FEASIBILITY STUDY

Ray Road (SR 1121)
From NC 210 to Overhills Road (SR 1120)
Harnett County

U-3465

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

David W. Conner
Highway Planning Engineer

David G. Modlin, Jr., Ph.D., P.E.
Head of Feasibility Studies

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Date

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I. General Description

This feasibility study describes proposed improvements to Ray Road (SR 1121) in Harnett County. It is proposed to widen and realign portions of Ray Road from NC 210 to Overhills Road (SR 1120), a total length of 3.4 miles (5.6 km). The location of the recommended improvements is shown on Figure 1.

The recommended cross section is a 5-lane, 64-foot (19.5-m) wide (face-to-face), curb-and-gutter section, with 8-foot (2.4-m) wide berms, throughout the project length. The required right-of-way width is 100 feet (30.5 m).

The estimated cost for right-of-way and construction is $8,800,000 as follows:

Right-of-Way	$2,300,000
Construction	$6,500,000
Total Cost	$8,800,000

This study is the initial step in the planning and design process for this project and is not to be considered the product of exhaustive environmental or design investigations. The purpose of this study is to describe the alternative treatments including costs, and identify potential problem areas that deserve consideration in the planning and design phases.

II. Need For Project

This project was requested by the City of Fayetteville and is the fifth highest priority project of the Transportation Advisory Committee, Fayetteville Urbanized Area.

The purpose of this project is to increase the traffic carrying capacity of Ray Road, reduce the accident potential, and to improve the Level of Service.

Ray Road is designated as a major thoroughfare on the Fayetteville Thoroughfare Plan. It is classified as an Urban Collector in the North Carolina Statewide Functional Classification System.

Ray Road is rural in nature and moderately developed from NC 210 to Overhills Road. Development includes a mixture of residential subdivisions, mobile home parks, community type businesses, a strip shopping center, a church, and a fire station.

Existing Ray Road is generally a 2-lane, 2-way, 24-foot (7.3-m) wide, shoulder section with 4-foot to 6-foot (1.2-m to 1.8-m) wide soil shoulders. It includes areas with horizontal curvature problems that have contributed to a high number of run-off-the-road accidents.

During the period from April 1, 1992 to March 31, 1995, there were 126 accidents reported on Ray Road between NC 210 and Overhills Road. This resulted in a total accident rate of 503 accidents per 100 million vehicle miles (Acc/100MVM) compared to a statewide average of 357 Acc/100MVM for all urban secondary routes during 1994. There were no fatalities reported, on this segment of roadway, during this period; however, there were 104 injuries reported. The most prevalent accident types were ran-off-the-road (29%), rear-end (24%), and left turn (14%). The wider cross section with a center turn lane and the realigned roadway should reduce the potential for these types of accidents.

At the southern project terminal, NC 210 is currently 2-lane roadway which, along with Ray Road, has been widened to 3 lanes at the intersection. This intersection is presently controlled by a traffic signal. (NC 210 is scheduled in the TIP for upgrading in the near future as part of project R-2230).

At the northern project terminal, Overhills Road is generally a 2-lane, 2-way roadway. The intersection with Ray Road is presently stop sign and flasher controlled.

The 1996 Average Daily Traffic (ADT) on Ray Road (within the project limits) is estimated to vary from approximately 5,000 vehicles per day (vpd) near Overhills Road to approximately 7,500 vpd near NC 210. It is anticipated that the ADT will increase to approximately 8,200 vpd and 12,100 vpd respectively by the year 2020.

Based on current traffic volumes, it is estimated that the existing roadway is operating at a Level of Service C and approaching D. If improvements are not made, it is anticipated that the roadway will reach a Level of Service E by the design year (2020). The proposed improvements should raise the Level of Service to A which should prevail through the design year.

III. Recommendations

It is proposed to widen and realign portions of Ray Road from NC 210 to Overhills Road (SR 1120), in Harnett County, a total length of 3.4 miles (5.6 km). The location of the recommended improvements is shown on Figure 1.

The recommended cross section is a 5-lane, 64-foot (19.5-m) wide (face-to-face), curb-and-gutter section, with 8-foot (2.4-m) wide berms, throughout the project length. The required right-of-way width is 100 feet (30.5 m).

The proposed widening should generally follow the existing roadway alignment; however, to improve safety conditions, the horizontal alignment should be improved from approximately 0.1 miles (0.2 km) west of NC 210 to approximately 0.4 miles (0.6 km) west of SR 1124 and from approximately 0.3 miles (0.5 km) east of SR 1160 to SR 1162.

SR 1124 should be extended to intersect the realigned roadway.

Traffic signal modifications will be required at NC 210. All other intersections should be stop sign controlled.

At both project terminals, Ray Road should include a right-turn lane, a through lane, a left-turn lane, and two lanes exiting the intersection.

It is estimated that 13 residences and 1 business will be relocated as a result of this project.

The estimated cost for the studied improvements, including right-of-way and construction, is $8,800,000 as follows:

Right-of-Way	$2,300,000
Construction	$6,500,000
Total Cost	$8,800,000

IV. Other Comments

No wetlands or historic properties are anticipated on this project; however, an environmental screening was not conducted.

END PROJECT

SR 1120
(OVERHILLS RD)

HELLY'S POND

LAKE HOLTON

LAKE McKAY

SR 1162

SR 1160

PROPOSED CUL DE SACS

PROPOSED CUL DE SACS

SR 1121 (RAY RD)

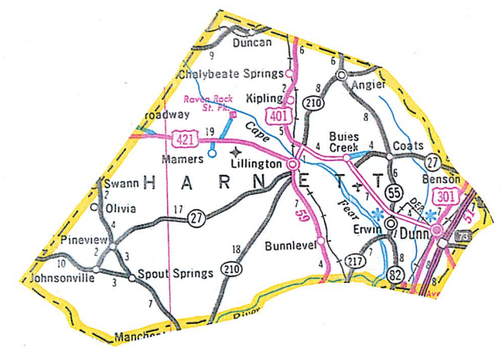
SR 1124

NC 210

BEGIN PROJECT

LITTLE

NORTH



SCALE
0 .5 MI 1 MI

FEASIBILITY STUDIES UNIT		
SR 1121 (RAY RD) From NC 210 to SR 1120 (Overhills Rd) HARNETT COUNTY		
DIV 6	U-3465	FIGURE 1