RAMEY KEMP & ASSOCIATES, INC.
TRANSPORTATION ENGINEERS

4928-A Windy Hill Drive
Raleigh, North Carolina 27609
Phone: 919.872.5115
Fax: 919.878.5416

August 18, 2006

Mr. Kirk J. Bradley
Chairman, President & C.E.O.
Lee-Moore Oil Company
PO Drawer 9
Sanford, NC 27331

Subject: Proposed Retail Center – Chatham County, North Carolina

Dear Mr. Bradley:

A Traffic Impact Analysis was conducted in February, 2006 for a proposed retail center, located along US 15-501 in Chatham County, North Carolina. The proposed build-out of the site has been modified, as shown on the attached revised site plan, and is anticipated to consist of an approximately 140,800 square foot home improvement store, approximately 49,400 square feet of retail space and two out-parcels. For the purpose of the revised analysis, it was assumed that the two out-parcels will consist of a gasoline station with convenience market, car wash and twenty (20) fueling stations and a pharmacy/drug store with drive-thru. The ITE *Trip Generation Manual* was used to determine the projected site-generated trips, based on the revised site plan. As in the Traffic Impact Analysis Report, applicable pass-by rates were used for the proposed land uses to determine the site-generated primary trips. In addition, as in the original report, no internal trip capture was assumed in order to provide a conservative approach to primary site trip generation. Table 1 provides a summary of the projected peak hour primary site trips, based on the revised build-out.

TABLE 1
Primary Trip Generation – Revised Development Build-out

ITE LAND USE (CODE)	SIZE	Primary Trips	
		AM Peak Hour	PM Peak Hour
Home Improvement Superstore (862)	140,800 square feet	169	179
Shopping Center (820)	49,400 square feet	103	275
Pharmacy/Drugstore with Drive-Thru (881)	14,800 square feet	39	65
Gasoline Station with Convenience Market and Car Wash (946)	20 fueling positions	81	118
Total		**392**	**637**

For comparison purposes, Table 2 is provided which shows the original development build-out and the expected peak hour primary site trips.

TABLE 2
Primary Trip Generation - Original Development Build-out

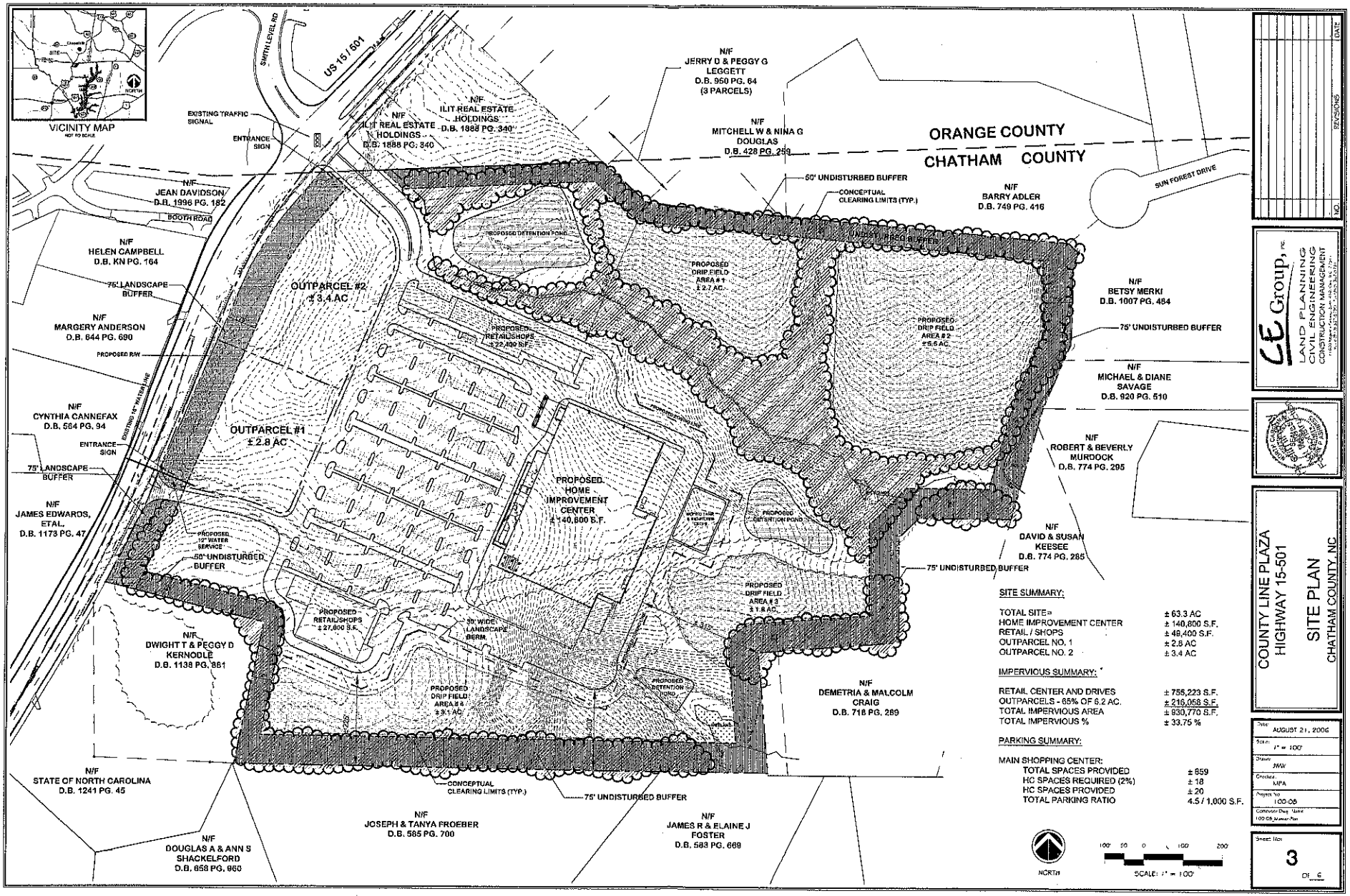
ITE LAND USE (CODE)	SIZE	Primary Trips	
		AM Peak Hour	PM Peak Hour
Shopping Center (820)	246,100 square feet	269	794
Drive-in Bank (912)	5,000 square feet	62	120
High-Turnover Sit-Down Restaurant (932)	6,000 square feet	69	86
Fast-Food Restaurant with Drive-Thru (934)	4,000 square feet	108	69
Gasoline Station with Convenience Market and Car Wash (946)	20 fueling positions	81	118
Total		**589**	**1,167**

A review of Table 1 indicates that the proposed build-out of the subject development is projected to contribute significantly less peak hour primary site trips than what was assumed for the original Traffic Impact Analysis Report. A comparison of the total peak hour primary trips in Table 1 and Table 2 indicates that the proposed build-out is projected to contribute approximately 33% less peak hour primary site trips during the AM peak hour and approximately 45% less peak hour primary site trips during the PM peak hour.

The preceding information indicates that the Traffic Impact Analysis Report for the proposed retail center in Chatham County, dated February, 2006, is based on a very conservative approach to site trip generation. The proposed land uses shown on the revised site plan are expected to generate significantly less traffic than those used in the study, thus, the anticipated impacts to the adjacent street network are reduced.

If you have any questions or concerns regarding this letter, please do not hesitate to contact me at 919-872-5115.

Sincerely yours,
Ramey Kemp & Associates, Inc.
Ramey F. Kemp Jr.
Ramey Kemp, P.E., PTOE
President



SITE SUMMARY:

TOTAL SITE=	± 63.3 AC
HOME IMPROVEMENT CENTER	± 140,800 S.F.
RETAIL / SHOPS	± 49,400 S.F.
OUTPARCEL NO. 1	± 2.8 AC
OUTPARCEL NO. 2	± 3.4 AC

IMPERVIOUS SUMMARY:

RETAIL CENTER AND DRIVES	± 755,223 S.F.
OUTPARCELS - 65% OF 6.2 AC.	± 216,058 S.F.
TOTAL IMPERVIOUS AREA	± 930,770 S.F.
TOTAL IMPERVIOUS %	± 33.75 %

PARKING SUMMARY:

MAIN SHOPPING CENTER:	
TOTAL SPACES PROVIDED	± 859
HC SPACES REQUIRED (2%)	± 18
HC SPACES PROVIDED	± 20
TOTAL PARKING RATIO	4.5 / 1,000 S.F.

NO. | REVISIONS | DATE

CE Group, PC
LAND PLANNING
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT

COUNTY LINE PLAZA
HIGHWAY 15-501
SITE PLAN
CHATHAM COUNTY, NC

Date: AUGUST 21, 2006
Scale: 1" = 100'
Drawn: JWW
Checked: MPA
Project No: 100-05
Construction Dwg. Name: 100-05 Master Plan

Sheet No: 3 OF 6

TRAFFIC IMPACT ANALYSIS REPORT

FOR A

PROPOSED RETAIL CENTER

LOCATED

IN

CHATHAM COUNTY, NORTH CAROLINA

Prepared For
Kirk Bradley

Prepared By
Ramey Kemp & Associates, Inc.

February 2006

TRAFFIC IMPACT ANALYSIS REPORT

FOR A

PROPOSED RETAIL CENTER

LOCATED

IN

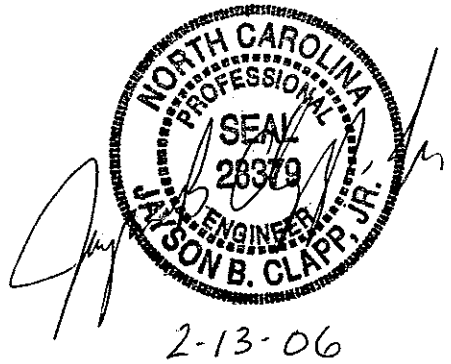
CHATHAM COUNTY, NORTH CAROLINA

Prepared For
Kirk Bradley
1807 Douglas Drive
Sanford, North Carolina

Prepared By
Ramey Kemp & Associates, Inc.
4928-A Windy Hill Drive
Raleigh, North Carolina

February 2006

RKA Project No. 05155



2-13-06

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PROPOSED RETAIL CENTER
CHATHAM COUNTY, NORTH CAROLINA

1. INTRODUCTION

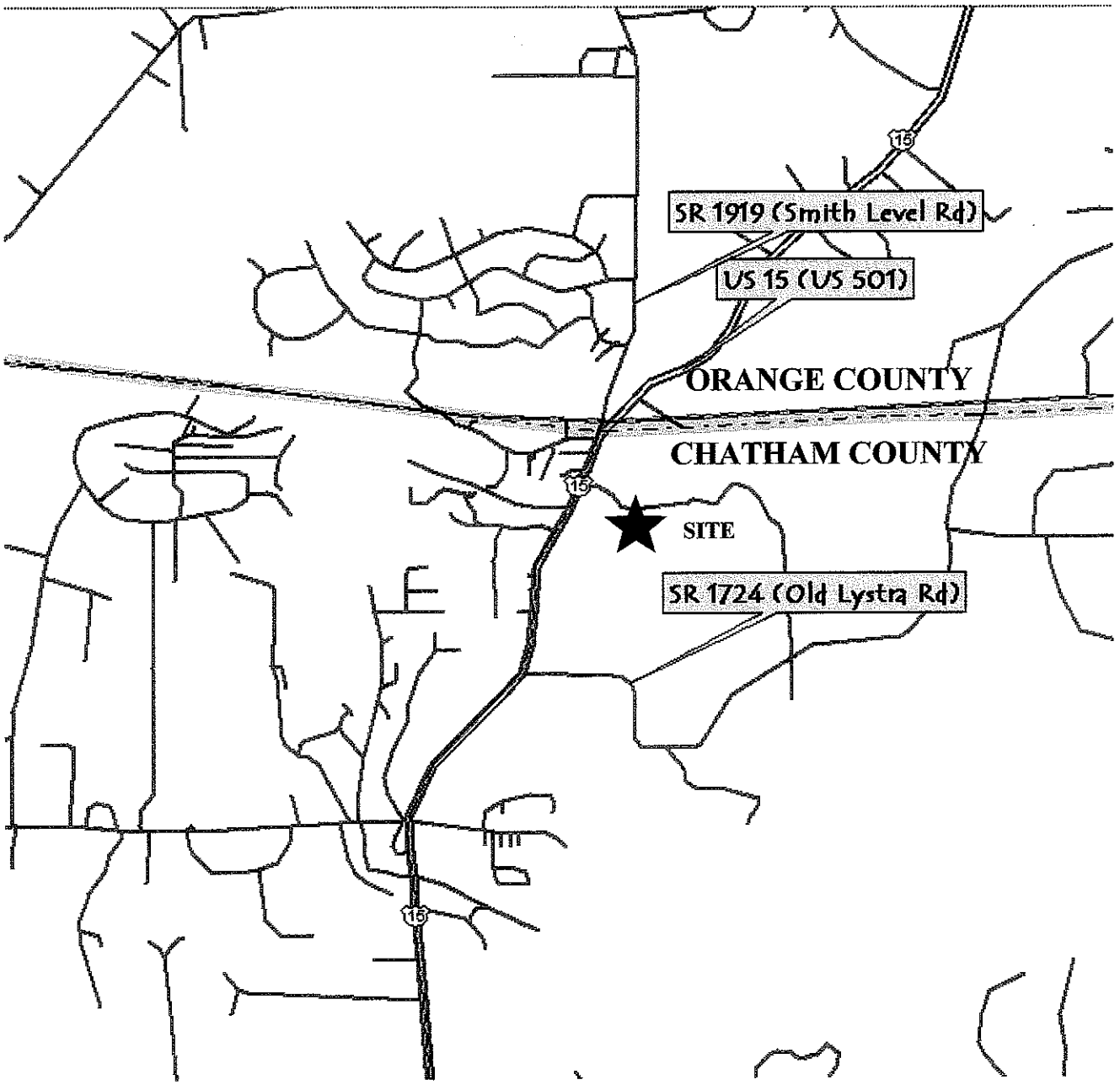
This report summarizes the findings of the Traffic Impact Analysis (TIA) that was performed for the proposed retail center on US 15-501 in Chatham County, North Carolina. The preliminary site plan indicates that the development will consist of approximately 246,100 square feet (sf) of retail space and four (4) outparcels (including a gasoline station with convenience market and car wash) on approximately 65.5 acres. The purpose of this study is to determine the potential impact to the surrounding transportation system caused by the additional traffic generated by the proposed development. The purpose of this study is to determine the potential impact to the adjacent transportation system caused by the additional traffic generated by the proposed development.

The site is currently zoned for commercial retail use along US 15-501 and for residential use in the rear of the property. The developer is requesting that the existing commercial zoning be realigned to allow for the proposed retail center, while maintaining buffers to the north and south of the retail center. In order to determine the potential impact of the proposed zoning request, this study analyzed future (2007 and 2020) traffic conditions during the weekday AM and PM peak hours under the existing and proposed zoning.

1.1 Site Location and Study Area

The proposed retail center is located on the eastern side of US 15-501 south of the Orange County line in Chatham County, North Carolina. Refer to Figure 1 for the site location map. The study area consists of the following four (4) intersections:

- US 15-501 and Smith Level Road/Main Access (Signalized)
- US 15-501 and Secondary Access (Right-In/Right-Out)
- US 15-501 and Old Lystra Road (Signalized)
- Smith Level Road and Booth Road (Unsignalized)



PROPOSED RETAIL CENTER *CHATHAM COUNTY, NORTH CAROLINA*		
SITE LOCATION MAP		
	SCALE: Not to Scale	Figure 1

1.2 Proposed Land Use and Site Access

The preliminary site plan indicates that the development will consist of approximately 246,100 square feet (sf) of retail space as well as four (4) outparcels (including a gasoline station with convenience market and car wash) on approximately 65.5 acres. The gasoline station will have 20 fueling positions. While the remaining outparcels can consist of a variety of land uses, the study assumed the following land uses: a 5,000 square foot drive-in bank, a 6,000 square foot high turnover (sit-down) restaurant, and a 4,000 square foot fast food restaurant with drive-through window. The development has an anticipated build out commencing in 2006 and completed in 2007.

Access to the site is proposed on US 15-501 via two (2) new driveway connections. A full access connection [Main Access] is proposed to be provided opposite Smith Level Road at the existing traffic signal. The remaining driveway [Secondary Access] is proposed to be provided approximately 1,000 feet south the Smith Level Road/Main Access intersection. This driveway will be restricted to right turn movements only. Furthermore, access to all outparcels is proposed to be provided internal to the site. Refer to Figure 2 for the preliminary site plan.

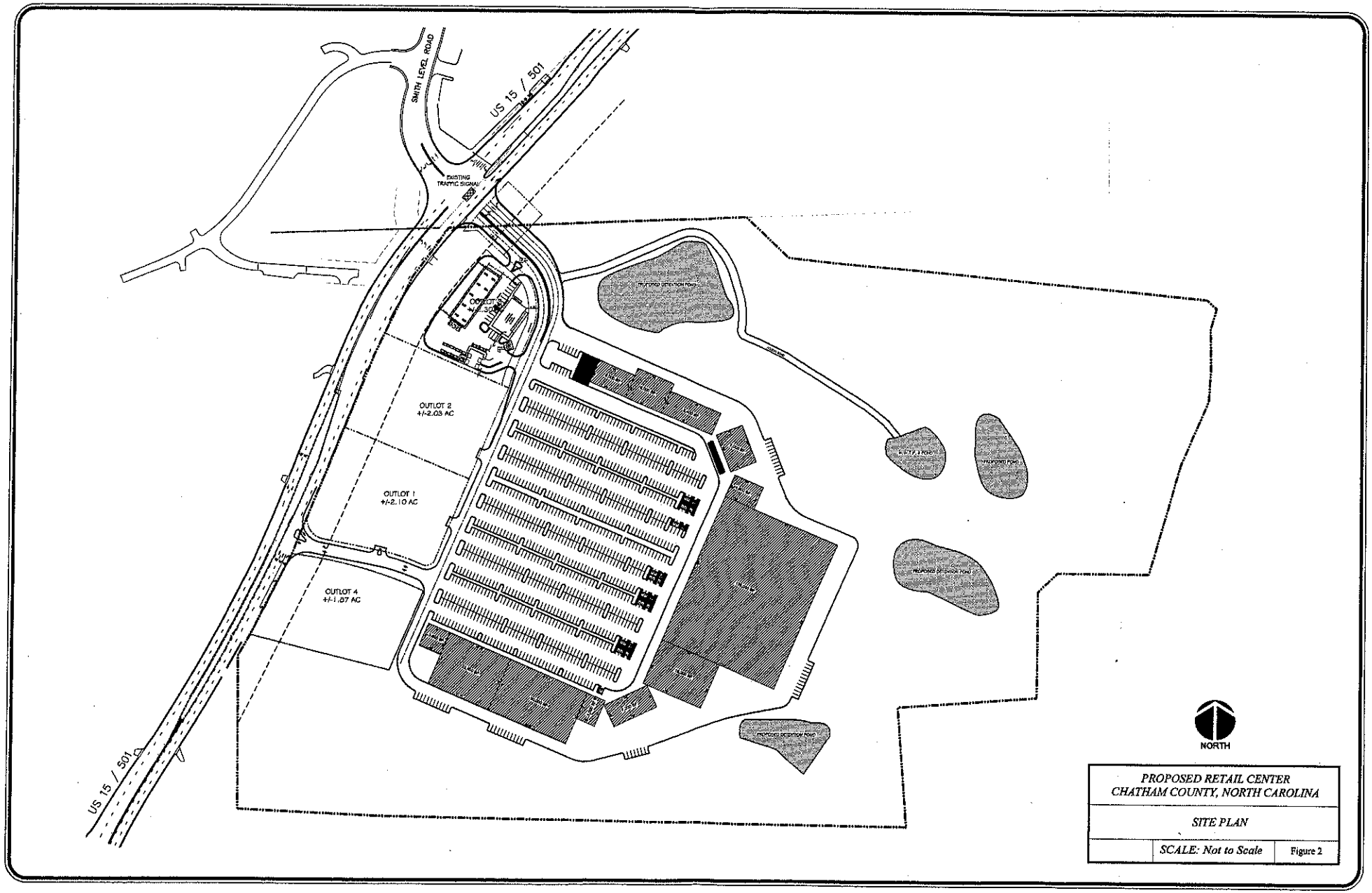
1.3 Existing and Proposed Land Uses

The subject property is presently vacant, the property north of it in Orange County is mostly undeveloped with scattered residential uses and the property south of it is a Park and Ride lot for up to 550 automobiles. Orange County, the Town of Chapel Hill and University of North Carolina at Chapel Hill are located to the north of the site.

The University of North Carolina at Chapel Hill has constructed Phase I of a two-phase Park and Ride lot on US 15-501 south of the site. The project was completed in the early Fall and the schedule for Phase II is unknown at this time.

1.4 Existing and Future Roadways

The project study area for this TIA basically consists of the following facilities: US 15-501, Smith Level Road, and Old Lystra Road. While Smith Level Road (SR 1919) and Old Lystra Road (SR 1724) are both two-lane facilities, US 15-501 is being widened to a multi-lane facility.



PROPOSED RETAIL CENTER
CHATHAM COUNTY, NORTH CAROLINA

SITE PLAN

SCALE: Not to Scale | Figure 2

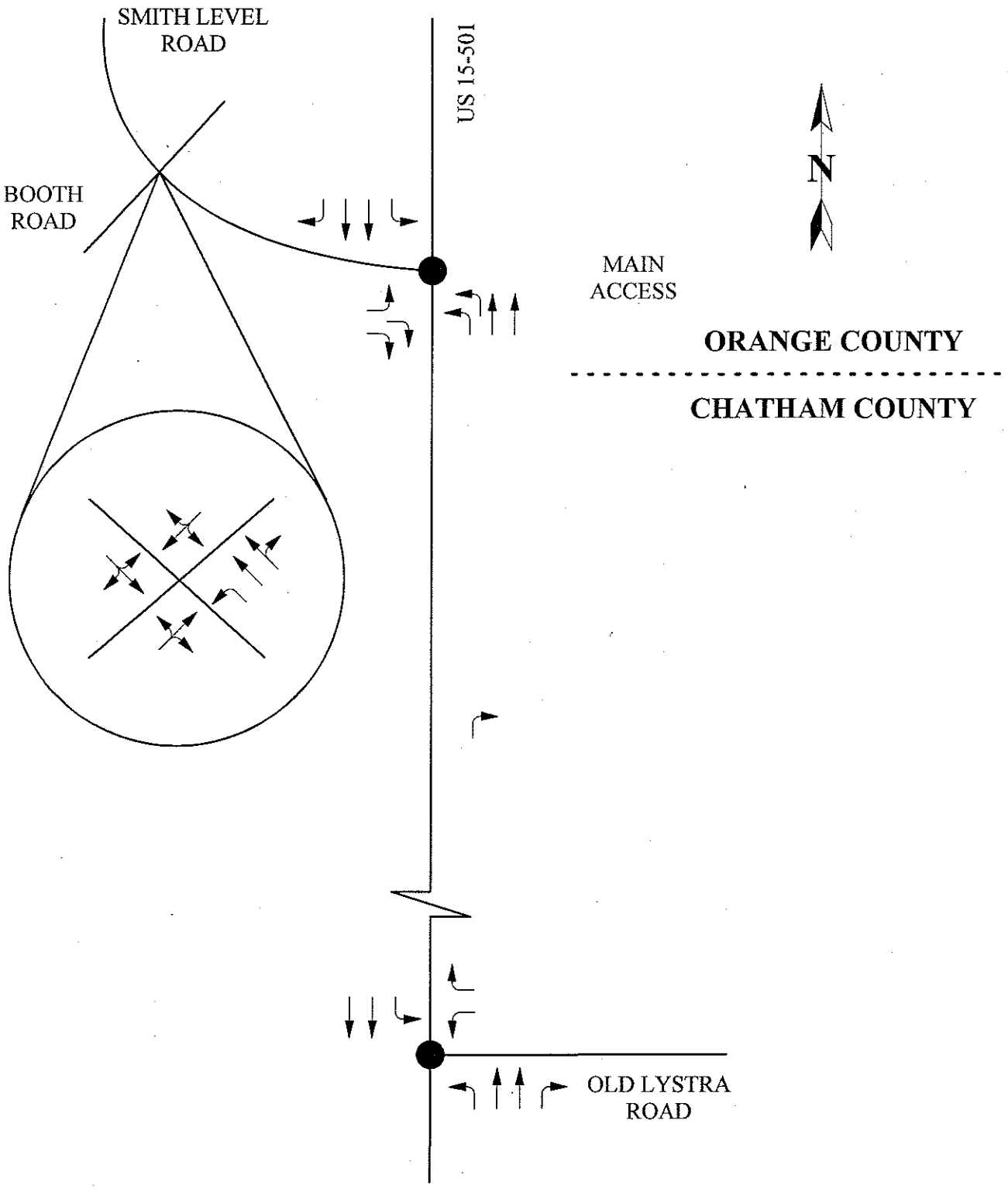
US 15-501 is being widened to a multi-lane divided facility from the Pittsboro Bypass to the Chapel Hill Bypass under the North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) project R-942. Smith Level Road was also realigned under the project. According to the most recent data available form NCDOT, R-942 is proposed to be completed by May of 2006; therefore, all analyses will utilize the planned improvements. Refer to Figure 3 for an illustration of the planned lane configurations.

2. TRAFFIC ANALYSIS PROCEDURE

Design hour volumes at the study intersections were analyzed utilizing Synchro 6 (Build 614). Synchro 6 is a comprehensive software package developed by Trafficware that allows the user to model and optimize signal timing for coordinated and uncoordinated signalized intersections to determine level of service (based on thresholds specified in the 2000 Highway Capacity Manual). In addition, Synchro allows unsignalized analyses to be performed utilizing the methodologies outlined in the 2000 HCM. Therefore, all analyses were performed using Synchro 6 exclusively.

Analysis results for signalized intersections provide level of service calculations for all approaches and an overall resulting level of service. The capacity analysis for an unsignalized intersection does not provide an overall level of service, but rather a level of service for movements and/or approaches that have a conflicting movement. Capacity and level of service are the design criteria for this traffic study.

The HCM defines capacity as "the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions". Level of service (LOS) is a term used to represent different driving conditions, and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers". Level of service varies from Level "A" representing free flow, to Level "F" where greater vehicle delays are evident. Refer to



LEGEND

- Signalized Intersection
- Right-In/Right-Out Intersection
- Lane Configuration

PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
PLANNED LANE CONFIGURATIONS		
	SCALE: Not to Scale	*Figure 3*

Table 1 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. As shown in Table 1, levels of service are stated in terms of average control delay. Control delay as defined by the HCM includes "initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay". An average control delay of 40 seconds at a signalized intersection corresponds to LOS D.

Table 1
Highway Capacity Manual Levels of Service and Delay

SIGNALIZED INTERSECTION		UNSIGNALIZED INTERSECTION	
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (S/VEH)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (S/VEH)
A	0 – 10	A	0 – 10
B	10 – 20	B	10 – 15
C	20 – 35	C	15 – 25
D	35 – 55	D	25 – 35
E	55 – 80	E	35 – 50
F	> 80	F	> 50

3. EXISTING ZONING - FUTURE TRAFFIC CONDITIONS

As previously indicated, the proposed development is anticipated to be started in 2006 and built out by the year 2007. Considering that the proposed development is located within the project limits of an active TIP project (R-942), a design year analysis will also be performed as part of this study to determine the potential impact that the new driveway connection will have on the TIP project. In order to account for the growth of traffic and subsequent traffic conditions at the build out year and the design year, future traffic projections are needed.

3.1 Calculation of Future Traffic Conditions under Existing Zoning

Typically, in order to estimate future traffic volumes, existing traffic volumes would be projected to a future year by applying a compounded annual growth rate. This accounts for the increase in traffic that is associated with the background growth that is expected to occur within the surrounding areas and communities. Then, traffic generated by

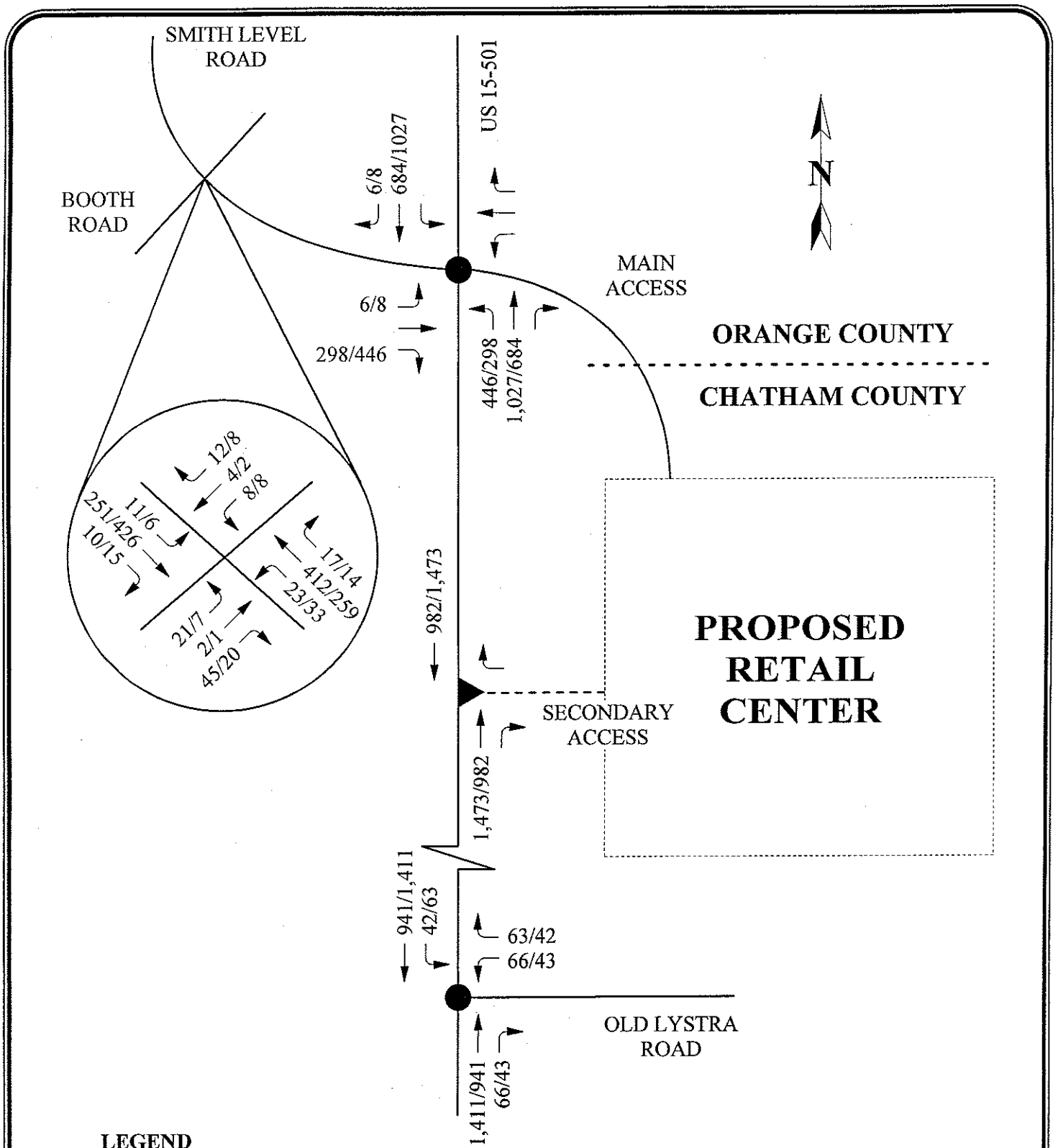
approved adjacent developments that are expected to impact the study area would be added to background traffic volumes within the transportation network.

However, in this particular case, the proposed development is located within the limits of a NCDOT TIP project. Therefore, this study estimated future peak hour traffic volumes at the study intersections utilizing ADT projections provided by the NCDOT Transportation Planning Branch for TIP R-942 (refer to Appendix A). The ADT projections were used to estimate future 2007 and 2020 traffic volumes at the intersections on US 15-501 at Smith Level Road and Old Lystra Road. A straight line interpolation between the year 1996 and 2020 ADT volumes was used to estimate the traffic volumes for the build out year 2007. For the purposes of this report, the ADT volumes are assumed to account for any adjacent development traffic in the study by utilizing existing zoning information. Refer to Appendix A for the peak hour traffic calculations.

Although projections were provided for the intersection of Smith Level Road and Booth Road, turning movement counts were conducted at this intersection on January 3 and 4, 2006 during the PM (4:30 to 6:30) and AM (7:00 to 9:00) peak periods, respectively. The counts were conducted in order to obtain turning movements at the four-legged intersection, which includes a driveway located opposite the realigned Booth Road. Refer to Appendix A for the raw traffic count data. The through volumes on Smith Level Road were balanced between Booth Road and US 15-501. Refer to Figures 4 and 5 for an illustration of the future traffic conditions under existing zoning.

3.2 Analysis of Future Traffic Conditions under Existing Zoning

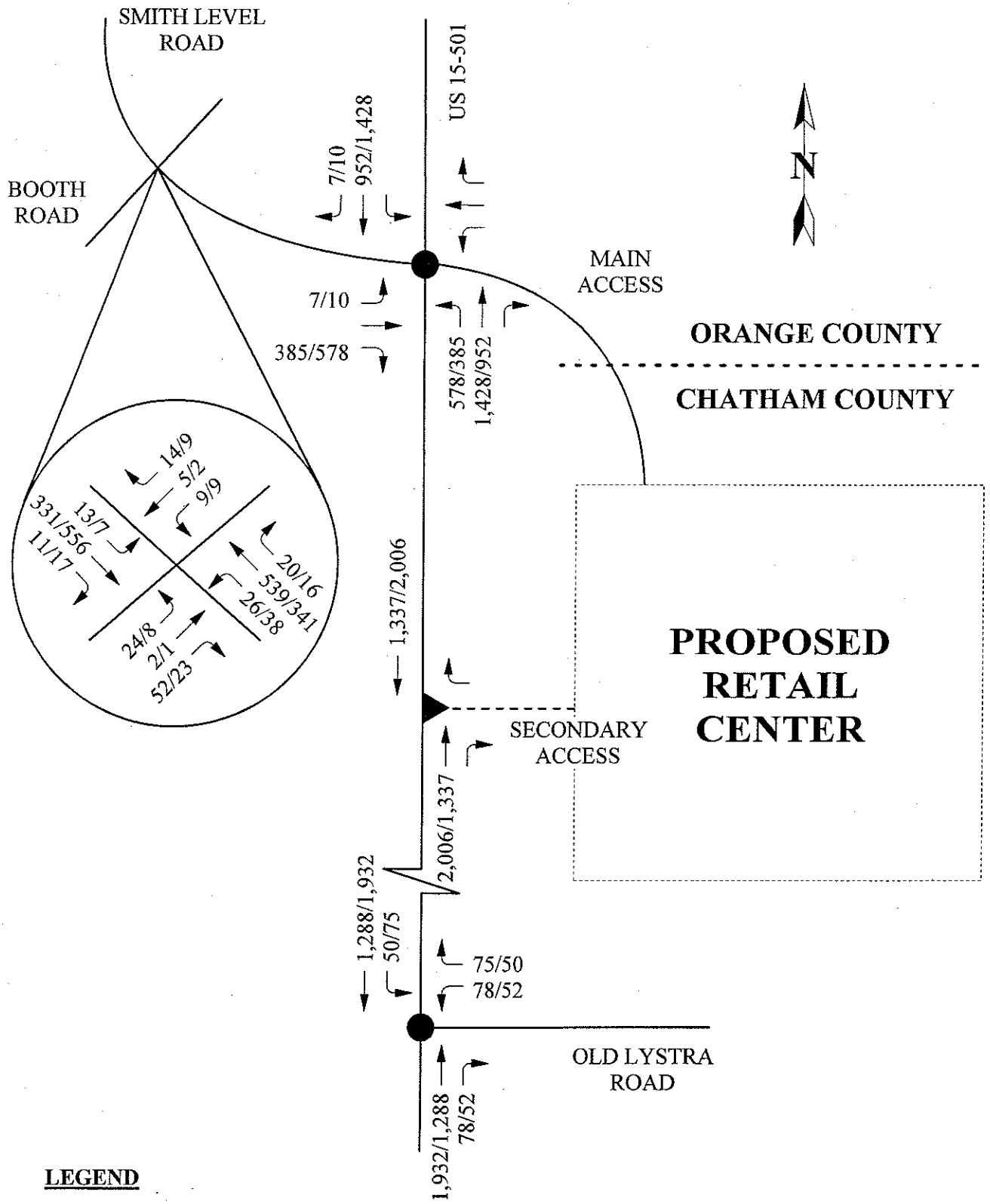
The intersections on US 15-501 at Smith Level Road and Old Lystra Road are both signalized. Per discussions with NCDOT, these signals are being incorporated into a coordinated signal system on US 15-501. While the system is not currently in operation and the signals are still operating under isolated conditions, the coordinated system is expected to be operational by the year 2007 when the proposed development is anticipated to be built out.



LEGEND

- Signalized Intersection
- Right-In/Right-Out Intersection
- XXX/YYY Traffic Volumes - AM Peak/PM Peak

PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
FUTURE (2007) TRAFFIC CONDITIONS (EXISTING ZONING)		
	SCALE: Not to Scale	*Figure 4*



LEGEND

- ● Signalized Intersection
- ▲ Right-In/Right-Out Intersection
- XXX/YYY Traffic Volumes - AM Peak/PM Peak

PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
FUTURE (2020) TRAFFIC CONDITIONS (EXISTING ZONING)		
	SCALE: Not to Scale	*Figure 5*

Signal timing information was obtained from the signal design plans provided by the NCDOT. The signal timings (cycle length, splits, and offsets) were determined utilizing Synchro's optimization procedures for a fully-actuated controller operating under coordinated conditions. A minimum cycle length of 110 seconds was utilized for the signalized capacity analysis. A summary of the capacity analysis results is presented in Table 2. Refer to Appendix B for more detailed capacity analysis results for the future traffic conditions under existing zoning.

Table 2
Analysis of Future Traffic Conditions under Existing Zoning

INTERSECTION	APPROACH	LANE CONFIGURATION	LEVELS OF SERVICE							
			FUTURE (2007) TRAFFIC CONDITIONS				FUTURE (2020) TRAFFIC CONDITIONS			
			AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
			Appr.	Overall	Appr.	Overall	Appr.	Overall	Appr.	Overall
US 15-501 and Smith Level Road (Signalized)	NB SB EB	2 LT, 2 TH 2 TH, 1 RT* 1 LT, 2 RT	A B C	B	A B D	B	A B C	B	A C D	B
US 15-501 and Old Lystra Road (Signalized)	NB SB WB	1 LT, 1 RT 2 TH, 1 RT 1 LT, 2 TH	B A D	A	A A D	A	B A D	B	A A D	A
Smith Level Road and Booth Road (Unsignalized)	NB SB EB WB	1 LT, 1 TH, 1 TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A[1] A[1] B[2] C[2]		A[1] A[1] B[2] C[2]		A[1] A[1] C[2] C[2]		A[1] A[1] C[2] C[2]	

* Right turn taper that is modeled as a shared through-right.
1. Level of service for left turn movement on major approach.
2. Level of service for minor approach.

Under future 2007 and 2020 traffic conditions [with the proposed TIP project completed], capacity analysis indicates that the signalized intersection of US 15-501 and Smith Level Road is expected to operate at an acceptable overall LOS B during the AM and PM peak hours. In addition, all approaches are expected to operate at an acceptable LOS D or better. Analysis also indicates that the signalized intersection of US 15-501 and Old Lystra Road is expected to operate at an acceptable overall LOS B or better during the

AM and PM peak hours. The approaches are expected to operate at an acceptable LOS D or better.

As for the unsignalized intersection of Smith Level Road and Booth Road, capacity analysis indicates that the left turn movements [onto Booth Road and into the driveway] from Smith Level Road are expected to experience delays of less than 9 seconds per vehicle and operate at LOS A during the AM and PM peak hours. The minor approaches [of Booth Road and the driveway] are expected to experience more moderate delays of less than 22.5 seconds per vehicle and operate at LOS C or better.

4. TRIP GENERATION

Average weekday daily, AM, and PM peak hour trips for the proposed retail center were calculated utilizing methodology contained within the 7th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation* manual. It is estimated that the proposed retail center will generate 19,230 total trips (entering and exiting) during a typical weekday. On an average weekday, the proposed retail center will generate 825 trips (452 entering and 373 exiting) during the AM peak hour and 1,833 trips (903 entering and 930 exiting) during the PM peak hour. Refer to Table 3 for a detailed breakdown of the trip generation results.

Not all of these trips will impact the adjacent roadway network. A portion of these trips will exist as pass-by trips. In actuality, a portion of the site trips will also be captured internally within the site (i.e., trips shared between the 'core' retail area and adjacent outparcels). However, it was determined that this study would not adjust for internal capture; therefore, the trip generation results could be considered conservative.

4.1 Pass-By Trips

The ITE *Trip Generation Handbook* defines pass-by trips as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from the traffic passing the site on an adjacent street, when the adjacent street provides direct

access to the generator. An example of a pass-by trip is a stop at the proposed development by a vehicle on the way home from work. These trips will not add to the overall traffic volumes on the roadway, but will add to the turning traffic at the site's driveway connections. Pass-by trips were calculated utilizing the methodology contained within the 2nd Edition of the ITE *Trip Generation Handbook*. A detailed breakdown of the pass-by trips is presented in Table 4. It is assumed that any pass-by trip that occurs during a peak hour will enter and exit during that hour. Therefore, the entering and exiting pass-by trips have been balanced.

4.2 Primary Trips

As previously indicated, not all of the total trips will be considered new trips to the roadway network. With adjustments made to account for pass-by trips, the development is expected to generate 559 primary (new) trips (334 entering and 255 exiting) during the AM peak hour and 1,167 primary trips (570 entering and 597 exiting) during the PM peak hour. A detailed breakdown of primary trips generated by the development is presented in Table 5.

Table 3
Trip Generation – Proposed Zoning

Land Use	ITE Code	Density	24 Hour Volume	AM Peak Hour Volumes		PM Peak Hour Volumes	
				Enter	Exit	Enter	Exit
Shopping Center	820	246,100 square feet	12,194	164	105	544	590
Drive-In Bank	912	5,000 square feet	1,232	35	27	114	114
High-Turnover (Sit Down) Restaurant	932	6,000 square feet	763	36	33	40	26
Fast-Food Restaurant with Drive-Thru	934	4,000 square feet	1,984	108	104	72	67
Gasoline Station with Convenience Market and Car Wash	946	20 fueling positions	3,057	109	104	133	133
Total			**19,230**	**452**	**373**	**903**	**930**

Table 4
Weekday Peak Hour Pass-By Trips – Proposed Zoning

Land Use	ITE Pass-By Rate		AM Peak Hour		PM Peak Hour	
	AM Peak	PM Peak	Enter	Exit	Enter	Exit
Shopping Center	0%	30%	0	0	170	170
Drive-In Bank	0%	47%	0	0	54	54
High-Turnover (Sit Down) Restaurant	0%	0%*	0	0	0	0
Fast-Food Restaurant with Drive-Thru	49%	50%	52	52	35	35
Gasoline Station with Convenience Market and Car Wash	62%	56%	66	66	74	74
Total			**118**	**118**	**333**	**333**

* Adjusted based on engineering judgment (43%, ITE *Trip Generation Handbook*, 2nd Edition)

Table 5
Weekday Peak Hour Primary Trips – Proposed Zoning

Land Use	Primary Trips			
	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
Shopping Center	164	105	374	420
Drive-In Bank	35	27	60	60
High-Turnover (Sit Down) Restaurant	36	33	40	26
Fast-Food Restaurant with Drive-Thru	56	52	37	32
Gasoline Station with Convenience Market and Car Wash	43	38	59	59
Total	**334**	**255**	**570**	**597**

4.3 Trip Generation Adjustments

As previously discussed, the future traffic conditions were calculated from the ADT projections that were prepared for the TIP project R-942. The ADT projections are based on the existing zoning of land in the vicinity of the roadway project. Considering that the proposed site is currently zoned for retail and residential use and the developer is requesting that the site be zoned for retail use, adjustments need to be made to the trip generation results to account for the site traffic that has already been incorporated into the traffic projections.

As indicated in a previous TIA, a preliminary plan was developed for the existing zoning and it was understood that the site could consist of the following land uses and respective densities: 183,918 square feet (sf) of retail space, a convenience market with ten (10) fueling positions, and twenty-one (21) single-family homes. Utilizing the ITE *Trip Generation* manual, the site could generate 15,764 total trips (entering and exiting) during a typical weekday. On an average weekday, the site could generate 422 total trips (314 primary trips and 108 pass-by trips) during the AM peak hour and 1,155 trips (721 primary trips and 434 pass-by trips) during the PM peak hour. Refer to Tables 6-8 for a detailed breakdown of the trip generation results.

Table 6
Trip Generation – Existing Zoning

Land Use	ITE Code	Density	24 Hour Volume	AM Peak Hour Volumes		PM Peak Hour Volumes	
				Enter	Exit	Enter	Exit
Single-Family Housing	210	21 units	247	6	18	17	10
Shopping Center	820	183,918 square feet	10,191	138	88	449	487
Convenience Market with Gasoline Pumps	853	10 fueling positions	5,426	86	86	96	96
Total			**15,764**	**230**	**192**	**562**	**593**

Table 7
Weekday Peak Hour Pass-By Trips – Existing Zoning

Land Use	ITE Pass-By Rate		AM Peak Hour		PM Peak Hour	
	AM Peak	PM Peak	Enter	Exit	Enter	Exit
Single-Family Housing	0%	0%	0	0	0	0
Shopping Center	0%	33%	0	0	154	154
Convenience Market with Gasoline Pumps	63%	66%	54	54	63	63
Total			**54**	**54**	**217**	**217**

Table 8
Weekday Peak Hour Primary Trips – Existing Zoning

Land Use	Primary Trips			
	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
Single-Family Housing	6	18	17	10
Shopping Center	138	88	295	333
Convenience Market with Gasoline Pumps	32	32	33	33
Total	**176**	**138**	**345**	**376**

In order to determine the amount of additional traffic that will be generated under the proposed zoning conditions, the primary trips (Table 8) for the existing zoning were subtracted from the primary trips (Table 5) for the proposed zoning. The results are presented in Table 9.

Table 9
Weekday Peak Hour Primary Trip Adjustments

Land Use Plan	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
Retail Center (Proposed Zoning)	334	255	570	597
Mixed-Use Development (Existing Zoning)	176	138	345	376
Adjusted Retail Center Trips	**158**	**117**	**225**	**221**

5. SITE TRIP DISTRIBUTION & ASSIGNMENT

For this study, trip distributions were developed based on surrounding population densities, existing traffic patterns, and engineering judgment. It is estimated that 45% of traffic will access the site to/from the north via US 15-501. Another 20% will access the site to/from the north via Smith Level Road, which includes 1% that accesses Smith Level Road via Booth Road. Thirty percent (30%) will access the site to/from the south via US 15-501, while the remaining 5% of the traffic will access the site to/from the east via Old Lystra Road.

The additional primary trips (Table 9) were assigned to the study intersections utilizing the primary trip distribution illustrated in Figure 6 while the pass-by trips (Table 4) at the

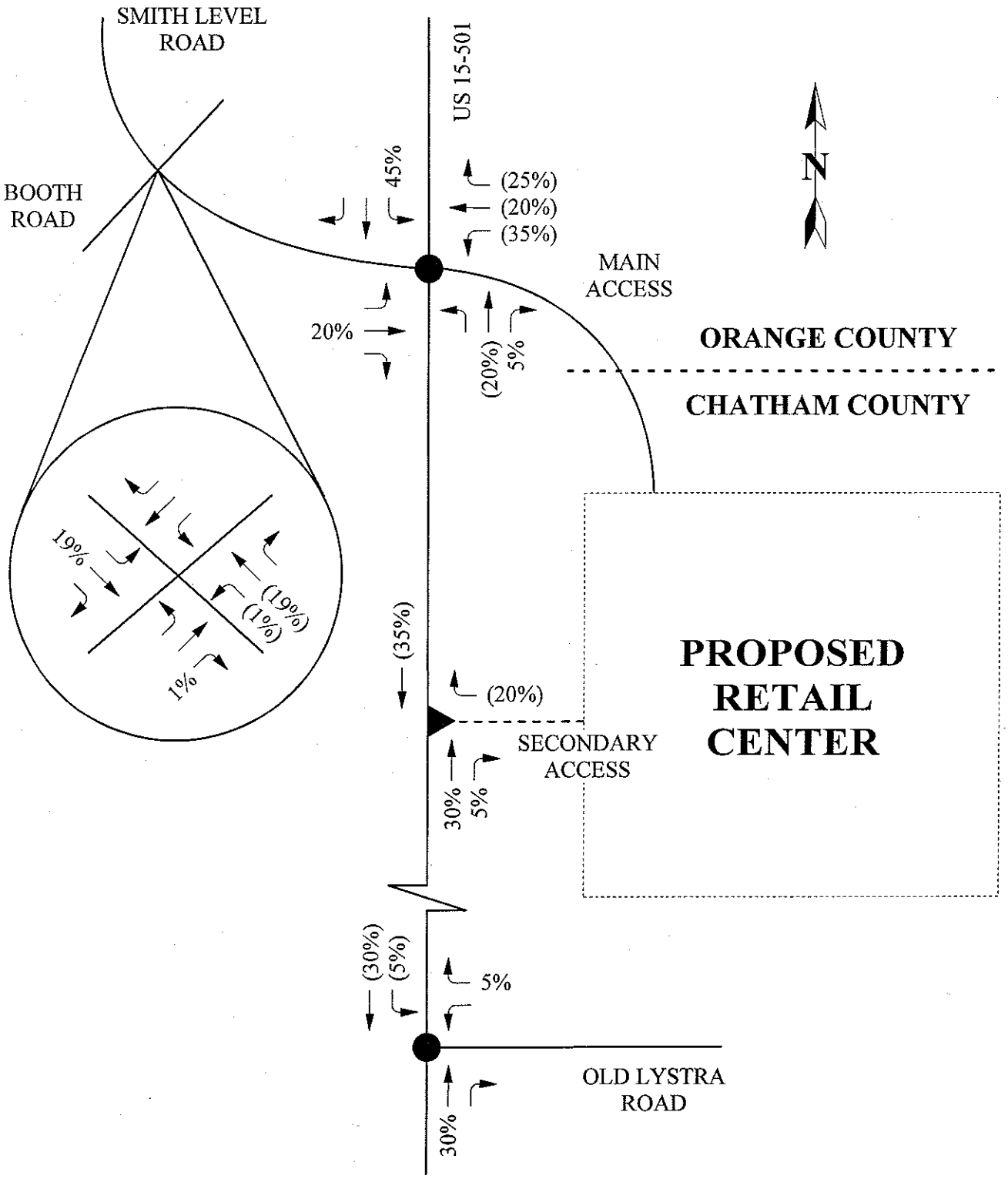
site access were distributed based on the anticipated traffic patterns during the AM and PM peak hours (Figure 7). Refer to Figures 8 and 9 for an illustration of the trip assignments. In order to determine the overall site impact, adjustments in the distribution (Figure 10) and assignment (Figure 11) were made at the intersections on US 15-501 at the Main Access [opposite Smith Level Road] and the Secondary Access. For the purposes of this analysis, it was assumed that the traffic generated by the existing zoning was distributed at the intersections using the same percentages. The overall site impact is illustrated in Figure 12.

6. PROPOSED ZONING - FUTURE TRAFFIC CONDITIONS

In order to estimate the future traffic volumes under proposed zoning, the traffic volumes illustrated in Figure 12 were combined with the future (2007 and 2020) traffic volumes under existing zoning. Refer to Figures 13 and 14 for an illustration of the future (2007 and 2020) traffic conditions, respectively.

6.1 Analysis of Future Traffic Conditions under Proposed Zoning

As previously indicated, traffic signals exist on US 15-501 at Smith Level Road and Old Lystra Road; therefore, a signalized capacity analysis was performed at these intersections. The Main Access is also proposed to be aligned with Smith Level Road, which will convert the intersection into a four-legged signalized intersection. The Secondary Access is proposed to be restricted to right turn movements only. The intersections were analyzed with any improvements that were deemed necessary for the intersection to operate at an acceptable LOS D or better. A summary of the capacity analysis at the study intersections is presented in Table 10. Refer to Appendix C for more detailed capacity analysis results of the future traffic conditions under proposed zoning.

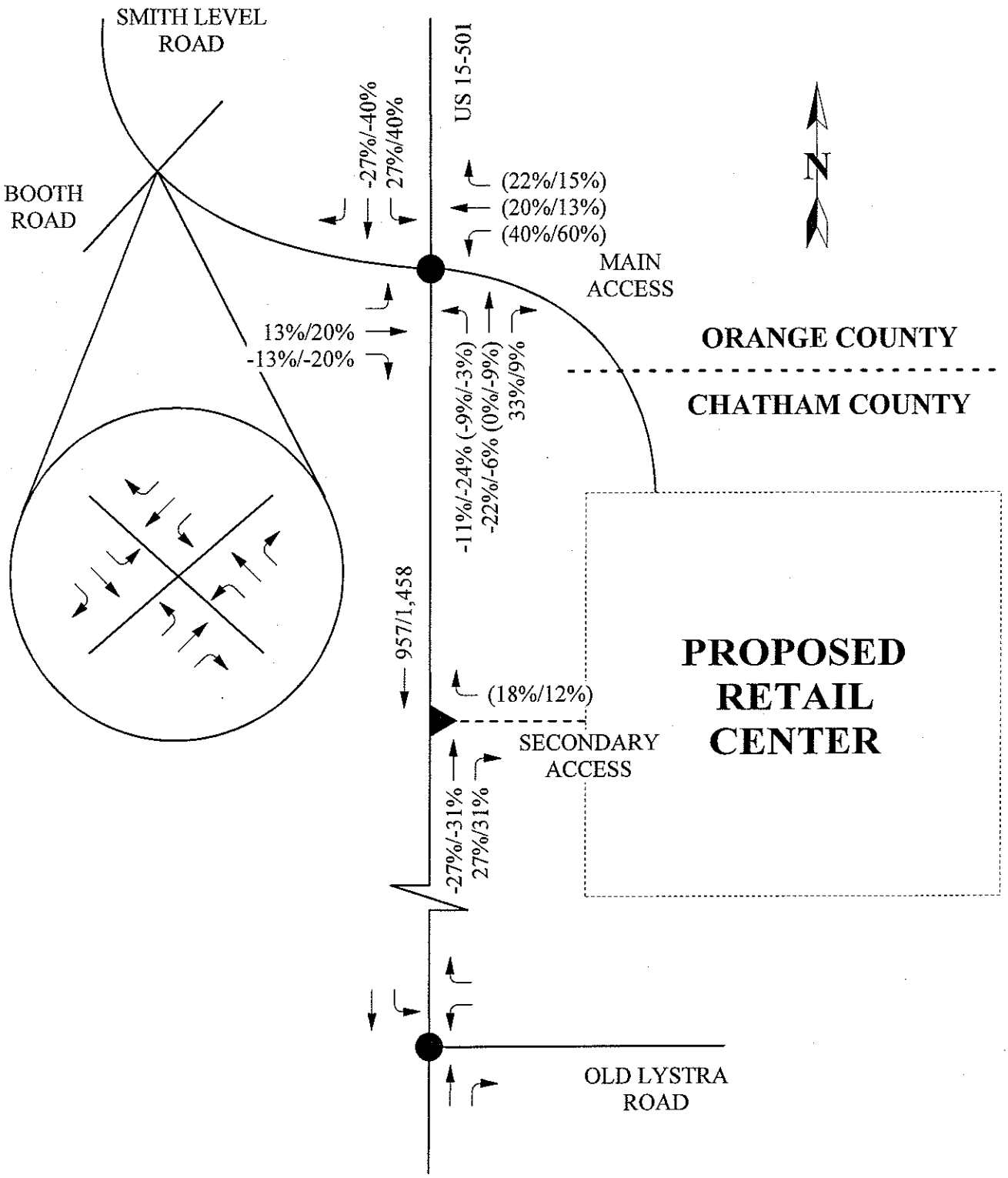


LEGEND

- Signalized Intersection
- Right-In/Right-Out Intersection

XX% (XX%) Entering (Exiting)

PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
PRIMARY TRIP DISTRIBUTION		
	SCALE: Not to Scale	*Figure 6*

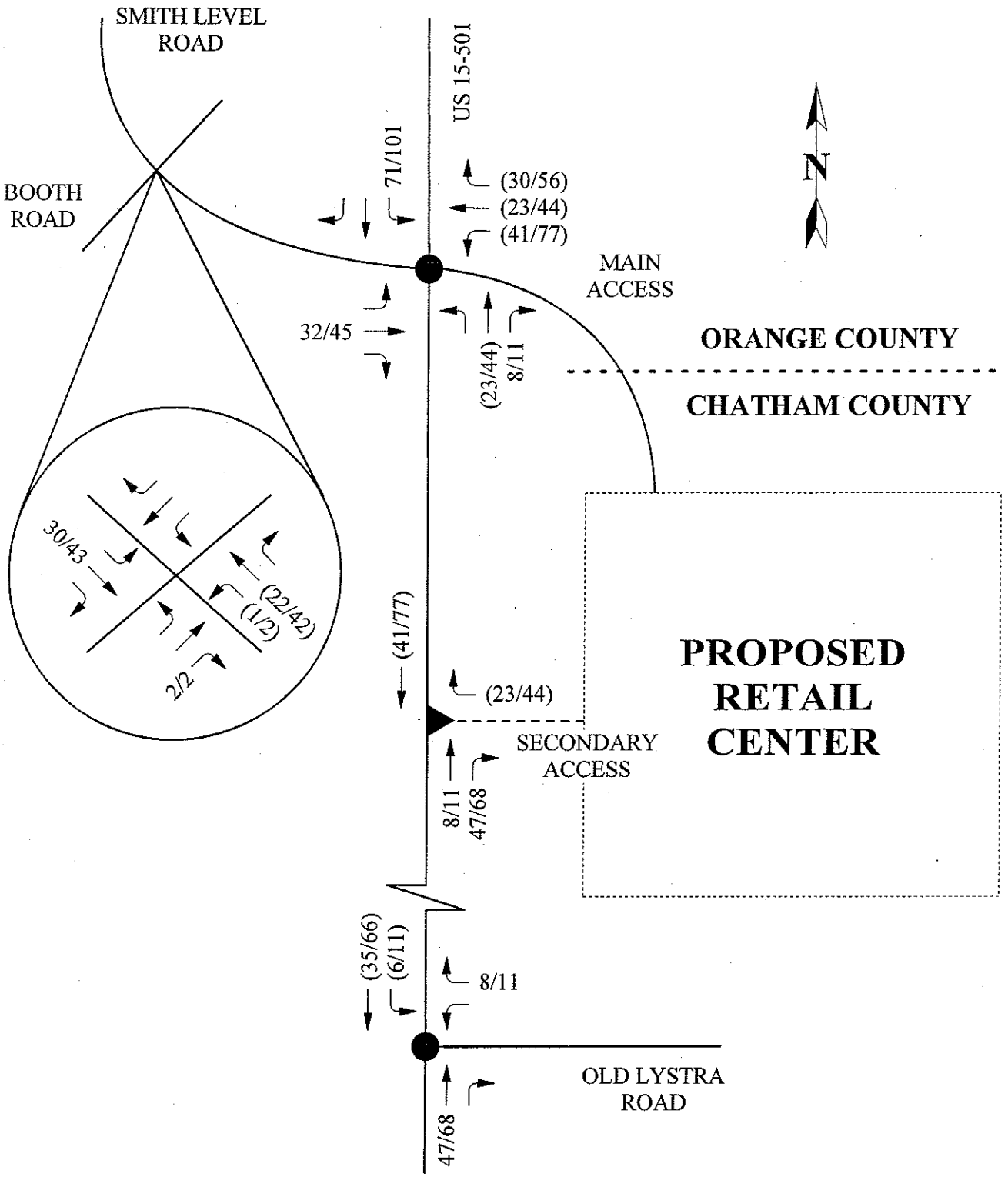


LEGEND

- Signalized Intersection
- Right-In/Right-Out Intersection

X%/Y% (X%/Y%) Entering (Exiting) - AM Peak/PM Peak

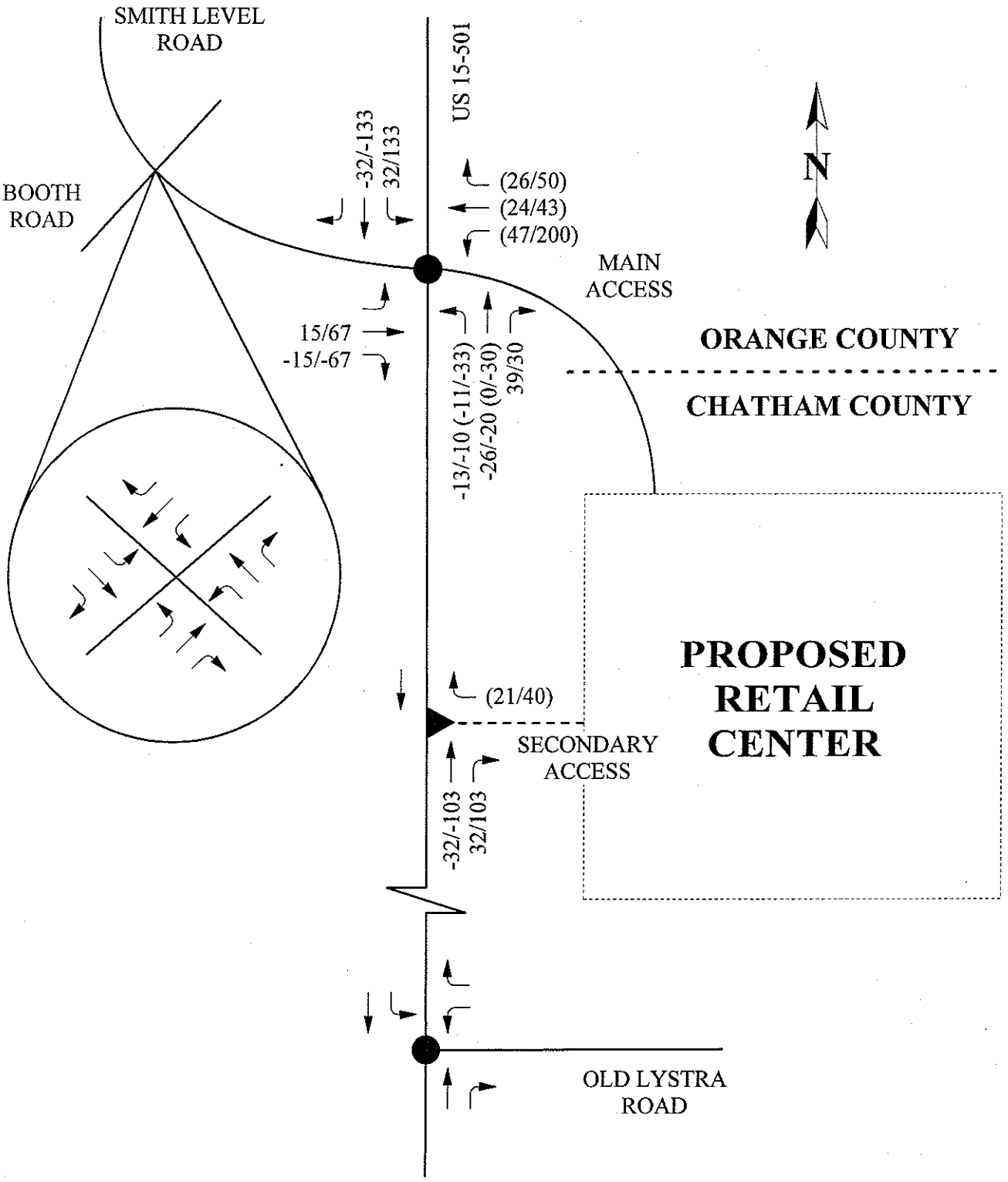
PROPOSED RETAIL CENTER *CHATHAM COUNTY, NORTH CAROLINA*		
PASS-BY TRIP DISTRIBUTION		
	SCALE: Not to Scale	*Figure 7*



LEGEND

- ● Signalized Intersection
- ▲ Right-In/Right-Out Intersection
- X/Y (X/Y) Entering (Exiting) - AM Peak/PM Peak

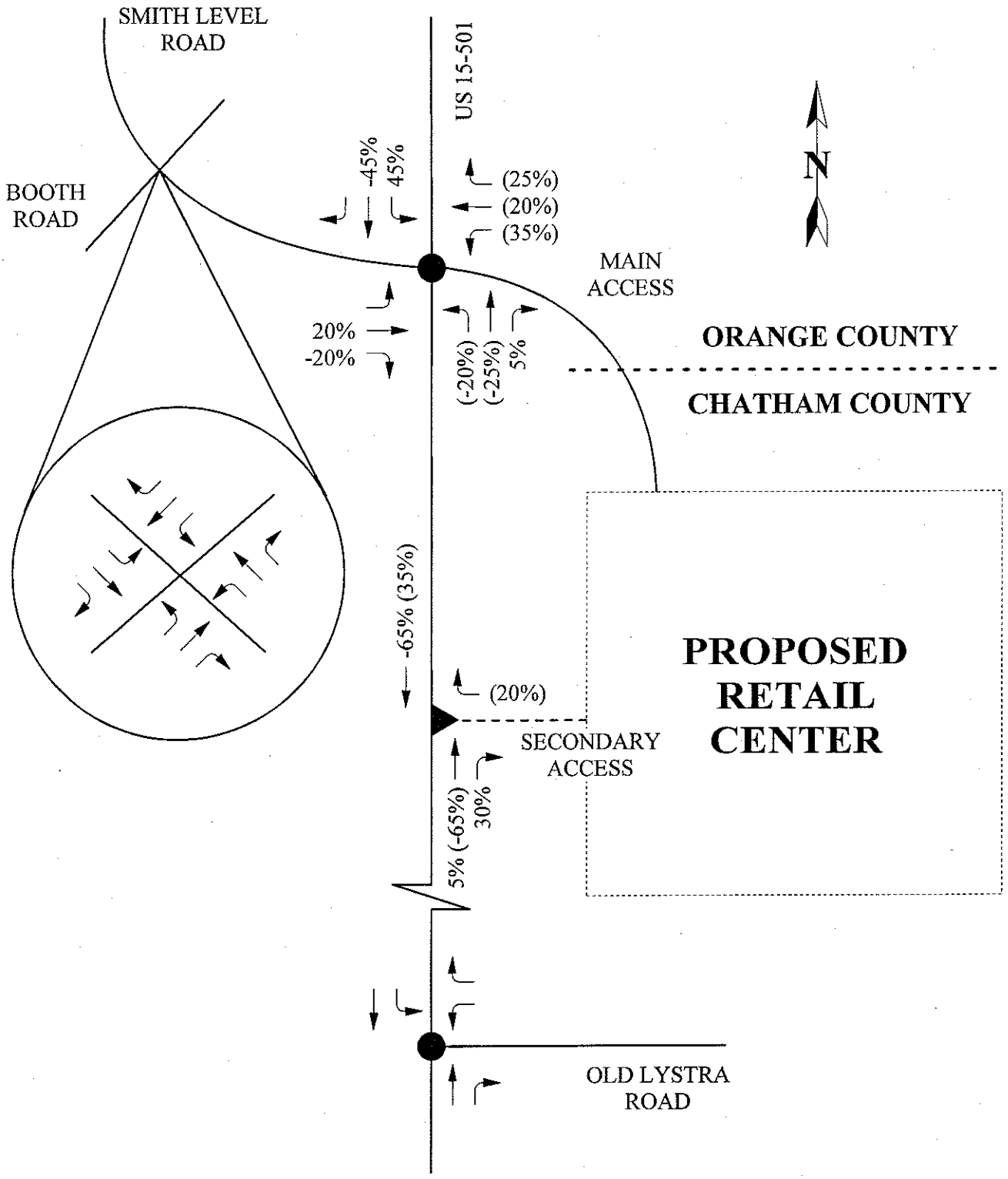
PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
PRIMARY TRIP ASSIGNMENT		
	SCALE: Not to Scale	*Figure 8*



LEGEND

- ● Signalized Intersection
- ▲ Right-In/Right-Out Intersection
- X/Y (X/Y) Entering (Exiting) - AM Peak/PM Peak

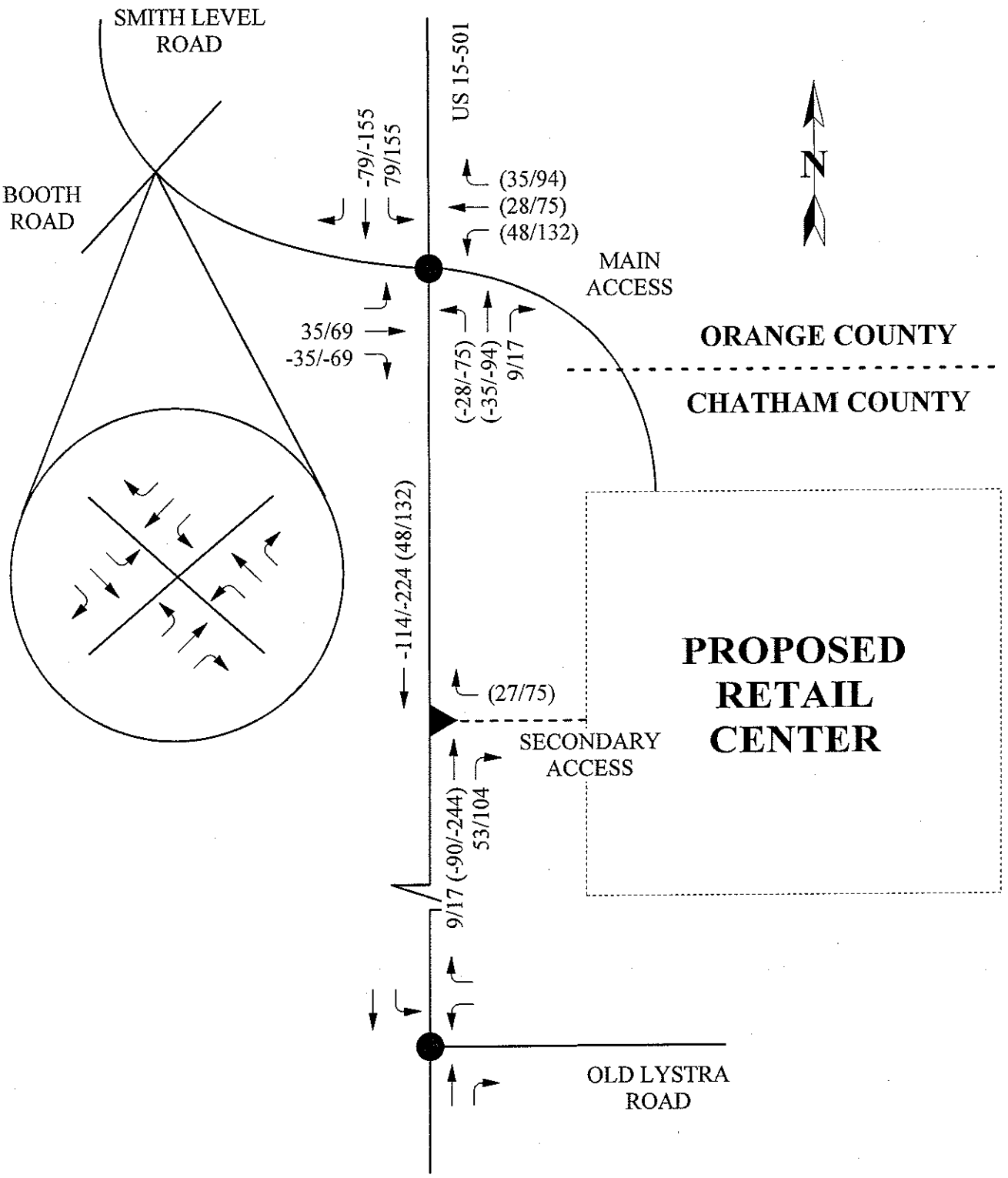
PROPOSED RETAIL CENTER *CHATHAM COUNTY, NORTH CAROLINA*		
PASS-BY TRIP ASSIGNMENT		
	SCALE: Not to Scale	*Figure 9*



LEGEND

- Signalized Intersection
- Right-In/Right-Out Intersection
- X/Y (X/Y) Entering (Exiting) - AM Peak/PM Peak

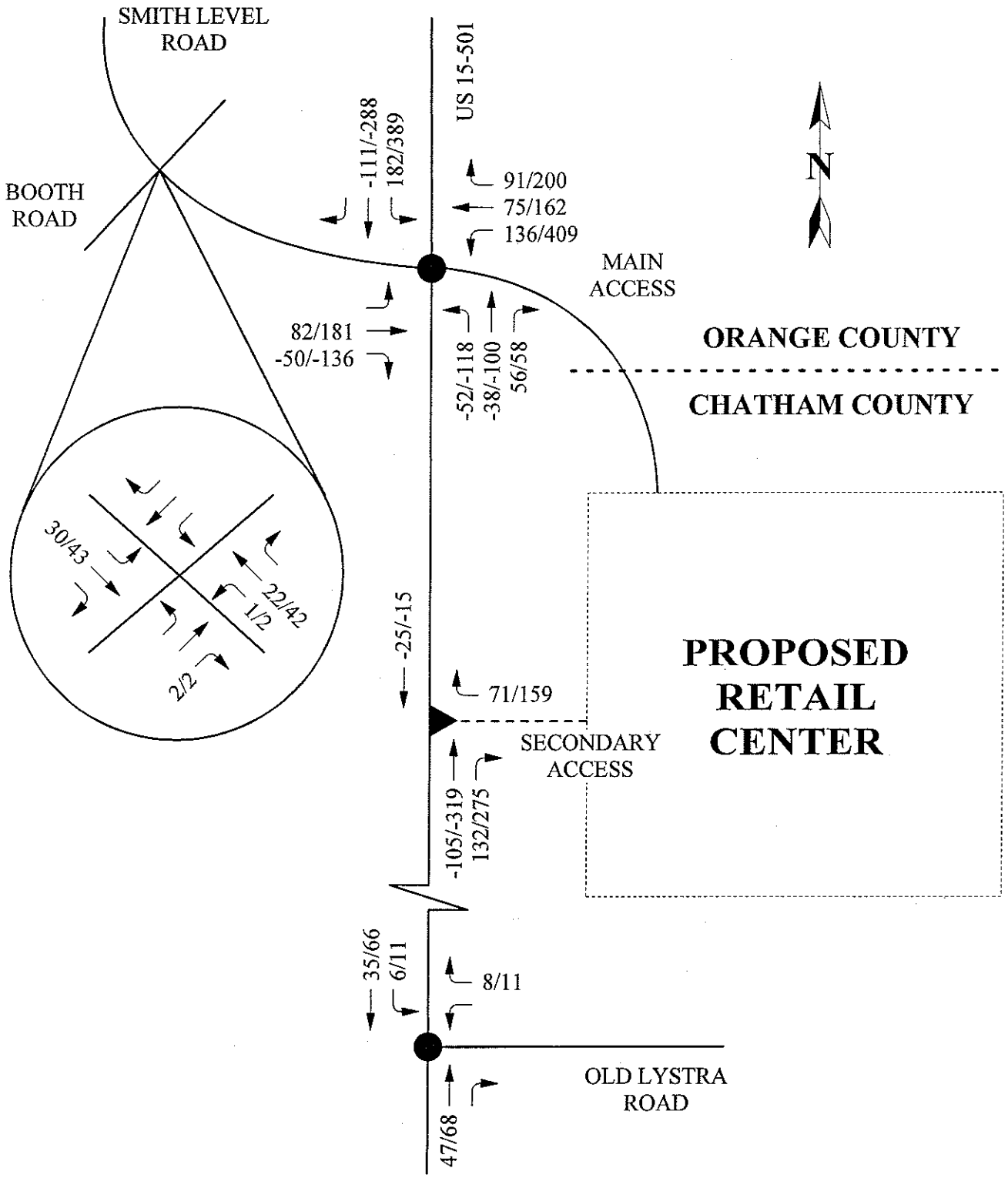
PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
ADJUSTMENTS IN TRIP DISTRIBUTION FOR EXISTING ZONING		
	SCALE: Not to Scale	*Figure 10*



LEGEND

- Signalized Intersection
- Right-In/Right-Out Intersection
- X/Y (X/Y) Entering (Exiting) - AM Peak/PM Peak

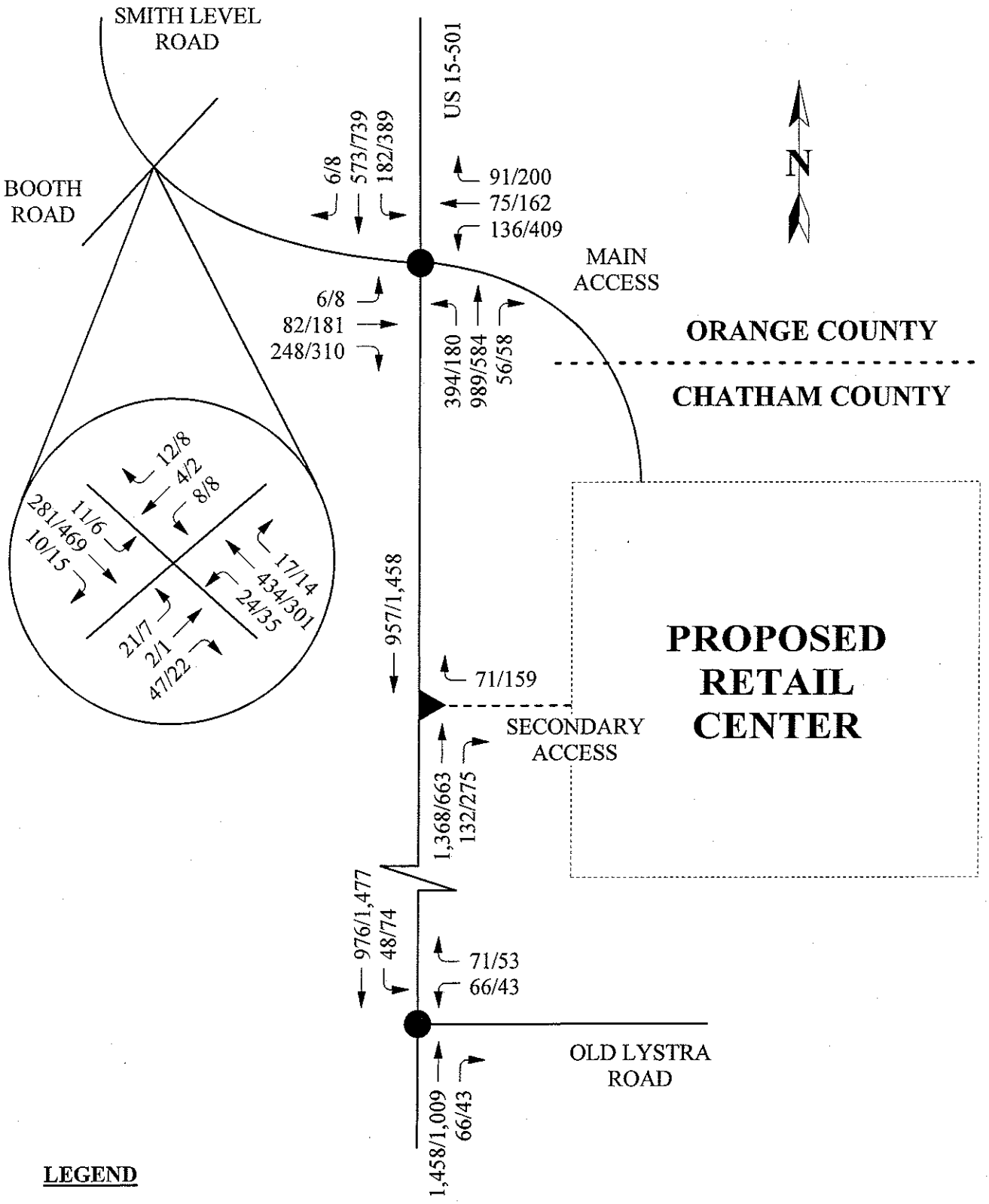
PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
ADJUSTMENTS IN TRIP ASSIGNMENT FOR EXISTING ZONING		
	SCALE: Not to Scale	*Figure 11*



LEGEND

- ● Signalized Intersection
- ▲ Right-In/Right-Out Intersection
- XXX/YYY Traffic Volumes - AM Peak/PM Peak

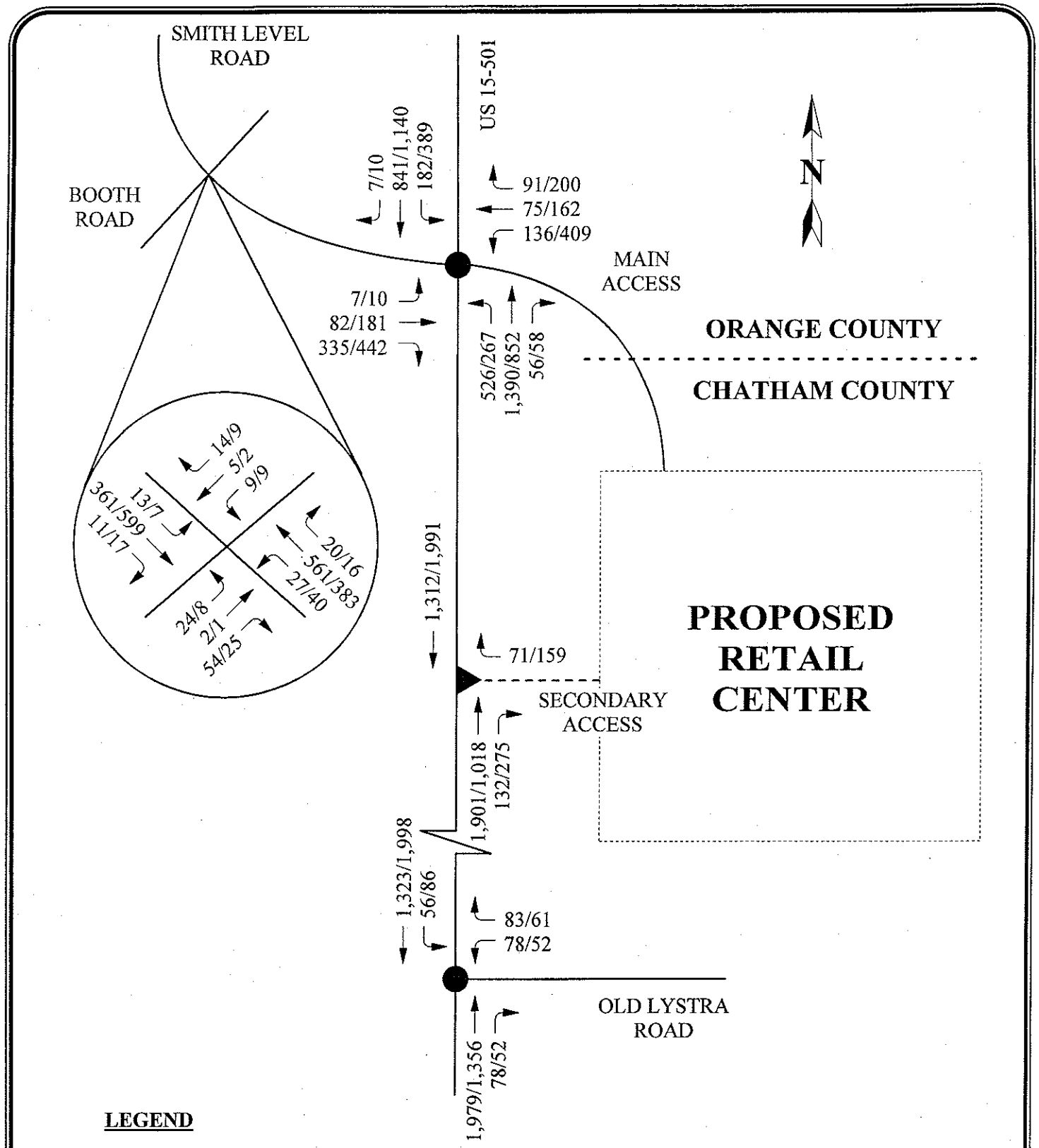
PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
OVERALL SITE IMPACT		
	SCALE: Not to Scale	*Figure 12*



LEGEND

- ● Signalized Intersection
- ▲ Right-In/Right-Out Intersection
- XXX/YYY Traffic Volumes - AM Peak/PM Peak

PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
FUTURE (2007) TRAFFIC CONDITIONS (PROPOSED ZONING)		
	SCALE: Not to Scale	*Figure 13*



LEGEND

- Signalized Intersection
- Right-In/Right-Out Intersection
- XXX/YYY Traffic Volumes - AM Peak/PM Peak

PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
FUTURE (2020) TRAFFIC CONDITIONS (PROPOSED ZONING)		
	SCALE: Not to Scale	*Figure 14*

Table 10
Analysis of Future Traffic Conditions under Proposed Zoning

INTERSECTION	APPROACH	LANE CONFIGURATION	LEVELS OF SERVICE							
			FUTURE (2007) TRAFFIC CONDITIONS				FUTURE (2020) TRAFFIC CONDITIONS			
			AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
			Appr.	Overall	Appr.	Overall	Appr.	Overall	Appr.	Overall
US 15-501 and Smith Level Road / Main Access (Signalized)	NB	2 LT, 2 TH, **1 RT**	B	C	C	C	B	C	C	D
	SB	**2 LT**, 2 TH, 1 RT*	C		D		C		D	
	EB	1 LT, **1 TH**, 2 RT	C		C		C		D	
	WB	**2 LT, 1 TH, 1 RT**	C		C		D		D	
US 15-501 and Old Lystra Road (Signalized)	NB	1 LT, 1 RT	B	A	A	A	B	B	A	A
	SB	2 TH, 1 RT	A		A		A		A	
	WB	1 LT, 2 TH	D		D		D		D	
Smith Level Road and Booth Road (Unsignalized)	NB	1 LT, 1 TH, 1 TH-RT	A[1]		A[1]		A[1]		A[1]	
	SB	1 LT-TH-RT	A[1]		A[1]		A[1]		A[1]	
	EB	1 LT-TH-RT	B[2]		B[2]		C[2]		C[2]	
	WB	1 LT-TH-RT	C[2]		C[2]		C[2]		D[2]	
US 15-501 and Secondary Access (Unsignalized)	NB	2 TH, **1 RT**								
	SB	2 TH								
	WB	**1 RT**	C[2]		B[2]		D[2]		C[2]	

Bold type denotes new traffic signal and/or lane improvement/revised lane configuration.
* Right turn taper that is modeled as a shared through-right.
1. Level of service for left turn movement on major approach.
2. Level of service for minor approach.

Under future 2007 and 2020 traffic conditions with the addition of traffic generated by the proposed development, capacity analysis indicates that the signalized intersection of US 15-501 and Smith Level Road is expected to operate at an acceptable overall LOS D or better during the AM and PM peak hours. In addition, all approaches are expected to operate at an acceptable LOS D or better. However, these levels of operation are not achievable without improvements to the intersection. Auxiliary lanes are needed on all four approaches, and will be discussed in more detail in Section 8. Analysis indicates that the intersection of US 15-501 and Old Lystra Road is expected to operate at an acceptable overall LOS B or better during the AM and PM peak hours without any improvements. The approaches are expected to operate at an acceptable LOS D or better.

Capacity analysis indicates that the left turn movements [onto Booth Road and into the driveway] from Smith Level Road at the unsignalized intersection are expected to experience delays of less than 9.5 seconds per vehicle and operate at LOS A during the AM and PM peak hours. The minor approaches [of Booth Road and the driveway] are expected to experience more moderate delays of less than 25.5 seconds per vehicle and operate at LOS D or better.

As for the Secondary Access [right-in/right-out driveway] on US 15-501, analysis indicates that the minor approach will experience delays of less than 30 seconds per vehicle and operate at LOS D or better during the AM and PM peak hours.

7. CONCLUSIONS

This traffic impact analysis was performed to determine potential traffic impacts caused by the additional traffic generated by the proposed retail center in Chatham County, North Carolina. The preliminary site plan indicates that the development will consist of approximately 246,100 square feet (sf) of retail space as well as four (4) outparcels (including a gasoline station with convenience market and car wash). The gasoline station has 20 fueling positions. While the remaining outparcels can consist of a variety of land uses, the study assumed the following land uses: a 5,000 square foot drive-in bank, a 6,000 square foot high turnover (sit-down) restaurant, and a 4,000 square foot fast food restaurant with drive-through window. The development has an anticipated build out year of 2007. In addition to site traffic, the study also considered the impact of background traffic growth (including adjacent development) within the study area. The traffic volumes used to analyze the future traffic conditions at the study intersections were derived from the ADT projections provided for TIP project R-942.

Future Traffic Conditions under Existing Zoning

Under future 2007 and 2020 traffic conditions [with the proposed TIP project completed], capacity analysis indicates that the signalized intersection of US 15-501 and Smith Level Road is expected to operate at an acceptable overall LOS B during the AM and PM peak

hours. In addition, all approaches are expected to operate at an acceptable LOS D or better. Analysis also indicates that the signalized intersection of US 15-501 and Old Lystra Road is expected to operate at an acceptable overall LOS B or better during the AM and PM peak hours. The approaches are expected to operate at an acceptable LOS D or better.

As for the unsignalized intersection of Smith Level Road and Booth Road, capacity analysis indicates that the left turn movements [onto Booth Road and into the driveway] from Smith Level Road are expected to experience minor delays and operate at LOS A during the AM and PM peak hours. The minor approaches [of Booth Road and the driveway] are expected to experience more moderate delays and operate at LOS C or better. Queues from the intersection of US 15-501 and Smith Level Road could potentially extend back and block this intersection at times during the peak hours, which would increase the anticipated delays.

Future Traffic Conditions under Proposed Zoning

Under future 2007 and 2020 traffic conditions with the addition of traffic generated by the proposed development, capacity analysis indicates that the signalized intersection of US 15-501 and Smith Level Road is expected to operate at an acceptable overall LOS D or better during the AM and PM peak hours. In addition, all approaches are expected to operate at an acceptable LOS D or better. However, these levels of operation are not achievable without improvements to the intersection. Auxiliary lanes are needed on all four approaches, and will be discussed in more detail in Section 8. Analysis indicates that the intersection of US 15-501 and Old Lystra Road is expected to operate at an acceptable overall LOS B or better during the AM and PM peak hours without any improvements. The approaches are expected to operate at an acceptable LOS D or better.

Capacity analysis indicates that the left turn movements [onto Booth Road and into the driveway] from Smith Level Road at the unsignalized intersection are expected to experience minor delays and operate at LOS A during the AM and PM peak hours. The minor approaches [of Booth Road and the driveway] are expected to experience more

moderate delays and operate at LOS D or better. As previously mentioned, queues from the intersection of US 15-501 and Smith Level Road could potentially extend back and block this intersection at times during the peak hours, which would increase the anticipated delays.

As for the Secondary Access [right-in/right-out driveway] on US 15-501, analysis indicates that the minor approach will experience moderate delays and operate at LOS D or better during the AM and PM peak hours.

8. RECOMMENDATIONS

Based on the findings of this study, specific geometric and traffic control improvements have been identified. Unless otherwise stated, the following improvements should be provided as part of the proposed development. Refer to Figure 15 for an illustration of the improvements.

Intersection of US 15-501 and Smith Level Road/Main Access

- Provide an exclusive right turn lane on the northbound approach of US 15-501 with a minimum of 150 feet of storage and an appropriate bay taper.
- Provide dual left turn lanes on the southbound approach of US 15-501 with a minimum of 550 feet of total storage (275 feet per lane) and an appropriate bay taper.
- Provide a through lane on the eastbound approach of Smith Level Road in order to maintain the dual right turn lanes onto US 15-501. With this improvement, the dual right turn lanes onto US 15-501 will be maintained. Provide a minimum of 350 feet of total storage (175 feet per lane) and an appropriate bay taper.
- Provide a six-lane cross-section for the Main Access, with two (2) ingress lanes and four (4) egress lanes (exclusive dual lefts, a through lane, and an exclusive right turn lane). Provide a minimum of 550 feet of total left turn storage (275 feet per lane) and 125 feet of right turn storage as well as appropriate bay tapers.
- Modify the existing traffic signal at this intersection. Provide protected phasing

for the southbound left turn movement into the Main Access from US 15-501 as well as the eastbound and westbound left turn movements onto US 15-501 from Smith Level Road and the Main Access. Provide a right turn overlap phase for the northbound right turn movement into the Main Access from US 15-501 as well as the eastbound and westbound right turn movements onto US 15-501 from Smith Level Road and the Main Access.

- As previously indicated, this signal will be located in a coordinated signal system on US 15-501.

Intersection of US 15-501 and Old Lystra Road

No additional improvements are necessary.

Intersection of Smith Level Road and Booth Road

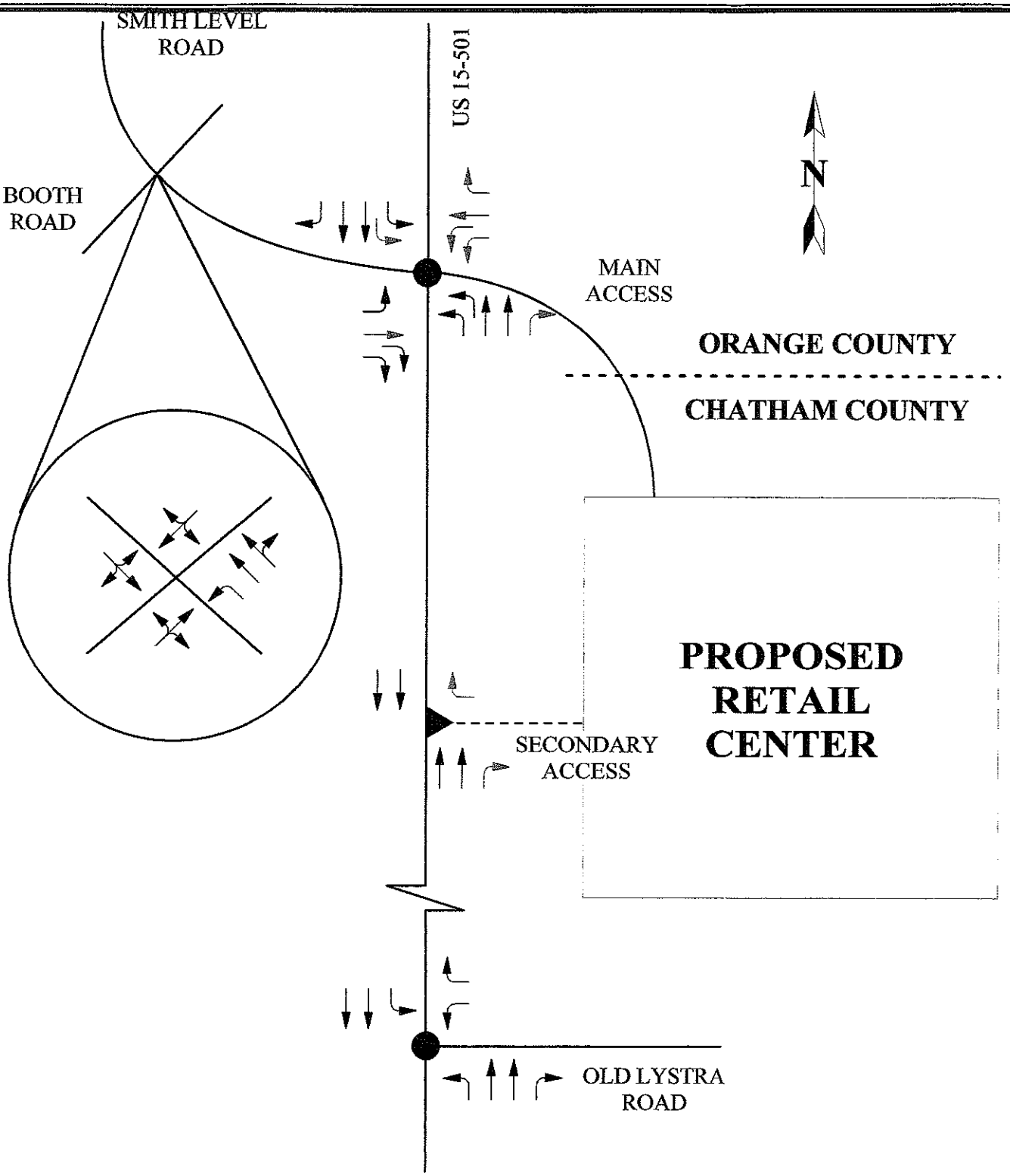
No additional improvements are necessary.

Intersection of US 15-501 and Secondary Access (Right-In/Right-Out)

- Provide an exclusive right turn lane on the northbound approach of US 15-501 with a minimum of 150 feet of storage and an appropriate bay taper.
- Provide a two-lane cross-section for the Secondary Access, with one (1) ingress lane and one (1) egress lane that will be restricted to right turn movements only with the median that is being constructed on US 15-501.

General

According to the current signal design for the intersection of US 15-501 and Smith Level Road, the eastbound phase (Phase 4) is activated by the presence of a vehicle in the left turn lane. However, if a vehicle is not detected in the left turn lane, the minor approach phase will be skipped. Considering the heavy right turn movement onto US 15-501 from Smith Level Road, Phase 4 should not be skipped. In order to provide a sufficient amount of time to service the anticipated right turn movement, it is recommended that strong consideration be given by the NCDOT to modifying the signal design so that Phase 4 will not be skipped.



LEGEND

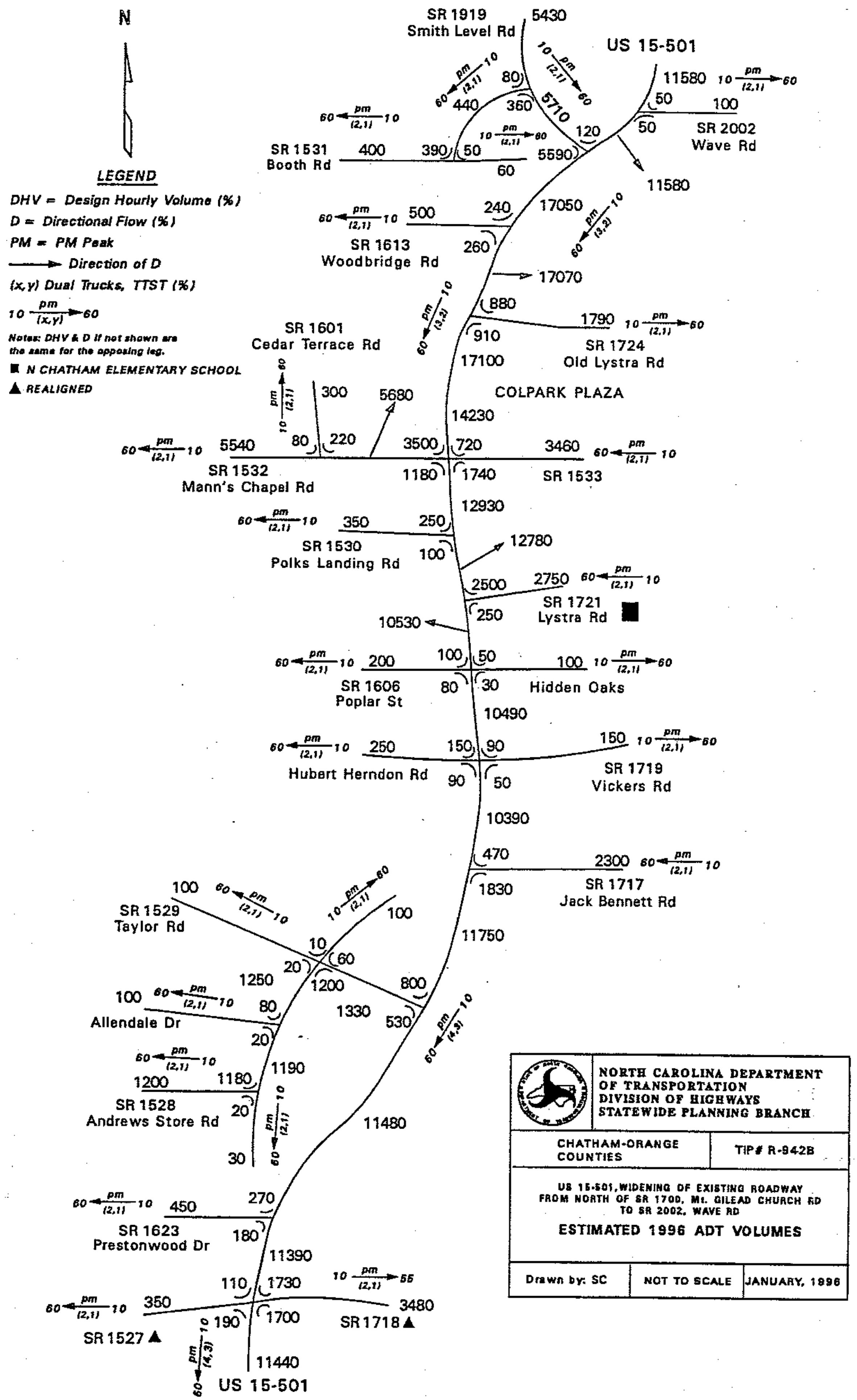
- Signalized Intersection
- Right-In/Right-Out Intersection
- Lane Configuration
- Improvement

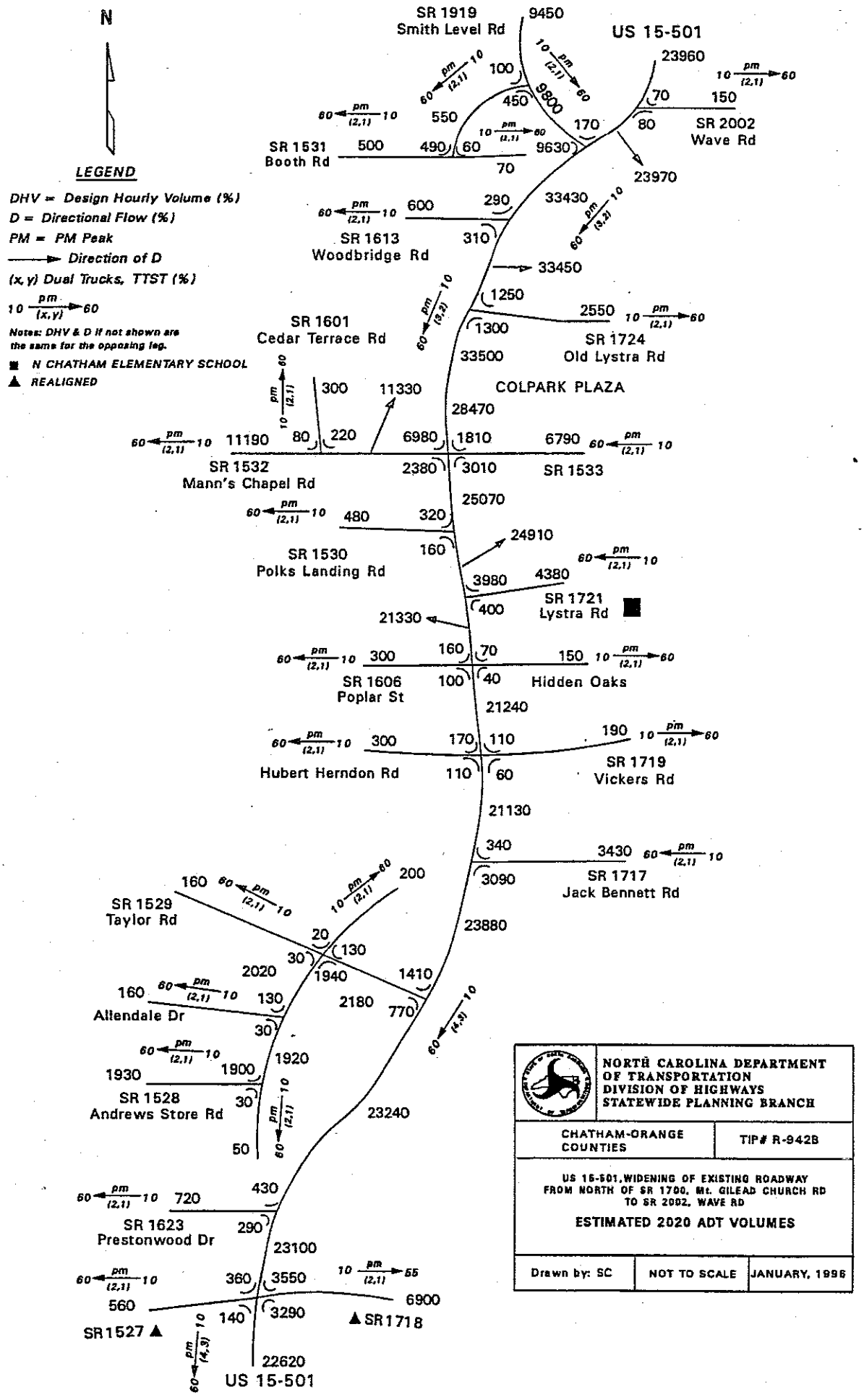
PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
RECOMMENDED IMPROVEMENTS		
	SCALE: Not to Scale	*Figure 15*

TECHNICAL APPENDIX

APPENDIX A

TRAFFIC DATA


N
LEGEND
DHV = Design Hourly Volume (%)
D = Directional Flow (%)
PM = PM Peak
Direction of D
(x,y) Dual Trucks, TTST (%)
10 pm (x,y) 60
Notes: DHV & D if not shown are the same for the opposing leg.
N CHATHAM ELEMENTARY SCHOOL
REALIGNED
SR 1919
Smith Level Rd
5430
US 15-501
11580
SR 2002
Wave Rd
SR 1531
Booth Rd
SR 1613
Woodbridge Rd
17050
17070
SR 1724
Old Lystra Rd
SR 1601
Cedar Terrace Rd
17100
COLPARK PLAZA
14230
5680
SR 1532
Mann's Chapel Rd
SR 1533
12930
SR 1530
Polks Landing Rd
12780
SR 1721
Lystra Rd
10530
SR 1606
Poplar St
Hidden Oaks
10490
Hubert Herndon Rd
SR 1719
Vickers Rd
10390
SR 1717
Jack Bennett Rd
11750
SR 1529
Taylor Rd
Allendale Dr
SR 1528
Andrews Store Rd
11480
SR 1623
Prestonwood Dr
11390
SR 1527
SR 1718
11440
US 15-501
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS STATEWIDE PLANNING BRANCH
CHATHAM-ORANGE COUNTIES
TIP# R-942B
US 15-501, WIDENING OF EXISTING ROADWAY FROM NORTH OF SR 1700, Mt. GILEAD CHURCH RD TO SR 2002, WAVE RD
ESTIMATED 1996 ADT VOLUMES
Drawn by: SC
NOT TO SCALE
JANUARY, 1996

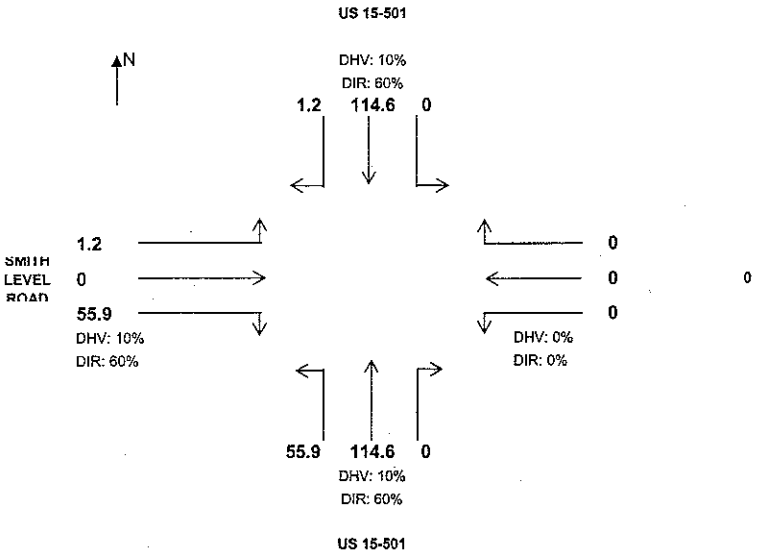


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS STATEWIDE PLANNING BRANCH	
CHATHAM-ORANGE COUNTIES	TIP# R-942B
US 15-501, WIDENING OF EXISTING ROADWAY FROM NORTH OF SR 1700, Mt. GILEAD CHURCH RD TO SR 2002, WAVE RD ESTIMATED 2020 ADT VOLUMES	
Drawn by: SC	NOT TO SCALE / JANUARY, 1996

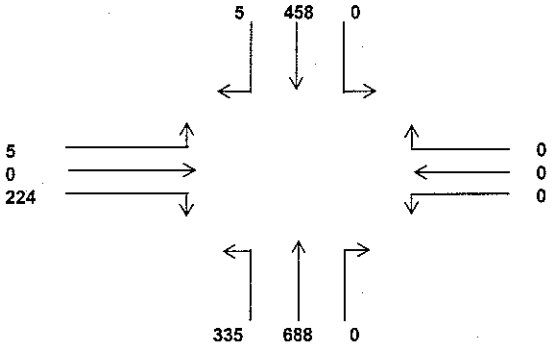
TRAFFIC VOLUME BREAKOUT

January 4, 2006
Intersection: US 15-501 @ SMITH LEVEL ROAD
Other: 1996 ADT

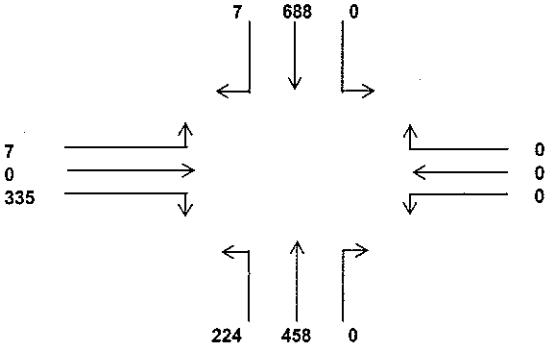
Input Data (Volumes given in hundreds)



AM Peak Hour Volumes



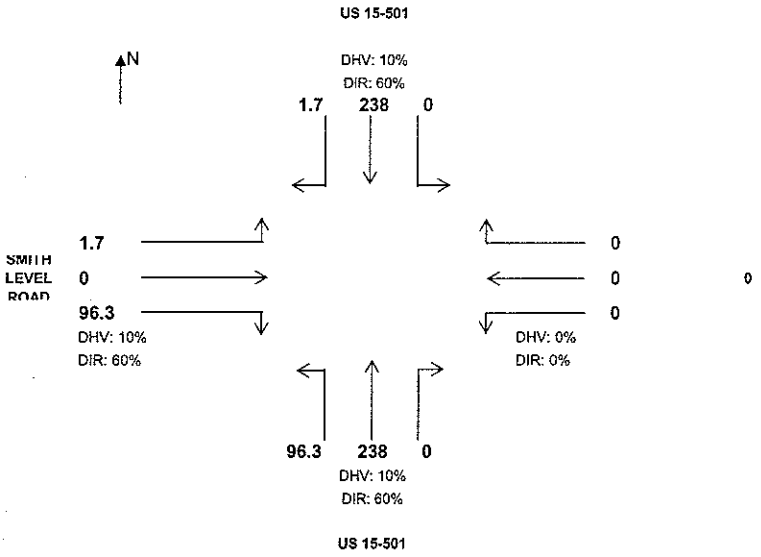
PM Peak Hour Volumes



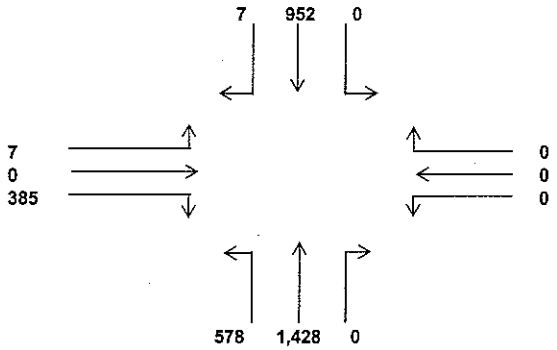
TRAFFIC VOLUME BREAKOUT

January 4, 2006
Intersection: US 15-501 @ SMITH LEVEL ROAD
Other: 2020 ADT

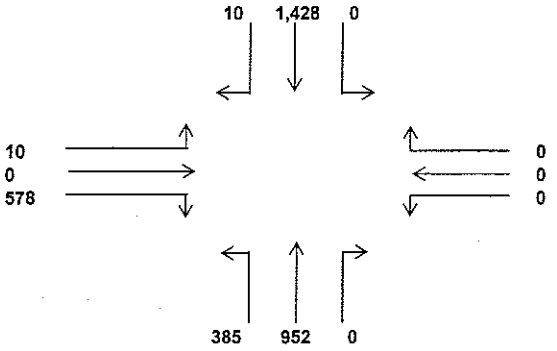
Input Data (Volumes given in hundreds)



AM Peak Hour Volumes



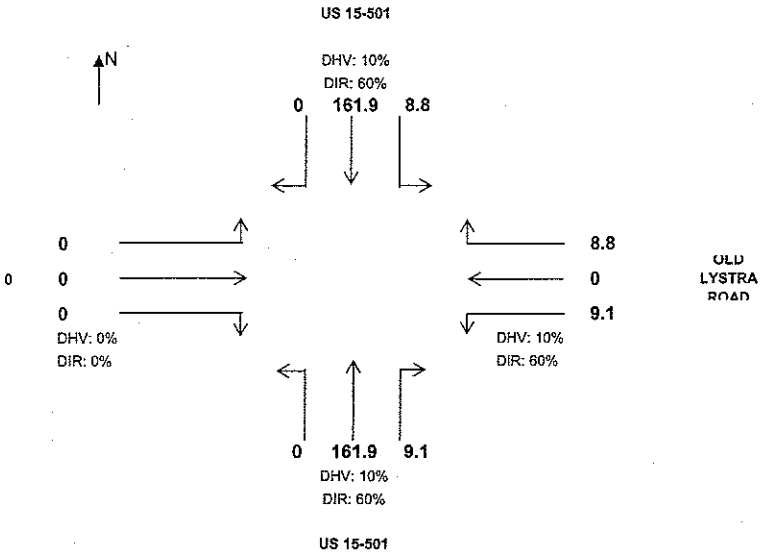
PM Peak Hour Volumes



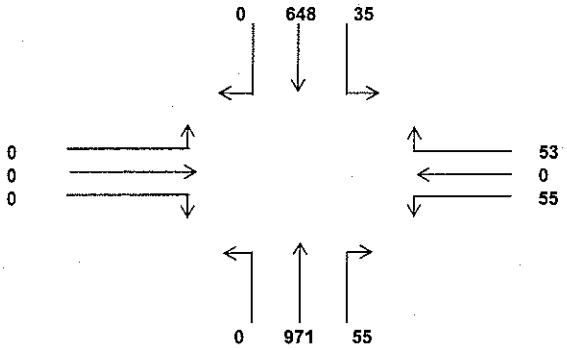
TRAFFIC VOLUME BREAKOUT

January 4, 2006
Intersection: US 15-501 @ OLD LYSTRA ROAD
Other: 1996 ADT

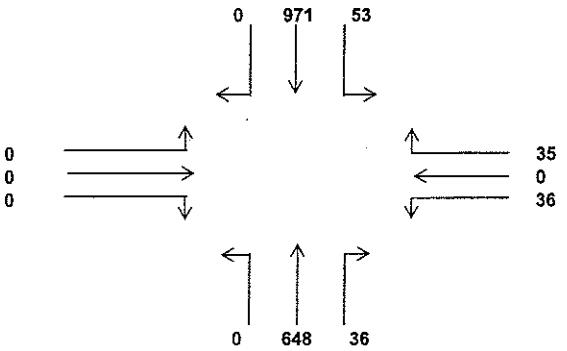
Input Data (Volumes given in hundreds)



AM Peak Hour Volumes



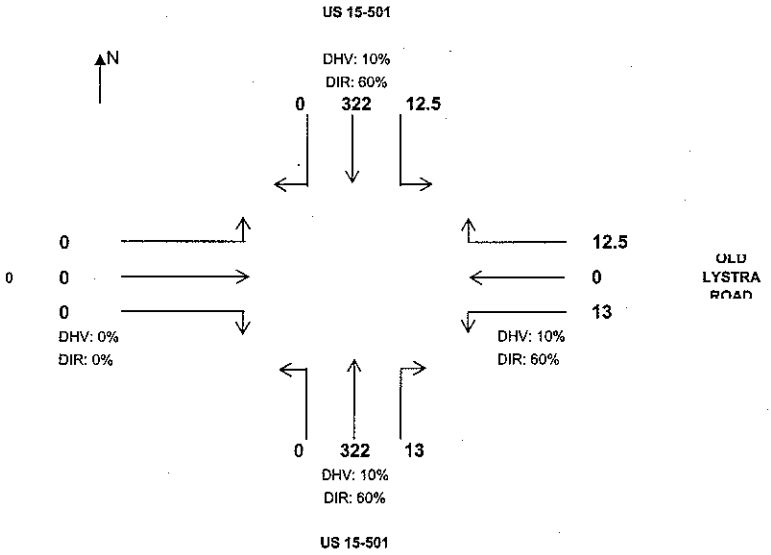
PM Peak Hour Volumes



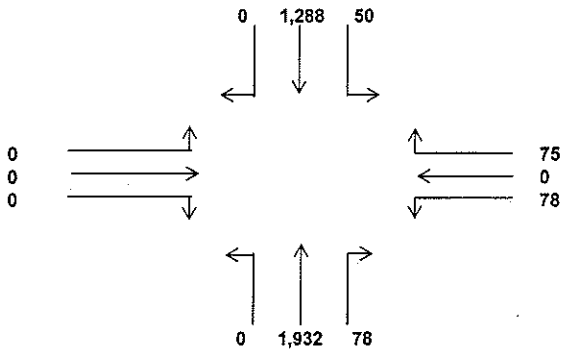
TRAFFIC VOLUME BREAKOUT

January 4, 2006
Intersection: US 15-501 @ OLD LYSTRA ROAD
Other: 2020 ADT

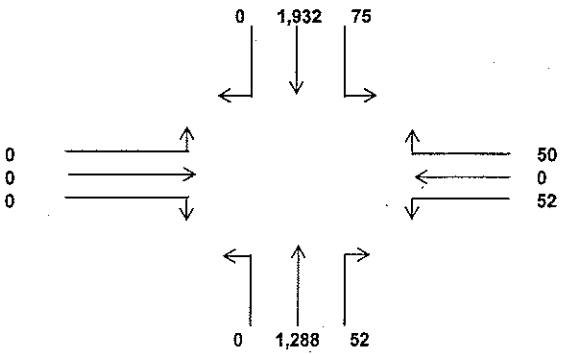
Input Data (Volumes given in hundreds)



AM Peak Hour Volumes



PM Peak Hour Volumes



Ramey Kemp and Associates
4928-A Windy Hill Drive
Raleigh, NC 27609
P:(919)872-5115 F:(919)878-5416

File Name : SmithLvl@Booth
Site Code : 00010306
Start Date : 01/03/2006
Page No : 1

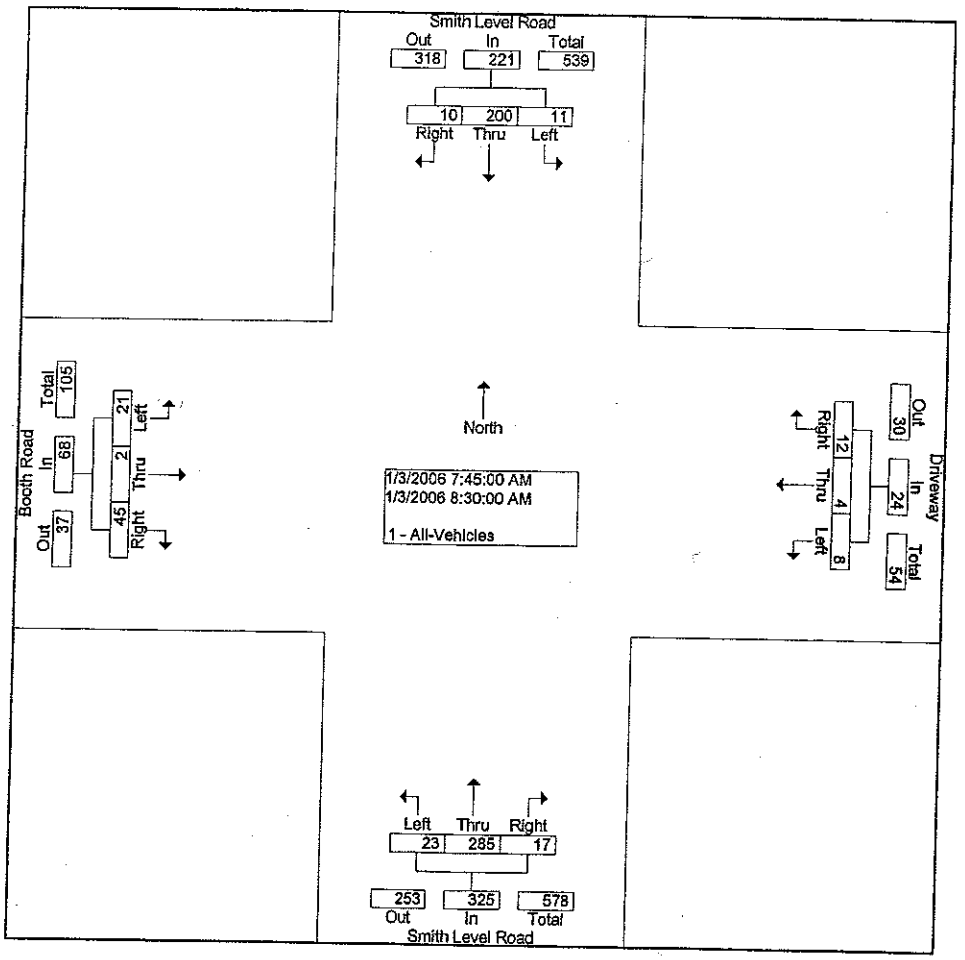
Groups Printed- 1 - All-Vehicles

	Smith Level Road Southbound				Driveway Westbound				Smith Level Road Northbound				Booth Road Eastbound						
Start Time	Left	Thru	Right	Trks	Left	Thru	Right	Trks	Left	Thru	Right	Trks	Left	Thru	Right	Trks	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	51	1	1	0	0	1	0	0	31	1	0	1	0	7	0	1	93	94
07:15 AM	1	36	0	1	0	0	5	0	0	64	0	2	2	0	5	0	3	113	116
07:30 AM	1	21	4	0	1	0	0	0	1	63	4	3	3	0	11	0	3	109	112
07:45 AM	1	31	2	0	0	0	4	0	3	89	3	1	5	0	13	1	2	151	153
Total	3	139	7	2	1	0	10	0	4	247	8	6	11	0	36	1	9	466	475
08:00 AM	8	61	2	1	2	0	7	0	6	58	8	1	8	0	10	0	2	170	172
08:15 AM	2	63	4	1	5	4	0	0	6	95	3	0	2	2	8	0	1	194	195
08:30 AM	0	45	2	1	1	0	1	0	8	43	3	2	6	0	14	1	4	123	127
08:45 AM	1	45	2	0	1	1	0	0	3	61	3	3	3	0	7	1	4	127	131
Total	11	214	10	3	9	5	8	0	23	257	17	6	19	2	39	2	11	614	625
BREAK																			
04:30 PM	1	57	3	0	2	2	2	0	8	60	1	0	5	1	3	0	0	145	145
04:45 PM	1	82	4	0	0	1	0	0	4	61	0	0	1	0	7	1	1	161	162
Total	2	139	7	0	2	3	2	0	12	121	1	0	6	1	10	1	1	306	307
05:00 PM	1	73	2	1	1	1	3	0	7	60	8	0	2	0	5	0	1	163	164
05:15 PM	2	96	4	0	2	0	2	0	8	72	3	0	3	0	7	0	0	199	199
05:30 PM	2	79	7	0	2	0	0	0	9	58	1	0	1	0	3	0	0	162	162
05:45 PM	1	84	2	0	3	1	3	0	9	66	2	0	1	1	5	0	0	178	178
Total	6	332	15	1	8	2	8	0	33	256	14	0	7	1	20	0	1	702	703
06:00 PM	4	69	3	0	2	1	2	0	2	62	0	0	3	0	4	1	1	152	153
06:15 PM	4	58	3	0	2	0	0	0	5	69	0	0	4	0	3	0	0	148	148
Grand Total	30	951	45	6	24	11	30	0	79	1012	40	12	50	4	112	5	23	2388	2411
Apprch %	2.9	92.7	4.4		36.9	16.9	46.2		7.0	89.5	3.5		30.1	2.4	67.5				
Total %	1.3	39.8	1.9		1.0	0.5	1.3		3.3	42.4	1.7		2.1	0.2	4.7		1.0	99.0	

Ramey Kemp and Associates
4928-A Windy Hill Drive
Raleigh, NC 27609
P:(919)872-5115 F:(919)878-5416

File Name : SmithLvl@Booth
Site Code : 00010306
Start Date : 01/03/2006

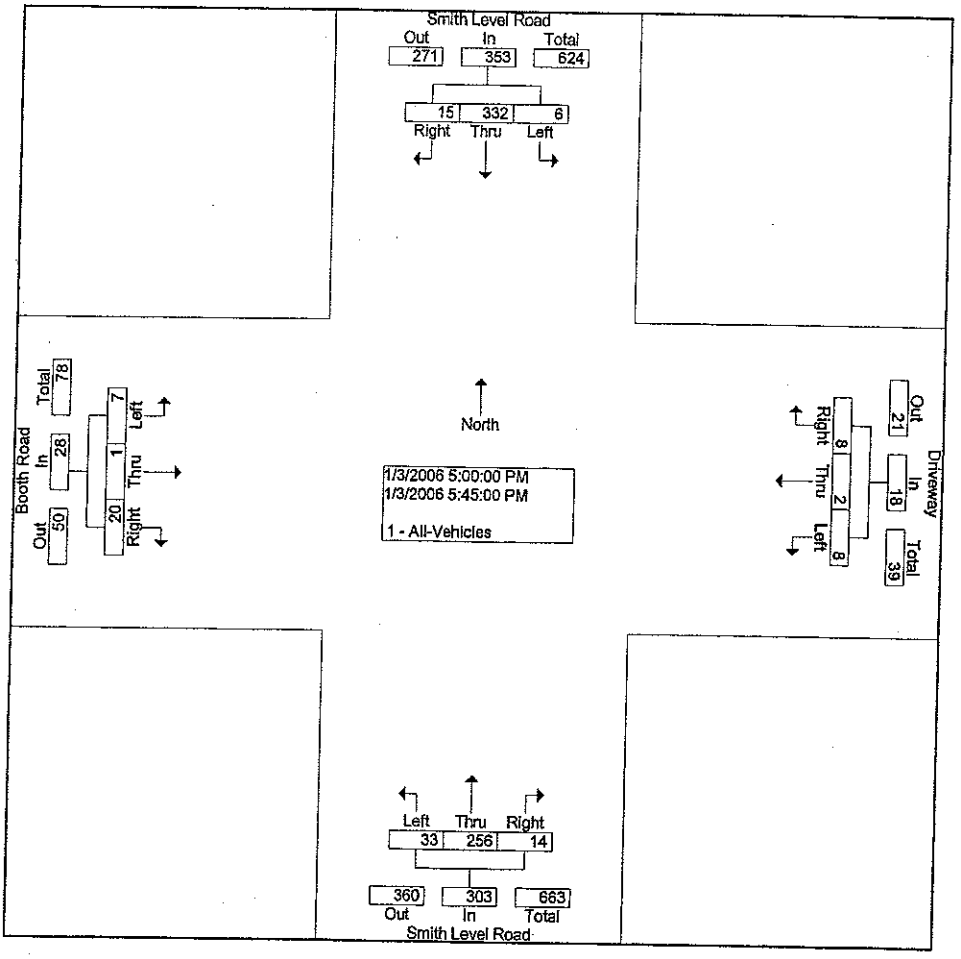
	Smith Level Road Southbound				Driveway Westbound				Smith Level Road Northbound				Booth Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Intersection	07:45 AM																
Volume	11	200	10	221	8	4	12	24	23	285	17	325	21	2	45	68	638
Percent	5.0	90.5	4.5		33.3	16.7	50.0		7.1	87.7	5.2		30.9	2.9	66.2		
08:15 Volume	2	63	4	69	5	4	0	9	6	95	3	104	2	2	8	12	194
Peak Factor																	0.822
High Int.	08:00 AM				08:00 AM				08:15 AM				08:30 AM				
Volume	8	61	2	71	2	0	7	9	6	95	3	104	6	0	14	20	
Peak Factor				0.778				0.667				0.781				0.850	



Ramey Kemp and Associates
4928-A Windy Hill Drive
Raleigh, NC 27609
P:(919)872-5115 F:(919)878-5416

File Name : SmithLvl@Booth
Site Code : 00010306
Start Date : 01/03/2006
Page No : 3

	Smith Level Road Southbound				Driveway Westbound				Smith Level Road Northbound				Booth Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	6	332	15	353	8	2	8	18	33	256	14	303	7	1	20	28	702
Percent	1.7	94.1	4.2		44.4	11.1	44.4		10.9	84.5	4.6		25.0	3.6	71.4		
05:15 Volume	2	96	4	102	2	0	2	4	8	72	3	83	3	0	7	10	199
Peak Factor																	0.882
High Int.	05:15 PM				05:45 PM				05:15 PM				05:15 PM				
Volume	2	96	4	102	3	1	3	7	8	72	3	83	3	0	7	10	
Peak Factor				0.865				0.643				0.913				0.700	



APPENDIX B

CAPACITY ANALYSIS RESULTS

FOR

FUTURE TRAFFIC CONDITIONS
(EXISTING ZONING)

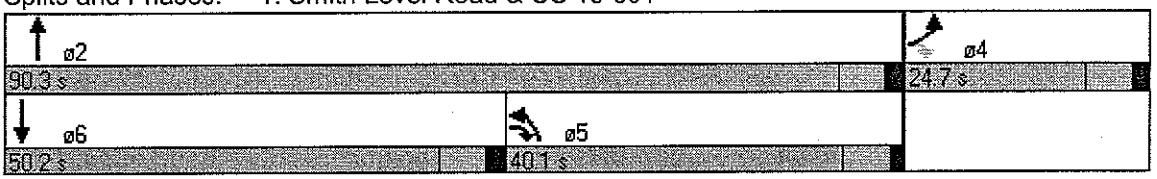
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	0	85	85	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	0.95
Frt		0.850			0.999	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1708	2689	3467	3575	3536	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1708	2689	3467	3575	3536	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Headway Factor	1.05	1.05	0.99	0.99	1.00	1.00
Link Speed (mph)	45			45	45	
Link Distance (ft)	375			1957	922	
Travel Time (s)	5.7			29.7	14.0	
Volume (vph)	6	298	446	1027	684	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	331	496	1141	760	7
Lane Group Flow (vph)	7	331	496	1141	767	0
Turn Type		pm+ov	Prot			
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phases	4	5	5	2	6	
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	
Minimum Split (s)	13.7	13.2	13.2	20.7	20.7	
Total Split (s)	24.7	40.1	40.1	90.3	50.2	0.0
Total Split (%)	21.5%	34.9%	34.9%	78.5%	43.7%	0.0%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	
All-Red Time (s)	2.0	1.5	1.5	2.0	2.0	
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	8.7	37.9	35.1	111.2	67.1	
Actuated g/C Ratio	0.08	0.33	0.31	0.97	0.58	
v/c Ratio	0.05	0.37	0.47	0.33	0.37	
Control Delay	50.5	30.3	24.8	0.8	14.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.5	30.3	24.8	0.8	14.1	
LOS	D	C	C	A	B	
Approach Delay	30.7			8.1	14.1	
Approach LOS	C			A	B	
Queue Length 50th (ft)	5	110	123	0	140	
Queue Length 95th (ft)	20	127	127	96	240	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	295			1877	842	
Turn Bay Length (ft)	100	125	475			
Base Capacity (vph)	293	885	1058	3458	2064	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.37	0.47	0.33	0.37	

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 5 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 12.6 Intersection LOS: B
Intersection Capacity Utilization 50.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Smith Level Road & US 15-501

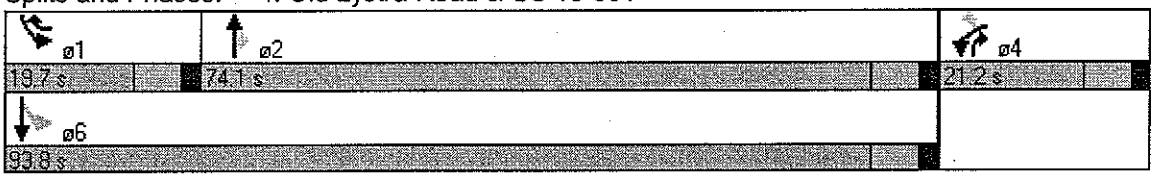


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.077	
Satd. Flow (perm)	1796	1607	3522	1575	145	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	66	63	1411	66	42	941
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	70	1568	73	47	1046
Lane Group Flow (vph)	73	70	1568	73	47	1046
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	21.2	19.7	74.1	21.2	19.7	93.8
Total Split (%)	18.4%	17.1%	64.4%	18.4%	17.1%	81.6%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	11.8	23.0	85.8	99.8	95.9	96.9
Actuated g/C Ratio	0.10	0.20	0.75	0.87	0.83	0.84
v/c Ratio	0.40	0.22	0.60	0.05	0.19	0.35
Control Delay	53.9	37.4	10.4	1.7	6.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	37.4	10.4	1.7	6.8	2.8
LOS	D	D	B	A	A	A
Approach Delay	45.8		10.1			3.0
Approach LOS	D		B			A
Queue Length 50th (ft)	52	43	303	7	4	52
Queue Length 95th (ft)	96	79	430	14	30	144

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	253	402	2627	1407	331	3014
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.17	0.60	0.05	0.14	0.35

Intersection Summary
Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 112 (97%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 9.2 Intersection LOS: A
Intersection Capacity Utilization 53.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Old Lystra Road & US 15-501



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	21	2	45	8	4	12	23	412	17	11	251	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	2	50	9	4	13	26	458	19	12	279	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	604	837	284	878	833	238	290			477		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	604	837	284	878	833	238	290			477		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	99	93	96	98	98	98			99		
cM capacity (veh/h)	362	292	712	219	294	763	1269			1082		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	76	27	26	305	171	302
Volume Left	23	9	26	0	0	12
Volume Right	50	13	0	0	19	11
cSH	531	364	1269	1700	1700	1082
Volume to Capacity	0.14	0.07	0.02	0.18	0.10	0.01
Queue Length 95th (ft)	12	6	2	0	0	1
Control Delay (s)	12.9	15.7	7.9	0.0	0.0	0.4
Lane LOS	B	C	A			A
Approach Delay (s)	12.9	15.7	0.4			0.4
Approach LOS	B	C				

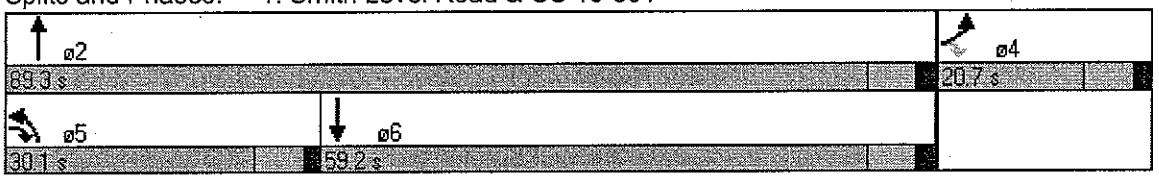
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	36.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	0	85	85	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	0.95
Frt		0.850			0.999	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1708	2689	3467	3575	3536	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1708	2689	3467	3575	3536	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Headway Factor	1.05	1.05	0.99	0.99	1.00	1.00
Link Speed (mph)	45			45	45	
Link Distance (ft)	375			1957	922	
Travel Time (s)	5.7			29.7	14.0	
Volume (vph)	8	446	298	684	1027	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	496	331	760	1141	9
Lane Group Flow (vph)	9	496	331	760	1150	0
Turn Type		pm+ov	Prot			
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phases	4	5	5	2	6	
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	
Minimum Split (s)	13.7	13.2	13.2	20.7	20.7	
Total Split (s)	20.7	30.1	30.1	89.3	59.2	0.0
Total Split (%)	18.8%	27.4%	27.4%	81.2%	53.8%	0.0%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	
All-Red Time (s)	2.0	1.5	1.5	2.0	2.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	8.8	31.1	28.3	106.2	68.9	
Actuated g/C Ratio	0.08	0.28	0.26	0.97	0.63	
v/c Ratio	0.07	0.65	0.37	0.22	0.52	
Control Delay	48.0	38.0	28.8	0.3	13.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.0	38.0	28.8	0.3	13.7	
LOS	D	D	C	A	B	
Approach Delay	38.2			8.9	13.7	
Approach LOS	D			A	B	
Queue Length 50th (ft)	6	176	63	0	216	
Queue Length 95th (ft)	22	201	85	2	358	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	295			1877	842	
Turn Bay Length (ft)	100	125	475			
Base Capacity (vph)	244	787	926	3452	2215	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.04	0.63	0.36	0.22	0.52	

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 80 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 16.3 Intersection LOS: B
Intersection Capacity Utilization 55.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Smith Level Road & US 15-501



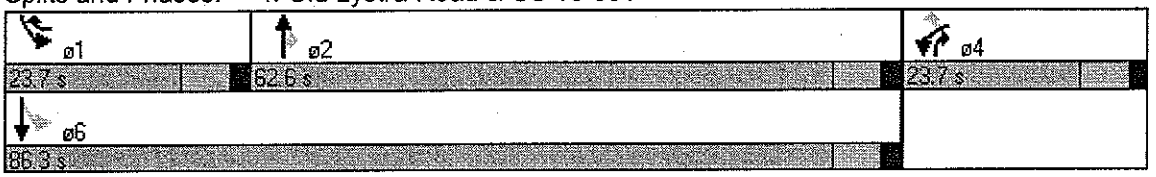
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.173	
Satd. Flow (perm)	1796	1607	3522	1575	325	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	43	42	941	43	63	1411
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	48	47	1046	48	70	1568
Lane Group Flow (vph)	48	47	1046	48	70	1568
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	23.7	23.7	62.6	23.7	23.7	86.3
Total Split (%)	21.5%	21.5%	56.9%	21.5%	21.5%	78.5%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	10.3	21.2	82.5	95.0	92.5	93.5
Actuated g/C Ratio	0.09	0.19	0.75	0.86	0.84	0.85
v/c Ratio	0.29	0.15	0.40	0.04	0.18	0.52
Control Delay	50.3	35.4	7.2	1.7	2.3	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	35.4	7.2	1.7	2.3	2.2
LOS	D	D	A	A	A	A
Approach Delay	42.9		7.0			2.2
Approach LOS	D		A			A
Queue Length 50th (ft)	32	27	150	4	5	80
Queue Length 95th (ft)	68	58	207	10	m11	100

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	305	456	2642	1453	522	3038
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.10	0.40	0.03	0.13	0.52

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 5.4 Intersection LOS: A
Intersection Capacity Utilization 53.2% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Old Lystra Road & US 15-501



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	1	20	8	2	8	33	259	14	6	426	15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	1	22	9	2	9	37	288	16	7	473	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	722	872	482	887	872	152	490			303		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	722	872	482	887	872	152	490			303		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	96	96	99	99	97			99		
cM capacity (veh/h)	300	276	531	221	276	867	1070			1254		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	31	20	37	192	111	497
Volume Left	8	9	37	0	0	7
Volume Right	22	9	0	0	16	17
cSH	433	342	1070	1700	1700	1254
Volume to Capacity	0.07	0.06	0.03	0.11	0.07	0.01
Queue Length 95th (ft)	6	5	3	0	0	0
Control Delay (s)	14.0	16.2	8.5	0.0	0.0	0.2
Lane LOS	B	C	A			A
Approach Delay (s)	14.0	16.2	0.9			0.2
Approach LOS	B	C				

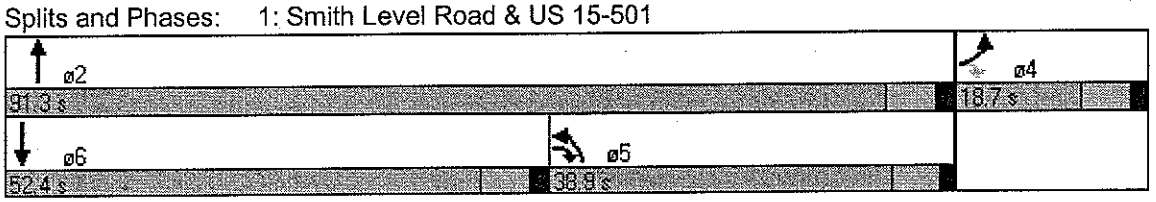
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	0	85	85	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	0.95
Frt		0.850			0.999	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1708	2689	3467	3575	3536	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1708	2689	3467	3575	3536	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Headway Factor	1.05	1.05	0.99	0.99	1.00	1.00
Link Speed (mph)	45			45	45	
Link Distance (ft)	375			1957	922	
Travel Time (s)	5.7			29.7	14.0	
Volume (vph)	7	385	578	1428	952	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	428	642	1587	1058	8
Lane Group Flow (vph)	8	428	642	1587	1066	0
Turn Type		pm+ov	Prot			
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phases	4	5	5	2	6	
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	
Minimum Split (s)	13.7	13.2	13.2	20.7	20.7	
Total Split (s)	18.7	38.9	38.9	91.3	52.4	0.0
Total Split (%)	17.0%	35.4%	35.4%	83.0%	47.6%	0.0%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	
All-Red Time (s)	2.0	1.5	1.5	2.0	2.0	
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	8.7	36.7	33.9	106.2	63.3	
Actuated g/C Ratio	0.08	0.33	0.31	0.97	0.58	
v/c Ratio	0.06	0.48	0.60	0.46	0.52	
Control Delay	48.0	30.5	21.8	0.4	16.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.0	30.5	21.8	0.4	16.2	
LOS	D	C	C	A	B	
Approach Delay	30.8			6.5	16.2	
Approach LOS	C			A	B	
Queue Length 50th (ft)	5	140	197	0	211	
Queue Length 95th (ft)	22	156	m213	32	360	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	295			1877	842	
Turn Bay Length (ft)	100	125	475			
Base Capacity (vph)	213	897	1068	3452	2036	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.04	0.48	0.60	0.46	0.52	

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 47 (43%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 61.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Smith Level Road & US 15-501

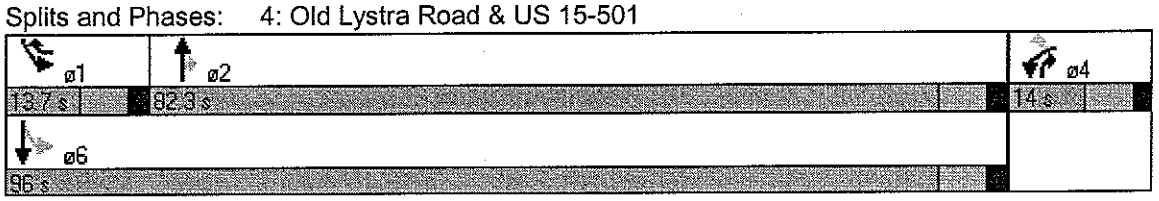


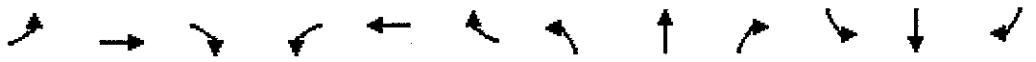
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.049	
Satd. Flow (perm)	1796	1607	3522	1575	92	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	78	75	1932	78	50	1288
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	83	2147	87	56	1431
Lane Group Flow (vph)	87	83	2147	87	56	1431
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	14.0	13.7	82.3	14.0	13.7	96.0
Total Split (%)	12.7%	12.5%	74.8%	12.7%	12.5%	87.3%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	8.9	22.6	80.1	95.0	91.1	91.1
Actuated g/C Ratio	0.08	0.21	0.73	0.86	0.83	0.83
v/c Ratio	0.60	0.25	0.84	0.06	0.27	0.48
Control Delay	66.2	39.0	15.4	1.7	12.9	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	39.0	15.4	1.7	12.9	4.7
LOS	E	D	B	A	B	A
Approach Delay	52.9		14.8			5.0
Approach LOS	D		B			A
Queue Length 50th (ft)	60	49	537	8	6	263
Queue Length 95th (ft)	#125	95	668	16	m19	25

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	147	331	2565	1347	210	2960
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.25	0.84	0.06	0.27	0.48

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Old Lystra Road & US 15-501





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	24	2	52	9	5	14	26	539	20	13	331	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	2	58	10	6	16	29	599	22	14	368	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	778	1082	374	1129	1077	311	380			621		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	778	1082	374	1129	1077	311	380			621		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	99	91	93	97	98	98			98		
cM capacity (veh/h)	266	208	624	138	209	685	1175			956		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	87	31	29	399	222	394
Volume Left	27	10	29	0	0	14
Volume Right	58	16	0	0	22	12
cSH	425	256	1175	1700	1700	956
Volume to Capacity	0.20	0.12	0.02	0.23	0.13	0.02
Queue Length 95th (ft)	19	10	2	0	0	1
Control Delay (s)	15.6	21.0	8.1	0.0	0.0	0.5
Lane LOS	C	C	A			A
Approach Delay (s)	15.6	21.0	0.4			0.5
Approach LOS	C	C				

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	43.0%	ICU Level of Service		A
Analysis Period (min)	15			

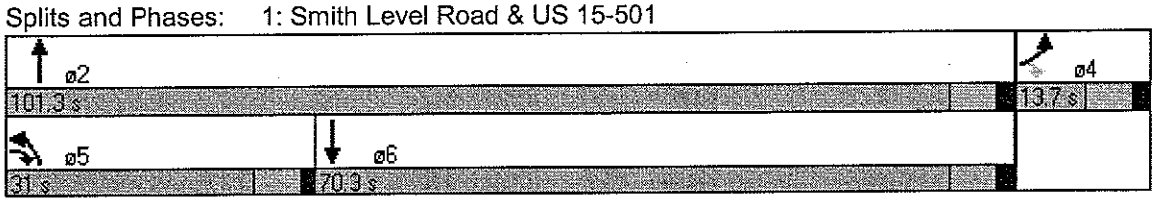
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	0	85	85	
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	0.88	0.97	0.95	0.95	0.95
Frt		0.850			0.999	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1708	2689	3467	3575	3536	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1708	2689	3467	3575	3536	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Headway Factor	1.05	1.05	0.99	0.99	1.00	1.00
Link Speed (mph)	45			45	45	
Link Distance (ft)	375			1957	922	
Travel Time (s)	5.7			29.7	14.0	
Volume (vph)	10	578	385	952	1428	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	642	428	1058	1587	11
Lane Group Flow (vph)	11	642	428	1058	1598	0
Turn Type		pm+ov	Prot			
Protected Phases	4	5	5	2	6	
Permitted Phases		4				
Detector Phases	4	5	5	2	6	
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	
Minimum Split (s)	13.7	13.2	13.2	20.7	20.7	
Total Split (s)	13.7	31.0	31.0	101.3	70.3	0.0
Total Split (%)	11.9%	27.0%	27.0%	88.1%	61.1%	0.0%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	
All-Red Time (s)	2.0	1.5	1.5	2.0	2.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	8.7	35.7	32.9	111.3	69.3	
Actuated g/C Ratio	0.08	0.31	0.29	0.97	0.60	
v/c Ratio	0.09	0.77	0.43	0.31	0.75	
Control Delay	51.2	42.3	28.8	0.5	20.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	51.2	42.3	28.8	0.5	20.3	
LOS	D	D	C	A	C	
Approach Delay	42.5			8.7	20.3	
Approach LOS	D			A	C	
Queue Length 50th (ft)	8	234	70	0	455	
Queue Length 95th (ft)	27	305	145	19	566	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	295			1877	842	
Turn Bay Length (ft)	100	125	475			
Base Capacity (vph)	129	834	993	3459	2131	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.09	0.77	0.43	0.31	0.75	

Intersection Summary

Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 90 (78%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 69.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Smith Level Road & US 15-501

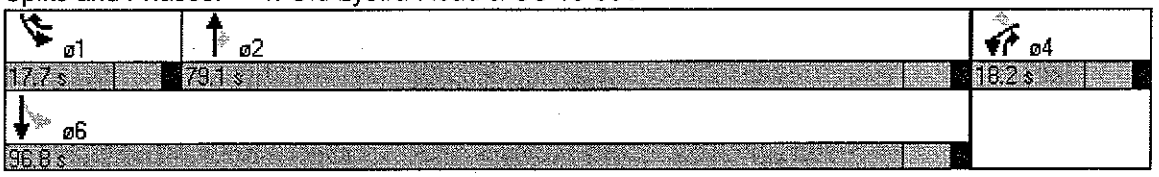


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.117	
Satd. Flow (perm)	1796	1607	3522	1575	220	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	52	50	1288	52	75	1932
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	56	1431	58	83	2147
Lane Group Flow (vph)	58	56	1431	58	83	2147
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	18.2	17.7	79.1	18.2	17.7	96.8
Total Split (%)	15.8%	15.4%	68.8%	15.8%	15.4%	84.2%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	10.8	21.9	86.9	99.9	96.9	97.9
Actuated g/C Ratio	0.09	0.19	0.76	0.87	0.84	0.85
v/c Ratio	0.34	0.18	0.54	0.04	0.27	0.71
Control Delay	53.9	37.8	8.8	1.7	3.5	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	37.8	8.8	1.7	3.5	3.9
LOS	D	D	A	A	A	A
Approach Delay	46.0		8.6			3.9
Approach LOS	D		A			A
Queue Length 50th (ft)	41	34	251	5	6	124
Queue Length 95th (ft)	82	69	337	11	m17	323

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	206	360	2661	1389	358	3045
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.16	0.54	0.04	0.23	0.71

Intersection Summary
Area Type: Other
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 7.0 Intersection LOS: A
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Old Lystra Road & US 15-501



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	1	23	9	2	9	38	341	16	7	556	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	1	26	10	2	10	42	379	18	8	618	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	928	1124	627	1141	1124	198	637			397		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	928	1124	627	1141	1124	198	637			397		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	99	94	93	99	99	96			99		
cM capacity (veh/h)	210	194	426	140	193	810	943			1158		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	36	22	42	253	144	644
Volume Left	9	10	42	0	0	8
Volume Right	26	10	0	0	18	19
cSH	329	233	943	1700	1700	1158
Volume to Capacity	0.11	0.10	0.04	0.15	0.08	0.01
Queue Length 95th (ft)	9	8	4	0	0	1
Control Delay (s)	17.3	22.1	9.0	0.0	0.0	0.2
Lane LOS	C	C	A			A
Approach Delay (s)	17.3	22.1	0.9			0.2
Approach LOS	C	C				

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	47.6%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C

CAPACITY ANALYSIS RESULTS

FOR

FUTURE TRAFFIC CONDITIONS
(PROPOSED ZONING)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			-2%			0%	
Storage Length (ft)	100		175	275		125	475		150	275		0
Storage Lanes	1		2	2		1	2		1	2		0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	50	50	50	50	90	50	50	90	
Trailing Detector (ft)	0	0	0	0	0	0	0	85	0	0	85	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.97	0.95	1.00	0.97	0.95	0.95
Frt			0.850			0.850			0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3532	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3532	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)						101			61			
Headway Factor	1.05	1.05	1.05	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Link Speed (mph)		45			20			45			45	
Link Distance (ft)		375			504			1003			922	
Travel Time (s)		5.7			17.2			15.2			14.0	
Volume (vph)	6	82	248	136	75	91	394	989	56	182	573	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	91	276	151	83	101	438	1099	62	202	637	7
Lane Group Flow (vph)	7	91	276	151	83	101	438	1099	62	202	644	0
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	14.0	14.0	13.2	14.0	14.0	14.0	13.2	20.7	14.0	14.0	20.7	
Total Split (s)	17.0	20.0	28.9	17.0	20.0	19.0	28.9	54.0	17.0	19.0	44.1	0.0
Total Split (%)	15.5%	18.2%	26.3%	15.5%	18.2%	17.3%	26.3%	49.1%	15.5%	17.3%	40.1%	0.0%
Yellow Time (s)	5.0	5.0	4.7	5.0	5.0	5.0	4.7	4.7	5.0	5.0	4.7	
All-Red Time (s)	2.0	2.0	1.5	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Act Effct Green (s)	9.7	12.5	34.6	11.3	22.5	36.6	23.9	56.1	72.4	13.0	45.2	
Actuated g/C Ratio	0.09	0.11	0.31	0.10	0.20	0.33	0.22	0.51	0.66	0.12	0.41	
v/c Ratio	0.05	0.45	0.33	0.43	0.22	0.17	0.58	0.60	0.06	0.50	0.44	
Control Delay	46.0	52.0	18.9	50.1	37.6	4.4	33.0	14.7	0.4	49.7	26.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.0	52.0	18.9	50.1	37.6	4.4	33.0	14.7	0.4	49.7	26.1	
LOS	D	D	B	D	D	A	C	B	A	D	C	
Approach Delay		27.5			33.2			19.1			31.8	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	5	61	55	52	45	0	145	271	1	69	180	
Queue Length 95th (ft)	19	111	77	85	102	29	189	281	m1	106	243	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		295			424			923			842	
Turn Bay Length (ft)	100		175	275		125	475		150	275		
Base Capacity (vph)	186	245	845	375	401	610	753	1823	1083	439	1450	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.04	0.37	0.33	0.40	0.21	0.17	0.58	0.60	0.06	0.46	0.44	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 106 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

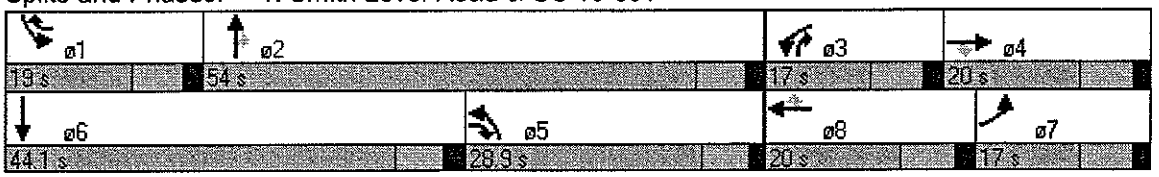
Intersection Signal Delay: 25.0 Intersection LOS: C

Intersection Capacity Utilization 56.2% ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Smith Level Road & US 15-501

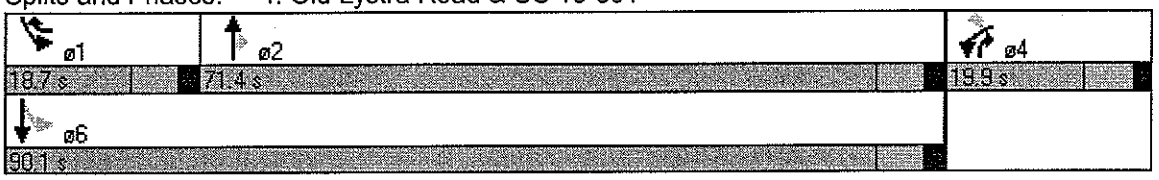


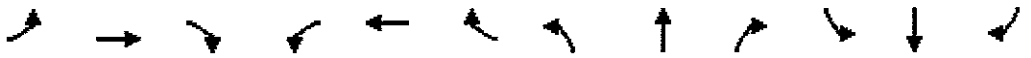
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.069	
Satd. Flow (perm)	1796	1607	3522	1575	130	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	66	71	1458	66	48	976
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	79	1620	73	53	1084
Lane Group Flow (vph)	73	79	1620	73	53	1084
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	19.9	18.7	71.4	19.9	18.7	90.1
Total Split (%)	18.1%	17.0%	64.9%	18.1%	17.0%	81.9%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	11.6	22.5	81.2	95.0	91.2	92.2
Actuated g/C Ratio	0.11	0.20	0.74	0.86	0.83	0.84
v/c Ratio	0.39	0.24	0.62	0.05	0.22	0.36
Control Delay	51.2	36.0	10.9	1.7	6.5	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	36.0	10.9	1.7	6.5	1.4
LOS	D	D	B	A	A	A
Approach Delay	43.3		10.6			1.6
Approach LOS	D		B			A
Queue Length 50th (ft)	49	46	319	7	3	37
Queue Length 95th (ft)	93	85	438	13	12	49

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	243	402	2600	1391	314	2996
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.20	0.62	0.05	0.17	0.36

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 48 (44%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 54.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Old Lystra Road & US 15-501





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	21	2	47	8	4	12	24	434	17	11	281	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	2	52	9	4	13	27	482	19	12	312	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	652	897	318	941	893	251	323			501		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	652	897	318	941	893	251	323			501		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	99	92	95	98	98	98			99		
cM capacity (veh/h)	334	269	678	195	270	749	1233			1059		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	78	27	27	321	180	336
Volume Left	23	9	27	0	0	12
Volume Right	52	13	0	0	19	11
cSH	501	334	1233	1700	1700	1059
Volume to Capacity	0.16	0.08	0.02	0.19	0.11	0.01
Queue Length 95th (ft)	14	6	2	0	0	1
Control Delay (s)	13.5	16.7	8.0	0.0	0.0	0.4
Lane LOS	B	C	A			A
Approach Delay (s)	13.5	16.7	0.4			0.4
Approach LOS	B	C				

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	37.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	71	1368	132	0	957
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	79	1520	147	0	1063
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						1003
pX, platoon unblocked	0.87					
vC, conflicting volume	2052	760			1667	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2060	760			1667	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	77			100	
cM capacity (veh/h)	41	349			382	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	79	760	760	147	532	532
Volume Left	0	0	0	0	0	0
Volume Right	79	0	0	147	0	0
cSH	349	1700	1700	1700	1700	1700
Volume to Capacity	0.23	0.45	0.45	0.09	0.31	0.31
Queue Length 95th (ft)	21	0	0	0	0	0
Control Delay (s)	18.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	18.3	0.0			0.0	
Approach LOS	C					

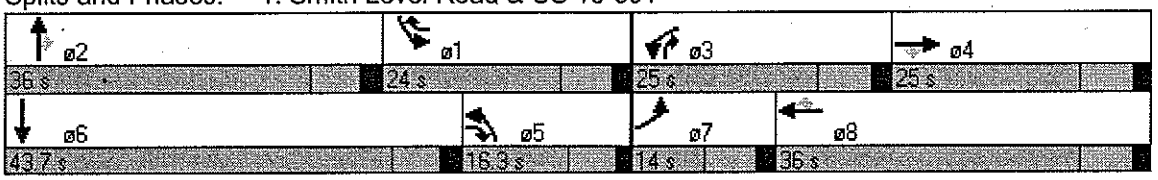
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			-2%			0%	
Storage Length (ft)	125		175	275		125	475		150	275		0
Storage Lanes	1		2	2		1	2		1	2		0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	50	50	50	50	90	50	50	90	
Trailing Detector (ft)	0	0	0	0	0	0	0	85	0	0	85	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.97	0.95	1.00	0.97	0.95	0.95
Frt			0.850			0.850			0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3532	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3532	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)						222			64			
Headway Factor	1.05	1.05	1.05	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Link Speed (mph)		45			20			45			45	
Link Distance (ft)		375			504			1003			922	
Travel Time (s)		5.7			17.2			15.2			14.0	
Volume (vph)	8	181	310	409	162	200	180	584	58	389	739	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	201	344	454	180	222	200	649	64	432	821	9
Lane Group Flow (vph)	9	201	344	454	180	222	200	649	64	432	830	0
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	14.0	14.0	13.2	14.0	14.0	14.0	13.2	20.7	14.0	14.0	20.7	
Total Split (s)	14.0	25.0	16.3	25.0	36.0	24.0	16.3	36.0	25.0	24.0	43.7	0.0
Total Split (%)	12.7%	22.7%	14.8%	22.7%	32.7%	21.8%	14.8%	32.7%	22.7%	21.8%	39.7%	0.0%
Yellow Time (s)	5.0	5.0	4.7	5.0	5.0	5.0	4.7	4.7	5.0	5.0	4.7	
All-Red Time (s)	2.0	2.0	1.5	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Act Effct Green (s)	9.0	17.8	29.1	19.2	39.2	62.2	11.3	34.0	53.2	19.0	41.7	
Actuated g/C Ratio	0.08	0.16	0.26	0.17	0.36	0.57	0.10	0.31	0.48	0.17	0.38	
v/c Ratio	0.06	0.69	0.48	0.76	0.27	0.22	0.56	0.59	0.08	0.73	0.62	
Control Delay	47.9	56.2	20.5	52.0	27.0	1.8	46.9	30.4	1.2	51.1	30.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.9	56.2	20.5	52.0	27.0	1.8	46.9	30.4	1.2	51.1	30.9	
LOS	D	E	C	D	C	A	D	C	A	D	C	
Approach Delay		33.9			33.7			32.0			37.8	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	6	133	67	157	83	0	70	144	0	150	256	
Queue Length 95th (ft)	22	211	95	214	164	27	109	181	10	205	328	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		295			424			923			842	
Turn Bay Length (ft)	125		175	275		125	475		150	275		
Base Capacity (vph)	140	327	711	624	664	992	356	1106	818	593	1340	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.06	0.61	0.48	0.73	0.27	0.22	0.56	0.59	0.08	0.73	0.62	

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 80 (73%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 34.8 Intersection LOS: C
Intersection Capacity Utilization 65.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Smith Level Road & US 15-501



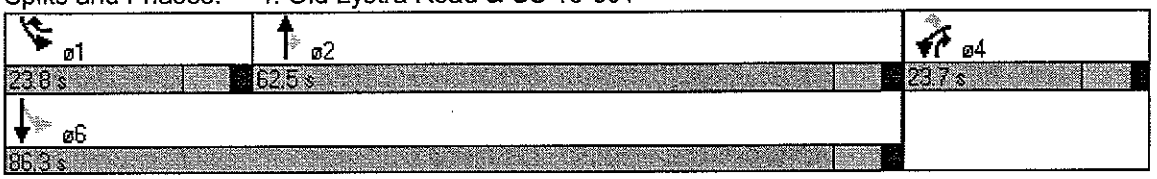
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.150	
Satd. Flow (perm)	1796	1607	3522	1575	282	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	43	53	1009	43	74	1477
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	48	59	1121	48	82	1641
Lane Group Flow (vph)	48	59	1121	48	82	1641
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	23.7	23.8	62.5	23.7	23.8	86.3
Total Split (%)	21.5%	21.6%	56.8%	21.5%	21.6%	78.5%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	10.3	21.2	82.5	95.0	92.5	93.5
Actuated g/C Ratio	0.09	0.19	0.75	0.86	0.84	0.85
v/c Ratio	0.29	0.19	0.42	0.04	0.23	0.54
Control Delay	50.3	36.2	7.5	1.7	2.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	36.2	7.5	1.7	2.3	1.7
LOS	D	D	A	A	A	A
Approach Delay	42.5		7.2			1.8
Approach LOS	D		A			A
Queue Length 50th (ft)	32	34	165	4	5	58
Queue Length 95th (ft)	68	68	228	10	m9	72

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	305	458	2642	1453	494	3038
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.13	0.42	0.03	0.17	0.54

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 48 (44%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 5.3 Intersection LOS: A
Intersection Capacity Utilization 55.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Old Lystra Road & US 15-501



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑↑↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	1	22	8	2	8	35	301	14	6	469	15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	1	24	9	2	9	39	334	16	7	521	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	798	971	529	988	971	175	538			350		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	798	971	529	988	971	175	538			350		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	95	95	99	99	96			99		
cM capacity (veh/h)	263	241	494	185	241	838	1027			1206		

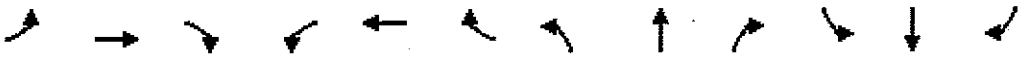
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	33	20	39	223	127	544
Volume Left	8	9	39	0	0	7
Volume Right	24	9	0	0	16	17
cSH	398	294	1027	1700	1700	1206
Volume to Capacity	0.08	0.07	0.04	0.13	0.07	0.01
Queue Length 95th (ft)	7	5	3	0	0	0
Control Delay (s)	14.9	18.1	8.6	0.0	0.0	0.2
Lane LOS	B	C	A			A
Approach Delay (s)	14.9	18.1	0.9			0.2
Approach LOS	B	C				

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	159	663	275	0	1458
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	177	737	306	0	1620
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						1003
pX, platoon unblocked	0.80					
vC, conflicting volume	1547	368			1042	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1431	368			1042	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	72			100	
cM capacity (veh/h)	100	629			663	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	177	368	368	306	810	810
Volume Left	0	0	0	0	0	0
Volume Right	177	0	0	306	0	0
cSH	629	1700	1700	1700	1700	1700
Volume to Capacity	0.28	0.22	0.22	0.18	0.48	0.48
Queue Length 95th (ft)	29	0	0	0	0	0
Control Delay (s)	12.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	12.9	0.0			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

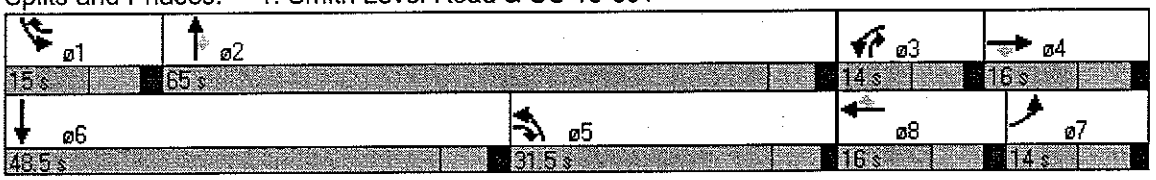


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			-2%			0%	
Storage Length (ft)	100		175	275		125	475		150	275		0
Storage Lanes	1		2	2		1	2		1	2		0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	50	50	50	50	90	50	50	90	
Trailing Detector (ft)	0	0	0	0	0	0	0	85	0	0	85	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.97	0.95	1.00	0.97	0.95	0.95
Frt			0.850			0.850			0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3536	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)						101			53			
Headway Factor	1.05	1.05	1.05	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Link Speed (mph)		45			20			45			45	
Link Distance (ft)		375			504			1003			922	
Travel Time (s)		5.7			17.2			15.2			14.0	
Volume (vph)	7	82	335	136	75	91	526	1390	56	182	841	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	91	372	151	83	101	584	1544	62	202	934	8
Lane Group Flow (vph)	8	91	372	151	83	101	584	1544	62	202	942	0
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	14.0	14.0	13.2	14.0	14.0	14.0	13.2	20.7	14.0	14.0	20.7	
Total Split (s)	14.0	16.0	31.5	14.0	16.0	15.0	31.5	65.0	14.0	15.0	48.5	0.0
Total Split (%)	12.7%	14.5%	28.6%	12.7%	14.5%	13.6%	28.6%	59.1%	12.7%	13.6%	44.1%	0.0%
Yellow Time (s)	5.0	5.0	4.7	5.0	5.0	5.0	4.7	4.7	5.0	5.0	4.7	
All-Red Time (s)	2.0	2.0	1.5	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Act Effct Green (s)	9.0	10.6	35.3	9.0	19.0	30.3	26.5	63.1	77.1	10.1	46.7	
Actuated g/C Ratio	0.08	0.10	0.32	0.08	0.17	0.28	0.24	0.57	0.70	0.09	0.42	
v/c Ratio	0.06	0.53	0.43	0.54	0.26	0.20	0.70	0.75	0.05	0.64	0.63	
Control Delay	47.7	58.6	21.1	56.1	41.9	5.9	29.6	10.0	1.1	58.2	28.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.7	58.6	21.1	56.1	41.9	5.9	29.6	10.0	1.1	58.2	28.1	
LOS	D	E	C	E	D	A	C	B	A	E	C	
Approach Delay		28.8			37.4			15.0			33.4	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	5	62	81	53	48	0	196	371	3	72	284	
Queue Length 95th (ft)	22	116	114	87	107	35	m209	378	m4	111	356	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		295			424			923			842	
Turn Bay Length (ft)	100		175	275		125	475		150	275		
Base Capacity (vph)	140	180	863	281	328	509	835	2051	1137	315	1501	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.06	0.51	0.43	0.54	0.25	0.20	0.70	0.75	0.05	0.64	0.63	

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 11 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 67.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Smith Level Road & US 15-501

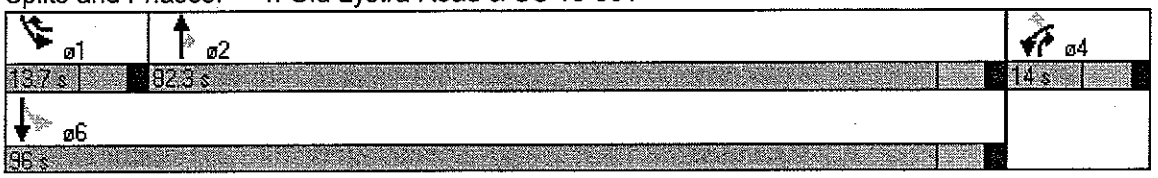


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.049	
Satd. Flow (perm)	1796	1607	3522	1575	92	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	78	83	1979	78	56	1323
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	92	2199	87	62	1470
Lane Group Flow (vph)	87	92	2199	87	62	1470
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	14.0	13.7	82.3	14.0	13.7	96.0
Total Split (%)	12.7%	12.5%	74.8%	12.7%	12.5%	87.3%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	8.9	22.6	77.4	91.3	91.1	91.1
Actuated g/C Ratio	0.08	0.21	0.70	0.83	0.83	0.83
v/c Ratio	0.60	0.28	0.89	0.07	0.30	0.50
Control Delay	66.2	39.5	18.8	1.8	18.9	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	39.5	18.8	1.8	18.9	2.2
LOS	E	D	B	A	B	A
Approach Delay	52.5		18.2			2.8
Approach LOS	D		B			A
Queue Length 50th (ft)	60	55	572	8	7	65
Queue Length 95th (ft)	#125	103	713	16	m29	73

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	147	331	2477	1308	210	2960
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.28	0.89	0.07	0.30	0.50

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 48 (44%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 13.8 Intersection LOS: B
Intersection Capacity Utilization 68.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Old Lystra Road & US 15-501



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	24	2	54	9	5	14	35	301	14	6	469	15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	2	60	10	6	16	39	334	16	7	521	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	806	971	529	1024	971	175	538			350		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	806	971	529	1024	971	175	538			350		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	99	88	94	98	98	96			99		
cM capacity (veh/h)	255	241	494	160	241	838	1027			1206		

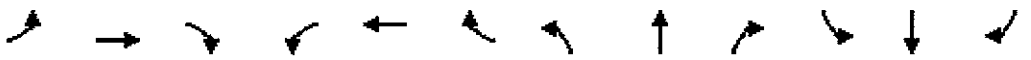
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	89	31	39	223	127	544
Volume Left	27	10	39	0	0	7
Volume Right	60	16	0	0	16	17
cSH	378	299	1027	1700	1700	1206
Volume to Capacity	0.24	0.10	0.04	0.13	0.07	0.01
Queue Length 95th (ft)	23	9	3	0	0	0
Control Delay (s)	17.4	18.5	8.6	0.0	0.0	0.2
Lane LOS	C	C	A			A
Approach Delay (s)	17.4	18.5	0.9			0.2
Approach LOS	C	C				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	44.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	71	1901	132	0	1312
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	79	2112	147	0	1458
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						1003
pX, platoon unblocked	0.77					
vC, conflicting volume	2841	1056			2259	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3090	1056			2259	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	64			100	
cM capacity (veh/h)	7	222			224	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	79	1056	1056	147	729	729
Volume Left	0	0	0	0	0	0
Volume Right	79	0	0	147	0	0
cSH	222	1700	1700	1700	1700	1700
Volume to Capacity	0.36	0.62	0.62	0.09	0.43	0.43
Queue Length 95th (ft)	38	0	0	0	0	0
Control Delay (s)	30.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D					
Approach Delay (s)	30.0	0.0			0.0	
Approach LOS	D					

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

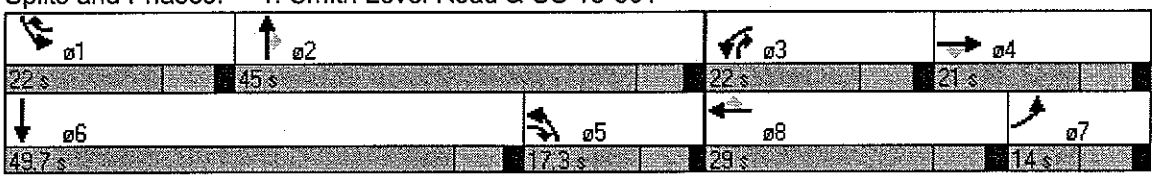


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			-2%			0%	
Storage Length (ft)	100		175	275		125	475		150	275		0
Storage Lanes	1		2	2		1	2		1	2		0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	50	50	50	50	90	50	50	90	
Trailing Detector (ft)	0	0	0	0	0	0	0	85	0	0	85	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	0.88	0.97	1.00	1.00	0.97	0.95	1.00	0.97	0.95	0.95
Frt			0.850			0.850			0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1708	1798	2689	3433	1863	1583	3467	3575	1599	3433	3536	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)						193			64			
Headway Factor	1.05	1.05	1.05	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Link Speed (mph)		45			20			45			45	
Link Distance (ft)		375			504			1003			922	
Travel Time (s)		5.7			17.2			15.2			14.0	
Volume (vph)	10	181	442	409	162	200	267	852	58	389	1140	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	201	491	454	180	222	297	947	64	432	1267	11
Lane Group Flow (vph)	11	201	491	454	180	222	297	947	64	432	1278	0
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	14.0	14.0	13.2	14.0	14.0	14.0	13.2	20.7	14.0	14.0	20.7	
Total Split (s)	14.0	21.0	17.3	22.0	29.0	22.0	17.3	45.0	22.0	22.0	49.7	0.0
Total Split (%)	12.7%	19.1%	15.7%	20.0%	26.4%	20.0%	15.7%	40.9%	20.0%	20.0%	45.2%	0.0%
Yellow Time (s)	5.0	5.0	4.7	5.0	5.0	5.0	4.7	4.7	5.0	5.0	4.7	
All-Red Time (s)	2.0	2.0	1.5	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	
Act Effct Green (s)	9.1	15.6	27.9	17.0	34.6	55.5	12.3	40.5	62.5	16.9	45.1	
Actuated g/C Ratio	0.08	0.14	0.25	0.15	0.31	0.50	0.11	0.37	0.57	0.15	0.41	
v/c Ratio	0.08	0.79	0.72	0.85	0.31	0.25	0.77	0.72	0.07	0.82	0.88	
Control Delay	47.8	67.9	29.6	61.9	31.8	3.6	51.4	27.0	0.8	58.7	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.8	67.9	29.6	61.9	31.8	3.6	51.4	27.0	0.8	58.7	38.6	
LOS	D	E	C	E	C	A	D	C	A	E	D	
Approach Delay		40.8			40.5			31.3			43.7	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	7	138	115	162	92	9	106	304	3	153	434	
Queue Length 95th (ft)	26	#251	157	#246	181	44	#164	360	m5	#227	#545	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		295			424			923			842	
Turn Bay Length (ft)	100		175	275		125	475		150	275		
Base Capacity (vph)	142	262	681	531	589	896	388	1317	936	531	1451	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.77	0.72	0.85	0.31	0.25	0.77	0.72	0.07	0.81	0.88	

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 2 (2%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 39.1 Intersection LOS: D
Intersection Capacity Utilization 77.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Smith Level Road & US 15-501

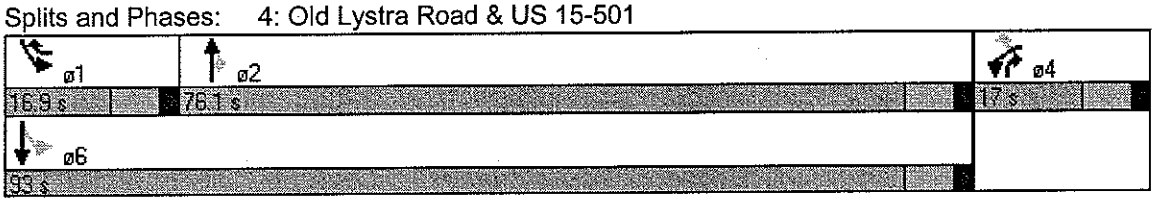


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	0	85	0	0	85
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1796	1607	3522	1575	1787	3575
Flt Permitted	0.950				0.103	
Satd. Flow (perm)	1796	1607	3522	1575	194	3575
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Headway Factor	0.98	0.98	1.01	1.01	0.99	0.99
Link Speed (mph)	45		45			45
Link Distance (ft)	1227		413			423
Travel Time (s)	18.6		6.3			6.4
Volume (vph)	52	61	1356	52	86	1998
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	68	1507	58	96	2220
Lane Group Flow (vph)	58	68	1507	58	96	2220
Turn Type		pm+ov		pm+ov	pm+pt	
Protected Phases	4	1	2	4	1	6
Permitted Phases		4		2	6	
Detector Phases	4	1	2	4	1	6
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	13.7	13.7	18.7	13.7	13.7	18.7
Total Split (s)	17.0	16.9	76.1	17.0	16.9	93.0
Total Split (%)	15.5%	15.4%	69.2%	15.5%	15.4%	84.5%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	None	C-Max
Act Effct Green (s)	10.5	21.5	78.5	95.0	92.2	93.2
Actuated g/C Ratio	0.10	0.20	0.71	0.86	0.84	0.85
v/c Ratio	0.34	0.22	0.60	0.04	0.33	0.73
Control Delay	51.7	36.7	10.0	1.7	4.0	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	36.7	10.0	1.7	4.0	3.3
LOS	D	D	A	A	A	A
Approach Delay	43.6		9.7			3.3
Approach LOS	D		A			A
Queue Length 50th (ft)	39	39	273	5	6	81
Queue Length 95th (ft)	80	77	352	11	m9	130

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Internal Link Dist (ft)	1147		333			343
Turn Bay Length (ft)	215			80	100	
Base Capacity (vph)	196	360	2514	1368	335	3030
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.19	0.60	0.04	0.29	0.73

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 48 (44%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 69.4% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Old Lystra Road & US 15-501



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	1	25	9	2	9	40	383	16	7	599	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	1	28	10	2	10	44	426	18	8	666	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								375				
pX, platoon unblocked												
vC, conflicting volume	1003	1223	675	1242	1223	222	684			443		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1003	1223	675	1242	1223	222	684			443		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	99	93	91	99	99	95			99		
cM capacity (veh/h)	184	168	396	116	168	782	905			1113		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	38	22	44	284	160	692
Volume Left	9	10	44	0	0	8
Volume Right	28	10	0	0	18	19
cSH	302	198	905	1700	1700	1113
Volume to Capacity	0.13	0.11	0.05	0.17	0.09	0.01
Queue Length 95th (ft)	11	9	4	0	0	1
Control Delay (s)	18.6	25.5	9.2	0.0	0.0	0.2
Lane LOS	C	D	A			A
Approach Delay (s)	18.6	25.5	0.8			0.2
Approach LOS	C	D				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	159	1018	275	0	1991
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	177	1131	306	0	2212
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						1003
pX, platoon unblocked	0.65					
vC, conflicting volume	2237	566			1437	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2363	566			1437	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	62			100	
cM capacity (veh/h)	19	468			468	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	177	566	566	306	1106	1106
Volume Left	0	0	0	0	0	0
Volume Right	177	0	0	306	0	0
cSH	468	1700	1700	1700	1700	1700
Volume to Capacity	0.38	0.33	0.33	0.18	0.65	0.65
Queue Length 95th (ft)	43	0	0	0	0	0
Control Delay (s)	17.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	17.3	0.0			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		