

FEASIBILITY STUDY

Charlotte
Wilkinson Boulevard(US 74-29) & Billy Graham Parkway(US 521)
Proposed Loop in NW Quadrant
Mecklenburg County
U-2704

Prepared by
Program Development Branch
Division of Highways
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I. GENERAL DESCRIPTION

This preliminary study describes a two-way loop in the northwest quadrant of the grade separated intersection of Wilkinson Boulevard and Billy Graham Parkway in Charlotte. A vicinity map is shown on Figure 1 and the project location is shown on Figure 2. The improvement includes constructing a right turn entrance lane on westbound Wilkinson Boulevard, constructing a deceleration lane and an acceleration lane on southbound Billy Graham Parkway, and widening the existing bridge on Billy Graham Parkway over Wilkinson Boulevard. The total length of construction including the loop and additional lanes is 4000 feet. The estimated cost for construction is \$2,860,000 and the estimated cost of right of way is \$2,325,000 for a total estimated cost of \$5,185,000.

Construction, by the City of Charlotte, began in October 1991 on a connector road in the southwest quadrant of the subject intersection. This connector road may adequately meet the goal of the proposed loop in the northwest quadrant, i.e., an improved connection between Wilkinson Boulevard and Billy Graham Parkway, therefore it is recommended that the project described in this study not be advanced until the connector road now under construction is completed and new traffic patterns have become established.

This is not an exhaustive environmental or design investigation but a preliminary study to define feasible project alternatives and determine estimated right-of-way and construction costs for these alternatives.

II. NEED FOR PROJECT

The purpose of this project is to provide westbound traffic on Wilkinson Boulevard with a direct connection to southbound Billy Graham Parkway. Currently this connection is via either Old Dowd Road or Mullberry Church Road. Southbound traffic on Billy Graham Parkway would also be provided with access to Wilkinson Boulevard. The project location is shown on Figure 2 and Figure 3 is a design sketch.

Wilkinson Boulevard, in the project area, has curb and gutter and three travel lanes in each direction separated by a raised concrete median. About 2400 feet east of Billy Graham Parkway, Mullberry Church Road intersects Wilkinson Boulevard on the north side and about 2200 feet east of Billy Graham Parkway, Old Dowd Road intersects Wilkinson Boulevard on the south side. Both intersections are controlled with traffic signals. Mullberry Church Road serves as a connection for traffic between Wilkinson Boulevard and northbound Billy Graham Parkway and Old Dowd Road serves as a connection between Wilkinson Boulevard and southbound Billy Graham Parkway. Development on Wilkinson Boulevard in the project area is primarily commercial, while development inside the proposed loop is primarily residential. The posted speed limit is 45 mph.

Billy Graham Parkway, in the project area, is a median divided facility with two northbound travel lanes and two southbound travel lanes. About 1000 feet south of Wilkinson Boulevard, Old Dowd Road intersects Billy Graham Parkway. About 1300 feet north of Wilkinson Boulevard, Mullberry Church Road intersects Billy Graham Parkway. Both intersections are controlled with traffic signals. The posted speed limit is 45 mph.

There is no direct private access allowed on Billy Graham Parkway, however, at-grade intersections with public streets are allowed. Both Billy Graham Parkway and Wilkinson Boulevard are Major Thoroughfares in the Charlotte Thoroughfare Plane of 1988 and both are classified as Other Urban Principal Arterials in the North Carolina Functional Classification System.

At the project location the Average Daily Traffic (ADT) for the years 1991 and 2011 for Billy Graham Parkway are estimated to be 32,000 vehicles per day (vpd) and 64,000 vpd, respectively. For Wilkinson Boulevard the 1991 and 2011 ADT volumes are estimated to be 20,000 vpd and 40,000 vpd respectively. Currently there are estimated to be 1700 vpd traveling westbound on Wilkinson Boulevard who desire to connect to southbound Billy Graham Parkway. There are an estimated 500 vpd traveling southbound on Billy Graham Parkway desiring to connect with westbound Wilkinson Boulevard.

Accident data for 1988, 1989, and 1990 were collected for the following 4 intersections: Wilkinson Boulevard and Mullberry Church Road, Wilkinson Boulevard and Old Dowd Road, Billy Graham Parkway and Mullberry Church Road, and Billy Graham Parkway and Old Dowd Road.

At the Wilkinson Boulevard - Mullberry Church Road intersection there were a total of 40 accidents reported during the 36 month period resulting in an accident rate of 135 accidents per 100 million entering vehicles (acc/100 mev). There were no fatal accidents during this time, however 16 accidents resulted in 23 injuries. The most prevalent type accidents were left-turn accidents (25%), and rear-end accidents (25%).

At the Wilkinson Boulevard - Old Dowd Road intersection there were a total of 26 accidents reported resulting in an accident rate of 98 acc/100 mev. There were no fatal accidents reported but 13 were injury accidents resulting in 21 injured persons. The most prevalent type accidents were rear-end accidents (46%), and left-turn accidents (19%).

At the Billy Graham Parkway - Mullberry Church Road intersection there were 36 total accidents reported during the 36 month period resulting in an accident rate of 135 acc/100 mev. There were no fatal accidents but there were 17 injury accidents resulting in 30 injured persons. The predominate type accidents were angle (47%) and rear-end type accidents (28%).

At the Billy Graham Parkway - Old Dowd Road intersection there were 23 total accidents reported during the 36 month period resulting in an accident rate of 61 acc/100 mev. There were no fatal accidents but there were 8 injury accidents resulting in 14 injured persons. The predominate type accidents were rear-end (48%) and left-turn type accidents (17%).

III. DETAILED PROJECT DESCRIPTION

This project is for a two-way loop in the northwest quadrant of the grade separated intersection of Wilkinson Boulevard and Billy Graham Parkway in Charlotte. The two-way portion of the loop will be 30 feet wide from face-to-face of curbs. The one-way entrance and exit ramps will be 17 feet wide from face-to-face of curbs. A vicinity map is shown on Figure 1 and the project location is shown on Figure 2. The improvement includes constructing a 12 foot wide right turn entrance lane on westbound Wilkinson Boulevard, constructing a 12 foot wide deceleration lane and a 12 foot wide acceleration lane on southbound Billy Graham Parkway, and widening (8 feet on the west side) the existing bridge on Billy Graham Parkway over Wilkinson Boulevard in order to provide the acceleration lane. The proposed acceleration lane on Billy Graham Parkway will extend across the bridge over Wilkinson Boulevard and tie into the existing right-turn-lane at the Old Dowd Road intersection. The total length of construction including the loop and additional lanes is 4000 feet. Access to the proposed loop from adjacent property will be fully controlled. All land parcels inside the loop will be acquired. There will likely be 22 residential relocatees and 3 business relocatees. Utility adjustments are estimated to be medium. The estimated total cost is:

Construction	\$2,860,000
Right of Way	\$2,325,000
Total	\$5,185,000.

IV. CITY PROJECT IN SOUTHWEST QUADRANT

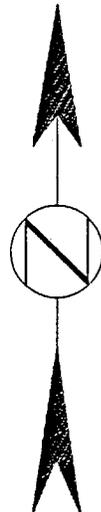
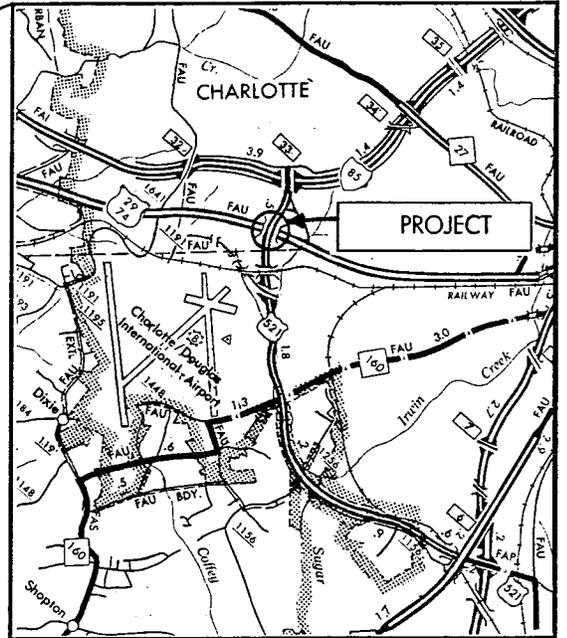
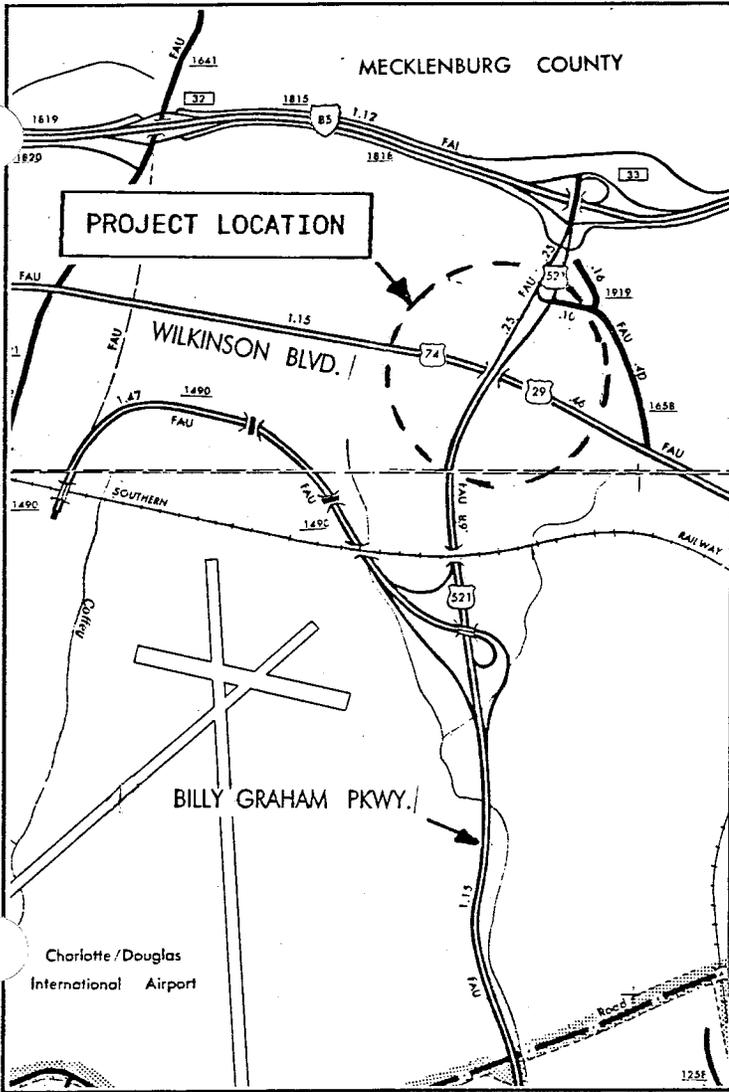
Construction began in October 1991 on a connector road in the southwest quadrant of the Wilkinson Boulevard - Billy Graham Parkway grade separated intersection. See Figure 2. This project is funded jointly by the City of Charlotte and a private developer. This connector road will intersect Wilkinson Boulevard about 350 feet west of Billy Graham Parkway opposite Boyer Street, and will intersect Billy Graham Parkway opposite Old Dowd Road. Old Dowd Road will tie into the new connector road about 200 feet west of Billy Graham Parkway. The new connector road will serve two-way traffic and commercial entrances will be allowed. The new intersection at Wilkinson Boulevard will be controlled with a traffic signal and an exclusive left turn lane will be provided for westbound Wilkinson Boulevard traffic to this new road. Capacity analyses, based on 1991 traffic volumes, indicate this intersection will operate at a level of service C, however capacity analyses based on projected future traffic volumes indicate the intersection will approach level of service E in about ten years and, without an additional left turn lane for westbound traffic, will reach breakdown conditions in 20 years.

V. RECOMMENDATIONS

It is recommended that the project described in this study not be advanced until the connector road now under construction in the southwest quadrant is completed and revised traffic patterns have become established. This connector road may adequately meet the goal of the proposed loop in the northwest quadrant, i.e., an improved connection between Wilkinson Boulevard and Billy Graham Parkway.

VI. OTHER COMMENTS

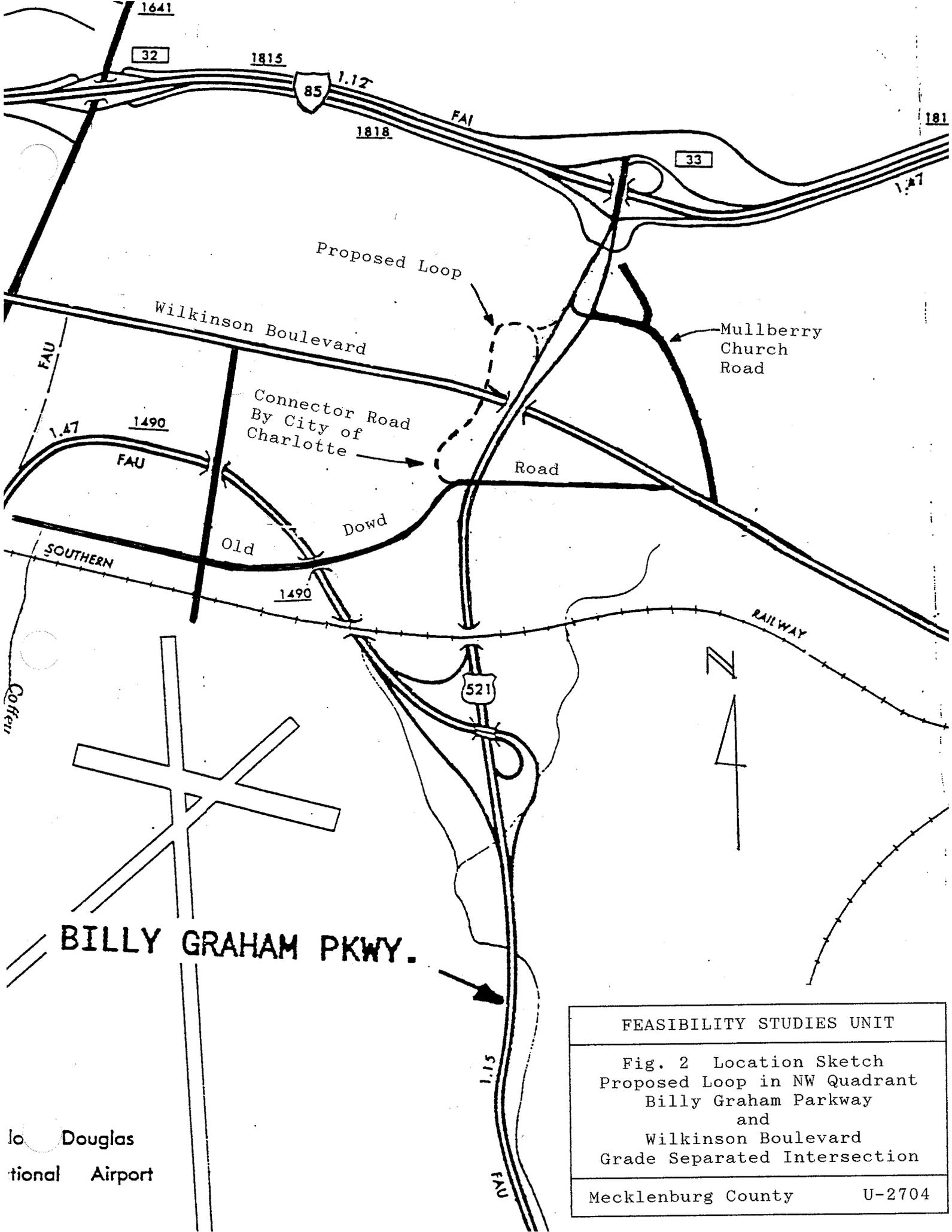
An environmental screening was not done, however no significant environmental impacts are anticipated.



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Fig. 1 Vicinity Map
Proposed Loop in NW Quadrant
Billy Graham Parkway
and
Wilkinson Boulevard
Grade Separated Intersection

Mecklenburg County U-2704



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Fig. 2 Location Sketch
 Proposed Loop in NW Quadrant
 Billy Graham Parkway
 and
 Wilkinson Boulevard
 Grade Separated Intersection

