



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

June 29, 2007

MEMORANDUM

TO: Mr. Calvin W. Leggett, P.E.  
Manager, Program Development Branch

FROM: Mr. Derrick W. Lewis, P.E.  
Feasibility Studies Unit Head 

SUBJECT: R-3436 – Proposed Interstate 74 Route  
From SR 1585 in Whiteville to the South Carolina state line  
Columbus and Brunswick Counties

As requested, we have updated the cost estimates for the R-3436 study originally completed on August 25, 2005. This study reevaluated the proposed routing of Interstate 74 from Whiteville in Columbus County to the North Carolina state line in Brunswick County. The study has three basic segments: Section 1 along existing US 74-76, Sections 2 and 3 along NC 211 through Columbus and Brunswick Counties, and Sections 4, 5, and 6 along US 17 to the North Carolina state line. The total lengths of the study alternatives through North Carolina vary from 63 to 66 miles. The proposed typical section is a four-lane divided interstate freeway with full control-of-access and service roads within a minimum state maintained right-of-way of 350 feet.

The primary purpose of this memorandum is to incorporate the findings of the recently completed Carolina Bays Parkway Extension (CBPE) study through Sections 5 and 6 (from NC 904 to the state line). The lengths of the CBPE alternatives through Sections 5 and 6 vary from 7 to 9 miles. An updated tabular breakdown of sections, alternatives, right of way information and costs can be found on page 5. The alternatives included in this update are described below. The Project Study Map and CBPE Sheets 3 and 4 have been updated and attached for your reference. A potential Northern Connector from NC 211 to US 17 north of Supply has been included on the maps for your reference.

**Section 4 – Proposed I-74 Route from north of Supply to NC 904.** Updated R-3436 costs have prompted a reassessment of the Section 4 alternative. Originally, the R-3436 study recommended Alternative C in Section 4, which is primarily a new location alternative north of US 17 that utilizes part of the existing US 17 Shallotte Bypass. A second alternative, Alternative B, which has also been shown on the updated maps, is entirely on new location north of US 17. In addition, Alternative B is now being considered for study by the North Carolina Turnpike Authority (NCTA). Both alternatives end approximately 1 mile north of US 17 on NC 904. Although the initial study recommended Section 4 Alternative C, continued rapid development

between Supply and the state line has greatly increased costs associated with Section 4 Alternative C. Due to these considerations, the recommended alternative for this update of the R-3436 study is now **Section 4 Alternative B**.

A **Northern Connector** from existing US 17 north of Supply to the Section 4 alternative is included in this update. Associated costs and information are listed in the Northern Connector Data Table on page 5. Please also refer to the attached Project Study Map and Sheet 3 of the CBPE update.

**Sections 5 and 6 – Proposed I-74 Route from NC 904 to the South Carolina state line.** Sections 5 and 6 will be combined into one section for this update. The CBPE study recommended further study of three alternatives; Alternatives B, D and E shown on Sheet 4 of the CBPE update. Each of the recommended CBPE alternatives begins at the existing intersection of US 17 and NC 904 and continues along US 17 towards the South Carolina state line.

CBPE Alternative B travels north of Brunswick Plantation and crosses the state line on new location near SR1303 (Hickman Road) and is the longest alternative. CBPE Alternative D travels along existing US 17 and crosses the state line on new location between SR1303 and US 17. CBPE Alternative E takes a southern new location route that crosses the state line at the same location as CBPE Alternative D. Section improvements include installation of a North Carolina welcome center located near the South Carolina state line.

Since the initial R-3436 study recommended a new location alternative that does not travel along existing US 17, new connectors to the CBPE alternatives are needed to provide a continuous interstate route. CBPE Alternative B requires an additional 2.9-mile segment (CBPE Alt. B Connector) to the R-3436 recommended alternative. The Alt. B Connector includes the construction of a three-leg interchange with CBPE Alternative B. The connection between existing US 17 and Proposed I-74 will remain. It is anticipated that **CBPE – Alternative B** improvements will require the relocation of twenty-seven (27) residences and three (3) businesses. The total cost, including construction and right-of-way, is estimated to be **\$ 192,500,000**.

<b>CBPE – ALT. B</b>	Highway	Connector	Welcome Ctr.	Section Cost
Construction.....	\$ 125,000,000	\$ 27,200,000	\$ 5,200,000	\$ 157,400,000
Right-of-way.....	\$ 25,300,000	\$ 2,600,000	\$ 7,200,000	\$ 35,100,000
Subtotal .....	\$ 150,300,000	\$ 29,800,000	\$ 12,400,000	\$ 192,500,000

CBPE Alternative D requires a new 1.9-mile segment (CBPE Alt. D Connector). The Alt. D Connector includes the construction of a three-leg interchange on US 17. It is anticipated that **CBPE – Alternative D** improvements will require the relocation of eighty (80) residences and twelve (12) businesses. The total cost, including construction and right-of-way, is estimated to be **\$ 282,500,000**.

<b>CBPE – ALT. D</b>	Highway	Connector	Welcome Ctr.	Section Cost
Construction.....	\$ 93,000,000	\$ 24,500,000	\$ 5,200,000	\$ 122,700,000
Right-of-way.....	\$ 138,600,000	\$ 14,000,000	\$ 7,200,000	\$ 159,800,000
Subtotal .....	\$ 231,600,000	\$ 38,500,000	\$ 12,400,000	\$ 282,500,000

CBPE Alternative E requires a new 1.9-mile segment (CBPE Alt. E Connector). The Alt. E Connector includes replacing the three-leg interchange on US 17 with a diamond interchange. It is anticipated that **CBPE – Alternative E** improvements will require the relocation of **three** hundred fifty-six (356) residences (within existing and proposed communities) and one (1) business. The total cost, including construction and right-of-way, is estimated to be **\$ 260,600,000**.

<b>CBPE – ALT. E</b>	Highway	Connector	Welcome Ctr.	Section Cost
Construction.....	\$ 106,000,000	\$ 14,800,000	\$ 5,200,000	\$ 126,000,000
Right-of-way.....	\$ 112,400,000	\$ 15,000,000	\$ 7,200,000	\$ 134,600,000
Subtotal .....	\$ 218,400,000	\$ 29,800,000	\$ 12,400,000	\$ 260,600,000

Based on cost, functionality, human and natural environment impacts, and the CBPE Alternatives Impact Matrix, **CBPE – Alternative B** is the recommended alternative in Sections 5 and 6 of the R-3436 study. Please refer to the attached Alternatives Impact Matrix from the 2006 CBPE feasibility study report. The Project Recommendations Tables on page 5 show tabular breakdowns of sections, alternatives, right of way information, and costs. The total cost for the recommended alternative for all sections of the R-3436 project is shown below:

Construction.....	\$ 607,000,000
Right-of-way.....	\$ 77,800,000
<b>Total Project Cost.....</b>	<b>\$ 684,800,000</b>

If the Northern Connector is built in conjunction with this project then the total cost would be:

Construction.....	\$ 647,000,000
Right-of-way.....	\$ 87,700,000
<b>Total Project Cost.....</b>	<b>\$ 734,700,000</b>

This work is preliminary and not the product of comprehensive environmental or design evaluations. However, an environmental screening did result in likely occurrences of threatened or endangered species, wetland impacts, and impacts to planned developments. Coordination with adjacent projects and planned development will be critical to a successful corridor alignment and should be maintained throughout the subsequent phases of this project. There are many residential and commercial developments planned along the Brunswick County portion of this corridor. One such development is the Coastal Events Center recently being planned near the NC 211 and SR 1343 intersection (see CBPE Sheet 3). The corridor will need to be adjusted in subsequent design stages to reduce or eliminate impacts to this events center.

Copies of the R-3436 reevaluation study and the Carolina Bays Parkway study reports can be obtained from the NCDOT Transportation Planning website at <http://www.ncdot.org/doh/preconstruct/tpb/SHC/studies/>.

If you should have further questions or additional information is needed, please do not hesitate to contact me at 733-2039 x 351, or via e-mail at [nmhackler@dot.state.nc.us](mailto:nmhackler@dot.state.nc.us).

ATT: Updated R-3436 Project Recommendations Tables  
Updated Project Study Map  
Updated CBPE Sheets 3 and 4  
CBPE Alternatives Impact Matrix

CC: Lanny T. Wilson, Division 3 Member – Board of Transportation,  
D. M. Campbell, Jr., Division 6 Member – Board of Transportation  
H. Allen Pope, Division 3 Engineer  
Terry Gibson, Division 6 Engineer  
Tyler Bray, Cape Fear Council of Governments (RPO)  
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Jay Bennett, State Roadway Design Engineer  
Greg Thorpe, PDEA Branch Manager  
BenJetta Johnson, Congestion Management  
Fred Barkley, Right of Way  
Doug Lane, Project Services  
David Wasserman, Transportation Planning – Systems  
Gail Grimes, NC Turnpike Authority

## R-3436 Project Recommendations Tables

The following table shows the associated lengths, residential and business relocations, qualitative environmental impacts, and costs for each of the section alignments studied in this report.

SECTION DATA TABLE								
SECTION	1	2B	3B	4B	4C	SECTION 5 & 6		
						CBPE B	CBPE D	CBPE E
Length (Miles)	19.2	10.3	11.3	15.5	16.3	8.2	7.2	7.3
Res./Bus. Relocateses	26 / 0	4 / 0	0 / 0	20 / 2	53 / 3	27 / 3	80 / 12	356 / 1
Environ. Impact	low	moderate	low	low	moderate	moderate	high	high
Constr. Cost*	\$86.30	\$100.00	\$104.00	\$159.30	\$164.00	\$157.40	\$122.70	\$126.00
R/W Cost*	\$17.60	\$6.80	\$3.20	\$15.10	\$45.20	\$35.10	\$159.80	\$134.60
Section Cost*	\$103.90	\$106.80	\$107.20	\$174.40	\$209.20	\$192.50	\$282.50	\$260.60

NORTHERN CONNECTOR DATA TABLE	
Length (Miles)	3.5
Res./Bus. Relocateses	22 / 1
Environ. Impact	low
Constr. Cost*	\$40.00
R/W Cost*	\$9.90
Section Cost*	\$49.90

\* Costs listed in millions of dollars.

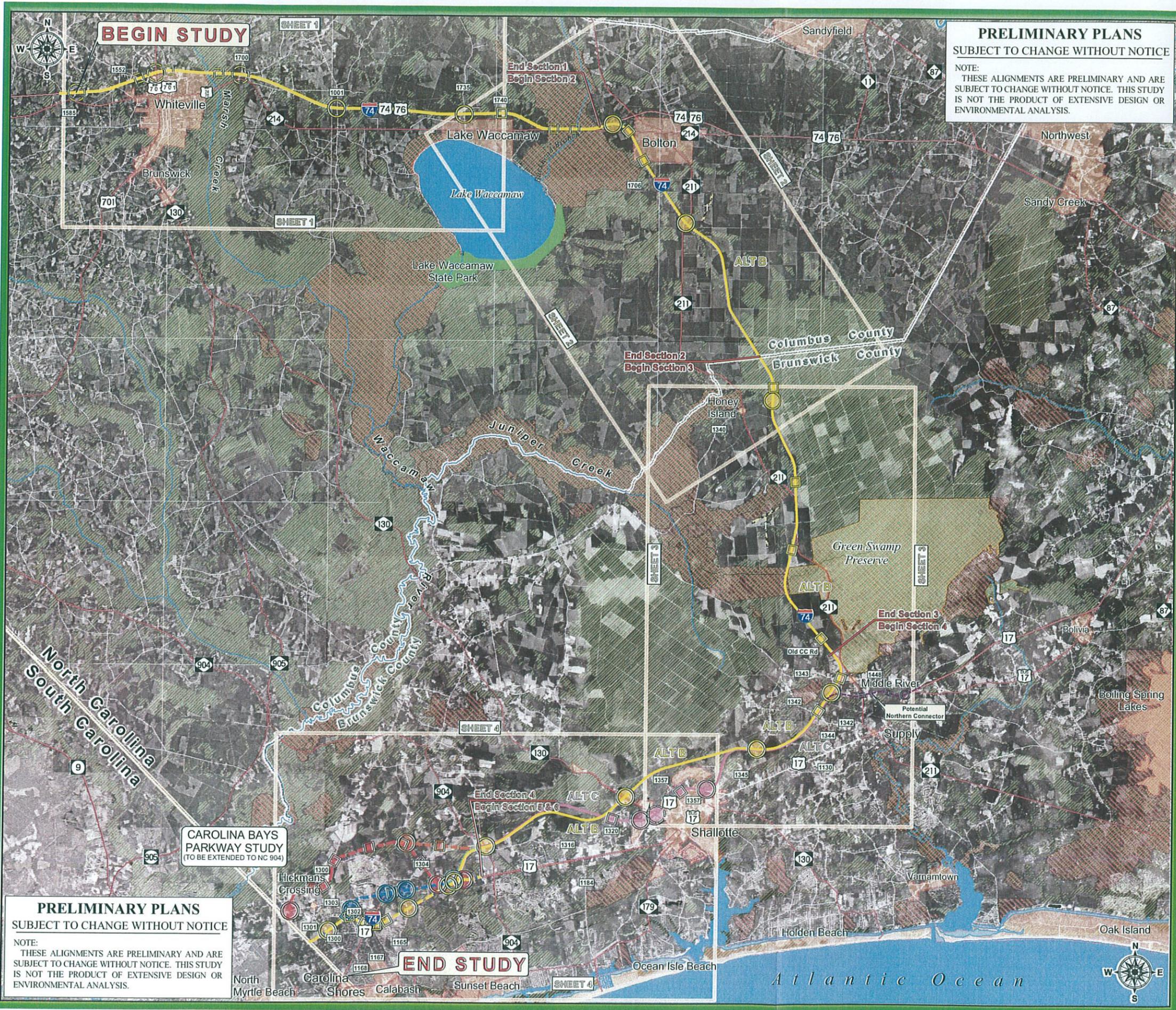
CBPE = Carolina Bays Parkway Extension alternative + R-3436 connector

The following table shows all feasible alignment combinations and their associated data.

FEASIBLE ALIGNMENT COMBINATIONS TABLE											
1	2B	3B	4B	4C	SECTION 5 & 6			Res./Bus. Relocateses	Environ. Impact	Length (Miles)	Total Cost*
					CBPE B	CBPE D	CBPE E				
X	X	X	X		X			77 / 5	low	64.5	\$684.80
X	X	X	X			X		130 / 14	moderate	63.5	\$774.80
X	X	X	X				X	406 / 3	moderate	63.6	\$752.90
X	X	X		X	X			110 / 6	low	65.3	\$719.60
X	X	X		X		X		163 / 15	moderate	64.3	\$809.60
X	X	X		X			X	439 / 4	moderate	64.4	\$787.70

\* Costs listed in millions of dollars.

Alternative recommended for further study.

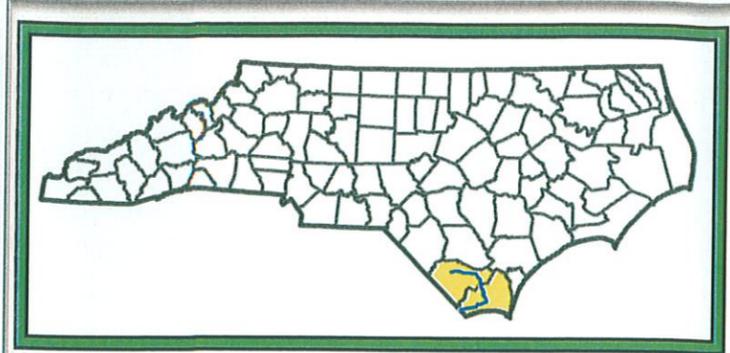


**PRELIMINARY PLANS**  
 SUBJECT TO CHANGE WITHOUT NOTICE

NOTE:  
 THESE ALIGNMENTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE WITHOUT NOTICE. THIS STUDY IS NOT THE PRODUCT OF EXTENSIVE DESIGN OR ENVIRONMENTAL ANALYSIS.

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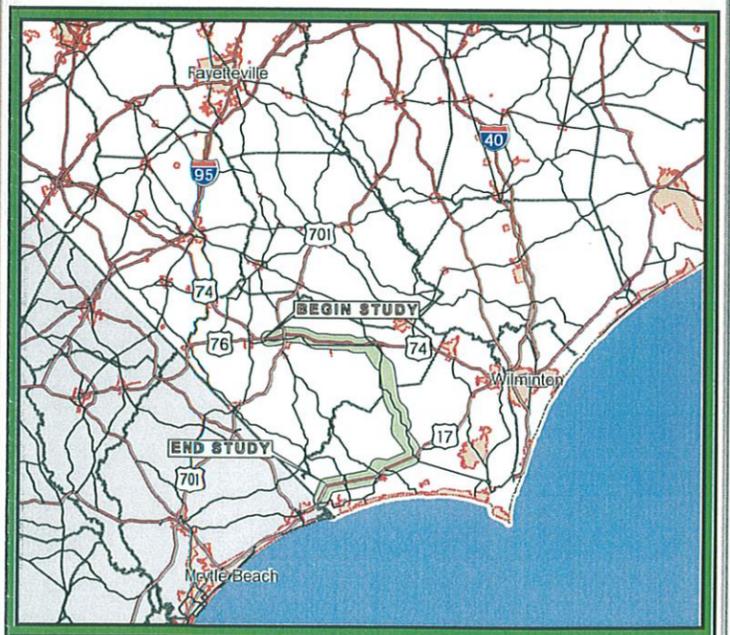
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**LEGEND**

	PROPOSED ALTERNATIVES		MUNICIPAL BOUNDARY
	CAROLINA BAYS PARKWAY STUDY		WATER FEATURES
	EXISTING GRADE SEPARATION (OVER ROADWAY OR WATER)		NWI WETLANDS
	PROPOSED GRADE SEPARATION		NATURAL AREAS
	EXISTING INTERCHANGE		GREEN SWAMP PRESERVE
	PROPOSED INTERCHANGE		STATE PARKS
	PRIVATE AIRFIELD		COUNTY BOUNDARY
	HIGHWAYS		STATE BOUNDARY
	RIVERS AND STREAMS		

0 2 4 6 8 10 Miles

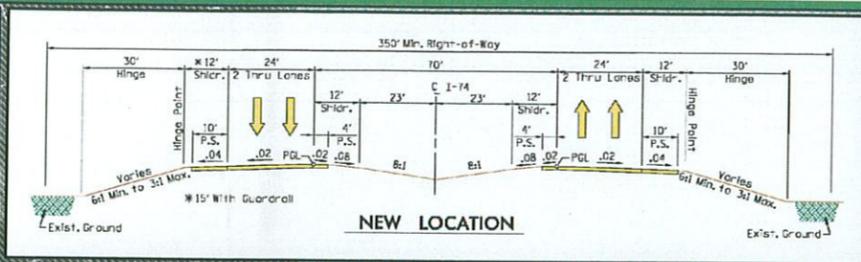
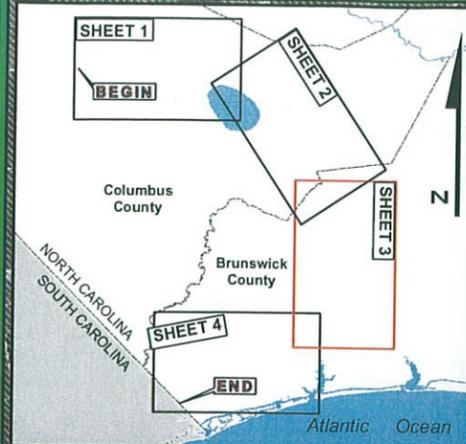


**NCDOT FEASIBILITY STUDY**  
 R-3436

**I-74 FROM SR 1585 IN WHITEVILLE TO SOUTH CAROLINA STATE LINE**

PROJECT STUDY MAP      TOTAL PROJECT LENGTH: 65 MILES

	RUMMEL, KLEPPER & KAHL, LLP	PROGRAM DEVELOPMENT BRANCH
	consulting engineers	N.C. DEPARTMENT OF TRANSPORTATION
	RALEIGH, NORTH CAROLINA	P.O. BOX 25201
		RALEIGH, NC 27611



**LEGEND**

	PROPOSED ALTERNATIVES		MUNICIPAL BOUNDARY
	CAROLINA BAYS PARKWAY STUDY		WATER FEATURES
	EXISTING GRADE SEPARATION (OVER ROADWAY OR WATER)		NWI WETLANDS
	PROPOSED GRADE SEPARATION		NATURAL AREAS
	EXISTING INTERCHANGE		GREEN SWAMP PRESERVE
	PROPOSED INTERCHANGE		STATE PARKS
	PRIVATE AIRFIELD		COUNTY BOUNDARY
	HIGHWAYS		STATE BOUNDARY
	RIVERS AND STREAMS		NATURAL HERITAGE ELEMENT OCCURRENCES (ENDANGERED SPECIES)
	PLANT SPECIES		SPECIES HABITAT
	ANIMAL SPECIES		NATURAL COMMUNITY



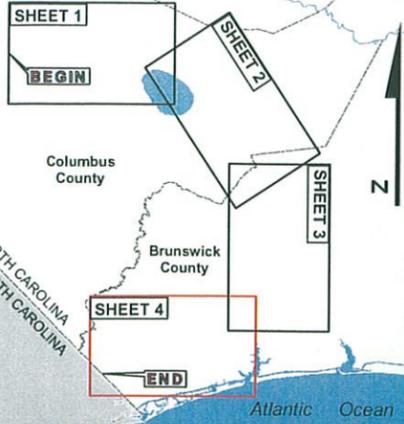
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**NCDOT FEASIBILITY STUDY**  
 R-3436  
**I-74 FROM SR 1585 IN WHITEVILLE TO SOUTH CAROLINA STATE LINE**  
 SHEET 3 OF 4 TOTAL PROJECT LENGTH: 65 MILES

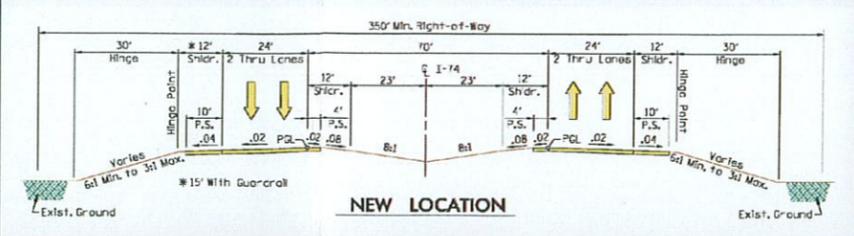
**RK & K** RUMMEL, KLEPPER & KAHL, LLP  
 consulting engineers  
 RALEIGH NORTH CAROLINA

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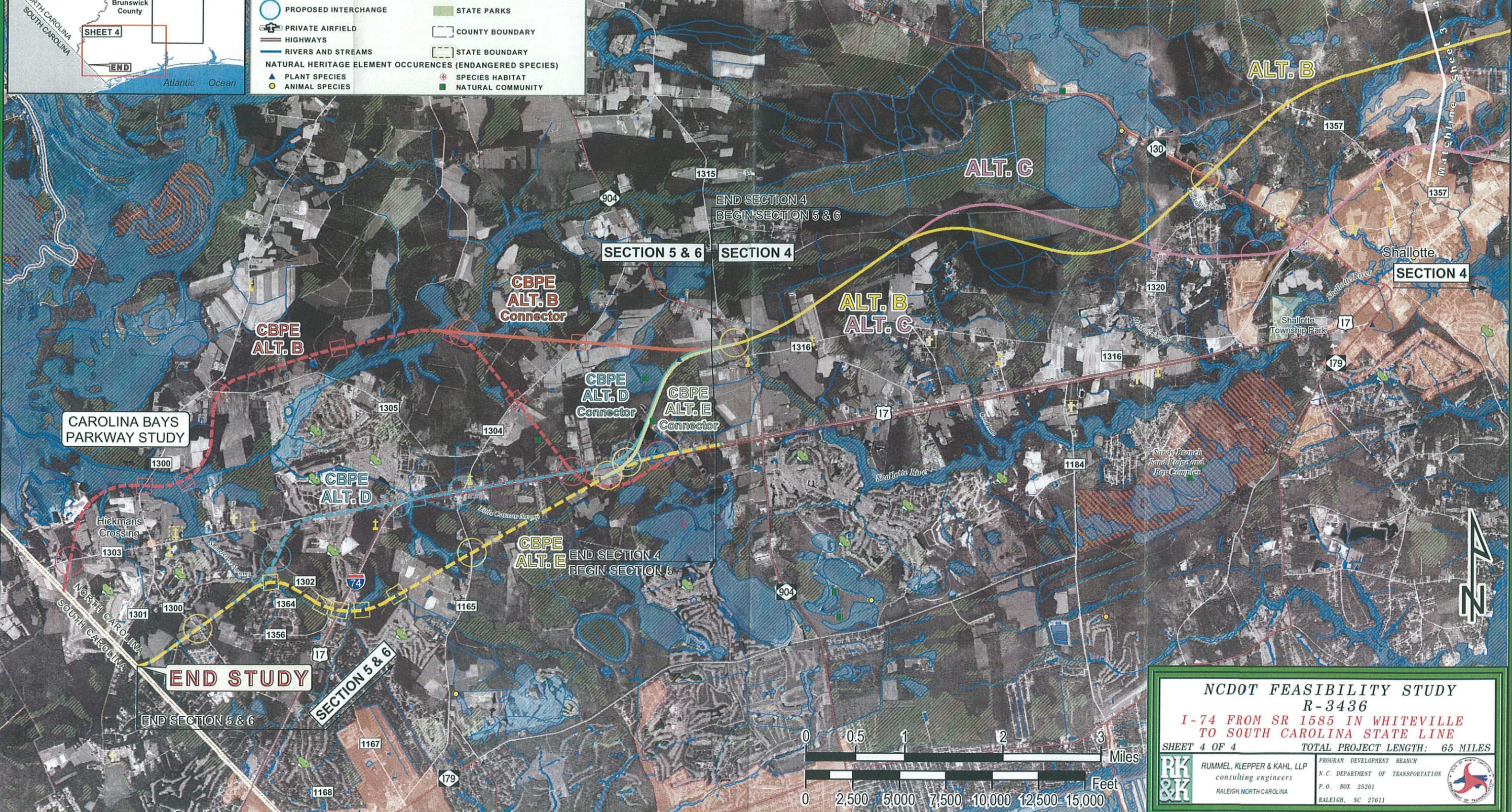
**LEGEND**

	PROPOSED ALTERNATIVES		MUNICIPAL BOUNDARY
	CAROLINA BAYS PARKWAY STUDY		WATER FEATURES
	EXISTING GRADE SEPARATION (OVER ROADWAY OR WATER)		NWI WETLANDS
	PROPOSED GRADE SEPARATION		NATURAL AREAS
	EXISTING INTERCHANGE		GREEN SWAMP PRESERVE
	PROPOSED INTERCHANGE		STATE PARKS
	PRIVATE AIRFIELD		COUNTY BOUNDARY
	HIGHWAYS		STATE BOUNDARY
	RIVERS AND STREAMS	NATURAL HERITAGE ELEMENT OCCURENCES (ENDANGERED SPECIES)	
	PLANT SPECIES		SPECIES HABITAT
	ANIMAL SPECIES		NATURAL COMMUNITY



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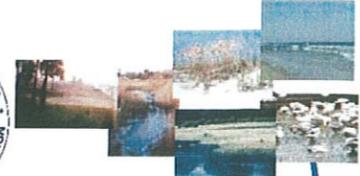


**NCDOT FEASIBILITY STUDY**  
 R-3436  
 I-74 FROM SR 1585 IN WHITEVILLE TO SOUTH CAROLINA STATE LINE

SHEET 4 OF 4 TOTAL PROJECT LENGTH: 65 MILES

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Breakdown Categories	Percentage Weight
<b>Environmental</b> consisting of potential impacts to multiple categories of wetlands, hazardous material sites, displacements, cultural resources, and threatened & endangered species	<b>70%</b>
<b>Cost</b>	<b>30%</b>
<b>Total</b>	<b>100%</b>

The alternative impact matrix, based on researched and collected data and weight factors, provided a rating for the six potential alternatives in comparison to each other. After the researched and collected data along with the weight factors were input, the alternative impact matrix calculated a rating for the six potential alternatives in comparison to each other. These ratings were used to rank the alternatives from the most favorable to the least favorable. Lower scores represent the most preferable options. The potential impacts and cost of each listed alternative along with its respective weighted matrix score is shown below in Table 5-2. An alternatives map (Figure 5-1, page 5-3) is included for reference. Additional information regarding the matrix is provided in Appendix B.

## 5.3 Recommendations

After a review of the alternative impact matrix, the study team recommends the three most favorable alternatives (E, B, and D) from the matrix be carried forward for more detailed studies as part of a future draft environmental impact statement (DEIS). This recommendation is based on information and data as of January 2006 and may be subject to change due to new development in the area. Planned developments, such as "The Farm" in North Carolina, may result in more displacements associated with various alternatives during future studies. All of the alternatives can be seen in Figure 5-1 located on the next page. All potential alternatives, possibly including some not analyzed in this study, would be evaluated during the development of the project's DEIS.

Detailed studies and investigations during the project development process would assist in the refinement of potential alternatives to be presented during the public involvement process and at a location public hearing. Once the location public hearing is held and comments from the public and regulatory agencies are received and evaluated, the final environmental impact statement (FEIS) will identify the preferred alternative.

The FEIS will further detail information about the preferred alternative. It will note additional preliminary design refinements to reduce potential impacts to people and the natural environment. A design public hearing will be held to provide the public with greater detail about the preferred alternative. Substantial comments received at the public hearings will be included and addressed in the FEIS.

Table 5-2  
Alternatives Impact Matrix  
(as of January 2006)

Alternative Route	Score	Total User & Const. Cost (in cents per vehicle / mile)	SC Wetlands (Acres)		NC Wetlands (Acres)			Known HAZMAT Sites	Displacements	Cultural Resources Sites	Known Threatened & Endangered Species
			Quality	High Quality	Beneficial	Substantial	Exceptional				
CBPE Alt. E	1.45	39.42	55.33	14.15	2.57	78.45	0.00	0	66	1	0
CBPE Alt. B	1.46	39.42	46.63	13.65	8.32	100.90	0.00	0	52	3	0
CBPE Alt. D	3.97	39.34	55.33	14.15	15.25	41.51	8.88	0	103	7	0