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FEASIBILITY STUDY

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US 64
From 1-85 Business, in Lexington,
to the US 1-US 64 Interchange, near Cary
Projects R-2220, R-2217, R-2218, R-2219, and R-2219X
Davidson, Randolph, Chatham, and Wake Counties

Prepared By
The Planning and Research Branch
of the Division of Highways
North Carolina Department of Transportation

August, 1987

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Feasibility Study

The subject projects are included in the 1987-1995 Transportation Improvement Program but without accompanying schedules. This report provides a brief analysis of possible improvements. The projects are not currently funded.

I. LOCATION, TYPE OF FACILITY, AND SCOPE OF STUDY

The sections of US 64 covered in this study begin near the I-85 Business interchange in Lexington (Davidson County) and terminate at the US 1-US 64 interchange near Cary in Wake County. The subject sections of US 64 traverse the Counties of Davidson, Randolph, Chatham, and Wake (See Figure 1).

This feasibility study investigated five projects along US 64. The projects are as follows:

Project R-2220: Davidson and Randolph Counties, from approximately 0.1 mile east of the I-85 Business, US 64, US 29-70 Bypass, US 29-70 Business, and NC 52 junction, in Lexington, to SR 2237, east of Asheboro (See Figure 2A). The length of this project is approximately 28.5 miles.

Historically, a high number of accidents have occurred at the I-85 Business, US 64, US 29-70 Bypass, US 29-70 Business, and NC 52 interchange, in Lexington. The Planning and Research Branch at the request of the 9th Division Engineer, investigated the possibility of including this interchange within the scope of the subject feasibility study of US 64; however, it was felt that the degree of preliminary engineering that would be required in order to determine the scope of the improvements for the interchange would exceed the time and resources that are presently available for completing the feasibility studies. Thus, the interchange was not included within the scope of the US 64 study. However, if in the future, a decision is made to upgrade this interchange, then sufficient preliminary engineering should be conducted at that time in order to determine all feasible alternatives for improving the interchange.

Project R-2217: Randolph and Chatham Counties, from the west city limits of Ramseur to the west city limits of Siler City (See Figure 2B). The length of this project is approximately 10.5 miles.

Project R-2218: Chatham County, from the west city limits of Siler City to SR 1515, west of Pittsboro (See Figure 2B). The length of this project is approximately 15.2 miles.

Project R-2219: Chatham County, from SR 1515, west of Pittsboro, to SR 1008, east of B. Everett Jordan Lake (See Figure 2C). The length of this project is approximately 13.5 miles.

Project R-2219X: Chatham and Wake Counties, from SR 1008, east of B. Everett Jordan Lake, to the US 1-US 64 interchange (See Figure 2C). The length of this project is approximately 12.5 miles.

The subject sections of US 64 consist primarily of two lanes with 22 to 24 feet of pavement and 8 to 10-foot shoulders; however, short segments of four-lane, divided roadways have been constructed within various interchange areas. Within the city limits of Asheboro, US 64 consists of a five-lane, curb and gutter facility.

The present alignments of the subject sections of US 64 were constructed in the early 1920's. The existing pavement and shoulder widths found along these sections of US 64 were constructed during the late 1940's and early 1950's. With the exception of minor relocation and resurfacing projects, no major improvements have occurred along the subject sections of US 64 since the 1950's.

The section of US 64 between I-85 Business in Lexington and SR 2237, east of Asheboro, is classified as a Minor Arterial Route in the North Carolina Functional Classification System, and it is a part of the Federal-Aid Primary System; designated FAP 46-1. The remaining section of US 64 between the west city limits of Ramseur and the US 1-US 64 interchange is classified as a Principal Arterial Route, and it is also a part of the Federal-Aid Primary System; designated FAP 28-2.

II. SUMMARY OF NEEDED IMPROVEMENTS

The primary emphasis of the study was to evaluate the provision of a multi-lane facility. The results of this study reveal that it would be feasible and desirable to widen the majority of the existing facility to a four-lane, divided facility. It should be noted that there are some existing segments of four-lane, divided roadway located throughout the study area, and it is anticipated that rehabilitating and/or resurfacing the existing pavement will be the only work required at these locations.

The recommended improvements should be constructed along the existing corridor, except through the town of Pittsboro, where the construction of a bypass is desirable in order to improve traffic flow and safety conditions (See Figure 2C). The construction of the new lanes along each of the projects will be shifted from north to south of the existing highway in order to minimize right-of-way damages and the number of displacements. All necessary interchange and intersection revisions and realignments should be included as a part of the proposed improvements for the subject projects.

The improvements are warranted to provide additional capacity for increasing volumes of traffic. These improvements will also serve to make the subject sections of US 64 compatible with US 64 between SR 2237, east of Asheboro, and the west city limits of Ramseur (See Figure 2A). This section of US 64 is presently being upgraded (via T.I.P. Project R-76) from its present two-lane configuration to a multi-lane facility. These improvements are currently scheduled to be completed during Fiscal Year 1989.

The total estimated cost of the subject proposed improvements is as follows:

Project R-2220	-	$43,482,000
Project R-2217	-	$16,431,800
Project R-2218	-	$20,034,700
Project R-2219	-	$37,169,500
Project R-2219X	-	$26,480,500
TOTAL	-	$143,598,500

III. EXISTING CONDITIONS

A. General

US 64 traverses North Carolina in an east-west direction. In the studied area, US 64 connects Lexington with Raleigh via Asheboro, Ramseur, Siler City and Pittsboro. The route bypasses the Towns of Cedar Falls and Franklinville.

US 64 is basically a two-lane facility throughout the studied area; however, short segments of four-lane, divided roadway have been constructed within some interchange areas and at various other locations along segments of the route. The existing multi-lane segments of US 64 are located as follows:

Project R-2220: From the US 220 Bypass interchange to SR 2237, (approximately 3.2 miles) US 64 consists of a five-lane, curb and gutter facility (64 feet face-to-face).*

* With the exception of resurfacing, no major improvements are required at this location.

Project R-2217:	From the west city limits of Ramseur to the intersection of NC 49-SR 2620 and US 64, (approximately 0.89 mile) the existing facility consists of a four-lane, curb and gutter facility (46 feet face-to-face).
Project R-2218:	In Siler City; within the US 421 interchange, (approximately 0.25 mile) US 64 consists of four 12-foot lanes, undivided. East of Siler City; within the new US 421 Bypass interchange, (approximately 0.38 mile) US 64 is a four-lane, divided facility.*
Project R-2219:	Within the terminals of the B. Everett Jordan Lake crossing (approximately 2.5 miles) US 64 is a four-lane, divided facility.*
Project R-2219X:	Within the NC 55 interchange terminals, (approximately 0.91 mile), and in various segments between SR 1613 and SR 1308 (a total of approximately 0.78 mile) US 64 is a four-lane, divided facility.*

* With the exception of resurfacing, no major improvements are required at these locations.

Speed limits along the majority of the subject route are posted as 55 mph; however the posted speed limits are lower within the urban areas of Pittsboro, Siler City, Ramseur, Asheboro, and Lexington (ranging from a low of 20 mph within Pittsboro to a high of 50 mph within Asheboro).

Rolling terrain exists along the subject sections of US 64. No control of access exists throughout the majority of the study area. The existing right-of-way widths are listed in Table 3. Horizontal and vertical alignments along the study area are summarized as follows:

Project R-2220: Horizontal alignment is good with no existing curves greater than 3-degrees. However, due to the extremely rolling terrain, the vertical alignment has 27 grade changes ranging from -6.5 to +6.5-percent. Approximately 60-percent of the segment has unrestricted passing sight distance of 1500 feet or more. The pavement condition is judged to be adequate.

Project R-2217: Horizontal alignment is sufficient with no existing curves greater than 4-degrees. Grades along this segment of US 64 range from -4 to +7-percent. Approximately 40-percent of the segment has unrestricted passing sight distance of 1500 feet or more. The pavement is in good condition.

Project R-2218: Overall, this segment has good vertical and horizontal alignments. It contains no curves greater than 3-degrees, and grades range from -5 to +5-percent. Approximately 65-percent of the

segment has unrestricted passing sight distance of 1500 feet or more. The pavement condition is marginally adequate.

Project R-2219: This segment contains three 4-degree curves. Grades range from -6 to +5-percent. The overall alignment is good. Approximately 20-percent of the segment has unrestricted passing sight distance of 1500 feet or more. The pavement is in good condition.

Project R-2219X: This segment of the US 64 roadway contains no curves greater than 3-degrees. Grades along this segment range from -7 to +6-percent. The horizontal and vertical alignments are good. Approximately 75-percent of this segment has unrestricted passing sight distance of 1500 feet or more. The pavement is in very good condition.

B. Traffic Volumes and Capacity Analysis

Current and projected traffic volumes along the studied sections of US 64 are shown on Figures 2A, 2B, and 2C. A capacity analysis was performed for the subject sections of US 64 and the results are summarized as follows:

BASED ON 1987 TRAFFIC VOLUMES

PROJECT	PEAK HOUR VOLUME	COMPUTED LEVEL OF SERVICE
R-2220: From Lexington to Asheboro	798 vehicles/hour	D
Within Asheboro	2772 vehicles/hour	B
R-2217:	755 vehicles/hour	D
R-2218:	836 vehicles/hour	D
R-2219:	745 vehicles/hour	D
R-2219X:	926 vehicles/hour	D

BASED ON 2007 PROJECTED TRAFFIC VOLUMES

PROJECT	PEAK HOUR VOLUME	COMPUTED LEVEL OF SERVICE
R-2220: From Lexington to Asheboro	1493 vehicles/hour	E
Within Asheboro	4877 vehicles/hour	D/E
R-2217:	1355 vehicles/hour	E
R-2218:	1504 vehicles/hour	E
R-2219:	1341 vehicles/hour	E
R-2219X:	2028 vehicles/hour	F

C. Characteristics of Development

The density of development along the various studied sections of US 64 is as follows:

R-2220: Lexington to West City Limits of Asheboro

Roadside development is very light and rural-residential in nature.

R-2220: Within the City Limits of Asheboro

Roadside development is heavy and urban-commercial in nature.

R-2217: Roadside development is moderate and rural-residential in nature, except within the city limits of Ramseur where the roadside development is considered moderate to heavy and urban-commercial in nature.

R-2218: Roadside development is considered light and rural-residential in nature, except within the city limits of Siler City where the roadside development is heavy and urban-commercial in nature.

R-2219: Roadside development is considered light and rural-residential in nature, except within the city limits of Pittsboro where US 64 travels through the heart of the central business district.

R-2219X: Roadside development along the majority of this segment is considered light and rural-residential in nature; however, as one approaches the US 1-US 64 interchange, the roadside development becomes moderate with several abutting commercial properties.

D. Accident Experience

An accident study of the subject segments of US 64 was conducted by the Traffic Engineering Branch of the Division of Highways from January 31, 1984 to January 31, 1987. Summarized accident statistics are shown on Table 1.

A review of the data reveals that vehicles involved with rear-end accidents and vehicles running-off-the-road comprised the highest percentage of the total amount of accidents occurring along the subject segments of US 64.

E. Structures

There are a total of 23 major structures located along the studied segments of US 64; however, none of these structures are located within the limits of Project R-2217. The characteristics of the 23 structures, as well as the recommended improvements for them, can be found in Table 2.

TABLE 1

RURAL SEGMENTS OF US 64

	PROJECT R-2220 LEXINGTON TO ASHEBORO	PROJECT R-2217 ECL RAMSEUR TO WCL SILER CITY	PROJECT R-2218 ECL SILER CITY TO SR 1515	PROJECT R-2219 ECL PITTSBORO TO SR 1008	PROJECT R-2219X SR 1008 TO US 1	STATEWIDE AVERA FOR SIMILAR RUR US ROUTES (198
Total Accidents	269	81	121	144	233	N/A
Fatal Accidents	6	3	4	5	4	N/A
Non-Fatal Injury Accidents	120	34	53	41	97	N/A
Total Accident Rate	85.88	147.03	140.47	193.03	193.39	191.90
Fatal Accident Rate	1.92	5.45	4.64	6.70	3.32	4.00
Non-Fatal Injury Accident Rate	38.31	61.72	61.53	54.96	80.51	91.70

URBAN SEGMENTS OF US 64

	PROJECT R-2220 WITHIN ASHEBORO	PROJECT R-2217 WITHIN RAMSEUR	PROJECT R-2218 WITHIN SILER CITY	PROJECT R-2219 WITHIN PITTSBORO	PROJECT R-2219X SR 1008 TO US 1	STATEWIDE AVERAE FOR SIMILAR URBF US ROUTES (198E
Total Accidents	159	97	48	48	N/A	N/A
Fatal Accidents	2	1	1	0	N/A	N/A
Non-Fatal Injury Accidents	77	36	24	6	N/A	N/A
Total Accident Rate	344.38	508.39	284.64	490.80	N/A	416.80
Fatal Accident Rate	4.33	5.24	5.93	0.00	N/A	1.30
Non-Fatal Injury Accident Rate	166.77	188.68	142.35	61.35	N/A	169.00

TABLE 2

PROJECT R-2220

US 64 MAINLINE STRUCTURES

LOCATION	BRIDGE NUMBER	YEAR BUILT	REMAINING LIFE (YEARS)	SUFFICIENCY RATING	VERTICAL CLEARANCE (FT)	CLEAR ROADWAY WIDTH (FT)	STRUCTURE LENGTH (FT)	RECOMMENDED IMPROVEMENTS
NORFOLK-SOUTHERN RAILROAD	101	1951	15	62.7	26.1	28.0	121	REPLACE & ADD DUAL
ABBOTTS CREEK	123	1951	15	49.9	N/A	28.0	288	REPLACE & ADD DUAL
UWHARRIE RIVER	33	1952	18	28.4	N/A	28.2	200	REPLACE & ADD DUAL
CARAWAY CREEK	98	1952	16	49.3	N/A	28.2	149	REPLACE & ADD DUAL
BACK CREEK	131	1952	13	61.1	N/A	28.1	181	REPLACE & ADD DUAL
US 220 BYPASS	168	1962	28	89.9	15.1	96.0	177	REMOVE RAISED MEDIAN & REPLACE WITH NEW JERSEY TYPE BARRIER
US 220 BUS/ NORFOLK-SOUTHERN RAILROAD	173	1950*	20	60.8	18.1	78.0	244	NONE

*REBUILT N 1971

Y-LINE STRUCTURES OVER US 64

LOCATION	BRIDGE NUMBER	YEAR BUILT	REMAINING LIFE (YEARS)	SUFFICIENCY RATING	VERTICAL CLEARANCE (FT)	CLEAR ROADWAY WIDTH (FT)	STRUCTURE LENGTH (FT)	RECOMMENDED IMPROVEMENTS
INTERSTATE 85	181(NB)	1978	40	92.0	16.1	56.0	246	NONE
	182(SB)	1978	40	92.0	16.1	56.0	246	NONE
NC 109	58	1951	10	64.9	13.1	26.0	135	REPLACE WITH 4-LANE STRUCTURE
NC 49	171	1952	8	64.9	13.1	26.0	191	REPLACE WITH 4-LANE STRUCTURE

TABLE CONTINUED

PROJECT R-2218

US 64 MAINLINE STRUCTURES

LOCATION	BRIDGE NUMBER	YEAR BUILT	REMAINING LIFE (YEARS)	SUFFICIENCY RATING	VERTICAL CLEARANCE (FT)	CLEAR ROADWAY WIDTH (FT)	STRUCTURE LENGTH (FT)	RECOMMENDED IMPROVEMENTS
NORFOLK-SOUTHERN RAILROAD	11	1948	8	48.4	26.0	26.2	150	PROJECT B-2209 & ADD DUAL
US 421	27	1985	50	94.9	16.1	64.0	137	NONE
ROCKY RIVER	34	1940	4	49.0	N/A	25.8	225	PROJECT B-2210 & ADD DUAL

Y-LINE STRUCTURES OVER US 64

LOCATION	BRIDGE NUMBER	YEAR BUILT	REMAINING LIFE (YEARS)	SUFFICIENCY RATING	VERTICAL CLEARANCE (FT)	CLEAR ROADWAY WIDTH (FT)	STRUCTURE LENGTH (FT)	RECOMMENDED IMPROVEMENTS
SR 1108	23	1948	18	43.8	26.0	20.0	140	REPLACE STRUCTURE

TABLE 2, CONTINUED

PROJECT R-2219

US 64 MAINLINE STRUCTURES

LOCATION	BRIDGE NUMBER	YEAR BUILT	REMAINING LIFE (YEARS)	SUFFICIENCY RATING	VERTICAL CLEARANCE (FT)	CLEAR ROADWAY WIDTH (FT)	STRUCTURE LENGTH (FT)	RECOMMENDED IMPROVEMENTS
HAW RIVER	55	1982	48	92.8	N/A	40.0	700	ADD DUAL
JORDAN LAKE	58(EB)	1971	34	97.7	N/A	40.0	422	NONE
	59(WB)	1971	34	97.7	N/A	40.0	422	NONE

PROJECT R-2219X

US 64 MAINLINE STRUCTURES

LOCATION	BRIDGE NUMBER	YEAR BUILT	REMAINING LIFE (YEARS)	SUFFICIENCY RATING	VERTICAL CLEARANCE (FT)	CLEAR ROADWAY WIDTH (FT)	STRUCTURE LENGTH (FT)	RECOMMENDED IMPROVEMENTS
SR 1011	17	1963	25	66.2	15.0	28.3	148	ADD DUAL
DURHAM-SOUTHERN RAILROAD	68	1963	30	88.0	22.1	40.0	136	ADD DUAL

Y-LINE STRUCTURES OVER US 64

LOCATION	BRIDGE NUMBER	YEAR BUILT	REMAINING LIFE (YEARS)	SUFFICIENCY RATING	VERTICAL CLEARANCE (FT)	CLEAR ROADWAY WIDTH (FT)	STRUCTURE LENGTH (FT)	RECOMMENDED IMPROVEMENTS
NC 55	10	1973	15	93.8	17.0	68.0	247	DECK REHABILITATION
SEABOARD COASTLINE RAILROAD	104	1963	33	UNKNOWN	14.1	N/A	192	NONE
US 1	167	1959	20	76.0	14.1	28.0	171	WIDEN EXISTING & ADD DUAL

F. Other Programmed US 64 Projects

There are several projects within the subject US 64 study area that are currently listed in the North Carolina Transportation Improvement Program (See Figures 3A, 3B, and 3C). The current schedules for these projects, subject to the availability of funds, are as follows:

PROJECT	RIGHT-OF-WAY ACQUISITION		CONSTRUCTION	
	BEGIN	COMPLETE	BEGIN	COMPLETE
R-76	Completed		Underway	FY 89
R-985	N/A		FY 93	FY 93
R-986	N/A		FY 93	FY 94
R-987	N/A		FY 93	FY 94
B-2209	N/A		FY 93	FY 93
B-2210	N/A		FY 93	FY 94

With the exception of Project R-76, the projects listed above are resurfacing, restoration, rehabilitation, and/or reconstruction (4R) type projects, and will involve only limited improvements to the existing two-lane highway.

IV. PROPOSED INTERCHANGES AND REVISIONS TO EXISTING INTERCHANGES

The recommended improvements to the subject segments of US 64 will require the construction of three new interchanges, all within the limits of Project R-2219. These new interchanges are necessary in order to incorporate the proposed US 64 Bypass of Pittsboro (See Figure 2C). The interchanges would be located at (1) the junction of the existing US 64 facility and the proposed US 64 Bypass; (2) the junction of NC 87 and the proposed US 64 Bypass; and (3) the junction of the US 15-501 Bypass and the proposed US 64 Bypass. Based upon preliminary investigations, a full-cloverleaf design is proposed for the US 64 - proposed US 64 Bypass interchange; a full-diamond design for the proposed US 64 Bypass - NC 87 interchange; and a full-diamond design for the proposed US 64 Bypass - US 15-501 Bypass interchange.

Several existing interchanges will have to be revised in order to incorporate the recommended cross-sections for US 64, as well as imroving traffic flow around these interchanges (See Figures 2A and 2C). The interchanges recommended for revision are as follows:

INTERCHANGE	EXISTING DESIGN	PROPOSED DESIGN
NC 109(R-2220)	Full-diamond with two-way ramps on all sides	Remove two-way ramps; construct four-lanes on NC 109 within terminals; increase acceleration and deceleration lanes
NC 49(R-2220)	Half-diamond with one two-way ramp	Construct a full-diamond interchange with no two-way ramps

INTERCHANGE	EXISTING DESIGN	PROPOSED DESIGN
US 220(R-2220)	Full-cloverleaf	Remove raised concrete median and install New Jersey type median barrier; adjust existing lanes widths; and lengthen acceleration and deceleration lanes
SR 1613/SR 1011 (R-2219X)		Up-grade existing interchange to modern standards, widen existing structures and add a new structure parallel to the existing, construct new acceleration and deceleration lanes
US 1(R-2219X)	Full-diamond with one two-way ramp	* See Note Below

* A project planning report was prepared by the Planning and Research Branch for a new US 64-US 1 interchange in January, 1980 (Refer to Project File W-783). Both an Initial State design (shown on Figure 4), and an Ultimate Stage design (shown on Figures 5 and 5A) were developed. The Initial Stage design was constructed during the early 1980's and the necessary right-of-way to construct the Ultimate Stage design was acquired at that time. A description of these designs follows:

(a). Initial Stage (ALREADY CONSTRUCTED): As shown on Figure 4. The improvements included (1) the addition of an off-ramp in the southeast quadrant, (2) construction of a connection from US 64 just east of the US 1 separation to SR 1009 (Apex-Macedonia Road), to be paired with SR 1009 for one-way operation; and (3) rechannelization of the existing intersection of US 64 and SR 1009.

(b). Ultimate Stage: As shown on Figures 5 and 5A. The recommended improvements are to include (1) the addition of a loop and reconstruction of the on-ramp in the southwest quadrant; (2) reconstruction of the US 64 northbound directional ramp, (3) reconstruction of SR 1009, with an overpass of the US 64 northbound directional ramp; (4) the addition of an on-ramp from SR 1009 to US 1-US 64; (5) reconstruction of the loop in the northeast quadrant; and (6) construction of additional lanes on US 1 South and US 64 West to provide 4-lane divided sections.

The Planning and Research Branch recommends the above described Ultimate Stage design be constructed as a part of the overall improvements to US 64 under Project R-2219X. In 1980, the estimated cost of constructing this interchange (less the Initial Stage design improvements) was $5,500,000. These costs will have to be updated to 1987 dollar levels. No new right-of-way will be required.

V. EXISTING AND PROPOSED RIGHT-OF-WAY WIDTHS

In general, it is anticipated that a total of 200-230 feet of right-of-way width will be required in order to contain the proposed four-lane, divided improvements, and a total of 80-90 feet to contain the proposed five-lane, curb and gutter improvements.

The existing and proposed right-of-way widths along the subject projects are shown in Table 3.

VI. PROPOSED IMPROVEMENTS TO MAINLINE US 64

Project R-2220

The recommended improvements for Project R-2220 are to widen the existing US 64 facility to a four-lane, divided facility (with a 30-foot median) from approximately 0.1 mile east of the I-85 Business, US 64, US 29-70 Bypass, US 29-70 Business, and NC 52 junction, in Lexington to just west of the US 64-US 220 interchange in west Asheboro. From this point, throughout the city of Asheboro, to SR 2237, it is recommended that US 64 only be resurfaced. The length of the four-lane improvements for this project is approximately 25.3 miles and the overall project length is approximately 28.5 miles. The total estimated cost of these improvements is $43,482,000.

Project R-2217

The recommended improvements for Project R-2217 are to widen the existing roadway to a five-lane, curb and gutter facility within the city limits of Ramseur. Although it would be desirable to construct a 64-foot curb and gutter section within Ramseur, the Planning and Research Branch recommends the construction of a 59-foot curb and gutter section (five 11-foot lanes, 2-foot curb and gutter) due to the existing heavy roadside development. Furthermore, a relocation of US 64 around the city of Ramseur should be given full consideration prior to the implementation of the proposals contained in this report.

From the east city limits of Ramseur to the west city limits of Siler City, it is proposed to widen US 64 to a four-lane, divided facility (30-foot median). The total length of this project is approximately 10.5 miles and the total estimated cost of these improvements is $16,431,800.

Project R-2218

The recommended improvements for Project R-2218 are to widen US 64 to a five-lane, curb and gutter facility (64 feet face to face of curbs) within the city limits of Siler City. From the west city limits of Siler City to SR 1515, west of Pittsboro, it is proposed to widen the existing facility to a four-lane, divided facility (30-foot median). [Please note that, with the exception of resurfacing, no major improvements are

TABLE 3

EXISTING AND PROPOSED RIGHT-OF-WAY WIDTHS

PROJECT	EXISTING RIGHT-OF-WAY WIDTH (FEET) *	PROPOSED AMOUNT OF NEW RIGHT-OF-WAY (FEET) **
R-2220		
FROM LEXINGTON TO THE US 220 BYPASS INTERCHANGE:	150	50
FROM THE US 220 BYPASS INTERCHANGE TO SR 2237:	150	NONE
R-2217		
FROM THE WEST CITY LIMITS OF RAMSEUR TO THE CHATHAM COUNTY LINE:	60	20-30 WITHIN RAMSEUR
FROM THE CHATAM COUNTY LINE TO THE WEST CITY LIMITS OF SILER CITY:	150	90 FROM THE EAST CITY LIMITS OF RAMSEUR TO THE CHATHAM COUNTY LINE AND 50 FROM THE COUNTY LINE TO THE WEST CITY LIMITS OF SILER CITY
R-2218		
WITHIN SILER CITY:	150	NONE
FROM THE EAST CITY LIMITS OF SILER CITY TO SR 1515, WEST OF PITTSBORO:	100	100
R-2219		
SR 1515 TO SR 1008, EAST OF JORDAN LAKE (EXCEPT PROPOSED US 64 BYPASS):	100-150	50-100
PROPOSED US 64 BYPASS OF PITTSBORO:	0	200
R-2219X		
FROM SR 1008 TO THE WAKE COUNTY LINE:	100	50
FROM THE WAKE COUNTY LINE TO SR 1600:	60	90
FROM SR 1600 TO THE US 1-US 64 INTERCHANGE:	200-250	NONE

* MEASURED SYMMETRICALLY ABOUT THE CENTERLINE OF THE EXISTING ROADWAY
** SOME ADDITIONAL RIGHT-OF-WAY MAY BE REQUIRED IN ORDER TO INCORPORATE THE PROPOSED INTERCHANGES AND THE PROPOSED INTERCHANGE REVISIONS

recommended for the section of US 64 located within the terminals of the new US 421 Bypass interchange]. The total length of the multi-lane improvements for this project is approximately 14.8 miles and the overall length of the project is approximately 15.2 miles. The total estimated cost of these improvements is $20,034,700.

Project R-2219

In order to improve traffic flow and safety, the approved Thoroughfare Plan for Chatham County calls for US 64 to be relocated to the north of the city of Pittsboro (See Figure 2C). The recommended improvements for Project R-2219 are to construct a four-lane, divided facility (30-foot median) beginning at SR 1515 and then proceeding approximately 0.5 mile east. At this point, the new US 64 Bypass would begin, and it would proceed to the north, around the city of Pittsboro, and tie back into the existing US 64 facility near SR 1572 (See Figure 2C). The proposed US 64 Bypass would consist of a four-lane, divided facility utilizing a 46-foot grass median, and it would be approximately 4 miles in length. Project R-2219 would continue from approximately the US 64-SR 1572 intersection to SR 1008, east of B. Everett Jordan Lake; utilizing a four-lane, divided facility (30-foot median). [Please note that, with the exception of resurfacing, no major improvements will be needed along US 64 at the B. Everett Jordan Lake crossing]. The total length of the four-lane improvements for this project is approximately 11.0 miles and the overall project length is 13.5 miles. The total estimated cost of these improvements is $37,169,500.

Project R-2219X

The recommended improvement for Project R-2219X is to widen US 64 to a four-lane, divided facility (30-foot median) from SR 1008, east of B. Everett Jordan Lake to the US 1-US 64 interchange. [Please note that, with the exception of resurfacing, no major improvements are recommended within the terminals of the NC 55 interchange and the SR 1011 (Old US 1) interchange]. The total length of the multi-lane improvements for this project is approximately 10.6 miles and the overall project length is approximately 12.5 miles. The total estimated cost of these improvements is $26,480,500.

Table 4 gives a summary breakdown of the proposed improvements and their costs beginning in Lexington and ending at the US 1 interchange in Wake County.

VII. CAPACITY ANALYSIS

The year 2007 projected traffic volumes along the studied sections of US 64 are shown on Figures 2A, 2B, and 2C. A capacity analysis was performed for the subject sections of US 64. The analysis was based on the 2007 projected traffic volumes using the improved US 64 facility, and the results are summarized on the following page:

BASED ON 2007 PROJECTED TRAFFIC VOLUMES

PROJECT	PEAK HOUR VOLUME	COMPUTED LEVEL OF SERVICE
R-2220: From Lexington to Asheboro	1493 vehicles/hour	B
Within Asheboro	4877 vehicles/hour	D/E*
R-2217: From the ECL of Ramseur to WCL of Siler City	1355 vehicles/hour	B
Within Ramseur	1565 vehicles/hour	A
R-2218: From the ECL of Siler City to SR 1515	1504 vehicles/hour	B
Within Siler City	1290 vehicles/hour	A
R-2219:	1341 vehicles/hour	B
R-2219X:	2028 vehicles/hour	C

*The approved Thoroughfare Plan for the city of Asheboro does not specify a relocation of US 64 around Asheboro, however, it does reflect a bypass to the south of the city which would be comprised of a proposed relocation of NC 49. If the proposed NC 49 Bypass was implemented in the future, then it is reasonable to assume that it would remove some traffic off of the US 64 facility thus improving that facility's level-of-service within Asheboro.

VIII. COST ESTIMATES

The total estimated cost of the subject proposed improvements is as follows:

	Right-of-Way	Construction	Total
Project R-2220	$14,482,000	$29,000,000	$43,482,000
Project R-2217	$ 5,831,800	$10,600,000	$16,431,800
Project R-2218	$ 4,922,000	$15,112,700	$20,034,700
Project R-2219	$ 6,669,500	$30,500,000	$37,169,500
Project R-2219X	$ 5,480,500	$21,000,000	$26,480,500
Overall Total	$37,385,800	$106,212,700	$143,598,500

TABLE 1

PROPOSED IMPROVEMENTS FOR US 64 MAINLINE

LOCATION	PROPOSED IMPROVEMENT	LENGTH OF IMPROVEMENT (MILES)	COST OF RIGHT-OF-WAY	COST OF CONSTRUCTION	TOTAL COST OF IMPROVEMENT
FROM 0.1 MILE EAST OF THE I-85 BUSINESS INTERCHANGE, IN LEXINGTON TO JUST WEST OF THE US 64-US 220 INTERCHANGE, IN ASHEBORO	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	25.3	$14,482,000	$28,424,800	$42,906,800
FROM WEST OF THE US 64-US 220 INTERCHANGE TO SR 2237, EAST OF ASHEBORO	RESURFACE EXISTING FIVE-LANE, CURB AND GUTTER FACILITY	3.5	N/A	$575,200	$575,200
FROM SR 2237, EAST OF ASHEBORO TO THE WEST CITY LIMITS OF RAMSEUR	MULTILANE IMPROVEMENTS ALREADY UNDER CONSTRUCTION	6.8		ALREADY UNDER CONSTRUCTION	
WITHIN THE CITY LIMITS OF RAMSEUR	WIDEN EXISTING TO FIVE-LANE, CURB AND GUTTER (59 FEET FACE-TO-FACE OF CURBS)	1.4	$1,400,000	$1,500,000	$2,900,000
FROM THE EAST CITY LIMITS OF RAMSEUR TO THE WEST CITY LIMITS OF SILER CITY	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	9.1	$4,431,800	$9,100,000	$13,531,800
WITHIN THE CITY LIMITS OF SILER CITY	WIDEN EXISTING TO FIVE-LANE, CURB AND GUTTER (64 FEET FACE-TO-FACE OF CURBS)	2.0	N/A	$3,200,000	$3,200,000
FROM THE EAST CITY LIMITS OF SILER CITY TO THE WESTERN TERMINAL OF THE NEW US 421 INTERCHANGE	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	0.3	$14,000	$279,000	$293,000
WITHIN THE TERMINALS OF THE NEW US 421 INTERCHANGE	RESURFACE EXISTING FOUR-LANE FACILITY	0.4	N/A	$18,700	$18,700
FROM THE EASTERN TERMINAL OF THE NEW US 421 INTERCHANGE TO SR 1515, WEST OF PITTSBORO	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	12.5	$4,908,000	$11,615,000	$16,523,000
FROM SR 1515 AND PROCEEDING 0.5 MILE EAST	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	0.5	$120,500	$800,000	$920,500
PROPOSED PITTSBORO BYPASS, FROM 0.5 MILE EAST OF SR 1515, PROCEEDING TO THE NORTH AND TYING BACK INTO US 64 AT SR 1572	FOUR-LANE, DIVIDED (46-FOOT MEDIAN) ON NEW LOCATION	4.0	$3,934,000	$22,300,000	$26,234,000
FROM SR 1572 TO JUST WEST OF THE JORDAN LAKE CROSSING	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	5.7	$1,852,000	$6,104,000	$7,956,000
WITHIN THE JORDAN LAKE CROSSING	RESURFACE EXISTING FOUR-LANE FACILITY	2.5	N/A	$439,000	$439,000
FROM JUST EAST OF THE JORDAN LAKE CROSSING TO SR 1008	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	0.8	$763,000	$857,000	$1,620,000
FROM SR 1008 TO THE WESTERN TERMINAL OF THE NC 55 INTERCHANGE	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	7.1	$5,480,500	$14,000,000	$19,480,500
WITHIN THE TERMINALS OF THE NC 55 INTERCHANGE	RESURFACE EXISTING FOUR-LANE FACILITY	1.5	N/A	$101,600	$101,600
FROM THE EASTERN TERMINAL OF THE NC 55 INTERCHANGE TO JUST WEST OF THE SEABOARD SYSTEM RAILROAD CROSSING	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	1.0	N/A	$1,969,000	$1,969,000
WITHIN THE SEABOARD SYSTEM RAILROAD CROSSING	RESURFACE EXISTING FOUR-LANE FACILITY	0.4	N/A	$27,100	$27,100
FROM JUST EAST OF THE SEABOARD SYSTEM RAILROAD CROSSING TO THE US 1-US 64 INTERCHANGE	WIDEN EXISTING TO FOUR-LANE, DIVIDED (30-FOOT MEDIAN)	2.5	N/A	$4,902,300	$4,902,300

XI. POSSIBLE ENVIRONMENTAL IMPACTS

Project R-2220:

The primary potential environmental consequence of constructing the proposed improvements for this project would be its impact upon the wetlands of Abbotts Creek, the Uwharrie River, Caraway Creek, and Back Creek.

Project R-2217:

It is unlikely that the construction of this project would result in any adverse impact upon the surrounding environment.

Project R-2218:

The primary potential environmental consequence of constructing the proposed improvements for this project would be its impact upon the wetlands of the Rocky River.

Project R-2219:

The potential impact upon the wetlands of the Haw River would be the major environmental consequence of constructing the proposed improvements for this project.

Furthermore, since the proposed US 64 Bypass of the city of Pittsboro lies within the limits of Project R-2219 and, because it would be a four-lane, divided facility on new location, it is reasonable to assume that an Environmental Impact Statement would have to be prepared as a part of the preliminary engineering process.

Project R-2219X:

As with Project R-2217, it is unlikely that the construction of this project would result in any adverse impact upon the surrounding environment.

It is anticipated that Section 404 Permits will have to be obtained from the U. S. Army Corps of Engineer prior to the initiation of any work in most of the above mentioned wetland areas.

There are no known structures of historical significance located within the subject US 64 corridor.

Any other possible environmental impacts of constructing Projects R-2220, R-2217, R-2218, R-2219, and R-2219X are not considered of major consequence.

X. POSSIBLE SOCIAL IMPACTS

The primary potential adverse social consequence of constructing the five subject projects would be the resulting relatively high number of business and residential displacees. Roadside development, as mentioned earlier, is heavy in some areas of the subject US 64 corridor, and thus many families and businesses will have to be relocated if the subject projects are constructed. A preliminary investigation conducted by the NCDOT's Right-of-Way Branch indicated that a total of 117 residences and 29 businesses would be displaced if the five subject projects were constructed.

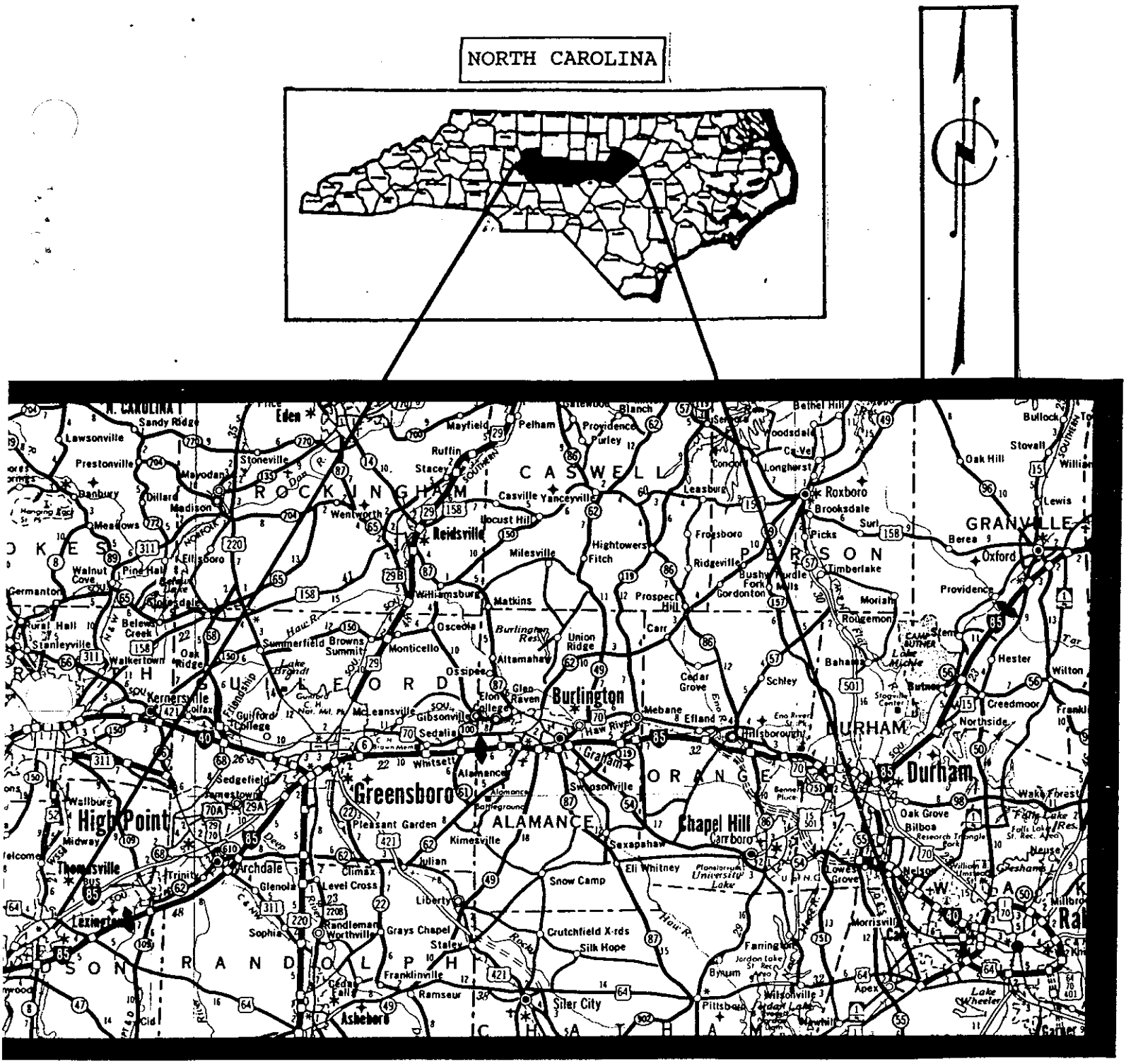
XI. BASIS FOR FINDINGS

The recommendations contained in this document were based on the following:

1. Field Investigations
2. Correspondences with the Division Engineers
3. Previous Environmental Assessments (Project R-76 File, Project W-783 File)
4. Approved Thoroughfare Plans
5. Aerial Mosaics dated April, 1987
6. Cost estimates provided by the Right-of-Way Branch and Design Services Unit

If the projects are to be implemented at a future date, all feasible alternatives and their associated impacts will need to be evaluated in a planning/environmental document prior to that time, and a final decision made as to the most appropriate improvements.

TAH/TVS/plr



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

US 64

GEOGRAPHIC LOCATION
PROJECTS R-2217, R-2218, R-2219, R-2219X AND R-2220

DAVIDSON, RANDOLPH, CHATHAM, AND WAKE COUNTIES

5/87 FIGURE 1

BEGIN PROJECT R-2220

END PROJECT R-2220

PROJECT R-76 (UNDER CONSTRUCTION)

R-2220

11,100	19,800
6,000	10,700
4,500	8,000
4,700	8,600
5,800	11,500
7,200	14,300
14,300	25,800
21,750	38,800
15,700	28,000
18,100	32,200

LEGEND

- PROPOSED INTERCHANGES
- PROPOSED INTERCHANGE REVISIONS
- 1987 / 2007 — CURRENT AND PROJECTED AVERAGE DAILY TRAFFIC VOLUMES

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

US 64

PROJECT R-2220

FROM JUST EAST OF I-85 BUSINESS, IN LEXINGTON, TO SR 2237, EAST OF ASHEBORO

DAVIDSON AND RANDOLPH COUNTIES

5/87 FIGURE 2A

DUAL - 5%
TTST - 7%
THIN TRLR'S - 0%
DHV - 10%

BEGIN PROJECT R-2217

BEGIN PROJECT R-2218

END PROJECT R-2217

END PROJECT R-2218

10,100	18,000
7,400	13,300
6,200	11,200
5,600	10,000
7,600	13,700
5,500	9,900
6,900	12,400
6,200	11,200
9,300	16,700

R-2217

DUAL - 5%

TTST - 9%

TWIN TRLR'S - 0%

DHV - 10%

R-2218

DUAL - 5%

TTST - 9%

TWIN TRLR'S - 0%

DHV - 10%

LEGEND

● PROPOSED INTERCHANGES

○ PROPOSED INTERCHANGE REVISIONS

1987 / 2007 CURRENT AND PROJECTED AVERAGE DAILY TRAFFIC VOLUMES

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

US 64
PROJECTS R-2217 AND R-2218

FROM THE WEST CITY LIMITS OF RAMSEUR TO SR 1515, WEST OF PITTSBORO

RANDOLPH AND CHATHAM COUNTIES

5/87 FIGURE 2B

LEGEND

● PROPOSED INTERCHANGES

○ PROPOSED INTERCHANGE REVISIONS

1987
2007

CURRENT AND PROJECTED AVERAGE DAILY TRAFFIC VOLUMES

BEGIN PROJECT R-2219

10,000
18,000

5,300
9,500

5,600
12,300

BEGIN PROJECT R-2219X

6,700
14,600

8,800
19,400

8,100
17,800

END PROJECT R-2219

8,200
18,100

11,200
24,300

14,600
31,900

END PROJECT R-2219X

PROPOSED US 64 BYPASS OF PITTSBORO

R-2219X

DUAL - 3%
TTST - 6%
TWIN TRLR'S - 0%
DHV - 10%

R-2219

DUAL - 5%
TTST - 11%
TWIN TRLR'S - 0%
DHV - 10%

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

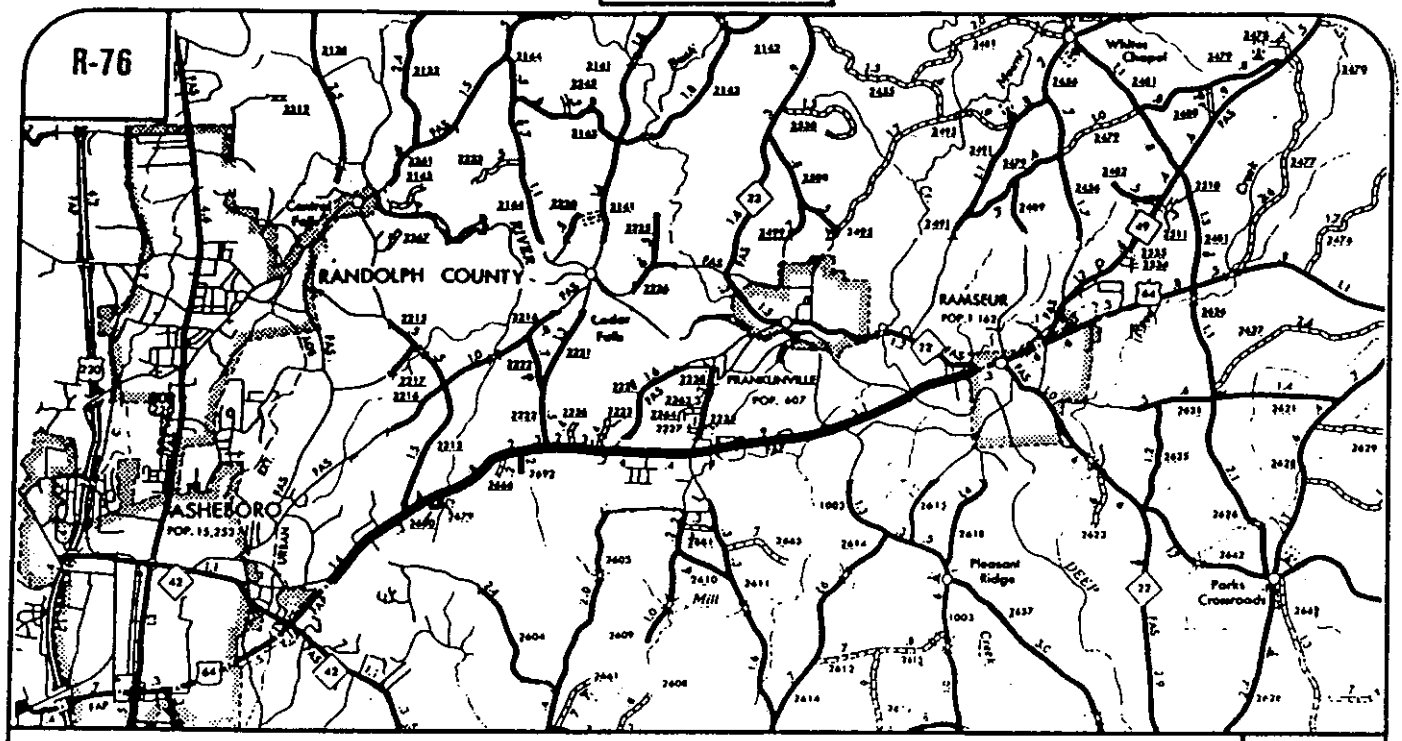
US 64
PROJECTS R-2219 AND R-2219X
FROM SR 1515, WEST OF PITTSBORO
TO US 1

CHATHAM AND WAKE COUNTIES

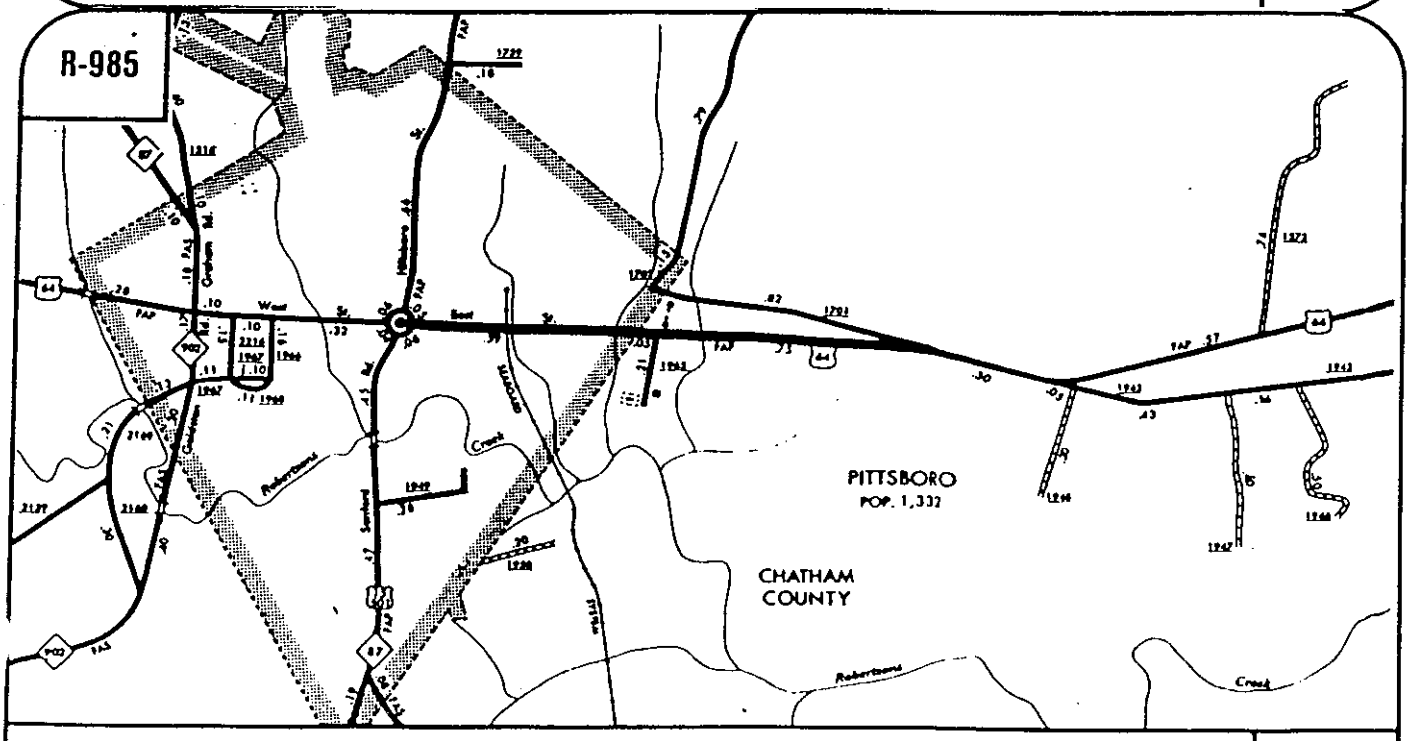
5/87 FIGURE 2C

CURRENTLY PROGRAMMED PROJECTS ALONG US 64 STUDY AREA

FIGURE 3A

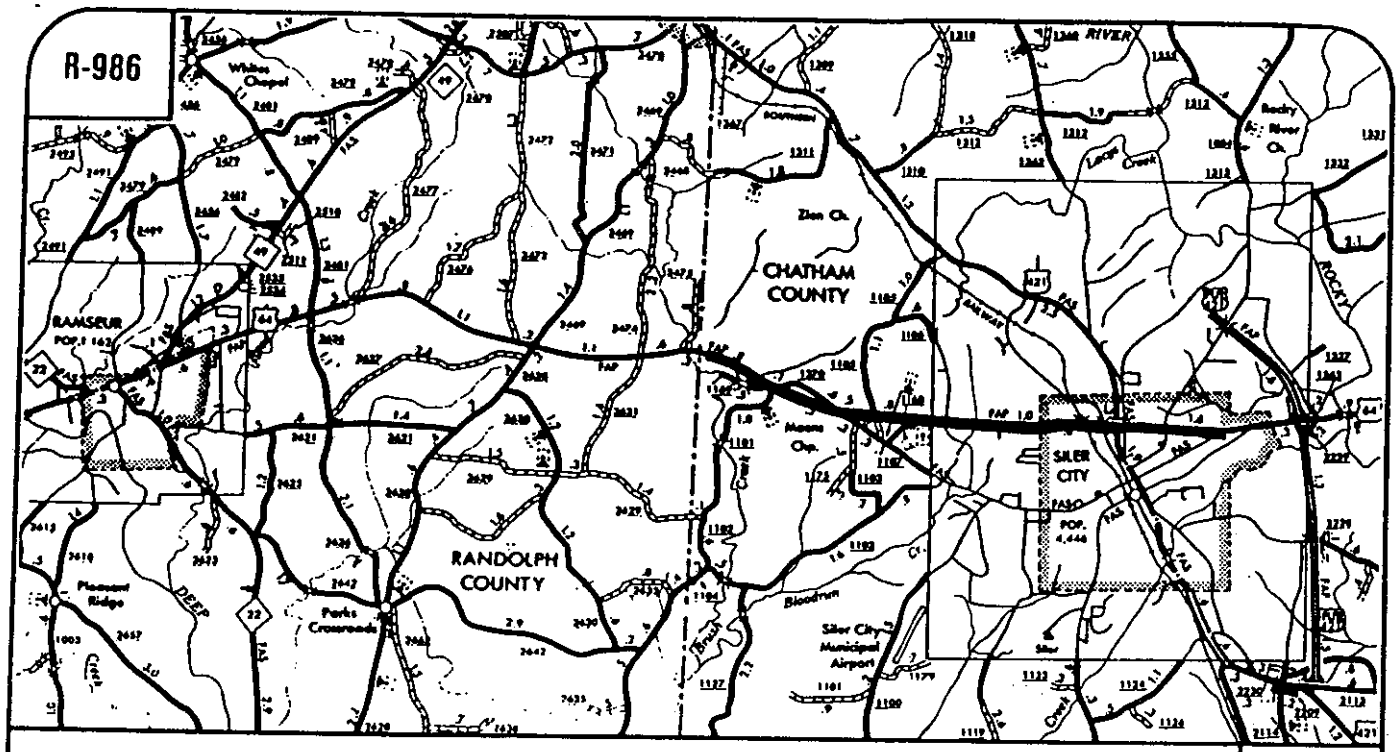


US 64, ASHEBORO TO RAMSEUR, RANDOLPH COUNTY.
WIDEN EXISITING ROADWAY TO A MULTI-LANE FACILITY.

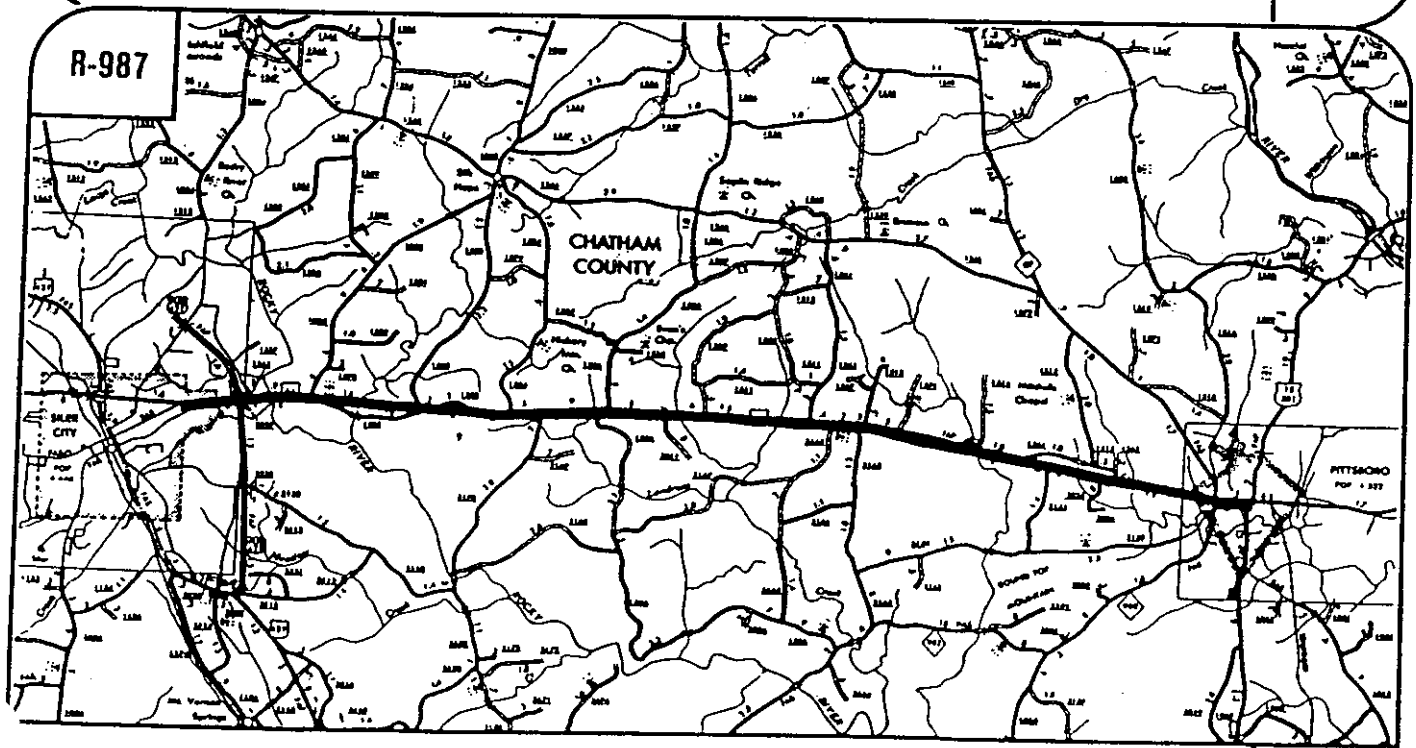


US 64, US 15-501 TO SR 1701, CHATHAM COUNTY.
CONCRETE PAVEMENT REHABILITATION OR RESURFACE.

CURRENTLY PROGRAMMED PROJECTS
ALONG US 64 STUDY AREA



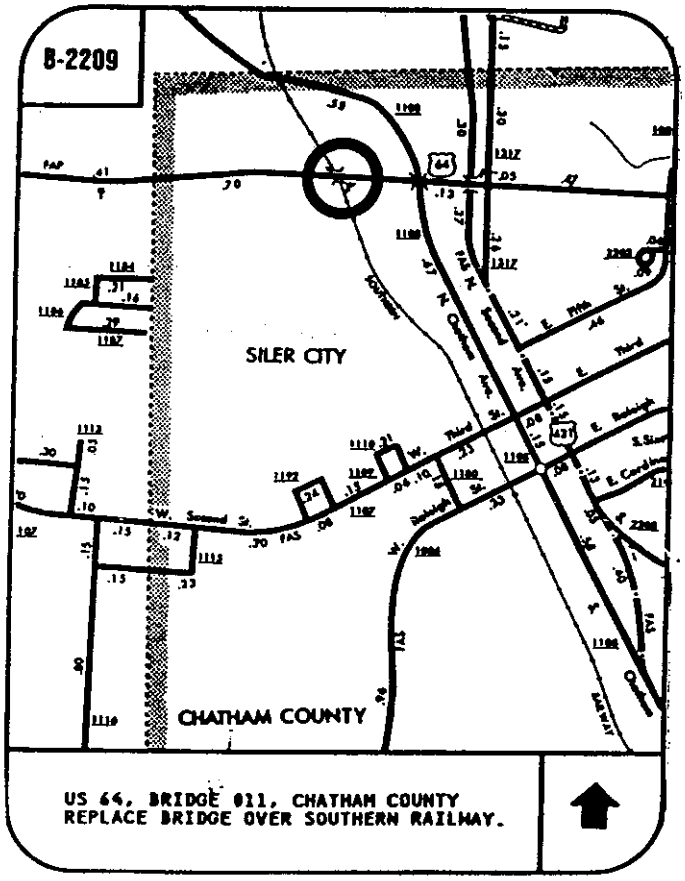
US 64, RANDOLPH COUNTY TO SR 1107, CHATHAM COUNTY.
CONCRETE REHABILITATION OR RESURFACE.



US 64, SR 1107 TO PITTSBORO, CHATHAM COUNTY.
CONSTRUCT PAVED SHOULDERS.

FIGURE 3B

CURRENTLY PROGRAMMED PROJECTS ALONG US 64 STUDY AREA



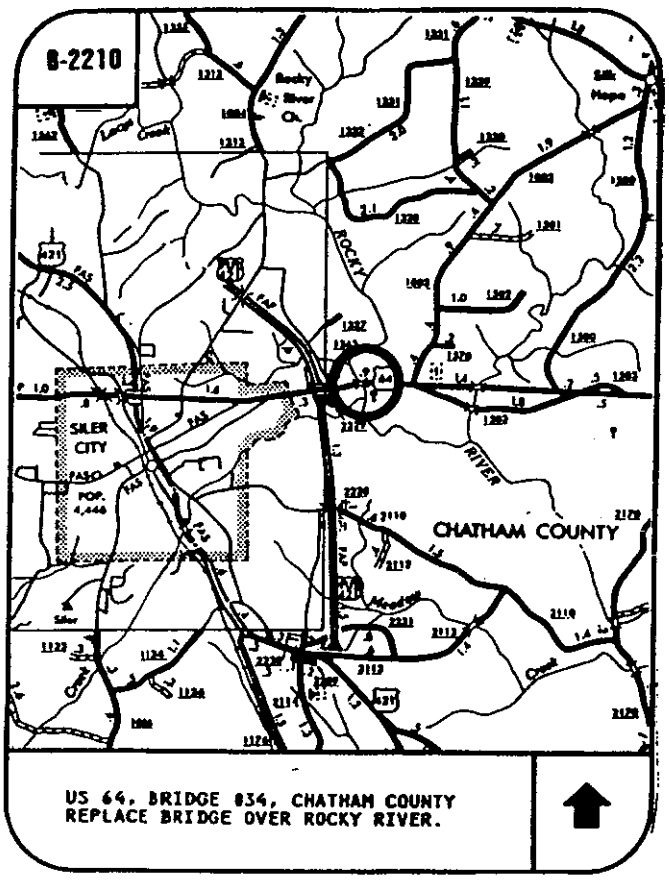
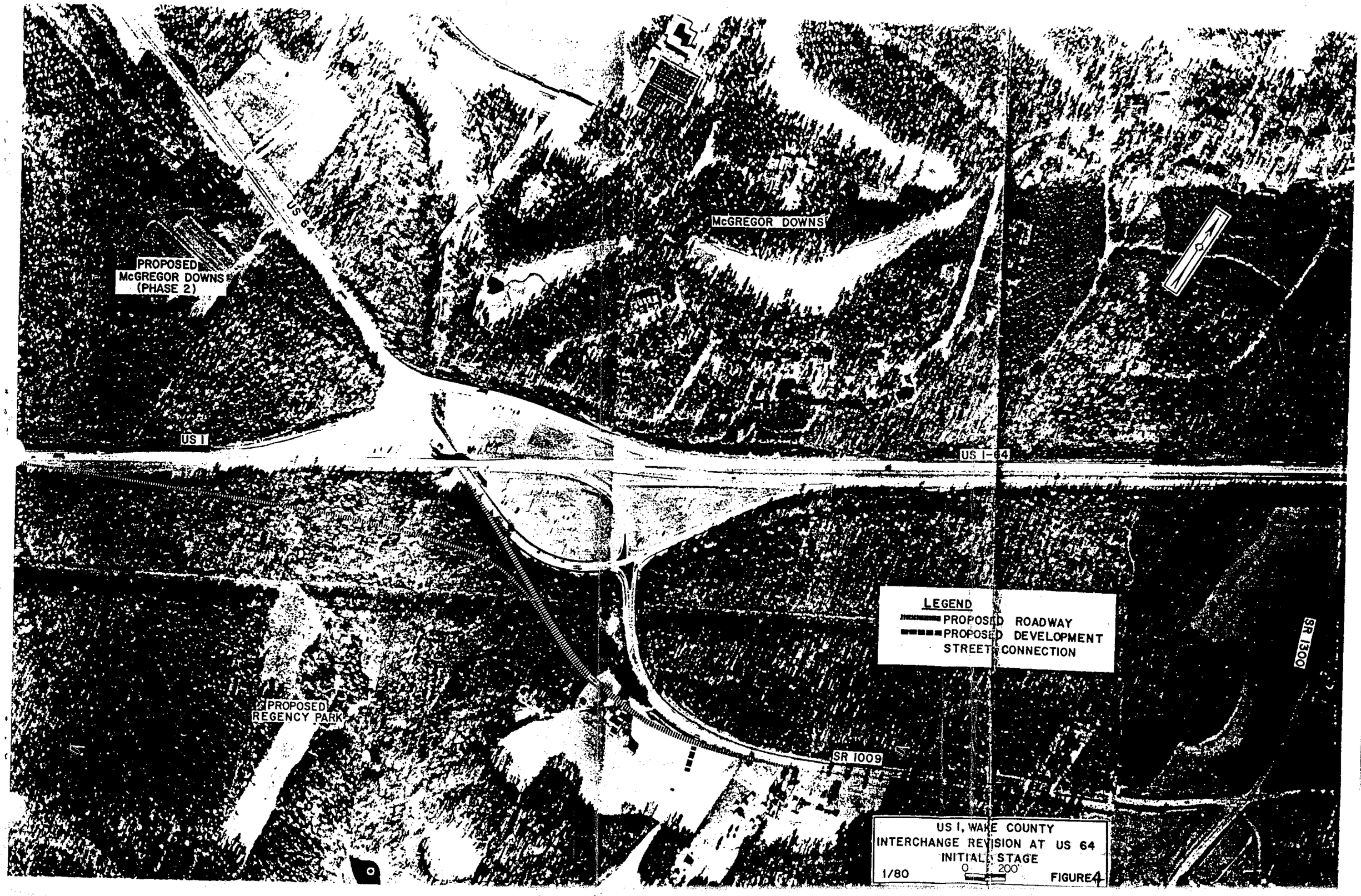
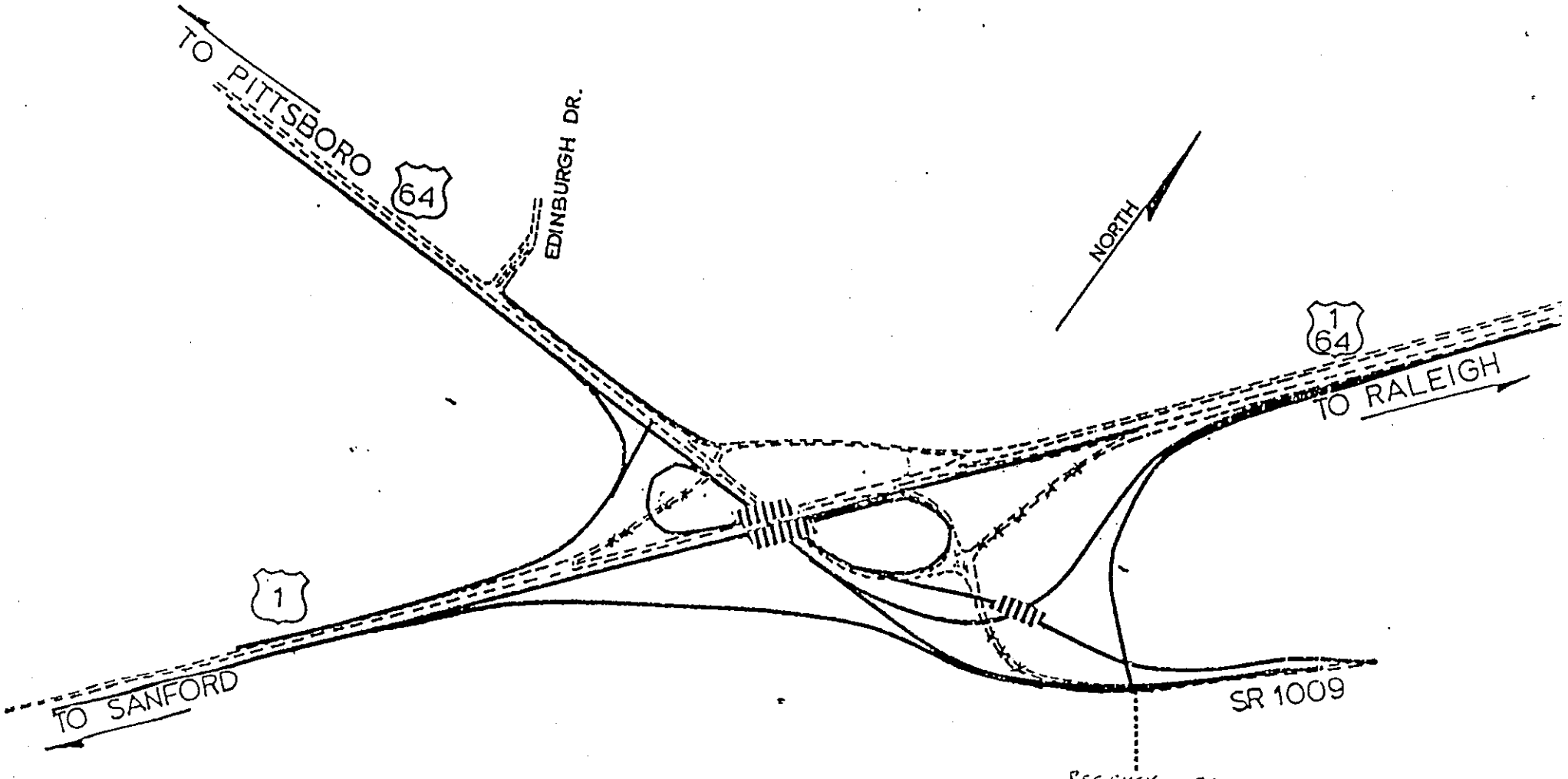


FIGURE 3C

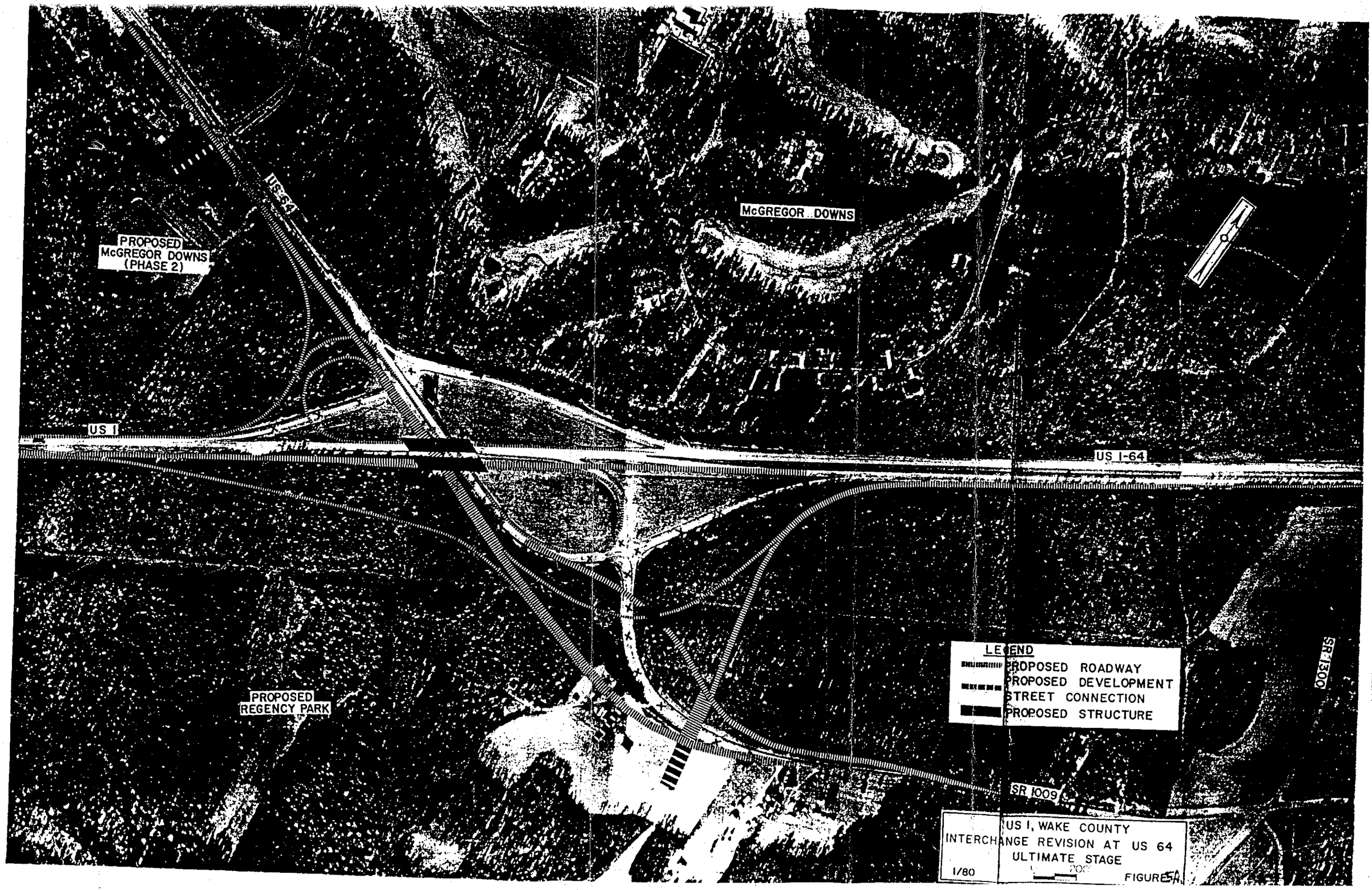

PROPOSED
McGREGOR DOWNS
(PHASE 2)
US 64
McGREGOR DOWNS
US 1
US I-64
PROPOSED
REGENCY PARK
SR 1009
SR 1300
LEGEND
PROPOSED ROADWAY
PROPOSED DEVELOPMENT
STREET CONNECTION
US 1, WAKE COUNTY
INTERCHANGE REVISION AT US 64
INITIAL STAGE
1/80
0 200'
FIGURE 4



ULTIMATE DESIGN

US 1, WAKE COUNTY
INTERCHANGE REVISION AT US 1/US 64/ SR 1009.

FIGURE 5


PROPOSED
McGREGOR DOWNS
(PHASE 2)
US 1
McGREGOR DOWNS
US 1-64
PROPOSED
REGENCY PARK
SR 1300
SR 1009
LEGEND
PROPOSED ROADWAY
PROPOSED DEVELOPMENT
STREET CONNECTION
PROPOSED STRUCTURE
US 1, WAKE COUNTY
INTERCHANGE REVISION AT US 64
ULTIMATE STAGE
1/80
FIGURE 5A