



**Table 2.5**  
**Alternatives Considered by the ACT**

Alternative	Reason for Elimination
1	Eliminated in favor of keeping Alternative 3 that had lower overall impacts
2	Eliminated in favor of keeping Alternative 4 that had lower overall impacts
3	Recommended for further study
4	Recommended for further study
5	Recommended for further study
6	Eliminated in favor of keeping Alternative 4 that had lower overall impacts

### 2.5.3 How were preliminary interchange locations designated?

Initial criteria for developing preliminary interchange locations were proposed as follows:

- Provide access to primary roadway routes, i.e. interstates, U.S. Routes, and S.C./N.C. Routes;
- Provide a minimum spacing of two miles between interchanges;
- Ensure a reasonable expenditure of public funds;
- Provide a maximum spacing of eight miles between interchanges to provide system linkage, ease of maintenance, increased safety, and opportunities for economic development;
- Provide interchanges where higher traffic volumes warrant; and,
- Minimize impacts.

The reasonable Build Alternatives were then evaluated with the preliminary locations of interchanges taken into consideration to determine potential impacts to the categories listed previously, as well as potential impacts to communities and relocations.

### 2.5.4 What modifications were made to the reasonable Build Alternatives based on input?

As a result of the public and agency comments, the reasonable Build Alternatives were evaluated to further minimize impacts and to respond to input. The CAT identified several communities that were assigned a high value to avoid potential impact, however not every community in the project



study area had been identified prior to the Public Information Meetings. At the Public Information Meetings, citizens were asked to define the communities in which they lived. As a result, several communities were identified that were not included in the CAT. This public input resulted in the modification of alternatives to avoid communities that were not previously identified, such as Aarons Temple. A field visit was conducted with the ACT on September 13 and 14, 2006, and with the North Carolina resource agencies on December 6, 2007, to review areas of special interest indicated by the agencies. Agency comments and information collected during the field visits were also used to modify the reasonable Build Alternatives.

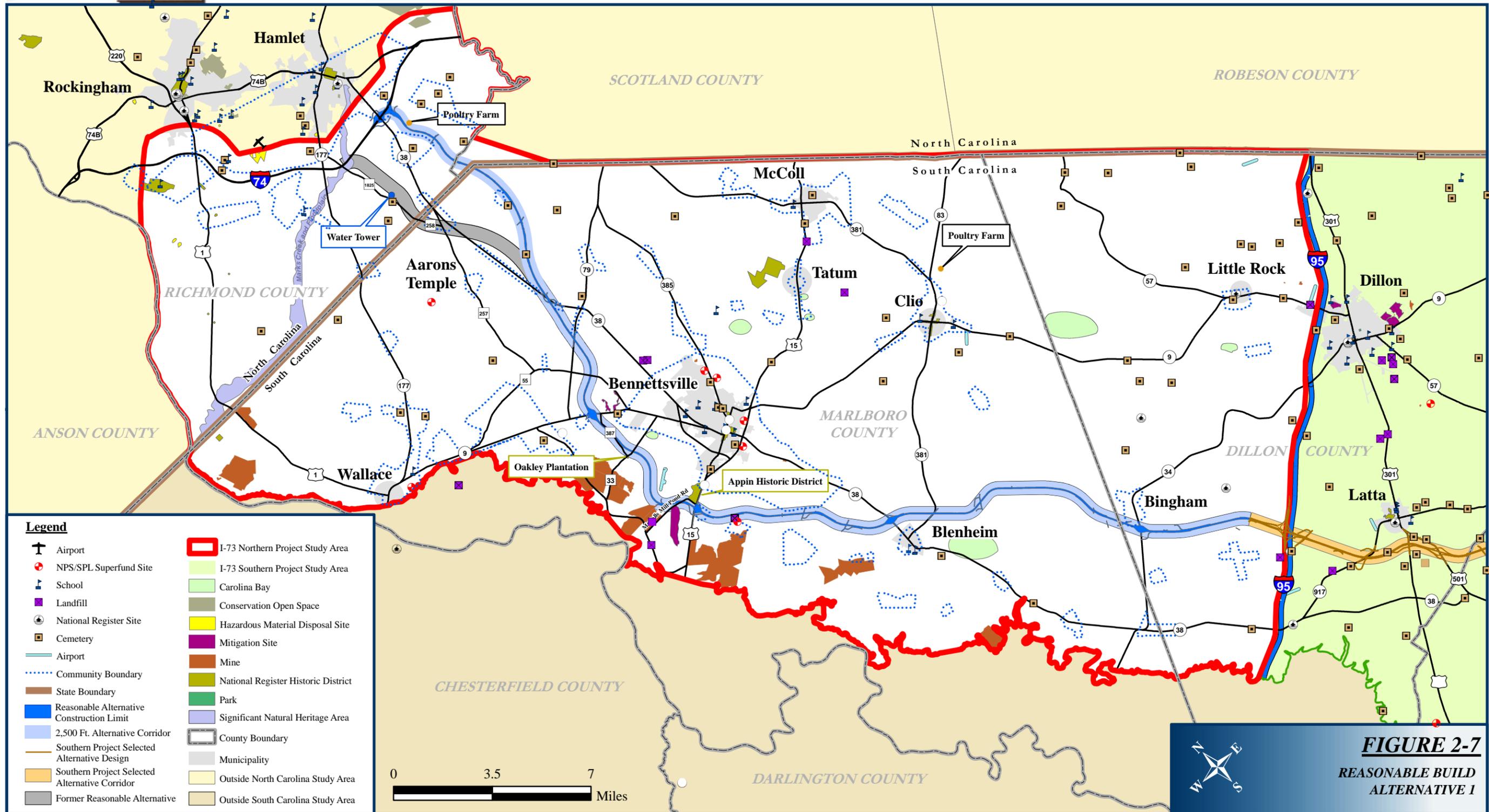
As discussed previously, while the anticipated right-of-way would be between 300 and 400 feet depending on the use of frontage roads, a 2,500-foot wide corridor was used to illustrate each alignment and to provide adequate space for modifications based on public input, agency comments, and the results of field surveys. Modifications made within the 2,500-foot corridor could be done without consultation with the ACT. Major modifications that would fall outside the 2,500-foot corridor would be presented to the ACT for discussion.

#### *2.5.4.1 Alternative 1*

Alternative 1 is the western route. It begins at the northern end of the interchange with I-95, which is the terminus of the Southern Project of I-73. It extends to the northwest to the western side of Bingham where it has an interchange with S.C. Route 34. It continues northwest where it has an interchange with S.C. Route 38 on the eastern side of Blenheim and another with U.S. Route 15/401 west of Bennettsville. North of Bennettsville it continues in a northern direction where it has an interchange at S.C. Route 9. It extends north to an interchange with I-74 near Hamlet, North Carolina.

Alternative 1 was modified in the vicinity of Blenheim at the crossing of S.C. Route 38 and S.C. Route 381. This modification was implemented to provide an improved angle for the proposed interchange. The revision was necessary to improve constructability and safety. The angle at which Alternative 1 would have crossed S.C. Route 38 and S.C. Route 381 would have created a complex interchange design that would have been more costly to construct and would not have provided the best situation for drivers.

The Appin farmhouse is a site currently listed on the NRHP that is located west of Bennettsville on U.S. Route 15/U.S. Route 401 (refer to Figure 2-7). Comments received from local residents requested that an area west of the Appin farmhouse, which includes a mill race/spillway, be evaluated for its potential historic significance. It was determined that the boundary for the Appin farmhouse would be expanded to encompass McCalls Mill Pond and the mill race/spillway. Since the property was determined eligible for listing on the NRHP, avoidance was required



**FIGURE 2-7**  
REASONABLE BUILD  
ALTERNATIVE 1



unless it was demonstrated that no prudent or feasible alternative existed to avoid the property. The design in this area was limited due to close proximity of the airport to the north, a mitigation site to the west, a residential area to the southwest, and Bennettsville to the east. Despite these limitations, the alternative was modified to avoid potential impacts to the mill race/spillway.

The Oakley Plantation is located northwest of Bennettsville at the intersection of Waffer Road (S-35-33) and David's Pond Road (S-35-387) (refer to Figure 2-7, page 2-24). This site was determined eligible for listing on the NRHP and as such modification was developed to avoid potential impacts to the property. This modification was determined to be approximately 0.1 mile longer, have 3.2 acres less of wetland impact, and impact one additional residence.

A modification was developed approximately 1.5 miles south of I-74 in the vicinity of Nebo Church Road (S-35-258) to avoid the potential relocation of a church, multiple residences, and a water tower (refer to Figure 2-7 on page 2-24). The proposed modification was implemented to avoid these relocations.



*Foundation of former mill at McCalls Mill Pond*



*Oakley Plantation*

A concern was expressed by NCDOT and N.C. Natural Resource Agencies that Alternatives 1 and 2 would impact Mark's Creek, which is a significant natural heritage area in North Carolina (refer to Figure 2-7 on page 2-24). During quantifications of the reasonable Build Alternatives, it was determined that the western interchange that connected Alternative 1 and Alternative 2 to

I-74 would impact more wetlands, streams, farmlands, relocations, and floodplains than the eastern interchange. A modified alignment was developed to connect Alternative 1 to the eastern interchange. This resulted in a savings of approximately 37 acres of wetlands, 2,190 linear feet of streams, 164 acres of total farmland, 96 acres of prime farmland, seven relocations, and 24.5 acres of floodplains. In addition, the Richmond County Industrial Park located on the northern side of I-74 in North Carolina would not be impacted with the revised alternative. Approximately 69 acres of additional uplands would be impacted due to the modification. This interchange would

### Significant Natural Heritage Area

Areas that have been designated by N.C. Department of Environment and Natural Resources, the Division of Parks and Recreation, and the Natural Heritage Program because they contain ecologically significant natural communities or rare species.



incorporate the N.C. Route 38 interchange, which would allow access between I-73, I-74, and N.C. Route 38. The proposed change was presented to the ACT on May 9, 2007, and unanimous consensus was reached to accept the proposed modification. Alternative 1 was revised to eliminate use of the western interchange in favor of the eastern interchange (refer to Figure 2-7 on page 24).

#### *2.5.4.2 Alternative 2*

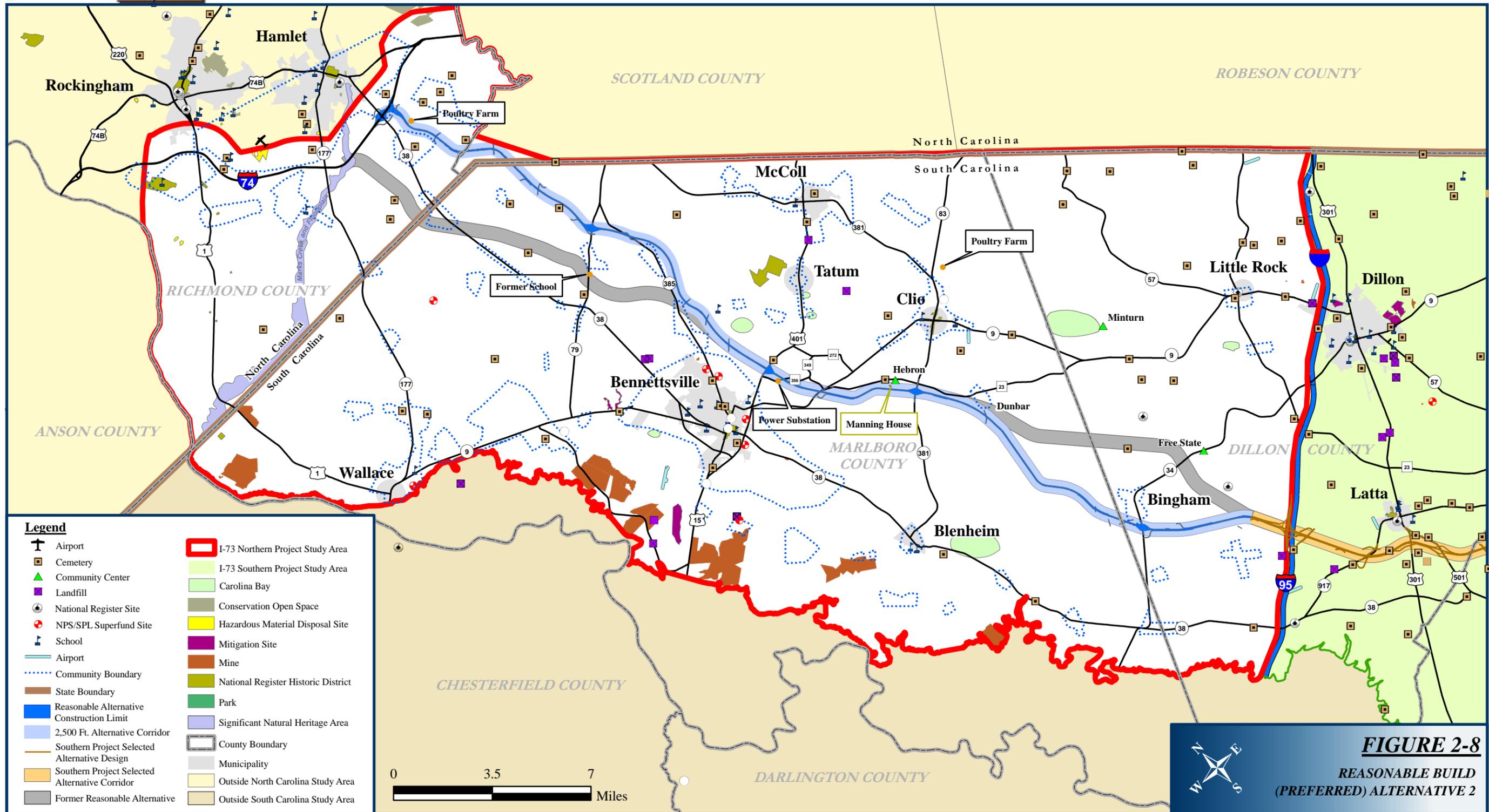
Alternative 2 is the central route. It also starts at the northern end of the interchange with I-95, which is the terminus of the Southern Project of I-73. It extends to the northwest following the alignment of Alternative 1 on the western side of Bingham where it has an interchange with S.C. Route 34. It follows the alignment of Alternative 1 approximately 3.5 miles north of Bingham where it turns north and has an interchange with S.C. Route 381 between Blenheim and Clio. It continues northwest where it has another interchange with U.S. Route 15/401 east of Bennettsville. An interchange is also provided at S.C. Route 79, north of Bennettsville, and with I-74 near Hamlet, North Carolina.

A meeting was held with the community of Minturn on January 9, 2007. At this meeting, it was suggested that Alternative 2 be modified from I-95 to south of Dunbar to follow the alignment of Alternative 1 and then crossover eastward to connect to the existing Alternative 2 alignment (refer to Figure 2-8). The modified Alternative 2 was determined to minimize potential impacts to all categories with the exception of 62.1 additional acres of impact to farmland of statewide importance. The modification would impact 15.2 less acres of wetlands, 51.3 fewer acres of prime farmland, one acre less of floodplains, and save four relocations. In addition, the modified alignment was anticipated to avoid any potential impacts to Free State, a minority community along S.C. Route 34. The comparison was presented to the ACT on February 22, 2007 and the modification to Alternative 2 was approved by a unanimous consensus vote.

Another modification was developed south of U.S. Route 15/U.S. Route 401 along Covington Mill Pond Road (S-35-356), between Bennettsville and Tatum. The modified alignment would avoid a power substation, avoid impacting a minority community located in the vicinity of S.C. Route 9 and Hebron Dunbar Road (S-35-23), and improve the design of Alternative 2.

A former school, located northeast of Bennettsville on the southern side of S.C. Route 79 was determined to be potentially eligible for listing on the NRHP (refer to Figure 2-8). A modification was developed to avoid potential impacts to the property due to its NRHP eligibility.

Similar to Alternative 1, Alternative 2 also would have impacted Mark's Creek, which is a significant natural heritage area in North Carolina (refer to Figure 2-8). A modified alignment



**Legend**

Airport	I-73 Northern Project Study Area
Cemetery	I-73 Southern Project Study Area
Community Center	Carolina Bay
Landfill	Conservation Open Space
National Register Site	Hazardous Material Disposal Site
NPS/SPL Superfund Site	Mitigation Site
School	Mine
Airport	National Register Historic District
Community Boundary	Park
State Boundary	Significant Natural Heritage Area
Reasonable Alternative Construction Limit	County Boundary
2,500 Ft. Alternative Corridor	Municipality
Southern Project Selected Alternative Design	Outside North Carolina Study Area
Southern Project Selected Alternative Corridor	Outside South Carolina Study Area
Former Reasonable Alternative	



**FIGURE 2-8**  
**REASONABLE BUILD**  
**(PREFERRED) ALTERNATIVE 2**



was developed to connect Alternative 2 to the eastern interchange. The modified alternative would impact approximately 44 less acres of wetlands, 2,391 fewer linear feet of streams, 122 fewer acres of total farmland, 90 less acres of prime farmland, save six relocations, and impact 23.9 less acres of floodplains. Similar to Alternative 1, the modification would avoid impacting the Industrial Park located on the northern side of I-74 in North Carolina. Approximately 79 acres of additional uplands would be impacted due to the modification. The proposed change was presented to the ACT on May 9, 2007, and unanimous consensus was reached to accept the proposed modification. Alternative 2 was revised to eliminate use of the western interchange in favor of the eastern interchange (refer to Figure 2-8 on page 2-27).

#### 2.5.4.3 *Alternative 3*

Like the other reasonable Build Alternatives, Alternative 3 begins at the northern end of the interchange with I-95, which is the terminus of I-73 South. Alternative 3, the eastern route, extends to the north crossing between Bingham and Little Rock where it has an interchange with S.C. Route 9. It continues to the north, passing west of the Alford Plantation, to an interchange with S.C. Route 83 east of Clio. Alternative 3 continues northwest to an interchange between Tatum and McColl on U.S. Route 15/401 and then follows the same alignment as Alternative 2, including an interchange at S.C. Route 79 and another at I-74 near Hamlet, North Carolina.

The original alignment of Alternative 3 would have impacted the Alford Plantation, which had been determined to be eligible for listing on the NRHP (refer to Figure 2-9 on page 2-30). Since the property is eligible, avoidance is required unless it is demonstrated that no prudent or feasible alternative exists to avoid the property. As a result, a modification was developed to avoid impact to the Alford Plantation. The modification resulted in an 11.6 acre reduction in wetland impacts, lowered the wetland value by 187.5, 81.3 acres less prime farmlands, 3.6 acres less of farmland of statewide importance, lowered floodplain impacts by 9.3 acres, and would relocate one less residence.



*Alford Plantation*

The modified Alternative 3 minimized potential impacts to all categories. In addition, the modified alignment was anticipated to avoid potential impacts to Free State, a minority community east along S.C. Route 34. The comparison was presented to the ACT on February 22, 2007 and the modification to Alternative 3 was approved by a unanimous consensus vote.



Alternative 3 was modified east of Bennettsville near the intersection of State Road 17 and State Road 28 (refer to Figure 2-9). A poultry farm located on S.C. Route 83 could not be avoided due to the presence of wetlands on both sides of the proposed route. The modification minimized potential relocations in the vicinity of Adamsville Crossroads and provided a better crossing of the railroad near U.S. Route 15/U.S. Route 401 between Tatum and McColl.

A modification was developed to avoid the potential impact of Alternative 3 on another large poultry operation. The facility is located approximately one mile south of I-74 in the vicinity of N.C. Route 38 (refer to Figure 2-9). The relocation of such a large farming facility would increase the cost of the project and could negatively affect the economy of the area. Since one of the project's primary Needs is economic development, a modification was developed to avoid potential impacts to the poultry farm.

## 2.6 How were the three reasonable Build Alternatives evaluated to designate the Preferred Alternative?

Following the modifications of the three reasonable Build Alternatives, in coordination with the ACT, the evaluation was expanded to include the comprehensive list of categories. In addition, more specific data about each alternative, including preliminary construction limits and bridge lengths were estimated to provide a more accurate representation of potential impacts. The categories discussed previously were utilized, as well as the following resources to evaluate the three reasonable Build Alternatives in further detail:

- Hazardous Material Sites;
- Areas with a High Probability for Archaeological Sites (acres);
- More detailed information from Community Impact Assessment;
- Land Use;
- Economics;
- Noise;
- Biotic Communities;
- Species of Concern;
- Air Quality;
- Indirect Impacts;
- Cumulative Impacts; and,
- Cost.

Based on the information presented in Table 2.6 (refer to page 2-31) each of the three reasonable Build Alternatives was evaluated to determine the Preferred Alternative. The Alternative Evaluation Categories were used to compare the reasonable Build Alternatives against one another. The reasonable Build

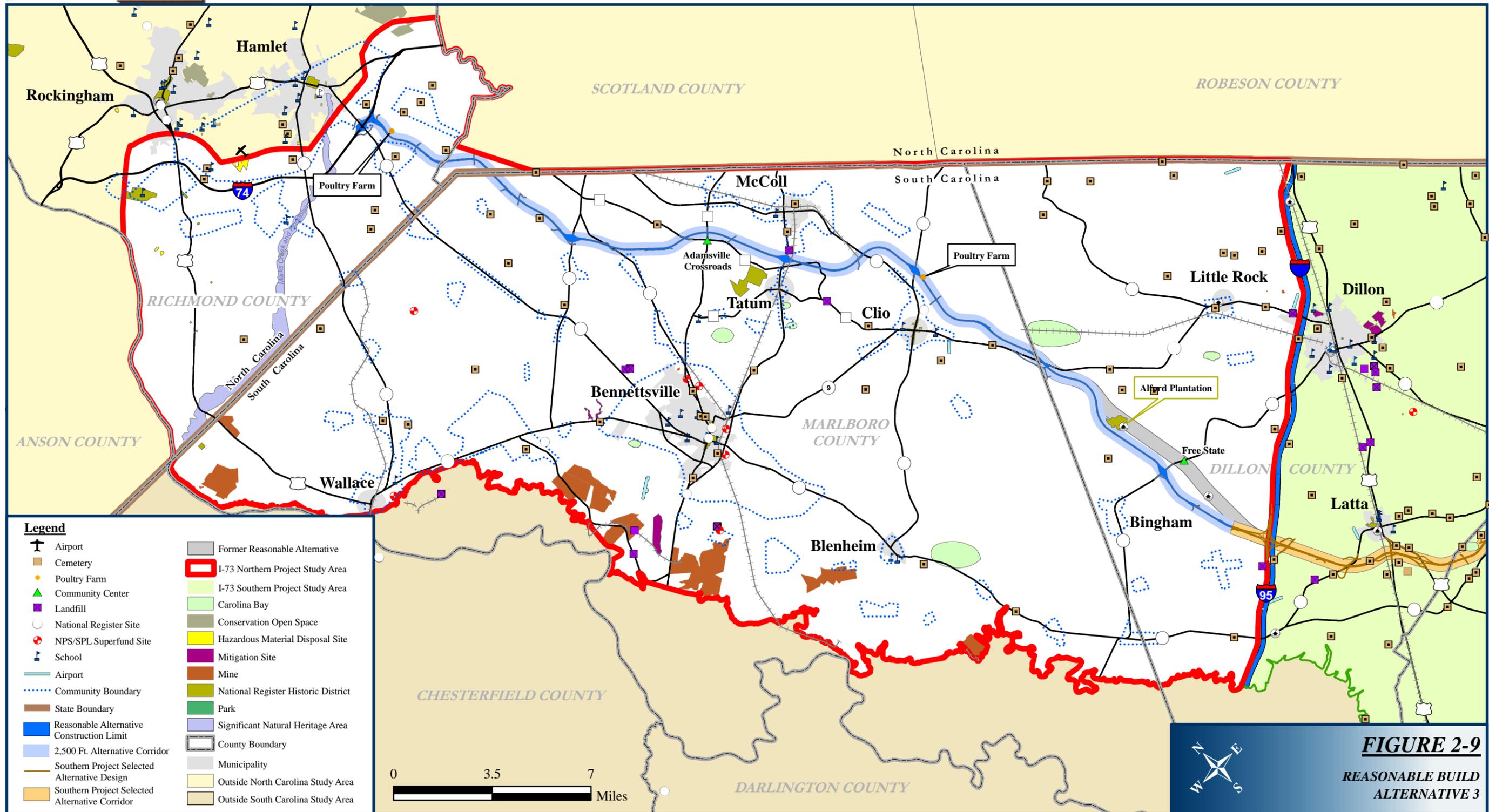




Table 2.6  
Three Reasonable Alternatives Matrix

Category	Unit of Measure	Alternative		
		1	2 (Preferred)	3
<b>Purpose And Need</b>				
System Linkage	Yes	Yes	Yes	Yes
Economic Development	Yes	Yes	Yes	Yes
Improved Access for Tourism	Yes	Yes	Yes	Yes
Increased Safety on Existing Roads	Yes	Yes	Yes	Yes
Multimodal Planning	Yes	Yes	Yes	Yes
<b>Engineering Criteria</b>				
Length	Miles	40.6	36.8	37.2
Design Criteria	Meets/Does Not Meet	Meets	Meets	Meets
Constructability	Ranking	1	1	1
Construction Cost (year 2012)	\$ Millions	1,210	1,080	1,190
<b>Natural Features</b>				
Threatened and Endangered Species	Yes (#) / No	No	No	No
Species of Concern	Yes (#) / No	No	No	No
Wetlands	Acreage	167.7	114.3	116.0
Fill	Acreage	161.9	107.0	114.4
Bridge	Acreage	5.8	7.3	1.6
Wetland Quality	Value	1,205.2	768.1	729.3
Fill	Value	1,157.6	736.2	714.6
Bridge	Value	47.6	31.9	14.7
Streams				
Total Crossings	# of Crossings (Linear Feet)	15 (4,566)	24 (8,143)	24 (10,062)
Perennial	# (Linear Feet)	6 (1,666)	10 (3,778)	7 (3,555)
Intermittent	# (Linear Feet)	9 (2,900)	14 (4,365)	17 (6,507)
Water Quality				
Outstanding Resource Water	# of Crossings	0	0	0
303(d) Impaired (2006 Draft List)	# of Crossings	0	0	0
Habitat	Unique	No	No	No
Uplands (Fill Only)	Acreage	1,952.6	1,800.8	1,845.6
Floodplains	Acreage	64.0	25.0	23.0
<b>Man-Made Features</b>				
Hazardous Material Sites	#	1	1	2
Parks and Wildlife Refuges	Yes (#) / No	Auction Water - Hamlet	Auction Water - Hamlet	Auction Water - Hamlet & Red Bluff Grocery
Historical Structures	#	No	No	No
High Potential Area for Archaeological Sites	#	1 Visual Impact S-18 House	0	1 Direct Impact McLaurin House
Noise (R= Residential)	Acreage	993.0	804.9	1297.9
Farmland	#	6 R	3 R	2 R
Prime	Acreage	1,705	1,505	1,582
Unique	Acreage	824	805	961
Statewide Important	Acreage	0	0	0
Poultry Farm	Acreage	881	700	621
Hog Farm	#	0	0	1
	#	0	0	0
<b>Socioeconomic Issues</b>				
Community Impacts	#	7	8	6
Total Relocations	#	Aaron's Temple, Bennettsville, Blenheim, Brightsville, Chavistown, Hamlet, Salem	Adamsville, Bennettsville, Brightsville, Clio, Dunbar, Hamlet, Hebron, Newtonville	Adamsville, Bennettsville, Brightsville, Clio, Hamlet, Newtonville
Residential Relocations	#	71	41	40
Commercial Relocations	#	69	35	36
Environmental Justice	# of Block Groups	2	6	4
		7	8	10
Airports	#	0	0	0
Fire Stations	#	0	0	0
Schools	#	0	0	0
Churches	#	0	0	1
				Community House of Prayer
Cemeteries	#	0	0	0
Railroad Crossings	#	4	4	5
Gas Line Crossings	#	3	2	1



Alternatives were first evaluated against how well they addressed the Needs for the project. In that regard, the reasonable Build Alternatives were generally very similar, they all provided interstate connectivity, the traffic benefits were relatively similar, they all provided similar economic benefits, and they each provided for multimodal planning. Next, the reasonable Build Alternatives were evaluated based upon public input, agency concerns, as well as quantitative and qualitative benefits and impacts that would result from each of them. After careful consideration of all of these factors, a Preferred Alternative was identified.

### Key Point

**The FHWA and SCDOT refer to the alternative that best meets the proposed project's Purpose and Need, as well as minimizes potential impacts to the human and natural environments as the Preferred Alternative. The USACE utilizes the term Proposed Alternative to describe this alternative.**

#### 2.6.1 How would the reasonable Build Alternatives meet the primary Needs of the project?

There are three reasonable Build Alternatives and the No-build Alternative. The No-build Alternative does not satisfy the Purpose and Need for the project, but would avoid some of the impacts that the reasonable Build Alternatives would have. The No-build Alternative establishes a baseline condition against which the reasonable Build Alternatives can be compared. The Purpose of the project is to provide an interstate link between proposed I-73, I-95 and the Myrtle Beach Region, and the North Carolina I-73/I-74 Corridor to improve economic opportunities, access for tourism, improve safety of existing roadways, and provide multimodal planning. The No-build Alternative would not fulfill the Purpose of the project or any identified needs. At the same time, the changes of land use, impacts to wetlands, noise impacts anticipated from the reasonable Build Alternatives would not occur with the No-build Alternative.

##### *2.6.1.1 How do the reasonable Build Alternatives meet the primary Need of system linkage?*

It is essential that the project improve national and regional connectivity by providing a direct link between proposed I-73, from I-95 and the Myrtle Beach Region, and the I-73/I-74 Corridor in North Carolina. Each of the three reasonable Build Alternatives would provide the direct link stated as one of the project's primary Needs. This direct link would reduce the travel time between I-95 and I-74. As shown in Table 2.7 (refer to page 2-33), the travel times between I-95 and I-74 would decrease from between 5 to 20 minutes for the approximate 40 mile distance. A trip from I-95 to I-74, without I-73, would take approximately 45 to 50 minutes, whereas with I-73 the trip would take between 30 to 40 minutes. Alternative 1 would save an estimated 10 minutes per vehicle for an estimated 29,600 vehicles per day, while Alternatives 2 and 3 would save an estimated 15 minutes per vehicle for an estimated 33,100 and 32,800 vehicles per day, respectively. The travel efficiency improvement results in economic benefits to the users of the facility which are outlined in Table 2.8 (refer to page 2-33).



**Table 2.7**  
**Minimum Trip Time Between I-95 and I-74 in Year 2030**

	No-build Alternative	Alternative 1	Alternative 2 (Preferred)	Alternative 3
Minimum Travel Time (Minutes)	45-50	35-40	30-35	30-35
Average Annual Daily Traffic Volume (vehicles per day)	--	29,570	33,108	32,815

**Table 2.8**  
**Economic Impact Summary in 2030 from Travel Efficiencies\* (Alternatives compared to No build)**

Variable	Alternative 1	Alternative 2 (Preferred)	Alternative 3
Gross Regional Product (Millions of Dollars, 2007)	563	695	597
Personal Income (Millions of Dollars, 2007)	208	256	223
Total Employment (Permanent full-time)	606	787	668
Population	836	1,032	862

\*output from REMI model

*2.6.1.2 How do the reasonable Build Alternatives meet the primary Need of economic development?*

The other primary Need identified was the ability to enhance economic opportunities in South Carolina. In general, there are four categories of benefits that arise from transportation investments including:

- Travel Efficiencies: Benefits that accrue to potential facility users upon project completion. These are measured in terms of travel time savings, vehicle operating cost savings, accident savings and emission benefits.



- Construction Impacts: Impacts that arise as a result of the expenditures on local labor and materials to build the facility.
- Operating and Maintenance Impacts: Benefits that arise from the expenditures on local labor and supplies to operate and maintain the facility upon completion.
- Strategic Development Impacts: The economic development impacts associated with attracting and retaining business activity as a result of increased accessibility, mobility and connectivity.

An analysis was performed that examined two of sources of potential economic impacts arising from I-73: travel efficiencies and strategic development benefits. The economic impact evaluation involves the estimation of the nature and magnitude of potential transportation efficiency gains and an assessment of the strategic development economic impact.

### *Travel Efficiency*

The results are based on a forecast period between 2015 and 2035. These estimates represent only the economic impacts arising from travel efficiency savings and strategic development opportunities. They do not include benefits arising from construction and operations and maintenance impacts due to data limitations, as well as the short-term nature of construction benefits and the substitution effects related to operating and maintenance. It should be noted that the analysis of travel efficiency savings does not include Richmond County, North Carolina due to the lack of a traffic model for the area. Because the forecasts presented in this report represent only two categories of the above-listed benefits (travel efficiencies and strategic development impacts), the results of this study should be considered as conservative estimates.

The travel efficiency benefits arose as a result of savings accruing to users of the facility such as travel time savings, vehicle operating costs savings and accident savings. The Project Team used output generated by the travel demand model to model the economic impacts of travel changes using a regional economic model developed by Regional Economic Models Incorporated (REMI). This model estimated the economic impacts associated with travel efficiencies, i.e., reduced travel time, vehicle operating costs and other direct user benefits (refer to the *Economic Analysis Technical Memorandum*).

In general, Table 2.8 shows that all I-73 reasonable Build Alternatives yield substantial economic benefits arising from travel efficiencies. The impacts indicated for each reasonable Build Alternative are increases over the No-Build Alternative. The economic benefits from the increased travel efficiency would result in \$563 to \$695 million over a 15 year time period. Table 2.8 shows the changes for two economic indicators: gross regional product (GRP) and personal income. The GRP is the regional counter part of Gross Domestic Product at the national level that represents final products and services sold to domestic and international markets. It is



defined as the dollar value of all final goods and services that are produced within a given period of time.<sup>1</sup> The GRP includes such economic generators as employee compensation, commercial taxes, and property income. Among the three reasonable Build Alternatives, Alternative 2 potentially generates more benefits than the other reasonable Build Alternatives.

*Strategic Development*

The estimation of development benefits that arise as a result of improved accessibility and connectivity was derived using the Economic Development and Growth Evaluation (EDGE) model. The output of this model is the Strategic Development benefits that arise as a result of improving the accessibility and connectivity to regions which may currently be underserved. These benefits result from the ability of the new facility to generate more traffic as opposed to moving existing traffic more efficiently. Since access to the proposed interstate would be fully-controlled, interchanges were anticipated to be the main points of development. Existing water and sewer infrastructure, as well as current development, were determined to be features that would attract development. Table 2.9 presents the estimated GRP impact for each reasonable Build Alternative based on the area’s economic output. The GRP over the 20-year period is forecasted to range between about \$74.6 million (Alternative 1) and \$78.1 million (Alternative 3). Table 2.10 quantifies the projected employment impact from the reasonable Build Alternatives between 2015 and 2030. The product of the number of jobs and the industrial wage yields an increase in income ranging from \$27.3 million to \$30.5 million annually (refer to Table 2.11).

**Table 2.9**  
**Strategic Development GRP Impact from 2015 2035\***  
**(Alternatives compared to No build)**

	Alternative 1	Alternative 2 (Preferred)	Alternative 3
<b>Gross Regional Product (Millions of Dollars, 2007)</b>	74.6	76.4	78.1
*Output from EDGE model			

Table 2.12 (refer to page 2-37) displays the combined income and employment impacts for each of the three reasonable Build Alternatives. The impacts indicated for each reasonable Build Alternative are increases over the No-Build Alternative. As indicated, all reasonable Build Alternatives give rise to substantial economic benefits for the region. Alternative 2 would

<sup>1</sup> Merriam Webster , “Gross domestic product.” Referenced on June 6, 2007 from <http://www.merriam-webster.com>.



**Table 2.10**  
**Strategic Development Employment Increases by Alternative and County**  
**(permanent full time jobs)**

County	Alternative 1	Alternative 2 (Preferred)	Alternative 3
Dillon County, South Carolina	74	77	81
Marlboro County, South Carolina	356	386	326
Richmond County, North Carolina	95	95	95
<b>Total</b>	<b>525</b>	<b>558</b>	<b>502</b>

**Table 2.11**  
**Strategic Development Annual Income Increases by Alternative and County**  
**(millions of dollars)**

County	Alternative 1	Alternative 2 (Preferred)	Alternative 3
Dillon County, South Carolina	6.3	4.6	8.6
Marlboro County, South Carolina	21.1	21.4	20.6
Richmond County, North Carolina	1.3	1.3	1.3
<b>Total</b>	<b>28.7</b>	<b>27.3</b>	<b>30.5</b>

have the highest increase to annual personal income and higher benefits to the area for total employment. All reasonable Build Alternatives are projected to have a positive economic impact on the region, while the magnitude of that impact between alternatives is similar, Alternative 2 is slightly higher than the other alternatives. However, given the magnitude of the impacts relative to the overall area economy, the difference between the reasonable Build Alternatives is not enough to be the deciding factor in determining which reasonable Build Alternative is preferred.



**Table 2.12**  
**Economic Impact Summary in 2030 by Alternative**

	Alternative 1	Alternative 2 (Preferred)	Alternative 3
<b>Travel Efficiency</b>			
Personal Income (Millions of Dollars, 2007)	208	256	223
Total Employment (Permanent full-time)	606	787	668
<b>Strategic Development</b>			
Personal Income (Millions of Dollars, 2007)	28.7	27.3	30.5
Total Employment (Permanent full-time)	525	558	502
<b>Total</b>			
Personal Income (Millions of Dollars, 2007)	236.7	283.3	253.5
Total Employment (Permanent full-time)	1,131	1,345	1,170

2.6.2 How would the reasonable Build Alternatives meet the secondary Needs of the project?

*2.6.2.1 How would the reasonable Build Alternatives improve access for tourism?*

Improved access is often measured in terms of increased capacity or travel efficiency. One measure typically used to gauge the effectiveness of proposed roadway improvements is the volume to capacity ratio (V/C). The volume of current or projected traffic is compared with the capacity of a roadway or a system of roadways. The roadway network that was modeled for this project is not a congested network. That means that the traffic volume on the roadways in the network is below the capacity of the roadways. Thus, the V/C ratio would not measure the traffic benefits.

For this project, the traffic benefits result from increased efficiency in travel. To measure the effectiveness of the proposed facility to improve access for tourism, the Vehicle Hours Traveled



(VHT) for the average annual daily traffic (AADT) on the project study area roadway network was determined for each reasonable Build Alternative (refer to Table 2.13). For a congested network, the VHT should decrease with the addition of a new roadway facility.

The VHT for this project increased. This is because I-73 would induce more trips into the project study area, thus more vehicle hours of travel. These are vehicles that would alter travel routes to take advantage of the improved efficiency (shorter travel times) of I-73. The improved efficiency is demonstrated by the ratio of vehicle miles traveled (VMT) to VHT, shown in Table 2.13. This shows the average speed of each trip in the network within the study area increased. Although the difference between the highest speed (60.7) and the lowest (60.2) for the entire traffic network of the reasonable Build Alternatives is slight, the difference between the No-build (56.6) and the lowest of the reasonable Build Alternatives (60.2) demonstrates the increase in efficiency of travel. This results in a substantial savings, especially when evaluated in light of the number of miles per day traveled on the network.

**Table 2.13**  
**Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network for Alternatives using Average Annual Daily Traffic Volumes (Year 2030)**

Alternative	VMT	VHT	VMT/VHT
No-Build	3,381,078	59,698	56.6
1	4,062,263	67,430	60.2
2 (Preferred)	4,247,924	69,996	60.7
3	4,168,522	68,842	60.6

This impact on the local road network is even more evident when the I-73 trips are taken out of the calculations. The reduction in VMT and VHT without I-73 shows the amount of traffic taken off the rest of the network (reduction in vehicle hours traveled) because of I-73 (refer to Table 2.14, page 2-39). The influence of I-73 on travel speed is shown in the drop in the average network speeds with the I-73 trips removed.

The ability to reduce the time required to travel to a destination is a benefit to the traveling public, which includes tourist traffic.

*2.6.2.2 How would the reasonable Build Alternatives incorporate multimodal planning?*

Planning for future provision of a multimodal facility within the interstate corridor was identified as a secondary Need for the project. An ultimate 400-foot typical section was developed to accommodate the number of lanes needed for the future traffic volumes as well as a multimodal corridor (refer to Figure 1-4, page 1-6). Overpasses, interchanges, and access ramps would require modification when installing a future multimodal facility, such as rail. Bridges



**Table 2.14**  
**Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in Network for Alternatives using Average Annual Daily Traffic Volumes with I 73 Traffic Removed (Year 2030)**

Alternative	VMT	VHT	Difference from No-build		VMT/VHT
			VMT	VHT	
<b>No-Build</b>	3,381,078	59,698	--	--	56.6
<b>1</b>	2,874,387	49,633	-506,691	-10,065	57.9
<b>2 (Preferred)</b>	3,028,802	51,842	-352,276	-7,856	58.4
<b>3</b>	2,927,326	50,735	-453,752	-8,963	57.7

and overpasses would be retrofitted to accommodate the increased height and length that would be needed to meet installation criteria for rail, while the railroad would be designed out of the existing right-of-way at the interchanges. Alignment of the rail would pose additional challenges for access ramps and frontage roads.

In terms of multimodal planning, the reasonable Build Alternatives would have the ability to accommodate future facilities equally. Each of the three reasonable Build Alternatives would be primarily on new location, which would provide the most flexible design for installing future multimodal facilities due to the use of conventional interchanges.

### 2.6.3 How were the reasonable Build Alternatives compared in terms of human and environmental impacts?

Each of the reasonable Build Alternatives would have different types of impacts and somewhat different benefits. Chapter 3 provides the details for the potential impacts associated with each of the reasonable Build Alternatives, including the No-build. Indirect and cumulative impacts for the reasonable Build Alternatives were evaluated and had similar impacts for each category evaluated (refer to Chapter 3).

Guidelines established by the USEPA and the USACE pursuant to Section 404(b)(1) of the *Clean Water Act* were followed during the development of each of the reasonable Build Alternatives. No practicable alternative exists that would avoid wetland impacts yet satisfy the Purpose and Need for the project. This is due to the fact that the project is a linear transportation project that would traverse a relatively long distance (approximately 40 miles) across a landscape in which wetlands and streams are abundant. In some cases they are present as unavoidable linear features that cross



the entire project study area in an orientation that is perpendicular to the path of the reasonable Build Alternatives (i.e. the Crooked Creek System and the Three Creeks System). The methodology that was utilized to develop the reasonable Build Alternatives placed greater importance on avoidance of wetland impacts than on avoidance of any other single impact category. The project has been designed and would be constructed in such a way that it would be in conformance with applicable State and Federal laws and regulations. A plan for mitigating unavoidable wetland impacts has been developed that will replace impacted wetlands so that there will be no net loss in wetland function or value as a result of the project (refer to Chapter 3, Section 3.12.10, beginning on page 3-177). This mitigation plan has been developed in close coordination with interested State and Federal resource and regulatory agencies.

#### 2.6.4 How have the USACE Public Interest Review Factors been addressed?

As discussed in Chapter 1, section 1.2.2.2, page 1-10, the USACE's Public Interest Factors were also used to evaluate the potential impacts upon the Waters of the United States and how this impact would affect the interests of the public. Many of the USACE's Public Interest Factors were quantified and compared during the designation of preliminary Build Alternatives and reasonable Build Alternatives, including; wetlands, historic properties, fish and wildlife, floodplains, land use, recreation, water supply, water quality, food and fiber production (farmland), and considerations of property ownership (relocations) refer to Table 2.4 and Table 2.6 on pages 2-18 and 2-31 respectively. For more details regarding any of the Public Interest Review Factors, refer to the sections detailed in Table 2.15 (refer to page 2-41).

The guidance provided by the USACE entitled *Environmental Assessment, 404(B)(1) Analysis, Finding of No Significant Impact (FONSI), and Statement of Findings* explains aesthetics as to whether the project "generally fit(s) the current state of the area," whether the "project is a 'first', (as) it could cause disharmony from aerial or adjacent property view," and in terms of landscaping. The land use of the project study area is primarily rural in character, dotted with small towns and cities such as Bennettsville, Blenheim, Clio, McColl, and Tatum. The construction of any reasonable Build Alternative would alter the current state of the area as it would be the first multi-lane controlled access facility in the area. It is anticipated that the adjacent property would have an altered view, as the proposed facility may be in view.

The remaining factors of shore erosion and accretion, as well as flood hazards (i.e. hurricane evacuation) would not be impacted by the project. The project would not be located in the vicinity of the ocean shore.



**Table 2.15**  
**USACE Public Interest Review Factors**

Public Interest Review Factor	Reference
Conservation	Chapter 3, Section, 3.12.12, page 3-180
Economics	Chapter 1, Section 1.3.4, page 1-13 & Chapter 3, Section 3.1.11, page 3-18 & Chapter 3, Section 3.3, page 3-89
Aesthetics	Refer to explanation below and on page 2-42 & Chapter 3, Section 3.2, page 3-26
General Environmental Concerns	Chapter 3, Section 3.7, page 3-111
Wetlands	Chapter 3, Section 3.12, page 3-160
Historic Properties	Chapter 3, Section 3.6, page 3-104
Fish and Wildlife	Chapter 3, Section 3.12, page 3-160 and Section 3.14, page 3-193, & Section 3.15, page 3-212
Flood Hazards	Chapter 3, Section 3.18, page 3-262
Floodplains	Chapter 3, Section 3.18, page 3-262
Land Use	Chapter 3, Section 3.1, page 3-1
Navigation	Not Impacted by Proposed Project
Shore Erosion and Accretion	Not Impacted by Proposed Project
Recreation	Chapter 3, Section 3.4, page 3-101 and Section 3.5, page 3-103, & Section 3.19, page 3-267
Water Supply	Chapter 3, Section 3.16, page 3-238 & Section 3.17, page 3-242
Water Quality	Chapter 3, Section 3.16, page 3-238 & Section 3.17, page 3-242
Energy Needs	Chapter 3, Section 3.20.2, page 3-269
Safety	Chapter 1, Section 1.3.6, page 1-30
Food and Fiber Production	Chapter 3, Section 3.10, page 3-137
Mineral Needs	Chapter 3, Section 3.22, page 3-272
Considerations of Property Ownership	Chapter 3, Section 3.2, page 3-26

### 2.6.5 How would the reasonable Build Alternatives compare in terms of human and environmental impacts?

All of the reasonable Build Alternatives satisfied the Purpose and Needs for the project. System linkage and multimodal planning would be provided by any of the reasonable Build Alternatives. As previously indicated, all alternatives give rise to substantial economic benefits for the region. Alternative 2 would have the highest increase to annual personal income and higher benefits to the area for total employment. However, this variability was not enough to be the deciding factor in determining the Preferred Alternative.



Induced impacts for several categories were also looked at between the reasonable Build Alternatives. Potential land use, wildlife habitat, wetlands, streams, water quality impacts were all areas that showed very little differentiation between the alternatives. In fact, based upon past and current growth trends, the No-Build Alternative, which served as a baseline for future impacts, showed substantially more land use impacts than did any of the reasonable Build Alternatives by themselves. The categories that served to distinguish the alternatives from one another were natural resource related (wetlands, streams, and farmland) and human resource related (communities, public input, and cost).

### 2.6.5.1 *Alternative 1*

Alternative 1 is approximately 40.6 miles in length, the longest of three reasonable Build Alternatives (3.8 miles longer than the Preferred Alternative) (refer to Figure 2-10). This alternative would have 167.7 acres of wetland impacts, over 50 acres more than the Preferred Alternative, and the wetlands potentially impacted have the highest value rating (1,205.2). Alternative 1 would have the most total relocations (71), 30 additional than the Preferred Alternative. It would have the highest cost (\$1.21 billion, year 2012) over \$130 million more than the Preferred Alternative. It would impact the greatest amount of total farmland (1,705 acres), approximately 200 acres more than the Preferred Alternative and would impact 824 acres of prime farmland. It would have 15 stream crossings impacting an estimated 4,566 linear feet of streams, which is the least amount of all the reasonable Build Alternatives. It would impact 39 additional acres of floodplain than the Preferred Alternative. It would cross major stream/wetland systems such as Little Reedy Creek, Three Creeks, Muddy Creek, Crooked Creek, and Herndon Branch. It would also impact approximately 914.3 acres of wildlife habitat (refer to Appendix C, page C-122). The USFWS and SCDNR expressed concern that Alternative 1 crosses major stream/wetland systems and could have a potential for more habitat fragmentation than the other reasonable Build Alternatives.



Figure 2-10 Alternative 1

This alternative would provide better access to the Marlboro County Industrial Park, Chesterfield and Darlington Counties than the other reasonable Build Alternatives. Since it is located adjacent to Bennettsville, existing infrastructure would be available for economic development. The SCDOC supported Alternative 1 due to its location near Bennettsville and available infrastructure.



However, the close proximity of the alternative to the Marlboro County Airport could limit future expansion of the facility. Alternative 1 is located closer to the floodplain of the Great Pee Dee River that may encourage development in the floodplain, which was a concern of the USFWS and SCDNR.

The citizens of Minturn submitted a petition with 106 signatures (refer to *Public Involvement Technical Memorandum*) requesting that this route, the far western route, be selected as the Preferred Alternative. Other comments were received from local governments adjacent to the project study area. Chesterfield County Council, Chesterfield Town Council, Cheraw Town Council, and Society Hill Town Council all passed resolutions endorsing the western route of Alternative 1 (refer to Chapter 4, Section 4.5, page 4-10).

Based upon coordination with the State Historic Preservation Office (SHPO), this alternative would also be expected to have the potential for negative visual impacts to a home located on S-18 on the southern side of Bennettsville (refer to Appendix C, page C-71). In addition, SCDAH stated that Alternative 1 and Alternative 3 had the most potential for impacts to historic structures.

#### 2.6.5.2 Alternative 2

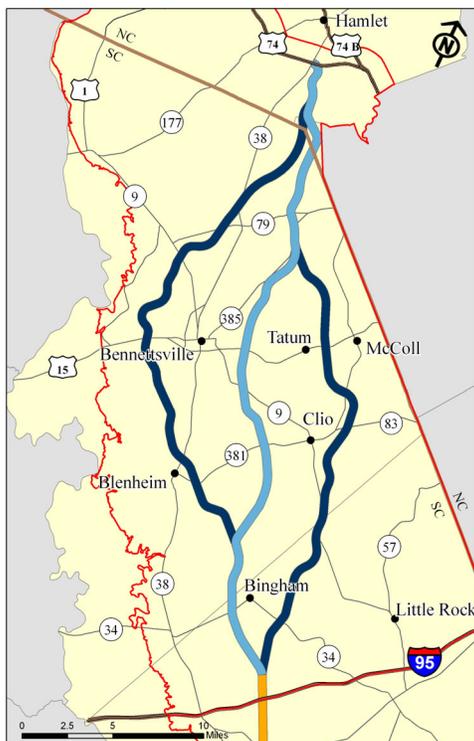


Figure 2-11 Alternative 2

Alternative 2 is approximately 36.8 miles in length, the shortest of three reasonable Build Alternatives (refer to Figure 2-11). This alternative would have the least amount of wetland impacts (114.3 acres), the least amount of total farmland (1,505 acres), and the least amount of prime farmland (805 acres), and low total relocations (41). It would have the least cost (\$1.08 billion, year 2012) and would have 24 stream crossings impacting 8,143 linear feet of streams. It would impact 25 acres of floodplain due to its crossing stream/wetland systems such as Little Reedy Creek, Hagins Prong, Cottingham Creek, and Beverly Creek. This alternative would also cross Crooked Creek in the northern portion of the project study area, but would avoid a second, wider, crossing of the Crooked Creek system north of Bennettsville. It would also impact approximately 869.3 acres of wildlife habitat.

This alternative is located adjacent to Bennettsville on the east side and has existing infrastructure available for economic development. In addition, it is centrally located within the project study area to more equally serve the population centers of Bennettsville, Tatum, Blenheim, and Clio. The SCDOC supported Alternative 2 due to its location near Bennettsville and available infrastructure.



The citizens of Minturn, along with their petition (refer to *Public Involvement Technical Memorandum*) requesting that the far western route be selected as the Preferred Alternative, stated that Alternative 2 was unanimously endorsed if the far western route was not chosen. The City of Bennettsville and the Town of Blenheim submitted letters from their respective mayors unanimously supporting the central route, Alternative 2 (refer to Chapter 4, Section 4.7, page 4-8).

### 2.6.5.3 Alternative 3

Alternative 3 is approximately 37.2 miles in length (0.4 miles longer than the Preferred Alternative) (refer to Figure 2-12). The proposed alternative would have 116.0 acres of wetland impacts, only 1.7 acres more than the Preferred Alternative, and the wetlands potentially impacted have the lowest value rating (729.3). Although Alternative 3 would have the fewest relocations (40), it would impact the Red Bluff Grocery, located at the intersection of S.C. Route 83 and State Road 40, and the Community House of Prayer located on S.C. Route 34. Both of these facilities are considered to be important community assets and would result in a negative effect on each associated community. In addition, the property associated with the McLaurin House, which is listed on the NRHP (refer to Appendix C, page C-71), would be impacted by Alternative 3, due to avoidance of wetlands on both sides of the farm. This property includes four poultry barns that would require relocation as an additional cost to the project.

Alternative 3 would have a high cost similar to Alternative 1 (\$1.19 billion, year 2012) over \$100 million more than the Preferred Alternative. It would impact the 1,582 acres total farmland, the highest amount of prime farmland (961 acres), which is 156 acres more than the Preferred Alternative. It would have 24 stream crossings impacting the 10,062 linear feet of streams, which is 1,919 linear feet more than the Preferred Alternative and the highest amount of all the reasonable Build Alternatives. It would have the least impact to floodplains (23 acres) and would also impact approximately 668.4 acres of wildlife habitat. Alternative 3 would cross the stream/wetland systems of Little Reedy Creek, Reedy Creek, Beverly Creek, and Crooked Creek. Alternative 3 would be located over five miles from Bennettsville, therefore existing infrastructure would not be readily available for economic development.

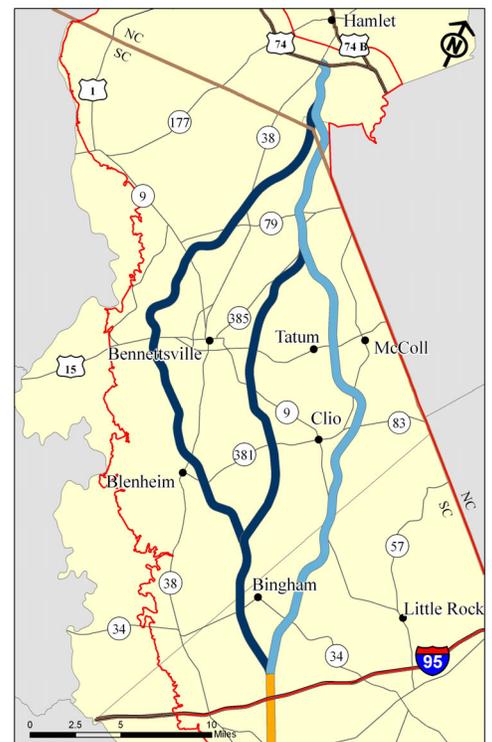


Figure 2-12 Alternative 3



The citizens of Minturn submitted a petition with 106 signatures (refer to *Public Involvement Technical Memorandum*) requesting that this route, the far eastern route, not be selected as the Preferred Alternative. Other comments were received from the members of the ACT including:

- USDA NRCS did not support the potential impact of Alternative 3 to the poultry operation associated with the McLaurin House;
- SCDOC stated that Alternative 3 would have the least potential for economic development due to its location and that a major investment would be necessary to upgrade and install the infrastructure needed to attract economic development;
- SCDAH stated that Alternative 1 and Alternative 3 had the most potential for indirect impacts to historic structures; and,
- SCDNR stated concern about the crossing of Reedy Creek by Alternative 3, while the other reasonable Build Alternatives did not impact Reedy Creek.

#### 2.6.6 Which reasonable Build Alternative was designated as the Preferred Alternative?

As discussed previously, each of the reasonable Build Alternatives would equally meet the primary Needs of the project by providing a the direct link between future I-73 South (from I-95 to the Myrtle Beach area) and the I-73/I-74 Corridor in North Carolina, while providing economic development opportunities. The secondary Needs of the project, improved access for tourism, increased safety on existing roads, and multimodal planning, would be met by all of the reasonable Build Alternatives. The reasonable Build Alternatives were then compared based upon public input, agency concerns, potential impacts to the human and natural environment, and qualitative benefits and impacts that would result from each of them. After careful consideration of all of these factors, a Preferred Alternative was identified.

Alternative 2 is the Preferred Alternative because it would have the least amount of wetland impacts (114.3 acres), the least impact to total farmland (1,505 acres), the least impact to prime farmland (805 acres), the lowest cost, low relocations, would not directly affect any known historic resources, be in close proximity to existing infrastructure, would be centrally located to serve the communities of the project study area more equally, and is supported by agencies, local governments, and the public. The three reasonable Build Alternatives all have some features that are favorable and advantageous, but when compared with Alternative 2, the other reasonable Build Alternatives were less suitable.

Alternative 1 would have the highest wetland impacts (167.7 acres), the highest cost (\$1.21 billion), the most relocations (71), the highest impact to farmland (1,705 acres), the most floodplain impacts (64 acres), and would potentially have a visual impact to a historic home located on S-18. Concerns were expressed by USFWS and SCDNR concerning the crossing of major wetland systems and the potential for habitat fragmentation that would be caused by Alternative 1. At public meetings



many people spoke against Alternative 1 due to the potentially detrimental impacts to farming operations in the area.

Alternative 3 would have the highest linear feet of stream impact (10,062), the greatest impact to prime farmland (961 acres), would impact the property associated with the McLaurin House that listed on the NRHP resulting in a Section 4(f) impact, would impact a poultry operation, the Red Bluff Grocery, the Community House of Prayer, and would be removed from existing infrastructure that would limit potential future economic development. Concerns were expressed by SCDOC regarding Alternative 3 based on its distance from available infrastructure.

### Key Point

**Chapter 3 will discuss the potential impacts of the three reasonable Build Alternatives, hereinafter referred to as the Build Alternatives, in further detail.**

## 2.7 What happened after the designation of the Preferred Alternative?

Following the designation of the Preferred Alternative, the Draft EIS was approved by FHWA and SCDOT on July 19, 2007. SCDOT announced the availability of the Draft EIS for review and set the dates of the Public Hearings. The approved Draft EIS was sent to each of the 10 public libraries within the project study area, the four County Administrator's offices, and federal and state agencies. The project website was updated to include maps of the Preferred Alternative, a copy of the Draft EIS, a copy of the associated Technical Memoranda, and the Public Hearing information. In addition, a Notice of Availability was published in the Federal Register on August 3, 2007.

### 2.7.1 How was the public involved after the designation of the Preferred Alternative?

Two Public Hearings were held to present the Preferred Alternative (refer to Chapter 4, Section 4.1.3, page 4-4, for a detailed discussion). The alignment centerline and approximate right-of-way limits of the Preferred Alternative were presented on large scale aerial mapping that included affected parcel boundaries. The other two Reasonable Alternatives were also shown for comparison purposes.

The first Public Hearing was held at Bennettsville High School in Bennettsville, South Carolina, on August 14, 2007, with 322 people attending. Fifty-one written comments were received at the meeting and 26 people participated in the formal hearing portion of the meeting. Each person was given two minutes to address the FHWA, SCDOT, and the others in attendance. One hundred and thirty-two people attended the second Public Hearing that was held in Hamlet, North Carolina, at the Richmond Community College on August 28, 2007. Twelve written comments were received and five people spoke during the formal portion of the meeting. A court reporter recorded the proceedings of both Public Hearings.

After the Public Hearings, 22 additional written comments were received during the Public Hearing comment period. Each written comment was reviewed by the Project Team, as were the comments