

FEASIBILITY STUDY

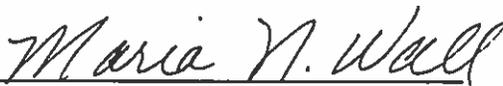
Hudson

Realignment of the intersection of US 321 Alternate,
SR 1159 (Pleasant Hill Road), and SR 1160 (Mt. Herman Road)

Caldwell County

U-3437

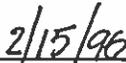
Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation



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I. GENERAL DESCRIPTION

This is a feasibility study for the realignment of intersection of US 321 Alternate, SR 1159 (Pleasant Hill Road), and SR 1160 (Mt. Herman Road) in Caldwell County (See Figure 1). Four alternates were studied. Alternate A is recommended. This alternate is approximately 0.7 miles (1.1 km) in length. The recommended typical section is a two-lane, 24-foot (7.3-m) roadway with 8-foot (2.4-m) shoulders, including 2-foot (0.6-m) paved shoulders, on a 100-foot (30.5-m) wide right-of-way with no access control. The estimated project cost is \$2,150,000 (\$500,000 for right-of-way and \$1,650,000 for construction).

II. NEED FOR PROJECT

The purpose of this project is to provide better access between SR 1159 and US 321. SR 1159 (Pleasant Hill Road) is classified as a minor collector on the Statewide Functional Classification System, and a major thoroughfare on the 1981 Caldwell County Thoroughfare Plan. SR 1160 (Mt. Herman Road) is classified as a local road on the Statewide Functional Classification System, and a major thoroughfare on the 1981 Caldwell County Thoroughfare Plan.

Both SR 1159 and SR 1160 are two-lane, 20-foot (6.1-m) wide roadways with 4-foot (1.2-m) wide shoulders. Land use throughout the study corridor is residential, institutional, and industrial.

The Carolina and Northwestern Railway runs parallel to US 321 Alternate and crosses SR 1159 in Hudson. This rail line carries 2 trains per day at an average speed of 10 miles per hour (16.1 kmh). The exposure index, a product of the number of trains per day and the design year traffic volume, is 12,200 at this location.

Bridge Number 94 carries SR 1160 over Gunpowder Creek. It is located approximately 0.1 mile (0.2 km) south of US 321. The sufficiency rating of this bridge is 81.5. The bridge deck is approximately 33 feet (10.1 m) wide and 132 feet (40.2 m) in length.

TIP Project Number U-2543 proposes to widen US 321 Alternate to a multi-lane curb and gutter facility, from SR 1107 in Granite Falls to NC 18 Bypass in Lenoir. This project would include the section of US 321 crossed by TIP Project Number U-3437.

Estimated 1995 average daily traffic (ADT) on the recommended alternate is 6,700 vehicles per day (vpd). In the design year 2015, the traffic volume is expected to be 12,500 vpd. The recommended 2-lane route would operate at a level of service (LOS) C in 1995 and a LOS D in 2015.

III. ALTERNATES STUDIED

As shown in Figure 1, four alternates were evaluated to provide improved access between SR 1159 and US 321. The recommended typical section for each alternate was a two-lane, 24-foot wide (7.3-m) roadway with 8-foot (2.4-m) shoulders, including 2-foot (0.6-m) paved shoulders, on a 100-foot (30.5-m) wide right-of-way. The table below is a summary of results for each of the studied alternates.

	Alternate A	Alternate B	Alternate C	Alternate D
Length	0.68 mile	0.74 mile	0.89 mile	0.80 mile
Construction Cost	\$1,650,000	\$1,500,000	\$2,400,000	\$2,000,000
Right-of-Way Costs	\$500,000	\$780,000	\$460,000	\$510,000
Total Project Cost	\$2,150,000	\$2,280,000	\$2,860,000	\$2,510,000
Residential Relocations	2	6	1	2
Business Relocations	0	0	0	0
Estimated 1995 ADT	6,400	6,400	2,400	2,400
Estimated 2015 ADT	12,500	12,500	5,500	5,500

IV. RECOMMENDATIONS

Alternate A is the recommended corridor for this project. This alternate was chosen, because it was the least expensive and the shortest route. Although the recommended route bisects an existing neighborhood, there would only be two residential relocations. Left-turn lanes will be added at some intersections. Gates and signals would be added at the railroad crossing near US 321.

Alternate B was rejected because the horizontal alignment to minimize relocations to six residences would result in two sharp curves. Alternate C was rejected because it was the longest and most expensive alternate. Also, Alternate C would have required the construction of a new bridge over

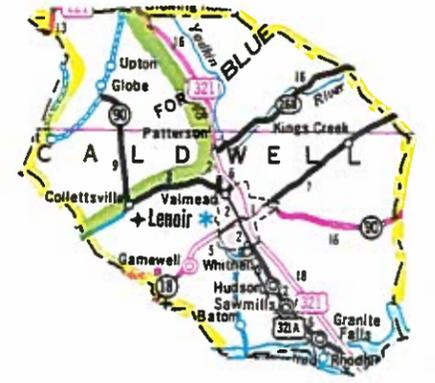
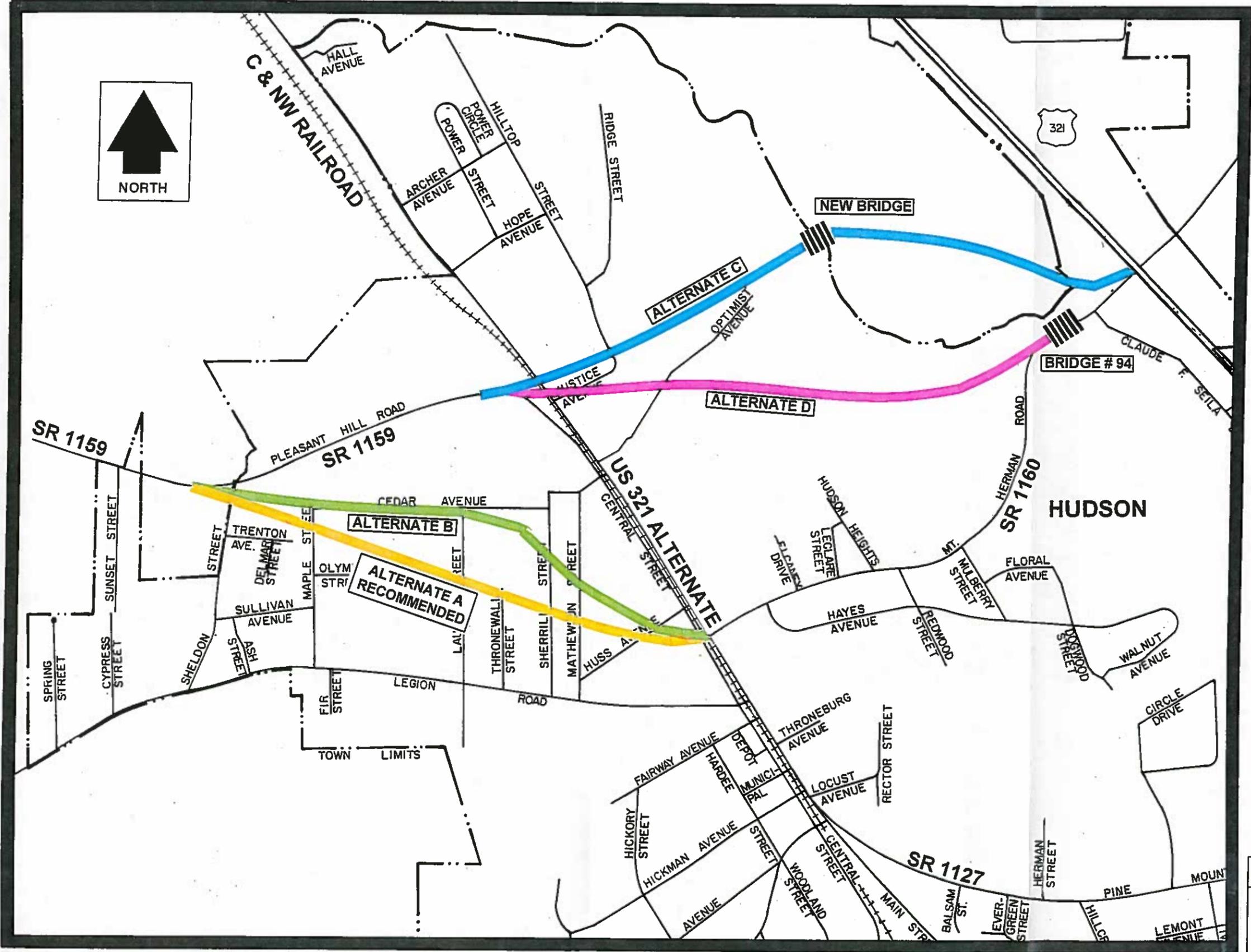
Gunpowder Creek. A deep ravine on the east side of US 321 and proximity to a park resulted in the rejection of Alternate D.

Moderate utility conflicts are expected.

V. OTHER COMMENTS AND CONCERNS

It is estimated that this project would require the relocation of two residences and no businesses.

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.



Program Development Branch
Feasibility Studies Unit

U-3437
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CALDWELL COUNTY

DIVISION 11 FIGURE 1