2901	NC 55 (Williams Street), US 1 to US 64 in Apex. Widen to a multi-lane curb and gutter facility (2.8 miles).	Right-of-way (Section B) – 2017 Construction (Section B) – 2019 *Sections AA and AB complete.*
U-5301	US 64, West of SR 1308 (Laura Duncan Road) to US 1 in Apex and Cary. Corridor upgrade and improvements (3.0 miles).	Planning/design – underway Right-of-way – 2019 Construction – 2020
U-5315	Morrisville Parkway Extension, SR 1600/SR 1625 (Green Level Church Road) to East of NC 55 in Cary. Multi-lane facility on new location with interchange at NC 540 (Triangle Expressway/Western Wake Freeway).	Planning/Design – underway (by Town of Cary) Right-of-way – unfunded Construction – unfunded *Note: The Draft 2015-2025 STIP was released in December 2014 and indicates that segments of the project have been proposed for funding.*
B-5321	SR 1153 (Old Holly Springs-Apex Road), Replace bridge number 374 over Little Branch	Planning/design – underway Right-of-way – 2016 Construction - 2017

3.0 Alternatives

3.1 Project Logical Termini and Independent Utility

To provide a comprehensive analysis, the Access 540 project incorporated accepted methods that the proposed action have logical termini, be of sufficient length to address environmental matters on a broad scope, have independent utility, and not restrict consideration of alternatives for other transportation improvements.

The Access 540 project has logical termini: the eastern terminus of the project would be the interchange of the Triangle Expressway with the NC 55 Bypass, while the western terminus would be the interchange of the Triangle Expressway with US 1. The proposed interchange and auxiliary lanes would not force immediate transportation improvements beyond the termini or along the connecting facilities. Thus, the proposed project would have independent utility, and its construction would be a useful and reasonable expenditure of funds, even if no additional transportation improvements were made in the area.

While the length of the proposed project is relatively short, it is of sufficient length to allow for the evaluation of environmental issues on a broad basis and would neither restrict consideration of alternatives nor prohibit the implementation of other reasonably foreseeable transportation improvements.

3.2 Preliminary Study Alternatives

Preliminary study alternatives considered for the Access 540 project include a No-Build Alternative, alternative modes of transportation, transportation system management (TSM), and several Build Alternatives. Descriptions of the preliminary study alternatives are presented in this section.

3.2.1 No-Build Alternative

The No-Build Alternative assumes the proposed project is not completed and no improvements, other than typical maintenance activities, would be made to Old Holly Springs-Apex Road or the Triangle Expressway. Although the No-Build Alternative would not meet the project's purpose and need, the No-Build Alternative was retained for further study to provide a baseline for comparing impacts.

3.2.2 Alternative Modes of Transportation

Alternative modes of transportation includes travel options such as walking, biking, carpooling, telecommuting, and public transportation as means to lessen the reliance on passenger vehicle trips. The Travel Demand Management (TDM) Alternative and Multi-Modal Alternative provide options to reduce the number of single occupancy vehicle trips needed, directly reducing traffic congestion.

Alternative modes of transportation would not meet the project's purpose and need of providing a direct local link between the Triangle Expressway and Old Holly Springs-Apex Road or improving accessibility and north-south connectivity within southern Apex and were eliminated from further consideration.

3.2.3 Transportation Systems Management

Transportation Systems Management (TSM) measures typically consist of low-cost minor transportation improvements to an existing facility in place of large-scale modifications. TSM is designed to maximize the use and energy efficiency of a facility and to enhance operations while minimizing capital outlay.

Transportation Systems Management measures would not meet the project's purpose and need of providing a direct local link between the Triangle Expressway and Old Holly Springs-Apex Road or improving accessibility and north-south connectivity within southern Apex and were eliminated from further consideration.

3.2.4 Build Alternatives

The Build Alternatives consider improvements to the existing transportation facility as well as the construction of an interchange with the Triangle Expressway at Old Holly Springs-Apex Road, including the addition of auxiliary lanes along the Triangle Expressway between US 1 and the NC 55 Bypass.

3.2.4.1 Improve Existing Transportation Facility

The Improve Existing Transportation Facility Alternative would include upgrades to the roadways within the study area that would provide a similar function as the proposed action. Improvements to these facilities would potentially include widening, new traffic control, or improved access management.

The Improve Existing Transportation Facility Alternative would not meet the project's purpose and need of providing a direct local link between the Triangle Expressway and Old Holly Springs-Apex Road or improving accessibility and north-south connectivity within southern Apex and was eliminated from further consideration.

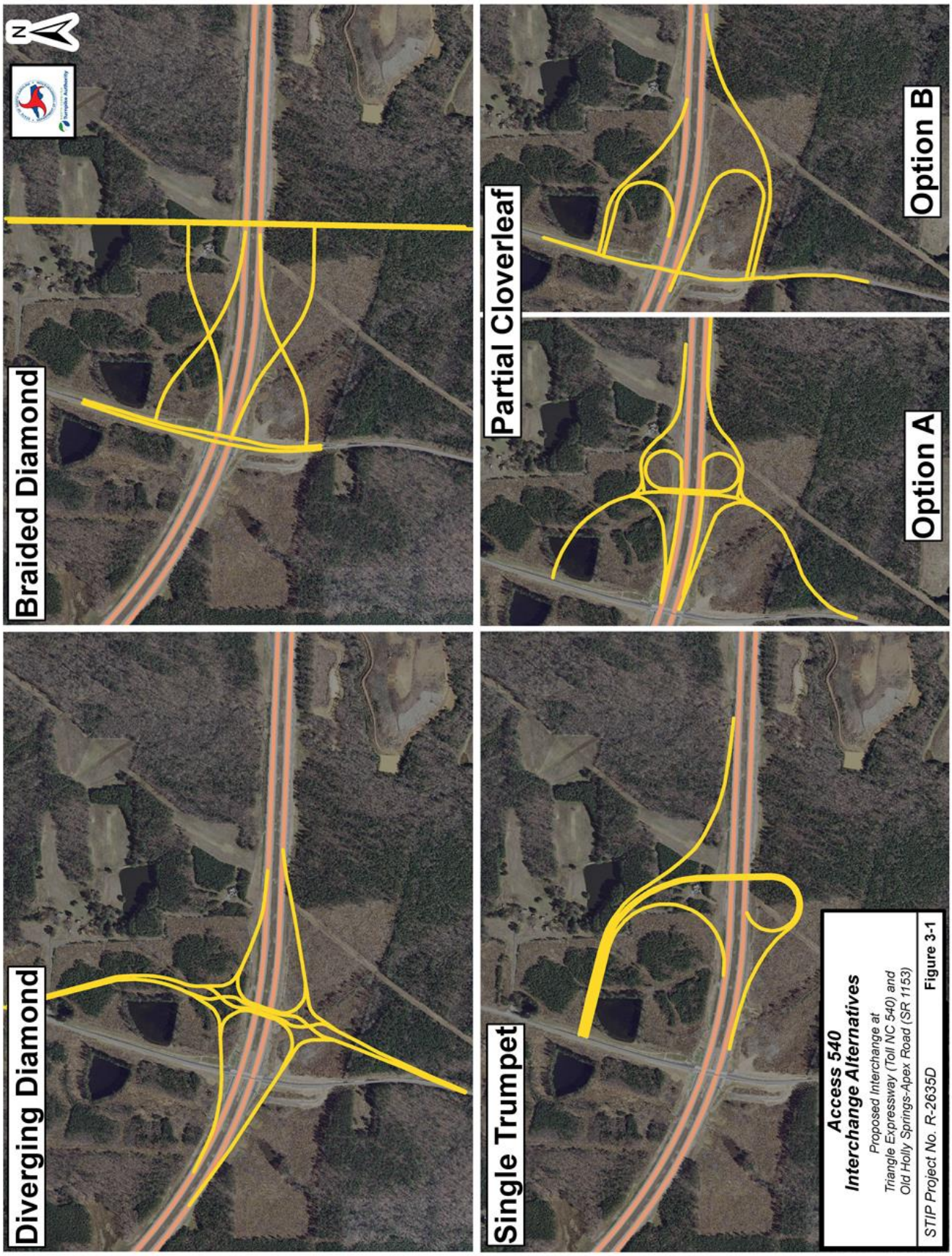
3.2.4.2 Interchange Alternatives

Five interchange design concepts were prepared for the Access 540 project. As shown in **Figure 3-1**, the interchange design concepts varied in their utilization of the existing bridge that spans the Triangle Expressway at Old Holly Springs-Apex Road.

NCDOT screened each interchange design concept against four criteria. These criteria are explained below. It should be noted that all interchanges would meet the purpose and need for the project, so none were eliminated from further consideration on this basis.

1. Interchange Spacing: NCDOT's goal is to maintain a minimum of a one-mile separation between interchanges in urban areas - per American Association of State Highway and Transportation Officials (AASHTO) guideline[1]. Old Holly Springs-Apex Road is approximately 1.2 miles from the NC 55 Bypass interchange and approximately 0.8 miles from the US 1 interchange. Interchange design concepts that could be located on the east side of Old Holly Springs-Apex Road could take advantage of the greater spacing provided in that location.

[1] "Minimum spacing of arterial interchanges (distance between intersecting streets with ramps) is determined by weaving volumes, ability to sign, signal progression, and lengths of speed-change lanes. A general rule of thumb for minimum interchange spacing is 1.5 km [1 mi] in urban areas and 3.0 km [2 mi] in rural areas. In urban areas, spacing of less than 1.5 km [1 mi] may be developed by grade-separated ramps or by adding collector-distributor roads." AASHTO, *A Policy on Geometric Design of Highways and Streets, 6th Edition* (AASHTO, 2011), pg. 10-68.


Braided Diamond
Partial Cloverleaf
Option B
Option A
Diverging Diamond
Single Trumpet
Access 540
Interchange Alternatives
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D
Figure 3-1

2. Communications Tower: To the east of Old Holly Springs-Apex Road and north of the Triangle Expressway is a large communications tower. An anchor block supporting the tower is located adjacent to the Triangle Expressway right of way. Previous estimates indicated that relocation of this tower would cost approximately $2 million. The Triangle Expressway, a nearly $1 billion project, was constructed without impacting the tower. A goal of NCDOT is to construct the proposed Access 540 interchange in a way that would continue to avoid the tower.
3. Highway 55 Landfill: To the east of Old Holly Springs-Apex Road and south of the Triangle Expressway is the NC 55 Landfill, a construction and demolition disposal site. Acquisition of landfill property for highway projects can be costly and time consuming and can impose liability risks on NCDOT. Interchange design concepts that avoid – or at the least, minimize – encroachment into the landfill would be desirable over those that would require more substantial property acquisition.
4. Utilization of the Existing Alignment: The degree to which an interchange design concept would utilize the existing Old Holly Springs-Apex Road alignment was also a consideration. Interchanges that require construction of new bridges or that require relocation of Old Holly Springs-Apex Road would not compare favorably with those that utilize the existing alignment. Upgrading the existing Old Holly Springs-Apex Road and its bridge over the Triangle Expressway would serve to reduce the project footprint, lower costs, minimize right-of-way acquisition, and result in potentially lesser human and natural environment impacts.

Each interchange design concept is discussed below in terms of its ability to meet these four screening criteria.

Diverging Diamond Interchange: The diverging diamond interchange would require realignment of Old Holly Springs-Apex Road, as well as construction of a new bridge over the Triangle Expressway. This alternative would avoid relocating the existing communications tower. There would also be a minor encroachment into the landfill. Although this alternative would increase the spacing to the US 1 interchange, there would still be short weaving and merging distances along the Triangle Expressway to US 1. Because this alternative would require relocating Old Holly Springs-Apex Road and require constructing a new bridge over the Triangle Expressway, as well as result in potentially higher natural environment impacts, the Diverging Diamond Interchange Alternative was eliminated from further consideration.

Braided Diamond Interchange: The braided diamond interchange would require realignment of Old Holly Springs-Apex Road, as well as construction of additional bridges over the Triangle Expressway. There would be undesirable interchange spacing in both directions along the Triangle Expressway. This alternative would require a large, new construction footprint to accommodate the design of the ramp terminals, resulting in relocating the communications tower, a considerable encroachment into the landfill, and potentially higher natural environment impacts. For these reasons, the Braided Diamond Interchange Alternative was eliminated from further consideration.

It should also be noted that the layout of this interchange would be inconsistent with driver expectation. This could result in driver confusion, longer reaction time and driver error.

Single Trumpet Interchange: The single trumpet interchange would require an additional bridge and ramps and loops to be constructed east of the existing overpass. Although this alternative would provide for the efficient movement of vehicles onto and off of the Triangle Expressway, it would require a large, new construction footprint to accommodate the ramps and loops, resulting in relocating the communications tower, a considerable encroachment into the landfill, and potentially higher natural environment impacts. For these reasons, the Single Trumpet Interchange Alternative was eliminated from further consideration.

It should also be noted that the layout of this interchange, notably for eastbound traffic exiting off of or onto Triangle Expressway, would be inconsistent with driver expectation. This could result in driver confusion, longer reaction time and driver error.

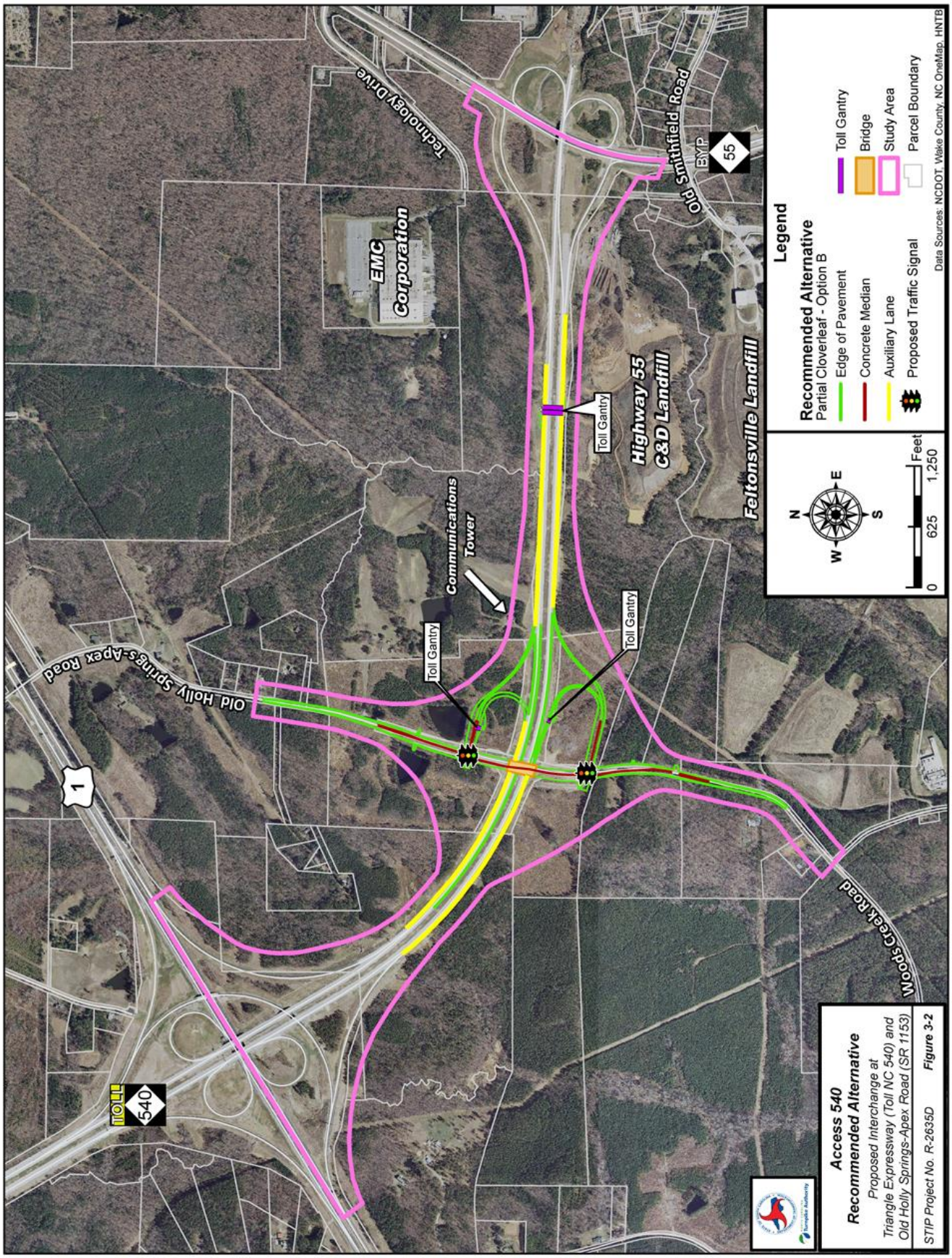
Partial Cloverleaf Interchange - Option A: The partial cloverleaf interchange would require realignment of Old Holly Springs-Apex Road and construction of a new bridge over the Triangle Expressway. Although this alternative would provide greater spacing to the US 1 interchange, there would be shorter spacing to the NC 55 Bypass interchange, resulting in short weaving and merging distances. This alternative would require a large, new construction footprint, resulting in relocating the communications tower, a considerable encroachment into the landfill, and potentially higher natural environment impacts. For these reasons, the Partial Cloverleaf Interchange – Option A Alternative was eliminated from further consideration.

Partial Cloverleaf Interchange - Option B: The partial cloverleaf interchange would minimize the project footprint by utilizing the existing alignment and bridge on Old Holly Springs-Apex Road. The alternative would avoid the communications tower, would result in only a minor encroachment into the landfill, and potentially lower natural environment impacts. By placing the interchange ramps and loops on the east side of Old Holly Springs-Apex Road, this alternative would take advantage of the greater spacing available to the NC 55 Bypass interchange, allowing NCDOT to achieve its goal of a minimum one-mile separation.

Because the Partial Cloverleaf Interchange – Option B Alternative is the only alternative that would meet all four screening criteria, this alternative was carried forward for detailed study.

3.3 Detailed Study Alternative

The Partial Cloverleaf Interchange - Option B Alternative, shown in **Figure 3-2**, was selected for detailed study. This alternative includes the conversion of the existing grade separation at the Triangle Expressway and Old Holly Springs-Apex Road to an interchange. The interchange ramps and loops would be constructed to the east side of Old Holly Springs-Apex Road to take advantage of the greater spacing with the NC 55 Bypass (1.2 miles versus 0.8 miles to US 1). The existing bridge would be widened to the west to accommodate travel lanes, bicycle lanes and sidewalks. The existing outside shoulders of the Triangle Expressway – between the NC 55 Bypass and US 1 – would be converted to auxiliary lanes and new shoulders would be constructed. Preliminary designs, a traffic capacity analysis and a detailed assessment of impacts to the human and natural environments were prepared for this alternative.


Technology Drive
EMC Corporation
Old Smithfield Road
BYP
55
Communications Tower
Toll Gantry
Highway 55
C&D Landfill
Feltonsville Landfill
Old Holly Springs-Apex Road
1
TOLL
540
Woods Creek Road
Legend
Recommended Alternative
Partial Cloverleaf - Option B
Edge of Pavement
Concrete Median
Auxiliary Lane
Proposed Traffic Signal
Toll Gantry
Bridge
Study Area
Parcel Boundary
N
E
S
W
0
625
1,250
Feet
Data Sources: NCDOT, Wake County, NC OneMap, HNTB
Access 540
Recommended Alternative
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D
Figure 3-2

3.4 Traffic Forecast and Traffic Capacity Analysis

For the Partial Cloverleaf Interchange – Option B Alternative, NCDOT relied on several traffic studies. The traffic studies included a traffic forecast and traffic capacity analysis.

- A "traffic forecast" provides projected traffic volumes for a future year. Traffic volumes are measured in annual average daily traffic (AADT) on various roadways.
- A "traffic capacity analysis" is then developed, based on the traffic forecast. The capacity analysis provides congestion levels, which are typically measured in level of service (LOS); other measures, such as volume/capacity (v/c) ratios, also are sometimes used.

The traffic forecast and capacity analysis used 2035 as the horizon (design) year.

3.4.1 Traffic Forecast

A traffic forecast was prepared for the Access 540 project using the Triangle Regional Model Version 4. The forecast included application of appropriate engineering judgment, review of previous forecasts, comparison between field-counted data and travel demand model data and assessment of future growth trends. Modeling efforts and forecasts are documented in the NC 540 Western Wake Freeway / Old Holly Springs-Apex Road Interchange Final Traffic Forecast Technical Memorandum (HNTB, September 2011). Based on the forecast assuming the Access 540 project is constructed**,** traffic on the Triangle Expressway is projected to range between 51,900 and 72,400 AADT in 2035. Traffic on Old Holly Springs-Apex Road is projected to range between 32,900 and 43,000 AADT in 2035.

3.4.2 Traffic Capacity Analysis

The traffic capacity analysis for the Access 540 project is documented in Triangle Expressway / Toll NC 540 and Old Holly Springs-Apex Road Interchange Traffic Capacity Analysis Technical Memorandum (HNTB, March 2014). The capacity analysis was used to develop preliminary engineering designs for the project.

Design Year (2035) Build

Old Holly Springs-Apex Road at the Triangle Expressway Westbound Ramps

In 2035, adequate overall intersection operations (LOS D or better) would be maintained in both the AM and PM peak hours (see **Table 3-1** on the following page and **Figure 3-3** on page 21).

Old Holly Springs-Apex Road at the Triangle Expressway Eastbound Ramps

In 2035, adequate overall intersection operations (LOS D or better) would be maintained in both AM and PM peak hours (see **Table 3-1** on the following page and **Figure 3-3** on page 21).

2035 Freeway Operations Results

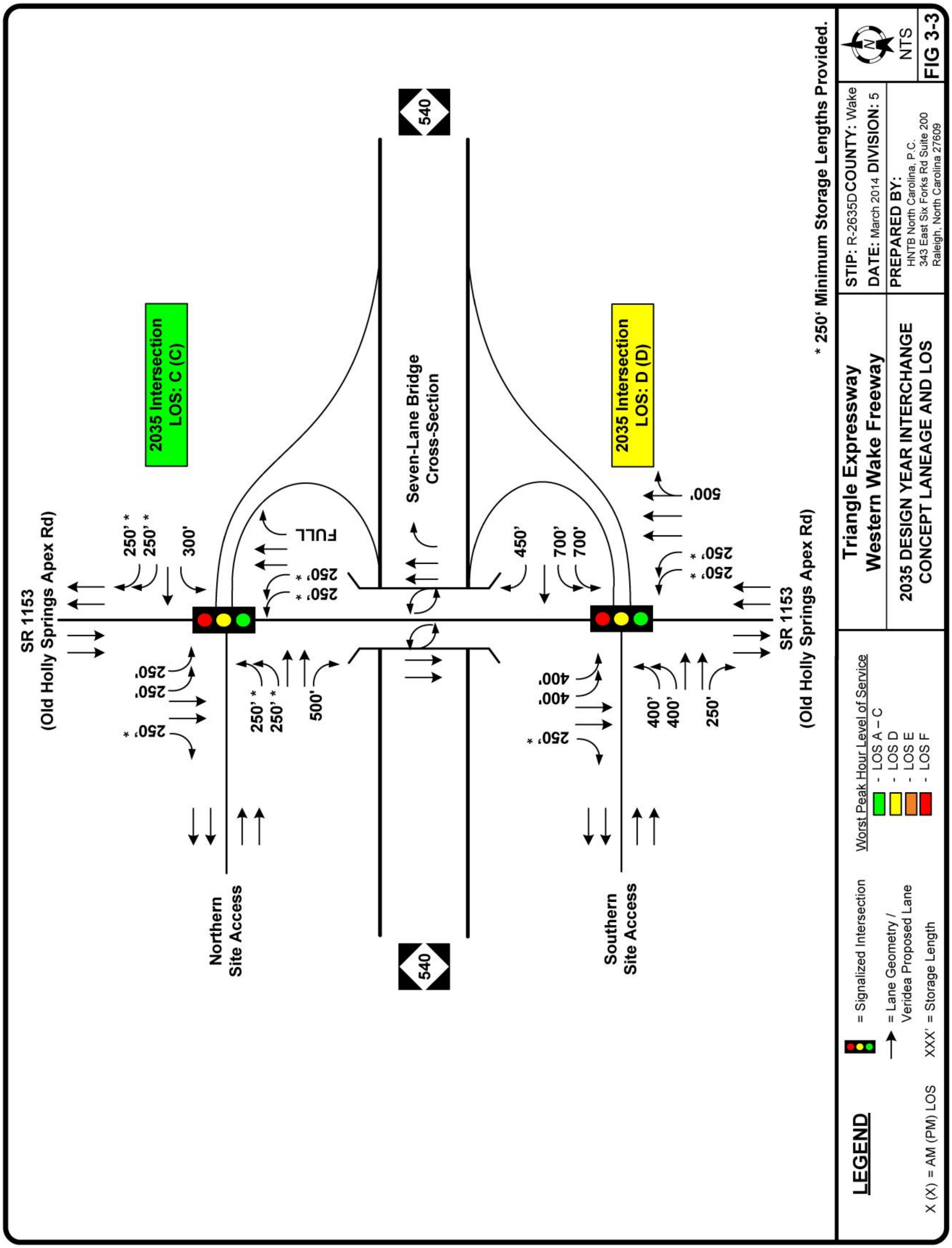
In 2035, adequate traffic operations along the Triangle Expressway in the AM and PM peak hours would be maintained. No individual freeway segment is anticipated to drop below a LOS C in either peak period.

Table 3-1: 2035 Intersection and Freeway Analysis Results

Location	Movement	2035 Design Year Level of Service	
		AM Peak	PM Peak
Old Holly Springs-Apex Road at the Triangle Expressway Westbound Ramps	Overall Intersection	C	C
Old Holly Springs-Apex Road at the Triangle Expressway Eastbound Ramps	Overall Intersection	D	D
Triangle Expressway	Westbound	C	B
Triangle Expressway	Eastbound	B	C

3.5 Recommended Alternative

The Partial Cloverleaf Interchange – Option B is presented as the Recommended Alternative for the Access 540 project. This alternative would satisfy the purpose and need for the project by improving accessibility and north-south connectivity within southern Apex by providing a local link between the Triangle Expressway and Old Holly Springs-Apex Road. This alternative is consistent with NCDOT's 2012-2018 State Transportation Improvement Program, CAMPO's 2012-2018 Metropolitan Transportation Improvement Program, the Apex Transportation Plan and the Holly Springs Comprehensive Transportation Plan. This interchange minimizes environmental impacts and costs by utilizing the existing alignment and bridge on Old Holly Springs-Apex Road. By placing the ramps and loops on the east side of Old Holly Springs-Apex Road, NCDOT's interchange spacing goal of at least a one-mile separation from the nearest interchange (the NC 55 Bypass in this case) can be achieved. The nearby communications tower would not require relocation and encroachment into the NC 55 Landfill would be minor. Because most improvements could be contained within the existing right of way, only minor additional property would need to be acquired, further reducing cost.


SR 1153
(Old Holly Springs Apex Rd)
2035 Intersection
LOS: C (C)
2035 Intersection
LOS: D (D)
Seven-Lane Bridge
Cross-Section
540
540
Northern
Site Access
Southern
Site Access
FULL
250' *
250' *
300'
250'
250'
500'
450'
700'
700'
500'
400'
400'
250'
* 250' Minimum Storage Lengths Provided.
LEGEND
= Signalized Intersection
= Lane Geometry / Veridea Proposed Lane
X (X) = AM (PM) LOS
XXX' = Storage Length
Worst Peak Hour Level of Service
- LOS A – C
- LOS D
- LOS E
- LOS F
Triangle Expressway
Western Wake Freeway
2035 DESIGN YEAR INTERCHANGE
CONCEPT LANEAGE AND LOS
STIP: R-2635D COUNTY: Wake
DATE: March 2014 DIVISION: 5
PREPARED BY:
HNTB North Carolina, P.C.
343 East Six Forks Rd Suite 200
Raleigh, North Carolina 27609
NTS
FIG 3-3

3.6 Cost Estimates

As discussed in Section 4.3.1, the Access 540 project would be constructed in phases, with the initial construction including additional lanes on the Triangle Expressway and Old Holly Springs-Apex Road, a portion of the interchange ramps and loops, toll infrastructure, a sidewalk, and widening of the bridge carrying Old Holly Springs-Apex Road over the Triangle Expressway. The remainder of the interchange and additional lanes and widening would be constructed in phases as development occurs to warrant the additional improvements. Based on the preliminary designs completed to date, the estimated cost (in 2014 dollars) for the ultimate build-out of the Access 540 project is:

Construction	$26,400,000
Right-of-Way	$3,230,000
Utility Modifications	$660,000
Environmental Mitigation	$580,000
Total Estimated Cost	$30,870,000

As previously noted, the cost for the Access 540 project in NCDOT's 2012-2018 STIP is $19.6 million. The STIP cost was based on a conceptual level of design that was prepared prior to development of the preliminary designs for the ultimate build-out of the project. The STIP cost included different assumptions than those used to determine the above total estimated cost. These differences include, but are not limited to, the following: 1) the existing 3-lane bridge would not be widened, 2) only a portion of the interchange ramps/loops and widening of Old Holly Springs-Apex Road would be constructed, 3) there would be no new lane in the Triangle Expressway median, and 4) there would be minimal utility conflicts.

4.0 Proposed Improvements

4.1 Roadway Typical Section

The proposed typical section through the Old Holly Springs-Apex Road interchange would consist of a seven-lane, median-divided roadway (**Figure 4-1**). Adequate travel lanes would be provided to accommodate future anticipated growth in traffic. Lane widths would be 12 feet. Four-foot wide bicycle lanes would be provided in each direction and accommodations for five-foot wide sidewalks would be provided on both sides of the road. The existing bridge on Old Holly Springs-Apex Road would be widened to the west to accommodate the proposed improvements. The design speed for Old Holly Springs-Apex Road would be 50 mph with a posted speed of 45 mph. Once outside the limits of the interchange the project would taper back to the existing two-lane roadway. Proper horizontal and vertical design criteria will be applied to the project, meeting AASHTO and NCDOT standards. No design exceptions are anticipated for this project.

4.2 Right-of-Way and Access Control

The minimum proposed right-of-way width along Old Holly Springs-Apex Road in the vicinity of the interchange is approximately 200 feet with a 102-foot roadway section measured from face-of-curb to face-of- curb. Variations in the right-of-way width may occur to accommodate intersection improvements. Additional easements may also be acquired as needed for construction, drainage and utilities.

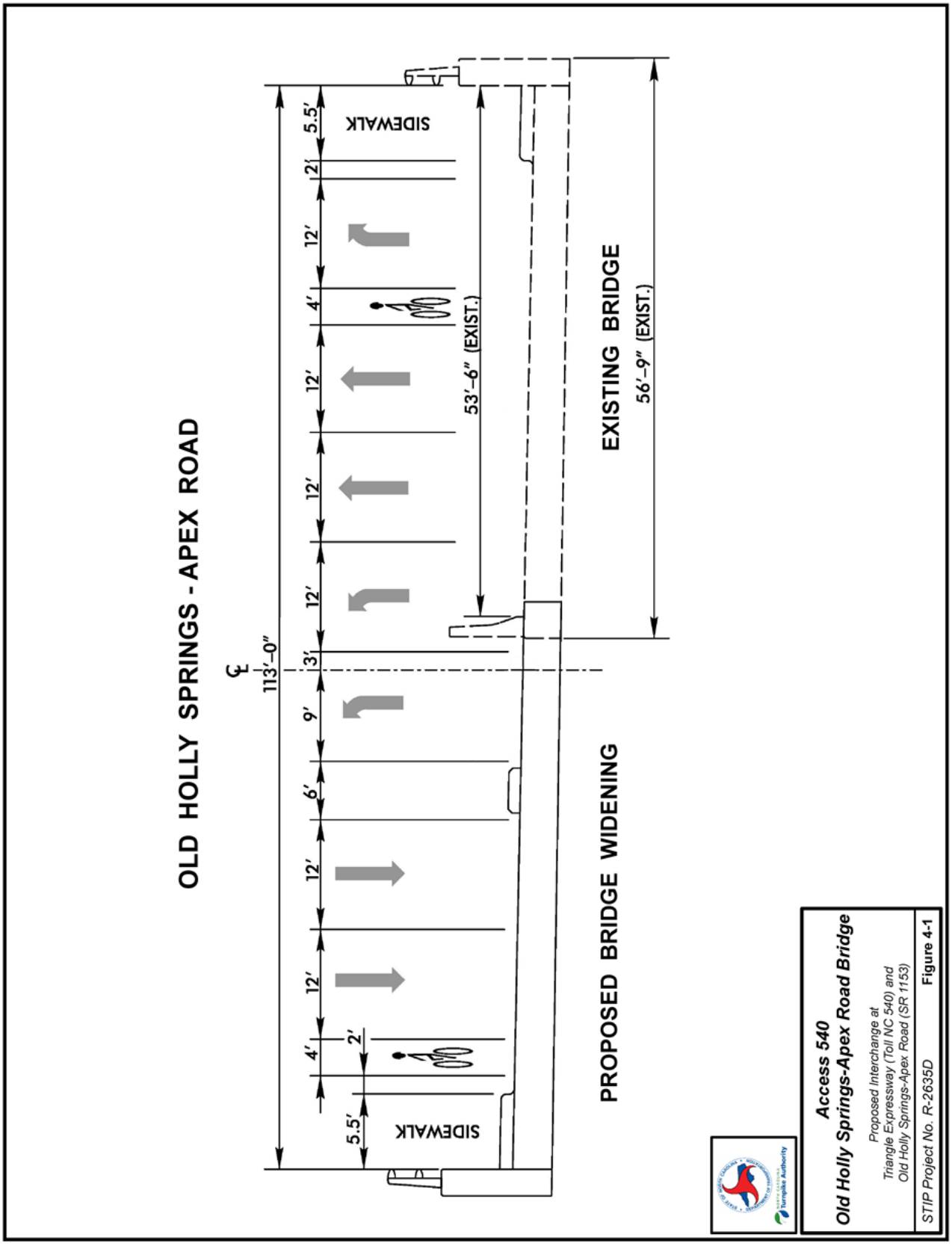
Right-of-way acquisition would impact an estimated five parcels along Old Holly Springs-Apex Road.

Improvements along the Triangle Expressway – including the new auxiliary lanes, new outside shoulders and median widening – would mostly be contained within the existing right-of-way. Easements would be needed in two locations to accommodate culvert extensions and right-of-way would be needed for a portion of the eastbound onramp.

The majority of Old Holly Springs-Apex Road currently features no access control. The Triangle Expressway has full access control. Access on Old Holly Springs-Apex Road through the interchange area would be fully controlled with approved breaks as shown on the preliminary designs.

4.3 Intersections and Interchanges

The Recommended Alternative includes an interchange on the Triangle Expressway between the NC 55 Bypass and US 1. The preliminary design for this alternative calls for a partial cloverleaf interchange with ramps and loops located in the northeast and southeast quadrants. This interchange would be located on the Triangle Expressway approximately 0.8 miles east of the US 1 interchange and approximately 1.2 miles west of the NC 55 Bypass interchange. The interchange ramps would terminate at Old Holly Springs-Apex Road with traffic signals. Toll gantries would be added on each ramp to allow for all-electronic toll collection. To accommodate a two-lane onramp from Old Holly Springs-Apex Road to westbound Triangle Expressway, a new lane would be added to the median.


OLD HOLLY SPRINGS - APEX ROAD
℄
113'–0"
SIDEWALK
5.5'
2'
4'
12'
12'
12'
12'
12'
3'
9'
6'
12'
12'
4'
2'
5.5'
SIDEWALK
53'–6" (EXIST.)
EXISTING BRIDGE
56'–9" (EXIST.)
PROPOSED BRIDGE WIDENING
Access 540
Old Holly Springs-Apex Road Bridge
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D
Figure 4-1

4.3.1 Phased Construction

The Access 540 project would be constructed in phases. The initial construction would include, but not be limited to, the following:

1) the auxiliary lanes;
2) a portion of the interchange ramps and loops;
3) toll gantries and related infrastructure;
4) two through lanes and a turn lane on Old Holly Springs-Apex Road, and;
5) a sidewalk on the east side of Old Holly Springs-Apex Road between the interchange intersections, subject to approval of a municipal agreement with the Town of Apex.

Additionally, the bridge carrying Old Holly Springs-Apex Road over the Triangle Expressway would be built to its ultimate width to accommodate seven lanes.

The remainder of the interchange – including the additional travel lanes on Old Holly Springs-Apex Road, an additional lane on the westbound onramp to the Triangle Expressway, and the widening in the median of the Triangle Expressway – would be constructed in phases as development occurs to warrant the additional improvements.

4.4 Bicycle and Pedestrian Facilities

The proposed roadway typical section for Old Holly Springs-Apex Road provides accommodations for four-foot bicycle lanes and five-foot wide sidewalks on both sides of the roadway.

4.5 Utilities

Construction of the proposed project would likely require some degree of adjustment, relocation, or modification to existing public utilities requiring coordination with the affected utility company. Below is a description of the known existing utilities within the project vicinity and any known future improvements to these utilities.

Power

Power in the area is provided by Duke Energy Progress. There are existing power supply lines around and through the study area. There is an existing overhead primary conductor power supply along the east side of Old Holly Springs-Apex Road that would need to be relocated due to the proposed project.

Water and Sewer

The Towns of Apex and Holly Springs provide water and sewer service through portions of the project vicinity. However, the majority of residents currently do not receive municipal water or sewer service. Instead, they rely on private or shared wells for water and private septic systems. Several steel utility casings have been installed under the Triangle Expressway and Old Holly Springs-Apex Road to accommodate future water and sewer lines.

Natural Gas

PSNC Energy has an existing underground natural gas pipeline that runs along the west side of Old Holly Springs-Apex Road and crosses under the Triangle Expressway. This gas line would need to be relocated due to the proposed project. Dixie Pipeline Company also owns a natural gas line that crosses under the Triangle Expressway to the east of Old Holly Springs-Apex Road. Relocation of this gas line is not anticipated.

Fiber Optics/Communication/Intelligent Transportation Systems /All-Electronic Tolling

AT&T provides communication and fiber optic lines in the vicinity of the proposed project. New and relocated fiber-optic cable, conduit, cameras, and other appurtenances would be needed to support Intelligent Transportation Systems elements. Implementation of All-Electronic Tolling would require installation of hardware (cameras, antennas, GPS units, etc.), software and other items.

5.0 Environmental Effects of Proposed Action

5.1 Natural Resources

This section of the EA provides a summary of the potential impacts to the natural environment within the study area. Further details and analyses related to the natural environment are provided in the Natural Resources Technical Report (NRTR) (Michael Baker Engineering, 2013) and the NRTR Addendum Memorandum (NCDOT, 2014). Field investigations were conducted from September through October in 2013. Walking surveys were undertaken to determine natural resource conditions and to document natural communities, wildlife, and the presence of protected species or their habitats. During surveys, wildlife identification involved a variety of observation techniques, including active searching, visual observations, and observing the characteristic signs of wildlife (sounds, scats, tracks, and burrows). Wetland and stream delineations were also completed.

5.1.1 Water Resources

Water resources in the study area (**Table 5-1**) are part of the Cape Fear River Basin [United States Geological Survey (USGS) Hydrologic Unit 03030004]. Ten jurisdictional streams (**Table 5-2**) and six jurisdictional wetlands (**Table 5-3**) were identified in the study area. The location of these resources is shown in **Figures 5-1** through **Figure 5-4**.

Table 5-1: Water Resources in the Study Area

Stream Name	Map ID *	NCDWR Index Number	Best Usage Classification
UT to Little Branch	SA	18-7-6-1-1	C
UT to Little Branch	SB	18-7-6-1-1	C
UT to Little Branch	SC	18-7-6-1-1	C
UT to Little Branch	SD	18-7-6-1-1	C
UT to Little Branch	SE	18-7-6-1-1	C
UT to Big Branch	SG	18-7-6-1	C
UT to Big Branch	SH	18-7-6-1	C
Big Branch	SI	18-7-6-1	C
UT to Big Branch	SK	18-7-6-1	C
UT to Little Branch	SL	18-7-6-1-1	C

** Streams SF and SJ, depicted in an earlier jurisdictional determination, were eliminated in the study area based on current USACE field-verified conditions.*

There are three ponds located in the study area north of the Old Holly Springs-Apex Road overpass and one pond located south of the overpass. Two ponds (OWA and OWD), approximately 2.96 and 0.36 acres respectively, are connected to jurisdictional waters. The remaining two ponds consist of artificially excavated pits that are sustained by high groundwater levels and have no surface water connection to jurisdictional features. Pond OWA is proposed to be drained and thus would be the only pond impacted by the Access 540 project.

Table 5-2: Jurisdictional Characteristics of Water Resources in the Study Area

Map ID	Length (feet)	Classification	Compensatory Mitigation Required	River Basin Buffer
SA	106	Perennial	Yes	Not Subject
SB	571	Perennial	Yes	Not Subject
SC	176 335	Intermittent Perennial	Yes	Not Subject
SD	322	Perennial	Yes	Not Subject
SE	986	Intermittent	Yes	Not Subject
SG	134	Intermittent	Yes	Not Subject
SH	728	Perennial	Yes	Not Subject
SI	439	Perennial	Yes	Not Subject
SK	178	Perennial	Yes	Not Subject
SL	35	Intermittent	Yes	Not Subject
Total	**4,010**			

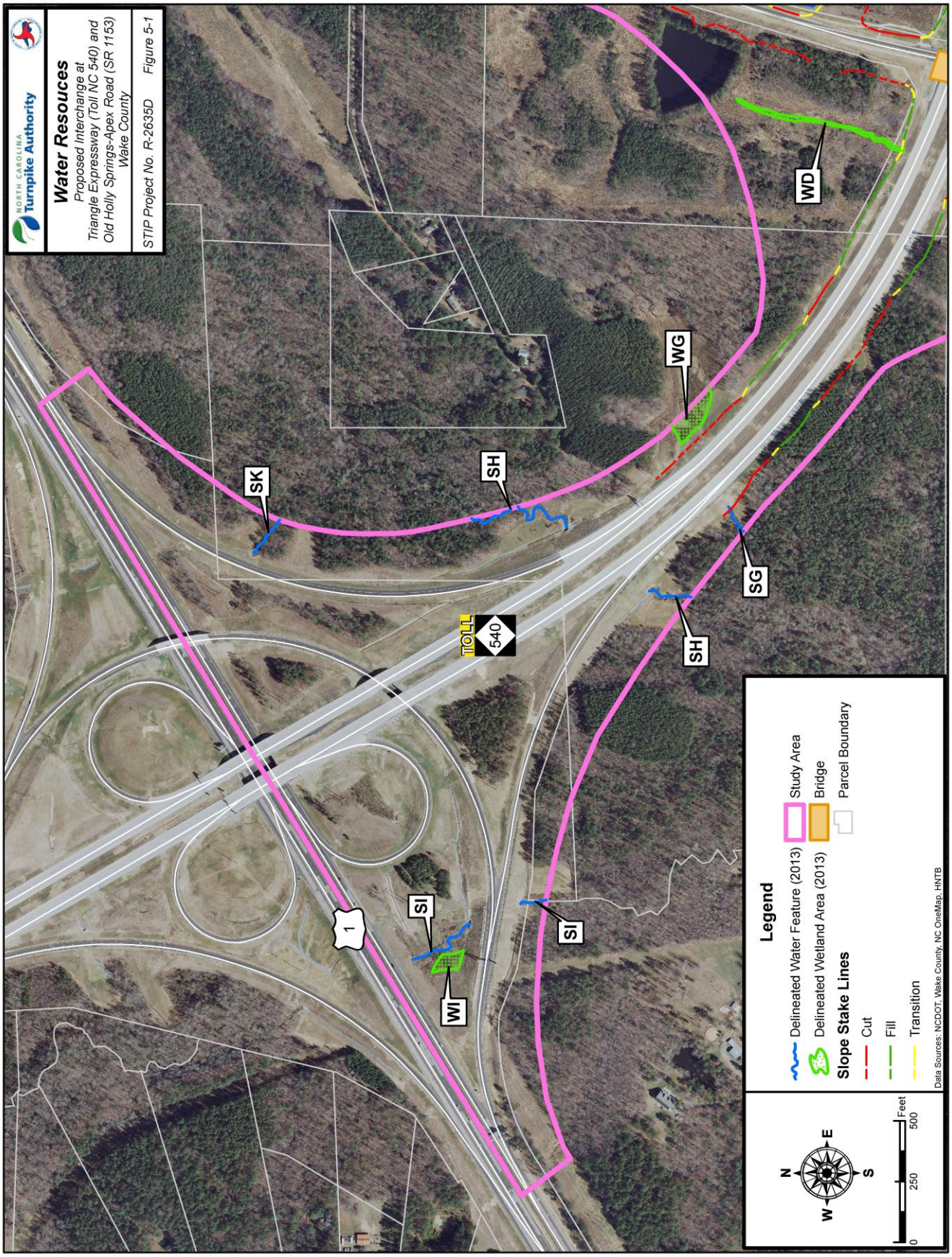
Table 5-3: Jurisdictional Characteristics of Wetlands in the Study Area

Map ID *	NCWAM Classification	Hydrologic Classification	NCDWR Wetland Rating	Area (acre)
WA	Bottomland Hardwood Forest	Riparian	45	0.33
WD	Headwater Forest	Riparian	26	0.21
WE	Non-Tidal Freshwater Marsh	Riparian	56	0.19
WG	Non-Tidal Freshwater Marsh	Riparian	28	0.35
WI	Headwater Forest	Riparian	38	0.15
WJ	Headwater Forest	Riparian	30	0.05
			Total	**1.28**

** Wetlands WB, WC, WF, and WH, depicted in earlier jurisdictional determination, were eliminated in project study area based on current USACE field-verified conditions.*

Six jurisdictional wetlands were identified in the study area, and the classification and quality rating for each wetland is presented in **Table 5-3**. Wetland site WA is included within the Piedmont/Mountain Bottomland Forest community and Wetland WJ is within the Piedmont/Low Mountain Alluvial Forest community. The remaining wetland sites are included in the Maintained/Disturbed community.

There are no Outstanding Resource Waters, designated High Quality Waters, or water supply watersheds (WS-I or WS-II) within 1.0 mile downstream of the study area. The North Carolina 2014 Final Section 303(d) list of impaired waters does not include Little Branch, Big Branch, or any other waters listed due to sedimentation or turbidity within 1.0 mile downstream of the study area.


NORTH CAROLINA Turnpike Authority
Water Resouces
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
Wake County
STIP Project No. R-2635D
Figure 5-1
WD
WG
SH
SK
SG
SH
SI
SI
WI
TOLL
540
1
Legend
Delineated Water Feature (2013)
Delineated Wetland Area (2013)
Slope Stake Lines
Cut
Fill
Transition
Study Area
Bridge
Parcel Boundary
Data Sources: NCDOT, Wake County, NC OneMap, HNTB
N
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250
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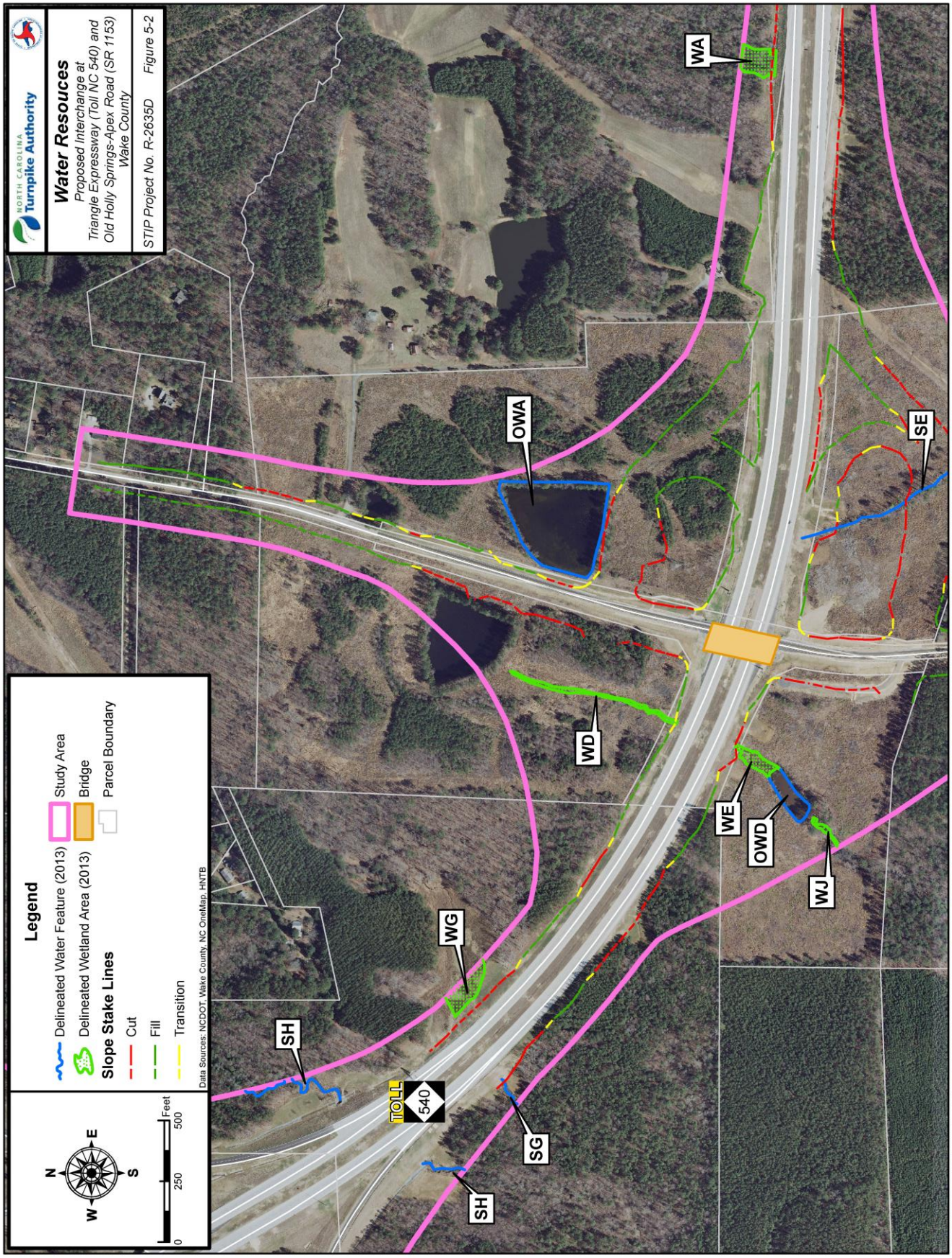
Feet


NORTH CAROLINA Turnpike Authority
Water Resouces
Proposed Interchange at Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) Wake County
STIP Project No. R-2635D
Figure 5-2
Legend
Delineated Water Feature (2013)
Delineated Wetland Area (2013)
Slope Stake Lines
Cut
Fill
Transition
Study Area
Bridge
Parcel Boundary
Data Sources: NCDOT, Wake County, NC OneMap, HNTB
N
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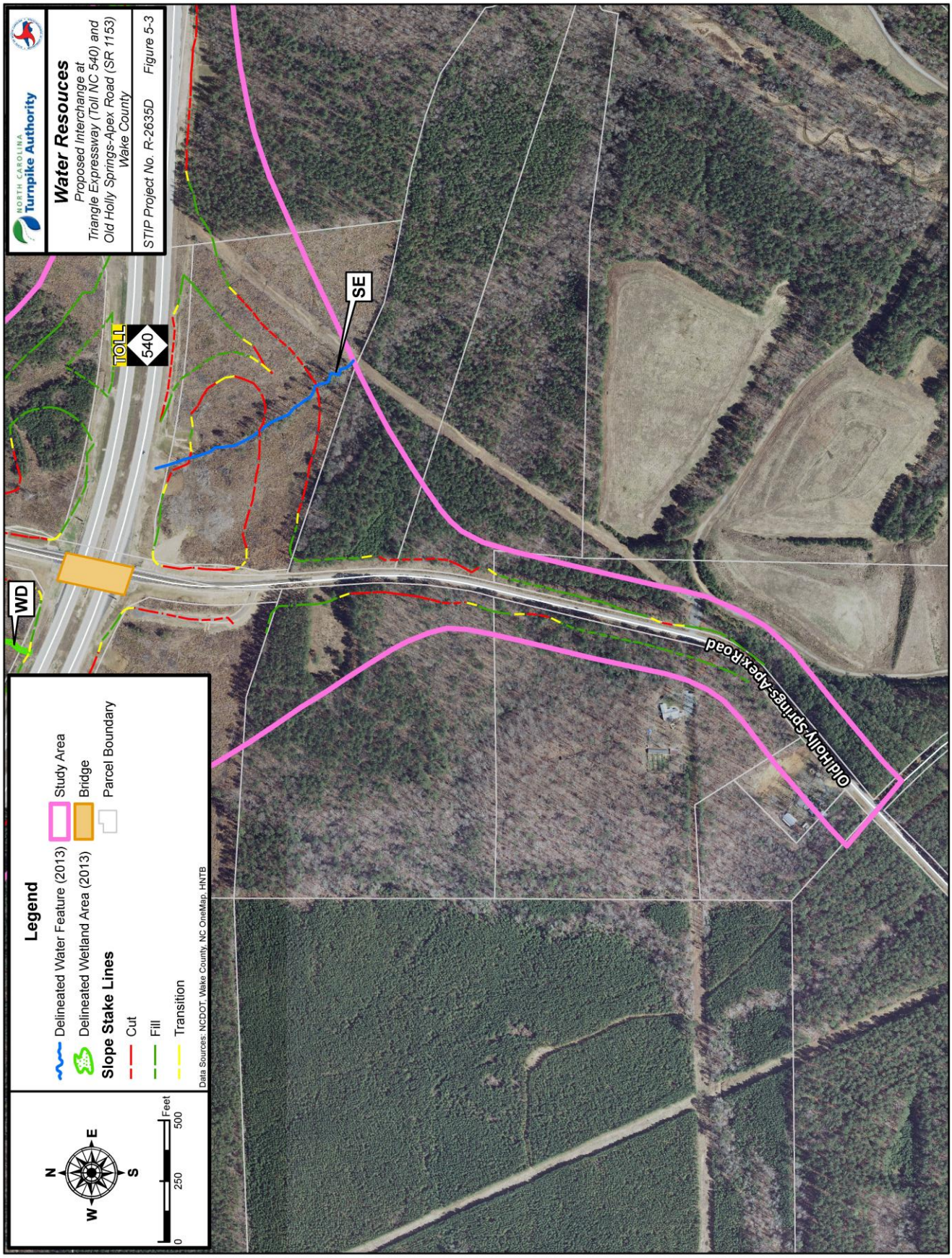
NORTH CAROLINA Turnpike Authority
Water Resouces
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
Wake County
STIP Project No. R-2635D
Figure 5-3
TOLL
540
SE
WD
Old Holly Springs-Apex Road
Legend
Delineated Water Feature (2013)
Delineated Wetland Area (2013)
Slope Stake Lines
Cut
Fill
Transition
Study Area
Bridge
Parcel Boundary
Data Sources: NCDOT, Wake County, NC OneMap, HNTB
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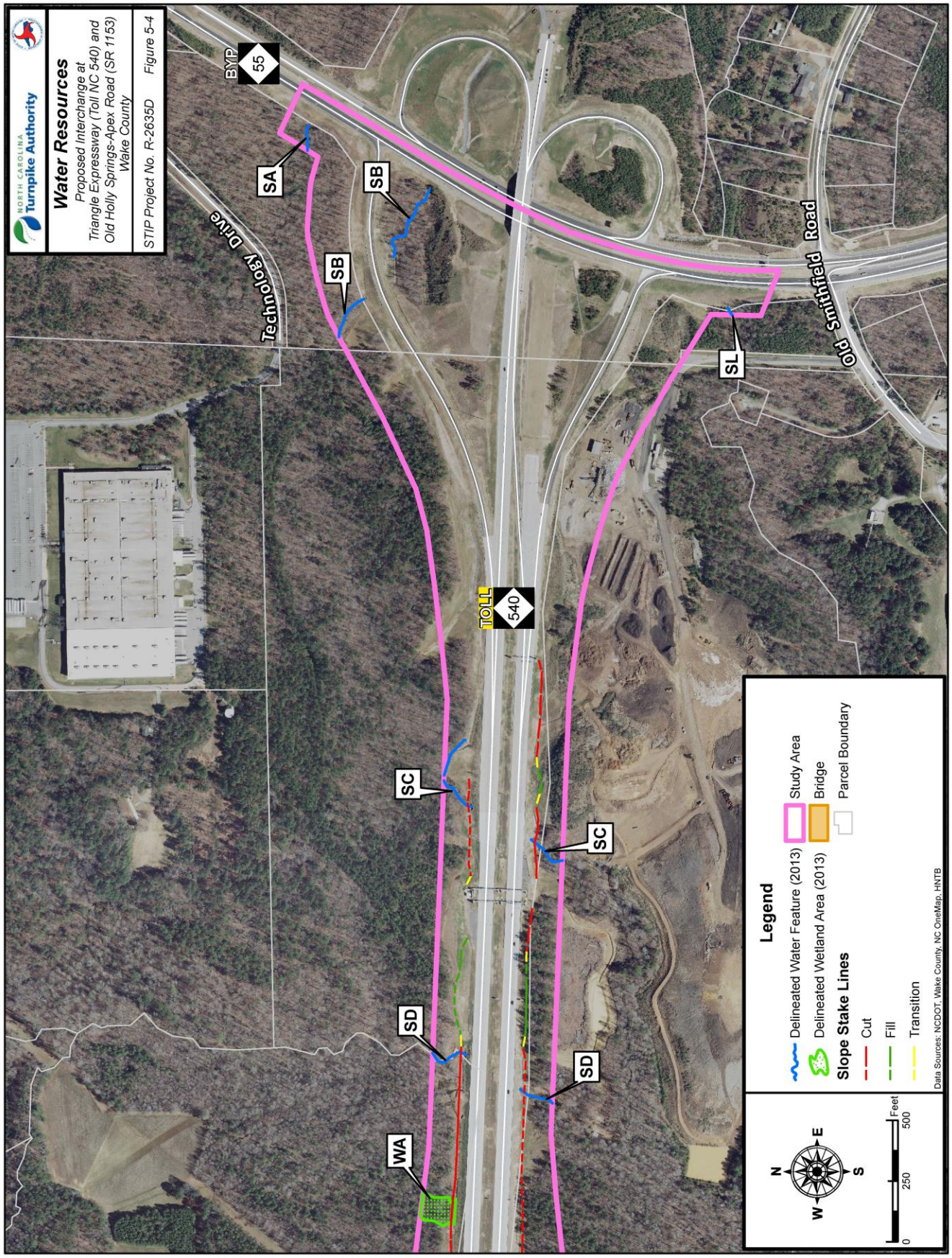
NORTH CAROLINA Turnpike Authority
Water Resources
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
Wake County
STIP Project No. R-2635D
Figure 5-4
BYP 55
SA
SB
SB
SB
SL
SC
SC
SD
SD
WA
TOLL 540
Technology Drive
Old Smithfield Road
Legend
Study Area
Bridge
Parcel Boundary
Delineated Water Feature (2013)
Delineated Wetland Area (2013)
Slope Stake Lines
Cut
Fill
Transition
Data Sources: NCDOT, Wake County, NC OneMap, HNTB
N
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Feet

Extending 25 feet from the slope stakes of the preliminary designs, there would be approximately 738 feet of jurisdictional streams and approximately 0.12 acres of jurisdictional wetlands that would be impacted by the Access 540 project. The impacts to these resources are summarized in **Table 5-4** and **Table 5-5**, respectively.

Table 5-4: Impacts to Jurisdictional Streams

Stream Name	MAP ID	Best Usage Classification	Classification	Comp. Mitigation Required?	Length in Study Area (feet)	Impacts within Slope Stake Line + 25 feet
UT to Little Branch	SA	C	Perennial	Yes	106	0
UT to Little Branch	SB	C	Perennial	Yes	571	0
UT to Little Branch	SC	C	Intermittent Perennial	Yes	176 335	96
UT to Little Branch	SD	C	Perennial	Yes	322	102
UT to Little Branch	SE	C	Intermittent	Yes	986	540
UT to Big Branch	SG	C	Intermittent	Yes	134	0
UT to Big Branch	SH	C	Perennial	Yes	728	0
Big Branch	SI	C	Perennial	Yes	439	0
UT to Big Branch	SK	C	Perennial	Yes	178	0
UT to Little Branch	SL	C	Intermittent	Yes	35	0
				Total	**4,010**	**738**

Table 5-5: Impacts to Jurisdictional Wetlands

MAP ID	NCWAM Classification	Hydrologic Classification	NCDWR Wetland Rating	Area in Study Area (acre)	Impacts within Slope Stake Line + 25 feet (acre)
WA	Bottomland Hardwood Forest	Riparian	45	0.33	0.09
WD	Headwater Forest	Riparian	26	0.21	0.01
WE	Non-Tidal Freshwater Marsh	Riparian	56	0.19	0.02
WG	Non-Tidal Freshwater Marsh	Riparian	28	0.35	0
WI	Headwater Forest	Riparian	38	0.15	0
WJ	Headwater Forest	Riparian	30	0.05	0
			Total	**1.28**	**0.12**

5.1.2 Biotic Resources

Four terrestrial communities were identified in the study area: maintained/disturbed, piedmont/low mountain alluvial forest, piedmont/low mountain bottomland forest, and mesic mixed hardwood forest. A brief description of each community type is below. The coverage of these terrestrial communities in the study area is identified in **Table 5-6**.

Maintained/Disturbed – Maintained/Disturbed areas dominate the study area in places where there is no vegetation or vegetation has been recently cut or is periodically mowed, such as roadside shoulders, utility easements, and residential lawns. The vegetation in this community is comprised of low growing grasses and herbs, including fescue, clover, wild onion, broomsedge, sumac, and goldenrod. Areas less frequently disturbed include sericea, shrubs, and loblolly pine saplings.

Mesic Mixed Hardwood Forest – The Mesic Mixed Hardwood Forest (piedmont subtype) community exists in most of the study area that remains forested. The canopy is dominated by northern red oak, tulip poplar, beech, and other mesophytic trees. The shrub layer consists of fringe tree, viburnum species, and dogwood. Herbaceous species include Christmas fern, little brown jug, tall rattlesnake root, and round-lobed hepatica.

Piedmont/Low Mountain Alluvial Forest – Piedmont/Low Mountain Alluvial Forest occurs in the floodplains of the larger streams in the study area. Canopy species in this community include tulip poplar, mockernut hickory, sweet gum, loblolly pine, and green ash. Subcanopy and understory species include red maple, dogwood, redbud, sourwood, and ironwood. Herbaceous species include lady fern, Christmas fern, grape fern, yellowroot, poison ivy, bedstraw, and Japanese stilt grass.

Piedmont/Mountain Bottomland Forest – The only two occurrences of Piedmont/Mountain Bottomland Forest in the study area are associated with wetland WA and stream SG. Dominant species in this community include loblolly pine, laurel oak, red maple, hickory species, sweet gum, and white oak that dominate the vegetation in this community. Other bottomland species such as green ash and tulip poplar also contribute to the canopy cover. Subcanopy species include ironwood, sweetgum, willow oak, water oak, dogwood and winged elm. Herbaceous species include greenbrier, false nettle, and sedges.

Table 5-6: Coverage of Terrestrial Communities in the Study Area

Community	Coverage (acre)
Maintained/Disturbed	212.7
Mesic Mixed Hardwood Forest	95.6
Piedmont/Low Mountain Alluvial Forest	5.2
Piedmont/Mountain Bottomland Forest	1.2

These terrestrial communities may be disturbed by project construction as a result of grading and paving of portions of the study area. Based on slope stake limits, the proposed project would impact a total of approximately 39.31 acres of terrestrial communities; including approximately 31.92 acres of maintained/disturbed communities, approximately 6.73 acres of mesic mixed hardwood forest, and

approximately 0.66 acre of piedmont/low mountain alluvial forest. There would be no impacts to piedmont/low mountain bottomland forest.

Terrestrial communities in the study area are comprised of both natural and disturbed habitats that may support a diversity of wildlife species (those species actually observed during field visits are indicated with *). Mammal species that commonly exploit forested habitats and stream corridors found within the study area may include species such as Virginia opossum, eastern mole, big brown bat, red bat, eastern cottontail, gray squirrel, southern flying squirrel, beaver, raccoon*, gray fox, and white-tailed deer*. Birds that commonly use forest and forest edge habitats include northern cardinal, Carolina chickadee, American crow*, mourning dove, northern flicker, red-tailed hawk, red-shouldered hawk, blue jay, golden-crowned kinglet, rubycrowned kinglet, northern mockingbird, barred owl, great-horned owl, eastern wood pewee, American robin, yellow-bellied sapsucker, downy woodpecker, red-bellied woodpecker, red-headed woodpecker, brown thrasher, tufted titmouse, eastern towhee, black vulture*, turkey vulture*, yellow-rumped warbler, bluegray gnatcatcher, wood thrush, and 35arolina wren. Reptile species that may use terrestrial communities located in the study area include northern fence lizard, green anole, slender glass lizard, five-lined skink, broadhead skink, ground skink, worm snake, northern black racer, southern ringneck snake, black rat snake, eastern hognose snake*, mole kingsnake, eastern kingsnake, rough green snake, brown snake, northern redbelly snake, eastern garter snake, rough earth snake, and copperhead. Amphibian species expected to occur in the terrestrial communities on-site include slimy salamander, eastern newt, spotted salamander, marbled salamander, northern dusky salamander, two-lined salamander, three-lined salamander, four-toed salamander, mud salamander, American toad, Fowler's toad, northern cricket frog, cope's gray treefrog, green treefrog, squirrel treefrog, spring peeper, upland chorus frog, bullfrog, green frog, pickerel frog, and southern leopard frog.

Aquatic community habitat in the study area consists of intermittent and perennial piedmont streams and ponds. Perennial streams and ponds in the study area could support redbreast sunfish, bluegill, warmouth, pumpkinseed, green sunfish, redear sunfish, largemouth bass, black crappie, bluehead chub, creek chub, margined madtom, eastern mosquitofish*, and johnny darter. Farm ponds may contain introduced grass carp and/or common carp. Reptile species expected to occur in the aquatic communities on-site include northern water snake, snapping turtle, eastern box turtle, eastern mud turtle, common musk turtle, painted turtle, and yellowbellied slider*.

Two species from the NCDOT Invasive Exotic Plant List for North Carolina were found to occur in the study area. The species identified were Japanese stilt grass (Threat) and sericea (Threat). NCDOT will manage invasive plant species as appropriate.

5.1.3 Endangered Species Act Protected Species

As of January 22, 2014, the U.S. Fish and Wildlife Service (USFWS) lists three federally protected species for Wake County: red-cockaded woodpecker (*Picoides borealis*), dwarf wedgemussel (*Alasmidonta heterodon*), and Michaux's sumac (*Rhus michauxii*).

A USFWS proposal for listing the Northern Long-eared Bat (*Myotis septentrionalis*) as an Endangered species was published in the Federal Register in October 2013. The listing will become effective on or before April 2015. Furthermore, this species is included in USFWS's current list of protected species for Wake County. NCDOT is working closely with the USFWS to understand how this proposed listing may impact NCDOT projects. NCDOT will continue to coordinate appropriately with USFWS to determine if this project will incur potential effects to the Northern long-eared bat, and how to address these potential effects, if necessary.

The Biological Conclusions for the three federally protected species listed for Wake County are shown in **Table 5-7**.

Table 5-7: Biological Conclusions for Federally Protected Species Listed for Wake County

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
Picoides borealis	Red-cockaded woodpecker	E	No	No Effect
Alasmidonta heterodon	Dwarf wedgemussel	E	No	No Effect
Rhus michauxii	Michaux's sumac	E	Yes	No Effect

E – Endangered

Additionally, no water bodies large enough or sufficiently open to be considered potential feeding sources for the bald eagle were identified. Since there was no foraging habitat within the review area, a survey of the study area and the area within 660 feet of the project limits was not conducted. There have been no known occurrences of this species within 1.0 mile of the study area. Due to the lack of habitat, known occurrences, and minimal impact anticipated for this project, it has been determined that this project will not affect this species. The National Marine Fisheries Service has not identified Little Branch or Big Branch as an Essential Fish Habitat.

5.2 Hydrology and Drainage

Water resources within the study area are part of the Cape Fear River basin [USGS Hydrologic Unit 03030004]. Detailed descriptions of the analysis methodology and proposed drainage structures are contained in the Hydraulic Technical Memorandum, Access 540 (HNTB, July 2014).

The Access 540 project would require conversion of the existing outside shoulders along the Triangle Expressway to auxiliary lanes and the construction of new outside shoulders. These improvements would impact two major stream crossings and both are located along the Triangle Expressway between the NC 55 Bypass and Old Holly Springs-Apex Road. Major stream crossings are defined as structures having a conveyance equal to or greater than a 72"

pipe. The stream crossings impacted by the proposed project are both reinforced concrete box culverts (RCBCs) and have been field investigated and evaluated in accordance with current NCDOT Hydraulic Design criteria. Both culverts would need to be extended by approximately 12 feet upstream and downstream to accommodate the proposed new shoulders.

5.3 Cultural Resources

5.3.1 Historic Architectural Resources

The Access 540 project would not affect any historic architectural resources eligible for or listed on the National Register of Historic Places. No historic resources were identified in the study area.

5.3.2 Archaeological Resources

Archaeological investigations completed in 2001 within the Area of Potential Effects of the Access 540 project did not identify any archaeological resources eligible for or listed on the National Register of Historic Places. No archaeological resources eligible for or listed on the National Register of Historic places would be affected by the Access 540 project.

5.4 Parks, Recreational Areas, and Wildlife and Waterfowl Refuges

There are no parks, recreational areas, or wildlife and waterfowl refuges within the study area. Therefore, there would be no impacts to these resources.

5.5 Farmland

The Farmland Protection Policy Act of 1981 (7 CFR 658), implemented by the US Department of Agriculture Natural Resources Conservation Service (NRCS), requires all federal agencies or their representatives to consider the impact of land acquisition and construction activities on prime and important farmland soils (Public Law 97- 98, Section 1539-1549, 7 USC 4201, et seq). As identified in the Community Impact Assessment, R-2635D Wake County (HNTB, February 2014), a preliminary screening of farmland conversion impacts in the study area was completed (NRCS Form AD-1006, Part VI only) and a total score of 40 out of 160 points was calculated for the project. Based on soils information and preliminary designs, approximately 24 acres of prime and statewide important farmland soils would be converted by the project. However, since the total site assessment score does not exceed the 60-point threshold established by NRCS, notable project impacts to eligible soils are not anticipated.

5.6 Social Effects

The Community Impact Assessment completed for the proposed project details the character of the study area and surrounding vicinity. This report examines, in depth, how the proposed project would interact within the social and natural context of the area.

5.6.1 Neighborhoods and Communities

Current land use within the study area vicinity is predominantly rural, with scattered residential and agricultural uses and, therefore, contains no established neighborhoods. Some acquisition of property to accommodate the proposed improvements would be required but would be primarily restricted to the area of the proposed interchange. No residential or business relocations are anticipated.

5.6.2 Environmental Justice

Census data does not indicate a notable presence of low-income or minority populations meeting the criteria for Environmental Justice within the Demographic Study Area. Additionally, no low-income or minority communities were observed within the Direct Community Impact Area during the site visit. The Apex planner has previously noted that the Feltonsville Community near East Williams Street at Old Smithfield Road has both minority and low-income households; however, this community is outside of the Direct Community Impact Area and is thus not anticipated to be directly affected by the proposed project.

5.6.3 Limited English Proficiency

Census data does not indicate Limited English Proficiency (LEP) populations meeting the US Department of Justice LEP Safe Harbor threshold or a notable presence within the Demographic Study Area.

5.6.4 Visual Impacts

Construction of the Access 540 project would involve grading, paving and limited vegetation removal. New structures would be erected for traffic signals, signs and toll gantries. However, these improvements would be located within the existing transportation corridors of the Triangle Expressway and Old Holly Springs-Apex Road. These corridors were previously disturbed during construction of the Triangle Expressway. Bridges, walls, major sign structures and toll gantries would feature similar aesthetic treatments as the remainder of the Triangle Expressway. New landscaping would also be installed similar to the Triangle Expressway. For these reasons, visual impacts associated with the Access 540 project would not be adverse.

5.6.5 Economic Effects

The Access 540 project would provide additional access opportunity for planned and anticipated development near the interchange within a future regional activity center, as called for in the Apex Peak Plan.

Despite the apparent large amount of available land, a sizeable portion of that land is owned by the developers of Veridea. When Veridea construction begins, their plan calls for retail, office, industrial and residential development, which would result in job growth. Employment growth may be slightly higher in the southern portion of the project vicinity (northern Holly Springs) due to the anticipated continued residential and retail growth in that area.

5.7 Land Use

Western and southern Apex and northwestern Holly Springs have experienced rapid growth in recent years. There have been a number of roadway improvements planned and completed to accommodate this growth, including construction of the Triangle Expressway, the widening of NC 55, and upgrades to roadway arterials, such as Old Holly Springs-Apex Road and Old Smithfield Road. This growth and the accompanying projects have already spurred the rezoning and development of large tracts in the area from agricultural and very low density residential to low and medium density subdivisions. The construction of the proposed project would have little effect on the future land uses as they are already

changing to the mixed uses and medium-density residential uses projected in each town's land use plans.

5.8 Indirect and Cumulative Effects

The extent of potential indirect land use effects as a result of the Access 540 project are documented in the Indirect & Cumulative Effects Screening Report, Access 540 (HNTB, July 2014). These effects will be largely dependent upon several key variables, including: the future local economy and market for development, public infrastructure expansion projects, the completion of other transportation improvements in the area, and the construction of the mixed-use Veridea development which would have an important impact on the population and job market within the project vicinity. Due to relatively economical housing prices when compared to surrounding areas, expected continued moderate to brisk population growth, anticipated growth of local jobs in the area, planned extension of existing transportation facilities, and the desire by local municipalities to expand water and sewer service throughout the study area, the local market for development is relatively robust at present. Future land use plans of Apex and Holly Springs recognize the potential for future growth in the project area and have incorporated both the Access 540 project as well as the Veridea project, indicating a desire of rezoning the land near the project as primarily mixed-use with specific pockets of industrial uses.

The project area is poised to undergo considerable growth by 2035, and Apex and Holly Springs have worked to develop and implement land use and infrastructure plans to accommodate this growth. These plans include a comprehensive plan that addresses growth, land use, and transportation-specific small area plans; and a comprehensive transportation plan. In some cases local ordinances for environmental protection, such as the Town of Apex's *Secondary and Cumulative Impacts Master Mitigation Plan*, and the Town of Holly Spring's *Natural Resources Implementation Program*, exceed state and federal requirements. The proposed project has the potential for moderate indirect and cumulative effects because the project would create a new transportation link and a land use node that would reduce travel times, change travel patterns, and expose properties to greater traffic volumes; however, the proposed project is consistent with local land use and transportation plans.

Comprehensive planning efforts by Apex and Holly Springs have put the policies and procedures in place that show the vision and intent for development in the area of the project, to provide the adequate infrastructure to support this growth, and to protect the natural and human environment during the growth. Both Apex and Holly Springs have developed a *Secondary and Cumulative Impacts (SCI) Master Mitigation Plan* in cooperation with the North Carolina Department of Environment and Natural Resources (NC DENR) to provide a holistic review of the environmental impacts and identified mitigation programs associated with planned infrastructure projects deemed necessary by their Town Councils.

The cumulative effect of this project when considered in the context of other past, present, and future actions, and the resulting impact on the notable human and natural features, is expected to be minimal. Forecast development would be the predominant contributor to cumulative effects. Development is already occurring in the area and that development is anticipated to continue.

5.9 Traffic Noise Analysis

In accordance with Title 23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise (Title 23 CFR 772) and the NCDOT Traffic Noise Abatement Policy, each Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed State or Federal highway projects for construction of a highway or interchange on new location, improvements of an existing highway which substantially changes the horizontal or vertical alignment or increases the vehicle capacity, or projects that involve new construction or substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots or toll plazas.

Traffic noise impacts are determined through implementing the current Traffic Noise Model approved by the Federal Highway Administration (FHWA) and following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Abatement Policy and the NCDOT Traffic Noise Analysis and Abatement Manual. When traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures must be considered for reducing or eliminating these impacts. Temporary and localized noise impacts will likely occur as a result of project construction activities. Construction noise control measures will be incorporated into the project plans and specifications.

A copy of the unabridged version of the full technical report entitled Traffic Noise Analysis, Access 540 (HNTB, September 2014) can be viewed in the Project Development & Environmental Analysis Unit, Century Center Building A, 1000 Birch Ridge Drive, Raleigh.

The traffic noise analysis found that there would be no traffic noise impacts due to the Access 540 project. Based on this preliminary study, traffic noise abatement is not recommended and no noise abatement measures are proposed. This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772. No additional noise analysis will be performed for this project unless warranted by a substantial change in the project's design concept or scope.

In accordance with NCDOT Traffic Noise Abatement Policy, the Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the Access 540 project will be the approval date of this EA/FONSI. For development occurring after this date, local governing bodies are responsible to insure that noise compatible designs are utilized along the proposed facility.

5.10 Air Quality Analysis

5.10.1 Introduction

Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide

(NOx), hydrocarbons (HC), particulate matter, sulfur dioxide (SO2), and lead (Pb) (listed in order of decreasing emission rate).

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS). These were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The most recent amendments to the NAAQS contain criteria for sulfur dioxide (SO_2), particulate matter (PM_{10}, 10-micron and smaller, $PM_{2.5}$, 2.5 micron and smaller), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb).

The primary pollutants from motor vehicles are unburned HC, NOx, CO, and particulates. Hydrocarbons and nitrogen oxides can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO_2. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. These pollutants are regional problems.

A project-level qualitative air quality analysis was prepared for this project. A copy of the unabridged version of the full technical report entitled Air Quality Analysis, Access 540 (HNTB, September 2014) can be viewed at the Project Development & Environmental Analysis Unit, Century Center Building A, 1000 Birch Ridge Drive, Raleigh.

5.10.2 Attainment Status

The project is located in Wake County, which is within the Raleigh-Durham maintenance area for carbon monoxide (CO) as defined by the U.S. Environmental Protection Agency (EPA). The Raleigh-Durham area was redesignated for CO on September 18, 1995 and, due to improved monitoring data, was placed under a limited maintenance plan (conformity is still required without a regional emissions analysis) on July 22, 2013. Section 176(c) of the Clean Air Act Amendments of 1990 requires that transportation plans, programs, and projects conform to the intent of the state air quality implementation plan (SIP). The current SIP does not contain any transportation control measures for Wake County.

The Capital Area Metropolitan Planning Organization 2040 Long Range Transportation Plan (LRTP) and the 2012-2018 Transportation Improvement Program (TIP) conform to the intent of the SIP. The USDOT made a conformity determination on the LRTP on June 14, 2013, and the TIP on August 29, 2014. The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. There are no significant changes in the project's design concept or scope, as used in the conformity analyses.

5.10.3 Carbon Monoxide Hot-Spot Analysis

Carbon monoxide is a colorless and odorless gas which is the product of incomplete combustion, and is the major pollutant from gasoline fueled motor vehicles. CO is a localized air quality issue.

A microscale air quality analysis was performed to determine future CO concentrations resulting from the Access 540 project. The analysis years for the CO hot-spot analysis included 2016, 2021, and 2035. Carbon monoxide vehicle emission factors were calculated for the three analysis years using the

MOVES2010b mobile source emissions computer model. The CAL3QHC model was used to calculate CO concentrations.

The predicted 1-hour and 8-hour average CO concentrations are displayed in **Table 5-8**. Comparison of the predicted CO concentrations with the NAAQS (maximum permitted for 1-hour averaging period = 35 parts per million (ppm); maximum permitted for 8-hour averaging period = 9 ppm) indicates no violation of these standards.

Table 5-8: Highest Modeled CO Concentrations

Analysis Year	1-Hour Peak (ppm)	8-Hour (ppm)
2016	3.5	2.8
2021	3.7	2.9
2035	3.4	2.7

**NAAQS maximum permitted 1-hour CO concentration: 35ppm; 8-hour CO concentration: 9ppm.*

5.10.4 Mobile Source Air Toxics (MSAT)

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (www.epa.gov/iris/). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (www.epa.gov/ttn/atw/nata1999/. These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. Based on an FHWA analysis using EPA's MOVES2010b model, even if vehicle miles traveled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

MSAT analyses are intended to capture the net change in emissions within an affected environment, defined as the transportation network affected by the project. The affected environment for MSATs may be different than the affected environment defined in the NEPA document for other environmental effects, such as noise or wetlands. Analyzing MSATs only within a geographically-defined "study area" will not capture the emissions effects of changes in traffic on roadways outside of that area, which is particularly important where the project creates an alternative route or diverts traffic from one roadway class to another. At the other extreme, analyzing a metropolitan area's entire roadway network will result in emissions estimates for many roadway links not affected by the project, diluting the results of the analysis.

Incomplete or Unavailable Information for Project-Specific MSAT Health Impact Analysis
In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282).

As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (www.epa.gov/risk/basicinfor mation. Htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

MSAT Conclusion

The science of mobile source air toxics is still evolving. As the science progresses, FHWA will continue to revise and update this guidance. FHWA is working with stakeholders, EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process.

5.10.5 Summary

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Substantial progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased

rapidly. Based on the air quality analysis completed for the proposed improvements, the Access 540 project would not contribute to any violation of the NAAQS or result in any increases in MSATs. Therefore, it is not anticipated to create any adverse air quality effects.

5.11 Hazardous Materials

Based on information provided by the NCDOT GeoEnvironmental Section, no known potential hazardous waste sites were identified within the study area.

5.12 Construction Impacts

5.12.1 Air Quality

During construction of the Access 540 project there would be increased emissions from construction equipment and particulate emissions construction activities. Particulate emissions, whether from construction equipment diesel exhaust or dust from construction activities, should be controlled as well as possible. Contractors should follow all local and NCDOT Standard Construction Specification Sections that address the control of burning, construction equipment exhaust, or dust during construction.

Even though construction mitigation measures are not required, there are several measures that should be considered to reduce engine activity or reduce emissions per unit of operating time. Operational agreements that reduce or redirect work or shift times to avoid community exposures could have positive benefits. Also, technological adjustments to construction equipment, such as off-road dump trucks and bulldozers, could be an appropriate strategy. The EPA recommends Best Available Diesel Retrofit Control Technology (BACT) to reduce diesel emissions. Typically, BACT requirements could be met through the retrofit of diesel powered equipment with diesel oxidation catalysts or diesel particulate filters, and other devices that provide an after-treatment of exhaust emissions.

5.12.2 Noise

The predominant construction activities associated with this project are expected to be earth removal, hauling, grading, paving and pile driving for bridge construction. Temporary and localized construction noise impacts would likely occur as a result of these activities. During daytime hours, the predicted effects of these impacts would be temporary speech interference for passers-by and those individuals living or working near the project. During evening and nighttime hours, steady-state construction noise emissions such as from paving operations would be audible, and may cause impacts to activities such as sleep. Sporadic evening and nighttime construction equipment noise emissions such as from backup alarms, lift gate closures (“slamming” of dump truck gates), etc., would be perceived as distinctly louder than the steady-state acoustic environment, and could cause impacts to the general peace and usage of noise-sensitive areas – particularly residences.

Generally, low-cost and easily implemented construction noise control measures should be incorporated into the project plans and specifications to the extent possible. These measures include, but are not limited to, work-hour limits, equipment exhaust muffler requirements, haul-road locations, elimination of “tailgate banging”, ambient-sensitive backup alarms, construction noise complaint mechanisms, and consistent and transparent community communication.

5.12.3 Water Quality

Roadway construction activities may have some temporary impacts on water quality within the study area. Erosion of soils is the most critical water quality impact during construction. The amount of erosion varies depending upon the size of the construction limits, roadway vertical grades, roadway cut and fill slopes, and the effectiveness of installed erosion control devices.

Impacts to water quality will be minimized through the use of NCDOT's guidance document entitled Best Management Practices for the Protection of Surface Waters. An erosion control plan will be developed prior to the initiation of construction. The plan will incorporate the requirements of the North Carolina Sedimentation Pollution Control Act of 1973, and the BMPs to control nonpoint source impacts from new roadway projects. Temporary and permanent erosion control measures will be utilized throughout the project to prevent off-site sedimentation of adjacent streams and properties.

5.12.4 Maintenance of Traffic

Construction of the proposed interchange ramps and loops would mostly occur on new location, limiting its impact on existing traffic. However, because the project would widen Old Holly Springs-Apex Road and tie into existing roadways (Triangle Expressway and Old Holly Springs-Apex Road), there would be some amount of time when existing traffic patterns would be temporarily altered. When the project is under construction, it is expected that through traffic would remain on Old Holly Springs-Apex Road with only brief delays. Traffic on the Triangle Expressway would likely be interrupted but maintained onsite during construction of the new outside shoulders, the interchange ramps, and the widening of the Old Holly Springs-Apex Road bridge.

The construction associated with Old Holly Springs-Apex Road at the Triangle Expressway would require the installation of traffic signals, new pavement construction and bridge widening. During traffic signal installation and turn-lane construction, it is expected that traffic could be maintained on the existing roadway without the need for rerouting. Specific traffic control plans and any necessary phasing of construction will be determined during the final design stage of the project.

Due to the moderate level of bicycle activity along Old Holly Springs-Apex Road, NCDOT will evaluate options to minimize disruptions to bicycle mobility along this road during construction.

5.12.5 Construction Materials and Waste

Precautions will be taken to prevent contamination of any watersheds or streams by improper disposal and storage of materials, wastes, and accidental spillage of fuels or other harmful substances during construction. NCDOT specifications for roads and structures and water quality protection best management practices require the contractor to exercise every reasonable precaution throughout construction of the project to prevent pollution of rivers, streams, and water impoundments. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful wastes would not be discharged into or alongside rivers, streams, or impoundments, or into natural or man-made channels emptying into such receiving waters.

Solid wastes will be disposed of in strict adherence to NCDOT standard specifications and BMPs. The contractor will be required to observe and comply with all laws, ordinances, regulations, orders, and decrees regarding the disposal of solid waste.

Although there are no known underground storage tanks (USTs) within the study area, if any abandoned USTs are found to be located within the right-of-way, they will be handled in accordance with 40 CFR 280.72 after notifying the NCDENR regional offices of their presence.

5.13 Summary of Impacts

Table 5-9 lists the anticipated environmental impacts associated with the Recommended Alternative. No substantial adverse impacts would result from the Access 540 project.

Table 5-9: Summary of Impacts for the Recommended Alternative

Impact	Recommended Alternative
Length (miles)	1.5
Bridges over Streams (#)	0
Major Culvert Crossings >72" (#)	2
Stream Crossings (#/length in ft) [1]	3/738
Wetlands (#/acres)[1]	3/0.12
Ponds (#/acres)	1/2.96
100-year Floodplain (acres)	0
Water Supply Critical Areas (Y/N)	N
Prime/Statewide Important Farmland Soils (acres)	24
Significant Natural Heritage Areas (Y/N)	N
Known Habitat of Federally Listed Threatened and Endangered Species (#/type)	1/Michaux's sumac
Presence of Federally Listed Threatened and Endangered	N
Historic Properties (#)	N
Parks, Recreational Areas, Wildlife/Waterfowl	N
Archaeological Sites (#)	0
Parks (#/acres)	0/0
Wildlife Refuge and Gamelands (Y/N)	N
Federal Lands (Y/N)	N
Greenway Crossings (#)	0
Residential Relocations	0
Business Relocations	0
Low Income/Minority Populations (Y/N)	N
Limited English Proficiency (LEP) Populations	N
Schools (#)	0
Churches (#)	0
Cemeteries (#)	0
Railroad Crossings (#)	0
Major Utility Impacts (#)[2]	2
Noise (# impacted receptors)	0
Air Quality (Y/N)	N
Hazardous Material Sites (#/severity)	0/0
Total Estimated Cost	$30,870,000

1. Wetland and stream impacts based on preliminary design slope stakes plus 25 feet.
2. Overhead power lines and a natural gas pipeline are located along Old Holly Springs-Apex Road and would need to be relocated.

6.0 Stakeholder Involvement

6.1 Agency Coordination

The NCDOT held a meeting on January 17, 2014 to determine if the project should follow the Section 404/NEPA Merger Process. The meeting summary is included in **Appendix A**. At this meeting, the US Army Corps of Engineers (USACE), FHWA, NCDENR-Division of Water Resources, and NCDOT agreed that the project would not follow the merger process. However, due to an anticipated need for an individual Section 404 permit and revisions to the existing stormwater drainage system that may be needed to accommodate the proposed improvements, it was agreed that the project would be placed in the merger process at Concurrence Points 4A, 4B and 4C.

Additionally, an external scoping meeting was held on January 22, 2014. The meeting summary is included in **Appendix A**. The purpose of the meeting was to begin early coordination efforts with the environmental resource and regulatory agencies and other stakeholders, to share information on the project's background and history, to transfer known information about the project area, and to discuss the purpose and need for the project.

A Concurrence Point 4A meeting was held with the environmental resource and regulatory agencies on January 21, 2015. The purpose of the meeting was to discuss avoidance and minimization measures. It was agreed that the only minimization measure would be to utilize 2:1 slopes in jurisdictional wetland fill areas. The meeting summary is included in **Appendix A**. The procurement method for the project will be design-build. Consequently, the design-build team will be required to complete Concurrence Points 4B and 4C.

6.2 Project Website

The NCDOT has maintained a project website that includes a description of the project, project maps, and is updated with news on the project as it becomes available. The website also provides various forms of contact information for the public to reach NCDOT and ask questions or provide feedback on the project. The project website is located at the following address: www.ncdot.gov/projects/triangleexpressway/access540.html.

6.3 Newsletter

A newsletter updating nearby residents on the progression of the project was mailed to approximately 80 residents in April 2014. This newsletter, included in **Appendix B**, provided a description of the project, explained the status of the project, and provided a map showing the proposed interchange location.

A comment form was also included and residents were encouraged to provide their feedback on the proposed study area, the purpose and need for the project and the alternatives to be considered. Nine comment forms were returned. Most citizens who returned a comment form were supportive of the project. Others expressed concerns regarding property impacts, visual impacts, noise impacts and air quality impacts. One respondent felt there was no current need for the project, that there were other more important transportation needs and that the project was being built to benefit developers.

6.4 Local Officials Meeting and Public Meeting

A Local Officials Meeting and Public Meeting for the Access 540 project were held on December 11, 2014 at the Apex Community Center. Detailed information on the meetings can be found in the Public Meeting Summary, Access 540 (HNTB, January 2015).

Local Officials Meeting: The Local Officials Meeting began at 2:00 PM with four local government officials in attendance and 13 members of the project team. The local officials invitation letter and mailing list can be found in **Appendix B.**

The following questions were asked during the Local Officials Meeting:

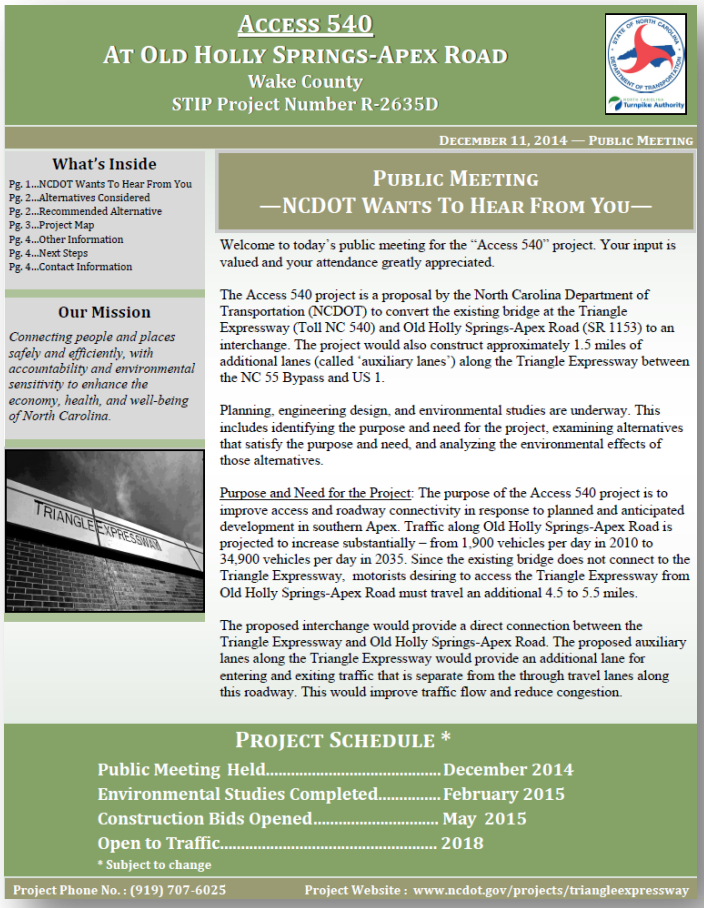
Question: When will the ultimate build out of the project occur and who will be responsible for its construction?

Response: After NCDOT completes the interim construction of the interchange, the remainder of the project will be constructed based on development trends and the need for additional traffic capacity. It is anticipated that developers will complete the majority of the unbuilt portions of the interchange based on an agreement between NCDOT and the developer of a planned development called Veridea.

Question: What is Veridea?

Response: Veridea is a planned approximately 1,000-acre mixed-use development consisting of 10 million square feet of office uses, 3.5 million square feet of retail uses and approximately 2 million square feet of manufacturing space, in addition to 8,000 residential units. Veridea is located in the Town of Apex.

Public Meeting: A total of 90 postcard notices were mailed informing the public of the purpose, date, and location of the Public Meeting. Additionally, the meeting was advertised on NCDOT's Public Meetings website and print advertisements were placed in the News and Observer, Greater Diversity News, Wake Weekly, and the Triangle Tribune. Spanish-language advertisements were placed in La Conexion, Horizonte, AutoGuia, and Que Pasa. Finally, NCDOT sent out a press release to the News and Observer, WRAL-TV, WTVD-TV, WNCN-TV, Time-Warner Cable News, and WPTF Radio. An on-camera interview by NCDOT with WRAL-TV was conducted in advance of the meeting, but no outlets came to the meeting itself. Total attendance numbered 65 (include the project team) based on the sign-in sheets. The three-hour public meeting – held from 4:00 PM until 7:00 PM – was presented in an informal, open-house format with no formal presentation. During conversations with the project team, attendees provided verbal comments which generally related to access and property acquisition (right of way). One comment form was left during the Public Meeting and an additional comment form was mailed to NCDOT after the Public Meeting.



Access 540
At Old Holly Springs-Apex Road
Wake County
STIP Project Number R-2635D

December 11, 2014 — Public Meeting

What's Inside

Pg. 1...NCDOT Wants To Hear From You
Pg. 2...Alternatives Considered
Pg. 2...Recommended Alternative
Pg. 3...Project Map
Pg. 4...Other Information
Pg. 4...Next Steps
Pg. 4...Contact Information

Our Mission

Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health, and well-being of North Carolina.

Public Meeting
—NCDOT Wants To Hear From You—

Welcome to today's public meeting for the "Access 540" project. Your input is valued and your attendance greatly appreciated.

The Access 540 project is a proposal by the North Carolina Department of Transportation (NCDOT) to convert the existing bridge at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) to an interchange. The project would also construct approximately 1.5 miles of additional lanes (called 'auxiliary lanes') along the Triangle Expressway between the NC 55 Bypass and US 1.

Planning, engineering design, and environmental studies are underway. This includes identifying the purpose and need for the project, examining alternatives that satisfy the purpose and need, and analyzing the environmental effects of those alternatives.

Purpose and Need for the Project: The purpose of the Access 540 project is to improve access and roadway connectivity in response to planned and anticipated development in southern Apex. Traffic along Old Holly Springs-Apex Road is projected to increase substantially – from 1,900 vehicles per day in 2010 to 34,900 vehicles per day in 2035. Since the existing bridge does not connect to the Triangle Expressway, motorists desiring to access the Triangle Expressway from Old Holly Springs-Apex Road must travel an additional 4.5 to 5.5 miles.

The proposed interchange would provide a direct connection between the Triangle Expressway and Old Holly Springs-Apex Road. The proposed auxiliary lanes along the Triangle Expressway would provide an additional lane for entering and exiting traffic that is separate from the through travel lanes along this roadway. This would improve traffic flow and reduce congestion.

Project Schedule *

Public Meeting Held..... December 2014
Environmental Studies Completed..... February 2015
Construction Bids Opened..... May 2015
Open to Traffic..... 2018
* Subject to change

Project Phone No.: (919) 707-6025 Project Website: www.ncdot.gov/projects/triangleexpressway

Summary of Verbal Comments Received by the Project Team

Attendees provided the following notable verbal comments during conversations with staff. Responses are provided where applicable.

- The new interchange is good planning in anticipation of future growth in the project area.

- How much right of way will be purchased and what will be the widening limits (typical section) when Old Holly Springs-Apex Road is widened on the north end?

  Response: The majority of the right of way needed for the project is already owned by NCDOT. Approximately five parcels would be impacted by right-of-way acquisition. The amount of right of way needed varies depending on the location. For more information on right of way and the roadway typical section, see ***Sections 4.1 and 4.2****.*

- Do developers have eminent domain? Can they (or the state) force me to sell?

  Response: Private developers do not have eminent domain and cannot force an unwilling property owner to sell. The state does have eminent domain which gives it the legal authority to acquire private property for public purposes. However, it is NCDOT's sincere desire to reach an amicable agreement with each property owner and acquire property through negotiated agreements.

- Will future widening of Old Holly Springs-Apex Road to the north be symmetrical or on one side?

  Response: Widening of Old Holly Springs-Apex Road is not symmetrical where the roadway approaches the bridge. The widening gradually becomes symmetrical as one moves away from the bridge to where the improvements tie in to the existing two-lane roadway.

- What are the differences between the interim design and ultimate design?

  *Response: See **Section 4.3.1** for a description of how the project's construction would be phased.*

- One citizen was concerned about impacts to a well which he said is 60 feet from the pavement edge of Old Holly Springs-Apex Road. The property is located at 3137 Old Holly Springs-Apex Road (on the east side of Old Holly Springs-Apex Road and north of the proposed interchange).

  Response: If project construction or right-of-way acquisition would result in displacement of the existing well, this would be handled during right-of-way negotiations between NCDOT and the property owner. The property owner would be compensated for any damages resulting from the project.

- One citizen was concerned about access to property located at 6300 King David Court (on the east side of Old Holly Springs-Apex Road and north of the proposed interchange). According to the citizen, access to the property is currently provided via a 50-foot easement.

  Response: There is no control of access along Old Holly Springs-Apex Road in this location. Therefore, the proposed widening of Old Holly Springs-Apex Road would not prevent continued use of King David Court for access to the subject property.

- One citizen was concerned about access to vacant property located on the west side of Old Holly Springs-Apex Road and south of the proposed interchange.

  Response: Due to the proposed control of access limits in this location, the existing access drive may need to be relocated. If during final design it is determined that the existing access needs to be modified, this will be discussed with the property owner during right-of-way negotiations. NCDOT is required to provide access to a public street and if this is not feasible, the property will be acquired and just compensation provided.

- A representative of Wake County government was concerned about access to the Wake County-owned landfill. Long term plans are to convert the landfill to another public use once the landfill is closed.

  Response: Based on the preliminary designs, the proposed project would not prevent access to the landfill.

The majority of comments related to access and right-of-way issues. No opposition to the Access 540 project was noted.

Summary of Written Comments

One comment form was left during the Public Meeting. The citizen stated the project would benefit the surrounding area and assist in relieving traffic congestion on Highway 55.

An additional comment form was mailed to NCDOT after the Public Meeting. The citizen expressed concern about impacts to an existing well on property located at 3137 Old Holly Springs-Apex Road (on the east side of Old Holly Springs-Apex Road and north of the proposed interchange). The citizen requested that the widening of Old Holly Springs-Apex Road be shifted to the west to avoid impacting "established property. "

Response [Note: this is the same property discussed in the verbal comments above]: If project construction or right-of-way acquisition would result in displacement of the existing well, this would be handled during right-of-way negotiations between NCDOT and the property owner. The property owner would be compensated for any damages resulting from the project. The widening of Old Holly Springs-Apex Road in this location is generally symmetrical, so moving all widening to the other side of the road would simply be shifting impacts from one property owner to the other. Shifting the alignment to the other side would also result in an asymmetrical widening and extend the project construction to the north.

No other written comments, including letters and email, were provided during the comment period which ended on January 12, 2015.

The postcard notice, handout, comment form and presentation slides are included in **Appendix B**.

7.0 Basis for Finding of No Significant Impact

Based upon a study of the proposed project documented in this assessment and upon comments received from federal, state, and local agencies, and the public, it is the finding of the NCDOT that this project would not have a significant adverse impact upon the human or natural environment. The proposed project is consistent with local plans and would not disrupt communities. Per this evaluation, a Finding of No Significant Impact is applicable for this project. Therefore, no further environmental analysis will be required.

8.0 References

Town of Apex, www.apexnc.org/

Bicycle, Pedestrian, and Equestrian Plan, Town of Apex, 2014, http://files.www.apexnc.org/docs/plan/TransPedMap.pdf, accessed October 2014.

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2040 Metropolitan Transportation Plan, Capital Area Metropolitan Planning Organization, 2013, www.campo-nc.us/2040mtppublicdraft.html, accessed September 2014.

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Veridea, www.veridea-nc.com/, accessed September 2014.

Wake County, www.wakegov.com/Pages/default.aspx, accessed September 2014.

Wake County GIS, www.wakegov.com/gis/services/Pages/data.aspx, accessed September 2014.

Wake County Transportation Plan, www.wakegov.com/planning/transport/pages/transportplans.aspx, accessed September 2014.

Appendix A – Agency Coordination

Merger Screening Meeting Summary (January 17, 2014)

External Scoping Meeting Summary (January 22, 2014)

CP 4A Merger Meeting Summary (January 21, 2015)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

February 7, 2014

MEMORANDUM TO: Attendees

FROM: Jennifer Harris, P.E.
Western Region/Turnpike
Project Development Section Head

SUBJECT: STIP R-2635D – Conversion of the grade separation at Old Holly Springs-Apex Road (SR 1153) and Triangle Expressway / Toll NC 540 to an interchange and addition of auxiliary lanes along Triangle Expressway between US 1 and the NC 55 Bypass - Wake County Merger Screening Meeting Summary

The following summarizes the merger screening meeting held on January 17, 2014 from 10:30 AM to 11:30 AM. The meeting was held in the Structure Design Conference Room at the NCDOT Century Center, Building A. The purpose of the meeting was to determine if the project should follow the Section 404 / NEPA Merger Process.

The following individuals were in attendance:

Felix Davila	Federal Highway Administration
Eric Alsmeyer	US Army Corps of Engineers
Rob Ridings	NCDENR-Division of Water Resources
Jennifer Harris	NCDOT-Project Development and Environmental Analysis
Greg Price	NCDOT-Natural Environment Section
Tracy Roberts	HNTB
Enrico Roque	HNTB
Bradley Reynolds	HNTB

Introductions and Project Background

- Following introductions, Tracy Roberts provided a brief project description and overview using a PowerPoint presentation. The North Carolina Department of Transportation (NCDOT) has begun the planning studies for a proposed interchange at Old Holly Springs-Apex Road (SR 1153) and Triangle Expressway/Toll NC 540. The existing shoulders on the NC 540 mainline, between the US 1 interchange and the NC 55 Bypass interchange, will be converted to auxiliary lanes and new shoulders will be constructed. The existing shoulders were constructed full depth in anticipation

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
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RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-250-4224
WEBSITE: WWW.NCDOT.ORG/DOH/PRECONSTRUCT/PE/

LOCATION:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

of a future conversion to auxiliary lanes. The existing three-lane bridge will be widened (likely to seven lanes) along the west side to accommodate new through lanes and turn lanes. The existing bridge was constructed in anticipation of a future interchange being added in this location.

- The current assumption is that a federal Environmental Assessment (EA) will be prepared. If the EA concludes that the project will have no significant environmental impact, a Finding of No Significant Impact (FONSI) will be prepared. The 2012-2018 State Transportation Improvement Program (STIP) shows the project having a let date of May 2015. The procurement method will be design-build.
- The following materials were distributed to the meeting participants: 1) agenda, 2) cover letter, 3) project data sheets, 4) vicinity map, environmental features map and USGS map, and 5) presentation. It was noted that this is the same information that will be distributed for the external scoping meeting scheduled for January 22.

General Discussion

1. Eric Alsmeyer asked why no jurisdictional feature is shown to the south of the existing pond in the northeast quadrant of SR 1153 and NC 540. Greg Price wasn't sure but agreed to find out. *[Discussion between Eric and Greg following the meeting confirmed that there is no stream directly below the pond. The stream becomes jurisdictional below the culvert on the south side of NC 540. The stream is labeled SE and is depicted on Sheet 07 of 11 of the R-2635D Natural Resources Technical Report (NRTR) (December 2013). The pond is labeled OWA and is shown on Sheet 09 of 11 of the NRTR.]*

2. There was discussion about the existing American Tower located to the east of SR 1153. Tracy stated that relocation of the tower should be avoided if possible due to the estimated $2M cost to relocate the tower. The construction of NC 540 avoided the tower, and NCDOT wants to continue to avoid the tower with the proposed project.

3. Tracy reviewed five interchange concepts that have been developed to date (see slides 18 through 23 of the presentation). Of the various concepts, a partial cloverleaf (Design Option 2) appears to be advantageous due to 1) avoidance of the tower, 2) substantial avoidance of the landfill, 3) relatively compact project footprint, 4) no relocation of existing SR 1153 and 5) acceptable level of service at the interchange terminals in the design year (2035). This interchange option is also consistent with CAMPO's Metropolitan Transportation Plan.

4. Based on currently available information, NCDOT's favored interchange design is the partial cloverleaf (Design Option 2). Eric asked what would happen if this alternative was not selected as the preferred alternative in the EA. Jennifer Harris responded that NCDOT was comfortable moving forward with this alternative due to the advantages it provides over the other four alternatives considered.

5. Eric asked if level of service information was available for all five design concepts. Bradley Reynolds responded that level of service analysis was prepared for Design Option 2 but many of the other interchange designs had obvious flaws that didn't make it worthwhile to perform an operations analysis.

6. Tracy explained that preliminary calculations indicate 1,128 feet of stream impacts, 0.36 acres of wetland impacts and 2.96 acres of pond impacts. These impacts are based on a partial cloverleaf interchange (Design Option 2) and 40 feet from slope stakes. Based on the anticipated impacts, Eric stated that an individual Section 404 permit would be required.

Merger Screening Discussion

1. The preliminary purpose and need for the project is fairly straightforward (see meeting materials). Therefore, it was agreed that following the merger process for Concurrent Point 1 would not add value to the project.
2. After a review of the five interchange concepts with respect to the project constraints, traffic operations and interchange spacing concerns, it was agreed that a detailed analysis of alternatives (Concurrence Point 2) would not add value to the project.
3. Design Option 2 appears to compare favorably to the other interchange concepts. Therefore, this design option appears to be the best candidate for selection as the preferred alternative, so Concurrence Point 3 is fairly obvious. The only reason this could change is if stakeholder involvement resulted in a new interchange design not thus far considered that was better than Design Option 2, but this is unlikely.

Merger Process Decision

1. The USACE, FHWA, NCDENR-DWR and NCDOT agreed that the project would not follow the merger process. However, due to an anticipated need for an individual Section 404 permit and revisions to the existing stormwater drainage system that will be needed to accommodate the bridge widening and other interchange improvements, it was agreed that the project would be placed in the merger process at Concurrence Points 4A, 4B and 4C.
2. It was agreed that this meeting summary would be sufficient documentation of this decision.

Note: Although the project will not follow the merger process, the environmental resource and regulatory agencies will be afforded the opportunity review the project when the EA is distributed for comments.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

February 18, 2014

MEMORANDUM TO: Attendees

FROM: Jennifer Harris, P.E.
Western Region/Turnpike
Project Development Section Head

SUBJECT: STIP R-2635D – Conversion of the grade separation at Old Holly Springs-Apex Road (SR 1153) and Triangle Expressway / Toll NC 540 to an interchange and addition of auxiliary lanes along Triangle Expressway between US 1 and the NC 55 Bypass - Wake County
External Scoping Meeting Summary

The following summarizes the external scoping meeting held on January 22, 2014 from 9:00 AM to 9:45 AM. The meeting was held in the Structure Design Conference Room at the NCDOT Century Center, Building A. The purpose of the meeting was to begin early coordination efforts with the environmental resource and regulatory agencies and other stakeholders, to share information on the project's background and history, to transfer known information about the project area, and to discuss the purpose and need for the project. Agency representatives were to bring information about their particular resource and any potentially important issues or concerns to the meeting to discuss.

The following individuals were in attendance:

Felix Davila	Federal Highway Administration
David Bailey	US Army Corps of Engineers
Rob Ridings	NCDENR-Division of Water Resources
Renee Gledhill-Earley[1]	NC State Historic Preservation Office
Gary Jordan	US Fish and Wildlife Service
Jennifer Harris[1]	NCDOT-Project Development and Environmental Analysis
Roger Thomas	NCDOT-Roadway Design Unit
Tony Houser	NCDOT-Roadway Design Unit
Matt Lauffer	NCDOT-Hydraulics Unit
Tom Koch	NCDOT-Structures Management Unit
Doumit Ishak	NCDOT-Congestion Management

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LOCATION:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Wally Bowman	NCDOT-Division 5
Andy Lelewski	NCDOT-Turnpike Authority
Chris Lukasina	Capital Area Metropolitan Planning Organization
Tracy Roberts	HNTB
Enrico Roque	HNTB
Bradley Reynolds	HNTB

[1]*joined by phone*

Introductions and Project Background

- Following introductions, HNTB provided a brief project description and overview using a PowerPoint presentation. The North Carolina Department of Transportation (NCDOT) has begun the planning studies for a proposed interchange at Old Holly Springs-Apex Road (OHSA Road) and Triangle Expressway/Toll NC 540. The existing shoulders on the NC 540 mainline, between the US 1 interchange and the NC 55 Bypass interchange, will be converted to auxiliary lanes and new shoulders will be constructed. The existing shoulders were constructed full depth in anticipation of a future conversion to auxiliary lanes. The existing three-lane bridge will be widened (likely to seven lanes) along the west side to accommodate new through lanes and turn lanes. The existing bridge was constructed in anticipation of a future interchange being added in this location.
- The current assumption is that a federal Environmental Assessment (EA) will be prepared. If the EA concludes that the project will have no significant environmental impact, a Finding of No Significant Impact (FONSI) will be prepared. The 2012-2018 State Transportation Improvement Program (STIP) shows the project having a let date of May 2015. The procurement method will be design-build.
- Based on a meeting held January 17, 2014, the Federal Highway Administration (FHWA), US Army Corps of Engineers (Corps), NCDENR-Division of Water Resources (DWR) and NCDOT agreed that the project would not follow the merger process. However, due to the likely need for an individual 404 permit and changes to the existing drainage system to accommodate the proposed improvements, the project will follow Concurrence Points 4a, 4b and 4c.
- Various project constraints were noted (see slide 12 of the presentation), including wetlands and streams, a landfill and a large communications tower. NCDOT wants to avoid impacting the tower and to avoid/minimize encroachment into the landfill. There are also interchange spacing constraints. The existing OHSA Road overpass is approximately 0.8 miles from the US 1 interchange and approximately 1.2 miles from the NC 55 Bypass interchange. The desired urban interchange spacing is one mile. For this reason, NCDOT prefers to locate the interchange ramps and loops on the east side of the OHSA Road overpass due to the additional distance this side offers from the next interchange.

- The following materials were distributed to the meeting participants: 1) agenda, 2) scoping memorandum, 3) project data sheets, 4) vicinity map, environmental features map and USGS map, and 5) presentation.

Reporting by Resource Agencies

1. **US Army Corps of Engineers (Corps)**
    - No comments or concerns
2. **US Environmental Protection Agency (EPA)**
    - No representative was in attendance. NCDOT/HNTB will coordinate with EPA to identify any comments or concerns.
3. **US Fish and Wildlife Service (FWS)**
    - Asked about the age of the tower. The age was not known. Birds often fly into the support cables of towers and are injured or killed. If the tower was going to be removed as part of the R-2635D project (it's not), then FWS may request that measures be evaluated when placing the new tower to minimize harm to birds. However, because the tower will not be relocated, this was not a concern to FWS.
    - Stated that the most important issue when avoiding a landfill is the trash line. The US 64 widening project encroached on a landfill but avoided the trash line.
    - Asked about the proposed Veridea development. HNTB explained that it is an approximate 1,000-acre mixed use 'sustainable' development consisting of 8,000 residential units, 3.5 million square feet of retail uses and 12 million square feet of office/light industrial uses. Veridea is proposed to be located in the general vicinity of the R-2635D project.
    - No other comments or concerns
4. **NCDENR-Division of Water Resources (DWR)**
    - No comments or concerns
5. **NC Wildlife Resources Commission (WRC)**
    - No representative was in attendance. NCDOT/HNTB will coordinate with WRC to identify any comments or concerns.
6. **NC Division of Coastal Management (DCM)**
    - No representative was in attendance. NCDOT/HNTB will coordinate with DCM to identify any comments or concerns. *[On January 31, 2014, Jessi Baker confirmed that DCM had no comments on the R-2635D project and asked that her agency be removed from the merger team.]*
7. **NC Historic Preservation Office (HPO)**
    - Asked about the cost to relocate the tower. The cost has been estimated at $2 million. The tower is 141 meters (462 feet) tall. Encouraged NCDOT to

ensure weaving and merging distances between interchanges aren't compromised in an effort to avoid tower relocation. NCDOT noted that the proposed auxiliary lanes will help with traffic operations along NC 540 and the proposed interchange will be placed on the east side of OHSA Road where there is more spacing with the next interchange (NC 55 Bypass).

- HNTB referenced the Penny-Ashley House and Hunter-Prince House shown on the environmental features map (see slide 13 of the presentation). Neither is located within the preliminary study area. *[Note: According to the NC State Historic Preservation Office's HPOWEB GIS website, these two properties are identified as surveyed only. According to the website, there's been no determination of eligibility for listing on the National Register of Historic Places. Also, the discussion of historic architecture in the Western Wake Freeway Final Environmental Impact Statement (January 21, 2004) does not mention either of these properties].*
- No other comments or concerns. Agreed to provide a letter stating whether additional cultural resource investigations are needed.

Other Discussion Points

- Slide 12 in the presentation discussed known constraints in the preliminary study area. HNTB noted that the following resources are not located in the preliminary study area: 1) outstanding resource waters, 2) high quality resource waters, 3) water supply watersheds, 4) 303(d) listed waters, 5) significant natural heritage areas, 6) historic architectural resources, and 7) Section 4(f)/Section 6(f) properties. A "no effect" determination is anticipated for federally protected species (Red-cockaded woodpecker, Dwarf wedgemussel and Michaux's sumac). The project is also not anticipated to affect the bald eagle.

Action Items

- NCDOT/HNTB will coordinate with EPA, WRC and DCM to identify any comments or concerns these agencies may have. *[On January 31, 2014, Jessi Baker confirmed that DCM had no comments on the R-2635D project and asked that her agency be removed from the merger team.]*
- HPO agreed to provide a letter indicating whether additional cultural resource investigations are needed.

STIP R-2635D External Scoping Meeting

Wednesday, January 22, 2014 at 9:00 A.M.
Structure Design Conference Room (Room 122), Century Center Building A
Raleigh, North Carolina

AGENDA

****

1. Introductions

2. Purpose of Meeting

3. Project History, Project Description & Purpose

4. Known Constraints of Project Area

5. Potential Alternatives

6. Next Steps/Schedule

7. Reporting by Resource Agencies

    a. U.S. Army Corps of Engineers
    b. U.S Environmental Protection Agency
    c. U.S. Fish and Wildlife Service
    d. N.C. Division of Water Resources
    e. N.C. Wildlife Resources Commission
    f. N.C. Division of Coastal Management
    g. N.C. Historic Preservation Office

8. Discussion

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

January 2, 2014

MEMORANDUM TO: External Scoping Meeting Attendees

FROM: Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit

SUBJECT: External Scoping Meeting
Proposed Interchange at Old Holly Springs-Apex Road (SR 1153) and Triangle Expressway / Toll NC 540, Wake County, FA No. NHPP-0540(29), WBS No. 35520.1.FS3, STIP No. R-2635D

The Project Development and Environmental Analysis Unit has started the project development, environmental and engineering studies for the subject project. The project is included in the North Carolina Department of Transportation's 2012-2018 STIP and is scheduled for right of way in state fiscal year 2015 and construction let in state fiscal year 2015. An External Scoping Meeting has been scheduled on Wednesday, January 22, 2014 at 9:00AM in the Structure Design Conference Room (Room 122) located at Century Center Building A.

The general purpose of this meeting is to begin early coordination with our agency partners by discussing known information about the project and project area. There are Project Data Sheets, mapping and other materials for this meeting in the project file located on the Project Store and the PDEA Merger website. Please review this material and be prepared to discuss any additional known information regarding your resource and/or area of expertise as it may concern the project. We would especially appreciate any information you might have that would be helpful in identifying and evaluating important issues or topics that should be considered.

Thank you for your assistance in the project development process. If you have any questions concerning the project or the Project Data Sheets, please contact Jennifer Harris, P.E., Project Development Section Head – Western Region/Turnpike, at (919) 707-6025 or by email at jhharris1@ncdot.gov. Please include the STIP Project Number in all correspondence and comments.

RWH/jhh

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WEBSITE:
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/ENVIRONMENTAL

LOCATION:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Project Development and Environmental Analysis
Project Data Sheets

TIP No.:	R-2635D	Sent Date:	1/2/2014
WBS No.:	35520.1.FS3	Revision Date:	
Federal Aid No:	NHPP-0540(29)	Meeting Date:	1/22/2014
Division:	5		
County:	Wake		

Project Description: Old Holly Springs-Apex Road (SR 1153) at Triangle Expressway / Toll NC 540. New interchange with auxiliary lanes along NC 540. See **Figure 1**.

General Project Need:

Identified Need for and Purpose of Project (preliminary):

The primary need for the proposed action is:

- ***No direct link exists between Old Holly Springs-Apex Road (SR 1153) and Triangle Expressway / Toll NC 540.***

Triangle Expressway is a major north-south freeway facility in western Wake County and southern Durham County. Triangle Expressway offers a high degree of mobility and convenient access between the towns of Holly Springs, Apex, Cary and Morrisville and other regional roads such as NC 55, US 1, US 64, I-40, I-540 and NC 147. Traffic along Old Holly Springs-Apex Road (SR 1153) is projected to increase by over 2,100 percent – from 1,900 AADT (Average Annual Daily Traffic) in 2010 to 43,000 AADT in 2035. The increase in traffic is due to planned and anticipated development in southern Apex. Due to the deficiency in roadway linkage, motorists desiring to access Triangle Expressway from Old Holly Springs-Apex Road have to follow a 4.5 to 5.5-mile circuitous path depending on the route chosen, including Tingen Road, Apex Peakway, NC 55, South Salem Street, New Hill Road, Woods Creek Road, and Friendship Road.

The primary purpose of the proposed action is to:

- ***Provide a direct local link between Old Holly Springs-Apex Road (SR 1153) and Triangle Expressway / Toll NC 540.***

The proposed interchange project would provide a direct local north-south connection between Old Holly Springs-Apex Road and Triangle Expressway.

Metropolitan / Rural Planning Organization: Capital Area MPO

NEPA/404 Merger Candidate?: ☐ Yes ☐ No ☒ To Be Determined

Feasibility Study Completed?: ☐ Yes ☒ No Date of Study:

Project Schedule:	Type of Document:	Dates:
Environmental Document(s):	EA	Winter 2014
	FONSI	Spring 2015
Right of Way Authorization Date:		May 2015*
Let Date:		May 2015*

**Candidate for design-build*

Cost Estimate:	Construction: SFY 2015	Right of Way: SFY 2015	Total Cost:
TIP Estimate:	15,000,000	4,600,000	19,600,000
Current Estimate:	TBD	TBD	TBD

Design Criteria:

Length of Project: Approximately 2.0 miles

Right of Way:	Existing:	SR 1153 – Varies 60 feet to 160 feet NC 540 – Varies 340 to 350 Feet
	Proposed:	SR 1153 – TBD, ROW acquisition is anticipated. NC 540 – TBD, ROW acquisition is anticipated.
Type of Access Control:	Existing:	SR 1153 – None NC 540 – Full control
	Proposed:	SR 1153 – TBD NC 540 – Full control
Roadway Typical Section:	Existing:	SR 1153 – Two-lane undivided NC 540 – Six-lane divided
	Proposed:	SR 1153 – Four-lane divided with turn lanes NC 540 – Six-lane divided with auxiliary lanes

Speed:	
Existing Posted Speed:	SR 1153 – 35 mph; NC 540 – 70 mph
Proposed Design Speed:	SR 1153 – 50 mph; NC 540 – 70 mph

Bridge/ Culvert Inventory:	NC 540 1 bridge over NC 55 Bypass Dual bridges over US 1(flyover) Dual bridges over US 1 3 box culverts SR 1153 1 bridge over NC 540 US 1 1 bridge (flyover) 2 box culverts
Functional Classification:	SR 1153 – Minor Thoroughfare NC 540 – Freeway
Strategic Highway Corridor Information:	NC 540 – Identified As Freeway
CTP/Thoroughfare Plan Designation (Facility Type):	SR 1153 – Major Thoroughfare NC 540 – Freeway

Air Quality Status: ☐ Non-attainment ☒ Maintenance ☐ Attainment

Horizon Completion Year (Long Range Trans. Plan): 2020

Typical Section in Compliance with Conformity Determination? ☒ Yes ☐ No

Traffic (AADT):

	Year	Range of Traffic		
Current Year:	2010	1,900	% TTST:	1
Design Year:	2035	32,900-43,000	% Dual:	2
			% DHV:	10

Design Standards Applicable: ☒ AASHTO ☐ 3R

Railroad Involvement:	None
Utility Involvement:	TBD

Other STIP Projects in the Area

STIP Project No.	Description	Schedule (Fiscal Year)
R-2721, R-2828 and R-2829	"Complete 540" - extend Triangle Expressway from the NC 55 Bypass in Apex to the US 64/US 264 Bypass in Knightdale. Freeway on new location (27.3 miles).	Planning/design – underway ROW – unfunded Construction - unfunded
U-2901	NC 55 (Williams Street), US 1 to US 64 in Apex. Widen to a multi-lane curb and gutter facility (2.8 miles).	ROW (Section B) – 2017 Construction (Section B) – 2019 *Sections AA and AB complete.*
U-5301	US 64, West of SR 1308 (Laura Duncan Road) to US 1 in Apex and Cary. Corridor upgrade and improvements (3.0 miles).	Planning/design – underway ROW – 2019 Construction – 2020
U-5315	Morrisville Parkway Extension, SR 1600/SR 1625 (Green Level Church Road) to East of NC 55 in Cary. Multi-lane facility on new location with interchange at NC 540 (Triangle Expressway/Western Wake Freeway).	Planning/design – underway (by Town of Cary) ROW – unfunded Construction - unfunded
B-5321	SR 1153 (Old Holly Springs-Apex Road), Replace bridge number 374 over Little Branch	Planning/design – underway ROW – 2016 Construction - 2017

Source: North Carolina Department of Transportation, *State Transportation Improvement Program*

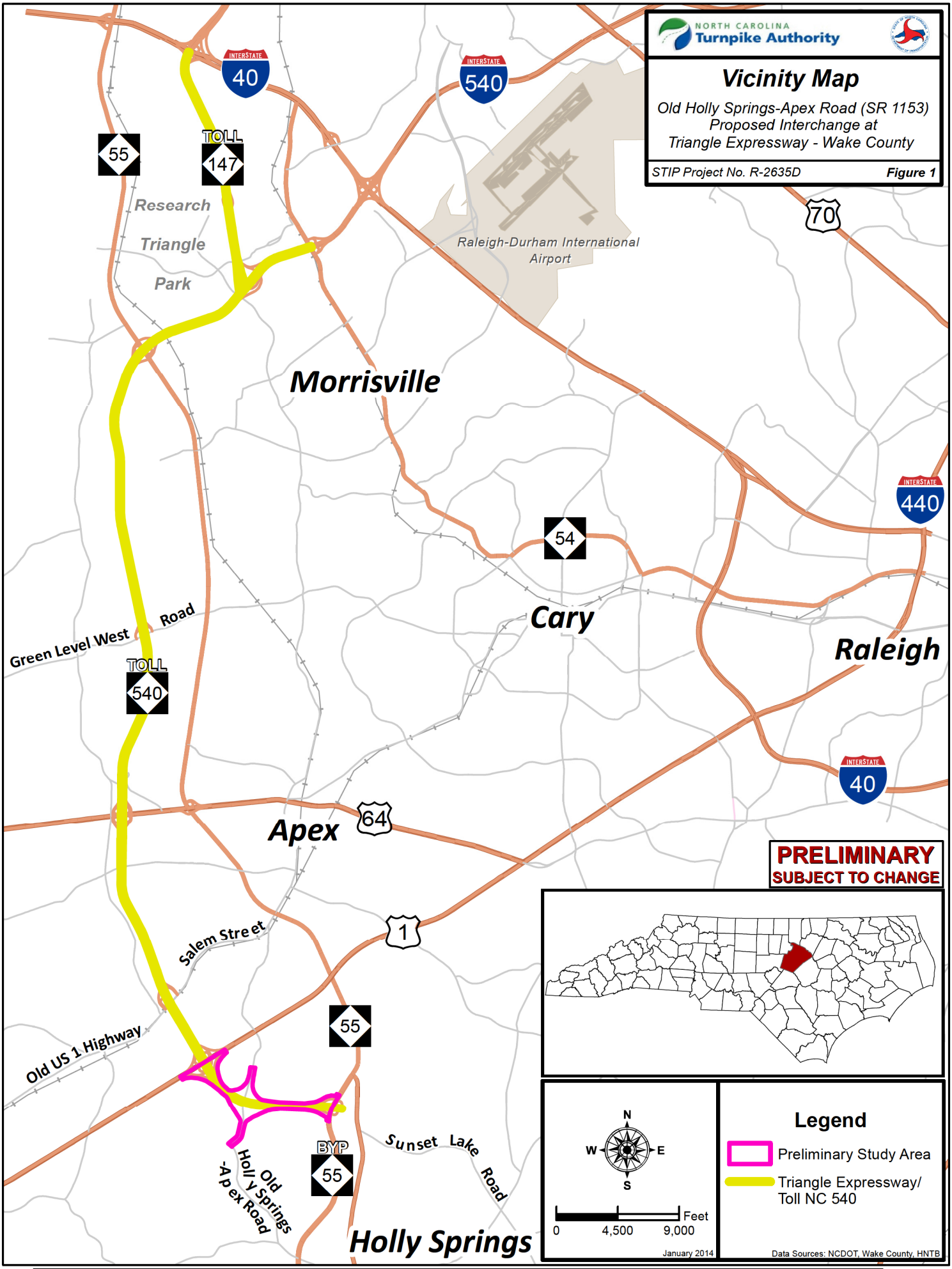
R – Rural Projects. U – Urban Projects. B – Bridge Projects. ROW – Right of Way

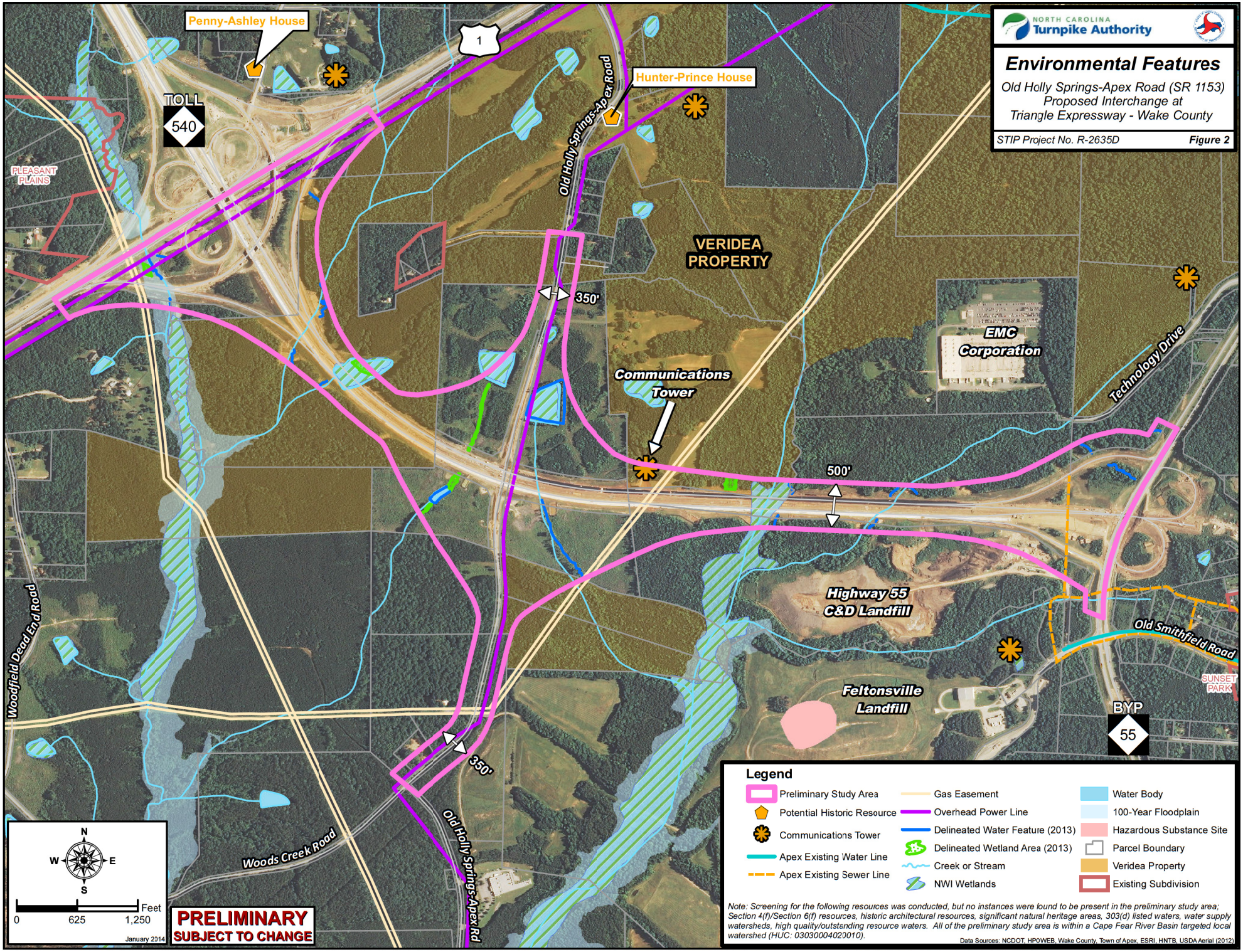
Preliminary Study Area Resources Inventory Table
(Use with Figure 2)

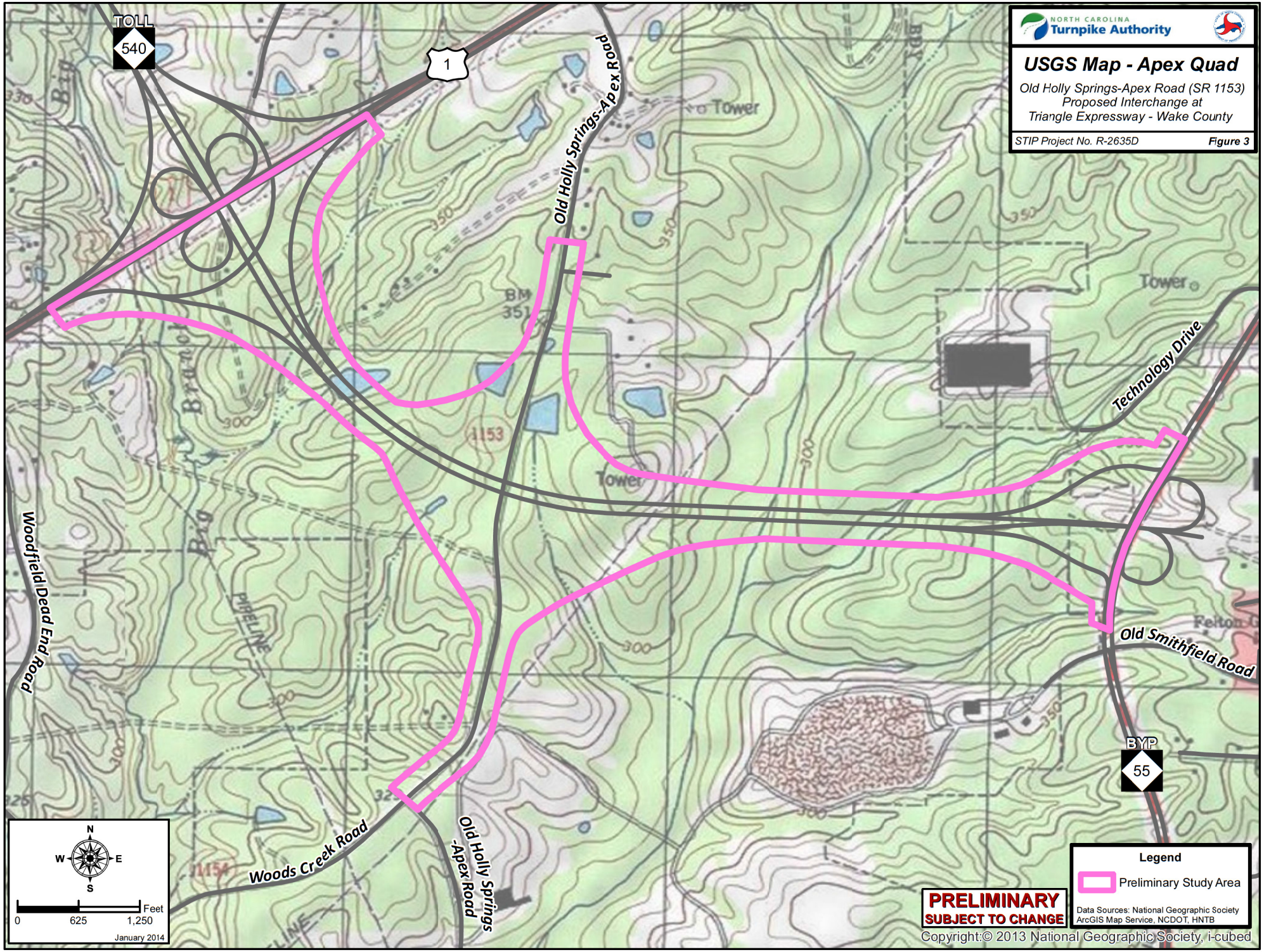
Resource/Affected Environment & Measure	Applicability/ Resources in Study Area
General Project Information	
Length of project (approximate in miles)	Approximately 2.0 Miles
Crossing or Intersecting (#) *Interchanges include*: NC 55 Bypass and US 1 *Intersections (major) include:* Ramp terminals at NC 55 Bypass	Interchanges - 2 Intersections - 2 RR Crossings - 0
Cultural Resources	
NRHP (and eligible sites, districts, other properties) (#)	0 – Known sites 0 – Known National Register Historic Districts
Human Environment	
Community Resources (#)	Landfill (1) – Highway 55 C&D Landfill

Public Parks/Section 4(f) Properties (#)	0 - Known
Greenways, Game Lands, Land and Water Conservation Fund Properties, etc. (#)	0 - Known
Residential Properties (# potentially affected)	0 - Known
Business Properties (# potentially affected)	0 - Known
High % Special Populations (Low-income, Minority)	0 - Known
Natural Environment	
Streams (# of stream crossings)	10 (5 stream crossings) (Subject to Change)
Wetlands (est. acres)	1.28 acres
Ponds (est. acres connected to jurisdictional waters)	3.31 acres
Critical Water Supply Watersheds	None
Riparian Buffer Rules apply	None
Outstanding Resource Waters / High Quality Resource Waters	None
303(d) Listed Streams	None
Identified Critical Habitat/ESA Spp. (# known)	0 - Known
Physical Environment	
Hazardous Materials (# suspected/known sites)	0 - Known
Utilities	Gas, fiber optic, electric and a telecommunications tower
Active agriculture (Voluntary Agricultural District)	No VADs or EVADs in study area
Noise	Impacts TBD. Noise sensitive receptors in study area (residences)
FEMA Buyout Properties	0 - Known

NOTES: This table is intended to be used in conjunction with the Environmental Features Map (**Figure 2**) and the USGS Map (**Figure 3**).


NORTH CAROLINA
Turnpike Authority
Vicinity Map
Old Holly Springs-Apex Road (SR 1153)
Proposed Interchange at
Triangle Expressway - Wake County
STIP Project No. R-2635D
Figure 1
INTERSTATE 40
INTERSTATE 540
TOLL 147
55
Research Triangle Park
Raleigh-Durham International Airport
70
Morrisville
INTERSTATE 440
54
Cary
Raleigh
Green Level West Road
TOLL 540
INTERSTATE 40
Apex
64
PRELIMINARY
SUBJECT TO CHANGE
Salem Street
1
Old US 1 Highway
55
BYP 55
Old Holly Springs-Apex Road
Sunset Lake Road
Holly Springs
N
W
E
S
0
4,500
9,000
Feet
January 2014
Legend
Preliminary Study Area
Triangle Expressway/
Toll NC 540
Data Sources: NCDOT, Wake County, HNTB


NORTH CAROLINA Turnpike Authority
Environmental Features
Old Holly Springs-Apex Road (SR 1153)
Proposed Interchange at
Triangle Expressway - Wake County
STIP Project No. R-2635D
Figure 2
Penny-Ashley House
Hunter-Prince House
TOLL 540
1
PLEASANT PLAINS
Old Holly Springs-Apex Road
VERIDEA PROPERTY
350'
EMC Corporation
Technology Drive
Communications Tower
500'
Highway 55 C&D Landfill
Old Smithfield Road
SUNSET PARK
Feltonsville Landfill
BYP 55
Woodfield Dead End Road
350'
Woods Creek Road
Old Holly Springs-Apex Rd
N
W
E
S
0
625
1,250
Feet
January 2014
PRELIMINARY
SUBJECT TO CHANGE
Legend
Preliminary Study Area
Potential Historic Resource
Communications Tower
Apex Existing Water Line
Apex Existing Sewer Line
Gas Easement
Overhead Power Line
Delineated Water Feature (2013)
Delineated Wetland Area (2013)
Creek or Stream
NWI Wetlands
Water Body
100-Year Floodplain
Hazardous Substance Site
Parcel Boundary
Veridea Property
Existing Subdivision
Note: Screening for the following resources was conducted, but no instances were found to be present in the preliminary study area; Section 4(f)/Section 6(f) resources, historic architectural resources, significant natural heritage areas, 303(d) listed waters, water supply watersheds, high quality/outstanding resource waters. All of the preliminary study area is within a Cape Fear River Basin targeted local watershed (HUC: 03030004020010).
Data Sources: NCDOT, HPOWEB, Wake County, Town of Apex, ESRI, HNTB, USDA Aerial (2012)



NORTH CAROLINA Turnpike Authority

USGS Map - Apex Quad

Old Holly Springs-Apex Road (SR 1153)
Proposed Interchange at
Triangle Expressway - Wake County

STIP Project No. R-2635D **Figure 3**

NORTH CAROLINA Turnpike Authority

STIP R-2635D

New Interchange at Old Holly Springs-Apex Road (SR 1153) and Triangle Expressway/Toll NC 540

January 22, 2014

External Scoping Meeting
January 22, 2014, 9:00AM
Structure Design Conference Room
Century Center, Building A

STIP R-2635D – Wake County

Agenda

- Introductions
- Purpose of meeting
- Project History, Project Description & Purpose
- Known Constraints of Project Area
- Potential Alternatives
- Next Steps/Schedule
- Reporting by Resource Agencies
- Discussion

January 22, 2014

STIP R-2635D – Wake County

Purpose of Meeting

- Orient team members to the project
- Transfer known information
- Understand the future need that the project is addressing
- Identify list of potential issues (and possible solutions) that may affect decision making
- Discuss NEPA document type and schedule
- Discuss status as a Merger project

January 22, 2014

STIP R-2635D – Wake County

Project History

- Traffic forecast and capacity analysis completed in 2011
- Project added to the 2012-2018 STIP in September 2013

Recent / Current Activities

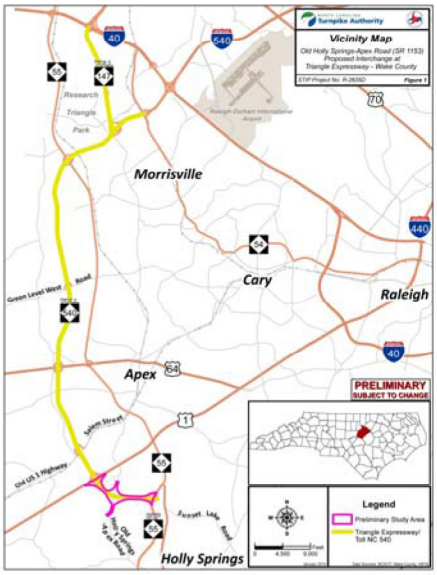
- Start of Study letters mailed
- Internal Scoping completed
- Natural Resources Technical Report completed
- Conformity update completed (Capital Area MPO)
- Right-of-Way Agreement executed
- Merger Screening completed
- Community Impact Assessment underway
- Indirect and Cumulative Effects Screening Report underway

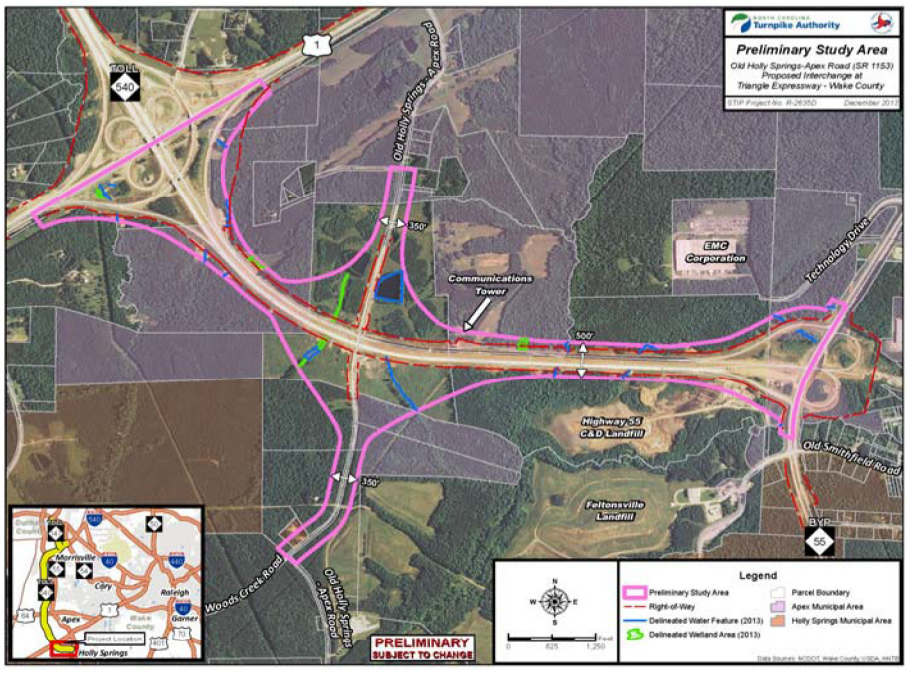
January 22, 2014

STIP R-2635D – Wake County

Project Description

- New Interchange at Old Holly Springs-Apex Road (OHSA Road) and Triangle Expressway/Toll NC 540
- Auxiliary lanes proposed for Triangle Expressway between the US 1 and NC 55 Bypass interchanges (2.1 miles)





STIP R-2635D – Wake County

Project Photos

OHSA Road at Triangle Expressway

January 22, 2014

STIP R-2635D – Wake County

Project Photos

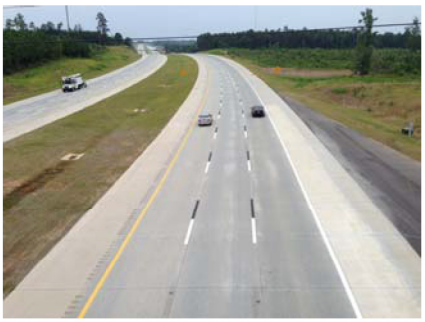
OHSA Road – Bridge Deck Southbound

OHSA Road – Bridge Approach Northbound

January 22, 2014

STIP R-2635D – Wake County

Project Photos



Triangle Expressway
Southbound

Triangle Expressway
Northbound

January 22, 2014

STIP R-2635D – Wake County

Project Photos

Toll Gantry

Toll Gantry

January 22, 2014

STIP R-2635D – Wake County

Project Purpose (preliminary)

- To improve access and roadway connectivity in response to planned and anticipated development in southern Apex
  - Traffic is forecast to increase on OHSA Road by over 2,100 percent – from 1,900 AADT in 2010 to 43,000 AADT in 2035

January 22, 2014

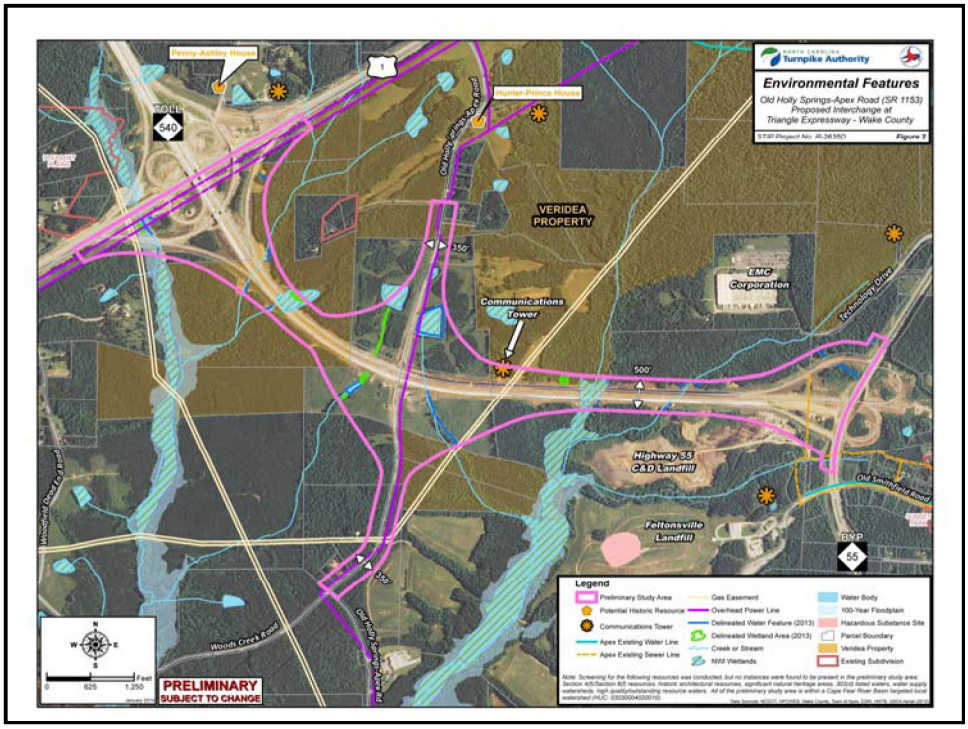
STIP R-2635D – Wake County

Known Constraints of Project Area

- Cultural Resources
  - No known NRHP sites or eligible sites
  - Two potential historic resources (Hunter-Prince House and Penny-Ashley House)
- Highway 55 C & D Landfill
- Natural Resources
  - Wetlands and Streams
- American Tower
- Utilities
  - Gas, Fiber optic, and Electric

No instances of the following resources were found in the preliminary study area: outstanding resource waters/high quality resource waters, 303(d) listed waters, water supply watersheds, significant natural heritage areas, historic architectural resources, Section 4(f)/Section 6(f) properties. A "no effect" determination is anticipated for three federally protected species plus the bald eagle. No environmental justice populations are present.

January 22, 2014



STIP R-2635D – Wake County

Known Constraints of Project Area

HWY 55 C & D Landfill

January 22, 2014

STIP R-2635D – Wake County

Known Constraints of Project Area

Wetlands and Streams

January 22, 2014

STIP R-2635D – Wake County

Known Constraints of Project Area

American Tower

January 22, 2014

STIP R-2635D – Wake County

Known Constraints of Project Area

Utilities

January 22, 2014

STIP R-2635D – Wake County

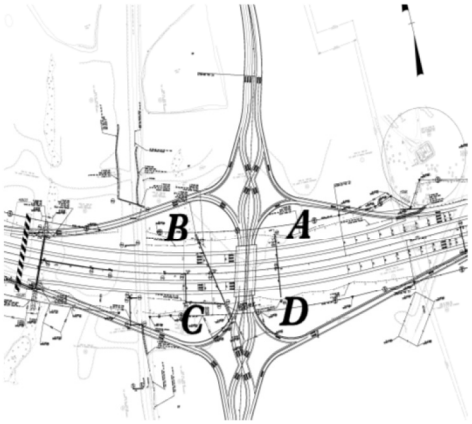
Potential Alternatives

- Diverging Diamond
- Braided Diamond
- Single Trumpet
- Partial Cloverleaf
  - Two design options

January 22, 2014

STIP R-2635D – Wake County

Potential Alternatives



Diverging Diamond

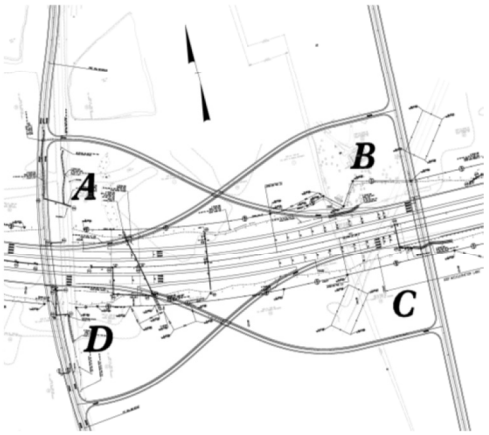
Pros
- Increases spacing to US 1 interchange
- Avoids relocating tower

Cons
- Short weave and merge distance with US 1 interchange
- New location construction
- Minor encroachment into landfill

January 22, 2014

STIP R-2635D – Wake County

Potential Alternatives



Braided Diamond

Pros
- Ramp terminals have acceptable LOS in 2035 design year

Cons
- Undesirable interchange spacing in both directions
- Inconsistent with driver expectation
- Short weave distances on Triangle Expressway
- New location construction/large footprint
- Impacts tower
- Encroaches into landfill

January 22, 2014

STIP R-2635D – Wake County

Potential Alternatives

Single Trumpet

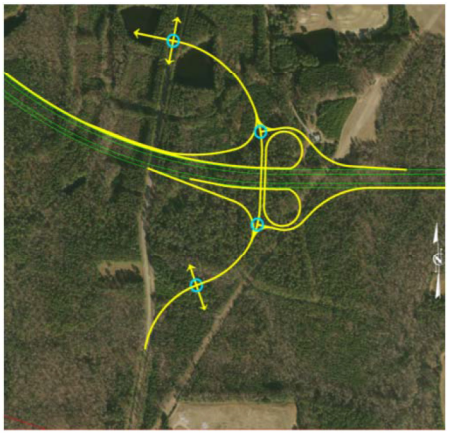
Pros
- Efficient movement of vehicles on/off Triangle Expressway

Cons
- Inconsistent with driver expectation
- Large remnant parcel inside interchange quadrant
- New location construction
- Impacts tower
- Encroaches into landfill

January 22, 2014

STIP R-2635D – Wake County

Potential Alternatives



Partial Cloverleaf
(Design Option 1)

Pros
- Increases spacing from US 1 interchange

Cons
- Decreases spacing with NC 55 Bypass interchange
- New location construction/large footprint
- Impacts tower
- Encroaches into landfill

January 22, 2014

STIP R-2635D – Wake County

Potential Alternatives

Partial Cloverleaf
(Design Option 2)

Pros
- Desirable LOS at interchange terminals through 2035 design year
- Minimizes project footprint
- Avoids tower
- Consistent with CAMPO MTP interchange type

Cons
- Undesirable spacing with US 1 interchange
- Potential weaving/merging issues between OHSA Road interchange and US 1 interchange
- Minor encroachment into landfill

January 22, 2014

STIP R-2635D – Wake County

Next Steps/Schedule

- Public Involvement (purpose and need and range of alternatives)
- Merger Meetings (if following Merger)
- Designs and Technical Studies
- Environmental Assessment (Winter 2014)
- Finding of No Significant Impact (Spring 2015)
- Let date (May 2015)
  - Candidate for design-build

January 22, 2014

STIP R-2635D – Wake County

Project Contacts

- FHWA
  - Felix Davila. P.E. (919) 747-7021
- NCDOT
  - Jennifer Harris, P.E. (919) 707-6025
- HNTB
  - Tracy Roberts, AICP (919) 707-2728

January 22, 2014

STIP R-2635D – Wake County

Reporting by Resource Agencies

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- N.C. Division of Water Resources
- N.C. Wildlife Resources Commission
- N.C. Division of Coastal Management
- N.C. Historic Preservation Office

January 22, 2014

STIP R-2635D – Wake County

Discussion

January 22, 2014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

January 29, 2015

MEMORANDUM TO: Attendees

FROM: Jennifer Harris, P.E.
Western Region/Turnpike
Project Development Section Head

SUBJECT: STIP R-2635D – Conversion of the grade separation at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) to an interchange and the addition of auxiliary lanes along the Triangle Expressway between the NC 55 Bypass and US 1 - Wake County
CP 4A Merger Meeting Summary

The following summarizes the Concurrence Point 4A Merger Team meeting held on January 21, 2015 from 10:00 AM to 10:35 AM. The meeting was held in the Structure Design Conference Room at the NCDOT Century Center, Building A. The purpose of the meeting was to reach agreement on avoidance and minimization measures for STIP Project No. R-2635D (called "Access 540").

The following individuals were in attendance:

Eric Alsmeyer	US Army Corps of Engineers
Dr. Cynthia Van Der Weile[1]	US Environmental Protection Agency
Rob Ridings	NCDENR-Division of Water Resources
Gary Jordan	US Fish and Wildlife Service
Keith Hanson[1]	NOAA Fisheries (contractor)
Travis Wilson	NC Wildlife Resources Commission
Jennifer Harris	NCDOT-Project Development and Environmental Analysis
Bill Elam	NCDOT-Hydraulics Unit
Mack Bailey	NCDOT-Structures Management Unit
Mark Staley	NCDOT-Roadside Environmental Unit
Tim McFadden	NCDOT-Transportation Program Management
Karen McCauley	NCDOT-Transportation Program Management
Greg Price	NCDOT-Natural Environment Section
Rachelle Beauregard	NCDOT-Natural Environment Section
Dennis Jernigan	NCDOT-Division 5

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-250-4224
WEBSITE: WWW.NCDOT.ORG/DOH/PRECONSTRUCT/PE/

LOCATION:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Chris Murray	NCDOT-Division 5
Kathy Smith[1]	NCDOT-Division 5
Chris Lukasina[1]	Capital Area Metropolitan Planning Organization
Tracy Roberts	HNTB
Kiersten Bass	HNTB
Enrico Roque	HNTB
Jamie Byrd	HNTB
Bradley Reynolds	HNTB

[1]*joined by phone*

Note: A NC Historic Preservation Office (HPO) representative was not in attendance.

The CP 4A informational packet was posted on the NCDOT Merger website on December 31, 2014. Printed copies of the packet were also distributed during the meeting. The packet included an agenda, project information and maps, and the PowerPoint presentation.

Introductions and Project Background

- Following introductions, Tracy Roberts provided a project description and overview using a PowerPoint presentation (appended to the minutes). Tracy explained that the Access 540 project would be built in phases based on traffic demand. Tracy referenced the two hearing maps displayed during the meeting that showed the interim design and the ultimate design and referenced NCDOT's website where the maps could be viewed (http://www.ncdot.gov/projects/triangleexpressway/access540.html). Tracy also stated that NCDOT is preparing a state environmental document since no federal funding would be involved.

  The Access 540 project would impact approximately 0.12 acres of jurisdictional wetlands, 738 feet of jurisdictional streams, and 2.96 acres of a jurisdictional pond. All impacts to jurisdictional streams and wetlands are based on the preliminary design slope stakes plus 25 feet.

  Following the presentation, a discussion ensued on potential avoidance and minimization measures.

Avoidance and Minimization Discussion

- Eric Alsmeyer asked about avoidance and minimization measures completed to date. Tracy responded that there were minimal opportunities for avoidance and minimization since the Access 540 improvements were largely occurring along existing roadways. The proposed outside shoulders on the Triangle Expressway are being constructed adjacent to the existing shoulders. The proposed widening of Old Holly Springs-Apex Road would not impact jurisdictional resources. The interchange placement and configuration minimizes impacts to a jurisdictional stream but results in the draining of a jurisdictional pond.

- Site SC – this site is a jurisdictional perennial stream with 50 feet of impacts upstream and 46 feet downstream. The impacts are due to the proposed outside shoulders along the Triangle Expressway (both directions – eastbound and westbound). Eric asked why the anticipated impacts were greater than the proposed widening. Jamie Byrd responded that the impacts included the RCBC extensions as well as the channel improvements upstream and downstream required to tie back to existing. No avoidance and minimizations measures were identified for Site SC.
- Site SD – this site is a jurisdictional perennial stream with 54 feet of impacts upstream and 48 feet downstream. The impacts are due to the proposed outside shoulders along the Triangle Expressway (both directions – eastbound and westbound). No avoidance and minimizations measures were identified for Site SD.
- Site WA – this site is a jurisdictional wetland with 0.09 acres of impacts. The impacts are due to the proposed outside shoulder along the Triangle Expressway in the westbound direction. No avoidance and minimizations measures were identified for Site WA.
- Site OWA – this site is a jurisdictional pond with 2.96 acres of impacts. The pond would be drained with the proposed project. The impacts are due to the proximity of the proposed off ramp in the northeast quadrant of the interchange and the cut slope needed for its construction. No avoidance and minimization measures were identified for Site OWA.
- Site SE – this site is a jurisdictional intermittent stream with 540 feet of impacts. The impacts are due to the ramp and loop proposed in the southeast quadrant of the interchange. The portion of the stream inside the loop is proposed to be day lighted. Eric asked about the size of the existing pipe in this location. Jamie Byrd responded that it is a small pipe maybe 24 or 30 inches in diameter. No avoidance and minimizations measures were identified for Site SE.
- Site WD – this site is a jurisdictional wetland with 0.01 acres of impacts. The impacts are due to the proposed outside shoulder along the Triangle Expressway in the westbound direction. No avoidance and minimizations measures were identified for Site WD.
- Site WE – this site is a jurisdictional wetland with 0.02 acres of impacts. The impacts are due to the proposed outside shoulder along the Triangle Expressway in the eastbound direction. No avoidance and minimizations measures were identified for Site WE.

Chris Murray stated that riprap and not matting should be used along the streams at culvert inlets and outlets due to the Triassic soils in the area.

It was agreed that maintaining 2:1 slopes in jurisdictional wetland fills areas would be the only minimization measure required. This was one of the commitments made on the STIP R-2635 project (Western Wake Freeway). The CP 4A concurrence form was distributed for signature (appended to the minutes).

There were no other questions, comments or concerns. The meeting adjourned at 10:35AM.

Action Items

- None

Concurrence Point 4A: Avoidance & Minimization Efforts

Project Name/Description: Access 540 – Proposed Interchange at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153)

STIP Project Number: R-2635D

Avoidance and Minimization Measures:

- 2:1 slopes will be utilized in jurisdictional wetland fill areas

The Merger Team has concurred on this date of January 21, 2015 on Concurrence Point 4A (Avoidance and Minimization) for the proposed interchange project for STIP Project R-2635D.

USACE Eric Alsmeyer 1/21/2015

USEPA Cynthia F. VanDerWiele 1/22/2015

USFWS Gary Jordan 1/21/2015

NCDWR Robert Ridings 1/21/15

NCWRC [signature] 1-21-15

SHPO Renee Gledhill-Earley 1.26.15

NCDOT Jennifer Harris 1.21.2015

CAMPO [signature] 1.21.2015

Access 540 Project

Proposed Interchange at the Triangle Expressway and Old Holly Springs-Apex Road

January 21, 2015

Concurrence Point 4A

Avoidance and Minimization Efforts

January 21, 2015

Structure Design Conference Room

Agenda

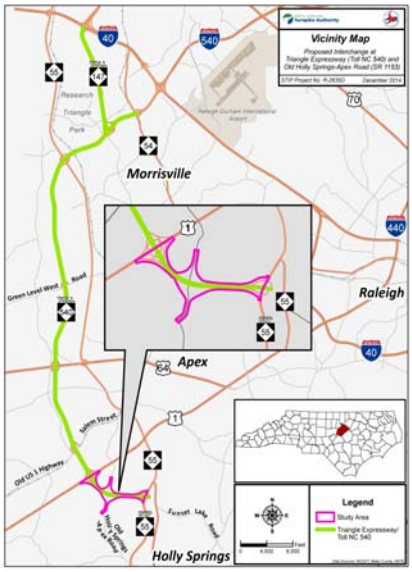
- Project Description and Purpose
- Agency Coordination
- Existing Conditions
- Known Constraints of Project Area
- Recommended Alternative
- Environmental Impacts
- Next Steps
- Avoidance and Minimization Discussion

January 21, 2015

Access 540 – Wake County

Project Description

- New Interchange at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153)
- Auxiliary lanes proposed for the Triangle Expressway between the NC 55 Bypass and US 1 (1.5 miles)



Access 540 – Wake County

Project Purpose

To improve accessibility and north-south connectivity within southern Apex by providing a direct local link between the Triangle Expressway and Old Holly Springs-Apex Road.

January 21, 2015

Access 540 – Wake County

Agency Coordination

- Merger screening meeting held January 17, 2014
  - Project screened out of the merger process with the exception of CP 4A, 4B and 4C.
- Scoping meeting held January 22, 2014
  - No major issues or concerns raised.

January 21, 2015

Access 540 – Wake County

Existing Conditions

Triangle Expressway at Old Holly Springs-Apex Road

The Old Holly Springs-Apex Road overpass was designed and constructed to allow an interchange to be added in this location.

January 21, 2015

Access 540 – Wake County

Existing Conditions

Triangle Expressway Southbound

Triangle Expressway Northbound

The outside shoulders of the Triangle Expressway were built for a future conversion to auxiliary lanes.

January 21, 2015

Access 540 – Wake County

Known Constraints of Project Area

- Interchange Spacing
  - 1 mile between interchanges is desirable
- Highway 55 Landfill
- Natural Resources
  - Wetlands and Streams
- Communications Tower
- Utilities
  - Gas, Fiber Optic, and Electric

January 21, 2015

Access 540 – Wake County

Known Constraints of Project Area

Interchange Spacing
1 mile in urban areas is desirable

January 21, 2015

Access 540 – Wake County

Known Constraints of Project Area

Highway 55 Landfill

January 21, 2015

Access 540 – Wake County

Known Constraints of Project Area

Wetlands and Streams

January 21, 2015

Access 540 – Wake County

Known Constraints of Project Area

Communications Tower

January 21, 2015

Access 540 – Wake County

Known Constraints of Project Area

Utilities

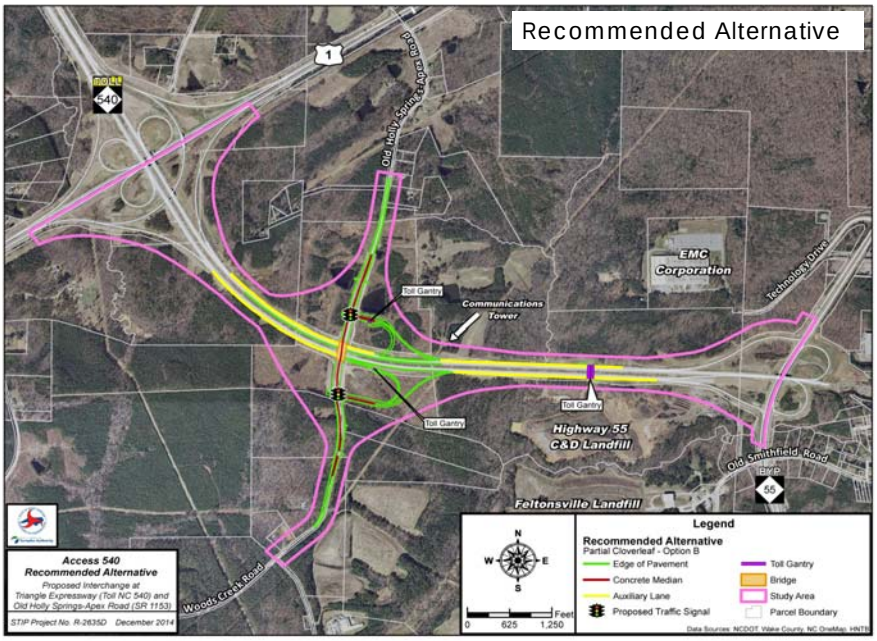
January 21, 2015

Access 540 – Wake County

Recommended Alternative

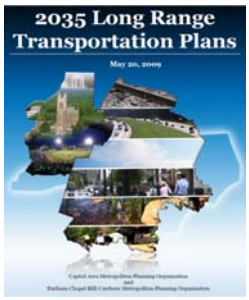
- Partial Cloverleaf Interchange
  - The benefits of this alternative are:
    - Maximizes interchange spacing
    - Avoids relocating the communications tower
    - Has only a minor encroachment into the landfill
    - Minimizes right-of-way acquisition by utilizing the existing Old Holly Springs-Apex Road alignment

January 21, 2015



Access 540 – Wake County

The Recommended Alternative is also consistent with local transportation plans



January 21, 2015

Access 540 – Wake County

Impacts Associated with the Recommended Alternative

- Human Environment
  - Minor property acquisition
  - No residential or business relocations
  - No traffic noise impacts
  - No adverse air quality impacts
  - No cultural resource impacts
- Natural Environment
  - Wetland and Stream Impacts
  - No effects on federally protected plant and animal species
  - No floodplain impacts

January 21, 2015

Access 540 – Wake County

Next Steps

- February 2015 – Complete Environmental Document
- May 2015 – Open Construction Bids
- June to December 2015 - Secure Funding and Permits
- 2018 - Open to Traffic

Note: Schedule is preliminary and subject to change

January 21, 2015

Access 540 – Wake County

Avoidance and Minimization Discussion

January 21, 2015

Access 540 – Wake County

Prior Avoidance and Minimization Efforts for Western Wake Freeway (R-2635)

- Avoidance
  - Bridges over Beaver Creek and White Oak Creek and their associated wetlands
  - Bridges over wetlands at Jack Branch and Panther Creek
- Minimization
  - Perpendicular crossing of streams and wetlands and at their narrowest point where possible
  - 2:1 slopes in wetland fill areas where possible
  - US 1 interchange placement to minimize impacts to Big Branch

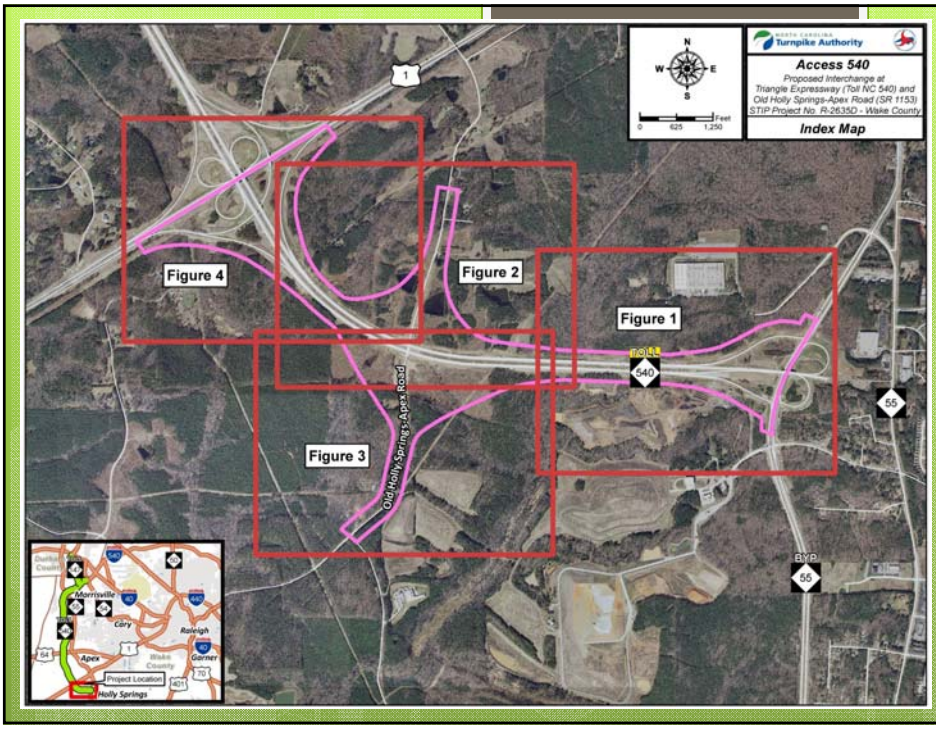
January 21, 2015

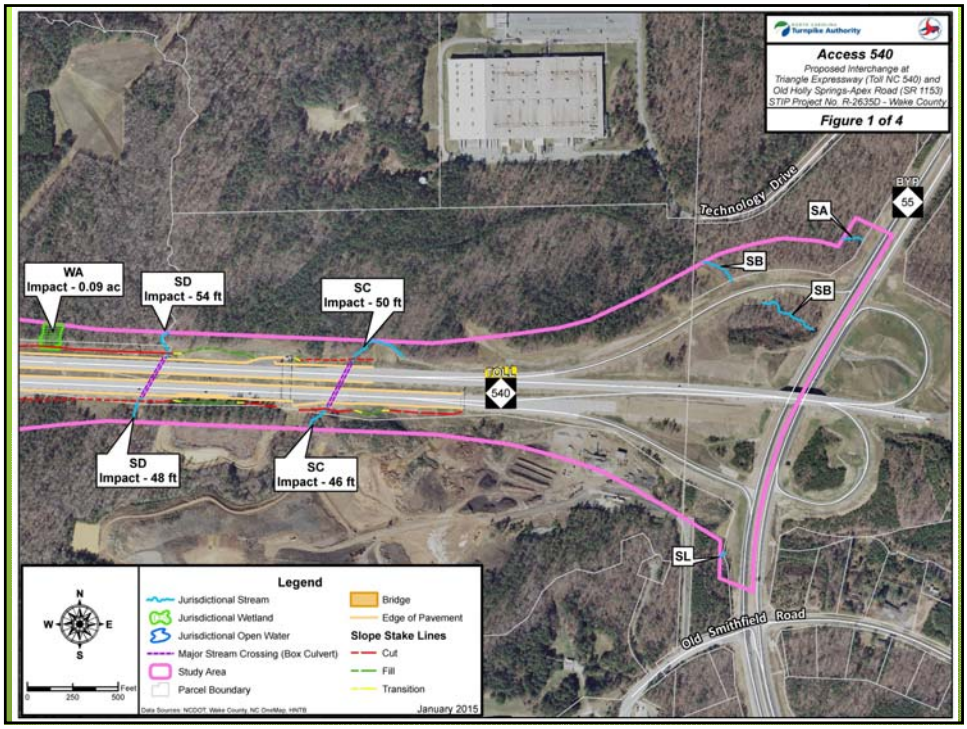
Access 540
Impacts to Jurisdictional Resources

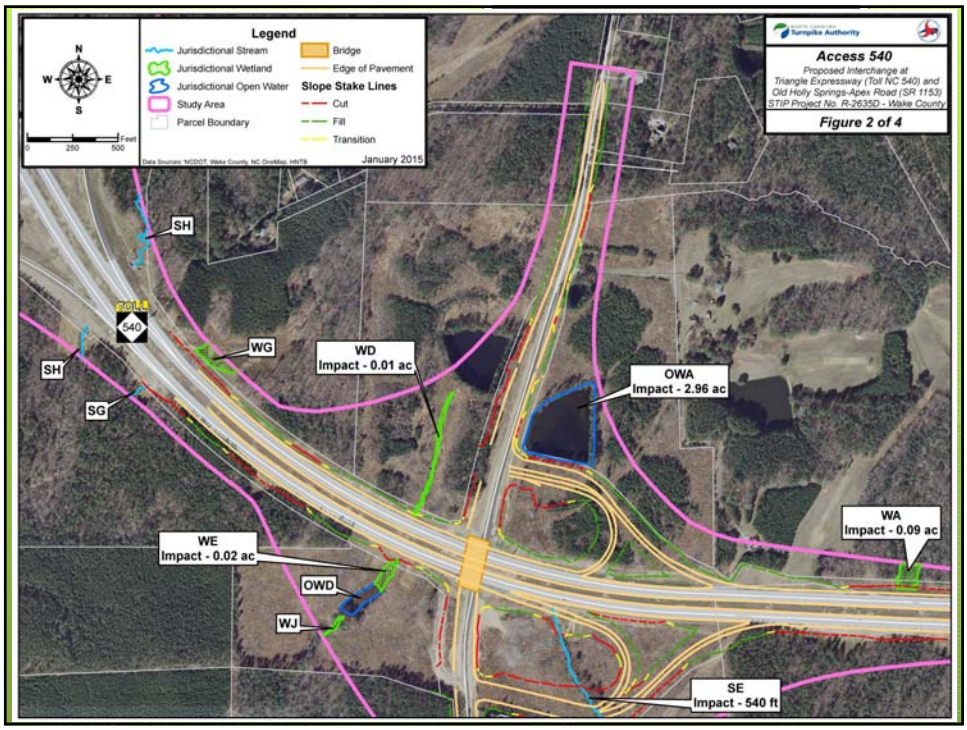
based on area within the slope stake line + 25 feet

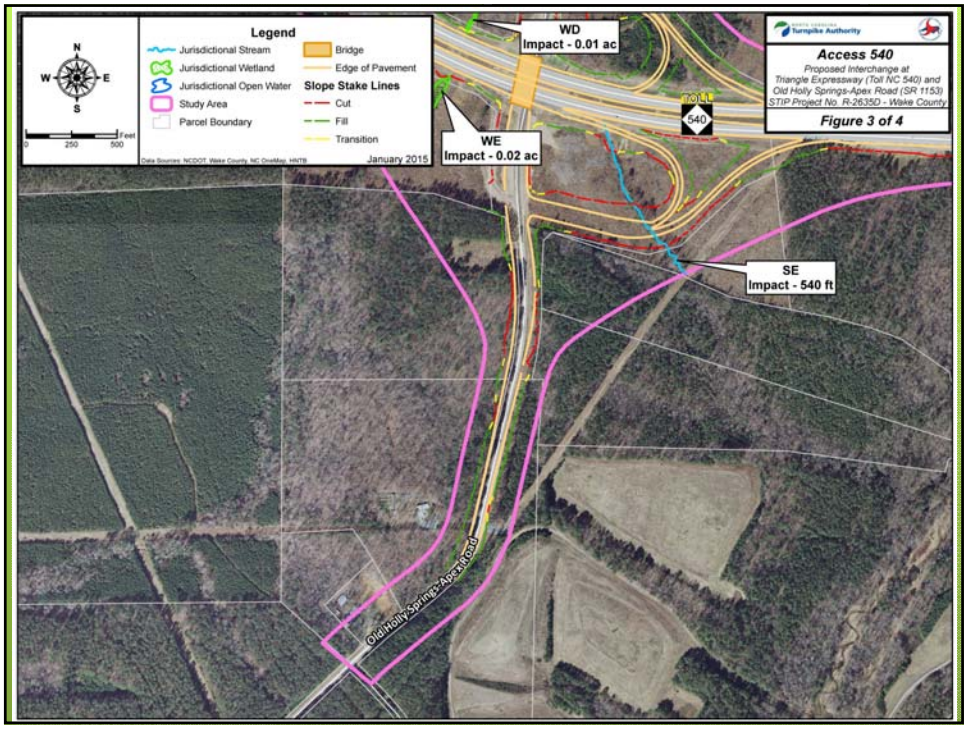
- Streams
  - 10 streams in the study area
  - 3 streams impacted (738 feet)
- Wetlands
  - 6 wetlands in the study area
  - 3 wetlands impacted (0.12 acres)
- Ponds
  - 2 ponds in the study area
  - 1 pond impacted (2.96 acres)

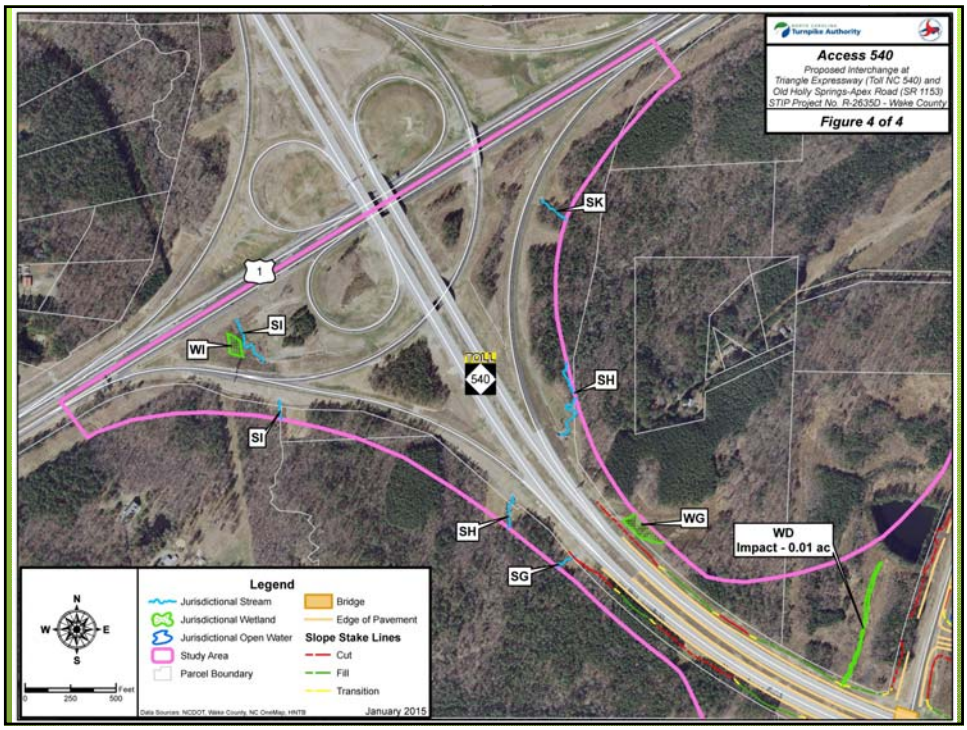
January 21, 2015




Access 540
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D - Wake County
Figure 1 of 4
Technology Drive
BYP
55
SA
SB
SB
WA
Impact - 0.09 ac
SD
Impact - 54 ft
SC
Impact - 50 ft
TOLL
540
SD
Impact - 48 ft
SC
Impact - 46 ft
SL
Old Smithfield Road
Legend
Jurisdictional Stream
Jurisdictional Wetland
Jurisdictional Open Water
Major Stream Crossing (Box Culvert)
Study Area
Parcel Boundary
Bridge
Edge of Pavement
Slope Stake Lines
Cut
Fill
Transition
January 2015


Legend
Jurisdictional Stream
Jurisdictional Wetland
Jurisdictional Open Water
Study Area
Parcel Boundary
Bridge
Edge of Pavement
Slope Stake Lines
Cut
Fill
Transition
January 2015
Access 540
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D - Wake County
Figure 2 of 4
SH
TOLL
540
SH
WG
WD
Impact - 0.01 ac
SG
OWA
Impact - 2.96 ac
WA
Impact - 0.09 ac
WE
Impact - 0.02 ac
OWD
WJ
SE
Impact - 540 ft


Legend
Jurisdictional Stream
Jurisdictional Wetland
Jurisdictional Open Water
Study Area
Parcel Boundary
Bridge
Edge of Pavement
Slope Stake Lines
Cut
Fill
Transition
January 2015
WD
Impact - 0.01 ac
WE
Impact - 0.02 ac
SE
Impact - 540 ft
TOLL
540
Old Holly Springs-Apex Road
Access 540
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D - Wake County
Figure 3 of 4


Access 540
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D - Wake County
Figure 4 of 4
SK
SH
SI
WI
SI
SH
WG
WD
Impact - 0.01 ac
SG
TOLL
540
1
Legend
Jurisdictional Stream
Jurisdictional Wetland
Jurisdictional Open Water
Study Area
Parcel Boundary
Bridge
Edge of Pavement
Slope Stake Lines
Cut
Fill
Transition
January 2015

Access 540 – Wake County

Avoidance and Minimization Discussion

January 21, 2015

Appendix B – Public Involvement Materials

Project Initiation Newsletter/Comment Form (April 2014)

Public Meeting Materials (December 2014)

-Local Officials Meeting Invitation Letter/Mailing List

-Postcard Notice

-Handout/Comment Form

-Presentation Slides

Access 540
At Old Holly Springs-Apex Road
Wake County
STIP Project Number R-2635D

Newsletter Issue No. 1—April 2014—Project Initiation

This Issue

Our Mission

Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well-being of North Carolina.

Planning Studies Have Begun —NCDOT Wants Your Feedback—

The "Access 540" project is a proposal by the North Carolina Department of Transportation (NCDOT) to convert the existing bridge on Old Holly Springs-Apex Road (SR 1153) at Triangle Expressway (NC 540) to an interchange. The project would also construct approximately two miles of additional lanes (called 'auxiliary lanes') along the Triangle Expressway between US 1 and the NC 55 Bypass.

Planning, engineering design, and environmental studies are underway. This includes identifying the purpose and need for the project, examining alternatives that satisfy the purpose and need, and analyzing the environmental effects of those alternatives. The purpose of the environmental studies is to provide appropriate and relevant information so that an informed decision can be made on a Preferred Alternative.

Preliminary Purpose and Need: The purpose of the Access 540 project is to improve access and roadway connectivity in response to planned and anticipated development in southern Apex. Traffic along Old Holly Springs-Apex Road is projected to increase by over 2,100 percent – from 1,900 vehicles per day in 2010 to 43,000 vehicles per day in 2035. Since the existing bridge does not connect to the Triangle Expressway, motorists desiring to access the Triangle Expressway from Old Holly Springs-Apex Road must travel an additional 4.5 to 5.5 miles.

The proposed interchange would provide a direct connection between Old Holly Springs-Apex Road and the Triangle Expressway. The proposed auxiliary lanes along the Triangle Expressway would provide an additional lane for entering and exiting traffic that is separate from the through travel lanes along this facility. This would improve traffic flow and reduce congestion.

Project Schedule (preliminary)

Environmental Assessment	Winter 2014
Public Hearing	Winter 2014
Finding of No Significant Impact	Spring 2015
Open to traffic	Late 2016

Project Phone No. : (919) 707-6025 **Project Website : www.ncdot.gov/projects/triangleexpressway**

We Want To Hear From You

NCDOT wants your feedback on the following topics as noted below: 1) the preliminary study area (shown on the map opposite page), 2) the preliminary purpose and need for the project, and 3) the range of alternatives that should be considered. Enclosed in this newsletter is a comment form. Please complete the comment form and **return by Monday, May 26, 2014** to ensure your comments are considered in the planning process.

1) Preliminary Study Area – This is the area where the Access 540 project will be located. This includes the ramps and loops for the interchange, widening along Old Holly Springs-Apex Road, and the auxiliary lanes to be added along the Triangle Expressway. Within the study area NCDOT will collect detailed survey data on the location of homes and businesses, wetlands, streams, threated and endangered plants and animals, hazardous materials and other information. NCDOT would like to know if you think the boundary of the study area is appropriate for the project.

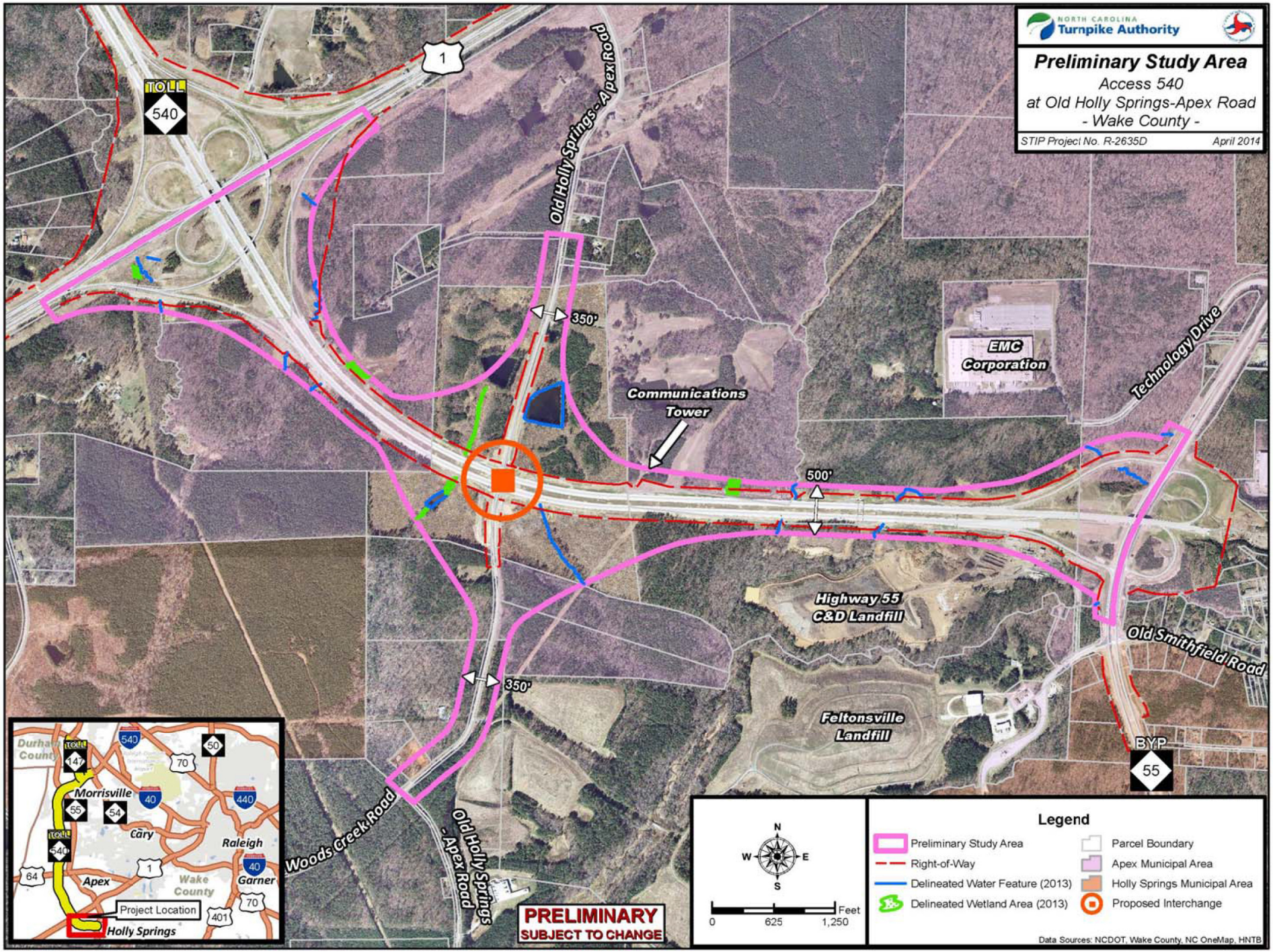
2) Preliminary Purpose and Need for the Project – This briefly explains why the Access 540 project is needed. The project would increase connectivity between the Triangle Expressway and Old Holly Springs-Apex Road. NCDOT wants your input on whether you feel this access point is adequately justified and whether there may be other needs that could be addressed by the project.

3) Range of Alternatives – NCDOT will evaluate a range of reasonable alternatives that meet the project's purpose and need. Various types of interchanges will be considered. NCDOT would like to know if you have suggestions for alternatives that should be considered to address the purpose and need for the project (e.g. a certain interchange type or configuration).

What Happens Next?

Once the project alternatives have been established, NCDOT will develop the engineering designs. The designs will be used to determine impacts on the human and natural environment. This requires preparation of several technical studies related to air quality, traffic noise, community impacts, farmland, floodplains, and natural resources (such as wetlands, streams, and federally protected plant and animal species). The results of the studies will be published in an environmental document, anticipated to be an Environmental Assessment, which will be made available on the project website for review and comment by the public, environmental resource and regulatory agencies, and local governments.

Following completion of the Environmental Assessment, NCDOT will hold a public hearing to solicit comments from the public and other interested stakeholders. After considering all comments received, and assuming the project will not have a significant impact on the human and natural environment, NCDOT will publish a Finding of No Significant Impact, or FONSI. The FONSI represents the final decision on which alternative will be constructed and the reasons for its selection. After that, NCDOT will select a contractor to design and build the project. Construction can begin once all permits have been received and any necessary right-of-way has been acquired. Information on the right-of-way acquisition process can be found on the project website.


NORTH CAROLINA Turnpike Authority
Preliminary Study Area
Access 540
at Old Holly Springs-Apex Road
- Wake County -
STIP Project No. R-2635D
April 2014
TOLL 540
1
Old Holly Springs - Apex Road
350'
EMC Corporation
Technology Drive
Communications Tower
500'
Highway 55 C&D Landfill
Old Smithfield Road
350'
Feltonsville Landfill
BYP 55
Woods Creek Road
Old Holly Springs - Apex Road
PRELIMINARY
SUBJECT TO CHANGE
Durham County
Morrisville
Cary
Raleigh
Apex
Wake County
Garner
Holly Springs
Project Location
N
W
E
S
0
625
1,250
Feet
Legend
Preliminary Study Area
Right-of-Way
Delineated Water Feature (2013)
Delineated Wetland Area (2013)
Parcel Boundary
Apex Municipal Area
Holly Springs Municipal Area
Proposed Interchange
Data Sources: NCDOT, Wake County, NC OneMap, HNTB

ATTN: Jennifer Harris, PE
North Carolina Department of Transportation
Project Development & Environmental Analysis Unit
1548 Mail Service Center
Raleigh, NC 27699-1548

Access 540, STIP Project R-2635D

Project Phone – *Línea Gratutita del Proyecto*:
(919) 707-6025 (English)
(800) 481-6494 (Español)

Project Website – *Página Web del Proyecto*:
www.ncdot.gov/projects/triangleexpressway/
Click on "Access 540" in the left margin

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Raleigh, NC 27699-1548
teroberts1@ncdot.gov

For more information about the project, please visit the project website. Written correspondence can be provided to Jennifer Harris or Tracy Roberts.

COMMENT FORM

Access 540
At Old Holly Springs-Apex Road
Wake County
(STIP Project No. R-2635D)

Your input is important to us! Please use this form for your comments or questions. Please return the comment form by **Monday, May 26, 2014** to ensure your comments are considered in the planning process.

You can submit this form in two ways:

- Fill out the form, save it on your computer, and email to jhharris1@ncdot.gov as an attachment.
- Print the form and send by regular postal mail to: Jennifer Harris, PE, North Carolina Department of Transportation, 1548 Mail Service Center, Raleigh, NC 27699-1548

How Can We Reach You? [-Please Print-]

Name _____ **Address** _____

E-Mail Address _____ _____

Homeowners' Association or other affiliation _____

1. **Do you agree with the preliminary study area proposed in the newsletter?** ☐ **Yes** ☐ **No**
   If not, please identify a different study area and explain why you feel it is more appropriate.

2. **Do you have any comments or suggestions regarding the preliminary purpose and need?** **Yes** ☐ **No**

3. **Do you have any comments or suggestions regarding alternatives NCDOT should consider that meet the purpose and need of the project?** ☐ **Yes** ☐ **No**

4. **What project development issues are important to you and your community and should be examined in this study?** These might include natural resources (wetlands, streams, protected species), neighborhoods and communities, air quality, traffic noise, visual impacts, economic development and land use, cultural resources such as historic sites, etc.

Please use the space below for additional comments

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

November 24, 2014

Dear Sir or Madam:

RE: **Invitation to Local Official's Informational Meeting**:
STIP Project: R-2635D – Construct Interchange at Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153); Add Auxiliary Lanes on Triangle Expressway between the NC 55 Bypass and US 1, Wake County. The project is referred to as the "Access 540" project.

The North Carolina Department of Transportation invites you to attend a Local Official's Informational Meeting to be held for the above-referenced project. This meeting is scheduled for:

Date: ***Thursday, December 11, 2014***
Time: ***2 – 3 pm***
Location: ***Apex Community Center, 53 Hunter Street, Apex***

The purpose of this meeting is to provide a status update regarding the project and to gather your comments. An informal, drop-in style informational Public Meeting will follow the Local Official's Informational Meeting from 4 p.m. until 7 p.m. at the Apex Community Center. Please contact me via email at pdwilson1@ncdot.gov or phone at (919) 707-6073 to let me know if you or your representative will attend this meeting. Thank you and we look forward to meeting with you.

Sincerely,

Diane Wilson, Senior Public Involvement Officer
Human Environment Section, NCDOT

cc: Joey Hopkins, P.E., Division 5 Engineer
Dennis Jernigan, P.E., Division 5 Construction Engineer
Jennifer Harris, PE, Project Development/Turnpike Section Head

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
HUMAN ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC, 27699-1598

TELEPHONE: 919-707-6000
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH -
CENTURY CENTER
1020 BIRCH RIDGE DIVE, BLDG. B
RALEIGH, NC 27610

1. The Honorable William "Bill" Sutton
   Mayor of Apex
   100 Lansbrooke Lane
   Apex, NC 27502

2. Mr. Gene Schulze
   Mayor Pro Tem of Apex
   1017 Chimney Hill Drive
   Apex, NC 27502-8823

3. Mr. Bill Jensen
   1005 S. Wellonsburg Place
   Apex, NC 27502

4. Mr. Scott Lassiter
   1102 Indian Trail
   Apex, NC 27502

5. Ms. Nicole Dozier
   2600 Monte Ter
   Apex, NC 27502

6. Ms. Denise Wilkie
   1023 New Dover Road
   Apex, NC 27502

7. Mr. Bruce Radford, Town Manager
   Town of Apex
   P.O. Box 250
   Apex, NC 27502

8. The Honorable Richard Sears
   Mayor of Holly Springs
   P.O. Box 8
   Holly Springs, NC 27540

9. Mr. James "Jimmy" Cobb
   Town of Holly Springs
   P.O. Box 8
   Holly Springs, NC 27540

10. Ms. Cheri Ann Lee
    Town of Holly Springs
    P.O. Box 8
    Holly Springs, NC 27540

11. Mr. Tim Sack
    Town of Holly Springs
    P.O. Box 8
    Holly Springs, NC 27540

12. Mr. Hank Dickson
    Town of Holly Springs
    P.O. Box 8
    Holly Springs, NC 27540

13. Ms. Linda Hunt Williams
    Town of Holly Springs
    P.O. Box 8
    Holly Springs, NC 27540

14. Mr. Charles Simmons, Town Manager
    Town of Holly Springs
    P.O. Box 8
    Holly Springs, NC 27540

15. Mr. Phil Matthews
    Chair, Wake County Board of Commiss.
    1901 Navan Lane
    Garner, NC 27529

16. Mr. Jim Hartmann
    Wake County Manager
    P.O. Box 550
    Raleigh, NC 27602

17. Mr. Perry Safran
    Vice Chair, NC Turn. Auth. Bd. of Directors
    1578 Mail Service Center
    Raleigh, NC 27699-1578

18. Mr. Jeff Sheehan
    NC Board of Transportation – Division 5
    3005 Carrington Mill Boulevard
    Morrisville, NC 27560

R-2635D Access 540 Project

Public Meeting

The North Carolina Department of Transportation (NCDOT) proposes to construct an interchange at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153). The project also includes the addition of auxiliary lanes along the Triangle Expressway between the NC 55 Bypass and US 1. Known as the "Access 540" project, the project number is STIP R-2635D and is located in Wake County near the town of Apex.

Project maps can be viewed on the NCDOT public meetings website:
http://www.ncdot.gov/projects/publicmeetings/

For additional information, contact Jennifer Harris, PE, of NCDOT's Project Development Section at (919)707-6025, or email jhharris1@ncdot.gov. Comments may be submitted until January 12, 2015.

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who wish to participate in this workshop. Anyone requiring special services should contact Diane Wilson at pdwilson1@ncdot.gov as early as possible so that arrangements can be made.

Aquellas personas que hablan español y no hablan inglés, o tienen limitaciones para leer, hablar o entender inglés, podrían recibir servicios de interpretación si los solicitan antes de la reunión llamando al 1-800-481-6494.

Time and Place:
Thursday
December 11, 2014

4:00 pm—7:00 pm
Apex Community Center
53 Hunter Street, Apex

Project Manager:

Jennifer Harris, PE
jhharris1@ncdot.gov
(919) 707-6025

Connecting people and places in North Carolina — safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well being of North Carolina.

ACCESS 540

North Carolina Department of Transportation
Project Development & Environmental Analysis Unit
Attn: Diane Wilson
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Important Information.
Please read!

Access 540
At Old Holly Springs-Apex Road
Wake County
STIP Project Number R-2635D

December 11, 2014 — Public Meeting

What's Inside

Our Mission

Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health, and well-being of North Carolina.

Public Meeting
—NCDOT Wants To Hear From You—

Welcome to today's public meeting for the "Access 540" project. Your input is valued and your attendance greatly appreciated.

The Access 540 project is a proposal by the North Carolina Department of Transportation (NCDOT) to convert the existing bridge at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) to an interchange. The project would also construct approximately 1.5 miles of additional lanes (called 'auxiliary lanes') along the Triangle Expressway between the NC 55 Bypass and US 1.

Planning, engineering design, and environmental studies are underway. This includes identifying the purpose and need for the project, examining alternatives that satisfy the purpose and need, and analyzing the environmental effects of those alternatives.

Purpose and Need for the Project: The purpose of the Access 540 project is to improve access and roadway connectivity in response to planned and anticipated development in southern Apex. Traffic along Old Holly Springs-Apex Road is projected to increase substantially – from 1,900 vehicles per day in 2010 to 34,900 vehicles per day in 2035. Since the existing bridge does not connect to the Triangle Expressway, motorists desiring to access the Triangle Expressway from Old Holly Springs-Apex Road must travel an additional 4.5 to 5.5 miles.

The proposed interchange would provide a direct connection between the Triangle Expressway and Old Holly Springs-Apex Road. The proposed auxiliary lanes along the Triangle Expressway would provide an additional lane for entering and exiting traffic that is separate from the through travel lanes along this roadway. This would improve traffic flow and reduce congestion.

Project Schedule *

Public Meeting Held.....December 2014
Environmental Studies Completed.....February 2015
Construction Bids Opened..... May 2015
Open to Traffic..... 2018

*** Subject to change**

Project Phone No. : (919) 707-6025 **Project Website : www.ncdot.gov/projects/triangleexpressway**

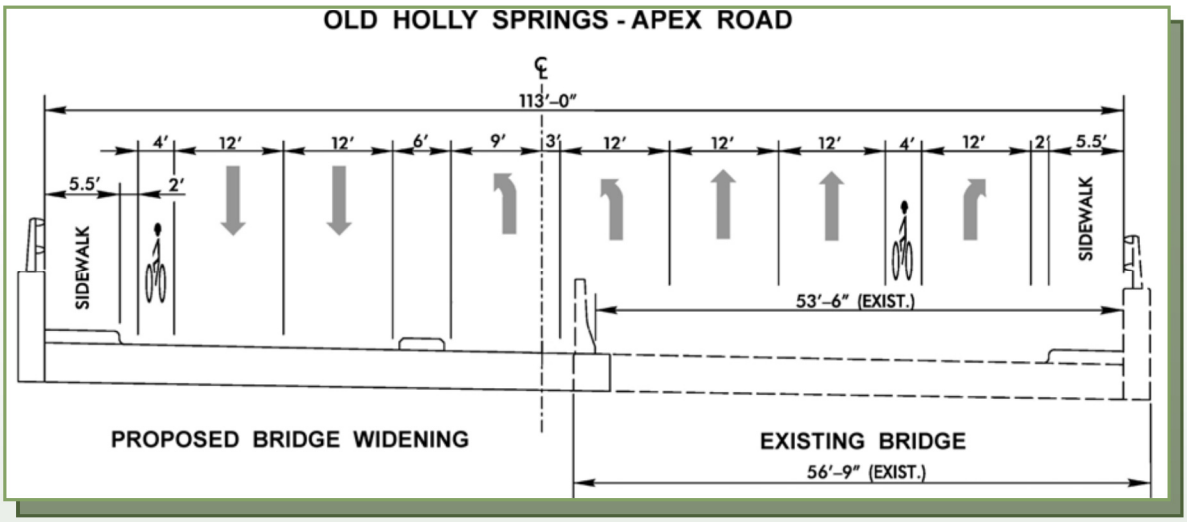
Alternatives Considered

NCDOT has considered several interchange alternatives for the Access 540 project. These include a diverging diamond, a braided diamond, a single trumpet, and two versions of a partial cloverleaf (Option A and Option B). These interchanges are shown on the Project Map on page 3. Due to issues such as inadequate interchange spacing, the desire to avoid a costly relocation of a nearby communications tower, landfill impacts, and maximizing use of the existing Old Holly Springs-Apex Road alignment, four of the five alternatives were eliminated from further consideration.

NCDOT's Recommended Alternative is a partial cloverleaf interchange (Option B), with the ramps located on the east side of Old Holly Springs-Apex Road. This alternative satisfies the project's purpose and need, would maximize interchange spacing by placing the ramps the greatest distance from the adjacent interchange (NC 55 Bypass), would avoid impacting the communications tower, would minimize encroachment into the landfill, and would not require relocating Old Holly Springs-Apex Road. It is important to note that this is a recommendation and not a final decision.

Recommended Alternative

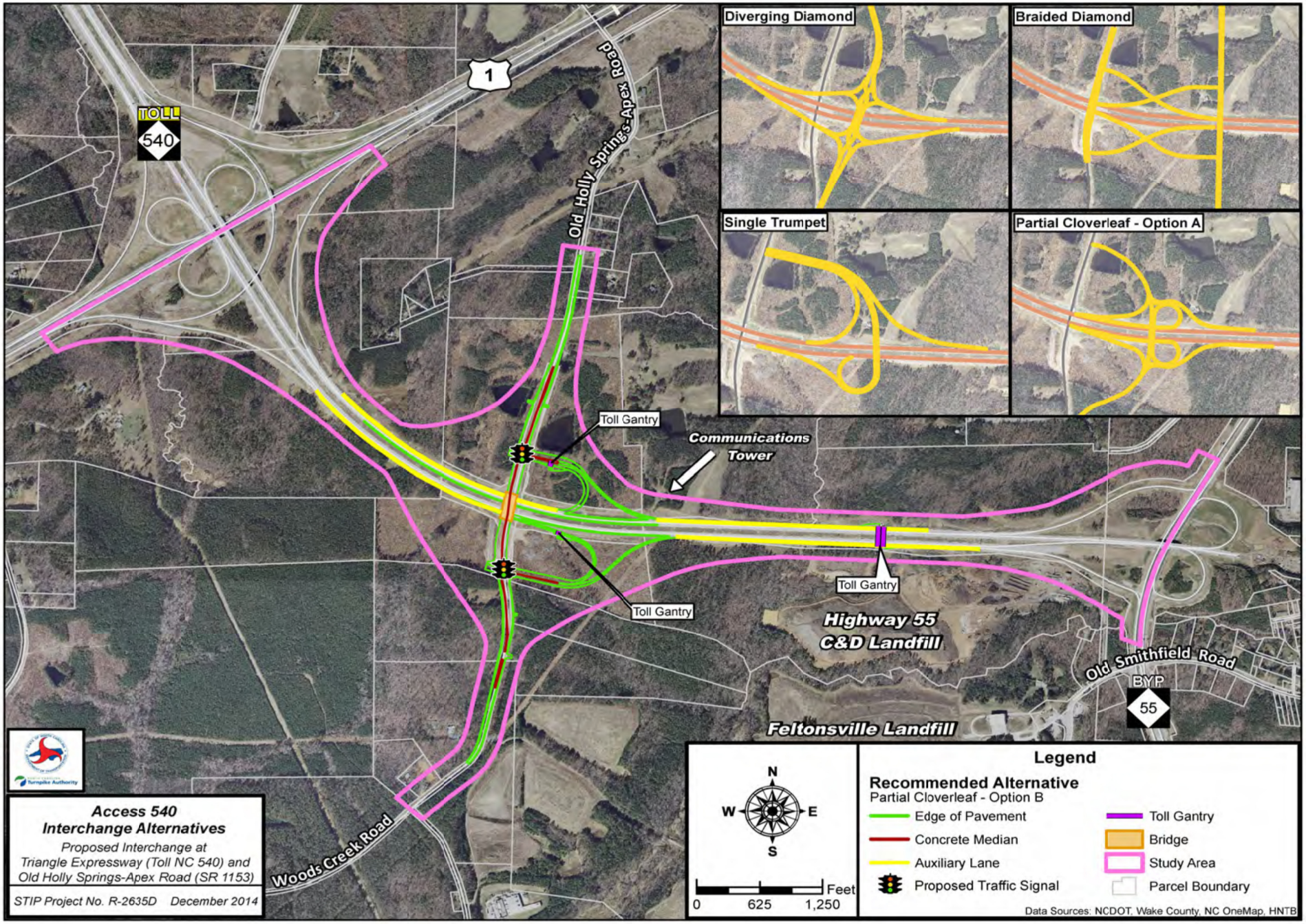
The interchange ramps would be constructed on the east side of Old Holly Springs-Apex Road. The existing three-lane bridge carrying Old Holly Springs-Apex Road over the Triangle Expressway would be widened on the west side to seven lanes to accommodate travel lanes, bicycle lanes, and sidewalks. The existing outside shoulders along the Triangle Expressway – between the NC 55 Bypass and US 1 – would be converted to auxiliary lanes and new shoulders would be constructed. Toll gantries would be constructed on the interchange ramps to allow all-electronic toll collection. The Recommended Alternative would not result in the relocation of homes or businesses. There would be no traffic noise impacts and no adverse effects on air quality. No historic properties would be impacted. No federally protected plant and animal species would be affected. The Recommended Alternative would result in approximately 738 feet of stream impacts and 0.11 acres of wetland impacts. Minor amounts of right-of-way would be needed.




Existing Overpass—Looking to the Northeast


Existing Overpass—Looking to the North

Project Map


Diverging Diamond
Braided Diamond
Single Trumpet
Partial Cloverleaf - Option A
TOLL
540
1
Old Holly Springs-Apex Road
Toll Gantry
Communications Tower
Toll Gantry
Toll Gantry
Highway 55
C&D Landfill
Old Smithfield Road
BYP
55
Feltonsville Landfill
Woods Creek Road
Access 540
Interchange Alternatives
Proposed Interchange at
Triangle Expressway (Toll NC 540) and
Old Holly Springs-Apex Road (SR 1153)
STIP Project No. R-2635D December 2014
N
W
E
S
0
625
1,250
Feet
Legend
Recommended Alternative
Partial Cloverleaf - Option B
Edge of Pavement
Concrete Median
Auxiliary Lane
Proposed Traffic Signal
Toll Gantry
Bridge
Study Area
Parcel Boundary
Data Sources: NCDOT, Wake County, NC OneMap, HNTB

Other Information

Phased Construction – The Access 540 project would be built in phases. The initial construction would consist of the auxiliary lanes and new shoulder construction on the Triangle Expressway. NCDOT would also construct a portion of the interchange ramps and Old Holly Springs-Apex Road widening to accommodate near term traffic needs. The bridge on Old Holly Springs-Apex Road would be widened to its ultimate width of seven lanes, although the approach road leading to the bridge would be three lanes. After initial construction, the remainder of the project would be built based on development trends and the resulting need for additional travel lanes.

Aesthetics – The Access 540 project would feature similar aesthetic treatments as found on the Triangle Expressway, including enhancements to bridges, walls, toll gantries, major sign support structures, and landscaping.

Cost - The estimated project cost is $31 million—which includes construction, utility modifications, environmental mitigation, and right-of-way acquisition.

Next Steps

Following today's public meeting, NCDOT will consider all comments received before making a final decision. To ensure your concerns are considered in the decision-making process, **all comment forms must be submitted to NCDOT no later than January 12, 2015 (see contact information below).**

After all comments have been considered, and assuming the project will not have a significant impact on the human and natural environment, NCDOT will publish an Environmental Assessment/Finding of No Significant Impact (EA/FONSI). The EA/FONSI represents the final decision on which alternative will be constructed and the reasons for its selection. After that, NCDOT will select a contractor to design and build the project. Construction can begin once all environmental permits have been received (a Section 404 Permit and Section 401 Water Quality Certification are anticipated) and any necessary right-of-way has been acquired. Information on the right-of- way acquisition process can be found on the project website.

Project Phone – *Línea Gratutita del Proyecto*:
(919) 707-6025 (English)
(800) 481-6494 (Español)

Project Website – *Página Web del Proyecto*:
www.ncdot.gov/projects/triangleexpressway/
Click on "Access 540" in the left margin

Project Manager—NCDOT
Jennifer Harris, PE
1548 Mail Service Center
Raleigh, NC 27699-1548
jhharris1@ncdot.gov

Project Manager—HNTB
Tracy Roberts, AICP
1548 Mail Service Center
Raleigh, NC 27699-1548
teroberts1@ncdot.gov

For more information about the project, please visit the project website. Written correspondence can be provided to Jennifer Harris or Tracy Roberts.

COMMENT FORM

Access 540

Proposed Interchange at the Triangle Expressway (Toll NC 540) and Old Holly Springs-Apex Road (SR 1153) Wake County

How Can We Reach You?

[-Please Print-]

Name _____ **Address** _____

E-Mail Address _____ _____

Homeowners' Association or other affiliation _____

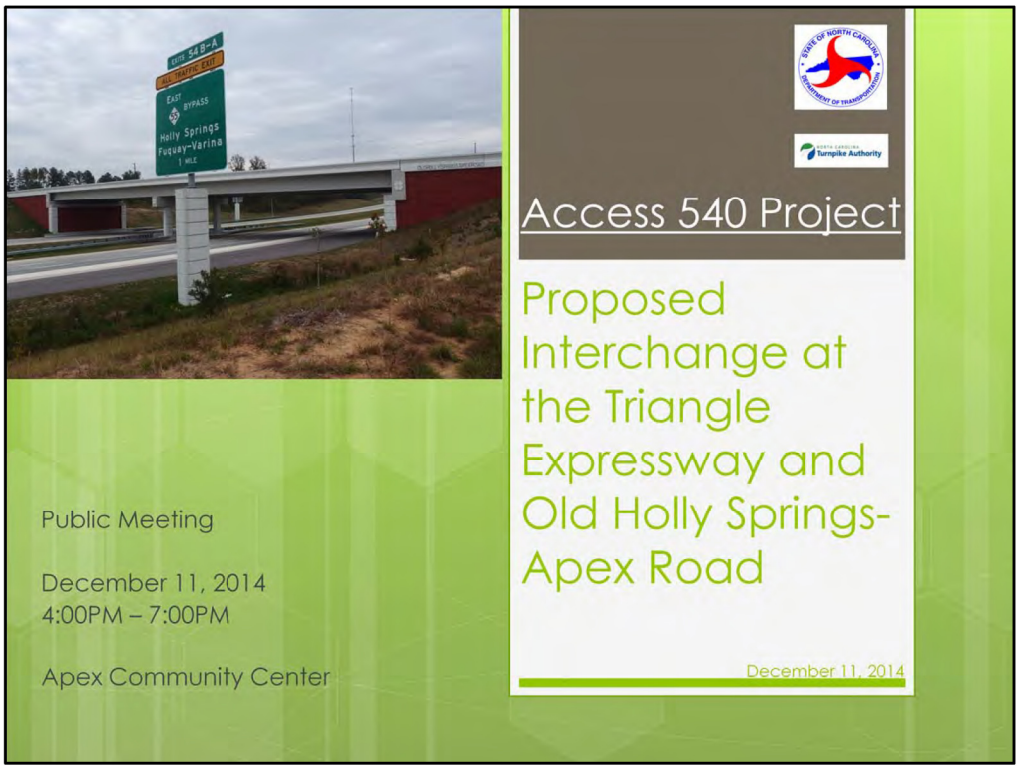
Your input is important to us! Please use the space below and on back to include your comments or questions. Please leave your comment form on the reception table. You can also send the comment form to: Jennifer Harris, PE, North Carolina Department of Transportation, 1548 Mail Service Center, Raleigh, NC 27699-1548. Comments can also be e-mailed to jhharris1@ncdot.gov. Please return the comment form by **Monday, January 12, 2015** to ensure your comments are considered in the planning process.

1. What comments do you have regarding the proposed interchange?

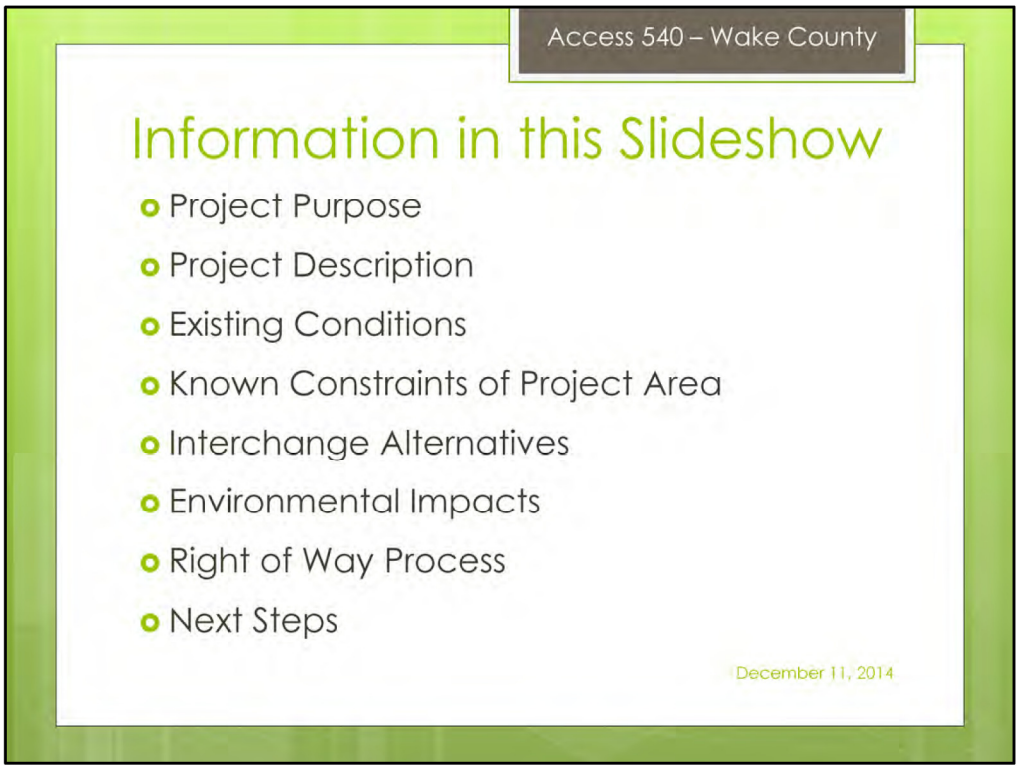
2. With any of the alternatives, are there any types of impacts that are of particular concern to you?
Yes ☐ No ☐

3. Other comments or questions?

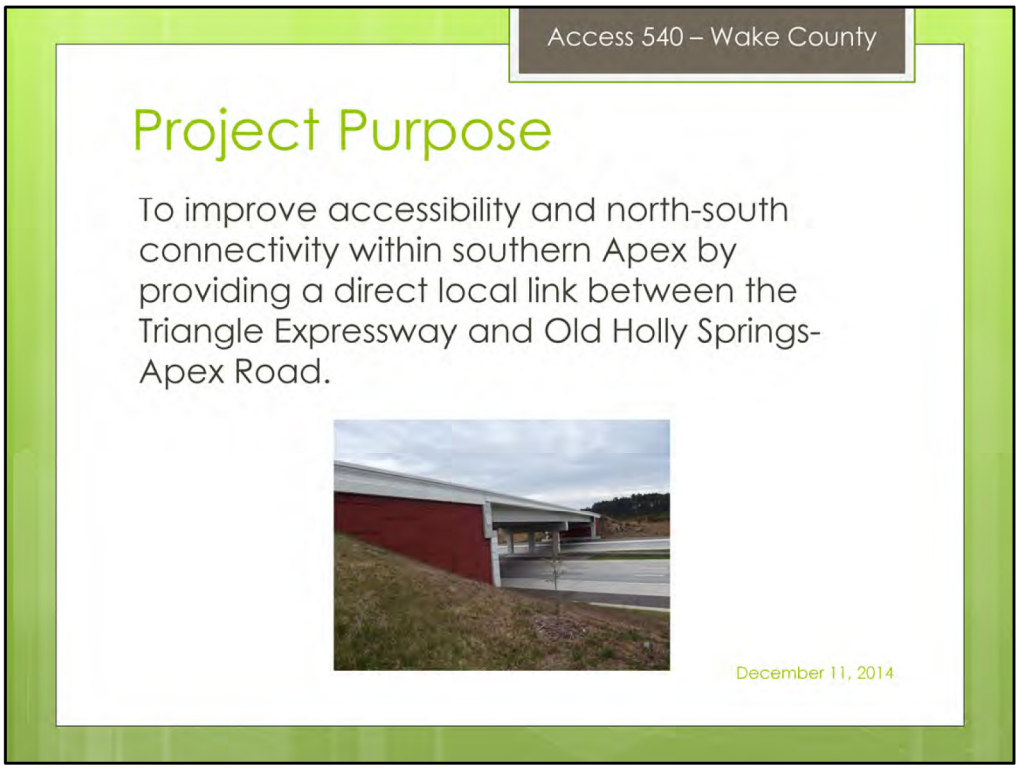
Attn: Jennifer Harris, PE
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548



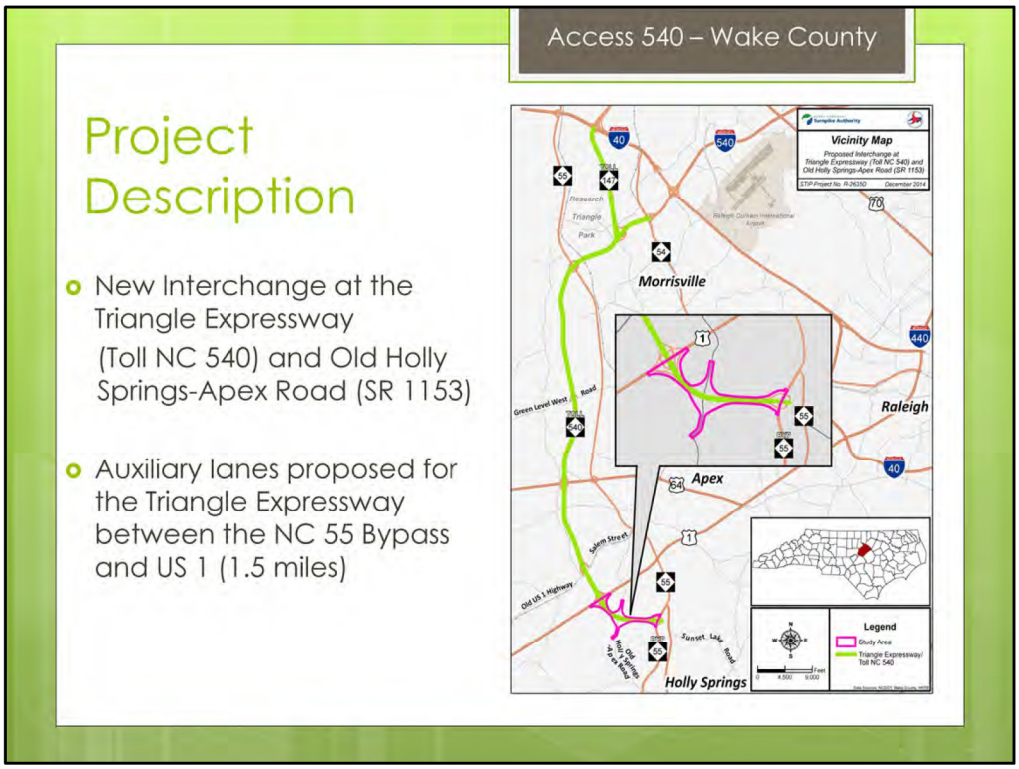
The North Carolina Department of Transportation welcomes you to this public meeting for the Access 540 project. Your input is valued and your attendance is greatly appreciated.



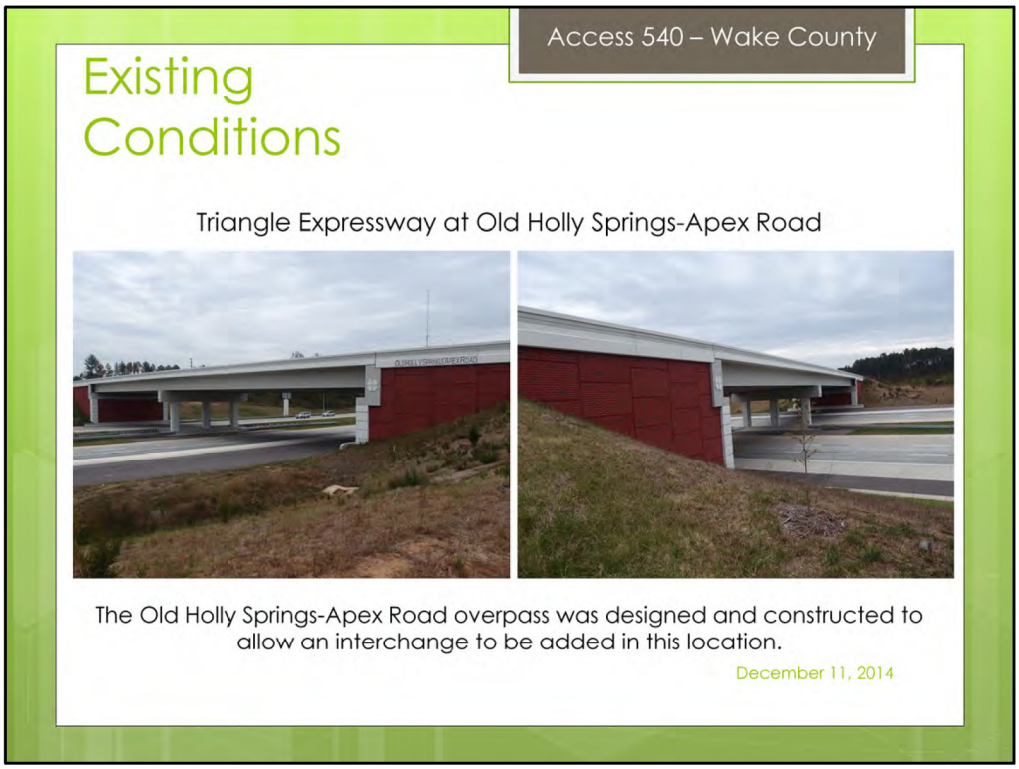
This slideshow covers eight topics. First, it explains the purpose of the Access 540 project and describes the project. It also describes the existing conditions, project constraints, alternatives that have been considered in the study…explains the anticipated impacts to the human and natural environment…discusses the right of way process and explains the next steps and schedule.



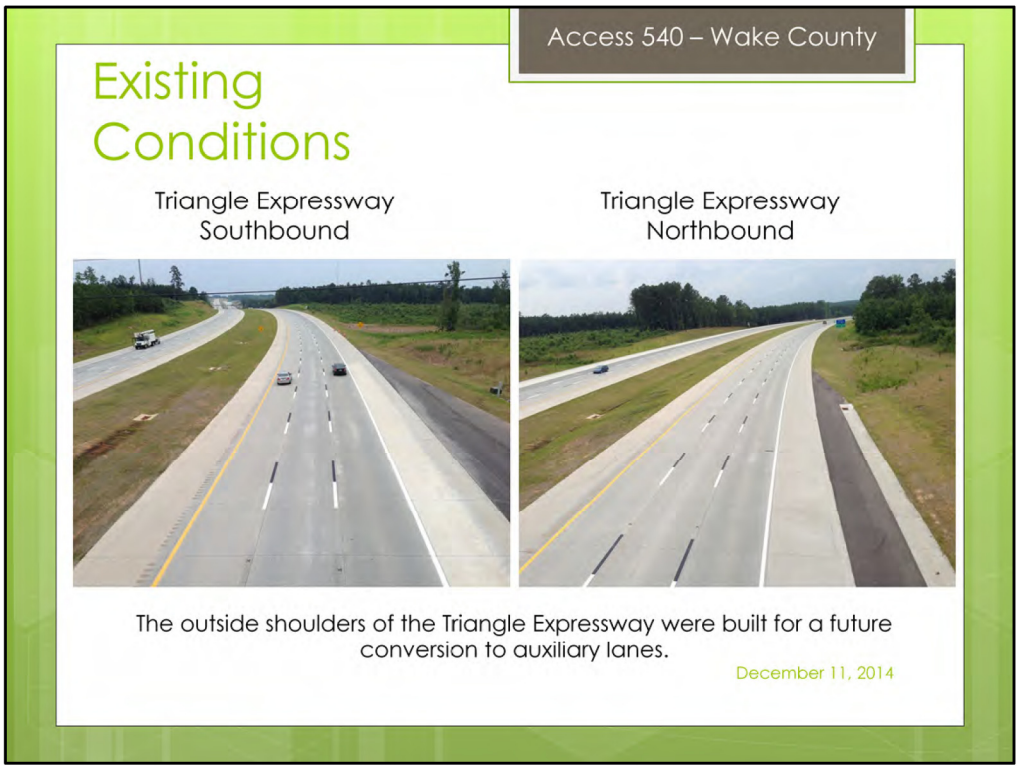
The Access 540 project would enhance roadway connectivity of regional importance by improving local access to the Triangle Expressway.



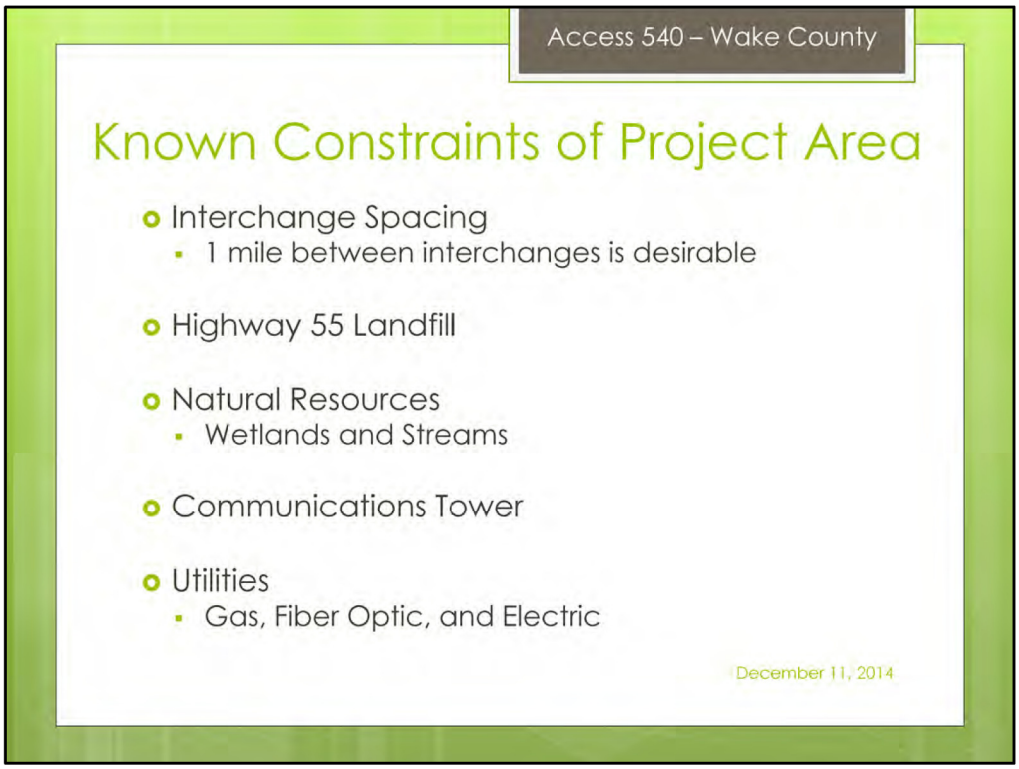
The Access 540 project includes the construction of a new interchange at the Triangle Expressway and Old Holly Springs-Apex Road. Also included is the conversion of the existing outside shoulders on the Triangle Expressway to auxiliary lanes. New shoulders will be constructed.



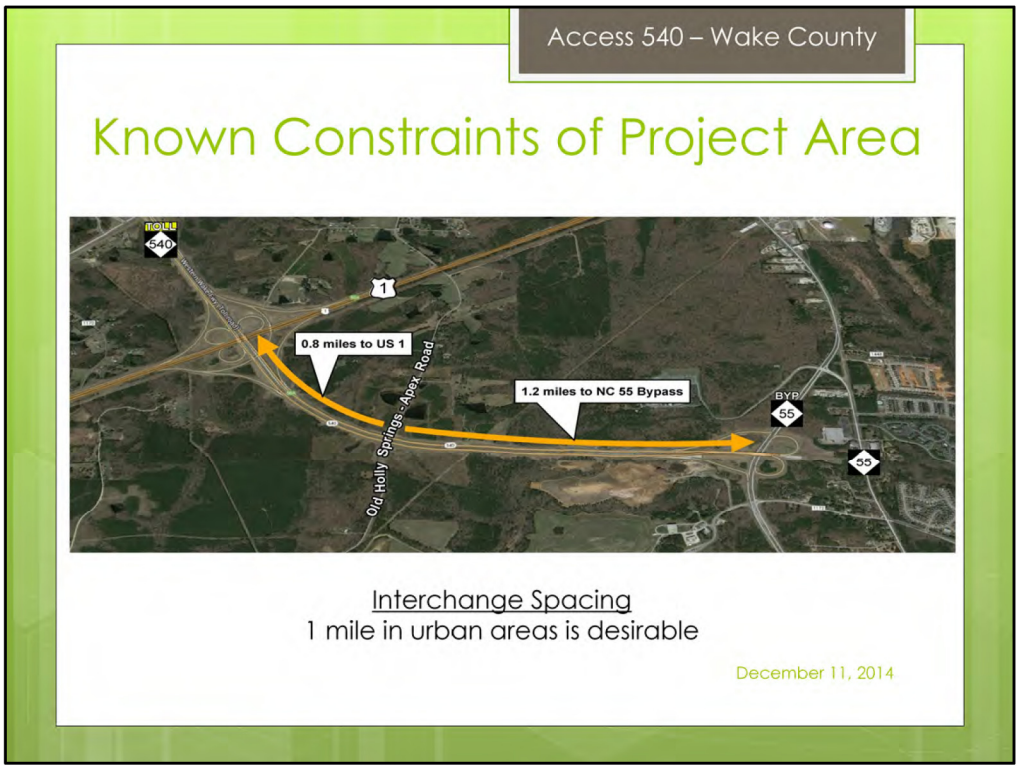
Old Holly Springs-Apex Road crosses over the Triangle Expressway with a three-lane bridge. The bridge was designed and constructed to allow an interchange to be added in this location.



The Triangle Expressway is a six-lane toll facility. The existing outside shoulders between the NC 55 Bypass and US 1 were built for a future conversion to auxiliary lanes.

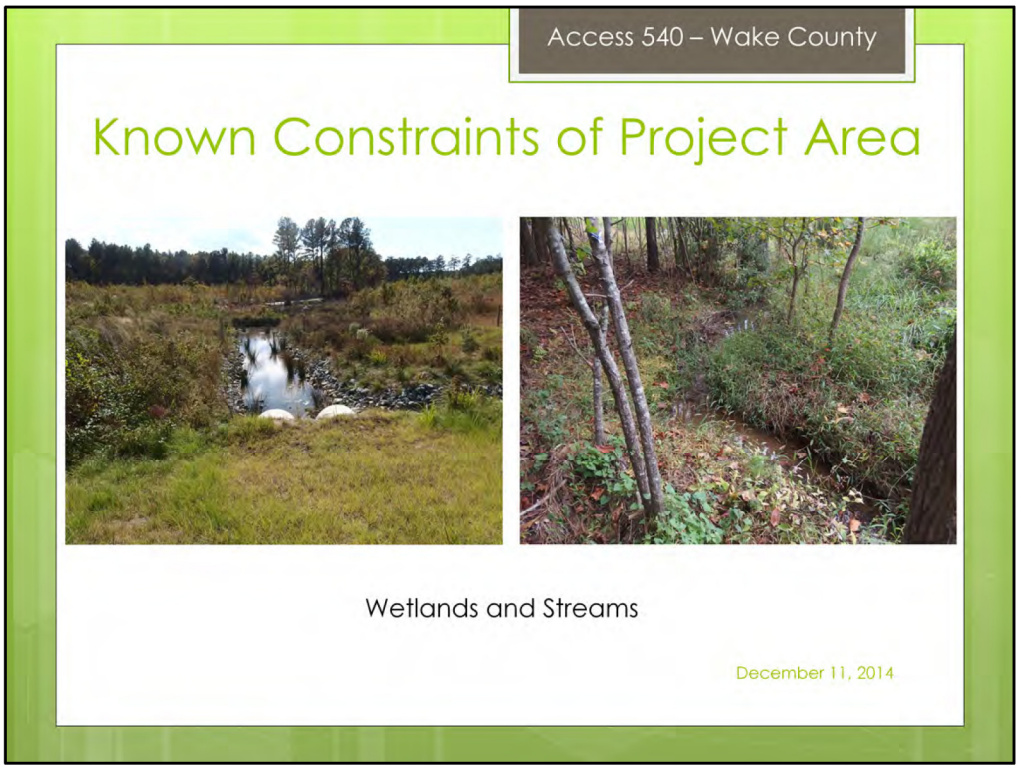


Project constraints in the study area were factors in the alternatives analysis and interchange design. These constraints included less than optimal interchange spacing, the presence of a landfill, natural resources, a communications tower and utilities.



Interchanges should maintain a minimum of a 1 mile separation between nearby interchanges. The distance from Old Holly Springs-Apex Road to the NC 55 Bypass is 1.2 miles while the distance to US 1 is less than a mile.

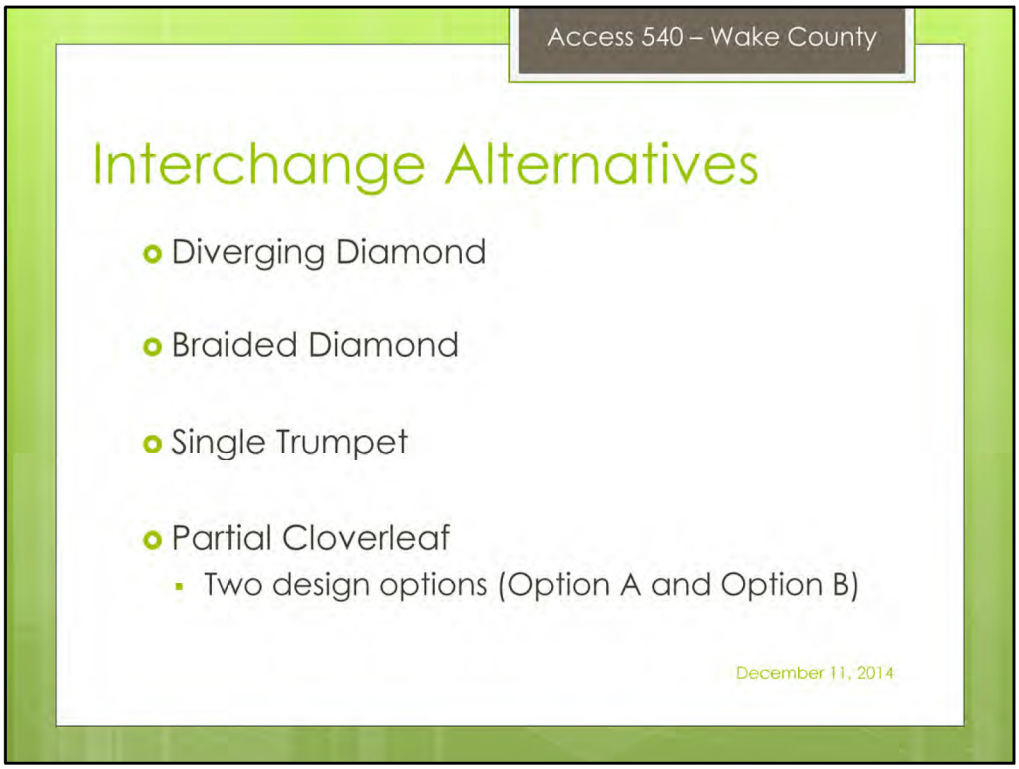
Here you can see the nearby landfill. Encroachments into landfills can be costly and can impose liability risks on NCDOT.



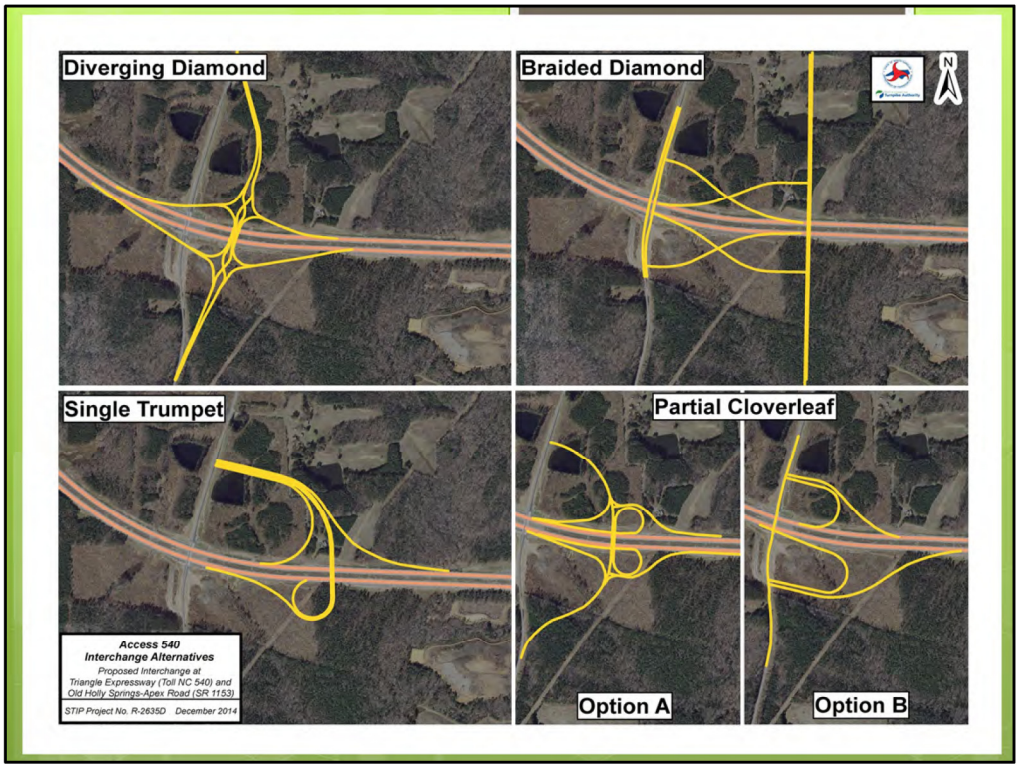
These photos illustrate some of the natural resources in the study area. NCDOT strives to avoid and minimize impacts to the natural environment to the extent practicable.

A nearby communications tower would be costly to relocate. Construction of the Triangle Expressway avoided relocation of the tower by installing a retaining wall, shown in the photo on the right. A goal of NCDOT for the Access 540 project was to design the new interchange to continue to avoid the tower.

Gas lines, fiber-optic cables and electric lines are in the study area. Minimization of utility relocations is important to reduce environmental impacts and to keep costs down.

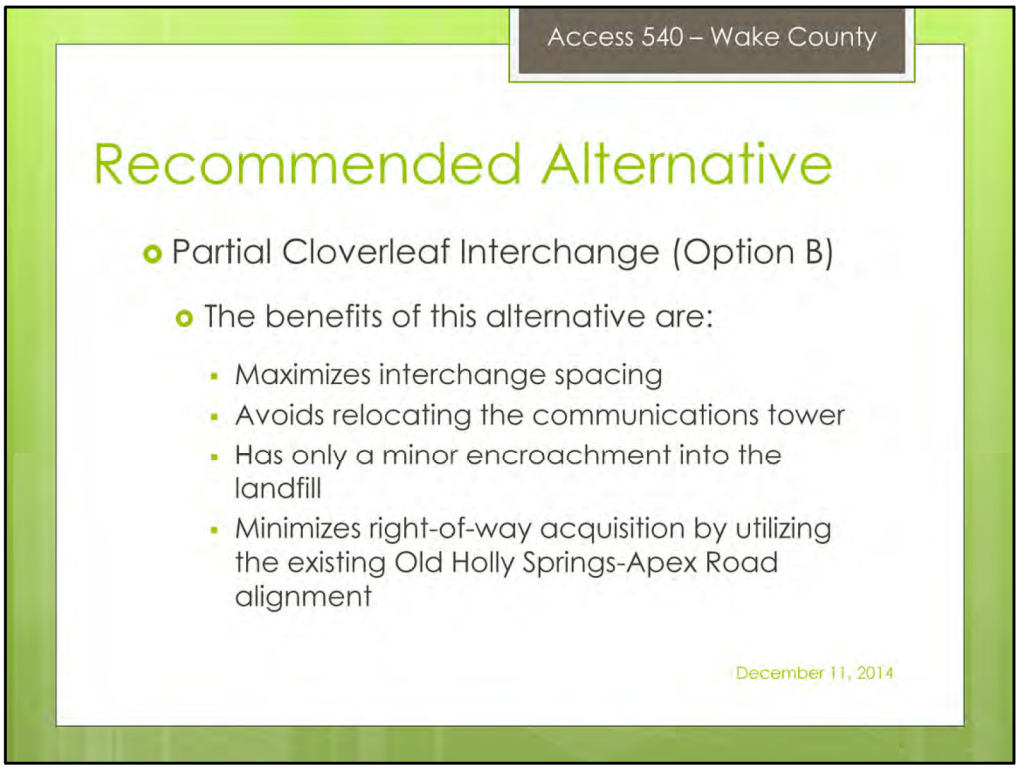


NCDOT considered several interchange alternatives to meet the purpose and need for the project. These include a diverging diamond, a braided diamond, a single trumpet and two versions of a partial cloverleaf. These interchanges are shown on the following slide.

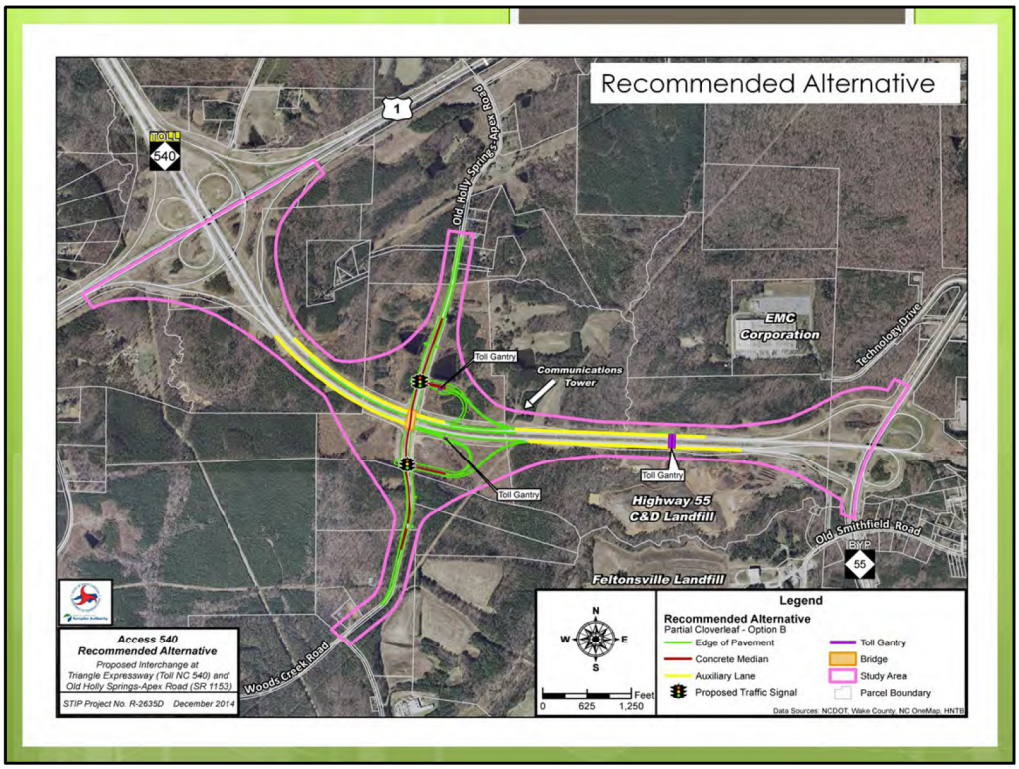


Here you can see the five interchange alternatives being considered.

Due in part to the project constraints previously mentioned, the diverging diamond, braided diamond, single trumpet and the partial cloverleaf (Option A) interchanges were dropped from further consideration. The partial cloverleaf (Option B) interchange was carried forward for detailed study. This alternative is NCDOT's Recommended Alternative.

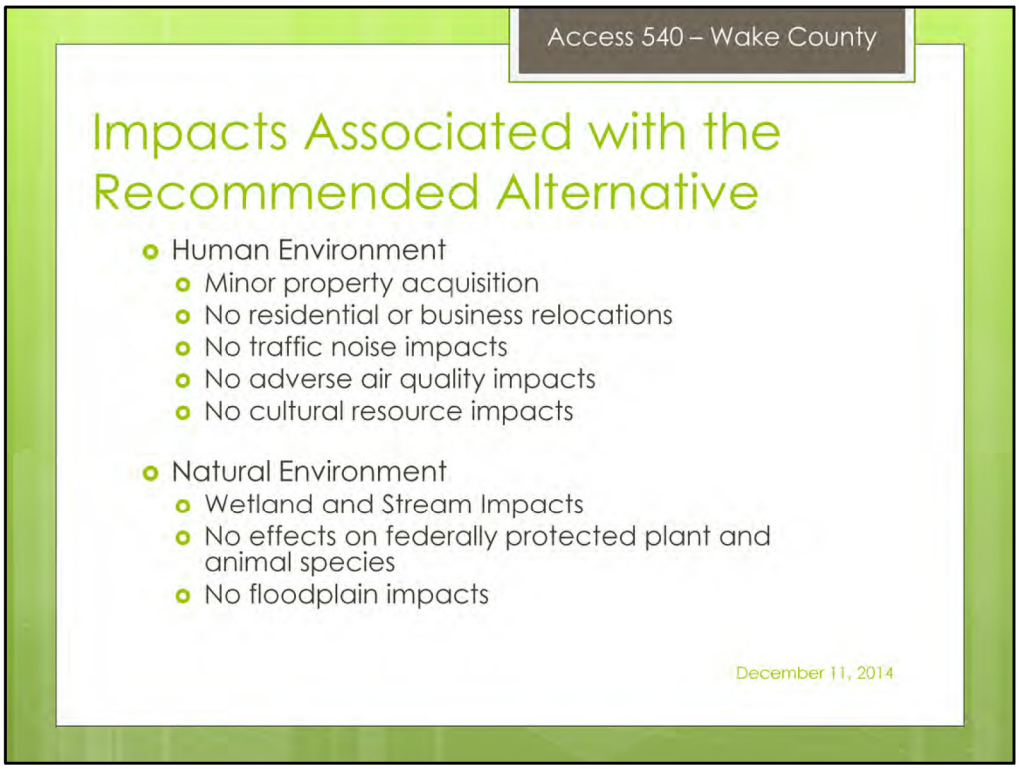


NCDOT's Recommended Alternative, the partial cloverleaf interchange (Option B), where the ramps are located on the east side of Old Holly Springs-Apex Road, offers several advantages. This alternative would maximize interchange spacing, avoid a costly relocation of a nearby communications tower, lessen encroachment into the landfill, and minimize right-of-way acquisition by utilizing the existing Old Holly Springs-Apex Road alignment.

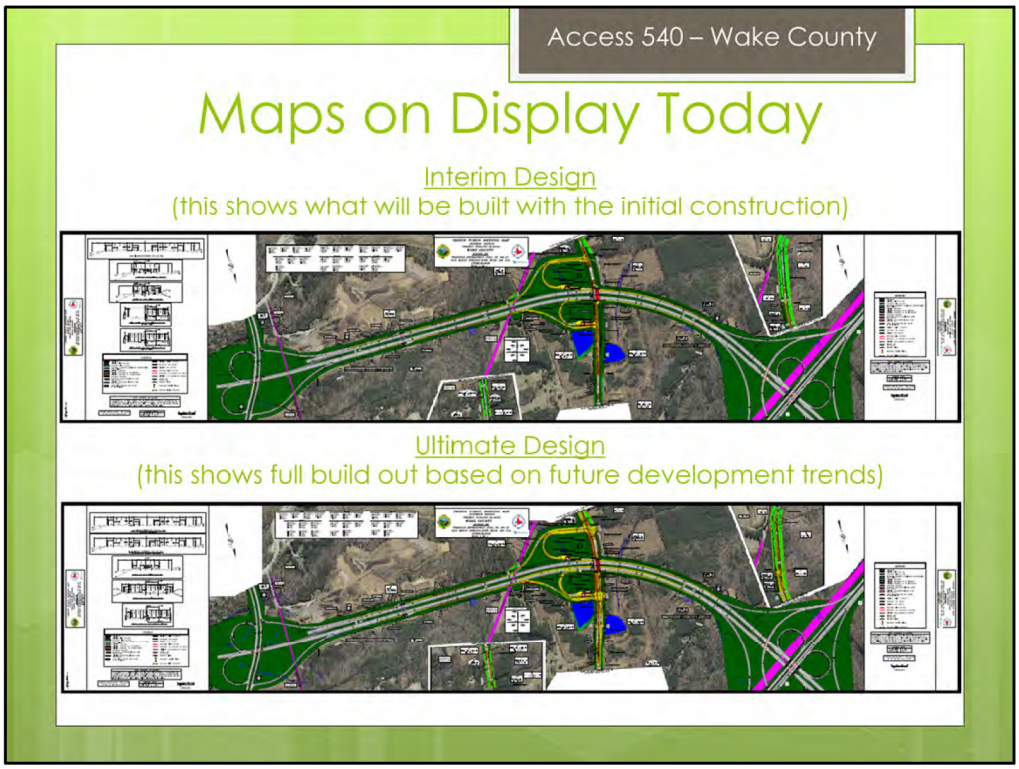


Here you can see NCDOT's Recommended Alternative. It is important to note that this is a recommendation and not a final decision.

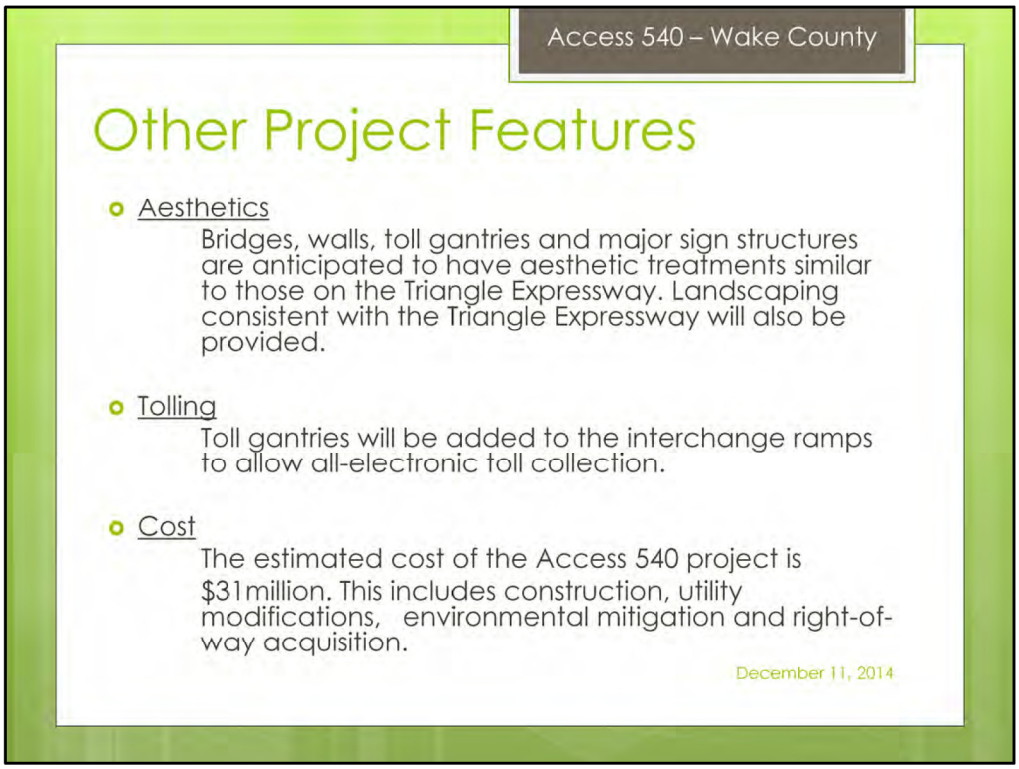
The Recommended Alternative is also consistent with NCDOT's State Transportation Improvement Program and local transportation plans, including those of the Capital Area Metropolitan Planning Organization, Apex and Holly Springs.



The Recommended Alternative would result in minor amounts of property acquisition…no residential or business relocations…no traffic noise impacts…no impacts to cultural resources and no adverse air quality impacts. The Recommended Alternative would impact wetlands and streams but would have no effects on federally protected plant and animal species and there would be no floodplain impacts.



The preliminary engineering design for the Recommended Alternative – the partial cloverleaf interchange – is shown on the maps on display at this public meeting. You'll notice there are two maps; one called an interim design and the other an ultimate design. The interim design shows what will be built with the initial construction. The remainder of the interchange will be built out over time as development occurs.

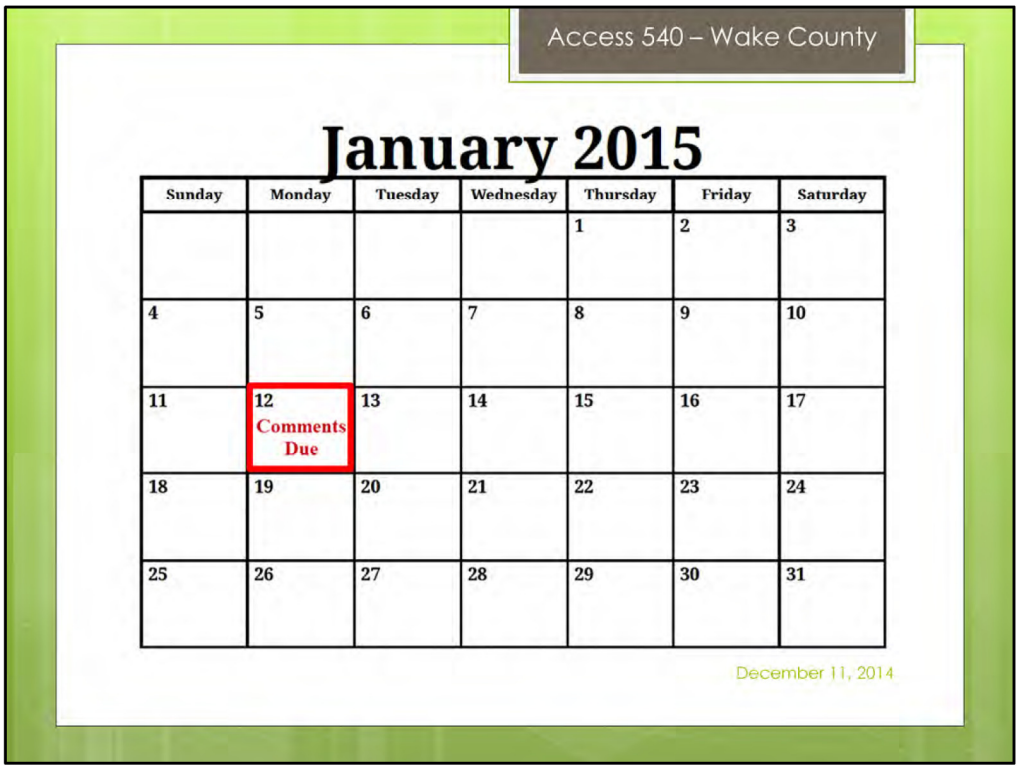


Other project features shown on this slide include aesthetics, tolling and the project cost. Bridges, walls, toll gantries and major sign structures are anticipated to have aesthetic treatments similar to those featured on the Triangle Expressway. Landscaping consistent with the Triangle Expressway will also be provided. Toll gantries will be added to the interchange ramps to allow all-electronic toll collection. The estimated cost of the Access 540 project is $31 million. This includes construction, utility modifications, environmental mitigation and right-of-way acquisition.

After decisions are made regarding the final design and the project has been financed, the proposed right-of-way limits will be staked in the ground. If your property is affected, you will be contacted by a right-of-way agent who will show you the plans, explain how the project will affect you and advise you of your rights. If permanent right-of-way is required, a professional appraisal of your properties' current market value at its highest and best use will be made and the right-of-way agent will make a written offer to you. During this process, the NCDOT must treat all owners and tenants equally, must fully explain owner's rights, must pay just compensation in exchange for property rights, must furnish relocation advisory assistance if necessary, and must initiate legal action if a settlement cannot be reached.

WHAT HAPPENS NEXT?

Following this public meeting, all comments received will be reviewed and evaluated. NCDOT will then identify the alternative to be constructed, which may or may not be the current Recommended Alternative, depending on the comments received. After the environmental document is completed, if the Recommended Alternative is selected for construction, it is projected to be open to traffic by 2018.



The North Carolina Department of Transportation will accept your comments anytime, but to ensure they are considered as part of the official public record, please submit them by January 12, 2015. Also, if you know anyone who could not attend this meeting but is interested in the project, please feel free to take extra comment forms and handouts as you leave today's meeting.

Thank you for attending the Access 540 public meeting and taking part in NCDOT's transportation planning process.