FEASIBILITY STUDY

New Route (Northern Carteret Bypass)
From the Havelock Bypass (TIP# R-1015) to Beaufort

Carteret and Craven Counties

Division 2

R-4431

Prepared by the
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I. General Description

This feasibility study describes the proposed new route from the proposed Havelock Bypass (TIP #R-1015) to Beaufort, a distance of approximately 23.5 miles. The project location is shown on Figure 1. As part of the study, a four-lane divided freeway section on 350 feet of right of way was investigated.

This is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project including cost, and to identify potential problems that may require consideration in the planning and design phases.

II. Background

The purpose of this project is to improve traffic safety, operations and access between Havelock and the Morehead City area by providing a new route as an alternative to existing US 70. In addition to the improved traffic safety and operations along the US 70 corridor, this project would provide improved access to the Port of Morehead City. Carteret County, the Town of Newport, and the Down East Rural Planning Organization support this project.

On the 2004 Strategic Highway Corridor Vision Plan, this proposed new route was included as part of the Raleigh to Morehead City Strategic Highway Corridor, and was designated as a proposed freeway facility.

NC 101 is designated as a principal arterial in the North Carolina Statewide Functional Classification System and as a major thoroughfare in the 1993 City of Havelock Thoroughfare Plan. NC 101 is currently a two-lane shoulder section with a pavement width of 24 feet from edge of pavement to edge of pavement. The predominant development along NC 101 is rural residential and forest lands.

US 70 is designated as a principal arterial in the North Carolina Statewide Functional Classification System and as a major thoroughfare in the 1995 Town of Morehead City Thoroughfare Plan. US 70 from SR 1300 (Merrimon Road) to SR 1429 (Olga Road) is currently a three and two-lane shoulder section with varying pavement widths from 20-42 feet from edge of pavement to edge of pavement. US 70 at the junction with the proposed Havelock Bypass (TIP# R-1015) is a four-lane divided shoulder section with a

44-foot depressed grass median. The predominant development along US 70 from SR 1300 to SR 1429 is rural residential.

The following are Transportation Improvement Program (TIP) projects located within the proposed project corridor:

- TIP# B-4722: Replace Bridge Number 33, which carries US 70 over the North River in Carteret County.

- TIP# R-1015: Havelock Bypass from north of Pine Grove to north of Carteret County line in Craven County.

- TIP# R-3307: Widen US 70 from Radio Island to US 70 north of Beaufort near SR 1429 (Olga Road) in Carteret County.

- TIP# R-3437: New route from US 70 in Newport to NC 101 in Carteret County.

- TIP# R-3624: Relocation of NC 101 to accommodate extension of Beaufort-Morehead City Airport Runway 26 in Carteret County.

- TIP# R-4746: Upgrade existing US 70/NC 12 from NC 101 in Beaufort to Cedar Island in Carteret County.

There are several existing structures in the proposed project corridor. Please see Table 3 for detailed bridge information.

III. Traffic and Safety

There are two existing traffic signals within the proposed project limits which may need to be modified to accommodate the proposed improvements. They are located at the following intersections:

- US 70 and SR 1300 (Merrimon Road)
- US 70 and SR 1238 (E. Carteret Drive)

The estimated current year Average Daily Traffic (ADT) along most of the proposed new route ranges from 6,300 vehicles per day (vpd) just east of US 70 to 13,500 vpd just north of the terminus of TIP# R-3307. For the design year 2030, the traffic volume along most of the proposed new route is estimated to range between 9,300 vpd to 20,200 vpd. Truck traffic is estimated to make up approximately 6 percent of the daily traffic. In the design year 2030, the proposed new route is projected to operate at a level of service (LOS) B or better.

The current year Average Daily Traffic (ADT) along US 70 from NC 101 south of Havelock to NC 101 in Beaufort ranges from 18,500 vpd to 31,300 vpd. Without the proposed new route in the 2030 design year, the traffic volume along US 70 is estimated to range between 27,700 vpd to 46,900 vpd. With the proposed new route in operation, the

traffic volume along US 70 is estimated to range between 27,100 vpd to 46,900 vpd. Truck traffic is estimated to make up approximately 6 to 7 percent of the daily traffic.

IV. Description of Alternatives

It is proposed to construct a new multilane freeway facility from the proposed Havelock Bypass/US 70 interchange (TIP# R-1015) to Beaufort, a distance of approximately 23.5 miles. The project location is shown on Figure 1. For evaluation purposes the project was divided into several sections. The details of each are below:

SECTION 1 (Pink): This section is from US 70 to approximately 0.6 miles west of NC 101 on new location, a distance of approximately 7.1 miles. Included in the costs below are new bridges over a Croatan National Forest roadway and Hancock Creek. Also included is a diamond interchange at the junction of US 70 and the proposed Havelock Bypass. This section also utilizes a portion of existing NC 101 as a parallel service road.

Cross-section: Four-lane divided freeway, 102 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 46-foot depressed grass median, 4-foot inside paved shoulders, and 14-foot outside shoulders (4 feet of which are paved) on 350 feet of right of way.

With this proposed cross-section, it is anticipated that there will be nineteen (19) residences and four (4) businesses relocated due to this project. The total cost of this section, including right of way, utility relocation, and construction is estimated to be $69,700,000.

Right of Way	$10,700,000
Utility Relocation	$900,000
Construction	$58,100,000
Total Cost (Section 1)	$69,700,000

SECTION 2 (Blue): This section is from US 70 to approximately 0.6 miles west of NC 101 on new location, a distance of approximately 6.7 miles. Included in the costs below are new bridges over three Croatan National Forest roadways and Hancock Creek. Also included is a diamond interchange at the junction of US 70 and the proposed Havelock Bypass.

Cross-section: Four-lane divided freeway, 102 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 46-foot depressed grass median, 4-foot inside paved shoulders, and 14-foot outside shoulders (4 feet of which are paved) on 350 feet of right of way.

With this proposed cross-section, it is anticipated that there will be zero (0) residences and zero (0) businesses relocated due to this project. The total cost of this section, including right of way, utility relocation, and construction is estimated to be $62,900,000.

Right of Way……$3,900,000
Utility Relocation……$300,000
Construction……$58,700,000
Total Cost (Section 2)……$62,900,000

SECTION 3 (Green): This section is from the terminus of Sections 1 and 2 to approximately 0.2 miles north of SR 1163 (Laurel Road) on new location, a distance of approximately 8.1 miles. Included in the costs below are new bridges over a Croatan National Forest roadway, the Harlowe Canal, SR 1700 (Adams Creek Road), two Weyerhaeuser Company roadways, and the Intracoastal Waterway. Also included are diamond interchanges at the junctions with NC 101 near Harlowe and SR 1163 (Laurel Road).

Cross-section: Four-lane divided freeway, 102 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 46-foot depressed grass median, 4-foot inside paved shoulders, and 14-foot outside shoulders (4 feet of which are paved) on 350 feet of right of way.

With this proposed cross-section, it is anticipated that there will be thirty-one (31) residences and six (6) businesses relocated due to this project. The total cost of this section, including right of way, utility relocation, and construction is estimated to be $145,600,000.

Right of Way……$28,800,000
Utility Relocation……$600,000
Construction……$116,200,000
Total Cost (Section 3)……$145,600,000

SECTION 4 (Light Blue): This section is from the terminus of Sections 3 and 7 to approximately 0.1 miles south of US 70 on new location, a distance of approximately 3.3 miles. Included in the costs below are new bridges over SR 1163 (Laurel Road) and a diamond interchange at the junction with the proposed realigned US 70 and SR 1300 (Merrimon Road).

Cross-section: Four-lane divided freeway, 102 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 46-foot depressed grass median, 4-foot inside paved shoulders, and 14-foot outside shoulders (4 feet of which are paved) on 350 feet right of way.

With this proposed cross-section, it is anticipated that there will be eight (8) residences and one (1) business relocated due to this project. The total cost of this section, including right of way, utility relocation, and construction is estimated to be $57,100,000.

Right of Way	$9,000,000
Utility Relocation	$300,000
Construction	$47,800,000
Total Cost (Section 4)	$57,100,000

In addition to the construction of Section 4, the following improvements are recommended and included in the costs shown above:

- The realignment of US 70. The new cross-section is a four-lane shoulder section with 12-foot travel lanes, a 23-foot raised grass median, and 8-foot shoulders (4 feet of which are paved) on 150 feet of right of way for a distance of approximately 0.5 miles.

- The realignment of SR 1300 (Merrimon Road) to intersect US 70 eastbound. The new cross-section is a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way for a distance of approximately 0.6 miles.

- The construction of a two-lane connector road from the intersection of the proposed route and the proposed realigned US 70 to approximately 0.2 miles south of Murray Drive, a distance of approximately 1.4 miles. The cross-section shall be a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way.

- The construction of a two-lane connector road from SR 1238 (E. Carteret Drive) to the connector road, a distance of approximately 0.2 miles. The cross-section shall be a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way.

- The construction of a two-lane connector road from SR 1445 (Colonial Street) to the proposed service road, a distance of approximately 0.1 miles. The cross-section shall be a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way.

- The construction of a two-lane service road from approximately 0.2 miles south of Murray Drive to US 70 on the east side of the proposed route, a distance of approximately 0.6 miles. The cross-section shall be a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way.

SECTION 5 (Yellow): This section is from the terminus of Section 4 to approximately 0.2 miles south of SR 1429 (Olga Road) utilizing the existing US 70, a distance of approximately 2.2 miles. This section proposes no modifications to the alignment proposed under TIP# R-3307.

Option A Cross-section: Four-lane divided freeway, 102 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 46-foot depressed grass median, 4-foot inside paved shoulders, and 14-foot outside shoulders (4 feet of which are paved) on 350 feet of right of way.

With this proposed cross-section, it is anticipated that there will be thirty-four (34) residences and three (3) businesses relocated due to this project. The total cost of this option, including right of way, utility relocation, and construction is estimated to be $46,300,000.

Right of Way	$14,000,000
Utility Relocation	$200,000
Construction	$32,100,000
Total Cost (Section 5 – Option A)	$46,300,000

In addition to the construction of Section 5 – Option A, the following improvements are recommended and included in the costs shown above:

- The construction of a two-lane service road on the west side of the proposed route from approximately 0.2 miles south of Murray Drive to SR 1449 (Cedar Avenue), a distance of approximately 1.7 miles. The cross-section is a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way.

- The construction of a two-lane service road on the east side of the proposed route from approximately 0.2 miles south of Murray Drive to US 70, a distance of approximately 2.5 miles. The cross-section is a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way.

Option B Cross-section: Four-lane divided expressway, 79 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 23-foot raised grass median, and 8-foot shoulders (4 feet of which are paved) on 150 feet of right of way. As an expressway, this facility will be restricted to no traffic signals.

With this proposed cross-section, it is anticipated that there will be fourteen (14) residences and two (2) businesses relocated due to this project. The total cost of this section, including right of way, utility relocation, and construction is estimated to be $17,300,000.

Right of Way	$7,600,000
Utility Relocation	$200,000
Construction	$9,500,000
Total Cost (Section 5 – Option B)	$17,300,000

The realignment of SR 1429 (Olga Road) is recommended and included in the costs shown above. The new cross-section is a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way for a distance of approximately 0.1 miles.

SECTION 6 (Purple): This section is from the terminus of Section 5 to approximately 0.5 miles south of NC 101 utilizing the existing US 70 with the remainder on new location as proposed under TIP# R-3307, a distance of approximately 2.1 miles. Included in the costs below are a diamond interchange at the junction with the proposed realigned US 70 and a partial cloverleaf interchange at the junction with the proposed realigned NC 101. This section proposes an asymmetrical widening to the alignment proposed under TIP# R-3307.

Cross-section: Four-lane divided freeway, 102 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 46-foot depressed grass median, 4-foot inside paved shoulders, and 14-foot outside shoulders (4 feet of which are paved) on 350 feet of right of way.

With this proposed cross-section, it is anticipated that there will be sixty-eight (68) residences, six (6) businesses, and one (1) cemetery relocated due to this project. The total cost of this section, including right of way, utility relocation, and construction is estimated to be $71,100,000.

Right of Way	$28,300,000
Utility Relocation	$600,000
Construction	$42,200,000
Total Cost (Section 6)	$71,100,000

In addition to the construction of Section 6, the following improvements are recommended and included in the costs shown above:

- The realignment of US 70. The new cross-section shall be a four-lane lane divided shoulder section with 12-foot travel lanes, a 23-foot raised grass median, and 8-foot shoulders (4 feet of which are paved) on 150 feet of right of way for a distance of approximately 0.3 miles.

- The construction of a two-lane connector road from the proposed route to SR 1449 (Cedar Avenue), a distance of approximately 0.5 miles. The cross-section shall be a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way.

- The realignment of NC 101. The new cross-section shall be a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way for a distance of approximately 0.9 miles.

- The realignment of SR 1212 (Airport Road). The new cross-section shall be a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way for a distance of approximately 0.3 miles.

SECTION 7 (Orange): This section is from US 70 to approximately 0.2 miles north of SR 1163 (Laurel Road) on new location, a distance of approximately 13.5 miles. Included in the costs below are new bridges over SR 1134 (Danny Garner Road), Deep Creek, Ghouls Fork, Main prong, a Croatan National Forest roadway, the Harlowe Canal, SR 1160 (Hardesty Loop Road), and the Intracoastal Waterway. Also included are a trumpet interchange at the junction with US 70, a diamond interchange at the junction with SR 1155 (Old Wineberry Road), and a diamond interchange at the junction with NC 101.

Cross-section: Four-lane divided freeway, 102 feet from edge of pavement to edge of pavement, with 12-foot travel lanes, a 46-foot depressed grass median, 4-foot inside paved shoulders, and 14-foot outside shoulders (4 feet of which are paved) on 350 feet of right of way.

With this proposed cross-section, it is anticipated that there will be twenty-nine (29) residences and four (4) businesses relocated due to this project. The total cost of this section, including right of way, utility relocation, and construction is estimated to be $197,600,000.

Right of Way	$37,200,000
Utility Relocation	$500,000
Construction	$159,900,000
Total Cost (Section 7)	$197,600,000

The realignment of SR 1159 (Turnpike Road) is recommended and included in the costs shown above. The new cross-section is a two-lane shoulder section with 12-foot travel lanes and 8-foot shoulders (4 feet of which are paved) on 100 feet of right of way for a distance of approximately 0.1 miles.

An additional cost of $300,000 will be added to the total project cost for Intelligent Transportation Systems (ITS) deployment.

Three potential corridors were generated by combining different project sections. Please see Tables 1 and 2 for a comprehensive breakdown of the total combined project costs.

Corridor	Section	Right of way Cost	Utility Relocation Cost	Construction Cost	Total Cost	Residences Relocated	Businesses Relocated
A	Section 1	$10,700,000	$900,000	$58,100,000	$69,700,000	19	4
	Section 3	$28,800,000	$600,000	$116,200,000	$145,600,000	31	6
	Section 4	$9,000,000	$300,000	$47,800,000	$57,100,000	8	1
	Section 5A	$14,000,000	$200,000	$32,100,000	$46,300,000	34	3
	Section 6	$28,300,000	$600,000	$42,200,000	$71,100,000	68	3
	ITS Deployment			$300,000	$300,000		
Total cost of Corridor A		**$90,800,000**	**$2,600,000**	**$296,700,000**	**$390,100,000**	**160**	**17**
B	Section 2	$3,900,000	$300,000	$58,700,000	$62,900,000	0	0
	Section 3	$28,800,000	$600,000	$116,200,000	$145,600,000	31	6
	Section 4	$9,000,000	$300,000	$47,800,000	$57,100,000	8	1
	Section 5A	$14,000,000	$200,000	$32,100,000	$46,300,000	34	3
	Section 6	$28,300,000	$600,000	$42,200,000	$71,100,000	68	3
	ITS Deployment			$300,000	$300,000		
Total cost of Corridor B		**$84,000,000**	**$2,000,000**	**$297,300,000**	**$383,300,000**	**141**	**13**
C	Section 7	$37,200,000	$500,000	$159,900,000	$197,600,000	29	4
	Section 4	$9,000,000	$300,000	$47,800,000	$57,100,000	8	1
	Section 5A	$14,000,000	$200,000	$32,100,000	$46,300,000	34	3
	Section 6	$28,300,000	$600,000	$42,200,000	$71,100,000	68	3
	ITS Deployment			$300,000	$300,000		
Total cost of Corridor C		**$88,500,000**	**$1,600,000**	**$282,300,000**	**$372,400,000**	**139**	**11**

Table 1: Total Project Costs (Freeway Section)

Corridor	Section	Right of way Cost	Utility Relocation Cost	Construction Cost	Total Cost	Residences Relocated	Businesses Relocated
A	Section 1	$10,700,000	$900,000	$58,100,000	$69,700,000	19	4
	Section 3	$28,800,000	$600,000	$116,200,000	$145,600,000	31	6
	Section 4	$9,000,000	$300,000	$47,800,000	$57,100,000	8	1
	Section 5B	$7,600,000	$200,000	$9,500,000	$17,300,000	14	2
	ITS Deployment			$300,000	$300,000		
Total cost of Corridor A		**$56,100,000**	**$2,000,000**	**$231,900,000**	**$290,000,000**	**72**	**13**
B	Section 2	$3,900,000	$300,000	$58,700,000	$62,900,000	0	0
	Section 3	$28,800,000	$600,000	$116,200,000	$145,600,000	31	6
	Section 4	$9,000,000	$300,000	$47,800,000	$57,100,000	8	1
	Section 5B	$7,600,000	$200,000	$9,500,000	$17,300,000	14	2
	ITS Deployment			$300,000	$300,000		
Total cost of Corridor B		**$49,300,000**	**$1,400,000**	**$232,500,000**	**$283,200,000**	**53**	**9**
C	Section 7	$37,200,000	$500,000	$159,900,000	$197,600,000	29	4
	Section 4	$9,000,000	$300,000	$47,800,000	$57,100,000	8	1
	Section 5B	$7,600,000	$200,000	$9,500,000	$17,300,000	14	2
	ITS Deployment			$300,000	$300,000		
Total cost of Corridor C		**$53,800,000**	**$1,000,000**	**$217,500,000**	**$272,300,000**	**51**	**7**

Table 2: Total Project Costs (Freeway and Expressway Section)

V. Community Issues

A detailed community impact investigation was not conducted for this feasibility study, however possible impacts to East Carteret High School are anticipated.

Maps at the Survey and Planning Branch of the North Carolina State Historic Preservation Office were used to determine if any historic properties on the National Register of Historic Places (NRHP) or state study lists exist within the proposed project corridor. The following properties located within the proposed project corridor were found to be potentially historic properties:

- E. D. Miller House
- Joshua Adams Store and Post Office
- Carteret County Home
- Truss Bridge #101-16-10
- Clubfoot and Harlowe Creek Canal
- Rufus Bell House
- Core Creek Bridge
- Ernest Webb House

It is anticipated that the Croatan National Forest will be impacted by this project. The Croatan National Forest is designated as federal owned game lands managed for conservation or open space.

Possible impacts to Walkers Millpond are anticipated. Walkers Millpond is designated as lands managed for conservation or open space and as a land trust conservation property.

VI. Natural Environment Issues

The following is a preliminary review of environmental issues that might have a potential impact to the project. The information obtained for the environmental screening is from a Geographic Information System (GIS) database. The purpose of the environmental screening is to identify potential environmental issues early in the process.

Stream Classification

The proposed project corridor crosses several water bodies in the Neuse and White Oak River Basins. Hancock Creek has a stream classification of SC Sw NSW. Harlowe Canal and the Intracoastal Waterway have a stream classification of SA HQW. Deep Creek, Ghouls Fork, and Main Prong have a stream classification of C. These water bodies will likely need to be surveyed and have the appropriate coordination with the North Carolina Department of Environment and Natural Resources (NCDENR) and the U.S. Army Corps of Engineers (USACE) during any environmental document study. Portions of the proposed project corridor are located in a high quality water zone.

Wetlands

The proposed project corridor crosses wetlands associated with Hancock Creek, Harlowe Canal, the Intracoastal Waterway, Deep Creek, Ghouls Fork, Main Prong, and several jurisdictional wetland areas. Permitting with the U.S. Army Corps of Engineers (USACE) will likely need to be obtained before construction of the project, and appropriate mitigation measures should be taken if deemed necessary.

Threatened and Endangered Species

There are several threatened and endangered species within the proposed project corridor. Please see Table 4 for more detailed information. Shellfish strata, an anadromous fish spawn area, and the Marsh Bird Nesting Area special habitat are located within the proposed project corridor.

The following Natural Communities are located within the proposed project corridor:

- High Pocosin
- Low Pocosin
- Mesic Pine Flatwoods
- Pond Pine Woodland

The following significant Natural Heritage Areas are located within the proposed project corridor:

- Billfinger Road Flatwoods
- North River Brackish Marsh
- Union Point Pocosin
- Walkers Millpond

Walkers Millpond is designated as a Natural Heritage Program managed area and as a dedicated nature preserve.

The Croatan National Forest is designated as a Natural Heritage Program managed area.

VII. Recommendations

CORRIDORS A, B, & C: It was found that the four-lane divided freeway (Sections 1, 2, 3, 4, 5 – Option A, 6, and 7) and the four-lane divided expressway (Section 5 – Option B) would be able to accommodate the projected 2030 design year traffic volumes with an acceptable level of service. The estimated cost for the proposed project corridor with the whole freeway ranges from $372,400,000 to $390,100,000. The estimated cost for the proposed project corridor with the freeway/expressway combination ranges from $272,300,000 to $290,000,000.

VIII. Other Alternatives Considered

Additional sections are being considered for this project based upon comments received during draft review. Estimated project costs for the additional sections will be provided at a later date. Descriptions of these sections are as follows and are shown on the attached Figure 2:

SECTION 8: Four-lane divided freeway section from the terminus of Sections 3 and 7 to approximately 0.3 miles north of SR 1466 (Harbor Drive) on new location, a distance of approximately 3.9 miles.

SECTION 9 – OPTION A: Four-lane divided freeway section from the terminus of Section 8 to approximately 0.2 miles south of SR 1429 (Olga Road) utilizing the existing US 70, a distance of approximately 1.6 miles.

SECTION 9 – OPTION B: Four-lane divided expressway section from the terminus of Section 8 to approximately 0.2 miles south of SR 1429 (Olga Road) utilizing the existing US 70, a distance of approximately 1.6 miles.

The proposed interchange locations and configurations are preliminary and may be modified in later design and planning phases.

Craven County

Structure Number	Facility Carried	Feature Intersected	Structure Description	Structure Length	Vertical Clearance	Horizontal Clearance	Year Constructed	Sufficiency Rating
42	NC 101	Branch of Hancock Creek	Triple 10-foot x 18-foot RCBC	34-foot	N/A	20-foot	1948	74.0

Carteret County

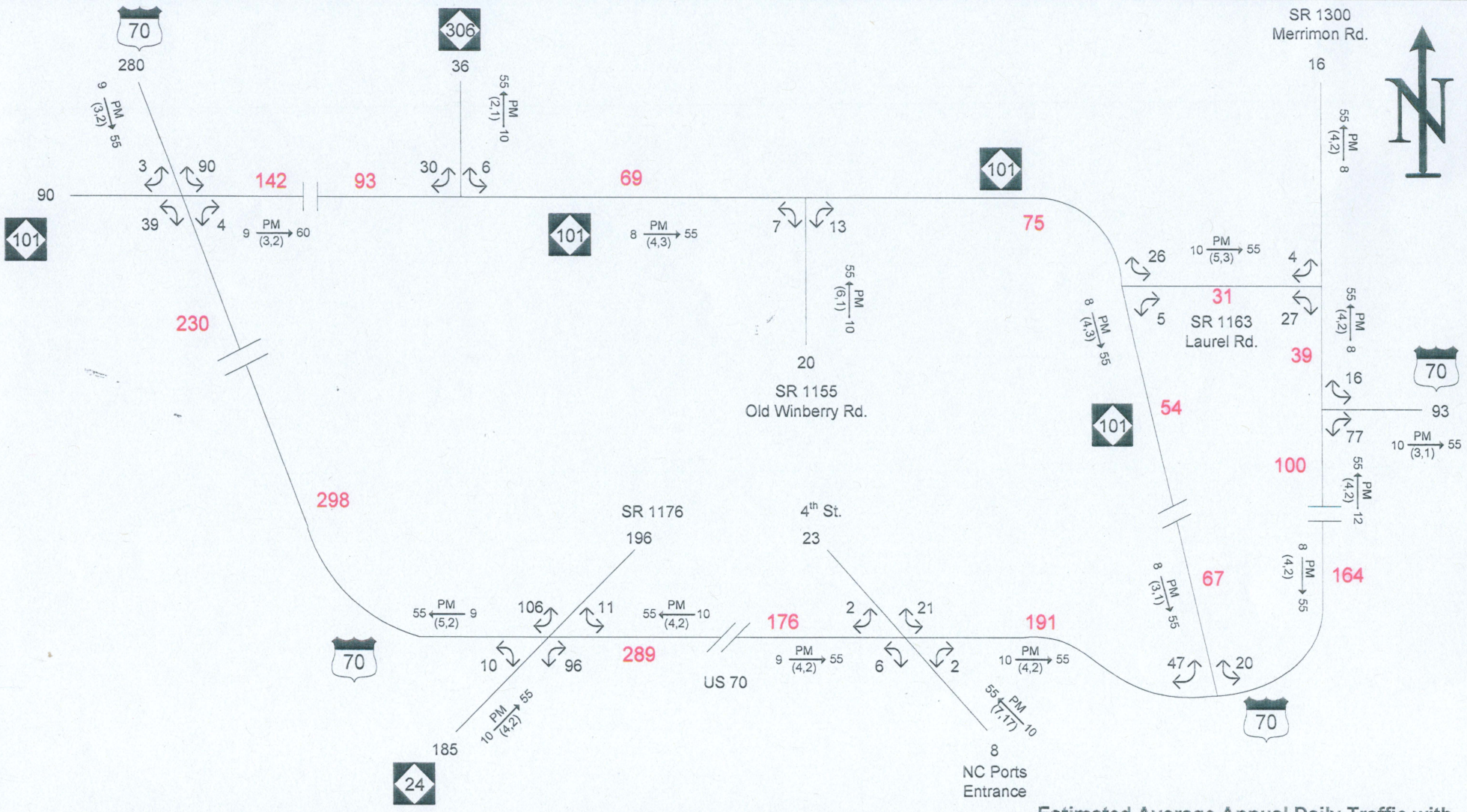
Structure Number	Facility Carried	Feature Intersected	Structure Description	Structure Length	Vertical Clearance	Horizontal Clearance	Year Constructed	Sufficiency Rating
1	SR 1300	Fork North River	Precast prestressed concrete cored slab	82-foot	N/A	30-foot	1994	63.0
10	NC 101	Harlowe Creek	Prestressed concrete cored slab	110-foot	N/A	30-foot	1989	67.9
14	NC 101	Intracoastal Waterway	Reinforced concrete floor on PPC girders	2947-foot	N/A	30-foot	1994	67.9
31	NC 101	Branch Newport River	Prestressed concrete cored slab	80-foot	N/A	30.2-foot	1988	77.9
33	US 70	North River	Reinforced concrete monolithic slab	1028-foot	N/A	28.0-foot	1959	7.0

Table 3: Existing Bridge Information

Common Name	Scientific Name	Federal Status	State Status
Bog Bluestem	*Andropogon mohrii*	None	SR-P
Dismal Swamp Green Stink Bug	*Chlorochroa dismalia*	None	SR
Black-throated Green Warbler	*Dendroica virens waynei*	FSC	SR
A Noctuid Moth	*Franclemontia interroganis*	None	SR
A Liverwort	*Frullania donnellii*	None	SR-T
Venus Flytrap Cutworm Moth	*Hemipachnobia subporphyrea*	FSC	SR
Black-necked Stilt	*Himantopus mexicanus*	None	SR
A Liverwort	*Lejeunea bermudiana*	None	SR-P
Lemmer-foots Pinion	*Lithophane lemmeri*	None	SR
Carolina Water Snake	*Nerodia sipedon williamengelsi*	None	SC
Owlet Moth	*Meropleon cinnamicolor*	None	SR
American Pondweed	*Potamogeton nodosus*	None	SR-D
Croatan Cray Fish	*Procambarus plumumanus*	None	SR
Annointed Sallow Moth	*Pyreferra ceromatica*	FSC	SR
Short-bristled Beaksedge	*Rhynchospora breviseta*	None	SR-P
Carter-foots Noctuid Moth	*Spartiniphaga carterae*	FSC	SR
West Indian Manatee	*Trichechus manatus*	E	E

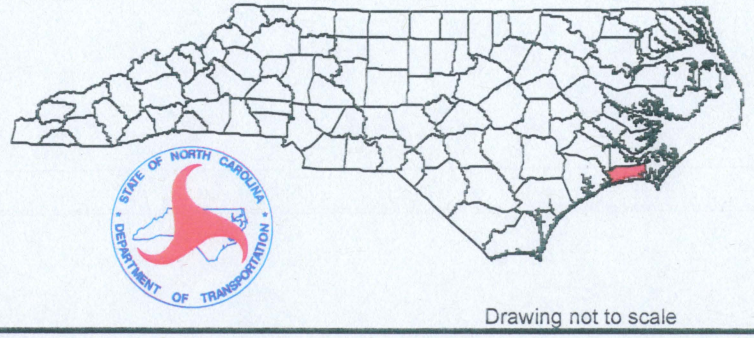
Definitions of Federal Status:E=Endangered, T=Threatened, FSC=Federal "Species of Concern"
Definitions of State Status:E=Endangered, T=Threatened, SR=Significantly Rare, SC=Special Concern
Definitions of State Status: , -P=Peripheral, -L=Limited in NC, -T=Throughout the species, -D=Disjunct

Table 4: Threatened and endangered species within the proposed project corridor.



LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT
DHV PM (d, t) D	
DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
	REVERSE FLOW FOR AM PEAK
(d,t)	DUALS, TT-ST'S (%)



Drawing not to scale

LOCATION:

New Route

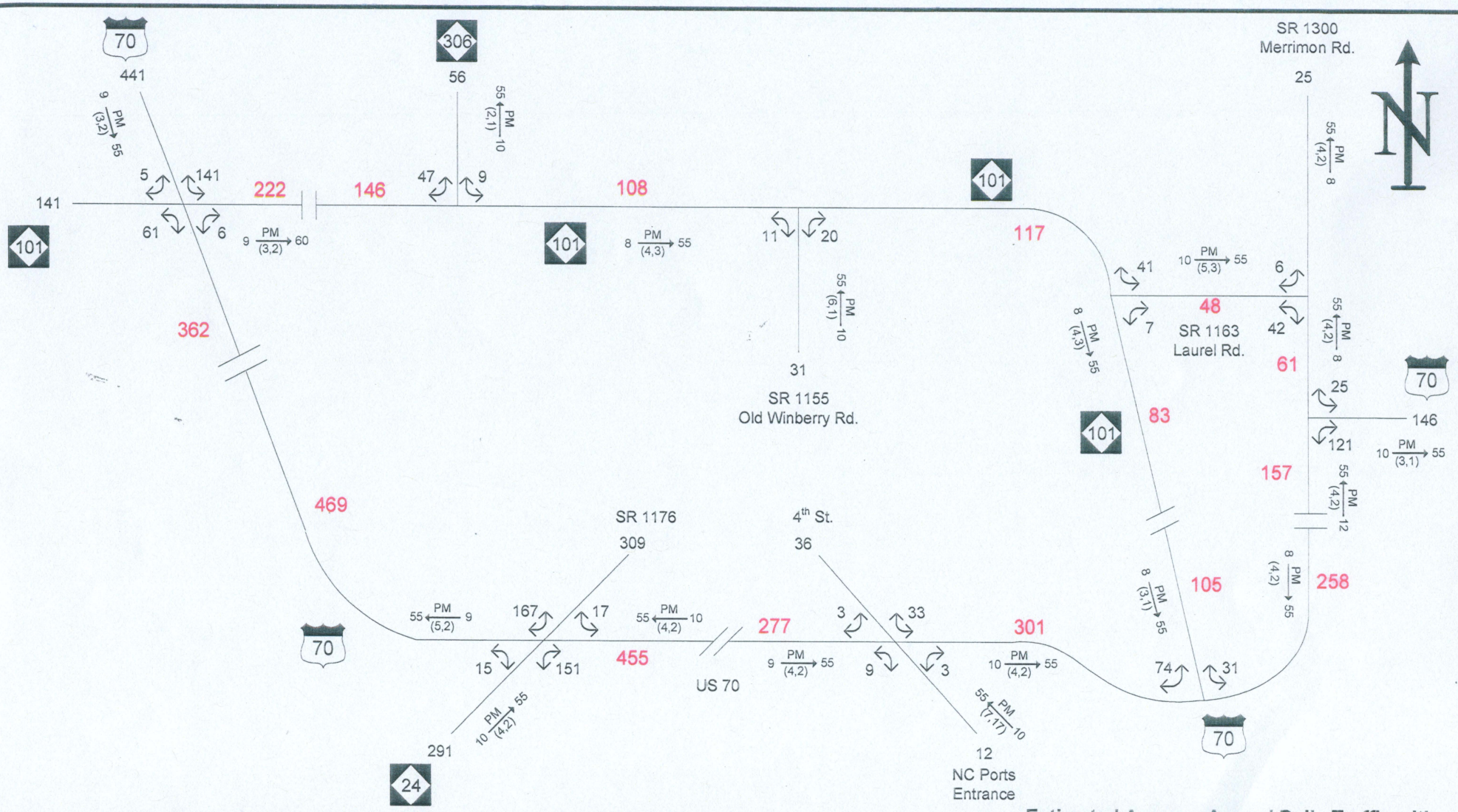
PROJECT:

Havelock Bypass to Beaufort

Counties: Craven & Carteret

DIV. : 02 **DATE: April, 2007**

TIP # R-4431 **WBS# 34263.1.1**



Forecast # 1 (No Build)

2030 ESTIMATED AADT

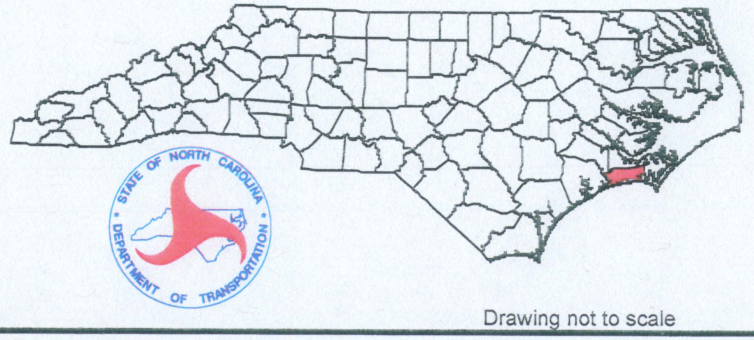
Estimated Average Annual Daily Traffic with Truck, DHV, and Directional Precentages

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT

DHV —PM (d, t)→ D

DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
REVERSE FLOW FOR AM PEAK	
(d,t)	DUALS, TT-ST'S (%)



Drawing not to scale

LOCATION:

New Route

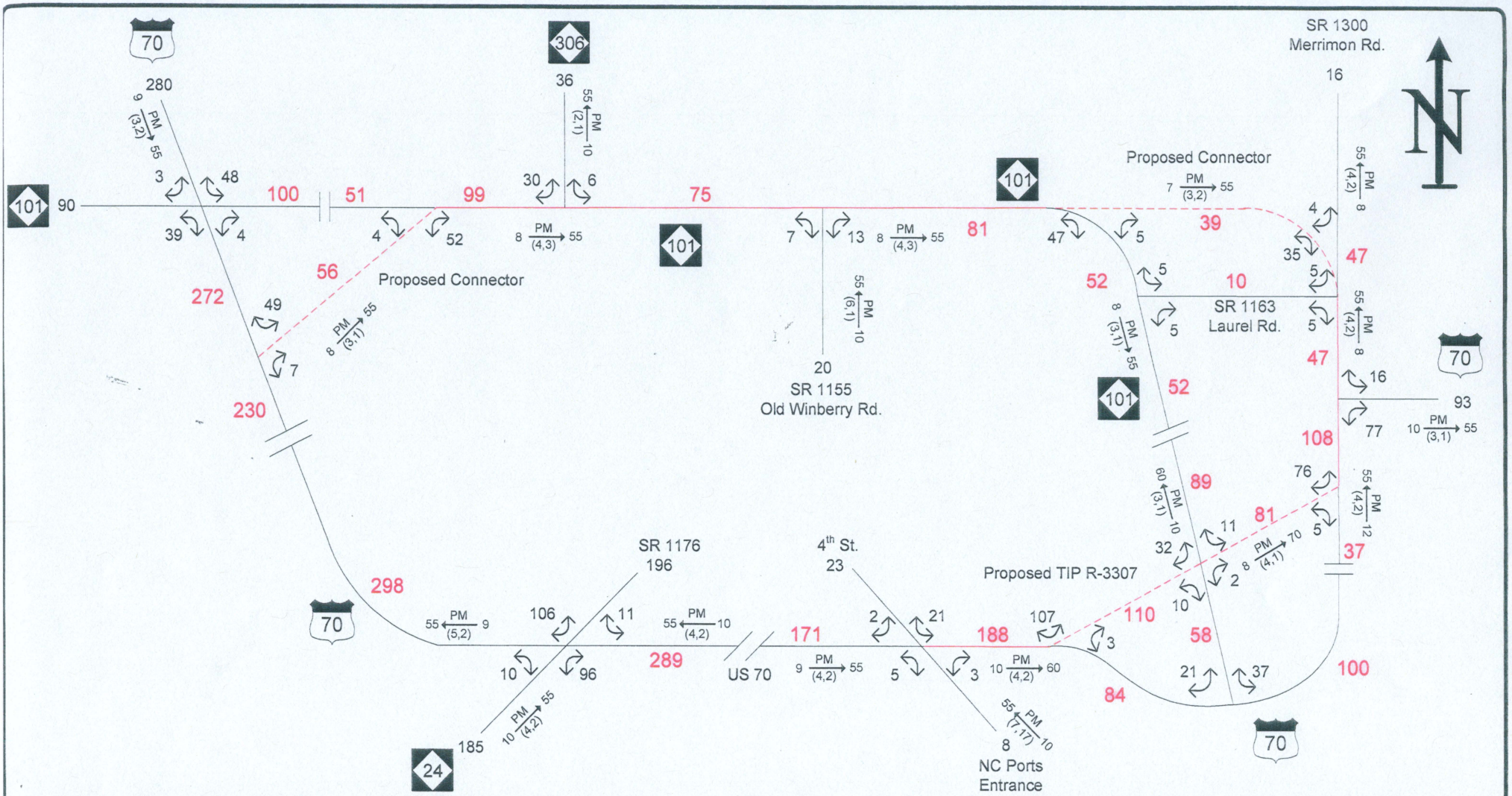
PROJECT:

Havelock Bypass to Beaufort

Counties: Craven & Carteret

DIV. : 02 **DATE: April, 2007**

TIP # R-4431 **WBS# 34263.1.1**



Forecast # 3 (Alternative #1 Option B Build) **2007 ESTIMATED AADT**

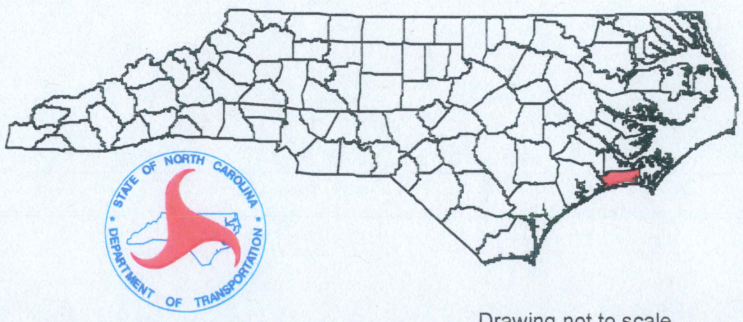
Estimated Average Annual Daily Traffic with Truck, DHV, and Directional Precentages

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT

DHV —PM (d, t)→ D

DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
REVERSE FLOW FOR AM PEAK	
(d,t)	DUALS, TT-ST'S (%)



Drawing not to scale

LOCATION:

New Route

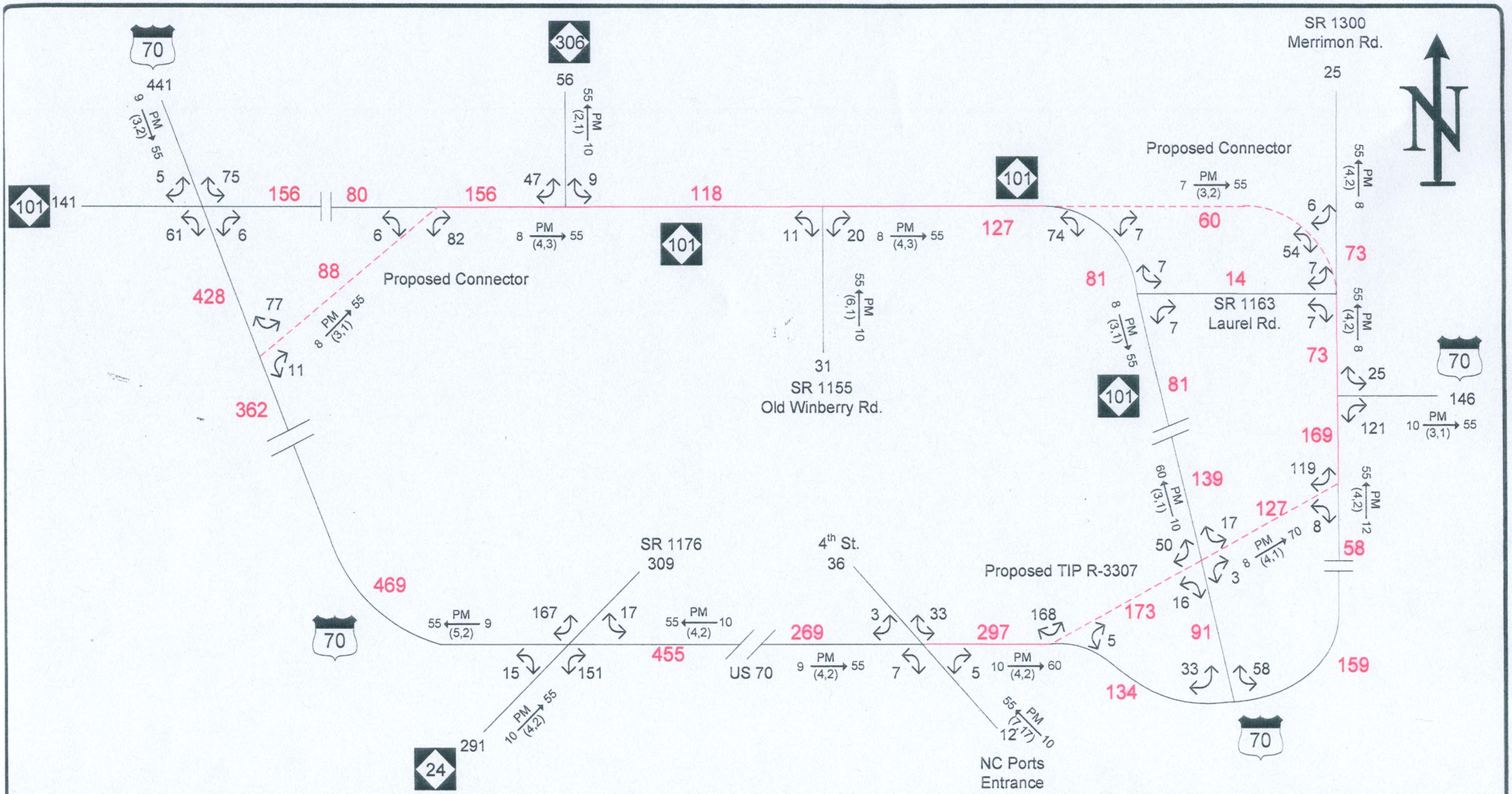
PROJECT:

Havelock Bypass to Beaufort

Counties: Craven & Carteret

DIV. : 02 **DATE: April, 2007**

TIP # R-4431 **WBS# 34263.1.1**



Forecast # 3 (Alternative #1 Option B Build) **2030 ESTIMATED AADT**

Estimated Average Annual Daily Traffic with Truck, DHV, and Directional Precentages

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT

DHV $\xrightarrow[(d,\,t)]{PM}$ D

DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
REVERSE FLOW FOR AM PEAK	
(d,t)	DUALS, TT-ST'S (%)

LOCATION:

New Route

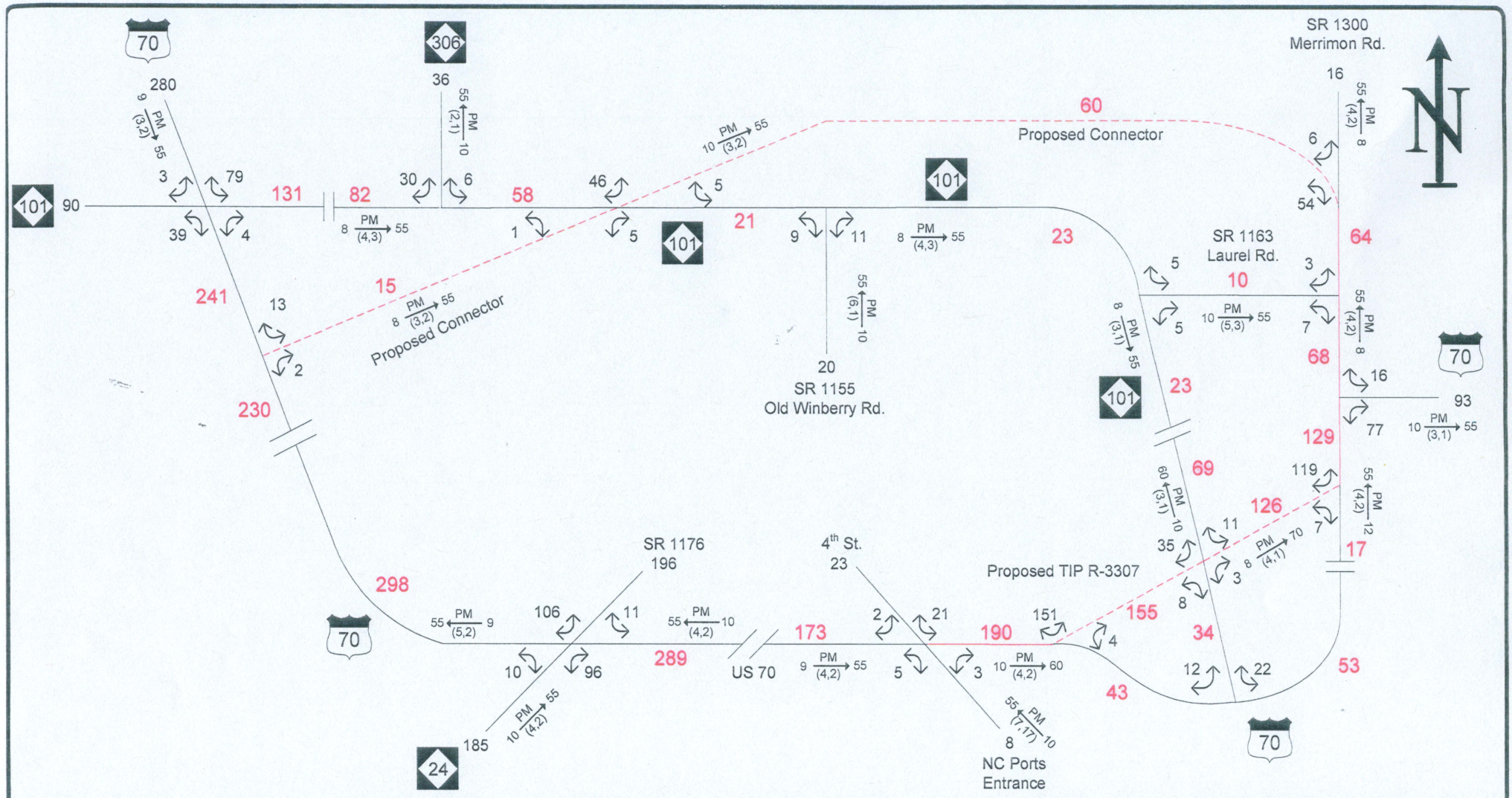
PROJECT:

Havelock Bypass to Beaufort

Counties: Craven & Carteret

DIV. : 02 **DATE: April, 2007**

TIP # R-4431 **WBS# 34263.1.1**



Forecast # 5 (Alternative #2 Option B Build) **2007 ESTIMATED AADT**

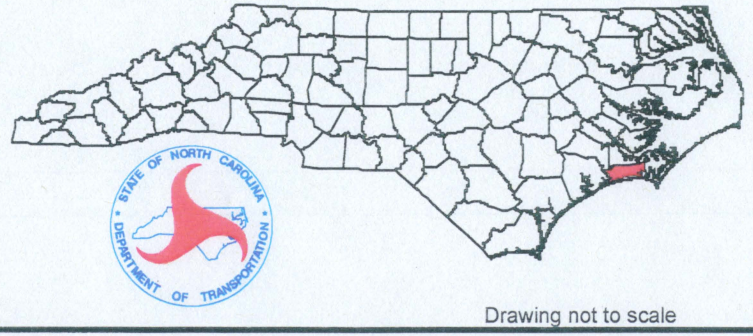
Estimated Average Annual Daily Traffic with Truck, DHV, and Directional Precentages

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT

DHV PM (d, t) → D

DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
	REVERSE FLOW FOR AM PEAK
(d,t)	DUALS, TT-ST'S (%)



Drawing not to scale

LOCATION:

New Route

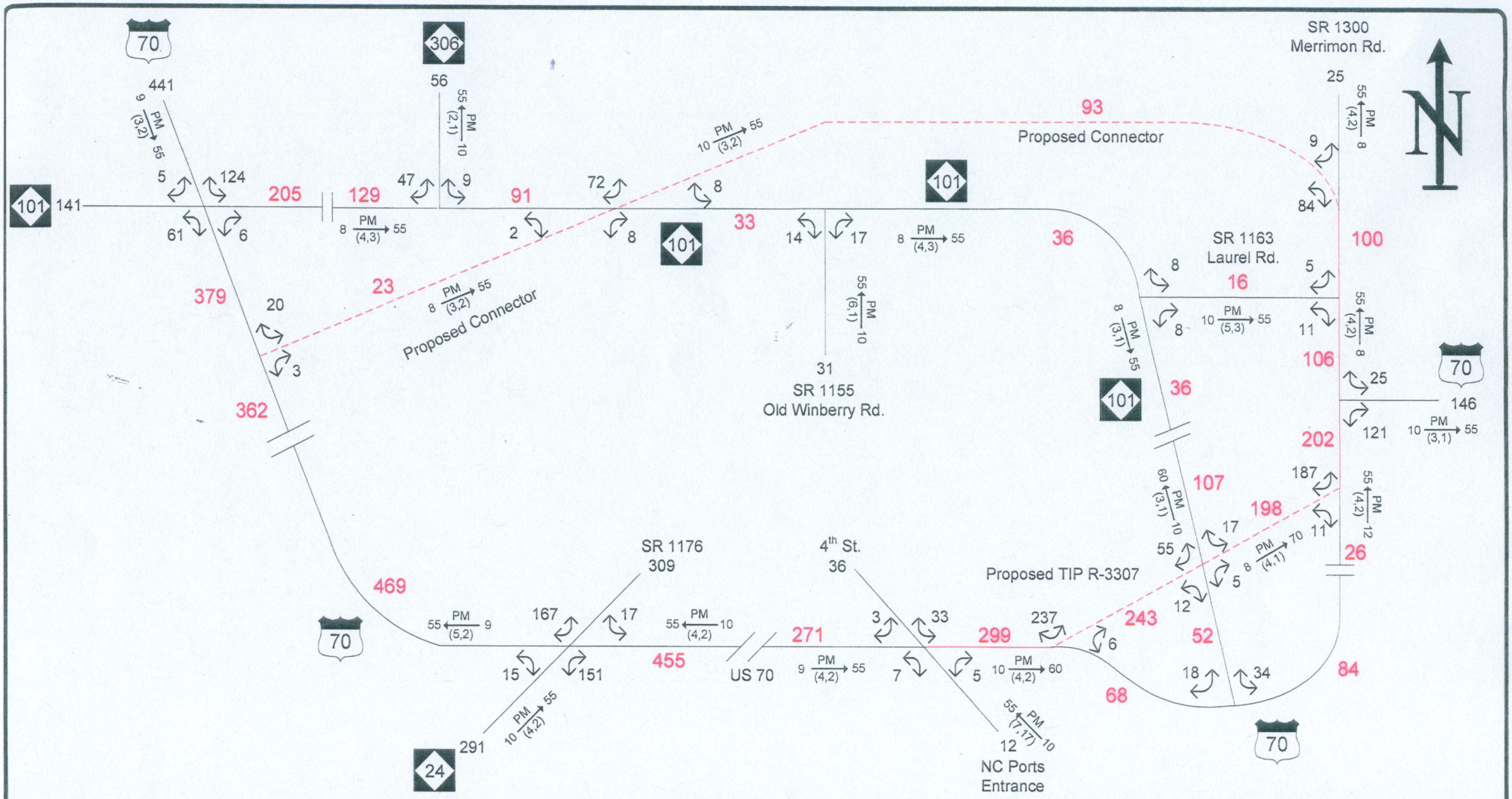
PROJECT:

Havelock Bypass to Beaufort

Counties: Craven & Carteret

DIV. : 02 **DATE: April, 2007**

TIP # R-4431 **WBS# 34263.1.1**



Forecast # 5 (Alternative #2 Option B Build) **2030 ESTIMATED AADT**

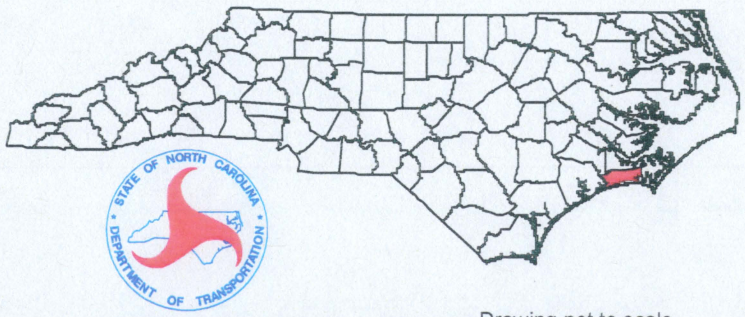
Estimated Average Annual Daily Traffic with Truck, DHV, and Directional Precentages

LEGEND

###	VPD----# OF VEHICLES PER DAY IN 100'S
### -	MUCH LESS THAN ### VPD
X	MOVEMENT PROHIBITED
→	ONE-WAY MOVEMENT

DHV —PM (d, t)→ D

DHV	DESIGN HOURLY VOLUME (%) = K30
	K30 = 30'TH HIGHEST HOURLY VOLUME
PM	PM PEAK PERIOD
D	DIRECTIONAL SPLIT (%)
→	INDICATES DIRECTION OF D
REVERSE FLOW FOR AM PEAK	
(d,t)	DUALS, TT-ST'S (%)



Drawing not to scale

LOCATION:

New Route

PROJECT:

Havelock Bypass to Beaufort

Counties: Craven & Carteret

DIV. : 02 **DATE: April, 2007**

TIP # R-4431 **WBS# 34263.1.1**

For Feasibility Studies Only
Not for Construction
Subject to Change Without Notice

NC 101

E. D. MILLER HOUSE

JOSHUA ADAMS STORE AND POST OFFICE

ADAMS CREEK RD. (SR 1700)

CLUBFOOT & HARLOWE CREEK CANAL

INTRACOASTAL WATERWAY

MERRIMON ROAD (SR 1300)

BEGIN SECTIONS 1 & 2

BEGIN SECTION 3

ERNEST WEBB HOUSE

CRAVEN COUNTY

TIP# R-1015

BEGIN SECTION 7

HARLOWE

CARTERET COUNTY

CROATAN NATIONAL FOREST

RUFUS BELL HOUSE

TRUSS BRIDGE #101-16-10

CORE CREEK BRIDGE

BEGIN SECTION 4

NC 101

LAUREL RD. (SR 1163)

MERRIMON ROAD (SR 1300)

HARDESTY LOOP RD. (SR 1160)

DANNY GARNER RD. SR 1134

CROATAN NATIONAL FOREST

TURNPIKE RD. (SR 1159)

INTRACOASTAL WATERWAY

WALKERS MILL POND

OLD WINEBERRY RD. (SR 1155)

US 70

E. CARTERET DR. (SR 1238)

COLONIAL ST. (SR 1445)

MURRAY DR.

BEGIN SECTION 5

HARBOR DR. SR 1466

NC 101

NORTH RIVER

NEWPORT

US 70

OLGA RD. (SR 1429)

CEDAR AVE. (SR 1449)

BEGIN SECTION 6

For Feasibility Studies Only
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NC 101

AIRPORT RD. (SR 1212)

US 70

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MOREHEAD CITY

END PROJECT

TIP# R-3307

CARTERET COUNTY HOME

BEAUFORT

SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 6
SECTION 7

DRAWN BY : _____ DATE : _____
CHECKED BY : _____ DATE : _____

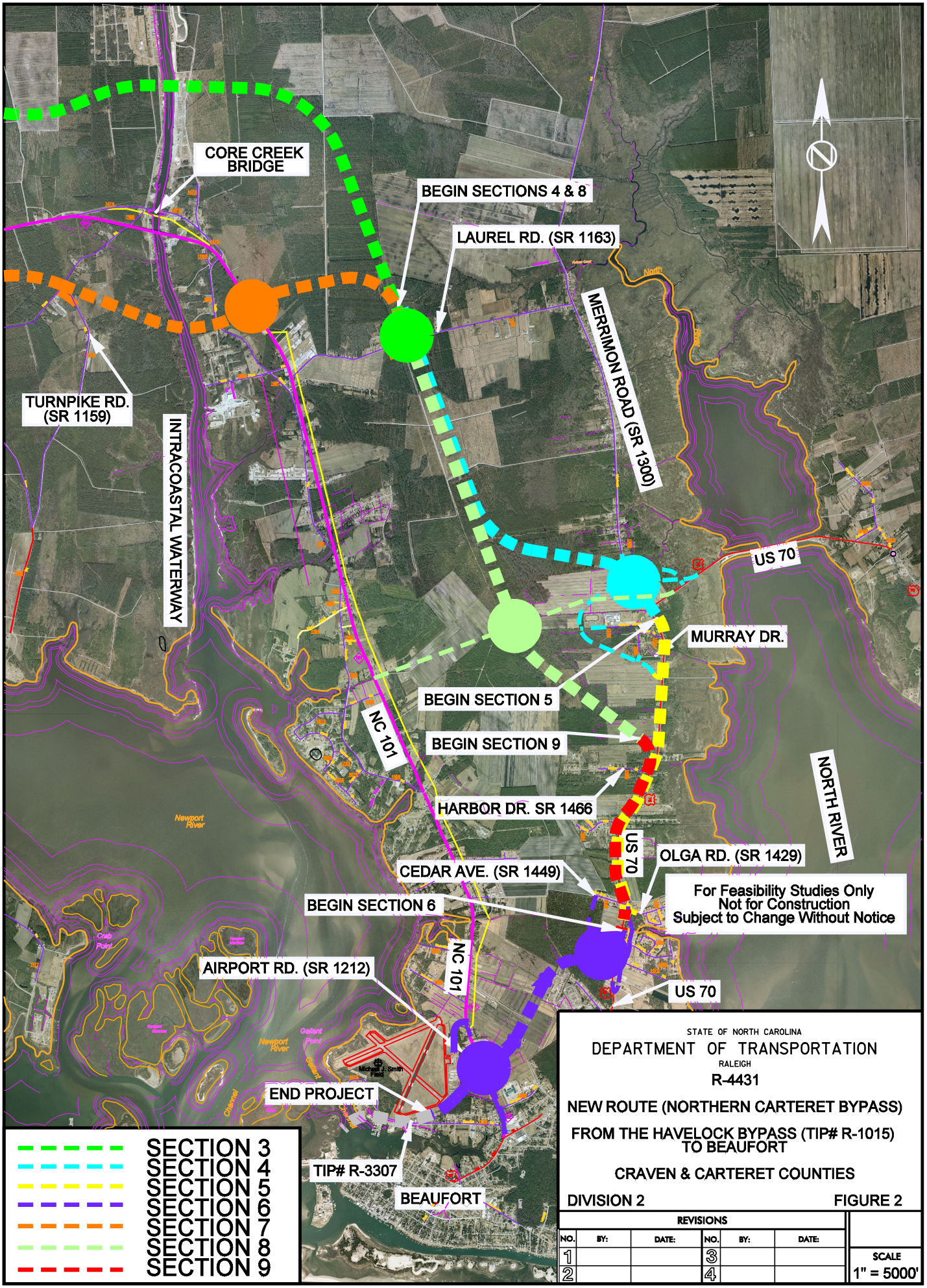
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

R-4431

NEW ROUTE (NORTHERN CARTERET BYPASS)
FROM THE HAVELOCK BYPASS (TIP# R-1015) TO BEAUFORT
CRAVEN & CARTERET COUNTIES

DIVISION 2 FIGURE 1

REVISIONS						SHEET
NO.	BY:	DATE:	NO.	BY:	DATE:	1 OF 1
1			3			SCALE
2			4			1" = 6000'



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

R-4431

NEW ROUTE (NORTHERN CARTERET BYPASS)

FROM THE HAVELOCK BYPASS (TIP# R-1015)
TO BEAUFORT

CRAVEN & CARTERET COUNTIES

DIVISION 2 FIGURE 2

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SCALE
1" = 5000'