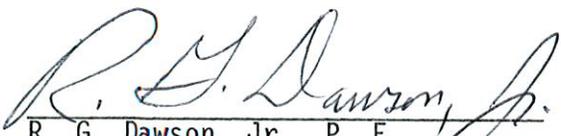


FEASIBILITY STUDY

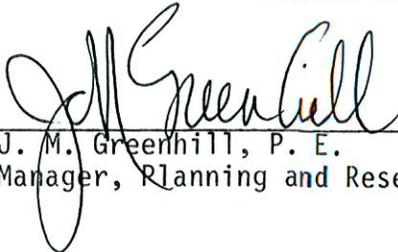
NC 28  
From Franklin to Lauada  
Macon and Swain Counties  
R-2408

Prepared by  
Planning and Research Branch  
Division of Highways  
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## I. GENERAL DESCRIPTION

This report covers the upgrading of NC 28 to an improved two-lane highway from US 441 in Franklin to US 19-74 at Lauada (See Figures 1 and 2). The proposed project is 19.5 miles long and is located in Macon and Swain Counties. This project is included in the 1988-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection.

## II. PURPOSE OF PROJECT

NC 28 serves as a radial route into the Town of Franklin from the north. It is classified as a Rural Major Collector in the North Carolina Functional Classification System and is a Federal Aid Secondary Route.

The existing cross section on NC 28 consists of a paved roadway varying from 20 to 22 feet in width with unpaved shoulders varying from 2 to 4 feet in width. The horizontal and vertical alignment from Franklin to the Macon-Swain County line is fair. However, from the county line northward to Lauada both the horizontal and vertical alignments are poor due to more rugged terrain. All of the intersections along the project are at grade and all are stop sign controlled with the exception of the intersection of NC 28 with US 441 Business at the southern project terminus. The speed limit on NC 28 is 35 mph in the Town of Franklin increasing to 55 mph for the remainder of the project.

There is one bridge on the project where NC 28 crosses the Little Tennessee River just south of the SR 1335 intersection. This bridge is 335 feet long with a clear roadway width of 28 feet. It was built in 1940 and has a sufficiency rating of 69.3 out of a possible 100 points.

At the southern project terminus, NC 28 ties into US 441 Business and runs concurrently with US 441 for a distance of approximately 1 mile through the Town of Franklin. At the northern project terminus, NC 28 ties into US 19-74, running concurrently with US 19-74 for a distance of approximately 3 miles before turning northwestward toward Almond. Both US 441 Business and US 19 are multi-lane highways at the point of their intersection with NC 28.

### Traffic Volumes, Capacity, and Accident Record

The current traffic volume on NC 28 ranges from a high of 6300 vehicles per day (vpd) north of Franklin to a low of 600 vpd near the Macon-Swain County Line. These volumes are projected to increase to 11,800 vpd and 1300 vpd, respectively, by the year 2010 (See Figure 3). With the proposed improvements, NC 28 should operate at Level of Service D, or better, throughout the planing period.

During the three-year period from January 1, 1985 through December 31, 1987, a total of 51 accidents were reported on the studied portion of NC 28. This resulted in an accident rate of 307.8 accidents per 100 million vehicle miles (ACC/100 MVM), compared to a statewide average of 201.1 ACC/100 MVM for all two-lane, rural NC routes over the same period.

There were no fatalities during the period, but 25 of the accidents resulted in injuries. The primary accident types were running off the road and rear-end accidents. The provision of a better alignment along with a wider paved roadway and shoulders should reduce the potential for these types of accidents.

#### Need for Project

The widening and realignment of NC 28 will enhance the capacity, safety and driving comfort along the highway. The existing portion of NC 28 in Swain County has many blind curves and shoulders too narrow for disabled vehicles to use in case of an emergency. The poor alignment of the existing roadway has resulted in a high number of vehicles running off the road, and the narrow shoulders do not allow sufficient room for recovery.

### III. ALTERNATIVES

In addition to the option of widening the existing roadway throughout the project length, two alternative alignments were considered. At the south end of the project, the realignment of NC 28 along SR 1335 was considered as an alternative to widening NC 28 between US 441 Business and SR 1335. This alignment is shown as Alternative A on Figure 2. The use of this alignment would provide a bypass of the congested area in downtown Franklin. This alternative would require the widening and improvement of SR 1335 from US 23-441 to NC 28. The use of this alternative will result in a cost savings of \$2,600,000 compared to widening the existing highway. It will also result in 6 less residential relocations and 2 less business relocations. The primary disadvantage of Alternative A is that the improved roadway would not serve the heavy traffic flow into the Town of Franklin. However, it is felt that removing the through traffic from the congested downtown area coupled with the savings in cost and less relocatees outweighs this disadvantage.

A second alternative alignment was considered for the northern portion of the project. Alternative B is the realignment of NC 28 along SR 1113 and SR 1114 from the Macon-Swain County Line to US 19-74. The use of this alternative would provide better horizontal and vertical alignment for NC 28. This route would be a scenic route for tourists visiting the area, since it parallels the Little Tennessee River for much of its length. The estimated cost of this alternative is \$1,600,000 less than the estimated cost of improving the existing alignment, and it requires 2 less residential relocatees.

### III. RECOMMENDATIONS AND COSTS

It would be desirable to improve NC 28 to a good two-lane highway from US 441 near Franklin to US 19-74. The recommended alignment would utilize Relocation Alternative A (SR 1335) from US 441 to the Little Tennessee River crossing, follow the existing NC 28 alignment from SR 1335 to just south of the Macon-Swain County Line, and utilize Relocation Alternative B (SR 1113 and SR 1114) from the county line to US 19-74 (See Figure 2). Relocation Alternative A, is recommended because it is significantly less costly than improving the existing

alignment, provides a bypass of the congested downtown Franklin area, and requires fewer residential and business relocations. Relocation Alternative B is also recommended, because it is estimated to cost significantly less than improving the existing roadway, provides better horizontal and vertical alignment, and requires fewer residential relocations. The recommended cross section is a 24-foot paved roadway with 2-foot paved shoulders and total 6-foot usable shoulders. Widening should be on the inside of curves, where practical, to improve the curvature of the highway. These improvements should improve the capacity, safety and driver comfort on NC 28.

The total estimated costs of this project are as follows:

Construction	\$ 19,700,000
Right-of-Way	\$ <u>3,800,000</u>
TOTAL	\$ 25,500,000

The construction cost includes engineering and contingencies and the right-of-way cost includes acquisition and utility costs.

#### V. STAGING

Because of the costs involved with widening a long section of highway, the project is divided into three sections. The first section is the improvement of SR 1335, shown as Relocation Alternative A on Figure 2. The second section is the improvement of NC 28 from SR 1335 to just south of the Macon-Swain County Line, and the third section is the improvement of SR 1113 and SR 1114 shown as Relocation Alternative B on Figure 2. The table below shows the length, estimated number of relocations and estimated costs of each of the three sections:

HIGHWAY SECTION	LENGTH (Miles)	RELOCATION		COST		TOTAL
		RESIDENCES	BUSINESSES	CONSTRUCTION	RIGHT-OF-WAY	
1	3.0	15	1	\$3,000,000	\$1,700,000	\$ 4,700,000
2	7.8	18	3	\$7,500,000	\$2,600,000	\$10,100,000
3	7.8	14	2	\$9,200,000	\$1,500,000	\$10,700,000

If a decision is made to stage construct the project, it is recommended that Section 3 be built initially. Section 3 should be the first stage of the improvement, because the existing alignment and grade on NC 28 is most in need of improvement from the area of the county line northward to US 19-74. Section 1 is recommended for second phase of construction, since it would provide a Franklin Bypass. The center section of NC 28 between SR 1335 and the county line should be the final section to be constructed, since its alignment and cross section is least in need of immediate improvement.

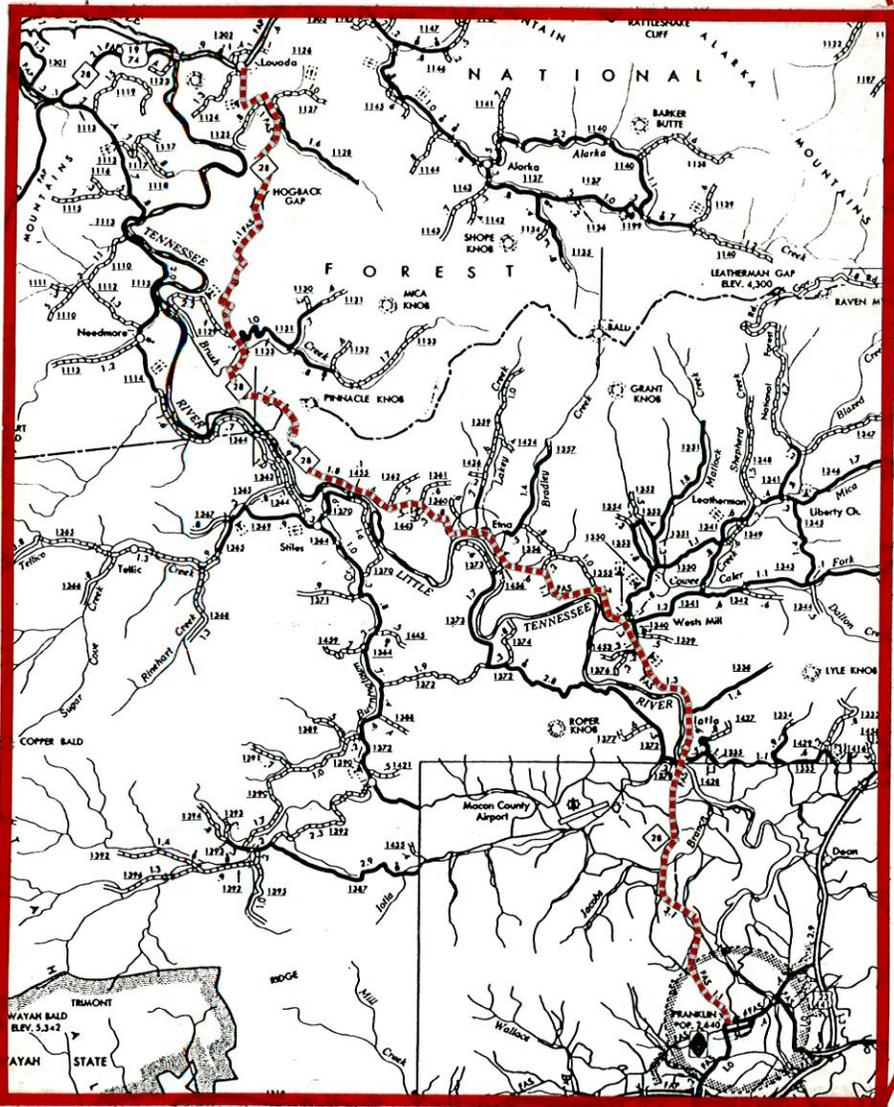
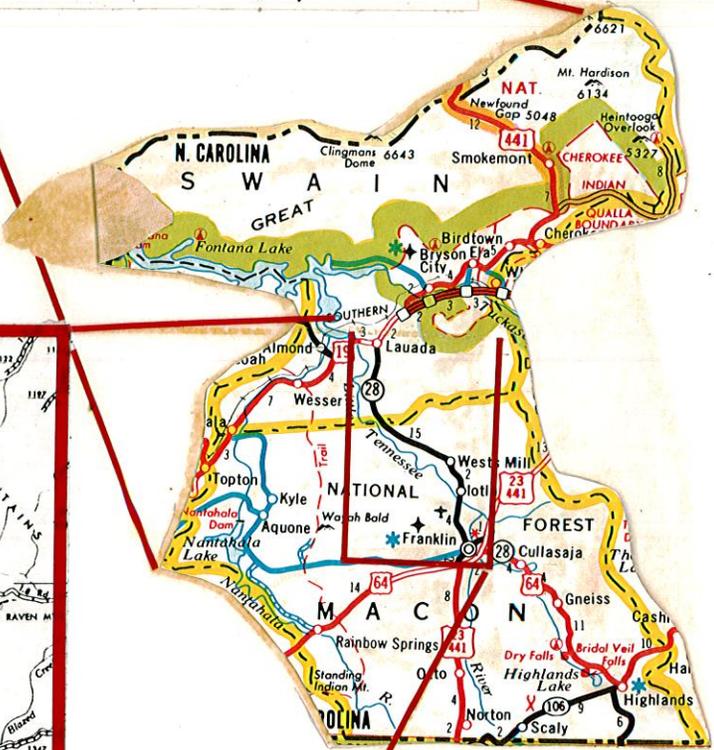
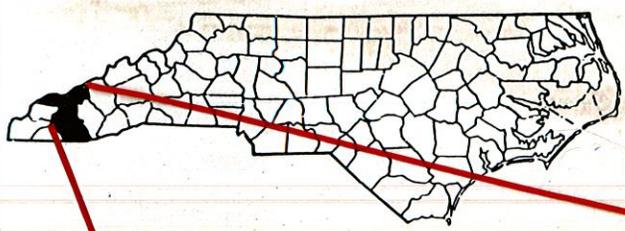
## VI. ENVIRONMENTAL EFFECTS

The implementation of the proposed project is not expected to result in any significant impact on the environment. The construction of the project will require the relocation of an estimated 47 residences and 6 businesses. The project will also result in increased noise levels for remaining development adjacent to the roadway. The proposed project crosses the Little Tennessee River and closely parallels it for several miles. In addition, the project crosses numerous smaller streams between US 441 and US 19-74. Several of these streams are designated trout streams. In addition, the Little Tennessee River and some of its tributaries are habitat for the Spotfin Chub. This fish is federally listed as an endangered species. If any of the streams crossed by the project are found to be habitat for the Spotfin Chub, the construction of the project will require agency consultation with the U. S. Fish and Wildlife Service and other interested federal agencies. In any case, measures to minimize impacts on these streams should be implemented, such as special construction techniques to minimize impacts and stringent erosion control measures. Other impacts will be primarily related to the actual construction of project and will cease upon completion of the project. These include increased noise levels from construction machinery and delay and inconvenience to motorists using NC 28.

## VII. FUTURE ACTIVITIES

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/environmental document prior to that time, and a final decision made as to the most appropriate improvement.

RBD/plr



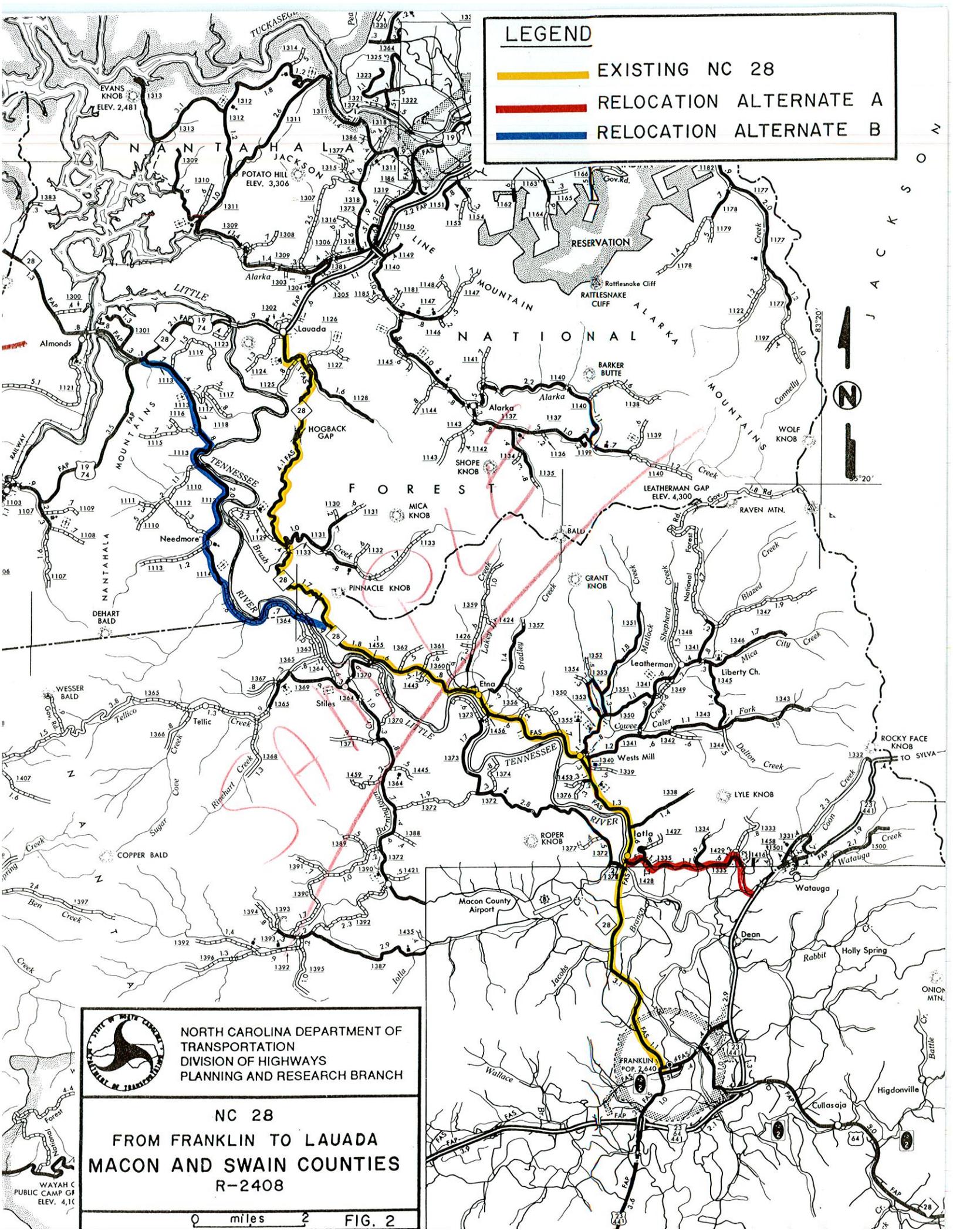
 NORTH CAROLINA DEPARTMENT OF  
TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANNING AND RESEARCH BRANCH

NC 28  
FROM FRANKLIN TO LAUADA  
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0 1 2 3 4 5 6 7 8 9 10  
FIG. 1

**LEGEND**

-  EXISTING NC 28
-  RELOCATION ALTERNATE A
-  RELOCATION ALTERNATE B



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0 miles 2 **FIG. 2**

WAYAH C  
PUBLIC CAMP GR  
ELEV. 4,10



NC-28  
 FROM FRANKLIN TO LAUADA  
 ESTIMATED 1990/2010 ADT IN HUNDREDS

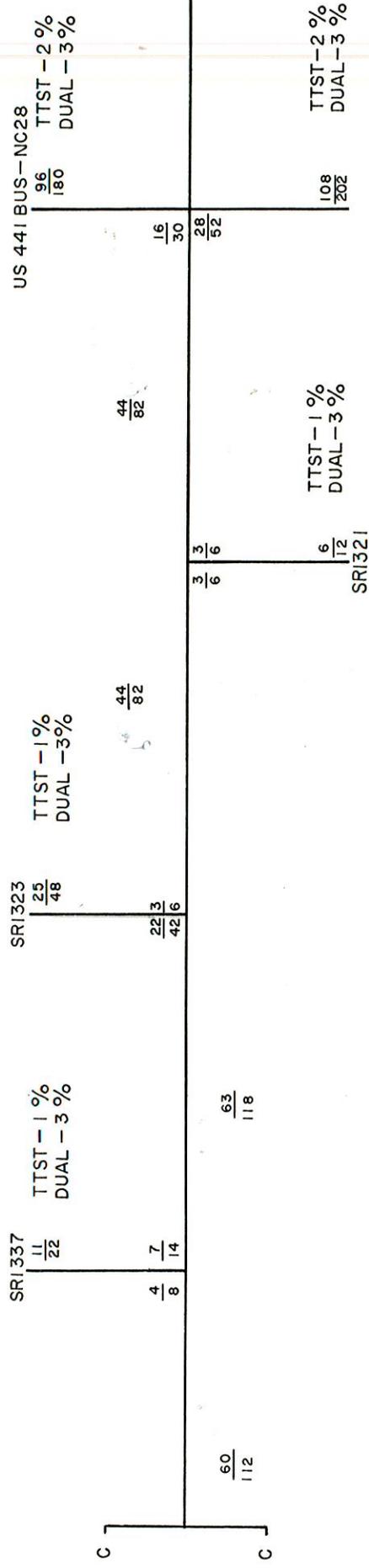
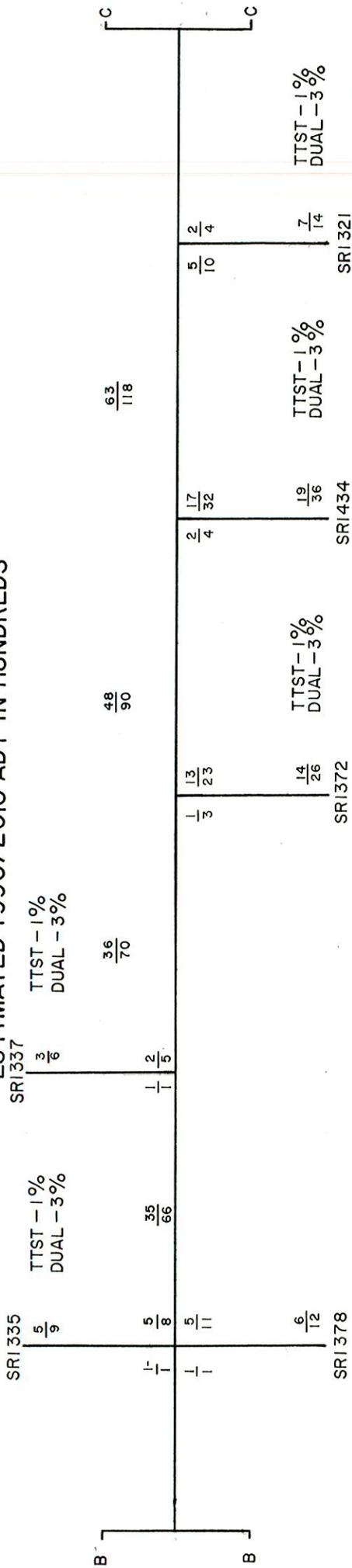


FIG. 3B