



**I-40 / LIBERTY ROAD INTERCHANGE
STIP PROJECT No. I-4759
BUNCOMBE COUNTY**

Federal Aid Project No. STPIMS-040-1(188)42
WBS No. 39970.1.1

**ADMINISTRATIVE ACTION
ENVIRONMENTAL ASSESSMENT**

U.S. Department of Transportation
Federal Highway Administration
N.C. Department of Transportation

Submitted Pursuant to 42 U.S.C. 4332(2) (c)

APPROVED:

1.30.17

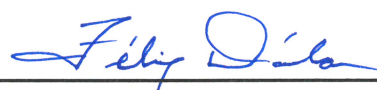
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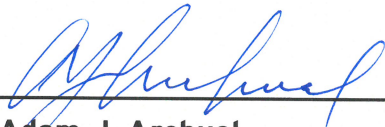
I-40/SR 1228 (Liberty Road) Interchange
Convert Grade Separation to an Interchange and Construct Roadway,
US 19/US 23 (Smokey Park Highway)/NC 151 (Pisgah Highway) to SR 1224
(Monte Vista Road) with Part on New Location

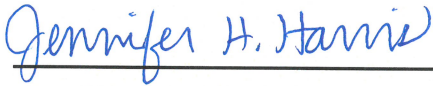
Buncombe County

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ADMINISTRATIVE ACTION
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Document Prepared By:

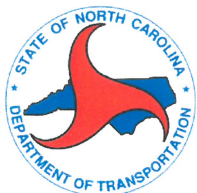
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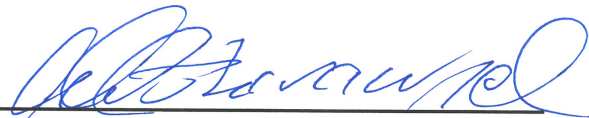
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PROJECT COMMITMENTS

I-40/S.R. 1228 (Liberty Road) Interchange

Convert Grade Separation to an Interchange and Construct Two Lane Roadway North of I-40 to S.R. 1224 (Monte Vista Road) and Four Lane Roadway South of I-40 to U.S. 19/U.S. 23 (Smokey Park Highway)/N.C. 151 (Pisgah Highway) with Parts on New Location

Buncombe County

Federal Aid Project No. STPIMS-040-1(188)42

WBS No. 39970.1.1

STIP No. I-4759

All commitments developed during the project development and design phase have been incorporated into the design. Current status, changes, or additions to the project commitments, included in the Environmental Assessment (EA) for this project, are listed below:

NCDOT-Biological Surveys Group:

Construction authorization will not be requested until Endangered Species Act (ESA) compliance is satisfied for the northern long-eared bat (NLEB) and the gray bat.

NCDOT-Hydraulic Design Unit:

The Hydraulics Unit will coordinate with the N.C. Floodplain Mapping Program (FMP), the delegated state agency for administering FEMA's National Flood Insurance Program, to determine the status of the project with regard to applicability of NCDOT's Memorandum of Agreement with FMP (dated April 22, 2013), or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR) will be required.

NCDOT-Highway Division 13:

The project will involve construction activities on or adjacent to FEMA regulated streams. NCDOT Division 13 shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within 100-year floodplains were built as shown in the construction plans, both horizontally and vertically.

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LIST OF ACRONYMS

AADT	Annual average daily traffic
APE	Area of Potential Effects
ART	Asheville Redefines Transit
BMP	Best Management Practices
CCR-CIA	Community Characteristics Report and Community Impact Assessment
CES	Cumulative Effects Study
CIW	Citizens Informational Workshop
C.F.R.	Code of Federal Regulation
CLOMR	Conditional Letter of Map Revision
CP	Concurrence Point
CTP	Comprehensive Transportation Plan
CTSP	Community Transportation Service Plan
CWA	Clean Water Act
DNR	Design Noise Report
DSA	Demographic Study Area
EA	Environmental Assessment
EEP	Ecosystem Enhancement Program
ESA	Endangered Species Act
EVAD	Enhanced Voluntary Agricultural District
GIS	Geographic Information System
FBRMPO	French Broad River Metropolitan Planning Organization
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMP	Floodplain Mapping Program
FY	Fiscal Year
HQW	High Quality Waters
IAR	Interstate Access Report
ICE	Indirect and Cumulative Effects
LEP	Limited English Proficiency
LOMR	Letter of Map Revision

L RTP	Long Range Transportation Plan
L USA	Land Use Scenario Assessment
L WCF	Land and Water Conservation Fund
M OA	Memorandum of Agreement
M OE	Measure of Effectiveness
M PH	Miles per hour
M TP	Metropolitan Transportation Plan
N AC	Noise Abatement Criteria
N CAC	North Carolina Administrative Code
N CDACS	North Carolina Department of Agriculture and Consumer Services
N CDENR	North Carolina Department of Environment and Natural Resources
N CDEQ	North Carolina Department of Environmental Quality
N CDOT	North Carolina Department of Transportation
N CDWR	North Carolina Division of Water Resources
N CNHP	North Carolina Natural Heritage Program
N CWRC	North Carolina Wildlife Resources Commission
N CFMP	North Carolina Flood Mapping Program
N EPA	National Environmental Policy Act
N HP	Natural Heritage Program
N HPA	National Historic Preservation Act
N LEB	Northern Long-eared Bat
N RCS	Natural Resources Conservation Service
N RHP	National Register of Historic Places
N RTR	Natural Resources Technical Report
N PS	National Park Service
N SA	Noise Study Area
ORW	Outstanding Resource Waters
RCBC	Reinforced concrete box culvert
ROW	Right-of-way
SHPO/HPO	State Historic Preservation Office
S.R.	Secondary Route

STIP	State Transportation Improvement Program
TDM	Travel Demand Management
TSM	Transportation Systems Management
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VAD	Voluntary Agricultural District
V/C	Volume-to-capacity
VHD	Vehicle hours of delay
VHT	Vehicle-hours-traveled
VMT	Vehicle-miles-traveled
VPD	Vehicles per day
WSW	Water supply watershed
WQC	Water Quality Certification

SUMMARY

This Environmental Assessment (EA) has been prepared for the Federal Highway Administration (FHWA) in accordance with the Code of Federal Regulations (CFR) 23, Part 771 for the purpose of evaluating the potential impacts of a proposed transportation improvement project.

1. Description of Action

The North Carolina Department of Transportation (NCDOT) proposes to convert the existing Secondary Route (S.R.) 1228 (Liberty Road) overpass of Interstate 40 (I-40) to an interchange. The proposed project would also include the realignment, part on new location, and upgrade of the existing Liberty Road between S.R. 1224 (Monte Vista Road) and the U.S. 19/23 (Smokey Park Highway) and N.C. 151 (Pisgah Highway) intersection with S.R. 1220 (Dogwood Road). The project is included in the NCDOT STIP (January 2017)^{S-1} as Project I-4759 and is programmed for right-of-way acquisition and construction to begin in Federal Fiscal Year (FFY) 2019. NCDOT anticipates this project would be let as a Design-Build contract.

2. Need and Purpose

The need to be addressed by the proposed project is the lack of network connectivity in the project study area, which degrades network mobility, quantity of travel, and quality of travel. Currently, motorists desiring to access I-40 in the vicinity of the project must access I-40 at the existing interchanges at U.S. 19/23 (exit 44) approximately 2.5 miles to the east, or S.R. 1200 (Wiggins Road) (exit 37) approximately 5.5 miles to the west. Locally, I-40 serves as an important east-west facility for residents to access employment centers in Asheville. U.S. 19/23 provides the only other east-west connection between western Buncombe County and Asheville. Traffic generated along N.C. 151 and N.C. 112 (Sand Hill Road/Sardis Road) utilize U.S. 19/23 to access I-40. Local planners indicate that western Buncombe County, including specifically the Enka-Candler area, will continue to be a primary focal point for residential development due to its proximity to Asheville and relatively low land and housing prices. An alternate I-40 access is needed to accommodate existing and future traffic in the project study area.

The primary purpose of the proposed project is to improve the transportation network in the project study area to benefit mobility and connectivity.

3. Alternatives Considered

The preliminary study alternatives considered include Travel Demand Management (TDM), Mass Transit, Transportation Systems Management (TSM), the No Build

^{S-1} Current Federally Approved 2016-2025 State Transportation Improvement Program (STIP).

Alternative, Diamond Interchange Alternative, Partial Cloverleaf Interchange Alternative, and Half Cloverleaf Interchange Alternative.

The NCDOT selected the Partial Cloverleaf Interchange Alternative and Half Cloverleaf Interchange Alternative for detailed study for the proposed project. As discussed in Section 3, all other preliminary study alternatives were eliminated from further consideration because they do not effectively meet the transportation needs in the project study area or adequately serve the purpose for the project. The Diamond Interchange Alternative, while meeting the primary purpose for the project and satisfying the transportation needs in the project study area, results in substantially greater impacts to the natural and human environments and was eliminated from detailed study in this EA.

4. Environmental Effects

The Detailed Study Alternatives carried forward were evaluated for impacts to the human and natural environment. Table S-1 provides a summary of the anticipated impacts for the Detailed Study Alternatives. Only features with impacts are listed in the summary table.

**TABLE S-1
SUMMARY OF ANTICIPATED IMPACTS**

Feature*	Alternative	
	Partial Cloverleaf Interchange ⁺	Half Cloverleaf Interchange ⁺
Natural Environment		
Jurisdictional Stream (number of crossings / linear feet of stream impacts)	5 / 1,838	4 / 1,530
Forest (acre)	20.3	24.5
Bamboo (acre)	0.3	0.3
100-Year Floodplain and Floodway (acre)	1.8 (0.3 Floodway)	1.8 (0.3 Floodway)
Federally-Protected Species		
Northern long-eared bat	Unresolved	Unresolved
Gray bat	Unresolved	Unresolved
Human Environment		
Residential Displacements (number)	34	40
Impacted Noise Receptors (number)	40	34

TABLE S-1
SUMMARY OF ANTICIPATED IMPACTS

Feature*	Alternative	
	Partial Cloverleaf Interchange ⁺	Half Cloverleaf Interchange ⁺
Cost		
Construction Cost	\$34,292,800	\$38,993,800
Utility Relocation Cost	\$1,597,776	\$1,591,080
Right-of-Way Cost	\$11,036,910	\$14,485,000
Total	\$46,927,486	\$55,069,880
<p>Sources: Cost estimates provided by NCDOT-Roadway Design Unit; NCDOT-Right of Way Unit; NCDOT-Utilities Unit, 2016 (Appendix D).</p> <p>Note: * Only features with impacts listed in summary table; refer to Section 5 for more detail. ⁺ Impacts based on functional roadway design slope stakes plus 40 feet.</p>		

5. Permits Required

The proposed action would require permits pursuant to Sections 401 and 404 of the Clean Water Act (CWA) of 1977, as amended. A Section 401 Water Quality Certification (WQC) from the Division of Water Resources (DWR) of the North Carolina Department of Environmental Quality (NCDEQ) would be needed for any discharges to Waters of the U.S. A Section 404 permit issued by the U.S. Army Corps of Engineers (USACE) would be required to discharge and place fill materials into streams.

6. Other Highway Projects

The current NCDOT STIP (January 2017) lists five highway projects in the vicinity of STIP I-4759. All projects are along the existing and future planned route of I-26. Most of the projects listed in Table S-2 are programmed for funding in sections. Additional information about project breaks and the funding schedule for each is included in Section 2.5.

TABLE S-2
SUMMARY OF NEARBY STIP PROJECTS

STIP Project	Description	Schedule (Federal Fiscal Year)
I-5504	N.C. 191 (Brevard Road). Upgrade interchange.	Under construction as Design-Build
I-2513	Asheville Connector, I-26 to U.S. 19/U.S. 23/U.S. 70. Multi-lane freeway, part on new location.	ROW – Begin 2019 Construction – Begin 2021
A-0010AA	I-26 (U.S. 19/23) – Widen existing roadway, S.R. 1781 (Broadway Street) - exit 25 in Asheville to U.S. 25	ROW – Begin 2020 Construction – Begin 2022
I-4400	I-26 – U.S. 25 (exit 54) to N.C. 280 (exit 40). Widen to add additional lanes.	ROW – Begin 2018 Construction – Begin 2018
I-4700	I-26 – N.C. 280 (exit 40) to I-40 at Asheville. Add additional lanes.	ROW – Begin 2018 Construction – Begin 2020
Source: NCDOT STIP (January 2017).		

7. Coordination

- April 2008: Project scoping letter announcing the start of project development, environmental and engineering studies sent to federal, state and local agencies (Appendix A).
- June 9, 2009: Interagency scoping meeting (or Pre-Merger Screening) for the proposed project held.
- October 6, 2014: Start of study letter sent to local officials to announce the re-initiation of the proposed project (Appendix A)^{S-2}.
- October 14, 2015: Concurrence Point 1 (CP1), Purpose and Need and Study Area Defined reached (Appendix B).
- April 13, 2016: Concurrence Point 2 (CP2), Detailed Study Alternatives Carried Forward reached (Appendix B).
- May 26, 2016: Concurrence Point 2A (CP2A), Bridging Decisions and Alignment Review reached (Appendix B).

^{S-2} Refer to Section 1.1 for more information about the project’s development between 2009 and 2014.

- August 30, 2016: Local Officials Informational Meeting and an Open House Public Meeting.
- January 10, 2017: Concurrence with the State Historic Preservation Office (HPO) that No Effect would occur to two National Register of Historic Places (NRHP) eligible properties in the project's Area of Potential Effect (APE).
- Spring 2017: Public Hearing will be held following the approval of the EA.

8. Contact Information

The following persons may be contacted for additional information regarding this project:

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1. PROPOSED ACTION

The North Carolina Department of Transportation (NCDOT) proposes to convert the existing Secondary Route (S.R.) 1228 (Liberty Road) overpass of Interstate 40 (I-40) to an interchange. The proposed project would also include the realignment, part on new location, and upgrade of the existing Liberty Road between S.R. 1224 (Monte Vista Road) and the U.S. 19/23 (Smokey Park Highway) and N.C. 151 (Pisgah Highway) intersection with S.R. 1220 (Dogwood Road). The proposed project is located in western Buncombe County, approximately 10 miles west of downtown Asheville (Figure 1).

The project is included in the current NCDOT STIP (January 2017)¹ as Project Number I-4759 and is programmed for right-of-way acquisition and construction to begin in Federal Fiscal Year (FFY) 2019. NCDOT anticipates this project would be let as a Design-Build contract.

Two interchange configuration alternatives are carried forward for detailed study: the Partial Cloverleaf Interchange and the Half Cloverleaf Interchange, collectively referred to as the Detailed Study Alternatives. The Detailed Study Alternatives would include the realignment and improvement of Liberty Road. Liberty Road would be realigned south of I-40 on new location to connect to U.S. 19/23 at the existing Dogwood Road/N.C. 151 intersection. Dogwood Road would intersect with the new realigned Liberty Road. Liberty Road would be realigned on new alignment north of I-40 to tie back into its existing alignment near Canaan Drive. The remainder of Liberty Road would be improved to the Monte Vista Road intersection. The total length of improvements to Liberty Road is approximately 1.5 miles (Figure 2). The project study area depicted on Figure 2 encompasses the transportation improvements proposed in project I-4759 and consists of approximately 354 acres.

1.1. Background

NCDOT explored the option for a new interchange on I-40 in the vicinity of the proposed project in 1988. Through development of a Feasibility Study in 1988 and a subsequent reevaluation of that Feasibility Study in 2002, NCDOT determined that Liberty Road was a feasible location to develop a new interchange on I-40. The Liberty Road interchange was identified by the local transportation planning organization (French Broad River Metropolitan Planning Organization [FBRMPO]) as a high priority project in 2008, and project development activities began shortly thereafter.

The project's history is detailed as follows:

In 1988, NCDOT completed a Feasibility Study for a new interchange at Dogwood Road² on I-40 and extension of N.C. 151 along Dogwood Road to I-40 (STIP Project Nos. I-2300

¹ Current Federally Approved 2016-2025 State Transportation Improvement Program (STIP).

² The Dogwood Road grade separation at I-40 is approximately 0.5 mile west of Liberty Road.

and R-2308). The Dogwood Road interchange was ultimately not determined to be feasible due to constraints on the design, including proximity to the truck weigh station on I-40, estimated construction costs, and an unfavorable cost-benefit ratio.

Because of the nearby location of a truck weigh station on I-40 west of Dogwood Road, a ramp in the northwest quadrant of the I-40/Dogwood Road intersection was not considered feasible. Thus, the design for the interchange would have to be a modified diamond with a loop in the northeast quadrant. The loop would have required a longer bridge to accommodate the loop acceleration lane under the bridge. This loop lane would have then combined with the slow truck deceleration lane along a crest of the I-40 westbound lane. On the I-40 eastbound lane, a high speed deceleration lane would have then combined with a truck acceleration lane.

Further, it was concluded that because Dogwood Road had poor existing horizontal and vertical alignments, including a 10-degree curve on the bridge over I-40 and a 7 percent grade south of I-40, extensive geometric upgrades would have been required to safely accommodate the increased traffic associated with adding an interchange. It was estimated that 0.9 mile of roadway would have to be realigned³.

NCDOT completed a reevaluation of the 1998 I-2300/R-2308 Feasibility Study in 2002. The reevaluation concurred with the previous recommendation not to provide an interchange at the existing Dogwood Road grade separation, but determined it was feasible to construct a similar facility at the adjacent Liberty Road grade separation just east of Dogwood Road. The reevaluation recommended that a new location roadway be constructed northeast of the Dogwood Road/N.C. 151 intersection with U.S. 19/23 to the existing Liberty Road alignment just north of I-40 to access the interchange. It was also recommended that the remainder of the existing Liberty Road north to Monte Vista Road be upgraded.

In 2008, STIP Project Number I-4759 was recommended as a “Highest Priority” project in the *Comprehensive Transportation Plan for French Broad River MPO and Rural Areas of Buncombe and Haywood Counties* (CTP). The CTP was adopted by the FBRMPO in November 2007 and NCDOT in January 2008. Project Number I-4759 was added to the NCDOT STIP.

NCDOT began the environmental planning process for the I-4759 project in 2008. A project scoping letter announcing the start of project development, environmental and engineering studies was sent to federal, state, and local agencies on April 7, 2008 (Appendix A).

A Citizens Information Workshop (CIW) was held July 14, 2009. There was a general consensus that an interchange should be added to I-40 between Exit 37 (Wiggins Road) and Exit 44 (U.S. 19/23) to the east to help ease congestion on U.S. 19/23. The

³ Note: The I-4759 project proposes approximately 0.9 mile of new alignment roadway, approximately 0.7 mile south of I-40 and approximately 0.16-mile north of I-40.

workshop comments provided were mixed with respect to the options that should be considered for the location of a new interchange. Refer to Section 6.1 for information about Public Involvement.

In 2010, STIP Project Number I-4759 was identified in the FBRMPO *2035 Long Range Transportation Plan* (LRTP). The LRTP categorized the I-4759 project as a Tier II project and anticipated funding and construction would occur in the 2016–2025 time frame.

Efforts were put on hold in 2010 as FHWA and NCDOT discussed the scope of the Interstate Access Request (IAR) – a report required by FHWA to demonstrate proposed new access to the interstate system is justified and complies with FHWA policy. An IAR will be prepared for this project following selection of a Preferred Alternative. It was determined that an update to the 2008 traffic forecast and additional traffic analysis was required. The updated traffic forecast was completed in January 2013 and traffic simulations were conducted thereafter. The August 2013 *Traffic Simulation Report* concluded that the existing interchanges at Exit 44 and Exit 37 could not be modified in a reasonable manner to accommodate the future traffic demand. A follow-up study (*Traffic Simulation Report*, May 2014) was completed to determine what impact the proposed new interchange would have on the surrounding roadway network. Based on these simulations, it was determined that the project would provide substantial improvements to the transportation network in the project study area.

Project development and environmental and engineering studies were re-initiated by FHWA and NCDOT in 2014.

In 2015, STIP Project Number I-4759 was identified in the fiscally-constrained FBRMPO *Metropolitan Transportation Plan 2015-2040* (MTP) as a near-term project. The MTP anticipated funding and construction would occur in the 2016–2020 time frame.

A Local Officials Informational Meeting and Open House Public Meeting were held August 30, 2016. The purpose of the public meeting was to provide the public the opportunity to review and discuss three interchange configuration alternatives under development. Though not every citizen agreed with the specific location of the proposed interchange at Liberty Road, there was general consensus that an additional interchange is needed between Exit 37 and Exit 44 to help ease existing congestion on U.S. 19/23, a sentiment expressed at the CIW in 2009. The public expressed the most support for the Partial Cloverleaf Interchange Alternative design. Among the reasons cited for this support were: the lowest cost estimate, the least amount of impacts to residents, and the accommodation for a right turn for travel between Enka-Candler and Asheville. Refer to Section 6 for more information about Public Involvement.

STIP Project Number I-4759 is funded for right-of-way acquisition and construction to begin in federal fiscal year (FFY) 2019. NCDOT anticipates this project would be let as a Design-Build contract.

2. NEED AND PURPOSE FOR THE PROPOSED PROJECT

2.1. Need for Project

The need to be addressed by the proposed project:

- Lack of network connectivity along I-40 between U.S. 19/23 and S.R. 1200 (Wiggins Road) degrades network mobility, quantity of travel⁺ and quality of travel.
 - Achieve quality of travel by providing Level of Service D or better at the proposed project access at I-40⁴.

⁺ Quantity of Travel refers to the traffic demand and trips completed in the study area network.

2.2. Purpose of Project

The primary purpose of the proposed project is to improve the transportation network in the project study area to benefit mobility and connectivity between the Enka-Candler area and the City of Asheville.

2.3. The Existing Roadway Network

The region's mountainous topography constrains the transportation system and limits its expansion. The rugged terrain reduces the feasibility of constructing parallel, alternate routes or complementary grid patterns. Major roadways tend to follow paths of least resistance, like river and stream valleys as I-40 and U.S. 19/23 do through the project study area. Other roads located away from the river valley floor are often steep with sharp curves, have little to no shoulders, and have limited sight distances. These characteristics are common to the secondary and local road network in the project study area and project vicinity.

The section of I-40 through the project study area also carries the U.S. 74 designation and has a functional classification of interstate. I-40 is a full control-of-access interstate highway with a posted speed limit of 60 miles per hour (mph). Through the project study area, I-40 is a four-lane, median-divided highway with 13-foot travel lanes and 10-foot shoulders in the westbound direction and 12-foot shoulders in the eastbound direction. There are two culverts under I-40 in the vicinity of Liberty Road conveying Little Pole Creek and Young Branch (refer to Table 4 for more detail). The nearest I-40 interchanges to Liberty Road are approximately 2.5 miles east at U.S. 19/23 (Exit 44) and 5.5 miles west at S.R. 1200 (Wiggins Road) (Exit 37).

U.S. 19/23 parallels I-40 to the south through the project study area and consists of a five-lane undivided roadway with 11-foot travel lanes, a center 10-foot left-turn lane

⁴ The LOS D measure would apply only to the interchange access ramp intersections where the proposed project made improvements.

and 2-foot 6-inch curb and gutter. The posted speed limit is 45 mph. U.S. 19/23 has a functional classification of other principal arterial.

The local streets form an irregular network surrounding the major regional highways (refer to Figure 1). The existing Liberty Road cross-section is a two-lane, undivided roadway with no paved shoulders and a posted speed limit of 35 mph. The existing lanes are 10 feet wide and there are no access controls. North of I-40, Liberty Road has a functional classification of major collector; south of I-40 Liberty Road is a minor arterial. Liberty Road serves predominantly residential uses, with agricultural uses interspersed.

The existing Liberty Road alignment has horizontal and vertical geometric deficiencies, including horizontal sharp curves with radii less than 200 feet and vertical grades steeper than 10 percent. The existing Liberty Road bridge (Bridge No. 100266) over I-40 has a 34-degree skew. Bridge No. 100266 was constructed in 1968 and carries two lanes, one in each direction, over I-40. The total bridge length is 287 feet and includes two 41-foot 6-inch spans, two 77-foot spans and one 50-foot span. The total bridge width is 32 feet with 30 feet between the rails of clear roadway. The bridge structure is a steel stringer/multi-beam or girder with a cast-in-place concrete deck. The existing bridge is posted for load restrictions and has a sufficiency rating of 65.7. It is neither structurally deficient nor functionally obsolete, based on NCDOT's listing of bridges and status, updated August 24, 2015.

South of I-40, the Liberty Road name transitions to S.R. 1229 which intersects U.S. 19/23 at a stop sign approximately 0.4 mile east (outside the project study area) of the Dogwood Road/N.C. 151 intersection with U.S. 19/23. A short road segment carries the S.R. 1228 designation to a stop sign controlled T-intersection with S.R. 1234 (Asbury Road) (refer to Figure 1). Liberty Road terminates at a stop sign controlled T-intersection at its northern extent at Monte Vista Road. Within the project study area, Liberty Road also intersects: Lost Creek Road, Valley View Road and Tall Oaks Road south of I-40. North of I-40, existing intersections with Liberty Road in the project study area include: Canaan Drive, Cross Field Drive, Fincher Lane, Amaretto Drive, and Caldonia Drive. These intersections are stop sign controlled.

N.C. 151 traverses approximately 12 miles south of the Dogwood Road/U.S. 19/23 intersection to the Blue Ridge Parkway, a significant tourist attraction. Tourists seeking access to the Blue Ridge Parkway in western Buncombe County currently utilize U.S. 19/23 to connect to N.C. 151. In addition, N.C. 151 provides access to the unincorporated community of Candler and connections to residential and agricultural uses south of U.S. 19/23.

Dogwood Road travels in a northwesterly direction from its intersection with N.C. 151 and U.S. 19/23, crosses over I-40 on a bridge and intersects Monte Vista Road approximately 1.5 mile north of U.S. 19/23 (refer to Figure 1). Dogwood Road provides connections to residential uses interspersed with some agricultural uses north of I-40. Currently travelers from the Dogwood Road/Monte Vista Road intersection must travel

about five miles via S.R. 1210 (Morgan Road) to U.S. 19/23 for access to I-40 at Wiggins Road (Exit 37).

S.R. 1234 (Asbury Road) is located east of the project study area and provides connections to residential and institutional uses between U.S. 19/23 and Monte Vista Road (refer to Figure 1). Asbury Road intersects U.S. 19/23/ N.C. 112 (Sand Hills Road) one mile east of the S.R. 1229 (Liberty Road)/U.S. 19/23 intersection and has a T-intersection with Monte Vista Road approximately 0.5 mile east of the Monte Vista Road/Liberty Road intersection. Asbury Road crosses I-40 on a bridge.

Monte Vista Road serves as the northern limit of the proposed project and travels in an easterly direction from its intersection with Dogwood Road for approximately 1 mile to intersect Liberty Road at a T-intersection (refer to Figure 1). Monte Vista Road crosses I-40 on a bridge approximately 2 miles east of the Liberty Road intersection providing connections to several local streets that serve primarily residential uses in that stretch north of I-40. The Monte Vista Road cross-section is a two-lane, undivided roadway with no paved shoulders and 10-foot lanes. The posted speed limit is 35 mph. Through the project area, Monte Vista Road has a functional classification of major collector. Monte Vista Road intersects S.R. 1245 (Acton Circle) approximately 0.5 mile beyond the grade-separated crossing on I-40. Acton Circle provides direct access to U.S. 19/23 and the I-40 interchange with U.S. 19/23 (Exit 44).

2.3.1. Access Needs and Commuting Patterns

Locally, I-40 serves as an important east-west facility for residents to access employment centers in Asheville. In concert with I-26, I-40 provides access to the region's airport (Asheville Regional Airport) located 14.5 miles southeast of the proposed project. In interviews conducted for the I-4759 project's community studies (September 2015), local planners indicate that western Buncombe County, including specifically the Enka-Candler area in which the proposed project is located, will continue to be a primary focal point for residential development due to its proximity to Asheville and relatively low land and housing prices.

Commuting patterns in the project vicinity rely on access to I-40 since most jobs in the region are located in Asheville. Due to topographical constraints, the only east-west routes into Asheville are I-40 and U.S. 19/23. Commuting data from the U.S. Census Bureau for Buncombe County showed that approximately 110,365 workers 16 years of age and older commute to work. Of those workers, it is estimated that 98,673 (89 percent) utilized roadway facilities by driving alone or carpooling by car, truck, or van. Commuting data from the North Carolina Department of Commerce shows similar commuting behavior. 2014 population estimates report approximately 113,551 workers 16 years of age and older commute to work. Of those workers, it is estimated that 80

percent utilized roadway facilities by driving alone and another 9 percent carpooled by car, truck, or van.

As illustrated with the existing and future traffic volumes (Section 2.4.1), the lack of access to I-40 is currently contributing to congestion on the existing transportation network. Considering the future growth projections for this area, operational deficiencies are likely to worsen. The I-4759 project is an important component in improving access and easing congestion within the transportation network and in western Buncombe County.

2.3.2. Travel Time

Currently motorists desiring to access I-40 in the vicinity of Liberty Road must access I-40 at the existing interchange at U.S. 19/23 (Exit 44) approximately 2.5 miles to the east, or Wiggins Road (Exit 37) approximately 5.5 miles to the west (refer to Figure 1). Under current conditions, travel times from the project study area to Exit 37 and Exit 44 may range from 6 to 13 minutes⁵. In addition to the difficulty this creates for emergency services, it contributes to the current and projected operational deficiencies of local arterials, including U.S. 19/23, as all long-distance trips must travel some distance to reach the interstate.

A preliminary network connectivity review using Google Maps concluded that an additional I-40 access point should have a positive effect on regional vehicle-miles-traveled (VMT) and vehicle-hours-traveled (VHT). Currently, traffic originating or ending at Liberty Road and Dogwood Road are forced to seek regional connectivity via Wiggins Road, U.S. 19/23 and other local roads.

2.4. Traffic Carrying Capacity

Existing and future traffic was analyzed within a broader traffic study area (Figure 3) to determine whether the existing transportation network would accommodate future (2040) travel demand and what benefits, if any, the proposed project would have on future travel conditions.

2.4.1. Existing and Future Traffic Volumes

The NCDOT *Project Level Traffic Forecast Report: TIP Project I-4759* (January 2013) (Appendix C) included base year (2012) and future year (2040) annual average daily traffic (AADT) for I-40 in the traffic study area (Figure 3), and for Liberty Road, Wiggins Road, and U.S. 19/23 as they cross or intersect with I-40 for the Build and No Build scenario. The AADT is summarized in Table 1. The base year (2012) Build AADT

⁵ Travel times were calculated in Google Maps and represent current (2015) estimated travel times during off-peak hours. Travel during peak AM and PM hours are expected to correspond with longer travel times. Further, it is expected future conditions would also result in longer travel times due to projected increased traffic demand.

illustrates how current traffic volumes would be redistributed if the I-4759 project was currently built and open to traffic.

According to the traffic forecast, the I-4759 project would attract additional traffic to I-40 in the vicinity of the project and would reduce traffic volumes at adjacent interchanges (Wiggins Road and U.S. 19/23), specifically south of I-40. This redistribution of traffic volumes in the base year (2012) Build and No Build scenarios is similar to that in the future year (2040).

TABLE 1
ANNUAL AVERAGE DAILY TRAFFIC

	I-40			Wiggins Road		Liberty Road	U.S. 19/23	
	West of Wiggins Road	Exit 37/ Wiggins Road to Exit 44/ U.S. 19/23	East of U.S. 19/23	North of I-40	South of I-40		North of I-40	South of I-40
2012 AADT No Build	46,000	47,000	75,000	3,400	10,000	900	26,000	36,400
2012 AADT Build	46,000	48,200–56,600	75,000	3,400	9,200	4,000–10,000	26,000	28,800
2040 AADT No Build	60,800	63,900	106,600	4,900	11,400	1,500	28,100	44,200
2040 AADT Build	60,800	65,500–76,900	106,600	4,900	10,400	6,400 – 15,000	28,100	37,200

Source: *Project Level Traffic Forecast Report: TIP Project I-4759* (January 2013) (Appendix C).
Note: AADT reported in vehicles per day (vpd).

The comparison of the 2040 Build traffic volumes illustrates considerable future demand for an alternate access on I-40. An increase in traffic on Liberty Road via a new I-40 interchange in the 2040 Build scenario corresponds to a decrease in the 2040 AADT at adjacent interchanges (Wiggins Road and U.S. 19/23), specifically south of I-40. Analysis completed for the *Purpose and Need Traffic Analysis Technical Memorandum* (June 2016) concluded that 25 to 50 percent of all trips on N.C. 151 south of U.S. 19/23 would use U.S. 19/23 and 25 to 50 percent of all trips would use the proposed Liberty Road interchange. This redistribution of traffic would decrease the number of vehicles seeking access to I-40 via U.S. 19/23 by 8,000 vehicles per day (vpd) (i.e., 1,000 vpd from Wiggins Road and 7,000 vpd from U.S. 19/23).

2.4.2. Crash Data

NCDOT prepared a crash analysis (September 2016) for the five-year period between August 1, 2011 and July 31, 2016 in the project study area. An analysis of the crash rates for U.S. 19/23 in the project study area revealed that the number of crashes is greater than the statewide averages for similar facilities in the following four categories:

fatal crashes, non-fatal (injury) crashes, night crashes, and wet crashes. The analysis for Liberty Road in the project study area revealed that the number of crashes is greater than the statewide averages for similar facilities in three of four categories (non-fatal [injury] crashes, night crashes, and wet crashes). The analysis of the crash rates for I-40 in the project study area is in line with statewide averages for similar facilities in the four categories.

An intersection crash analysis was also performed for the U.S. 19/23/Dogwood Road/N.C. 151 signalized intersection for the five-year period (August 1, 2011 to July 31, 2016). Crashes were recorded for all intersection approaches within 150 feet of the intersection. The intersection analysis resulted in 64 total crashes and a crash rate of 131.69 crashes per 100 million vehicles entered. The most frequent crash types at the intersection were mostly rear end crashes (29 crashes) and left-turn crashes along the same roadway (11 crashes). There were no fatal crashes or severe injury crashes (Class A) reported. No crashes involving pedestrians or bicyclists were reported. There are no statewide crash rate averages available for comparison for intersections.

2.5. Other Highway Projects in the Area

The current NCDOT STIP (January 2017) lists the following projects in the vicinity of the I-4759 project (Table 2). Figure 4 shows their locations in relation to the I-4759 project⁶. These STIP projects are included in the traffic analyses for both the Build and No Build Alternatives.

2.6. Benefits of the Proposed Project

The following summarizes the findings of the *Traffic Capacity Analysis Technical Memorandum* (April 2016) and *Purpose and Need Traffic Analysis Technical Memorandum* (June 2016).

The project would improve the project study area transportation network connectivity and mobility by reducing congestion on U.S. 19/23 and by reducing PM peak period volume-to-capacity (V/C) ratios on U.S. 19/23 from I-40 to N.C. 151. As previously mentioned, the proposed Liberty Road interchange would redistribute and divert up to half of N.C. 151 trips that were using U.S. 19/23 in the 2040 No Build scenario, thereby improving corridor operations on U.S. 19/23 and at the I-40 interchange (Exit 44).

The project would also improve quantity of travel measures of effectiveness (MOEs): vehicle-miles-traveled (VMT) and vehicle-hours-traveled (VHT) within the traffic project study area. VMT would increase 0.4 percent and VHT would decrease 2.1 percent in the 2040 Build scenario. This is because the approximate distance between the existing I-40 interchange with U.S. 19/23 and the N.C. 151/U.S. 19/23 intersection is three miles via U.S. 19/23 and three and one-quarter miles via I-40 and a new Liberty Road interchange.

⁶ Note: Figure 4 includes only the STIP Project segments that are currently funded.

**TABLE 2
NEARBY STIP PROJECTS**

STIP Project	Project Break	Description	Schedule (Federal Fiscal Year)
I-5504	—	N.C. 191 (Brevard Road). Upgrade interchange.	Under construction as Design-Build
I-2513	Asheville Connector, I-26 to U.S. 19/U.S. 23/U.S. 70. Multi-lane freeway, part on new location.		Planning/design – In progress
	A	Widen existing roadway, north of I-26/I-40 split to north of S.R. 3548 (Haywood Road)	ROW – Beyond 2025 Construction – Beyond 2025
	B	Improve interchange, north of S.R. 3548 (Haywood Road) to existing U.S. 19/U.S. 23/U.S. 70	ROW – Begin 2020 Construction – Begin 2023
	C	Improve interchange, I-26/I-40/I-240 Interchange	ROW – Begin 2019 Construction – Begin 2021
A-0010AA	I-26 (U.S. 19/23) – Widen existing roadway, S.R. 1781 (Broadway Street) - exit 25 in Asheville to U.S. 25		ROW – Begin 2020 Construction – Begin 2022
I-4400	I-26 – U.S. 25 (exit 54) to N.C. 280 (exit 40). Widen to add additional lanes.		Planning/design – In progress
	A	I-26 – Widen existing roadway, U.S. 25 (exit 54) to U.S. 64 (exit 49)	ROW – Beyond 2025 Construction – Beyond 2025
	B	I-26 – Widen existing roadway, U.S. 64 (exit 49) to U.S. 25 Business (exit 44)	ROW – Beyond 2025 Construction – Beyond 2025
	C	I-26 – Widen existing roadway, U.S. 25 Business (exit 44) to N.C. 280 (exit 40)	ROW – Begin 2018 Construction – Begin 2018
I-4700	I-26 – N.C. 280 (exit 40) to I-40 at Asheville. Add additional lanes		Planning/design – In progress
	A	I-26 – Widen existing roadway, N.C. 280 (exit 40) to N.C. 146 - Long Shoals Road (exit 37)	ROW – Begin 2018 Construction – Begin 2020
	B	I-26 – Widen existing roadway, N.C. 146 - Long Shoals Road (exit 37) to I-40	ROW – Begin 2018 Construction – Begin 2020
Source: NCDOT STIP (January 2017).			

As a result, the slightly longer trips would be completed with shorter trip times via the proposed Liberty Road interchange.

The Build scenario also improves quality of travel MOEs: average speed, vehicle hours of delay (VHD), PM congested miles of travel, PM peak travel times, and off-peak travel times. Overall network speeds would improve by approximately five mph per vehicle in the Build scenario due to the Liberty Road interchange. Network delays would decrease by 20 percent or more between the 2040 Build and 2040 No Build scenarios for AM and PM peak hours. Lastly, the proposed project would offer LOS D or better operations at the proposed ramp intersections with Liberty Road (refer to Appendix C).

The proposed new interchange and connecting roadway would improve the system linkage by providing an additional interchange with I-40 and relieving some of the through traffic use on U.S. 19/23. The proposed new four-lane road south of I-40 would serve an important function by connecting to N.C. 151 and providing direct access to a new interchange with I-40. The *Project Level Traffic Forecast Report: TIP Project I-4759* (January 2013) warrants the four-lane section south of I-40. The proposed new interchange would likewise serve to better connect the surrounding community to the interstate system.

3. ALTERNATIVES

The identification, consideration, and analysis of alternatives are important to the National Environmental Policy Act (NEPA) process and the goal of objective decision-making. Consideration of alternatives leads to a solution that satisfies the transportation need and avoids and minimizes adverse impacts to environmental and community resources. This identification and consideration includes a Travel Demand Management (TDM) Alternative, a Mass Transit Alternative, a Transportation Systems Management (TSM) Alternative, a No Build Alternative, and an analysis of three Build Alternatives.

3.1. Travel Demand Management

Travel Demand Management (TDM) Alternatives typically include strategies that result in more efficient use of transportation resources by changing traveler behavior. Typically, TDM improvements do not involve major capital improvements. Such improvements can include staggered work hours, flex-time (employer focused), and ride-sharing. While ride-sharing strategies, including carpools and vanpools, can provide a flexible option to transit for some travelers, the ability of these voluntary programs to substantially reduce traffic volumes on particular roadways is minimal. Further, NCDOT's ability to implement these voluntary programs is limited. Although TDM measures would help optimize the efficiency of traffic flow in the project study area on the existing road network, they would not improve connectivity. As such, the TDM

Alternative would not meet the purpose of the project and was not carried forward as a Detailed Study Alternative.

3.2. Mass Transit

The City of Asheville's ART ("Asheville Redefines Transit") currently provides bus service throughout Asheville and connects with Mountain Mobility of Buncombe County to reach an expanded service area in the county via "Trailblazer Routes". Trailblazer Routes include public transportation links to North Buncombe, Black Mountain, and Enka-Candler. Buncombe County also provides van transportation service for residents in need of transportation.

Trailblazer Routes operate on a fixed route but will deviate off the route up to ¼-mile to pick up a passenger that has called in advance to request the deviation. The Enka-Candler Trailblazer Route offers 11 daily trips, Monday through Friday, originating at Goodwill Industries in Asheville (1616 Patton Avenue) via two loops (Loop A and Loop B). Loop A (three morning trips and two evening trips) traverses the project study area on U.S. 19/23, Dogwood Road and Monte Vista Road; Loop B (two morning trips and two evening trips) traverses the project study area along U.S. 19/23. According to Buncombe County, the Enka-Candler Trailblazer Route was started in March 2007 and has seen a steady increase in ridership, reporting 11,050 riders in FY 2014.

The MTP (September 2015) includes capital and operating funding for the Mountain Mobility program through 2040, including approximately \$16.5 million in Horizon 1 (2016–2020).

The *Buncombe County Community Transportation Service Plan* (CTSP) was adopted by the Buncombe County Board of Commissioners August 4, 2015. The CTSP outlines a 5-year vision for transit services in Buncombe County that includes broad initiatives to analyze and modify existing programs and operations, improve coordination with other service providers, increase community outreach efforts, and increase the Mountain Mobility fleet. These initiatives will be pursued regardless of the I-4759 project. In January 2016 project correspondence with local planners indicated that expanded bus service in the vicinity of the proposed project is not under consideration in the near term (i.e., not in the 5-year time period analyzed in the CTSP) (Appendix A).

Expanded bus service and new rail alignments – note that passenger rail service is not readily available in the project area – would not meet the project's purpose to improve the transportation network mobility and connectivity. The expansion of new rail alignment(s) would not be financially feasible within the time frame under consideration. Although the expansion of existing bus service is feasible, and it would help to optimize the efficiency of traffic flow in the project study area, improved bus service alone would not meet the purpose of the proposed project or adequately meet the transportation needs in the area. The surface transportation network would remain the same and the connectivity need would not be addressed. Therefore, the Mass Transit Alternative was not carried forward as a Detailed Study Alternative.

3.3. Transportation Systems Management

Transportation System Management (TSM) Alternative improvements typically involve low-cost, minor transportation improvements to increase the capacity of an existing facility (e.g., high-occupancy vehicle [HOV] lanes, high-occupancy toll [HOT] lanes, etc.). TSM improvements at I-40 and Liberty Road would not address the transportation need and would not provide increased network mobility or connectivity. Though minor improvements may be feasible at other locations throughout the transportation network, including I-40 ramp termini modifications at adjacent interchanges and acceleration/ deceleration lane lengths, signing upgrades and signal timing, no combination of these actions would address the identified deficiency in the network connectivity. Therefore, the TSM Alternative would not meet the project's purpose and was not carried forward as a Detailed Study Alternative.

3.4. No Build Alternative

The No Build Alternative is the baseline comparative alternative for the 2040 design year. The No Build Alternative would include the development of other STIP projects in the project vicinity (refer to Table 2 and Figure 3). The No Build Alternative would not provide improvements to the transportation network in the project study area. The No Build Alternative would incur neither right-of-way nor construction costs. There would be no short-term disruptions along existing roadways during construction. There would be no impacts to streams, wetlands, or other natural and cultural resources, nor any residential or business relocation. However, the No Build Alternative would not serve the identified transportation needs and accomplish the identified project purpose. The No Build Alternative would not improve connectivity or the quality and quantity of travel in the project study area. Although the No Build Alternative does not meet the project's purpose and need, it was retained for analysis to provide a basis for comparing adverse impacts and benefits of the Detailed Study Alternatives.

3.5. Diamond Interchange Alternative

NCDOT developed functional roadway designs for a Diamond Interchange Alternative. This alternative included the same connecting roadways north and south of the proposed interchange (improvements to Liberty Road), which are detailed in the bullets in Section 4.1 below.

The Diamond Interchange Alternative required the largest footprint of the Build Alternatives considered. As a result, preliminary impacts for this alternative showed the highest number of stream impacts compared to the other reasonable Build Alternatives.

In addition to higher impacts to the natural environment, preliminary impact analysis indicated that the Diamond Interchange Alternative would result in the highest number of impacts to property owners, including right-of-way purchases and relocations. Given the opportunity to comment on the preliminary Build Alternatives at the August 30, 2016 Open House Public Meeting, public commenters identified extensive property

impacts as the primary reason for not favoring the Diamond Interchange Alternative (refer to Section 6.1).

Due to the magnitude of potential impacts to the natural and human environment, and in consideration of public input, federal and state regulatory and resource agencies agreed to remove the Diamond Interchange Alternative from further consideration (Appendix A). Therefore, the Diamond Interchange Alternative is not studied in further detail in this EA.

3.6. Partial Cloverleaf Interchange Alternative

NCDOT developed functional roadway designs for a Partial Cloverleaf Interchange alternative. This alternative included the same connecting roadways (improvements to Liberty Road) north and south of the proposed interchange, which are detailed in the bullets in Section 4.1 below.

The Partial Cloverleaf Interchange Alternative would include a loop and a ramp in the southeast and northwest quadrants of the proposed Liberty Road interchange (Figure 5a). The southeast interchange quadrant would include the eastbound I-40 on-ramp and the eastbound I-40 off-ramp loop. The northwest interchange quadrant would include the westbound I-40 on-ramp and the westbound I-40 off-ramp loop. The Partial Cloverleaf Interchange Alternative would include a new three-lane Liberty Road bridge over I-40 on new alignment.

3.7. Half Cloverleaf Interchange Alternative

NCDOT developed functional roadway designs for a Half Cloverleaf Interchange alternative. This alternative included the same connecting roadways (improvements to Liberty Road) north and south of the proposed interchange, which are detailed in the bullets in Section 4.1 below.

The Half Cloverleaf Interchange Alternative would include loops and ramps in the southwest and northwest interchange quadrants (Figure 5b). The southwest interchange quadrant would include the two-lane eastbound I-40 on-ramp loop and the eastbound I-40 off-ramp. The northwest interchange quadrant would include the westbound I-40 on-ramp and the westbound I-40 off-ramp loop. The Half Cloverleaf Interchange Alternative would include a new three-lane Liberty Road bridge over I-40 on new alignment.

3.8. Detailed Study Alternatives

The Partial Cloverleaf Interchange Alternative and the Half Cloverleaf Interchange Alternative comprise the Detailed Study Alternatives evaluated in this EA. Both interchange configurations would meet the project's purpose and serve the area's transportation needs by providing improved connectivity and mobility. Based on the *Traffic Capacity Analysis Technical Memorandum* (April 2016), the Detailed Study Alternatives would provide LOS D or better traffic operations at the proposed interchange access ramp intersections in the 2040 Design Year (Appendix C).

3.9. Cost Estimate

The right-of-way, utility relocation, and construction costs for the Detailed Study Alternatives evaluated in this EA are included in Table 3:

**TABLE 3
COST ESTIMATE**

Activity	Alternative	
	Partial Cloverleaf Interchange	Half Cloverleaf Interchange
Construction	\$34,292,800	\$38,993,800
Utilities	\$1,597,776	\$1,591,080
Right-of-Way	\$11,036,910	\$14,485,000
Total	\$46,927,486	\$55,069,880
Sources: NCDOT-Roadway Design Unit; NCDOT-Right of Way Unit; NCDOT-Utilities Unit, 2016 (Appendix D).		

4. PROPOSED IMPROVEMENTS

4.1. Roadway Cross-section and Alignment

The two Detailed Study Alternatives have different interchange configurations; however, improvements to Liberty Road north and south of the proposed interchange are the same (refer to Figure 5a and Figure 5b). Improvements to Liberty Road, from south to north, include the:

- Improvement of the existing Dogwood Road signalized intersection with U.S. 19/23 and N.C. 151 to include the addition of a right-turn lane onto the proposed new Liberty Road from westbound U.S. 19/23;
- Construction of a four-lane road with 12-foot travel lanes, 23-foot raised median and 8-foot shoulders with 4 feet paved on new alignment for approximately 0.7-mile from the U.S. 19/23/N.C. 151 intersection to the proposed new interchange with I-40. The existing and future traffic volumes on Liberty Road south of I-40 support the proposed four-lane section at this location;
- Relocation of the existing Dogwood Road intersection with U.S. 19/23 approximately 0.15-mile north to tie Dogwood Road into the proposed four-lane Liberty Road at a new intersection;
- Crossing of Pole Creek on a proposed new bridge;

- Construction of a four-way intersection on the proposed four-lane Liberty Road to provide access to existing Liberty Road and Valley View Drive. This would include an approximately 0.1-mile two-lane road with 12-foot travel lanes and 8-foot shoulders with 4 feet paved on new alignment to connect Valley View Drive west of Liberty Road (replacing the existing access to Liberty Road from Valley View Drive); and an approximately 0.2-mile two-lane road with 12-foot travel lanes and 8-foot shoulders with 4 feet paved on new alignment to connect the new Liberty Road to the remainder of Liberty Road to the east;
- Construction of a cul-de-sac southeast of the proposed interchange to access properties along the existing Liberty Road alignment;
- Construction of a two-lane road with 9-foot travel lanes and 3-foot unpaved shoulders on new alignment for approximately 220 feet (0.04 mile) to connect the existing Valley View Drive to Whispering Oaks Road (replacing the existing access to Liberty Road from Tall Oaks Road);
- Removal of the existing Liberty Road overpass over I-40;
- Construction of a 0.1-mile section of two-lane road with 12-foot travel lanes and 8-foot shoulders with 4 feet paved (Figure 6a) on new alignment north of the proposed new interchange with I-40 to near Canaan Drive;
- Construction of a 0.06-mile section of two-lane road with 12-foot travel lanes and 8-foot shoulders with 2 feet paved (Figure 6a) on new alignment from near Canaan Drive to tie into the existing Liberty Road;
- Construction of a four-way intersection on the proposed new alignment two-lane Liberty Road to provide access to existing roads, including the existing Liberty Road alignment to the west and reconstruction of the Canaan Drive intersection to include two 12-foot travel lanes and 6-foot unpaved shoulders to the east;
- Construction of a cul-de-sac northwest of the proposed interchange to access properties along the existing Liberty Road alignment;
- Improvement of existing two-lane cross section on Liberty Road to Monte Vista Road with 12-foot travel lanes and 8-foot shoulders with 2 feet paved (Figure 6a) on existing alignment;
- Maintenance of access to properties along the existing Liberty Road; and
- Reconstruction of the Liberty Road and Monte Vista Road intersection to a 90 degree, T-intersection.

As described in Section 3.6, the Partial Cloverleaf Interchange configuration would include a loop and ramp located in the southeast and northwest quadrants of the interchange. The proposed interchange ramps would be one-lane with a minimum width of 16 feet and include 12-foot inside shoulders, with 4 feet paved, and 14-foot

outside shoulders, with 4 feet paved. The proposed loops would be one-lane with a minimum width of 18 feet and include 2-foot 6-inch curb and gutter on the inside and 12-foot shoulders on the outside, with 4 feet paved. Liberty Road would pass over I-40 on a new three-lane bridge on new alignment. As shown in Figure 6b, the proposed Liberty Road grade separation for the Partial Cloverleaf Interchange Alternative would have 12-foot lanes, a 12-foot two-way left turn lane, and 8-foot paved shoulders.

The Half Cloverleaf Interchange configuration would include a ramp and a loop in the southwest and northwest quadrants of the interchange. The proposed interchange ramps in the northwest and southwest interchange quadrants would be one-lane with a minimum width of 16 feet and include 12-foot inside shoulders, with 4 feet paved, and 14-foot outside shoulders, with 4 feet paved. The proposed loop in the northwest interchange quadrant would be one-lane with a minimum width of 18 feet and include 2-foot 6-inch curb and gutter on the inside and 12-foot shoulders on the outside, with 4 feet paved. The proposed loop in the southwest interchange quadrant would be two-lanes with a minimum width of 28 feet and include 2-foot 6-inch curb and gutter on the inside and a 12-foot shoulder on the outside, with 4 feet paved. Liberty Road would pass over I-40 on a “wide” three-lane bridge on new alignment. As shown in Figure 6b, the proposed Liberty Road grade separation for the Half Cloverleaf Interchange Alternative would have two 12-foot travel lanes in the southbound direction, one 12-foot travel lane in the northbound direction, a 24-foot median, and 8-foot shoulders. The 24-foot median would also include the taper for the left turn lane for the proposed I-40 westbound on-ramp.

The wide three-lane grade separation proposed for the Half Cloverleaf Interchange alternative is the result of the Half Cloverleaf Interchange configuration forcing the heaviest interchange movements (i.e., northbound Liberty Road to eastbound I-40) to make a left turn. Traffic volumes warrant dual left turns from northbound Liberty Road which would continue onto a two lane loop on-ramp, resulting in a larger intersection footprint at the proposed ramp terminal south of I-40. This requires providing additional bridge deck width over I-40 to accommodate necessary designs and tapers, resulting in a bridge wide enough for five lanes but only carrying three lanes of through traffic. Further, the Half Cloverleaf Interchange grade separation would have to be longer to provide clearance for the I-40 eastbound two lane loop on ramp.

4.2. Right-of-Way and Access Control

The proposed right-of-way for all roads would vary from 50 feet to 160 feet throughout the project study area. Full control-of-access exists for I-40 and would be maintained. Full control-of-access is proposed on the ramps or loops for the proposed interchange. The control of access would extend approximately 250 feet from the ramps and loops south of the proposed interchange and approximately 350 feet from the ramps and loops north of the proposed interchange. Due to the realignment of Liberty Road and construction of a new interchange, access to some properties would change. Current Liberty Road, south of I-40, would be realigned on new location. Depending on the

alternative chosen, access to Valley View Drive, Whispering Oaks Drive, Tall Oaks Road, and Lost Creek Road would change. North of I-40, existing Liberty Road would be converted to a cul-de-sac near the proposed interchange, otherwise access would remain the same.

4.3. Speed Limit

The proposed posted speed limit would vary throughout the project study area. I-40 is expected to maintain its current posted speed limit of 60 mph. The realigned and improved Liberty Road would have a 45 mph posted speed limit, and the connections to Tall Oak Road, Valley View Drive, and Canaan Road would maintain existing posted speed limits, which vary from 20 mph to 35 mph. The posted speed limits for the proposed acceleration and deceleration ramps and loops would not exceed 45 mph for ramps and 25 mph for loops in the Detailed Study Alternatives.

4.4. Design Speed

Design speeds for the proposed project would vary. In both Detailed Study Alternatives, I-40 would have a 70 mph design speed and the proposed Liberty Road realignment would have a 50 mph design speed. The portion of Liberty Road that would be upgraded on existing alignment would have a design speed of 40 mph. The connections to Tall Oak Road, Valley View Drive, and Canaan Road would maintain existing design speeds, which vary from 25 mph to 35 mph. All proposed ramps would have a 60 mph design speed and loops a 30 mph design speed.

4.5. Intersections/Interchanges

The proposed project includes one new interchange with I-40. The final design of the interchange will be chosen from the Detailed Study Alternatives evaluated in this EA. Intersection control types (i.e., signal control or roundabout) for the proposed ramp terminal intersections will be determined after the selection of a Preferred Alternative. The *Traffic Capacity Analysis Technical Memorandum* (April 2016) concluded that either signalized or roundabout intersection control types at the proposed access ramp intersections would provide LOS D or better operations (refer to Appendix C).

The existing signalized Dogwood Road/U.S. 19/23/N.C. 151 intersection would be reconfigured with the proposed realigned four-lane section of Liberty Road tying into the north leg of the intersection. A signal would remain at this location. A right turn lane is proposed on westbound U.S. 19/23 to the realigned Liberty Road. The Dogwood Road intersection would be relocated approximately 0.15 mile north of U.S. 19/23 (Figures 5a and 5b). The intersection control type (i.e., signal control or roundabout) at Dogwood Road will be determined after selection of a Preferred Alternative.

South of I-40, the existing Liberty Road would be realigned to tie into the proposed new alignment Liberty Road at a new four-leg, unsignalized intersection. The fourth leg of this intersection would consist of a new connecting road to Valley View Drive, located west of the existing Liberty Road alignment, to maintain access to the public road network.

North of I-40, improvements are proposed to the existing Liberty Road/Monte Vista Road intersection. The intersection control type (i.e., signal control or roundabout) will be determined after the selection of a Preferred Alternative. Existing unsignalized intersections with Liberty Road would be maintained at Caldonia Drive, Amaretto Drive and Fincher Lane. The existing Liberty Road would be converted to a cul-de-sac north of I-40 and intersect the proposed realigned two-lane section of Liberty Road opposite Canaan Drive at an unsignalized four-leg intersection.

4.6. Structures

Little Pole Creek, Young Branch, and Pole Creek are within the project study area. As shown in Table 4, the project would require four or five structures, depending on the Detailed Study Alternative.

**TABLE 4
PROPOSED DRAINAGE STRUCTURES**

Stream	Existing Structure	Alternative	
		Partial Cloverleaf Interchange	Half Cloverleaf Interchange
		Proposed Structure	
Little Pole Creek	2 @ 9' x 8' Reinforced Concrete Box Culvert (RCBC)	Retain and Extend (25' left/0' right)	Retain and Extend (25' left/35' right)
		Add Supplemental Pipe (min.=48")	
Young Branch	72" Structural Plate Pipe with Concrete Headwall	Retain and Extend (5' left/0' right)	Retain and Extend (5' left/15' right)
		Add Supplemental Pipe (min.=48")	
Young Branch	No Existing Structure	7' x 8' x 375' RCBC	No Structure Required
Young Branch		8' x 8' x 248' RCBC	
Pole Creek		Dual 3-span (1 @ 65', 2 @ 80') 54" girder bridge	
Source: Hydraulic Technical Memorandum (August 2015).			

4.7. Bicycle and Pedestrian Accommodations and Greenways

There is an existing 5-foot concrete sidewalk on the northeast side of Dogwood Road (refer to Figure 8). There are no other existing pedestrian or bicycle facilities or greenways in the project study area. There are no plans to include bicycle and pedestrian accommodations as part of this project. However, additional bicycle and

pedestrian accommodations may be considered based upon requests and through coordination with Buncombe County.

4.8. Utilities

Multiple utilities are located within the project study area, including: natural gas, water, electric, sewer, telephone and cable television. As a result of the overhead utilities along Liberty Road through most of the project study area, the proposed project is expected to have a medium to high level of utility impacts. Utilities along the project would be relocated prior to construction. Care will be taken to prevent damage to water lines and fiber-optic cables in the area.

4.9. Noise Barriers

The Traffic Noise Analysis (see Section 5.11) preliminarily identified three noise barriers for abatement of impacts for each of the Detailed Study Alternatives (six noise barriers total). The preliminary noise barriers are located in the northwest, northeast, and southwest interchange quadrants. A Design Noise Report will be prepared based on final design, after selection of a Preferred Alternative, and will verify the final number and location of noise barriers based on the NCDOT Traffic Noise Abatement Policy.

4.10. Work Zone, Traffic Control and Construction Phasing

Construction would be initiated on relocated Liberty Road and connecting roadways to minimize traffic impacts. The bridges over Pole Creek and I-40 would be constructed while traffic continues to use existing Liberty Road. Flaggers would be needed during construction of new intersections with existing facilities. Asbury Road and Monte Vista Road would be used for a series of off-site detours required over the course of construction improvements to Liberty Road. During the proposed interchange construction, barriers would be used along I-40 to construct the ramps away from traffic. The existing Liberty Road bridge would be removed in accordance with NCDOT's Best Management Practices (BMP) and would utilize temporary night-time closures and ramps as detours. A draft construction phasing plan will be developed during the preliminary plans phase.

No design exceptions are anticipated for the Detailed Study Alternatives. No service roads are proposed and no railroad crossings are involved in the proposed project.

5. ENVIRONMENTAL EFFECTS OF PROPOSED ACTION

5.1. Natural Resources

Field investigations were conducted by qualified NCDOT biologists on November 17-18 and December 10, 2009. Additional investigations were conducted on March 4, 2015 and February 17, 2016. Details of methodology and investigations supporting the information provided below are included in the *Natural Resources Technical Report*

[NRTR] (August 2010), *NRTR Addendum Memo* (June 2015) and *NRTR Addendum Memo* (March 2016).

5.1.1. Biotic Resources

Terrestrial Communities – Three terrestrial communities were identified within the project study area including: maintained/disturbed, mesic mixed hardwood forest, and bamboo (Figure 7). Table 5 describes the prevalence of the community type in the project study area and anticipated impacts.

**TABLE 5
POTENTIAL TERRESTRIAL COMMUNITIES IMPACTS**

Community Type	Acres	Detailed Study Alternative	
		Partial Cloverleaf Interchange	Half Cloverleaf Interchange
		Anticipated Impacts (Acres)	
Maintained/Disturbed	265.4	68.4	70.4
Mesic Mixed Hardwood Forest	88.2	20.7	25.2
Bamboo	0.4	0.3	0.3
Total	354	89.4	95.9

Sources: NRTR (August 2010); impacts calculated by HNTB North Carolina, P.C., 2016.
 Note: Impacts are calculated based on slope stakes plus 40 feet.

Maintained/Disturbed

The maintained/disturbed community is the predominate vegetative community within the project study area. This community type includes vegetation that is periodically mowed and/or maintained beyond its natural state. This community may include roadsides, meadows, fallow fields, and residential and commercial properties. Herbaceous species found in these areas include fescue, red clover, wingstem, oxeye daisy, pokeweed, New York ironweed, evening primrose, Virginia creeper, poison ivy, Japanese honeysuckle, Queen Anne’s lace, morning glory, curly dock, blackberry, grape and Chinese privet. Along streams in this community, species such as black walnut, jewelweed, and elderberry are found.

Mesic Mixed Hardwood Forest

The mesic mixed hardwood forest community is found scattered throughout the project study area. These areas are typically adjacent to streams or areas that have not been developed. Species found in this community included blackjack oak,

northern red oak, white oak, yellow poplar, white pine, shortleaf pine, American holly, flowering dogwood, red cedar, Canadian hemlock, sugar maple, black cherry, Christmas fern, crane-fly orchid, English ivy, greenbrier, poison ivy, spotted wintergreen, and rattlesnake plantain.

Bamboo

The bamboo community is a stand of mature, invasive golden bamboo that has been planted near the origin of stream SC (Figure 7). The stand is dense allowing for little competition from other species. Along the fringes of the community shrubs and vines are present including blackberry, pokeweed, and Japanese honeysuckle.

Terrestrial Wildlife – Terrestrial communities in the project study area are comprised of both natural and disturbed habitats that may support a diversity of wildlife species (those species actually observed during field survey are indicated with an asterisk). Mammal species that commonly exploit disturbed area and stream corridors found within the project study area include species such as the Virginia opossum, raccoon, eastern cottontail*, eastern mole, gray squirrel*, white-tailed deer, and groundhog*. Birds that are commonly found in these areas include American goldfinch, mourning dove*, eastern towhee*, gray catbird, blue jay, American robin*, cedar waxwing, song sparrow*, indigo bunting*, Carolina chickadee, Carolina wren, common crow*, red-winged blackbird*, red-tailed hawk*, and wild turkey*. Reptile and amphibian species that may use terrestrial communities located in the project study area include the eastern box turtle, black rat snake, and eastern garter snake.

Aquatic Communities – Aquatic communities in the project study area consist of perennial and intermittent streams. The perennial streams could support fish species such as the saffron shiner, mottled sculpin, central stoneroller, river chub, creek chub, warpaint shiner, mirror shiner, northern hogsucker, Swannanoa darter, and fantail darter. Reptiles likely to occur in these areas consist of the northern water snake, queen snake, and painted turtle.

Invasive Species – Four species from the NCDOT Invasive Exotic Plant List for North Carolina were found to occur in the project study area. The species identified were Chinese privet (Threat to Habitat and Natural Areas), Japanese Honeysuckle, English ivy, and golden bamboo (Moderate Threat to Habitat and Natural Areas). NCDOT will manage invasive plant species as appropriate.

5.1.2. Waters of the United States

Section 404 of the Clean Water Act (CWA) requires regulation of discharges into jurisdictional “Waters of the United States.” The U.S. Environmental Protection Agency (USEPA) is the principal administrative agency of the CWA. However, the USEPA has delegated authority to the U.S. Army Corps of Engineers (USACE) for the responsibility of implementation, permitting, and enforcement of the provisions of the CWA. The USACE regulatory program is defined in 33 C.F.R. 320-332.

Surface waters (lakes, rivers, and streams) and wetlands are subject to jurisdictional consideration under the Section 404 program. Any action that proposes to place fill into these areas falls under the jurisdiction of USACE under Section 404 of the CWA (33 U.S.C. 1344).

Section 401 of the CWA grants authority to individual states for the regulation of discharges into Waters of the United States. Under North Carolina General Statutes, 113A “Pollution Control and Environment” and codified in NCAC 15A, North Carolina Division of Water Resources (NCDWR) has the responsibility for implementation, permitting, and enforcement of the provisions of the CWA.

Water resources in the project study area are part of the French Broad River basin (U.S. Geological Survey [USGS] Hydrological Unit 06010105). Twelve streams, one wetland, and one small drainage pond were identified in the project study area (Figure 7).

Streams – The physical characteristics of the twelve streams identified in the project study area and their potential impacts are summarized in Table 6.

All surface waters identified within the project study area have been assigned a primary water resource classification of “C”. There are no trout streams and no anadromous fish waters or Primary Nursery Areas in the project study area. There are no benthic or fish community sampling stations within one mile downstream of the project study area.

There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), or Water Supply Watershed (WS-I or WS-II) streams within one mile of the project study area. A small area at the east side of the project study area along I-40 is within the Targeted Local Watershed HUC 06010105060030. It does not have a Local Watershed Plan. No streams within, or within one mile downstream of, the project study area are listed on the 2014 Final 303(d) list as impaired for sedimentation or turbidity.

Wetland and Drainage Pond – One small wetland (WA), less than 0.01 acre, is located near the southeast tip of the project study area. One small drainage pond (P1), less than 0.1 acre, is located adjacent to stream SB just prior to its confluence with Little Pole Creek (Figure 7). The proposed project would result in no impacts to the wetland or the drainage pond.

Avoidance, Minimization and Mitigation – During development of the functional design, efforts were made to avoid and minimize impacts to streams wherever practicable. The proposed Liberty Road interchange was shifted to the west to avoid encroachments on Young Branch (refer to Figure 7), reducing impacts to the stream by the proposed new alignment of Liberty Road.

Final decisions regarding stream mitigation requirements would be made by USACE and NCDWR. On-site mitigation would be used as much as possible. The North Carolina Division of Environmental Quality (NCDEQ), Division of Mitigation Services (DMS) (formerly the Ecosystem Enhancement Program [EEP]) would be used for remaining mitigation requirements beyond what can be satisfied by on-site mitigation.

**TABLE 6
STREAMS**

Stream Name (Map ID) ¹	Stream Type	Length in Project study area (feet)	Detailed Study Alternative	
			Partial Cloverleaf Interchange	Half Cloverleaf Interchange
			Potential Impacts ² (feet)	
Pole Creek (PC)	P	1,560	182	182
Little Pole Creek (LPC)	P	1,390	83	205
Young Branch (YB)	P	4,570	865	386
UT to Pole Creek (SA)	I	0 ³	0	0
UT to Little Pole Creek (SB)	P	880	92	141
UT to Young Branch (SC)	I	200	0	0
UT to Young Branch (SD)	P	790	364	364
UT to Young Branch (SE)	I	420	0	0
UT to Young Branch (SF)	P	1,550	182	182
UT to Young Branch (SG)	I	850	70	70
UT to Young Branch (SH)	I	115 ⁴	0	0
UT to Moore Creek (SI)	I	95	0	0
Total		12,420	1,838	1,530

Sources: *NRTR Addendum Memo* (March 2016); impacts calculated by HNTB North Carolina, P.C., 2016.
Notes: UT = Unnamed Tributary; I = Intermittent; P = Perennial.
¹ Map IDs correlate to Figure 7.
² Impact calculations are based on functional design slope stakes plus 40 feet.
³ Stream SA is day lighted adjacent to project study area and piped through project study area 200 feet to Pole Creek.
⁴ A portion of stream SH is piped 200 feet in project study area to Young Branch.

Anticipated Permit Requirements – In accordance with provisions of Section 404 of the CWA, a permit would be required from USACE for the discharge of dredged or fill material into Waters of the United States.

Due to anticipated project impacts on jurisdictional streams, an individual Section 404 permit (individual permit) would likely be required. USACE holds the final discretion on the required permit to authorize project construction.

In addition to the Section 404 permit, other required permits include the corresponding Section 401 Water Quality Certification (WQC) from the NCDWR. A Section 401 WQC would be required prior to the issuance of a Section 404 permit.

5.1.3. Rare and Protected Species

The U.S. Fish and Wildlife Service (USFWS) listed 11 federally protected species for Buncombe County (March 2016). Table 7 lists the species, their management status, if habitat is present within the project study area, and the biological conclusion. When the habitat is unknown or known to occur within the project study area, additional information is provided in this section.

**TABLE 7
FEDERALLY PROTECTED SPECIES**

Scientific name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Alasmidonta raveneliana</i>	Appalachian elktoe	E	No	No Effect
<i>Epioblasma florentina walkeri</i> (=E. walkeri)	Tan riffleshell	E	No	No Effect
<i>Erimonax monachus</i>	Spotfin chub (=turquoise shiner)	T	No	No Effect
<i>Geum radiatum</i>	Spreading avens	E	No	No Effect
<i>Glaucomys sabrinus coloratus</i>	Carolina northern flying squirrel	E	No	No Effect
<i>Glyptemys muhlenbergii</i>	Bog turtle	T (S/A)	No	Not Required
<i>Gymnoderma lineare</i>	Rock gnome lichen	E	No	No Effect
<i>Microhexura montivaga</i>	Spruce-fir moss spider	E	No	No Effect
<i>Myotis septentrionalis</i>	Northern long-eared bat	T	Unknown	Unresolved
<i>Myotis grisescens</i>	Gray bat	E	Unknown	Unresolved*
<i>Spiraea virginiana</i>	Virginia spiraea	T	Yes	No Effect

Source: NRTR Addendum Memo (March 2016).

Notes: E = Endangered; T = Threatened; T(S/A) = Threatened due to similarity of appearance; * Since the completion of the NRTR and subsequent Addendums, the USFWS is reviewing its policy for the gray bat in western North Carolina following the recent discovery of some summer roosts. The NCDOT Biological Surveys Group will re-evaluate this project for the gray bat, as appropriate, and render a biological conclusion.

Northern long-eared bat

USFWS Recommended Survey Window: June 1 – August 15

In North Carolina, the Northern long-eared bat (NLEB) occurs in the mountains, with scattered records in the Piedmont and coastal plain. In western North Carolina, NLEB spend winter hibernating in caves and mines. Since this species is not known to be a long-distance migrant, and caves and subterranean mines are extremely rare in eastern North Carolina, it is uncertain whether or where NLEB hibernate in eastern North Carolina. During the summer, the NLEB roosts singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees (typically ≥ 3 inches diameter at breast height [dbh]). Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat has also been found, rarely, roosting in structures like barns and sheds, under eaves of buildings, behind window shutters, in bridges, and in bat houses. Foraging occurs on forested hillsides and ridges, and occasionally over forest clearings, over water, and along tree-lined corridors. Mature forests may be an important habitat type for foraging.

Biological Conclusion: ***Unresolved***

Construction authorization will not be requested until Endangered Species Act (ESA) compliance is satisfied for the northern long-eared bat (NLEB).

Gray bat

USFWS optimal survey window: May 15 through August 15 (summer); January 15 through February 15 (winter)

Populations of gray bats are found mainly in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee, with a few colonies occurring in northwestern Florida, western Georgia, southwestern Kansas, south Indiana, south Illinois, northeastern Oklahoma, northeastern Mississippi, western Virginia, and possibly western North Carolina.

Gray bats live in colonies in caves, utilizing different caves for summer roosting and winter hibernating. Summer caves are usually within a kilometer of a river or reservoir, which provides foraging habitat. During the summer, females give birth and rear the young in maternity caves, while males and yearlings roost in separate bachelor caves. Caves preferred for hibernation are typically deep, vertical caves with a temperature between 6 and 11 degrees Celsius. Gray bats are highly selective in choosing suitable caves, and nine known caves are thought to provide hibernation space for 95% of the population. Migration from summer to winter caves begins in September and is mainly complete by the beginning of November. The distance between summer and winter caves can be as little as two miles, but in some cases is greater than 200 miles. The gray bat is insectivorous, apparently preferring aquatic insects, especially mayflies.

Biological Conclusion: ***Unresolved***

The gray bat was not a federally protected species at the time of the May 21, 2010 bat survey by NCDOT biologists. The USFWS is reviewing its policy for the gray bat in western North Carolina following the recent discovery of some summer roosts. The NCDOT Biological Surveys Group will re-evaluate this project for the gray bat as appropriate and render a biological conclusion. Construction authorization will not be requested until ESA compliance is satisfied for the gray bat.

Virginia spiraea

USFWS Optimal Survey Window: May – early July

Virginia spiraea occurs in flood-scoured, high-gradient sections of rocky river banks of second and third order streams, often in gorges or canyons. This perennial shrub grows in sunny areas on moist, acidic soils, primarily over sandstone. The shrub tends to be found in thickets with little arboreal or herbaceous competition along early successional areas that rely on periodic disturbances such as high-velocity scouring floods to eliminate such competition. *Virginia spiraea* also occurs on meander scrolls and point bars, natural levees, and other braided features of lower stream reaches, often near the stream mouth. Scoured, riverine habitat sites are found where deposition occurs after high water flows, such as on floodplains and overwash islands, rather than along areas of maximum erosion. Occurrences in depositional habitats are found among riparian debris piles, on fine alluvial sand and other alluvial deposits, or between boulders.

Biological Conclusion: **No Effect**

Portions of the vegetated riparian buffer along major streams within the project study area, primarily Pole Creek, Little Pole Creek and Young Branch could provide suitable habitat for *Virginia spiraea*. A walking visual survey of all vegetated riparian areas was conducted on June 16, 2010 by NCDOT biologists. NCDOT biologists re-evaluated the riparian areas in June 2013 and determined that the No Effect conclusion remained appropriate. No *Virginia spiraea* plants were found during this survey. A check of the NCNHP database (September 12, 2016) showed historical occurrences of *Virginia spiraea* in the Enka Topographical Quad, in which the project study area is located. These populations were last observed in 1919. The USFWS indicated via correspondence (June 29, 2010) that informal consultation is not required (Appendix A).

Bald and Golden Eagle Protection Act – The bald eagle was delisted from the Endangered Species Act August 8, 2007. However, it is still protected under the Bald and Golden Eagle Protection Act. There are no large water bodies within 1 mile and 660 feet (or 1.125 miles) of the project study area; therefore, no survey is needed.

5.2. Soils

The Buncombe County Soil Survey identifies nine soil types within the project study area (Table 8).

**TABLE 8
SOILS**

Soil Series	Mapping Unit	Drainage Class	Hydric Status
Clifton clay loam	CkB2,CkC2	Well drained	Nonhydric
Clifton-Urban land complex	CuB,CuC	Well drained	Nonhydric
Dillard loam	DrB	Moderately well drained	Hydric*
Evard-Cowee complex	EvD2	Well drained	Nonhydric
Evard-Cowee-Urban land complex	ExD	Well drained	Nonhydric
French loam	FrA	Somewhat poorly drained	Hydric*
Statler loam	StB	Well drained	Hydric*
Tate loam	TaB, TaC	Well drained	Nonhydric
Udothents, loamy	Ud	NA	Nonhydric
Source: NRTR (August 2010).			
Notes: *Soils which are primarily nonhydric, but contain hydric inclusions.			

5.3. Cultural Resources

5.3.1. Historic Architectural Resources

NCDOT Architectural Historians established an area of potential effect (APE) for this project and conducted a preliminary investigation to identify resources warranting additional study and National Register of Historic Places (NRHP) eligibility evaluation. Pursuant to 36 CFR 800.4(b), NCDOT Architectural Historians reviewed the properties within the APE and determined five were greater than 50 years old and warranted further evaluation. As a result of the NRHP eligibility evaluation report, two properties are determined eligible for inclusion in the NRHP. The State Historic Preservation Office (HPO) concurred the Miami Motel and Restaurant (BN6287) and Roberson Bungalow and Farmstead (BN6291) are eligible for listing in the NRHP in a memorandum dated November 21, 2016 (Appendix A).

The Miami Motel and Restaurant is located on the north side of U.S. 19/23, approximately 700 feet east of its intersection with Dogwood Road (Figure 8). The 1.17-acre property consists of three buildings constructed between 1952 and 1964: two motel buildings (1952 and 1954), and one restaurant (1964). The property is determined eligible under Criterion C in the area of architecture as an excellent surviving example of an early 1950s single-building roadside motel and a unique

representation of a themed hotel, exhibiting Spanish Colonial Revival influences, in Buncombe County.

The Roberson Bungalow and Farmstead is located on the west side of Dogwood Road approximately 0.3 mile northwest of its intersection with U.S. 19/23 (Figure 8). The property is comprised of two parcels of land historically associated, and consist of a total of 52.24 acres. The property is determined eligible under Criterion B for its association with T.C. Roberson, a well-respected educator in Buncombe County for over 50 years and for whom the T.C Roberson High School is named to honor. The property is also determined eligible under Criterion C in the area of architecture for the farmhouse, an excellent intact example of a rural Craftsman bungalow, and its collection of historic agricultural buildings, including the unique dairy barn.

On January 10, 2017, representatives from FHWA, NCDOT, and HPO reached concurrence that no effects would occur to the NRHP eligible historic architecture resources as a result of the proposed project (Appendix A).

5.3.2. Archaeological Resources

In a letter dated October 27, 2008, the HPO recommended that a comprehensive archaeological survey be conducted of the project area (Appendix A).

An archaeological field investigation was carried out between October 17 and November 3, 2016 to identify and evaluate archaeological sites within the defined APE for inclusion in the NRHP. The investigations identified one small site which was recommended as not eligible for the NRHP. As a result, the proposed project would not impact significant archaeological resources (Appendix A).

5.4. Section 4(f)/6(f) Resources

Section 4(f) of the Department of Transportation Act of 1966 specifies that publicly owned land from a public park, recreation area, wildlife and waterfowl refuge, and all historic sites of national, state, and local significance may be used for federal projects only if there is no feasible and prudent alternative to the use of such land (23 CFR 774.3(a)(1)) and the project includes all possible planning to minimize impacts to Section 4(f) properties resulting from such use (23 CFR 774.3(a)(2)). There are no Section 4(f) properties that would be used by the proposed project.

Section 6(f) of the Land and Water Conservation Fund Act (LWCF) of 1965 stipulates that property acquired or developed with the assistance of the LWCF may not be converted to a use other than public recreation unless suitable replacement property is provided. No properties acquired or developed with the assistance of the LWCF are present in the project study area.

5.5. Farmland

The proposed project would not impact soils recognized as important farmlands by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). Important farmland soils include three categories of soils: prime farmlands, unique

farmlands and farmlands of statewide or local importance. State construction projects that receive funding from federal sources are directed to consider impacts to important farmlands under the Farmland Protection Policy Act (FPPA) of 1981. State agencies are directed to consider impacts to farmlands under North Carolina Executive Order 96, Conservation of Prime Agricultural and Forest Lands.

Farmland soils of prime, statewide and local importance are located throughout the project study area. As is required by the FPPA, a preliminary screening of potential farmland impacts was completed and impacts calculated using slope stakes plus 40 feet. It was determined that the majority of the project lies within the Asheville, N.C. Urban Area. The remaining area is 0.14 acre at the intersection of Liberty Road and Monte Vista Road. The majority of this area is paved or in utility easement. Due to the already developed nature of this area of impact, NRCS has granted an exception to completion of the AD-1006 form for this project (Appendix A).

Buncombe County has both Voluntary Agricultural District (VAD) and Enhanced Voluntary Agricultural District (EVAD) programs (NCDACS, December 2015). However, there are no VADs or EVADs within the project study area.

5.6. Social Effects

In order to identify existing community facilities and social aspects of the project study area, as well as to assess the potential beneficial and adverse social and economic impacts of the proposed project, a *Community Characteristics Report and Community Impact Assessment* [CCR-CIA] (September 2015) was prepared. County, state and Demographic Study Area (DSA) data were compared to identify population and demographic characteristics and trends, and to draw conclusions about the social environment in the vicinity of the project⁷. A site visit was conducted in April 2014 as part of the preparation of the CCR-CIA. Details of the methodology and investigations supporting the information provided below are included in the CCR-CIA.

5.6.1. Demographic Data

Population data from the U.S. Census Bureau indicate that the population in Buncombe County grew at an annual average growth rate of 1.2 percent between 2010 and 2015, which was greater than the statewide growth rate of 1.1.

According to population projections published by the North Carolina Office of State Budget and Management (October 2015), the annual average population growth rate in Buncombe County is projected to remain the same over the next 20 years (1.2 percent), between 2015 and 2035, which is greater than the projected statewide growth rate of 1.0 percent.

⁷ The DSA is larger than the project study area to include the Census Tract Block Groups, in their entirety, that intersect the project study area. The DSA is completely within Buncombe County.

TABLE 9
POPULATION DATA

Jurisdiction	2010¹	2015¹	2020²	2025²	2030²	2035²
Buncombe County	238,318	253,178	269,687	285,030	300,372	315,714
State of N.C.	9,535,483	10,042,802	10,574,718	11,095,319	11,609,883	12,122,640
Sources: ¹ U.S. Census Bureau; ² North Carolina Office of State Budget and Management (October 2015).						

5.6.2. Neighborhoods/Communities

The addition of an interchange at Liberty Road and I-40 is expected to affect properties located along existing Liberty Road south of I-40, including Lost Creek Road, Valley View Drive, Tall Oaks Road, and Whispering Oaks Drive, and existing Liberty Road and Canaan Drive north of I-40.

Access to Dogwood Road would be modified and maintained. Existing Dogwood Road would be realigned to a new intersection with the proposed new alignment of Liberty Road. The realigned Dogwood Road intersection would be located approximately 0.15 mile north of the U.S. 19/23/N.C. 151 intersection.

The Detailed Study Alternatives would affect properties on Lost Creek Road, located in the southeast interchange quadrant. Some properties would be acquired for right-of-way and the remaining properties on Lost Creek Road would have a new access point via the existing Liberty Road, which would be converted to a cul-de-sac south of I-40 (Figures 5a and 5b).

The Partial Cloverleaf Interchange would retain the majority of the community on Valley View Drive since no ramp or loop is proposed in the southwest interchange quadrant. The Half Cloverleaf Interchange would affect a larger portion of the community on Valley View Drive, as properties between Valley View Drive and I-40 would be acquired to accommodate construction of the interchange. Both Detailed Study Alternatives would construct a new alignment access for Valley View Drive and a short road connection between Valley View Drive and Whispering Oaks Drive to replace access via Tall Oaks Drive (Figures 5a and 5b).

Similarly, the properties along existing Liberty Road north of I-40 would be terminated into a cul-de-sac before the interchange. Canaan Drive would be realigned to intersect Liberty Road. Realignment of Canaan Drive would impact the properties on the east side of the intersection.

Right-of-way acquisition would result in the loss of some property for residents and businesses along the corridor as further discussed in the next section. Regardless, no community cohesion or barrier effects are anticipated.

5.6.3. Relocation of Residences and Businesses

It is the policy of NCDOT to provide assistance to those affected by transportation improvements as required under the Federal Uniform Relocation Assistance and Real Properties Acquisition Act of 1970 and its revisions. This Act is intended to ensure that displaced individuals, families, and businesses receive fair, consistent, and equitable treatment, and are not affected disproportionately by projects that benefit the general public. The NCDOT-Relocation Unit provides relocation assistance and benefits to those who are displaced during acquisition for highway projects.

A relocation report was prepared by NCDOT in August 2016 (included in Appendix E). The report estimated residential relocations associated with each Detailed Study Alternative. No business, grave, or church/non-profit relocations are anticipated; however, three signs would be relocated in both Detailed Study Alternatives.

For the most part, the *EIS Relocation Report* (August 2016) (Appendix E) only considered those improvements physically located within the proposed acquisition areas of the project. The Appraisal Cost Estimate (September 2016) (included in Appendix D) includes proximity damage (i.e., improvements not actually in the proposed take, but considered damaged to the point of no value), as well as potential instances of loss of access due to the control of access right-of-way. The relocation estimate provided in the Appraisal Cost Estimate is reported in the EA since it included these additional criteria. The Partial Cloverleaf Alternative would result in 34 residential relocations; the Half Cloverleaf Alternative would result in 40 residential relocations.

5.6.4. Environmental Justice

Title VI and Environmental Justice considerations promote the fair treatment and involvement of all people, regardless of race, color, national origin or income, with respect to development, implementation and enforcement of environmental laws and regulations. Executive Order 12898 requires each federal agency, to the greatest extent allowed by law, to administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid “disproportionately high and adverse” effects on minority and low-income populations.

In addition to the site visit conducted in April 2014, demographic information from the U.S. Census Bureau was reviewed to assess the social and economic characteristics of North Carolina, Buncombe County and the Census Tract Block Groups in which the proposed project is located.

Census data does not indicate a notable presence of populations meeting the criteria for Environmental Justice within the DSA for minorities and low-income populations. However, Census data does indicate a notable presence of low-income populations in Census Tract 25.03, Block Group 2 for below poverty level; in Census Tract 25.05, Block

Group 2 for very poor; and Census Tract 25.03, Block Group 2 for near poor. Each of these geographies exceeds the County by five percent or greater. However, the DSA is comparable to the county in its aggregate poverty status.

While low income populations are present, no notable adverse community impacts are anticipated with this project. Impacts to low income populations do not appear to be disproportionately high and adverse. The NCDOT Last Resort Housing Program should enable any person(s) being displaced to obtain or maintain housing within their financial means.

5.6.5. Limited English Proficiency

There are no Limited English Proficiency (LEP) populations meeting the U.S. Department of Justice LEP Safe Harbor threshold. However, Census data indicates a Spanish-speaking population exceeding 50 persons within the DSA that were considered for language assistance. Language assistance was offered through the public outreach effort (i.e., Project Newsletter). No requests for language assistance were received from the public.

5.6.6. Bicycle & Pedestrian Facilities

Within the project study area there is one paved path along Dogwood Road, likely associated with the Vistas at Westfield Subdivision (on Westfield Way). This path would not be affected by the project. During the field visit, no bicycle or pedestrian activity was observed. There are no bicycle or pedestrian facilities planned in the project study area. However, additional bicycle and pedestrian accommodations may be considered based upon requests and through coordination with Buncombe County.

According to the *Buncombe County Greenways & Trails Master Plan* (August 2012), there are no existing or proposed greenways or trails within the project study area. Though there are no designated or signed routes in the project study area, Buncombe County has assigned most of the county's main thoroughfares to one of four categories, 1 through 4, for their suitability for biking based on vehicular traffic, with 1 being the most suitable for biking and 4 the least suitable. According to data from the Buncombe County GIS, the following facilities within the project study area were given suitability ratings for bicycling based on vehicular traffic: U.S. 19/23 is considered "Level 3", and Monte Vista Road and Dogwood Road are considered "Level 2." A bicycle suitability rating was not made for Liberty Road. The proposed project would not impact the current bicycle suitability rating in the vicinity of the proposed project.

5.6.7. Other Public Facilities and Services

There are no parks, greenways, recreational facilities, or public schools located within the project study area. Enka Middle School, located at 390 Asbury Road, Candler, N.C., is approximately one mile east of the proposed project. Four Buncombe County school buses make eight total daily trips along the portion of Liberty Road in the project study area.

There are three churches in the vicinity of the proposed project: Candler Church of God located at 45 Hill Street; Maple Ridge Baptist Church located at 404 Ridge Street; and Liberty Baptist Church and Cemetery located at 875 Monte Vista Road. Liberty Baptist Church Family Life Center is located across from Liberty Baptist Church on Monte Vista Road. A small cemetery affiliated with Liberty Baptist Church is located on the southwest corner of existing Liberty Road and Monte Vista Road intersection. Pisgah View Memorial Park is an approximately eight-acre cemetery located at 1526 Smokey Park Highway, at the south end of the project study area. No impacts are anticipated to the churches or cemeteries (Figure 8).

5.7. Economic Effects

The North Carolina Department of Commerce annually ranks the State's 100 counties based on economic well-being – which is calculated with the most recent twelve months' average unemployment rate, median household income, percentage growth in population, and adjusted property tax base per capita – and assigns each a tier designation (Tier 1 [most distressed], Tier 2, and Tier 3 [least distressed]) to determine which counties' eligible businesses qualify for larger tax credits. According to this source, Buncombe County has been ranked in the category of the 20 least distressed counties in the state (Tier 3) consecutively from 2007 to 2016.

According to the North Carolina Department of Commerce, and as of the 4th quarter of 2015, the five largest employers in Buncombe County were: Memorial Mission Hospital, Buncombe County Board of Education, Ingles Markets, Inc., Biltmore Workforce Management Inc., and Veterans Administration, all with more than 1,000 employees.

According to the Buncombe County *Comprehensive Land Use Plan, 2013 Update*, the County has seen a decrease in employment within the construction industry since 2006. The County's main industries continue to be Education & Health Services; Trade, Transportation & Utilities; and Leisure & Hospitality.

Direct effects to the businesses in the project study area are expected to be minimal. Some businesses may experience right-of-way encroachment impacts. No businesses would be displaced by the proposed project; however, three signs would be displaced.

During the construction phase, it is anticipated that access to businesses would not be affected.

5.8. Transportation Plans and Land Use

5.8.1. Transportation Plans

In conjunction with the FBRMPO, the NCDOT developed and adopted the CTP in January 2008. The CTP listed the Liberty Road/I-40 Interchange in Buncombe County as a "High Priority" project for the region. The fiscally constrained MTP (September 2015) includes the I-4759 project in the 2016–2020 time frame.

The CTP identified local thoroughfares and improvement needs. In the project study area:

- I-40 is classified as a Freeway in need of improvement;
- U.S. 19/23 east of Dogwood Road/N.C. 151 is classified as a Boulevard in need of improvement. West of Dogwood Road/N.C. 151, U.S. 19/23 is classified as an Expressway in need of improvement;
- N.C. 151 is classified as an Other Major Thoroughfare in need of improvement; and
- Dogwood Road, Monte Vista Road, Liberty Road and S.R. 1234 (Asbury Road) are Minor Thoroughfares. Improvement needs were not indicated for these roads.

The CTP also provided thoroughfare recommendations. The proposed project, identified in the CTP as the “Liberty-Dogwood Connector” south of I-40, is recommended for a Boulevard classification.

5.8.2. Existing Land Use and Zoning

Buncombe County’s land use plan was adopted in March of 1999 and most recently updated in 2013. The *Comprehensive Land Use Plan, 2013 Update* is intended as a guide for future commercial, residential, and industrial development. The plan notes that there has been substantial growth of residential development in Buncombe County. Marketed as a place for active retirees, Buncombe County has experienced a dramatic increase within the housing market for retiring citizens. This residential growth has triggered a demand for services and has created development pressure that is affecting a number of conditions, including infrastructure. The plan also notes that development continues to be concentrated in lower-lying areas closer to transportation corridors and makes reference to the Candler community southwest of the project study area as an example of this development trend, which is expected to continue.

The region has experienced a unique economic transition over the past several decades as its traditional focus on the service and tourism industry has been accompanied by a focus on niche businesses (e.g., breweries) in the region, as well as a growing influx of retirees. Tourism remains a viable industry in Buncombe County and influences land use planning and associated traffic demand. On a daily basis, tourists use I-40 to access points of interests such as the Pisgah National Forest, Blue Ridge Parkway, and the Great Smoky Mountains National Park. N.C. 151 provides direct access to the Pisgah National Forest and the Blue Ridge Parkway.

Land uses currently surrounding Liberty Road are predominantly residential interspersed by agricultural fields. Existing land uses are illustrated on Figure 8. U.S. 19/23 is a commercial corridor that is populated by a variety of businesses on both sides. This corridor is zoned as a Commercial Service (CS) district. This district encourages concentrating commercial activity in specific areas with access to major traffic arteries.

The corridor within the project study area includes gas stations, a shopping strip mall, a fast food restaurant, and used car lot.

South of I-40, the project study area is predominantly residential with a field and forested land along Young Branch. This area consists of all three Residential District zoning types. Residential District (R-2) District meets the same standards as Residential District (R-1) but also includes areas suitable for additional residential subdivisions. The Residential District (R-2) is in the western and eastern portions of the project study area. The Residential District (R-3) includes a small community south of Liberty Road in the central portion of the project study area. The Residential District (R-3) allows for a variety of residential uses, including higher density single-family units, multi-family units and mobile home parks. In addition, the Residential District (R-3) allows for compatible recreational, community service and educational uses. The community resources within this district includes the Candler Church of God (45 Hill Street) and Maple Ridge Baptist Church (404 Ridge Street).

North of I-40, the project study area is predominantly rural residential, with small neighborhoods branching off of Liberty Road. Some small agricultural fields are also found in this portion of the project, adjacent to I-40 on both sides of Liberty Road and near the intersection of Monte Vista Road. The area west of Monte Vista Road is zoned as an Open Use (OU) District. The OU District allows all uses by right. The area east of Liberty Road is zoned as a Residential District (R-1). Residential District (R-1) is intended to provide locations for single-family and two-family residential development and protects existing subdivisions from encroachment by incompatible land uses.

The Zoning Ordinance of Buncombe County was adopted in December 2009 and was amended April 2016. The Ordinance does exempt regulation of any “bona fide farm and its related uses”. Otherwise the Ordinance covers all areas within Buncombe County that are shown on the Official Zoning Map of Buncombe County.

5.8.3. Future Land Use

Buncombe County adopted the *Comprehensive Land Use Plan, 2013 Update* in September 2013. The plan is intended to “specifically address the unincorporated areas of the County” and provide recommendations to address the needs of the County. This plan does not make recommendations for land use within the project study area.

There are no known plans for development within the project study area.

5.8.4. Project Compatibility with Local Plans

The proposed project is located in Buncombe County, and is not specifically included in its *Comprehensive Land Use Plan, 2013 Update* (September 2013). However, the project is consistent with the recommendations made in the 2035 LRTP (September 2010) and the fiscally constrained MTP (September 2015).

5.9. Indirect and Cumulative Effects

The North Carolina Department of Environment and Natural Resources (NCDENR), in 15A NCAC 1C.0101 Conformity with North Carolina Environmental Policy Act, Statement of Purpose, Policy and Scope, defines “Cumulative Impacts” as those effects resulting “from the incremental impact of the proposed activity when added to other past, present, and reasonably foreseeable future activities regardless of what entities undertake such other activities.” Cumulative effects can result when activities taking place over time are collectively significant, even when individually those activities are minor. 15A NCAC 1C.0101 defines “Secondary Impacts” as those effects “caused by and resulting from the proposed activity although they are later in time or further removed in distance, but they are still reasonably foreseeable.” Secondary impacts are the same as indirect effects.

The *Indirect and Cumulative Effects Screening* [ICE] report (October 2014) concluded that there is a moderately high concern for indirect and cumulative effects as a result of this project. Potential land use effects resulting from the project are probable as the project would provide new access and opportunities for increased traffic exposure to properties within the Future Land Use Study Area (FLUSA), as shown in the ICE, and would generate appreciable travel time savings for most travelers. The extent of these effects is dependent on several key variables including: the future local economy and market for development, public infrastructure projects, and future transportation projects in the area.

The cumulative effect of this project when considered with other, past, present, and future actions, and the resulting impact on the notable human and natural features, is considered to be moderate. Development is already occurring within the FLUSA and is anticipated to continue. As a result of these conclusions for indirect and cumulative effects, a *Land Use Scenario Assessment* [LUSA] was completed in January 2015.

The LUSA concluded that although the construction of the proposed project has the potential to influence development and accelerate growth within the FLUSA, the Build scenario is not expected to result in increased effects to quality of life or resources. Land use development patterns are expected to be most markedly different between the No Build and Build scenarios in the vicinity of the proposed interchange. Land use development patterns are not expected to be markedly different between the No Build and Build scenarios at the northern terminus of Liberty Road – likely to remain primarily residential – or the southern terminus of Liberty Road – likely to remain primarily commercial.

As anticipated development construction begins, the growth in vehicular traffic utilizing Liberty Road would increase and, in addition to impervious surface from buildings and parking, there would be increased stormwater runoff. However, water quality concerns for both the No Build and Build scenarios should be minimized and/or mitigated through compliance with regulations covering watershed protection, floodplain protection, stream and river buffers, and stormwater management.

In addition to the CCR-CIA, ICE and LUSA generated for the I-4759 project, the *Asheville Regional Cumulative Effects Study* [CES] (June 2014) also considered STIP I-4759⁸. The CES analyzed the potential cumulative effects of projects sponsored by the cities, counties, FBRMPO, and major projects planned by private sector businesses and institutional entities in the Asheville region. The horizon year selected for the cumulative effects assessment was 2035, which corresponded with the fiscally-constrained LRTP in effect at the time of the assessment's completion.

The Cumulative Effects Tool for the CES (Table 10) rated cumulative effects at a medium level of concern as a result of the reasonably-foreseeable transportation projects in the region. However, it is anticipated that growth and development (and any associated impacts) on the four resource categories would occur whether or not the projects are built. A number of external influences and recommendations have the potential to influence trends in the area and the results of this study.

Some cumulative effects can be expected for notable cultural, community, water quality, and natural habitat features. Current regulations have specific protections for cultural resources. The Buncombe County Flood Damage Prevention Ordinance provides protection for water quality by limiting development within the 100-year floodplain. This is an improvement over the historic level of protection for these resources.

5.10. Flood Hazard Evaluation

Buncombe County is a participant in the National Flood Insurance Program. As previously noted, there are four or five stream crossings depending on the Detailed Study Alternative. Of those crossings, the Pole Creek crossing is the only stream with a Federal Emergency Management Agency (FEMA)-regulated floodplain.

A new location bridge is proposed to carry Liberty Road over Pole Creek. The floodplain of Pole Creek was re-delineated from a FEMA Detailed Study. Both Detailed Study Alternatives include a dual 3-span 54-inch girder bridge. The spans would consist of one 65-foot span and two 80-foot spans for a total length of 225 feet (refer to Table 4).

There would be 1.8 acres of potential impacts to the 100-year floodplain and 0.3 acre of floodway impacts. The anticipated 500-year floodplain impact is estimated to be 0.44 acres. Figure 7 depicts the FEMA-regulated floodplain as it crosses the project study area; impacts were calculated based on slope stakes shown on conceptual designs for the Detailed Study Alternatives plus an additional 40 feet outside of the slope stakes.

The NCDOT-Hydraulics Unit will coordinate with the N.C. Floodplain Mapping Program to determine the applicability of NCDOT'S Memorandum of Agreement (MOA), or if the approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision are required (LOMR) will be required. Since the proposed project would

⁸ The CES resulted from a lawsuit over a nearby project, STIP I-4400.

**TABLE 10
CUMULATIVE EFFECTS TOOL**

Rating	Cultural Features			Community Features			Water Quality Features			Natural Habitat Features			Result
More Concern	Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			Unique Resources Not Protected / Recognized			
	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	Past Actions	Current Activities	Future Development	
High													
Medium - High				X									
Medium							X	X		X			Possible Cumulative Effects
Medium - Low	X	X			X	X			X		X		
Low			X									X	
Less Concern	Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			Features Incorporated in Local Planning and Protection			

Source: *Asheville Regional Cumulative Effects Study* (June 2014), Table 5, p. 67.

involve construction activities on or adjacent to FEMA-regulated streams, NCDOT-Highway Division 13 shall submit sealed as-built construction plans to the NCDOT-Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment that are located within 100-year floodplains were built as shown in the construction plans, both horizontally and vertically.

5.11. Traffic Noise Analysis

In accordance with Title 23 CFR Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise and the NCDOT Traffic Noise 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 that includes the addition of a through lane, 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 (TNM) approved by the FHWA and following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Policy, and the NCDOT Traffic Noise 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 as appropriate into the project plans and specifications.

A copy of the full technical report entitled *Draft Traffic Noise Report, Liberty Road I-40 Interchange, Buncombe County* (December 2016)¹¹ can be viewed in the Project Development & Environmental Analysis Unit, Century Center Building A, 1000 Birch Ridge Drive, Raleigh.

5.11.1. Traffic Noise Impacts and Noise Contours

The maximum number of receptors in each project alternative predicted to become impacted by future traffic noise is shown in Table 11. The table includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria (NAC) or by a substantial increase in exterior noise levels.

The maximum extent of the 71- and 66- dB(A) noise level contours measured from the center of the proposed roadway is 250 feet and 400 feet, respectively.

¹¹ The Final Traffic Noise Report is under review as of January 2017. The environmental document will be updated with the results of the Final Traffic Noise Report prior to the issuance of a decision.

TABLE 11
TRAFFIC NOISE IMPACT SUMMARY TABLE

Alternative	Approximate Number of Impacted Receptors Approaching or Exceeding FHWA NAC ¹							Substantial Noise Level Increase ²	Impacts Due to Both Criteria ³	Total Impacts per 23 CFR 772
	A	B	C	D	E	F	G			
Partial Cloverleaf Interchange	0	38	1	0	0	0	0	1	0	40 ⁴
Half Cloverleaf Interchange	0	32	1	0	0	0	0	1	0	34 ⁴

Source: *Draft Traffic Noise Report, Liberty Road I-40 Interchange, Buncombe County* (December 2016).
Notes: This table presents the number of build-condition traffic noise impacts as predicted for the build-condition alternatives and no-build alternative presently under consideration.
¹ Predicted traffic noise level impact due to approaching or exceeding NAC (23 CFR 772 Table 1).
² NCDOT Noise Policy defines substantial increase as an increase of 10 dB(A) or greater based on the existing noise level ($L_{eq(h)}$).
³ Predicted traffic noise level impact due to exceeding NAC and “substantial increase” in build-condition noise levels.
⁴ The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion.

5.11.2. Traffic Noise Abatement Measures

Measures for reducing or eliminating the traffic noise impacts were considered for all impacted receptors in each alternative. The primary noise abatement measures evaluated for highway projects include noise barriers, establishment of buffer zones, and noise insulation (NAC D only). For each of these measures, benefits versus costs (reasonableness), engineering feasibility, effectiveness and practicability, and other factors were included in the noise abatement considerations.

Costs to acquire buffer zones for impacted receptors would exceed the NCDOT base dollar value of \$22,500 plus an incremental increase of up to \$30,000 (as defined in the NCDOT Traffic Noise Manual) per benefited receptor, causing this abatement measure to be unreasonable.

5.11.3. Noise Barriers

Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb, and reflect highway traffic noise. For this project, earthen berms are not found to be a viable abatement measure because the additional right-of-way, materials, and construction costs are estimated to exceed the NCDOT maximum

allowable base quantity of 4,200 cubic yards, plus an incremental increase of up to 5,600 cubic yards per benefited receptor, as defined in the NCDOT Traffic Noise Policy.

A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by FHWA. Table 12 summarizes the results of the evaluation. The first potential barrier location evaluated with TNM is located north of I-40 and east of the proposed Liberty Road in Noise Study Area (NSA) 1. Based upon criteria defined in the NCDOT Traffic Noise Policy, this barrier preliminarily meets feasibility and reasonableness criteria and is recommended for detailed study in a Design Noise Report (DNR), contingent upon completion of the project design and the public involvement process.

TABLE 12
PRELIMINARILY FEASIBLE AND REASONABLE NOISE BARRIERS

Noise Barrier Location	Detailed Build Alternative	Length / Height (feet)	Square Footage	Number of Benefited Receptors	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor
NSA 1	Partial Cloverleaf Interchange	2,160	28,080	19	1,478 / 1,500
	Half Cloverleaf Interchange	2,160	28,3019	20	1,416 / 1,500
NSA 2	Partial Cloverleaf Interchange	1,794	18,315	14	1,308 / 1,500
	Half Cloverleaf Interchange	1,794	18,315	13	1,409 / 1,500
NSA 3	Partial Cloverleaf Interchange	2,404	41,653	30	1,388 / 1,500
	Half Cloverleaf Interchange	1,304	25,445	18	1,414 / 1,500
<p>Source: <i>Draft Traffic Noise Report, Liberty Road I-40 Interchange, Buncombe County</i> (December 2016).</p> <p>Notes: ¹ The recommendation for barrier construction is preliminary and subject to change, pending completion of final design and the public involvement process.</p>					

The second potential barrier location evaluated with TNM is located north of I-40 and west of the proposed Liberty Road in NSA 2. Based upon criteria defined in the NCDOT Traffic Noise Policy, this barrier preliminarily meets feasibility and reasonableness criteria and is recommended for detailed study in a DNR, contingent upon completion of the project design and the public involvement process.

The third potential barrier location evaluated with TNM is located south of I-40 and west of the proposed Liberty Road in NSA 3. Based upon criteria defined in the NCDOT Traffic Noise Policy, this barrier preliminarily meets feasibility and reasonableness criteria and is recommended for detailed study in a DNR, contingent upon completion of the project design and the public involvement process.

5.11.4. Summary

A preliminary noise evaluation was performed that identified six noise barriers that meet preliminary feasible and reasonable criteria found in the NCDOT Traffic Noise Policy. A more detailed analysis will be completed during project final design. Noise barriers found to be feasible and reasonable during the preliminary noise analysis may not be found to be feasible and reasonable during the final design noise analysis due to changes in proposed project alignment and other design considerations, surrounding land use development, or utility conflicts, among other factors. Conversely, noise barriers that were not considered feasible and reasonable may meet the established criteria and be recommended for detailed study in a Design Noise Report (DNR). This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772.

In accordance with NCDOT Traffic Noise Policy, NCDOT is not responsible for evaluating or implementing any noise barriers to protect developed lands that were not permitted before the Date of Public Knowledge. The Date of Public Knowledge of the proposed highway project will be the approval date of the environmental decision document for this project. For development occurring after this date, NCDOT advocates the use of local government authority to regulate land development, planning, design and construction in such a way that noise impacts are minimized.

5.12. Air Quality Analysis

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 (NO), 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 NAAQS contain criteria for SO₂, particulate matter (PM₁₀, 10-micron and smaller, PM_{2.5}, 2.5-micron and smaller), CO, nitrogen dioxide (NO₂), ozone (O₃), and lead.

The primary pollutants from motor vehicles are unburned HC, NO_x, CO, and particulates. HC and NO_x can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as O₃ and NO₂. 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 air quality analysis was prepared for this project. A copy of the full technical report entitled *Air Quality Report, Liberty Road I-40 Interchange, Buncombe County* dated December 5, 2016 can be viewed at the Project Development & Environmental Analysis Unit, Century Center Building A, 1000 Birch Ridge Drive, Raleigh.

5.12.1. Mobile Source Air Toxics

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 U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA assessed this expansive list in its 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)¹². In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 2011 National Air Toxics Assessment (NATA)¹³. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority MSAT, the list is subject to change and may be adjusted in consideration of future EPA rules.

According to EPA, the latest model MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2010. These new emissions data are for light- and heavy- duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data.

MOVES2014 incorporates the effects of three new Federal emissions standard rules not included in MOVES2010. These new standards are all expected to impact Mobile Source Air Toxic (MSAT) emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty greenhouse gas regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light duty greenhouse gas regulations that phase in during model years 2017-2025 (79 FR 60344). Since the release of MOVES2014, EPA has released MOVES2014a. In the November 2015

¹² www.epa.gov/iris

¹³ www.epa.gov/national-air-toxics-assessment

MOVES2014a Questions and Answers Guide,¹⁴ EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

Using EPA's MOVES2014a model, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b, consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends.

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

¹⁴ www.epa.gov/moves/moves2014a-latest-version-motor-vehicle-emission-simulator-moves

human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects”¹⁵. 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). A number of HEI studies are summarized in Appendix D of FHWA’s *Updated Interim Guidance 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 concentrations¹⁶ or in the future as vehicle emissions substantially decrease.

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 HEI¹⁷. 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 states that with respect to diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic

¹⁵ EPA, www.epa.gov/iris/

¹⁶ HEI Special Report 16, www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects

¹⁷ Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects>

studies has prevented the estimation of inhalation carcinogenic risk (www.epa.gov/iris).

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 acceptable¹⁸.

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.

5.12.2. 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. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

¹⁸ [www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/\\$file/07-1053-1120274.pdf](http://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf)

The proposed project is located in Buncombe County, which is an attainment area that complies with the NAAQS. Therefore, it is not anticipated to create any adverse effects on the air quality of this attainment area. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process. No additional reports are necessary.

Under each Detailed Study Alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections that would be built between the U.S. 19/23/N.C. 151 and Dogwood Road intersection and the existing Liberty Road north of I-40 – which is proposed in both Detailed Study Alternatives – and along the ramps and loops proposed for each interchange configuration alternative. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under both Detailed Study Alternatives in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build Alternative, due to EPA's MSAT reduction programs

5.13. Hazardous Material

The NCDOT-Geotechnical Engineering Unit conducted an evaluation identifying properties within the project study area that are, or may be, contaminated. The findings and recommendations were compiled in a *Hazardous Materials Report* (February 2015). Hazardous materials are generally defined as material, or a combination of materials, that present a potential hazard to human health or the environment. Properties of concern include, but are not limited to, those with active and abandoned underground storage tanks (USTs), hazardous waste sites, regulated landfills and unregulated dumpsites. The geo-environmental impact evaluation included the following activities to identify known and potential hazardous materials sites within the project study area: a review of Geographic Information System (GIS) data, a field reconnaissance of the project study area, and a regulatory agencies' search.

The geo-environmental impact evaluation identified nine known and suspected sites of concern for hazardous materials within the project study area, including eight USTs and one automotive repair facility (Figure 8). Table 13 lists the known and potential hazardous materials sites along with the level of impact potential. This level refers to the potential for future environmental liability if the property is acquired, as well as the anticipated risk of a substantial increase in project costs and/or scheduling associated with the affected site. Sites with low geo-environmental impact potential are anticipated to have little to no impacts with respect to these issues. All nine sites listed in Table 14 are anticipated to have low geo-environmental impact potential on the

TABLE 13
HAZARDOUS MATERIALS SITES

Map ID	Site	Status	Registered USTs	Impact Potential
1	Boones Convenience Corner 2, 1498 Smoky Park Hwy	Convenience store and gas station	6 USTs currently in use	Low
2	Mountain Energy 127, 1501 Smoky Park Hwy	Country food convenience store and gas station	5 USTs currently in use; 3 USTs removed in 1994; 2 USTs removed in 2007; GWI #AS-3397	Low
3	Candler's Best Indoor Yard Sale, 1482 Smoky Park Hwy	Closed discount warehouse; possible old gas station	No registered USTs	Low
4	Former Bright New Beginnings, 1485 Smoky Park Hwy	Closed childcare business; possible old gas station	No registered USTs	Low
5	Former OK Auto Sales & Leasing, 1477 Smoky Park Hwy	Former car lot; possible old gas station	No registered USTs	Low
6	Whitt Motor Sales, 1476 Smoky Park Hwy	Automotive sales business; previously a gas station	No registered USTs	Low
7	OK Tire & Auto Service, 1470 Smoky Park Hwy	Closed automotive service garage and tire business; possible old gas station	No registered USTs	Low
8	Mountain Supply Inc., 1466 Smoky Park Hwy	Food service business; previously automotive tire store and service garage	No registered USTs	Low
9	Warehouse, 1462 Smoky Park Hwy	Surplus warehouse; possible old gas station	No registered USTs	Low

Source: *Hazardous Materials Report* (February 2015).

Note: Map ID correlates to Figure 8.

proposed project. The discovery of additional sites not included in the GIS database and not reasonably discernible during the field reconnaissance could occur later in project development.

6. PUBLIC INVOLVEMENT AND AGENCY COORDINATION

6.1. Citizens Informational Workshop

A Citizens Informational Workshop (CIW) was held Tuesday, July 14, 2009 at Candler Elementary School in Candler, N.C. The purpose of the meeting was to inform and involve the public in the project development process and to present alternatives under consideration for the proposed project. A total of 127 citizens signed in at the meeting, with 37 citizens providing written comments by the end of the comment period. The CIW Materials (i.e., handout and comment forms) are included in Appendix F.

Though not every citizen agreed with the location of the proposed interchange at Liberty Road, there was general consensus that an interchange is needed between Wiggins Road (exit 37) and U.S. 19/23 (exit 44) to help ease existing congestion.

6.2. Public Meeting Open House

An Open House Public Meeting was held Tuesday, August 30, 2016 at the Francis Asbury United Methodist Church Gymnasium in Candler, N.C. The purpose of the meeting was to inform local citizens about the project and receive comments, concerns and alternative preferences. A total of 308 citizens signed in at the meeting, with 83 citizens providing written comments by the end of the advertised 15-day comment period, September 13, 2016. The meeting was advertised through the *Asheville Citizen-Times*, *Asheville Tribune*, and *Mountain Xpress* (Appendix F). Project Newsletters were sent to property owners and residents in the project area. The Project Newsletter and Open House Public Meeting Materials (i.e., handout and comments forms) are included in Appendix F.

Aerial maps of the project study area with the functional designs of three Build Alternatives were presented at the open house. Similar to the 2009 CIW, not every citizen agreed with the location of the proposed interchange at Liberty Road, there was general consensus that an interchange is needed between Wiggins Road (exit 37) and U.S. 19/23 (exit 44) to help ease existing congestion. Sixty-three percent of the public that commented on the project design preferred the Partial Cloverleaf Interchange Alternative. Seventeen percent preferred the Diamond Interchange Alternative; 10 percent preferred the Half Cloverleaf Interchange; and 10 percent did not indicate a preference. Among the reasons cited for support of the Partial Cloverleaf Interchange Alternative were: the lowest cost estimate, the least amount of impacts to residents, and the accommodation for a yielding right turn for travel to and from Asheville from Enka-Candler. Public input was considered in the decision to eliminate the Diamond Interchange Alternative from detailed study (Section 3.5 and Section 6.3).

6.3. Public Hearing

A public hearing for this project will be held following the approval of this EA in the Spring of 2017. More detailed maps of the Detailed Study Alternatives will be presented to the public and public input will be solicited. Public comments will be taken into consideration in the selection of the Preferred Alternative and as the project design continues.

6.4. NEPA/Section 404 Merger Process

NCDOT has coordinated with the state and federal regulatory and resource agencies throughout the project development process. In addition to NCDOT, the Merger Team includes the following agencies:

- Federal Highway Administration
- French Broad River Metropolitan Planning Organization
- N.C. Department of Environmental Quality-Division of Water Resources
- N.C. State Historic Preservation Office
- N.C. Wildlife Resources Commission
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

The project start of study letter was sent April 7, 2008 to local officials to announce the initiation of development, environmental, and engineering studies for the I-4759 project in Buncombe County (Appendix A). The Pre-Merger Screening was held June 9, 2009 to determine whether the project should follow the NEPA/Section 404 Merger Process. It was determined at that meeting the proposed project would follow the full NEPA/Section 404 Merger Process. The meeting summary is included in Appendix B.

A second start of study letter was sent October 6, 2014 to local officials to announce the re-initiation of development, environmental, and engineering studies for the I-4759 project (Appendix A). An external scoping meeting was held on October 14, 2015 to acquaint federal, state and local agencies with the project, request input regarding the available data, and identify issues that should be addressed in the NEPA documentation for the project. The Merger Team reached concurrence on Concurrence Point 1 (CP1) Project Purpose and Need and Study Area Defined during the October 14, 2015 external scoping meeting. The signed concurrence form and the meeting summary are included in Appendix B.

The Merger Team met to discuss Concurrence Point 2 (CP2) Detailed Study Alternatives Carried Forward on April 13, 2016. Three Build Alternatives were presented to the agencies. NCDOT inquired whether one of the Build Alternatives could be dropped from further consideration. USACE and USFWS agreed that the three Build Alternatives

should be shown at the Open House Public Meeting. With public input and additional cost estimate information the agencies agreed it may be possible to screen out a Build Alternative prior to development of the EA. The Merger Team reached agreement on CP2 April 13, 2016. The signed concurrence form and the meeting summary are included in Appendix B.

The Merger Team met to discuss Concurrence Point 2A (CP2A) Bridging Decisions and Alignment Review on May 26, 2016 at the project site. Anticipated impacts were presented for each of the six crossings. Based on those impacts, some additional cost estimate information and an evaluation of the project site by agency partners, NCDOT inquired whether one of the Build Alternatives could be dropped from further consideration. The Merger Team agreed that the three Build Alternatives should be shown at the Open House Public Meeting but that the Merger Team may reconsider after the Open House Public Meeting. The signed concurrence form and the meeting summary are included in Appendix B.

Following the conclusion of the Open House Public Meeting comment period on September 13, 2016, NCDOT requested agreement to eliminate Alternative 1 (Diamond Interchange) from detailed study. All agencies agreed by electronic mail (e-mail) by September 23, 2016 (Appendix A).

6.5. Other Agency Coordination

A written response was received from the following agencies in response to the April 8, 2008 scoping letter (Appendix A).

Buncombe County Public Schools

N.C. Department of Administration-State Clearing House

N.C. Department of Cultural Resources

N.C. Department of Environment and Natural Resources-Division of Forest Resources

N.C. Department of Environment and Natural Resources-Division of Water Quality

N.C. Department of Environment and Natural Resources-Natural Heritage Program

N.C. Wildlife Resources Commission

Land of Sky Regional Council

Note that the N.C. Department of Environment and Natural Resources (NCDENR) is now N.C. Department of Environmental Quality (NCDEQ). Also note that the Land of Sky Regional Council works in partnership with the FBRMPO to coordinate all phases of transportation planning for the area.

No written responses were received in response to the October 6, 2014 scoping letter.

7. CONCLUSION

This EA was prepared in accordance with 23 CFR 771.119. Based on the analysis included in this EA, FHWA and NCDOT believe that the I-4759 project will not result in significant impacts to the human and natural environments. FHWA and NCDOT seeks input on this preliminary conclusion. Once public and agency input have been received and considered, FHWA will determine if the project has no significant impacts and prepare a Finding of No Significant Impact to conclude the process and document the decision.

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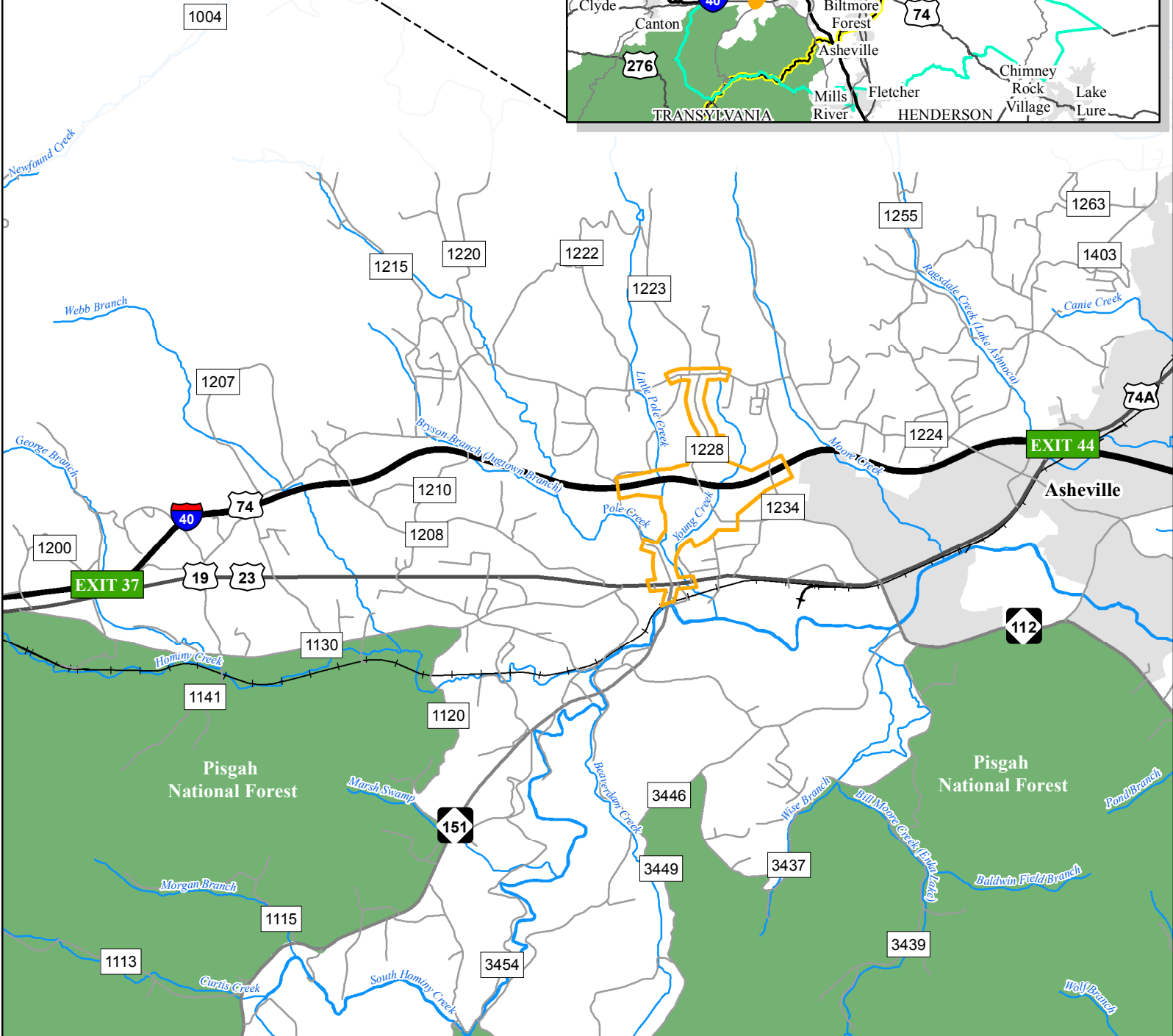
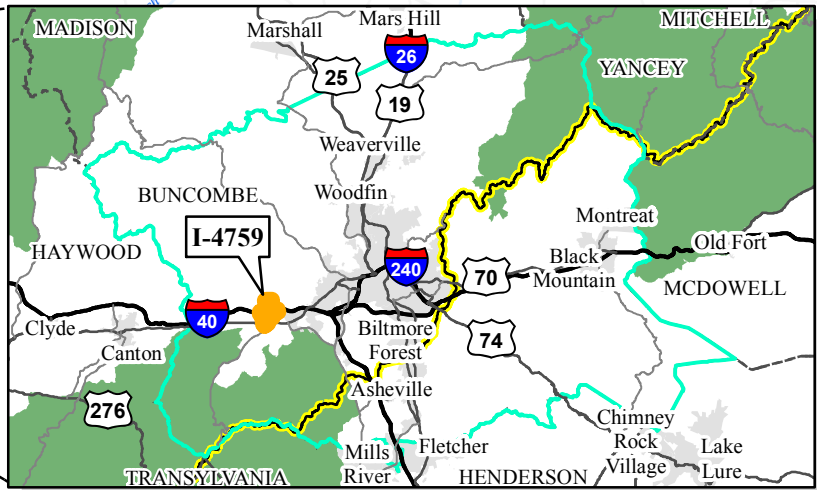
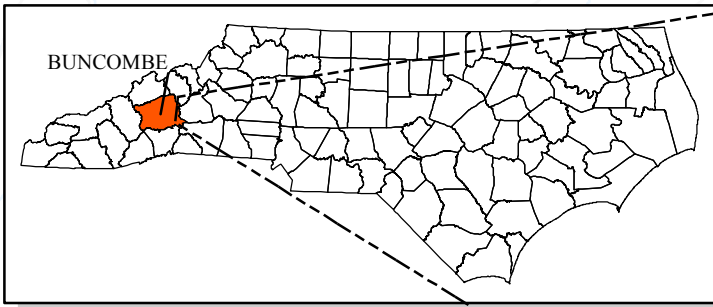
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FIGURES



Sources: NCDOT, NCDEQ, USDA, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016

North Carolina Department of Transportation
STIP I-4759

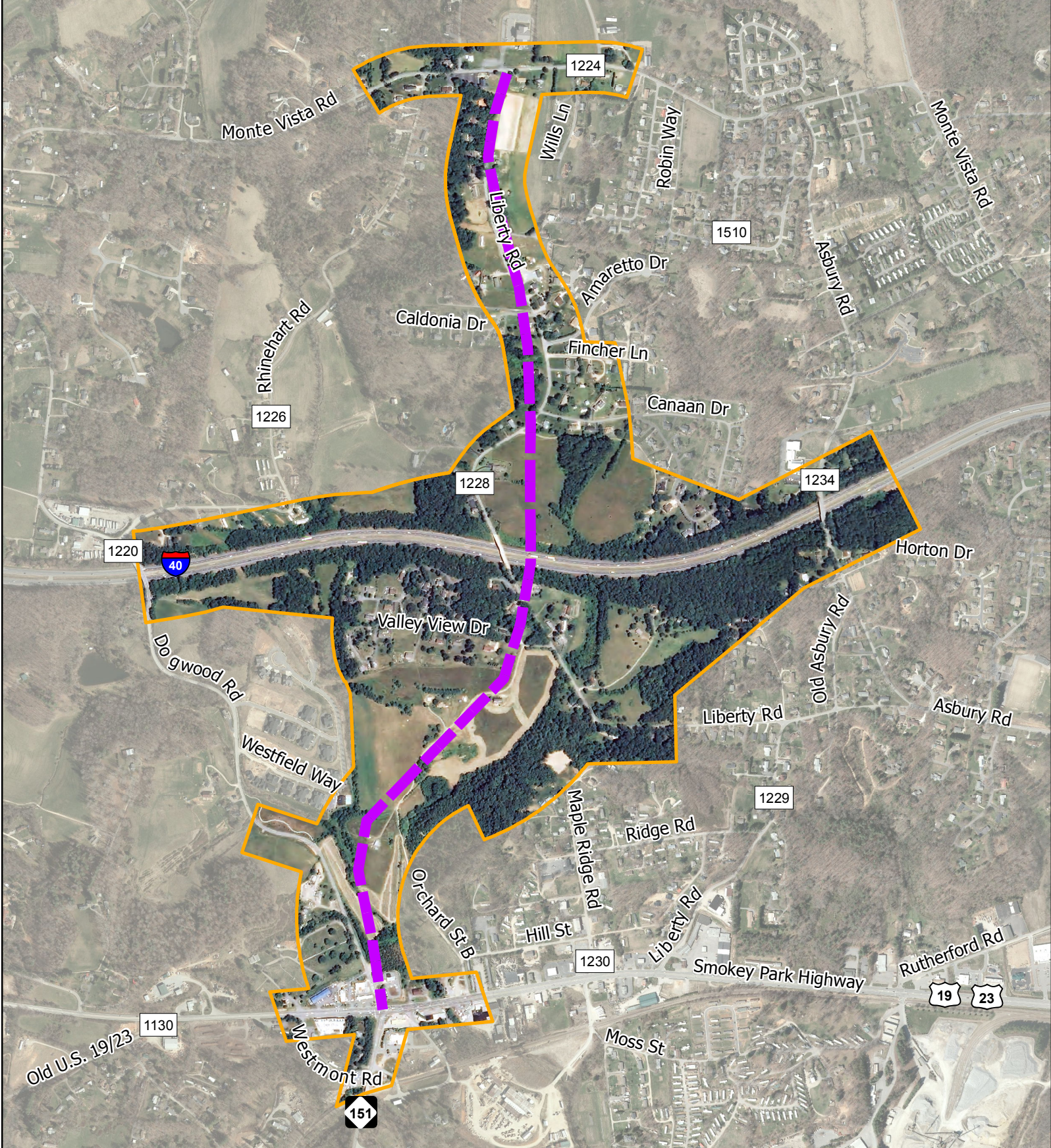
Feet
0 2,500 5,000

NORTH


Project Study Area	River/Stream	U.S. Route
Municipal Boundary	Blue Ridge Parkway	N.C. Route
National Forest	Interstate	Secondary Route
		Secondary Route Number

Figure 1.
Project Vicinity

Liberty Road
I-40 Interchange,
Buncombe County



Sources: NCDOT, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016



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Department of
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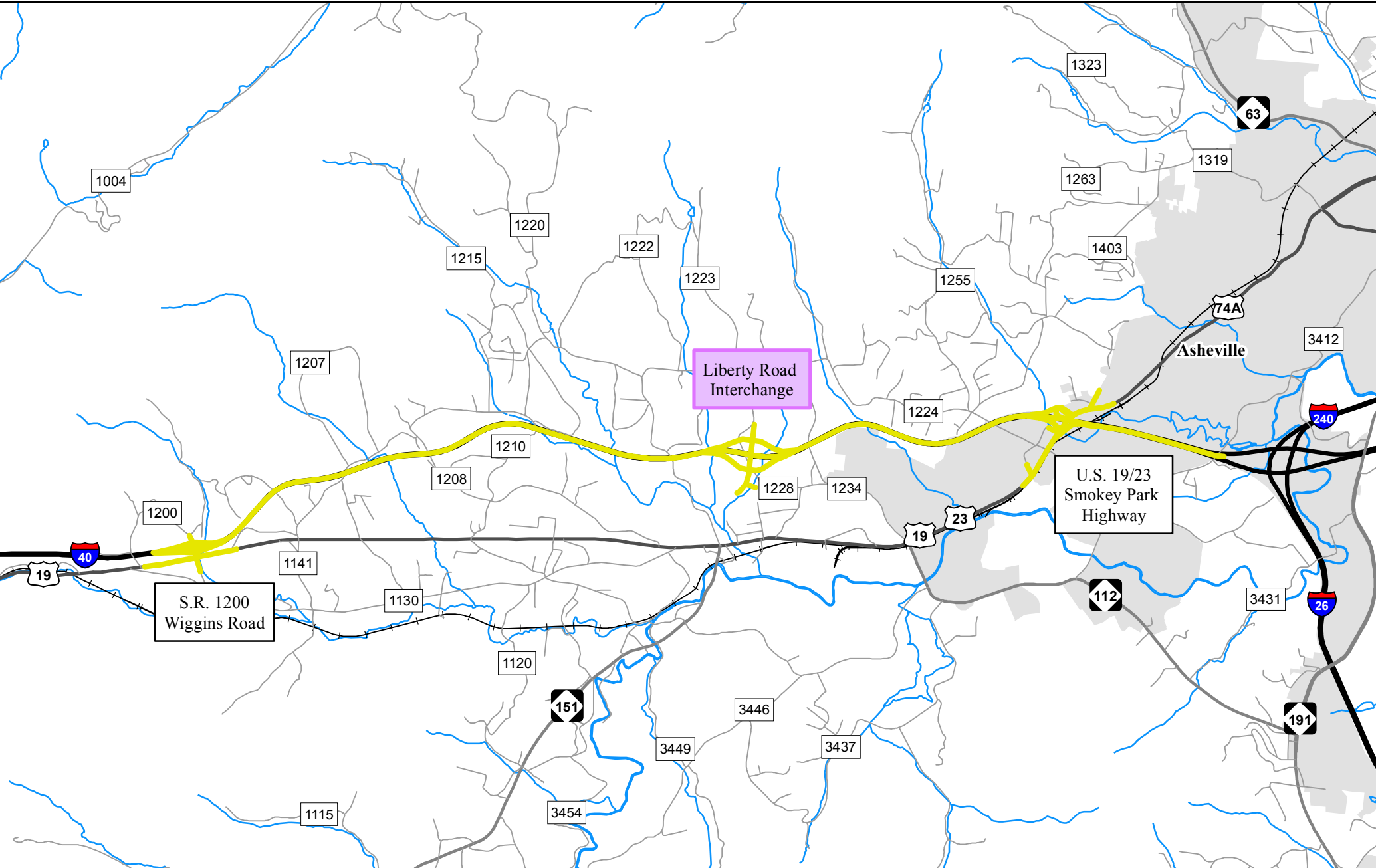
NORTH

Legend


- Project Study Area
- STIP I-4759
- 1111 Secondary Route Number

**Figure 2.
Study Area**

**Liberty Road
I-40 Interchange,
Buncombe County**

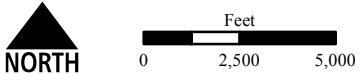


Sources: NCDOT, NCDEQ, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016



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Department of
Transportation**

STIP I-4759



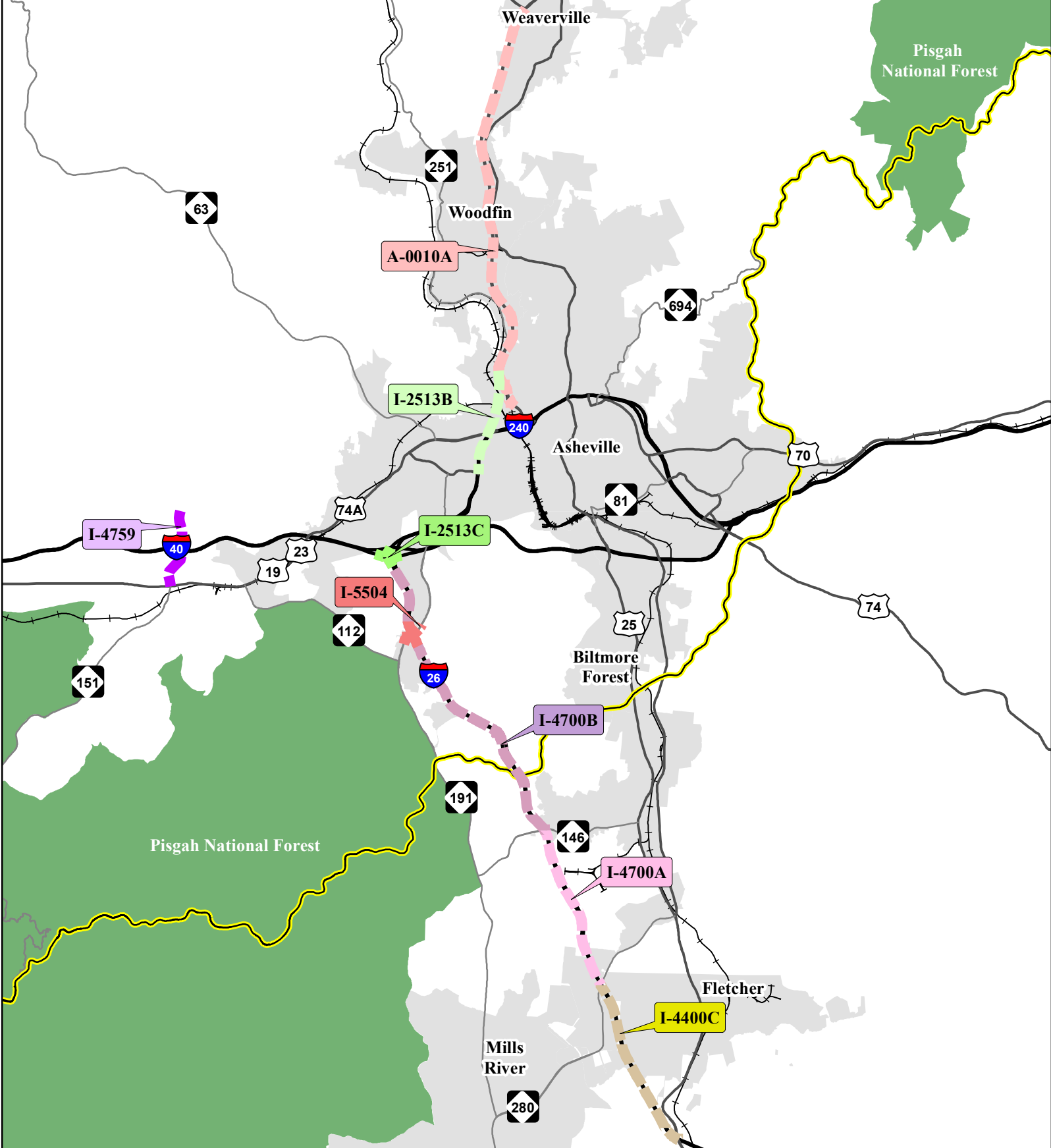
NORTH
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Legend


- Traffic Study Limit
- Interstate
- N.C. Route
- River/Stream
- Railroad
- U.S. Route
- Secondary Route
- Municipal Boundary

Figure 3.
Traffic Study Limits

**Liberty Road I-40 Interchange,
Buncombe County**



Sources: NCDOT, NCDEQ, USDA, NPS, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016



North Carolina Department of Transportation








STIP I-4759

Feet

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NORTH

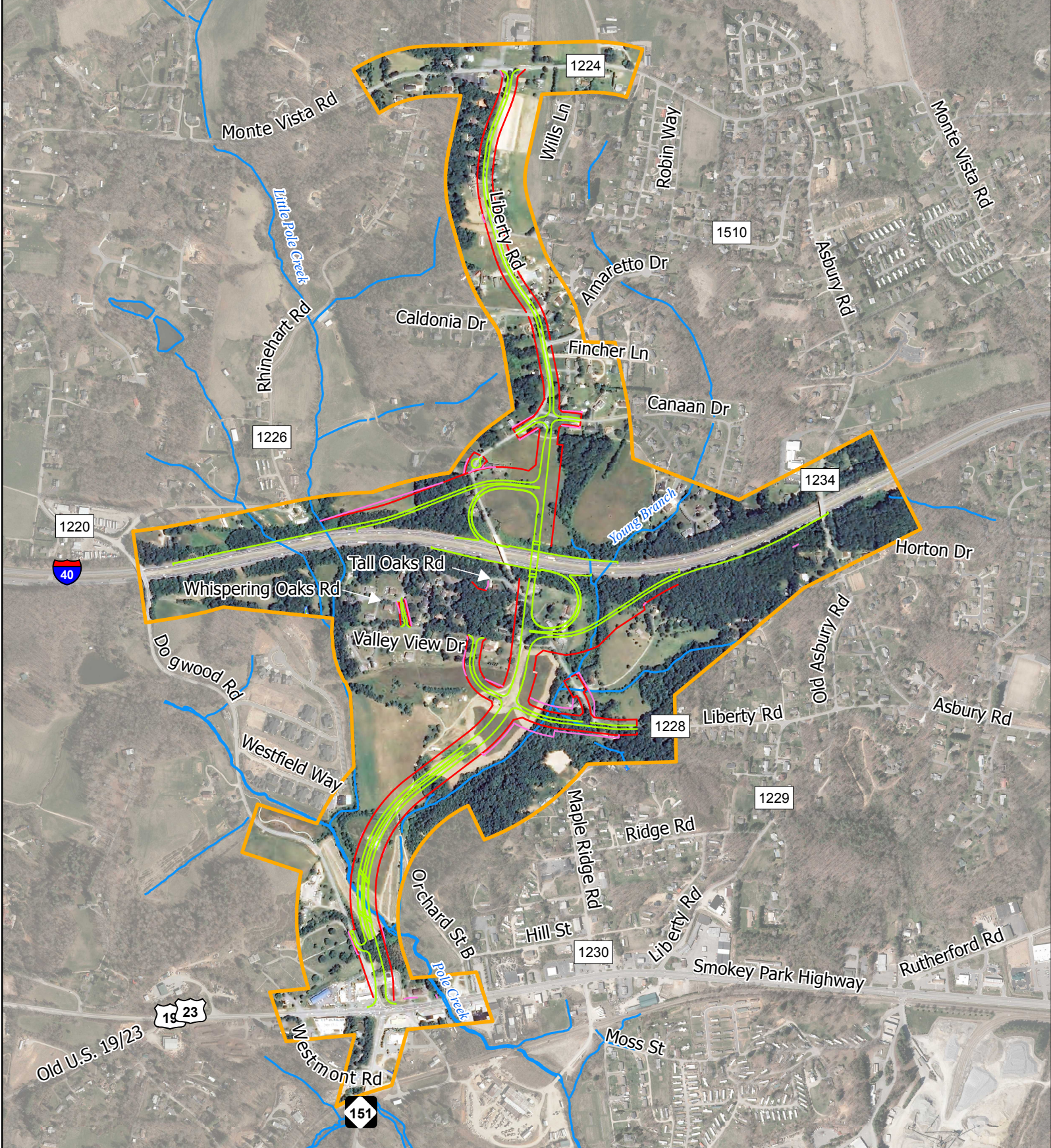
Legend

-  Interstate
-  U.S. Route
-  N.C. Route
-  Blue Ridge Parkway
-  Railroad
-  Municipal Boundary
-  National Forest


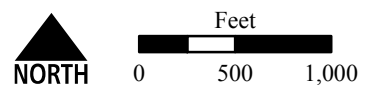
Note: Only STIP Project segments currently funded included in map.

Figure 4.
STIP Projects
in Vicinity

Liberty Road
I-40 Interchange,
Buncombe County



Sources: NCDOT, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016


North Carolina Department of Transportation
 STIP I-4759


Legend







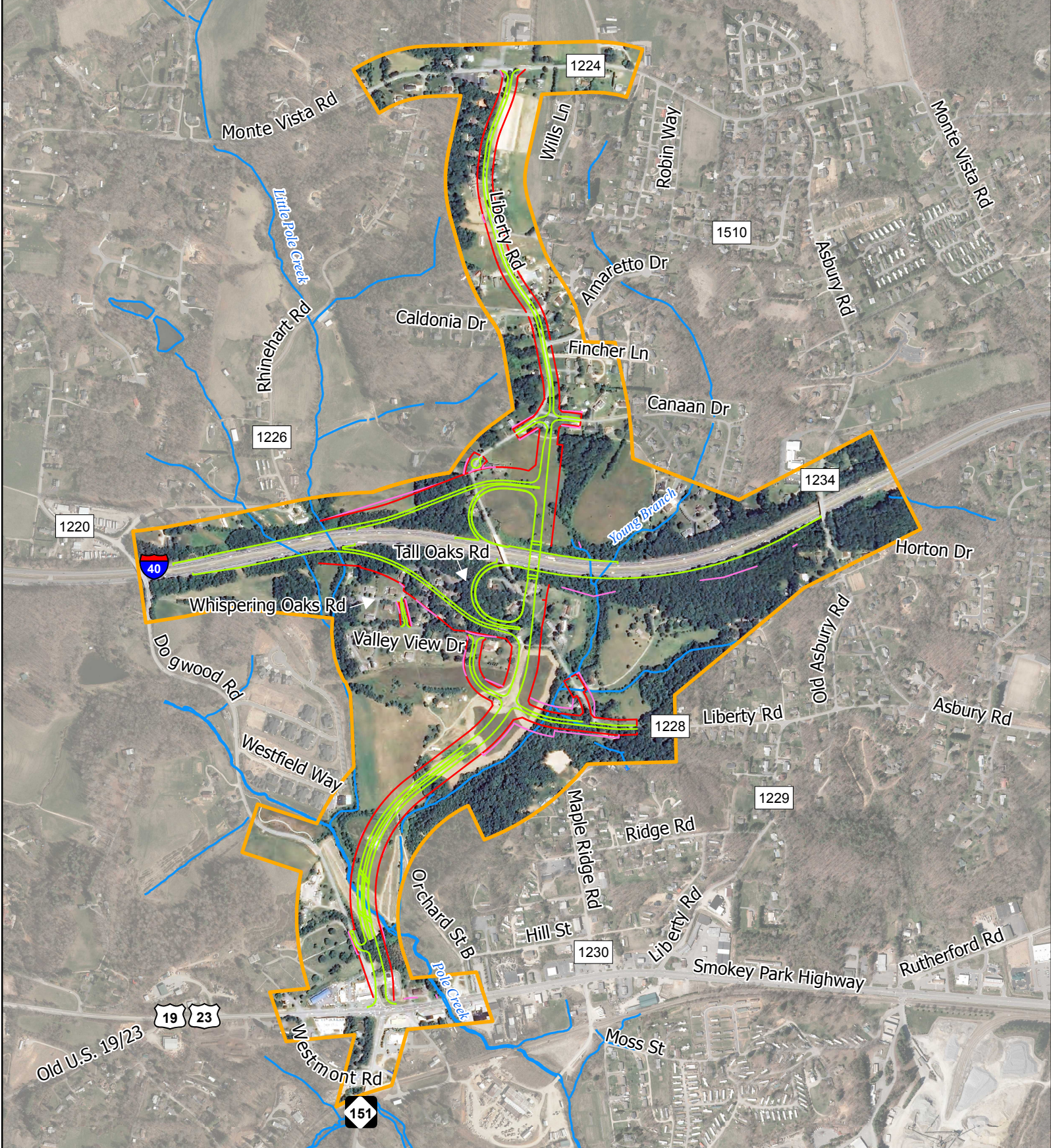

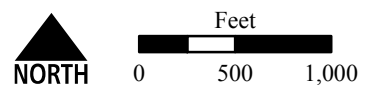
 Project Study Area	 Proposed Right of Way
 Field Delineated Wetland	 Proposed Construction Easement
 Field Delineated Jurisdictional Stream	 Proposed Edge of Pavement

Figure 5a.
Partial Cloverleaf Interchange
Liberty Road I-40 Interchange, Buncombe County



Sources: NCDOT, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016


North Carolina Department of Transportation
 STIP I-4759


Legend







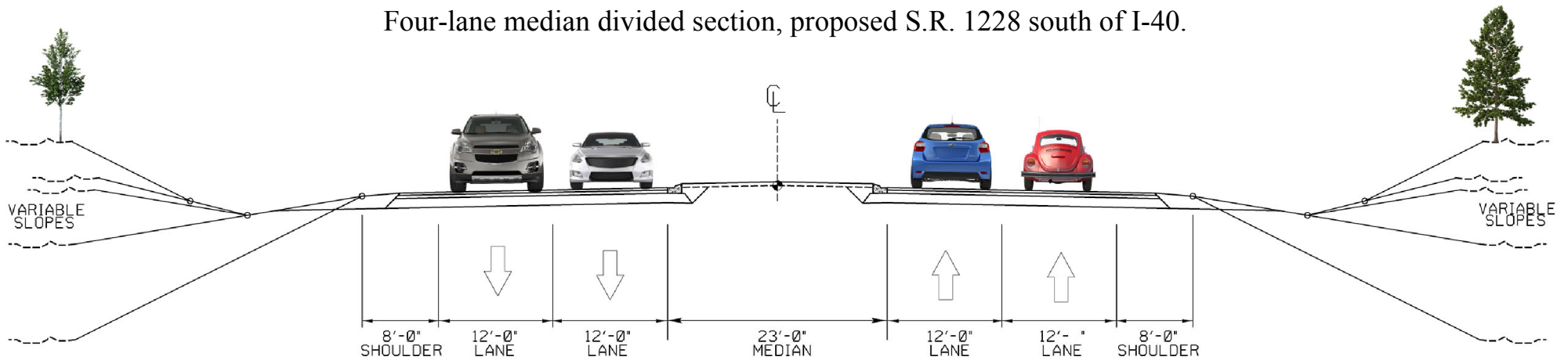
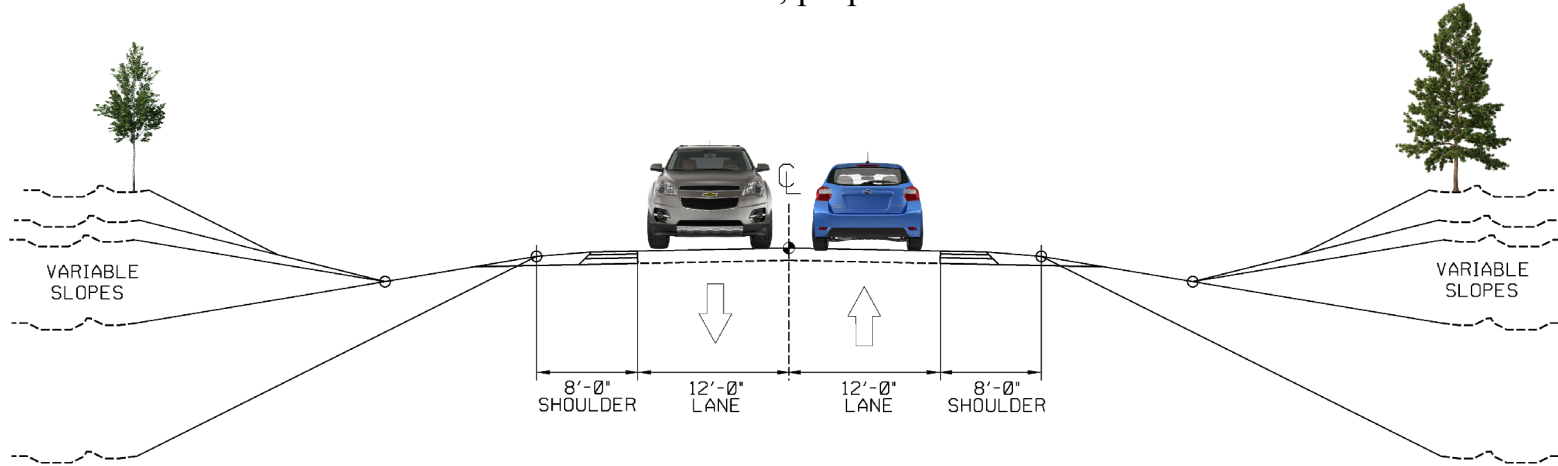
 Project Study Area	 Proposed Right of Way
 Field Delineated Wetland	 Proposed Construction Easement
 Field Delineated Jurisdictional Stream	 Proposed Edge of Pavement

Figure 5b.
Half Cloverleaf Interchange
Liberty Road I-40 Interchange, Buncombe County

Four-lane median divided section, proposed S.R. 1228 south of I-40.



Two-lane undivided section, proposed S.R. 1228 north of I-40.



Sources: NCDOT, HNTB. Credit: HNTB North Carolina PC 2016



North Carolina
Department of
Transportation

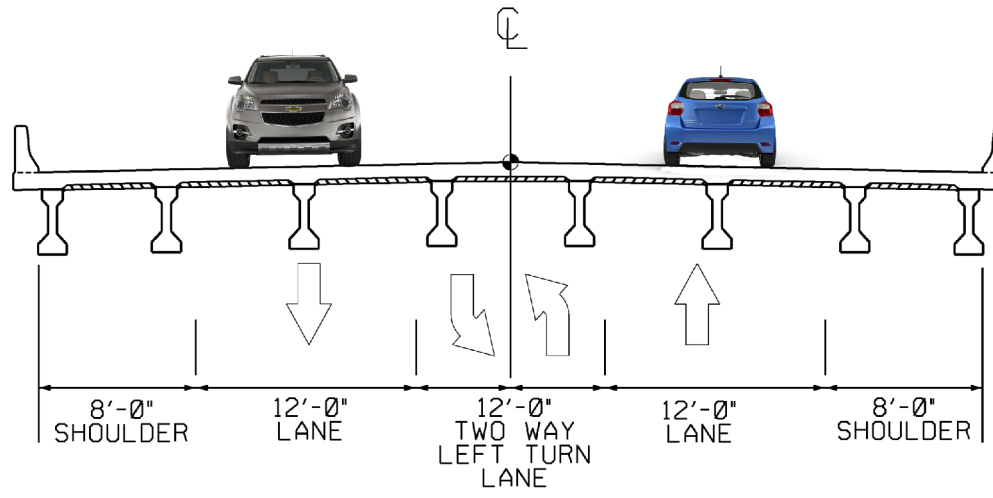
STIP I-4759

Figure 6a. Typical Sections, Roadways

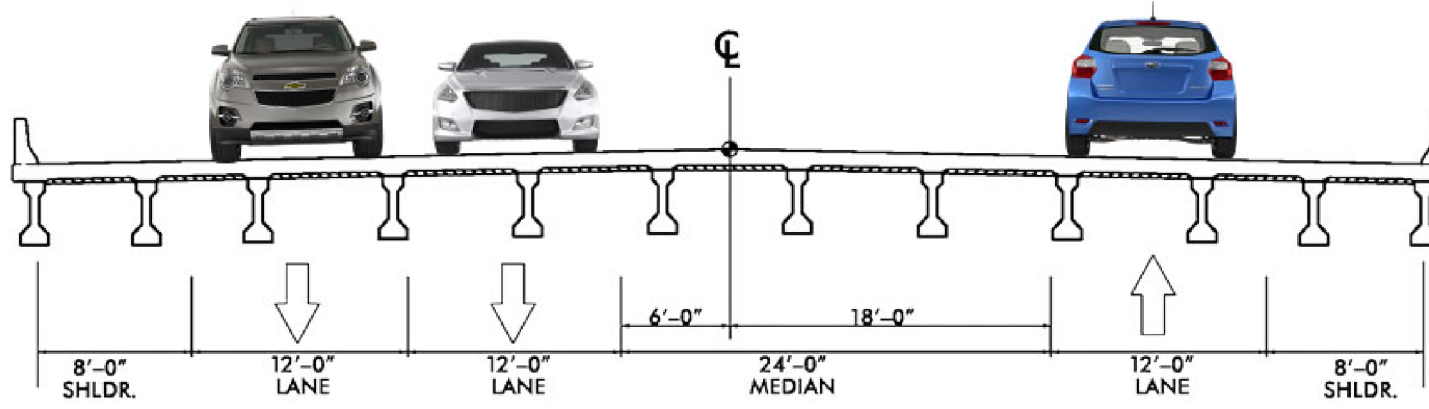
**Liberty Road I-40 Interchange,
Buncombe County**

Not to scale

Three-lane Bridge, proposed S.R. 1228 I-40 Grade Separation (Partial Cloverleaf Interchange).



Three-lane Bridge with median, proposed S.R. 1228 I-40 Grade Separation (Half Cloverleaf Interchange).



Sources: NCDOT, HNTB. Credit: HNTB North Carolina PC 2016



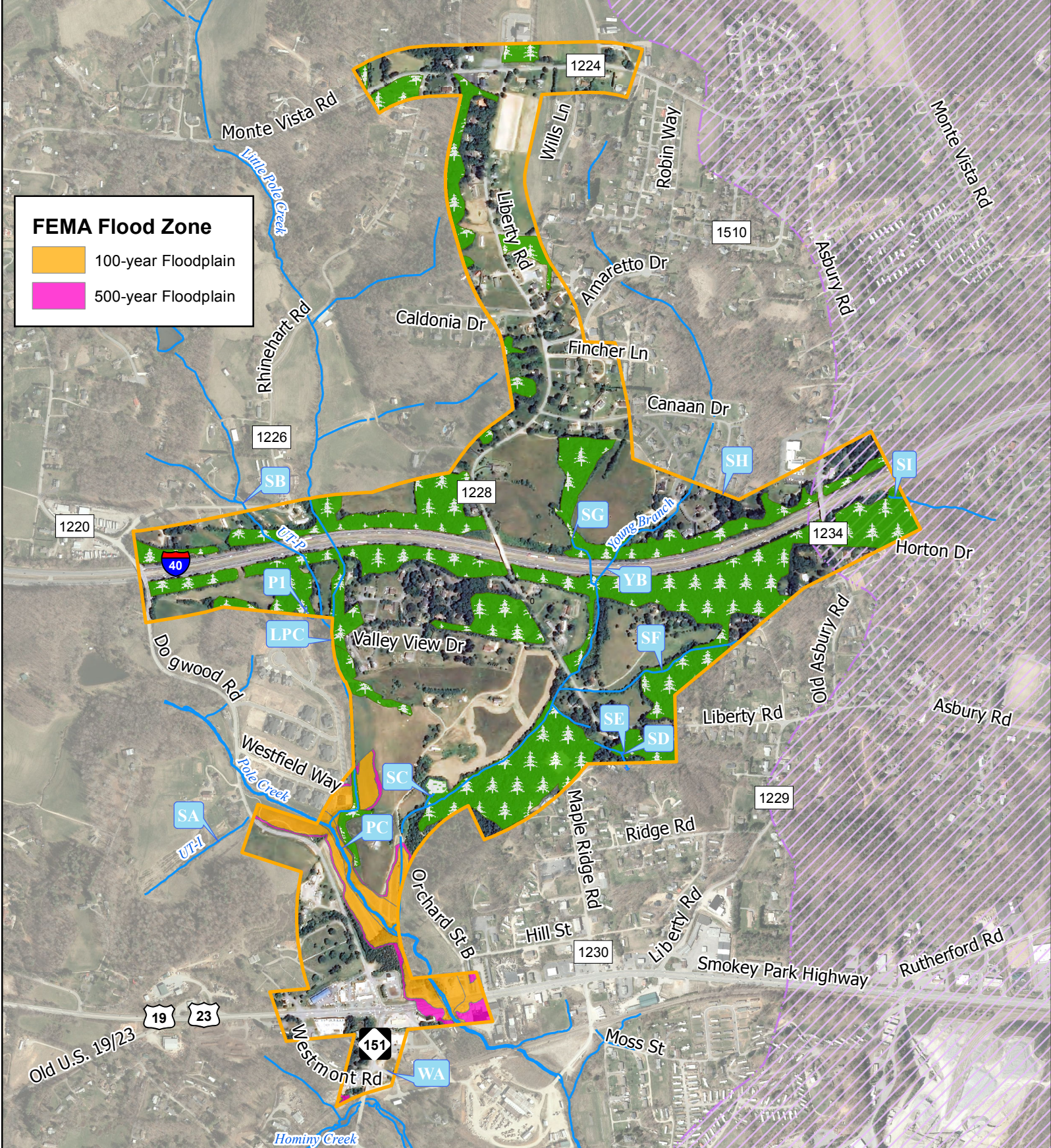
North Carolina
Department of
Transportation

STIP I-4759

Figure 6b. Typical Sections, Grade Separations

**Liberty Road I-40 Interchange,
Buncombe County**

Not to scale



Sources: NCDOT, NCFMP, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016

North Carolina Department of Transportation
 STIP I-4759

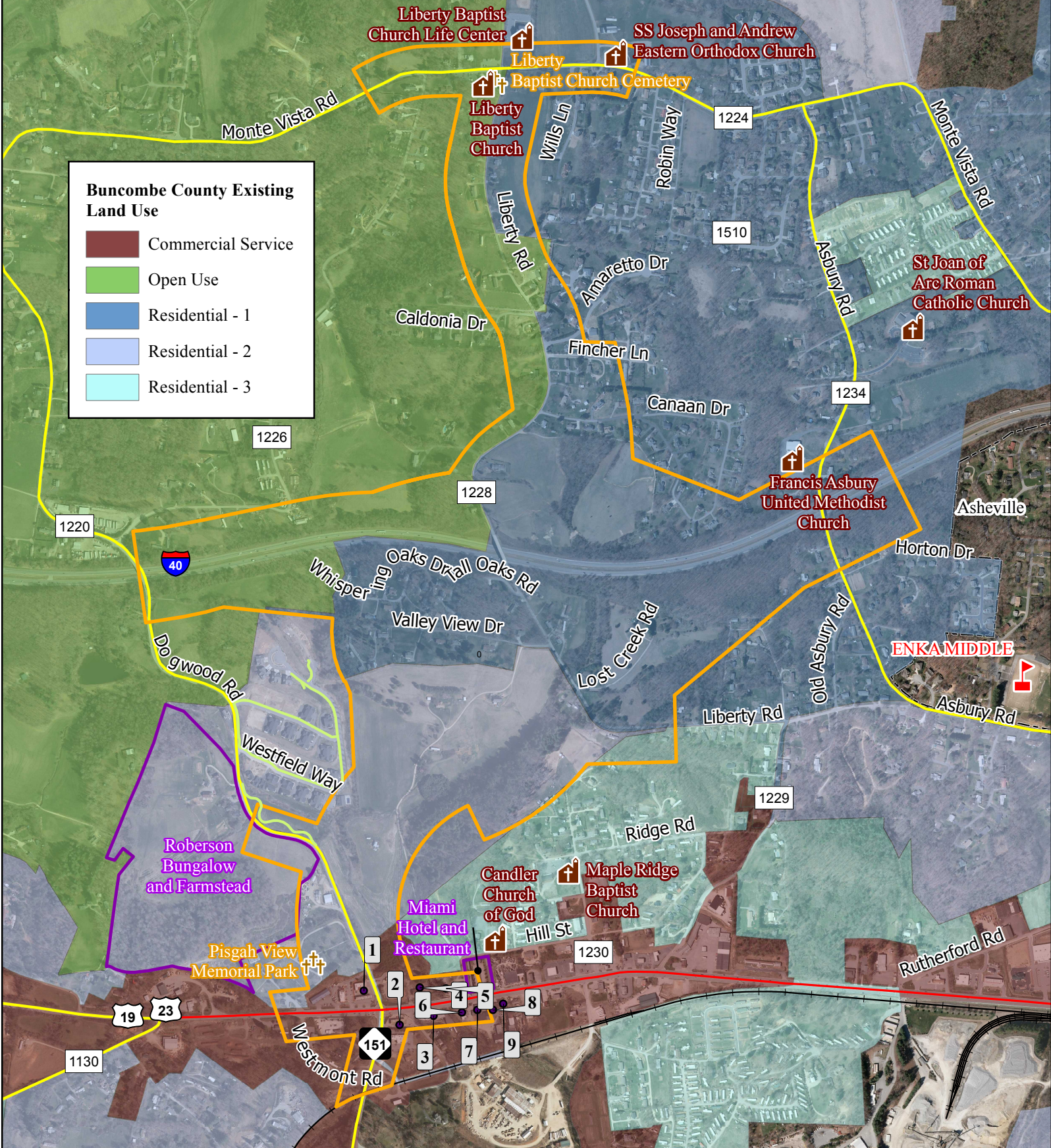
Feet
 0 500 1,000

NORTH

Project Study Area	Field Delineated Jurisdictional Stream
Mesic Mixed Hardwood Forest	Field Delineated Jurisdictional Wetland
Bamboo	Map ID (Stream / Wetland / Drainage Pond)
Targeted Local Watershed	

Figure 7.
Natural Resources

Liberty Road I-40 Interchange, Buncombe County



Sources: NCDOT, Buncombe Co. GIS, NC OneMap, HNTB. Credit: HNTB North Carolina PC 2016

North Carolina Department of Transportation
STIP I-4759

Feet
 0 500 1,000

NORTH

Project Study Area	Historic Resource	Bicycle Suitability Level 1
School	Map ID (Hazardous Waste Site)	Bicycle Suitability Level 2
Church	Municipal Boundary	Bicycle Suitability Level 3
Cemetery	Multi-use Path	Bicycle Suitability Level 4

Figure 8.
Human Environment

Liberty Road I-40 Interchange, Buncombe County

APPENDICES

Appendix	Content
Appendix A1	Federal Project Correspondence
Appendix A2	State Project Correspondence
Appendix A3	Local Project Correspondence
Appendix B	NEPA/Section 404 Merger Team Concurrence Forms
Appendix C	Traffic Forecast and Traffic Analysis
Appendix D	NCDOT Cost Estimates
Appendix E	NCDOT Relocation Report
Appendix F*	Public Involvement
Note: * Sign-in sheets containing private citizen's contact information are excluded.	

APPENDIX A
PROJECT CORRESPONDENCE

APPENDIX A1
FEDERAL PROJECT CORRESPONDENCE

From: [Adam Archual](mailto:Adam_Archual)
To: [Adam Archual](mailto:Adam_Archual)
Subject: RE: I-4759 Virginia spiraea and NLEB
Date: Wednesday, September 21, 2016 11:46:22 AM

From: Marella_Buncick@fws.gov [mailto:Marella_Buncick@fws.gov]
Sent: Tuesday, June 29, 2010 8:51 AM
To: Dilday, Jason L <jldilday@ncdot.gov>
Subject: Re: I-4759 Virginia spiraea

Hi Jason,

If you all have surveyed and didn't find anything, it's probably not there. It's your call. Consider the survey information and potential impacts from the project. If you have any other questions, let me know.

marella

marella buncick
USFWS
160 Zillicoa St.
Asheville, NC 28801
828-258-3939 ext 237

Hope is the thing with feathers that perches in the soul and sings the tune, without the words, and never stops at all. Dickinson

"Dilday, Jason L" <jldilday@ncdot.gov>

06/24/2010 10:06 AM

To "marella_buncick@fws.gov" <marella_buncick@fws.gov>

cc

Subject I-4759 Virginia spiraea

Marella,

I wanted to ask your thoughts on Virginia spiraea for project TIP I-4759. I-4759 is the conversion of the grade separation at Liberty Road (SR 1228) in Buncombe County to an interchange. This project will impact to some extent Pole Creek, Little Pole Creek and Young Branch. NHP has historical documentation of Virginia spiraea occurring along all three of these systems, but it was last seen in 1919 and thought to be destroyed. We did a survey along these streams on June 16th and found none. Do we still need to send a letter requesting informal concurrence for the project?

Jason

Jason Dilday
Environmental Specialist
North Carolina Department of Transportation
Natural Environment Unit
(W) 919-431-6693
(F) 919-431-2002

**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT**

Action Id. SAW-2010-1018

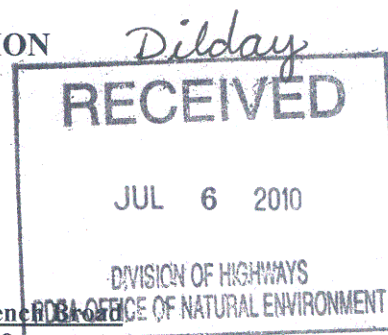
County: Buncombe

U.S.G.S. Quad: Enka

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: NCDOT, Natural Environment Unit, Attn: Jason Dilday
Address: 1598 Mail Service Center
Raleigh, NC 27699-1598
Telephone No.: 919-431-6693

Property description:
Size (acres) Approximately 310 acres Nearest Town Asheville
Nearest Waterway Young Branch, Little Pole Creek, Pole Creek, UT's River Basin French Broad
USGS HUC 06010105 Coordinates 35.5540/-82.6808



Location description The approximate 310 acre project study area surrounding the proposed I-40 interchange at Liberty Road in Asheville, Buncombe County, NC (TIP I-4759).

Indicate Which of the Following Apply:

A. Preliminary Determination

- Based on preliminary information, there may be waters and wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

- There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

There are waters and wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- We strongly suggest you have the waters and wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

- The waters and wetlands on your property have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

The waters of the United States have been delineated and are accurately depicted on the submitted June 2010 Jurisdictional Features Map. All such waters were field verified by COE personnel on June 17, 2010. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

Action ID: SAW-2010-1018

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **David Baker** at **828-271-7980, extension 225**.

C. Basis For Determination

The Project Study Area contains stream channels located on the property that exhibit indicators of ordinary high water marks. Young Branch, Little Pole Creek, Pole Creek, and the UT's flow into the French Broad River which is a navigable-in-fact waterway (TNW).

D. Remarks

E. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

Attached to this verification is an approved jurisdictional determination. If you are not in agreement with that approved jurisdictional determination, you can make an administrative appeal under 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Program
Attn: David Baker, Project Manager
151 Patton Avenue, Room 208
Asheville, North Carolina 28801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by October 26, 2008.

****It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.****

Corps Regulatory Official: David Baker 

Issue Date: **July 1, 2010**

Expiration Date: **July 1, 2015**

SURVEY PLATS, FIELD SKETCH, WETLAND DELINEATION FORMS, PROJECT PLANS, ETC., MUST BE ATTACHED TO THE FILE COPY OF THIS FORM, IF REQUIRED OR AVAILABLE.



Natural Resources
Conservation Service

August 26, 2016

North Carolina
State Office

4407 Bland Road
Suite 117
Raleigh, NC 27609
Voice 919-873-2171
Fax (844) 325-2156

Ms. Kat Bukowy, AICP
Transportation Planner
HNTB North Carolina, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, NC 27609

Dear Ms. Bukowy:

Thank you for your letter dated August 5, 2016, Subject: Request for Comments – NCDOT STIP Project I-4759. The project proposes to create an interchange at Liberty Road and I-40 and will also require some improvements to Liberty Road. The following guidance is provided for your information.

Projects are subject to the Farmland Protection Policy Act (FPPA) requirements if they may irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by a federal agency or with assistance from a federal agency. Farmland means prime or unique farmlands as defined in section 1540(c)(1) of the FPPA or farmland that is determined by the appropriate state or unit of local government agency or agencies with concurrence of the Secretary of Agriculture to be farmland of statewide local importance.

For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forestland, pastureland, cropland, or other land, but not water or urban built-up land.

Farmland does not include land already in or committed to urban development or water storage. Farmland *already in* urban development or water storage includes all such land with a density of 30 structures per 40-acre area. Farmland already in urban development also includes lands identified as *urbanized area* (UA) on the Census Bureau Map, or as urban area mapped with a *tint overprint* on the United States Geological Survey (USGS) topographical maps, or as *urban-built-up* on the United States Department of Agriculture (USDA) Important Farmland Maps.

Approximately 0.14 acres is outside of the UA, at the intersection of Liberty Road and Monte Vista Road, and is considered 'Prime Farmland soils'. However, the area belongs to a portion of a land that may be considered as "Urbanized," since it is part of the property that house the building of a Church.

The Natural Resources Conservation Service
is an agency of the Department of Agriculture's
Natural Resources mission.

An Equal Opportunity Provider and Employer

Ms. Kat Bukowy, AICP

Page 2

The area in question meets one or more of the above criteria for Non-Farmland. No farmland area will be affected or converted. You are exempt from filling the AD1006 at this time. Use this letter as proof of exemption.

If you have any questions, please contact Milton Cortes, Assistant State Soil Scientist at 919-873-2171 or by email: milton.cortes@nc.usda.gov.

Again, thank you for inquiry. If we can be of further assistance, please do not hesitate to contact us.

Sincerely,

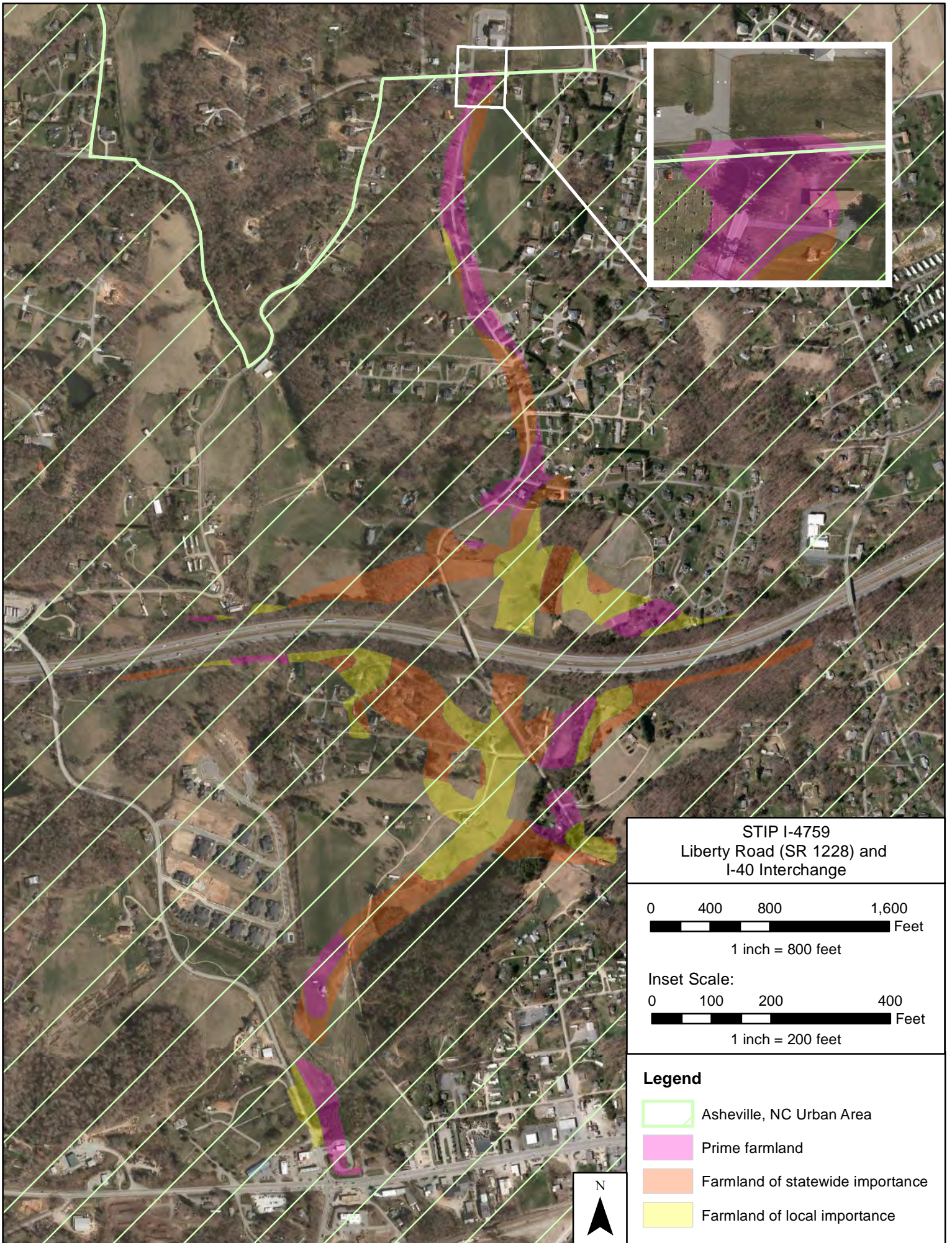
MILTON
CORTES

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DN: cn=US, o=U.S. Government, ou=Department
of Agriculture, cn=MILTON CORTES,
0.9.2342.19200300.100.1.1=12001000080173
Date: 2016.08.26 14:55:49 -0400

Milton Cortes
Assistant State Soil Scientist

cc:

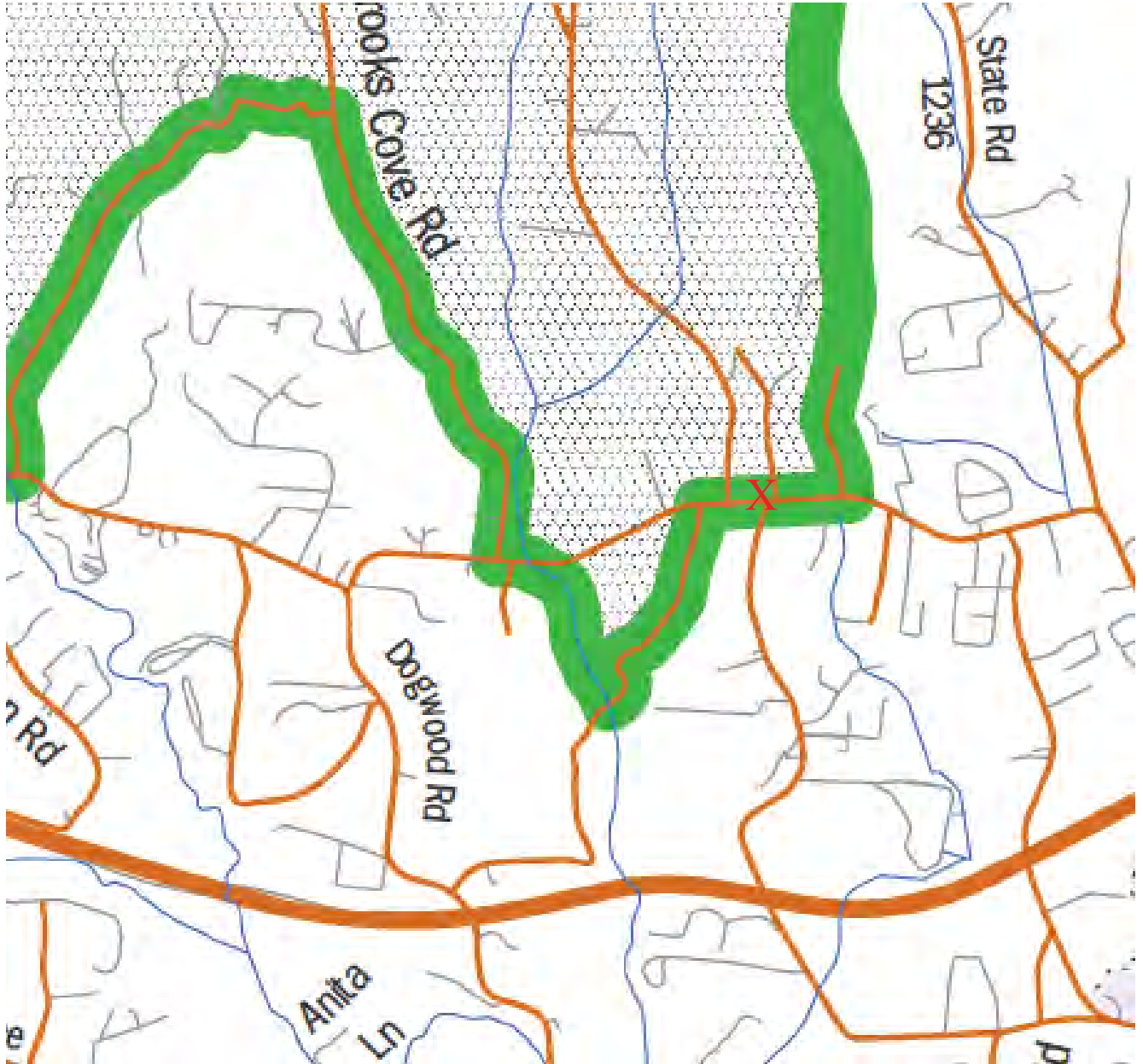
Kent Clary, State Soil Scientist, NRCS, Raleigh, NC



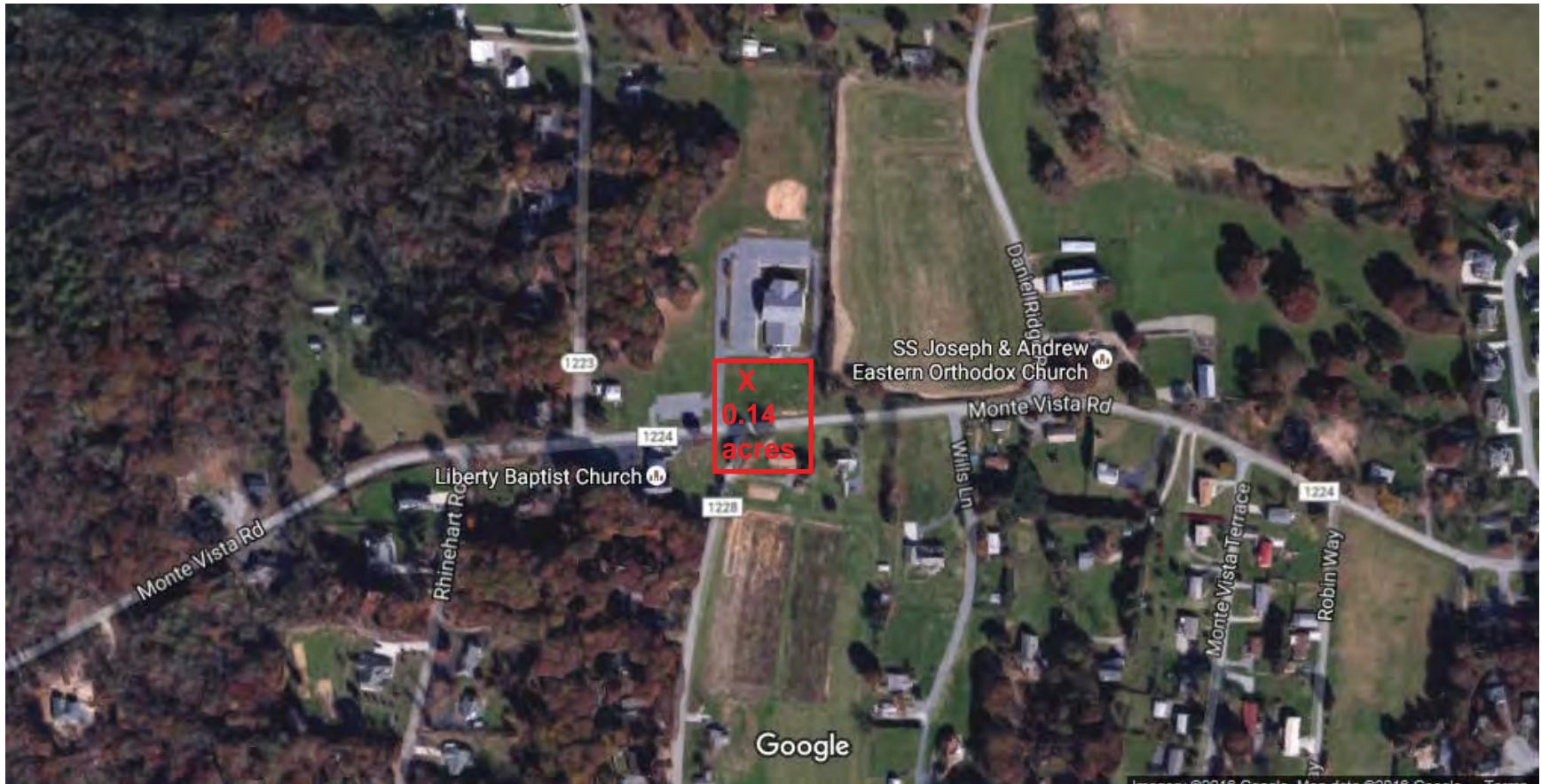
NCDOT STIP Project I-4759 (X)

Project Location Review, Asheville, NC August 26, 2016

Reference: 2010 Census Bureau Map
<https://www.census.gov/geo/maps-data/>
USDA NRCS. State Office, Raleigh, NC
Milton Cortes, Assistant State Soil Scientist



NCDOT STIP Project I-4759 (X)
Project Location Review Request, City Asheville, NC
USDA NRCS, State Office, Raleigh, NC
Milton Cortes, Assistant State Soil Scientist
August 26, 2016



APPENDIX A2
STATE PROJECT CORRESPONDENCE



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPET
SECRETARY

April 7, 2008

District Chief
Geological Survey
3916 Sunset Ridge Road
Raleigh, NC 27607

Dear District Chief,

SUBJECT: Start of Study for the Proposed Conversion of I-40/SR 1228 (Liberty Road) grade separation to an interchange and construction of a two-lane roadway from US 19-23/NC 151 to SR 1224, Buncombe County, Federal-Aid Project No. STP IMS-040-A(188)42, WBS 39970.1.1, TIP No. I-4759

The Project Development and Environmental Analysis Branch is starting the project development, environmental and engineering studies for the proposed project. The project is included in the Draft 2009-2015 North Carolina Transportation Improvement Program and is scheduled for right of way in fiscal year 2013 and construction in fiscal year 2015.

Attached for your review and comments are the scoping information sheets for the proposed project. We would appreciate any information you might have that would be helpful in evaluating potential environmental impacts of the project. If applicable, please identify any permits or approvals that may be required by your agency. A scoping meeting will be scheduled with NCDOT staff to discuss the proposed project in more detail. In order to include your comments in our materials for this meeting, we would appreciate your response by July 14, 2008. If you would like to attend the scoping meeting, please notify the project engineer.

It is anticipated that a federally funded Environmental Assessment will be prepared for this project. This document will be prepared in accordance with the National Environmental Policy Act.

If you have any questions concerning the project, please contact Ryan L. White, Project Planning Engineer, of this branch at (919) 733-7844, extension 245.

Sincerely,

Greg J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch

GJT/plr

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

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

REC
Environ
Apr 11 2008
Construction
Development and
Environmental Analysis Branch
William G. Ross Jr., Secretary

April 9, 2008

MEMORANDUM

TO: Gregory J. Thorpe, DOT Project Development and Environmental Analysis

FROM: ^{HL} Harry LeGrand, Natural Heritage Program

SUBJECT: Proposed Conversion of the I-40/SR 1228 (Liberty Road) Grade Separation to an Interchange and Construction of a Two-lane Roadway from US 19-23/NC 151 to SR 1224; Buncombe County

REFERENCE: Federal Aid Project No. STP IMS-040-A(188)42, WBS 39970.1.1.1, TIP No. I-4759

The Natural Heritage Program has no current record of rare species, significant natural communities, significant natural heritage areas, or conservation/managed areas at the site nor within a mile of the project area. We have a record from 1919 of the Federally Endangered Virginia spiraea (*Spiraea virginiana*) "In low ground near Chandler [sic] on road to Pisgah Mt.". However, searches in 1988 along several of the creeks in the Candler area failed to find the species, and this species is considered to be of historical occurrence in Buncombe County.

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.



May 5, 2008

MEMORANDUM

TO: Melba McGee, Environmental Coordinator, Office of Legislative and Intergovernmental Affairs

FROM: Brian Wrenn, Transportation Permitting Unit, NC Division of Water Quality *BW*

SUBJECT: Scoping Review of NCDOT's Proposed Conversion of the I-40/SR 1228 Grade Separation to an Interchange and Construction of a Two-lane Roadway from US 19-23/NC 151 to SR 1224, Buncombe County, Federal Aid Project No. STP IMS-040-A(188)42, WBS 39970.1.1, TIP Project No. I-4759, State Clearinghouse No. 08-0302.

In reply to your correspondence dated April 4, 2008 in which you requested comments for the above referenced projects, the NC Division of Water Quality offers the following comments:

Project-Specific Comments

1. The three named streams (Young Branch 6-76-6-3; Little Pole Creek 6-76-6-2; Pole Creek 6-76-6) in the project study area are class C waters of the State. NCDWQ has no specific comments regarding these streams.

General Comments

1. The environmental document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H.0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.
2. Environmental assessment alternatives should consider design criteria that reduce the impacts to streams and wetlands from storm water runoff. These alternatives should include road designs that allow for treatment of the storm water runoff through best management practices as detailed in the most recent version of NC DWQ *Stormwater Best Management Practices*, such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.
3. After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, the NCDOT is respectfully reminded that they will need to demonstrate the avoidance and minimization of impacts to wetlands (and streams) to the maximum extent practical. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 1 acre to wetlands. In the event that mitigation is required, the mitigation plan should be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as wetland mitigation.

4. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation is required, the mitigation plan should be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as stream mitigation.
5. DWQ is very concerned with sediment and erosion impacts that could result from this project. NC DOT should address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.
6. An analysis of cumulative and secondary impacts anticipated as a result of this project is required. The type and detail of analysis should conform to the NC Division of Water Quality Policy on the assessment of secondary and cumulative impacts dated April 10, 2004.
7. NC DOT is respectfully reminded that all impacts, including but not limited to, bridging, fill, excavation and clearing, to jurisdictional wetlands, streams, and riparian buffers need to be included in the final impact calculations. These impacts, in addition to any construction impacts, temporary or otherwise, also need to be included as part of the 401 Water Quality Certification Application.
8. Where streams must be crossed, the DWQ prefers bridges be used in lieu of culverts. However, we realize that economic considerations often require the use of culverts. Please be advised that culverts should be countersunk to allow unimpeded passage by fish and other aquatic organisms. Moreover, in areas where high quality wetlands or streams are impacted, a bridge may prove preferable. When applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.
9. Sediment and erosion control measures shall not be placed in wetlands or streams.
10. Borrow/waste areas shall avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas will need to be presented in the 401 Water Quality Certification and could precipitate compensatory mitigation.
11. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater shall not be permitted to discharge directly into streams or surface waters.
12. Whenever possible, the DWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allow for human and wildlife passage beneath the structure, do not block fish passage and do not block navigation by canoeists and boaters.
13. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of NC DWQ *Stormwater Best Management Practices*.
14. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
15. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.

16. Placement of culverts and other structures in waters, streams, and wetlands shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by DWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NC DWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
17. If multiple pipes or barrels are required, they should be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
18. If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 3494/Nationwide Permit No. 6 for Survey Activities.
19. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250. .
20. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.
21. While the use of National Wetland Inventory (NWI) maps, NC Coastal Region Evaluation of Wetland Significance (NC-CREWS) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.
22. Heavy equipment shall be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
23. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures shall be properly designed, sized and installed.
24. Riparian vegetation (native trees and shrubs) shall be preserved to the maximum extent possible. Riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Brian Wrenn at 919-733-5715.

cc: Dave Baker, US Army Corps of Engineers, Asheville Field Office
Clarence Coleman, Federal Highway Administration
Roger Bryan, Division 13 Environmental Officer
Chris Militscher, Environmental Protection Agency
Marla Chambers, NC Wildlife Resources Commission
Mike Parker, DWQ Asheville Regional Office
File Copy



☒ North Carolina Wildlife Resources Commission ☒

TO: Melba McGee, Environmental Coordinator
Office of Legislative and Intergovernmental Affairs, DENR

FROM: Marla Chambers, Western NCDOT Permit Coordinator *Marla Chambers*
Habitat Conservation Program, NCWRC

DATE: May 7, 2008

SUBJECT: Scoping review of NCDOT's proposed project to convert existing I-40/SR 1228 (Liberty Road) grade separation to an interchange and construct a two-lane road from US 19-23/NC 151 to SR 1224 (Monte Vista Road), Buncombe County. TIP No. I-4759. OLIA Project No. 08-0302, due 5/7/2008.

North Carolina Department of Transportation (NCDOT) is requesting comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources resulting from the subject project. Staff biologists have reviewed the scoping sheets and information provided and have the following preliminary comments. These comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The NCDOT proposes to convert existing I-40/SR 1228 (Liberty Road) grade separation to an interchange and construct a two-lane road from US 19-23/NC 151 to SR 1224 (Monte Vista Road). The project crosses Pole Creek and parallels Young Creek south of I-40, both classified as "C" waters by the NC Division of Water Quality (NCDWQ), and flow to Hominy Creek not far downstream. Hominy Creek is on the state's 303(d) list of impaired waters. The proposed interchange is located to the west of the existing grade separation, placing Young Creek in the center of the interchange. Liberty Road will cross Young Creek at a new location and will 'T' into the new location roadway south of I-40. The project will relocate existing Liberty Road in the vicinity of the interchange and follow the existing roadway in the northern portion of the project area. Impacts to these waterways and any wetlands should be minimized to the extent practicable. The new location portion should maintain a considerable distance from Young Creek to reduce impacts from the roadway construction and runoff and from potential future utilities construction. Stringent sedimentation and erosion control measures should be employed and well maintained to avoid further degradation of downstream water quality.

We are also concerned about secondary and cumulative impacts from this project, which is located in a rapidly growing area. These potential impacts should be well analyzed and NCDOT should work with local authorities to minimize secondary and cumulative impacts through access control, growth and stormwater management, and other efforts. Measures to mitigate secondary and cumulative impacts can be found in the Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality (NCWRC 2002). Information on Low Impact Development practices and measures can be found at www.lowimpactdevelopment.org, <http://www.epa.gov/owow/nps/lid/lidnatl.pdf> and <http://www.stormwatercenter.net/>.

In addition, to help facilitate document preparation and the review process, our general information needs are outlined below:

1. Description of fishery and wildlife resources within the project area, including a listing of federally or state designated threatened, endangered, or special concern species. Potential borrow areas to be used for project construction should be included in the inventories. A listing of designated plant species can be developed through consultation with the following programs:

The Natural Heritage Program
<http://www.ncnhp.org>
1601 Mail Service Center
Raleigh, N. C. 27699-1601

and,

NCDA Plant Conservation Program
P. O. Box 27647
Raleigh, N. C. 27611
(919) 733-3610

2. Description of any streams or wetlands affected by the project. If applicable, include the linear feet of stream that will be channelized or relocated.
3. Cover type maps showing wetland acreage impacted by the project. Wetland acreage should include all project-related areas that may undergo hydrologic change as a result of ditching, other drainage, or filling for project construction. Wetland identification may be accomplished through coordination with the U. S. Army Corps of Engineers (USACE). If the USACE is not consulted, the person delineating wetlands should be identified and criteria listed.
4. Cover type maps showing acreage of upland wildlife habitat impacted by the proposed project. Potential borrow sites and waste areas should be included.
5. Show the extent to which the project will result in loss, degradation, or fragmentation of wildlife habitat (wetlands or uplands).

6. Include the mitigation plan for avoiding, minimizing or compensating for direct and indirect degradation in habitat quality as well as quantitative losses.
7. Address the overall environmental effects of the project construction and quantify the contribution of this individual project to environmental degradation.
8. Provide a discussion of the probable impacts on natural resources, which will result from secondary development, facilitated by the improved road access.
9. If construction of this facility is to be coordinated with other state, municipal, or private development projects, a description of these projects should be included in the environmental document, and all project sponsors should be identified.

Thank you for the opportunity to provide input in the early planning stages of this project. If you have any questions regarding these comments, please contact me at (704) 984-1070.

cc: Brian Wrenn, NCDWQ



North Carolina
Department of Environment and
Natural Resources

Michael F. Easley, Governor
William G. Ross Jr., Secretary



North Carolina
Division of Forest Resources

Wib L. Owen, Director

May 16th, 2008

MEMORANDUM

TO: Melba McGee, Office of Legislative Affairs

FROM: Ron Myers, NC Division of Forest Resources *Ron Myers*

SUBJECT: Start of study letter for TIP Project No. I-4759, Improvements to convert existing I-40/SR 1228 grade separation to an interchange and construct a two-lane road from US 19-23/NC 151 to SR 1224, Buncombe County.

PROJECT #: 08-0302

The North Carolina Division of Forest Resources has reviewed the referenced document and offers the following comments that should be addressed in the EA concerning impacts to woodlands.

1. In order to evaluate construction impact, list, by timber type, the total forest land acreage that is planned to be removed or taken out of forest production as a result of the project. Fragmentation of woodlots into small sections can make forest management difficult and should be avoided where possible. If no impacts will occur please state so in the document.
2. Efforts should be made to avoid or minimize impact to forest resources. Areas to avoid include unique or unusual ecosystems, highly productive managed woodlands and wetlands. Additionally, efforts should be made to align corridors to minimize impacts to woodlands in the following order of priority:
 - Managed, high site index woodland
 - Productive forested woodlands
 - Managed, lower site index woodlands
 - Unique forest ecosystems
 - Unmanaged, fully stocked woodlands
 - Unmanaged, cutover woodlands
 - Urban woodlands

From Figure 2, it appears as the proposed project route will occur along existing road corridors and along pastureland with minimal impact to forestland.

3. The EA should include a summary of the potential productivity of the forest stands affected by the proposed project. Potential productivity can be quantified by the soil series, and is found in the USDA Soil Survey for the county involved.
4. The provisions the contractor will take to utilize the merchantable timber removed during construction. Emphasis should be on selling all wood products. However, if the wood products cannot be sold then efforts should be made to haul off the material or turn it into mulch with a tub grinder. This practice will minimize the need for debris burning, and the risk of escaped fires and smoke management problems to residences, highways, schools, and towns.
5. If woodland burning is needed, the contractor must comply with the laws and regulations of open burning as covered under G.S. 113-60.21 through G.S. 113-60.31. Buncombe County is classified as a non-high hazard counties, and G.S. 113-60.24 requiring a regular burning permit applies.
6. The provisions that the contractor will take to prevent erosion and damage to forestland. Trees, particularly the root system, can be permanently damaged by heavy equipment. Efforts should be made to avoid skinning of the tree trunk, compaction of the soil around the tree, adding excessive layers of fill, exposing the root system, or spilling petroleum or other substances.

We appreciate the opportunity to comment on the proposed project, and encourage the impact on our forestland be considered during the planning process.

cc: Barry New



RECEIVED
Division of Highways

NOV 05 2008

Preconstruction
Project Development and
Environmental Analysis Branch

North Carolina Department of Cultural Resources
State Historic Preservation Office
Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

October 27, 2008

MEMORANDUM

TO: Gregory J. Thorpe
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: Peter Sandbeck *PSS for Peter Sandbeck*

SUBJECT: I-40/SR1228 Grade Separation to an Interchange and US 19/23/NC 151 to SR 1224, I-4759,
Buncombe County, ER 08-0959

Thank you for your letter concerning the above project. We apologize for the delay in our response.

There is one previously recorded archaeological site within 150 meters of the project boundaries, and no known sites within the project area. However, the project area has never been systematically surveyed to determine the location or significance of archaeological resources. Based on the topographic and hydrological situation, there is a high probability for the presence of prehistoric or historic archaeological sites.

We recommend that a comprehensive survey be conducted by an experienced archaeologist to identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project. The portion of the project area that has been previously disturbed by the existing highway does not require survey; however, the areas of new ground disturbance, in particular the new two-lane road construction area, should be surveyed. Potential effects on unknown resources must be assessed prior to the initiation of construction activities.

We have determined that the project as proposed will not have an effect on any historic structures.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/807-6579. In all future communication concerning this project, please cite the above referenced tracking number.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

October 6, 2014

Mr. David L. Brown
NC Board of Transportation
9 West Walnut Street
Asheville, NC 28801

SUBJECT: STIP I-4759 – Interstate-40/SR 1228 (Liberty Road). Convert Grade Separation to Interchange and Construct Two-Lane Roadway from US 19/23-NC 151 to SR 1224 (Monte Vista Road) with Part on New Location – Buncombe County.

Dear Mr. Brown:

This is to inform you that the Project Development and Environmental Analysis Unit has re-initiated the planning and engineering studies to convert the Liberty Road grade separation to a new interchange along I-40, just west of Asheville. The proposed interchange would require improvements to the existing portions of Liberty Road as well as construction of some new location segments, between US 19/23-NC 151 to Monte Vista Road. The new roadway proposes a two-lane section north of the interchange and a four-lane boulevard section south of the interchange.

The project is included in the NCDOT's 2012-2020 State Transportation Improvement Program and is currently scheduled for right-of-way in state fiscal year 2019 and construction let in state fiscal year 2021.

Federal, state, and local agencies will be contacted for their comments regarding this project. If you have any questions or comments concerning the project, please contact Elmo Vance, Project Planning Engineer, at (919) 707-6048 or by email at eevance@ncdot.gov by **October 30, 2014**.

Sincerely,

Richard W. Hancock, PE
Project Development & Environmental Analysis
Manager

RWH/eev
Attachment (Preliminary Study Area Map)



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

October 6, 2014

Mr. David Gantt, Chair
Buncombe County Commissioners
200 College Street, Room 316
Asheville, NC 28801

SUBJECT: STIP I-4759 – Interstate-40/SR 1228 (Liberty Road). Convert Grade Separation to Interchange and Construct Two-Lane Roadway from US 19/23-NC 151 to SR 1224 (Monte Vista Road) with Part on New Location – Buncombe County.

Dear Mr. Gantt:

This is to inform you that the Project Development and Environmental Analysis Unit has re-initiated the planning and engineering studies to convert the Liberty Road grade separation to a new interchange along I-40, just west of Asheville. The proposed interchange would require improvements to the existing portions of Liberty Road as well as construction of some new location segments, between US 19/23-NC 151 to Monte Vista Road. The new roadway proposes a two-lane section north of the interchange and a four-lane boulevard section south of the interchange.

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Sincerely,

Richard W. Hancock, PE
Project Development & Environmental Analysis
Manager

RWH/eev
Attachment (Preliminary Study Area Map)



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

October 6, 2014

Mr. Paul Black, Director
French Broad River MPO
339 New Leicester Highway, Suite 140
Asheville, NC 28816

SUBJECT: STIP I-4759 – Interstate-40/SR 1228 (Liberty Road). Convert Grade Separation to Interchange and Construct Two-Lane Roadway from US 19/23-NC 151 to SR 1224 (Monte Vista Road) with Part on New Location – Buncombe County.

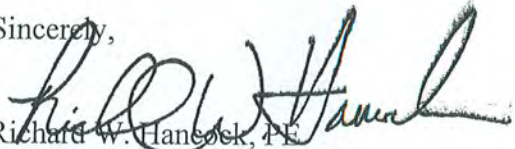
Dear Mr. Black:

This is to inform you that the Project Development and Environmental Analysis Unit has re-initiated the planning and engineering studies to convert the Liberty Road grade separation to a new interchange along I-40, just west of Asheville. The proposed interchange would require improvements to the existing portions of Liberty Road as well as construction of some new location segments, between US 19/23-NC 151 to Monte Vista Road. The new roadway proposes a two-lane section north of the interchange and a four-lane boulevard section south of the interchange.

The project is included in the NCDOT's 2012-2020 State Transportation Improvement Program and is currently scheduled for right-of-way in state fiscal year 2019 and construction let in state fiscal year 2021.

Federal, state, and local agencies will be contacted for their comments regarding this project. If you have any questions or comments concerning the project, please contact Elmo Vance, Project Planning Engineer, at (919) 707-6048 or by email at eevance@ncdot.gov by **October 30, 2014**.

Sincerely,


Richard W. Hancock, PE
Project Development & Environmental Analysis
Manager

RWH/eev
Attachment (Preliminary Study Area Map)

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



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

October 6, 2014

The Honorable Esther E. Manheimer
Mayor of Asheville
PO Box 7178
Asheville, NC 28802-7148

SUBJECT: STIP I-4759 – Interstate-40/SR 1228 (Liberty Road). Convert Grade Separation to Interchange and Construct Two-Lane Roadway from US 19/23-NC 151 to SR 1224 (Monte Vista Road) with Part on New Location – Buncombe County.

Dear Mayor Manheimer:

This is to inform you that the Project Development and Environmental Analysis Unit has re-initiated the planning and engineering studies to convert the Liberty Road grade separation to a new interchange along I-40, just west of Asheville. The proposed interchange would require improvements to the existing portions of Liberty Road as well as construction of some new location segments, between US 19/23-NC 151 to Monte Vista Road. The new roadway proposes a two-lane section north of the interchange and a four-lane boulevard section south of the interchange.

The project is included in the NCDOT's 2012-2020 State Transportation Improvement Program and is currently scheduled for right-of-way in state fiscal year 2019 and construction let in state fiscal year 2021.

Federal, state, and local agencies will be contacted for their comments regarding this project. If you have any questions or comments concerning the project, please contact Elmo Vance, Project Planning Engineer, at (919) 707-6048 or by email at eevance@ncdot.gov by **October 30, 2014**.

Sincerely,


Richard W. Hancock, P.E.
Project Development & Environmental Analysis
Manager

RWH/eev
Attachment (Preliminary Study Area Map)



PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

Detailed Study Alternatives

Project: STIP Project Number I-4759, Liberty Road I-40 Interchange, Buncombe County

Date: October 11, 2016

Purpose: Memo-to-File

Subject: Elimination of Diamond Interchange Alternative from Detailed Study

At the CP2A concurrence meeting, held May 26, 2016, the Section 404 Merger Team discussed eliminating the Diamond Interchange from detailed study in the Environmental Assessment. At that meeting it was agreed all three build alternatives, including the Diamond Interchange, would be carried through the public meeting. Should there be no compelling public sentiment to retain the Diamond Alternative the Team would reconsider its elimination.

The Open House Public Meeting was held on August 30, 2016 and comments were due September 13, 2016. A summary of the meeting and the comments received was prepared. The summary notes that compelling sentiment to retain the Diamond Alternative was not conveyed by the public. The meeting summary and a request to eliminate the Diamond Alternative were distributed to the Merger Team on September 15, 2016. All agencies indicated via email, as noted in the table low, they were in agreement to remove the Diamond Interchange Alternative from detailed study. As a result, the Detailed Study Alternatives that will be evaluated in the Environmental Assessment include the Partial Cloverleaf Interchange Alternative and the Half Cloverleaf Interchange Alternative.

Merger Team Agreement Correspondence Regarding Detailed Study Alternatives	
Merger Team Member	Date Received
Federal Highway Administration	9/23/16
U.S. Environmental Protection Agency	9/15/16
U.S. Army Corps of Engineers	9/21/16
U.S. Fish and Wildlife Service	9/23/16
N.C. Historic Preservation Office	9/15/16
N.C. Wildlife Resources Commission	9/21/16
N.C. Department of Environmental Quality – Division of Water Resources	9/23/16
French Broad River Metropolitan Planning Organization	9/21/16





**NO NATIONAL REGISTER OF HISTORIC PLACES
ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES
PRESENT FORM**



This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.

PROJECT INFORMATION

Project No: **I-4759** County: **Buncombe**
 WBS No: **39970.1.1** Document: **EA**
 F.A. No: **STPIMS-040-1(188)42** Funding: State Federal

Federal Permit Required? Yes No Permit Type: **Section 404 (anticipated)**

Project Description:

The project is for the constructions of a new interchange at I-40/SR 1228 (Liberty Road) and to realign and improve Liberty Road from the existing SR 1220 (Dogwood Road) and US 19/US 23/NC 151 (Smokey Park Hwy/Pisgah Hwy) intersection in the south to the existing Liberty Road and SR 1224 (Monte Vista Road) intersections to the north. The APE for this project is a parcel that encompasses approximately 121.32 acres (49.10 hectares) between Monte Vista Road and Smokey Park Hwy in Buncombe County. The northern and southern ends of each alternative are similar, while differences are found at the proposed interchange at I-40 and Liberty Road. The proposed new interchange would replace the existing Liberty Road overpass on I-40 with a new bridge located east of the existing structure. Alternative 1 will include construction of ramps in the each of the four quadrants at the new interchange. Alternative 2 calls for the placement of ramps in only the northwest and southeast quadrants, and Alternative 3 will have ramps in the northwest and southwest quadrants. Liberty Road would be realigned and upgraded for approximately 1.5 miles (2.14 km) between Monte Vista Road and Smokey Park Hwy. North of I-40, an approximate 0.3 mile segment of new alignment roadway is proposed to tie into the existing Liberty Road near Canaan Drive. Upgrades to the existing Liberty Road alignment will be made from the new tie-in to Monte Vista Road. A two-lane cross section is proposed north of I-40. South of I-40, an approximately 0.7 mile segment of new alignment roadway is proposed to tie into the existing Dogwood Road. Upgrades to the existing Dogwood Road alignment will be made from the tie-in to Smokey Park Hwy. A four-lane cross section is being considered south of I-40. The APE should sufficiently cover any additional areas that many be impacted by future alignment shifts.

SUMMARY OF ARCHAEOLOGICAL FINDINGS

The North Carolina Department of Transportation (NCDOT) Archaeology Group reviewed the subject project and determined:

- There are no National Register listed or eligible ARCHAEOLOGICAL SITES present within the project's area of potential effects. (Attach any notes or documents as needed)
- No subsurface archaeological investigations were required for this project.
- Subsurface investigations did not reveal the presence of any archaeological resources.
- Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
- All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

Brief description of review activities, results of review, and conclusions:

An archaeological field investigation for the I-4759 project in Buncombe County was carried out between October 17 and November 3, 2016, by AECOM in order to identify and evaluate archaeological site within the APE for the National Register. The defined APE for I-4759 encompasses approximately 121.32 acres (49.10 hectares) between Monte Vista Road and Smokey Park Highway (Figure1). The entire APE was covered during the survey.

The results of the archaeological survey are found in the attached Management Summary. A final report is forthcoming and will be included in the PA Annual report. The survey identified one archaeological site. Site 31BN1018 is a small prehistoric site represented by ceramic sherds (mostly residential) and one non-diagnostic projectile point fragment. It is thought the site is an isolated artifact discard and not a substantive occupation. The site is unlikely to yield intact deposits or provide significant information towards the region's prehistory. The site is recommended as ineligible for the National Register, and no further archaeological investigations are needed for this project.

I concur with this recommendation as the proposed I-4759 project will not impact significant archaeological resources. If the project expands and impacts subsurface areas beyond the defined APE, further archaeological consultations will be necessary.

SUPPORT DOCUMENTATION

See attached: Map(s) Previous Survey Info Photos Correspondence
Signed:



C. Damon Jones
NCDOT ARCHAEOLOGIST

11/17/16

Date



North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

November 21, 2016

MEMORANDUM

TO: Kate Husband
Office of Human Environment
NCDOT Division of Highways

FROM: Renee Gledhill-Earley *Renee Gledhill-Earley*
Environmental Review Coordinator

SUBJECT: Historic Structures Survey Report for Grade Separation at I-40/SR 1228 and Realignment of SR 1228, I-4759, Buncombe County, ER 08-0959

Thank you for your memorandum of November 14, 2016, transmitting the above-referenced report. We have reviewed the report and offer the following comments.

We concur that the following properties are eligible for listing in the National Register of Historic Places under the criterion shown and that their boundaries appear appropriate:

- Miami Motel and Restaurant (BN6287) Criterion C
- Roberson Bungalow and Farmstead (BN6291) Criteria A, B and C

We concur that the following properties are not eligible for listing in the National Register for the reasons outlined in the report.

- Liberty Baptist Church and Cemetery (BN6288)
- Liberty Baptist Church Parsonage (BN6289)
- Sluder Log House (BN6290)

We would like to note that on page 26 the property summary at the top of the page states that the property is considered eligible for the National Register. This is not consistent with the body of the text or the summary at the beginning of the document, both of which indicate that the church is not eligible.

Please, also note that the Asbury United Methodist Church at 725 Asbury Road in Candler is nearing 50 years of age. It may be that as the project progresses, the church's National Register eligibility will need to be evaluated.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr, NCDOT, mfurr@ncdot.gov

15-12-0003



HISTORIC ARCHITECTURE AND LANDSCAPES ASSESSMENT OF EFFECTS FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	I-4759	County:	Buncombe
WBS No.:	39970.1.1	Document Type:	EA
Fed. Aid No:	STPIMS-0400-1(188)42	Funding:	<input type="checkbox"/> State <input checked="" type="checkbox"/> Federal
Federal Permit(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit Type(s):	404
<u>Project Description:</u> Convert the existing grade separation at I-40/SR1228 (Liberty Road) to a new interchange and realign and improve Liberty Road from the existing Dogwood Road and US 19/US 23/NC 151 intersection to the existing Liberty Road and Monte Vista Road intersection.			

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

<u>Description of review activities, results, and conclusions:</u> Review of HPO quad maps, HPO GIS information, historic designations roster, and indexes was undertaken on December 30, 2015. A survey was required to assess structures over 50 years of age within the APE and performed in October 2016. The Miami Motel and Restaurant (BN6287) and the Roberson Bungalow and Farmstead (BN6291) were determined eligible for listing.

ASSESSMENT OF EFFECTS

Property Name:	Miami Motel and Restaurant	Status:	Determined Eligible
Survey Site No.:	BN6287	PIN:	9607-53-2667-00000
Effects <input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect			
<u>Explanation of Effects Determination:</u> The proposed work will have no effect on the property.			
<u>List of Environmental Commitments:</u>			

Property Name:	Roberson Bungalow and Farmstead	Status:	Determined Eligible
Survey Site No.:	BN6291	PIN:	9607-34-2991-00000 9607-1168-00000
Effects			
<input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect			
<u>Explanation of Effects Determination:</u>			
The proposed work will have no effect on the property.			
<u>List of Environmental Commitments:</u>			

FHWA Intends to use the State Historic Preservation Office's concurrence as a basis for a "de minimis" finding for the following properties, pursuant to Section 4(f):

SUPPORT DOCUMENTATION

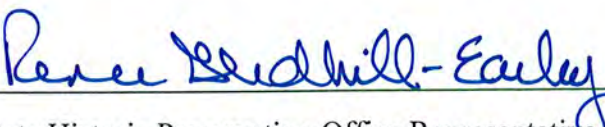
Map(s)
 Previous Survey Info.
 Photos
 Correspondence
 Design Plans

FINDING BY NCDOT AND STATE HISTORIC PRESERVATION OFFICE

Historic Architecture and Landscapes – ASSESSMENT OF EFFECTS


1/10/2017

 NCDOT Architectural Historian Date

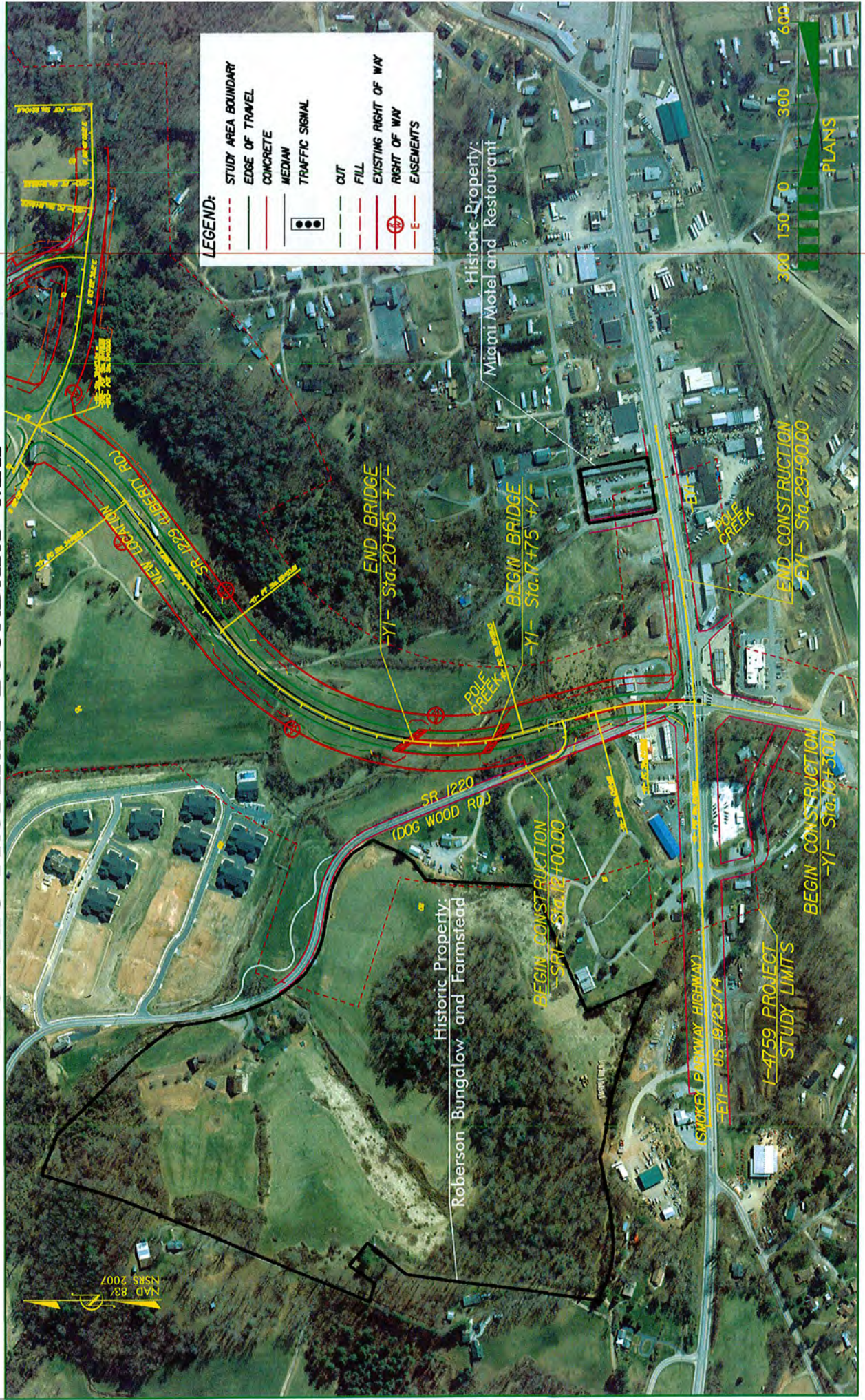

1/10/17

 State Historic Preservation Office Representative Date


1/10/17

 Federal Agency Representative Date

HISTORIC PROPERTY BOUNDARY MAP



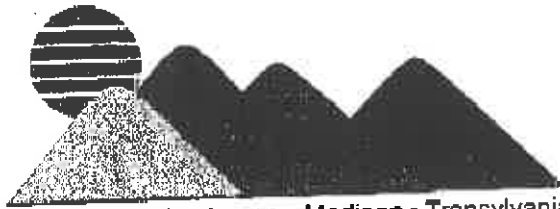
LEGEND:

	STUDY AREA BOUNDARY
	EDGE OF TRAVEL
	CONCRETE
	MEDIAN
	TRAFFIC SIGNAL
	CUT
	FILL
	EXISTING RIGHT OF WAY
	RIGHT OF WAY
	EASEMENTS

PLANS

NAD 83
NSRS 2007

APPENDIX A3
LOCAL PROJECT CORRESPONDENCE



Land-of-Sky Regional Council

Buncombe • Henderson • Madison • Transylvania Counties

Regional Clearinghouse

N. C. Intergovernmental Review Process Review and Comment Form

The Land-of-Sky Regional Council has received the attached information about a proposal which could affect your jurisdiction.

If you need more information, contact the applicant directly.

If you wish to comment on this proposed action, complete this form and return it with your comments to this office by 05/07/2008. Comments received after this date cannot be included in our response to the State Clearinghouse.

If you need additional time in order to obtain more information about the application or to formulate your comments, please call Wanda Clark at 828/251-6622 as soon as possible. An extension of the review period may be possible.

A NOTE to Reviewers - Projects with a "C" in the State Application Identifier (below) is a funding proposal review. Comments should focus on the acceptability or unacceptability of the project. Projects with an "E" in the identifier are environmental or site reviews. Comments for these projects should focus on the adequacy of the environmental document or site selection process.

If no comment is received by the above date, it will be assumed you have no comments regarding this proposal.

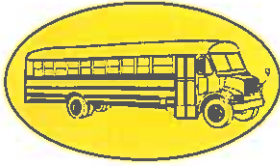
State Application Identifier # 08-E-4220-0302 Regional # 05-2008
Commenter's Name WNC Regional Air Quality Title AIR QUALITY ENGINEER
Representing (Mike Matthew) WNC Regional Air Quality Agency
(Local Government)

Address 49 Mt. Carmel Rd.
Asheville NC 28806

Phone (828) 250-6777 Date 4-23-2008

Comment (or attach): All Homes & Building Must be Thoroughly Inspected by a NC Accredited Asbestos Inspector Before Demolition Activity. Also a Permit For Each Home or Building obtained From This Office



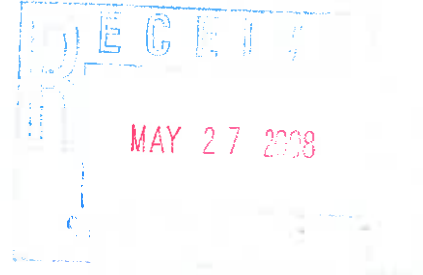


Buncombe County Public Schools

Transportation Department

74 Washington Avenue
Asheville, North Carolina 28804
Phone: (828) 232-4240 -- Fax: (828) 252-8637

May 22, 2008



Mr. Steven M. Taynton, Section Chief
School Planning
North Carolina Department of Public Instruction
6319 Mail Service Center
Raleigh, NC 27699-6319

RE: Proposal to Convert Existing I-40/SR 1228 Grade Separation to an Interchange

Dear Mr. Taynton:

I am writing in response to your letter dated April 21, 2008, to Mr. Cliff Dodson, Superintendent, Buncombe County Schools, regarding a proposal to convert the existing I-40/SR 1228 (Liberty Road) grade separation to an interchange, and construct a two-lane road from US 19-23/NC 151 to SR 1224 (Monte Vista Road) within Buncombe County. In your letter you asked our school system to review the proposal, and to indicate if the proposal will have any adverse impact on an existing or proposed school site, or our school bus routes.

I have reviewed the proposed project with Mr. Tim Fierle, Director of Facilities, Buncombe County Schools. Enka Middle School is located on SR 1234 (Asbury Road) approximately one mile from the proposed interchange. Mr. Fierle and I do not see this improvement causing any adverse impact to a proposed or existing school site.

However, after consulting with Dr. Pam Fourtenbary, Principal, Enka Middle School, she has expressed concern regarding this project, and the anticipated increase in parent traffic to reach the new interchange on SR 1234 (Asbury Road) turning left onto SR 1229 (Liberty Road) and the limited sighted distance at this intersection. Also, there is limited sight distance to the left for motorists who are traveling east on SR 1228 (Liberty Road) and are stopped at the stop sign on SR 1228 (Liberty Road) with its intersection to SR 1229 (Liberty Road). Via this letter, the Buncombe County Schools' Transportation Department is asking that these two intersections be evaluate in regards to the proposed project.

In reference to your question concerning school bus routes, four school buses currently travel on SR 1228 (Liberty Road) twice each school day in Buncombe County and serve three schools. Also, eleven school buses currently travel on SR 1229 (Liberty Road) as part of their route from Enka Middle School, or in transit to provide service to other schools within the Enka District. It is imperative that during the project that SR 1228 (Liberty Road) remain open to prevent the delay of bus routes. Via this letter, the Buncombe County Schools' Transportation Department is asking to be contacted regarding any additional project information that may affect bus routes.

Mr. Steven M. Taynton
May 22, 2008
Page 2

Your assistance in transferring this information to the North Carolina Department of Transportation is appreciated. If you need additional information, please contact me at the address or telephone number listed on page 1.

Sincerely,

A handwritten signature in black ink, appearing to read 'H. F. Laflin', written in a cursive style.

Harold F. Laflin
Director of Transportation

pc: Tony Baldwin, Ed.D.
Mr. Cliff Dodson
Mr. Tim Fierle
Dr. Pam Fourtenbary

From: [Vicki Jennings](#)
To: [Adam Archual](#)
Subject: RE: Mountain Mobility
Date: Tuesday, January 26, 2016 12:30:04 PM
Attachments: [image006.png](#)
[image009.png](#)
[image011.png](#)
[75033_2015EnkaCandler3R-WEB.pdf](#)

Hi Adam,

Greetings from snowy Asheville! We are still recovering from the effects of more than a foot of snow in some places – I think last week’s storm ranks #3 in the amount of snow dumped on us since snowfall totals have been kept!

The CTSP has been completed, and while it is too large to send or download, you can request a full copy by contacting the county offices at 828.250.4830. However, you can read the Executive Summary and the CTSP Overview by following the link below and scrolling down to the bottom of the page and clicking on the links at the bottom of the page.

<http://www.buncombecounty.org/Governing/Depts/Transportation/Began.aspx>

The project you mentioned in your email will affect our Enka-Candler Trailblazer Routes to the West end of the County. I’ve attached a pdf of that brochure showing those routes. There has not been much discussion of extended service to this area of the county with the CTSP except to mention that we would like to increase ridership on the Trailblazers overall and to possibly enhance coordination of existing services with neighboring counties. In a separate effort, Land of Sky is seeking to hire a Transportation Demand Manager to work regionally with our neighboring counties, and Haywood is high on the priority list, but Mountain Mobility is separate from the efforts of Land of Sky to seek to expand services in the western region.

I hope this information helps. Let me know if you have further questions.

Best,
Vicki

[Vicki Jennings](#)
Transit Program Manager
339 New Leicester Hwy., Suite 140 • Asheville, NC 28806
o: 828.251.6622 • f: 828.251.6353



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APPENDIX B
NEPA/SECTION 404 MERGER TEAM CONCURRENCE FORMS



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 17, 2009

MEMORANDUM

TO: File

FROM: Elmo E. Vance, Jr.
Project Planning Engineer
Project Development & Environmental Analysis

SUBJECT: **T.I.P Project 1-4759**
Draft Pre-Merger Meeting Minutes
Convert 1-40 /SR 1228 (Liberty Road) to an interchange and
construct a new 2-1 lane road with portions on new location,
Buncombe County, **WBS Number 39970.1.1**

Meeting Summary

A Merger Screening meeting was held on Tuesday, June 9, 2009 in PDEA Conference Room 470, located in the Highway Building, to discuss whether the project should follow the Merger process. Those in attendance included:

Jimmy Goodnight	Roadway Design
Steve Kendall	Roadway Design
John Conforti	PDEA
Elmo Vance	PDEA
Donnie Brew	FHW A
Bill Barrett	PDEA-NEU
David Baker	ACOE
Brian Wrenn	DWQ
Ricky Tipton*	Division 13
Marla Chambers**	NCWRC

*Participated via phone conference

**Participated via webinar

The meeting was initiated by Elmo Vance who provided background information about the project and the purpose of the meeting. The following items were the major items discussed:

Potential impacts?

- Stream located within the bulb of the interchange
- Secondary cumulative impacts due to new location construction
- Hominy Creek (south of interchange area)

NCWRC

Why was Liberty Road chosen for the interchange out of the three nearby grade separations?

- PDEA and Division provided the following response:
 - Dogwood Road separation is in close proximity to weigh station ramps
 - Asbury Road separation is a more well-developed area
 - The existing Liberty Road overpass will be removed and the road will be tapered on each side of the bridge.

Roadway

Is there potential for a half-clover interchange towards the west side?

- PDEA and Division provided the following response:
 - Impacts to the housing would increase and more left turns would be present
 - Division indicated that this configuration is possible

DWQ

What is the location of the Hellbender salamander in the project area?

- NCWRC stated the following in reference to the Hellbender:
 - The last sighting of the species was in the vicinity of Hominy Creek
 - No samples were taken for other creeks within the proposed project study area
 - 1997 was last recorded observation of the Hellbender
- NCWRC also stated that Virginia spirea is widespread throughout the entire proposed study project area

ACOE/DWQ

- A jurisdiction stream is present within the proposed project area.
- A large watershed area is present for one of the creeks within the proposed project area.

Summary:

- Project will remain in full merger for the time being.
- Once more detailed information is known, may be able to discuss moving into a 2A/4A scenario.
- Natural Resources Technical Report (NRTR) and Indirect and Cumulative Impacts Report (ICI) will be requested immediately in the interests of time.
- Roadway will begin looking at various interchange configurations.

Cc: attendees



Liberty Road at I-40:

New Interchange and Roadway Realignment

Buncombe County
STIP Project No. I-4759



FINAL MEETING SUMMARY

Date: October 14, 2015, 12:30 p.m.

Place: Structure Design Conference Room, Century Center Building A

Purpose: Agency Scoping and Concurrence Point Number 1

Attendees:

Name	Organization	Email Address
Mitch Batuzich	FHWA	Michael.batuzich@dot.gov
Lori Beckwith*	USACE	Loretta.a.beckwith@saw02.usace.army.mil
Monte Matthews	USACE	Monte.matthews@usace.army.mil
Cynthia Van Der Wiele	USEPA	Vanderwiele.cynthia@epa.gov
Marla Chambers	NCWRC	Marla.chambers@ncwildlife.org
Renee Gledhill-Earley*	SHPO	Renee.gledhill-early@ncdcr.gov
Lyuba Zuyeva*	FBRMPO	lyuba@landofsky.org
Vicki Eastland*	FBRMPO	vicki.eastland@landofsky.org
Tristan Winkler*	FBRMPO	tristan@landofsky.org
Eric Midkiff	NCDOT – PDEA	emidkiff@ncdot.gov
Derrick Weaver	NCDOT – PDEA	dweaver@ncdot.gov
Ahmad Al-Sharawneh	NCDOT – PDEA	aalsharawneh@ncdot.gov
Josh Krehnbrink	NCDOT – PDEA	jlkrehnbrink@ncdot.gov
Ricky Tipton*	NCDOT – Division 13	rtipton@ncdot.gov
Kristina Solberg	NCDOT – Division 13	klsolberg@ncdot.gov
Mark Staley	NCDOT – REU	mstaley@ncdot.gov
Jim Dunlop	NCDOT – CM	jdunlop@ncdot.gov
Elise Groundwater	NCDOT – CM	ekgroundwater@ncdot.gov
Tris Ford	NCDOT – HES	tbford@ncdot.gov
Erin Cheely	NCDOT – NES	ekcheely@ncdot.gov
Carla Dagnino	NCDOT – NES	cdagnino@ncdot.gov
Brendan Merithew	NCDOT – TPB	bwmerrithew@ncdot.gov
Pam Cook	NCDOT – TPB	prcook@ncdot.gov
Steve Kendall	NCDOT – RDU	skendall@ncdot.gov
Wael Arafat	NCDOT – Structures	warafat@ncdot.gov
Kirby Pendergraft	NCDOT – Hydraulics	kcpendergraft@ncdot.gov
William Zerman	NCDOT – Hydraulics	bzerman@ncdot.gov
Van Argabright*	NCDOT – TIP	vargabright@ncdot.gov
Kiersten Bass	HNTB	kbass@hntb.com
Bradley Reynolds	HNTB	breynolds@hntb.com
Adam Archual	HNTB	aarchual@hntb.com

*Present via telephone

Summary: After introductions, HNTB conducted a presentation that included the following: 1) purpose of the meeting; 2) project review; 3) project scoping; and 4) Concurrence Point 1. Please see meeting agenda and presentation for details. The following summarizes the main topics discussed regarding agency scoping and CP1:

Agency Scoping: HNTB presented a summary of the potential environmental impacts in the study area and requested that NCDOT's agency partners provide input regarding the data provided and identify issues that should be addressed in the NEPA documentation for the project. The following bullets provide a summary of the main discussion points related to Agency Scoping.

- NCDOT REU noted prior to meeting that Hominy Creek south of the study area is not listed in the updated 303d List, but that a small unnamed tributary northwest of the study area is present.
- USACE noted that the Jurisdictional Determination expired in 2015 noting that a field visit will be scheduled and some of the stream designations (i.e., perennial, intermittent) may change.
- SHPO stated that it is very likely a Historic Resources Survey will be required for structures.
- FBRMPO requested that the most recent, updated traffic forecast be referenced to determine whether the proposed 4-lane section south of I-40 is appropriate.
- NCWRC noted the proposed alignment's proximity to Young Branch. NCDOT stated they were aware of this conflict and design will progress to minimize impacts to jurisdictional streams.

Concurrence Point 1 (CP1): The meeting attendees were reminded of the Merger Screening meeting held in 2009. It was noted that the result of the former meeting was a recommendation for the project to remain in full Merger until more information was available. With the information now available, NCDOT is proceeding with the project in full Merger.

HNTB presented the project purpose and need, introduced the measures of effectiveness that will be utilized in the development of the project (i.e., network mobility, quantity of travel, and quality of travel), and presented a matrix that summarized the analysis of the No Build, Build–Upgrade Existing, and Build–Convert Grade Separation. The following bullets provide a summary of the main discussion points related to CP1:

- FHWA stated that an Interstate Access Request (IAR) will be completed for the project. The IAR will address, among other topics, the proposed projects effects to I-40 and a full analysis and justification that the project need cannot be addressed through improvements to the existing local roadways. The analysis presented in the IAR will be included in the environmental document (i.e., EA). FHWA noted that the IAR cannot be signed until the NEPA document is signed. The IAR is a public document and can be made available upon request. FHWA states there is no known risk that the IAR would change the scope of the proposed project.
- NCWRC wondered whether alternative development would be limited by the study area. In response it was noted that the previous feasibility studies and the preliminary planning process for the project established the proposed placement of the interchange. Other overpasses in the immediate project vicinity (i.e., Dogwood Road), have been scrutinized but ultimately determined not viable. NCDOT Division 13 noted the importance of the proposed connection to NC 151, which functions as an important and well-traveled roadway with connections to several residential areas and the Blue Ridge Parkway. NCDOT also stated that the study area could be extended to accommodate alternative development, as needed.
- NCDOT CM stated that the project alternatives that will be developed will include various interchange configurations.
- USEPA inquired about bicycle routes in the study area and the potential for accommodations in the project.¹ Through discussion it was determined that the bicycle routes noted in the presentation (1 State Route and 3 Local Routes) were in error. There are no signed routes through the study area. This information will be confirmed and corrected in the project material (*see Action Items result*). NCDOT RDU noted that any design would be to complete streets standards and would accommodate other transportation modes such as bicycles, as appropriate. In a follow

¹ In follow-up dialogue with USEPA, the I-75/University Parkway DDI (near Sarasota, Florida – FDOT) was offered as a good example for the potential to accommodate bicycle traffic at a proposed interchange at Liberty Road (<https://youtu.be/24jMVZszPTY>).

up to the meeting, FBRMPO also noted that the FBRMPO Board adopted a complete street cross-section recommendation for the section of Liberty Road that would be involved in the interchange project to be a “rural avenue with bicycle lanes and sidewalks (possible multi-use path on one side in lieu of sidewalks).”

- With regard to performance measures (a.k.a., measures of effectiveness), the agency partners agreed that a Level of Service (LOS) threshold for “quality of travel” be established for inclusion in the Purpose and Need statement to aid in determining the Least Environmentally Damaging Practicable Alternative (LEDPA).² It was requested that “quantity of travel” be clearly defined in the Need statement. The Need statement was rewritten as follows, to the satisfaction of all agency partners:

The need to be addressed by this project:

- Lack of network connectivity along I-40 between US 19/23 and Wiggins Road degrades network mobility, quantity of travel¹ and quality of travel.
 - Achieve quality of travel by providing Level of Service D or better at the proposed project access at Interstate 40.

¹ Quantity of Travel refers to the traffic demand and trips completed in the study area network.

- USACE stated that, though they are in agreement with the rewritten Need statement, because FHWA/NCDOT could not articulate measurable goals or quantify performance criteria for parts of the Purpose and Need, there is a risk for complications and non-concurrence in the future, at Concurrence Point 2 and/or at LEDPA. NCDOT understood the risk(s).
- It is understood among all parties that should multiple project alternatives be determined to meet the project Purpose and Need the LEDPA would be selected based on a comparison of environmental impacts.

Action Items:

1. HNTB will revise materials to reflect the updated 303d List. Hominy Creek south of the study area is not listed. A section of South Hominy Creek beyond the study area is impaired as is a small unnamed tributary northwest of the study area. **Completed 10/19/2015** – *The mention of the 303(d) listed waters in the “Preliminary Study Area Resources Inventory Table” in the Project Data Sheets have been revised. Figure 3, Environmental Features map has also been revised. These items are attached to this summary.*
2. HNTB will confirm and correct bicycle route information in the project material. **Completed 10/19/2015** – *There are no state designated bicycle routes in the project study area. There are no signed bicycle routes in the project study area. In follow-up correspondence with FBRMPO (10/15/2015), it was noted that the 2013 Blue Ridge Bike Plan (regional plan) identified Asbury Road (south of I-40 to US 19/23) as a secondary (i.e., planned) bicycle corridor. US 19/23 through the study area was also recognized as a planned bicycle corridor. Liberty Road was not identified as a planned bicycle corridor. With regards to the existing condition, Buncombe County’s bicycle suitability index assigns one of four categories (1 through 4) based on vehicular traffic, with 1 being the most suitable for biking and 4 the least suitable. According to the bicycle suitability index, US 19/23 is considered “Level 3,” and Monte Vista Road, Asbury Road, and Dogwood Road are considered “Level 2.” These changes have been made in the “Preliminary Study Area Resources Inventory Table” in the Project Data Sheets. Figure 3, Environmental Features map has also been revised. These items are attached to this summary.*

² The LOS D measure would apply only to the interchange access ramp intersection(s) where the proposed project made improvements. For example, should Liberty Road interchange be constructed, proposed interchange intersections accessing Liberty Road would be required to meet LOS D, not adjacent interchange intersections at US 19/23 and Wiggins Road.

**Section 404/NEPA Merger Project Team Meeting Agreement
Concurrence Point No. 1
Project Purpose and Need and Study Area Defined**

Project Name/Description: I-40/SR 1228 (Liberty Road). Convert grade separation to an interchange and realign on new location and upgrade to the existing Liberty Road between SR 1224 (Monte Vista Road) and the US 19/23 (Smokey Park Highway) and NC 151 intersection with SR 1220 (Dogwood Road). (Study area boundary shown on Figures 1-6.)

TIP Project: I-4759

The need to be addressed by this project:

- Lack of network connectivity along I-40 between US 19/23 and Wiggins Road degrades network mobility, quantity of travel¹ and quality of travel.
 - Achieve quality of travel by providing Level of Service D or better at the proposed project access at Interstate 40.

¹ Quantity of Travel refers to the traffic demand and trips completed in the study area network.

The primary purpose of the proposed project is to improve the transportation network in the study area to benefit mobility and connectivity.

The Project Team has concurred on this date of October 14, 2015, on the above mentioned project purpose and need and the study area as defined for TIP Project I-4759.

USACE	<u>Mark Matthews</u>		
NCDOT	<u>Talisha...</u>		
USEPA	<u>Christina F. Vander...</u>	DocuSigned by:	<u>Kevin Barnett</u>
USFWS	<u>Manella Buntick</u>	A39FFFDDE1E74BB...	NCDWR <u>D9465026204540A</u>
NCWRC	<u>Marla Chambers</u>		SHPO <u>Renee Medhill-Easley</u>
			DocuSigned by:
			<u>Lyubov Zuyeva</u>
			C25712864C1F417...



PAT McCrory
Governor

NICHOLAS J. TENNYSON
Secretary

Project: Liberty Road at I-40: New Interchange and Roadway Realignment, Buncombe County
STIP Project No. I-4759

Date: April 13, 2016 10:30 a.m.

Place: Hydraulic Design Conference Room, Century Center Building B

Purpose: Concurrence Point Number 2

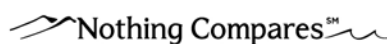
Meeting Summary

Attendees:

Name	Organization	Email Address
Felix Davila	FHWA	felix.davila@dot.gov
Lori Beckwith	USACE	loretta.a.beckwith@usace.army.mil
Marla Chambers*	NCWRC	marla.chambers@ncwildlife.org
Marella Buncick	USFWS	marella_buncick@fws.gov
Kevin Barnett*	NCDWR	kevin.barnett@ncdenr.gov
Vicki Eastland*	FBRMPO	vicki.eastland@landofsky.org
Derrick Weaver	NCDOT	dweaver@ncdot.gov
Ahmad Al-Sharawneh	NCDOT – PDEA	aalsharawneh@ncdot.gov
Kristina Solberg*	NCDOT – Division 13	klsolberg@ncdot.gov
Mark Staley	NCDOT – REU	mstaley@ncdot.gov
Mary Pope Furr	NCDOT – HES	mfurr@ncdot.gov
Erin Cheely	NCDOT – NES	ekcheely@ncdot.gov
Carla Dagnino	NCDOT – NES	cdagnino@ncdot.gov
Brendan Merithew	NCDOT – TPB	bwmerithew@ncdot.gov
Kevin Moore	NCDOT – RDU	kmoore@ncdot.gov
Steve Kendall	NCDOT – RDU	skkendall@ncdot.gov
Kirby Pendergraft	NCDOT – Hydraulics	kcpendergraft@ncdot.gov
William Zerman	NCDOT – Hydraulics	bzerman@ncdot.gov
Keith Dixon*	NCDOT – TPB	kdixon1@ncdot.gov
Doug Calhoun	NCDOT – SMU	drcalhoun@ncdot.gov
Kiersten Bass	HNTB	kbass@hntb.com
Bradley Reynolds	HNTB	breynolds@hntb.com
Eric Seckinger*	HNTB	eseckinger@hntb.com
Adam Archual	HNTB	aarchual@hntb.com

*Present via telephone

Summary: After introductions, HNTB conducted a presentation that included the following: 1) project review; 2) Merger Team concurrences to date; 3) Concurrence Point 2: Detailed Study Alternatives Carried Forward; 4) Build Alternatives; and 5) project schedule. Please see meeting agenda and presentation for details. It was noted that Dr. Cynthia Van Der Wiele (USEPA)

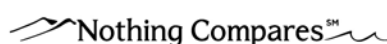


notified NCDOT that she would not be in attendance at today's meeting. The following summarizes the main topics discussed regarding CP2:

- USFWS requested clarification on the proposed improvements to the existing Liberty Road alignment and why there is only one "alternative" presented for the new location Liberty Road portion of the project. NCDOT stated that the existing Liberty Road alignment within the project would be widened to current standards, since it is a sub-standard road. Whether or not Liberty Road could be improved regardless of STIP I-4759 would depend on how such improvements would rank among other local projects (a SPOT analysis has not been conducted for Liberty Road improvements alone).
- NCDOT explained that the new location portion of Liberty Road is constrained by several factors, including the need for a direct connection to NC 151 at US 19/23; avoiding Young Branch; and crossing I-40 at a near perpendicular angle. USFWS responded that the reasons for the placement of the proposed new location road and all avoidance and minimization efforts undertaken to date (e.g., shifting Liberty Road grade separation to the west) need to be documented in the environmental document. USACE noted that this information also needs to be articulated in the permit application.
- NCDOT noted that there are three build alternatives and asked the agencies present if they felt all three should be carried forward for detailed study. FHWA inquired if cost information would be provided and NCDOT noted that costs associated with each of the alternatives would be developed and considered at a later date. USFWS and USACE agreed that the three alternatives should be shown at the Public Meeting. With public input and additional cost information, it may be possible to screen out an alternative prior to development of the Draft EA.

As stated, USEPA notified NCDOT that a representative would not be present for the I-4759 CP2 meeting and requested clarification on a couple points in an email (3/29/2016). Bullet number 1 above partially addresses USEPA's comments (i.e., clarification on the development of the alternatives and the location of the proposed new location Liberty Road). Regarding USEPA's request for clarification on relative advantages/disadvantages of the alternatives from an engineering and operations standpoint, NCDOT responded that each alternative meets the project's purpose and need and would operate at LOS D. These items were addressed in the CP 2 presentation. Further, in response to USEPA's question regarding the presence of the 5-lane overpass bridge in Alternative 3 (as opposed to the 3-lane bridges in Alternatives 1 and 2), NCDOT provided an explanation of the operational and design factors contributing to this difference, and added Slide 13 to the PowerPoint presentation given on April 13, 2016.

The Merger Team reached agreement on Concurrence Point 2: Detailed Study Alternatives to be Carried Forward. The No Build Alternative, Diamond Interchange Alternative, Partial Cloverleaf Interchange Alternative and Half Cloverleaf Interchange Alternative will be carried forward.



Section 404/NEPA Merger Project Team Meeting Agreement Concurrence Point Number 2 Detailed Study Alternatives Carried Forward

FA No.: STPIMS-040-1(188)42
WBS No.: 39970.1.1
STIP Project: I-4759
County: Buncombe

Project Name/Description: I-40/SR 1228 (Liberty Road), Convert grade separation to an interchange and realign on new location and upgrade to the existing Liberty Road between SR 1224 (Monte Vista Road) and the US 19/23 (Smokey Park Highway) and NC 151 intersection with SR 1220 (Dogwood Road).

The Project Team has concurred on this date of **April 13, 2016** that all checked alternatives will be carried forward to be studied in detail for STIP Project I-4759.

No Build Alternative – The No-Build Alternative does not meet the project's purpose and need. It will be retained for analysis to provide a basis for comparing adverse impacts and benefits of the detailed study alternatives.

Build Alternative 1: Diamond Interchange Configuration – The diamond interchange includes a ramp in every quadrant (Figure 2).

Build Alternative 2: Partial Cloverleaf Interchange Configuration – The partial cloverleaf includes a ramp in the southeast and northwest quadrants (Figure 3).

Build Alternative 3: Half Cloverleaf Interchange Configuration – The half cloverleaf includes a ramp in the southwest and northwest quadrants (Figure 4).

USACE *Joni Beckwith*

USEPA DocuSigned by:
Cynthia Van Der Wiele
ALC109621644D

NCDOT *Abhiram*

FHWA *Felix D. Sloan*

USFWS *Maureen Zwick*

NCWRC DocuSigned by:
Maria Chambers

NCDWR DocuSigned by:
Kevin Barnett

SHPO DocuSigned by:
Kevin Medwell-carlos

FBRMPO DocuSigned by:
Irish Muller

Project: STIP I-4759, Liberty Road at I-40, Buncombe County

Date: May 26, 2016 2:00 p.m.

Place: Field Meeting

Purpose: Merger Concurrence Point Number 2A

Meeting Summary

Attendees:

Name	Organization	Email Address
Felix Davila	FHWA	felix.davila@dot.gov
Lori Beckwith	USACE	loretta.a.beckwith@usace.army.mil
Marla Chambers	NCWRC	marla.chambers@ncwildlife.org
Marella Buncick	USFWS	marella_buncick@fws.gov
Kevin Barnett	NCDWR	kevin.barnett@ncdenr.gov
Vicki Eastland	FBRMPO	vicki.eastland@landofsky.org
Ahmad Al-Sharawneh	NCDOT – PDEA	aalsharawneh@ncdot.gov
Kristina Solberg	NCDOT – Division 13	klsolberg@ncdot.gov
Rick Tipton	NCDOT – Division 13	rtipton@ncdot.gov
Cole Hood	NCDOT – Division 13	chood@ncdot.gov
Erin Cheely	NCDOT – NES	ekcheely@ncdot.gov
Steve Kendall	NCDOT – RDU	sdkendall@ncdot.gov
Kirby Pendergraft	NCDOT – Hydraulics	kcpendergraft@ncdot.gov
William Zerman	NCDOT – Hydraulics	bzerman@ncdot.gov
Ben Henegar	HNTB	bhenegar@hntb.com
Adam Archual	HNTB	aarchual@hntb.com

Summary: The recommended structures at the six crossings were agreed with by those present, and Concurrence Point 2A was reached. Two topics require additional consideration:

- Site 6** (recommended bridge on Pole Creek) - NCDOT stated that upon further review, the minimal recommended bridge length of 225 feet will likely be problematic with respect to FEMA compliance. Because multiple structures are located in the 100-year floodplain upstream of the proposed crossing, FEMA regulations will require that the proposed bridge crossing create “No-Rise” in the 100-year water surface elevation upstream of the bridge. NCDOT will continue to explore options to span the floodplain during the Final Design phase. **HNTB will coordinate with NCDOT-RDU and NCDOT-Hydraulics to resolve the recommended bridge at Site 6.**
- Alternative 1** – NCDOT-PDEA requested by follow-up e-mail correspondence (Wednesday, June 1, 2016) whether the Merger Team agreed that the Alternative 1 (Diamond Interchange) be dropped out for detailed study. The Merger Team agreed that all three build alternatives should be carried through to the Public Meeting, anticipated for August 2016. Should there be no compelling public sentiment to keep Alternative 1, the Merger Team will again reconsider the elimination of Alternative 1 prior to the draft EA.

Section 404/NEPA Merger Project Team Meeting Agreement
Concurrence Point Number 2A
Bridging Decisions and Alignment Review

Project Name/Description: I-40/SR 1228 (Liberty Road). Convert grade separation to an interchange and realign on new location and upgrade to the existing Liberty Road between SR 1224 (Monte Vista Road) and the US 19/23 (Smokey Park Highway) and NC 151 intersection with SR 1220 (Dogwood Road).

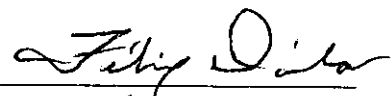
TIP Project: I-4759

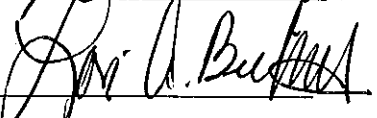
Bridging Decisions: Based on the current preliminary hydraulics design for the existing major drainage structures for TIP Project I-4759, the proposed culvert and bridging recommendations are presented in the following table:

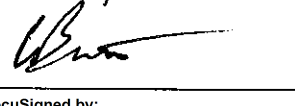
SITE #	PROPOSED HYDRAULIC STRUCTURE Number, Size, Structure Type, (Additional Length)		
	Alternative 1 Cloverleaf Interchange	Alternative 2 Partial Cloverleaf Interchange	Alternative 3 Half Cloverleaf Interchange
1	Retain and Extend	Retain and Extend	Retain and Extend
2	Retain and add Supplemental Pipe (min=48")	Retain and add Supplemental Pipe (min=48")	Retain and add Supplemental Pipe (min=48")
3	1 @ 7' x 7' x 350' RCBC	No Structure Required	No Structure Required
4	1 @ 7' x 8' x 355' RCBC	1 @ 7' x 8' x 375' RCBC	No Structure Required
5	1 @ 8' x 8' x 248' RCBC	1 @ 8' x 8' x 248' RCBC	1 @ 8' x 8' x 248' RCBC
6	Dual 3-span (1@ 65', 2 @ 80') 54" girder bridges	Dual 3-span (1@ 65', 2 @ 80') 54" girder bridges	Dual 3-span (1@ 65', 2 @ 80') 54" girder bridges

The Merger Team concurred on **May 26, 2016**, regarding the above culvert and bridging recommendations for TIP Project I-4759.

NCDOT 

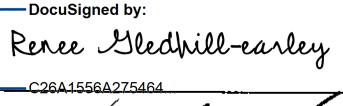
FHWA 

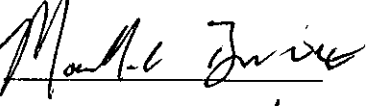
USACE 

NCDWR 

USEPA DocuSigned by:

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SHPO DocuSigned by:

C26A1556A275464

USFWS 

FBRMPO 

NCWRC 

APPENDIX C
TRAFFIC FORECAST AND TRAFFIC ANALYSIS



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PATRICK L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

January 29, 2013

MEMORANDUM TO: Michael Wray
Project Development – Western Region
Project Development and Environmental Analysis (PDEA)

FROM: Keith G. Dixon
Western Traffic Forecasting Group
Transportation Planning Branch

SUBJECT: Traffic Forecast for I-4759
Buncombe County
New I-40 Interchange at SR 1228-Liberty Rd

Please find attached the 2012 / 2040 traffic forecast for I-4759. This forecast concerns the proposed construction of a new I-40 interchange with SR 1228-Liberty Rd and adds a 2-lane connector on new location between SR 1228-Liberty Rd and SR 1220-Dogwood Rd.

This forecast is an update of, and replaces, the previous 2008 / 2020 / 2035 forecast for I-4759 produced by Linh Nguyen, PE, and delivered to Michael Wray of PDEA on December 5, 2008. This project is located within the French Broad River MPO area (FBRMPO).

A 2011 / 2040 forecast for TIP projects I-4400 / I-4700, which concern the widening of I-26 from I-40 in Buncombe Co to US 25 in Henderson Co, was delivered to PDEA on February 14, 2012. That forecast includes the I-40 / I-26 interchange (Exit 46) and the I-40 / US 19-23 interchange (Exit 44). All of the future development assumptions used in that forecast are also assumed in this forecast for I-4759.

Due to the availability of more traffic count data on I-40 west of SR 1200-Wiggins Rd, and a more detailed consideration given to the construction of the SR 1228-Liberty Rd Interchange with I-40 in this forecast, the AADT on I-40 west of US 19-23 is 12.5% higher in the 2040 Build scenario included with this forecast than that shown in the 6-lane Build scenario included with I-4400 / I-4700.

Also, due to the availability of an updated 2011 AADT estimate on I-40 east of I-26 / I-240, the traffic volume on I-40 east of I-26 / I-240 is 17.8% higher in the 2040 Build scenario included with this forecast than that shown in the 6-lane Build scenario included with I-4400 / I-4700.

In addition, truck percentages on I-40 west of US 19-23 (Exit 44) are increased from 14%, in the previous forecast for I-4400 / I-4700, to 20% in this update. This is due to additional class counts taken on I-40 west of SR 1200-Wiggins Rd, and more closely corresponds with the previous traffic forecast for I-4759.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING BRANCH
1554 MAIL SERVICE CENTER
RALEIGH NC 27699-1554



LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601
Phone: 919-707-0900
Fax: 919-733-9794

The following people and businesses were contacted during the development of this traffic forecast:

- Shannon Tuch, City of Asheville Assistant Planning Director
- Jon Creighton, Buncombe County Planning Director
- Paul Black, French Broad River MPO Coordinator
- Josh O'Conner, Buncombe County Planner / Zoning Administrator
- Marlene Nunnaley, Lifestyle Homes – The Vistas of Westfield

The following 4 scenarios are provided:

- 2012 No Build
- 2012 Build
- 2040 No Build
- 2040 Build

Certain Assumptions were made during the development of this forecast.

Fiscal Constraint:

For projects located within an MPO, forecasts are fiscally constrained to the MPO's Long Range Transportation Plan (LRTP). This means that only projects scheduled in the LRTP are considered constructed and open to traffic in the future year.

All projects documented in the 2035 FBRMPO LRTP, adopted 9/23/2010, are included in the 2035 French Broad River Regional Transportation Demand Model (FBRTDM), adopted 3/25/2010, used to produce this forecast and are considered complete and open to traffic by 2035. These projects include:

- I-4400 / I-4700: Widen I-26 to 6-lanes from I-40 in Buncombe County to US 25 in Henderson County.
- I-2513: I-26 Connector. I-26 to US 19-23-70. Multi-lane freeway, part on new location.
- R-4406: Widen US 19-23 to multi-lanes from NC 215 in Haywood County to NC 151 in Buncombe County.
- Widen I-40 to 6-lanes from US 19-23 to SR 1228-Liberty Rd. None of the projects listed above are assumed to be open to traffic in either of the 2012 traffic forecast scenarios.

Development Activity:

Biltmore Estate's West Gate: During the development of the forecast for I-4400 / I-4700, Biltmore Estates was planning to open an additional entrance to be located southeast of NC 191-Brevard Rd just east of I-26 to be known as the Biltmore Estate's West Gate. Based upon information from the City of Asheville and Buncombe County, this development is currently on hold, but it is likely that Biltmore Estates will develop something along NC 191-Brevard Rd in the future that will warrant additional access from NC 191-Brevard Rd. Also, in the forecast for I-4400 / I-4700, the inclusion of the Biltmore Estates West Gate only made a minor difference in traffic volumes on I-26 and I-40 east of I-26, and made no difference in traffic volumes on I-40 west of I-26. Thus, in order to maintain consistency with the recent forecast for I-4400 / I-4700, the Biltmore Estates West Gate is assumed in all of the 2040 scenarios in this forecast.

Based upon input from local planners there are several other developments that have been approved that are estimated to affect traffic within the forecast area in the horizon year scenarios:

- *Dollar General Market & other retail:* Located on US 19-23 about 2 miles south of I-40.
- *Enka Center:* Located at the site of the old Enka Rayon Plant on NC 112 near US 19.

· *Ingles Market Rebuild & Expansion*: Ingles shopping center located on US 19 north of I-40 and Ingles store located on NC 191 across from the Biltmore Square Mall.
- *The Vistas of Westfield*: Residential development with 102 units. Located on SR 1220-Dogwood Rd near I-40.

Based upon a review of the 2035 FBRTDM Socioeconomic (SE) data, these developments fall within the scope of the SE data growth currently estimated within the forecast area and are assumed to be complete in the 2040 forecast scenarios.

Currently there are no other specific plans for any future developments that are likely to influence the 2035 forecast scenarios beyond the growth estimated in the 2035 FBRTDM SE data.

Forecast Methodology:

2012 No Build traffic volumes and traffic factor estimates are based upon current counts and historic AADT trends projected to 2012. AADT volumes in the 2040 No Build scenario were estimated based upon annual growth rates derived from the FBRTDM, along with the 2012 No Build AADT estimate.

2012 and 2040 Build traffic volumes were estimated based upon the relative changes in the FBRTDM output between the FBRTDM No Build and the FBRTDM Build model outputs in 2005 and 2035. A comparison of No Build and Build model runs in the base year and horizon year provides a modeled example of how the opening of the Liberty Rd Interchange with I-40 and the Liberty-Dogwood Connector might affect traffic within the forecast area. These relative changes in the FBRTDM output were then applied to the 2012 No Build AADT and the 2040 No Build AADT in order to estimate the Build AADT.

The turning movements in the Build scenarios at the I-40 / I-26 / I-240 interchange were estimated based upon the 2035 FBRTDM output on the interchange ramps along with a comparison with the ramp volumes estimated in the I-2513 forecast produced by MAB on March 9, 2010, and were adjusted as necessary in order to balance the mainline volumes at each interchange.

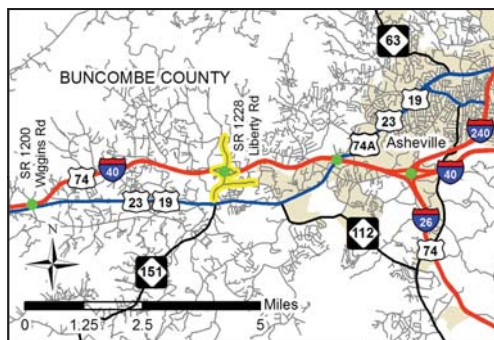
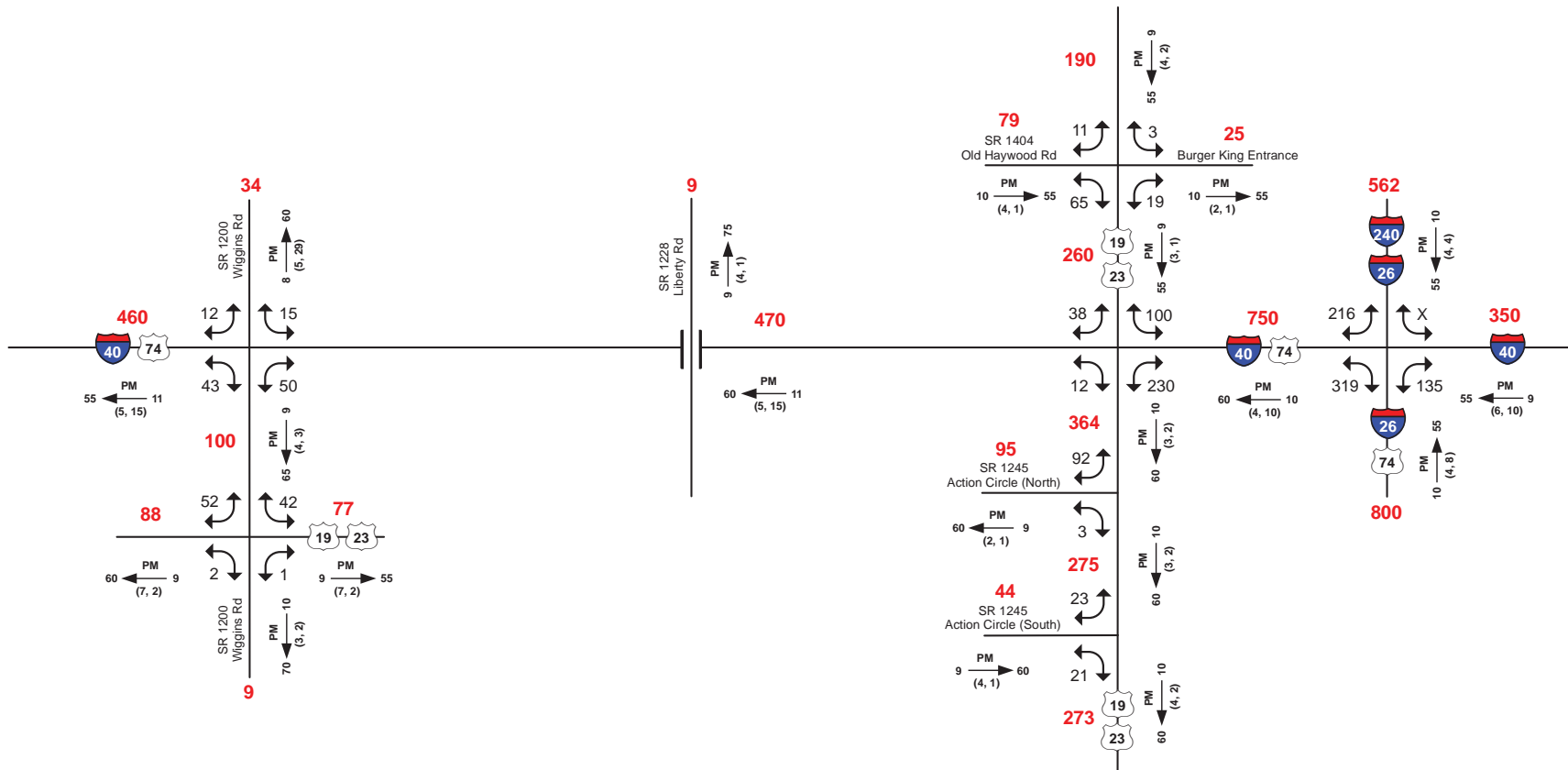
If it is determined that any of these assumptions have become inconsistent with the project and surrounding area activity, please request updated projections at this location.

To estimate AADT for intermediate years, straight-line interpolation may be used between the 2012 No Build and the 2040 No Build scenarios, or the 2012 Build and the 2040 Build scenarios. AADT volumes may be extrapolated for up to 2 years following 2040 using a straight-line extrapolation between the 2012 No Build and the 2040 No Build scenarios, or the 2012 Build and the 2040 Build scenarios.

If we can be of any further assistance on this project please do not hesitate to contact me at 919-707-0984, email: kdixon1@ncdot.gov or Michael Orr at 919-707-0982, email: mlorr@ncdot.gov.

CC (with Attachments):

Jay Bennett, PE, Roadway Design
Pam Cook, PE, Transportation Planning Branch
Deborah Hutchings, PE, Transportation Planning Branch
James Dunlop, PE, Congestion Management
Don Chen, PE, Pavement Management
File Copy: I-4759 Buncombe County



2012 ANNUAL AVERAGE DAILY TRAFFIC

NO BUILD

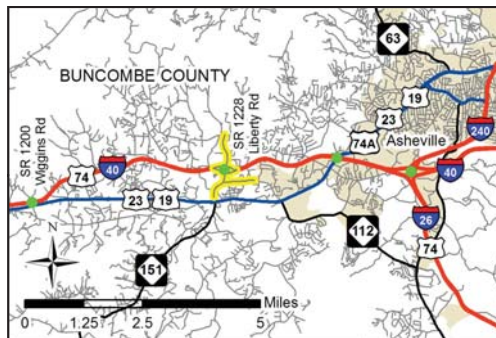
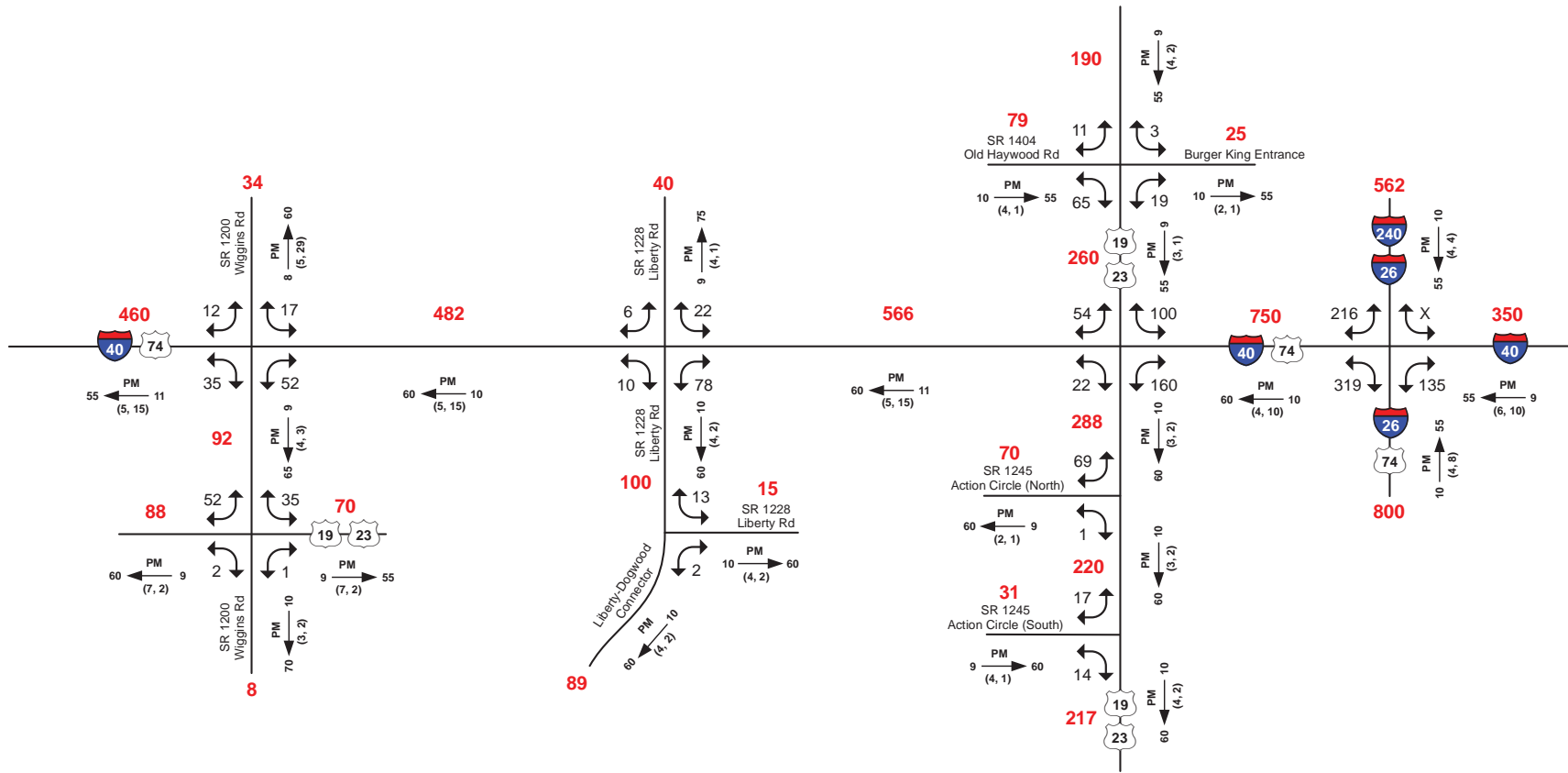
SHEET 1 - 1

LEGEND

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

K $\frac{PM}{(d, t)}$ → D

TIP: I-4759		WBS: 39970.1.1
COUNTY: Buncombe		DIVISION: 13
DATE: 01-29-2013		
PREPARED BY: Keith Dixon		
LOCATION: I-40 from west of SR 1200 to east of I-26		
PROJECT: New I-40 Interchange at SR 1228 and Liberty-Dogwood Connector		



2012 ANNUAL AVERAGE DAILY TRAFFIC

BUILD

SHEET 2 - 1

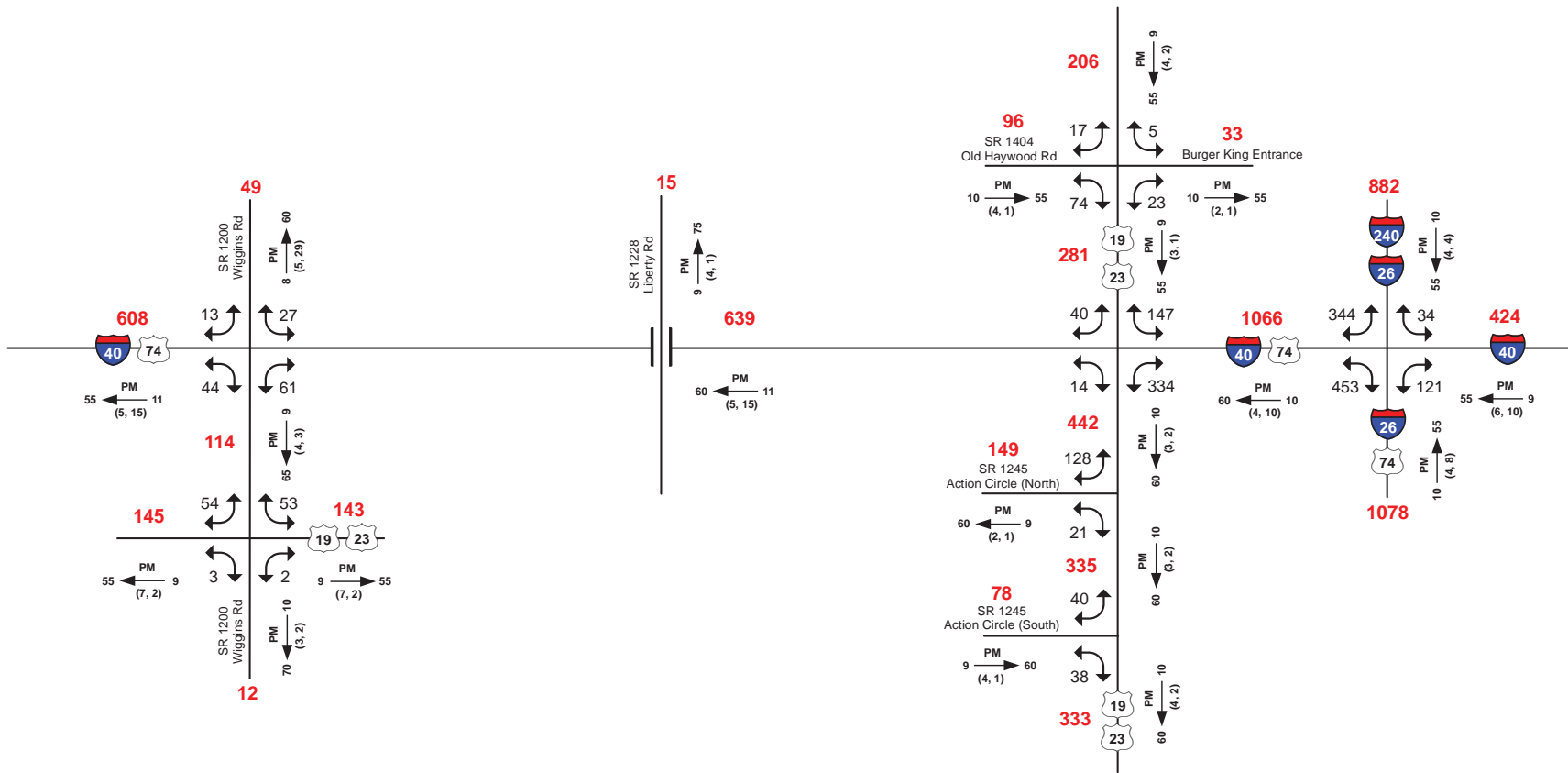
LEGEND

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

$$K \frac{PM}{(d, t)} \rightarrow D$$

TIP: I-4759	WBS: 39970.1.1
COUNTY: Buncombe	DIVISION: 13
DATE: 01-29-2013	
PREPARED BY: Keith Dixon	
LOCATION: I-40 from west of SR 1200 to east of I-26	
PROJECT: New I-40 Interchange at SR 1228 and Liberty-Dogwood Connector	





2040 ANNUAL AVERAGE DAILY TRAFFIC

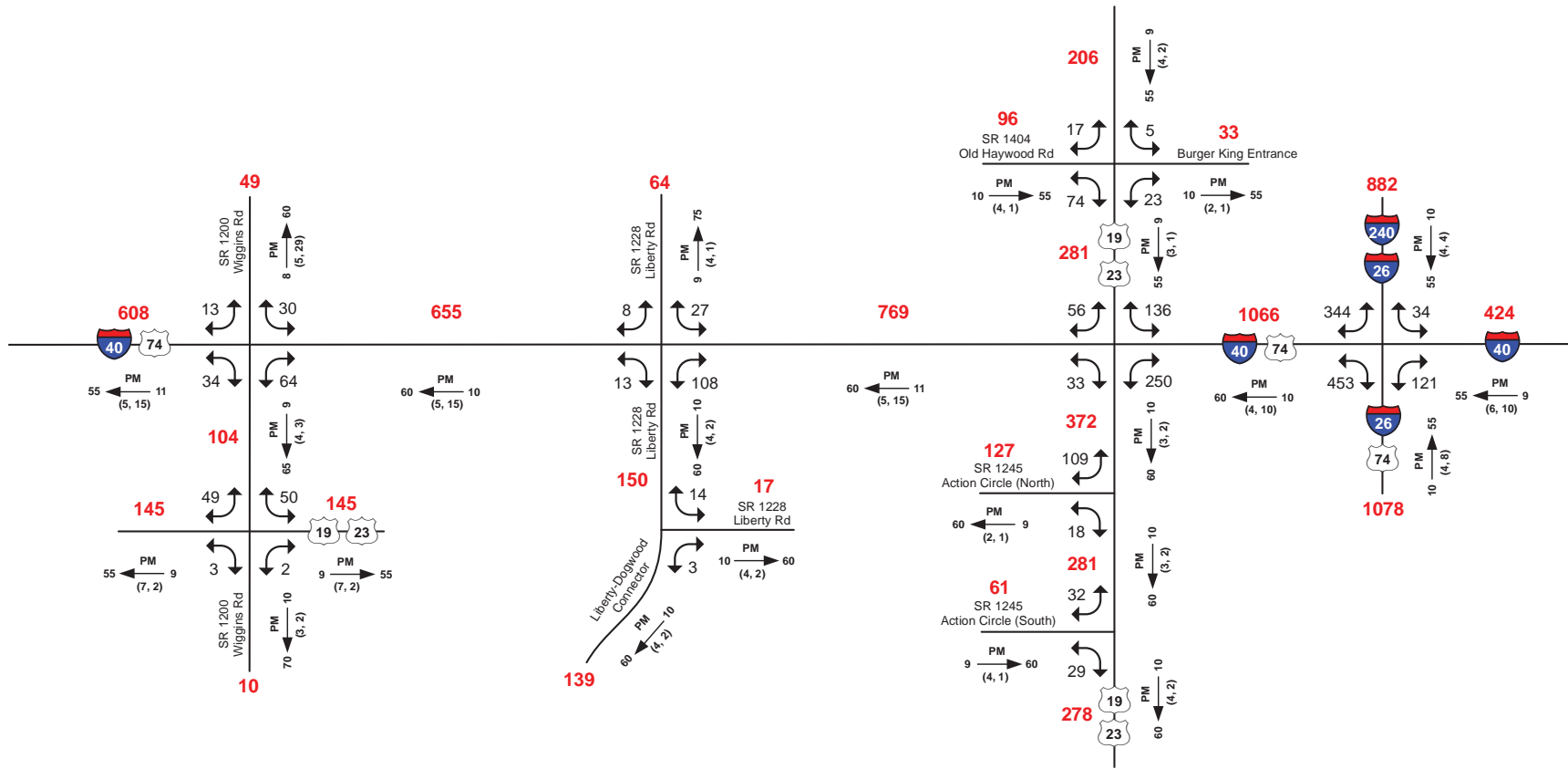
NO BUILD

SHEET 3 - 1

LEGEND

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

TIP: I-4759		WBS: 39970.1.1
COUNTY: Buncombe		DIVISION: 13
DATE: 01-29-2013		
PREPARED BY: Keith Dixon		
LOCATION: I-40 from west of SR 1200 to east of I-26		
PROJECT: New I-40 Interchange at SR 1228 and Liberty-Dogwood Connector		



2040 ANNUAL AVERAGE DAILY TRAFFIC

BUILD SHEET 4 - 1

LEGEND

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

TIP: I-4759		WBS: 39970.1.1
COUNTY: Buncombe		DIVISION: 13
DATE: 01-29-2013		
PREPARED BY: Keith Dixon		
LOCATION: I-40 from west of SR 1200 to east of I-26		
PROJECT: New I-40 Interchange at SR 1228 and Liberty-Dogwood Connector		

STIP Project I-4759 – Liberty Road Interchange

TRAFFIC CAPACITY ANALYSIS TECHNICAL MEMORANDUM

Buncombe County

**NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION**



PREPARED FOR:

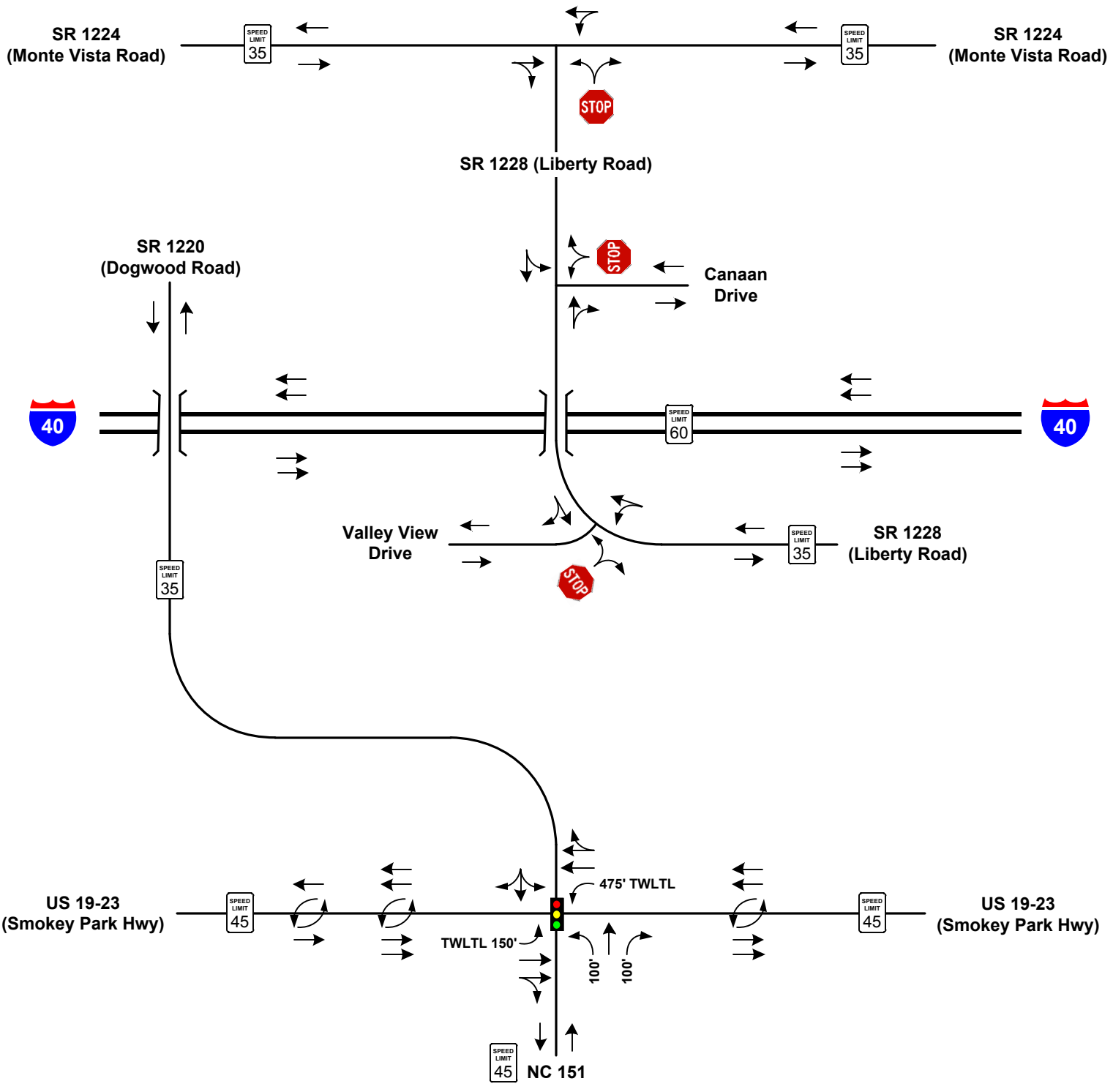
**North Carolina Department of
Transportation**

PREPARED BY:

HNTB North Carolina, P.C.

343 East Six Forks Road
Suite 200
Raleigh, NC 27609

April 2016



LEGEND

— = Existing Roadway

XXX' = Storage Bay Length



= Existing Traffic Control

→ = Existing Laneage



= Existing Posted Speed



NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

Existing Study Area
Laneage and Geometrics

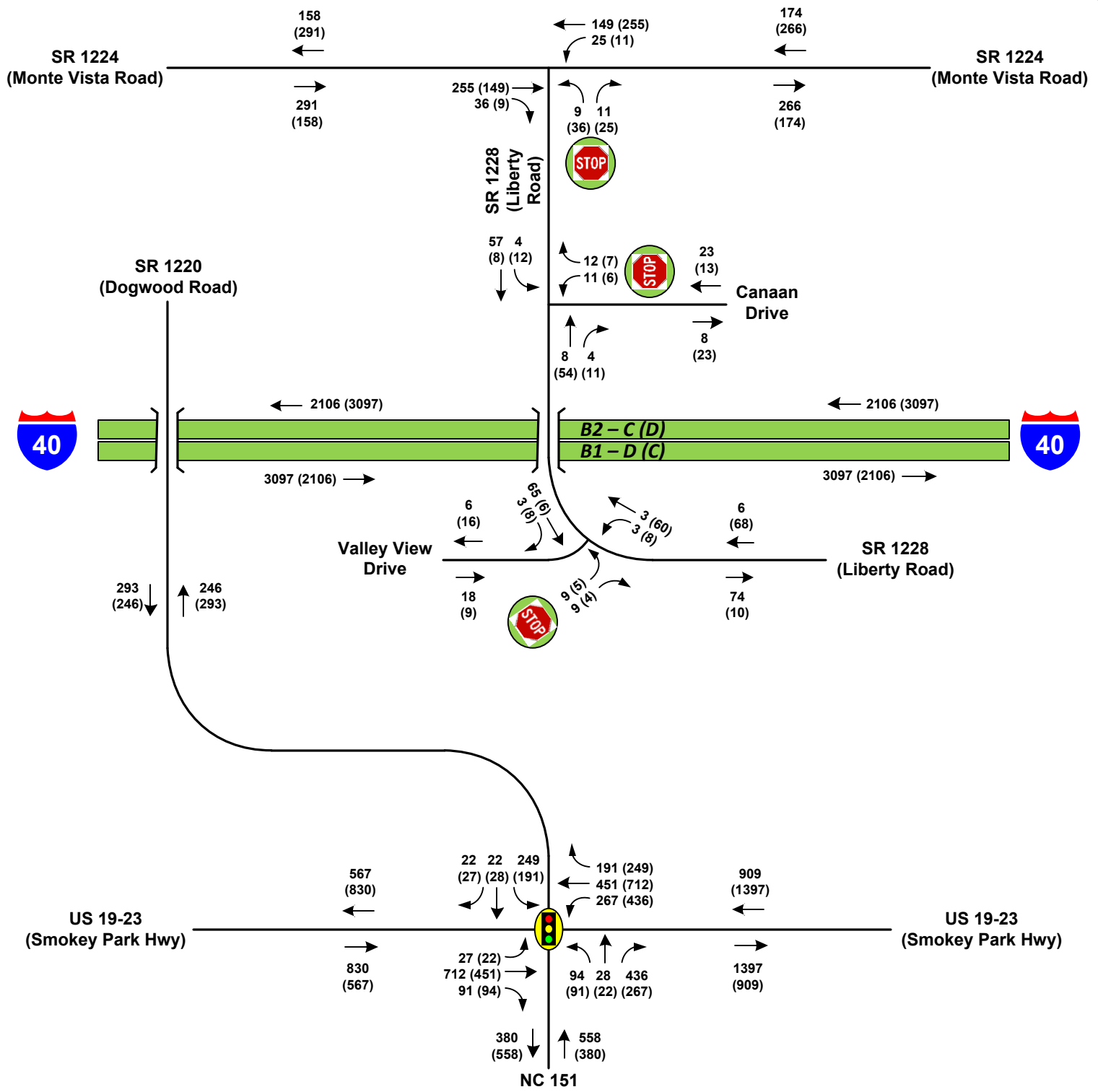
STIP #: I-4759

COUNTY: Buncombe

DATE: April 2016

DIVISION: 13

PREPARED BY: HNTB North Carolina, P.C.
343 E. Six Forks Rd., Ste. 200
Raleigh, North Carolina 27609



HNTB

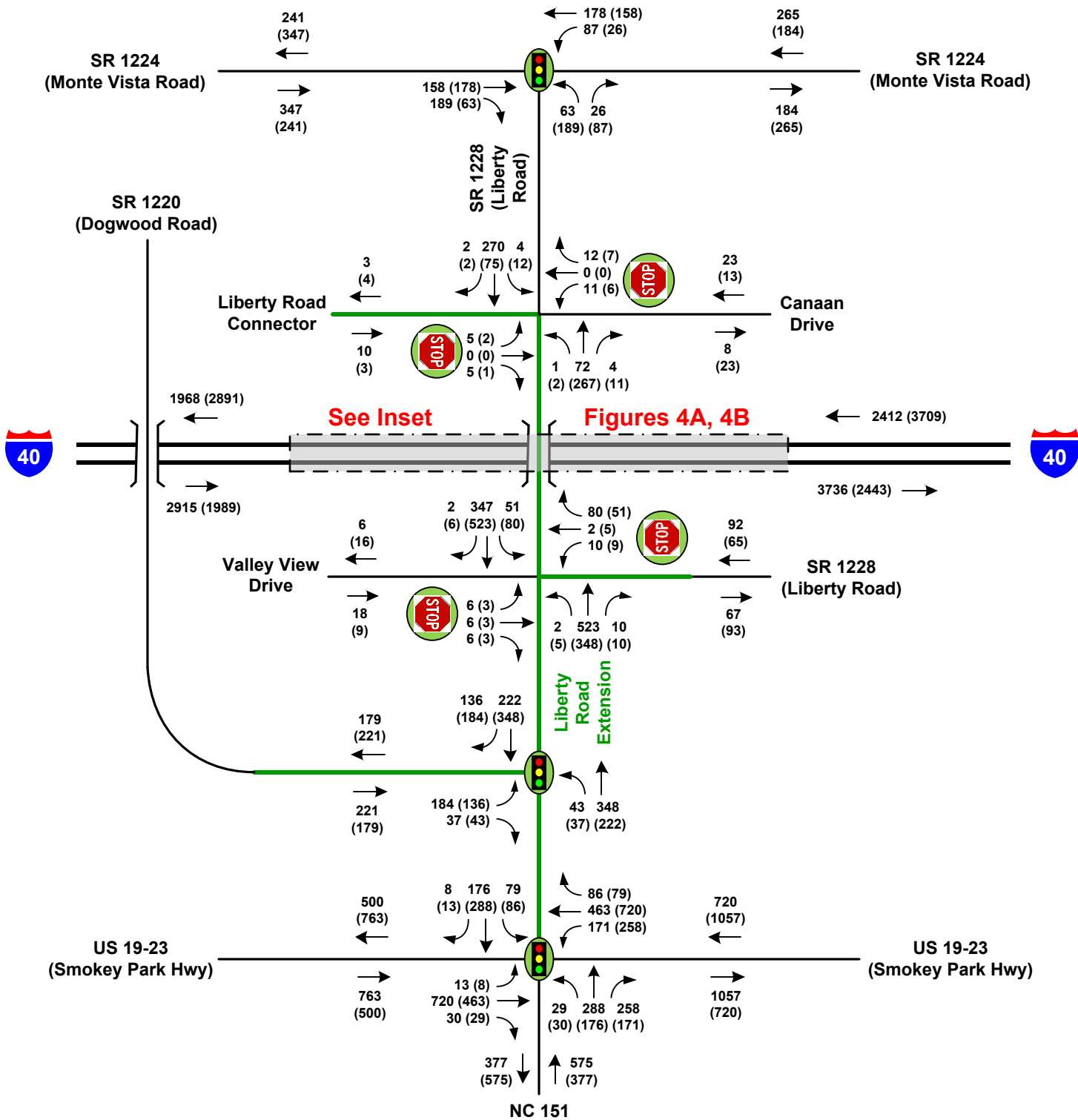
2012 No-Build Scenario Volumes and LOS

STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	

NCDOT STIP I-4759
Liberty Road Interchange

NOT TO SCALE





LEGEND

- = Existing Roadway / Movements
- = I-4759 Roadway / Movements

- XX (XX)** = AM (PM) Peak Hour Volumes
Left / Thru / Right
- = Unsignalized Intersection
- = Signalized Intersection

- AM (PM) Peak Hour Level of Service
- LOS A - D
 - LOS E
 - LOS F

HNTB



NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

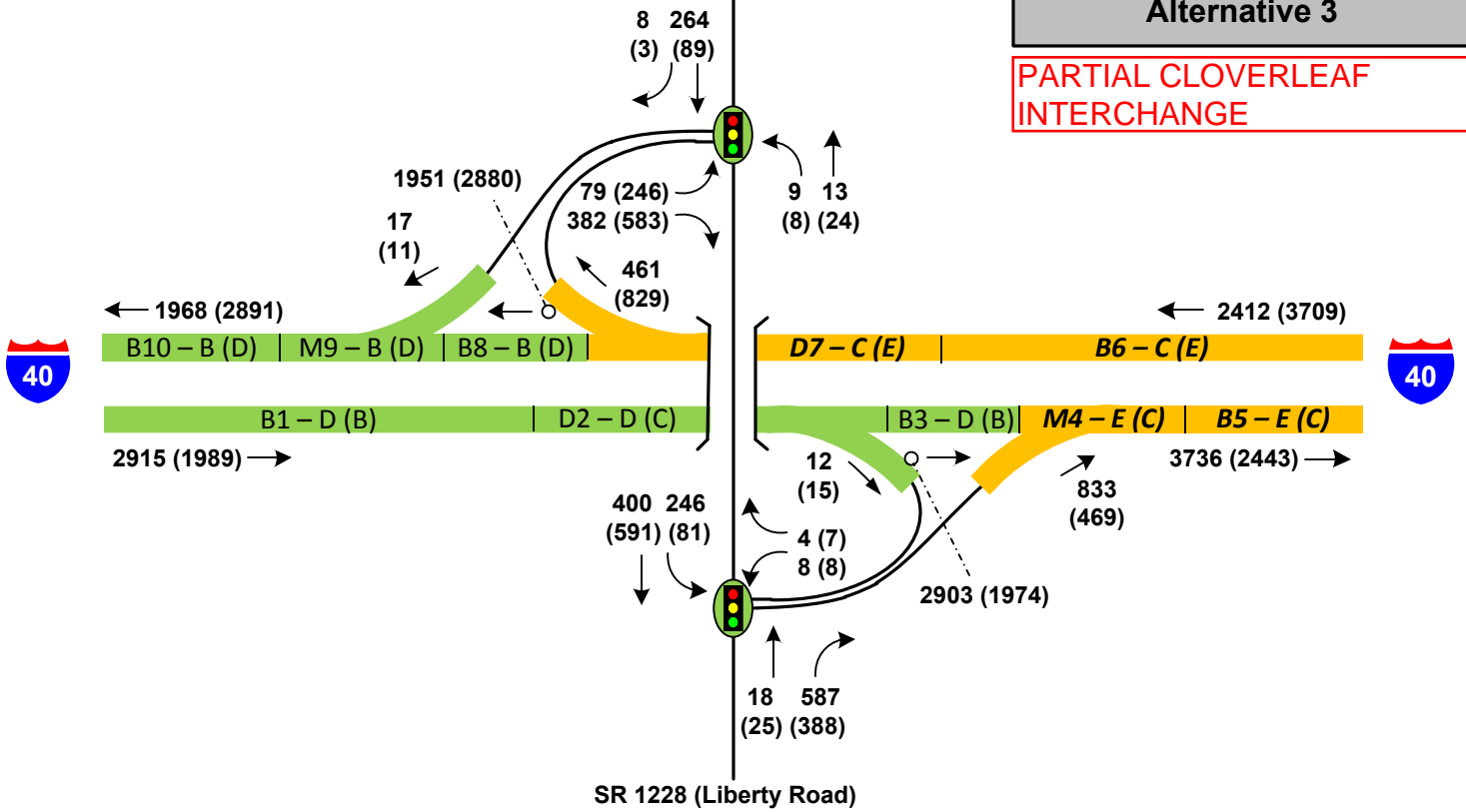
2012 Build Scenarios
Volumes and LOS

STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	

SR 1228 (Liberty Road)

Alternative 3

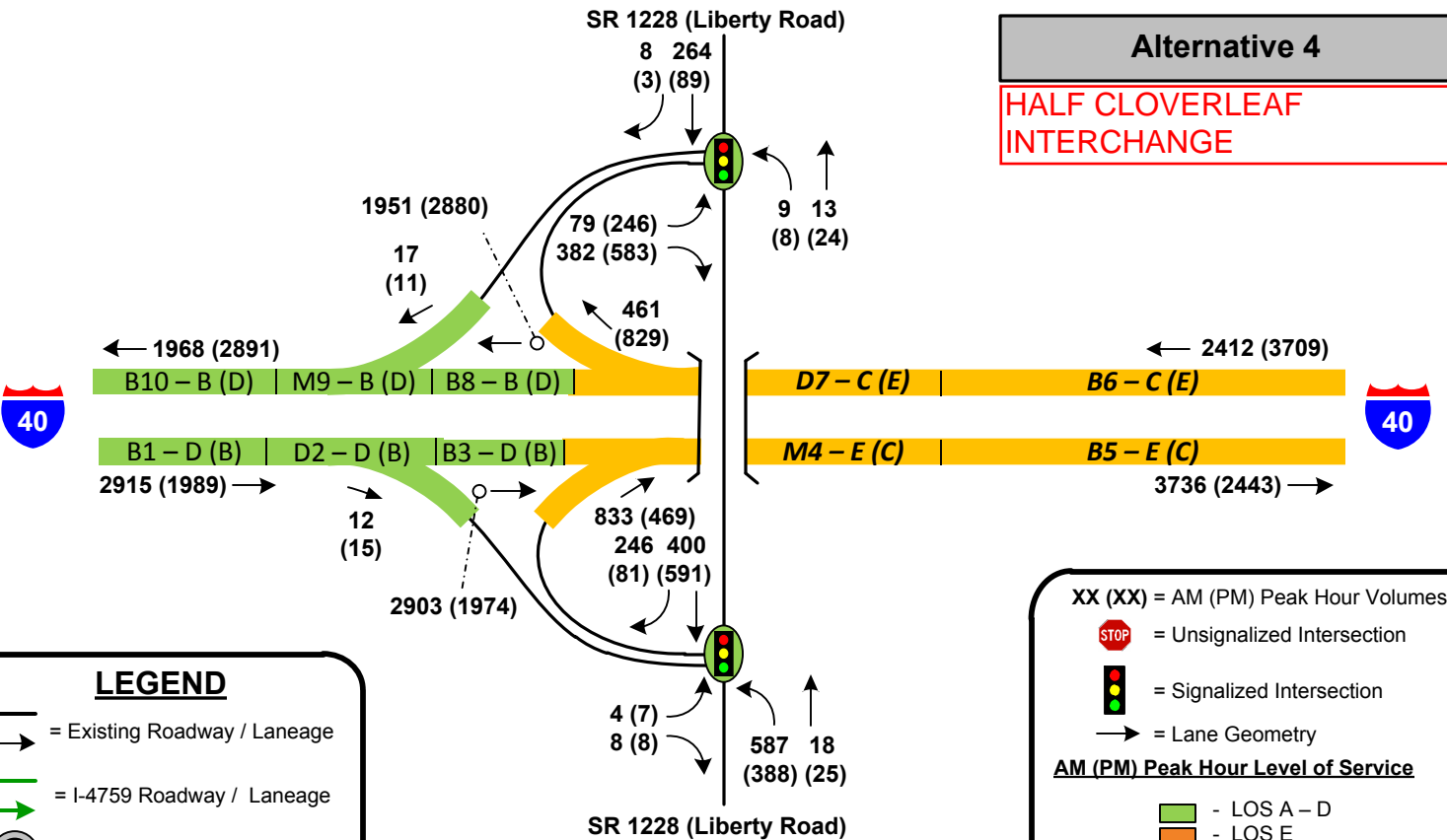
PARTIAL CLOVERLEAF INTERCHANGE



SR 1228 (Liberty Road)

Alternative 4

HALF CLOVERLEAF INTERCHANGE



SR 1228 (Liberty Road)

LEGEND

- = Existing Roadway / Laneage
- = I-4759 Roadway / Laneage
- = Roundabout

XX (XX) = AM (PM) Peak Hour Volumes



= Unsignalized Intersection



= Signalized Intersection

= Lane Geometry

AM (PM) Peak Hour Level of Service

- LOS A - D
- LOS E
- LOS F

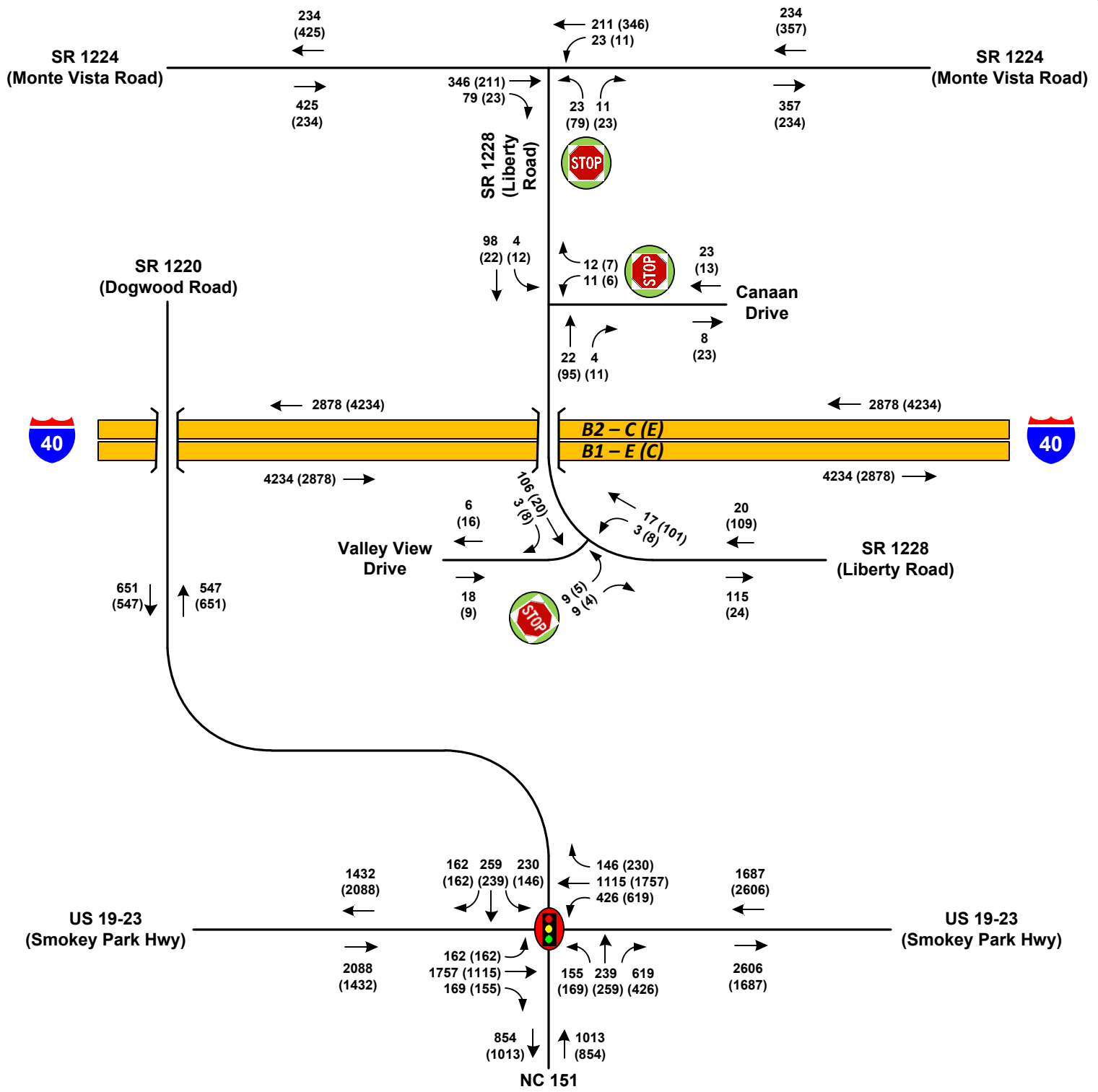


NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

2012 Build Scenarios
Volumes and LOS

STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	



LEGEND

- Existing Roadway / Movements
- I-4759 Roadway / Movements

- XX (XX) = AM (PM) Peak Hour Volumes Left / Thru / Right
- STOP = Unsignalized Intersection
- Traffic Light = Signalized Intersection

- AM (PM) Peak Hour Level of Service
- Green - LOS A - D
- Orange - LOS E
- Red - LOS F

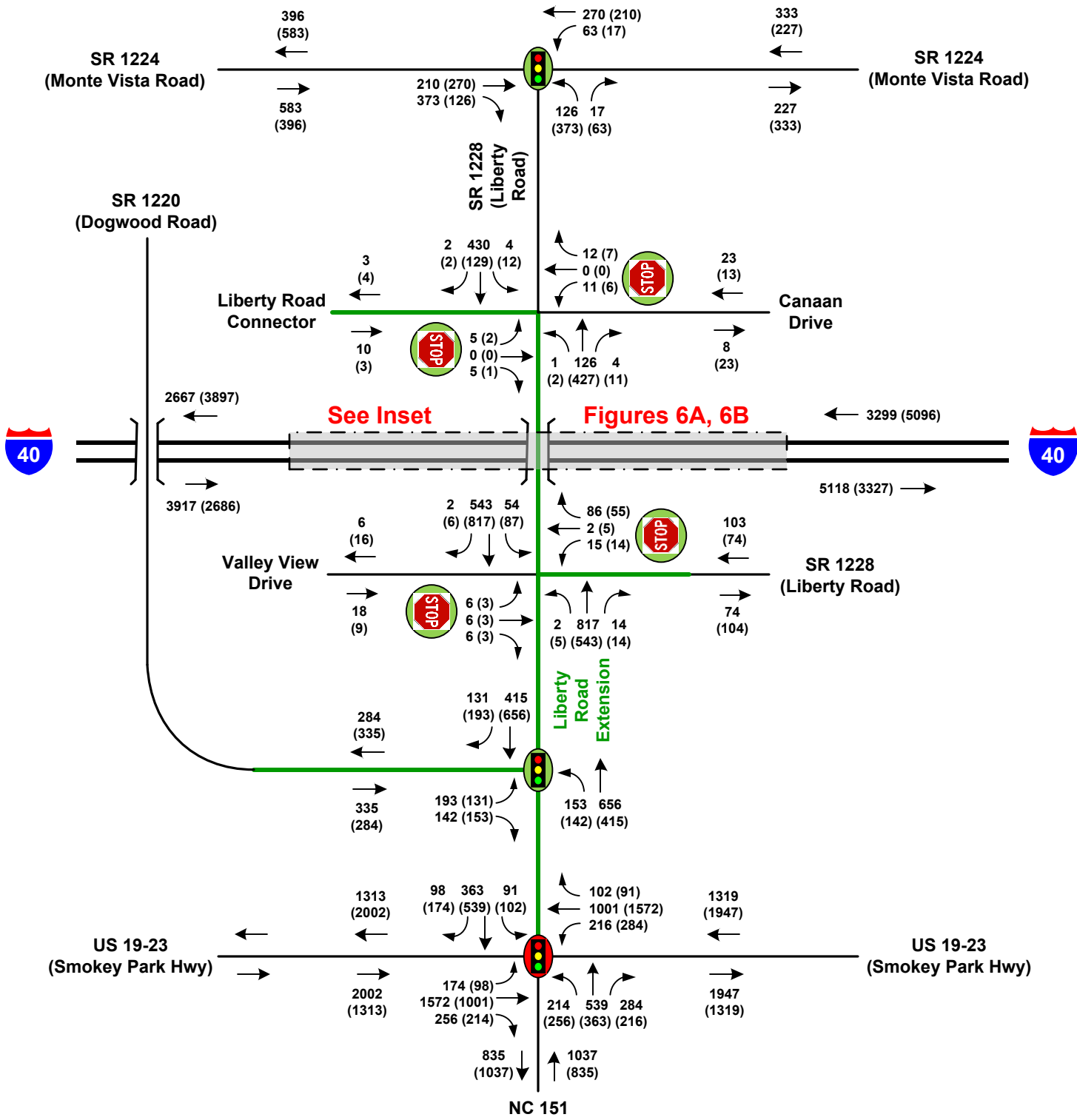


NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

2040 No-Build Scenario
Volumes and LOS

STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	



LEGEND

- = Existing Roadway / Movements
- = I-4759 Roadway / Movements

- XX (XX)** = AM (PM) Peak Hour Volumes
Left / Thru / Right
- = Unsignalized Intersection
- = Signalized Intersection

- AM (PM) Peak Hour Level of Service
- LOS A - D
 - LOS E
 - LOS F



NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

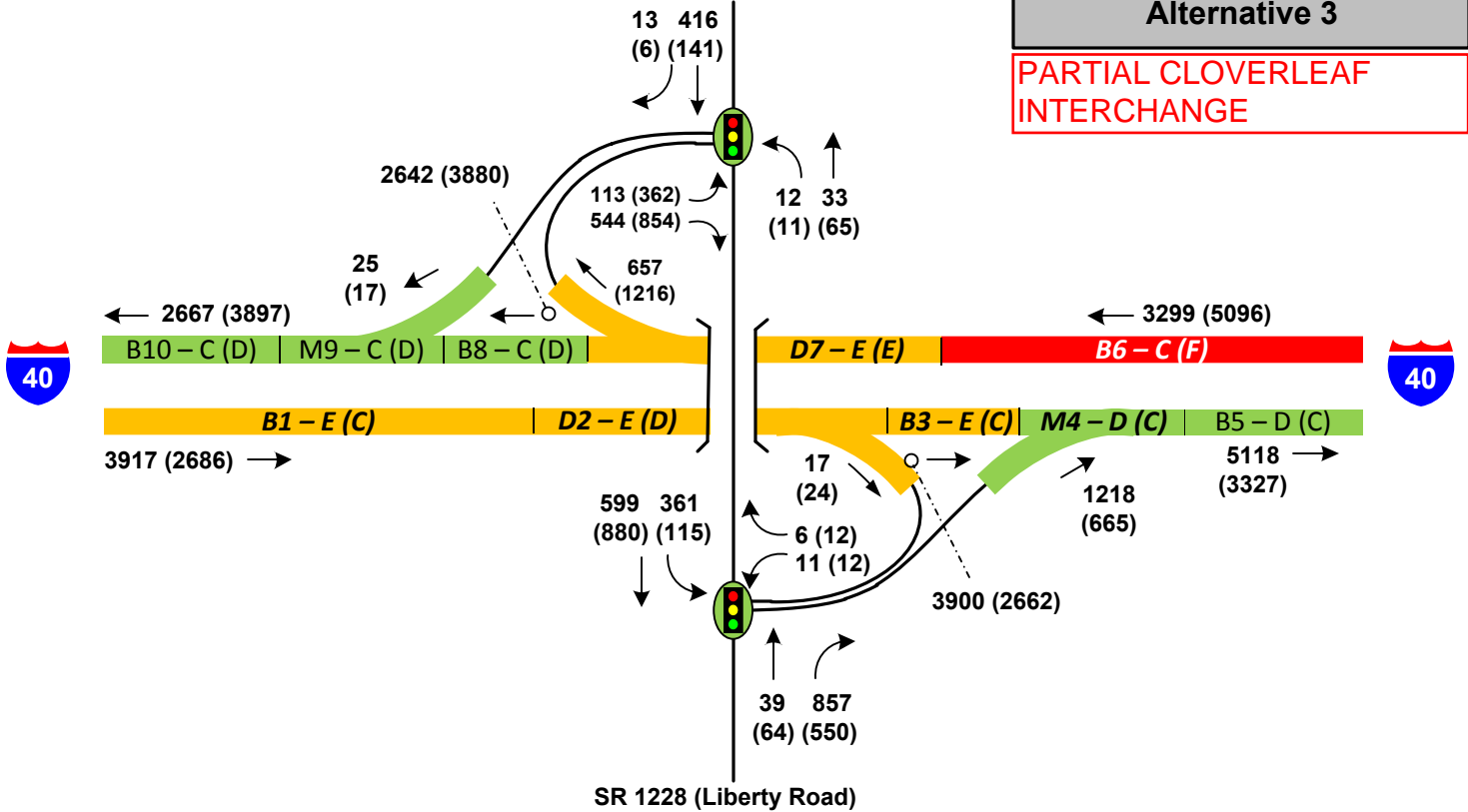
2040 Build Scenarios
Volumes and LOS

STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	

SR 1228 (Liberty Road)

Alternative 3

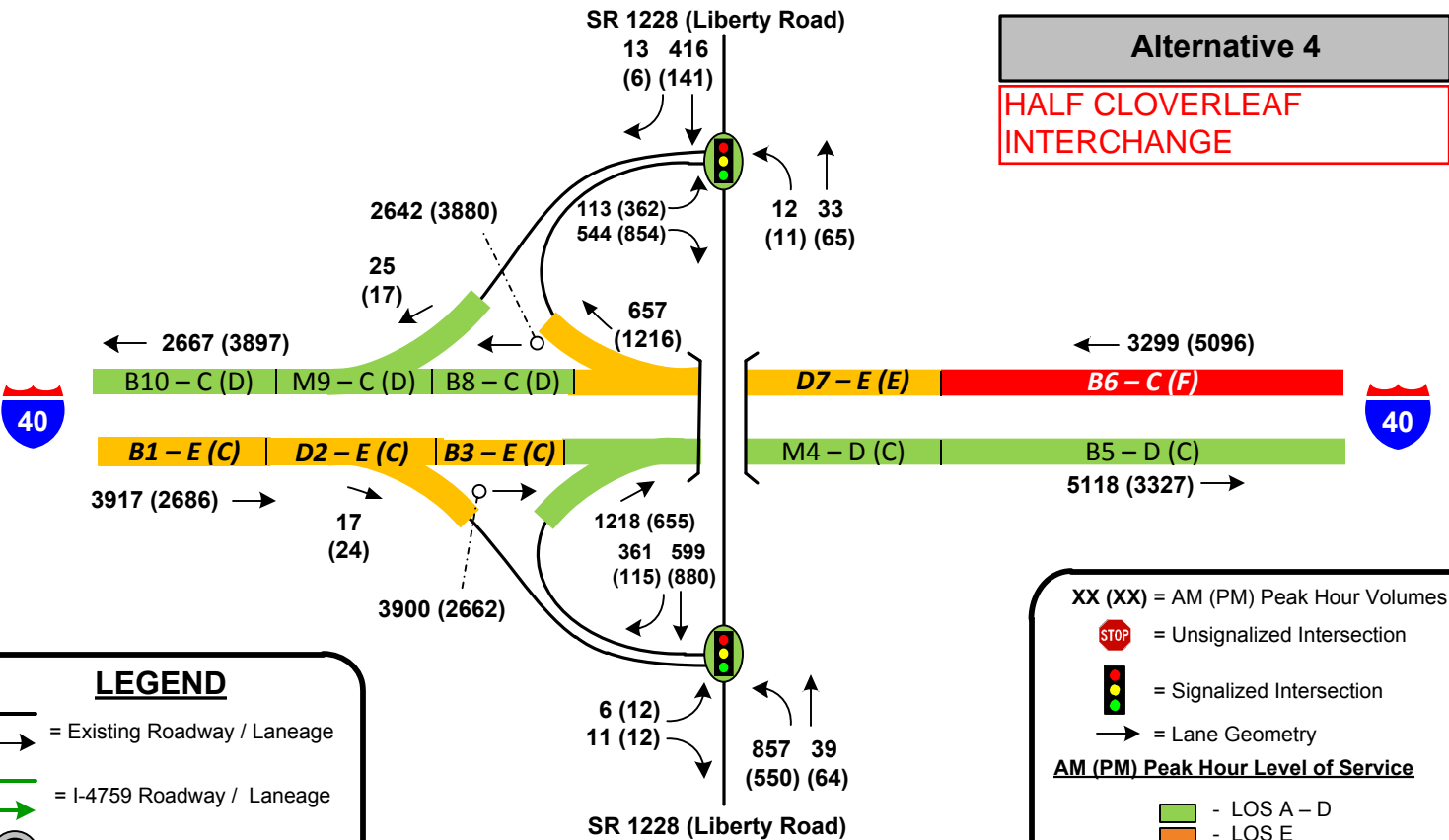
PARTIAL CLOVERLEAF INTERCHANGE



SR 1228 (Liberty Road)

Alternative 4

HALF CLOVERLEAF INTERCHANGE



LEGEND

- = Existing Roadway / Laneage
- = I-4759 Roadway / Laneage
- = Roundabout

XX (XX) = AM (PM) Peak Hour Volumes

= Unsignalized Intersection

= Signalized Intersection

= Lane Geometry

AM (PM) Peak Hour Level of Service

- LOS A - D
- LOS E
- LOS F

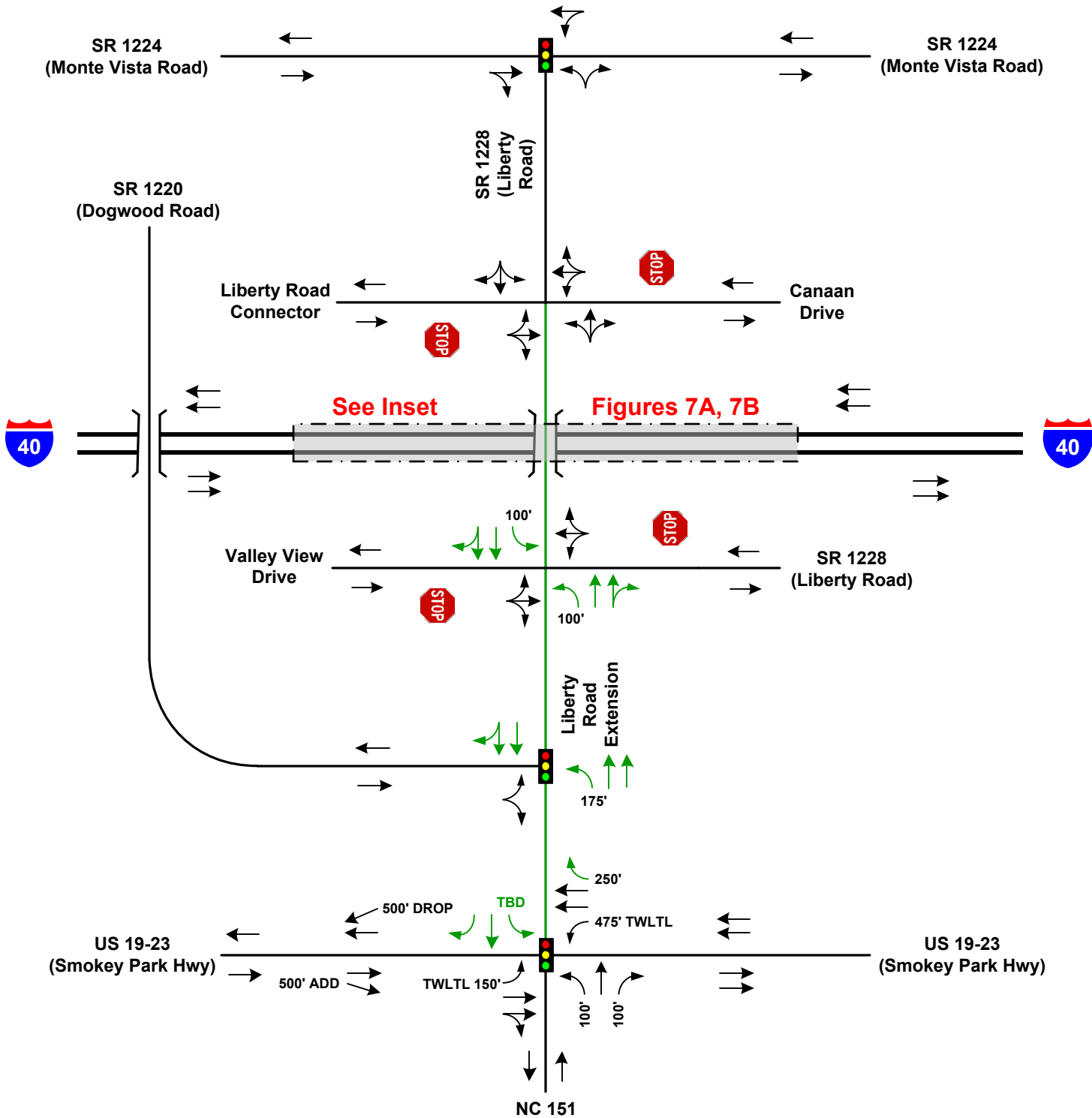


NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

2040 Build Scenarios
Volumes and LOS

STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	



LEGEND

- = Existing Roadway / Laneage
- = I-4759 Roadway / Laneage

- = Unsignalized Intersection
- = Signalized Intersection

XXX' - Recommended Storage Length



NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

2040 Build Scenarios
Recommended Laneage

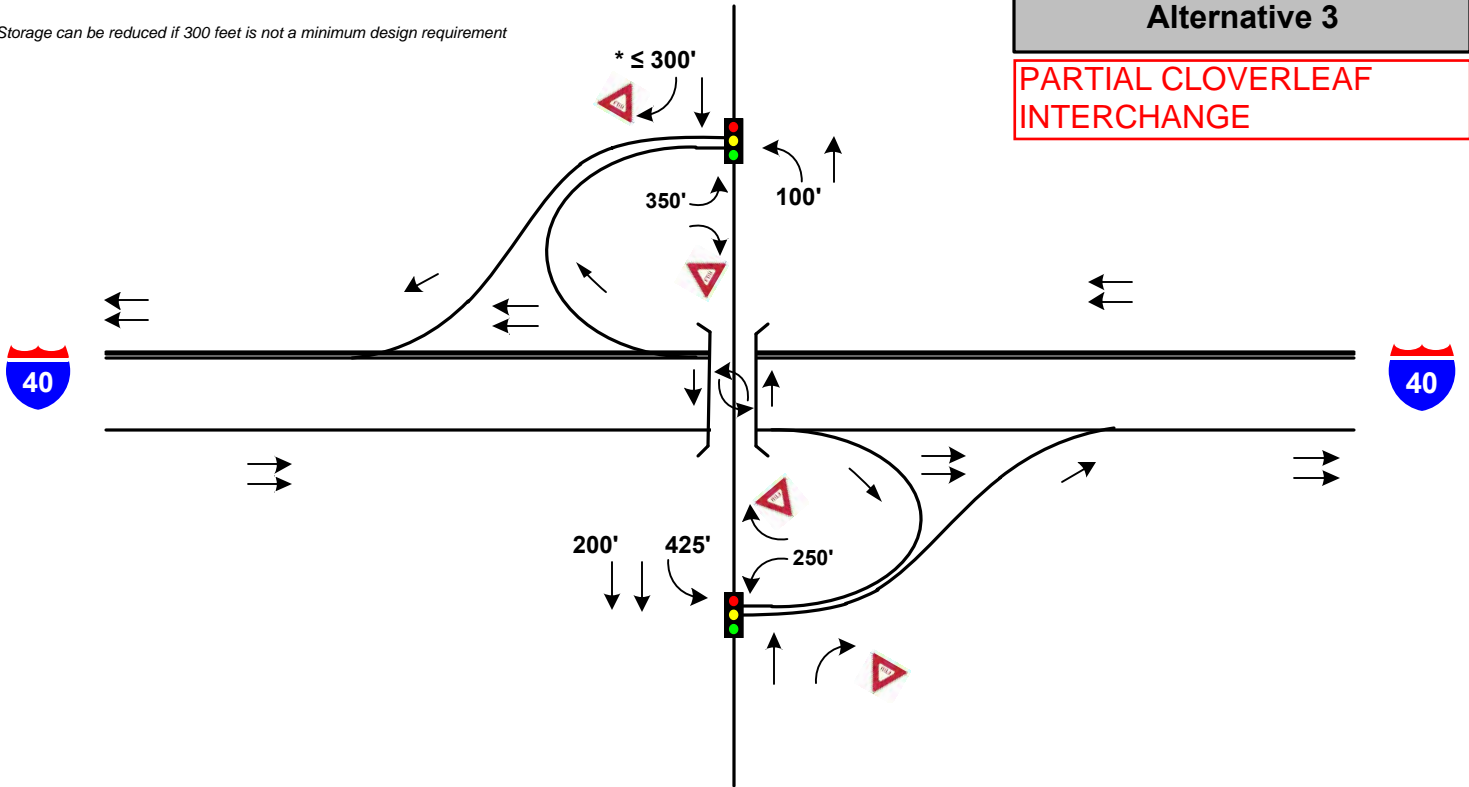
STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	

SR 1228 (Liberty Road)

* Storage can be reduced if 300 feet is not a minimum design requirement

Alternative 3

PARTIAL CLOVERLEAF INTERCHANGE

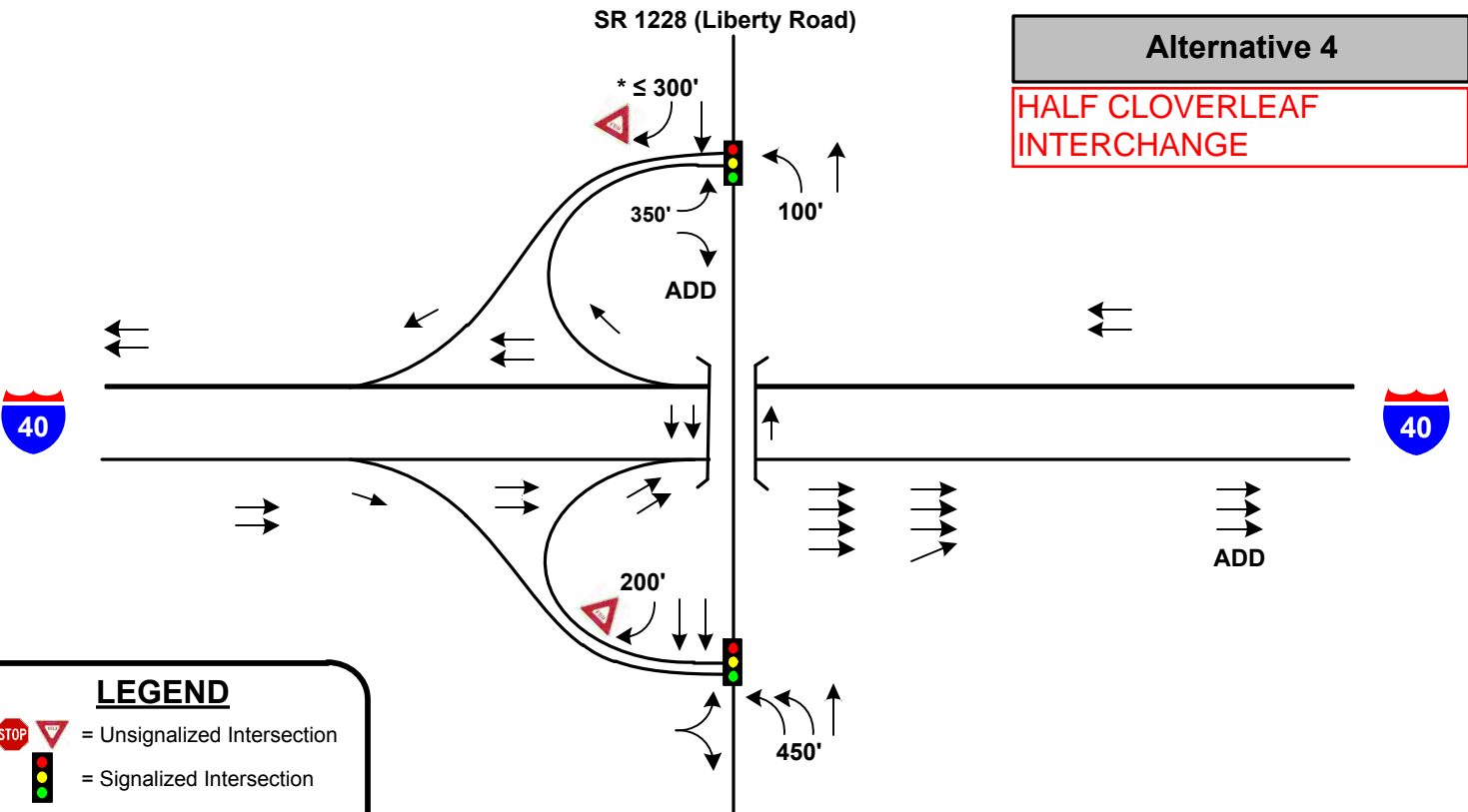


SR 1228 (Liberty Road)

SR 1228 (Liberty Road)

Alternative 4

HALF CLOVERLEAF INTERCHANGE



SR 1228 (Liberty Road)

LEGEND

- = Unsignalized Intersection
- = Signalized Intersection
- = Lane Geometry

XXX' - Recommended Storage Length



NOT TO SCALE

NCDOT STIP I-4759
Liberty Road Interchange

2040 Build Scenarios
Recommended Laneage

STIP #: I-4759	COUNTY: Buncombe
DATE: April 2016	DIVISION: 13
PREPARED BY: HNTB North Carolina, P.C. 343 E. Six Forks Rd., Ste. 200 Raleigh, North Carolina 27609	

APPENDIX D
NCDOT COST ESTIMATES

Summary: Alt.2 (Partial Cloverleaf Interchnage)

Requesting Party: Ahmad Al-Sharawneh/PDEA

Estimate Date: August 11, 2016

Relocation Totals		Construction Total		Alternate Totals	
Power Poles:	\$726,786.00	Power Poles:		Relocation Total	\$990,576.00
Power Items:		Power Items:		Construction Total	\$607,200.00
Telephone Poles	\$152,790.00	Telephone Poles		Alternate Total	\$1,597,776.00
Telephone Items		Telephone Items			
Gas Line:	\$111,000.00	Gas Line:			
Gas Items:		Gas Items:			
Water Line:		Water Line:	\$422,400.00		
Water Items:		Water Items:			
Sewer Line:		Sewer Line:	\$184,800.00		
Sewer Items:		Sewer Items:			
Misc.Items:		Misc.Items:			

Summary: Alt.3 (Half Cloverleaf Interchange)

Requesting Party: Ahmad Al-Sharawneh/PDEA

Estimate Date: August 11, 2016

Relocation Totals		Construction Total		Alternate Totals	
Power Poles:	\$720,090.00	Power Poles:		Relocation Total	\$983,880.00
Power Items:		Power Items:		Construction Total	\$607,200.00
Telephone Poles	\$152,790.00	Telephone Poles		Alternate Total	\$1,591,080.00
Telephone Items		Telephone Items			
Gas Line:	\$111,000.00	Gas Line:			
Gas Items:		Gas Items:			
Water Line:		Water Line:	\$422,400.00		
Water Items:		Water Items:			
Sewer Line:		Sewer Line:	\$184,800.00		
Sewer Items:		Sewer Items:			
Misc.Items:		Misc.Items:			

Detail: Alt.2 (Partial Cloverleaf Interchnage)**Power Poles**

Type	Location	Number	Cost / Pole	Total Cost
Distribution Pole Single Phase		27	\$8,760.00	\$236,520.00
Distribution Pole Three Phase		42	\$11,673.00	\$490,266.00
		Total:	69	\$726,786.00

Telephone Poles

Type	Location	Number	Cost / Pole	Total Cost
Three Cable Telephone Pole		10	\$4,912.00	\$49,120.00
Two Cable Telephone Pole		15	\$4,086.00	\$61,290.00
One Cable Telephone Pole		13	\$3,260.00	\$42,380.00
		Total:	38	\$152,790.00

Gas Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
8" Gas Line Per Linear Foot		1000	\$111.00	\$111,000.00
		Total:		\$111,000.00

Water Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
6" PVC Water Line Per Linear Foot		5280	\$80.00	\$422,400.00
		Total:		\$422,400.00

Sewer Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
6" PVC Sewer Line Per Linear Foot		5280	\$35.00	\$184,800.00
		Total:		\$184,800.00

Alternate Total \$1,597,776.00

Detail: Alt.3 (Half Cloverleaf Interchange)**Power Poles**

Type	Location	Number	Cost / Pole	Total Cost
Distribution Pole 7200 volt < 20 Poles		27	\$8,512.00	\$229,824.00
Distribution Pole Three Phase		42	\$11,673.00	\$490,266.00
		Total:	69	\$720,090.00

Telephone Poles

Type	Location	Number	Cost / Pole	Total Cost
Three Cable Telephone Pole		10	\$4,912.00	\$49,120.00
Two Cable Telephone Pole		15	\$4,086.00	\$61,290.00
One Cable Telephone Pole		13	\$3,260.00	\$42,380.00
		Total:	38	\$152,790.00

Gas Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
8" Gas Line Per Linear Foot		1000	\$111.00	\$111,000.00
		Total:		\$111,000.00

Water Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
6" PVC Water Line Per Linear Foot		5280	\$80.00	\$422,400.00
		Total:		\$422,400.00

Sewer Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
6" PVC Sewer Line Per Linear Foot		5280	\$35.00	\$184,800.00
		Total:		\$184,800.00

Alternate Total \$1,591,080.00

North Carolina Department of Transportation
Preliminary Estimate

TIP No. **I-4759**
 Route Alt 2: Liberty Road realignment and new interchange (half clover) at I-40
 From HNTB
 Typical Section 4-lane divided (23' median), 3 lane and 2 lane undivided

Func

County: **BUNCOMBE**

CONSTR. COST
\$34,900,000

Prepared By: EWS 8/16/16
 Requested By: KEM / Steve Kendall, PE 8/16/16
 Priced By: Doug Lane 8/15/16 **Added Raised Median 1'-6" C & G**

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			2'-6" Concrete Curb and Gutter	2,564	LF	\$ 30.00	\$ 76,906.70
			1'-6" Concrete Curb and Gutter	2,925	LS	\$ 12.00	\$ 35,100.00
			5" Mono. Islands (Surface Mounted)	2,191	SY	\$ 40.00	\$ 87,637.80
			Clearing and Grubbing	20.0	Acre	\$ 15,000.00	\$ 299,516.53
			Drainage (Interstate)	0.4	Miles	\$ 300,000.00	\$ 106,996.02
			Drainage (Liberty Road 4 Lane) (Ditch)	0.7	Miles	\$ 300,000.00	\$ 219,869.32
			Drainage (Liberty Road 3 Lane) (Ditch)	0.2	Miles	\$ 250,000.00	\$ 57,330.97
			Drainage (Liberty Road 2 Lane) (Ditch)	0.6	Miles	\$ 200,000.00	\$ 113,046.97
			Drainage (Ramps) (Ditch)	0.7	Miles	\$ 100,000.00	\$ 73,818.18
			Drainage (Loops) (C&G)	0.4	Miles	\$ 120,000.00	\$ 48,105.91
			Earthwork (Excavation)	364,487	CY	\$ 8.00	\$ 2,915,896.00
			Earthwork (Fill)	887,220	CY	\$ 6.00	\$ 5,323,320.00
			Express Concrete Curb and Gutter	0	LF	\$ 25.00	\$ -
			Fine Grading	75,090	SY	\$ 2.00	\$ 150,180.84
			New Pavement (Interstate) (Accel/Decel lanes only)	7,431	SY	\$ 50.00	\$ 371,532.21
			New Pavement (Liberty Road) (15000 vpd)	31,187	SY	\$ 45.00	\$ 1,403,409.90
			New Pavement (Ramps&Loops) (10800 vpd)	10,729	SY	\$ 50.00	\$ 536,455.33
			New Pavement (D Alignment) (no traffic data available)	512	SY	\$ 45.00	\$ 23,057.17
			New Pavement (S Alignments) (1700 vpd)	5,830	SY	\$ 45.00	\$ 262,355.67
			New Shoulder Pavement (Interstate)	5,531	SY	\$ 50.00	\$ 276,562.71
			New Shoulder Pavement (Liberty Road)	5,847	SY	\$ 45.00	\$ 263,120.26
			New Shoulder Pavement (Ramps&Loops)	5,285	SY	\$ 50.00	\$ 264,263.75
			Remove Existing Asphalt Pavement	5,431	SY	\$ 5.00	\$ 27,156.39
			Resurfacing (D Alignments)	400	SY	\$ 7.00	\$ 2,797.65
			Resurfacing (Interstate)	675	SY	\$ 7.00	\$ 4,724.84
			Resurfacing (Liberty Road)	4,226	SY	\$ 7.00	\$ 29,579.42
			Resurfacing (S Alignments)	655	SY	\$ 7.00	\$ 4,586.28
			Rumble Strips (Interstate)	4,808	LF	\$ 0.20	\$ 961.64
			Single Faced Concrete Barrier Wall	35	LF	\$ 120.00	\$ 4,173.78
			Subgrade Stabilization	86,354	SY	\$ 6.00	\$ 518,123.90
			Widening (D Alignment) (no traffic data available)	728	SY	\$ 45.00	\$ 32,752.01
			Widening (S Alignment) (1700 vpd)	404	SY	\$ 45.00	\$ 18,163.04
			Widening (Liberty Road) (15000 vpd)	2,119	SY	\$ 45.00	\$ 95,335.42
			Steel Beam Guardrail	8,207.3	LF	\$ 15.00	\$ 123,109.83
			GRAU, Type 350	9	Each	\$ 1,800.00	\$ 16,200.00
			Guardrail Anchor, Type CAT-1	7	Each	\$ 600.00	\$ 4,200.00
			Guardrail Anchor, Type AT-1	1	Each	\$ 500.00	\$ 500.00
			Guardrail Anchor, Type III	8	Each	\$ 1,400.00	\$ 11,200.00
			Fencing				
			Woven Wire	4,998	LF	\$ 5.00	\$ 24,988.97
			Erosion Control	57.2	Acres	\$ 15,000.00	\$ 858,651.79
			Signing Interchanges				
			Diamond		Each		\$ -
			Half Clover	1.0	Each	\$ 200,000.00	\$ 200,000.00
			SPUI		Each		\$ -
			Flyover		Each		\$ -
			Other.....		Each		\$ -
			Traffic Control (Liberty Road) (widening and crossing existing roadways)	1.10	Miles	\$ 100,000.00	\$ 110,000.00
			Traffic Control (Interstate)	1.28	Miles	\$ 150,000.00	\$ 192,321.31
			Thermo and Markers (Liberty Road 4 Lane)	0.73	Miles	\$ 20,000.00	\$ 14,657.95

North Carolina Department of Transportation
Preliminary Estimate

	Thermo and Markers (Liberty Road 3 Lane)	0.23	Miles	\$ 15,000.00	\$ 3,439.86
	Thermo and Markers (Liberty Road 2 Lane)	0.57	Miles	\$ 12,000.00	\$ 6,782.82
	Thermo and Markers (Interstate, Ramps, and Loops) (1 Lane)	1.50	Miles	\$ 8,000.00	\$ 11,965.74
	Signals (interchange/Monte Vista/Dogwood) (new)	4	Each	\$ 90,000.00	\$ 360,000.00
	Signals (US 19/23) (modification)	1	Each	\$ 70,000.00	\$ 70,000.00
	Structures				
	Liberty Rd over Pond Creek- 87'x290'	25,230	SF	\$ 110.00	\$ 2,775,300.00
	Liberty Rd over I-40 - 52'x233'	12,116	SF	\$ 130.00	\$ 1,575,080.00
	Approach Slab				
	Liberty Road (2) 87'x25'	4,350	SF	\$ 25.00	\$ 108,750.00
	Liberty Road Over I-40 (2) 52'x25'	2,600	SF	\$ 25.00	\$ 65,000.00
	Existing Structure Removal				
	Liberty Rd over I-40 - 35.5'x284'	10,082	SF	\$ 15.00	\$ 151,230.00
	RC Box Culvert				
	Culvert L Sta 27+50 RCBC (Extension) 2 @ 8'x9' - 200'Extension, Fill Height 32', Skew 11	200	LF	\$ 2,900.00	\$ 580,000.00
	Culvert Ramp D Sta 23+50 RCBC (New) 1 @ 7'x8' - 355'New, Fill Height 54', Skew 132°	355	LF	\$ 1,200.00	\$ 426,000.00
	Culvert S3 Sta 12+80 RCBC (New) 1 @ 8'x8' - 248'New, Fill Height 41', S'kew 108°	248	LF	\$ 1,300.00	\$ 322,400.00
	Structrual Plate Pipe				
	L Sta 49+10 SPP (Extension) 1 @ 72" - 61' Extension, Fill Height 47', Skew 104°	61	LF	\$ 600.00	\$ 36,540.00
	Utility Construction				
	Per Utility Section	1	LS	\$ 607,200.00	\$ 607,200.00
	Misc. & Mob (15% Str & Utilities)		LS		\$ 997,645.11
	Misc. & Mob (45% Rdwy)		LS		\$ 7,045,000.00

Lgth 1.526 Mi.

Contract Cost	\$ 30,345,000.00
E. & C. 15%	\$ 4,555,000.00
Construction Cost	\$ 34,900,000.00

North Carolina Department of Transportation
Preliminary Estimate

TIP No. **I-4759**
 Route Alt 3: Liberty Road realignment and new interchange (half clover) at I-40
 From HNTB
 Typical Section 4-lane divided (23' median), 3 lane and 2 lane undivided

Func

County: **BUNCOMBE**

CONSTR. COST
\$39,600,000

Prepared By: EWS
 Requested By: KEM / Steve Kendall, PE
 Priced By: Doug Lane

8/16/16
 8/16/16
 8/15/16 **Added Raised Median 1'-6" C & G**

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			2'-6" Concrete Curb and Gutter	2,659	LF	\$ 30.00	\$ 79,761.11
			1'-6" Concrete Curb and Gutter	2,925	LS	\$ 12.00	\$ 35,100.00
			5" Mono. Islands (Surface Mounted)	2,671	SY	\$ 40.00	\$ 106,842.47
			Clearing and Grubbing	24.2	Acre	\$ 15,000.00	\$ 363,442.79
			Drainage (Interstate/Accel and Decel Lanes) (Ditch)	0.7	Miles	\$ 300,000.00	\$ 196,374.43
			Drainage (Liberty Road 4 Ln) (Ditch)	0.7	Miles	\$ 300,000.00	\$ 211,363.07
			Drainage (Liberty Road 3 Ln) (Ditch)	0.3	Miles	\$ 250,000.00	\$ 84,160.04
			Drainage (Liberty Road 2 Ln) (Ditch)	0.6	Miles	\$ 200,000.00	\$ 112,328.03
			Drainage (Ramp B) (Ditch)	0.4	Miles	\$ 100,000.00	\$ 39,028.22
			Drainage (Ramp C) (Ditch)	0.4	Miles	\$ 100,000.00	\$ 39,971.59
			Drainage (Loop B) (C&G)	0.2	Miles	\$ 120,000.00	\$ 25,784.77
			Drainage (Loop C) (C&G)	0.2	Miles	\$ 120,000.00	\$ 24,472.27
			Earthwork (Excavation)	840,327	CY	\$ 8.00	\$ 6,722,616.00
			Earthwork (Fill)	533,091	CY	\$ 6.00	\$ 3,198,546.00
			Express Concrete Curb and Gutter	482	LF	\$ 25.00	\$ 12,040.00
			Fine Grading	84,035	SY	\$ 2.00	\$ 168,070.64
			New Pavement (Interstate) (accel/decel lanes only)	10,720	SY	\$ 50.00	\$ 535,980.85
			New Pavement (Liberty Road) (15000 vpd)	33,961	SY	\$ 45.00	\$ 1,528,231.34
			New Pavement (Ramps&Loops) (10800 vpd)	11,599	SY	\$ 50.00	\$ 579,962.66
			New Pavement (D Alignment) (no traffic data available)	512	SY	\$ 45.00	\$ 23,057.17
			New Pavement (S Alignments) (1700 vpd)	5,830	SY	\$ 45.00	\$ 262,355.67
			New Shoulder Pavement (Interstate)	7,048	SY	\$ 50.00	\$ 352,406.13
			New Shoulder Pavement (Liberty Road)	5,837	SY	\$ 50.00	\$ 291,858.70
			New Shoulder Pavement (Ramps&Loops)	5,790	SY	\$ 50.00	\$ 289,515.95
			Remove Existing Asphalt Pavement	7,193	SY	\$ 5.00	\$ 35,964.37
			Resurfacing (D Alignments)	400	SY	\$ 7.00	\$ 2,797.65
			Resurfacing (Interstate)	699	SY	\$ 7.00	\$ 4,892.34
			Resurfacing (Liberty Road)	4,226	SY	\$ 7.00	\$ 29,579.42
			Resurfacing (S Alignments)	655	SY	\$ 7.00	\$ 4,586.28
			Rumble Strips (Interstate)	6,328	LF	\$ 7.00	\$ 44,296.89
			Subgrade Stabilization	96,641	SY	\$ 6.00	\$ 579,843.70
			Widening (D Alignment) (no traffic data available)	728	SY	\$ 45.00	\$ 32,752.01
			Widening (S Alignment) (1700 vpd)	404	SY	\$ 45.00	\$ 18,163.04
			Widening (Liberty Road) (15000 vpd)	2,119	SY	\$ 45.00	\$ 95,335.42
			Steel Beam Guardrail	9,335.5	LF	\$ 15.00	\$ 140,032.92
			GRAU, Type 350	11	Each	\$ 1,800.00	\$ 19,800.00
			Guardrail Anchor, Type CAT-1	8	Each	\$ 600.00	\$ 4,800.00
			Guardrail Anchor, Type AT-1	1	Each	\$ 500.00	\$ 500.00
			Guardrail Anchor, Type III	8	Each	\$ 1,400.00	\$ 11,200.00
			Fencing				
			Woven Wire	5,443	LF	\$ 5.00	\$ 27,214.76
			Erosion Control	50.3	Acres	\$ 15,000.00	\$ 754,988.55
			Signing Interchanges				
			Diamond		Each		\$ -
			Half Clover	1.0	Each	\$ 200,000.00	\$ 200,000.00
			SPUI		Each		\$ -
			Flyover		Each		\$ -
			Other.....		Each		\$ -
			Traffic Control (Liberty Road) (widening and crossing existing roadways)	1.10	Miles	\$ 100,000.00	\$ 110,000.00
			Traffic Control (Interstate/Accel and Decel Lanes)	1.63	Miles	\$ 150,000.00	\$ 245,191.19

North Carolina Department of Transportation
Preliminary Estimate

		Thermo and Markers (Liberty Road 4 Ln)	0.70	Miles	\$ 20,000.00	\$ 14,090.87
		Thermo and Markers (Liberty Road 3 Ln)	0.34	Miles	\$ 15,000.00	\$ 5,049.60
		Thermo and Markers (Liberty Road 2 Ln)	0.56	Miles	\$ 12,000.00	\$ 6,739.68
		Thermo and Markers (Interstate) (1 Lane)	0.65	Miles	\$ 8,000.00	\$ 5,236.65
		Thermo and Markers (Ramp B) (1 Lane)	0.39	Miles	\$ 8,000.00	\$ 3,122.26
		Thermo and Markers (Ramp C) (1 Lane)	0.40	Miles	\$ 8,000.00	\$ 3,197.73
		Thermo and Markers (Loop B) (1 Lane)	0.21	Miles	\$ 8,000.00	\$ 1,718.98
		Thermo and Markers (Loop C) (2 Lanes)	0.20	Miles	\$ 12,000.00	\$ 2,447.23
		Signals (interchange/Monte Vista/Dogwood) (new)	4	Each	\$ 90,000.00	\$ 360,000.00
		Signals (US 19/23) (modification)	1	Each	\$ 70,000.00	\$ 70,000.00
		Structures				
		Liberty Rd over Pond Creek - 87'x290'	25,230	SF	\$ 110.00	\$ 2,775,300.00
		Liberty Rd over I-40 - 76'x245'	18,620	SF	\$ 130.00	\$ 2,420,600.00
		Approach Slab				
		Liberty Road (2) 87'x25'	4,350	SF	\$ 25.00	\$ 108,750.00
		Liberty Road Over I-40 (2) 76'x25'	3,800	SF	\$ 25.00	\$ 95,000.00
		Existing Structure Removal				
		Liberty Rd over I-40 - 35.5'x284'	10,082	SF	\$ 15.00	\$ 151,230.00
		RC Box Culvert				
		Culvert L Sta 27+50 RCBC (Extension) 2 @ 8'x9' - 200'Extension, Fill Height 32', Skew 110°	200	LF	\$ 2,900.00	\$ 580,000.00
		Culvert S3 Sta 12+80 RCBC (New) 1 @ 8'x8' - 248'New, Fill Height 41', Skew 108°	248	LF	\$ 1,300.00	\$ 322,400.00
		Structural Plate Pipe				
		L Sta 49+10 SPP (Extension) 1 @ 72" - 61' Extension, Fill Height 47', Skew 104°	61	LF	\$ 600.00	\$ 36,540.00
		Utility Construction				
		Per Utility Section	1	LS	\$ 606,200.00	\$ 606,200.00
		Misc. & Mob (15% Str & Utilities)		LS		\$ 1,064,168.55
		Misc. & Mob (45% Rdwy)		LS		\$ 8,153,000.00

Lgth 1.526 Mi.

Contract Cost	\$ 34,430,000.00
E. & C. 15%	\$ 5,170,000.00
Construction Cost	\$ 39,600,000.00

REQUEST FOR R/W COST ESTIMATE / RELOCATION EIS

COST ESTIMATE REQUEST

RELOCATION EIS REPORT

NEW REQUEST:

UPDATE REQUEST:
Update to ____ Estimate

REVISION REQUEST:
Revision to ____ Estimate
Revision No.: ____

DATE RECEIVED: 05/13/16

DATE ASSIGNED: 05/19/16

of Alternates Requested: 3

DATE DUE: 08/12/16 Ext: 09/26/16

TIP NUMBER <u>I-4759</u>	DESCRIPTION: <u>STIP I-4759 proposed new access to I-40 at SR-1228 (Liberty Rd), converting existing overpass to an interchange. The proposed project would also include the realignment, part on a new location, and upgrade of the existing Liberty Rd. between SR-1224 (Monte Vista Rd) and the US 19/23 (Smokey Park Hwy) and NC 151 intersection with SR-1220 (Dogwood Rd)</u>
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WBS ELEMENT: 39970.1.1 COUNTY: Buncombe DIV: 13 APPRAISAL OFFICE: 5

REQUESTOR: Ahmad Al-Sharawneh DEPT: PDEA

TYPE OF PLANS PROVIDED: Preliminary Functional Designs

BASED ON PAST PROJECT HISTORICAL DATA, THE LAND AND DAMAGE FIGURES HAVE BEEN ADJUSTED TO INCLUDE CONDEMNATION AND ADMINISTRATIVE INCREASES THAT OCCUR DURING SETTLEMENT OF ALL PARCELS.

APPRAISER: Daniel Page & Rick Wynne COMPLETED: 09/26/16

of Alternates Completed: 3

TYPE OF ACCESS:	Alt 1 Diamond Interchange		Alt 2 Partial Cloverleaf		Alt 3 Half Cloverleaf	
	NONE: <input type="checkbox"/>	PARTIAL: <input type="checkbox"/>	NONE: <input type="checkbox"/>	PARTIAL: <input type="checkbox"/>	NONE: <input type="checkbox"/>	PARTIAL: <input type="checkbox"/>
	LIMITED: <input type="checkbox"/>	FULL: <input checked="" type="checkbox"/>	LIMITED: <input type="checkbox"/>	FULL: <input checked="" type="checkbox"/>	LIMITED: <input type="checkbox"/>	FULL: <input checked="" type="checkbox"/>
ESTIMATED NO. OF PARCELS:	84		67		78	
RESIDENTIAL RELOCATEES:	47	\$1,880,000	34	\$1,360,000	40	\$1,600,000
BUSINESS RELOCATEES:	-	\$-	-	\$-	-	\$-
GRAVES:	-	\$-	-	\$-	-	\$-
CHURCH / NON – PROFIT: _	-	\$-	-	\$-	-	\$-
MISC: _	-	\$-	-	\$-	-	\$-
SIGNS:	3	\$45,000	3	\$45,000	3	\$45,000
LAND, IMPROVEMENTS, AND DAMAGES:	\$14,248,704		\$9,296,910		\$12,450,000	
ACQUISITION:	\$420,000		\$335,000		\$390,000	
TOTAL ESTIMATED R/W COST:	\$16,593,704		\$11,036,910		\$14,485,000	

THE ESTIMATED NUMBER OF ABOVE RELOCATEES INCLUDES THOSE PARCELS WHERE THE PROPOSED ACQUISITION AREAS INVOLVE RELOCATION OF LIVABLE OR BUSINESS UNITS ONLY.

NOTES: Access is assumed for both sides of Parcels 39 & 40 on all alternates. Access is assumed on Alternate 3 for Parcels 72, 73 and 74 off cul-de-sac. Access is assumed on Alternate 2 for Parcel 56 off adjacent cul-de-sac. Access is assumed for Parcel 80 on all 3 alternates and Parcel 81 on Alternate 1. The following parcels are considered relocatees due to acquisition taking potential septic tank repair areas: Parcels 7, 13, 16, 18, 23, 25, 65 (all three alternates) & Parcel 84 on Alternate 1.

APPENDIX E
NCDOT RELOCATION REPORT

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

E.I.S. CORRIDOR DESIGN

WBS ELEMENT:	39970.1.1	COUNTY	Buncombe	Alternate	2	of	3	Alternate
T.I.P. No.:	I-4759	PARTIAL CLOVERLEAF INTERCHANGE						
DESCRIPTION OF PROJECT:	Convert Liberty Rd (SR 1228) Grade Separation on Interstate 40 to an Interchange and Improve Roadway from US 19/US 23/NC151 to Monte Vista Rd (SR 1224) with Part on New Location, Buncombe Co, FA No. STPIMS-040-1(188)42							

ESTIMATED DISPLACEDS					INCOME LEVEL							
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Residential	25	9	34	8	-0-	5	2	12	15			
Businesses	-0-	-0-	-0-	-0-	VALUE OF DWELLING		DSS DWELLING AVAILABLE					
Farms	-0-	-0-	-0-	-0-	Owners		For Sale		For Rent			
Non-Profit	-0-	-0-	-0-	-0-	0-20M	-0-	\$ 0-150	-0-	0-20M	-0-	\$ 0-150	-0-
ANSWER ALL QUESTIONS					20-40M	-0-	150-250	-0-	20-40M	2	150-250	-0-
Yes	No	<i>Explain all "YES" answers.</i>										
	X	1. Will special relocation services be necessary?										
	X	2. Will schools or churches be affected by displacement?										
X		3. Will business services still be available after project?										
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.										
	X	5. Will relocation cause a housing shortage?										
	X	6. Source for available housing (list).										
	X	7. Will additional housing programs be needed?										
X		8. Should Last Resort Housing be considered?										
	X	9. Are there large, disabled, elderly, etc. families?										
	X	10. Will public housing be needed for project?										
X		11. Is public housing available?										
X		12. Is it felt there will be adequate DSS housing available during relocation period?										
X		13. Will there be a problem of housing within financial means?										
X		14. Are suitable business sites available (list source).										
		15. Number months estimated to complete RELOCATION? 24 months										

REMARKS (Respond by number)

3. Will not be disrupted due to the project.

6. MLS listing service, Beverly-Hanks Realtors, Century 21 Realtors, and local newspapers/real estate publications and internet real estate services.

8. As necessary in accordance with State Law.

11. HUD housing is available, if necessary.

12. Given the last resort housing programs and proper lead time, it is felt that DSS housing will be available to those persons being displace.

13. It is felt that our Last Resort Housing Program will enable any person(s) being displaced to obtain or maintain housing within their financial means.

14. Since no businesses are being displaced, this question is not applicable.

****You may note a difference in the estimated number of displacees on the Relocation EIS Report and the Appraisal Cost Estimate. This is due to proximity damage being a factor on the Cost Estimate Report (improvements not actually in the proposed take, but considered damaged to the point of no value), as well as potential instances of loss of access due to the control of access right of way. For the most part, the Relocation EIS Report only considers those improvements physically located within the proposed acquisition areas of this project.**

 Daryl C. Roberts Right of Way Agent	8-8-2016 Date	 Relocation Coordinator	8/12/16 Date
--------------------------------------------	------------------	----------------------------	-----------------

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

E.I.S. CORRIDOR DESIGN

WBS ELEMENT:	39970.1.1	COUNTY	Buncombe	Alternate	3	of	3	Alternate
T.I.P. No.:	I-4759	HALF CLOVERLEAF INTERCHANGE						
DESCRIPTION OF PROJECT:	Convert Liberty Rd (SR 1228) Grade Separation on Interstate 40 to an Interchange and Improve Roadway from US 19/US 23/NC151 to Monte Vista Rd (SR 1224) with Part on New Location, Buncombe Co, FA No. STPIMS-040-1(188)42							

ESTIMATED DISPLACEDS					INCOME LEVEL							
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Residential	32	2	34	3	-0-	1	1	3	29			
Businesses	-0-	-0-	-0-	-0-	VALUE OF DWELLING DSS DWELLING AVAILABLE							
Farms	-0-	-0-	-0-	-0-	Owners		Tenants		For Sale For Rent			
Non-Profit	-0-	-0-	-0-	-0-	0-20M	-0-	\$ 0-150	-0-	0-20M	-0-	\$ 0-150	-0-
ANSWER ALL QUESTIONS					20-40M	-0-	150-250	-0-	20-40M	2	150-250	-0-
Yes	No	<i>Explain all "YES" answers.</i>										
	X	1. Will special relocation services be necessary?										
	X	2. Will schools or churches be affected by displacement?										
X		3. Will business services still be available after project?										
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.										
	X	5. Will relocation cause a housing shortage?										
	X	6. Source for available housing (list).										
	X	7. Will additional housing programs be needed?										
X		8. Should Last Resort Housing be considered?										
	X	9. Are there large, disabled, elderly, etc. families?										
	X	10. Will public housing be needed for project?										
X		11. Is public housing available?										
X		12. Is it felt there will be adequate DSS housing available during relocation period?										
X		13. Will there be a problem of housing within financial means?										
X		14. Are suitable business sites available (list source).										
		15. Number months estimated to complete RELOCATION? 24 months										

REMARKS (Respond by number)

3. Will not be disrupted due to the project.

6. MLS listing service, Beverly-Hanks Realtors, Century 21 Realtors, and local newspapers/real estate publications and internet real estate services.

8. As necessary in accordance with State Law.

11. HUD housing is available, if necessary.

12. Given the last resort housing programs and proper lead time, it is felt that DSS housing will be available to those persons being displace.

13. It is felt that our Last Resort Housing Program will enable any person(s) being displaced to obtain or maintain housing within their financial means.

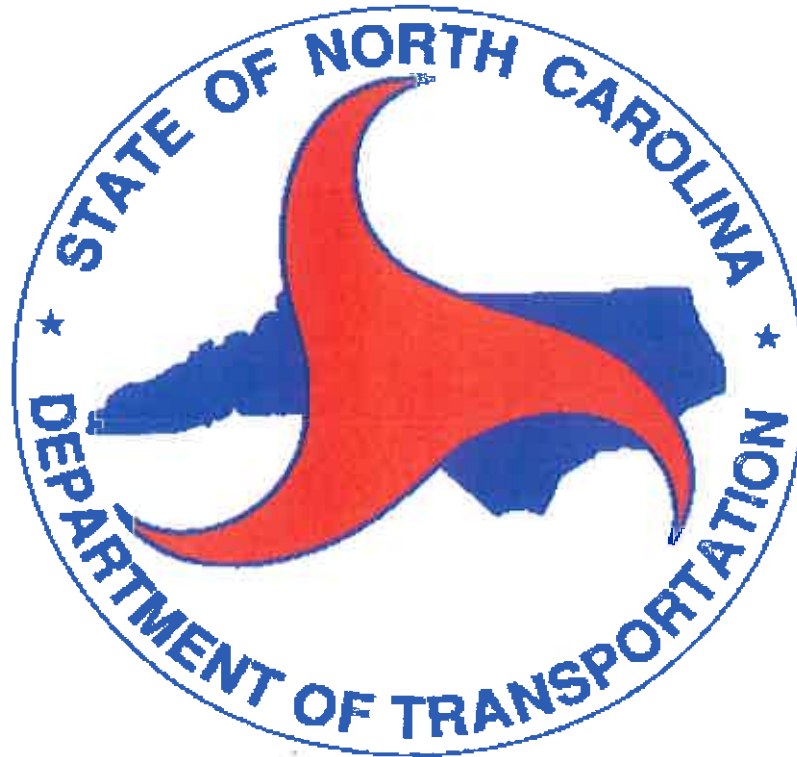
14. Since no businesses are being displaced, this question is not applicable.

****You may note a difference in the estimated number of displacees on the Relocation EIS Report and the Appraisal Cost Estimate. This is due to proximity damage being a factor on the Cost Estimate Report (improvements not actually in the proposed take, but considered damaged to the point of no value), as well as potential instances of loss of access due to the control of access right of way. For the most part, the Relocation EIS Report only considers those improvements physically located within the proposed acquisition areas of this project.**

 Daryl C. Roberts Right of Way Agent	8-8-2016		 Relocation Coordinator	8/12/16
Date			Date	

APPENDIX F
PUBLIC INVOLVEMENT

North Carolina Department of Transportation
Project Development and Environmental Analysis Branch



Citizen's Informational Workshop

**Liberty Road at I-40
New Interchange and Two-lane Road on New Location
Buncombe County, North Carolina**

July 14, 2009

TIP PROJECT I-4759

CITIZENS INFORMATIONAL WORKSHOP

New Interchange and Two-Lane Road on New Location

Buncombe County, North Carolina

TIP Number I-4759

PURPOSE OF THE CITIZENS INFORMATIONAL WORKSHOP

The purpose of this workshop is to inform and to involve the public in the project development process and to present the alternative(s) under consideration for the proposed project.

Public involvement is an important part of the North Carolina Department of Transportation's project development process. The concerns of local officials, citizens, businesses and interest groups are considered during project development process.

NCDOT is sensitive to the concerns of individuals living and working in close proximity to a proposed project. To that end, this workshop is a deliberate attempt to inform the citizens of the possible effects of the proposed project on their homes and businesses.

Written comments on this project may be left with NCDOT representatives at the workshop or mailed to the address below. If additional information is needed or you would like to submit comments after the workshop, please address requests and comments to:

Write: Dr. Gregory Thorpe, Manager
ATTN: Elmo E. Vance, Jr., Project Development Engineer
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Call: Elmo E. Vance, Jr., Project Development Engineer
(919) 733-7844 x 263

Email: eevance@ncdot.gov

PROJECT DESCRIPTION

The North Carolina Department of Transportation proposes to convert an existing grade separation between I-40 and SR 1228 (Liberty Road) to an interchange and construct a two-lane road on new location between US 1923/NC 151 and SR 1224.

PROJECT PURPOSE

The purpose of this project is to provide access to I-40, to improve the traffic carrying capacity and to improve safety along the facility.

THE PROJECT DEVELOPMENT PROCESS

Planning and environmental studies for federally funded highway projects are conducted in order to comply with the National Environmental Policy Act (NEPA). The type of document published following the planning study depends on the magnitude of the project and its expected environmental impact.

Project Development Milestones

- | | |
|-------------------------------------------------------------------------|---------------|
| • Data Collection | Completed |
| • <i>Citizens Information Workshop</i> | ← Here |
| • Environmental Document reviewed by the Federal Highway Administration | March 2011 |
| • Right of Way | FY 2013 |
| • Construction | FY 2015 |

**Citizens Informational Workshop
Comment Sheet (Continued)
I-4759**

Was the project adequately explained to you? Yes _____ No _____

Were NCDOT representatives understandable and clear in their explanations?
Yes _____ No _____ Further comments: _____

Were NCDOT representatives courteous and helpful? Yes _____ No _____

Were display maps and handouts easy to read and understand? Yes _____ No _____


How might we better present proposed projects and address citizens' concerns in future informational workshops?

How did you hear about this meeting today?

Based on the information available, were all substantial questions answered?
Yes _____ No _____

What was the most helpful aspect about the workshop today? What was the least helpful?


**THANK YOU FOR ATTENDING THE WORKSHOP.
YOUR COMMENTS ARE VERY IMPORTANT IN THE PLANNING PROCESS.**



Public Meeting
 Tuesday, August 30, 2016
 4 to 7 p.m.
 No formal presentation will be made
 Francis Asbury United Methodist Church,
 Gymnasium
 725 Asbury Road, Candler, NC 28715

**Liberty Road I-40 Interchange
 Project Website**
www.ncdot.gov/projects/libertyroad40interchange/
More information is available online at:
www.ncdot.gov/projects/publicmeetings/

NCDOT is proposing to convert the existing S.R. 1228 (Liberty Road) grade separation (bridge) over I-40 to an interchange and construct a new roadway between U.S. 19/23 (Smokey Park Highway)/NC 151 and S.R. 1224 (Monte Vista Road). A portion of this project will be constructed on new location.




PURPOSE:
 The primary purpose of the proposed project is to improve the transportation network in the study area to benefit mobility and connectivity.
 The Liberty Road I-40 Interchange will address the lack of connectivity along I-40 between US 19/23 and Wiggins Road by providing an alternate access point to I-40.

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

Page 1

Liberty Road I-40 Interchange



Legend
 Study Area
 Proposed Liberty Road Improvements

0 500 1,000 Feet

See insets on facing page

Project Schedule:

Winter 2016-17 — Environmental Assessment published for public comment.	2019* — Begin right of way acquisition.
Spring 2017 — Public Hearing (detailed designs will be presented at this meeting).	2020* — Begin construction.
Winter 2017-18 — Final Environmental Document (FONSI)	* As shown in 2016-2025 STIP; subject to change.

Page 2


Page 2

August 2016


Detailed Study Alternatives

Through coordination with our agency partners, NCDOT has developed 3 interchange configuration alternatives for further detailed study. The interchange configurations include a diamond interchange, a partial cloverleaf interchange, and a half cloverleaf interchange (see Figure insets below).


The proposed realigned Liberty Road would be two-lanes north of I-40 and four-lanes with a median south of I-40. NCDOT is working with local jurisdictions to determine bicycle and pedestrian accommodations on the proposed realigned Liberty Road.



Alternative 1: Diamond
 Alternative 1 includes a ramp in every interchange quadrant. Alternative 1 would require the most right of way of the three interchange configuration alternatives.




Alternative 2: Partial Cloverleaf
 Alternative 2 includes a ramp in the southeast and northwest interchange quadrants. Alternative 2 would require the least amount of right of way of the three interchange configuration alternatives.



Alternative 3: Half Cloverleaf
 Alternative 3 includes a ramp in the southwest and northwest interchange quadrants. Alternative 3 would require less right of way than Alternative 1 but more right of way than Alternative 2.

Page 3

Page 3



Liberty Road I-40 Interchange
 (TIP #I-4759)
 North Carolina Department of Transportation
 Project Development and Environmental Analysis Unit
 Attn: Ahmad Al-Sharawneh
 1548 Mail Service Center
 Raleigh, North Carolina 27699-1548

AL-SHARAWNEH AHMAD
 1548 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1548

Project Contacts:

Ahmad Al-Sharawneh NCDOT Project Planning Engineer 1548 Mail Service Center Raleigh, NC 27699-1548 (919) 707-6010 aaisharawneh@ncdot.gov	Adam J. Archual HNTB North Carolina, PC 343 E Six Forks Road, Suite 200 Raleigh, NC 27609 (919) 424-0442 aarchual@hntb.com
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NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who want to participate in this meeting. Anyone requiring special services should contact Ms. Diane Wilson at (919) 707-6073 or by email 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 de la reunión llamando al 1-800-481-6494.

333 copies of this newsletter were produced at a cost of \$1.50 each.

Page 4

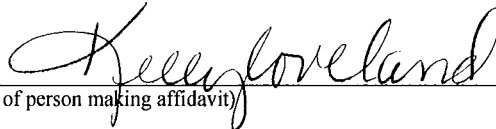
AFFIDAVIT OF PUBLICATION

BUNCOMBE COUNTY

SS.
NORTH CAROLINA

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified and authorized by law to administer oaths, personally appeared **Kelly Loveland**, who, being first duly sworn, deposes and says: that she is the **Staff Accountant** of **The Asheville Citizen-Times**, engaged in publication of a newspaper known as **The Asheville Citizen-Times**, published, issued, and entered as first class mail in the City of Asheville, in said County and State; that she is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in **The Asheville Citizen-Times** on the following date: August 14th, 21st, 24th and 28th 2016. And that the said newspaper in which said notice, paper, document or legal advertisement was published was, at the time of each and every publication, a newspaper meeting all of the requirements and qualifications of Section 1-597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Section 1-597 of the General Statutes of North Carolina.

Signed this 29th day of August, 2016



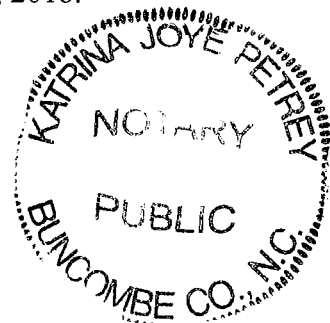
(Signature of person making affidavit)

Sworn to and subscribed before me the 29th day of August, 2016.



(Notary Public)

My Commission expires the 5th day of October, 2018.



NCDOT TO HOST PUBLIC MEETING AUGUST 30 REGARDING THE PROPOSED CONVERSION OF THE LIBERTY ROAD (S.R. 1228) GRADE SEPARATION OVER I-40 TO AN INTERCHANGE AND CONSTRUCTION OF A NEW ROADWAY BETWEEN U.S. 19 (SMOKEY PARK HIGHWAY) / N.C. 151 AND MONTE VISTA ROAD (S.R. 1224) IN ASHEVILLE

TIP Project No. I-4759 · Buncombe County

The North Carolina Department of Transportation (NCDOT) will hold an open-house public meeting for the proposed conversion of Liberty Road (S.R. 1228) Grade Separation over I-40 to an interchange, and construction of a new roadway between U.S. 19 (Smokey Park Highway) / N.C. 151 and Monte Vista Road (S.R. 1224) in Asheville.

The project will address the lack of connectivity along I-40 between U.S. 19/23 and Wiggins Road by providing an alternate access point to I-40.

The open-house public meeting will be held in the **Gymnasium at St. Francis Asbury United Methodist Church**, located at **725 Asbury Road**, in **Candler** from **4:00 P.M. to 7:00 P.M.** Interested citizens are encouraged to attend at any time during those hours. NCDOT and Consultant staff will be available to provide information on the project, answer questions and receive comments. Please note there will be no formal presentation.

A map of the proposed project is available on the NCDOT Public Meetings Website at: <http://www.ncdot.gov/projects/publicmeetings/>.


Anyone desiring additional information regarding the project may contact Ahmad Al-Sharawneh, NCDOT Project Development Engineer at (919) 707-6010 or by email at aalsharawneh@ncdot.gov. Comments may be submitted until **September 13, 2016**.

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 Ms. Diane Wilson, Senior Public Involvement Officer at (919) 707-6073 or email: 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.

August 14, 21, 24, 28, 2016

(3968)



Liberty Road I-40 Interchange
Buncombe County

State Transportation Improvement Program Project No. I-4759
Open House Public Meeting Handout - August 30, 2016

Project Description

The North Carolina Department of Transportation (NCDOT) is proposing to convert the existing Liberty Road (S.R. 1228) grade separation (bridge) over I-40 to an interchange and construct a new road between Smokey Park Highway (U.S. 19/23)/N.C. 151 and Monte Vista Road (S.R. 1224). A lack of connectivity in the roadway network in this area contributes to poor mobility. This project's purpose is to improve the transportation network to benefit mobility and connectivity. The proposed project will also reduce pressure on existing facilities, improve adjacent interchange traffic operations, and improve overall system efficiency and capacity.

Project Contacts

Ahmad Al-Sharawneh
NCDOT Project Planning Engineer
1548 Mail Service Center
Raleigh, NC 27699-1548
Telephone: (919) 707-6010
Email: aalsharawneh@ncdot.gov

Adam J. Archual
HNTB North Carolina, PC
343 E. Six Forks Road, Suite 200
Raleigh, NC 27609
Telephone: (919) 424-0442
Email: aarchual@hntb.com

The proposed new interchange will provide an alternate access point for I-40 to improve the roadway network connectivity in western Buncombe County. This will assist in the reducing travel times in the vicinity of the project.


The proposed realigned Liberty Road would be two-lanes north of I-40 and four-lanes south of I-40. NCDOT is working with local jurisdictions to determine bicycle and pedestrian accommodations on the proposed realigned Liberty Road.

Why am I here?


Public Involvement is an important part of the planning process. NCDOT encourages citizen involvement on transportation projects, and will consider your suggestions and address your concerns.

Today's meeting is another important step in NCDOT's efforts to keep you, the public, involved in the planning and development of the project. This meeting is being held to obtain your input on the design of the project.

Comments will be accepted until
Tuesday, September 13, 2016




Looking west from Liberty Road overpass.




Alternative 1-Diamond Interchange

- would include a ramp in every interchange quadrant,
- would require purchasing the most right of way,
- would involve the most parcels,
- would have the most impact on streams,
- would provide adequate traffic operations.



Alternative 2-Partial Cloverleaf Interchange

- would include a ramp in the southeast and northwest interchange quadrants,
- would require purchasing the least right of way,
- would involve the fewest parcels,
- would have less stream impacts than Alternative 1, but more than Alternative 3,
- would provide adequate traffic operations.



Comparison of Project Alternatives

Potential impacts are based on the functional roadway designs, plus a 40-foot buffer. As design continues to be refined impacts are expected to decrease.

Anticipated Impacts by Alternative Interchange Configuration	Required Right of Way (acres)	Parcels Potentially Affected	Streams (feet)	Floodplain (acres)
1, Diamond	70	84	2,000	0.8
2, Partial Cloverleaf	50	60	1,540	0.8
3, Half Cloverleaf	53	75	1,155	0.8

Though all Alternatives perform similarly, Alternative 3 would force the heaviest interchange traffic movement (northbound Liberty Road to eastbound I-40) to make a left turn. As a result, Alternative 3 would require additional lanes and a wider bridge over I-40.

Estimated Costs

The following are estimated construction costs for each of the alternatives based on functional design. All costs are subject to change.

Alternative Interchange Configuration	Estimated Construction Cost*
1, Diamond	\$38,600,000
2, Partial Cloverleaf	\$34,900,000
3, Half Cloverleaf	\$39,600,000

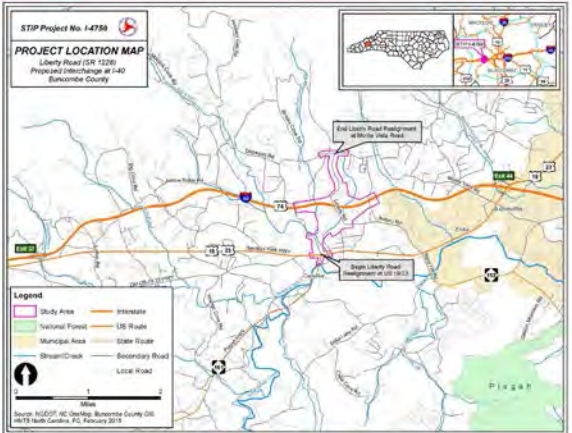
*Includes Roadway Construction and Utility Relocation costs only; does not include Right of Way, Relocation, Planning and Design, or mitigation costs.

Alternative 3-Half Cloverleaf interchange

- would include ramps in the southwest and northwest interchange quadrants,
- would require purchasing less right of way than Alternative 1, but more than Alternative 2,
- would involve less parcels than Alternative 1, but more than Alternative 2,
- would have the least amount of stream impacts,
- would not provide as efficient traffic operations as Alternatives 1 and 2.

STIP Project No. I-4759

PROJECT LOCATION MAP
Liberty Road (SR 1228)
Proposed Interchange at I-40
Buncombe County



Current Schedule*

<p>Early 2017 - Publish Environmental Assessment</p> <p>Spring 2017 - Hold Public Hearing</p> <p>Spring 2018 - Publish Final Environmental Document (Finding of No Significant Impact)</p>	<p>2019 - Begin right of way acquisition</p> <p>2021 - Begin construction</p> <p><small>* Schedule is based on the 2016-2025 STIP and is subject to change.</small></p>
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What's Next?

NCDOT will review public input and explore options to incorporate changes and address concerns. As the process continues, you can stay informed about the project by visiting the web page at www.ncdot.gov/projects/libertyroad40interchange/.

NCDOT is on the Web!

If you have transportation questions on other projects, call our Customer Service Center toll-free at **1-877-DOT-4YOU**, or visit the NCDOT website www.ncdot.gov.

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

TITLE VI PUBLIC INVOLVEMENT FORM

Completing this form is **completely** voluntary. You are not required to provide the information requested in order to participate in this meeting.

Meeting Type: Open House Public Meeting	Date: August 30, 2016
Location: Francis Asbury United Methodist Church, 725 Asbury Road, Candler	
TIP No.: I-4759	
Project Description: Liberty Road I-40 Interchange	

In accordance with Title VI of the Civil Rights Act of 1964 and related authorities, the North Carolina Department of Transportation (NCDOT) assures that no person(s) shall be excluded from participation in, denied the benefits of, or subjected to discrimination under any of the Department's programs, policies, or activities, based on their race, color, national origin, disability, age, income, or gender.

Completing this form helps meet our data collection and public involvement obligations under Title VI and NEPA, and will improve how we serve the public. Please place the completed form in the designated box on the sign-in table, hand it to an NCDOT official or mail it to the PDEA-Human Environment Section, 1598 Mail Service Center, Raleigh, NC 27699-1598.

All forms will remain on file at the NCDOT as part of the public record.

Zip Code: _____	Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
Street Name: (i.e. Main Street) _____	Age: <input type="checkbox"/> Less than 18 <input type="checkbox"/> 45-64 <input type="checkbox"/> 18-29 <input type="checkbox"/> 65 and older <input type="checkbox"/> 30-44
Total Household Income: <input type="checkbox"/> Less than \$12,000 <input type="checkbox"/> \$47,000 – \$69,999 <input type="checkbox"/> \$12,000 – \$19,999 <input type="checkbox"/> \$70,000 – \$93,999 <input type="checkbox"/> \$20,000 – \$30,999 <input type="checkbox"/> \$94,000 – \$117,999 <input type="checkbox"/> \$31,000 – \$46,999 <input type="checkbox"/> \$118,000 or greater	Have a Disability: <input type="checkbox"/> Yes <input type="checkbox"/> No
Race/Ethnicity: <input type="checkbox"/> White <input type="checkbox"/> Black/African American <input type="checkbox"/> Asian <input type="checkbox"/> American Indian/Alaskan Native <input type="checkbox"/> Native Hawaiian/Pacific Islander <input type="checkbox"/> Hispanic/Latino <input type="checkbox"/> Other (please specify): _____	National Origin: (if born outside the U.S.) <input type="checkbox"/> Mexican <input type="checkbox"/> Central American: _____ <input type="checkbox"/> South American: _____ <input type="checkbox"/> Puerto Rican <input type="checkbox"/> Chinese <input type="checkbox"/> Vietnamese <input type="checkbox"/> Korean <input type="checkbox"/> Other (please specify): _____

How did you hear about this meeting? (newspaper advertisement, flyer, and/or mailing) _____

For more information regarding Title VI or this request, please contact the NCDOT Title VI Section at (919) 508-1808 or toll free at 1-800-522-0453, or by email at mlwright4@ncdot.gov.

Thank you for your participation!



PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

Local Officials and Public Meeting Summary

Project: STIP Project Number I-4759, Liberty Road I-40 Interchange, Buncombe County

Date: August 30, 2016

Place: 725 Asbury Road, Candler, North Carolina

Purpose: Local Officials Informational Meeting and Public Meeting Open House

Attendees: Please see attached sign-in sheets.

Local Officials: A meeting for the local officials was held prior to the open forum public meeting. The local officials meeting began at 2:00pm. Four local officials signed in at the meeting: Joe Belcher, Buncombe County Board Member; Brian Turner, North Carolina General Assembly; Tristan Winkler, French Broad River Metropolitan Planning Organization (MPO); and Josh O’Conner, Buncombe County MPO and Technical Coordinating Committee. The local officials were provided with a project update and briefed on the three proposed Alternatives prior to the public meeting.

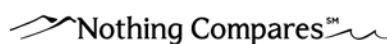
Media: A news crew from WLOS in Asheville and a writer for the *Citizen-Times* attended the meeting.

Summary of Public Comments: Following the public meeting, an open house format meeting was held for the general public beginning at 4:00pm. In addition to the local officials, 308 people signed in at the Open House Public Meeting. The majority of the public who attended the meeting owned property in the direct area of the proposed project. Eighty-seven (87) comments were received during the comment period, which ended September 13, 2016.

As shown in the following table, the majority of the people who submitted comments preferred Alternative 2. Overall, the public based their preference on which alternative had the least amount of impacts on their property. The estimated cost for the project was also commonly referenced.

ALTERNATIVE	PUBLIC PREFERENCE	
	Count	Percent
1 (Diamond Interchange)	16	17
2 (Partial Cloverleaf Interchange)	59	63
3 (Half Cloverleaf Interchange)	9	10
No Preference/None	9	10
Total ¹	93	100

¹The total tallied preferences are higher than the amount of comments received due to some people preferring multiple alternatives.





PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

Additional comment themes included the following: Four people suggested the addition of bicycle and pedestrian facilities to the project. Seven people were concerned with the noise that would come along with construction and the increase of travelers through the area. While some individuals did not want the commercial growth in the area, others believed the growth would be good for the community. Six people suggested the interchange move to Dogwood Road to reduce community impacts and relocations. Five members of the public opposed the project completely due to environmental impacts and their impression that the project would not ease traffic.

