

FEASIBILITY STUDY

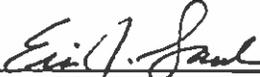
**US 64
from the Proposed Mocksville Bypass (R-3111)
to US 52 Bypass
Davie & Davidson Counties**

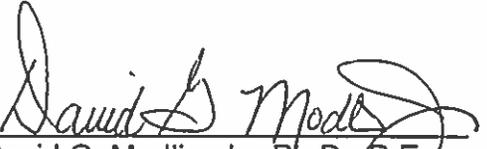
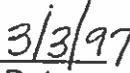
Division 9

R-3602



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


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US 64
from the Proposed Mocksville Bypass (R-3111)
to US 52 Bypass
Davie & Davidson Counties
R-3602

I. General Description

This feasibility study describes widening US 64 from the proposed Mocksville Bypass (R-3111) to US 52 Bypass in Lexington, a distance of 14.0 miles (22.5 km). The project location is shown on Figure 1. The recommended cross-section is a four-lane divided section with 12-foot (3.7-m) travel lanes, 4-foot (1.2-m) paved outside shoulders, 2-foot (0.6-m) paved inside shoulders and a 60-foot (18.3-m) median on 300 feet (91.5 m) of right-of-way with no access control. It is anticipated that there will be eighty-eight residences and two businesses relocated due to this project. The total cost of the project, including construction and right-of-way, is estimated to be \$74,300,000.

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project including costs, and to identify potential problems that may require consideration in the planning and design phases.

II. Need for Project

The purpose of this project is to improve safety and traffic flow along US 64 between Mocksville and Lexington. This project is supported by Davie County and Davidson County.

US 64 is designated as a major thoroughfare in the Mocksville Thoroughfare Plan. US 64 is listed as a principal urban arterial in Davidson County and as a minor rural arterial in Davie County in the North Carolina Statewide Functional Classification System.

Due to the length of the project, development along the project varies extensively. There is a high concentration of residential and commercial development in the Lexington area and in the vicinity of the Fork Church community. Development throughout the remainder of the project is mostly light-density residential with very little commercial development.

US 64 is currently a two-lane roadway with a pavement width that varies between 18-24 feet (5.5-7.3 m) wide with soil shoulders of varying widths. East

of US 52, US 64 is currently a four-lane divided facility. The western project terminus will intersect with the proposed Mocksville Bypass (TIP Project R-3111). The scope of R-3111 has been extended to include R-3326, which will construct a two-lane facility on multilane right-of-way from US 601 south of Mocksville to north of US 64 (see Figure 2). It is anticipated that an interchange will be constructed at US 64 as a part of R-3111. This project is currently scheduled for right-of-way acquisition in October 2002 and for post-year construction.

There are eight structures within the project limits. Please see Appendix A for summary information for each structure and the proposed treatment for each.

There are two petroleum pipeline crossings within the project limits. US 64 crosses a petroleum pipeline between SR 1194 (Yadkin College Rd.) and SR 1433 (Dykers Creek Rd.). There is also a petroleum pipeline crossing located west of the US 52 interchange.

There is an existing canoe access to the Yadkin River Canoe Trail on the south side of the existing structure at the Yadkin River.

The 1996 Average Daily Traffic (ADT) along US 64 varies from 7,000 to 15,000 vehicles per day (vpd). For the design year 2020, the estimated traffic volume on US 64 will range between 16,000 and 31,400 vpd. Truck traffic is estimated to make up 20% of daily traffic.

Currently US 64 is operating at Level of Service (LOS) E. If no improvements are made, it is projected that the roadway will operate at LOS F in the design year 2020. If US 64 is widened to a four-lane divided section, the facility will operate at LOS A in the current year and at LOS B in the design year 2020.

During the three-year period from May 1992 to April 1995, there were 239 accidents reported on US 64 within the project limits. 177 injuries were reported as a result of these accidents, including six fatalities. The accident rate along US 64 within the project limits is 170.59 accidents per 100 million vehicle miles (acc/100mvm). This compares with the 1994 statewide rate of 183.00 acc/100mvm for rural two-lane undivided US routes.

III. Recommendations

It is recommended to widen US 64 from the proposed Mocksville Bypass (R-3111) to US 52 Bypass in Lexington, a distance of 14.0 miles (22.5 km). The project location is shown on Figure 1. The recommended cross-section is a four-lane divided section with 12-foot (3.7-m) travel lanes, 4-foot (1.2-m) paved

outside shoulders, 2-foot (0.6-m) paved inside shoulders and a 60-foot (18.3-m) median on 300 feet (91.5 m) of right-of-way with no access control.

It is recommended that the widening be done asymmetrically throughout the project, alternating between the north and south sides of the existing alignment. This should be done in order to minimize the impact to property owners within the project limits.

Due to the density of residential development, a bypass on new location is recommended around the community of Fork Church (see Figure 2). Realignment is also recommended in the vicinity of SR 1603 (John Crotts Rd.) due to problems with the existing horizontal and vertical alignment.

It is also recommended to upgrade the existing interchange at NC 150.

It is anticipated that eighty-eight residences and two businesses will be relocated due to the project. The total cost is as follows:

Construction.....	\$ 59,200,000
Right-of-Way.....	\$ 15,100,000
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Total Cost	\$ 74,300,000

IV. Alternates

Phased construction of this project may be desirable to the high costs. Using the Yadkin River / county line, the project can be divided into two segments.

Segment 1 - Mocksville Bypass to Yadkin River (8.1 miles)

Segment 1 would widen US 64 to a four-lane divided facility from the proposed Mocksville Bypass (R-3111) to the Yadkin River. This segment includes the construction of additional parallel structures at Dutchman's Creek and at the Yadkin River and the new location around Fork Church. It is anticipated that thirty-six residences and no businesses will be relocated due to this portion of the project. The cost of constructing Segment 1 is as follows:

Construction.....	\$ 35,300,000
Right-of-Way.....	\$ 7,800,000
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Total Cost	\$ 43,100,000

It may be desirable to construct the parallel structure at the Yadkin River as a part of Segment 2. The construction cost for this structure included in the Segment 1 cost is approximately \$2,400,000.

Segment 2 - Yadkin River to US 52 interchange (5.9 miles)

Segment 2 would widen US 64 to a four-lane divided facility from the Yadkin River to the existing four-lane divided section at the US 52 interchange. This segment includes upgrading the NC 150 interchange. It is anticipated that fifty-two residences and two businesses will be relocated due to this portion of the project. The cost of constructing Segment 2 is as follows:

Construction.....	\$ 23,900,000
Right-of-Way.....	\$ 7,300,000
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Total Cost	\$ 31,200,000

V. Additional Considerations

At the request of Division 9 personnel, the possibility of constructing improvements at the I-85 Business / US 29-70 interchange was examined. Currently US 64 crosses I-85 Business with a two-lane bridge as described in Appendix A. The existing interchange does not provide adequate flow for current and projected traffic demands, nor does it allow for future expansion of I-85 Business.

Current volume projections show that the existing configuration of ramps will not adequately serve the future traffic demands. Therefore it is proposed to realign US 64 northward from its existing alignment to allow through movements onto Center Street (see Figure 3). The proposed structure would be four-lanes wide with curb and gutter approaches and would provide enough under-lateral clearance to allow future expansion of I-85 Business to six lanes.

In order to accommodate the extension of the acceleration lane onto northbound I-85 Business, it is proposed to replace Structure No. 74 on I-85 Business, which was built in 1950 and currently has a sufficiency rating of 40.5.

A loop ramp in the southeast quadrant will also be necessary to meet projected traffic demands. An aerial ramp on an elevated structure will be required in order to maintain existing traffic patterns on National Avenue and to prevent disturbing the floodplain for Michael Branch (see Figure 3).

It is also proposed to implement full access control in the vicinity of this project, which will require removal of several local accesses to both I-85 Business and US 64 as shown on Figure 3. One residence is expected to be relocated as a result of this construction.

The cost of reconstructing this interchange is as follows:

Construction.....	\$ 9,900,000
Right-of-Way.....	\$ 700,000
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Total Cost	\$ 10,600,000

The use of a 46-foot (14.0-m) median on Segments 1 and 2 was also considered. This option would reduce the amount of earthwork required for construction costs and would also utilize 300 feet (91.5 m) of right-of-way with no access control. The total cost of Segments 1 and 2 under this option is as follows:

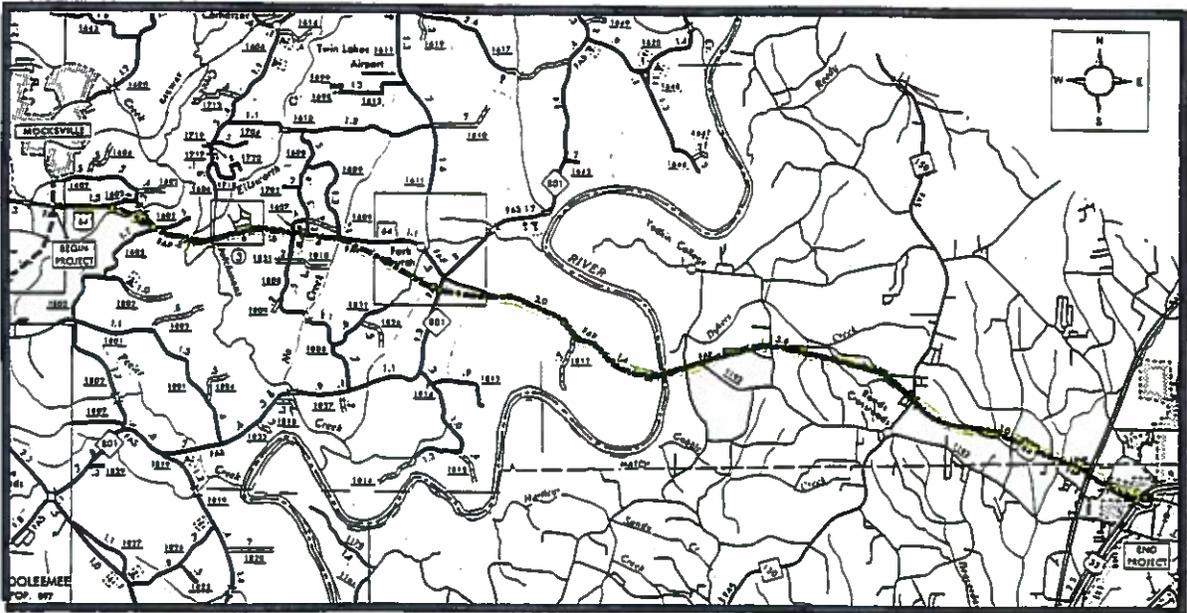
Construction.....	\$ 57,600,000
Right-of-Way.....	\$ 15,100,000
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Total Cost	\$ 72,700,000

VI. Other Comments

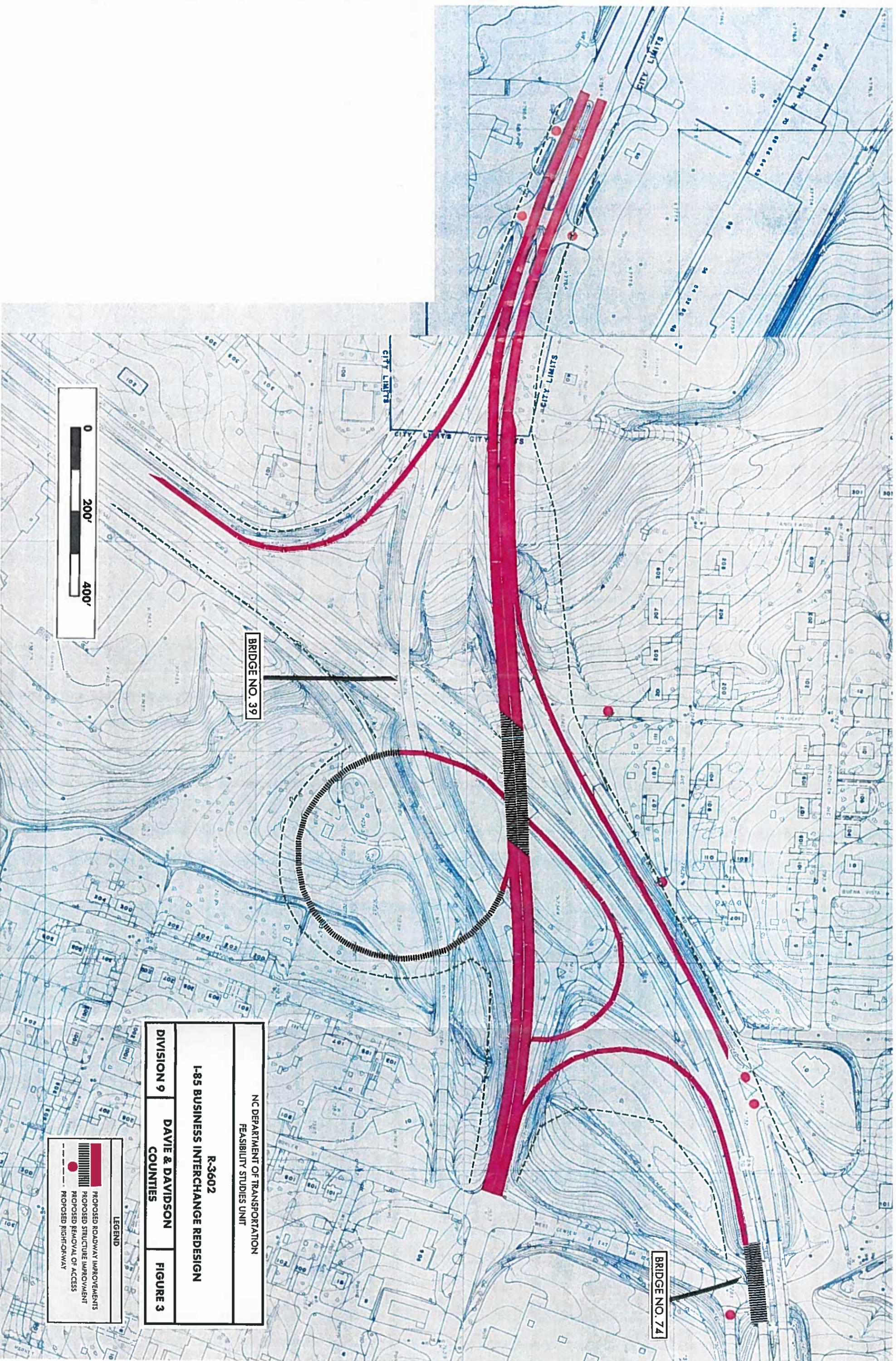
There is a critical watershed located in the vicinity of the Yadkin River. This section of the Yadkin River within the project corridor is classified as a critical area protected water supply (WS-IV CA) and is part of the Yadkin-Pee Dee River Basin. Should this project be funded, special provisions must be made to protect water quality in this area during construction. Six other streams cross this project that are a part of the Yadkin-Pee Dee River Basin: Dutchman's Creek, Leonards Creek and No Creek are classified as WS-IV, and Swearing Creek, Branch of Swearing Creek and Indian Grove Creek are classified C.

An environmental screening was not conducted for this study. However, no impacts to historic properties or wetlands are anticipated. Based on maps at the Department of Environment, Health & Natural Resources - Natural Heritage Section, no threatened or endangered species were identified in the project corridor.

No special accommodation for bicycles is recommended on this project.



NC DEPARTMENT OF TRANSPORTATION FEASIBILITY STUDIES UNIT		
R-3602 US 64 FROM THE PROPOSED MOCKSVILLE BYPASS (R-3111) TO I-85 BUSINESS / US 29-70		
DIVISION 9	DAVIE & DAVIDSON COUNTIES	FIGURE 1



BRIDGE NO. 39

BRIDGE NO. 74

NC DEPARTMENT OF TRANSPORTATION
 FEASIBILITY STUDIES UNIT

R-3602
 I-85 BUSINESS INTERCHANGE REDESIGN

DIVISION 9 DAVIE & DAVIDSON FIGURE 3
 COUNTIES



LEGEND

-  PROPOSED ROADWAY IMPROVEMENTS
-  PROPOSED STRUCTURE IMPROVEMENT
-  PROPOSED REMOVAL OF ACCESS
-  PROPOSED RIGHT-OF-WAY

APPENDIX A - R-3602 Existing Structure Inventory

Structure Number	Feature Intersected	Structure Description	Structure Length	Horizontal Clearance	Year Constructed	Sufficiency Rating	Proposed Treatment
DAVIE COUNTY (29)							
C 52	Leonards Creek	Quadruple 8'x9' reinforced concrete box culvert	48' along center	24'	1932	97	Extend
58	Dutchman's Creek	Reinforced concrete deck on PPC girders, PPC deck panels & approach slabs	200'	40'	1994	93.5	None - construct parallel structure
63	Yadkin River	Reinforced concrete deck on PPC girders, PPC deck panels & approach slabs	900'	36'	1984	82.9	None - construct parallel structure
DAVIDSON COUNTY (28)							
44	NC 150	Reinforced concrete deck girders	135'	26'	1952	52	Upgrade interchange - replace structure, improve clearance to 16', upgrade ramps
C 2	Indian Grove Creek	Triple 7'x7' reinforced concrete box culvert	88' along center	24'	1954	97.3	Extend
C 10	Swearing Creek	Double 10'x8' reinforced concrete box culvert	53' along center	24'	1954	97.2	Extend
C 14	Branch of Swearing Creek	Triple 10'x8' reinforced concrete box culvert	51' along center	24'	1954	97.2	Extend
39	I-85 Business	Reinforced concrete deck on I-beams	245'	30'	1952	42.7	Upgrade interchange - realign CL of US 64, construct new loop in SE quad., provide enough under lai. clearance for future lanes
74	SR 1242 & Michaels Creek	Reinforced concrete deck on I-beams	190'	30'	1950	40.5	Replace with new structure to accommodate acceleration lane extension

