DCHC
Durham-Chapel Hill-Carrboro
METROPOLITAN
Planning Organization

FARRINGTON ROAD CORRIDOR STUDY

Prepared for:

DURHAM · CHAPEL HILL · CARRBORO
METROPOLITAN PLANNING ORGANIZATION

(Excerpts)

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Table 1. Study Corridors

Section	Road	From	To	Functional Classification	Distance (miles)	Lanes	Median Type	Speed Limit (mph)	LOS D Traffic Capacity	2007 Traffic (average vehicles / day)	2007 V/c	2007 LOS
11	US 15-501	Southern PAB	Jack Bennett Road	Rural Principal Arterial	1.9	4	Divided	55	62,600	15,700	0.25	A
12	US 15-501	Jack Bennett Road	Northern PAB	Rural Principal Arterial	1.4	4	Divided	55	62,600	17,300	0.28	A
13	Jack Bennett Rd	US 15-501	Farrington Point Road	Rural Local	4.1	2	None	45/55	11,900	3,300	0.28	A
14	Farrington Rd	Southern PAB	Lystra Road	Rural Major Collector	1.4	2	None	55	11,800	5,900	0.5	B
15	Farrington Point Rd	Lystra Road	Mt. Carmel Church Rd.	Rural Major Collector	2	2	None	45/55	10,500	6,000*	0.57	B
16	Old Farrington Pt Rd	Mt. Carmel Church Rd.	Barbee Chapel Road	Rural Major Collector	3.7	2	None	45/55	9,400	4,300	0.46	B
17	Mt Carmel Rd	Farrington Mill Road	Downing Creek Pkwy	Rural Major Collector	1.5	2	None	45	12,400	5,700	0.46	B
18	Barbee Chapel Rd	Farrington Mill Road	NC 54	Rural Major Collector	1.6	2	None	45	9,500	5,300	0.56	B
19	Farrington Rd	Stagecoach Road	Ridgefield Drive	Urban Collector	1.7	2	None	45	15,300	8,000	0.52	B
20	Farrington Rd	Barbee Chapel Road	Stagecoach Road	Urban Collector	0.4	2	None	45	15,300	7,700	0.5	B
21	Stagecoach Rd	Farrington Road	NC 751	Rural Major Collector	1.6	2	None	45	9,500	6,700	0.71	C
22	NC 751 (Hope Valley Rd)	Stagecoach Road	Scott King Road	Urban Minor Arterial	1	2	None	55	12,800	9,000	0.7	C
23	NC 751 (Hope Valley Rd)	Scott King Road	Southern PAB	Rural Major Collector	5.2	2	None	55	11,800	10,900	**0.92**	**D**
24	Scott King Road	NC 751	Grandale Drive	Urban Collector	2.1	2	None	35/45	9,500	1,700	0.18	A
25	Grandale Dr	Scott King Road	Sedwick Road	Urban Collector	0.5	2	None	35	9,500	4,000	0.42	B
26	Sedwick Rd	Grandale Drive	NC 55	Urban Collector	1.2	2	None	25	12,500	6,800	0.54	B
27	NC 55	Sedwick Road	Alexander Drive	Urban Principal Arterial	0.7	5	TWLTL	50	39,700	15,400	0.39	B

V/C is volume-to-capacity (ADT/Capacity). TWLT is a two-way left turn lane (center lane in roadway). *

Historic Traffic Growth

NCDOT traffic counts from 1990 through 2005 were analyzed in this study to better understand traffic growth in the area. These counts are presented in **Table 2**. Historical patterns indicate that the study corridors have experienced significant traffic growth since 1990, with traffic on many small rural roads increasing over 5% a year and traffic in some locations increasing over 10%. Since this area is expected to continue to experience significant growth in housing, there is no reason to believe that traffic demand will dramatically slow or reduce in the future.

Table 2. Historic AADT Growth in Study Corridors

Section	Road	From	To	Count Location	NCDOT Traffic Survey Count ID	Average Yearly Growth* (1990-2005)	1990	1992	1994	1997	1999	2001	2003	2005
11	US 15-501	Southern PAB	Jack Bennett Road	South of Jack Bennett Road	1800069	3.80%	--	10,000	12,000	13,000	13,000	14,000	--	--
12	US 15-501	Jack Bennett Road	Northern PAB	North of Manns Chapel Road	1800921	2.20%	15,000	15,000	18,000	18,000	19,000	20,000	20,000	--
13	Jack Bennett Rd	US 15-501	Farrington Point Road	East of 15-501	1800923	**5.00%**	1,200	1,500	2,100	2,300	2,300	2,400	2,400	2,500
14	Farrington Rd	Southern PAB	Lystra Road	South of Jack Bennett Road	1800918	**8.10%**	--	2,400	2,700	3,500	4,600	5,700	5,800	6,600
15	Farrington Point Rd	Lystra Road	Mt. Carmel Church Rd.	N/A	N/A	N/A	No historic count on or near this corridor section							
16	Farrington Pt Rd	Mt. Carmel Church Rd.	Barbee Chapel Road	North of Farrington Road	1800917	**7.80%**	1,500	2,300	2,700	3,300	3,200	3,300	3,800	4,600
17	Mt Carmel Rd	Farrington Mill Road	Downing Creek Pkwy	North of Farrington Road	1800920	**7.20%**	2,000	2,200	2,500	3,800	4,000	5,000	5,000	5,700
18	Barbee Chapel Rd	Farrington Mill Road	NC 54	N/A	N/A	N/A	No historic count on or near this corridor section							
19	Farrington Rd	Stagecoach Road	Ridgefield Drive	South of NC 54	3100499	**8.80%**	3,100	3,400	5,600	--	7,200	8,200	--	11,000
20	Farrington Rd	Barbee Chapel Road	Stagecoach Road	West of Stagecoach Road	3100505	**8.70%**	2,200	2,400	4,200	5,500	7,200	7,900	--	7,700
21	Stagecoach Rd	Farrington Road	NC 751	N/A	N/A	N/A	No historic count on or near this corridor section							
22	NC 751 (Hope Valley Rd)	Stagecoach Road	Scott King Road	North of Scott King Road	3100734	**10.60%**	1,800	2,200	2,500	3,400	5,500	7,200	8,200	8,200
23	NC 751 (Hope Valley Rd)	Scott King Road	Southern PAB	South of Scott King Road	3100514	**10.40%**	3,600	3,500	3,400	5,200	7,000	8,800	9,900	12,000
24	Scott King Road	NC 751	Grandale Drive	East of NC 751	3100515	**10.80%**	300	300	520	600	1,100	1,500	1,400	1,400
25	Grandale Dr	Scott King Road	Sedwick Road	N/A	N/A	N/A	No historic count on or near this corridor section							
26	Sedwick Rd	Grandale Drive	NC 55	West of NC 55	3100528	**6.60%**	2,600	3,700	4,500	5,300	6,300	7,200	7,900	--
27	NC 55	Sedwick Road	Alexander Drive	South of Sedwick Road	3100726	**5.80%**	6,700	7,200	9,800	--	12,000	14,000	14,000	--

Based on average annual increase using available counts

- Farrington Mill Road/Farrington Road at Barbee Chapel Road
- Hope Valley Road (NC 751) at Fayetteville Road
- Stagecoach Road at Hope Valley Road (NC 751)
- Farrington Road at Stagecoach Road
- NC 55 at T.W. Alexander Drive
- NC 55 at Sedwick Road

Table 4 summarizes the LOS and delay (seconds per vehicle) for all of the study intersections for the existing traffic conditions.

Table 4. Existing (2007) Level-of-Service (LOS) Summary

Intersection	Signalized	AM Peak-Hour LOS (Delay in seconds)	PM Peak-Hour LOS (Delay in seconds)
US 15-501 and Jack Bennett Road	Yes	A (9.0)	B (10.1)
Farrington Point Road and Lystra Road	Yes	C (20.6)	B (14.5)
Farrington Point Road/Old Farrington Point Road and Mt. Carmel Road	No	Short delays for minor street approach	Moderate delays for minor street approach
Farrington Mill Road/Farrington Road and Barbee-Chapel Road	No	Moderate delays for minor street approach	Long delays for minor street approach
Farrington Road and Stagecoach Road	No	Long delays for minor street approach	Long delays for minor street approach
Stagecoach Road and Hope Valley Road (NC 751)	Yes	D (43.0)	B (19.8)
Hope Valley Road (NC 751) and Fayetteville Road	Yes	B (10.7)	C (21.4)
NC 55 and Sedwick Road	Yes	B (19.6)	C (29.8)
NC 55 and T.W. Alexander Drive	Yes	C (24.3)	C (24.5)

Summary of Existing Intersection Deficiencies

All of the studied intersections operate at an acceptable LOS. The following signalized intersections have significant queuing and may need additional vehicle storage (i.e. longer the turn lanes) to decrease vehicle queue lengths:

US 15-501 and Jack Bennett Road

- The westbound left-turn lane queue on Jack Bennett Road exceeds existing storage lengths during the PM peak hour.

Farrington Point Road and Lystra Road

- The eastbound left-turn lane queue on Lystra Road exceeds existing storage lengths during the AM peak hour

Farrington Point Road and Stagecoach Road

- Westbound Stagecoach Road has queuing problems during peak hours due to poor sight distance for left-turning vehicles (of oncoming traffic from northbound Farrington Road).

Stagecoach Road and Hope Valley Road (751)

- The eastbound left-turn lane queue on Stagecoach Road exceeds existing storage lengths during the AM and PM peak hours.

NC 55 and T.W. Alexander Drive

- The northbound right-turn lane and southbound left lane queues on NC 55 exceed existing storage lengths during the AM peak hour.
- The westbound left-turn lane queue on T.W. Alexander Drive exceeds existing storage length during the PM peak hour.

Travel Pattern Analysis

Travel patterns in the study area were reviewed to identify prevalent traffic movements that currently affect the roads in the study area. This analysis drew from available resources from the Census, DCHC

Table 12 - Trendline 2035 Level of Service

Section	Road	From	To	LOS D Traffic Capacity	2035 Traffic (ADT)	2035 V/C	2035 LOS	2005 LOS
11	US 15-501	Southern PAB	Jack Bennett Road	62,600	36,100	0.58	B	A
12	US 15-501	Jack Bennett Road	Northern PAB	62,600	35,600	0.57	B	A
13	Jack Bennett Rd	US 15-501	Farrington Point Road	11,900	4,900	0.41	B	A
14	Farrington Rd	Southern PAB	Lystra Road	11,800	8,800	0.75	C	B
15	Farrington Point Rd	Lystra Road	Mt. Carmel Church Rd.	10,500	9,700	**0.92**	**D**	B
16	Old Farrington Pt Rd	Mt. Carmel Church Rd.	Barbee Chapel Road	9,400	16,600	**1.77**	**F**	B
17	Mt Carmel Rd	Farrington Mill Road	Downing Creek Pkwy	12,400	10,900	**0.88**	**D**	B
18	Barbee Chapel Rd	Farrington Mill Road	NC 54	9,500	11,300	**1.19**	**F**	B
19	Farrington Rd	Stagecoach Road	Ridgefield Drive	15,300	8,200	0.54	B	B
20	Farrington Rd	Barbee Chapel Road	Stagecoach Road	15,300	19,800	**1.29**	**F**	B
21	Stagecoach Rd	Farrington Road	NC 751	9,500	15,600	**1.64**	**F**	C
22	NC 751 (Hope Valley Rd)	Stagecoach Road	Scott King Road	62600	22,800	0.36	B	C
23	NC 751 (Hope Valley Rd)	Scott King Road	Southern PAB	11,800	17,400	**1.48**	**F**	**D**
24	Scott King Road	NC 751	Grandale Drive	9,500	4,000	0.42	B	A
25	Grandale Dr	Scott King Road	Sedwick Road	9,500	5,500	0.58	B	B
26	Sedwick Rd	Grandale Drive	NC 55	12,500	5,800	0.46	B	B
27	NC 55	Sedwick Road	Alexander Drive	39,700	44,800	**1.13**	**E**	B

TWLTL = Two-Way Left Turn Lane

Future Intersection Level-of-Service (LOS) Analysis

For the future year intersection LOS analysis, the same nine intersections that were analyzed in the existing conditions section were used. For each of these intersections, a set of 2035 turning-movement projections was prepared using existing volumes and trend growth rates. These forecasted traffic volumes were then analyzed using existing intersection geometry, as shown in **Figure 9**. Capacity analyses were performed for the AM and PM peak hours for projected trendline (2035) traffic conditions using *SYNCHRO* (Version 7) and SIDRA (for roundabouts) software to determine the operating characteristics of the adjacent road network.

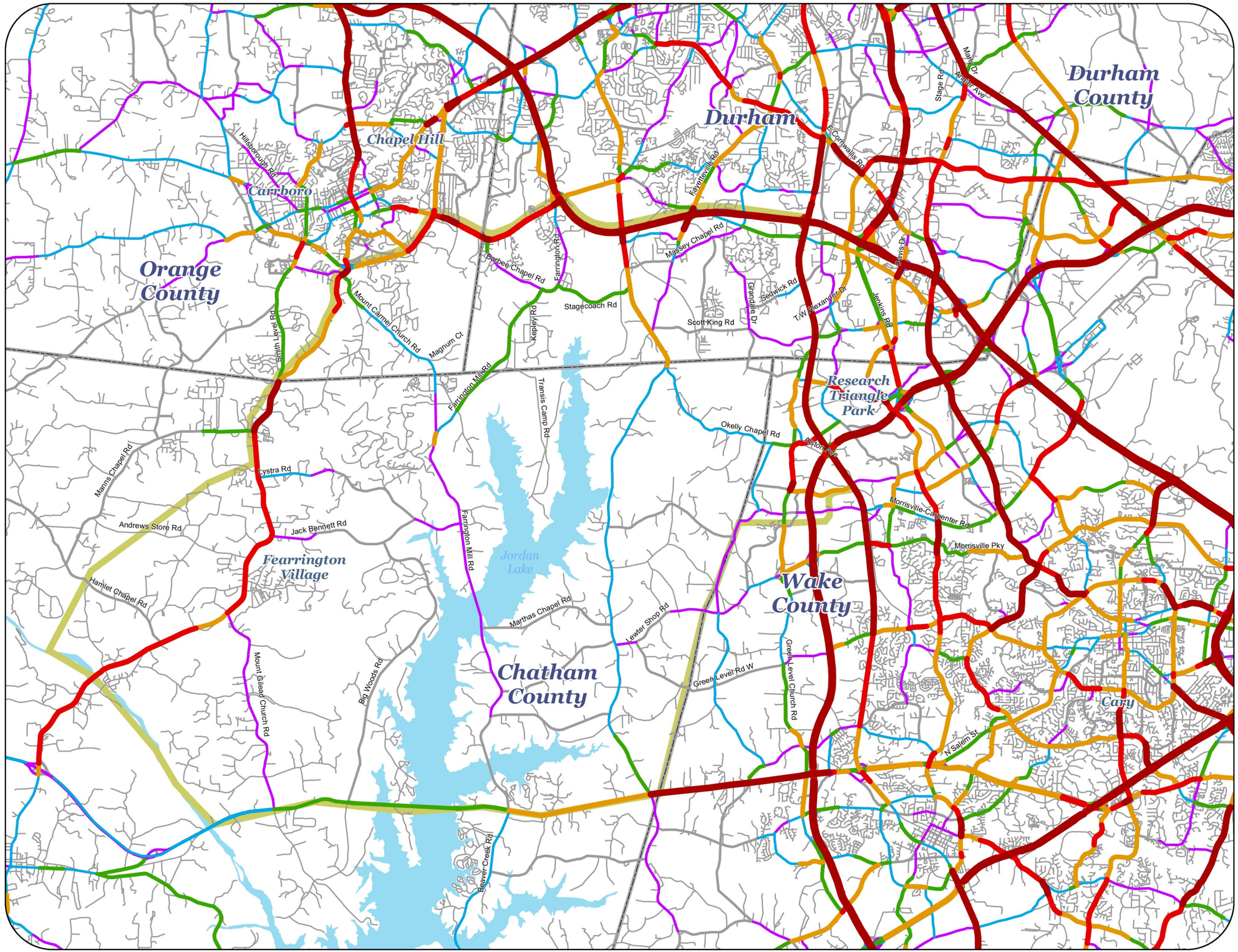
Capacity analyses were performed for the existing (2007) traffic condition for the following intersections:

- US 15-501 at Jack Bennett Road
- Farrington Point Road at Lystra Road
- Farrington Road and Stagecoach Road at Mt. Carmel Road

Farrington Road Corridor Study

Figure 29

2035 Volumes



2035 Daily Traffic Volumes

- < 5000
- 5000 - 10000
- 10000 - 15000
- 15000 - 20000
- 20000 - 30000
- 30000 - 40000
- > 40000
- State Roads
- Counties
- Study Area
- Lakes

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

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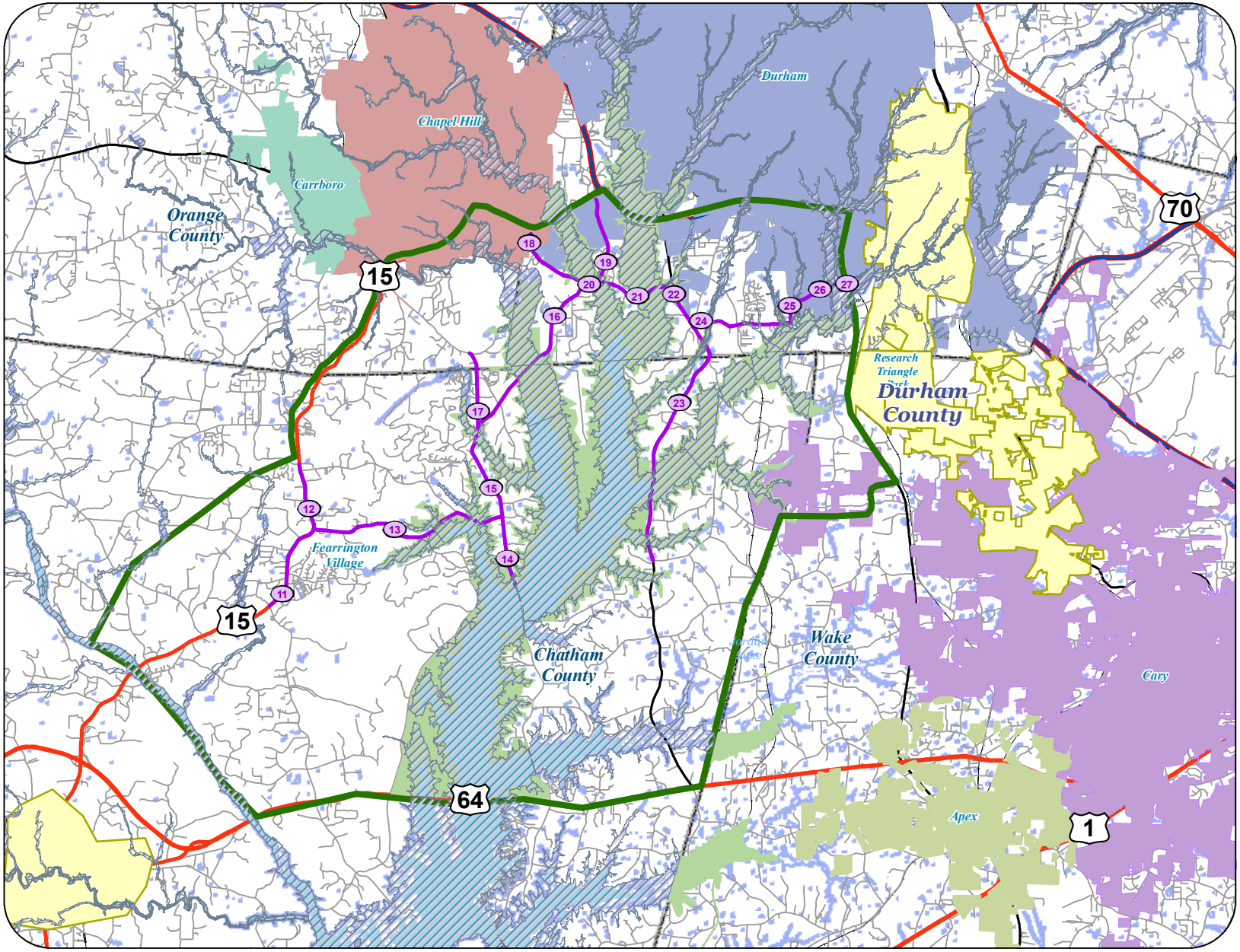


Farrington Road Corridor Study

Figure 20

Natural Features Map

Legend

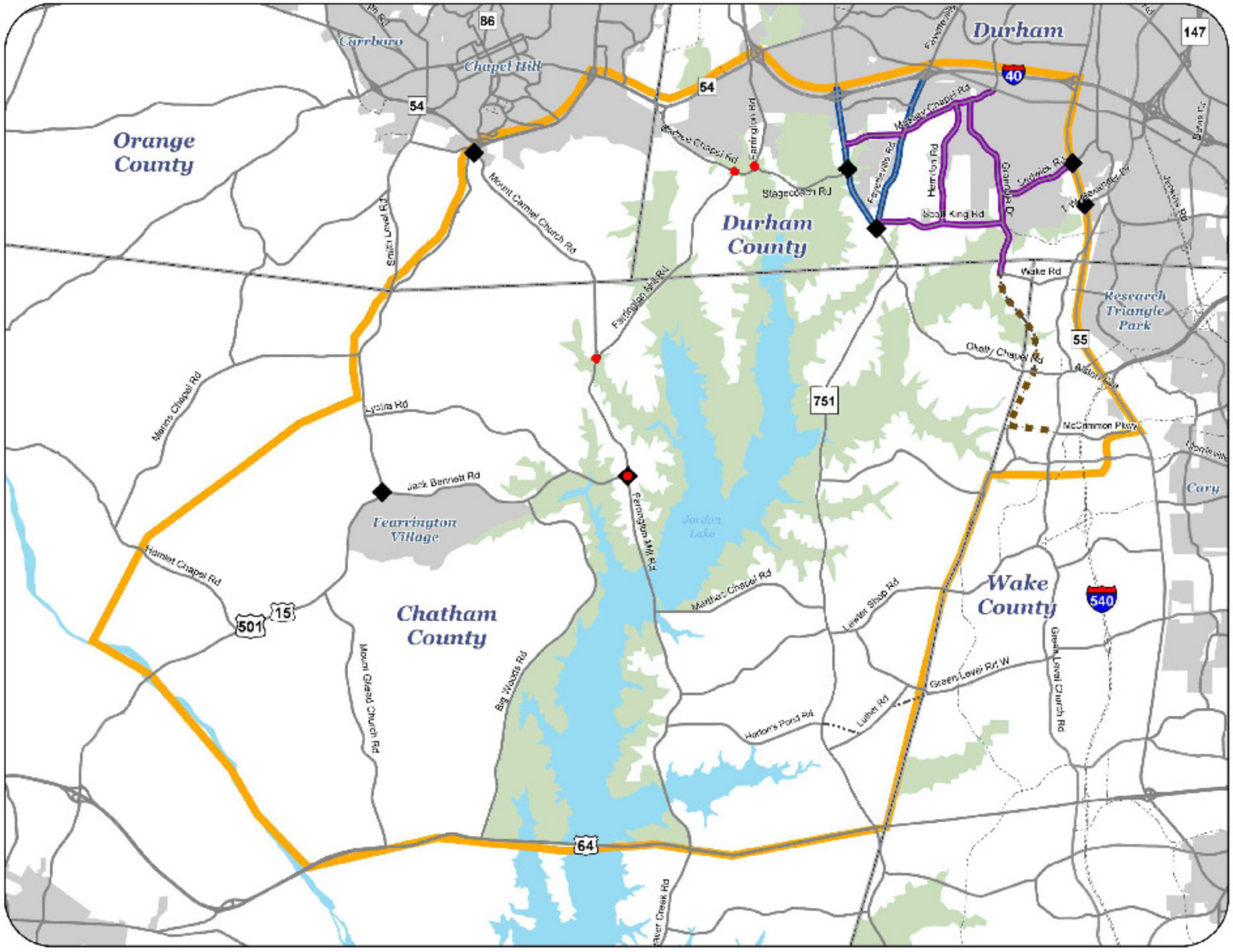
- Study Area
- Counties
- Corridor Roads
- 100-Year Floodplain
- UFWS National Wetland Inventory
- Corps of Engineers Land
- Lakes
- RESEARCH TRIANGLE PARK
- APEX NC
- CARRBORO NC
- CARY NC
- CHAPEL HILL NC
- DURHAM NC

November 25, 2008

N W E S

0 0.5 1 2 3 Miles

Kimley-Horn and Associates, Inc.



Farrington Road Corridor Study

Figure 31

Recommended Transportation Improvements

Recommendations

- Roundabout Conversion
- Intersection Improvement
- Access Management
- Operational Management
- New Roadway
- New Roads
- Counties
- Study Area
- Municipalities
- Lakes
- Corps of Engineers Land

November 25, 2008

0 0.5 1 2 Miles

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