

FEASIBILITY STUDY

Mooreville  
NC 150 Between I-77 and NC 152  
Iredell County  
R-2226

Prepared by  
Planning and Research Branch  
Division of Highways  
N.C. Department of Transportation

June, 1987

Mooresville  
NC 150 Between I-77 and NC 152  
Iredell County  
R-2226

The subject project is included in the 1987-1995 Transportation Improvement Program (T.I.P.) for feasibility study but is not currently funded. The project has strong local support and is considered a high priority for funding in the T.I.P. update.

I. GENERAL DESCRIPTION

This study covers the improvement of NC 150 between I-77 and NC 152 at Mooresville in Iredell County, a distance of 1.9 miles (See Figure 1 for location map and Figure 2 for photos of selected locations along the roadway). A five-lane, 64-foot face to face of curbs section is recommended. This cross-section will provide continuity with the 64-foot wide urban section that is proposed for the Mooresville Bypass (U-2213) and can be contained within the existing 100-foot wide right of way.

II. EXISTING CONDITIONS

NC 150 is designated a major thoroughfare by the mutually adopted Mooresville Thoroughfare Plan and functions as a rural major collector according to the Statewide Functional Classification Plan. The route (eastern end is a part of the federal-aid urban system FAU-7841) provides access between Mooresville and Lake Norman and is the major access route between downtown Mooresville and I-77.

The subject route currently carries traffic volumes that range from a high of 12,000 vehicles per day (VPD) near the eastern end of the project to a low of 8500 VPD near the western end. These volumes are projected to increase to 21,600 VPD and 15,300 VPD respectively by the year 2007 (see Figure 3 for current and future traffic volumes). The route is currently operating at level of service E. Without the proposed improvements, traffic will be operating at level of service F within 10 years.

Existing pavement width throughout the project is 22 feet with the exception of a 24-foot width on both sides of the US 21 interchange and in the vicinity of I-77. Shoulder widths vary from 8 to 12 feet on both sides of the roadway. This cross-section is contained within an existing 100-foot right of way.

Although the area terrain is rolling, existing horizontal and vertical alignments are good. There are no horizontal curves sharper than 3° and only two grades (a +5% and a -5% located near the western end of the project) steeper than 3%. About 40% of the subject route has a passing sight distance of 1500 feet or more while most of the remainder of the roadway has a passing sight distance of at least 400 feet.

There are four drainage structures located on the subject project, two culverts and two pipes. A double barrel 12' x 12' RCBC is located across Reed Creek near the eastern end of the project while a single barrel 4' x 6' RCBC is located about 1500 feet west of SR 1116. There is a 36" pipe located near the western end of the project and a 72" pipe about 1200 feet west of the US 21 interchange.

Bridge #18 (built in 1956), the structure which carries US 21 over NC 150, is 128 feet long and 28 feet wide. Since the midspan across NC 150 is only 48 feet wide, the bridge will need replacing to accommodate the wider cross-section.

There are no traffic signals on the subject portion of NC 150. The Traffic Engineering Branch recommends that a signal be installed at the NC 150/NC 152 intersection and that the intersection be redesigned to provide a "thru" movement along NC 150 rather than the current right-angle turn presently required. Consideration should be given to making these improvements as a part of programmed project U-2213 (The cost estimate for the subject project does not include a cost for this work). Additional information on recommendations for the NC 150/NC 152 intersection by the Traffic Engineering Branch is available by referencing their File No. SC 7-24.

Development along the project is primarily suburban in nature consisting of light density residential uses mixed with some commercial uses. Much of the corridor remains undeveloped and is forested or used for pastures. Current plans call for the staged development of an approximate 90 acre tract of land located near I-77. This development, currently under construction, calls for the initial construction of a motel/restaurant, auto sales dealership, and a fast food restaurant. Phase II of the plan calls for a shopping center, medical office, residential condominium, and a general office. At the eastern end of the project, construction has begun on the Wal-Mart Shopping Center, a 14-acre development at the NC 150/NC 152 intersection that will include nearly 110,000 square feet of retail shopping space.

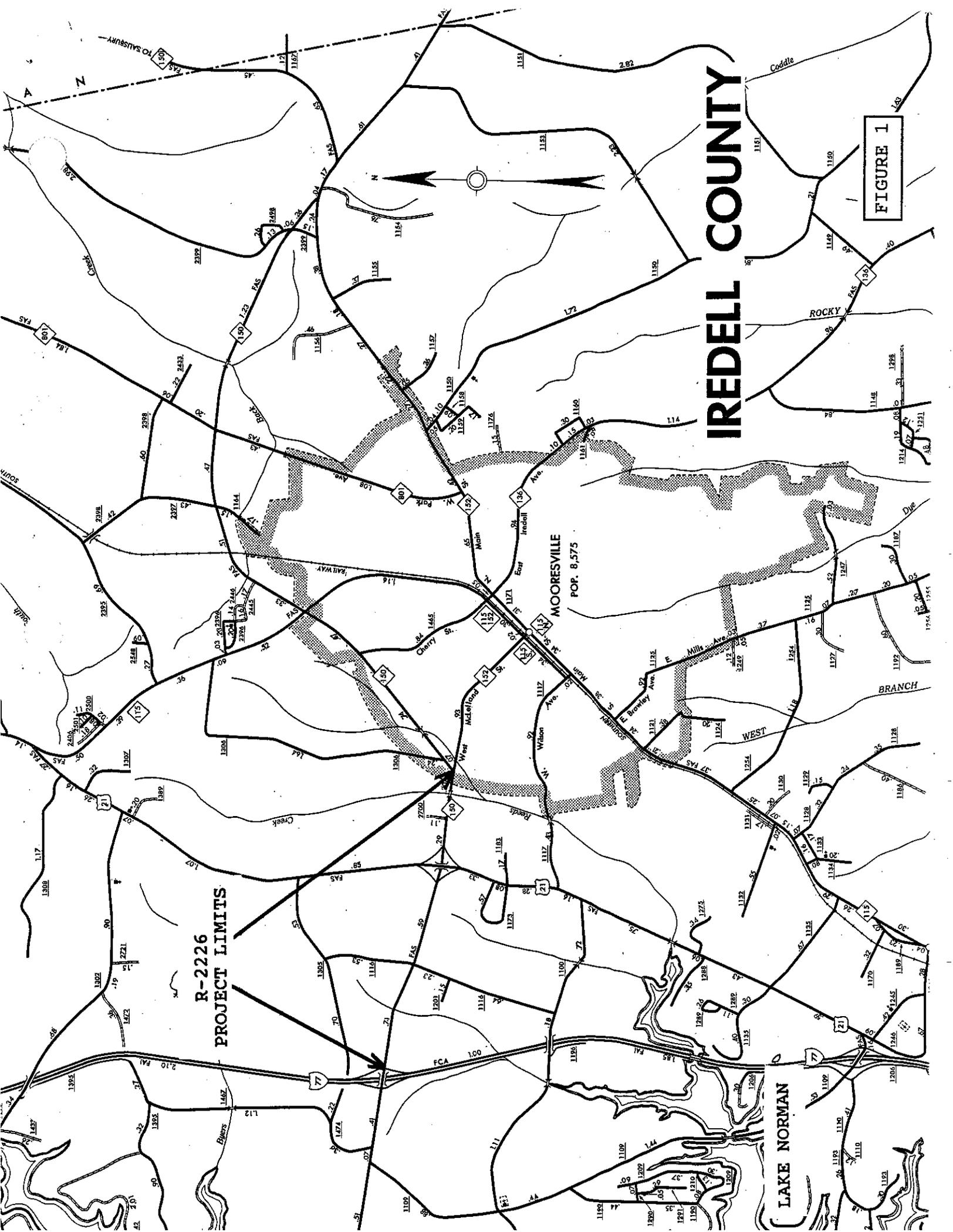
The route has a posted speed limit of 45 M.P.H. Telephone and water utilities are located along the project.

### III. RECOMMENDED IMPROVEMENTS

Widening the subject portion NC 150 to a multi-lane facility is highly desirable. Provision of a five-lane (64-foot face to face of curbs) urban roadway is recommended. This cross-section is in accordance with the Mooresville Thoroughfare Plan and can be contained within the existing 100-foot right of way. The Town of Mooresville and the NCDOT Division Office concurs in the recommended 64-foot curbed width. The recommended improvements also call for replacing the bridge on US 21 over NC 150 with a new bridge 30 feet wide and 160 feet long. Traffic would be detoured around each side of the existing bridge by temporarily signaling both ramp junctions during the replacement period.

# IREDELL COUNTY

FIGURE 1

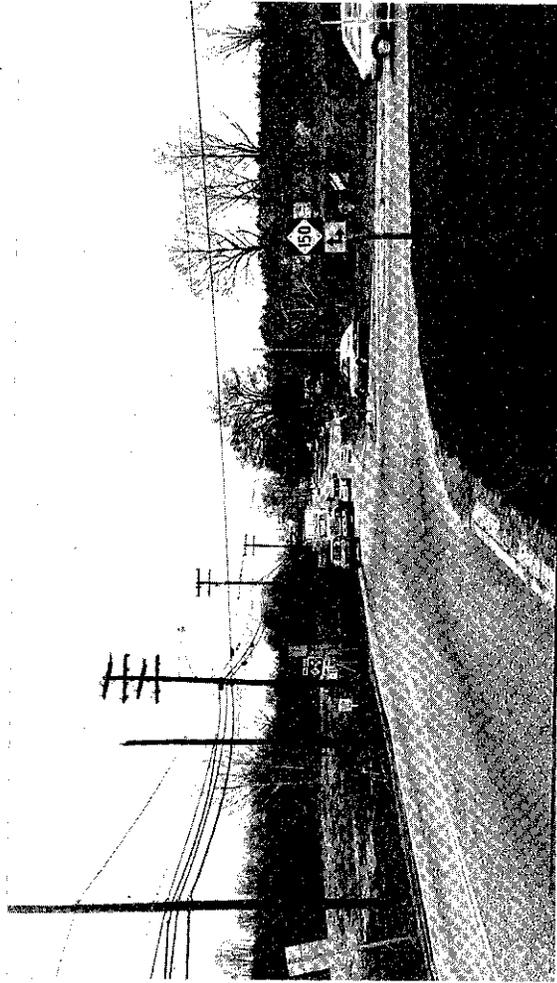


R-2226  
PROJECT LIMITS

MOOREVILLE  
POP. 8,575

LAKE NORMAN

NC 150 BETWEEN I-77 AND NC 152 AT MOORESVILLE



NC 150 / NC 152 INTERSECTION  
LOOKING WEST



NEAR I-77 INTERCHANGE LOOKING  
WEST



LOOKING EAST TOWARD US 21  
INTERCHANGE



LOOKING WEST TOWARD US 21  
INTERCHANGE

ESTIMATED TRAFFIC VOLUMES  
 NC 150 BETWEEN I-77 AND NC 152  
 MOORESVILLE, IREDELL COUNTY, R-2226

1987 ADT  
2007 ADT

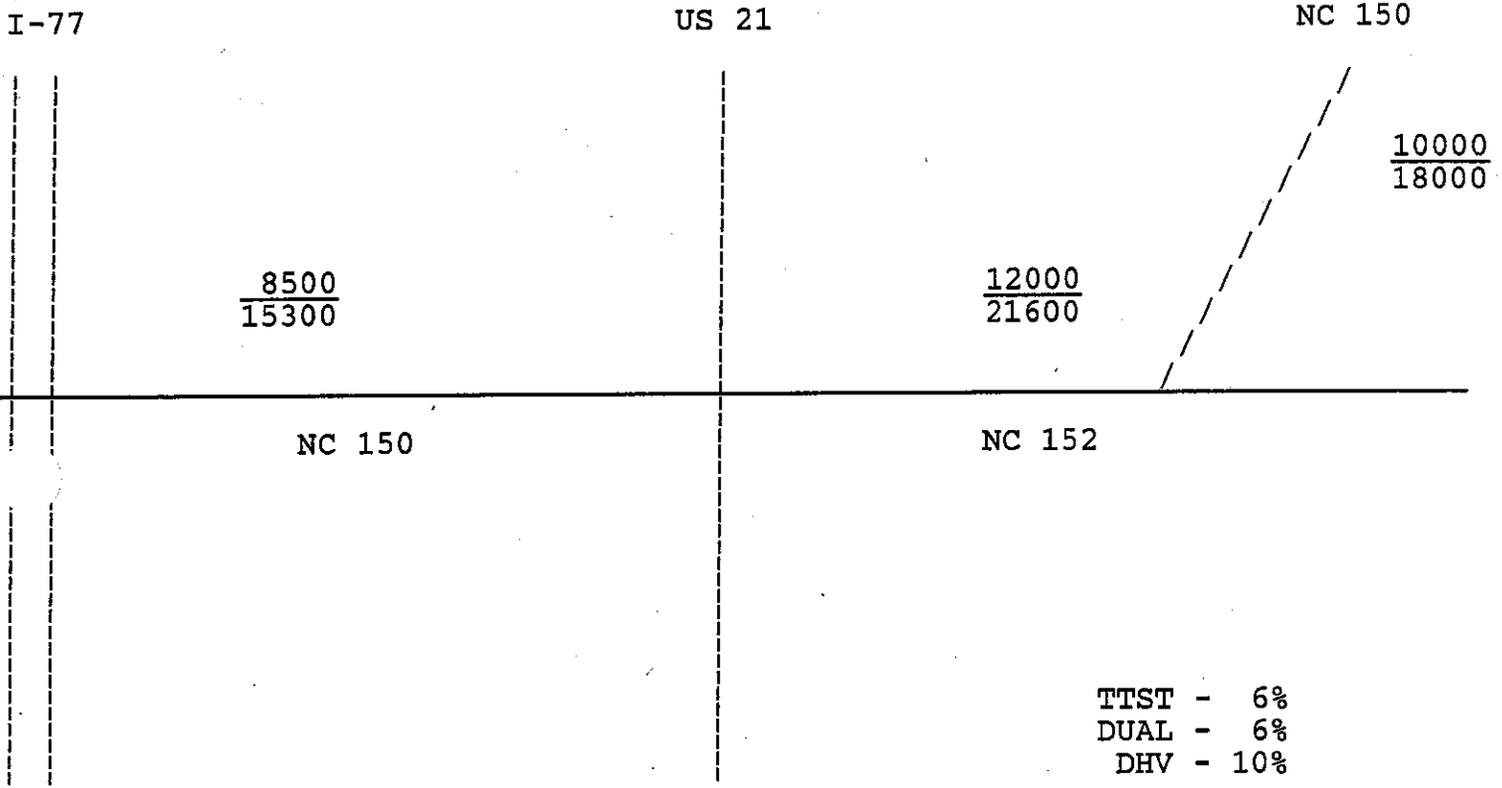


FIGURE 3



PROPOSED SHOPPING, OFFICE,  
MEDICAL COMPLEX  
(UNDER CONSTRUCTION)

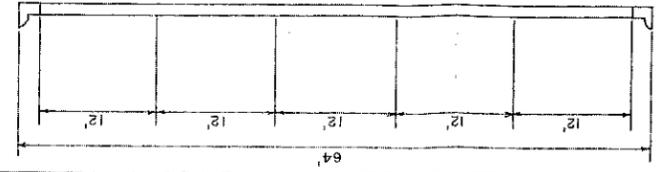
PROJECT LIMIT

EXISTING 4" X 6" RCB

NG 150

EXISTING 36" PIPE

EXISTING 72" PIPE



RECOMMENDED  
CROSS-SECTION

STATE  
ROUTE  
1-77

SPRINGVILLE

1-77

KE NORMAN



STATESVILLE

I-77

KE NORMAN

EXISTING 36" PIPE

PROJECT LIMIT

PROPOSED SHOPPING, OFFICE,  
MEDICAL COMPLEX  
(UNDER CONSTRUCTION)

NG 150

EXISTING 4" X 6" RCBC

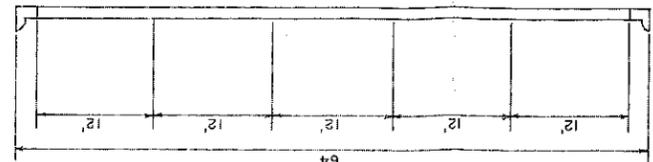


SR 1305

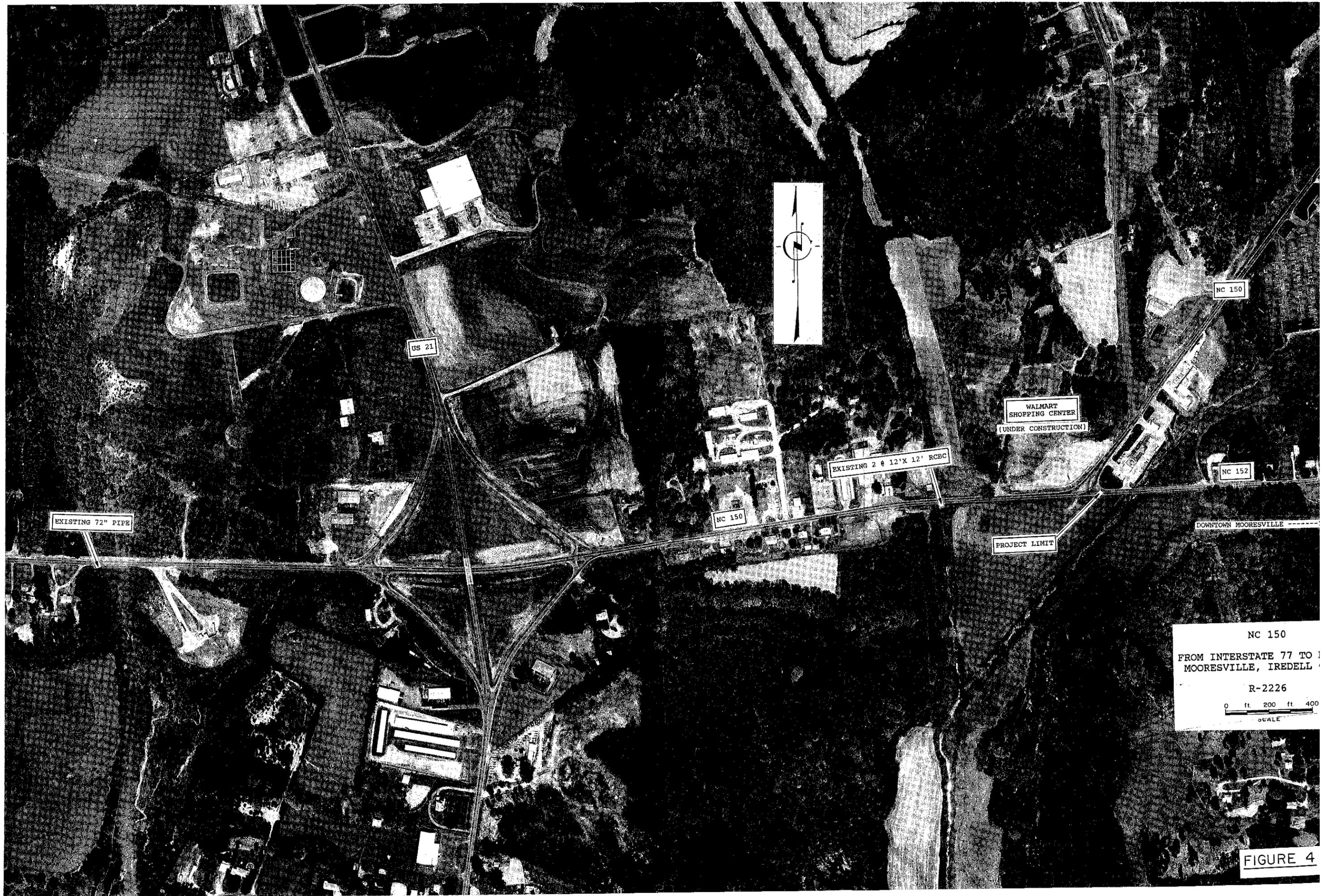
SR 1116

EXISTING 72" PIPE

SR 1116



RECOMMENDED  
CROSS-SECTION



NC 150  
FROM INTERSTATE 77 TO  
MOORESVILLE, IREDELL  
R-2226  
0 ft. 200 ft. 400  
SCALE

FIGURE 4