Proposed Improvements to Designated Truck Routes and Broad Street
Camden, South Carolina

ENVIRONMENTAL ASSESSMENT

42 USC 4332(2)(c)

Submitted Pursuant to 42 U.S.C. 4332(2)(c) by the U.S. Department of Transportation, Federal Highway Administration, and the South Carolina Department of Transportation, Environmental Management Office

6-13-12
Date of Approval

S.C. Department of Transportation

6-13-12
Date of Approval

Federal Highway Administration

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TIGER II Planning Grant No. 3

SIGNATURE PAGE

ENVIRONMENTAL COMMITMENTS

1. The contractor will be required to implement construction best management practices, reflecting policies contained in 23 CFR 650 B and SCDOT's Supplemental Specifications on Seeding and Erosion Control Measures (August 15, 2001). (Pages 66, 71)

2. An NPDES General Permit for Stormwater Discharges Associated with Construction Activity will be obtained. Best management practices in accordance with local, state, and federal guidelines will be incorporated during the design and construction of the project to minimize impacts to water quality. (Page 67, 72)

3. A US. Army Corps of Engineers Section 404 General Permit for wetland impacts will be obtained prior to ground disturbing construction activities. (Page 68, 72)

4. Evaluate the feasibility of 2:1 slopes through wetland areas during detailed design and further minimize wetland impacts (Page 71).

5. Compensatory mitigation for the permanent impacts will be attained by deduction or purchase of wetland and stream mitigation credits from an approved SCDOT mitigation bank or a private mitigation bank. Specific mitigation criteria will be determined during the permitting process. (Page 71)

6. SCDHEC's 401 Water Quality Certification, pursuant to Section 401 of the Federal Water Pollution Control Act of 1972 as amended by the Clean Water Act of 1977 and the Water Quality Act of 1987 will be obtained. (Page 72).

7. Perform detailed hydraulic study and prepare No Rise certification for FEMA. (Page 79)

8. A copy of the Noise Impact Assessment will be provided to local planning officials for coordination of future noise impacts as required by 23 CFR 772.115. (Page 93)

9. To the extent possible, construction activities will be confined to normal working hours. The contractor would be required to comply with OSHA regulations regarding noise attenuation devices on equipment. (Page 94)

10. Conduct further investigation of soil and groundwater contamination within the subject alignment, adjacent to the northwest quadrant of the York Street and Fair Street intersection, prior to ground disturbing activities. (Page 95)

11. Avoid removing trees and limit clearing of vegetation between Ehrenclou Drive and the Quaker Cemetery or Eighteenth-Century Camden. Show sites on construction plans. (Page 98)

12. Avoid ground disturbing activities within the undisturbed portions of 38KE33. Show site on construction plans. (Page 100, 101)

13. Avoid ground disturbing activities adjacent to 38KE1122 located south of Ehrenclou Drive. Show sites on construction plans. (Page 99)

14. Reduce construction limits during detailed design south of Springdale Drive/Boykin Road adjacent to 38KE1123 and 38KE1124 in order to avoid sites. Show sites on construction plans. (Page 101, 101)

15. In accordance with 36 CFR Part 800, if cultural remains are found during the construction of the Preferred Alternative, the SCDOT, SHPO, and Advisory Council on Historic Preservation would be notified so a qualified professional could evaluate the resources. Work could continue in areas where no cultural resources were discovered. (Page 106)

16. Address SHPO technical comments and resubmit Cultural Resource Report. (SHPO Concurrence Letter – Appendix M)

17. The Department will assist property owners with compensation that reflects the provisions of the Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. A relocation program will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Public Law 91-646, as amended by 100-17; 49CFR Part 24). As is the policy of the South Carolina Department of Transportation, in response to the non-discrimination requirements in Title VI of the Civil Rights Act of 1964, relocation advisory assistance would be provided to all eligible persons without discrimination. The SCDOT will assist families or individuals in finding and relocating to decent, safe, and sanitary housing that is adequate to meet their needs and within their financial means. (Page 109)

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I. WHAT IS THE PROPOSED PROJECT?

The South Carolina Department of Transportation (SCDOT or The Department) proposes to improve the existing designated US Highway 1 (US 1) and US Highway 521 (US 521) truck routes in Camden, Kershaw County, South Carolina (Figure 1). Improving the truck routes will reduce delays, improve safety and otherwise encourage trucks to use the routes instead of going through downtown Camden and allow the City of Camden to implement its proposed Broad Street Road Diet (BSRD), which is intended to create a more pedestrian-friendly environment on US 521 (Broad Street) from S-45 (York Street) to US 601/US 1/SC 34 (Dekalb Street) (Figure 2).

Three sections of the existing truck routes have been identified for improvements: Segment One in the Southwest Quadrant, Segment Two in the Northwest Quadrant and Segment Three in the Southeast Quadrant. There is no existing designated truck route in the Northeast Quadrant and no improvements are proposed. The quadrants are relative to the intersection of Broad Street and DeKalb Street in downtown Camden as shown on Figure 1.

What is this Document?

This document constitutes an Environmental Assessment (EA) and was prepared pursuant to the National Environmental Policy Act (NEPA), as amended; the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts 1500-1508); and the Federal Highway Administration (FHWA) environmental impact and related procedures (23 CFR 771).

The project, as proposed, would result in certain modifications to the human and natural environment. However, the Department has not identified any impacts that would require the preparation of an Environmental Impact Statement (EIS), therefore the project meets the criteria under 23 CFR 771.115(c) for processing as an EA. Environmental studies conducted in the early stages of the project development and understandings of the scope of work to be performed were considered in this decision and are appended to this document.

How will the Project be funded?

According to early construction cost estimates, the Department needs approximately $16.16 million to construct all proposed improvements to the Camden Truck Route, not including design, permitting, and right-of-way (ROW) acquisition. During its January 9, 2012 board meeting, the Santee-Lynches Regional Council of Governments (SLRCOG) incorporated $20.9 million for the entire Camden Truck Route Project into its 2010 – 2015 Transportation Improvement Program (TIP). Accordingly, at its February 16, 2012 meeting, the SCDOT Commission incorporated the entire Camden Truck Route Project into its 2010 – 2015 STIP using System Upgrade funds. SCDOT's Surface Upgrade funds originate from the FHWA Surface Transportation Program. $20.9 million in funds are, therefore, reasonably available to complete the Camden Truck Route Project. The TIP and STIP are attached in Appendix A.

The City of Camden estimates that approximately $3.25 million is needed to construct the Broad Street (US 521) Road Diet. The City of Camden acquired a Transportation Investment Generating Economic Recovery (TIGER) II Grant from FHWA for funding to plan and design the BSRD (Appendix A). Funding for construction, however, is not yet identified. In its 2012-2015 TIP, after satisfying necessary obligations, the SLRCOG has surplus funds that could be used to construct the BSRD.

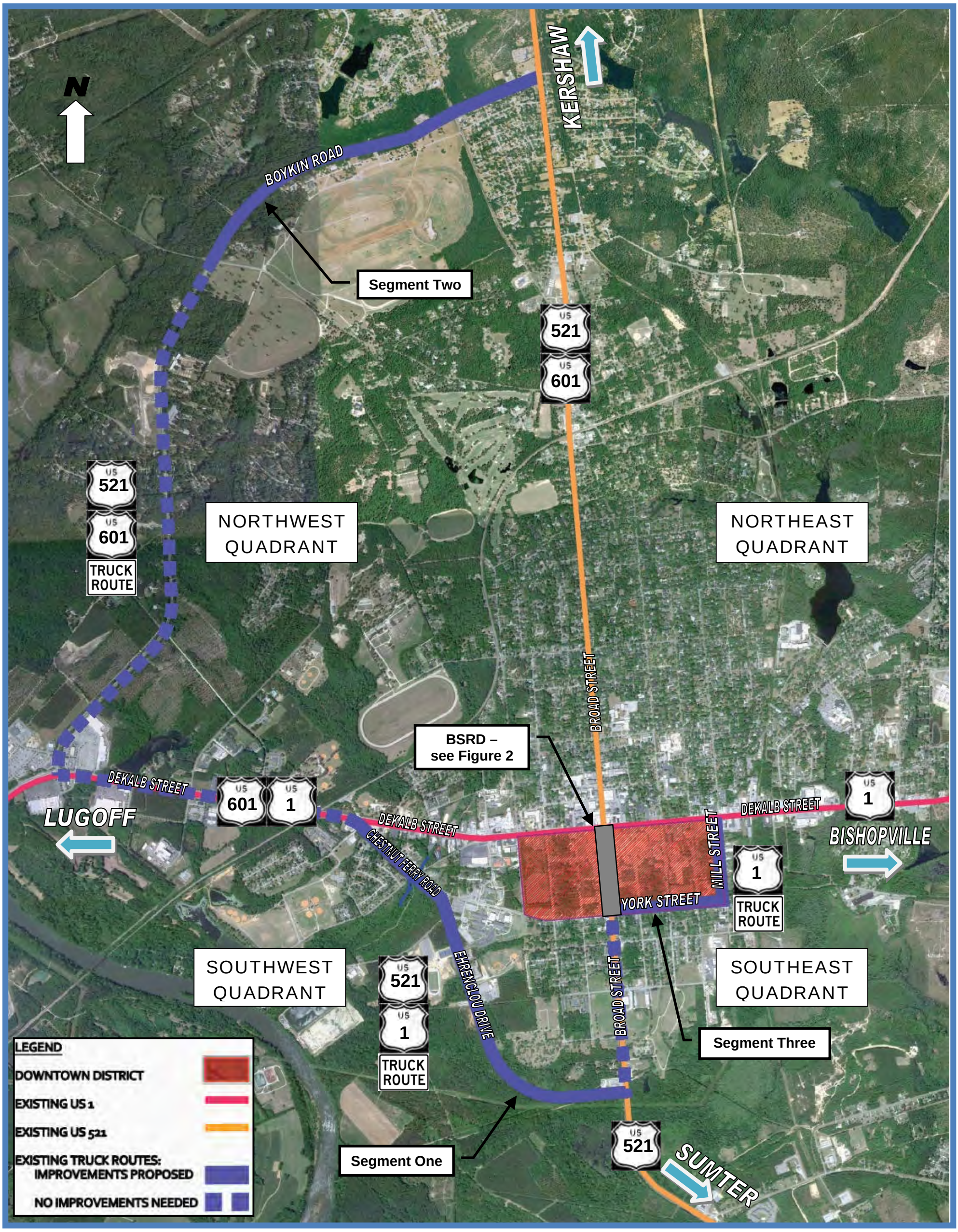


Figure 1: Existing Truck Routes and Project Vicinity Map
Camden, South Carolina

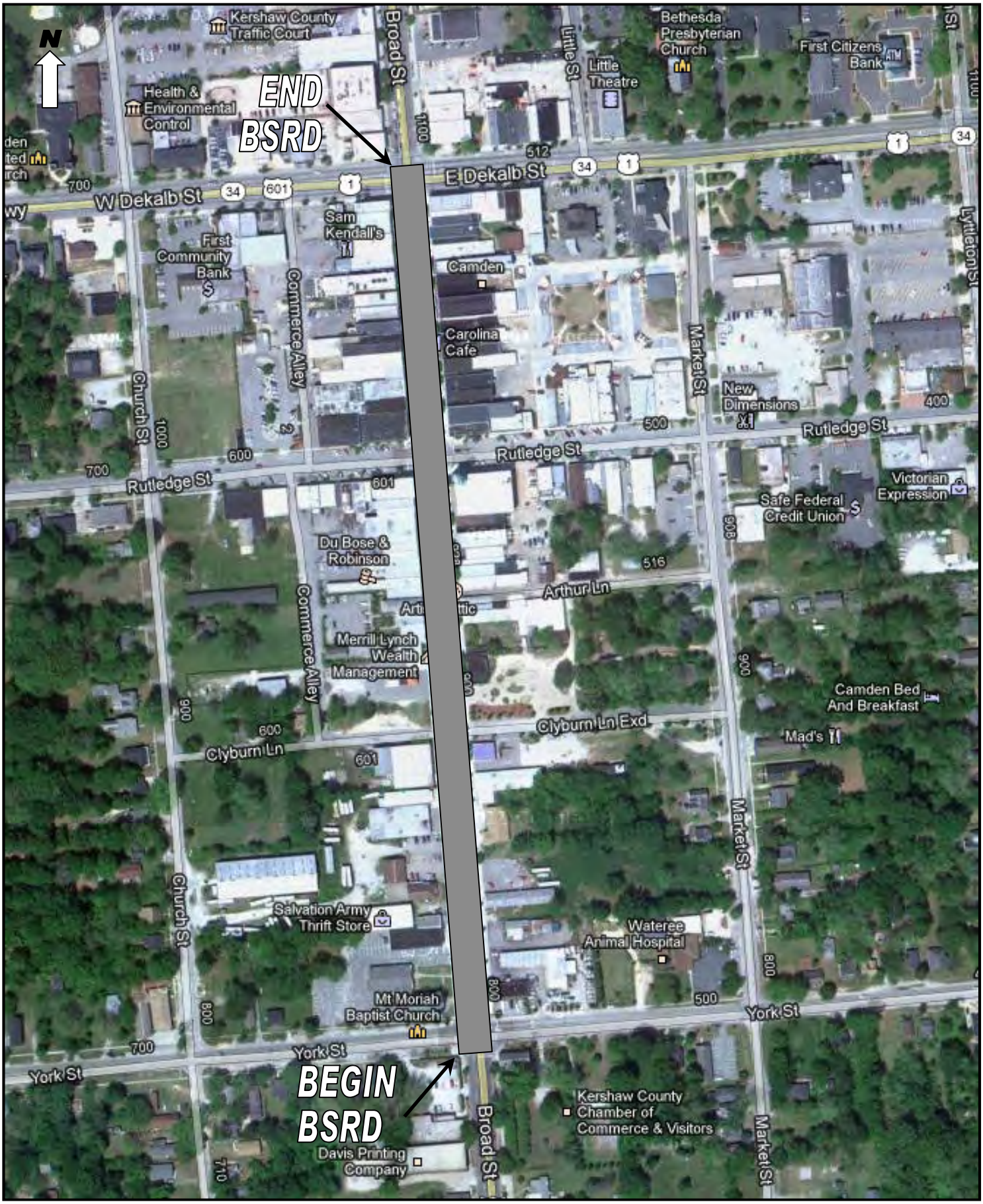
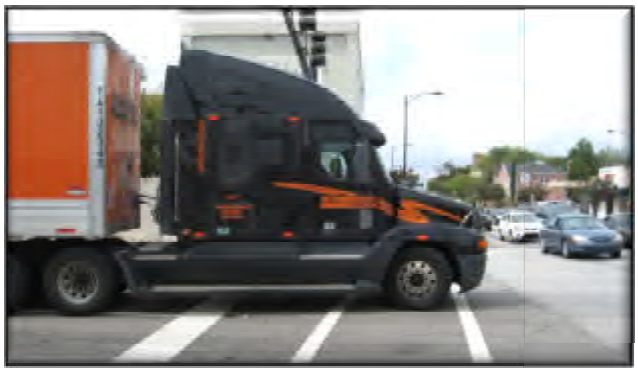


Figure 2: BSRD Location Map

II. WHAT IS THE PURPOSE AND NEED FOR THE PROJECT?

- *To create a more pedestrian-friendly environment on Broad Street between York Street and DeKalb Street in downtown Camden, SC.*

- *To reduce truck traffic on Broad Street between York Street and DeKalb Street in downtown Camden, SC.*



How are the Truck Route Improvements and the BSRD related?

In order to create a more pedestrian-friendly environment and to reduce truck traffic on Broad Street, operational improvements to the existing designated truck routes are needed to provide safe and efficient alternative routes for truck traffic. Operational improvements would encourage trucks to use the routes and include reducing delays and improving intersections. Because of the related purpose and need of the two projects, the environmental process required by the National Environmental Policy Act (NEPA) of 1969, has been combined.

How will the Project support the needs and goals of Camden?

A pedestrian-friendly environment and a reduction of truck traffic in downtown are needed in order to support plans for a revitalized downtown district as indicated in the Camden Vision Plan adopted in 2009 (Appendix N). Both the BSRD and truck route improvements are specifically mentioned in the vision plan as necessary to revitalize downtown Camden. Furthermore, the implementation of the project is expected to support multiple goals and policies listed in the City of Camden Comprehensive Plan, 2007-2017 (Appendix N) such as:

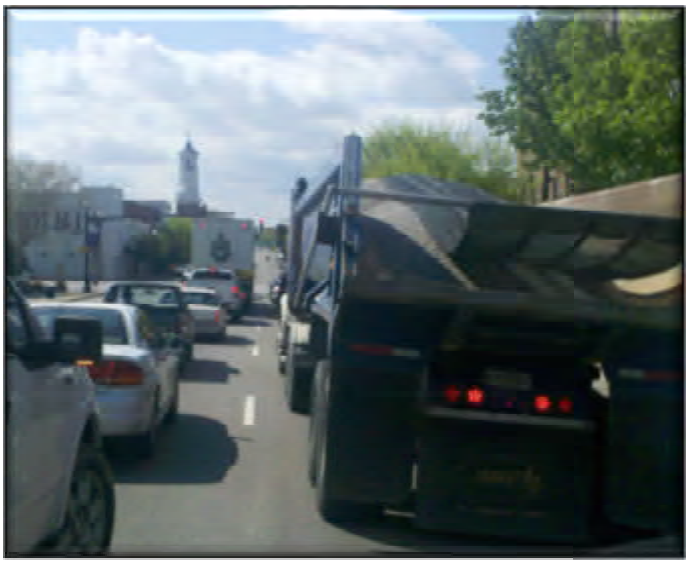
- Economic Goal-5: Strengthen the core commercial district of Camden (page 49)
- Land Use Goal-1: Make Camden the Preferred Place to live and visit in the Midlands (page 97)
- LU Goal 3: Sustain “livable” Environment (page 99)
- LU Goal 4: Foster Quality Development/ Enhance the Physical Image (page 100)
- LU Goal 6: Revitalize Buildings and Areas Vacated by Commerce (page 102)
- Transportation Goal/Policy: Promote the development of a By-pass connecting US521/US601 north of the City to US 1 and I-20 in order to remove pass through traffic and reduce congestion on local streets (pages 86 and 106)

In 2010, the City of Camden applied for and received a TIGER II planning grant from the US Department of Transportation (Appendix A) to study and prepare preliminary designs for the BSRD. The BSRD supports the vision for Camden by creating a more walkable and inviting streetscape that balances the need for pedestrian and vehicular access and is scaled more appropriately for the downtown district envisioned for this small but historically significant city. Current conditions along Broad Street are more conducive to accommodating through traffic than to serving local businesses, residents, and visitors to Camden.

What are the existing conditions on Broad Street and the truck routes?

Broad Street

Broad Street functions as the main north/south route through Camden (Figure 2). It is a designated US Highway (US 521) and is a Principal Arterial, linking I-20 and areas north of Camden. Currently, the approximately 0.36 mile section of Broad Street between York Street and DeKalb Street has four 11-foot travel lanes plus parallel parking and sidewalks on each side. Please refer to the existing facility cross sections included in Appendix C and to Table 1. Existing right-of-way (ROW) varies from 85 to 90 feet. The speed limit on Broad Street is 25 miles per hour (mph).



Truck Routes

The section of truck route identified for improvement in the Southwest Quadrant (Segment One) is approximately 1.7 miles (Figure 1). Segment One begins at US 521 (Broad Street), follows S-897 (Ehrenclou Drive), turns west on S-45 (Chestnut Ferry Road), and ends at US 1/US 601 (Dekalb Street). Segment One's functional classification is Urban Local for the S-897 segment and Minor Arterial for the S-45 segment. The existing cross section along Segment One consists mostly of two 12-foot lanes with between 3-10 foot earthen shoulders. Roadside ditches for drainage are located in some sections. Sidewalk segments are present at some locations along Chestnut Ferry Road. Please refer to the existing facility cross sections included in Appendix C and to Table 1. The intersection of Ehrenclou Drive and Chestnut Ferry Road is stop controlled with Chestnut Ferry Road being the through movement. The existing bridge over Bolton Creek on Chestnut Ferry Road was built in 1959 and has been determined to be both structurally deficient and functionally obsolete.[1] The existing ROW on Ehrenclou Drive is primarily 120 feet but is 135 feet near its intersection with US 521/Broad Street. The existing ROW on Chestnut Ferry Road is 66 feet. Beginning at US 521 the speed limit is 45 mph on Ehrenclou drive until it approaches Camden High School where it becomes 35 mph. The speed limit is 35 mph on Chestnut Ferry Road.

The section of the truck route identified for improvement in the Northwest Quadrant (Segment Two) is approximately 1.6 miles long (Figure 1). Segment Two begins at Knights Hill Road and follows S-130 (Boykin Road) to end at US 521/601. Segment Two's functional classification is Minor Arterial. The existing cross section along Segment Two consists mostly of two 11-foot lanes with 3-foot earth shoulders or valley gutter shoulders. A sidewalk is present on the south side of Boykin Road between SC-97 (Liberty Hill Road) and US 521/US 601. Please refer to the existing facility cross sections included in Appendix C and to Table 1. Existing ROW along Boykin Road is 120 feet. The speed limit is 40 mph.

[1] 2008 SCDOT Structure Inventory and Appraisal Report (Appendix G)

The section of the truck route identified for improvement in the Southeast Quadrant (Segment Three) is approximately 0.8 miles long (Figure 1). Segment Three begins at US 521 (Broad Street), follows S-45 (York Street), and currently turns north on S-79 (Mill Street), and ends at US 601/ US 1 (Dekalb Street). Segment Three's functional classification is Minor Arterial. The existing cross section along Segment Three varies from two 11-foot lanes with valley gutter shoulders on Mill Street to two 22-foot lanes with valley gutter shoulders on York Street. Sidewalks are also present along the north side of York Street between Broad Street and Market Street and between Fair Street and Mill Street. Please refer to the existing facility cross sections included in Appendix C and to Table 1. The existing ROW on York Street is 90 feet according to SCDOT dockets; however, east of Mill Street Kershaw County records indicated the ROW reduces to 30 feet. The existing ROW along Mill Street is 90 feet. The speed limit is 30 mph on both York Street and Mill Street.

The proposed alignment for Segment Three will follow a modified route extending the truck route along York Street east of Mill Street, creating new alignment to tie in with the existing Rippondon Street, and following Rippondon Street to US 1/Dekalb Street. The cross section of York Street, east of Mill Street, consists of two 12-foot lanes with 6-foot earthen shoulders. The cross section of Rippondon Street consists of two 11-foot lanes with 6-foot earthen shoulders. The existing ROW along Rippondon Street is 100 feet. Please refer to the existing facility cross sections included in Appendix C and to Table 1 at the end of this section.

What types of improvements are proposed?

Broad Street Road Diet

The BSRD project will reduce the travel lanes to two 12-foot travel lanes with parking on both sides of Broad Street/US 521 between York Street and Dekalb Street. Some parking will be converted from parallel parking to angled parking. Additionally, left turn lanes in both the east and west directions will be added at intersections. The sidewalk widths will be expanded and medians will be provided in some locations. Streetscape and landscape design will also be utilized on this section of Broad Street to encourage pedestrian and street level retail activity.

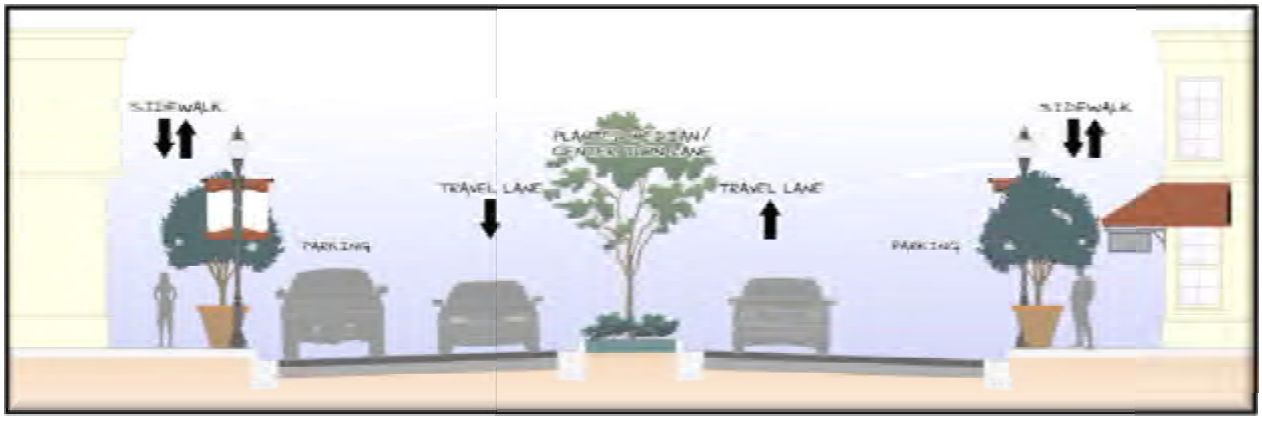


Figure 3: BSRD Conceptual Typical Section

Please refer to the BSRD Technical Memorandum in Appendix E and to the Preferred Alternative section of this document for additional details on the proposed BSRD design. The reader may also refer to the proposed facility cross sections included in Appendix D and to Table 1 at the end of this section.

Truck Routes

The truck routes will be designed as Urban Minor Arterials and will generally be improved by adding a 15-foot center two-way turn lane, sidewalks, bike lanes, curb, and gutter in developed areas of the alignment. Please refer to Figure 4.

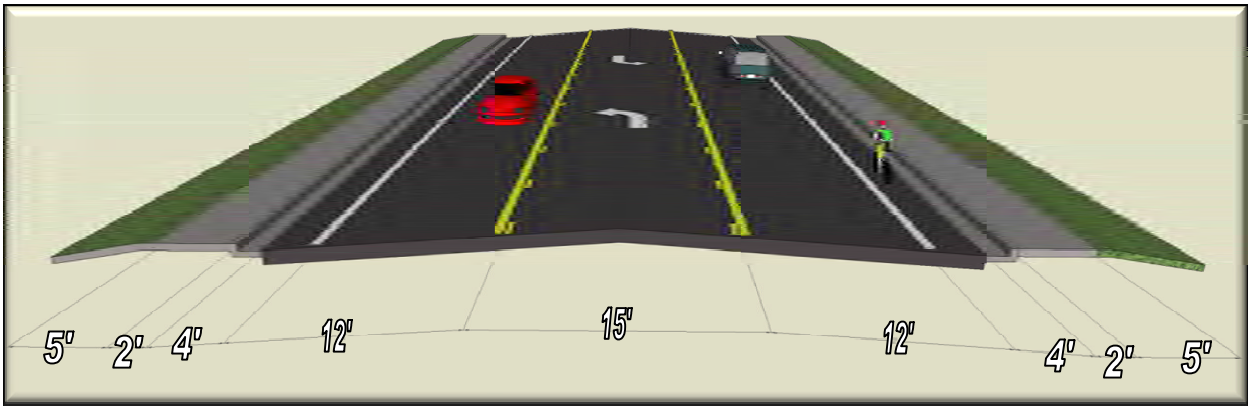


Figure 4: Urban Minor Arterial Typical Section

The project will increase lane widths to 12 feet and add a paved shoulder for bicyclists and emergency use through the undeveloped/wetland areas where there are no significant turning movements to justify a center turn lane. Turn bays will be added for isolated side streets or driveways where warranted. Please refer to Figure 5.

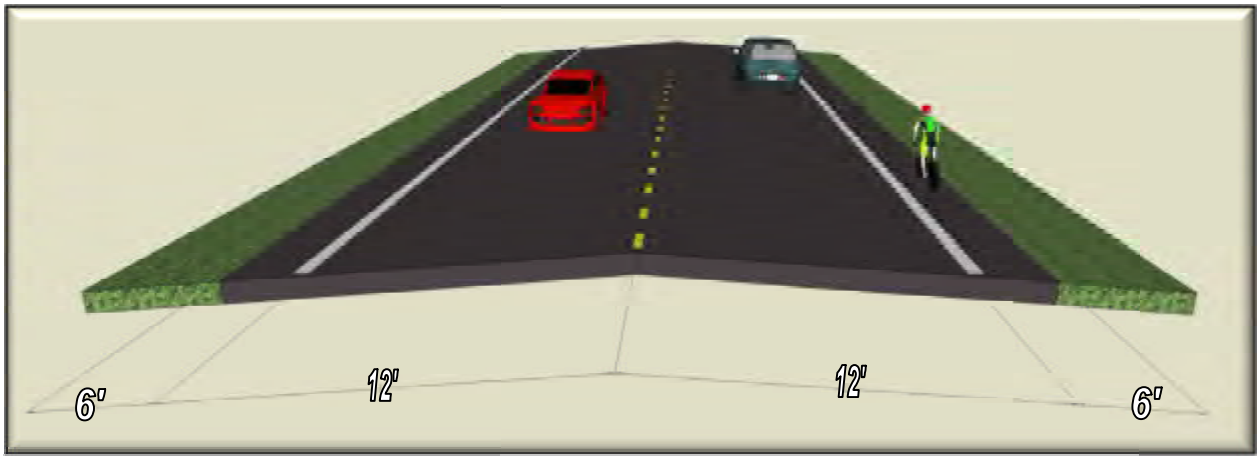


Figure 5: Rural Minor Arterial Typical Section

The reader may also refer to the proposed facility cross sections included in Appendix D and to Table 1 for specific improvements to each roadway segment.

Intersections and roadway alignments will also be improved to meet SCDOT design standards[2], as described in the Preferred Alternative section of this document.

[2] http://www.scdot.org/doing/preconstruction.shtml, (06/04/12)

Table 1: Existing and Proposed Typical Sections

Road Sections	Description of Location	Existing Typical Section			Existing X-sec Width (ft)	ProposedTypical Section			Proposed X-sec Width (ft)
		Quantity	Type	Width (ft)		Quantity	Type	Width (ft)	
Broad	York to DeKalb	4	Travelways	11	90	1	Turnlane/ Median	12	90
		2	Parallel	8		2	Travelways	12	
		2	Curb and Gutter	2		2	Parallel and Angled Parking	10	
		2	Sidewalk	13		2	Curb and Gutter	2	
						2	Sidewalks	15	
Ehrenclou	South (Through Wetlands and Floodplain)	2	Travelways	12	36	2	Travelways	12	44
						2	Multi-Use Paved Shoulder	6	
		2	Earth Shoulder	6		2	Earth Shoulder	4	
Ehrenclou	North	2	Travelways	12	36	1	Turnlane	15	63
						2	Travelways	12	
						2	Bikepath	4	
						2	Curb and Gutter	2	
		2	Earth Shoulder	6		2	Sidewalks	5	
						2	Earth Shoulder	1	
Chestnut Ferry	At Old River Road Intersection	2	Travelways	11	34	1	Turnlane	15	63
						2	Travelways	12	
						2	Bikepath	4	
		2	Earth Shoulder	6		2	Curb and Gutter	2	
						2	Sidewalks	5	
						2	Earth Shoulder	1	
Boykin	(Knights Hill-Liberty Hill)	2	Travelways	11	28	2	Travelways	12	44
						2	Paved Shoulder+	6	
		2	Earth Shoulder	3		2	Earth Shoulder	4	
Boykin	(Recycling Center-Broad)	2	Travelways	11	28	1	Turnlane	15	63
						2	Travelways	12	
						2	Bikepath	4	
		2	Earth Shoulder	3		2	Curb and Gutter	2	
						2	Sidewalks	5	
						2	Earth Shoulder	1	

Table 1: Existing and Proposed Typical Sections (Cont.)

Road Sections	Description of Location	Existing Typical Section			Existing X-sec Width (ft)	ProposedTypical Section			Proposed X-sec Width (ft)
		Quantity	Type	Width (ft)		Quantity	Type	Width (ft)	
York	(Broad-Mill.)	2	Travelways	20	44	1	Turnlane	15	63
						2	Travelways	12	
						2	Bikepath	4	
		2	Valley Gutter	2		2	Curb and Gutter	2	
						2	Sidewalks	5	
						2	Earth Shoulder	1	
York	East of Mill to New Alignment	2	Travelways	20	44	1	Turnlane	15	53
						2	Travelways	12	
						1	Sidewalks	5	
		2	Valley Gutter	2		2	Curb and Gutter	2	
						2	Bikepath	4	
						2	Earth Shoulder	1	
New Alignment	Between York and Rippondon	Does Not Exist			0	1	Turnlane	15	58
						2	Travelways	12	
						1	Sidewalks	5	
						2	Curb and Gutter	2	
						2	Bikepath	4	
						2	Earth Shoulder	1	
Rippondon	South of DeKalb	2	Travelways	11	34	1	Turnlane	15	58
						2	Travelways	12	
						1	Sidewalks	5	
						2	Bikepath	4	
		2	Earth Shoulder	6		2	Curb and Gutter	2	
						2	Earth Shoulder	1	

Why do the truck routes need to be improved?

Delays and Congestion

Trucks seeking to use Segment One in the Southwest Quadrant of the existing designated truck route currently experience significant delays from vehicles slowing or stopped to make left turning movements and at the northern terminus of S-897 (Ehrenclou Drive), where trucks must stop and wait to make a left turn onto S-45 (Chestnut Ferry Road). Delays experienced at the Ehrenclou/York/Chestnut Ferry intersection currently equate to Level of Service (LOS) E for northbound lefts (the truck movement) and are projected to worsen to LOS F by 2035. Numerous driveways (14) and side street access points along developed portions of the route add to the congestion and increase the potential for rear end collisions whenever left turning vehicles must stop and wait for an acceptable gap to complete the turn. As such a two-way center turn lane is needed in the developed portion of the route.[3] Areas passing through wetlands in the southern portion of the alignment are unlikely to be developed and no center turn lane is warranted in these areas.

Trucks seeking to use Segment Two in the Northwest Quadrant of the existing designated truck route currently experience significant delays from vehicles slowing or stopped to make left turning movements and at the northern terminus of Boykin Road, where trucks must stop at a stop sign and wait to make a left turn onto US 521. Delays experienced along the existing truck route are most prevalent at the US 521/Boykin/Cool Springs intersection where existing delays equate to LOS E for the eastbound truck movement and are projected to worsen to LOS F by 2035. Numerous driveways (20) and two side street access points along the route between Liberty Hill Road and US 521 add to the congestion and increase the potential for rear end collisions whenever left turning vehicles must stop and wait for an acceptable gap to complete the turn. As such a two-way center turn lane is needed in this portion of the route. There are only two significant access points between Knights Hill Road and Liberty Hill Road including one side street (Sunnyhill Drive) and one major driveway (Springdale Drive Recycling Center). Three driveways into the Springdale race course on the south side of the road are closed to normal traffic. Turn lanes are already installed at the Knights Hill and Liberty Hill intersections. Based on the afternoon peak hour lefts and 2035 projected opposing and advancing volumes, turn lanes are warranted at Sunnyhill Drive and at the recycling center.[3]

Trucks seeking to use Segment Three in the Southeast Quadrant of the existing designated truck route currently experience significant delays from vehicles slowing or stopped to make left turning movements and at the stop controlled intersection of York Street and Mill Street. Delays experienced along the existing truck route are considerable at several locations, including all three major intersections: US 521/York St, York St/Mill St, and Mill St/US 1. Existing delays in excess of 200 seconds per vehicle are experienced for westbound lefts at US 521 and for northbound lefts at US 1. Numerous driveways (54) and side street access points along the

[3] Traffic Study (Appendix N)

route between US 521 (Broad Street) and US 1 (DeKalb Street) add to the congestion and increase the potential for rear end collisions whenever left turning vehicles must stop and wait for an acceptable gap to complete the turn. As such a two-way center turn lane is needed in along the route.[4]

Safety

Safety is a major concern along the truck routes. Fifteen crashes with seven involving injuries were reported along the Chestnut Ferry Road portion Segment One from 2004 to 2007.[5] Although no crashes or injuries were reported along the Ehrenclou Drive portion of the truck route, the alignment passes between the Camden High School and an athletic complex. Students need to cross Ehrenclou Drive to access the athletic complex and a suitable crossing is necessary. Seventeen crashes with eight involving injuries were reported along Segment Two (Springdale Drive/Boykin Road) from 2004 to 2007.[5] The addition of a center turn lane and upgrades to meet clear zone requirements will decrease the chances of collisions and the addition of sidewalks and provisions for bicyclists will increase pedestrian safety. Twenty-one crashes with eight involving injuries were reported along the York Street portion of Segment Three from 2004 to 2007.[5] The addition of a center turn lane and will decrease the chances of rear-end collisions and the addition of sidewalks and bike lanes will increase pedestrian safety.

Design Standard Deficiencies

The truck routes do not currently meet SCDOT design standards[6] for Minor Arterials or for roadways with heavy truck traffic. On the existing Segment One alignment there are no paved shoulders on Ehrenclou Drive or Chestnut Ferry and lane widths are substandard (11 feet) on Chestnut Ferry Road. On the existing Segment Two alignment there are no paved shoulders, lane widths (11 feet) are substandard, and clear zone requirements are not met. On the existing Segment Three alignment turn radii are insufficient for heavy truck movements at the York/Mill and Mill/DeKalb Street intersections.

In addition, the bridge located on Chestnut Ferry Road over Bolton Branch Creek (Structure #0002870004500100) is functionally obsolete and structurally deficient[7] and heavy trucks (greater than 33 tons) are not allowed to use the bridge. Over the long term, further use by medium trucks will eventually deteriorate the bridge beyond its usable capacity.

[4] Traffic Study (Appendix N)
[5] Advanced Project Planning Report (Appendix N)
[6] http://www.scdot.org/doing/preconstruction.shtml, (06/04/12)
[7] 2008 SCDOT Structure Inventory And Appraisal Report (Appendix B)

How were the limits of the Project established?

The Department, in partnership with the SLRCOG, evaluated the existing designated truck routes for US 1 and US 521 (Figure 1) in an Advanced Project Planning Report (APPR), dated February 2009 (Appendix N). The APPR identified three sections of the existing truck routes for improvements: Segment One in the Southwest Quadrant, Segment Two in the Northwest Quadrant and Segment Three in the Southeast Quadrant. There is no existing designated truck route in the Northeast Quadrant and trucks seeking to travel from US 1 East to US 521 North or from US 521 North to US 1 East would not pass through the BSRD. Furthermore, it is estimated that only about 10 trucks per day make this movement[8] and therefore no improvements in the Northeast Quadrant have been proposed.

The BSRD project begins at York Street, ends at DeKalb Street, and is approximately 0.36 mile long. These limits have been identified as the rational end points of the project based on the fact that DeKalb and York streets make up the northern and southern boundary of the City of Camden Downtown District, respectively, as identified in the Camden Vision Plan (Appendix N). Furthermore, the extent of the BSRD falls within the area bypassed by the US 1 and US 521 designated truck routes. Please refer to Figure 6.

The Southwest Quadrant of the truck route is intended to allow trucks to bypass the downtown district of Camden when the desired route is from the south of Camden (I-20) to the west of Camden or vice versa. US 521 and US 1/US 601 are both principal arterials. Therefore, the rational end points for improvements to Segment One in the Southwest Quadrant would be US 521 south of the downtown district along and US 1/US 601 west of the downtown district. Please refer to Figure 6.

The Northwest Quadrant of the truck route is intended to allow trucks to bypass the downtown district of Camden when the desired route is from the west of Camden to the north of Camden or to continue on from the Southwest Quadrant to the north of Camden or vice versa. The Northwest Quadrant of the existing truck route extending from US 1/US 601 along Springdale Drive to Knights Hill Road is currently a four lane section with a grassed median. This section of the existing truck route was not identified for any needed improvements in the APPR (Appendix N). US 1/US 601 is a principal arterial. Therefore, the rational end points for the improvements to Segment Two in the Northwest Quadrant would be the Knights Hill Road intersection in the southwest and US 1/US 601 in the northeast. Please refer to Figure 6.

The Southeast Quadrant of the truck route is intended to allow trucks to bypass the downtown district of Camden when the desired route is from the south of Camden to the east of Camden or vice versa. US 521 and US 1 are both principal arterials. Therefore, the rational end points for improvements to Segment Three in the Southeast Quadrant would be US 521 south of the downtown district and US 1 east of the downtown district. Please refer to Figure 6.

The combined project improvements will provide for a complete bypass of the BSRD and the downtown district of Camden suitable for heavy truck traffic. The logical termini for the project are of sufficient length to address environmental matters on a broad scope, do not depend on other transportation improvements being made in the area, and do not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

[8] Traffic Study (Appendix N)

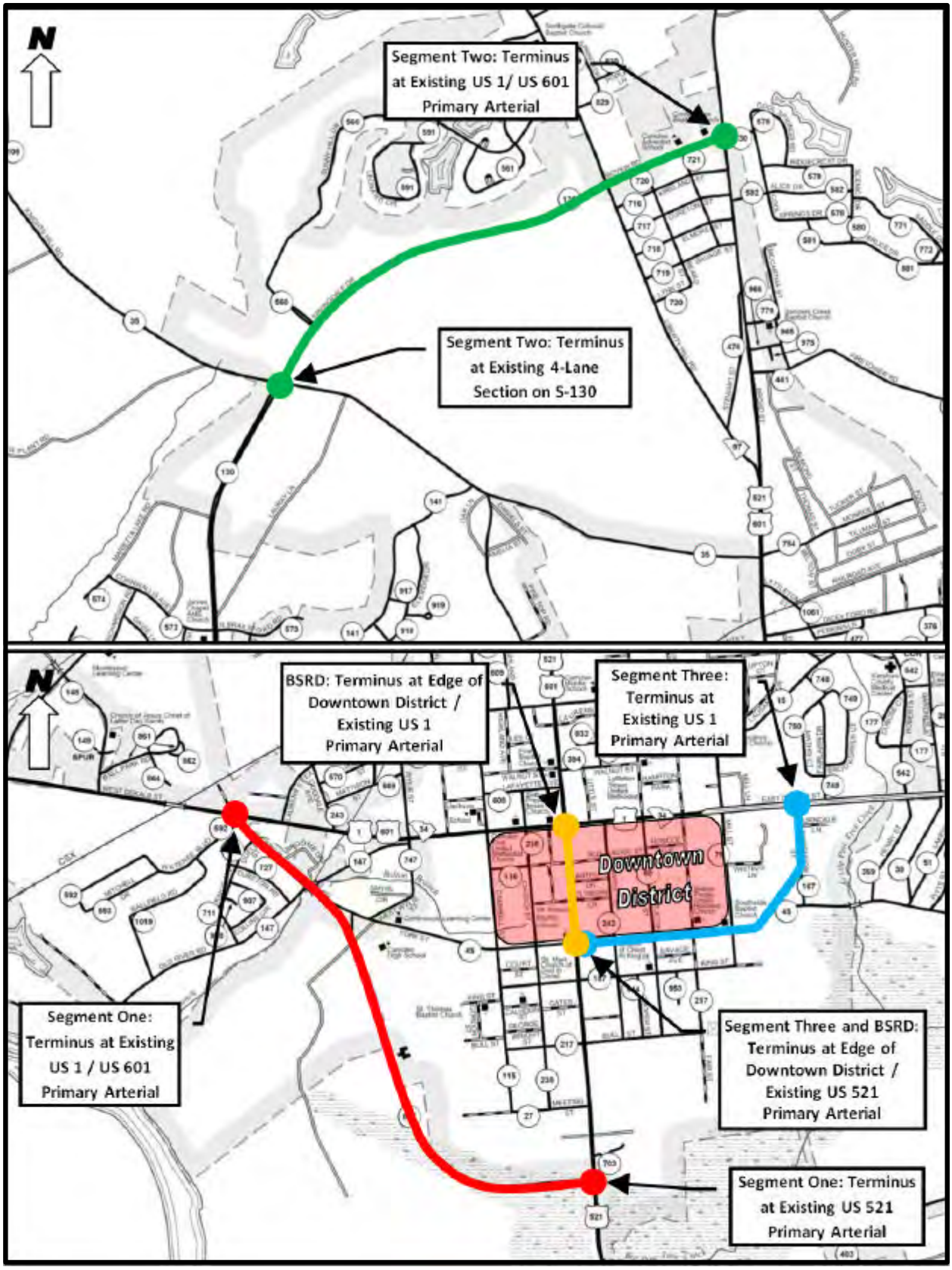


Figure 6: Project Limits (Logical Termini)

How were traffic conditions evaluated?

The methodology used in the study for assessing the quality of traffic flow is the methodology described in the 2000 Highway Capacity Manual[9] (HCM), Transportation Research Board. In general, the HCM expresses quality of flow in terms of Level of Service (LOS). The types of transportation facilities which were examined in the study are signalized and unsignalized intersections and mid-block two-lane "highway" segments.

The criteria for the signalized intersection LOS are shown in Table 2, and the criteria for the unsignalized intersection LOS are shown in Table 3. The variable used is control delay. This is the delay attributed to traffic control measures and includes deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Usually, at a signalized intersection LOS D is considered the lowest acceptable overall LOS. It is not unusual, however, for a side street at an unsignalized intersection to experience LOS E or F during the peak hour.

Table 2: Signalized Intersection Level of Service (LOS) Criteria

Level of Service	**Control Delay Range** (seconds/vehicle)
A	<10
B	>10 and <20
C	>20 and <35
D	>35 and <55
E	>55 and <80
F	>80

Table 3: Unsignalized Intersection Level of Service (LOS) Criteria

Level of Service	**Control Delay Range** (seconds/vehicle)
A	< 10
B	>10 and <15
C	>15 and <25
D	>25 and <35
E	>35 and <50
F	>50

Between the intersections, the quality of operation depends on factors such as traffic volumes, the number of lanes, and the access requirements of the road. While the HCM provides a methodology for assessing the operation of urban streets, the contexts along the truck routes are a mixture of urban, suburban, and rural environments. Therefore, there is not a specific mid-block analysis which applies to a two-lane street. Because the point of the mid-

[9] http://www.trb.org/Main/Blurbs/152169.aspx

block analysis is to check the sufficiency of one through lane in each direction, the two-lane highway analysis for a Class II highway was used as a guide of segment operations. The basis for LOS for two-lane highways is percent time following, and the criteria are shown in Table 4.

Table 4: Two-Lane Highway Level of Service (LOS) Criteria

Level of Service	Control Delay Range (seconds/vehicle)
A	< 40
B	>40 and <55
C	>55 and <70
D	>70 and <85
E	>85
F	Where volume exceeds capacity

What is the existing and proposed Level of Service on Broad Street?

The capacity of Broad Street in downtown is controlled by the DeKalb Street/Broad Street intersection. This intersection currently operates with split phases on Broad Street. This was most likely implemented to address the lack of left turn lanes on Broad Street at the intersection. Because the road diet geometry will provide left turn lanes at this intersection, the split phasing can be removed with the implementation of the project.

As shown in Table 5 for the afternoon peak hour, the Broad/DeKalb intersection currently operates overall at LOS E. Implementation of the road diet project and removing the split phases, would improve overall LOS from E to D with under current traffic volumes. When considering 2035 projected traffic volumes, the overall LOS and delay under the road diet geometry would be the same as under existing geometry. However, delay for the northbound through/right would be high. A northbound right turn lane (NBRTL) could be implemented prior to 2035 to reduce this delay.

Table 5: Capacity Analysis Results, Dekalb Street/Broad Street - Afternoon Peak Hour

Movement	2010		2035		
	Existing Geometry	Road Diet No Split	Existing Geometry	Road Diet No Split	RD No Split Add NBRTL
	LOS/Delay	LOS/Delay	LOS/Delay	LOS/Delay	
EB - Left	C/22	C/24	D/54	D/54	D/54
Through/right	E/56	E/60	F/203	F/203	F/203
WB - Left	D/42	D/53	F/110	F/110	F/110
Through/right	D/36	D/38	F/97	F/97	F/97
NB – Left		C/21		C/26	C/26
(Left)/through/(right)	F/91	F/103	F/291	F/420	F/164
Right					A/10
SB – Left		C/29		D/51	D/46
(Left)/through/right	E/66	D/40	F/163	F/86	F/86
Overall	E/56	D/54	F/174	F/174	F/128

What are the existing and proposed Levels of Service on the Truck Routes?

The capacity of the truck route segments were evaluated for mid-block operations in accordance with the LOS criteria presented in Table 4. The two-lane highway analyses were conducted for existing volumes and geometry for reference and for 2035 volumes with an improved two-lane section (2 12-foot lanes and 6 foot shoulders) to check future adequacy of one through lane in each direction. As shown in Table 6, all segments can operate acceptably mid-block in 2035 with one through lane in each direction. The need for a two-way center turn lane or turn bays at specific intersections will be addressed separately.

Table 6: Capacity Analysis Results, Two-Lane Highway Truck Route Roadway Segments

Segment	Morning Peak Hour		Afternoon Peak Hour	
	2010 Volumes Existing Geometry	2035 Volumes Improved 2-lane	2010 Volumes Existing Geometry	2035 Volumes Improved 2-lane
	LOS	LOS	LOS	LOS
Segment One				
Chestnut Ferry				
DeKalb-Ehrenclou	C	D	C	D
Ehrenclou				
Chestnut Ferry-Broad	C	C	C	C
Segment Two				
Boykin				
Knights Hill-Liberty Hill	C	D	C	D
Liberty Hill-Broad	C	C	C	C
Segment Three				
York				
Broad-Mill	C	D	C	D
Mill-Rippondon	D	D	C	C
Rippondon				
York-DeKalb	B	C	A	B

How is traffic expected to change over time and due to the Project?

The Average Daily Traffic (ADT) volumes for each section of roadway evaluated and the anticipated re-routing of truck traffic among the roadway sections are listed in Table 7. Future traffic volumes were projected based on a 1.5% growth rate. The number of heavy trucks on each roadway under the existing condition (2010) is shown on Figure 7 and the expected redistribution of heavy trucks under the first year of operation (2015) is shown on Figure 8.

Table 7: Average Daily Traffic Volumes and Truck Percentages

Roadway Segment	2010 Existing				2015 First Operation Year				2035 Design Year			
	ADT	24 Hr Hvy Tr	Truck %		ADT	24 Hr Hvy Tr	Truck %		ADT	24 Hr Hvy Tr	Truck %	
			Med.	Heavy			Med.	Heavy			Med.	Heavy
Broad (York to Dekalb)	7,100	170	8	2	7,500	0	8	0	10,100	0	8	0
Ehrenclou (Broad to Chestnut)	4,200	120	9	3	4,800	450	8	9	6,500	610	8	9
Chestnut (Ehrenclou to Dekalb)	6,700	120	6	2	7,500	400	6	5	10,200	540	6	5
Boykin (Knights Hill to Liberty Hill)	6,400	250	12	4	7,000	400	12	6	9,500	540	12	6
Boykin (Liberty Hill to US 521)	4,600	340	23	7	5,100	500	23	10	6,900	670	23	10
York (Broad to Mill)	6,200	290	9	5	6,900	510	9	7	9,300	690	9	7
York (Mill to Rippondon)	5100*	150	6	3	5,600	480	6	9	7,500	650	6	9
Rippondon (York to DeKalb)	1200*	50	7	4	1,700	390	5	23	2,300	520	5	23

Note: Design year truck % adjusted to account for moving all but delivery trucks/buses from Broad Street to the truck routes
* 2012 24-hour volume

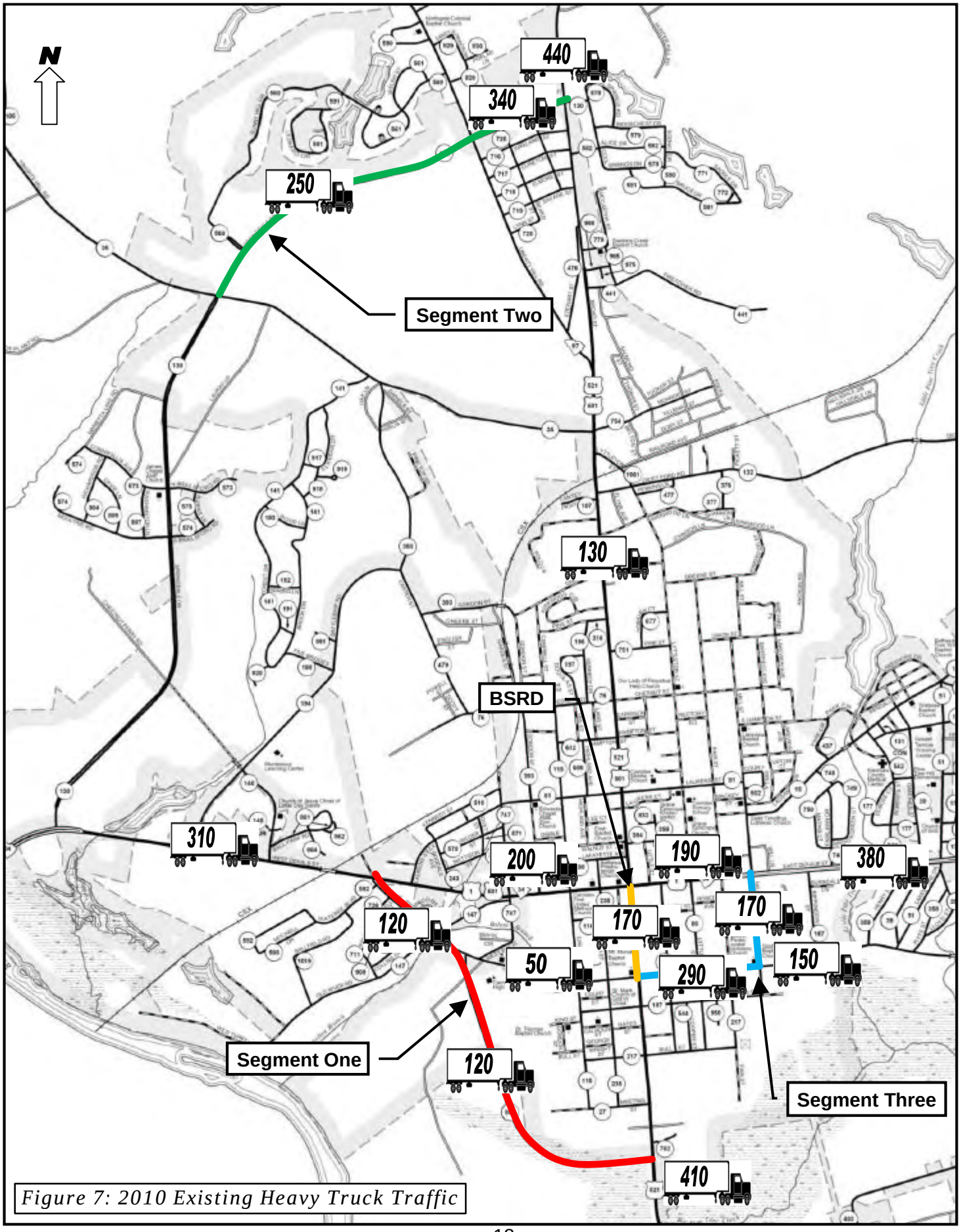


Figure 7: 2010 Existing Heavy Truck Traffic

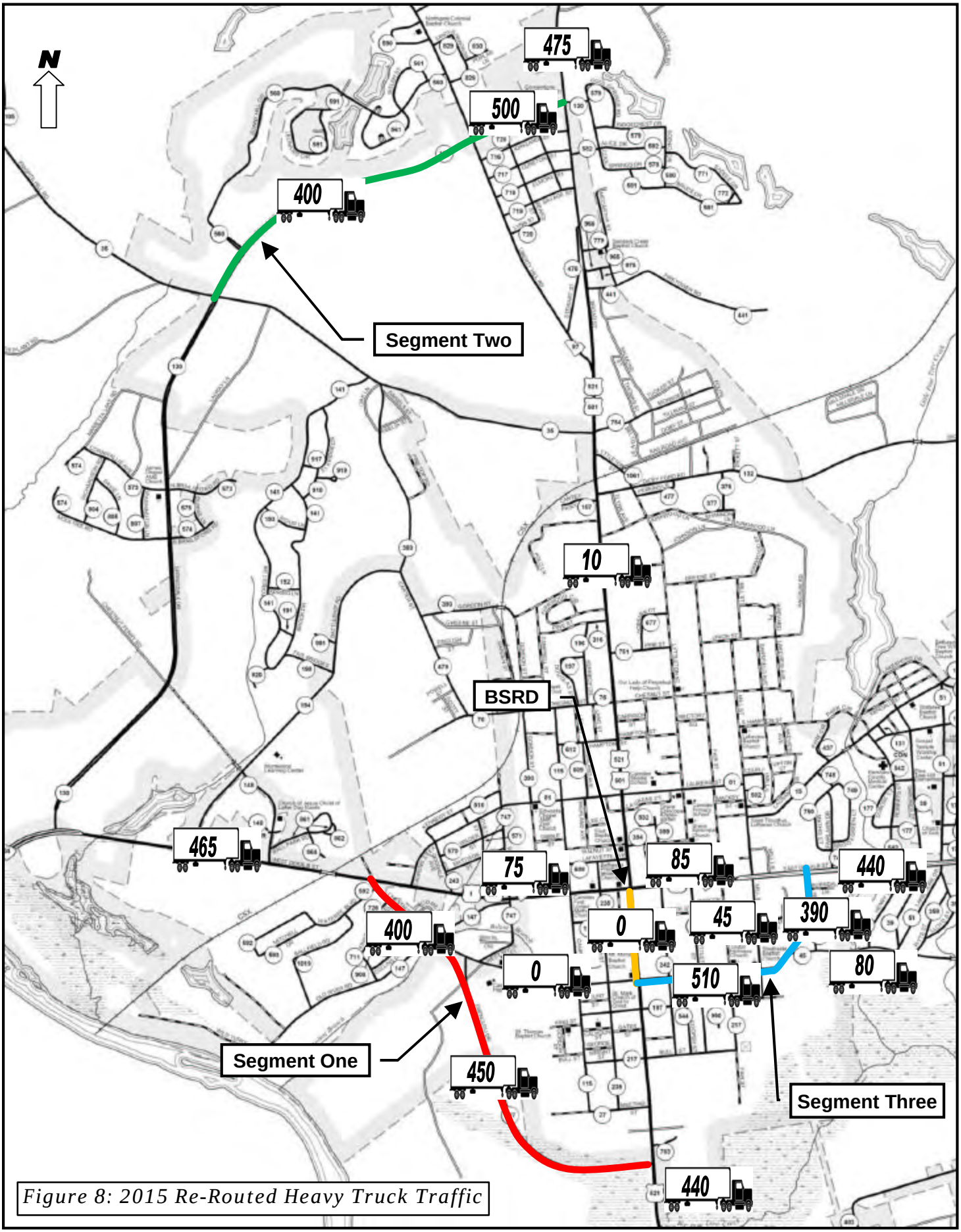


Figure 8: 2015 Re-Routed Heavy Truck Traffic

III. WHAT ALTERNATIVES WERE CONSIDERED?

The proposed "build" alternative is a combination of improvements to Broad Street, known as the BSRD, and of improvements to the designated US 1 and US 521 truck routes in Camden, South Carolina. The City of Camden developed and evaluated multiple alternatives for implementation of the BSRD. The Department also considered multiple location and design alternatives for each quadrant of the truck route. The preferred alternatives for each quadrant and for the BSRD were then combined to constitute the overall "build" alternative.

What alternatives were considered and eliminated?

Broad Street Road Diet

The City of Camden conducted a planning charrette for the BSRD on November 14-15, 2011 to engage the public in the development of the project. After the charrette, six alternatives were developed for the BSRD: Alternatives 1, 1A, 2, 2A, 3, and 4. Utilizing the guiding principles developed during the charrette Table 8), a matrix was created using a relative scoring system to compare the alternatives as shown in Table 9 in the Proposed Preferred Alternative section. Based on this evaluation Alternatives 3 and 4 were eliminated from consideration due to their relatively low ranking in comparison with the other alternatives.

Table 8: BSRD Guiding Principles

Safe and Functional

- Address source of congestion/bottleneck
- Consider potential for diverted traffic
- Coordinate with truck route
- Enhance access, mobility, and safety of all modes
- Allow for service, delivery, and emergency response
- Provide ADA accessibility

Inviting and Unique

- Provide a walkable environment that fosters pedestrian activity
- Create a "place to be" attracting citizens and visitors alike
- Celebrate history
- Enhance attractive, charming character
- Provide access to parking opportunities
- Establish defined zones and focal points

Vibrant and Viable

- Provide an environment that encourages people to come, stay, work, and play – 24/7 destination
- Enhance opportunities for business retention and attraction
- Increase shop-ability
- Foster personal and civic pride

Alternatives 1, 1A, 2, and 2A were presented to stakeholders at two separate meetings held on January 17, 2012 at 1034 Broad Street and to the public at the Public Information Meeting (PIM) held on January 24, 2012 at Camden High School. Based on the guiding principles established during the public planning charrette, alternative evaluation, public comments received, and probable cost, Alternatives 1, 2, and 2A were also eliminated. Please refer to exhibits of the various alternatives and a full presentation of the BSRD alternative evaluation process included in the Broad Street Road Diet Technical Memorandum, dated May 2, 2012 (Appendix E)

Southwest Quadrant

The Department developed multiple design and location alternatives for the improvement of the truck route in the Southwest Quadrant: Alternatives SW-1 (Ehrenclou to Chestnut Ferry), SW-2 (York to Chestnut Ferry) and SW-3 (York to Gordon). Please refer to Figure 9.

Alternatives SW-1, SW-2, and SW-3 were presented to the public at the PIM held on January 24, 2012 at Camden High School.

Alternatives SW-2 and SW-3 both utilized York Street to replace the Ehrenclou Drive portion of the existing truck route in order to minimize wetland impacts; however, these alternatives were eliminated based on public opposition and the unacceptable social impacts and potential safety concerns of the truck route coinciding with the primary walking and driving route used by students to access Camden High School. Please refer to Table 10 in the Proposed Preferred Alternative section for a comparison of the Southwest Quadrant Alternative impacts as estimated during preliminary analysis.

Multiple variations of Alternative SW-1, following the existing truck route, were also evaluated. The Sub-Alternate SW-1.1 (widen around the center), SW-1.2 (widen right), and SW-1.3 (widen left) variants of this alternative were eventually eliminated and a best fit configuration was created to minimize impacts to the human and natural environment.

A full presentation of the Southwest Quadrant alternative evaluation process is included in the Camden Truck Routes Technical Memorandum, dated May 8, 2012 (Appendix F).

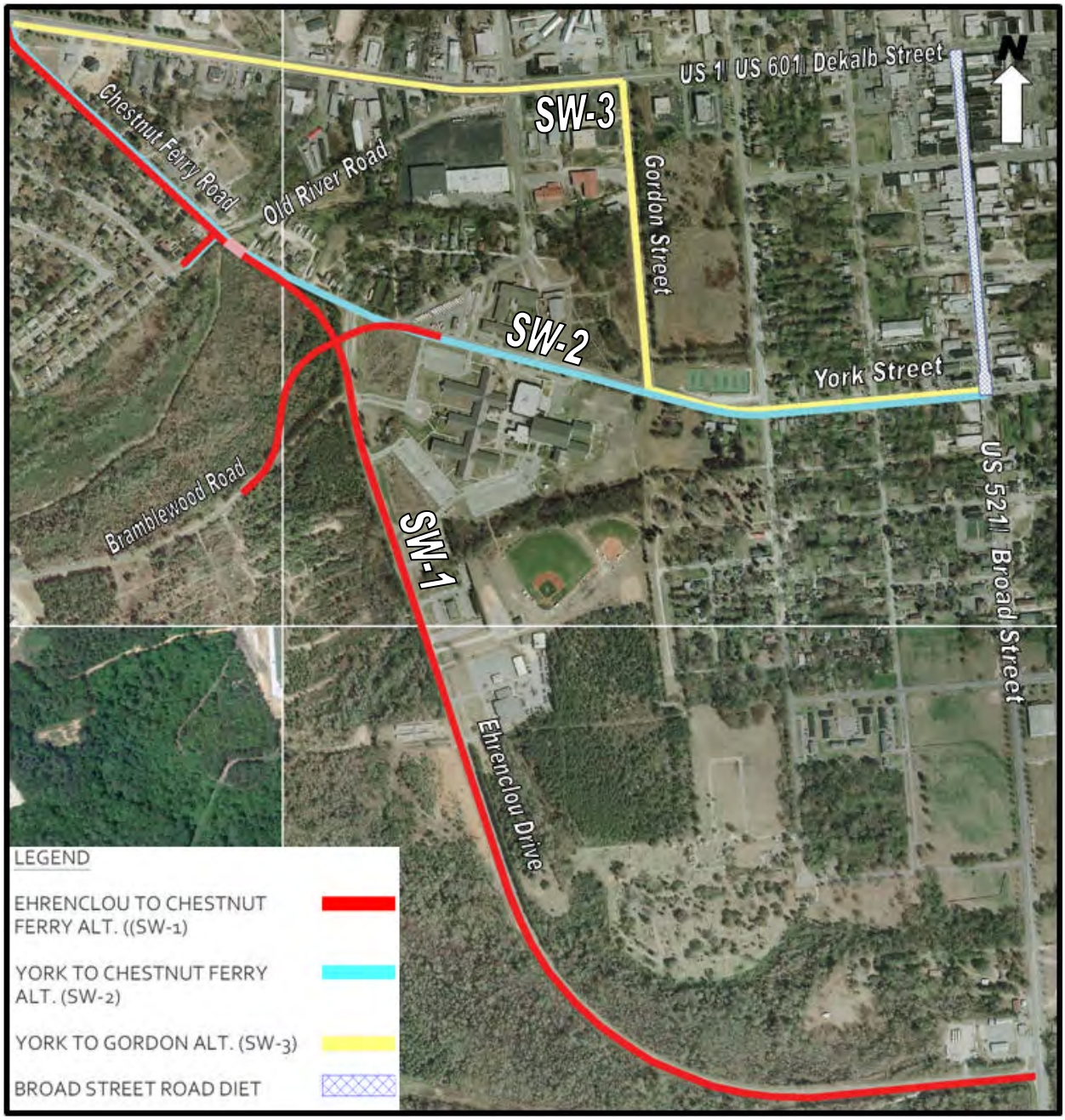


Figure 9: Southwest Quadrant Alternatives

Northwest Quadrant

The Department developed multiple design and location alternatives for the improvement of the truck route in the Northwest Quadrant: Alternatives NW-1 (5-lane section), NW-2 (3-lane section), and NW-3 (Partial 3-Lane Widening). Please refer to Figure 10.

Alternative NW-1 was originally suggested in the APPR (Appendix N); however, traffic analysis of intersection capacity and mid-block operations indicated a 3-lane section was capable of handling design year (2035) traffic with a LOS C and without significant delays (Table 6). This alternative was eliminated because it would cost more, require more ROW acquisition, and have more impacts to the human and natural environment than a 3-lane section.

Only Alternative NW-2 was presented to the public at the PIM held on January 24, 2012 at Camden High School.

Alternative NW-2 and sub-alternates NW 2.1 (widen around the center), NW-2.2 (widen right), and NW-2.3 (widen left) were eventually eliminated since the need for a full center turn lane between Knights Hill Road and Liberty Hill Road was not supported in this section due to the presence of only one side street and one driveway used on a regular basis and Alternative NW-3 (partial 3-lane widening) was created. Please refer to Table 11 in the Proposed Preferred Alternative section for a comparison of the Northwest Quadrant Alternative impacts as estimated during preliminary analysis.

A full presentation of the Northwest Quadrant alternative evaluation process is included in the Camden Truck Routes Technical Memorandum, dated May 8, 2012 (Appendix F).

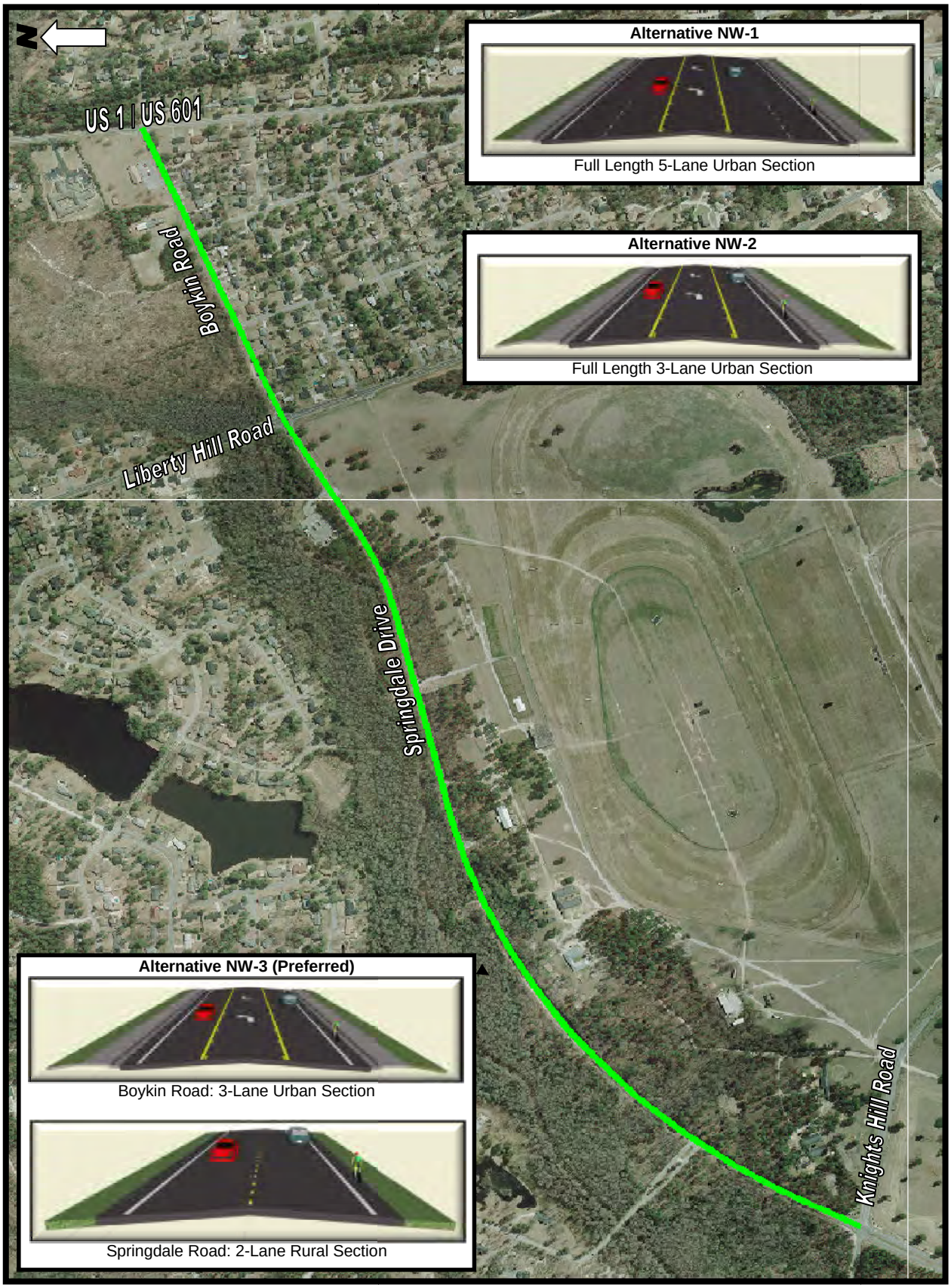


Figure 10: Northwest Quadrant Alternatives Alignment

Southeast Quadrant

The Department developed multiple design and location alternatives for the improvement of the truck route in the Southeast Quadrant: Alternatives SE-1 (York to Mill), SE-2 (York to Rippondon), SE-3 (Bull to Mill), SE-4 (Bull to Rippondon), and SE-5 (Black River to Rippondon). Please refer to Figure 11 and Figure 12.

Alternatives SE-1, SE-2, SE-3, and SE-4 were presented to the public at the PIM held on January 24, 2012 at Camden High School.

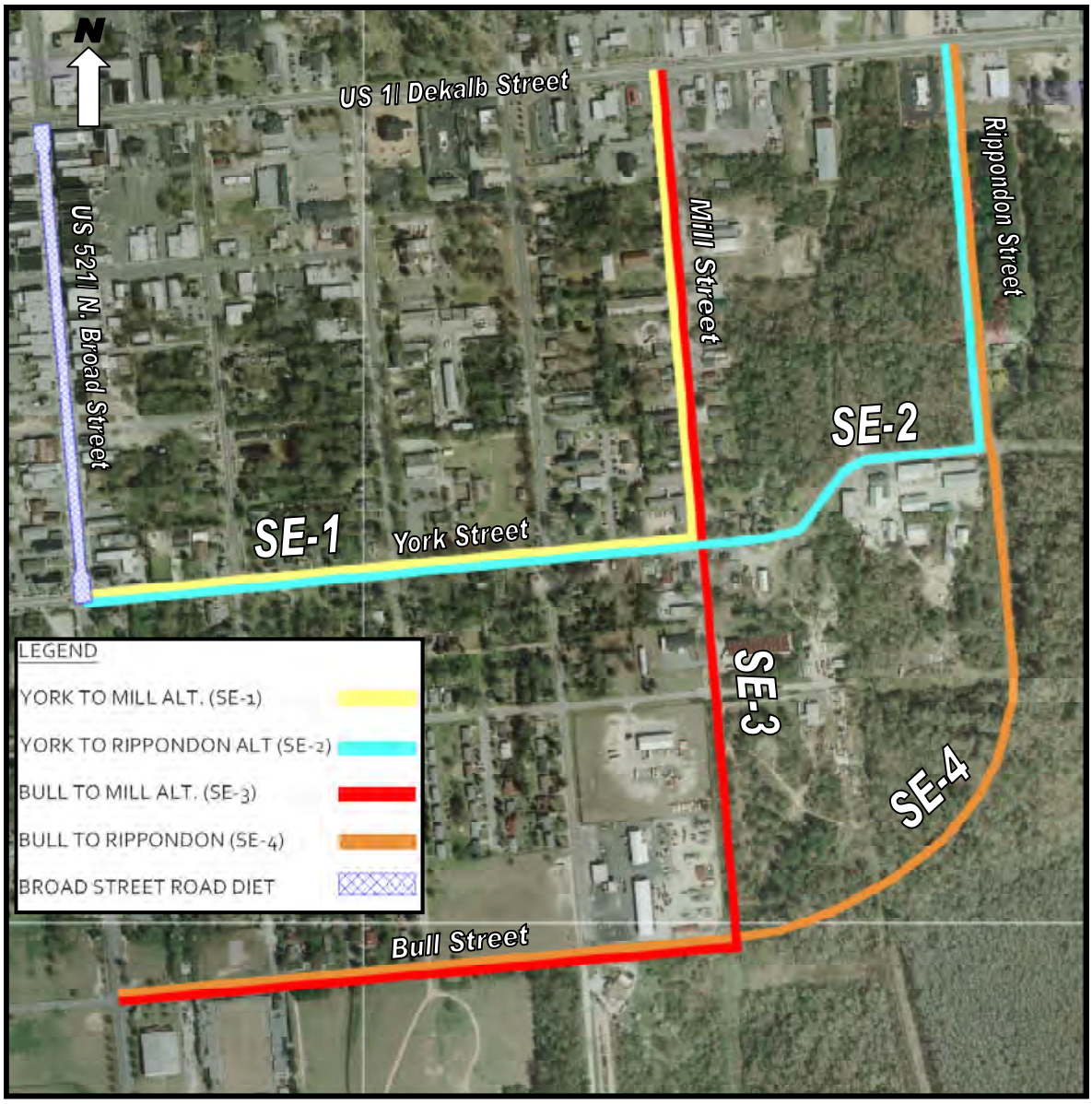


Figure 11: Southeast Quadrant Alternatives

Alternative SE-5 (Figure 12) was developed in response to public comments to look for additional alternatives to minimize impacts on the historic districts. However, while SE-5 minimizes impacts on cultural resources, this alternative was eliminated due to having the largest impact on natural resources (such as wetlands and floodplains) and since it would be the most expensive alternative (requiring approximately 1.2 miles of roadway on new location and a bridge crossing Big Pine Tree Creek). Please refer to Table 12 in the Proposed Preferred Alternative section for a comparison of the Southeast Quadrant Alternative impacts as estimated during preliminary analysis.

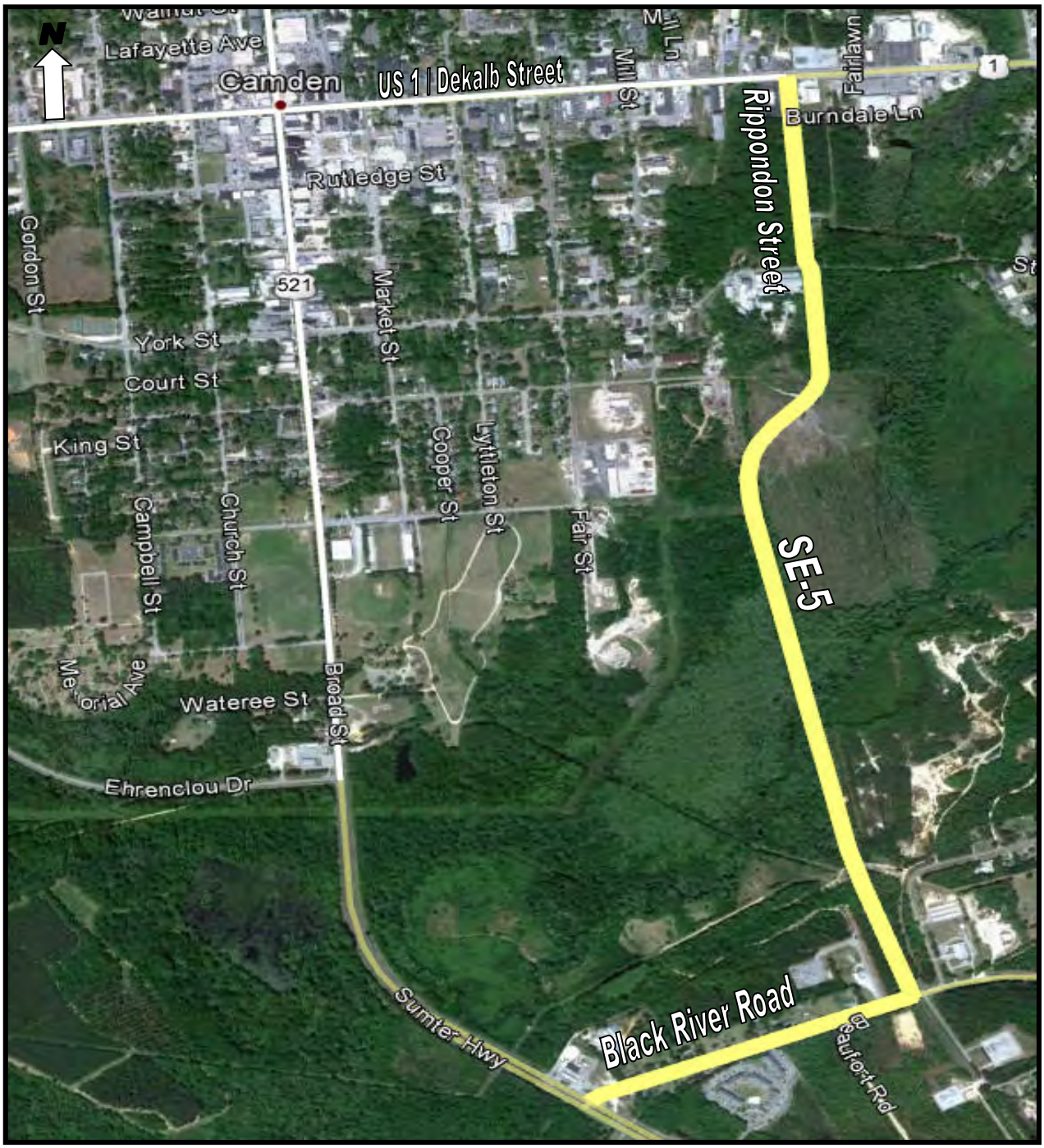


Figure 12: Southeast Quadrant Alternative SE-5

Alternatives SE-3 and SE-4 (Figure 11) both used Bull Street to replace the York Street section of the existing truck route and were eliminated due to anticipated adverse impacts on the NRHP listed Revolutionary War Restoration Historic District and the need for a full Section 4(f) evaluation associated with constructive use of the Historic Camden Park. Please refer to Table 12 in the Proposed Preferred Alternative section for a comparison of the Southeast Quadrant Alternative impacts as estimated during preliminary analysis.

Alternative SE-1 (Figure 11) was originally suggested in the APPR (Appendix N); however, this alternative was eliminated because it had a longer length of the truck route within the Camden Historic District and through residential areas when compared to Alternative SE-2. Please refer to Table 12 in the Proposed Preferred Alternative section for a comparison of the Southeast Quadrant Alternative impacts as estimated during preliminary analysis.

A full presentation of the Southeast Quadrant alternative evaluation process is included in the Camden Truck Routes Technical Memorandum, dated May 8, 2012 (Appendix F).

What is the No-Build Alternative?

The No-Build Alternative, which consists of The Department's existing and committed projects, was considered as a baseline for comparison. Plans are included in the TIP for improving and widening US 521 north of the City limits to the Lancaster County line, improving US 1 east of Camden to Bethune, SC, improving and widening US 1 west of Camden from Lugoff, SC to the Richland County line and improving SC 97 (John Richards Road) from US 521/US 601 to Liberty Hill Road. Plans to improve US 521 from south of I-20 to the Sumter County Line are also included in the STIP.

Since the No-Build Alternative would not meet the purpose and need for the project by creating a more pedestrian-friendly environment and reducing truck traffic on Broad Street between York Street and DeKalb Street, it is not considered an acceptable alternative. Please refer to Table 13 in the Proposed Preferred Alternative section for a comparison of the No Build and Preferred Alternative impacts based on the results of the specialist studies and detailed impact evaluation.

The impacts of the no-build alternative for each quadrant of the truck route are further discussed in the Camden Truck Routes Technical Memorandum, dated March 28, 2012 (Appendix F).

What are the components of the Proposed Preferred Alternative and why were they selected?

Broad Street Road Diet

None of the BSRD alternatives would have a significant impact on the human or natural environment. Alternatives 1, 1A, 2, and 2A all scored very similarly and any one of these would substantially meet the majority of the guiding principles of the project (Table 8 and Table 9) established during the public involvement process. In fact, for 13 of the 16 principles, all of these alternatives scored identically. However, Alternative 1A (Figure 13) was selected as the preferred design as it received better marks for two important principles: 1) provide access to parking; and 2) increase shop-ability. These higher rankings can be attributed to the fact that Alternative 1A provides the most parking of any alternative (i.e., 82 spaces, a net gain of 11 spaces over the existing and 16 more than the nearest alternative).

Table 9: BSRD Alternatives Evaluation Matrix

Guiding Principles	Alternative Evaluation					
	1	1A	2	2A	3	4
Address source of congestion/bottleneck	H	H	H	H	H	H
Consider potential for diverted traffic	M	M	M	M	M	M
Coordinate with truck route	H	H	H	H	H	H
Enhance access, mobility, and safety of all modes	H	H	H	H	L	M
Allow for service, delivery, and emergency response	M	M	M	M	H	H
Provide ADA accessibility	H	H	H	H	L	M
Provide a walkable environment that fosters pedestrian activity	H	H	H	H	L	M
Create a "place to be" attracting citizens and visitors alike	H	H	H	H	L	M
Celebrate history	H	H	H	H	L	M
Enhance attractive, charming character	H	H	H	H	L	M
Provide access to parking opportunities	L	H	L	M	L	L
Establish defined zones and focal points	H	H	M	M	L	L
Provide an environment that encourages people to come, stay, work, and play – 24/7 destination	H	H	H	H	L	M
Enhance opportunities for business retention and attraction	H	H	H	H	L	M
Increase shop-ability	M	H	M	M	L	M
Foster personal and civic pride	H	H	H	H	L	M

L = low potential for meeting principle; M = moderate potential for meeting principle; H = high potential for meeting principle

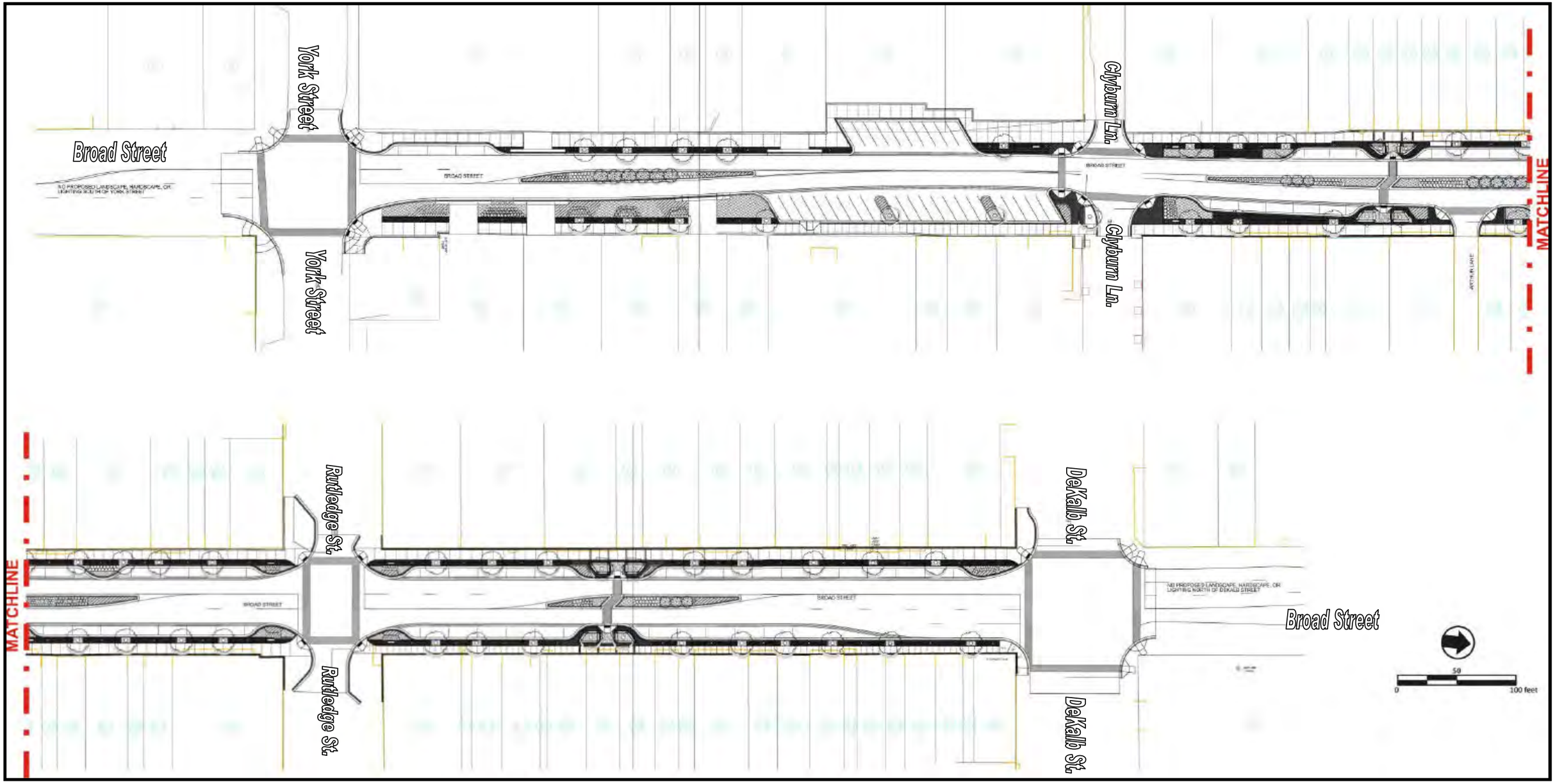


Figure 13: Broad Street Road Diet Preferred Alternative (Alt. 1A)

Southwest Quadrant

Alternative SW-1.4 (Figure 14, Sheets 1-7) consists of making improvements along the existing designated truck route following Ehrenclou Drive and Chestnut Ferry Road. Improvements will include adding an eastbound right turn lane on Ehrenclou Drive at its intersection with US 521 (Figure 14, Sheet 1) and adding a center two way turn lane, sidewalks, bike lanes, curb, and gutter in developed areas of the alignment. The project will only add a paved shoulder through the undeveloped/wetland areas. The project will also include reconfiguration of the Ehrenclou Drive, York Street, Chestnut Ferry Road, Bramblewood Plantation Road intersection (Figure 14, Sheets 4 and 5) and replacement of the structurally deficient bridge over Bolton Branch Creek on Chestnut Ferry (Figure 14, Sheet 5). Replacement of the bridge on Chestnut Ferry will also require the replacement of a second bridge over Bolton Branch Creek on Old River Road (Figure 14, Sheet 5).

Multiple design configurations for improving the existing alignment of the truck route were evaluated including widening around the center, to the left, and to the right of the existing alignment. After conducting detailed studies of the preferred alignment, a best fit alignment was created to minimize wetland impacts, impacts to historic and archaeological resources, and displacements.

This alternative was selected because it helps create a more pedestrian-friendly environment and reduce truck traffic in downtown Camden by minimizing delays and improving safety along the truck route, avoids one of the primary walking and driving routes used by students to access Camden High School (York Street), minimizes wetland impacts along the selected route, avoids removing trees from the historic Quaker Cemetery buffer, minimizes impacts to an NRHP potentially eligible archaeological site, and minimizes displacements along Chestnut Ferry Road. Please refer to Table 10 for comparison of the Southwest Quadrant Alternative impacts as estimated during preliminary analysis.

Table 10: Southwest Quadrant Decision Matrix

Impact Category	Improvements to Designated Truck Routes Southwest Quadrant Decision Matrix			
	No Build Alternative	**Preferred Alternative** Ehrenclou to Chestnut Ferry (Alt. SW-1.4)	York to Chestnut Ferry (Alt. SW-2)	York to Gordon (Alt. SW-3)
Social	No Change	Minor Changes in Access	Conflicting Uses (Student traffic)	Conflicting Uses (Student traffic)
Wetland Impacts	None	~0.4 acres	none	none
Floodplains	No Impact	~0.87 acres	~0.29 acres	~0.18 acres
Historical District Impacts	No Change	No Adverse Effects	No Adverse Effects	No Adverse Effects
Building Displacements	None	6	6	0

Figure 14: Sheet 1 of 7

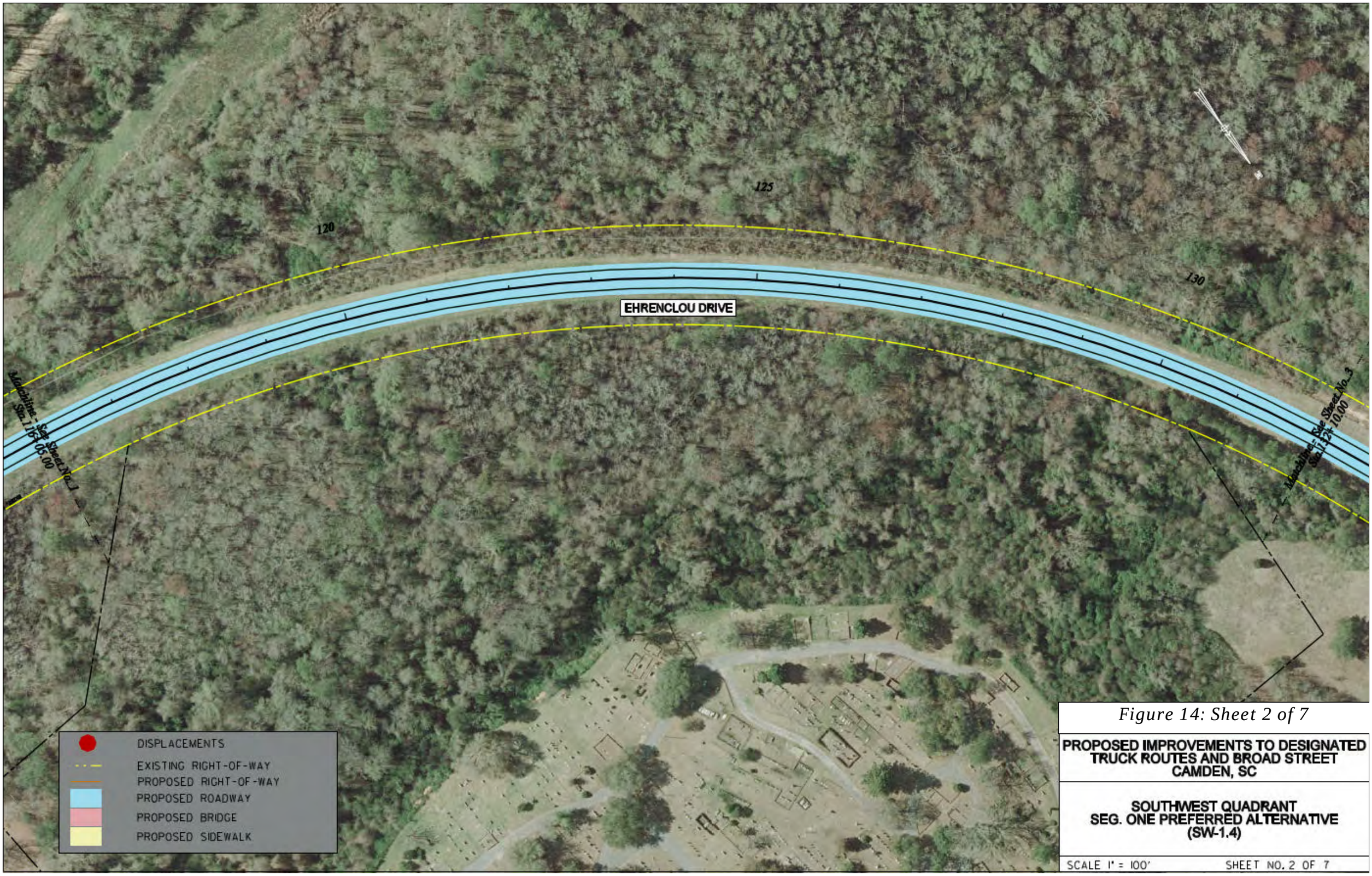


Figure 14: Sheet 2 of 7

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHWEST QUADRANT
SEG. ONE PREFERRED ALTERNATIVE
(SW-1.4)

SCALE 1" = 100' SHEET NO. 2 OF 7

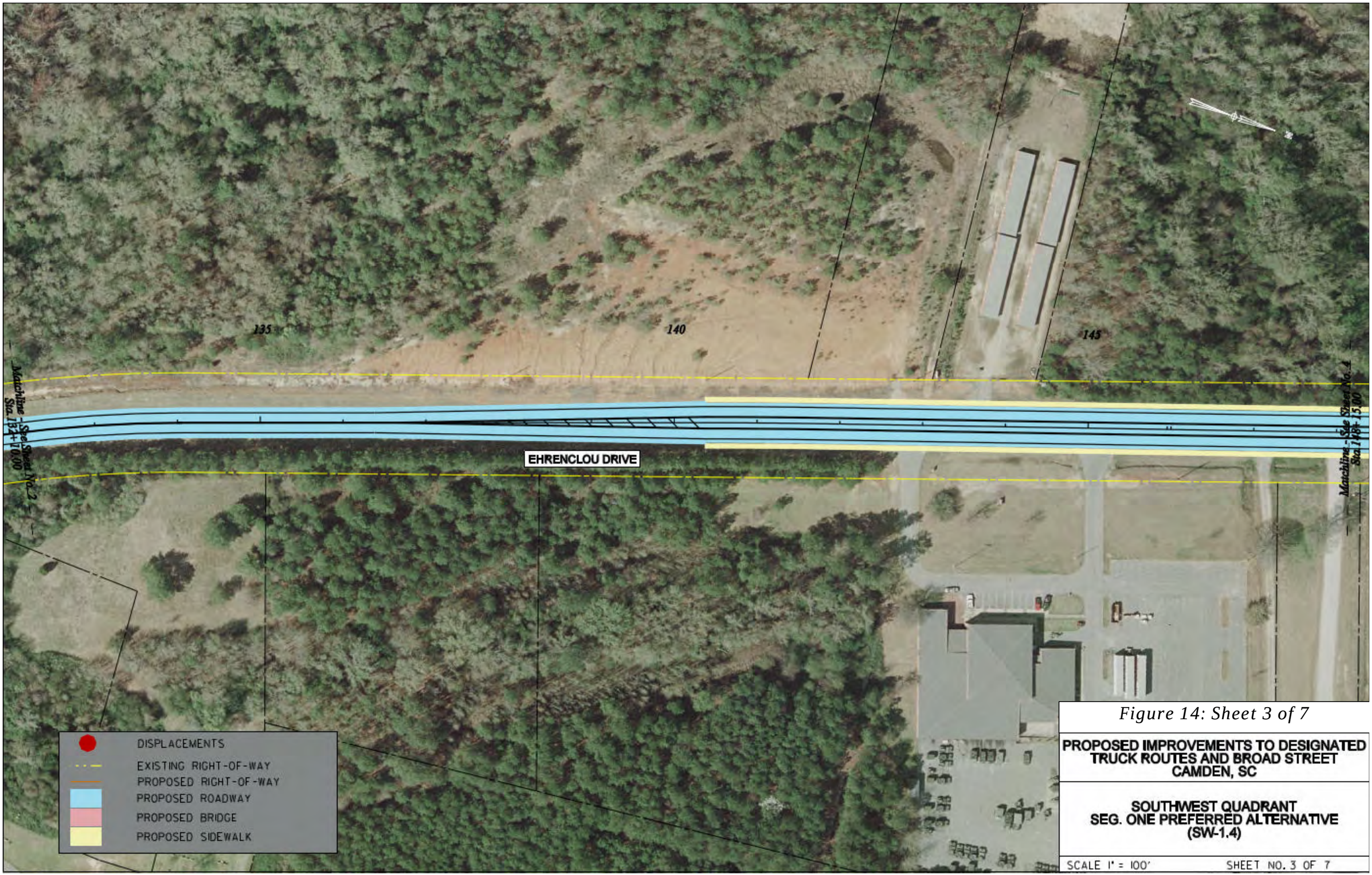


Figure 14: Sheet 3 of 7

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHWEST QUADRANT SEG. ONE PREFERRED ALTERNATIVE (SW-1.4)

SCALE 1" = 100' SHEET NO. 3 OF 7

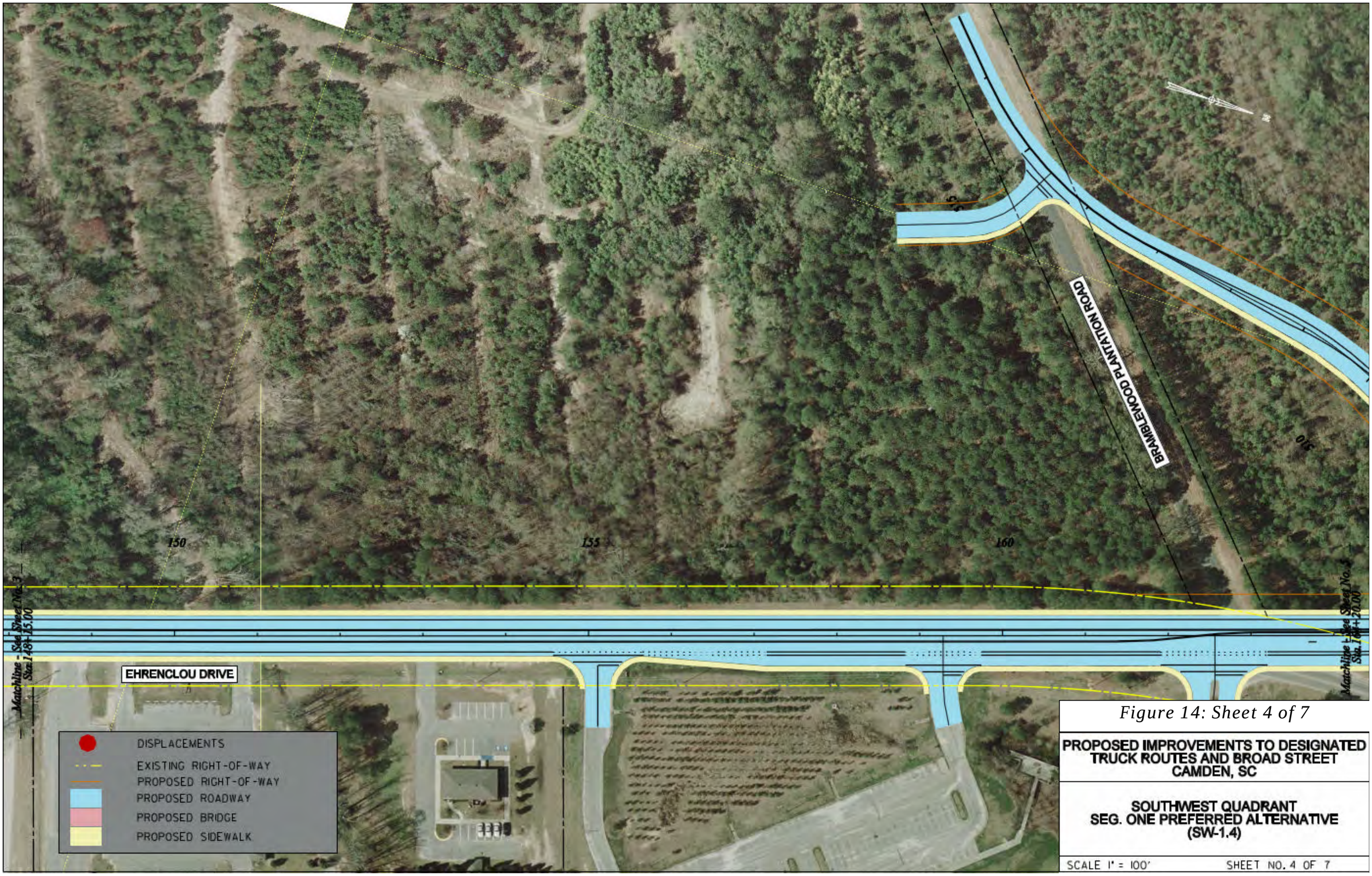


Figure 14: Sheet 4 of 7

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHWEST QUADRANT SEG. ONE PREFERRED ALTERNATIVE (SW-1.4)

SCALE 1" = 100' SHEET NO. 4 OF 7

BRAMBLEWOOD PLANTATION ROAD

OLD RIVER ROAD

CHESTNUT FERRY ROAD

BROOME DRIVE

Matchline - See Sheet No. 1 Sta. 4+20.00

Matchline - See Sheet No. 6 Sta. 18+25.00

Matchline - See Sheet No. 7 Sta. 304+00.00

Matchline - See Sheet No. 7 Sta. 302+00.00

510

165

170

310

175

180

305

305

DISPLACEMENTS

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PROPOSED ROADWAY

PROPOSED BRIDGE

PROPOSED SIDEWALK

Figure 14: Sheet 5 of 7

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHWEST QUADRANT SEG. ONE PREFERRED ALTERNATIVE (SW-1.4)

SCALE 1" = 100' SHEET NO. 5 OF 7

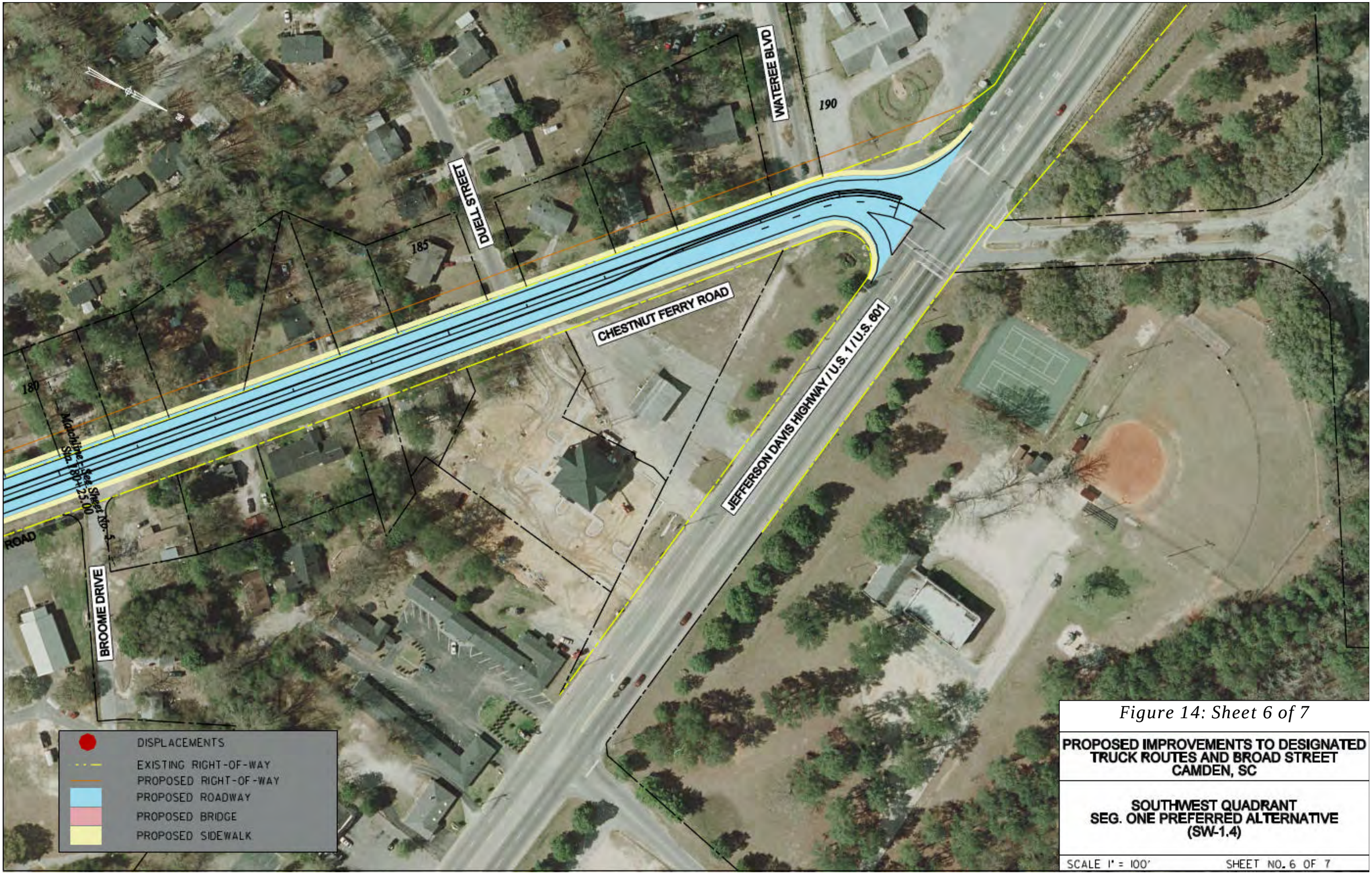


Figure 14: Sheet 6 of 7

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHWEST QUADRANT
SEG. ONE PREFERRED ALTERNATIVE
(SW-1.4)

SCALE 1" = 100' SHEET NO. 6 OF 7

Figure 14: Sheet 7 of 7

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHWEST QUADRANT SEG. ONE PREFERRED ALTERNATIVE (SW-1.4)

SCALE 1" = 100' SHEET NO. 7 OF 7

Northwest Quadrant

Alternative NW-3 (Figure 15, Sheets 1-6) will include the addition of a paved shoulder along Boykin Road between Knights Hill Road and Liberty Hill Road and auxiliary left turn lanes at Sunnyhill Drive (Figure 15, Sheet 1) and the Springdale Recycling Center (Figure 15, Sheet 4) for eastbound traffic. Between Liberty Hill Road and US 521/US 601, the project will add a center two way turn lane, bike lanes, sidewalks, curb, and gutter along Boykin Road (Figure 15, Sheet 5). Improvements to the intersection of Boykin Road with US 521/US 601 will include the addition of dedicated left turn lanes for all approaches, a southbound right turn lane on US 521/US 601, and signalization (Figure 15, Sheet 6).

This alternative was developed since there is only one side street and one driveway used on a regular basis in the approximately 1.25 miles between Liberty Hill and Knights Hill Roads. This alternative would minimize wetland impacts while still allowing left turning vehicles to move out of the through lane of traffic.

This alternative was selected because it helps create a more pedestrian-friendly environment and reduce truck traffic in downtown Camden by minimizing delays and improving safety along the truck route, avoids impacting archaeological sites and the historic race track site, and minimizes the wetlands impacts of widening to the northwest. It is expected that this alternative could also be implemented without obtaining ROW from the Springdale Race Course property and thus no Section 4(f) evaluation would be required. Please refer to Table 11 for a comparison of the Northwest Quadrant Alternative impacts as estimated during preliminary analysis.

Table 11: Northwest Quadrant Decision Matrix

Impact Category	**Improvements to Designated Truck Routes Northwest Quadrant Decision Matrix**			
	No Build Alternative	Widen to North 5-Lane Section (Alt. NW-1)	Widen to North 3-Lane Section (Alt. NW-2.3)	**Preferred Alternative** Partial Widening (Alt. NW-3)
Traffic	Significant Delays	Delays Reduced	Delays Reduced and LOS C/B	Delays Reduced and LOS D/B
Wetland Impacts	None	0.55 acres	0.30 acres	0.17 acres
Historic Property Impacts	None	No Adverse Effects	No Adverse Effects	No Adverse Effects
4(f) Properties	None	1 (Springdale Race Course)	1 (Springdale Race Course)	none

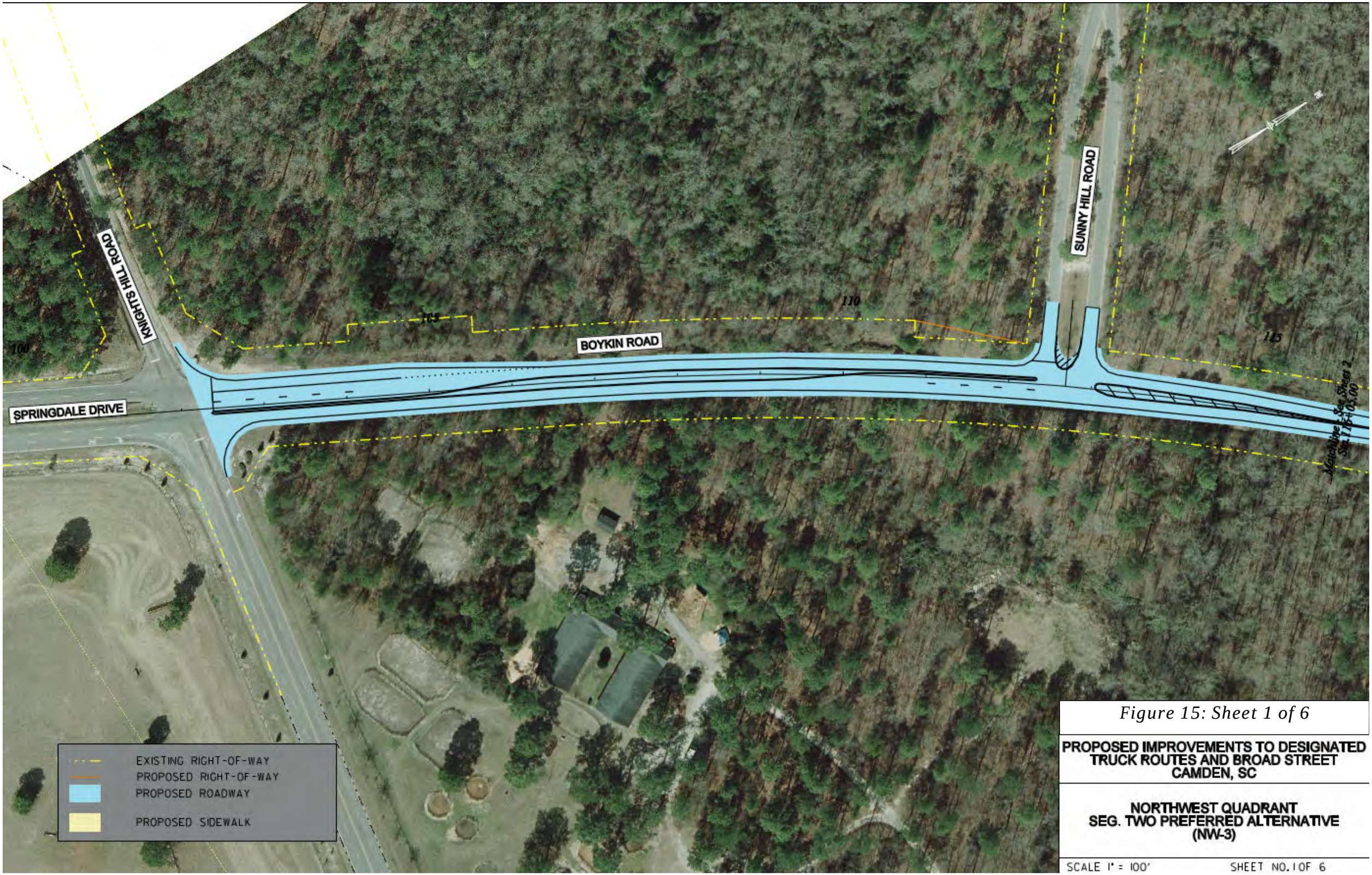


Figure 15: Sheet 1 of 6

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

NORTHWEST QUADRANT SEG. TWO PREFERRED ALTERNATIVE (NW-3)

SCALE 1" = 100' SHEET NO. 1 OF 6

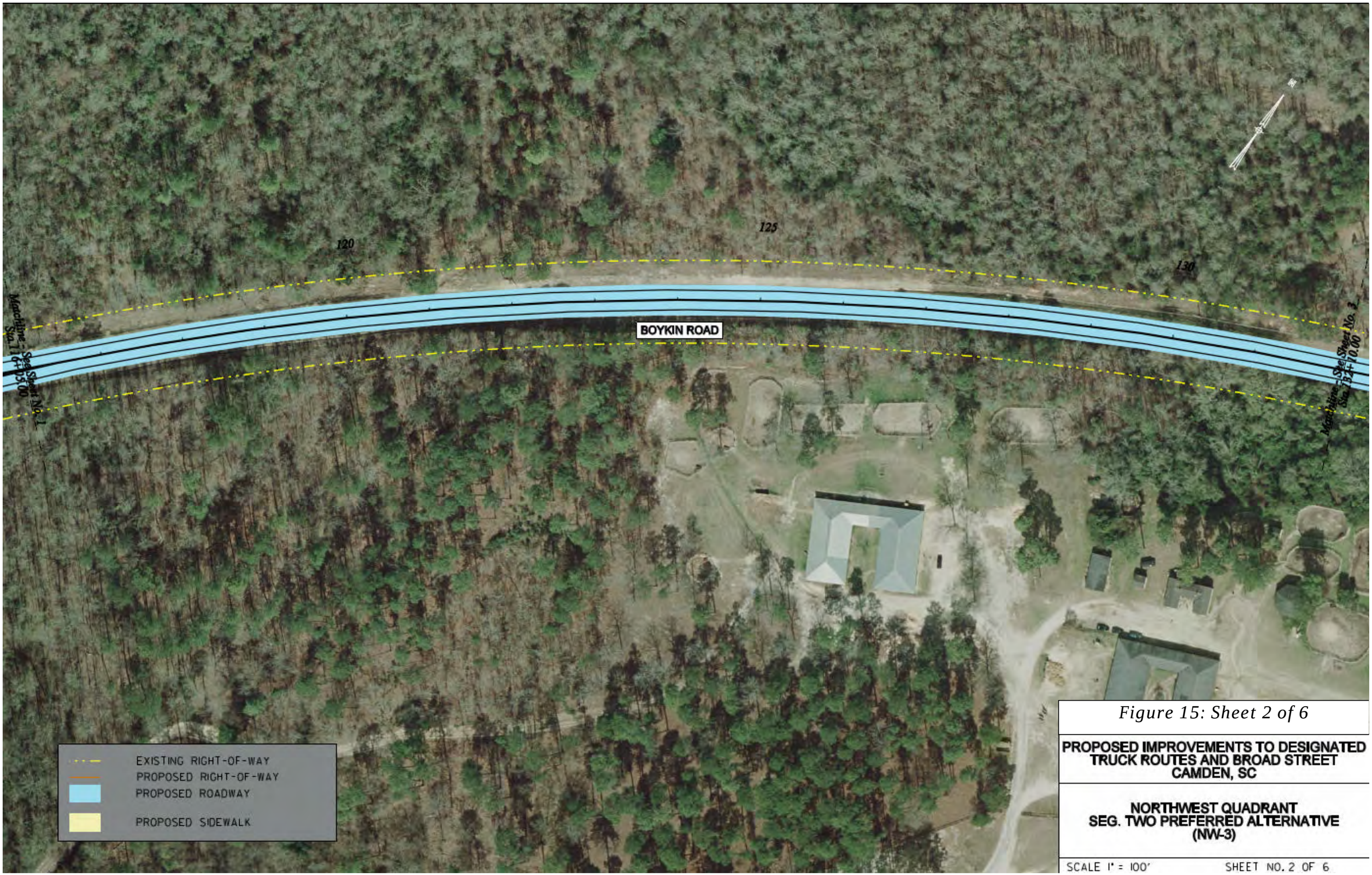


Figure 15: Sheet 2 of 6

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

NORTHWEST QUADRANT SEG. TWO PREFERRED ALTERNATIVE (NW-3)

SCALE 1" = 100'

SHEET NO. 2 OF 6

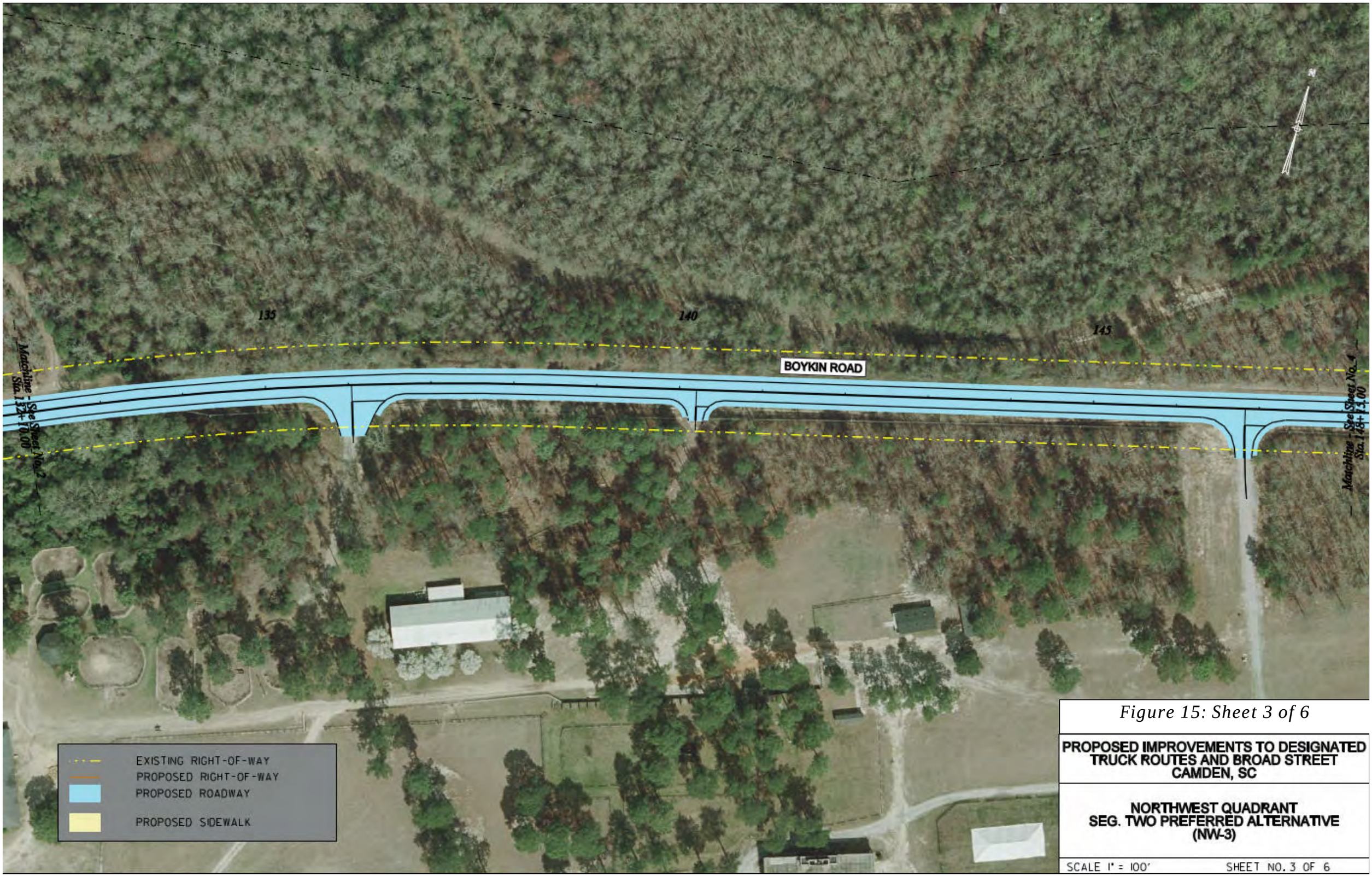


Figure 15: Sheet 3 of 6

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

NORTHWEST QUADRANT SEG. TWO PREFERRED ALTERNATIVE (NW-3)

SCALE 1" = 100' SHEET NO. 3 OF 6

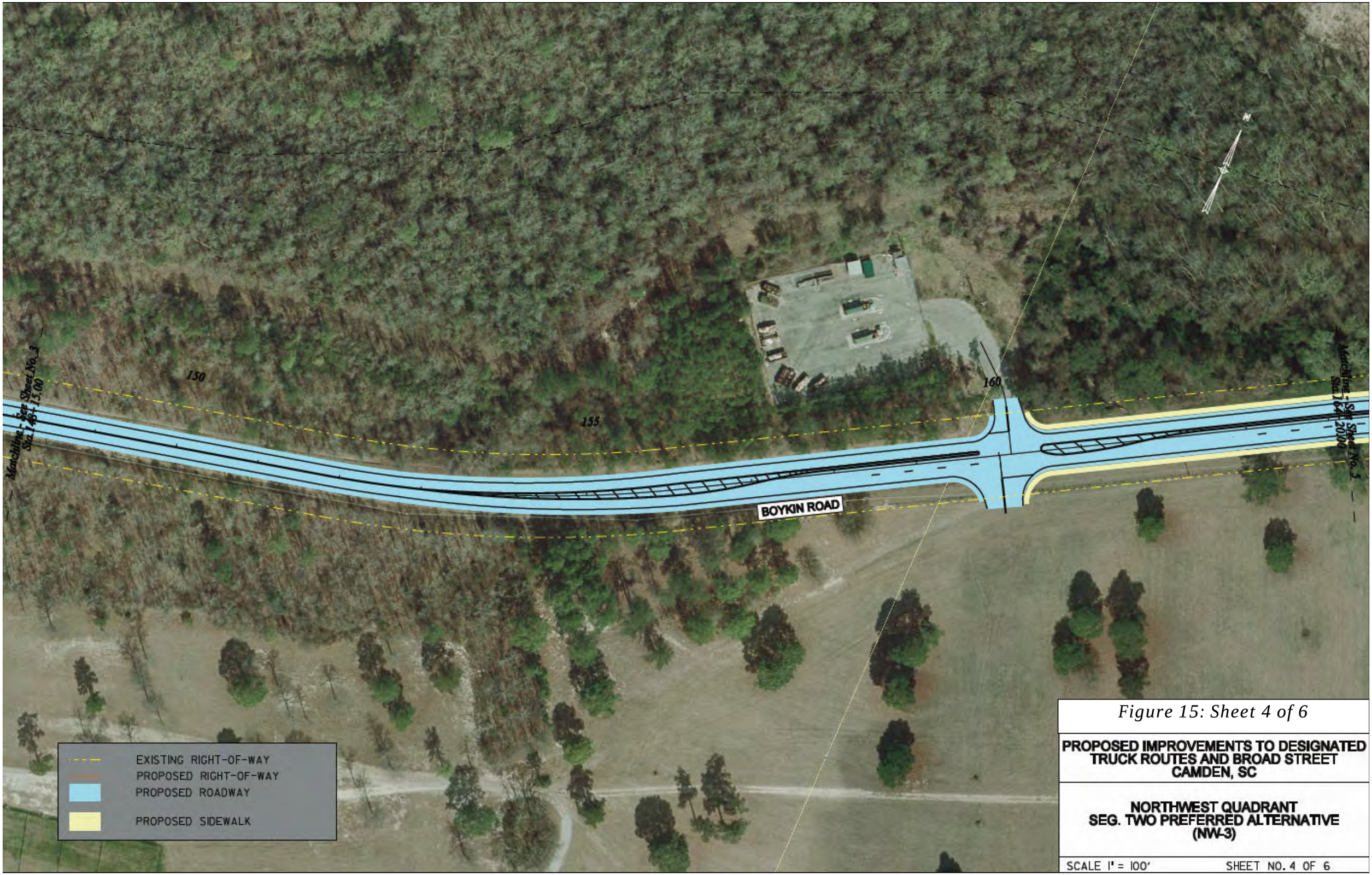


Figure 15: Sheet 4 of 6

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

NORTHWEST QUADRANT SEG. TWO PREFERRED ALTERNATIVE (NW-3)

SCALE 1" = 100' SHEET NO. 4 OF 6

Figure 15: Sheet 5 of 6

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

NORTHWEST QUADRANT SEG. TWO PREFERRED ALTERNATIVE (NW-3)

SCALE 1" = 100' SHEET NO. 5 OF 6

Figure 15: Sheet 6 of 6

Southeast Quadrant

Alternative SE-2 (Figure 16, Sheets 1-4) will include providing a westbound left turn lane on York Street at the intersection of US 521 (Figure 16, Sheet 1) and adding a center two way turn lane, sidewalks, bike lanes, curb, and gutter. Dedicated left turn lanes will be provided on York Street at its intersection with Mill Street (Figure 16, Sheet 2). The improvements will also include reconfiguring the intersection and alignment of York Street with Rippondon Street (Figure 16, Sheet 3) and improvements to the intersection of Rippondon Street with US 1/DeKalb Street (Figure 16, Sheet 4). The existing section of York Street between Mill Street and Rippondon Street would need to be realigned due to poor sight distances and turning radii and to avoid displacements.

This alternative was one possibility mentioned in the Camden Vision Plan (Appendix N). This alternative has no wetland, fish habitat, or protected species habitat impacts, avoids the Revolutionary War Restoration Historic District, and has no displacements. This alternative also reduces the length of the truck route within the City of Camden Historic District to approximately 0.6 miles, a reduction of 0.24 miles compared to the No-Build Alternative. This alternative would increase traffic through residential areas along York Street but reduce traffic along Mill Street. Although the alignment would be considered to be in an environmental justice area, no disproportionately high or adverse effects are anticipated. The Rippondon Street portion of the alignment is within the 100 year floodplain. This alternative would require limited ROW acquisition from a property listed as contributing to the historic district and a *de minimis* Section 4(f) impact is expected.

This alternative was selected because it helps create a more pedestrian-friendly environment and reduce truck traffic in downtown Camden by minimizing delays and improving safety along the truck route and reduces the length of the truck route in the historic district and in residential areas when compared to SE-1. Please refer to Table 12 for a comparison of the Southeast Quadrant Alternative impacts as estimated during preliminary analysis.

Table 12: Southeast Quadrant Decision Matrix

Impact Category	Improvements to Designated Truck Routes Southeast Quadrant Decision Matrix					
	No Build Alt.	York to Mill (Alt SE-1)	**Preferred Alternative** York to Rippondon (Alt SE-2)	Bull to Mill (Alt SE-3)	Bull to Rippondon (Alt SE-4)	Black River to Rippondon (Alt SE-5)
Wetland Impacts	none	none	none	None	~0.4 acres	~ 2.0 acres
Floodplains	No Impact	none	~0.65 acre	none	~3.1 acres	~4.8 acres
Historical District Impacts	None	No Adverse Impact	No Adverse Impact	Adverse Impact	Adverse Impact	None
Length within Camden Historic District/ Revolutionary War District (miles)	0.84 /0.00	0.84/0.00	0.60/0.00	1.14/0.47	0.60/0.47	0.00/0.00
4(f) Properties	none	1 de minimis 4(f)	1 de minimis 4(f)	Full 4(f) expected for Historic Camden Park	Full 4(f) expected for Historic Camden Park	none
Building Displacements	None	none	none	none	1 (animal shelter)	None

BROAD STREET

MARKET STREET

LYTTLETON STREET

100

105

110

115

YORK STREET

BROAD STREET

MARKET STREET

LYTTLETON STREET

ASSUMED EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED ROADWAY
PROPOSED SIDEWALK

Figure 16: Sheet 1 of 4

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHEAST QUADRANT
SEG. THREE PREFERRED ALTERNATIVE
(SE-2)

SCALE 1" = 100'

SHEET NO. 1 OF 4

LYTTLETON STREET

FAIR STREET

MILL STREET

YORK STREET

120

125

130

Matchline - See Sheet No. 1 Sta. 116+ 03.00

Matchline - See Sheet No. 3 Sta. 132+ 10.00

ASSUMED EXISTING RIGHT-OF-WAY
PROPOSED RIGHT-OF-WAY
PROPOSED ROADWAY
PROPOSED SIDEWALK

Figure 16: Sheet 2 of 4

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHEAST QUADRANT
SEG. THREE PREFERRED ALTERNATIVE (SE-2)

SCALE 1" = 100'

SHEET NO. 2 OF 4

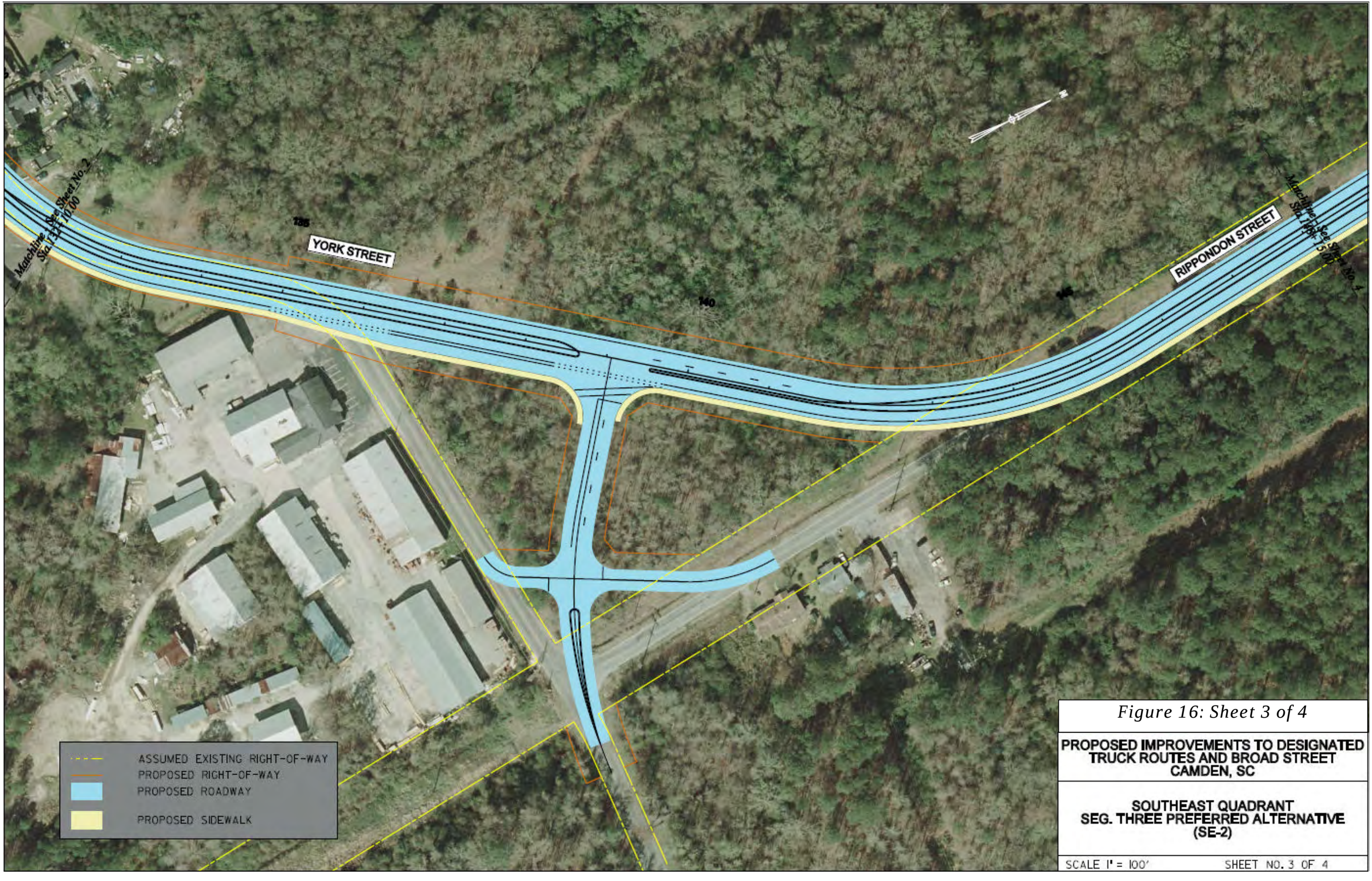


Figure 16: Sheet 3 of 4

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHEAST QUADRANT SEG. THREE PREFERRED ALTERNATIVE (SE-2)

SCALE 1" = 100' SHEET NO. 3 OF 4

Figure 16: Sheet 4 of 4

PROPOSED IMPROVEMENTS TO DESIGNATED TRUCK ROUTES AND BROAD STREET CAMDEN, SC

SOUTHEAST QUADRANT
SEG. THREE PREFERRED ALTERNATIVE (SE-2)

SCALE 1" = 100' SHEET NO. 4 OF 4

What is the combined Proposed Preferred Alternative?

The Department has considered multiple location and design alternatives in the process of developing the currently proposed "build" alternative. The preferred build alternative is a combination of the selected preferred alternatives in each of the truck route quadrants (Alt. SW-1, NW-3, and SE-2) and of the selected BSRD preferred alternative (Atl. 1A) and is expected to result in no significant impacts to the human or natural environment (Table 13).

The combined Proposed Preferred Alternative will meet the purpose and need of the project by providing improved truck routes to reduce heavy truck traffic on Broad Street. Further, the implementation of the BSRD will provide a more pedestrian-friendly environment in downtown Camden while maintaining or improving LOS when compared to the No-Build Alternative as shown in Table 5. Since the No-Build Alternative would not improve the existing truck routes or help create a pedestrian-friendly environment in downtown Camden, it is not considered an acceptable alternative.

While the proposed location and design of the project represents the best "build" alternative for meeting the purpose and need for the project, input received during the public hearing process and environmental document availability period will be carefully evaluated in future project development. Modifications will be made where appropriate.

Table 13: Preferred Alternative Impact Matrix

Impact Categories			No-Build Alt.					Preferred Alternative				
			Broad Street	+ Segment 1 (SW Quad)	+ Segment 2 (NW Quad)	+ Segment 3 (SE Quad)	= Combined	BSRD Alt. 1A	+ SW-1.4 (SW Quad)	+ NW-3 (NW Quad)	+ SE-2 (SE Quad)	= Combined
Traffic	Level Of Service		E (2010) / F (2035)	C (2010)	C (2010)	C (2010)	N/A	D (2010) / F (2035)	D (2035)	D (2035)	D (2035)	N/A
	# of Heavy Trucks per day (2035)		245	175	490	420	1330	0	610	540	690	1840
	Intersections with LOS E or LOS F movements (2035)		3	4	1	3	10	3	3	0	1	6
	Intersections with LOS E or LOS F truck route movements (2035)		N/A	2	0	2	4	N/A	0	0	0	0
Social	Env. Justice Communities		N	Y	N	Y	N/A	0	Y	N	Y	N/A
	Community Facilities (Churches, Schools, etc.)		2	3	3	5	13	2	3	3	5	13
	Access Changes (# of developed parcels affected)		0	0	0	0	0	0	33	0	5	38
Displacements	Commercial		0	0	0	0	0	0	2	0	0	2
	Residential		0	0	0	0	0	0	4	0	0	4
Ecological Resources	Wetlands Impact (acres)		0	0	0	0	0	0	0.047	0.321	0	0.368
	Linear Stream Impact (ft)		0	0	0	0	0	0	0	0	96	96
	Protected Species Habitat (Y/N)		N	N	N	N	N	N	N	N	N	N
	Floodplains (acres)		0	0	0	0	0	0	1.02	0	1.25	2.27
Cultural Resources	Historic District Impacts	Seaboard Airline Depot	N/A	No Effect	N/A	N/A	No Effect	N/A	No Effect	N/A	N/A	No Effect
		Revolutionary War	N/A	No Effect	N/A	N/A	No Effect	N/A	No Adverse Effect	N/A	N/A	No Adverse Effect
		City of Camden	No Effect	No Effect	N/A	No Effect	No Effect	No Adverse Effect	No Adverse Effect	N/A	No Adverse Effect	No Adverse Effect
		Springdale Race Course	N/A	N/A	No Effect	N/A	No Effect	N/A	N/A	No Adverse Effect	N/A	No Adverse Effect
	Length in Historic Districts (miles)		0.36	1.04	0.00	0.84	2.24	0.36	1.04	0.00	0.60	2.04
	Archaeological Sites Impacted (# / impact)		None	None	None	None	None	None	1 Site / No Adverse Impacts	None	3 Sites / No Adverse Impacts	4 sites / No Adverse Impacts
	Section 4(f) Impacts		None	None	None	None	None	None	None	None	1 (de minimis)	1 (de minimis)
Noise	Residential (B)		0	0	0	0	0	0	7	0	0	7
	Recreational (C)		0	0	0	0	0	0	0	0	0	0
	Institutional (D)		0	0	0	0	0	0	0	0	0	0
	Commercial (E)		0	0	0	0	0	0	0	0	0	0
Farmland			0	0	0	0	0	0	9.7	0.8	2.1	12.6
Hazardous Materials/UST sites Within ROW			0	0	0	1	1	0	0	0	1	1
COST (Millions of Dollars – 2012)			N/A	N/A	N/A	N/A	N/A	$3.25*	$7.49*	$2.53*	$2.89*	$16.16*

*Cost of construction only

IV. WHAT ARE THE PROBABLE IMPACTS OF THE PROJECT ON THE ENVIRONMENT?

This section includes a discussion on the probable beneficial and adverse social, economic, and environmental effects of the alternatives under consideration and describes the measures proposed to mitigate any adverse impacts. This information is based on a number of scientific studies that provide a basis for evaluating the merits of the project. Environmental studies conducted by Department personnel indicate the absence of any significant adverse impacts on the human and natural environment. The following paragraphs provide a brief overview of the Department's environmental findings.

Land Use

The Preferred Alternative is comprised of four segments: Segment One (Alt. SW-1.4: Ehrenclou to Chestnut Ferry) in the Southwest Quadrant, Segment Two (Alt. NW-3: Boykin Road) in the Northwest Quadrant, Segment Three (Alt. SE-2: York to Rippondon) in the Southeast Quadrant, and the Broad Street Road Diet (Alt. 1A: Broad Street between York and DeKalb Streets). The proposed road improvements are located within the City of Camden, and land use in the area is generally covered by the City zoning ordinance.[10] Current zoning maps and site inspections were utilized to determine existing land use. Estimations of future development were obtained from the Comprehensive Plan (Appendix N) which includes a land use plan for current and future development of properties within the City.

A pedestrian-friendly environment and a reduction of truck traffic in downtown Camden are needed in order to support plans for a revitalized downtown district as indicated in the Camden Vision Plan (Appendix N). Both the BSRD and truck route improvements are specifically mentioned in the vision plan as necessary to revitalize downtown Camden. Furthermore, the implementation of the project is expected to support multiple goals and policies listed in the Comprehensive Plan (Appendix N) such as:

- Economic Goal-5: Strengthen the core commercial district of Camden (page 49)
- Land Use Goal-1: Make Camden the Preferred Place to live and visit in the Midlands (page 97)
- Land Use Goal 3: Sustain "Livable" Environment (page 99)
- Land Use Goal 4: Foster Quality Development/ Enhance the Physical Image (page 100)
- Land Use Goal 6: Revitalize Buildings and Areas Vacated by Commerce (page 102)
- Transportation Goal/Policy: Promote the development of a By-pass connecting US521/US601 north of the City to US 1 and I-20 in order to remove pass-through traffic and reduce congestion on local streets (pages 86 and 106)

Table 14 lists the primary zoning districts as identified in the zoning ordinance and serves as the legend for the existing land use exhibits included in this section.

[10] Camden, SC Code of Ordinances, Title XV, Land Usage, Chapter 157: Zoning

Table 14: City of Camden Primary Zoning Districts

Map Symbol	
R-E	Residential Estate District
R-15	Low Density, Single-Family Residential District
R-10	Medium Density Residential District
R-6	High Density Residential District
OI	Office-Institutional District
B-1	Central Business District
B-2	General Business District
B-3	Limited Business District
I-1	Industrial District
GD	General Development District
EQ	Equine District

Broad Street Road Diet

The BSRD (Alt. 1A) is located at the heart of downtown Camden. Broad Street is a designated US Highway (US 521) and is a principal arterial, linking I-20 and areas north of Camden. This section of Camden is zoned as the Central Business District (B-1), as shown on Figure 17. The project corridor is located in a small town urban setting and is primarily occupied by commercial development and paved roadway. Within the project area are numerous professional services, retail stores, and restaurants; however, multiple vacant storefronts are also present.

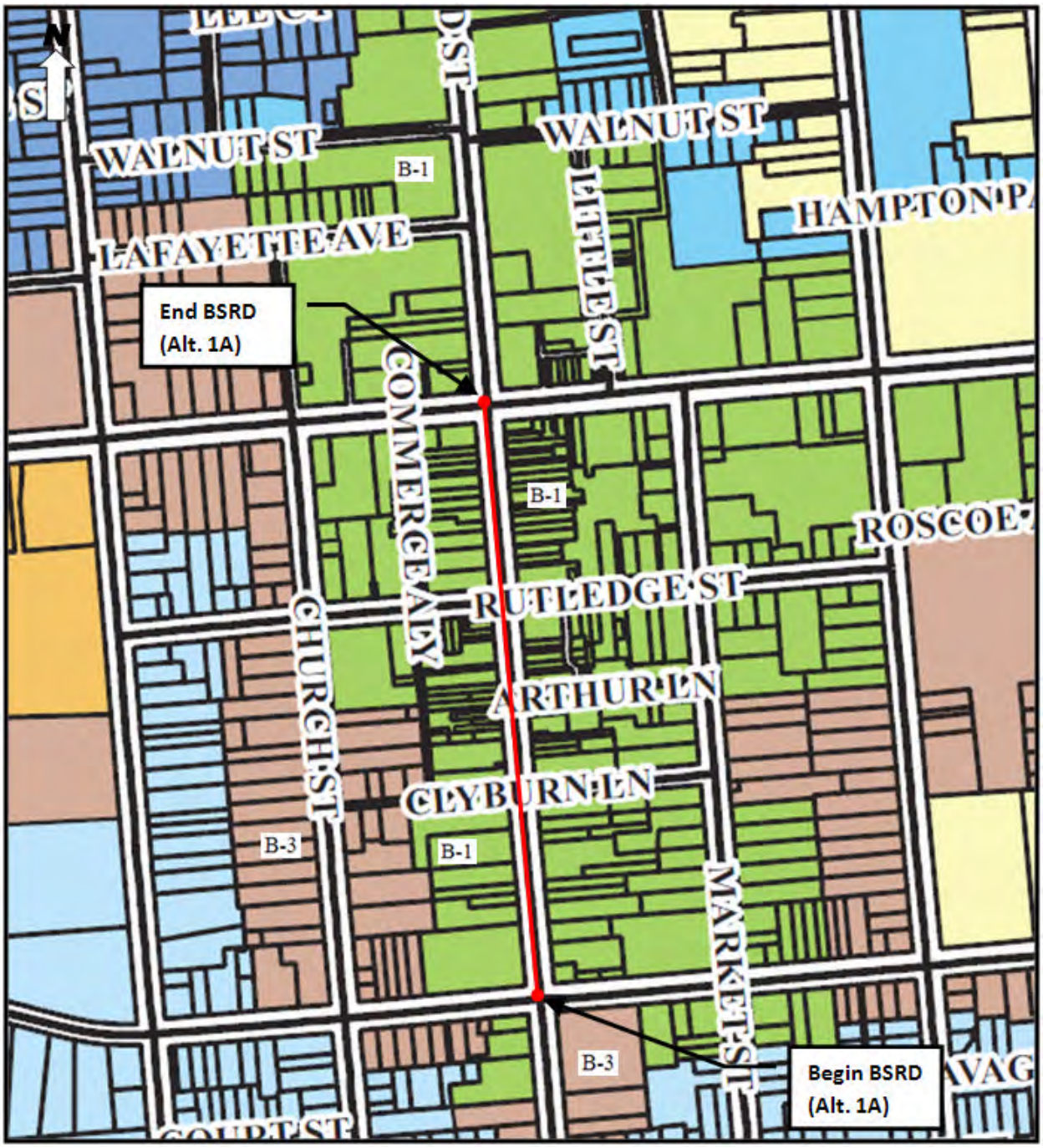


Figure 17: BSRD Existing Land Use

Land use along Broad Street is planned for community scale commercial development, as shown on Figure 18, and will be supported by the implementation of the project. The BSRD will limit heavy truck traffic in downtown and supports the vision for Camden by creating a more walkable and inviting streetscape. The proposed improvements balance the need for pedestrian and vehicular access and will provide a road section scaled more appropriately for the downtown district envisioned for this small but historically significant city. Current conditions along Broad Street are more conducive to accommodating through traffic than to serving local businesses, residents, and visitors to Camden.

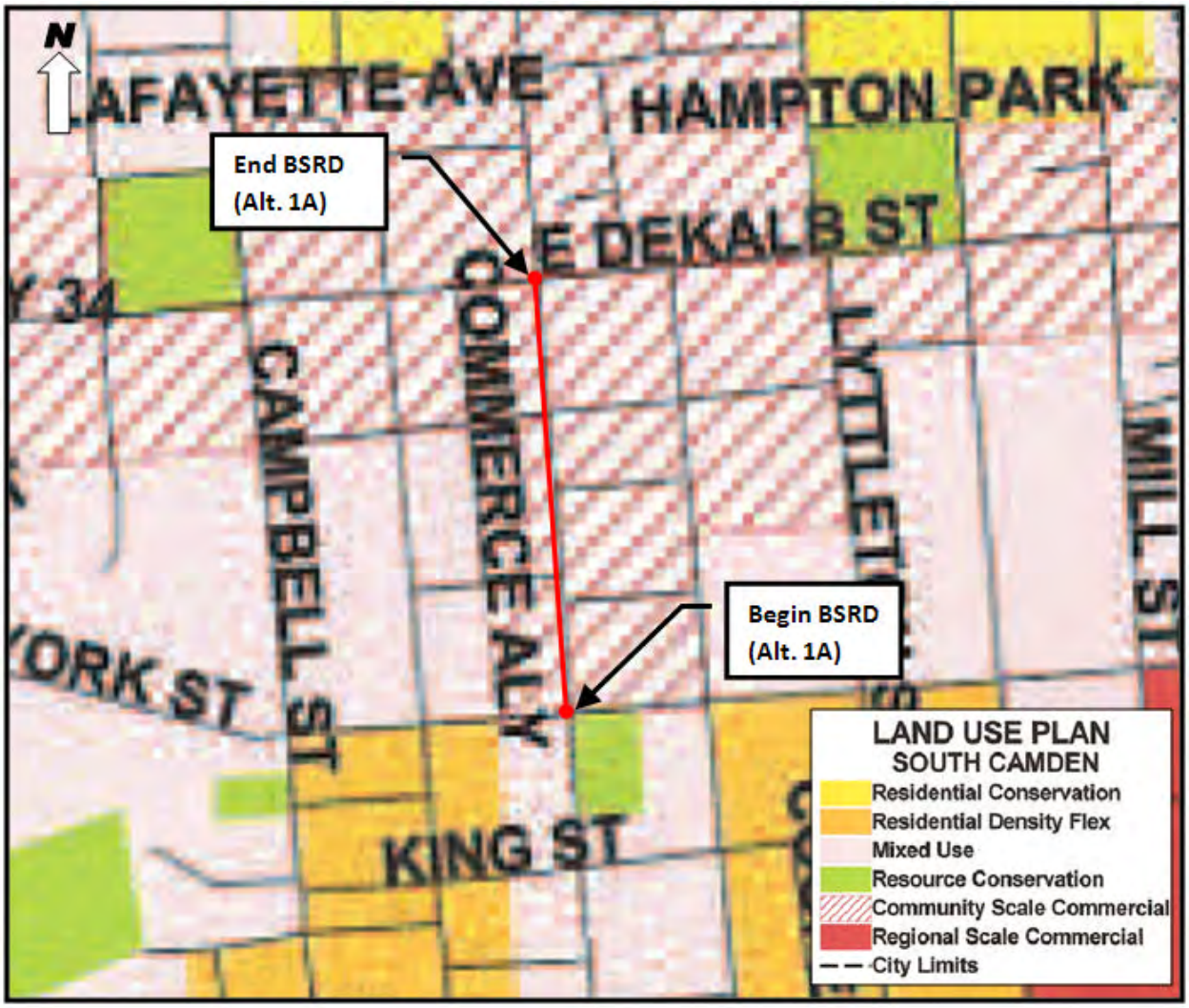


Figure 18: BSRD Land Use Plan

Southwest Quadrant

Segment One in the Southwest Quadrant (Alt SW-1.4) partially defines the City limits of Camden. Zoning adjacent to Segment One of the truck route consists primarily of General Development (GD), General Business District (B-2), and High Density Residential District (R-6) areas; however, additional residential and undeveloped wetland areas located outside of the City limits are also present as shown on Figure 19. The vicinity of the subject alignment is primarily undeveloped to the southwest of the corridor although the Camden High School Athletic Fields and a wastewater treatment plant are located in this area. In the areas to the north and east of the subject alignment, development is primarily residential, but some institutional and commercial development also exists. Camden High School is located midway along the alignment southeast of the intersection of Ehrenclou Drive and York Street.

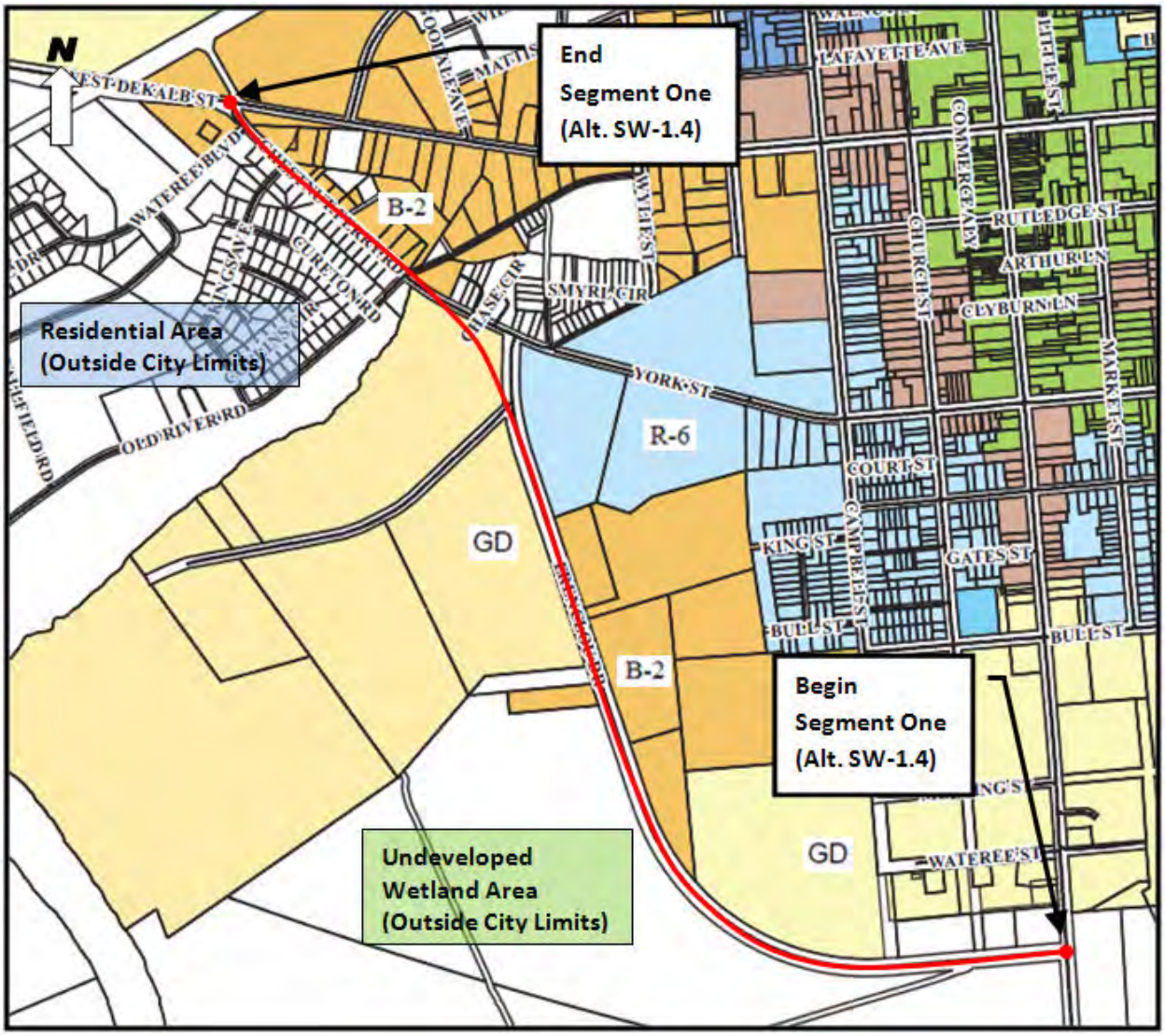


Figure 19: Segment One Existing Land Use

The Comprehensive Plan calls for much of the General Development (GD) zoned and undeveloped areas in the southern portion of the alignment to be established as Resource Conservation Areas as shown on Figure 20, likely due to the presence of wetlands, floodplains, and historic resources within these areas. Conservation areas limit future use to existing uses or a variation thereof. The existing High Density Residential and General Business Districts are planned to remain Mixed Use or Community Scale Commercial areas. Existing residential areas outside of the City limits are designated as Residential Conservation or Residential Density Flex. No new ROW will be required within the limits of the planned Resource Conservation areas and no adverse effects to overall wetland/floodplain functions or historic resources are expected. Although some ROW will be required along Chestnut Ferry Road from properties designated for residential conservation, the acquisitions will consist of converting a small strip of frontage to road ROW and the properties will remain residential. Implementation of the project is not expected induce development or change development patterns along Segment One and is consistent with the Comprehensive Plan (Appendix N).

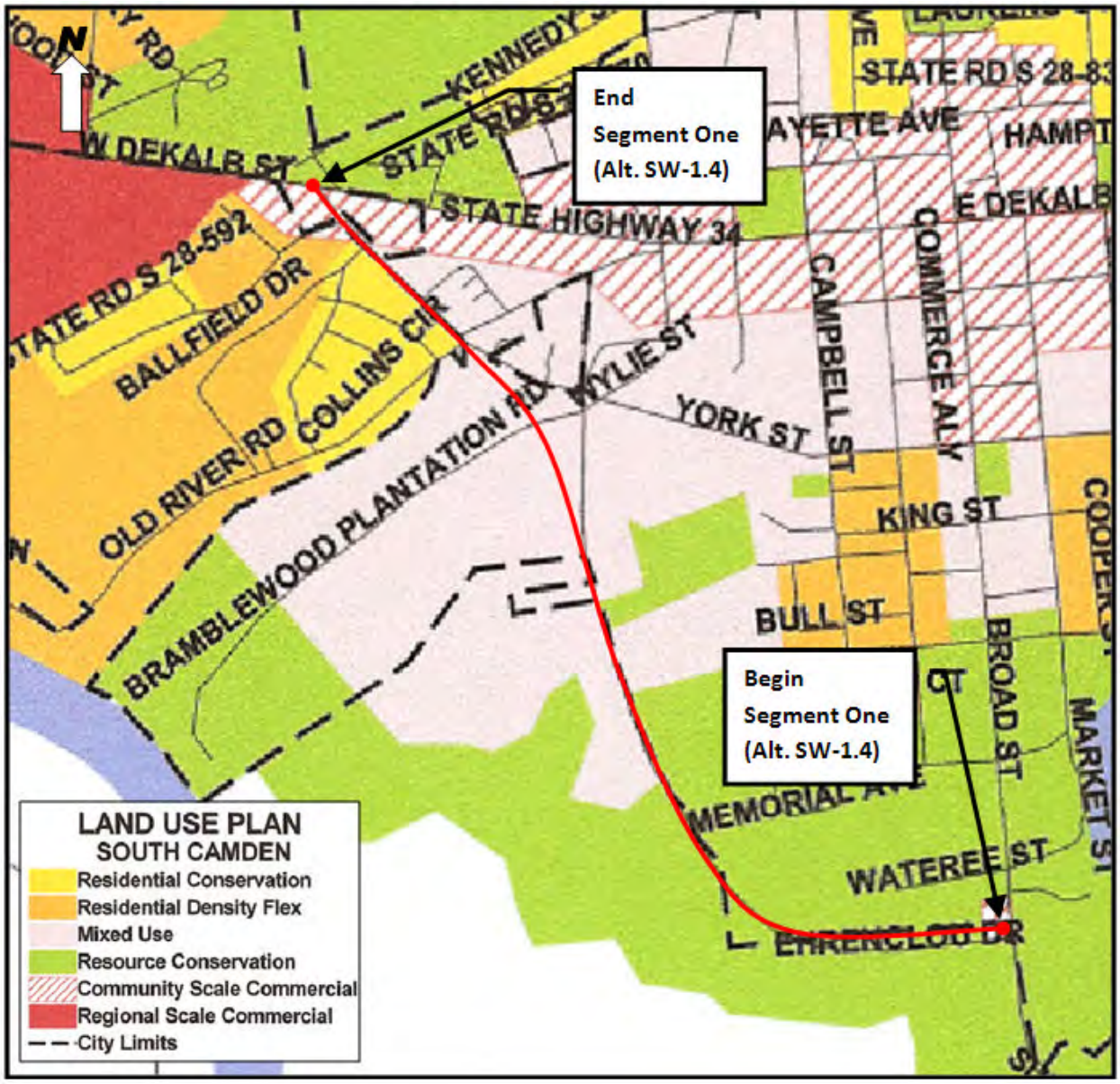


Figure 20: Segment One Land Use Plan

Northwest Quadrant

Zoning adjacent to Segment Two in the Northwest Quadrant (Alt. NW-3) of the truck route consists of Equine (EQ) and Low Density Single-Family Residential (R-15) Districts as shown on Figure 21. The area adjacent to the northwest side of the subject alignment is primarily wooded and undeveloped wetland areas between Knights Hill Road and Liberty Hill Road with the exception of the Springdale Recycling Center. The Springdale Race Course is located to the southeast of the subject corridor for the length of this section. Between Liberty Hill Road and US 521/ US 601, single-family residential development exists on the south side of the road and several church facilities exist north of the road.

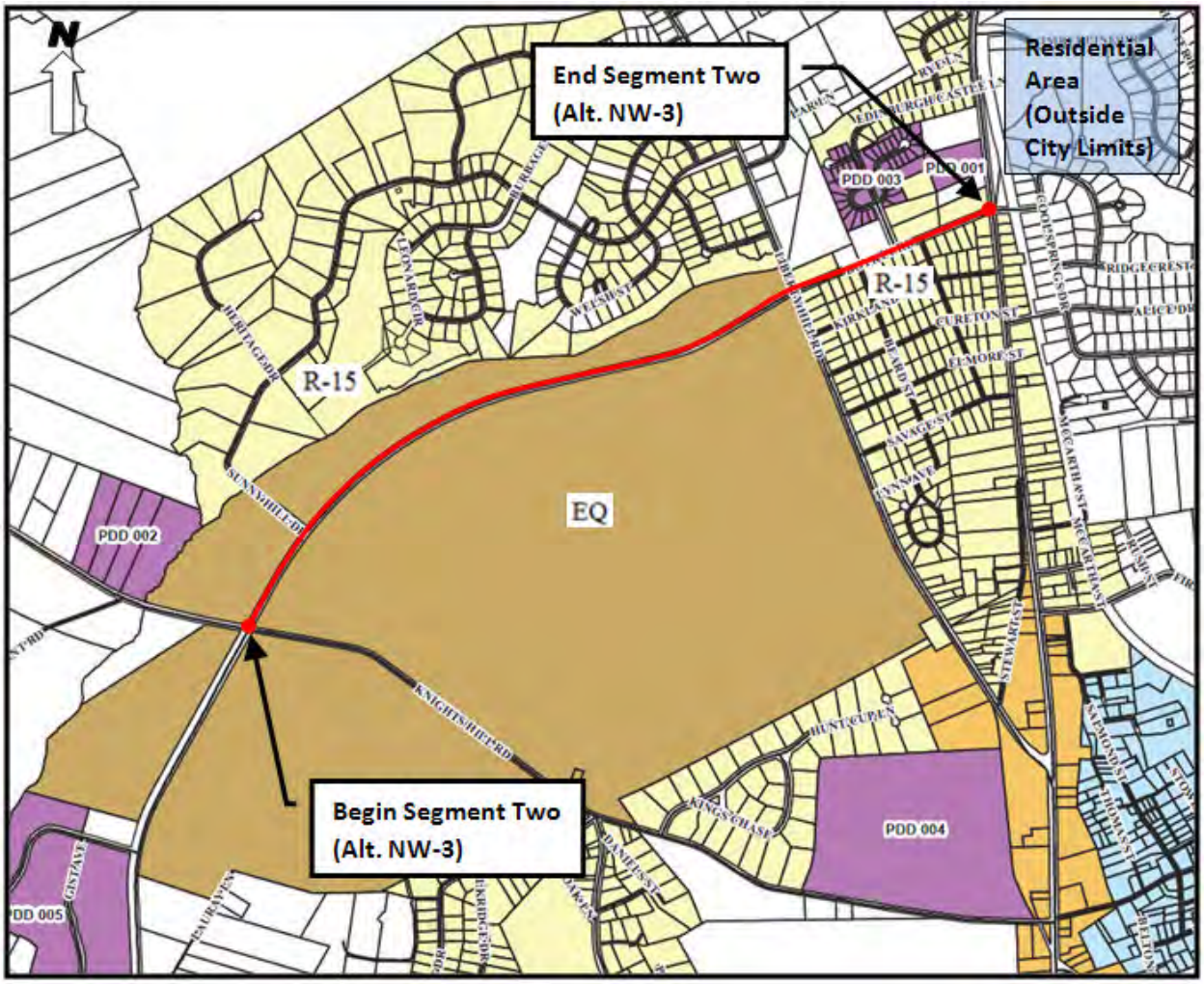


Figure 21: Segment Two Existing Land Use

The areas in the vicinity of the improvements to Segment Two are planned for resource and residential conservation as shown on Figure 22. Development is to be limited to existing use or a variation of existing use in these areas. No new ROW is expected to be acquired between Knights Hill Road and Liberty Hill Road; therefore, there will be no encroachment onto areas designated for resource conservation and no adverse effects to overall wetland functions or historic resources are expected. Although some ROW will be required from properties designated for residential conservation along to the north side of the alignment between Liberty Hill Road and US 521/ US 601, the acquisitions will consist of converting a small strip of frontage to road ROW and the properties will retain their current use. Implementation of the project is not expected to induce development or change development patterns along Segment Two and is consistent with the Comprehensive Plan (Appendix N).

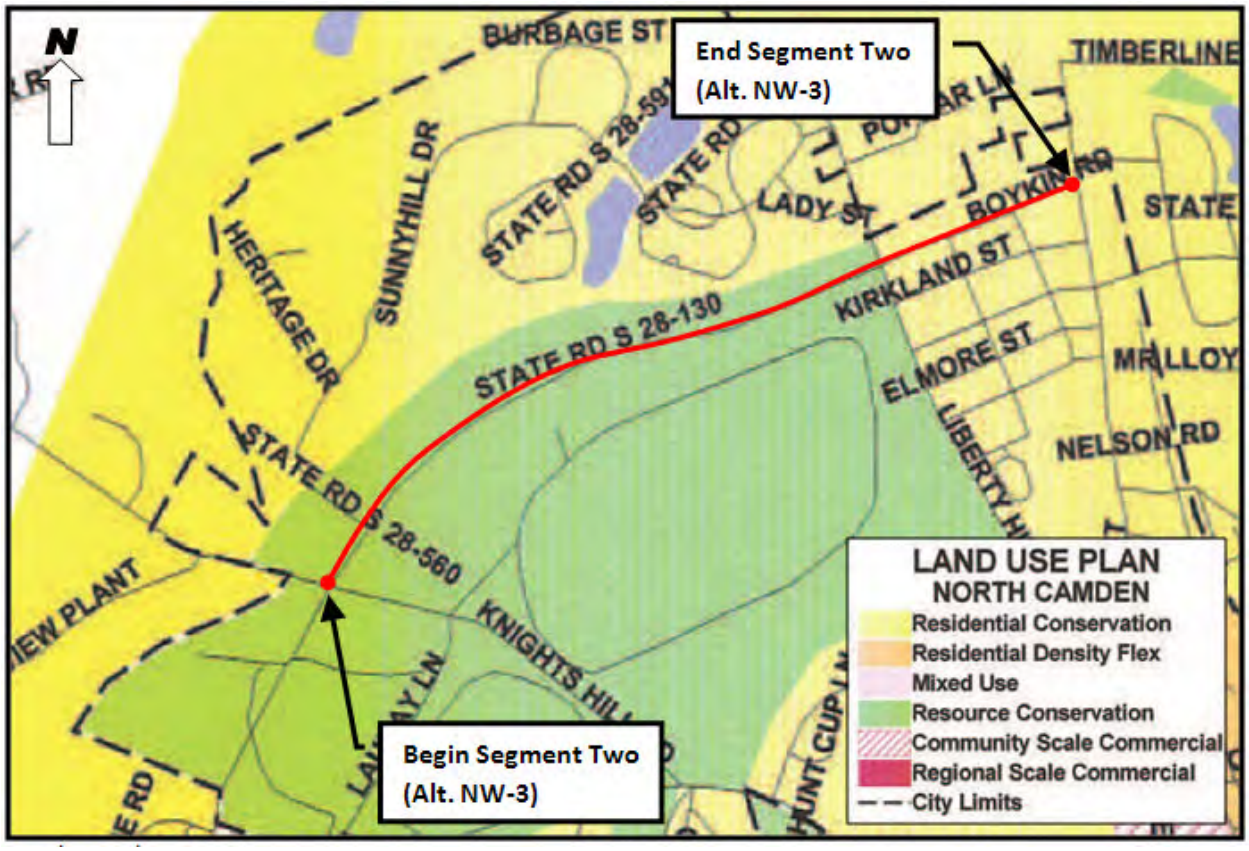


Figure 22: Segment Two Land Use Plan

Southeast Quadrant

Zoning adjacent to Segment Three in the Southeast Quadrant (Alt. SE-2) of the truck route consists of Central (B-1), General (B-2), and Limited (B-3) Business Districts, a Low Density, Single-Family Residential District (R-15) and an Industrial District (I-1) as shown on Figure 23. The structures adjacent to the subject alignment are primarily single-family residential dwellings, small-scale commercial buildings, and churches along York Street. The alignment passes through a section of undeveloped wooded land to reconfigure the intersection of York Street and Rippondon Street. Properties adjacent to the Rippondon Street section of the alignment are undeveloped except for commercial property at the intersection of US 1/ DeKalb Street.

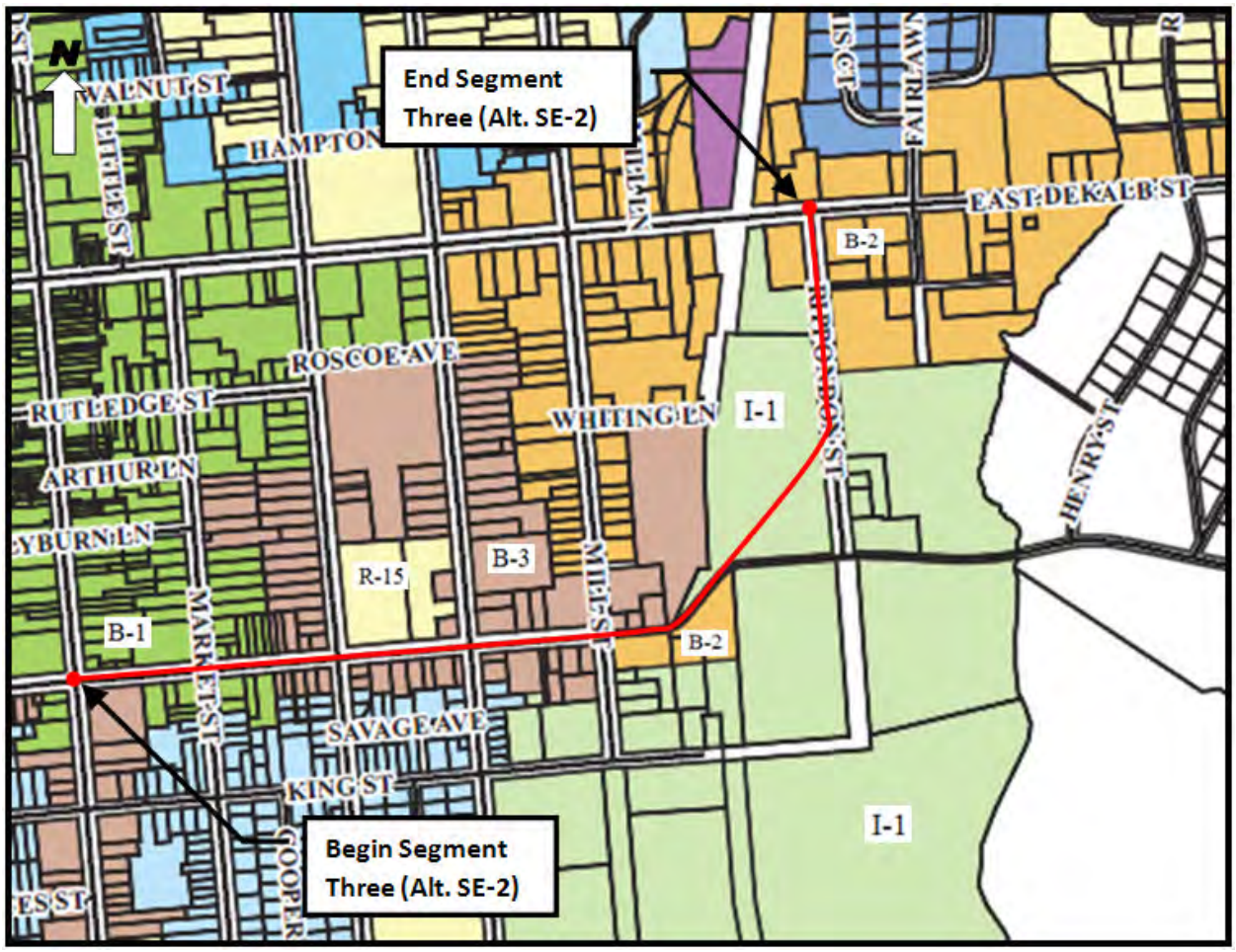


Figure 23: Segment Three Existing Land Use

The areas in the vicinity of the improvements to Segment Three are planned to consist of Residential Density Flex, Resource Conservation, Community Scale Commercial, Mixed Use, and Regional Scale Commercial development as shown on Figure 24. No new right of way will be required from the areas designated for resource conservation and the area will retain its existing use. A currently undeveloped wooded area within the Industrial District will be converted to roadway where the alignment turns north from York Street to connect with Rippondon Street. Implementation of the project is not expected to induce development or change development patterns along Segment Three and is consistent with the Comprehensive Plan (Appendix N).

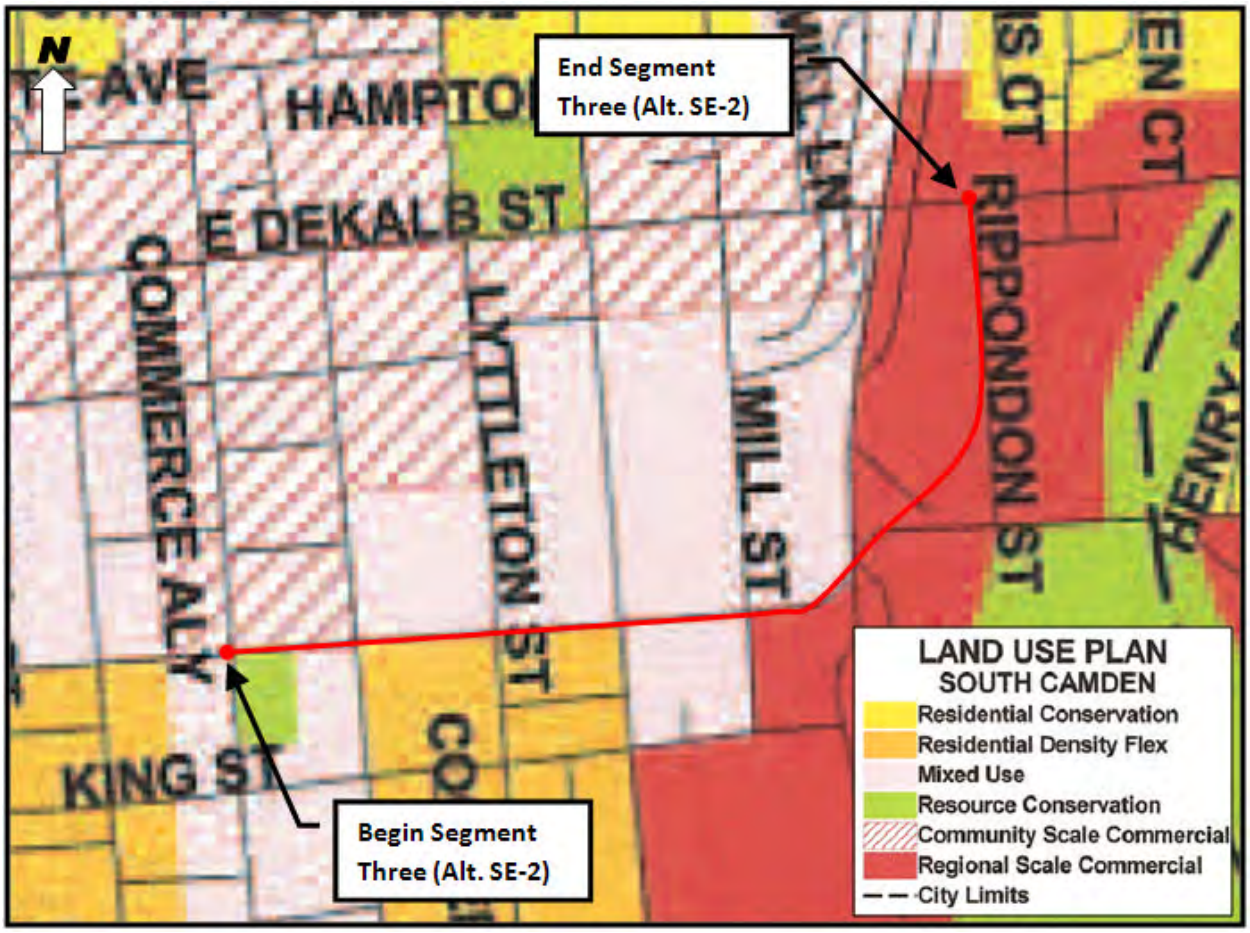


Figure 24: Segment Three Land Use Plan

Threatened or Endangered Species[11]

Pursuant to Section 7 of the Endangered Species Act of 1973, field surveys of the project corridors were conducted in November 2010 and March 2012. The United States Fish and Wildlife Service (USFWS) maintains a listing of Federally-protected species on a county level. The USFWS designates each Federally-protected species with one of two classifications, being Endangered (E), Threatened (T), or in the distinct case of eagles, a third classification is the Golden and Bald Eagle Protection Act (BGEPA). The USFWS listing relied upon for this assessment was last updated April 2012. A total of five (5) species are recognized in Kershaw County by the USFWS. The South Carolina Department of Natural Resources (SCDNR) maintains a list of rare, threatened and endangered species inventory with a State status associated to the species noted under the Federal classifications. The SCDNR compilation relied upon for this assessment was last updated February 10, 2012. The South Carolina Heritage Trust (SCHT) geographic database of documented occurrences of Federal and State threatened, rare, and endangered species (last updated January 17, 2006) was also reviewed.

The Federally-protected species, the corresponding State status, and a determination of suitable habitat for the federal species are summarized in Table 15.

Table 15: Federally-Protected Species in Kershaw County

Common Name	Scientific Name	Federal Status	State Status	Habitat Present/ Determination
Bald Eagle	Haliaeetus leucocephalus	BGEPA	E	No / No Effect
Red-cockaded Woodpecker	Picoides borealis	E	E	No / No Effect
Carolina Heelsplitter	Lasmigona decorata	E	E	No / No Effect
Atlantic Sturgeon	Acipenser oxyrinchus	E	E	No / No Effect
Michaux's sumac	Rhus michauxii	E	E	No / No Effect

Abbreviations: E= Endangered, T= Threatened, BGEPA= Bald and Golden Eagle Protection Act

No Federally-listed protected species were observed within the project corridors during the field reviews. According to the SCHT database, there were no documented occurrences of Federally-protected species in the project areas or within one mile of the project areas. No potential habitat for these Federally-protected species was identified in the project areas. Based on the lack of suitable habitat, no additional coordination with USFWS was required.

[11] Natural Resources Technical Memorandum (Appendix N)

Farmlands

The Farmland Protection Policy Act of 1981 (FPA) requires evaluation of farmland conversions to nonagricultural uses. Farmland can be prime farmland, unique farmland, or farmland of statewide or local importance. Prime farmland soils are those that have characteristics favorable for economic production of sustained high yields of crops. These soils may or may not be presently used as cropland. Conversely, land that is presently used as cropland may or may not be prime farmland. Land that is already in or committed to urban development or water storage is not considered farmland.[12] Most of the prime agricultural land in the study area is currently used for residential or commercial purposes.

This project has been assessed under the provisions of the FPA using the Farmland Impact Conversion Rating Form for Corridor Type Projects (NRCS-CPA-106). The BSRD portion of the project was not included in the farmland assessment as this portion of the project area is entirely committed to urban development. The truck route improvements portion of the project will convert some areas identified as prime/unique/important farmlands to a transportation use. The total project acreage is approximately 75.9 acres for the truck route improvements. A total of 12.6 acres outside the existing right of way will be incorporated into SCDOT right of way and will be directly converted to a transportation use. A total of 1.4 acres of land will be indirectly converted to a transportation use by effectively cutting it off from access. The maximum 100 point score for the Land Evaluation Information was assumed. The Corridor Assessment Criteria with scores based on percentages (Criteria 1, 2, 3, 5, 6, and 10) were averaged for the three project Segments to get a total project corridor rating. The Criteria with scores based on Yes/No or value judgments (Criteria 4, 6, 8, and 9) were based on the general impact of the project as a whole. Sites that score less than a total of 160 points, do not meet the threshold for protection nor do they need additional assessment by the NRCS district office.

The Preferred Alternative received a score of 126. Since the assessment does not exceed the 160-point maximum, further coordination with NRCS is not required. The Farmland Impact Conversion Rating Form for Corridor Type Projects and exhibits (FL1-FL3) can be found in Appendix G.

Water Quality[13]

The project areas are within the Catawba River Drainage Basin and the Wateree River Subbasin (USGS Hydrologic Unit Code 03040104). The Wateree River Subbasin is divided into ten sub-watersheds, two of which include the project areas. These two sub-watersheds include the Wateree River Watershed (HUC 03050104-030) and the Big Pine Tree Creek Watershed (HUC 03050104-070).

The state waters within the project area and immediate vicinity include Bolton Branch Creek, tributaries to Bolton Branch Creek, tributaries to Big Pine Tree Creek, and tributaries to Camp Creek. These waters are classified as Class FW, or “freshwaters”. Class FW waters are suitable for primary and secondary contact recreation and as source for drinking water supply, after conventional treatment in accordance with the requirements of the SCDHEC. These waters are suitable for fishing, and the survival and propagation of indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses.

[12] 7 CFR §658.2.
[13] Natural Resources Technical Memorandum (Appendix N)

During construction activities, temporary siltation may occur in the creek beds and erosion will be of a greater degree than presently occurring on existing terrain. Further, the replacement of two bridges over Bolton Branch Creek will occur. The contractor would be required to minimize impacts through implementation of construction best management practices, reflecting policies contained in 23 CFR 650 B and SCDOT's Supplemental Specifications on Seeding and Erosion Control Measures (August 15, 2001).

The surface waters within the project area and immediate vicinity are relatively low-gradient and sandy-bottomed. Due to the urban setting of the surface waters within the project areas, trash accumulation was evident in the surface waters.

In Segment One, Bolton Branch Creek and its tributary are characterized as urban streams draining the western portion of downtown Camden. Stream widths of Bolton Branch Creek and its tributary through the northwestern portion of Segment One ranged from 10-15 feet. The four smaller drainages adjacent to Ehrenclou Drive on the eastern portion of Segment One had widths ranging from 3-10 feet. Urban streams are typically located in watersheds with high impervious surface cover (pavements, structures, etc.), resulting in high surface runoff and low infiltration following storms. In response, these urban streams experience flashy storm flows, reduced base flows, bank erosion, and sedimentation. Urban streams typically exhibit high nutrient and contaminant concentrations.

On the eastern portion of Segment Three, the three drainages are intermittent (seasonal) streams with low-flow and stagnant water. Average widths of these features range between 3-6 feet.

There are multiple SCDHEC water quality stations within each of the described watersheds near the project area. There were no monitoring stations located on Bolton Branch Creek; however, four monitoring stations were located within a two-mile radius of the various project areas.

CW-021 monitoring station is located on Big Pine Tree Creek near U.S. 521 just south of Segment One. This is a blackwater system, characterized by naturally low pH conditions. These pH excursions are typical in blackwater systems and were considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand (BOD) and turbidity, and a significant increasing trend in dissolved oxygen (DO) concentration suggest improving conditions for these parameters. Aquatic life and recreational uses are fully supported.

CW-019 monitoring station is located on the Wateree River near U.S. 1 approximately 1.6 miles west of Segment One. Aquatic life uses are partially supported due to dissolved oxygen excursions; however, a significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. This water was listed on the 2010 SCDHEC List of Impaired Waters (303d list) for DO. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters as well. Recreational uses are fully supported at this site.

CW-214 monitoring station is located on the Wateree River near Interstate 20 approximately 1.3 miles southwest of Segment One. This water was listed on the 2010 SCDHEC List of Impaired Waters for DO and mercury (fish consumption advisory).

CW-223 monitoring station is located on Little Pine Tree Creek near Dicey Ford Road and Kendall Lake, approximately 1.7 miles north of Segment Three. This is a blackwater system, characterized by naturally low pH conditions. These pH excursions are typical in blackwater systems and were considered natural, not standards violations. Aquatic life uses are fully supported based on macro invertebrate community data; however, there is a significant increasing trend in turbidity. Recreational uses are partially supported due to fecal coliform bacteria excursions. This water was listed on the 2010 SCDHEC List of Impaired Waters for fecal coliform.

No approved Total Maximum Daily Loads (TMDL) have been established on the waters in the project areas.

Water Quality Impacts

The impact on water quality from the proposed projects is expected to be negligible. Impacts will be limited to potential sediments released during demolition of existing roads and bridges, and installation of the new roadways and bridges. Minor fill impacts to wetlands are also proposed. The bridge replacement is expected to improve hydraulic capacity and aquatic species passage. Best Management Practices will be established for stabilization and sediment controls in accordance with a site-specific NPDES/Stormwater Pollution Prevention Plan as required and enforced by SCDHEC.

The proposed projects are not expected to have long-term impacts to water quality within the Wateree River Watershed (HUC 03050104-030) and the Big Pine Tree Creek Watershed (HUC 03050104-070).

Wetlands and Waters of the US[14]

Wetland habitats are defined as those areas that are inundated by water with sufficient frequency and duration to support vegetation that is tolerant of saturated soil conditions. The U.S. Army Corps of Engineers utilizes specific hydrologic, soil, and vegetation criteria in establishing the boundary of wetlands within their jurisdiction. One method of assessing the value and function of wetlands is in terms of wildlife habitat. The U.S. Fish and Wildlife Service (USFWS) Resource Category criteria are outlined in the USFWS Mitigation Policy, 46 CFR 7644-7663. Resource categories and mitigation planning techniques are assigned based on the following criteria:

- Category 1 - Communities of one-of-a-kind high value to wildlife, unique and irreplaceable on a national or eco-regional basis, habitat is not replaceable in kind based on present-day scientific and engineering skills within a reasonable time frame.

- Category 2 - Communities of high value to wildlife, which are relatively scarce or are becoming scarce on a national, or eco-regional basis, habitat can be replaced in kind within a reasonable time frame based on present-day scientific and engineering skills.

- Category 3 - Community types of high to medium wildlife value which are relatively abundant on a national basis, out-of-kind replacement is allowable if a tradeoff analysis demonstrates equivalency of substituted habitat type and/or habitat values. These sites are often in conjunction with a replenishing source.

[14] Natural Resources Technical Memorandum (Appendix N)

- Category 4 - Community types of low to medium wildlife value, generally losses will not have a substantial adverse effect on important fish and wildlife resources. These sites have often been affected by the present roadway or human disturbances and are usually isolated.

A combination of vegetation analysis, hydrological observations, and soil sampling was utilized to determine the locations of wetlands within the proposed Camden Truck Route and BSRD project area. There were 0.412 acres of wetlands and 966 linear feet (lf) of jurisdictional streams identified within the project limits of Segment One in the Southwest Quadrant. There were 0.016 acres of wetlands and 96 lf of jurisdictional streams identified within the project limits of Segment 2 in the Northwest Quadrant. No wetlands or jurisdictional streams were identified within the project limits of Segment Three in the Southeast Quadrant or within the project limits of the BSRD. A total of approximately 1.0 acre (44,430 square feet) of wetlands and 1,062 lf of jurisdictional streams were identified within the project study area. The wetlands identified inside the project area are considered Category 4 in accordance with the USFWS Resource Category criteria. The Request for Jurisdictional Determination delineating the wetlands identified within the project limits is included as an attachment to the Natural Resources Technical Memorandum included in Appendix N. The proposed project will require a US Army Corps of Engineers Section 404 General Permit (GP No. 2010-01346). All necessary permits will be obtained prior to ground disturbing construction activities.

Stream Impacts

Broad Street Road Diet

No streams were identified within the project limits or will be impacted by the BSRD portion of the project.

Southwest Quadrant

Improvements to Segment One in the Southwest Quadrant will require the replacement of two bridges over Bolton Branch Creek; however no linear stream impacts are anticipated as indicated in Table 16.

Table 16: Segment One Jurisdictional Linear Features

Feature ID	Type	Comments	Size (acres)/ Length (lf)	Impact Length (lf)	Proposed Impact Type
RPW-1	P-RPW	Unnamed tributary to Big Pine Tree Creek	0.011/ 51 lf	0	None
RPW-2	S-RPW	Unnamed tributary to Big Pine Tree Creek	0.002/ 12	0	None
RPW-3	P-RPW	Unnamed tributary to Big Pine Tree Creek	0.004/ 21	0	None

Feature ID	Type	Comments	Size (acres)/ Length (lf)	Impact Length (lf)	Proposed Impact Type
RPW-4	S-RPW	Roadside ditch with Ordinary High Water Mark and flow observed; Unnamed tributary to Big Pine Tree Creek	0.006/ 26	0	None
RPW-5	P-RPW	Bolton Branch Creek	0.179/ 610	0	None
RPW-6	P-RPW	Unnamed tributary to Bolton Branch Creek	0.050/ 276	0	None
TOTALS			**0.252 ac 966 lf**	**0 lf**	

Northwest Quadrant

No streams or jurisdictional linear features were identified within the project limits or will be impacted by the improvements to Segment Two in the Northwest Quadrant.

Southeast Quadrant

Improvements to Segment Three in the Southeast Quadrant will cause direct impacts to approximately 96 lf of jurisdictional tributaries as indicated in Table 17. Proposed impacts include the piping/culverting of these existing features to accommodate the realignment and expansion of York Street.

Table 17: Segment Three Jurisdictional Linear Features

Feature ID	Type	Comments	Size (acres)/ Length (lf)	Impact Length (lf)	Proposed Impact Type
RPW-1	S-RPW	Unnamed tributary to Big Pine Tree Cr.; Ditch on east side of former railroad bed	0.007/ 43	43	Pipe/Culvert
RPW-2	S-RPW	Unnamed tributary to Big Pine Tree Cr.; Ditch on west side of former railroad bed	0.006/ 37	37	Pipe/Culvert
RPW-3	S-RPW	Unnamed tributary to Big Pine Tree Cr.; Combination of RPW-1 and RPW-2	0.003/ 16	16	Pipe/Culvert
TOTALS			**0.016 ac 96 lf**	**96 lf**	

Wetland Impacts

Broad Street Road Diet

No jurisdictional wetlands were identified within the project limits of the BSRD and improvements associated with the BSRD will not result in wetland impacts.

Southwest Quadrant

Improvements to Segment One in the Southwest Quadrant will result in wetland impacts due to the placement of fill at the base of the existing slopes to support road construction and/or clearing of wetlands. A total of 0.412 acres of wetlands were identified within the project limits. There are a total of 0.0473 acres of wetlands impacted in Segment One as indicated in Table 18.

Table 18: Segment One Jurisdictional Wetlands

Wetland ID	Wetland Type	Cowardin Classification	Within Project Limits (Ac.)	Impact Area (Ac.)	Impact Type
A	Forested, Floodplain	PFO1A	0.116	0.0078	Fill/Clearing
B	Forested, Floodplain	PFO1A	0.009	0	None
C	Forested, Floodplain	PFO1A PFO1Ad	0.086	0.0109	Fill/Clearing
D	Forested, Floodplain	PFO1A	0.051	0.0021	Fill/Clearing
E	Forested, Floodplain	PFO1C PFO1A	0.150	0.0265	Fill/Clearing
TOTAL			**0.412**	**0.0473**	

PFO1A = Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded
PFO1Ad = Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded, Partially Drained/Ditched
PFO1C = Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded

Northeast Quadrant

Improvements to Segment Two in the Northwest Quadrant will result in wetland impacts as a result of the placement of fill at the base of the existing slopes to support road construction and/or clearing of wetlands. A total of 0.59 acres of wetlands were identified within the project limits. There are a total of 0.321 acres of wetlands impacted in Segment Two as indicated in Table 19.

Table 19: Segment Two Jurisdictional Wetlands

Wetland ID	Wetland Type	Cowardin Classification	Within Project Limits (Ac.)	Impact Area (Ac.)	Impact Type
A	Forested, Floodplain	PFO1B	0.11	0.060	Fill/Clearing
B	Forested	PFO1B	0.09	0.060	Fill/Clearing
C	Forested, Floodplain	PFO1B	0.01	0.004	Fill/Clearing
D	Forested,	PFO1B	0.02	0.011	Fill/Clearing

Wetland ID	Wetland Type	Cowardin Classification	Within Project Limits (Ac.)	Impact Area (Ac.)	Impact Type
	Floodplain				
E	Forested, Floodplain	PFO1B	0.001	0	None
F	Forested, Floodplain	PFO1B	0.01	0	None
G	Forested, Floodplain	PFO1B	0.002	0	None
H	Forested, Floodplain	PFO1B	0.21	0.124	Fill/Clearing
I	Forested, Floodplain	PFO1B	0.03	0.012	Fill/Clearing
J	Forested, Floodplain	PFO1B	0.11	0.050	Fill/Clearing
TOTAL			**0.59**	**0.321**	

PFO1B = Palustrine, Forested, Broad-Leaved Deciduous, Saturated

Southeast Quadrant

No jurisdictional wetlands were identified within the project limits of Segment Three in the Southeast Quadrant improvements to Segment Three will not result in wetland impacts.

Mitigation

Compensatory mitigation is required to offset unavoidable losses of waters of the U.S. Mitigation is defined in 40 CFR Part 1508.20 to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts. The three general types of mitigation include avoidance, minimization, and compensatory mitigation. Compensatory mitigation should only be used when avoidance and minimization actions have been exhausted. SCDOT will comply with Executive Order 11990 regarding protection of wetlands.

It appears that there is no practicable alternative to the construction in wetland areas and the proposed action will include all practicable measures to minimize harm to wetlands that may result. Avoidance and minimization of wetlands impacts was considered a priority during project development. Alternative routes, shifting improvements to the left or right of existing roadways, and reduced roadway sections were considered to minimize impacts. Further minimization will take place during detailed design when the feasibility of 2:1 slopes through wetland areas will be evaluated. Best management practices including implementation of erosion control measures, which include seeding of slopes, silt fences, and sediment basins as appropriate, will be required of the contractor to ensure compliance with policies reflected in 23 CFR 650B.

Opportunities for on-site mitigation have been investigated during the project's development. Onsite mitigation opportunities are limited due to the steep slopes of the roadway embankments and the developed nature of the project corridor. Compensatory mitigation for the permanent impacts will be attained by deduction or purchase of wetland and stream mitigation credits from an approved SCDOT mitigation bank or a private mitigation bank. Specific mitigation criteria will be determined during the permitting process.

Permits[15]

Permit coordination will be carried out with the U.S. Army Corps of Engineers (USACE), Charleston District, for the design and construction of the project. The following permitting is anticipated:

- Section 404 of the Clean Water Act requires a permit for the discharge of dredged material or fill in a wetland. Cumulatively, approximately 0.38-acre of wetlands impacts and 96 lf feet of stream impacts are proposed for the combined project. Since impacts are within the 0.5 acre/300 linear feet limits of the USACE agreement with SCDOT (GP No. 2010-01346), a General Permit will be required.

- SCDHEC's 401 Water Quality Certification, pursuant to Section 401 of the Federal Water Pollution Control Act of 1972 as amended by the Clean Water Act of 1977 and the Water Quality Act of 1987 will be required. Certification is required for activities permitted by the USACE for construction occurring in navigable waters or discharge of dredged or fill material into the State's waters.

- A state SWPPP prepared and implemented by a certified preparer will be required for construction activity to impede the transport of sediment offsite under the National Pollutant Discharge Elimination System (NPDES). These regulations are administered by SCDHEC and are a component of the Construction General Permit (CGP) needed to conduct the proposed construction.

Terrestrial and Aquatic Wildlife[14]

Terrestrial Resource Habitat

Direct impacts to terrestrial communities include demolition, clearing, excavation, filling, and construction associated with the proposed projects. These impacts will include temporary and permanent impacts that will affect the plant communities within the confines of the project areas. The majority of the proposed permanent and temporary impacts follow existing road corridors have been disturbed in the past, resulting in a mosaic of forest patches. One area of loblolly pine stands and two minor areas of pine-mixed hardwood forestland will be cleared. The loblolly pine stand and one of the pine-mixed hardwood forested areas are located southwest of the intersection of Ehrenclou Drive and Chestnut Ferry Road on Segment One. The other pine-mixed hardwood forested area is located northwest of the intersection of York Street and Rippondon Street on Segment Three. Clearing of these areas is not anticipated to cause indirect effects or contribute to cumulative impacts to terrestrial wildlife. Major habitat disruption such as fragmentation or the reduction of available nesting, feeding, and cover areas is not anticipated due to the project areas being located near existing road corridors.

[15] Natural Resources Technical Memorandum (Appendix N)

Aquatic Resource Habitat

An intensive pedestrian survey was conducted to determine if jurisdictional or isolated wetlands, tributaries (streams, rivers, or other linear conveyances), ponds, or lakes were located within the project area boundaries. Aquatic resources were identified during the Wetland Delineation. Impacts to aquatic resources are detailed under the Wetlands and Waters of the U.S. section of this document.

Essential Fish Habitat

The National Oceanic and Atmospheric Administration (NOAA) - National Marine Fisheries Service (NMFS), in conformance with the Magnuson-Stevens Fishery Conservation and Management Act of 1976 and 1996 Sustainable Fishery Act amendments, manages issues associated with essential fish habitat (EFH). Per these regulations, provisions have been set forth to identify and protect important habitats of federally-managed marine and anadromous fish species. EFH consists of waters and substrates necessary to fish for spawning, breeding, feeding, or overall growth to maturity. Biological communities include, but are not limited to, tidal marshes, cobble, mud/clay burrows, submerged aquatic vegetation, and mussel beds. Migratory routes such as rivers serving as passageways back and forth from anadromous fish spawning grounds are also EFH.

The project areas are not located near a marine environment. One anadromous fish, the Atlantic Sturgeon (*Acipenser oxyrinchus),* is listed for Kershaw County. The nearest available habitat for this species is the Wateree River, located approximately 0.65 mile from Segment One. Proposed impacts to streams and wetlands are not anticipated to impact the Wateree River. Accordingly, the project is not expected to impact EFH.

Floodplains

Impacts on the floodplain have been evaluated in general accordance with Executive Order 11988: Floodplain Management, May 24, 1977. Based on a study of Flood Insurance Rate Maps (FIRM) published by the Federal Emergency Management Administration (FEMA) (Appendix H) portions of the proposed project would involve construction within the 100-year flood limits of the Wateree River, Bolton Branch Creek, and Little Pine Tree Creek. Alternative routes to avoid construction within the base floodplain were evaluated as discussed in the Camden Truck Routes Technical Memorandum (Appendix F); however, these other alternatives were determined to either not meet the purpose and need of the project or to have other, more severe impacts on the human and natural environment. The level of risk analogous with the probable area of flooding and its consequences attributed to this encroachment is not expected to be any greater than that associated with the present roadway. The Preferred Alternative for the project is an improvement of existing roadways within the floodplain and is not expected to worsen the existing flood hazard and therefore, would not normally be considered a significant encroachment.[16] Furthermore, the project will not have: 1) a significant potential for interruption or termination of a transportation facility needed for emergency vehicles or which provides a community's only evacuation route, 2) any increased potential for impact on those critical elements that would constitute a significant risk under 23 CFR 650A, or 3) a significant impact on natural and beneficial floodplain values. Therefore, the proposed Preferred Alternative is not a significant encroachment as defined in FHPM 6-7-3-2.

[16] FHWA Memo, Significant Encroachments, S. Gordon, 04/02/1985

Broad Street Road Diet

The proposed improvements to Broad Street (Alt. 1A) are located outside of the regulated floodplain and defined floodway, as shown on Figure 25. The relevant portion of FIRM 45055C0451E (Panel 0451E), revised December 19, 2006 is included in Appendix H.

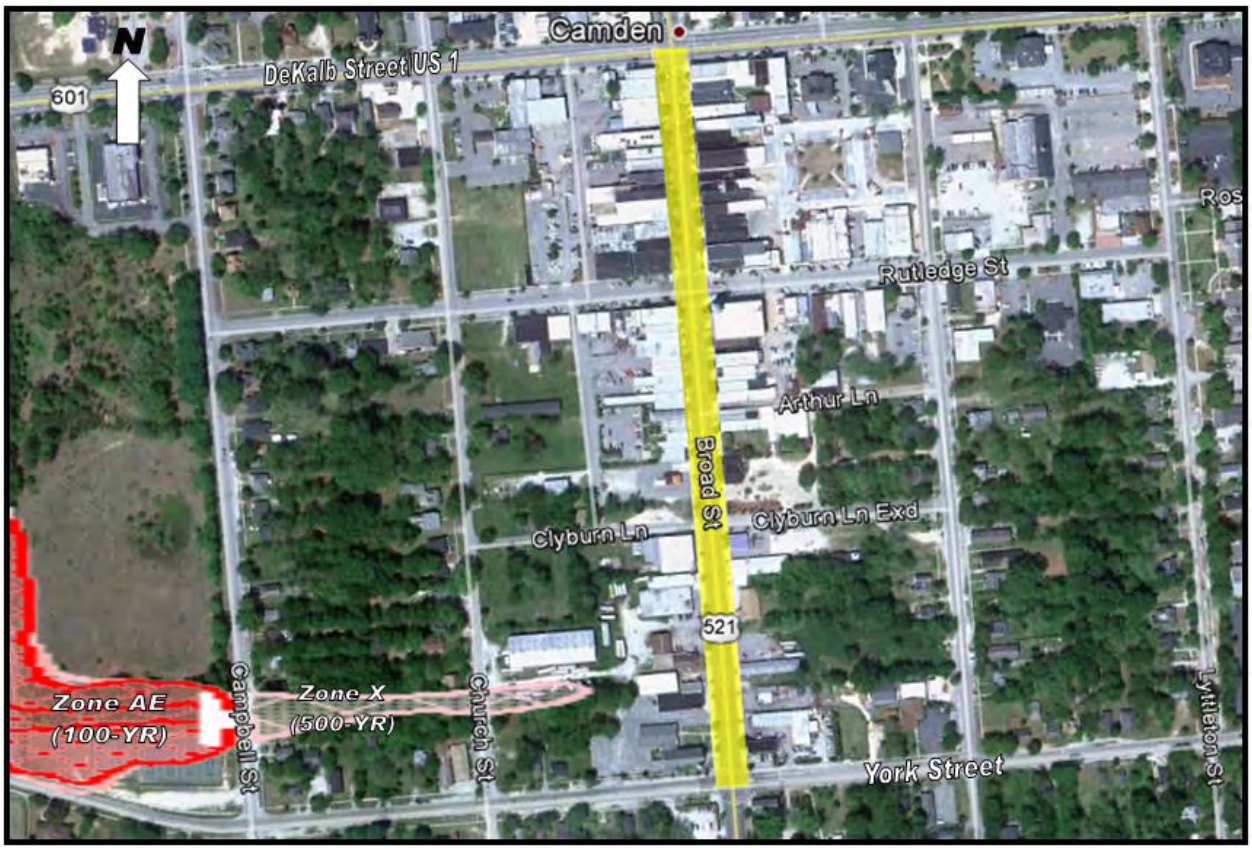


Figure 25: BSRD Floodplain Location Map

Southwest Quadrant

The proposed improvements to Segment One in the Southwest Quadrant (Alt. SW-1.4) are located primarily outside of the regulated floodplain and defined floodway but a longitudinal encroachment in the southern portion of the alignment (Figure 26) and two bridge replacements and associated approach modifications (Figure 27) will take place within the 100-year floodplain (Zone AE) associated with the Wateree River and Bolton Branch Creek, respectively. The relevant portions of FIRM Number 45055C0451E (Panel 0451E), dated December 19, 2006 are included in Appendix H.

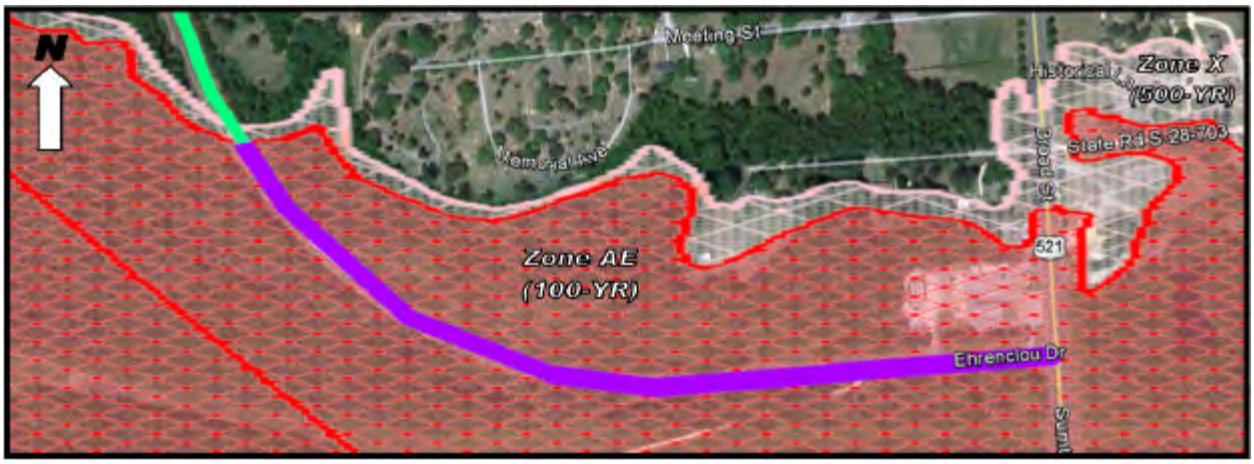


Figure 26: Segment One Wateree River Floodplain Location Map

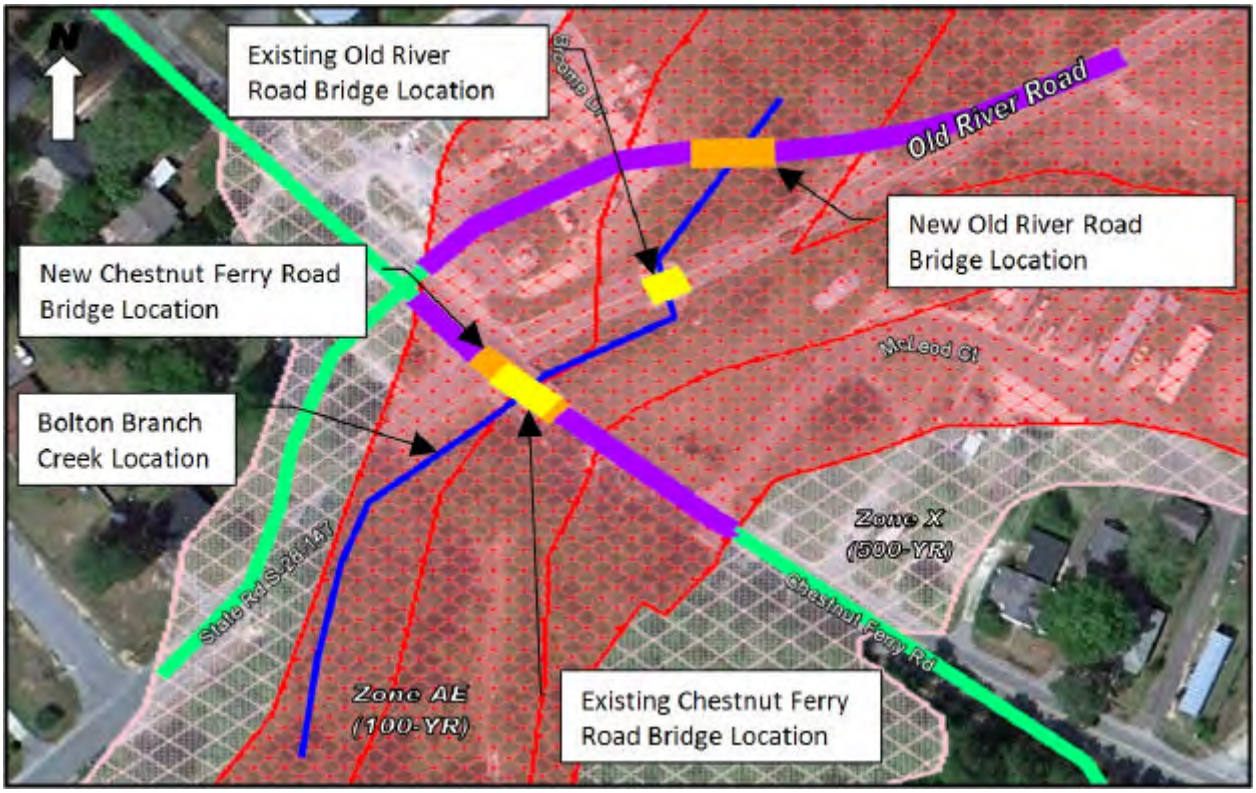


Figure 27: Segment One Bolton Branch Creek Floodplain Location Map

Northwest Quadrant

The proposed improvements to Segment Two in the Northwest Quadrant (Alt. NW-3) are located outside of the regulated floodplain and defined floodway, as shown on Figure 28. The relevant portions of FIRM 45055C0317E (Panel 0317E), 45055C0319E (Panel 0319E) and 45055C0336E (Panel 0336E), revised December 19, 2006 are included in Appendix O.

Figure 28: Segment Two Floodplain Location Map

Southeast Quadrant

The proposed improvements to Segment Three in the Southeast Quadrant (Alt. SE-2) are located primarily outside of the regulated floodplain and defined floodway but the northern portion of the alignment on Rippondon Street will have a longitudinal encroachment within the 100-year floodplain (Zone AE) of Little Pine Tree Creek, as shown on Figure 29. The relevant portions of FIRM 45055C0451E (Panel 0451E), dated December 19, 2006 are included in Appendix H.

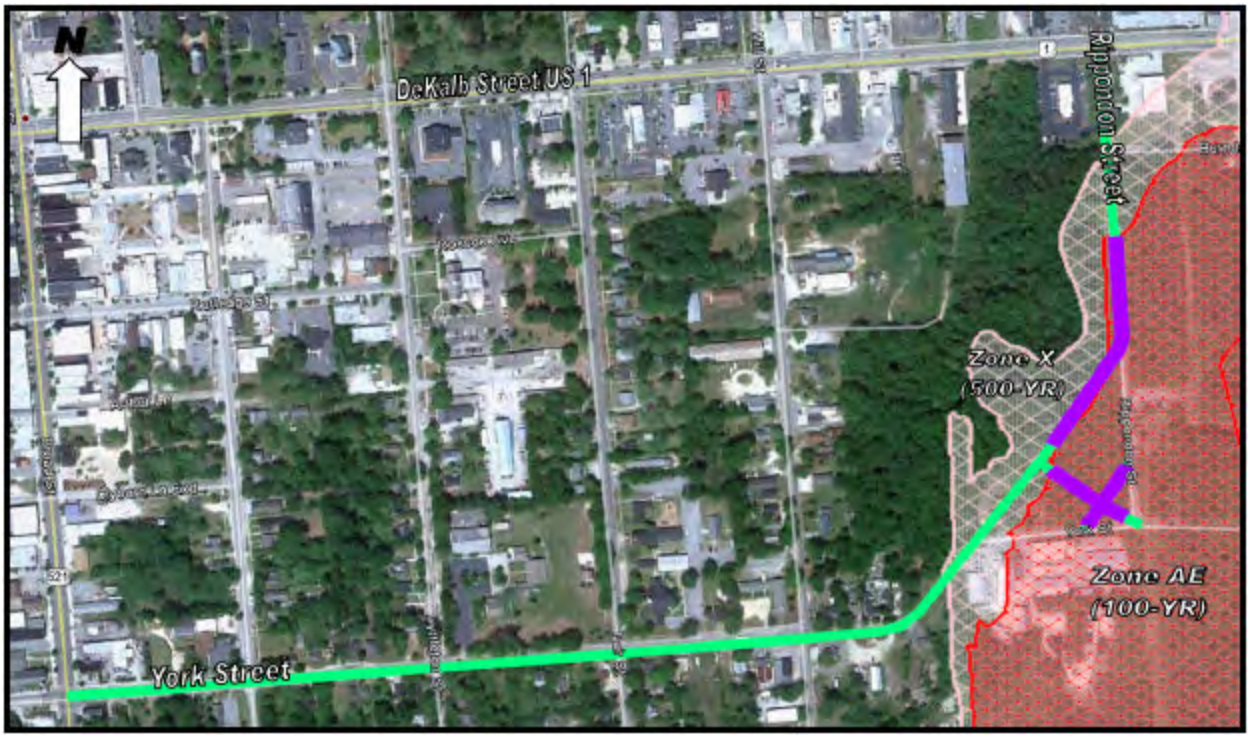


Figure 29: Segment Three Floodplain Location Map

Floodplain Impact Analysis

Preliminary impact areas were calculated based on comparing existing and proposed roadway sections within the 100-year floodplain as depicted by the Federal Emergency Management Agency (FEMA) FEMA_NFHL_v2.4.kmz file viewed in Google Earth.[17] The impact areas and calculations by road section are shown in Table 20 and are totaled in Table 21. Impact areas along Segment One in the Southwest Quadrant are shown on Figure 26 and Figure 27. Impact areas in the Southeast Quadrant are shown on Figure 29. Segment Two in the Northwest Quadrant (Figure 28) and the BSRD (Figure 25) are located entirely outside of the regulated 100-year floodplain.

[17] (https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload)

Table 20: Floodplain Impacts by Road Segment

Road Sections Within Floodplain	Description of Location	Existing Typical Section			Existing X-sec Width (ft)	Proposed Typical Section			Proposed X-sec Width (ft)	X-sec Impact Width (ft)	Floodplain Impact Length (ft)	Floodplain Impact Area (ft^2)	Floodplain Impact Area (Ac)
		Quantity	Type	Width (ft)		Quantity	Type	Width (ft)					
Ehrenclou	South (Through Wetlands and Floodplain)	2	Travelways	12	36	2	Travelways	12	44	8	3,065	24,520	0.56
						2	Multi-Use Paved Shoulder	6					
		2	Earth Shoulder	6		2	Earth Shoulder	4					
Old River Road	Northeast of Chestnut	2	Travelways	12	32	2	Travelways	12	50	18	530	9,540	0.22
						2	Curb and Gutter	2					
		2	Earth Shoulders	4		2	Sidewalk	5					
						1	N-Earth Shoulders	6					
						1	S-Earth Shoulders	6					
Chestnut Ferry	At Old River Road Intersection	2	Travelways	12	36	1	Turnlane	15	63	36	280	10,080	0.23
						2	Travelways	12					
						2	Bikepath	4					
		2	Earth Shoulder	6		2	Curb and Gutter	2					
						2	Sidewalks	5					
						2	Earth Shoulder	1					
New Alignment	Between York and Rippondon	Does Not Exist			0	1	Turnlane	15	58	58	390	22,620	0.52
						2	Travelways	12					
						1	Sidewalks	5					
						2	Curb and Gutter	2					
						2	Bikepath	4					
						2	Earth Shoulder	1					
Rippondon	South of DeKalb	2	Travelways	11	34	1	Turnlane	15	58	24	390	9,360	0.22
						2	Travelways	12					
						1	Sidewalks	5					
						2	Bikepath	4					
		2	Earth Shoulder	6		2	Curb and Gutter	2					
						2	Earth Shoulder	1					
Tie-In 1	To York EB	Does Not Exist			0	1	Turnlbay	15	47	47	310	14,570	0.34
						2	Travelways	12					
						2	Earth Shoulder	4					
Tie-In 2	Access Tie-In	Does Not Exist			0	2	Travelways	12	32	32	245	7,840	0.18
						2	Earth Shoulder	4					

Table 21: Floodplain Impacts Summary

Quadrant Alternatives	BSRD	Southwest (Alt. SW1.4) +	Northeast (Alt. NE-3) +	Southeast (Alt. SE-2) +	= Preferred Alternative
Road Sections Within Floodplain	N/A	Ehrenclou	N/A	New Alignment	**Total Project Floodplain Impacts of SW-1.4 + SE-2 =**
		Old River		Rippondon	
		Bramblewood		Tie-In 1	
		Chestnut Ferry		Tie in 2	
Total Floodplain Impact Areas		**1.02**	**0**	**1.25**	**2.27**

Additionally, a preliminary hydraulic analysis was conducted for the floodplain encroachments and bridge replacements over Bolton Brach Creek (Figure 27) using Hydrologic Engineering Centers River Analysis System (HEC-RAS). The result of the studies indicated that the project is not expected to cause more than a 1 foot rise in backwater flood elevations. A complete study of impacts will be conducted to more precisely determine the effect of the project on the base floodplain and to document a No-Rise certification during detailed design.

Coordination with the Kershaw County Floodplain Manager is included in Appendix (M).

Air Quality

This project would be consistent with the South Carolina State Air Quality Implementation Plan (SIP) regarding the attainment of the National Ambient Air Quality Standards. Presently, Kershaw County meets all air quality standards for automobile related pollutants. The State Bureau of Air Quality at the SCDHEC has determined that transportation control measures (TCMs) are not required to maintain the area's air quality.

Mobile Source Air Toxics[18]

In addition to regulation of "criteria" pollutants under the NAAQS, the FHWA provides guidance on addressing Mobile Source Air Toxics (MSATs) in the environmental review process for highway projects. In September of 2009 the FHWA issued the *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents.* According to this FHWA guidance, the proposed project is classified as a project with low potential MSAT effects. A qualitative assessment of emissions projection for the proposed project MSAT effects is included in the following section.

[18] FHWA MSAT Guidance (Appendix I)

MSAT Qualitative Analysis

A qualitative 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 Evaluation Mobile Source Air Toxic Emissions Among Transportation Project Alternatives.*[19]

For each alternative evaluated in this EA, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for the Build Alternative is slightly higher than that for the No Build Alternative even though the proposed route is shorter due to the re-routing of heavy trucks to the routes from other roadways in the network. Refer to Table 22. This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6.2 model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent between 1999 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

Table 22: Vehicle Miles Traveled Per Segment

Roadway	ADT		Portal Length (miles)		Average Daily VMT		Yearly VMT	
	No Build (2035)	Build (2035)	Base (2010)	Design (2035)	No Build (2035)	Build (2035)	No Build (2035)	Build (2035)
Broad Street	10,347	10,100	0.36	0.36	3,725	3,636	1,359,596	1,327,140
Ehrenclou (Broad to Chestnut)	6,064	6,500	1.28	1.32	7,762	8,580	2,833,101	3,131,700
Chestnut (Ehrenclou to Dekalb)	9,834	10,200	0.48	0.39	4,720	3,978	1,722,917	1,451,970
Boykin (Knights Hill to Liberty Hill)	9,323	9,500	1.24	1.24	11,561	11,780	4,219,590	4,299,700

[19] www.fhwa.dot.gov/environment/air_quality/air_toxics/research/methodology/methodology00.cfm (4/23/12)

Roadway	ADT		Portal Length (miles)		Average Daily VMT		Yearly VMT	
	No Build (2035)	Build (2035)	Base (2010)	Design (2035)	No Build (2035)	Build (2035)	No Build (2035)	Build (2035)
Boykin (Liberty Hill to US 521)	6,723	6,900	0.38	0.38	2,555	2,622	932,480	957,030
York (Broad to Mill)	9,031	9,300	0.47	0.47	4,245	4,371	1,549,268	1,595,415
York (Mill to Rippondon)	7,068	7,500	0.24	0.30	1,696	2,250	619,157	821,250
Rippondon (York to DeKalb)	1,853	2,300	0.31	0.19	574	437	209,667	159,505
TOTAL	**60,243**	**62,300**	**4.76**	**4.65**	**36,838**	**37,654**	**13,445,775**	**13,743,710**

In sum, the Build Alternative in the design year is expected to be associated with higher levels of MSAT emissions in the study area, relative to the No Build Alternative, along with some benefit from improvements in speeds and reductions in region-wide truck traffic. There also could be slightly higher differences in MSAT levels among Alternatives in a few localized areas where freight activity occurs closer to homes, schools, and businesses. Under all alternatives, MSAT levels are likely to decrease over time due to nationally mandated cleaner vehicles and fuels.

Incomplete/Unavailable Information

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 roadway 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 US 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 CAA 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".[20] 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

[20] EPA, https://www.epa.gov/iris/

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[21] or in the future as vehicle emissions substantially decrease.[22]

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. The results produced by the EPA's MOBILE6.2 model, the California EPA's Emfac2007 model, and the EPA's DraftMOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in an NCHRP study[23], which documents poor model performance at ten sites across the country – three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with National Ambient Air Quality Standards for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI.[24] 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[25] and the HEI[26] 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

[21] HEI, http://pubs.healtheffects.org/view.php?id=282
[22] HEI, http://pubs.healtheffects.org/view.php?id=306
[23] http://www.epa.gov/scram001/dispersion_alt.htm#hyroad
[24] http://pubs.healtheffects.org/view.php?id=282
[25] http://www.epa.gov/risk/ basicinformation.htm#g
[26] http://pubs.healtheffects.org/getfile.php?u=395

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 a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or 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.

Based on simplified analysis of the type of project under consideration, widening of an existing roadway, the proposed project does not involve significant affects on regional air quality levels. The proposed project is intended to improve traffic flow and enhance mobility and may provide some localized air quality benefits by alleviating some congestion in the area. The roadway widening is expected to improve traffic operations in the local area as well as the region.

Noise[27]

A noise impact assessment was conducted in general compliance with Part 772 of Title 23 of the Code of Federal Regulations, 23 USC Section 109(h) and (i), the FHWA established guidelines for the assessment of highway traffic-generated noise, and the SCDOT Traffic Noise Abatement Policy dated July 13, 2011 for a Type I project. Impacts were analyzed for Segment One (Ehrenclou to Chestnut Ferry) in the Southwest Quadrant, Segment Two (Boykin Road) in the Northwest Quadrant, and Segment Three (York to Rippondon) in the Southeast Quadrant. No noise impact analysis was conducted for the BSRD. The BSRD does not increase capacity or shift traffic closer to receivers and would be classified as a Type III project.

Noise considerations are part of the planning, design and construction of all Federal-aid projects. Title 23 of the Code of Federal Regulations Part 772 (23 CFR 772) defines traffic noise impacts as "impacts which occur when the future predicted traffic noise levels approach or exceed the Noise Abatement Criteria (NAC) or when the future predicted traffic noise levels substantially exceed the existing noise levels." The NAC are listed in Table 23.

[27] Noise Impact Assessment (Appendix N)

Table 23: Noise Abatement Criteria Hourly A-Weighted Sound Level decibels, dB(A)

Activity Category	Activity Leq(h)	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential (includes undeveloped lands permitted for residential).
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	-	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	-	-	Undeveloped lands that are permitted.

Actual noise measurements were taken using a ANSI Type I Sound Level Meters to help determine existing ambient noise levels and to validate the noise prediction model. Field measurements were taken at representative sites at peak and off-peak times in 15-minute intervals. The field data log is included with the Noise Impact Assessment in Appendix N. Modeled noise levels were within the acceptable 3 dB(A) of the measured noise levels.

Base noise levels were calculated using the FHWA Traffic Noise Model (TNM) 2.5. Input to the model includes the existing roadway alignment, 1-hr peak traffic volumes, vehicle speeds, and truck percentages. The traffic data for base year of 2010 and design year of 2035 have been selected for the models. The traffic data for this project is included with the Noise Impact Assessment in Appendix N. Respectively, the No Build and Build speed limits utilized in the models were 35 and 45 mph for Segment One, 40 and 45 mph for Segment Two and 30 and 30 mph for Segment Three. It should be noted that design speed limits were used in the analysis to evaluate a worst case scenario. Posted speed limits for Segment One and Segment Two may be lower than the design speed and would reduce noise impacts from those projected.

Ten receptors were modeled along Segment One (Figure 30) and the results of the impact analysis are summarized in Table 24; four receptors were modeled along Segment Two (Figure 31) and the results of the impact analysis are summarized in Table 25; and nine receptors were modeled along Segment Three (Figure 32) and the results of the impact analysis

are summarized in Table 26. In addition to sensitive receptors, vacant/undeveloped parcels were also studied to provide local planning officials with the tools they need for compatible land use planning. Vacant/Undeveloped parcels are identified on the figures in Appendix A of the Noise Impact Assessment. Based on an inquiry with the Camden City Planner, none of the vacant parcels are currently permitted for development or have pending permits. Table 27 shows how the noise levels are dissipated based on distance from edge of pavements.

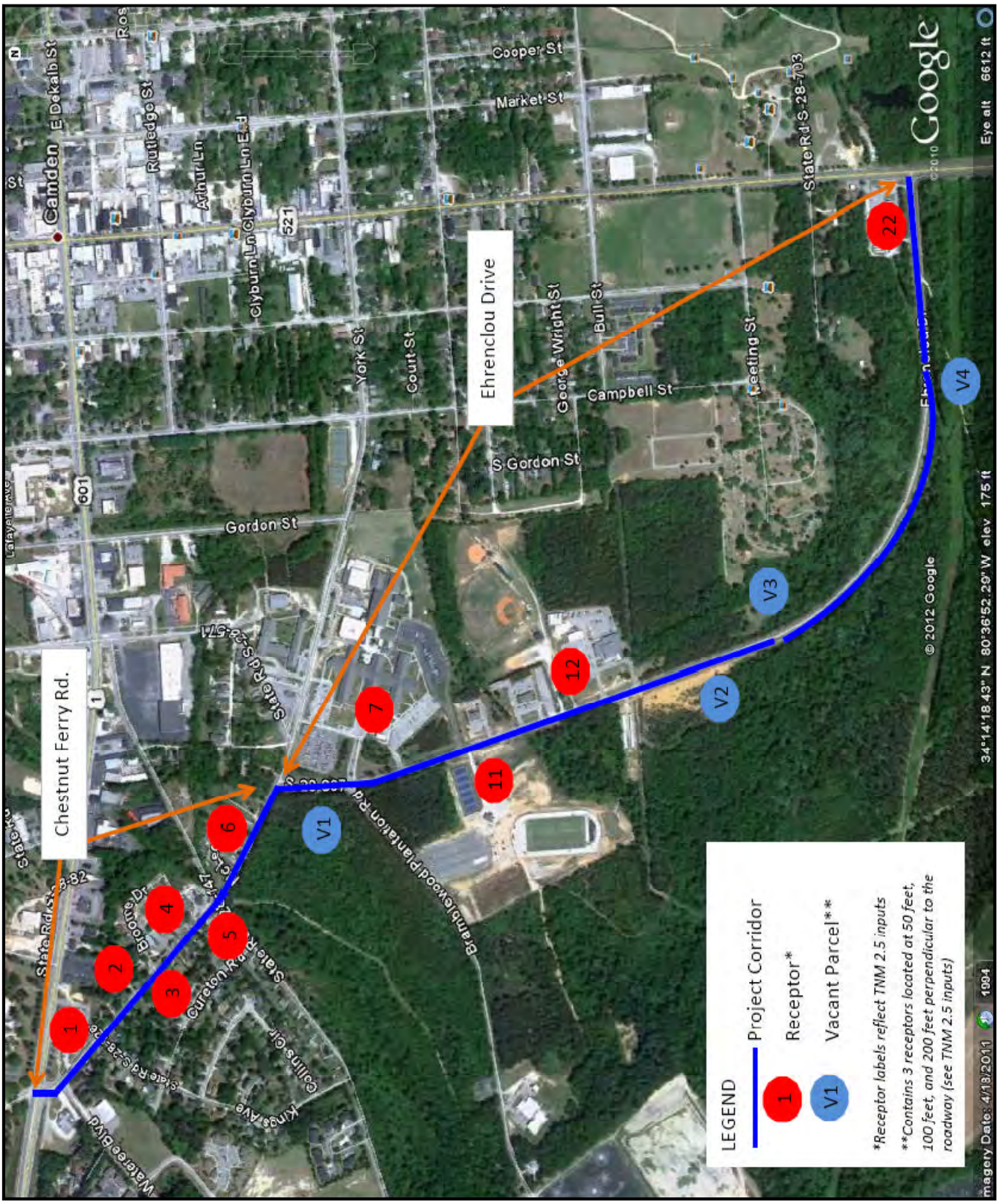


Figure 30: Segment One Noise Receptors

Table 24: Projected Noise Results - Segment One

Receptor No.	NAC Category/ Identification	Base 2010	No Build 2035	Build 2035	Increase between build and base	Increase between build and no build	Impact	# of dwelling units
1	E – Auto Parts Store	58.4	61.4	60.1	1.7	-1.3	No	0
2	B – 1224/1302/ 1304/1306 Chestnut Ferry Rd.	62.9	65.8	64.4	1.5	-1.4	No	4
3	B – 1213/1215/ 1299/1301 Chestnut Ferry Rd.	60.5	63.5	**69.6**	9.1	6.1	Yes	4
4	E – 1202/1206/ 1210 Chestnut Ferry Rd.	58.2	61.3	61.0	2.8	-0.3	No	0
5	B – 1205/1207/ 1209/1211 Chestnut Ferry Rd.	59.0	62.0	**67.6**	8.6	5.6	Yes	4
6	B – 1112/1114/ 1116 Chestnut Ferry Rd.	61.5	64.5	63.8	2.3	-0.7	No	3
7	C – Camden High School	58.2	61.6	57.9	-0.3	-3.7	No	0
11	C – Athletic Field	56.6	60.3	59.1	2.5	-1.2	No	0
12	E – National Guard Office	54.2	58.0	60.3	6.1	2.3	No	0
22	E – SC Natural Gas	53.0	57.1	59.9	6.9	2.8	No	0

***Bold** indicates noise levels greater than NAC, which also indicates impact.*

Traffic noise impacts were evaluated by comparing the predicted design year noise levels with the NAC and with existing noise levels. In accordance with the Department's noise abatement policy, a noise impact will occur if the predicted design year noise level approaches (falls within 1 dBA) or exceeds the NAC. Noise impacts will also occur if the difference between the existing noise level and the predicted noise level is 15 dBA or greater. A 15 dBA increase is considered to be a "substantial increase."

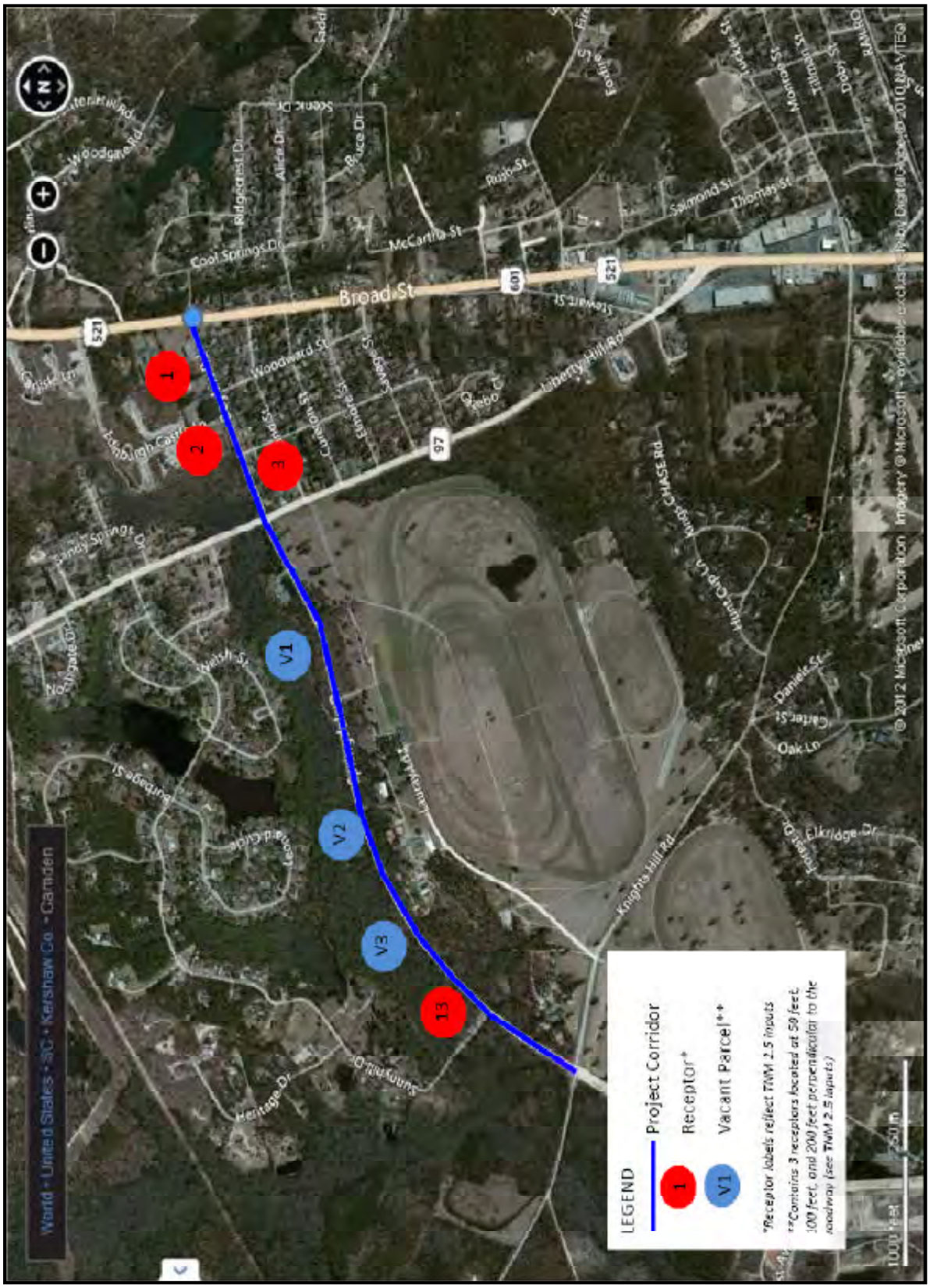


Figure 31: Segment Two Noise Receptors

Table 25: Projected Noise Results - Segment Two

Receptor #	NAC Category/ Identification	Base 2010	No Build 2035	Build 2035	Increase between build and base	Increase between build and no build	Impact	# of dwelling units
1	C – Cornerstone Baptist Church	54.9	58.3	59.7	4.8	1.4	No	0
2	B – 601/603/605/ 607/609 Boykin Rd.	58.3	61.7	65.8	7.5	4.1	No	5
3	B – 803/805/807 Boykin Rd.	60.1	63.5	65.0	4.9	1.5	No	3
13	G – Sunnyhill Rd. south entrance	64.0	66.1	66.3	2.3	0.2	No	0

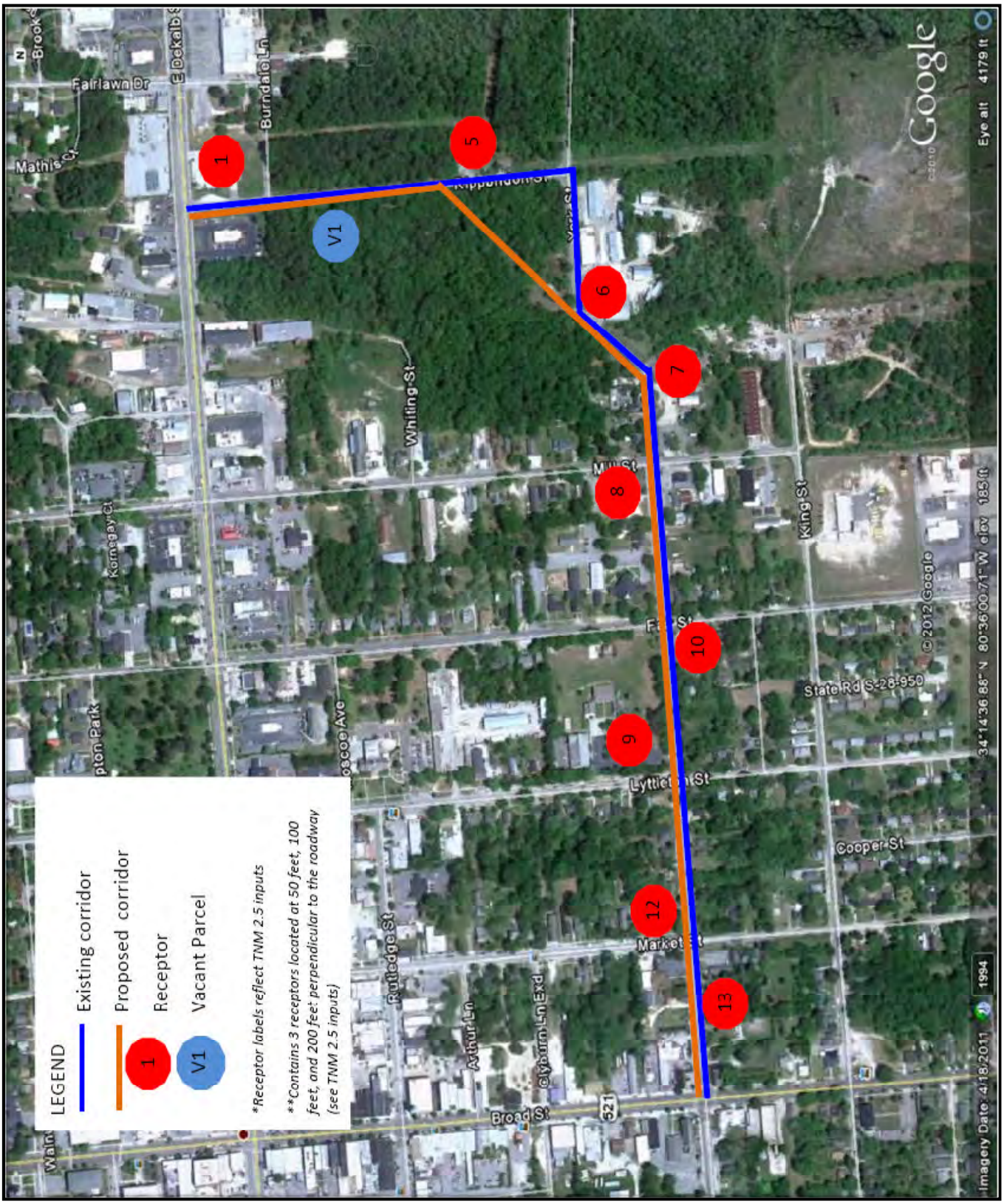


Figure 32: Segment Three Noise Receptors

Table 26: Projected Noise Results - Segment Three

Receptor #	NAC Category/ Identification	Base 2010	No Build 2035	Build 2035	Increase between build and base	Increase between build and no build	Impact	# of dwelling units
1	E – Auto Parts Store	46.9	54.7	53.8	6.9	-0.9	No	0
5	B – 1006/1008 Rippondon St.	53.6	61.0	57.6	4.0	-3.4	No	2
6	E – Miller Lumber	58.4	62.4	58.0	-0.4	-4.4	No	0
7	E – Palmetto Pet Grooming	64.0	65.0	65.1	1.1	0.1	No	0
8	C – Southside Baptist Church	57.7	61.2	60.0	2.3	-1.2	No	0
9	E – Fine Arts Center	54.8	58.3	56.8	2.0	-1.5	No	0
10	B – 301/303/305/307/ 309 York St.	59.0	62.3	62.0	3.0	-0.3	No	0
12	C – Life in the Word Outreach Church.	62.6	65.8	65.8	3.2	0.0	No	2
13	E – City of Camden Commissioner's Office	63.3	66.5	66.3	3.0	-0.2	No	0

Table 27: Vacant/Undeveloped Parcel Identification - Build Condition (2035)

Segment	Parcel	50 feet	100 feet	200 feet
One	V1	64.1	61.4	58.1
	V2	57.3	55.2	52.2
	V3	66.6	57.9	55.8
	V4	57.0	54.9	52.1
Two	V1	66.8	61.4	57.2
	V2	66.8	61.7	57.8
	V3	66.7	62.5	57.5
Three	V1	60.2	56.1	52.6

The Base 2010 noise levels range from **53.0 to 62.9 dB(A)** at Segment One, **54.9 to 64.0 dB(A)** at Segment Two, and **46.9 to 64.0 dB(A)** at Segment Three. The No Build 2035 noise levels range from **57.1 to 65.8 dB(A)** at Segment One, **58.3 to 66.1 dB(A)** at Segment Two, and **54.7 to 66.5 dB(A)** at Segment Three. The Build 2035 noise levels range from **57.9 to 69.6 dB(A)** at Segment One, **59.7 to 66.3 dB(A)** at Segment Two, and **53.8 to 66.3 dB(A)** at Segment Three.

A maximum increase of 9.1 dB(A) is projected to occur at receptor # 3 at Segment One and a maximum increase of 8.6 dB(A) is projected to occur at receptor # 5 at Segment One. No receptors are anticipated to experience a substantial increase (e.g. 15 dBA or greater) in traffic noise levels.

Two receptors (#3 and #5 in Segment One) representing 8 residential parcels would be impacted under the build condition compared to zero sites under the no-build condition. These sites are impacted due to exceeding the 67dB(a) threshold for activity category "B" as listed in Table 23. The parcels impacted are located along the southeast side of Chestnut Ferry Road portion of Segment One in the Southwest Quadrant where the alignment shifts closer to receptors in order to avoid displacements.

Evaluation of Noise Abatement

In accordance with 23 CFR Part 772, all impacts need to be studied to determine if abatement measures in the forms of, acquisition of rights-of-way, traffic management, alteration of horizontal and vertical alignments, and barriers are feasible and reasonable.

According to the noise policy, the noise abatement measures listed below may be incorporated into Type I Federal or Federal-air projects to reduce traffic noise impacts:

1) Construction of noise barriers, including acquisition of property rights, either within or outside the highway right-of-way. Landscaping is not a viable noise barrier.
2) Traffic management measures (e.g., traffic control devices and signing for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits and exclusive lane designations);
3) Alteration of horizontal and vertical alignments;
4) Acquisition of property rights (predominantly unimproved property) to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise;
5) Noise insulation of Activity Category D land use facilities listed in Table 1. Post-installation maintenance and operational costs for noise insulation are not eligible for Federal-aid funding.

Feasibility:

Acoustic Feasibility. According to the policy, a noise reduction of at least 5 dB(A) must be achieved for 75% of those receivers determined to be impacted for the noise abatement measure to be acoustically feasible.

Engineering Feasibility. The ability to achieve noise reduction may be limited by:

- Topography
- Safety
- Drainage
- Utilities
- Maintenance of the abatement measure
- Access to the adjacent properties
- The exposed height of the noise abatement measure cannot exceed 25 feet based on constructability constraints.

The model projected an impact at receptors # 3 and # 5 located along Segment One. An increase of 9.1 dB(A) was projected at receptor # 3, which represents four dwelling units identified as 1213/1215/1299/1301 Chestnut Ferry Road. An increase of 8.6 dB(A) was projected at receptor #5, which represents four dwelling units identified as 1205/1207/1209/1211 Chestnut Ferry Road. All residences listed above have direct driveway access to Chestnut Ferry Road; therefore, a noise barrier is not feasible.

Reasonableness:

There are three Mandatory Reasonable Factors that must be met for a noise abatement measure to be considered reasonable. The Three Mandatory Reasonable Factors must collectively be achieved in order for a noise abatement measure to be deemed reasonable.

- *Viewpoints of the property owners and residents of the benefited receptors:* Viewpoints from the community, including benefited receptors, will be solicited by SCDOT for all aspects of the project. The abatement measure will be considered reasonable from the viewpoint of benefitting receptors unless greater than 50% of votes not desiring noise abatement are received.
- *Cost Effectiveness*: The allowable cost of the abatement will be based on $35.00 per square foot. This allowable cost is based on actual construction costs of recent SCDOT projects. This construction cost will be divided by the number of benefited receptors. If the cost per benefited receptor is less than $30,000 then the barrier is determined to be cost effective.
- *Noise Reduction Design Goal:* The SCDOT policy states that a noise reduction of at least 8 dB(A) must be achieved for 80% of those receivers determined to be benefited. A noise reduction of 5 dB(A) determines a receptor to be benefited.

Noise abatement measures at all impacted receptors were considered. However, no feasible and reasonable measures were identified for the impacted sites due to the need to maintain driveway access. The final decision on implementation of abatement measures will be made in conjunction with the public involvement process and prior to the approval of the FONSI. A copy of the Noise Impact Assessment will be provided to local planning officials for coordination of future noise impacts as required by 23 CFR 772.115.

Construction Noise

Minimizing construction noise is important; however, in the absence of standardized federal criteria for assessing construction noise impacts related to transportation projects (FHWA Construction Noise Handbook, 2006), the noise policy has set the following general steps be performed for all Type I projects:

a. Identify land uses or activities that may be affected by noise from the construction of the project. The identification is to be performed during the project development studies.
b. Determine the measures that are needed in the plans and specifications to minimize or eliminate adverse construction noise impacts to the community including alternate designs to keep noise levels to a minimum (e.g. the use of drilled shafts vs. driven piles in noise sensitive area). This determination will include a weighing of benefits achieved and the overall adverse social, economic, and environmental effects and costs of abatement measures.
c. Incorporate the needed abatement measures in the plans and specifications, as appropriate.

Construction will result in temporary noise impacts within the immediate vicinity of the project. To the extent possible, construction activities will be confined to normal working hours. The contractor would be required to comply with OSHA regulations regarding noise attenuation devices on equipment.

Hazardous Waste and Underground Storage Tanks

Hazardous waste/material sites are regulated by the Resource Conservation and Recovery Act (RCRA), as amended, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Phase I Environmental Site Assessments (ESA's) were conducted on each segment of the truck route improvements and for the BSRD in order to identify possible sites involving the presence and/or past use of underground storage tanks (USTs), above ground storage tanks (ASTs), and/or other hazardous materials within the project corridor (Appendix N). One area of concern as to possible environmental liabilities was identified along York Street. Zero operational USTs were identified within the subject corridor.

It is the SCDOT's practice to avoid the acquisition of underground storage tanks and other hazardous materials, if possible. If avoidance is not a viable alternative, tanks and other hazardous materials will be tested and removed and/or treated in accordance with the U.S. Environmental Protection Agency (USEPA) and SCDHEC requirements.

Broad Street Road Diet

A Phase I Environmental Site Assessment (ESA) was performed for an approximately 0.77 mile corridor along US 521 (Broad Street), extending from King Street to Laurens Court. The results of the ESA revealed no underground storage tanks located within or immediately adjacent to the subject corridor. No *de minimis* environmental conditions were identified with the subject corridor. Although three historical recognized environmental conditions were identified within the subject corridor, the responsible sites have received No Further Action Status from the SCDHEC and contamination above regulatory thresholds is no longer believed to be present. The former sites identified were:

- 902 BROAD STREET PROPERTY (Facility ID 18425): Leaking Underground Storage Tank (LUST) Site located at 902 Broad Street (No Further Action status received May 18, 1999)
- CAMDEN AMOCO (Facility ID 05375): LUST site located at 1130 Broad Street (No Further Action status received July 5, 2006)
- SOUTHERN BELL CMDNSCMA (Facility ID 09722): LUST site located at 1201 Broad Street (No Further Action status received 1992 and 1994)

No current recognized environmental conditions or UST sites were identified within or immediately adjacent to the subject corridor.

Southwest Quadrant

A Phase I ESA was performed in January 2011 for an approximately 1.7 mile corridor along S-897/Ehrenclou Drive and S-45 Chestnut Ferry Road. No UST sites, current recognized environmental conditions, historical recognized environmental conditions, or *de minimis* environmental conditions were identified within or immediately adjacent to the subject corridor.

Northwest Quadrant

A Phase I ESA was performed in February 2011 for an approximately 1.6 mile corridor along S-130 (Boykin Road) between Knights Hill Road and Liberty Hill Road. No UST sites, current recognized environmental conditions, historical recognized environmental conditions, or *de minimis* environmental conditions were identified within or immediately adjacent to the subject corridor.

Southeast Quadrant

In April 2012 a Phase I Environmental Site Assessment (ESA) was performed for an approximately 1 mile corridor along York Street and Rippondon Street. No UST sites, historical recognized environmental conditions, or *de minimis* environmental conditions were identified within or immediately adjacent to the subject corridor. However, one current recognized environmental condition was identified within the subject corridor:

- Bobby Jones Grocery (Figure 33): Although no longer present, the facility was located at 302 York Street in the NW corner of the York and Fair Street intersection, adjacent to the subject corridor. Environmental sampling conducted in May 2006 reported contamination levels in soil and groundwater exceeding maximum contamination levels (MCL) for petroleum bi-products (Segment Three Phase I ESA – Appendix N). Although no new ROW is expected to be acquired in this area, further investigation of soil and groundwater contamination within the subject alignment, adjacent to the northwest quadrant of the York Street and Fair Street intersection, will be preformed prior to ground disturbing activities.

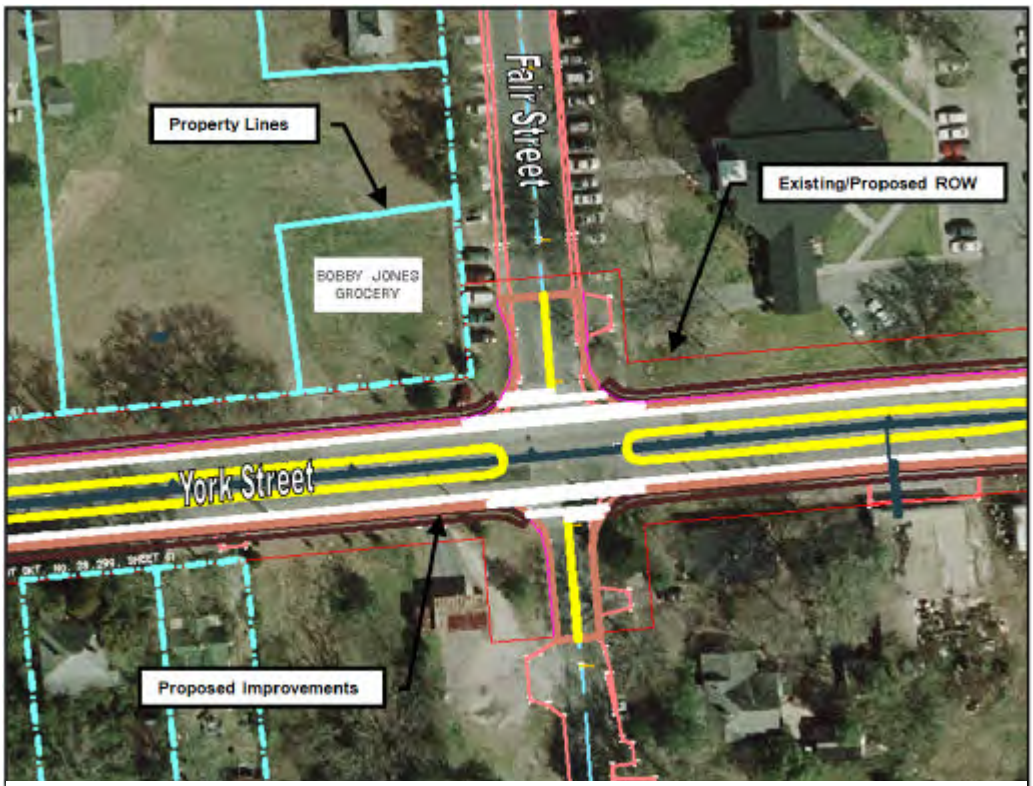


Figure 33: Former Bobby Jones Grocery Site Location Map

Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 as amended requires federal agencies to "take into account the effects of their undertakings on historic properties" (36 CFR Part 800.1). Historic properties are generally defined as any district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places. Where sites have been determined to be potentially eligible for the NRHP or "unassessed", they will be treated as though they are eligible for the NRHP.

In an effort to identify consulting parties and gather preliminary information on historic properties within the corridor, a letter of intent was sent to the State Historic Preservation Office, South Carolina Institute of Archaeology and Anthropology, Catawba Indian Nation, and the Kershaw County Historical Society. A generic copy of the letter of intent with a distribution list and all responses to the letter of intent from consulting agencies are provided in Appendix M.

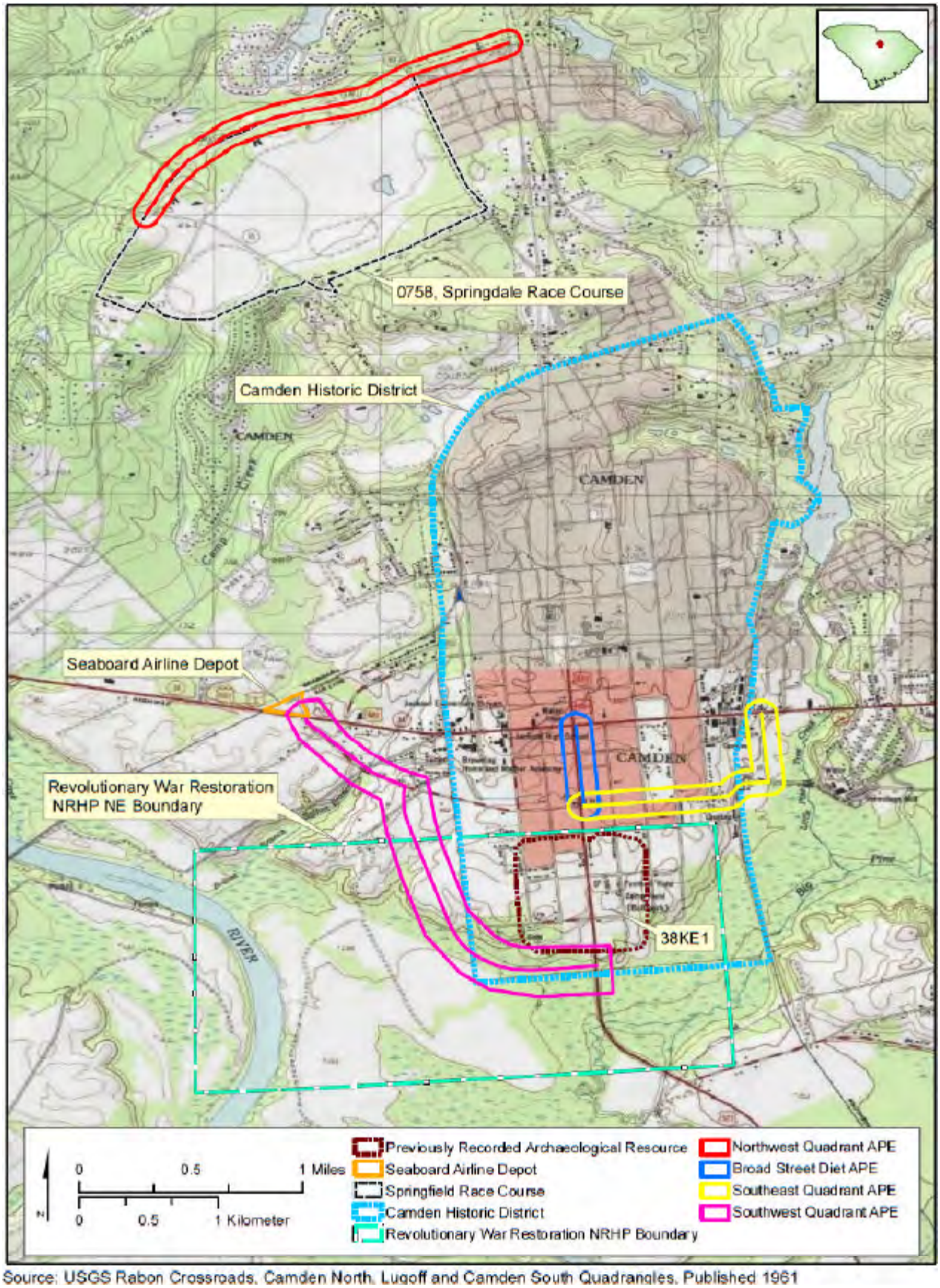
The Department's consultant conducted an intensive cultural resources survey of the project corridor completed in April 2012 (Appendix N). The Area of Potential Effects (APE) for historic architectural resources was broadly defined as a 300 foot buffer surrounding the proposed alignment; the archaeological emphasis within that area consisted of a 200-foot wide corridor (Figure 34). Archaeological investigations were focused within the areas of potential ground disturbance including all upland and undisturbed areas adjacent to the existing roadway. No archaeological investigation was conducted for the BSRD corridor as there are no undeveloped areas.

A summary of the cultural resources identified in each quadrant and for the BSRD is provided below.

Broad Street Road Diet

Improvements consisting of a road "diet" on Broad Street include taking the road back to two lanes and adding medians, turn lanes, angled parking, and streetscape elements between DeKalb and York streets. The whole of this project will take place within the limits of the City of Camden Historic District. No newly recorded resources were identified during survey of this area (Figure 37). No archaeological investigation was conducted for the BSRD corridor as there are no undeveloped areas.

While this roadway has maintained a wide width since its establishment, adding angled parking to Broad Street and other streetscape improvements would not adversely affect this portion of the historic district. As most buildings along this portion of Broad Street were erected after 1900, the rise of the automobile in Camden saw the early arrival of angled parking along Broad Street. Thus, these improvements would better support the historic feel along this road than current street and parking patterns and no adverse effect on the historic district is anticipated.



Source: USGS Rabon Crossroads, Camden North, Lugoff and Camden South Quadrangles, Published 1961

Figure 34: Project Location and Area of Potential Effect

Southwest Quadrant

Two NRHP-listed historic districts, one listed historic site (761) one eligible archaeological site (38KE1), and three potentially eligible archaeological sites (38KE33, 38KE1060 and 38KE1122) were identified within the APE of the preferred alternative for improvements to Segment One in the Southwest Quadrant (SW-1.4). Please refer to Figure 35.

The NRHP-listed Historic Camden Revolutionary War Restoration District is intersected by the project in the Southwest Quadrant. Ehrenclou Drive passes through the district for a distance of approximately 1 mile beginning at US 521/Broad Street and extending to the northern boundary of the district, which is just south of the Camden High School. With the exception of the Camden High School Athletic complex the district is primarily wooded, undeveloped land to the west of the roadway. The eastern side of the roadway features modern development both north of and within the boundary of the district. The project, in the area of the district, would take place within existing ROW. Due to the existing development within the district, there are no direct or indirect effects anticipated that would alter the character of the property and no adverse effect is anticipated.

The NRHP-listed City of Camden Historic District is intersected by the project in the Southwest Quadrant. Ehrenclou Drive is located adjacent to the southern boundary of the district and passes through the district for a distance of approximately 0.5 mile beginning at US 521/Broad Street and extending to the western boundary of the district, which is defined by the historic Quaker Cemetery (38KE1060). Eighteenth-Century Historic Camden (38KE1), a previously recorded archaeological site eligible for the NRHP is also located within the APE north of the intersection of Ehrenclou Drive and US 521/Broad Street. Impacts on the cemetery and the eighteenth-century archaeological site were evaluated with the City of Camden Historic District. From just within the cemetery's western edge, traffic traveling along Ehrenclou Drive is audible, but not yet visibly encroaching upon the historic property. Proposed improvements will avoid removing trees that provide a buffer between Ehrenclou Drive and the Quaker Cemetery or Eighteenth-Century Historic Camden. There are no direct or indirect effects anticipated that would alter the character of the property and no adverse effect is anticipated on the City of Camden Historic District, the historic Quaker Cemetery, or Eighteenth-Century Historic Camden.

The NRHP-listed Seaboard Airline Depot is situated north of West DeKalb Street near the northern boundary of the proposed improvements at the intersection of West DeKalb Street and Chestnut Ferry Road. All improvements will take place south of West DeKalb Street. Due to the presence of modern development near this intersection and buffers of sidewalks and mature trees, project implementation would not result in a change to the character of the site's use or physical features that contribute to its historic significance and would not result in the introduction of visual or atmospheric elements, or audible impacts that would diminish the integrity of the site's significant historic characteristics or features. There are no direct or indirect effects anticipated that would alter the character of the property and no adverse effect is anticipated.

Site 38KE33 is a Nineteenth-Century Surface Scatter located on the south side of the existing Bramblewood road near the entrance to the Camden High School Athletic Complex parking lot. The site has been largely demolished by construction of the parking lot and is not likely to be eligible for the NRHP; however the site was not relocated and remains unassessed for eligibility for the NRHP during the archaeological survey. Intact portions of the site may be present in the undeveloped wooded area northeast of the parking lot entrance and will not be

impacted by the project. There are no direct or indirect effects anticipated that would alter the character of the property and no effect is anticipated.

Site 38KE1122 is the remains of the late nineteenth- to early twentieth-century Camden Brick Company. The site is located approximately 45 meters (150 ft.) west of U.S. 521 (Sumter Highway) along Ehrenclou Drive, which intersects the site. It is located at the edge of a swamp. The landform overlooks the floodplain of Big Pine Tree Creek to the south. A dirt road passes along the western edge of the site and a fenced SCE&G facility is to the north of the site. A shallow ditch passes east to west just south of the SCE&G fence and brick was observed on the surface in the ditch. To the south, most of the site is defined by the edge of the swamp and a power line ROW. The portion of site 38KE1122 north of Ehrenclou appears to be largely destroyed by the SCE&G facility, although an intact brick feature was found within the shoulder of the road. The site NRHP eligibility remains unassessed. Expansion to the north is unlikely to adversely affect the site since it appears that the intact feature occurs in isolation from the rest of the intact remains south of the road. Due to current plans to avoid the intact portion of the site by not adding a center turn lane Ehrenclou Drive adjacent to the site, there are no direct or indirect effects anticipated that would alter the character of the property and no adverse effect is anticipated.

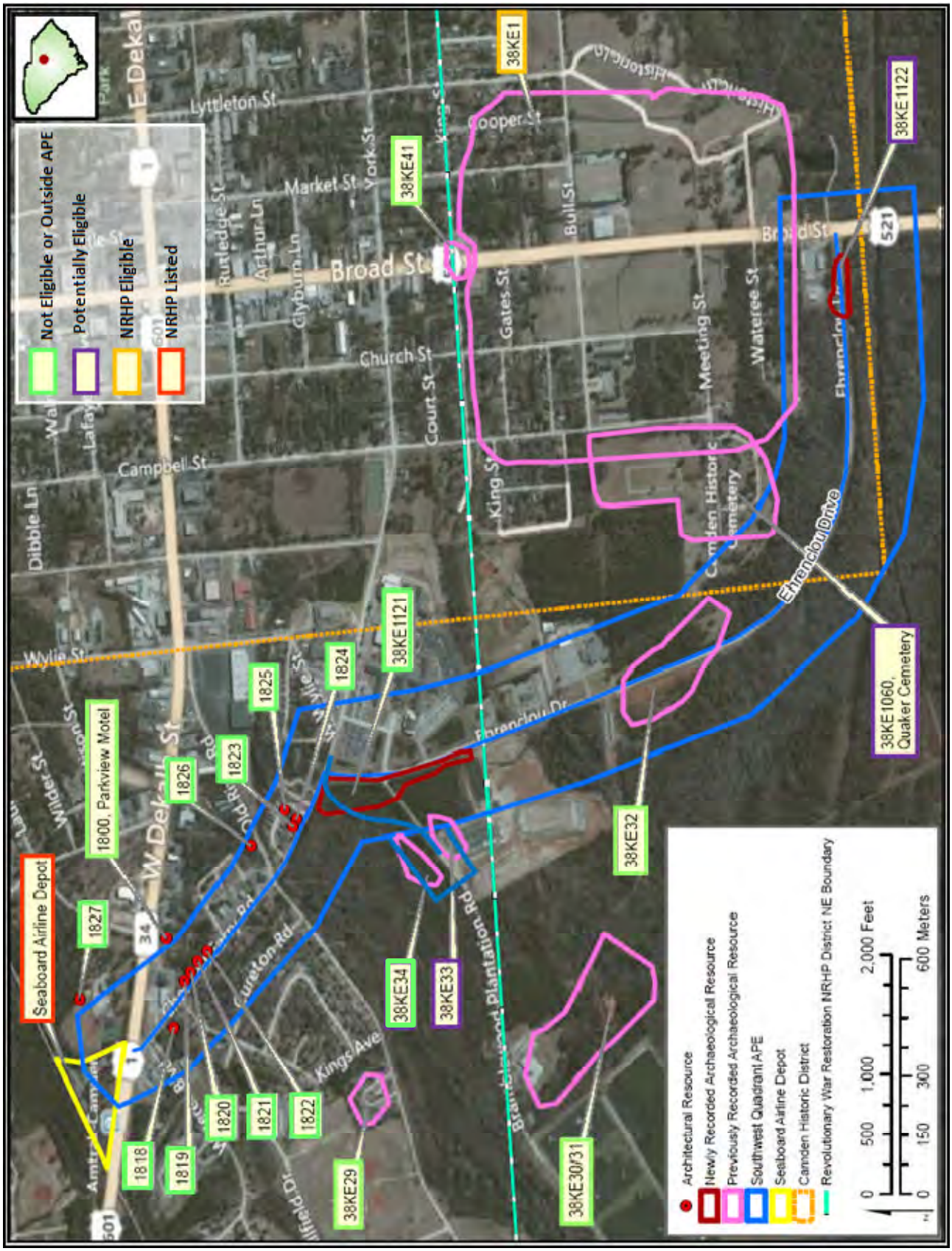


Figure 35: Cultural Resources in the Southwest Quadrant

Northwest Quadrant

One NRHP-eligible historic district (Resource No. 758) and two newly identified potentially eligible archaeological sites (38KE1123 and 38K1124) were identified within the APE for the preferred alternative (NW-3) in the Northwest Quadrant. Please refer to Figure 36.

The NRHP-eligible Springdale Race Course Historic District (Resource No. 758) is located to the south of Springdale Drive/Boykin Road between Knights Hill Road and Liberty Hill Road. Four outbuildings associated with the race course are located within the project APE. Although, the proposed improvements between Liberty Hill and Knights Hill Roads are expected to take place within the existing ROW, there will be several areas where as much as 20 feet of tree buffer will need to be removed in order to meet clear zone requirements and tie back into existing grades. In addition, areas of the fence will also need to be moved back to the ROW line. Since these areas will retain a remaining substantial tree buffer and since some of these areas are elevated as much as 12 feet above the road, there will be no direct or indirect adverse effects to the Springdale Race Course. In addition, moving the fence back to just beyond the edge of the ROW will also have no adverse effects on the resource.

Site 38KE1123 is an undiagnostic prehistoric period lithic artifact scatter situated on a ridge approximately 200 meters south of a branch of Camp Creek and located approximately 0.2 mile northeast of Knights Hill Road across from Sunnyhill Drive on the south side of Boykin Road. All positive shovel tests for this site were located within the wooded area south of the cleared roadway. Additional archaeological investigations at closer intervals (5 meters or less) or larger scale excavations may yield additional diagnostic lithic artifacts or ceramic sherds that can provide information useful in addressing research issues concerning lithic tool production, subsistence, or prehistoric settlement patterns in the area. In addition, excavations may be able to identify separate components of the site. The site's eligibility for the NRHP remains unassessed but will be considered potentially eligible. The proposed improvements between Liberty Hill and Knights Hill Roads will add four feet of pavement to the south side of the road and there will be several areas where as much as 20 feet of tree buffer will need to be removed in order to meet clear zone requirements and tie back into existing grades. However, during detailed design, measures such as using 2:1 slopes and guardrail will be taken to avoid the site. Therefore, there will be no effect to the site.

Site 38KE1124 is an undiagnostic prehistoric period lithic artifact scatter situated on a ridge approximately 200 meters south of a branch of Camp Creek, is located approximately 0.4 mile northeast of Knights Hill Road, and is intersected by Boykin Road. The majority of the site is located on the south side of the road and within the tree line. It is likely that additional archaeological investigations at closer intervals (10-meter, 5-meter, or less) or larger scale excavations will yield diagnostic artifacts that may provide information useful in addressing research issues concerning, lithic tool production, subsistence, or prehistoric settlement patterns in the area. The site's eligibility for the NRHP remains unassessed but will be considered potentially eligible. Although the site extends to the west side of the road, this portion is isolated from the bulk of the site. The proposed improvements between Liberty Hill and Knights Hill Roads will add four feet of pavement to the south side of the road and there will be several areas where as much as 20 feet of tree buffer will need to be removed in order to meet clear zone requirements and tie back into existing grades. However, during detailed design, measures such as using 2:1 slopes and guardrail will be taken to avoid the site. Therefore, there will be no effect to the site.

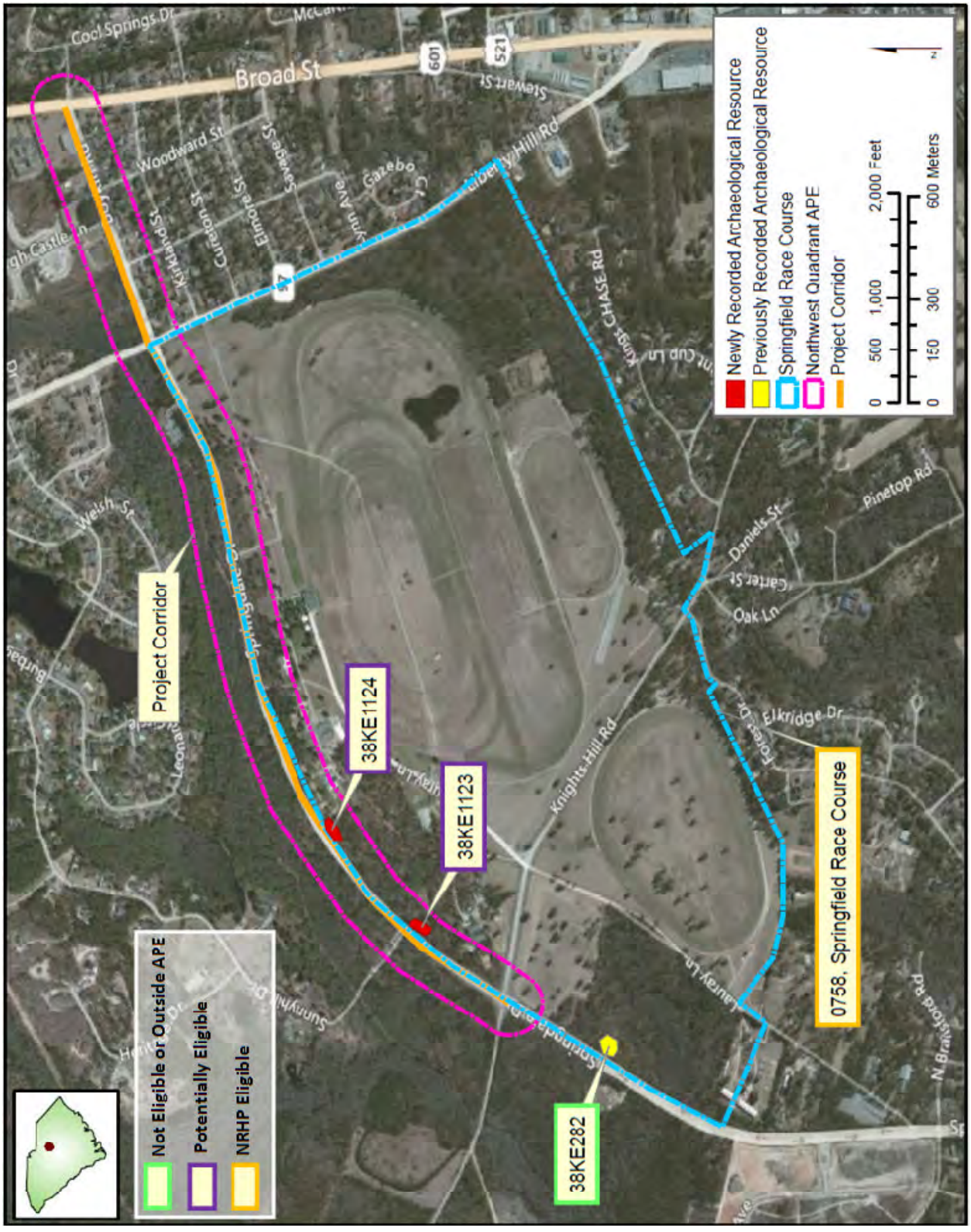


Figure 36: Cultural Resources in the Northwest Quadrant

Southeast Quadrant

One NRHP-eligible historic district and three newly identified potentially eligible archaeological sites (38KE1125, 38K1126, and 38KE1155) were identified within the APE for the preferred alternative in the Southeast Quadrant (SE-2). Please refer to Figure 37.

The NRHP-listed City of Camden Historic District is intersected by the project in the Southeast Quadrant. York Street passes through the district for a distance of approximately 0.6 mile beginning at US 521/Broad Street and extending to the eastern boundary of the district, which is located just east of Mill Street. All resources contributing to the historic district were evaluated along with the district. Figure 38 was obtained from the South Carolina Department of Archives and History[28] and shows the properties contributing and not contributing to the district in the project area. The grid layout of Camden's historic district streets is important to the historic integrity of the city, as are its existing setbacks and road widths. It is expected that the proposed improvements will stay within the existing roadway within the City of Camden Historic District with the exception of minor ROW acquisition from a contributing resource (No 496) located in the NE quadrant of the York and Mill Street intersection. However, no adverse effect to the property is anticipated and it is expected that this acquisition will result in a *de minimis* impact under Section 4(f). There are no direct or indirect effects anticipated that would alter the character of the district and no adverse effect is anticipated for the City of Camden Historic District or its contributing resources.

Site 38KE1125 is a nineteenth- to twentieth-century historic period artifact scatter located to the south of York Street approximately 60 meters to the east of Broad Street/U.S. 521. The site measures 30x105 meters as defined within the current limits of the survey and it is likely the site continues to the south back to a line of hedges. The site expands across two parcels, and it is possible that the artifacts recovered are associated with two different activity areas. The site has potential to yield additional artifacts or features that may be useful in understanding nineteenth and twentieth century lifeways in Camden. Since proposed improvements will only occur within the existing disturbed portions of the ROW, there are no direct or indirect effects anticipated that would alter the character of the site and no adverse effect is anticipated.

Site 38KE1126 is a nineteenth-century historic period domestic artifact scatter located to the east of Lyttleton Street, west of Fair Street, and to the north of York Street. The site measures 30x150 meters as defined within the survey corridor, although it is likely that the site extends to the north beyond the APE behind the Douglass-Reed House. It is likely that additional investigations in this area may yield additional artifacts or features useful in addressing nineteenth-century lifeways in the City of Camden. Since much of this area was developed in the twentieth century, the site may provide insight into the nineteenth-century use of the area prior to the more urban development. Since proposed improvements will only occur within the existing disturbed portions of the ROW, there are no direct or indirect effects anticipated that would alter the character of the site and no adverse effect is anticipated.

Site 38KE1155 is a terminal eighteenth- to early twentieth-century historic artifact scatter located approximately 10 meters (33 feet) north of the existing York Street pavement and approximately 0.07 miles west of Mill Street. The site measures 55x147 meters as defined within the current limits of the survey. The majority of the site is situated in a manicured lawn while the north and east ends are located in mixed soft and hard woods. Previous work at

[28] http://www.palmettohistory.org/hpdistricts/city-of-camden-historic-di.html (04/21/12)

nearby Historic Camden has illustrated that intact colonial architectural features can be found in areas disturbed by later activities and occupations. The site appears to have remains that could date to as early as about 1810 and could provide information about post war life and town development. Since proposed improvements will only extend approximately 10 feet north of the existing paved roadway and the new proposed ROW will extend no more than 23 feet north of existing pavement, the site will not be affected.

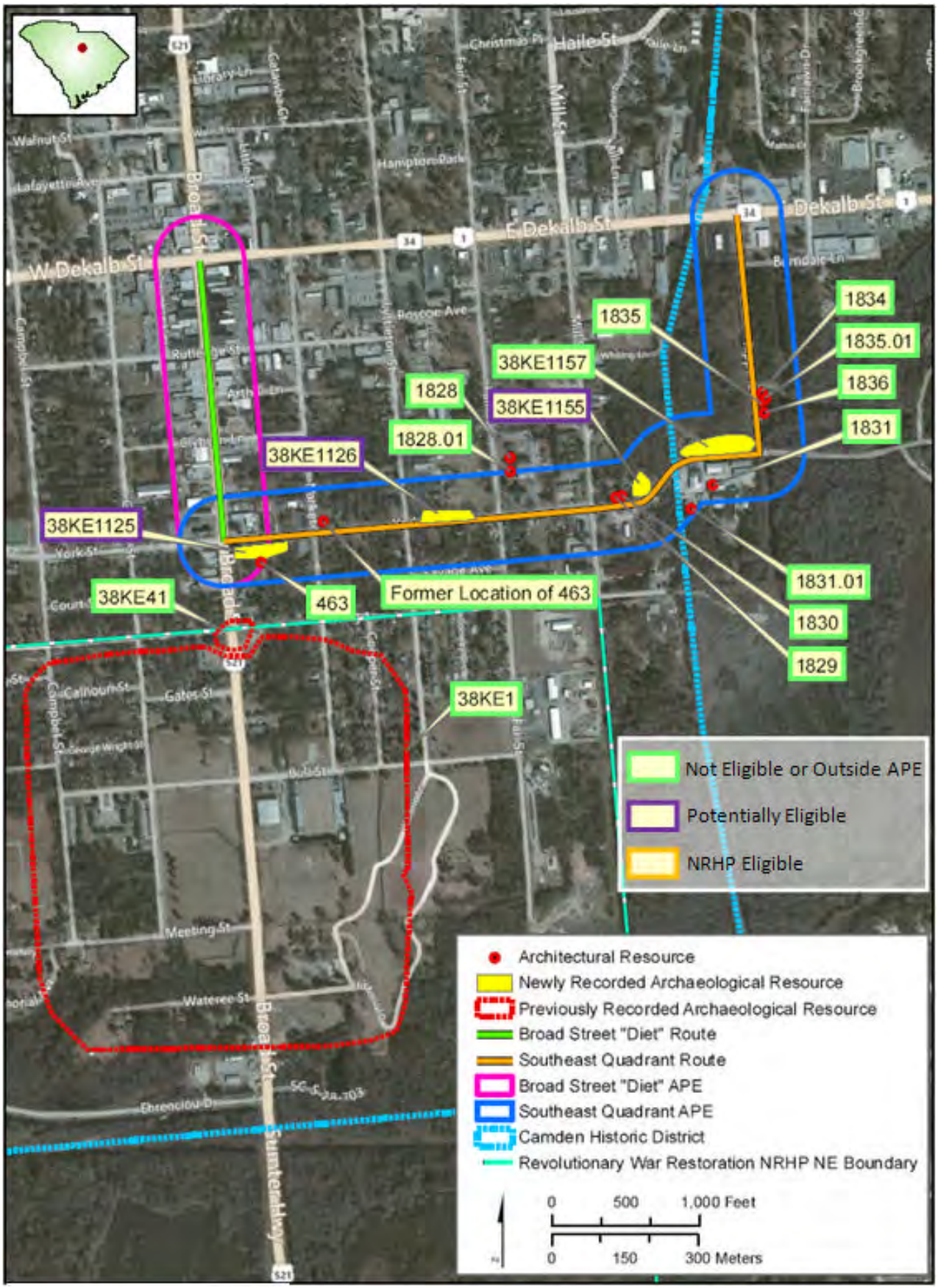


Figure 37: Cultural Resources in the Southeast Quadrant and Broad Street

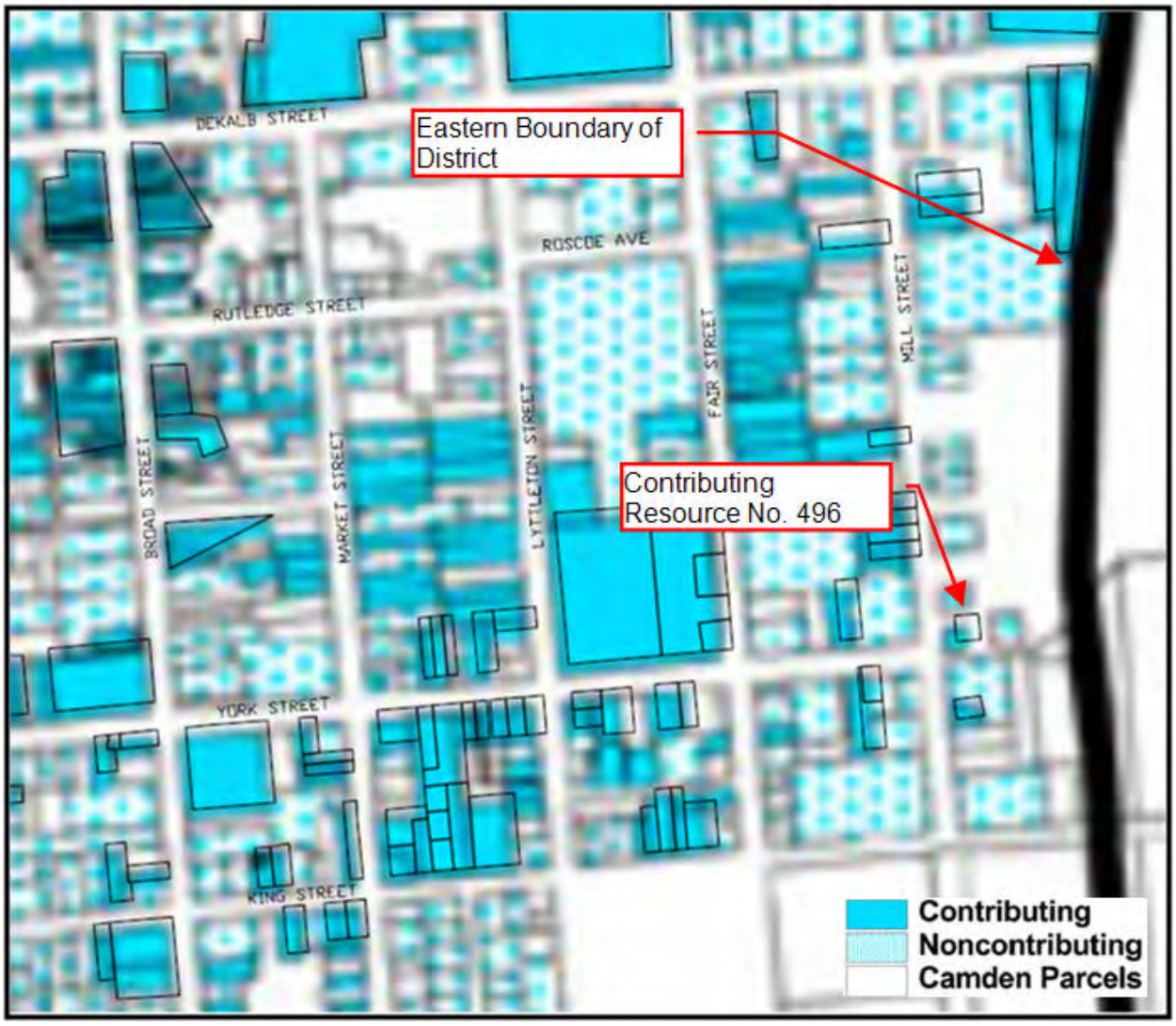


Figure 38: Parcels Contributing to the City of Camden Historic District

Based on the results of background research and field investigations, the Department made the determination that no historic resources would be adversely effected by the project. The Cultural Resources Survey was submitted to SHPO and carbon copied to the Catawba Indian Nation Tribal Historic Preservation Office (THPO) on May 15, 2012 and an addendum was submitted on June 4, 2012 (Appendix M). Concurrence from the SHPO, dated June 07, 2012, was received on June 11, 2012 (Appendix M). Concurrence from the THPO was provided June 05, 2012 (Appendix M).

In accordance with 36 CFR Part 800, if cultural remains are found during the construction of the Preferred Alternative, the SCDOT, SHPO, and Advisory Council on Historic Preservation would be notified so a qualified professional could evaluate the resources. Work could continue in areas where no cultural resources were discovered.

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

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303 [c]) declares that it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges and historic sites. Section 4(f) properties located adjacent to the project corridors include the City of Camden Historic District and all contributing properties, the Revolutionary War Restoration Historic District and all contributing properties, the Seaboard Airline Depot, the Camden High School Athletic Complex, and the Springdale Race Course. No wildlife refuges are located within the project area. Minor acquisition of ROW will occur from one property contributing to the City of Camden Historic District and Section 4(f) will apply.

The property (Parcel ID C285-13-00-051) located at 802 Mill Street (Contributing Resource No. 496), in the northeast quadrant of the York/Mill Street intersection is identified as contributing to the historic district on Figure 38 in the Cultural Resources section of this document. Although SCDOT records indicate the ROW along York Street is 90 feet wide and extends approximately 35 feet north of the paved roadway adjacent to the property, Kershaw County property records show the parcel boundary to approximately coincide with the northern edge of pavement on York Street (Figure 39).

Figure 39: Contributing Resource No. 496 Existing Conditions

The extension of the US 1 Truck Route adjacent to the property will require impacting of approximately 10-feet beyond the back of curb or 580 SF of vegetated area within the parcel boundary in order to construct the roadway and tie in to existing grades (Figure 40). It is likely that construction in the impact areas will be conducted under a temporary construction easement, if necessary. SCDOT currently maintains the impacted area as part of the existing ROW and may be considered to have prescriptive easement rights to this area. The area of impact has been minimized by setting the proposed back of curb at the existing northern edge

of pavement. This allows the improvements to take place without creating displacements either north or south of the roadway. The area to be impacted is located on the side of the house, which fronts on Mill Street. The area impacted is sloped at approximately 4:1 from the property down to the roadway and does not contain any features of note that may contribute to the historic significance of the property. A fire hydrant is already located in this area and will be relocated. A large oak tree is situated near the intersection and will be retained. The noise impact analysis conducted indicates that noise levels will generally decrease in the area of the resource due to improved traffic flow and reduced delays. The Department has determined that the project will have no adverse effect to the contributing resource or the historic district as a whole. The Department notified SHPO of its plans to make a *de minimis* Section 4(f) impact determination on May 15, 2012 (see Appendix M). Concurrence from the SHPO, dated June 07, 2012, was received on June 11, 2012 (Appendix M).

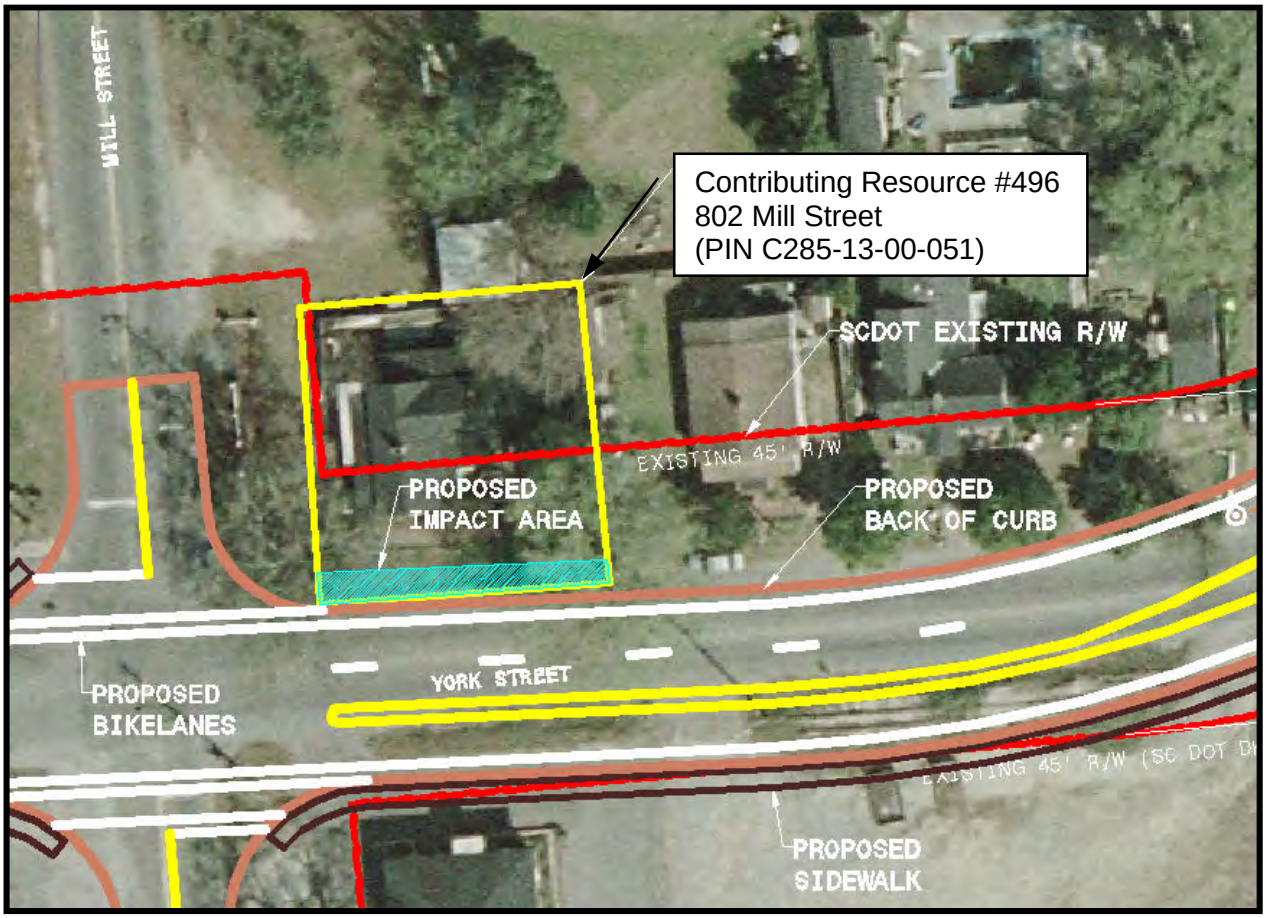


Figure 40: Contributing Resource No. 496 Impact

In accordance with Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), it has been determined that the proposed project will have a *de minimis impact* on Contributing Resource No. 496 in The City of Camden Historic District. The proposed project will not adversely affect the function or qualities of the Section 4(f) resource on a permanent or temporary basis. A "Determination of Section 4(f) *De Minimis* Use" form has been completed and is included in Appendix J.

Section 6(f) of the Land and Water Conservation Fund Act (16 U.S.C. 460/4) requires that all property acquired or developed with LWCF assistance be perpetually maintained in

public outdoor recreation use. Transportation projects that require right-of-way from any property developed with LWCF funds cannot proceed without approval from the National Park Service pursuant to Section 6(f)(3) of the LWCF Act. Responsibility for compliance and enforcement of the LWCF regulations rests with the state granting agency. The South Carolina Department of Parks, Recreation, and Tourism (SCPRT) administers the LWCF program in South Carolina. Based on a list of Section 6(f) properties in Kershaw County provided by the SCPRT (Appendix K), the Seaboard Park is the only Section 6(f) property located adjacent to the project; however, no acquisition of this property is required and therefore, no Section 6(f) impacts will occur.

Relocation Impacts

The proposed project, under the Preferred Alternative, will involve up to four single-family residential relocations and two commercial property relocations along Segment One in the Southwest Quadrant and adjacent to the Old River Road intersection with Chestnut Ferry Road. The single-family home residential displacements are located at 1202 Old River Road (Parcel No. 284-14-00-023), 1200 Old River Road (Parcel No. 284-14-00-024), 1118 Old River Road (Parcel No. 284-14-00-015), and 1205 Chestnut Ferry Road (Parcel No. 284-14-00-022). Information on race, ethnicity and income levels is not included to protect the privacy of those affected; however, based on the location of these properties, residents are likely to be minority and/or low income. The commercial facilities are located at 1202 Chestnut Ferry Road (Parcel No. C284-14-01-004 SEJ) and 1206 Chestnut Ferry Road (Parcel No. C284-14-01-002 SEJ). There is no practicable alternative to these relocations due to the need to replace the structurally deficient and functionally obsolete Chestnut Ferry Bridge. The elevation of the replacement bridge will need to be raised by approximately 5 feet in order to meet hydraulic and structural requirements. In order to tie back to existing grades, the Old River Road intersection will need to be shifted approximately 80 feet northwest along Chestnut Ferry Road. The corresponding fill material required to support the bridge approaches will extend well beyond the existing roadway sections. Figure 41 shows the locations of the impacted buildings in relation to the proposed alignment. Anticipated displacements have been estimated based on a worst case scenario. During detailed design measures to further minimize displacements such as using retaining walls or 2:1 fill slopes will be evaluated and implemented where practicable.

The Department will assist the property owners with compensation that reflects the provisions of the Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. A relocation program will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Public Law 91-646, as amended by 100-17; 49CFR Part 24). As is the policy of the South Carolina Department of Transportation, in response to the non-discrimination requirements in Title VI of the Civil Rights Act of 1964, relocation advisory assistance would be provided to all eligible persons without discrimination.

According to the 2010 U.S. Census approximately 577 vacant housing units are available within the City of Camden as shown in Table 28 included the Social and Economic section of this document. The SCDOT will assist families or individuals in finding and relocating to decent, safe, and sanitary housing that is adequate to meet their needs and within their financial means.

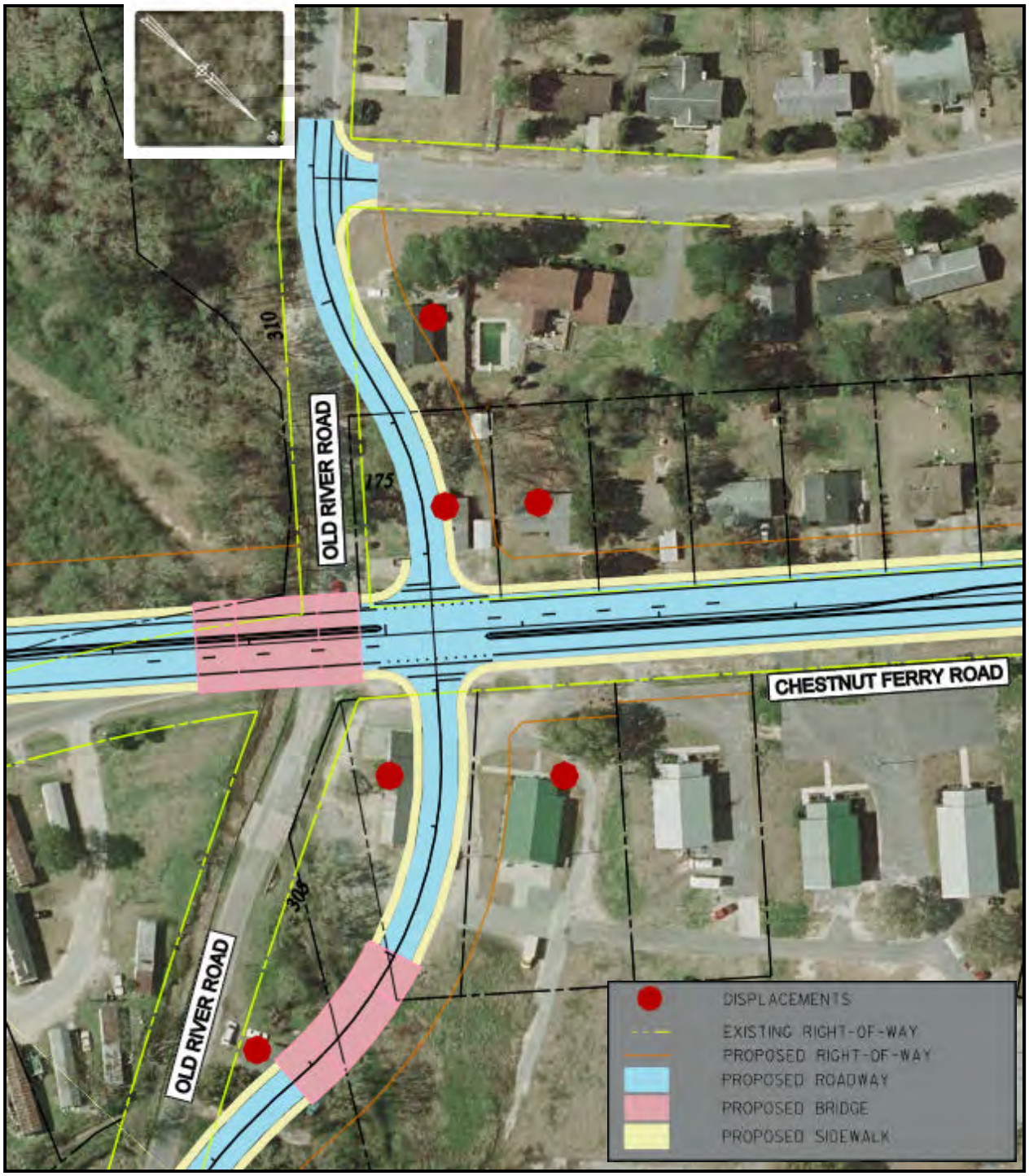


Figure 41: Relocation Impacts

Social and Economic

The proposed project was evaluated in general accordance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations), signed by President Clinton February 11, 1994. Executive Order 12898 requires Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

In order to identify populations subject to E.O. 12898 requirements, regional information was obtained from the 2010 US Census[29] as shown in Table 28. More specific data was not available from the 2010 US Census at the time of this report; therefore, data regarding block groups in the project areas was obtained from the 2000 US Census as shown in Table 29.

Table 28: 2010 Regional Census Data

2010 Census Data	South Carolina		Kershaw County		City of Camden	
Population Total	4,625,364	100%	61,697	100%	6,838	100%
White	3,127,075	67.6%	44,812	72.6%	4,314	63.1%
Black or African American	1,332,188	28.8%	15,694	25.4%	2,446	35.8%
Other	252,189	5.5%	2,222	3.6%	161	2.4%
Housing Units	2,137,683	100%	27,478	100%	3,544	100%
Occupied	1,801,181	84%	23,928	87%	2,967	84%
Vacant	336,502	16%	3,550	13%	577	16%
Median Age	37.9	n/a	40.2	n/a	45.3	n/a
Male	36.4	n/a	38.5	n/a	42.1	n/a
Female	39.2	n/a	41.7	n/a	47.5	n/a

Table 29: 2000 Project Specific Census Data

2000 Census Data	Segment One				Segment Two				Segment Three/BSRD			
	Census Tract 9708, Block Group 6		Census Tract 9708, Block Group 7		Census Tract 9705, Block Group 2		Census Tract 9705, Block Group 3		Census Tract 9708, Block Group 4		Census Tract 9708, Block Group 5	
Population Total	484	100.0%	942	100.0%	1,225	100.0%	853	100.0%	643	100.0%	1004	100.0%
White	7	1.4%	65	6.9%	714	58.3%	752	88.2%	112	17.4%	652	64.9%
Black or African American	**464**	**95.9%**	**858**	**91.1%**	506	41.3%	91	10.7%	**519**	**80.7%**	341	34.0%
Other	13	2.7%	19	2.0%	5	0.4%	10	1.2%	12	1.9%	11	1.1%
Median Income (16 years and over with earnings)	$8,393	n/a	$14,397	n/a	$22,724	n/a	$30,093	n/a	$14,178	n/a	$20,978	n/a
Male	$7,344	n/a	$10,813	n/a	$29,000	n/a	$30,368	n/a	$16,923	n/a	$26,593	n/a
Female	$9,250	n/a	$15,813	n/a	$18,906	n/a	$29,464	n/a	$11,917	n/a	$16,699	n/a
Poverty (population for whom status is determined)	512	100.0%	881	100.0%	1,306	100.0%	870	100.0%	648	100.0%	1,003	100.0%
1999 Income Below Poverty Level	**262**	**51.2%**	409	46.4%	196	15.0%	56	6.4%	189	29.2%	184	18.3%
1999 Income at or Above Poverty	250	48.8%	472	53.6%	1,110	85.0%	814	93.6%	459	70.8%	819	81.7%

Note: Bold numbers indicate that the populations in these block groups are greater than 50% minority or low income

[29] http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml (4/30/12)

Southwest Quadrant

Segment One of the proposed project is located within Census Tract 9708, Block 6 (Figure 42) and Block Group 7 (Figure 43). The population in these block groups are over 90% Black or African American. Over half of the population in Block Group 6 also lives below the poverty level.

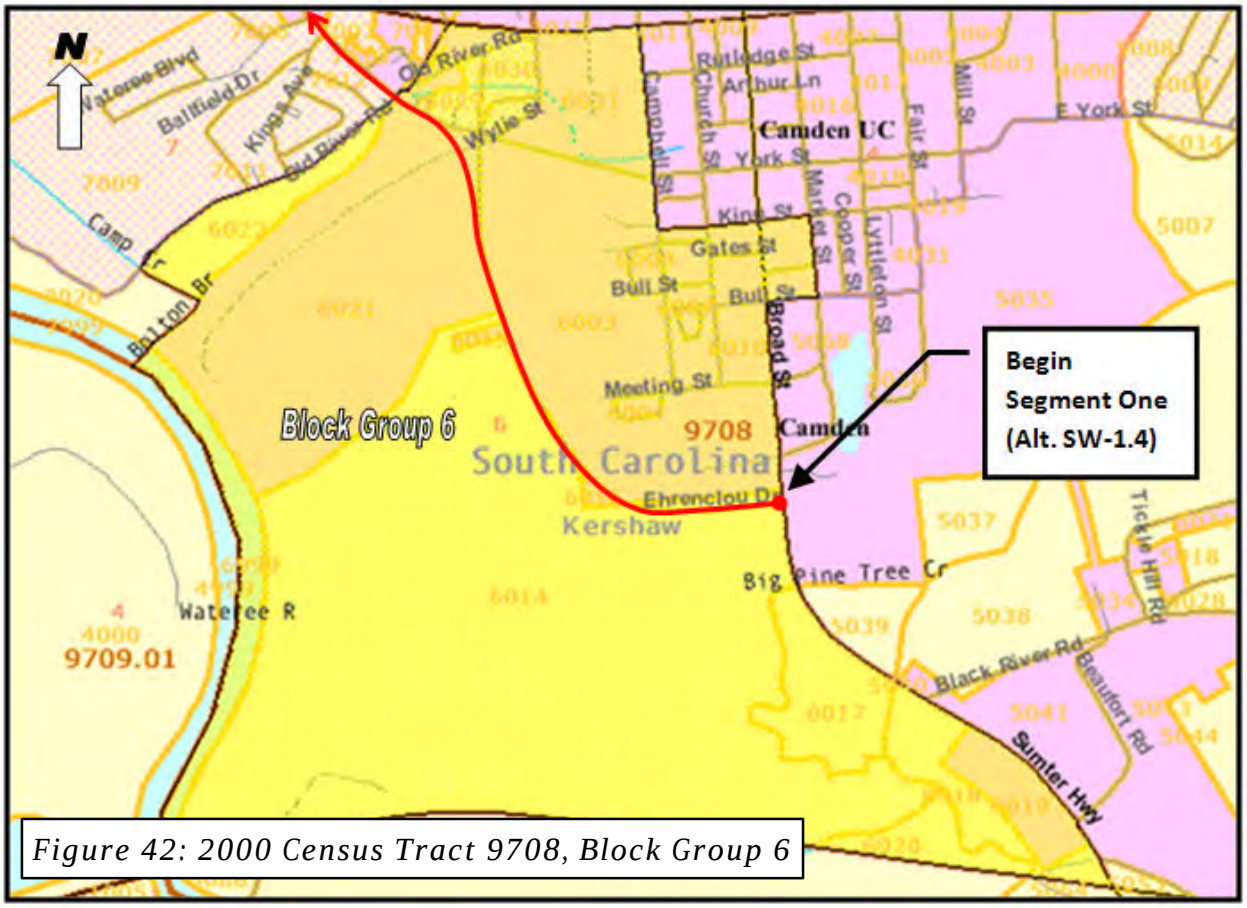


Figure 42: 2000 Census Tract 9708, Block Group 6

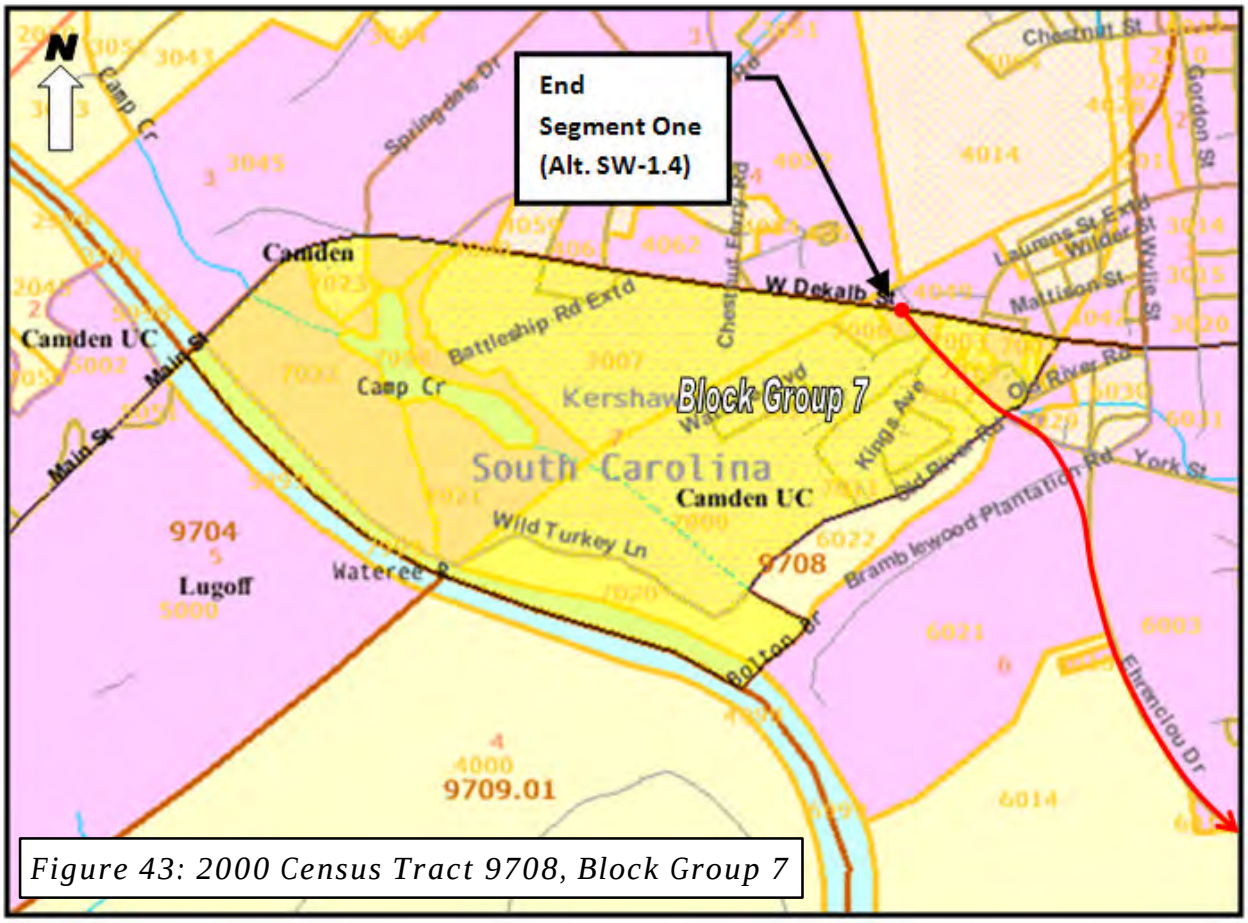


Figure 43: 2000 Census Tract 9708, Block Group 7

Impacts to the primarily minority/low income populations of Block Groups 6 and 7 will include beneficial impacts such as the addition of sidewalks and bike lanes along the route. Signalization of the Ehrenclou/York intersection will also improve safety for pedestrians crossing the truck route. This area is located adjacent to downtown and includes Camden High School. Visual observations confirm that walking is a common mode of transportation for this population. Additional benefits to this population will include the addition of a center turn lane, which will improve safety and reduce delays for all traffic. ROW acquisitions will be required from residential properties west of Chestnut Ferry Road in order to add the width necessary for the improvements; however, these acquisitions are not expected to cause a change in existing land uses and would be minor in most cases. Property owners would be compensated for the right of way taking and any damages to remaining property, in accordance with SCDOT policy and the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended.

Adverse impacts to this population will primarily be associated with the replacement of the bridges over Bolton Brach Creek at the Chestnut Ferry Road/Old River Road intersection. Replacement of the bridges is estimated to result in a maximum of two commercial and four residential displacements due to raising the new bridge to meet hydraulic and structural requirements and the associated fill necessary to tie back in with existing grades. Please refer to the Relocation Impacts section of this document. Measures to minimize displacements such as using retaining walls or 2:1 fill slopes will be evaluated during detailed design. There is no practicable alternative to replacing the Chestnut Ferry Bridge that will keep the roadway open, as it is structurally deficient. Replacement of the Old River Road Bridge is necessitated by its

proximity to the Chestnut Ferry Bridge and meeting hydraulic requirements. Beneficial impacts of the bridge replacements would include reduced potential for flooding and eliminating overtopping of the roadway.

An additional adverse impact would be experienced by eight residences along the east side of Chestnut Ferry Road due to increased noise levels as discussed under the Noise section of this document. Noise levels are projected to exceed the residential impact threshold (67 decibels) by 0.6 to 2.6 decibels by 2035 and will be 5.6 to 6.1 decibels higher than under the No-Build condition. Residents along both sides of Chestnut Ferry Road are minority/low income and the widening has been shifted to the east from the centerline solely to reduce displacements, which is considered a more severe impact than increased noise levels. Minor changes in access to Chestnut Ferry Road will also be required for residents along Smyrl Circle, Wylie Street and McLeod Court; however, these impacts are not considered to be adverse as access will still be provided.

Once the benefits of the project are considered and based on the above discussion and analysis, the proposed project will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23. No further Environmental Justice analysis is required.

The project corridor of Segment One provides access to various community resources including the Camden High School and Athletic Complex, the Camden National Guard Armory, the Camden Department of Motor Vehicles, American Legion Post 27, and an O'Reilly Auto Parts store as well as the Larry Doby Recreation Complex, which is managed by the Kershaw County Recreation Department for its adult softball, children's baseball/softball, and children's soccer/football programs.

The project is not expected to specifically benefit, harm, or disproportionately impact any social group, including elderly, handicapped, non-drivers, minority or ethnic groups. It is anticipated that the proposed action would not result in any appreciable change in land use, local population, or employment patterns in the area. Although a temporary detour will be required to replace the bridges and one residential displacement is required, the project is not anticipated to disrupt community cohesion and no adverse effects on emergency services are anticipated. Although one commercial displacement is required, the project is not anticipated to have significant impacts on economic vitality or the tax base of the City.

Northwest Quadrant

Segment Two of the proposed project is located within Census Tract 9705, Block Group 2 (Figure 44), and Block Group 3 (Figure 45). The population in Block Group 2 is approximately 40% Black or African American; however, none of the residences in this Block Group are located adjacent to the project corridor. The population of Block Group 3, a portion of which live adjacent to the eastern section of the project corridor, is nearly 90% White and less than 7% live below the poverty level.

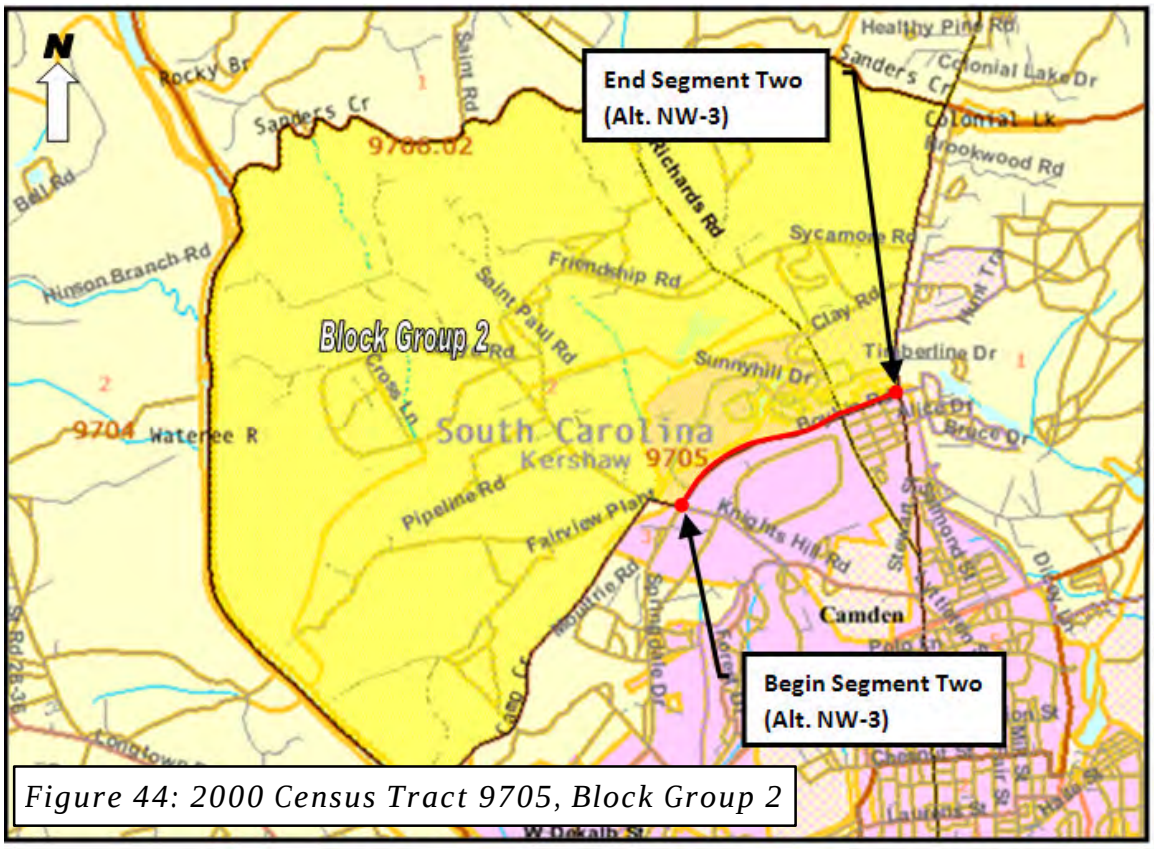


Figure 44: 2000 Census Tract 9705, Block Group 2

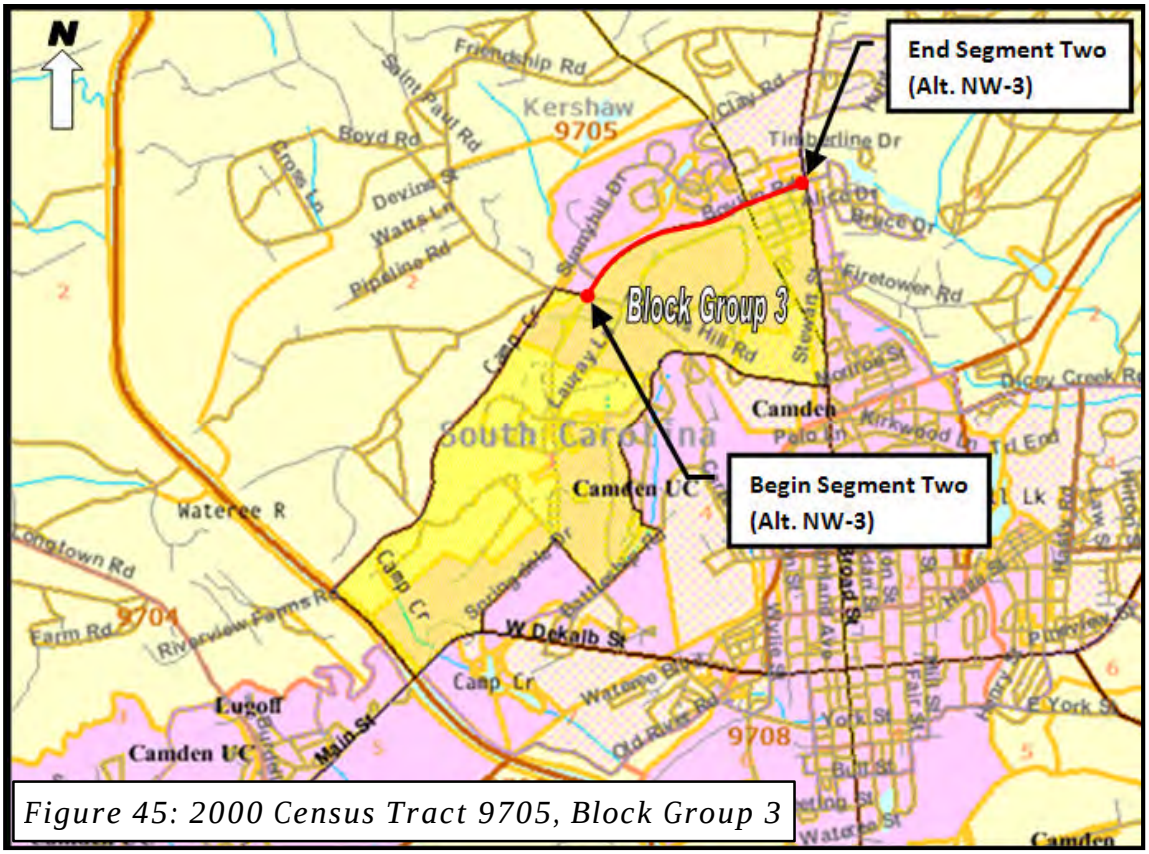


Figure 45: 2000 Census Tract 9705, Block Group 3

No minority or low-income populations have been identified that would be adversely impacted by the proposed project as determined above. Therefore, in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23, no further Environmental Justice analysis is required.

The project corridor of Segment Two provides access to various community resources including the Springdale Race Course, the Springdale Recycling Center, Camden Adventist School, and Cornerstone Baptist Church.

The project is not expected to specifically benefit, harm, or disproportionately impact any social group, including elderly, handicapped, non-drivers, minority or ethnic groups. It is anticipated that the proposed action would not result in any appreciable change in land use, local population, or employment patterns in the area. The project is not anticipated to disrupt community cohesion and no adverse effects on emergency services are anticipated. The project is not anticipated to have significant impacts on economic vitality or the tax base of the City.

Southeast Quadrant

Segment Three of the proposed project and the BSRD are located within or adjacent to Census Tract 9708, Block Group 4 (Figure 46) and Block Group 5 (Figure 47). The population of Block Group 4 is approximately 80% Black or African American and approximately 30% of the population lives below the poverty level.

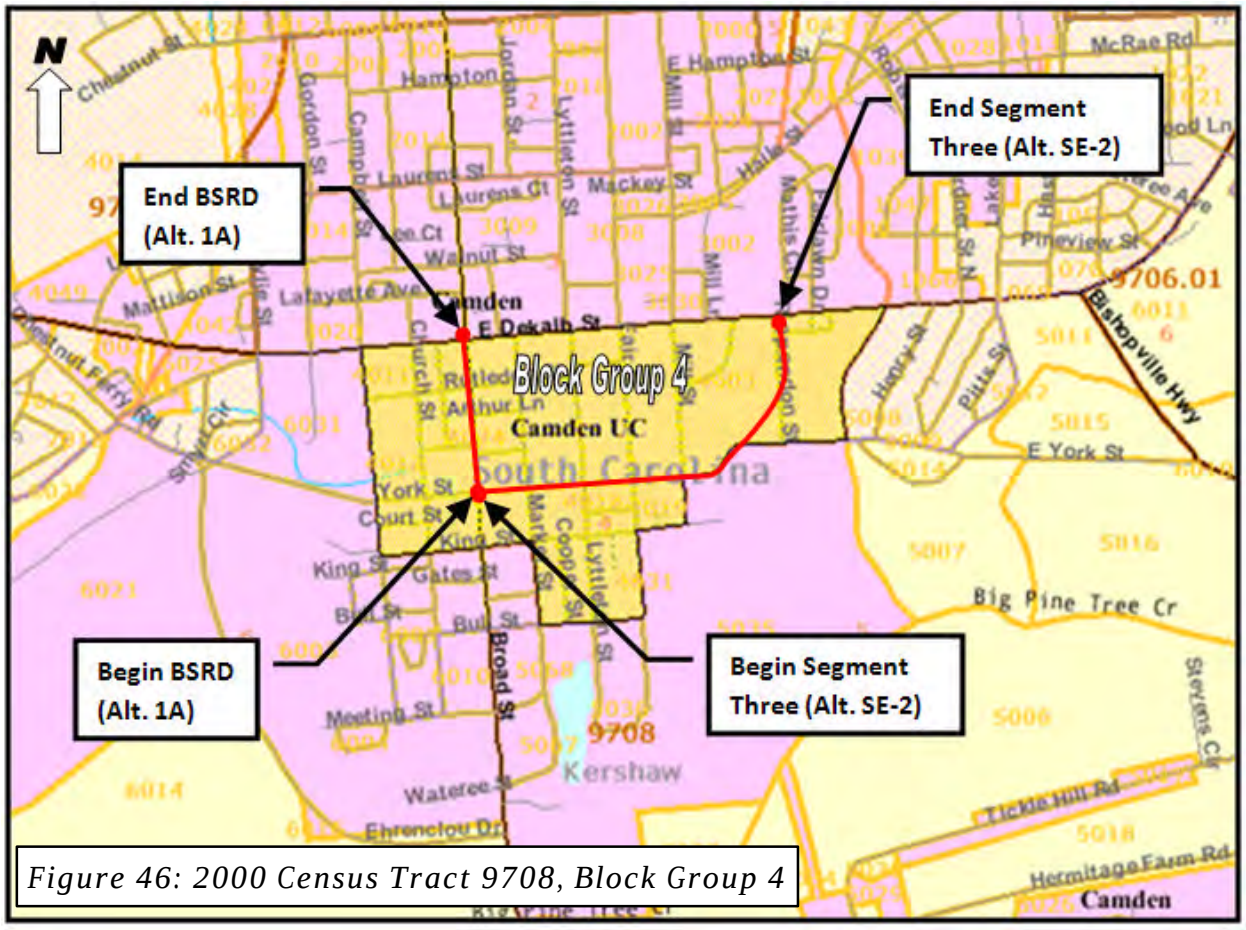


Figure 46: 2000 Census Tract 9708, Block Group 4

Block group 5 is adjacent to the south of a portion of the Segment Three improvements and is approximately 65% White with approximately 80% of the population living above the poverty level.

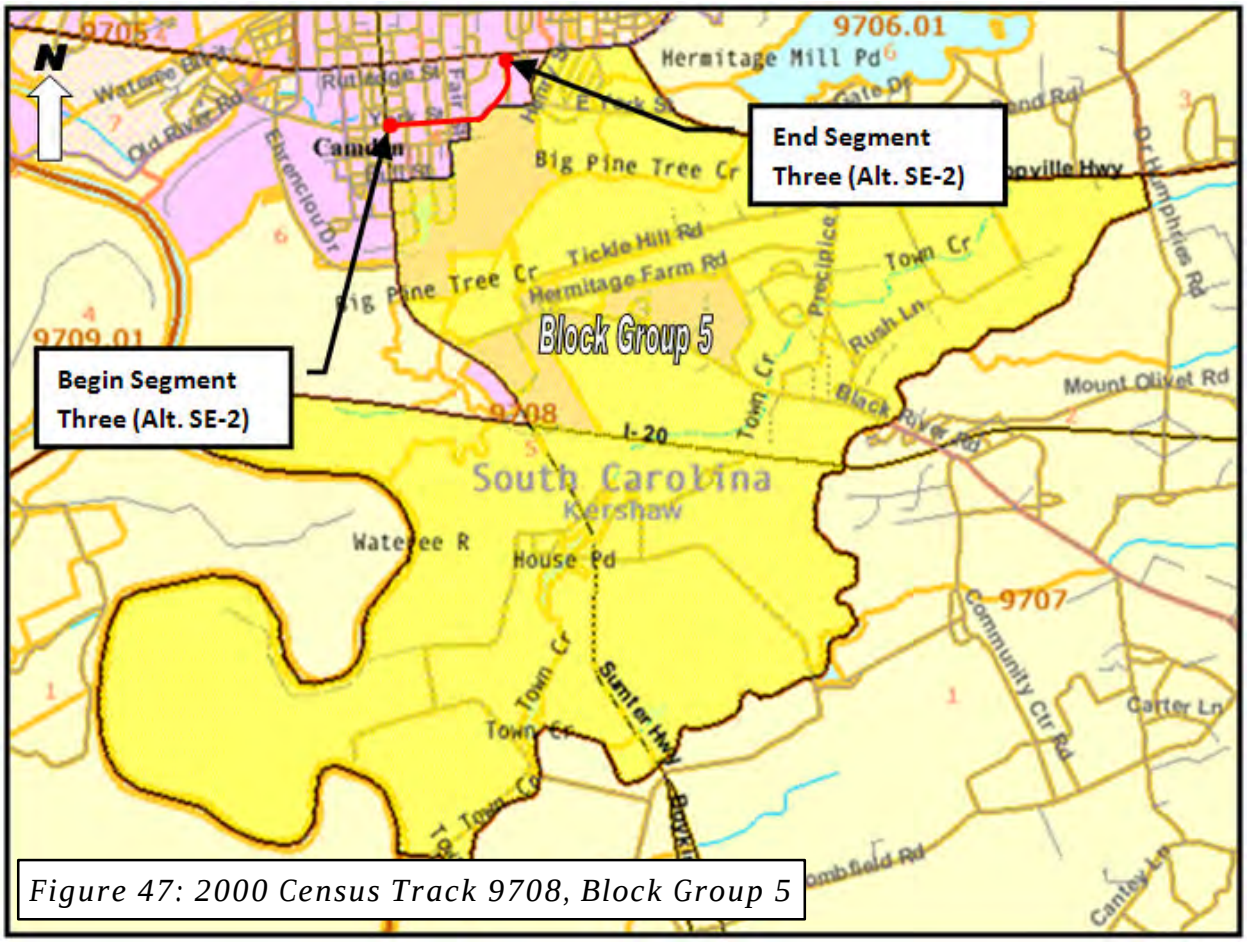


Figure 47: 2000 Census Track 9708, Block Group 5

Impacts to the primarily minority/low income population of Block Group 4 will include beneficial impacts such as the addition of sidewalks and bike lanes along the truck route and the implementation of the BSRD in accordance with the Camden Vision Plan and goals of the Comprehensive Plan (Appendix N) for revitalizing downtown. This area includes downtown Camden and contains multiple churches, businesses, and government facilities. Visual observations confirm that walking is a common mode of transportation for this population. No displacements are anticipated. ROW acquisitions will be limited to undeveloped areas along Segment Three and to a small area of parking along the BSRD. Property owners would be compensated for the right of way taking and any damages to remaining property, in accordance with SCDOT policy and the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended.

Although heavy truck traffic will increase along Segment Three of project corridor, no noise impacts are projected and the addition of a center turn lane and turn bays are expected to improve safety and reduce delays for all traffic. Truck Traffic will decrease in downtown and the BSRD will create a more walkable and inviting streetscape for pedestrians.

Once the benefits of the project are considered and based on the above discussion and analysis, the proposed project will not cause disproportionately high and adverse effects on any

minority or low-income populations in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23. No further Environmental Justice analysis is required.

The project corridor of Segment Three provides access to various community resources including the Wateree Animal Hospital, multiple churches, the Camden Fine Arts Center, the historic Price House, a lumber yard, a KFC, and an Auto Zone.

The project corridor for the BSRD is located in a small town urban setting and is primarily occupied by commercial development and paved roadway. Within the project area are numerous professional services, retail stores, and restaurants; however, multiple vacant storefronts are also present.

The project is not expected to specifically benefit, harm, or disproportionately impact any social group, including elderly, handicapped, non-drivers, minority or ethnic groups. It is anticipated that the proposed action would not result in any appreciable change in land use or local population. The project is not anticipated to disrupt community cohesion and no adverse effects on emergency services are anticipated. The BSRD is specifically intended to revitalize and encourage economic activity in downtown and is supported and will be implemented by the City of Camden.

Indirect Impacts

Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR § 1508.8). Indirect impacts were analyzed in general accordance with NCHRP Report 466 "Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects", dated 2002.

Step 1 – Scoping

Indirect impacts are analyzed for resources of concern within particular geographic and temporal boundaries. This allows for the appropriate context to be developed for each resource. Study area boundaries are developed through consideration of input received during the agency coordination and public involvement process. The indirect impacts study area for this project includes the sections of the truck route between the proposed improvements and the roadways where truck traffic will be shifted from. The study boundaries are shown on Figure 48. Impacts through the design year of 2035 are considered. Additional US Census data for the indirectly impacted populations is provided in Table 30. Geographic boundaries of the tracts are shown on Figure 49

Step 2 – Direction and Goals

The study area includes primarily single-family residential neighborhoods and commercial and institutional development. Several vacant commercial properties are located along Broad Street in the project study area. Based on the Camden Vision Plan, the Comprehensive Plan, the BSRD planning charrette, and input at the Public Information Meeting, stakeholders would like to see a revitalization of downtown that includes adequate parking and improved pedestrian access while maintaining or improving traffic flow. Stakeholders are also concerned with the protection of Camden's natural and historic resources.

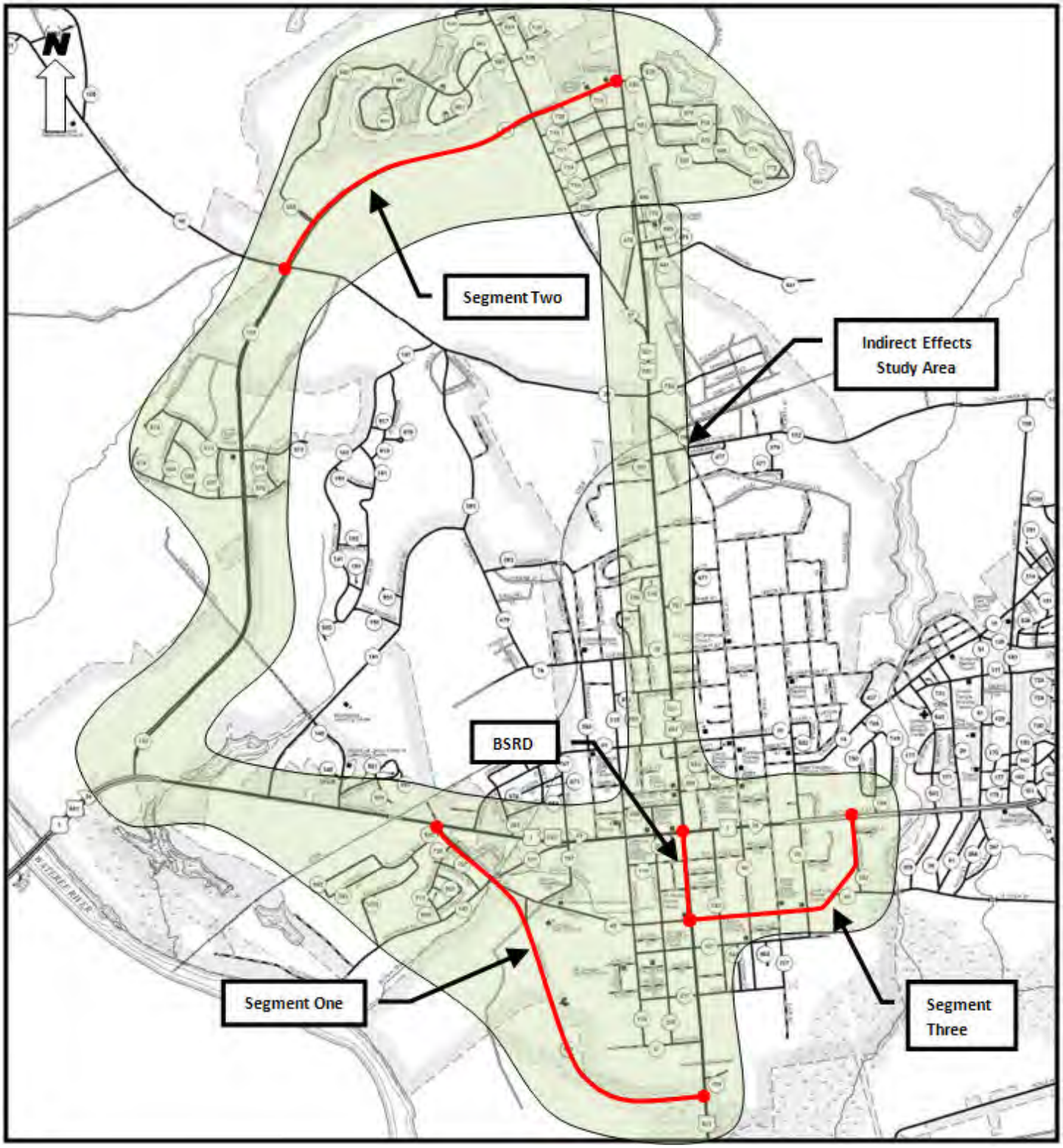


Figure 48: Indirect Effect Study Area

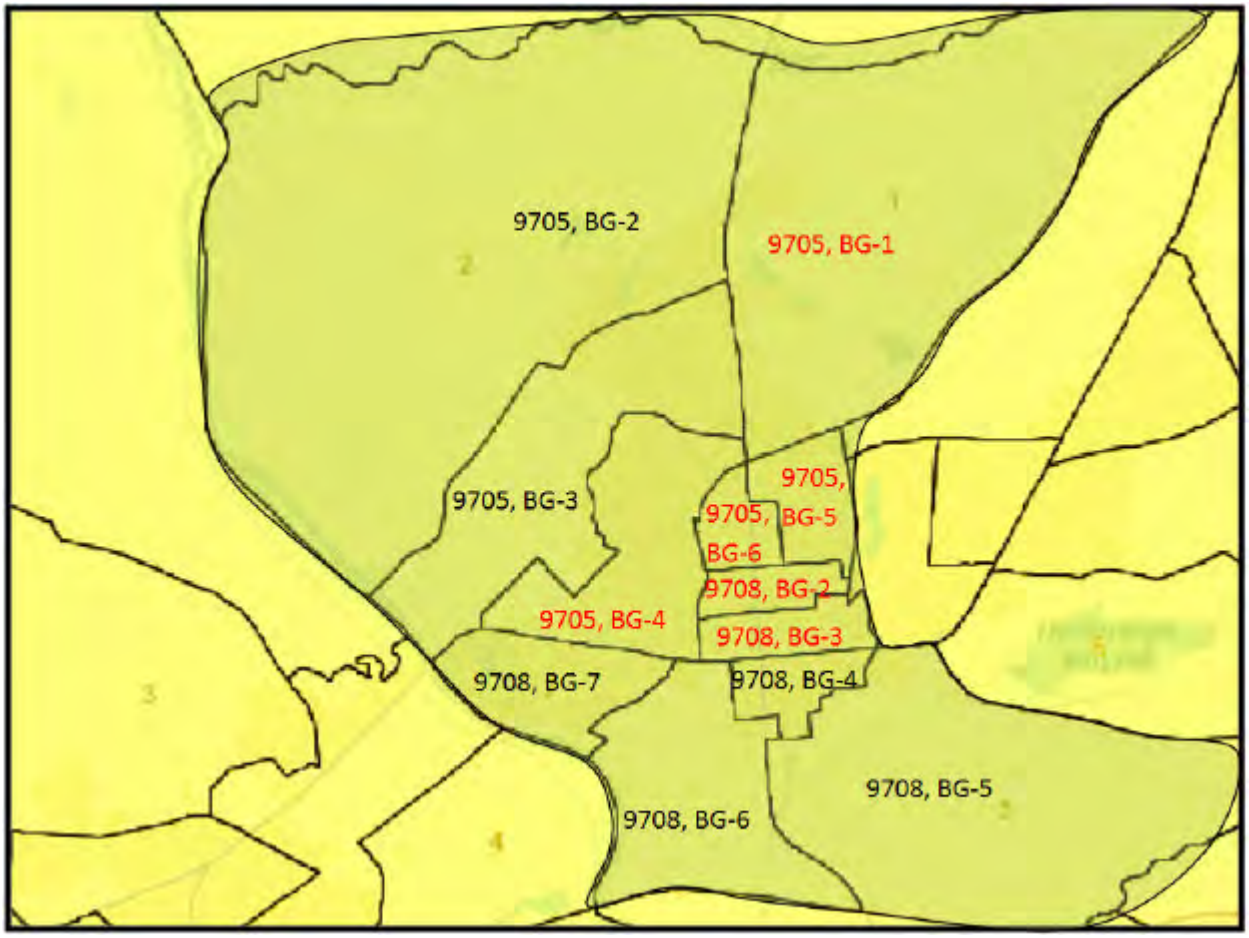


Figure 49: Additional 2000 U.S. Census Block Groups in Indirect Effects Study Area

Table 30: Indirectly Affected Block Groups, 2000 US Census Data

2000 Census Data	Indirectly Affected Block Groups											
	Census Tract 9705, Block Group 1		Census Tract 9705, Block Group 4		Census Tract 9705, Block Group 5		Census Tract 9705, Block Group 6		Census Tract 9708, Block Group 2		Census Tract 9708, Block Group 3	
Population Total	1,094	100.0%	1,002	100.0%	574	100.0%	764	100.0%	808	100.0%	854	100.0%
White	635	58.0%	613	61.2%	472	82.2%	396	51.8%	521	64.5%	622	72.8%
Black or African	444	40.6%	303	30.2%	102	17.8%	360	47.1%	271	33.5%	232	27.2%
Other	15	1.4%	86	8.6%	0	0.0%	0	0.0%	16	2.0%	0	0.0%
Poverty	1,094	100.0%	838	100.0%	574	100.0%	749	100.0%	808	100.0%	769	100.0%
1999 Income Below	202	18.5%	79	9.4%	8	1.4%	95	12.7%	41	5.1%	98	12.7%
1999 Income at or	892	81.5%	759	90.6%	566	98.6%	654	87.3%	767	94.9%	671	87.3%

Step 4 – Identify Impact Causing Activities of the Proposed Action

The proposed project will primarily consist of the improvement and expansion of existing roadways and replacement of stream crossings. A center turn lane and accommodations for bicyclists and pedestrians are included in the proposed typical sections. Two bridges over Bolton Branch Creek are to be replaced and realignment of a portion of the stream will be required. Some additional right-of-way and realignment through undeveloped areas will be

required to implement the project. The purpose of the project includes reducing heavy truck traffic through downtown on Broad Street and shifting this traffic to the truck routes.

Steps 5-6 – Identify and Analyze Potential Impacts

Potential indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Indirect effects of the project are expected to be minimal and related primarily to the increase of heavy truck traffic along the truck route corridors and corresponding decrease in heavy truck traffic on previously used routes. In the areas of improvement, these would be considered direct impacts; however, indirect impacts would occur along the portions of the truck routes between improvements. The increase in truck traffic between improvements may result in impacts in these areas commensurate with the direct impacts of the project in the areas of improvements, less construction related impacts. The project is not expected to result in any habitat fragmentation, significant increase in pollution, disruption of ecosystem function, or disruption of natural processes. The relatively minor wetland and floodplain impacts of the project are not expected to impact overall system function. Furthermore, since the project is not expected to result in significant adverse impacts to ecological or natural resources in the area of improvements, it follows that the impacts between improvements would not be significant. Although there will be several receptors impacted by increased noise levels in Segment One of the proposed improvements, these impacts occurred in an area where the route will shift closer to the receptors. Since the alignment of the roadway will not change between the improvements, there are no significant noise impacts anticipated in these areas. As discussed in the Land Use section of this document, the project is not expected to result in any significant induced growth or changes in land use or development patterns adjacent to improvements and it follows that the impacts on land use between improvements would not be significant. Minor changes in access to the truck routes and the displacements (one commercial, four residential) associated with the bridge replacements are not expected to result in significant impacts to community cohesion, stability, travel patterns, recreational opportunities or cultural values. The addition of sidewalks and bicycle accommodations would improve access to community services and the safety of pedestrians.

The Department has determined that the proposed project will not have adverse impacts on cultural resources through the Section 106 process with concurrence from the SHPO/THPO. The potential for direct impacts to cultural resources was primarily related to ground disturbing activities and property acquisitions or changes to the character and feel of districts. The increase in truck traffic itself was determined not to have a significant adverse effect on the historic districts. There will be no construction impacts between improvements and, as such, it follows that the indirect impact of additional truck traffic in these areas will not have adverse impacts to the historic districts or any historic or archaeological sites in these areas.

The reduction of heavy truck traffic through downtown and on other local streets, in conjunction with the implementation of the BSRD is intended to increase the attractiveness and safety of downtown. Economic development that may occur will primarily be infill of existing vacant storefronts or lots and is a desired effect of the project. There are no facilities in these areas that are specifically oriented to serve heavy truck traffic such as truck stops that would be adversely impacted by the reduction in trucks.

Step 7 – Evaluate Analysis Results

Both qualitative and quantitative methods were used to identify and analyze the potential indirect impacts to the various resources of concern resulting from this proposed project. These methods and/or resources included:

- Camden Vision Plan and Comprehensive Plan
- Field surveys and project specialty reports
- Internet research
- Aerial photographs, road maps, and USGS maps
- Public involvement information

Land use in the project study area is, for the most part, "built out" and is controlled by local zoning ordinances. Land use, population density, growth rates, and ecosystems in the vicinity of the project and/or beyond the limits of the project are not expected to be adversely affected by implementation of the project.

Step 8 – Assess Consequences and Develop Mitigation

The proposed project is anticipated to have minimal indirect impacts on the natural and human environment and no mitigation would be required.

Cumulative Impacts

Cumulative impacts are the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.7). Cumulative impacts were analyzed in general accordance with the Council on Environmental Quality (CEQ) guidance document "Considering Cumulative Effects Under the National Environmental Policy Act" dated January 1997.

Step 1 – Identification of Resources

Resources that must be evaluated include elements of the physical environment, species, habitats, ecosystem parameters and functions, cultural resources, recreational opportunities, human community structure, traffic patterns, or other economic and social conditions:

- **Land Use:** Cumulative impacts to land use will be evaluated.

- **Protected Wildlife Habitat:** There are no federally protected species habitats or essential fish habitats within the project area and the project will have no effect on these resources. Therefore, the project will not contribute to cumulative impacts to these resources.

- **Farmland:** The majority of the project vicinity is identified as prime farmland by USDA soil maps. Cumulative impacts to the availability of prime farmland will be evaluated.

- **Water Quality:** The proposed project is located within the Wateree River Watershed (HUC 03050104-030) and the Big Pine Tree Creek Watershed (HUC 03050104-070). State waters within the project area and immediate vicinity include Bolton Branch Creek, tributaries to Bolton Branch Creek, tributaries to Big Pine Tree Creek, and tributaries to Camp Creek. Cumulative impacts to water quality will be evaluated.

- **Wetlands and Floodplains:** The project includes construction within wetland areas and floodplains. Cumulative impacts to wetland and floodplain functions will be evaluated.

- **Air Quality:** Cumulative impacts to regional air quality will be evaluated.

- **Noise:** Noise levels in the area of direct and indirect effects will be evaluated for cumulative impacts.

- **Cultural Resources:** The study area includes multiple historic districts, historic sites, archaeological sites. Cumulative impacts to cultural resources will be evaluated.

- **Social and Economic Resources:** Cumulative impacts to social and economic resources will be evaluated.

Step 2 – Study Areas

Cumulative impacts are analyzed for resources of concern within particular geographic and temporal boundaries. This allows for the appropriate context to be developed for each resource. Study area boundaries are developed through consideration of input received during the agency coordination and public involvement process.

- **Land Use:** The cumulative impacts study area for land use consists of the area covered by the Land Use Plan included in the Comprehensive Plan (Appendix N) as shown in Figure 50.

- **Farmland:** The cumulative impacts study area for farmlands consists of an area encompassing all project segments as shown on Figure 51.

- **Water Quality:** The cumulative impacts study area for water quality consists of the Wateree River Watershed (HUC 03050104-030) and the Big Pine Tree Creek Watershed (HUC 03050104-070)as shown on Figure 52.

- **Wetlands and Floodplains:** The cumulative impacts study area for wetlands and floodplains consists of the wetland and floodplain systems associated with Wateree River, Bolton Branch Creek, Little Pine Tree Creek, Big Pine Tree Creek, and Camp Creek as shown on Figure 53.

- **Air Quality:** The cumulative impacts study area for air quality is Kershaw County as shown on Figure 54.

- **Noise:** The cumulative impacts study area for noise levels includes all areas that may experience an increase or decrease in heavy truck traffic as shown on Figure 55.

- **Cultural Resources:** The cumulative impacts study area for cultural resources consists of the City of Camden Historic District, the Revolutionary War Restoration Historic District, and the Springdale Race Course Historic District for all resources contributing to the districts, and is limited to the area of potential effects for all sites not within a historic district as shown on Figure 56.

- **Social and Economic Resources:** The cumulative impacts study area for cultural resources consists of the 2000 US Census tracts adjacent to the proposed improvements and roadways that may experience a decrease in heavy truck traffic as shown on Figure 57.

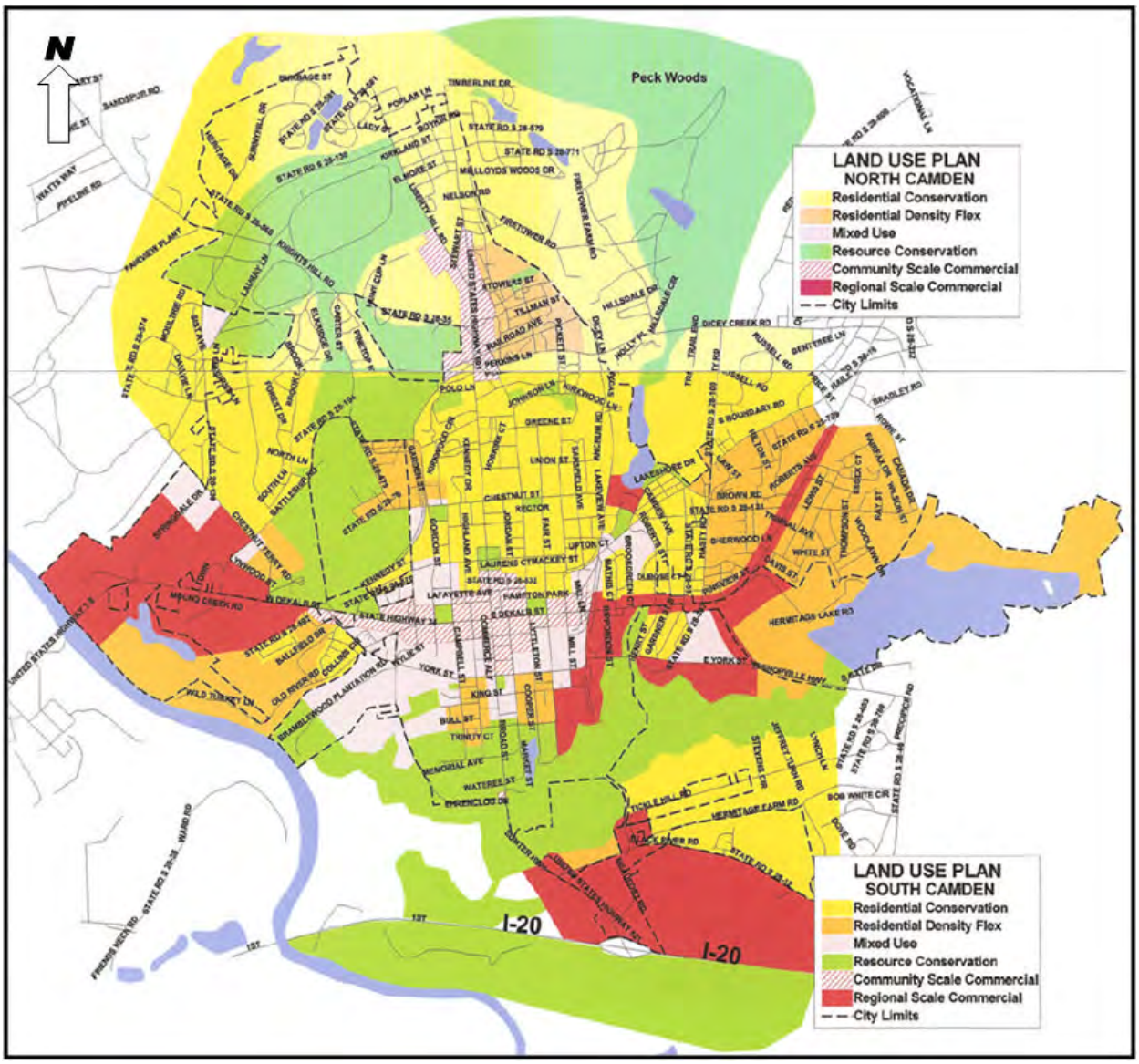


Figure 50: Land Use Cumulative Impacts Study Area

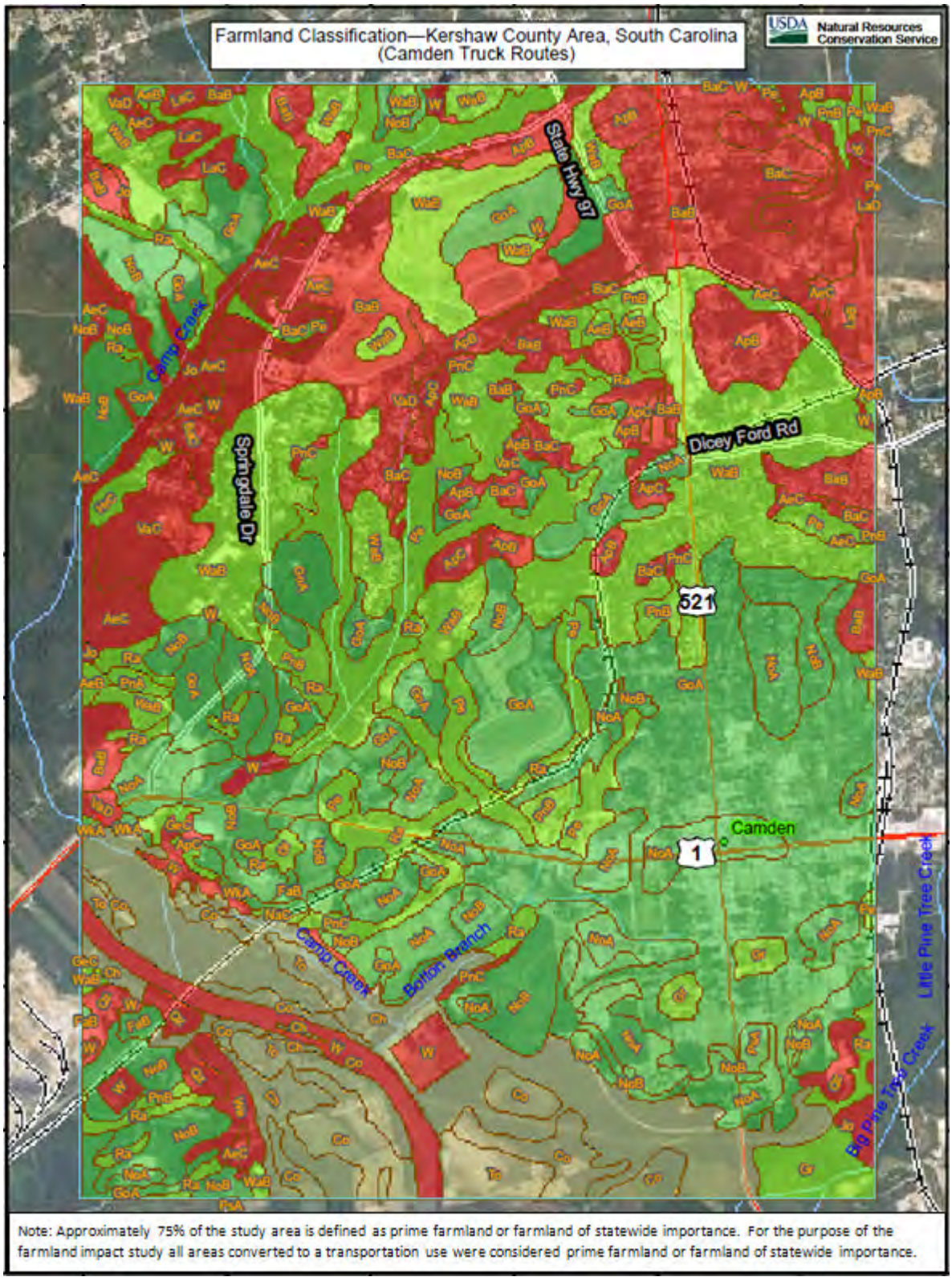


Figure 51: Farmlands Cumulative Impacts Study Area

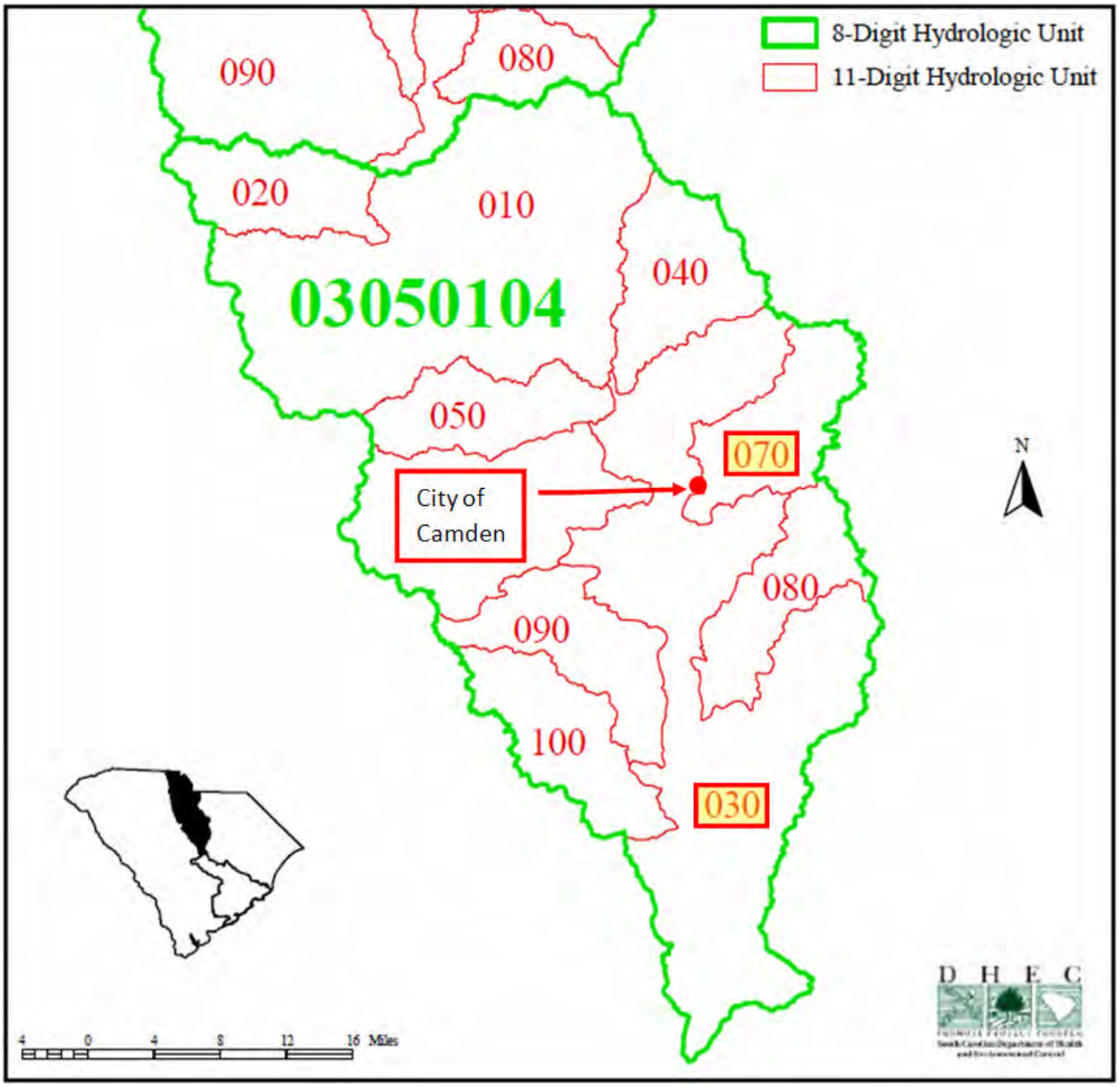


Figure 52: Water Quality Cumulative Impacts Study Area (HUC03050104-070, -030)

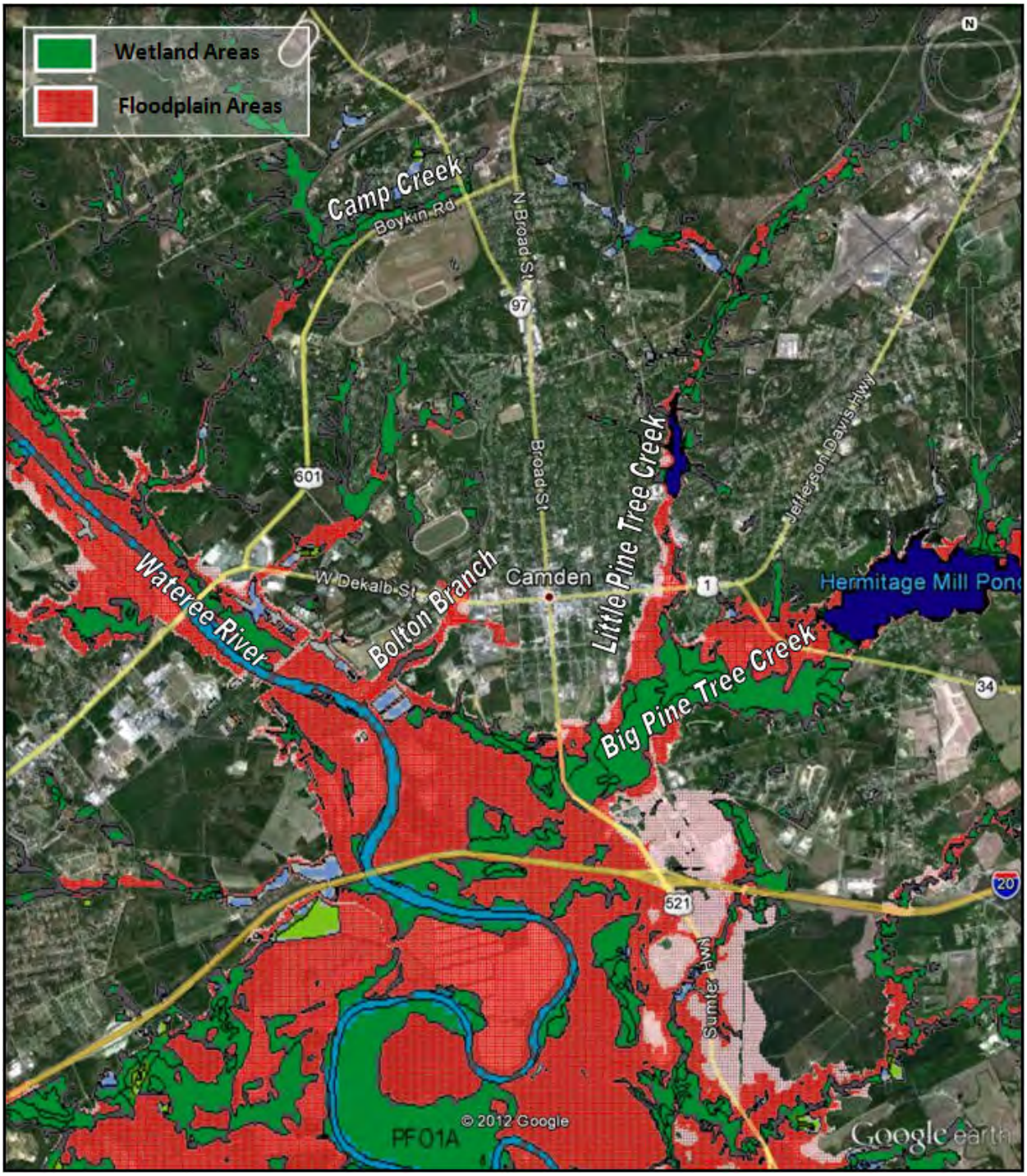


Figure 53: Wetlands and Floodplains Cumulative Impacts Study Area

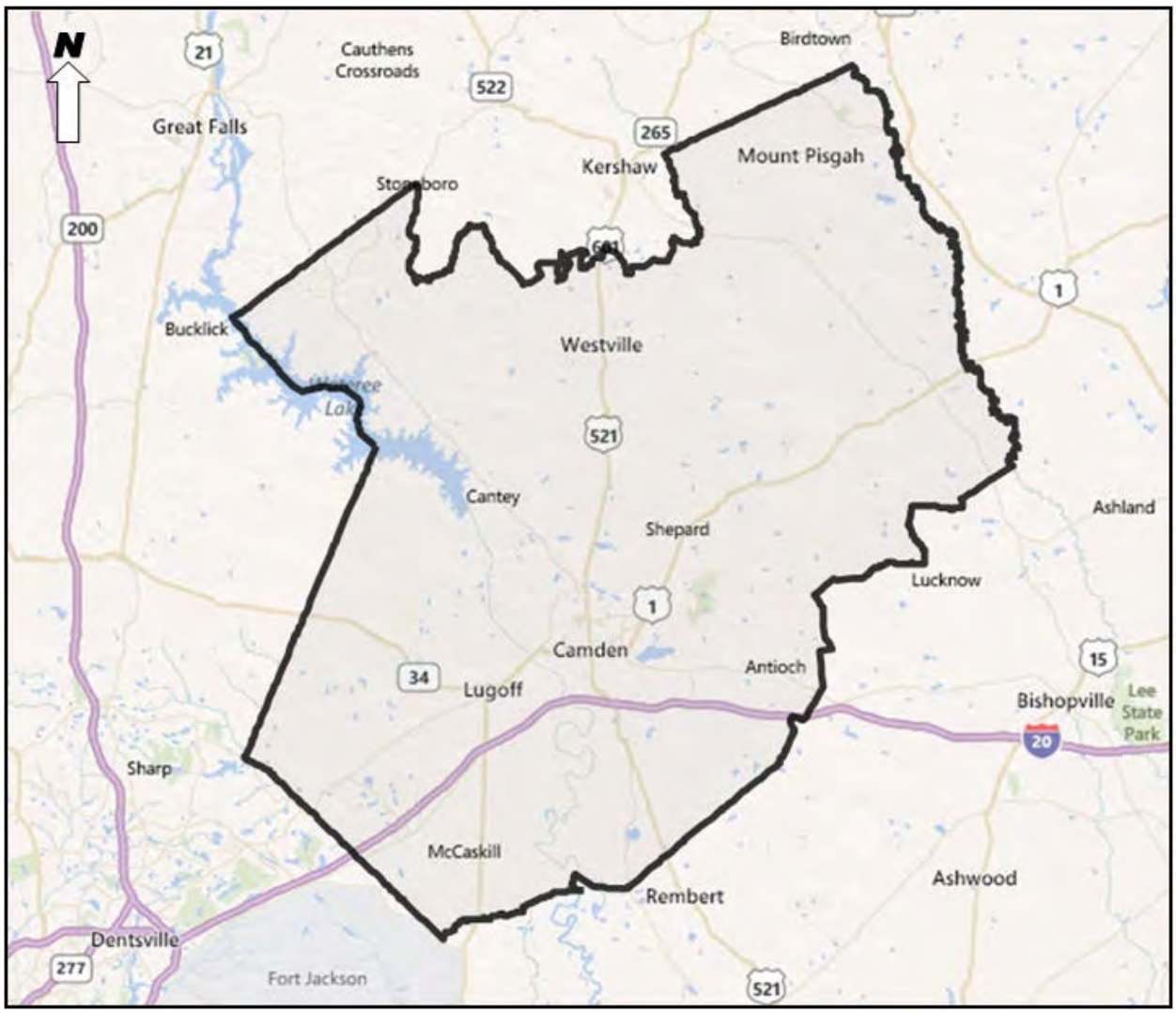


Figure 54: Air Quality Cumulative Impacts Study Area (Kershaw County)

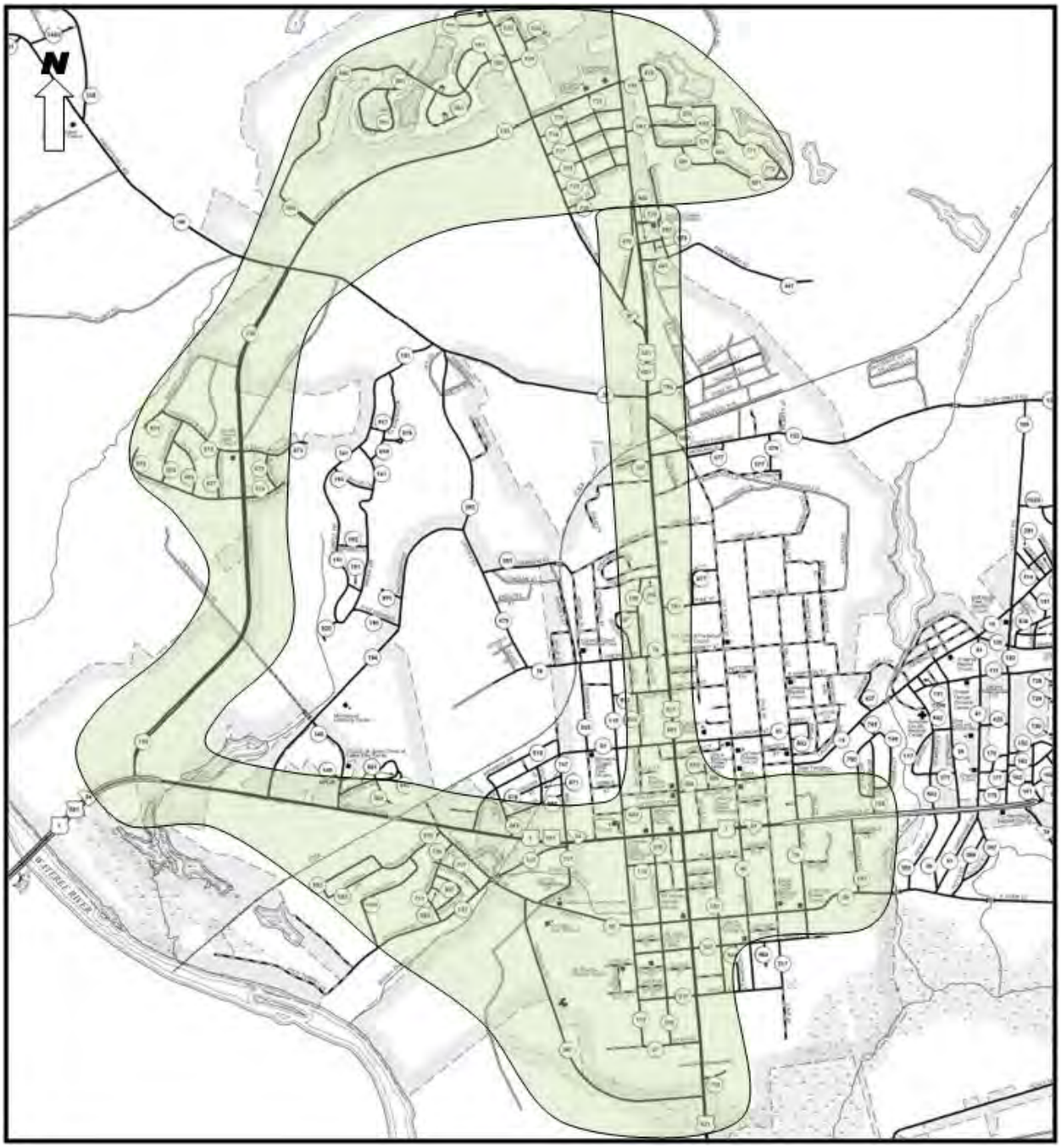


Figure 55: Noise Level Cumulative Impact Study Area

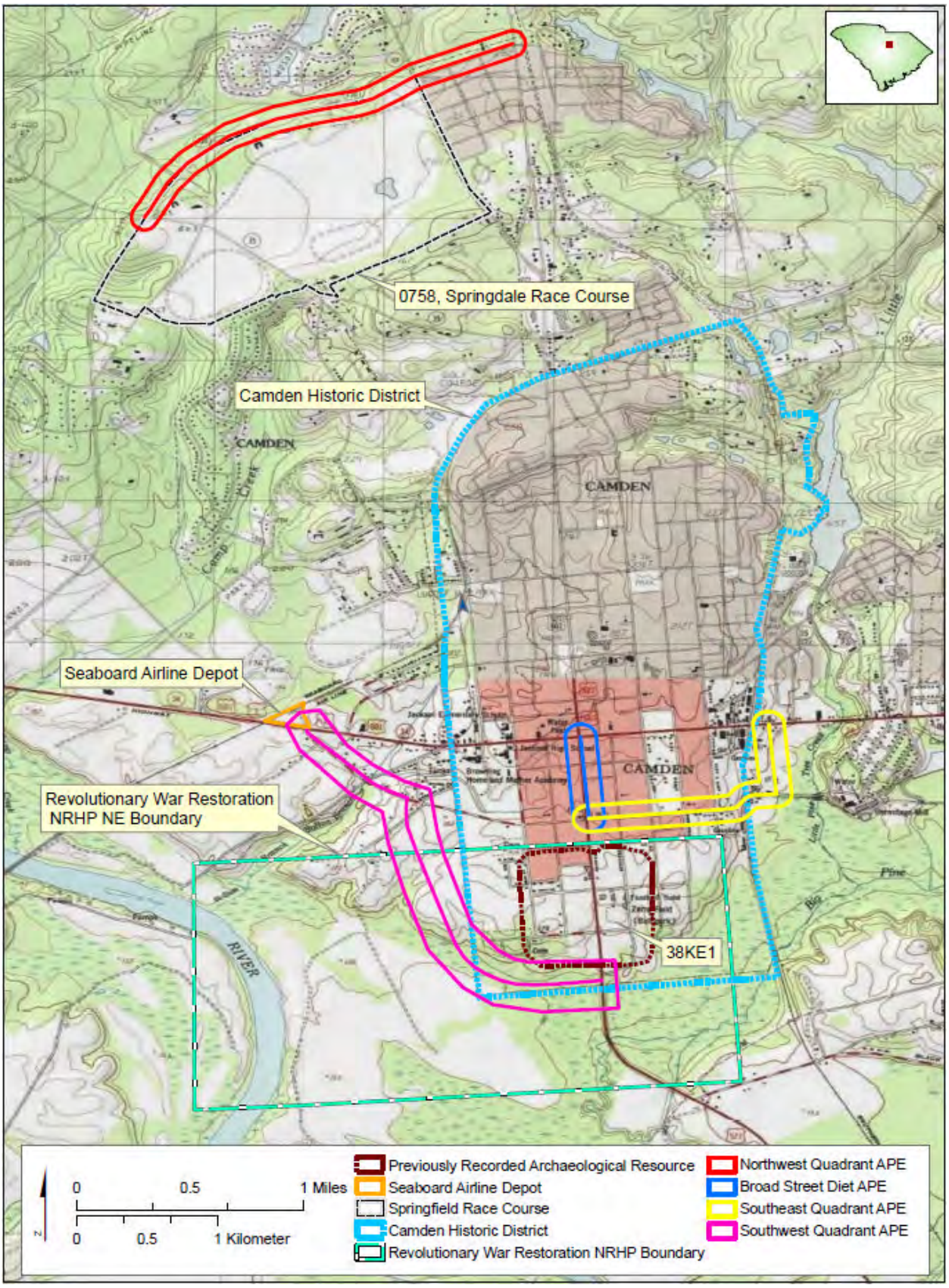


Figure 56: Cultural Resources Cumulative Impacts Study Areas

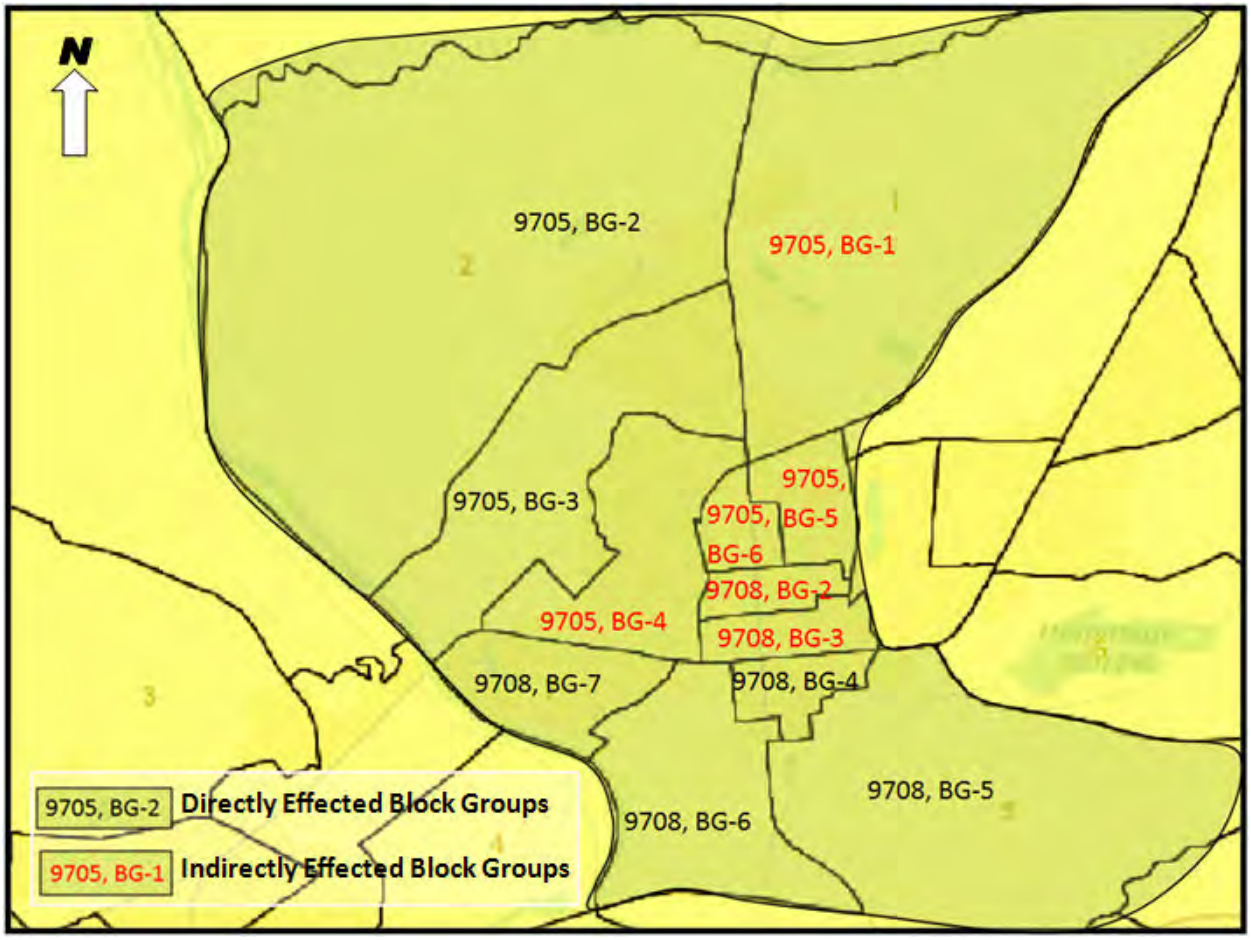


Figure 57: Social and Economic Cumulative Impacts Study Area

Step 3 – Time Frame

Evaluation of cumulative impacts must consider the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

- **Land Use:** The cumulative impacts study time frame for land use covers the period addressed in the Comprehensive Plan (Appendix N) from 2007 to 2017.

- **Farmland:** The cumulative impacts study time frame for farmlands covers the period since establishment of the Farmland Protection Act in 1981 through the end of the Comprehensive Plan period of 2017.

- **Water Quality:** The cumulative impacts study time frame for water quality covers the period since the establishment of the Clean Water Act in 1972 through the design year of 2035.

- **Wetlands and Floodplains:** The cumulative impacts study time frame for wetlands and floodplains covers the period since the establishment of the Clean Water Act in 1972 through the design year of 2035.

- **Air Quality:** The cumulative impacts study time frame for air quality covers the period since the establishment of the Clean Air Act in 1970 through the design year of 2035.

- **Noise:** The cumulative impacts study time frame for noise levels covers the period since the establishment of the Noise Control Act in 1972 through the design year of 2035.

- **Cultural Resources:** The cumulative impacts study time frame for cultural resources covers the period since the establishment of the National Historic Preservation Act in 1966 through the design year of 2035.

- **Social and Economic Resources:** The cumulative impacts study time frame for social and economic resources covers the period from the establishment of the South Carolina Comprehensive Planning Enabling Act of 1994 through the period addressed in the current City of Camden Comprehensive Plan (Appendix X) to 2017.

Step 4 – Other Actions

Other past, present, or future actions which may impact the resources of concern may contribute to cumulative impacts within the study area and must be identified.

- **Land Use:** Past actions affecting land use have been controlled primarily by zoning ordinances and have led the study area to be developed as it is today. Past and current actions affecting the land use of the study area include expansion of the City limits due to the policy of requiring annexation as a condition for sewer service and rehabilitation initiatives that have razed an average of over five dilapidated dwellings a year. Mobile home development has also been restricted to designated parks and is expected to eventually be effectively eliminated from the housing inventory with the exception of new annexed areas.[30] The Comprehensive Plan also calls for encouraging development and revitalization of downtown and the City has recently completed its Camden Town Green project as a downtown greenspace and festival venue. No major developments are planned that would significantly affect land use in the study area.

- **Farmland:** Camden has gradually shifted away from agricultural production within the City limits as development and population has grown.

- **Water Quality:** Development has generally increased impervious surface areas in the study area and increased sediment loading and runoff quantities. Current and future developments are or will be required to meet erosion control and stormwater detention requirements.

- **Wetlands and Floodplains:** Development within wetland and floodplain areas has been and will continue to be limited by costs and risks associated with such

[30] Comprehensive Plan, pg 90-91 (Appendix N)

development. Many of the impacted wetland sites have been affected by the present roadway or other human disturbances.

- **Air Quality:** Kershaw County has no major air pollution emitting industrial facilities and no major facilities of this type are currently underway or planned.

- **Noise:** Noise levels within the study area do not currently exceed their respective impact thresholds[31] but have increased over time due to increases in heavy truck traffic as well as growth in overall daily traffic. Plans are included in the TIP for improving and widening US 521 north of the City limits to the Lancaster County line, improving US 1 east of Camden to Bethune, SC, improving and widening US 1 west of Camden from Lugoff, SC to the Richland County line and improving SC 97 (John Richards Road) from US 521/US 601 to Liberty Hill Road. Plans to improve US 521 from south of I-20 to the Sumter County Line are also included in the STIP. These plans may further increase traffic through Camden.[32]

- **Cultural Resources:** Protection of cultural resources is a priority in Camden and has been enforced through creation of local historic overlay districts in which building permits must be approved by the Camden Historic Landmarks Commission. The condition of many significant archaeological sites have been preserved and investigated by the Camden Historical Society; however, some sites adjacent to the project corridors have been previously degraded or eradicated by construction of the existing roadways and adjacent developments. Current and future plans include pursuing National Landmark status for Historic Camden (Revolutionary War Restoration Historic District) and the Camden Battlefield Site.

- **Social and Economic Resources:** Past actions impacting the social and economic resources in the study area and related to the proposed project include the designation of Ehrenclou Drive, Chestnut Ferry Road, Springdale Drive, Boykin Road, and York Street as portions of the US 521 and US 1 truck routes. Current and future plans for revitalization of downtown are directly supported by the proposed project. Plans are included in the TIP for improving and widening US 521 north of the City limits to the Lancaster County line, improving US 1 east of Camden to Bethune, SC, improving and widening US 1 west of Camden from Lugoff, SC to the Richland County line and improving SC 97 (John Richards Road) from US 521/US 601 to Liberty Hill Road. Plans to improve US 521 from south of I-20 to the Sumter County Line are also included in the STIP.

Step 5-7 – Describe the Affected Environment

Detailed descriptions of the resources in the project areas are included in their respective sections elsewhere in this document. A brief summary is provided below:

- **Land Use:** Development in the study area is a combination of residential, commercial and institutional property. Undeveloped areas are primarily limited to wetland and floodplain areas.

[31] Noise Impact Assessment (Appendix N)
[32] Comprehensive Plan, pg 75 (Appendix N)

- **Farmland:** Farming is limited in the study area. Agricultural activities are more prevalent in the rural areas of Kershaw County. The areas adjacent to the project are not currently zoned to allow significant agriculture and are not planned for agricultural uses.

- **Water Quality[33]:** The waters in the project area are classified as Class FW, or "freshwaters". Class FW waters are suitable for primary and secondary contact recreation and as source for drinking water supply, after conventional treatment in accordance with the requirements of the SCDHEC. These waters are suitable for fishing, and the survival and propagation of indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses. The surface waters within the project area and immediate vicinity are relatively low-gradient and sandy-bottomed. Due to the urban setting of the surface waters within the project areas, trash accumulation was evident in the surface waters.

  CW-021 monitoring station is located on Big Pine Tree Creek near U.S. 521 just south of Segment 1. Aquatic life and recreational uses are fully supported.

  CW-019 monitoring station is located on the Wateree River near U.S. 1 approximately 1.6 miles west of Segment 1. Recreational uses are fully supported at this site. Aquatic life uses are partially supported due to dissolved oxygen excursions. This water was listed on the 2010 SCDHEC List of Impaired Waters (303d list) for DO.

  CW-214 monitoring station is located on the Wateree River near Interstate 20 approximately 1.3 miles southwest of Segment One. This water was listed on the 2010 SCDHEC List of Impaired Waters for DO and mercury (fish consumption advisory).

  CW-223 monitoring station is located on Little Pine Tree Creek near Dicey Ford Road and Kendall Lake, approximately 1.7 miles north of Segment 3. Aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions. This water was listed on the 2010 SCDHEC List of Impaired Waters for fecal coliform.

  No approved Total Maximum Daily Loads (TMDL) have been established on the waters in the project areas.

- **Wetlands and Floodplains:** Wetlands directly impacted by the project are forested or floodplain wetlands and are of low to medium wildlife value. Losses generally will not have a substantial adverse effect on important fish and wildlife resources. The overall wetland and floodplain systems within the study area are very large in comparison to the proposed impacts.

- **Air Quality:** Kershaw County is not located within a non-attainment area and as such air quality has not been significantly impacted by local or regional growth or industry.

[33] Natural Resources Technical Memorandum, pg 8-10 (Appendix N)

- **Noise:** The existing noise levels measured range from **51.3 to 62.9 dB(A)** at Segment One, **54.9 to 64.0 dB(A)** at Segment Two, and **46.9 to 64.0 dB(A)** at Segment Three.[34] Noise levels were not measured along Broad Street.

- **Cultural Resources:** Multiple resource surveys have been conducted within the project area and most sites have been previously evaluated and either listed on the NRHP or have been determined to be contributing to historic districts, if significant. Some archaeological sites adjacent to the project corridors have been previously degraded or eradicated by construction of the existing roadways and adjacent developments.

- **Social and Economic Resources:** The project area is occupied by a primarily minority/low income population in the Southwest and Southeast Quadrants and includes multiple community resources including housing and religious, educational, retail, industrial, recreational and government service facilities. Evolution of the local economy has been dominated by growth in the non-manufacturing sector and is becoming increasingly service oriented. This trend is magnified by the importance of the equine industry, tourism, and historical attributes of Camden. More and more retail establishments are relocating from the City center to outside locations and continue to weaken the City's economic base.[35]

Step 8-9 – Identify and Evaluate Cumulative Impacts

- **Land Use:** The project is not expected to have any significant direct or indirect impacts on land use and project contributions will not create significant cumulative impacts.

- **Farmland:** The project will convert approximately 14 acres of area considered as prime farmland to a transportation use. However, these areas are currently adjacent to existing roadways. Based on an evaluation and rating in accordance with Farmland Protection Policy Act of 1981, the project is not expected to have any significant direct or indirect impacts the availability of prime farmland and project contributions will not create significant cumulative impacts.

- **Water Quality[36]:** The impact on water quality from the proposed projects is expected to be negligible. Impacts will be limited to potential sediments released during demolition of existing roads and bridges, and installation of the new roadways and bridges. Minor fill impacts to wetlands are also proposed. The bridge replacement is expected to improve hydraulic capacity and aquatic species passage. The proposed projects are not expected to have long-term impacts to water quality within the Wateree River Watershed (HUC 03050104-030) and the Big Pine Tree Creek Watershed (HUC 03050104-070) and project contributions will not create significant cumulative impacts.

- **Wetlands and Floodplains:** The project is expected to impact a total of approximately 0.38 acres of wetlands. The proposed impacts to wetlands will not

[34] Noise Impact Assessment (Appendix N)
[35] Comprehensive Plan, Part III (Appendix N)
[36] Natural Resources Technical Memorandum, pg 8-10 (Appendix N)

have a substantial adverse effect on important fish and wildlife resources or impact overall wetland system function. Approximately 2.27 acres of the project will take place within the 100-year floodplain. The overall floodplain systems within the study area are very large in comparison to the proposed impacts and are expected to result in a No Rise certification. Project impacts will not create significant cumulative impacts.

- **Air Quality:** The project is not expected increase traffic, development, or population growth rates in the project area and project contributions will not create significant cumulative impacts.

- **Noise[37]:** The project will have direct impacts that will contribute to a cumulative impact exceeding the noise impact criteria for 8 residential properties along Segment One where the alignment shifted closer to the receptors in order to avoid displacements. Mitigation of noise impacts was evaluated and determined not to be feasible. Noise impact criteria were not exceeded in other portions of the project and will not create indirect impacts between improvements or contribute to significant cumulative impacts in these areas.

- **Cultural Resources:** Project impacts are limited direct impacts caused by ground disturbing activities and/or activities that would affect the character and use of historic sites. The project is not expected to have adverse effects on any of the historic districts, historic sites, or archaeological sites identified in the study area. Impacts of the project will not create significant cumulative impacts.

- **Social and Economic Resources:** Adverse impacts will consist of two commercial and four residential relocations, minor ROW acquisitions, access changes for the residents of Wylie Street, Smyrl Circle, McLeod Court, and Rippondon Street, and an increase in heavy truck traffic along the truck routes. Beneficial impacts will consist of reduced traffic delays, increased pedestrian and vehicle safety, the addition of bicycle lanes and sidewalks, reduced truck traffic in downtown, and a more attractive and inviting downtown. The project is unlikely to change overall land use, development patterns, or reduce the economic vitality of the study area. Access changes are minor and residents will still have access to major roadways.

When evaluated in the context of other past, present, and future actions the contributions of the project to cumulative impacts in their respective study areas will not affect the potential of the affected resources to sustain themselves. No consideration of additional alternatives or mitigation will be required.

[37] Noise Impact Assessment (Appendix N)

V. COORDINATION

Public Coordination

Property Access

Right of Entry (ROE) letters were sent on November 17, 2010 and April 4, 2012 to residents adjacent to the subject corridor prior to conducting route surveys and specialist studies.

Broad Street Road Diet Planning Charrette and Stakeholder Meetings

A planning charrette was held specifically for the BSRD portion of the project on November 14-15, 2011 at 1034 Broad Street. An advertisement was placed in the Camden Chronicle-Independent newspaper prior to the planning charrette with details for the time, date, place, and purpose. The meeting was conducted by the City of Camden and their design consultants. The charrette had two basic goals: to provide information on the project to participants and to identify the goals of stakeholders. There were over 60 participants, 3 focus group sessions, 1 public input session, debrief/work sessions, and a summary presentation held at the charrette. Participants were given a worksheet to complete regarding their direct correlation to BSRD and were asked for feedback and comments. Attendees also received a project fact sheet with basic information on the BSRD project. The Planning Charrette Summary Presentation is provided in the BSRD Technical Memorandum (Appendix E).

There were two additional stakeholders meetings held on January 17, 2012 at 1034 Broad Street from 7:30 am – 11:30 am and 6 pm – 8 pm that were specifically geared towards business and property owners. A flyer was provided to stakeholders prior to the focus sessions with information such as the time, date, location.

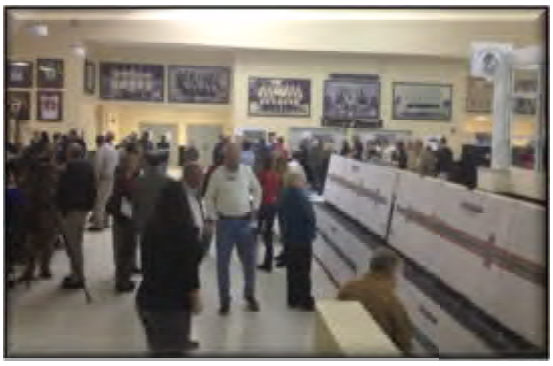
The input from the planning charrette and stakeholders meetings identified guiding principles for the project as discussed in the BSRD Technical Memorandum (Appendix E). The meeting advertisements, charrette fact sheet, attendance lists, and participant worksheet can be found in Appendix L.

Stakeholder Meeting Comments (paraphrased):

- Good to see project progressing
- Alternative 2 is not appealing due to significant parking decrease
- Alternatives 1 and 2 do not allow for parking and truck loading/unlading; finding balance between pedestrians, traffic, parking, and deliveries is a must

- Concerned about reduction of parking in the Rutledge/DeKalb block where most retail is currently located
- Parking in York/Rutledge block appears adequate
- Concerned about intersection design and impact on service/delivery vehicles
- Concerned about extended construction and impact on economic activities
- Potential for bottlenecks if vehicle breaks down in travel lane
- Water line issues should be addressed at the same time as the road diet
- City needs a comprehensive parking plan for downtown
- Logging trucks in downtown are intimidating
- Include sidewalk dining and pedestrian amenities
- Improve intersection first, then determine if road diet will work
- Maintain 4 travel lanes but add turn lanes too; leave Broad Street the way it is now (3)
- Prefer Alternative 1A (3)
- Prefer Alternative 2

Public Information Meeting



The public information meeting (PIM) was advertised in the Camden Chronicle-Independent newspaper on January 6, 2012. The advertisement included details such as a project description and the date, time, and location. Direct mailings of the Camden Chronicle-Independent newspaper advertisement were sent to both the physical address and the property owner addresses listed on the Kershaw County GIS website for properties adjacent to the project on January 9, 2012. Road signs were posted two weeks prior to the meeting containing PIM details along the routes. Flyers were delivered to local churches and business owners January 17, 2012 for posting on billboards and windows. The PIM was held on Tuesday, January 24, 2012 from 6:00 p.m. to 8:00 p.m. in the Camden High School Cafeteria/Commons Area located at 1022 Ehrenclou Drive, Camden, South Carolina, 29020. The PIM location was within walking distance of most minority/low income communities. City and County Council members also distributed PIM handouts and flyers leading up to the meeting at churches and community gatherings. The newspaper advertisement and flyer can be found in Appendix L.

The PIM included a presentation of the project and an informal open-house discussion with displays. The presentation addressed all truck route improvement alternatives as well as the alternatives under consideration for the BSRD. Displays contained aerial photographs of the study areas, color coded alternative routes, wetlands, historical boundaries and archeological sites of importance. The public had the opportunity to view the displays and speak with project representatives from HGBD, URS, and SCDOT and discuss any questions or concerns. Handouts were provided for attendees that included a thorough description of improvements with detailed maps of the existing and proposed routes.

Comment forms were provided for citizens to discuss their concerns and offer suggestions towards the future improvements. One hundred seventeen (117) people signed in at the registration desk. Twenty-eight (28) written comments and a "Petition to stop DOTSC from changing Boykin Road, Camden SC into a four lane truck route" signed by nineteen (19) people were received at the meeting. Ten (10) additional comments were received during the fifteen-day comment period following the meeting, for a total of thirty-eight 38 comments. A copy of the PIM presentation, PIM handout, sign-in sheets, and all comments received are included in Appendix L.

Stakeholders in Attendance

- SLRCOG: All Kershaw County delegates & Mr. Pete Hipps
- County of Kershaw: Delegates, County Planning Director and Assistant Planner
- City of Camden: Mayor, Council members, Economic Development Director,
- Fire Chief and Police Chief
- Springdale Racecourse: Manager
- Historic Camden Foundation: Chairman and Director
- American Legion Post 17: Facilities Manager
- Kershaw County Historical Society: Treasurer, Board Member, Staff members
- Kershaw County Fine Arts Center: Secretary of Board, Grants Administrator

General Concerns (Paraphrased)

- Truck Route must be enforceable; existing [ordinance] not enforced.
- Suggested true bypass around all of Camden rather than an improvement
- Property assessment and compensation for lost income during projects to business'
- Trucks do not use routes now due to safety concerns
- Additional length of routes adds more trucking expenses
- Too many intersections, turns, too much traffic, make routes undesirable
- Truck owners pay excise tax for US routes – how can their use be restricted?

Summary of Comments Regarding Segment One (Paraphrased)

- Safety of pedestrians crossing from high school to athletic complex and crossing Ehrenclou and York Streets.
- Concerns about [young or new] drivers along York, Ehrenclou, and Chestnut Ferry
- Existing route not viable as a truck route – due to school and excessive turns
- Concerns about negative effects to residential properties

Summary of Comments Regarding Segment Two (Paraphrased)

- 19 residents submitted a petition to "Stop Boykin Road from becoming a four lane truck route"
- Safety of US 1/601 intersection with Springdale Drive
- Suggested alternate route: move truck route out to Clay Road instead of Boykin
- Improve intersection of US 521 and Boykin Road – install traffic light, trim shrubs.
- Safety concerns along Boykin Road with regard to residential section (request 35 mph)
- Suggested not altering Boykin Road between Liberty Hill Road (SC 97) and US 521
- Concerned about effects to Church north of Boykin Road, noise on Boykin Road, and loss of property value
- Suggested no truck route in ANY residential area
- School children often in parking lot of church/school north of Boykin.

Summary of Comments Regarding Segment Three (Paraphrased)

- Indicated that the Intersection of Mill Street and Dekalb Street is difficult to drive through as is and preferred to use Rippondon Street over Mill Street.
- Several suggested alternate routes: i.e. Black River Road to Rippondon (use old railroad bed), I-20 to Exit 101 to SC 34 to US 1, Lockhard Road to Saunders Creek Road to US 1 to SC 34 to US 521, and more general suggestions of something more "rural" further out in the county.
- Concern for historic Price House building
- Concerns about negative effects on Historic Camden area adjacent to Bull Street: in addition to comments from the public letters were received from representatives of the Historic Camden Foundation and the American Revolution Association specifically opposing the use of Bull Street for the truck route
- Bull to Rippondon route goes through wetlands and known protected species area
- Concerns about negative effects on business along York and Mill route related to loss of parking areas and inconvenience during construction
- Routes run through or adjacent to historically African-American residential areas
- York to Mill or Rippondon routes have inadequate R/W widths and for dangerous curves east of Mill Street
- One commenter was opposed to allowing the Truck Route through Historic Camden
- A commenter stated that trucks currently use York Street to Lakeshore Drive
- Concerns for seizing private property.
- A resident opposes using Mill Street because of current flooding to property from roadway runoff

Summary of Comments Regarding BSRD (Paraphrased)

- Recommended use of turn lanes
- One person indicated a preference for plan A with more parking
- One person indicated a preference for Alt 3 presented to City Council
- A few felt the project will cause congestion downtown and on other local streets, cause safety issues, and be bad for business [cause drivers to avoid downtown]
- One commenter felt existing Broad Street functions well enough with no need for changes once trucks are re-routed
- Recommended walkway for people to cross mid-block
- Concerns about deliveries to downtown
- Requested reduced duration of traffic [red] lights

Public Hearing

After the approval of the Environmental Assessment (EA) by The Department and FHWA the document will be available for review during a 30 day comment period in various locations, which will be legally advertised. During this time, a public hearing will be held in the project vicinity where the public may review the EA and Preferred Alternative exhibits and will be requested to provide comments on the proposed project. All comments received during the 30 day comment period will be addressed in the Public Hearing Certification and request for Finding of No Significant Impact (FONSI).

Agency Coordination

Local, state, and federal agencies were contacted and asked for their comments on the Camden Truck Routes Project in February 2011. A Letter of Intent (LOI) was sent out to all affected state and federal agencies with basic project information about the proposed improvements. A sample letter of intent, the full distribution list, and the agency responses are included in Appendix M. The following agencies/organizations provided responses to the LOI:

- Kershaw County Planning and Zoning Department
- U.S. Department of Housing and Urban Development
- S.C. Archives & History Center
- City of Camden South Carolina
- Water Quality Certification and Wetlands Section (SCDHEC)
- U.S. Army Corp of Engineers (Charleston District)

The Department presented the Camden Truck Route Improvements to the SLRCOG on August 1, 2011. This presentation served to inform community leaders about the current status and scope of the project. Council members were requested to share the information with their constituents. An overview of the BSRD was also included in the SLRCOG presentation.

The planning charrette held for the BSRD on November 14-15, 2011 at 1034 Broad Street included a session from 11:30 A.M. to 1:00 P.M. specifically for government officials and agency representatives.

A meeting with Kershaw County officials was held on November 2, 2011 to discuss the Truck Route Improvements and included the Kershaw County Planner, Assistant County Planner and County Engineer.

A meeting with Kershaw County School Board was held On November 15, 2011 to discuss the reconfiguration of the Ehrenclou Road, Chestnut Ferry Road, York Street intersection and the relocation of Bramblewood Plantation Road as well as options for pedestrian crossing to the athletic complex.

The project will later be presented at an Agency Coordination Effort (ACE) meeting to discuss regulatory permitting and other issues with coordinating agencies such as SCDHEC, ACOE, and SCDNR.

When the EA is approved by The Department and FHWA it will be provided to coordinating agencies for review during the 30-day comment period. Comments from the agencies will be addressed and added to the request for FONSI.

APPENDIX A: FUNDING COMMITMENT DOCUMENTS

- DISTRICT 1, KERSHAW COUNTY, SOUTH CAROLINA STATE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)
- SANTEE-LYNCHES REGIONAL COUCIL OF GOVERNMENTS TRANPORTATION IMPROVEMENT PROGRAM (TIP)
- TIGER II GRANT

APPENDIX B: 2008 SCDOT STRUCTURE INVENTORY AND APPRAISAL REPORT

APPENDIX C: EXISTING CROSS SECTIONS

APPENDIX D: PROPOSED CROSS SECTIONS

APPENDIX E: BSRD TECHNICAL MEMORANDUM

APPENDIX F: CAMDEN TRUCK ROUTE TECHNICAL MEMORANDUM

APPENDIX G: FARMLAND IMPACT RATING

APPENDIX H: FLOOD INSURANCE RATE MAPS

APPENDIX I: FHWA MOBILE SOURCE AIR TOXIC (MSAT) GUIDANCE

APPENDIX J: DETERMINATION OF SECTION 4(f) DE MINIMIS USE

APPENDIX K: KERSHAW COUNTY LAND CONSERVATION AND WILDLIFE FUND INVENTORY

APPENDIX L: PUBLIC COORDINATION

- **PROPERTY ACCESS NOTIFICATIONS**

  RIGHT OF ENTRY LETTERS

- **BROAD STREET ROAD DIET DESIGN CHARRETTE MATERIALS**

  MEETING ADVERTISEMENTS

  CHARRETTE FACT SHEET

  ATTENDANCE LIST

  PARTICIPANT WORKSHEET

- **PUBLIC INFORMATION MEETING MATERIALS**

  MEETING ADVERTISEMENTS

  FLYER

  PULIC IMFORMATION MEETING PRESENTATION

  HANDOUT

  SIGN-IN SHEET

  COMMENTS

APPENDIX M: AGENCY COORDINATION

- LETTER OF INTENT AND AGENCY RESPONSES
- FLOODPLAIN COORDINATION
- SHPO CONCURRENCE

APPENDIX N: REFERENCE DOCUMENTS AND SPECIALTY STUDIES (CD)

- CAMDEN VISION PLAN
- CAMDEN COMPREHENSIVE PLAN
- ADVANCED PROJECT PLANNING REPORT
- CAMDEN TRUCK ROUTE AND BROAD STREET ROAD DIET TRAFFIC STUDY
- NATURAL RESOURCE TECHNICAL MEMORANDUM
- CULTURAL RESOURCE TECHNICAL MEMORANDUM
- NOISE IMPACT ASSESSMENT
- BROAD STREET ROAD DIET PHASE I ESA
- SEGMENT ONE PHASE I ESA
- SEGMENT TWO PHASE I ESA
- SEGMENT THREE PHASE I ESA