TRAFFIC IMPACT ANALYSIS REPORT

FOR THE

PROPOSED COUNTY LINE PLAZA

LOCATED

IN

CHATHAM COUNTY, NORTH CAROLINA

Prepared For
Kirk Bradley

Prepared By
Ramey Kemp & Associates, Inc.

October 2006

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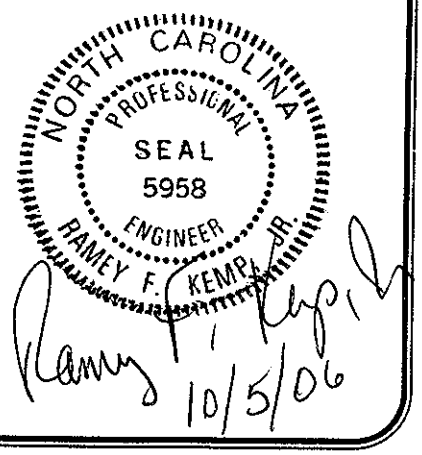
CHATHAM COUNTY, NORTH CAROLINA

Prepared For
Kirk Bradley
1807 Douglas Drive
Sanford, North Carolina

Prepared By
Ramey Kemp & Associates, Inc.
5808 Faringdon Place
Raleigh, North Carolina

October 2006

RKA Project No. 05155



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TRAFFIC IMPACT ANALYSIS REPORT
PROPOSED COUNTY LINE PLAZA
CHATHAM COUNTY, NORTH CAROLINA

1. INTRODUCTION

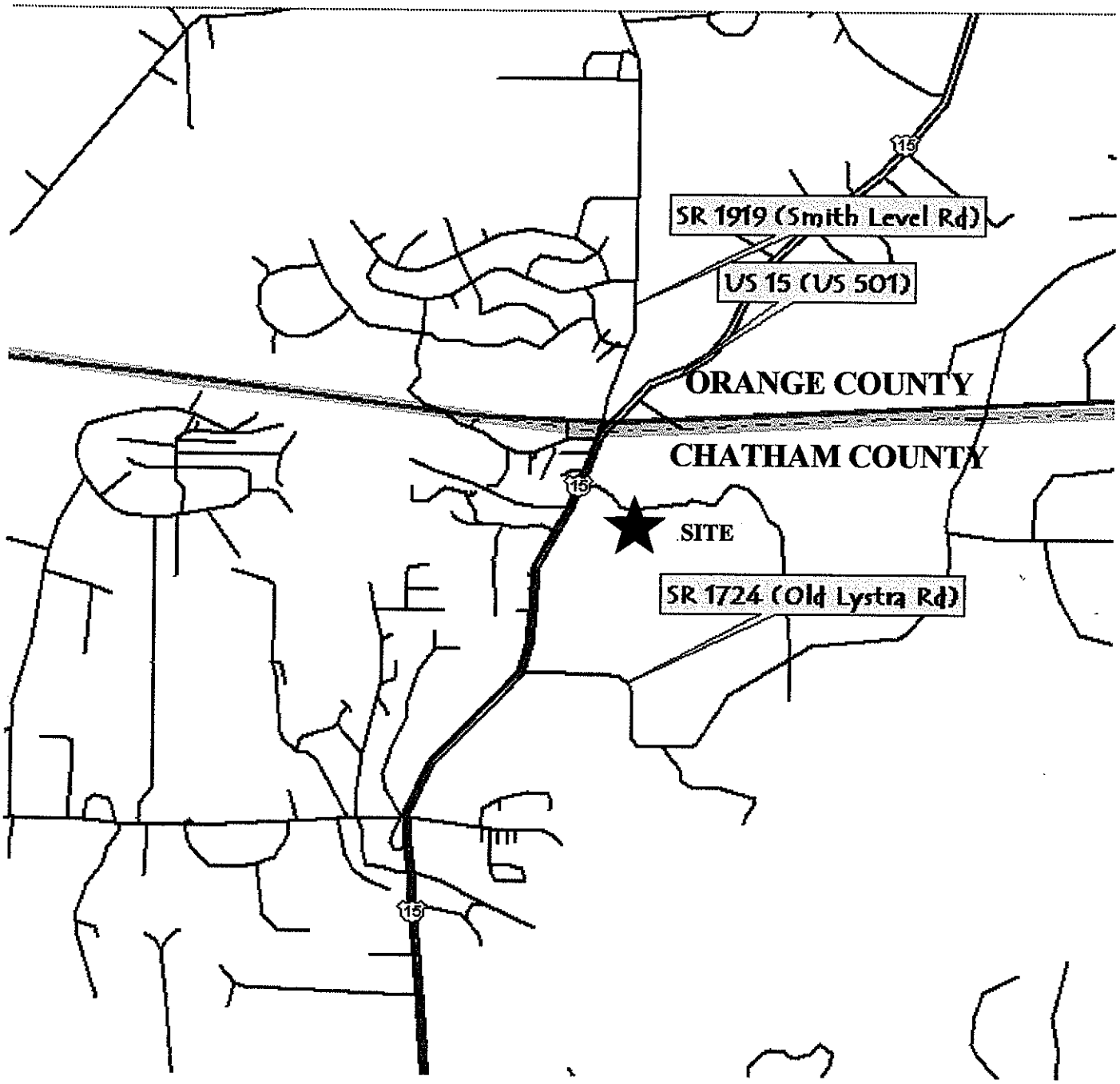
This report summarizes the findings of the Traffic Impact Analysis (TIA) that was performed for the proposed County Line Plaza on US 15-501 in Chatham County, North Carolina. The preliminary site plan indicates that the development will consist of a 140,800 square foot (sf) home improvement superstore, approximately 49,400 sf of retail space, and two (2) outparcels (including a gasoline station with convenience market and a pharmacy) 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 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 development, while maintaining buffers to the north and south of the development. In order to determine the potential impact of the proposed zoning request, this study analyzed future (2008 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 Old Lystra Road (Signalized)
- Smith Level Road and Booth Road (Unsignalized)
- US 15-501 and Secondary Access (Right-In/Right-Out)



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PROPOSED COUNTY LINE PLAZA 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 a 140,800 sf home improvement store, approximately 49,400 sf of retail space as well as two (2) outparcels (including a gasoline station with convenience market and a pharmacy) on approximately 65.5 acres. The gasoline station will have 20 fueling positions. While the other outparcel can consist of a variety of land uses, the study assumed a 14,800 sf pharmacy with a drive through. The development has an anticipated build out commencing in 2006 and completed in 2008.

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, while 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 has been widened to a multi-lane facility.

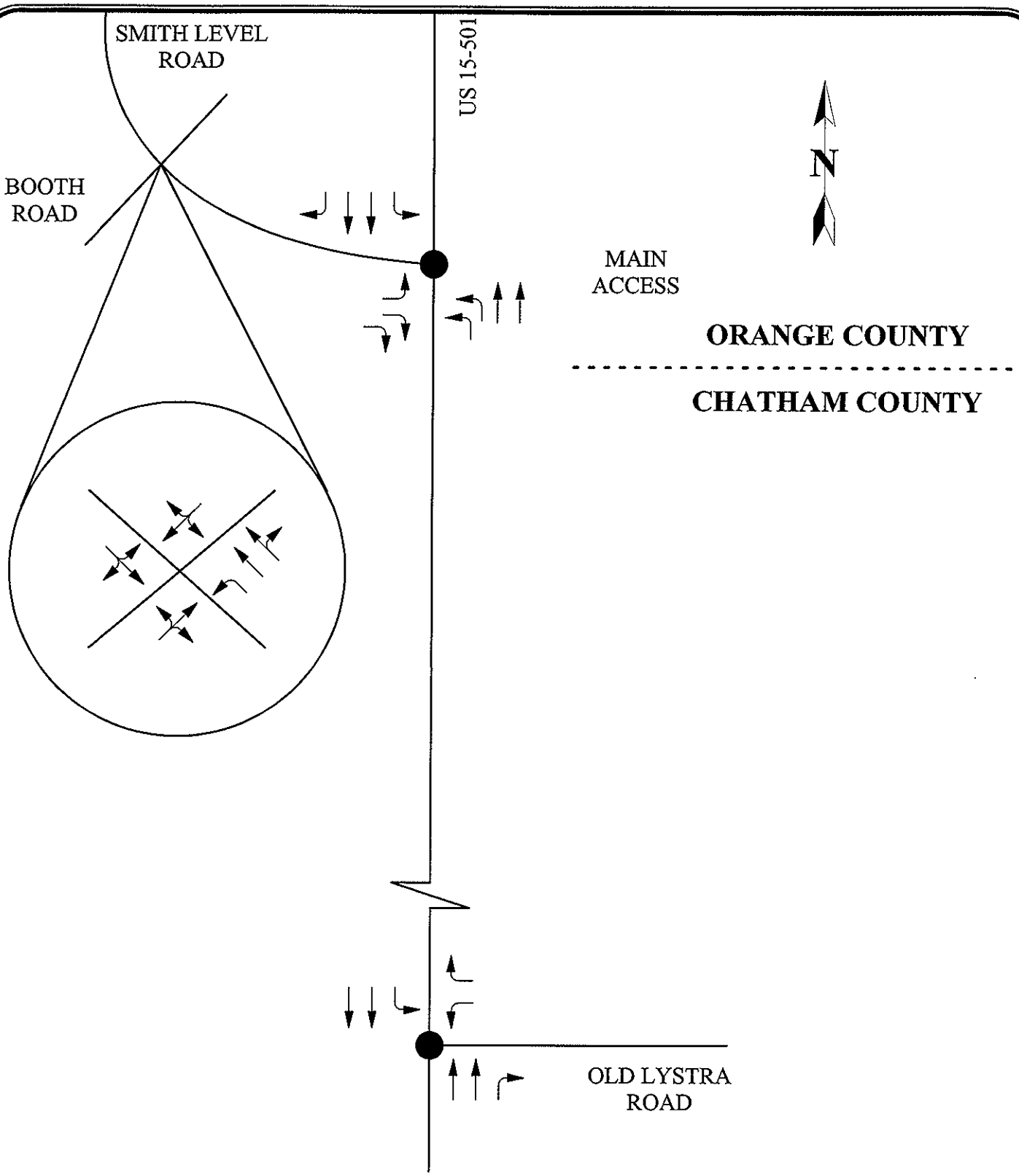
US 15-501 has been widened to a multi-lane divided facility from the Pittsboro Bypass to the Chapel Hill Bypass under the North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) project R-942. Smith Level Road was also realigned under the project. The analyses used in this study assume that all work on US 15-501 has been completed. 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 COUNTY LINE PLAZA 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 2008. Considering that the proposed development is located within the project limits of ~~an active~~ a just completed 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

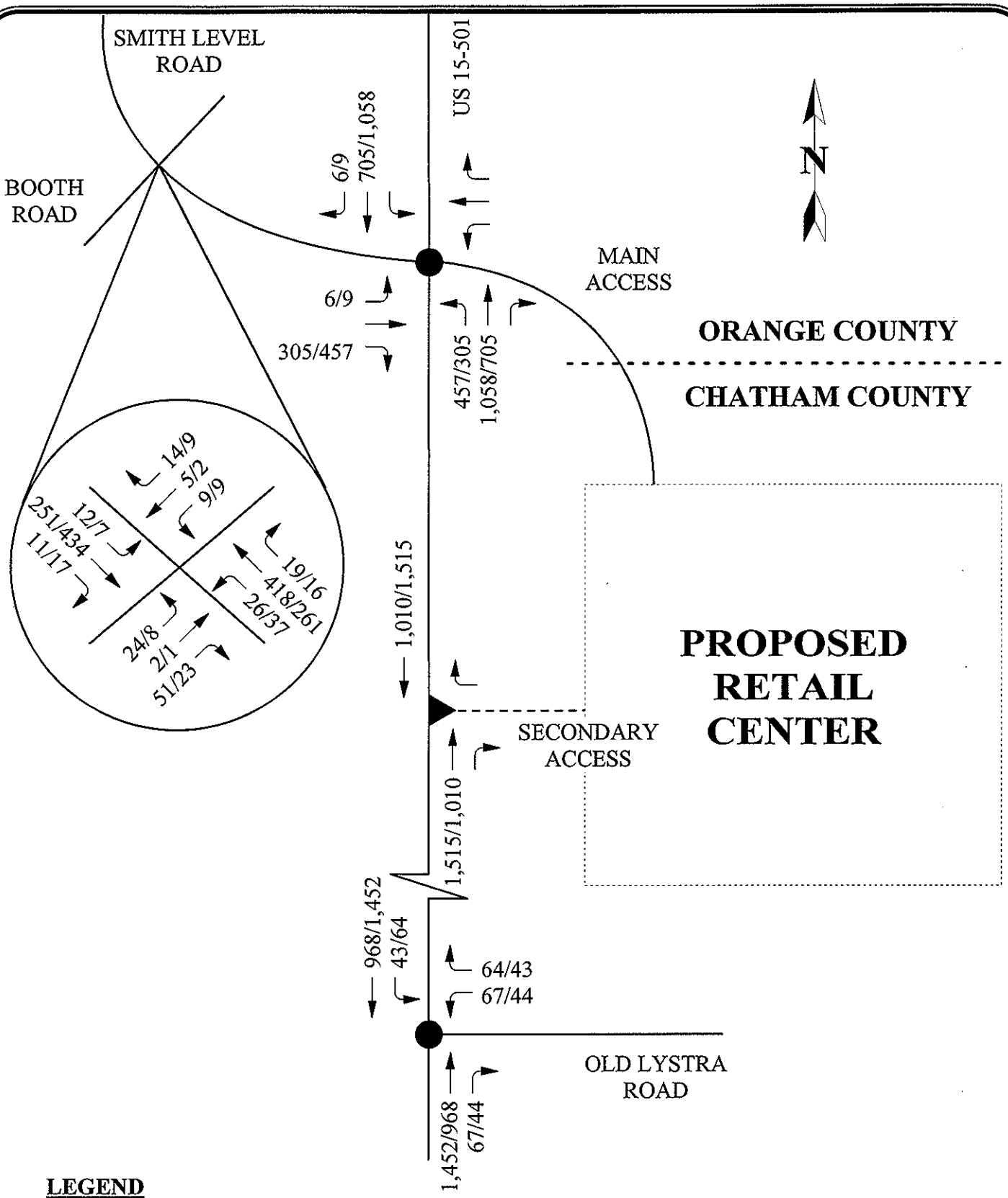
approved adjacent developments that are expected to impact the study area would be added to background traffic volumes within the transportation network.

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 2008 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 2008. 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 AM (7:00 to 9:00) and PM (4:30 to 6:30) 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

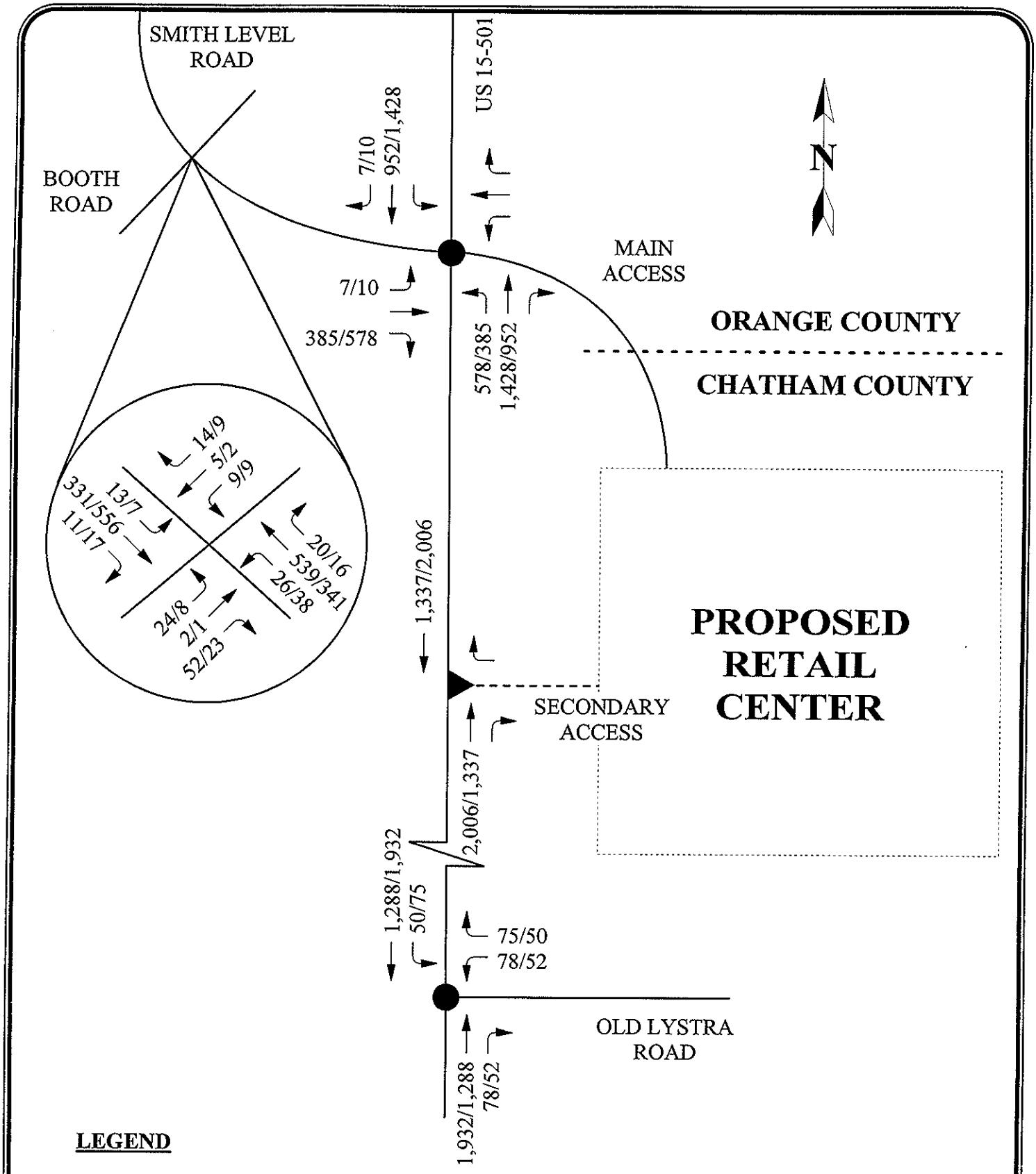
The intersections on US 15-501 at Smith Level Road and Old Lystra Road are both signalized. Per discussions with NCDOT, these signals are being incorporated into a coordinated signal system on US 15-501. While the system is not currently in operation and the signals are still operating under isolated conditions, the coordinated system is expected to be operational by the year 2008 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 COUNTY LINE PLAZA *CHATHAM COUNTY, NORTH CAROLINA*
FUTURE (2008) 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 COUNTY LINE PLAZA 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 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 (2008) 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 2008 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 County Line Plaza 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 development will generate 12,852 total trips (entering and exiting) during a typical weekday. On an average weekday, the proposed development will generate 524 trips (285 entering and 239 exiting) during the AM peak hour and 1,132 trips (547 entering and 585 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 392 primary (new) trips (219 entering and 173 exiting) during the AM peak hour and 622 primary trips (292 entering and 330 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
Home Improvement Superstore	862	140,800 square feet	4,196	91	78	162	183
Shopping Center	820	49,400 square feet	4,294	63	40	189	204
Pharmacy with a Drive Through Lane	881	14,800 square feet	1,305	22	17	63	65
Gasoline Station with Convenience Market and Car Wash	946	20 fueling positions	3,057	109	104	133	133
Total			**12,852**	**285**	**239**	**547**	**585**

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
Home Improvement Superstore	0%	48%	0	0	83	83
Shopping Center	0%	34%	0	0	67	67
Pharmacy with Drive-Thru	0%	49%	0	0	31	31
Gasoline Station with Convenience Market and Car Wash *	62%	56%	66	66	74	74
Total			**66**	**66**	**255**	**255**

* Adjusted based on engineering judgment (ITE *Trip Generation Handbook*, 2nd Edition, Land Use 845)

Table 5
Weekday Peak Hour Primary Trips – Proposed Zoning

Land Use	Primary Trips			
	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
Home Improvement Superstore	91	78	79	100
Shopping Center	63	40	122	137
Pharmacy with Drive-Thru	22	17	32	34
Gasoline Station with Convenience Market and Car Wash	43	38	59	59
Total	**219**	**173**	**292**	**330**

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	10,091	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 assess the impact of the traffic that is expected to 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 Comparison

Land Use Plan	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
County Line Plaza (Proposed Zoning)	219	173	292	330
Mixed-Use Development (Existing Zoning)	176	138	345	376
Adjusted Retail Center Trips	**43**	**35**	**-53**	**-46**

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 primary trips generated by the proposed County Line Plaza (Table 5) were assigned to the study intersections utilizing the primary trip distribution illustrated in Figure 6

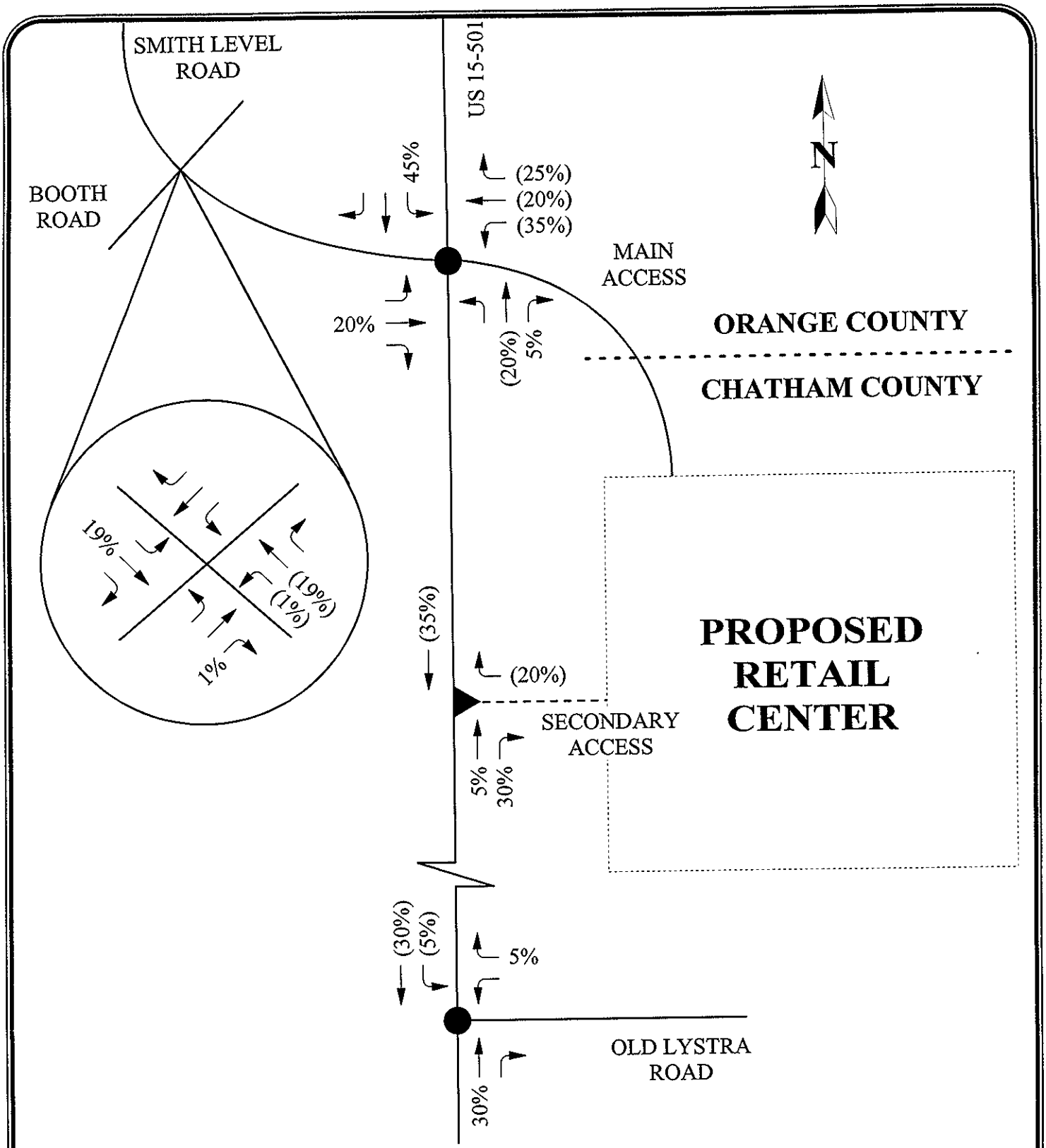
while the pass-by trips (Table 4) at the site access were distributed based on the anticipated traffic patterns during the AM and PM peak hours (Figure 7). Refer to Figures 8 and 9 for an illustration of the trip assignments. In order to determine the overall site impact, adjustments in the distribution (Figure 10) and assignment (Figure 11) were made to the study intersections. 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. Therefore, the primary trips expected to be generated by the existing zoning (table 8) were removed from the study intersections and then the primary and pass-by trips expected to be generated by the proposed development were assigned to the study intersections 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 (2008 and 2020) traffic volumes under existing zoning. Refer to Figures 13 and 14 for an illustration of the future (2008 and 2020) traffic conditions under the proposed zoning, 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.

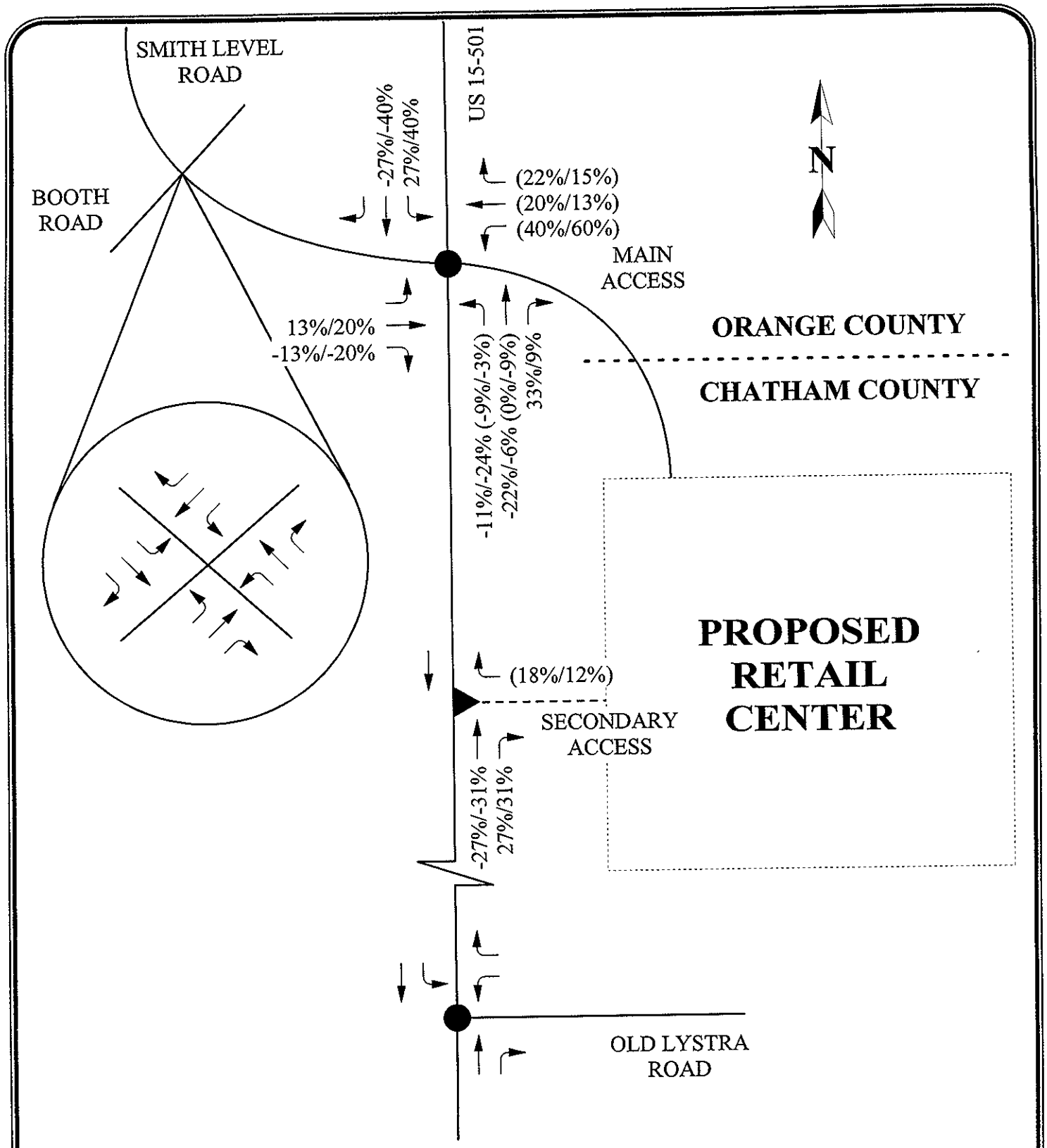


LEGEND

- ● Signalized Intersection
- ▲ Right-In/Right-Out Intersection

XX% (XX%) Entering (Exiting)

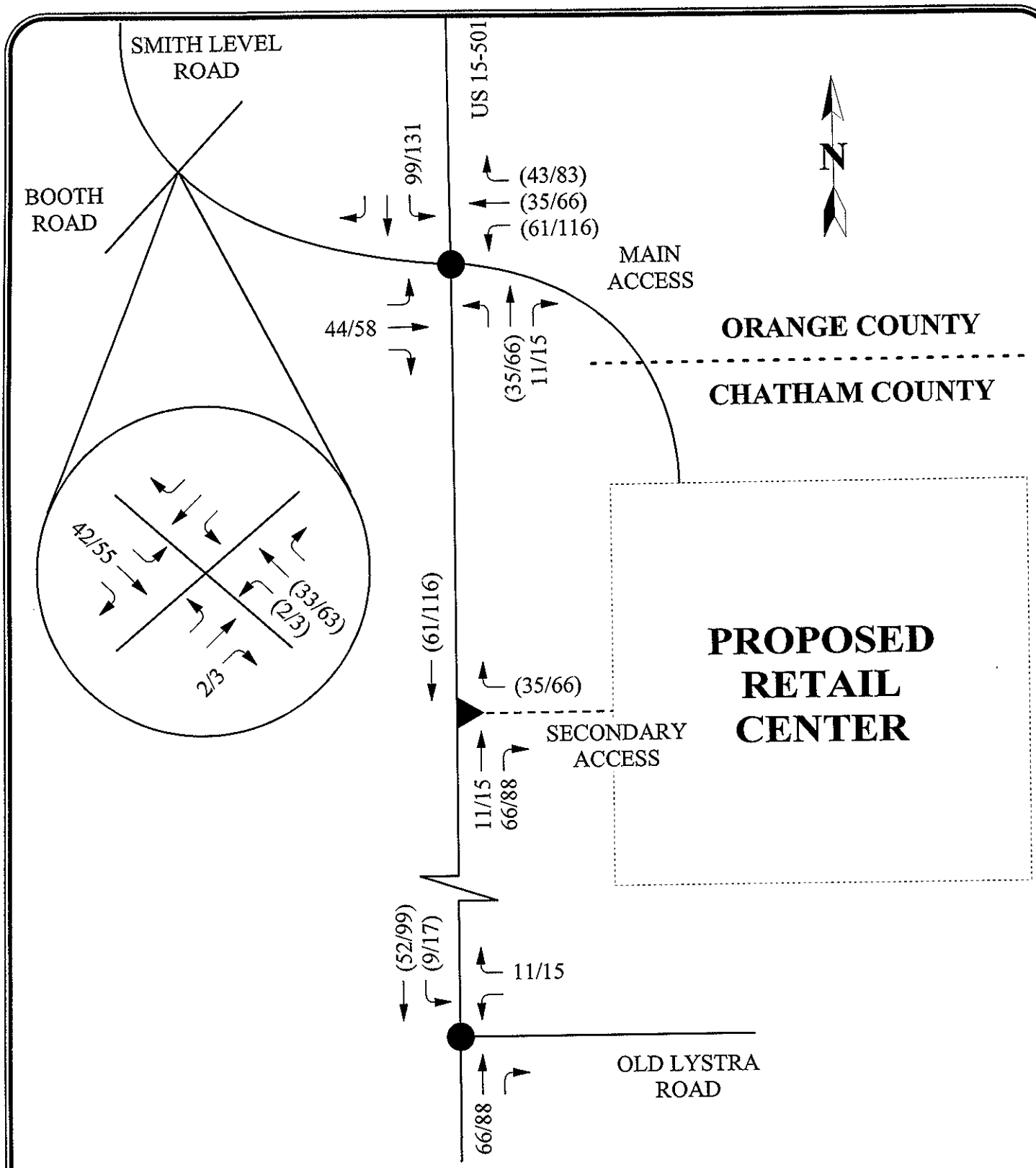
PROPOSED COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
PRIMARY TRIP DISTRIBUTION		
	SCALE: Not to Scale	*Figure 6*



LEGEND

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

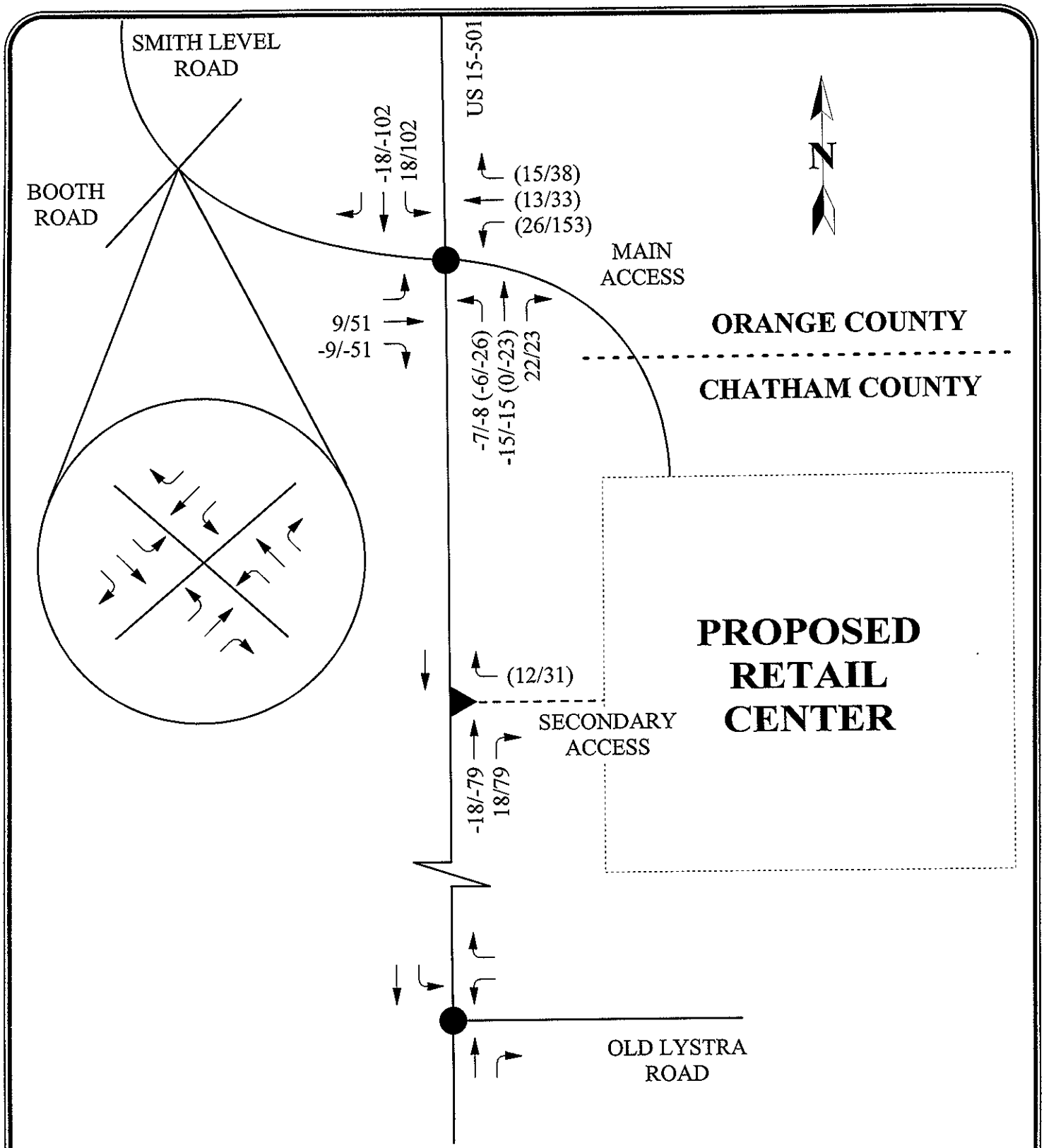
PROPOSED COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
PASS-BY TRIP DISTRIBUTION		
	SCALE: Not to Scale	*Figure 7*



LEGEND

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

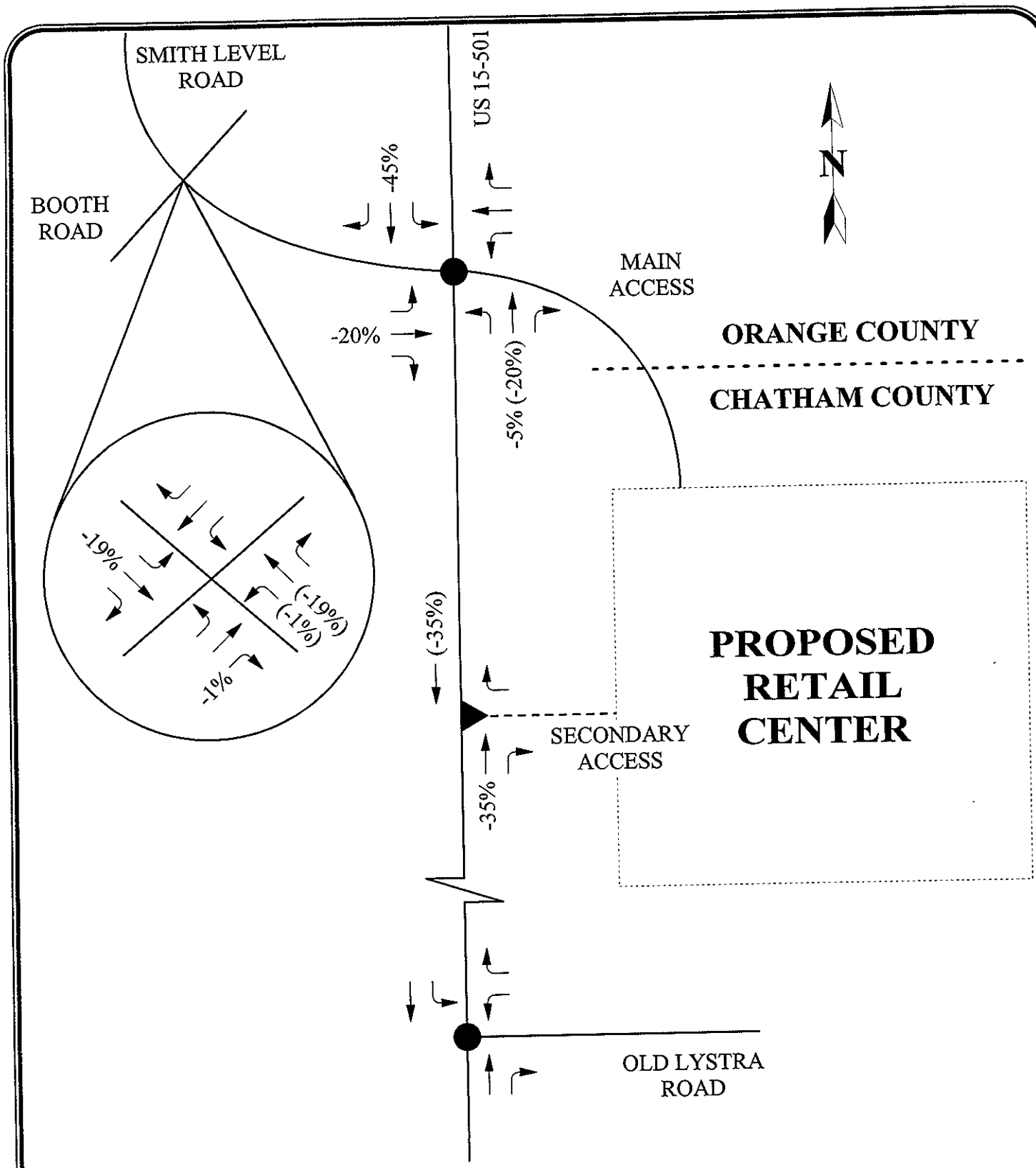
PROPOSED COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
PRIMARY TRIP ASSIGNMENT		
	SCALE: Not to Scale	*Figure 8*



LEGEND

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

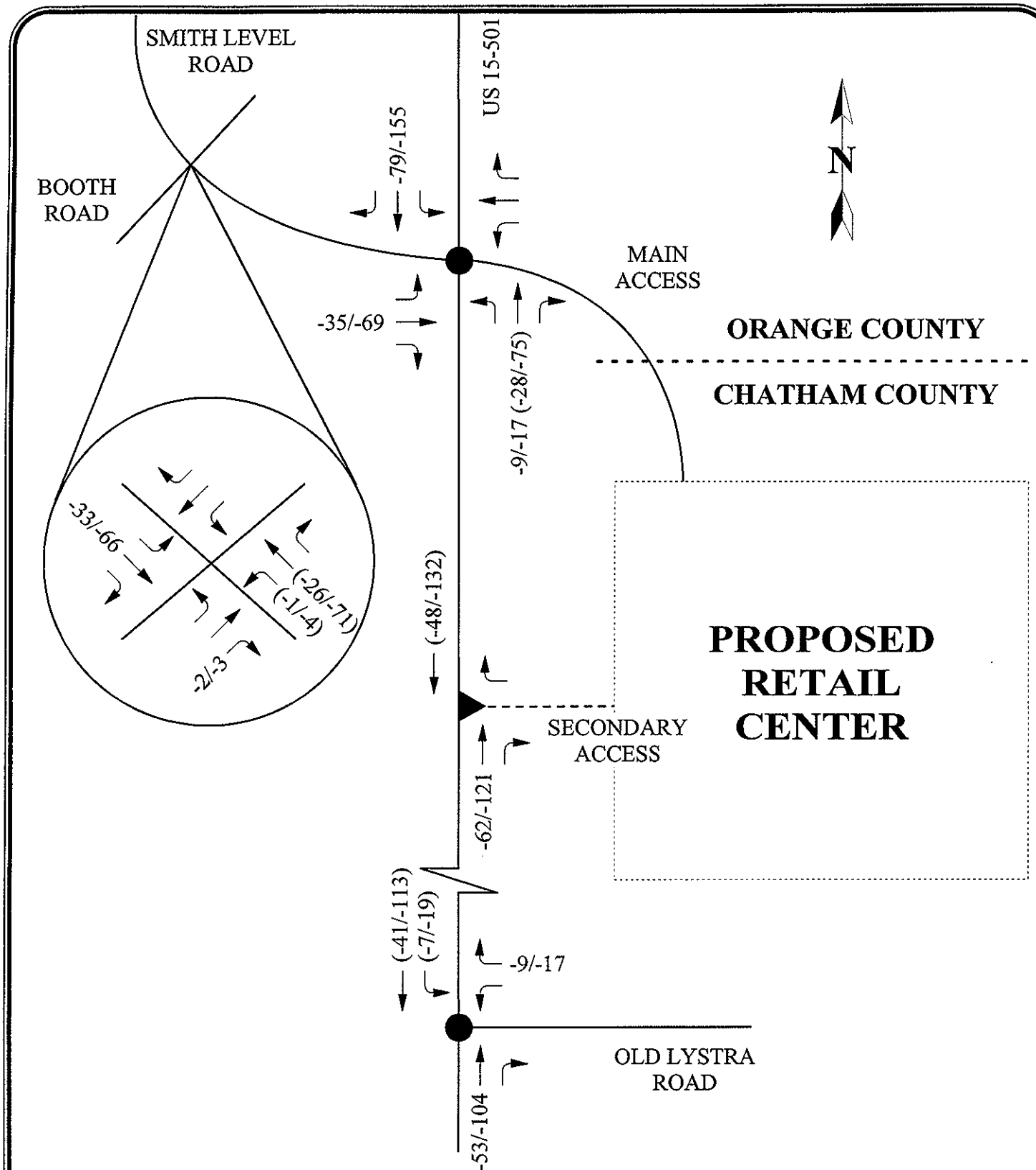
PROPOSED COUNTY LINE PLAZA *CHATHAM COUNTY, NORTH CAROLINA*		
PASS-BY TRIP ASSIGNMENT		
	SCALE: Not to Scale	*Figure 9*



LEGEND

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

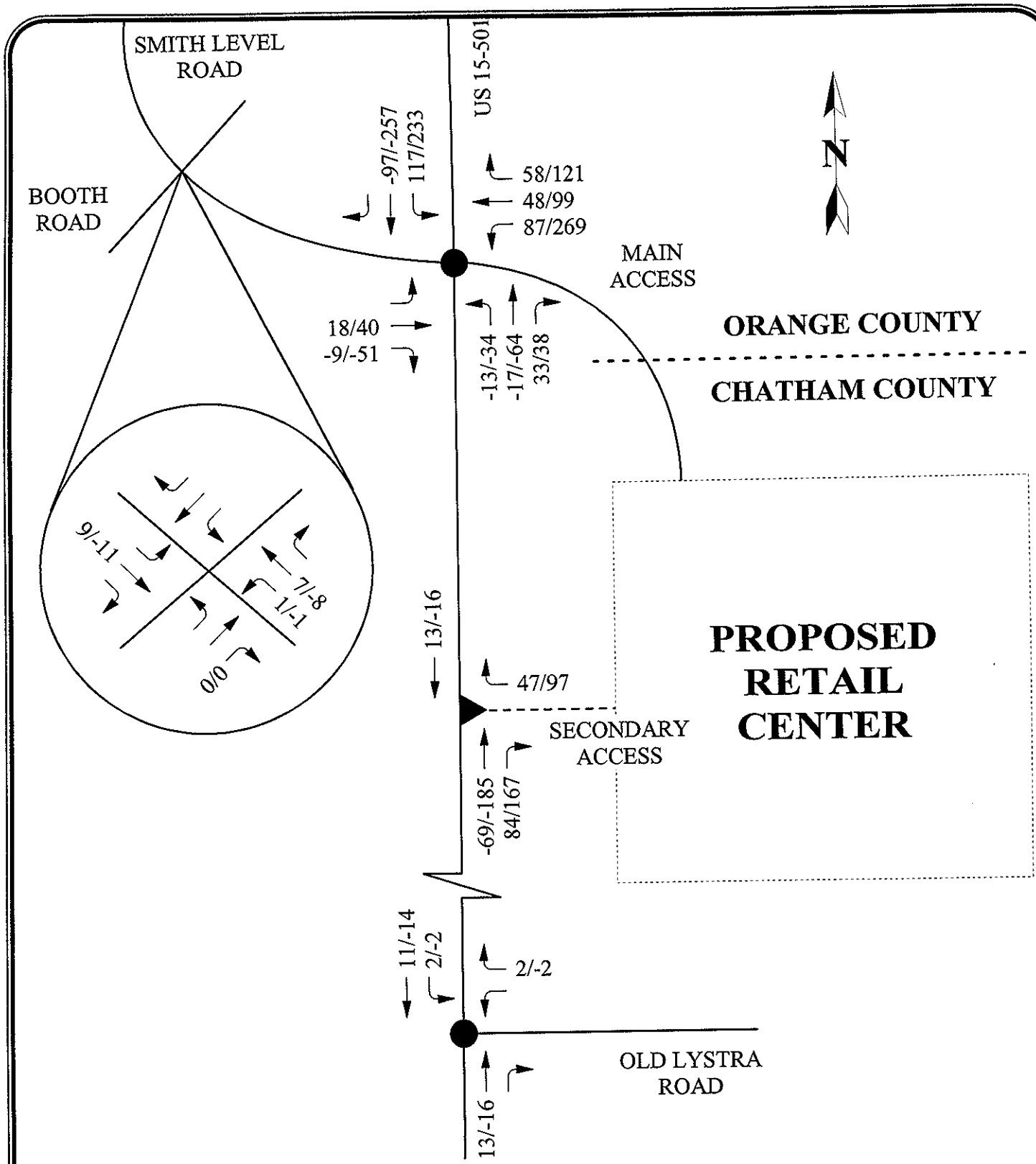
PROPOSED COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
ADJUSTMENTS IN TRIP DISTRIBUTION FOR EXISTING ZONING		
	SCALE: Not to Scale	*Figure 10*



LEGEND

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

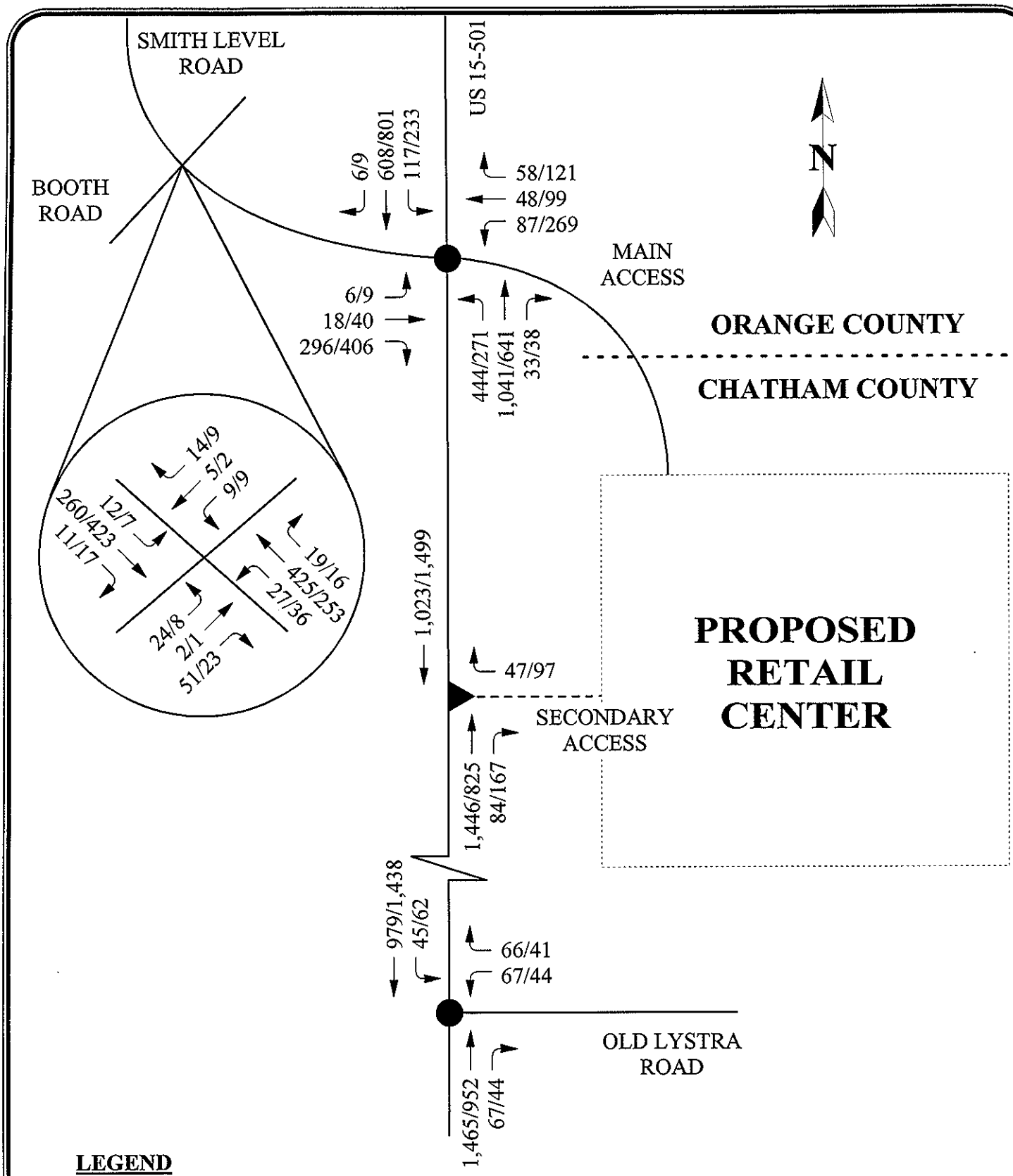
PROPOSED COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
ADJUSTMENTS IN TRIP ASSIGNMENT FOR EXISTING ZONING		
	SCALE: Not to Scale	*Figure 11*



LEGEND

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

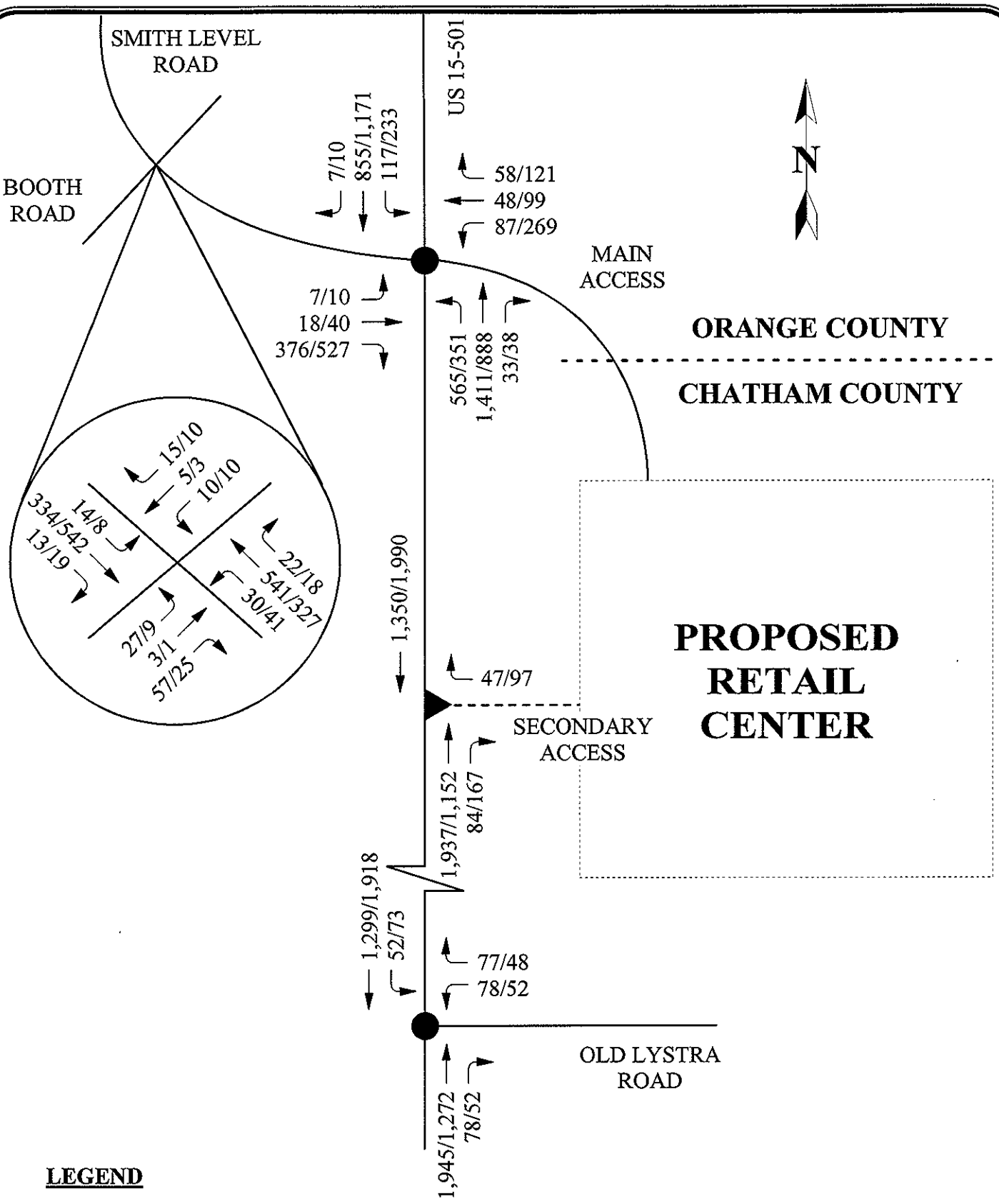
PROPOSED COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
OVERALL SITE IMPACT		
	SCALE: Not to Scale	*Figure 12*



LEGEND

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

PROPOSED COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
FUTURE (2008) 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 COUNTY LINE PLAZA 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 (2008) 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 SB EB WB	2 LT, 2 TH, **1 RT** **2 LT**, 2 TH, 1 RT* 1 LT, **1 TH**, 2 RT **2 LT, 1 TH, 1 RT**	C C C D	C	C C C D	C	C C C D	C	C D D D	D
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]	
US 15-501 and Secondary Access (Unsignalized)	NB SB WB	2 TH, **1 RT** 2 TH **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 2008 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 9.0 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 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 28 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 County Line Plaza in Chatham County, North Carolina. The preliminary site plan indicates that the development will consist of a 140,800 sf home improvement superstore, approximately 49,400 sf of retail space as well as two (2) outparcels (including a gasoline station with convenience market and a pharmacy) on approximately 65.5 acres. The gasoline station will have 20 fueling positions. While the other outparcel can consist of a variety of land uses, the study assumed a 14,800 sf pharmacy with a drive through. The development has an anticipated build out year of 2008. 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 2008 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 2008 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.

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 C 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 350 feet of total left turn storage (175 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

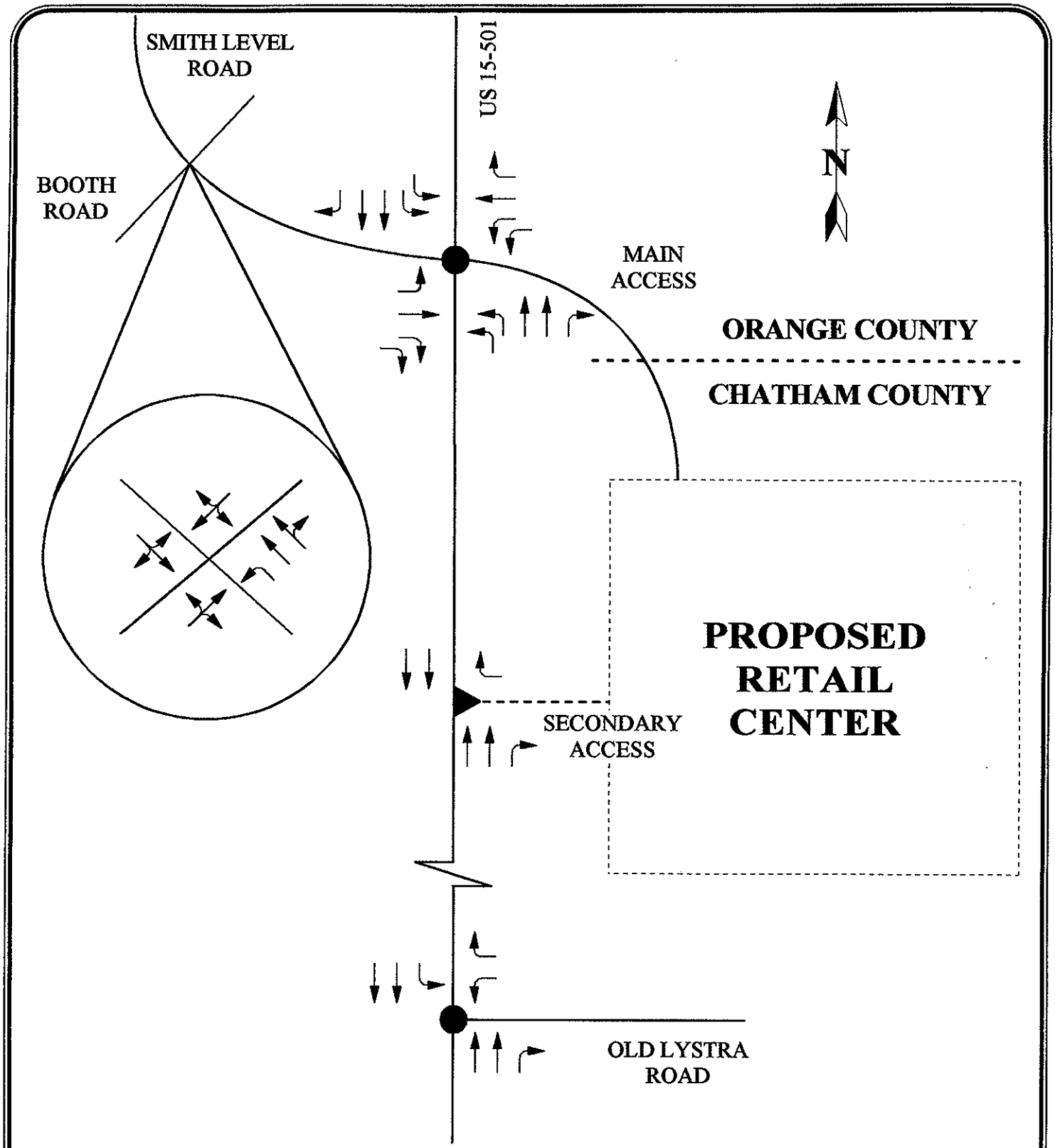
No additional improvements are necessary.

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 100 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

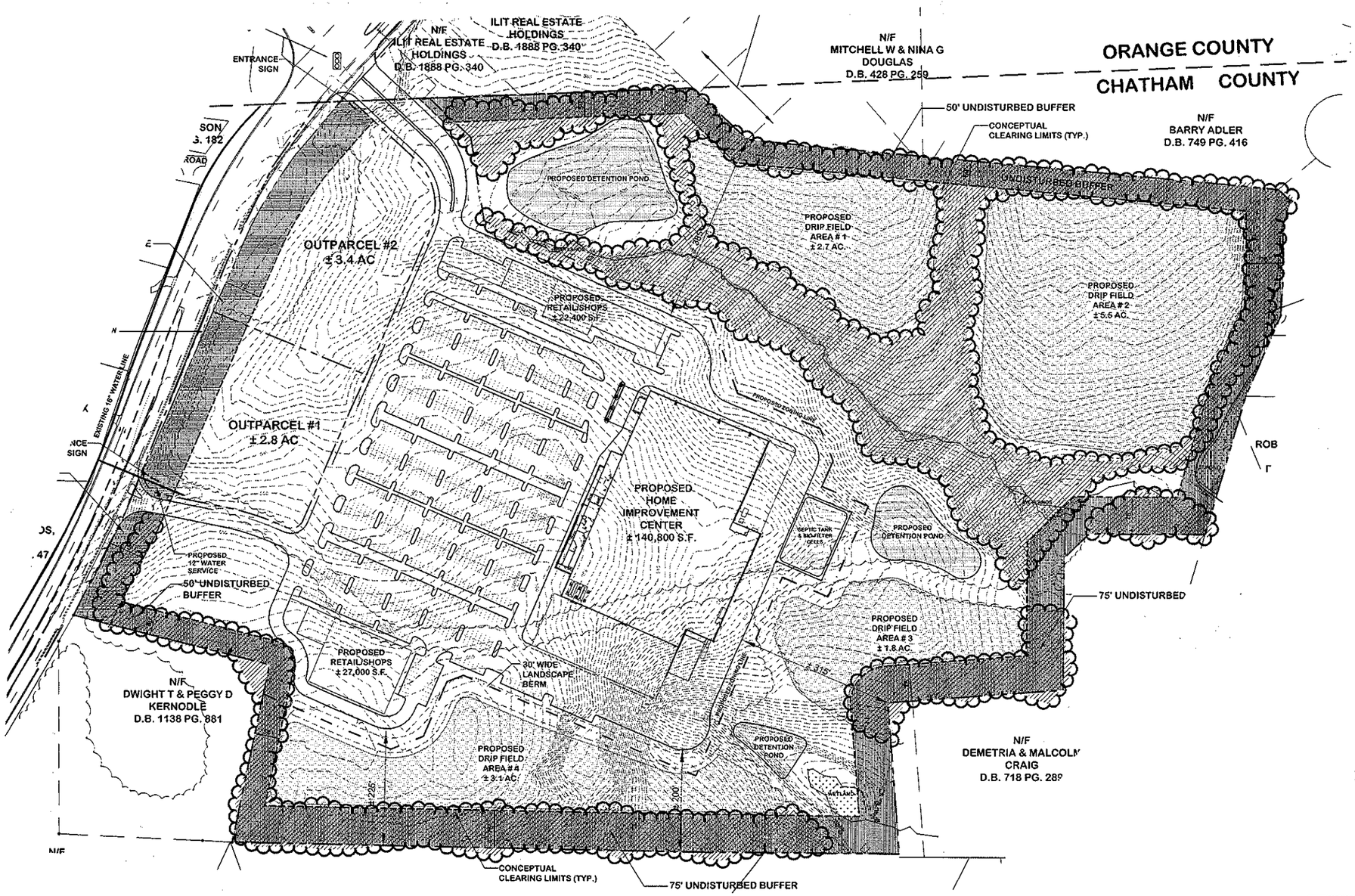
According to the current signal design for the intersection of US 15-501 and Smith Level Road, the eastbound phase (Phase 4) is activated by the presence of a vehicle in the left turn lane. However, if a vehicle is not detected in the left turn lane, the minor approach phase will be skipped. Considering 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 COUNTY LINE PLAZA CHATHAM COUNTY, NORTH CAROLINA		
RECOMMENDED IMPROVEMENTS		
	SCALE: Not to Scale	*Figure 15*

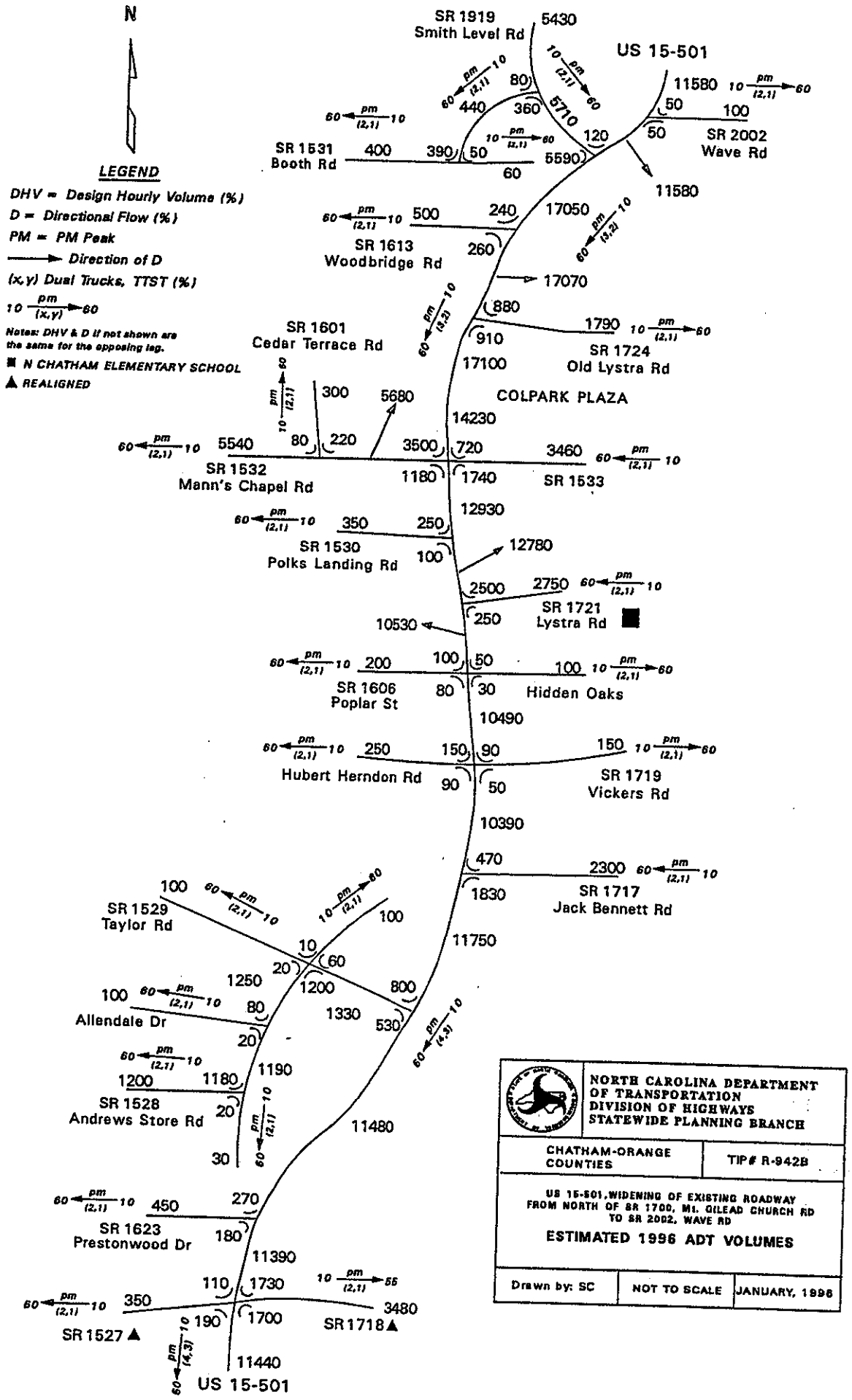


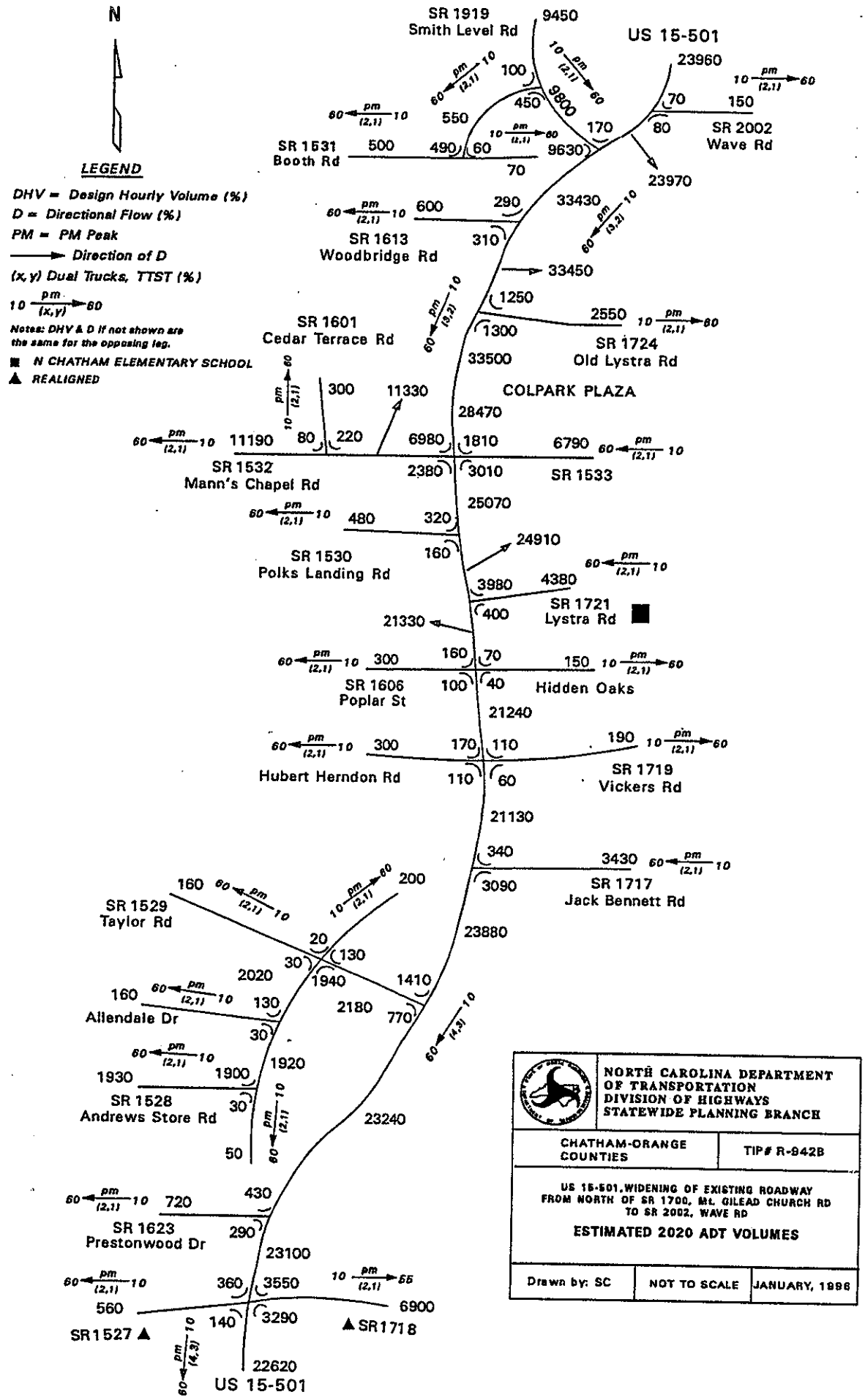
PROPOSED RETAIL CENTER CHATHAM COUNTY, NORTH CAROLINA		
SITE PLAN		
	SCALE: Not to Scale	Figure 2

TECHNICAL APPENDIX

APPENDIX A

TRAFFIC DATA

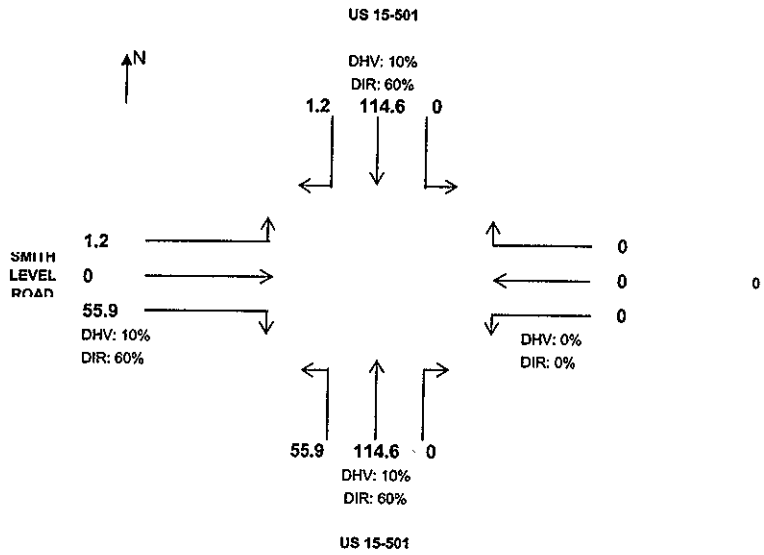

N
LEGEND
DHV = Design Hourly Volume (%)
D = Directional Flow (%)
PM = PM Peak
Direction of D
(x,y) Dual Trucks, TTST (%)
Notes: DHV & D if not shown are the same for the opposing leg.
N CHATHAM ELEMENTARY SCHOOL
REALIGNED
SR 1919
Smith Level Rd
US 15-501
SR 1531
Booth Rd
SR 2002
Wave Rd
SR 1613
Woodbridge Rd
SR 1601
Cedar Terrace Rd
SR 1724
Old Lystra Rd
COLPARK PLAZA
SR 1532
Mann's Chapel Rd
SR 1533
SR 1530
Polks Landing Rd
SR 1721
Lystra Rd
SR 1606
Poplar St
Hidden Oaks
Hubert Herndon Rd
SR 1719
Vickers Rd
SR 1717
Jack Bennett Rd
SR 1529
Taylor Rd
Allendale Dr
SR 1528
Andrews Store Rd
SR 1623
Prestonwood Dr
SR 1527
SR 1718
US 15-501
5430
11580
5710
5590
17050
17070
17100
14230
12930
12780
10530
10490
10390
11750
11480
11390
11440
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


N
LEGEND
DHV = Design Hourly Volume (%)
D = Directional Flow (%)
PM = PM Peak
Direction of D
(x,y) Dual Trucks, TTST (%)
Notes: DHV & D if not shown are the same for the opposing leg.
N CHATHAM ELEMENTARY SCHOOL
REALIGNED
SR 1919
Smith Level Rd
9450
US 15-501
23960
SR 2002
Wave Rd
SR 1531
Booth Rd
SR 1613
Woodbridge Rd
SR 1601
Cedar Terrace Rd
SR 1724
Old Lystra Rd
COLPARK PLAZA
SR 1532
Mann's Chapel Rd
SR 1533
SR 1530
Polks Landing Rd
SR 1721
Lystra Rd
SR 1606
Poplar St
Hidden Oaks
Hubert Herndon Rd
SR 1719
Vickers Rd
SR 1717
Jack Bennett Rd
SR 1529
Taylor Rd
Allendale Dr
SR 1528
Andrews Store Rd
SR 1623
Prestonwood Dr
SR1527
SR1718
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 2020 ADT VOLUMES
Drawn by: SC
NOT TO SCALE
JANUARY, 1996

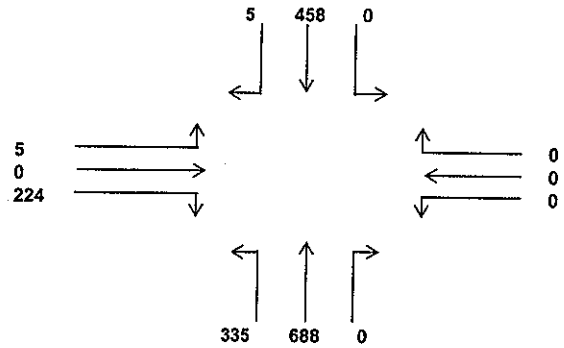
TRAFFIC VOLUME BREAKOUT

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

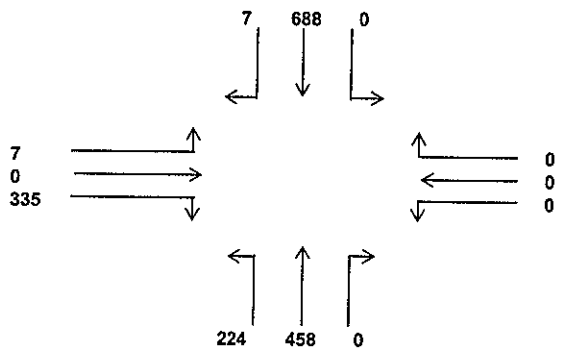
Input Data (Volumes given in hundreds)



AM Peak Hour Volumes



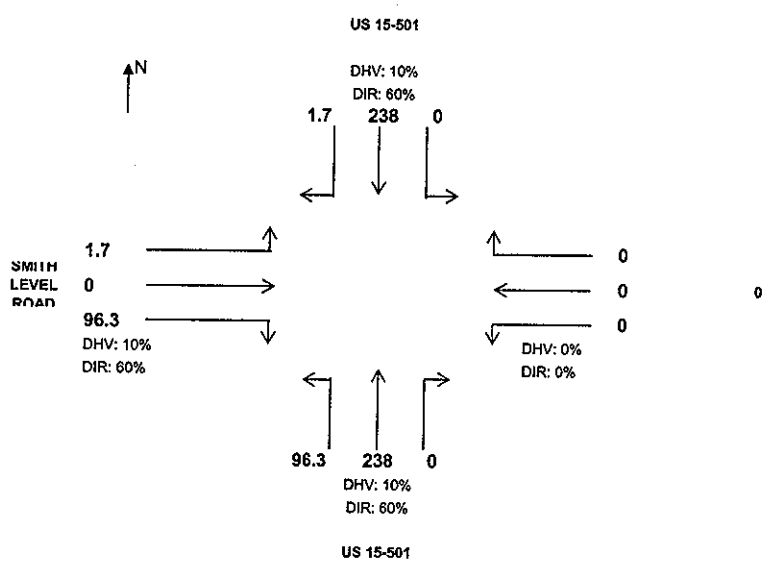
PM Peak Hour Volumes



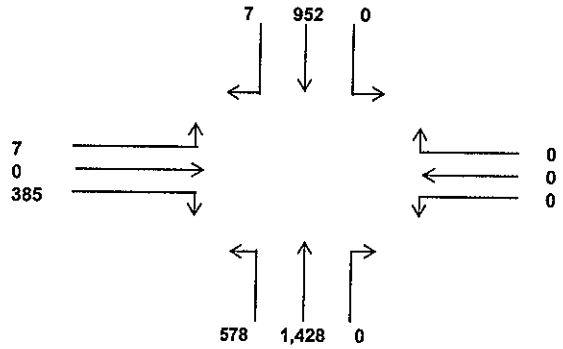
TRAFFIC VOLUME BREAKOUT

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

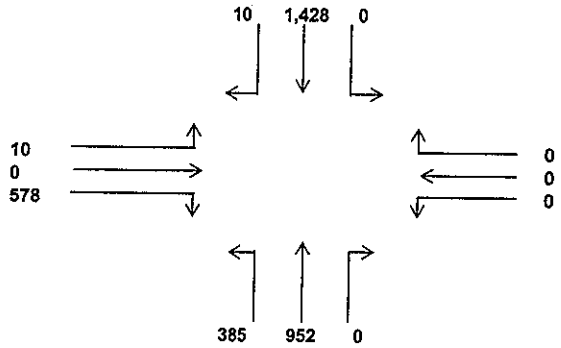
Input Data (Volumes given in hundreds)



AM Peak Hour Volumes



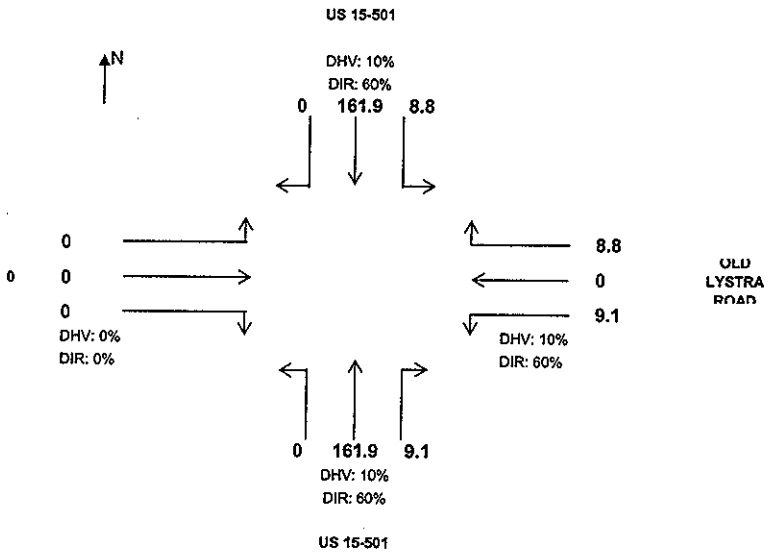
PM Peak Hour Volumes



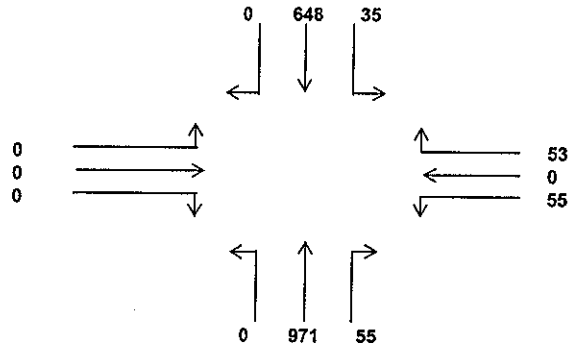
TRAFFIC VOLUME BREAKOUT

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

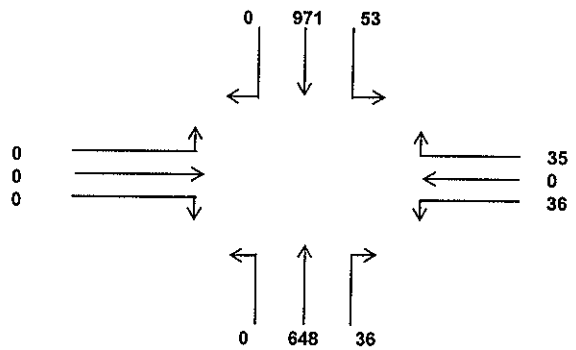
Input Data (Volumes given in hundreds)



AM Peak Hour Volumes



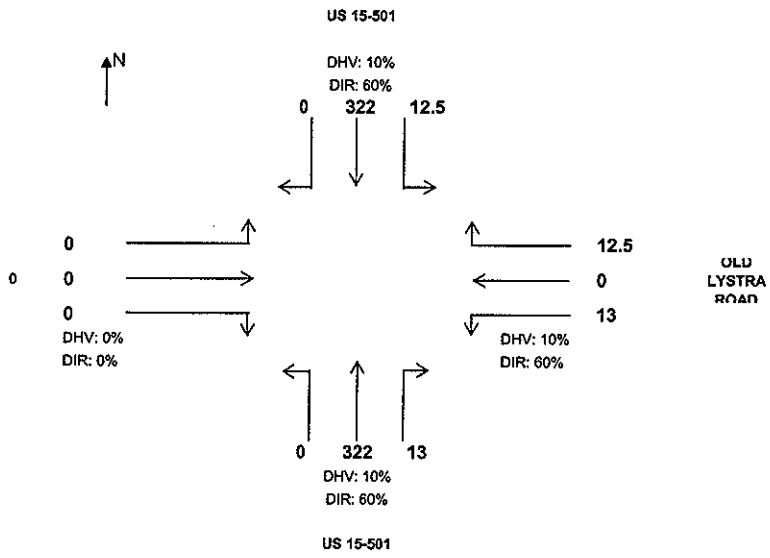
PM Peak Hour Volumes



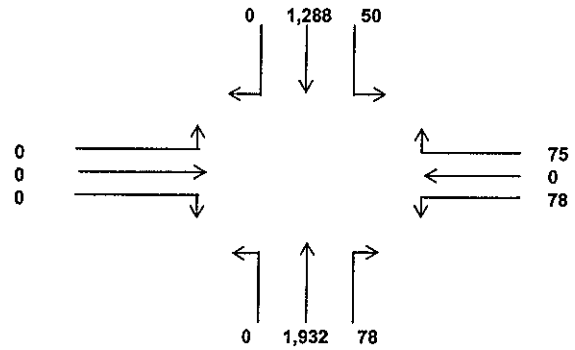
TRAFFIC VOLUME BREAKOUT

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

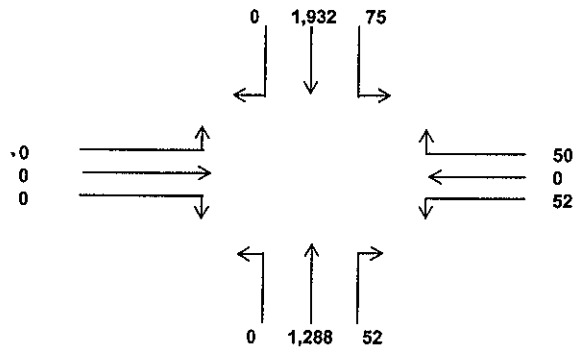
Input Data (Volumes given in hundreds)



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

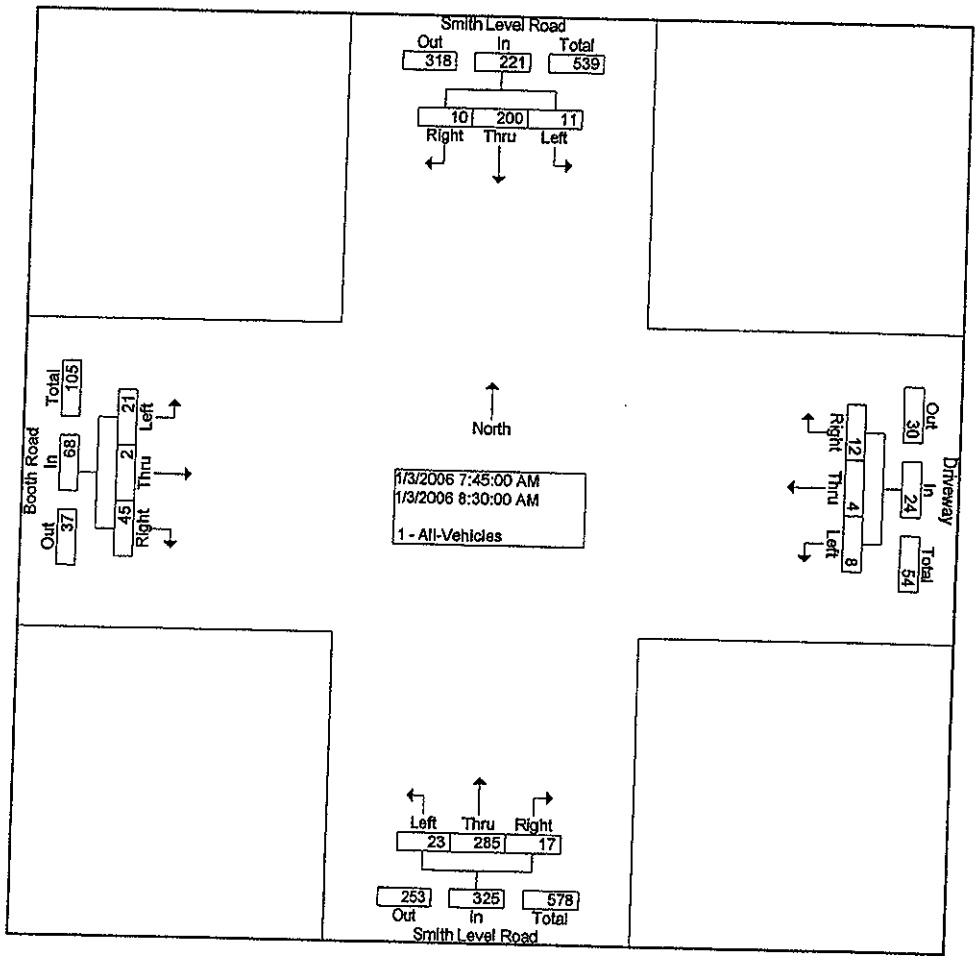
Groups Printed- 1 - All-Vehicles

	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
Page No : 2

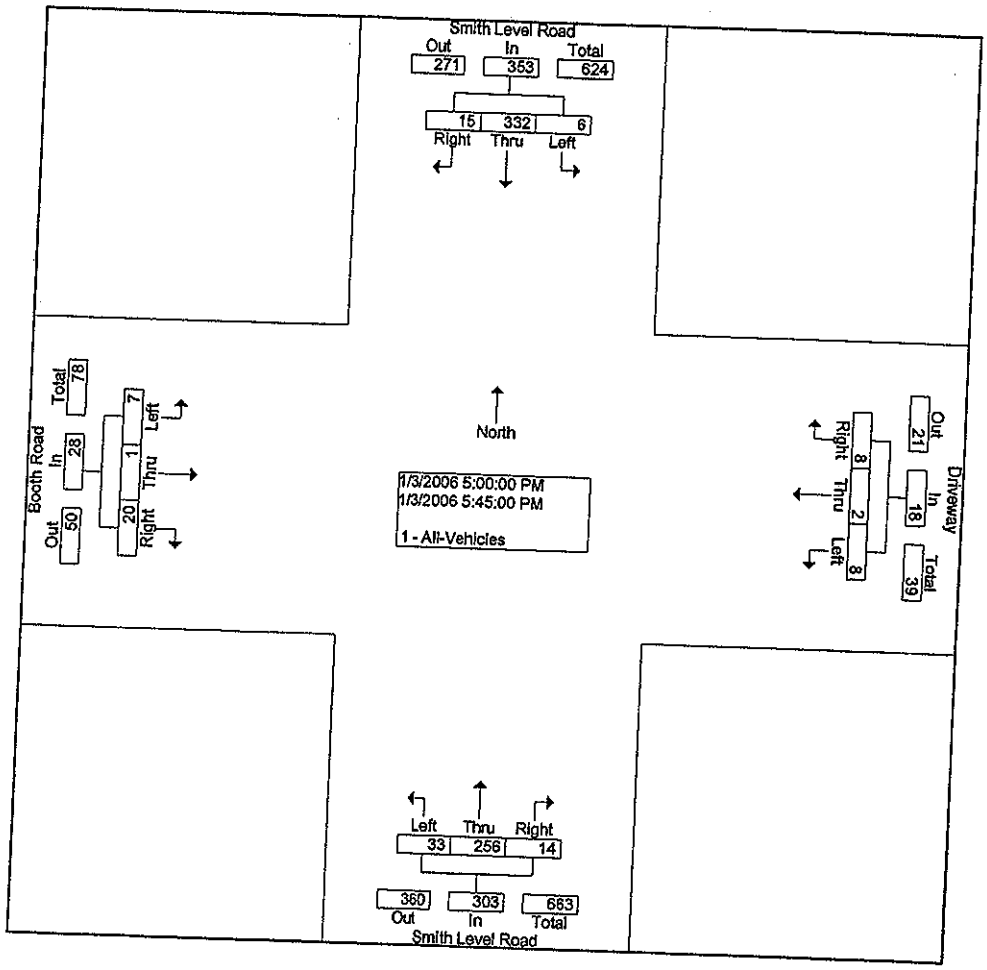
	Smith Level Road Southbound				Driveway Westbound				Smith Level Road Northbound				Booth Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 AM to 11:45 AM - Peak 1 of 1																	
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

	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																	
High Int.	05:15 PM				05:45 PM				05:15 PM				05:15 PM				0.882
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)

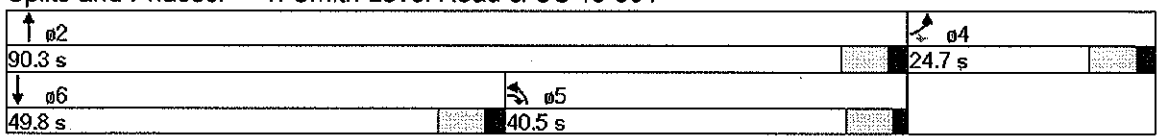
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	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	305	457	1058	705	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	339	508	1176	783	7
Lane Group Flow (vph)	7	339	508	1176	790	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	40.5	40.5	90.3	49.8	0.0
Total Split (%)	21.5%	35.2%	35.2%	78.5%	43.3%	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	38.3	35.5	111.2	66.7	
Actuated g/C Ratio	0.08	0.33	0.31	0.97	0.58	
v/c Ratio	0.05	0.38	0.47	0.34	0.38	
Control Delay	50.5	30.1	25.4	1.1	14.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.5	30.1	25.4	1.1	14.5	
LOS	D	C	C	A	B	
Approach Delay	30.5			8.4	14.5	
Approach LOS	C			A	B	
Queue Length 50th (ft)	5	112	116	0	146	
Queue Length 95th (ft)	20	129	134	126	251	

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	895	1070	3458	2052	
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	0.38	0.47	0.34	0.38	

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: 12.8 Intersection LOS: B
Intersection Capacity Utilization 51.0% ICU Level of Service A
Analysis Period (min) 15

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



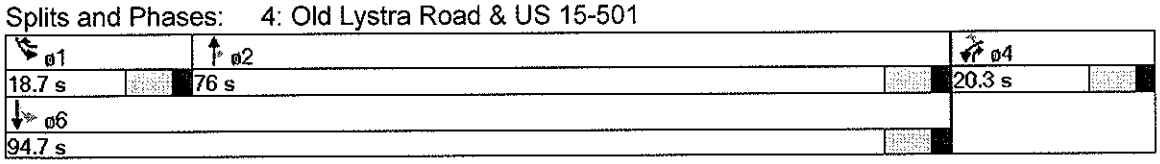
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	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				0.075	
Satd. Flow (perm)	1796	1607	3522	1575	141	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)	67	64	1452	67	43	968
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	71	1613	74	48	1076
Lane Group Flow (vph)	74	71	1613	74	48	1076
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)	20.3	18.7	76.0	20.3	18.7	94.7
Total Split (%)	17.7%	16.3%	66.1%	17.7%	16.3%	82.3%
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)	11.8	23.0	85.8	99.8	96.0	97.0
Actuated g/C Ratio	0.10	0.20	0.75	0.87	0.83	0.84
v/c Ratio	0.40	0.22	0.61	0.05	0.20	0.36
Control Delay	54.2	37.5	10.8	1.7	7.0	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	37.5	10.8	1.7	7.0	2.7
LOS	D	D	B	A	A	A
Approach Delay	46.0		10.4			2.9
Approach LOS	D		B			A
Queue Length 50th (ft)	52	43	318	7	4	54
Queue Length 95th (ft)	97	80	451	15	30	136

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)	239	387	2627	1397	314	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	0.31	0.18	0.61	0.05	0.15	0.36

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: 0.61
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 54.3% 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)	24	2	51	9	5	14	26	418	19	12	251	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	57	10	6	16	29	464	21	13	279	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	620	855	285	902	851	243	291			486		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	620	855	285	902	851	243	291			486		
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 %	92	99	92	95	98	98	98			99		
cM capacity (veh/h)	350	284	712	207	286	758	1268			1074		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	86	31	29	310	176	304
Volume Left	27	10	29	0	0	13
Volume Right	57	16	0	0	21	12
cSH	523	353	1268	1700	1700	1074
Volume to Capacity	0.16	0.09	0.02	0.18	0.10	0.01
Queue Length 95th (ft)	15	7	2	0	0	1
Control Delay (s)	13.2	16.2	7.9	0.0	0.0	0.5
Lane LOS	B	C	A			A
Approach Delay (s)	13.2	16.2	0.4			0.5
Approach LOS	B	C				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

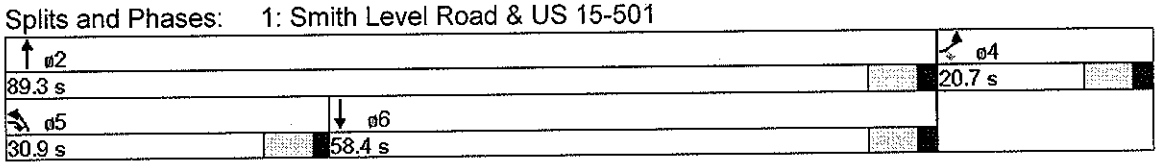
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	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)	9	457	305	705	1058	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	508	339	783	1176	10
Lane Group Flow (vph)	10	508	339	783	1186	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	30.9	30.9	89.3	58.4	0.0
Total Split (%)	18.8%	28.1%	28.1%	81.2%	53.1%	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)	8.8	32.1	29.2	106.2	67.9	
Actuated g/C Ratio	0.08	0.29	0.27	0.97	0.62	
v/c Ratio	0.07	0.65	0.37	0.23	0.54	
Control Delay	48.1	37.0	28.1	0.2	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.1	37.0	28.1	0.2	14.8	
LOS	D	D	C	A	B	
Approach Delay	37.3			8.6	14.8	
Approach LOS	D			A	B	
Queue Length 50th (ft)	7	177	64	0	235	
Queue Length 95th (ft)	24	202	80	2	386	

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	813	959	3450	2183	
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	0.62	0.35	0.23	0.54	

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: 16.5 Intersection LOS: B
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15

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



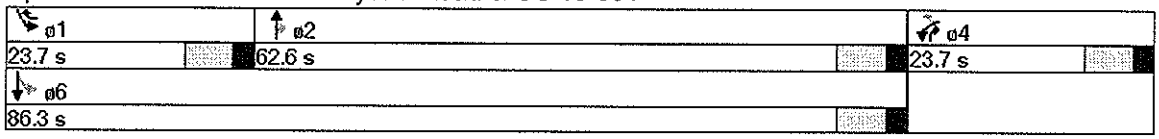
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (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				0.164	
Satd. Flow (perm)	1796	1607	3522	1575	309	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)	44	43	968	44	64	1452
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	48	1076	49	71	1613
Lane Group Flow (vph)	49	48	1076	49	71	1613
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	21.3	82.5	95.0	92.4	93.4
Actuated g/C Ratio	0.09	0.19	0.75	0.86	0.84	0.85
v/c Ratio	0.29	0.15	0.41	0.04	0.19	0.53
Control Delay	50.4	35.3	7.4	1.7	2.6	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	35.3	7.4	1.7	2.6	2.4
LOS	D	D	A	A	A	A
Approach Delay	42.9		7.1			2.4
Approach LOS	D		A			A
Queue Length 50th (ft)	33	28	157	4	5	84
Queue Length 95th (ft)	70	59	217	10	m13	117

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	457	2640	1452	511	3036
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	0.11	0.41	0.03	0.14	0.53

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: 0.53
Intersection Signal Delay: 5.6 Intersection LOS: A
Intersection Capacity Utilization 54.3% 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)	8	1	23	9	2	9	37	261	16	7	434	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	41	290	18	8	482	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	746	897	492	914	898	154	501			308		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	746	897	492	914	898	154	501			308		
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)	287	265	523	209	265	865	1059			1250		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	36	22	41	193	114	509
Volume Left	9	10	41	0	0	8
Volume Right	26	10	0	0	18	19
cSH	423	327	1059	1700	1700	1250
Volume to Capacity	0.08	0.07	0.04	0.11	0.07	0.01
Queue Length 95th (ft)	7	5	3	0	0	0
Control Delay (s)	14.3	16.8	8.5	0.0	0.0	0.2
Lane LOS	B	C	A			A
Approach Delay (s)	14.3	16.8	1.0			0.2
Approach LOS	B	C				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

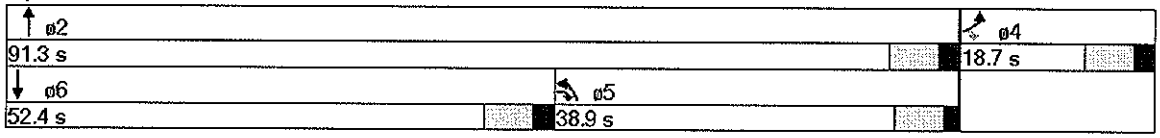
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	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



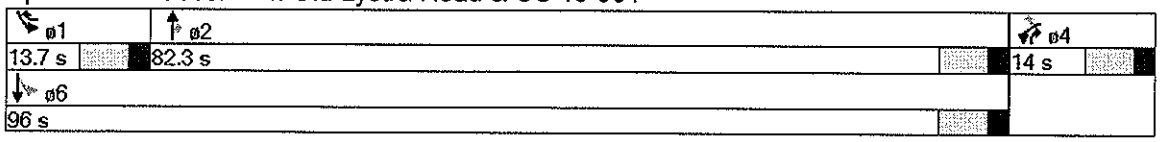
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (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)	27	3	57	10	5	15	29	534	22	14	325	13
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)	30	3	63	11	6	17	32	593	24	16	361	14
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	780	1082	368	1134	1077	309	376			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	780	1082	368	1134	1077	309	376			618		
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 %	89	98	90	92	97	98	97			98		
cM capacity (veh/h)	264	207	629	135	208	687	1180			958		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	97	33	32	396	222	391
Volume Left	30	11	32	0	0	16
Volume Right	63	17	0	0	24	14
cSH	419	250	1180	1700	1700	958
Volume to Capacity	0.23	0.13	0.03	0.23	0.13	0.02
Queue Length 95th (ft)	22	11	2	0	0	1
Control Delay (s)	16.1	21.6	8.1	0.0	0.0	0.5
Lane LOS	C	C	A			A
Approach Delay (s)	16.1	21.6	0.4			0.5
Approach LOS	C	C				

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

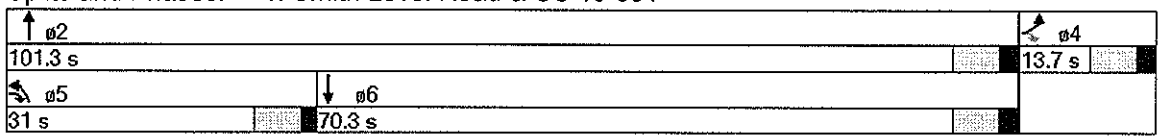
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	7%			-2%	0%	
Storage Length (ft)	100	125	475			0
Storage Lanes	1	1	2			0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	50	90	90	
Trailing Detector (ft)	0	0	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)	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



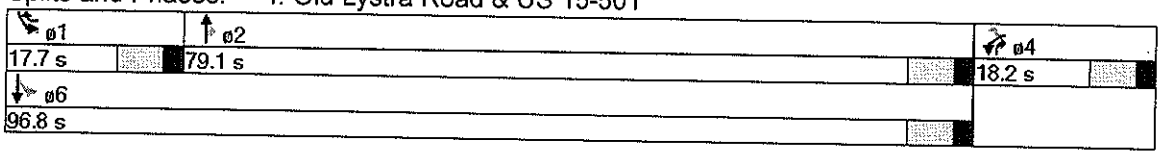
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	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	175		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			No			No			No
Satd. Flow (RTOR)												
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	18	296	87	48	58	444	1041	33	117	608	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	20	329	97	53	64	493	1157	37	130	676	7
Lane Group Flow (vph)	7	20	329	97	53	64	493	1157	37	130	683	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)	4.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	10.0	14.0	13.2	14.0	14.0	14.0	13.2	20.7	14.0	14.0	20.7	
Total Split (s)	16.0	20.0	35.7	20.0	24.0	20.0	35.7	60.0	20.0	20.0	44.3	0.0
Total Split (%)	13.3%	16.7%	29.8%	16.7%	20.0%	16.7%	29.8%	50.0%	16.7%	16.7%	36.9%	0.0%
Yellow Time (s)	4.0	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)	7.0	9.4	31.6	10.8	14.2	30.0	27.5	76.3	90.1	11.8	60.6	
Actuated g/C Ratio	0.06	0.08	0.26	0.09	0.12	0.25	0.23	0.64	0.75	0.10	0.50	
v/c Ratio	0.07	0.14	0.47	0.31	0.24	0.16	0.62	0.51	0.03	0.38	0.38	
Control Delay	54.5	53.6	31.9	53.4	49.0	30.3	43.4	13.0	3.6	53.6	21.0	
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	54.5	53.6	31.9	53.4	49.0	30.3	43.4	13.0	3.6	53.6	21.0	
LOS	D	D	C	D	D	C	D	B	A	D	C	
Approach Delay		33.5			45.4			21.7			26.2	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	5	15	127	37	39	40	174	192	4	49	146	
Queue Length 95th (ft)	21	40	104	63	78	60	219	378	11	79	267	

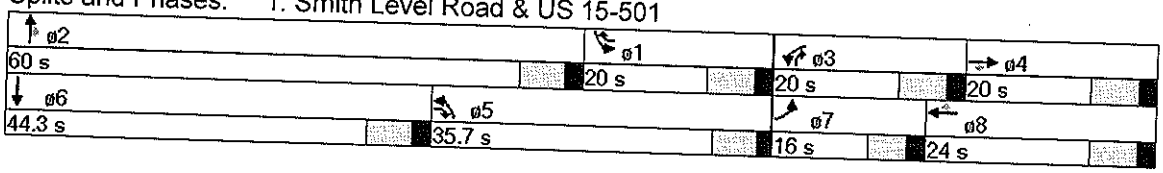
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		295			424			923			842	
Turn Bay Length (ft)	100		175	175		125	475		150	275		
Base Capacity (vph)	157	225	779	429	317	383	887	2274	1213	429	1784	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	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	0.09	0.42	0.23	0.17	0.17	0.56	0.51	0.03	0.30	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 25.9
Intersection Capacity Utilization 56.3%
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service B

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



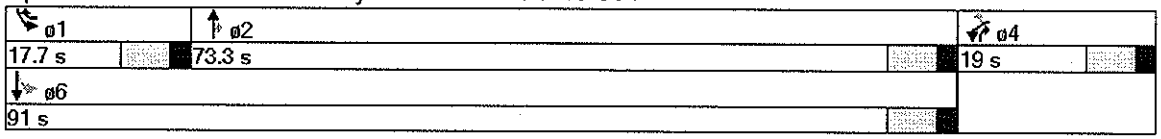
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	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				0.074	
Satd. Flow (perm)	1796	1607	3522	1575	139	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)	67	66	1465	67	45	979
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	73	1628	74	50	1088
Lane Group Flow (vph)	74	73	1628	74	50	1088
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)	19.0	17.7	73.3	19.0	17.7	91.0
Total Split (%)	17.3%	16.1%	66.6%	17.3%	16.1%	82.7%
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)	11.5	22.4	81.3	95.0	91.3	92.3
Actuated g/C Ratio	0.10	0.20	0.74	0.86	0.83	0.84
v/c Ratio	0.40	0.22	0.63	0.05	0.20	0.36
Control Delay	51.8	35.8	10.9	1.7	4.3	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	35.8	10.9	1.7	4.3	3.2
LOS	D	D	B	A	A	A
Approach Delay	43.9		10.5			3.3
Approach LOS	D		B			A
Queue Length 50th (ft)	50	42	323	7	6	88
Queue Length 95th (ft)	95	80	431	14	14	127

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)	229	386	2604	1382	306	2999
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	0.32	0.19	0.63	0.05	0.16	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: 0.63
Intersection Signal Delay: 9.4 Intersection LOS: A
Intersection Capacity Utilization 54.7% 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)	24	2	51	9	5	14	27	425	19	12	260	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	57	10	6	16	30	472	21	13	289	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	636	875	295	922	871	247	301			493		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	636	875	295	922	871	247	301			493		
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 %	92	99	92	95	98	98	98			99		
cM capacity (veh/h)	340	276	701	200	278	754	1257			1066		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	86	31	30	315	179	314
Volume Left	27	10	30	0	0	13
Volume Right	57	16	0	0	21	12
cSH	511	343	1257	1700	1700	1066
Volume to Capacity	0.17	0.09	0.02	0.19	0.11	0.01
Queue Length 95th (ft)	15	7	2	0	0	1
Control Delay (s)	13.4	16.5	7.9	0.0	0.0	0.5
Lane LOS	B	C	A			A
Approach Delay (s)	13.4	16.5	0.5			0.5
Approach LOS	B	C				

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	38.4%	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	47	1446	84	0	1023
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	52	1607	93	0	1137
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	0.88					
vC, conflicting volume	2175	803			1700	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2199	803			1700	
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	84			100	
cM capacity (veh/h)	34	326			371	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	52	803	803	93	568	568
Volume Left	0	0	0	0	0	0
Volume Right	52	0	0	93	0	0
cSH	326	1700	1700	1700	1700	1700
Volume to Capacity	0.16	0.47	0.47	0.05	0.33	0.33
Queue Length 95th (ft)	14	0	0	0	0	0
Control Delay (s)	18.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	18.1	0.0			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

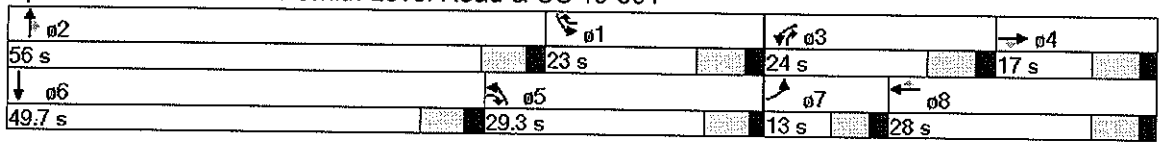
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			-2%			0%	
Storage Length (ft)	100		175	175		125	475		150	275		0
Storage Lanes	1		2	2		1	2		1	2		0
Total Lost Time (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			No			No			No
Satd. Flow (RTOR)												
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)	9	40	406	269	99	121	271	641	38	233	801	9
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)	10	44	451	299	110	134	301	712	42	259	890	10
Lane Group Flow (vph)	10	44	451	299	110	134	301	712	42	259	900	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)	4.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	10.0	14.0	13.2	14.0	14.0	14.0	13.2	20.7	14.0	14.0	20.7	
Total Split (s)	13.0	17.0	29.3	24.0	28.0	23.0	29.3	56.0	24.0	23.0	49.7	0.0
Total Split (%)	10.8%	14.2%	24.4%	20.0%	23.3%	19.2%	24.4%	46.7%	20.0%	19.2%	41.4%	0.0%
Yellow Time (s)	4.0	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)	7.1	10.4	30.8	17.0	26.9	46.9	22.2	59.5	77.5	15.9	53.2	
Actuated g/C Ratio	0.06	0.09	0.26	0.14	0.22	0.39	0.18	0.50	0.65	0.13	0.44	
v/c Ratio	0.10	0.28	0.65	0.62	0.26	0.22	0.47	0.40	0.04	0.57	0.57	
Control Delay	55.3	55.7	29.5	54.0	39.3	21.4	45.8	21.4	5.2	53.7	28.7	
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	55.3	55.7	29.5	54.0	39.3	21.4	45.8	21.4	5.2	53.7	28.7	
LOS	E	E	C	D	D	C	D	C	A	D	C	
Approach Delay		32.3			43.0			27.7			34.3	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	8	33	115	112	66	61	104	182	6	97	283	
Queue Length 95th (ft)	26	70	141	158	129	95	139	242	15	139	380	

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	175		125	475		150	275		
Base Capacity (vph)	114	180	736	545	448	592	702	1774	1046	515	1567	
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	0.09	0.24	0.61	0.55	0.25	0.23	0.43	0.40	0.04	0.50	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 33.3 Intersection LOS: C
Intersection Capacity Utilization 57.0% ICU Level of Service B
Analysis Period (min) 15

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



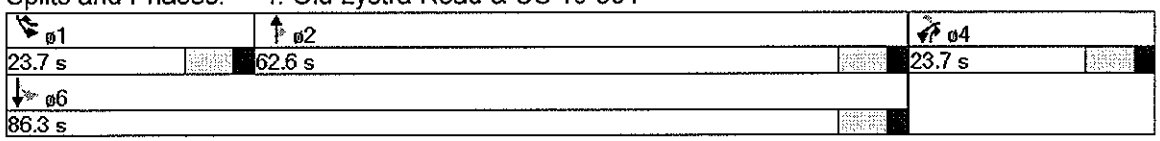
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	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				0.169	
Satd. Flow (perm)	1796	1607	3522	1575	318	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)	44	41	952	44	62	1438
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	46	1058	49	69	1598
Lane Group Flow (vph)	49	46	1058	49	69	1598
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	21.3	82.4	95.0	92.4	93.4
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	0.53
Control Delay	50.4	35.1	7.3	1.7	3.2	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	35.1	7.3	1.7	3.2	3.9
LOS	D	D	A	A	A	A
Approach Delay	43.0		7.1			3.8
Approach LOS	D		A			A
Queue Length 50th (ft)	33	26	153	4	7	147
Queue Length 95th (ft)	70	56	213	10	17	220

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	457	2638	1451	517	3036
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	0.53

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: 0.53
Intersection Signal Delay: 6.4 Intersection LOS: A
Intersection Capacity Utilization 53.9% 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)	8	1	23	9	2	9	36	253	16	7	423	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	40	281	18	8	470	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	727	874	479	891	874	149	489			299		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	727	874	479	891	874	149	489			299		
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)	296	274	532	217	274	870	1071			1259		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	36	22	40	187	111	497
Volume Left	9	10	40	0	0	8
Volume Right	26	10	0	0	18	19
cSH	433	339	1071	1700	1700	1259
Volume to Capacity	0.08	0.07	0.04	0.11	0.07	0.01
Queue Length 95th (ft)	7	5	3	0	0	0
Control Delay (s)	14.0	16.4	8.5	0.0	0.0	0.2
Lane LOS	B	C	A			A
Approach Delay (s)	14.0	16.4	1.0			0.2
Approach LOS	B	C				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	40.6%	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	97	825	167	0	1499
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	108	917	186	0	1666
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	1749	458			1102	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1686	458			1102	
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	80			100	
cM capacity (veh/h)	68	550			629	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	108	458	458	186	833	833
Volume Left	0	0	0	0	0	0
Volume Right	108	0	0	186	0	0
cSH	550	1700	1700	1700	1700	1700
Volume to Capacity	0.20	0.27	0.27	0.11	0.49	0.49
Queue Length 95th (ft)	18	0	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	13.1	0.0			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

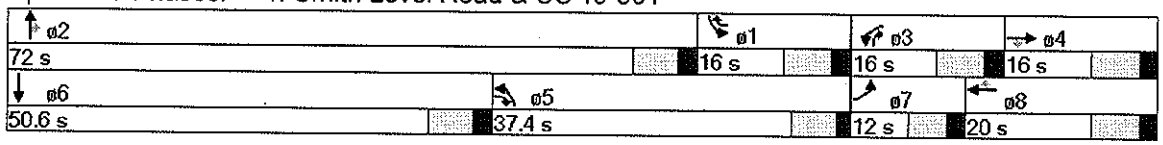
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			-2%			0%	
Storage Length (ft)	100		175	175		125	475		150	275		0
Storage Lanes	1		2	2		1	2		1	2		0
Total Lost Time (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			No			No			No
Satd. Flow (RTOR)												
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	18	376	87	48	58	565	1411	33	117	855	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	20	418	97	53	64	628	1568	37	130	950	8
Lane Group Flow (vph)	8	20	418	97	53	64	628	1568	37	130	958	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)	4.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	10.0	14.0	13.2	14.0	14.0	14.0	13.2	20.7	14.0	14.0	20.7	
Total Split (s)	12.0	16.0	37.4	16.0	20.0	16.0	37.4	72.0	16.0	16.0	50.6	0.0
Total Split (%)	10.0%	13.3%	31.2%	13.3%	16.7%	13.3%	31.2%	60.0%	13.3%	13.3%	42.2%	0.0%
Yellow Time (s)	4.0	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)	6.8	9.5	36.1	10.3	14.0	28.6	32.0	78.0	91.3	10.6	56.6	
Actuated g/C Ratio	0.06	0.08	0.30	0.09	0.12	0.24	0.27	0.65	0.76	0.09	0.47	
v/c Ratio	0.08	0.14	0.52	0.33	0.24	0.17	0.68	0.67	0.03	0.43	0.57	
Control Delay	55.6	53.5	30.5	54.5	49.4	32.3	43.6	16.4	3.2	56.4	26.3	
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	55.6	53.5	30.5	54.5	49.4	32.3	43.6	16.4	3.2	56.4	26.3	
LOS	E	D	C	D	D	C	D	B	A	E	C	
Approach Delay		31.9			46.6			23.8			29.9	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	6	15	159	37	39	40	220	307	4	50	251	
Queue Length 95th (ft)	23	40	133	64	78	65	279	547	9	82	404	

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	175		125	475		150	275		
Base Capacity (vph)	100	165	817	315	266	356	936	2324	1186	315	1668	
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	0.12	0.51	0.31	0.20	0.18	0.67	0.67	0.03	0.41	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15

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



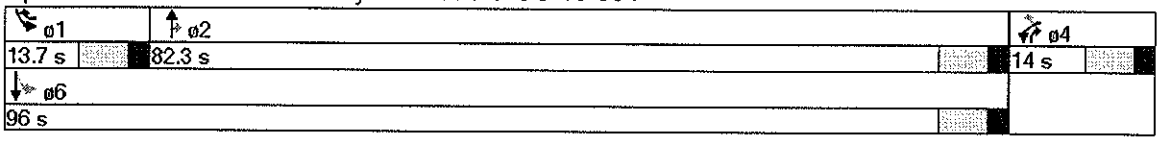
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (ft)	0	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				0.049	
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	77	1945	78	52	1299
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	86	2161	87	58	1443
Lane Group Flow (vph)	87	86	2161	87	58	1443
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	0.26	0.84	0.06	0.28	0.49
Control Delay	66.2	39.1	15.7	1.7	8.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	39.1	15.7	1.7	8.5	3.4
LOS	E	D	B	A	A	A
Approach Delay	52.8		15.1			3.6
Approach LOS	D		B			A
Queue Length 50th (ft)	60	51	546	8	5	115
Queue Length 95th (ft)	#125	98	678	16	27	141

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	0.26	0.84	0.06	0.28	0.49

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: 0.84
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 67.9% 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.

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)	27	3	57	10	5	15	30	541	22	14	334	13
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)	30	3	63	11	6	17	33	601	24	16	371	14
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	796	1102	378	1154	1097	313	386			626		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	796	1102	378	1154	1097	313	386			626		
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 %	88	98	90	91	97	98	97			98		
cM capacity (veh/h)	256	201	619	130	202	683	1169			952		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	97	33	33	401	225	401
Volume Left	30	11	33	0	0	16
Volume Right	63	17	0	0	24	14
cSH	410	243	1169	1700	1700	952
Volume to Capacity	0.24	0.14	0.03	0.24	0.13	0.02
Queue Length 95th (ft)	23	12	2	0	0	1
Control Delay (s)	16.5	22.2	8.2	0.0	0.0	0.5
Lane LOS	C	C	A			A
Approach Delay (s)	16.5	22.2	0.4			0.5
Approach LOS	C	C				

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	44.7%	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	47	1937	84	0	1350
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	52	2152	93	0	1500
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	0.79					
vC, conflicting volume	2902	1076			2246	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3146	1076			2246	
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	76			100	
cM capacity (veh/h)	7	215			226	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	52	1076	1076	93	750	750
Volume Left	0	0	0	0	0	0
Volume Right	52	0	0	93	0	0
cSH	215	1700	1700	1700	1700	1700
Volume to Capacity	0.24	0.63	0.63	0.05	0.44	0.44
Queue Length 95th (ft)	23	0	0	0	0	0
Control Delay (s)	27.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	D					
Approach Delay (s)	27.1	0.0			0.0	
Approach LOS	D					

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

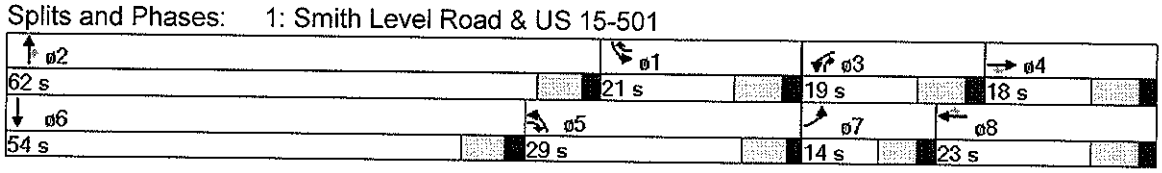
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			-2%			0%	
Storage Length (ft)	100		175	175		125	475		150	275		0
Storage Lanes	1		2	2		1	2		1	2		0
Total Lost Time (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			No			No			No
Satd. Flow (RTOR)												
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	40	527	269	99	121	351	888	38	233	1171	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	44	586	299	110	134	390	987	42	259	1301	11
Lane Group Flow (vph)	11	44	586	299	110	134	390	987	42	259	1312	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)	4.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	
Minimum Split (s)	10.0	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	18.0	29.0	19.0	23.0	21.0	29.0	62.0	19.0	21.0	54.0	0.0
Total Split (%)	11.7%	15.0%	24.2%	15.8%	19.2%	17.5%	24.2%	51.7%	15.8%	17.5%	45.0%	0.0%
Yellow Time (s)	4.0	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)	7.3	10.5	32.5	14.2	24.2	43.9	23.7	62.3	77.5	15.7	54.3	
Actuated g/C Ratio	0.06	0.09	0.27	0.12	0.20	0.37	0.20	0.52	0.65	0.13	0.45	
v/c Ratio	0.11	0.28	0.81	0.73	0.29	0.23	0.57	0.53	0.04	0.58	0.82	
Control Delay	55.0	55.2	35.9	62.7	42.8	24.2	47.1	21.3	5.0	54.6	35.1	
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	55.0	55.2	35.9	62.7	42.8	24.2	47.1	21.3	5.0	54.6	35.1	
LOS	D	E	D	E	D	C	D	C	A	D	D	
Approach Delay		37.5			49.1			27.9			38.3	
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	8	33	164	117	69	65	137	262	6	98	474	
Queue Length 95th (ft)	28	70	207	#174	136	105	181	328	13	142	#637	

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	175		125	475		150	275		
Base Capacity (vph)	128	195	733	409	389	570	693	1857	1021	458	1601	
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	0.09	0.23	0.80	0.73	0.28	0.24	0.56	0.53	0.04	0.57	0.82	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 71.3% 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.

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



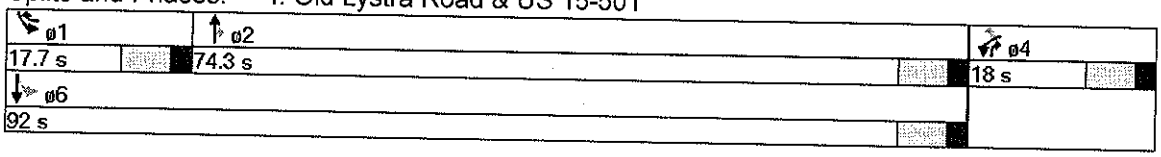
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		1%			-2%
Storage Length (ft)	215	0		80	100	
Storage Lanes	1	1		1	1	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Leading Detector (ft)	50	50	90	50	50	90
Trailing Detector (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				0.116	
Satd. Flow (perm)	1796	1607	3522	1575	218	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	48	1272	52	73	1918
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	53	1413	58	81	2131
Lane Group Flow (vph)	58	53	1413	58	81	2131
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)	18.0	17.7	74.3	18.0	17.7	92.0
Total Split (%)	16.4%	16.1%	67.5%	16.4%	16.1%	83.6%
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)	10.7	21.7	82.0	94.9	92.1	93.1
Actuated g/C Ratio	0.10	0.20	0.75	0.86	0.84	0.85
v/c Ratio	0.33	0.17	0.54	0.04	0.26	0.70
Control Delay	51.1	35.1	9.1	1.8	4.3	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	35.1	9.1	1.8	4.3	6.1
LOS	D	D	A	A	A	A
Approach Delay	43.5		8.8			6.1
Approach LOS	D		A			A
Queue Length 50th (ft)	39	30	243	5	9	280
Queue Length 95th (ft)	79	63	331	12	19	406

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)	212	374	2626	1381	364	3025
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	0.27	0.14	0.54	0.04	0.22	0.70

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: 0.70
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 67.2% ICU Level of Service C
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)	9	1	25	10	3	10	41	327	18	8	542	19
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)	10	1	28	11	3	11	46	363	20	9	602	21
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	916	1105	613	1123	1106	192	623			383		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	916	1105	613	1123	1106	192	623			383		
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	94	92	98	99	95			99		
cM capacity (veh/h)	212	198	436	143	198	818	954			1172		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	39	26	46	242	141	632
Volume Left	10	11	46	0	0	9
Volume Right	28	11	0	0	20	21
cSH	334	236	954	1700	1700	1172
Volume to Capacity	0.12	0.11	0.05	0.14	0.08	0.01
Queue Length 95th (ft)	10	9	4	0	0	1
Control Delay (s)	17.2	22.1	9.0	0.0	0.0	0.2
Lane LOS	C	C	A			A
Approach Delay (s)	17.2	22.1	1.0			0.2
Approach LOS	C	C				

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	47.8%	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	97	1152	167	0	1990
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	108	1280	186	0	2211
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	0.64					
vC, conflicting volume	2386	640			1466	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2603	640			1466	
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	74			100	
cM capacity (veh/h)	13	418			457	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	108	640	640	186	1106	1106
Volume Left	0	0	0	0	0	0
Volume Right	108	0	0	186	0	0
cSH	418	1700	1700	1700	1700	1700
Volume to Capacity	0.26	0.38	0.38	0.11	0.65	0.65
Queue Length 95th (ft)	25	0	0	0	0	0
Control Delay (s)	16.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	16.6	0.0			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		