

FEASIBILITY STUDY

Mooreville  
SR 1100 (Brawley School Road) Realignment  
from SR 1116 to US 21  
Iredell County

U-2822

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 SR 1100 (Brawley School Road) from SR 1116 to US 21 in Iredell County, a length of 0.8 mile (See Figure 1). This study recommends a two-lane, 28-foot pavement with two 12-foot travel lanes and 8-foot usable shoulders (including 2-foot paved shoulders). Minimum recommended right-of-way is 100 feet with no control of access. Also recommended is a short realignment of SR 1117, and improvements to the intersection of SR 1117 and US 21. Total project cost is estimated at \$ 1,800,000 (\$ 350,000 for right-of-way and \$ 1,450,000 for construction).

A feasibility study presents recommended cross sections for improvements, general alignments of improvements, and estimated cost of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues which deserve consideration in the planning and construction stages.

This study is not an exhaustive environmental investigation.

### II. NEED FOR PROJECT

The Town of Mooresville has requested a realignment of SR 1100 (Brawley School Road) to eliminate an offset intersection with SR 1117 (Wilson Avenue) where both roads intersect with US 21 (See Figure 2). To get to Mooresville, vehicles currently traveling eastbound on SR 1100 must stop at US 21, turn left, travel approximately 700 feet north on US 21, then turn right onto SR 1117. The present configuration is inconvenient to east-west traffic, and presents a potentially hazardous condition. This project is included on the 1990 mutually adopted Mooresville Thoroughfare Plan as part of a proposed Minor Thoroughfare. The realignment of Brawley School Road is included as a transportation need in the 1990 Mooresville Land Development Plan.

SR 1100 is classified as Rural Local in the Statewide Functional Classification System, and is a Non-Federal Aid rural route. In the studied section, SR 1100 is a two-lane road with 20-foot pavement and 6-foot unpaved shoulders. Existing right-

of-way appears to be the state-maintained width. Land use adjacent to the section is mostly undeveloped woodland, however construction has commenced on a new residential subdivision on the north side of SR 1100, just east of SR 1116. Saint Therese Catholic Church is located on the south side of SR 1100, across from the new subdivision.

SR 1100 serves as a rural collector on a sizeable peninsula of Lake Norman (See Figure 1). Considerable residential development has already occurred along the shoreline. Given the popularity of Lake Norman, an above-average growth rate is expected for future residential development. SR 1100 is the only road which runs the length of the peninsula, therefore all subdivision access roads eventually connect to SR 1100.

The 1991 traffic counts show an Average Daily Traffic of 9,200 vehicles per day (vpd) utilizing the section of SR 1100 from SR 1179 to SR 1109 (See Figure 1). At this point, most vehicles turn either north or south on SR 1109 (Williamson Road).

Only 2,800 vpd continue through the studied section. Most vehicles turning north onto SR 1109 appear to be using SR 1109 to connect with NC 150 into Mooresville. NC 150 is a convenient route into Mooresville, and is programed for improvements. Project R-2226 proposes widening NC 150 to multi-lanes from I-77 to NC 152 in Mooresville, and project U-2213 proposes widening NC 150 to multi-lanes from NC 152 to NC 115 (Broad Street) in Mooresville.

With NC 150 widened to a multi-lane facility, an even higher percentage of traffic coming from the peninsula can be expected to use the SR 1100/SR 1109/NC 150 route into Mooresville. This may initially decrease the proportion of vehicles utilizing SR 1100 in the studied section. However, if SR 1100 is realigned to eliminate the offset intersection at US 21, then SR 1100 will be the shortest route into Mooresville. This will attract more traffic.

The 1991 Average Daily Traffic (ADT) is 2,800 vehicles per day (vpd) traveling through the studied section, with an estimated 6,000 vpd in the design year of 2012. The existing road configuration currently experiences a Level Of Service (LOS) C, and is expected to experience a LOS D in the design year. If SR 1100 is widened to a 28-foot pavement with 8-foot usable shoulders, level of service at current traffic demand will remain at a LOS C rating, with a LOS D expected in the design year.

The North Carolina Bicycle Program has determined that no special accommodations for bicycle traffic are necessary.

During the period from January 1, 1989 through December 31, 1991, a total of 14 accidents were reported along US 21 between SR 1100 and SR 1117. This resulted in an accident rate of 833.3 accidents per 100 million vehicle miles, significantly above the statewide average of 177 for similar routes. Twelve of the 14 accidents occurred at the unsignalized intersection of US 21 and SR

1117. Most of these were rear-end or turning movement accidents on southbound US 21. US 21 is a two-lane shoulder section with 24-foot pavement and 10-foot usable shoulders on 150 feet of right-of-way with no control of access.

### III. RECOMMENDATIONS

It is recommended that SR 1100 be widened/realigned from SR 1116 to US 21, a distance of 0.8 mile (See Figure 2). The recommended typical section is a two-lane, 28-foot pavement with 12-foot travel lanes in each direction and 8-foot usable shoulders (including 2-foot paved shoulders). From SR 1116 to 900 feet eastward, SR 1100 should be widened symmetrically. From 900 feet east of SR 1116 to US 21, SR 1100 is to be realigned on new location. Minimum recommended right-of-way width is 100 feet with no control of access, although some fill sections may require as much as 200 feet. Existing SR 1100 south of the realignment is to end with a cul-de-sac.

In addition, SR 1117 is to be realigned from US 21 to 400 feet east of US 21. The recommended typical section is a two-lane, 28-foot pavement with 12-foot travel lanes in each direction and 8-foot usable shoulders (including 2-foot paved shoulders). This small realignment removes a curve on SR 1117 just east of US 21. Realignment will avoid impacting the town golf course and the "Los Lagos" restaurant if possible.

To reduce accident rates, two 150-foot left-turn lanes are recommended on north and southbound US 21. US 21 is curving from southbound to southwest-bound at the proposed intersection location; therefore the left-turn lanes should be located on the existing southbound lane. A new southbound lane should be added on the west side of the turn lanes. This configuration will reduce the existing curvature of the southbound lane.

This project is recommended to further the Mooresville Thoroughfare Plan. Eliminating the offset intersections of SR 1100 and SR 1117 will convert these routes into a functional east-west arterial. Also, improvement of the intersection of US 21 with SR 1100 and SR 1117 will reduce accidents.

Total project cost is estimated at:

Right-of-Way	\$ 350,000
Construction	\$ 1,450,000
Total Project Cost	\$ 1,800,000

Low utility conflicts are expected.

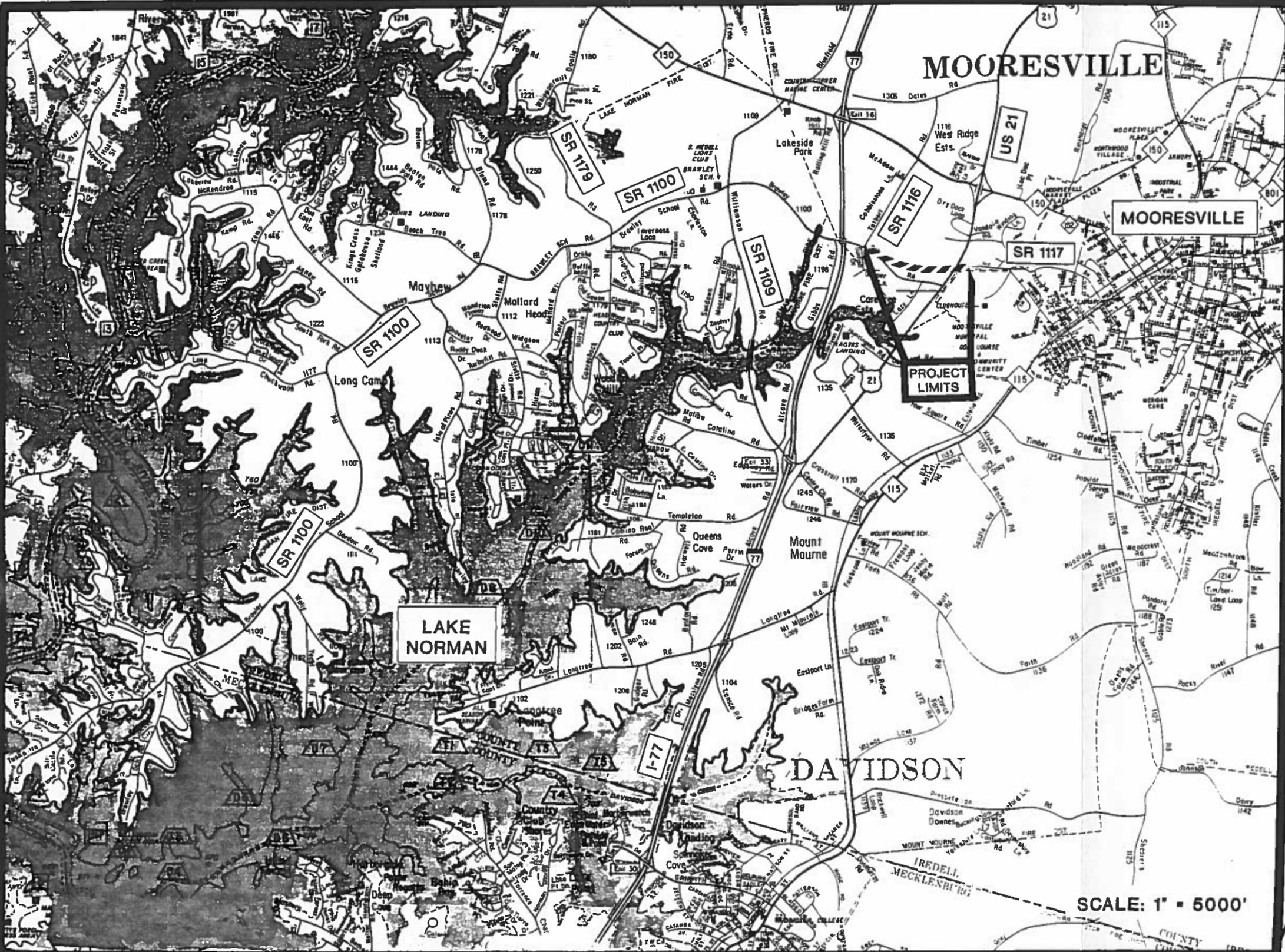
A new bridge with an approximate 45-foot length and 32-foot clear roadway width will be required to carry the SR 1100 realignment over a creek.

#### IV. OTHER COMMENTS AND CONCERNS

An ecological screening was not conducted for this study. However, the realignment of SR 1100 may require placing fill in a small amount of wetlands. A Corps of Engineers Section 404 Permit may be required. The town reservoir is located southeast of the intersection of SR 1117 with US 21, therefore a Section 401 Water Quality Certification may also be needed.

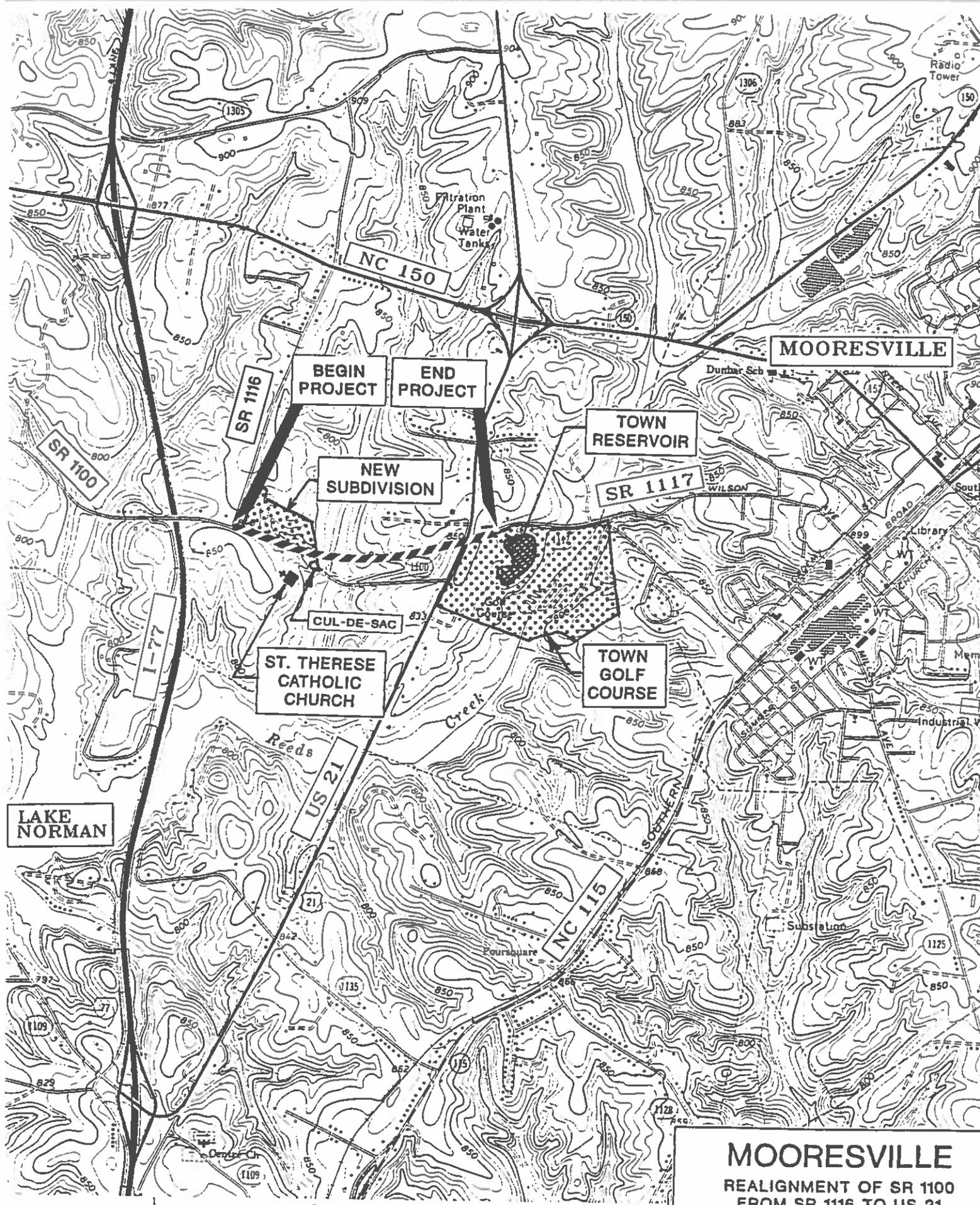
Avoidance of the Town golf course is important to ensure compliance with Section 4(f) of the Department of Transportation Act of 1966.

No business or residential relocations are expected at this time. However, the proposed realignment corridor is expected to impact approximately 8 currently vacant, residential lots in the Reeds Creek subdivision.

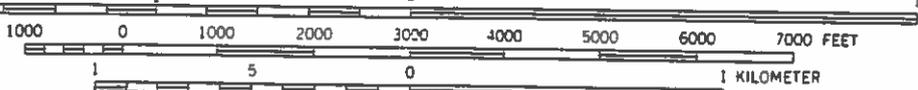


SCALE: 1" = 5000'

**MOORESVILLE**  
 REALIGNMENT OF SR 1100  
 FROM SR 1116 TO US 21  
 IREDELL COUNTY  
**U-2822**  
 DATE: JULY 1992      FIGURE



LAKE NORMAN



CONTOUR INTERVAL 10 FEET

**MOORESVILLE**  
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DATE: JULY 1992	FIGURE 2
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