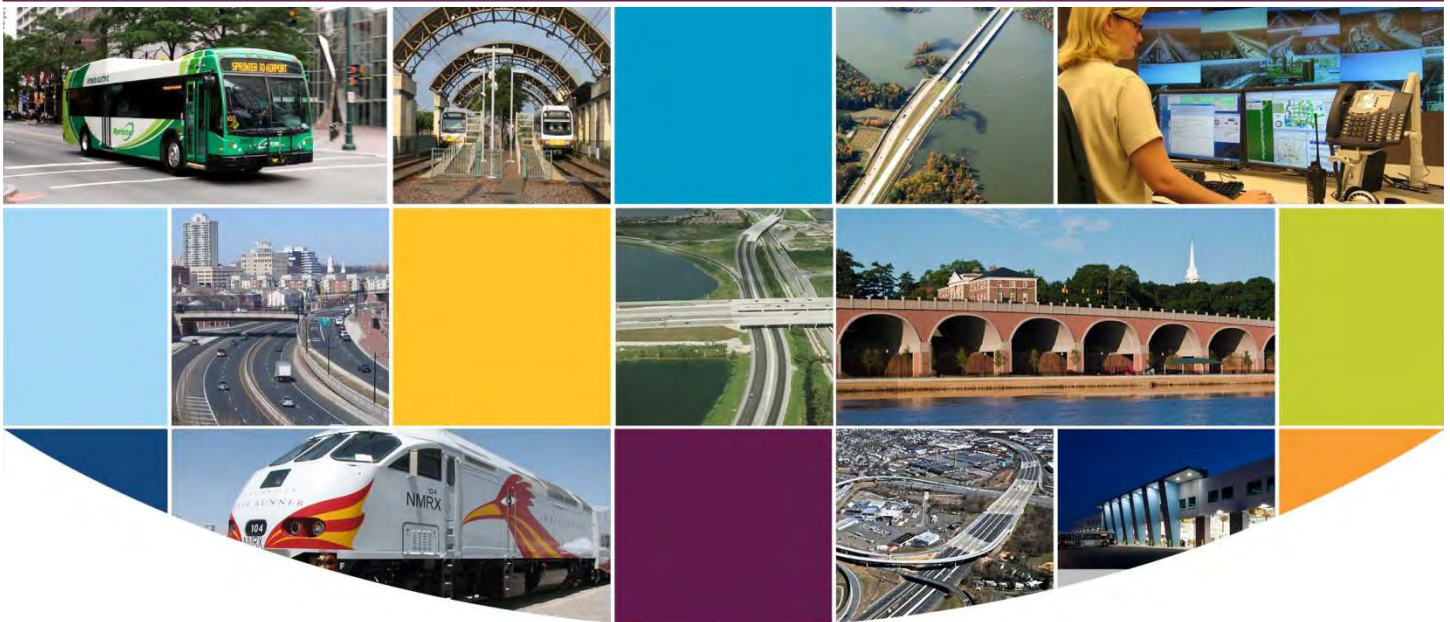




SUMMIT CHURCH CHATHAM COUNTY TRAFFIC IMPACT ANALYSIS



Submitted to:

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Submitted by:



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August 16, 2024

TRAFFIC IMPACT ANALYSIS

For

Summit Church Chatham County

Chapel Hill, North Carolina

Prepared For:

Qunity

16 Consultant Place, Suite 201
Durham, North Carolina 27707

Prepared By:




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Excellence Delivered As Promised

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Raleigh, NC 27603
NC Licensure No. F-0270



DocuSigned by:

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8/16/2024

August 16, 2024

(Gannett Fleming Project No. 080062 Task #2)

CONFIDENTIALITY STATEMENT: The information contained in the document is confidential in nature and not intended for public release prior to approval by the Client, North Carolina Department of Transportation, and Chatham County, North Carolina. This document contains trade secrets and proprietary methods and techniques.

Executive Summary

INTRODUCTION

Summit Church is planning to construct a new campus in Chatham County, North Carolina. The project is located on the east side of US Highway 15-501, between Vickers Road and Hidden Oaks Drive. The preliminary plan is to construct an 88,460 square foot (SF) church with a 1,200-seating capacity sanctuary. Construction of the site is expected to occur in 2026.

According to the proposed Site Plan developed by Qunity, direct access to the development is planned via two new right-in/right-out driveways on US 15-501.

TRIP GENERATION

Trip generation for this report was conducted in accordance with the procedures outlined in the Institute of Transportation Engineers (ITE) report entitled *Trip Generation 11th Edition*. In total, the proposed Summit Church Chatham County is projected to generate approximately 669 vehicular trips on a typical weekday, with 28 trips expected to occur during the AM peak hour and 43 trips during the PM peak hour; it is projected to generate approximately 2,768 trips on a typical Sunday, with 912 trips expected to occur during the Sunday peak hour.

CAPACITY ANALYSIS

In accordance with the site traffic characteristics, capacity analyses were performed during the Sunday peak hour for 2024 Existing, 2026 Background, and 2026 Future Buildout conditions for the following intersections:

- US 15-501 at SR 1721 (Lystra Road) (signalized)
- US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive (unsignalized)
- US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway (signalized)
- US 15-501 at SR 1717 (Jack Bennet Road) (signalized)
- US 15-501 at Site Access #1 (future right-in/right-out)
- US 15-501 at Site Access #2 (future right-in/right-out)

The section of US 15-501 is specified as a synchronized street in the DCHC MPO 2050 Metropolitan Transportation Plan (MTP), and conversion of US 15-501 to a synchronized street with reduced conflict intersections (RCI) is planned with NCDOT TIP U-6192 as part of 2024-2033 State Transportation Improvement Program (STIP). The right-of-way year for TIP U-6192 is anticipated to be 2028, and construction is expected to start in 2031. Based on discussions with the NCDOT, a TIP year (2036) analysis was included in this study to assess traffic conditions during typical weekday AM and PM peak hours, with 2036 TIP Scenario A assuming U-turn bulbs located as currently shown in the STIP feasibility study design, and 2036 TIP Scenario B accounting for U-turn bulbs being shifted to align with the planned site driveways to allow U-turn bulbs being utilized by site trips and community traffic.

RECOMMENDED IMPROVEMENTS

To mitigate the traffic-related impacts caused by the Summit Church Chatham County and to provide for efficient, and reliable traffic flow, Gannett Fleming recommends the following:

US 15-501 at SR 1721 (Lystra Road) (signalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under signal control with the STIP project (TIP U-6192).

US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive (unsignalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under stop control with the STIP project (TIP U-6192).

US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway (signalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under signal control with the STIP project (TIP U-6192).

US 15-501 at SR 1717 (Jack Bennet Road) (signalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under signal control with the construction of Vickers Village, and no additional change is expected with the STIP project (TIP U-6192).

US 15-501 at Site Access #1 (future right-in/right-out)

Gannett Fleming recommends that this intersection be constructed as right-in/right-out access under stop control at the location shown under 2036 TIP Scenario B. A dedicated right-turn lane with 150 feet of storage and appropriate taper should be provided along northbound US 15-501 at this location. Sufficient stem length should be provided per NCDOT Guidelines to prevent exiting traffic from interfering with internal circulation.

US 15-501 at Site Access #2 (future right-in/right-out)

Gannett Fleming recommends that this intersection be constructed as right-in/right-out access under stop control at the location shown under 2036 TIP Scenario B. A dedicated right-turn lane with 100 feet of storage and appropriate taper should be provided along northbound US 15-501 at this location. Sufficient stem length should be provided per NCDOT Guidelines to prevent exiting traffic from interfering with internal circulation.

Coordination with NCDOT TIP

Gannett Fleming recommends the proposed development coordinate with the NCDOT to ensure consistent design between this project and the roadway improvements planned by TIP U-6192, and to provide sufficient spacing between Site Access #1 and Site Access #2 so locations of U-turn bulbs with the TIP project can be shifted and aligned with the planned site driveways to improve community access while maintaining traffic operations and safety along the site frontage of US 15-501.

CONCLUSIONS

This Traffic Impact Analysis shows that the proposed Summit Church Chatham County development impacts on the traffic operations at the study area intersections will be mitigated by the recommended improvements. With the recommended improvements in place, the proposed development will not negatively impact the capacity and efficiency of the area roadway network.

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I. Introduction

Summit Church is planning to construct a new campus in Chatham County, North Carolina. The project is located on the east side of US Highway 15-501, between Vickers Road and Hidden Oaks Drive. The preliminary plan is to construct an 88,460 square foot (SF) church with a 1,200-seating capacity sanctuary. Construction of the site is assumed to occur in 2026.

According to the proposed Site Plan developed by Qunity, direct access to the development is planned via two new right-in/right-out driveways on US 15-501.

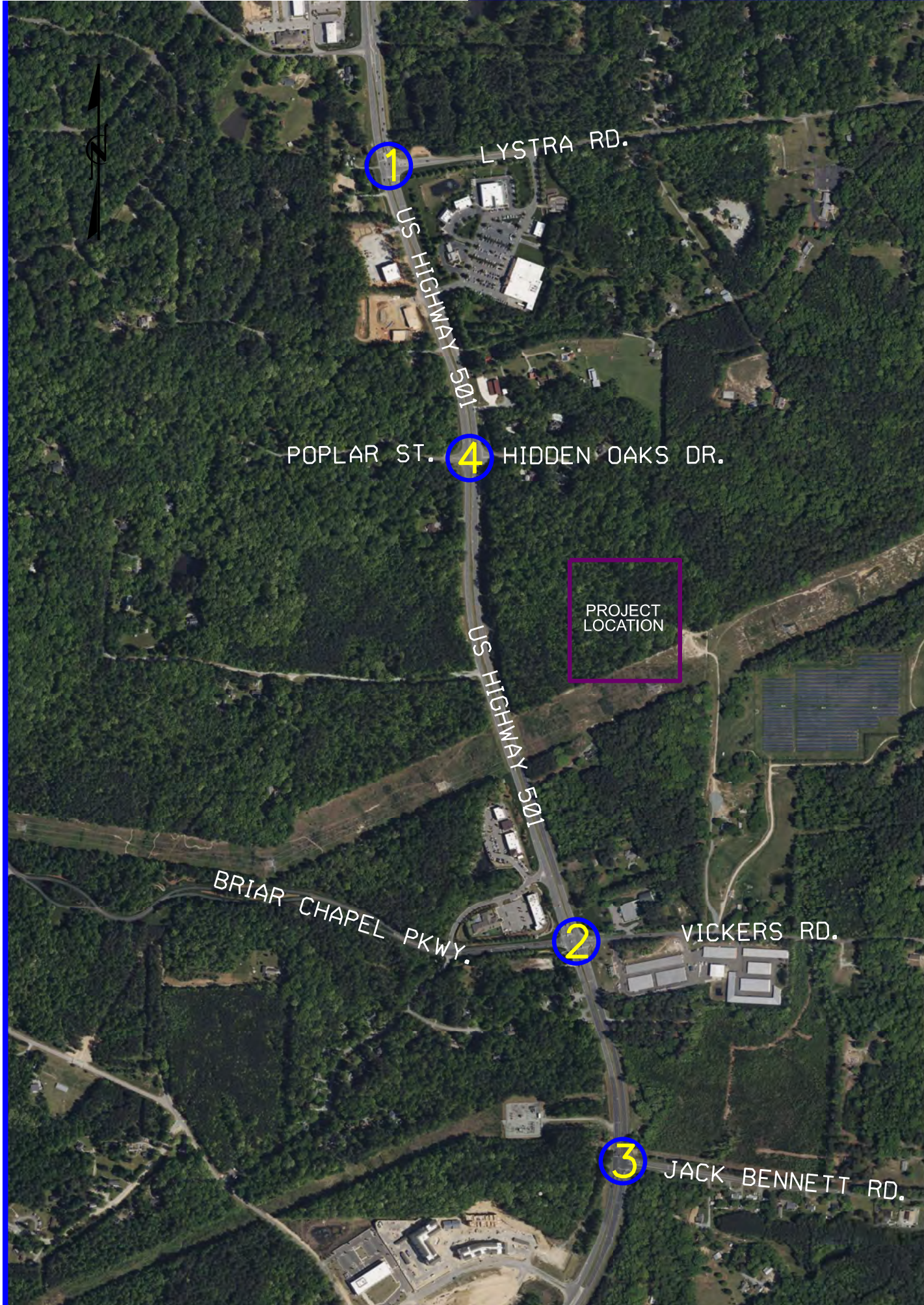
The purpose of this report is to evaluate the traffic impacts from the proposed Summit Church Chatham County and to recommend transportation improvements needed to mitigate congestion that may result from the additional site traffic.

The section of US 15-501 is specified as a synchronized street in the DCHC MPO 2050 Metropolitan Transportation Plan (MTP), and conversion of US 15-501 to a synchronized street with reduced conflict intersections (RCI) is planned with NCDOT TIP U-6192 as part of 2024-2033 State Transportation Improvement Program (STIP).

In accordance with the NCDOT requirements, traffic analysis is performed for the following five (5) scenarios:

- 2024 Existing Traffic Condition – Sunday Peak Hour Analysis
- 2026 No-Build Traffic Condition – Sunday Peak Hour Analysis
- 2026 Buildout Condition – Sunday Peak Hour Analysis
- 2036 TIP Design Year Scenario A Condition – Weekday AM and PM Peak Hour Analysis, U-turn bulbs as currently shown in the STIP design
- 2036 TIP Design Year Scenario B Condition – Weekday AM and PM Peak Hour Analysis, U-turn bulbs shifted to align with site driveways

This report presents trip generation, trip distribution, traffic analyses, and recommendations for transportation improvements needed to meet anticipated traffic demands. Due to the anticipated site traffic characteristics, traffic capacity analysis is conducted during Sunday peak period (10 AM – 1 PM) under the existing year (2024) and future year (2026) conditions. Nevertheless, the TIP year (2036) analysis is included to assess traffic conditions during typical weekday AM and PM peak hours, with 2036 TIP Scenario A assuming U-turn bulbs located as currently shown in the STIP feasibility study design, and 2036 TIP Scenario B accounting for U-turn bulbs shifted to align with the planned site driveways to allow U-turn bulbs being utilized by site trips and community traffic.



SCALE:
NONE

COUNT LOCATIONS

FIGURE 1

CHATHAM COUNTY
SUMMIT CHURCH TIA

22 S. Pack Square
Suite 800
Asheville, NC 28801
(828) 209-7104
[MC Lic. No. F-0270]

PLANS PREPARED BY:
GANNETT FLEMING
Excellence Delivered As Promised



II. Inventory of Traffic Conditions

A. Study Area

Based on scoping coordination with the North Carolina Department of Transportation (NCDOT), the following intersections are required to be analyzed to determine the associated impacts from the proposed residential development:

- US 15-501 at SR 1721 (Lystra Road) (signalized)
- US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive (unsignalized)
- US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway (signalized)
- US 15-501 at SR 1717 (Jack Bennet Road) (signalized)
- US 15-501 at Site Access #1 (future right-in/right-out)
- US 15-501 at Site Access #2 (future right-in/right-out)

B. Existing Conditions

A description of transportation facilities in the general vicinity of this proposed development is as follows:

US 15-501 is maintained by NCDOT as part of the US Highway System. US 15-501 is a north/south corridor that connects Chatham County with Chapel Hill in Orange County. Under the existing conditions, US 15-501 is a median divided four-lane roadway with little or moderate access control. The speed limit along US 15-501 is 55 miles per hour (mph). Potential capacity along US 15-501 is 35,700 vehicles per day (VPD), while the 2022 AADT along US 15-501 was measured at 22,000 vehicles per day (VPD) north of Briar Chapel Parkway/Vickers Road, and 17,000 VPD south of the same location. The annual average daily truck traffic (AADTT) along US 15-501 was at 550 VPD north of and 430 south of Briar Chapel Parkway/Vickers Road.

Lystra Road (SR 1721) is maintained by NCDOT as a secondary roadway. Under the existing conditions, Lystra Road is a two-lane, undivided roadway with 45 mph speed limit. Potential capacity along Lystra Road is 12,700 vehicles per day. The 2022 AADT was measured at 6,000 VPD along Lystra Road between US 15-501 and Jack Bennett Road.

Briar Chapel Parkway (SR 1690) is maintained by NCDOT as a secondary roadway. Under the existing conditions, Briar Chapel Parkway is a two-lane, partially divided roadway with 35 mph speed limit. Potential capacity along Briar Chapel Parkway is 12,900 vehicles per day. NCDOT currently does not have AADT information along Briar Chapel Parkway.

Vickers Road (SR 1719) is maintained by NCDOT as a secondary roadway. Under the existing conditions, Vickers Road is a two-lane, undivided roadway with 35 mph speed limit. Potential capacity along Vickers Road is 11,600 vehicles per day. NCDOT currently does not have AADT information along Vickers Road.

Jack Bennett Road (SR 1717) is maintained by NCDOT as a secondary roadway. Under the existing conditions, Jack Bennett Road is a two-lane, undivided roadway with 45 mph speed limit. Potential capacity along Jack Bennett Road is 12,700 vehicles per day. The 2022 AADT was measured at 3,600 VPD along Jack Bennett Road east of US 15-501.

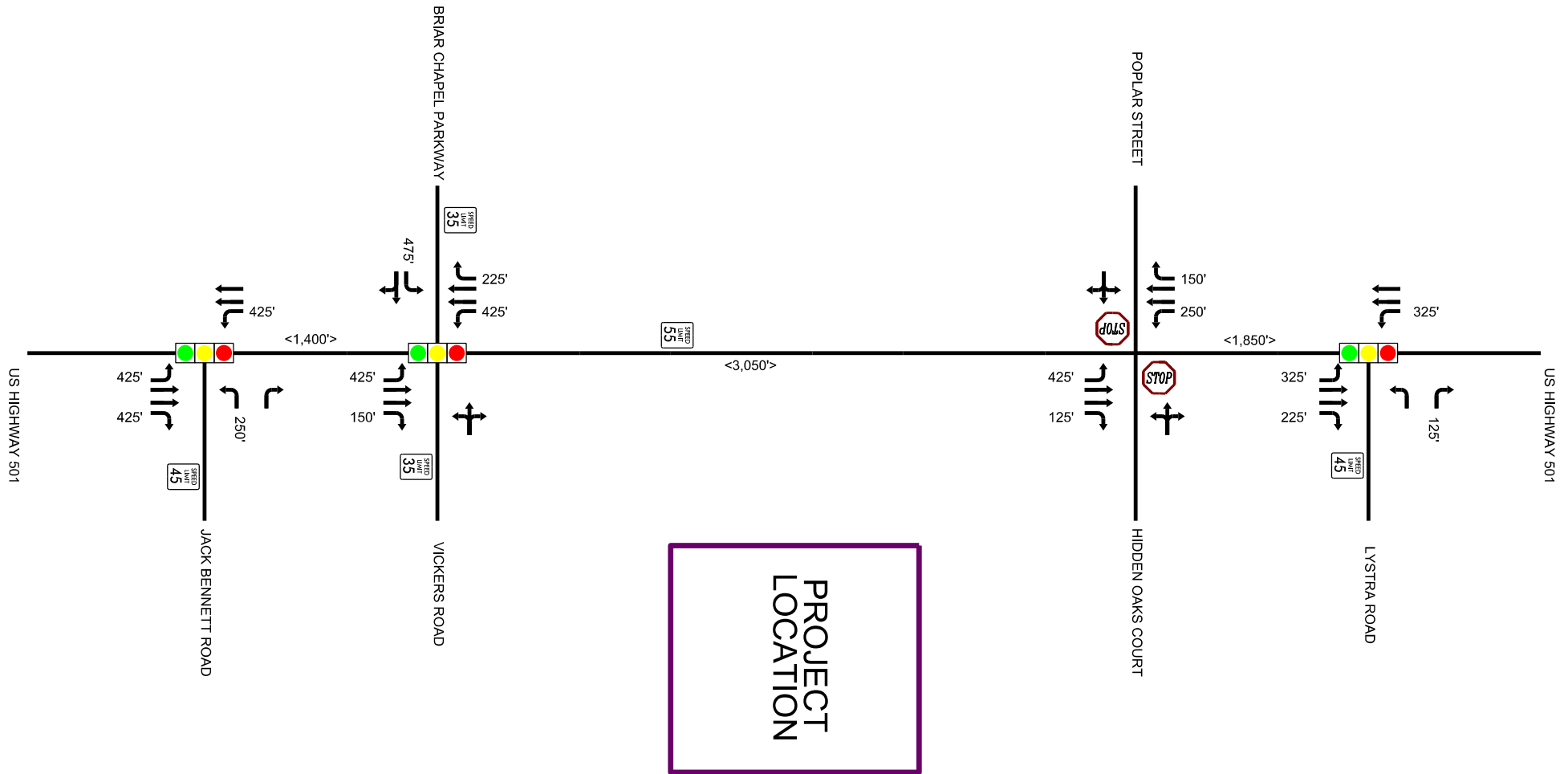
The existing lane configurations and traffic control for the study area intersections are shown in Figure 3.

C. Projected Transportation Improvements

The section of US 15-50 was specified as a synchronized street in the DCHC MPO 2050 Metropolitan Transportation Plan (MTP). Conversion of remaining non-synchronized sections to synchronized street along US 15-501 from Smith Level Road to US 64 Bypass in Chatham County is planned with NCDOT TIP U-6192 as part of 2024-2033 State Transportation Improvement Program (STIP). The right-of-way year for TIP U-6192 is anticipated to be 2028, and construction is expected to start in 2031. With the completion of TIP U-6192, capacity along US 15-501 is expected to improve to 43,900 VPD with moderate access control in place.

In the DCHC MPO 2050 MTP, the section of Jack Bennet Road/Lystra Road from US 15-501 to Farrington Mill/Point Road was recognized as candidate roadway section for potential modernization improvements, although the project funding has not been identified.

Based on information provided by the NCDOT, the TIA should account for a future background development (Vickers Village, roughly 2,300 VPD on a typical weekday) and their future roadway improvements (conversion the intersection at US 15/501 and Jack Bennett Road to a leftover with dual right turns onto US 15/501) that are expected to be in place by 2026.



LEGEND	
	DIRECTIONAL MOVEMENT
	STOP SIGN
	TRAFFIC SIGNAL

III. Traffic Generation

The amount of traffic generated by a new development is a function of the size and type of development. Once the proposed land use data for the site are known, the number of trips generated by the development can be estimated. Trip generation data for this report was conducted in accordance with the procedures outlined in the Institute of Transportation Engineers (ITE) report entitled *Trip Generation*³. Table 1 illustrates the number of daily, AM peak hour, and PM peak hour trips expected to be generated by the proposed development.

Table 1 - Trip Generation Summary

Table 1 – ITE Trip Generation Summary														
Weekday Site Trips						Weekday			AM			PM		
LUC	Description	Density	Variable	PK HR	METHOD	Daily	In	Out	Total	In	Out	Total		
560	Church [Data Range: 10-50]	88	1000 GFA	Adjacent	RATE*	669	17	11	28	19	24	43		
Church Total						669	17	11	28	19	24	43		
Sunday Site Trips						Sunday			Sunday Peak					
LUC	Description	Density	Variable	PK HR	METHOD	Daily	In	Out	Total					
560	Church [Data Range: 10-50]	88	1000 GFA	Adjacent	RATE*	2,768	438	474	912					

Traffic impact is determined by estimating the total number of daily vehicle trips, as well as the number of peak hour vehicle trips. Table 1 indicates the proposed Summit Church Chatham County is projected to generate approximately 669 vehicular trips on a typical weekday, with 28 trips expected to occur during the AM peak hour and 43 trips during the PM peak hour; it is projected to generate approximately 2,768 trips on a typical Sunday, with 912 trips expected to occur during the Sunday peak hour.

IV. Traffic Distribution

To properly determine the impact of the traffic generated by the proposed development, it is necessary to determine the distribution of traffic to and from the development. These percentages are based on the traffic patterns and population / employment centers in the area. They are also based on existing ADTs and data obtained from traffic counts.

The following directional distribution will be used based on review of existing traffic counts and of surrounding land uses, and those will be applicable to 2026 analysis under conventional intersection configurations and 2026 analysis under RCI configurations with the TIP improvements:

- 35% to/from the north on US 15/501
- 35% to/from the south on US 15/501
- 5% to/from the east on Lystra Road
- 10% to/from the west on Briar Chapel Parkway
- 15% to/from the east on Jack Bennett Road

The project traffic distribution is shown in Figure 6.

V. Projected Traffic Volumes

A. Existing Traffic

The Gannett Fleming team performed traffic counts at the existing intersections identified in the scoping of this analysis. The 2024 Traffic Count Volumes are shown in Figure 4.

In accordance with NCDOT Congestion Management Guidelines, Gannett Fleming “balanced” the factored traffic volumes where necessary. This balancing reconciles volumes for adjacent intersections on shared routes.

B. Historical Traffic Growth

Historical traffic growth is the annual increase in traffic volumes due to usage increases and non-specific growth throughout the area. Historic daily traffic volumes in the study area indicate a traffic growth rate of approximately 2% per year. This percentage is based on NCDOT AADT Maps² and observed growth patterns in this area of Chatham County.

Since site traffic associated with background development is not typically accounted during Sunday peak period, a higher growth rate (5% per year) was proposed to be included in the TIA to account for both ambient growth and traffic impacts of potential background development. On the other hand, the TIP Year (2036) analysis is conducted based interpolation values of traffic forecasts developed for TIP U-6192 under typical weekday AM and PM peak hour conditions

C. Approved Development Traffic

Approved development traffic is traffic generated by specific approved but not yet constructed, developments within the vicinity of the subject project. Based on information provided by the NCDOT, the TIA should account for a future background development (Vickers Village, roughly 2,300 VPD on a typical weekday) and their future roadway improvements (conversion the intersection at US 15/501 and Jack Bennett Road to a leftover with dual right turns onto US 15/501) that are expected to be in place by 2026.

No other major developments are approved for construction by 2026 in the immediate vicinity that would influence the growth rate beyond the 5% factor used in this analysis; therefore, no approved developments were included in this analysis. The 2026 Background AM and PM peak hour traffic volumes are illustrated in Figure 5.

D. 2026 Total Traffic

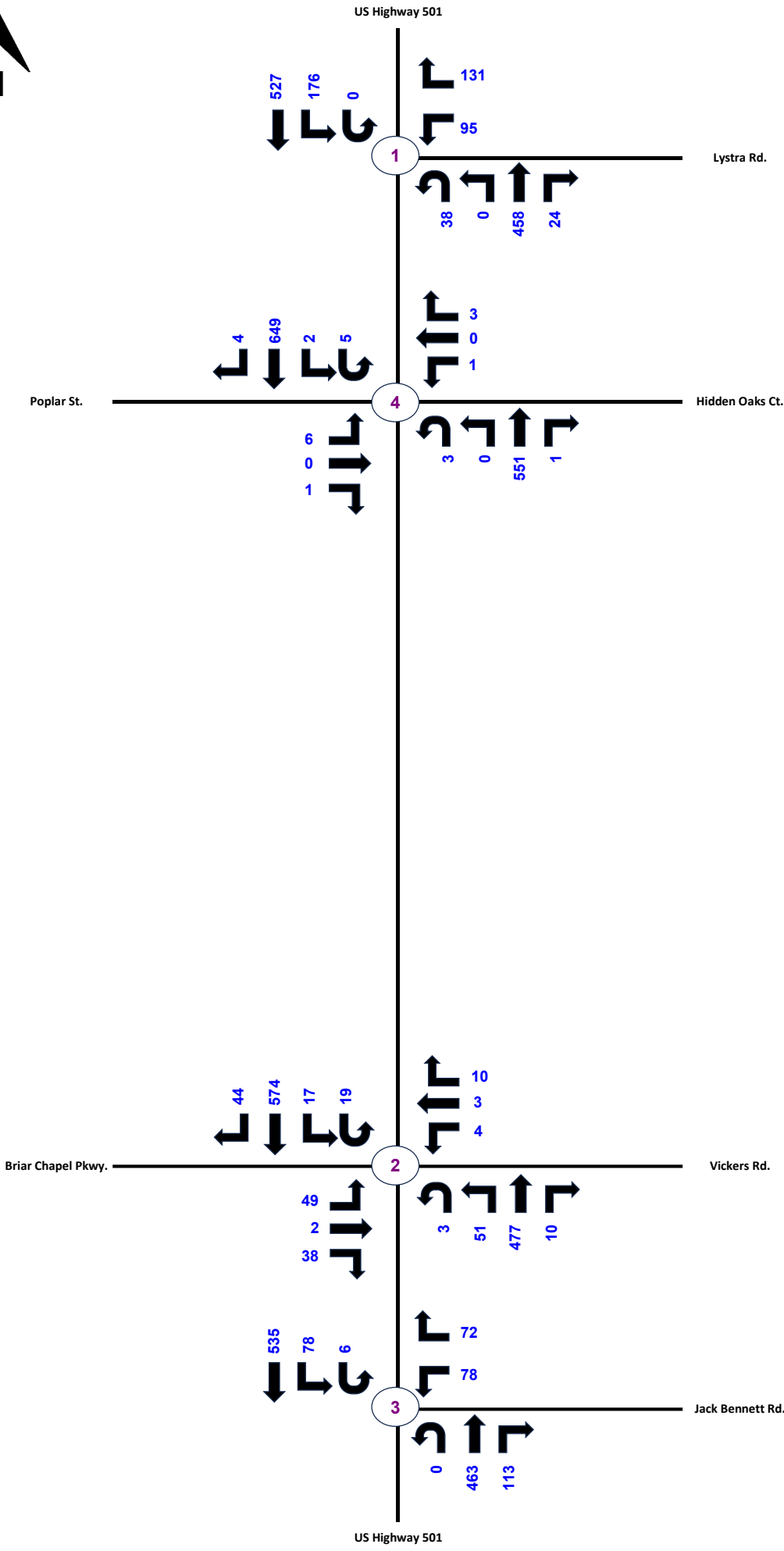
To obtain total 2026 Future Buildout traffic volumes, the development traffic was distributed on the area roadways by percentage as shown on Figure 6, and the resulting volumes are shown in Figure 7. The Sunday peak hour turning movements for the studied intersections were then calculated and analyzed for the build-out years. The 2026 Future Buildout traffic volumes for the Sunday peak hours are illustrated in Figure 8.

E. 2036 Total Traffic

Study scenario “TIP Design Year Condition (2036)” was modeled based on traffic forecasts developed for TIP U-6192 and the most recent design plans available for this project, with 2036 TIP Scenario A assuming U-turn bulbs located as currently shown in the STIP feasibility study design, and 2036 TIP Scenario B accounting for U-turn bulbs shifted to align with the planned site driveways to allow U-turn bulbs being utilized by site trips and community traffic.

The 2036 analysis is based on interpolation values of traffic forecasts developed for TIP U-6192 under typical weekday AM and PM peak hour conditions as illustrated in Figure 9. Trip distribution and traffic assignment were conducted differently between Access Scenario A and Scenario B, as site trips coming from the north via US 15-501 will be able to use the U-turn bulb south of Hidden Oaks to access the site if it is shifted to an appropriate location to the south. The trip distribution and traffic assignment results are illustrated in Figure 10 and Figure 11 under Scenario A and in Figure 12 and Figure 13 under Scenario B.

AM and PM peak hour turning movements for the studied intersections were then calculated and analyzed for the build-out year of 2036 under both TIP scenarios. The 2036 Future Buildout traffic volumes for the AM and PM peak hours are illustrated in Figure 14 for Scenario A and in Figure 15 for Scenario B, respectively.



LEGEND

DIRECTIONAL MOVEMENT
 SUNDAY PEAK HOUR TRAFFIC

SCALE: NONE

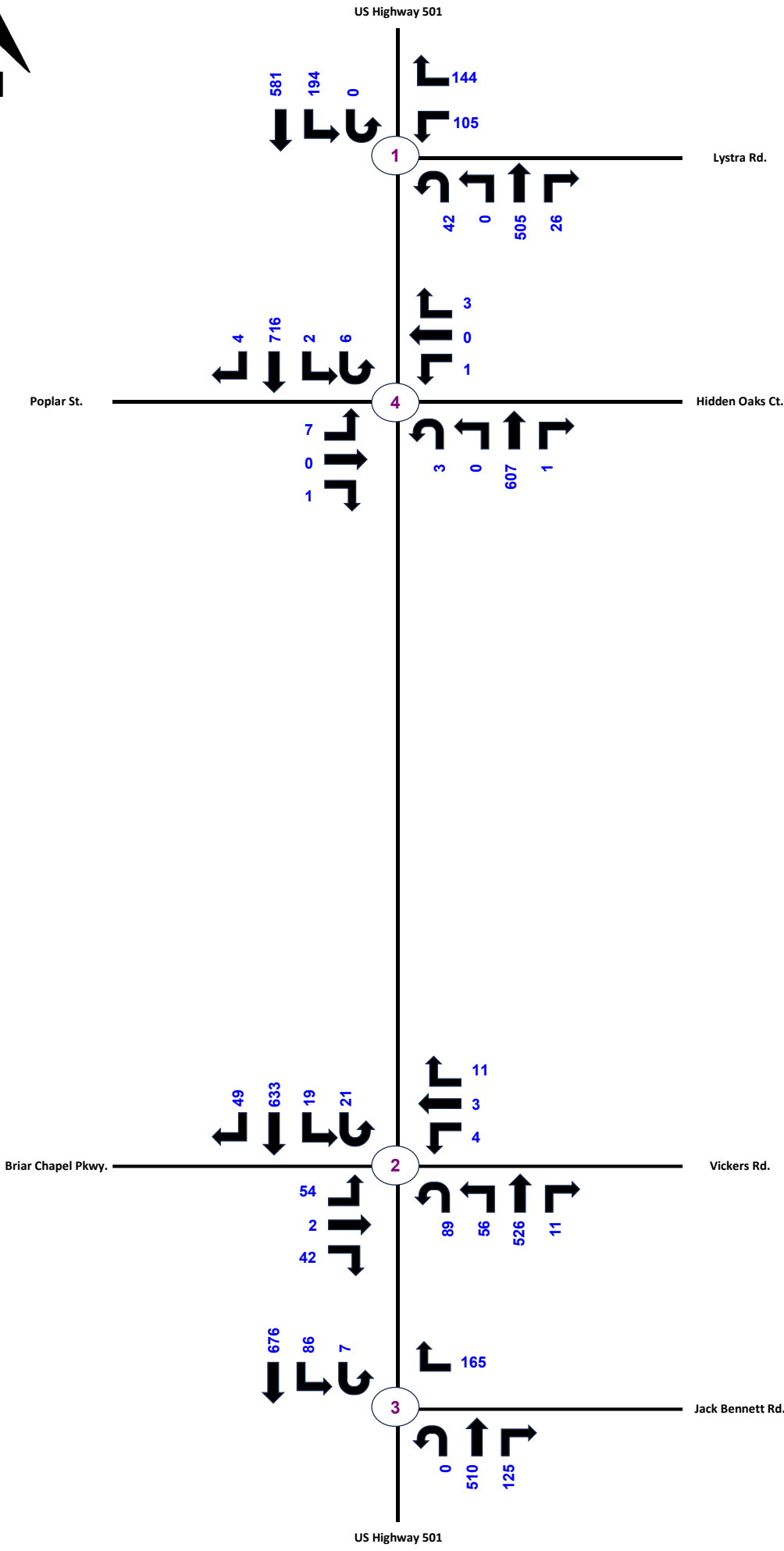
2024 TRAFFIC TURNING MOVEMENT VOLUMES

FIGURE 4

CHATHAM COUNTY NORTH CAROLINA

TRANSYSTEMS

GANNETT FLEMING



LEGEND

DIRECTIONAL MOVEMENT
 SUNDAY PEAK HOUR TRAFFIC

SCALE:
NONE

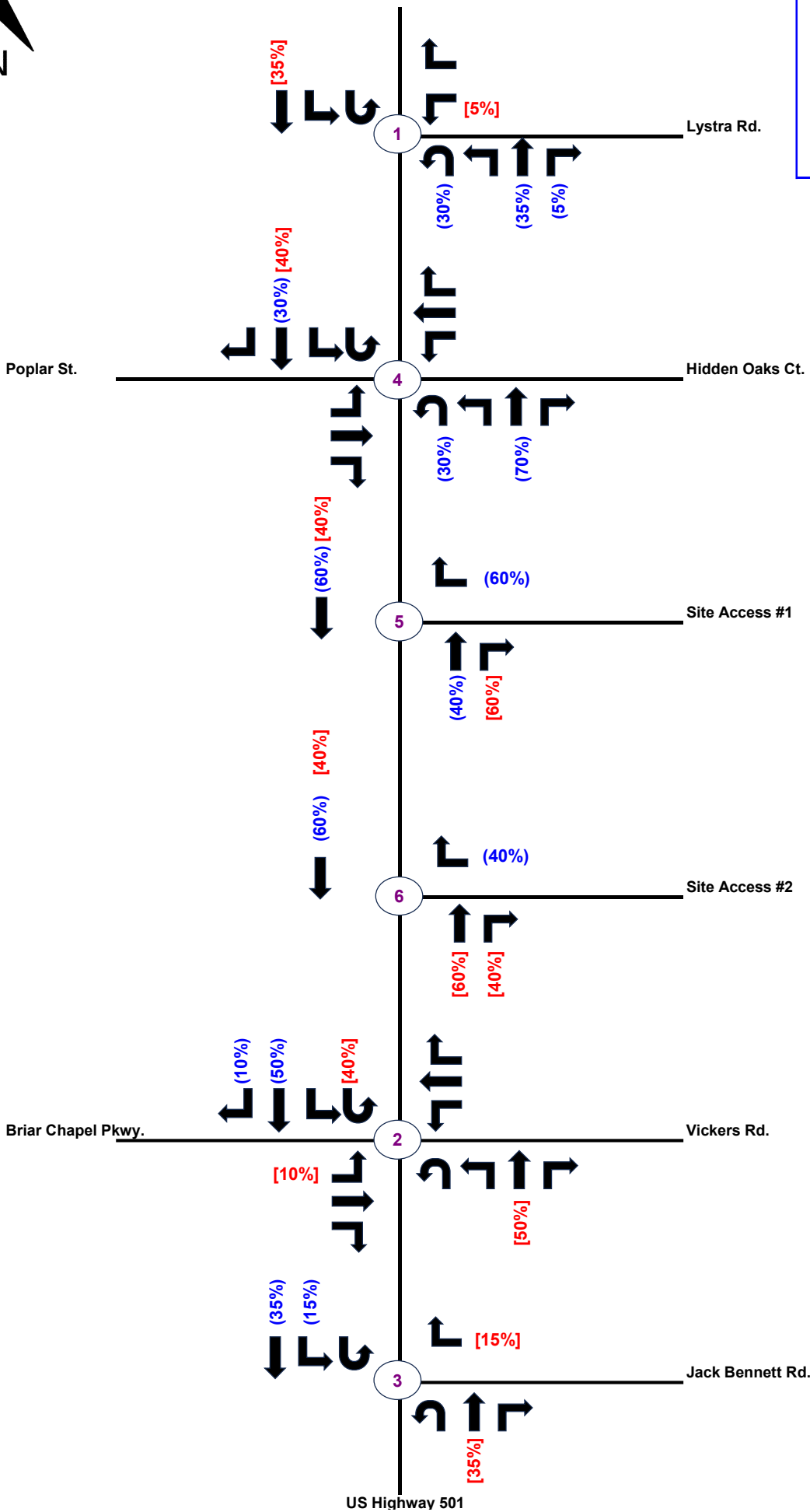
2026 BACKGROUND TRAFFIC TURNING MOVEMENT VOLUMES

FIGURE 5

CHATHAM COUNTY NORTH CAROLINA

TRANSYSTEMS

GANNETT FLEMING



LEGEND

- ← DIRECTIONAL MOVEMENT
- [xx] PERCENTAGE OF INGRESS TRAFFIC
- (xx) PERCENTAGE OF EGRESS TRAFFIC

SCALE:
NONE

DIRECTIONAL TRIP DISTRIBUTION PERCENTAGES

FIGURE 6

**CHATHAM COUNTY
NORTH CAROLINA**

TRANSYSTEMS





LEGEND

DIRECTIONAL MOVEMENT
 SUNDAY PEAK HOUR SITE TRAFFIC

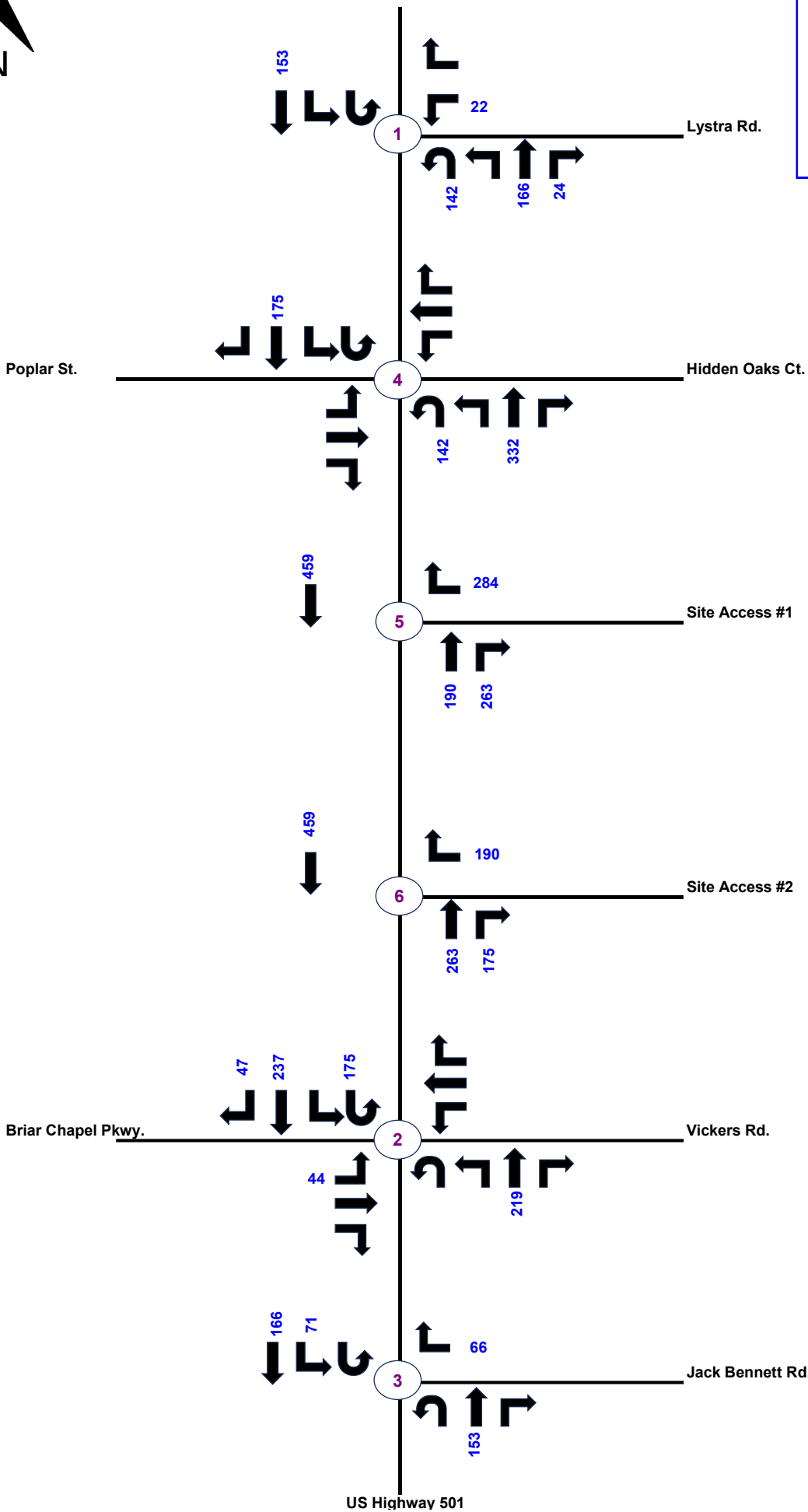
SCALE:
NONE

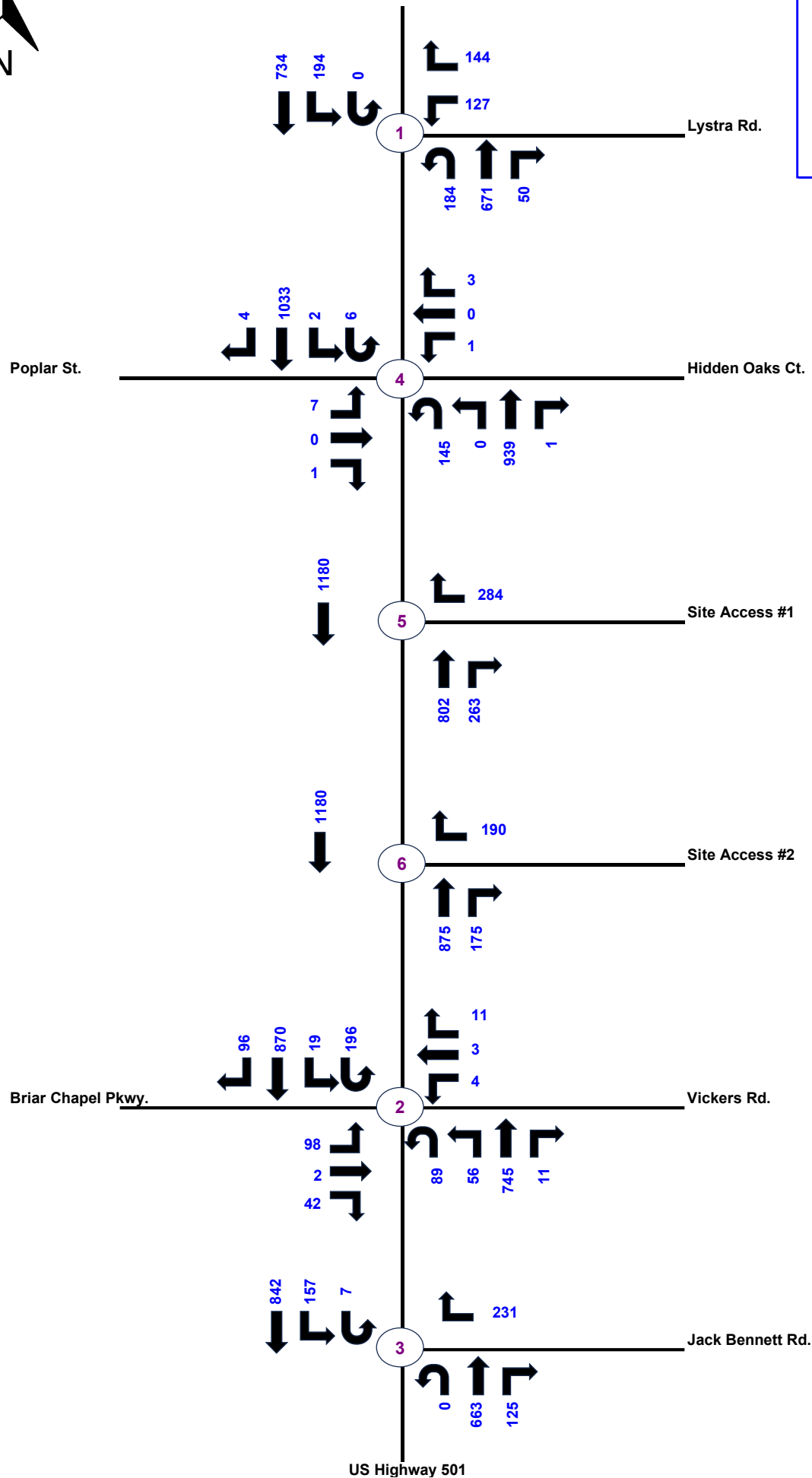
TRAFFIC ASSIGNMENT RESULTS

FIGURE 7

**CHATHAM COUNTY
NORTH CAROLINA**

TRANSYSTEMS





LEGEND

DIRECTIONAL MOVEMENT
 SUNDAY PEAK HOUR TRAFFIC

SCALE:
NONE

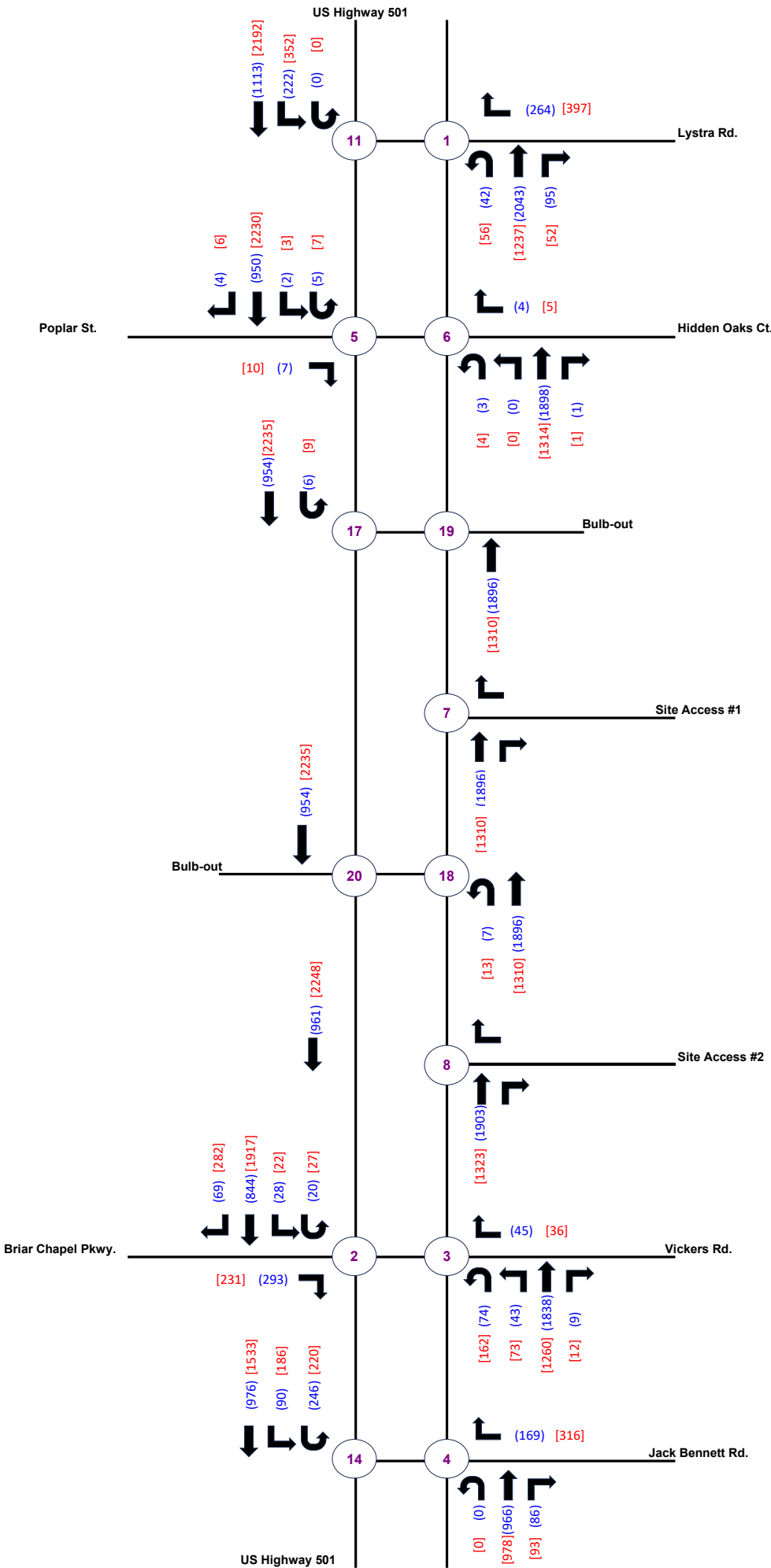
**2026 FUTURE BUILDOUT
TURNING MOVEMENT
VOLUMES**

FIGURE 8

**CHATHAM COUNTY
NORTH CAROLINA**

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TRANSYSTEMS



LEGEND

- DIRECTIONAL MOVEMENT
- AM PEAK HOUR TRAFFIC
- PM PEAK HOUR TRAFFIC

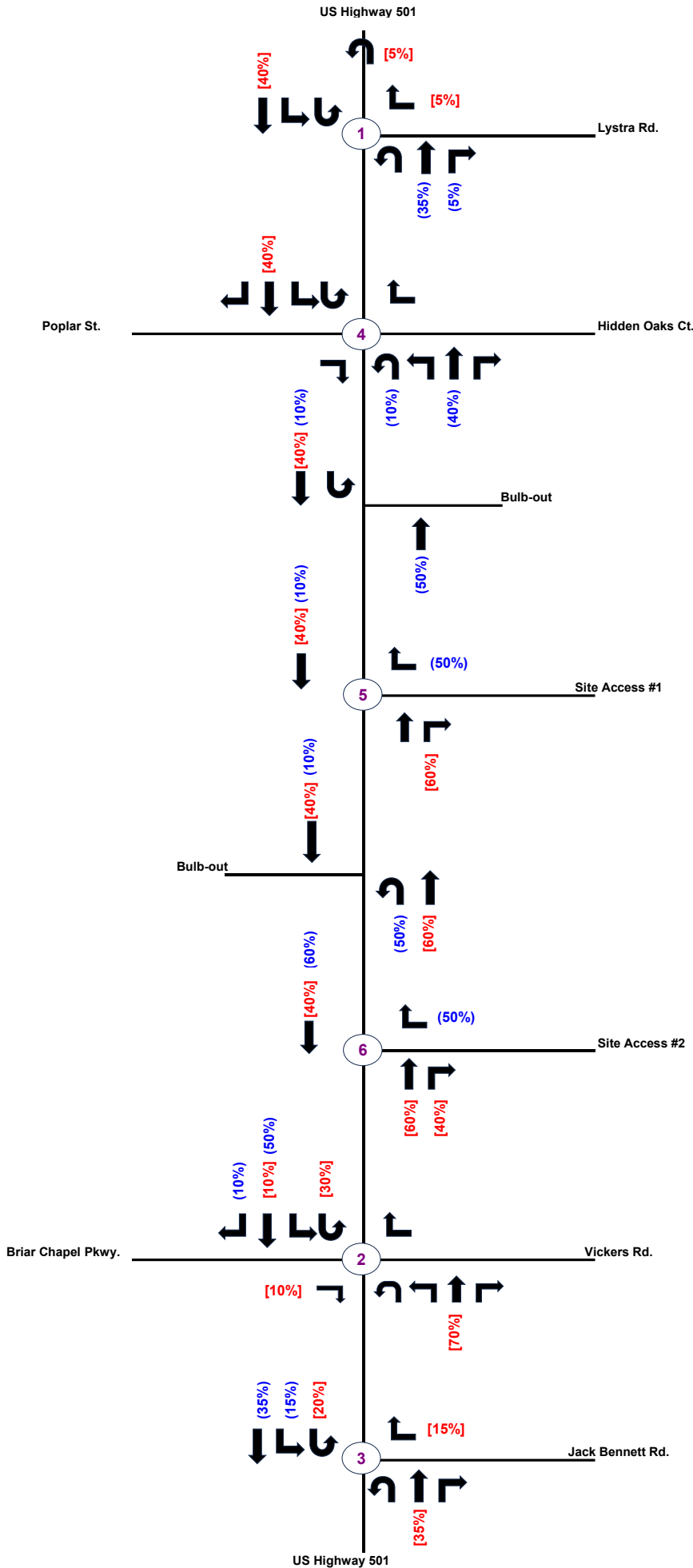
SCALE:
NONE

2036 TIP Turning Movement Volumes

FIGURE 9

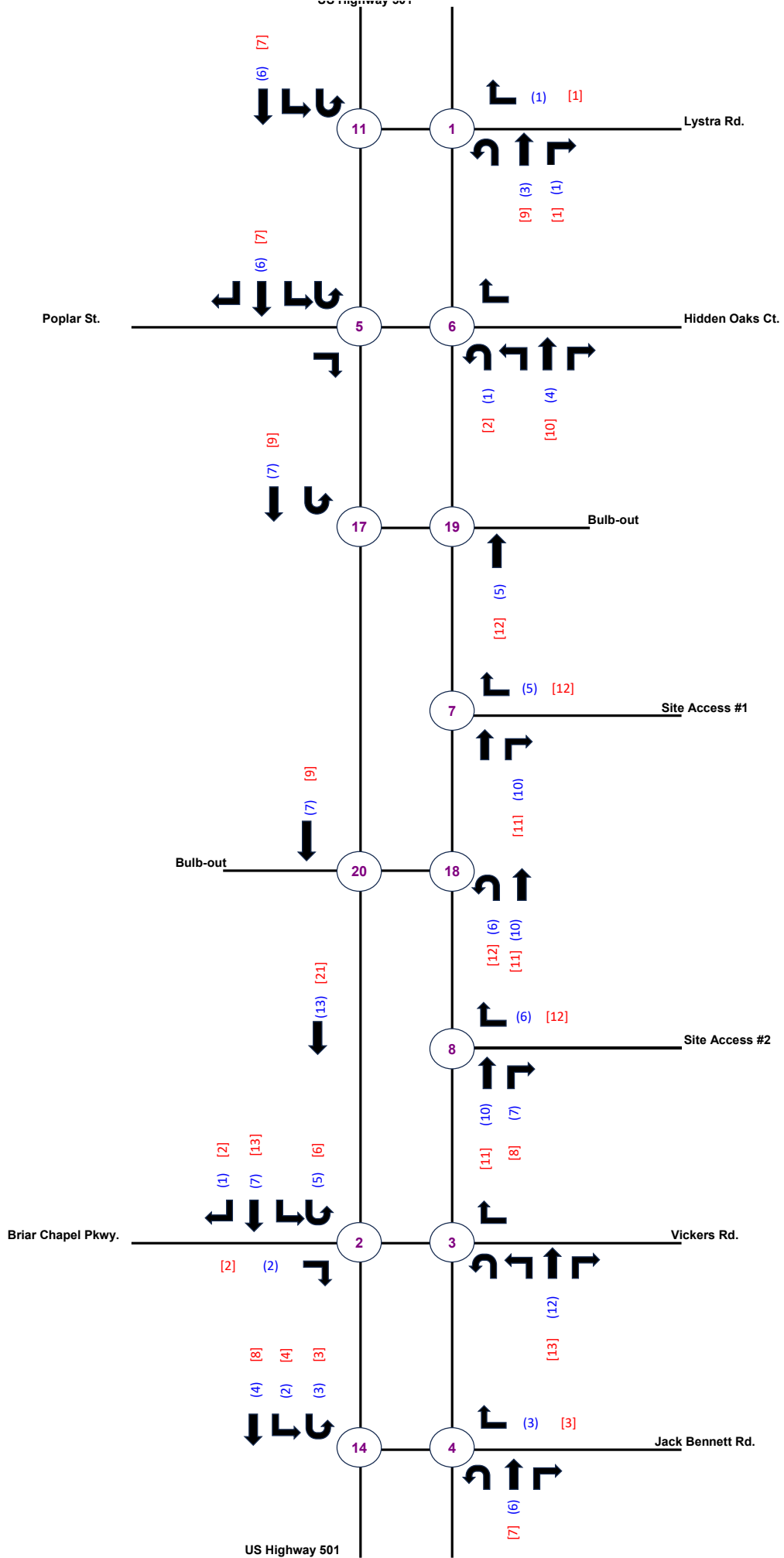
**CHATHAM COUNTY
NORTH CAROLINA**

**GANNETT
FLEMING** | **TRANSYSTEMS**



LEGEND	
	DIRECTIONAL MOVEMENT
[xx]	PERCENTAGE OF INGRESS TRAFFIC
(xx)	PERCENTAGE OF EGRESS TRAFFIC

TIP SCENARIO A DIRECTIONAL TRIP DISTRIBUTION PERCENTAGES		SCALE: NONE
FIGURE 10		
CHATHAM COUNTY NORTH CAROLINA		
TRANSYSTEMS		
GANNETT FLEMING		



LEGEND

- DIRECTIONAL MOVEMENT
- AM PEAK HOUR TRAFFIC
- PM PEAK HOUR TRAFFIC

SCALE:
NONE

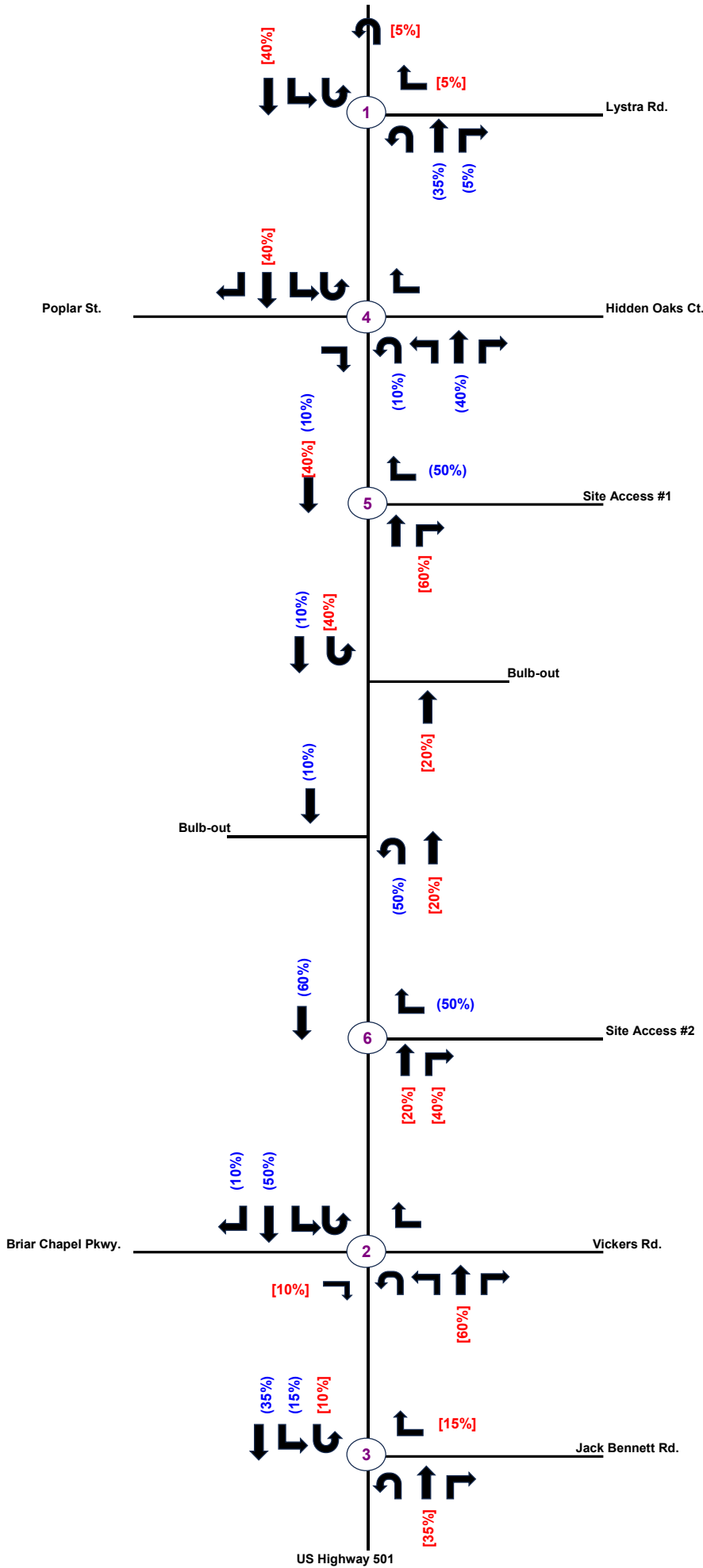
TIP SCENARIO A TRAFFIC ASSIGNMENT RESULTS

FIGURE 11

**CHATHAM COUNTY
NORTH CAROLINA**

TRANSYSTEMS





TIP SCENARIO B DIRECTIONAL TRIP DISTRIBUTION PERCENTAGES

FIGURE 12

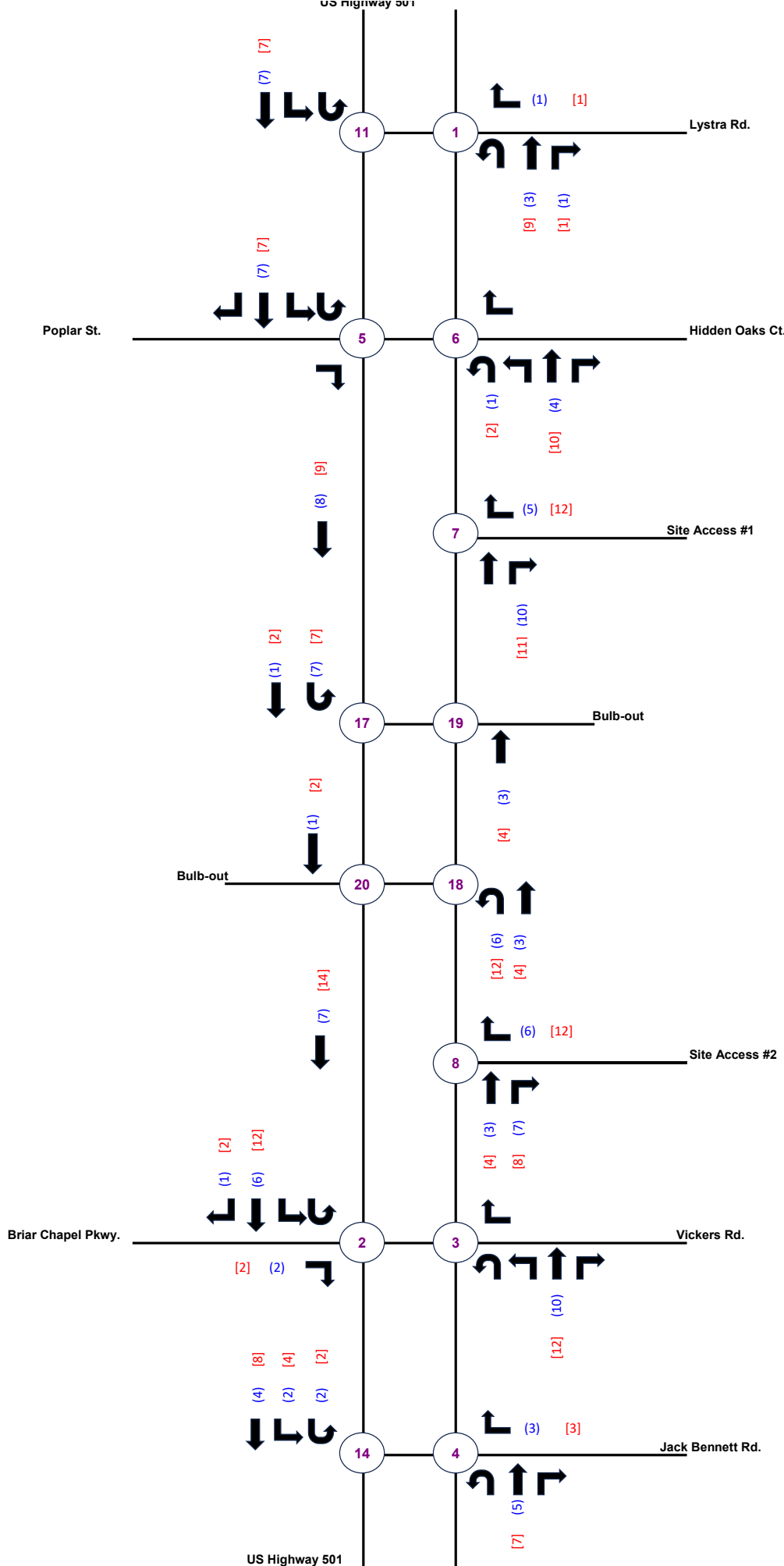
CHATHAM COUNTY
NORTH CAROLINA

TRANSYSTEMS



GANNETT
FLEMING

SCALE:
NONE



LEGEND

DIRECTIONAL MOVEMENT
 AM PEAK HOUR TRAFFIC
 PM PEAK HOUR TRAFFIC

SCALE:
NONE

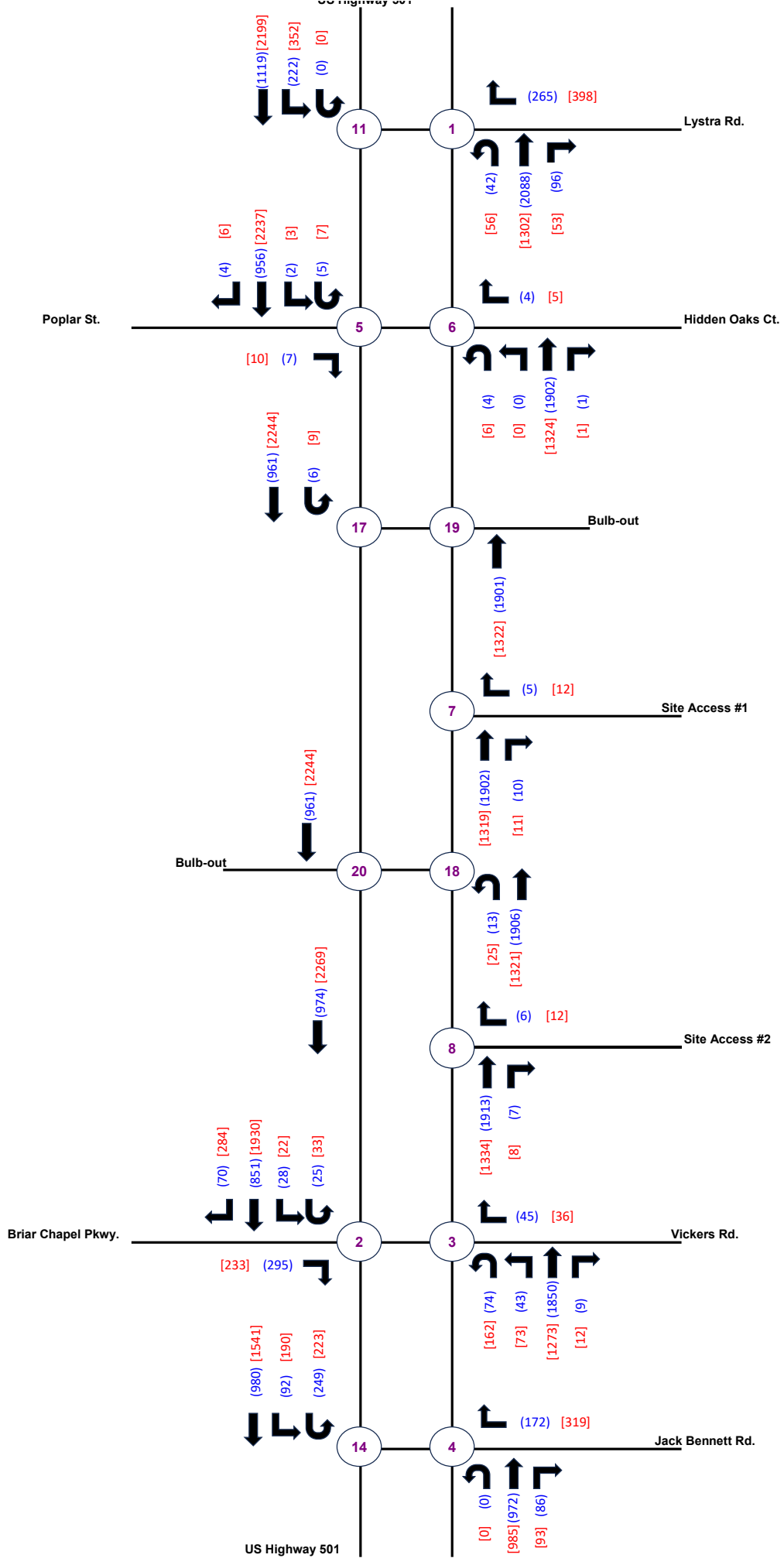
TIP SCENARIO B TRAFFIC ASSIGNMENT RESULTS

FIGURE 13

**CHATHAM COUNTY
NORTH CAROLINA**

TRANSYSTEMS





LEGEND

- DIRECTIONAL MOVEMENT
- (xxx) AM PEAK HOUR TRAFFIC
- [xxx] PM PEAK HOUR TRAFFIC

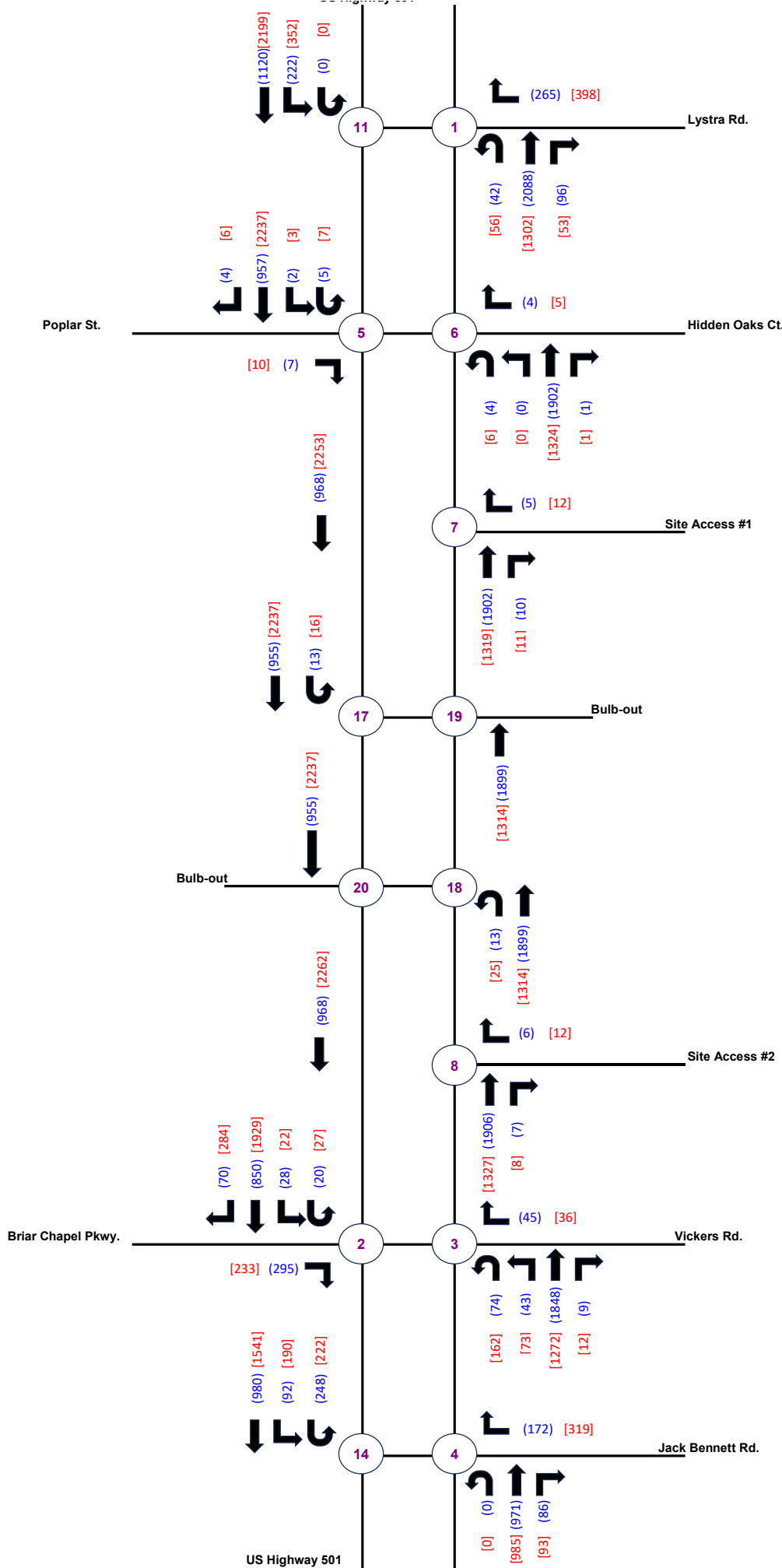
2036 TIP SCENARIO A BUILDOUT TURNING MOVEMENT VOLUMES

FIGURE 14

CHATHAM COUNTY NORTH CAROLINA

GANNETT FLEMING | **TRANSYSTEMS**

SCALE: NONE



LEGEND

- ← DIRECTIONAL MOVEMENT
- (xxx) AM PEAK HOUR TRAFFIC
- [xxx] PM PEAK HOUR TRAFFIC

SCALE:
NONE

2036 TIP SCENARIO B BUILDOUT TURNING MOVEMENT VOLUMES

FIGURE 15

**CHATHAM COUNTY
NORTH CAROLINA**

TRANSYSTEMS

GANNETT FLEMING

VI. Traffic Analysis

The study area intersections were analyzed using the methods outlined in the *Highway Capacity Manual*¹ and Synchro Version 11 Software. The *Highway Capacity Manual*¹ defines capacity as “the maximum rate of flow at which persons or vehicles can be reasonably expected to traverse a point or uniform section of a lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions, usually expressed as vehicles per hour or persons per hour”.

Level of service (LOS) is a term used to represent different traffic conditions and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorist/or passengers”. Level of Service varies from Level A, representing free flow, to Level F where traffic breakdown conditions are evident. Level B represents good progression with minimal congestion. At Level C, the number of vehicles stopping is significant, although many still pass through the intersection without stopping. Level D represents more congestion, but the overall operations are acceptable. At Level E, freedom to maneuver within the traffic stream is extremely difficult with driver frustration being generally high.

For signalized intersections, service levels pertain to each approach as well as an overall value. The unsignalized intersection analysis method in the *Highway Capacity Manual*¹ assigns LOS values for each movement that yields the right-of-way, but not to the overall intersection. This movement is generally a secondary movement from a minor street. At an unsignalized intersection, the primary traffic on the main roadway is virtually uninterrupted. Therefore, the overall level of service is usually much greater than what is represented by the results of the minor street movements. Synchro Version 11 will calculate an amount of delay for the overall intersection but will not assign a LOS value. Therefore, the overall intersection delay is not reported in the summary tables of this report. Generally, Level of Service D is acceptable for signalized intersections in suburban areas during peak periods. With the current method of reporting levels of service for unsignalized intersections, it is not uncommon for some of the minor street movements to be operating at a LOS F during the peak hours.

Note: In accordance with NCDOT Guidelines, the minimum cycle length for a traffic signal was set as 90 seconds for a three-phase and 120 seconds for a four or more phase signal. All signals in this analysis were modeled as actuated/coordinated. Synchro modeling software may predict that cycle lengths greater than 180 seconds may be most efficient for coordinated signal systems. Additionally, signal timing for existing conditions was taken from NCDOT signal plans. Background and future conditions were modeled with the signals coordinated (as appropriate) and optimized. This resulted in LOS and delay improvements over the existing conditions.

Table 2 and Table 3 present criteria of each level of service as indicated in the *Highway Capacity Manual*¹.

Table 2 - Signalized Intersection Level of Service Criteria

Table 2 - Level of Service Criteria Signalized Intersections	
Level of Service	Stopped Delay Per Vehicle (sec)
A	≤10.0
B	>10.0 and ≤20.0
C	>20.0 and ≤35.0
D	>35.0 and ≤55.0
E	>55.0 and ≤80.0
F	>80.0

Table 3 - Unsignalized Intersection Level of Service Criteria

Table 3 – Level of Service Criteria Unsignalized Intersections	
Level of Service	Average Total Delay (sec/veh)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Capacity analyses were performed for 2024 existing conditions, 2026 Background, 2026 Future Buildout conditions, and 2036 TIP Buildout conditions for the following intersection:

- US 15-501 at SR 1721 (Lystra Road) (signalized)
- US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive (unsignalized)
- US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway (signalized)
- US 15-501 at SR 1717 (Jack Bennet Road) (signalized)
- US 15-501 at Site Access #1 (future right-in/right-out)
- US 15-501 at Site Access #2 (future right-in/right-out)

Synchro 11 calculated the AM and PM peak hour level of service and delay for the study area intersections using methods outlined in the *Highway Capacity Manual*¹. All capacity analyses are included in Appendix D and are briefly summarized in the following sub-sections. *It should be noted that under coordinated traffic signal operations, levels of service and delays may change with counterintuitive results. Individual approaches or intersections may experience less delay even with increased volumes due to the “system” approach taken by Synchro, where an individual intersection or approach may benefit from an increase or decrease in coordinated cycle lengths that may approach the optimum cycle length for that individual intersection.*

1. US 15-501 at SR 1721 (Lystra Road)

The intersection of US 15-501 at SR 1721 (Lystra Road) is a signalized three-legged intersection. The capacity analysis for the Existing 2024 traffic condition revealed the intersection is currently operating at a Level of Service (LOS) B during the Sunday peak hour with total intersection average delay of 18.1 seconds per vehicle.

Note: Signal timing for existing conditions was taken from NCDOT signal plans. Background and future conditions were modeled with the signals coordinated (as appropriate) and optimized in accordance with the NCDOT Congestion Management capacity analysis guidelines. This resulted in some LOS and delay improvements (for certain approaches and the intersection as a whole) over the existing conditions.

With presumed traffic growth at 5% per year compounded annually, the total intersection and approach delays are expected to increase by 2026. During the 2026 Background traffic conditions, the intersection would be predicted to remain operating at an LOS B during the Sunday peak hour with delays of 18.4 seconds.

Under 2026 Future Buildout conditions, the intersection would be predicted to operate at an LOS C during the Sunday peak hour conditions. The westbound approach of Lystra Road would be predicted to operate at LOS D during the Sunday peak hour, and the delay was expected to be 37.7 seconds. Despite the LOS decline and delay increases, the intersection is projected to meet the LOS standards under the buildout conditions.

The queue lengths show change as a result of the addition of Summit Church Chatham County traffic but are not expected to be significant, with the maximum queue length for the westbound Lystra Road approach is expected to be less than 250 feet during the 2026 Future Buildout Sunday peak hour.

Under the 2036 conditions, the intersection of US 15-501 at SR 1721 (Lystra Road) is expected to be converted to a reduced conflict intersection (RCI) as part of the STIP project (TIP U-6192). The southbound left-turn/U-turn movement is modeled as the new eastbound approach in Synchro, the southbound through movement will be free flow (taken out of this intersection altogether), and the westbound Lystra Road will be restricted right-turn only under signal control. The northbound U-turn movement will also be shifted to the south of this intersection with the U-6192 design.

After the conversion, the RCI of US 15-501 at SR 1721 (Lystra Road) is expected to operate at an overall LOS C during both the AM and PM peak hours. The eastbound approach of Lystra Road is predicted to operate at LOS E in the AM peak hour with moderate delay and queuing. Nevertheless, the proposed development along with the intended shifting of U-turn bulb locations between Scenario A and Scenario B is not expected to have negative impact at this location.

Table 4 displays the Level of Service and Delay for the subject intersection for the 2024 existing conditions, 2026 Background conditions, and 2026 Future Buildout conditions, as well as the RCI under the 2036 TIP conditions. Table 5 displays projected queuing for the aforementioned conditions.

Table 4 - US 15-501 at SR 1721 (Lystra Road) Level of Service

US Highway 15-501 & Lystra Road - Level of Service										
Intersection and Approach	Measure of Effectiveness	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A AM Peak	2036 TIP Scenario A PM Peak	2036 TIP Scenario B AM Peak	2036 TIP Scenario B PM Peak		
Intersection Level of Service (LOS)		B	B	C	C	C	C	C		
Total Intersection Delay (Seconds/Vehicle)		18.1	18.4	23.3	29.3	26.1	29.3	26.1		
Leftover to Lystra Eastbound	LOS	-	-	-	D	C	D	C		
	Approach Delay	-	-	-	45.3	32.2	45.3	32.2		
Lystra Road Westbound	LOS	D	D	D	E	D	E	D		
	Approach Delay	37.0	36.6	37.7	67.0	42.9	67.0	42.9		
US Highway 15-501 Northbound	LOS	A	B	B	C	B	C	B		
	Approach Delay	9.9	10.4	20.0	23.1	19.5	23.1	19.5		
US Highway 15-501 Southbound	LOS	B	B	C	-	-	-	-		
	Approach Delay	18.1	18.4	22.4	-	-	-	-		

Delay Decrease or LOS Improvement
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade
 LOS "F"

Table 5 - US 15-501 at SR 1721 (Lystra Road) Queues

US Highway 15-501 & Lystra Road - Queues									
Intersection and Approach	Queue Length	2024 Existing	2026	2026 Future	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP
		Sunday Peak	Background Sunday Peak	Build Sunday Peak	Scenario A AM Peak	Scenario A PM Peak	Scenario B AM Peak	Scenario B PM Peak	Scenario B PM Peak
Leftover to Lystra Eastbound	Maximum	0	0	0	217	223	218	219	
	95th Percentile	0	0	0	231	285	231	285	
Lystra Road Westbound	Maximum	187	200	227	538	414	464	443	
	95th Percentile	115	124	142	0	351	0	351	
US Highway 15-501 Northbound	Maximum	123	154	217	798	814	792	719	
	95th Percentile	41	47	132	37	481	37	481	
US Highway 15-501 Southbound	Maximum	240	266	250	0	0	0	0	
	95th Percentile	182	196	242	0	0	0	0	

2. US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive

The intersection of US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive) is a full movement, four -legged intersection under stop control. The capacity analysis for the Existing 2024 traffic condition revealed the intersection is currently operating at a Level of Service (LOS) C during the Sunday peak hour on both the eastbound and westbound approaches under stop control.

With presumed traffic growth at 5% per year compounded annually, the total intersection and approach delays are expected to increase by 2026. During the 2026 Background traffic conditions, the intersection would be predicted to decline to a LOS D on both the eastbound and westbound approaches during the Sunday peak hours.

Under 2026 Future Buildout conditions, the intersection would be predicted to decline to an LOS F on both the eastbound and westbound approaches during the Sunday peak hour conditions. However, traffic volumes are anticipated to be minimal on both Poplar Street and Hidden Oaks Drive, and short queueing is antiquated despite long traffic delay. It should be noted that Synchro analysis assumes the worst-case scenario for the side street approaches; in reality, traffic delays on side streets could be shorter in case drivers of U-turn movement on US 15-501 are directed to yield to right-turn vehicles on side streets. Furthermore, traffic delay results are skewed by the usage of minimum 4 vehicles per hour based on the NCDOT capacity analysis standards.

Under the 2036 conditions, the intersection of US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive is expected to be converted to two split reduced conflict intersections (RCI) as part of the STIP project (TIP U-6192). The eastbound and westbound approaches will be restricted right-turn only under stop control. The northbound and southbound U-turn movements will still be allowed at this intersection, assuming adequate design and signing provided to accommodate passenger vehicles and light trucks.

After the conversion, the two RCI of US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive are expected to operate at LOS F during at least one of peak hours, with reduced traffic delays and short queues on the stop-controlled side street approaches.

Table 6 displays the Level of Service and Delay for the subject intersection for the 2024 existing conditions, 2026 Background conditions, and 2026 Future Buildout conditions, as well as RCI under the 2036 TIP conditions. Table 7 displays projected queueing for the intersection.

Table 6 - US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive Level of Service

US Highway 15-501 & Poplar Street/Hidden Oaks Court - Level of Service									
Intersection and Approach	Measure of Effectiveness	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A AM Peak	2036 TIP Scenario A PM Peak	2036 TIP Scenario B AM Peak	2036 TIP Scenario B PM Peak	
Intersection Level of Service (LOS)									
Total Intersection Delay (Seconds/Vehicle)									
Poplar Street Eastbound	LOS	C	D	F	-	-	-	-	-
Hidden Oaks Court Westbound	Approach Delay	24.6	29.6	617.3	-	-	-	-	-
	LOS	C	D	F	-	-	-	-	-
US Highway 15-501 Northbound	Approach Delay	22.8	26.7	445.9	-	-	-	-	-
	LOS	-	-	-	-	-	-	-	-
US Highway 15-501 Southbound	Approach Delay	0.2	0.1	5.1	-	-	-	-	-
	LOS	-	-	-	-	-	-	-	-
	Approach Delay	0.1	0.1	0.1	-	-	-	-	-
Intersection Level of Service (LOS)									
Total Intersection Delay (Seconds/Vehicle)									
Poplar Street Eastbound	LOS	-	-	-	B	D	B	D	-
	Approach Delay	-	-	-	12.4	28.2	12.4	28.2	-
Leftover to Poplar Westbound	LOS	-	-	-	C	F	C	F	-
	Approach Delay	-	-	-	17.8	90.1	17.8	90.1	-
US Highway 15-501 Southbound	LOS	-	-	-	-	-	-	-	-
	Approach Delay	-	-	-	0.0	0.0	0.0	0.0	-
Intersection Level of Service (LOS)									
Total Intersection Delay (Seconds/Vehicle)									
Leftover to Hidden Oaks Eastbound	LOS	-	-	-	F	C	-	-	-
	Approach Delay	-	-	-	54.2	24.3	54.2	24.3	-
Hidden Oaks Court Westbound	LOS	-	-	-	C	C	C	C	-
	Approach Delay	-	-	-	21.6	15.1	21.6	15.1	-
US Highway 15-501 Northbound	LOS	-	-	-	-	-	-	-	-
	Approach Delay	-	-	-	0.0	0.0	0.0	0.0	-

Delay Decrease or LOS Improvement
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade
 LOS "F"

Table 7 - US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive Queues

US Highway 15-501 & Poplar Street/Hidden Oaks Court - Queues										
Intersection and Approach	Queue Length	2024 Existing	2026	2026 Future	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP
		Sunday Peak	Background Sunday Peak	Build Sunday Peak	Scenario A AM Peak	Scenario A PM Peak	Scenario B AM Peak	Scenario B PM Peak	Scenario B AM Peak	Scenario B PM Peak
Poplar Street Eastbound	Maximum	35	32	61	22	74	24	152		
	95th Percentile	8	8	65	0	5	0	5		
Hidden Oaks Court Westbound	Maximum	25	35	39	20	25	22	21		
	95th Percentile	5	5	50	3	0	3	0		
US Highway 15-501 Northbound	Maximum	26	25	157	39	93	40	161		
	95th Percentile	0	0	93	3	18	3	18		
US Highway 15-501 Southbound	Maximum	24	24	32	43	34	36	36		
	95th Percentile	0	3	3	10	5	10	5		

3. US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway

The intersection of US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway is a signalized four-legged intersection. The capacity analysis for the Existing 2024 traffic condition revealed the intersection is currently operating at a Level of Service (LOS) A during the Sunday peak hour with total intersection average delay of 9.9 seconds per vehicle.

Note: Signal timing for existing conditions was taken from NCDOT signal plans. Background and future conditions were modeled with the signals coordinated (as appropriate) and optimized in accordance with the NCDOT Congestion Management capacity analysis guidelines. This resulted in some LOS and delay improvements (for certain approaches and the intersection as a whole) over the existing conditions.

With presumed traffic growth at 5% per year compounded annually, the total intersection and approach delays are expected to increase by 2026. During the 2026 Background traffic conditions, the intersection would be predicted to decline to an LOS B during the Sunday peak hour with delays of 10.2 seconds.

Under 2026 Future Buildout conditions, the intersection would be predicted to remain operating at an LOS B during the Sunday peak hour conditions. The eastbound approach of Briar Chapel Parkway, as the worst approach at this location, would be predicted to operate at LOS D during the Sunday peak hour, and the delay was expected to be 45.2 seconds. Despite the LOS decline and delay increases, the intersection is projected to meet the LOS standards under the buildout conditions.

The queue lengths show change as a result of the addition of Summit Church Chatham County traffic but are not expected to be significant, with the maximum queue length for the US 15-501 northbound approach expected to be less than 250 feet during the 2026 Future Buildout Sunday peak hour.

Under the 2036 conditions, the intersection of US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway is expected to be converted to two split reduced conflict intersections (RCI) as part of the STIP project (TIP U-6192). The eastbound and westbound approaches will be restricted right-turn only under signal control. The northbound and southbound U-turn movements will still be allowed at this intersection, assuming adequate design and signing provided to accommodate passenger vehicles and light trucks.

After the conversion, the two RCI of US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway are expected to operate at an overall LOS B or C during both the AM and PM peak hours, although the eastbound approach of Briar Chapel Parkway is projected to operate at LOS under both Scenario A and Scenario B with queuing over 500 feet in the PM peak hour. Nevertheless, the proposed development along with the intended shifting of U-turn bulb locations between Scenario A and Scenario B is not expected to have negative impact at this location.

Table 8 displays the Level of Service and Delay for the subject intersection for the 2024 existing conditions, 2026 Background conditions, and 2026 Future Buildout conditions, as well as the RCI under the 2036 TIP conditions. Table 9 displays projected queuing for the aforementioned conditions.

Table 8 - US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway Level of Service

US Highway 15-501 & Briar Chapel Parkway/Vickers Road - Level of Service										
Intersection and Approach	Measure of Effectiveness	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A AM Peak	2036 TIP Scenario A PM Peak	2036 TIP Scenario B AM Peak	2036 TIP Scenario B PM Peak		
Intersection Level of Service (LOS)										
Total Intersection Delay (Seconds/Vehicle)	LOS	9.9	10.2	12.8	-	-	-	-		
Briar Chapel Parkway Eastbound	Approach Delay	41.5	41.7	45.2	-	-	-	-		
Vickers Road Westbound	Approach Delay	44.1	44.2	44.5	-	-	-	-		
US Highway 15-501 Northbound	Approach Delay	7.2	6.7	11.3	-	-	-	-		
US Highway 15-501 Southbound	Approach Delay	6.9	8.3	9.5	-	-	-	-		
Intersection Level of Service (LOS)										
Total Intersection Delay (Seconds/Vehicle)	LOS	-	-	-	19.2	22.0	19.2	22.0		
Briar Chapel Parkway Eastbound	Approach Delay	-	-	-	41.4	57.8	41.4	57.8		
Leftover to Briar Chapel Westbound	Approach Delay	-	-	-	23.8	48.0	23.8	48.0		
US Highway 15-501 Southbound	Approach Delay	-	-	-	11.5	15.4	11.5	15.4		
Intersection Level of Service (LOS)										
Total Intersection Delay (Seconds/Vehicle)	LOS	-	-	-	6.7	4.8	6.5	4.6		
Leftover to Vickers Eastbound	Approach Delay	-	-	-	49.6	44.5	48.4	44.3		
Vickers Road Westbound	Approach Delay	-	-	-	50.0	43.0	50.0	43.6		
US Highway 15-501 Northbound	Approach Delay	-	-	-	4.4	2.0	4.4	2.0		

Delay Decrease or LOS Improvement
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade
 LOS "F"

Table 9 - US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway Queues

US Highway 15-501 & Briar Chapel Parkway/Vickers Road - Queues									
Intersection and Approach	Queue Length	2024 Existing	2026	2026 Future	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP
		Sunday Peak	Background Sunday Peak	Build Sunday Peak	Scenario A AM Peak	Scenario A PM Peak	Scenario B AM Peak	Scenario B PM Peak	Scenario B PM Peak
Briar Chapel Parkway Eastbound	Maximum	93	102	175	334	557	327	511	
	95th Percentile	69	74	119	254	0	254	0	
Vickers Road Westbound	Maximum	57	47	56	99	85	96	84	
	95th Percentile	34	35	36	68	54	68	55	
US Highway 15-501 Northbound	Maximum	117	112	233	224	375	225	373	
	95th Percentile	105	135	217	86	0	86	0	
US Highway 15-501 Southbound	Maximum	102	135	216	237	391	235	391	
	95th Percentile	102	106	185	77	74	71	68	

4. US 15-501 at SR 1717 (Jack Bennet Road)

The intersection of US 15-501 at SR 1717 (Jack Bennet Road) is a signalized three-legged intersection. The capacity analysis for the Existing 2024 traffic condition revealed the intersection is currently operating at a Level of Service (LOS) A during the Sunday peak hour with total intersection average delay of 7.5 seconds per vehicle.

Note: Signal timing for existing conditions was taken from NCDOT signal plans. Background and future conditions were modeled with the signals coordinated (as appropriate) and optimized in accordance with the NCDOT Congestion Management capacity analysis guidelines. This resulted in some LOS and delay improvements (for certain approaches and the intersection as a whole) over the existing conditions.

With presumed traffic growth at 5% per year compounded annually, the total intersection and approach delays are expected to increase by 2026. On the other hand, the intersection of SR 1717 (Jack Bennet Road) is expected to be converted to a reduced conflict intersection (RCI) as part of the Vickers Village project. During the 2026 Background traffic conditions, the intersection would be predicted to remain operating at an LOS A during the Sunday peak hour with delays of 6.3 seconds.

Under 2026 Future Buildout conditions, the intersection would be predicted to operate at an LOS A during the Sunday peak hour conditions. The westbound approach of Jack Bennett Road, as the worst approach at this location, would be predicted to operate at LOS D during the Sunday peak hour, and the delay was expected to be 37.1 seconds.

The queue lengths show change as a result of the addition of Summit Church Chatham County traffic but are not expected to be significant, with the maximum queue length for westbound approach of Jack Bennett Road expected to be less than 200 feet during the 2026 Future Buildout Sunday peak hour.

Under the 2036 conditions, lane geometrics and traffic control constructed by Vickers Village are expected to remain, and this intersection will be integrated as part of synchronized street with the STIP project (TIP U-6192), while a new U-turn bulb will be added to the south of this intersection to provide a secondary option for traffic heading north along US 15-501.

As shown in the 2036 analysis, the RCI of US 15-501 at SR 1717 (Jack Bennet Road) is expected to operate at an overall LOS B or C during both the AM and PM peak hours. It should be noted that the proposed development along with the intended shifting of U-turn bulb locations between Scenario A and Scenario B is not expected to have negative impact at this location.

Table 10 displays the Level of Service and Delay for the subject intersection for the 2024 existing conditions, 2026 Background conditions, and 2026 Future Buildout conditions, as well as the RCI under the 2036 TIP conditions. Table 11 displays projected queueing for the aforementioned conditions.

Table 10 - US 15-501 at SR 1717 (Jack Bennet Road) Level of Service

US Highway 15-501 & Jack Bennett Road - Level of Service										
Intersection and Approach	Measure of Effectiveness	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A AM Peak	2036 TIP Scenario A PM Peak	2036 TIP Scenario B AM Peak	2036 TIP Scenario B PM Peak		
Intersection Level of Service (LOS)		A	A	A	B	C	B	C		
Total Intersection Delay (Seconds/Vehicle)		7.5	6.3	6.9	18.3	20.4	18.3	20.3		
Leftover to Jack Bennett Eastbound	LOS	-	-	-	C	C	C	C		
	Approach Delay	-	-	-	31.8	28.4	31.9	28.4		
Jack Bennett Road Westbound	LOS	D	D	D	C	C	C	C		
	Approach Delay	42.4	35.3	37.1	26.5	25.7	26.5	25.7		
US Highway 15-501 Northbound	LOS	A	A	A	B	B	B	B		
	Approach Delay	5.8	5.1	5.8	12.7	15.7	12.6	15.7		
US Highway 15-501 Southbound	LOS	A	A	A	-	-	-	-		
	Approach Delay	0.6	1.1	0.9	-	-	-	-		

Delay Decrease or LOS Improvement
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade
 LOS "F"

Table 11 - US 15-501 at SR 1717 (Jack Bennet Road) Queues

US Highway 15-501 & Jack Bennett Road - Queues											
Intersection and Approach	Queue Length	2024 Existing	2026	2026 Future	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP	
		Sunday Peak	Background Sunday Peak	Build Sunday Peak	Scenario A AM Peak	Scenario A PM Peak	Scenario B AM Peak	Scenario B PM Peak	Scenario A AM Peak	Scenario A PM Peak	Scenario B AM Peak
Leftover to Jack Bennett Eastbound	Maximum	0	0	0	266	279	271	284			
	95th Percentile	0	0	0	192	0	193	0			
Jack Bennett Road Westbound	Maximum	136	196	186	153	210	138	219			
	95th Percentile	99	91	123	73	120	73	120			
US Highway 15-501 Northbound	Maximum	117	115	130	301	346	287	344			
	95th Percentile	91	82	114	296	336	295	336			
US Highway 15-501 Southbound	Maximum	79	90	152	0	0	0	0			
	95th Percentile	3	9	13	0	0	0	0			

5. US 15-501 at Site Access #1

The US 15-501 at Site Access #1 intersection is proposed as an unsignalized three-legged intersection with right-in/right-out under stop control at Site Access #1. The capacity analyses for the 2026 and 2036 Future traffic conditions revealed that the stop controlled westbound approach of Site Access #1 is expected to operate at LOS C during Sunday peak hour in 2026 and during both AM and PM Peak Hour conditions in 2036. Based on turn lane warrant analysis, a dedicated right-turn lane with 150 feet of storage should be provided along northbound US 15-501.

Queue lengths are expected to not be significant during the 2026 Future AM and PM Peak Hour conditions. The queue lengths for the dedicated turn lanes are predicted to be contained by the proposed storage.

Gannett Fleming recommends that this intersection be constructed as right-in/right-out access under stop control at the location shown under 2036 TIP Scenario B. A dedicated right-turn lane with 150 feet of storage and appropriate taper should be provided along northbound US 15-501 at this location. Sufficient stem length should be provided per NCDOT Guidelines to prevent exiting traffic from interfering with internal circulation.

Table 12 displays the Level of Service and Delay for the subject intersection for the 2026 Future Buildout and 2036 TIP conditions. Table 13 displays projected queueing for the intersection.

Table 12 - US 15-501 at Site Access #1 Level of Service

US Highway 15-501 & Site Access #1 - Level of Service										
Intersection and Approach	Measure of Effectiveness	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A AM Peak	2036 TIP Scenario A PM Peak	2036 TIP Scenario B AM Peak	2036 TIP Scenario B PM Peak		
Intersection Level of Service (LOS)										
Total Intersection Delay (Seconds/Vehicle)										
Eastbound	LOS	-	-	-	-	-	-	-		
	Approach Delay	-	-	-	-	-	-	-		
Site Access #1 Westbound	LOS	-	-	C	C	C	C	C		
	Approach Delay	-	-	19.4	21.7	15.3	21.7	15.3		
US Highway 15-501 Northbound	LOS	-	-	-	-	-	-	-		
	Approach Delay	-	-	0.0	0.0	0.0	0.0	0.0		
US Highway 15-501 Southbound	LOS	-	-	-	-	-	-	-		
	Approach Delay	-	-	0.0	-	-	-	-		

 Delay Decrease or LOS Improvement
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade
 LOS "F"

Table 13 - US 15-501 at Site Access #1 Queues

US Highway 15-501 & Site Access #1 - Queues										
Intersection and Approach	Queue Length	2024 Existing	2026	2026 Future	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP
		Sunday Peak	Background Sunday Peak	Build Sunday Peak	Scenario A AM Peak	Scenario A PM Peak	Scenario B AM Peak	Scenario B PM Peak	Scenario B AM Peak	Scenario B PM Peak
Eastbound	Maximum	-	-	0	0	0	0	0	0	0
	95th Percentile	-	-	0	0	0	0	0	0	0
Site Access #1 Westbound	Maximum	-	-	230	25	34	24	34	24	34
	95th Percentile	-	-	88	3	3	3	3	3	3
US Highway 15-501 Northbound	Maximum	-	-	0	0	0	0	0	0	18
	95th Percentile	-	-	0	0	0	0	0	0	0
US Highway 15-501 Southbound	Maximum	-	-	0	0	0	0	0	0	0
	95th Percentile	-	-	0	0	0	0	0	0	0

6. US 15-501 at Site Access #2

The US 15-501 at Site Access #2 intersection is proposed as an unsignalized three-legged intersection with right-in/right-out under stop control at Site Access #2. The capacity analyses for the 2026 and 2036 Future traffic conditions revealed that the stop controlled westbound approach of Site Access #2 is expected to operate at LOS C during Sunday peak hour in 2026 and during both AM and PM Peak Hour conditions in 2036. Based on turn lane warrant analysis, a dedicated right-turn lane with 100 feet of storage should be provided along northbound US 15-501.

Queue lengths are expected to not be significant during the 2026 Future AM and PM Peak Hour conditions. The queue lengths for the dedicated turn lanes are predicted to be contained by the proposed storage.

Gannett Fleming recommends that this intersection be constructed as right-in/right-out access under stop control at the location shown under 2036 TIP Scenario B. A dedicated right-turn lane with 100 feet of storage and appropriate taper should be provided along northbound US 15-501 at this location. Sufficient stem length should be provided per NCDOT Guidelines to prevent exiting traffic from interfering with internal circulation.

Table 14 displays the Level of Service and Delay for the subject intersection for the 2026 Future Buildout and 2036 TIP conditions. Table 15 displays projected queueing for the intersection.

Table 14 - US 15-501 at Site Access #2 Level of Service

US Highway 15-501 & Site Access #2 - Level of Service									
Intersection and Approach	Measure of Effectiveness	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A AM Peak	2036 TIP Scenario A PM Peak	2036 TIP Scenario B AM Peak	2036 TIP Scenario B PM Peak	
Intersection Level of Service (LOS)									
Total Intersection Delay (Seconds/Vehicle)									
Eastbound	LOS	-	-	-	-	-	-	-	
	Approach Delay	-	-	-	-	-	-	-	
Site Access #2 Westbound	LOS	-	-	C	C	C	C	C	
	Approach Delay	-	-	16.3	22.0	15.4	21.8	15.4	
US Highway 15-501 Northbound	LOS	-	-	-	-	-	-	-	
	Approach Delay	-	-	0.0	0.0	0.0	0.0	0.0	
US Highway 15-501 Southbound	LOS	-	-	-	-	-	-	-	
	Approach Delay	-	-	0.0	-	-	-	-	

 Delay Decrease or LOS Improvement
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade
 LOS "F"

Table 15 - US 15-501 at Site Access #2 Queues

US Highway 15-501 & Site Access #2 - Queues										
Intersection and Approach	Queue Length	2024 Existing	2026	2026 Future	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP	2036 TIP
		Sunday Peak	Background Sunday Peak	Build Sunday Peak	Scenario A AM Peak	Scenario A PM Peak	Scenario B AM Peak	Scenario B PM Peak	Scenario B AM Peak	Scenario B PM Peak
Eastbound	Maximum	-	-	0	0	0	0	0	0	0
	95th Percentile	-	-	0	0	0	0	0	0	0
Site Access #2 Westbound	Maximum	-	-	122	29	40	33	35	33	35
	95th Percentile	-	-	48	3	3	3	3	3	3
US Highway 15-501 Northbound	Maximum	-	-	0	2	163	0	23	0	23
	95th Percentile	-	-	0	0	0	0	0	0	0
US Highway 15-501 Southbound	Maximum	-	-	0	0	0	0	0	0	0
	95th Percentile	-	-	0	0	0	0	0	0	0

7. US 15-501 at Future U-Turn Locations

Conversion of remaining non-synchronized sections to synchronized street along US 15-501 from Smith Level Road to US 64 Bypass in Chatham County is planned with NCDOT TIP U-6192 as part of 2024-2033 State Transportation Improvement Program (STIP). The right-of-way year for TIP U-6192 is anticipated to be 2028, and construction is expected to start in 2031. With the completion of TIP U-6192, capacity along US 15-501 is expected to improve to 43,900 VPD with moderate access control in place.

Based on the STIP U-6162 feasibility study design, several U-turn bulbs will be added along US 15-501 between Jack Bennett Road and Lystra Road within the study area. As a result, site traffic traveling south is expected to use the U-turn North of Briar Chapel as the primary route and the U-turn South of Lystra as a secondary route. Site traffic traveling from the north is expected to make U-turn at Briar Chapel Road under Scenario A, while it is expected to utilize the U-turn south of Hidden Oaks under Scenario B.

Based on the traffic analysis, the U-turn south of Hidden Oaks is expected to operate at LOS C during both the AM and PM peak hours under both Scenario A and Scenario B despite slight delay increases in Scenario B. The U-turn North of Briar Chapel is expected to operate at LOS B in the AM peak hour and LOS D in the PM peak hour, with slight delay reductions under Scenario B. The U-turn south of Lystra is expected to operate at LOS B in the AM peak hour and LOS E in the PM peak hour. Nevertheless, LOS E is not uncommon at unsignalized intersections, particularly where traffic congestion is projected during peak hour only and traffic volumes are not projected to meet warrants for installation of a traffic signal. After all, the proposed development along with the intended shifting of U-turn bulb locations between Scenario A and Scenario B is not expected to have negative impact at the three U-turn locations.

Queue lengths are expected to not be significant during the 2036 Future AM and PM Peak Hour conditions with the maximum queue length at U-turn south of Lystra is predicted to be approximately 284 feet under Scenario A and 255 feet under Scenario B.

Gannett Fleming recommends the proposed development coordinate with the NCDOT to ensure consistent design between this project and the roadway improvements planned by TIP U-6192, and to provide sufficient spacing between Site Access #1 and Site Access #2 so locations of U-turn bulbs with the TIP project can be shifted and aligned with the planned site driveways to improve community access while maintaining traffic operations and safety along the site frontage of US 15-501.

Table 16 displays the Level of Service and Delay for the subject intersection for the 2036 TIP conditions. Table 17 displays projected queueing for the intersections.

Table 16 - US 15-501 at Future U-Turn Locations Level of Service

US Highway 15-501 & U-turn Locations - Level of Service									
Intersection and Approach	Measure of Effectiveness	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A AM Peak	2036 TIP Scenario A PM Peak	2036 TIP Scenario B AM Peak	2036 TIP Scenario B PM Peak	
Intersection Level of Service (LOS)									
Total Intersection Delay (Seconds/Vehicle)									
U-turn S. of Hidden Oaks	LOS	-	-	-	C	C	C	C	
	Approach Delay	-	-	-	21.8	15.4	22.4	15.6	
Intersection Level of Service (LOS)									
Total Intersection Delay (Seconds/Vehicle)									
U-turn N. of Briar Chapel	LOS	-	-	-	B	D	B	D	
	Approach Delay	-	-	-	12.8	31.0	12.8	30.8	
Intersection Level of Service (LOS)									
Total Intersection Delay (Seconds/Vehicle)									
U-turn S. of Lystra	LOS	-	-	-	B	E	B	E	
	Approach Delay	-	-	-	14.7	37.3	14.7	37.3	



Table 17 - US 15-501 at Future U-Turn Locations Queues

US Highway 15-501 & U-turn Locations - Queues										
Intersection and Approach	Queue Length	2024 Existing Sunday Peak	2026 Background Sunday Peak	2026 Future Build Sunday Peak	2036 TIP Scenario A		2036 TIP Scenario B		2036 TIP Scenario B	
					AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
U-turn S. of Hidden Oaks	Maximum	-	-	-	33	30	46	38		
	95th Percentile	-	-	-	3	3	5	5		
U-turn N. of Briar Chapel	Maximum	-	-	-	36	210	35	132		
	95th Percentile	-	-	-	3	15	3	15		
U-turn S. of Lystra	Maximum	-	-	-	65	284	69	255		
	95th Percentile	-	-	-	10	38	10	38		

VII. Recommendations

To mitigate the traffic-related impacts caused by the Summit Church Chatham County and to provide for safe, efficient, and reliable traffic flow, Gannett Fleming recommends the following:

US 15-501 at SR 1721 (Lystra Road) (signalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under signal control with the STIP project (TIP U-6192).

US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive (unsignalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under stop control with the STIP project (TIP U-6192).

US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway (signalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under signal control with the STIP project (TIP U-6192).

US 15-501 at SR 1717 (Jack Bennet Road) (signalized)

Gannett Fleming recommends no changes at this intersection as part of the proposed development. This intersection will be converted to a reduced conflict intersection (RCI) under signal control with the construction of Vickers Village, and no additional change is expected with the STIP project (TIP U-6192).

US 15-501 at Site Access #1 (future right-in/right-out)

Gannett Fleming recommends that this intersection be constructed as right-in/right-out access under stop control at the location shown under 2036 TIP Scenario B. A dedicated right-turn lane with 150 feet of storage and appropriate taper should be provided along northbound US 15-501 at this location. Sufficient stem length should be provided per NCDOT Guidelines to prevent exiting traffic from interfering with internal circulation.

US 15-501 at Site Access #2 (future right-in/right-out)

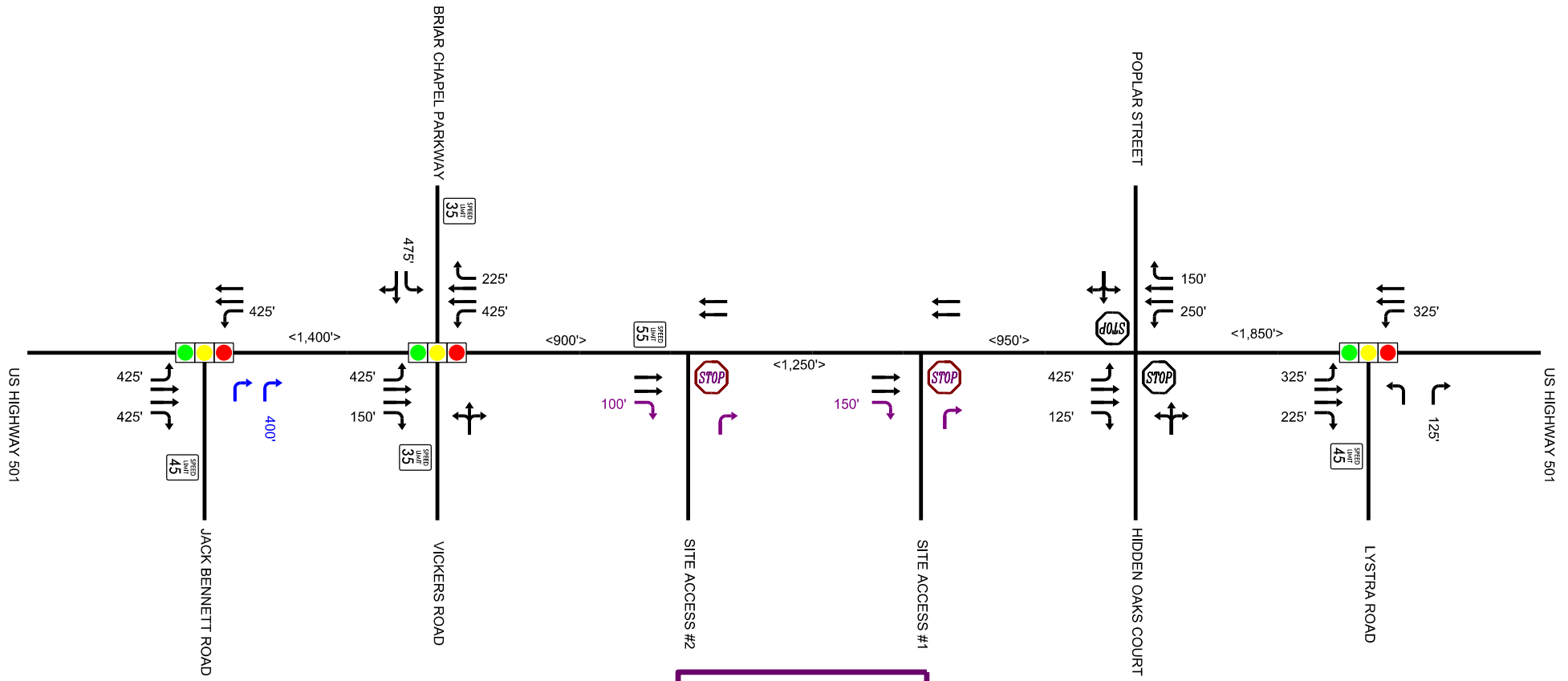
Gannett Fleming recommends that this intersection be constructed as right-in/right-out access under stop control at the location shown under 2036 TIP Scenario B. A dedicated right-turn lane with 100 feet of storage and appropriate taper should be provided along northbound US 15-501 at this location. Sufficient stem length should be provided per NCDOT Guidelines to prevent exiting traffic from interfering with internal circulation.

Coordination with NCDOT TIP

Gannett Fleming recommends the proposed development coordinate with the NCDOT to ensure consistent design between this project and the roadway improvements planned by TIP U-6192, and to provide sufficient spacing between Site Access #1 and Site Access #2 so locations of U-turn bulbs with the TIP project can be shifted and aligned with the planned site driveways to improve community access while maintaining traffic operations and safety along the site frontage of US 15-501.



The recommended lane configurations and traffic control for the study area intersections are shown in Figure 16.



PROJECT
LOCATION

LEGEND	
	PROPOSED TRAFFIC SIGNAL
	PROPOSED STOP SIGN
	PROPOSED LANE GEOMETRICS
	BACKGROUND LANE GEOMETRICS
	EXISTING LANE GEOMETRICS
	EXISTING STOP SIGN
	EXISTING TRAFFIC SIGNAL

VIII. Conclusions

This Traffic Impact Analysis shows that the proposed Summit Church Chatham County development impacts on the traffic operations at the study area intersections will be mitigated by the recommended improvements. With the recommended improvements in place, the proposed development will not negatively impact the capacity and efficiency of the area roadway network.

IX. References

¹ *Highway Capacity Manual*, Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 1998.

² NCDOT Interactive Traffic Volume Map:

<http://ncdot.maps.arcgis.com/apps/webappviewer/index.html?id=5f6fe58c1d90482ab9107ccc03026280>

³ *Trip Generation Manual*, Institute of Transportation Engineers, 11th Edition, Washington, D.C., 2017

**Appendix A: NCDOT Checklist/
Memorandum of Understanding**





MEMORANDUM

Date:	August 9, 2024
To:	R. J. "Jeron" Monroe, NCDOT Highway Division 8 District 1 Nick Lineberger, NCDOT Congestion Management Central Region
From:	Baohong Wan, PhD, PE, Gannett Fleming
RE:	Summit Church Chatham County TIA

This memorandum summarizes the assumptions and approach for preparing the Summit Church Chatham County Traffic Impact Analysis (TIA) in accordance with the North Carolina Department of Transportation (NCDOT) Congestion Management Capacity Analysis Guidelines and Chatham County Unified Development ordinance (UDO) requirements.

The proposed development is located in Chatham County, North Carolina, and it encompasses approximately 30 acres of land with the assemblage properties of Chatham County parcel numbers 0018750, 0018896, 0018897. The preliminary plan is to construct an 88,460 square foot (SF) church with a 1,200-seating capacity sanctuary. Construction of the site is assumed to occur in 2026.

Based on the preliminary site plan (attached), the proposed Summit Church Chatham County is planned to be accessed via two new right-in/right-out driveways along US 15-501 (Chapel Hill Road):

- Access #1 on US 15-501: approximately 1,150 feet south of SR 1606 (Poplar Street)/Hidden Oaks Drive
- Access #2 on US 15-501: approximately 1,050 feet north of SR 1719 (Vickers Road)/Briar Chapel Parkway (825 feet south of Access #1)

Final driveway locations and types will be determined through the TIA. Gannett Fleming will perform analysis for the proposed Summit Church in Chatham County, North Carolina. The following assumptions will be used in the analysis of the site.

Study Scenarios

The section of US 15-50 was specified as a synchronized street in the DCHC MPO 2050 Metropolitan Transportation Plan (MTP), and conversion to synchronized street along US 15-501 from Smith Level Road to US 64 Bypass in Chatham County is planned with NCDOT TIP U-6192 as part of 2024-2033 State Transportation Improvement Program (STIP).

In accordance with the NCDOT requirements, traffic analysis will be performed for the following five (5) scenarios:

- 2024 Existing Traffic Condition – Sunday Peak Hour Analysis
- 2026 No-Build Traffic Condition – Sunday Peak Hour Analysis
- 2026 Buildout Condition – Sunday Peak Hour Analysis
- 2036 TIP Design Year Scenario A Condition – Weekday AM and PM Peak Hour Analysis, U-turn bulbs as currently shown in the STIP design
- 2036 TIP Design Year Scenario B Condition – Weekday AM and PM Peak Hour Analysis, U-turn bulbs shifted to align with site driveways



Note that due to the anticipated site traffic characteristics, traffic capacity analysis will be conducted during Sunday peak time period (10 AM – 1 PM) under the existing year (2024) and future year (2026) conditions. Nevertheless, the TIP year (2036) analysis will be included to assess traffic conditions during typical weekday AM and PM peak hours, with 2036 TIP Scenario A assuming U-turn bulbs located as currently shown in the STIP feasibility study design, and 2036 TIP Scenario B accounting for U-turn bulbs shifted to align with the planned site driveways.

Study Area Intersections

Based on scoping discussions with the NCDOT staff, capacity analysis will be conducted at the following intersections:

- US 15-501 at SR 1721 (Lystra Road) (signalized)
- US 15-501 at SR 1606 (Poplar Street)/Hidden Oaks Drive (unsignalized)
- US 15-501 at SR 1719 (Vickers Road)/Briar Chapel Parkway (signalized)
- US 15-501 at SR 1717 (Jack Bennet Road) (signalized)
- US 15-501 at Site Access #1 (future right-in/right-out)
- US 15-501 at Site Access #2 (future right-in/right-out)

Traffic Counts

Gannett Fleming will collect Sunday peak hour (10 AM – 1 PM) turning movement traffic counts at each of the study intersections (completed in May 2024). Existing lane configurations and traffic control at the study intersections are depicted in Figure 1. The Existing (2024) turning movement volumes are shown in Figure 2.

Trip Generation

The amount of traffic generated by a new development is a function of the size and type of development. Trip generation calculation was conducted in accordance with the procedures outlined in the Institute of Transportation Engineers (ITE) report entitled **Trip Generation 11th Edition**. Table 1 illustrates the total number of weekday daily, weekday AM peak hour, weekday PM peak hour, Sunday daily, and Sunday peak hour trips expected to be generated by the proposed development.

Table 1 – ITE Trip Generation Summary												
Weekday Site Trips						Weekday		AM			PM	
LUC	Description	Density	Variable	PK HR	METHOD	Daily	In	Out	Total	In	Out	Total
560	Church [Data Range: 10-50]	88	1000 GFA	Adjacent	RATE*	669	17	11	28	19	24	43
	Church Total					669	17	11	28	19	24	43
Sunday Site Trips						Sunday		Sunday Peak				
LUC	Description	Density	Variable	PK HR	METHOD	Daily	In	Out	Total			
560	Church [Data Range: 10-50]	88	1000 GFA	Adjacent	RATE*	2,768	438	474	912			

In total, the proposed Summit Church Chatham County is projected to generate approximately 669 vehicular trips on a typical weekday, with 28 trips expected to occur during the AM peak hour and 43 trips during the PM peak



hour; it is projected to generate approximately 2,768 trips on a typical Sunday, with 912 trips expected to occur during the Sunday peak hour.

Due to the proposed land use, majority of vehicular trips are anticipated to be passenger vehicles. ITE Trip Generation doesn't contain truck trip generation data for church; for comparison purposes, an 88 KSF general office building is projected to generate 9 truck trips on a typical weekday. Based on the ITE data, the proposed site is projected to generate approximately 51 Walk + Bike + Transit trips during the Sunday peak hour.

Approved Transportation Projects

The section of US 15-501 was specified as a synchronized street in the DCHC MPO 2050 Metropolitan Transportation Plan (MTP). Conversion of remaining non-synchronized sections to synchronized street along US 15-501 from Smith Level Road to US 64 Bypass in Chatham County is planned with NCDOT TIP U-6192 as part of 2024-2033 State Transportation Improvement Program (STIP). The right-of-way year for TIP U-6192 is anticipated to be 2028, and construction is expected to start in 2031. With the completion of TIP U-6192, capacity along US 15-501 is expected to improve to 43,900 VPD with moderate access control in place. Study scenario "TIP Design Year Condition (2036)" will be modeled based on traffic forecasts developed for TIP U-6192 and the most recent design plans available for this project, with 2036 TIP Scenario A assuming U-turn bulbs located as currently shown in the STIP feasibility study design, and 2036 TIP Scenario B accounting for U-turn bulbs shifted to align with the planned site driveways.

Background Growth

Historic daily traffic volumes in the study area indicate a traffic growth rate of approximately 2% per year. Based on information provided by the NCDOT, the TIA will account for a future background development (Vickers Village, roughly 2,300 VPD on a typical weekday) and their future roadway improvements (conversion the intersection at US 15/501 and Jack Bennett Road to a leftover with dual right turns onto US 15/501) that are expected to be in place by 2026.

Since site traffic associated with background development is not typically accounted during Sunday peak period, a higher growth rate (5% per year) is included in the TIA to account for both ambient growth and traffic impacts of potential background development. On the other hand, the 2036 analysis will be based interpolation values of traffic forecasts developed for TIP U-6192 under typical weekday AM and PM peak hour conditions.

Trip Distribution

The following directional distribution will be used based on review of existing traffic counts and of surrounding land uses, and those will be applicable to 2026 analysis under conventional intersection configurations (shown in attached Figure 3) and 2026 analysis under RCI configurations with the TIP improvements:

- 35% to/from the north on US 15/501
- 35% to/from the south on US 15/501
- 5% to/from the east on Lystra Rd.
- 10% to/from the west on Briar Chapel Pkwy.
- 15% to/from the east on Jack Bennett Rd.



The "TIP Design Year Condition (2036)" scenarios will be based on traffic distribution patterns under the RCI configurations with different U-turn bulb location assumptions under Scenario A and Scenario B (shown in attached Figure 4 and Figure 5). Note that directional distributions will remain the same along the directions of travel, while site trip assignments at individual intersections will be adjusted in accordance with the geometrics and traffic movement patterns under the RCI conditions.

Site Access Design

Primary site access is proposed via two site accesses on US 15/501, and both will be constructed as right-in/right-out driveways. Due to the potential large amounts of inbound and outbound trips during Sunday peak hour (over 900 trips), dedicated turn lanes along US 15-501 will likely be necessary. Final mitigation determinations and turn lane decisions will be updated with the completion of TIA. In addition, it is critical for the development to coordinate with NCDOT to minimize design conflicts with the roadway improvements planned by TIP U-6192.

Other Study Assumptions

The "Existing Condition (2024)" analysis will be modeled using existing signal plans for intersection layout as well as existing signal timing settings. All other study scenarios will use NCDOT standards for analysis software inputs.



Figure 1. Existing Lane Configuration and Traffic Control

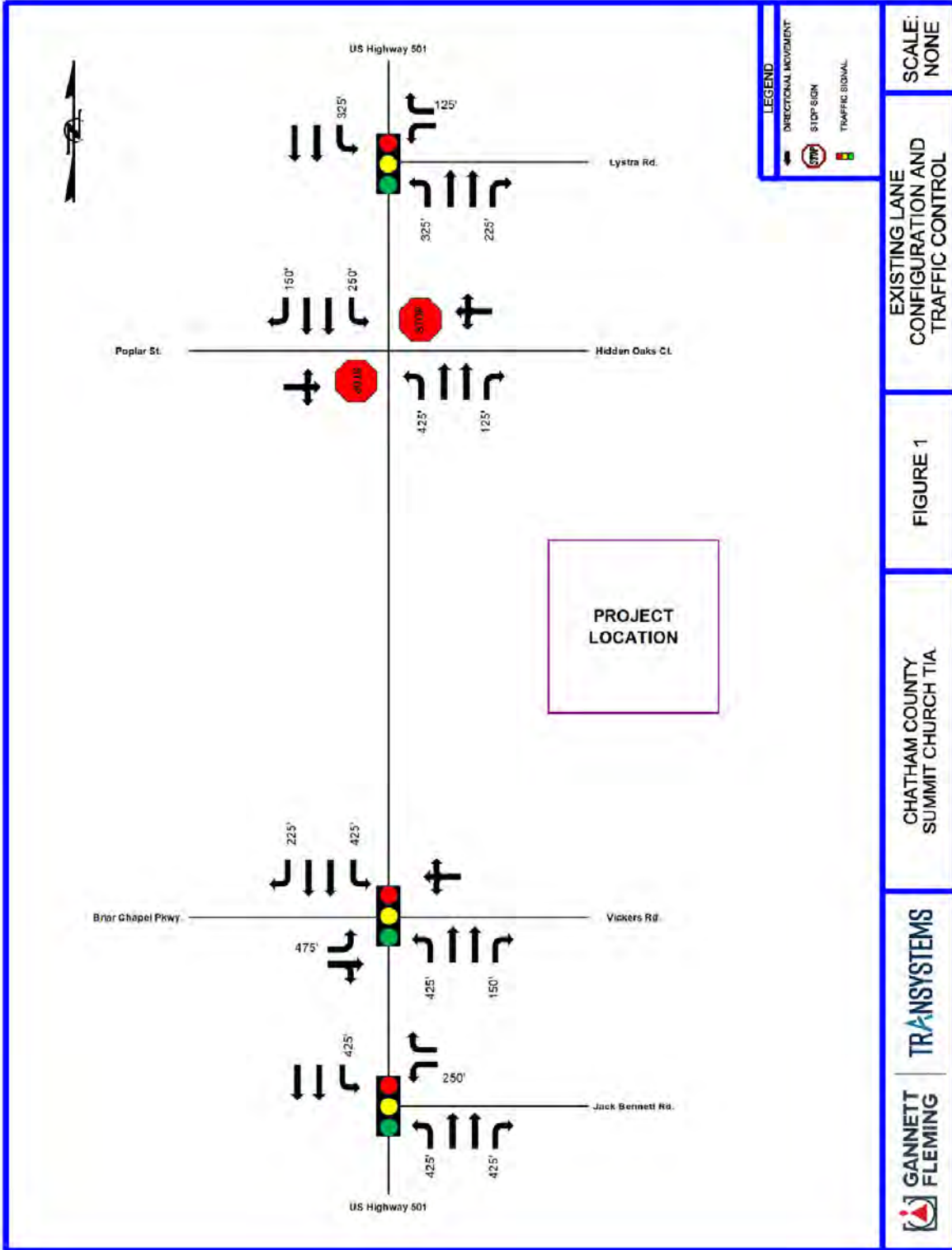
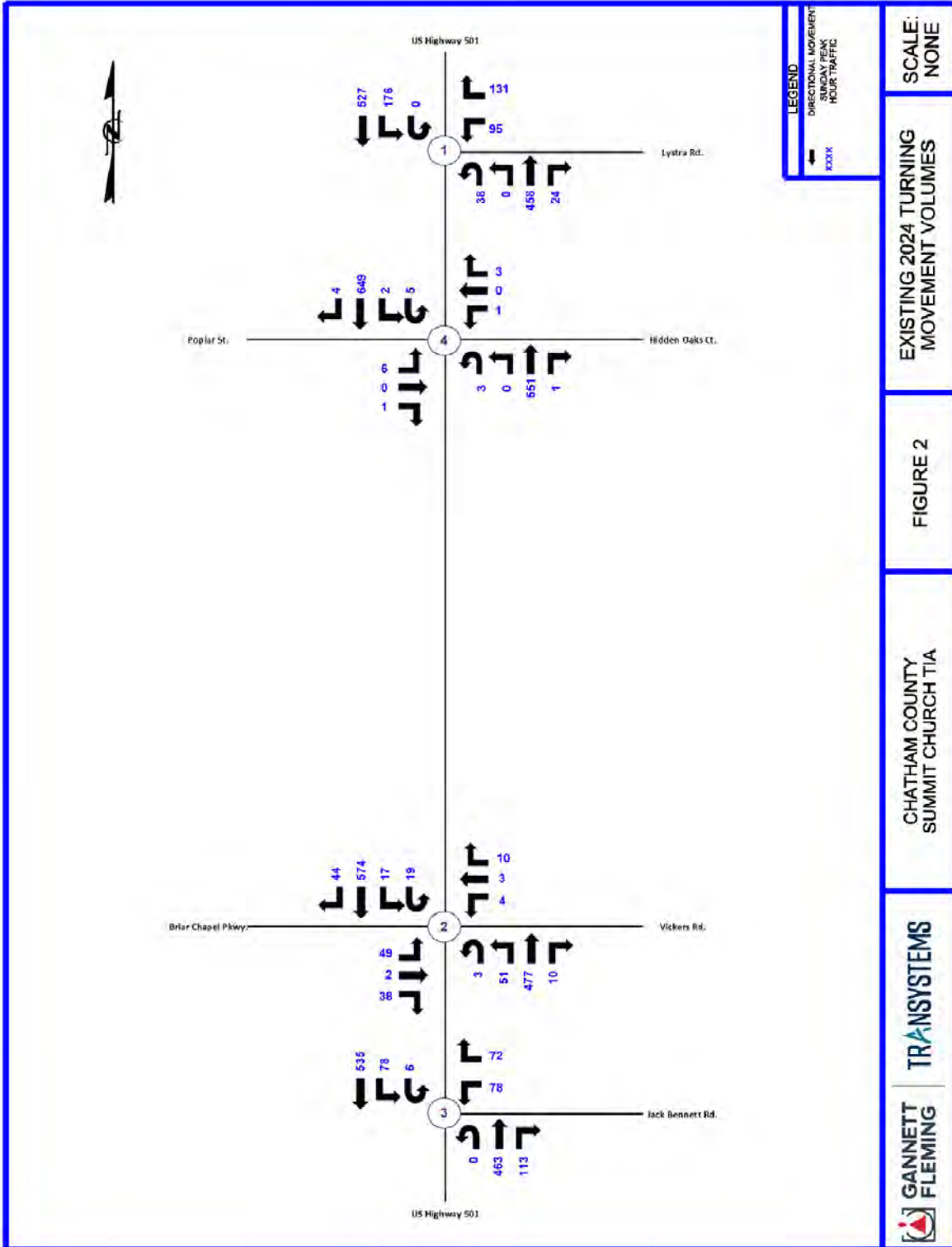




Figure 2. Existing 2024 Turning Movement Volumes



EXISTING 2024 TURNING MOVEMENT VOLUMES

FIGURE 2

CHATHAM COUNTY SUMMIT CHURCH TIA

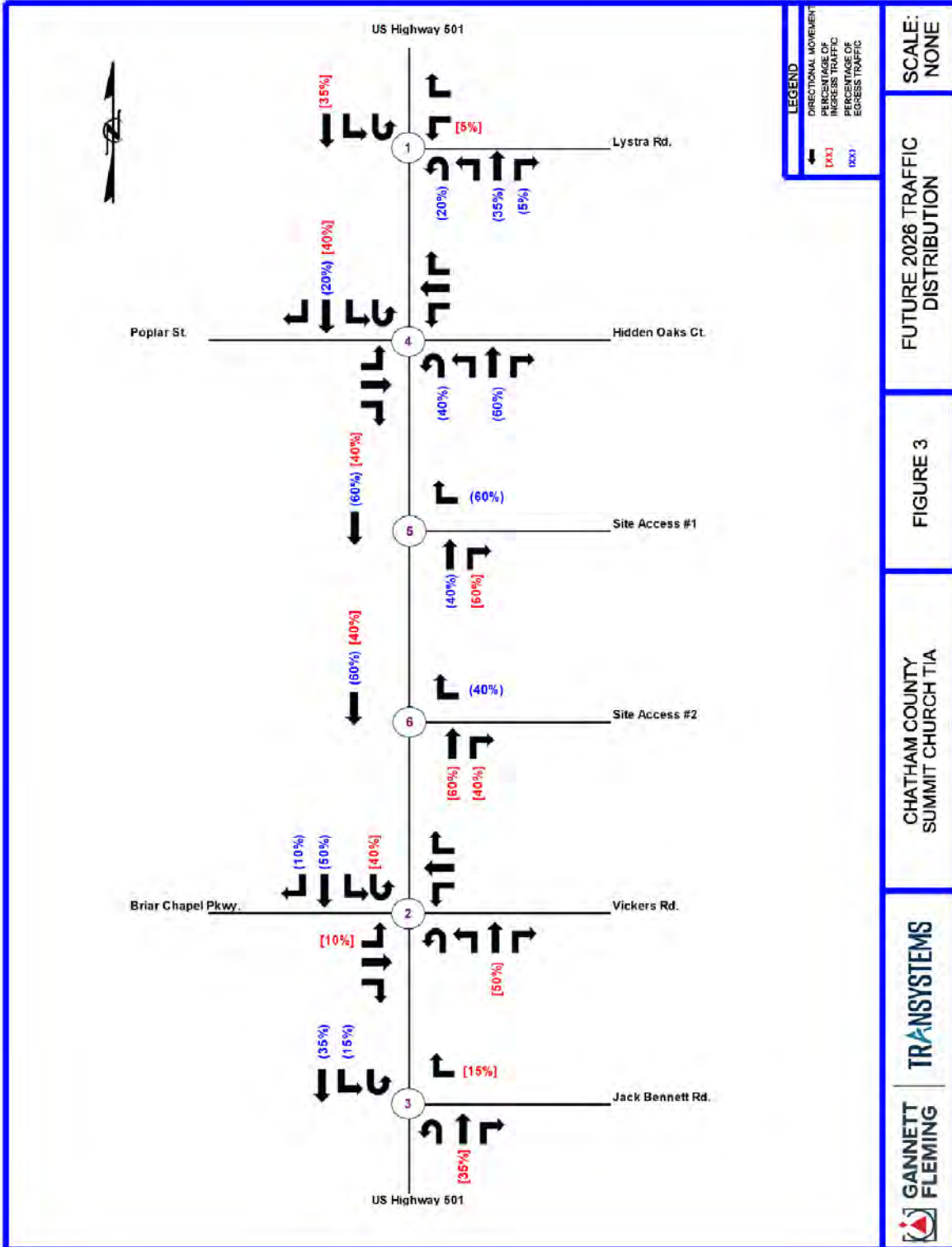
TRANSYSTEMS



SCALE: NONE



Figure 3. Future 2026 Traffic Distribution



CHATHAM COUNTY
SUMMIT CHURCH TIA

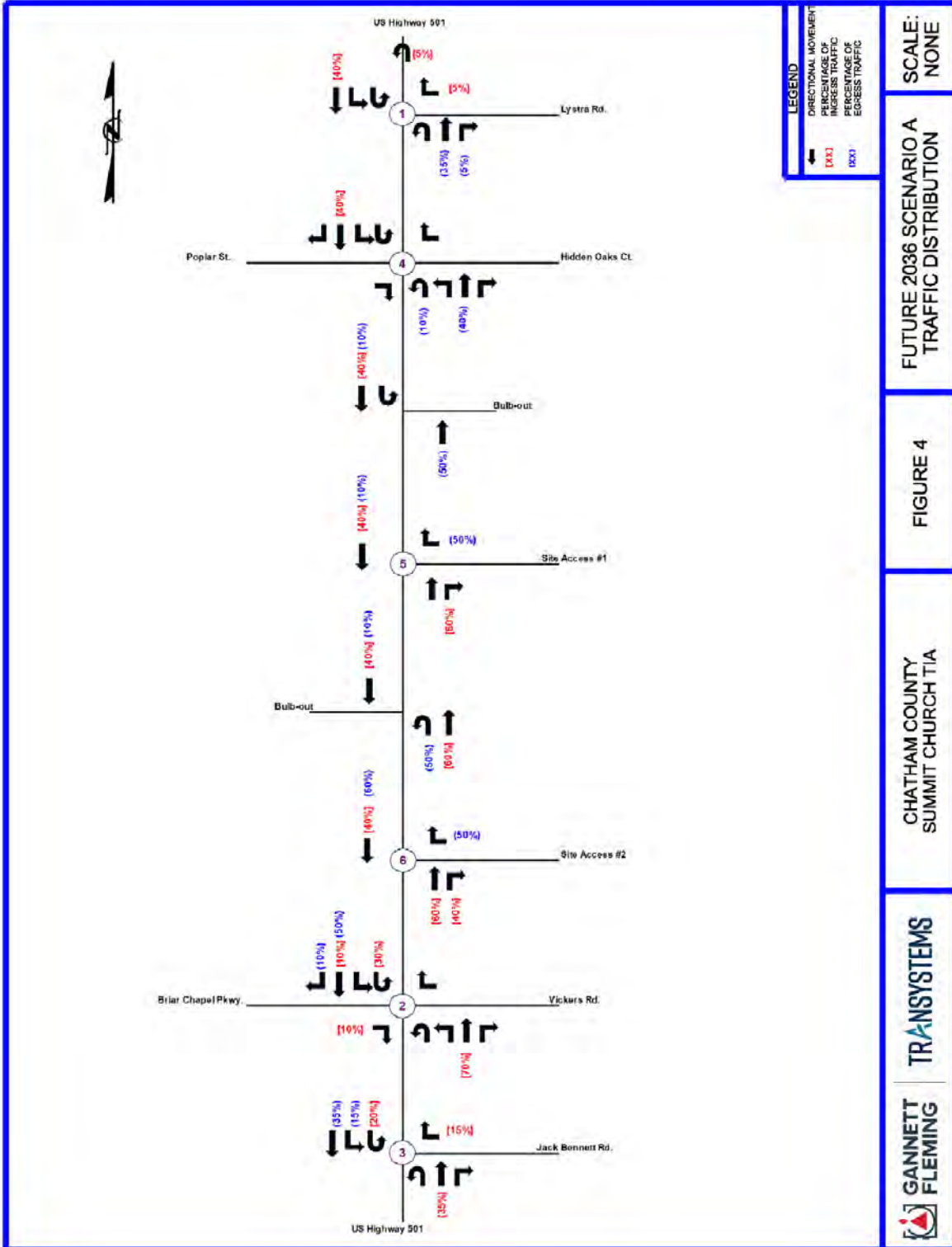
FIGURE 3

FUTURE 2026 TRAFFIC
DISTRIBUTION

SCALE:
NONE



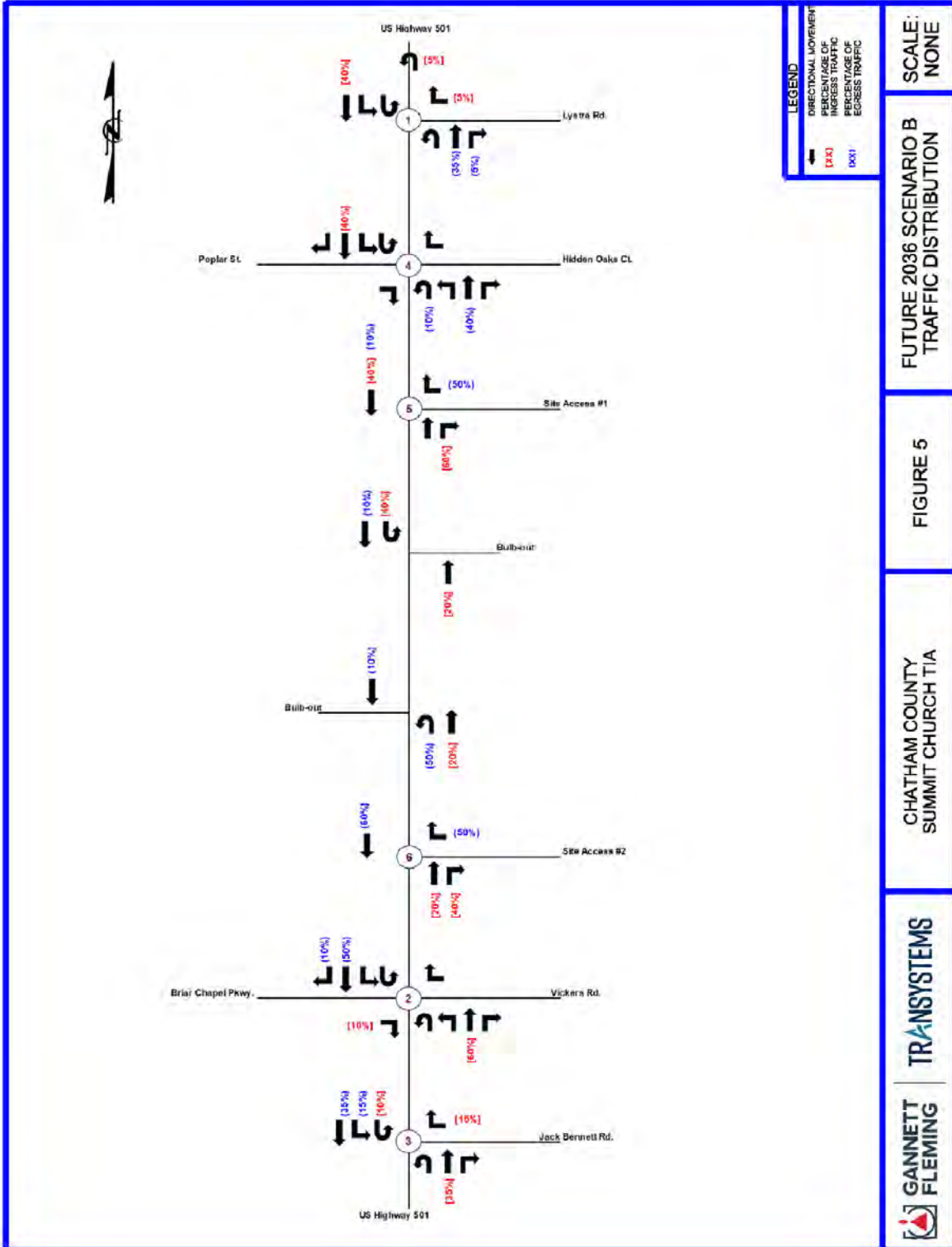
Figure 4. Future 2036 Scenario A Traffic Distribution





MEMORANDUM

Figure 5. Future 2036 Scenario B Traffic Distribution



SCALE: NONE

FUTURE 2036 SCENARIO B TRAFFIC DISTRIBUTION

FIGURE 5

CHATHAM COUNTY SUMMIT CHURCH TIA

TRANSYSTEMS





NCDOT Traffic Impact Analysis Need Screening / Scoping Request



A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT’s TIA requirements.

Project Name: Summit Church Chatham County **Previous Name:** If Applicable _____
Location: 9780 US 15-501 N., Chapel Hill, NC **County:** Chatham **Municipality:** None
Project Description: 88,000 SF church with a 1,200-seating capacity sanctuary.

Project Contact: Applicant
 Company Name Qunity
 Contact Person Jael Wagoner, PLA, ASLA
 Phone Number (919) 490-4990
 Email jwagoner@qunity.com
 Mailing Address 16 CONSULTANT PLACE, SUITE 201
DURHAM, NC 27707

TIA Consultant
 Gannett Fleming, Inc.
 Baohong Wan, PhD, PE
 984.389.2552
 bwan@gfnet.com
 One Glenwood Avenue, Suite 900
 Raleigh, NC 27603

Site Plan Prepared By: Qunity

Site Plan Date: 05/31/2024

See site plan/vicinity map requirements on page 2.

Parcel Size: 30 Acre(s)

Anticipated Build-Out Year: 2026

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
560	Church (Weekday)	88	1000GFA	669	Adj. Street	17	11	28	19	24	43	ITE Rate
	Church (Sunday)	88	1000GFA	2768	Adj. Street	438	474	912				ITE Rate
Total		88	1000GFA	2768		438	474	912				\times

Refer to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#) for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used: _____

- The estimated site trips meet NCDOT’s TIA trip threshold of 3,000 daily trips.
- The estimated site trips meet the municipal TIA trip threshold of 1000 Daily, or 100 Peak Hour Trips
- This project is located in a known [STIP](#) and/ or local CIP project # NCDOT TIP U-6192
- This project includes a rezoning request.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



- The proposed site access is located within 1,000 feet of an interchange.
- The Applicant requests for a new or modified control-of-access break.
- The Applicant requests for a new or modified median break.

Applicant's Signature
Print Name
Date

Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: _____ **Project Reference Number:** _____

- A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.
- A TIA is Required by NCDOT,** per the [Policy on Street and Driveway Access to North Carolina Highways](#).

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

- A TIA is NOT required.** This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



Additional Comments:

The TIA need decision is made by the NCDOT Division _____ District _____ on _____.

NCDOT District Representative's Signature

Print Name

Email concurrence may be used in lieu of the signature.



NCDOT TIA Scoping Checklist



Project Name: Summit Church Chatham County

TIA Scoping Date: 07/10/24

TIA Need Screening Forms are Attached. Project Reference #: _____ Decision Date: _____

Site Plan and Access

Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.
 Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Chapel Hill Rd.	RIRO	2-Way Stop	1100	North	Poplar St./Chapel
Access B	Chapel Hill Rd.	RIRO	2-Way Stop	1100	South	Vickers Rd./ Chapel
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						
Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

Proposed K-12 School Site

- NCDOT [MSTA School Traffic Calculator](#) for Select School Type shall be used.
- Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).
- Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.
- Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).



NCDOT TIA Scoping Checklist



Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
560	Church	88	1000GFA	669	Adj. Street	17	11	28	19	24	43	ITE Rate
Unadjusted Site Trips				669		17	11	28	19	24	43	
Internal Capture Trips (Attach Calculation Sheets)												Please Select
Internal Capture % of Unadjusted Site Trips					%	%			%			
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
		Please Select		%	%			%			Please Select	
				%	%			%				
				%	%			%				
				%	%			%				
				%	%			%				
Pass-By Trips (Attach Calculation Sheets)												
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips				669		17	11	28	19	24	43	
Diverted Trips, if Applicable and Justifiable												Please Select

**Explain local or other data sources, if used:

Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												



NCDOT TIA Scoping Checklist



Trip Distribution

- Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

- Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- Inter-Development Trips (if ‘internal” trips cross public streets)
- Pass-By Trips
- Diverted Trips
- Each Analysis Period

Mode Split

- Provide Data Source and Justification

Mode \ Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

- Identify proper infrastructure and accommodation for other modes of travel.

Analysis Peak Periods:

- Weekday AM Peak _____
- Weekday PM Peak _____
- Weekday Midday Peak _____
- Weekday PM School Peak _____
- Weekend _____ Peak _____
- Other Sunday Peak (10 AM – 1 PM) _____



NCDOT TIA Scoping Checklist



Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under “Site Plan and Access” on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	Lystra Rd.	Chapel Hill Rd.	Signal	Require New Counts	05/19/24		
#2	Vickers Rd.	Chapel Hill Rd.	Signal	Require New Counts	05/19/24		
#3	Jack Bennett Rd.	Chapel Hill Rd.	Signal	Require New Counts	05/19/24		
#4	Poplar St.	Chapel Hill Rd.	2-Way Stop	Require New Counts	05/19/24		
#5							
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101			Please Select	Please Select		Please Select	
#102							
#103							
#104							
#105							

The following data will be collected:

- New traffic turning movement counts in 15-min intervals 5-min intervals (near schools)
 Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.
- To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:
 intersections numbered: _____
 and access points numbered: _____
- Traffic Forecast Data for TIP: U-6192
- Roadway/Intersection Configuration & Traffic Control
- Traffic Signal Phasing & Timing Data
- Crash Data: _____ Period: _____
- Other: _____



NCDOT TIA Scoping Checklist



Future Year Conditions

Project Build-Out Year: 2026

Future Analysis Year(s): 2036

Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description		Year Complete
U-6192	Convert US 15-501 to Synchronized Street		2036
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

Annual Growth Factor: 5 %

Justification/Data Source: Historical trend, Sunday patterns, group discussions during scoping meeting

Local Comprehensive Transportation Plan Compliance

Identify Applicable Local Transportation Planning Documents

Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #
US 15-501 (Chapel Hill Rd.)	Principle Arterial	55	RCI Corridor	150'		1,2,3,4
Lystra Rd.	Minor Collector	45	2-lane			
Vickers Rd.	Local	35	2-lane			
Briar Chapel Rd.	Local	25	2-lane			
Jack Bennett Rd.	Local	45	2-lane			



NCDOT TIA Scoping Checklist



Study Method

The traffic analysis shall follow the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:
5. TIP Design Year Analysis 2036

6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- Signal Warrant Analysis for accesses/intersections _____
- Multi-Modal Level of Service Analysis
- School Loading Zone Traffic Simulation
- Phasing Analysis (scope separately as needed)
- Safety/Crash Analysis
- Control-of-Access Modification Justification
- Median Break / Modification Justification
- Other _____

Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

- Div. Traffic Engr Regional Traffic Engr Congestion Management Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

Additional Comments (municipal TIA requirements, approved variations from NCDOT guidelines)



NCDOT TIA Scoping Checklist



Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire 6 months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

Signature	Jael Wagoner, PLA, ASLA Print Name	07/10/2024 Date
-----------	---------------------------------------	--------------------

TIA CONSULTANT

Signature	Baohong Wan, PhD, PE Print Name	07/10/2024 Date
-----------	------------------------------------	--------------------

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

Signature	Print Name	Date
-----------	------------	------

Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division ____ District ____ on _____.

Signature	Print Name
-----------	------------

Email concurrence may be used in lieu of the signature.



NCDOT TIA Submittal Checklist



Submittal: Please Select _____ Document Date: _____
 Project Name: _____ Previous Name: If Applicable _____
 NCDOT Division: _____ District: _____ County: _____ Municipality: _____
 TIA Consultant: _____ Submitted By: _____
 Phone Number: _____ Email: _____
 TIA Scoping Checklist Approval Date: _____ Unadjusted Daily Site Trips: _____

- The approved TIA Scoping Checklist is included in this submittal.
- LOS D or better is expected at all study intersections after proposed mitigations.
- The study report is sealed by a NC Professional Engineer with expertise in traffic engineering.
- This study has identified all known deficiencies with and without the proposed development.
- This study has identified mitigation measures to adequately accommodate the site trips.

Explain here if any of the boxes above are unchecked:

The undersigned affirms that, except for the deviations noted below, the TIA submittal conforms to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and the TIA Scoping Checklist approved by the NCDOT District Office. The undersigned also acknowledges that the TIA will be rejected if the deviations and justifications are not properly documented and approved by NCDOT.

Deviations and Justifications (e.g., changes in site plan, development schedule, site trip and off-site trip estimates, study area, data collection, analysis period and method. Attached separate sheets if needed.)



NC DOT TIA Submittal Checklist



TIA Consultant's Signature
(Professional Engineer of TIA Record)

Print Name

Date

Wan, Baohong

From: Kimes, Tyler J <tjkimes@ncdot.gov>
Sent: Monday, August 12, 2024 8:18 AM
To: Wan, Baohong; Monroe, Roosevelt J; Lineberger, Nicholas C; Thomas, Eric M
Cc: Hartland, D. Lance; Page, Jerry P.; Jael Wagoner; Courtney McQueen
Subject: RE: [External] RE: Summit Church Chatham County TIA Scoping Meeting
Attachments: ChathamCountyChurch_MOU 2024-08-09.pdf

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Baohong,

We are good with the revised MOU. If you have any questions while going through your study please do not hesitate to ask.

Thanks!

Tyler Kimes

Assistant District Supervisor
NCDOT Highway Division 8
District 1 - District Office

336-318-4000 – Office
336-318-4005 – Direct
Tjkimes@ncdot.gov

300 DOT Drive
Asheboro, NC 27205



From: Wan, Baohong <bwan@GFNET.com>
Sent: Friday, August 9, 2024 11:51 AM
To: Kimes, Tyler J <tjkimes@ncdot.gov>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Thomas, Eric M <emthomas@ncdot.gov>
Cc: Hartland, D. Lance <lhartland@gfnet.com>; Page, Jerry P. <jpage@gfnet.com>; Jael Wagoner <JWagoner@Qunity.com>; Courtney McQueen <cmcqueen@Qunity.com>
Subject: RE: [External] RE: Summit Church Chatham County TIA Scoping Meeting

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Tyler,

The revised MOU is attached. Please let us know if you have any questions while we are wrapping up the analysis.

Baohong

Baohong Wan, PhD, PE | Senior Project Manager/Traffic Group Leader

bw@gfnet.com | O 984.389.2552 | C 919.972.1334

From: Wan, Baohong

Sent: Thursday, August 8, 2024 10:35 AM

To: Kimes, Tyler J <tjkimes@ncdot.gov>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Thomas, Eric M <emthomas@ncdot.gov>

Cc: Hartland, D. Lance <lhartland@gfnet.com>; Page, Jerry P. <jpage@gfnet.com>; Jael Wagoner <JWagoner@Qunity.com>; Courtney McQueen <cmcqueen@Qunity.com>

Subject: RE: [External] RE: Summit Church Chatham County TIA Scoping Meeting

Hi Tyler,

The two suggestions make sense.

-A future background development to account for in the study is Vickers Village (roughly 2,300 VPD, see attached TIA) and their future roadway improvements (leftover intersection at Jack Bennett Rd and dual right turns onto 15/501) that should be in place by 2026. **Will do. We will include the 15/501 at Jack Bennett leftover in the future year condition analysis.**

-As far as the future STIP project, it is reasonable to assume that it will be complete or almost complete by 2036. We do believe it will be possible to shift the u-turn bulbs down to align with your northernmost dw better. However, we would like if you studied each future scenario just in case that can not be done (Future Build, Future Build with STIP where u-turn bulbs are currently shown, and Future Build with STIP where u-turn bulbs align with your driveway). **Will do. We will include both conditions in the TIP year analysis.**

We will submit a revised MOU for your record.

Baohong Wan, PhD, PE | Senior Project Manager/Traffic Group Leader

bw@gfnet.com | O 984.389.2552 | C 919.972.1334

From: Kimes, Tyler J <tjkimes@ncdot.gov>

Sent: Thursday, August 8, 2024 9:48 AM

To: Wan, Baohong <bw@GFNET.com>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Thomas, Eric M <emthomas@ncdot.gov>

Cc: Hartland, D. Lance <lhartland@gfnet.com>; Page, Jerry P. <jpage@GFNET.com>; Jael Wagoner <JWagoner@Qunity.com>; Courtney McQueen <cmcqueen@Qunity.com>

Subject: RE: [External] RE: Summit Church Chatham County TIA Scoping Meeting

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Baohong,

We have reviewed your MOU and scoping checklist and have just a few comments:

-A future background development to account for in the study is Vickers Village (roughly 2,300 VPD, see attached TIA) and their future roadway improvements (leftover intersection at Jack Bennett Rd and dual right turns onto 15/501) that should be in place by 2026

-As far as the future STIP project, it is reasonable to assume that it will be complete or almost complete by 2036. We do believe it will be possible to shift the u-turn bulbs down to align with your northernmost dw better. However, we would like if you studied each future scenario just in case that can not be done (Future Build, Future Build with STIP where u-turn bulbs are currently shown, and Future Build with STIP where u-turn bulbs align with your driveway).

Please let me know if you have any questions or would like to discuss further.
Thanks!

Tyler Kimes

Assistant District Supervisor
NCDOT Highway Division 8
District 1 - District Office

336-318-4000 – Office
336-318-4005 – Direct
Tjkimes@ncdot.gov

300 DOT Drive
Asheboro, NC 27205



From: Wan, Baohong <bwana@GFNET.com>
Sent: Tuesday, July 30, 2024 6:44 PM
To: Kimes, Tyler J <tjkimes@ncdot.gov>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Thomas, Eric M <emthomas@ncdot.gov>
Cc: Hartland, D. Lance <lhartland@gfnet.com>; Page, Jerry P. <jpage@gfnet.com>; Jael Wagoner <JWagoner@Qunity.com>; Courtney McQueen <cmcqueen@Qunity.com>
Subject: RE: [External] RE: Summit Church Chatham County TIA Scoping Meeting

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Tyler, Jeron and Nick,

Attached please find the revised memorandum of understanding summarizing the scope of this traffic study. Please let us know if you have any comments or concerns.

I also attached the checklist, but it appears the information would be redundant if the MOU is agreeable.

Baohong

Baohong Wan, PhD, PE | Senior Project Manager/Traffic Group Leader
bw@gfnet.com | O 984.389.2552 | C 919.972.1334

-----Original Appointment-----

From: Wan, Baohong

Sent: Thursday, July 25, 2024 4:03 PM

To: Kimes, Tyler J; Monroe, Roosevelt J; Page, Jerry P.; Jael Wagoner; Courtney McQueen; Lineberger, Nicholas C

Cc: Hartland, D. Lance

Subject: [External] RE: Summit Church Chatham County TIA Scoping Meeting

When: Friday, July 26, 2024 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

TIA scoping and coordination meeting for the Summit Church Chatham County project.

Nick, please feel free to forward the meeting invitation to anyone in your group.

Update (7/25, BWan): Draft MOU is attached.

Microsoft Teams [Need help?](#)

[Join the meeting now](#)

Meeting ID: 268 055 958 412

Passcode: rb3EqP

Dial in by phone

[+1 347-991-7132,,920071252#](tel:+13479917132920071252) United States, New York City

[Find a local number](#)

Phone conference ID: 920 071 252#

Join on a video conferencing device

Tenant key: gannettfleming@m.webex.com

Video ID: 119 806 869 5

[More info](#)

For organizers: [Meeting options](#) | [Reset dial-in PIN](#)

From: Wan, Baohong

Sent: Tuesday, July 23, 2024 5:25 PM

To: Kimes, Tyler J <tjkimes@ncdot.gov>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>

Cc: Page, Jerry P. <jpage@gfnet.com>; Hartland, D. Lance <lhartland@gfnet.com>; Courtney McQueen <cmcqueen@Qunity.com>; Jael Wagoner <JWagoner@Qunity.com>

Subject: RE: [External] RE: Summit Church Chatham County TIA Scoping Meeting

Thanks Tyler! How about this Friday 10am to 11 am? I can send out a Teams invite. We will send out the TIA checklist and draft MOU before the meeting.

We also have availability during the following times just in case:

Friday (7/26) – 10am to 1pm

Tuesday (7/30) – 9am – 2pm

Baohong Wan, PhD, PE | Senior Project Manager/Traffic Group Leader

bwana@gfnet.com | **O** 984.389.2552 | **C** 919.972.1334

From: Kimes, Tyler J <tjkimes@ncdot.gov>

Sent: Tuesday, July 23, 2024 4:36 PM

To: Wan, Baohong <bwana@GFNET.com>

Cc: Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Page, Jerry P. <jpage@GFNET.com>; Hartland, D. Lance <lhartland@gfnet.com>; Courtney McQueen <cmcqueen@Qunity.com>; Jael Wagoner <JWagoner@Qunity.com>

Subject: RE: [External] RE: Summit Church Chatham County TIA Scoping Meeting

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon Baohong,

Our apologies for the delay in getting back to you. We will be more than happy to meet to discuss this site. We are available the following dates:

Thursday (7/25) – anytime after 10am

Friday (7/26) – anytime after 10am

Tuesday (7/30) – 3pm

Friday (8/2) – Anytime after 10am

Just let us know. Thanks!

Tyler Kimes

Assistant District Supervisor

NCDOT Highway Division 8

District 1 - District Office

336-318-4000 – Office

336-318-4005 – Direct

Tjkimes@ncdot.gov

300 DOT Drive

Asheboro, NC 27205



From: Wan, Baohong <bwan@GFNET.com>
Sent: Monday, July 22, 2024 9:59 AM
To: Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Kimes, Tyler J <tjkimes@ncdot.gov>
Cc: Page, Jerry P. <jpage@gfnet.com>; Hartland, D. Lance <lhartland@gfnet.com>; Courtney McQueen <cmcqueen@Qunity.com>; Jael Wagoner <JWagoner@Qunity.com>
Subject: [External] RE: Summit Church Chatham County TIA Scoping Meeting

Some people who received this message don't often get email from bwan@gfnet.com. [Learn why this is important](#)

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Jeron and Tyler,

Do you have any time this week to meet with us on this project? We would like to wrap up the analysis assumptions so we can move forward with capacity analyses on this one.

Thank you!

Baohong Wan, PhD, PE | Senior Project Manager/Traffic Group Leader
bwan@gfnet.com | O 984.389.2552 | C 919.972.1334

From: Wan, Baohong
Sent: Thursday, July 11, 2024 10:05 AM
To: Angela Plummer <angela.plummer@chathamcountync.gov>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Kimes, Tyler J <tjkimes@ncdot.gov>
Cc: Chance Mullis <chance.mullis@chathamcountync.gov>; Thanh Schado <thanh.schado@chathamcountync.gov>; Jason Sullivan <jason.sullivan@chathamcountync.gov>; Page, Jerry P. <jpage@gfnet.com>; Hartland, D. Lance <lhartland@gfnet.com>; Courtney McQueen <cmcqueen@Qunity.com>; Jael Wagoner <JWagoner@Qunity.com>
Subject: RE: Summit Church Chatham County TIA Scoping Meeting

Thank you Angela! We will coordinate with Jeron and his staff, and make sure the TIA is meeting the department's standards.

Baohong Wan, PhD, PE | Senior Project Manager/Traffic Group Leader
bwan@gfnet.com | O 984.389.2552 | C 919.972.1334

From: Angela Plummer <angela.plummer@chathamcountync.gov>
Sent: Thursday, July 11, 2024 9:42 AM
To: Wan, Baohong <bwan@GFNET.com>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>; Kimes, Tyler J <tjkimes@ncdot.gov>; Page, Jerry P. <jpage@GFNET.com>; Hartland, D. Lance <lhartland@gfnet.com>; Hartland, D. Lance <lhartland@gfnet.com>; Courtney McQueen <cmcqueen@Qunity.com>
Cc: Chance Mullis <chance.mullis@chathamcountync.gov>; Thanh Schado <thanh.schado@chathamcountync.gov>

Jason Sullivan <jason.sullivan@chathamcountync.gov>

Subject: RE: Summit Church Chatham County TIA Scoping Meeting

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Baohong,

We generally do not meet with the consultants, NCDOT, etc. when putting together a TIA. All we will need is the final analysis and report to be submitted to our office prior to the public hearing scheduled for August 19th. Please email me and Thank those documents when they are ready.

Thank you,

Angela Plummer

Angela Plummer, CZO
Zoning Administrator/Planner II
Chatham County Planning Dept.
PO Box 54
Pittsboro, NC 27312
Ph: 919-542-8285

www.chathamcountync.gov/planning

Plan Moncure has been adopted and you can view the small area plan at <https://www.recodechathamnc.org/planmoncure>



Recode Chatham is underway and you can view the status and register for updates on www.recodechathamnc.org

In keeping with the NC Public Records Law, emails, including attachments, may be released to others upon request for inspection and copying.

From: Chance Mullis <chance.mullis@chathamcountync.gov>

Sent: Thursday, July 11, 2024 9:23 AM

To: Angela Plummer <angela.plummer@chathamcountync.gov>

Subject: Fw: Summit Church Chatham County TIA Scoping Meeting

Chance Mullis, AICP, CZO

Assistant Planning Director | UDO Project Manager | Chatham County

919-545-8366 | 80-A East Street, Pittsboro, NC 27312

Recode Chatham is underway and you can view the status and register for updates at www.recodechathamnc.org

Plan Moncure has been adopted and you can view the small area plan at <https://www.recodechathamnc.org/planmoncure>

In keeping with the NC Public Records Law, e-mails, including attachments, may be released to others upon request for inspection and copying.

From: Wan, Baohong <bwan@GFNET.com>
Sent: Wednesday, July 10, 2024 4:49 PM
To: Jason Sullivan <jason.sullivan@chathamcountync.gov>; Monroe, Roosevelt J <rjmonroe@ncdot.gov>
Cc: Chance Mullis <chance.mullis@chathamcountync.gov>; tjkimes@ncdot.gov <tjkimes@ncdot.gov>; Page, Jerry P. <jpage@GFNET.com>; Hartland, D. Lance <lhartland@gfnet.com>; Jael Wagoner <JWagoner@Qunity.com>; Courtney McQueen <cmcqueen@Qunity.com>
Subject: Summit Church Chatham County TIA Scoping Meeting

Page originated from outside the Chatham County email system. Do not click links or open attachments unless you recognize the sender and know the content.

Jason and Jeron,

Hope you both are doing well. Gannett Fleming is working with Qunity for a new church project at 9780 US 15-501 N, Chapel Hill, NC. Would you be able to meet with us, preferably in the next couple weeks, to kick off the traffic study? If you can provide your availability, we can coordinate.

Additionally, I drafted the TIA checklist with project data and basic information. The site plan, traffic counts, and a traffic summary letter (required as part of rezoning submittal to the City) are also attached for you information.

We appreciate you help, and are looking forward to collaborating with you in this project!

Baohong

Baohong Wan, PhD, PE | Traffic Group Leader
Gannett Fleming | One Glenwood Avenue, Suite 900, Raleigh, NC 27603
O 984.389.2552 | **C** 919.972.1334 | **F** 919.999.3632 | bwan@gfnet.com
Excellence Delivered As Promised
gannettfleming.com | Stay connected: [LinkedIn](#) | [Facebook](#) | [Twitter](#)

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Appendix B: Traffic Turning Movement Counts

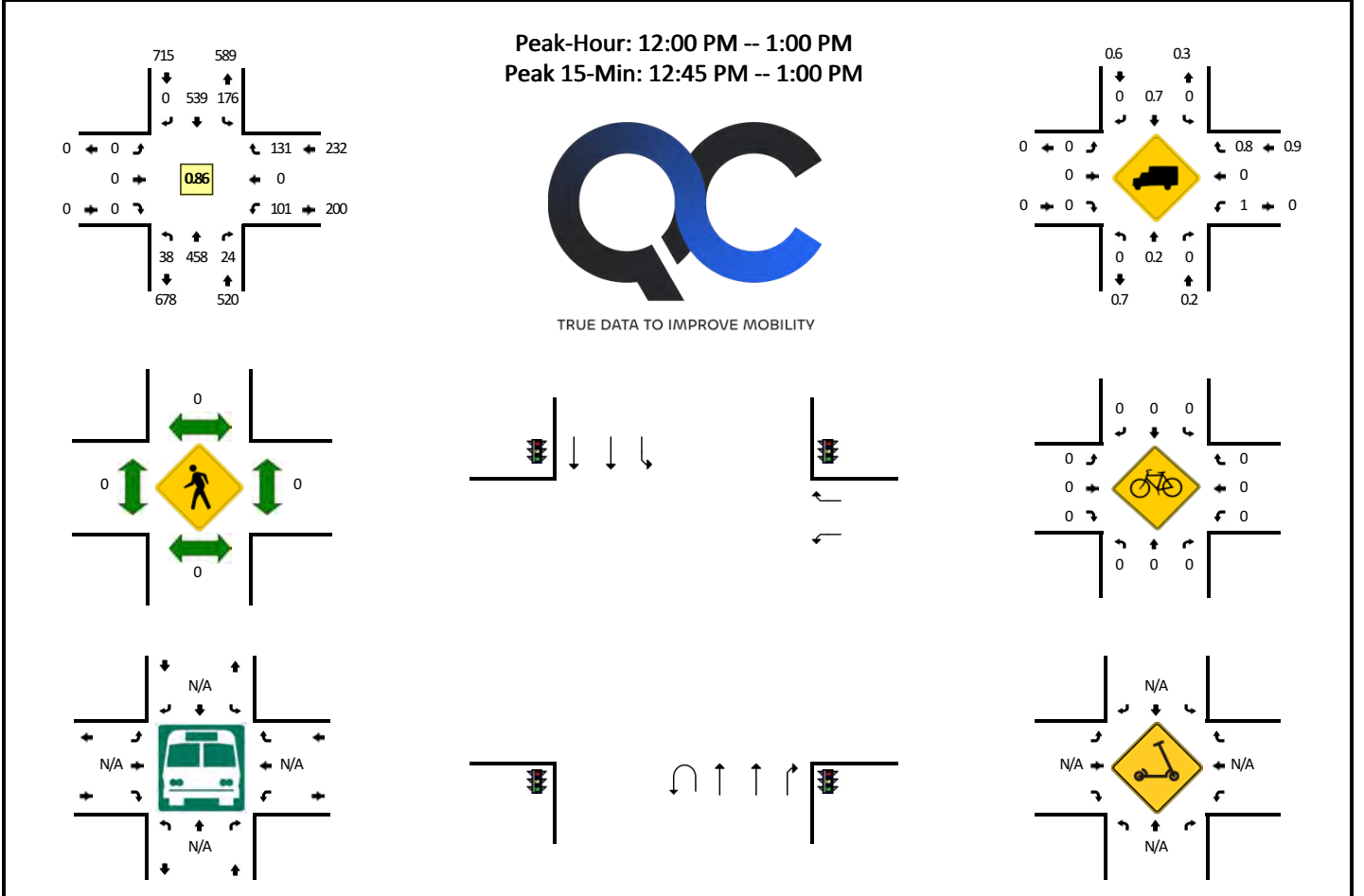
B

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: US 15-501 -- Lystra Rd
CITY/STATE: Chatham, NC

QC JOB #: 16624101
DATE: Sun, May 19 2024



15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Lystra Rd (Eastbound)				Lystra Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	113	5	5	30	75	0	1	0	0	0	0	16	0	20	0	265	
10:15 AM	0	140	5	7	37	87	0	2	0	0	0	0	19	0	31	0	328	
10:30 AM	0	146	8	8	37	96	0	1	0	0	0	0	18	0	37	0	351	
10:45 AM	0	139	6	2	40	92	0	0	0	0	0	0	28	0	33	0	340	1284
11:00 AM	0	99	6	6	34	96	0	0	0	0	0	0	15	0	22	0	278	1297
11:15 AM	0	110	5	5	34	103	0	0	0	0	0	0	17	0	31	0	305	1274
11:30 AM	0	112	7	8	33	95	0	0	0	0	0	0	16	0	28	0	299	1222
11:45 AM	0	100	9	4	35	117	0	2	0	0	0	0	19	0	23	0	309	1191
12:00 PM	0	102	6	11	43	125	0	0	0	0	0	0	22	0	28	0	337	1250
12:15 PM	0	124	3	12	44	128	0	0	0	0	0	0	21	0	29	0	361	1306
12:30 PM	0	105	8	5	40	126	0	0	0	0	0	0	27	0	30	0	341	1348
12:45 PM	0	127	7	10	49	160	0	0	0	0	0	0	31	0	44	0	428	1467
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	508	28	40	196	640	0	0	0	0	0	0	124	0	176	0	1712	
Heavy Trucks	0	4	0		0	8	0		0	0	0		0	0	4		16	
Buses																		
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles	0	0			0	0			0	0			0	0			0	
Scoters																		

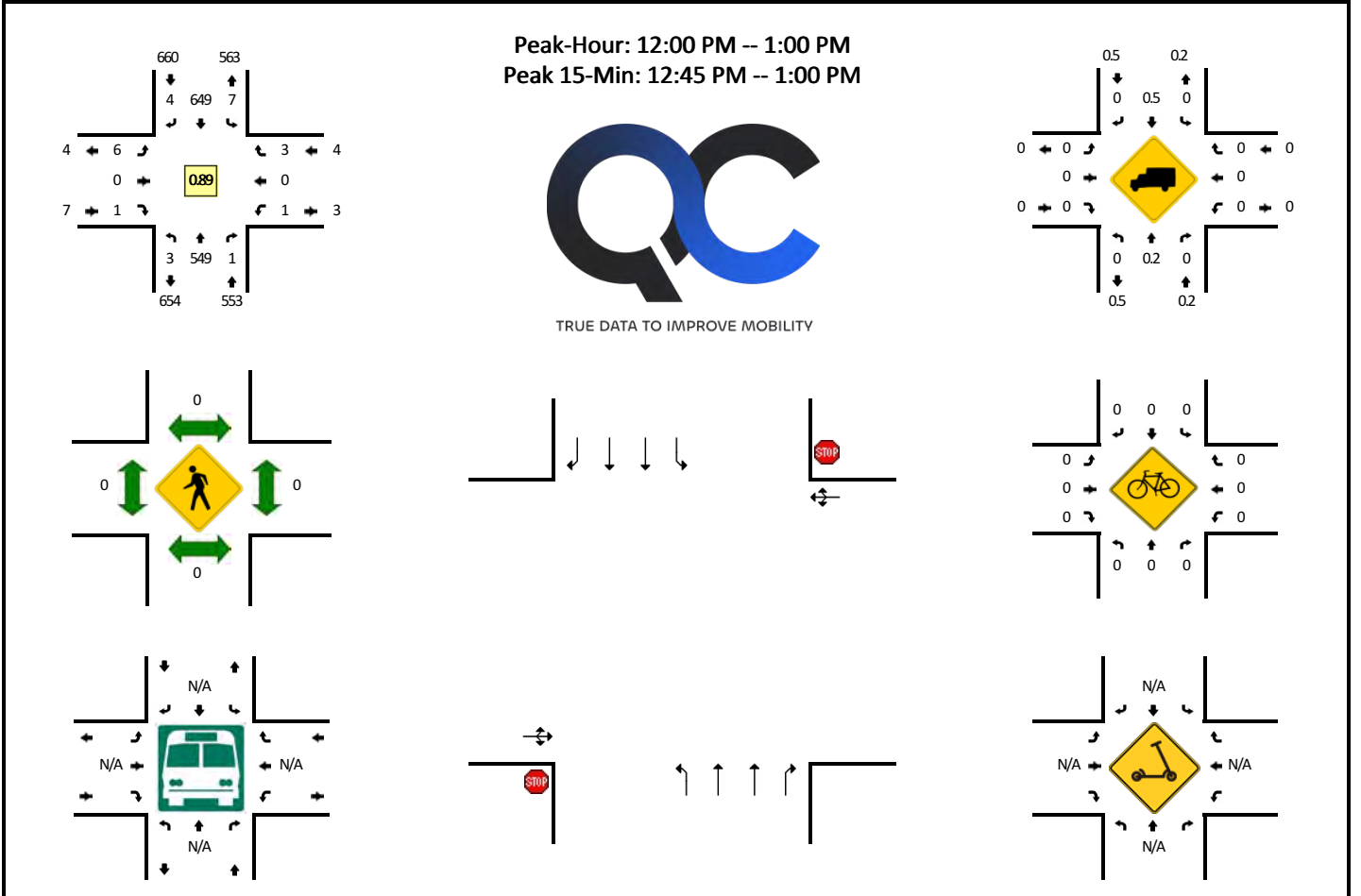
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: US 15-501 -- Poplar St/Hidden Oaks Dr
CITY/STATE: Chatham, NC

QC JOB #: 16624102
DATE: Sun, May 19 2024



15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Poplar St/Hidden Oaks Dr (Eastbound)				Poplar St/Hidden Oaks Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	153	0	0	0	97	0	0	0	0	0	1	0	0	0	0	251	
10:15 AM	0	147	0	0	2	113	1	1	2	0	0	0	0	0	0	0	266	
10:30 AM	1	148	0	0	0	119	1	0	0	0	0	1	0	0	0	0	270	
10:45 AM	0	165	0	1	0	120	0	1	1	0	0	0	0	0	0	0	288	1075
11:00 AM	0	120	0	0	0	121	1	0	0	0	0	0	0	0	1	0	243	1067
11:15 AM	1	132	1	0	0	119	1	1	1	0	0	0	0	0	1	0	257	1058
11:30 AM	0	122	0	2	0	113	0	1	1	0	0	1	0	0	0	0	240	1028
11:45 AM	0	127	0	0	0	142	2	1	0	0	0	3	0	0	0	0	275	1015
12:00 PM	0	134	0	0	0	150	1	1	2	0	0	0	0	1	0	0	289	1061
12:15 PM	0	127	1	0	0	165	1	0	2	0	0	1	0	0	0	2	299	1103
12:30 PM	0	134	0	2	1	150	2	1	2	0	0	0	0	0	0	1	293	1156
12:45 PM	0	154	0	1	1	184	0	3	0	0	0	0	0	0	0	0	343	1224
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	616	0	4	4	736	0	12	0	0	0	0	0	0	0	0	1372	
Heavy Trucks	0	4	0		0	4	0		0	0	0	0	0	0	0	0	8	
Buses																		
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles	0	0			0	0			0	0			0	0			0	
Scoters																		

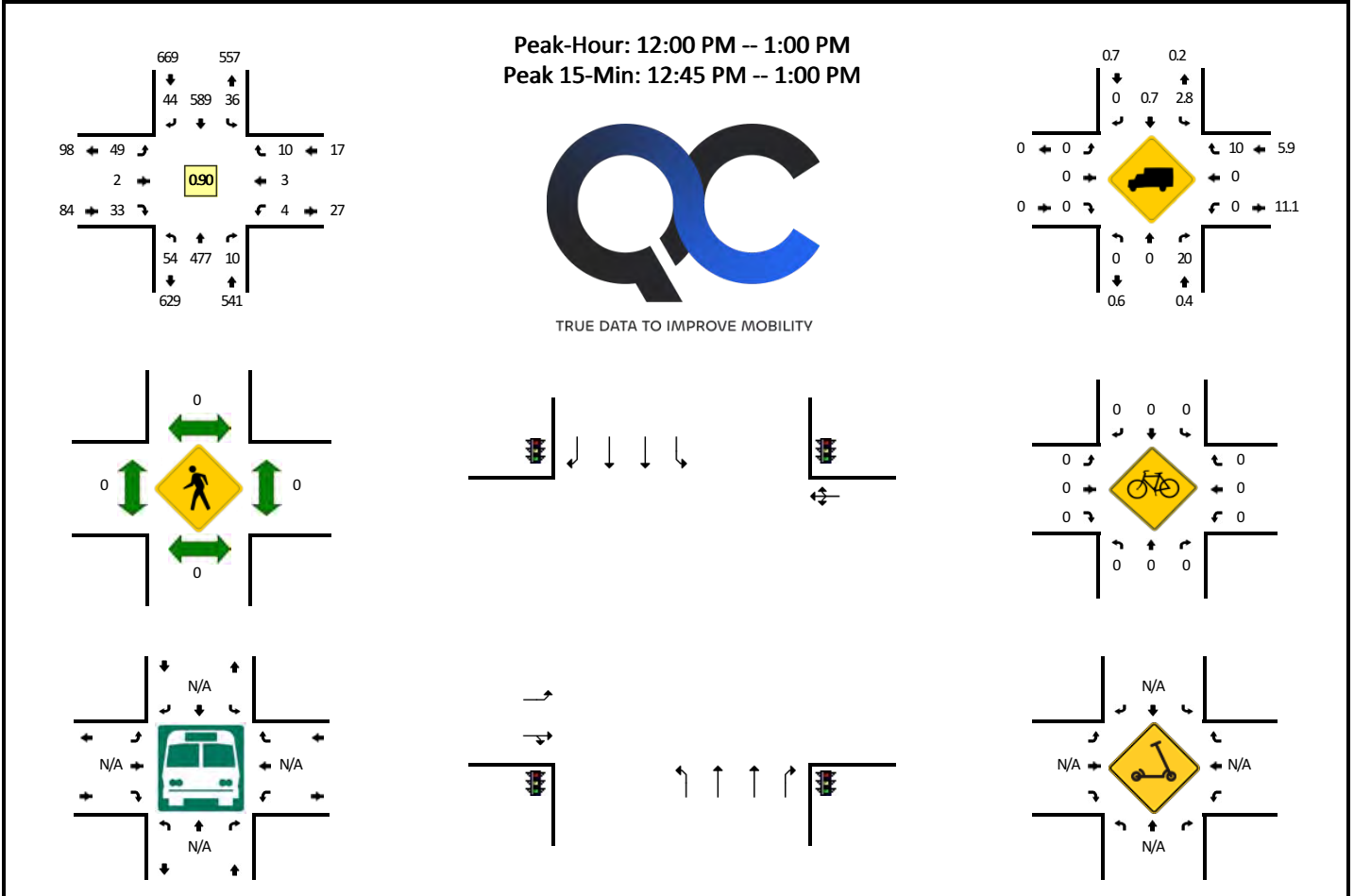
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: US 15-501 -- Briar Chapel Pkwy/Vickers Rd
CITY/STATE: Chatham, NC

QC JOB #: 16624103
DATE: Sun, May 19 2024



15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Briar Chapel Pkwy/Vickers Rd (Eastbound)				Briar Chapel Pkwy/Vickers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	12	140	2	0	4	89	4	5	12	1	9	0	0	0	4	0	282	
10:15 AM	7	129	1	0	0	98	10	2	11	0	3	0	0	0	4	0	265	
10:30 AM	6	138	0	0	2	113	7	1	9	0	4	0	2	1	3	0	286	
10:45 AM	7	144	2	0	2	106	9	4	10	1	10	0	1	0	4	0	300	1133
11:00 AM	7	99	2	1	2	109	10	3	14	0	6	0	2	0	1	0	256	1107
11:15 AM	9	111	3	1	1	108	10	5	11	0	6	0	0	0	6	0	271	1113
11:30 AM	8	109	0	0	2	107	10	2	10	0	8	0	1	0	4	0	261	1088
11:45 AM	8	109	2	0	1	129	5	6	9	0	10	0	1	0	3	0	283	1071
12:00 PM	13	123	2	0	2	140	9	3	12	0	2	0	1	0	1	0	308	1123
12:15 PM	15	105	3	0	4	144	10	6	15	0	7	0	1	0	1	0	311	1163
12:30 PM	14	119	3	2	6	133	13	7	12	1	12	0	1	1	4	0	328	1230
12:45 PM	9	130	2	1	3	172	12	5	10	1	12	0	1	2	4	0	364	1311
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	36	520	8	4	12	688	48	20	40	4	48	0	4	8	16	0	1456	
Heavy Trucks	0	0	0		0	8	0		0	0	0		0	0	4		12	
Buses																		
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

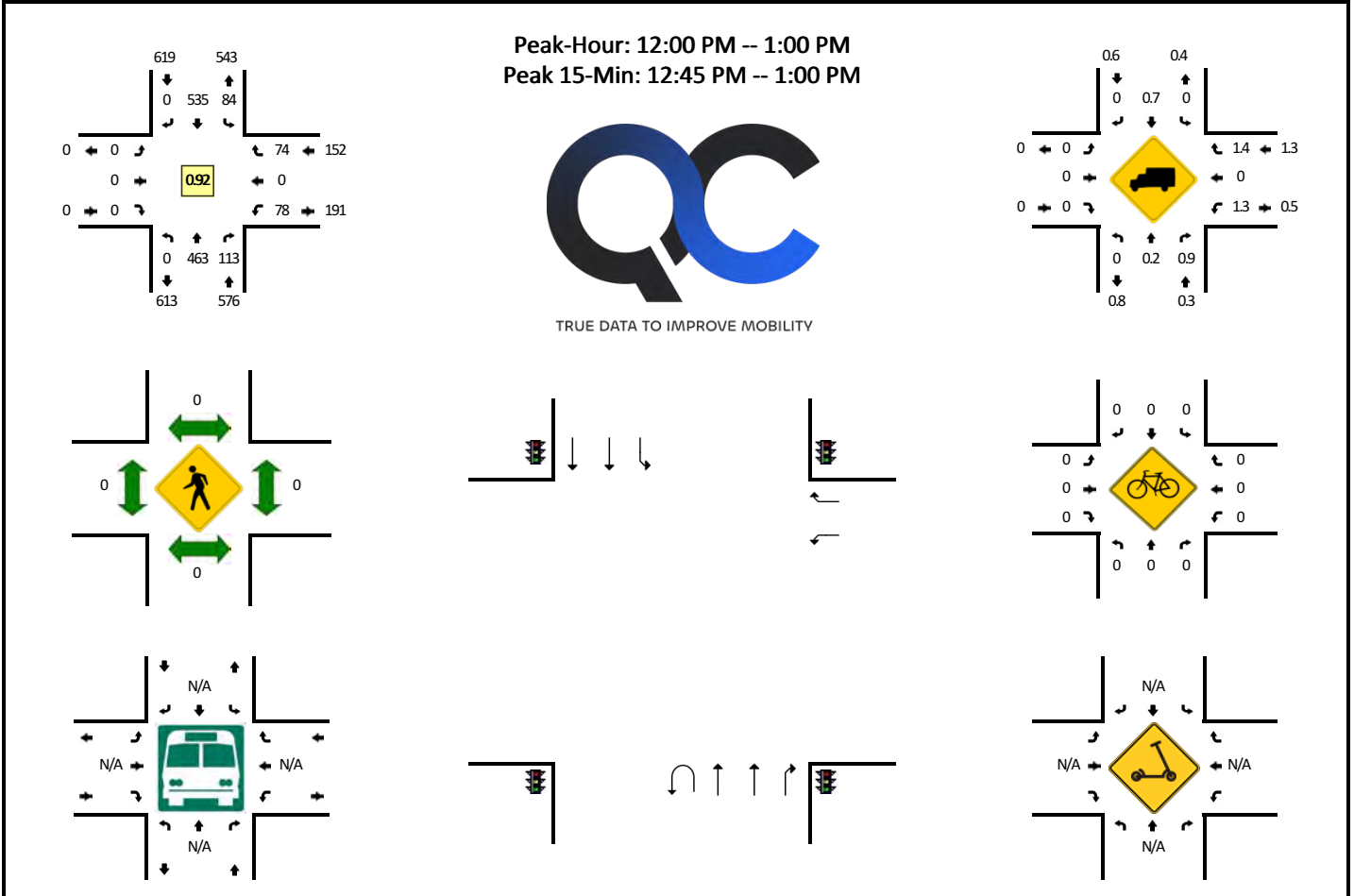
Comments:

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: US 15-501 -- Jack Bennett Rd
CITY/STATE: Chatham, NC

QC JOB #: 16624104
DATE: Sun, May 19 2024



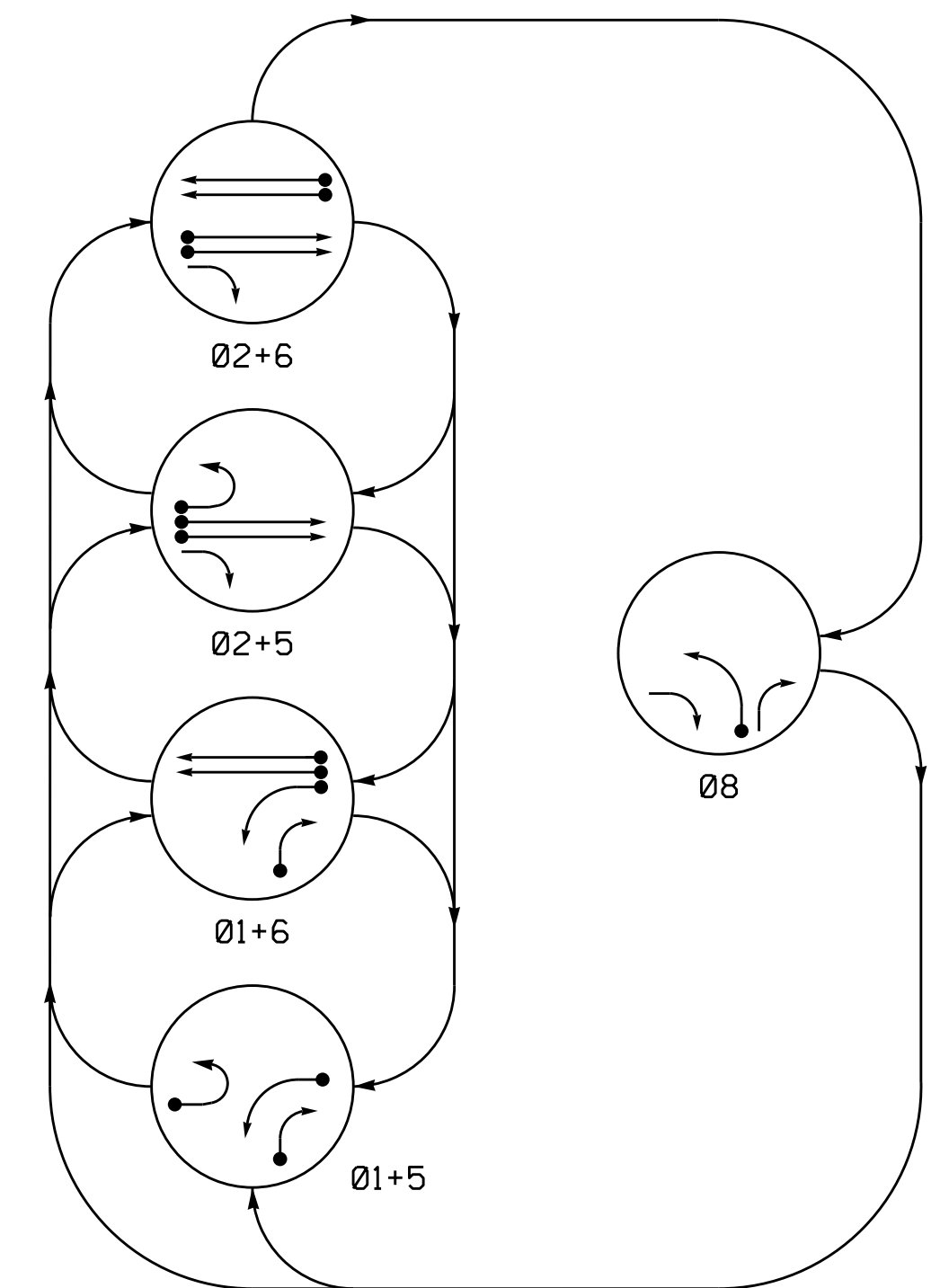
15-Min Count Period Beginning At	US 15-501 (Northbound)				US 15-501 (Southbound)				Jack Bennett Rd (Eastbound)				Jack Bennett Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	129	22	0	13	85	0	0	0	0	0	0	22	0	24	0	295	
10:15 AM	0	121	24	0	17	86	0	0	0	0	0	0	22	0	17	0	287	
10:30 AM	0	123	16	0	10	107	0	0	0	0	0	0	24	0	17	0	297	
10:45 AM	0	135	33	0	15	97	0	2	0	0	0	0	20	0	21	0	323	1202
11:00 AM	0	99	11	0	12	105	0	0	0	0	0	0	21	0	13	0	261	1168
11:15 AM	0	105	22	0	20	100	0	1	0	0	0	0	12	0	20	0	280	1161
11:30 AM	0	98	24	0	12	96	0	0	0	0	0	0	23	0	12	0	265	1129
11:45 AM	0	99	34	0	19	125	0	0	0	0	0	0	23	0	23	0	323	1129
12:00 PM	0	123	20	0	15	125	0	2	0	0	0	0	15	0	12	0	312	1180
12:15 PM	0	100	36	0	17	137	0	2	0	0	0	0	17	0	22	0	331	1231
12:30 PM	0	125	33	0	20	124	0	1	0	0	0	0	18	0	16	0	337	1303
12:45 PM	0	115	24	0	26	149	0	1	0	0	0	0	28	0	24	0	367	1347
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	460	96	0	104	596	0	4	0	0	0	0	112	0	96	0	1468	
Heavy Trucks	0	0	0	0	0	8	0	0	0	0	0	0	4	0	0	0	12	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scoters																		

Comments:

Appendix C: Traffic Signal Plans

C

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- ←○→ UNSIGNALIZED MOVEMENT
- ←○→ PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø8	F
11	—	—	—	—	—	—
22	R	R	G	G	R	Y
23	R	R	G	G	R	Y
51	R	R	R	R	R	R
61, 62	R	G	R	G	R	Y
81	R	R	R	R	G	R
82	R	R	R	R	G	R

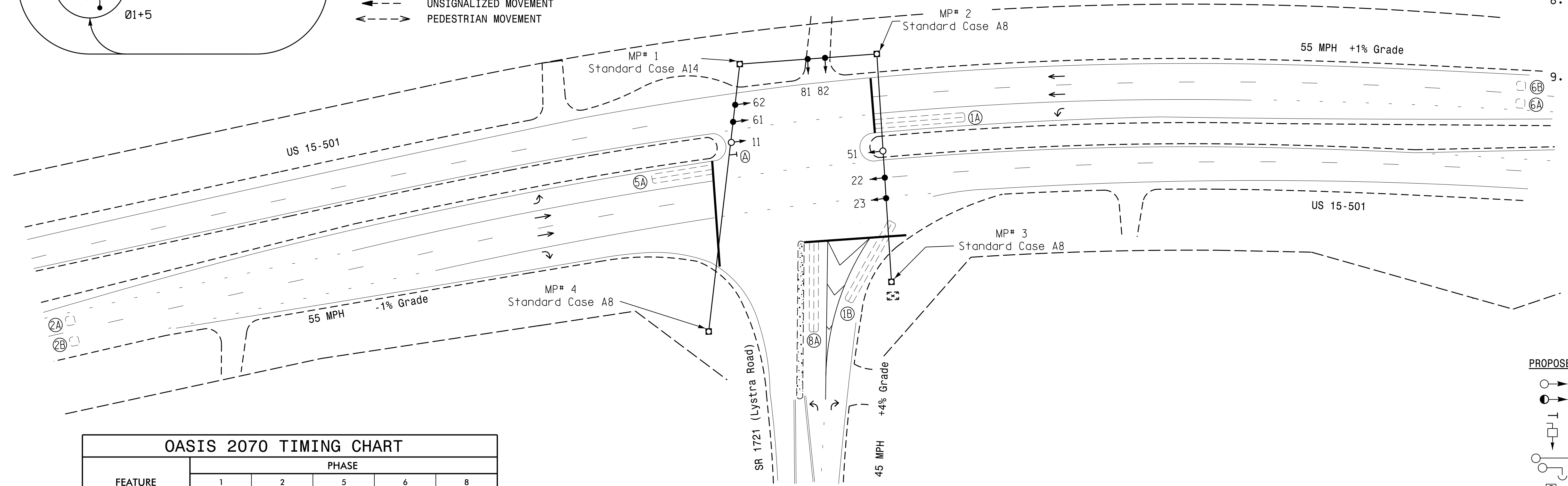
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	FULL TIME DELAY		
IA	6X60	0	2-4-2	-	1	Y	Y	-	-	-
IB	6X60	+10	2-4-2	-	1	Y	Y	-	-	-
2A	6X6	420	4	-	2	Y	Y	-	-	-
2B	6X6	420	4	-	2	Y	Y	-	-	-
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	Y
6A	6X6	420	4	-	6	Y	Y	-	-	-
6B	6X6	420	4	-	6	Y	Y	-	-	-
8A	6X60	0	2-4-2	-	8	Y	Y	-	-	-

3 Phase
Fully Actuated
(US 15-501 CLS)
Signal System #: 10822

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Renumber existing loop 2C as 5A.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Pavement markings are existing.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data:
Controller Asset #: 0429.

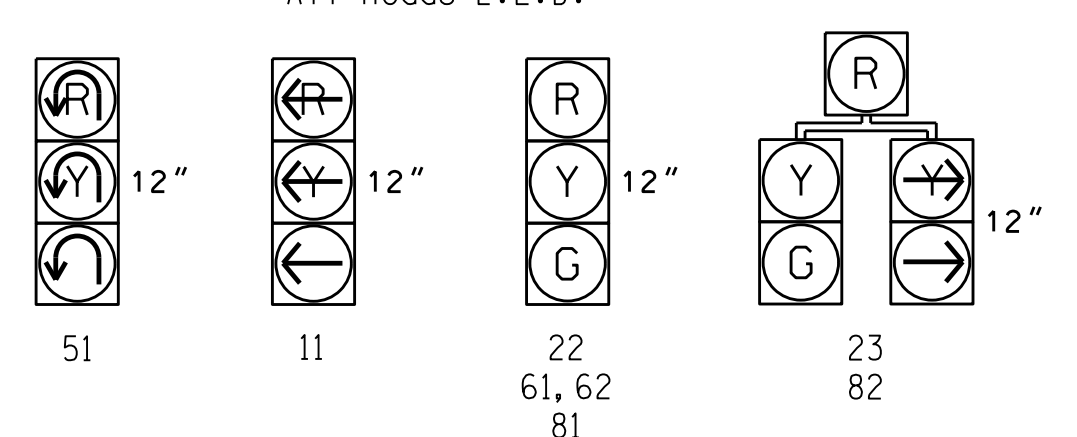


OASIS 2070 TIMING CHART

FEATURE	PHASE				
	1	2	5	6	8
Min Green 1 *	7	14	7	14	7
Extension 1 *	1.0	6.0	1.0	6.0	1.0
Max Green 1 *	25	120	25	120	40
Yellow Clearance	3.0	5.3	3.0	5.1	3.0
Red Clearance	3.1	1.2	2.4	1.1	3.1
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	1.5	-
Max Variable Initial *	-	46	-	45	-
Time Before Reduction *	-	15	-	15	-
Time To Reduce *	-	30	-	30	-
Minimum Gap	-	4.0	-	4.0	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

SIGNAL FACE I.D.
All Heads L.E.D.



LEGEND

- | PROPOSED | EXISTING |
|----------|----------|
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Signal Upgrade

US 15-501 at SR 1721 (Lystra Road)

Division 8 Chatham County NE of Pittsboro

PLAN DATE: December 2019 REVIEWED BY: I.O. Imozurike

PREPARED BY: M. LeShure REVIEWED BY:

SEAL

ROBERT J. ZIEMBA

ENGINEER

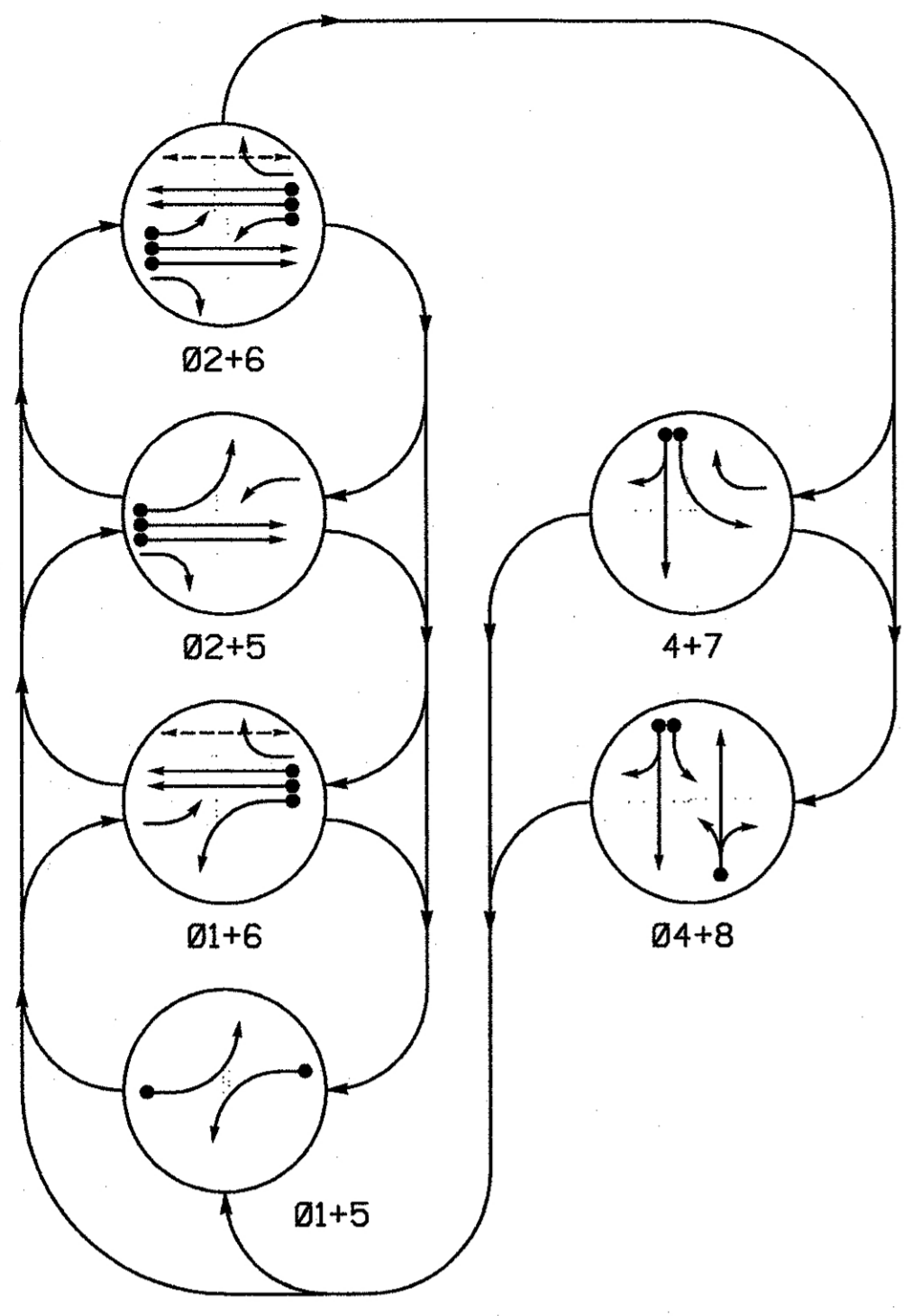
12/19/2019

SIG. INVENTORY NO. 08-0429

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 0 40
1"=40'

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

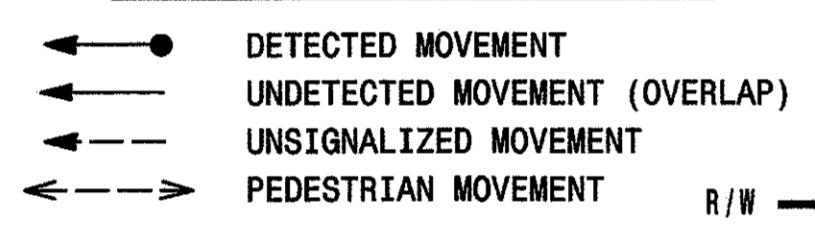
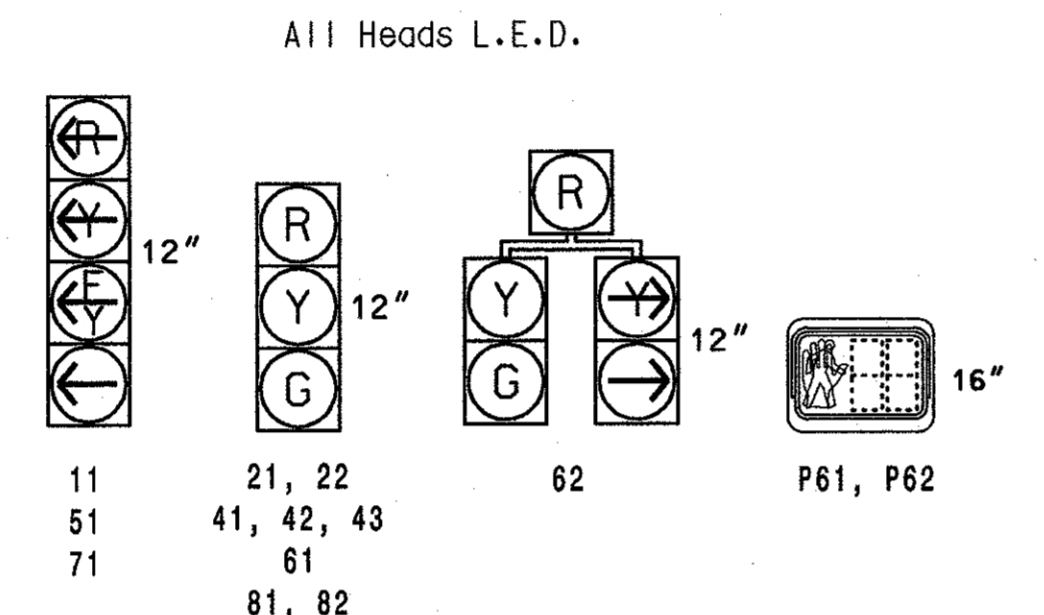


TABLE OF OPERATION

SIGNAL FACE	PHASE							
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+7	Ø4+8	F	FL
11								
21, 22	R	R	G	G	R	R	Y	
41, 42, 43	R	R	R	R	G	G	R	
51								
61	R	G	R	G	R	R	Y	
62	R	G	R	G	R	R	Y	
71	R	R	R	R	R	R	Y	
81, 82	R	R	R	R	R	G	R	
P61, P62	DW	W	DW	W	DW	DW	DRK	

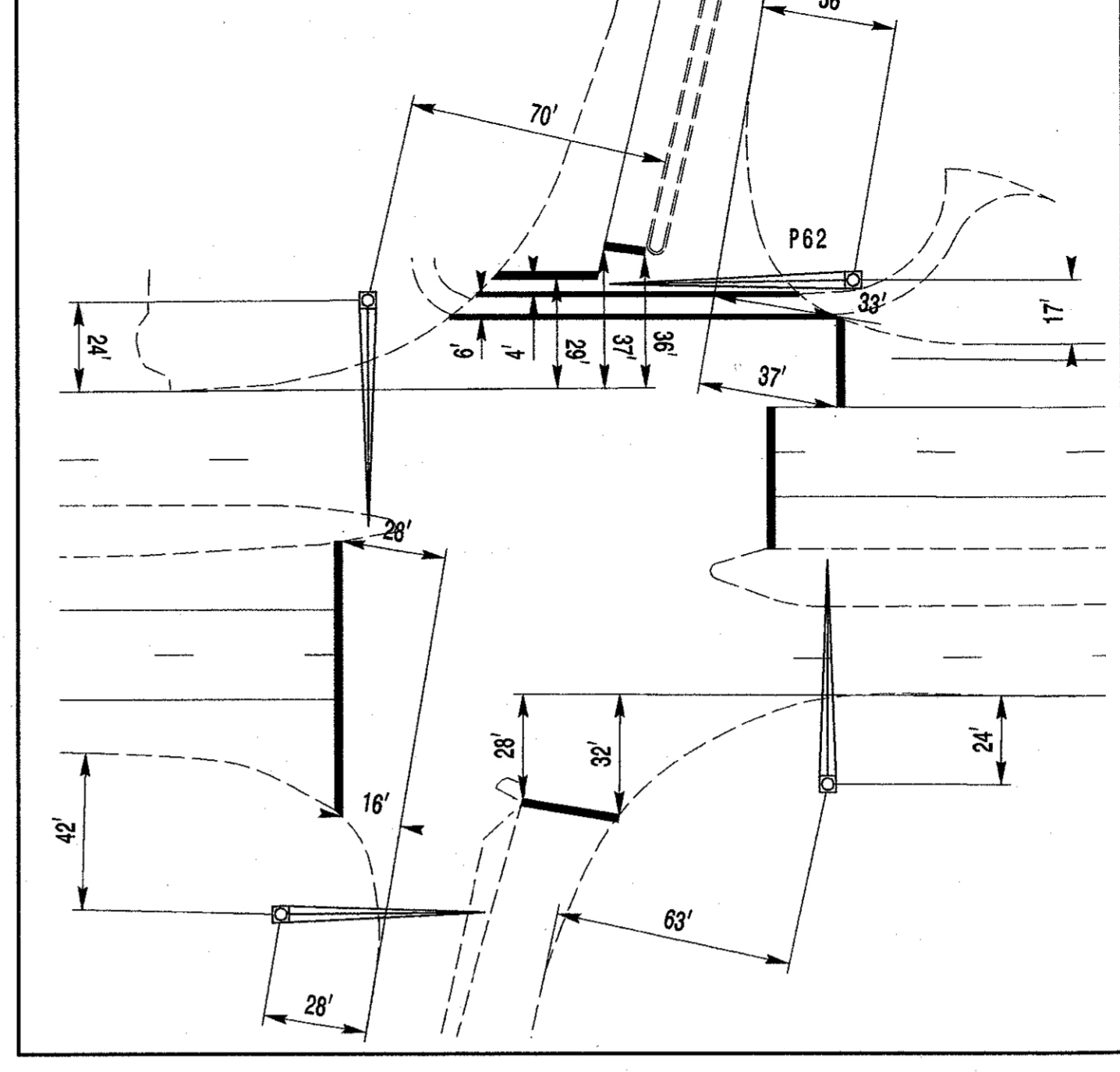
SIGNAL FACE I.D.



OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING							
				PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD	
1A	6X40	0	2-4-2	Y	Y	Y	-	-	15	-	Y
2A	6X6	420	6	Y	Y	Y	-	-	-	-	Y
2B	6X6	420	6	Y	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-
4B	6X6	0	4	Y	4	Y	Y	-	-	15	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-
6A	6X6	420	6	Y	6	Y	Y	-	-	-	Y
6B	6X6	420	6	Y	6	Y	Y	-	-	-	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-
S13	6X6	+200	5	Y	-	-	-	-	-	-	Y
S14	6X6	+200	5	Y	-	-	-	-	-	-	Y
S15	6X6	+200	5	Y	-	-	-	-	-	-	Y
S16	6X6	+200	5	Y	-	-	-	-	-	-	Y

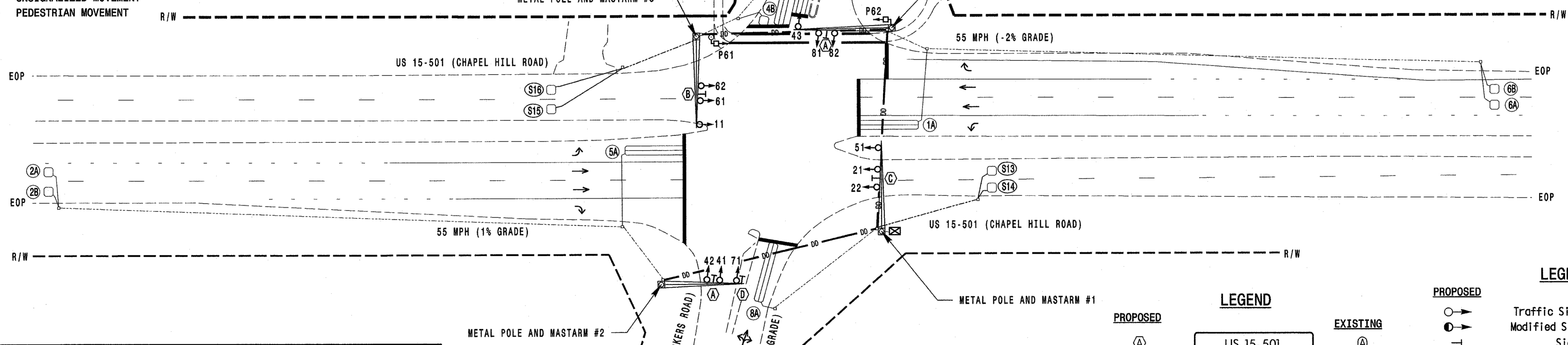
STOP LINE AND POLE LOCATION DIAGRAM



6 PHASE FULLY ACTUATED (US 15-501 CLOSED-LOOP SYSTEM)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012, "Standard Specifications for Roads and Structures" dated January 2012, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: <http://www.ncdot.org/doh/preconstruct/traffic/itss/>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Omit Phase 7 during phase 8.
- Phase 1 and/or phase 5 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- Closed loop system data: Local Asset: 1090.
- Metal poles and mastarms and pedestrian pedestals shall be powder coated black.

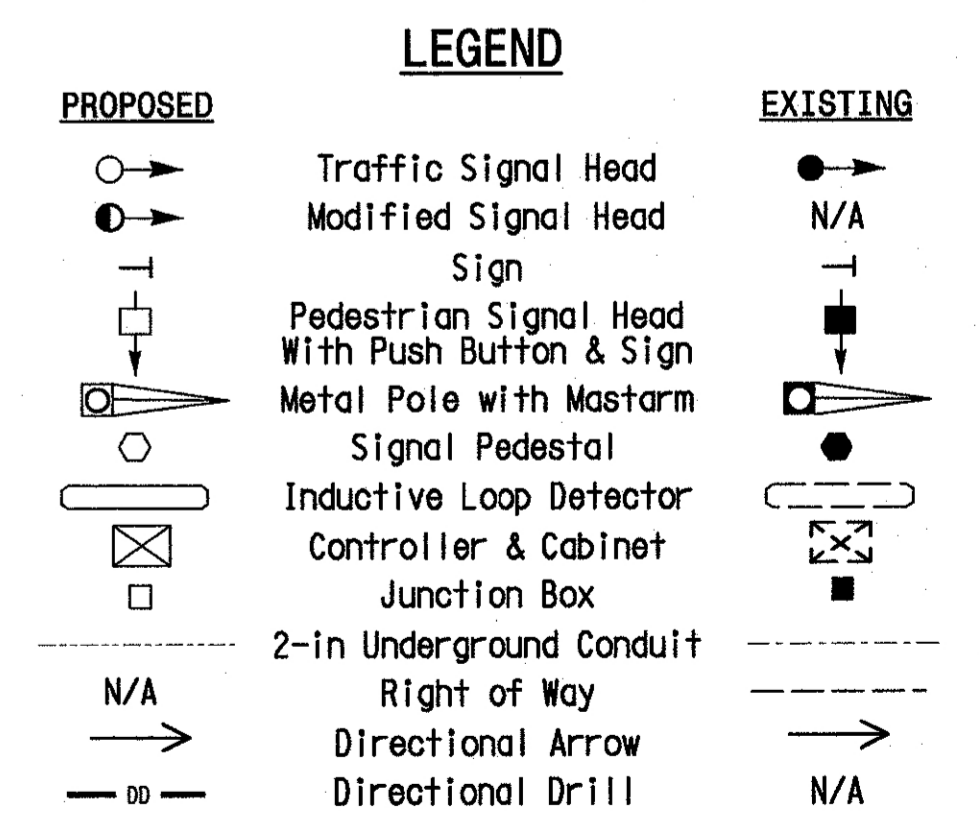
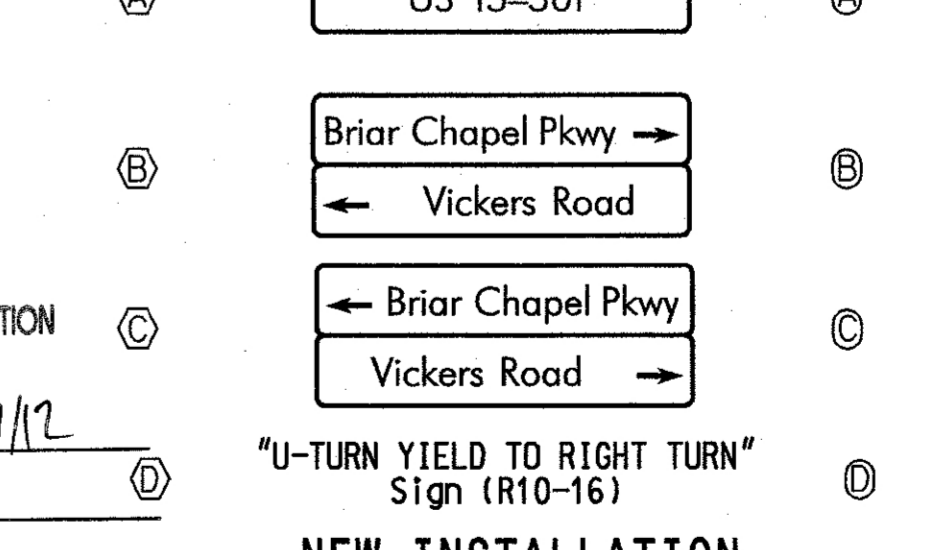


OASIS 2070L TIMING CHART

FEATURE	PHASE							
	1	2	4	5	6	7	8	
Min Green 1 *	7	14	7	7	14	7	7	
Extension 1 *	2.0	6.0	2.0	2.0	6.0	2.0	2.0	
Max Green 1 *	30	90	40	30	90	30	40	
Yellow Clearance	3.0	5.4	3.9	3.0	5.4	3.0	4.2	
Red Clearance	3.3	1.1	2.7	3.5	1.1	3.3	2.7	
Walk 1 *	-	-	-	-	7	-	-	
Don't Walk 1	-	-	-	-	22	-	-	
Seconds Per Actuation *	-	1.5	-	-	1.5	-	-	
Max Variable Initial *	-	46	-	-	46	-	-	
Time Before Reduction *	-	15	-	-	15	-	-	
Time To Reduce *	-	45	-	-	45	-	-	
Minimum Gap	-	3.4	-	-	3.4	-	-	
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-	-	
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	
Dual Entry	-	ON	-	-	ON	-	ON	
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

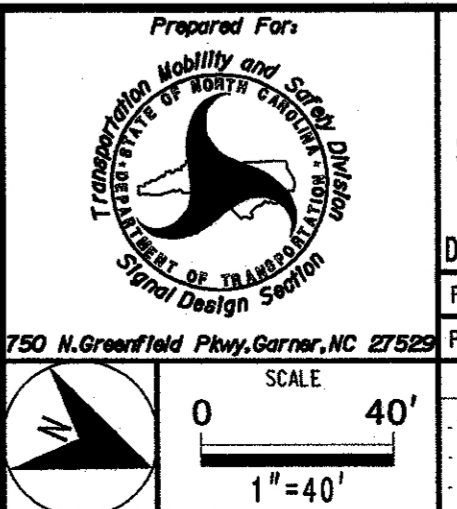
LEGEND



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
FINAL DRAWING Date: 2/1/12
Traffic Engineering Branch

NEW INSTALLATION

PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 671-2000

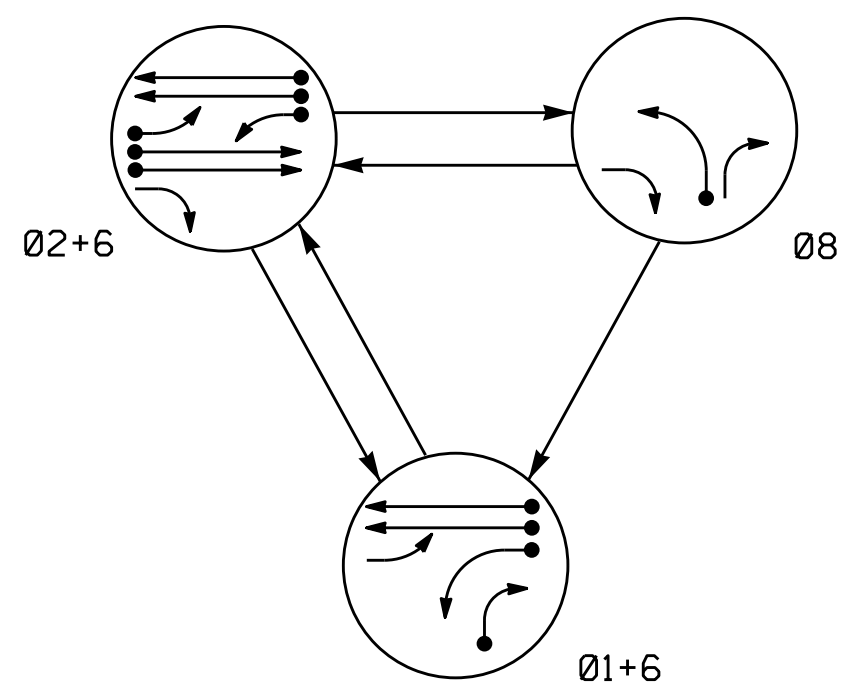


US 15-501 (CHAPEL HILL ROAD) AT SR 1634 (BRIAR CHAPEL PARKWAY) AND SR 1719 (VICKERS ROAD)
DIVISION 8 CHATHAM COUNTY NEAR CHAPEL HILL
PLAN DATE: SEPTEMBER 2011 REVIEWED BY:
PREPARED BY: SP PENNINGTON REVIEWED BY: SL PHILLIPS
REVISIONS: INIT. DATE

SEAL
STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL 032607
S.L. PHILLIPS
1-25-12
SIGNATURE DATE
SIG. INVENTORY NO. 08-1090

1/25/2012 11:40:19 AM susan.pennington K:\REAL_Roadway\012741000 (Briar Chapel) \MPL\ans\ginal\ss4 - Signal Design\08-1090_2011.dgn

PHASING DIAGRAM



SIGNAL FACE	PHASE			
	01+6	02+6	08	F
11	F	R	Y	Y
21	F	F	R	Y
22	R	G	R	Y
23	R	G	R	Y
61, 62	G	G	R	Y
81	R	R	G	R
82	R	R	G	R

2070L LOOP & DETECTOR INSTALLATION												
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING						SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME	NEW LOOP		
1A	6X40	0	2-4-2	-	1	Y	Y	-	15	-	-	
1B	6X40*	0	2-4-2	-	1	Y	Y	-	15	-	-	
2A	6X6	420	Existing	-	2	Y	Y	-	-	-	-	
2B	6X6	420	Existing	-	2	Y	Y	-	-	-	-	
2C	6X40	0	2-4-2	-	2	Y	Y	-	3	-	-	
6A	6X6	420	Existing	-	6	Y	Y	-	-	-	-	
6B	6X6	420	Existing	-	6	Y	Y	-	-	-	-	
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	-	-	
S3	6X6	+150	Existing	-	-	-	-	-	-	Y	-	
S4	6X6	+150	Existing	-	-	-	-	-	-	Y	-	
S5	6X6	+150	Existing	-	-	-	-	-	-	Y	-	
S6	6X6	+150	Existing	-	-	-	-	-	-	Y	-	

3 Phase Fully Actuated (US 15-501 CLS)

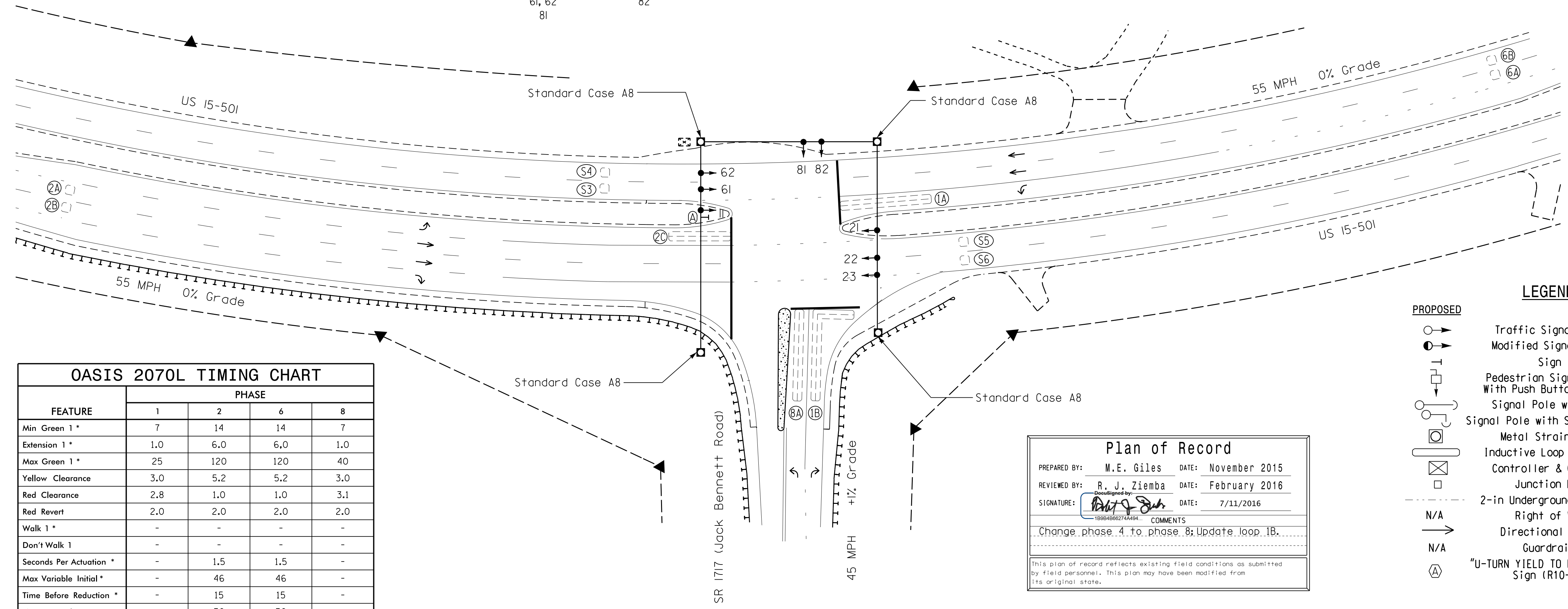
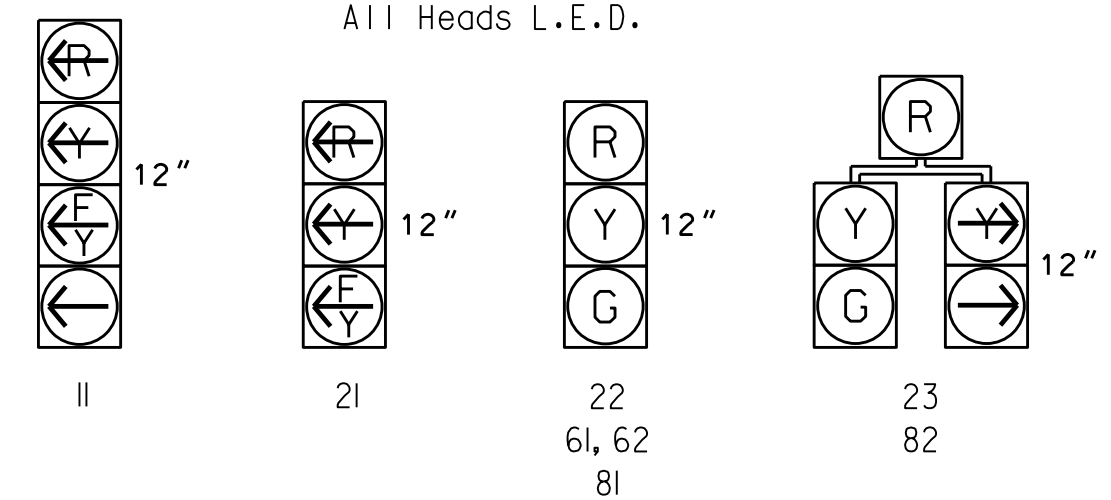
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Set all detector units to presence mode.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset #: 0355.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.



FEATURE	PHASE			
	1	2	6	8
Min Green 1 *	7	14	14	7
Extension 1 *	1.0	6.0	6.0	1.0
Max Green 1 *	25	120	120	40
Yellow Clearance	3.0	5.2	5.2	3.0
Red Clearance	2.8	1.0	1.0	3.1
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	1.5	1.5	-
Max Variable Initial *	-	46	46	-
Time Before Reduction *	-	15	15	-
Time To Reduce *	-	30	30	-
Minimum Gap	-	4.0	4.0	-
Recall Mode	-	MIN RECALL	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	YELLOW	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Plan of Record

PREPARED BY: M.E. Giles DATE: November 2015
 REVIEWED BY: R. J. Ziemba DATE: February 2016
 SIGNATURE: [Signature] DATE: 7/11/2016

COMMENTS: Change phase 4 to phase 8; Update loop 1B.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

PROPOSED	EXISTING
Traffic Signal Head	N/A
Modified Signal Head	N/A
Sign	N/A
Pedestrian Signal Head With Push Button & Sign	N/A
Signal Pole with Guy	N/A
Signal Pole with Sidewalk Guy	N/A
Metal Strain Pole	N/A
Inductive Loop Detector	N/A
Controller & Cabinet	N/A
Junction Box	N/A
2-in Underground Conduit	N/A
Right of Way	N/A
Directional Arrow	N/A
Guardrail	N/A
"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	N/A

11-11-2016 09:46
 S:\Projects\08-0355\Signal Design\Section\Central Region\01v 8\08-0355\080355_sig.por_20160711.dgn
 RZT/erba

Plan of Record

Prepared in the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

US 15-501 at SR 1717 (Jack Bennett Road)

Division 8 Chatham County Near Pittsboro

PLAN DATE: July 2011 REVIEWED BY:
 PREPARED BY: Sterling REVIEWED BY:

REVISIONS: [Table with columns for REVISIONS, INIT., DATE]

SCALE: 0 40
1" = 40'

SEAL: Not a certified document. This document originally issued and sealed by Robert J. Ziemba, P.E., #026486, on 10/04/11. This document shall not be considered a certified document.

SIGNATURE: [Blank] DATE: [Blank]
 SIG. INVENTORY NO. 08-0355

**Appendix D: Capacity Analysis and
Turn Lane Warrant Reports**

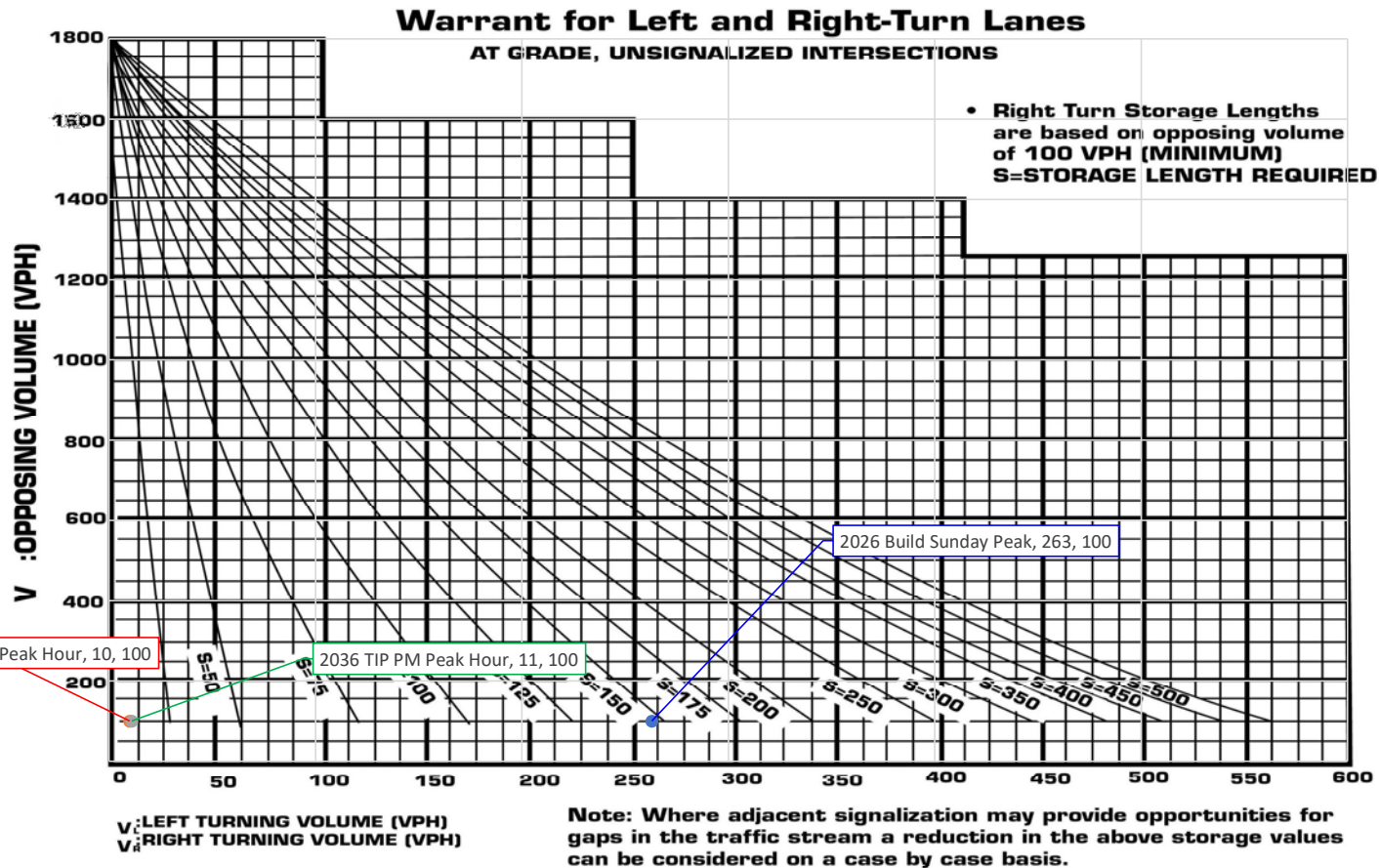
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Intersection US 15-501 at Access #1

Turn Lane Warrant Analysis at Intersection US 15-501 at Access #1

Scenario	Turning Movement Volumes											Warrant Volumes		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBRT	Opposing
2026 Build Sunday Peak		802	263		1180							284	263	100
2036 TIP AM Peak Hour		1902	10									5	10	100
2036 TIP PM Peak Hour		1319	11									12	11	100

Turn Lane Warrant Analysis at Intersection US 15-501 at Access #1



Policy on Street And Driveway Access to North Carolina Highways

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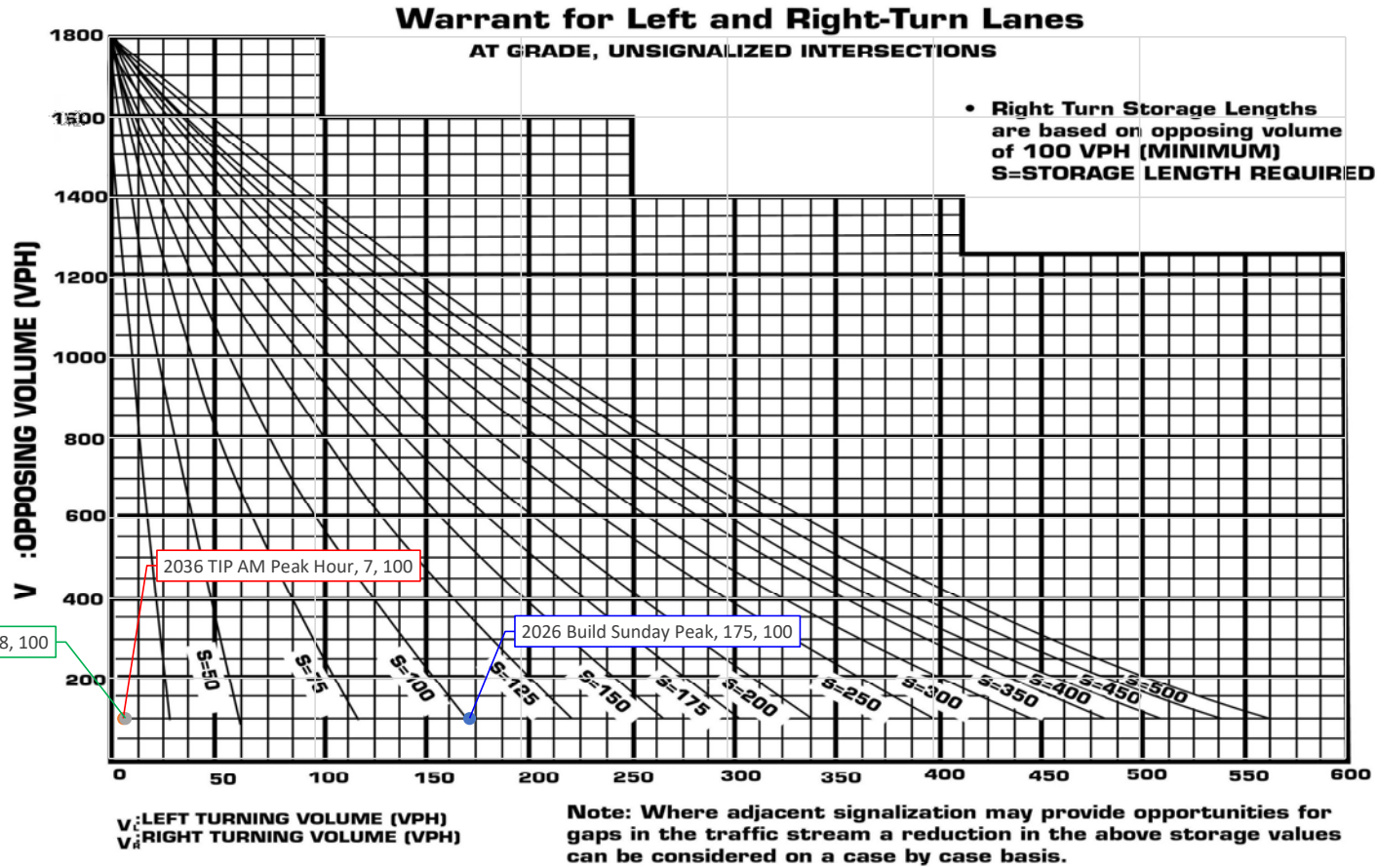
July 2003

Intersection US 15-501 at Access #2

Turn Lane Warrant Analysis at Intersection US 15-501 at Access #2

Scenario	Turning Movement Volumes											Warrant Volumes		
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBRT	Opposing
2026 Build Sunday Peak		875	175		1180							190	175	100
2036 TIP AM Peak Hour		1913	7									6	7	100
2036 TIP PM Peak Hour		1334	8									12	8	100

Turn Lane Warrant Analysis at Intersection US 15-501 at Access #2



Policy on Street And Driveway Access to North Carolina Highways

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2036 TIP PM Peak Hour, 8, 100

2026 Build Sunday Peak, 175, 100

July 2003

Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road

Existing Sunday Peak Hour
Lanes, Volumes, Timings

							
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	95	131	38	458	24	176	527
Future Volume (vph)	95	131	38	458	24	176	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	4%			-1%			1%
Storage Length (ft)	0	125	325		225	325	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	100		100			100	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850			0.850		
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1734	1552	1778	3557	1591	1761	3522
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1734	1552	1778	3557	1591	1761	3522
Right Turn on Red		No			No		
Satd. Flow (RTOR)							
Link Speed (mph)	45			55			55
Link Distance (ft)	1134			1868			1081
Travel Time (s)	17.2			23.2			13.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	106	146	42	509	27	196	586
Shared Lane Traffic (%)							
Lane Group Flow (vph)	106	146	42	509	27	196	586
Turn Type	Prot	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	1	5	2	8	1	6
Permitted Phases		8			2		
Detector Phase	8	1	5	2	8	1	6
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	13.1	13.1	12.4	20.5	13.1	13.1	20.2
Total Split (s)	26.0	35.0	17.0	39.0	26.0	35.0	57.0
Total Split (%)	26.0%	35.0%	17.0%	39.0%	26.0%	35.0%	57.0%
Maximum Green (s)	19.9	28.9	11.6	32.5	19.9	28.9	50.8
Yellow Time (s)	3.0	3.0	3.0	5.3	3.0	3.0	5.1
All-Red Time (s)	3.1	3.1	2.4	1.2	3.1	3.1	1.1
Lost Time Adjust (s)	-1.1	-1.1	-0.4	-1.5	-1.1	-1.1	-1.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	1.0	1.0	1.0	6.0	1.0	1.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.1	31.9	7.7	58.1	74.2	15.8	71.2
Actuated g/C Ratio	0.11	0.32	0.08	0.58	0.74	0.16	0.71
v/c Ratio	0.55	0.30	0.31	0.25	0.02	0.71	0.23
Control Delay	52.7	25.5	53.4	6.7	1.2	53.1	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Chatham County Summit Church TIA 1: US Highway 15-501 & Lystra Road

Existing Sunday Peak Hour
Lanes, Volumes, Timings

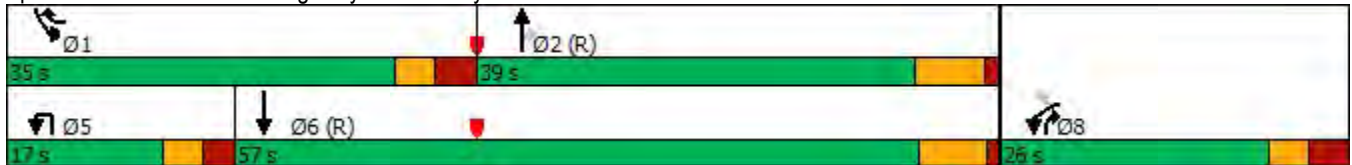


Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Total Delay	52.7	25.5	53.4	6.7	1.2	53.1	6.4
LOS	D	C	D	A	A	D	A
Approach Delay	37.0			9.9			18.1
Approach LOS	D			A			B
Queue Length 50th (ft)	65	70	29	79	2	120	70
Queue Length 95th (ft)	115	102	66	41	2	182	114
Internal Link Dist (ft)	1054			1788			1001
Turn Bay Length (ft)		125	325		225	325	
Base Capacity (vph)	364	714	213	2067	1338	528	2506
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.20	0.20	0.25	0.02	0.37	0.23

Intersection Summary




















Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 61 (61%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 18.1
 Intersection LOS: B
 Intersection Capacity Utilization 40.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 1: US Highway 15-501 & Lystra Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

Existing Sunday Peak Hour
 Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	49	4	38	4	4	10	4	51	477	10	19	17
Future Volume (vph)	49	4	38	4	4	10	4	51	477	10	19	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-5%				1%			
Storage Length (ft)	475		0	0		0		425		150		425
Storage Lanes	1		0	0		0		1		1		1
Taper Length (ft)	100			100				100				100
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Fr _t		0.863			0.922					0.850		
Fl _t Protected	0.950				0.990			0.950				0.950
Satd. Flow (prot)	1778	1616	0	0	1743	0	0	1761	3522	1575	0	1787
Fl _t Permitted	0.950				0.914			0.381				0.440
Satd. Flow (perm)	1778	1616	0	0	1609	0	0	706	3522	1575	0	828
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			35				55			
Link Distance (ft)		1224			1125				1396			
Travel Time (s)		33.4			21.9				17.3			
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)	54	4	42	4	4	11	4	57	530	11	21	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	46	0	0	19	0	0	61	530	11	0	40
Turn Type	Prot	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P
Protected Phases	7	4			8		5	5	2		1	1
Permitted Phases				8			6	6		2	2	2
Detector Phase	7	4		8	8		5	5	2	2	1	1
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0
Minimum Split (s)	13.3	13.6		13.9	13.9		13.5	13.5	20.5	20.5	13.3	13.3
Total Split (s)	18.0	35.0		17.0	17.0		17.0	17.0	50.0	50.0	15.0	15.0
Total Split (%)	18.0%	35.0%		17.0%	17.0%		17.0%	17.0%	50.0%	50.0%	15.0%	15.0%
Maximum Green (s)	11.7	28.4		10.1	10.1		10.5	10.5	43.5	43.5	8.7	8.7
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	6.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.4	3.4	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	15.0	15.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	45.0	45.0	0.0	0.0
Recall Mode	None	None		None	None		None	None	C-Min	C-Min	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	9.5	15.3			9.0			73.5	70.5	70.5		74.5
Actuated g/C Ratio	0.10	0.15			0.09			0.74	0.70	0.70		0.74

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

Existing Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	SBT	SBR
Lane Configurations	↑↑	↑
Traffic Volume (vph)	574	44
Future Volume (vph)	574	44
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		225
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	0.95	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	3575	1599
Flt Permitted		
Satd. Flow (perm)	3575	1599
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	55	
Link Distance (ft)	3110	
Travel Time (s)	38.6	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	638	49
Shared Lane Traffic (%)		
Lane Group Flow (vph)	638	49
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Detector Phase	6	7
Switch Phase		
Minimum Initial (s)	14.0	7.0
Minimum Split (s)	35.5	13.3
Total Split (s)	48.0	18.0
Total Split (%)	48.0%	18.0%
Maximum Green (s)	41.5	11.7
Yellow Time (s)	5.4	3.0
All-Red Time (s)	1.1	3.3
Lost Time Adjust (s)	-1.5	-1.3
Total Lost Time (s)	5.0	5.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	6.0	2.0
Minimum Gap (s)	3.4	3.0
Time Before Reduce (s)	15.0	0.0
Time To Reduce (s)	45.0	0.0
Recall Mode	C-Min	None
Walk Time (s)	7.0	
Flash Dont Walk (s)	22.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	67.6	79.5
Actuated g/C Ratio	0.68	0.80

Chatham County Summit Church TIA
2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

Existing Sunday Peak Hour
 Lanes, Volumes, Timings



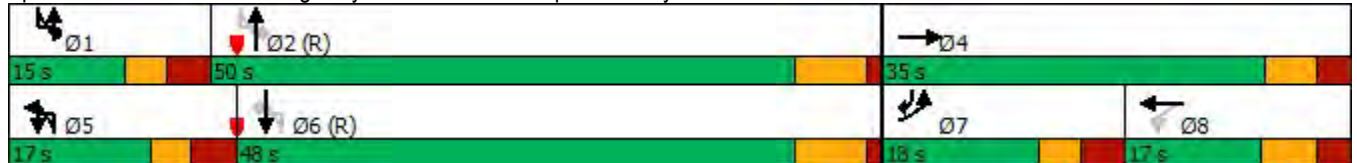
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
v/c Ratio	0.32	0.19			0.13			0.10	0.21	0.01		0.06
Control Delay	47.0	35.0			44.1			4.8	7.4	9.6		4.4
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0
Total Delay	47.0	35.0			44.1			4.8	7.4	9.6		4.4
LOS	D	D			D			A	A	A		A
Approach Delay		41.5			44.1				7.2			
Approach LOS		D			D				A			
Queue Length 50th (ft)	33	28			11			5	50	2		3
Queue Length 95th (ft)	69	51			34			24	105	10		17
Internal Link Dist (ft)		1144			1045				1316			
Turn Bay Length (ft)	475							425		150		425
Base Capacity (vph)	231	484			193			664	2482	1110		720
Starvation Cap Reductn	0	0			0			0	0	0		0
Spillback Cap Reductn	0	0			0			0	0	0		0
Storage Cap Reductn	0	0			0			0	0	0		0
Reduced v/c Ratio	0.23	0.10			0.10			0.09	0.21	0.01		0.06

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.32
 Intersection Signal Delay: 9.9
 Intersection Capacity Utilization 43.6%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road



Chatham County Summit Church TIA
2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road
















Existing Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	SBT	SBR
v/c Ratio	0.26	0.04
Control Delay	7.3	3.3
Queue Delay	0.0	0.0
Total Delay	7.3	3.3
LOS	A	A
Approach Delay	6.9	
Approach LOS	A	
Queue Length 50th (ft)	71	2
Queue Length 95th (ft)	102	13
Internal Link Dist (ft)	3030	
Turn Bay Length (ft)		225
Base Capacity (vph)	2418	1311
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.26	0.04
Intersection Summary		

Chatham County Summit Church TIA
 3: US Highway 15-501 & Jack Bennett Road

Existing Sunday Peak Hour
 Lanes, Volumes, Timings

								
Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	78	72	4	463	113	6	78	535
Future Volume (vph)	78	72	4	463	113	6	78	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%			0%				0%
Storage Length (ft)	250	0	425		425		450	
Storage Lanes	1	1	1		1		1	
Taper Length (ft)	100		100				100	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Frt		0.850			0.850			
Flt Protected	0.950		0.950				0.950	
Satd. Flow (prot)	1761	1575	1770	3539	1583	0	1770	3539
Flt Permitted	0.950		0.428				0.457	
Satd. Flow (perm)	1761	1575	797	3539	1583	0	851	3539
Right Turn on Red		No			No			
Satd. Flow (RTOR)								
Link Speed (mph)	45			55				55
Link Distance (ft)	1101			1066				1396
Travel Time (s)	16.7			13.2				17.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	80	4	514	126	7	87	594
Shared Lane Traffic (%)								
Lane Group Flow (vph)	87	80	4	514	126	0	94	594
Turn Type	Prot	pm+ov	D.Pm	NA	pm+ov	D.P+P	D.P+P	NA
Protected Phases	8	1!		2	8	1!	1	6
Permitted Phases		8	6		2	2	2	
Detector Phase	8	1	6	2	8	1	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	7.0	7.0	14.0
Minimum Split (s)	13.1	12.8	21.2	21.2	13.1	12.8	12.8	21.2
Total Split (s)	28.0	22.0	72.0	50.0	28.0	22.0	22.0	72.0
Total Split (%)	28.0%	22.0%	72.0%	50.0%	28.0%	22.0%	22.0%	72.0%
Maximum Green (s)	21.9	16.2	65.8	43.8	21.9	16.2	16.2	65.8
Yellow Time (s)	3.0	3.0	5.2	5.2	3.0	3.0	3.0	5.2
All-Red Time (s)	3.1	2.8	1.0	1.0	3.1	2.8	2.8	1.0
Lost Time Adjust (s)	-1.1	-0.8	-1.2	-1.2	-1.1		-0.8	-1.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag		Lead		Lag		Lead	Lead	
Lead-Lag Optimize?		Yes		Yes		Yes	Yes	
Vehicle Extension (s)	1.0	1.0	6.0	6.0	1.0	1.0	1.0	6.0
Minimum Gap (s)	3.0	3.0	4.0	4.0	3.0	3.0	3.0	4.0
Time Before Reduce (s)	0.0	0.0	15.0	15.0	0.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	30.0	0.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	C-Min	None	None	None	C-Min
Act Effct Green (s)	10.1	22.9	79.9	67.1	82.2		74.9	79.9
Actuated g/C Ratio	0.10	0.23	0.80	0.67	0.82		0.75	0.80
v/c Ratio	0.49	0.22	0.01	0.22	0.10		0.13	0.21
Control Delay	51.6	32.4	2.5	6.8	1.9		0.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0

Chatham County Summit Church TIA
3: US Highway 15-501 & Jack Bennett Road

Existing Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Total Delay	51.6	32.4	2.5	6.8	1.9		0.7	0.6
LOS	D	C	A	A	A		A	A
Approach Delay	42.4			5.8				0.6
Approach LOS	D			A				A
Queue Length 50th (ft)	54	42	1	57	11		0	0
Queue Length 95th (ft)	99	79	3	91	20		2	3
Internal Link Dist (ft)	1021			986				1316
Turn Bay Length (ft)	250		425		425		450	
Base Capacity (vph)	405	505	636	2375	1505		836	2828
Starvation Cap Reductn	0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.21	0.16	0.01	0.22	0.08		0.11	0.21

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 34 (34%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.49
 Intersection Signal Delay: 7.5
 Intersection LOS: A
 Intersection Capacity Utilization 44.8%
 ICU Level of Service A
 Analysis Period (min) 15
 ! Phase conflict between lane groups.

Splits and Phases: 3: US Highway 15-501 & Jack Bennett Road



Chatham County Summit Church TIA
4: US Highway 15-501 & Poplar Street/Hidden Oaks Court

Existing Sunday Peak Hour
HCM 6th TWSC

Intersection														
Int Delay, s/veh	0.6													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕	↕		↕	↕	↕
Traffic Vol, veh/h	6	4	4	4	4	4	4	4	551	4	5	4	649	4
Future Vol, veh/h	6	4	4	4	4	4	4	4	551	4	5	4	649	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	-	425	-	125	-	250	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	4	4	4	4	4	4	4	612	4	6	4	721	4

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	1065	1373	361	1011	1373	306	721	725	0	0	612	616	0	0
Stage 1	741	741	-	628	628	-	-	-	-	-	-	-	-	-
Stage 2	324	632	-	383	745	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	6.44	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.52	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	177	145	636	194	145	690	501	874	-	-	588	960	-	-
Stage 1	374	421	-	437	474	-	-	-	-	-	-	-	-	-
Stage 2	662	472	-	611	419	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	168	141	636	184	141	690	634	634	-	-	708	708	-	-
Mov Cap-2 Maneuver	168	141	-	184	141	-	-	-	-	-	-	-	-	-
Stage 1	369	415	-	431	467	-	-	-	-	-	-	-	-	-
Stage 2	642	465	-	592	413	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB				
HCM Control Delay, s	24.6		22.8		0.2			0.1				
HCM LOS	C		C									

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	634	-	-	199	215	708	-	-
HCM Lane V/C Ratio	0.014	-	-	0.078	0.062	0.014	-	-
HCM Control Delay (s)	10.8	-	-	24.6	22.8	10.2	-	-
HCM Lane LOS	B	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Chatham County Summit Church TIA

Existing Sunday Peak Hour

SimTraffic Simulation Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	10:50	10:50	10:50	10:50	10:50	10:50	10:50
End Time	12:00	12:00	12:00	12:00	12:00	12:00	12:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2034	2080	1932	2051	1966	2018	2026
Vehs Exited	2036	2074	1919	2055	1991	2004	2035
Starting Vehs	75	79	63	72	71	64	75
Ending Vehs	73	85	76	68	46	78	66
Travel Distance (mi)	2464	2563	2314	2460	2413	2460	2477
Travel Time (hr)	74.2	75.6	69.5	73.6	72.0	73.7	73.8
Total Delay (hr)	18.3	18.0	17.2	18.0	17.4	18.2	17.8
Total Stops	1457	1426	1387	1418	1361	1433	1404
Fuel Used (gal)	82.5	85.6	77.6	82.6	80.1	82.3	82.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	10:50	10:50	10:50	10:50
End Time	12:00	12:00	12:00	12:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2025	1974	2060	2016
Vehs Exited	2034	1971	2076	2019
Starting Vehs	80	70	88	74
Ending Vehs	71	73	72	68
Travel Distance (mi)	2504	2370	2521	2455
Travel Time (hr)	74.7	70.6	75.8	73.3
Total Delay (hr)	18.2	16.9	18.8	17.9
Total Stops	1451	1343	1500	1418
Fuel Used (gal)	84.0	79.6	84.4	82.1

Interval #0 Information Seeding

Start Time	10:50
End Time	11:00
Total Time (min)	10
Volumes adjusted by PHF.	
No data recorded this interval.	

Chatham County Summit Church TIA

Existing Sunday Peak Hour

SimTraffic Simulation Summary

Interval #1 Information Recording

Start Time	11:00
End Time	12:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2034	2080	1932	2051	1966	2018	2026
Vehs Exited	2036	2074	1919	2055	1991	2004	2035
Starting Vehs	75	79	63	72	71	64	75
Ending Vehs	73	85	76	68	46	78	66
Travel Distance (mi)	2464	2563	2314	2460	2413	2460	2477
Travel Time (hr)	74.2	75.6	69.5	73.6	72.0	73.7	73.8
Total Delay (hr)	18.3	18.0	17.2	18.0	17.4	18.2	17.8
Total Stops	1457	1426	1387	1418	1361	1433	1404
Fuel Used (gal)	82.5	85.6	77.6	82.6	80.1	82.3	82.2

Interval #1 Information Recording

Start Time	11:00
End Time	12:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	2025	1974	2060	2016
Vehs Exited	2034	1971	2076	2019
Starting Vehs	80	70	88	74
Ending Vehs	71	73	72	68
Travel Distance (mi)	2504	2370	2521	2455
Travel Time (hr)	74.7	70.6	75.8	73.3
Total Delay (hr)	18.2	16.9	18.8	17.9
Total Stops	1451	1343	1500	1418
Fuel Used (gal)	84.0	79.6	84.4	82.1

Chatham County Summit Church TIA

Existing Sunday Peak Hour

Queuing and Blocking Report

Intersection: 1: US Highway 15-501 & Lystra Road

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	U	T	T	R	L	T	T
Maximum Queue (ft)	187	166	101	116	123	36	240	151	115
Average Queue (ft)	80	72	37	54	53	5	128	57	36
95th Queue (ft)	152	137	79	102	105	24	208	120	84
Link Distance (ft)	1065			1793	1793			1048	1048
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		125	325			225	325		
Storage Blk Time (%)	3	2							
Queuing Penalty (veh)	4	2							

Intersection: 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

Movement	EB	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	UL	T	T	R	UL	T	T	R
Maximum Queue (ft)	93	86	57	57	117	104	24	38	99	102	42
Average Queue (ft)	37	25	14	22	38	30	2	8	33	33	6
95th Queue (ft)	77	64	42	48	86	78	14	24	79	83	25
Link Distance (ft)		1148	1054		1318	1318			3021	3021	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	475			425			150	425			225
Storage Blk Time (%)						0					
Queuing Penalty (veh)						0					

Intersection: 3: US Highway 15-501 & Jack Bennett Road

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	U	T	T	R	UL	T	T
Maximum Queue (ft)	134	136	23	117	60	51	79	60	79
Average Queue (ft)	55	49	2	45	14	10	35	8	22
95th Queue (ft)	108	106	14	95	44	36	68	36	61
Link Distance (ft)		1036		1028	1028			1318	1318
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	250		425			425	450		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Chatham County Summit Church TIA

Existing Sunday Peak Hour Queuing and Blocking Report

Intersection: 4: US Highway 15-501 & Poplar Street/Hidden Oaks Court















Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	UL	UL
Maximum Queue (ft)	35	25	26	24
Average Queue (ft)	10	8	3	4
95th Queue (ft)	32	26	15	17
Link Distance (ft)	1028	968		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			425	250
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 7

Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road

2026 No-Build Sunday Peak Hour
Lanes, Volumes, Timings

							
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	105	144	42	505	26	194	581
Future Volume (vph)	105	144	42	505	26	194	581
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	4%			-1%			1%
Storage Length (ft)	0	125	325		225	325	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	100		100			100	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Fr _t		0.850			0.850		
Fl _t Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1734	1552	1778	3557	1591	1761	3522
Fl _t Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1734	1552	1778	3557	1591	1761	3522
Right Turn on Red		No			No		
Satd. Flow (RTOR)							
Link Speed (mph)	45			55			55
Link Distance (ft)	1134			1868			1081
Travel Time (s)	17.2			23.2			13.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	117	160	47	561	29	216	646
Shared Lane Traffic (%)							
Lane Group Flow (vph)	117	160	47	561	29	216	646
Turn Type	Prot	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	1	5	2	8	1	6
Permitted Phases		8			2		
Detector Phase	8	1	5	2	8	1	6
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	13.1	13.1	12.4	20.5	13.1	13.1	20.2
Total Split (s)	25.0	35.0	16.0	40.0	25.0	35.0	59.0
Total Split (%)	25.0%	35.0%	16.0%	40.0%	25.0%	35.0%	59.0%
Maximum Green (s)	18.9	28.9	10.6	33.5	18.9	28.9	52.8
Yellow Time (s)	3.0	3.0	3.0	5.3	3.0	3.0	5.1
All-Red Time (s)	3.1	3.1	2.4	1.2	3.1	3.1	1.1
Lost Time Adjust (s)	-1.1	-1.1	-0.4	-1.5	-1.1	-1.1	-1.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	1.0	1.0	1.0	6.0	1.0	1.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.6	33.5	7.9	56.5	73.1	16.9	70.5
Actuated g/C Ratio	0.12	0.34	0.08	0.56	0.73	0.17	0.70
v/c Ratio	0.58	0.31	0.34	0.28	0.02	0.72	0.26
Control Delay	53.2	24.5	55.5	7.1	1.3	52.8	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road**

**2026 No-Build Sunday Peak Hour
Lanes, Volumes, Timings**

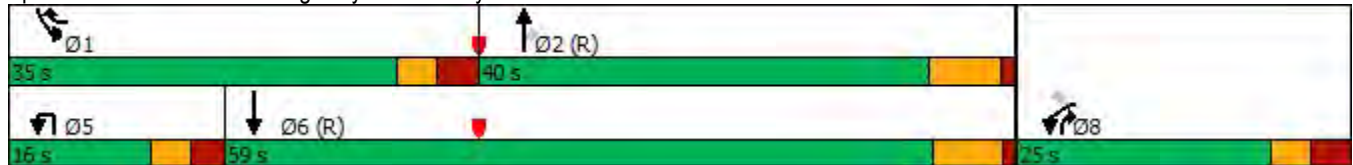


Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Total Delay	53.2	24.5	55.5	7.1	1.3	52.8	6.9
LOS	D	C	E	A	A	D	A
Approach Delay	36.6			10.4		18.4	
Approach LOS	D			B		B	
Queue Length 50th (ft)	72	75	32	83	3	132	80
Queue Length 95th (ft)	124	106	71	47	2	196	131
Internal Link Dist (ft)	1054			1788		1001	
Turn Bay Length (ft)	125		325		225		325
Base Capacity (vph)	346	722	195	2008	1296	528	2483
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.22	0.24	0.28	0.02	0.41	0.26

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 62 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 18.4
 Intersection LOS: B
 Intersection Capacity Utilization 43.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 1: US Highway 15-501 & Lystra Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

2026 No-Build Sunday Peak Hour
 Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	54	4	42	4	4	11	89	56	526	11	21	19
Future Volume (vph)	54	4	42	4	4	11	89	56	526	11	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-5%				1%			
Storage Length (ft)	475		0	0		0		425		150		425
Storage Lanes	1		0	0		0		1		1		1
Taper Length (ft)	100			100				100				100
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Frt		0.862			0.919					0.850		
Flt Protected	0.950				0.990			0.950				0.950
Satd. Flow (prot)	1778	1614	0	0	1737	0	0	1761	3522	1575	0	1787
Flt Permitted	0.950				0.917			0.344				0.411
Satd. Flow (perm)	1778	1614	0	0	1609	0	0	638	3522	1575	0	773
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			35				55			
Link Distance (ft)		1224			1125				1396			
Travel Time (s)		33.4			21.9				17.3			
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)	60	4	47	4	4	12	99	62	584	12	23	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	51	0	0	20	0	0	161	584	12	0	44
Turn Type	Prot	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P
Protected Phases	7	4			8		5	5	2		1	1
Permitted Phases				8			6	6		2	2	2
Detector Phase	7	4		8	8		5	5	2	2	1	1
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0
Minimum Split (s)	13.3	13.6		13.9	13.9		13.5	13.5	20.5	20.5	13.3	13.3
Total Split (s)	18.0	34.0		16.0	16.0		19.0	19.0	51.0	51.0	15.0	15.0
Total Split (%)	18.0%	34.0%		16.0%	16.0%		19.0%	19.0%	51.0%	51.0%	15.0%	15.0%
Maximum Green (s)	11.7	27.4		9.1	9.1		12.5	12.5	44.5	44.5	8.7	8.7
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	6.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.4	3.4	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	15.0	15.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	45.0	45.0	0.0	0.0
Recall Mode	None	None		None	None		None	None	C-Min	C-Min	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	9.8	15.5			9.0			72.2	70.2	70.2		74.2
Actuated g/C Ratio	0.10	0.16			0.09			0.72	0.70	0.70		0.74

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

2026 No-Build Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	SBT	SBR
Lane Configurations	↑↑	↑
Traffic Volume (vph)	633	49
Future Volume (vph)	633	49
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		225
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	0.95	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	3575	1599
Flt Permitted		
Satd. Flow (perm)	3575	1599
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	55	
Link Distance (ft)	3110	
Travel Time (s)	38.6	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	703	54
Shared Lane Traffic (%)		
Lane Group Flow (vph)	703	54
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Detector Phase	6	7
Switch Phase		
Minimum Initial (s)	14.0	7.0
Minimum Split (s)	35.5	13.3
Total Split (s)	47.0	18.0
Total Split (%)	47.0%	18.0%
Maximum Green (s)	40.5	11.7
Yellow Time (s)	5.4	3.0
All-Red Time (s)	1.1	3.3
Lost Time Adjust (s)	-1.5	-1.3
Total Lost Time (s)	5.0	5.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	6.0	2.0
Minimum Gap (s)	3.4	3.0
Time Before Reduce (s)	15.0	0.0
Time To Reduce (s)	45.0	0.0
Recall Mode	C-Min	None
Walk Time (s)	7.0	
Flash Dont Walk (s)	22.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	62.5	77.3
Actuated g/C Ratio	0.62	0.77

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

2026 No-Build Sunday Peak Hour
 Lanes, Volumes, Timings

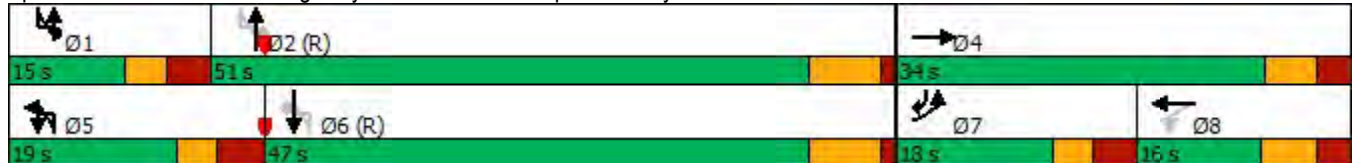


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
v/c Ratio	0.35	0.20			0.14			0.28	0.24	0.01		0.07
Control Delay	47.3	35.1			44.2			5.5	7.0	8.5		4.4
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0
Total Delay	47.3	35.1			44.2			5.5	7.0	8.5		4.4
LOS	D	D			D			A	A	A		A
Approach Delay		41.7			44.2				6.7			
Approach LOS		D			D				A			
Queue Length 50th (ft)	37	31			12			12	48	2		3
Queue Length 95th (ft)	74	54			35			48	135	9		19
Internal Link Dist (ft)		1144			1045				1316			
Turn Bay Length (ft)	475							425		150		425
Base Capacity (vph)	231	468			176			643	2472	1105		682
Starvation Cap Reductn	0	0			0			0	0	0		0
Spillback Cap Reductn	0	0			0			0	0	0		0
Storage Cap Reductn	0	0			0			0	0	0		0
Reduced v/c Ratio	0.26	0.11			0.11			0.25	0.24	0.01		0.06

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 1 (1%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.35
 Intersection Signal Delay: 10.2
 Intersection Capacity Utilization 47.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road















2026 No-Build Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	SBT	SBR
v/c Ratio	0.31	0.04
Control Delay	8.9	3.6
Queue Delay	0.0	0.0
Total Delay	8.9	3.6
LOS	A	A
Approach Delay	8.3	
Approach LOS	A	
Queue Length 50th (ft)	79	3
Queue Length 95th (ft)	106	16
Internal Link Dist (ft)	3030	
Turn Bay Length (ft)		225
Base Capacity (vph)	2235	1287
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.04
Intersection Summary		

Chatham County Summit Church TIA
 3: US Highway 15-501 & Jack Bennett Road

2026 No-Build Sunday Peak Hour
 Lanes, Volumes, Timings

								
Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	0	165	4	510	125	7	86	676
Future Volume (vph)	0	165	4	510	125	7	86	676
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%			0%				0%
Storage Length (ft)	0	400	425		425		450	
Storage Lanes	0	1	1		1		1	
Taper Length (ft)	100		100				100	
Lane Util. Factor	1.00	0.88	1.00	0.95	1.00	0.95	1.00	0.95
Frt		0.850			0.850			
Flt Protected			0.950				0.950	
Satd. Flow (prot)	0	2773	1770	3539	1583	0	1770	3539
Flt Permitted			0.366				0.432	
Satd. Flow (perm)	0	2773	682	3539	1583	0	805	3539
Right Turn on Red		No			No			
Satd. Flow (RTOR)								
Link Speed (mph)	45			55				55
Link Distance (ft)	1101			1066				1396
Travel Time (s)	16.7			13.2				17.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	183	4	567	139	8	96	751
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	183	4	567	139	0	104	751
Turn Type		pm+ov	D.Pm	NA	custom	D.P+P	D.P+P	NA
Protected Phases		1!		2	8	1!	1	6
Permitted Phases		8	6		2	2	2	
Detector Phase		1	6	2	8	1	1	6
Switch Phase								
Minimum Initial (s)		7.0	14.0	14.0	7.0	7.0	7.0	14.0
Minimum Split (s)		12.8	21.2	21.2	13.1	12.8	12.8	21.2
Total Split (s)		22.0	77.0	55.0	23.0	22.0	22.0	77.0
Total Split (%)		22.0%	77.0%	55.0%	23.0%	22.0%	22.0%	77.0%
Maximum Green (s)		16.2	70.8	48.8	16.9	16.2	16.2	70.8
Yellow Time (s)		3.0	5.2	5.2	3.0	3.0	3.0	5.2
All-Red Time (s)		2.8	1.0	1.0	3.1	2.8	2.8	1.0
Lost Time Adjust (s)		-0.8	-1.2	-1.2	-1.1		-0.8	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag		Lead		Lag		Lead	Lead	
Lead-Lag Optimize?		Yes		Yes		Yes	Yes	
Vehicle Extension (s)		1.0	6.0	6.0	1.0	1.0	1.0	6.0
Minimum Gap (s)		3.0	4.0	4.0	3.0	3.0	3.0	4.0
Time Before Reduce (s)		0.0	15.0	15.0	0.0	0.0	0.0	15.0
Time To Reduce (s)		0.0	30.0	30.0	0.0	0.0	0.0	30.0
Recall Mode		None	C-Min	C-Min	None	None	None	C-Min
Act Effct Green (s)		20.9	81.9	69.1	82.2		76.9	81.9
Actuated g/C Ratio		0.21	0.82	0.69	0.82		0.77	0.82
v/c Ratio		0.32	0.01	0.23	0.11		0.15	0.26
Control Delay		35.3	1.8	6.0	1.9		1.1	1.1
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0

Chatham County Summit Church TIA
 3: US Highway 15-501 & Jack Bennett Road

2026 No-Build Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Total Delay		35.3	1.8	6.0	1.9		1.1	1.1
LOS		D	A	A	A		A	A
Approach Delay	35.3			5.1				1.1
Approach LOS	D			A				A
Queue Length 50th (ft)		56	0	61	12		2	6
Queue Length 95th (ft)		91	2	82	22		4	9
Internal Link Dist (ft)	1021			986				1316
Turn Bay Length (ft)		400	425		425		450	
Base Capacity (vph)		834	558	2445	1457		823	2898
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		0.22	0.01	0.23	0.10		0.13	0.26

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.32
 Intersection Signal Delay: 6.3
 Intersection LOS: A
 Intersection Capacity Utilization 38.7%
 ICU Level of Service A
 Analysis Period (min) 15
 ! Phase conflict between lane groups.

Splits and Phases: 3: US Highway 15-501 & Jack Bennett Road



Chatham County Summit Church TIA
 4: US Highway 15-501 & Poplar Street/Hidden Oaks Court

2026 No-Build Sunday Peak Hour
 HCM 6th TWSC

Intersection														
Int Delay, s/veh	0.7													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↑↑	↗		↕	↑↑	↗
Traffic Vol, veh/h	7	4	4	4	4	4	4	4	607	4	6	4	716	4
Future Vol, veh/h	7	4	4	4	4	4	4	4	607	4	6	4	716	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	-	425	-	125	-	250	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	4	4	4	4	4	4	674	4	7	4	796	4

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	1173	1512	398	1112	1512	337	796	800	0	0	674	678	0	0
Stage 1	818	818	-	690	690	-	-	-	-	-	-	-	-	-
Stage 2	355	694	-	422	822	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	6.44	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.52	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	147	119	601	163	119	659	449	819	-	-	537	910	-	-
Stage 1	336	388	-	401	444	-	-	-	-	-	-	-	-	-
Stage 2	635	442	-	580	386	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	138	115	601	153	115	659	578	578	-	-	640	640	-	-
Mov Cap-2 Maneuver	138	115	-	153	115	-	-	-	-	-	-	-	-	-
Stage 1	331	381	-	395	437	-	-	-	-	-	-	-	-	-
Stage 2	615	435	-	559	379	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	29.6		26.7		0.1		0.1	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	578	-	-	163	179	640	-	-
HCM Lane V/C Ratio	0.015	-	-	0.102	0.074	0.017	-	-
HCM Control Delay (s)	11.3	-	-	29.6	26.7	10.7	-	-
HCM Lane LOS	B	-	-	D	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0.1	-	-

Chatham County Summit Church TIA

2026 No-Build Sunday Peak Hour

SimTraffic Simulation Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	10:50	10:50	10:50	10:50	10:50	10:50	10:50
End Time	12:00	12:00	12:00	12:00	12:00	12:00	12:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2227	2161	2132	2143	2221	2167	2170
Vehs Exited	2250	2163	2137	2153	2228	2160	2167
Starting Vehs	95	88	90	92	80	84	77
Ending Vehs	72	86	85	82	73	91	80
Travel Distance (mi)	2702	2664	2642	2634	2728	2693	2683
Travel Time (hr)	83.0	81.7	80.8	80.7	83.0	82.4	81.5
Total Delay (hr)	21.2	21.0	20.6	20.6	20.9	20.9	20.0
Total Stops	1700	1661	1627	1628	1608	1690	1610
Fuel Used (gal)	91.9	91.7	88.9	90.0	91.8	90.8	91.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	10:50	10:50	10:50	10:50
End Time	12:00	12:00	12:00	12:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2189	2259	2176	2182
Vehs Exited	2167	2250	2174	2187
Starting Vehs	77	84	71	80
Ending Vehs	99	93	73	79
Travel Distance (mi)	2677	2767	2676	2687
Travel Time (hr)	81.6	85.1	80.7	82.1
Total Delay (hr)	20.7	21.8	20.0	20.8
Total Stops	1662	1746	1601	1653
Fuel Used (gal)	90.8	94.1	91.0	91.2

Interval #0 Information Seeding

Start Time	10:50
End Time	11:00
Total Time (min)	10
Volumes adjusted by PHF.	
No data recorded this interval.	

Chatham County Summit Church TIA

2026 No-Build Sunday Peak Hour

SimTraffic Simulation Summary

Interval #1 Information Recording

Start Time	11:00
End Time	12:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	2227	2161	2132	2143	2221	2167	2170
Vehs Exited	2250	2163	2137	2153	2228	2160	2167
Starting Vehs	95	88	90	92	80	84	77
Ending Vehs	72	86	85	82	73	91	80
Travel Distance (mi)	2702	2664	2642	2634	2728	2693	2683
Travel Time (hr)	83.0	81.7	80.8	80.7	83.0	82.4	81.5
Total Delay (hr)	21.2	21.0	20.6	20.6	20.9	20.9	20.0
Total Stops	1700	1661	1627	1628	1608	1690	1610
Fuel Used (gal)	91.9	91.7	88.9	90.0	91.8	90.8	91.1

Interval #1 Information Recording

Start Time	11:00
End Time	12:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	2189	2259	2176	2182
Vehs Exited	2167	2250	2174	2187
Starting Vehs	77	84	71	80
Ending Vehs	99	93	73	79
Travel Distance (mi)	2677	2767	2676	2687
Travel Time (hr)	81.6	85.1	80.7	82.1
Total Delay (hr)	20.7	21.8	20.0	20.8
Total Stops	1662	1746	1601	1653
Fuel Used (gal)	90.8	94.1	91.0	91.2

Chatham County Summit Church TIA

2026 No-Build Sunday Peak Hour

Queuing and Blocking Report

Intersection: 1: US Highway 15-501 & Lystra Road

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	U	T	T	R	L	T	T	
Maximum Queue (ft)	200	179	96	141	154	48	266	166	121	
Average Queue (ft)	89	79	41	62	60	5	144	60	41	
95th Queue (ft)	167	145	85	114	122	26	229	125	92	
Link Distance (ft)	1065		1793			1793		1048		1048
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	125		325			225		325		
Storage Blk Time (%)	4	3						0		
Queuing Penalty (veh)	7	3						0		

Intersection: 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

Movement	EB	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	TR	LTR	UL	T	T	R	UL	T	T	R	
Maximum Queue (ft)	102	100	47	112	112	99	22	36	135	127	41	
Average Queue (ft)	43	33	14	48	38	30	2	9	50	50	8	
95th Queue (ft)	85	77	41	91	87	77	13	26	106	107	30	
Link Distance (ft)	1148		1054	1306		1306		3021		3021		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	475			425			150		425		225	
Storage Blk Time (%)	0											
Queuing Penalty (veh)	0											

Intersection: 3: US Highway 15-501 & Jack Bennett Road

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	R	R	U	T	T	R	UL	T	T	
Maximum Queue (ft)	196	155	22	115	71	78	90	11	10	
Average Queue (ft)	91	34	2	46	16	24	36	0	0	
95th Queue (ft)	160	107	13	95	50	62	71	9	6	
Link Distance (ft)	1036		1028			1028		1306		1306
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	400		425			425		450		
Storage Blk Time (%)										
Queuing Penalty (veh)										

Chatham County Summit Church TIA

2026 No-Build Sunday Peak Hour
Queuing and Blocking Report

Intersection: 4: US Highway 15-501 & Poplar Street/Hidden Oaks Court















Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	UL	UL
Maximum Queue (ft)	32	35	25	24
Average Queue (ft)	11	8	3	3
95th Queue (ft)	32	27	17	17
Link Distance (ft)	1028	968		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			425	250
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 10

Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road

2026 Build Sunday Peak Hour
Lanes, Volumes, Timings

							
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	127	144	184	671	50	194	734
Future Volume (vph)	127	144	184	671	50	194	734
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	4%			-1%			1%
Storage Length (ft)	0	125	325		225	325	
Storage Lanes	1	1	1		1	1	
Taper Length (ft)	100		100			100	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95
Fr _t		0.850			0.850		
Fl _t Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1734	1552	1778	3557	1591	1761	3522
Fl _t Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1734	1552	1778	3557	1591	1761	3522
Right Turn on Red		No			No		
Satd. Flow (RTOR)							
Link Speed (mph)	45			55			55
Link Distance (ft)	1134			1868			1081
Travel Time (s)	17.2			23.2			13.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	141	160	204	746	56	216	816
Shared Lane Traffic (%)							
Lane Group Flow (vph)	141	160	204	746	56	216	816
Turn Type	Prot	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	1	5	2	8	1	6
Permitted Phases		8			2		
Detector Phase	8	1	5	2	8	1	6
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	14.0	7.0	7.0	14.0
Minimum Split (s)	13.1	13.1	12.4	20.5	13.1	13.1	20.2
Total Split (s)	25.0	31.0	30.0	44.0	25.0	31.0	45.0
Total Split (%)	25.0%	31.0%	30.0%	44.0%	25.0%	31.0%	45.0%
Maximum Green (s)	18.9	24.9	24.6	37.5	18.9	24.9	38.8
Yellow Time (s)	3.0	3.0	3.0	5.3	3.0	3.0	5.1
All-Red Time (s)	3.1	3.1	2.4	1.2	3.1	3.1	1.1
Lost Time Adjust (s)	-1.1	-1.1	-0.4	-1.5	-1.1	-1.1	-1.2
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead	Lag		Lead	Lag
Lead-Lag Optimize?		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	1.0	1.0	1.0	6.0	1.0	1.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0
Time Before Reduce (s)	0.0	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.8	34.6	15.3	55.4	73.1	16.9	56.9
Actuated g/C Ratio	0.13	0.35	0.15	0.55	0.73	0.17	0.57
v/c Ratio	0.64	0.30	0.75	0.38	0.05	0.73	0.41
Control Delay	53.9	23.5	61.8	9.8	2.7	53.2	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road**

2026 Build Sunday Peak Hour
Lanes, Volumes, Timings

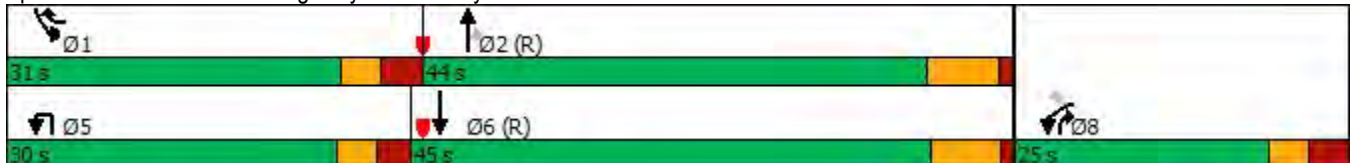


Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Total Delay	53.9	23.5	61.8	9.8	2.7	53.2	14.3
LOS	D	C	E	A	A	D	B
Approach Delay	37.7			20.0			22.4
Approach LOS	D			B			C
Queue Length 50th (ft)	87	74	131	81	5	132	143
Queue Length 95th (ft)	142	103	203	132	12	196	242
Internal Link Dist (ft)	1054			1788			1001
Turn Bay Length (ft)		125	325		225	325	
Base Capacity (vph)	346	679	444	1969	1278	457	2003
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.24	0.46	0.38	0.04	0.47	0.41

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 55 (55%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 23.3
 Intersection LOS: C
 Intersection Capacity Utilization 50.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 1: US Highway 15-501 & Lystra Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

2026 Build Sunday Peak Hour
 Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	98	4	42	4	4	11	89	56	745	11	196	19
Future Volume (vph)	98	4	42	4	4	11	89	56	745	11	196	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-5%				1%			
Storage Length (ft)	475		0	0		0		425		150		425
Storage Lanes	1		0	0		0		1		1		1
Taper Length (ft)	100			100				100				100
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Fr _t		0.862			0.919					0.850		
Fl _t Protected	0.950				0.990			0.950				0.950
Satd. Flow (prot)	1778	1614	0	0	1737	0	0	1761	3522	1575	0	1787
Fl _t Permitted	0.950				0.917			0.224				0.270
Satd. Flow (perm)	1778	1614	0	0	1609	0	0	415	3522	1575	0	508
Right Turn on Red			No			No				No		
Satd. Flow (RTOR)												
Link Speed (mph)		25			35				55			
Link Distance (ft)		1224			1125				1396			
Travel Time (s)		33.4			21.9				17.3			
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)	109	4	47	4	4	12	99	62	828	12	218	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	51	0	0	20	0	0	161	828	12	0	239
Turn Type	Prot	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P
Protected Phases	7	4			8		5	5	2		1	1
Permitted Phases				8			6	6		2	2	2
Detector Phase	7	4		8	8		5	5	2	2	1	1
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0
Minimum Split (s)	13.3	13.6		13.9	13.9		13.5	13.5	20.5	20.5	13.3	13.3
Total Split (s)	19.0	33.0		14.0	14.0		18.0	18.0	45.0	45.0	22.0	22.0
Total Split (%)	19.0%	33.0%		14.0%	14.0%		18.0%	18.0%	45.0%	45.0%	22.0%	22.0%
Maximum Green (s)	12.7	26.4		7.1	7.1		11.5	11.5	38.5	38.5	15.7	15.7
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	6.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.4	3.4	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	15.0	15.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	45.0	45.0	0.0	0.0
Recall Mode	None	None		None	None		None	None	C-Min	C-Min	None	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	11.6	17.2			8.9			67.8	55.6	55.6		67.8
Actuated g/C Ratio	0.12	0.17			0.09			0.68	0.56	0.56		0.68

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

2026 Build Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	SBT	SBR
Lane Configurations	↑↑	↑
Traffic Volume (vph)	870	96
Future Volume (vph)	870	96
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		225
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	0.95	1.00
Frt		0.850
Flt Protected		
Satd. Flow (prot)	3575	1599
Flt Permitted		
Satd. Flow (perm)	3575	1599
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	55	
Link Distance (ft)	1149	
Travel Time (s)	14.2	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	967	107
Shared Lane Traffic (%)		
Lane Group Flow (vph)	967	107
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Detector Phase	6	7
Switch Phase		
Minimum Initial (s)	14.0	7.0
Minimum Split (s)	35.5	13.3
Total Split (s)	49.0	19.0
Total Split (%)	49.0%	19.0%
Maximum Green (s)	42.5	12.7
Yellow Time (s)	5.4	3.0
All-Red Time (s)	1.1	3.3
Lost Time Adjust (s)	-1.5	-1.3
Total Lost Time (s)	5.0	5.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	6.0	2.0
Minimum Gap (s)	3.4	3.0
Time Before Reduce (s)	15.0	0.0
Time To Reduce (s)	45.0	0.0
Recall Mode	C-Min	None
Walk Time (s)	7.0	
Flash Dont Walk (s)	22.0	
Pedestrian Calls (#/hr)	0	
Act Effct Green (s)	58.0	74.6
Actuated g/C Ratio	0.58	0.75

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

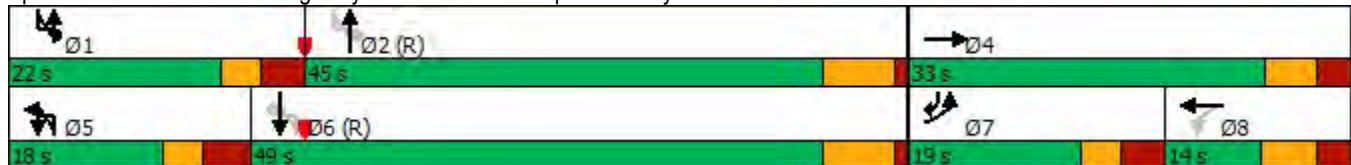
2026 Build Sunday Peak Hour
 Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
v/c Ratio	0.53	0.18			0.14			0.39	0.42	0.01		0.48
Control Delay	50.9	33.1			44.5			9.0	11.7	12.0		9.5
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0
Total Delay	50.9	33.1			44.5			9.0	11.7	12.0		9.5
LOS	D	C			D			A	B	B		A
Approach Delay		45.2			44.5				11.3			
Approach LOS		D			D				B			
Queue Length 50th (ft)	66	30			12			14	92	2		19
Queue Length 95th (ft)	119	54			36			54	217	m11		79
Internal Link Dist (ft)		1144			1045				1316			
Turn Bay Length (ft)	475							425		150		425
Base Capacity (vph)	248	451			144			469	1957	875		581
Starvation Cap Reductn	0	0			0			0	0	0		0
Spillback Cap Reductn	0	0			0			0	0	0		0
Storage Cap Reductn	0	0			0			0	0	0		0
Reduced v/c Ratio	0.44	0.11			0.14			0.34	0.42	0.01		0.41

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 12.8 Intersection LOS: B
 Intersection Capacity Utilization 57.1% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

2026 Build Sunday Peak Hour
 Lanes, Volumes, Timings



Lane Group	SBT	SBR
v/c Ratio	0.47	0.09
Control Delay	10.1	4.0
Queue Delay	0.0	0.0
Total Delay	10.1	4.0
LOS	B	A
Approach Delay	9.5	
Approach LOS	A	
Queue Length 50th (ft)	92	10
Queue Length 95th (ft)	185	34
Internal Link Dist (ft)	1069	
Turn Bay Length (ft)		225
Base Capacity (vph)	2074	1231
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.47	0.09
Intersection Summary		

Chatham County Summit Church TIA
 3: US Highway 15-501 & Jack Bennett Road

2026 Build Sunday Peak Hour
 Lanes, Volumes, Timings

Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	0	231	4	663	125	7	157	842
Future Volume (vph)	0	231	4	663	125	7	157	842
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%			0%				0%
Storage Length (ft)	0	400	425		425		450	
Storage Lanes	0	1	1		1		1	
Taper Length (ft)	100		100				100	
Lane Util. Factor	1.00	0.88	1.00	0.95	1.00	0.95	1.00	0.95
Frt		0.850			0.850			
Flt Protected			0.950				0.950	
Satd. Flow (prot)	0	2773	1770	3539	1583	0	1770	3539
Flt Permitted			0.299				0.353	
Satd. Flow (perm)	0	2773	557	3539	1583	0	658	3539
Right Turn on Red		No			No			
Satd. Flow (RTOR)								
Link Speed (mph)	45			55				55
Link Distance (ft)	1101			1066				1396
Travel Time (s)	16.7			13.2				17.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	257	4	737	139	8	174	936
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	257	4	737	139	0	182	936
Turn Type		pm+ov	D.Pm	NA	custom	D.P+P	D.P+P	NA
Protected Phases		1!		2	8	1!	1	6
Permitted Phases		8	6		2	2	2	
Detector Phase		1	6	2	8	1	1	6
Switch Phase								
Minimum Initial (s)		7.0	14.0	14.0	7.0	7.0	7.0	14.0
Minimum Split (s)		12.8	21.2	21.2	13.1	12.8	12.8	21.2
Total Split (s)		26.0	81.0	55.0	19.0	26.0	26.0	81.0
Total Split (%)		26.0%	81.0%	55.0%	19.0%	26.0%	26.0%	81.0%
Maximum Green (s)		20.2	74.8	48.8	12.9	20.2	20.2	74.8
Yellow Time (s)		3.0	5.2	5.2	3.0	3.0	3.0	5.2
All-Red Time (s)		2.8	1.0	1.0	3.1	2.8	2.8	1.0
Lost Time Adjust (s)		-0.8	-1.2	-1.2	-1.1		-0.8	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag		Lead		Lag		Lead	Lead	
Lead-Lag Optimize?		Yes		Yes		Yes	Yes	
Vehicle Extension (s)		1.0	6.0	6.0	1.0	1.0	1.0	6.0
Minimum Gap (s)		3.0	4.0	4.0	3.0	3.0	3.0	4.0
Time Before Reduce (s)		0.0	15.0	15.0	0.0	0.0	0.0	15.0
Time To Reduce (s)		0.0	30.0	30.0	0.0	0.0	0.0	30.0
Recall Mode		None	C-Min	C-Min	None	None	None	C-Min
Act Effct Green (s)		21.0	81.9	69.0	82.1		76.9	81.9
Actuated g/C Ratio		0.21	0.82	0.69	0.82		0.77	0.82
v/c Ratio		0.44	0.01	0.30	0.11		0.31	0.32
Control Delay		37.1	1.8	6.5	2.0		2.3	0.6
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0

Chatham County Summit Church TIA
 3: US Highway 15-501 & Jack Bennett Road

2026 Build Sunday Peak Hour
 Lanes, Volumes, Timings

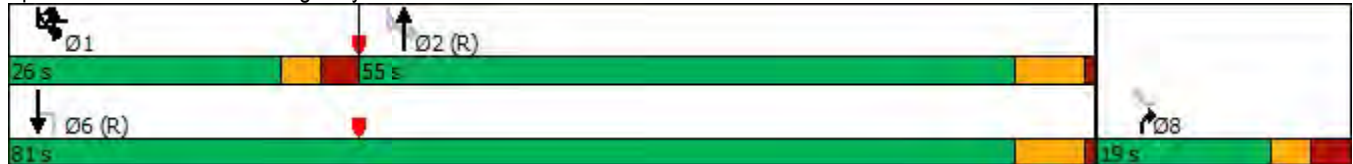


Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Total Delay		37.1	1.8	6.5	2.0		2.3	0.6
LOS		D	A	A	A		A	A
Approach Delay	37.1			5.8				0.9
Approach LOS	D			A				A
Queue Length 50th (ft)		81	0	84	12		2	6
Queue Length 95th (ft)		123	2	114	23		13	2
Internal Link Dist (ft)	1021			986				1316
Turn Bay Length (ft)		400	425		425		450	
Base Capacity (vph)		945	456	2440	1392		772	2898
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	0.01	0.30	0.10		0.24	0.32

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.44
 Intersection Signal Delay: 6.9
 Intersection LOS: A
 Intersection Capacity Utilization 48.0%
 ICU Level of Service A
 Analysis Period (min) 15
 ! Phase conflict between lane groups.

Splits and Phases: 3: US Highway 15-501 & Jack Bennett Road



Chatham County Summit Church TIA
4: US Highway 15-501 & Poplar Street/Hidden Oaks Court

2026 Build Sunday Peak Hour
HCM 6th TWSC

Intersection														
Int Delay, s/veh	9.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↑↑	↗		↕	↑↑	↗
Traffic Vol, veh/h	7	4	4	4	4	4	145	4	939	4	6	4	1033	4
Future Vol, veh/h	7	4	4	4	4	4	145	4	939	4	6	4	1033	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	-	-	-	-	-	425	-	125	-	250	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	4	4	4	4	161	4	1043	4	7	4	1148	4

Major/Minor	Minor2		Minor1		Major1			Major2						
Conflicting Flow All	2024	2547	574	1971	2547	522	1148	1152	0	0	1043	1047	0	0
Stage 1	1170	1170	-	1373	1373	-	-	-	-	-	-	-	-	-
Stage 2	854	1377	-	598	1174	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	6.44	4.14	-	-	6.44	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.52	2.22	-	-	2.52	2.22	-	-
Pot Cap-1 Maneuver	34	26	462	37	26	499	267	602	-	-	312	660	-	-
Stage 1	205	265	-	153	212	-	-	-	-	-	-	-	-	-
Stage 2	320	211	-	456	264	-	-	-	-	-	-	-	-	-
Platoon blocked, %									-	-			-	-
Mov Cap-1 Maneuver	12	10	462	13	10	499	269	269	-	-	392	392	-	-
Mov Cap-2 Maneuver	12	10	-	13	10	-	-	-	-	-	-	-	-	-
Stage 1	79	258	-	59	81	-	-	-	-	-	-	-	-	-
Stage 2	115	81	-	431	257	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	\$ 617.3		\$ 445.9		5.1		0.1	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	269	-	-	15	17	392	-	-
HCM Lane V/C Ratio	0.615	-	-	1.111	0.784	0.028	-	-
HCM Control Delay (s)	37.6	-	-	\$ 617.3	\$ 445.9	14.4	-	-
HCM Lane LOS	E	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	3.7	-	-	2.6	2	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

**Chatham County Summit Church TIA
5: US Highway 15-501 & Site Access #1**

**2026 Build Sunday Peak Hour
HCM 6th TWSC**

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	284	802	263	0	1180
Future Vol, veh/h	0	284	802	263	0	1180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	316	891	292	0	1311

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	446	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	560	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	560	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	560
HCM Lane V/C Ratio	-	-	0.563
HCM Control Delay (s)	-	-	19.4
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	3.5

**Chatham County Summit Church TIA
6: US Highway 15-501 & Site Access #2**

**2026 Build Sunday Peak Hour
HCM 6th TWSC**

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		↕
Traffic Vol, veh/h	0	190	875	175	0	1180
Future Vol, veh/h	0	190	875	175	0	1180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	211	972	194	0	1311

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	486	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	527	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	527	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	527
HCM Lane V/C Ratio	-	-	0.401
HCM Control Delay (s)	-	-	16.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	1.9

Chatham County Summit Church TIA

2026 Build Sunday Peak Hour

SimTraffic Simulation Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	10:50	10:50	10:50	10:50	10:50	10:50	10:50
End Time	12:00	12:00	12:00	12:00	12:00	12:00	12:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	3091	3357	3143	3231	3217	3220	3246
Vehs Exited	3088	3339	3116	3231	3181	3235	3245
Starting Vehs	119	129	115	155	103	137	125
Ending Vehs	122	147	142	155	139	122	126
Travel Distance (mi)	3938	4292	4060	4092	4136	4135	4182
Travel Time (hr)	132.2	149.0	138.5	142.3	141.6	142.9	146.5
Total Delay (hr)	37.0	45.0	40.1	42.7	41.8	42.6	44.9
Total Stops	3234	3717	3334	3446	3438	3567	3598
Fuel Used (gal)	144.9	159.9	149.8	151.2	152.6	155.0	155.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	10:50	10:50	10:50	10:50
End Time	12:00	12:00	12:00	12:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	3309	3261	3272	3236
Vehs Exited	3287	3243	3279	3225
Starting Vehs	130	119	131	126
Ending Vehs	152	137	124	137
Travel Distance (mi)	4208	4128	4188	4136
Travel Time (hr)	146.6	143.2	143.8	142.7
Total Delay (hr)	43.8	43.1	42.3	42.3
Total Stops	3591	3505	3527	3497
Fuel Used (gal)	155.6	153.3	154.2	153.2

Interval #0 Information Seeding

Start Time	10:50
End Time	11:00
Total Time (min)	10
Volumes adjusted by PHF.	
No data recorded this interval.	

Chatham County Summit Church TIA

2026 Build Sunday Peak Hour

SimTraffic Simulation Summary

Interval #1 Information Recording

Start Time	11:00
End Time	12:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	3091	3357	3143	3231	3217	3220	3246
Vehs Exited	3088	3339	3116	3231	3181	3235	3245
Starting Vehs	119	129	115	155	103	137	125
Ending Vehs	122	147	142	155	139	122	126
Travel Distance (mi)	3938	4292	4060	4092	4136	4135	4182
Travel Time (hr)	132.2	149.0	138.5	142.3	141.6	142.9	146.5
Total Delay (hr)	37.0	45.0	40.1	42.7	41.8	42.6	44.9
Total Stops	3234	3717	3334	3446	3438	3567	3598
Fuel Used (gal)	144.9	159.9	149.8	151.2	152.6	155.0	155.9

Interval #1 Information Recording

Start Time	11:00
End Time	12:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	3309	3261	3272	3236
Vehs Exited	3287	3243	3279	3225
Starting Vehs	130	119	131	126
Ending Vehs	152	137	124	137
Travel Distance (mi)	4208	4128	4188	4136
Travel Time (hr)	146.6	143.2	143.8	142.7
Total Delay (hr)	43.8	43.1	42.3	42.3
Total Stops	3591	3505	3527	3497
Fuel Used (gal)	155.6	153.3	154.2	153.2

Chatham County Summit Church TIA

2026 Build Sunday Peak Hour

Queuing and Blocking Report

Intersection: 1: US Highway 15-501 & Lystra Road

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	U	T	T	R	L	T	T
Maximum Queue (ft)	227	188	217	174	189	50	250	232	202
Average Queue (ft)	102	78	131	95	100	13	142	120	86
95th Queue (ft)	187	150	202	153	166	42	222	203	167
Link Distance (ft)	1065		1793		1793		1048		1048
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	125		325		225		325		
Storage Blk Time (%)	7	2					0		
Queuing Penalty (veh)	11	3					0		

Intersection: 2: US Highway 15-501 & Briar Chapel Parkway/Vickers Road

Movement	EB	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	UL	T	T	R	UL	T	T	R
Maximum Queue (ft)	175	74	56	154	205	233	29	190	210	216	64
Average Queue (ft)	76	26	14	62	87	104	3	81	97	97	18
95th Queue (ft)	137	59	41	118	167	190	18	153	183	180	50
Link Distance (ft)	1146		1054		1306		1306		1067		1067
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	475		425		150		425		225		
Storage Blk Time (%)						3				0	
Queuing Penalty (veh)						0				0	

Intersection: 3: US Highway 15-501 & Jack Bennett Road

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	R	R	U	T	T	R	UL	T	T
Maximum Queue (ft)	186	153	30	130	120	92	152	37	5
Average Queue (ft)	95	70	2	54	44	27	70	2	0
95th Queue (ft)	166	138	15	107	99	69	127	21	3
Link Distance (ft)	1036		1028		1028		1306		1306
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	400		425		425		450		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Chatham County Summit Church TIA

2026 Build Sunday Peak Hour

Queuing and Blocking Report

Intersection: 4: US Highway 15-501 & Poplar Street/Hidden Oaks Court

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	UL	T	UL
Maximum Queue (ft)	61	39	157	18	32
Average Queue (ft)	15	10	65	1	6
95th Queue (ft)	45	33	122	16	23
Link Distance (ft)	1027	966		1052	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			425		250
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: US Highway 15-501 & Site Access #1

Movement	WB
Directions Served	R
Maximum Queue (ft)	230
Average Queue (ft)	96
95th Queue (ft)	181
Link Distance (ft)	1243
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: US Highway 15-501 & Site Access #2

Movement	WB
Directions Served	R
Maximum Queue (ft)	122
Average Queue (ft)	57
95th Queue (ft)	98
Link Distance (ft)	1232
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	


















Network Summary

Network wide Queuing Penalty: 15

Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario A AM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	222	0	0	0	265	0	2088	96	0	0	0
Future Volume (vph)	4	222	0	0	0	265	0	2088	96	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		225	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.999										
Satd. Flow (prot)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.999										
Satd. Flow (perm)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			55			55				30
Link Distance (ft)		217			1097			805				1004
Travel Time (s)		3.3			13.6			10.0				22.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	247	0	0	0	294	0	2320	107	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	251	0	0	0	294	0	2320	107	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	26.0	26.0				26.0		74.0	74.0			
Total Split (%)	26.0%	26.0%				26.0%		74.0%	74.0%			
Maximum Green (s)	19.0	19.0				19.0		67.0	67.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		20.7				20.7		69.3	69.3			
Actuated g/C Ratio		0.21				0.21		0.69	0.69			
v/c Ratio		0.65				0.89		0.95	0.10			
Control Delay		45.3				67.0		23.9	5.4			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		45.3				67.0		23.9	5.4			
LOS		D				E		C	A			
Approach Delay		45.3			67.0			23.1				
Approach LOS		D			E			C				

Chatham County Summit Church TIA
 1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario A AM Peak Hour
 Lanes, Volumes, Timings

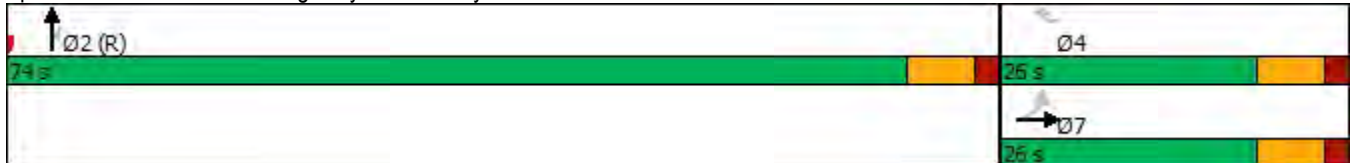


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		147				182		616	20			
Queue Length 95th (ft)		231				#331		#909	37			
Internal Link Dist (ft)		137			1017			725			924	
Turn Bay Length (ft)									225			
Base Capacity (vph)		390				338		2453	1097			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.64				0.87		0.95	0.10			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 29.3 Intersection LOS: C
 Intersection Capacity Utilization 98.5% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

















Splits and Phases: 1: US Highway 15-501 & Lystra Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario A AM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	295	74	43	0	0	0	0	0	851	70
Future Volume (vph)	0	0	295	74	43	0	0	0	0	0	851	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		125
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.865									0.850
Flt Protected					0.969							
Satd. Flow (prot)	0	0	1611	0	1805	0	0	0	0	0	3539	1583
Flt Permitted					0.969							
Satd. Flow (perm)	0	0	1611	0	1805	0	0	0	0	0	3539	1583
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			55	
Link Distance (ft)		1010			356			1194			359	
Travel Time (s)		27.5			9.7			32.6			4.5	
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)	0	0	328	82	48	0	0	0	0	0	946	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	328	0	130	0	0	0	0	0	946	78
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					3						6	
Permitted Phases			8	3								6
Detector Phase			8	3	3						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			47.0	47.0	47.0						53.0	53.0
Total Split (%)			47.0%	47.0%	47.0%						53.0%	53.0%
Maximum Green (s)			40.0	40.0	40.0						46.0	46.0
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0	3.0	3.0						3.0	3.0
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			28.1		28.1						61.9	61.9
Actuated g/C Ratio			0.28		0.28						0.62	0.62
v/c Ratio			0.73		0.26						0.43	0.08
Control Delay			41.4		23.8						11.6	9.6
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			41.4		23.8						11.6	9.6
LOS			D		C						B	A
Approach Delay		41.4			23.8						11.5	
Approach LOS		D			C						B	

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario A AM Peak Hour
 Lanes, Volumes, Timings

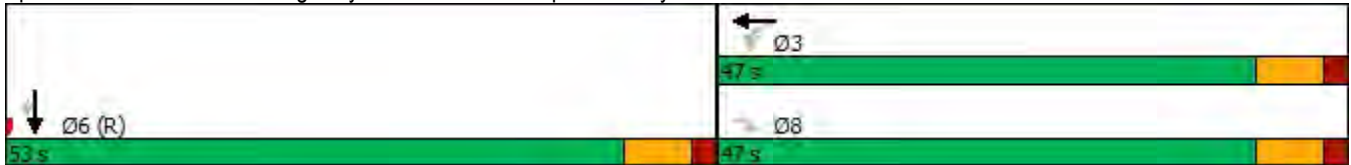


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			188		54						152	18
Queue Length 95th (ft)			254		86						244	46
Internal Link Dist (ft)		930			276			1114			279	
Turn Bay Length (ft)												125
Base Capacity (vph)			676		758						2192	980
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.49		0.17						0.43	0.08

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 54 (54%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 40
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 19.2
 Intersection Capacity Utilization 60.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

















Splits and Phases: 2: US Highway 15-501 & Briar Chapel Parkway



Chatham County Summit Church TIA
3: US Highway 15-501 & Vickers Road

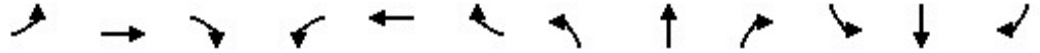
2036 TIP U-6192 Scenario A AM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	28	0	0	0	45	0	1850	9	0	0	0
Future Volume (vph)	25	28	0	0	0	45	0	1850	9	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.977										
Satd. Flow (prot)	0	1820	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.977										
Satd. Flow (perm)	0	1820	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55				30
Link Distance (ft)		389			1031			328				1072
Travel Time (s)		10.6			28.1			4.1				24.4
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)	28	31	0	0	0	50	0	2056	10	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	0	50	0	2056	10	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	14.0	14.0				14.0		86.0	86.0			
Total Split (%)	14.0%	14.0%				14.0%		86.0%	86.0%			
Maximum Green (s)	7.0	7.0				7.0		79.0	79.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		9.0				9.0		84.8	84.8			
Actuated g/C Ratio		0.09				0.09		0.85	0.85			
v/c Ratio		0.36				0.35		0.69	0.01			
Control Delay		49.6				50.0		4.4	1.4			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		49.6				50.0		4.4	1.4			
LOS		D				D		A	A			
Approach Delay		49.6			50.0			4.4				
Approach LOS		D			D			A				

Chatham County Summit Church TIA
 3: US Highway 15-501 & Vickers Road

2036 TIP U-6192 Scenario A AM Peak Hour
 Lanes, Volumes, Timings

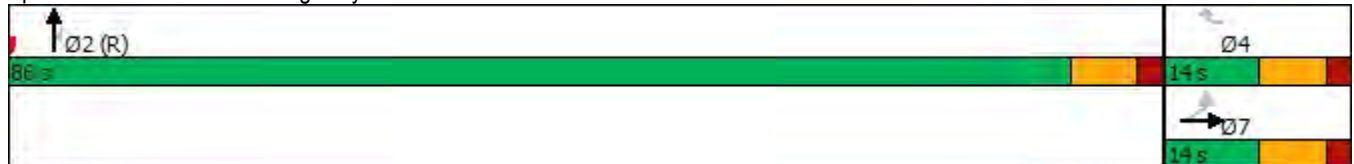


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		36				31		210	1			
Queue Length 95th (ft)		77				68		130	m2			
Internal Link Dist (ft)		309			951			248			992	
Turn Bay Length (ft)									100			
Base Capacity (vph)		163				144		3001	1342			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.36				0.35		0.69	0.01			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 68 (68%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 6.7
 Intersection LOS: A
 Intersection Capacity Utilization 75.3%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US Highway 15-501 & Vickers Road



Chatham County Summit Church TIA
 4: US Highway 15-501 & Jack Bennett Road

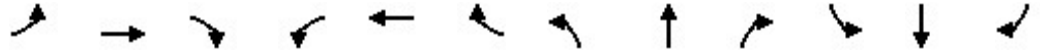
2036 TIP U-6192 Scenario A AM Peak Hour

Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	92	0	0	0	172	0	972	86	0	0	0
Future Volume (vph)	249	92	0	0	0	172	0	972	86	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		400	0		375	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected		0.965										
Satd. Flow (prot)	0	1798	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted		0.965										
Satd. Flow (perm)	0	1798	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55				30
Link Distance (ft)		222			1065			1061				1064
Travel Time (s)		6.1			29.0			13.2				24.2
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)	277	102	0	0	0	191	0	1080	96	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	379	0	0	0	191	0	1080	96	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	45.0	45.0				45.0		55.0	55.0			
Total Split (%)	45.0%	45.0%				45.0%		55.0%	55.0%			
Maximum Green (s)	38.0	38.0				38.0		48.0	48.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		28.9				28.9		61.1	61.1			
Actuated g/C Ratio		0.29				0.29		0.61	0.61			
v/c Ratio		0.73				0.24		0.50	0.10			
Control Delay		31.8				26.5		12.9	10.0			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		31.8				26.5		12.9	10.0			
LOS		C				C		B	A			
Approach Delay		31.8			26.5			12.7				
Approach LOS		C			C			B				

Chatham County Summit Church TIA
 4: US Highway 15-501 & Jack Bennett Road

2036 TIP U-6192 Scenario A AM Peak Hour
 Lanes, Volumes, Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		160				52		186	23			
Queue Length 95th (ft)		192				73		296	56			
Internal Link Dist (ft)		142			985			981			984	
Turn Bay Length (ft)						400			375			
Base Capacity (vph)		719				1114		2163	967			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.53				0.17		0.50	0.10			

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	18.3
Intersection LOS:	B
Intersection Capacity Utilization:	64.0%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 4: US Highway 15-501 & Jack Bennett Road



**Chatham County Summit Church TIA
5: US Highway 15-501 & Poplar Street**

**2036 TIP U-6192 Scenario A AM Peak Hour
HCM 6th TWSC**

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↖						↗↖	↗
Traffic Vol, veh/h	0	0	7	4	4	0	0	0	0	0	956	4
Future Vol, veh/h	0	0	7	4	4	0	0	0	0	0	956	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	8	4	4	0	0	0	0	0	1062	4

Major/Minor	Minor2		Minor1			Major2		
Conflicting Flow All	-	-	531	531	1066	-	-	0
Stage 1	-	-	-	0	0	-	-	-
Stage 2	-	-	-	531	1066	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	-	-	-
Pot Cap-1 Maneuver	0	0	493	431	221	0	0	-
Stage 1	0	0	-	-	-	0	0	-
Stage 2	0	0	-	500	297	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	493	424	221	-	-	-
Mov Cap-2 Maneuver	-	-	-	424	221	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	492	297	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	12.4		17.8		0	
HCM LOS	B		C			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBT	SBR
Capacity (veh/h)	493	291	-	-
HCM Lane V/C Ratio	0.016	0.031	-	-
HCM Control Delay (s)	12.4	17.8	-	-
HCM Lane LOS	B	C	-	-
HCM 95th %tile Q(veh)	0	0.1	-	-

Chatham County Summit Church TIA
 6: US Highway 15-501 & Hidden Oaks Court

2036 TIP U-6192 Scenario A AM Peak Hour
 HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↕↕	↔			
Traffic Vol, veh/h	5	4	0	0	0	4	0	1902	4	0	0	0
Future Vol, veh/h	5	4	0	0	0	4	0	1902	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1084969472	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	4	0	0	0	4	0	2113	4	0	0	0

Major/Minor	Minor2		Minor1			Major1		
Conflicting Flow All	1057	2117	-	-	-	1057	-	0
Stage 1	0	0	-	-	-	-	-	-
Stage 2	1057	2117	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	-	-	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	-	-	3.32	-	-
Pot Cap-1 Maneuver	179	50	0	0	0	221	0	-
Stage 1	-	-	0	0	0	-	0	-
Stage 2	240	90	0	0	0	-	0	-
Platoon blocked, %								
Mov Cap-1 Maneuver	175	50	-	-	-	221	-	-
Mov Cap-2 Maneuver	175	50	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	235	90	-	-	-	-	-	-

Approach	EB		WB		NB	
HCM Control Delay, s	54.2		21.6		0	
HCM LOS	F		C			

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	83	221
HCM Lane V/C Ratio	-	-	0.12	0.02
HCM Control Delay (s)	-	-	54.2	21.6
HCM Lane LOS	-	-	F	C
HCM 95th %tile Q(veh)	-	-	0.4	0.1

**Chatham County Summit Church TIA
7: US Highway 15-501 & Site Access #1**

2036 TIP U-6192 Scenario A AM Peak Hour
HCM 6th TWSC

Intersection

Int Delay, s/veh 0.1

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations		↗	↕	↗		
Traffic Vol, veh/h	0	5	1902	10	0	0
Future Vol, veh/h	0	5	1902	10	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	1084271104	
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	6	2113	11	0	0

Major/Minor Minor1 Major1

Conflicting Flow All	-	1057	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	221	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	221	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach WB NB

HCM Control Delay, s	21.7	0
HCM LOS	C	

Minor Lane/Major Mvmt NBT NBRWBLn1

Capacity (veh/h)	-	-	221
HCM Lane V/C Ratio	-	-	0.025
HCM Control Delay (s)	-	-	21.7
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.1

**Chatham County Summit Church TIA
8: US Highway 15-501 & Site Access #2**

2036 TIP U-6192 Scenario A AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		
Traffic Vol, veh/h	0	6	1913	7	0	0
Future Vol, veh/h	0	6	1913	7	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	1083228160	
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	2126	8	0	0

Major/Minor	Minor1	Major1		
Conflicting Flow All	-	1063	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	219	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	219	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	22	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	- 219
HCM Lane V/C Ratio	-	- 0.03
HCM Control Delay (s)	-	- 22
HCM Lane LOS	-	- C
HCM 95th %tile Q(veh)	-	- 0.1

Chatham County Summit Church TIA
 19: US Highway 15-501 & U-turn S. of Hidden Oaks

2036 TIP U-6192 Scenario A AM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↑↑		
Traffic Vol, veh/h	6	0	0	1901	0	0
Future Vol, veh/h	6	0	0	1901	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	1080	17536	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	0	0	2112	0	0

Major/Minor	Minor2	Major1	
Conflicting Flow All	1056	-	0
Stage 1	0	-	-
Stage 2	1056	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	221	0	-
Stage 1	-	0	-
Stage 2	296	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	221	-	-
Mov Cap-2 Maneuver	221	-	-
Stage 1	-	-	-
Stage 2	296	-	-

Approach	EB	NB
HCM Control Delay, s	21.8	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	EBLn1
Capacity (veh/h)	-	221
HCM Lane V/C Ratio	-	0.03
HCM Control Delay (s)	-	21.8
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	0.1

Chatham County Summit Church TIA
 20: US Highway 15-501 & U-turn N. of Briar Chapel

2036 TIP U-6192 Scenario A AM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	13	0	0	0	0	961
Future Vol, veh/h	13	0	0	0	0	961
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	0	0	0	1068

Major/Minor	Minor1	Major2	
Conflicting Flow All	534	-	-
Stage 1	0	-	-
Stage 2	534	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	476	0	0
Stage 1	-	0	-
Stage 2	552	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	476	-	-
Mov Cap-2 Maneuver	476	-	-
Stage 1	-	-	-
Stage 2	552	-	-

Approach	WB	SB
HCM Control Delay, s	12.8	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	476	-
HCM Lane V/C Ratio	0.03	-
HCM Control Delay (s)	12.8	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.1	-

Chatham County Summit Church TIA
 32: US Highway 15-501 & U-turn S. of Lystra

2036 TIP U-6192 Scenario A AM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	42	0	0	0	0	1119
Future Vol, veh/h	42	0	0	0	0	1119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	0	0	0	0	1243

Major/Minor	Minor1	Major2	
Conflicting Flow All	622	-	-
Stage 1	0	-	-
Stage 2	622	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	419	0	0
Stage 1	-	0	-
Stage 2	498	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	419	-	-
Mov Cap-2 Maneuver	419	-	-
Stage 1	-	-	-
Stage 2	498	-	-

Approach	WB	SB
HCM Control Delay, s	14.7	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	419	-
HCM Lane V/C Ratio	0.111	-
HCM Control Delay (s)	14.7	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.4	-

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	4634	4837	4642	4637	4670	4821	4737
Vehs Exited	4583	4804	4647	4602	4650	4774	4634
Starting Vehs	197	206	232	223	214	249	190
Ending Vehs	248	239	227	258	234	296	293
Travel Distance (mi)	5412	5717	5547	5503	5609	5699	5605
Travel Time (hr)	222.3	262.0	229.3	228.8	228.9	287.0	247.6
Total Delay (hr)	77.3	109.2	81.1	81.7	79.4	135.3	98.2
Total Stops	4030	6195	4284	4325	4174	7434	5637
Fuel Used (gal)	194.2	209.9	200.9	197.3	199.1	217.5	204.6

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4753	4711	4751	4719
Vehs Exited	4734	4624	4740	4679
Starting Vehs	274	195	210	222
Ending Vehs	293	282	221	256
Travel Distance (mi)	5666	5650	5585	5599
Travel Time (hr)	275.5	227.1	242.4	245.1
Total Delay (hr)	124.2	76.6	93.0	95.6
Total Stops	6693	4116	4758	5164
Fuel Used (gal)	211.9	203.1	203.2	204.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by PHF.	
No data recorded this interval.	

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	4634	4837	4642	4637	4670	4821	4737
Vehs Exited	4583	4804	4647	4602	4650	4774	4634
Starting Vehs	197	206	232	223	214	249	190
Ending Vehs	248	239	227	258	234	296	293
Travel Distance (mi)	5412	5717	5547	5503	5609	5699	5605
Travel Time (hr)	222.3	262.0	229.3	228.8	228.9	287.0	247.6
Total Delay (hr)	77.3	109.2	81.1	81.7	79.4	135.3	98.2
Total Stops	4030	6195	4284	4325	4174	7434	5637
Fuel Used (gal)	194.2	209.9	200.9	197.3	199.1	217.5	204.6

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	4753	4711	4751	4719
Vehs Exited	4734	4624	4740	4679
Starting Vehs	274	195	210	222
Ending Vehs	293	282	221	256
Travel Distance (mi)	5666	5650	5585	5599
Travel Time (hr)	275.5	227.1	242.4	245.1
Total Delay (hr)	124.2	76.6	93.0	95.6
Total Stops	6693	4116	4758	5164
Fuel Used (gal)	211.9	203.1	203.2	204.2

Queuing and Blocking Report
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Intersection: 1: US Highway 15-501 & Lystra Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	217	538	779	798	325
Average Queue (ft)	147	313	536	548	124
95th Queue (ft)	228	566	911	939	351
Link Distance (ft)	84	1038	688	688	
Upstream Blk Time (%)	35		10	13	
Queuing Penalty (veh)	87		123	162	
Storage Bay Dist (ft)					225
Storage Blk Time (%)				23	
Queuing Penalty (veh)				25	

Intersection: 2: US Highway 15-501 & Briar Chapel Parkway

Movement	EB	WB	SB	SB	SB
Directions Served	R	LT	T	T	R
Maximum Queue (ft)	334	153	237	222	126
Average Queue (ft)	183	80	120	102	26
95th Queue (ft)	290	140	210	189	77
Link Distance (ft)	945	300	278	278	
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					125
Storage Blk Time (%)				4	0
Queuing Penalty (veh)				3	0

Intersection: 3: US Highway 15-501 & Vickers Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	109	99	219	224	19
Average Queue (ft)	44	38	110	117	1
95th Queue (ft)	88	80	197	209	9
Link Distance (ft)	328	973	249	249	
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					100
Storage Blk Time (%)				5	
Queuing Penalty (veh)				1	

Queuing and Blocking Report
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Intersection: 4: US Highway 15-501 & Jack Bennett Road

Movement	EB	WB	WB	NB	NB	NB
Directions Served	LT	R	R	T	T	R
Maximum Queue (ft)	266	153	128	301	263	91
Average Queue (ft)	210	74	27	185	146	34
95th Queue (ft)	288	129	79	273	240	77
Link Distance (ft)	111	1003		1025	1025	
Upstream Blk Time (%)	52					
Queuing Penalty (veh)	196					
Storage Bay Dist (ft)			400			375
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: US Highway 15-501 & Poplar Street

Movement	EB	WB
Directions Served	R	LT
Maximum Queue (ft)	22	39
Average Queue (ft)	4	9
95th Queue (ft)	18	32
Link Distance (ft)	981	223
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: US Highway 15-501 & Hidden Oaks Court

Movement	EB	WB	NB
Directions Served	LT	R	T
Maximum Queue (ft)	43	20	4
Average Queue (ft)	10	3	0
95th Queue (ft)	34	14	4
Link Distance (ft)	228	1087	237
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Intersection: 7: US Highway 15-501 & Site Access #1

Movement	WB
Directions Served	R
Maximum Queue (ft)	25
Average Queue (ft)	4
95th Queue (ft)	17
Link Distance (ft)	1157
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: US Highway 15-501 & Site Access #2

Movement	WB	NB
Directions Served	R	T
Maximum Queue (ft)	29	2
Average Queue (ft)	6	0
95th Queue (ft)	24	2
Link Distance (ft)	1157	1026
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: US Highway 15-501

Movement	NB	NB
Directions Served	LT	T
Maximum Queue (ft)	306	335
Average Queue (ft)	98	108
95th Queue (ft)	398	424
Link Distance (ft)	977	977
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Intersection: 11: US Highway 15-501

Movement	SB
Directions Served	L
Maximum Queue (ft)	69
Average Queue (ft)	7
95th Queue (ft)	40
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	400
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: US Highway 15-501

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	52	4
Average Queue (ft)	2	0
95th Queue (ft)	51	4
Link Distance (ft)	993	993
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: US Highway 15-501

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	2	3
Average Queue (ft)	0	0
95th Queue (ft)	2	3
Link Distance (ft)	1034	1034
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Intersection: 14: US Highway 15-501

Movement	SB
Directions Served	L
Maximum Queue (ft)	197
Average Queue (ft)	38
95th Queue (ft)	135
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	425
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: US Highway 15-501

Movement	NB
Directions Served	T
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	557
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: US Highway 15-501

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Queuing and Blocking Report
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Intersection: 17: US Highway 15-501

Movement

Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 18: US Highway 15-501

Movement

Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 19: US Highway 15-501 & U-turn S. of Hidden Oaks

Movement	EB
Directions Served	L
Maximum Queue (ft)	33
Average Queue (ft)	6
95th Queue (ft)	24
Link Distance (ft)	134
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
2036 TIP U-6192 Scenario A AM Peak Hour

08/16/2024

Intersection: 20: US Highway 15-501 & U-turn N. of Briar Chapel

Movement	WB
Directions Served	L
Maximum Queue (ft)	36
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	149
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: US Highway 15-501 & U-turn S. of Lystra

Movement	WB	SB
Directions Served	L	T
Maximum Queue (ft)	65	2
Average Queue (ft)	27	0
95th Queue (ft)	55	2
Link Distance (ft)	161	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		


















Network Summary

Network wide Queuing Penalty: 597

Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario A PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	352	0	0	0	398	0	1302	53	0	0	0
Future Volume (vph)	4	352	0	0	0	398	0	1302	53	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		225	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.999										
Satd. Flow (prot)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.999										
Satd. Flow (perm)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			55			55			55	
Link Distance (ft)		217			1097			805			1004	
Travel Time (s)		3.3			13.6			10.0			12.4	
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)	4	391	0	0	0	442	0	1447	59	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	395	0	0	0	442	0	1447	59	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	44.0	44.0				44.0		56.0	56.0			
Total Split (%)	44.0%	44.0%				44.0%		56.0%	56.0%			
Maximum Green (s)	37.0	37.0				37.0		49.0	49.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		33.6				33.6		56.4	56.4			
Actuated g/C Ratio		0.34				0.34		0.56	0.56			
v/c Ratio		0.63				0.82		0.73	0.07			
Control Delay		32.2				42.9		19.8	11.9			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		32.2				42.9		19.8	11.9			
LOS		C				D		B	B			
Approach Delay		32.2			42.9			19.5				
Approach LOS		C			D			B				

Chatham County Summit Church TIA
 1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario A PM Peak Hour
 Lanes, Volumes, Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		206				251		347	17			
Queue Length 95th (ft)		285				351		481	39			
Internal Link Dist (ft)		137			1017			725			924	
Turn Bay Length (ft)									225			
Base Capacity (vph)		725				628		1995	892			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.54				0.70		0.73	0.07			

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	26.1
Intersection LOS:	C
Intersection Capacity Utilization:	91.9%
ICU Level of Service:	F
Analysis Period (min):	15

















Splits and Phases: 1: US Highway 15-501 & Lystra Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario A PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	233	162	73	0	0	0	0	0	1930	284
Future Volume (vph)	0	0	233	162	73	0	0	0	0	0	1930	284
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		125
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.865									0.850
Flt Protected					0.967							
Satd. Flow (prot)	0	0	1611	0	1801	0	0	0	0	0	3539	1583
Flt Permitted					0.967							
Satd. Flow (perm)	0	0	1611	0	1801	0	0	0	0	0	3539	1583
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		1010			356			1194			359	
Travel Time (s)		27.5			9.7			14.8			4.5	
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)	0	0	259	180	81	0	0	0	0	0	2144	316
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	259	0	261	0	0	0	0	0	2144	316
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					3						6	
Permitted Phases			8	3								6
Detector Phase			8	3	3						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			26.0	26.0	26.0						74.0	74.0
Total Split (%)			26.0%	26.0%	26.0%						74.0%	74.0%
Maximum Green (s)			19.0	19.0	19.0						67.0	67.0
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0	3.0	3.0						3.0	3.0
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			20.0		20.0						70.0	70.0
Actuated g/C Ratio			0.20		0.20						0.70	0.70
v/c Ratio			0.80		0.72						0.87	0.29
Control Delay			57.8		48.0						16.8	6.6
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			57.8		48.0						16.8	6.6
LOS			E		D						B	A
Approach Delay		57.8			48.0						15.4	
Approach LOS		E			D						B	

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario A PM Peak Hour
 Lanes, Volumes, Timings

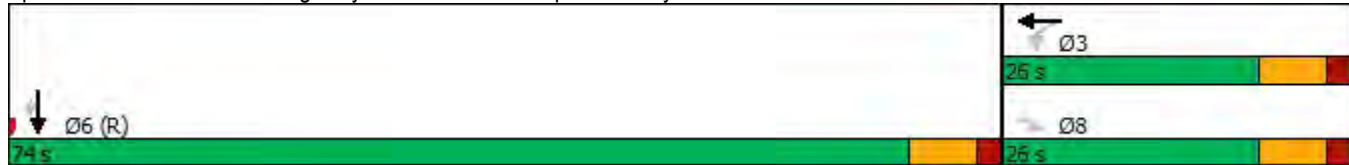


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			157		162						497	69
Queue Length 95th (ft)			#276		#252						632	107
Internal Link Dist (ft)		930			276			1114			279	
Turn Bay Length (ft)												125
Base Capacity (vph)			338		378						2477	1108
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.77		0.69						0.87	0.29

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 5 (5%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 22.0
 Intersection LOS: C
 Intersection Capacity Utilization 93.1%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

















Splits and Phases: 2: US Highway 15-501 & Briar Chapel Parkway



Chatham County Summit Church TIA
 3: US Highway 15-501 & Vickers Road

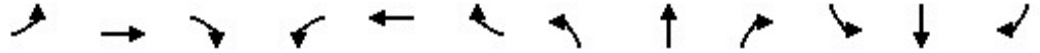
2036 TIP U-6192 Scenario A PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	22	0	0	0	36	0	1273	12	0	0	0
Future Volume (vph)	33	22	0	0	0	36	0	1273	12	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.971										
Satd. Flow (prot)	0	1809	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.971										
Satd. Flow (perm)	0	1809	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55				55
Link Distance (ft)		389			1031			328				1072
Travel Time (s)		10.6			28.1			4.1				13.3
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)	37	24	0	0	0	40	0	1414	13	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	61	0	0	0	40	0	1414	13	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	19.0	19.0				19.0		81.0	81.0			
Total Split (%)	19.0%	19.0%				19.0%		81.0%	81.0%			
Maximum Green (s)	12.0	12.0				12.0		74.0	74.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		11.0				11.0		82.8	82.8			
Actuated g/C Ratio		0.11				0.11		0.83	0.83			
v/c Ratio		0.31				0.23		0.48	0.01			
Control Delay		44.5				43.0		2.1	1.6			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		44.5				43.0		2.1	1.6			
LOS		D				D		A	A			
Approach Delay		44.5			43.0			2.0				
Approach LOS		D			D			A				

Chatham County Summit Church TIA
 3: US Highway 15-501 & Vickers Road

2036 TIP U-6192 Scenario A PM Peak Hour
 Lanes, Volumes, Timings

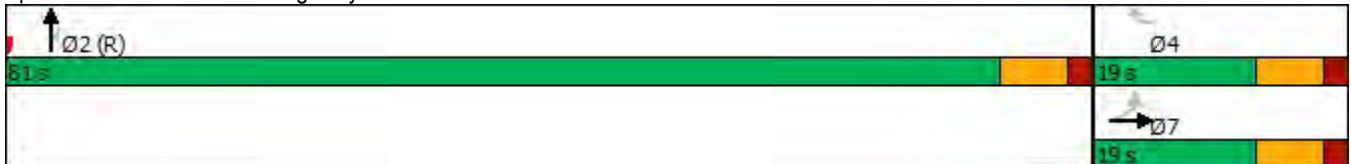


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		37				24		48	1			
Queue Length 95th (ft)		74				54		73	m2			
Internal Link Dist (ft)		309			951			248			992	
Turn Bay Length (ft)									100			
Base Capacity (vph)		253				225		2929	1310			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.24				0.18		0.48	0.01			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 10 (10%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 40
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.48
 Intersection Signal Delay: 4.8
 Intersection LOS: A
 Intersection Capacity Utilization 59.4%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.



















Splits and Phases: 3: US Highway 15-501 & Vickers Road



Chatham County Summit Church TIA
4: US Highway 15-501 & Jack Bennett Road

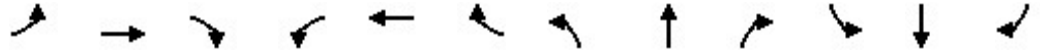
2036 TIP U-6192 Scenario A PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						 		 				
Traffic Volume (vph)	223	190	0	0	0	319	0	985	93	0	0	0
Future Volume (vph)	223	190	0	0	0	319	0	985	93	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		400	0		375	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected		0.974										
Satd. Flow (prot)	0	1814	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted		0.974										
Satd. Flow (perm)	0	1814	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55			55	
Link Distance (ft)		222			1065			1061			1064	
Travel Time (s)		6.1			29.0			13.2			13.2	
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)	248	211	0	0	0	354	0	1094	103	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	459	0	0	0	354	0	1094	103	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	47.0	47.0				47.0		53.0	53.0			
Total Split (%)	47.0%	47.0%				47.0%		53.0%	53.0%			
Maximum Green (s)	40.0	40.0				40.0		46.0	46.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		33.3				33.3		56.7	56.7			
Actuated g/C Ratio		0.33				0.33		0.57	0.57			
v/c Ratio		0.76				0.38		0.55	0.11			
Control Delay		28.4				25.7		16.0	12.3			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		28.4				25.7		16.0	12.3			
LOS		C				C		B	B			
Approach Delay		28.4			25.7			15.7				
Approach LOS		C			C			B				

Chatham County Summit Church TIA
 4: US Highway 15-501 & Jack Bennett Road

2036 TIP U-6192 Scenario A PM Peak Hour
 Lanes, Volumes, Timings

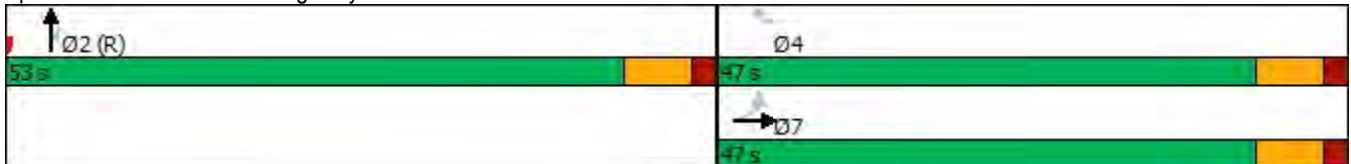


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		257				96		218	29			
Queue Length 95th (ft)		m249				120		336	66			
Internal Link Dist (ft)		142			985			981			984	
Turn Bay Length (ft)						400			375			
Base Capacity (vph)		761				1170		2007	898			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.60				0.30		0.55	0.11			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 20.4
 Intersection LOS: C
 Intersection Capacity Utilization 73.2%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: US Highway 15-501 & Jack Bennett Road



**Chatham County Summit Church TIA
5: US Highway 15-501 & Poplar Street**

**2036 TIP U-6192 Scenario A PM Peak Hour
HCM 6th TWSC**

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↖						↗↖	↗
Traffic Vol, veh/h	0	0	10	6	4	0	0	0	0	0	2237	6
Future Vol, veh/h	0	0	10	6	4	0	0	0	0	0	2237	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	7	4	0	0	0	0	0	2486	7

Major/Minor	Minor2		Minor1			Major2		
Conflicting Flow All	-	-	1243	1243	2493	-	-	0
Stage 1	-	-	-	0	0	-	-	-
Stage 2	-	-	-	1243	2493	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	-	-	-
Pot Cap-1 Maneuver	0	0	166	131	29	0	0	-
Stage 1	0	0	-	-	-	0	0	-
Stage 2	0	0	-	185	57	0	0	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	-	-	166	122	29	-	-	-
Mov Cap-2 Maneuver	-	-	-	122	29	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	173	57	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	28.2		90.1		0	
HCM LOS	D		F			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBT	SBR
Capacity (veh/h)	166	53	-	-
HCM Lane V/C Ratio	0.067	0.21	-	-
HCM Control Delay (s)	28.2	90.1	-	-
HCM Lane LOS	D	F	-	-
HCM 95th %tile Q(veh)	0.2	0.7	-	-

Chatham County Summit Church TIA
6: US Highway 15-501 & Hidden Oaks Court

2036 TIP U-6192 Scenario A PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↗		↕↕	↗			
Traffic Vol, veh/h	7	4	0	0	0	5	0	1324	4	0	0	0
Future Vol, veh/h	7	4	0	0	0	5	0	1324	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1084969472	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	0	0	0	6	0	1471	4	0	0	0

Major/Minor	Minor2		Minor1			Major1		
Conflicting Flow All	736	1475	-	-	-	736	-	0
Stage 1	0	0	-	-	-	-	-	-
Stage 2	736	1475	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	-	-	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	-	-	3.32	-	-
Pot Cap-1 Maneuver	307	125	0	0	0	361	0	-
Stage 1	-	-	0	0	0	-	0	-
Stage 2	377	189	0	0	0	-	0	-
Platoon blocked, %								
Mov Cap-1 Maneuver	302	125	-	-	-	361	-	-
Mov Cap-2 Maneuver	302	125	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	371	189	-	-	-	-	-	-

Approach	EB		WB		NB	
HCM Control Delay, s	24.3		15.1		0	
HCM LOS	C		C			

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	199	361
HCM Lane V/C Ratio	-	-	0.061	0.015
HCM Control Delay (s)	-	-	24.3	15.1
HCM Lane LOS	-	-	C	C
HCM 95th %tile Q(veh)	-	-	0.2	0

**Chatham County Summit Church TIA
7: US Highway 15-501 & Site Access #1**

2036 TIP U-6192 Scenario A PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		
Traffic Vol, veh/h	0	12	1319	11	0	0
Future Vol, veh/h	0	12	1319	11	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	1084271104	
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	1466	12	0	0

Major/Minor	Minor1	Major1		
Conflicting Flow All	-	733	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	363	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	363	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	15.3	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	- 363
HCM Lane V/C Ratio	-	- 0.037
HCM Control Delay (s)	-	- 15.3
HCM Lane LOS	-	- C
HCM 95th %tile Q(veh)	-	- 0.1

**Chatham County Summit Church TIA
8: US Highway 15-501 & Site Access #2**

2036 TIP U-6192 Scenario A PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		
Traffic Vol, veh/h	0	12	1334	8	0	0
Future Vol, veh/h	0	12	1334	8	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	1083228160	
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	1482	9	0	0

Major/Minor	Minor1	Major1		
Conflicting Flow All	-	741	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	359	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	359	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	15.4	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	- 359
HCM Lane V/C Ratio	-	- 0.037
HCM Control Delay (s)	-	- 15.4
HCM Lane LOS	-	- C
HCM 95th %tile Q(veh)	-	- 0.1

Chatham County Summit Church TIA
 19: US Highway 15-501 & U-turn S. of Hidden Oaks

2036 TIP U-6192 Scenario A PM Peak Hour
 HCM 6th TWSC

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↑↑		
Traffic Vol, veh/h	9	0	0	1322	0	0
Future Vol, veh/h	9	0	0	1322	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	1080	17536	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	0	0	1469	0	0

Major/Minor	Minor2	Major1	
Conflicting Flow All	735	-	0
Stage 1	0	-	-
Stage 2	735	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	355	0	-
Stage 1	-	0	-
Stage 2	435	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	355	-	-
Mov Cap-2 Maneuver	355	-	-
Stage 1	-	-	-
Stage 2	435	-	-

Approach	EB	NB
HCM Control Delay, s	15.4	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	EBLn1
Capacity (veh/h)	-	355
HCM Lane V/C Ratio	-	0.028
HCM Control Delay (s)	-	15.4
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	0.1

Chatham County Summit Church TIA
 20: US Highway 15-501 & U-turn N. of Briar Chapel

2036 TIP U-6192 Scenario A PM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	25	0	0	0	0	2244
Future Vol, veh/h	25	0	0	0	0	2244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	0	0	0	0	2493

Major/Minor	Minor1	Major2	
Conflicting Flow All	1247	-	-
Stage 1	0	-	-
Stage 2	1247	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	166	0	0
Stage 1	-	0	-
Stage 2	234	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	166	-	-
Mov Cap-2 Maneuver	166	-	-
Stage 1	-	-	-
Stage 2	234	-	-

Approach	WB	SB
HCM Control Delay, s	31	0
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	166	-
HCM Lane V/C Ratio	0.167	-
HCM Control Delay (s)	31	-
HCM Lane LOS	D	-
HCM 95th %tile Q(veh)	0.6	-

**Chatham County Summit Church TIA
32: US Highway 15-501 & U-turn S. of Lystra**

**2036 TIP U-6192 Scenario A PM Peak Hour
HCM 6th TWSC**

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	56	0	0	0	0	2199
Future Vol, veh/h	56	0	0	0	0	2199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	0	0	0	0	2443

Major/Minor	Minor1	Major2	
Conflicting Flow All	1222	-	-
Stage 1	0	-	-
Stage 2	1222	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	172	0	0
Stage 1	-	0	-
Stage 2	241	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	172	-	-
Mov Cap-2 Maneuver	172	-	-
Stage 1	-	-	-
Stage 2	241	-	-

Approach	WB	SB
HCM Control Delay, s	37.3	0
HCM LOS	E	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	172	-
HCM Lane V/C Ratio	0.362	-
HCM Control Delay (s)	37.3	-
HCM Lane LOS	E	-
HCM 95th %tile Q(veh)	1.5	-

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5203	5162	5272	5106	5232	5225	5155
Vehs Exited	5060	4695	5057	4604	4846	4693	4692
Starting Vehs	254	250	276	259	229	194	257
Ending Vehs	397	717	491	761	615	726	720
Travel Distance (mi)	6635	6083	6635	6024	6427	6239	6210
Travel Time (hr)	326.8	469.6	389.8	514.9	406.1	538.4	494.9
Total Delay (hr)	178.9	332.5	241.5	379.4	262.5	398.9	355.8
Total Stops	7639	10976	11111	11258	10492	13243	12340
Fuel Used (gal)	251.5	263.6	261.4	268.8	260.2	283.9	274.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5418	5190	5226	5219
Vehs Exited	4982	4974	4976	4856
Starting Vehs	205	252	213	240
Ending Vehs	641	468	463	601
Travel Distance (mi)	6572	6471	6486	6378
Travel Time (hr)	384.3	347.5	354.2	422.6
Total Delay (hr)	237.3	202.6	208.8	279.8
Total Stops	9527	8600	8841	10401
Fuel Used (gal)	259.9	245.5	251.0	262.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by PHF.	
No data recorded this interval.	

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5203	5162	5272	5106	5232	5225	5155
Vehs Exited	5060	4695	5057	4604	4846	4693	4692
Starting Vehs	254	250	276	259	229	194	257
Ending Vehs	397	717	491	761	615	726	720
Travel Distance (mi)	6635	6083	6635	6024	6427	6239	6210
Travel Time (hr)	326.8	469.6	389.8	514.9	406.1	538.4	494.9
Total Delay (hr)	178.9	332.5	241.5	379.4	262.5	398.9	355.8
Total Stops	7639	10976	11111	11258	10492	13243	12340
Fuel Used (gal)	251.5	263.6	261.4	268.8	260.2	283.9	274.2

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	5418	5190	5226	5219
Vehs Exited	4982	4974	4976	4856
Starting Vehs	205	252	213	240
Ending Vehs	641	468	463	601
Travel Distance (mi)	6572	6471	6486	6378
Travel Time (hr)	384.3	347.5	354.2	422.6
Total Delay (hr)	237.3	202.6	208.8	279.8
Total Stops	9527	8600	8841	10401
Fuel Used (gal)	259.9	245.5	251.0	262.0

Queuing and Blocking Report
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Intersection: 1: US Highway 15-501 & Lystra Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	223	414	814	342	118
Average Queue (ft)	175	233	367	184	20
95th Queue (ft)	246	367	835	292	73
Link Distance (ft)	84	1038	688	688	
Upstream Blk Time (%)	36				
Queuing Penalty (veh)	140				
Storage Bay Dist (ft)					225
Storage Blk Time (%)				3	
Queuing Penalty (veh)				2	

Intersection: 2: US Highway 15-501 & Briar Chapel Parkway

Movement	EB	WB	SB	SB	SB
Directions Served	R	LT	T	T	R
Maximum Queue (ft)	557	375	391	387	225
Average Queue (ft)	287	239	339	338	189
95th Queue (ft)	561	400	430	432	302
Link Distance (ft)	945	300	278	278	
Upstream Blk Time (%)		19	35	33	
Queuing Penalty (veh)		48	433	408	
Storage Bay Dist (ft)					125
Storage Blk Time (%)				38	1
Queuing Penalty (veh)				120	7

Intersection: 3: US Highway 15-501 & Vickers Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	100	85	88	120	20
Average Queue (ft)	41	32	32	53	1
95th Queue (ft)	86	70	75	102	9
Link Distance (ft)	328	973	249	249	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					100
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Queuing and Blocking Report
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Intersection: 4: US Highway 15-501 & Jack Bennett Road

Movement	EB	WB	WB	NB	NB	NB
Directions Served	LT	R	R	T	T	R
Maximum Queue (ft)	279	210	178	346	315	102
Average Queue (ft)	251	120	65	218	176	40
95th Queue (ft)	270	191	152	319	283	87
Link Distance (ft)	111	1003		1025	1025	
Upstream Blk Time (%)	86					
Queuing Penalty (veh)	396					
Storage Bay Dist (ft)			400			375
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Intersection: 5: US Highway 15-501 & Poplar Street

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	T
Maximum Queue (ft)	74	93	258	255
Average Queue (ft)	20	30	84	85
95th Queue (ft)	77	88	329	328
Link Distance (ft)	981	223	241	241
Upstream Blk Time (%)			16	18
Queuing Penalty (veh)			136	146
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: US Highway 15-501 & Hidden Oaks Court

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	34	25	32	34	23
Average Queue (ft)	10	5	4	4	1
95th Queue (ft)	31	20	62	61	22
Link Distance (ft)	228	1087	237	237	
Upstream Blk Time (%)			1	1	
Queuing Penalty (veh)			6	6	
Storage Bay Dist (ft)					200
Storage Blk Time (%)				1	
Queuing Penalty (veh)				0	

Queuing and Blocking Report
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Intersection: 7: US Highway 15-501 & Site Access #1

Movement	WB
Directions Served	R
Maximum Queue (ft)	34
Average Queue (ft)	8
95th Queue (ft)	28
Link Distance (ft)	1157
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: US Highway 15-501 & Site Access #2

Movement	WB	NB	NB	NB
Directions Served	R	T	T	R
Maximum Queue (ft)	40	155	163	20
Average Queue (ft)	11	37	38	1
95th Queue (ft)	35	223	235	20
Link Distance (ft)	1157	1026	1026	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				100
Storage Blk Time (%)			1	
Queuing Penalty (veh)			0	

Intersection: 10: US Highway 15-501

Movement	NB	NB
Directions Served	LT	T
Maximum Queue (ft)	553	559
Average Queue (ft)	196	186
95th Queue (ft)	567	559
Link Distance (ft)	977	977
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	3	3
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Intersection: 11: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	276	380	378
Average Queue (ft)	54	82	80
95th Queue (ft)	263	494	482
Link Distance (ft)		915	915
Upstream Blk Time (%)		3	3
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	400		
Storage Blk Time (%)	0	5	
Queuing Penalty (veh)	0	18	

Intersection: 12: US Highway 15-501

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	74	184	200
Average Queue (ft)	25	68	65
95th Queue (ft)	128	445	442
Link Distance (ft)		993	993
Upstream Blk Time (%)		1	0
Queuing Penalty (veh)		12	3
Storage Bay Dist (ft)	100		
Storage Blk Time (%)	10		
Queuing Penalty (veh)	74		

Intersection: 13: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	150	1029	1046
Average Queue (ft)	33	606	611
95th Queue (ft)	135	1377	1383
Link Distance (ft)		1034	1034
Upstream Blk Time (%)		5	5
Queuing Penalty (veh)		68	65
Storage Bay Dist (ft)	50		
Storage Blk Time (%)		33	
Queuing Penalty (veh)		20	

Queuing and Blocking Report
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Intersection: 14: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	525	1165	1203
Average Queue (ft)	486	846	814
95th Queue (ft)	649	1557	1596
Link Distance (ft)		1146	1146
Upstream Blk Time (%)		7	4
Queuing Penalty (veh)		84	47
Storage Bay Dist (ft)	425		
Storage Blk Time (%)	77	0	
Queuing Penalty (veh)	655	0	

Intersection: 15: US Highway 15-501

Movement	NB	NB
Directions Served	T	T
Maximum Queue (ft)	14	14
Average Queue (ft)	1	1
95th Queue (ft)	16	20
Link Distance (ft)	557	557
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 16: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	119	568	570
Average Queue (ft)	6	168	172
95th Queue (ft)	62	728	739
Link Distance (ft)		918	918
Upstream Blk Time (%)		1	2
Queuing Penalty (veh)		11	19
Storage Bay Dist (ft)	100		
Storage Blk Time (%)		15	
Queuing Penalty (veh)		2	

Queuing and Blocking Report
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Intersection: 17: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	112	540	551
Average Queue (ft)	7	180	186
95th Queue (ft)	74	634	645
Link Distance (ft)		634	634
Upstream Blk Time (%)		3	3
Queuing Penalty (veh)		34	33
Storage Bay Dist (ft)	125		
Storage Blk Time (%)		22	
Queuing Penalty (veh)		2	

Intersection: 18: US Highway 15-501

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	38	61	47
Average Queue (ft)	12	15	4
95th Queue (ft)	56	83	38
Link Distance (ft)		110	110
Upstream Blk Time (%)	3	9	0
Queuing Penalty (veh)	0	70	1
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	3	9	
Queuing Penalty (veh)	21	3	

Intersection: 19: US Highway 15-501 & U-turn S. of Hidden Oaks

Movement	EB
Directions Served	L
Maximum Queue (ft)	30
Average Queue (ft)	7
95th Queue (ft)	26
Link Distance (ft)	134
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
2036 TIP U-6192 Scenario A PM Peak Hour

08/16/2024

Intersection: 20: US Highway 15-501 & U-turn N. of Briar Chapel

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	210	864	863
Average Queue (ft)	126	402	407
95th Queue (ft)	279	1125	1135
Link Distance (ft)	149	850	850
Upstream Blk Time (%)	37	24	25
Queuing Penalty (veh)	10	304	316
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: US Highway 15-501 & U-turn S. of Lystra

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	284	413	418
Average Queue (ft)	202	104	105
95th Queue (ft)	331	528	531
Link Distance (ft)	161	650	650
Upstream Blk Time (%)	68	8	9
Queuing Penalty (veh)	42	96	113
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			


















Network Summary

Network wide Queuing Penalty: 3980

Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario B AM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	222	0	0	0	265	0	2088	96	0	0	0
Future Volume (vph)	4	222	0	0	0	265	0	2088	96	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		225	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.999										
Satd. Flow (prot)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.999										
Satd. Flow (perm)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			55			55				30
Link Distance (ft)		217			1097			805				1004
Travel Time (s)		3.3			13.6			10.0				22.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	247	0	0	0	294	0	2320	107	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	251	0	0	0	294	0	2320	107	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	26.0	26.0				26.0		74.0	74.0			
Total Split (%)	26.0%	26.0%				26.0%		74.0%	74.0%			
Maximum Green (s)	19.0	19.0				19.0		67.0	67.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		20.7				20.7		69.3	69.3			
Actuated g/C Ratio		0.21				0.21		0.69	0.69			
v/c Ratio		0.65				0.89		0.95	0.10			
Control Delay		45.3				67.0		23.9	5.4			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		45.3				67.0		23.9	5.4			
LOS		D				E		C	A			
Approach Delay		45.3			67.0			23.1				
Approach LOS		D			E			C				

Chatham County Summit Church TIA
 1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario B AM Peak Hour
 Lanes, Volumes, Timings

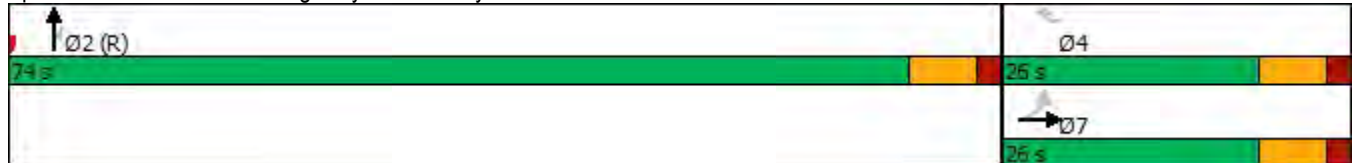


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		147				182		616	20			
Queue Length 95th (ft)		231				#331		#909	37			
Internal Link Dist (ft)		137			1017			725			924	
Turn Bay Length (ft)									225			
Base Capacity (vph)		390				338		2453	1097			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.64				0.87		0.95	0.10			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 29.3 Intersection LOS: C
 Intersection Capacity Utilization 98.5% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: US Highway 15-501 & Lystra Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario B AM Peak Hour

Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	295	74	43	0	0	0	0	0	850	70
Future Volume (vph)	0	0	295	74	43	0	0	0	0	0	850	70
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		125
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.865									0.850
Flt Protected					0.969							
Satd. Flow (prot)	0	0	1611	0	1805	0	0	0	0	0	3539	1583
Flt Permitted					0.969							
Satd. Flow (perm)	0	0	1611	0	1805	0	0	0	0	0	3539	1583
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			55	
Link Distance (ft)		1010			356			1194			359	
Travel Time (s)		27.5			9.7			32.6			4.5	
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)	0	0	328	82	48	0	0	0	0	0	944	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	328	0	130	0	0	0	0	0	944	78
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					3						6	
Permitted Phases			8	3								6
Detector Phase			8	3	3						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			47.0	47.0	47.0						53.0	53.0
Total Split (%)			47.0%	47.0%	47.0%						53.0%	53.0%
Maximum Green (s)			40.0	40.0	40.0						46.0	46.0
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0	3.0	3.0						3.0	3.0
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			28.1		28.1						61.9	61.9
Actuated g/C Ratio			0.28		0.28						0.62	0.62
v/c Ratio			0.73		0.26						0.43	0.08
Control Delay			41.4		23.8						11.6	9.6
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			41.4		23.8						11.6	9.6
LOS			D		C						B	A
Approach Delay		41.4			23.8						11.5	
Approach LOS		D			C						B	

Chatham County Summit Church TIA
2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario B AM Peak Hour
Lanes, Volumes, Timings

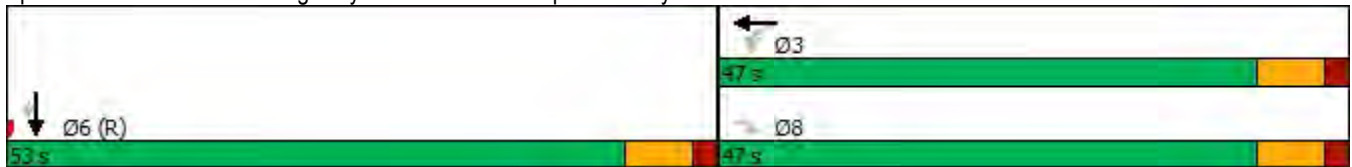


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			188		54						151	18
Queue Length 95th (ft)			254		86						243	46
Internal Link Dist (ft)		930			276			1114			279	
Turn Bay Length (ft)												125
Base Capacity (vph)			676		758						2192	980
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.49		0.17						0.43	0.08

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 54 (54%), Referenced to phase 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 19.2 Intersection LOS: B
Intersection Capacity Utilization 60.6% ICU Level of Service B
Analysis Period (min) 15

















Splits and Phases: 2: US Highway 15-501 & Briar Chapel Parkway



Chatham County Summit Church TIA
 3: US Highway 15-501 & Vickers Road

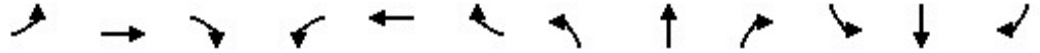
2036 TIP U-6192 Scenario B AM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	28	0	0	0	45	0	1848	9	0	0	0
Future Volume (vph)	20	28	0	0	0	45	0	1848	9	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.980										
Satd. Flow (prot)	0	1825	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.980										
Satd. Flow (perm)	0	1825	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55				30
Link Distance (ft)		389			1031			328				1072
Travel Time (s)		10.6			28.1			4.1				24.4
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)	22	31	0	0	0	50	0	2053	10	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	0	0	50	0	2053	10	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	14.0	14.0				14.0		86.0	86.0			
Total Split (%)	14.0%	14.0%				14.0%		86.0%	86.0%			
Maximum Green (s)	7.0	7.0				7.0		79.0	79.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		9.0				9.0		84.8	84.8			
Actuated g/C Ratio		0.09				0.09		0.85	0.85			
v/c Ratio		0.32				0.35		0.68	0.01			
Control Delay		48.4				50.0		4.4	1.4			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		48.4				50.0		4.4	1.4			
LOS		D				D		A	A			
Approach Delay		48.4			50.0			4.4				
Approach LOS		D			D			A				

Chatham County Summit Church TIA
 3: US Highway 15-501 & Vickers Road

2036 TIP U-6192 Scenario B AM Peak Hour
 Lanes, Volumes, Timings

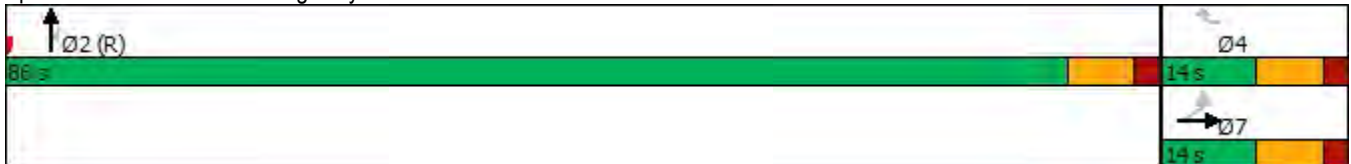


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		32				31		121	1			
Queue Length 95th (ft)		71				68		135	m2			
Internal Link Dist (ft)		309			951			248			992	
Turn Bay Length (ft)									100			
Base Capacity (vph)		164				144		3001	1342			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.32				0.35		0.68	0.01			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 67 (67%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 6.5
 Intersection LOS: A
 Intersection Capacity Utilization 75.3%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US Highway 15-501 & Vickers Road



Chatham County Summit Church TIA
4: US Highway 15-501 & Jack Bennett Road

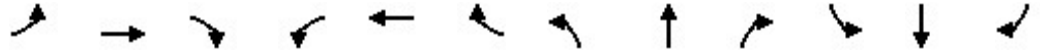
2036 TIP U-6192 Scenario B AM Peak Hour

Lanes, Volumes, Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	92	0	0	0	172	0	971	86	0	0	0
Future Volume (vph)	248	92	0	0	0	172	0	971	86	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		400	0		375	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected		0.965										
Satd. Flow (prot)	0	1798	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted		0.965										
Satd. Flow (perm)	0	1798	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55				30
Link Distance (ft)		222			1065			1061				1064
Travel Time (s)		6.1			29.0			13.2				24.2
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)	276	102	0	0	0	191	0	1079	96	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	378	0	0	0	191	0	1079	96	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	45.0	45.0				45.0		55.0	55.0			
Total Split (%)	45.0%	45.0%				45.0%		55.0%	55.0%			
Maximum Green (s)	38.0	38.0				38.0		48.0	48.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		28.8				28.8		61.2	61.2			
Actuated g/C Ratio		0.29				0.29		0.61	0.61			
v/c Ratio		0.73				0.24		0.50	0.10			
Control Delay		31.9				26.5		12.8	9.9			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		31.9				26.5		12.8	9.9			
LOS		C				C		B	A			
Approach Delay		31.9			26.5			12.6				
Approach LOS		C			C			B				

Chatham County Summit Church TIA
 4: US Highway 15-501 & Jack Bennett Road

2036 TIP U-6192 Scenario B AM Peak Hour
 Lanes, Volumes, Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		160				52		185	23			
Queue Length 95th (ft)		193				73		295	56			
Internal Link Dist (ft)		142			985			981			984	
Turn Bay Length (ft)						400			375			
Base Capacity (vph)		719				1114		2165	968			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.53				0.17		0.50	0.10			

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle:	40
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	18.3
Intersection LOS:	B
Intersection Capacity Utilization:	63.9%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 4: US Highway 15-501 & Jack Bennett Road



**Chatham County Summit Church TIA
5: US Highway 15-501 & Poplar Street**

**2036 TIP U-6192 Scenario B AM Peak Hour
HCM 6th TWSC**

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↖						↗↖	↗
Traffic Vol, veh/h	0	0	7	4	4	0	0	0	0	0	957	4
Future Vol, veh/h	0	0	7	4	4	0	0	0	0	0	957	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	8	4	4	0	0	0	0	0	1063	4

Major/Minor	Minor2		Minor1			Major2		
Conflicting Flow All	-	-	532	532	1067	-	-	0
Stage 1	-	-	-	0	0	-	-	-
Stage 2	-	-	-	532	1067	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	-	-	-
Pot Cap-1 Maneuver	0	0	492	430	221	0	0	-
Stage 1	0	0	-	-	-	0	0	-
Stage 2	0	0	-	499	297	0	0	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	-	-	492	423	221	-	-	-
Mov Cap-2 Maneuver	-	-	-	423	221	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	491	297	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	12.4		17.8		0	
HCM LOS	B		C			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBT	SBR
Capacity (veh/h)	492	290	-	-
HCM Lane V/C Ratio	0.016	0.031	-	-
HCM Control Delay (s)	12.4	17.8	-	-
HCM Lane LOS	B	C	-	-
HCM 95th %tile Q(veh)	0	0.1	-	-

Chatham County Summit Church TIA
6: US Highway 15-501 & Hidden Oaks Court

2036 TIP U-6192 Scenario B AM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↕↕	↔			
Traffic Vol, veh/h	5	4	0	0	0	4	0	1902	4	0	0	0
Future Vol, veh/h	5	4	0	0	0	4	0	1902	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1084970496	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	4	0	0	0	4	0	2113	4	0	0	0

Major/Minor	Minor2		Minor1			Major1		
Conflicting Flow All	1057	2117	-	-	-	1057	-	0
Stage 1	0	0	-	-	-	-	-	-
Stage 2	1057	2117	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	-	-	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	-	-	3.32	-	-
Pot Cap-1 Maneuver	179	50	0	0	0	221	0	-
Stage 1	-	-	0	0	0	-	0	-
Stage 2	240	90	0	0	0	-	0	-
Platoon blocked, %								
Mov Cap-1 Maneuver	175	50	-	-	-	221	-	-
Mov Cap-2 Maneuver	175	50	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	235	90	-	-	-	-	-	-

Approach	EB		WB		NB	
HCM Control Delay, s	54.2		21.6		0	
HCM LOS	F		C			

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	83	221
HCM Lane V/C Ratio	-	-	0.12	0.02
HCM Control Delay (s)	-	-	54.2	21.6
HCM Lane LOS	-	-	F	C
HCM 95th %tile Q(veh)	-	-	0.4	0.1

**Chatham County Summit Church TIA
7: US Highway 15-501 & Site Access #1**

2036 TIP U-6192 Scenario B AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		
Traffic Vol, veh/h	0	5	1902	10	0	0
Future Vol, veh/h	0	5	1902	10	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	10843	10528
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	6	2113	11	0	0

Major/Minor	Minor1	Major1		
Conflicting Flow All	-	1057	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	221	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	221	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	21.7	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	221
HCM Lane V/C Ratio	-	0.025
HCM Control Delay (s)	-	21.7
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	0.1

**Chatham County Summit Church TIA
8: US Highway 15-501 & Site Access #2**

2036 TIP U-6192 Scenario B AM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↕	↗		
Traffic Vol, veh/h	0	6	1906	7	0	0
Future Vol, veh/h	0	6	1906	7	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	1083228160	
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	2118	8	0	0

Major/Minor	Minor1	Major1		
Conflicting Flow All	-	1059	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	221	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	221	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	21.8	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	- 221
HCM Lane V/C Ratio	-	- 0.03
HCM Control Delay (s)	-	- 21.8
HCM Lane LOS	-	- C
HCM 95th %tile Q(veh)	-	- 0.1

Chatham County Summit Church TIA
 19: US Highway 15-501 & U-turn S. of Hidden Oaks

2036 TIP U-6192 Scenario B AM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↑↑		
Traffic Vol, veh/h	13	0	0	1899	0	0
Future Vol, veh/h	13	0	0	1899	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	1083	892	736
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	0	2110	0	0

Major/Minor	Minor2	Major1	
Conflicting Flow All	1055	-	0
Stage 1	0	-	-
Stage 2	1055	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	221	0	0
Stage 1	-	0	0
Stage 2	296	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	221	-	-
Mov Cap-2 Maneuver	221	-	-
Stage 1	-	-	-
Stage 2	296	-	-

Approach	EB	NB
HCM Control Delay, s	22.4	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	EBLn1
Capacity (veh/h)	-	221
HCM Lane V/C Ratio	-	0.065
HCM Control Delay (s)	-	22.4
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	0.2

Chatham County Summit Church TIA
 20: US Highway 15-501 & U-turn N. of Briar Chapel

2036 TIP U-6192 Scenario B AM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	13	0	0	0	0	955
Future Vol, veh/h	13	0	0	0	0	955
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	0	0	0	1061

Major/Minor	Minor1	Major2	
Conflicting Flow All	531	-	-
Stage 1	0	-	-
Stage 2	531	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	478	0	0
Stage 1	-	0	-
Stage 2	554	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	478	-	-
Mov Cap-2 Maneuver	478	-	-
Stage 1	-	-	-
Stage 2	554	-	-

Approach	WB	SB
HCM Control Delay, s	12.8	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	478	-
HCM Lane V/C Ratio	0.03	-
HCM Control Delay (s)	12.8	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.1	-

Chatham County Summit Church TIA
 32: US Highway 15-501 & U-turn S. of Lystra

2036 TIP U-6192 Scenario B AM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	42	0	0	0	0	1120
Future Vol, veh/h	42	0	0	0	0	1120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	0	0	0	0	1244

Major/Minor	Minor1	Major2	
Conflicting Flow All	622	-	-
Stage 1	0	-	-
Stage 2	622	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	419	0	0
Stage 1	-	0	-
Stage 2	498	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	419	-	-
Mov Cap-2 Maneuver	419	-	-
Stage 1	-	-	-
Stage 2	498	-	-

Approach	WB	SB
HCM Control Delay, s	14.7	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	419	-
HCM Lane V/C Ratio	0.111	-
HCM Control Delay (s)	14.7	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.4	-

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	4556	4613	4645	4569	4666	4713	4749
Vehs Exited	4581	4608	4668	4615	4627	4701	4708
Starting Vehs	245	242	224	249	234	231	220
Ending Vehs	220	247	201	203	273	243	261
Travel Distance (mi)	5493	5537	5579	5423	5599	5599	5619
Travel Time (hr)	225.5	230.2	246.2	237.4	238.0	253.3	256.4
Total Delay (hr)	74.1	77.8	93.1	87.9	83.8	99.1	101.7
Total Stops	3916	4302	5068	3954	4649	5414	5948
Fuel Used (gal)	195.7	198.6	202.6	196.3	200.9	203.7	204.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4707	4589	4776	4658
Vehs Exited	4733	4551	4663	4645
Starting Vehs	239	202	200	226
Ending Vehs	213	240	313	238
Travel Distance (mi)	5618	5502	5582	5555
Travel Time (hr)	251.7	226.0	255.2	242.0
Total Delay (hr)	96.9	74.9	101.4	89.1
Total Stops	5695	4012	5757	4868
Fuel Used (gal)	202.5	196.2	204.1	200.5

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by PHF.	
No data recorded this interval.	

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	4556	4613	4645	4569	4666	4713	4749
Vehs Exited	4581	4608	4668	4615	4627	4701	4708
Starting Vehs	245	242	224	249	234	231	220
Ending Vehs	220	247	201	203	273	243	261
Travel Distance (mi)	5493	5537	5579	5423	5599	5599	5619
Travel Time (hr)	225.5	230.2	246.2	237.4	238.0	253.3	256.4
Total Delay (hr)	74.1	77.8	93.1	87.9	83.8	99.1	101.7
Total Stops	3916	4302	5068	3954	4649	5414	5948
Fuel Used (gal)	195.7	198.6	202.6	196.3	200.9	203.7	204.5

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	4707	4589	4776	4658
Vehs Exited	4733	4551	4663	4645
Starting Vehs	239	202	200	226
Ending Vehs	213	240	313	238
Travel Distance (mi)	5618	5502	5582	5555
Travel Time (hr)	251.7	226.0	255.2	242.0
Total Delay (hr)	96.9	74.9	101.4	89.1
Total Stops	5695	4012	5757	4868
Fuel Used (gal)	202.5	196.2	204.1	200.5

Queuing and Blocking Report
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Intersection: 1: US Highway 15-501 & Lystra Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	218	464	791	792	325
Average Queue (ft)	144	279	495	507	117
95th Queue (ft)	220	534	875	906	340
Link Distance (ft)	84	1038	688	688	
Upstream Blk Time (%)	36		8	11	
Queuing Penalty (veh)	90		95	127	
Storage Bay Dist (ft)					225
Storage Blk Time (%)				22	
Queuing Penalty (veh)				23	

Intersection: 2: US Highway 15-501 & Briar Chapel Parkway

Movement	EB	WB	SB	SB	SB
Directions Served	R	LT	T	T	R
Maximum Queue (ft)	327	166	235	219	151
Average Queue (ft)	179	78	123	107	26
95th Queue (ft)	284	139	206	186	81
Link Distance (ft)	945	300	278	278	
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					125
Storage Blk Time (%)				4	0
Queuing Penalty (veh)				3	0

Intersection: 3: US Highway 15-501 & Vickers Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	94	96	223	225	16
Average Queue (ft)	42	38	105	108	1
95th Queue (ft)	83	82	192	204	10
Link Distance (ft)	328	973	249	249	
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					100
Storage Blk Time (%)				5	
Queuing Penalty (veh)				0	

Queuing and Blocking Report
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Intersection: 4: US Highway 15-501 & Jack Bennett Road

Movement	EB	WB	WB	NB	NB	NB
Directions Served	LT	R	R	T	T	R
Maximum Queue (ft)	271	138	112	287	258	100
Average Queue (ft)	221	71	22	178	139	34
95th Queue (ft)	292	121	68	266	232	81
Link Distance (ft)	111	1003		1025	1025	
Upstream Blk Time (%)	55					
Queuing Penalty (veh)	207					
Storage Bay Dist (ft)			400			375
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: US Highway 15-501 & Poplar Street

Movement	EB	WB
Directions Served	R	LT
Maximum Queue (ft)	24	40
Average Queue (ft)	5	8
95th Queue (ft)	20	32
Link Distance (ft)	981	223
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: US Highway 15-501 & Hidden Oaks Court

Movement	EB	WB	NB
Directions Served	LT	R	T
Maximum Queue (ft)	36	22	5
Average Queue (ft)	10	3	0
95th Queue (ft)	33	16	5
Link Distance (ft)	228	1087	237
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Intersection: 7: US Highway 15-501 & Site Access #1

Movement	WB
Directions Served	R
Maximum Queue (ft)	24
Average Queue (ft)	4
95th Queue (ft)	18
Link Distance (ft)	502
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: US Highway 15-501 & Site Access #2

Movement	WB
Directions Served	R
Maximum Queue (ft)	33
Average Queue (ft)	7
95th Queue (ft)	26
Link Distance (ft)	1157
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: US Highway 15-501

Movement	NB	NB
Directions Served	LT	T
Maximum Queue (ft)	360	374
Average Queue (ft)	66	75
95th Queue (ft)	301	324
Link Distance (ft)	977	977
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Intersection: 11: US Highway 15-501

Movement	SB
Directions Served	L
Maximum Queue (ft)	67
Average Queue (ft)	6
95th Queue (ft)	42
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	400
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: US Highway 15-501

Movement	NB
Directions Served	T
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	993
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: US Highway 15-501

Movement	SB
Directions Served	T
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	1034
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Intersection: 14: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	226	40	32
Average Queue (ft)	53	1	1
95th Queue (ft)	176	34	32
Link Distance (ft)		1146	1146
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	425		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: US Highway 15-501

Movement	NB
Directions Served	T
Maximum Queue (ft)	9
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	770
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: US Highway 15-501

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Queuing and Blocking Report
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Intersection: 17: US Highway 15-501

Movement

Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 18: US Highway 15-501

Movement

Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 19: US Highway 15-501 & U-turn S. of Hidden Oaks

Movement	EB
Directions Served	L
Maximum Queue (ft)	46
Average Queue (ft)	12
95th Queue (ft)	38
Link Distance (ft)	141
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
2036 TIP U-6192 Scenario B AM Peak Hour

08/16/2024

Intersection: 20: US Highway 15-501 & U-turn N. of Briar Chapel

Movement	WB
Directions Served	L
Maximum Queue (ft)	35
Average Queue (ft)	12
95th Queue (ft)	37
Link Distance (ft)	117
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: US Highway 15-501 & U-turn S. of Lystra

Movement	WB
Directions Served	L
Maximum Queue (ft)	69
Average Queue (ft)	26
95th Queue (ft)	56
Link Distance (ft)	161
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

















Network Summary

Network wide Queuing Penalty: 546

Chatham County Summit Church TIA
1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario B PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	352	0	0	0	398	0	1302	53	0	0	0
Future Volume (vph)	4	352	0	0	0	398	0	1302	53	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		225	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.999										
Satd. Flow (prot)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.999										
Satd. Flow (perm)	0	1861	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			55			55				30
Link Distance (ft)		217			1097			805				1004
Travel Time (s)		3.3			13.6			10.0				22.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	391	0	0	0	442	0	1447	59	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	395	0	0	0	442	0	1447	59	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	44.0	44.0				44.0		56.0	56.0			
Total Split (%)	44.0%	44.0%				44.0%		56.0%	56.0%			
Maximum Green (s)	37.0	37.0				37.0		49.0	49.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		33.6				33.6		56.4	56.4			
Actuated g/C Ratio		0.34				0.34		0.56	0.56			
v/c Ratio		0.63				0.82		0.73	0.07			
Control Delay		32.2				42.9		19.8	11.9			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		32.2				42.9		19.8	11.9			
LOS		C				D		B	B			
Approach Delay		32.2			42.9			19.5				
Approach LOS		C			D			B				

Chatham County Summit Church TIA
 1: US Highway 15-501 & Lystra Road

2036 TIP U-6192 Scenario B PM Peak Hour
 Lanes, Volumes, Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		206				251		347	17			
Queue Length 95th (ft)		285				351		481	39			
Internal Link Dist (ft)		137			1017			725			924	
Turn Bay Length (ft)									225			
Base Capacity (vph)		725				628		1995	892			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.54				0.70		0.73	0.07			

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	26.1
Intersection LOS:	C
Intersection Capacity Utilization:	91.9%
ICU Level of Service:	F
Analysis Period (min):	15

















Splits and Phases: 1: US Highway 15-501 & Lystra Road



Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario B PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	233	162	73	0	0	0	0	0	1929	284
Future Volume (vph)	0	0	233	162	73	0	0	0	0	0	1929	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		125
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.865									0.850
Flt Protected					0.967							
Satd. Flow (prot)	0	0	1611	0	1801	0	0	0	0	0	3539	1583
Flt Permitted					0.967							
Satd. Flow (perm)	0	0	1611	0	1801	0	0	0	0	0	3539	1583
Right Turn on Red			No	No		No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			25			55	
Link Distance (ft)		1010			356			1194			359	
Travel Time (s)		27.5			9.7			32.6			4.5	
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)	0	0	259	180	81	0	0	0	0	0	2143	316
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	259	0	261	0	0	0	0	0	2143	316
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					3						6	
Permitted Phases			8	3								6
Detector Phase			8	3	3						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			26.0	26.0	26.0						74.0	74.0
Total Split (%)			26.0%	26.0%	26.0%						74.0%	74.0%
Maximum Green (s)			19.0	19.0	19.0						67.0	67.0
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			3.0	3.0	3.0						3.0	3.0
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			20.0		20.0						70.0	70.0
Actuated g/C Ratio			0.20		0.20						0.70	0.70
v/c Ratio			0.80		0.72						0.87	0.29
Control Delay			57.8		48.0						16.7	6.6
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			57.8		48.0						16.7	6.6
LOS			E		D						B	A
Approach Delay		57.8			48.0						15.4	
Approach LOS		E			D						B	

Chatham County Summit Church TIA
 2: US Highway 15-501 & Briar Chapel Parkway

2036 TIP U-6192 Scenario B PM Peak Hour
 Lanes, Volumes, Timings

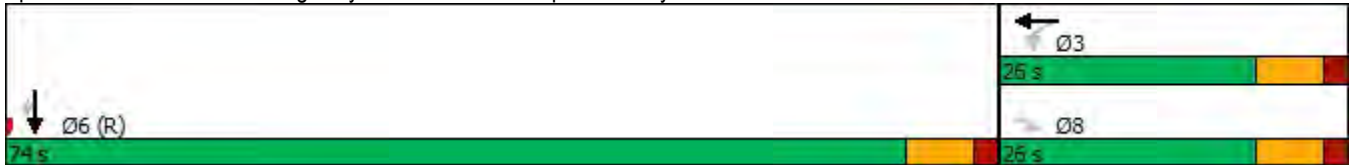


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)			157		162						496	69
Queue Length 95th (ft)			#276		#252						632	107
Internal Link Dist (ft)		930			276			1114			279	
Turn Bay Length (ft)												125
Base Capacity (vph)			338		378						2477	1108
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.77		0.69						0.87	0.29

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 5 (5%), Referenced to phase 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 22.0 Intersection LOS: C
 Intersection Capacity Utilization 93.1% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

















Splits and Phases: 2: US Highway 15-501 & Briar Chapel Parkway



Chatham County Summit Church TIA
3: US Highway 15-501 & Vickers Road

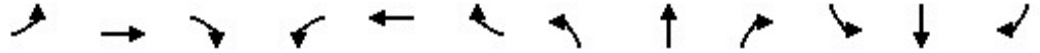
2036 TIP U-6192 Scenario B PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	22	0	0	0	36	0	1272	12	0	0	0
Future Volume (vph)	27	22	0	0	0	36	0	1272	12	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.865			0.850			
Flt Protected		0.973										
Satd. Flow (prot)	0	1812	0	0	0	1611	0	3539	1583	0	0	0
Flt Permitted		0.973										
Satd. Flow (perm)	0	1812	0	0	0	1611	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55				30
Link Distance (ft)		389			1031			328				1072
Travel Time (s)		10.6			28.1			4.1				24.4
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)	30	24	0	0	0	40	0	1413	13	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	0	0	0	40	0	1413	13	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	19.0	19.0				19.0		81.0	81.0			
Total Split (%)	19.0%	19.0%				19.0%		81.0%	81.0%			
Maximum Green (s)	12.0	12.0				12.0		74.0	74.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		10.7				10.7		83.1	83.1			
Actuated g/C Ratio		0.11				0.11		0.83	0.83			
v/c Ratio		0.28				0.23		0.48	0.01			
Control Delay		44.3				43.6		2.0	1.5			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		44.3				43.6		2.0	1.5			
LOS		D				D		A	A			
Approach Delay		44.3			43.6			2.0				
Approach LOS		D			D			A				

Chatham County Summit Church TIA
 3: US Highway 15-501 & Vickers Road

2036 TIP U-6192 Scenario B PM Peak Hour
 Lanes, Volumes, Timings

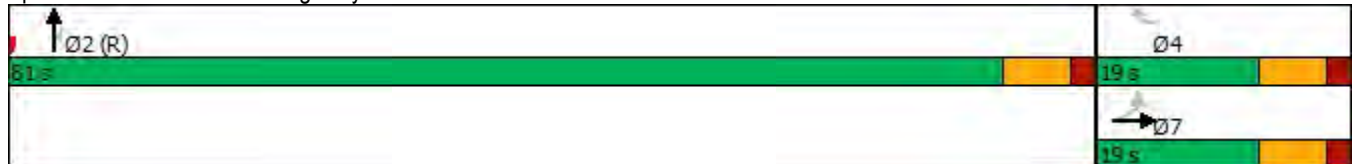


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		32				24		44	1			
Queue Length 95th (ft)		68				55		69	m2			
Internal Link Dist (ft)		309			951			248			992	
Turn Bay Length (ft)									100			
Base Capacity (vph)		253				225		2941	1315			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.21				0.18		0.48	0.01			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 11 (11%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 40
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.48
 Intersection Signal Delay: 4.6
 Intersection LOS: A
 Intersection Capacity Utilization 59.3%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.



















Splits and Phases: 3: US Highway 15-501 & Vickers Road



Chatham County Summit Church TIA
4: US Highway 15-501 & Jack Bennett Road

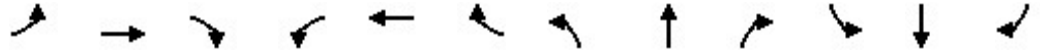
2036 TIP U-6192 Scenario B PM Peak Hour

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						 		 				
Traffic Volume (vph)	222	190	0	0	0	319	0	985	93	0	0	0
Future Volume (vph)	222	190	0	0	0	319	0	985	93	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		400	0		375	0		0
Storage Lanes	0		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected		0.974										
Satd. Flow (prot)	0	1814	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted		0.974										
Satd. Flow (perm)	0	1814	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			55				30
Link Distance (ft)		222			1065			1061				1064
Travel Time (s)		6.1			29.0			13.2				24.2
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)	247	211	0	0	0	354	0	1094	103	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	458	0	0	0	354	0	1094	103	0	0	0
Turn Type	Perm	NA				Perm		NA	Perm			
Protected Phases		7						2				
Permitted Phases	7					4			2			
Detector Phase	7	7				4		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				7.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				14.0		21.0	21.0			
Total Split (s)	47.0	47.0				47.0		53.0	53.0			
Total Split (%)	47.0%	47.0%				47.0%		53.0%	53.0%			
Maximum Green (s)	40.0	40.0				40.0		46.0	46.0			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0				3.0		3.0	3.0			
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		33.2				33.2		56.8	56.8			
Actuated g/C Ratio		0.33				0.33		0.57	0.57			
v/c Ratio		0.76				0.38		0.54	0.11			
Control Delay		28.4				25.7		16.0	12.3			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		28.4				25.7		16.0	12.3			
LOS		C				C		B	B			
Approach Delay		28.4			25.7			15.7				
Approach LOS		C			C			B				

Chatham County Summit Church TIA
 4: US Highway 15-501 & Jack Bennett Road

2036 TIP U-6192 Scenario B PM Peak Hour
 Lanes, Volumes, Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		257				96		217	29			
Queue Length 95th (ft)		m249				120		336	66			
Internal Link Dist (ft)		142			985			981			984	
Turn Bay Length (ft)						400			375			
Base Capacity (vph)		761				1170		2009	898			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.60				0.30		0.54	0.11			

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 20.3
 Intersection LOS: C
 Intersection Capacity Utilization 73.2%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: US Highway 15-501 & Jack Bennett Road



**Chatham County Summit Church TIA
5: US Highway 15-501 & Poplar Street**

**2036 TIP U-6192 Scenario B PM Peak Hour
HCM 6th TWSC**

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↖						↗↖	↗
Traffic Vol, veh/h	0	0	10	6	4	0	0	0	0	0	2237	6
Future Vol, veh/h	0	0	10	6	4	0	0	0	0	0	2237	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	7	4	0	0	0	0	0	2486	7

Major/Minor	Minor2		Minor1			Major2		
Conflicting Flow All	-	-	1243	1243	2493	-	-	0
Stage 1	-	-	-	0	0	-	-	-
Stage 2	-	-	-	1243	2493	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	-	-	-
Pot Cap-1 Maneuver	0	0	166	131	29	0	0	-
Stage 1	0	0	-	-	-	0	0	-
Stage 2	0	0	-	185	57	0	0	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	-	-	166	122	29	-	-	-
Mov Cap-2 Maneuver	-	-	-	122	29	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	173	57	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	28.2		90.1		0	
HCM LOS	D		F			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBT	SBR
Capacity (veh/h)	166	53	-	-
HCM Lane V/C Ratio	0.067	0.21	-	-
HCM Control Delay (s)	28.2	90.1	-	-
HCM Lane LOS	D	F	-	-
HCM 95th %tile Q(veh)	0.2	0.7	-	-

Chatham County Summit Church TIA
6: US Highway 15-501 & Hidden Oaks Court

2036 TIP U-6192 Scenario B PM Peak Hour
HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↕↕	↔			
Traffic Vol, veh/h	7	4	0	0	0	5	0	1324	4	0	0	0
Future Vol, veh/h	7	4	0	0	0	5	0	1324	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	1084970496	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	0	0	0	6	0	1471	4	0	0	0

Major/Minor	Minor2		Minor1			Major1		
Conflicting Flow All	736	1475	-	-	-	736	-	0
Stage 1	0	0	-	-	-	-	-	-
Stage 2	736	1475	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	-	-	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	-	-	-	3.32	-	-
Pot Cap-1 Maneuver	307	125	0	0	0	361	0	-
Stage 1	-	-	0	0	0	-	0	-
Stage 2	377	189	0	0	0	-	0	-
Platoon blocked, %								
Mov Cap-1 Maneuver	302	125	-	-	-	361	-	-
Mov Cap-2 Maneuver	302	125	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	371	189	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	24.3	15.1	0
HCM LOS	C	C	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	199	361
HCM Lane V/C Ratio	-	-	0.061	0.015
HCM Control Delay (s)	-	-	24.3	15.1
HCM Lane LOS	-	-	C	C
HCM 95th %tile Q(veh)	-	-	0.2	0

**Chatham County Summit Church TIA
7: US Highway 15-501 & Site Access #1**

2036 TIP U-6192 Scenario B PM Peak Hour
HCM 6th TWSC

Intersection

Int Delay, s/veh 0.1

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations		↗	↕	↗		
Traffic Vol, veh/h	0	12	1319	11	0	0
Future Vol, veh/h	0	12	1319	11	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	10843	10528
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	1466	12	0	0

Major/Minor Minor1 Major1

Conflicting Flow All	-	733	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	363	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	363	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach WB NB

HCM Control Delay, s	15.3	0
HCM LOS	C	

Minor Lane/Major Mvmt NBT NBRWBLn1

Capacity (veh/h)	-	-	363
HCM Lane V/C Ratio	-	-	0.037
HCM Control Delay (s)	-	-	15.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.1

**Chatham County Summit Church TIA
8: US Highway 15-501 & Site Access #2**

2036 TIP U-6192 Scenario B PM Peak Hour
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗		
Traffic Vol, veh/h	0	12	1327	8	0	0
Future Vol, veh/h	0	12	1327	8	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	1083228160	
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	1474	9	0	0

Major/Minor	Minor1	Major1	
Conflicting Flow All	-	737	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	-
Pot Cap-1 Maneuver	0	361	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	-	361	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB
HCM Control Delay, s	15.4	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBRWBLn1
Capacity (veh/h)	-	361
HCM Lane V/C Ratio	-	0.037
HCM Control Delay (s)	-	15.4
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	0.1

Chatham County Summit Church TIA
 19: US Highway 15-501 & U-turn S. of Hidden Oaks

2036 TIP U-6192 Scenario B PM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↗↗		
Traffic Vol, veh/h	16	0	0	1314	0	0
Future Vol, veh/h	16	0	0	1314	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	1083	892	736
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	0	0	1460	0	0

Major/Minor	Minor2	Major1	
Conflicting Flow All	730	-	0
Stage 1	0	-	-
Stage 2	730	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	357	0	0
Stage 1	-	0	0
Stage 2	438	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	357	-	-
Mov Cap-2 Maneuver	357	-	-
Stage 1	-	-	-
Stage 2	438	-	-

Approach	EB	NB
HCM Control Delay, s	15.6	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	EBLn1
Capacity (veh/h)	-	357
HCM Lane V/C Ratio	-	0.05
HCM Control Delay (s)	-	15.6
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	0.2

Chatham County Summit Church TIA
 20: US Highway 15-501 & U-turn N. of Briar Chapel

2036 TIP U-6192 Scenario B PM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	25	0	0	0	0	2237
Future Vol, veh/h	25	0	0	0	0	2237
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	0	0	0	0	2486

Major/Minor	Minor1	Major2	
Conflicting Flow All	1243	-	-
Stage 1	0	-	-
Stage 2	1243	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	167	0	0
Stage 1	-	0	-
Stage 2	235	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	167	-	-
Mov Cap-2 Maneuver	167	-	-
Stage 1	-	-	-
Stage 2	235	-	-

Approach	WB	SB
HCM Control Delay, s	30.8	0
HCM LOS	D	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	167	-
HCM Lane V/C Ratio	0.166	-
HCM Control Delay (s)	30.8	-
HCM Lane LOS	D	-
HCM 95th %tile Q(veh)	0.6	-

Chatham County Summit Church TIA
 32: US Highway 15-501 & U-turn S. of Lystra

2036 TIP U-6192 Scenario B PM Peak Hour
 HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	56	0	0	0	0	2199
Future Vol, veh/h	56	0	0	0	0	2199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	0	0	0	0	2443

Major/Minor	Minor1	Major2	
Conflicting Flow All	1222	-	-
Stage 1	0	-	-
Stage 2	1222	-	-
Critical Hdwy	6.84	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	-	-
Pot Cap-1 Maneuver	172	0	0
Stage 1	-	0	-
Stage 2	241	0	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	172	-	-
Mov Cap-2 Maneuver	172	-	-
Stage 1	-	-	-
Stage 2	241	-	-

Approach	WB	SB
HCM Control Delay, s	37.3	0
HCM LOS	E	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	172	-
HCM Lane V/C Ratio	0.362	-
HCM Control Delay (s)	37.3	-
HCM Lane LOS	E	-
HCM 95th %tile Q(veh)	1.5	-

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	5320	5334	5217	4894	5167	5245	5066
Vehs Exited	5159	4921	4771	4498	4788	4986	4718
Starting Vehs	270	279	323	290	250	312	290
Ending Vehs	431	692	769	686	629	571	638
Travel Distance (mi)	6706	6493	6350	5892	6279	6501	6148
Travel Time (hr)	328.5	518.9	510.1	661.0	463.2	392.4	502.5
Total Delay (hr)	147.3	343.4	339.7	501.2	293.5	216.4	336.8
Total Stops	6581	14431	12881	11567	10671	9172	10489
Fuel Used (gal)	248.9	281.5	276.0	298.7	264.1	254.7	270.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5226	5264	4982	5170
Vehs Exited	4765	5207	4510	4833
Starting Vehs	268	295	280	285
Ending Vehs	729	352	752	622
Travel Distance (mi)	6237	6761	5883	6325
Travel Time (hr)	466.2	319.3	567.6	473.0
Total Delay (hr)	297.6	136.2	408.4	302.0
Total Stops	11041	5462	11533	10381
Fuel Used (gal)	262.6	251.0	274.0	268.2

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by PHF.	
No data recorded this interval.	

SimTraffic Simulation Summary
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	5320	5334	5217	4894	5167	5245	5066
Vehs Exited	5159	4921	4771	4498	4788	4986	4718
Starting Vehs	270	279	323	290	250	312	290
Ending Vehs	431	692	769	686	629	571	638
Travel Distance (mi)	6706	6493	6350	5892	6279	6501	6148
Travel Time (hr)	328.5	518.9	510.1	661.0	463.2	392.4	502.5
Total Delay (hr)	147.3	343.4	339.7	501.2	293.5	216.4	336.8
Total Stops	6581	14431	12881	11567	10671	9172	10489
Fuel Used (gal)	248.9	281.5	276.0	298.7	264.1	254.7	270.3

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	5226	5264	4982	5170
Vehs Exited	4765	5207	4510	4833
Starting Vehs	268	295	280	285
Ending Vehs	729	352	752	622
Travel Distance (mi)	6237	6761	5883	6325
Travel Time (hr)	466.2	319.3	567.6	473.0
Total Delay (hr)	297.6	136.2	408.4	302.0
Total Stops	11041	5462	11533	10381
Fuel Used (gal)	262.6	251.0	274.0	268.2

Queuing and Blocking Report
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Intersection: 1: US Highway 15-501 & Lystra Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	219	443	719	327	119
Average Queue (ft)	172	234	348	210	29
95th Queue (ft)	250	363	752	310	89
Link Distance (ft)	84	1038	688	688	
Upstream Blk Time (%)	35				
Queuing Penalty (veh)	138				
Storage Bay Dist (ft)					225
Storage Blk Time (%)				6	
Queuing Penalty (veh)				4	

Intersection: 2: US Highway 15-501 & Briar Chapel Parkway

Movement	EB	WB	SB	SB	SB
Directions Served	R	LT	T	T	R
Maximum Queue (ft)	511	373	389	391	225
Average Queue (ft)	290	241	338	337	189
95th Queue (ft)	606	411	427	434	301
Link Distance (ft)	945	300	278	278	
Upstream Blk Time (%)	2	23	36	33	
Queuing Penalty (veh)	0	61	438	409	
Storage Bay Dist (ft)					125
Storage Blk Time (%)				40	1
Queuing Penalty (veh)				125	10

Intersection: 3: US Highway 15-501 & Vickers Road

Movement	EB	WB	NB	NB	NB
Directions Served	LT	R	T	T	R
Maximum Queue (ft)	92	84	90	112	19
Average Queue (ft)	33	31	31	50	1
95th Queue (ft)	75	70	73	100	11
Link Distance (ft)	328	973	249	249	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					100
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Queuing and Blocking Report
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Intersection: 4: US Highway 15-501 & Jack Bennett Road

Movement	EB	WB	WB	NB	NB	NB
Directions Served	LT	R	R	T	T	R
Maximum Queue (ft)	284	219	187	344	296	121
Average Queue (ft)	253	119	63	215	168	41
95th Queue (ft)	273	192	154	313	269	92
Link Distance (ft)	111	1003		1025	1025	
Upstream Blk Time (%)	86					
Queuing Penalty (veh)	395					
Storage Bay Dist (ft)			400			375
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: US Highway 15-501 & Poplar Street

Movement	EB	WB	SB	SB
Directions Served	R	LT	T	T
Maximum Queue (ft)	152	161	296	302
Average Queue (ft)	60	92	119	120
95th Queue (ft)	154	209	393	394
Link Distance (ft)	981	223	241	241
Upstream Blk Time (%)		6	25	26
Queuing Penalty (veh)		0	204	219
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: US Highway 15-501 & Hidden Oaks Court

Movement	EB	WB	NB	NB
Directions Served	LT	R	T	T
Maximum Queue (ft)	36	21	36	39
Average Queue (ft)	10	3	6	6
95th Queue (ft)	33	14	78	78
Link Distance (ft)	228	1087	237	237
Upstream Blk Time (%)			2	2
Queuing Penalty (veh)			12	12
Storage Bay Dist (ft)				
Storage Blk Time (%)				2
Queuing Penalty (veh)				0

Queuing and Blocking Report
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Intersection: 7: US Highway 15-501 & Site Access #1

Movement	WB	NB	NB
Directions Served	R	T	T
Maximum Queue (ft)	34	18	17
Average Queue (ft)	8	1	1
95th Queue (ft)	27	21	18
Link Distance (ft)	502	352	352
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 8: US Highway 15-501 & Site Access #2

Movement	WB	NB	NB
Directions Served	R	T	T
Maximum Queue (ft)	35	19	23
Average Queue (ft)	10	1	1
95th Queue (ft)	33	24	26
Link Distance (ft)	1157	1026	1026
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 10: US Highway 15-501

Movement	NB	NB
Directions Served	LT	T
Maximum Queue (ft)	429	431
Average Queue (ft)	118	115
95th Queue (ft)	475	474
Link Distance (ft)	977	977
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	7	7
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Intersection: 11: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	382	638	641
Average Queue (ft)	90	146	145
95th Queue (ft)	371	687	684
Link Distance (ft)		915	915
Upstream Blk Time (%)		8	8
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	400		
Storage Blk Time (%)		11	
Queuing Penalty (veh)		42	

Intersection: 12: US Highway 15-501

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	102	275	248
Average Queue (ft)	33	71	63
95th Queue (ft)	145	407	386
Link Distance (ft)		993	993
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		2	1
Storage Bay Dist (ft)	100		
Storage Blk Time (%)	13	0	
Queuing Penalty (veh)	90	0	

Intersection: 13: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	149	973	992
Average Queue (ft)	31	595	600
95th Queue (ft)	130	1385	1389
Link Distance (ft)		1034	1034
Upstream Blk Time (%)		6	6
Queuing Penalty (veh)		77	73
Storage Bay Dist (ft)	50		
Storage Blk Time (%)		33	
Queuing Penalty (veh)		18	

Queuing and Blocking Report
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Intersection: 14: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	525	1161	1199
Average Queue (ft)	459	801	778
95th Queue (ft)	673	1587	1623
Link Distance (ft)		1146	1146
Upstream Blk Time (%)		6	4
Queuing Penalty (veh)		79	57
Storage Bay Dist (ft)	425		
Storage Blk Time (%)	70	0	
Queuing Penalty (veh)	596	2	

Intersection: 15: US Highway 15-501

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	20	77	80
Average Queue (ft)	1	12	12
95th Queue (ft)	20	159	158
Link Distance (ft)		770	770
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	100		
Storage Blk Time (%)		2	
Queuing Penalty (veh)		0	

Intersection: 16: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	159	712	718
Average Queue (ft)	14	265	270
95th Queue (ft)	98	928	938
Link Distance (ft)		918	918
Upstream Blk Time (%)		2	3
Queuing Penalty (veh)		26	33
Storage Bay Dist (ft)	100		
Storage Blk Time (%)		24	
Queuing Penalty (veh)		3	

Queuing and Blocking Report
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Intersection: 17: US Highway 15-501

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	180	986	998
Average Queue (ft)	49	474	478
95th Queue (ft)	198	1407	1411
Link Distance (ft)		1207	1207
Upstream Blk Time (%)		3	3
Queuing Penalty (veh)		41	41
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	0	28	
Queuing Penalty (veh)	0	5	

Intersection: 18: US Highway 15-501

Movement	NB	NB	NB
Directions Served	L	T	T
Maximum Queue (ft)	13	20	2
Average Queue (ft)	2	2	0
95th Queue (ft)	19	28	2
Link Distance (ft)		110	110
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		5	
Storage Bay Dist (ft)	125		
Storage Blk Time (%)		1	
Queuing Penalty (veh)		0	

Intersection: 19: US Highway 15-501 & U-turn S. of Hidden Oaks

Movement	EB
Directions Served	L
Maximum Queue (ft)	38
Average Queue (ft)	13
95th Queue (ft)	36
Link Distance (ft)	141
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
2036 TIP U-6192 Scenario B PM Peak Hour

08/16/2024

Intersection: 20: US Highway 15-501 & U-turn N. of Briar Chapel

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	132	333	356
Average Queue (ft)	60	173	178
95th Queue (ft)	173	469	476
Link Distance (ft)	117	227	227
Upstream Blk Time (%)	15	30	31
Queuing Penalty (veh)	4	371	381
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: US Highway 15-501 & U-turn S. of Lystra

Movement	WB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	255	566	575
Average Queue (ft)	155	174	176
95th Queue (ft)	294	698	703
Link Distance (ft)	161	650	650
Upstream Blk Time (%)	47	16	17
Queuing Penalty (veh)	29	195	210
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 4425

**Appendix E: Background Project Plans
(Vickers Village, NCDOT TIP U-5192)**

E

H171698 (U-6192)
Chatham County
Concept 1

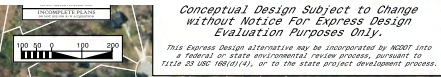
Convert US 15-501 (Chapel Hill Rd.) to
Synchronized Street from SR 1704 (Rock
Springs Church Rd.) to Smith Level Rd.

SCALE: 1" = 100'

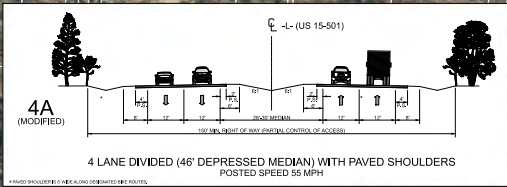


WSP USA, Inc.
434 Fayetteville Street, Suite 1500
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Tel: 919.979.7100 Fax: 919.979.7101
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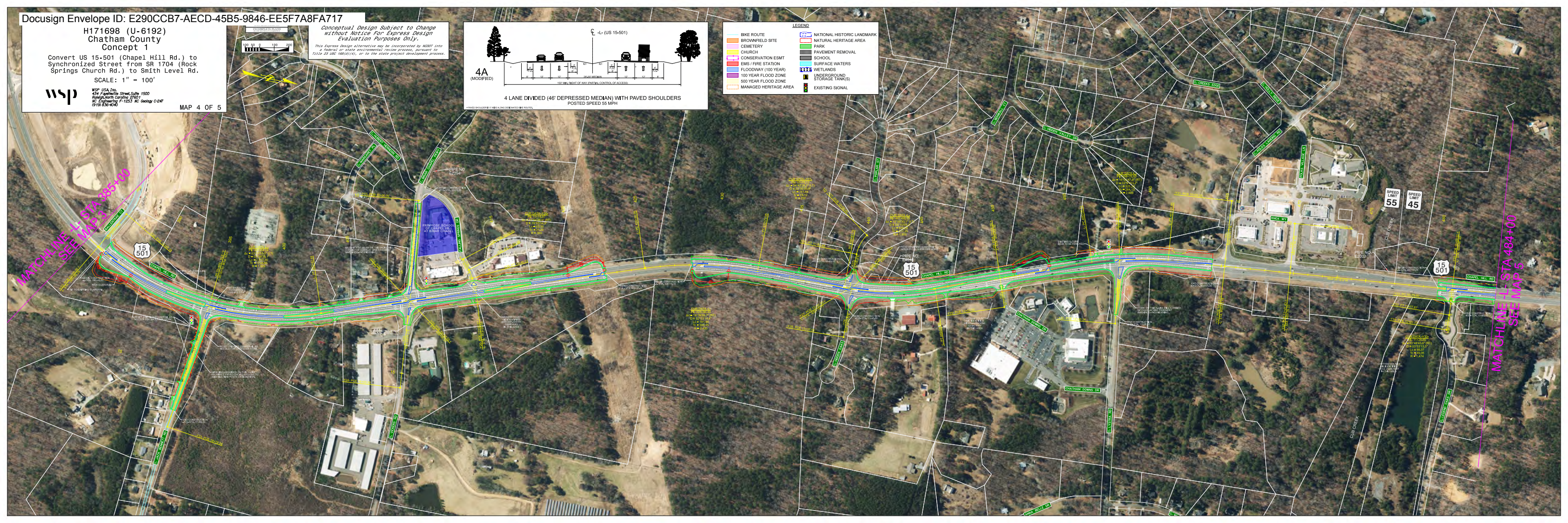
MAP 4 OF 5



*Conceptual Design Subject to Change
without Notice For Express Design
Evaluation Purposes Only.*
This Express Design alternative may be superseded by RDOT 2010
& Federal or state environmental review process, pursuant to
Title 20 USC 1861(d), or to the state project development process.

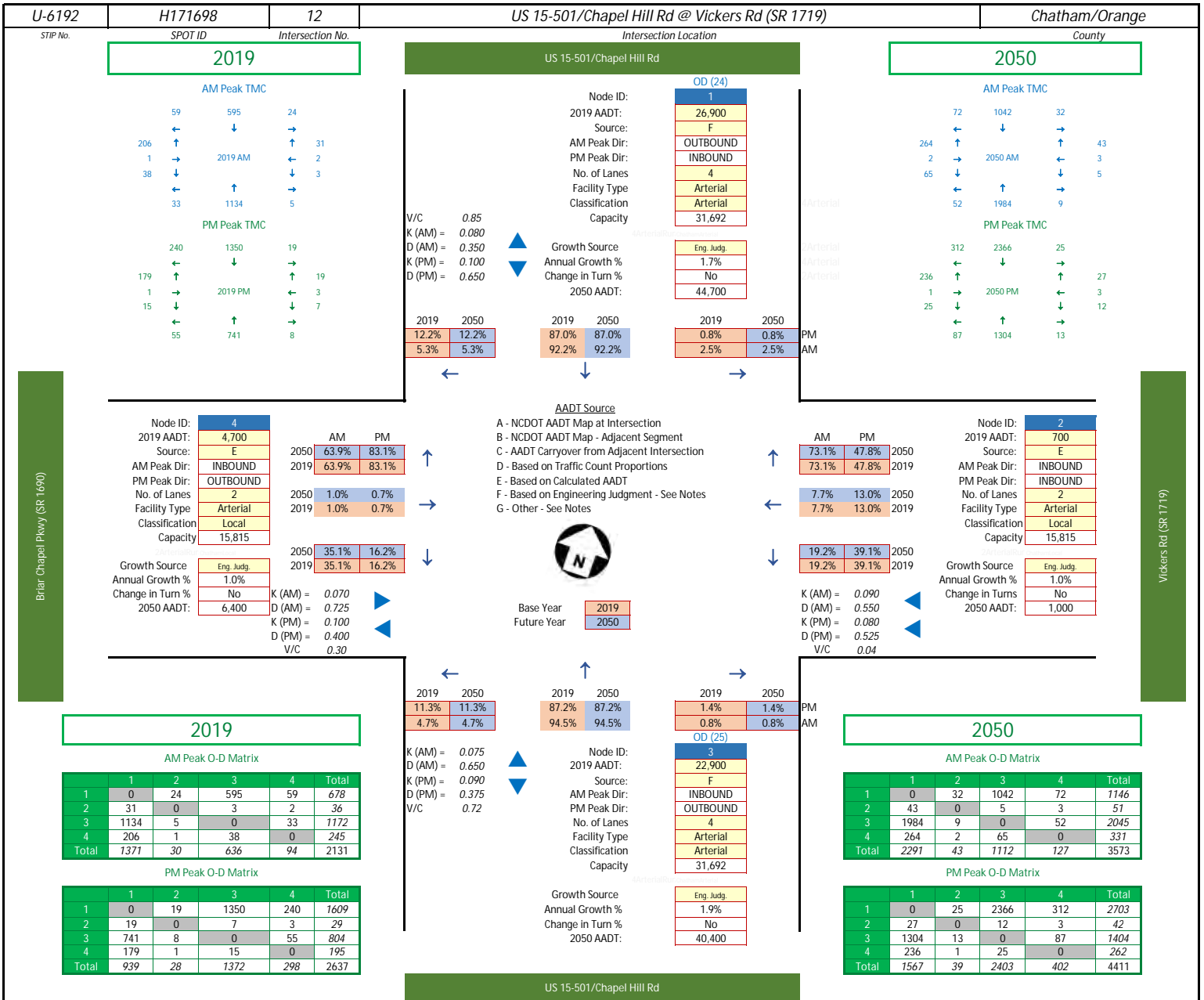


- LEGEND**
- BIKE ROUTE
 - BROWNFIELD SITE
 - CEMETERY
 - CHURCH
 - CONSERVATION ESMT
 - EMS / FIRE STATION
 - FLOODWAY (100-YEAR)
 - 100-YEAR FLOOD ZONE
 - 500-YEAR FLOOD ZONE
 - MANAGED HERITAGE AREA
 - NATIONAL HISTORIC LANDMARK
 - NATURAL HERITAGE AREA
 - PARK
 - PAVEMENT REMOVAL
 - SCHOOL
 - SURFACE WATERS
 - WETLANDS
 - UNDERGROUND STORAGE TANK(S)
 - EXISTING SIGNAL



MATCHLINE SEE MAP 3 STA 485+00

MATCHLINE STA 484+00 SEE MAP 5

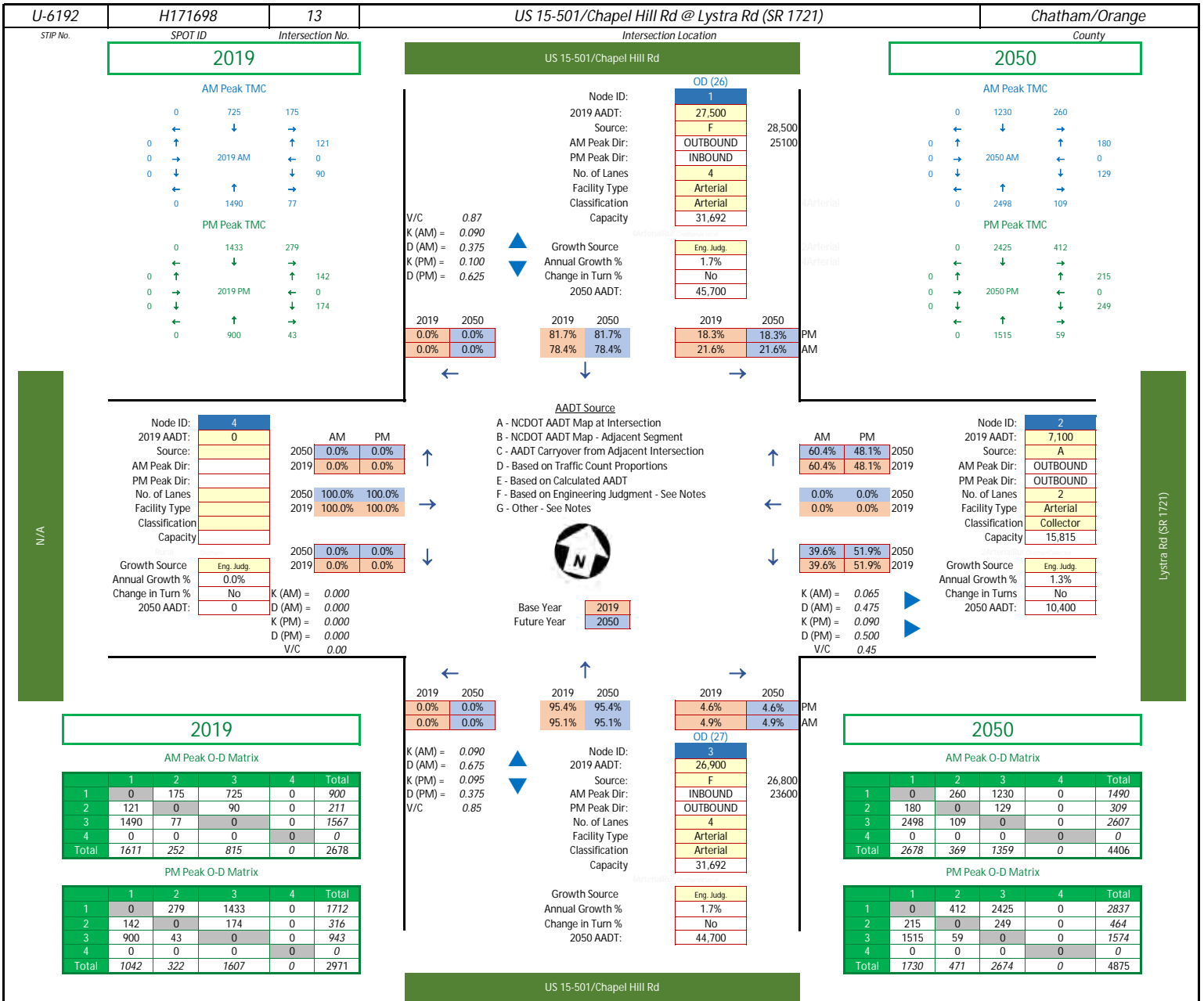


Volume Development Notes

- Source F used for node 1. This value was calculated by taking the average of source D for Int 13 node 3 (26800) and source E for Int 12 node 1 (27000).
- Source E used for node 3. This value was calculated by taking the average of source E for Int 12 node 3 (25000) and source E for Int 11 node 1 (20700).
- Growth rates for nodes 1 and 3 were chosen to be between the TRM and the NCSTM.
- Growth rates for nodes 2 and 4 were chosen based on the link in the NCSTM and by estimating surrounding land use growth.

GROWTH RATE DATA										AADT DATA						
Model	North Carolina Statewide Model (NCSTM)			STIP/Year	Previous Forecast			Socioeconomic			Selected	Latest Year	AADT			
	Base Year	Future Year	2017 - 2045 CAGR		Base Year	Future Year	CAGR	County	Chatham	Orange				1999-2019 CAGR	2009-2019 CAGR	
Scenario Year	2017	2045	CAGR	Scenario Year	2016	2050	CAGR	OSBM	1.5%	0.9%	2019	2045				
Node 1	29717	44223	1.43%	Node 1	19461	36265	1.85%	NCSTM (Pop)	1.8%	1.6%	Node 1	26,900	44,700	1.7%	Node 1	
Node 2	23030	30462	1.00%	Node 2				Freeway	1.9%	1.5%	Node 2	700	1,000	1.0%	Node 2	
Node 3	25982	43554	1.86%	Node 3	19461	36265	1.85%	Arterial	2.4%	1.2%	Node 3	22,900	40,400	1.9%	Node 3	
Node 4				Node 4				Collector	2.2%	2.8%	Node 4	4,700	6,400	1.0%	Node 4	
								Local	2.2%	2.8%						


GROWTH RATE DATA										AADT DATA						
Model	North Carolina Statewide Model (NCSTM)			STIP/Year	Previous Forecast			Socioeconomic			Selected	Latest Year	AADT			
	Base Year	Future Year	2017 - 2045 CAGR		Base Year	Future Year	CAGR	County	Chatham	Orange				1999-2019 CAGR	2009-2019 CAGR	
Scenario Year	2017	2045	CAGR	Scenario Year	2016	2050	CAGR	OSBM	1.5%	0.9%	2019	2045				
Node 1	29717	44223	1.43%	Node 1	19461	36265	1.85%	NCSTM (Pop)	1.8%	1.6%	Node 1	26,900	44,700	1.7%	Node 1	
Node 2	23030	30462	1.00%	Node 2				Freeway	1.9%	1.5%	Node 2	700	1,000	1.0%	Node 2	
Node 3	25982	43554	1.86%	Node 3	19461	36265	1.85%	Arterial	2.4%	1.2%	Node 3	22,900	40,400	1.9%	Node 3	
Node 4				Node 4				Collector	2.2%	2.8%	Node 4	4,700	6,400	1.0%	Node 4	
								Local	2.2%	2.8%						

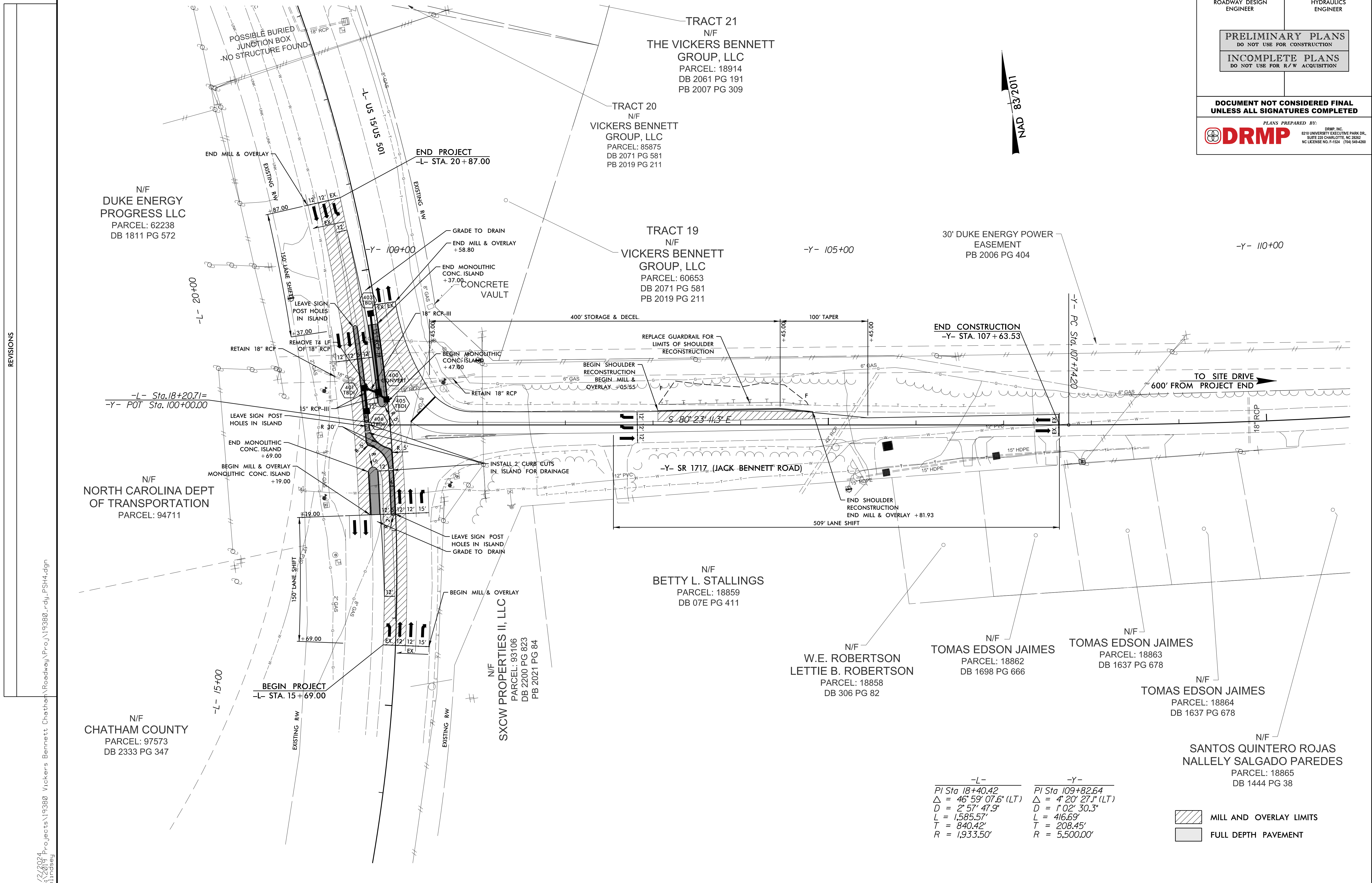


Volume Development Notes

- Note traffic counts were modified based on roadway geometry. It was assumed that the NBL volume was NBU and the node 3 approach/in/out was modified to account for the heavy NBU traffic volume. This is assumed to be accounted for as both in and out volumes since u-turn traffic gets carried through in both directions.
- Source F used for node 1. This value was calculated by taking the average of source D for Int 14 node 3 (26500) and source D for Int 13 node 1 (28500).
- Source F used for node 3. This value was calculated by taking the average of source D for Int 13 node 3 (26800) and source E for Int 12 node 1 (27000).
- Growth rates for nodes 1 and 3 were chosen to be between the TRM and the NCSTM.
- Growth rate for node 2 was based on output from the TRM, however, a lower growth rate was chosen based on node 2 2019 AADT being much higher than the TRM link volume. A net volume difference was used instead.

GROWTH RATE DATA										AADT DATA					
Model	North Carolina Statewide Model (NCSTM)			Triangle Regional Model			Previous Forecast		Socioeconomic		Selected	AADT			
	Base Year	Future Year	2017 - 2045	Base Year	Future Year	2016 - 2050	Base Year	Future Year	County	Chatham		Orange	Year	AADT	
	Year	Year	CAGR	Year	Year	CAGR	Year	Year	OSBM	1.5%		0.9%	Year	Year	
Node 1	29717	44223	1.43%	20402	38470	1.88%	Node 1	2019	2045	NCSTM (Pop)	1.8%	1.6%	Node 1	27,500	45,700
Node 2				3470	6140	1.69%	Node 2			Freeway	1.9%	1.5%	Node 2	7,100	10,400
Node 3	29717	44223	1.43%	18926	35713	1.89%	Node 3			Arterial	2.4%	1.2%	Node 3	26,900	44,700
Node 4							Node 4			Collector	2.2%	2.8%	Node 4	0	0
										Local	2.2%	2.8%			



PROJECT REFERENCE NO.	SHEET NO.
19380	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PLANS PREPARED BY: 	
<small>DRMP, INC. 5210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220 CHARLOTTE, NC 28202 NC LICENSE NO. F-1524 (704) 543-4200</small>	



REVISIONS

8/2/2024 S:\2019 Projects\19380 Vickers Bennett Chatham\Roadway\Proj\19380_rdy_PSH4.dgn
m.lindsey

-L-	-Y-
PI Sta 18+40.42	PI Sta 109+82.64
$\Delta = 46^{\circ} 59' 07.6''$ (LT)	$\Delta = 4^{\circ} 20' 27.1''$ (LT)
$D = 2^{\circ} 57' 47.9''$	$D = 1^{\circ} 02' 30.3''$
$L = 1,585.57'$	$L = 416.69'$
$T = 840.42'$	$T = 208.45'$
$R = 1,933.50'$	$R = 5,500.00'$

-  MILL AND OVERLAY LIMITS
-  FULL DEPTH PAVEMENT

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PID: 0018750
PIN: 9775-03-44-4270
PID: 0018896
PIN: 9775-04-54-0411
PID: 0018897

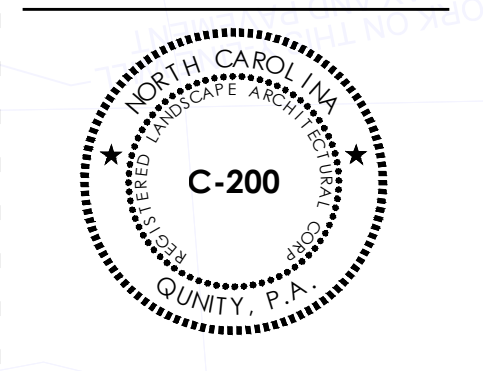


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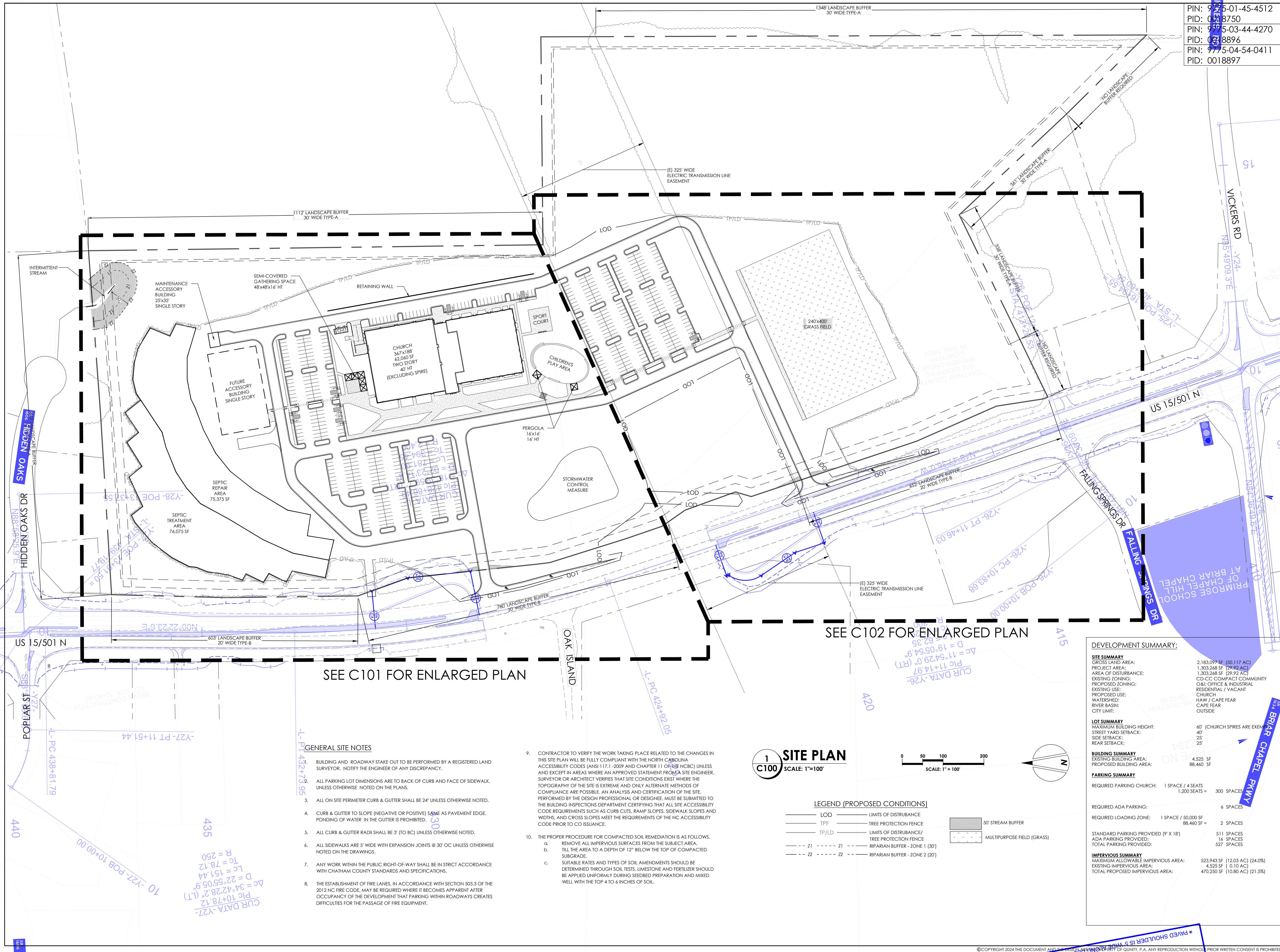
NORTH CAROLINA BOARD OF EXAMINERS FOR ENGINEERS AND SURVEYORS LICENSE NO.: C-0676

SUMMIT CHURCH CHATHAM COUNTY
9780 US 15-501 N.
CHAPEL HILL, NC 27517

SITE PLAN OVERALL



PRELIMINARY DO NOT USE FOR CONSTRUCTION



SEE C101 FOR ENLARGED PLAN

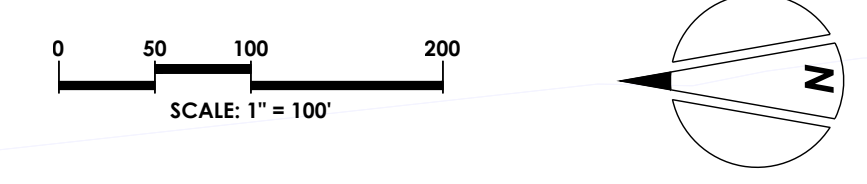
SEE C102 FOR ENLARGED PLAN

GENERAL SITE NOTES

- BUILDING AND ROADWAY STAKE OUT TO BE PERFORMED BY A REGISTERED LAND SURVEYOR. NOTIFY THE ENGINEER OF ANY DISCREPANCY.
- ALL PARKING LOT DIMENSIONS ARE TO BACK OF CURB AND FACE OF SIDEWALK, UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL ON SITE PERIMETER CURB & GUTTER SHALL BE 24" UNLESS OTHERWISE NOTED.
- CURB & GUTTER TO SLOPE (NEGATIVE OR POSITIVE) SAME AS PAVEMENT EDGE. PONDING OF WATER IN THE GUTTER IS PROHIBITED.
- ALL CURB & GUTTER RADII SHALL BE 3' (TO BC) UNLESS OTHERWISE NOTED.
- ALL SIDEWALKS ARE 5' WIDE WITH EXPANSION JOINTS @ 30' OC UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE IN STRICT ACCORDANCE WITH CHATHAM COUNTY STANDARDS AND SPECIFICATIONS.
- THE ESTABLISHMENT OF FIRE LANES, IN ACCORDANCE WITH SECTION 303.3 OF THE 2012 IBC FIRE CODE, MAY BE REQUIRED WHERE IT BECOMES APPARENT AFTER OCCUPANCY OF THE DEVELOPMENT THAT PARKING WITHIN ROADWAYS CREATES DIFFICULTIES FOR THE PASSAGE OF FIRE EQUIPMENT.

- CONTRACTOR TO VERIFY THE WORK TAKING PLACE RELATED TO THE CHANGES IN THIS SITE PLAN WILL BE FULLY COMPLIANT WITH THE NORTH CAROLINA ACCESSIBILITY CODES (ANSI 117.1 - 2009 AND CHAPTER 11 OF THE NCBC) UNLESS AND EXCEPT IN AREAS WHERE AN APPROVED STATEMENT FROM A SITE ENGINEER, SURVEYOR OR ARCHITECT VERIFIES THAT SITE CONDITIONS EXIST WHERE THE TOPOGRAPHY OF THE SITE IS EXTREME AND ONLY ALTERNATE METHODS OF COMPLIANCE ARE POSSIBLE. AN ANALYSIS AND CERTIFICATION OF THE SITE, PERFORMED BY THE DESIGN PROFESSIONAL OR DESIGNER, MUST BE SUBMITTED TO THE BUILDING INSPECTIONS DEPARTMENT CERTIFYING THAT ALL SITE ACCESSIBILITY CODE REQUIREMENTS SUCH AS CURB CUTS, RAMP SLOPES, SIDEWALK SLOPES AND WIDTHS, AND CROSS SLOPES MEET THE REQUIREMENTS OF THE NC ACCESSIBILITY CODE PRIOR TO CO ISSUANCE.
- THE PROPER PROCEDURE FOR COMPACTED SOIL REMEDIATION IS AS FOLLOWS.
 - REMOVE ALL IMPERVIOUS SURFACES FROM THE SUBJECT AREA.
 - TILL THE AREA TO A DEPTH OF 12" BELOW THE TOP OF COMPACTED SUBGRADE.
 - SUITABLE RATES AND TYPES OF SOIL AMENDMENTS SHOULD BE DETERMINED THROUGH SOIL TESTS. LIMESTONE AND FERTILIZER SHOULD BE APPLIED UNIFORMLY DURING SEEDBED PREPARATION AND MIXED WELL WITH THE TOP 4 TO 6 INCHES OF SOIL.

1 SITE PLAN
SCALE: 1"=100'



LEGEND (PROPOSED CONDITIONS)

— LOD	— LIMITS OF DISTURBANCE	▨ 50' STREAM BUFFER
— TPF	— TREE PROTECTION FENCE	▨ MULTIPURPOSE FIELD (GRASS)
— TP/LD	— LIMITS OF DISTURBANCE/ TREE PROTECTION FENCE	
- - - 21	- - - 21	- - - RIPARIAN BUFFER - ZONE 1 (30')
- - - 22	- - - 22	- - - RIPARIAN BUFFER - ZONE 2 (20')

DEVELOPMENT SUMMARY:

SITE SUMMARY	
GROSS LAND AREA:	2,183.077 SF (50.117 AC)
PROJECT AREA:	1,303,268 SF (29.92 AC)
AREA OF DISTURBANCE:	1,303,268 SF (29.92 AC)
EXISTING ZONING:	CD-CC COMPACT COMMUNITY
PROPOSED ZONING:	O&I: OFFICE & INDUSTRIAL
EXISTING USE:	RESIDENTIAL / VACANT
PROPOSED USE:	CHURCH
WATERSHED:	HAW / CAPE FEAR
RIVER BASIN:	CAPE FEAR
CITY LIMIT:	OUTSIDE
LOT SUMMARY	
MAXIMUM BUILDING HEIGHT:	60' (CHURCH SPIRES ARE EXEMPT)
STREET YARD SETBACK:	40'
SIDE SETBACK:	25'
REAR SETBACK:	25'
BUILDING SUMMARY	
EXISTING BUILDING AREA:	4,525 SF
PROPOSED BUILDING AREA:	88,460 SF
PARKING SUMMARY	
REQUIRED PARKING CHURCH:	1 SPACE / 4 SEATS = 300 SPACES
REQUIRED ADA PARKING:	6 SPACES
REQUIRED LOADING ZONE:	1 SPACE / 50,000 SF = 2 SPACES
STANDARD PARKING PROVIDED (9' X 18')	511 SPACES
ADA PARKING PROVIDED:	16 SPACES
TOTAL PARKING PROVIDED:	527 SPACES
IMPERVIOUS SUMMARY	
MAXIMUM ALLOWABLE IMPERVIOUS AREA:	523,943 SF (12.03 AC) (24.0%)
EXISTING IMPERVIOUS AREA:	4,525 SF (0.10 AC)
TOTAL PROPOSED IMPERVIOUS AREA:	470,250 SF (10.80 AC) (21.5%)

DRAWN BY: SBM
CHECKED BY: JEW
DATE: 05/07/2024
PROJECT NO.: 2339
SHEET NO.: C100
CONDITIONAL REZONING

Certificate Of Completion

Envelope Id: E290CCB7AECD45B59846EE5F7A8FA717	Status: Completed
Subject: Complete with DocuSign: ChathamCountyChurch Traffic Impact Analysis 08-16-24.pdf	
Source Envelope:	
Document Pages: 243	Signatures: 1
Certificate Pages: 1	Initials: 0
AutoNav: Enabled	Envelope Originator:
Envelope Stamping: Enabled	Baohong Wan
Time Zone: (UTC-05:00) Eastern Time (US & Canada)	207 Senate Avenue
	Camp Hill, PA 17011-2316
	bwan@gfnet.com
	IP Address: 136.56.237.165

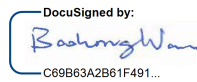
Record Tracking

Status: Original	Holder: Baohong Wan	Location: DocuSign
8/16/2024 4:23:26 PM	bwan@gfnet.com	

Signer Events

Baohong Wan
 bwan@gfnet.com
 Security Level: Email, Account Authentication (None)

Signature



Signature Adoption: Uploaded Signature Image
 Using IP Address: 136.56.237.165

Timestamp

Sent: 8/16/2024 4:24:41 PM
 Viewed: 8/16/2024 4:24:54 PM
 Signed: 8/16/2024 4:25:14 PM

Electronic Record and Signature Disclosure:
 Not Offered via DocuSign

In Person Signer Events	Signature	Timestamp
Editor Delivery Events	Status	Timestamp
Agent Delivery Events	Status	Timestamp
Intermediary Delivery Events	Status	Timestamp
Certified Delivery Events	Status	Timestamp
Carbon Copy Events	Status	Timestamp
Witness Events	Signature	Timestamp
Notary Events	Signature	Timestamp
Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	8/16/2024 4:24:41 PM
Certified Delivered	Security Checked	8/16/2024 4:24:54 PM
Signing Complete	Security Checked	8/16/2024 4:25:14 PM
Completed	Security Checked	8/16/2024 4:25:14 PM
Payment Events	Status	Timestamps