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FEASIBILITY STUDY

NC 24-27, Troy Bypass  
Montgomery County  
R-623

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

May, 1987

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I. DESCRIPTION

This report covers a preliminary study of a NC 24-27 Bypass in the Troy area. This project is included in the 1987-1995 Transportation Improvement Program for feasibility study and/or right of way protection. It is not currently funded.

II. PURPOSE OF PROJECT

Existing Route

NC 24-27 is classified as a minor arterial in the statewide highway network. In the Troy area, the existing route is basically a two-lane, 24-foot facility constructed on fair alignment. In the highly developed section of the town with a current population of approximately 3000 people, the road is curb and guttered at widths of 44 to 50 feet between curbs. It operates as four lanes west of NC 134 but two lanes with parallel parking east of NC 134. Traffic flow is controlled by a single signal (NC 134) and speed limits of 35 and 45 MPH inside and 55 MPH outside the corporate limits.

Current traffic volumes on NC 24-27 range from approximately 6000 vehicles per day (vpd) east of Troy and 8000 vpd west of Troy to 12,000 vpd in the heart of Troy. The latter volume includes approximately 4 percent TTST and 5 percent dual tired trucks. Approximately 3000 vpd are considered to be through traffic. Although the highest volume of traffic on this route has reached the capacity of the route, no critical traffic operating conditions are evident throughout the studied length.

Need for Project

Justification for a NC 24-27 Bypass of Troy stems from a need to provide a higher level of service for through traffic desiring to avoid restrictions such as lower speed limits, signalization, periods of congestion, and roadside interference along the existing route. Also, the bypass would offer improved accessibility to certain areas of local traffic generation. It is part of the preliminary thoroughfare plan for Troy.

III. RECOMMENDATIONS AND COSTS

Location

Based on consideration of overall existing development in the area, route directness, and relationship to the ultimate thoroughfare system, the recommended location for a NC 24-27 Bypass is the south side of Troy (see Figures 1 and 2). (Note: An aerial mosaic showing the bypass corridor is on file in the office of Planning and Research Branch.) The

southern corridor generally follows the proposed alignment shown in the preliminary thoroughfare plan for Troy (see Figure 3). This location is designed to maximize the use of adjoining sections of NC 24-27 that are part of the Transportation Improvement Program. The eastern section between Little River and Biscoe (R-2107) is scheduled to be widened to four lanes in FY 1990, and the western section from Troy to NC 109 (R-2106) is programmed for widening to four lanes in FY 1991. The adjoining section of NC 109 from NC 24-27 to Mount Gilead is also slated for widening in FY 1991.

### Design

Initial traffic volumes that would use the bypass are estimated to range from 3500 to 4500 vpd. These volumes would increase to 6000 and 8000 vpd, respectively, by year 2007. Based on these volumes, a two-lane roadway should suffice for most of the planning period. However, right of way should be obtained for an ultimate four-lane divided roadway to be assured of a continuing desirable level of service.

The recommended route is approximately 4.6 miles between its terminals at SR 1324 to the east and SR 1360 to the west. Travel distance along the new route, which is approximately one mile south of the existing route in Troy, would be about the same as that of the existing route.

### Costs

Construction cost for a 24-foot pavement with 12-foot shoulders along the recommended corridor is estimated to be \$5,890,000. No bridge construction would be required, and all intersecting roads would contact the bypass at grade level. Cost of acquiring an estimated 250-foot right of way with partial control of access (generally one access per property) is approximately \$1,390,000. If full control of access between at grade intersections is desired, the estimated right of way cost is \$1,570,000. Thus, total cost of the bypass is \$7,280,000 with partial control of access or \$7,460,000 with full control of access. The above cost estimates were made by the Roadway Design Unit and Right of Way Branch.

## IV. ALTERNATIVES

No other corridor was found to be more feasible from traffic service, environmental, and cost standpoints. Consideration was given to a possible alternate to the western half of the bypass where the alternate would tie into the intersection of NC 24-27 and NC 109 (see Figure 2). However, this alternative route would increase the bypass length by 1.5 miles, would be more costly to construct than widening the existing road, and would not serve local traffic as well as the recommended route.

A less costly alternative to construction of a bypass is widening of existing two-lane shoulder sections to a multilane roadway. In Troy,

approximately 1.5 miles of existing NC 24-27 is curbed, part of which is already marked for four-lane operation. On the remaining portion of the curbed section, removal of parallel parking would be required to provide four lanes of travel. A programmed project would extend the existing four-lane section west of Troy to NC 109. Thus, the only remaining two-lane section would be that east of Troy to Little River, a distance of about 2.1 miles. Total estimated cost of widening this section to a 5-lane curbed width is \$3,200,000, including \$2,200,000 for roadway, \$600,000 for a structure, and \$400,000 for right of way.

#### V. OTHER COMMENTS

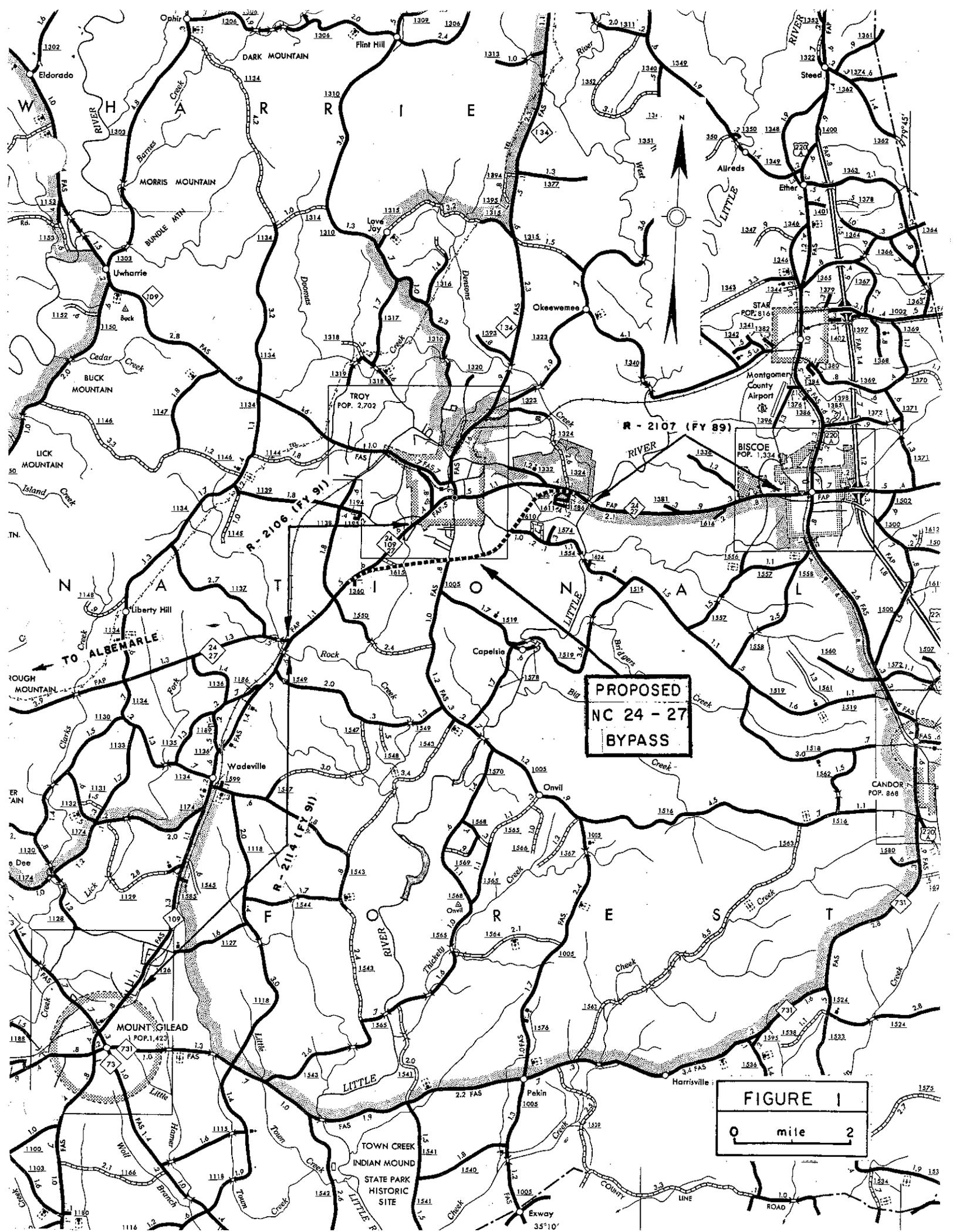
In conjunction with the bypass construction, it would be desirable to widen a short section of NC 24-27 east of the bypass at SR 1324 to and across Little River where the planned widening of the highway to Biscoe would begin. Widening of this 0.4-mile gap would provide four-lane continuity to the bypass from the east. Estimated cost of improving this section of road is \$1,090,000, including \$450,000 for roadway, \$600,000 for a new bridge parallel to the existing bridge across Little River, and \$40,000 for right of way.

The bypass would eliminate the need for widening of the relocated portion of NC 24-27-109 west of Troy as proposed under R-2106. Because of lower traffic volumes due to the bypass, this section of road would not require four-laning in the foreseeable future. Thus, a project cost savings of approximately \$1,000,000 could be obtained by deleting this improvement from the Transportation Improvement Program.

Possible negative environmental impacts of the project are: (1) loss of wildlife habitat; (2) loss of forested land; and (3) relocation of some residences and businesses.

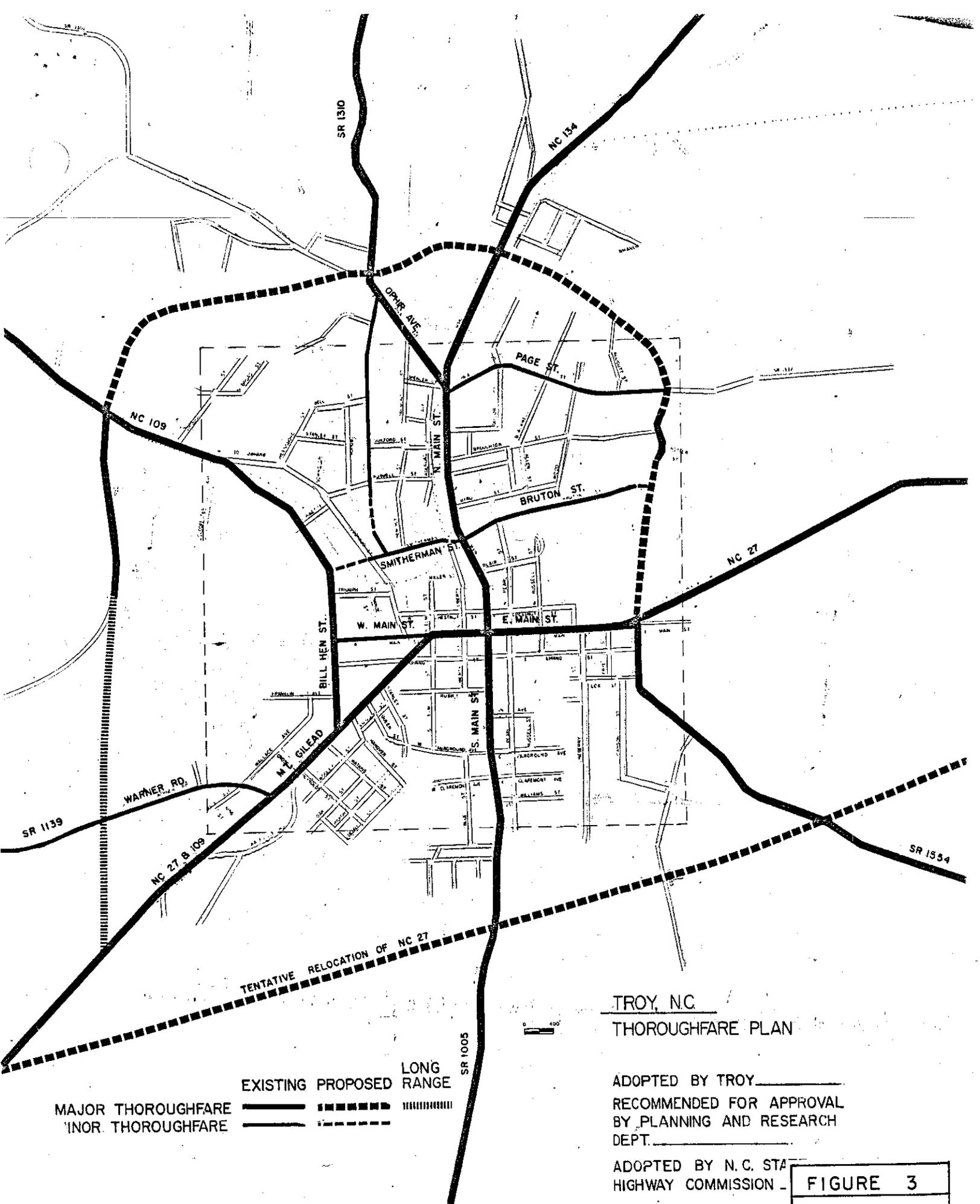
If the project is to be implemented at a future date, all feasible alternatives and their associated impacts will need to be evaluated in a planning and environmental document prior to that time, and a final decision made as to the most appropriate improvement.

RGD/rm



**PROPOSED  
NC 24 - 27  
BYPASS**

**FIGURE 1**  
0 mile 2



SR 1310

NC 134

NC 109

NC 27

SR 1139

NC 27 & 109

SR 1554

TENTATIVE RELOCATION OF NC 27

SR 1005

MAJOR THOROUGHFARE  
MINOR THOROUGHFARE

EXISTING PROPOSED  
LONG RANGE

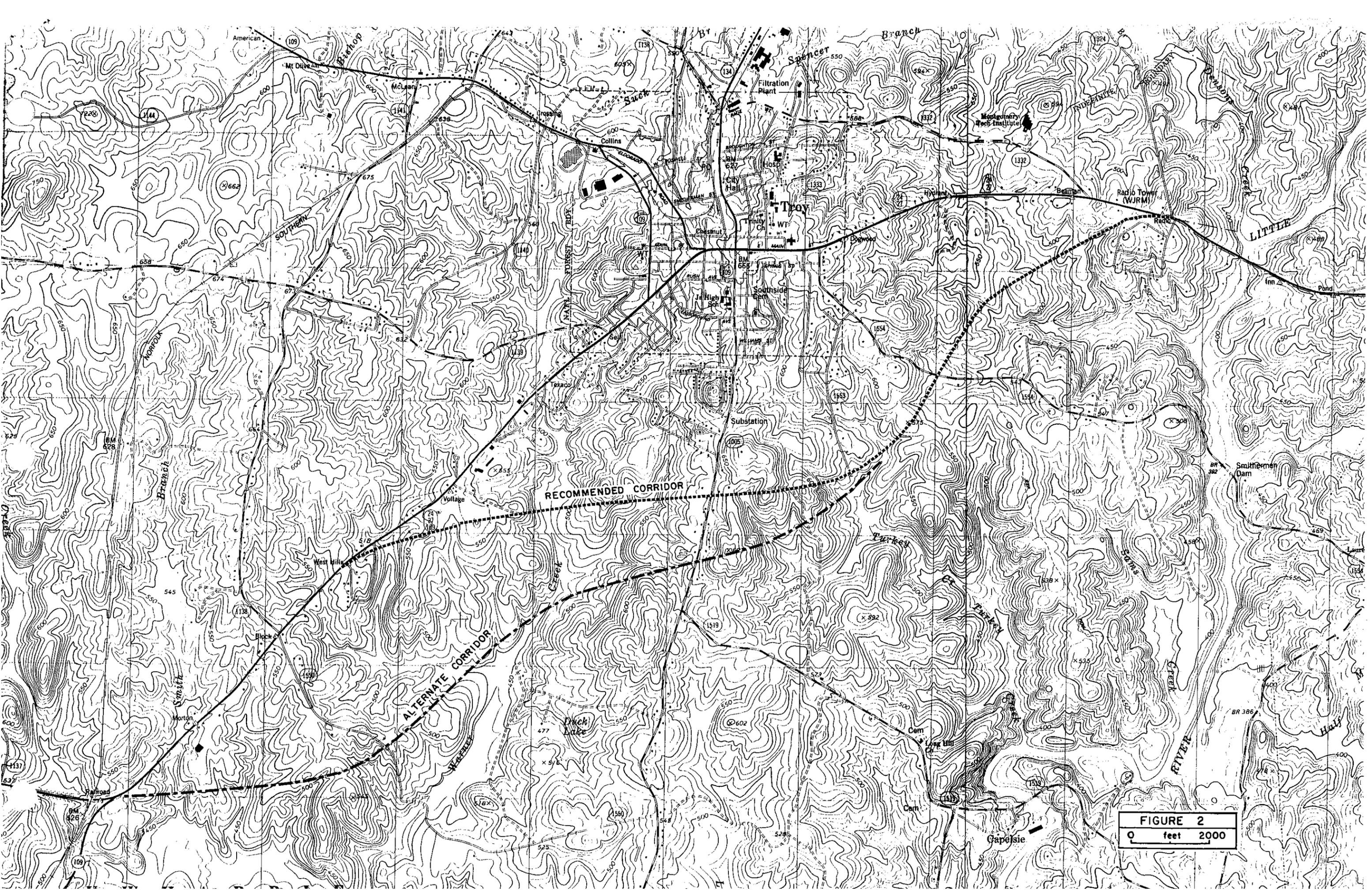
TROY, NC  
THOROUGHFARE PLAN

ADOPTED BY TROY \_\_\_\_\_  
RECOMMENDED FOR APPROVAL  
BY PLANNING AND RESEARCH  
DEPT. \_\_\_\_\_

ADOPTED BY N. C. STATE  
HIGHWAY COMMISSION -

**FIGURE 3**

0 ft. 1600



RECOMMENDED CORRIDOR

ALTERNATE CORRIDOR

FIGURE 2  
feet 2000