STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

December 31, 2014

MEMORANDUM

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

FROM: Mr. Henry Esealuka
Feasibility Studies Engineer

SUBJECT: **R-2529 –** Proposed widening of NC 24/NC 27 from Carthage Bypass to NC 87; Harnett / Moore County.

As requested, we have completed feasibility study R-2529 for the widening of NC 24/NC 27 from Carthage Bypass to NC 87 in Harnett/Moore County. This Project proposes to upgrade the existing two-lane roadway to a four-lane divided facility as mentioned above, a distance of approximately 20 miles.

Our evaluation of this project was based on a four-lane shoulder section, 102 feet from edge of pavement to edge of pavement with 12-foot travel lanes, a 46-foot depressed grass median, and 8-foot shoulder; of which 4 feet is paved on 300 feet of right of way. Two alternatives were investigated and are described below. It is anticipated that between 149 and 212 residences and between 12 and 24 businesses would need to be relocated due to this project.

Alternative #1: 212 residences and 24 businesses would be relocated. The estimated total cost of this project using existing alignment on 300 feet of right-of-way; including construction, utility relocation and right-of-way is estimated to be **$134,700,000.**

Construction	$81,500,000
Right of Way	$48,100,000
Utility Relocation	$ 5,100,000

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Alternative #2: 158 residences and 12 businesses would be relocated. The estimated total cost of this project utilizing majority of the existing alignment except for a slight realignment bypassing the Town of Cameron on 300 feet of right-of-way; including construction, utility relocation and right-of-way is estimated to be **$120,700,000.**

Construction	$82,900,000
Right of Way	$ 32,900,000
Utility Relocation	$ 4,900,000

Analyses indicated that either of these alternatives would accommodate the projected 2035 design year volume with an acceptable level of service (LOS). The cost difference between the two alternatives is $13,280,000 million, in favor of a bypass. No significant impacts to the Town of Cameron is obvious due to these improvements. Therefore, due to these factors, Alternative #2 is the preferred option.

The current year Average Daily Traffic (ADT) along NC 24/NC 27 ranges from 2,500 vehicles per day (vpd) at the west end to 8,200 vpd at the east end. For the design year 2035, the traffic volume along NC 24/NC 27 is estimated to range between 3,700 vpd at the west end to 16,200 vpd at the west end. Truck traffic is estimated to make up approximately 9 percent of the daily traffic.

The existing segment of NC 24/NC 27 is currently operating at a level of service (LOS) "C". This portion of NC 24/NC27 will operate at a level of service "E" If no improvements are made prior to the 2035 design year. However, with the proposed improvements, this segment of NC 24/NC27 is projected to operate at a LOS "B".

Between October 1, 2008 and September 30, 2011, there were 151 total crashes reported within the project limits including two (2) fatalities. The crash rate on NC 24/NC 27 within the project limits is 188.14 crashes per 100 million vehicle miles (crashes/100mvm) traveled. This rate is slightly higher than the statewide rate of 186.70 crashes/100MVM for two-lane undivided rural United States routes.

There were 94 property damage, 57 injury crashes and 2 fatal crashes. The most prevalent accident types along this corridor are as follows: Approximately 23 percent of accidents were with animal, 23 percent were Fixed Object, 9 percent were with Left Turn, Same Roadway and 22 percent each were Rear End and Angle accidents. Individually, all other accident types are approximately twenty-three (23) percent or less of the total accidents.

Land/Air Environmental: Cameron Town Well #5 is located along NC 24/27 west of the US 1.

Water Environment concerns: There are Water Supply Watersheds along the project area.

Property Impact Concerns: It should be noted that Cameron Elementary School is located near the NC 24/27 and US 1 intersection.

Historic Concerns: It should be noted that Cameron Historic District, a landmark site on the National Register Historic Sites is located within Cameron at the NC 24/27 and US 1 intersection.

Threatened and Endangered Species:

Table 1 below describes Threatened and Endangered Species found within the project study area

Table 1

Common Name	Scientific Name	Federal Status
Pigmy Rattlesnake	**Sistrurus Millarius**	**N/A**
Sandhills Pyxie-Moss	**Pyxidanthera Brevifolia**	**FSC**
Pine Barrens Treefrog	**Hyla Andersonii**	**N/A**
Eaton's Ladies-Tresses	**Spiranthes Eatinii**	**N/A**
Narrowleaf Bluecurls	**Trichostema Setaceum**	**N/A**

Species Status: E refer to Endangered species; FSC refers to Federal Species of concern

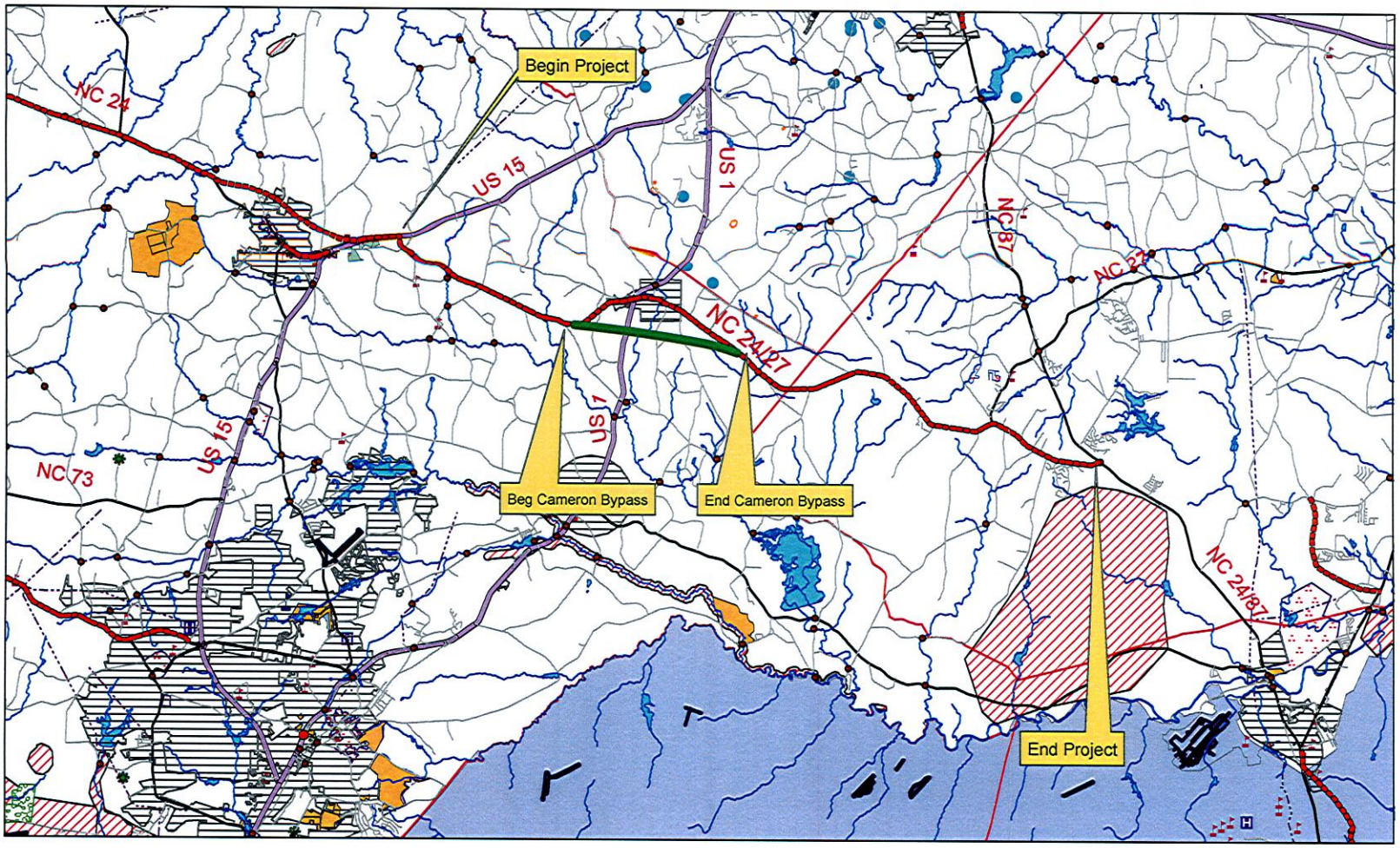
As you are aware, this work is preliminary and not the product of comprehensive environmental or design evaluations. If you should have further questions or additional information is needed, please do not hesitate to contact me at 919-707-4661, or via e-mail at hesealuka@ncdot.gov.

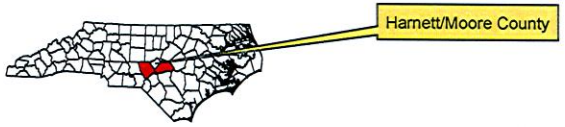
ATT: Project Map

cc: Alpesh Patel, P.E., Assistant Branch Manager
Ray McIntyre, P.E., TIP Eastern Region
Mike Stanley, P.E., TIP Central Region
Greg Burns, P.E., Division 6 Engineer
Robert W Stone II, P.E., Division 8 Engineer

Figure 1

R-2529





0 1.252.5 5 7.5 10 Miles

Project Limits

Cameron Bypass

N W E S