

FEASIBILITY STUDY

**Palmer Street Extension
from NC 211 at SR 1149
to NC 20 at SR 1403 in Raeford**

Hoke County

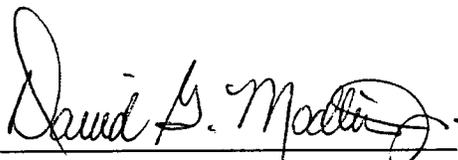
Division 8

U-3816

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation



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Date

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I. GENERAL DESCRIPTION

This feasibility study evaluates the extension of Palmer Street from NC 211 at SR 1149 (East Palmer Street) to NC 20 at SR 1403 (Prospect Avenue) in Raeford, Hoke County (see Figure 1). The project is approximately 0.9 miles (1.4 km) in length.

Two alternates with the same alignment but having different typical sections were studied. The first alternate is a two-lane shoulder section (as suggested by the City of Raeford) with 12-foot (3.7-m) wide travel lanes, and 8-foot (2.4-m) wide shoulders.

The second alternate is a four-lane, median divided shoulder section, with two 12-foot (3.7-m) wide travel lanes in each direction, 46-foot (14-m) wide grass median with 8-foot wide (2.4-m) outside shoulders (4-foot (1.2-m) paved) and with 2-foot (0.6-m) paved median shoulders.

The recommended alternate is staged construction with two lanes on multi-lane right-of-way. The estimated cost of this alternate is \$2,470,000 (\$220,000 for right-of-way and \$2,250,000 for construction).

The project corridor lies within an area that is mostly open farm land. It is anticipated that no residences or businesses will be relocated due to this project.

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.

II. NEED FOR PROJECT

This project was requested by the City of Raeford and is the third highest priority project for Hoke County. This project would complete the southern portion of an outer loop for Raeford. It would provide a continuous route from NC 211 in northwest Raeford to NC 20 which provides a direct link to I-95. Truck and other through traffic on NC 211 would have access to I-95 without having to go through the local streets.

Palmer Street Extension is classified as a major thoroughfare on the Raeford Thoroughfare Plan.

The project corridor lies within an area that is mostly farm land.

Estimated traffic volume on Palmer Street Extension in the design year 2025 is 11,500 vehicles per day.

The Aberdeen and Rockfish Railroad has one (1) track crossing the project corridor. The track carries 4 to 5 trains per week at an average speed of 25 miles per hour (40 kmh). The exposure index, a product of the design year traffic and the number of trains per day, at this location is 7400, which is below the threshold of 15,000 that warrants a grade separation in a rural area.

III. STUDIED IMPROVEMENTS

This feasibility study evaluates the extension of Palmer Street from NC 211 at SR 1149 (East Palmer Street) to NC 20 at SR 1403 (Prospect Avenue) in Raeford, Hoke County (see Figure 1). The project is approximately 0.9 miles (1.4 km) in length. Two alternates with the same alignment but having different typical sections were studied.

Alternate 1

The studied typical section is a two-lane, shoulder section with 12-foot (3.7-m) wide travel lanes and 8-foot (2.4-m) wide shoulders, of which 4-foot (1.2-m) is paved. A 100-foot (30.5-m) wide right-of-way with no control of access is recommended. The estimated cost of the project is \$1,990,000 (\$190,000 for right-of-way and \$1,800,000 for construction).

However, a two-lane facility (as suggested by the City of Raeford) with an estimated 11,500 vehicles per day (vpd) in the design year 2025 would operate at a level of service (LOS) E, which is below the design LOS C for a rural route.

Alternate 2

The studied typical section is a four-lane, median divided shoulder section, with two 12-foot (3.7-m) wide travel lanes in each direction, a 46-foot (14-m) wide grass median with 8-foot wide (2.4-m) outside shoulders of which 4-foot (1.2-m) is paved and with 2-foot (0.6-m) paved median shoulders. A 200-foot (61-m) wide right-of-way with no control of access is recommended. The estimated cost of the project is \$3,170,000 (\$220,000 for right-of-way and \$2,950,000 for construction).

This alternate would operate at LOS A, which will prevail through the design year 2025.

Given the high level of service afforded by the studied four-lane divided section, the option to provide two lanes on multi-lane right-of-way might be attractive. With the small cost difference between the two-lane and four-lane rights-of-way, staged construction would provide the necessary cross-section through the design year and also the right-of-way for future widening.

If a two-lane facility is built on four-lane right-of-way, the estimated cost of the project is as follows:

| | |
|--------------|---------------------|
| Right-of-Way | \$ 220,000 |
| Construction | <u>\$ 2,250,000</u> |
| Total | \$ 2,470,000 |

At the eastern terminal of the project, a section of SR 1403 west of NC 20 should be relocated to avoid a five-legged intersection as shown in Figure 1. The estimated future traffic volume for NC 20 is considerably lower than that for Palmer Street Extension; therefore the relocated section of SR 1403 should intersect NC 20 south of the existing intersection. It is recommended that this new intersection be signalized.

It is recommended that the railroad crossing at Aberdeen and Rockfish Railroad track be protected with gates on all four quadrants.

It is anticipated that this project would not require the relocation of any residences or businesses.

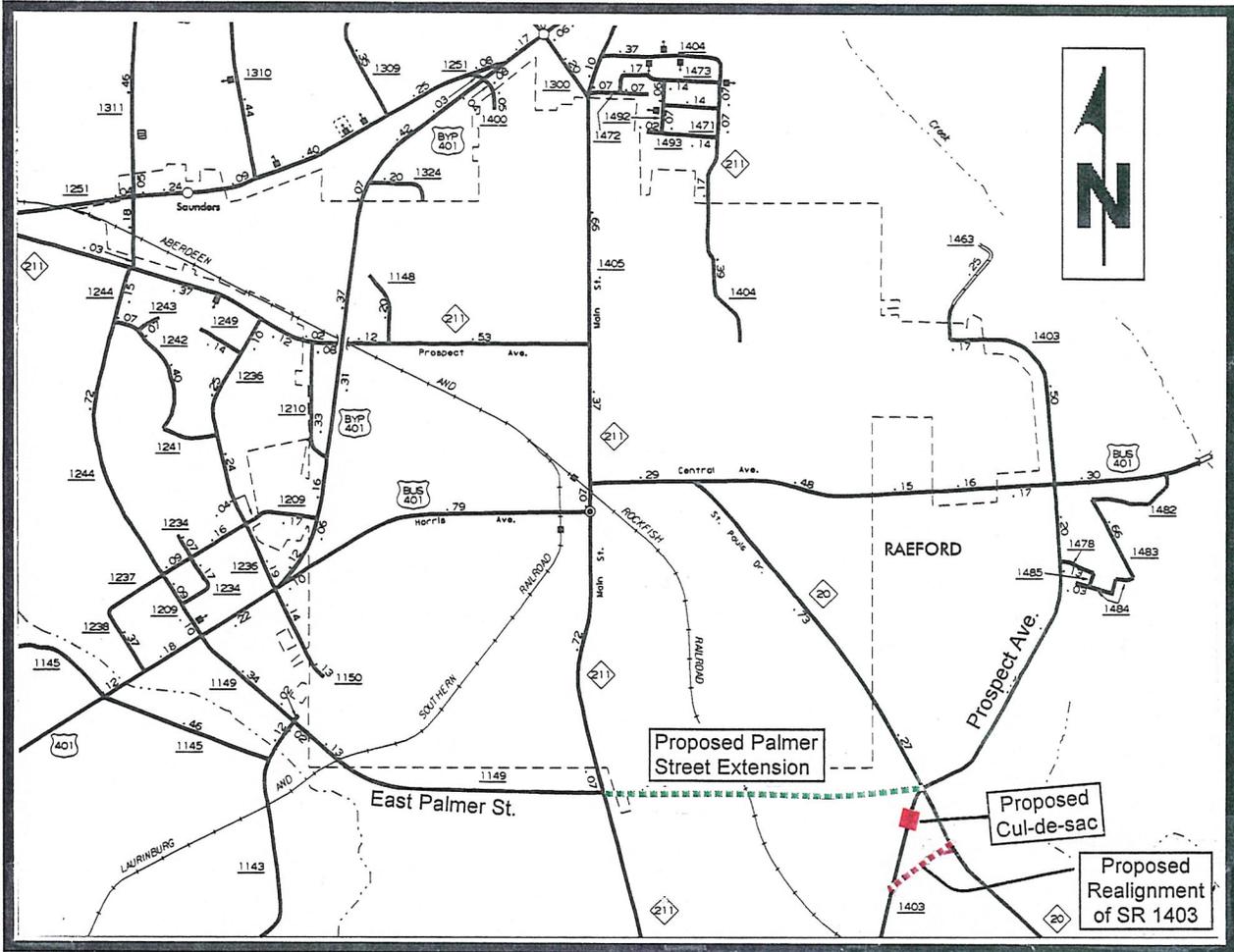
IV. OTHER COMMENTS AND CONCERNS

Based on maps available at the Department of Environment, Health, and Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor.

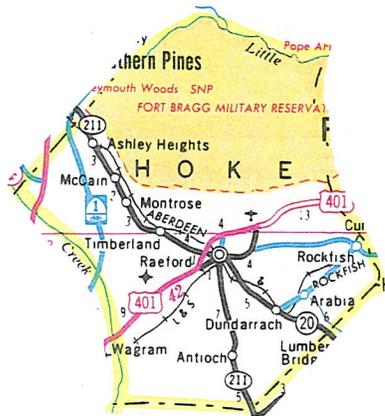
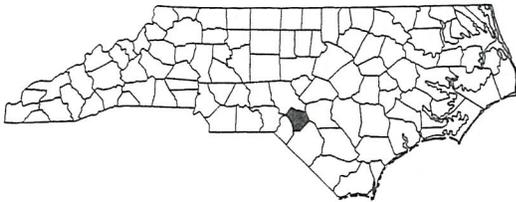
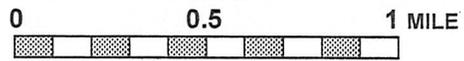
A small quantity of wetland is impacted by this project. The costs of wetland mitigation is not included in the total cost of the project.

No recommendation for bicycle accommodations was received from the NCDOT Office of Bicycle and Pedestrian Transportation.

Based on current traffic of 6200 vpd, SR 1149 (East Palmer Street) is operating at LOS D. It is anticipated that with Palmer Street Extension, additional traffic will be attracted and diverted to existing East Palmer Street; consequently, East Palmer Street will require future improvements. The widening of East Palmer Street should be coordinated with the widening of Palmer Street Extension.



SCALE



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|---|-----------------|
| <p>N C DEPARTMENT OF TRANSPORTATION FEASIBILITY STUDIES UNIT</p> | |
| <p>U-3816</p> | |
| <p>Palmer Street Extension from NC 211 at SR 1149 to NC 20 at SR 1403</p> | |
| <p>Raeford Hoke County</p> | |
| <p>Division 8</p> | <p>Figure 1</p> |