

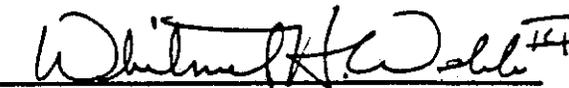
FEASIBILITY STUDY

Gastonia  
SR 1131 (Linwood Road)  
From SR 1132 to East Drive  
Gaston County  
U-2713

Prepared by  
Program Development Branch  
Division of Highways  
N. C. Department of Transportation



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11/22/91  
Date

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I. GENERAL DESCRIPTION

This is a Feasibility Study for the widening and partial realignment of SR 1131 (Linwood Road) from SR 1132 to East Drive in Gastonia, Gaston County (see the attached location map). The length of the studied portion of SR 1131 is 2.2 miles. The recommended typical cross-section is a five-lane, 64-foot curb and gutter section with 8-foot berms. The recommended right-of-way width is 90 feet, without access control.

The estimated preliminary cost of the recommended improvements is \$ 7,550,000 (\$ 1,300,000 for right-of-way, and \$ 6,250,000 for construction). This project may be constructed in stages. A four-lane, 52-foot curb and gutter typical cross-section was also evaluated as an alternative improvement, and is not recommended.

This study is not a detailed planning/environmental investigation. A feasibility study presents recommended typical cross sections, general alignments, and estimated cost of the improvement. The study also attempts to provide an early identification of potential environmental, permitting, or other issues which deserve consideration in the planning and construction stages.

II. EXISTING CONDITIONS & NEED FOR PROJECT

This study was requested by the City of Gastonia. SR 1131 (Linwood Road) is classified as an Urban Minor Arterial in the statewide functional classification system, and is a part of the federal-aid system (FAU-5423). SR 1131 is classified as a Major Thoroughfare in the 1977 mutually adopted Gaston Urban Area Thoroughfare Plan. The entire length of SR 1131 (Linwood Road) in Gastonia is a State responsibility.

The studied 2.2 mile portion of SR 1131 consists of a two-lane, 20-foot pavement with 4-foot usable shoulders. The existing alignment contains several horizontal curves in excess of 15 degrees, and vertical grades of 5 percent.

The west portion of the studied roadway, between SR 1132 and SR 1136 is fronted by woods, with the exception of a golf course in the vicinity of Crowders Creek. The east portion, from SR 1136 to East Drive is fronted by residential development.

The City of Gastonia requested that the roadway be realigned and widened to eliminate several existing potentially hazardous curves, and to increase the traffic carrying capacity of the roadway. This project is also needed to meet the anticipated increase in traffic demand once the west extension of Hudson Boulevard is constructed. As a major thoroughfare, SR 1131 carries through traffic between the residential areas in southwest Gastonia and US 29-70 (Franklin Boulevard). During the peak periods, traffic delays are common on the roadway due to the insufficient capacity, left-turning vehicles into the numerous driveways, and the adverse alignment.

It should be noted that the City of Gastonia is planning the widening of the adjacent portion of SR 1131 between East Drive and US 29-70 (Franklin Boulevard) to a four-lane curb and gutter section. The City is also planning to widen and realign the SR 1136 (Myrtle School Road) intersection. These improvements are compatible with the subject of this report.

Detailed traffic and turn-movement estimates were not available for this study. However, based on earlier traffic counts, it is estimated that the average daily traffic (ADT) in 1991 for this portion of SR 1131 is 6,500 vehicles per day (vpd). Traffic volume is estimated to grow to 15,000 vpd by 2011.

Under existing conditions, and peak-hour traffic, it is estimated that the subject roadway is offering a level-of-service (LOS) C, and is expected to reach LOS E by the year 2011. With the recommended widening, the roadway would offer LOS B to present traffic volumes, and LOS C to the year 2011 anticipated traffic volumes.

During the period from January 1988 through December 1990, a total of 89 accidents were reported on the studied portion of SR 1131. The resultant total accident rate was 513.9 accidents per 100 million vehicle-miles, compared to a statewide average of 366.4 accidents per 100 million vehicle-miles on similar routes. These accidents included 29 rear-end collisions, 21 involving vehicles that ran off the road, 15 involving angle collisions, 15 involving turning vehicles, and 4 involving head-on collisions. The recommended improvements will significantly lower the rates of these accidents.

The major structures involved with this project are bridge # 43 over Crowders Creek, which is 121 feet in length with a clear roadway width of 29 feet, and a sufficiency rating of 67.5 (compared to a sufficiency rating of 100 for a newly constructed bridge); and bridge # 44 over Blackwood Creek, which is 91 feet in length with a clear roadway width of 28 feet, and a sufficiency rating of 78.

### III. RECOMMENDATIONS

It is recommended that the 2.2-mile studied portion of SR 1131 (Linwood Road) be widened, and partially realigned. The recommended improvements may be constructed in stages as outlined later in this study. The recommended typical cross-section is a five-lane, 64-foot curb and gutter section with 8-foot berms, on a 90-foot wide right-of-way without access control. The recommended partial realignment is along a new location as proposed by the City of Gastonia. The realignment is necessary to increase the design speed, and the safety of the roadway.

From the west terminal of the project, just east of SR 1132 to Crowders Creek, a partial realignment is recommended to reduce the curvature of the existing roadway. The existing bridge over Crowders Creek would be replaced with a 150-foot long bridge, with a clear roadway width of 64 feet. All estimated dimensions of structures in this report may be changed at the planning stage according to hydraulic studies.

From Crowders Creek to SR 1136, the existing alignment is to be essentially retained with minor realignment of curves. However, from SR 1136 to the east terminal of the project at East Drive, the majority of the new roadway is to be on a new location approximately 0.1 mile north of the existing alignment. This new alignment is approximately tangent, with a southwest-northeast bearing from the SR 1136 intersection, to approximately 0.1 mile south of East Drive, where it joins and retains the existing alignment. This realignment is necessary to avoid the large number of residential relocations that would result from widening the existing roadway. A new bridge over Blackwood Creek, with an estimated length of 150 feet, and a clear roadway width of 64 feet.

The following staging plan is suggested if staged construction is deemed necessary:

Stage 1: From SR 1136 to East Drive (<sup>0.9</sup>~~0.7~~ mile). This stage should be the first to be constructed, since it would meet the highest traffic demand on this project.

Stage 2: From the proposed Hudson Boulevard alignment to SR 1136 (0.6 mile). This stage should be constructed prior to the completion of the Hudson Boulevard extension.

Stage 3: From SR 1132 to the proposed Hudson Boulevard alignment (~~0.9~~ mile). This stage may be constructed last to extend the improvements to the residential area west of Crowders Creek.

0.7

Estimated cost of the recommended improvements:

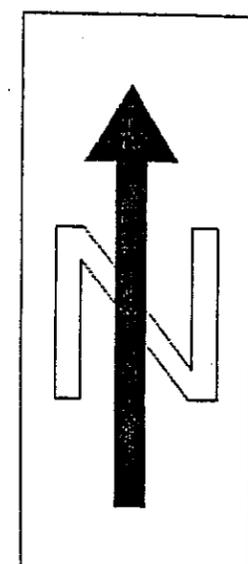
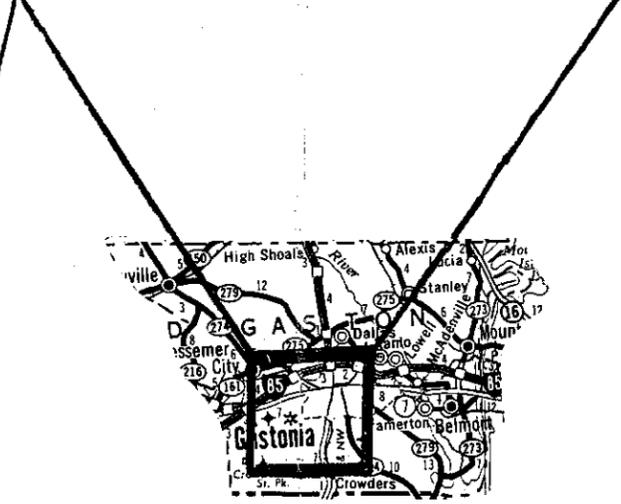
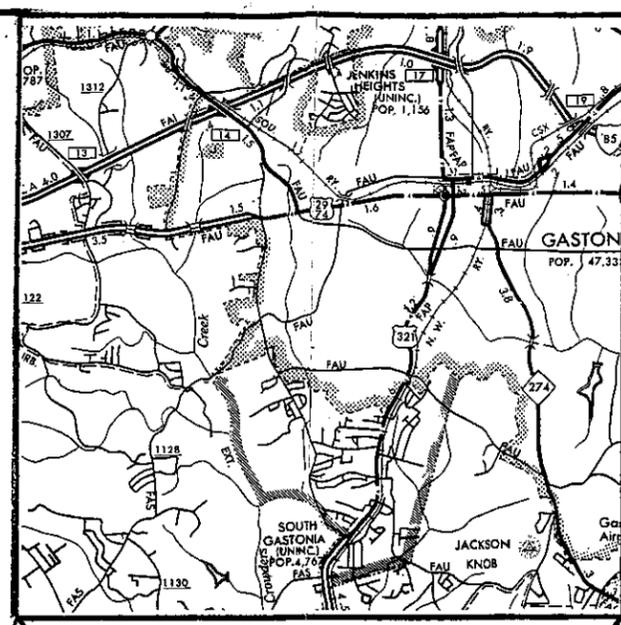
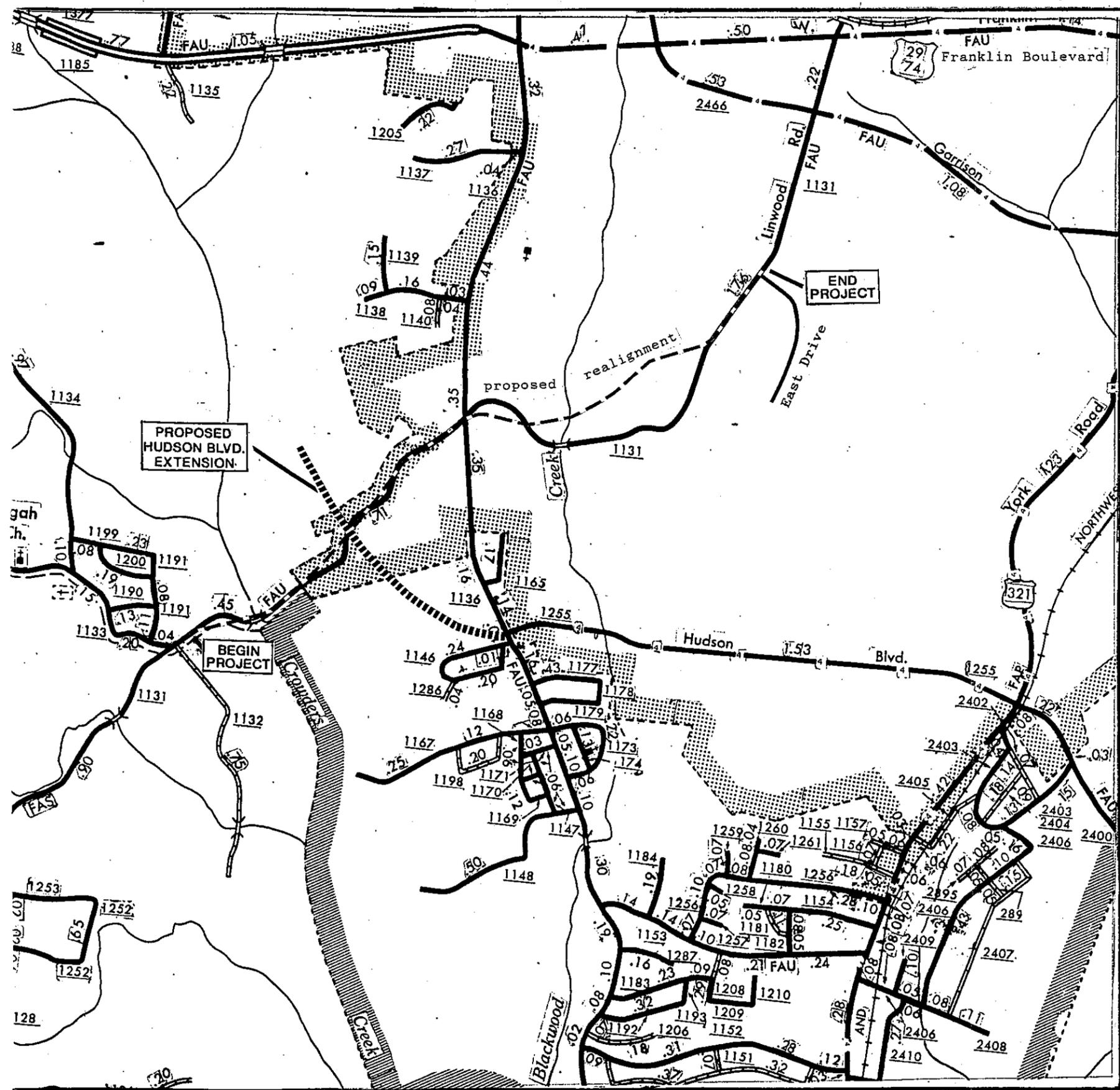
	Stage 1	Stage 2	Stage 3
Right-of-way & Utilities	\$720,000	\$420,000	\$170,000
Construction	\$2,750,000	\$1,200,000	\$2,300,000
Stage Total	\$3,470,000	\$1,620,000	\$2,470,000
Total project cost	\$7,560,000		

IV. ALTERNATIVE IMPROVEMENT

An alternative four-lane, 52-foot curb and gutter typical cross-section was also considered, and is not recommended. This alternative improvement follows the recommended alignment, and is identical to the recommended improvement except for the typical cross-section. A four-lane cross-section is not recommended since it would not accommodate left-turning traffic that will be generated by the adjacent development.

V. OTHER COMMENTS & CONCERNS

An environmental screening was not conducted for this project. However, it is anticipated that the project would impact wetlands at stream crossings, and require the relocation of two residences.




**FEASIBILITY UNIT  
GASTONIA**  
 SR 1131 (LINWOOD ROAD) FROM  
 NORTH OF SR 1132 TO EAST DRIVE  
 GASTON COUNTY  
 U-2713  
 SCALE: 1" = 0.33 MI. DATE: JULY 1991