SOUTHERN AND EASTERN WAKE FREEWAY

(S.T.I.P. PROJECTS R-2721, R-2828, and R-2829)

FINAL 2008 EXISTING, 2011 AND 2035 NO-BUILD TRAFFIC CAPACITY ANALYSIS REPORT

PREPARED FOR:

NORTH CAROLINA Turnpike Authority

5400 Glenwood Avenue
Suite 400
Raleigh, N.C 27612

PREPARED BY:

HNTB North Carolina, PC
343 East Six Forks Road
Suite 200
Raleigh, NC 27609

December 2009

NORTH CAROLINA TURNPIKE AUTHORITY

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NORTH CAROLINA PROFESSIONAL SEAL 34318 ENGINEER BRADLEY REYNOLDS

Bradley Reynolds
12-9-09

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1.0 INTRODUCTION

1.1 Background

The North Carolina Turnpike Authority (NCTA) and the North Carolina Department of Transportation (NCDOT) are studying ways to improve travel in southern and eastern Wake County. The Southern and Eastern Wake Freeway Project is approximately 27.8 miles in length and is being considered as a possible candidate toll facility. The results of this planning-level traffic capacity analysis will be used by the NCTA and NCDOT for National Environmental Policy Act (NEPA) studies.

1.2 Purpose of Report

The purpose of this No-Build planning-level traffic capacity analysis is to identify existing and projected roadway facility operations and deficiencies for the major roadways surrounding the Southern and Eastern Wake Freeway project under 2008, 2011 and 2035 No-Build conditions. The results of the analysis will be used to support the development of the Purpose and Need Statement for the project. A study area map and figures are located in ***Appendix A***.

The traffic capacity analysis was based on the *Southern and Eastern Wake Freeway Final Traffic Forecast Report* prepared by HNTB in February 2009. This forecast is endorsed by the NCDOT and FHWA. This traffic capacity analysis references all forecast volumes for the 2008 No-Build, 2011 No-Build, and 2035 No-Build scenarios. The figures in ***Appendix A*** include all forecast volumes as provided in the traffic forecast.

HNTB utilized North Carolina Level of Service Software (NCLOS) 2.0 to determine segmental roadway level of service and volume to capacity (V/C) ratios for the No-Build scenarios.

2.0 EXISTING ROADWAY CHARACTERISTICS/NETWORK

There are several major roadways in the study area, which includes portions of Durham, Wake and Johnston Counties. The existing major roadways included in the traffic forecast include: I-40, I-540, NC 540, I-440, US 64 Bypass (Knightdale Bypass), US 70 Bypass (Clayton Bypass), and US 1/64. Refer to **Figure 1** for a map of the study area. **Figures 2**, **3**, and **4** provide the facility type for each study area roadway for 2008 No-Build, 2011 No-Build, and 2035 No-Build, respectively. Roadway facility types were based on field observations and NCDOT functional classification maps. Descriptions of the major roadways within the study area are as follows:

I-40: I-40 is the primary freeway corridor for regional connectivity between Raleigh, RTP, Durham and Chapel Hill in the Triangle. I-40 varies from a four-lane to an eight-

lane freeway in the traffic forecast study area. The posted speed limit is 65 miles per hour (mph) through the traffic forecast study area.

I-440 (Cliff Benson Beltline): I-440 is an existing loop freeway around the City of Raleigh, featuring four-lane and eight-lane cross-sections in the vicinity of the traffic forecast study area, with auxiliary lanes in vicinity of surface street interchanges. The posted speed limit is 60 mph.

US 1/64: US 1/64 is an existing controlled access freeway that serves regional traffic in Cary and Apex. US 1/64 has a six-lane cross section in the traffic forecast study area, with auxiliary lanes near interchanges and improved interchange configurations at Walnut Street and Cary Parkway (NCDOT STIP Project U-3101). The posted speed limit is 65 mph.

I-540: I-540 is an existing loop freeway around the northern portions of Wake County. It currently spans from I-40 on the western side of Wake County to the US 64 Bypass near Knightdale in eastern Wake County. The facility features a six-lane cross section in the study area, with auxiliary lanes at interchanges and a posted speed limit of 65 mph.

NC 540: NC 540 is an existing freeway facility that is an extension of I-540 in western Wake County from I-40 to NC 55 near RTP. This segment of NC 540 from NC 55 to NC 54 features a six-lane cross section with a posted speed limit of 65 mph. It is currently a Non-Toll facility but is scheduled to become a Toll facility upon the completion of the Triangle Expressway.

US 64 Bypass: US 64 Bypass is an existing controlled access freeway in the traffic forecast study area providing access to areas of east Wake County to I-440 and further to I-95. In the traffic forecast study area, US 64 Bypass has a six-lane cross-section, with auxiliary lanes at interchanges and a posted 65 mph speed limit.

US 70 Bypass (Clayton Bypass): US 70 Bypass is an existing controlled access freeway in the traffic forecast study area providing access to areas of Johnston County to I-40. In the traffic forecast study area, the Clayton Bypass has a four-lane cross-section, with auxiliary lanes at interchanges and a posted speed limit of 65 mph.

Other sizeable roadways that are in the study area include NC 147, US 1, US 401, NC 55, US 70, NC 42, NC 50, Ten-Ten Road (SR 1010), Timber Drive (SR 2812) and Hammond Road (SR 2026). These existing thoroughfares are primarily multi-lane facilities with 35, 45, or 55 mph speed limits in the study area and provide regional connectivity and access throughout Wake County, with interchange connections to the major roadways described above.

3.0 TRAFFIC CAPACITY ANALYSIS METHODOLOGY

HNTB conducted Average Annual Daily Traffic (AADT) mainline segmental capacity analyses for each facility segment for 2008 No-Build, 2011 No-Build, and 2035 No-Build scenarios in the following manner:

- The traffic capacity analysis was based on the *Southern and Eastern Wake Freeway Final Traffic Forecast Report* prepared by HNTB in February 2009.

- The traffic forecast report assumes high-occupancy vehicle (HOV) lanes along I-40 and NC 147 in 2035 based on the adopted 2030 Capital Area Metropolitan Planning Organization (CAMPO) Long Range Transportation Plan (LRTP). The 2035 No-Build did not include analysis of the additional HOV lanes or HOV traffic volumes along I-40 and NC 147 to provide a consistent facility comparison between scenarios.

- North Carolina Level of Service (NCLOS) software, Version 2.0, was used to determine segmental roadway levels of service (LOS) and volume to capacity (V/C) ratios for all scenarios. The approved traffic forecast is a link-level forecast as is appropriate for the purposes of developing the Purpose and Need Statement for this study. This analysis includes the mainline freeway segments.

- The analysis criteria and input values for each roadway type (freeway, multi-lane highway, 2-lane highway, and arterial) are based on field-observed data collection, the approved traffic forecast and engineering judgment.

- Roadway LOS and V/C ratios were analyzed for all scenarios. Study area roadways were divided into facility segments with specific capacity thresholds based on varying roadway characteristics as defined by NCLOS software.

4.0 TRAFFIC CAPACITY ANALYSIS RESULTS

In **Tables 1, 2 and 3**, the highest forecasted AADT for each facility segment was compared to the corresponding NCLOS capacity volumes to determine the worst case LOS for that facility segment. The tables show the facility segment, NCLOS identification, and comparison to the NCLOS volume capacity. The NCLOS volume capacity is the maximum AADT before the facility exceeds roadway capacity and reaches LOS F. LOS E is typically reached when volumes are at or near capacity. LOS D or better indicates that the facility segment is operating at acceptable LOS with excess capacity. The corresponding V/C ratio provides a direct comparison between the forecasted AADT and NCLOS facility segment capacity. It should be noted that due to the limitations of the NCLOS software the V/C ratios for certain facility types will not directly correspond to the LOS result. NCLOS results and roadway criteria are provided in ***Appendix B***.

4.1 2008 No-Build Traffic Capacity Analysis

Generally, in the 2008 No-Build scenario, the majority of study area roadway facilities, 23 of 37 facility segments, operate at acceptable levels of service (i.e. LOS D or better). The remaining, 14 of the 37 facility segments currently operate with roadway capacities at LOS E or F. Facilities that currently have segments operating near or over capacity include I-40, I-540, US 1/64, NC 147, NC 42, NC 50, and Ten-Ten Road. In 2008, a roadway segment along I-40 from Wade Avenue to US 1/64 has the highest expected V/C ratio of 1.35. **Table 1** provides a summary of the V/C and LOS results for facility segments. **Figure 5** shows a LOS overview of the entire study area and **Figures 5.1 – 5.10** show individual facility segment AADT, V/C, and LOS for the study area roadways.

Table 1 - 2008 No-Build V/C and LOS Results

Facility Segment	From	To	NCLOS ID	2008 AADT *	NCLOS Capacity**	V/C	LOS
I-40	NC 55	NC 147	F5	118,700	117,300	1.01	***F***
I-40	NC 147	Wade Ave.	F9	166,900	157,500	1.06	***F***
I-40	Wade Ave.	US 1/64	F14	104,900	77,700	1.35	***F***
I-40	US 1/64	Lake Wheeler Rd.	F5	116,100	117,300	0.99	***E***
I-40	Lake Wheeler Rd.	Rock Quarry Rd.	F9	118,000	157,500	0.75	C
I-40	Rock Quarry Rd.	I-440	F11	106,700	198,100	0.54	C
I-40	I-440	US 70	F13	102,100	77,700	1.31	***F***
I-40	US 70	NC 210	F2	60,200	78,600	0.77	D
NC 147	I-40	Cornwallis Rd.	F4	68,800	73,000	0.94	***E***
I-540	I-40	Lumley Rd.	F8	95,900	106,200	0.90	***E***
I-540	US 64 Bypass	US 64 Business	F6	38,000	91,100	0.42	B
NC 540	I-40	NC 55	F15	24,300	88,500	0.27	A
I-440	I-40	Jones Franklin Rd.	F12	92,600	117,300	0.79	D
I-440	I-40	US 64 Bypass	F9	95,600	157,500	0.61	C
I-440	US 64 Bypass	US 64 Business	F5	87,400	117,300	0.75	D
US 64 Bypass	I-440	I-540	F6	59,200	91,100	0.65	C
US 64 Bypass	I-540	US 64 Business	F7	59,000	90,700	0.65	C
Clayton Bypass	I-40	NC 42	F3	18,300	69,600	0.26	A
US 1/64	Tryon Rd.	I-40	F10	117,700	120,200	0.98	***E***
US 1	New Hill Holleman Rd.	Tryon Rd.	F1	48,000	81,300	0.59	C
Ten-Ten Rd	US 1	Holly Springs Rd.	Ten-Ten 1	26,100	22,700	1.15	F
Ten-Ten Rd	Holly Springs Rd.	NC 50	Ten-Ten 2	17,500	23,800	0.74	B
NC 55	US 1	Main St.	MLH 6	47,000	52,200	0.90	D
NC 55	Main St.	Wake Chapel Rd.	MLH 3	25,000	53,600	0.47	B
NC 55	Wake Chapel Rd.	US 401	NC 55 1	13,700	15,300	0.90	D
US 401	NC 55	NC 42	MLH 2	36,300	71,500	0.51	C
NC 42	US 401	Old Drug Store Rd.	2 LH 2	11,500	28,600	0.40	***E***
NC 42	Old Drug Store Rd.	I-40	NC 42 1	28,000	26,400	1.06	***F***
NC 42	I-40	Bratton Dr.	NC 42 2	13,300	40,700	0.33	D
NC 42	Bratton Dr.	Clayton Bypass	2 LH 1	14,500	40,900	0.35	***E***
Timber Dr.	US 70	NC 50	Timber	22,300	32,600	0.68	C
Hammond Rd.	I-40	US 70	Hammond	24,800	39,900	0.62	C
US 70	I-40	Tryon Rd.	MLH 4	61,300	98,700	0.62	C
US 70	Tryon Rd.	I-40	MLH 1	32,900	65,800	0.50	C
US 70	I-40	Guy Rd.	MLH 2	51,100	71,500	0.71	D

Facility Segment	From	To	NCLOS ID	2008 AADT *	NCLOS Capacity**	V/C	LOS
NC 50	Cleveland Rd	New Rand Rd	2 LH 3	23,000	28,600	0.80	***E***
NC 50	New Rand Rd	US 70	NC 50 1	11,500	18,800	0.61	B

* Highest AADT along facility segment is reported.
** Maximum LOS E volume before facility exceeds capacity and reaches LOS F.

4.2 2011 No-Build Traffic Capacity Analysis

Under the 2011 No-Build scenario, the scheduled roadway widening improvement along I-40 from Wade Avenue to US 1/64 (STIP I-4744) and the new toll facilities of Triangle Parkway and Western Wake Freeway (NC 540) (collectively known as the Triangle Expressway) are included in the traffic capacity analysis. In general, traffic volumes increase incrementally throughout the study area with minimal effects on roadway LOS. Of the 40 facility segments, 24 are expected operate at acceptable LOS. However, 16 of the 40 facility segments are predicted to operate with roadway capacities at LOS E or F. Facilities that have segments predicted to operate near or over capacity include I-40, I-540, US 1/64, NC 147, NC 42, NC 50, NC 55, and Ten-Ten Road. The new facilities of Triangle Parkway and Western Wake Freeway are expected to operate at LOS A with a 2011 opening year. These facilities are expected to divert traffic and provide alternate routes to I-40, I-540, US 1/64, and NC 55. In 2011, a roadway segment along Ten-Ten Road from US 1 to Holly Springs Road has the highest expected V/C ratio of 1.38. **Table 2** provides a summary of the V/C and LOS results for facility segments. **Figure 6** shows a LOS overview of the entire study area and **Figures 6.1 – 6.11** show individual facility segment AADT, V/C, and LOS for the study area roadways.

Table 2 - 2011 No-Build V/C and LOS Results

Facility Segment	From	To	NCLOS ID	2011 AADT *	NCLOS Capacity**	V/C	LOS
I-40	NC 55	NC 147	F5	123,400	117,300	1.05	***F***
I-40	NC 147	Wade Ave.	F9	172,900	157,500	1.10	***F***
I-40	Wade Ave.	US 1/64	F14	115,700	117,300	0.99	***E***
I-40	US 1/64	Lake Wheeler Rd.	F5	124,900	117,300	1.06	***F***
I-40	Lake Wheeler Rd.	Rock Quarry Rd.	F9	125,300	157,500	0.80	D
I-40	Rock Quarry Rd.	I-440	F11	110,300	198,100	0.56	C
I-40	I-440	US 70	F13	104,000	77,700	1.34	***F***
I-40	US 70	NC 210	F2	61,600	78,600	0.78	D
NC 147	I-40	Cornwallis Rd.	F4	69,000	73,000	0.95	***E***
I-540	I-40	Lumley Rd.	F8	100,300	106,200	0.94	***E***
I-540	US 64 Bypass	US 64 Business	F6	43,000	91,100	0.47	B
NC 540	I-40	Triangle Pkwy	F15	39,400	88,500	0.45	B
I-440	I-40	Jones Franklin Rd.	F12	92,900	117,300	0.79	D
I-440	I-40	US 64 Bypass	F9	103,100	157,500	0.65	C

Facility Segment	From	To	NCLOS ID	2011 AADT *	NCLOS Capacity**	V/C	LOS
I-440	US 64 Bypass	US 64 Business	F5	90,400	117,300	0.77	D
US 64 Bypass	I-440	I-540	F6	64,100	91,100	0.70	C
US 64 Bypass	I-540	US 64 Business	F7	67,300	90,700	0.74	D
Triangle Pkwy.	I-40	NC 540	F16	13,200	110,700	0.12	A
McCrimmon Pkwy	NC 540	Morrisville Carpenter Rd.	MLH 5	10,300	96,000	0.11	A
NC 540	Triangle Pkwy	NC 55 (South)	F15	25,000	88,500	0.28	A
Clayton Bypass	I-40	NC 42	F3	38,600	69,600	0.55	C
US 1/64	Tryon Rd.	I-40	F10	124,600	120,200	1.04	***F***
US 1	New Hill Holleman Rd.	Tryon Rd.	F1	72,000	81,300	0.89	D
Ten Ten Rd	US 1	Holly Springs Rd.	Ten Ten 1	31,300	22,700	1.38	***F***
Ten Ten Rd	Holly Springs Rd.	NC 50	Ten Ten 2	22,000	23,800	0.92	***E***
NC 55	US 1	Main St.	MLH 6	47,300	52,200	0.91	D
NC 55	Main St.	Wake Chapel Rd.	MLH 3	31,100	53,600	0.58	C
NC 55	Wake Chapel Rd.	US 401	NC 55 1	15,700	15,300	1.03	***F***
US 401	Broad St.	NC 42	MLH 2	40,200	71,500	0.56	C
NC 42	NC 55	Old Drug Store Rd.	2 LH 2	14,200	28,600	0.50	***E***
NC 42	Old Drug Store Rd.	I-40	NC 42 1	29,900	26,400	1.13	***F***
NC 42	I-40	Bratton Dr.	NC 42 2	15,700	40,700	0.39	D
NC 42	Bratton Dr.	Clayton Bypass	2 LH 1	16,300	40,900	0.40	***E***
Timber Dr.	US 70	NC 50	Timber	22,400	32,600	0.69	C
Hammond Rd.	I-40	US 70	Hammond	25,800	39,300	0.66	C
US 70	I-40	Tryon Rd.	MLH 4	59,200	98,700	0.60	C
US 70	Tryon Rd.	I-40	MLH 1	34,100	65,800	0.52	C
US 70	I-40	Guy Rd.	MLH 2	54,900	71,500	0.77	D
NC 50	Cleveland Rd	New Rand Rd	2 LH 3	25,700	28,600	0.90	***E***
NC 50	New Rand Rd	US 70	NC 50 1	11,500	18,800	0.61	A

* Highest AADT along facility segment is reported.
** Maximum LOS E volume before facility exceeds capacity and reaches LOS F.

4.3 2035 No-Build Traffic Capacity Analysis

Under the 2035 No-Build scenarios, additional scheduled roadway improvements included in the traffic capacity analysis include widening I-40 from US 70 to NC 42 (STIP I-5111) and widening Ten-Ten Road from US 1 to Graham Newton Road. In general, traffic volumes increase substantially throughout the study area with noticeable effects on roadway LOS. Of the 40 facility segments, only 12 are expected to operate at acceptable LOS. In 2035, 29 of the 40 identified study area facility segments are predicted to operate at LOS E or F. However, 25 of these 29 facilities are expected to operate over capacity at LOS F. Facilities that have segments predicted to operate near or over capacity include I-40, I-540, US 1/64, US 1, US 64 Bypass, US 70, NC 147, NC 42, NC 50, NC 55, Ten-Ten Road, Timber Road, and Hammond Road. The facilities of Triangle Parkway and Western Wake Freeway are expected to operate at LOS B and LOS C in 2035, respectively. These facilities are expected to divert traffic and provide alternate routes to I-40, I-540, US 1/64, and NC 55. In 2035, a roadway segment along Ten-Ten Road from Holly Springs Road to NC 50 has the highest expected V/C ratio of 2.45. **Table 3** provides a summary of the V/C and LOS results for facility segments. **Figure 7** shows a LOS overview of the entire study area and **Figures 7.1 – 7.11** show individual facility segment AADT, V/C, and LOS for the study area roadways.

Table 3 - 2035 No-Build V/C and LOS Results

Facility Segment	From	To	NCLOS ID	2035 AADT *	NCLOS Capacity**	V/C	LOS
I-40	NC 55	NC 147	F5	128,200	117,300	1.09	***F***
I-40	NC 147	Wade Ave.	F9	175,600	157,500	1.11	***F***
I-40	Wade Ave.	US 1/64	F14	150,000	117,300	1.28	***F***
I-40	US 1/64	Lake Wheeler Rd.	F5	170,100	117,300	1.45	***F***
I-40	Lake Wheeler Rd.	Rock Quarry Rd.	F9	182,400	157,500	1.16	***F***
I-40	Rock Quarry Rd.	I-440	F11	151,500	198,100	0.76	D
I-40	I-440	US 70	F13	114,400	77,700	1.47	***F***
I-40	US 70	NC 210	F2	74,600	118,600	0.63	C
NC 147	I-40	Cornwallis Rd.	F4	93,600	73,000	1.28	***F***
I-540	I-40	Lumley Rd.	F8	164,000	106,200	1.54	***F***
I-540	US 64 Bypass	US 64 Business	F6	57,700	91,100	0.63	C
NC 540	I-40	Triangle Pkwy	F15	88,100	88,500	1.00	***E***
I-440	I-40	Jones Franklin Rd.	F12	137,000	117,300	1.17	***F***
I-440	I-40	US 64 Bypass	F9	154,900	157,500	0.98	***E***
I-440	US 64 Bypass	US 64 Business	F5	126,700	117,300	1.08	***F***
US 64 Bypass	I-440	I-540	F6	110,300	91,100	1.21	***F***
US 64 Bypass	I-540	US 64 Business	F7	125,100	90,700	1.38	***F***

Facility Segment	From	To	NCLOS ID	2035 AADT *	NCLOS Capacity**	V/C	LOS
Triangle Pkwy.	I-40	NC 540	F16	40,200	110,700	0.36	B
McCrimmon Pkwy	NC 540	Morrisville Carpenter Rd.	MLH 5	30,000	96,000	0.31	B
NC 540	Triangle Pkwy	NC 55 (South)	F15	60,100	88,500	0.68	C
Clayton Bypass	I-40	NC 42	F3	61,100	69,600	0.88	D
US 1/64	Tryon Rd.	I-40	F10	163,600	120,200	1.36	***F***
US 1	New Hill Holleman Rd.	Tryon Rd.	F1	101,500	81,300	1.25	***F***
Ten Ten Rd	US 1	Holly Springs Rd.	Ten Ten 1	64,200	45,400	1.41	***F***
Ten Ten Rd	Holly Springs Rd.	NC 50	Ten Ten 2	58,300	23,800	2.45	***F***
NC 55	US 1	Main St.	MLH 6	53,100	52,200	1.02	***F***
NC 55	Main St.	Wake Chapel Rd.	MLH 3	66,000	53,600	1.23	***F***
NC 55	Wake Chapel Rd.	US 401	NC 55 1	14,200	15,300	0.90	D
US 401	NC 55	NC 42	MLH 2	55,900	71,500	0.78	D
NC 42	US 401	Old Drug Store Rd.	2 LH 2	26,500	28,600	0.93	***E***
NC 42	Old Drug Store Rd.	I-40	NC 42 1	37,000	26,400	1.40	***F***
NC 42	I-40	Bratton Dr.	NC 42 2	22,300	40,700	0.55	D
NC 42	Bratton Dr.	Clayton Bypass	2 LH 1	26,800	40,900	0.66	***E***
Timber Dr.	US 70	NC 50	Timber	55,200	32,600	1.69	***F***
Hammond Rd.	I-40	US 70	Hammond	40,900	39,300	1.04	***F***
US 70	I-40	Tryon Rd.	MLH 4	75,600	98,700	0.77	D
US 70	Tryon Rd.	I-40	MLH 1	57,700	65,800	0.88	D
US 70	I-40	Guy Rd.	MLH 2	76,500	71,500	1.07	***F***
NC 50	Cleveland Rd	New Rand Rd	2 LH 3	36,600	28,600	1.28	***F***
NC 50	New Rand Rd	US 70	NC 50 1	31,200	18,800	1.66	***F***

* Highest AADT along facility segment is reported.
** Maximum LOS E volume before facility exceeds capacity and reaches LOS F.

5.0 SUMMARY

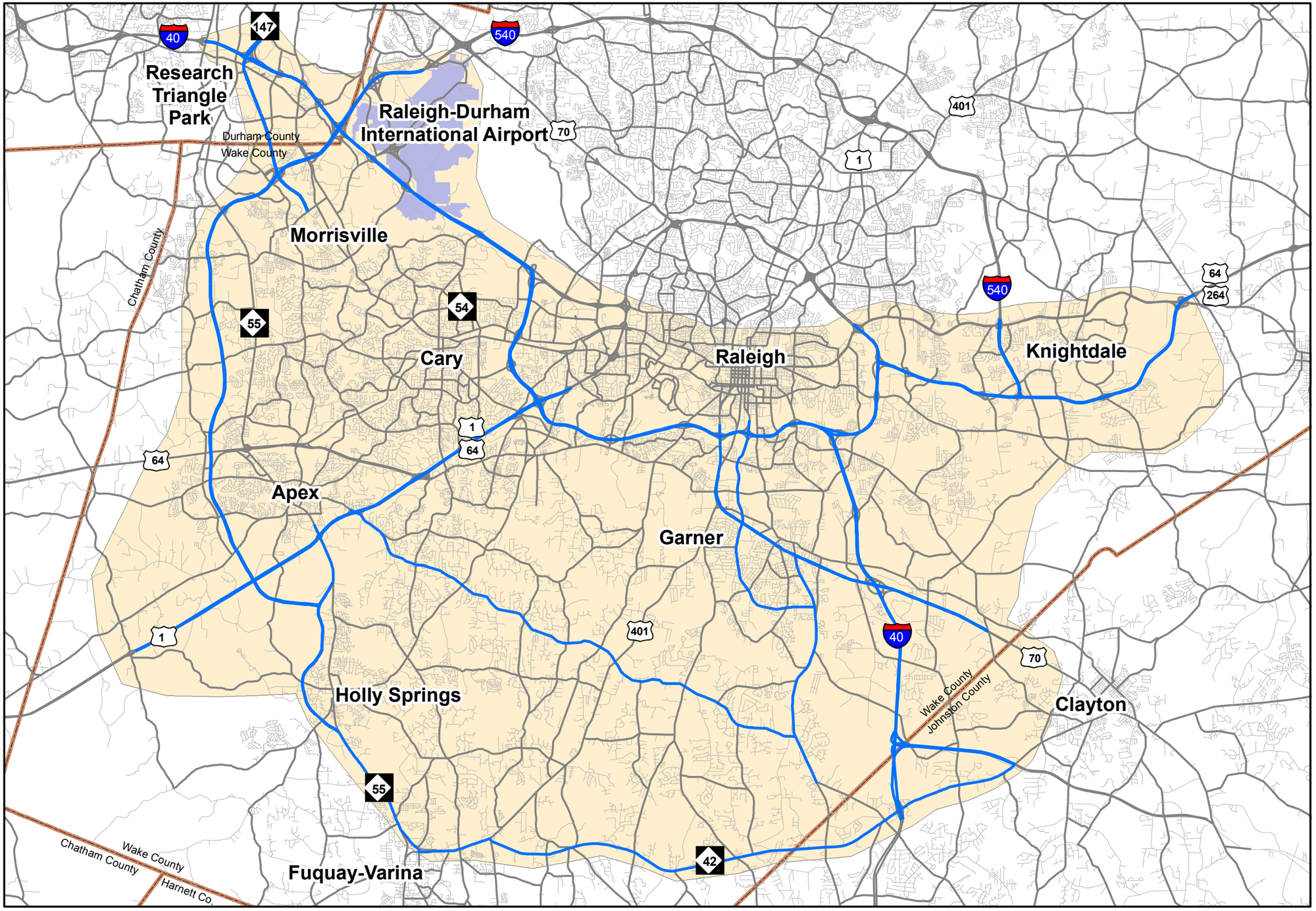
Utilizing the *Southern and Eastern Wake Freeway Final Traffic Forecast Report* prepared by HNTB in February 2009 and North Carolina Level of Service Software (NCLOS) 2.0, the planning-level traffic capacity analysis demonstrates that many of the major roadways in the study area are expected to operate at unacceptable levels of service and over capacity in the 2008 and 2011 No-Build scenarios. In the 2035 No-Build scenario, the majority of roadways in the study area are expected to operate at LOS E or F. This No-Build planning-level traffic capacity analysis identifies existing and projected roadway facility operations and deficiencies for the major roadways surrounding the Southern and Eastern Wake Freeway project under 2008, 2011 and 2035 No-Build conditions. The results of the analysis will be used to support the development of the Purpose and Need Statement for the project.

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 1

Traffic Capacity Analysis Study Area

HNTB Project # 46816

Date: December 2009



N
W E
S

Legend

- Analysis Links
- 2008 Highway Network
- Counties
- Study Area

0 1 2 3 4 5 Miles

NORTH CAROLINA Turnpike Authority

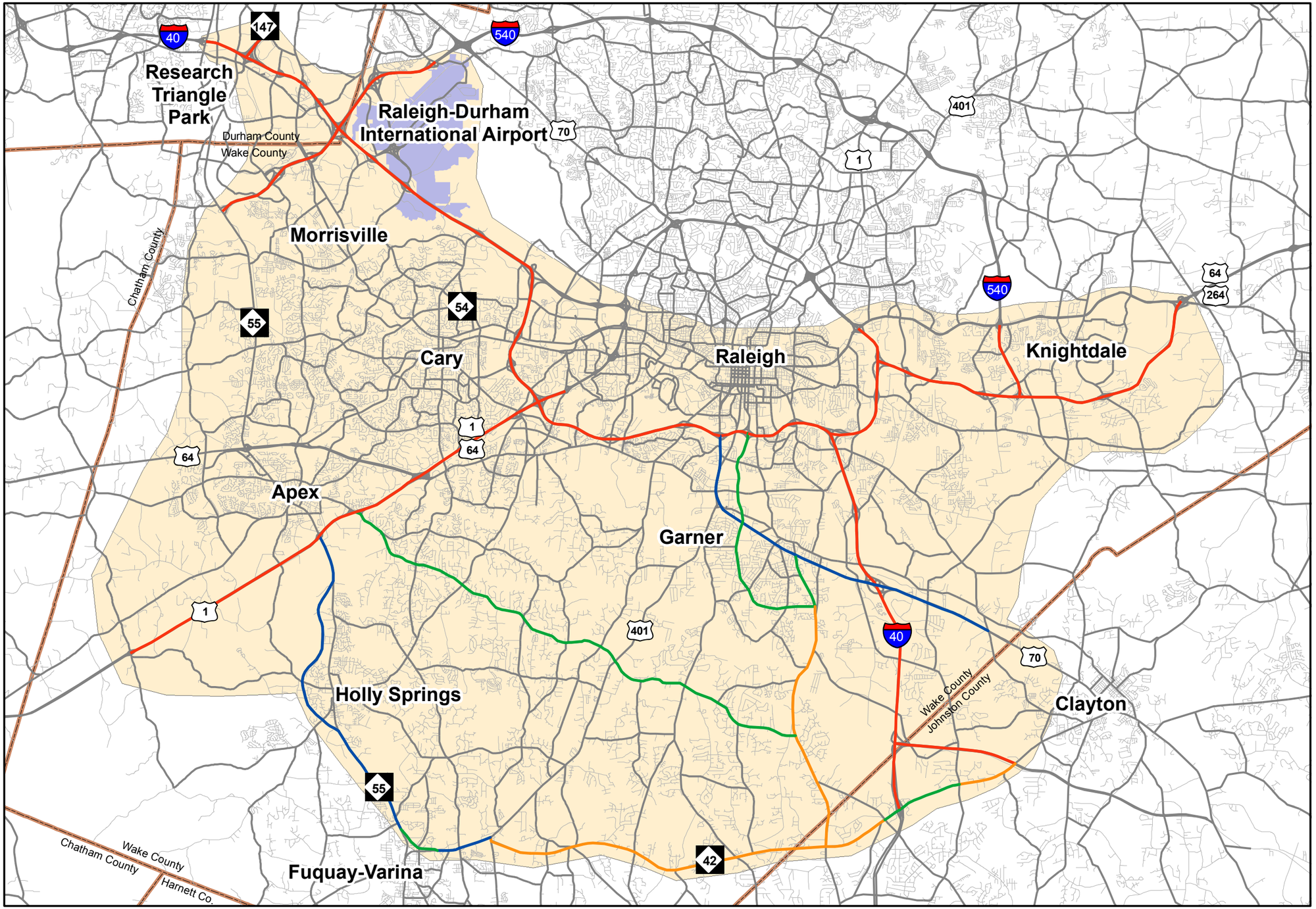
HNTB, North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 2

NCLOS Facility Types - 2008

HNTB Project # 46816

Date: December 2009



N
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Freeways
Multi-Lane Highways
Arterials
Two-Lane Highways

Legend

Highway Network
Counties
Study Area

0 1 2 3 4 5 Miles

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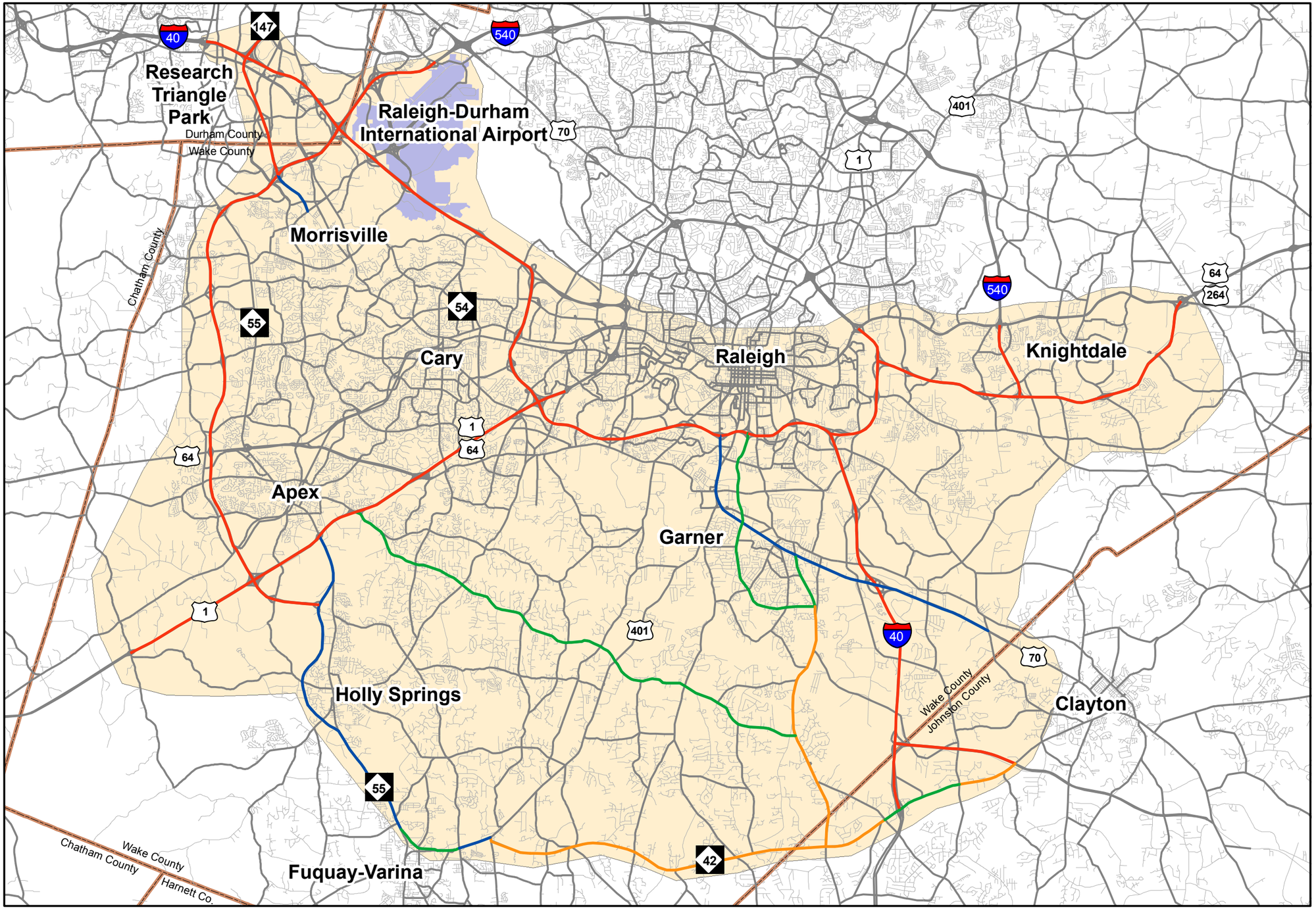
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 3

NCLOS Facility Types - 2011

HNTB Project # 46816

Date: December 2009



N
W E
S

- Freeways
- Multi-Lane Highways
- Arterials
- Two-Lane Highways

Legend

- Highway Network
- Counties
- Study Area

0 1 2 3 4 5 Miles

NORTH CAROLINA Turnpike Authority

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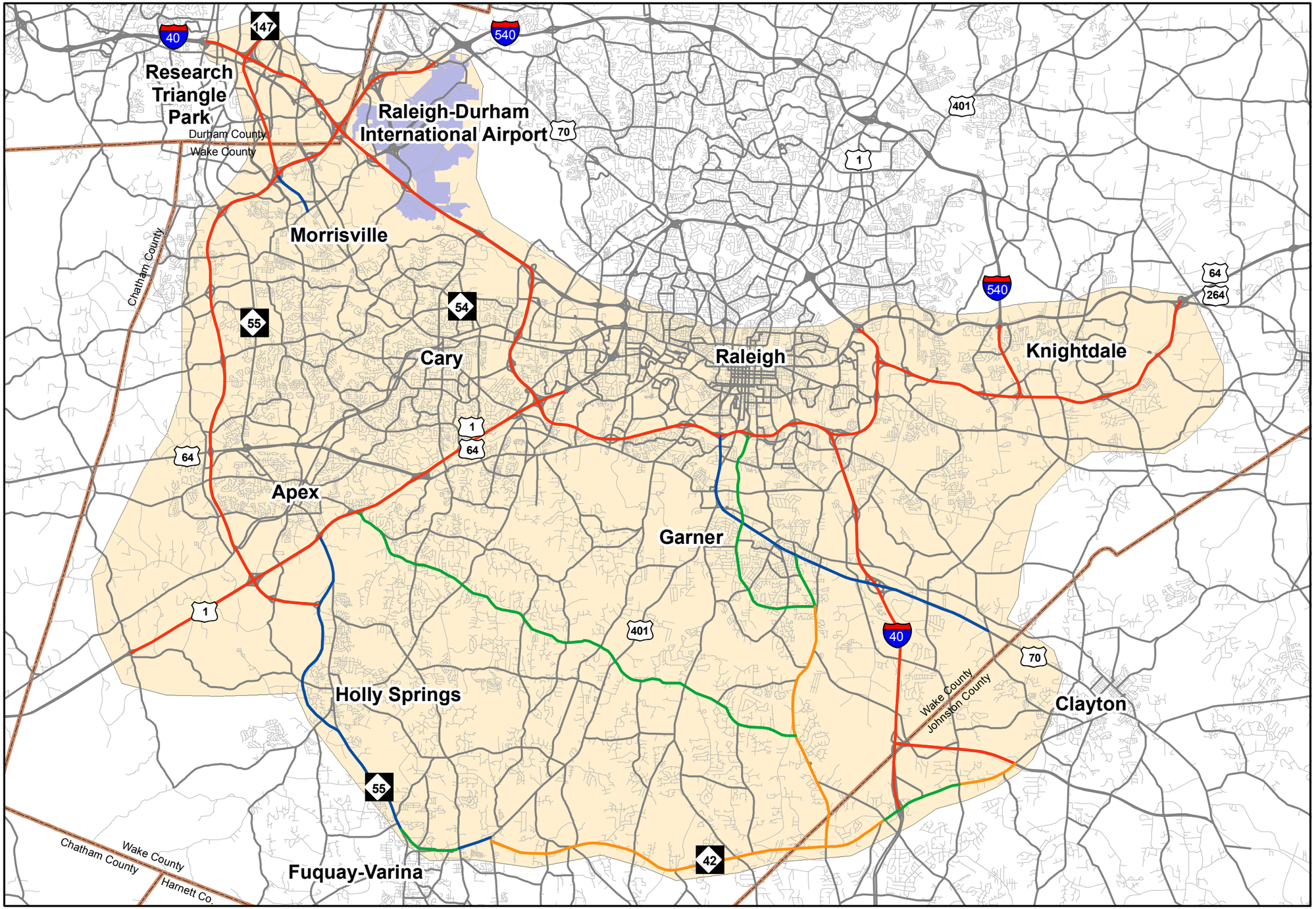
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 4

NCLOS Facility Types - 2035

HNTB Project # 46816

Date: December 2009



N
W E
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Freeways
Multi-Lane Highways
Arterials
Two-Lane Highways

Legend

Highway Network
Counties
Study Area

0 1 2 3 4 5 Miles

NORTH CAROLINA Turnpike Authority

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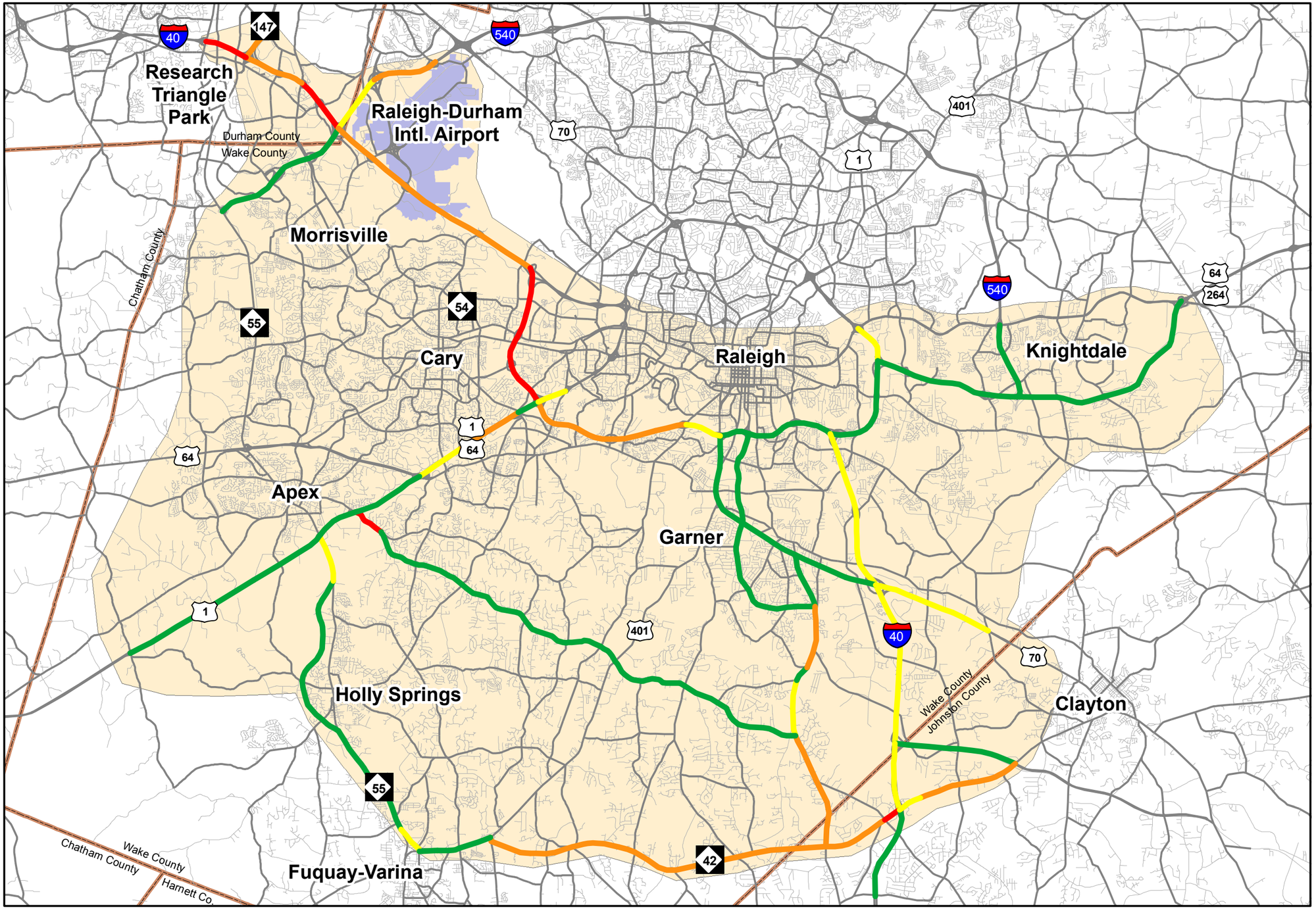
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 5

2008 LOS & V/C Ratios

HNTB Project # 46816

Date: December 2009



N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 1 2 3 4 5 Miles

NORTH CAROLINA Turnpike Authority

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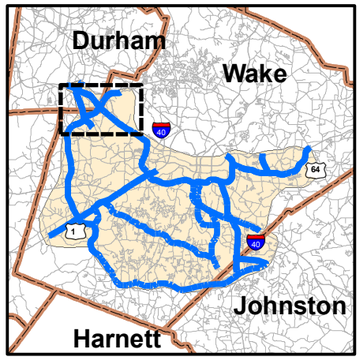
Raleigh, NC 27609

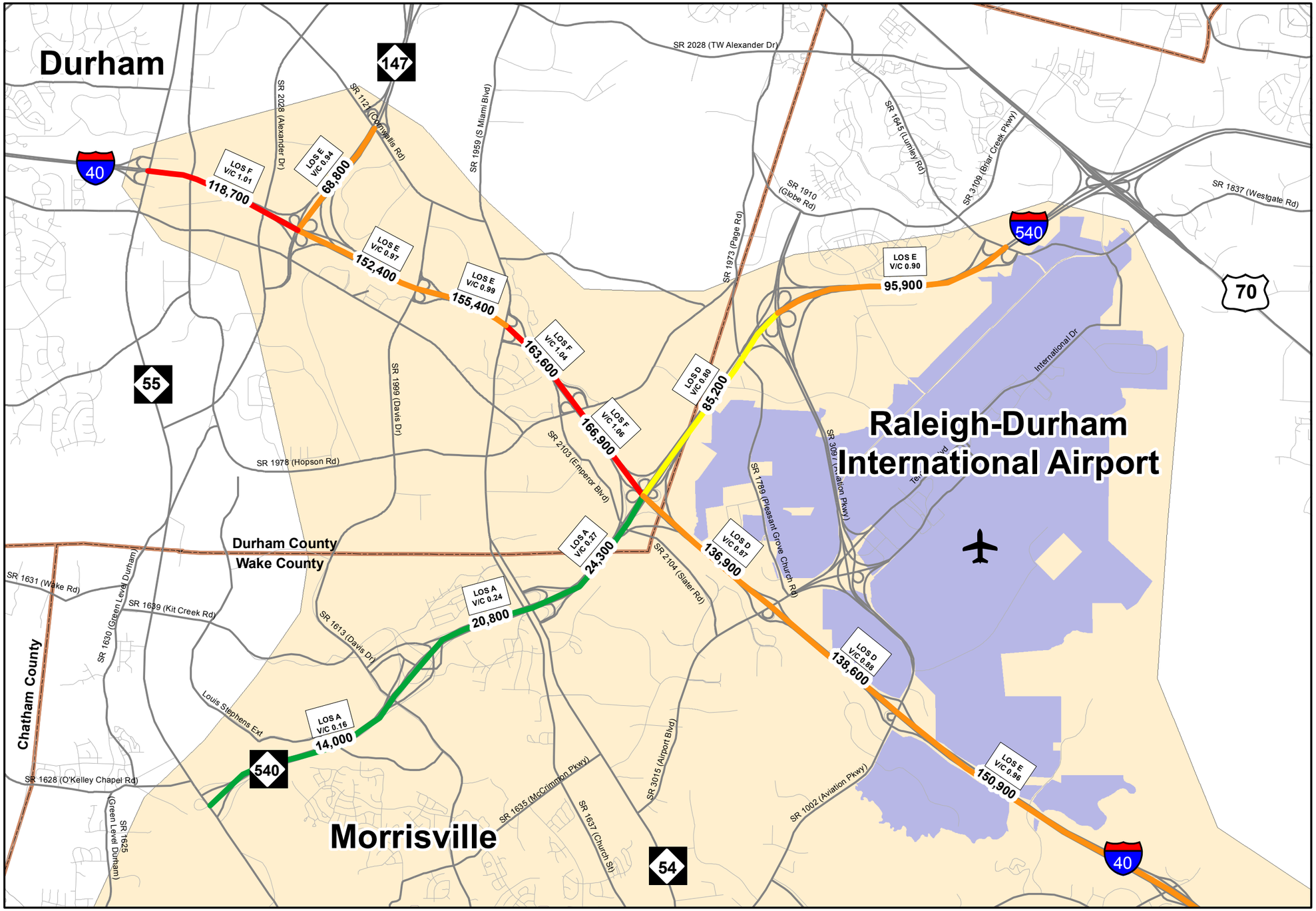
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 5-1

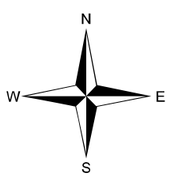
2008 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009







- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- 2008 Highway Network
- Counties
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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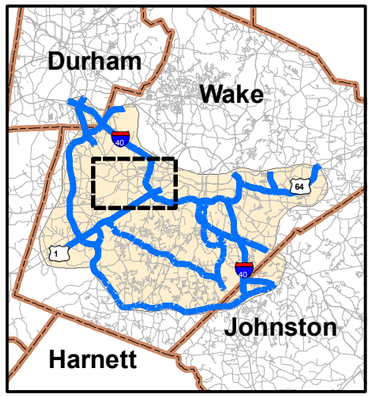
Raleigh, NC 27609

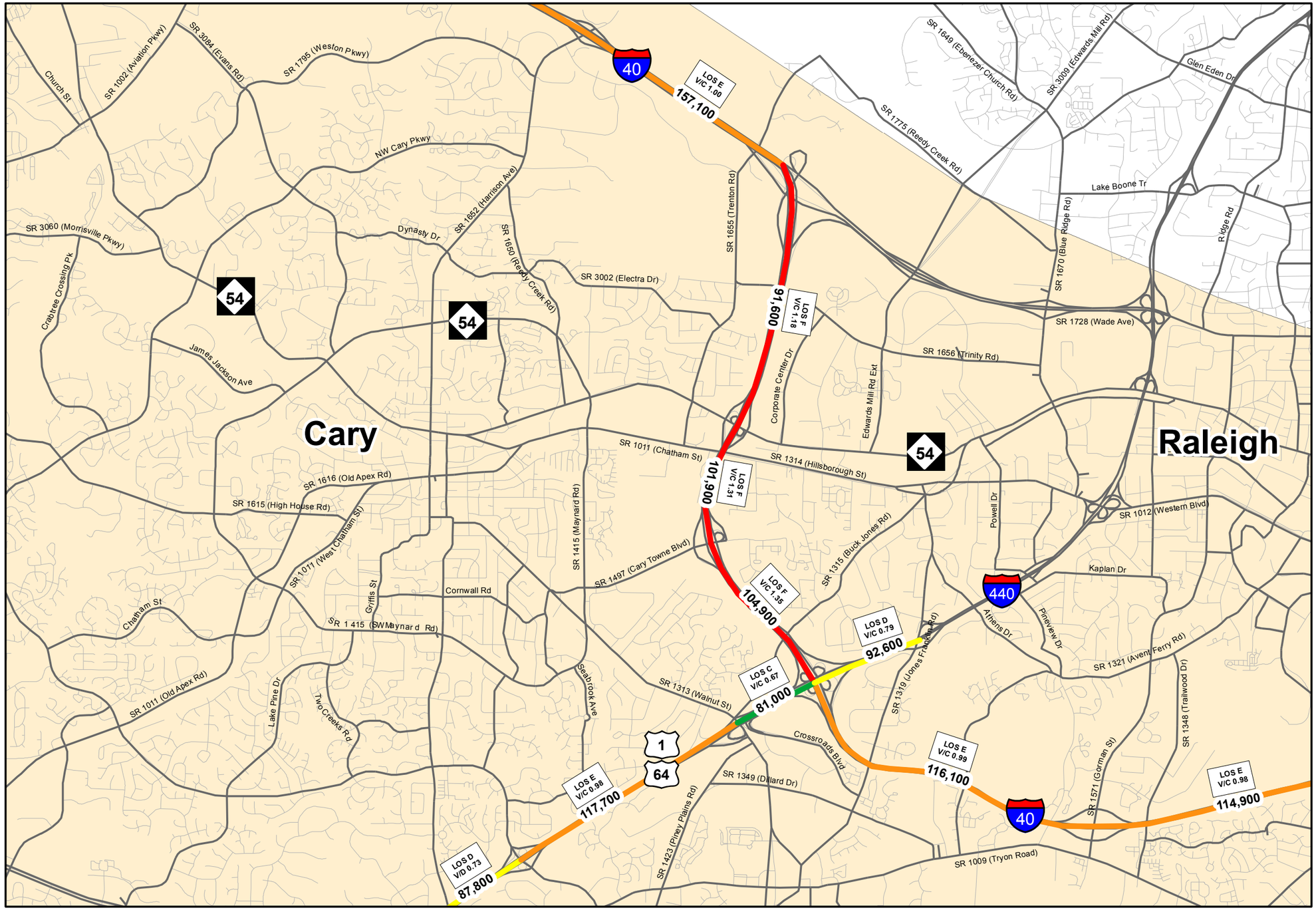
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 5-2

2008 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- 2008 Highway Network
- Counties
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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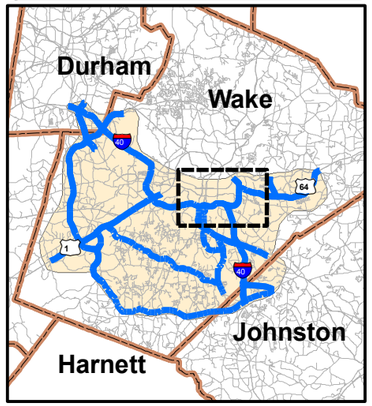
Raleigh, NC 27609

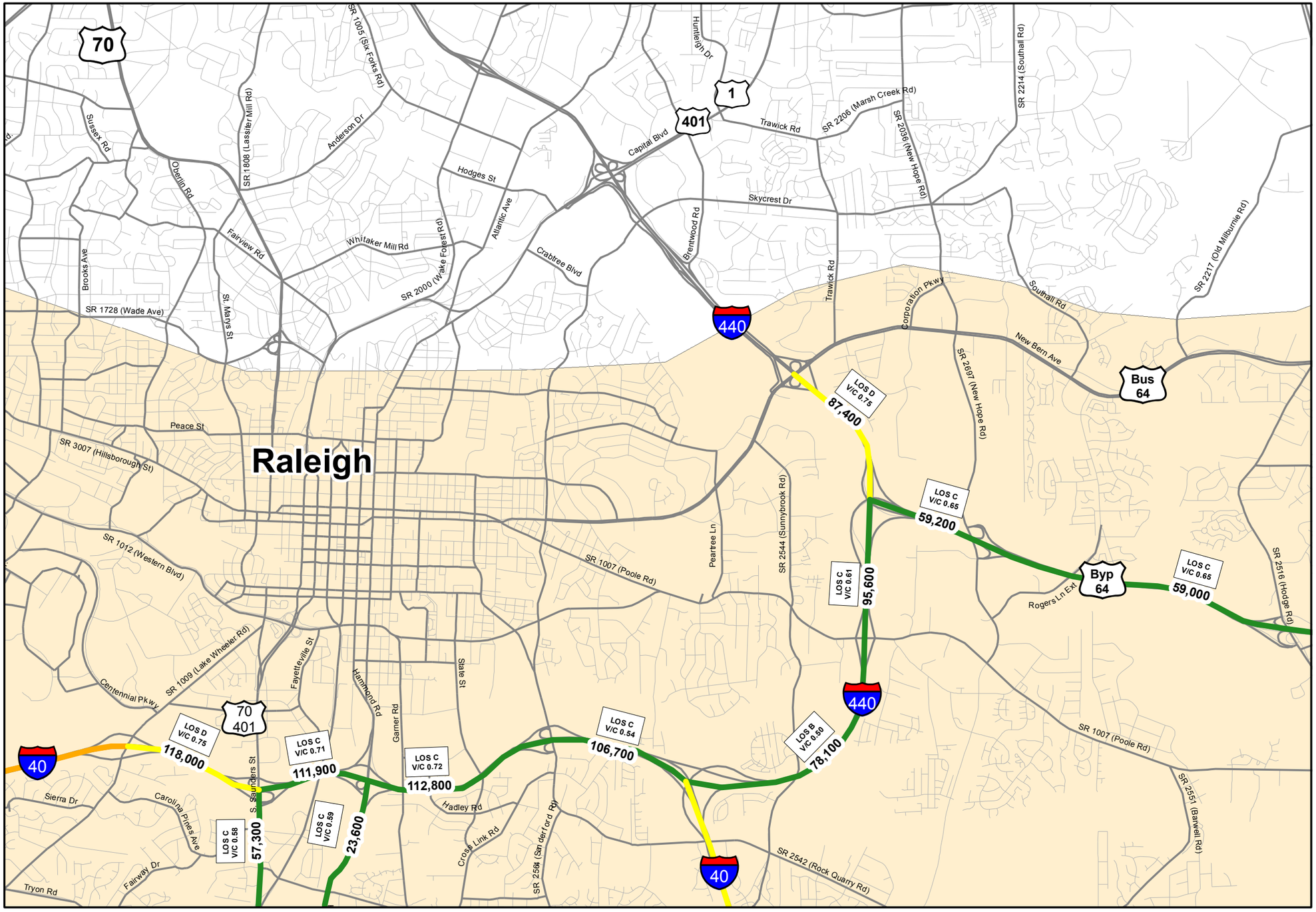
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 5-3

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- 2008 Highway Network
- Counties
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

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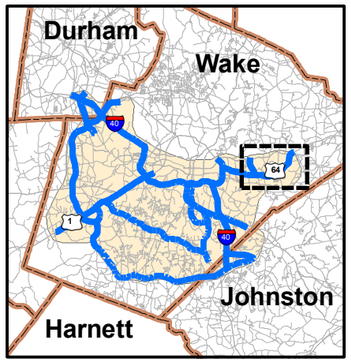
Raleigh, NC 27609

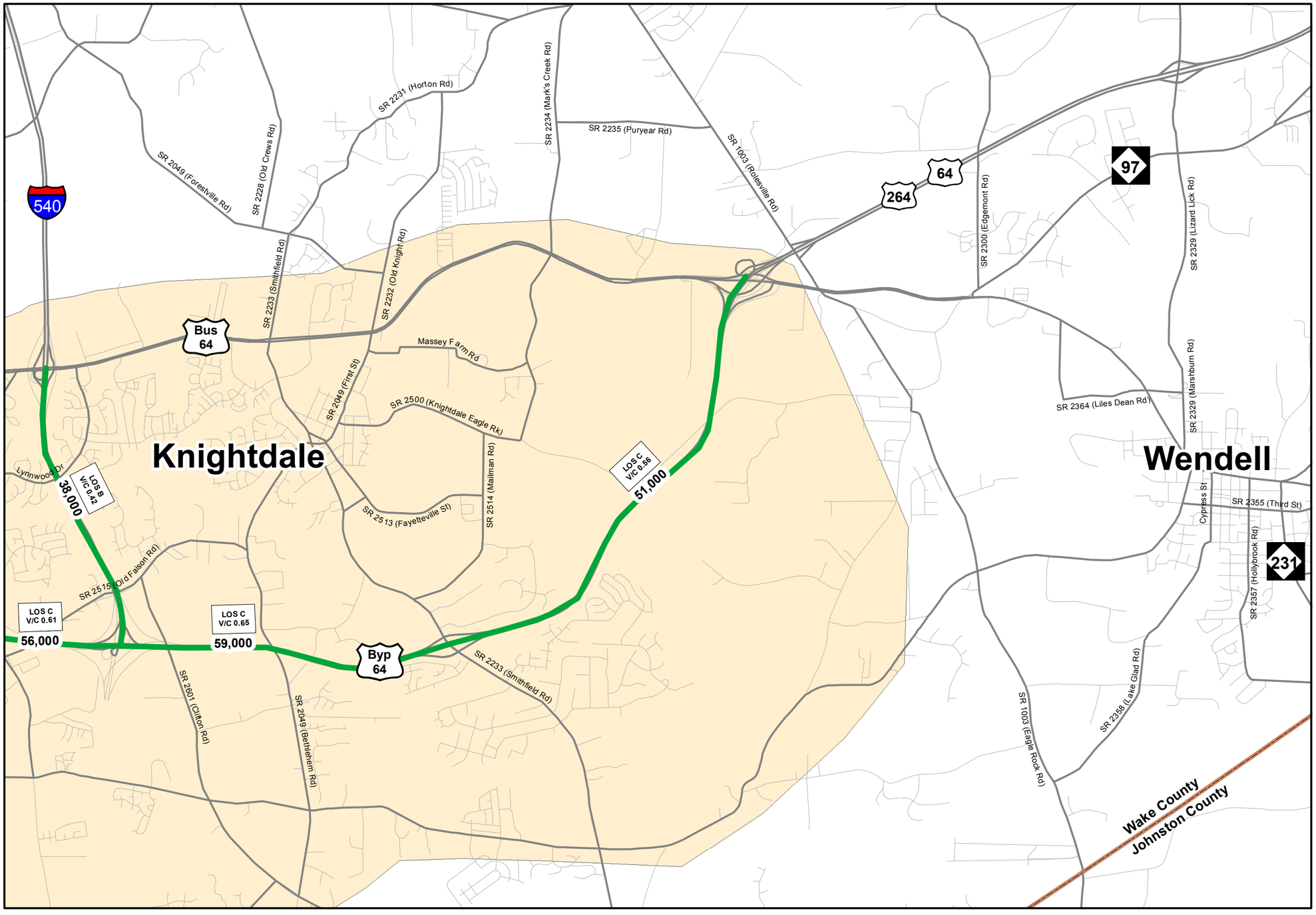
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 5-4

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- 2008 Highway Network
- Counties
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

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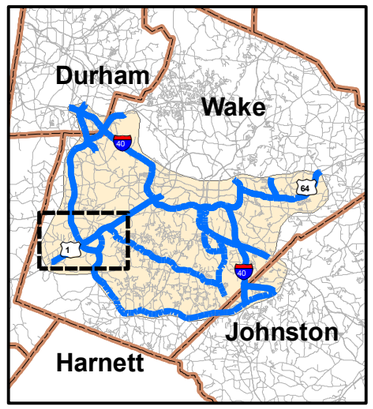
Raleigh, NC 27609

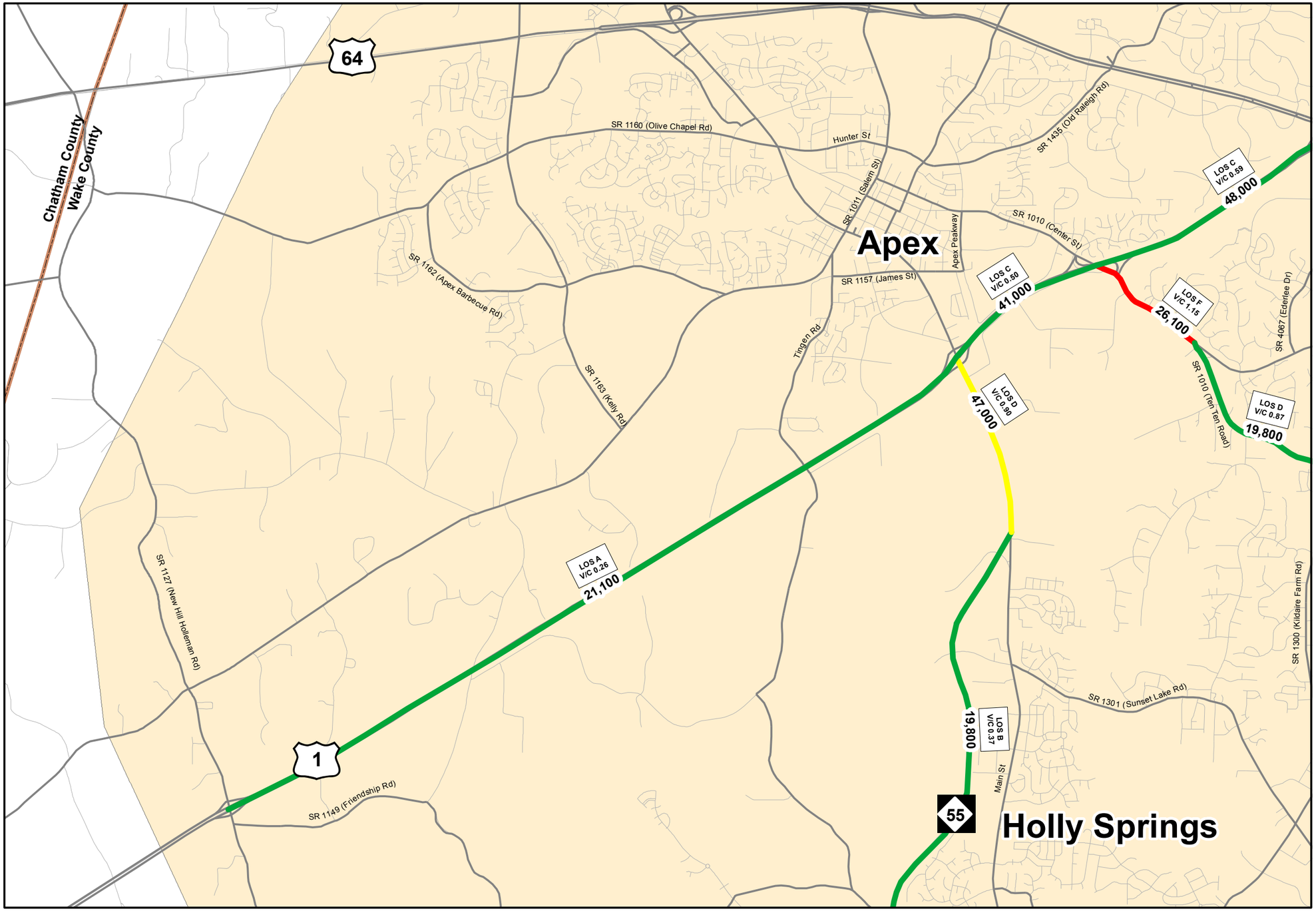
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 5-5

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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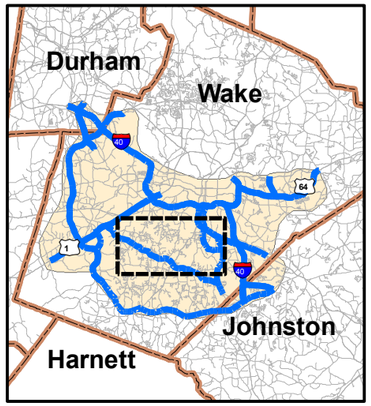
Raleigh, NC 27609

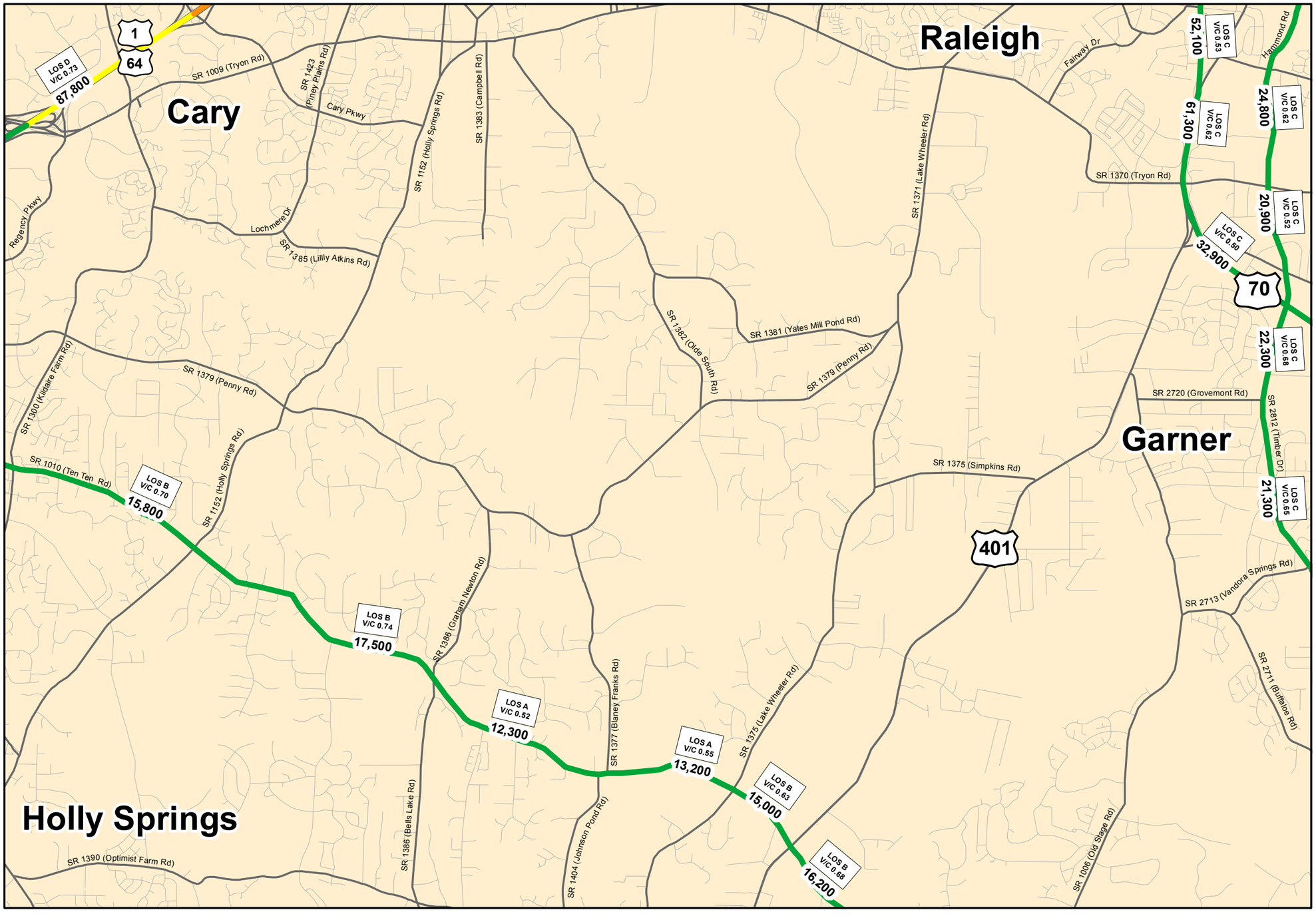
Southern and Eastern Wake Freeway No-Build Traffic Capactiy Analysis
Figure 5-6

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009





N
W E
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LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

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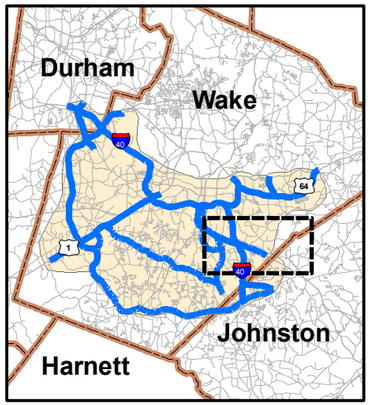
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 5-7

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009



N
W E
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LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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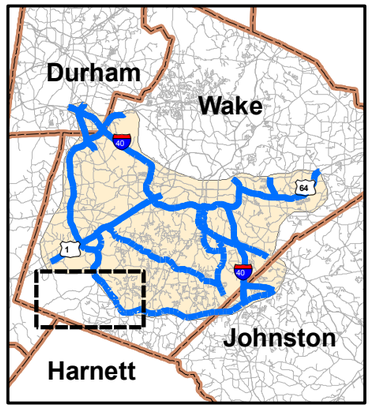
Raleigh, NC 27609

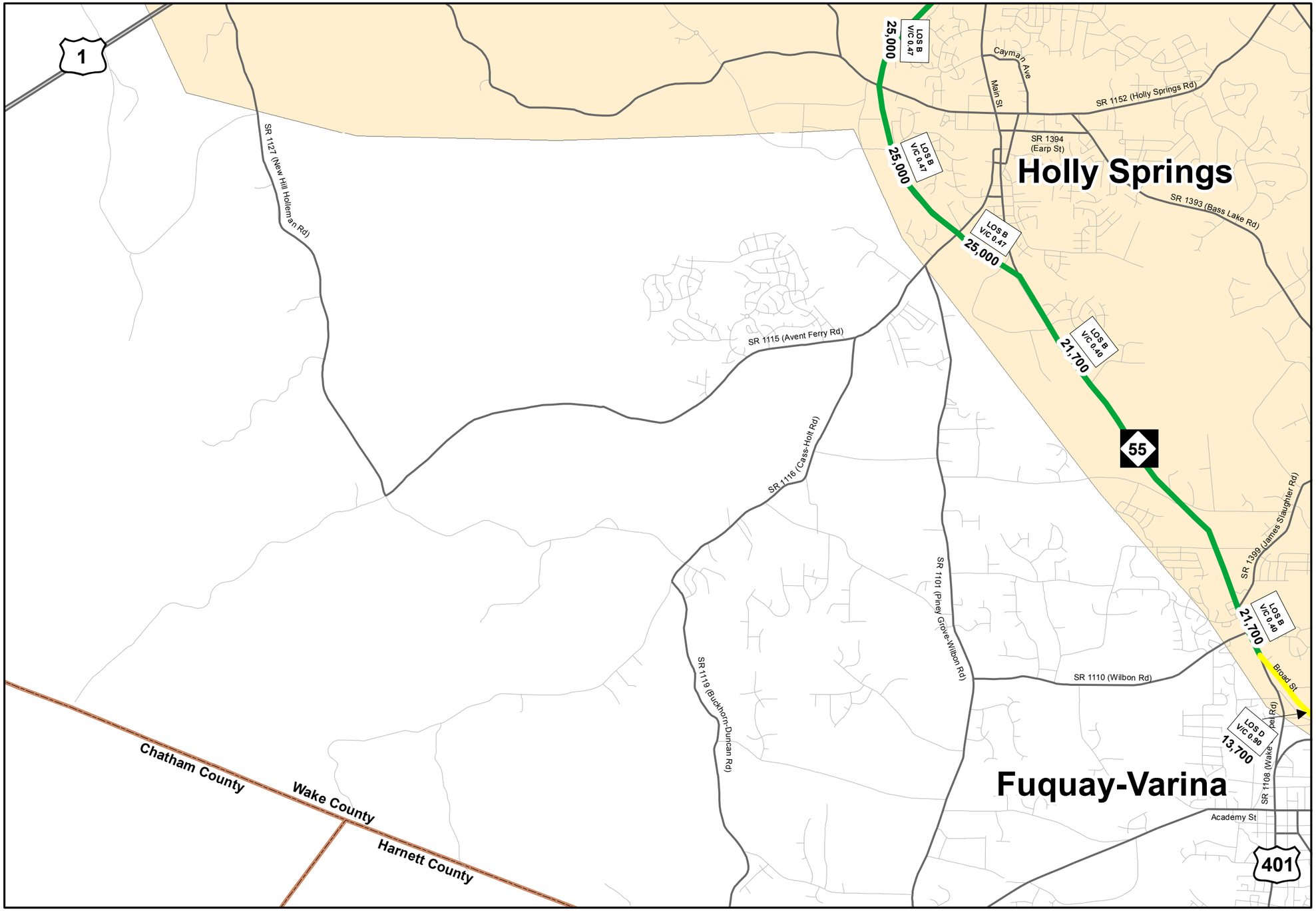
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 5-8

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- 2008 Highway Network
- Counties
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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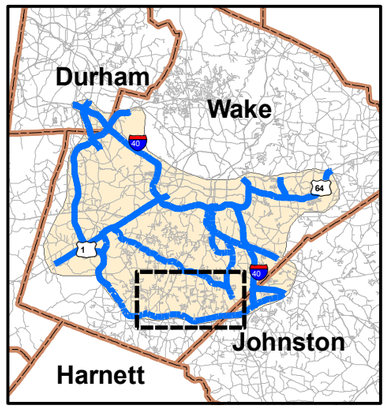
Raleigh, NC 27609

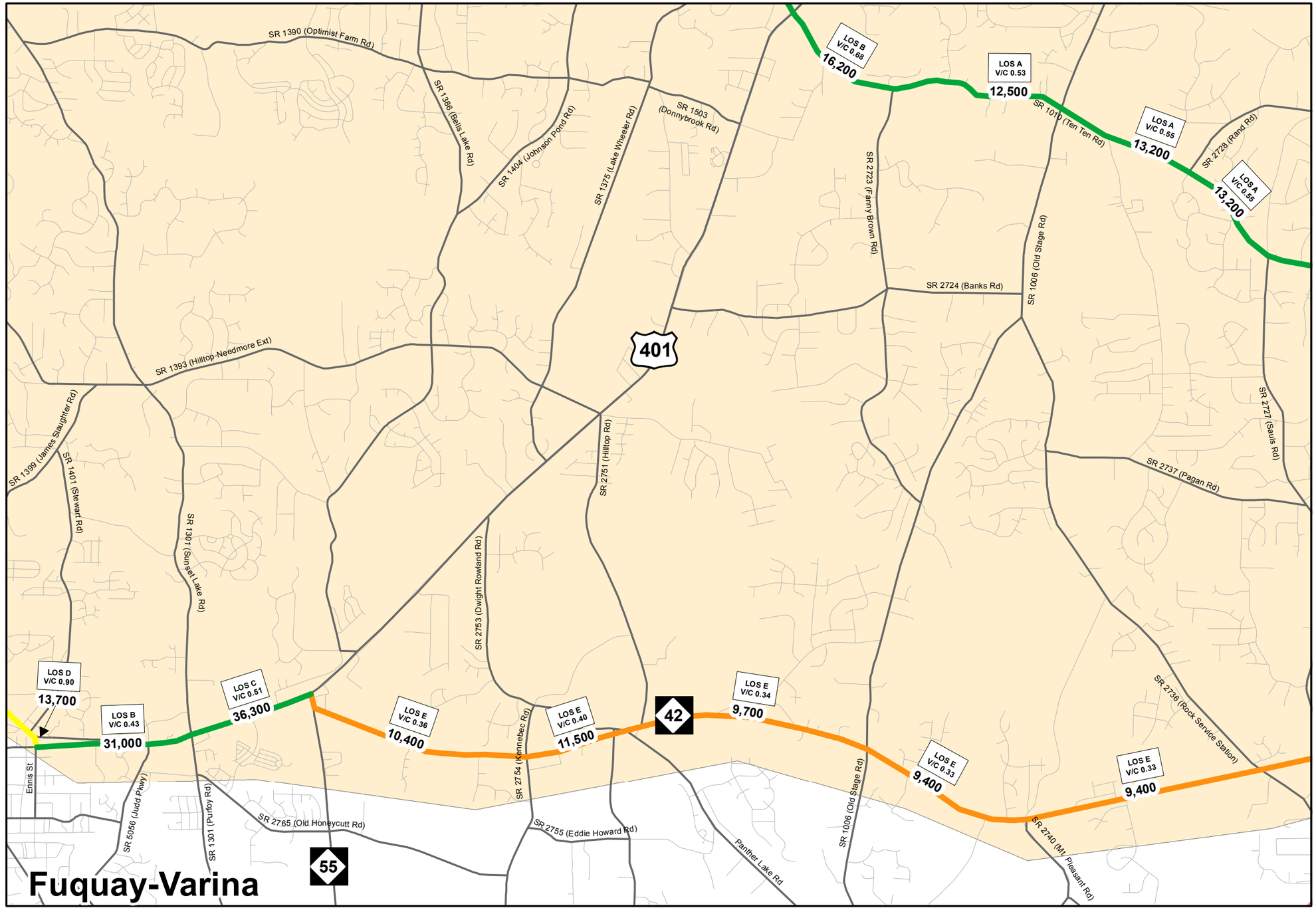
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 5-9

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

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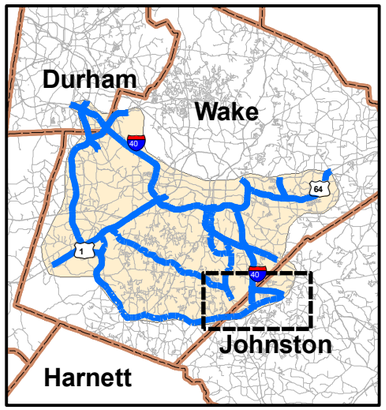
Raleigh, NC 27609

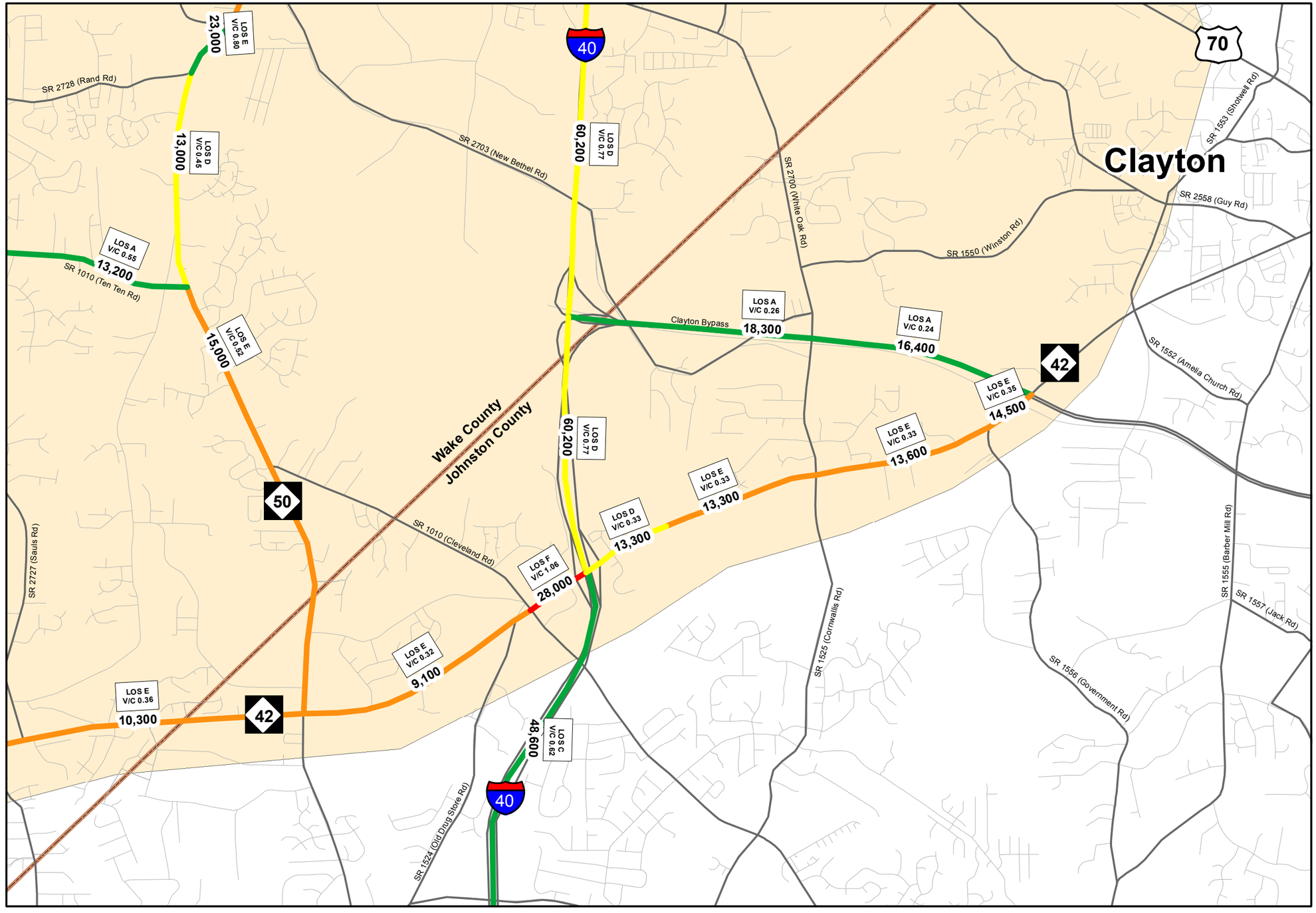
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 5-10

2008 LOS and V/C Ratio

HNTB Project # 46816

Date: December 2009





N
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LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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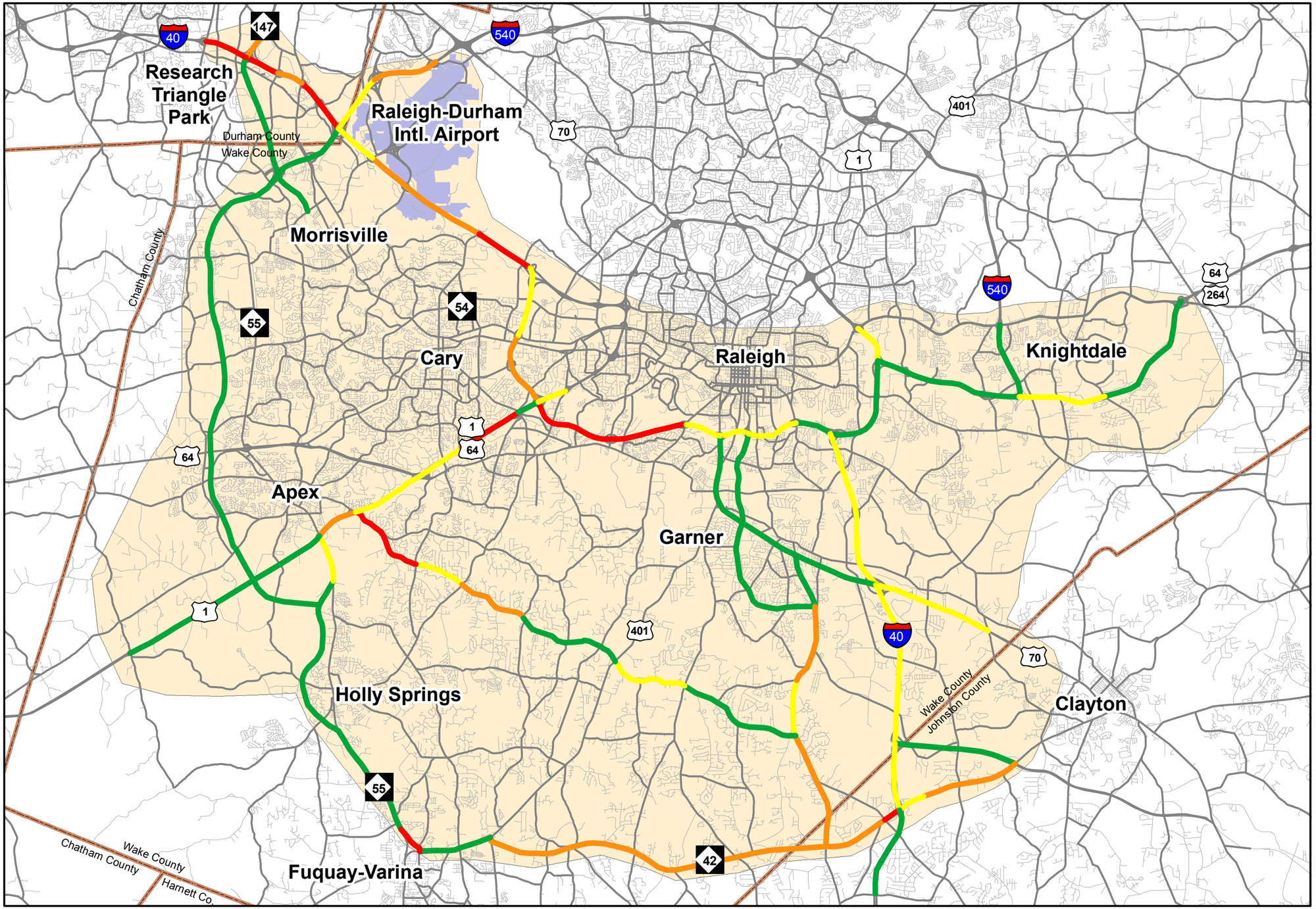
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6

2011 LOS & V/C Ratios

HNTB Project # 46816

Date: December 2009



N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 1 2 3 4 5 Miles

NORTH CAROLINA Turnpike Authority

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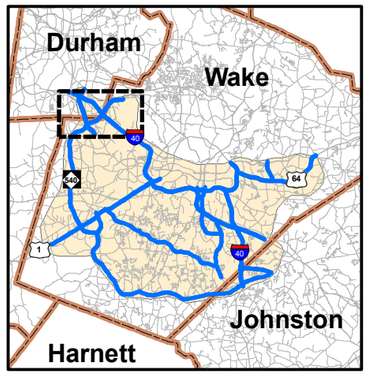
Raleigh, NC 27609

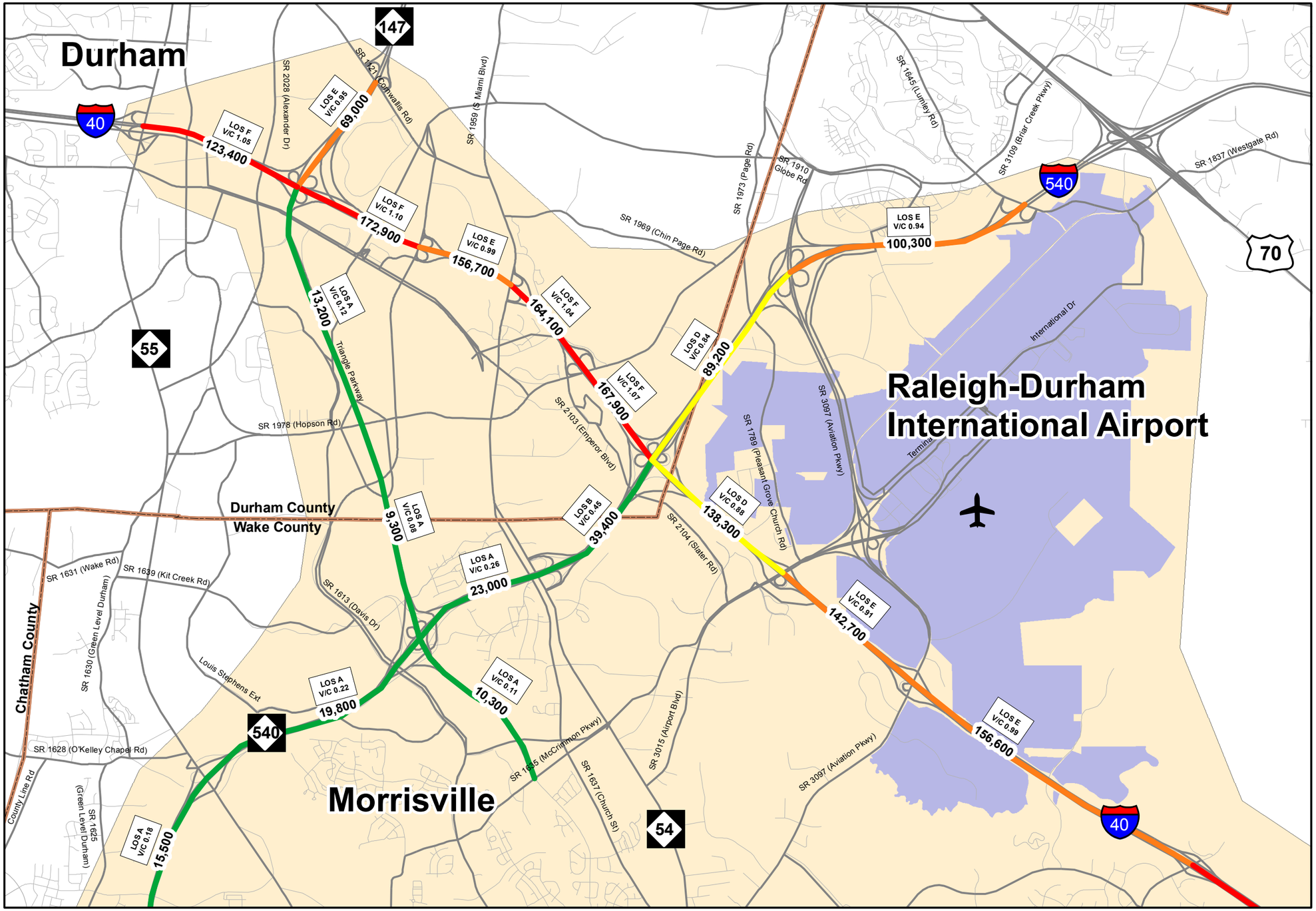
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 6-1

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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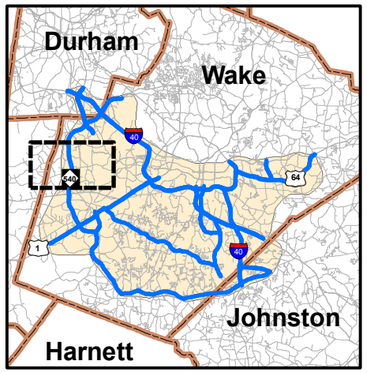
Raleigh, NC 27609

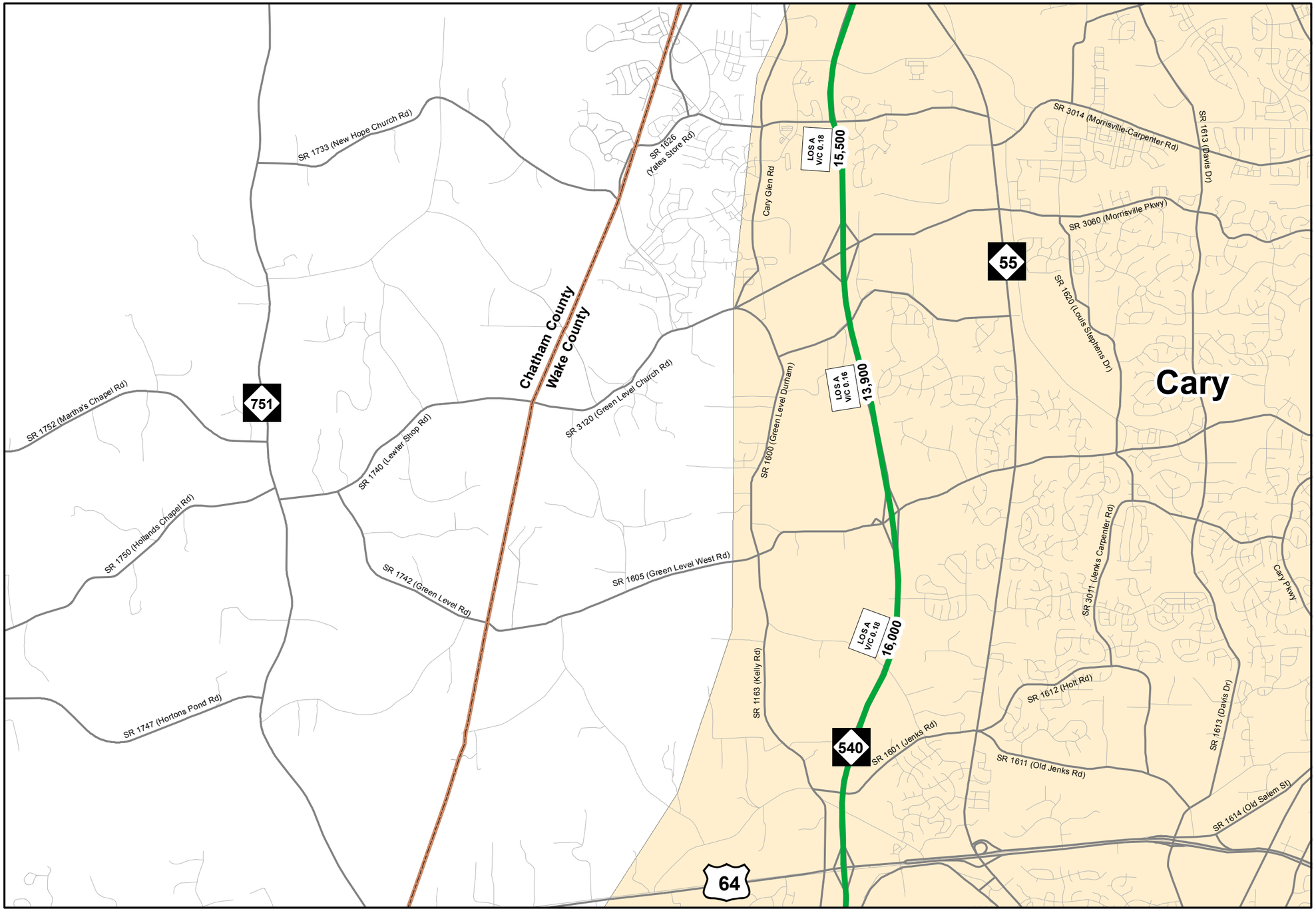
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6-2

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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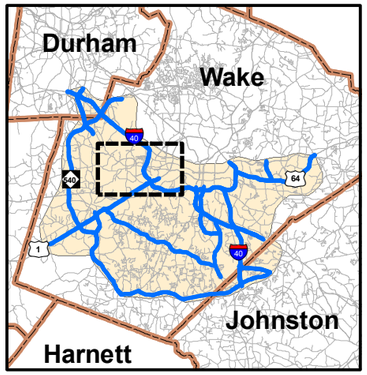
Raleigh, NC 27609

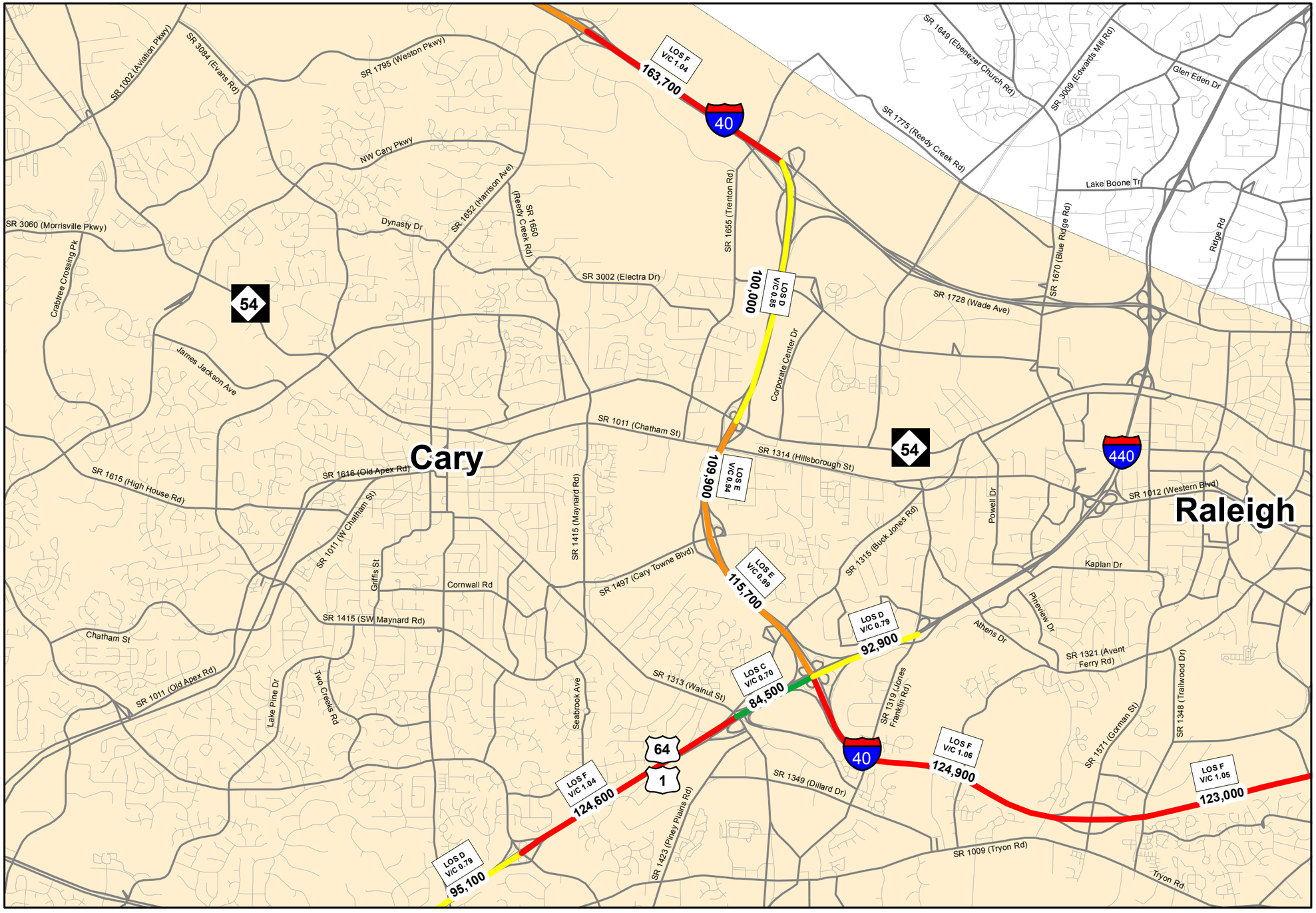
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6-3

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2011 Highway Network
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

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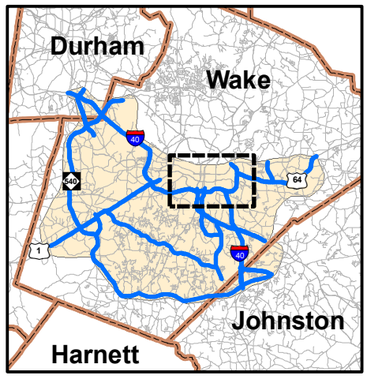
Raleigh, NC 27609

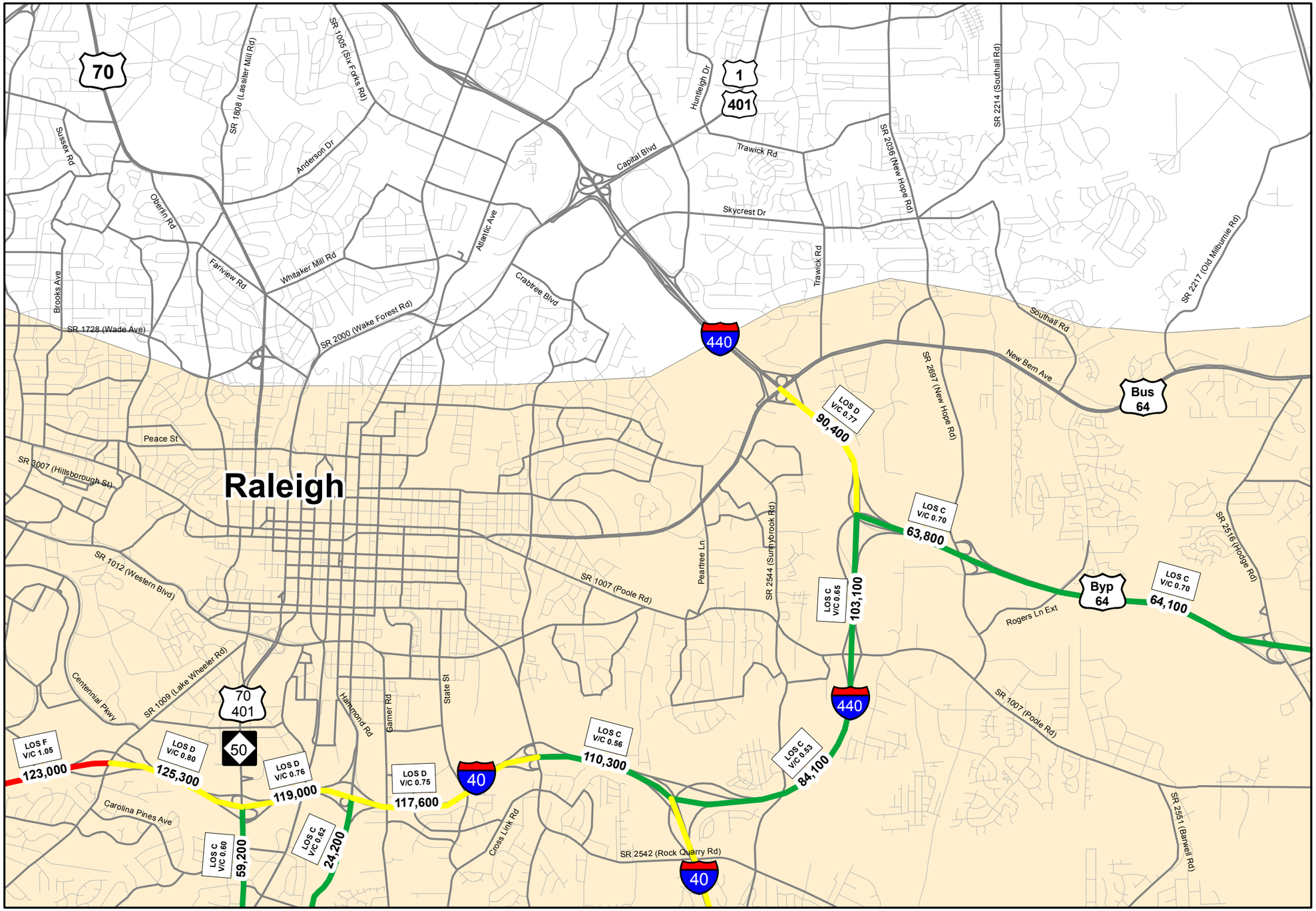
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6-4

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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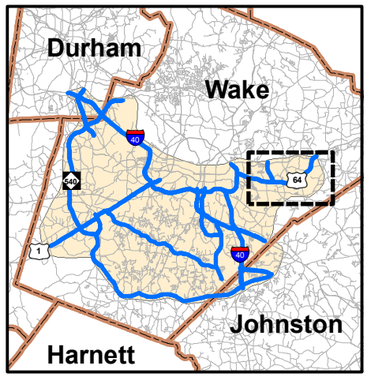
Raleigh, NC 27609

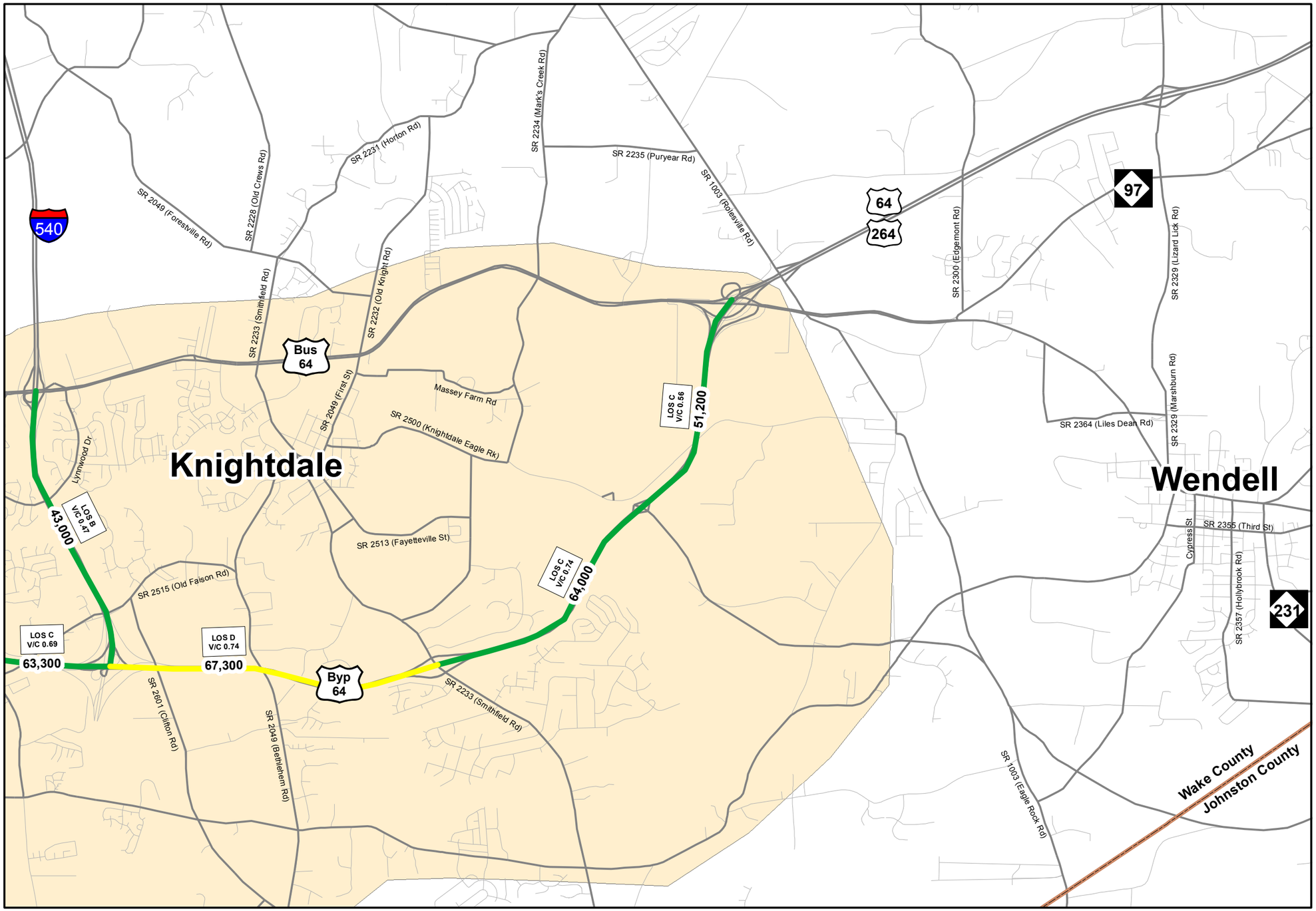
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6-5

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2011 Highway Network
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

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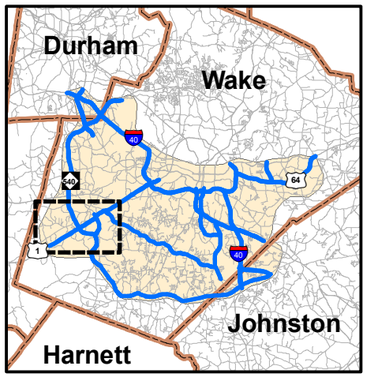
Raleigh, NC 27609

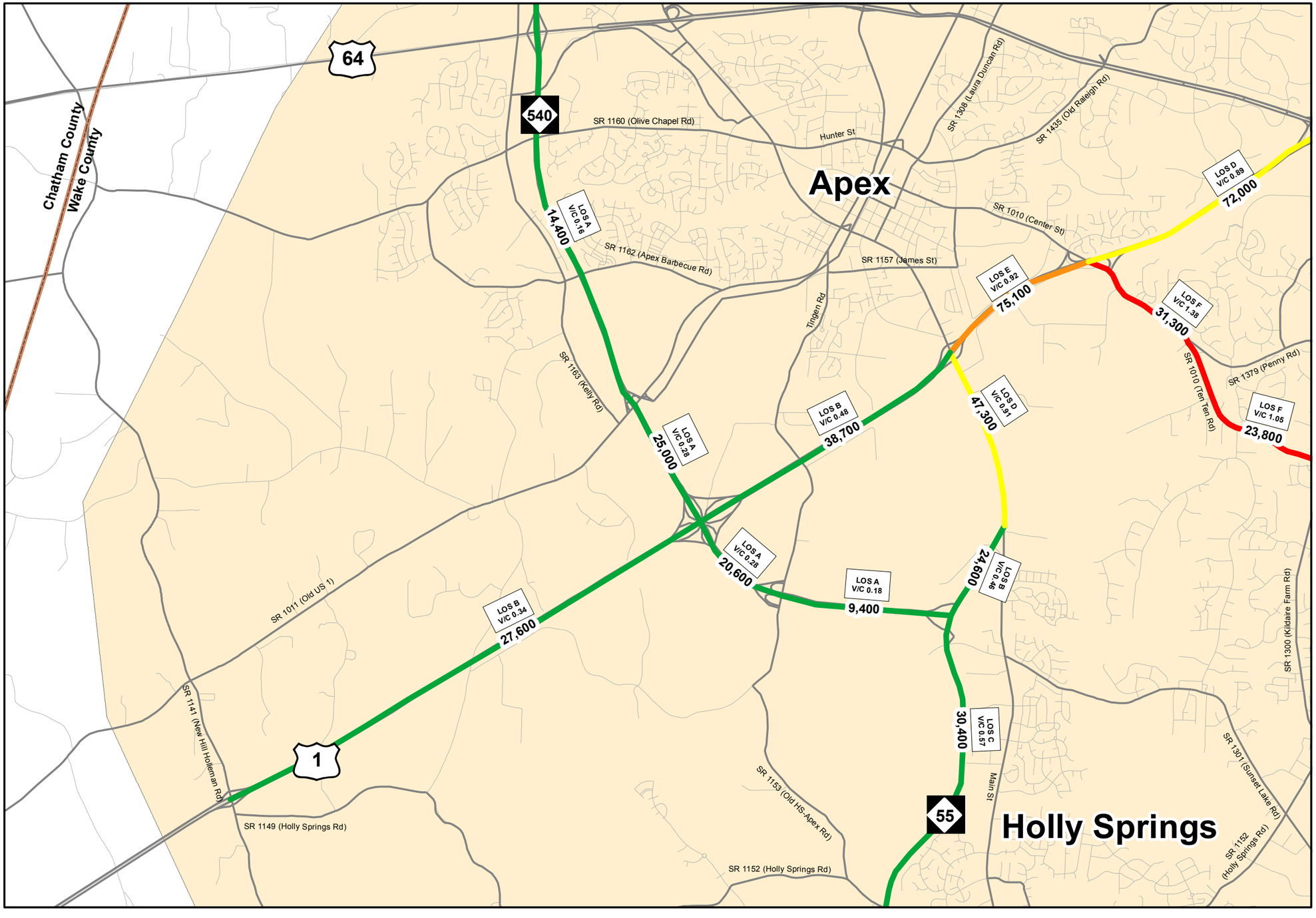
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6-6

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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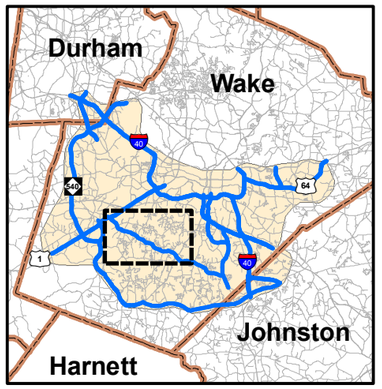
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 6-7

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009



N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

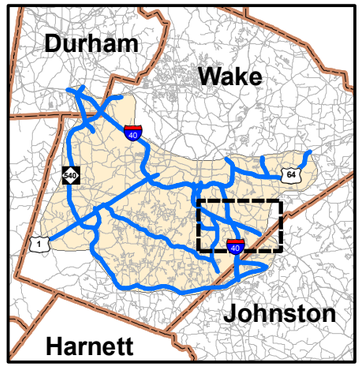
HNTB, North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6-8

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009



LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2011 Highway Network
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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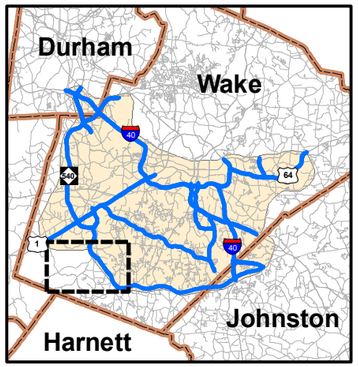
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

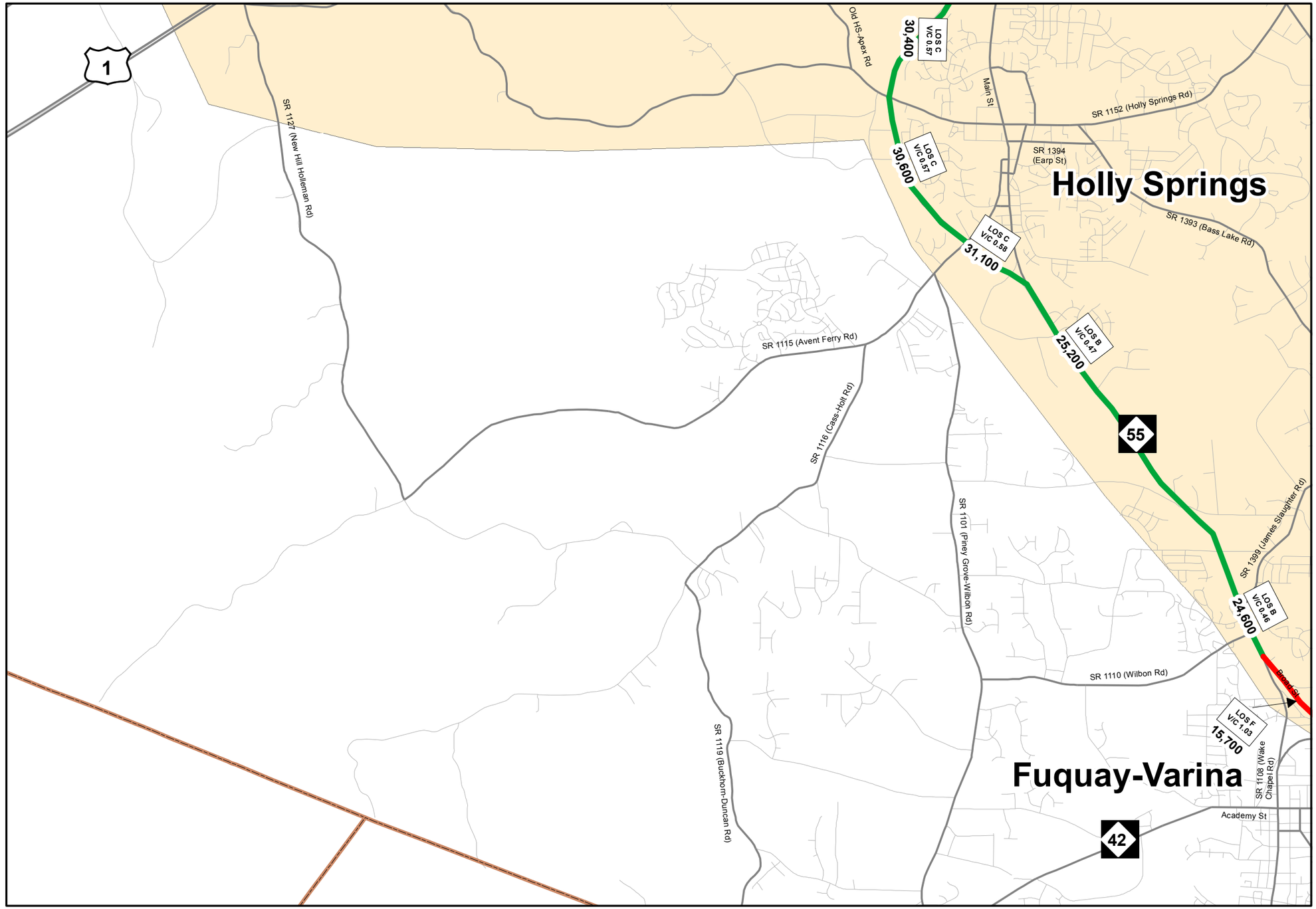
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 6-9

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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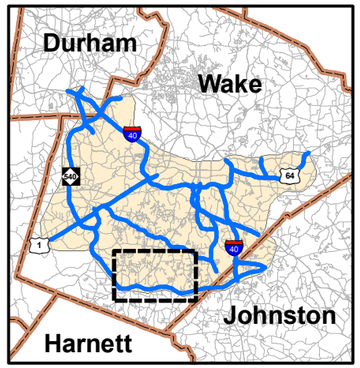
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 6-10

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009



N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2011 Highway Network
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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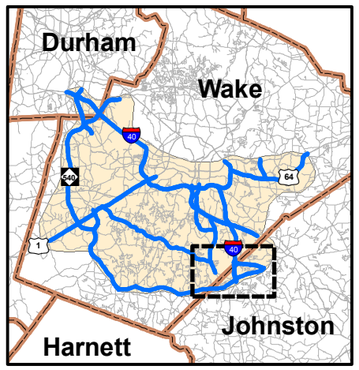
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

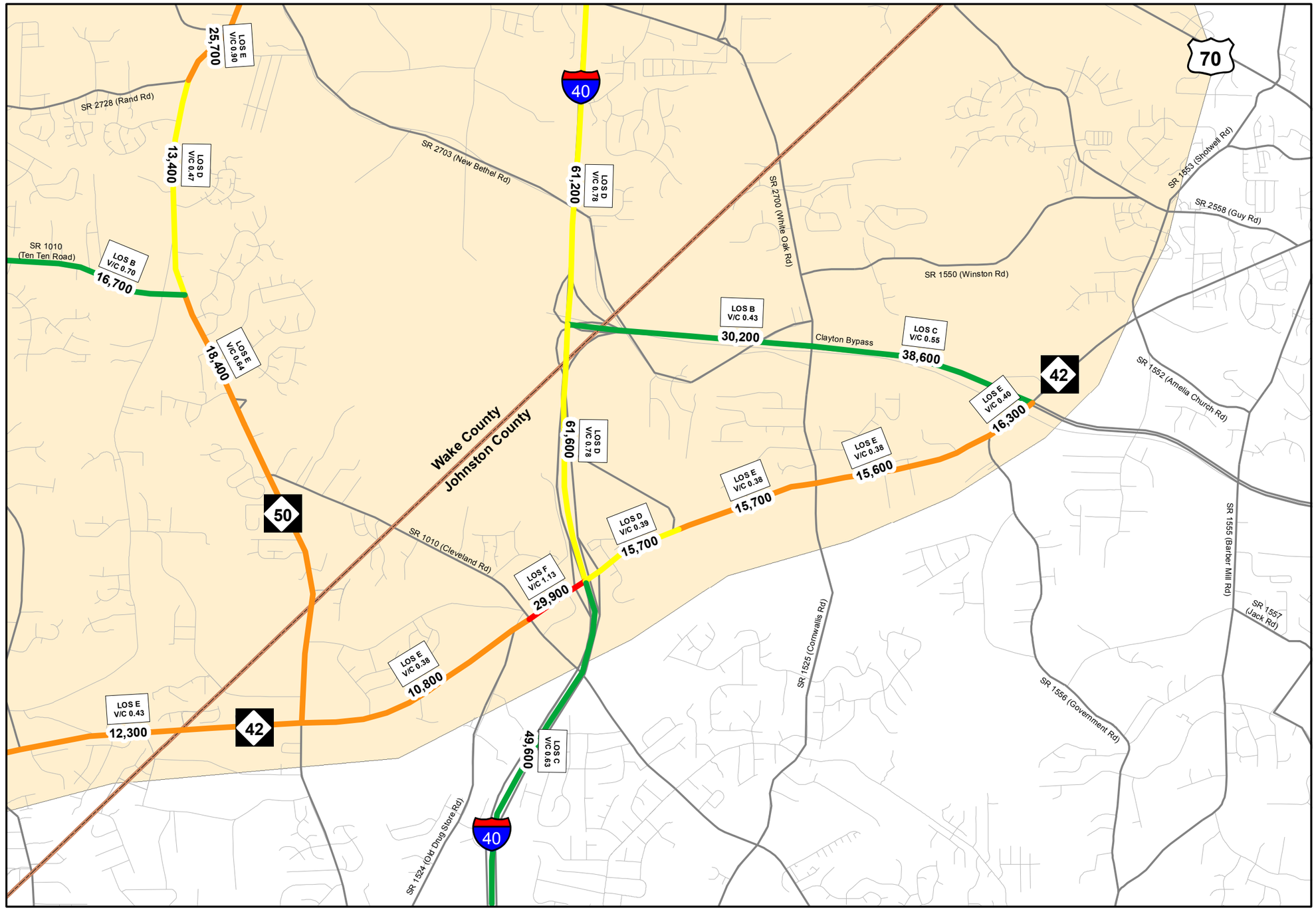
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 6-11

2011 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

HNTB, North Carolina, PC
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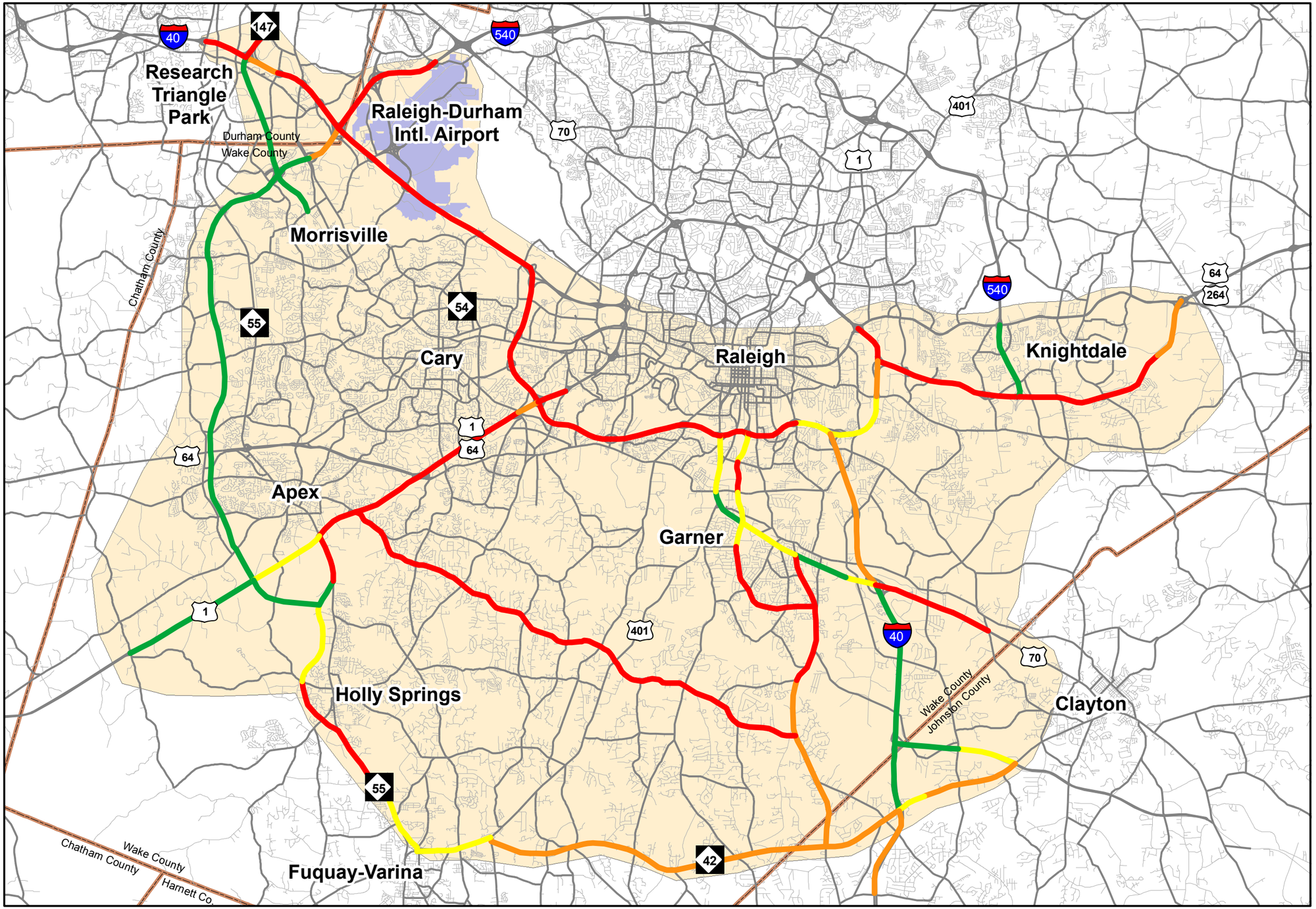
Raleigh, NC 27609

Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7

2035 LOS & V/C Ratios

HNTB Project # 46816

Date: December 2009



N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

2008 Highway Network
Counties
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 1 2 3 4 5 Miles

NORTH CAROLINA Turnpike Authority

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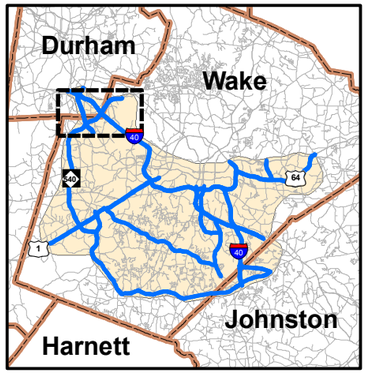
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

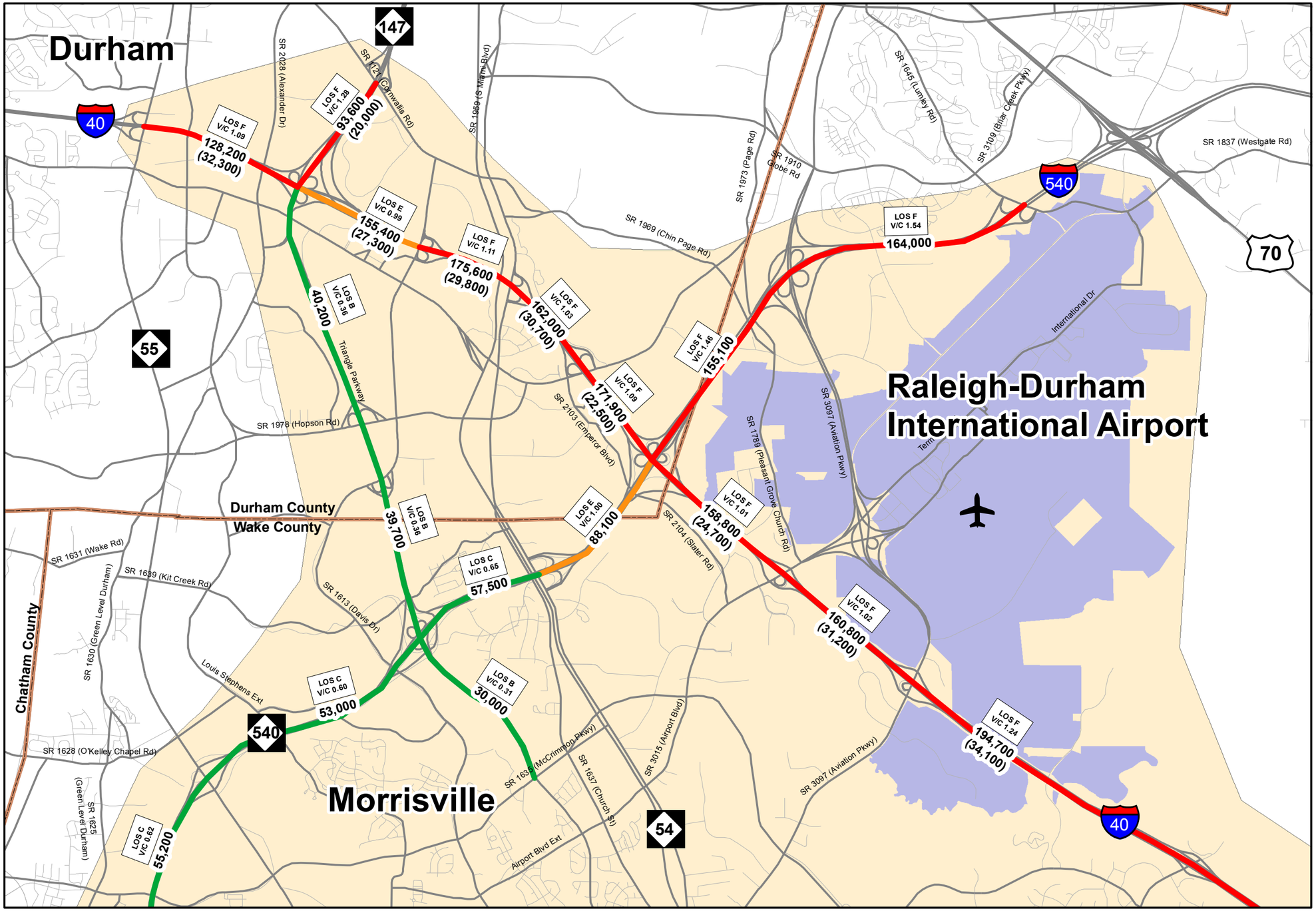
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-1

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2035 Highway Network
Study Area

*High Occupancy Vehicle (HOV) Volumes in Parentheses.

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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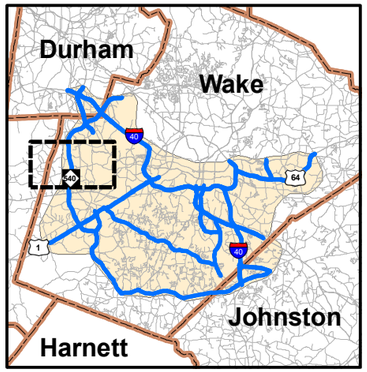
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

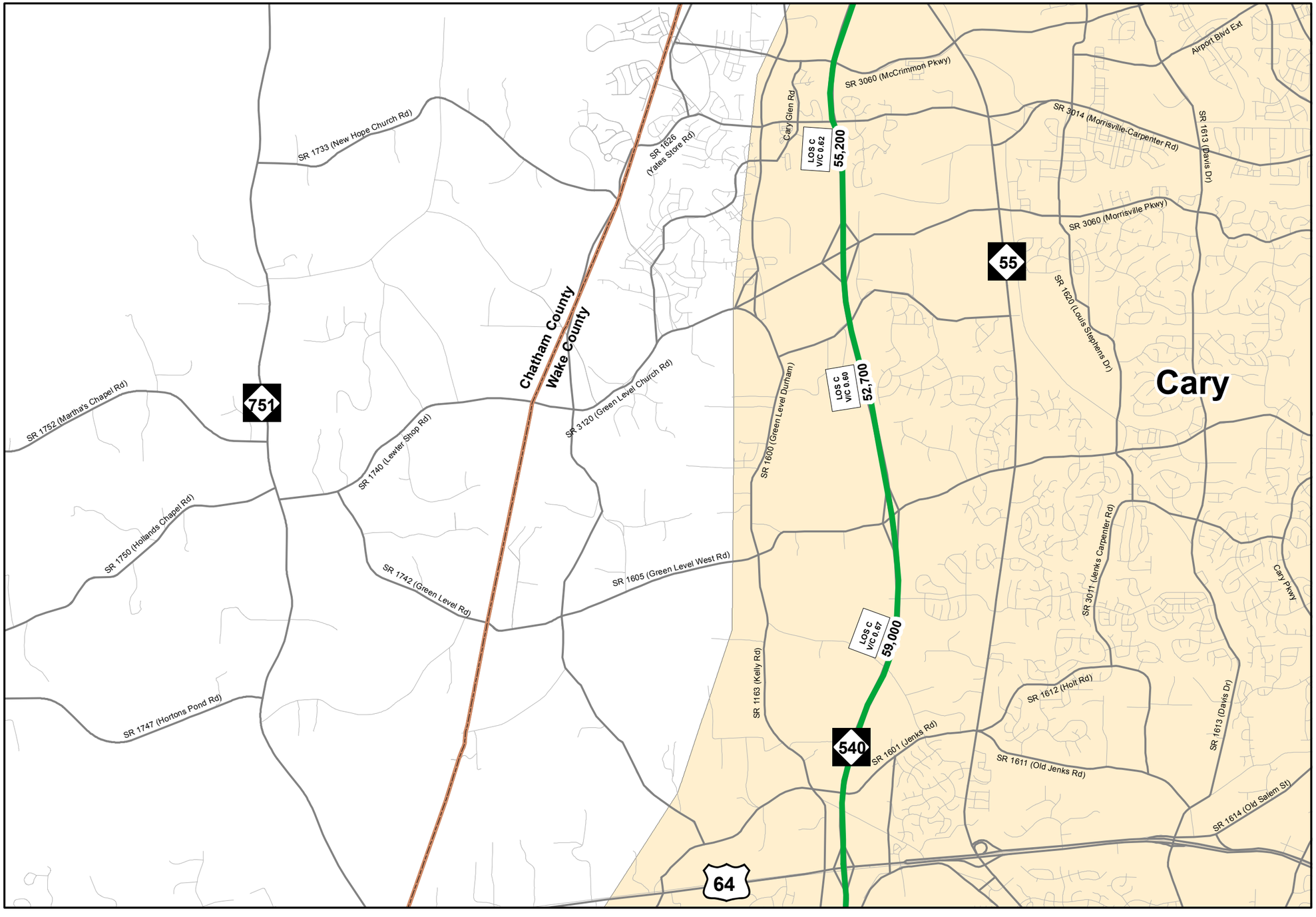
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-2

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2035 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

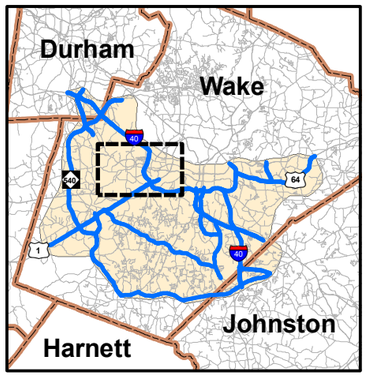
HNTB, North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

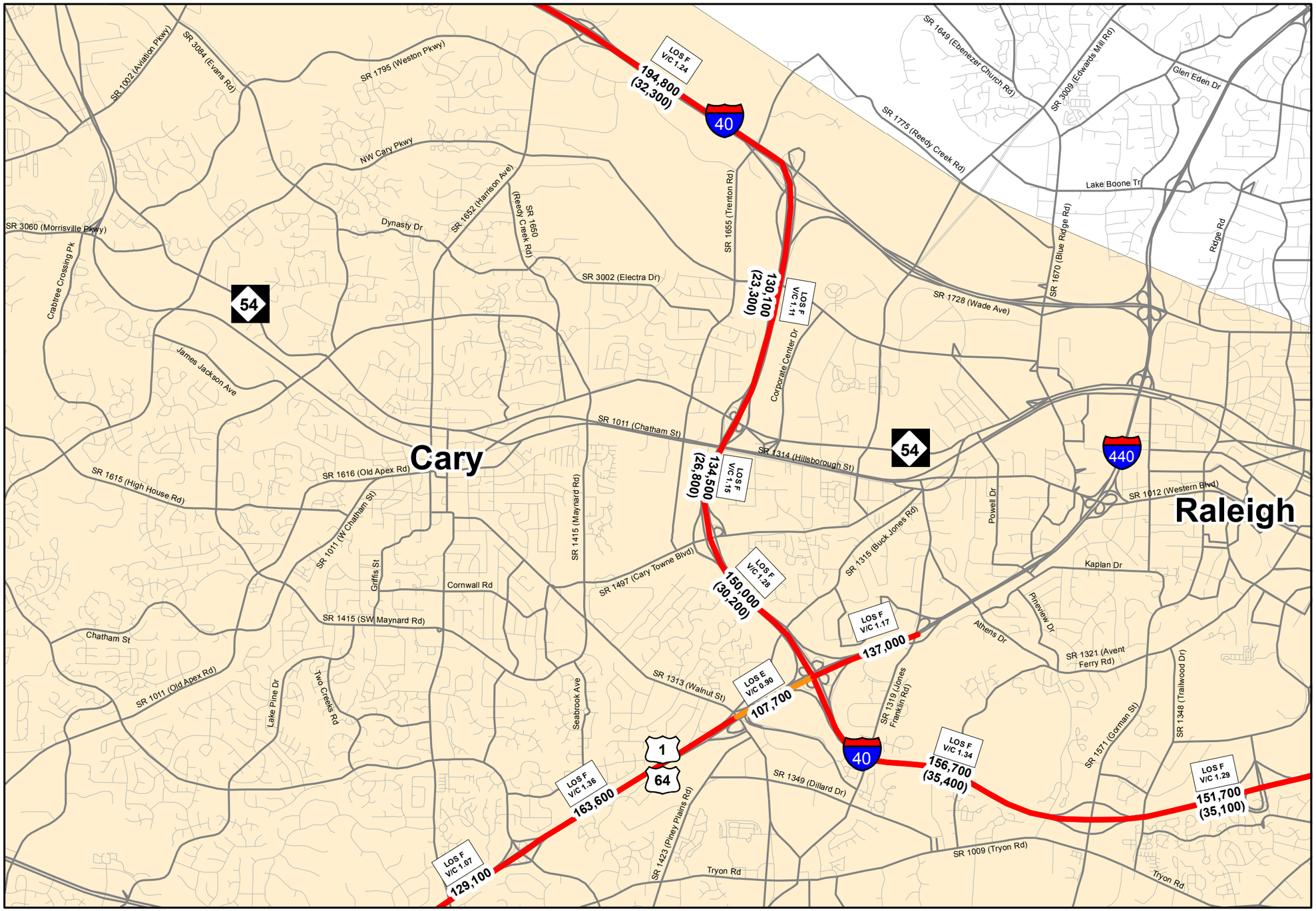
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-3

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2035 Highway Network
- Study Area

***High Occupancy Vehicle (HOV) Volumes in Parentheses.**

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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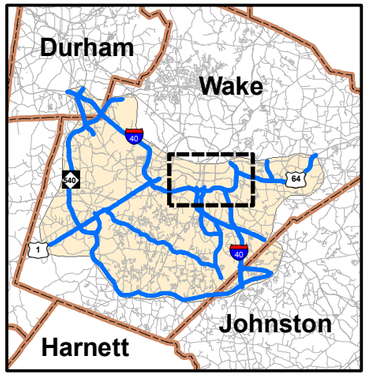
Raleigh, NC 27609

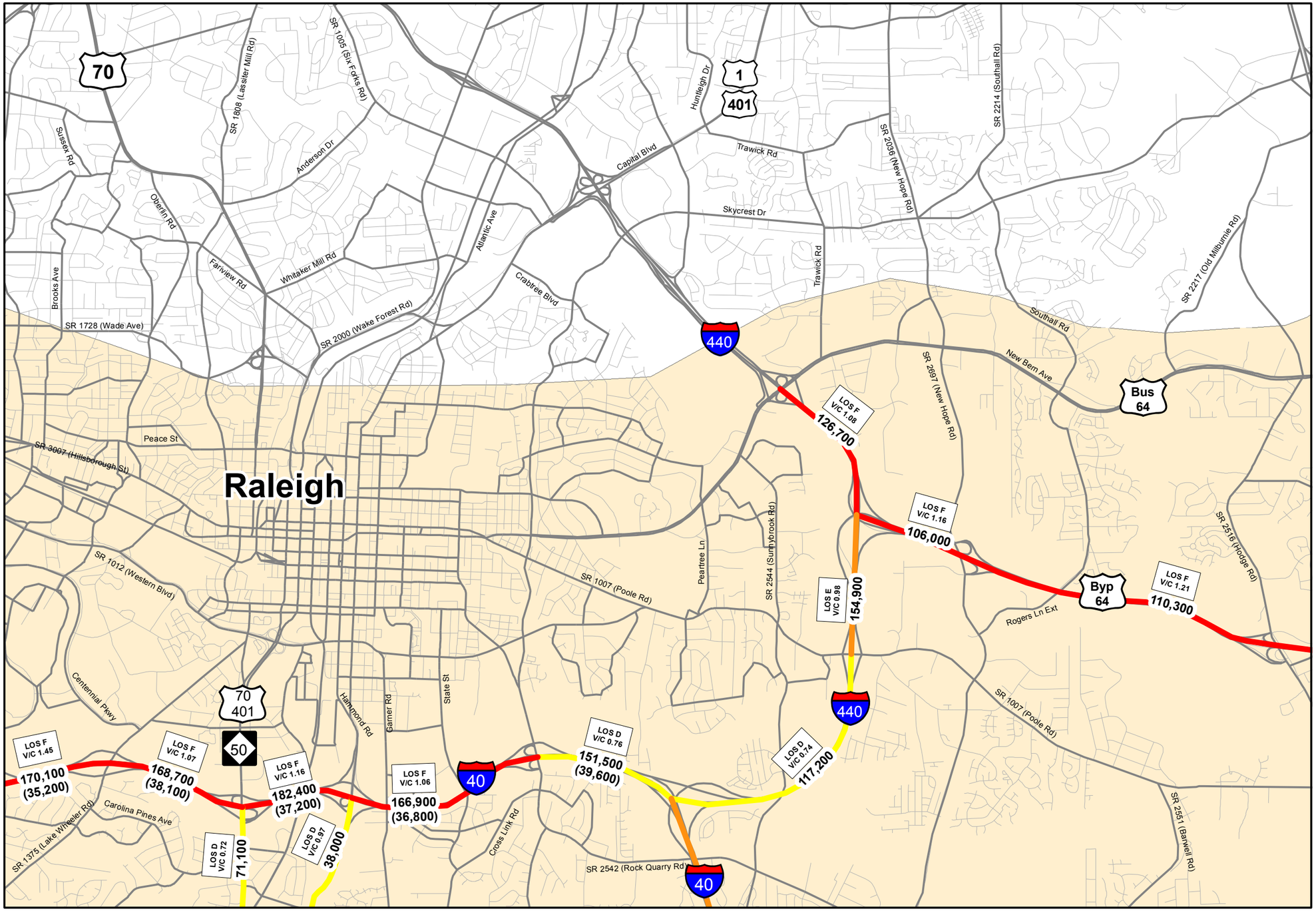
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-4

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2035 Highway Network
- Study Area

***High Occupancy Vehicle (HOV) Volumes in Parentheses.**

LOS = Level of Service

V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

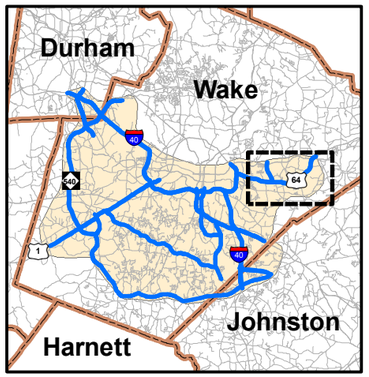
HNTB, North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

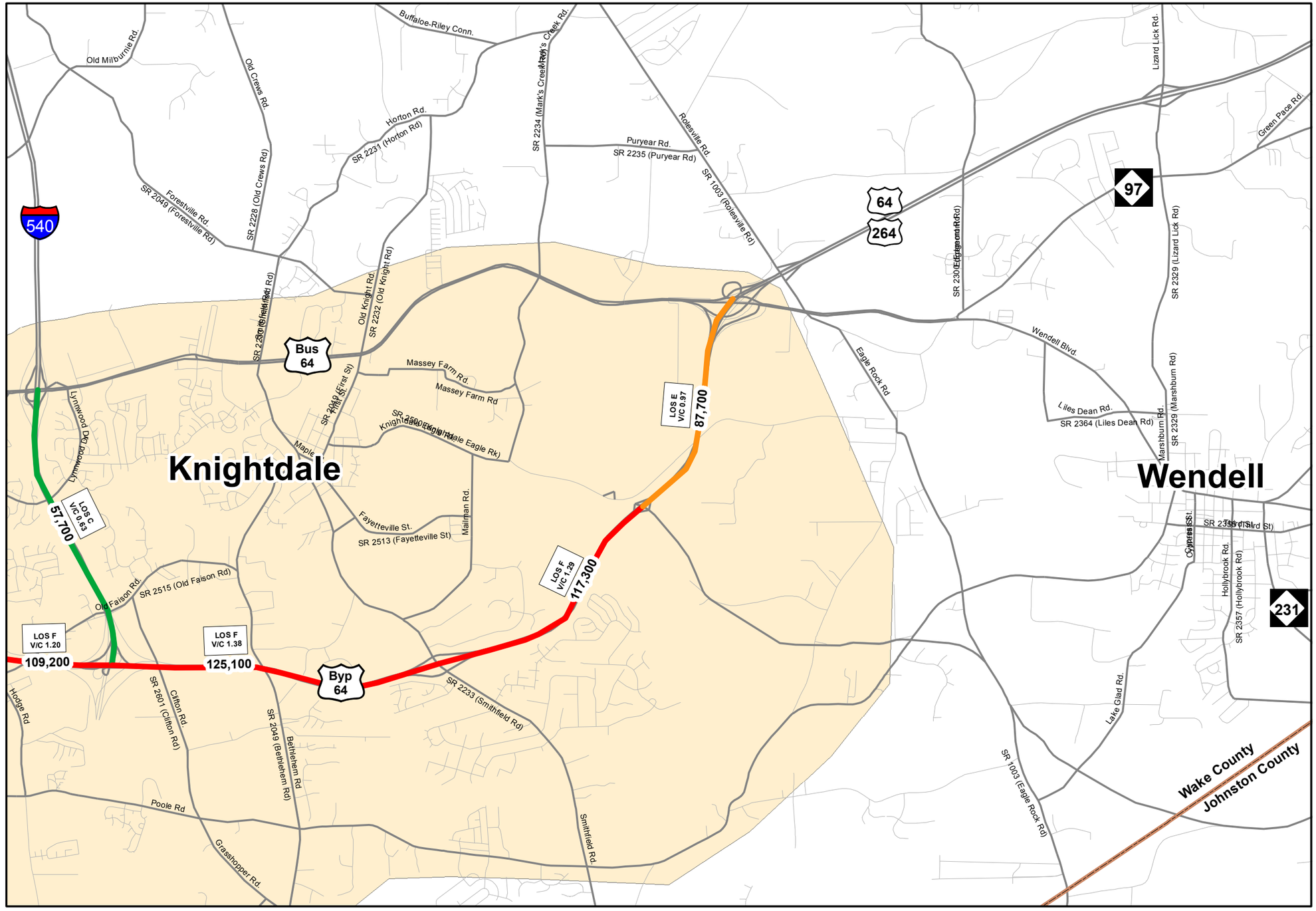
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-5

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
Highway Network
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

HNTB, North Carolina, PC
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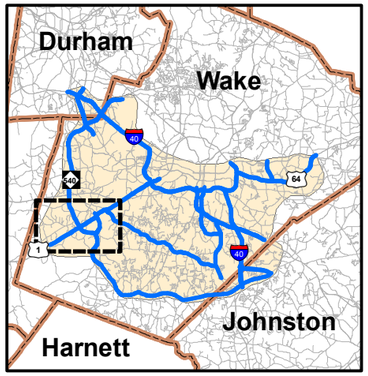
Raleigh, NC 27609

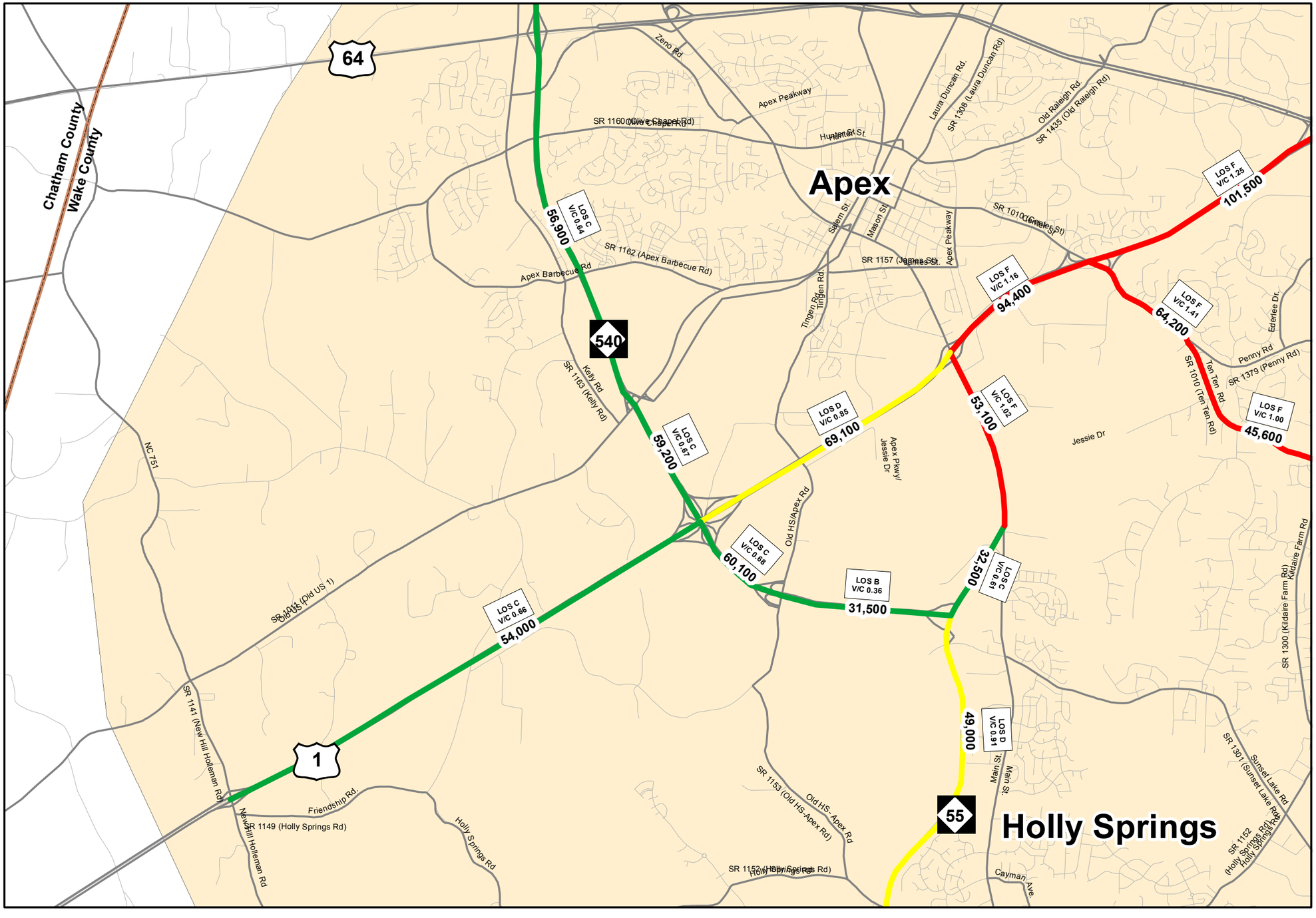
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 7-6

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

- LOS A-C
- LOS D
- LOS E
- LOS F

Legend

- Counties
- 2011 Highway Network
- Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

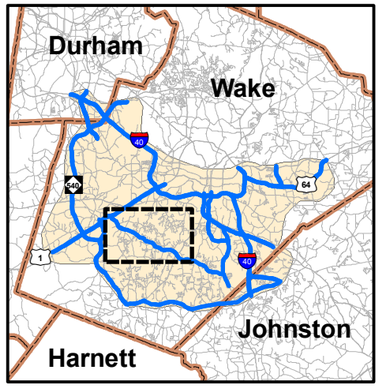
HNTB, North Carolina, PC
343 East Six Forks Road, Suite 200
Raleigh, NC 27609

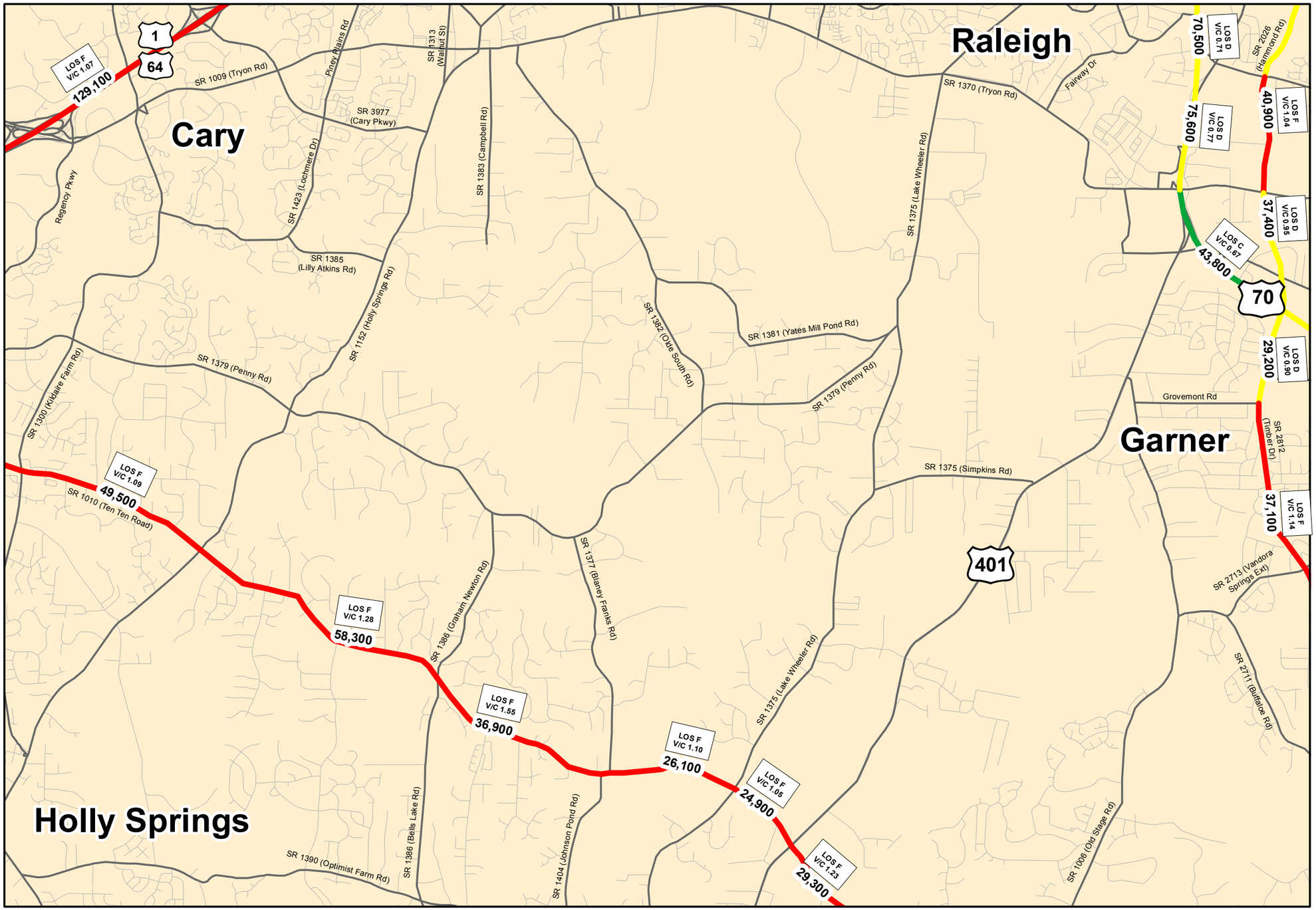
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-7

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2035 Highway Network
Study Area

0 0.25 0.5 0.75 1 1.25 Miles

LOS = Level of Service
V/C = Volume to Capacity

NORTH CAROLINA Turnpike Authority

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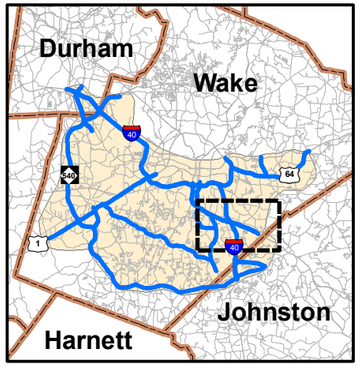
Raleigh, NC 27609

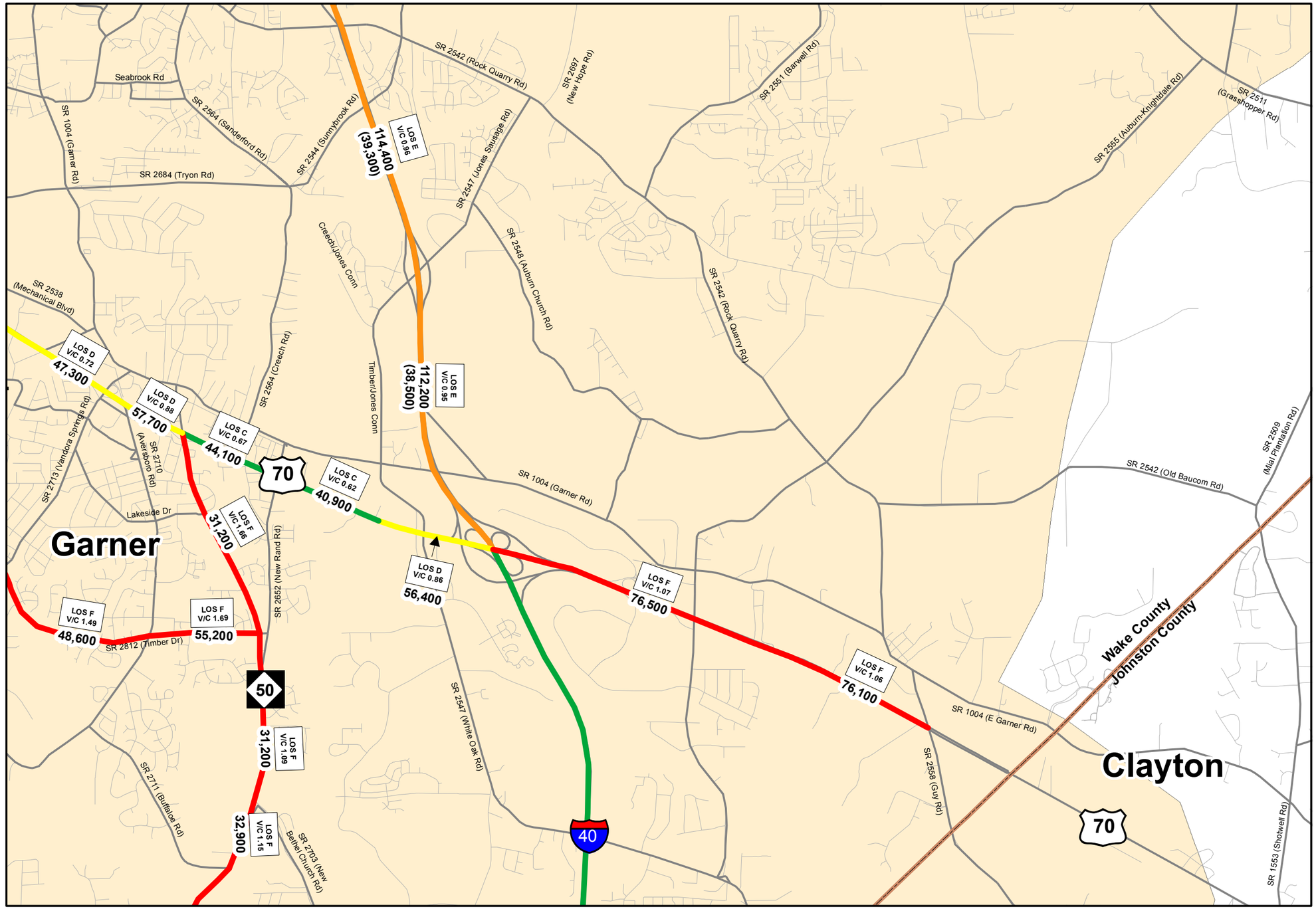
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-8

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2035 Highway Network
Study Area

***High Occupancy Vehicle (HOV) Volumes in Parentheses.**

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

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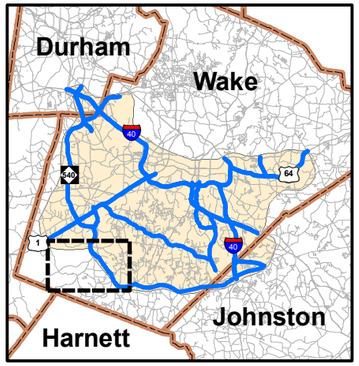
Raleigh, NC 27609

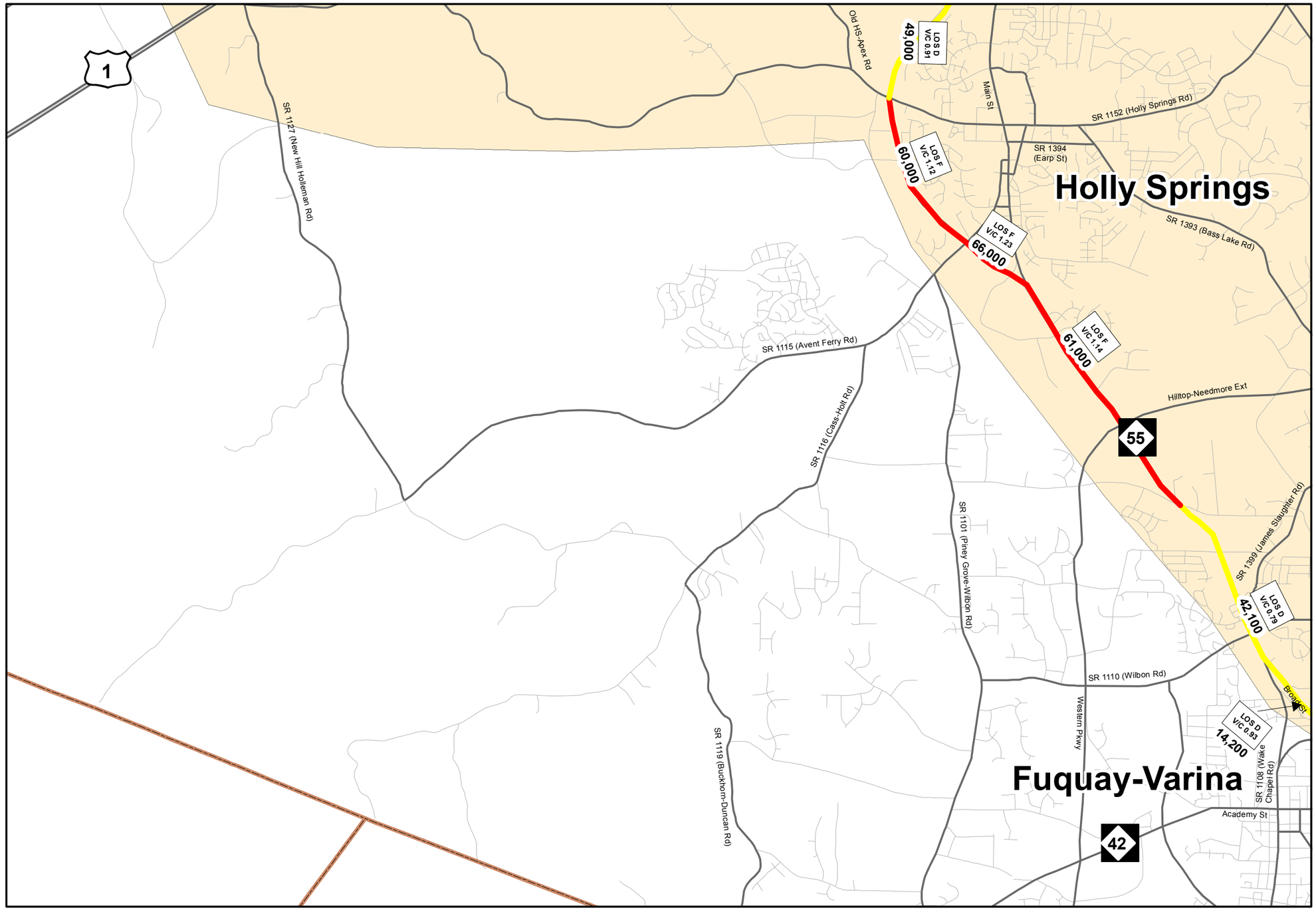
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis Figure 7-9

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2035 Highway Network
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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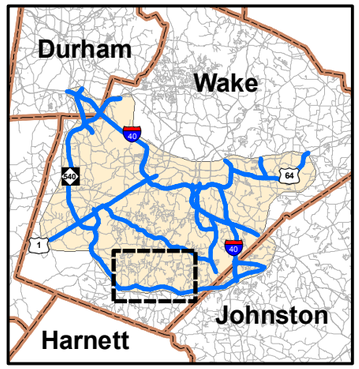
Raleigh, NC 27609

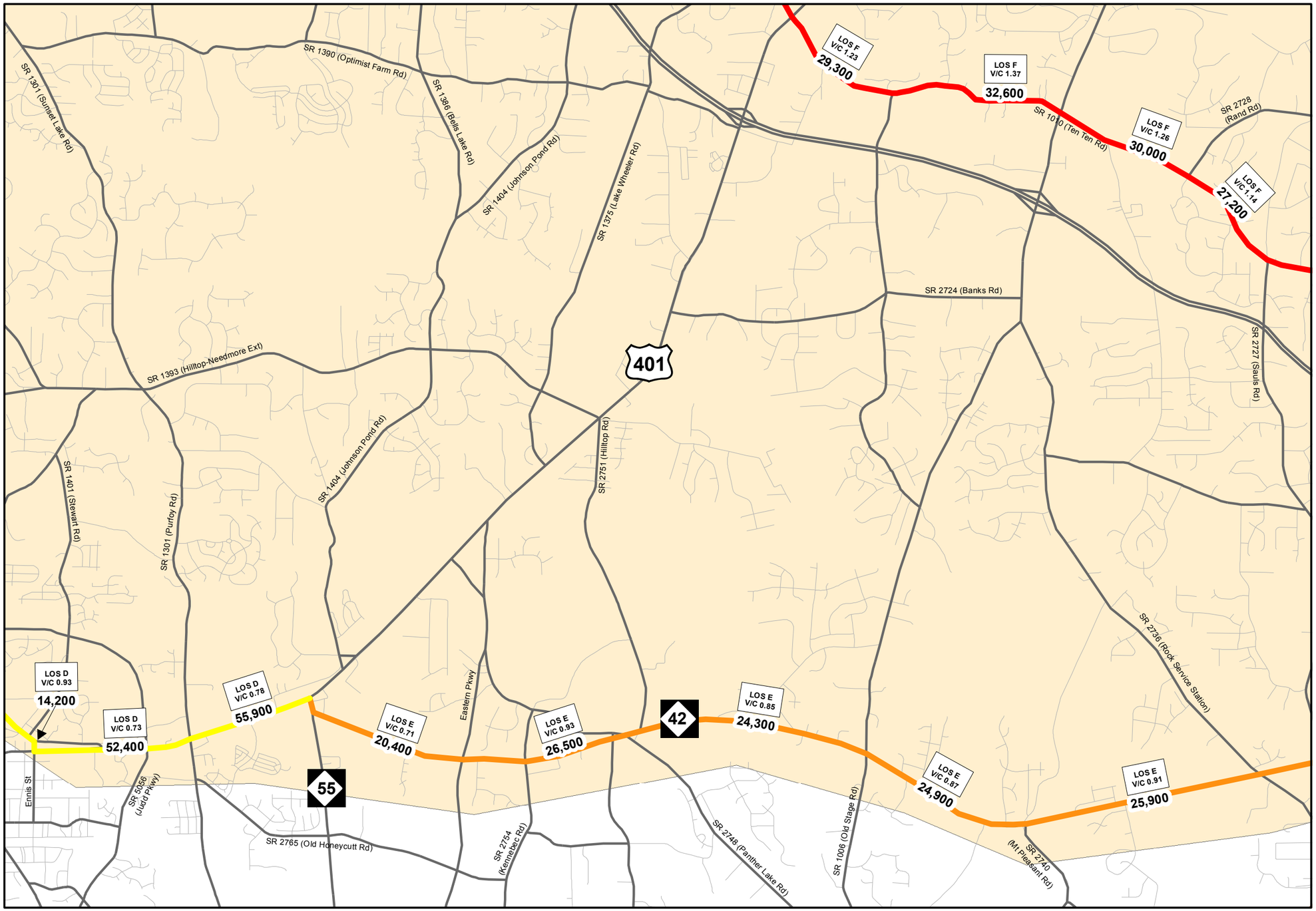
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 7-10

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





N
W E
S

LOS A-C
LOS D
LOS E
LOS F

Legend

Counties
2035 Highway Network
Study Area

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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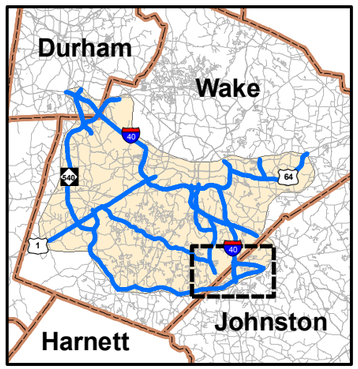
Raleigh, NC 27609

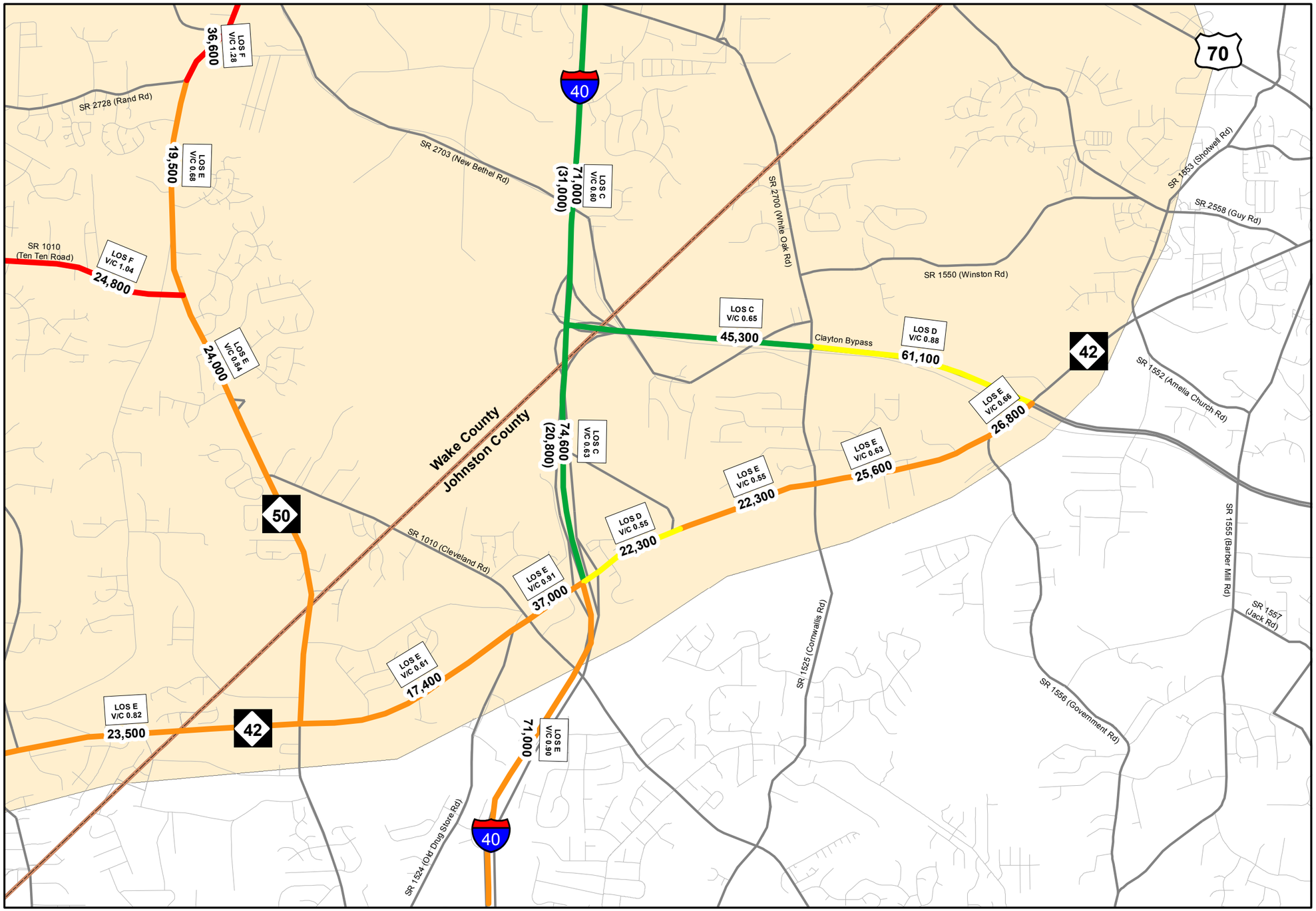
Southern and Eastern Wake Freeway No-Build Traffic Capacity Analysis
Figure 7-11

2035 LOS and V/C Ratios

HNTB Project # 46816

Date: December 2009





LOS A-C
LOS D
LOS E
LOS F

Legend

- Counties
- 2035 Highway Network
- Study Area

*High Occupancy Vehicle (HOV) Volumes in Parentheses.

LOS = Level of Service
V/C = Volume to Capacity

0 0.25 0.5 0.75 1 1.25 Miles

NORTH CAROLINA Turnpike Authority

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Raleigh, NC 27609

NCLOS Software Facility Descriptions

Arterials:
Also know as urban streets, arterials serve longer through trips while also providing access to adjacent commercial, residential and industrial land uses. Collector streets are included under this facility type for the purpose of the HCM and this program.
High-Speed:
Area with very low surrounding density with no on-street parking and very little pedestrian activity. Typified by either multilane divided or two-lane roadways with shoulders.
Principal Arterial:
A major surface street with serves relatively long trips between major points and through-trips entering, leaving and passing through the urban area. Mobility (speed) is very important whereas access is of minor importance. Typically used to connect important activity centers and major traffic generators.
Suburban:
An area with a mixture of densities for housing and employment.
Principal Arterial:
A major surface street with serves relatively long trips between major points and through-trips entering, leaving and passing through the urban area. Mobility (speed) is very important whereas access is of minor importance. Typically used to connect important activity centers and major traffic generators.
Minor Arterial:
A functional category of a street allowing trips of moderate length within a relatively small geographical area. Although mobility (speed) is important for minor arterials, their main function is to provide access. They also are typically used to connect principal arterials to one another.
Intermediate:
An area with characteristics in between those of an urban area and a suburban area. Typically, the roadway is multilane, either divided or undivided, with two travel lanes per direction and some pedestrian and parking activity along the roadway.
Principal Arterial:
A major surface street with serves relatively long trips between major points and through-trips entering, leaving and passing through the urban area. Mobility (speed) is very important whereas access is of minor importance. Typically used to connect important activity centers and major traffic generators.
Minor Arterial:
A functional category of a street allowing trips of moderate length within a relatively small geographical area. Although mobility (speed) is important for minor arterials, their main function is to provide access. They also are typically used to connect principal arterials to one another.
Urban:
An area typified by high densities of developments or concentrations of population, drawing people from several areas within a region.
Principal Arterial:
A major surface street with serves relatively long trips between major points and through-trips entering, leaving and passing through the urban area. Mobility (speed) is very important whereas access is of minor importance. Typically used to connect important activity centers and major traffic generators.
Minor Arterial:
A functional category of a street allowing trips of moderate length within a relatively small geographical area. Although mobility (speed) is important for minor arterials, their main function is to provide access. They also are typically used to connect principal arterials to one another.

2 Lane Highways:
An undivided roadway with two travel lanes, one for use by traffic in each direction. In order to pass a slow moving vehicle, drivers must maneuver into the opposing lane while taking into consideration oncoming traffic. At times, an additional passing lane may be added in one direction in order to improve opportunities for passing. Passing lanes also can be provided in both directions of travel at the same location, resulting in a short section of four-lane undivided highway with improved passing opportunities in both directions.

Multi-Lane Highways:

Typically have a total of four or six lanes, counting both directions, often with medians or two-way left-turn lanes (TWLTL), although they can be undivided as well. Usually located in suburban communities leading into central cities or along high-volume rural corridors connecting two cities or large trip producers. Multi-lane highways often have traffic signals but successive signals are typically not within 2.0 miles of each other (< 2.0 miles would usually be considered an arterial)

Freeways:
A continuously divided highway with full access control, two or more travel lanes in each direction, and uninterrupted traffic flow provided through the use of grade separated interchanges. There are no signalized or stop-controlled at-grade intersections, and direct access to and from adjacent property is not permitted.

NCLOS Individual Segment Capacity Analysis Results

Facility	From	To	NCLOS ID	2008 AADT	Capacity	V/C	LOS	2011 AADT	Capacity	V/C	LOS	2035 AADT	Capacity	V/C	LOS
I-40	NC 55	NC 147	F5	118700	117300	1.01	F	123400	117300	1.05	F	128200	117300	1.09	F
NC 147	I-40	Cornwallis Rd	F4	68800	73000	0.94	E	69000	73000	0.95	E	93600	73000	1.28	F
I-40	NC 147	Davis Dr	F9	152400	157500	0.97	E	172900	157500	1.10	F	155400	157500	0.99	E
I-40	Davis Drive	S Miami Blvd	F9	155400	157500	0.99	E	156700	157500	0.99	E	175600	157500	1.11	F
I-40	S Miami Blvd	Page Rd	F9	163600	157500	1.04	F	164100	157500	1.04	F	162000	157500	1.03	F
I-40	Page Rd	I-540	F9	166900	157500	1.06	F	167900	157500	1.07	F	171900	157500	1.09	F
I-540	I-40	Aviation Pkwy	F8	85200	106200	0.80	D	89200	106200	0.84	D	155100	106200	1.46	F
I-540	Aviation Pkwy	Lumley Rd	F8	95900	106200	0.90	E	100300	106200	0.94	E	164000	106200	1.54	F
I-40	I-540	Airport Blvd	F9	136900	157500	0.87	D	138300	157500	0.88	D	158800	157500	1.01	F
I-40	Airport Blvd	Aviation Pkwy	F9	138600	157500	0.88	D	142700	157500	0.91	E	160800	157500	1.02	F
I-40	Aviation Pkwy	Harrison Ave	F9	150900	157500	0.96	E	156600	157500	0.99	E	194700	157500	1.24	F
I-40	Harrison Ave	Wade Ave	F9	157100	157500	1.00	E	163700	157500	1.04	F	194800	157500	1.24	F
I-40	Wade Ave	NC 54	F14/F5	91600	77700	1.18	F	100000	117300	0.85	D	130100	117300	1.11	F
I-40	NC 54	Cary Towne Blvd	F14/F5	101900	77700	1.31	F	109900	117300	0.94	E	134500	117300	1.15	F
I-40	Cary Towne Blvd	US 1/64	F14/F5	104900	77700	1.35	F	115700	117300	0.99	E	150000	117300	1.28	F
I-40	US 1/64	Gorman St	F5	116100	117300	0.99	E	124900	117300	1.06	F	156700	117300	1.34	F
I-440	I-40	Jones Franklin Rd	F5	92600	117300	0.79	D	92900	117300	0.79	D	137000	117300	1.17	F
I-40	Gorman St	Main Campus Dr	F5	114900	117300	0.98	E	123000	117300	1.05	F	151700	117300	1.29	F
I-40	Main Campus Dr	Lake Wheeler Rd	F5	114900	117300	0.98	E	123000	117300	1.05	F	170100	117300	1.45	F
I-40	Lake Wheeler Rd	S Saunders St	F9	118000	157500	0.75	D	125300	157500	0.80	D	168700	157500	1.07	F
I-40	S Saunders St	Hammond Rd	F9	111900	157500	0.71	C	119000	157500	0.76	D	182400	157500	1.16	F
I-40	Hammond Rd	Rock Quarry Rd	F9	112800	157500	0.72	C	117600	157500	0.75	D	166900	157500	1.06	F
I-40	Rock Quarry Rd	I-440	F11	106700	198100	0.54	C	110300	198100	0.56	C	151500	198100	0.76	D
I-40	I-440	Jones Sausage Rd	F13	102100	77700	1.31	F	104000	77700	1.34	F	114400	118600	0.96	E
I-40	Jones Sausage Rd	US 70	F13	95900	77700	1.23	F	97100	77700	1.25	F	112200	118600	0.95	E
I-40	US 70	Clayton Bypass	F2/F13	60200	78600	0.77	D	61200	78600	0.78	D	71000	118600	0.60	C
I-40	Clayton Bypass	NC 42	F2/F13	60200	78600	0.77	D	61600	78600	0.78	D	74600	118600	0.63	C
I-40	NC 42	NC 210	F2	48600	78600	0.62	C	49600	78600	0.63	C	71000	78600	0.90	E
I-440	I-40	Poole Rd	F9	78100	157500	0.50	B	84100	157500	0.53	C	117200	157500	0.74	D
I-440	Poole Rd	US 64 Bypass	F9	95600	157500	0.61	C	103100	157500	0.65	C	154900	157500	0.98	E
I-440	US 64 Bypass	US 64 Bus	F5	87400	117300	0.75	D	90400	117300	0.77	D	126700	117300	1.08	F
US 64 Bypass	I-440	New Hope Church	F6	59200	91100	0.65	C	63800	91100	0.70	C	106000	91100	1.16	F
US 64 Bypass	New Hope Church	Hodge Rd	F6	59000	91100	0.65	C	64100	91100	0.70	C	110300	91100	1.21	F
US 64 Bypass	Hodge Rd	I-540	F6	56000	91100	0.61	C	63300	91100	0.69	C	109200	91100	1.20	F
US 64 Bypass	I-540	Smithfield Rd	F7	59000	90700	0.65	C	67300	90700	0.74	D	125100	90700	1.38	F
US 64 Bypass	Smithfield Rd	Wendell Falls Blvd	F7	51000	90700	0.56	C	64000	90700	0.71	C	117300	90700	1.29	F
US 64 Bypass	Wendell Falls Blvd	US 64 Bus	F7	51000	90700	0.56	C	51200	90700	0.56	C	87700	90700	0.97	E
I-540	US 64 Bypass	US 64 Bus	F6	38000	91100	0.42	B	43000	91100	0.47	B	57700	91100	0.63	C
NC 540	I-40	NC 54	F15	24300	88500	0.27	A	39400	88500	0.45	B	88100	88500	1.00	E
NC 540	NC 54	Triangle Pkwy	F15	20800	88500	0.24	A	23000	88500	0.26	A	57500	88500	0.65	C
Triangle Pkwy	I-40	Hopson Rd	F16					13200	110700	0.12	A	40200	110700	0.36	B
Triangle Pkwy	Hopson Rd	Davis Dr	F16					13200	110700	0.12	A	40200	110700	0.36	B
Triangle Pkwy	Davis Dr	NC 540	F16					9300	110700	0.08	A	39700	110700	0.36	B
Triangle Pkwy	NC 540	McCrimmon Pkwy	MLH5					10300	96000	0.11	A	30000	96000	0.31	B
W Wake Frwy	Triangle Pkwy	NC 55	F15	14000	88500	0.16	A	19800	88500	0.22	A	53000	88500	0.60	C
W Wake Frwy	NC 55	Morrisville Pkwy	F15					15500	88500	0.18	A	55200	88500	0.62	C
W Wake Frwy	Morrisville Pkwy	High House Rd	F15					13900	88500	0.16	A	52700	88500	0.60	C
W Wake Frwy	High House Rd	US 64	F15					16000	88500	0.18	A	59000	88500	0.67	C
W Wake Frwy	US 64	Old US 1	F15					14400	88500	0.16	A	56900	88500	0.64	C
W Wake Frwy	Old US 1	US 1	F15					25000	88500	0.28	A	59200	88500	0.67	C
W Wake Frwy	US 1	Old HS-Apex Rd	F15					20600	88500	0.23	A	60100	88500	0.68	C
W Wake Frwy	Old Holly Springs-Apex Rd	NC 55 Bypass	F15					9400	88500	0.11	A	31500	88500	0.36	B
S Wake Frwy	NC 55 Bypass	Holly Springs Rd	F17												
S Wake Frwy	Holly Springs Rd	Bells Lake Rd	F17												
S Wake Frwy	Bells Lake Rd	US 401	F17												
S Wake Frwy	US 401	Old Stage Rd	F17												
S Wake Frwy	Old Stage Rd	NC 50	F17												
S Wake Frwy	NC 50	I-40	F17												

NCLOS Individual Segment Capacity Analysis Results

Facility	From	To	NCLOS ID	2008 AADT	Capacity	V/C	LOS	2011 AADT	Capacity	V/C	LOS	2035 AADT	Capacity	V/C	LOS
E Wake Frwy	I-40	Cornwallis Rd	F18												
E Wake Frwy	Cornwallis Rd	US 70	F18												
E Wake Frwy	US 70	Rock Quarry Rd	F18												
E Wake Frwy	Rock Quarry Rd	Auburn Knightdale Rd	F18												
E Wake Frwy	Auburn Knightdale Rd	Poole Rd	F18												
E Wake Frwy	Poole Rd	US 64 Bypass	F18												
Clayton Bypass	I-40	Cornwallis Rd	F3	18300	69600	0.26	A	30200	69600	0.43	B	45300	69600	0.65	C
Clayton Bypass	Cornwallis Rd	NC 42	F3	16400	69600	0.24	A	38600	69600	0.55	C	61100	69600	0.88	D
US 1	NC 751	W Wake Frwy	F1	21100	81300	0.26	A	27600	81300	0.34	B	54000	81300	0.66	C
US 1	W Wake Frwy	NC 55	F1	21100	81300	0.26	A	38700	81300	0.48	B	69100	81300	0.85	D
US 1	NC 55	Ten Ten Rd	F1	41000	81300	0.50	C	75100	81300	0.92	E	94400	81300	1.16	F
US 1	Ten Ten Rd	Tryon Rd	F1	48000	81300	0.59	C	72000	81300	0.89	D	101500	81300	1.25	F
US 1/64	Tryon Rd	Cary Pkwy	F10	87800	120200	0.73	D	95100	120200	0.79	D	129100	120200	1.07	F
US 1/64	Cary Pkwy	Walnut St	F10	117700	120200	0.98	E	124600	120200	1.04	F	163600	120200	1.36	F
US 1/64	Walnut St	I-40	F10	81000	120200	0.67	C	84500	120200	0.70	C	107700	120200	0.90	E
Ten Ten Rd	US 1	Penny Rd	Ten Ten 1	26100	22700	1.15	F	31300	22700	1.38	F	64200	45400	1.41	F
Ten Ten Rd	Penny Rd	Jessie Dr	Ten Ten 1	19800	22700	0.87	D	23800	22700	1.05	F	45600	45400	1.00	F
Ten Ten Rd	Jessie Dr	Kildaire Farm Rd	Ten Ten 1	15800	22700	0.70	B	23800	22700	1.05	F	45600	45400	1.00	F
Ten Ten Rd	Kildaire Farm Rd	Holly Springs Rd	Ten Ten 1	15800	22700	0.70	B	20400	22700	0.90	D	49500	45400	1.09	F
Ten Ten Rd	Holly Springs Rd	Graham Newton Rd	Ten Ten 2	17500	23800	0.74	B	22000	23800	0.92	E	58300	23800	2.45	F
Ten Ten Rd	Graham Newton Rd	Blaney Franks Rd	Ten Ten 2	12300	23800	0.52	A	19000	23800	0.80	C	36900	23800	1.55	F
Ten Ten Rd	Blaney Franks Rd	Lake Wheeler Rd	Ten Ten 2	13200	23800	0.55	A	17200	23800	0.72	B	26100	23800	1.10	F
Ten Ten Rd	Lake Wheeler Rd	US 401	Ten Ten 2	15000	23800	0.63	B	17800	23800	0.75	B	24900	23800	1.05	F
Ten Ten Rd	US 401	Fanny Brown Rd	Ten Ten 2	16200	23800	0.68	B	21200	23800	0.89	D	29300	23800	1.23	F
Ten Ten Rd	Fanny Brown Rd	Old Stage Rd	Ten Ten 2	12500	23800	0.53	A	19500	23800	0.82	D	32600	23800	1.37	F
Ten Ten Rd	Old Stage Rd	Rand Rd	Ten Ten 2	13200	23800	0.55	A	18500	23800	0.78	C	30000	23800	1.26	F
Ten Ten Rd	Rand Rd	Sauls Rd	Ten Ten 2	13200	23800	0.55	A	17000	23800	0.71	B	27200	23800	1.14	F
Ten Ten Rd	Sauls Rd	NC 50	Ten Ten 2	13200	23800	0.55	A	16700	23800	0.70	B	24800	23800	1.04	F
NC 50	Cleveland Rd	S Wake Frwy	2LH 3	15000	28600	0.52	E	18400	28600	0.64	E	24000	28600	0.84	E
NC 50	S Wake Frwy	Ten Ten Rd	2LH 3	15000	28600	0.52	E	18400	28600	0.64	E	24000	28600	0.84	E
NC 50	Ten Ten Rd	Rand Rd	2LH 3	13000	28600	0.45	D	13400	28600	0.47	D	19500	28600	0.68	E
NC 50	Rand Rd	Buffaloe Rd	2LH 3	23000	28600	0.80	E	25700	28600	0.90	E	36600	28600	1.28	F
NC 50	Buffaloe Rd	New Bethel Rd	2LH 3	19000	28600	0.66	E	22100	28600	0.77	E	32900	28600	1.15	F
NC 50	New Bethel Rd	New Rand Rd	2LH 3	19400	28600	0.68	E	20500	28600	0.72	E	31200	28600	1.09	F
NC 50	New Rand Rd	Timber Dr	NC 50 1	19400	18800	1.03	F	20500	18800	1.09	F	31200	18800	1.66	F
NC 50	Timber Dr	Lakeside Dr	NC 50 1	19400	18800	1.03	F	11500	18800	0.61	A	31200	18800	1.66	F
NC 50	Lakeside Dr	US 70	NC 50 1	19400	18800	1.03	F	11500	18800	0.61	A	31200	18800	1.66	F
Hammond Rd	I-40	Rush St	Hammond	23600	39900	0.59	C	24200	39300	0.62	C	38000	39300	0.97	D
Hammond Rd	Rush St	Tryon Rd	Hammond	24800	39900	0.62	C	25800	39300	0.66	C	40900	39300	1.04	F
Hammond Rd	Tryon Rd	Mechanical Blvd	Hammond	20900	39900	0.52	C	21200	39300	0.54	C	37400	39300	0.95	D
Hammond Rd	Mechanical Blvd	US 70	Hammond	20900	39900	0.52	C	21200	39300	0.54	C	37400	39300	0.95	D
Timber Dr	US 70	Foxwood Dr	Timber	22300	32600	0.68	C	17700	32600	0.54	B	29200	32600	0.90	D
Timber Dr	Foxwood Dr	Grovemont Rd	Timber	22300	32600	0.68	C	17700	32600	0.54	B	29200	32600	0.90	D
Timber Dr	Grovemont Rd	Vandora Springs	Timber	21300	32600	0.65	C	22400	32600	0.69	C	37100	32600	1.14	F
Timber Dr	Vandora Springs	Aversboro Rd	Timber	14100	32600	0.43	B	15500	32600	0.48	B	48600	32600	1.49	F
Timber Dr	Aversboro Rd	NC 50	Timber	16200	32600	0.50	B	11700	32600	0.36	B	55200	32600	1.69	F
S Saunders St	I-40	Pecan St	MLH 4	57300	98700	0.58	C	59200	98700	0.60	C	71100	98700	0.72	D
S Saunders St	Pecan St	Rush St	MLH 4	52100	98700	0.53	C	59200	98700	0.60	C	70500	98700	0.71	D
Wilmington St	Rush St	Tryon Rd	MLH 4	61300	98700	0.62	C	54500	98700	0.55	C	75600	98700	0.77	D
Wilmington St	Tryon Rd	Mechanical Blvd	MLH 4	61300	98700	0.62	C	54500	98700	0.55	C	75600	98700	0.77	D

NCLOS Individual Segment Capacity Analysis Results

Facility	From	To	NCLOS ID	2008 AADT	Capacity	V/C	LOS	2011 AADT	Capacity	V/C	LOS	2035 AADT	Capacity	V/C	LOS
US 70	Mechanical Blvd	Timber Dr	MLH 1	32900	65800	0.50	C	34100	65800	0.52	C	43800	65800	0.67	C
US 70	Timber Dr	Yeargan Rd	MLH 1	32900	65800	0.50	C	34100	65800	0.52	C	43800	65800	0.67	C
US 70	Yeargan Rd	Vandora Springs	MLH 1	31300	65800	0.48	C	32600	65800	0.50	C	47300	65800	0.72	D
US 70	Vandora Springs	Aversboro Rd	MLH 1	31300	65800	0.48	C	32600	65800	0.50	C	47300	65800	0.72	D
US 70	Aversboro Rd	NC 50	MLH 1	30200	65800	0.46	B	32900	65800	0.50	C	57700	65800	0.88	D
US 70	NC 50	New Rand Rd	MLH 1	23100	65800	0.35	B	25100	65800	0.38	B	44100	65800	0.67	C
US 70	New Rand Rd	Timber Dr Conn	MLH 1	30300	65800	0.46	B	33800	65800	0.51	C	40900	65800	0.62	C
US 70	Timber Dr Conn	White Oak Rd	MLH 1	30300	65800	0.46	B	33800	65800	0.51	C	40900	65800	0.62	C
US 70	White Oak Rd	I-40	MLH 1	30500	65800	0.46	B	32600	65800	0.50	C	56400	65800	0.86	D
US 70	I-40	Greenfield Pkwy	MLH 2	50000	71500	0.70	D	54900	71500	0.77	D	76500	71500	1.07	F
US 70	Greenfield Pkwy	Auburn Knightdale Rd	MLH 2	51100	71500	0.71	D	54800	71500	0.77	D	76100	71500	1.06	F
US 70	Auburn Knightdale Rd	E Wake Frwy	MLH 2	51100	71500	0.71	D	54800	71500	0.77	D	76100	71500	1.06	F
US 70	E Wake Frwy	Guy Rd	MLH 2	51100	71500	0.71	D	54800	71500	0.77	D	76100	71500	1.06	F
NC 55	US 1	E Williams St	MLH 6	47000	52200	0.90	D	47300	52200	0.91	D	53100	52200	1.02	F
NC 55 Bypass	E Williams St	W Wake Frwy	MLH 3	19800	53600	0.37	B	24600	53600	0.46	B	32500	53600	0.61	C
NC 55 Bypass	W Wake Frwy	Holly Springs Rd	MLH 3	25000	53600	0.47	B	30400	53600	0.57	C	49000	53600	0.91	D
NC 55 Bypass	Holly Springs Rd	Avent Ferry Rd	MLH 3	25000	53600	0.47	B	30600	53600	0.57	C	60000	53600	1.12	F
NC 55 Bypass	Avent Ferry Rd	S Main St	MLH 3	25000	53600	0.47	B	31100	53600	0.58	C	66000	53600	1.23	F
NC 55	NC 55 Bypass	Hilltop-Needmore Rd	MLH 3	21700	53600	0.40	B	25200	53600	0.47	B	61000	53600	1.14	F
NC 55	Hilltop-Needmore Rd	James Slaughter Rd	MLH 3	21700	53600	0.40	B	25200	53600	0.47	B	61000	53600	1.14	F
NC 55	James Slaughter Rd	Wake Chapel Rd	MLH 3	21700	53600	0.40	B	24600	53600	0.46	B	42100	53600	0.79	D
NC 55	Wake Chapel Rd	Broad St	NC 55 1	13700	15300	0.90	D	15700	15300	1.03	F	14200	15300	0.93	D
NC 55	Broad St	US 401	NC 55 1	25700	15300	1.68	F	25400	15300	1.66	F	25300	15300	1.65	F
US 401	NC 55	Judd Pkwy	MLH 2	31000	71500	0.43	B	30500	71500	0.43	B	52400	71500	0.73	D
US 401	Judd Pkwy	Sunset Lake Rd	MLH 2	31000	71500	0.43	B	30500	71500	0.43	B	52400	71500	0.73	D
US 401	Sunset Lake Rd	NC 55	MLH 2	36300	71500	0.51	C	40200	71500	0.56	C	55900	71500	0.78	D
NC 42	US 401	NC 55	2LH 2	10400	28600	0.36	E	10400	28600	0.36	E	20400	28600	0.71	E
NC 42	NC 55	Eastern Pkwy	2LH 2	10400	28600	0.36	E	10400	28600	0.36	E	20400	28600	0.71	E
NC 42	Eastern Pkwy	Kennebec Rd	2LH 2	10400	28600	0.36	E	10400	28600	0.36	E	20400	28600	0.71	E
NC 42	Kennebec Rd	Panther Lake Rd	2LH 2	11500	28600	0.40	E	14200	28600	0.50	E	26500	28600	0.93	E
NC 42	Panther Lake Rd	Hilltop Rd	2LH 2	11500	28600	0.40	E	14200	28600	0.50	E	26500	28600	0.93	E
NC 42	Hilltop Rd	Old Stage Rd	2LH 2	9700	28600	0.34	E	12300	28600	0.43	E	24300	28600	0.85	E
NC 42	Old Stage Rd	Mt. Pleasant Church Rd	2LH 2	9400	28600	0.33	E	12100	28600	0.42	E	24900	28600	0.87	E
NC 42	Mt. Pleasant Church Rd	Rock Service St	2LH 2	9400	28600	0.33	E	12400	28600	0.43	E	25900	28600	0.91	E
NC 42	Rock Service St	Sauls Rd	2LH 2	10300	28600	0.36	E	12300	28600	0.43	E	23500	28600	0.82	E
NC 42	Sauls Rd	NC 50	2LH 2	10300	28600	0.36	E	12300	28600	0.43	E	23500	28600	0.82	E
NC 42	NC 50	Old Drug Store Ln	2LH 2	9100	28600	0.32	E	10800	28600	0.38	E	17400	28600	0.61	E
NC 42	Old Drug Store Ln	I-40	NC 42 1	28000	26400	1.06	F	29900	26400	1.13	F	37000	26400	1.40	F
NC 42	I-40	Bratton Dr	NC 42 2	13300	40700	0.33	D	15700	40700	0.39	D	22300	40700	0.55	D
NC 42	Bratton Dr	Cornwallis Rd	2LH 1	13300	40900	0.33	E	15700	40900	0.38	E	22300	40900	0.55	E
NC 42	Cornwallis Rd	Government Rd	2LH 1	13600	40900	0.33	E	15600	40900	0.38	E	25600	40900	0.63	E
NC 42	Government Rd	Clayton Bypass	2LH 1	14500	40900	0.35	E	16300	40900	0.40	E	26800	40900	0.66	E

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	2LH 1		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Two Lane Highway
Classification:	Rural
Terrain Type:	Level
Street Class:	I

Lane Width(ft):	12
Lat. Clearance(ft):	6
No Passing Zones:	20.00 %
Access Points/Mile:	10
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Truck/Bus Percent:	7.00 %
K Factor:	0.07	RV Percent:	0.00 %
D Factor:	0.60	BFFS(mph):	50

LOS	Max AADT
A	0
B	0
C	2,800
D	10,000
D	40,900

Printed At: 9:23:13AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	2LH 2		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Two Lane Highway
Classification:	Rural
Terrain Type:	Level
Street Class:	I

Lane Width(ft):	12
Lat. Clearance(ft):	6
No Passing Zones:	20.00 %
Access Points/Mile:	10
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Truck/Bus Percent:	6.00 %
K Factor:	0.10	RV Percent:	0.00 %
D Factor:	0.65	BFFS(mph):	50

LOS	Max AADT
A	0
B	0
C	2,000
D	7,000
D	28,600

Printed At: 9:24:04AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	2LH 3		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Two Lane Highway
Classification:	Rural
Terrain Type:	Level
Street Class:	I

Lane Width(ft):	12
Lat. Clearance(ft):	6
No Passing Zones:	20.00 %
Access Points/Mile:	10
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Truck/Bus Percent:	6.00 %
K Factor:	0.10	RV Percent:	0.00 %
D Factor:	0.70	BFFS(mph):	55

LOS	Max AADT
A	0
B	2,000
C	7,000
D	13,700
D	28,600

Printed At: 10:16:15AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 1		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	2
Interchanges/Mile:	0.75
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.08	Truck/Bus Percent:	16.00 %
D Factor:	0.60	Driver Population:	1.00

LOS	Max AADT
A	24,500
B	40,100
C	57,700
D	72,200
E	81,300

Printed At: 4:45:29PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 10		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.75
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	14.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	36,800
B	60,300
C	86,400
D	107,000
E	120,200

Printed At: 4:21:21PM On: 5/5/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 11		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	5
Interchanges/Mile:	1.00
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	18.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	61,900
B	101,300
C	144,200
D	176,900
E	198,100

Printed At: 4:22:24PM On: 5/5/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 12		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	2
Interchanges/Mile:	1.00
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	6.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	24,500
B	40,000
C	57,800
D	72,900
E	82,300

Printed At: 4:23:10PM On: 5/5/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 13		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.50
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	18.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	36,900
B	60,400
C	86,100
D	105,900
E	118,600

Printed At: 3:07:47PM On: 5/6/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 14		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	2
Interchanges/Mile:	1.00
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	18.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	23,100
B	37,800
C	54,600
D	68,800
E	77,700

Printed At: 3:08:11PM On: 5/6/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 15		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.75
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.11	Truck/Bus Percent:	18.00 %
D Factor:	0.60	Driver Population:	1.00

LOS	Max AADT
A	27,100
B	44,400
C	63,600
D	78,800
E	88,500

Printed At: 3:08:32PM On: 5/6/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 16		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12			
Number of Lanes:	3			
Interchanges/Mile:	0.75			
Lat. Clearance(ft):	6			
Grade Length(mi):	0.00			
Grade Percent:	0.00	%		
PHF:	0.90		RV Percent:	0.00 %
K Factor:	0.10		Truck/Bus Percent:	9.00 %
D Factor:	0.55		Driver Population:	1.00

LOS	Max AADT
A	34,000
B	55,600
C	79,600
D	98,600
E	110,700

Printed At: 3:08:51PM On: 5/6/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 17		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.50
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.11	Truck/Bus Percent:	18.00 %
D Factor:	0.60	Driver Population:	1.00

LOS	Max AADT
A	27,700
B	45,300
C	64,600
D	79,400
E	88,900

Printed At: 3:09:07PM On: 5/6/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 18		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.50
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.10	Truck/Bus Percent:	15.00 %
D Factor:	0.65	Driver Population:	1.00

LOS	Max AADT
A	28,500
B	46,600
C	66,500
D	81,700
E	91,600

Printed At: 3:09:21PM On: 5/6/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 2		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	2
Interchanges/Mile:	0.50
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	18.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	24,000
B	39,300
C	56,400
D	70,000
E	78,600

Printed At: 4:47:25PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 3		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	2
Interchanges/Mile:	0.75
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	7.00 %
D Factor:	0.65	Driver Population:	1.00

LOS	Max AADT
A	21,000
B	34,400
C	49,400
D	61,800
E	69,600

Printed At: 4:48:15PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 4		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12	
Number of Lanes:	2	
Interchanges/Mile:	1.00	
Lat. Clearance(ft):	6	
Grade Length(mi):	0.00	
Grade Percent:	0.00	%

PHF:	0.90	RV Percent:	0.00	%
K Factor:	0.10	Truck/Bus Percent:	9.00	%
D Factor:	0.55	Driver Population:	1.00	

LOS	Max AADT
A	21,700
B	35,500
C	51,200
D	64,600
E	73,000

Printed At: 4:49:48PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 5		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	1.00
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	18.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	35,500
B	58,100
C	83,600
D	104,300
E	117,300

Printed At: 4:51:19PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 6		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.75
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.10	Truck/Bus Percent:	15.00 %
D Factor:	0.65	Driver Population:	1.00

LOS	Max AADT
A	27,900
B	45,700
C	65,500
D	81,100
E	91,100

Printed At: 4:52:13PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 7		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.75
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.10	Truck/Bus Percent:	16.00 %
D Factor:	0.65	Driver Population:	1.00

LOS	Max AADT
A	27,800
B	45,500
C	65,200
D	80,700
E	90,700

Printed At: 4:52:56PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 8		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	3
Interchanges/Mile:	0.75
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.10	Truck/Bus Percent:	18.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	32,500
B	53,300
C	76,300
D	94,500
E	106,200

Printed At: 4:39:58PM On: 5/5/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	F 9		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Freeway
Classification:	Suburban
Terrain Type:	Level

Lane Width(ft):	12
Number of Lanes:	4
Interchanges/Mile:	1.00
Lat. Clearance(ft):	6
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	RV Percent:	0.00 %
K Factor:	0.09	Truck/Bus Percent:	18.00 %
D Factor:	0.55	Driver Population:	1.00

LOS	Max AADT
A	48,400
B	79,300
C	113,500
D	140,300
E	157,500

Printed At: 4:19:59PM On: 5/5/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	Hammond		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Suburban
Functional Category:	Minor Arterial
Street Class:	Class II

Number of Lanes:	2		
Segment Len.(mi):	2.50		
Signals/Mile:	3.00		
Cycle Length(s):	120		
g/C Ratio:	0.55		
PHF:	0.90	Prop. Lt:	12.00 %
K Factor:	0.09	FFS(mph):	45
D Factor:	0.60	Arival Type:	3

LOS	Max AADT
A	0
B	0
C	27,400
D	38,100
E	39,900

Printed At: 9:19:25AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	MLH 1		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Multi-Lane Highway
Classification:	Suburban
Terrain Type:	Level

Number of Lanes:	2
Lane Width(ft):	12
Lat. Clearance(ft):	10
Access Points/Mile:	25.00
Median Type:	Divided
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Driver Population:	1.00
K Factor:	0.09	Truck/Bus Percent:	7.00 %
D Factor:	0.60	RV Percent:	0.00 %

LOS	Max AADT
A	18,900
B	30,900
C	44,700
D	60,100
E	65,800

Printed At: 5:09:45PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	MLH 2		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Multi-Lane Highway
Classification:	Suburban
Terrain Type:	Level

Number of Lanes:	2
Lane Width(ft):	12
Lat. Clearance(ft):	10
Access Points/Mile:	25.00
Median Type:	Divided
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Driver Population:	1.00
K Factor:	0.09	Truck/Bus Percent:	8.00 %
D Factor:	0.55	RV Percent:	0.00 %

LOS	Max AADT
A	20,500
B	33,600
C	48,500
D	65,300
E	71,500

Printed At: 5:18:53PM On: 5/5/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	MLH 3		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Multi-Lane Highway
Classification:	Suburban
Terrain Type:	Level

Number of Lanes:	2
Lane Width(ft):	12
Lat. Clearance(ft):	10
Access Points/Mile:	25.00
Median Type:	Divided
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Driver Population:	1.00
K Factor:	0.10	Truck/Bus Percent:	11.00 %
D Factor:	0.65	RV Percent:	0.00 %

LOS	Max AADT
A	15,400
B	25,200
C	36,400
D	49,000
E	53,600

Printed At: 5:11:59PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	MLH 4		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Multi-Lane Highway
Classification:	Suburban
Terrain Type:	Level

Number of Lanes:	3
Lane Width(ft):	12
Lat. Clearance(ft):	10
Access Points/Mile:	25.00
Median Type:	Divided
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Driver Population:	1.00
K Factor:	0.09	Truck/Bus Percent:	7.00 %
D Factor:	0.60	RV Percent:	0.00 %

LOS	Max AADT
A	28,400
B	46,400
C	67,000
D	90,200
E	98,700

Printed At: 5:13:07PM On: 5/4/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	MLH 5		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Multi-Lane Highway
Classification:	Suburban
Terrain Type:	Level

Number of Lanes:	3
Lane Width(ft):	12
Lat. Clearance(ft):	10
Access Points/Mile:	25.00
Median Type:	Divided
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Driver Population:	1.00
K Factor:	0.10	Truck/Bus Percent:	9.00 %
D Factor:	0.55	RV Percent:	0.00 %

LOS	Max AADT
A	27,600
B	45,100
C	65,200
D	87,700
E	96,000

Printed At: 1:40:31PM On: 5/6/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	MLH 6		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Multi-Lane Highway
Classification:	Suburban
Terrain Type:	Level

Number of Lanes:	2
Lane Width(ft):	12
Lat. Clearance(ft):	10
Access Points/Mile:	25.00
Median Type:	Undivided
Grade Length(mi):	0.00
Grade Percent:	0.00 %

PHF:	0.90	Driver Population:	1.00
K Factor:	0.10	Truck/Bus Percent:	11.00 %
D Factor:	0.65	RV Percent:	0.00 %

LOS	Max AADT
A	14,900
B	24,400
C	35,300
D	47,500
E	52,200

Printed At: 9:11:28AM On: 5/14/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	NC 42: 1		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Intermediate
Functional Category:	Minor Arterial
Street Class:	Class III

Number of Lanes:	2
Segment Len.(mi):	0.62
Signals/Mile:	5.00
Cycle Length(s):	120
g/C Ratio:	0.50

PHF:	0.90	Prop. Lt:	5.00 %
K Factor:	0.10	FFS(mph):	35
D Factor:	0.65	Arival Type:	3

LOS	Max AADT
A	0
B	0
C	400
D	22,000
E	26,400

Printed At: 10:25:33AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	NC 42: 2		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Intermediate
Functional Category:	Minor Arterial
Street Class:	Class III

Number of Lanes:	2
Segment Len.(mi):	0.59
Signals/Mile:	5.00
Cycle Length(s):	120
g/C Ratio:	0.50

PHF:	0.90	Prop. Lt:	5.00 %
K Factor:	0.07	FFS(mph):	35
D Factor:	0.60	Arival Type:	3

LOS	Max AADT
A	0
B	0
C	0
D	31,700
E	40,700

Printed At: 10:26:22AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	NC 50: 1		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Suburban
Functional Category:	Minor Arterial
Street Class:	Class II

Number of Lanes:	1
Segment Len.(mi):	3.20
Signals/Mile:	1.00
Cycle Length(s):	120
g/C Ratio:	0.55

PHF:	0.90	Prop. Lt:	5.00 %
K Factor:	0.10	FFS(mph):	45
D Factor:	0.70	Arival Type:	3

LOS	Max AADT
A	11,700
B	14,100
C	15,200
D	16,800
E	18,800

Printed At: 8:46:04AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	NC 55: 1		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Intermediate
Functional Category:	Minor Arterial
Street Class:	Class III

Number of Lanes:	1
Segment Len.(mi):	1.20
Signals/Mile:	4.00
Cycle Length(s):	120
g/C Ratio:	0.50

PHF:	0.90	Prop. Lt:	15.00 %
K Factor:	0.10	FFS(mph):	35
D Factor:	0.65	Arival Type:	4

LOS	Max AADT
A	0
B	0
C	10,800
D	14,400
E	15,300

Printed At: 10:06:48AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	Ten Ten: 1 (2035)		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Suburban
Functional Category:	Minor Arterial
Street Class:	Class II

Number of Lanes:	2		
Segment Len.(mi):	3.60		
Signals/Mile:	1.00		
Cycle Length(s):	120		
g/C Ratio:	0.55		
PHF:	0.90	Prop. Lt:	5.00 %
K Factor:	0.10	FFS(mph):	45
D Factor:	0.55	Arival Type:	3

LOS	Max AADT
A	22,400
B	35,200
C	37,600
D	40,900
E	45,400

Printed At: 8:37:13AM On: 5/7/2009

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	Ten Ten: 1		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Suburban
Functional Category:	Minor Arterial
Street Class:	Class II

Number of Lanes:	1
Segment Len.(mi):	3.60
Signals/Mile:	1.00
Cycle Length(s):	120
g/C Ratio:	0.55

PHF:	0.90	Prop. Lt:	5.00 %
K Factor:	0.10	FFS(mph):	45
D Factor:	0.55	Arival Type:	3

LOS	Max AADT
A	11,100
B	17,500
C	18,800
D	20,500
E	22,700

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	Ten Ten: 2		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Suburban
Functional Category:	Minor Arterial
Street Class:	Class II

Number of Lanes:	1
Segment Len.(mi):	10.40
Signals/Mile:	1.00
Cycle Length(s):	120
g/C Ratio:	0.55

PHF:	0.90	Prop. Lt:	5.00 %
K Factor:	0.10	FFS(mph):	45
D Factor:	0.55	Arival Type:	3

LOS	Max AADT
A	14,900
B	17,900
C	19,300
D	21,200
E	23,800

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Facility Name:	Timber		
Project Name:	SE Wake Capacity Analysis	Organization:	HNTB

Region Type:	Piedmont
Facility Type:	Arterial
Design Category:	Suburban
Functional Category:	Minor Arterial
Street Class:	Class II

Number of Lanes:	2		
Segment Len.(mi):	4.00		
Signals/Mile:	2.00		
Cycle Length(s):	120		
g/C Ratio:	0.55		
PHF:	0.90	Prop. Lt:	12.00 %
K Factor:	0.11	FFS(mph):	45
D Factor:	0.65	Arival Type:	3

LOS	Max AADT
A	0
B	20,500
C	28,900
D	30,500
E	32,600

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HNTB North Carolina, PC
The HNTB Companies
Engineers Architects Planners

343 E. Six Forks Road
Suite 200
Raleigh, NC 27609

Telephone (919) 546-8997
Facsimile (919) 546-9421
www.hntb.com

FINAL

Project Name
Southern and Eastern Wake Freeway

Date of Meeting
4/7/09

HNTB Project #
46816

Location
NCDOT Transportation Mobility and Safety Conference Room 161

From:
John Grant. P.E.

Purpose of Meeting
Discuss scope/methodology of the planning-level traffic capacity analysis.

Time
2:00 p.m.

MEETING MINUTES

Present:

Renee Roach, P.E.	NCDOT-Transportation Mobility and Safety
Benjetta Johnson, P.E.	NCDOT-Transportation Mobility and Safety (Congestion Management)
Doumit Ishak	NCDOT-Transportation Mobility and Safety (Congestion Management)
Missy (Dickens) Pair, P.E.	NCDOT-Project Development and Environmental Analysis
Tracy Roberts, AICP	HNTB-NCTA General Engineering Consultant (GEC)
Spencer Franklin, P.E.	HNTB-NCTA GEC
Bradley Reynolds, P.E.	HNTB-NCTA GEC
John Grant, P.E.	HNTB-NCTA GEC

The following summarizes the meeting held on April 7, 2009 with the North Carolina Department of Transportation (NCDOT) to discuss the Southern and Eastern Wake Freeway scope/methodology for the planning-level traffic capacity analysis. The results of the analysis will be used to support development of purpose and need for the proposed Southern and Eastern Wake Freeway project.

Introductions

- Introductions were conducted around the room. Each of the attendees introduced themselves and stated their role on the project and signed the attendance sheet.
- Mr. Roberts discussed the project background and stated the objective of the meeting was to reach agreement on the scope and methodology of the planning-level traffic capacity analysis for the proposed Southern and Eastern Wake Freeway project. The results of the analysis will be used to support development of the purpose and need for the project. Mr. Roberts explained that the North Carolina Turnpike Authority (NCTA) has not officially adopted Southern and Eastern Wake Freeway as a candidate toll project, but that this is anticipated later this year. However, should the project remain with NCDOT as a non-toll project, the results of the planning-level capacity analysis could also be used by NCDOT for their own National Environmental Policy Act (NEPA) studies (as is the case with the previously-completed traffic forecast referenced below). The intent is that work products developed by NCTA could be used by either NCDOT or NCTA.
- Mr. Franklin mentioned that the planning-level capacity analysis will utilize the approved *Southern and Eastern Wake Freeway Final Traffic Forecast Report* prepared by HNTB on behalf

of NCTA in February 2009. A hard copy of the report was provided to Ms. Johnson at the meeting.

Planning-Level Traffic Capacity Analysis

- Mr. Grant mentioned that the analysis will be performed in accordance with the "NCDOT Congestion Management Capacity Analysis Guidelines" revised 2-15-2006. Any deviations from these guidelines will be discussed with NCDOT and explained in the memorandum.
- Mr. Grant stated that North Carolina Level of Service (NCLOS) software, Version 2.0, will be used to determine segmental roadway levels of service and volume-capacity ratio for all scenarios because the approved traffic forecast is a link-level forecast does not have detailed directional movements.
- Mr. Grant mentioned that the analysis will only include the mainline freeway segments and not the ramp merge, ramp diverge, and weaving elements. NCLOS is not capable of providing this level of detailed analysis and no capacity analyses will be performed for collector-distributor (CD) roadways as NCLOS is not designed for this application.
- Mr. Grant mentioned that the analysis criteria for each roadway (freeway and arterial) will be established for the analysis and provided in the memorandum. The initial analysis assumptions and scenarios were included with the agenda (attached) and Mr. Grant discussed these assumptions. These input values will be based on field-observed data collection, the approved traffic forecast and engineering judgment.
- Mr. Grant mentioned that roadway levels of service and volume-capacity ratios will be analyzed for all routes included in the traffic forecast.
- Mr. Grant showed a similar example of a traffic operations technical memorandum for an NCTA project. The Gaston East-West Connector Traffic Operations Technical Memorandum was completed by PBS&J in September 2008 and the approach and methodology in that memorandum will be used as an example for the Southern and Eastern Wake Freeway traffic capacity analysis.
- Mr. Grant mentioned that a crash data request will be submitted to NCDOT and that a separate crash analysis report will be completed during development of the purpose and need. Mr. Grant is coordinating the scope of the crash data request with Brian Mayhew of NCDOT. *Update: NCTA submitted the request for crash data to NCDOT on April 15, 2009. NCDOT agreed to provide the crash data by May 15, 2009.*
- Ms. Pair asked if safety would be included as a need for the project. Mr. Roberts responded that it is unlikely to be included as a need but that crash data would still be collected. Ms. Pair was in agreement that anticipated new location projects, such as Southern and Eastern Wake Freeway, generally do not have a safety component of the purpose and need due to the difficulty in demonstrating that safety improvements on existing roads would be provided by new location projects.

Wrap-up

- Mr. Reynolds asked if anyone had questions or concerns with the proposed scope and methodology to be used for the planning-level capacity analysis. All meeting attendees were in agreement with the assumptions, approach and scenarios as discussed.

Action Items

- HNTB mailed a copy of the latest NCLOS software (Version 2.0) to Ms. Benjetta Johnson, P.E. on April 20, 2009.

- HNTB will prepare draft meeting minutes and distribute to all attendees for comment. After the comments are addressed, HNTB will submit final meeting minutes.

The foregoing constitutes our understanding of the matters discussed and the conclusions reached. If there are any questions, corrections, omissions, or additional comments, please advise John Grant (HNTB) within five working days after receipt of these minutes.

cc: Attendees
Jennifer Harris, P.E., NCTA
Project File