FEASIBILITY STUDY REPORT

R-3436
I-74 Corridor
from US 74 to the South Carolina Line
Columbus & Brunswick Counties

Prepared by
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Date

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I. GENERAL DESCRIPTION

This is a feasibility study to evaluate corridors for Interstate 74 through Columbus and Brunswick Counties (See Figures 1-3). Six alternates were studied. The table below is a summary of the evaluation.

	Length (miles)	Construction Cost [1]	Right-of-Way Cost	Total Cost
Alternate 1	37.5	$213,200,000	$ 35,400,000	$248,600,000
Alternate 2	43.4	$252,300,000	$ 53,800,000	$306,100,000
Alternate 3	55.6	$296,200,000	$103,300,000	$399,500,000
Alternate 4	31.0	$188,400,000	$ 27,600,000	$216,000,000
Alternate 5	34.4	$203,500,000	$ 44,600,000	$248,100,000
Alternate 6	45.9	$242,100,000	$ 93,600,000	$335,700,000

1 = Construction cost includes cost for wetland mitigation

II. NEED FOR PROJECT

The east terminal of the project study area is located at the South Carolina State Line. The west terminal is located at US 74, north of Chadbourn. TIP Project Number R-2558, proposes to widen US 74, from east of NC 41 in Robeson County, to NC 410, in Columbus County. Near NC 410, the proposed typical section for US 74 is a four-lane, 60-foot (18.3-m) wide median, divided highway on the existing right-of-way. An interchange is proposed in the future for the junction of NC 410 and US 74.

The traffic volumes do not vary significantly between the alternates. Estimated 1995 average daily traffic (ADT) on I-74 ranges from 8,800 to 9,800 vehicles per day (vpd). The estimated 2020 ADT ranges from 17,500 to 19,400. I-74 will operate at a level of service (LOS) A in 1995 and a LOS B in 2020.

The studied interstate will cross the Mid-Atlantic Railroad which runs east and west across Columbus County, south of US 74 and US 76. This track carries three trains per day at a speed of 5 to 15 miles per hour (8.1 to 24.2 kmh). The exposure index, a product of the design year traffic and the number of trains per

day, is 58,200. A grade separation would be constructed at the junction of the interstate and the railroad tracks.

This project is located in the Lumber River Basin. Several rivers, creeks, and swamps are crossed by the different interstate alternates. They are mainly classified as Class B and C swamps in the stream classification system. The National Wetlands Inventory maps identify several acres of wetlands in the project corridor. The studied corridors attempt to minimize the impacts to wetlands.

Based on information from the Natural Heritage Program the following threatened/endangered species may be present in Columbus and Brunswick Counties; red-cockaded woodpecker (Picoides borealis), rough-leaved loosestrife (Lysimachia asperulaefolia), Cooley's meadowrue (Thalictrum cooleyi), crayfish (Procambarus Ancylus), (Lopholejeunea Muelleriana), orchid (Epidendrum), crowfoot sedge (Carex Crus-Corvi), liverwort (Cheilolejeunea rigidula), Eastern cougar (Felis concolor cougar), Florida manatee (Trichechus manatus), bald eagle (Haliaeetus leucocephalus), shortnose sturgeon (Acipenser brevirostrum), wood stork (Mycteria americana), Peregrine falcon (Falco peregrinus), and Waccamaw silverside (Menidia extensa).

Nine National Pollutant Discharge Elimination Sites have been identified in the project corridor.

The Columbus County Solid Waste Facility is located between Chadbourn and Whiteville, on SR 1428 west of the intersection with US 701.

Three Superfund Sites were identified in the project corridor. Guyton Battery Service is located off NC 410, south of Chadbourn. Georgia Pacific Panel Board and Georgia Pacific Corporation Chip-n-Saw are located between Chadbourn and Whiteville off NC 130.

III. ALTERNATES STUDIED

Six alternates were studied to improve access between Chadbourn and Tabor City.

Summary of Alternates Studied

	Length (miles)	Construction Cost [1]	Right-of-Way Cost	Total Cost	Relocations (Res./Bus.)
Alternate 1	37.5	$213,200,000	$ 35,400,000	$248,600,000	63/4
Alternate 2	43.4	$252,300,000	$ 53,800,000	$306,100,000	96/12
Alternate 3	55.6	$296,200,000	$103,300,000	$399,500,000	191/59
Alternate 4	31.0	$188,400,000	$ 27,600,000	$216,000,000	60/2
Alternate 5	34.4	$203,500,000	$ 44,600,000	$248,100,000	85/11
Alternate 6	45.9	$242,100,000	$ 93,600,000	$335,700,000	179/57

1 = Construction cost includes cost for wetland mitigation

The recommended typical section for each alternate is a four-lane divided roadway with a 70-foot (21.3-m) wide median, 10-foot (3.0-m) wide paved right shoulders (2 feet (0.6 m) of width full-depth and the remaining width surface course on ABC), and 4-foot (1.2-m) wide full-depth paved median shoulders on a 300-foot (91.5-m) wide right of way with full access control. A grade separation would be constructed over the Mid-Atlantic Railroad for each Alternate. Other bridges, grade separations and interchanges would be located in applicable locations.

Alternate One

Alternate One is composed of segments G, E, F1, D2, and D3 (See Figure 4). Alternate One impacts the most acres of wetlands. This is a feasible alternate.

Alternate Two

Segments G, E, F1, F2, C1, C2, and I2 compose Alternate Two (See Figure 5). Alternate Two is a feasible corridor for I-74.

Alternate Three

Alternate Three consists of segments G, E, F1, F2, H1, H2, I1, and I2 (See Figure 6). This alternate is not recommended, because it would involve a large number of relocations to convert the existing US 17 to full control of access.

Alternate Four

Segments A, B1, B3, D1, and D3 make up Alternate Four (See Figure 7). This alternate is a feasible corridor for I-74.

Alternate Five

Segments A, B1, B3, B2, C2, and I2 compose Alternate Five (See Figure 8). This is a feasible alternate.

Alternate 6

Segments A, B1, B3, B2, H2, I1, and I2 compose Alternate Six (See Figure 9). This alternate is not recommended, because it would involve a large number of relocations to convert the existing US 17 to full control of access. Alternate Six impacts the least acres of wetlands.

TIP Project Number R-3108 which proposes to upgrade NC 904, from NC 179 to US 17 in Brunswick County, intersects Segment I1. TIP Project Number R-3313 which proposes to upgrade NC 904 and SR 1321, from US 17 to NC 130 in Brunswick County, intersects Segments H2 and I1. These projects will be impacted if these segments are utilized for the construction of I-74.

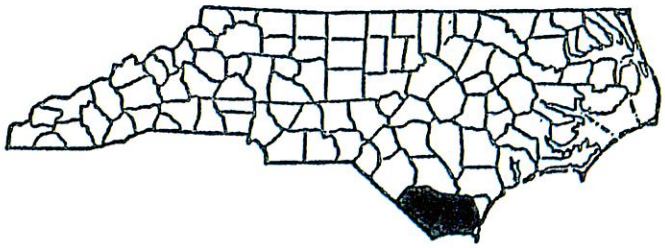
IV. OTHER COMMENTS AND CONCERNS

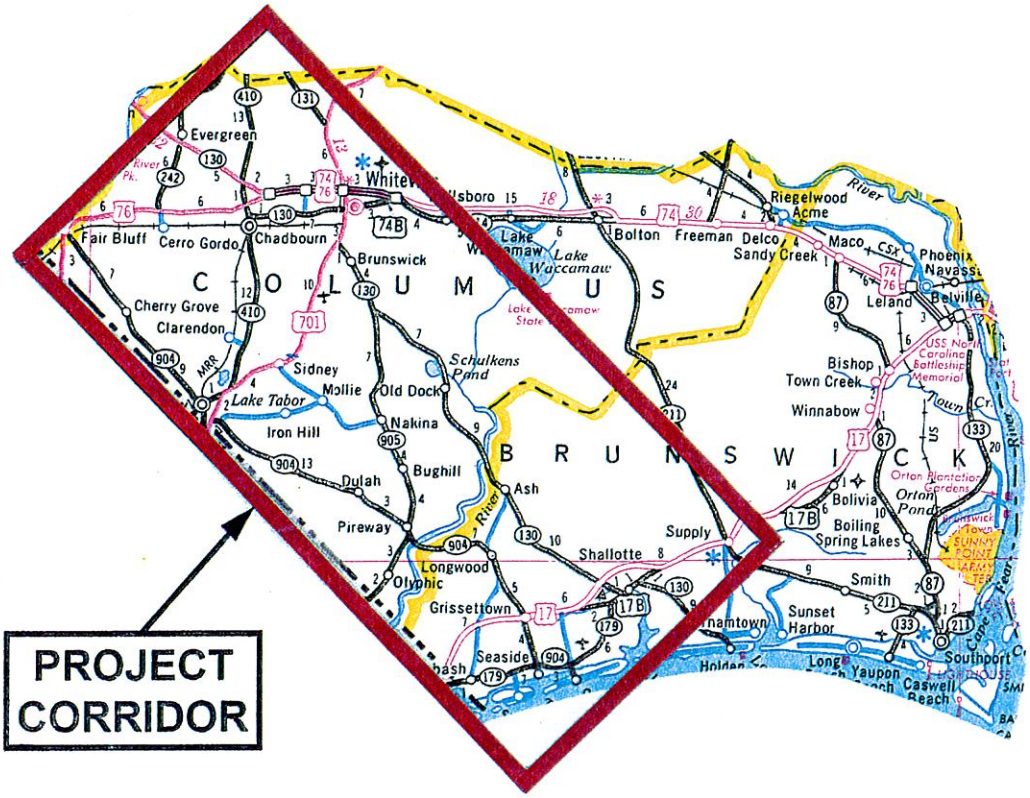
This study is not a detailed planning/environmental investigation. A feasibility study presents studied cross-sections for improvements, general corridors of improvements, and estimated costs of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues that deserve consideration in the planning and construction stages.

No historical or architecturally significant sites are known to be impacted. Best Management Practices should be used during the design and construction of this project in order to minimize impacts to water resources and wetlands.

The following permits may be required for this project:

- State Dredge and Fill Permit
- National Pollutant Discharge Elimination System (NPDES) Permit
- Section 404 Permit
- Section 404 and Section 10 Permit Review by US Fish and Wildlife Service
- Section 7 Consultation with US Fish and Wildlife Service
- CAMA Permit





NORTH

Program Development Branch Feasibility Studies Unit	
R-3436 **I-74 CORRIDOR** Columbus & Brunswick County	
DIVISION 3 & 6	FIGURE 1

NORTH

LEGEND

- SEGMENT A
- SEGMENT B
- SEGMENT C
- SEGMENT D
- SEGMENT E
- SEGMENT F
- SEGMENT G
- SEGMENT H
- SEGMENT I

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R-3436
I-74 CORRIDOR

Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 2

MATCH LINE A - SEE FIGURE 3

SCALE 1 0 1 2 3 4 MILES

SOUTH CAROLINA STATE LINE

MATCH LINE A - SEE FIGURE 2

NORTH

LEGEND

- SEGMENT A
- SEGMENT B
- SEGMENT C
- SEGMENT D
- SEGMENT E
- SEGMENT F
- SEGMENT G
- SEGMENT H
- SEGMENT I

SOUTH CAROLINA STATE LINE

SCALE 0 1 2 3 MILES

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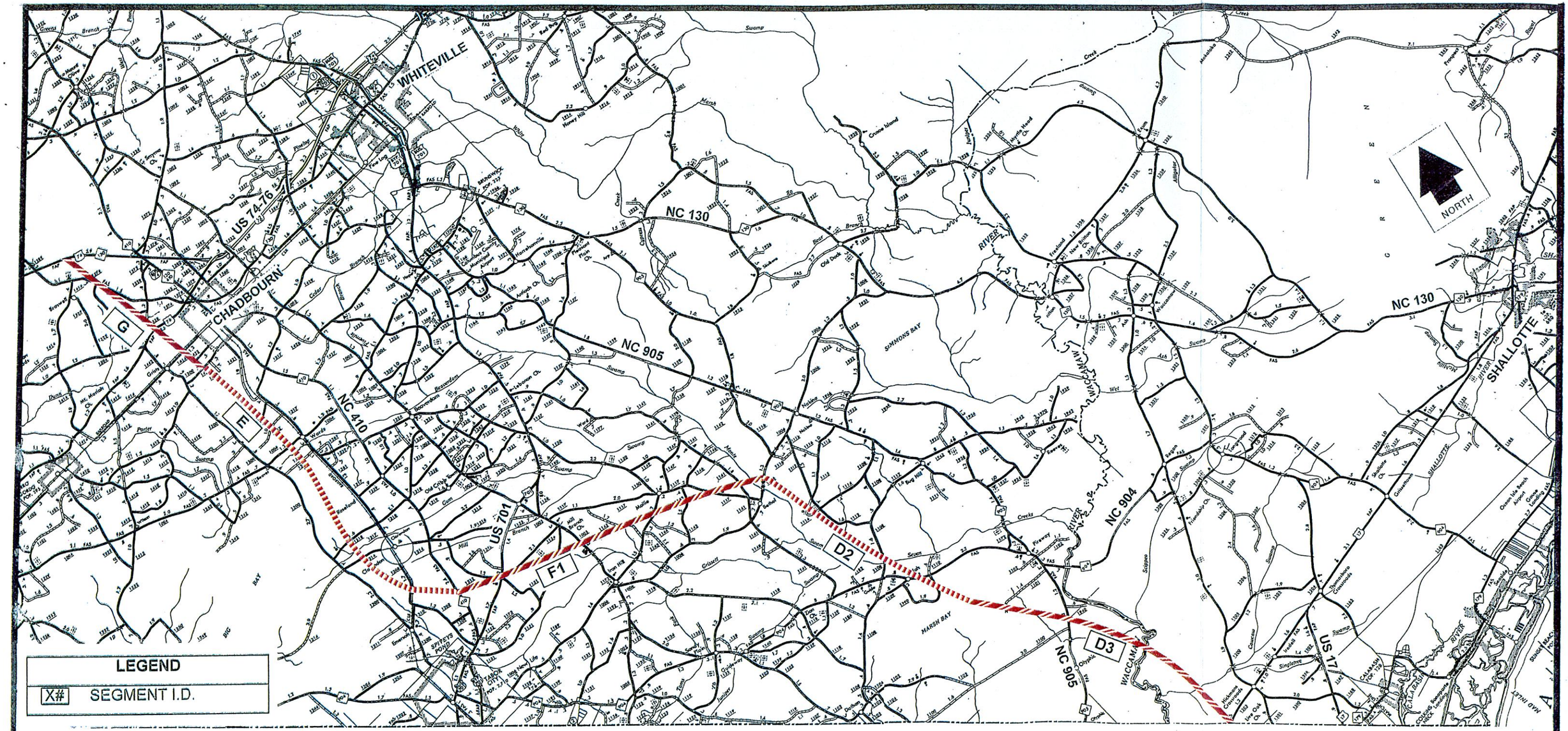
R-3436
I-74 CORRIDOR

Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 3



SCALE 0 1 2 3 4 MILES

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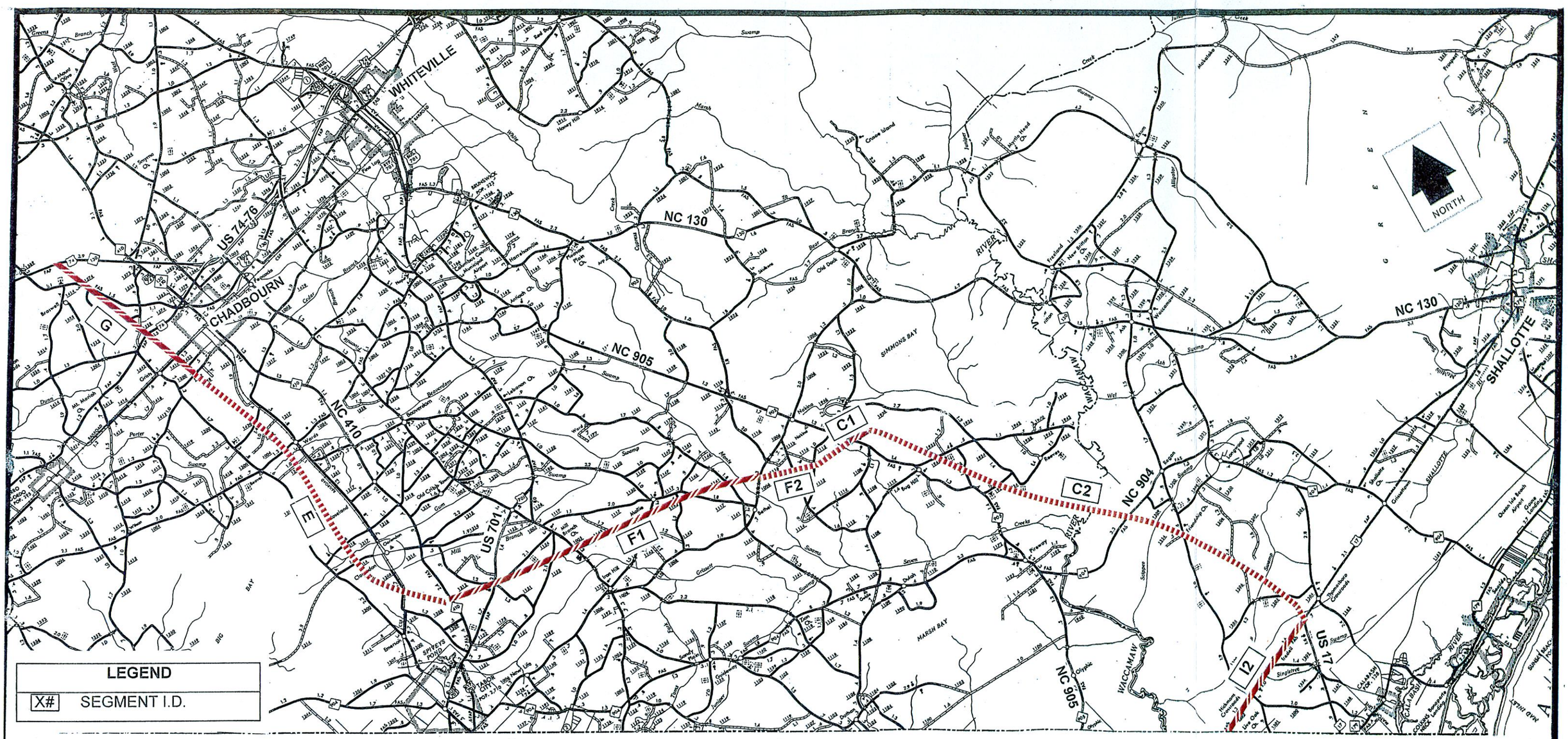
R-3436
I-74 CORRIDOR
ALTERNATE 1
Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 4



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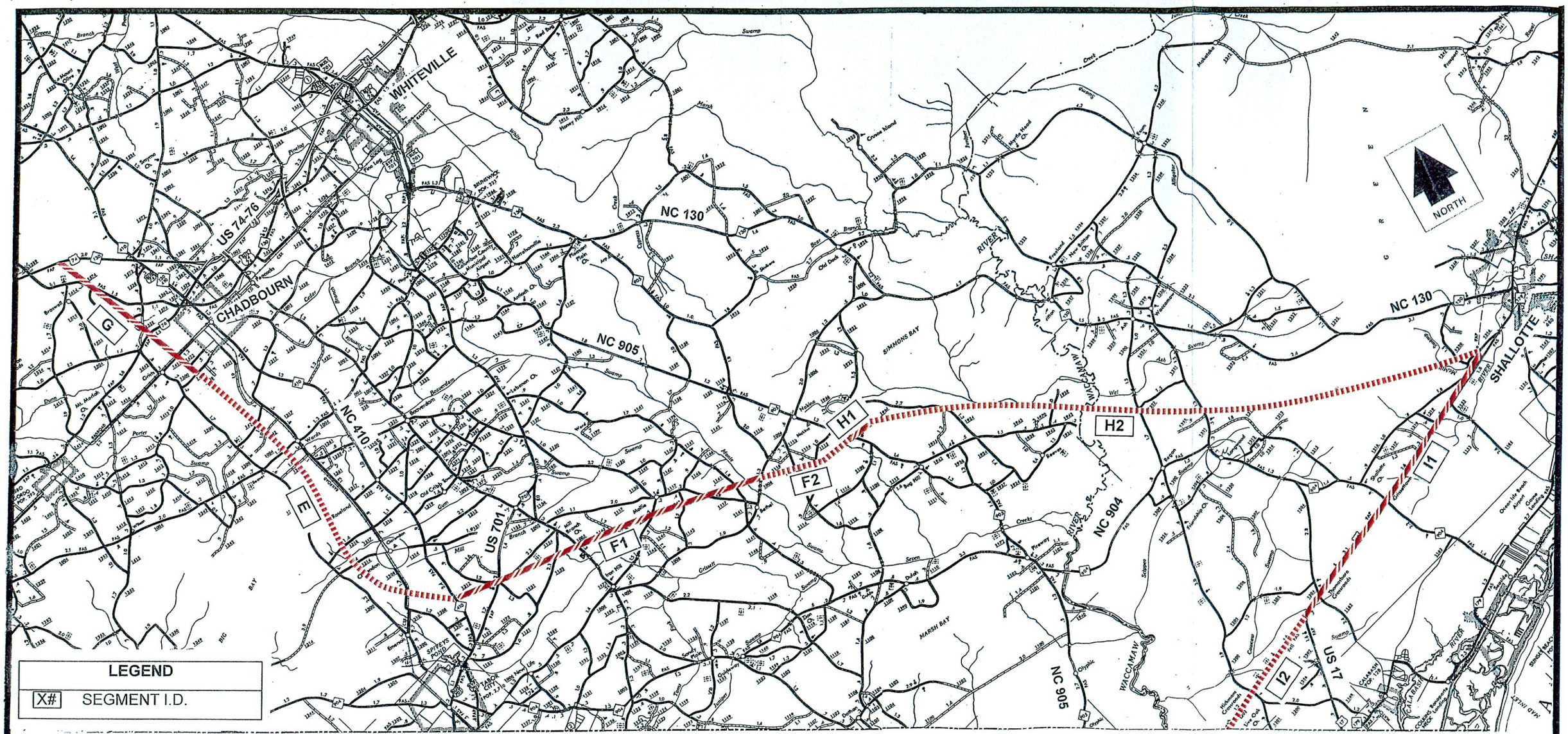
R-3436
I-74 CORRIDOR
ALTERNATE 2
Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 5



LEGEND	
X#	SEGMENT I.D.

SCALE

1 0 1 2 3 4 MILES

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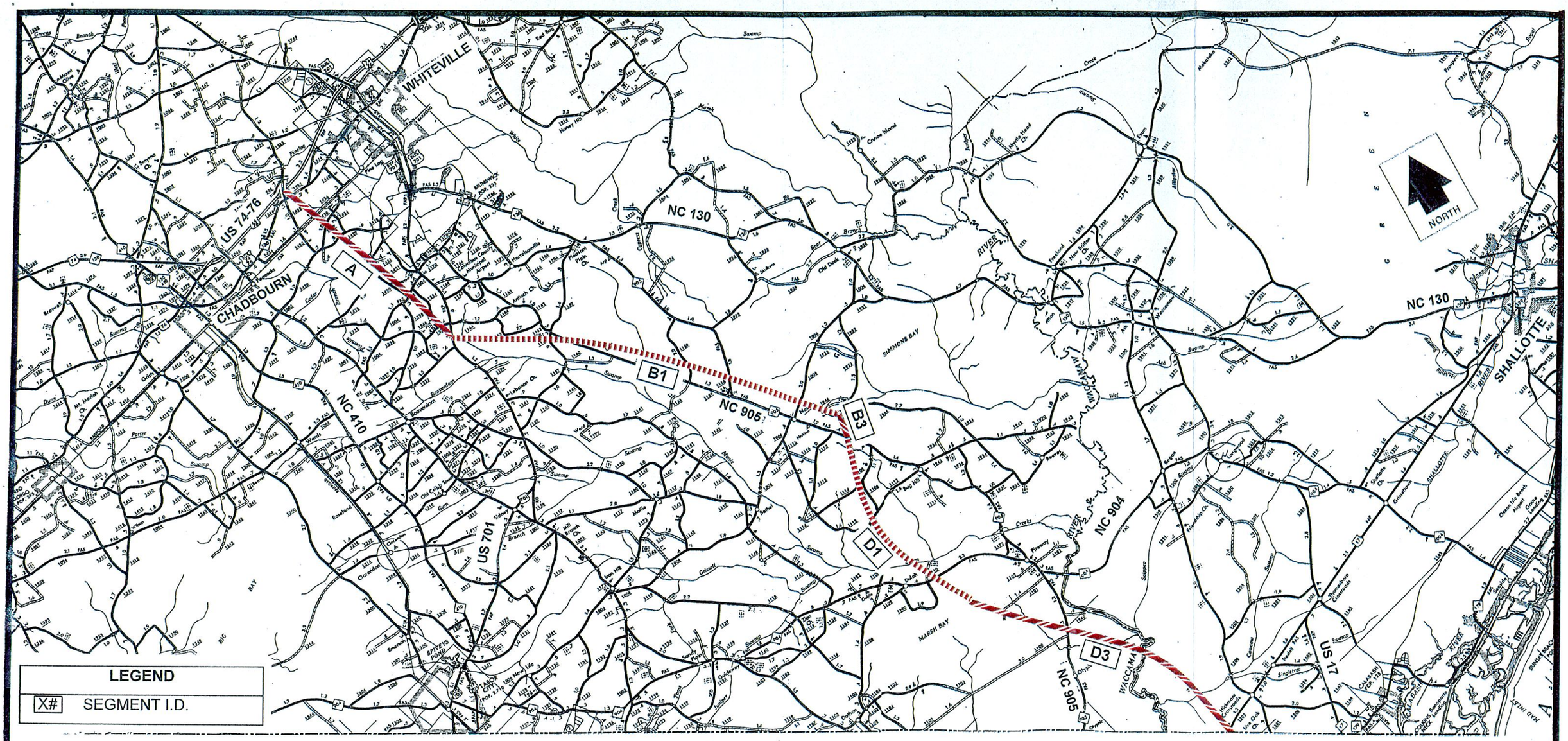
R-3436
I-74 CORRIDOR
ALTERNATE 3
Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 6



SCALE 1 0 1 2 3 4 MILES

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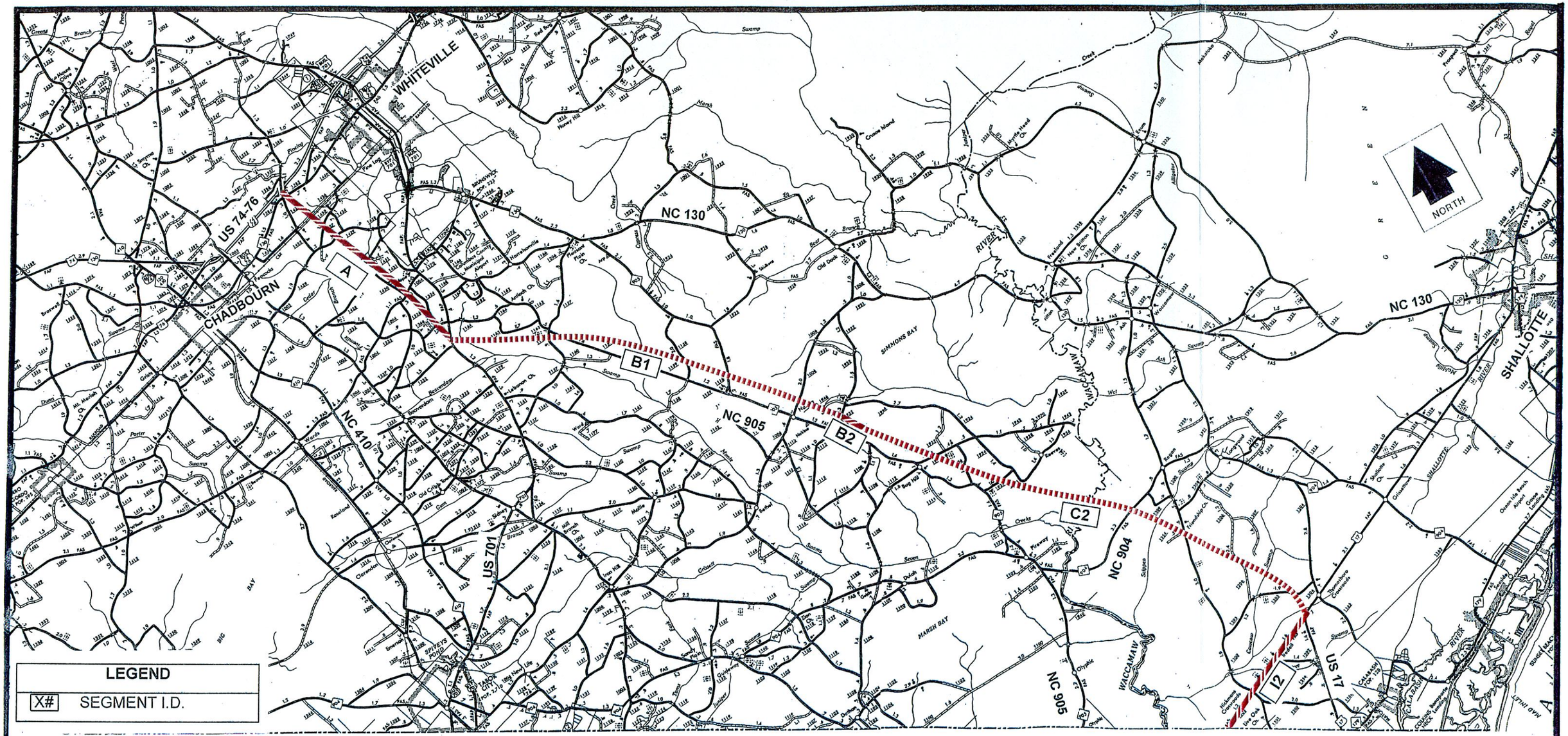
R-3436
I-74 CORRIDOR
ALTERNATE 4
Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 7



SCALE

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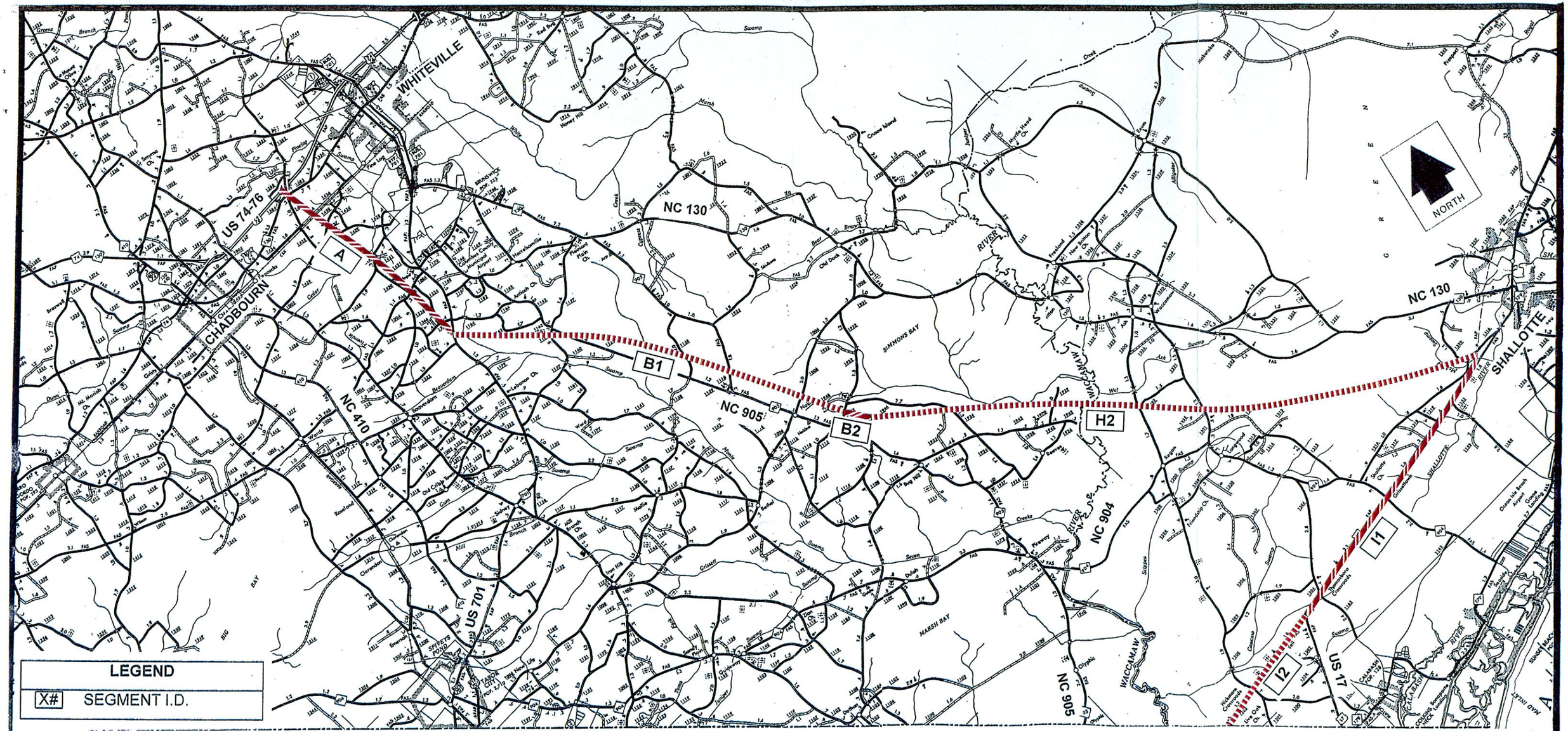
I-74 CORRIDOR
ALTERNATE 5
Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 8



SCALE

Program Development Branch
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R-3436
I-74 CORRIDOR
ALTERNATE 6
Columbus & Brunswick County

DIVISION 3 & 6 FIGURE 9