

FEASIBILITY STUDY

US 23 Business  
From the Waynesville City Limits  
to US 19  
Haywood County  
R-2210

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

September, 1987

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From the Waynesville City Limits  
to US 19  
Haywood County  
R-2210

The subject project is included in the 1987-1995 Transportation Improvement Program for a feasibility study and/or right-of-way protection. This report provides a brief initial analysis of possible improvements. The project is not currently funded.

I. GENERAL DESCRIPTION

The proposed project consists of widening US 23 Business from the Waynesville city limits to US 19, a distance of approximately 2.34 miles. Widening the existing two lane highway to a five lane roadway appears to be feasible and desirable. However, due to funding limitations it may be necessary to stage construct the project.

II. PURPOSE OF PROJECT

US 23 Business is classified as a rural Major Collector on the North Carolina Functional Classification System and is also classified as a Federal Aid Secondary route. The current traffic volumes (1986) range from 6000 vehicles per day (vpd) near SR 1196 to 7600 vpd near US 19 to 7900 vpd near the city limits. These volumes are expected to increase to a range of 13,700 vpd to 14,300 by the year 2007. An analysis of the subject section indicates that it is currently operating at Level of Service "E". Given the predicted traffic volumes for the year 2007, a three lane facility would operate at Level of Service "F" and a five lane facility would operate at Level of Service "C".

Existing pavement width is 18' throughout the project length except in the vicinity of US 19 where there is a short section of 52' face-to-face curb and gutter. Horizontal and vertical alignment are generally good and the terrain is rolling. Existing right-of-way is 60'.

The speed limit ranges from 35 mph near the city limits to 55 mph near US 19. There are no traffic signals. All intersections are at-grade and will remain so. Development along the project is a mixture of rural residential, commercial and some agricultural uses.

A strip accident analysis of the studied section of US 23 Business was provided by the Traffic Engineering Branch. This study covers the period from January 1, 1984 Through March 31, 1987. The following table gives a comparison between the accident rates for US 23 Business and the statewide accident rates for US primary highways:

### ACCIDENT RATES

	<u>US 23 Bus.</u>	Statewide Average US Primary Routes (1986)
Total Accidents (accidents per million vehicle miles)	9.86	1.49
Fatal Accidents (Accidents per 100 million vehicle miles)	0.00	2.7
Non-Fatal Injury Rate (Accidents per 100 mvm)	39.76	69.9
Night Accident Rate (Accident per 100 mvm)	22.48	45.4
Wet Accident Rate	20.75	32.9

A total of 57 accidents occurred during this time period. No particular accident patterns or high accident locations stand out. While the total accident rate is higher than the statewide average all other rates are lower. The alignment is generally good and the only apparent reasons for the higher total accident rate would seem to be the narrow pavement (18') and limited passing sight distance.

### III. ALTERNATIVES

Two alternative cross-section designs were considered during the course of this study. One would involve widening the existing 2-lane roadway to a 33', 3-lane facility with 8' shoulders. The second alternative would widen to a 59' face-to-face 5-lane curb and gutter facility. The Right-of-Way Branch suggested that widening be done, if possible, on the east side of the existing road rather than symmetrically as this would reduce the right-of-way cost from \$3,533,500 to \$2,197,000 while causing no increase in the estimated number of relocations.

It is recommended that right-of-way be acquired for the ultimate 5 lane section. This would require an additional 20' of right-of-way on the east side plus an additional 10' on the east side plus an additional 10' on the east side for construction easements for a total permanent right-of-way width of 80'.

### IV. RECOMMENDED IMPROVEMENTS

Due to the projected Level of Service "F" for the 3 lane facility for the year 2007, it is recommended that the existing facility be widened to 5 lanes in order to provide a higher level of service in the design year. However, if that is not possible due to funding limitations, it is recommended that the improvements be stage constructed as a 3 lane facility on the ultimate 5 lane right-of-way. If the project is stage constructed as a 3-lane facility it is recommended that the speed limit be posted for 35 mph to 45 mph as the center left turn lane would present a safety hazard if used for passing at 55 mph.

The estimated costs for the two alternates are:

3 lane facility

Construction - \$1,800,000  
Right-of-way - \$2,197,000  
Total - \$3,997,000

5 lane facility

Construction - \$3,150,000  
Right-of-way - \$2,197,000  
Total - \$5,347,000

V. POSSIBLE ENVIRONMENTAL IMPACTS

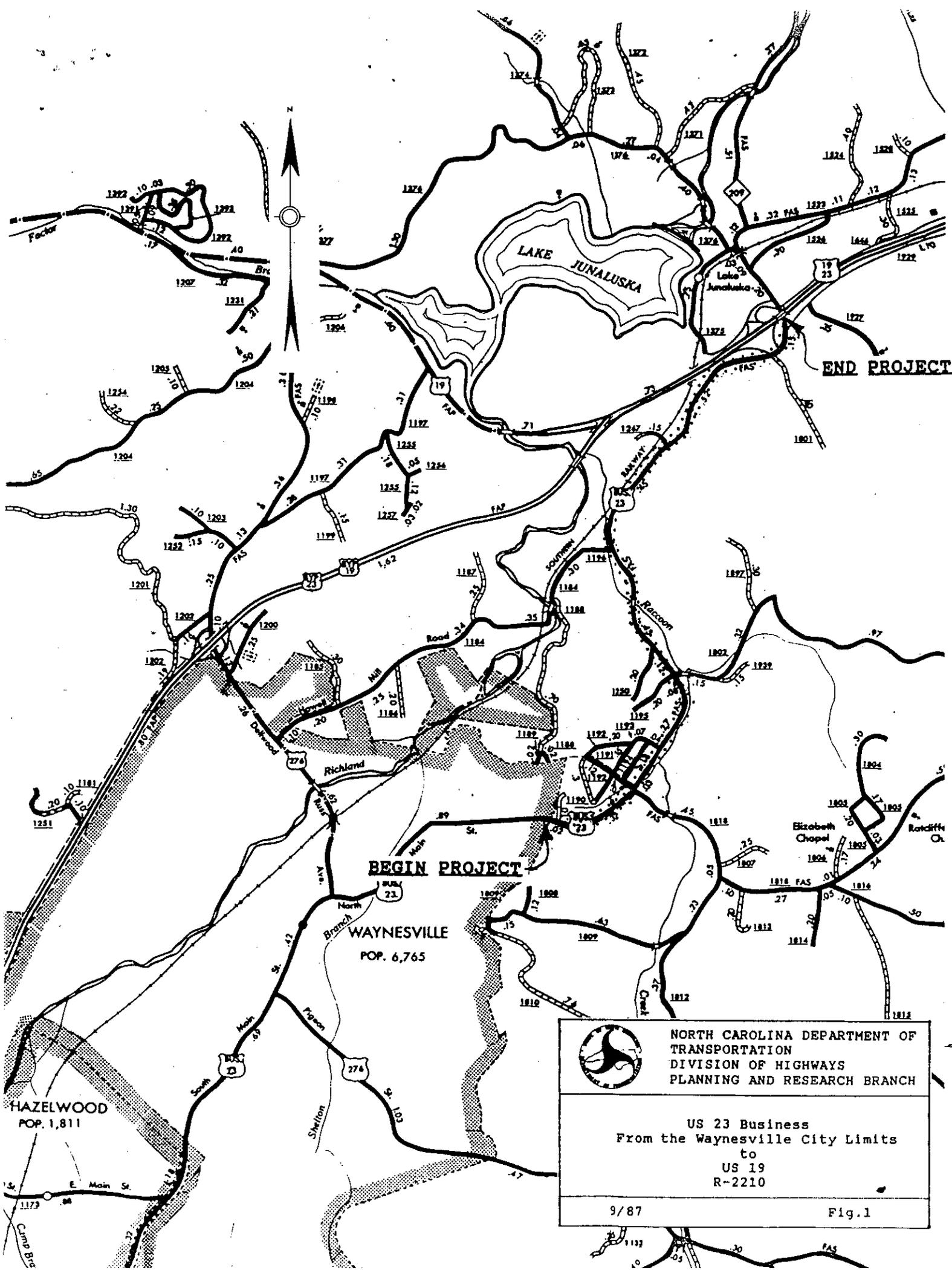
The most significant environmental impact will be the possible rechanneling of a small stream at the south end of the project.

VI. SCOPE OF STUDY

Construction cost estimates were based on costs of similar projects and were furnished by the Roadway Design Unit. Right-of-way estimates were furnished by the Right-of-Way Branch following a field review. Other resources used were aerial photographs, maps, and on-site visits.

The proposed improvements were based on input from the Division Engineer, field investigation, coordination with the Roadway Design Unit, and experience with similar projects.

ASC/rm



**BEGIN PROJECT**

**END PROJECT**

**WAYNESVILLE**  
POP. 6,765

**HAZELWOOD**  
POP. 1,811



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

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9/87

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