



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

DIVISION OF HIGHWAYS
P.O. BOX 25201, RALEIGH, N.C. 27611-5201

GARLAND B. GARRETT JR.
SECRETARY

March 15, 1996

MEMORANDUM TO: Ms. Mary Hayes Holmes, Member, Board of Transportation
Mr. F. E. Whitesell, P.E., Division Engineer, Division 8
Mr. C. W. Leggett, P.E.
Mr. W. H. Webb, P.E.
Mr. J. M. Lynch, P.E. (6) Attention: Roberto Canales, P.E.
Congestion Management Engineer
Mr. J. B. Williamson
Mr. H. F. Vick, P.E. (2)
Mr. D. R. Morton, P.E.
Mr. G. T. Shearin, P.E.
Mr. M. R. Poole, P.E.
Mr. A. L. Avant (2)
Mr. J. D. Lane
Mr. T. A. Peoples, P.E.
Mr. L. K. Barger, P.E.

FROM:

David G. Modlin, Ph.D., P.E.
Head of Feasibility Studies

A handwritten signature in cursive script that reads "David Modlin".

SUBJECT:

Feasibility Study # U-3401, Asheboro, Intersection Revisions at
US 64/NC 49 and NC 42, Randolph County.

Our staff has completed a feasibility study for the subject proposed project. This brief analysis suggests improvements that would be logical if the project were to be funded. A copy of our report is attached for your information.

DGM/joa

Attachment

cc: Dr. L. R. Goode, P.E.
Mr. B. G. Jenkins, P.E.
Mr. David W. Conner



FEASIBILITY STUDY

**Asheboro
Intersection Revisions at
US 64/NC 49 and NC 42
Randolph County**

U-3401

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



David W. Conner
Highway Planning Engineer



David G. Modlin, Jr., Ph.D., P.E.
Head of Feasibility Studies

2/28/96
Date

U-3401
Asheboro
Intersection Revisions at
US 64/ NC 49 and NC 42
Randolph County

I. General Description

This feasibility study describes proposed improvements at the intersection of US 64/NC 49 and NC 42 in Asheboro. The improvements include widening all approaches to add additional lanes. The project location is shown on Figure 1. The existing intersection configuration is shown on Figure 2. The proposed configuration is shown on Figure 3.

Additional right-of-way will be required for this project; however, it is not anticipated that any residences or businesses will be relocated if the acquisition is asymmetrical to the north side of NC 42.

The total project cost, including construction and right-of-way, is estimated to be \$ 1,500,000 as follows:

| | |
|--------------------|--------------|
| Construction | \$ 600,000 |
| Right-of-Way | 900,000 |
| Total Cost | \$ 1,500,000 |

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 identify potential problems that may require consideration in the planning and design phases.

II. Existing Conditions

The purpose of this project is to increase the traffic carrying capacity and safety of the subject intersection.

In the North Carolina Statewide Functional Classification System, US 64/NC 49 is classified as an Urban Principal Arterial. NC 42 is classified as an Urban Principal Arterial northwest of US 64/NC 49 and as an Urban Minor

Arterial on the southeast side of US 64/NC 49. On the Asheboro Thoroughfare Plan, both roadways are classified as major thoroughfares.

All four quadrants of the intersection are heavily developed commercially. Development includes automobile dealerships, gas stations/convenience marts, shopping centers, and retail outlets.

US 64/NC 49 is a 5-lane, curb-and-gutter roadway with a width of 64 feet (19.5 m) from face-to-face of curbs. At the intersection, the approaches include one left-turn lane, one through lane, one combination right-turn/through lane and two lanes exiting the intersection.

NC 42 is a two-lane roadway. At the intersection, it has been widened to facilitate turning movements. Each approach includes one left-turn lane, one combination right-turn/through lane, and one lane exiting the intersection.

It is estimated that the current (1995) traffic volumes on US 64/NC 49, in the area of the intersection, are in the range of 21,000 to 25,000 vehicles per day (vpd). NC 42 has current volumes ranging from approximately 9,000 to 11,000 vpd. It is also estimated that in the year 2020, the volumes will be only slightly higher than current volumes. This is due to the proposed construction of the Asheboro Southern Loop which is scheduled in the TIP for right-of-way acquisition to begin in 2001. With the Asheboro Southern Loop in place, the estimated 2020 traffic volumes will be approximately 26,400 vpd on US 64-NC 49 and approximately 11,200 vpd on NC 42.

Currently, at the intersection, NC 42 left and right turns are approximately 17% of the intersection entering volume. Assuming that this percent remains constant, the design year (2020) left and right turns from NC 42 will be approximately 550 vehicles during the peak hour. Without the addition of exclusive left-turn and right-turn lanes, the intersection delay will be substantial causing the intersection to operate a low Level of Service (Level D and possibly Level E). It is estimated that the intersection is currently operating at Level of Service D. With the addition of the lanes as proposed, the Level of Service should improve to Level C which should prevail through the design year.

During the period from May 1, 1992, through April 30, 1995, there were 61 accidents reported at this intersection. None of the accidents resulted in fatal injuries; however, 23 of the accidents resulted in 39 non-fatal injuries. The most prevalent type accidents were Rear-End (34%), Left-Turn (26%), and Angle (25%). The proposed improvements should lessen the congestion at this intersection, and reduce the potential for these types of accidents.

III. Recommendations

It is recommended to construct improvements at the intersection of US 64/NC 49 and NC 42 in Asheboro. The improvements should include widening all approaches to add additional lanes. The project location is shown on Figure 1. The existing intersection configuration is shown on Figure 2. The proposed intersection configuration is shown on Figure 3.

Both approaches of US 64/NC 49 should be widened to include one left-turn lane, two through lanes, one right-turn lane, and two lanes exiting the intersection.

Both approaches of NC 42 should be widened to include two left-turn lanes, one through lane, one right-turn lane, and one lane exiting the intersection.

The existing traffic signal will need to be upgraded.

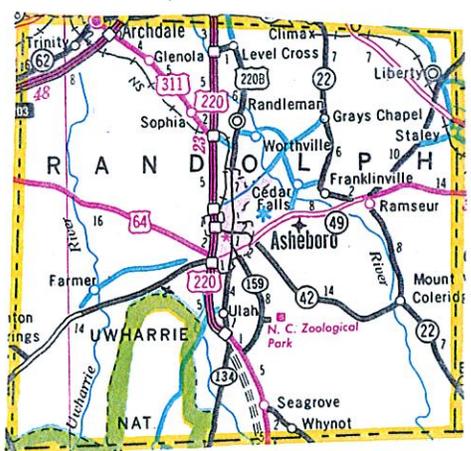
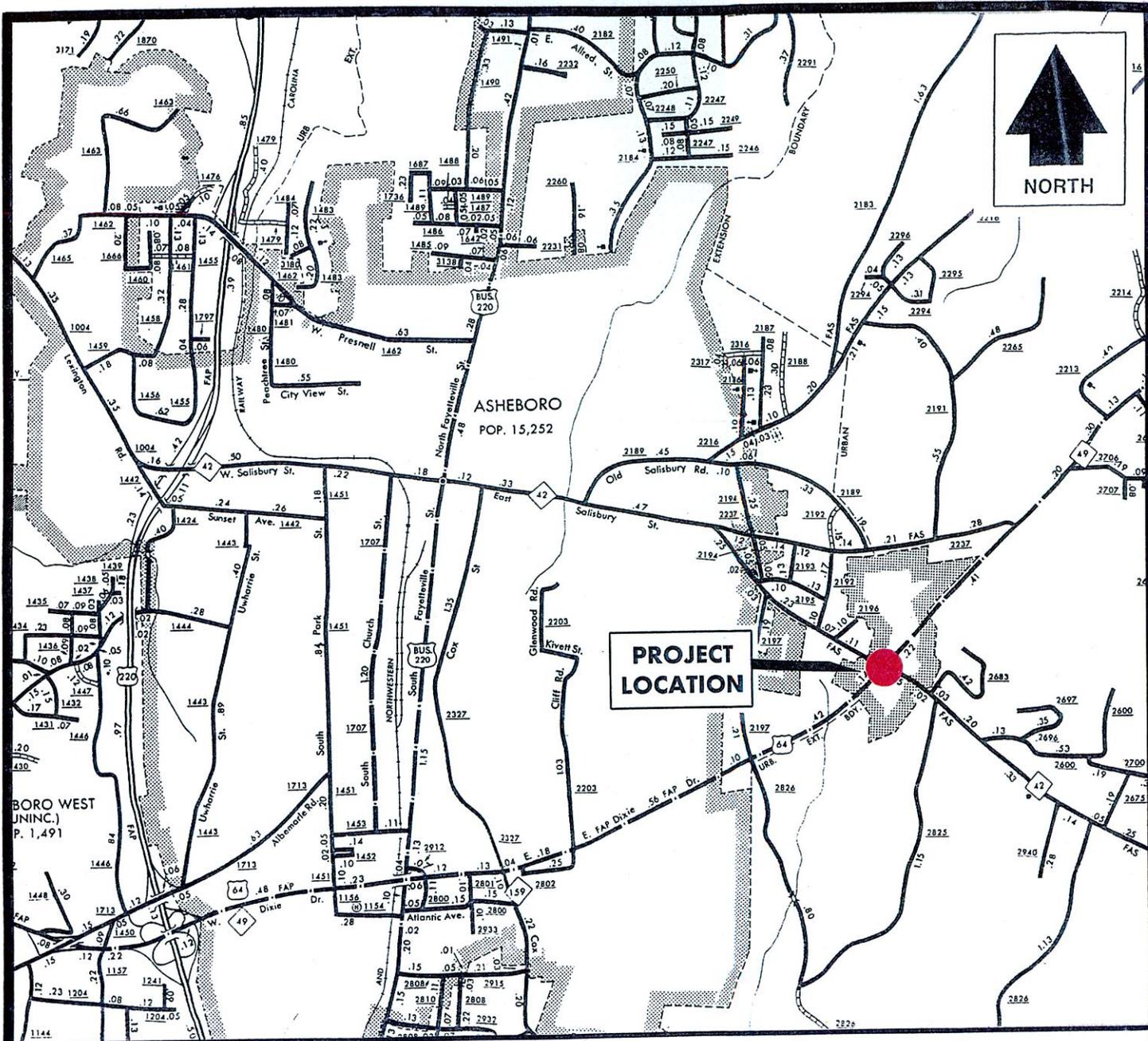
Additional right-of-way will be required for this project; however, it is not anticipated that any residences or businesses will be relocated if the acquisition is asymmetrical to the north side of NC 42.

The total project, cost including construction and right-of-way, is estimated to be \$ 1,500,000 as follows:

| | |
|--------------------|--------------|
| Construction | \$ 600,000 |
| Right-of-Way | 900,000 |
| Total Cost | \$ 1,500,000 |

IV. Other Comments

An environmental screening was not conducted for this study.



FEASIBILITY STUDIES UNIT

FIGURE 1. PROJECT LOCATION

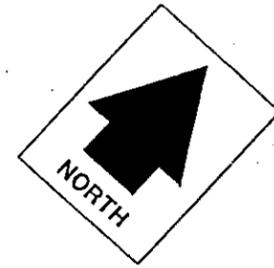
Intersection of US 64/NC 49 and NC 42

ASHEBORO

Randolph County Div 8 U-3401

US 64 / NC 49

NC 42



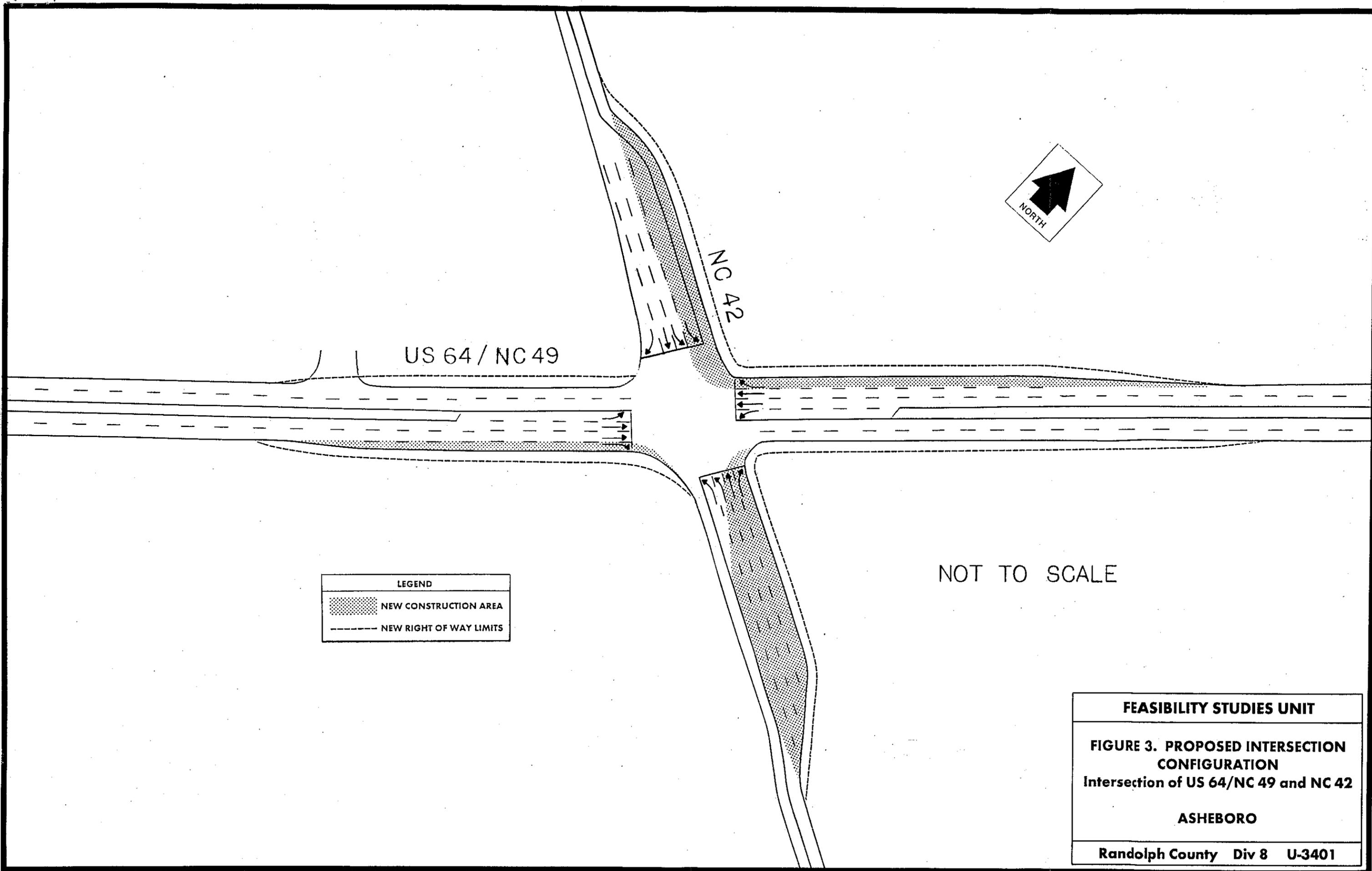
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**FIGURE 2. EXISTING INTERSECTION
CONFIGURATION**
Intersection of US 64/NC 49 and NC 42

ASHEBORO

Randolph County Div 8 U-3401

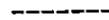


US 64 / NC 49

NC 42



NOT TO SCALE

| LEGEND | |
|---|-------------------------|
|  | NEW CONSTRUCTION AREA |
|  | NEW RIGHT OF WAY LIMITS |

| |
|---|
| FEASIBILITY STUDIES UNIT |
| FIGURE 3. PROPOSED INTERSECTION CONFIGURATION Intersection of US 64/NC 49 and NC 42 |
| ASHEBORO |
| Randolph County Div 8 U-3401 |