



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

South Carolina  
September 18, 2012

1835 Assembly Street, Suite 1270  
Columbia, SC 29201  
Office: 803-765-5411  
Fax: 803-253-3989

In Reply Refer To:  
HDA-SC

Mr. Randy Williamson  
Environmental Engineer  
SCDOT  
955 Park Street  
Columbia, SC 29202

RE: I-95/US 301 in Orangeburg County, SC

Dear Mr. Williamson:

Our office received your Finding of No Significant Impact (FONSI) request and attached Public Hearing Certification on September 14, 2012. After conducting our independent evaluation and review, we concur with your FONSI request. Attached is the approved FONSI document which shows Alternative 3A as the selected alternative.

We have also reviewed the Interchange Modification Report submitted on September 12, 2012 to construct interchange improvements at I-95 and US 301. The interchange modifications have been designed to provide access for all movements at the interchange and extend US 301 to SC 6. Based on our review, the Partial Cloverleaf A configuration as recommended is acceptable. Also attached to this letter is the approved Interchange Modification Report for your improvements to I-95 at US 301 that shows the Partial Cloverleaf A as the preferred interchange alternative and is designated as such in the FONSI.

We look forward to more collaboration with you on this project as it moves towards construction. Should you need anything further on this project, please contact Mr. Shane Belcher at 803-253-3187.

Sincerely,

*for* Robert L. Lee  
Division Administrator

Cc: Kevin Gantt, SCDOT  
Ed Frierson, SCDOT



South Carolina  
Department of Transportation

RECEIVED  
Federal Highway Administration

September 13, 2012

SEP 14

Mr. J. Shane Belcher  
Federal Highway Administration  
Environmental Coordinator  
1835 Assembly Street, Suite 1270  
Columbia, SC 29201

DIVISION OFFICE  
COLUMBIA S.C.

RE: Request for a Finding of No Significant Impact (FONSI) – I-95/US 301 Interchange  
Improvements and Connector, Orangeburg County, South Carolina, Project No. LSCG(004) ;  
SCDOT PIN 36984; File No. 38.036984

Dear Mr. Belcher:

The Department received approval of an Environmental Assessment (EA) on the above-referenced project from Federal Highway Administration (FHWA) on July 26, 2012 and the approved document was made available for review in accordance with 23 CFR 771.119(d). The approved EA was distributed through the South Carolina inter-governmental review process on August 6, 2012. No agencies commented on the EA during the review period.

Following availability of the environmental document, a Combination Location and Design Public Hearing was duly advertised and subsequently conducted on August 21, 2012, at Santee Conference Center located at 1737 Bass Drive in the Town of Santee. Approximately 109 interested individuals were in attendance and of this number 10 were white females, 28 were African-American females, and 33 were African-American males. None of the attendees had a comment recorded. Two attendees spoke during the formal portion of the hearing and their comments are in the formal transcript attached.

One written comment was received at the public hearing and two comments were received via mail within the 15-day comment period following the public hearing. Comments received are included in the attached package. SCDOT has responded to each comment in writing and is not making alterations to the project based on these comments. The public hearing certification package is attached for your review and records.

Based on the administrative and environmental documentation to date, it is the Department's recommendation that the project be processed as a Finding of No Significant Impact (FONSI). Please contact us should you require additional information.

Sincerely,

Edward W. Frierson  
NEPA Coordinator/Biologist  
Midlands Region

Enclosures

cc: SCDOT Environmental Management Office



**FEDERAL HIGHWAY ADMINISTRATION**  
**SOUTH CAROLINA DIVISION OFFICE**  
**FINDING OF NO SIGNIFICANT IMPACT**

**for**

**I-95 / US 301 Interchange Improvement & US 301 Connector to SC 6**

**Orangeburg County, South Carolina**

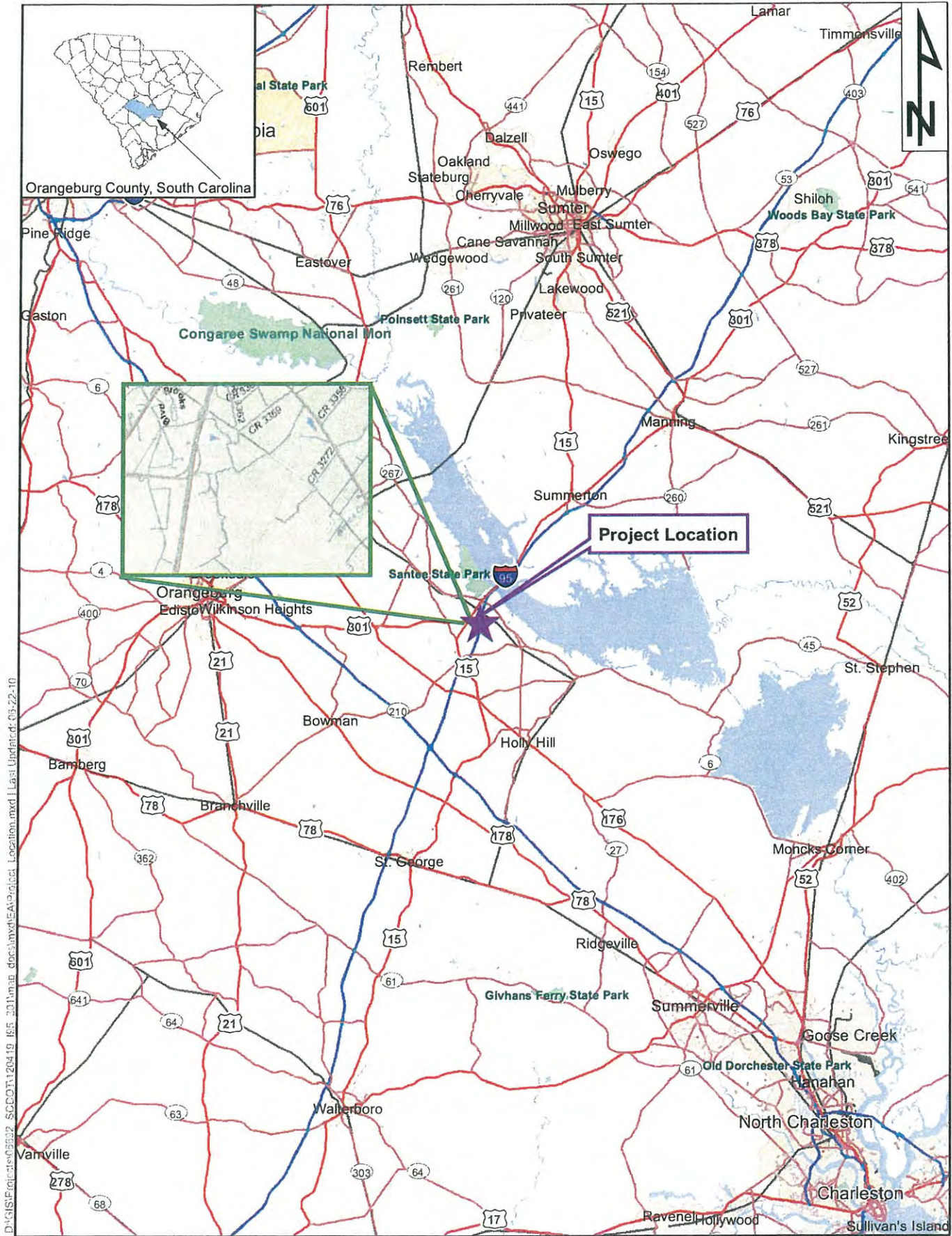
**File No. 38.036984, PCN 36984 RD01**

**Project Description**

The proposed improvements consist of modifying the I-95 / US 301 interchange in Orangeburg County from a partial access interchange to a full access interchange (see Fig. 1-1). The proposed interchange facility design is a partial cloverleaf that would address the increasing and future traffic demands of the area. The proposed improvements also include building a new location roadway to connect existing US 301 to SC 6 near Naval Station Road, bridging over I-95. Initially, the US 301 Connector would be constructed as a five-lane section from I-95 to the proposed inland port intermodal facility just west of the CSX railroad crossing and taper down to a three-lane section from there to SC 6. The three-lane section may be widened to five-lanes in the future, as warranted by increasing traffic demands. A grade separated bridge over the CSX railroad is also proposed as part of the US 301 Connector. SC 6 would be improved by the inclusion of turn lanes. The posted speed limit along Celriver/Red River Road (S-50) is 45 miles per hour (mph) except in the vicinity of the Cherry Street (S-568) loop residential area where the posted speed limit is 35 mph. There are approximately 24 access points per mile within the project area.

**Project Purpose and Need**

As identified in the LRTP, rapid growth and development in Orangeburg County and aggressive economic development strategies implemented have brought significant industrial development and related infrastructure to the county. The existing interchange has experienced some moderate growth due to Orangeburg County's aggressive economic development strategies and industrial recruitments and with its use as a connector between I-26 and I-95. A new interchange design is needed to provide full access to I-95 and to adequately handle the increased traffic volumes from these industrial recruitments, particularly the proposed GLT Jafza South Carolina Logistics and Distribution Park. The proposed project would serve to accommodate increased traffic that will be generated by the Jafza facility, one of the key industrial parks within the GLT, while secondarily improving the efficiency of intermodal freight movement in South Carolina by providing some relief for the rapidly increasing Port of Charleston congestion which is being generated by recent and ongoing expansion activities at the Port of Charleston's facilities. In addition, the proposed project would provide a connection of US 301 to SC 6,



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allowing for an optional and alternative access to I-95. Lastly, the proposed project would also accomplish completion of the existing interchange with construction of a fourth leg. As indicated in the LRTP, the LSCOG's Technical Advisory Committee (TAC) unanimously supports the inland port concept and as such endorsed inclusion of the interchange proposal at I-95 and US 301 in the LRTP. The proposed project would provide a safe, efficient vehicular connection to the proposed \$250 million, 1,324-acre Jafza intermodal facility located just east of the existing I-95 / US 301 interchange (Figure 1-2 in EA). The Jafza facility will consist of an intermodal rail yard, warehouse related development and office/manufacturing space to facilitate the storage and logistics of the operations. The Jafza facility would serve the Port of Charleston and transportation infrastructure needs of Orangeburg County.

## **Alternatives**

The identification, consideration, and analysis of alternatives were a key component to the decision-making process implemented by SCDOT for the proposed project. In considering alternatives, SCDOT evaluated several options for a solution that would satisfy the transportation needs and protect the environmental and community resources of the project area. Criteria used to evaluate alternatives developed for this project included options that balanced engineering and economic factors with potential impacts to the natural and human environment and consideration of public and agency input. Preliminary studies conducted by SCDOT included completion of preliminary alternative studies for five potential interchange alternatives and six potential US 301 Connector alternatives. An additional seventh alternative for the US 301 Connector was introduced and evaluated in July 2012. Traffic studies for the proposed project were also completed by SCDOT and supplemented with the traffic analysis completed for the improvements under the Jafza development effort. The following documents were developed during the Alternatives Analysis process:

- Advanced Project Planning Report, January 2007
- I95/US301 Interchange Project & US 301 Extension Report, December 2007
- Jafza Design Traffic Technical Report, June 2009
- Draft Interchange Modification Report, March 2012

A summary of the process undertaken by SCDOT for considering and eliminating alternatives, as presented in the referenced documents, is presented in the following subsections.

### **Preliminary Interchange Alternatives**

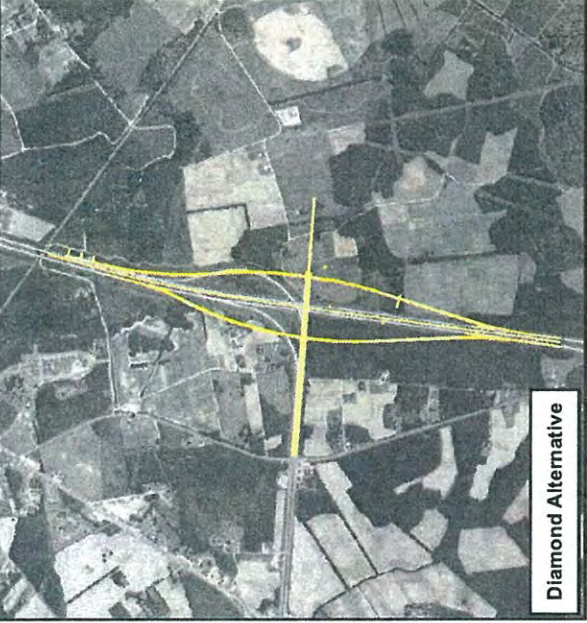
Interchange type selections for the project were developed based upon the criteria provided in the *SCDOT 2003 Highway Design Manual* and are based on providing the capacity and level of service that is consistent with the type of highway and anticipated traffic movement between the two facilities. Based on the criteria, five preliminary interchange alternative designs were developed and evaluated by SCDOT and included the following (Figure 2-1):

- Full Clover Leaf Interchange;
- Diamond Interchange;
- Partial Cloverleaf A Interchange;

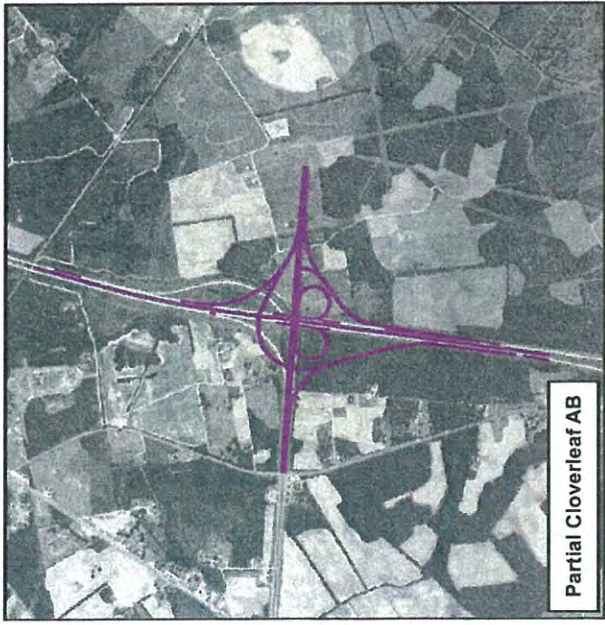
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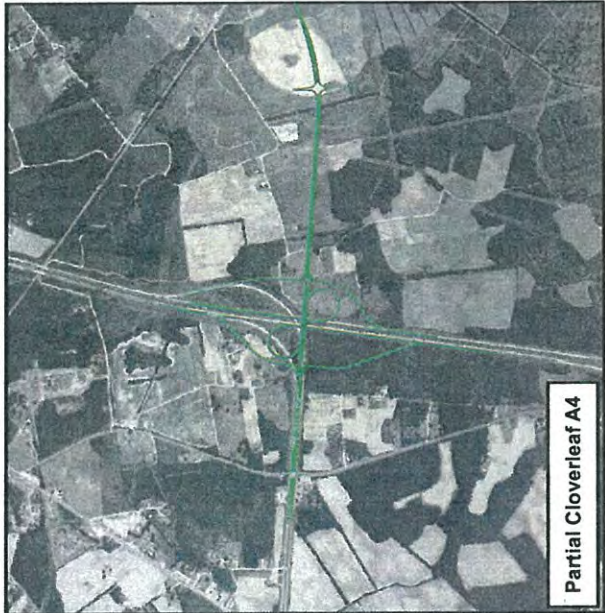
Full Cloverleaf Alternative



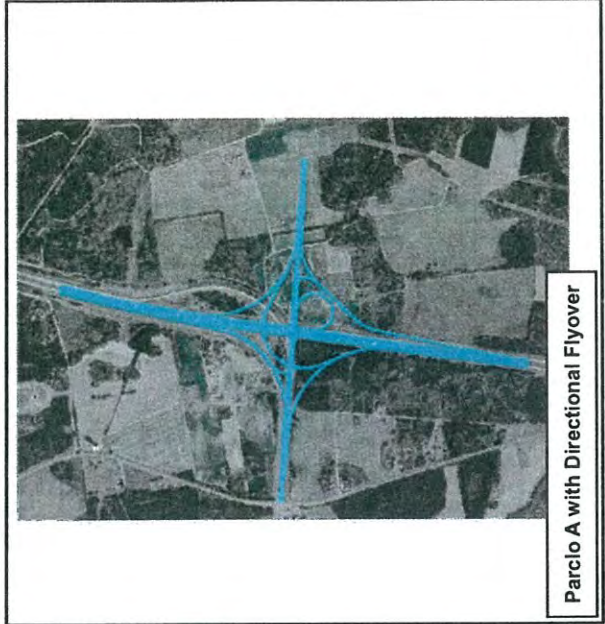
Diamond Alternative



Partial Cloverleaf AB



Partial Cloverleaf A4



Parclo A with Directional Flyover

## Preliminary Interchange Alternatives

Figure 2-1

- Partial Cloverleaf A with Directional Flyover; and
- Partial Cloverleaf Advance/Beyond (AB) with Directional Flyover

All of the preliminary interchange alternatives evaluated would provide full NB and SB access from US 301 to I-95 and vice versa. Preliminary assessments of the impacts associated with the full clover leaf design were also evaluated by SCDOT and are described in the Advanced Project Planning Report (APPR) for this project (EA, Appendix B). As a result of SCDOT's preliminary assessment of the full clover leaf interchange, this option was eliminated from consideration due the potential impact to resources and preliminary cost estimates that were determined to be challenging to project development and ultimately prohibitive. SCDOT continued with alternative evaluation by examining the remaining four interchange alternatives. These are described and compared in the December 2007 I-95/US 301 Interchange Project and US 301 Extension Project Report compiled by SCDOT (EA, Appendix C). Through the process, two of four interchange alternatives, the Partial Cloverleaf A with directional Ramp and the Partial Cloverleaf AB with Directional Ramp, were eliminated on the basis of cost and magnitude of displacements which were determined to be prohibitive. In addition, both alternatives would likely require the addition of frontage roads to accommodate dislocated properties thus increasing cost estimates by approximately \$5.2 million per alternative. A preliminary matrix of the factors considered during evaluation and elimination of the remaining four interchange alternatives are shown in the following table as summarized from the SCDOT report. To further evaluate the remaining two project alternatives, SCDOT completed an Interchange Modification Report (IMR) (EA, Appendix D). The IMR evaluated the current geometric and operating conditions for the purpose of justifying modifications to the current I-95 and US 301 interchange in Orangeburg County. The two remaining interchange alternatives considered in the IMR are the Diamond Interchange and the Partial Cloverleaf A Interchange with both alternatives providing full-access to I-95 and an extension of US 301 to Route SC 6. In both alternatives, driveways for the Jafza Development are located east of I-95 on the new US 301 Extension. The result of the preliminary analyses conducted and subsequent IMR analysis indicate that the Partial Cloverleaf A design as the preferred interchange alternative. Based on engineering constraints identified, the Diamond Interchange was determined to adversely affect the overall interchange operation as it would require trucks to travel SB and cross two lanes of traffic to access US 301. For this reason, the Diamond Interchange alternative was eliminated.

Reasoning for selection of the Partial Cloverleaf A interchange configuration includes the following:

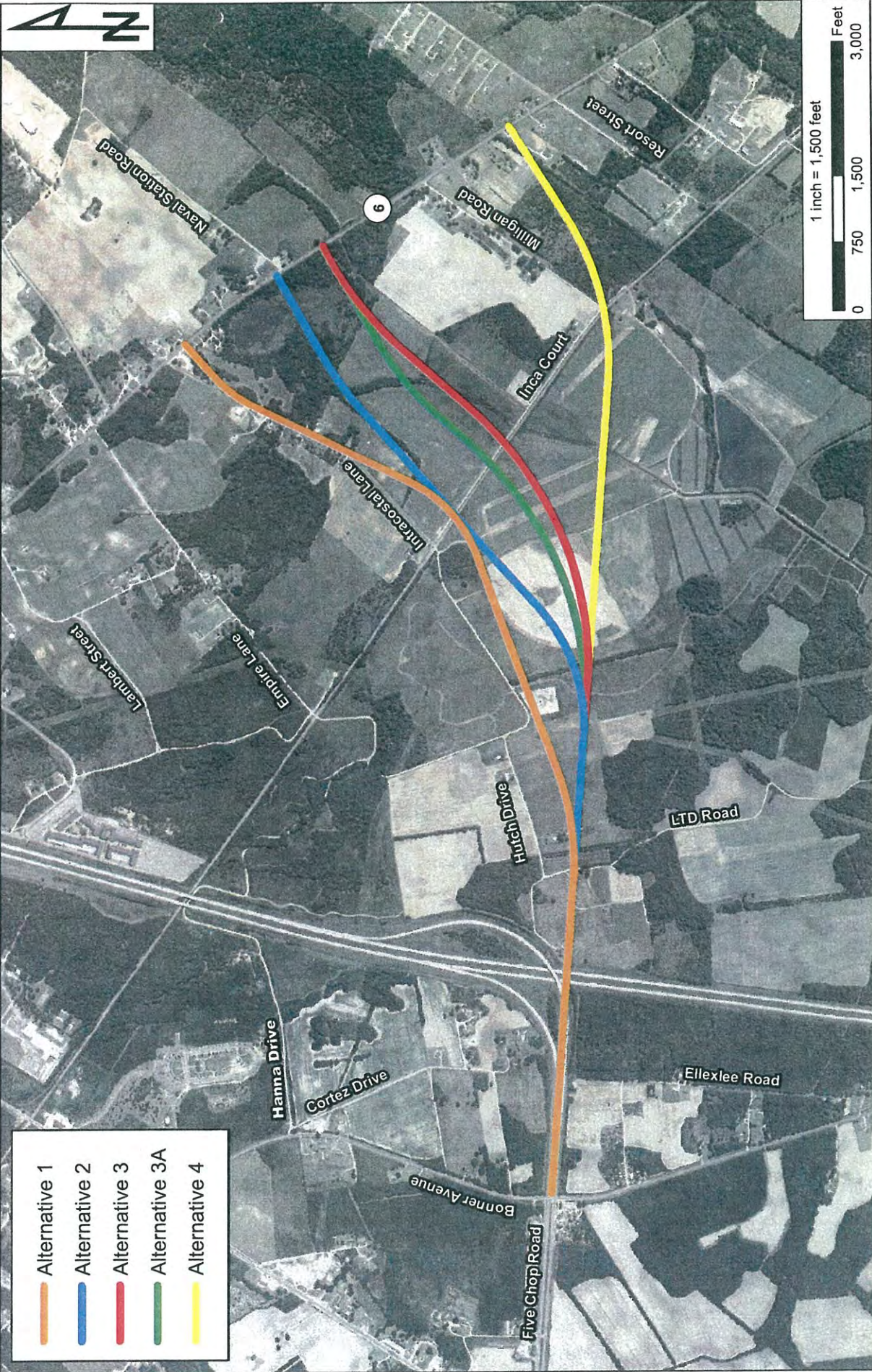
- Rural nature of the surrounding area;
- Best option to continue the relationship of I-95 with US 301, a minor roadway;
- More efficient use of space;
- Avoidance of the interweaving traffic flows; and
- Future traffic projections for the area to support this type of facility.

The Partial Cloverleaf A design also better accommodates the projected high traffic volumes from the Jafza facility entering southbound I-95, particularly heavy trucks from the site, provides loop entrance ramps, eliminating the need for left turns on US 301 and best meets the overall project Purpose and Need.

### **US 301 Connector Alternatives**

Once the preferred interchange configuration was determined, six alternative corridors for the connection of US 301 to SC 6 were developed and evaluated. Due to the close proximity of the corridors to one another, two alternatives were eliminated and four remaining alternatives were carried forward for additional analysis including a fifth

Data Sources: First Dataset -- StreetMap, 2009; Second Dataset -- Source, YYYY.T.D.,GIS,Project:0.0602, SCDOT1204.19.095, 301map\_dbsmrvd1EA\Fig 2.2 Extensions Rev. March2012 | Last Updated: 07-24-12



**Connector Alternatives**  
Figure 2-2



alternative added in July 2012. The five US 301 Connector alternatives are depicted on Figure 2-2. All of the alternatives evaluated in this document consist of the combination of constructing the I-95 / US 301 interchange as a partial cloverleaf interchange and one of five US 301 Connector alternatives, bridging over I-95, and merging into a five-lane highway ending at SC 6. Initially, the five-lane section would end just west of the railroad crossing and taper down to a three-lane section continuing east from the Jafza entrance to the SC 6 intersection. The typical section for the project would accommodate a five lane roadway allowing the constructed three-lane section to be widened to five-lanes in the future as warranted by increasing traffic demands. A grade-separated bridge over the CSX railroad is also proposed. SC 6 would be improved by the inclusion of turn lanes northbound and southbound on the new US 301 Connector. The typical cross sections for the five- and three-lane segments are provided in Figures 2-3 and 2-4 of the EA, respectively. The five-lane segment has four 12-foot travel lanes, one 15-foot center turn-lane, paved shoulders, and ditches. The three-lane segment has two 12-foot travel lanes, one 15-foot center turn-lane, paved shoulders, and ditches. Dedicated pedestrian/bike facilities were considered but ultimately not included because of the rural nature of the project and consideration that the planned developments would be mostly industrial. However, it is important to acknowledge that the typical sections for the project do not preclude the future accommodation of such facilities with 2'-0" paved shoulders, an additional 20' wide grassed shoulder and a wide outside shoulder on the bridges.

### **Reasonable Build Alternatives**

The five preliminary alignment alternatives were evaluated as reasonable build alternatives (Figure 2-2 in EA). Preliminary cost estimates for the Build Alternatives were evaluated in 2009 for all of the Reasonable Build Alternatives for comparisons. All four Reasonable Build Alternatives would require approximately 157 to 160 acres of right-of-way (ROW) and require a bridge over the railroad. Each of the four Reasonable Build Alternatives would impact seven residences due to the location of the interchange and the portion of the alternatives that they all have in common. Additional relocations varied based on where each of the alternatives diverted from the section common to all alternatives and how they traversed the landscape to connect to SC 6.

### **Alternative 1**

Alternative 1 is comprised of the I-95/US 301 partial cloverleaf A interchange improvement and approximately 1.6 miles of US 301 Connector to SC 6, including bridges over I-95 and the CSX railroad line and SC 6 turn-lane improvements. This alternative is the northern most of the alternative alignments evaluated. This alternative follows a portion of Intracoastal Lane and intersects SC 6 approximately 1,400 linear feet north of Naval Station Road. Alternative 1 avoids impacts to jurisdictional streams and wetlands in the project area. However, an additional five displacements would be realized with this alternative because the alternative would be aligned on an existing roadway (Intracoastal Lane) that would need to be widened to accommodate the new facility. The result of the widening would result in the relocation of 12 residences located within the cluster of homes along Intracoastal Lane at the northern edge of the project area. This number of relocations was considerably higher than Alternative 3A (Preferred) which would only impact a total of seven residences. This alternative would also cost approximately \$27.1 million dollars, which would be \$400,000 more than Alternative 3A (Preferred) based on the preliminary cost estimates. Alternative 1 would result in the largest number of relocations within the project area and for this reason, among those also related to cost, the alternative was eliminated.

## **Alternative 2**

Alternative 2 is comprised of the I-95/US 301 partial cloverleaf A interchange improvement and approximately 1.6 miles of US 301 Connector to SC 6, including bridges over I-95 and the CSX railroad line and SC 6 turn-lane improvements. This alternative is one of the central alignments and intersects SC 6 immediately north of Naval Station Road. No additional displacements are associated with this alternative other than the seven in the corresponding section common to all alternatives. This is similar to Alternative 3A (Preferred) that would also only impact seven residences. This alternative would also cost approximately \$27.4 million dollars, which would be \$700,000 more than Alternative 3A (Preferred) based on the preliminary cost estimates. Alternative 2 would result in the largest impact to jurisdictional wetlands within the project area and for this reason, among those also related to cost, the alternative was eliminated.

## **Alternative 3**

Alternative 3 is comprised of the I-95/US 301 partial cloverleaf A interchange improvement and approximately 1.6 miles of US 301 Connector to SC 6, including bridges over I-95 and the CSX railroad line and SC 6 turn-lane improvements. This alternative is one of the central alignments and intersects SC 6 approximately 500 linear feet south of Naval Station Road. This alternative would require 158 acres of ROW to be acquired resulting in the least impact to current access, parking and internal circulation patterns in the project area. Relocations associated with this alternative represent the lowest (a total of seven) of the build alternatives evaluated. Preliminary cost estimates for the Build Alternatives were evaluated in 2009 and Alternative 3 was determined to be among the the most cost effective options with an estimated cost of \$26.7 million dollars. Stream impacts associated with Alternative 3 represent the highest of the Build Alternatives evaluated (a total of 880 linear feet). Alternative 3 was eliminated for this reason and modified to minimize impacts to the jurisdictional stream located in the area, please refer to the discussion of Alternative 3A in Section 2.3.4 of the EA.

## **Alternative 3A (Preferred Alternative)**

Alternative 3A is a modification of Alternative 3 and is comprised of the I-95/US 301 partial cloverleaf A interchange improvement and approximately 1.6 miles of US 301 Connector to SC 6, including bridges over I-95 and the CSX railroad line and SC 6 turn-lane improvements. This alternative is also one of the central alignments evaluated and like Alternative 3, intersects SC 6 approximately 500 linear feet south of Naval Station Road. Similar to Alternative 3, this alternative would require 158 acres of ROW to be acquired resulting in the least impact to current access, parking and internal circulation patterns in the project area. Relocations associated with this alternative represent the lowest (a total of 7) of the build alternatives evaluated. The main difference between Alternative 3 and 3A is in the alignment of 3A between LTD Road and SC 6. In this section, Alternative 3A has been shifted north in an effort to minimize impacts to the jurisdictional stream located in this area. While stream impacts are not completely avoided under Alternative 3A, they are minimized to a total of approximately 240 linear feet. This represents a reduction of 640 linear feet from those realized under Alternative 3. Jurisdictional wetland impacts under this alternative total approximately 0.39 acres, representing the second lowest among all alternatives evaluated. While Alternatives 1 and 4 result in complete avoidance and/or lower impacts to wetlands and stream, both would relocate additional residences (a total of 12 and nine) and impact the cluster of homes in the northern and southern areas of the project. In addition Alternative 4 would not provide full access to the Jafza site. Preliminary cost estimates for the Build

Alternatives were evaluated in 2009 and like Alternative 3, Alternative 3A was determined to be among the the most cost effective options with an estimated cost of \$26.7 million dollars.

For the reasons summarized in the preceding paragraphs, Alternative 3A is recommended as the Preferred Alternative. This option results in the lowest relocations while minimizing impacts to jurisdictional waters and represents the most cost effective option of all alternatives.

#### **Alternative 4**

Alternative 4 is comprised of the I-95/US 301 partial cloverleaf A interchange improvement and approximately 1.7 miles of US 301 Connector to SC 6, including bridges over I-95 and the CSX railroad line and SC 6 turn-lane improvements. This alternative is the southern most of the alignments evaluated. Alternative 4 intersects SC 6 approximately 1,100 linear feet south of Milligan Road. This alternative avoids impacts to jurisdictional wetlands and results in slightly fewer impacts to jurisdictional streams than Alternative 3A (a total of 208 linear feet for a difference of only 32 linear feet). Alternative 4, however would require 160 acres of ROW to be acquired resulting in the most impact to current access, parking and internal circulation patterns in the project area. Relocation impacts associated with this alternative total nine and are associated with the cluster of homes located between Milligan Road and Resort Street along at the southern edge of the project area. The relocations associated with this alternative represent the second highest of the build alternatives evaluated. Additionally, Alternative 4 does not provide full access to the Jafza site. This alternative would also cost approximately \$26.9 million dollars, which would be \$200,000 more than Alternative 3A (Preferred) based on the preliminary cost estimates. Alternative 4 would result in the second largest impact to current access, parking and internal circulation patterns, as well as the second largest impact to residential homes within the project area. For these reasons, among those also related to cost, the alternative was eliminated. Build Alternatives 1 through 4 have been described in Section 2.3 in the EA and the anticipated impacts of each are compared and summarized below in Table 2-3.

### **Summary of Environmental Impacts**

#### **Farmland**

The FPPA outlines several different criteria that determine the presence of Prime Farmland. These criteria were scored on a Farmland Conversion Impact Rating Form for Corridor Type Projects (NRCS-CPA-106). Sites that score above 260 points total are eligible for protection under the FPPA, while sites receiving lower ratings are considered less eligible. Sites that score less than 160 points do not meet the criteria for FPPA protection. The total score is comprised of (1) the Relative Value of Farmland score and (2) the Total Corridor Assessment score. The Relative Value of Farmland (to be converted by the referenced alternative) score is assessed on a scale of 0 to 100. The Total Corridor Assessment score pertains to the use of land, the availability of farm support services, investments in existing farms, and the amount of land that could be rendered non-farmable due to construction of the proposed project. The Total Corridor Assessment has a scale of 0 to 160 points. According to an agreement with NRCS, SCDOT and FHWA policy states that if a site's Total Corridor Assessment score (NRCS-CPA-106 Form Section VI) is less than 60 points, Sections III, IV and V do not need to be completed and no additional assessment by the NRCS district office would be necessary. The proposed project received a Total Corridor Assessment score of 32. Since this Total Corridor Assessment score is under the 60-point threshold described above, further coordination with NRCS and mitigation actions are not required. Refer to Appendix L in the EA for the completed Farmland Impact Conversion Rating Form for Corridor Type Projects (NRCS-CPA- 106).

## Social

The Preferred Alternative would improve traffic flow through the existing adjacent communities and planned development. Community cohesion would not be adversely affected by the proposed project as the interchange improvements and US 301 connector are proposed for currently open space and do not pass through any established communities. Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, culture, age, and incomes with respect to development, implementation, and enforcement of environmental laws, regulations, and policies. The evaluation of environmental justice responds to Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." In addition, Title VI of the Civil Rights Act of 1964, and related statutes, requires there be no discrimination in Federally-assisted programs on the basis of race, color, national origin, age, sex, or disability. Environmental justice impacts associated with the proposed project were analyzed using 2010 U.S. Census data. Based on data shown in Table 3-3, low income and minority communities exist in the project area. However, the Preferred Alternative is not likely to have any disproportionate impacts to environmental justice communities.

## Air Quality

The EPA established the National Ambient Air Quality Standards (NAAQS) for six pollutants affecting air quality in accordance with the Clean Air Act of 1970 (as amended). The six atmospheric pollutants include carbon monoxide, lead, nitrogen oxides, ozone, particulates, and sulfur oxides. This project would be consistent with the South Carolina State Air Quality Implementation Plan (SIP) regarding the attainment of the NAAQS established by the EPA. Orangeburg County currently meets all air quality standards for automobile related pollutants and SCDHEC has determined that transportation control measures (TCMs) are not required to maintain the area's air quality.

The proposed US 301 Connector contemplated as part of the project alternative would have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under this alternative there may be localized areas where ambient concentrations of MSATs could be higher than the No-Build Alternative. However, as discussed above, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is extended and/or widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs would be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, would over time cause substantial reductions that, in almost all cases, would cause region-wide MSAT levels to be significantly lower than today.

## Noise

Existing and future noise levels were evaluated for properties in the vicinity of the I-95 at US 301 Interchange Improvements and Extension to SC 6 in Orangeburg County, South Carolina. No noise abatement measures were warranted based on future noise levels and the SCDOT NAP criteria. Existing and future noise levels were predicted using TNM 2.5. TNM 2.5 predicts an increase in noise levels for the design year (2035) Build Alternative ranging from 3 dBA to 13 dBA above

existing noise levels. The increase in noise levels did not meet the substantial increase criterion in the SCDOT NAP. Construction-related noise would be minimized to the maximum extent possible practicable.

### Water Quality

Existing sources of potential groundwater contamination include the two RECs identified on properties within all of the alternative alignments, including the Preferred Alternative. However, it is not anticipated that construction of any of the alternatives would further threaten groundwater quality nor impact the flow of groundwater. Lake Marion is classified as impaired for aquatic life use due to total phosphorous but does not have an approved TMDL. It is not anticipated that the proposed project would significantly contribute to total phosphorous. During construction activities, temporary siltation may occur in the ditches, and erosion would be of a greater degree than presently occurring. The construction contractor would be required to minimize this impact through implementation of construction best management practices (BMPs), reflecting policies contained in 23 CFR §650 B and SCDOT *Supplemental Technical Specifications for Seeding* (SCDOT, 2011).

### Jurisdictional Waters

Potential stream and wetland impact calculations are based on the quantities of jurisdictional waters of the U.S. located within the corridor of the Preferred Alternative (Table 4-4 in EA). It is important to note that because impact quantities are based on the preliminary corridor limits of the Preferred Alternative these quantities should be calculated in detail and updated upon availability of final design and prior to commencement of permitting.

Expected Impacts of Preferred Alt. 3A:

Stream 240 lf

Wetland 0.39 ac

Total 0.50 ac

### Floodplains

The 100-year floodplain is the area that would be inundated by the base flood, an event that has a one percent chance of occurring in any given year. Federal regulations permit development in the 100-year floodplain if it is demonstrated through a hydraulic analysis that the development would meet the requirements set forth by FEMA. In accordance with 1977 Executive Order 11988 entitled *Floodplain Management*, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." FEMA Flood Insurance Rate Maps (FIRMs) were reviewed to identify the 100-year floodplain within the project area (Figure 3-8 in the EA). The proposed project does include several culvert replacements however the Preferred Alternative is contained within two FIRM panels, panel 4501600175B and 4501600275B (FEMA, 2009) and falls within Zone C, defined as areas with minimal flooding.

## Engdangered and Threatened Species

Field surveys were conducted for each listed species for which suitable habitat was found within the Project Limits (Canby's dropwort and Red-cockaded woodpecker). No protected species individuals were identified during the surveys. More details are provided in the Biological Survey (HDR, 2010, Appendix L in the EA). The Biological Survey determined that the project would have "no effect" on protected species or Critical Habitat thus no further coordination with USFWS is necessary.

## Cultural Resources

A review of previous cultural resource surveys was conducted to identify resources within the Project Limits. In addition, a detailed field investigation was conducted within the Project Limits. The Archaeological Survey Universe used for the field investigation includes the Project Limits, which is 200 feet on either side of the proposed Preferred Alternative alignment. The Architectural Survey Universe extends 300 feet on either side of the proposed road centerlines for a total width of 600 feet. Eleven previously identified archaeological sites and two previously identified historic architectural resources were identified within 0.5 miles of the project area. Three additional archaeological sites and three additional architectural sites were identified during intensive archaeological and architectural field surveys. The SCSHPO concluded that none of the resources are eligible for listing in the National Register of Historic Places (NRHP) and, therefore, no historic properties would be affected by the proposed construction (Appendix J, Agency Coordination in the EA). The THPO also concurred with these findings (Appendix J).

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

No Section 4(f)/6(f) properties would be impacted by the project.

## Hazardous Material Sites

The Phase I ESA conducted for the Preferred Alternative alternative (S&ME, 2010) identified two possible RECs within the project area. Two above ground storage tanks, tires, and debris are located on the property at the end of Vernetha Lane and a former retail gasoline station, now identified as Pure Gold, is located 300 feet northwest of US-301 and Bonner Road. These sites are located adjacent to the northwest quadrant of the proposed I-95 / US 301 interchange improvements; therefore, they have been recommended for further analysis in a Phase II Environmental Site Assessment. It is SCDOT's policy to avoid the acquisition of underground storage tanks and other hazardous material- containing sites, if possible. In the event that unknown hazardous materials or waste is encountered during construction and if avoidance is not a viable alternative, tanks and other hazardous materials would be tested and removed and/or treated in accordance with EPA and SCDHEC requirements. If such a site is uncovered during construction activities, the contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area.

## Agency/Public Coordination

On July 10, 2008 an onsite meeting for the proposed project was conducted with representatives of various stakeholder agencies. No significant comments were received as a result of the July 2008 site meeting. In January 2010 a number of state and federal agencies were contacted and asked for their comments on the proposed action. A sample Letter of Intent (LOI), the list of agencies contacted, and copies of comments received from the responding agencies are included in Appendix J of the EA.

The first public meeting associated with this project was held at Lake Marion High School in Santee, South Carolina on December 3, 2009. The meeting was advertised in *Times and Democrat* (Orangeburg, SC). Meeting materials included an information sheet, large-scale maps of the Study Area, meeting sign-in sheets and comment forms. The meeting was attended by SCDOT staff, LSCOG staff, Orangeburg County staff, Town of Santee staff, FHWA staff, residents, SCDOT consultant staff, and local media. Sign-in sheets indicate that 97 residents or interested parties attended the meeting. A review of the geographic distribution of attendees indicates that approximately 48% of attendees reside in one of two zip codes containing the Study Area. In addition, 22% of attendees were female and 32% were African American. During the public meeting, comment forms were made available to allow the public to provide feedback on the proposed project. Comments were due to be received by December 18, 2009. As of December 18, 2009, 52 responses had been received. The majority of comments received expressed concerns regarding the potential for an increase in traffic (particularly truck traffic) on SC 6 and associated impacts on quality of life for the existing residents along SC 6 and within hearing of the roadway (Figure 5-1 in the EA). "Design Alternatives and Concerns" accounted for 25 responses; "Vegetation" and "Property Concerns (Takings)" accounted for 9 responses each; "Operation Alternatives and Concerns" and "Safety" accounted for 8 responses each; and "Noise" accounted for 7 responses. Eleven respondents indicated that they were happy with the proposed project. Eight respondents requested additional information or a specific action to be taken and 3 respondents identified information that needs to be corrected.

Attached is the summary of the Public Hearing conducted on August 21, 2012.

## ENVIRONMENTAL COMMITMENTS

(All page numbers are in the EA)

1. A Phase II Environmental Assessment would be conducted by the Design-Build Contractor prior to construction to further evaluate the project's potential impacts on hazardous materials within the project corridor. In the event that hazardous materials are uncovered during construction activities, the contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. (page 3-42)
2. The relocation program would be conducted in accordance with the Federal Uniform Relocation assistance and Real Property Acquisition Policies Act of 1970, as amended. (page 4-3)
3. The 66-dBA contour line is indicated on Figure 4-3, enclosed, and hereby made available to local officials for their land use planning. (page 4-19)
4. Impacts to streams, wetlands, and open waters would be minimized. Road design would incorporate 2:1 slopes and reduced median widths (where practicable) in sensitive areas to minimize aquatic impacts. (page 4-24)
5. It is anticipated that a USACE Section 404/401 permit will be required to authorize impacts to wetlands and streams within the Preferred Alternative alignment. The

Design-Build contractor will be responsible for obtaining this permit on behalf of SCDOT. (page 5-2)

6. Unavoidable impacts to wetlands and streams would be mitigated through the debiting of credits from a designated mitigation bank or through a permittee responsible mitigation plan (if needed). A detailed stream and wetland compensatory mitigation plan would be developed once final plans are complete and permitting has commenced. (page 4-24)

7. Obligations under Section 7 of the Endangered Species Act must be considered if (1) new information reveals impacts associated with this project may affect listed species or critical habitat in a manner not previously considered, (2) the project is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the proposed widening. (page 4-26)

8. Section 402 compliance would be completed prior to construction of the project. An NPDES NOI permit would be submitted to SCDHEC and approved prior to the initiation of any construction activity. (page 4-25)

9. During construction, contractors would be required to utilize Best Management Practices approved by the South Carolina Department of Transportation to minimize any water quality impacts that may occur from erosion of unstabilized cuts or fills, disturbance of previously filled areas, accidental spills of fuels or oil, and other construction activities that could affect water quality. (page 4-29)

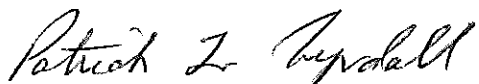
10. SCDOT would verify that there are sufficient undeveloped uplands and/or SCDHEC permitted mines within haul distance of the project to provide the construction contractor with a reasonable opportunity to acquire borrow materials in a practicable manner while minimizing impacts to wetlands. In accordance with EDM Number 30, the "Special Provision for Borrow Pits on Larger Projects" would be included in the contract documents along with the statement "Borrow Pit Locations – Borrow materials for this project shall not be obtained from wetlands, streams or rivers." (page 4-29)

11. All areas disturbed during construction activities would be seeded according to the SCDOT *Supplemental Technical Specifications for Seeding* (SCDOT, 2011) to minimize impacts to aquatic resources. (page 4-29)

## **FHWA Decision**

The FHWA has determined that this project will have no significant impact on the human environment. This Finding of No Significant Impact is based on the Environmental Assessment and other supporting information, which have been independently evaluated by the FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. The Environmental Assessment provided sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope and content of the Environmental Assessment and other environmental documentation for this project.

Date: Sept. 14, 2012

  
\_\_\_\_\_  
(For) Robert L. Lee

9-18-12



September 2012



## TRAFFIC ENGINEERING

PREPARED BY TRAFFIC DESIGN GROUP

### **INTERCHANGE MODIFICATION REPORT FOR I-95 @ US 301 IN ORANGEBURG COUNTY**

#### **EXECUTIVE SUMMARY**

The US 301 interchange with I-95 in Orangeburg County currently provides only partial access to and from the north. The purpose of the Interchange Modification Report (IMR) is to evaluate the current geometric and operating conditions of the interchange and to justify modifications to provide full access. Orangeburg County's industrial recruitments, mainly the Global Logistics Triangle (GLT) Jafza South Carolina Logistics and Distribution Park (simply called Jafza Development in this report), has played a major role in the need for a full access interchange at US 301. The county received a TIGER III Discretionary Grant for this project which includes modifications to the interchange and a roadway extension from the interchange to SC 6.

Traffic data for I-95 was obtained from an Automatic Traffic Recorder (ATR) near Santee and turning movement counts were performed at key intersections near the US 301 interchange and at the two adjacent interchanges, SC 6 to the north and US 15 to the south of the project. Growth rates were determined from projected future ADTs provided by SCDOT's Planning Department. The rates were applied to the traffic data to come up with future background traffic volumes up to design year 2035. Projected trips from the Jafza Development were added to the background volumes to come up with total volumes for the analysis.

Three alternatives for the US 301 interchange were evaluated in five year increments from opening year 2015 to design year 2035. They include a No Build Alternative with the existing interchange layout and two Build Alternatives: Alternative 1 with a Diamond Interchange layout and Alternative 2 with a Partial Cloverleaf A Interchange layout. The SC 6 interchange was included in the analysis because of the proximity to US 301 and the impacts it will incur. Freeway, ramp, and intersection analyses were performed under each alternative in

order to evaluate the existing operating conditions and the future operating conditions with improvements.

Alternative 2 with the Parc-lo A layout is the preferred alternative for the US 301 interchange with I-95 based on the analysis results and observations. The loop on-ramp from northbound US 301 onto northbound I-95 provides free-flow access as it exists today while the loop on-ramp onto southbound I-95 will accommodate the heavy movements from the Jafza Development. Providing full access at US 301 will also relieve congestion and improve operations at the SC 6 interchange.

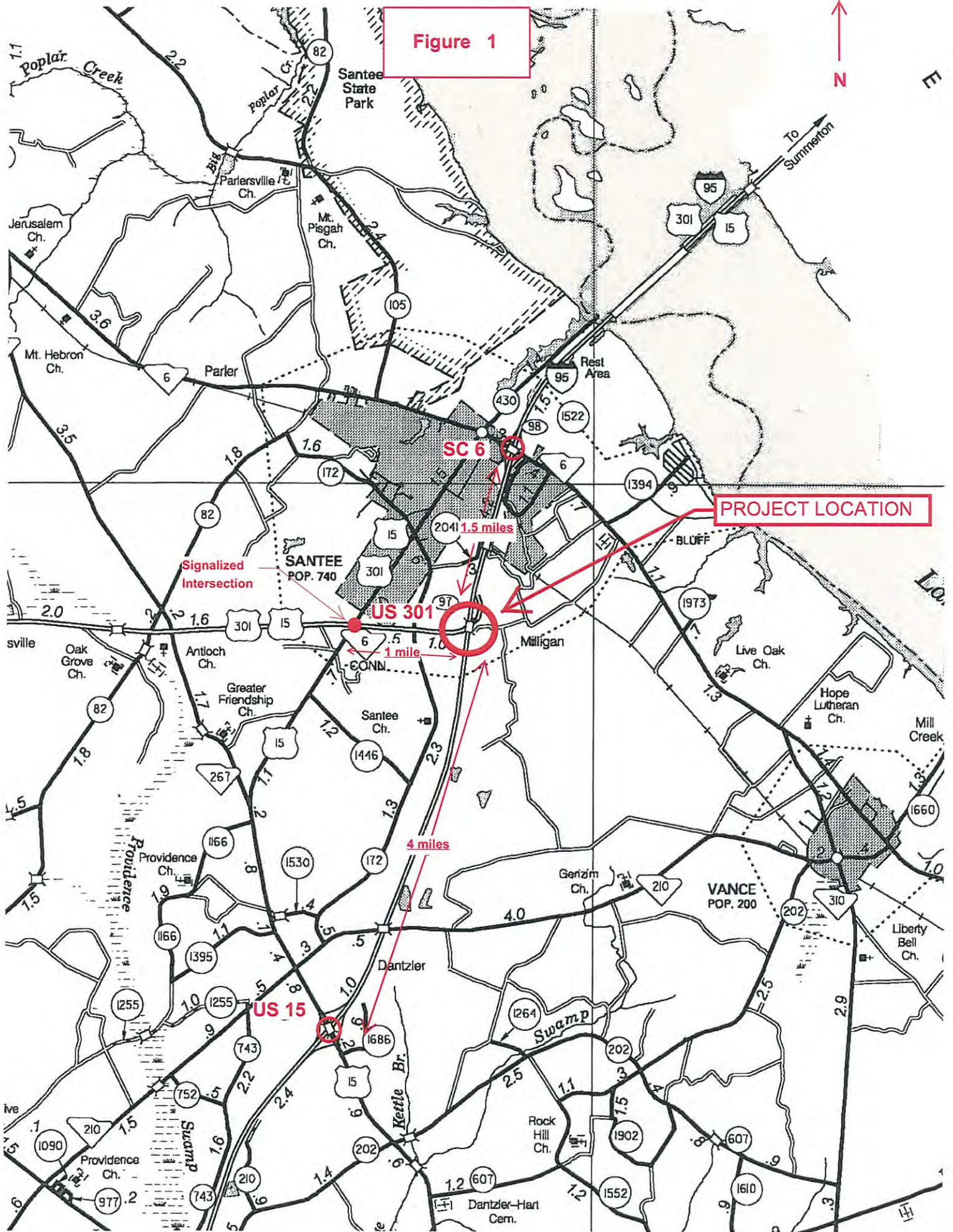
### **PROJECT BACKGROUND AND DESCRIPTION**

US 301 is a north/south, four-lane divided minor arterial that converges with I-95, a four-lane facility, just south of the town of Santee and Lake Marion. The route diverges back from the interstate after crossing the lake. The point where US 301 and I-95 converge is in the form of a Partial Interchange with travel lanes on US 301 transitioning into directional entrance and exit ramps for I-95. The project location map in Figure 1 shows the US 301 interchange and adjacent interchanges. The current interchange layout provides only partial access to and from the north. Access from northbound US 301 to southbound I-95 and from northbound I-95 to southbound US 301 are not possible with the current interchange as shown in Figure 2. Currently, the only signalized intersection along US 301 at the vicinity of this interchange is at US 15, approximately 1 mile west of I-95.

The interchange has experienced some moderate growth due to Orangeburg County's aggressive economic development strategies and industrial recruitments and with its use as a connector between I-26 and I-95. A new interchange design is needed to provide full access to I-95 and to adequately handle the increased traffic volumes from these industrial recruitments, particularly the proposed Jafza Development. As a result, Orangeburg County has received a TIGER III Discretionary Grant (under the grants for National Infrastructure Investments under the FY 2011 Appropriations Act) to provide for an interchange with full movements and for economic development.

Approximately 1.5 miles north of US 301, the SC 6 interchange currently provides full access to I-95 and is the main entrance into the town of Santee and the south side of Lake Marion. This diamond interchange handles the bulk of local and tourist traffic and contains numerous commercial developments on both sides of I-95. Approximately 4 miles south of US 301, the US 15 interchange also provides full access to I-95. This diamond interchange is in a sparsely populated area with no adjacent commercial development and will not be affected by this project. The proposed Jafza Development is expected to generate a considerable amount of traffic that will greatly impact the SC 6 interchange under existing conditions. Modifications to the US 301 interchange will provide full access for all traffic and provide a primary I-95 access point for Jafza.

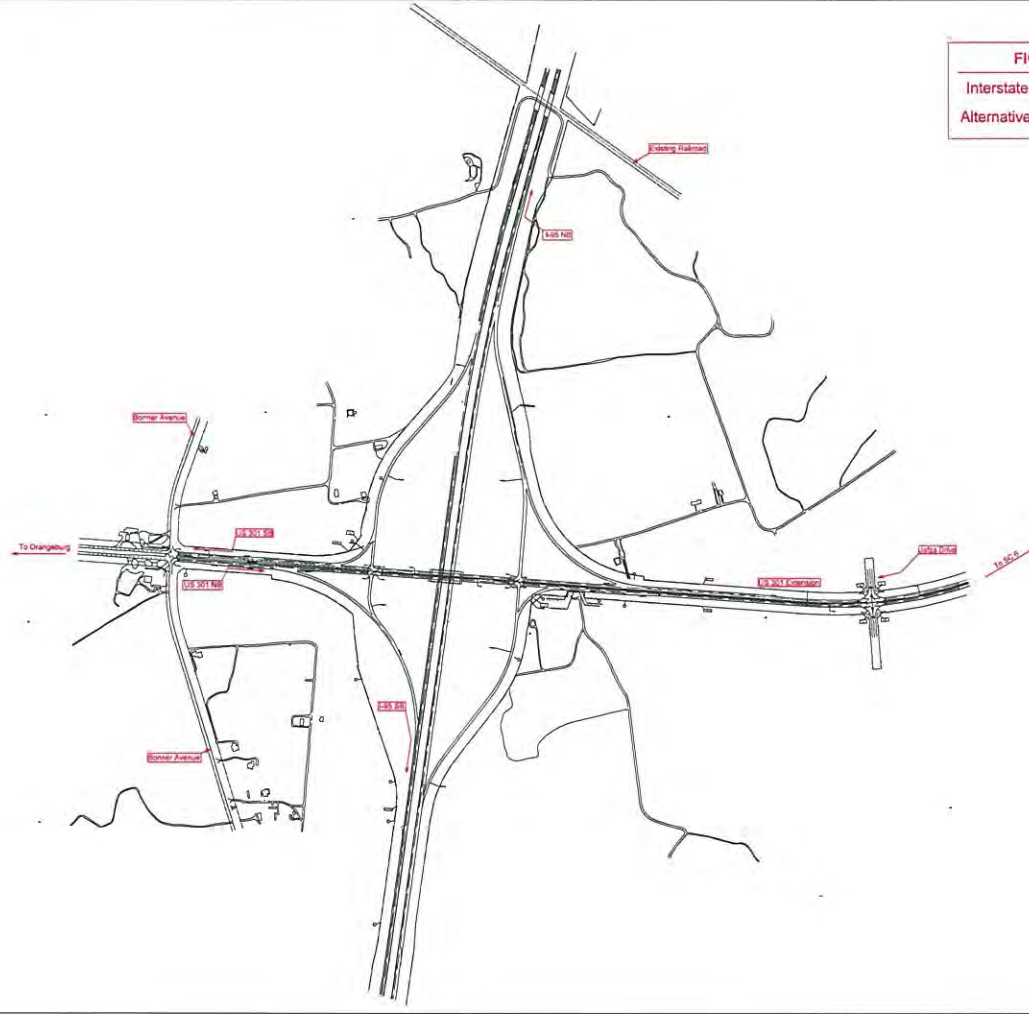
Figure 1



**FIGURE 2**  
Interstate 95 at US 301  
No-Build Alternative



**FIGURE 3**  
Interstate 95 at US 301  
Alternative #1 (Diamond)





Two Build Alternatives were considered as modifications to the US 301 interchange with both alternatives providing full-access to I-95 and an extension of US 301 to Route SC 6. The existing interchange layout referred to as the No-Build Alternative is shown in Figure 2. Alternative 1, as shown in Figure 3, consists of a Diamond interchange layout with a 5-lane section on US 301 throughout the interchange area. Both northbound and southbound exit ramps are stop controlled with free-flow right turns onto US 301. Alternative 2, as shown in Figure 4, consists of a Partial Cloverleaf A interchange layout with a 5-lane section on US 301 throughout the interchange area and deceleration lanes for the loop entrance ramps. The loop ramps eliminate the need for left turn lanes on the bridge to access the northbound and southbound entrance ramps. The exit ramps are stop controlled with free-flow right turns onto US 301. In both alternatives, driveways for the Jafza Development are located east of I-95 on the new US 301 Extension.

### **DATA COLLECTION**

Traffic counts were conducted at the following locations.

- US 301 at US 15
- US 301 at Bonner Ave (S-172)
- SC 6 at US 15
- SC 6 at I-95 South Ramps
- SC 6 at I-95 North Ramps
- SC 6 at Laredo Rd (S-1394)
- US 15 at I-95 South Ramps
- US 15 at I-95 North Ramps

The traffic counts were conducted in October 2010 in order to obtain the AM and PM peak hour turning movement volumes. The freeway traffic data for I-95 was obtained from Traffic Engineering's Traffic Count Section for years 2009 and 2010. This traffic data was collected from an Automatic Traffic Recorder (ATR) 88 located on I-95 just north of US 301 and south of Lake Marion and SC 6.

Projected trips generated from the Jafza Development were obtained from the "Jafza Logistics and Distribution Park Design Traffic Technical Report" prepared by HDR and dated June 25, 2009. Only the peak hour trips were gathered from tables and figures in the Technical Report. Peak hour truck and non-truck trips were obtained from Jafza Tables 2, 3, 4 and 5 representing each phase of the development. The trips were converted to inbound and outbound turning movements using project distributions in Figures 4, 5, and 6 for the No-Build Alternative (existing interchange layout) and project distributions in Figures 7, 8 and 9 for Build Alternatives found in the Technical Report and shown below.

**JAFZA TRIP TABLES & JAFZA DISTRIBUTION FIGURES**

*(From Jafza – Technical Traffic Report prepared by HDR, June 2009)*

**Table 2  
Jafza Site Traffic Generation for Phase 1A (2014)**

Land Use	ITE Code	Intensity	Daily Trip Ends	PM Peak-Hour Trip Ends				
				Total	In		Out	
					%	Trips	%	Trips
General Office	710	10 KSF	227	90	17%	15	83%	75
Warehouse	150	25 KSF	150	25	25%	6	75%	19
<i>Truck Trips (20%)</i>			30	5	25%	1	75%	4
<i>Non-Truck Trips (80%)</i>			120	20	25%	5	75%	15
<b>Total</b>			<b>377</b>	<b>115</b>	<b>18%</b>	<b>21</b>	<b>82%</b>	<b>94</b>

**Table 3  
Jafza Site Traffic Generation for Cumulative Phase 1B (2016)**

Land Use	ITE Code	Intensity	Daily Trip Ends	PM Peak-Hour Trip Ends				
				Total	In		Out	
					%	Trips	%	Trips
General Office	710	10 KSF	227	90	17%	15	83%	75
Light Manufacturing	140	70 KSF	251	39	36%	14	64%	25
<i>Truck Trips (20%)</i>			50	8	36%	3	64%	5
<i>Non-Truck Trips (80%)</i>			201	31	36%	11	64%	20
Warehouse	150	140 KSF	658	74	25%	19	75%	55
<i>Truck Trips (20%)</i>			132	15	25%	4	75%	11
<i>Non-Truck Trips (80%)</i>			526	59	25%	15	75%	44
<b>Total</b>			<b>1,136</b>	<b>203</b>	<b>24%</b>	<b>48</b>	<b>76%</b>	<b>155</b>



**Table 4**  
**Jafza Site Traffic Generation for Cumulative Phase 1C (2020)**

Land Use	ITE Code	Intensity	Daily Trip Ends	PM Peak-Hour Trip Ends				
				Total	In		Out	
					%	Trips	%	Trips
General Office	710	10 KSF	227	90	17%	15	83%	75
Light Manufacturing	140	70 KSF	251	39	36%	14	64%	25
<i>Truck Trips (20%)</i>			50	8	36%	3	64%	5
<i>Non-Truck Trips (80%)</i>			201	31	36%	11	64%	20
Warehouse	150	870 KSF	3,168	238	25%	60	75%	178
<i>Truck Trips (20%)</i>			634	48	25%	12	75%	36
<i>Non-Truck Trips (80%)</i>			2,534	190	25%	48	75%	142
<b>Total</b>			<b>3,646</b>	<b>367</b>	<b>24%</b>	<b>89</b>	<b>76%</b>	<b>278</b>

**Table 5**  
**Jafza Site Traffic Generation for Cumulative Phase 3 (2030)**

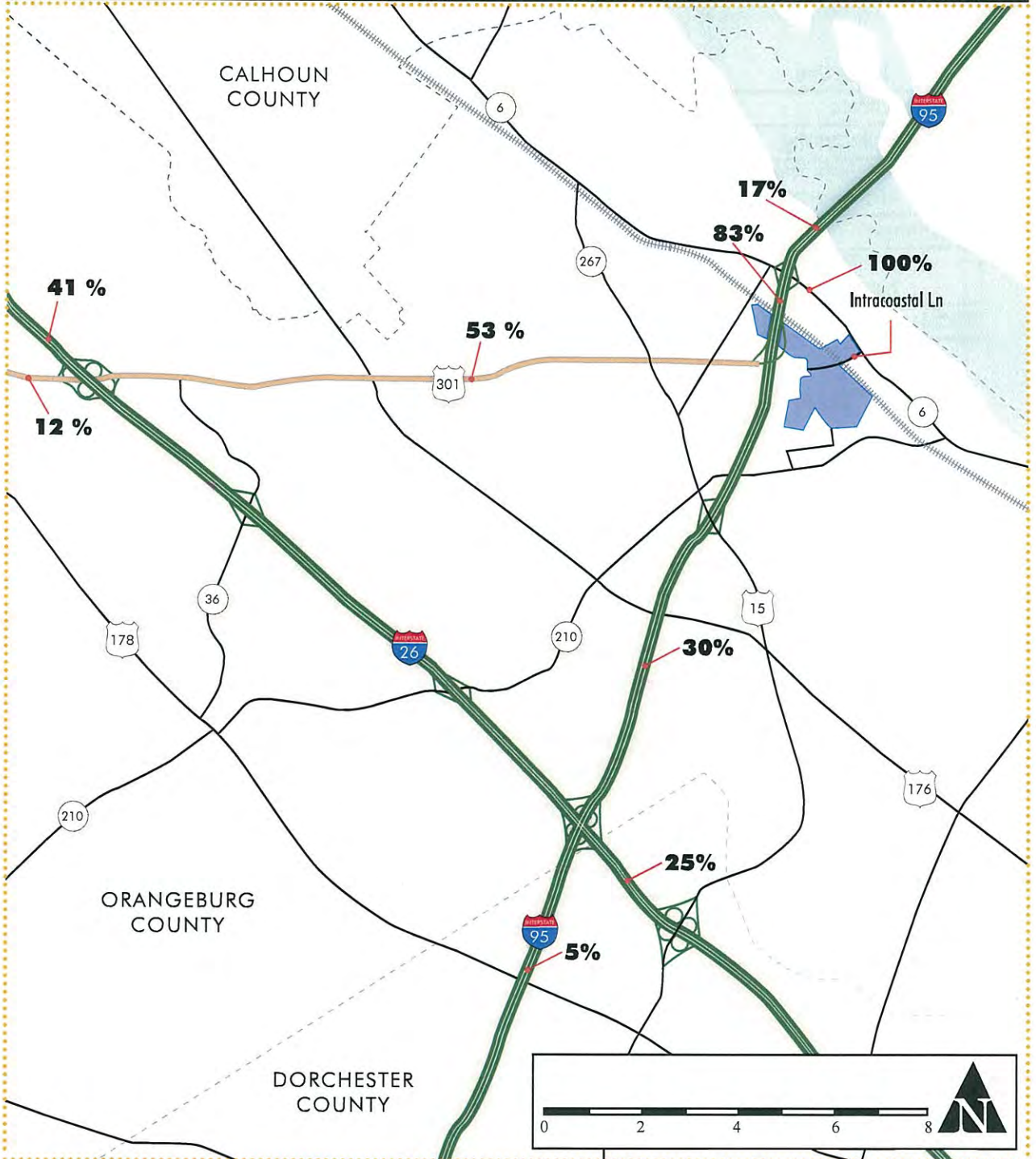
Land Use	ITE Code	Intensity	Daily Trip Ends	PM Peak-Hour Trip Ends				
				Total	In		Out	
					%	Trips	%	Trips
General Office	710	10 KSF	227	90	17%	15	83%	75
Light Manufacturing	140	70 KSF	251	39	36%	14	64%	25
<i>Truck Trips (20%)</i>			50	8	36%	3	64%	5
<i>Non-Truck Trips (80%)</i>			201	31	36%	11	64%	20
Warehouse	150	3,050 KSF	9,318	531	25%	133	75%	398
<i>Truck Trips (20%)</i>			1,864	106	25%	27	75%	80
<i>Non-Truck Trips (80%)</i>			7,454	425	25%	106	75%	318
Intermodal Rail Yard	Study	61.3 Acres	1,421	123	29%	36	71%	87
<i>Truck Trips</i>			1,088	40	57%	28	43%	12
<i>Non-Truck Trips</i>		100 Emp	333	83	10%	8	90%	75
<b>Total</b>								
<i>Truck Trips</i>			3,002	154	38%	58	62%	97
<i>Non-Truck Trips</i>			8,215	629	22%	140	78%	488
<b>Internal Capture</b>								
<i>Truck Trips</i>	see Note (1)		870	32	57%	22	43%	10
<i>Non-Truck Trips</i>			0	0	0%	0	0%	0
<b>Net External Trips</b>								
<i>Truck Trips</i>			2,132	122	30%	36	70%	87
<i>Non-Truck Trips</i>			8,215	629	22%	140	78%	488
<b>Total</b>			<b>10,347</b>	<b>751</b>	<b>23%</b>	<b>176</b>	<b>77%</b>	<b>575</b>

**Notes:**

(1) 40% of Intermodal Rail Yard truck trips and an equivalent portion of Warehouse Development truck trips were assumed to be internally captured as the origin and destination of these trips will be within the project site.

# Jafza Logistics and Distribution Park

Fig 4 - Inbound Truck Distribution - Phases 1A, 1B & 1C



LEGEND:



Project Site

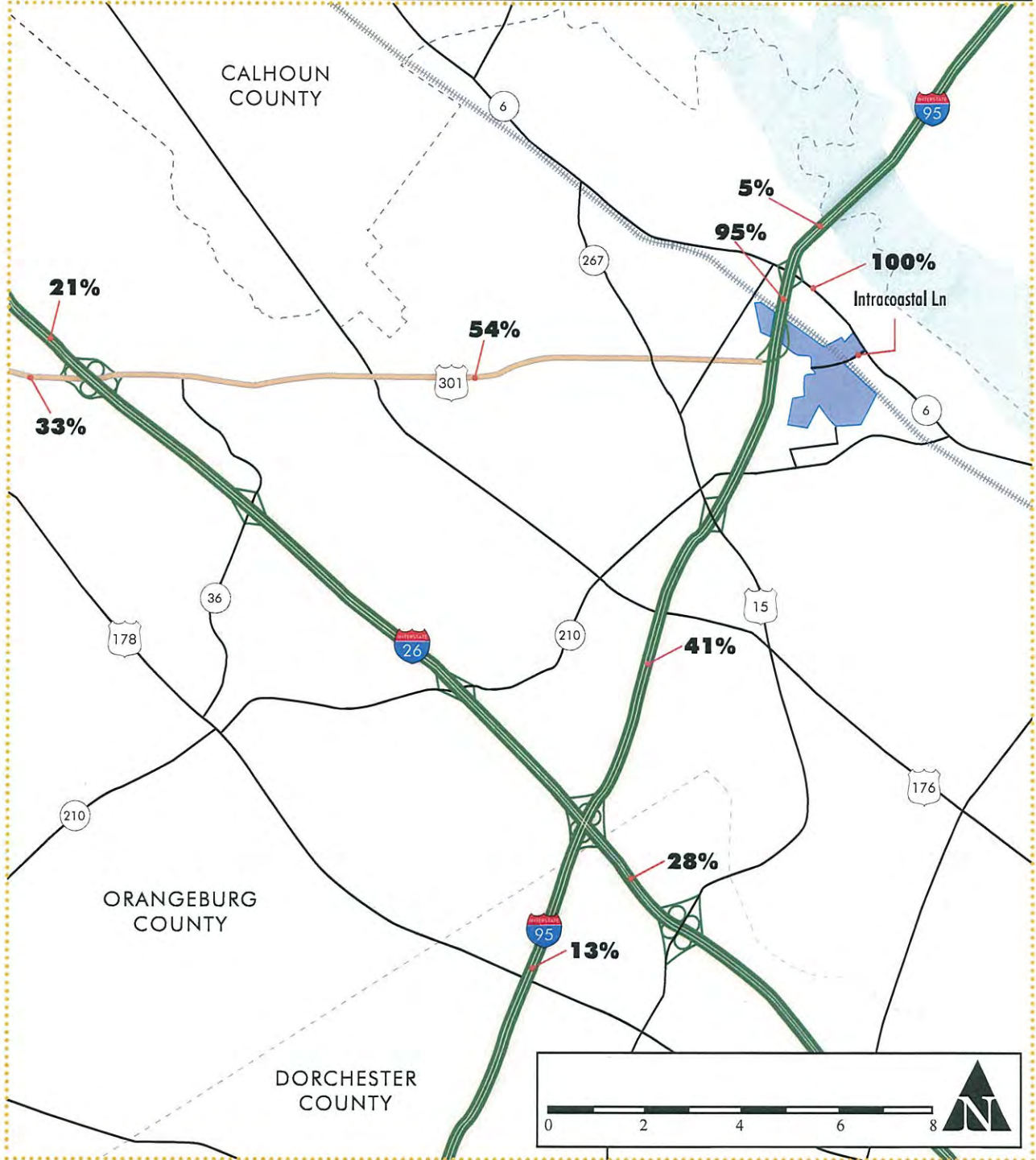
**XX%** Project Distribution



**HDR**  
JUNE 2009

# Jafza Logistics and Distribution Park

Fig 5 - Outbound Truck Distribution - Phases 1A, 1B & 1C



LEGEND:



Project Site

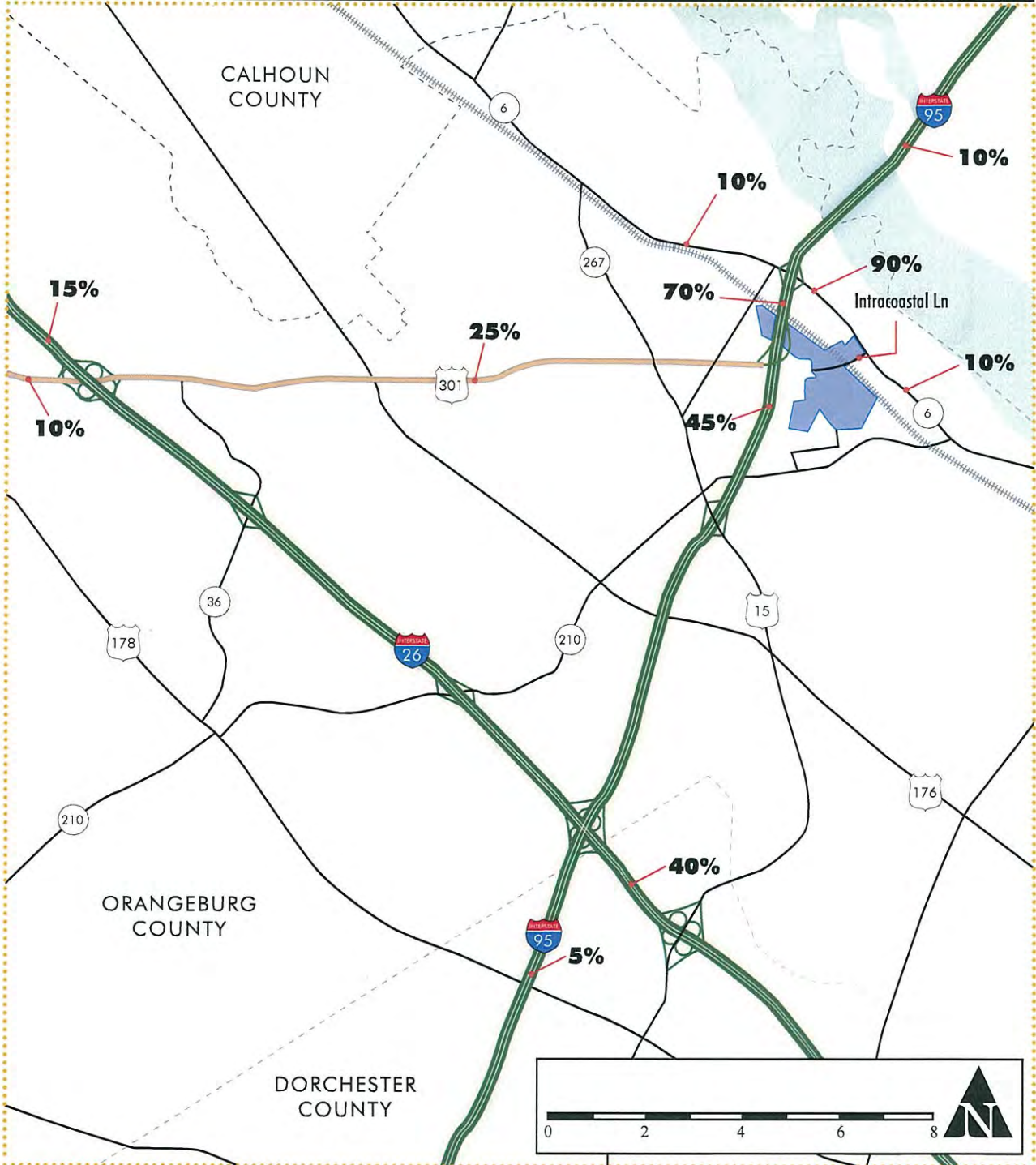
**XX%** Project Distribution



HDR  
JUNE 2009

# Jafza Logistics and Distribution Park

Fig 6 - Non-Truck Distribution - Phases 1A, 1B & 1C



LEGEND:



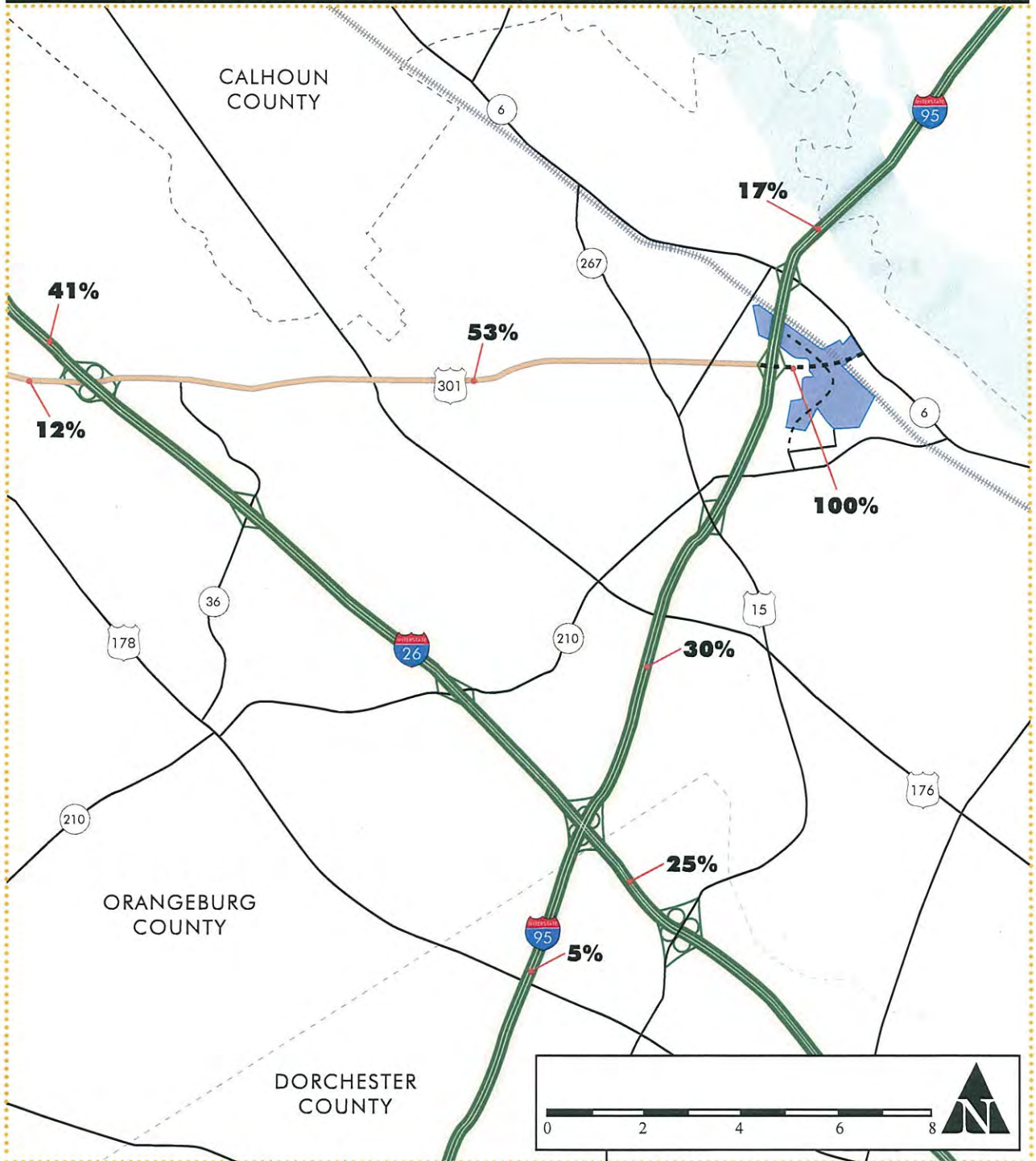
Project Site

**XX%** Project Distribution

**HDR**  
JUNE 2009

# Jafza Logistics and Distribution Park

Fig 7 - Inbound Truck Distribution - Phase 3 (2030)

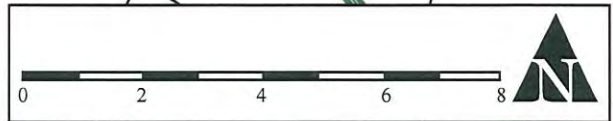


LEGEND:



Project Site

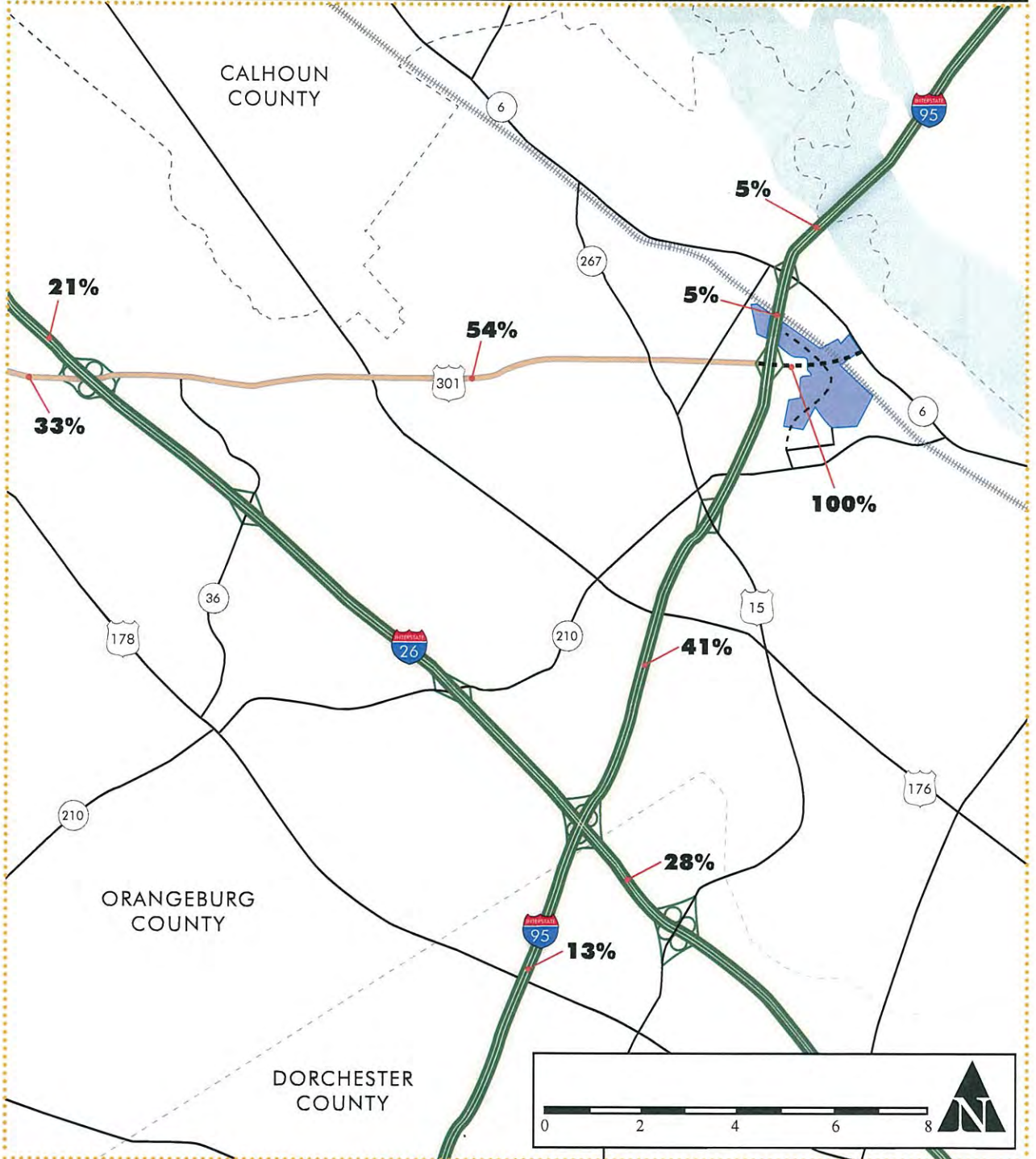
XX% Project Distribution



HDR  
JUNE 2009

# Jafza Logistics and Distribution Park

Fig 8 - Outbound Truck Distribution - Phase 3 (2030)



LEGEND:



Project Site

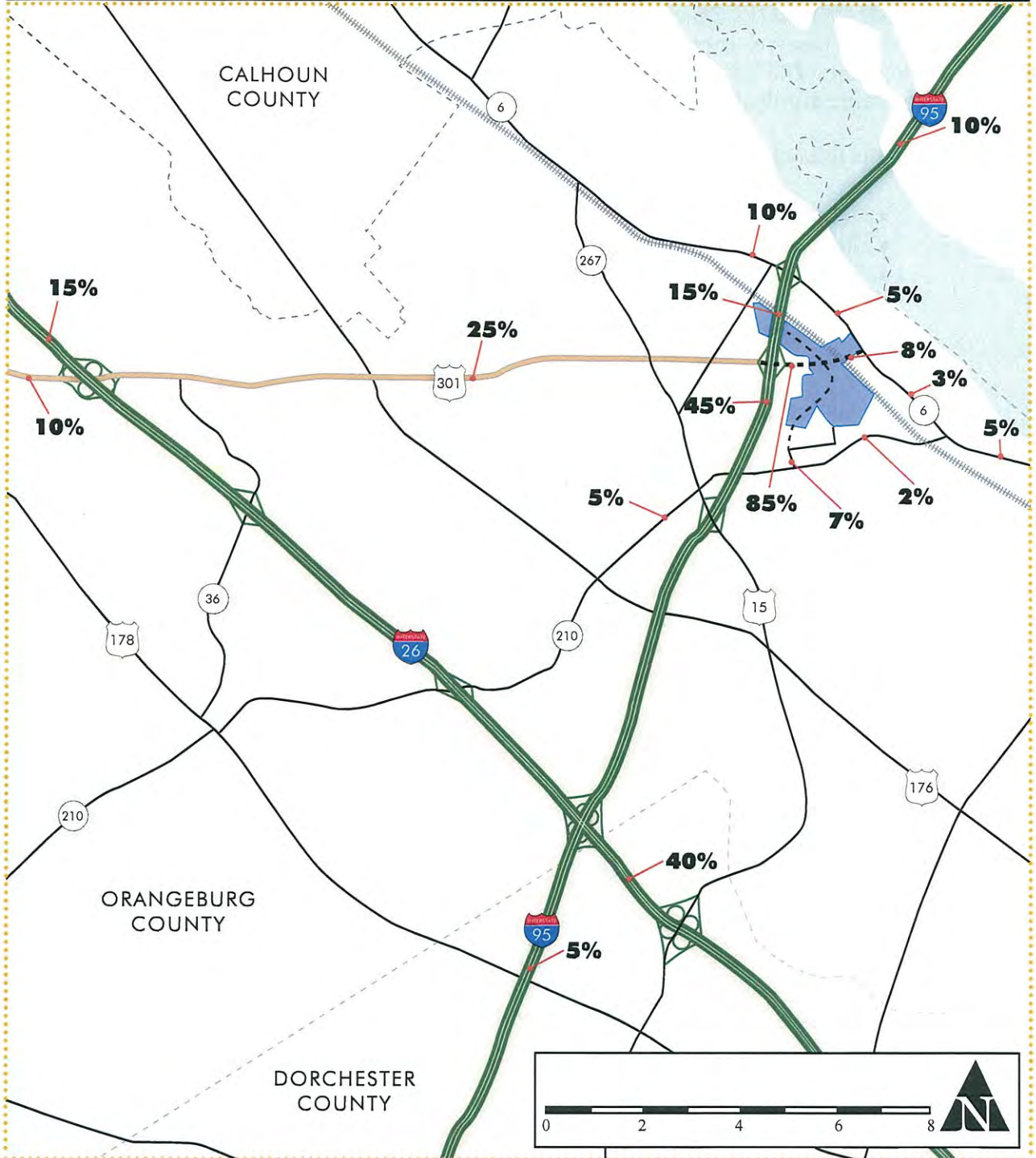
**XX%** Project Distribution



**HDR**  
JUNE 2009

# Jafza Logistics and Distribution Park

Fig 9 - Non-Truck Distribution - Phase 3 (2030)



LEGEND:



Project Site

XXX% Project Distribution

HDR  
JUNE 2009

## ANALYSIS

The US 301 interchange analysis was conducted for two Build Alternatives as well as the No-Build Alternative. Due to its close proximity, the SC 6 interchange was included in the analysis to observe impacts from the US 301 interchange modification and the Jafza Development. The US 15 interchange is not included because it has little impact on the study area or traffic distribution.

The following analyses were performed:

- Freeway analysis using Highway Capacity Software version 5.2 (HCS+)
- Ramp analysis using Highway Capacity Software version 5.2 (HCS+)
- Intersection level of service analysis using the HCM Procedure on SYNCHRO version 7
- Visual observation of the existing layout and future designs using animation software (SimTraffic version 7)

For the freeway and ramp analysis, the 100<sup>th</sup> highest hourly volume on I-95 was used as the design hour traffic volume on the freeway. While the 30<sup>th</sup>-highest hour is often assumed as the design hour for rural highways, it was observed that this value occurred during a holiday period (Saturday after New Year's Day). Using this holiday period for the design hour volume is deemed unreasonable and will likely result in excessive design, therefore, further analysis of the count data was performed. The existing methodology specifies a range of the 30<sup>th</sup> to 100<sup>th</sup> highest hour for an appropriate design hour for rural highways (HCM 2000, p. 8-8). Further study of the count data revealed that the 100<sup>th</sup> highest hour results in a K-factor of 0.106, a suitable value to determine design hour traffic volumes and slightly higher than the 0.10 default for rural highways. The I-95 volume data can be found in the Appendix.

The highest intersection turning movements occurred during the PM peak hour, and those volumes are used as background volumes in the analysis. The 2010 PM peak hour volumes are illustrated in Figure 5. For Build Alternatives 1 and 2, background volumes were re-routed from the existing interchange layout to the modified US 301 interchange using engineering judgment regarding origin destinations. Growth rates determined from projected ADTs were applied to turning movement and freeway volumes

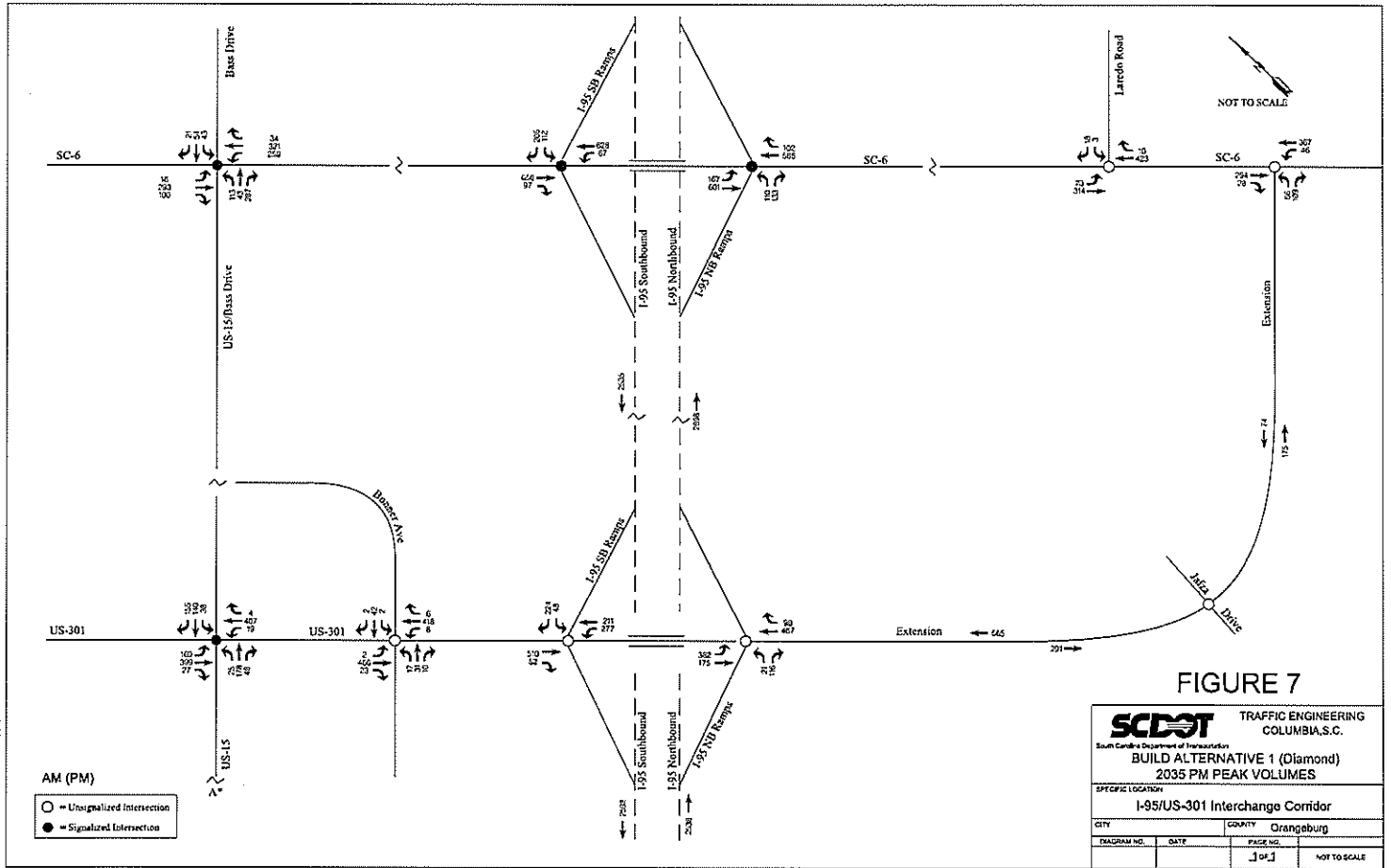
Peak hour trips generated from the Jafza Development were added to the background volumes and the total volumes were used to analyze each alternative for years 2015, 2020, 2025, 2030, and 2035. Volume diagrams with 2035 total peak hour volumes (including Jafza trips) for each alternative are shown in Figures 6 through 8.







PROJECT: I-95/US-301 INTERCHANGE CORRIDOR



**FIGURE 7**

**SCDOT** TRAFFIC ENGINEERING  
 COLUMBIA, S.C.  
 South Carolina Department of Transportation  
**BUILD ALTERNATIVE 1 (Diamond)**  
**2035 PM PEAK VOLUMES**

SPECIFIC LOCATION  
**I-95/US-301 Interchange Corridor**

Project # 1-95/US-301 Interchange Corridor  
 1-95/US-301 Interchange Corridor

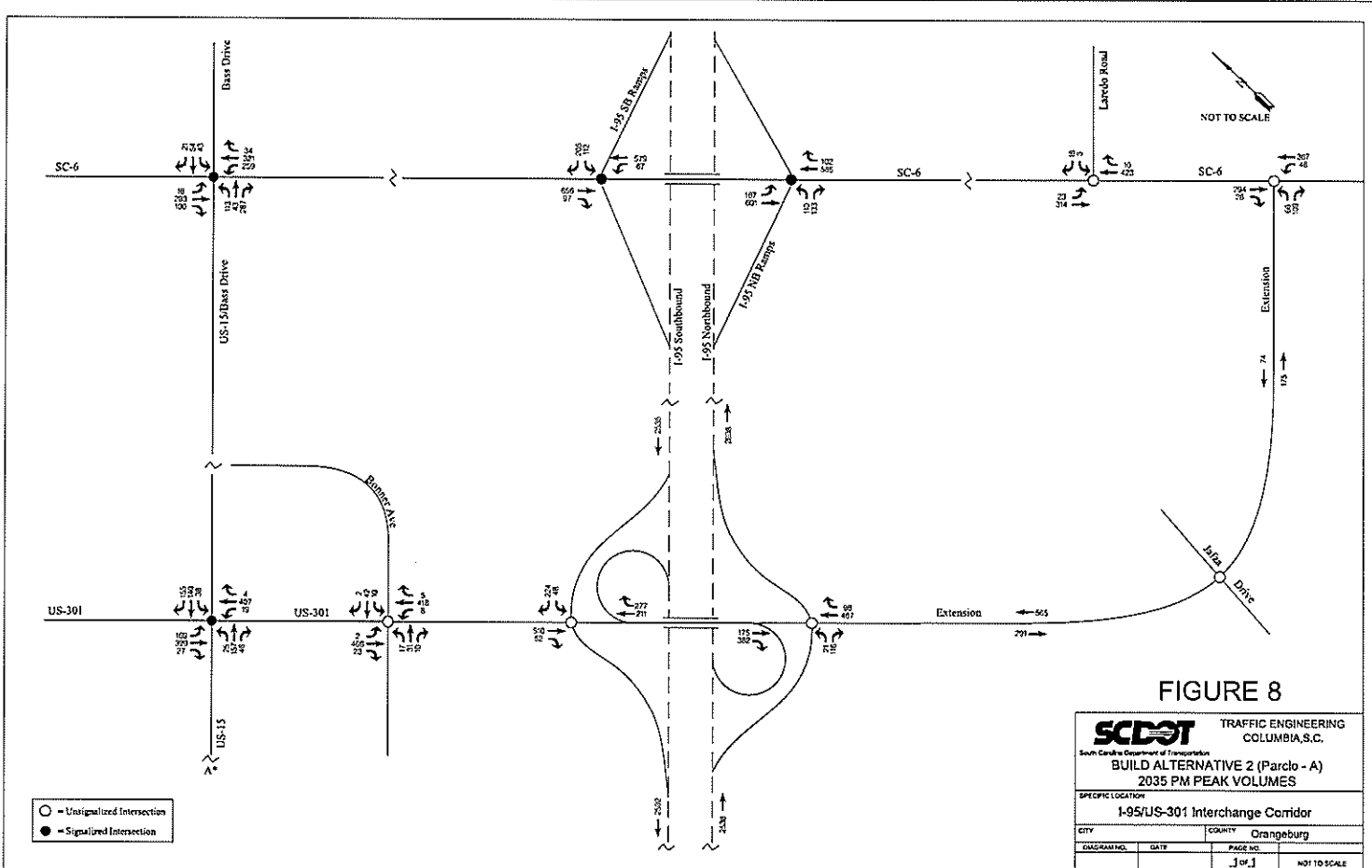


FIGURE 8

<b>SCDOT</b>		TRAFFIC ENGINEERING	
South Carolina Department of Transportation		COLUMBIA, S.C.	
BUILD ALTERNATIVE 2 (Parclo - A)			
2035 PM PEAK VOLUMES			
SPECIFIC LOCATION			
1-95/US-301 Interchange Corridor			
CITY		COUNTY	
Orangeburg		Orangeburg	
DIAGRAM NO.	DATE	PAGE NO.	NOT TO SCALE
		1 of 1	

The following analyses were conducted for each alternative:

*No-Build Alternative (Existing Interchange Layout)*

- Freeway analysis for two lanes south and two lanes north of the US 301 interchange and two lanes north of the SC 6 interchange in each direction on I-95.
- Ramp analysis for the exit and entrance ramps of the SC 6 interchange and the exit and entrance ramps of the partial US 301 interchange with I-95.
- Intersection analysis on SC 6 for the I-95 exit/entrance ramp intersections and the intersections at the vicinity of the SC 6 and US 301 interchanges.

*Build Alternative 1 (Diamond Interchange Layout)*

- Freeway analysis for two lanes south and two lanes north of the US 301 interchange and two lanes north of the SC 6 interchange in each direction on I-95.
- Ramp analysis for northbound and southbound exit and entrance ramps at the US 301 and SC 6 interchanges in each direction on I-95.
- Intersection analysis on US 301 and SC 6 for the I-95 exit/entrance ramp intersections and the intersections at the vicinity of the interchanges.

*Build Alternative 2 (Parclo A Interchange Layout)*

- Freeway analysis for two lanes south and two lanes north of the US 301 interchange in each direction on I-95.
- Ramp analysis for north and southbound exit and entrance ramps at US 301 in each direction on I-95.
- Intersection levels of service on US 301 for the I-95 exit/entrance ramp intersections and the intersections at the vicinity of the interchange.

**ASSUMPTIONS**

In performing the analysis of the existing and proposed interchanges, several assumptions were made as follows:

- For I-95, the 100<sup>th</sup> highest hourly volume was used as the peak hour volume for the analysis.
- The background traffic volumes are comprised of 15% heavy vehicles on I-95 and 10% on US 301 and SC 6. Percent heavy vehicles for I-95 were obtained from a 2010 weekly report at count station 2393 just north of the SC 6 interchange.
- A 3% annualized growth rate was applied to traffic volumes along US 301 and a 2% annualized growth rate was applied to traffic volumes along all other routes in the study area including I-95. The growth rates are based on projections obtained from the SCDOT Planning Office for years 2035 and 2040.
- The SYNCHRO default of 0.9 was used for the peak hour factor.

## **STUDY FINDINGS**

### ***Freeway Analysis***

The results of the Highway Capacity Software Freeway Analysis for the No-Build and Build Alternatives are listed in Table 1 below. The table provides the level of service for two lanes on the freeway in each direction at both the US 301 and SC 6 interchanges. The Build Alternatives result in similar levels of service for most freeway segments except SB I-95 north of US 301 (highlighted in the table). This segment of freeway will experience slight improvements from a LOS D in the No-Build to a LOS C in the Build Alternatives in the design year. The improvements are due to southbound volumes using the new US 301 interchange instead of SC 6. The analysis confirms that improvements to the US 301 interchange will not negatively affect the interstate.

**Table 1: HCS Freeway Analysis (No-Build / Build Alternatives 1 and 2)**

Location	Two Lanes on the Interstate				
	2015	2020	2025	2030	2035
I-95 Northbound – South of US 301	B / B	C / C	C / C	C / C	C / C
I-95 Northbound – North of US 301	C / C	C / C	C / C	D / D	D / D
I-95 Northbound – North of SC 6	C / C	C / C	C / C	D / D	D / D
I-95 Southbound – South of US 301	B / B	C / C	C / C	C / C	C / D
I-95 Southbound – North of US 301	B / B	C / C	C / C	D / C	D / C
I-95 Southbound – North of SC 6	B / B	C / C	C / C	C / C	C / C

### ***Ramp Analysis***

The results of the Highway Capacity Software Ramp Analysis for the No-Build and Build Alternatives are listed in Tables 2, 3 and 4 below. The No-Build Alternative provides only northbound entrance and southbound exit ramps for US 301. With only partial access available at US 301, the SC 6 interchange handles most of the traffic entering southbound and exiting northbound I-95. Merging traffic from the SC 6 southbound entrance ramp will experience LOS D by year 2030 under the No Build Alternative (Table 2) as this is the only access to southbound I-95 in the vicinity.

Build Alternative 1, a Diamond interchange layout, provides a northbound exit ramp with 440' parallel deceleration length, a northbound taper entrance ramp, a southbound exit ramp with 440' parallel deceleration length, and a southbound entrance ramp with 780' parallel acceleration length. A new southbound entrance ramp from US 301 will relieve congestion at the SC 6 southbound entrance ramp, resulting in a LOS C for merging traffic in year 2030 and LOS D in year 2035 (Table 3).

Alternative 2, a Partial Cloverleaf A interchange layout, provides the same ramp design as Alternative 1 with the inclusion of a northbound and a southbound loop entrance ramp. Both loop ramps contain 1650' of parallel acceleration length. Merging traffic will operate at a LOS

C from the southbound loop ramp and LOS B from the northbound loop ramp in design year 2035, as illustrated in Table 4.

Ramps in both Alternatives 1 and 2 operate at acceptable levels of service in the design year. The loop ramps in Alternative 2 will have slightly better levels of service. The southbound loop ramp will accommodate heavy volumes entering southbound I-95 from the Jafza Development, while the northbound loop ramp will provide an uninterrupted flow for vehicles traveling from northbound US 301 to northbound I-95, as it exists today. The analysis confirms that improvements to the US 301 interchange will not negatively affect the existing interstate exit and entrance ramps and the additional US 301 ramps will provide adequate LOS.

**Table 2: HCS Ramp Analysis (No-Build Alternative)**

Location		Two Lanes on the Interstate				
		2015	2020	2025	2030	2035
US 301	I-95 NB EXIT RAMP	n/a	n/a	n/a	n/a	n/a
	I-95 NB ENT. RAMP	B	C	C	D	D
	I-95 SB EXIT RAMP	B	C	C	C	D
	I-95 SB ENT. RAMP	n/a	n/a	n/a	n/a	n/a
SC 6	I-95 NB EXIT RAMP	C	C	C	D	D
	I-95 NB ENT. RAMP	B	C	C	C	D
	I-95 SB EXIT RAMP	B	C	C	C	C
	I-95 SB ENT. RAMP	C	C	C	D	D

**Table 3: HCS Ramp Analysis (Build Alternative 1)**

Location		Two Lanes on the Interstate				
		2015	2020	2025	2030	2035
US 301	I-95 NB EXIT RAMP	B	C	C	C	D
	I-95 NB ENT. RAMP	B	C	C	C	D
	I-95 SB EXIT RAMP	B	C	C	C	C
	I-95 SB ENT. RAMP	B	B	C	C	C
SC 6	I-95 NB EXIT RAMP	C	C	C	D	D
	I-95 NB ENT. RAMP	B	C	C	C	D
	I-95 SB EXIT RAMP	B	C	C	C	C
	I-95 SB ENT. RAMP	C	C	C	C	D

**Table 4: HCS Ramp Analysis (Build Alternative 2)**

Location		Two Lanes on the Interstate				
		2015	2020	2025	2030	2035
US 301	I-95 NB EXIT RAMP	B	C	C	C	D
	I-95 NB ENT. RAMP A/B	B/B	B/C	B/C	C/C	C/D
	I-95 SB EXIT RAMP	B	C	C	C	C
	I-95 SB ENT. RAMP A/B	B/B	B/B	B/C	B/C	B/C

RAMP A= First ramp at the direction of travel (loop ramp) ; RAMP B= Second ramp at the direction of travel  
SC 6 results are the same as Alternative 1

## *Intersection Analysis*

Each intersection within the project area was analyzed using volume data illustrated in Figures 5, 6, 7 and 8 as well as volumes for years leading up to design year 2035. The overall intersection Level of Service results of the analysis are shown below in Table 6 – No Build Alternative, Table 7 – Build Alternative 1, and Table 8 – Build Alternative 2.

With the No-Build Alternative, the access to the Jafza Development will be a new intersection along SC 6. This intersection will require signalization by year 2025 as shown in Table 6. The SC 6 interchange area will experience major delays with the phasing in of the Jafza Development. The I-95 ramp intersections with SC 6 will experience unacceptable LOS E in Design Year 2035. Build Alternatives 1 and 2 provide considerable relief to the SC 6 interchange by providing an improved access point for the Jafza Development as well as redirecting some background volumes. Table 7 shows the ramp intersections with SC 6 operating at LOS B in Design Year 2035 under the Build Alternatives.

Alternative 1 requires left turn lanes on US 301 at the interchange entrance ramps, from northbound US 301 to northbound I-95 and southbound US 301 to southbound I-95. This alternative provides acceptable levels of service until year 2030. Increasing volumes from the Jafza Development will cause levels of service to deteriorate, particularly for the southbound ramp intersection. The I-95 southbound exit ramp intersection is expected to operate at a LOS F in Design Year 2035, as illustrated in Table 7. Signalization of this intersection will be necessary in the future, resulting in a LOS B.

Alternative 2 provides loop entrance ramps, eliminating the need for left turns on US 301. The Partial Cloverleaf A design better accommodates the high volumes from the Jafza facility entering southbound I-95, particularly heavy trucks from the site. The loop ramp provides an uninterrupted entrance onto the interstate and removes the left turn conflict. Without the loop ramp, heavy trucks will see increased delays and fuel usage when attempting to turn left onto the entrance ramp, whether waiting on a gap or signal delay when one is eventually installed under Alternative 1. Similarly, the northbound loop ramp provides an uninterrupted movement from northbound US 301 onto northbound I-95 while eliminating the left turn conflict. The improved levels of service for the ramp intersections under Alternative 2 are illustrated in Table 8. Along US 301, the unsignalized intersection of Bonner Ave and the signalized intersection of US 15 in the vicinity of the interchange will experience acceptable levels of service in the design year.



**Table 6: Synchro Intersection Levels of Service – No-Build Alternative – PM Peak**

Location		2015	2020	2025	2030	2035
US 301	US 301 @ US 15 ( <b>Signalized</b> )	B	B	B	B	B
	US 301 @ Bonner Avenue	B	B	B	C	C
	US 301 @ I-95 Southbound Ramp	N/A	N/A	N/A	N/A	N/A
	US 301 @ I-95 Northbound Ramp	N/A	N/A	N/A	N/A	N/A
	US 301 @ SC 6	N/A	N/A	N/A	N/A	N/A
SC 6	SC 6 @ US 15 ( <b>Signalized</b> )	B	B	B	B	B
	SC 6 @ I-95 Southbound Ramps ( <b>Signalized</b> )	B	C	C	E	E
	SC 6 @ I-95 Northbound Ramps ( <b>Signalized</b> )	B	B	C	D	E
	SC 6 @ Laredo Road	B	B	C	C	C
	SC 6 @ Jafza Access ( <b>Unsignalized / Signalized</b> )	B / A	D / B	F / B	F / B	F / B

Intersections are unsignalized unless noted otherwise.

**Table 7: Synchro Intersection Levels of Service – Build Alternative 1 (Diamond) – PM Peak**

Location		2015	2020	2025	2030	2035
US 301	US 301 @ US 15 ( <b>Signalized</b> )	B	B	B	B	B
	US 301 @ Bonner Avenue	B	B	C	C	D
	US 301 @ I-95 Southbound Ramp	B	B	C	F	F
	US 301 @ I-95 Northbound Ramp	B	B	B	C	C
	US 301 @ SC 6	B	B	C	C	C
SC 6	SC 6 @ US 15 ( <b>Signalized</b> )	B	B	B	B	B
	SC 6 @ I-95 Southbound Ramps ( <b>Signalized</b> )	B	B	B	B	B
	SC 6 @ I-95 Northbound Ramps ( <b>Signalized</b> )	B	B	B	B	B
	SC 6 @ Laredo Road	B	B	B	B	B

Intersections are unsignalized unless noted otherwise.

**Table 8: Synchro Intersection Levels of Service – Build Alternative 2 (Parc-lo A) - PM Peak**

Intersection		2015	2020	2025	2030	2035
US 301	US 301 @ US 15 ( <b>Signalized</b> )	B	B	B	B	B
	US 301 @ Bonner Avenue	B	B	C	C	D
	US 301 @ I-95 Southbound Ramp	B	B	B	B	B
	US 301 @ I-95 Northbound Ramp	A	A	A	A	B
	US 301 @ SC 6	B	B	C	C	C

Intersections are unsignalized unless noted otherwise.

SC 6 results are the same as Alternative 1.

## *Safety Analysis*

Crash data collected over the last 4 years show low crash rates along US 301 in the interchange area. Low crash rates were also observed along I-95 near US 301 and SC 6, with the majority of crashes being Run Off Road type collisions. Crash summaries can be found in the Appendix. The preferred Alternative 2 *Partial Cloverleaf A* design will have fewer conflict points along US 301 with the installation of loop entrance ramps, eliminating left turn movements for the heavier volumes entering I-95. All entrance and exit ramps will have adequate acceleration and deceleration lanes for proper merging and diverging with I-95 traffic. The control of access along US 301 will run from the east side of the Bonner Ave intersection to the west side of the Jafza Driveway intersection. Modifications to the US 301 interchange are not expected to have a significant adverse effect on safety.

## **ENVIRONMENTAL DOCUMENT**

The environmental document is being prepared by HDR in conjunction with the Interchange Modification Report. In reference to Alternative 3A in the Environmental Assessment, the IMR Analysis reflects that alternative.

## **CONCLUSION**

In conclusion, Alternative 2 is the preferred design. The Partial Cloverleaf A interchange layout will more effectively handle traffic accessing northbound and southbound I-95 via the loop entrance ramps. The loop ramps eliminate the need for left turn lanes on US 301 and provide uninterrupted access to I-95 for the heavier movements. The proposed Alternative 2 design will provide full access to and from I-95 and improve the traffic operations within the US 301 and SC 6 interchanges without negatively impacting the freeway. Conceptual Signing Plans for this interchange alternative are shown in the Appendix. The improvements will serve the needs of the motoring public and the surrounding businesses along US 301 and I-95, particularly the proposed Jafza Development, through year 2035. The proposed improvements, including 1) realignment of the existing SB I-95 exit ramp; 2) construction of new SB I-95 entrance ramp; 3) construction of a new SB I-95 entrance loop ramp that eliminates a left turn movement; 4) construction of a new NB I-95 exit ramp; 5) construction of a new NB I-95 entrance loop ramp that eliminates a left turn movement; 6) realignment of NB I-95 entrance ramp; and 7) extension of US 301 to SC 6 will allow for an increased capacity and improvements to overall traffic operations throughout the project area.

### *Federal Highway Administration (FHWA) Policy*

It is in the national interest to preserve and enhance the Interstate System to meet the needs of the 21<sup>st</sup> Century by assuring that it provides the highest level of service in terms of safety and mobility. Full control of access along the Interstate mainline and ramps, along with control of access on the crossroad at interchanges, is critical to providing such service. Therefore, FHWA's decision to approve new or revised access points to the Interstate System must be supported by substantiated information justifying and documenting that decision. The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following requirements.

- 1. The need being addressed by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands.***

Interstate 95 is the main interstate corridor on the East Coast, paralleling the Atlantic Ocean for approximately 1,927 miles from Miami, Florida to Houlton, Maine at the Canadian border. Within the proposed project area, I-95 is a four-lane divided roadway with paved shoulders and ditches. The posted speed limit along I-95 within the proposed project area is 70 miles per hour. US 301 is a north-south route that runs from Sarasota, Florida to Glasgow, Delaware. The existing I-95 and US 301 Interchange (I-95 Exit 97) is a three-leg interchange that provides only partial access to northbound I-95 from northbound US 301 and to southbound US 301 from southbound I-95. Currently, there are no ramps to access I-95 southbound from northbound US 301 or to access US 301 southbound from I-95 northbound.

The existing SC 6 interchange and roadway segment provides full access to I-95 for local traffic and the planned Jafza facility. Under the No-Build Alternative, the SC 6 roadway segment and interchange will be deficient by year 2030. The Jafza facility 2030 traffic demands cannot be met with access only to SC 6 and without a direct connection to I-95 through the proposed US 301 Connector. The US 15 interchange 4 miles south of US 301 also provides full access to I-95. Due to its distance from the project and Jafza Development, this interchange is not expected to be impacted.

2. *The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the Interstate without the proposed change(s) in access.*

Two alternative designs included a Diamond configuration and a Partial Cloverleaf A configuration. All of the preliminary interchange alternatives provide full northbound and southbound access from US 301 to I-95 and vice versa. The preliminary analysis results in the partial cloverleaf design as the preferred interchange alternative. Reasoning for selection of this interchange configuration include the rural nature of the area and best option to continue relationship of I-95 with US 301, a minor roadway; more efficient use of space; avoidance of the interweaving traffic flows; and future traffic projections for the area support this type of facility. Neither ramp metering, mass transit, nor HOV facilities are warranted for the existing or design year volumes. These techniques do not improve the operations of the interchange.

3. *An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access. The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network. Request for the proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network. Each request must also include conceptual plan of the type and location of the signs proposed to support each design alternative.*

The analysis of I-95 includes the interstate facility around the US 301 and SC 6 interchanges, from US 15 south of the interchange to just north of the SC 6 interchange, as well as other roads. The analysis was performed using methodologies and procedures in the Transportation Research Board "Highway Capacity Manual". The analysis projects there will be no deficiencies in the proposed design. The freeway analysis shows segments north and south of the interchange operating at the same LOS or better with the modifications. The ramp analysis shows that all the ramps are projected to operate at LOS D or better. All intersections are expected to operate at LOS C or better, except for the unsignalized intersection of US 301 and Bonner Avenue, a rural local road operating at LOS D.

4. *The proposed access connects to a public road only and will provide for all traffic movements. Less than “full interchanges” may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards.*

The proposed design connects US 301 to SC 6, which is a public road, and the interchange provides all traffic movements. The No-Build Alternative does not provide for all movements.

5. *The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process with transportation management areas, as appropriate, and as specified in 23 CFR part 450, and the transportation conformity requirements of 40 CFR parts 51 and 93.*

As identified in the LSCOG Long Range Transportation Plan (LRTP) (LSCOG, 2006), and Transportation Improvement Program (TIP) (LSCOG 2009), rapid growth and development in Orangeburg County and aggressive economic development strategies implemented have brought significant industrial development and related infrastructure to the county. The proposed project will contribute to meeting the larger goals of (1) alleviating the rapidly increasing Port of Charleston congestion (2) improving the efficiency of intermodal freight movement in South Carolina and (3) complementing existing manufacturing facilities in Orangeburg County. As indicated in the LRTP, the LSCOG’s Technical Advisory Committee (TAC) unanimously supports the inland port concept and endorsed inclusion of the interchange proposal at I-95 and US 301 in the LRTP. The project is included in the State Transportation Improvements Plan (STIP).

Additionally, the proposed project will provide a safe, efficient vehicular connection to the proposed \$250 million, 1,300-acre inland port intermodal facility (Jafza) located just east of the existing I-95 and US 301 interchange. The Jafza facility will consist of an intermodal rail yard, warehouse related development and office/manufacturing space to facilitate the storage and logistics of the operations. Additionally, a portion of the site will be reserved for future market driven developments. These developments may range from more warehouse related development to commercial development.

Orangeburg County meets the national ambient Air Act Amendments of 1990 (40 CFR §51 and 93) and is considered to be in attainment with the applicable ambient air quality standards. Therefore, no project level air quality analysis was conducted for

this project. It has been determined that this project will have no meaningful potential impacts on air quality.

6. *In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all proposed and desired access within the context of a longer-range system or network plan.*

This interchange is located in a rural part of Orangeburg County. The potential for future nearby interchanges are low and none are planned at this time.

7. *When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate coordination has occurred between the development and any proposed transportation system improvements. The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point.*

A public meeting associated with this project was held at Lake Marion High School in Santee, South Carolina on December 3, 2009. The meeting was attended by SCDOT staff, LSCOG staff, Orangeburg County staff, Town of Santee staff, FHWA staff, residents, SCDOT consultant staff, and local media. Sign-in sheets indicate that 97 residents or interested parties attended the meeting. The majority of comments received as a result of the meeting expressed concerns regarding the potential for an increase in traffic (particularly truck traffic) on SC 6 and associated impacts on quality of life for the existing residents along and within hearing of SC 6. "Design Alternatives and Concerns" accounted for 25 responses; "Vegetation" and "Property Concerns (Takings)" accounted for 9 responses each; "Operation Alternatives and Concerns" and "Safety" accounted for 8 responses each; and "Noise" accounted for 7 responses. Eleven respondents indicated that they were happy with the proposed project. Eight respondents requested additional information or a specific action to be taken and 3 respondents identified information that needs to be corrected.

In addition, a planned development underway by GLT Jafza Americas (Jafza) has been considered and evaluated as part of the planning process for the SCDOT project. During the planning phase of the Jafza project, a number of studies were conducted including: traffic studies, a Biological Assessment (endangered species), stream and wetland delineation, Phase 1 Environmental Site Assessment, and a cultural resource survey. In addition, Jafza submitted an application for a Section 404 permit. SCDOT coordinated its studies and agency coordination with those conducted for the Jafza development to ensure continuity and efficiency with the NEPA process. There are no commitments from private sources to fund the project.

8. *The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing.*

A draft Environmental Assessment (EA) has been reviewed by SCDOT and is being prepared for submittal to FHWA. The project was assessed for possible effects on the human and natural environment, with a determination that no significant environmental impact would occur. In January 2010 a number of state and federal agencies were contacted and asked for their comments on the proposed action. Their responses are included in the EA document.

A Jurisdictional Determination for streams and wetlands located within a portion of the project corridor associated with the Jafza site was issued to Jafza by the USACE on February 24, 2009. Portions of the project that cross the Jafza site include a section of the proposed US 301 Connector from existing LTD Road east to existing SC 6. As part of SCDOT's environmental evaluation of the project area, an approved verification of additional jurisdictional features associated with the SCDOT project was issued by USACE on June 23, 2010. These areas include the project area associated with the interchange at I-95 and US 301 and the portion of the proposed US 301 Connector from I-95 to LTD Road. SCDOT will obtain the necessary Section 404 permit from the U.S. Army Corps of Engineers, and will adhere to any conditions set forth therein during construction.

A public meeting associated with this project was held at Lake Marion High School in Santee, South Carolina on December 3, 2009. Sign-in sheets indicate that 97 residents or interested parties attended the meeting. It is anticipated that a public hearing would be held after the EA is approved by FHWA. Area residents and stakeholders will be afforded the opportunity to review the EA and submit comments at that time.

# **APPENDIX**



## **I-95 TRAFFIC VOLUME DATA**

# I-95 VOLUMES

ADT

31050

Rank	Volume	AM/PM	Day of Week	Day	Date	K
1	4741	PM	Sunday	1	12/27/2009	15.3%
2	4547	PM	Sunday	1	12/27/2009	14.6%
3	4485	PM	Sunday	1	12/27/2009	14.4%
4	4399	PM	Sunday	1	11/1/2009	14.2%
5	4328	AM	Sunday	1	12/27/2009	13.9%
6	4296	PM	Sunday	1	12/27/2009	13.8%
7	4207	PM	Saturday	7	12/26/2009	13.5%
8	4191	PM	Saturday	7	1/2/2010	13.5%
9	4180	AM	Saturday	7	1/2/2010	13.5%
10	4169	PM	Saturday	7	12/26/2009	13.4%
11	4053	PM	Friday	6	4/2/2010	13.1%
12	4051	PM	Saturday	7	12/26/2009	13.0%
13	4040	PM	Friday	6	4/2/2010	13.0%
14	4001	PM	Saturday	7	1/2/2010	12.9%
15	3995	PM	Wednesday	4	11/25/2009	12.9%
16	3981	AM	Saturday	7	4/3/2010	12.8%
17	3980	PM	Saturday	7	12/26/2009	12.8%
18	3974	PM	Saturday	7	1/2/2010	12.8%
19	3942	PM	Monday	2	12/28/2009	12.7%
20	3886	AM	Friday	6	4/2/2010	12.5%
21	3864	PM	Saturday	7	12/26/2009	12.4%
22	3859	PM	Saturday	7	6/12/2010	12.4%
23	3851	PM	Tuesday	3	12/22/2009	12.4%
24	3851	AM	Friday	6	4/2/2010	12.4%
25	3846	PM	Friday	6	4/2/2010	12.4%
26	3845	PM	Sunday	1	12/27/2009	12.4%
27	3840	PM	Saturday	7	8/14/2010	12.4%
28	3831	PM	Saturday	7	4/3/2010	12.3%
29	3787	PM	Saturday	7	8/14/2010	12.2%
30	3778	AM	Saturday	7	1/2/2010	12.2%
31	3766	AM	Saturday	7	12/26/2009	12.1%
32	3751	AM	Sunday	1	12/27/2009	12.1%
33	3751	PM	Monday	2	12/28/2009	12.1%
34	3751	PM	Wednesday	4	12/30/2009	12.1%
35	3734	PM	Sunday	1	1/3/2010	12.0%
36	3703	PM	Saturday	7	4/3/2010	11.9%
37	3699	PM	Wednesday	4	12/30/2009	11.9%
38	3692	PM	Wednesday	4	11/25/2009	11.9%
39	3690	AM	Saturday	7	4/3/2010	11.9%
40	3688	PM	Saturday	7	1/2/2010	11.9%
41	3678	PM	Wednesday	4	12/30/2009	11.8%
42	3667	PM	Wednesday	4	12/23/2009	11.8%
43	3667	PM	Sunday	1	1/3/2010	11.8%
44	3667	PM	Saturday	7	4/3/2010	11.8%
45	3653	PM	Sunday	1	1/3/2010	11.8%
46	3651	PM	Wednesday	4	11/25/2009	11.8%
47	3650	PM	Monday	2	12/28/2009	11.8%
48	3646	PM	Monday	2	12/28/2009	11.7%
49	3637	PM	Thursday	5	4/1/2010	11.7%
50	3626	PM	Wednesday	4	11/25/2009	11.7%
51	3615	PM	Tuesday	3	12/22/2009	11.6%
52	3601	AM	Monday	2	12/28/2009	11.6%

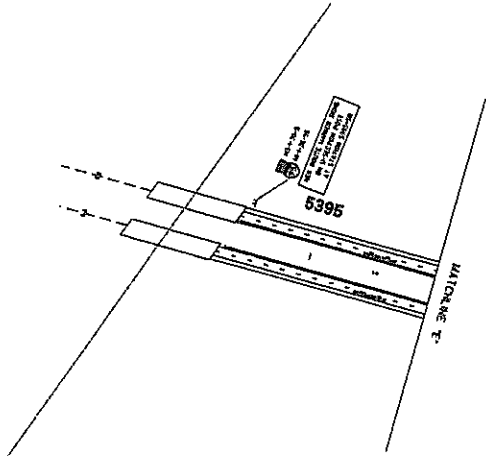
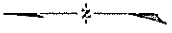
53	3589	PM	Friday	6	4/2/2010	11.6%
54	3578	PM	Saturday	7	8/7/2010	11.5%
55	3575	PM	Saturday	7	7/31/2010	11.5%
56	3572	PM	Wednesday	4	12/23/2009	11.5%
57	3563	PM	Wednesday	4	12/23/2009	11.5%
58	3561	PM	Friday	6	4/2/2010	11.5%
59	3558	PM	Wednesday	4	11/25/2009	11.5%
60	3545	PM	Wednesday	4	12/23/2009	11.4%
61	3539	AM	Saturday	7	7/31/2010	11.4%
62	3524	PM	Tuesday	3	12/29/2009	11.3%
63	3524	PM	Sunday	1	4/4/2010	11.3%
64	3522	AM	Wednesday	4	11/25/2009	11.3%
65	3520	PM	Saturday	7	4/3/2010	11.3%
66	3517	AM	Sunday	1	1/3/2010	11.3%
67	3505	PM	Tuesday	3	12/29/2009	11.3%
68	3501	AM	Wednesday	4	12/23/2009	11.3%
69	3493	AM	Wednesday	4	12/30/2009	11.2%
70	3491	PM	Friday	6	4/2/2010	11.2%
71	3479	PM	Tuesday	3	12/29/2009	11.2%
72	3476	PM	Saturday	7	1/2/2010	11.2%
73	3473	PM	Saturday	7	4/3/2010	11.2%
74	3473	AM	Saturday	7	7/24/2010	11.2%
75	3459	AM	Saturday	7	12/26/2009	11.1%
76	3457	PM	Friday	6	4/9/2010	11.1%
77	3455	PM	Saturday	7	6/12/2010	11.1%
78	3450	PM	Saturday	7	7/31/2010	11.1%
79	3433	PM	Sunday	1	12/27/2009	11.1%
80	3424	PM	Wednesday	4	12/30/2009	11.0%
81	3418	PM	Wednesday	4	12/30/2009	11.0%
82	3418	PM	Friday	6	4/2/2010	11.0%
83	3404	PM	Saturday	7	8/7/2010	11.0%
84	3386	PM	Sunday	1	1/3/2010	10.9%
85	3376	PM	Saturday	7	7/31/2010	10.9%
86	3374	PM	Saturday	7	1/2/2010	10.9%
87	3356	PM	Tuesday	3	12/29/2009	10.8%
88	3351	PM	Monday	2	4/5/2010	10.8%
89	3336	PM	Friday	6	4/9/2010	10.7%
90	3324	AM	Monday	2	12/28/2009	10.7%
91	3315	PM	Saturday	7	12/26/2009	10.7%
92	3313	PM	Sunday	1	4/4/2010	10.7%
93	3311	PM	Saturday	7	7/24/2010	10.7%
94	3310	PM	Tuesday	3	12/29/2009	10.7%
95	3306	PM	Monday	2	12/28/2009	10.6%
96	3302	PM	Sunday	1	2/28/2010	10.6%
97	3298	PM	Thursday	5	4/1/2010	10.6%
98	3297	PM	Sunday	1	8/8/2010	10.6%
99	3295	PM	Thursday	5	4/1/2010	10.6%
100	3295	AM	Saturday	7	8/14/2010	10.6%
101	3289	AM	Saturday	7	8/7/2010	10.6%
102	3283	PM	Saturday	7	8/14/2010	10.6%
103	3281	PM	Friday	6	4/9/2010	10.6%
104	3276	PM	Friday	6	5/28/2010	10.6%
105	3269	PM	Sunday	1	8/1/2010	10.5%
106	3269	PM	Saturday	7	8/7/2010	10.5%
107	3268	AM	Wednesday	4	11/25/2009	10.5%

108	3268	AM	Sunday	1	1/3/2010	10.5%
109	3267	PM	Wednesday	4	12/23/2009	10.5%
110	3264	PM	Saturday	7	7/24/2010	10.5%
111	3264	AM	Saturday	7	8/21/2010	10.5%
112	3258	PM	Sunday	1	8/1/2010	10.5%
113	3252	PM	Sunday	1	4/11/2010	10.5%
114	3249	PM	Sunday	1	2/28/2010	10.5%
115	3249	PM	Friday	6	5/28/2010	10.5%
116	3243	PM	Sunday	1	8/1/2010	10.4%
117	3226	PM	Sunday	1	8/8/2010	10.4%
118	3224	PM	Sunday	1	4/11/2010	10.4%
119	3222	AM	Wednesday	4	12/23/2009	10.4%
120	3222	PM	Saturday	7	6/19/2010	10.4%
121	3213	PM	Wednesday	4	12/23/2009	10.3%
122	3205	AM	Tuesday	3	12/29/2009	10.3%
123	3204	PM	Friday	6	1/1/2010	10.3%
124	3202	PM	Saturday	7	7/31/2010	10.3%
125	3199	PM	Saturday	7	7/31/2010	10.3%
126	3198	PM	Saturday	7	4/10/2010	10.3%
127	3197	PM	Saturday	7	7/24/2010	10.3%
128	3187	PM	Wednesday	4	11/25/2009	10.3%
129	3186	PM	Sunday	1	2/28/2010	10.3%
130	3181	AM	Friday	6	4/2/2010	10.2%
131	3181	PM	Sunday	1	8/1/2010	10.2%
132	3174	PM	Sunday	1	4/11/2010	10.2%
133	3169	PM	Friday	6	1/1/2010	10.2%
134	3169	AM	Saturday	7	4/10/2010	10.2%
135	3163	PM	Sunday	1	4/4/2010	10.2%
136	3160	AM	Wednesday	4	12/30/2009	10.2%
137	3160	AM	Saturday	7	1/2/2010	10.2%
138	3160	PM	Sunday	1	8/8/2010	10.2%
139	3159	PM	Sunday	1	7/25/2010	10.2%
140	3153	PM	Sunday	1	6/20/2010	10.2%
141	3140	PM	Monday	2	5/31/2010	10.1%
142	3133	PM	Sunday	1	8/8/2010	10.1%
143	3132	PM	Friday	6	6/18/2010	10.1%
144	3131	PM	Thursday	5	4/1/2010	10.1%
145	3127	AM	Saturday	7	6/19/2010	10.1%
146	3124	PM	Saturday	7	8/7/2010	10.1%
147	3120	PM	Monday	2	9/6/2010	10.0%
148	3110	PM	Sunday	1	12/27/2009	10.0%
149	3107	PM	Saturday	7	6/19/2010	10.0%
150	3106	PM	Saturday	7	4/10/2010	10.0%

## **SIGNING PLANS**

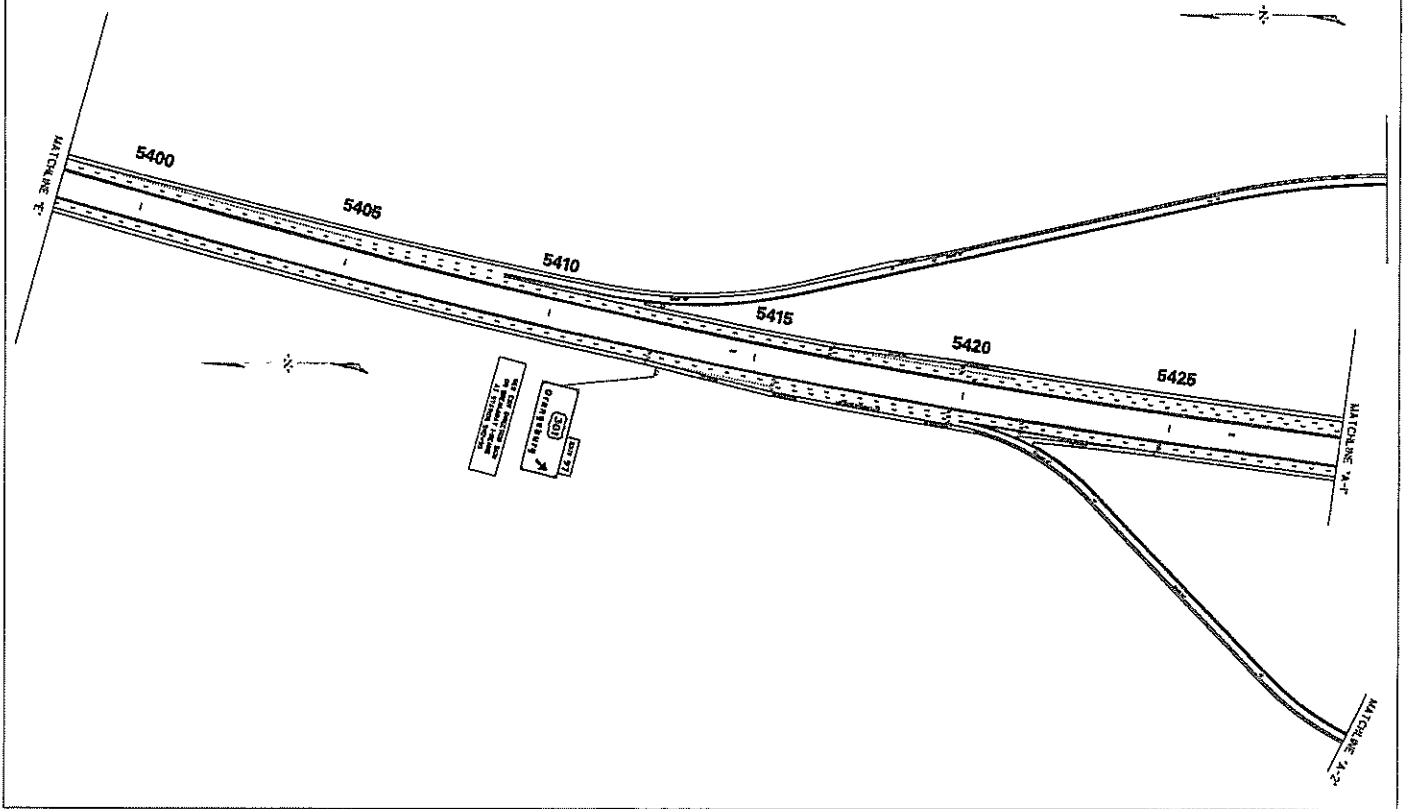
10/15/2010

NO.	DATE	DESCRIPTION	AMOUNT	CHECK NO.	INITIALS
1	10/15/2010	RECEIVED	100.00		



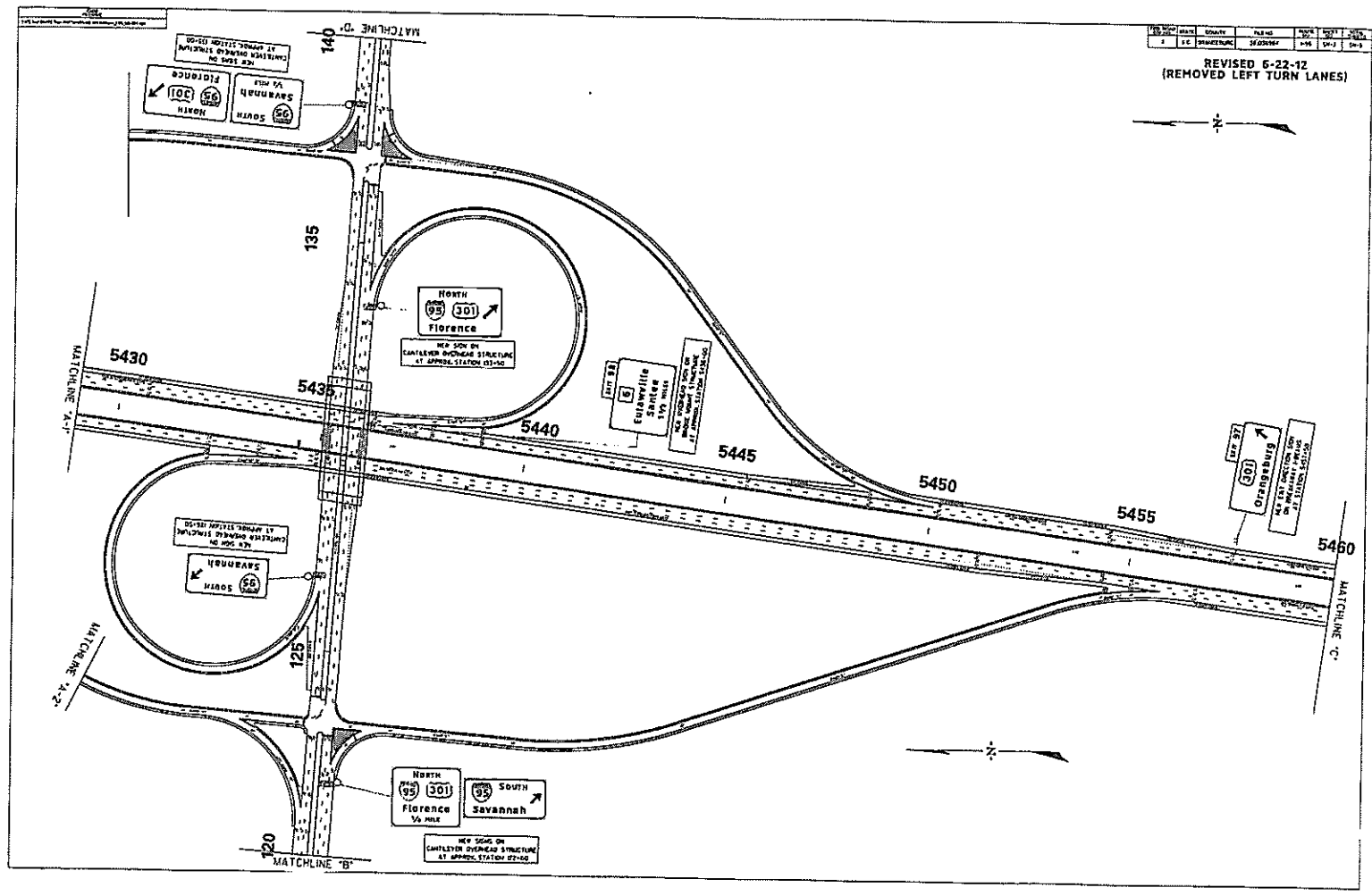
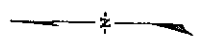
265

NO.	DATE	BY	REVISION	DATE
1	24	BRANDON	PLAN	1/8
			PLAN	1/8



NO. 20	DATE	BY	REV. NO.	DATE	BY
1	12-10-12	BRANDENBURG	1	06-22-12	SEANER

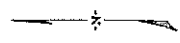
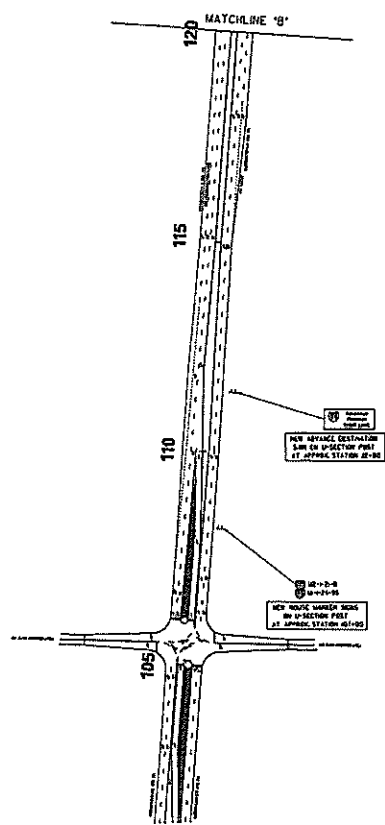
REVISED 6-22-12  
(REMOVED LEFT TURN LANES)





10/20/00

NO.	DATE	BY	CHKD	APP'D
1	10/20/00	MM/LL/LL	MM/LL/LL	MM/LL/LL







## **CRASH SUMMARIES**

**Crash Summary**  
**US 15 from MPT 12.74 (US 301) to MPT 14.23 (I-95)**  
**Orangeburg County**  
**01-01-2008 to 11-30-2011 3.92 years**  
**Length = 1.49 miles**  
**AADT = 4,400**  
**Functional Class - Rural Minor Arterial 4L**

*Crashes by Injury Class*

Fatality Crashes	0
Injury Crashes	5
PDO Crashes	10

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<b>Total Crashes</b>	<b>15</b>
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*Crashes By Manner of Collision*

Rear End	3
Angle	3
Sideswipe	4
Head On	0
Run Off Road	4
Other	1

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<b>Total Crashes</b>	<b>15</b>
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*Special Contributing Factors*

Animal	0
Bicycle	0
Pedestrian	0

Orangeburg County US 15 from MPT 12.74 (US 301) to MPT 14.23 (I-95)



## Section Crashes

### **MPT 12.740 to 12.790 ( Stack #1 )**

<b>Total Crashes: 5</b>	<b>Light: 4</b>	<b>Dark: 1</b>	<b>Dry: 5</b>	<b>Wet: 0</b>	<b>Fatalities: 0</b>	<b>Injuries: 2</b>	<b>PDO: 3</b>
8123573	DAYLIGHT		DRY	INJ3	NOT COLLISION W/MOTOR VEHICLE		
9013225	DAYLIGHT		DRY	INJ0	ANGLE 3		
9071407	DAYLIGHT		DRY	INJ0	SIDESWIPE SAME DIRECTION		
9132825	DARK (LIGHTING UNSPECIFIED)		DRY	INJ2	ANGLE 1		
11543743	DAYLIGHT		DRY	INJ0			

### **MPT 12.940 to 12.990 ( Stack #5 )**

<b>Total Crashes: 1</b>	<b>Light: 1</b>	<b>Dark: 0</b>	<b>Dry: 1</b>	<b>Wet: 0</b>	<b>Fatalities: 0</b>	<b>Injuries: 0</b>	<b>PDO: 1</b>
9079310	DAYLIGHT		DRY	INJ0	SIDESWIPE SAME DIRECTION		

### **MPT 13.140 to 13.190 ( Stack #9 )**

<b>Total Crashes: 1</b>	<b>Light: 0</b>	<b>Dark: 1</b>	<b>Dry: 1</b>	<b>Wet: 0</b>	<b>Fatalities: 0</b>	<b>Injuries: 0</b>	<b>PDO: 1</b>
9144569	DARK (NO LIGHTS)		DRY	INJ0	NOT COLLISION W/MOTOR VEHICLE		

### **MPT 13.240 to 13.290 ( Stack #11 )**

<b>Total Crashes: 3</b>	<b>Light: 2</b>	<b>Dark: 1</b>	<b>Dry: 2</b>	<b>Wet: 1</b>	<b>Fatalities: 0</b>	<b>Injuries: 1</b>	<b>PDO: 2</b>
9003875	DARK (NO LIGHTS)		WET	INJ1	ANGLE 2		
10003523	DAYLIGHT		DRY	INJ0	REAR END		
11542749	DAYLIGHT		DRY	INJ0			

### **MPT 13.540 to 13.590 ( Stack #17 )**

<b>Total Crashes: 2</b>	<b>Light: 1</b>	<b>Dark: 1</b>	<b>Dry: 2</b>	<b>Wet: 0</b>	<b>Fatalities: 0</b>	<b>Injuries: 1</b>	<b>PDO: 1</b>
9063545	DAYLIGHT		DRY	INJ1	NOT COLLISION W/MOTOR VEHICLE		
9089736	DARK (NO LIGHTS)		DRY	INJ0	REAR END		

### **MPT 13.640 to 13.690 ( Stack #19 )**

<b>Total Crashes: 1</b>	<b>Light: 1</b>	<b>Dark: 0</b>	<b>Dry: 1</b>	<b>Wet: 0</b>	<b>Fatalities: 0</b>	<b>Injuries: 0</b>	<b>PDO: 1</b>
8084347	DAYLIGHT		DRY	INJ0	NOT COLLISION W/MOTOR VEHICLE		

### **MPT 13.740 to 13.790 ( Stack #21 )**

<b>Total Crashes: 1</b>	<b>Light: 1</b>	<b>Dark: 0</b>	<b>Dry: 1</b>	<b>Wet: 0</b>	<b>Fatalities: 0</b>	<b>Injuries: 1</b>	<b>PDO: 0</b>
11542591	DAYLIGHT		ICE	INJ1			

### **MPT 13.790 to 13.840 ( Stack #22 )**

<b>Total Crashes: 1</b>	<b>Light: 0</b>	<b>Dark: 1</b>	<b>Dry: 0</b>	<b>Wet: 1</b>	<b>Fatalities: 0</b>	<b>Injuries: 0</b>	<b>PDO: 1</b>
10016040	DARK (NO LIGHTS)		ICE	INJ0	NOT COLLISION W/MOTOR VEHICLE		

**Crash Summary**  
**I-95 NB Ramps & SC 6**  
**Orangeburg County**  
**01-01-2008 to 11-30-2011 3.92 Years**

*Crashes by Injury Class*

Fatality Crashes	0
Injury Crashes	1
PDO Crashes	3

**Total Crashes 4**

*Crashes By Manner of Collision*

Rear End	1
Angle	3
Sideswipe	0
Head On	0
Run Off Road	0
Other	0

**Total Crashes 4**

*Special Contributing Factors*

Animal	0
Bicycle	0
Pedestrian	0



**Crash Summary**  
**I-95 SB Ramps & SC 6**  
**Orangeburg County**  
**01-01-2008 to 11-30-2011 3.92 Years**

*Crashes by Injury Class*

Fatality Crashes	0
Injury Crashes	1
PDO Crashes	5

**Total Crashes 6**

*Crashes By Manner of Collision*

Rear End	4
Angle	2
Sideswipe	0
Head On	0
Run Off Road	0
Other	0

**Total Crashes 6**

*Special Contributing Factors*

Animal	0
Bicycle	0
Pedestrian	0

