

Gaston County  
I-85 / US 321 Interchange  
Geometric Safety Improvements  
Federal-Aid Project No.: IMF-85-1(113)17  
WBS No.: 41153.1.1  
STIP Project No.: I-5000

CATEGORICAL EXCLUSION  
WITH  
SECTION 4(f) EVALUATION

UNITED STATES DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
AND  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Approved

5/13/2015

Date



Richard W. Hancock, PE

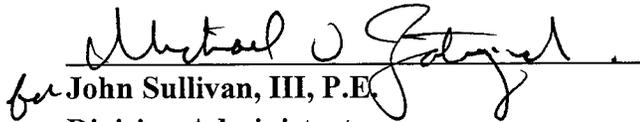
Unit Head

Project Development and Environmental Analysis

North Carolina Department of Transportation

5-14-15

Date



for John Sullivan, III, P.E.

Division Administrator

Federal Highway Administration

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**CATEGORICAL EXCLUSION**

**May 2015**

5-13-15

Date

Bryan D. Kluchar

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Project Development Group Supervisor



5-13-15

Date

Elmo Vance

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## **Project Commitments**

**Gaston County**

**I-85 / US 321**

**Geometric Safety Improvements**

**Federal-Aid Project No.: IMF-85-1(113)17**

**WBS NOS.: 41153.1.1**

**STIP Project No.: I-5000**

In addition to NCDOT's Guidelines for Best Management Practices and Design Standards in Sensitive Watersheds, the following commitment has been agreed to by NCDOT:

### **PDEA, Roadway Design, Rail, Division 10 and City of Gastonia (Park and Recreation)**

NCDOT will enter a municipal agreement with the City of Gastonia Parks and Recreation for the construction, maintenance and other aspects of the Highland Rail Trail, particularly for the CMAQ-funded portion that extends from Rankin Lake Road to Bulb Avenue. Additional coordination is needed to determine the scope of work for the trail improvements.

### **PDEA, Rail, Roadway Design, NC Attorney General, Division 10 and the City of Gastonia**

Prior to right of way, NCDOT Project Development, NCDOT Rail, NC Attorney General Office and the City of Gastonia, will coordinate with Rail to Trails for the purchase of the portion of the railroad bed impacted as a result to the preferred alternative. NCDOT will compensate the property owner for the removal, relocation and replacement of the trail.

### **Division 10 Construction**

Gaston County Schools also expressed a preference for a majority of the construction work to be conducted during the summer months.

### **NCDOT Hydraulics and Division 10 Construction**

NCDOT will coordinate with the NC 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, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

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- Appendix B: Concurrence Forms
- Appendix C: Citizens Informational Meeting Designs for Alternatives 2 and 3
- Appendix D: Section 4(f) Evaluation

## 1 Introduction

This section discusses the proposed action, the project location, and history. The applicability of a Categorical Exclusion is also provided.

### 1.1 Proposed Action

The North Carolina Department of Transportation (NCDOT), in cooperation with the Federal Highway Administration (FHWA) and the City of Gastonia, proposes geometric, congestion and safety improvements to the I-85 /US 321 Interchange in Gastonia, Gaston County. The project length is approximately 0.6 mile and includes 0.3 mile of improvements on Marietta Street and 0.3 mile of improvements to Bulb Avenue. See **Figure 1** for the location of the project. It is on the State Transportation Improvement (STIP) as project I-5000.

### 1.2 Project Location

The project is located within the city limits of Gastonia and is primarily urban in nature. The project location and study area boundary are shown on **Figure 1**. Existing land use in the study area is primarily large-lot single-family residential. The area south of the interchange is largely comprised of the Highland neighborhood, a historically African-American community in Gastonia. The area north of the interchange is primarily commercial and industrial, with large parcels of vacant land targeted for development by local landowners.

### 1.3 Applicability of a Categorical Exclusion

Pursuant to the 23 CFR 771, Section 117, Categorical Exclusions are defined as actions which: do not induce significant impacts to planned growth or land use for the area; do not require the relocation of significant numbers of people; do not have a significant impact on any natural, cultural, recreational, historic or other resource; do not involve significant air, noise, or water quality impacts; do not have significant impacts on travel patterns; or do not otherwise, either individually or cumulatively, have any significant environmental impacts.

The proposed project meets the federal Council on Environmental Quality's (CEQ) regulations for a Categorical Exclusion. The regulations identify a Categorical Exclusion as a project or action "which does not individually or cumulatively have a significant effect on the human environment." Therefore, due to a lack of significant environmental impacts the proposed project is classified as a Categorical Exclusion.

## 2 Purpose and Need for Project

The purpose and need was developed using input from the feasibility study (I-85 /US 321 Interchange Geometric Safety Improvements; FS-0212C) dated March 27, 2006.

### 2.1 Need for Project

The existing interchange cannot adequately accommodate the current or future traffic exchange between I-85 / US 321.

The Gaston Urban Area Thoroughfare Plan classifies US 321 (North Chester Street) as a Major Thoroughfare. The North Carolina Functional Classification of US 321 is a Principal Arterial. US 321 is the only major north-south route in Gaston County. Interstate 85 is the only major freeway traveling east-west through the county.

Several conditions of the existing interchange are undesirable. A large number of trucks use this interchange; approximately 20% of the traffic on I-85 and 7% of the traffic on US 321 are trucks. Growing traffic volumes, including the high percentage of truck traffic, contribute to the general delay and congestion in peak hours. The most noticeable unsatisfactory condition is that traffic backs up onto southbound I-85 from the northern loop in peak hours.

### 2.2 Purpose of Project

The purpose of the I-85/US 321 project is to improve the traffic flow along the I-85 corridor, improve the connection between the main east-west and north-south routes in the county and to eliminate safety deficiencies.

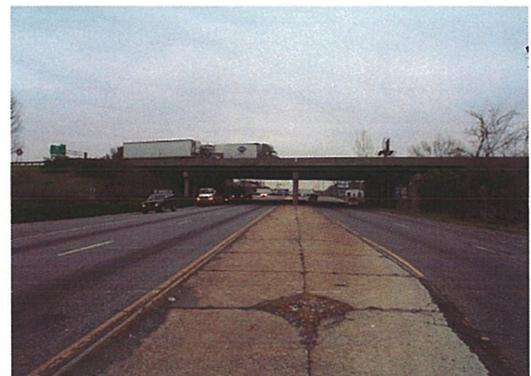
## 3 Existing Conditions

This section of the report provides an overview of existing land use and traffic conditions in the project study area.

### 3.1 Project Setting

**Figure 1** shows the project location relative to the City of Gastonia. Existing land use is urban in nature consisting of commercial and industrial businesses, parks, and rural residential homes.

The area south of the interchange is largely comprised of the Highland neighborhood, a historically African-American community in Gastonia. The Highland neighborhood will not be impacted by the proposed



*Looking north from entrance to Radio Street at US 321.*

project. The area north of the interchange is primarily commercial and industrial, with large parcels of vacant land targeted for development.

US 321 is the primary north-south transportation route in Gaston County and links the cities of Lincolnton and Hickory to the Charlotte-Gastonia area. Within the footprint of the I-85 interchange, US 321 is a four-lane divided highway with partially-controlled access via a raised median. Turning lanes are located at the on/off-ramp intersections. US 321 is a primary route for truck traffic connecting Hickory and northwestern North Carolina to the Charlotte metropolitan area.

North of the interchange, US 321 is a five-lane, urban arterial that transitions to a freeway approximately one mile north of I-85. The freeway continues north for approximately 33 miles to the city limits of Hickory. South of I-85, US 321 is a five-lane urban arterial for 1.5 miles. At Rankin Avenue, US 321 transitions to a one-way urban couplet with three southbound lanes leading into downtown Gastonia.

Marietta Street (SR 2278) is a two-lane roadway with a rural cross-section, with the exception of the sidewalks located on the I-85 overpass. The overpass is approximately 1,300 feet east of the I-85/US 321 interchange.



*Looking north from westbound US 321 on-ramp on to I-85.*

### 3.2 Traffic Information

The northern terminus of the project will be the point at which US 321 becomes a freeway, in proximity of the intersection of Tulip Road and Bulb Avenue, approximately ½ mile north of the interchange. To the south, the intersection of US 321 and Radio Street is the proposed terminus, approximately 1,000 feet south of the interchange.

The base year (BY) forecast for the Annual Average Daily Traffic is year 2009 and the estimate design year (DY) forecast is for year 2035. Existing and recent traffic volumes on US 321 (Chester Road) in the vicinity of the interchange are listed in Table 1. The 2008 BY and 2035 DY percentage of truck traffic on US 321 are the same, with 7% (4% Duals and 3% TTST) south of the I-85 interchange and 15% (4% and 11%) north of the I-85 interchange. The heaviest volumes of traffic at this interchange occur in the northeastern quadrant of the interchange.

Table 1: Existing Traffic Volumes

Roadway Segment	2008	2035
US 321 (south of I-85 interchange)	20,600	26,300
US 321 (north of I-85 interchange)	46,200	59,100

Source: May 19, 2009 Traffic Forecast for TIP Project I-5000

A more detailed analysis regarding the traffic forecast is included in **Appendix A** of this document.

### 3.3 Accident Data and Analysis

A crash analysis was performed along US 321 from Rankin Lake Road to SR 1337 (Hartman Road) for 2.09 miles. A total of 242 crashes (including 85 injury crashes) were reported along this section from February 1, 2012 to January 31, 2015.

Rear end crashes were the predominant crash type with 56% of the overall crashes. The majority of the crashes occurred between I-85 and SR 1337 (Hartman Road).

Frontal impact crashes, including angle and left/right turning crash types, accounted for 21% of the overall crashes.

Sideswipes in the same direction crashes accounted for 15% of the overall crashes.

For crash rate purposes, this location can be classified as 4-lanes with a continuous left turn lane, Urban United States (US) Route. Table 2 shows the comparison of the crash rates for the analyzed section of US 321 versus the 2010-2012 statewide crash rates for a comparable road type and configuration. All of the crash rates are below the average statewide crash rates and critical crash rates for similar type facilities.

Table 2: Crash Rate Comparison (US 321)

Rate	Crashes	Crashes per 100 MVM	Statewide Rate <sup>1</sup>	Critical Rate <sup>1</sup>
Total	179	298.26	266.13	301.62
Fatal	0.00	0.00	1.13	4.22
Non-Fatal Injury	76	126.64	86.12	106.67
Night	17	28.33	47.64	63.14
Wet	38	63.32	39.16	53.29

<sup>1</sup> 2010-2012 statewide crash rate for 4 lanes with a continuous left turn lane Urban United State (US) Route in North Carolina

<sup>2</sup>Based on the statewide crash rate (95% level of confidence).

#### 4 Alternatives

Two design alternatives for the intersection improvements were presented to the public at a citizens’ informational workshop held on May 17, 2012. The designs were developed for functionality, the ability to relieve congestion and to provide a safer transportation facility. The design alternatives taken through detailed analysis were Alternative 2 (Flyover Design) and Alternative 3 (Slip-Left). The two design alternatives that were taken through a detailed study and presented to the public are shown in **Appendix C**.

At the May 2012 workshop, the public and City of Gastonia officials identified their preferred alternative as Alternative 3. Alternatives 2 and 3 were carried forward for detailed analysis. Discussions to minimize impacts on the Sims Legion Park and the Highland Rail Trail greenway resulted in modifications to Alternative 3 in August 2013. This modification decreased right-of-way acquisition from the Junior baseball field and unused portions of Sims Legion Park, and minimized the length of Highland Rail Trail relocation. These are discussed in more detail in the Individual Section 4(f) Evaluation. See **Figure 2** for the design of the Preferred Alternative.

## 4.1 Comparison of Alternatives

Table 3: Comparison of Alternatives

<b>Impact Category</b>	<b>Alternative 2 (Flyover)</b>	<b><i>Preferred</i> Alternative 3 Modified (Split-Left)</b>
<b>Project Description</b>		
Project Length (miles)	N/A	N/A
<b>Natural Resources Impacts</b>		
Federal Listed Species Habitat	<b>Yes-No Effect</b>	<b>Yes-No Effect</b>
100-Year Flood Plain and Floodway Impacts	No	No
Wetlands (number of crossings/acres)	<b>1/0.09 ac</b>	<b>1/0.09 ac</b>
Stream Crossings (number/linear feet)	<b>3/579</b>	<b>3/474</b>
Potential Riparian Buffers (acres)	0	0
Water Supply Critical Areas	0	0
Potential 4f Impacts	Yes	Yes
<b>Human Environment Impacts</b>		
Residential Relocations (number)	0	0
Business Relocations (number)	<b>8</b>	<b>5</b>
Low Income/Minority Population	0	0
Churches/Church Office (number)	0	0
Cemeteries/Gravesites (number)	0	0
Recorded Historic Sites/Districts	0	0

<b>Impact Category</b>	<b>Alternative 2 (Flyover)</b>	<b><i>Preferred</i> Alternative 3 Modified (Split-Left)</b>
<b>Physical Environment Impacts</b>		
Railroad Crossings	0	0
Underground Storage Tanks (number)	0	0
<b>Costs</b>		
Right-of-Way Costs	\$4,650,000	\$3,300,000
Construction Costs	\$19,900,000	\$13,800,000
<b>Total Construction Cost</b>	<b>\$24,550,000</b>	<b>\$17,100,000</b>

#### 4.2 No-Build Alternative

The No-Build Alternative would not serve the transportation planning objectives of the area and would not satisfy the purpose and need for the project. In this document, the No-Build Alternative serves as the baseline condition for comparison with the Build-Alternative.

#### 4.3 Preferred Alternative

The original Alternative 3, also referenced as the Split Left Alternative, provides a left-turn on-ramp from southbound US 321 to northbound I-85. This ramp, Ramp D, travels under the existing I-85 bridge, then curves east and ascends to merge onto northbound I-85. A second ramp, Ramp DD, provides on-ramp access by connecting to Ramp D from south of the I-85/US 321 interchange. See **Appendix C** for the design of the original Alternative 3

The Preferred Alternative is a modification of the original Alternative 3. The preferred alternative tightens the curvature of Ramp D and removes Ramp DD, which lessens impacts to Highland Creek, Highland Rail Trail, and Sims Legion Park. The following components are part of this alternative:

- Box culverts along Highland Creek in the northeast and southeast quadrants will be extended to accommodate the proposed ramps.

- The Highland Rail Trail will be relocated just to the west of its existing path. A pedestrian culvert will carry the trail under the proposed ramps at Rankin Lake Road.
- Bulb Avenue will be extended to North Marietta Street requiring construction of a three-barrel 8’x10’ box culvert to accommodate the crossing of Highland Creek.
- Rankin Lake Road, from US 321 to North Marietta Street, will be eliminated due to the proximity of new ramps in the northeast quadrant.
- A pedestrian culvert is proposed for the CMAQ-funded Highland Rail Trail at Bulb Avenue.

See the Individual Section 4(f) Evaluation for more details on this modification and minimization of impacts.

## 5 Levels of Service

A traffic operations analysis was conducted for the no-build and two alternatives. The two alternatives were the flyover and split left. This analysis utilized traffic simulations to compare the alternatives. Results are in Table 4 below. Alternative 3, the Split-Left design, provides the best overall operation, with significant travel time and delay reductions compared to the no-build and other alternatives.

Table 4: Traffic Operations Analysis (US 321)

I-5000 US 321 at I-85 Gaston County 2035 Analysis	Alt. 2 Flyover		Alt. 3 Split Left		No Build	
	AM	PM	AM	PM	AM	PM
Per Vehicle Distance (mi)	0.82	0.81	.76	.78	.80	.80
Per Vehicle Time (seconds)	367.6	626.5	189.2	312.7	1294.5	1383.8
Per Vehicle Delay (seconds)	287.1	547.5	110.6	231.4	1215.5	1304.9
Per Vehicle Stops	2.07	2.45	1.64	2.98	4.33	4.58

\*NCDOT Congestion Management, I-5000 Sim Traffic Comparison August 20, 2010

## 6 Minimization

Minimization efforts have taken place continually throughout the planning process. Various alternatives that achieved the purpose of the proposed project and minimized impacts to the

environment were studied. NCDOT developed the “Slip Left” Alternative 3 which had less impacts than Alternative 2. Furthermore, Alternative 3 was modified in August 2013 to minimize impacts to the Sims Legion Park and Highland Rail Trail. This modification also decreased stream impacts by removing Ramp DD located south of the US 321/I-85 interchange.

The Merger Team reviewed the preliminary plans on November 8, 2012 and concurred that the “Split-Left” was the preferred. The Concurrence Point 2A/4A form is in **Appendix B**.

## 7 **Estimated Costs**

The estimated construction costs for the Preferred Alternative are for the 2012 build year are based on current prices in 2014 and are shown in Table 5. Right-of-way costs are estimated at \$3,300,000.

Table 5: Estimated Costs of the Preferred Alternative

<b>Item</b>	<b>Cost</b>
Right of Way	\$3,300,000.00
Construction	\$13,800,000.00
Total	\$17,100,000.00

## 8 **Natural Resources**

The natural resources section provides an overview of the project study area’s soil and water resources.

### 8.1 **Methodology**

Background research was conducted using previous planning documents and studies prepared for related projects in and near the project study area. Site visits were conducted for specific resources.

## 8.2 Soils

The Gaston Soil Survey identifies fourteen (14) soil types within the study area.

Table 6: Soils in the study area

Soil Series	Mapping Unit	Drainage Class	Hydric Status
Appling sandy loam	ApB	Well Drained	Nonhydric
Cecil sandy clay loam, 2 to 8 % slopes	CeB2	Well Drained	Nonhydric
Cecil-Urban land complex, 2 to 8 % slopes	CfB	Well Drained	Nonhydric
Cecil-Urban land complex, 8 to 15 % slopes	CfD	Well Drained	Nonhydric
Chewacla loam 0 to 2 % slopes	ChA	Somewhat Poorly Drained	Hydric*
Helena sandy clay loam, 1 to 6 % slopes	HeB	Moderately Well Drained	Hydric*
Madison sandy clay loam, 2 to 8 % slopes	MaB2	Well Drained	Nonhydric
Madison sandy clay loam, 8 to 15 % slopes	MaD2	Well Drained	Nonhydric
Madison sandy loam, 15 to 25% slopes	MaE	Well Drained	Nonhydric
Pacolet sandy loam, 15 to 25% slopes	PaE	Well Drained	Nonhydric
Pacolet sandy loam, 25 to 45% slopes	PaF	Well Drained	Nonhydric
Udorthents, loamy	Ud	Well Drained	Nonhydric
Urban land	Ur	Well Drained	Nonhydric
Wedowee sandy loam, 6 to 15% slopes	WeD	Well Drained	Nonhydric

\*Soil which are primarily nonhydric, but may contain hydric inclusions:

- Chewacla loam contains 5% Wehadkee, undrained
- Helens sandy loam contains 5% Wehadkee, undrained and 2% Worsham, undrained

## 8.3 Water Resources

The discussion on water resources includes an overview of the resource characteristics, applicable buffer rules, anticipated impacts, and identification of floodplains and regulated floodways.

### 8.3.1 Water Resource Characteristics

Three jurisdictional streams were identified in the study area (Table 7). The location of these streams is shown on **Figure 3**. Stream SB is clearly a perennial stream; therefore, stream forms

were not warranted. All jurisdictional streams in the study area have been designated as warm water streams for the purpose of stream mitigation.

Table 7: Jurisdictional characteristics of water resources

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
SA	509	Perennial	Yes	Not Subject
SB*	4,425	Perennial	Yes	Not Subject
SC	114	Perennial	Yes	Not Subject

\*Stream SB is named locally as Highland Creek. DWQ does not recognize the name "Highland Creek" for this stream

One (1) jurisdictional wetland was identified within the study area (**Figure 3**). Wetland classification and quality rating data are presented in Table 8. The wetland located in the study area is within the Catawba River basin (USGS Hydrologic Unit 03050102). A description of the natural community at the wetland site is presented in Section 6.4.1. Wetland WA is located within a utility easement that parallels Stream SB (Highland Creek) and is included within the Maintain/Disturbed community.

Table 8: Jurisdictional characteristics of wetlands

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)
WA	Non-Tidal Freshwater Marsh	Riparian	32	0.09

Jurisdictional areas identified in the study area were field-verified by Steve Lund of the U.S. Army Corps of Engineers (USACE) and Polly Lespinasse of North Carolina Division of Water Quality (NCDWQ) on September 28, 2009.

An "On-Site Determination for Applicability to the Mitigation Rules" letter, dated October 8, 2009, was received from the DWR. A jurisdictional determination was received from the USACE on April 8, 2010.

### 8.3.2 Clean Water Act Permits

The proposed project has been designated as a Categorical Exclusion (CE) for the purpose of NEPA documentation. As a result, a Nationwide Permit 14 will likely be applicable. The USACE holds the final discretion as to what permit will be required to authorize project construction.

### 8.3.3 Coastal Area Management Act Areas of Environmental Concern

There are no CAMA Areas of Environmental Concern within the study area.

### 8.3.4 Construction Moratoria

There are no construction moratoriums associated with the proposed action.

### 8.3.5 N.C. River Basin Buffer Rules

Streamside riparian zones within the study area are not protected under provisions of buffer rules administered by NCDWQ.

### 8.3.6 Rivers and Harbors Act Section 10 Navigable Waters

There are no rivers within the study area that have been designated by the USACE as Navigable Water under Section 10 of the Rivers and Harbors Act.

### 8.3.7 Wetland and Stream Mitigation

#### Compensatory Mitigation of Impacts

The NCDOT will investigate potential on-site stream and wetland mitigation opportunities once a final decision has been rendered on the location of the preferred alternative. If on-site mitigation is not feasible, mitigation will be provided by North Carolina Department of Environmental and Natural Resources Ecosystem Enhancement Program (EEP). In accordance with the “Memorandum of Agreement among the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District” (MOA), July 22, 2003, the EEP, will be requested to provide off-site mitigation to satisfy the federal Clean Water Act compensatory mitigation requirements for this project.

## 8.4 Biotic Resources

Biotic resources include aquatic and terrestrial ecosystems. Composition and distribution of biotic communities throughout the project area reflect topography and past and present land uses. This section describes the biotic communities within the project study area.

### 8.4.1 Terrestrial Communities

Terrestrial communities in the study area may be impacted by project construction as a result of grading and paving of portions of the study area. At this time, decisions regarding final design have not been made. Therefore, community data are presented in the context of total coverage of each type within the study area (Table 9).

The majority of the study area located to the west of US 321 is an urbanized area, developed mostly with commercial businesses, but also with older residential areas and a school. Developed areas are located east of US 321, mostly directly along the US 321 corridor and along the south side of I-85. Sims Legion Park, a recreational facility, is located in the southeast quadrant of the study area. The maintained/distributed area also includes places where vegetation is periodically treated or mowed, such as utility easements, roadside shoulders, and residential/commercial lawns. The vegetation in this community is comprised of low growing grasses and herbs, including fescue, Japanese grass, goldenrod, beggarticks, multiflora rose, and blackberry. Many



*Highland Creek*

disturbed areas, particularly portions of utility easements are overtaken by kudzu. Wetland WA, a non-tidal freshwater marsh (per NCWAM classification), is located within a utility easement that parallels Stream SB (Highland Creek) and is included within the Maintained/Distributed community.

The mesic mixed hardwood forest community exists in all four quadrants of the study area, but is most prominent in the eastern half of the study area. In the northeast quadrant, the mesic mixed hardwood forest exists along Highland Creek and along stream SA. The mesic mixed hardwood forest community is present in the undeveloped portions of the western half of the study area. Dominant canopy species in this community included yellow poplar, sweetgum, northern red oak, white oak, red maple, willow oak, black walnut, mockernut hickory, Virginia pine, and loblolly pine. Dominant subcanopy and shrub species include dogwood, American holly, American elm, northern red oak, and box elder. Dominant herb/vine species include poison ivy, Virginia creeper, Japanese honeysuckle, goldenrod, wintergreen, and Christmas fern. There are areas that have been invaded by kudzu. A princess tree and ground ivy were observed in the northeastern quadrant of the study area within this community.

Table 9: Coverage of terrestrial communities

Community	Coverage (ac.)
Maintained/ Disturbed	196.00
Mesic Mixed Hardwood Forest	142.40
<b>Total</b>	<b>338.40</b>

### Terrestrial Wildlife

Terrestrial communities in the study area are comprised of both natural and disturbed habitats that may support a diversity of wildlife species (those species actually observed are indicated with \*). Mammal species that commonly exploit forested habitats and stream corridors found within the study area include species such as eastern cottontail, raccoon\*, Virginia opossum, and white-tailed deer\*. Birds that commonly use forest and forest edge habitats (and that were observed during the 2009 Gastonia Great Backyard Bird Count) include the American crow, blue jay\*, northern cardinal, Carolina chickadee, red-bellied woodpecker, downy woodpecker, tufted titmouse, dark-eye junco, red-tailed hawk\* and white-throated sparrow. Birds that may use the open habitat or water bodies within the study area include double-crested cormorant, American kestrel, belted kingfisher\*, and turkey vulture\*. Reptile and amphibian species that may use terrestrial communities located in the study area include the corn snake, eastern box turtle\*, eastern fence lizard, five-lined skink\*, and northern dusky salamander\*.

#### 8.4.2 Aquatic Communities

Aquatic communities in the study area consist of perennial streams. The Department of Environmental and Natural Resources (DENR) has a fish sampling site on Long Creek at SR 1456, located approximately 3 miles upstream of the confluence of Highland Creek with Long Creek. Fish species collected here, and those that may occur in Highland Creek, include redbreast sunfish, bluehead chub, greenfin shiner, greenhead shiner, eastern shiner, white sucker, and eastern gambusia\*. Eastern gambusia were observed in stream SC.

#### 8.4.3 Invasive Species

Six species from the NCDOT Invasive Exotic Plant List for North Carolina were found to occur in the study area. The species identified that are listed as a “Threat to Habitat and Natural Areas” include princess tree, kudzu, and Japanese grass. The species identified that are listed as a “Moderate Threat to Habitat and Natural Areas” include Japanese honeysuckle and ground ivy. NCDOT will manage invasive plant species on the Department’s ROW, as appropriate.

#### 8.4.4 Federally Protected Species

As of January 31, 2008, the USFWS lists two federally protected species for Gaston County (Table 10). A brief description of each species' habitat requirements follows, along with the Biological Conclusion rendered based on survey results in the study area. Habitat requirements for each species are based on the current best available information as per referenced literature and USFWS correspondence.

Table 10: Federally Protected Species listed for Gaston County

Scientific Name	Common Name	Federal Status*	Habitat Present	Biological Conclusion
<i>Glytemys uhlenbergii</i>	Bog Turtle	T(S/A)	No	Not Required
<i>Helianthus schweinitzii</i>	Schweintz's sunflower	E	Yes	No Effect

\*E- Endangered, T(S/A)-Threatened due to similarity of appearance

#### Bog Turtle

USFWS optimal survey window: April – October 1 (visual surveys); April 1 –June 15 (optimal for breeding/nesting); May 1 – June 30 (trapping surveys).

Habitat Description: Bog turtle habitat consists of open, groundwater supplied (springfed), graminoid dominated wetlands along riparian corridors or on seepage slopes. These habitats are designated as mountain bogs by the NCNHP, but they are technically poor, moderate, or rich fens that may be associated with wet pastures and old drainage ditches that have saturated muddy substrates with open canopies. Plants found in bog turtle habitat include sedges, rushes, marsh ferns, herbs, shrubs (tag alder, hardhack, blueberry, etc.), and wetland tree species (red maple and silky willow). These habitats often support sphagnum moss and may contain carnivorous plants (sundews and pitcherplants) and rare orchids. Potential habitats may be found in western Piedmont and Mountain counties from 700 to 4500 feet elevation in North Carolina. Soil types (poorly drained silt loams) from which bog turtle habitats have been found include Arkaqua, Chewacla, Dellwood, Codorus complex, Hatboro, Nikwasi, Potomac—Iotla complex, Reddies, Rosaman, Tate—Cullowhee complex, Toxaway, Tuckasegee—Cullasaja complex, Tusquitee, Watauga, Wehadkee.

#### Biological Conclusion Not Required

Species listed as threatened due to similarity of appearance do not require Section 7 consultation with the USFWS. However, this project is not expected to affect the bog turtle because no suitable habitat is present within the study area. The wetland located within the study area is

located within a sewer easement and does not provide suitable habitat for the bog turtle. A review of NCNHP records, updated July 2009, indicates no known bog turtle occurrence within 1.0 mile of the study area.

### **Schweinitz's sunflower**

USFWS optimal survey window: late August—October

Habitat Description: Schweinitz's sunflower, endemic to the Piedmont of North and South Carolina. The few sites where this rhizomatous perennial herb occurs in relatively natural vegetation are found in Xeric Hardpan Forests. The species is also found along roadside rights-of-way, maintained power lines and other utility rights-of-way, edges of thickets and old pastures, clearings and edges of upland oak-pine-hickory woods and Piedmont longleaf pine forests, and other sunny or semi-sunny habitats where disturbances (e.g., mowing, clearing, grazing, blow downs, storms frequent fire) help create open or partially open areas for sunlight. It is intolerant of full shade and excessive competition from other vegetation. Schweinitz's sunflower occurs in a variety of soil series, including Badin, Cecil, Cid, Enon, Gaston, Georgeville, Iredell, Mecklenburg, Misenheimer, Secrest, Tatum, Uwharrie, and Zion, among others. It is generally found growing on shallow sandy soils with high gravel content; shallow, poor, clayey hardpans; or shallow rocky soils, especially those derived from mafic rocks.

### **Biological Conclusion**

#### **No Effect**

Suitable habitat for Schweinitz's sunflower is present in the study area along roadside shoulders, utility easements and edges of thickets and wooded areas. Surveys were conducted by NCDOT biologists throughout areas of suitable habitat on October 14, 2009. No individual of Schweinitz's sunflower were observed. A review of NCNHP records, updated July 2009, indicates no known occurrences within 1.0 mile of the study area.

### **Bald Eagle and Golden Eagle Protection Act**

Habitat for the bald eagle primarily consists of mature forest in proximity to large bodies of open water for foraging. Large, dominant trees are utilized for nesting sites, typically within 1.0 mile of open water. Suitable habitat for bald eagle exists in the study area based on the proximity to Rankin Lake, which is located just outside the northwest quadrant of the study area. Surveys for nest trees were conducted on February 25, 2009 within the study area and to a distance of 660 feet on all sides. No nest trees were identified.

**Endangered Species Act Candidate Species**

As of January 31, 2008, the USFWS lists one Candidate species for Gaston County (Table 11). A review of NCNHP records, updated July 2009, indicates no known occurrence of Georgia aster within 1.0 mile of the study area.

Table 11: Candidate species listed for Gaston County

<b>Scientific Name</b>	<b>Common Name</b>	<b>Habitat Present</b>
<i>Symphytrichum georgianum</i>	Georgia aster	Yes

## Rare and Protected Species

- 8.4.5 **Species with the federal status Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of the federal Endangered Species Act. Any activity permitted, funded or conducted by a federal agency that may affect a listed species or designated critical habitat requires a consultation with the United States Fish and Wildlife Service (USFWS). The result of the consultation is a written biological opinion of whether the proposed action is likely to result in jeopardy to a listed species or adverse modification of designated critical habitat.** Summary of Anticipated Impacts

The proposed project is anticipated to have No Effect on the two federally listed species in Gaston County: the Bog Turtle and Schweintz's sunflower.

### 8.5 Permits

In that no water resources are located within the project study area, a 401 Water Quality Certification and Section 404 Individual permit are not anticipated to be required.

### 8.6 Hydraulic Structure Recommendations

To accommodate the proposed improvements, an extension of the existing 3 @ 8' x 9' reinforced concrete box culvert (RCBC) located on Highland Creek under I-85 on the outlet end will be required. The required culvert extension will be approximately 485 ft. Two new culverts will be required, one new 3 @ 8' x 10' RCBC approximately 155 feet in length on Highland Creek under proposed Ramp D located approximately 170 feet upstream (south) of I-85, and the other 3 @ 8' x 10' RCBC approximately 144 feet in length will be located on Highland Creek at the proposed Bulb Avenue extension.

It is recommended that the existing 15 ft. long bridge on Rankin Lake Road located approximately 250 feet downstream of the culvert extension be removed and the natural flood plain restored. This will help reduce the 100 year flood elevations upstream and offset impacts due to the culvert extensions.

Table 12: Hydraulic Recommendations

Hydraulic Site	Stream Name	DWQ Class.	Existing Hydraulic Opening (w x h)	Proposed Hydraulic Opening (w x h)	Linear Stream Impacts (ft)
1	*UT to Long Creek	C	3@8'x9'	Retain & Extend 3@8'x9'	120
2	*UT to Long Creek	C	n/a	3@8'x10'	210
3	*UT to Long Creek	C	n/a	3@8'x9'	144

*\*UT to Long Creek is named locally as Highland Creek; however, DWQ does not recognize the name "Highland Creek" for this stream*

### Floodplain Management

Gaston County is a participant in the National Flood Insurance Program, administered by the Federal Emergency Management Agency (FEMA). The project as proposed will cross a UT to Long Creek. UT to Long Creek is listed as Tributary L-8 in the most current Gaston County Flood Insurance Study. Based on mapping the NC Floodplain Mapping Program (FMP), this stream crossing is in a designated flood hazard zone which is within a detailed flood study reach, having regulated 100-year floodway.

The Flood Insurance Rate Map (FIRM) in the vicinity of the crossing depict the limits of the 100-year floodplain and floodway in the project vicinity. It is anticipated that the proposed roadway and associated drainage accommodations will not have any significant adverse impact on the affected existing floodplain areas.

NCDOT will coordinate with the 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, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

## 9 Cultural Resources

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, as implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified as 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally-funded, licensed,

or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places (NRHP), and to afford the Advisory Council a reasonable opportunity to comment on such undertakings.

### **9.1 Historic Architecture**

In a correspondence dated May 12, 2008, the Historical Preservation Office (HPO) recommended a survey be conducted of properties in the Area of Potential Effect (APE) for possibly eligible for inclusion on the National Register listing. In June 2010, a NCDOT architectural historian surveyed the project and identified 13 properties over fifty in the APE and determined that none of the properties were eligible for National Register listing. Section 106 for Historic Architecture is complete for this project.

### **9.2 Archaeology**

The HPO noted in a correspondence dated June 6, 2008 that no known archaeological sites are within the proposed area and that it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. Therefore, HPO recommended that no archaeological investigation be conducted in connection with this project.

No historic architectural or archaeological resources were identified in the project study area. Therefore, no impacts to cultural resources will occur as a result of the project.

## **10 Community Impact Assessment**

### **10.1 Study Areas for Indirect and Cumulative Impacts**

This section summarizes the potential indirect and cumulative impacts that may result from the construction of the US I 85 /US 321 Interchange improvements. Land use planning data and zoning information were gathered from planning documents prepared by the City of Gastonia and from the Gaston County 2025 Comprehensive Plan.

### **10.2 Travel Times**

The project would relieve congestion at the interchange ramp terminals, which would decrease peak-period delays at the traffic signals. However, it is not expected that there would be an overall notable decrease in travel times.

### 10.3 **Travel Patterns**

The project would modify the existing I-85/ US 321 interchange. As part of the project, in the northeast quadrant, the travel patterns would change slightly. The connection of Rankin Lake Road from US 321 to N. Marietta Street will be severed due to the close proximity of the proposed Ramps A and D. Just north of Rankin Lake Road, Bulb Avenue will be extended to provide a new connection between US 321 and N. Marietta Street. Therefore, the change in travel patterns will be minimal due to the availability of alternate connecting streets.

### 10.4 **Property Access**

Access to properties in the northwest quadrant may change depending on project design. The Rankin Lake Road right in/right out connection to US 321 will not be eliminated.

In the northeast quadrant, the Rankin Lake Road connection between US 321 and N. Marietta Street will be severed. This area is currently not developed. The properties potentially affected will continue to have access from N. Marietta Street with the new connection of Bulb Avenue just north of Rankin Lake Road.

### 10.5 **Creation of a Transportation or Land Use Node**

The Gaston County 2035 Comprehensive Plan identifies the northeast area of the Direct Community Impact Area (DCIA) as an area for future industrial and commercial development. The proposed project is expected to have a small potential for influencing or accelerating development in the area. The project is not expected to directly improve access to the northeast quadrant of the DCIA.

### 10.6 **Regional / Community Context**

Gastonia has grown in the past 30 years from a textile-based manufacturing community to become part of the broader Charlotte metropolitan area, the largest in the State. The Gastonia and Dallas areas have become the focus of development along the I-85 corridor west of Charlotte, including industrial parks surrounding land uses have developed in a manner consistent with suburban interchanges, with commercial, municipal and industrial uses buffering residential neighborhoods from the noise and traffic volumes of these major transportation facilities.

Gastonia is focusing on infill and redevelopment of its historic residential areas located between I-85 and downtown, both east and west of US 321. The area has historically been settled by African-American residents and has evolved into a complete community, with schools, churches, city parks, cemeteries and recreation centers within the boundaries of the neighborhood. I-85 is a clear dividing line between the neighborhood areas to the south and the commercial / industrial areas to the north, which indicates that I-85 was along what was then the northern urban fringe of

Gastonia and as a result did not lead to the splitting of communities as was done by other interstate projects around the State and country.

The Charlotte region has emerged as one of the nation's leaders in mass transit infrastructure investment and the Gastonia area is identified as a potential station for commuter rail services to the west of downtown Charlotte. NCDOT has purchased sections of railroad tracks between Mount Holly and Gastonia as a future corridor for this service.

### 10.7 **Community Context, Direction and Notable Features Inventory**

The land uses along US 321 are primarily commercial and industrial, with residential neighborhoods backing up to US 321 south of I-85. The road network south of I-85 consists of a local street network that has largely been influenced by the rolling terrain. The west side of US 321 contains the best street connectivity in the area and is the location of the largest concentration of residential neighborhoods within the project area.

There is a notable difference in development patterns on the north side of I-85 compared to the south side. The south side consists of the traditionally African-American neighborhood, with a mixture of income levels and various neighborhood support land uses such as public facilities, a library, churches and schools. The southwest and southeast quadrants have been split by the five-lane US 321 and this appears to have led to change in development patterns over time for the southeast quadrant, as industrial uses have replaced what appears to be a low income residential neighborhood. This has left pockets of residential uses that are isolated from other community facilities by US 321 and the industrial sites.

With the exception of Rankin Lake Park, there appears to be little synergy between the north and south sides of I-85, as the land uses are not related and school district boundaries have been set based on the transportation network.

**Southwest Quadrant.** The southwest quadrant is the most developed and established sector within the area of the proposed project. This quadrant consists of a business park with undeveloped land; hotels, a convenience store, and restaurants fronting US 321; established residential neighborhoods; two public housing complexes; a cemetery; churches; a day care; and the Erwin Center—a community recreation facility with a library and police station.

The Gaston Business Park is approximately 50% developed and has frontage along I-85. The business park contains a UPS facility, a new Value Place Hotel, Ryder Trucking, National Welders, and flex commercial / industrial buildings. The business park acts as a buffer of sound and sight between I-85 and the residential neighborhoods immediately to the south of the business park.

Between the eastern limits of the Gaston Business Park and US 321 is a daycare facility as well as a Days Inn motel with a pancake restaurant. The primary access for these properties is along Radio Street.

Weldon Heights and Cameron Court are high density residential properties under the jurisdiction of the Gastonia Housing Authority. These public housing properties consist of two-story dwelling units similar to an apartment complex.

The Highland School of Technology, a magnet high school within the Gaston County School system, is approximately one block south of the northbound on-off ramps of I-85, just south of the daycare facility and Days Inn motel. It is also one-block west of US 321 and buffered from the corridor by a gas station, a Mexican restaurant and a tire shop.

The remainder of the southwest quadrant is known as the Highland Neighborhood, a historically African-American community within Gastonia. The single family homes are a mixture of suburban densities and ranch-style homes. The neighborhood is buffered from US 321 and I-85 by other land uses. Some homes back up to US 321 approximately ½-mile south of the interchange but do not have direct access to US 321.

**Southeast Quadrant.** The southeast quadrant is a mix of industrial parks, recreation facilities, an elementary school, undeveloped land and low-income, single-family residences. The most notable feature of the southeast quadrant is Sims Legion Park, which contains a large baseball field for a collegiate summer league team.

The key feature of Sims Legion Park is the baseball stadium, which was constructed in the 1950s. The park, which includes two additional baseball fields, hosts numerous collegiate and high school events each year. The park also contains a BMX bicycle track and skateboard park. North Marietta Street (SR 2278) is the eastern boundary of the park. The northwest sector of the park is undeveloped and will be affected by the alternatives studied.

The Sims Legion Park is bounded on the north by the I-85 corridor and on the west by the Norfolk Southern Rail Line. The railroad right-of-way is not yet officially abandoned but is in a management agreement with the City of Gastonia, which maintains the Highland Rail Trail greenway along the railway.

East of Sims Legion Park is an industrial complex that sits adjacent to I-85 on the east side of N. Marietta Street. The complex is currently occupied by BMWNC, Inc., as a healthcare waste facility. This property will not be directly affected by the proposed improvements to the I-85 / US 321 interchange.

Further east along I-85 is a mixture of rural residential properties fronting Broad Street. The City of Gastonia also maintains an operations center and pipe storage yard, with portions of this property fronting I-85. Neither area will be directly affected by the two proposed alternatives.

Moving further south of I-85, there is Woodhill Elementary School which is within the Gaston County School system. The school is approximately 0.5 mile east of US 321 and 0.25-mile south of I-85.

The remainder of the southeast quadrant is a mixture of residences and industrial uses. These uses are mixed within many of the streets south of Woodhill Elementary School, including some houses that are surrounded by industrial uses. The Marietta Business Park is located in the central part of the quadrant at the intersection of Lenox Avenue and North Marietta Street.

**Northeast Quadrant.** The northeast quadrant of the interchange is largely undeveloped east of the railroad tracks, but the area is adjacent to or within the Gastonia city limit. The northeast quadrant has rolling terrain with granite outcroppings along North Marietta Street / Old Dallas Highway (SR 2278).

The east side of US 321 is the most developed sector of the northeast quadrant, with a gas station, and industrial park (at Bulb Avenue), an adult specialty retail store, and a mixed use commercial and industrial development.

**Northwest Quadrant.** The northwest quadrant is a mixture of commercial, industrial and office uses, as well as Rankin Lake Park.

Rankin Lake Park (25 acres) is located north of I-85 on the west sides of US 321. Rankin Lake Park's main feature is the lake, which was a settling basin for Gastonia's drinking water supply before the city designated another nearby lake as their water supply. According to the City of Gastonia Comprehensive Plan, Rankin Lake now serves as an emergency raw water impoundment for the City's water system. Under emergency conditions, raw water can also be pumped from the South Fork River into Rankin Lake. The park's main entrance is off of Tulip Drive, which connects to US 321 approximately 0.5 mile north of the interchange.

Two small residential enclaves are located within the northwest quadrant. The first, containing approximately 10 homes is located west of the Motel 6 along Weirs Lane. The second is located along the Rankin Lake Road and contains less than 10 homes.

The Greater Gaston Baptist Association offices and ministry are located on the southwest corner of the intersection of Tulip Drive and Rankin Lake Road. North of Tulip Drive along US 321 is

a commercial and industrial development that extends north until US 321 transitions to a four-lane freeway.

### 10.8 **Other Nearby Features / Influences**

Downtown Gastonia is the closest concentration of employment and community services to the project area. It is the county seat and location of many of the city's and county's public offices. It is also the location of the nearest fire station and the community's Amtrak train station. US 321 and NC 7 (exit 19 of I-85) are the two primary access roads to downtown Gastonia. See **Figure 4** for the Public Officials Map.

Additionally, US 321 is the primary access to the Town of Dallas, which is a bedroom community to Gastonia and Charlotte. Downtown Dallas is approximately 2.5 miles north of the interchange, just east of US 321.

Rhyme Elementary School is located on Davidson Avenue, approximately one mile west of US 321 and south of I-85. The school serves children living in the Highland neighborhood.

### 10.9 **Bicycle Facilities**

The greenway along the railroad corridor connects the areas south of I-85 with a multi-use trail. Once the connection of the greenway to Rankin Lake Park occurs, this facility will serve as a route for pedestrians and bicyclists traveling from residential areas in the northwest quadrant to Sims Legion Park and points south in the City of Gastonia.

### 10.10 **Transit**

Gastonia provides transit service to the project area in the southwest and southeast quadrants. Route No. 7 (Highland) connects downtown Gastonia to the Highland neighborhood, the Erwin Center and Dixie Village shopping center in west Gastonia. Through the project area the route operates on York Street and Caldwell Street, then connects to US 321. The route then turns westbound on Radio Street and Caldwell Street to serve the Highland Community and Cameron Court and Weldon Heights public housing complexes. The routes exits the project area heading south on Weldon Street.

The route operates on one-hour headways from the Bradley Station in downtown Gastonia. The Bradley Station and Dixie Village termini provide for connections to other city bus routes to access major employment and shopping centers within Gastonia.

The 2030 Long Range Transportation Plan for the Gaston Urban Area identified only a potential expansion of service hours on weekdays and weekends that would impact bus routes in the project area.

### 10.11 Schools

Two schools are within 0.5 mile of the project: The Highland School of Technology and Woodhill Elementary School. The Highland School is a magnet high school within the Gaston County schools system and located in the southwest quadrant of the project, approximately ¼-mile from the interchange and 500 feet west of US 321. Woodhill Elementary is approximately 0.5mile southeast of the project and adjacent to Sims Legion Park.

A total of 16 school buses make a total of 32 trips through the project area school day, including 14 total trips generated by the Highland School of Technology. The other trips serve the following schools: North Gaston and Grier Middle Schools, Woodhill, Rhyne, Costner, Carr Elementary Schools, Webb Street / Warlick School.

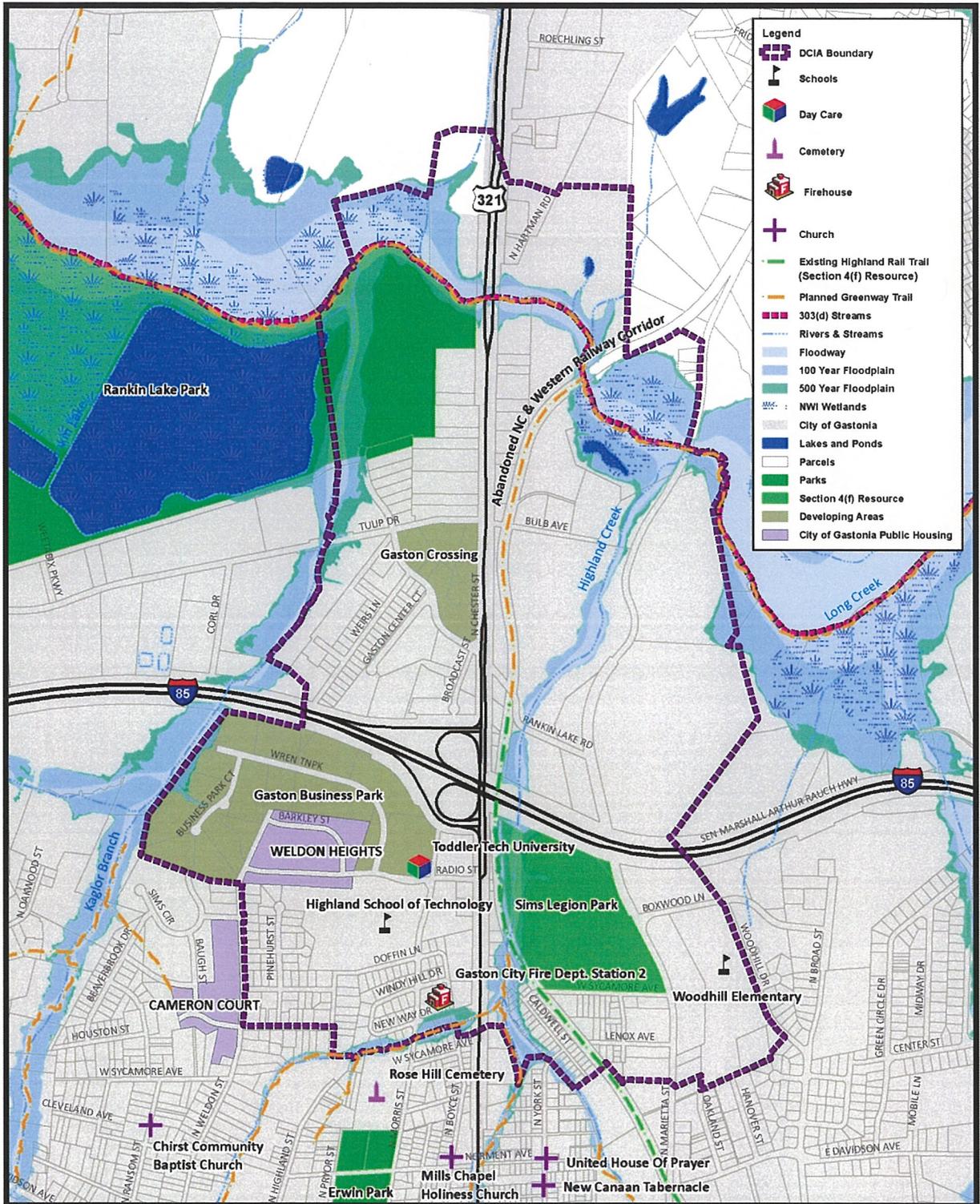
Gaston Schools also expressed a preference for a majority of the construction work to be conducted during the summer months, if possible.

### 10.12 Community Cohesion

The Highland neighborhood does not appear to be reliant upon the US 321 corridor for reasons other than transportation. The land uses along US 321 appear to serve more of the pass-by traffic from I-85. Some businesses, such as the tire shop, the Mexican restaurant and some of the gas stations / convenience stores are probably patronized by area residents, but they have not been developed as integrated part of the community.

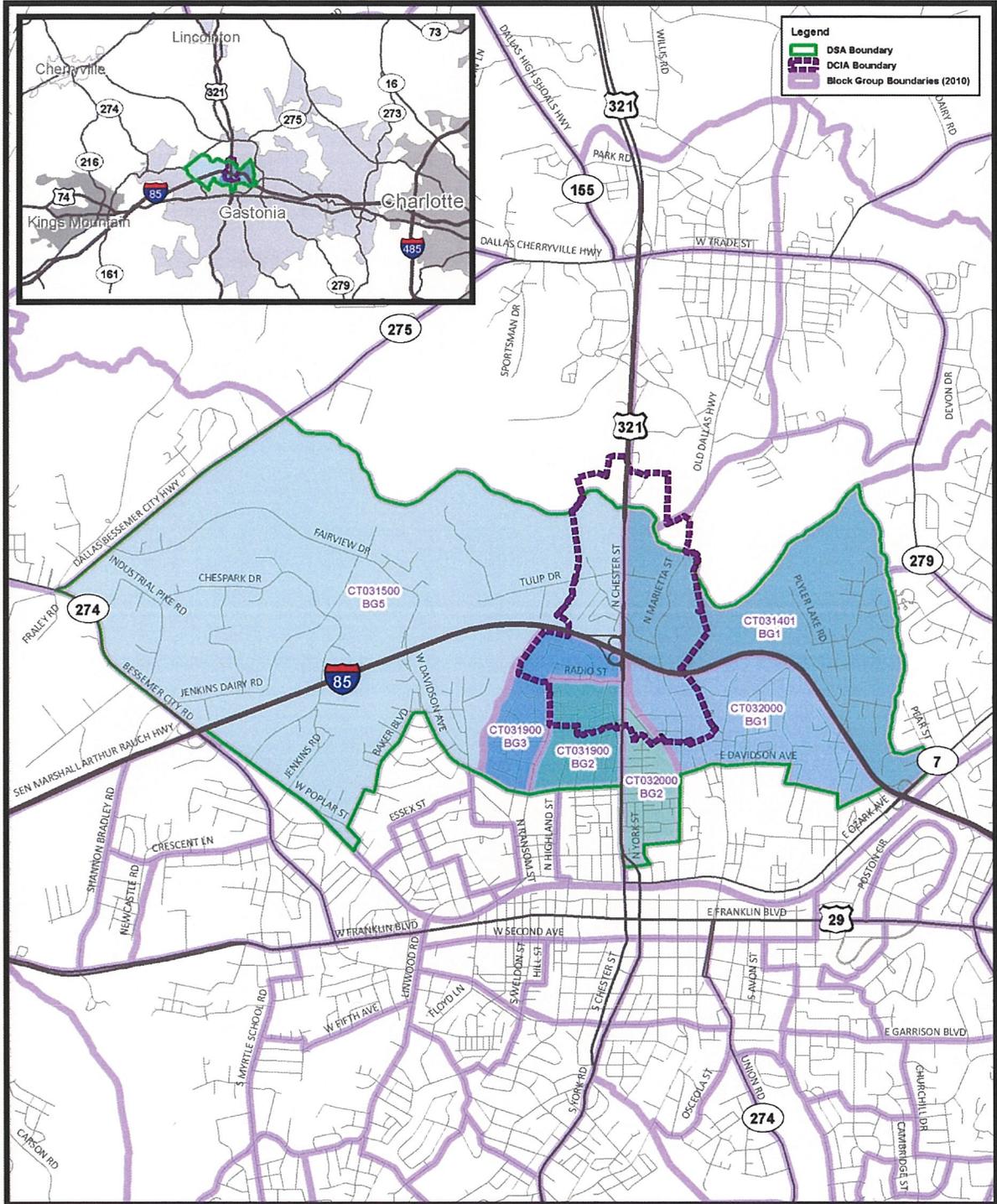
The industrial uses that have been developed in the southeast quadrant have divided residential areas of the community. It is likely that some residents of the Highland neighborhood work in the industrial facilities located throughout the project area, as the industrial parks serve as major employment centers for Gaston County.

# COMMUNITY CONTEXT MAP



I-5000  
 Categorical Exclusion  
 May 2015

# DEMOGRAPHIC STUDY AREA



I-5000  
Categorical Exclusion  
May 2015

### 10.13 Environmental Justice

Title VI of the Civil Rights Act of 1964 protects individuals from discrimination on the grounds of race, age, color, religion, disability, sex, and national origin. Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” provides that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations. Special populations may include the elderly, children, the disabled, low-income areas, Native Americans and other minority groups. Executive Order 12898 requires that Environmental Justice principles be incorporated into all transportation studies, programs, policies and activities. The three environmental principles are:

- 1) To ensure the full and fair participation of all potentially affected communities in the transportation decision-making process;
- 2) To avoid, minimize or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority or low-income populations; and
- 3) To fully evaluate the benefits and burdens of transportation programs, policies, and activities, upon low-income and minority populations.

No residential relocations are anticipated with the proposed project. Businesses potentially impacted by the project are national chains with minimal association to area neighborhoods.

Disproportionately high and adverse impacts to EJ populations are not anticipated. Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community.

#### Limited English Proficiency

The Demographic Study Area does not meet the requirements for the presence of a Limited English Proficiency (LEP) population, as identified in the USDOT’s *Policy Guidance Concerning Recipients’ Responsibilities to Limited English Proficient Persons* (2005). This guidance includes measures to identify a safe harbor threshold, which is defined as either five percent of the Demographic Study Area population or 1,000 persons within a language group who speak English less than “Very Well,” whichever is less.

## 10.14 Other Environmental Effects

The following sections present other environmental impacts of the proposed project, including relocations and impacts to utilities, Section 4(f)/6(f) resources, air quality, noise, hazardous materials, and farmland.

### 10.14.1 Community Services and Facilities

As previously mentioned, the Sims Legion Park and Highland Rail Trail are within the project study area. Refer to Section 10.18 for more information. The project is not expected to adversely affect social or economic opportunities in the area.

It is anticipated that the project will not require an offsite detour. School bus and emergency vehicle service will not be disrupted during construction, and will benefit from improved connectivity following construction.

### 10.14.2 Relocations

Right-of-way acquisition required for the project will be limited. Five businesses (several of which are “out of business”) will be impacted by the proposed improvements. No residential properties will be impacted and no residential structure is expected to be acquired.

For any real property interests affected by the Preferred Alternative, the acquisition of those property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

### 10.14.3 Utilities

All utility providers who reported having facilities in the project vicinity will be contacted and coordinated with to ensure that the proposed design and construction of the project will not disrupt service.

### 10.14.4 Section 4(f)/6(f) Resources

#### Section 4(F) Resources

Section 4(f) of the Department of Transportation Act of 1966, as amended, and codified in the 49 USC 303, and FHWA adopted regulations, 23 CFR 774, prohibits FHWA from approving the use of a publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance unless: 1) a determination is made that there is no feasible and prudent avoidance alternative to use of land from the property, and the action includes all possible planning to minimize harm to the property resulting from such use, or 2) the use of the property, including any measures to minimize, will have a *de minimis* impact on the property.

Sims Legion Park in the southeast quadrant of the interchange is a public park owned by the City of Gastonia. The park includes a parking area, a BMX bicycle/skateboard area, baseball fields, and baseball stadium that hosts the Gastonia Grizzlies. The parking area at the park is available to Highland Rail Trail Parking. Sims Legion Park is afforded protection under Section 4(f) of the Department of Transportation Act.

Highland Rail Trail is a public recreation trail along the Norfolk Southern Railroad corridor. The trail is managed by the City of Gastonia. The Highland Rail Trail corridor is east of US 321. The existing segment open to trail users is approximately 1.7 miles long and extends from I-85 south through the project study area. The paved portion of the trail ends approximately 300 feet north of the US 321/ I-85 Interchange Bridge. A gravel path continues for approximately 600 feet northward to Rankin Lake Road. The Highland Rail Trail is afforded protection under Section 4(f) of the Department of Transportation Act.

Impacts to Sims Legion Park include a minimal amount of right of way acquired and usage of a temporary construction easement. The proposed alignment ties into the on-ramps of I-85 northbound. The N. Marietta Street Bridge will not be impacted by the proposed project. Coordination with the City of Gastonia has occurred throughout the process; however, a consensus was not obtained on the *de minimis* recommendation. Therefore, an Individual Section 4(f) Evaluation was initiated in accordance with 23 CFR Part 774 and 49 USC 303 to assess the likely impacts to Section 4(f) resources resulting from the Preferred Alternative.

The Sims Legion Park ball field and the Highland Rail Trail will be treated as one 4(f) resource. After reviewing impacts to the properties, the Federal Highway Administration (FHWA) stated their intent to make a finding of a *de minimis*.

These conditions include:

1. The transportation use of the park, together with any impact, avoidance, minimization, and mitigation or enhancement measures do not adversely affect the activities, features and attributes that qualify the resource for protection under Section 4(f).
2. The officials(s) with jurisdiction over the property are informed of FHWA's intent to make the *de minimis* impact finding, based on his/her written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f).

3. The public has been afforded an opportunity to review and comment on the effects of the project on the proposed activities, features, and attributes of the Section 4(f) resource.

### Section 6(F) Resources

There are no properties or resources in the project study area that have received grant money from the Land and Water Conservation Fund to be considered a Section 6(f) resource.

#### 10.15 **Air Quality**

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS). These standards were established to protect the public from known or anticipated effects of air pollutants. The most recent amendments to the NAAQS contain criteria for sulfur dioxide (SO<sub>2</sub>), particulate matter (PM), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>2</sub>), and lead (Pb).

The primary pollutants from motor vehicles are unburned hydrocarbons, nitrous oxides, carbon monoxide, and particulates. Hydrocarbons and nitrogen oxides can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO<sub>2</sub>. 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.

A project-level qualitative air quality analysis was prepared for this project. A copy of the unabridged version of the full technical report entitled Revised Air Quality Analysis, dated March 15, 2013, can be viewed at the Project Development & Environmental Analysis Unit Century Center Building A, 1010 Birch Ridge Drive, Raleigh.

##### 10.15.1 **Attainment Status**

The project is located in Gaston County, which is within the Charlotte-Gastonia-Rock Hill nonattainment area for ozone (O<sub>3</sub>) as defined by the EPA. This area was designated moderate nonattainment for O<sub>3</sub> under the eight-hour ozone standard effective June 15, 2004. Section 176(c) of the CAAA requires that transportation plans, programs, and projects conform to the intent of the state air quality implementation plan (SIP). The current SIP does not contain any transportation control measures for Gaston County. The Gaston Metropolitan Planning Organization 2035 Long Range Transportation Plan (LRTP) and the 2012-2018 Transportation Improvement Program (TIP) conform to the intent of the SIP. The USDOT made a conformity determination on the LRTP and the TIP on July 6, 2012 and Gaston County projects from the State Transportation Improvement Program (STIP) on July 6, 2012. For the donut area of

Gaston County, the projects from the July 6, 2012 STIP conform to the intent of the SIP (or base year emissions, in areas where no SIP is approved or found adequate). The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. There are no significant changes in the project's design concept or scope, as used in the conformity analyses.

#### 10.15.2 **Mobile Source Air Toxics**

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 has assessed this extensive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA). These are acrolein, benzene, 1,3-butadiene, and polycyclic organic matter. While FHWA consider these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050.

#### 10.15.3 **Motor Vehicle Emissions Simulator (MOVES)**

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

Based on a FHWA analysis using EPA's MOVES2010b model even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same period.

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emission total.

#### **10.15.4 MSAT Research**

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

#### NEPA Context

NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. NEPA requires, and FHWA is committed to, the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

## Consideration of MSAT in NEPA Documents

The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

1. No analysis for projects with no potential for meaningful MSAT effects;
2. Qualitative analysis for projects with low potential MSAT effects; or
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects

For projects warranting MSAT analysis, the seven priority MSAT should be analyzed.

- (1) Projects with No Meaningful Potential MSAT Effects, or Exempt Projects.

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c) (subject to consideration whether unusual circumstances exist under 23 CFR 771.117(b));
- Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from conformity requirements under the Clean Air Act pursuant to 40 CFR 93.126, no analysis or discussion of MSAT is necessary. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended. The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from certain conformity requirements under 40 CFR 93.127 does not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact. However, the project record should document the basis for the determination of “no meaningful potential impacts” with a brief description of the factors considered.

- (2) Projects with Low Potential MSAT Effects

The types of projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

Most highway projects that require a MSAT assessment will fall into this category. Any projects not meeting the criteria in category (1) or category (3) below should be included in this category. Examples of these types of projects are minor widening projects; new interchanges, replacing a signalized intersection on surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including no-build, based on VMT, vehicle mix, and speed. It would also discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects typically are low, no appreciable difference in overall MSAT emissions among the various alternatives is anticipated.

In addition to the qualitative assessment, a project-level air quality analysis for this category of projects must include a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts, in compliance with the Council on Environmental Quality (CEQ regulations (40 CFR 1502.22(b))). This discussion should explain how current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that could result from a transportation project in a way that would be useful to decision-makers. Also in compliance with 40 CFR 150.22(b), it should contain information regarding the health impacts of MSAT.

### (3) Projects with Higher Potential MSAT Effects

This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. To fall into this category, a project should:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and also,
- Proposed to be located in proximity to populated areas.

Projects falling within this category should be more rigorously assessed for impacts, including completion of a quantitative analysis to forecast local-specific emission trends of the priority MSAT for each alternative, to use as a basis of comparison. This analysis also may address the potential for cumulative impacts, where appropriate, based on local conditions. How and when cumulative impacts should be considered would be addressed as part of a project-level air quality analysis. If the analysis for a project in this category indicates meaningful differences in levels of MSAT emissions among alternatives, mitigation options should be identified and considered.

This project falls under Category (2) because it is intended to improve the operations of a highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions, and the Design Year Traffic is not project to meet or exceed the 140,000 to 150,000 AADT criterions.

#### 10.15.5 **Qualitative MSAT Analysis**

A qualitative MSAT analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives found at; [www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm](http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm)

The additional travel lanes contemplated as part of the project alternative will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternative than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the additional on-ramps and off-ramps, along the flyover from southbound US 321 to northbound I-85 and the widened sections of US 321 and I-85. However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion. Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

In summary, under all Build 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, and due to EPA's MSAT reduction programs.

#### 10.15.6 **Incomplete or Unavailable Information/MSAT Health Impacts 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 U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the 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". Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

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

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have

to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

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

There are considerable uncertainties associated with existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and the HEI (<http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

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

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

#### 10.15.7 **MSAT Conclusion**

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

#### 10.15.8 **Construction Air Quality**

Air Quality impacts resulting from roadway construction activities are typically not a concern when contractors utilize appropriate control measures. During construction of the proposed project, all materials resulting from clearing and grubbing, demolition or other operations will be removed from the project, burned or otherwise disposed of by the Contractor. Any burning done will be done in accordance with applicable local laws and ordinances and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. Care will be taken to ensure burning will be done at the greatest distance practical from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits. Burning will be performed under constant surveillance. Also during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process, and no additional reports are necessary.

#### 10.15.9 **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 to reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

The project is located in Gaston County, which complies with the National Ambient Air Quality Standards. This project will not add substantial new capacity or create a facility that is likely to meaningfully increase emissions. Therefore, it is not anticipated to create any adverse effects on the air quality of this attainment area.

## 10.16 Noise

The FHWA highway traffic noise regulation is codified at 23 CFR 772. The regulation requires the following during the planning and design of a highway project:

1. Identification of highway traffic noise impacts;
2. Examination of potential abatement measures;
3. The incorporation of reasonable and feasible highway traffic noise abatement measures into the highway project;
4. Coordination with local officials to provide helpful information on compatible land use planning and control; and
5. Identification and incorporation of necessary measures to abate construction noise.

The sensitivity of an area to roadway noise is a function of the land use and noise level. Some types of land uses are more sensitive than others, especially those associated with rest, relaxation, concentration, and communication. Examples of noise sensitive areas include residences, schools, churches, hospitals, libraries, public assembly halls, lodgings, and parks. Land uses which are less sensitive to noise include commercial, industrial, and agricultural uses.

Based on the project as proposed, traffic noise mitigation measures are preliminary considered to be neither feasible nor reasonable for the benefit of the predicted build-condition traffic noise impacts. With respect to traffic noise, an additional detailed study of potential traffic noise mitigation measures will not be necessary subsequent to selection of the final design.

### Construction Noise

The major construction elements of this project are expected to be earth removal, hauling, grading, and paving. General construction noise impacts can be expected, particularly from paving operations and from the earth-moving equipment used during grading operations. Overall, construction noise impacts are expected to be minimal and temporary. Pursuant to the requirements of 23 CFR 77219, it is recommended that:

1. Earth removal, grading, hauling, and paving activities in the vicinity of residences should be limited to weekday daytime hours to extent practicable.
2. Extremely loud construction noise activities such as, but not limited to, pile-driving and impact hammer operation should be scheduled so to create minimal disruption to the hotels / motels and the Highland Technical School that exist in close proximity to the proposed project to the extent practicable.
3. If meeting the project schedule requires that earth removal, grading, hauling and/ or paving must occur during evening, nighttime and/ or weekend hours in the vicinity of

residences and/ or residential neighborhoods, the Contractor will be directed to notify NCDOT as soon as possible. In such instance(s), all reasonable attempts shall be made to notify and to make appropriate practicable arrangements for the mitigation of the predicted construction noise impacts upon affected property owners and/ or residents. If meeting the project schedule requires that earth removal, grading, hauling and/ or paving must occur during evening, nighttime and/ or weekend hours in the vicinity of residences and/ or residential neighborhoods, the Contractor shall notify NCDOT as soon as possible. In such instance(s), all reasonable attempts shall be made to notify and to make appropriate arrangements for the mitigation of the predicted construction noise impacts upon affected property owners and/ or residents.

4. If construction noise activities must occur during context-sensitive hours in the vicinity of noise-sensitive areas, discrete construction noise abatement measures including, but not limited to portable noise barriers and/ or other equipment-quieting devices shall be considered.
5. If construction noise activities must occur during context-sensitive hours in the vicinity of noise-sensitive areas, and if discrete construction noise abatement measures are either not feasible or cost-effective, alternative concessions for relief from construction noise impacts shall be considered.

#### 10.17 **Hazardous Materials**

A Limited Phase I Environmental Site Assessment (ESA) for the *I-85 /US 321 Interchange Geometric Safety Improvements Project* was completed in September 2008. The ESA is an aid in roadway design to identify possible current and historic contaminant sources. The ESA conducted a review of the Geographical Information Systems (GIS) databases within the given project study area to identify known environmentally impacting sites in relation to the project corridor. A review of the GIS identified ten registered Underground Storage Tank (UST) facilities sites in the project study area.

The ten registered UST facilities, four ground water incident sites and one Inactive Hazardous Waste site were found within the project study area. The following table summarizes the finding.

Table 13: Hazardous Waste Sites

Site #	Type	Facility Name	Facility Address	Potential Impact
1	Ground Water Incident	Adam's Truck Sales	2309 North Chester St	Low
2	UST	Pantry 3974/DBA Petro Express	2106 North Chester St	Low
3	UST	Pantry 3967/DBA Petro Express	2001 North Chester St.	Low
4	UST	Ryder Truck Rental	1850 Wren Turnpike	Low
5	UST	321 Exxon 4-4953	1629 North Chester St.	Low
6	Ground Water Incident	Highland School of Technology	1600 North Morris St.	Low
7	UST	Owens 66	1515 North Chester St.	Low
8	Ground Water Incident	Gaston Merchant Oil-Bulk Plant	1513 North Chester St.	Low
9	Ground Water Incident	Carver and Sons	1410 North Chester St	Low
10	UST	Omni Mart # 32	1390 North Chester St.	Low
11	UST	321 Food Mart	1034 North Chester ST.	Low
12	Inactive Hazardous Waste Site	Gaston Coal Gas Plant	End of Caldwell St.	Low
13	UST	Gaston Operations Center	900 North Marietta St.	Low
14	UST	Jenkins Metal Corp.	936 North Marietta St.	Low
15	UST	Wax Associated Inc.	101 Boxwood Lane	Low

### 10.18 Prime and Important Farmland

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). Adherence to the Farmland Protection Policy Act is required unless certain conditions are met; one of which is that the project is within an urban area as defined by the US Census. The entire project study area is recognized by the US Census Bureau as an urban area ([www.census.gov/geo/www/maps/ua2kmaps.htm](http://www.census.gov/geo/www/maps/ua2kmaps.htm)) and therefore not subject to the Farmland Protection Policy Act.

## 11 Public Involvement

Two Citizens Informational Workshops (CIW's) were held on June 11, 2009 and May 17, 2012 respectively. During these meetings, the general concept of the geometric safety improvements was discussed and conceptual and preliminary design alternatives were shown to the public. A summary of meeting time, location and attendance for each public meeting is provided in **Table 14**.

Table 14: Meeting Summary

Meeting	Date	Time	Location	Attendance
1	6/11/2009	4:00-7:00 PM	Rankin Lake Park Clubhouse 1750 Rankin Lake Road, Gastonia, N.C.	27
2	5/17/2012	4:00-7:00 PM	Gaston County Citizens' Resource Center 1303 Cherryville Highway, Dallas, N.C.	38

The following paragraphs provide an overview of items related to the proposed north-south connector project that were presented at each meeting.

### Meeting #1

The discussion was limited to the project study area, project schedule and the conceptual design currently being studied. The conceptual designs discussed were a flyover alternative and a combination of on and off ramps. No specifics about either alternative were discussed in detail.

### Meeting #2

The meeting reiterated the purpose of the proposed project is to improve safety and traffic flow at the interchange. The two studied alternatives were presented to the public. The two designs that were carried forward for detail analysis were the flyover and slip-left alternatives. An overview of advantages and disadvantages for each proposed alignment was provided to the public. See **Appendix C** for the alternatives presented.

Table 15: Overview of Proposed Alternatives

Topic	Alternative 2 (Flyover)	Alternative 3 Modified (Slip-Left)
<b>Advantages</b>	Traditional flyover concept	Operationally superior
	Operates slightly better than existing interchange	Cost less than half the cost of flyover design
<b>Disadvantages</b>	Highest cost	Unique design concept
	Requires the most property	--
	Less efficient	--

Alternatives 2 and 3 were carried forward, and Alternative 3 became the preferred alternative.

A newsletter was mailed on July 22, 2014 to 100 residents and businesses in the study area. It was also provided to the City for posting on the Gastonia Parks and Recreation website and hard copies were made available for distribution at the Sims Legion Park. This newsletter described the Section 4(f) process, updated the project schedule, and solicited comments by August 25, 2014. One phone call was received from Mr. Don Barkley in response to the newsletter. He inquired about general project information.

## 12 Additional Coordination

A NEPA / 404 Merger Process Screening Meeting was held on April 29, 2009. The purpose of the meeting was to determine whether to carry the project through the formal Merger Process. The decision was made by the team to not take the project through formal merger process; however, the Project Team agreed that a joint Concurrence Point 2A (Bridging Decisions) and Concurrence Point 4A (Avoidance and Minimization) (2A/4A) meeting would be conducted. The 2A / 4A meeting was conducted on November 8, 2012. Concurrence on the 2A/4A was achieved and is documented in **Appendix B**.

In efforts to reduce impacts to the Sims Legion Park, there was a substantial amount of coordination with the City of Gastonia beginning with the Start of Study notification in 2008. Meetings and/or correspondence occurred on the following dates:

- October 21, 2011
- December 12, 2011
- May 29, 2012
- December 5, 2012
- October 9, 2013
- November 12, 2013
- December 5, 2013
- April 29, 2014
- June 16, 2014
- August 6, 2014
- August 22, 2014

### 13 Summary

Alternative 3, Slip-Left, was preferred among the two build alternative options that were presented to the public and the Merger team. Alternative 3 provided a left-turn on-ramp from US 321 southbound, traveling under the I-85 bridge and turning eastward to merge onto I-85 northbound. Coordination efforts with the City of Gastonia occurred to minimize impacts to the Sims Legion Park and Highland Rail Trail and to obtain a *de minimis* status. However, a consensus was not obtained and an Individual Section 4(f) Evaluation was initiated. As part of the minimization effort, Alternative 3 was modified to reduced impacts to the Section 4(f) resources. This Alternative 3 Modified option became the Preferred Alternative.

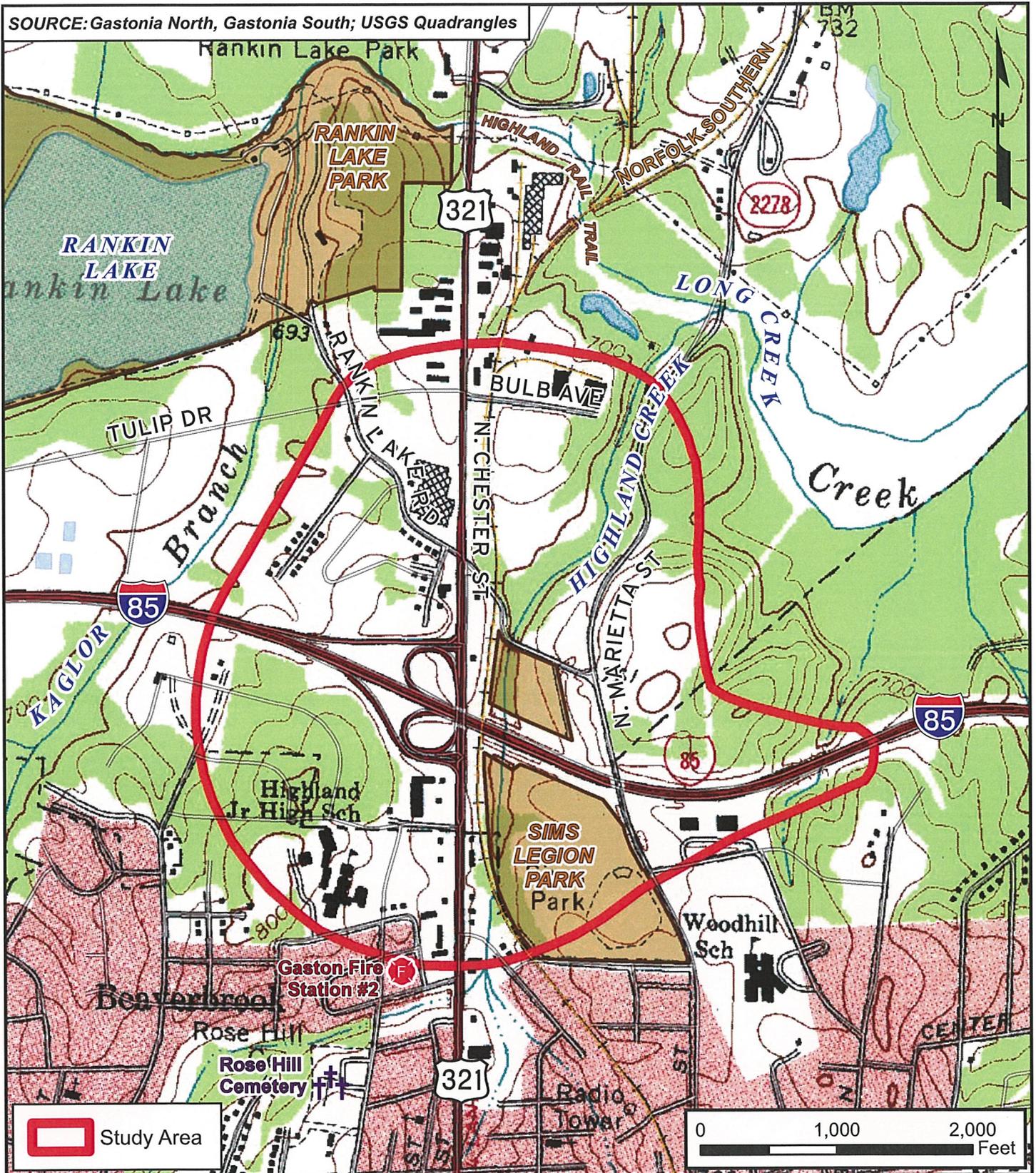
The Preferred Alternative is expected to have an overall positive impact in the form of reduced congestion at the I-85 / US 321 interchange. Negative environmental impacts are expected to be minimal. There are five business relocations anticipated, along with minor impacts to the Sims Legion Park and Highland Rail Trail. An Individual Section 4(f) Evaluation has been prepared for this project. This cost of the project will be approximately \$17,100,000. This cost includes the redesign/construction of the interchange, provides a connection for Bulb Avenue between US 321 and N. Marietta Street, purchases five businesses, relocates a portion of the greenway, adds pedestrian and stream culverts, and severs the connection of Rankin Lake Road to N. Marietta Street.

The project is a Categorical Exclusion due to its limited scope and lack of significant environmental consequences. The proposed geometric safety improvements will not have an adverse effect on the quality of the human or natural environment with the implementation of current NCDOT standards and specifications. On the basis of information included in this document, it is concluded that no significant adverse environmental effects will result from implementation of the project.

# **Figures**

**TIP Project I-5000**

SOURCE: Gastonia North, Gastonia South; USGS Quadrangles



 Study Area

0 1,000 2,000  
Feet



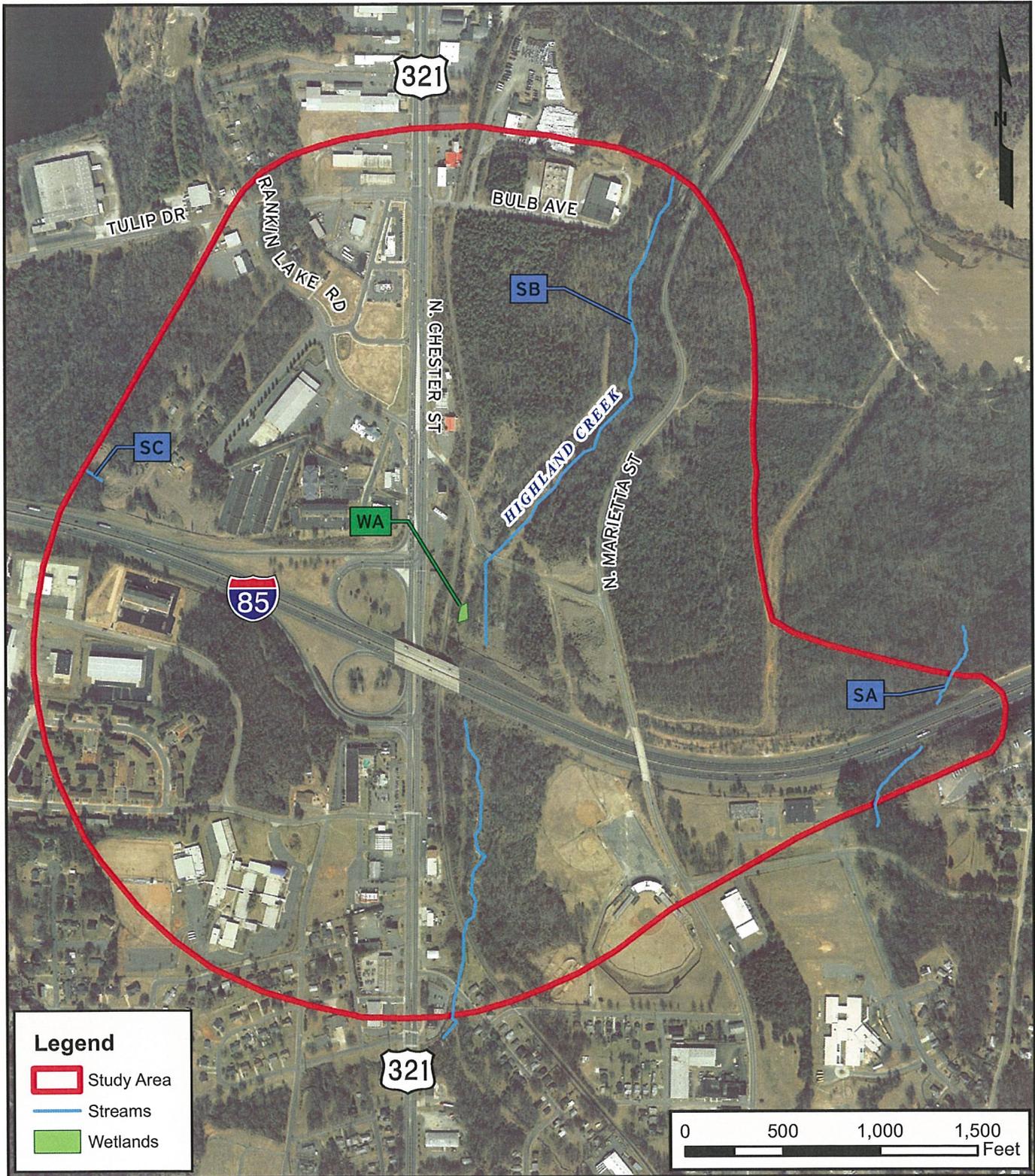
NORTH CAROLINA DEPARTMENT  
OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PROJECT DEVELOPMENT AND  
ENVIRONMENTAL ANALYSIS BRANCH

STIP PROJECT No. I-5000  
STUDY AREA / QUAD MAP  
I-85 / US 321 INTERCHANGE  
GEOMETRIC SAFETY IMPROVEMENTS

GASTON COUNTY

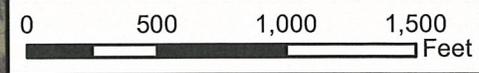
FIGURE 1





**Legend**

- Study Area
- Streams
- Wetlands

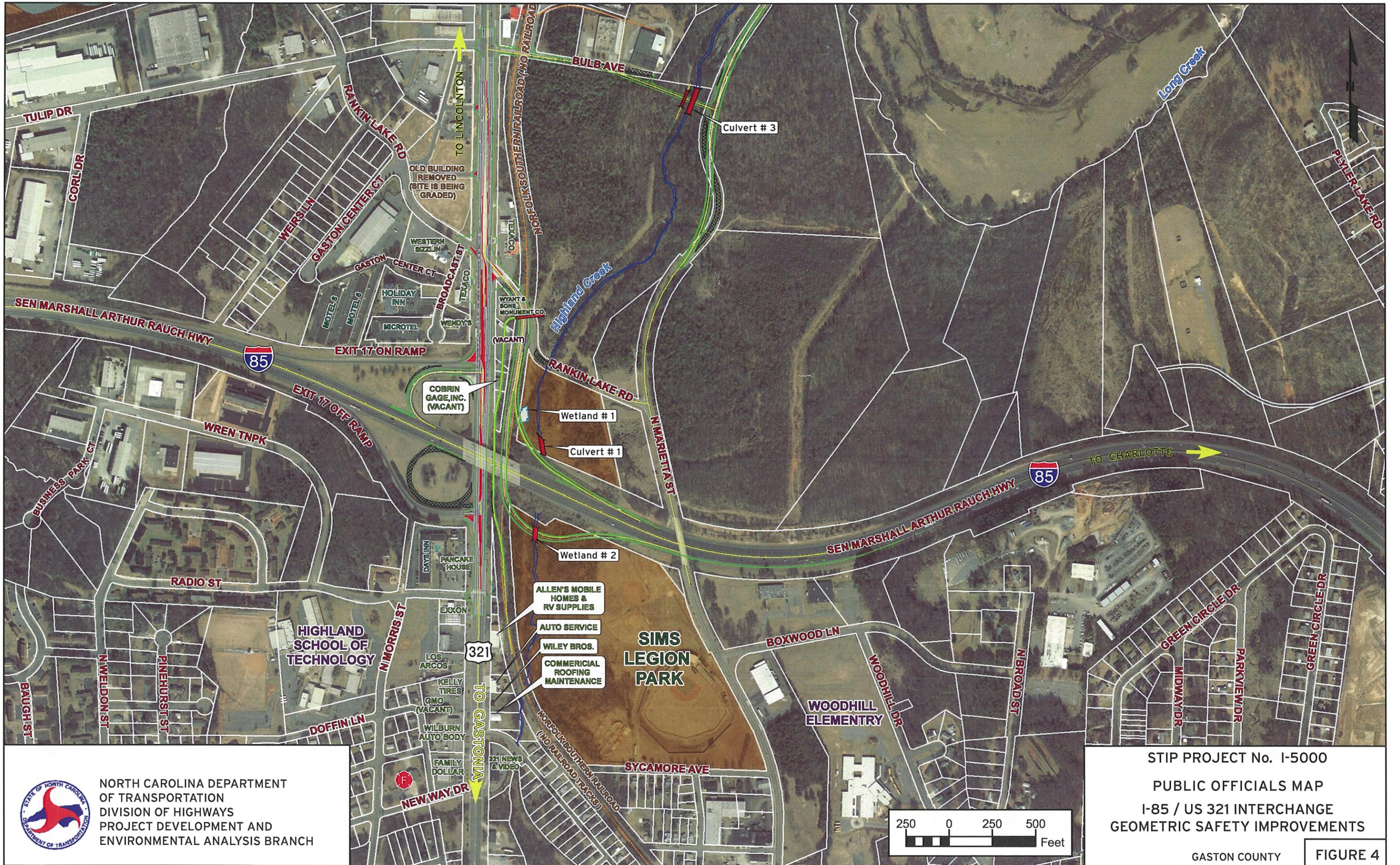


NORTH CAROLINA DEPARTMENT  
 OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PROJECT DEVELOPMENT AND  
 ENVIRONMENTAL ANALYSIS BRANCH

STIP PROJECT No. I-5000  
**JURISDICTIONAL RESOURCES**  
 I-85 / US 321 INTERCHANGE  
 GEOMETRIC SAFETY IMPROVEMENTS

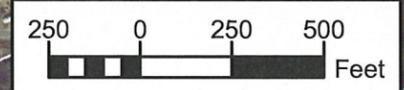
GASTON COUNTY

**FIGURE 3**



NORTH CAROLINA DEPARTMENT  
 OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PROJECT DEVELOPMENT AND  
 ENVIRONMENTAL ANALYSIS BRANCH

STIP PROJECT No. I-5000  
 PUBLIC OFFICIALS MAP  
 I-85 / US 321 INTERCHANGE  
 GEOMETRIC SAFETY IMPROVEMENTS



# **APPENDIX A**

**Traffic Forecast**

**TIP Project I-5000**



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPEIT  
SECRETARY

November 17, 2008

MEMORANDUM TO: Zahid M. Baloch  
Project Development & Environmental Analysis Branch  
Western Unit

FROM: Shannon J. Ransom  
Transportation Planning Branch

SUBJECT: Traffic Forecast for TIP Project # I-5000  
Gaston County  
I-85/US 321 Geometric Improvements to Interchange

Please find attached the 2008 / 2035 Traffic Forecast for the above mentioned project. This forecast replaces the previous forecast for this project dated February 22, 2005. TIP project I-5000 is defined as the I-85/US 321 geometric improvements to the interchange. This project lies within the GUAMPO (Gaston MPO) area.

The previous forecasts for FS-0212C and the currently adopted Metrolina Regional Model (MRM 06 v1.1) were reviewed during the development of this forecast. The Traffic Engineer for Division 12, Sam Nichols, and Gaston MPO staff were consulted during the development of this forecast update.

The following scenarios are provided:

- 2008 Base Year No-Build
- 2035 Future Year No-Build

**Certain assumptions were made in the development of the forecast:**

In addition to the approved socio-economic data projections and future land use developments forecasted in the Metrolina Regional model, the following assumptions have been made when developing the future year 2035 traffic forecast:

- It is assumed that TIP project U-2523 (Widening of NC 279) and U-3321 (Gaston East –West Connector) will be open to traffic.
- All current businesses will still be in operation.

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: 919-733-4705  
Fax: 919-733-2417

**Methodology for Projecting Future Year Traffic (2035):** The Metrolina Regional Model (MRM 06 v1.1) was used as a **tool** in the development of the forecast with consideration to the base year calibration. Traffic growth rates obtained from historical trends, and specific information on planned developments were also considered.

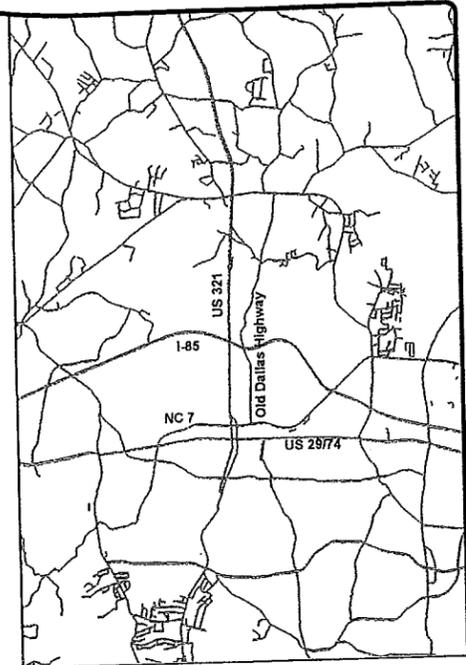
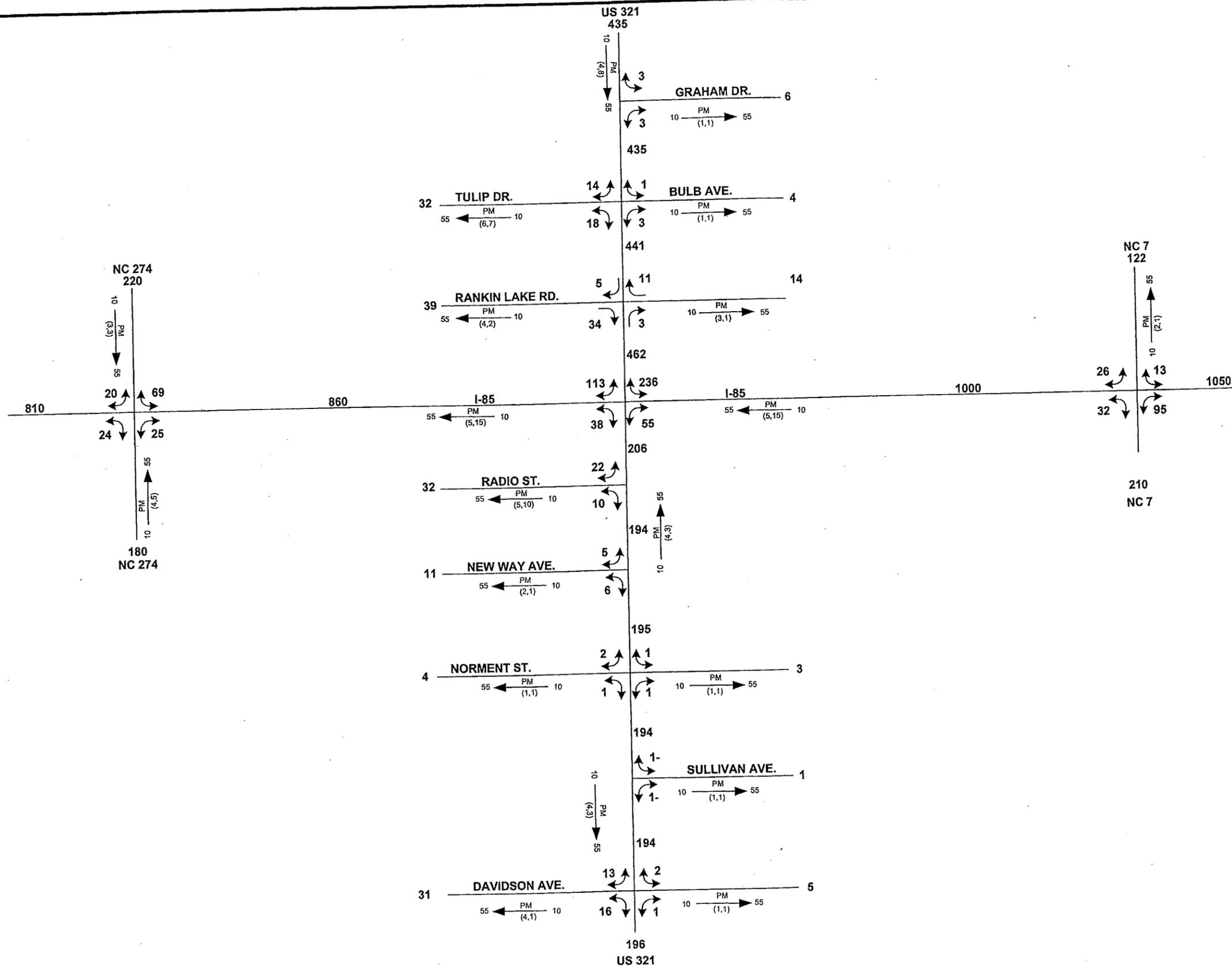
Straight-line interpolation is not allowed due to Gaston East-West Connector opening to traffic in 2015. I will provide 2020 traffic by May 30, 2009 which can be used in interpolation.

If you have any questions, or if I can be of further assistance, please do not hesitate to call me at (919)-715-5737, or e-mail me at sransom @ncdot.gov.

cc : FILE (Gaston County, TIP Project I-5000).

cc:

Jay Bennett, PE, Roadway Design Unit  
Deborah Hutchings, PE, Transportation Planning Branch  
Mike Orr, AICP Transportation Planning Branch  
BenJetta L. Johnson, PE, Congestion Management Section  
Hardee Cox, Roadway Inventory Information Systems Section  
Jamal Alavi, P.E., Transportation Planning Branch



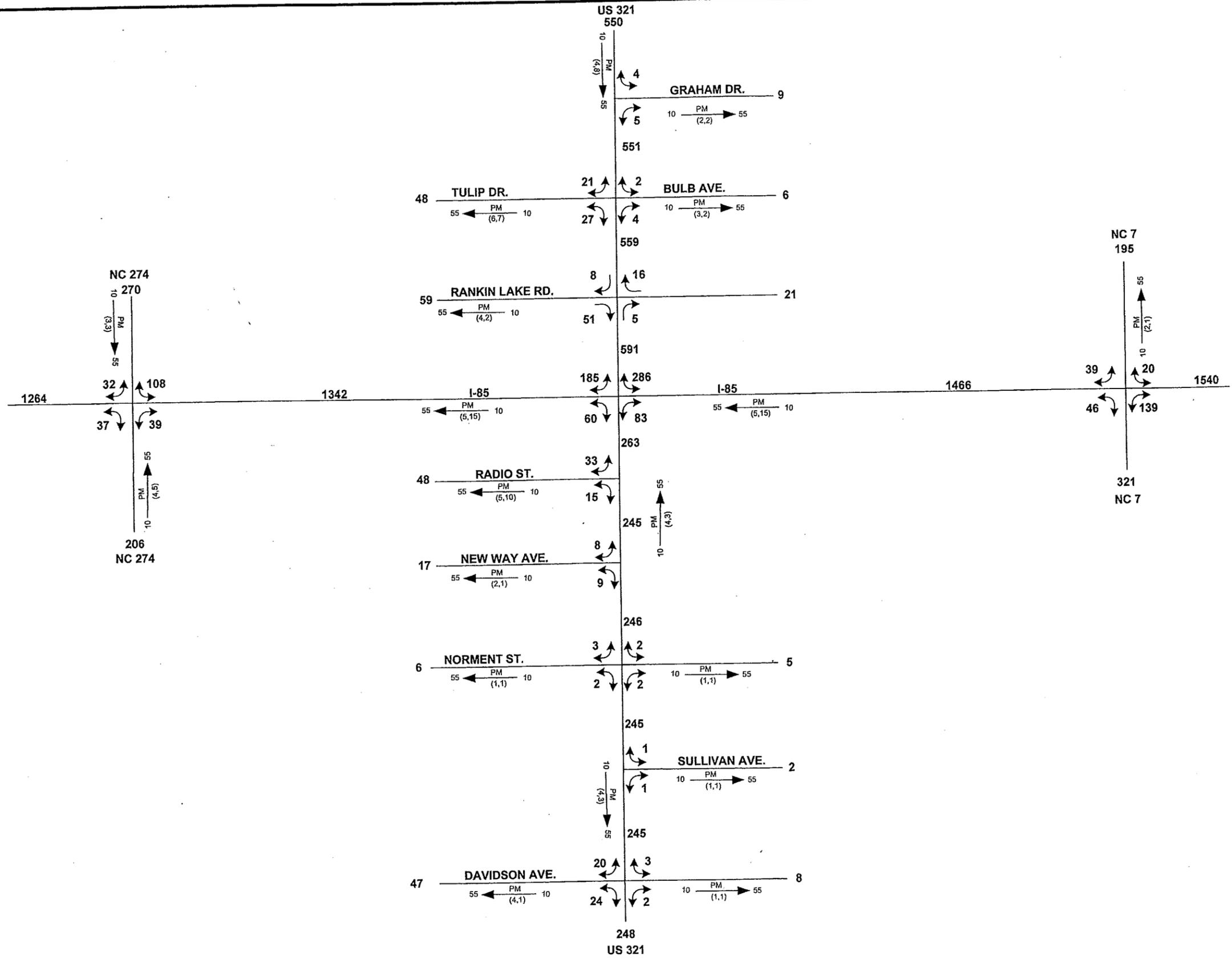
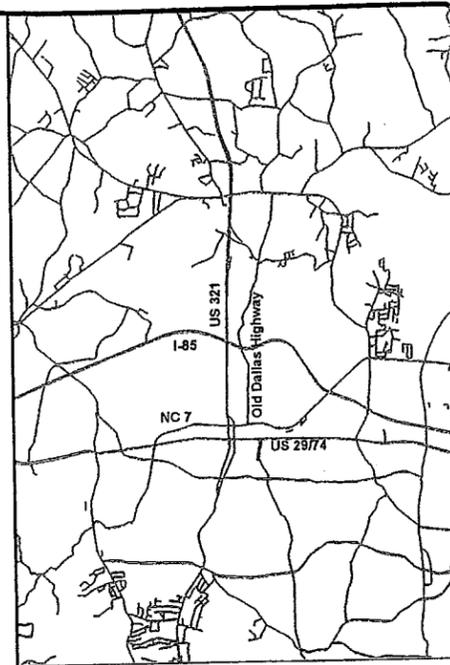
# 2008

ANNUAL AVERAGE  
DAILY TRAFFIC

## LEGEND

- DHV  $\xrightarrow{\text{PM}}$  D  
(d, t)
- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Roadway
- DHV Design Hourly Volume
- PM PM Peak Period
- D Peak Hour Directional Split
- $\rightarrow$  Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: I-5000	WBS: 41153.1.1
COUNTY: Gaston	DIVISION: 12
DATE: 11-17-2008	
PREPARED BY: Shannon J. Ransom	
LOCATION: I-85 and US 321 Interchange	
PROJECT: I-85/US 321 Geometric improvements to interchange	



**2035**  
ANNUAL AVERAGE  
DAILY TRAFFIC

**LEGEND**

DHV  $\xrightarrow{\text{PM}}$  D  
(d, t)

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

TIP: I-5000	WBS: 41153.1.1
COUNTY: Gaston	DIVISION: 12
DATE: 11-17-2008	
PREPARED BY: Shannon J. Ransom	
LOCATION: I-85 and US 321 Interchange	
PROJECT: I-85/US 321 Geometric improvements to interchange	

# **APPENDIX B**

**Citizens Informational Workshop Notice and  
Handout**

**TIP Project I-5000**



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

May 3, 2012

## Invitation to Local Officials Informational Meeting

RE: I-5000 – Proposed Improvements to the I-85 / US 321 (North Chester Street) in Gastonia, Gaston County

Dear Sir or Madam:

The North Carolina Department of Transportation (NCDOT) invites you to attend a Local Officials Informational Meeting to be held prior to the second Citizens' Informational Workshop (public meeting) regarding the referenced proposed project. This meeting is scheduled for:

**Date:** Thursday, May 17, 2012  
**Time:** 3:00 – 4:00 pm  
**Location:** Gaston County Citizens' Resource Center  
1303 Cherryville Highway (NC 279)  
Dallas, 28034

The Citizens' Informational Workshop (open house, drop-in style public meeting) for this project will follow the Local Officials Informational Meeting from 4:00 pm until 7:00 pm at the same location. There will be an opportunity for the public to submit written comments. A copy of the Public Notice for the Citizens' Informational Workshop is attached for your information.

Please contact me by phone at: (919) 707-6048 or by email: [eevance@ncdot.gov](mailto:eevance@ncdot.gov) if you have any questions regarding the project. Thank you and we look forward to meeting with you.

Sincerely,

Elmo Vance, Jr., Project Development Engineer  
NCDOT – Project Development and Environmental Analysis Unit

cc: Robert A. Collier, Jr., Board of Transportation Member, Division 12  
Mike Holder, P.E., Division 12 Engineer  
Dan Grissom, P.E., Division 12 Construction Engineer  
Reuben Chandler, P.E., Division 12 Maintenance Engineer  
Mark Stafford, P.E., Division 12 Operations Engineer  
David Angel, Division 12 Right of Way Agent

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

TELEPHONE: 919-707-8000  
FAX: 919-212-5785  
WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

LOCATION:  
PDEA - HUMAN ENVIRONMENT UNIT  
CENTURY CENTER, BLDG B  
1020 Birch Ridge Drive  
Raleigh, NC 27610

NOTICE OF A SECOND CITIZENS' INFORMATIONAL WORKSHOP FOR  
PROPOSED IMPROVEMENTS TO THE INTERSTATE 85/U.S. 321 (NORTH  
CHESTER STREET) INTERCHANGE IN GASTONIA

TIP Project No. I-5000

Gaston County

The North Carolina Department of Transportation (NCDOT) will hold a second citizens' informational workshop on Thursday, May 17, 2012, from 4-7 p.m. at the Gaston County Citizens' Resource Center, located at 1303 Cherryville Highway (N.C. 279) in Dallas.

NCDOT proposes safety improvements to the existing Interstate 85 and U.S. 321 (North Chester Street) interchange in Gastonia. There are two alternative designs under consideration. Each design will retain some of the existing interchange, while new ramps will be constructed to help reduce the existing traffic congestion and delays in the interchange area.

Maps will be on display depicting the proposed improvement alternatives. NCDOT representatives will be available to answer any questions. The opportunity to provide written comments will be provided and is encouraged. Citizens may drop in any time during the workshop hours. There will not be a formal presentation.

A citizens' informational workshop is held to provide the public an opportunity to participate in the planning process and update them on a project's status. Comments and information received from the public will be taken into consideration as work on this project progresses. Additional public involvement will be conducted throughout the project development.

Right-of-way acquisition is scheduled to begin in January 2014, followed by construction starting in August 2015. These dates are tentative and subject to change.

For more information, contact Project Engineer Elmo Vance of the NCDOT Project Development and Environmental Analysis Unit at (919) 707-6048 or by email at [eevance@ncdot.gov](mailto:eevance@ncdot.gov).

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for anyone who wants to participate in this workshop. Anyone requiring special services should contact Vance as early as possible so that arrangements can be made.



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

May 8, 2012

**MEMORANDUM**

TO: Secretary Gene Conti

FROM: Eileen A. Fuchs *EAF/dnh*  
Public Hearing Officer  
Human Environment Section

RE: Notice of a Citizens' Informational Workshop for Proposed Improvements to the Interstate 85/ U.S. 321 (North Chester Street) Interchange in Gastonia Gaston County

The following Notice is furnished for your information:

I-5000 NCDOT proposes safety improvements to the existing Interstate 85 and U.S. 321 interchange in Gastonia.

EAF/dnh  
Attachment

cc: Mr. Robert A. Collier, Jr., Board of Transportation Member- Div. 12  
Mr. Jon Nance, P.E.  
Ms. Deborah M. Barbour, P.E.  
Mr. C. W. Leggett, P.E.  
Mr. Majed Al-Ghandour, P.E.  
Mr. Terry Gibson, P.E.  
Mr. Greg Thorpe, Ph.D.  
Mr. Rob Hanson, P.E.  
Mr. Eric Midkiff, P.E.  
Mr. Jay Bennett, P.E.  
Mr. J. Victor Barbour, P.E.  
Mr. Kevin Lacy, P.E.  
Ms. Sharon Lipscomb  
Ms. Sarah Mitchell  
Mr. Everett Ward  
Mr. Mike Bruff, P.E.

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

TELEPHONE: 919-431-6000  
FAX: 919-212-5785

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

LOCATION:  
PROJECT DEVELOPMENT &  
ENVIRONMENTAL ANALYSIS UNIT-  
CENTURY CENTER BUILDING B  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC, 27610

**North Carolina Department of Transportation**  
Project Development and Environmental Analysis Branch



**Citizen's Informational Workshop**

**I-85 / US 321 Interchange Geometric Safety Improvements  
Gastonia, Gaston County**

**May 17, 2012**

**TIP PROJECT I-5000**

**CITIZENS INFORMATIONAL WORKSHOP**  
I-85 / US 321 Interchange Geometric Safety Improvements in Gastonia  
Gaston County  
TIP Number I-5000

**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 road construction 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) 707-6048

**Email:** [eevance@ncdot.gov](mailto:eevance@ncdot.gov)

**PROJECT DESCRIPTION**

The North Carolina Department of Transportation proposes to improve safety and to relieve congestion at the I-85 / US 321 interchange.

**PROJECT PURPOSE**

The purpose of this project is to improve the traffic carrying capacity and to improve safety along the facility.

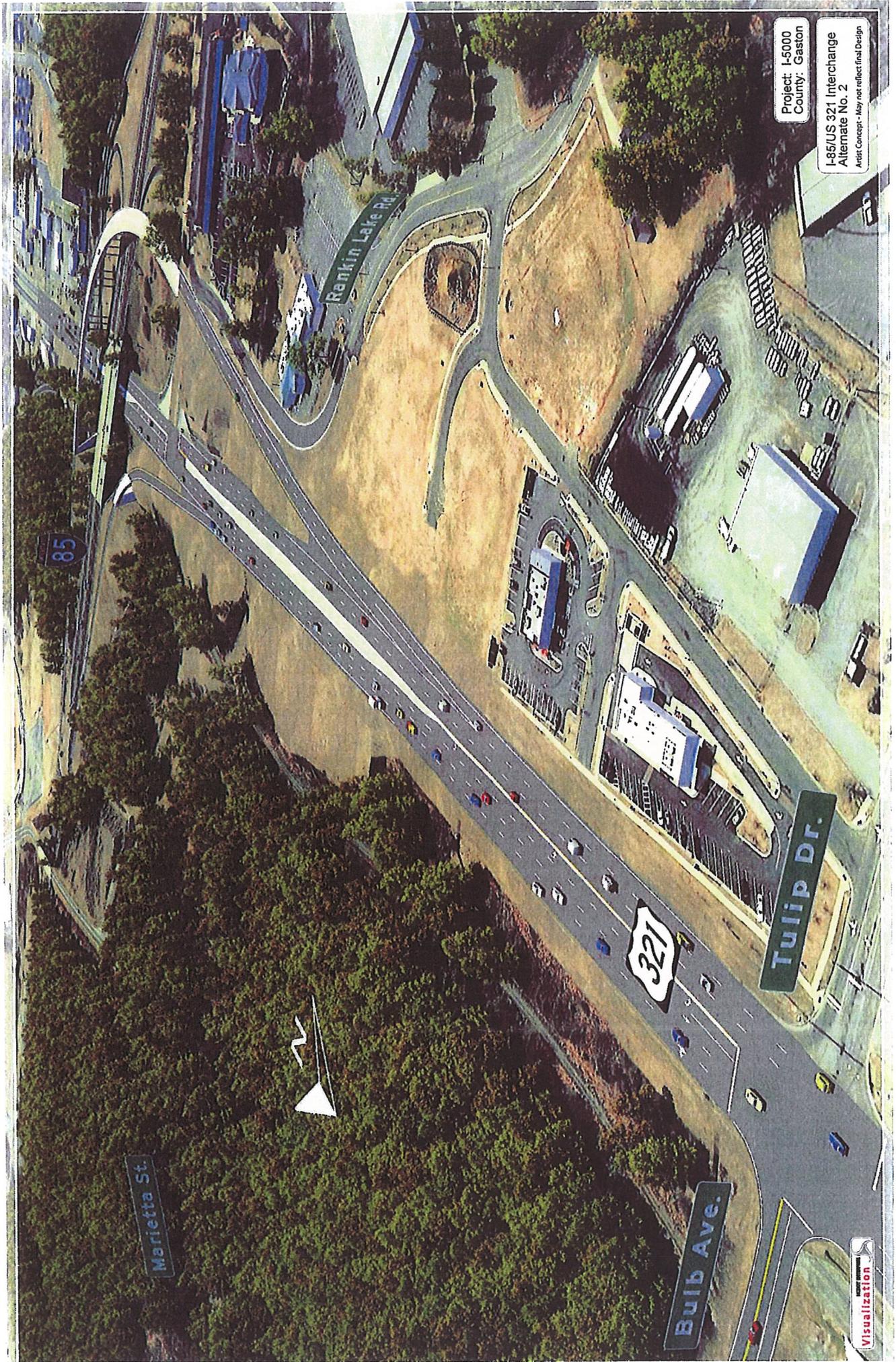
**THE PROJECT DEVELOPMENT PROCESS**

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
- ***Citizens Information Workshop***  Here
- Environmental Document reviewed by the Federal Highway Administration Fall 2012
- Right of Way (\$) Jan 2014
- Construction (\$) Aug 2015





Project: I-5000  
County: Gaston

I-85/US 321 Interchange  
Alternate No. 2

Artist Concept - May not reflect final Design

Visualization



85

321

Marietta St.

Bulb Ave.

Tulip Dr.

Rankin Lake Rd.



Project: I-5000  
County: Gaston

I-85/US 321 Interchange  
Alternate No. 3  
Artist Concept - May not reflect final Design



# **APPENDIX C**

**2A/4A Concurrence Forms**

**TIP Project I-5000**



**I-85 / US 321 Interchange  
Geometric Safety Improvements  
Gaston, NC  
T.I.P. No. I-5000**

**Concurrence Point No. 2A: Bridging Decisions  
Concurrence Point No. 4A: Avoidance and Minimization**

**Project Name/Description:** I 85 /US 321 Interchange Geometric Safety Improvements

**TIP Project No.:** I-5000

**WBS No.:** 41153.1.1

The Project Team has concurred on this date of November 8, 2012, on Concurrence Point 2A (Bridging Decisions) and Concurrence Point 4A (Avoidance and Minimization) for the I 85 / US 321 Interchange Geometric Safety Improvements for TIP Project I-5000.

**2A: Bridging Decisions**

Hydraulic Site	Stream Name	DWQ Class.	Existing Hydraulic Opening (w x h)	Proposed Hydraulic Opening (w x h)	Proposed Culvert Length (ft)
1	UT to Long Creek	C	3@8'x9'	Retain & Extend 3@8'x9'	*120'
2	UT to Long Creek	C	n/a	3@8'x10'	210'
3	UT to Long Creek	C	n/a	3@8'x10'	144'

**4A: Avoidance & Minimization**

\* The proposed culvert extension for Site #1 was reduced from 485' to 120' by realigning the off ramp from Southbound I-85 to US 321 North to reduce the stream impacts due to fill slopes.

Additional minimization efforts will be investigated at Site #3 during the final design of the culvert headwalls as requested by the Project Team to potentially shorten the culvert length and further minimize stream impacts.

USACOE \_\_\_\_\_

NCDOT \_\_\_\_\_

USEPA *[Signature]* 11/8/12 \_\_\_\_\_

USFWS \_\_\_\_\_

DWQ \_\_\_\_\_

WRC \_\_\_\_\_

SHPO \_\_\_\_\_

MPO \_\_\_\_\_



**I-85 / US 321 Interchange  
Geometric Safety Improvements  
Gaston, NC  
T.I.P. No. I-5000**

**Concurrence Point No. 2A: Bridging Decisions  
Concurrence Point No. 4A: Avoidance and Minimization**

**Project Name/Description:** I 85 /US 321 Interchange Geometric Safety Improvements

**TIP Project No.:** I-5000

**WBS No.:** 41153.1.1

The Project Team has concurred on this date of November 8, 2012, on Concurrence Point 2A (Bridging Decisions) and Concurrence Point 4A (Avoidance and Minimization) for the I 85 / US 321 Interchange Geometric Safety Improvements for TIP Project I-5000.

**2A: Bridging Decisions**

Hydraulic Site	Stream Name	DWQ Class.	Existing Hydraulic Opening (w x h)	Proposed Hydraulic Opening (w x h)	Proposed Culvert Length (ft)
1	UT to Long Creek	C	3@8'x9'	Retain & Extend 3@8'x9'	*120'
2	UT to Long Creek	C	n/a	3@8'x10'	210'
3	UT to Long Creek	C	n/a	3@8'x10'	144'

**4A: Avoidance & Minimization**

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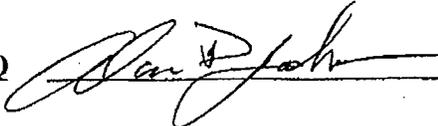
Additional minimization efforts will be investigated at Site #3 during the final design of the culvert headwalls as requested by the Project Team to potentially shorten the culvert length and further minimize stream impacts.

USACOE \_\_\_\_\_

NCDOT \_\_\_\_\_

USEPA \_\_\_\_\_

USFWS \_\_\_\_\_

DWQ  \_\_\_\_\_

WRC \_\_\_\_\_

SHPO \_\_\_\_\_

MPO \_\_\_\_\_



**I-85 / US 321 Interchange  
Geometric Safety Improvements  
Gaston, NC  
T.I.P. No. I-5000**

**Concurrence Point No. 2A: Bridging Decisions  
Concurrence Point No. 4A: Avoidance and Minimization**

**Project Name/Description:** I 85 /US 321 Interchange Geometric Safety Improvements

**TIP Project No.:** I-5000

**WBS No.:** 41153.1.1

The Project Team has concurred on this date of November 8, 2012, on Concurrence Point 2A (Bridging Decisions) and Concurrence Point 4A (Avoidance and Minimization) for the I 85 / US 321 Interchange Geometric Safety Improvements for TIP Project I-5000.

**2A: Bridging Decisions**

Hydraulic Site	Stream Name	DWQ Class.	Existing Hydraulic Opening (w x h)	Proposed Hydraulic Opening (w x h)	Proposed Culvert Length (ft)
1	UT to Long Creek	C	3@8'x9'	Retain & Extend 3@8'x9'	*120'
2	UT to Long Creek	C	n/a	3@8'x10'	210'
3	UT to Long Creek	C	n/a	3@8'x10'	144'

**4A: Avoidance & Minimization**

\* The proposed culvert extension for Site #1 was reduced from 485' to 120' by realigning the off ramp from Southbound I-85 to US 321 North to reduce the stream impacts due to fill slopes.

Additional minimization efforts will be investigated at Site #3 during the final design of the culvert headwalls as requested by the Project Team to potentially shorten the culvert length and further minimize stream impacts.

USACOE *David E. Hill*

NCDOT *Elmer E. V. V. V.*

USEPA \_\_\_\_\_

USFWS *Melba C. B. B.*

DWQ \_\_\_\_\_

WRC *Marla Chambers*

SHPO \_\_\_\_\_

MPO *James Graham*

FHWA *Michael J. J. J.*

# **APPENDIX D**

## **Section 4(f) Evaluation**

### **TIP Project I-5000**

# Section 4(f) Evaluation

I-85/US 321 Interchange  
Geometric Safety Improvements  
Gaston County, NC  
Federal-Aid Project No.: IMF-85-1(113)17  
WBS Project 4.1153.1.1  
**STIP Project No. I-5000**

May 2015

U. S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
AND  
N. C. DEPARTMENT OF TRANSPORTATION

submitted pursuant to 42 U.S.C. 4332(2) (c)  
And 23 CFR 771.135, Section 4(f)



5/13/2015

Date

Handwritten signature of Richard W. Hancock in black ink.

Richard W. Hancock, PE, Environmental Management Director  
Project Development and Environmental Analysis Unit



5-14-15

Date

Handwritten signature of John F. Sullivan, III in black ink.

John F. Sullivan, III, Division Administrator  
Federal Highway Administration (FHWA)

# Section 4(f) Evaluation

I-85/US 321 Interchange  
Geometric Safety Improvements  
Gaston County, NC  
Federal-Aid Project No.: IMF-85-1(113)17  
WBS Project 4.1153.1.1  
**STIP Project No. I-5000**

May 2015

Document prepared in the Project Development and Environmental Analysis Unit  
with RK&K

5/13/2015

Date

H. Franklin Vick

H. Franklin Vick, PE  
Planning Group Manager  
RK&K



5-13-2015

Date

Bryan D. Kluchar

Bryan Kluchar, PE  
Project Development Group Supervisor – Western Region

5/13/2015

Date

Elmo Vance Jr.

Elmo Vance, Jr.  
Project Development Engineer – Western Region  
North Carolina Department of Transportation

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8. Minimization

## **Appendices**

Appendix A - Photographs of Section 4(f) Resources

Appendix B - Letters Between NCDOT and City of Gastonia

November 12, 2013 Letter from City of Gastonia to NCDOT

December 5, 2013 Letter from NCDOT to City of Gastonia

June 16, 2014 Letter from NCDOT to City of Gastonia

August 22, 2014 Letter from City of Gastonia to NCDOT

# Section 4(f) Evaluation

I-85/US 321 Interchange Geometric Safety Improvements  
Gaston County, NC  
Federal-Aid Project No. IMF-85-1(113)17  
WBS Project 4.1153.1.1  
**STIP Project No. I-5000**

## I. Proposed Action

### 1.1 Introduction

Section 4(f) of the U.S. Department of Transportation Act of 1966 as amended (49 USC Section 303) stipulates that the Federal Highway Administration (FHWA) and other U.S. Department of Transportation (USDOT) agencies cannot approve the use of land from a significant publicly-owned public park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless the following conditions apply:

1. There is no feasible and prudent alternative that completely avoids the use of Section 4(f) property; and
2. That the project includes all possible planning to minimize harm to the Section 4(f) property resulting from the transportation use.

This Draft Section 4(f) Evaluation has been prepared in accordance with 23 CFR Part 774 and 49 USC 303 to assess the likely impacts to Section 4(f) resources resulting from the Preferred Alternative. A Categorical Exclusion (CE) document is being prepared by the North Carolina Department of Transportation (NCDOT) for this project in compliance with the National Environmental Policy Act (NEPA). As part of the NEPA planning process, coordination with the City of Gastonia began prior to the start of this Section 4(f) Evaluation, as discussed in **Section 6.1**.

### 1.2 Project Description

NCDOT, in cooperation with FHWA and the City of Gastonia, proposes geometric, congestion and safety improvements to the I-85/US 321 interchange. The project length is approximately 0.6 mile on US 321 and includes 0.3 mile of improvements to Marietta Street and 0.3 mile of improvements to Bulb Avenue. See **Figures 1 and 2** for the location of the project. It is included on the State Transportation Improvement Program (STIP) as project number I-5000.

The CE identifies the “Preferred Alternative” as Alternative No. 3 Modified, which is discussed throughout this Section 4(f) Evaluation. The Preferred Alternative is a modification of the original Alternative No. 3, also referenced in the CE as the “Split-Left” Alternative. The Preferred Alternative is very similar to the Split-Left design but tightens the curvature of Ramp D and removes Ramp DD, which lessens impacts to Highland Creek, Highland Rail Trail, and Sims Legion Park. It provides a left-turn on-ramp from southbound US 321 to northbound I-85. This ramp travels under the existing I-85 bridge, then curves east and ascends to merge onto northbound I-85. See **Figure 3** for an illustration of the Preferred Alternative. Also, **Section 5.1** provides more details about the Section 4(f) impact minimization efforts for Sims Legion Park and Highland Rail Trail.

The Preferred Alternative includes the following components:

- Box culverts along Highland Creek in the northeast and southeast quadrants will be extended to accommodate the proposed ramps.
- The Highland Rail Trail will be relocated just to the west of its existing path. A pedestrian culvert will carry the trail under proposed Ramps A & D at Rankin Lake Road.
- Bulb Avenue will be extended to Marietta Street requiring construction of a three-barrel 8'x10' box culvert to accommodate the crossing of Highland Creek. Rankin Lake Road, from US 321 to Marietta Street, will be eliminated due to the proximity of new ramps in the northeast quadrant. A pedestrian culvert is proposed for the CMAQ-funded Highland Creek Trail at Bulb Avenue.

### **1.3 Project Location**

The project is located within the city limits of Gastonia and is primarily urban in nature. Existing uses within the study area include a park facility, greenway trail, forested areas, and commercial businesses. The area northwest of the I-85/US 321 interchange is primarily commercial and industrial, with large parcels of vacant land targeted for development by local landowners. The area east of the interchange is part of the Sims Legion Park and Highland Rail Trail with forested portions along Highland Creek. In the southeast quadrant, there is a ball field used mainly for youth baseball activities.

### **1.4 Purpose and Need for the Project**

US 321 serves as the primary north-south transportation route in Gaston County and links the cities of Lincolnton and the Hickory region to the Charlotte-Gastonia area. Within the footprint of the I-85 interchange, US 321 is a four-lane, divided highway with partially-controlled access via a raised median. Turning lanes are located at the on/off-ramp intersections. US 321 is a primary route for truck traffic connecting Hickory and northwestern North Carolina to the Charlotte metropolitan area.

The existing partial cloverleaf interchange with loops in the northwest and southwest quadrants cannot adequately accommodate the current or future traffic volumes entering and exiting between I-85 and US 321. Traffic entering and exiting from the I-85/US 321 interchange experience traffic congestion and merging conflicts because of the inherent weaving maneuver and short weaving lengths available between the ramp and loop termini. Also, large trucks may have difficulty negotiating the smaller radii loops, and the shorter one-lane loops limit vehicle capacity.

The purpose of the I-85/US 321 interchange project is to improve safety, reduce congestion and improve the geometrics of the interchange to provide better flow of current and future traffic, including trucks. The Preferred Alternative provides the best overall operation with significant travel time and delay reductions compared to the no-build alternative.

Traffic congestion occurs along US 321 as a result of ongoing development and growth in commuter traffic and truck traffic volumes. The Annual Average Daily Traffic (AADT) base year and design year traffic forecasts are 2009 and 2035, respectively. Traffic volumes are estimated to be higher along US 321 north of the interchange with I-85. For example, approximately 59,100 vehicles per day (vpd) with 12 percent trucks are on US 321 north of I-85 during the design year. South of the I-85 interchange along US 321, the traffic volumes are 26,300 vpd with 7 percent trucks during the design year.

A traffic operations analysis for US 321 was conducted for the no-build and build alternatives. The results of the traffic simulations showed that travel delays were much greater for the no-build alternative. Delays in the morning were measured at 1,215.5 seconds and in the evening were measured at 1,304.9 seconds. Alternative 3 delays in the morning and evening were significantly lower at 110.6 seconds and 231.4 seconds, respectively.

As part of the CE, a crash analysis was performed along US 321 from Rankin Lake Road to SR 1337 (Hartman Road) for 2.1 miles. A total of 242 crashes were reported along this section from October 1, 2009 to September 30, 2012. Rear end crashes were the predominant crash type with 57 percent of the overall crashes. Frontal impact crashes, including angle and left/right turning crash types, accounted for 26 percent of the overall crashes. The majority of these crashes occurred at the I-85 ramps. Failing to yield to the traffic signal and failure to yield to oncoming traffic were the major contributing factors to the crashes. Sideswipe (same direction) crashes accounted for 12 percent of the overall crashes. The unsafe merging of vehicles from I-85 southbound onto US 321 was a contributing factor to these crashes. The insufficient left-turning radius at the I-85 southbound ramp is a possible contributing factor to the number of truck crashes at this location. However, the crash rates for the study area were found to be less than the average statewide crash rates and critical crash rates for similar facilities.

## II. Section 4(f) Property Descriptions

### 2.1 Sims Legion Park

Sims Legion Park is located in the southeast quadrant of the I-85/US 321 interchange, as illustrated on **Figure 4**. Photographs of the park are located in **Appendix A**. The 33-acre park was built in 1950 on land donated by Brown Wilson in memory of Lt. Albert H. Sims, a World War II veteran but underwent a total renovation in 1977. It currently includes a parking area, a BMX bicycle/skateboard area, two smaller baseball fields with bleachers, and a large baseball field with a stadium. The park was originally given to the American Legion Post 23, but is now owned by the City of Gastonia and serves as the home of the American Legion Post 23 baseball team and the Gastonia Grizzlies. Since 2002, the Gastonia Grizzlies have called the large baseball field home. The Gastonia Grizzlies are a summer, wooden-bat league for college players (Coastal Plain League) and a single-A affiliate of the Texas Rangers. The large stadium field is dedicated to Buddy Lewis, a local legend as a Post 23 player from the 1930's, a major leaguer with the Washington Senators and a longtime Post 23 supporter. The park provides access driveways from Marietta Street and Sycamore Avenue. Pedestrian and bicycle traffic can access the park from the sidewalks along Sycamore Avenue, which is crossed by the Highland Rail Trail. The parking area is also available to users of the Highland Rail Trail. More information about the Highland Rail Trail is discussed in **Section 2.2**.

A City sewer easement (approximately 30 feet wide – 0.1 acre), and Duke Energy Transmission Line easement (approximately 68 feet wide – 0.2 acre) and Highland Creek (approximately 4 to 12 feet wide - 0.1 acre) run parallel to each other and bisect the western corner of the park's property. This area is wooded and prone to flooding from the creek. This area, totaling 0.4 acre, is currently unused by the park. Future uses may be limited due to the restraints associated with easements and the floodplain. Furthermore, due to the parallel positioning of these features and proximity to the existing US 321 and I-85, most of the property west of the Duke Energy transmission line would be difficult to access or use. The Highland Rail Trail greenway is located west of this segment and adjacent to US 321.

The large baseball field (known as the "Buddy Lewis" stadium field) features a regulation 360-foot, lighted and irrigated professional baseball stadium with covered grandstand seating plus bleacher seating; ticket booth and concourse entrance; press box; dressing facilities; restrooms; concession areas and office space. The two smaller baseball fields are also lighted with outfields measuring 185-feet (known as the Little League ball field) and 300-feet<sup>1</sup>(known as the Junior ball field).

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<sup>1</sup> City of Gastonia. <http://www.cityofgastonia.com/recreation-and-cultural-services/parks-and-recreation/community-centers-and-parks/sims-legion-park> (Accessed August 4, 2014).

Each year more than 100 events take place at Sims Legion Park, including high school baseball, college baseball, American Legion baseball, sports clinics, concerts, and festivals including the popular Ballpark Beer Fest. The stadium seats 4,000 fans.

According to Mr. Chuck Dellinger, Gastonia Parks and Recreation Director, the Junior ball field is utilized for youth league baseball (14 years and under) in the Spring (March to mid-June) and Fall (mid-August to November). It is also used for adult softball practice. The field is regularly open to the public for recreation, such as ball throwing, kite flying, soccer practice/drills, Easter egg hunts, and special events for the public. The City is aware of the proximity of the Junior ball field to I-85 and therefore tries to limit the field to players that are less likely to hit fly balls into the roadway. From home plate to the fence line is 300 feet and has a five and a half-foot fence around the perimeter of the outfield (personal communication Dellinger, July 16, 2014 and August 20, 2014).

The Gastonia Parks and Recreation Long Range Plan, titled “Vision for a Healthy Community – A Plan for Parks, Recreation, and Open Spaces, 2005-2020” (dated November 15, 2005) discusses the future plans and recommended improvements for the Sims Legion Park. The plan states that the two lighted softball fields at the north end of the park are heavily deteriorated and basically unplayable. They were built on the site of a former garbage dump. Consequently there is a lack of sufficient soil coverage and compaction of the refuse. The fields have experienced dramatic settling, resulting in uneven surfaces. The plan recommends that the City study the cost of major remedial action to determine whether such action would be cost-prohibitive, as opposed to establishing a softball complex at another site. There is a need for men’s and male youth softball complex. A four-field complex at Ferguson Park, previously constructed in 1977, met this need. However, since that time, player skills and equipment have evolved to where these fields are not deep enough for recommended standards and are now used for women’s and girls’ softball fields. The City is exploring the creation of a joint-use softball complex at multiple sites; one site being considered is the Sims Legion Park. Possibly up to four ball fields would be added in areas that include the Buddy Lewis stadium field when it is not being used for games, the renovation of the Junior and Little League fields, and a potential field in place of the BMX track (which relocates the BMX track).

Sims Legion Park is afforded protection under Section 4(f) of the Department of Transportation Act as a significant, publicly-owned park that is open for public use.

## **2.2 Highland Rail Trail Greenway**

The Highland Rail Trail is a 1.5-mile paved greenway located just west of Sims Legion Park and along a portion of the Norfolk Southern railroad corridor (See **Figure 4**). This trail is part of the Gastonia greenway system and Carolina Thread Trail. This portion of the trail meanders through residential neighborhoods and industrial areas, linking downtown Gastonia with Sims Legion Park. Future plans show the trail extending northward to connect to Rankin Lake Park. The rail-trail is named for, and runs adjacent to Highland, Gastonia’s historic African-American community situated immediately to the north of downtown. Photographs of paved and unpaved sections of the Highland Rail Trail within the study area are located in **Appendix A**.

According to the Gastonia Parks and Recreation Director, Mr. Chuck Dellinger, approximately 100,000 annual users will walk, run or bike the Gastonia greenway system.

The trail enters the project study area from the southeast and continues northward past the Sims Legion Park. The paved trail ends approximately 300 feet north of the US 321/I-85 bridge. A gravel path continues approximately 600 feet northward to Rankin Lake Road. The City and the NCDOT are proposing utilization of CMAQ funding to extend the trail to Bulb Avenue. Future plans show that the trail will eventually connect to Rankin Lake Park. See **Figure 5** for the location of this proposed trail

extension. Easements were obtained in 2012 for the extension to Rankin Lake Park and design plans for the construction of the entire greenway to Rankin Lake Park have been completed by the City. Parking and access for the trail within the study area occurs at Sims Legion Park parking lot which connects via sidewalk along Sycamore Avenue at Caldwell Street. An unofficial parking area/access on Rankin Lake Road consists of a dirt (pull-off) parking area at the existing unpaved trail terminus.

Norfolk Southern Corporation abandoned the railroad corridor north of Rankin Lake Road. The railroad right-of-way (ROW) south of Rankin Lake Road has been banked for future rail use with the Surface Transportation Board (STB). The City filed for and received issuance of a Notice of Interim Trail Use (NITU) for a 1.5-mile section of the railroad bed ROW. This agreement was reached with the understanding that the STB may reclaim the ROW for future reconstruction and reactivation of the rail service. The City received a federal grant to convert the railroad bed to a public use trail.

Highland Rail Trail is afforded protection under Section 4(f) of the Department of Transportation Act as a significant recreation area. It is contained in a public easement (managed by the City) for the shared use path/trail that is designated and functions primarily for recreation.

### **III. Impacts on the Section 4(f) Properties**

Sims Legion Park and the Highland Rail Trail are currently located adjacent to the congested transportation facilities of I-85 and US 321 with views of the traffic. The vast majority of Sims Legion Park is unaffected by the Preferred Alternative. One of the Park's features, the Junior baseball field, is located near I-85. At its closest point, the edge of pavement for the existing northbound travel lane for I-85 is located approximately 100 feet from the fence of the Junior baseball field. With the Preferred Alternative, a proposed ramp onto northbound I-85 from US 321 will be located between I-85 and the Junior baseball field. At its nearest point, the edge of pavement for the on-ramp will be roughly 60 feet from the Junior baseball field's fence. Therefore, the nearest edge of pavement for traffic will be approximately 40 feet closer to the Junior baseball field. As discussed in **Section VI**, representatives of the City of Gastonia currently try to restrict the age group that uses the Junior baseball field to avoid having players that may be able to hit balls into I-85. With the addition of new ramp, the City is concerned about the risk of balls being hit onto the new ramp. Please note that at its closest point to the Junior baseball field, the existing ROW (controlled access boundary) remains in the same location with this project.

The Preferred Alternative includes ROW from Sims Legion Park and re-routes a portion of the Highland Rail Trail greenway as illustrated in **Figure 3**. After considerable coordination and planning efforts, the Preferred Alternative was developed to minimize impacts to Section 4(f) resources, decreasing the original 4.2 acres of ROW acquisition from Sims Legion Park to 1.6 acres. The length of trail impacted by the proposed roadway decreased from 1,785 feet to 1,535 feet. The trail will be shifted slightly to the west in order to make room for the on-ramp. The relocated greenway trail will be approximately 1,710 feet and will include paving the unpaved portion of the trail just north of I-85 to Rankin Lake Road. NCDOT and the City will enter an agreement for NCDOT to construction the trail from Rankin Lake Road to Bulb Avenue, using Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds. See **Section V** for more information about minimizing harm to Section 4(f) resources.

The ROW acquisition (noted above) from the park includes 1.6 acres from a wooded area of the park that is not used for public recreation, but may benefit as a sight and noise barrier. The visual impacts of removing this wooded area may provide increased views of the US 321/I-85 interchange. The City has possible plans to create a new ball field in place of the BMX track and to renovate/expand the existing ball fields. See **Section 2.1** for more information on future plans. The exact location of these new ball fields has not been finalized nor are they shown on any published plans. No other future facilities or

recreation uses are anticipated in the location of the project. The Preferred Alternative includes no ROW acquisition from any of the existing baseball fields and the vast majority of the park is unaffected.

Approximately 0.1 acre of temporary construction easement (TCE) is anticipated on the park property. This TCE remains within the unused wooded portion; some of which is within the Duke Energy transmission easement.

The relocation of Highland Rail Trail (noted previously) involves shifting approximately 1,710 feet of the trail west to accommodate the on-ramp for I-85 northbound under the existing bridge, as illustrated in **Figure 3**. The paved portion of the greenway currently ends approximately 300 feet north of I-85. As part of the Preferred Alternative, the relocated portion of the trail will be built and paved northward to Rankin Lake Road as part of STIP No. I-5000. It will then turn east under a new pedestrian culvert where the paved trail will continue beyond the proposed ROW limits via CMAQ funding, the construction of which will be completed as part of this project. The CMAQ-funded trail will follow the buried sewer line in the vicinity of Highland Creek to Bulb Avenue. See **Figure 4** for the location of this extension.

Relocation of the trail maintains the existing trail's features, attributes, and activities. However, trail use may be temporarily affected (short-term) as tie-ins to the relocated trail are completed.

## **IV. Avoidance Alternatives**

Two conceptual Avoidance Alternatives were considered in the evaluation process. These alternatives avoid permanent ROW acquisition from the Section 4(f) resources. The Avoidance Alternatives would avoid or bridge the existing partial cloverleaf ramps that carry existing traffic. The existing ramps would be maintained during construction. In order to avoid temporary construction easements from the Section 4(f) properties, the Avoidance Alternatives include retaining walls and a bridge over the Highland Rail Trail and adjacent areas of the park.

### **4.1 No Build Alternative**

The purpose of the I-85/US 321 interchange project is to improve safety, reduce congestion and improve the geometrics of the interchange to provide better flow of current and future traffic, including trucks.

The existing partial cloverleaf interchange with loops in the northwest and southwest quadrants cannot adequately accommodate the current or future traffic volumes entering and exiting between I-85 and US 321. Traffic entering and exiting from the I-85/US 321 interchange experience traffic congestion and merging conflicts because of the inherent weaving maneuver and short weaving lengths available between the ramp and loop termini. Also, large trucks may have difficulty negotiating the smaller radii loops, and the shorter one-lane loops limit vehicle capacity.

Traffic congestion occurs along US 321 as a result of ongoing development and growth in commuter traffic and truck traffic volumes. See Section 1.4 for more information on the traffic volumes, travel delays, and accident data.

The No-Build Alternative would not serve the transportation planning objectives of the area and would not satisfy the purpose and need for the project.

### **4.2 Avoidance Alternative No. 1 (Flyover)**

Avoidance Alternative No. 1 is a flyover directional ramp which routes southbound US 321 traffic to northbound I-85 traffic via a directional dual-lane ramp that bridges over existing Ramp B and Loop C, the Highland Rail Trail, and US 321 south of the existing I-85 bridge. The culvert for Highland Creek would be extended. The dual-lane ramp would descend adjacent to I-85 utilizing retaining walls to avoid

any impacts to the Sims Legion Park property. The dual-lane ramp would drop one lane immediately after the vicinity of the I-85 bridge and the remaining lane would travel under the Marietta Street bridge. The existing Marietta Street bridge would be retained. The Rankin Lake Road intersection with US 321 will be removed and a portion of the road closed to control access along Ramp A. Also, Bulb Avenue would be extended to Marietta Street to provide connectivity to the local street system. Marietta Street would be straightened to eliminate two existing sharp curves. Interchange Ramps B and C would remain in place but would require traffic signal control. The proposed directional flyover will result in eight business relocations.

This design would require approximately 1,430 feet of bridge, 1,890 linear feet of retaining wall and eight business relocations. See **Figure 6** for an illustration of Avoidance Alternative No. 1.

**Advantages to Avoidance Alternative No. 1:**

- Fits under Marietta Street bridge, retaining the existing structure.
- Improves traffic operations and roadway traffic capacity.

**Problems with Avoidance Alternative No. 1:**

- Dual-lane ramp drops to single-lane ramp before merging with I-85, thereby restricting flow of merging traffic with I-85.
- Has the highest number of relocations compared to the other alternatives.

### **4.3 Avoidance Alternative No. 2 (Partial Trumpet)**

Avoidance Alternative No. 2 is a trumpet interchange, which allows southbound traffic from US 321 to utilize a two-lane exit ramp and loop (trumpet configuration) to merge with I-85 northbound traffic, without requiring vehicles to turn left at intersections. A two-lane exit ramp would begin at the Tulip Drive/Bulb Avenue and US 321 intersection, traffic would proceed south adjacent to US 321 utilizing a bridge to span over the existing Ramp B and I-85 and merge with the I-85 northbound traffic. The existing I-85 bridge would be widened to accommodate the dual-lane ramp as it merges onto I-85 northbound. This interchange alternative will require the realignment of Ramp C in the southwest quadrant of the I-85/US 321 interchange. Bulb Avenue would be extended to Marietta Street since the connection of Rankin Lake Road would be removed because of the requirement to have control of access along Ramp A in the northwest quadrant of the interchange.

This design would include approximately 1,175 feet of bridge, 835 linear feet of retaining wall, and six business relocations. See **Figure 7** for an illustration of Avoidance Alternative No. 1.

**Advantages to Avoidance Alternative No. 2:**

- Fits under existing Marietta Street bridge, retaining the existing structure.
- Improves traffic operations and roadway traffic capacity.

**Problems with Avoidance Alternative No. 2:**

- Relocates Ramp C to make room for dual-lane flyover. This relocation results in the ROW acquisition of additional property.
- Contains a yield merge on Loop C for northbound traffic on US 321 traveling to northbound I-85.
- Requires the relocation of Wren Turnpike and results in additional ROW acquisition.
- Requires the most proposed ROW and largest footprint compared to the other alternatives.
- Requires widening of the I-85 bridge.
- Has six business relocations, the second highest of the alternatives.

## 4.4 Comparison of Alternatives

The following table summarizes the key points about each alternative and estimates construction costs based on the length of the improvements (including bridge(s) and retaining wall(s)). Estimated ROW costs are currently being determined by NCDOT.

**Table 1: Comparison of Alternatives**

	Preferred Alternative	Avoidance Alternative No. 1	Avoidance Alternative No. 2
Total Number of Relocations (Businesses)*	5	8	6
Total Area of ROW acquisition (acres)	10.3	11.9	15.9
Section 4(f) Resource Concerns	1.6 acres of ROW acquisition from the park and 1,535 feet of greenway trail	*	*
Total Length of Bridge (feet)	N/A	1,430	1,175
Total Length of Retaining Wall (feet)	130	1,890	835
Estimated Preliminary Construction Cost	\$13.8 M	\$21.3 M	\$23.2 M
Estimated Preliminary ROW Cost*	\$ 3.3 M	\$16.1 M	\$12.3 M
Total Cost	\$17.1 M	\$37.4 M	\$35.5 M

N/A = Not Applicable

\*No ROW acquisition from the park and 0 feet of relocated greenway trail are associated with the two Avoidance Alternatives.

\*Based on the Updated ROW Cost Estimate dated 10/30/14.

### Relocations

Due to the proximity of businesses adjacent to the interchange and efforts to minimize impacts to Section 4(f) resources, relocations are unavoidable. The Preferred Alternative has five business relocations, the least number of relocations. Avoidance Alternative Nos. 1 and 2 have eight and six business relocations, respectively. The properties on US 321, adjacent to Rankin Lake Road, are either located within the proposed ROW or within a controlled access area created by the three alternatives. Most of the other relocations due to Avoidance Alternative No. 1 are in the northwest quadrant where five businesses will be impacted by fill or controlled access for the flyover. Avoidance Alternative No. 2 relocates Ramp C and Wren Turnpike, resulting in impacts to the Value Place Hotel.

### Right of Way Acquisition

All three alternatives will have the same ROW acquisition along Bulb Avenue and Marietta Street. However, the ROW difference occurs due to the ramp configurations. The Preferred Alternative needs the least amount of ROW, approximately 10.3 acres, due to the alignment of Ramp D in close proximity to US 321 and I-85. Avoidance Alternative Nos. 1 and 2 have more acreage of ROW acquisition, approximately 11.9 and 15.9 acres, respectively, which require ROW acquisitions in the northwest and southwest quadrants.

### Section 4(f)

Both Avoidance Alternatives completely avoid impacts to the Sims Legion Park and Highland Rail Trail. The Preferred Alternative has 1.6 acres of impact to the Sims Legion Park and 1,535 feet of impact to the Highland Rail Trail.

### Costs

Being prudent is subjective when considering the costs of different avoidance alternatives. Avoidance Alternative Nos. 1 and 2 are notably more expensive (roughly double the costs) than the Preferred Alternative. The extensive bridging on Avoidance Alternative Nos. 1 and 2 coupled with the ROW acquisition of businesses in the northwest and southwest quadrants result in a costly option totaling

\$37.4 M and \$35.5 M, respectively. Avoidance Alternative Nos. 1 and 2 are two times more expensive than the Preferred Alternative. Although Avoidance Alternative No. 2 has a lower construction cost than the Avoidance Alternative No. 1, it has the largest footprint, most ROW acquisition, and highest number of relocations due to the trumpet loop west of the bridge.

## V. Measures to Minimize Harm

### 5.1 Measures to Minimize Harm

Efforts to minimize impacts and to provide mitigation for Sims Legion Park and Highland Rail Trail have taken place throughout the NEPA planning process. The original Alternative 3, which was presented to the public in May 2012, consisted of two on-ramps (Ramps D and DD) to northbound I-85. This design was supported by the City of Gastonia and avoided the Duke Energy transmission tower in the southeast quadrant of the project. However, further analysis showed that impacts to Section 4(f) resources could be reduced by tightening the curvature of Ramp D, shifting the alignment closer to I-85, and eliminating Ramp DD completely. This modification avoided impacts to the outfield of the Junior baseball field, but resulted in the relocation of the Duke Energy transmission tower, adding utility relocation costs of approximately \$700,000. For more information on the discussions pertaining to Ramp D and DD, please see **Section VI** Coordination.

These design modifications allowed some of the Ramp D improvements to occur within existing ROW limits at the closest point to the Junior baseball field. Although the new northbound Ramp D will be located within the existing ROW, it will be approximately 40 feet closer to the existing perimeter fence for the baseball field.

Mitigation for the Highland Rail Trail involves replacement/relocation of the impacted trail within the project study area. The trail will still pass under I-85, but will be relocated approximately 40-feet west of its existing location in order to provide space for the new ramp carrying traffic to northbound I-85. A pedestrian culvert will be used to safely move greenway users under the new ramp near Rankin Lake Road's entrance. See **Figure 8** for an illustration of the efforts to minimize Section 4(f) resource impacts.

As a result of the design changes and minimization efforts, the Preferred Alternative's ROW acquisition from Sims Legion Park decreased from 4.2 acres to 1.6 acres while trail impacts decreased from 1,785 feet to 1,535 feet.

The Preferred Alternative includes a new pedestrian culvert for the trail on the east end of Bulb Avenue where the trail will be extended via CMAQ funds. NCDOT will include construction of the CMAQ-funded trail in the construction plans for STIP No. I-5000 and will incorporate it into the CE document. NCDOT will also provide conduit in the pedestrian culvert for the future installment of lighting by the City.

### 5.2 *De minimis* Review

In relation to a publicly-owned park and trail protected under Section 4(f), a "*de minimis*" impact is one that, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation or enhancement measures), results in a determination that the project would not adversely affect the activities, features, or attributes qualifying the park or recreation area for protection under Section 4(f). In other words, a *de minimis* impact determination is made for the net impact on the Section 4(f) properties and may be made for a permanent incorporation (such as ROW acquisition) or temporary occupancy (such as temporary construction easement) of Section 4(f) property.

A *de minimis* impact determination requires agency coordination and public involvement as specified in 23 CFR 774.5(b). For parks, recreation areas, or wildlife and waterfowl refuges, the official(s) with jurisdiction over the property must be informed of the intent to make a *de minimis* impact determination, after which an opportunity for public review and comment must be provided. After considering any comments received from the public, if the official(s) with jurisdiction concurs in writing that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection, then FHWA may finalize the *de minimis* impact determination.

NCDOT coordinated with the City to discuss the *de minimis* status of the Preferred Alternative regarding Sims Legion Park and Highland Rail Trail. Based on minimization measures incorporated into development of the Preferred Alternative and coordination with the City, NCDOT anticipated a *de minimis* finding. However, in a letter dated December 5, 2012, the City requested that NCDOT provide mitigation measures that NCDOT considers to be out of the scope of mitigation efforts and not “in-kind” mitigation. NCDOT and the City were unable to agree on the requested mitigation measures, namely the amount of new trail to incorporate as part of the project. Thus, the *de minimis* coordination came to an end and this Section 4(f) Evaluation was initiated. In addition to the proposed relocation of the Highland Rail Trail for the Preferred Alternative (shown in **Figure 3**), the addition of new trail construction (CMAQ-funded trail) from Rankin Lake Road to Bulb Avenue was added to this project’s construction plans and CE.

## **VI. Coordination**

### **6.1 City of Gastonia**

Coordination between NCDOT and the City started in 2008 with the announcement of the “Start of Study.” On October 21, 2011, NCDOT met with the attorney for the City of Gastonia to determine the ownership of the railroad bed and the process for transferring ownership of the railroad ROW.

On December 12, 2011, NCDOT met with the City to discuss the Detailed Study Alternatives (DSAs) evaluated in the CE. The City was not pleased with the alternatives and it was noted that the functional use of the Junior baseball field would be impacted by the DSAs.

On May 29, 2012, the City staff and committee recommended DSA No. 3 over the DSA No. 2. (*Please Note: After further minimization of 4(f) resources, DSA No. 3 is known as DSA No. 3 Modified and is called the Preferred Alternative in this 4(f) Evaluation.*) The City staff also recommended that a design solution be developed to alleviate the anticipated congestion at the Tulip Drive/Bulb Avenue, and Rankin Lake Road intersections with US 321.

On December 5, 2012, NCDOT received a draft letter from the City regarding *de minimis* for impacts to Sims Legion Park and Highland Rail Trail. In the draft letter, there are several mitigation measures requested as compensation for the proposed impacts to the Junior baseball field. These include constructing the remainder of the trail from Rankin Lake Road to Rankin Lake Park (approximately 1 mile), using a bridge instead of a culvert for the greenway crossing at Bulb Avenue, sidewalk connections and extension at Bulb Avenue, Radio Street/US 321, and between the park and trail, and street improvements with sidewalks on Marietta Street and Bulb Avenue. The City also asked for screening and buffering measures to lessen the noise and visual impact for greenway users.

In August 2013, the DSA No. 3 Modified (the Preferred Alternative) was developed to avoid ROW acquisition from the Junior baseball field, minimize ROW acquisition from an unused portion of Sims Legion Park, and minimize the length of trail relocation. With DSA No. 3 Modified, the Highland Rail Trail is shifted slightly from its original location in order to fit a ramp under the bridge. Also, pedestrian

culverts are used to carry the trail under the entrance ramp to I-85 northbound and the Bulb Avenue extension.

On October 9, 2013, NCDOT met with the City to discuss the revisions to DSA No. 3 (which is called DSA No. 3 Modified or the Preferred Alternative in the Categorical Exclusion), minimized impacts, and the need for a *de minimis* letter from the City to complete the NEPA planning process. These revisions transpired after NCDOT discovered that the cost of relocating the Duke Energy transmission tower was significantly less than originally anticipated. Therefore, shifting the alignment of Ramp D would result in an impact to the powerline; however, this shift and the elimination of Ramp DD) would avoid ROW impacts to the Junior ball field and minimize impacts to an unused wooded portion of the park. Although NCDOT made efforts to minimize impacts to the park, the City preferred and requested that Ramp DD remain in the design plans. Also, the City asked for NCDOT to compensate for impacts to their park by extending their trail northward to connect to Rankin Lake.

On November 12, 2013, the City prepared a letter for NCDOT that says the City would provide a *de minimis* letter if the trail is constructed from I-85 to Bulb Avenue. The City reiterated its concern about eliminating Ramp DD, which would have provided access to I-85 northbound from US 321 northbound. It also suggested greenway connections for Radio Street and Bulb Avenue, as well as three lanes for Bulb Avenue to Marietta Street and three lanes plus sidewalks on Marietta Street. See **Appendix B** for a copy of the letter.

On December 5, 2013, NCDOT sent a response letter to the City stating that no formal agreement had been made on mitigation. The letter explained that it is the responsibility of a municipality for funding of pedestrian facilities and NCDOT's cost share program may assist financially for intersecting improvements. The letter discussed the City's existing safety concerns with the proximity of the Junior baseball field closest to I-85 relative to fly balls going into the highway, noting that some activities on this baseball field are already limited. The letter also explained that mitigation is made for affected resources and not traded for another activity (the greenway). In addition, the pedestrian culverts were revised to 14-feet wide and 10-feet high at Rankin Lake Road and Bulb Avenue, as recommended by the City. It was also noted in the letter that Ramp DD's removal does not affect the overall operation of that intersection. The design speed of the modified alternative remained consistent with the original alternative. The initial design of the interchange ramp resulted in ROW acquisition of 4.2 acres from the Sims Legion Park. With the modifications, ROW acquisition was reduced to 1.6 acres with impacts occurring to an unused wooded portion of the park and avoiding ROW acquisition from the Junior ball field. Thus, NCDOT felt that the activities, features and attributes of the park would not be adversely impacted and a *de minimis* determination could be made. However, NCDOT explained that if the City could not agree with *de minimis*, then an individual Section 4(f) Evaluation must be conducted and the project will be delayed approximately six months. See **Appendix B** for a copy of the letter.

On April 29, 2014, the City of Gastonia requested that Ramp DD be added back to the design plans. The City also mentioned the utilization of Congestion Mitigation and Air Quality Improvement (CMAQ) program funds for the greenway between I-85 and Bulb Avenue and its incorporation into the overall construction of the proposed project. As part of the City's request on April 29, 2014, a schematic was provided to NCDOT by the City that used the old Ramp D alignment (avoiding the Duke Power tower), which was not the most current design shown at the April 15, 2014 Final Design Field Inspection. By using the old alignment, more impacts are expected to the park and Junior ball field from adding Ramp DD back into the project. If adding Ramp DD into the current design where the Duke Power tower is relocated, Section 4(f) impacts would include ROW acquisition within a portion of the Junior ball field.

On June 16, 2014, NCDOT sent a response letter to the City stating that the modification to the alignment was part of an avoidance effort to minimize impacts to the Junior ball field. Ramp DD was eliminated

because vehicles would have to yield to Ramp D traffic, start from a stopped condition, and need to accelerate to “match” freeway speeds in order to effectively merge onto I-85. The ramp length is limited by the Marietta Street bridge. Furthermore, there are other operational and geometric concerns. Ramp DD also increases stream and pedestrian culvert lengths. The culvert would extend into Duke Energy’s easement, which is not allowed. Traffic capacity analysis showed that the design without Ramp DD functions adequately through the design year. See **Appendix B** for a copy of the letter which further explains the negative impacts of adding Ramp DD into the current design.

On August 6, 2014, NCDOT, RK&K and the City met in Gastonia to discuss the avoidance alternatives and costs associated with each. The construction phase of the project will take about two years to complete. At the largest impact area, the project extends approximately 200 feet into the park (unused wooded section with easements). At the narrowest impact section, the project is 60 feet from the edge fencing encompassing the ball field. Easements for the future greenway were obtained approximately two years ago and are recorded. The City noted that a grant was received previously for the paving the trail from the existing terminus north of I-85 to Rankin Lake Road. This grant money was returned with the intention that NCDOT would disturb this portion of the trail and the greenway would be rebuilt. The pedestrian culvert is approximately 160 feet long. The City asked about lighting for the tunnel. The City expressed mitigation for safety concerns at the beginning and end of the tunnel, such as a widened opening for visual purposes. The City will acquire CMAQ funds to build the greenway from Rankin Lake Road to Bulb Avenue. It is important to note that NCDOT has only studied the project limits from just south of Radio Street northward to the Bulb Avenue extension (not to Rankin Lake Park).

On August 22, 2014, the City submitted a letter in response to the newsletter which reiterates some of their concerns about the impacts and lists their recommended mitigation. Some of these concerns include safety hazards from fly balls to vehicles traveling on the new ramp to I-85 and the removal of existing tree buffer acting as a physical and noise barrier between the new ramp and the park. The City suggests that NCDOT construct a greenway trail from I-85 to Bulb Avenue and that the extended trail is coordinated with the City staff for aesthetics and landscaping options, as well as meets ADA and AASHTO standards. The City also requests constructing a pedestrian connection between the Highland Rail Trail and the Radio Street/US 321 intersection, constructing a sidewalk extension from Bulb Avenue to US 321, and improving Marietta Street to three lanes with sidewalks.

Later in August 2014, CMAQ funding for the trail extension was approved. NCDOT agreed to add this trail extension into the project.

This Draft Section 4(f) Evaluation will be circulated to the USDOT and shared with the officials having jurisdiction. The City will have the opportunity to comment on the evaluation. After circulation of the draft in accordance with 23 CFR 774.5(a), FHWA will consider comments received on the evaluation and finalize the comparison of all factors listed in 23 CFR 774.3(c)(1) for all the alternatives. A Final Section 4(f) Evaluation will address comments on the Draft Section 4(f) Evaluation and provide a determination regarding the alternatives.

## **6.2 General Public**

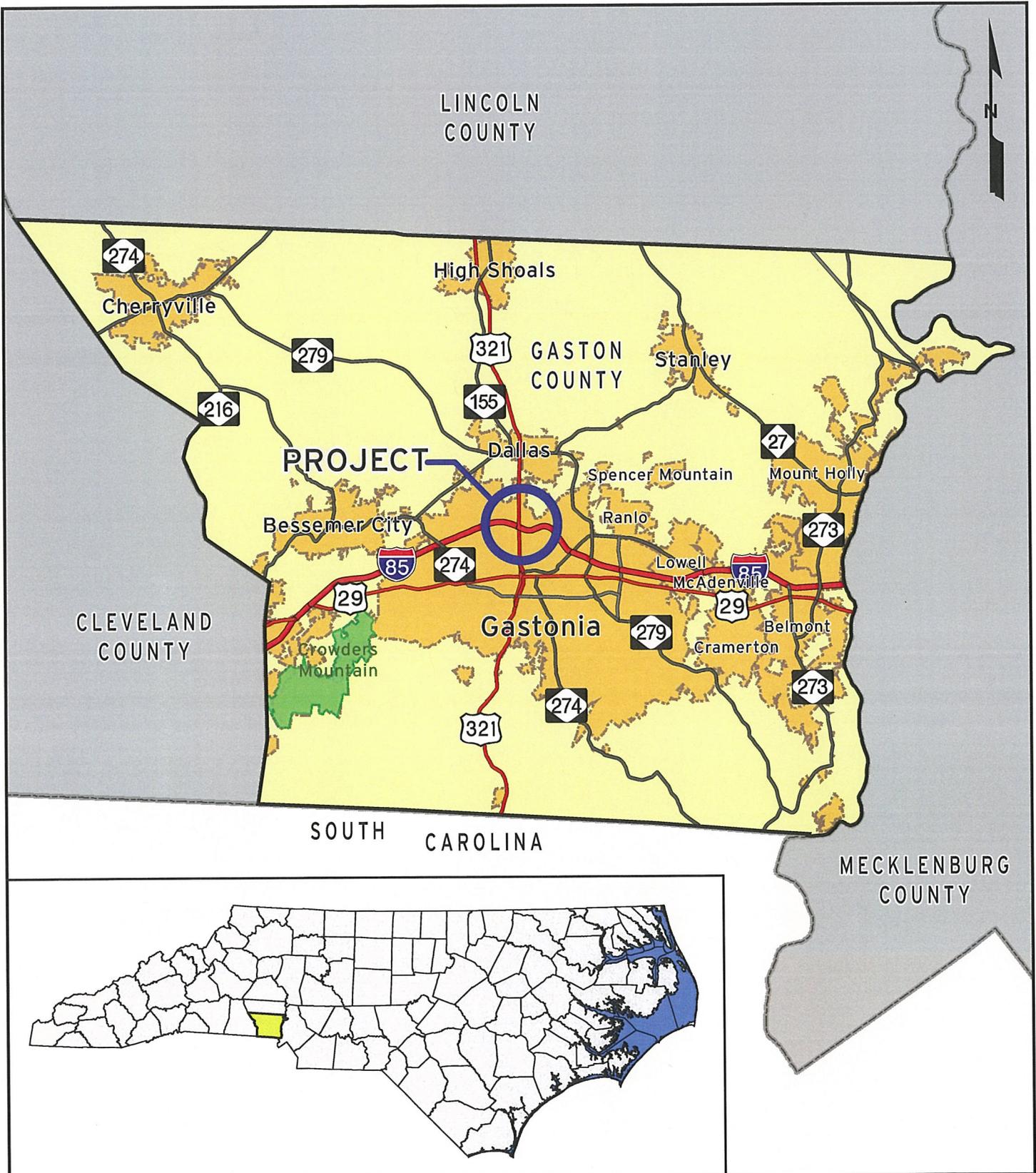
Citizens Informational Workshops (CIW’s) were held on June 11, 2009 and May 17, 2012 with 27 and 38 attendees, respectively. During these meetings, the general concept of the geometric safety improvements was discussed and conceptual and preliminary design alternatives were shown to the public. The June 11, 2009 meeting included review of the project study area, project schedule, and conceptual design. The conceptual design showed a flyover alternative and a combination of on and off ramps. The May 17, 2012 meeting reiterated that the purpose of the project was to improve safety and traffic flow at the interchange and two detailed study alternatives (flyover and Split-left alternatives) were presented along with advantages and disadvantages of each.

A newsletter was mailed on July 22, 2014 to 100 residents and businesses in the study area. It was also provided to the City for posting on the Gastonia Parks and Recreation website and hard copies were made available for distribution at the Sims Legion Park. This newsletter described the Section 4(f) process, updated the project schedule, and solicited comments by August 25, 2014. One phone call was received from Mr. Don Barkley in response to the newsletter. He inquired about general project information.

## **VII. References**

- Dellinger, Chuck, Gastonia Parks and Recreation Director. Sims Legion Park. Personal communication with Elizabeth Workman- Maurer, RK&K. July 16, 2014 and August 20, 2014.
- FHWA. Section 4(f) Evaluation. <http://www.environment.fhwa.dot.gov/4f/4feval.asp>. Accessed on August 7, 2014.
- FHWA - Office of Planning, Environment and Realty. SECTION 4(f) POLICY PAPER Project Development and Environmental Review Washington, DC 20590 - July 20, 2012. <http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp>. Accessed on August 7, 2014.
- Gastonia, City of. City of Gastonia. Sims Legion Park. <http://www.cityofgastonia.com/recreation-and-cultural-services/parks-and-recreation/community-centers-and-parks/sims-legion-park>. Accessed August 4, 2014.
- North Carolina Department of Transportation. Draft Categorical Exclusion for STIP Project No. I-5000 (I-85/US 321 Interchange Geometric Safety Improvements). April 26, 2014.
- Gastonia Vision for a Healthy Community. A Plan for Parks, Recreation and Open Spaces, 2005-2020. Adopted November 15, 2005.

## FIGURES



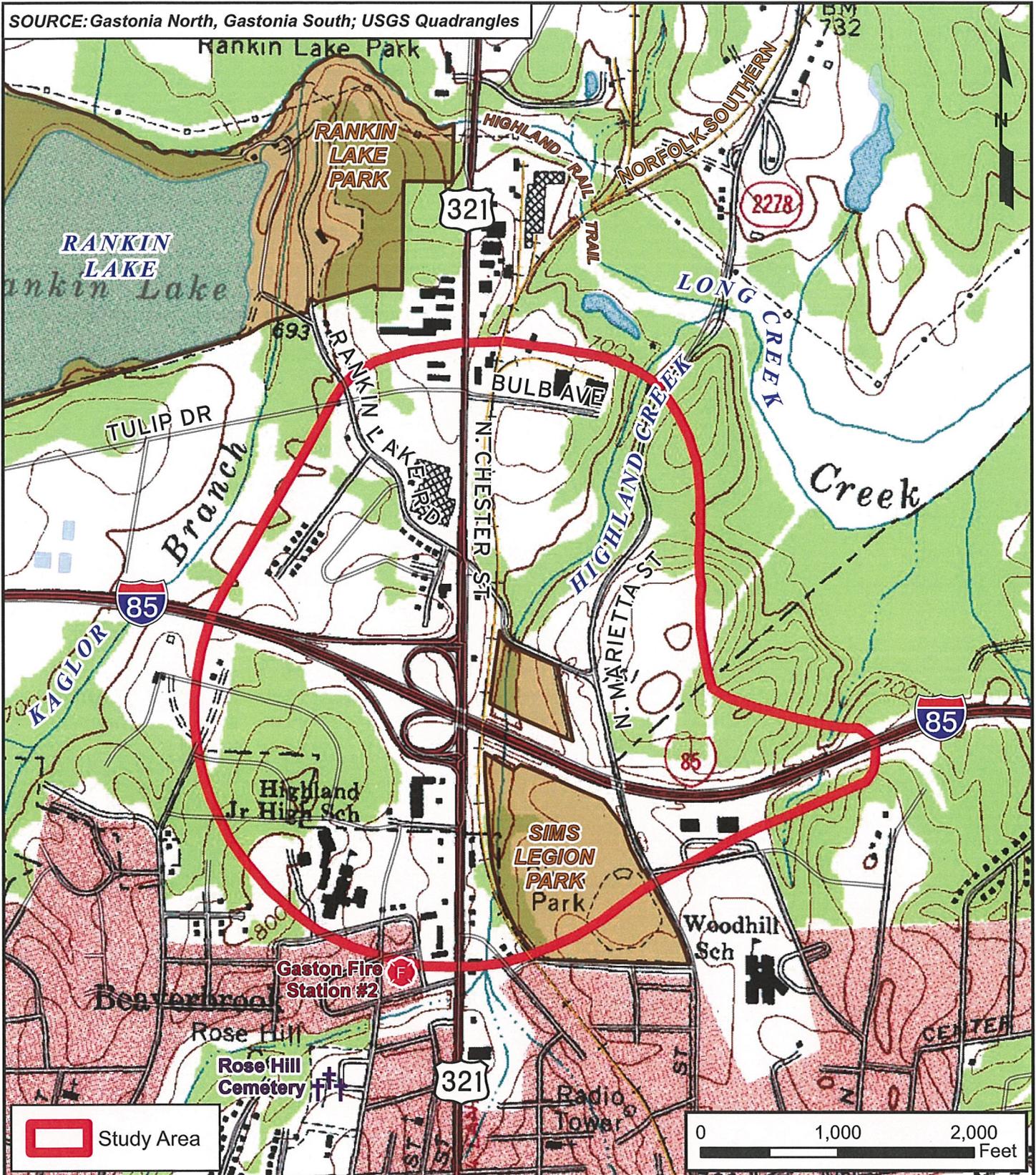
NORTH CAROLINA DEPARTMENT  
 OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PROJECT DEVELOPMENT AND  
 ENVIRONMENTAL ANALYSIS BRANCH

STIP PROJECT No. I-5000  
**LOCATION MAP**  
 I-85 / US 321 INTERCHANGE  
 GEOMETRIC SAFETY IMPROVEMENTS

GASTON COUNTY

**FIGURE 1**

SOURCE: Gastonia North, Gastonia South; USGS Quadrangles



NORTH CAROLINA DEPARTMENT  
OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PROJECT DEVELOPMENT AND  
ENVIRONMENTAL ANALYSIS BRANCH

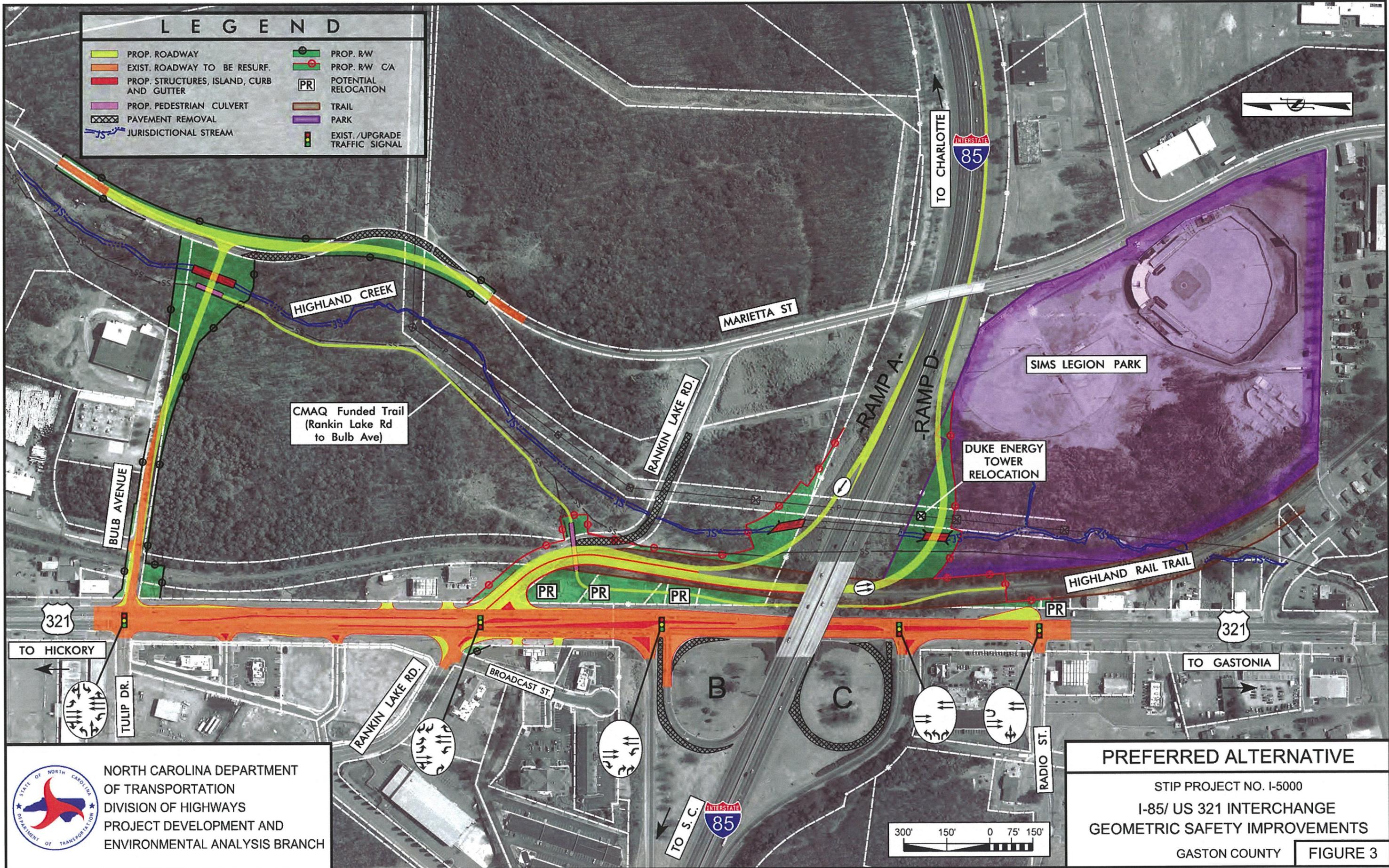
STIP PROJECT No. I-5000  
**STUDY AREA / QUAD MAP**  
I-85 / US 321 INTERCHANGE  
GEOMETRIC SAFETY IMPROVEMENTS

GASTON COUNTY

FIGURE 2

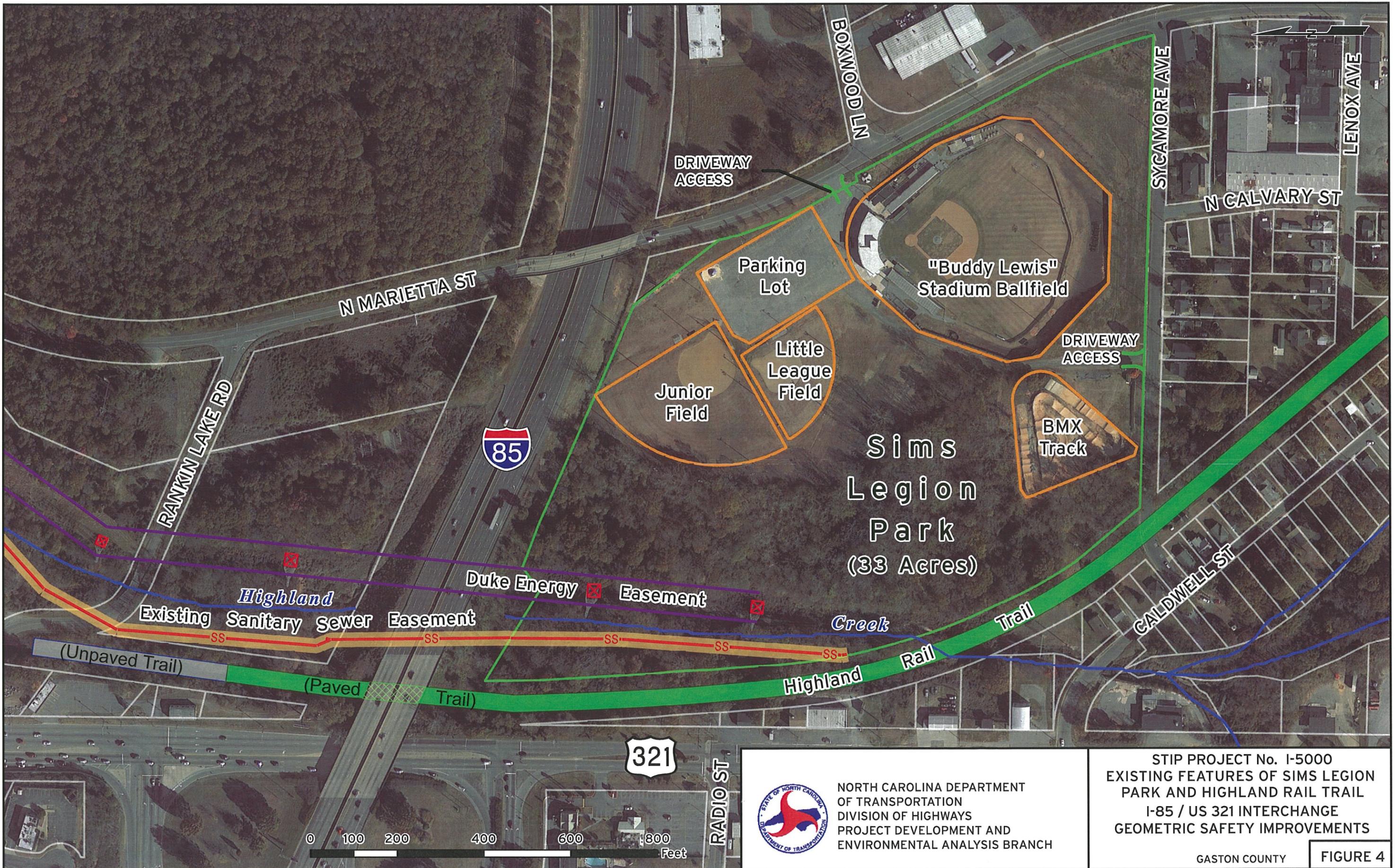
# LEGEND

- |   |   |
|---|---|
|  PROP. ROADWAY                             |  PROP. RW                      |
|  EXIST. ROADWAY TO BE RESURF.              |  PROP. RW C/A                  |
|  PROP. STRUCTURES, ISLAND, CURB AND GUTTER |  POTENTIAL RELOCATION          |
|  PROP. PEDESTRIAN CULVERT                  |  TRAIL                         |
|  PAVEMENT REMOVAL                          |  PARK                          |
|  JURISDICTIONAL STREAM                     |  EXIST./UPGRADE TRAFFIC SIGNAL |




 NORTH CAROLINA DEPARTMENT  
 OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PROJECT DEVELOPMENT AND  
 ENVIRONMENTAL ANALYSIS BRANCH

**PREFERRED ALTERNATIVE**  
 STIP PROJECT NO. I-5000  
 I-85/ US 321 INTERCHANGE  
 GEOMETRIC SAFETY IMPROVEMENTS  
 GASTON COUNTY **FIGURE 3**

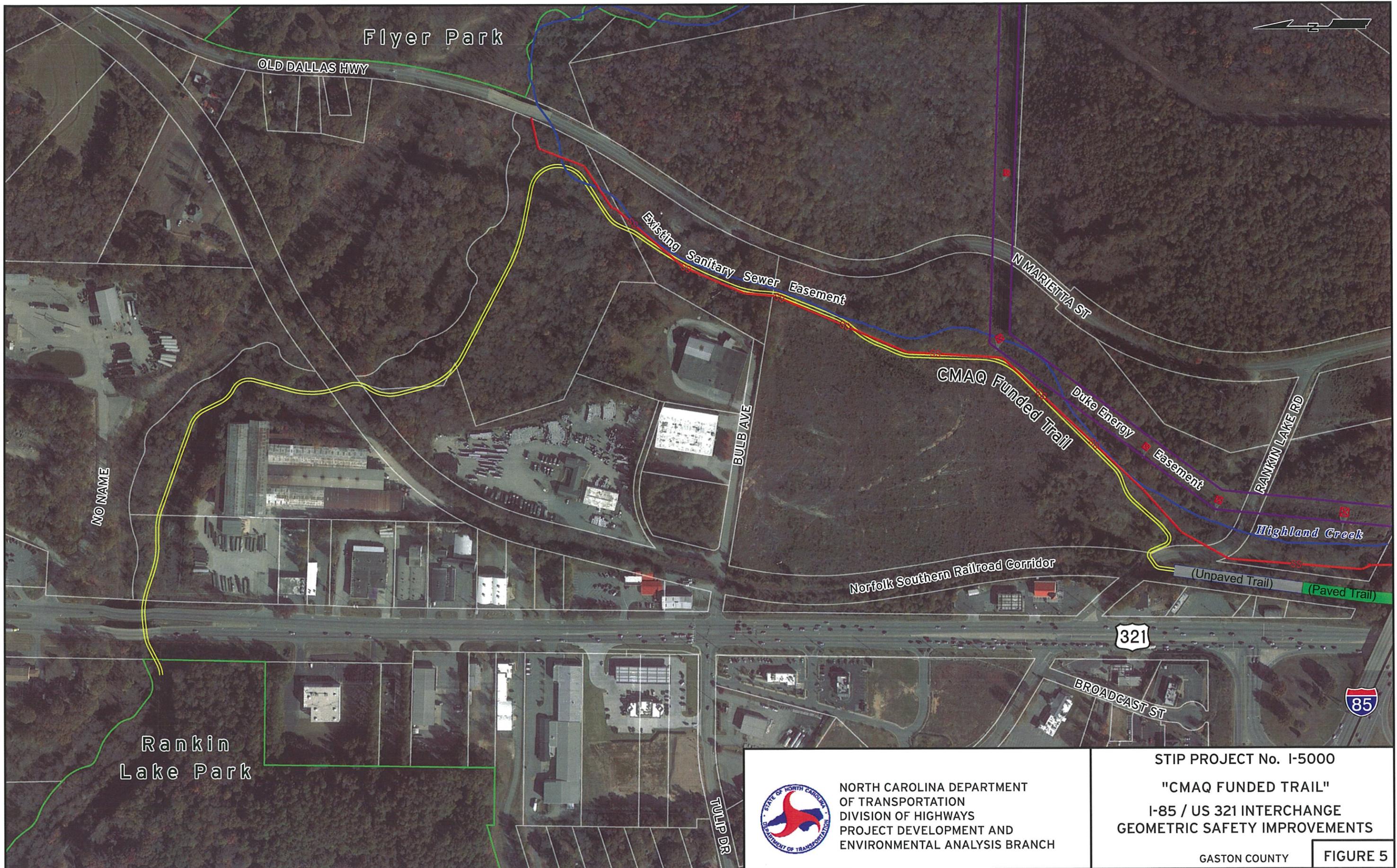


NORTH CAROLINA DEPARTMENT  
 OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PROJECT DEVELOPMENT AND  
 ENVIRONMENTAL ANALYSIS BRANCH

STIP PROJECT No. I-5000  
 EXISTING FEATURES OF SIMS LEGION  
 PARK AND HIGHLAND RAIL TRAIL  
 I-85 / US 321 INTERCHANGE  
 GEOMETRIC SAFETY IMPROVEMENTS

GASTON COUNTY

FIGURE 4



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

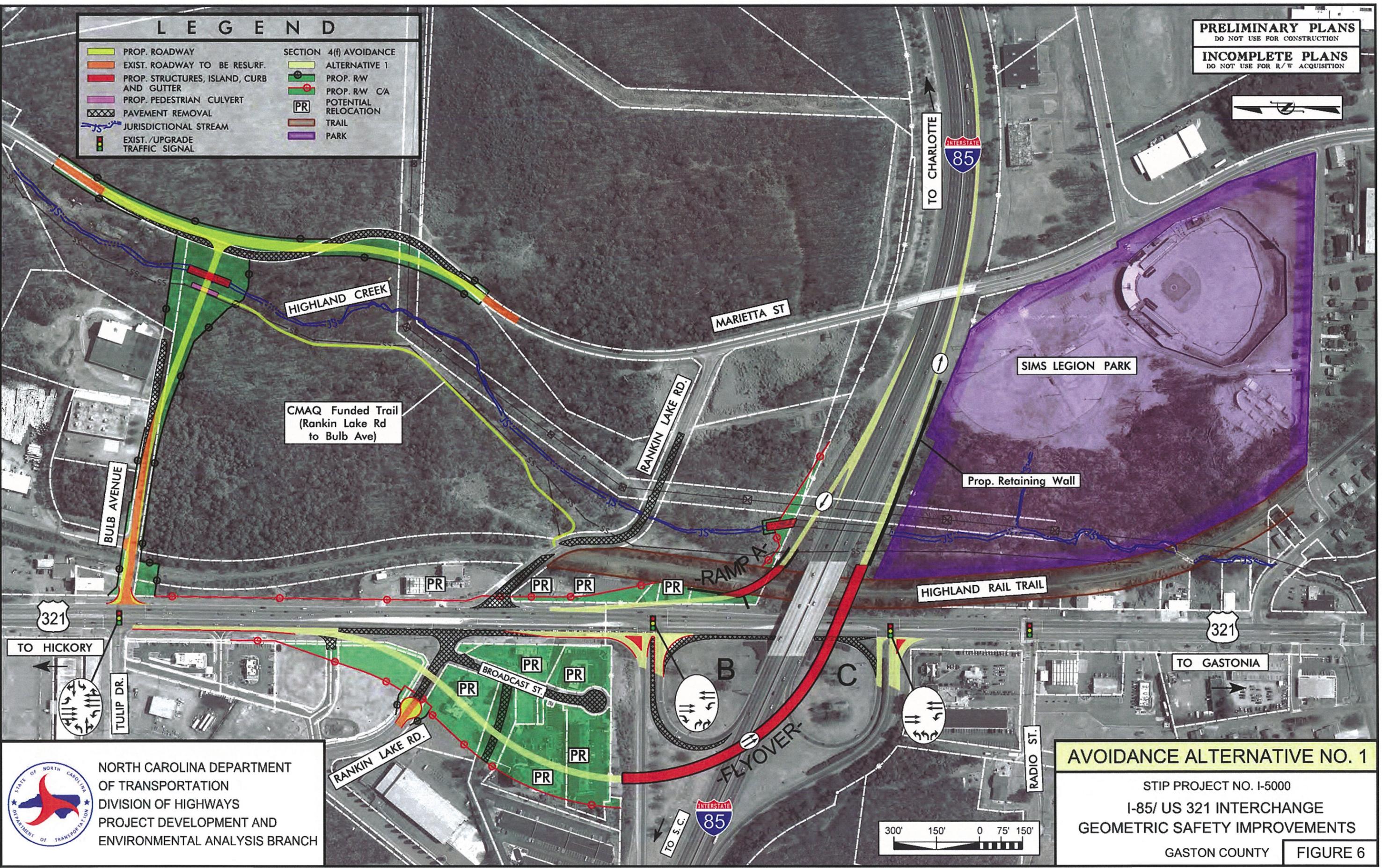
STIP PROJECT No. I-5000  
 "CMAQ FUNDED TRAIL"  
 I-85 / US 321 INTERCHANGE  
 GEOMETRIC SAFETY IMPROVEMENTS

# LEGEND

- |   |   |   |                        |
|---|---|---|------------------------|
|  | PROP. ROADWAY                             |  | SECTION 4(f) AVOIDANCE |
|  | EXIST. ROADWAY TO BE RESURF.              |  | ALTERNATIVE 1          |
|  | PROP. STRUCTURES, ISLAND, CURB AND GUTTER |  | PROP. R/W              |
|  | PROP. PEDESTRIAN CULVERT                  |  | PROP. R/W C/A          |
|  | PAVEMENT REMOVAL                          |  | POTENTIAL RELOCATION   |
|  | JURISDICTIONAL STREAM                     |  | TRAIL                  |
|  | EXIST./UPGRADE TRAFFIC SIGNAL             |  | PARK                   |

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION



CMAQ Funded Trail  
(Rankin Lake Rd to Bulb Ave)

SIMS LEGION PARK

Prop. Retaining Wall

HIGHLAND RAIL TRAIL

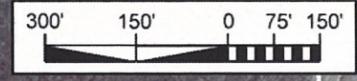
## AVOIDANCE ALTERNATIVE NO. 1

STIP PROJECT NO. I-5000  
I-85/ US 321 INTERCHANGE  
GEOMETRIC SAFETY IMPROVEMENTS

GASTON COUNTY **FIGURE 6**



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

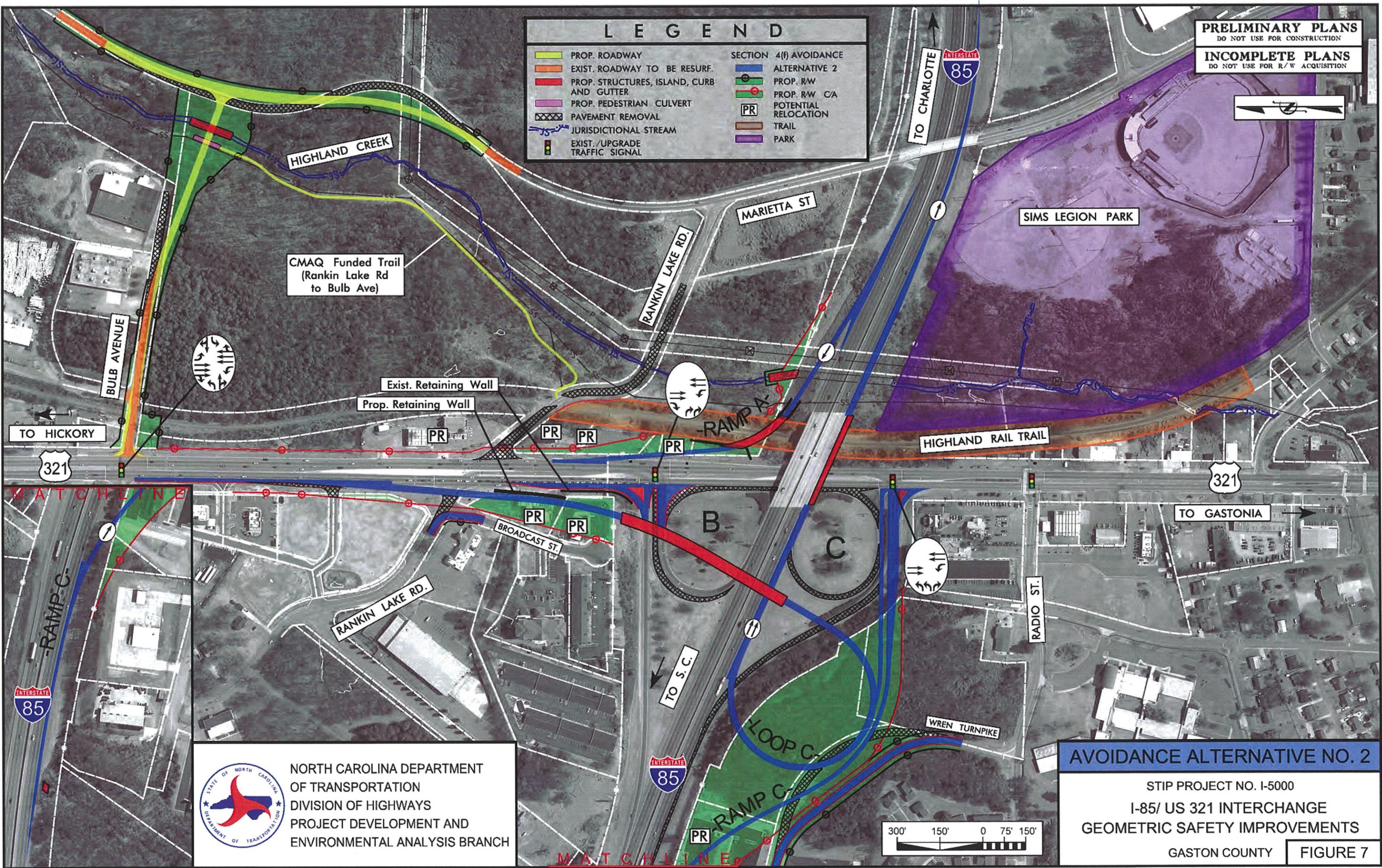


# LEGEND

- |  |   |  |                        |
|--|---|--|------------------------|
|  | PROP. ROADWAY                             |  | SECTION 4(f) AVOIDANCE |
|  | EXIST. ROADWAY TO BE RESURF.              |  | ALTERNATIVE 2          |
|  | PROP. STRUCTURES, ISLAND, CURB AND GUTTER |  | PROP. RW               |
|  | PROP. PEDESTRIAN CULVERT                  |  | PROP. RW C/A           |
|  | PAVEMENT REMOVAL                          |  | POTENTIAL RELOCATION   |
|  | JURISDICTIONAL STREAM                     |  | TRAIL                  |
|  | EXIST./UPGRADE TRAFFIC SIGNAL             |  | PARK                   |

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION



CMAQ Funded Trail  
(Rankin Lake Rd to Bulb Ave)

Exist. Retaining Wall  
Prop. Retaining Wall

SIMS LEGION PARK

HIGHLAND RAIL TRAIL

TO HICKORY

TO CHARLOTTE

TO GASTONIA

TO S.C.

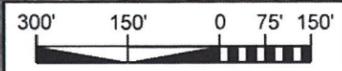


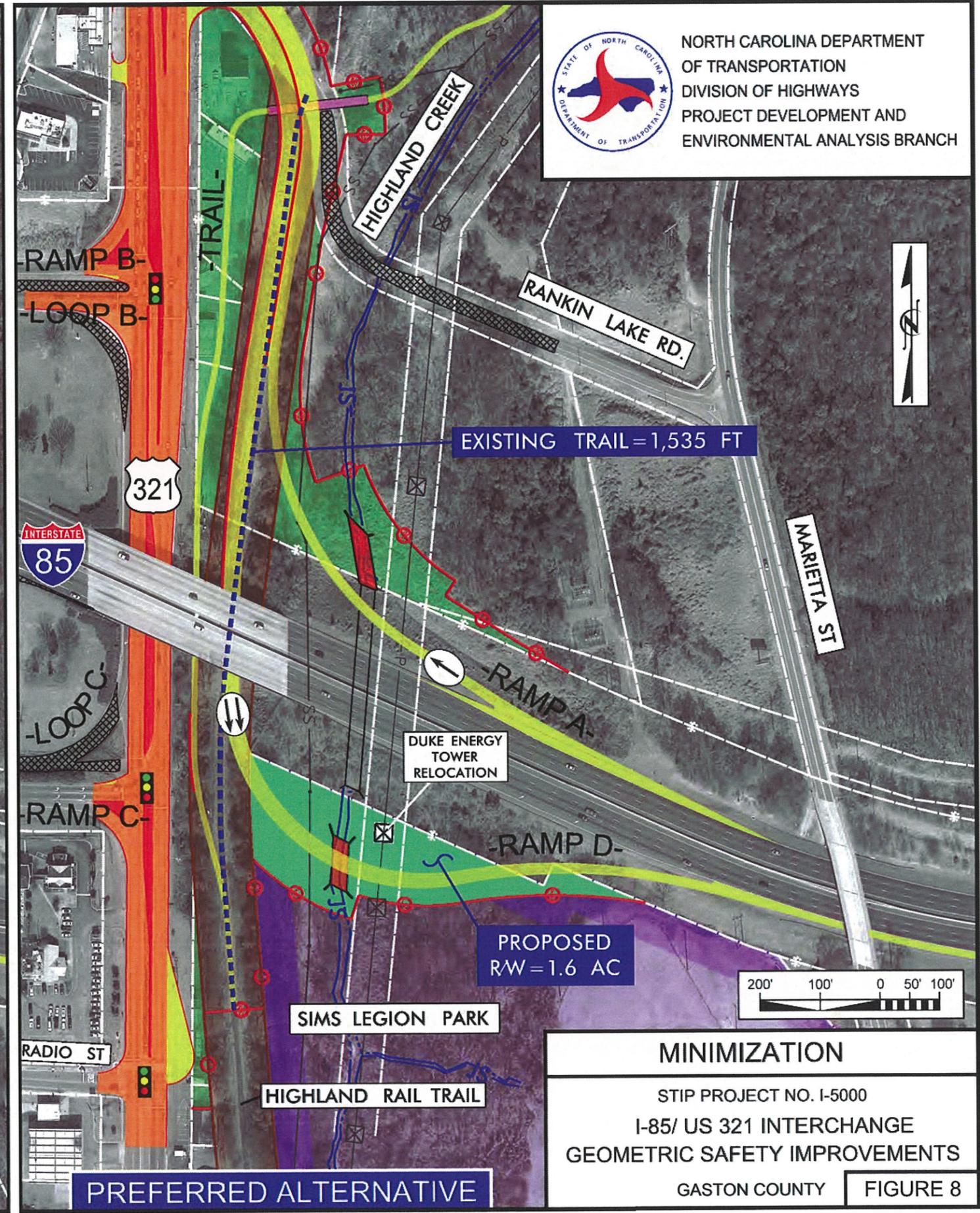
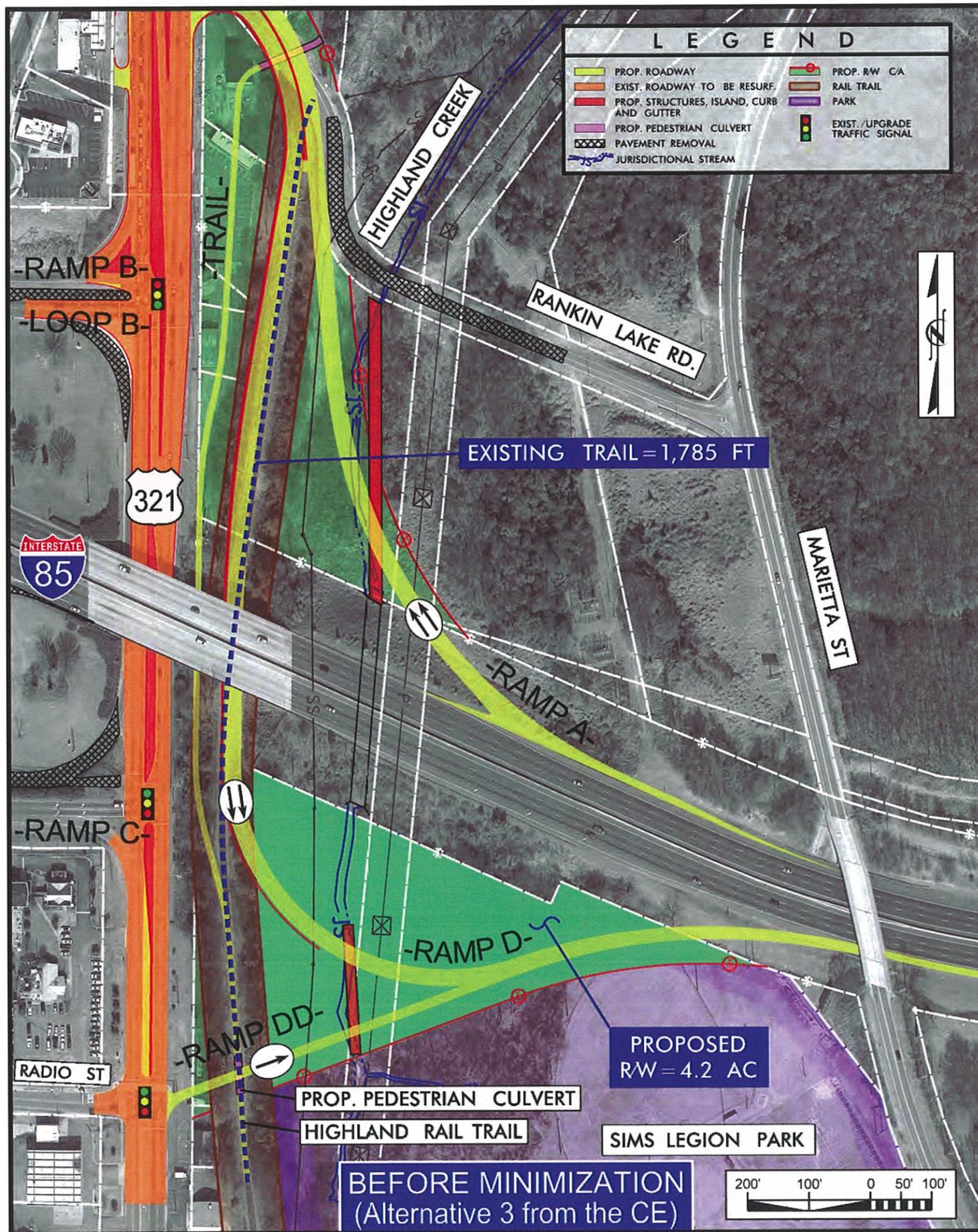
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

## AVOIDANCE ALTERNATIVE NO. 2

STIP PROJECT NO. I-5000  
I-85/ US 321 INTERCHANGE  
GEOMETRIC SAFETY IMPROVEMENTS

GASTON COUNTY **FIGURE 7**

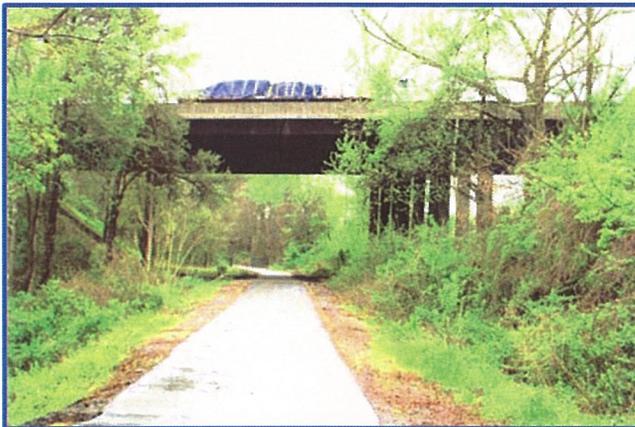




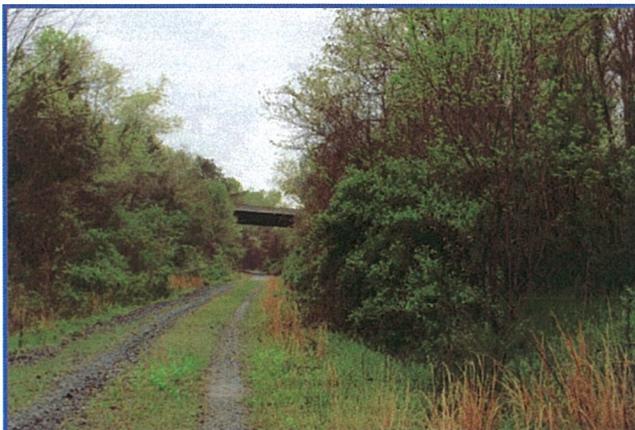
**APPENDIX A**  
**Photographs**



Sims Legion Park entrance sign from Marietta Street



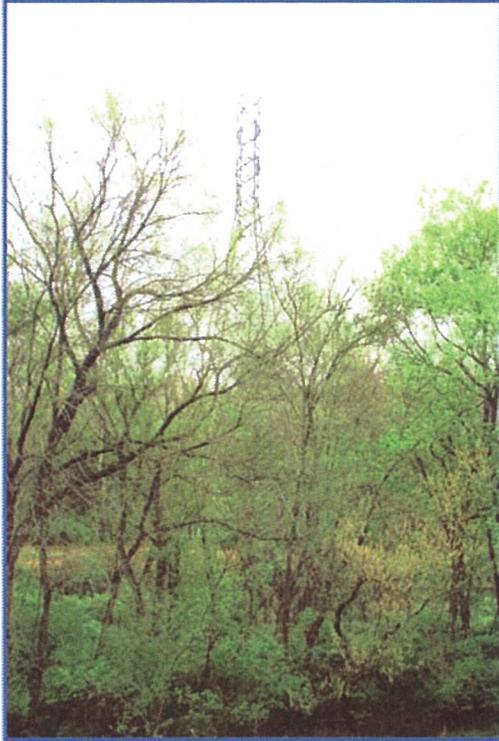
Paved portion of Highland Rail Trail looking south under I-85



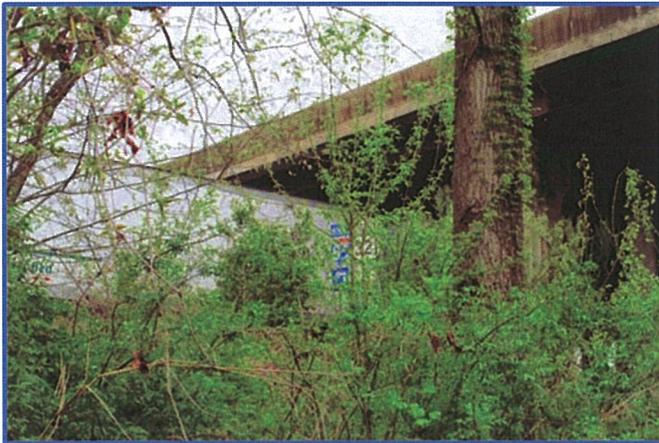
Unpaved portion of Highland Rail Trail looking south at I-85



Highland Rail Trail under I-85 adjacent to US 321



Duke Energy Transmission Line in alignment of the Preferred Alternative

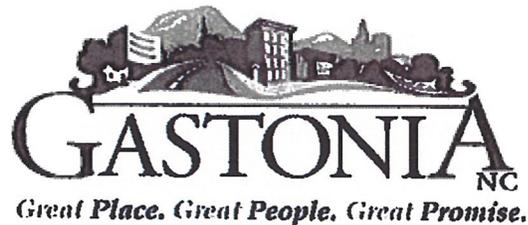


View of US 321 from Highland Rail Trail with I-85 overpass



View of I-85 from Sims Legion Park Junior baseball field

APPENDIX B  
Letters between NCDOT and City of Gastonia



November 12, 2013

Mr. Elmo Vance, Project Development Engineer  
NCDOT, PDEA Branch,  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

RE: NCDOT Project TIP I-5000, Gastonia, North Carolina

Dear Mr. Vance:

As a follow-up to our previous months of collective negotiation and collaboration on the referenced Project, as well as in response to the most recent redesign of said Project, the City of Gastonia would offer the following:

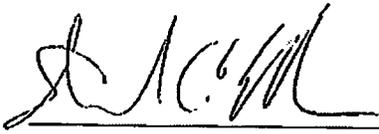
- The City, from the evolution of the early design of the Project up until recently, believed that a verbal understanding and commitment was reached between NCDOT, FHWA, and City representatives to include the construction of a greenway trail (from I-85 to Rankin Lake Park) within the overall scope of the Project. The current 'redesign' of the Project indicates that only a small portion of said greenway is proposed for inclusion in the Project (i.e., only that portion from I-85 to a point slightly beyond its crossing with the proposed ramp leading from I-85 S to US 321 N.). It should also be noted that the City had earlier received a grant from the NCDENR Division of Parks and Recreation to build a portion of this same greenway segment, but intentionally did not build such in order that overall citizen tax dollars could be saved by not having built such, and subsequently demolishing and rebuilding such when Project I-5000 was constructed. Accordingly, the grant we had received for this segment of a greenway was returned in 2012 (in the amount of \$41,500).

- In the bigger picture, the City's position has consistently been that the Project should include construction of the greenway from I-85 to Rankin Lake Park. As was the original consensus of the parties, said greenway construction was in exchange for the partial loss of recreational activities at Sims Park, more specifically:
  - The proposed I-5000 Project would affect the Sims Legion Ballpark Practice Field(s). These fields provide lighted practice and game fields to a portion of the City's overall athletic programs. Currently, softballs that might be hit out of the ball field(s) can create a safety hazard for vehicles traveling on I-85. With the new Project's 'split left' ramp addition (i.e., the ramp from US 321 to I-85 N), the likelihood of softballs entering the (new) ramp travel lanes increases. **However, as has been the City's position all along, we remain open to, and willing to adjust utilization of these ball fields, and to ~~effectively-relocate the use (and programmed activities) of the field(s) to other areas of the City in a simple exchange for a 'replacement' recreational amenity; i.e., the DOT's construction of a greenway trail from I-85 to Bulb Avenue.~~** This proposed greenway segment is 100% within the overall Project limits, and at least from the City's perspective, should have been included within the scope of the Project as an important pedestrian component. The City will in turn, commit to and proceed as quickly as possible with construction of the greenway segment from Bulb Avenue to Rankin Lake Park. (We have potentially identified CMAQ funds for this portion of the greenway. Utilization of CMAQ funds for the other segment as part of the I-5000 Project may evolve, but are not guaranteed.) By efficiently traversing through the I-5000 Project, the completion of both greenway segments will provide an addition to an existing and important greenway (recreational) trail in Gastonia.
  - **From the City's perspective, a greenway constructed from I-85 to Bulb Avenue as part of the Project will effectively delete the need for a USDOT Section 4(f) Study and will provide the necessary De Minimis Impact Statement for the Project.**
  - If the parties could reach this consensus again, we would respectfully request the ability to provide input as greenway construction plans are finalized (i.e., as provided earlier, the City has already designed a majority of this trail); and:

- ❖ That NCDOT engineers and planners work closely with our staff on the final design of the greenway and focus on aesthetics, greenway and roadway safety, and landscaping options between the greenway and the proposed Project I-5000 Improvements; and,
- ❖ That the greenway be designed to meet ADA and AASHTO Design Guidelines as closely as possible. In addition, consideration be given that all proposed pedestrian culverts be at least 14-feet in width, a minimum 10-feet in height, and reduced lengths wherever possible.
- Regarding other Project design features recently modified by the DOT (and forwarded to the City), we would state that:
  - In our opinion, the deletion of Ramp DD compromises the overall functionality of the proposed I-5000 Project. More specifically, as part of DOT's redesign, a "bulb-out" or "jug-handle" and subsequent creation of a U-turn point on US 321 will further congest (and create confusion) with the (new) intersection of US 321 and the ramp leading to I-85 N (i.e., the 'split left' intersection location);
  - It is also our opinion that the redesign of the proposed ramp from US 321 S to I-85 N (i.e., a redesign that reduces the design speed and 'sharpens' its curvature) will further lead to safety concerns for vehicles and trucks merging onto I-85 N;
  - NCDOT should consider inclusion of a pedestrian connection between the Highland Rail-Trail and the Radio Street/US 321 (N. Chester St.) intersection where crosswalks already exist;
  - NCDOT should consider a sidewalk extension on the north side of Bulb to US 321, and intersection improvements including high-visibility crosswalks and pedestrian signals to provide safe crossing of US 321 for pedestrians; and
  - NCDOT should consider that any improvements made on Marietta Street be consistent with the adopted Thoroughfare Plan, which show that section to be three lanes, including sidewalks. In addition, NCDOT should consider that Bulb Avenue be three lanes the entire length between US 321 and Marietta.

We look forward to continuing to move this important transportation and economic development project forward as quickly as possible. We believe the City has provided to the NCDOT the most expeditious manner for mitigation of the public recreational facilities noted above, along with requesting the Department's consideration of the other issues outlined in this letter. Should you have any questions or need additional information, please feel free to contact Mr. Philip Bombardier of our Staff at 704-866-6763.

Sincerely,



---

Edward G. Munn, City Manager

Pc: Mayor and City Council  
Mike Holder, Division 12 Engineer  
Ash Smith, City Attorney  
Melissa Magee, Assistant City Attorney  
Larry Wood, Assistant City Manager  
Flip Bombardier, Assistant City Manager  
Chuck Dellinger, Director of Recreation  
Rusty Bost, Director of Engineering  
Hank Graham, Senior Transportation Planner



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY  
GOVERNOR

ANTHONY J. TATA  
SECRETARY

December 5, 2013

Edward C. Munn, City Manager  
City of Gastonia  
1300 N. Broad Street  
PO Box 1748  
Gastonia, N.C. 28054-1748

RE: STIP # I-5000  
Response to City Of Gastonia letter of November 12<sup>th</sup>, 2013.

Dear Mr. Munn:

In an attempt to be thorough in our response to the above referenced letter, I felt it best to answer bullet by bullet.

***"As of follow-up to our previous months of collective negotiations and collaboration on the referenced Project, as well as in response to the most recent redesign of said Project, the City of Gastonia would offer the following:***

- The City, from the evolution of the early design of the Project up until recently, believed that a verbal understanding and commitment was reached between NCDOT, FHWA, and City representatives to include the construction of a greenway trail (from I-85 to Rankin Lake Park) within the overall scope of the project. The current 'redesign' of the Project indicates that only a small portion of said greenway is proposed for inclusion in the Project (i.e., only that portion from I-85 to a point slightly beyond its crossing with the proposed ramp leading from I-85 S to US 321 N.). It should also be noted that the City had earlier received a grant from the NCDENR Division of Parks and Recreation to build a portion of this same greenway segment, but intentionally did not build such in order that overall citizen tax dollars could be saved by not having built such, and subsequently demolishing and rebuilding such when Project I-5000 was constructed. Accordingly, the grant we have received for this segment of a greenway was returned in 2012 (in the amount of \$ 41,500)."***

NCDOT could have coordinated the construction of the greenway within this project with a municipal agreement reimbursing NCDOT for the cost of the greenway from the grant in order to get cost of scale on the construction cost. Greenways themselves are the municipality's responsibility for funding (unless they are funded through independent project funds). If the municipality has a funded greenway plan (improvements to be made in 1-5 years) and the

greenways are not in place, the department will cost share for the intersecting improvements according to the sidewalk policy sliding scale cost-sharing rates. Examples of intersection improvements are bicycle/pedestrian box culvert crossings and raising and lengthening bridges for greenway underneath accommodations.

Local governments are responsible for maintaining all pedestrian facilities. A Municipal Agreement will formally specify that the DOT is not responsible for maintaining pedestrian facilities.

The local matching share is a sliding scale based on population as follows:

- >100,000 population, DOT participation 50%, Local Participation 50%
- 50,000 to 100,000 population, DOT Participation 60%, Local Participation 40%
- 10,000 to 50,000 population, DOT Participation 70%, Local Participation 30%
- <10,000 population, DOT Participation 80%, Local Participation 20%.

Any pedestrian connections to the greenway would fall within the participation requirement.

- ***“In the bigger picture, the City’s position has consistently been that the Project should include construction of the greenway from I-85 Rankin Lake Park. As was the original consensus of the parties, said greenway construction was in exchange for the partial loss of recreational activities at Sims Park, more specifically:”***

In the interest of keeping the project on schedule and minimizing any risk of potential project reprioritization in the STIP, FHWA and NCDOT agreed to the general framework of the City’s proposal and were in the process of determining how much NCDOT constructed greenway trail might be necessary to be commensurate with the impacts to the baseball field and if such an arrangement was possible. There was never agreement as to how much could be funded and constructed.

- ***“The proposed I-5000 Project would affect the Sims Legion Ballpark Practice Field(s). These fields provide lighted practice and game fields to a portion of the City’s overall athletic programs. Currently, softballs that might be hit out of the ball field(s) can create a safety hazard for vehicles traveling on I-85. With the new Project’s ‘split left; ramp addition (i.e., the ramp from US 321 to I-85 N), the likelihood of softballs entering the (new) ramp travel lanes increases.”***

The City has previously stated that because of balls being hit into traffic on the existing nearby ramp, some activities have already been limited or shifted away from the larger field. This is already a known problem that currently exists. Measures can be taken in the form of netting or high fencing to protect traffic travelling on the future ramp location.

**“However, as has been the City’s position all along, we remain open to, and willing to adjust utilization of these ball fields, and to effectively relocate the use (and programmed activities) of the field(s) to other areas of the City in a simple exchange for a ‘replacement’ recreational amenity; i.e., the DOT’s construction of a greenway trail from I-85 to Bulb Avenue. This proposed greenway segment is 100% within the overall Project limits, and at least from the City’s perspective, should have been included within the scope of the Project as an important pedestrian component. The City will in turn, commit to and proceed as quickly as possible with**

***construction of the greenway segment from Bulb Avenue to Rankin Lake Park. (We have potentially identified CMAQ fund for this portion of the greenway. Utilization of CMAQ funds of the other segment as part of the I-5000 Project may evolve, but are not guaranteed,) By efficiently traversing through the I-5000 Project, the completion of both greenway segments will provide an addition to an existing and important greenway (recreational) trail in Gastonia."***

When a Section 4(f) resource (in this instance, the ball field in question) cannot be avoided, the law requires all possible planning to avoid, minimize and mitigate the impacts to the 4(f) resource. When avoidance and mitigation results in the 4(f) resource's *activities, features and attributes* not being adversely affected, a 4(f) de minimis determination can be made by FHWA. The City's request is unusual in that it does not seek mitigation for the impacted 4(f) resource but compensatory mitigation for the impacts.

- ***"From the City's perspective, a greenway constructed from I-85 to Bulb Avenue as part of the Project will effectively delete the need for a USDOT Section 4(f) Study and will provide the necessary De Minimis Impact Statement for the Project."***

The city is incorrect in its interpretation of the Federal 4(f) law. As explained above, any impact to a section 4(f) resource which cannot be avoided or minimized is subject to a 4(f) evaluation unless the 4(f) resource's *activities, features and attributes* are not being adversely affected, in which case a 4(f) de minimis determination can be made by FHWA. However, before a 4(f) de minimis determination can be made, the city must agree in writing that the activities, features and attributes not being adversely affected by the proposed project. However, the city is asking for the construction of the greenway as compensation for effects to the ball field, in which case de minimis cannot apply since the effects to the ball field would go un-mitigated and a section 4(f) evaluation would be required. Under the law, mitigation must be made to the affected resource (the ball field in question). Trading the impacts for mitigation in the form of another activity (the greenway) would not be allowed under 4(f) law.

- ***"If the parties could reach this consensus again, we would respectfully request the ability to provide input as greenway construction plans are finalized (i.e., as provide earlier, the City has already designed a majority of this trail); and:"***

Based on the current design which no longer impacts the ball field directly, and per the previous 4(f) explanation, this is not possible.

- ❖ ***"That NCDOT engineers and planners work closely with our staff on the final design of the greenway and focus on aesthetics, greenway and roadway safety, and landscaping options between the greenway and the proposed Project I-5000 improvements; and,***

The only greenway design NCDOT has completed is the relocated section within the project area.

The landscaping budget for projects per NCDOT policy is 0.5% of the total construction cost of the project to be completed after construction under separate contract. The division will work with the city at the appropriate time to discuss options.

- ❖ ***“That the greenway be designed to meet ADA and AASHTO Design Guidelines as closely as possible. In addition, consideration be given that all proposed pedestrian culverts be at least 14-feet in width, a minimum 10-feet in height, and reduced lengths wherever possible”***

The pedestrian culverts will be revised to 14-feet wide by 10-feet high where possible. It should be noted that since the trail currently ends just north of Rankin Lake Road, the Bulb Avenue pedestrian culvert will be subject to the same cost sharing requirements as discussed above.

- ***“Regarding other Project design recently modified by the DOT (and Forwarded to the City), we would state that:***
- ***In our opinion, the deletion of Ramp DD compromised the overall functionality of the proposed I-5000 Project. More specifically, as part of DOT’s redesign, a “bulb-out” or “jug-handle” and subsequent creation of a U-turn point on US 321 will further congest (and create confusion) with the (new) intersection of US 321 and the ramp leading to I-85 N. (i.e., the ‘split left’ intersection location);”***

The removal of ramp DD and relocation of those movements to the split left intersection does not affect the overall operation of that intersection. With the inclusion of a right-turn lane for US 321 NB to turn onto the I-85 NB ramp, those traffic movements can be accommodated with the existing traffic signal phasing and timing.

To provide access to I-85 NB from the properties on the west side of US 321 that cannot directly access the split left intersection, there are two options. All of the properties in question have access to Rankin Lake Road. Traffic leaving those businesses can be directed to I-85 via Rankin Lake Road and Tulip Drive to turn onto US 321 SB and then to the ramp. Alternatively, a U-turn can be made at the existing Radio Street intersection with the addition of a turn lane at that intersection for US 321 SB. This turn lane was included in the public hearing maps, although the original reason for that auxiliary lane was to turn left onto ramp DD.

- ***“It is also our opinion that the redesign of the proposed ramp from US 321 S to I-85 N (i.e., redesign that reduces the design speed and ‘sharpens’ its curvature) will further lead to safety concerns for vehicles and trucks merging onto I-85 N;”***

The original design meets 35mph around the tower and 50mph under Marietta Street merging onto I-85 North. The revised design also provides 35mph and 50mph curves through those areas respectively (i.e., there is no change in design speed).

- ***“NCDOT should consider inclusion of a pedestrian connection between The Highland Rail-Trail and the Radio Street/US 321 (N. Chester St.) Intersection where crosswalks already exist;”***

Any pedestrian connections to the greenway would fall within the previously discussed participation requirement.

- ***“NCDOT should consider a sidewalk extension on the north side of Bulb to US 321, and intersection improvements including high-visibility crosswalks and pedestrian signals to provide safe crossing of US 321 for pedestrians; and”***

The sidewalk extension on Bulb would require additional right of way to place the sidewalk behind the ditch and out of the clear zone, which would be the responsibility of the City.

- ***“NCDOT should consider that any improvements made on Marietta Street be consistent with the adopted Thoroughfare Plan, which show that section to be three lanes, including sidewalks. In addition NCDOT should consider that Bulb Avenue be three lanes the entire length between US 321 and Marietta.”***

The improvements on Marietta Street that we are proposing allow for the future typical section on the adopted Thoroughfare Plan, but increasing the scope of the improvements on Marietta Street would require funding by the City through a municipal agreement.

As you know, the initial design of the interchange ramp resulted in a ROW take of 4.2 acres from the City's Sims Legion Park property. Specifically, the right field of one of the Park's baseball fields was impacted. The impact to the baseball field was viewed as unavoidable due to presence of a Duke Energy transmission tower that was initially deemed prohibitively expensive to move. Notwithstanding the impacts to the baseball field, NCDOT and FHWA determined that mitigation to the impacts on the baseball field could possibly be developed so that the *activities, features and attributes* of the field would not be adversely impacted and a 4(f) de minimis determination could be made.

NCDOT subsequently learned that moving the Duke Energy transmission tower would not be prohibitively expensive to move. This allowed consideration of other options to avoid and minimize impacts to the 4(f) resource as required under the law. The latest design does not directly impact the baseball field and reduces the ROW from 4.2 acres to 1.4 acres. The City will be compensated for the ROW take as provided under the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Moreover, it appears that the latest design modification may not adversely affect the *activities, feature and attributes* of the baseball field and a 4(f) de minimis is possible.

If the City cannot agree with this determination, NCDOT and FHWA will be required to conduct an individual 4(f) evaluation and the project will be delayed accordingly (approximately 6 months). We request the City reconsider its position.

Sincerely,



Richard W. Hancock, P.E., Manager  
Project Development & Environmental Analysis Unit  
North Carolina Department of Transportation

CC: Mike Holder, P.E., NCDOT Division 12  
Debbie Barbour, P.E., NCDOT  
B. Doug Taylor, P.E., NCDOT  
Jason Moore, P.E., NCDOT  
Jennifer Harris, P.E., NCDOT  
James Dunlop, P.E., NCDOT  
John Conforti, REM, NCDOT  
Elmo Vance, NCDOT  
Michael Batuzich, FHWA



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY  
GOVERNOR

ANTHONY J. TATA  
SECRETARY

June 16, 2014

Mr. Phillip Bombardier, P.E.  
City of Gastonia  
Post Office Box 1748  
Gastonia, North Carolina 28053-1748

Dear Mr. Bombardier,

In consultation with our Roadway Design Unit, Congestion Management Section, Division 12, Federal Highway Administration and the Project Development Unit we have taken a close look at the suggestions you provided.

As you noted, your preliminary drawings utilize the original location of Ramp D which has greater impacts to the Park/Ball field Facilities. As we have discussed in previous meetings this has been determined to be a "4(f)" property. As such, it is protected under Federal 4(f) laws which require that we avoid or minimize impacts to 4(f) properties to the extent possible. Hence the reason for the development of our current design alternative and the present location of Ramp D. With that said, any suggestions made need to build upon the current design (and the current location of Ramp D).

A tenant in ramp design is to have ramp traffic traveling at near freeway speeds at the ramp/freeway junction, for effective merging. With the constraint imposed by the Marietta Street bridge, this necessitates the ramp/freeway junction occur before the bridge and effectively shortens the ramp and the acceleration length. Ramp DD vehicles (having to yield to Ramp D traffic) would be starting from a stop condition and would not have an adequate acceleration length to "match speeds" with the freeway. This is but one of the "geometric" negatives of Ramp DD, others are listed below.

**Geometric:**

- Inadequate acceleration distance for the I-85 merge.
- Maximum departure angle at Radio St.
- Severe horizontal "S" curvature (20 mph).
- Severe vertical curvature and poor stopping sight distance (20 mph).
- Bad design practice combining sharp horizontal & vertical curvatures.

**MAILING ADDRESS:**  
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1536 MAIL SERVICE CENTER  
RALEIGH NC 27699-1536

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FAX: 919-733-9428

WEBSITE: [WWW.NCDOT.GOV](http://WWW.NCDOT.GOV)

**LOCATION:**  
TRANSPORTATION BUILDING  
1 SOUTH WILMINGTON STREET  
RALEIGH NC

Mr. Phillip Bombardier, P.E.  
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Environmental:

- Increases impacts to 4(f) property
- Additional jurisdictional stream impacts -culvert required\*.  
\*-Culvert would extend into Duke Power easement. Duke Power does not allow parallel structures inside their easements.
- Additional pedestrian culvert required.

Traffic & Operations:

- Un-signalized traffic conflict point created at Ramp D / Ramp DD intersection.
- Traffic conflict created at Radio Street by left turn lane storage overflow.
- Signing two locations for the same interstate access.
- Traffic conflict created at double left (below Tulip & Bulb) by traffic jumping out of line to use "secondary" I-85 NB exit at Radio St.

The current design of Ramp D without Ramp DD has been analyzed by our Congestion Management Unit and has been found to function adequately. In addition, FHWA has reviewed the draft Interchange Modification Report (IMR) and concurs with its findings that the proposed interchange design, which does not include ramp DD, functions adequately through the design year of the project.

It should be noted that with the upcoming I-85 widening project, there would be an opportunity to add Ramp DD as part of that project since the Marietta Street bridge will be replaced/widened at that time.

The schedule for I-5000 has been revised as follows, to allow for completion of the Federal 4(f) Evaluation prior to the finalizing of the environmental document.

Right of Way has moved from May 2014 to March 2015. Project Letting has moved from November 2015 to February 2017.

Respectfully yours,



Mike L. Holder, P.E.  
Chief Engineer

Mr. Phillip Bombardier, P.E.  
June 16, 2014  
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MLH/bs

cc: Reuben Chandler, P.E., Division Engineer  
Richard W. Hancock, P.E., Manager PDEA  
Jennifer Harris, P.E., Project Development/Turnpike Section Head  
Jason Moore, P.E., Project Engineer  
Elmo Vance, Jr., Project Development Engineer  
Mitch Batuzich, Transportation Specialist



August 22, 2014

Mr. Elmo Vance, Project Development Engineer  
NCDOT, PDEA Branch,  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

RE: NCDOT Project TIP I-5000: Section 4(f) Evaluation; City of Gastonia Comments

Dear Mr. Vance:

As a follow-up to our recent conversations, the City of Gastonia would respectfully submit the following comments as related to the Section 4(f) Evaluation Process:

- The proposed I-5000 Project would affect the Sims Legion Ballpark Practice Field(s). These fields provide lighted practice and game fields to a portion of the City's overall athletic programs. Currently, softballs that might be hit out of the ball field(s) can create a safety hazard for vehicles traveling on I-85. With the Project's proposed "split left" ramp addition (i.e., the ramp from US 321 to I-85 N), the likelihood of softballs entering the (new) ramp travel lanes increases. In addition, Project removal of the existing tree buffer adjoining Sims Park will increase this potential, as well as, diminish the ability of said tree buffer to act as a physical and noise barrier between the new I-5000 ramp and Sims Park.

However, as has been the City's position all along, we remain open to, and willing to adjust utilization of these ball fields, and to effectively relocate the use (and programmed activities) of the field(s) to other areas of the City in an exchange for a "replacement" recreational amenity; i.e., the City's suggestion for mitigation would be to have NCDOT construct a greenway trail from I-85 to Bulb Avenue. This proposed greenway segment is within the overall Project limits, and at least from the City's perspective, should have been included within the scope of the Project as an important pedestrian component. By efficiently traversing through the I-5000 Project, the completion of the greenway segment will provide an addition to an existing and important recreational trail in Gastonia.

- The Project will also impact the existing and proposed greenway segments through the installation of new (Project) drainage culverts. It is requested that NCDOT engineers and planners work closely with our staff on the final design of the greenway and focus on aesthetics, greenway and roadway safety, and landscaping options between the greenway and the proposed Project I-5000 improvements.
- With the NCDOT preferred design, and in order to minimize impacts to the 4(f) resource(s), the greenway should be designed to meet ADA and AASHTO Design Guidelines as closely as possible. In addition, consideration should be given that all proposed pedestrian culverts be at least 14-feet in width, a minimum 10-feet in height, and reduced culvert lengths wherever possible (or through usage of bridge structures in lieu of culvert(s)).
- Because of the difficulty in traversing the overall (new) highway design via the greenway (and to minimize the 4(f) impacts), we would request that consideration be given to:
  - Constructing a pedestrian connection between the Highland Rail-Trail and the Radio Street/US 321 (N. Chester St.) intersection where crosswalks already exist;
  - Constructing a sidewalk extension on the north side of Bulb to US 321, along with intersection improvements including high-visibility crosswalks and pedestrian signals to provide safe crossing of US 321 for pedestrians; and
  - Any improvements made on Marietta Street be consistent with the adopted Thoroughfare Plan, which show that section to be three lanes, including sidewalks.

Thank-you for the opportunity to submit comments as part of this overall Section 4(f) Process. We look forward to continuing to move this important transportation and economic development project forward as quickly as possible. We hope that the impacts noted above can be mitigated as quickly as possible and with flexibility in finding mutual agreeable solutions. Should you have any questions or need additional information, please feel free to contact Mr. Philip Bombardier of our Staff at 704-866-6763.

Sincerely,



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Edward C. Munn, City Manager

pc: Mayor and City Council  
Reuben Chandler, NCDOT Division 12 Engineer  
Jackie McSwain, NCDOT Division 12