

**Traffic Impact Analysis for
S. Trade Street at Weddington Road Multifamily Development
Matthews, North Carolina**

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TABLE OF CONTENTS

| | <u>Page No.</u> |
|--|-----------------|
| 1.0 EXECUTIVE SUMMARY | 4 |
| 2.0 INTRODUCTION | 7 |
| 3.0 EXISTING TRAFFIC CONDITIONS | 9 |
| 3.1 STUDY AREA | 9 |
| 3.2 EXISTING TRAFFIC VOLUME DEVELOPMENT | 12 |
| 4.0 BACKGROUND TRAFFIC VOLUME DEVELOPMENT | 14 |
| 4.1 HISTORICAL BACKGROUND GROWTH TRAFFIC | 14 |
| 4.2 APPROVED DEVELOPMENTS | 14 |
| 4.3 PLANNED TRANSPORTATION PROJECTS | 14 |
| 5.0 SITE TRAFFIC VOLUME DEVELOPMENT | 19 |
| 5.1 SITE ACCESS | 19 |
| 5.2 TRAFFIC GENERATION | 19 |
| 5.3 SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT | 21 |
| 5.4 2023 BUILD TRAFFIC VOLUMES | 21 |
| 6.0 CAPACITY ANALYSIS | 25 |
| 6.1 S. TRADE STREET AT WEDDINGTON ROAD | 28 |
| 6.2 S. TRADE STREET AT BRENHAM LANE/SITE ACCESS A | 30 |
| 6.3 S. TRADE STREET AT CHESNEY GLEN DRIVE | 31 |
| 6.4 S. TRADE STREET AT FULLWOOD LANE | 33 |
| 6.5 FULLWOOD LANE AT NC 51 (MATTHEWS TOWNSHIP PARKWAY) | 35 |
| 6.6 WEDDINGTON ROAD AT I-485 INNER LOOP RAMPS | 38 |
| 6.7 WEDDINGTON ROAD AT I-485 OUTER LOOP RAMPS | 40 |
| 6.8 WEDDINGTON ROAD AT SITE ACCESS B | 42 |
| 7.0 AUXILIARY TURN LANE WARRANTS | 43 |
| 8.0 RECOMMENDATIONS | 44 |
| APPENDIX | 46 |

List of Figures

| | <u>Page No.</u> |
|--|------------------------|
| FIGURE ES-1 – 2023 BUILD RECOMMENDED LANEAGE | 6 |
| FIGURE 2.1 – PROPOSED SITE PLAN | 8 |
| FIGURE 3.1 – STUDY AREA/SITE LOCATION | 10 |
| FIGURE 3.2 – EXISTING ROADWAY LANEAGE | 11 |
| FIGURE 3.3 – 2020 EXISTING PEAK HOUR TRAFFIC VOLUMES | 13 |
| FIGURE 5.1 – SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT | 22 |
| FIGURE 5.2A – 2023 BUILD PEAK HOUR SITE TRIPS | 23 |
| FIGURE 5.2B – 2023 TOTAL BUILD PEAK HOUR TRAFFIC VOLUMES | 24 |
| FIGURE 8.1 – 2023 BUILD RECOMMENDED LANEAGE | 45 |

List of Tables

| | <u>Page No.</u> |
|--|-----------------|
| TABLE 5.1 – TRIP GENERATION | 20 |
| TABLE 6.0A – VEHICULAR LOS CONTROL DELAY THRESHOLDS FOR UNSIGNALIZED INTERSECTIONS | 26 |
| TABLE 6.0B – VEHICULAR LOS CONTROL DELAY THRESHOLDS FOR SIGNALIZED INTERSECTIONS | 26 |
| TABLE 6.1 – S. TRADE STREET AT WEDDINGTON ROAD | 29 |
| TABLE 6.2 – S. TRADE STREET AT BRENHAM LANE/SITE ACCESS A | 30 |
| TABLE 6.3 – S. TRADE STREET AT CHESNEY GLEN DRIVE | 32 |
| TABLE 6.4 – S. TRADE STREET AT FULLWOOD LANE | 34 |
| TABLE 6.5A – FULLWOOD LANE AT NC 51 (MATTHEWS TOWNSHIP PARKWAY) A | 36 |
| TABLE 6.5B – FULLWOOD LANE AT NC 51 (MATTHEWS TOWNSHIP PARKWAY) – SUPPLEMENTAL | 37 |
| TABLE 6.6 – WEDDINGTON ROAD AT I-485 INNER LOOP RAMPS | 39 |
| TABLE 6.7 – WEDDINGTON ROAD AT I-485 OUTER LOOP RAMPS | 41 |
| TABLE 6.8 – WEDDINGTON ROAD AT SITE ACCESS B | 42 |

1.0 Executive Summary

The proposed S. Trade Street at Weddington Road multifamily development is located west of S. Trade Street and north of Weddington Road in Matthews, North Carolina. The subject site is a currently vacant parcel located just south of Arthur Goodman Memorial Park and surrounded by dense residential development. Based on the current site plan, the proposed development is envisioned to consist of the following land use intensities:

- 131 Multifamily, Low-Rise Housing Units
 - 94 Apartment Flats
 - 37 Townhouse Apartments

The full build-out of the development is anticipated to be complete in 2023. Based on the site plan shown in **Figure 2.1**, primary external access to the development will occur via the following:

- One right-in/right-out driveway on S. Trade Street, to form a fourth leg at the existing intersection with Brenham Lane [Site Access A]
- One full-movement driveway on Weddington Road, approximately 925 feet west of S. Trade Street [Site Access B]

This TIA evaluates traffic operations under 2020 Existing, 2023 Background, and 2023 Build conditions during the AM and PM peak hours at the following intersections:

- S. Trade Street at Weddington Road
- S. Trade Street at Brenham Lane/Proposed Site Access A
- S. Trade Street at Chesney Glen Drive
- S. Trade Street at Fullwood Lane
- Fullwood Lane at NC 51
- Weddington Road at I-485 Inner Loop Ramps (2023 Background and 2023 Build)
- Weddington Road at I-485 Outer Loop Ramps (2023 Background and 2023 Build)
- Weddington Road at Proposed Site Access B

The TIA scoping document associated with this project was reviewed and approved by NCDOT and the Town of Matthews on March 30, 2020. This TIA scoping document is included in the **Appendix** for reference.

Kimley-Horn was retained to determine the potential traffic impacts of this development and identify transportation improvements that may be required to accommodate these impacts in accordance with the guidelines set forth in the North Carolina Department of Transportation (NCDOT) Congestion Management *Capacity Analysis Guidelines*, NCDOT *Policy on Street and Driveway Access to North Carolina Highways*, and Town of Matthews *Unified Development Ordinance*. This report presents trip generation, trip distribution, capacity analyses, and recommendations for transportation improvements required to mitigate anticipated traffic demands produced by the subject development.

Capacity analyses under 2023 Background and 2023 Build conditions were conducted in the context of NCDOT STIP Projects I-5507, R-0211EC, and U-4714, which include the construction of a partial cloverleaf interchange at the existing grade-separated crossing of Weddington Road at I-485.

Based on the capacity analyses performed at each of the identified study intersections, along with review of the auxiliary turn-lane warrants contained herein, the following improvements have been identified to mitigate the impact of the proposed development on the adjacent street network under 2023 Build Conditions:

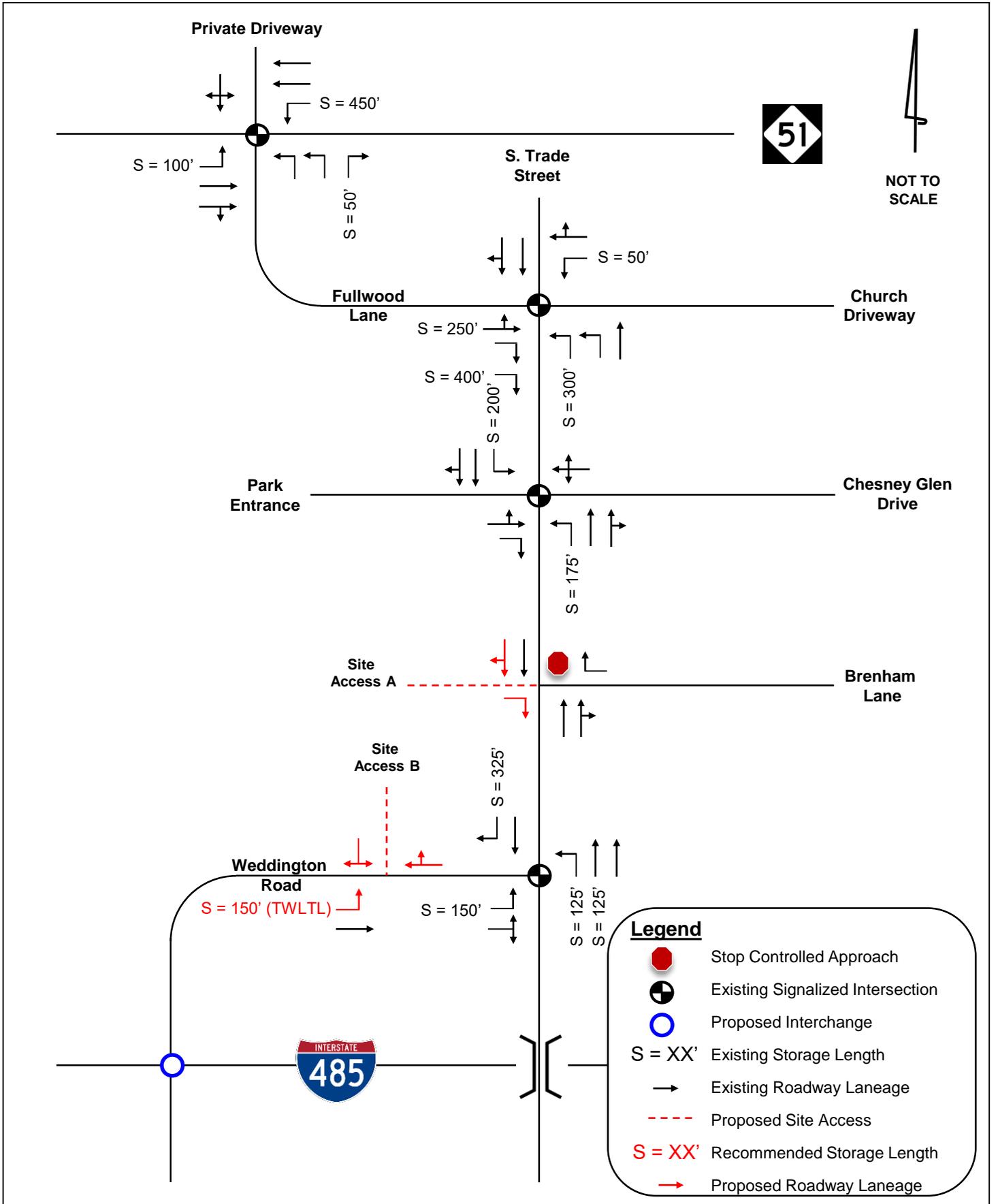
S. Trade Street at Brenham Lane/Site Access A

- Restrict site access to right-in/right-out with one ingress and one egress lane

Weddington Road at Site Access B

- Utilize the existing two-way left-turn lane on Weddington Road to provide left-turn storage and site access
 - Based on auxiliary turn lane warrants and capacity analyses, 150 feet of full-width storage is needed to accommodate the proposed development; adequate storage is present in the existing two-way left-turn lane

The recommended improvements identified within the study area are shown in **Figure ES-1**. The improvements shown on this figure are subject to approval by NCDOT and the Town of Matthews. All additions and attachments to the State and City roadway system shall be properly permitted, designed and constructed in conformance to standards maintained by the agencies.



2.0 Introduction

The proposed S. Trade Street at Weddington Road multifamily development is located west of S. Trade Street and north of Weddington Road in Matthews, North Carolina. The subject site is a currently vacant parcel located just south of Arthur Goodman Memorial Park and surrounded by dense residential development. Based on the current site plan, the proposed development is envisioned to consist of the following land use intensities:

- 131 Multifamily, Low-Rise Housing Units
 - 94 Apartment Flats
 - 37 Townhouse Apartments

The full build-out of the development is anticipated to be complete in 2023. Based on the site plan shown in **Figure 2.1**, primary external access to the development will occur via the following:

- One right-in/right-out driveway on S. Trade Street, to form a fourth leg at the existing intersection with Brenham Lane [Site Access A]
- One full-movement driveway on Weddington Road, approximately 925 feet west of S. Trade Street [Site Access B]

This TIA evaluates traffic operations under 2020 Existing, 2023 Background, and 2023 Build conditions during the AM and PM peak hours at the following intersections:

- S. Trade Street at Weddington Road
- S. Trade Street at Brenham Lane/Proposed Site Access A
- S. Trade Street at Chesney Glen Drive
- S. Trade Street at Fullwood Lane
- Fullwood Lane at NC 51
- Weddington Road at I-485 Inner Loop Ramps (2023 Background and 2023 Build)
- Weddington Road at I-485 Outer Loop Ramps (2023 Background and 2023 Build)
- Weddington Road at Proposed Site Access B

The TIA scoping document associated with this project was reviewed and approved by NCDOT and the Town of Matthews on March 30, 2020. This TIA scoping document is included in the **Appendix** for reference.

Kimley-Horn was retained to determine the potential traffic impacts of this development and identify transportation improvements that may be required to accommodate these impacts in accordance with the guidelines set forth in the North Carolina Department of Transportation (NCDOT) Congestion Management *Capacity Analysis Guidelines*, NCDOT *Policy on Street and Driveway Access to North Carolina Highways*, and Town of Matthews *Unified Development Ordinance*. This report presents trip generation, trip distribution, capacity analyses, and recommendations for transportation improvements required to mitigate anticipated traffic demands produced by the subject development.



NOT TO SCALE

- 131 Units
- 94 apartment flats
- 52 (1) bedroom
- 42 (2) bedroom
- 37 townhouse apartments
- 16 (2) bedroom
- 21 (3) bedroom



Matthews Density Study

Site Plan
3.5.2020



REV 01 09 13 13

3.0 Existing Traffic Conditions

3.1 STUDY AREA

Based on coordination with NCDOT and the Town of Matthews, the study area for this TIA includes the following existing intersections:

1. S. Trade Street at Weddington Road
2. S. Trade Street at Brenham Lane
3. S. Trade Street at Chesney Glen Drive
4. S. Trade Street at Fullwood Lane
5. Fullwood Lane at NC 51 (Matthews Township Parkway)

Figure 3.1 shows the study area intersections and the site location. **Figure 3.2** shows the existing roadway geometry at the study intersections. *Note: Ongoing construction associated with NCDOT STIP Project U-5804B (widening of S. Trade Street between Chaphyn Lane and Marque Place) is scheduled for completion in 2020; Existing geometry assumes completion of this project as shown in the roadway plan set developed by Kimley-Horn in October 2017.*

The primary roadways within the vicinity of the site are S. Trade Street, Weddington Road, Fullwood Lane, and NC 51 (Matthews Township Parkway). Key characteristics of each of these roadways are summarized below.

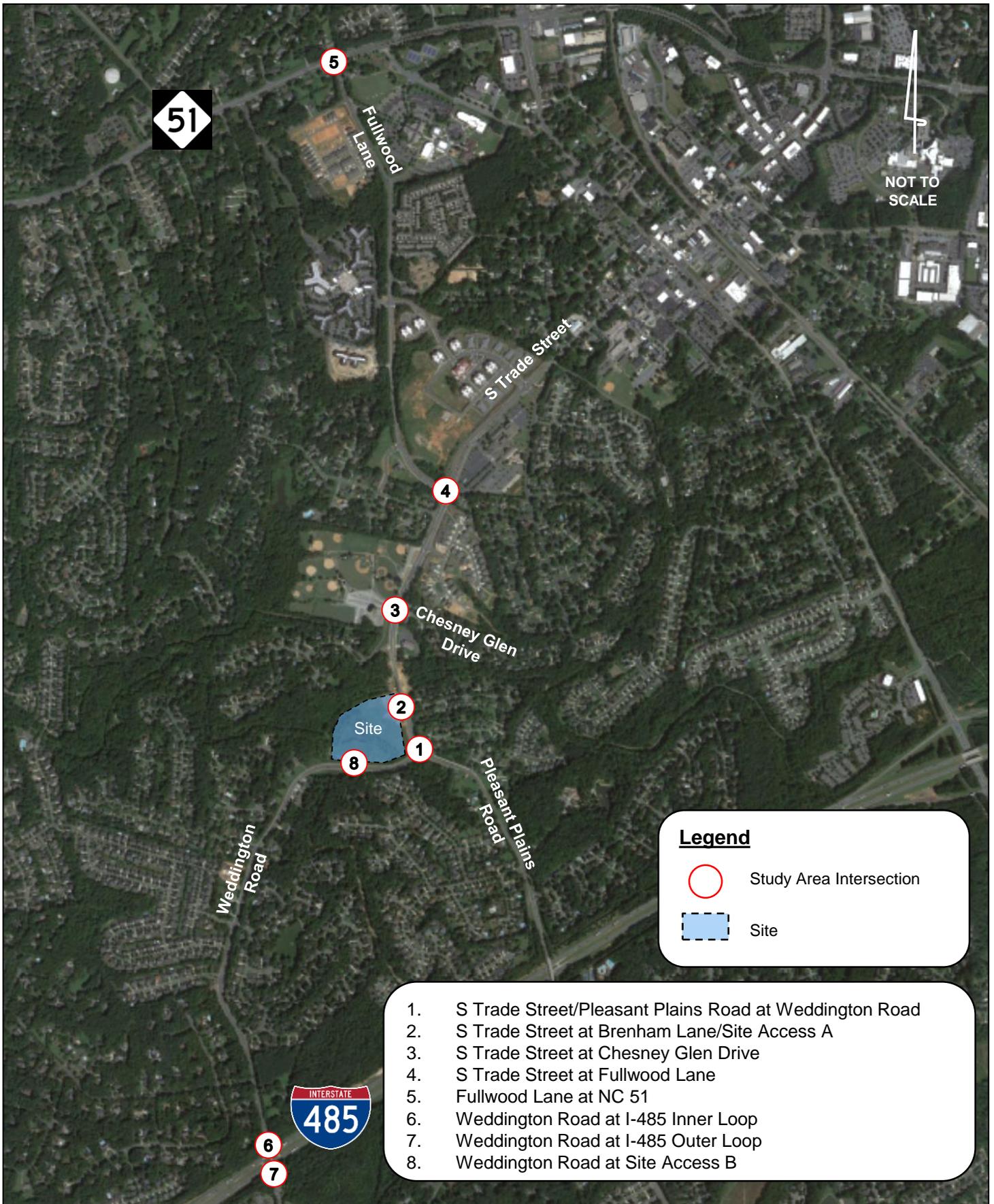
S. Trade Street is a three- to four-lane, divided minor arterial with a posted speed limit of 35 miles per hour (mph) in the vicinity of the proposed site. Per NCDOT, S. Trade Street has a 2018 Average Annual Daily Traffic volume between 9,700 vehicles per day (vpd) and 26,000 vpd south and north of Weddington Road, respectively.

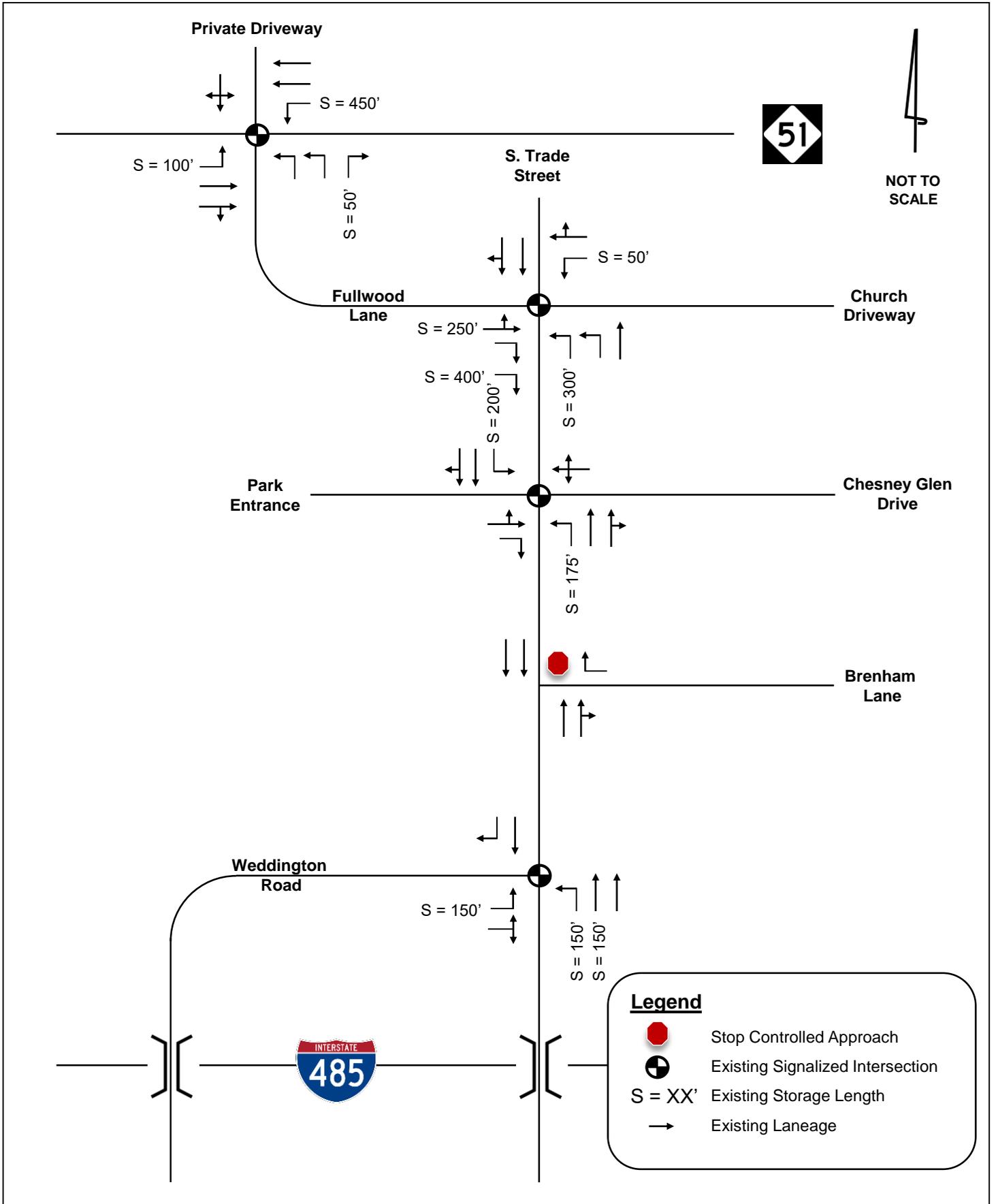
Weddington Road is a three-lane, divided minor arterial with a speed limit of 35 mph in the vicinity of the site. Per NCDOT, Weddington Road has a 2018 AADT of 16,000 vpd west of S. Trade Street.

Fullwood Lane is a two- to three-lane, undivided local roadway with a posted speed limit of 35 mph that connects S. Trade Street and NC 51 (Matthews Township Parkway). Per NCDOT, Fullwood Lane has a 2016 AADT of 14,000 vpd.

NC 51 (Matthews Township Parkway) is a five-lane, divided principal arterial that serves as a primary connection between NC 16 (Providence Road), US 74 (E Independence Boulevard) and the Town of Matthews near the study area. NC 51 (Matthews Township Parkway) has a posted speed limit of 45 mph and 35 mph west and east of Fullwood Lane, respectively, and carried 38,500 vpd in 2018, per NCDOT.

Brenham Lane and Chesney Glen Drive are both classified as local roadways in the vicinity of the proposed site, and NCDOT does not provide any AADT information for these roadways. These two roadways provide access to moderately sized residential developments and Arthur Goodman Memorial Park.





3.2 EXISTING TRAFFIC VOLUME DEVELOPMENT

Under the current statewide restrictions for collecting turning movement counts (TMCs) at study intersections, historical data was compiled and normalized to an existing year of 2020 for use in this TIA. Archived peak hour TMCs utilized to develop existing traffic volumes include:

- S. Trade Street at Weddington Road (Collected on April 28, 2004)
- S. Trade Street at Chesney Glen Drive (Collected on April 28, 2004)
- S. Trade Street at Fullwood Lane (Collected by Davenport Transportation Consulting on April 25, 2012)
- Fullwood Lane at NC 51 (Collected by Davenport Transportation Consulting on April 25, 2012 and Quality Counts on December 6, 2016)

Based on a comparison of traffic counts collected at the intersection of Fullwood Lane with NC 51 (Matthews Township Parkway) in 2012 and 2016 with NCDOT AADT station data, the following growth rates were deemed appropriate for extrapolating the archived TMCs noted above:

- 2004-2016: 0.5% per year
- 2016-2020: 4.0% per year

No historical data was available for the intersection of S. Trade Street with Brenham Lane; accordingly, the ITE *Trip Generation Manual, 10th Edition* was used to estimate the number of peak hour trips generated by the single-family detached housing (ITE Land Use Code 210) served by Brenham Lane. These calculations were performed under the following assumptions:

- The westbound approach of Brenham Lane is converted to right-in/right-out as part of NCDOT STIP Project U-5804B
- All homes with a Brenham Lane address use Brenham Lane for access to/from northbound S. Trade Street (30 homes)
- 60% of all homes with an English Knoll Drive address use Brenham Lane for access to/from northbound S. Trade Street (24 homes)
- No homes with a Marque Place address use Brenham Lane for access to/from northbound S. Trade Street

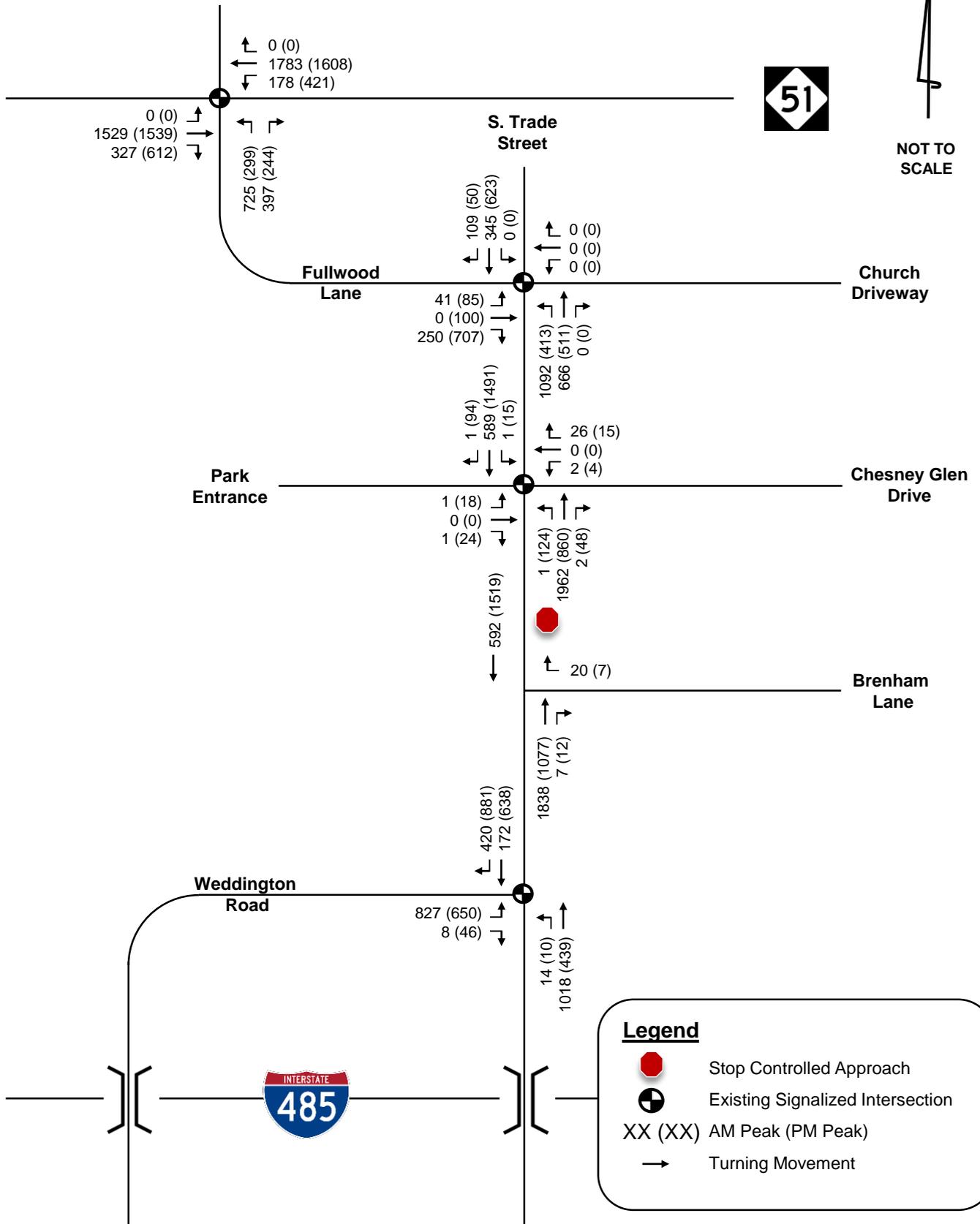
Existing peak hour turning movement volumes were developed by applying the appropriate growth rate to historical TMCs and reconciling minor imbalances between intersections, as necessary. Given the presence of numerous intermediate driveways and local roadways, volumes were only balanced between the intersections of S. Trade Street with Brenham Lane and Weddington Road.

These adjusted Existing TMCs were carried forward to develop 2023 Background and 2023 Build traffic volumes per typical practice for the following study intersections:

1. S. Trade Street at Weddington Road
2. S. Trade Street at Brenham Lane
3. S. Trade Street at Chesney Glen Drive
4. S. Trade Street at Fullwood Lane
5. Fullwood Lane at NC 51 (Matthews Township Parkway)

Figure 3.3 illustrates the factored 2020 Existing AM and PM peak hour traffic volumes. Peak hour intersection turning movement count data and volume development worksheets are provided in the **Appendix**.

Private Driveway



4.0 Background Traffic Volume Development

Projected background (non-project) traffic is defined as the expected growth or change in traffic volumes on the surrounding roadway network between the year the existing counts were collected (2020) and the expected build-out year (2023), absent the construction and opening of the proposed project. This includes both historical background growth and growth in traffic volumes caused by specific approved developments near the proposed site.

4.1 HISTORICAL BACKGROUND GROWTH TRAFFIC

Historical background growth is the anticipated increase in existing traffic volumes due to generalized growth in the study area that is independent of specific approved developments. Historical background growth traffic is calculated using an annual growth rate, which is applied to the existing traffic volumes up to the future horizon year. Based on coordination with the Town of Matthews, an annual growth rate of 4% was assumed for this project and applied to the 2020 Existing peak hour traffic volumes to calculate 2023 Background traffic volumes. 2023 Background traffic volumes (excluding diverted trips) are provided in **Figure 4.1A**.

4.2 APPROVED DEVELOPMENTS

Based on coordination with the Town of Matthews, no approved developments were considered as part of this TIA.

4.3 PLANNED TRANSPORTATION PROJECTS

The following projects contained in the Fiscal Year 2020-2029 NCDOT Statewide Transportation Improvement Program (STIP) fall within the study area and were considered for the subject TIA:

NCDOT STIP Project U-5804B

The Construction phase of NCDOT STIP Project U-5804B is expected to be complete in 2020. The 4% annual growth rate applied to archived TMCs to estimate 2020 Existing peak hour traffic volumes was assumed sufficient for capturing any increase in demand on S. Trade Street under the proposed four-lane configuration; traffic signal plans provided by the Town of Matthews and roadway plans developed by Kimley-Horn in October 2017 were used to verify that intersection geometry was coded correctly in traffic analysis software.

NCDOT STIP Projects I-5507, R-0211EC, and U-4714

The following improvements are associated with NCDOT STIP Projects I-5507, R-0211EC, and U-4714:

- STIP Project I-5507:
 - Construction of I-485 Express Lanes between I-77 and US 74
- STIP Project R-0211EC:
 - Construction of a new interchange with I-485 at Weddington Road
- STIP Project U-4714:
 - Improvements to the existing interchange of I-485 with John Street
 - John Street Widening
 - McKee Road Extension between Pleasant Plains Road and Old Monroe Road

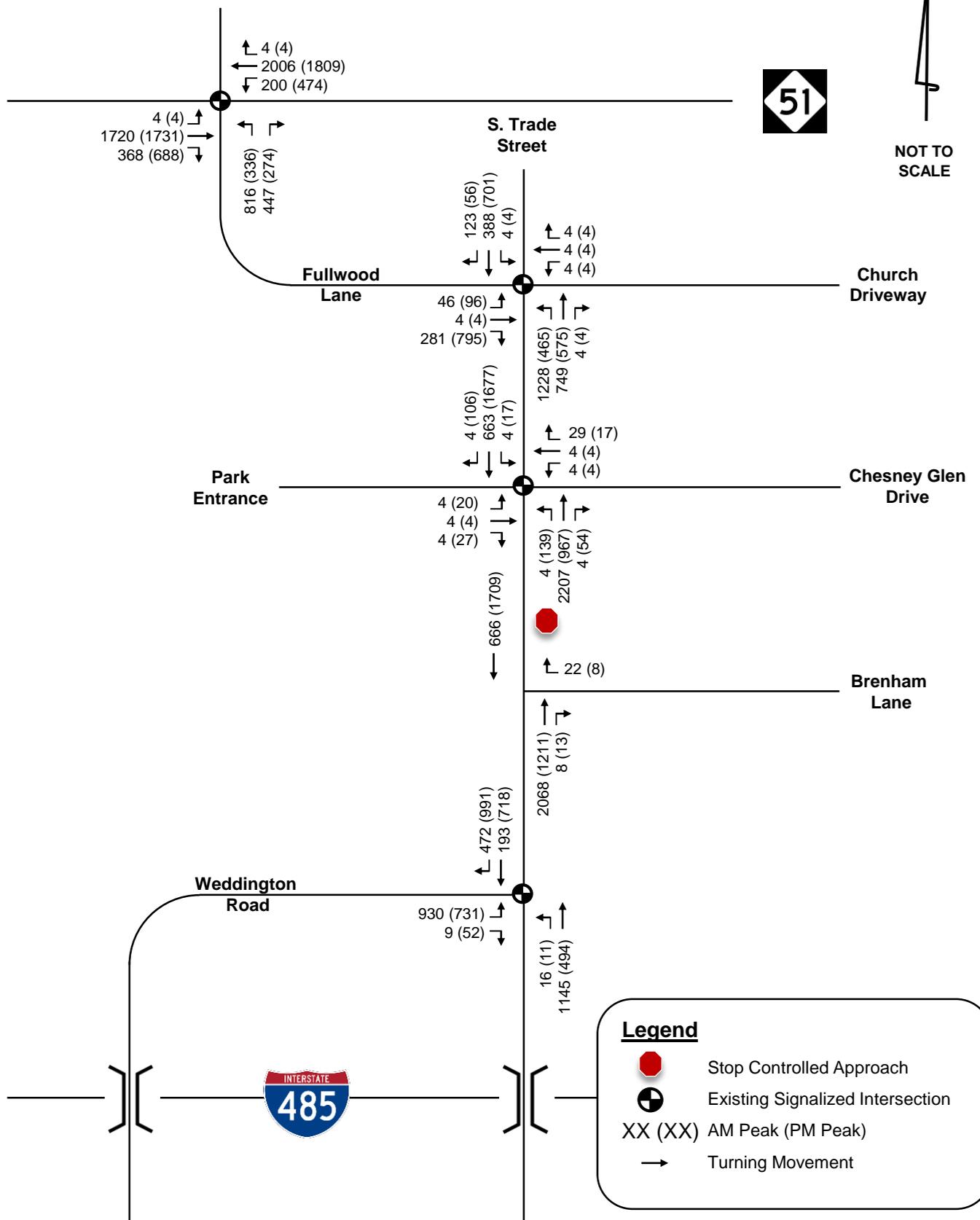
The Metrolina Regional Travel Demand Model (MRM19v1.0) was used to estimate traffic diversion on the existing roadway network associated with the various improvements listed above. Based on

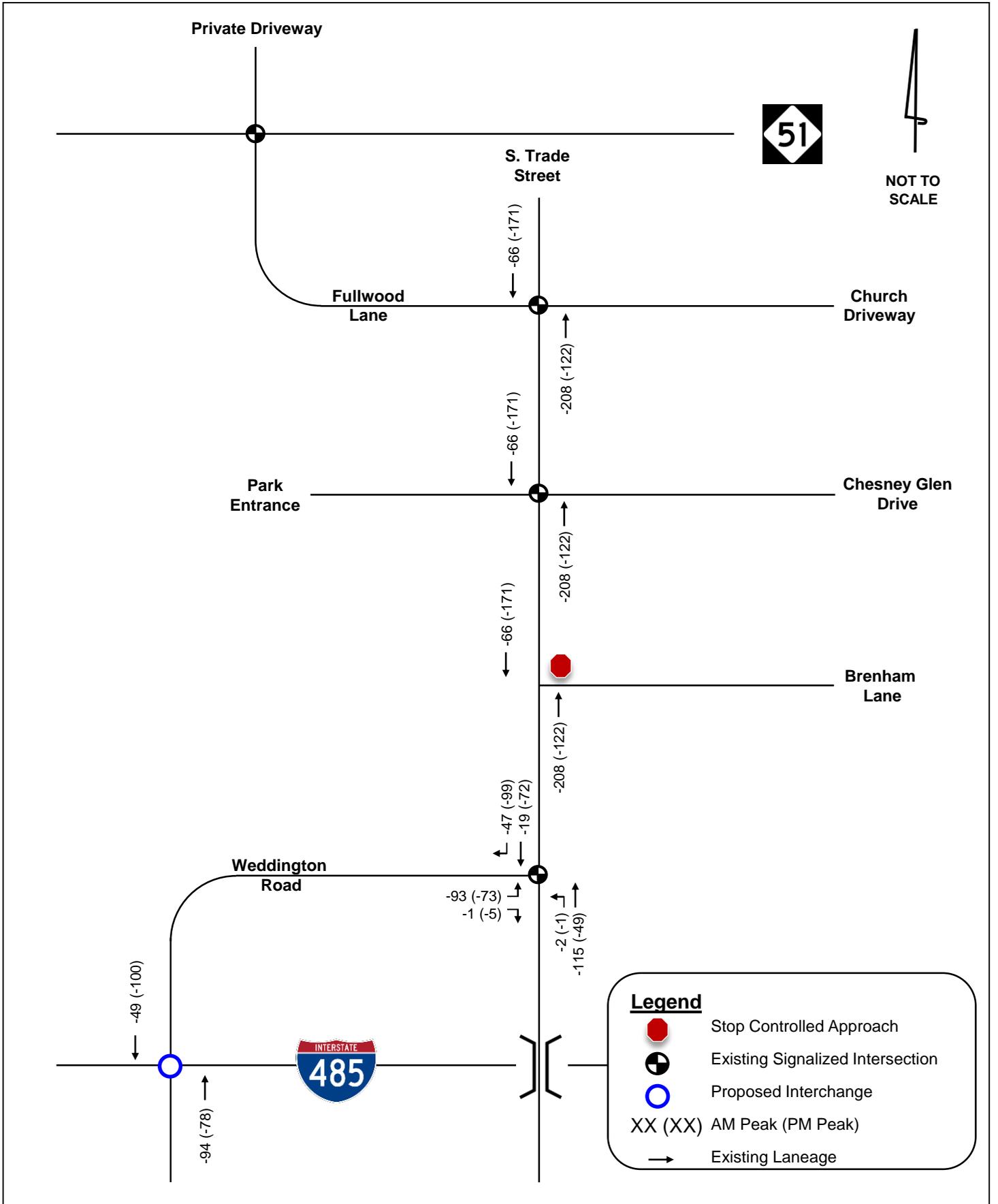
coordination with the NCDOT Transportation Planning Division and a comparison of model outputs under “No-Build” and “Build” scenarios, a diversion rate of -10% was assumed for through traffic on Weddington Road and Pleasant Plains Road.

2023 Background and 2023 Build volumes were developed for the two signalized intersections proposed as part of a new partial cloverleaf interchange with I-485 on Weddington Road based on MRM19v1.0 outputs and the U-4714 Traffic Forecast approved on February 21, 2018. These two intersections were analyzed under 2023 Background and 2023 Build conditions as part of the scope for this TIA.

2023 Background AM and PM peak hour diverted trips are summarized in **Figure 4.1B**. Total 2023 Background AM and PM peak hour traffic volumes (including diverted trips) are provided in **Figure 4.1C**.

Private Driveway

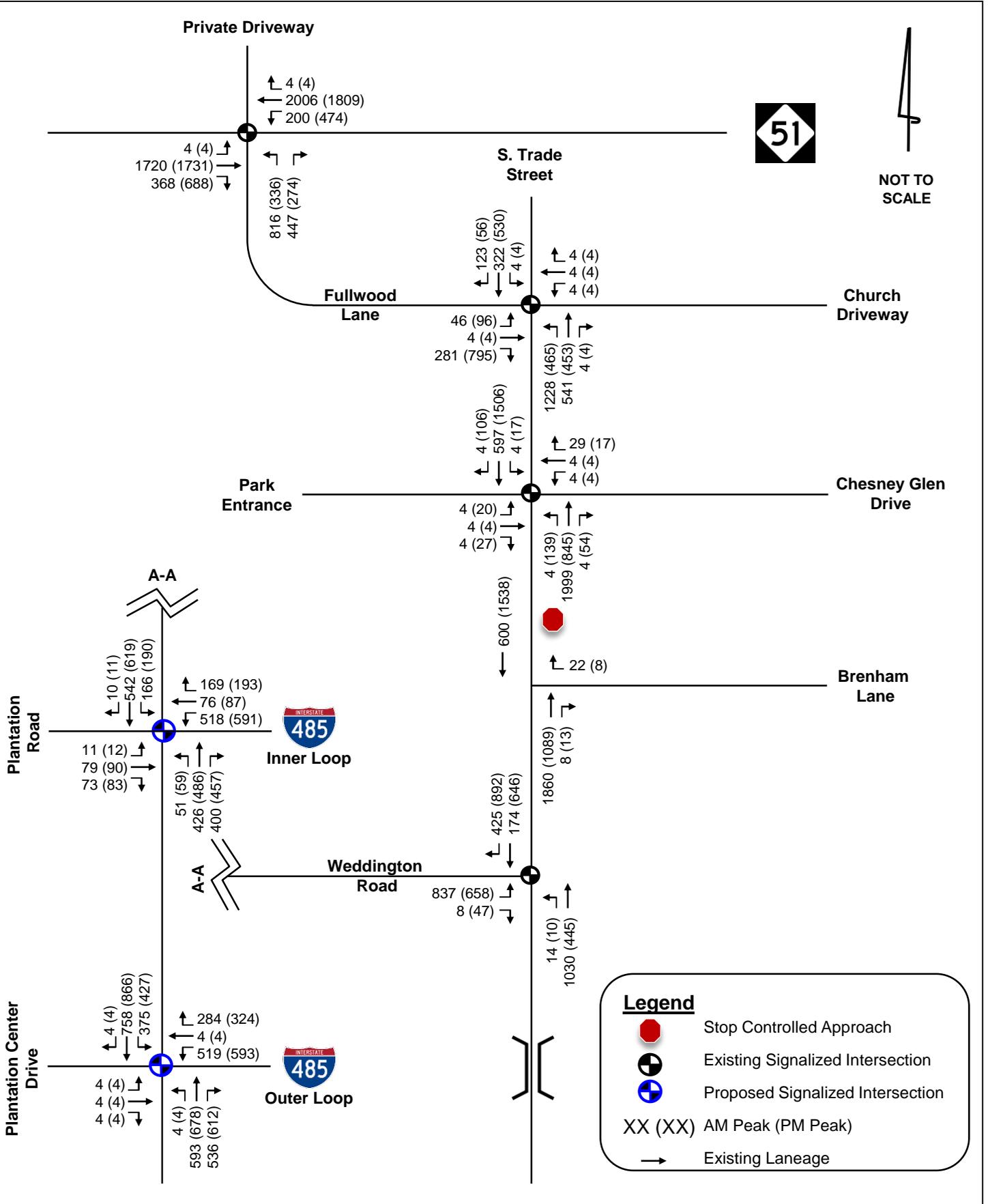




Private Driveway



NOT TO SCALE



5.0 SITE TRAFFIC VOLUME DEVELOPMENT

Site traffic developed for this TIA consists of the vehicle trips expected to be generated by construction of the proposed development and the distribution and assignment of these trips throughout the surrounding study network.

5.1 SITE ACCESS

Based on the site plan shown previously in **Figure 2.1**, primary external access to the development will occur via the following:

- One right-in/right-out driveway on S. Trade Street, to form a fourth leg at the existing intersection with Brenham Lane [Site Access A]
- One full-movement driveway on Weddington Road, approximately 925 feet west of S. Trade Street [Site Access B]

5.2 TRAFFIC GENERATION

The traffic generation potential of the proposed development was determined using the trip generation rates published in the ITE *Trip Generation Manual, 10th Edition* for the various Land Use Codes (LUCs) represented within the proposed site.

As mentioned in **Section 2.0**, proposed land use intensities include:

- 131 Multifamily, Low-Rise Housing Units (LUC 220)
 - 94 Apartment Flats
 - 37 Townhouse Apartments

Table 5.1 summarizes the projected trip generation of the proposed development. During a typical weekday, the proposed development has the potential to generate 62 and 75 net new external trips during the AM and PM peak hours, respectively.

| Table 5.1 - Trip Generation | | | | | | | | |
|--|-----------|------------|--------------|-----------|-----------|--------------|-----------|-----------|
| Land Use | Intensity | Daily | AM Peak Hour | | | PM Peak Hour | | |
| | | | Total | In | Out | Total | In | Out |
| | | | | | | | | |
| Multifamily Housing Low-Rise [ITE 220] | 131 d.u. | 950 | 62 | 14 | 48 | 75 | 47 | 28 |
| Subtotal | | 950 | 62 | 14 | 48 | 75 | 47 | 28 |
| | | | | | | | | |
| Internal Capture | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |
| Pass-By | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |
| Net New External Trips | | 950 | 62 | 14 | 48 | 75 | 47 | 28 |

5.3 SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT

Net new external trips generated by the proposed development were assigned to the surrounding network based on existing peak hour turning movements, surrounding land uses, population densities in the area, and the proposed site layout. The following site traffic distribution was reviewed and approved by NCDOT:

- 30% to/from north of the proposed development via Fullwood Lane and S. Trade Street
 - 15% from NC 51 (Matthews Township Parkway) west of Fullwood Lane
 - 15% from NC 51 (Matthews Township Parkway) east of Fullwood Lane
- 20% to/from north of the proposed development via S. Trade Street
- 20% to/from south of the proposed development via S. Trade Street
- 30% to/from west of the proposed development via I-485 and Weddington Road
 - 15% from I-485 west of Weddington Road
 - 10% from I-485 east of Weddington Road
 - 5% from Weddington Road south of I-485

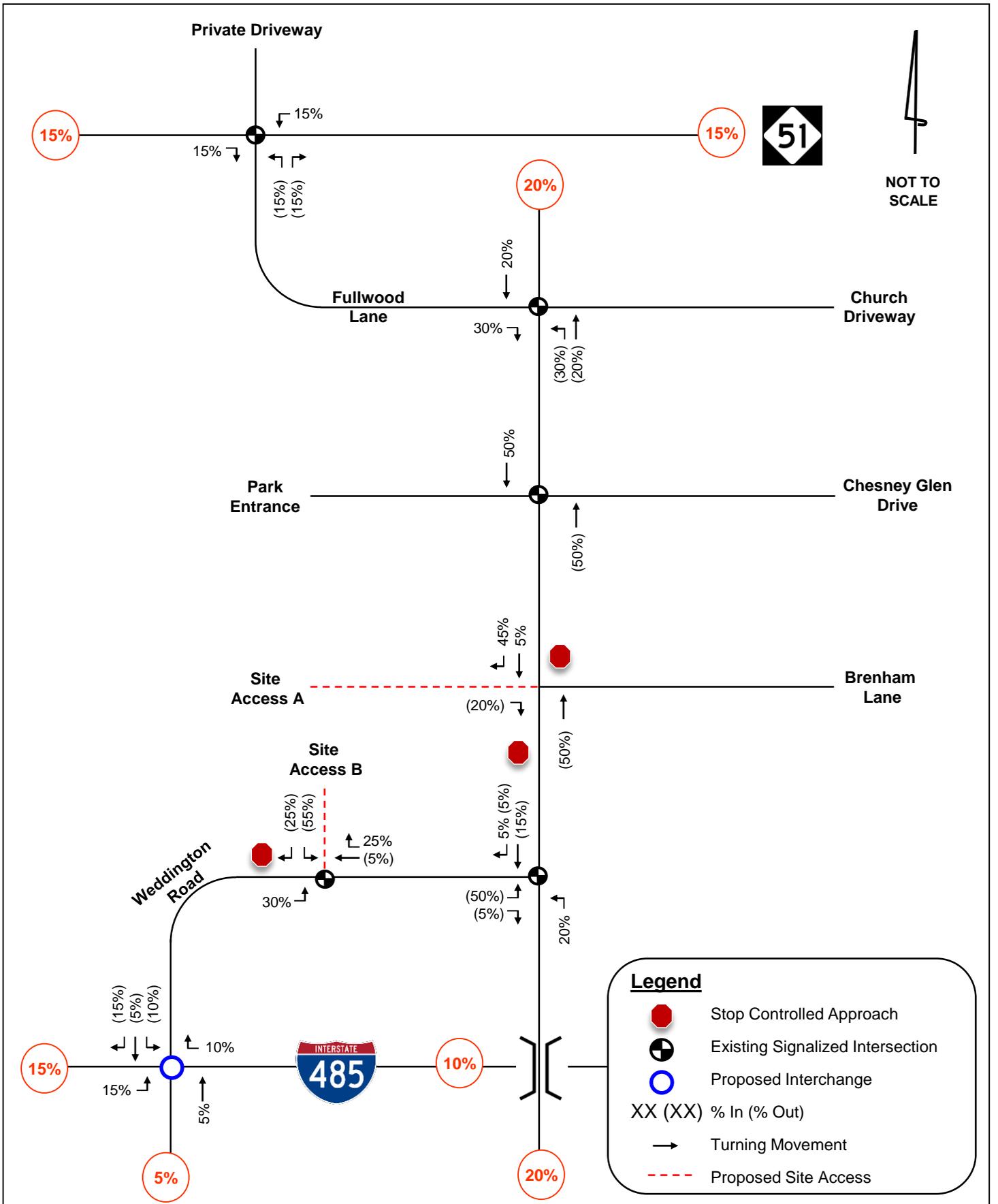
The overall site traffic distribution and assignment are shown in **Figure 5.1**.

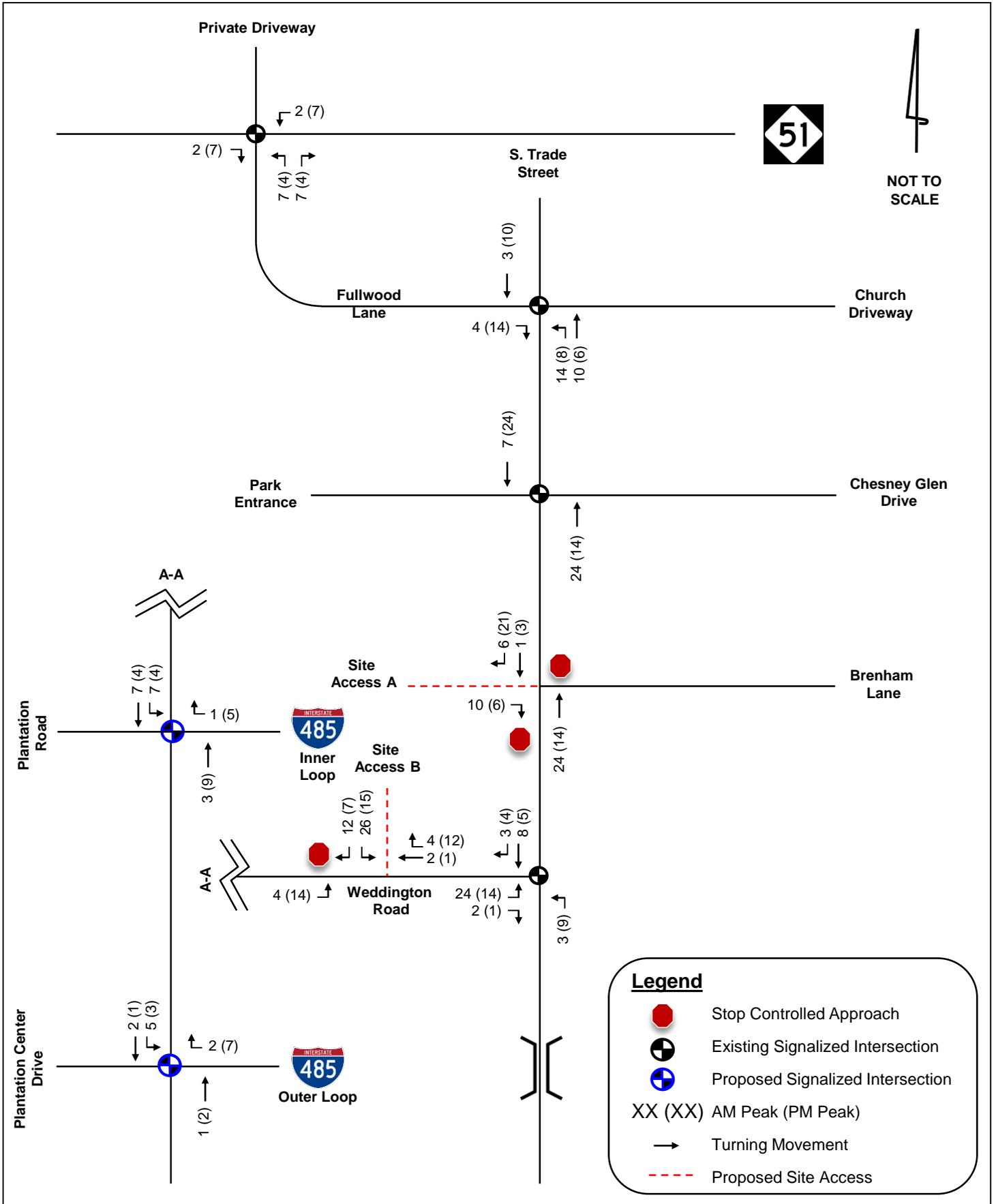
5.4 2023 BUILD TRAFFIC VOLUMES

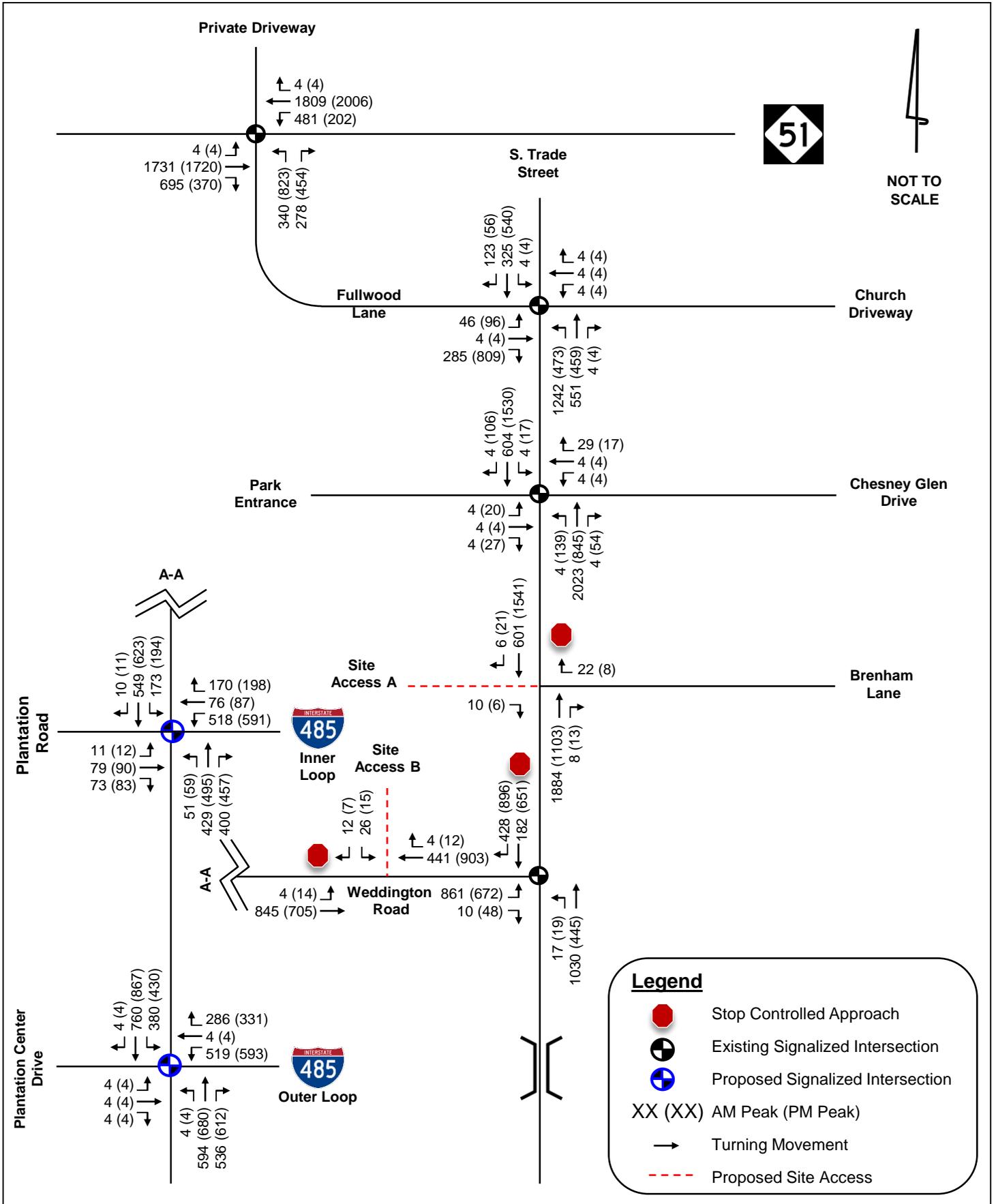
The 2023 Build traffic volumes include assignment of site-generated trips and 2023 Background traffic volumes. Projected 2023 Build traffic volumes during the AM and PM peak hours are summarized in the following figures:

- **Figure 5.2A:** 2023 Peak Hour Site Trips
- **Figure 5.2B:** 2023 Total Build Peak Hour Traffic Volumes

Intersection volume development worksheets for all intersections within the study network are provided in the **Appendix**.







6.0 Capacity Analysis

Based on the requirements set forth in accordance with the traffic study guidelines in the *NCDOT Policy on Street and Driveway Access to North Carolina Highways* and *NCDOT Congestion Management Capacity Analysis Guidelines*, capacity analyses were performed at the study area intersections for each of the following AM and PM peak-hour scenarios:

- 2020 Existing Conditions
- 2023 Background Conditions
- 2023 Build Conditions

Capacity analyses were performed for the AM and PM peak hours using the Synchro Version 10 software to determine the operating characteristics at the signalized and stop-controlled intersections of the adjacent street network and to evaluate the impacts of the proposed development. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment, or through a particular intersection, within a specified period of time under prevailing operational, geometric and controlling conditions within a set time duration. This software program uses methodologies contained in the *Highway Capacity Manual* (HCM) to determine the operating characteristics of an intersection.

The HCM defines LOS as a “quantitative stratification of a performance measure or measures representing quality of service”, and is used to “translate complex numerical performance results into a simple A-F system representative of travelers’ perceptions of the quality of service provided by a facility or service”. The HCM defines six levels of service, LOS A through LOS F, with A having the best operating conditions from the traveler’s perspective and F having the worst. However, it must be understood that “the LOS letter result hides much of the complexity of facility performance”, and that “the appropriate LOS for a given system element in the community is a decision for local policy makers”. According to the HCM, “for cost, environmental impact, and other reasons, roadways are typically designed not to provide LOS A conditions during peak periods but instead to provide some lower LOS that balances individual travelers’ desires against society’s desires and financial resources. Nevertheless, during low-volume periods of the day, a system element may operate at LOS A.”

LOS for a two-way stop-controlled (TWSC) intersection is determined by the control delay at the side-street approaches, typically during the highest volume periods of the day, the AM and PM peak periods. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. With respect to field measurements, control delay is defined as the total elapsed time from the time a vehicle begins decelerating to stop at the end of the queue to the time the vehicle accelerates from the stop line to its desired speed. It is typical for stop-controlled side streets and driveways intersecting major streets to experience long delays during peak hours, particularly for left-turn movements. The majority of the traffic moving through the intersection on the major street experiences little or no delay.

LOS for signalized intersections is reported for the intersection as a whole, and typically during the highest volume periods of the day, the AM and PM peak periods. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Tables 6.0A and 6.0B list the LOS control delay thresholds published in the HCM for unsignalized and signalized intersections, respectively, as well as the unsignalized operational descriptions assumed herein.

| Table 6.0A Vehicular LOS Control Delay Thresholds for Unsignalized Intersections | | |
|--|---|-----------------|
| Level-of-Service | Average Control Delay per Vehicle [sec/veh] | |
| A | ≤ 10 | Short Delays |
| B | > 10 – 15 | |
| C | > 15 – 25 | |
| D | > 25 – 35 | Moderate Delays |
| E | > 35 – 50 | |
| F | > 50 | Long Delays |

| Table 6.0B Vehicular LOS Control Delay Thresholds for Signalized Intersections | |
|--|---|
| Level-of-Service | Average Control Delay per Vehicle [sec/veh] |
| A | ≤ 10 |
| B | > 10 – 20 |
| C | > 20 – 35 |
| D | > 35 – 55 |
| E | > 55 – 80 |
| F | > 80 |

Existing signal timing plans were provided by the Town of Matthews and are included in the **Appendix**. These plans were used in Existing analyses; however, NCDOT STIP Project U-5763 — which has a Construction year of 2023, per NCDOT — proposes to widen NC 51 (Matthews Township Parkway) to a six-lane cross section, including additional turn lanes at the intersection with Fullwood Lane. Accordingly, geometry was updated and traffic signal timing and phasing was optimized under 2023 Background and 2023 Build conditions as a supplemental analysis to this TIA to more accurately evaluate the expected impact of site traffic on operations at this intersection. All signal timing and phasing were coded in Synchro in accordance with *NCDOT Congestion Management Capacity Analysis Guidelines*. Observed peak hour factors (PHFs) were used in existing conditions analysis, while a PHF of 0.90 was used for all future year analyses.

NCDOT Mitigation Guidelines

Mitigation for traffic impacts caused by the proposed development were noted and recommended based on NCDOT mitigation requirements. When determining the proposed development’s traffic impact to the study area intersections, the 2023 Background and 2023 Build conditions were compared. Based on the NCDOT’s *Policy on Street and Driveway Access to North Carolina Highways*, “the applicant shall be required to identify mitigation improvements to the roadway

network if at least one of the following conditions exists when comparing base network conditions to project conditions:

- the total average delay at an intersection or individual approach increases by 25% or greater, while maintaining the same level of service
- the Level of Service degrades by at least one level,
- or Level of Service is 'F'."

Synchro and SimTraffic results are reported in the following subsections. Capacity analysis and SimTraffic queueing/blocking reports are included in the **Appendix**.

6.1 S. TRADE STREET AT WEDDINGTON ROAD

Table 6.1 (provided on the next page) summarizes the LOS, control delay, and Synchro 95th percentile queue lengths at the intersection of S. Trade Street with Weddington Road under the analyzed peak hour conditions.

As shown in **Table 6.1**, this signalized intersection operates at LOS C during both peak periods under all analyzed scenarios. The eastbound approach of Weddington Road operates at LOS D and LOS E during the AM and PM peak periods, respectively, with queue lengths in excess of 400 feet; however, the proposed Site Access B on Weddington Road is located far enough from this intersection that impacts are likely to be negligible.

Since site traffic associated with the current development contributes negligibly to LOS, delay, and queueing at this intersection, no improvements are recommended as part of this TIA.

| Table 6.1 - S. Trade Street at Weddington Road | | | | | | | | | | |
|--|----------------|----------|-------|----------|------|----------|------|--------------|-----|------|
| Condition | Measure | EB | | NB | | SB | | Intersection | | |
| | | EBL | EBLR | NBL | NBT | SBT | SBR | LOS (Delay) | V/C | |
| AM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | D (51.0) | | B (18.9) | | A (2.8) | | C (26.4) | | 0.90 |
| | Synchro 95th Q | 411' | 411' | 13' | 381' | 65' | 0' | | | |
| 2023 Background | LOS (Delay) | D (47.3) | | B (17.9) | | A (4.9) | | C (24.7) | | 0.83 |
| | Synchro 95th Q | 423' | 423' | 38' | 388' | 119' | 8' | | | |
| 2023 Build | LOS (Delay) | D (47.5) | | B (18.4) | | A (5.1) | | C (25.2) | | 0.84 |
| | Synchro 95th Q | 441' | 441' | 42' | 388' | 125' | 7' | | | |
| PM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | E (69.6) | | A (9.1) | | A (9.3) | | C (24.6) | | 0.90 |
| | Synchro 95th Q | 445' | 445' | 8' | 114' | 314' | 291' | | | |
| 2023 Background | LOS (Delay) | E (67.2) | | B (10.7) | | B (10.0) | | C (25.1) | | 0.89 |
| | Synchro 95th Q | 459' | 459' | 32' | 116' | 316' | 234' | | | |
| 2023 Build | LOS (Delay) | E (68.4) | | B (12.0) | | B (10.7) | | C (26.1) | | 0.91 |
| | Synchro 95th Q | #477' | #477' | 50' | 116' | 326' | 256' | | | |
| Existing/Background Storage | | 150' | | 150' | | | | | | |

Queue exceeds available storage

Volume associated with 95th percentile queue exceeds capacity; actual queue may be longer

6.2 S. TRADE STREET AT BRENHAM LANE/SITE ACCESS A

Table 6.2 summarizes the LOS, control delay, and Synchro 95th percentile queue lengths at the unsignalized intersection of Brenham Lane/Proposed Site Access A under the analyzed peak hour conditions.

| Table 6.2 - S. Trade Street at Brenham Lane/Site Access A | | | | | | | |
|---|----------------|----------|----------|---------|------|---------|------|
| Condition | Measure | EB | WB | NB | | SB | |
| | | EBR | WBR | NBTL | NBTR | SBTL | SBTR |
| AM Peak Hour | | | | | | | |
| 2020 Existing | LOS (Delay) | - | B (14.6) | A (0.0) | | A (0.0) | |
| | Synchro 95th Q | - | 4' | 0' | 0' | 0' | 0' |
| 2023 Background | LOS (Delay) | - | C (15.3) | A (0.0) | | A (0.0) | |
| | Synchro 95th Q | - | 5' | 0' | 0' | 0' | 0' |
| 2023 Build | LOS (Delay) | B (10.3) | C (15.5) | A (0.0) | | A (0.0) | |
| | Synchro 95th Q | 1' | 5' | 0' | 0' | 0' | 0' |
| PM Peak Hour | | | | | | | |
| 2020 Existing | LOS (Delay) | - | B (12.2) | A (0.0) | | A (0.0) | |
| | Synchro 95th Q | - | 1' | 0' | 0' | 0' | 0' |
| 2023 Background | LOS (Delay) | - | B (12.4) | A (0.0) | | A (0.0) | |
| | Synchro 95th Q | - | 1' | 0' | 0' | 0' | 0' |
| 2023 Build | LOS (Delay) | A (9.9) | B (12.4) | A (0.0) | | A (0.0) | |
| | Synchro 95th Q | 1' | 1' | 0' | 0' | 0' | 0' |
| Existing/Background Storage | | | | | | | |

Per **Table 6.2**, all movements and approaches at this intersection operate with short delays during both peak periods under all analyzed scenarios. As mentioned in **Section 3.1**, ongoing construction associated with NCDOT STIP Project U-5804B (widening of S. Trade Street between Chaphyn Lane and Marque Place) is scheduled for completion in 2020. Existing geometry assumes completion of this project as shown in the roadway plan set developed by Kimley-Horn in October 2017. The proposed cross section includes a raised concrete median on S. Trade Street, requiring that access be restricted to right-in/right-out at Brenham Lane and proposed Site Access A.

Under a right-in/right-out configuration with one ingress and one egress lane, the proposed site driveway operates with short delays during both peak periods. Since site traffic associated with the current development contributes negligibly to LOS, delay, and queueing at this intersection, no improvements are recommended as part of this TIA. Changes to the configuration of Site Access A should be coordinated with NCDOT and the Town of Matthews.

6.3 S. TRADE STREET AT CHESNEY GLEN DRIVE

Table 6.3 (shown on the next page) summarizes the LOS, control delay, and Synchro 95th percentile queue lengths at the existing signalized intersection of S. Trade Street at Chesney Glen Drive under the analyzed peak hour conditions.

As shown in the **Table 6.3**, this intersection operates under LOS A or B during both peak periods under all analyzed scenarios. The minor street approaches of Chesney Glen Drive and Arthur Goodman Memorial Park operate at LOS D or E during both peak periods but serve minimal vehicular demand and exhibit short queues. Since site trips associated with the current development contribute negligibly to LOS, delay, and queueing at this intersection, no improvements are recommended as part of this TIA.

Table 6.3 - S. Trade Street at Chesney Glen Drive

| Condition | Measure | EB | | WB | NB | | SB | | Intersection | |
|-----------------------------|----------------|----------|-----|----------|----------|------|---------|------|--------------|------|
| | | EBTL | EBR | WBLTR | NBL | NBTR | SBL | SBTR | LOS (Delay) | V/C |
| AM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | D (50.0) | | E (65.8) | A (2.3) | | A (1.0) | | A (3.0) | 0.72 |
| | Synchro 95th Q | 15' | 4' | 72' | m0' | 114' | 0' | 33' | | |
| 2023 Background | LOS (Delay) | D (52.0) | | E (64.3) | A (3.1) | | A (1.3) | | A (3.7) | 0.73 |
| | Synchro 95th Q | 23' | 13' | 71' | m6' | 125' | m1' | 44' | | |
| 2023 Build | LOS (Delay) | D (52.0) | | E (64.3) | A (3.1) | | A (1.3) | | A (3.7) | 0.73 |
| | Synchro 95th Q | 23' | 13' | 71' | m6' | 125' | m1' | 45' | | |
| PM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | E (59.1) | | E (78.5) | A (4.5) | | A (4.6) | | A (6.6) | 0.63 |
| | Synchro 95th Q | 54' | 44' | 79' | 35' | 29' | m7' | 361' | | |
| 2023 Background | LOS (Delay) | E (58.4) | | E (71.8) | B (12.6) | | A (7.7) | | B (11.1) | 0.72 |
| | Synchro 95th Q | 57' | 52' | 59' | m172' | 25' | m10' | 360' | | |
| 2023 Build | LOS (Delay) | E (58.4) | | E (71.8) | B (12.4) | | A (8.4) | | B (11.4) | 0.72 |
| | Synchro 95th Q | 57' | 52' | 59' | m167' | 25' | m10' | 447' | | |
| Existing/Background Storage | | | | | 175' | | 200' | | | |

m Volume associated with 95th percentile queue is metered by upstream signal

6.4 S. TRADE STREET AT FULLWOOD LANE

Table 6.4 (shown on the next page) summarize the LOS, control delay, and Synchro 95th percentile queue lengths at the existing signalized intersection of S. Trade Street at Fullwood Lane under the analyzed peak hour conditions.

As shown in **Table 6.4**, this intersection operates at LOS C during the AM peak hour and at LOS D during the PM peak hour under all analyzed scenarios. Moderate delays and queues associated with the reciprocal northbound left-turn and eastbound right-turn movements are observed during the AM and PM peak hour, respectively, due to high demand. However, site traffic contributes to negligible increases in delay and queues observed under the 2023 Build scenario. As such, no improvements are recommended as part of this TIA.

| Table 6.4 - S. Trade Street at Fullwood Lane | | | | | | | | | | |
|--|----------------|----------|------|----------|------|----------|------|----------|--------------|------|
| Condition | Measure | EB | | WB | | NB | | SB | Intersection | |
| | | EBTL | EBR | WBL | WBTR | NBL | NBTR | SBTR | LOS (Delay) | V/C |
| AM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | C (23.6) | | A (0.0) | | B (16.0) | | D (43.6) | C (22.5) | 0.76 |
| | Synchro 95th Q | 137' | 69' | 0' | 0' | 446' | 329' | 227' | | |
| 2023 Background | LOS (Delay) | C (20.8) | | E (57.8) | | B (20.0) | | D (41.9) | C (24.1) | 0.81 |
| | Synchro 95th Q | 87' | 107' | 15' | 24' | #776' | 310' | 244' | | |
| 2023 Build | LOS (Delay) | C (20.8) | | E (57.8) | | C (20.2) | | D (41.9) | C (24.2) | 0.82 |
| | Synchro 95th Q | 87' | 109' | 15' | 24' | #789' | 320' | 246' | | |
| PM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | E (66.3) | | A (0.0) | | B (17.6) | | C (23.0) | D (36.8) | 0.97 |
| | Synchro 95th Q | 159' | 371' | 0' | 0' | 141' | 68' | 316' | | |
| 2023 Background | LOS (Delay) | D (54.5) | | E (68.0) | | C (22.9) | | C (24.9) | D (35.3) | 0.86 |
| | Synchro 95th Q | 167' | 480' | 17' | 27' | 221' | 437' | 315' | | |
| 2023 Build | LOS (Delay) | D (54.1) | | E (68.0) | | C (22.2) | | C (25.7) | D (35.1) | 0.86 |
| | Synchro 95th Q | 167' | 484' | 17' | 27' | 215' | 443' | 327' | | |
| Existing/Background Storage | | 250' | 400' | 50' | | 300' | | | | |

Queue exceeds available storage

Volume associated with 95th percentile queue exceeds capacity; actual queue may be longer

6.5 FULLWOOD LANE AT NC 51 (MATTHEWS TOWNSHIP PARKWAY)

Table 6.5A summarizes the LOS, control delay, and Synchro 95th percentile queue lengths at the existing signalized intersection of NC 51 (Matthews Township Parkway) at Fullwood Lane under the analyzed peak hour conditions.

Per **Table 6.5A**, the intersection and its westbound and northbound approaches operate at LOS F during both peak periods under the 2023 Background and 2023 Build scenarios. Associated long delays and queues may be attributed to the inability of existing infrastructure to serve high demand for the northbound right-turn and southbound left-turn movements on NC 51 (Matthews Township Parkway). As mentioned in **Section 6.0**, NCDOT STIP Project U-5763 — which has a Construction year of 2023, per NCDOT — proposes to widen NC 51 (Matthews Township Parkway) to a six-lane cross section, including additional turn lanes at the intersection with Fullwood Lane. Accordingly, geometry was updated and traffic signal timing and phasing was optimized under 2023 Background and 2023 Build conditions as a supplemental analysis to this TIA to more accurately evaluate the expected impact of site traffic on operations.

Table 6.5B summarizes measures of effectiveness at the intersection of NC 51 (Matthews Township Parkway) at Fullwood Lane under improvements associated with NCDOT STIP Project U-5763. As shown in the table, intersection operations improve to LOS C and the volume-to-capacity ratio decreases to below 1.0 under the addition of through lanes and turn bays on NC 51 (Matthews Township Parkway). Regardless of improvements to the cross section at this intersection, site traffic contributes negligibly to LOS, delay, and queues. As such, no improvements are recommended at this intersection as part of this TIA.

| Table 6.5A - NC 51 at Fullwood Lane | | | | | | | | | |
|-------------------------------------|----------------|-----------|-------|-----------|--------|----------|--------|--------------|------|
| Condition | Measure | WB | | NB | | SB | | Intersection | |
| | | WBL | WBR | NBL | NBTR | SBL | SBT | LOS (Delay) | V/C |
| AM Peak Hour | | | | | | | | | |
| 2020 Existing | LOS (Delay) | F (97.5) | | E (78.7) | | C (29.8) | | E (63.2) | 1.11 |
| | Synchro 95th Q | #564' | 530' | 0' | #1364' | #287' | 718' | | |
| 2023 Background | LOS (Delay) | F (115.7) | | F (111.2) | | D (47.4) | | F (86.9) | 1.35 |
| | Synchro 95th Q | #679' | #674' | 17' | #1540' | #458' | #1358' | | |
| 2023 Build | LOS (Delay) | F (118.4) | | F (112.1) | | D (47.9) | | F (88.1) | 1.37 |
| | Synchro 95th Q | #686' | #690' | 17' | #1543' | #464' | #1358' | | |
| PM Peak Hour | | | | | | | | | |
| 2020 Existing | LOS (Delay) | E (79.2) | | F (86.1) | | C (34.5) | | E (63.4) | 1.16 |
| | Synchro 95th Q | #258' | 304' | 0' | #1437' | #700' | 265' | | |
| 2023 Background | LOS (Delay) | F (86.7) | | F (179.5) | | E (69.4) | | F (121.5) | 1.55 |
| | Synchro 95th Q | #308' | 352' | 17' | #1904' | #955' | 677' | | |
| 2023 Build | LOS (Delay) | F (88.5) | | F (181.2) | | E (71.8) | | F (123.5) | 1.57 |
| | Synchro 95th Q | #314' | 358' | 17' | #1912' | #969' | 677' | | |
| Existing/Background Storage | | | 50' | 100' | | 450' | | | |

Queue exceeds available storage

Volume associated with 95th percentile queue exceeds capacity; actual queue may be longer

Table 6.5B - NC 51 at Fullwood Lane – Supplemental Analysis

| Condition | Measure | WB | | NB | | | SB | | Intersection | |
|---------------------------------------|----------------|----------|------|----------|--------|-------|----------|-------|--------------|------|
| | | WBL | WBR | NBL | NBTR | NBR | SBL | SBT | LOS (Delay) | V/C |
| AM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | F (97.5) | | E (78.7) | | | C (29.8) | | E (63.2) | 1.11 |
| | Synchro 95th Q | #564' | 530' | 0' | #1364' | - | #287' | 718' | | |
| 2023 Background (U-5763 Improvements) | LOS (Delay) | D (44.9) | | C (26.0) | | | C (20.3) | | C (28.0) | 0.96 |
| | Synchro 95th Q | #385' | 345' | 12' | 411' | 264' | 99' | #569' | | |
| 2023 Build (U-5763 Improvements) | LOS (Delay) | D (46.0) | | C (26.1) | | | C (20.3) | | C (28.3) | 0.97 |
| | Synchro 95th Q | #390' | 352' | 12' | 411' | 265' | 100' | #569' | | |
| PM Peak Hour | | | | | | | | | | |
| 2020 Existing | LOS (Delay) | E (79.2) | | F (86.1) | | | C (34.5) | | E (63.4) | 1.16 |
| | Synchro 95th Q | #258' | 304' | 0' | #1437' | - | #700' | 265' | | |
| 2023 Background (U-5763 Improvements) | LOS (Delay) | D (49.0) | | C (23.4) | | | B (18.0) | | C (24.0) | 0.93 |
| | Synchro 95th Q | #190' | 223' | 12' | 330' | #640' | #248' | 295' | | |
| 2023 Build (U-5763 Improvements) | LOS (Delay) | D (50.1) | | C (23.9) | | | B (18.6) | | C (24.7) | 0.94 |
| | Synchro 95th Q | #193' | 228' | 12' | 330' | #650' | #254' | 295' | | |
| Existing/Background Storage | | | 50' | 100' | | | 450' | | | |

Queue exceeds available storage

Volume associated with 95th percentile queue exceeds capacity; actual queue may be longer

6.6 WEDDINGTON ROAD AT I-485 INNER LOOP RAMPS

Table 6.6 summarizes the LOS, control delay, and Synchro 95th percentile queue lengths at the future signalized intersection of Weddington Road with I-485 Inner Loop ramps under the analyzed peak hour conditions. As mentioned in **Section 4.3**, 2023 Background and 2023 Build volumes were developed for the two signalized intersections proposed as part of a new partial cloverleaf interchange with I-485 on Weddington Road based on MRM19v1.0 outputs and the U-4714 Traffic Forecast approved on February 21, 2018. Geometry was coded in Synchro based on the *Design Public Meeting Map* dated June 2019, and signal timing was developed and optimized based on NCDOT Congestion Management *Capacity Analysis Guidelines*.

As shown in **Table 6.6**, most approaches of this proposed intersection are expected to operate at LOS C or D during both peak periods under all analyzed scenarios. The eastbound approach of the intersection is expected to operate at LOS E under the currently proposed lane configuration but with reasonable queue lengths. Since site traffic associated with the current development contributes negligibly to LOS, delay, and queueing at this intersection, no improvements are recommended as part of this TIA.

| Table 6.6 - Weddington Road at I-485 Westbound Ramps | | | | | | | | | | | | |
|--|----------------|----------|------|----------|------|----------|------|------|----------|------|--------------|------|
| Condition | Measure | EB | | WB | | NB | | | SB | | Intersection | |
| | | EBL | EBTR | WBL | WBTR | NBL | NBT | NBR | SBL | SBTR | LOS (Delay) | V/C |
| AM Peak Hour | | | | | | | | | | | | |
| 2023 Background | LOS (Delay) | E (59.4) | | D (42.3) | | C (24.0) | | | C (34.9) | | C (35.0) | 0.72 |
| | Synchro 95th Q | 29' | 195' | 270' | 245' | m87' | 263' | 146' | 208' | 258' | | |
| 2023 Build | LOS (Delay) | E (59.4) | | D (42.3) | | C (23.9) | | | D (35.4) | | C (35.0) | 0.72 |
| | Synchro 95th Q | 29' | 195' | 270' | 246' | m87' | 266' | 146' | 217' | 262' | | |
| PM Peak Hour | | | | | | | | | | | | |
| 2023 Background | LOS (Delay) | E (75.7) | | D (53.7) | | C (31.2) | | | D (40.6) | | D (43.6) | 0.80 |
| | Synchro 95th Q | 36' | 265' | 378' | 326' | m90' | 207' | 164' | 285' | 360' | | |
| 2023 Build | LOS (Delay) | E (75.7) | | D (54.5) | | C (31.4) | | | D (40.3) | | D (43.8) | 0.81 |
| | Synchro 95th Q | 36' | 265' | 381' | 337' | m88' | 212' | 172' | 290' | 358' | | |
| Existing/Background Storage | | | | | | | | | | | | |

m Volume associated with 95th percentile queue is metered by upstream signal

6.7 WEDDINGTON ROAD AT I-485 OUTER LOOP RAMPS

Table 6.7 summarizes the LOS, control delay, and Synchro 95th percentile queue lengths at the future signalized intersection of Weddington Road with I-485 Inner Loop ramps under the analyzed peak hour conditions. As mentioned in **Section 4.3**, 2023 Background and 2023 Build volumes were developed for the two signalized intersections proposed as part of a new partial cloverleaf interchange with I-485 on Weddington Road based on MRM19v1.0 outputs and the U-4714 Traffic Forecast approved on February 21, 2018. For the eastbound approach of Plantation Center Drive, a volume of 4 vehicles per hour was assumed for all movements during both peak periods due to a lack of available data. Geometry was coded in Synchro based on the *Design Public Meeting Map* dated June 2019, and signal timing was developed and optimized based on NCDOT Congestion Management *Capacity Analysis Guidelines*.

As shown in **Table 6.7**, most approaches of this proposed intersection are expected to operate at LOS C or D during both peak periods under all analyzed scenarios. The eastbound approach of the intersection is expected to operate at LOS E under the currently proposed lane configuration but with reasonable queue lengths. Since site traffic associated with the current development contributes negligibly to LOS, delay, and queueing at this intersection, no improvements are recommended as part of this TIA.

| Table 6.7 - Weddington Road at I-485 Eastbound Ramps | | | | | | | | | | | | | |
|--|----------------|----------|------|----------|-----|------|----------|-------|-------|----------|------|--------------|------|
| Condition | Measure | EB | | WB | | | NB | | | SB | | Intersection | |
| | | EBL | EBTR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBTR | LOS (Delay) | V/C |
| AM Peak Hour | | | | | | | | | | | | | |
| 2023 Background | LOS (Delay) | D (52.6) | | D (44.1) | | | C (30.1) | | | B (18.4) | | C (29.5) | 0.85 |
| | Synchro 95th Q | 15' | 22' | #308' | 13' | 175' | 15' | #366' | #630' | 416' | 416' | | |
| 2023 Build | LOS (Delay) | D (52.6) | | D (44.0) | | | C (30.5) | | | B (18.2) | | C (29.6) | 0.85 |
| | Synchro 95th Q | 15' | 22' | #308' | 13' | 177' | 15' | #367' | #630' | 416' | 417' | | |
| PM Peak Hour | | | | | | | | | | | | | |
| 2023 Background | LOS (Delay) | E (67.8) | | D (52.9) | | | D (39.2) | | | C (23.1) | | D (36.9) | 0.89 |
| | Synchro 95th Q | 17' | 27' | #419' | 14' | 240' | 17' | #495' | #865' | 592' | 422' | | |
| 2023 Build | LOS (Delay) | E (67.8) | | D (52.5) | | | D (39.8) | | | C (22.8) | | D (37.0) | 0.89 |
| | Synchro 95th Q | 17' | 27' | #419' | 14' | 247' | 17' | #498' | #865' | 600' | 415' | | |
| Existing/Background Storage | | | | | | | | | | | | | |

Volume associated with 95th percentile queue exceeds capacity; actual queue may be longer

6.8 WEDDINGTON ROAD AT SITE ACCESS B

Table 6.8 summarizes the LOS, control delay, and Synchro 95th percentile queue lengths at the proposed unsignalized intersection of Weddington Road with Site Access B under the analyzed peak hour conditions.

| Table 6.8 - Weddington Road at Site Access B | | | | |
|--|----------------|----------|---------|----------|
| Condition | Measure | EB | WB | SB |
| | | EBL | WBTR | SBLR |
| AM Peak Hour | | | | |
| 2023 Build | LOS (Delay) | A (8.4) | A (0.0) | C (15.5) |
| | Synchro 95th Q | 0' | 0' | 9' |
| PM Peak Hour | | | | |
| 2023 Build | LOS (Delay) | B (10.4) | A (0.0) | C (19.1) |
| | Synchro 95th Q | 2' | 0' | 7' |
| Existing/Background Storage | | | | |

As shown in **Table 6.8**, all approaches of this proposed intersection are expected to operate with short delays during both peak periods under 2023 Build conditions. Based on auxiliary turn lane warrants, an eastbound left-turn lane into the site should be provided with a minimum of 150 feet of full-width storage and an appropriate taper length. The existing two-way left-turn lane on Weddington Road contains adequate storage and should be utilized to provide site access.

Per the current site plan and expected operations, a full-movement driveway with one ingress and one egress lane should be constructed. No additional improvements are recommended at this proposed intersection as part of this TIA.

7.0 Auxiliary Turn Lane Warrants

Warrants for additional turn-lane improvements at the proposed site access points along S. Trade Street and Weddington Road — beyond those necessary for capacity — were determined based on a review of the figure titled 'Warrant for Left and Right-Turn Lanes' found on page 80 in the *NCDOT Policy on Street and Driveway Access to North Carolina Highways*. The results of the warrants for left- and right-turn lanes are included in the **Appendix**.

S. Trade Street at Site Access A

- No auxiliary turn lanes are warranted or recommended

Weddington Road at Site Access B

- Eastbound left-turn lane with a minimum storage of 50 feet

Per NCDOT guidelines, a minimum storage length of 150 feet was assumed for each warranted left-turn lane.

8.0 Recommendations

Capacity analyses under 2023 Background and 2023 Build conditions were conducted in the context of NCDOT STIP Projects I-5507, R-0211EC, and U-4714, which include the construction of a partial cloverleaf interchange at the existing grade-separated crossing of Weddington Road at I-485.

Based on the capacity analyses performed at each of the identified study intersections, along with review of the auxiliary turn-lane warrants contained herein, the following improvements have been identified to mitigate the impact of the proposed development on the adjacent street network under 2023 Build Conditions:

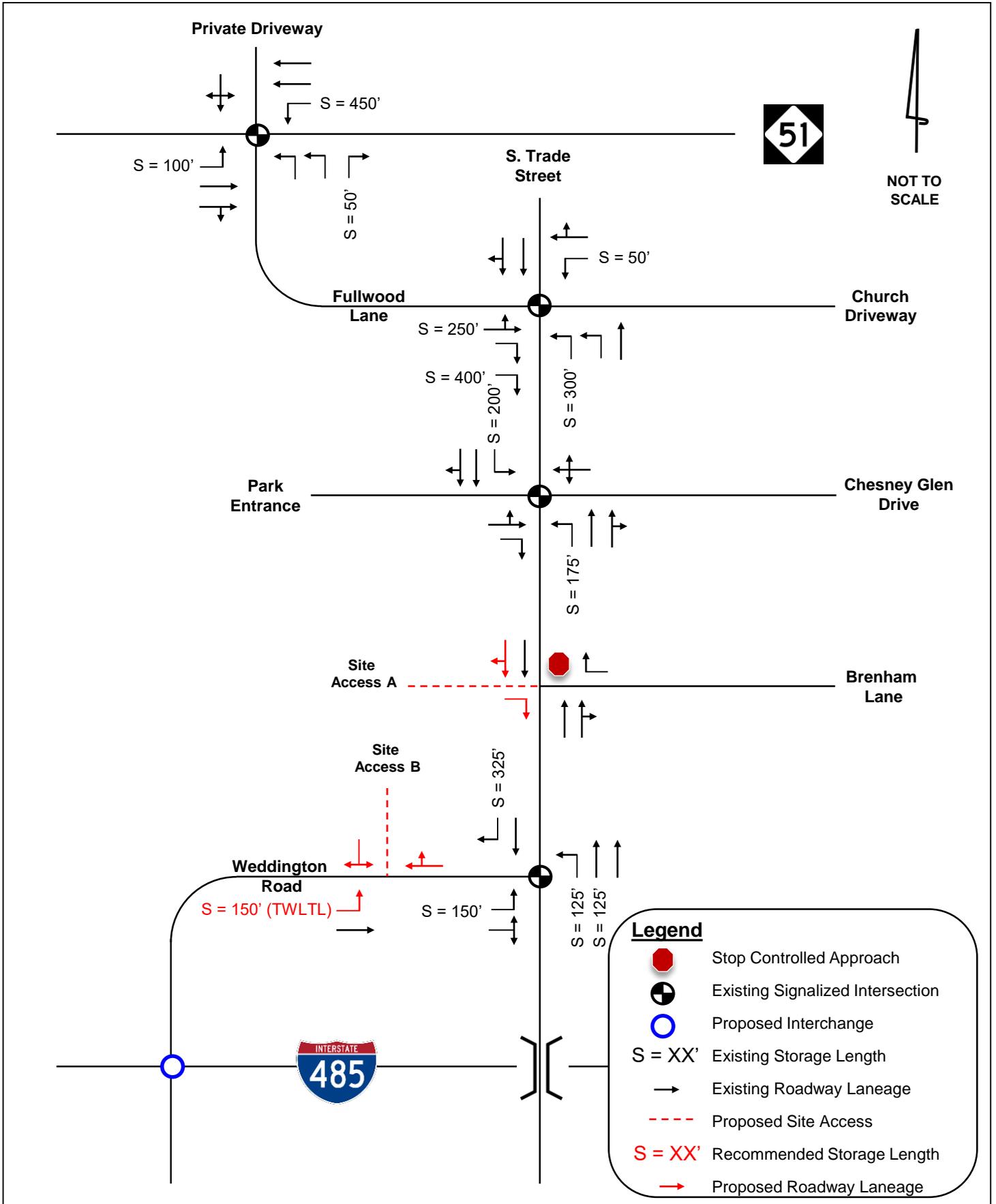
S. Trade Street at Brenham Lane/Site Access A

- Restrict site access to right-in/right-out with one ingress and one egress lane

Weddington Road at Site Access B

- Utilize the existing two-way left-turn lane on Weddington Road to provide left-turn storage and site access
 - Based on auxiliary turn lane warrants and capacity analyses, 150 feet of full-width storage is needed to accommodate the proposed development; adequate storage is present in the existing two-way left-turn lane

The recommended improvements identified within the study area are shown in **Figure 8.1**. The improvements shown on this figure are subject to approval by NCDOT and the Town of Matthews. All additions and attachments to the State and City roadway system shall be properly permitted, designed and constructed in conformance to standards maintained by the agencies.



APPENDIX

INTERSECTION VOLUME DEVELOPMENT WORKSHEETS

INTERSECTION VOLUME DEVELOPMENT

**Pleasant Plains Road/S Trade Street and Weddington Road
AM PEAK HOUR**

| Description | Pleasant Plains Road <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | Weddington Road <u>Eastbound</u> | | | - <u>Westbound</u> | | |
|--|---|---------|-------|-------------------------------------|---------|-------|-------------------------------------|---------|-------|-----------------------|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 14 | 1,018 | 0 | 0 | 201 | 478 | 827 | 0 | 8 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | -29 | -58 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 14 | 1,018 | 0 | 0 | 172 | 420 | 827 | 0 | 8 | 0 | 0 | 0 |
| 2020 PHF | 0.39 | 0.87 | 0.90 | 0.90 | 0.88 | 0.77 | 0.78 | 0.90 | 0.50 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diversion) | 16 | 1,145 | 0 | 0 | 193 | 472 | 930 | 0 | 9 | 0 | 0 | 0 |
| Diverted Trips | -2 | -115 | 0 | 0 | -19 | -47 | -93 | 0 | -1 | 0 | 0 | 0 |
| 2023 Background Traffic | 14 | 1,030 | 0 | 0 | 174 | 425 | 837 | 0 | 8 | 0 | 0 | 0 |
| Percent Inbound Assignment | 20% | 0% | 0% | 0% | 0% | 5% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 0% | 0% | 0% | 15% | 5% | 50% | 0% | 5% | 0% | 0% | 0% |
| Residential Project Trips | 3 | 0 | 0 | 0 | 7 | 3 | 24 | 0 | 2 | 0 | 0 | 0 |
| Project Trips (Total) | 3 | 0 | 0 | 0 | 8 | 3 | 24 | 0 | 2 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 17 | 1,030 | 0 | 0 | 182 | 428 | 861 | 0 | 10 | 0 | 0 | 0 |

Volume adjusted for balancing purposes

PM PEAK HOUR

| Description | Pleasant Plains Road <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | Weddington Road <u>Eastbound</u> | | | - <u>Westbound</u> | | |
|--|---|---------|-------|-------------------------------------|---------|-------|-------------------------------------|---------|-------|-----------------------|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 10 | 439 | 0 | 0 | 646 | 902 | 650 | 0 | 46 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | -8 | -21 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 10 | 439 | 0 | 0 | 638 | 881 | 650 | 0 | 46 | 0 | 0 | 0 |
| 2020 PHF | 0.42 | 0.86 | 0.90 | 0.90 | 0.89 | 0.90 | 0.93 | 0.90 | 0.72 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diversion) | 11 | 494 | 0 | 0 | 718 | 991 | 731 | 0 | 52 | 0 | 0 | 0 |
| Diverted Trips | -1 | -49 | 0 | 0 | -72 | -99 | -73 | 0 | -5 | 0 | 0 | 0 |
| 2023 Background Traffic | 10 | 445 | 0 | 0 | 646 | 892 | 658 | 0 | 47 | 0 | 0 | 0 |
| Percent Inbound Assignment | 20% | 0% | 0% | 0% | 0% | 5% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 0% | 0% | 0% | 15% | 5% | 50% | 0% | 5% | 0% | 0% | 0% |
| Residential Project Trips | 9 | 0 | 0 | 0 | 4 | 4 | 14 | 0 | 1 | 0 | 0 | 0 |
| Project Trips (Total) | 9 | 0 | 0 | 0 | 5 | 4 | 14 | 0 | 1 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 19 | 445 | 0 | 0 | 651 | 896 | 672 | 0 | 48 | 0 | 0 | 0 |

Volume adjusted for balancing purposes

6/10/2020 15:35

INTERSECTION VOLUME DEVELOPMENT

**S Trade Street and Brenham Lane
AM PEAK HOUR**

| Description | S Trade Street <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | - <u>Eastbound</u> | | | Brenham Lane <u>Westbound</u> | | |
|---|-------------------------------------|--------------|----------|-------------------------------------|------------|----------|-----------------------|----------|-----------|----------------------------------|----------|-----------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 1,838 | 7 | 0 | 590 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 1,838 | 7 | 0 | 592 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 2020 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diverted Trips) | 0 | 2,068 | 8 | 0 | 666 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| Diverted Trips | 0 | -208 | 0 | 0 | -66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Background Traffic | 0 | 1,860 | 8 | 0 | 600 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 5% | 45% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 20% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 24 | 0 | 0 | 1 | 6 | 0 | 0 | 10 | 0 | 0 | 0 |
| Project Trips (Total) | 0 | 24 | 0 | 0 | 1 | 6 | 0 | 0 | 10 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 0 | 1,884 | 8 | 0 | 601 | 6 | 0 | 0 | 10 | 0 | 0 | 22 |

Volume adjusted for balancing purposes

PM PEAK HOUR

| Description | S Trade Street <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | - <u>Eastbound</u> | | | Brenham Lane <u>Westbound</u> | | |
|---|-------------------------------------|--------------|-----------|-------------------------------------|--------------|-----------|-----------------------|----------|----------|----------------------------------|----------|----------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 1,077 | 12 | 0 | 1,502 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 1,077 | 12 | 0 | 1,519 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 2020 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diverted Trips) | 0 | 1,211 | 13 | 0 | 1,709 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Diverted Trips | 0 | -122 | 0 | 0 | -171 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Background Traffic | 0 | 1,089 | 13 | 0 | 1,538 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 5% | 45% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 20% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 14 | 0 | 0 | 2 | 21 | 0 | 0 | 6 | 0 | 0 | 0 |
| Project Trips (Total) | 0 | 14 | 0 | 0 | 3 | 21 | 0 | 0 | 6 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 0 | 1,103 | 13 | 0 | 1,541 | 21 | 0 | 0 | 6 | 0 | 0 | 8 |

Volume adjusted for balancing purposes

6/10/2020 15:35

INTERSECTION VOLUME DEVELOPMENT

**S Trade Street and Park Entrance/Chesney Glen Drive
AM PEAK HOUR**

| Description | S Trade Street <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | Park Entrance <u>Eastbound</u> | | | Chesney Glen Drive <u>Westbound</u> | | |
|---|-------------------------------------|---------|-------|-------------------------------------|---------|-------|-----------------------------------|---------|-------|--|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 1 | 1,962 | 2 | 1 | 589 | 1 | 1 | 0 | 1 | 2 | 0 | 26 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 1 | 1,962 | 2 | 1 | 589 | 1 | 1 | 0 | 1 | 2 | 0 | 26 |
| 2020 PHF | 0.25 | 0.89 | 0.50 | 0.25 | 0.93 | 0.25 | 0.25 | 0.90 | 0.25 | 0.50 | 0.90 | 0.72 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diverted Trips) | 4 | 2,207 | 4 | 4 | 663 | 4 | 4 | 4 | 4 | 4 | 4 | 29 |
| Diverted Trips | 0 | -208 | 0 | 0 | -66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Background Traffic | 4 | 1,999 | 4 | 4 | 597 | 4 | 4 | 4 | 4 | 4 | 4 | 29 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 24 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Project Trips (Total) | 0 | 24 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 4 | 2,023 | 4 | 4 | 604 | 4 | 4 | 4 | 4 | 4 | 4 | 29 |

Volume adjusted based on NCDOT guidelines

PM PEAK HOUR

| Description | S Trade Street <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | Park Entrance <u>Eastbound</u> | | | Chesney Glen Drive <u>Westbound</u> | | |
|---|-------------------------------------|---------|-------|-------------------------------------|---------|-------|-----------------------------------|---------|-------|--|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 124 | 860 | 48 | 15 | 1,491 | 94 | 18 | 0 | 24 | 4 | 0 | 15 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 124 | 860 | 48 | 15 | 1,491 | 94 | 18 | 0 | 24 | 4 | 0 | 15 |
| 2020 PHF | 0.74 | 0.92 | 0.34 | 0.54 | 0.94 | 0.69 | 0.75 | 0.90 | 0.67 | 0.25 | 0.90 | 0.63 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diverted Trips) | 139 | 967 | 54 | 17 | 1,677 | 106 | 20 | 4 | 27 | 4 | 4 | 17 |
| Diverted Trips | 0 | -122 | 0 | 0 | -171 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Background Traffic | 139 | 845 | 54 | 17 | 1,506 | 106 | 20 | 4 | 27 | 4 | 4 | 17 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 14 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Project Trips (Total) | 0 | 14 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 139 | 859 | 54 | 17 | 1,530 | 106 | 20 | 4 | 27 | 4 | 4 | 17 |

Volume adjusted based on NCDOT guidelines

6/10/2020 15:35

INTERSECTION VOLUME DEVELOPMENT

**S Trade Street and Fullwood Lane
AM PEAK HOUR**

| Description | S Trade Street <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | Fullwood Lane <u>Eastbound</u> | | | Church Driveway <u>Westbound</u> | | |
|---|-------------------------------------|---------|-------|-------------------------------------|---------|-------|-----------------------------------|---------|-------|-------------------------------------|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 1,092 | 666 | 0 | 0 | 345 | 109 | 41 | 0 | 250 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 1,092 | 666 | 0 | 0 | 345 | 109 | 41 | 0 | 250 | 0 | 0 | 0 |
| 2020 PHF | 0.86 | 0.76 | 0.90 | 0.90 | 0.69 | 0.78 | 0.41 | 0.90 | 0.77 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diverted Trips) | 1,228 | 749 | 4 | 4 | 388 | 123 | 46 | 4 | 281 | 4 | 4 | 4 |
| Diverted Trips | 0 | -208 | 0 | 0 | -66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Background Traffic | 1,228 | 541 | 4 | 4 | 322 | 123 | 46 | 4 | 281 | 4 | 4 | 4 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 20% | 0% | 0% | 0% | 30% | 0% | 0% | 0% |
| Percent Outbound Assignment | 30% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 14 | 10 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Project Trips (Total) | 14 | 10 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 1,242 | 551 | 4 | 4 | 325 | 123 | 46 | 4 | 285 | 4 | 4 | 4 |

Volume adjusted based on NCDOT guidelines

Volume adjusted for balancing purposes

PM PEAK HOUR

| Description | S Trade Street <u>Northbound</u> | | | S Trade Street <u>Southbound</u> | | | Fullwood Lane <u>Eastbound</u> | | | Church Driveway <u>Westbound</u> | | |
|---|-------------------------------------|---------|-------|-------------------------------------|---------|-------|-----------------------------------|---------|-------|-------------------------------------|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 413 | 511 | 0 | 0 | 623 | 50 | 85 | 0 | 707 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 413 | 511 | 0 | 0 | 623 | 50 | 85 | 0 | 707 | 0 | 0 | 0 |
| 2020 PHF | 0.85 | 0.80 | 0.90 | 0.90 | 0.77 | 0.69 | 0.82 | 0.90 | 0.68 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diverted Trips) | 465 | 575 | 4 | 4 | 701 | 56 | 96 | 4 | 795 | 4 | 4 | 4 |
| Diverted Trips | 0 | -122 | 0 | 0 | -171 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Background Traffic | 465 | 453 | 4 | 4 | 530 | 56 | 96 | 4 | 795 | 4 | 4 | 4 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 20% | 0% | 0% | 0% | 30% | 0% | 0% | 0% |
| Percent Outbound Assignment | 30% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 8 | 6 | 0 | 0 | 9 | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| Project Trips (Total) | 8 | 6 | 0 | 0 | 10 | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 473 | 459 | 4 | 4 | 540 | 56 | 96 | 4 | 809 | 4 | 4 | 4 |

Volume adjusted based on NCDOT guidelines

Volume adjusted for balancing purposes

6/10/2020 15:35

INTERSECTION VOLUME DEVELOPMENT

NC 51 and Private Driveway/Fullwood Lane AM PEAK HOUR

| Description | NC 51 <u>Northbound</u> | | | NC 51 <u>Southbound</u> | | | Private Driveway <u>Eastbound</u> | | | Fullwood Lane <u>Westbound</u> | | |
|-----------------------------|----------------------------|--------------|------------|----------------------------|--------------|----------|--------------------------------------|----------|----------|-----------------------------------|----------|------------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 1,529 | 327 | 178 | 1,783 | 0 | 0 | 0 | 0 | 725 | 0 | 397 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 1,529 | 327 | 178 | 1,783 | 0 | 0 | 0 | 0 | 725 | 0 | 397 |
| 2020 PHF | 0.90 | 0.90 | 0.73 | 0.80 | 0.84 | 0.90 | 0.25 | 0.25 | 0.25 | 0.85 | 0.90 | 0.86 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic | 4 | 1,720 | 368 | 200 | 2,006 | 4 | 0 | 0 | 0 | 816 | 0 | 447 |
| Percent Inbound Assignment | 0% | 0% | 15% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 15% | 0% | 15% |
| Residential Project Trips | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 |
| Project Trips (Total) | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 4 | 1,720 | 370 | 202 | 2,006 | 4 | 0 | 0 | 0 | 823 | 0 | 454 |

Volume adjusted based on NCDOT guidelines

PM PEAK HOUR

| Description | NC 51 <u>Northbound</u> | | | NC 51 <u>Southbound</u> | | | Private Driveway <u>Eastbound</u> | | | Fullwood Lane <u>Westbound</u> | | |
|-----------------------------|----------------------------|--------------|------------|----------------------------|--------------|----------|--------------------------------------|----------|----------|-----------------------------------|----------|------------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 1,539 | 612 | 421 | 1,608 | 0 | 0 | 0 | 0 | 299 | 0 | 244 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 1,539 | 612 | 421 | 1,608 | 0 | 0 | 0 | 0 | 299 | 0 | 244 |
| 2020 PHF | 0.90 | 0.97 | 0.94 | 0.93 | 0.97 | 0.90 | 0.90 | 0.90 | 0.90 | 0.85 | 0.90 | 0.84 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic | 4 | 1,731 | 688 | 474 | 1,809 | 4 | 0 | 0 | 0 | 336 | 0 | 274 |
| Percent Inbound Assignment | 0% | 0% | 15% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Percent Outbound Assignment | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 15% | 0% | 15% |
| Residential Project Trips | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| Project Trips (Total) | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 4 | 1,731 | 695 | 481 | 1,809 | 4 | 0 | 0 | 0 | 340 | 0 | 278 |

Volume adjusted based on NCDOT guidelines

6/10/2020 15:35

INTERSECTION VOLUME DEVELOPMENT

Weddington Road at I-485 Westbound Ramps AM PEAK HOUR

| Description | Weddington Road <u>Northbound</u> | | | Weddington Road <u>Southbound</u> | | | Plantation Road <u>Eastbound</u> | | | I-485 Westbound Ramps <u>Westbound</u> | | |
|-----------------------------|--------------------------------------|---------|-------|--------------------------------------|---------|-------|-------------------------------------|---------|-------|---|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | - | - | - | - | - | - | - | - | - | - | - | - |
| 2023 Background Traffic | 51 | 426 | 400 | 166 | 542 | 10 | 11 | 79 | 73 | 518 | 76 | 169 |
| Percent Inbound Assignment | 0% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 10% |
| Percent Outbound Assignment | 0% | 0% | 0% | 15% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 3 | 0 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Project Trips (Total) | 0 | 3 | 0 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 51 | 429 | 400 | 173 | 549 | 10 | 11 | 79 | 73 | 518 | 76 | 170 |

PM PEAK HOUR

| Description | Weddington Road <u>Northbound</u> | | | Weddington Road <u>Southbound</u> | | | Plantation Road <u>Eastbound</u> | | | I-485 Westbound Ramps <u>Westbound</u> | | |
|-----------------------------|--------------------------------------|---------|-------|--------------------------------------|---------|-------|-------------------------------------|---------|-------|---|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | - | - | - | - | - | - | - | - | - | - | - | - |
| 2023 Background Traffic | 59 | 486 | 457 | 190 | 619 | 11 | 12 | 90 | 83 | 591 | 87 | 193 |
| Percent Inbound Assignment | 0% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 10% |
| Percent Outbound Assignment | 0% | 0% | 0% | 15% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 9 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Project Trips (Total) | 0 | 9 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 59 | 495 | 457 | 194 | 623 | 11 | 12 | 90 | 83 | 591 | 87 | 198 |

6/10/2020 15:35

INTERSECTION VOLUME DEVELOPMENT

Weddington Road at I-485 Eastbound Ramps AM PEAK HOUR

| Description | Weddington Road <u>Northbound</u> | | | Weddington Road <u>Southbound</u> | | | Plantation Center Drive <u>Eastbound</u> | | | I-485 Eastbound Ramps <u>Westbound</u> | | |
|-----------------------------|--------------------------------------|---------|-------|--------------------------------------|---------|-------|---|---------|-------|---|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | - | - | - | - | - | - | - | - | - | - | - | - |
| 2023 Background Traffic | 4 | 593 | 536 | 375 | 758 | 4 | 4 | 4 | 4 | 519 | 4 | 284 |
| Percent Inbound Assignment | 0% | 5% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 15% |
| Percent Outbound Assignment | 0% | 0% | 0% | 10% | 5% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 1 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Project Trips (Total) | 0 | 1 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 4 | 594 | 536 | 380 | 760 | 4 | 4 | 4 | 4 | 519 | 4 | 286 |

Volume adjusted based on NCDOT guidelines

PM PEAK HOUR

| Description | Weddington Road <u>Northbound</u> | | | Weddington Road <u>Southbound</u> | | | Plantation Center Drive <u>Eastbound</u> | | | I-485 Eastbound Ramps <u>Westbound</u> | | |
|-----------------------------|--------------------------------------|---------|-------|--------------------------------------|---------|-------|---|---------|-------|---|---------|-------|
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | - | - | - | - | - | - | - | - | - | - | - | - |
| 2023 Background Traffic | 4 | 678 | 612 | 427 | 866 | 4 | 4 | 4 | 4 | 593 | 4 | 324 |
| Percent Inbound Assignment | 0% | 5% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 15% |
| Percent Outbound Assignment | 0% | 0% | 0% | 10% | 5% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential Project Trips | 0 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Project Trips (Total) | 0 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 4 | 680 | 612 | 430 | 867 | 4 | 4 | 4 | 4 | 593 | 4 | 331 |

Volume adjusted based on NCDOT guidelines

6/10/2020 15:35

INTERSECTION VOLUME DEVELOPMENT

**Weddington Road at Site Access B
AM PEAK HOUR**

| Description | - | | | Site Access B | | | Weddington Road | | | Weddington Road | | |
|--|-------------------|----------|----------|-------------------|----------|-----------|------------------|------------|----------|------------------|------------|----------|
| | <u>Northbound</u> | | | <u>Southbound</u> | | | <u>Eastbound</u> | | | <u>Westbound</u> | | |
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 835 | 0 | 0 | 434 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 835 | 0 | 0 | 434 | 0 |
| 2020 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diversion) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 939 | 0 | 0 | 488 | 0 |
| Diverted Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -94 | 0 | 0 | -49 | 0 |
| 2023 Background Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 845 | 0 | 0 | 439 | 0 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 0% | 0% | 30% | 0% | 0% | 0% | 0% | 25% |
| Percent Outbound Assignment | 0% | 0% | 0% | 55% | 0% | 25% | 0% | 0% | 0% | 0% | 5% | 0% |
| Residential Project Trips | 0 | 0 | 0 | 26 | 0 | 12 | 4 | 0 | 0 | 0 | 2 | 4 |
| Project Trips (Total) | 0 | 0 | 0 | 26 | 0 | 12 | 4 | 0 | 0 | 0 | 2 | 4 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 0 | 0 | 0 | 26 | 0 | 12 | 4 | 845 | 0 | 0 | 441 | 4 |

PM PEAK HOUR

| Description | - | | | Site Access B | | | Weddington Road | | | Weddington Road | | |
|--|-------------------|----------|----------|-------------------|----------|----------|------------------|------------|----------|------------------|-------------|-----------|
| | <u>Northbound</u> | | | <u>Southbound</u> | | | <u>Eastbound</u> | | | <u>Westbound</u> | | |
| | Left | Through | Right | Left | Through | Right | Left | Through | Right | Left | Through | Right |
| Observed Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 696 | 0 | 0 | 891 | 0 |
| Balanced Volumes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 Existing Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 696 | 0 | 0 | 891 | 0 |
| 2020 PHF | 0.90 | 0.97 | 0.94 | 0.93 | 0.97 | 0.90 | 0.90 | 0.90 | 0.90 | 0.85 | 0.90 | 0.84 |
| 2023 PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicle % | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Annual Growth Rate | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% |
| 2023 Background Traffic (No Diversion) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 783 | 0 | 0 | 1,002 | 0 |
| Diverted Trips | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -78 | 0 | 0 | -100 | 0 |
| 2023 Background Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 705 | 0 | 0 | 902 | 0 |
| Percent Inbound Assignment | 0% | 0% | 0% | 0% | 0% | 0% | 30% | 0% | 0% | 0% | 0% | 25% |
| Percent Outbound Assignment | 0% | 0% | 0% | 55% | 0% | 25% | 0% | 0% | 0% | 0% | 5% | 0% |
| Residential Project Trips | 0 | 0 | 0 | 15 | 0 | 7 | 14 | 0 | 0 | 0 | 1 | 12 |
| Project Trips (Total) | 0 | 0 | 0 | 15 | 0 | 7 | 14 | 0 | 0 | 0 | 1 | 12 |
| Pass-By Traffic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 Buildout Total | 0 | 0 | 0 | 15 | 0 | 7 | 14 | 705 | 0 | 0 | 903 | 12 |

6/10/2020 15:35

2020 EXISTING CAPACITY ANALYSIS OUTPUTS

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2020 Existing AM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 827 | 8 | 14 | 1018 | 172 | 420 |
| Future Volume (vph) | 827 | 8 | 14 | 1018 | 172 | 420 |
| Satd. Flow (prot) | 3454 | 0 | 1814 | 3628 | 1844 | 1567 |
| Flt Permitted | 0.953 | | 0.564 | | | |
| Satd. Flow (perm) | 3454 | 0 | 1077 | 3628 | 1844 | 1567 |
| Satd. Flow (RTOR) | | | | | | |
| Peak Hour Factor | 0.78 | 0.50 | 0.39 | 0.87 | 0.88 | 0.77 |
| Adj. Flow (vph) | 1060 | 16 | 36 | 1170 | 195 | 545 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1076 | 0 | 36 | 1170 | 195 | 545 |
| Turn Type | Prot | | pm+pt | NA | NA | Free |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | | 2 | | | Free |
| Detector Phase | 4 | | 5 | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 7.0 | | 7.0 | 10.0 | 10.0 | |
| Minimum Split (s) | 28.3 | | 12.4 | 15.6 | 26.6 | |
| Total Split (s) | 54.0 | | 15.0 | 76.0 | 61.0 | |
| Total Split (%) | 41.5% | | 11.5% | 58.5% | 46.9% | |
| Maximum Green (s) | 48.7 | | 9.6 | 70.4 | 55.4 | |
| Yellow Time (s) | 3.0 | | 3.1 | 4.2 | 4.2 | |
| All-Red Time (s) | 2.3 | | 2.3 | 1.4 | 1.4 | |
| Lost Time Adjust (s) | -0.3 | | -0.4 | -0.6 | -0.6 | |
| Total Lost Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | | | Lead | | Lag | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 2.0 | | 2.0 | 3.0 | 3.0 | |
| Recall Mode | None | | None | C-Max | C-Max | |
| Walk Time (s) | 7.0 | | | | 7.0 | |
| Flash Dont Walk (s) | 16.0 | | | | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | | | | 0 | |
| Act Effct Green (s) | 45.0 | | 75.0 | 75.0 | 67.5 | 130.0 |
| Actuated g/C Ratio | 0.35 | | 0.58 | 0.58 | 0.52 | 1.00 |
| v/c Ratio | 0.90 | | 0.05 | 0.56 | 0.20 | 0.35 |
| Control Delay | 51.0 | | 13.4 | 19.1 | 8.3 | 0.9 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | | 13.4 | 19.1 | 8.3 | 0.9 |
| LOS | D | | B | B | A | A |
| Approach Delay | 51.0 | | | 18.9 | 2.8 | |
| Approach LOS | D | | | B | A | |
| Queue Length 50th (ft) | 435 | | 13 | 317 | 43 | 5 |
| Queue Length 95th (ft) | 411 | | 13 | 381 | 65 | 0 |
| Internal Link Dist (ft) | 1220 | | | 920 | 352 | |
| Turn Bay Length (ft) | 150 | | 150 | | | |
| Base Capacity (vph) | 1301 | | 677 | 2092 | 957 | 1567 |
| Starvation Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | | 0 | 0 | 0 | 0 |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2020 Existing AM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------|------|-----|------|------|------|------|
| Reduced v/c Ratio | 0.83 | | 0.05 | 0.56 | 0.20 | 0.35 |

| Intersection Summary | |
|-----------------------------------|---|
| Cycle Length: | 130 |
| Actuated Cycle Length: | 130 |
| Offset: | 7 (5%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Coordinated |
| Maximum v/c Ratio: | 0.90 |
| Intersection Signal Delay: | 26.4 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 60.3% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 1: Pleasant Plains Rd/S Trade St & Weddington Rd



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 2: S Trade St & Brenham Ln 2020 Existing AM



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 20 | 1838 | 7 | 0 | 592 |
| Future Volume (vph) | 0 | 20 | 1838 | 7 | 0 | 592 |
| Satd. Flow (prot) | 0 | 1611 | 3536 | 0 | 0 | 3539 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 0 | 1611 | 3536 | 0 | 0 | 3539 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 0 | 22 | 2042 | 8 | 0 | 658 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 22 | 2050 | 0 | 0 | 658 |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| |
|---|
| Control Type: Unsignalized |
| Intersection Capacity Utilization 61.0% ICU Level of Service B |
| Analysis Period (min) 15 |

HCM Unsignalized Intersection Capacity Analysis
 2: S Trade St & Brenham Ln
 2020 Existing AM



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↗ | ↕↗ | | | ↕↕ |
| Traffic Volume (veh/h) | 0 | 20 | 1838 | 7 | 0 | 592 |
| Future Volume (Veh/h) | 0 | 20 | 1838 | 7 | 0 | 592 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 22 | 2042 | 8 | 0 | 658 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | 432 | | | 1119 |
| pX, platoon unblocked | 0.80 | 0.80 | | | 0.80 | |
| vC, conflicting volume | 2375 | 1025 | | | 2050 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2183 | 528 | | | 1811 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 94 | | | 100 | |
| cM capacity (veh/h) | 31 | 395 | | | 268 | |
| Direction, Lane # | | | | | | |
| | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 22 | 1361 | 689 | 329 | 329 | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | |
| Volume Right | 22 | 0 | 8 | 0 | 0 | |
| cSH | 395 | 1700 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.06 | 0.80 | 0.41 | 0.19 | 0.19 | |
| Queue Length 95th (ft) | 4 | 0 | 0 | 0 | 0 | |
| Control Delay (s) | 14.6 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 14.6 | 0.0 | | 0.0 | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.1 | | | |
| Intersection Capacity Utilization | | | 61.0% | | ICU Level of Service | B |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2020 Existing AM

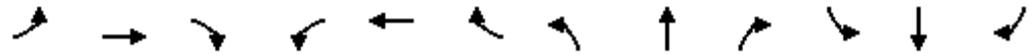


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗ | | ↕ | | ↗ | ↕↗ | | ↗ | ↕↗ | |
| Traffic Volume (vph) | 1 | 0 | 1 | 2 | 0 | 26 | 1 | 1962 | 2 | 1 | 589 | 1 |
| Future Volume (vph) | 1 | 0 | 1 | 2 | 0 | 26 | 1 | 1962 | 2 | 1 | 589 | 1 |
| Satd. Flow (prot) | 0 | 1734 | 1552 | 0 | 1611 | 0 | 1752 | 3504 | 0 | 1787 | 3571 | 0 |
| Flt Permitted | | 0.872 | | | 0.964 | | 0.388 | | | 0.067 | | |
| Satd. Flow (perm) | 0 | 1592 | 1552 | 0 | 1561 | 0 | 716 | 3504 | 0 | 126 | 3571 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Peak Hour Factor | 0.25 | 0.90 | 0.25 | 0.50 | 0.90 | 0.72 | 0.25 | 0.89 | 0.50 | 0.25 | 0.93 | 0.25 |
| Adj. Flow (vph) | 4 | 0 | 4 | 4 | 0 | 36 | 4 | 2204 | 4 | 4 | 633 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 4 | 4 | 0 | 40 | 0 | 4 | 2208 | 0 | 4 | 637 | 0 |
| Turn Type | Perm | NA | pm+ov | Perm | NA | | pm+pt | NA | | Perm | NA | |
| Protected Phases | | 4 | 5 | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 13.4 | 13.4 | 12.9 | 13.4 | 13.4 | | 12.9 | 24.2 | | 22.2 | 22.2 | |
| Total Split (s) | 16.0 | 16.0 | 15.0 | 16.0 | 16.0 | | 15.0 | 114.0 | | 99.0 | 99.0 | |
| Total Split (%) | 12.3% | 12.3% | 11.5% | 12.3% | 12.3% | | 11.5% | 87.7% | | 76.2% | 76.2% | |
| Maximum Green (s) | 9.6 | 9.6 | 9.1 | 9.6 | 9.6 | | 9.1 | 107.8 | | 92.8 | 92.8 | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 3.4 | 3.4 | 2.9 | 3.4 | 3.4 | | 2.9 | 2.2 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | | -1.4 | -0.9 | | -1.4 | | -0.9 | -1.2 | | -1.2 | -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 | Lag | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 22.0 | 22.0 | | 17.0 | 17.0 | | | 11.0 | | 9.0 | 9.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 9.5 | 19.7 | | 9.5 | | 113.2 | 114.2 | | 111.6 | 111.6 | |
| Actuated g/C Ratio | | 0.07 | 0.15 | | 0.07 | | 0.87 | 0.88 | | 0.86 | 0.86 | |
| v/c Ratio | | 0.03 | 0.02 | | 0.35 | | 0.01 | 0.72 | | 0.04 | 0.21 | |
| Control Delay | | 56.0 | 44.0 | | 65.8 | | 1.0 | 2.3 | | 2.0 | 1.0 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | 56.0 | 44.0 | | 65.8 | | 1.0 | 2.3 | | 2.0 | 1.0 | |
| LOS | | E | D | | E | | A | A | | A | A | |
| Approach Delay | | 50.0 | | | 65.8 | | | 2.3 | | | 1.0 | |
| Approach LOS | | D | | | E | | | A | | | A | |
| Queue Length 50th (ft) | | 3 | 3 | | 33 | | 0 | 92 | | 0 | 13 | |
| Queue Length 95th (ft) | | 15 | 4 | | 72 | | m0 | 114 | | 0 | 33 | |
| Internal Link Dist (ft) | | 110 | | | 391 | | | 1039 | | | 1324 | |
| Turn Bay Length (ft) | | | | | | | 175 | | | 200 | | |
| Base Capacity (vph) | | 134 | 260 | | 132 | | 703 | 3078 | | 108 | 3066 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2020 Existing AM

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  |  |  |  | |  |  | | |  |  |
| Traffic Volume (vph) | 41 | 0 | 250 | 0 | 0 | 0 | 1092 | 666 | 0 | 0 | 345 | 109 |
| Future Volume (vph) | 41 | 0 | 250 | 0 | 0 | 0 | 1092 | 666 | 0 | 0 | 345 | 109 |
| Satd. Flow (prot) | 0 | 1743 | 2745 | 1900 | 1900 | 0 | 3399 | 1844 | 0 | 0 | 3457 | 0 |
| Flt Permitted | | 0.950 | | | | | 0.950 | | | | | |
| Satd. Flow (perm) | 0 | 1743 | 2745 | 1900 | 1900 | 0 | 3399 | 1844 | 0 | 0 | 3457 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Peak Hour Factor | 0.41 | 0.90 | 0.77 | 0.90 | 0.90 | 0.90 | 0.86 | 0.76 | 0.90 | 0.90 | 0.69 | 0.78 |
| Adj. Flow (vph) | 100 | 0 | 325 | 0 | 0 | 0 | 1270 | 876 | 0 | 0 | 500 | 140 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 100 | 325 | 0 | 0 | 0 | 1270 | 876 | 0 | 0 | 640 | 0 |
| Turn Type | Split | NA | pt+ov | Split | | | Prot | NA | | | NA | |
| Protected Phases | 4 | 4 | 4 5 | 3 | 3 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Detector Phase | 4 | 4 | 5 | 3 | 3 | | 5 | 2 | | | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | | | 10.0 | |
| Minimum Split (s) | 18.5 | 18.5 | | 17.7 | 17.7 | | 13.1 | 21.5 | | | 40.5 | |
| Total Split (s) | 20.0 | 20.0 | | 20.0 | 20.0 | | 48.0 | 90.0 | | | 42.0 | |
| Total Split (%) | 15.4% | 15.4% | | 15.4% | 15.4% | | 36.9% | 69.2% | | | 32.3% | |
| Maximum Green (s) | 13.5 | 13.5 | | 13.3 | 13.3 | | 41.9 | 83.5 | | | 35.5 | |
| Yellow Time (s) | 4.3 | 4.3 | | 3.4 | 3.4 | | 3.0 | 4.0 | | | 4.0 | |
| All-Red Time (s) | 2.2 | 2.2 | | 3.3 | 3.3 | | 3.1 | 2.5 | | | 2.5 | |
| Lost Time Adjust (s) | | -1.5 | | -1.7 | -1.7 | | -1.1 | -1.5 | | | -1.5 | |
| Total Lost Time (s) | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | | 5.0 | |
| Lead/Lag | Lag | Lag | | Lead | Lead | | Lead | | | | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | | | | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 3.0 | | | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | | | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 5.0 | 5.0 | | 4.0 | 4.0 | | | 8.0 | | | 27.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | | 13.3 | 82.2 | | | | 63.9 | 106.7 | | | 37.8 | |
| Actuated g/C Ratio | | 0.10 | 0.63 | | | | 0.49 | 0.82 | | | 0.29 | |
| v/c Ratio | | 0.56 | 0.19 | | | | 0.76 | 0.58 | | | 0.64 | |
| Control Delay | | 67.0 | 10.3 | | | | 21.8 | 7.5 | | | 43.6 | |
| Queue Delay | | 0.0 | 0.0 | | | | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | | 67.0 | 10.3 | | | | 21.8 | 7.5 | | | 43.6 | |
| LOS | | E | B | | | | C | A | | | D | |
| Approach Delay | | 23.6 | | | | | | 16.0 | | | 43.6 | |
| Approach LOS | | C | | | | | | B | | | D | |
| Queue Length 50th (ft) | | 82 | 63 | | | | 389 | 344 | | | 243 | |
| Queue Length 95th (ft) | | 137 | 69 | | | | 446 | 329 | | | 227 | |
| Internal Link Dist (ft) | | 1517 | | | 314 | | | 1324 | | | 1327 | |
| Turn Bay Length (ft) | | | 400 | | | | 300 | | | | | |
| Base Capacity (vph) | | 210 | 1735 | | | | 1670 | 1513 | | | 1005 | |
| Starvation Cap Reductn | | 0 | 0 | | | | 0 | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | | | 0 | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | | | 0 | 0 | | | 0 | |

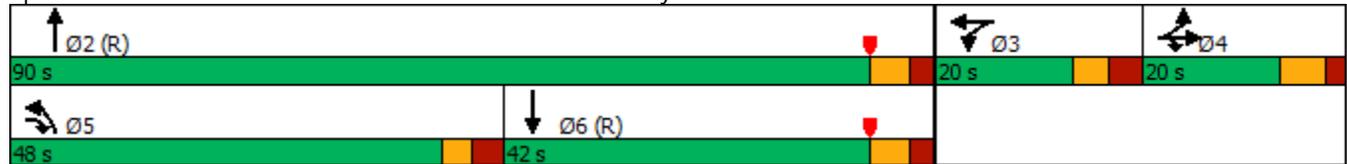
Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2020 Existing AM



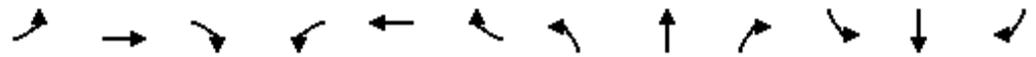
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|-----|-----|-----|------|------|-----|-----|------|-----|
| Reduced v/c Ratio | | 0.48 | 0.19 | | | | 0.76 | 0.58 | | | 0.64 | |

| Intersection Summary | |
|-----------------------------------|--|
| Cycle Length: | 130 |
| Actuated Cycle Length: | 130 |
| Offset: | 64 (49%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow |
| Natural Cycle: | 130 |
| Control Type: | Actuated-Coordinated |
| Maximum v/c Ratio: | 0.76 |
| Intersection Signal Delay: | 22.5 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 62.5% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 4: S Trade St & Fullwood Ln/Church Driveway

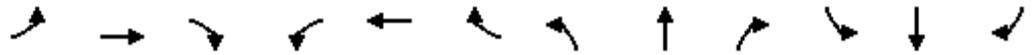


Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2020 Existing AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|-------|------|-------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | ↔↔ | | ↗ | ↖ | ↕↔ | | ↖ | ↕↕ | |
| Traffic Volume (vph) | 0 | 0 | 0 | 725 | 0 | 397 | 0 | 1529 | 327 | 178 | 1783 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 725 | 0 | 397 | 0 | 1529 | 327 | 178 | 1783 | 0 |
| Satd. Flow (prot) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1853 | 3412 | 0 | 1761 | 3522 | 0 |
| Flt Permitted | | | | 0.950 | | | | | | 0.044 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1853 | 3412 | 0 | 82 | 3522 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Peak Hour Factor | 0.25 | 0.25 | 0.25 | 0.85 | 0.90 | 0.86 | 0.90 | 0.90 | 0.73 | 0.80 | 0.84 | 0.90 |
| Adj. Flow (vph) | 0 | 0 | 0 | 853 | 0 | 462 | 0 | 1699 | 448 | 223 | 2123 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 853 | 0 | 462 | 0 | 2147 | 0 | 223 | 2123 | 0 |
| Turn Type | | | | Prot | | pm+ov | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 4 | 2 | | | 6 | | |
| Detector Phase | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | | 7.0 | | 7.0 | 7.0 | 12.0 | | 7.0 | 12.0 | |
| Minimum Split (s) | | | | 13.3 | | 12.8 | 13.1 | 18.1 | | 12.8 | 18.1 | |
| Total Split (s) | | | | 39.0 | | 19.0 | 14.0 | 92.0 | | 19.0 | 97.0 | |
| Total Split (%) | | | | 26.0% | | 12.7% | 9.3% | 61.3% | | 12.7% | 64.7% | |
| Maximum Green (s) | | | | 32.7 | | 13.2 | 7.9 | 85.9 | | 13.2 | 90.9 | |
| Yellow Time (s) | | | | 3.0 | | 3.0 | 3.0 | 4.4 | | 3.0 | 4.4 | |
| All-Red Time (s) | | | | 3.3 | | 2.8 | 3.1 | 1.7 | | 2.8 | 1.7 | |
| Lost Time Adjust (s) | | | | -1.3 | | -0.8 | -1.1 | -1.1 | | -0.8 | -1.1 | |
| Total Lost Time (s) | | | | 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 | | 2.0 | 1.0 | 6.0 | | 2.0 | 6.0 | |
| Minimum Gap (s) | | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Time Before Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 15.0 | | 0.0 | 15.0 | |
| Time To Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 30.0 | | 0.0 | 30.0 | |
| Recall Mode | | | | None | | None | None | C-Max | | None | C-Max | |
| Act Effct Green (s) | | | | 34.0 | | 53.0 | | 87.0 | | 106.0 | 106.0 | |
| Actuated g/C Ratio | | | | 0.23 | | 0.35 | | 0.58 | | 0.71 | 0.71 | |
| v/c Ratio | | | | 1.11 | | 0.84 | | 1.09 | | 1.04 | 0.85 | |
| Control Delay | | | | 118.4 | | 59.1 | | 78.7 | | 115.7 | 20.8 | |
| Queue Delay | | | | 0.0 | | 0.0 | | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | | | 118.4 | | 59.1 | | 78.7 | | 115.7 | 20.8 | |
| LOS | | | | F | | E | | E | | F | C | |
| Approach Delay | | | | | 97.5 | | | 78.7 | | | 29.8 | |
| Approach LOS | | | | | F | | | E | | | C | |
| Queue Length 50th (ft) | | | | ~489 | | 414 | | ~1235 | | ~182 | 743 | |
| Queue Length 95th (ft) | | | | #564 | | 530 | | #1364 | | #287 | 718 | |
| Internal Link Dist (ft) | | 189 | | | 1367 | | | 1635 | | | 1880 | |
| Turn Bay Length (ft) | | | | | | 50 | | | | 450 | | |
| Base Capacity (vph) | | | | 770 | | 553 | | 1978 | | 214 | 2488 | |
| Starvation Cap Reductn | | | | 0 | | 0 | | 0 | | 0 | 0 | |
| Spillback Cap Reductn | | | | 0 | | 0 | | 0 | | 0 | 0 | |
| Storage Cap Reductn | | | | 0 | | 0 | | 0 | | 0 | 0 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2020 Existing AM

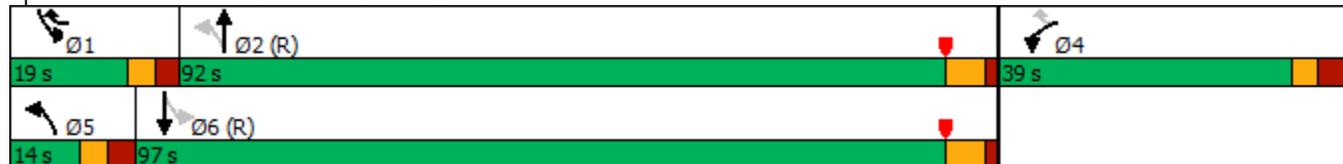


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|-----|-----|------|-----|------|-----|------|-----|------|------|-----|
| Reduced v/c Ratio | | | | 1.11 | | 0.84 | | 1.09 | | 1.04 | 0.85 | |

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 63.2 Intersection LOS: E
 Intersection Capacity Utilization 94.9% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: NC 51 & Fullwood Ln



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2020 Existing PM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 650 | 46 | 10 | 439 | 638 | 881 |
| Future Volume (vph) | 650 | 46 | 10 | 439 | 638 | 881 |
| Satd. Flow (prot) | 3427 | 0 | 1814 | 3628 | 1844 | 1567 |
| Flt Permitted | 0.956 | | 0.243 | | | |
| Satd. Flow (perm) | 3427 | 0 | 464 | 3628 | 1844 | 1567 |
| Satd. Flow (RTOR) | | | | | | |
| Peak Hour Factor | 0.93 | 0.72 | 0.42 | 0.86 | 0.89 | 0.90 |
| Adj. Flow (vph) | 699 | 64 | 24 | 510 | 717 | 979 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 763 | 0 | 24 | 510 | 717 | 979 |
| Turn Type | Prot | | pm+pt | NA | NA | Free |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | | 2 | | | Free |
| Detector Phase | 4 | | 5 | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 7.0 | | 7.0 | 10.0 | 10.0 | |
| Minimum Split (s) | 28.3 | | 12.4 | 15.6 | 26.6 | |
| Total Split (s) | 45.0 | | 15.0 | 105.0 | 90.0 | |
| Total Split (%) | 30.0% | | 10.0% | 70.0% | 60.0% | |
| Maximum Green (s) | 39.7 | | 9.6 | 99.4 | 84.4 | |
| Yellow Time (s) | 3.0 | | 3.1 | 4.2 | 4.2 | |
| All-Red Time (s) | 2.3 | | 2.3 | 1.4 | 1.4 | |
| Lost Time Adjust (s) | -0.3 | | -0.4 | -0.6 | -0.6 | |
| Total Lost Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | | | Lead | | Lag | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 2.0 | | 2.0 | 3.0 | 3.0 | |
| Recall Mode | None | | None | C-Max | C-Max | |
| Walk Time (s) | 7.0 | | | | 7.0 | |
| Flash Dont Walk (s) | 16.0 | | | | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | | | | 0 | |
| Act Effct Green (s) | 37.0 | | 103.0 | 103.0 | 95.6 | 150.0 |
| Actuated g/C Ratio | 0.25 | | 0.69 | 0.69 | 0.64 | 1.00 |
| v/c Ratio | 0.90 | | 0.06 | 0.20 | 0.61 | 0.62 |
| Control Delay | 69.6 | | 8.6 | 9.1 | 17.2 | 3.5 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 69.6 | | 8.6 | 9.1 | 17.2 | 3.5 |
| LOS | E | | A | A | B | A |
| Approach Delay | 69.6 | | | 9.1 | 9.3 | |
| Approach LOS | E | | | A | A | |
| Queue Length 50th (ft) | 371 | | 7 | 91 | 251 | 10 |
| Queue Length 95th (ft) | 445 | | 8 | 114 | 314 | 291 |
| Internal Link Dist (ft) | 1220 | | | 920 | 352 | |
| Turn Bay Length (ft) | 150 | | 150 | | | |
| Base Capacity (vph) | 913 | | 408 | 2491 | 1174 | 1567 |
| Starvation Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | | 0 | 0 | 0 | 0 |

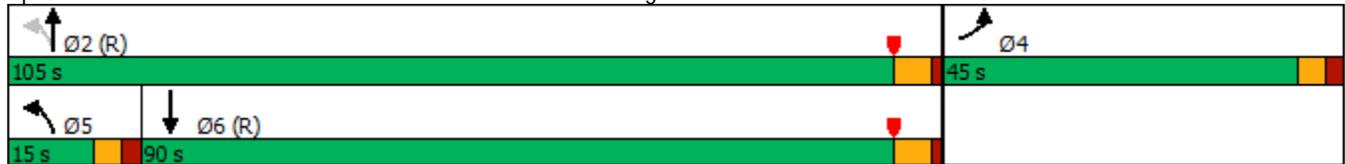
Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2020 Existing PM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------|------|-----|------|------|------|------|
| Reduced v/c Ratio | 0.84 | | 0.06 | 0.20 | 0.61 | 0.62 |

| Intersection Summary | |
|-----------------------------------|--|
| Cycle Length: | 150 |
| Actuated Cycle Length: | 150 |
| Offset: | 136 (91%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow |
| Natural Cycle: | 80 |
| Control Type: | Actuated-Coordinated |
| Maximum v/c Ratio: | 0.90 |
| Intersection Signal Delay: | 24.6 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 61.9% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 1: Pleasant Plains Rd/S Trade St & Weddington Rd



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 2: S Trade St & Brenham Ln 2020 Existing PM



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 7 | 1077 | 12 | 0 | 1519 |
| Future Volume (vph) | 0 | 7 | 1077 | 12 | 0 | 1519 |
| Satd. Flow (prot) | 0 | 1611 | 3532 | 0 | 0 | 3539 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 0 | 1611 | 3532 | 0 | 0 | 3539 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 0 | 8 | 1197 | 13 | 0 | 1688 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 8 | 1210 | 0 | 0 | 1688 |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|---|------------------------|
| Control Type: Unsignalized | |
| Intersection Capacity Utilization 45.3% | ICU Level of Service A |
| Analysis Period (min) 15 | |

HCM Unsignalized Intersection Capacity Analysis Weddington Road Multifamily Development TIA
 2: S Trade St & Brenham Ln 2020 Existing PM



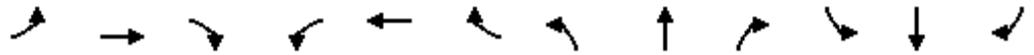
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations | | ↖ | ↕↗ | | | ↕↕ |
| Traffic Volume (veh/h) | 0 | 7 | 1077 | 12 | 0 | 1519 |
| Future Volume (Veh/h) | 0 | 7 | 1077 | 12 | 0 | 1519 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 8 | 1197 | 13 | 0 | 1688 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | 432 | | | 1119 |
| pX, platoon unblocked | 0.78 | 0.95 | | | 0.95 | |
| vC, conflicting volume | 2048 | 605 | | | 1210 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1506 | 482 | | | 1118 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 98 | | | 100 | |
| cM capacity (veh/h) | 88 | 505 | | | 590 | |
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 8 | 798 | 412 | 844 | 844 | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | |
| Volume Right | 8 | 0 | 13 | 0 | 0 | |
| cSH | 505 | 1700 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.02 | 0.47 | 0.24 | 0.50 | 0.50 | |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | |
| Control Delay (s) | 12.2 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 12.2 | 0.0 | | 0.0 | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.0 | | | |
| Intersection Capacity Utilization | | | 45.3% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2020 Existing PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗ | | ↕ | | ↗ | ↕↗ | | ↗ | ↕↗ | |
| Traffic Volume (vph) | 18 | 0 | 24 | 4 | 0 | 15 | 124 | 860 | 48 | 15 | 1491 | 94 |
| Future Volume (vph) | 18 | 0 | 24 | 4 | 0 | 15 | 124 | 860 | 48 | 15 | 1491 | 94 |
| Satd. Flow (prot) | 0 | 1734 | 1552 | 0 | 1661 | 0 | 1752 | 3434 | 0 | 1787 | 3532 | 0 |
| Flt Permitted | | 0.801 | | | 0.859 | | 0.097 | | | 0.266 | | |
| Satd. Flow (perm) | 0 | 1462 | 1552 | 0 | 1456 | 0 | 179 | 3434 | 0 | 500 | 3532 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Peak Hour Factor | 0.75 | 0.90 | 0.67 | 0.25 | 0.90 | 0.63 | 0.74 | 0.92 | 0.34 | 0.54 | 0.94 | 0.69 |
| Adj. Flow (vph) | 24 | 0 | 36 | 16 | 0 | 24 | 168 | 935 | 141 | 28 | 1586 | 136 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 24 | 36 | 0 | 40 | 0 | 168 | 1076 | 0 | 28 | 1722 | 0 |
| Turn Type | Perm | NA | pm+ov | Perm | NA | | pm+pt | NA | | Perm | NA | |
| Protected Phases | | 4 | 5 | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 13.4 | 13.4 | 12.9 | 13.4 | 13.4 | | 12.9 | 24.2 | | 22.2 | 22.2 | |
| Total Split (s) | 18.0 | 18.0 | 25.0 | 18.0 | 18.0 | | 25.0 | 132.0 | | 107.0 | 107.0 | |
| Total Split (%) | 12.0% | 12.0% | 16.7% | 12.0% | 12.0% | | 16.7% | 88.0% | | 71.3% | 71.3% | |
| Maximum Green (s) | 11.6 | 11.6 | 19.1 | 11.6 | 11.6 | | 19.1 | 125.8 | | 100.8 | 100.8 | |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 3.4 | 3.4 | 2.9 | 3.4 | 3.4 | | 2.9 | 2.2 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | | -1.4 | -0.9 | | -1.4 | | -0.9 | -1.2 | | -1.2 | -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 | Lag | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 22.0 | 22.0 | | 17.0 | 17.0 | | | 11.0 | | 9.0 | 9.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 10.2 | 23.8 | | 10.2 | | 132.4 | 133.4 | | 116.2 | 116.2 | |
| Actuated g/C Ratio | | 0.07 | 0.16 | | 0.07 | | 0.88 | 0.89 | | 0.77 | 0.77 | |
| v/c Ratio | | 0.24 | 0.15 | | 0.40 | | 0.61 | 0.35 | | 0.07 | 0.63 | |
| Control Delay | | 71.3 | 51.0 | | 78.5 | | 25.4 | 1.3 | | 4.0 | 4.6 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | 71.3 | 51.0 | | 78.5 | | 25.4 | 1.3 | | 4.0 | 4.6 | |
| LOS | | E | D | | E | | C | A | | A | A | |
| Approach Delay | | 59.1 | | | 78.5 | | | 4.5 | | | 4.6 | |
| Approach LOS | | E | | | E | | | A | | | A | |
| Queue Length 50th (ft) | | 23 | 31 | | 38 | | 32 | 25 | | 2 | 100 | |
| Queue Length 95th (ft) | | 54 | 44 | | 79 | | 35 | 29 | | m7 | 361 | |
| Internal Link Dist (ft) | | 110 | | | 391 | | | 1039 | | | 1324 | |
| Turn Bay Length (ft) | | | | | | | 175 | | | 200 | | |
| Base Capacity (vph) | | 126 | 336 | | 126 | | 367 | 3054 | | 387 | 2736 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2020 Existing PM



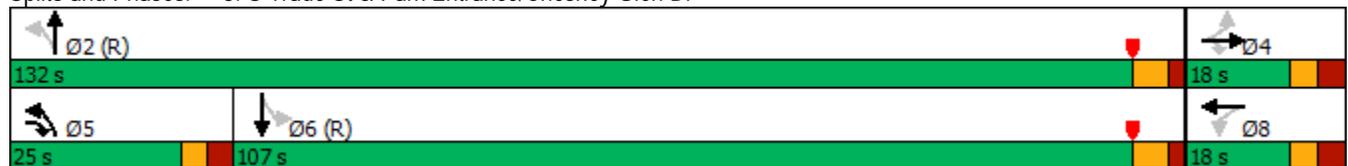
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|-----|------|-----|------|------|-----|------|------|-----|
| Reduced v/c Ratio | | 0.19 | 0.11 | | 0.32 | | 0.46 | 0.35 | | 0.07 | 0.63 | |

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 6.6 Intersection LOS: A
 Intersection Capacity Utilization 69.4% ICU Level of Service C
 Analysis Period (min) 15

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

Splits and Phases: 3: S Trade St & Park Entrance/Chesney Glen Dr

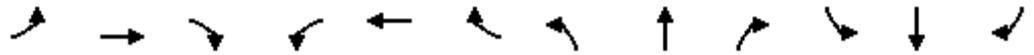


Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2020 Existing PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|------|-------|------|
| Lane Configurations | | ↖ | ↖↖ | ↖ | ↖ | | ↖↖ | ↑ | | | ↖↖ | |
| Traffic Volume (vph) | 85 | 0 | 707 | 0 | 0 | 0 | 413 | 511 | 0 | 0 | 623 | 50 |
| Future Volume (vph) | 85 | 0 | 707 | 0 | 0 | 0 | 413 | 511 | 0 | 0 | 623 | 50 |
| Satd. Flow (prot) | 0 | 1743 | 2745 | 1900 | 1900 | 0 | 3399 | 1844 | 0 | 0 | 3532 | 0 |
| Flt Permitted | | 0.950 | | | | | 0.950 | | | | | |
| Satd. Flow (perm) | 0 | 1743 | 2745 | 1900 | 1900 | 0 | 3399 | 1844 | 0 | 0 | 3532 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Peak Hour Factor | 0.82 | 0.90 | 0.68 | 0.90 | 0.90 | 0.90 | 0.85 | 0.80 | 0.90 | 0.90 | 0.77 | 0.69 |
| Adj. Flow (vph) | 104 | 0 | 1040 | 0 | 0 | 0 | 486 | 639 | 0 | 0 | 809 | 72 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 104 | 1040 | 0 | 0 | 0 | 486 | 639 | 0 | 0 | 881 | 0 |
| Turn Type | Split | NA | pt+ov | Split | | | Prot | NA | | | NA | |
| Protected Phases | 4 | 4 | 4 5 | 3 | 3 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Detector Phase | 4 | 4 | 5 | 3 | 3 | | 5 | 2 | | | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | | | 10.0 | |
| Minimum Split (s) | 18.5 | 18.5 | | 17.7 | 17.7 | | 13.1 | 21.5 | | | 40.5 | |
| Total Split (s) | 20.0 | 20.0 | | 20.0 | 20.0 | | 55.0 | 110.0 | | | 55.0 | |
| Total Split (%) | 13.3% | 13.3% | | 13.3% | 13.3% | | 36.7% | 73.3% | | | 36.7% | |
| Maximum Green (s) | 13.5 | 13.5 | | 13.3 | 13.3 | | 48.9 | 103.5 | | | 48.5 | |
| Yellow Time (s) | 4.3 | 4.3 | | 3.4 | 3.4 | | 3.0 | 4.0 | | | 4.0 | |
| All-Red Time (s) | 2.2 | 2.2 | | 3.3 | 3.3 | | 3.1 | 2.5 | | | 2.5 | |
| Lost Time Adjust (s) | | -1.5 | | -1.7 | -1.7 | | -1.1 | -1.5 | | | -1.5 | |
| Total Lost Time (s) | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | | 5.0 | |
| Lead/Lag | Lag | Lag | | Lead | Lead | | Lead | | | | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | | | | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 3.0 | | | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | | | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 5.0 | 5.0 | | 4.0 | 4.0 | | | 8.0 | | | 27.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | | 14.8 | 58.7 | | | | 38.9 | 125.2 | | | 81.3 | |
| Actuated g/C Ratio | | 0.10 | 0.39 | | | | 0.26 | 0.83 | | | 0.54 | |
| v/c Ratio | | 0.61 | 0.97 | | | | 0.55 | 0.42 | | | 0.46 | |
| Control Delay | | 79.0 | 65.0 | | | | 37.5 | 2.4 | | | 23.0 | |
| Queue Delay | | 0.0 | 0.0 | | | | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | | 79.0 | 65.0 | | | | 37.5 | 2.4 | | | 23.0 | |
| LOS | | E | E | | | | D | A | | | C | |
| Approach Delay | | 66.3 | | | | | | 17.6 | | | 23.0 | |
| Approach LOS | | E | | | | | | B | | | C | |
| Queue Length 50th (ft) | | 99 | ~625 | | | | 143 | 61 | | | 250 | |
| Queue Length 95th (ft) | | 159 | 371 | | | | 141 | 68 | | | 316 | |
| Internal Link Dist (ft) | | 1517 | | | 314 | | | 1324 | | | 1327 | |
| Turn Bay Length (ft) | | | 400 | | | | 300 | | | | | |
| Base Capacity (vph) | | 191 | 1277 | | | | 1133 | 1539 | | | 1913 | |
| Starvation Cap Reductn | | 0 | 0 | | | | 0 | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | | | 0 | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | | | 0 | 0 | | | 0 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2020 Existing PM

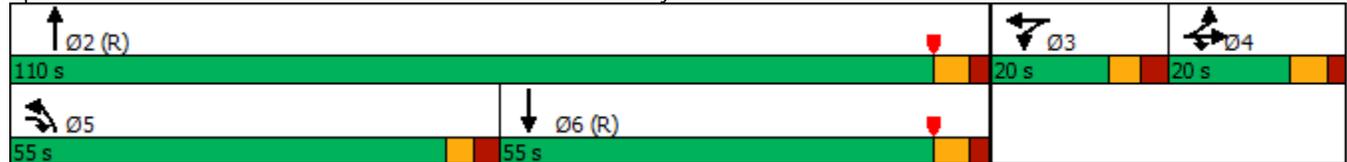


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|-----|-----|-----|------|------|-----|-----|------|-----|
| Reduced v/c Ratio | | 0.54 | 0.81 | | | | 0.43 | 0.42 | | | 0.46 | |

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 16 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 36.8 Intersection LOS: D
 Intersection Capacity Utilization 51.9% ICU Level of Service A
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: S Trade St & Fullwood Ln/Church Driveway



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2020 Existing PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|-------|------|-------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | ↔↔ | | ↗ | ↖ | ↕↔ | | ↖ | ↕↕ | |
| Traffic Volume (vph) | 0 | 0 | 0 | 299 | 0 | 244 | 0 | 1539 | 612 | 421 | 1608 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 299 | 0 | 244 | 0 | 1539 | 612 | 421 | 1608 | 0 |
| Satd. Flow (prot) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1853 | 3367 | 0 | 1761 | 3522 | 0 |
| Flt Permitted | | | | 0.950 | | | | | | 0.042 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1853 | 3367 | 0 | 78 | 3522 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.85 | 0.90 | 0.84 | 0.90 | 0.97 | 0.94 | 0.93 | 0.97 | 0.90 |
| Adj. Flow (vph) | 0 | 0 | 0 | 352 | 0 | 290 | 0 | 1587 | 651 | 453 | 1658 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 352 | 0 | 290 | 0 | 2238 | 0 | 453 | 1658 | 0 |
| Turn Type | | | | Prot | | pm+ov | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 4 | 2 | | | 6 | | |
| Detector Phase | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | | 7.0 | | 7.0 | 5.0 | 12.0 | | 7.0 | 12.0 | |
| Minimum Split (s) | | | | 13.3 | | 12.8 | 9.5 | 18.1 | | 12.8 | 18.1 | |
| Total Split (s) | | | | 21.0 | | 34.0 | 14.0 | 95.0 | | 34.0 | 115.0 | |
| Total Split (%) | | | | 14.0% | | 22.7% | 9.3% | 63.3% | | 22.7% | 76.7% | |
| Maximum Green (s) | | | | 14.7 | | 28.2 | 9.5 | 88.9 | | 28.2 | 108.9 | |
| Yellow Time (s) | | | | 3.0 | | 3.0 | 3.5 | 4.4 | | 3.0 | 4.4 | |
| All-Red Time (s) | | | | 3.3 | | 2.8 | 1.0 | 1.7 | | 2.8 | 1.7 | |
| Lost Time Adjust (s) | | | | -1.3 | | -0.8 | 0.5 | -1.1 | | -0.8 | -1.1 | |
| Total Lost Time (s) | | | | 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 | | 2.0 | 3.0 | 6.0 | | 2.0 | 6.0 | |
| Minimum Gap (s) | | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Time Before Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 15.0 | | 0.0 | 15.0 | |
| Time To Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 30.0 | | 0.0 | 30.0 | |
| Recall Mode | | | | None | | None | None | C-Max | | None | C-Max | |
| Act Effct Green (s) | | | | 16.0 | | 50.0 | | 90.0 | | 124.0 | 124.0 | |
| Actuated g/C Ratio | | | | 0.11 | | 0.33 | | 0.60 | | 0.83 | 0.83 | |
| v/c Ratio | | | | 0.97 | | 0.56 | | 1.11 | | 1.16 | 0.57 | |
| Control Delay | | | | 106.6 | | 45.8 | | 86.1 | | 142.0 | 5.1 | |
| Queue Delay | | | | 0.0 | | 0.0 | | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | | | 106.6 | | 45.8 | | 86.1 | | 142.0 | 5.1 | |
| LOS | | | | F | | D | | F | | F | A | |
| Approach Delay | | | | | 79.2 | | | 86.1 | | | 34.5 | |
| Approach LOS | | | | | E | | | F | | | C | |
| Queue Length 50th (ft) | | | | 179 | | 233 | | ~1311 | | ~474 | 229 | |
| Queue Length 95th (ft) | | | | #258 | | 304 | | #1437 | | #700 | 265 | |
| Internal Link Dist (ft) | | 189 | | | 1367 | | | 1635 | | | 1880 | |
| Turn Bay Length (ft) | | | | | | 50 | | | | 450 | | |
| Base Capacity (vph) | | | | 362 | | 522 | | 2020 | | 389 | 2911 | |
| Starvation Cap Reductn | | | | 0 | | 0 | | 0 | | 0 | 0 | |
| Spillback Cap Reductn | | | | 0 | | 0 | | 0 | | 0 | 0 | |
| Storage Cap Reductn | | | | 0 | | 0 | | 0 | | 0 | 0 | |

2023 BACKGROUND CAPACITY ANALYSIS OUTPUTS

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Background AM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 837 | 8 | 14 | 1030 | 174 | 425 |
| Future Volume (vph) | 837 | 8 | 14 | 1030 | 174 | 425 |
| Satd. Flow (prot) | 3458 | 0 | 1814 | 3628 | 1844 | 1567 |
| Flt Permitted | 0.953 | | 0.950 | | | |
| Satd. Flow (perm) | 3458 | 0 | 1814 | 3628 | 1844 | 1567 |
| Satd. Flow (RTOR) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 930 | 9 | 16 | 1144 | 193 | 472 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 939 | 0 | 16 | 1144 | 193 | 472 |
| Turn Type | Prot | | Prot | NA | NA | Free |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | | | | | Free |
| Detector Phase | 4 | | 5 | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 7.0 | | 7.0 | 10.0 | 10.0 | |
| Minimum Split (s) | 30.3 | | 14.3 | 17.0 | 28.0 | |
| Total Split (s) | 54.0 | | 15.0 | 76.0 | 61.0 | |
| Total Split (%) | 41.5% | | 11.5% | 58.5% | 46.9% | |
| Maximum Green (s) | 47.0 | | 8.0 | 69.0 | 54.0 | |
| Yellow Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 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 | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 2.0 | | 2.0 | 3.0 | 3.0 | |
| Recall Mode | None | | None | C-Max | C-Max | |
| Walk Time (s) | 7.0 | | | | 7.0 | |
| Flash Dont Walk (s) | 16.0 | | | | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | | | | 0 | |
| Act Effct Green (s) | 42.4 | | 9.1 | 77.6 | 71.9 | 130.0 |
| Actuated g/C Ratio | 0.33 | | 0.07 | 0.60 | 0.55 | 1.00 |
| v/c Ratio | 0.83 | | 0.13 | 0.53 | 0.19 | 0.30 |
| Control Delay | 47.3 | | 59.1 | 17.3 | 14.6 | 0.9 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.3 | | 59.1 | 17.3 | 14.6 | 0.9 |
| LOS | D | | E | B | B | A |
| Approach Delay | 47.3 | | | 17.9 | 4.9 | |
| Approach LOS | D | | | B | A | |
| Queue Length 50th (ft) | 373 | | 13 | 287 | 31 | 5 |
| Queue Length 95th (ft) | 423 | | 38 | 388 | 119 | 8 |
| Internal Link Dist (ft) | 1220 | | | 920 | 352 | |
| Turn Bay Length (ft) | 150 | | 150 | | | |
| Base Capacity (vph) | 1303 | | 139 | 2164 | 1019 | 1567 |
| Starvation Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | | 0 | 0 | 0 | 0 |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Background AM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------|------|-----|------|------|------|------|
| Reduced v/c Ratio | 0.72 | | 0.12 | 0.53 | 0.19 | 0.30 |

Intersection Summary

| | |
|--|------------------------|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 7 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.83 | |
| Intersection Signal Delay: 24.7 | Intersection LOS: C |
| Intersection Capacity Utilization 60.9% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Pleasant Plains Rd/S Trade St & Weddington Rd



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 2: S Trade St & Brenham Ln 2023 Background AM



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 22 | 1860 | 8 | 0 | 600 |
| Future Volume (vph) | 0 | 22 | 1860 | 8 | 0 | 600 |
| Satd. Flow (prot) | 0 | 1611 | 3536 | 0 | 0 | 3539 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 0 | 1611 | 3536 | 0 | 0 | 3539 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 0 | 24 | 2067 | 9 | 0 | 667 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 24 | 2076 | 0 | 0 | 667 |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|---|------------------------|
| Control Type: Unsignalized | |
| Intersection Capacity Utilization 61.7% | ICU Level of Service B |
| Analysis Period (min) 15 | |

HCM Unsignalized Intersection Capacity Analysis Weddington Road Multifamily Development TIA
 2: S Trade St & Brenham Ln 2023 Background AM



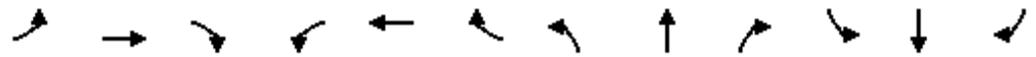
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|------|------|-------|----------------------|------|------|
| Lane Configurations | | ↗ | ↕↗ | | | ↕↗ |
| Traffic Volume (veh/h) | 0 | 22 | 1860 | 8 | 0 | 600 |
| Future Volume (Veh/h) | 0 | 22 | 1860 | 8 | 0 | 600 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 24 | 2067 | 9 | 0 | 667 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | 432 | | | 1119 |
| pX, platoon unblocked | 0.82 | 0.81 | | | 0.81 | |
| vC, conflicting volume | 2405 | 1038 | | | 2076 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2185 | 575 | | | 1858 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 94 | | | 100 | |
| cM capacity (veh/h) | 32 | 373 | | | 260 | |
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 24 | 1378 | 698 | 334 | 334 | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | |
| Volume Right | 24 | 0 | 9 | 0 | 0 | |
| cSH | 373 | 1700 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.06 | 0.81 | 0.41 | 0.20 | 0.20 | |
| Queue Length 95th (ft) | 5 | 0 | 0 | 0 | 0 | |
| Control Delay (s) | 15.3 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | C | | | | | |
| Approach Delay (s) | 15.3 | 0.0 | | 0.0 | | |
| Approach LOS | C | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.1 | | | |
| Intersection Capacity Utilization | | | 61.7% | ICU Level of Service | B | |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2023 Background AM



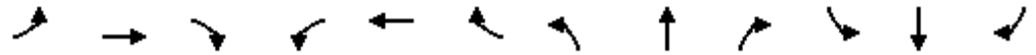
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗ | | ↔ | | ↖ | ↕↔ | | ↖ | ↕↔ | |
| Traffic Volume (vph) | 4 | 4 | 4 | 4 | 4 | 29 | 4 | 1999 | 4 | 4 | 597 | 4 |
| Future Volume (vph) | 4 | 4 | 4 | 4 | 4 | 29 | 4 | 1999 | 4 | 4 | 597 | 4 |
| Satd. Flow (prot) | 0 | 1782 | 1552 | 0 | 1637 | 0 | 1752 | 3504 | 0 | 1787 | 3571 | 0 |
| Flt Permitted | | 0.881 | | | 0.963 | | 0.950 | | | 0.065 | | |
| Satd. Flow (perm) | 0 | 1608 | 1552 | 0 | 1584 | 0 | 1752 | 3504 | 0 | 122 | 3571 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 4 | 4 | 4 | 32 | 4 | 2221 | 4 | 4 | 663 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 8 | 4 | 0 | 40 | 0 | 4 | 2225 | 0 | 4 | 667 | 0 |
| Turn Type | Perm | NA | pm+ov | Perm | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | | 4 | 5 | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | 6 | | |
| Detector Phase | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 15.4 | 15.4 | 14.9 | 15.4 | 15.4 | | 14.9 | 25.2 | | 23.2 | 23.2 | |
| Total Split (s) | 16.0 | 16.0 | 15.0 | 16.0 | 16.0 | | 15.0 | 114.0 | | 99.0 | 99.0 | |
| Total Split (%) | 12.3% | 12.3% | 11.5% | 12.3% | 12.3% | | 11.5% | 87.7% | | 76.2% | 76.2% | |
| Maximum Green (s) | 9.0 | 9.0 | 8.0 | 9.0 | 9.0 | | 8.0 | 107.0 | | 92.0 | 92.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | -2.0 | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lead/Lag | | | Lead | | | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 22.0 | 22.0 | | 17.0 | 17.0 | | | 11.0 | | 9.0 | 9.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 9.9 | 21.1 | | 9.9 | | 9.0 | 113.9 | | 111.1 | 111.1 | |
| Actuated g/C Ratio | | 0.08 | 0.16 | | 0.08 | | 0.07 | 0.88 | | 0.85 | 0.85 | |
| v/c Ratio | | 0.07 | 0.02 | | 0.33 | | 0.03 | 0.73 | | 0.04 | 0.22 | |
| Control Delay | | 56.4 | 43.0 | | 64.3 | | 65.0 | 3.0 | | 2.5 | 1.3 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | 56.4 | 43.0 | | 64.3 | | 65.0 | 3.0 | | 2.5 | 1.3 | |
| LOS | | E | D | | E | | E | A | | A | A | |
| Approach Delay | | 52.0 | | | 64.3 | | | 3.1 | | | 1.3 | |
| Approach LOS | | D | | | E | | | A | | | A | |
| Queue Length 50th (ft) | | 6 | 3 | | 33 | | 3 | 104 | | 0 | 17 | |
| Queue Length 95th (ft) | | 23 | 13 | | 71 | | m6 | 125 | | m1 | 44 | |
| Internal Link Dist (ft) | | 110 | | | 391 | | | 1039 | | | 1324 | |
| Turn Bay Length (ft) | | | | | | | 175 | | | 200 | | |
| Base Capacity (vph) | | 136 | 264 | | 134 | | 134 | 3068 | | 104 | 3050 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Background AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗↘ | ↖↗ | ↖ | | ↖↗ | ↕ | | | ↕↗ | |
| Traffic Volume (vph) | 46 | 4 | 281 | 4 | 4 | 4 | 1228 | 541 | 4 | 4 | 322 | 123 |
| Future Volume (vph) | 46 | 4 | 281 | 4 | 4 | 4 | 1228 | 541 | 4 | 4 | 322 | 123 |
| Satd. Flow (prot) | 0 | 1754 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3428 | 0 |
| Flt Permitted | | 0.956 | | 0.950 | | | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1754 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3257 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 51 | 4 | 312 | 4 | 4 | 4 | 1364 | 601 | 4 | 4 | 358 | 137 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 55 | 312 | 4 | 8 | 0 | 1364 | 605 | 0 | 0 | 499 | 0 |
| Turn Type | Split | NA | pt+ov | Split | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | 4 | 4 | 4 5 | 3 | 3 | | 5 | 2 | | | | 6 |
| Permitted Phases | | | | | | | | | | | 6 | |
| Detector Phase | 4 | 4 | 5 | 3 | 3 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 19.2 | 19.2 | | 19.3 | 19.3 | | 15.1 | 22.5 | | 41.5 | 41.5 | |
| Total Split (s) | 20.0 | 20.0 | | 20.0 | 20.0 | | 48.0 | 90.0 | | 42.0 | 42.0 | |
| Total Split (%) | 15.4% | 15.4% | | 15.4% | 15.4% | | 36.9% | 69.2% | | 32.3% | 32.3% | |
| Maximum Green (s) | 13.0 | 13.0 | | 13.0 | 13.0 | | 41.0 | 83.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | | | -2.0 | |
| Total Lost Time (s) | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | | 5.0 | |
| Lead/Lag | Lag | Lag | | Lead | Lead | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 5.0 | 5.0 | | 4.0 | 4.0 | | | 8.0 | | 27.0 | 27.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 10.9 | 77.4 | 9.0 | 9.0 | | 64.3 | 107.3 | | | 37.0 | |
| Actuated g/C Ratio | | 0.08 | 0.60 | 0.07 | 0.07 | | 0.49 | 0.83 | | | 0.28 | |
| v/c Ratio | | 0.37 | 0.19 | 0.03 | 0.07 | | 0.81 | 0.40 | | | 0.54 | |
| Control Delay | | 63.1 | 13.4 | 57.2 | 58.0 | | 25.8 | 6.8 | | | 41.9 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | | 63.1 | 13.4 | 57.2 | 58.0 | | 25.8 | 6.8 | | | 41.9 | |
| LOS | | E | B | E | E | | C | A | | | D | |
| Approach Delay | | 20.8 | | | 57.8 | | | 20.0 | | | 41.9 | |
| Approach LOS | | C | | | E | | | B | | | D | |
| Queue Length 50th (ft) | | 45 | 56 | 3 | 6 | | 403 | 125 | | | 187 | |
| Queue Length 95th (ft) | | 87 | 107 | 15 | 24 | | #776 | 310 | | | 244 | |
| Internal Link Dist (ft) | | 1517 | | | 314 | | | 1324 | | | 1327 | |
| Turn Bay Length (ft) | | | 400 | 50 | | | 300 | | | | | |
| Base Capacity (vph) | | 202 | 1634 | 208 | 202 | | 1681 | 1520 | | | 926 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Background AM

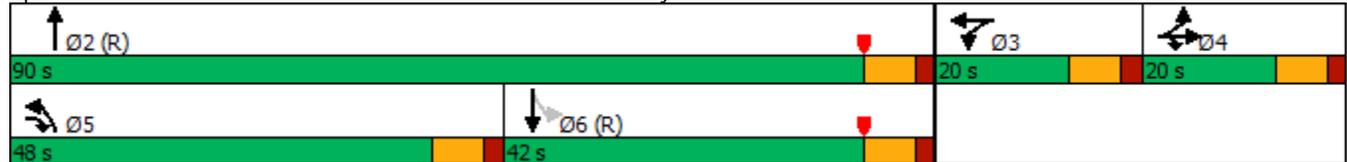


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|------|------|-----|------|------|-----|-----|------|-----|
| Reduced v/c Ratio | | 0.27 | 0.19 | 0.02 | 0.04 | | 0.81 | 0.40 | | | 0.54 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 64 (49%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow | |
| Natural Cycle: 140 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.81 | |
| Intersection Signal Delay: 24.1 | Intersection LOS: C |
| Intersection Capacity Utilization 69.9% | ICU Level of Service C |
| Analysis Period (min) 15 | |
| # 95th percentile volume exceeds capacity, queue may be longer. | |
| Queue shown is maximum after two cycles. | |

Splits and Phases: 4: S Trade St & Fullwood Ln/Church Driveway

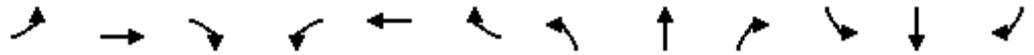


Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2023 Background AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|-------|-------|-------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | ↔ | | ↗ | ↖ | ↕ | | ↘ | ↗ | |
| Traffic Volume (vph) | 0 | 0 | 0 | 816 | 0 | 447 | 4 | 1720 | 368 | 200 | 2006 | 4 |
| Future Volume (vph) | 0 | 0 | 0 | 816 | 0 | 447 | 4 | 1720 | 368 | 200 | 2006 | 4 |
| Satd. Flow (prot) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3430 | 0 | 1761 | 3522 | 0 |
| Flt Permitted | | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3430 | 0 | 1761 | 3522 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 0 | 907 | 0 | 497 | 4 | 1911 | 409 | 222 | 2229 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 907 | 0 | 497 | 4 | 2320 | 0 | 222 | 2233 | 0 |
| Turn Type | | | | Prot | | pm+ov | Prot | NA | | Prot | NA | |
| Protected Phases | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 4 | | | | | | |
| Detector Phase | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | | 7.0 | | 7.0 | 7.0 | 12.0 | | 7.0 | 12.0 | |
| Minimum Split (s) | | | | 15.3 | | 14.8 | 14.0 | 19.0 | | 14.8 | 19.0 | |
| Total Split (s) | | | | 39.0 | | 19.0 | 14.0 | 92.0 | | 19.0 | 97.0 | |
| Total Split (%) | | | | 26.0% | | 12.7% | 9.3% | 61.3% | | 12.7% | 64.7% | |
| Maximum Green (s) | | | | 32.0 | | 12.0 | 7.0 | 85.0 | | 12.0 | 90.0 | |
| Yellow Time (s) | | | | 5.0 | | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | | | | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | | | -2.0 | | -2.0 | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | | | 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 | | 2.0 | 3.0 | 6.0 | | 2.0 | 6.0 | |
| Minimum Gap (s) | | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Time Before Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 15.0 | | 0.0 | 15.0 | |
| Time To Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 30.0 | | 0.0 | 30.0 | |
| Recall Mode | | | | None | | None | None | C-Max | | None | C-Max | |
| Act Effct Green (s) | | | | 34.0 | | 53.0 | 9.0 | 87.0 | | 14.0 | 103.2 | |
| Actuated g/C Ratio | | | | 0.23 | | 0.35 | 0.06 | 0.58 | | 0.09 | 0.69 | |
| v/c Ratio | | | | 1.18 | | 0.90 | 0.04 | 1.17 | | 1.35 | 0.92 | |
| Control Delay | | | | 142.7 | | 66.4 | 67.5 | 111.2 | | 242.0 | 28.0 | |
| Queue Delay | | | | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | | | 142.7 | | 66.4 | 67.5 | 111.2 | | 242.0 | 28.0 | |
| LOS | | | | F | | E | E | F | | F | C | |
| Approach Delay | | | | | 115.7 | | | 111.2 | | | 47.4 | |
| Approach LOS | | | | | F | | | F | | | D | |
| Queue Length 50th (ft) | | | | ~545 | | 460 | 4 | ~1414 | | ~284 | 848 | |
| Queue Length 95th (ft) | | | | #679 | | #674 | 17 | #1540 | | #458 | #1358 | |
| Internal Link Dist (ft) | | 189 | | | 1367 | | | 1635 | | | 1880 | |
| Turn Bay Length (ft) | | | | | | 50 | 100 | | | 450 | | |
| Base Capacity (vph) | | | | 770 | | 553 | 105 | 1989 | | 164 | 2422 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2023 Background AM

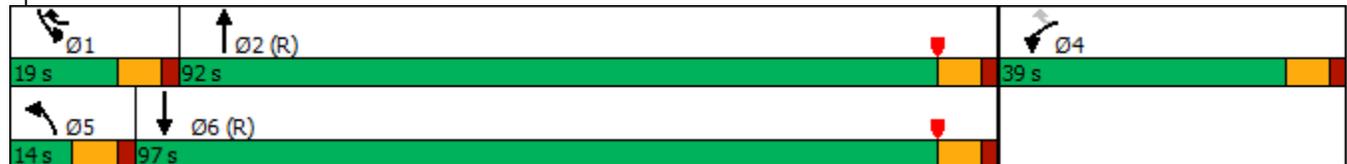


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|-----|-----|------|-----|------|------|------|-----|------|------|-----|
| Reduced v/c Ratio | | | | 1.18 | | 0.90 | 0.04 | 1.17 | | 1.35 | 0.92 | |

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.35
 Intersection Signal Delay: 86.9 Intersection LOS: F
 Intersection Capacity Utilization 105.3% ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: NC 51 & Fullwood Ln



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Background AM



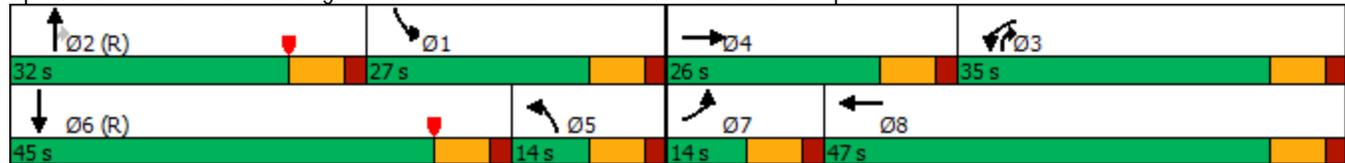
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 11 | 79 | 73 | 518 | 76 | 169 | 51 | 426 | 400 | 166 | 542 | 10 |
| Future Volume (vph) | 11 | 79 | 73 | 518 | 76 | 169 | 51 | 426 | 400 | 166 | 542 | 10 |
| Satd. Flow (prot) | 1770 | 1729 | 0 | 3433 | 1669 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1729 | 0 | 3433 | 1669 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 12 | 88 | 81 | 576 | 84 | 188 | 57 | 473 | 444 | 184 | 602 | 11 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 12 | 169 | 0 | 576 | 272 | 0 | 57 | 473 | 444 | 184 | 613 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 14.0 | | 14.0 | 14.0 | | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 26.0 | | 35.0 | 47.0 | | 14.0 | 32.0 | 35.0 | 27.0 | 45.0 | |
| Total Split (%) | 11.7% | 21.7% | | 29.2% | 39.2% | | 11.7% | 26.7% | 29.2% | 22.5% | 37.5% | |
| Maximum Green (s) | 7.0 | 19.0 | | 28.0 | 40.0 | | 7.0 | 25.0 | 28.0 | 20.0 | 38.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lead | | Lag | Lag | | Lag | Lead | Lag | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | None | Max | C-Max | |
| Act Effct Green (s) | 9.0 | 18.0 | | 27.9 | 45.3 | | 9.0 | 32.1 | 63.0 | 22.0 | 47.9 | |
| Actuated g/C Ratio | 0.08 | 0.15 | | 0.23 | 0.38 | | 0.08 | 0.27 | 0.52 | 0.18 | 0.40 | |
| v/c Ratio | 0.09 | 0.65 | | 0.72 | 0.43 | | 0.43 | 0.50 | 0.53 | 0.57 | 0.44 | |
| Control Delay | 53.5 | 59.8 | | 47.9 | 30.6 | | 64.1 | 30.5 | 12.0 | 52.4 | 29.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.5 | 59.8 | | 47.9 | 30.6 | | 64.1 | 30.5 | 12.0 | 52.4 | 29.7 | |
| LOS | D | E | | D | C | | E | C | B | D | C | |
| Approach Delay | | 59.4 | | | 42.3 | | | 24.0 | | | 34.9 | |
| Approach LOS | | E | | | D | | | C | | | C | |
| Queue Length 50th (ft) | 9 | 124 | | 203 | 131 | | 46 | 168 | 66 | 131 | 200 | |
| Queue Length 95th (ft) | 29 | 195 | | 270 | 245 | | m87 | 263 | 146 | 208 | 258 | |
| Internal Link Dist (ft) | | 480 | | | 453 | | | 1571 | | | 1095 | |
| Turn Bay Length (ft) | 100 | | | | | | 150 | | 100 | 300 | | |
| Base Capacity (vph) | 132 | 302 | | 869 | 638 | | 132 | 945 | 822 | 324 | 1407 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.09 | 0.56 | | 0.66 | 0.43 | | 0.43 | 0.50 | 0.54 | 0.57 | 0.44 | |

Intersection Summary

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Background AM

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 35.0 Intersection LOS: C
 Intersection Capacity Utilization 61.2% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

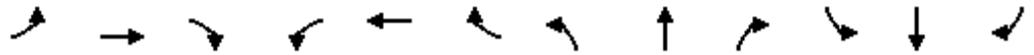


Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Background AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Lane Configurations | ↖ | ↗ | | ↖↗ | ↑ | ↖ | ↖ | ↑↑ | ↖ | ↖ | ↗↘ | |
| Traffic Volume (vph) | 4 | 4 | 4 | 519 | 4 | 284 | 4 | 593 | 536 | 375 | 758 | 4 |
| Future Volume (vph) | 4 | 4 | 4 | 519 | 4 | 284 | 4 | 593 | 536 | 375 | 758 | 4 |
| Satd. Flow (prot) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 4 | 577 | 4 | 316 | 4 | 659 | 596 | 417 | 842 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 4 | 8 | 0 | 577 | 4 | 316 | 4 | 659 | 596 | 417 | 846 | 0 |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 25.0 | | 14.0 | 14.0 | 14.0 | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 25.0 | | 29.0 | 40.0 | 36.0 | 14.0 | 30.0 | 29.0 | 36.0 | 52.0 | |
| Total Split (%) | 11.7% | 20.8% | | 24.2% | 33.3% | 30.0% | 11.7% | 25.0% | 24.2% | 30.0% | 43.3% | |
| Maximum Green (s) | 7.0 | 18.0 | | 22.0 | 33.0 | 29.0 | 7.0 | 23.0 | 22.0 | 29.0 | 45.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | -2.0 | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | C-Max | |
| Walk Time (s) | | 7.0 | | | | | | | | | | |
| Flash Dont Walk (s) | | 11.0 | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | 0 | | | | | | | | | | |
| Act Effct Green (s) | 9.0 | 9.1 | | 23.8 | 23.8 | 65.1 | 9.0 | 42.1 | 68.8 | 36.3 | 80.6 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.20 | 0.20 | 0.54 | 0.08 | 0.35 | 0.57 | 0.30 | 0.67 | |
| v/c Ratio | 0.03 | 0.06 | | 0.85 | 0.01 | 0.37 | 0.03 | 0.53 | 0.66 | 0.78 | 0.36 | |
| Control Delay | 52.2 | 52.7 | | 59.3 | 38.5 | 16.4 | 52.2 | 35.2 | 24.4 | 28.9 | 13.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 52.2 | 52.7 | | 59.3 | 38.5 | 16.4 | 52.2 | 35.2 | 24.4 | 28.9 | 13.2 | |
| LOS | D | D | | E | D | B | D | D | C | C | B | |
| Approach Delay | | 52.6 | | | 44.1 | | | 30.1 | | | 18.4 | |
| Approach LOS | | D | | | D | | | C | | | B | |
| Queue Length 50th (ft) | 3 | 6 | | 223 | 3 | 129 | 3 | 209 | 291 | 207 | 168 | |
| Queue Length 95th (ft) | 15 | 22 | | #308 | 13 | 175 | 15 | #366 | #630 | 416 | 416 | |
| Internal Link Dist (ft) | | 556 | | | 454 | | | 615 | | | 1571 | |
| Turn Bay Length (ft) | 150 | | | 200 | | 200 | 150 | | 100 | 150 | | |
| Base Capacity (vph) | 132 | 287 | | 686 | 543 | 866 | 132 | 1240 | 911 | 543 | 2374 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Background AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|------|------|-----|------|------|------|------|------|------|------|------|-----|
| Reduced v/c Ratio | 0.03 | 0.03 | | 0.84 | 0.01 | 0.36 | 0.03 | 0.53 | 0.65 | 0.77 | 0.36 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.85 | |
| Intersection Signal Delay: 29.5 | Intersection LOS: C |
| Intersection Capacity Utilization 74.0% | ICU Level of Service D |
| Analysis Period (min) 15 | |
| # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles. | |

Splits and Phases: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Background PM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 658 | 47 | 10 | 445 | 646 | 892 |
| Future Volume (vph) | 658 | 47 | 10 | 445 | 646 | 892 |
| Satd. Flow (prot) | 3434 | 0 | 1814 | 3628 | 1844 | 1567 |
| Flt Permitted | 0.955 | | 0.950 | | | |
| Satd. Flow (perm) | 3434 | 0 | 1814 | 3628 | 1844 | 1567 |
| Satd. Flow (RTOR) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 731 | 52 | 11 | 494 | 718 | 991 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 783 | 0 | 11 | 494 | 718 | 991 |
| Turn Type | Prot | | Prot | NA | NA | Free |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | | | | | Free |
| Detector Phase | 4 | | 5 | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 7.0 | | 7.0 | 10.0 | 10.0 | |
| Minimum Split (s) | 30.3 | | 14.3 | 17.0 | 28.0 | |
| Total Split (s) | 45.0 | | 15.0 | 105.0 | 90.0 | |
| Total Split (%) | 30.0% | | 10.0% | 70.0% | 60.0% | |
| Maximum Green (s) | 38.0 | | 8.0 | 98.0 | 83.0 | |
| Yellow Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 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 | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 2.0 | | 2.0 | 3.0 | 3.0 | |
| Recall Mode | None | | None | C-Max | C-Max | |
| Walk Time (s) | 7.0 | | | | 7.0 | |
| Flash Dont Walk (s) | 16.0 | | | | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | | | | 0 | |
| Act Effct Green (s) | 38.3 | | 9.0 | 101.7 | 96.1 | 150.0 |
| Actuated g/C Ratio | 0.26 | | 0.06 | 0.68 | 0.64 | 1.00 |
| v/c Ratio | 0.89 | | 0.10 | 0.20 | 0.61 | 0.63 |
| Control Delay | 67.2 | | 69.0 | 9.4 | 15.4 | 6.2 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 67.2 | | 69.0 | 9.4 | 15.4 | 6.2 |
| LOS | E | | E | A | B | A |
| Approach Delay | 67.2 | | | 10.7 | 10.0 | |
| Approach LOS | E | | | B | B | |
| Queue Length 50th (ft) | 377 | | 10 | 92 | 224 | 348 |
| Queue Length 95th (ft) | 459 | | 32 | 116 | 316 | 234 |
| Internal Link Dist (ft) | 1220 | | | 920 | 352 | |
| Turn Bay Length (ft) | 150 | | 150 | | | |
| Base Capacity (vph) | 915 | | 120 | 2459 | 1181 | 1567 |
| Starvation Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | | 0 | 0 | 0 | 0 |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Background PM

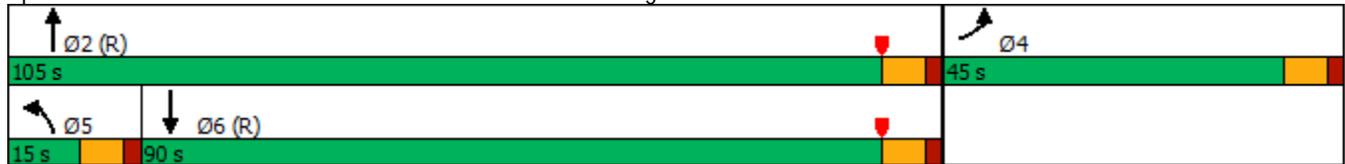


| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------|------|-----|------|------|------|------|
| Reduced v/c Ratio | 0.86 | | 0.09 | 0.20 | 0.61 | 0.63 |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Offset: 136 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.89 | |
| Intersection Signal Delay: 25.1 | Intersection LOS: C |
| Intersection Capacity Utilization 62.6% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Pleasant Plains Rd/S Trade St & Weddington Rd



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 2: S Trade St & Brenham Ln 2023 Background PM



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 8 | 1089 | 13 | 0 | 1538 |
| Future Volume (vph) | 0 | 8 | 1089 | 13 | 0 | 1538 |
| Satd. Flow (prot) | 1611 | 0 | 3532 | 0 | 0 | 3539 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1611 | 0 | 3532 | 0 | 0 | 3539 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 0 | 9 | 1210 | 14 | 0 | 1709 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 9 | 0 | 1224 | 0 | 0 | 1709 |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| |
|---|
| Control Type: Unsignalized |
| Intersection Capacity Utilization 52.5% ICU Level of Service A |
| Analysis Period (min) 15 |

HCM Unsignalized Intersection Capacity Analysis Weddington Road Multifamily Development TIA
 2: S Trade St & Brenham Ln 2023 Background PM



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 8 | 1089 | 13 | 0 | 1538 |
| Future Volume (Veh/h) | 0 | 8 | 1089 | 13 | 0 | 1538 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 9 | 1210 | 14 | 0 | 1709 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | None | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | 432 | | 1119 | |
| pX, platoon unblocked | 0.72 | 0.95 | | | 0.95 | |
| vC, conflicting volume | 2072 | 612 | | | 1224 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1405 | 491 | | | 1134 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 98 | | | 100 | |
| cM capacity (veh/h) | 94 | 498 | | | 582 | |
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 9 | 807 | 417 | 570 | 1139 | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | |
| Volume Right | 9 | 0 | 14 | 0 | 0 | |
| cSH | 498 | 1700 | 1700 | 582 | 1700 | |
| Volume to Capacity | 0.02 | 0.47 | 0.25 | 0.00 | 0.67 | |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | |
| Control Delay (s) | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 12.4 | 0.0 | | | 0.0 | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.0 | | | |
| Intersection Capacity Utilization | | | 52.5% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2023 Background PM



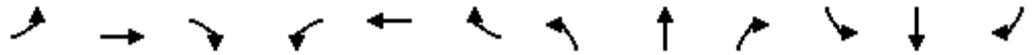
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗ | | ↕ | | ↗ | ↕↗ | | ↗ | ↕↗ | |
| Traffic Volume (vph) | 20 | 4 | 27 | 4 | 4 | 17 | 139 | 845 | 54 | 17 | 1506 | 106 |
| Future Volume (vph) | 20 | 4 | 27 | 4 | 4 | 17 | 139 | 845 | 54 | 17 | 1506 | 106 |
| Satd. Flow (prot) | 0 | 1751 | 1552 | 0 | 1657 | 0 | 1752 | 3472 | 0 | 1787 | 3539 | 0 |
| Flt Permitted | | 0.807 | | | 0.942 | | 0.950 | | | 0.287 | | |
| Satd. Flow (perm) | 0 | 1473 | 1552 | 0 | 1572 | 0 | 1752 | 3472 | 0 | 540 | 3539 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 30 | 4 | 4 | 19 | 154 | 939 | 60 | 19 | 1673 | 118 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 26 | 30 | 0 | 27 | 0 | 154 | 999 | 0 | 19 | 1791 | 0 |
| Turn Type | Perm | NA | pm+ov | Perm | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | | 4 | 5 | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | 6 | | |
| Detector Phase | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 15.4 | 15.4 | 14.9 | 15.4 | 15.4 | | 14.9 | 25.2 | | 23.2 | 23.2 | |
| Total Split (s) | 18.0 | 18.0 | 25.0 | 18.0 | 18.0 | | 25.0 | 132.0 | | 107.0 | 107.0 | |
| Total Split (%) | 12.0% | 12.0% | 16.7% | 12.0% | 12.0% | | 16.7% | 88.0% | | 71.3% | 71.3% | |
| Maximum Green (s) | 11.0 | 11.0 | 18.0 | 11.0 | 11.0 | | 18.0 | 125.0 | | 100.0 | 100.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | -2.0 | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lead/Lag | | | Lead | | | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 22.0 | 22.0 | | 17.0 | 17.0 | | | 11.0 | | 9.0 | 9.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 10.2 | 27.9 | | 10.2 | | 18.3 | 137.4 | | 112.1 | 112.1 | |
| Actuated g/C Ratio | | 0.07 | 0.19 | | 0.07 | | 0.12 | 0.92 | | 0.75 | 0.75 | |
| v/c Ratio | | 0.26 | 0.10 | | 0.25 | | 0.72 | 0.31 | | 0.05 | 0.68 | |
| Control Delay | | 72.4 | 46.3 | | 71.8 | | 88.7 | 0.8 | | 6.4 | 7.7 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | 72.4 | 46.3 | | 71.8 | | 88.7 | 0.8 | | 6.4 | 7.7 | |
| LOS | | E | D | | E | | F | A | | A | A | |
| Approach Delay | | 58.4 | | | 71.8 | | | 12.6 | | | 7.7 | |
| Approach LOS | | E | | | E | | | B | | | A | |
| Queue Length 50th (ft) | | 25 | 23 | | 26 | | 116 | 22 | | 3 | 306 | |
| Queue Length 95th (ft) | | 57 | 52 | | 59 | | m172 | 25 | | m10 | 360 | |
| Internal Link Dist (ft) | | 110 | | | 391 | | | 1039 | | | 1324 | |
| Turn Bay Length (ft) | | | | | | | 175 | | | 200 | | |
| Base Capacity (vph) | | 127 | 310 | | 136 | | 239 | 3181 | | 403 | 2645 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Background PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↔ | ↔↔ | ↔ | ↔ | | ↔↔ | ↑ | | | ↔↔ | |
| Traffic Volume (vph) | 96 | 4 | 795 | 4 | 4 | 4 | 465 | 453 | 4 | 4 | 530 | 56 |
| Future Volume (vph) | 96 | 4 | 795 | 4 | 4 | 4 | 465 | 453 | 4 | 4 | 530 | 56 |
| Satd. Flow (prot) | 0 | 1750 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3525 | 0 |
| Flt Permitted | | 0.954 | | 0.950 | | | 0.950 | | | | 0.952 | |
| Satd. Flow (perm) | 0 | 1750 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3355 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 107 | 4 | 883 | 4 | 4 | 4 | 517 | 503 | 4 | 4 | 589 | 62 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 111 | 883 | 4 | 8 | 0 | 517 | 507 | 0 | 0 | 655 | 0 |
| Turn Type | Split | NA | pt+ov | Split | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | 4 | 4 | 4 5 | 3 | 3 | | 5 | 2 | | | | 6 |
| Permitted Phases | | | | | | | | | | | 6 | |
| Detector Phase | 4 | 4 | 5 | 3 | 3 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 19.2 | 19.2 | | 19.3 | 19.3 | | 15.1 | 22.5 | | 41.5 | 41.5 | |
| Total Split (s) | 20.0 | 20.0 | | 20.0 | 20.0 | | 55.0 | 110.0 | | 55.0 | 55.0 | |
| Total Split (%) | 13.3% | 13.3% | | 13.3% | 13.3% | | 36.7% | 73.3% | | 36.7% | 36.7% | |
| Maximum Green (s) | 13.0 | 13.0 | | 13.0 | 13.0 | | 48.0 | 103.0 | | 48.0 | 48.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | | | -2.0 | |
| Total Lost Time (s) | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | | 5.0 | |
| Lead/Lag | Lag | Lag | | Lead | Lead | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 5.0 | 5.0 | | 4.0 | 4.0 | | | 8.0 | | 27.0 | 27.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 15.8 | 56.4 | 9.0 | 9.0 | | 35.6 | 118.6 | | | 78.0 | |
| Actuated g/C Ratio | | 0.11 | 0.38 | 0.06 | 0.06 | | 0.24 | 0.79 | | | 0.52 | |
| v/c Ratio | | 0.60 | 0.86 | 0.04 | 0.08 | | 0.64 | 0.35 | | | 0.38 | |
| Control Delay | | 77.2 | 51.6 | 67.2 | 68.4 | | 39.9 | 5.5 | | | 24.9 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | | 77.2 | 51.6 | 67.2 | 68.4 | | 39.9 | 5.5 | | | 24.9 | |
| LOS | | E | D | E | E | | D | A | | | C | |
| Approach Delay | | 54.5 | | | 68.0 | | | 22.9 | | | 24.9 | |
| Approach LOS | | D | | | E | | | C | | | C | |
| Queue Length 50th (ft) | | 105 | 471 | 4 | 8 | | 168 | 41 | | | 167 | |
| Queue Length 95th (ft) | | 167 | 480 | 17 | 27 | | 221 | 437 | | | 315 | |
| Internal Link Dist (ft) | | 1517 | | | 314 | | | 1324 | | | 1327 | |
| Turn Bay Length (ft) | | | 400 | 50 | | | 300 | | | | | |
| Base Capacity (vph) | | 198 | 1295 | 180 | 175 | | 1133 | 1456 | | | 1744 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Background PM

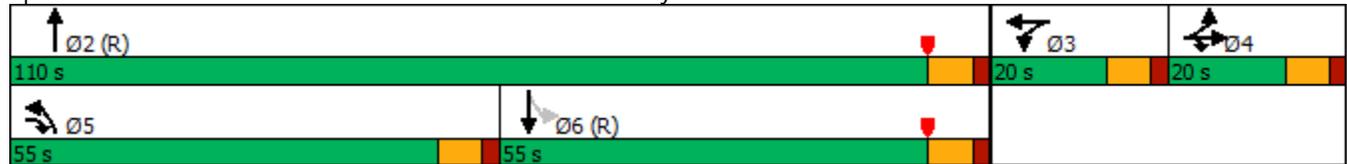


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|------|------|-----|------|------|-----|-----|------|-----|
| Reduced v/c Ratio | | 0.56 | 0.68 | 0.02 | 0.05 | | 0.46 | 0.35 | | | 0.38 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Offset: 16 (11%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.86 | |
| Intersection Signal Delay: 35.3 | Intersection LOS: D |
| Intersection Capacity Utilization 65.3% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 4: S Trade St & Fullwood Ln/Church Driveway



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2023 Background PM

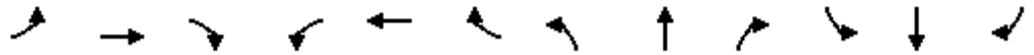


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|-------|------|-------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | ↔↔ | | ↗ | ↖ | ↕↔ | | ↖ | ↕↕ | |
| Traffic Volume (vph) | 0 | 0 | 0 | 336 | 0 | 274 | 4 | 1731 | 688 | 474 | 1809 | 4 |
| Future Volume (vph) | 0 | 0 | 0 | 336 | 0 | 274 | 4 | 1731 | 688 | 474 | 1809 | 4 |
| Satd. Flow (prot) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3370 | 0 | 1761 | 3522 | 0 |
| Flt Permitted | | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3370 | 0 | 1761 | 3522 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 0 | 373 | 0 | 304 | 4 | 1923 | 764 | 527 | 2010 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 373 | 0 | 304 | 4 | 2687 | 0 | 527 | 2014 | 0 |
| Turn Type | | | | Prot | | pm+ov | Prot | NA | | Prot | NA | |
| Protected Phases | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 4 | | | | | | |
| Detector Phase | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | | 7.0 | | 7.0 | 7.0 | 12.0 | | 7.0 | 12.0 | |
| Minimum Split (s) | | | | 15.3 | | 14.8 | 14.0 | 19.0 | | 14.8 | 19.0 | |
| Total Split (s) | | | | 21.0 | | 34.0 | 14.0 | 95.0 | | 34.0 | 115.0 | |
| Total Split (%) | | | | 14.0% | | 22.7% | 9.3% | 63.3% | | 22.7% | 76.7% | |
| Maximum Green (s) | | | | 14.0 | | 27.0 | 7.0 | 88.0 | | 27.0 | 108.0 | |
| Yellow Time (s) | | | | 5.0 | | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | | | | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | | | -2.0 | | -2.0 | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | | | 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 | | 2.0 | 3.0 | 6.0 | | 2.0 | 6.0 | |
| Minimum Gap (s) | | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Time Before Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 15.0 | | 0.0 | 15.0 | |
| Time To Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 30.0 | | 0.0 | 30.0 | |
| Recall Mode | | | | None | | None | None | C-Max | | None | C-Max | |
| Act Effct Green (s) | | | | 16.0 | | 50.0 | 9.0 | 90.0 | | 29.0 | 121.2 | |
| Actuated g/C Ratio | | | | 0.11 | | 0.33 | 0.06 | 0.60 | | 0.19 | 0.81 | |
| v/c Ratio | | | | 1.03 | | 0.58 | 0.04 | 1.33 | | 1.55 | 0.71 | |
| Control Delay | | | | 119.1 | | 46.8 | 67.5 | 179.7 | | 300.5 | 8.9 | |
| Queue Delay | | | | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | | | 119.1 | | 46.8 | 67.5 | 179.7 | | 300.5 | 8.9 | |
| LOS | | | | F | | D | E | F | | F | A | |
| Approach Delay | | | | | 86.7 | | | 179.5 | | | 69.4 | |
| Approach LOS | | | | | F | | | F | | | E | |
| Queue Length 50th (ft) | | | | ~200 | | 246 | 4 | ~1789 | | ~724 | 344 | |
| Queue Length 95th (ft) | | | | #308 | | 352 | 17 | #1904 | | #955 | 677 | |
| Internal Link Dist (ft) | | 189 | | | 1367 | | | 1635 | | | 1880 | |
| Turn Bay Length (ft) | | | | | | 50 | 100 | | | 450 | | |
| Base Capacity (vph) | | | | 362 | | 522 | 105 | 2022 | | 340 | 2845 | |
| 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 | |

Lanes, Volumes, Timings
5: NC 51 & Fullwood Ln

S Trade Street at Weddington Road Multifamily Development TIA

2023 Background PM

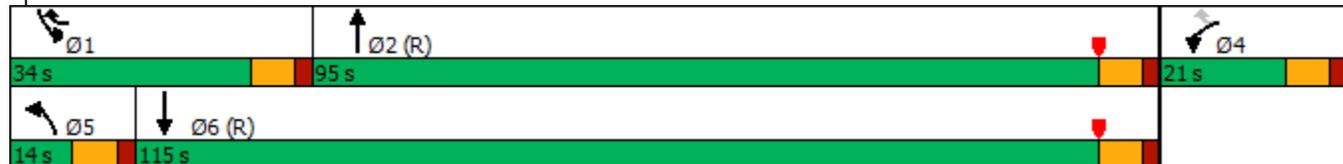


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|-----|-----|------|-----|------|------|------|-----|------|------|-----|
| Reduced v/c Ratio | | | | 1.03 | | 0.58 | 0.04 | 1.33 | | 1.55 | 0.71 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.55 | |
| Intersection Signal Delay: 121.5 | Intersection LOS: F |
| Intersection Capacity Utilization 117.4% | ICU Level of Service H |
| Analysis Period (min) 15 | |
| ~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles. | |
| # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles. | |

Splits and Phases: 5: NC 51 & Fullwood Ln



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Background PM



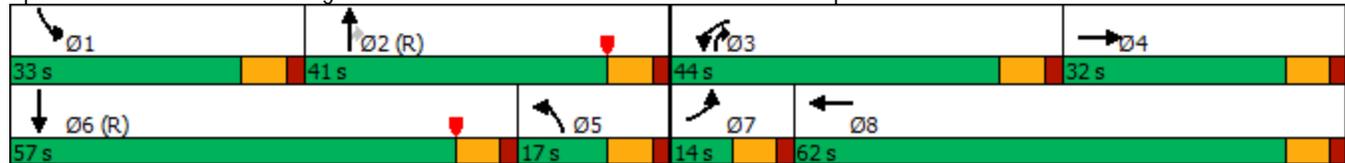
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 12 | 90 | 83 | 591 | 87 | 193 | 59 | 486 | 457 | 190 | 619 | 11 |
| Future Volume (vph) | 12 | 90 | 83 | 591 | 87 | 193 | 59 | 486 | 457 | 190 | 619 | 11 |
| Satd. Flow (prot) | 1770 | 1729 | 0 | 3433 | 1671 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1729 | 0 | 3433 | 1671 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 13 | 100 | 92 | 657 | 97 | 214 | 66 | 540 | 508 | 211 | 688 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 13 | 192 | 0 | 657 | 311 | 0 | 66 | 540 | 508 | 211 | 700 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 14.0 | | 14.0 | 14.0 | | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 32.0 | | 44.0 | 62.0 | | 17.0 | 41.0 | 44.0 | 33.0 | 57.0 | |
| Total Split (%) | 9.3% | 21.3% | | 29.3% | 41.3% | | 11.3% | 27.3% | 29.3% | 22.0% | 38.0% | |
| Maximum Green (s) | 7.0 | 25.0 | | 37.0 | 55.0 | | 10.0 | 34.0 | 37.0 | 26.0 | 50.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lag | Lag | Lead | Lead | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | None | Max | C-Max | |
| Act Effct Green (s) | 9.0 | 23.0 | | 35.9 | 58.3 | | 11.4 | 36.0 | 74.9 | 35.1 | 62.5 | |
| Actuated g/C Ratio | 0.06 | 0.15 | | 0.24 | 0.39 | | 0.08 | 0.24 | 0.50 | 0.23 | 0.42 | |
| v/c Ratio | 0.12 | 0.73 | | 0.80 | 0.48 | | 0.49 | 0.64 | 0.64 | 0.51 | 0.48 | |
| Control Delay | 69.7 | 76.1 | | 61.5 | 37.4 | | 63.4 | 40.5 | 17.2 | 57.2 | 35.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 69.7 | 76.1 | | 61.5 | 37.4 | | 63.4 | 40.5 | 17.2 | 57.2 | 35.6 | |
| LOS | E | E | | E | D | | E | D | B | E | D | |
| Approach Delay | | 75.7 | | | 53.7 | | | 31.2 | | | 40.6 | |
| Approach LOS | | E | | | D | | | C | | | D | |
| Queue Length 50th (ft) | 12 | 180 | | 310 | 207 | | 63 | 176 | 387 | 185 | 277 | |
| Queue Length 95th (ft) | 36 | 265 | | 378 | 326 | | m90 | 207 | 164 | 285 | 360 | |
| Internal Link Dist (ft) | | 480 | | | 453 | | | 1571 | | | 1095 | |
| Turn Bay Length (ft) | 100 | | | | | | 150 | | 100 | 300 | | |
| Base Capacity (vph) | 106 | 311 | | 892 | 662 | | 141 | 849 | 823 | 414 | 1470 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.12 | 0.62 | | 0.74 | 0.47 | | 0.47 | 0.64 | 0.62 | 0.51 | 0.48 | |

Intersection Summary

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Background PM

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 2 (1%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 43.6 Intersection LOS: D
 Intersection Capacity Utilization 67.3% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

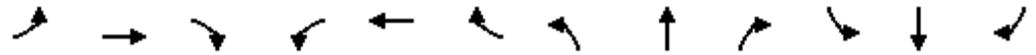


Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Background PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Lane Configurations | ↖ | ↗ | | ↖↗ | ↑ | ↖ | ↖ | ↑↑ | ↖ | ↖ | ↗↘ | ↗↘ |
| Traffic Volume (vph) | 4 | 4 | 4 | 593 | 4 | 324 | 4 | 678 | 612 | 427 | 866 | 4 |
| Future Volume (vph) | 4 | 4 | 4 | 593 | 4 | 324 | 4 | 678 | 612 | 427 | 866 | 4 |
| Satd. Flow (prot) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 4 | 659 | 4 | 360 | 4 | 753 | 680 | 474 | 962 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 4 | 8 | 0 | 659 | 4 | 360 | 4 | 753 | 680 | 474 | 966 | 0 |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 25.0 | | 14.0 | 14.0 | 14.0 | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 25.0 | | 38.0 | 49.0 | 47.0 | 14.0 | 40.0 | 38.0 | 47.0 | 73.0 | |
| Total Split (%) | 9.3% | 16.7% | | 25.3% | 32.7% | 31.3% | 9.3% | 26.7% | 25.3% | 31.3% | 48.7% | |
| Maximum Green (s) | 7.0 | 18.0 | | 31.0 | 42.0 | 40.0 | 7.0 | 33.0 | 31.0 | 40.0 | 66.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | -2.0 | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | C-Max | |
| Walk Time (s) | | 7.0 | | | | | | | | | | |
| Flash Dont Walk (s) | | 11.0 | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | 0 | | | | | | | | | | |
| Act Effct Green (s) | 9.0 | 9.1 | | 32.5 | 32.6 | 86.3 | 9.0 | 50.9 | 86.4 | 48.7 | 101.8 | |
| Actuated g/C Ratio | 0.06 | 0.06 | | 0.22 | 0.22 | 0.58 | 0.06 | 0.34 | 0.58 | 0.32 | 0.68 | |
| v/c Ratio | 0.04 | 0.08 | | 0.89 | 0.01 | 0.40 | 0.04 | 0.63 | 0.75 | 0.83 | 0.40 | |
| Control Delay | 67.5 | 68.0 | | 71.7 | 45.8 | 18.5 | 67.5 | 45.8 | 31.7 | 49.5 | 10.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 67.5 | 68.0 | | 71.7 | 45.8 | 18.5 | 67.5 | 45.8 | 31.7 | 49.5 | 10.1 | |
| LOS | E | E | | E | D | B | E | D | C | D | B | |
| Approach Delay | | 67.8 | | | 52.9 | | | 39.2 | | | 23.1 | |
| Approach LOS | | E | | | D | | | D | | | C | |
| Queue Length 50th (ft) | 4 | 8 | | 324 | 3 | 180 | 4 | 323 | 468 | 327 | 60 | |
| Queue Length 95th (ft) | 17 | 27 | | #419 | 14 | 240 | 17 | #495 | #865 | 592 | 422 | |
| Internal Link Dist (ft) | | 556 | | | 454 | | | 615 | | | 1571 | |
| Turn Bay Length (ft) | 150 | | | 200 | | 200 | 150 | | 100 | 150 | | |
| Base Capacity (vph) | 106 | 229 | | 755 | 546 | 912 | 106 | 1201 | 917 | 576 | 2399 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Background PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|------|------|-----|------|------|------|------|------|------|------|------|-----|
| Reduced v/c Ratio | 0.04 | 0.03 | | 0.87 | 0.01 | 0.39 | 0.04 | 0.63 | 0.74 | 0.82 | 0.40 | |

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 36.9 Intersection LOS: D
 Intersection Capacity Utilization 81.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps



2023 BUILD CAPACITY ANALYSIS OUTPUTS

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Build AM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 861 | 10 | 17 | 1030 | 182 | 428 |
| Future Volume (vph) | 861 | 10 | 17 | 1030 | 182 | 428 |
| Satd. Flow (prot) | 3454 | 0 | 1814 | 3628 | 1844 | 1567 |
| Flt Permitted | 0.953 | | 0.950 | | | |
| Satd. Flow (perm) | 3454 | 0 | 1814 | 3628 | 1844 | 1567 |
| Satd. Flow (RTOR) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 957 | 11 | 19 | 1144 | 202 | 476 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 968 | 0 | 19 | 1144 | 202 | 476 |
| Turn Type | Prot | | Prot | NA | NA | Free |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | | | | | Free |
| Detector Phase | 4 | | 5 | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 7.0 | | 7.0 | 10.0 | 10.0 | |
| Minimum Split (s) | 30.3 | | 14.3 | 17.0 | 28.0 | |
| Total Split (s) | 54.0 | | 15.0 | 76.0 | 61.0 | |
| Total Split (%) | 41.5% | | 11.5% | 58.5% | 46.9% | |
| Maximum Green (s) | 47.0 | | 8.0 | 69.0 | 54.0 | |
| Yellow Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 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 | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 2.0 | | 2.0 | 3.0 | 3.0 | |
| Recall Mode | None | | None | C-Max | C-Max | |
| Walk Time (s) | 7.0 | | | | 7.0 | |
| Flash Dont Walk (s) | 16.0 | | | | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | | | | 0 | |
| Act Effct Green (s) | 43.2 | | 9.2 | 76.8 | 71.0 | 130.0 |
| Actuated g/C Ratio | 0.33 | | 0.07 | 0.59 | 0.55 | 1.00 |
| v/c Ratio | 0.84 | | 0.15 | 0.53 | 0.20 | 0.30 |
| Control Delay | 47.5 | | 59.5 | 17.7 | 15.0 | 0.9 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.5 | | 59.5 | 17.7 | 15.0 | 0.9 |
| LOS | D | | E | B | B | A |
| Approach Delay | 47.5 | | | 18.4 | 5.1 | |
| Approach LOS | D | | | B | A | |
| Queue Length 50th (ft) | 385 | | 15 | 293 | 35 | 4 |
| Queue Length 95th (ft) | 441 | | 42 | 388 | 125 | 7 |
| Internal Link Dist (ft) | 856 | | | 920 | 352 | |
| Turn Bay Length (ft) | 150 | | 150 | | | |
| Base Capacity (vph) | 1301 | | 139 | 2142 | 1007 | 1567 |
| Starvation Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | | 0 | 0 | 0 | 0 |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Build AM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------|------|-----|------|------|------|------|
| Reduced v/c Ratio | 0.74 | | 0.14 | 0.53 | 0.20 | 0.30 |

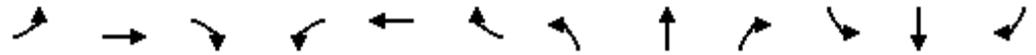
Intersection Summary

| | |
|--|------------------------|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 7 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.84 | |
| Intersection Signal Delay: 25.2 | Intersection LOS: C |
| Intersection Capacity Utilization 61.7% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Pleasant Plains Rd/S Trade St & Weddington Rd



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 2: S Trade St & Site Access A/Brenham Ln 2023 Build AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 10 | 0 | 0 | 22 | 0 | 1884 | 8 | 0 | 601 | 6 |
| Future Volume (vph) | 0 | 0 | 10 | 0 | 0 | 22 | 0 | 1884 | 8 | 0 | 601 | 6 |
| Satd. Flow (prot) | 0 | 0 | 1611 | 0 | 0 | 1611 | 0 | 3536 | 0 | 0 | 3532 | 0 |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1611 | 0 | 0 | 1611 | 0 | 3536 | 0 | 0 | 3532 | 0 |
| 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 | 11 | 0 | 0 | 24 | 0 | 2093 | 9 | 0 | 668 | 7 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 11 | 0 | 0 | 24 | 0 | 2102 | 0 | 0 | 675 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

Intersection Summary

Control Type: Unsignalized
 Intersection Capacity Utilization 62.3% ICU Level of Service B
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis Weddington Road Multifamily Development TIA
 2: S Trade St & Site Access A/Brenham Ln 2023 Build AM



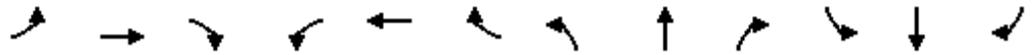
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|------|-------|----------------------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | ↗ | | | ↗ | | ↕↗ | | | ↕↗ | |
| Traffic Volume (veh/h) | 0 | 0 | 10 | 0 | 0 | 22 | 0 | 1884 | 8 | 0 | 601 | 6 |
| Future Volume (Veh/h) | 0 | 0 | 10 | 0 | 0 | 22 | 0 | 1884 | 8 | 0 | 601 | 6 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 0 | 11 | 0 | 0 | 24 | 0 | 2093 | 9 | 0 | 668 | 7 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | | | | |
| Median storage veh | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | 0.81 | 0.81 | 0.98 | 0.81 | 0.81 | 0.81 | 0.98 | | | 0.81 | | |
| vC, conflicting volume | 1742 | 2774 | 338 | 2442 | 2772 | 1051 | 675 | | | 2102 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1361 | 2628 | 291 | 2221 | 2626 | 582 | 635 | | | 1886 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 98 | 100 | 100 | 93 | 100 | | | 100 | | |
| cM capacity (veh/h) | 81 | 19 | 693 | 19 | 19 | 368 | 928 | | | 253 | | |
| Direction, Lane # | | | | | | | | | | | | |
| | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | | | | | | |
| Volume Total | 11 | 24 | 1395 | 707 | 445 | 230 | | | | | | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| Volume Right | 11 | 24 | 0 | 9 | 0 | 7 | | | | | | |
| cSH | 693 | 368 | 1700 | 1700 | 1700 | 1700 | | | | | | |
| Volume to Capacity | 0.02 | 0.07 | 0.82 | 0.42 | 0.26 | 0.14 | | | | | | |
| Queue Length 95th (ft) | 1 | 5 | 0 | 0 | 0 | 0 | | | | | | |
| Control Delay (s) | 10.3 | 15.5 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | |
| Lane LOS | B | C | | | | | | | | | | |
| Approach Delay (s) | 10.3 | 15.5 | 0.0 | 0.0 | | | | | | | | |
| Approach LOS | B | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.2 | | | | | | | | | |
| Intersection Capacity Utilization | | | 62.3% | ICU Level of Service | | | | B | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2023 Build AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗ | | ↔ | | ↖ | ↕↔ | | ↖ | ↕↔ | |
| Traffic Volume (vph) | 4 | 4 | 4 | 4 | 4 | 29 | 4 | 2023 | 4 | 4 | 604 | 4 |
| Future Volume (vph) | 4 | 4 | 4 | 4 | 4 | 29 | 4 | 2023 | 4 | 4 | 604 | 4 |
| Satd. Flow (prot) | 0 | 1782 | 1552 | 0 | 1637 | 0 | 1752 | 3504 | 0 | 1787 | 3571 | 0 |
| Flt Permitted | | 0.881 | | | 0.963 | | 0.950 | | | 0.063 | | |
| Satd. Flow (perm) | 0 | 1608 | 1552 | 0 | 1584 | 0 | 1752 | 3504 | 0 | 119 | 3571 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 4 | 4 | 4 | 32 | 4 | 2248 | 4 | 4 | 671 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 8 | 4 | 0 | 40 | 0 | 4 | 2252 | 0 | 4 | 675 | 0 |
| Turn Type | Perm | NA | pm+ov | Perm | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | | 4 | 5 | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | 6 | | |
| Detector Phase | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 15.4 | 15.4 | 14.9 | 15.4 | 15.4 | | 14.9 | 25.2 | | 23.2 | 23.2 | |
| Total Split (s) | 16.0 | 16.0 | 15.0 | 16.0 | 16.0 | | 15.0 | 114.0 | | 99.0 | 99.0 | |
| Total Split (%) | 12.3% | 12.3% | 11.5% | 12.3% | 12.3% | | 11.5% | 87.7% | | 76.2% | 76.2% | |
| Maximum Green (s) | 9.0 | 9.0 | 8.0 | 9.0 | 9.0 | | 8.0 | 107.0 | | 92.0 | 92.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | -2.0 | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lead/Lag | | | Lead | | | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 22.0 | 22.0 | | 17.0 | 17.0 | | | 11.0 | | 9.0 | 9.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 9.9 | 21.1 | | 9.9 | | 9.0 | 113.9 | | 111.1 | 111.1 | |
| Actuated g/C Ratio | | 0.08 | 0.16 | | 0.08 | | 0.07 | 0.88 | | 0.85 | 0.85 | |
| v/c Ratio | | 0.07 | 0.02 | | 0.33 | | 0.03 | 0.73 | | 0.04 | 0.22 | |
| Control Delay | | 56.4 | 43.0 | | 64.3 | | 65.8 | 3.0 | | 2.5 | 1.3 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | 56.4 | 43.0 | | 64.3 | | 65.8 | 3.0 | | 2.5 | 1.3 | |
| LOS | | E | D | | E | | E | A | | A | A | |
| Approach Delay | | 52.0 | | | 64.3 | | | 3.1 | | | 1.3 | |
| Approach LOS | | D | | | E | | | A | | | A | |
| Queue Length 50th (ft) | | 6 | 3 | | 33 | | 3 | 103 | | 0 | 17 | |
| Queue Length 95th (ft) | | 23 | 13 | | 71 | | m6 | 125 | | m1 | 45 | |
| Internal Link Dist (ft) | | 110 | | | 391 | | | 1039 | | | 1324 | |
| Turn Bay Length (ft) | | | | | | | 175 | | | 200 | | |
| Base Capacity (vph) | | 136 | 264 | | 134 | | 134 | 3068 | | 101 | 3050 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2023 Build AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|-----|-----|------|-----|------|------|-----|------|------|
| Reduced v/c Ratio | | 0.06 | 0.02 | | | 0.30 | | 0.03 | 0.73 | | 0.04 | 0.22 |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 4 (3%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow | |
| Natural Cycle: 70 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.73 | |
| Intersection Signal Delay: 3.7 | Intersection LOS: A |
| Intersection Capacity Utilization 70.2% | ICU Level of Service C |
| Analysis Period (min) 15 | |

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

Splits and Phases: 3: S Trade St & Park Entrance/Chesney Glen Dr

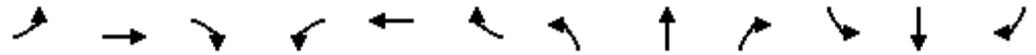
| | |
|-------------------|------|
| ↑ Ø2 (R) | ↔ Ø4 |
| 114 s | 16 s |
| ↙ Ø5 ↓ Ø6 (R) | ↔ Ø8 |
| 15 s 99 s | 16 s |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Build AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗↘ | ↖↗ | ↖ | | ↖↗ | ↕ | | | ↕↗ | |
| Traffic Volume (vph) | 46 | 4 | 285 | 4 | 4 | 4 | 1242 | 551 | 4 | 4 | 325 | 123 |
| Future Volume (vph) | 46 | 4 | 285 | 4 | 4 | 4 | 1242 | 551 | 4 | 4 | 325 | 123 |
| Satd. Flow (prot) | 0 | 1754 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3428 | 0 |
| Flt Permitted | | 0.956 | | 0.950 | | | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1754 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3257 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 51 | 4 | 317 | 4 | 4 | 4 | 1380 | 612 | 4 | 4 | 361 | 137 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 55 | 317 | 4 | 8 | 0 | 1380 | 616 | 0 | 0 | 502 | 0 |
| Turn Type | Split | NA | pt+ov | Split | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | 4 | 4 | 4 5 | 3 | 3 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | | | | | | 6 | |
| Detector Phase | 4 | 4 | 5 | 3 | 3 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 19.2 | 19.2 | | 19.3 | 19.3 | | 15.1 | 22.5 | | 41.5 | 41.5 | |
| Total Split (s) | 20.0 | 20.0 | | 20.0 | 20.0 | | 48.0 | 90.0 | | 42.0 | 42.0 | |
| Total Split (%) | 15.4% | 15.4% | | 15.4% | 15.4% | | 36.9% | 69.2% | | 32.3% | 32.3% | |
| Maximum Green (s) | 13.0 | 13.0 | | 13.0 | 13.0 | | 41.0 | 83.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | | | -2.0 | |
| Total Lost Time (s) | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | | 5.0 | |
| Lead/Lag | Lag | Lag | | Lead | Lead | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 5.0 | 5.0 | | 4.0 | 4.0 | | | 8.0 | | 27.0 | 27.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 10.9 | 77.4 | 9.0 | 9.0 | | 64.3 | 107.3 | | | 37.0 | |
| Actuated g/C Ratio | | 0.08 | 0.60 | 0.07 | 0.07 | | 0.49 | 0.83 | | | 0.28 | |
| v/c Ratio | | 0.37 | 0.19 | 0.03 | 0.07 | | 0.82 | 0.41 | | | 0.54 | |
| Control Delay | | 63.1 | 13.4 | 57.2 | 58.0 | | 26.2 | 6.9 | | | 41.9 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | | 63.1 | 13.4 | 57.2 | 58.0 | | 26.2 | 6.9 | | | 41.9 | |
| LOS | | E | B | E | E | | C | A | | | D | |
| Approach Delay | | 20.8 | | | 57.8 | | | 20.2 | | | 41.9 | |
| Approach LOS | | C | | | E | | | C | | | D | |
| Queue Length 50th (ft) | | 45 | 57 | 3 | 6 | | 410 | 128 | | | 188 | |
| Queue Length 95th (ft) | | 87 | 109 | 15 | 24 | | #789 | 320 | | | 246 | |
| Internal Link Dist (ft) | | 1517 | | | 314 | | | 1324 | | | 1327 | |
| Turn Bay Length (ft) | | | 400 | 50 | | | 300 | | | | | |
| Base Capacity (vph) | | 202 | 1634 | 208 | 202 | | 1681 | 1520 | | | 926 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Build AM

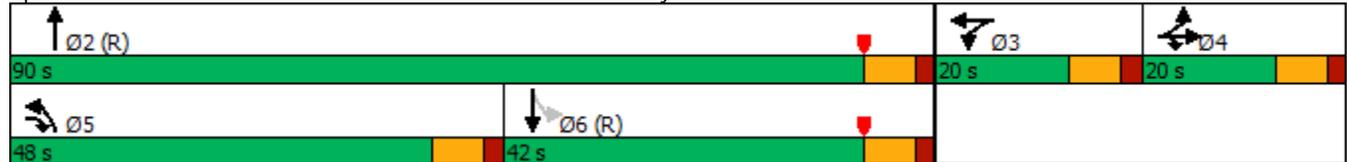


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|------|------|-----|------|------|-----|-----|------|-----|
| Reduced v/c Ratio | | 0.27 | 0.19 | 0.02 | 0.04 | | 0.82 | 0.41 | | | 0.54 | |

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 64 (49%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 24.2 Intersection LOS: C
 Intersection Capacity Utilization 70.4% ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: S Trade St & Fullwood Ln/Church Driveway



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2023 Build AM

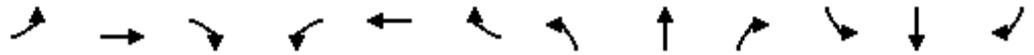


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|-------|-------|-------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | ↔↔ | | ↗ | ↖ | ↕↔ | | ↖ | ↕↕ | |
| Traffic Volume (vph) | 0 | 0 | 0 | 823 | 0 | 454 | 4 | 1720 | 370 | 202 | 2006 | 4 |
| Future Volume (vph) | 0 | 0 | 0 | 823 | 0 | 454 | 4 | 1720 | 370 | 202 | 2006 | 4 |
| Satd. Flow (prot) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3426 | 0 | 1761 | 3522 | 0 |
| Flt Permitted | | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3426 | 0 | 1761 | 3522 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 0 | 914 | 0 | 504 | 4 | 1911 | 411 | 224 | 2229 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 914 | 0 | 504 | 4 | 2322 | 0 | 224 | 2233 | 0 |
| Turn Type | | | | Prot | | pm+ov | Prot | NA | | Prot | NA | |
| Protected Phases | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 4 | | | | | | |
| Detector Phase | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | | 7.0 | | 7.0 | 7.0 | 12.0 | | 7.0 | 12.0 | |
| Minimum Split (s) | | | | 15.3 | | 14.8 | 14.0 | 19.0 | | 14.8 | 19.0 | |
| Total Split (s) | | | | 39.0 | | 19.0 | 14.0 | 92.0 | | 19.0 | 97.0 | |
| Total Split (%) | | | | 26.0% | | 12.7% | 9.3% | 61.3% | | 12.7% | 64.7% | |
| Maximum Green (s) | | | | 32.0 | | 12.0 | 7.0 | 85.0 | | 12.0 | 90.0 | |
| Yellow Time (s) | | | | 5.0 | | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | | | | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | | | -2.0 | | -2.0 | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | | | 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 | | 2.0 | 3.0 | 6.0 | | 2.0 | 6.0 | |
| Minimum Gap (s) | | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Time Before Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 15.0 | | 0.0 | 15.0 | |
| Time To Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 30.0 | | 0.0 | 30.0 | |
| Recall Mode | | | | None | | None | None | C-Max | | None | C-Max | |
| Act Effct Green (s) | | | | 34.0 | | 53.0 | 9.0 | 87.0 | | 14.0 | 103.2 | |
| Actuated g/C Ratio | | | | 0.23 | | 0.35 | 0.06 | 0.58 | | 0.09 | 0.69 | |
| v/c Ratio | | | | 1.19 | | 0.91 | 0.04 | 1.17 | | 1.37 | 0.92 | |
| Control Delay | | | | 146.0 | | 68.2 | 67.5 | 112.2 | | 246.5 | 28.0 | |
| Queue Delay | | | | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | | | 146.0 | | 68.2 | 67.5 | 112.2 | | 246.5 | 28.0 | |
| LOS | | | | F | | E | E | F | | F | C | |
| Approach Delay | | | | | 118.4 | | | 112.1 | | | 47.9 | |
| Approach LOS | | | | | F | | | F | | | D | |
| Queue Length 50th (ft) | | | | ~553 | | 470 | 4 | ~1418 | | ~288 | 848 | |
| Queue Length 95th (ft) | | | | #686 | | #690 | 17 | #1543 | | #464 | #1358 | |
| Internal Link Dist (ft) | | 189 | | | 1367 | | | 1635 | | | 1880 | |
| Turn Bay Length (ft) | | | | | | 50 | 100 | | | 450 | | |
| Base Capacity (vph) | | | | 770 | | 553 | 105 | 1987 | | 164 | 2422 | |
| 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 | |

Lanes, Volumes, Timings
5: NC 51 & Fullwood Ln

S Trade Street at Weddington Road Multifamily Development TIA

2023 Build AM

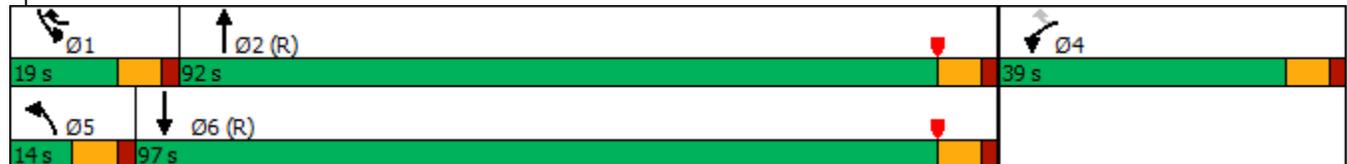


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|-----|-----|------|-----|------|------|------|-----|------|------|-----|
| Reduced v/c Ratio | | | | 1.19 | | 0.91 | 0.04 | 1.17 | | 1.37 | 0.92 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.37 | |
| Intersection Signal Delay: 88.1 | Intersection LOS: F |
| Intersection Capacity Utilization 105.7% | ICU Level of Service G |
| Analysis Period (min) 15 | |
| ~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles. | |
| # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles. | |

Splits and Phases: 5: NC 51 & Fullwood Ln



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Build AM



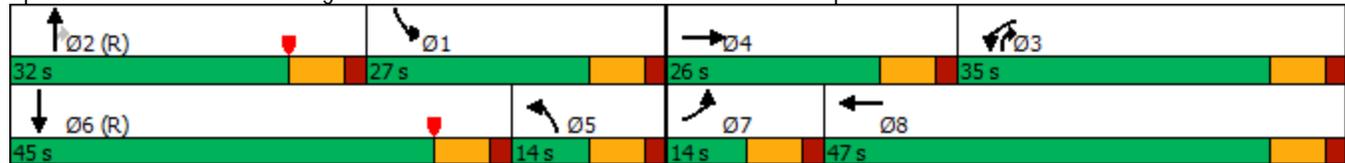
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 11 | 79 | 73 | 518 | 76 | 170 | 51 | 429 | 400 | 173 | 549 | 10 |
| Future Volume (vph) | 11 | 79 | 73 | 518 | 76 | 170 | 51 | 429 | 400 | 173 | 549 | 10 |
| Satd. Flow (prot) | 1770 | 1729 | 0 | 3433 | 1669 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1729 | 0 | 3433 | 1669 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 12 | 88 | 81 | 576 | 84 | 189 | 57 | 477 | 444 | 192 | 610 | 11 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 12 | 169 | 0 | 576 | 273 | 0 | 57 | 477 | 444 | 192 | 621 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 14.0 | | 14.0 | 14.0 | | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 26.0 | | 35.0 | 47.0 | | 14.0 | 32.0 | 35.0 | 27.0 | 45.0 | |
| Total Split (%) | 11.7% | 21.7% | | 29.2% | 39.2% | | 11.7% | 26.7% | 29.2% | 22.5% | 37.5% | |
| Maximum Green (s) | 7.0 | 19.0 | | 28.0 | 40.0 | | 7.0 | 25.0 | 28.0 | 20.0 | 38.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lead | | Lag | Lag | | Lag | Lead | Lag | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | None | Max | C-Max | |
| Act Effct Green (s) | 9.0 | 18.0 | | 27.9 | 45.3 | | 9.0 | 32.1 | 63.0 | 22.0 | 47.9 | |
| Actuated g/C Ratio | 0.08 | 0.15 | | 0.23 | 0.38 | | 0.08 | 0.27 | 0.52 | 0.18 | 0.40 | |
| v/c Ratio | 0.09 | 0.65 | | 0.72 | 0.43 | | 0.43 | 0.50 | 0.53 | 0.59 | 0.44 | |
| Control Delay | 53.5 | 59.8 | | 47.9 | 30.7 | | 63.8 | 30.4 | 11.8 | 53.4 | 29.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.5 | 59.8 | | 47.9 | 30.7 | | 63.8 | 30.4 | 11.8 | 53.4 | 29.8 | |
| LOS | D | E | | D | C | | E | C | B | D | C | |
| Approach Delay | | 59.4 | | | 42.3 | | | 23.9 | | | 35.4 | |
| Approach LOS | | E | | | D | | | C | | | D | |
| Queue Length 50th (ft) | 9 | 124 | | 203 | 132 | | 46 | 170 | 67 | 138 | 203 | |
| Queue Length 95th (ft) | 29 | 195 | | 270 | 246 | | m87 | 266 | 146 | 217 | 262 | |
| Internal Link Dist (ft) | | 480 | | | 453 | | | 1571 | | | 1095 | |
| Turn Bay Length (ft) | 100 | | | | | | 150 | | 100 | 300 | | |
| Base Capacity (vph) | 132 | 302 | | 869 | 638 | | 132 | 945 | 822 | 324 | 1407 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.09 | 0.56 | | 0.66 | 0.43 | | 0.43 | 0.50 | 0.54 | 0.59 | 0.44 | |

Intersection Summary

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Build AM

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 35.0 Intersection LOS: D
 Intersection Capacity Utilization 61.5% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

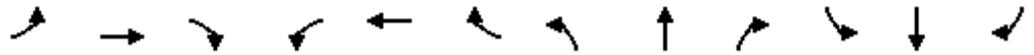


Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Build AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Lane Configurations | ↖ | ↗ | | ↖↗ | ↕ | ↖ | ↖ | ↕↕ | ↖ | ↖ | ↕↗ | ↕↗ |
| Traffic Volume (vph) | 4 | 4 | 4 | 519 | 4 | 286 | 4 | 594 | 536 | 380 | 760 | 4 |
| Future Volume (vph) | 4 | 4 | 4 | 519 | 4 | 286 | 4 | 594 | 536 | 380 | 760 | 4 |
| Satd. Flow (prot) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 4 | 577 | 4 | 318 | 4 | 660 | 596 | 422 | 844 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 4 | 8 | 0 | 577 | 4 | 318 | 4 | 660 | 596 | 422 | 848 | 0 |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 25.0 | | 14.0 | 14.0 | 14.0 | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 25.0 | | 29.0 | 40.0 | 36.0 | 14.0 | 30.0 | 29.0 | 36.0 | 52.0 | |
| Total Split (%) | 11.7% | 20.8% | | 24.2% | 33.3% | 30.0% | 11.7% | 25.0% | 24.2% | 30.0% | 43.3% | |
| Maximum Green (s) | 7.0 | 18.0 | | 22.0 | 33.0 | 29.0 | 7.0 | 23.0 | 22.0 | 29.0 | 45.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | -2.0 | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | C-Max | |
| Walk Time (s) | | 7.0 | | | | | | | | | | |
| Flash Dont Walk (s) | | 11.0 | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | 0 | | | | | | | | | | |
| Act Effct Green (s) | 9.0 | 9.1 | | 23.8 | 23.8 | 65.6 | 9.0 | 41.6 | 68.3 | 36.8 | 80.6 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.20 | 0.20 | 0.55 | 0.08 | 0.35 | 0.57 | 0.31 | 0.67 | |
| v/c Ratio | 0.03 | 0.06 | | 0.85 | 0.01 | 0.37 | 0.03 | 0.54 | 0.66 | 0.78 | 0.36 | |
| Control Delay | 52.2 | 52.7 | | 59.3 | 38.5 | 16.2 | 52.2 | 35.6 | 24.8 | 28.5 | 13.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 52.2 | 52.7 | | 59.3 | 38.5 | 16.2 | 52.2 | 35.6 | 24.8 | 28.5 | 13.1 | |
| LOS | D | D | | E | D | B | D | D | C | C | B | |
| Approach Delay | | 52.6 | | | 44.0 | | | 30.5 | | | 18.2 | |
| Approach LOS | | D | | | D | | | C | | | B | |
| Queue Length 50th (ft) | 3 | 6 | | 223 | 3 | 129 | 3 | 211 | 294 | 208 | 168 | |
| Queue Length 95th (ft) | 15 | 22 | | #308 | 13 | 177 | 15 | #367 | #630 | 416 | 417 | |
| Internal Link Dist (ft) | | 556 | | | 454 | | | 615 | | | 1571 | |
| Turn Bay Length (ft) | 150 | | | 200 | | 200 | 150 | | 100 | 150 | | |
| Base Capacity (vph) | 132 | 287 | | 686 | 543 | 870 | 132 | 1226 | 904 | 547 | 2374 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Build AM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|------|------|-----|------|------|------|------|------|------|------|------|-----|
| Reduced v/c Ratio | 0.03 | 0.03 | | 0.84 | 0.01 | 0.37 | 0.03 | 0.54 | 0.66 | 0.77 | 0.36 | |

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 32 (27%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 29.6 Intersection LOS: C
 Intersection Capacity Utilization 74.2% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 8: Weddington Rd & Site Access B 2023 Build AM

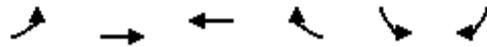


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|------|------|------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 4 | 845 | 441 | 4 | 26 | 12 |
| Future Volume (vph) | 4 | 845 | 441 | 4 | 26 | 12 |
| Satd. Flow (prot) | 1778 | 1872 | 1861 | 0 | 1726 | 0 |
| Flt Permitted | 0.950 | | | | 0.967 | |
| Satd. Flow (perm) | 1778 | 1872 | 1861 | 0 | 1726 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 4 | 939 | 490 | 4 | 29 | 13 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 4 | 939 | 494 | 0 | 42 | 0 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

Control Type: Unsignalized
 Intersection Capacity Utilization 54.5% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis Weddington Road Multifamily Development TIA
 8: Weddington Rd & Site Access B 2023 Build AM



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|-------|-------|------|----------------------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 4 | 845 | 441 | 4 | 26 | 12 |
| Future Volume (Veh/h) | 4 | 845 | 441 | 4 | 26 | 12 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | -1% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 4 | 939 | 490 | 4 | 29 | 13 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | TWLTL | TWLTL | | | |
| Median storage (veh) | | 2 | 2 | | | |
| Upstream signal (ft) | | | 936 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 494 | | | | 1439 | 492 |
| vC1, stage 1 conf vol | | | | | 492 | |
| vC2, stage 2 conf vol | | | | | 947 | |
| vCu, unblocked vol | 494 | | | | 1439 | 492 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | 5.4 | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 91 | 98 |
| cM capacity (veh/h) | 1070 | | | | 336 | 577 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | | |
| Volume Total | 4 | 939 | 494 | 42 | | |
| Volume Left | 4 | 0 | 0 | 29 | | |
| Volume Right | 0 | 0 | 4 | 13 | | |
| cSH | 1070 | 1700 | 1700 | 385 | | |
| Volume to Capacity | 0.00 | 0.55 | 0.29 | 0.11 | | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 9 | | |
| Control Delay (s) | 8.4 | 0.0 | 0.0 | 15.5 | | |
| Lane LOS | A | | | C | | |
| Approach Delay (s) | 0.0 | | 0.0 | 15.5 | | |
| Approach LOS | | | | C | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.5 | | | |
| Intersection Capacity Utilization | | | 54.5% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Build PM



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 672 | 48 | 19 | 445 | 651 | 896 |
| Future Volume (vph) | 672 | 48 | 19 | 445 | 651 | 896 |
| Satd. Flow (prot) | 3434 | 0 | 1814 | 3628 | 1844 | 1567 |
| Flt Permitted | 0.955 | | 0.950 | | | |
| Satd. Flow (perm) | 3434 | 0 | 1814 | 3628 | 1844 | 1567 |
| Satd. Flow (RTOR) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 747 | 53 | 21 | 494 | 723 | 996 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 800 | 0 | 21 | 494 | 723 | 996 |
| Turn Type | Prot | | Prot | NA | NA | Free |
| Protected Phases | 4 | | 5 | 2 | 6 | |
| Permitted Phases | | | | | | Free |
| Detector Phase | 4 | | 5 | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 7.0 | | 7.0 | 10.0 | 10.0 | |
| Minimum Split (s) | 30.3 | | 14.3 | 17.0 | 28.0 | |
| Total Split (s) | 45.0 | | 15.0 | 105.0 | 90.0 | |
| Total Split (%) | 30.0% | | 10.0% | 70.0% | 60.0% | |
| Maximum Green (s) | 38.0 | | 8.0 | 98.0 | 83.0 | |
| Yellow Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 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 | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 2.0 | | 2.0 | 3.0 | 3.0 | |
| Recall Mode | None | | None | C-Max | C-Max | |
| Walk Time (s) | 7.0 | | | | 7.0 | |
| Flash Dont Walk (s) | 16.0 | | | | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | | | | 0 | |
| Act Effct Green (s) | 38.6 | | 9.2 | 101.4 | 92.8 | 150.0 |
| Actuated g/C Ratio | 0.26 | | 0.06 | 0.68 | 0.62 | 1.00 |
| v/c Ratio | 0.91 | | 0.19 | 0.20 | 0.63 | 0.64 |
| Control Delay | 68.4 | | 70.9 | 9.5 | 16.9 | 6.2 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 68.4 | | 70.9 | 9.5 | 16.9 | 6.2 |
| LOS | E | | E | A | B | A |
| Approach Delay | 68.4 | | | 12.0 | 10.7 | |
| Approach LOS | E | | | B | B | |
| Queue Length 50th (ft) | 388 | | 20 | 92 | 228 | 342 |
| Queue Length 95th (ft) | #477 | | 50 | 116 | 326 | 256 |
| Internal Link Dist (ft) | 871 | | | 920 | 352 | |
| Turn Bay Length (ft) | 150 | | 150 | | | |
| Base Capacity (vph) | 915 | | 120 | 2452 | 1140 | 1567 |
| Starvation Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | | 0 | 0 | 0 | 0 |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 1: Pleasant Plains Rd/S Trade St & Weddington Rd 2023 Build PM

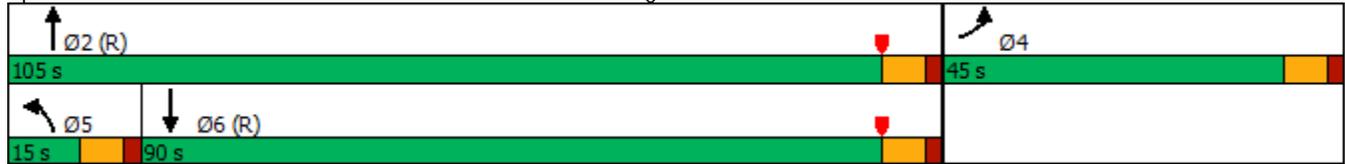


| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------|------|-----|------|------|------|------|
| Reduced v/c Ratio | 0.87 | | 0.17 | 0.20 | 0.63 | 0.64 |

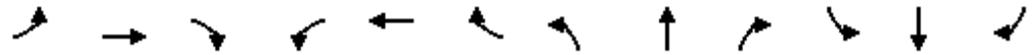
Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 136 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 26.1 Intersection LOS: C
 Intersection Capacity Utilization 63.3% ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Pleasant Plains Rd/S Trade St & Weddington Rd



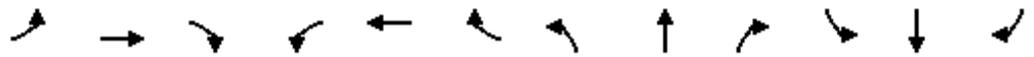
Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 2: S Trade St & Site Access A/Brenham Ln 2023 Build PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 6 | 0 | 0 | 8 | 0 | 1103 | 13 | 0 | 1541 | 21 |
| Future Volume (vph) | 0 | 0 | 6 | 0 | 0 | 8 | 0 | 1103 | 13 | 0 | 1541 | 21 |
| Satd. Flow (prot) | 0 | 0 | 1611 | 0 | 0 | 1611 | 0 | 3532 | 0 | 0 | 3532 | 0 |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1611 | 0 | 0 | 1611 | 0 | 3532 | 0 | 0 | 3532 | 0 |
| 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 | 7 | 0 | 0 | 9 | 0 | 1226 | 14 | 0 | 1712 | 23 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 7 | 0 | 0 | 9 | 0 | 1240 | 0 | 0 | 1735 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

Intersection Summary
 Control Type: Unsignalized
 Intersection Capacity Utilization 53.3% ICU Level of Service A
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis Weddington Road Multifamily Development TIA
 2: S Trade St & Site Access A/Brenham Ln 2023 Build PM



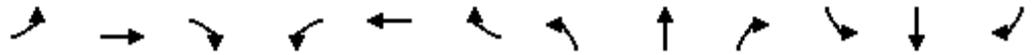
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|------|-------|----------------------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | ↗ | | | ↗ | | ↕↗ | | | ↕↗ | |
| Traffic Volume (veh/h) | 0 | 0 | 6 | 0 | 0 | 8 | 0 | 1103 | 13 | 0 | 1541 | 21 |
| Future Volume (Veh/h) | 0 | 0 | 6 | 0 | 0 | 8 | 0 | 1103 | 13 | 0 | 1541 | 21 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 0 | 7 | 0 | 0 | 9 | 0 | 1226 | 14 | 0 | 1712 | 23 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | 0.71 | 0.71 | 0.68 | 0.71 | 0.71 | 0.95 | 0.68 | | | 0.95 | | |
| vC, conflicting volume | 2346 | 2964 | 868 | 2096 | 2968 | 620 | 1735 | | | 1240 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1765 | 2639 | 0 | 1412 | 2645 | 498 | 1147 | | | 1150 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 99 | 100 | 100 | 98 | 100 | | | 100 | | |
| cM capacity (veh/h) | 37 | 16 | 740 | 69 | 16 | 492 | 413 | | | 574 | | |
| Direction, Lane # | | | | | | | | | | | | |
| | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | | | | | | |
| Volume Total | 7 | 9 | 817 | 423 | 1141 | 594 | | | | | | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| Volume Right | 7 | 9 | 0 | 14 | 0 | 23 | | | | | | |
| cSH | 740 | 492 | 1700 | 1700 | 1700 | 1700 | | | | | | |
| Volume to Capacity | 0.01 | 0.02 | 0.48 | 0.25 | 0.67 | 0.35 | | | | | | |
| Queue Length 95th (ft) | 1 | 1 | 0 | 0 | 0 | 0 | | | | | | |
| Control Delay (s) | 9.9 | 12.4 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | |
| Lane LOS | A | B | | | | | | | | | | |
| Approach Delay (s) | 9.9 | 12.4 | 0.0 | 0.0 | | | | | | | | |
| Approach LOS | A | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.1 | | | | | | | | | |
| Intersection Capacity Utilization | | | 53.3% | ICU Level of Service | | | | A | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2023 Build PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗ | | ↕ | | ↗ | ↕↗ | | ↗ | ↕↗ | |
| Traffic Volume (vph) | 20 | 4 | 27 | 4 | 4 | 17 | 139 | 859 | 54 | 17 | 1530 | 106 |
| Future Volume (vph) | 20 | 4 | 27 | 4 | 4 | 17 | 139 | 859 | 54 | 17 | 1530 | 106 |
| Satd. Flow (prot) | 0 | 1751 | 1552 | 0 | 1657 | 0 | 1752 | 3472 | 0 | 1787 | 3539 | 0 |
| Flt Permitted | | 0.807 | | | 0.942 | | 0.950 | | | 0.283 | | |
| Satd. Flow (perm) | 0 | 1473 | 1552 | 0 | 1572 | 0 | 1752 | 3472 | 0 | 532 | 3539 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 30 | 4 | 4 | 19 | 154 | 954 | 60 | 19 | 1700 | 118 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 26 | 30 | 0 | 27 | 0 | 154 | 1014 | 0 | 19 | 1818 | 0 |
| Turn Type | Perm | NA | pm+ov | Perm | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | | 4 | 5 | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | 6 | | |
| Detector Phase | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 15.4 | 15.4 | 14.9 | 15.4 | 15.4 | | 14.9 | 25.2 | | 23.2 | 23.2 | |
| Total Split (s) | 18.0 | 18.0 | 25.0 | 18.0 | 18.0 | | 25.0 | 132.0 | | 107.0 | 107.0 | |
| Total Split (%) | 12.0% | 12.0% | 16.7% | 12.0% | 12.0% | | 16.7% | 88.0% | | 71.3% | 71.3% | |
| Maximum Green (s) | 11.0 | 11.0 | 18.0 | 11.0 | 11.0 | | 18.0 | 125.0 | | 100.0 | 100.0 | |
| Yellow Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | -2.0 | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | 5.0 | 5.0 | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Lead/Lag | | | Lead | | | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | | | Yes | | | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 22.0 | 22.0 | | 17.0 | 17.0 | | | 11.0 | | 9.0 | 9.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 10.2 | 27.9 | | 10.2 | | 18.3 | 137.4 | | 112.1 | 112.1 | |
| Actuated g/C Ratio | | 0.07 | 0.19 | | 0.07 | | 0.12 | 0.92 | | 0.75 | 0.75 | |
| v/c Ratio | | 0.26 | 0.10 | | 0.25 | | 0.72 | 0.32 | | 0.05 | 0.69 | |
| Control Delay | | 72.4 | 46.3 | | 71.8 | | 88.9 | 0.8 | | 6.8 | 8.4 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | 72.4 | 46.3 | | 71.8 | | 88.9 | 0.8 | | 6.8 | 8.4 | |
| LOS | | E | D | | E | | F | A | | A | A | |
| Approach Delay | | 58.4 | | | 71.8 | | | 12.4 | | | 8.4 | |
| Approach LOS | | E | | | E | | | B | | | A | |
| Queue Length 50th (ft) | | 25 | 23 | | 26 | | 117 | 22 | | 2 | 320 | |
| Queue Length 95th (ft) | | 57 | 52 | | 59 | | m167 | 25 | | m10 | 447 | |
| Internal Link Dist (ft) | | 110 | | | 391 | | | 1039 | | | 1324 | |
| Turn Bay Length (ft) | | | | | | | 175 | | | 200 | | |
| Base Capacity (vph) | | 127 | 310 | | 136 | | 239 | 3181 | | 397 | 2645 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 3: S Trade St & Park Entrance/Chesney Glen Dr 2023 Build PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|-----|------|-----|------|------|-----|------|------|-----|
| Reduced v/c Ratio | | 0.20 | 0.10 | | 0.20 | | 0.64 | 0.32 | | 0.05 | 0.69 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.72 | |
| Intersection Signal Delay: 11.4 | Intersection LOS: B |
| Intersection Capacity Utilization 71.7% | ICU Level of Service C |
| Analysis Period (min) 15 | |

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

Splits and Phases: 3: S Trade St & Park Entrance/Chesney Glen Dr

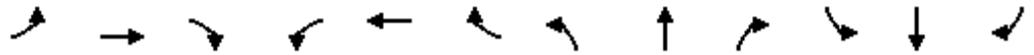
| | |
|----------|------|
| ↑ Ø2 (R) | ↔ Ø4 |
| 132 s | 18 s |
| ↙ Ø5 | ↔ Ø8 |
| 25 s | 18 s |
| ↓ Ø6 (R) | |
| 107 s | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Build PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗↘ | ↖↙ | ↖↙ | | ↗↘ | ↑ | | | ↕ | ↕ |
| Traffic Volume (vph) | 96 | 4 | 809 | 4 | 4 | 4 | 473 | 459 | 4 | 4 | 540 | 56 |
| Future Volume (vph) | 96 | 4 | 809 | 4 | 4 | 4 | 473 | 459 | 4 | 4 | 540 | 56 |
| Satd. Flow (prot) | 0 | 1750 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3525 | 0 |
| Flt Permitted | | 0.954 | | 0.950 | | | 0.950 | | | | 0.952 | |
| Satd. Flow (perm) | 0 | 1750 | 2745 | 1805 | 1758 | 0 | 3399 | 1842 | 0 | 0 | 3355 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 107 | 4 | 899 | 4 | 4 | 4 | 526 | 510 | 4 | 4 | 600 | 62 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 111 | 899 | 4 | 8 | 0 | 526 | 514 | 0 | 0 | 666 | 0 |
| Turn Type | Split | NA | pt+ov | Split | NA | | Prot | NA | | Perm | NA | |
| Protected Phases | 4 | 4 | 4 5 | 3 | 3 | | 5 | 2 | | | | 6 |
| Permitted Phases | | | | | | | | | | | 6 | |
| Detector Phase | 4 | 4 | 5 | 3 | 3 | | 5 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 19.2 | 19.2 | | 19.3 | 19.3 | | 15.1 | 22.5 | | 41.5 | 41.5 | |
| Total Split (s) | 20.0 | 20.0 | | 20.0 | 20.0 | | 55.0 | 110.0 | | 55.0 | 55.0 | |
| Total Split (%) | 13.3% | 13.3% | | 13.3% | 13.3% | | 36.7% | 73.3% | | 36.7% | 36.7% | |
| Maximum Green (s) | 13.0 | 13.0 | | 13.0 | 13.0 | | 48.0 | 103.0 | | 48.0 | 48.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | | | -2.0 | |
| Total Lost Time (s) | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | | 5.0 | |
| Lead/Lag | Lag | Lag | | Lead | Lead | | Lead | | | Lag | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | | | Yes | Yes | |
| Vehicle Extension (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 5.0 | 5.0 | | 4.0 | 4.0 | | | 8.0 | | 27.0 | 27.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | 0 | 0 | |
| Act Effct Green (s) | | 15.8 | 57.2 | 9.0 | 9.0 | | 36.4 | 118.6 | | | 77.2 | |
| Actuated g/C Ratio | | 0.11 | 0.38 | 0.06 | 0.06 | | 0.24 | 0.79 | | | 0.51 | |
| v/c Ratio | | 0.60 | 0.86 | 0.04 | 0.08 | | 0.64 | 0.35 | | | 0.39 | |
| Control Delay | | 77.2 | 51.3 | 67.2 | 68.4 | | 38.5 | 5.6 | | | 25.7 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | | 77.2 | 51.3 | 67.2 | 68.4 | | 38.5 | 5.6 | | | 25.7 | |
| LOS | | E | D | E | E | | D | A | | | C | |
| Approach Delay | | 54.1 | | | 68.0 | | | 22.2 | | | 25.7 | |
| Approach LOS | | D | | | E | | | C | | | C | |
| Queue Length 50th (ft) | | 105 | 481 | 4 | 8 | | 173 | 41 | | | 172 | |
| Queue Length 95th (ft) | | 167 | 484 | 17 | 27 | | 215 | 443 | | | 327 | |
| Internal Link Dist (ft) | | 1517 | | | 314 | | | 1324 | | | 1327 | |
| Turn Bay Length (ft) | | | 400 | 50 | | | 300 | | | | | |
| Base Capacity (vph) | | 198 | 1295 | 180 | 175 | | 1133 | 1456 | | | 1727 | |
| 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 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 4: S Trade St & Fullwood Ln/Church Driveway 2023 Build PM

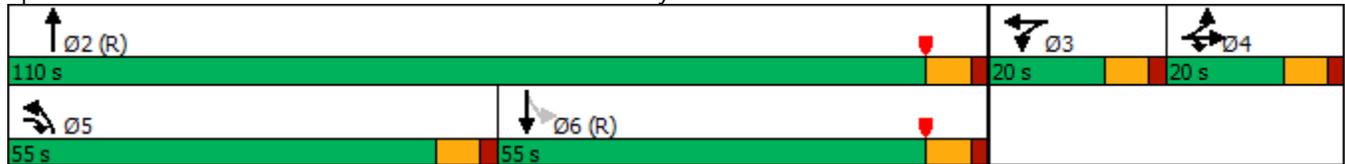


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|------|------|------|------|-----|------|------|-----|-----|------|-----|
| Reduced v/c Ratio | | 0.56 | 0.69 | 0.02 | 0.05 | | 0.46 | 0.35 | | | 0.39 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Offset: 16 (11%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.86 | |
| Intersection Signal Delay: 35.1 | Intersection LOS: D |
| Intersection Capacity Utilization 65.9% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 4: S Trade St & Fullwood Ln/Church Driveway



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 5: NC 51 & Fullwood Ln 2023 Build PM

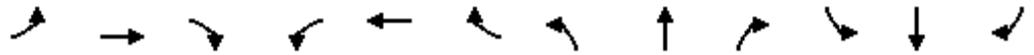


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|-------|------|-------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | ↔↔ | | ↗ | ↖ | ↕↔ | | ↖ | ↕↕ | |
| Traffic Volume (vph) | 0 | 0 | 0 | 340 | 0 | 278 | 4 | 1731 | 695 | 481 | 1809 | 4 |
| Future Volume (vph) | 0 | 0 | 0 | 340 | 0 | 278 | 4 | 1731 | 695 | 481 | 1809 | 4 |
| Satd. Flow (prot) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3370 | 0 | 1761 | 3522 | 0 |
| Flt Permitted | | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 0 | 0 | 3399 | 0 | 1567 | 1761 | 3370 | 0 | 1761 | 3522 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 0 | 378 | 0 | 309 | 4 | 1923 | 772 | 534 | 2010 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 378 | 0 | 309 | 4 | 2695 | 0 | 534 | 2014 | 0 |
| Turn Type | | | | Prot | | pm+ov | Prot | NA | | Prot | NA | |
| Protected Phases | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 4 | | | | | | |
| Detector Phase | | | | 4 | | 1 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | | 7.0 | | 7.0 | 7.0 | 12.0 | | 7.0 | 12.0 | |
| Minimum Split (s) | | | | 15.3 | | 14.8 | 14.0 | 19.0 | | 14.8 | 19.0 | |
| Total Split (s) | | | | 21.0 | | 34.0 | 14.0 | 95.0 | | 34.0 | 115.0 | |
| Total Split (%) | | | | 14.0% | | 22.7% | 9.3% | 63.3% | | 22.7% | 76.7% | |
| Maximum Green (s) | | | | 14.0 | | 27.0 | 7.0 | 88.0 | | 27.0 | 108.0 | |
| Yellow Time (s) | | | | 5.0 | | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | | | | 2.0 | | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | | | -2.0 | | -2.0 | -2.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | | | | 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 | | 2.0 | 3.0 | 6.0 | | 2.0 | 6.0 | |
| Minimum Gap (s) | | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Time Before Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 15.0 | | 0.0 | 15.0 | |
| Time To Reduce (s) | | | | 0.0 | | 0.0 | 0.0 | 30.0 | | 0.0 | 30.0 | |
| Recall Mode | | | | None | | None | None | C-Max | | None | C-Max | |
| Act Effct Green (s) | | | | 16.0 | | 50.0 | 9.0 | 90.0 | | 29.0 | 121.2 | |
| Actuated g/C Ratio | | | | 0.11 | | 0.33 | 0.06 | 0.60 | | 0.19 | 0.81 | |
| v/c Ratio | | | | 1.04 | | 0.59 | 0.04 | 1.33 | | 1.57 | 0.71 | |
| Control Delay | | | | 122.2 | | 47.1 | 67.5 | 181.4 | | 309.0 | 8.9 | |
| Queue Delay | | | | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | | | | 122.2 | | 47.1 | 67.5 | 181.4 | | 309.0 | 8.9 | |
| LOS | | | | F | | D | E | F | | F | A | |
| Approach Delay | | | | | 88.5 | | | 181.2 | | | 71.8 | |
| Approach LOS | | | | | F | | | F | | | E | |
| Queue Length 50th (ft) | | | | ~205 | | 251 | 4 | ~1797 | | ~738 | 344 | |
| Queue Length 95th (ft) | | | | #314 | | 358 | 17 | #1912 | | #969 | 677 | |
| Internal Link Dist (ft) | | 189 | | | 1367 | | | 1635 | | | 1880 | |
| Turn Bay Length (ft) | | | | | | 50 | 100 | | | 450 | | |
| Base Capacity (vph) | | | | 362 | | 522 | 105 | 2022 | | 340 | 2845 | |
| 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 | |

Lanes, Volumes, Timings
5: NC 51 & Fullwood Ln

S Trade Street at Weddington Road Multifamily Development TIA

2023 Build PM

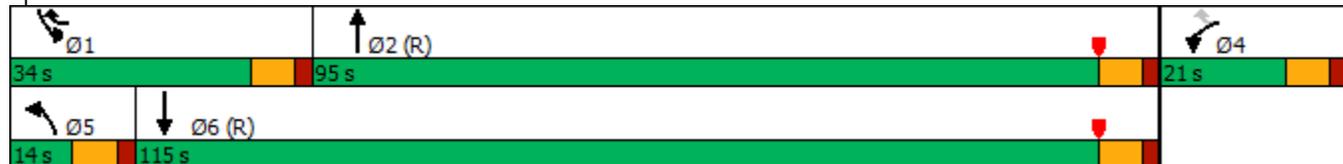


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|-----|-----|-----|------|-----|------|------|------|-----|------|------|-----|
| Reduced v/c Ratio | | | | 1.04 | | 0.59 | 0.04 | 1.33 | | 1.57 | 0.71 | |

Intersection Summary

| | |
|---|------------------------|
| Cycle Length: 150 | |
| Actuated Cycle Length: 150 | |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.57 | |
| Intersection Signal Delay: 123.5 | Intersection LOS: F |
| Intersection Capacity Utilization 118.1% | ICU Level of Service H |
| Analysis Period (min) 15 | |
| ~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles. | |
| # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles. | |

Splits and Phases: 5: NC 51 & Fullwood Ln



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Build PM



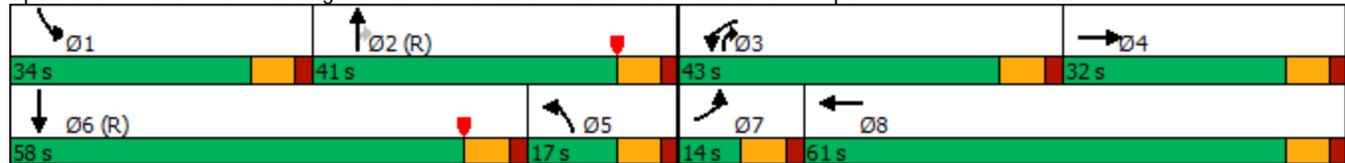
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 12 | 90 | 83 | 591 | 87 | 198 | 59 | 495 | 457 | 194 | 623 | 11 |
| Future Volume (vph) | 12 | 90 | 83 | 591 | 87 | 198 | 59 | 495 | 457 | 194 | 623 | 11 |
| Satd. Flow (prot) | 1770 | 1729 | 0 | 3433 | 1669 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1729 | 0 | 3433 | 1669 | 0 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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) | 13 | 100 | 92 | 657 | 97 | 220 | 66 | 550 | 508 | 216 | 692 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 13 | 192 | 0 | 657 | 317 | 0 | 66 | 550 | 508 | 216 | 704 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 14.0 | | 14.0 | 14.0 | | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 32.0 | | 43.0 | 61.0 | | 17.0 | 41.0 | 43.0 | 34.0 | 58.0 | |
| Total Split (%) | 9.3% | 21.3% | | 28.7% | 40.7% | | 11.3% | 27.3% | 28.7% | 22.7% | 38.7% | |
| Maximum Green (s) | 7.0 | 25.0 | | 36.0 | 54.0 | | 10.0 | 34.0 | 36.0 | 27.0 | 51.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lag | Lag | Lead | Lead | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | C-Max | None | Max | C-Max | |
| Act Effct Green (s) | 9.0 | 23.0 | | 35.5 | 57.9 | | 11.4 | 36.0 | 74.5 | 35.5 | 62.9 | |
| Actuated g/C Ratio | 0.06 | 0.15 | | 0.24 | 0.39 | | 0.08 | 0.24 | 0.50 | 0.24 | 0.42 | |
| v/c Ratio | 0.12 | 0.73 | | 0.81 | 0.49 | | 0.49 | 0.65 | 0.65 | 0.52 | 0.48 | |
| Control Delay | 69.7 | 76.1 | | 62.4 | 38.1 | | 63.3 | 40.6 | 17.4 | 57.0 | 35.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 69.7 | 76.1 | | 62.4 | 38.1 | | 63.3 | 40.6 | 17.4 | 57.0 | 35.2 | |
| LOS | E | E | | E | D | | E | D | B | E | D | |
| Approach Delay | | 75.7 | | | 54.5 | | | 31.4 | | | 40.3 | |
| Approach LOS | | E | | | D | | | C | | | D | |
| Queue Length 50th (ft) | 12 | 180 | | 310 | 212 | | 63 | 177 | 386 | 190 | 280 | |
| Queue Length 95th (ft) | 36 | 265 | | 381 | 337 | | m88 | 212 | 172 | 290 | 358 | |
| Internal Link Dist (ft) | | 480 | | | 453 | | | 1571 | | | 1095 | |
| Turn Bay Length (ft) | 100 | | | | | | 150 | | 100 | 300 | | |
| Base Capacity (vph) | 106 | 311 | | 869 | 655 | | 141 | 849 | 812 | 419 | 1479 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.12 | 0.62 | | 0.76 | 0.48 | | 0.47 | 0.65 | 0.63 | 0.52 | 0.48 | |

Intersection Summary

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 6: Weddington Road & Plantation Road/I-485 Westbound Ramps 2023 Build PM

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 2 (1%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 43.8 Intersection LOS: D
 Intersection Capacity Utilization 67.8% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

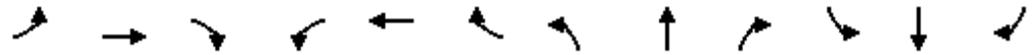


Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Build PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Lane Configurations | ↖ | ↗ | | ↖↗ | ↑ | ↖ | ↖ | ↑↑ | ↖ | ↖ | ↗↘ | |
| Traffic Volume (vph) | 4 | 4 | 4 | 593 | 4 | 331 | 4 | 680 | 612 | 430 | 867 | 4 |
| Future Volume (vph) | 4 | 4 | 4 | 593 | 4 | 331 | 4 | 680 | 612 | 430 | 867 | 4 |
| Satd. Flow (prot) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1723 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| 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 | 4 | 4 | 659 | 4 | 368 | 4 | 756 | 680 | 478 | 963 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 4 | 8 | 0 | 659 | 4 | 368 | 4 | 756 | 680 | 478 | 967 | 0 |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | 10.0 | 7.0 | 7.0 | 10.0 | |
| Minimum Split (s) | 14.0 | 25.0 | | 14.0 | 14.0 | 14.0 | 14.0 | 17.0 | 14.0 | 14.0 | 17.0 | |
| Total Split (s) | 14.0 | 25.0 | | 38.0 | 49.0 | 47.0 | 14.0 | 40.0 | 38.0 | 47.0 | 73.0 | |
| Total Split (%) | 9.3% | 16.7% | | 25.3% | 32.7% | 31.3% | 9.3% | 26.7% | 25.3% | 31.3% | 48.7% | |
| Maximum Green (s) | 7.0 | 18.0 | | 31.0 | 42.0 | 40.0 | 7.0 | 33.0 | 31.0 | 40.0 | 66.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | -2.0 | -2.0 | -2.0 | -2.0 | -2.0 | 0.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 7.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | C-Max | |
| Walk Time (s) | | 7.0 | | | | | | | | | | |
| Flash Dont Walk (s) | | 11.0 | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | 0 | | | | | | | | | | |
| Act Effct Green (s) | 9.0 | 9.1 | | 32.5 | 32.6 | 86.9 | 9.0 | 50.3 | 85.8 | 49.3 | 101.8 | |
| Actuated g/C Ratio | 0.06 | 0.06 | | 0.22 | 0.22 | 0.58 | 0.06 | 0.34 | 0.57 | 0.33 | 0.68 | |
| v/c Ratio | 0.04 | 0.08 | | 0.89 | 0.01 | 0.40 | 0.04 | 0.64 | 0.75 | 0.82 | 0.40 | |
| Control Delay | 67.5 | 68.0 | | 71.7 | 45.8 | 18.3 | 67.5 | 46.4 | 32.3 | 49.4 | 9.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 67.5 | 68.0 | | 71.7 | 45.8 | 18.3 | 67.5 | 46.4 | 32.3 | 49.4 | 9.7 | |
| LOS | E | E | | E | D | B | E | D | C | D | A | |
| Approach Delay | | 67.8 | | | 52.5 | | | 39.8 | | | 22.8 | |
| Approach LOS | | E | | | D | | | D | | | C | |
| Queue Length 50th (ft) | 4 | 8 | | 324 | 3 | 183 | 4 | 326 | 472 | 337 | 62 | |
| Queue Length 95th (ft) | 17 | 27 | | #419 | 14 | 247 | 17 | #498 | #865 | 600 | 415 | |
| Internal Link Dist (ft) | | 556 | | | 454 | | | 615 | | | 1571 | |
| Turn Bay Length (ft) | 150 | | | 200 | | 200 | 150 | | 100 | 150 | | |
| Base Capacity (vph) | 106 | 229 | | 755 | 546 | 917 | 106 | 1187 | 911 | 581 | 2399 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps 2023 Build PM



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------|------|------|-----|------|------|------|------|------|------|------|------|-----|
| Reduced v/c Ratio | 0.04 | 0.03 | | 0.87 | 0.01 | 0.40 | 0.04 | 0.64 | 0.75 | 0.82 | 0.40 | |

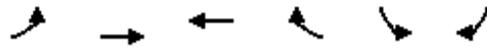
Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 37.0 Intersection LOS: D
 Intersection Capacity Utilization 81.7% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps



Lanes, Volumes, Timings S Trade Street at Weddington Road Multifamily Development TIA
 8: Weddington Rd & Site Access B 2023 Build PM

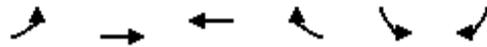


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|------|------|------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 14 | 705 | 903 | 12 | 15 | 7 |
| Future Volume (vph) | 14 | 705 | 903 | 12 | 15 | 7 |
| Satd. Flow (prot) | 1778 | 1872 | 1859 | 0 | 1724 | 0 |
| Flt Permitted | 0.950 | | | | 0.967 | |
| Satd. Flow (perm) | 1778 | 1872 | 1859 | 0 | 1724 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 16 | 783 | 1003 | 13 | 17 | 8 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 16 | 783 | 1016 | 0 | 25 | 0 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|---|------------------------|
| Control Type: Unsignalized | |
| Intersection Capacity Utilization 58.3% | ICU Level of Service B |
| Analysis Period (min) 15 | |

HCM Unsignalized Intersection Capacity Analysis Weddington Road Multifamily Development TIA
 8: Weddington Rd & Site Access B 2023 Build PM



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|-------------|-------------|-------------|-------------|----------------------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 14 | 705 | 903 | 12 | 15 | 7 |
| Future Volume (Veh/h) | 14 | 705 | 903 | 12 | 15 | 7 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | -1% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 16 | 783 | 1003 | 13 | 17 | 8 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | TWLTL | | | |
| Median storage (veh) | 2 | | 2 | | | |
| Upstream signal (ft) | | | 951 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1016 | | | | 1824 | 1010 |
| vC1, stage 1 conf vol | | | | | 1010 | |
| vC2, stage 2 conf vol | | | | | 815 | |
| vCu, unblocked vol | 1016 | | | | 1824 | 1010 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | 5.4 | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 98 | | | | 94 | 97 |
| cM capacity (veh/h) | 683 | | | | 276 | 291 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | SB 1 | | |
| Volume Total | 16 | 783 | 1016 | 25 | | |
| Volume Left | 16 | 0 | 0 | 17 | | |
| Volume Right | 0 | 0 | 13 | 8 | | |
| cSH | 683 | 1700 | 1700 | 281 | | |
| Volume to Capacity | 0.02 | 0.46 | 0.60 | 0.09 | | |
| Queue Length 95th (ft) | 2 | 0 | 0 | 7 | | |
| Control Delay (s) | 10.4 | 0.0 | 0.0 | 19.1 | | |
| Lane LOS | B | | | | C | |
| Approach Delay (s) | 0.2 | | 0.0 | | 19.1 | |
| Approach LOS | | | | | C | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 58.3% | | ICU Level of Service | B |
| Analysis Period (min) | | | 15 | | | |

2020 EXISTING QUEUEING AND BLOCKING REPORTS

Intersection: 1: Pleasant Plains Rd/S Trade St & Weddington Rd

| Movement | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|-----|-----|-----|-----|
| Directions Served | L | LR | L | T | T | T | R |
| Maximum Queue (ft) | 300 | 814 | 49 | 225 | 560 | 119 | 159 |
| Average Queue (ft) | 245 | 356 | 8 | 164 | 243 | 46 | 13 |
| 95th Queue (ft) | 340 | 707 | 36 | 262 | 450 | 100 | 76 |
| Link Distance (ft) | | 1264 | | | 970 | 368 | 368 |
| Upstream Blk Time (%) | | 0 | | | | | |
| Queuing Penalty (veh) | | 0 | | | | | |
| Storage Bay Dist (ft) | 150 | | 150 | 150 | | | |
| Storage Blk Time (%) | 29 | 38 | | 5 | 15 | | |
| Queuing Penalty (veh) | 127 | 161 | | 29 | 82 | | |

Intersection: 2: S Trade St & Brenham Ln

| Movement | WB | NB |
|-----------------------|-----|-----|
| Directions Served | R | TR |
| Maximum Queue (ft) | 51 | 6 |
| Average Queue (ft) | 15 | 0 |
| 95th Queue (ft) | 42 | 6 |
| Link Distance (ft) | 818 | 368 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 3: S Trade St & Park Entrance/Chesney Glen Dr

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|------|------|-----|------|------|
| Directions Served | LT | R | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 13 | 10 | 86 | 7 | 217 | 196 | 10 | 36 | 54 |
| Average Queue (ft) | 1 | 0 | 26 | 0 | 51 | 41 | 1 | 4 | 7 |
| 95th Queue (ft) | 9 | 7 | 65 | 5 | 149 | 131 | 6 | 20 | 33 |
| Link Distance (ft) | 142 | 142 | 415 | | 1047 | 1047 | | 1325 | 1325 |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (ft) | | | | 175 | | | 200 | | |
| Storage Blk Time (%) | | | | | | 0 | | | |
| Queuing Penalty (veh) | | | | | | 0 | | | |

Intersection: 4: S Trade St & Fullwood Ln/Church Driveway

| Movement | EB | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|-----|------|------|------|------|
| Directions Served | LT | R | R | L | L | T | T | TR |
| Maximum Queue (ft) | 151 | 154 | 89 | 399 | 754 | 391 | 249 | 278 |
| Average Queue (ft) | 42 | 21 | 6 | 246 | 297 | 58 | 117 | 132 |
| 95th Queue (ft) | 111 | 101 | 56 | 395 | 577 | 250 | 219 | 240 |
| Link Distance (ft) | | 1543 | | | 1325 | 1325 | 1364 | 1364 |
| Upstream Blk Time (%) | | | | | 0 | | | |
| Queuing Penalty (veh) | | | | | 0 | | | |
| Storage Bay Dist (ft) | 250 | | 400 | 300 | | | | |
| Storage Blk Time (%) | | | | 5 | 8 | | | |
| Queuing Penalty (veh) | | | | 27 | 43 | | | |

Intersection: 5: NC 51 & Fullwood Ln

| Movement | WB | WB | WB | NB | NB | SB | SB | SB |
|-----------------------|------|------|-----|------|------|-----|-----|------|
| Directions Served | L | L | R | T | TR | L | T | T |
| Maximum Queue (ft) | 1416 | 1431 | 200 | 1517 | 1499 | 310 | 290 | 287 |
| Average Queue (ft) | 929 | 967 | 194 | 765 | 767 | 139 | 210 | 223 |
| 95th Queue (ft) | 1605 | 1622 | 239 | 1516 | 1513 | 256 | 289 | 296 |
| Link Distance (ft) | 1390 | 1390 | | 1663 | 1663 | | | 1924 |
| Upstream Blk Time (%) | 13 | 30 | | 3 | 4 | | | |
| Queuing Penalty (veh) | 0 | 0 | | 0 | 0 | | | |
| Storage Bay Dist (ft) | | | 50 | | | 450 | 450 | |
| Storage Blk Time (%) | | 77 | 57 | 37 | | | | |
| Queuing Penalty (veh) | | 307 | 205 | 0 | | | | |

Network Summary

Network wide Queuing Penalty: 982

Intersection: 1: Pleasant Plains Rd/S Trade St & Weddington Rd

| Movement | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|-----|-----|-----|-----|
| Directions Served | L | LR | L | T | T | T | R |
| Maximum Queue (ft) | 300 | 616 | 36 | 141 | 165 | 333 | 298 |
| Average Queue (ft) | 259 | 337 | 6 | 48 | 81 | 178 | 38 |
| 95th Queue (ft) | 339 | 525 | 26 | 109 | 149 | 297 | 173 |
| Link Distance (ft) | | 1264 | | | 970 | 368 | 368 |
| Upstream Blk Time (%) | | | | | | 0 | 0 |
| Queuing Penalty (veh) | | | | | | 1 | 0 |
| Storage Bay Dist (ft) | 150 | | 150 | 150 | | | |
| Storage Blk Time (%) | 34 | 44 | | 0 | 1 | | |
| Queuing Penalty (veh) | 126 | 144 | | 0 | 1 | | |

Intersection: 2: S Trade St & Brenham Ln

| Movement | WB | SB |
|-----------------------|-----|------|
| Directions Served | R | T |
| Maximum Queue (ft) | 31 | 80 |
| Average Queue (ft) | 5 | 3 |
| 95th Queue (ft) | 25 | 33 |
| Link Distance (ft) | 818 | 1047 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 3: S Trade St & Park Entrance/Chesney Glen Dr

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|------|------|-----|------|------|
| Directions Served | LT | R | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 60 | 73 | 87 | 185 | 106 | 76 | 45 | 332 | 379 |
| Average Queue (ft) | 18 | 25 | 21 | 75 | 12 | 9 | 9 | 89 | 107 |
| 95th Queue (ft) | 47 | 60 | 63 | 151 | 61 | 42 | 30 | 246 | 285 |
| Link Distance (ft) | 142 | 142 | 415 | | 1047 | 1047 | | 1325 | 1325 |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (ft) | | | | 175 | | | 200 | | |
| Storage Blk Time (%) | | | | 1 | 0 | | | 1 | |
| Queuing Penalty (veh) | | | | 6 | 0 | | | 0 | |

Intersection: 4: S Trade St & Fullwood Ln/Church Driveway

| Movement | EB | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|-----|------|------|------|------|
| Directions Served | LT | R | R | L | L | T | T | TR |
| Maximum Queue (ft) | 280 | 448 | 400 | 253 | 266 | 79 | 372 | 370 |
| Average Queue (ft) | 90 | 215 | 202 | 117 | 141 | 23 | 167 | 166 |
| 95th Queue (ft) | 190 | 355 | 352 | 223 | 244 | 68 | 319 | 313 |
| Link Distance (ft) | | 1543 | | | 1325 | 1325 | 1364 | 1364 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 400 | 300 | | | | |
| Storage Blk Time (%) | 0 | 4 | 0 | 0 | 0 | | | |
| Queuing Penalty (veh) | 0 | 22 | 1 | 0 | 1 | | | |

Intersection: 5: NC 51 & Fullwood Ln

| Movement | WB | WB | WB | NB | NB | SB | SB | SB |
|-----------------------|------|------|-----|------|------|-----|-----|------|
| Directions Served | L | L | R | T | TR | L | T | T |
| Maximum Queue (ft) | 805 | 882 | 200 | 1596 | 1619 | 500 | 550 | 1923 |
| Average Queue (ft) | 429 | 481 | 185 | 1208 | 1240 | 417 | 315 | 764 |
| 95th Queue (ft) | 862 | 948 | 241 | 1995 | 2012 | 587 | 673 | 2092 |
| Link Distance (ft) | 1390 | 1390 | | 1663 | 1663 | | | 1924 |
| Upstream Blk Time (%) | | 0 | | 15 | 25 | | | 16 |
| Queuing Penalty (veh) | | 0 | | 0 | 0 | | | 0 |
| Storage Bay Dist (ft) | | | 50 | | | 450 | 450 | |
| Storage Blk Time (%) | | 85 | 37 | 35 | | 32 | 3 | 0 |
| Queuing Penalty (veh) | | 208 | 54 | 0 | | 261 | 26 | 1 |

Network Summary

Network wide Queuing Penalty: 853

2023 BACKGROUND QUEUEING AND BLOCKING REPORTS

Intersection: 1: Pleasant Plains Rd/S Trade St & Weddington Rd

| Movement | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|-----|-----|-----|-----|
| Directions Served | L | LR | L | T | T | T | R |
| Maximum Queue (ft) | 300 | 606 | 65 | 225 | 524 | 135 | 34 |
| Average Queue (ft) | 252 | 319 | 15 | 175 | 247 | 51 | 1 |
| 95th Queue (ft) | 340 | 508 | 54 | 262 | 424 | 108 | 13 |
| Link Distance (ft) | | 1264 | | | 970 | 368 | 368 |
| Upstream Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |
| Storage Bay Dist (ft) | 150 | | 150 | 150 | | | |
| Storage Blk Time (%) | 30 | 39 | | 6 | 17 | | |
| Queuing Penalty (veh) | 127 | 164 | | 33 | 91 | | |

Intersection: 2: S Trade St & Brenham Ln

| Movement | WB | NB |
|-----------------------|-----|-----|
| Directions Served | R | T |
| Maximum Queue (ft) | 54 | 6 |
| Average Queue (ft) | 19 | 0 |
| 95th Queue (ft) | 46 | 6 |
| Link Distance (ft) | 818 | 368 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 3: S Trade St & Park Entrance/Chesney Glen Dr

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|------|------|-----|------|------|
| Directions Served | LT | R | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 41 | 38 | 98 | 36 | 253 | 236 | 27 | 50 | 64 |
| Average Queue (ft) | 8 | 4 | 35 | 4 | 91 | 71 | 3 | 8 | 13 |
| 95th Queue (ft) | 29 | 22 | 80 | 19 | 213 | 176 | 17 | 31 | 45 |
| Link Distance (ft) | 142 | 142 | 415 | | 1047 | 1047 | | 1325 | 1325 |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (ft) | | | | 175 | | | 200 | | |
| Storage Blk Time (%) | | | | | | 1 | | | |
| Queuing Penalty (veh) | | | | | | 0 | | | |

Queuing and Blocking Report Trade Street at Weddington Road Multifamily Development TIA
 2023 Background AM 2023 Background AM

Intersection: 4: S Trade St & Fullwood Ln/Church Driveway

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB | |
|-----------------------|------|-----|-----|-----|----|-----|------|------|------|------|--|
| Directions Served | LT | R | R | L | TR | L | L | TR | LT | TR | |
| Maximum Queue (ft) | 105 | 143 | 81 | 33 | 34 | 399 | 780 | 378 | 234 | 270 | |
| Average Queue (ft) | 48 | 14 | 5 | 5 | 6 | 268 | 314 | 76 | 126 | 148 | |
| 95th Queue (ft) | 95 | 79 | 41 | 22 | 24 | 403 | 556 | 231 | 206 | 233 | |
| Link Distance (ft) | 1543 | | | 350 | | | 1325 | 1325 | 1364 | 1364 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 400 | | 50 | | 300 | | | | |
| Storage Blk Time (%) | | | | 0 | | 1 | | 5 | | 8 | |
| Queuing Penalty (veh) | | | | 0 | | 0 | | 29 | | 51 | |

Intersection: 5: NC 51 & Fullwood Ln

| Movement | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|------|------|-----|-----|------|------|-----|-----|------|
| Directions Served | L | L | R | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 1430 | 1434 | 200 | 136 | 1710 | 1704 | 466 | 480 | 1097 |
| Average Queue (ft) | 1209 | 1232 | 197 | 6 | 1323 | 1327 | 370 | 326 | 452 |
| 95th Queue (ft) | 1644 | 1643 | 227 | 63 | 2016 | 2019 | 567 | 560 | 1225 |
| Link Distance (ft) | 1390 | 1390 | | | 1663 | 1663 | | | 1924 |
| Upstream Blk Time (%) | 25 | 50 | | | 26 | 33 | | | 3 |
| Queuing Penalty (veh) | 0 | 0 | | | 0 | 0 | | | 0 |
| Storage Bay Dist (ft) | | | 50 | 100 | | | 450 | 450 | |
| Storage Blk Time (%) | | 77 | 59 | | 42 | | 26 | 4 | 0 |
| Queuing Penalty (veh) | | 342 | 241 | | 2 | | 264 | 38 | 2 |

Intersection: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

| Movement | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|------|------|
| Directions Served | L | TR | L | L | TR | L | T | T | R | L | T | TR |
| Maximum Queue (ft) | 65 | 235 | 361 | 308 | 234 | 102 | 210 | 259 | 199 | 220 | 282 | 241 |
| Average Queue (ft) | 12 | 112 | 230 | 180 | 120 | 45 | 124 | 134 | 106 | 114 | 173 | 137 |
| 95th Queue (ft) | 45 | 193 | 325 | 286 | 211 | 91 | 197 | 223 | 192 | 190 | 255 | 220 |
| Link Distance (ft) | | 514 | 474 | 474 | | | 1556 | 1556 | | | 1133 | 1133 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 100 | | | | | 250 | 150 | | | | 100 | 300 |
| Storage Blk Time (%) | | | 17 | | 0 | 0 | 0 | 3 | 14 | 9 | 0 | |
| Queuing Penalty (veh) | | | 2 | | 1 | 0 | 0 | 2 | 55 | 19 | 0 | |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | EB | EB | WB | WB | WB | WB | NB | NB | NB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served | L | TR | L | L | T | R | L | T | T | R | L | T |
| Maximum Queue (ft) | 20 | 29 | 250 | 300 | 490 | 262 | 42 | 483 | 618 | 200 | 249 | 431 |
| Average Queue (ft) | 3 | 4 | 211 | 259 | 160 | 93 | 3 | 198 | 288 | 175 | 173 | 143 |
| 95th Queue (ft) | 13 | 18 | 279 | 329 | 502 | 199 | 30 | 386 | 533 | 245 | 271 | 324 |
| Link Distance (ft) | | 576 | | | 464 | | | 639 | 639 | | | 1556 |
| Upstream Blk Time (%) | | | | | 5 | | | 0 | 1 | | | |
| Queuing Penalty (veh) | | | | | 0 | | | 0 | 0 | | | |
| Storage Bay Dist (ft) | 150 | | 200 | 200 | | 200 | 150 | | | 100 | 150 | |
| Storage Blk Time (%) | | | 5 | 36 | 0 | 1 | | 13 | 29 | 27 | 17 | 1 |
| Queuing Penalty (veh) | | | 16 | 105 | 1 | 7 | | 1 | 155 | 79 | 63 | 3 |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | SB |
|-----------------------|------|
| Directions Served | TR |
| Maximum Queue (ft) | 361 |
| Average Queue (ft) | 112 |
| 95th Queue (ft) | 229 |
| Link Distance (ft) | 1556 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Network Summary

| |
|------------------------------------|
| Network wide Queuing Penalty: 1894 |
|------------------------------------|

Queuing and Blocking Report Trade Street at Weddington Road Multifamily Development TIA
 2023 Background PM

2023 Background PM

Intersection: 1: Pleasant Plains Rd/S Trade St & Weddington Rd

| Movement | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|-----|-----|-----|-----|
| Directions Served | L | LR | L | T | T | T | R |
| Maximum Queue (ft) | 300 | 666 | 59 | 138 | 167 | 370 | 224 |
| Average Queue (ft) | 265 | 358 | 11 | 49 | 87 | 223 | 20 |
| 95th Queue (ft) | 339 | 591 | 39 | 108 | 150 | 363 | 113 |
| Link Distance (ft) | | 1264 | | | 970 | 362 | 362 |
| Upstream Blk Time (%) | | | | | | 1 | |
| Queuing Penalty (veh) | | | | | | 11 | |
| Storage Bay Dist (ft) | 150 | | 150 | 150 | | | |
| Storage Blk Time (%) | 37 | 46 | | 0 | 1 | | |
| Queuing Penalty (veh) | 142 | 153 | | 0 | 2 | | |

Intersection: 2: S Trade St & Brenham Ln

| Movement | WB | NB | SB | SB |
|-----------------------|-----|-----|------|------|
| Directions Served | LR | TR | LT | T |
| Maximum Queue (ft) | 36 | 3 | 102 | 95 |
| Average Queue (ft) | 8 | 0 | 7 | 4 |
| 95th Queue (ft) | 30 | 3 | 58 | 47 |
| Link Distance (ft) | 819 | 362 | 1054 | 1054 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Intersection: 3: S Trade St & Park Entrance/Chesney Glen Dr

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|------|------|-----|------|------|
| Directions Served | LT | R | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 78 | 91 | 80 | 223 | 235 | 61 | 89 | 421 | 441 |
| Average Queue (ft) | 23 | 29 | 27 | 116 | 26 | 9 | 12 | 170 | 199 |
| 95th Queue (ft) | 59 | 73 | 66 | 192 | 123 | 36 | 70 | 343 | 375 |
| Link Distance (ft) | 142 | 142 | 415 | | 1054 | 1054 | | 1325 | 1325 |
| Upstream Blk Time (%) | 0 | 0 | | | | | | | |
| Queuing Penalty (veh) | 0 | 0 | | | | | | | |
| Storage Bay Dist (ft) | | | | 175 | | | 200 | | |
| Storage Blk Time (%) | | | | 6 | 0 | | | 6 | |
| Queuing Penalty (veh) | | | | 27 | 0 | | | 1 | |

Queuing and Blocking Report Trade Street at Weddington Road Multifamily Development TIA
 2023 Background PM 2023 Background PM

Intersection: 4: S Trade St & Fullwood Ln/Church Driveway

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB |
|-----------------------|------|-----|-----|-----|----|-----|------|------|------|------|
| Directions Served | LT | R | R | L | TR | L | L | TR | LT | TR |
| Maximum Queue (ft) | 281 | 417 | 399 | 29 | 43 | 247 | 277 | 128 | 298 | 317 |
| Average Queue (ft) | 99 | 218 | 211 | 4 | 9 | 100 | 124 | 32 | 157 | 163 |
| 95th Queue (ft) | 199 | 358 | 365 | 19 | 31 | 206 | 224 | 93 | 257 | 269 |
| Link Distance (ft) | 1543 | | | 350 | | | 1325 | 1325 | 1364 | 1364 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 400 | | 50 | | 300 | | | |
| Storage Blk Time (%) | 0 | 7 | 0 | 0 | 1 | 0 | 0 | | | |
| Queuing Penalty (veh) | 3 | 33 | 1 | 0 | 0 | 0 | 0 | | | |

Intersection: 5: NC 51 & Fullwood Ln

| Movement | WB | WB | WB | NB | NB | NB | SB | SB | SB | |
|-----------------------|------|------|-----|-----|------|------|------|------|------|--|
| Directions Served | L | L | R | L | T | TR | L | T | TR | |
| Maximum Queue (ft) | 462 | 574 | 200 | 100 | 1715 | 1715 | 500 | 550 | 1968 | |
| Average Queue (ft) | 283 | 324 | 181 | 5 | 1559 | 1577 | 486 | 496 | 1481 | |
| 95th Queue (ft) | 562 | 634 | 240 | 53 | 2026 | 2015 | 540 | 705 | 2601 | |
| Link Distance (ft) | 1390 | 1390 | | | | 1663 | 1663 | 1924 | | |
| Upstream Blk Time (%) | | | | | 30 | 48 | 36 | | | |
| Queuing Penalty (veh) | | | | | 0 | 0 | 0 | | | |
| Storage Bay Dist (ft) | | | 50 | 100 | | | 450 | 450 | | |
| Storage Blk Time (%) | 76 | | 50 | 36 | | 63 | 12 | 0 | | |
| Queuing Penalty (veh) | 209 | | 84 | 1 | | 571 | 109 | 2 | | |

Intersection: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

| Movement | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB | SB | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|------|------|
| Directions Served | L | TR | L | L | TR | L | T | T | R | L | T | TR | |
| Maximum Queue (ft) | 103 | 263 | 444 | 389 | 330 | 210 | 353 | 473 | 200 | 306 | 346 | 302 | |
| Average Queue (ft) | 19 | 143 | 302 | 250 | 164 | 59 | 147 | 197 | 141 | 148 | 212 | 170 | |
| 95th Queue (ft) | 71 | 234 | 415 | 365 | 284 | 130 | 264 | 378 | 229 | 260 | 316 | 276 | |
| Link Distance (ft) | 514 | | 474 | 474 | | | | 1556 | 1556 | | | 1133 | 1133 |
| Upstream Blk Time (%) | | | 0 | 0 | | | | | | | | | |
| Queuing Penalty (veh) | | | 0 | 0 | | | | | | | | | |
| Storage Bay Dist (ft) | 100 | | | | 250 | 150 | | | 100 | 300 | | | |
| Storage Blk Time (%) | 32 | | 3 | 2 | 0 | 10 | 37 | 16 | 0 | 1 | | | |
| Queuing Penalty (veh) | 4 | | 7 | 6 | 0 | 6 | 170 | 37 | 1 | 2 | | | |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | EB | EB | WB | WB | WB | WB | NB | NB | NB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served | L | TR | L | L | T | R | L | T | T | R | L | T |
| Maximum Queue (ft) | 22 | 33 | 250 | 300 | 502 | 299 | 72 | 630 | 679 | 200 | 250 | 535 |
| Average Queue (ft) | 3 | 4 | 231 | 285 | 304 | 123 | 4 | 366 | 504 | 191 | 223 | 232 |
| 95th Queue (ft) | 15 | 19 | 279 | 327 | 651 | 248 | 49 | 633 | 787 | 230 | 284 | 492 |
| Link Distance (ft) | | 576 | | | 464 | | | 639 | 639 | | | 1556 |
| Upstream Blk Time (%) | | | | | 13 | | | 1 | 18 | | | |
| Queuing Penalty (veh) | | | | | 0 | | | 0 | 0 | | | |
| Storage Bay Dist (ft) | 150 | | 200 | 200 | | 200 | 150 | | | 100 | 150 | |
| Storage Blk Time (%) | | | 15 | 48 | 0 | 2 | | 31 | 44 | 31 | 40 | 2 |
| Queuing Penalty (veh) | | | 49 | 160 | 0 | 13 | | 1 | 273 | 106 | 175 | 9 |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | SB |
|-----------------------|------|
| Directions Served | TR |
| Maximum Queue (ft) | 393 |
| Average Queue (ft) | 146 |
| 95th Queue (ft) | 326 |
| Link Distance (ft) | 1556 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Network Summary

Network wide Queuing Penalty: 2369

2023 BUILD QUEUEING AND BLOCKING REPORTS

Intersection: 1: Pleasant Plains Rd/S Trade St & Weddington Rd

| Movement | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served | L | LR | L | T | T | T | R |
| Maximum Queue (ft) | 300 | 544 | 103 | 224 | 562 | 156 | 53 |
| Average Queue (ft) | 247 | 295 | 22 | 173 | 256 | 54 | 3 |
| 95th Queue (ft) | 335 | 450 | 70 | 264 | 460 | 118 | 23 |
| Link Distance (ft) | | 853 | | | 962 | 371 | 371 |
| Upstream Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |
| Storage Bay Dist (ft) | 150 | | 150 | 150 | | | |
| Storage Blk Time (%) | 32 | 35 | | 6 | 17 | | |
| Queuing Penalty (veh) | 142 | 153 | | 32 | 92 | | |

Intersection: 2: S Trade St & Site Access A/Brenham Ln

| Movement | EB | WB | NB | NB |
|-----------------------|-----|-----|-----|-----|
| Directions Served | R | R | T | TR |
| Maximum Queue (ft) | 31 | 50 | 2 | 4 |
| Average Queue (ft) | 8 | 19 | 0 | 0 |
| 95th Queue (ft) | 28 | 47 | 2 | 4 |
| Link Distance (ft) | 282 | 818 | 371 | 371 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Intersection: 3: S Trade St & Park Entrance/Chesney Glen Dr

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|------|------|-----|------|------|
| Directions Served | LT | R | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 46 | 42 | 103 | 25 | 271 | 254 | 29 | 56 | 69 |
| Average Queue (ft) | 9 | 4 | 37 | 3 | 87 | 66 | 3 | 8 | 14 |
| 95th Queue (ft) | 32 | 23 | 82 | 17 | 214 | 182 | 16 | 32 | 49 |
| Link Distance (ft) | 142 | 142 | 415 | | 1047 | 1047 | | 1325 | 1325 |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (ft) | | | | 175 | | | 200 | | |
| Storage Blk Time (%) | | | | | | 1 | | | |
| Queuing Penalty (veh) | | | | | | 0 | | | |

Queuing and Blocking Report Trade Street at Weddington Road Multifamily Development TIA
2023 Build AM

2023 Build AM

Intersection: 4: S Trade St & Fullwood Ln/Church Driveway

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|----|-----|-----|------|------|------|------|
| Directions Served | LT | R | R | L | TR | L | L | TR | LT | TR |
| Maximum Queue (ft) | 104 | 139 | 67 | 28 | 46 | 400 | 835 | 515 | 212 | 236 |
| Average Queue (ft) | 43 | 13 | 4 | 4 | 10 | 274 | 339 | 90 | 126 | 141 |
| 95th Queue (ft) | 88 | 74 | 40 | 20 | 35 | 424 | 678 | 322 | 196 | 216 |
| Link Distance (ft) | | 1543 | | | 350 | | 1325 | 1325 | 1364 | 1364 |
| Upstream Blk Time (%) | | | | | | | 0 | | | |
| Queuing Penalty (veh) | | | | | | | 0 | | | |
| Storage Bay Dist (ft) | 250 | | 400 | 50 | | 300 | | | | |
| Storage Blk Time (%) | | | | | 2 | 7 | 10 | | | |
| Queuing Penalty (veh) | | | | | 0 | 43 | 63 | | | |

Intersection: 5: NC 51 & Fullwood Ln

| Movement | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|------|------|-----|-----|------|------|-----|-----|------|
| Directions Served | L | L | R | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 1427 | 1440 | 200 | 136 | 1706 | 1714 | 414 | 456 | 1111 |
| Average Queue (ft) | 1260 | 1277 | 191 | 8 | 1414 | 1416 | 310 | 297 | 408 |
| 95th Queue (ft) | 1685 | 1685 | 243 | 65 | 2058 | 2060 | 535 | 513 | 1104 |
| Link Distance (ft) | 1390 | 1390 | | | 1663 | 1663 | | | 1924 |
| Upstream Blk Time (%) | 29 | 59 | | | 30 | 39 | | | 3 |
| Queuing Penalty (veh) | 0 | 0 | | | 0 | 0 | | | 0 |
| Storage Bay Dist (ft) | | | 50 | 100 | | | 450 | 450 | |
| Storage Blk Time (%) | | 77 | 60 | | 42 | | 19 | 3 | 0 |
| Queuing Penalty (veh) | | 347 | 247 | | 2 | | 187 | 30 | 1 |

Intersection: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

| Movement | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|------|------|
| Directions Served | L | TR | L | L | TR | L | T | T | R | L | T | TR |
| Maximum Queue (ft) | 49 | 215 | 351 | 292 | 226 | 125 | 245 | 303 | 200 | 237 | 275 | 244 |
| Average Queue (ft) | 10 | 116 | 226 | 179 | 120 | 45 | 130 | 146 | 117 | 122 | 168 | 135 |
| 95th Queue (ft) | 35 | 189 | 322 | 286 | 206 | 105 | 210 | 253 | 211 | 208 | 250 | 228 |
| Link Distance (ft) | | 514 | 474 | 474 | | | 1556 | 1556 | | | 1133 | 1133 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 100 | | | | 250 | 150 | | | 100 | 300 | | |
| Storage Blk Time (%) | | 18 | | 0 | 0 | 0 | 3 | 15 | 11 | | 0 | |
| Queuing Penalty (veh) | | 2 | | 1 | 0 | 0 | 2 | 59 | 24 | | 0 | |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | EB | EB | WB | WB | WB | WB | NB | NB | NB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served | L | TR | L | L | T | R | L | T | T | R | L | T |
| Maximum Queue (ft) | 24 | 30 | 250 | 300 | 486 | 270 | 25 | 505 | 611 | 200 | 249 | 466 |
| Average Queue (ft) | 2 | 5 | 206 | 255 | 139 | 94 | 3 | 198 | 299 | 175 | 181 | 151 |
| 95th Queue (ft) | 12 | 20 | 283 | 333 | 475 | 198 | 15 | 372 | 553 | 241 | 278 | 335 |
| Link Distance (ft) | | 576 | | | 464 | | | 639 | 639 | | | 1556 |
| Upstream Blk Time (%) | | | | | 4 | | | | 1 | | | |
| Queuing Penalty (veh) | | | | | 0 | | | | 0 | | | |
| Storage Bay Dist (ft) | 150 | | 200 | 200 | | 200 | 150 | | | 100 | 150 | |
| Storage Blk Time (%) | | | 6 | 33 | 0 | 1 | | 14 | 28 | 28 | 19 | 1 |
| Queuing Penalty (veh) | | | 17 | 98 | 1 | 4 | | 1 | 150 | 84 | 73 | 4 |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | SB |
|-----------------------|------|
| Directions Served | TR |
| Maximum Queue (ft) | 376 |
| Average Queue (ft) | 113 |
| 95th Queue (ft) | 234 |
| Link Distance (ft) | 1556 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 8: Weddington Rd & Site Access B

| Movement | EB | SB |
|-----------------------|-----|-----|
| Directions Served | L | LR |
| Maximum Queue (ft) | 30 | 59 |
| Average Queue (ft) | 2 | 23 |
| 95th Queue (ft) | 13 | 49 |
| Link Distance (ft) | | 391 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 150 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Network Summary

Network wide Queuing Penalty: 1858

Intersection: 1: Pleasant Plains Rd/S Trade St & Weddington Rd

| Movement | EB | EB | NB | NB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served | L | LR | L | T | T | T | R |
| Maximum Queue (ft) | 300 | 647 | 71 | 148 | 186 | 376 | 223 |
| Average Queue (ft) | 266 | 358 | 24 | 52 | 88 | 221 | 35 |
| 95th Queue (ft) | 335 | 624 | 59 | 119 | 160 | 369 | 143 |
| Link Distance (ft) | | 870 | | | 962 | 371 | 371 |
| Upstream Blk Time (%) | | 1 | | | | 1 | |
| Queuing Penalty (veh) | | 4 | | | | 11 | |
| Storage Bay Dist (ft) | 150 | | 150 | 150 | | | |
| Storage Blk Time (%) | 41 | 45 | | 0 | 1 | | |
| Queuing Penalty (veh) | 158 | 152 | | 0 | 2 | | |

Intersection: 2: S Trade St & Site Access A/Brenham Ln

| Movement | EB | WB | SB | SB |
|-----------------------|-----|-----|------|------|
| Directions Served | R | R | T | TR |
| Maximum Queue (ft) | 40 | 34 | 84 | 34 |
| Average Queue (ft) | 8 | 6 | 5 | 1 |
| 95th Queue (ft) | 31 | 27 | 40 | 16 |
| Link Distance (ft) | 282 | 818 | 1047 | 1047 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Intersection: 3: S Trade St & Park Entrance/Chesney Glen Dr

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|------|------|-----|------|------|
| Directions Served | LT | R | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 70 | 102 | 85 | 207 | 177 | 66 | 164 | 422 | 436 |
| Average Queue (ft) | 25 | 28 | 30 | 116 | 24 | 10 | 14 | 189 | 213 |
| 95th Queue (ft) | 59 | 72 | 66 | 189 | 108 | 39 | 83 | 364 | 385 |
| Link Distance (ft) | 142 | 142 | 415 | | 1047 | 1047 | | 1325 | 1325 |
| Upstream Blk Time (%) | | 0 | | | | | | | |
| Queuing Penalty (veh) | | 0 | | | | | | | |
| Storage Bay Dist (ft) | | | | 175 | | | 200 | | |
| Storage Blk Time (%) | | | | 5 | 0 | | | 7 | |
| Queuing Penalty (veh) | | | | 20 | 0 | | | 1 | |

Queuing and Blocking Report Trade Street at Weddington Road Multifamily Development TIA
2023 Build PM

2023 Build PM

Intersection: 4: S Trade St & Fullwood Ln/Church Driveway

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB |
|-----------------------|-----|------|-----|----|-----|-----|------|------|------|------|
| Directions Served | LT | R | R | L | TR | L | L | TR | LT | TR |
| Maximum Queue (ft) | 243 | 391 | 380 | 30 | 43 | 253 | 270 | 127 | 308 | 304 |
| Average Queue (ft) | 95 | 222 | 215 | 3 | 10 | 103 | 129 | 36 | 162 | 166 |
| 95th Queue (ft) | 180 | 339 | 338 | 18 | 33 | 212 | 232 | 99 | 270 | 273 |
| Link Distance (ft) | | 1543 | | | 350 | | 1325 | 1325 | 1364 | 1364 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 400 | 50 | | 300 | | | | |
| Storage Blk Time (%) | | 6 | 0 | 0 | 1 | 0 | 0 | | | |
| Queuing Penalty (veh) | | 31 | 0 | 0 | 0 | 0 | 1 | | | |

Intersection: 5: NC 51 & Fullwood Ln

| Movement | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|------|------|-----|-----|------|------|-----|-----|------|
| Directions Served | L | L | R | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 709 | 772 | 200 | 138 | 1712 | 1713 | 500 | 550 | 1964 |
| Average Queue (ft) | 369 | 409 | 187 | 8 | 1627 | 1637 | 484 | 476 | 1323 |
| 95th Queue (ft) | 756 | 826 | 239 | 72 | 1936 | 1935 | 554 | 721 | 2563 |
| Link Distance (ft) | 1390 | 1390 | | | 1663 | 1663 | | | 1924 |
| Upstream Blk Time (%) | 0 | 0 | | | 36 | 56 | | | 27 |
| Queuing Penalty (veh) | 0 | 0 | | | 0 | 0 | | | 0 |
| Storage Bay Dist (ft) | | | 50 | 100 | | | 450 | 450 | |
| Storage Blk Time (%) | | 81 | 46 | | 38 | | 56 | 7 | 0 |
| Queuing Penalty (veh) | | 224 | 77 | | 2 | | 510 | 60 | 1 |

Intersection: 6: Weddington Road & Plantation Road/I-485 Westbound Ramps

| Movement | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|------|------|
| Directions Served | L | TR | L | L | TR | L | T | T | R | L | T | TR |
| Maximum Queue (ft) | 87 | 258 | 449 | 386 | 307 | 221 | 372 | 429 | 200 | 303 | 342 | 309 |
| Average Queue (ft) | 16 | 148 | 300 | 246 | 167 | 64 | 145 | 183 | 136 | 141 | 211 | 172 |
| 95th Queue (ft) | 55 | 240 | 424 | 367 | 274 | 141 | 275 | 344 | 228 | 249 | 307 | 271 |
| Link Distance (ft) | | 514 | 474 | 474 | | | 1556 | 1556 | | | 1133 | 1133 |
| Upstream Blk Time (%) | | | 0 | 0 | | | | | | | | |
| Queuing Penalty (veh) | | | 0 | 0 | | | | | | | | |
| Storage Bay Dist (ft) | 100 | | | | 250 | 150 | | | 100 | 300 | | |
| Storage Blk Time (%) | | 33 | | 3 | 1 | 0 | 10 | 38 | 15 | 0 | 1 | |
| Queuing Penalty (veh) | | 4 | | 8 | 4 | 0 | 6 | 174 | 37 | 1 | 2 | |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | EB | EB | WB | WB | WB | WB | NB | NB | NB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served | L | TR | L | L | T | R | L | T | T | R | L | T |
| Maximum Queue (ft) | 21 | 30 | 250 | 300 | 501 | 298 | 72 | 635 | 681 | 200 | 250 | 529 |
| Average Queue (ft) | 2 | 5 | 233 | 282 | 294 | 121 | 4 | 365 | 513 | 191 | 225 | 235 |
| 95th Queue (ft) | 13 | 21 | 283 | 331 | 648 | 257 | 41 | 633 | 793 | 234 | 291 | 497 |
| Link Distance (ft) | | 576 | | | 464 | | | 639 | 639 | | | 1556 |
| Upstream Blk Time (%) | | | | | 12 | | | 1 | 19 | | | |
| Queuing Penalty (veh) | | | | | 0 | | | 0 | 0 | | | |
| Storage Bay Dist (ft) | 150 | | 200 | 200 | | 200 | 150 | | | 100 | 150 | |
| Storage Blk Time (%) | | | 13 | 47 | 0 | 3 | | 33 | 46 | 31 | 41 | 2 |
| Queuing Penalty (veh) | | | 46 | 158 | 0 | 18 | | 1 | 283 | 105 | 179 | 9 |

Intersection: 7: Weddington Road & Plantation Center Drive/I-485 Eastbound Ramps

| Movement | SB |
|-----------------------|------|
| Directions Served | TR |
| Maximum Queue (ft) | 477 |
| Average Queue (ft) | 142 |
| 95th Queue (ft) | 330 |
| Link Distance (ft) | 1556 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 8: Weddington Rd & Site Access B

| Movement | EB | EB | SB |
|-----------------------|-----|-----|-----|
| Directions Served | L | T | LR |
| Maximum Queue (ft) | 33 | 54 | 70 |
| Average Queue (ft) | 8 | 5 | 21 |
| 95th Queue (ft) | 30 | 72 | 58 |
| Link Distance (ft) | | 741 | 398 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (ft) | 150 | | |
| Storage Blk Time (%) | | 0 | |
| Queuing Penalty (veh) | | 0 | |

Network Summary

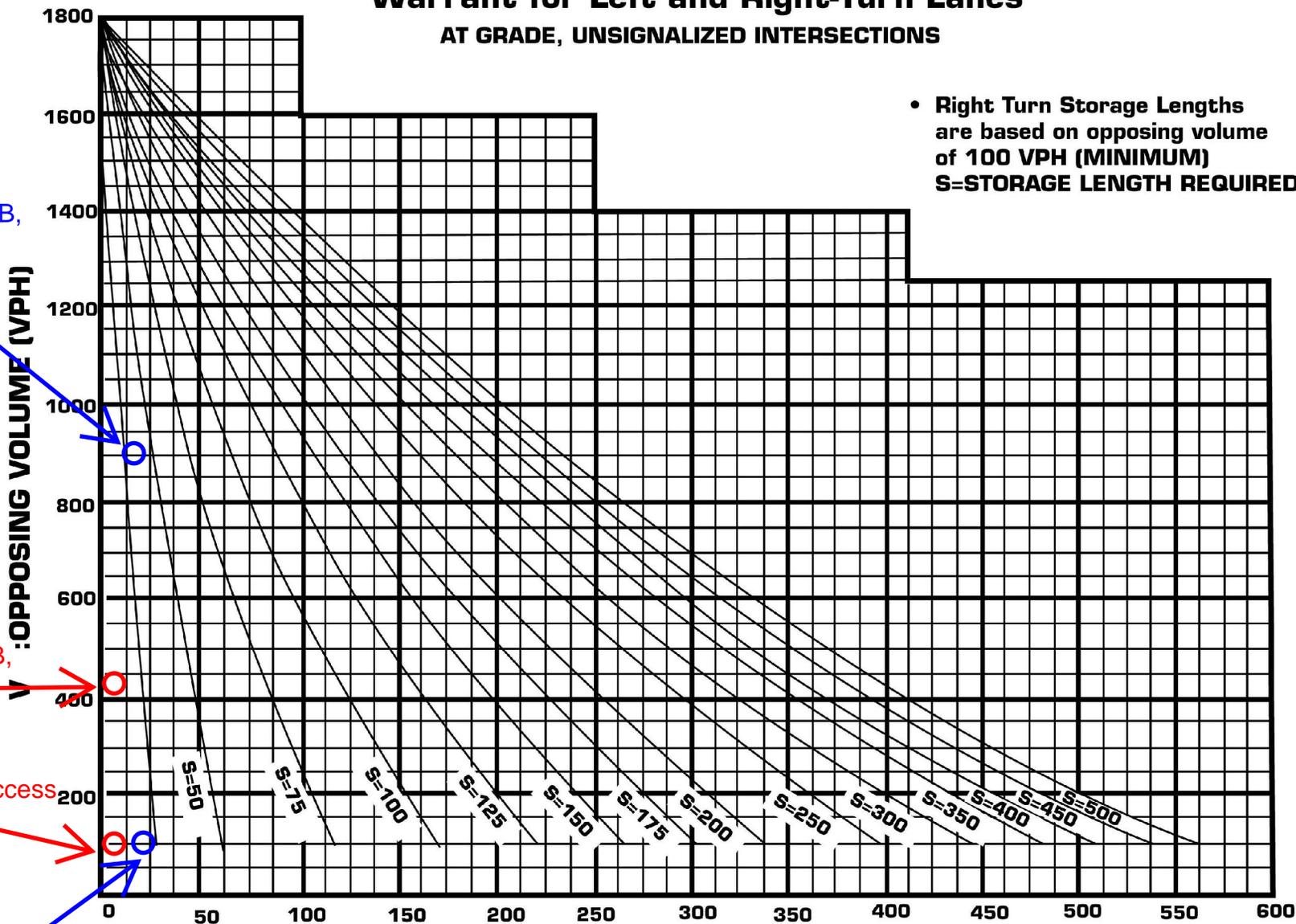
Network wide Queuing Penalty: 2290

AUXILIARY TURN LANE WARRANTS

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS

- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED



V_L : LEFT TURNING VOLUME (VPH)
 V_R : RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

EBL (Site Access B, PM Peak)

EBL (Site Access B, AM Peak)

WBR/SBR (Site Access A/B, AM Peak)

WBR/SBR (Site Access A/B, PM Peak)

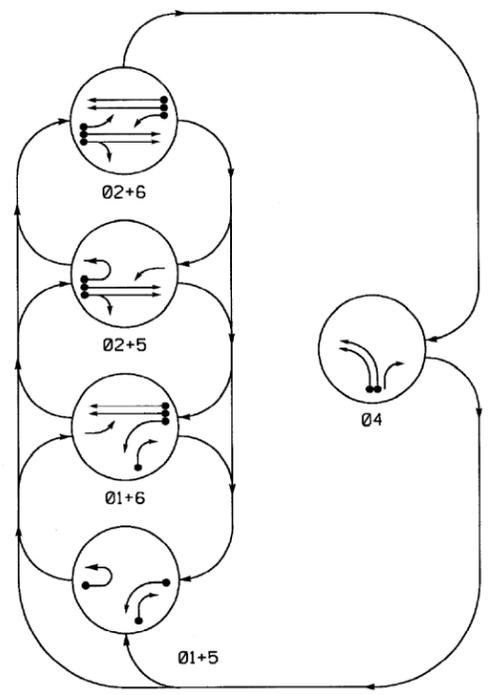
Page 80

July 2003

Policy On Street And Driveway Access to North Carolina Highways

SIGNAL PLANS

PHASING DIAGRAM

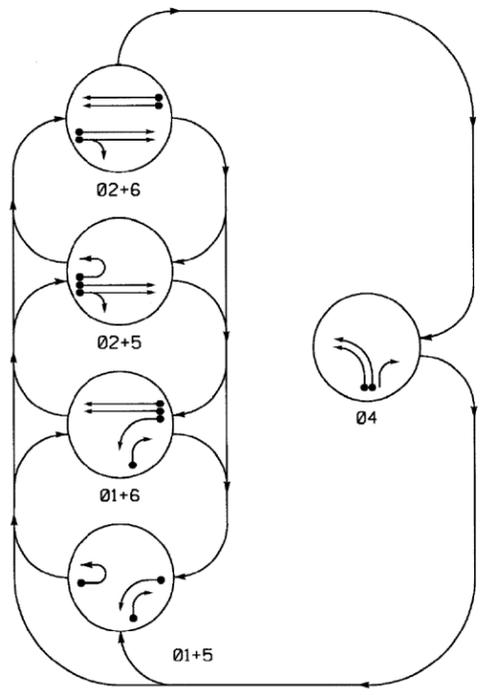


PHASING DIAGRAM DETECTION LEGEND
 ● ← DETECTED MOVEMENT
 ← UNDETECTED MOVEMENT (OVERLAP)
 - - - UNSIGNALIZED MOVEMENT
 - - - PEDESTRIAN MOVEMENT

TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | | | |
|-------------|-------|------|------|------|----|---------|
| | 01+5 | 01+6 | 02+5 | 02+6 | 04 | F L H S |
| 11 | - | - | F | F | R | Y |
| 21, 22 | R | R | G | G | R | Y |
| 41 | R | R | R | R | G | R |
| 42 | R | R | R | R | G | R |
| 51 | - | F | - | F | R | Y |
| 61, 62 | R | G | R | G | R | Y |

ALTERNATE PHASING DIAGRAM

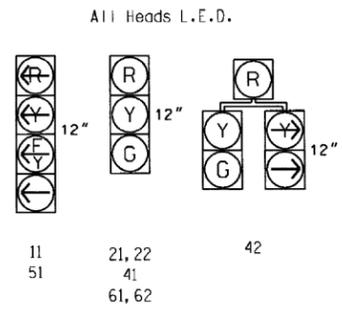


PHASING DIAGRAM DETECTION LEGEND
 ● ← DETECTED MOVEMENT
 ← UNDETECTED MOVEMENT (OVERLAP)
 - - - UNSIGNALIZED MOVEMENT
 - - - PEDESTRIAN MOVEMENT

ALTERNATE TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | | | |
|-------------|-------|------|------|------|----|---------|
| | 01+5 | 01+6 | 02+5 | 02+6 | 04 | F L H S |
| 11 | - | - | R | R | R | Y |
| 21, 22 | R | R | G | G | R | Y |
| 41 | R | R | R | R | G | R |
| 42 | R | R | R | R | G | R |
| 51 | - | R | - | R | R | Y |
| 61, 62 | R | G | R | G | R | Y |

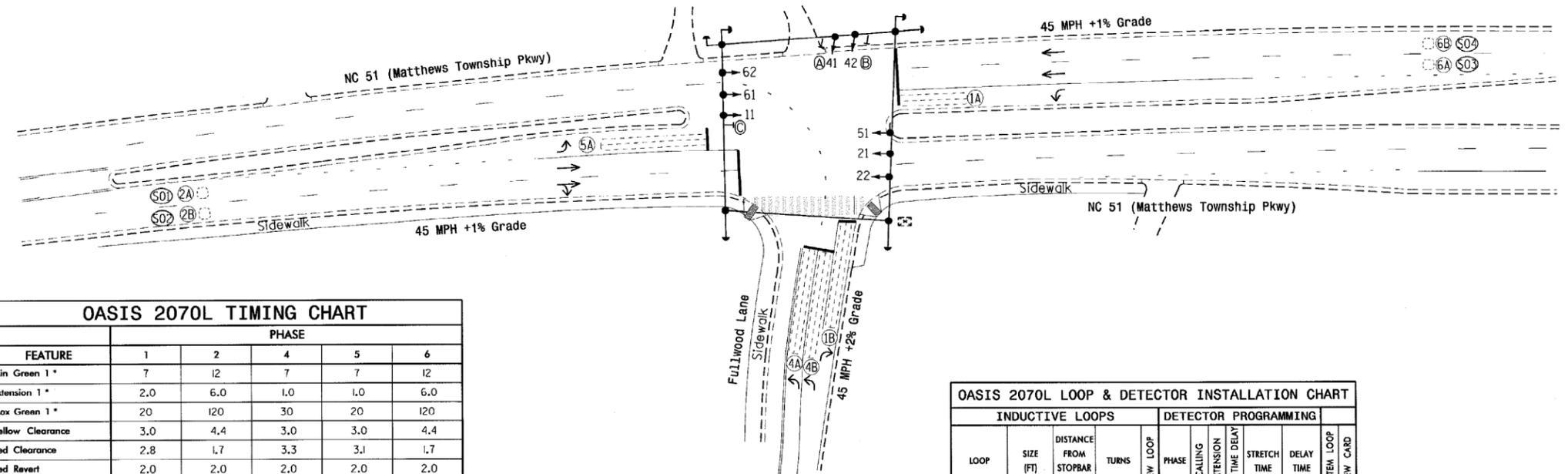
SIGNAL FACE I.D.



5 PHASE FULLY ACTUATED NC 51 CLOSED LOOP SIGNAL SYSTEM

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 and/or phase 5 may be lagged.
- Set all detector units to presence mode.
- 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.
- Pavement markings are existing.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- 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 # 1368.



OASIS 2070L TIMING CHART

| FEATURE | PHASE | | | | | |
|------------------------|-------|------------|-----|-----|------------|--|
| | 1 | 2 | 4 | 5 | 6 | |
| Min Green 1* | 7 | 12 | 7 | 7 | 12 | |
| Extension 1* | 2.0 | 6.0 | 1.0 | 1.0 | 6.0 | |
| Max Green 1* | 20 | 120 | 30 | 20 | 120 | |
| Yellow Clearance | 3.0 | 4.4 | 3.0 | 3.0 | 4.4 | |
| Red Clearance | 2.8 | 1.7 | 3.3 | 3.1 | 1.7 | |
| 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* | - | 34 | - | - | 34 | |
| Time Before Reduction* | - | 15 | - | - | 15 | |
| Time To Reduction* | - | 30 | - | - | 30 | |
| Minimum Gap | - | 3.0 | - | - | 3.0 | |
| 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.

OASIS 2070L 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 | | |
| 1A | 6X40 | 0 | 2-4-2 | - | 1 | Y | Y | - | 15* | - |
| 1B | 6X60 | 0 | 2-4-2 | - | 1 | Y | Y | - | 15 | - |
| 2A/S01 | 6X6 | 300 | 4 | - | 2 | Y | Y | - | - | Y |
| 2B/S02 | 6X6 | 300 | 4 | - | 2 | Y | Y | - | - | Y |
| 4A | 6X60 | 0 | 2-4-2 | - | 4 | Y | Y | - | 3 | - |
| 4B | 6X60 | 0 | 2-4-2 | - | 4 | Y | Y | - | - | - |
| 5A | 6X60 | 0 | 2-4-2 | - | 5 | Y | Y | - | 15* | - |
| 6A/S03 | 6X6 | 300 | 4 | - | 6 | Y | Y | - | - | Y |
| 6B/S04 | 6X6 | 300 | 4 | - | 6 | Y | Y | - | - | Y |

* Disable Delay During Alternate Phasing Operation.
 ** Disable Phase 2 call for loop 5A and phase 6 for loop 1A During Alternate Phasing Operation.

Plan of Record

PREPARED BY: M. Mahbooba DATE: June 2014
 REVIEWED BY: T. Williams DATE: June 2014
 SIGNATURE: T.J. Williams DATE: 6/9/14

COMMENTS: Added sign "C".

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

Plan Of Record

750 N. Greenfield Pkwy., Corner, NC 27529

NC 51 (Matthews Township Pkwy) at Fullwood Lane

Division 10 Wecklenburg County Matthews

PLAN DATE: May 2012 REVIEWED BY: M. Mahbooba

PREPARED BY: M. Mahbooba REVIEWED BY: T.J. Williams

SCALE: 1"=40'

6/25/2012

SIG. INVENTORY NO. 10-1368

LEGEND

| PROPOSED | EXISTING |
|--|--|
| ○ → Traffic Signal Head | ● → N/A |
| ○ → Modified Signal Head | ○ → N/A |
| ⊥ Sign | ⊥ Sign |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Pedestrian Signal Head With Push Button & Sign |
| ⊥ Signal Pole with Guy | ⊥ Signal Pole with Guy |
| ⊥ Signal Pole with Sidewalk Guy | ⊥ Signal Pole with Sidewalk Guy |
| ⊥ Inductive Loop Detector | ⊥ Inductive Loop Detector |
| ⊥ Controller & Cabinet | ⊥ Controller & Cabinet |
| ⊥ Junction Box | ⊥ Junction Box |
| ⊥ 2-in Underground Conduit | ⊥ 2-in Underground Conduit |
| N/A Right of Way with Marker | △ Right of Way with Marker |
| → Directional Arrow | → Directional Arrow |
| N/A Wheelchair Ramp | ↯ Wheelchair Ramp |
| ⊙ Left Arrow "ONLY" Sign (R3-5L) | ⊙ Left Arrow "ONLY" Sign (R3-5L) |
| ⊙ Right Arrow "ONLY" Sign (R3-5R) | ⊙ Right Arrow "ONLY" Sign (R3-5R) |
| ⊙ "U-TURN YIELD TO RIGHT TURN" Sign (R10-16) | ⊙ "U-TURN YIELD TO RIGHT TURN" Sign (R10-16) |

TIA SCOPING PACKAGE



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: Weddington At S.Trade Multifamily

TIA Scoping Date: 3/30/20

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 | S. Trade Street | Conventional Full-Mvmt | 2-Way Stop | 0 | Please Select | Brenham Lane |
| Access B | Weddington Rd | Conventional Full-Mvmt | 2-Way Stop | 925' | West | S. Trade St. |
| 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 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 7-9
- Weekday PM Peak 4-6
- Weekday Midday Peak _____
- Weekday PM School Peak _____
- Weekend _____ Peak _____
- Other _____



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 | Weddington Rd | S. Trade St | Signal | Require New Counts | | | Old Counts? |
| #2 | S. Trade St | Brenham Ln. | 2-Way Stop | Require New Counts | | | Old Counts? |
| #3 | S. Trade St. | Chesney Glen | Signal | Require New Counts | | | Old Counts |
| #4 | | | | | | | |
| #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: _____
- 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: _____ 2022 _____

Future Analysis Year(s): _____ 2022 _____

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 |
|---------------------------------|---------------------|--|------------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| Nearby Approved Development | Location | Future Land Use (exclude any completed phases) | Committed Improvements |
| | | | |
| | | | |
| | | | |
| | | | |

Annual Growth Factor: 3 %

Justification/Data Source: Weighted Average AADT for Weddington Road at S Trade Street

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 # |
|-----------|----------------|-------------|------------------------|-----------------------|-------------------------|-----------------------------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



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 _____
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 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.)



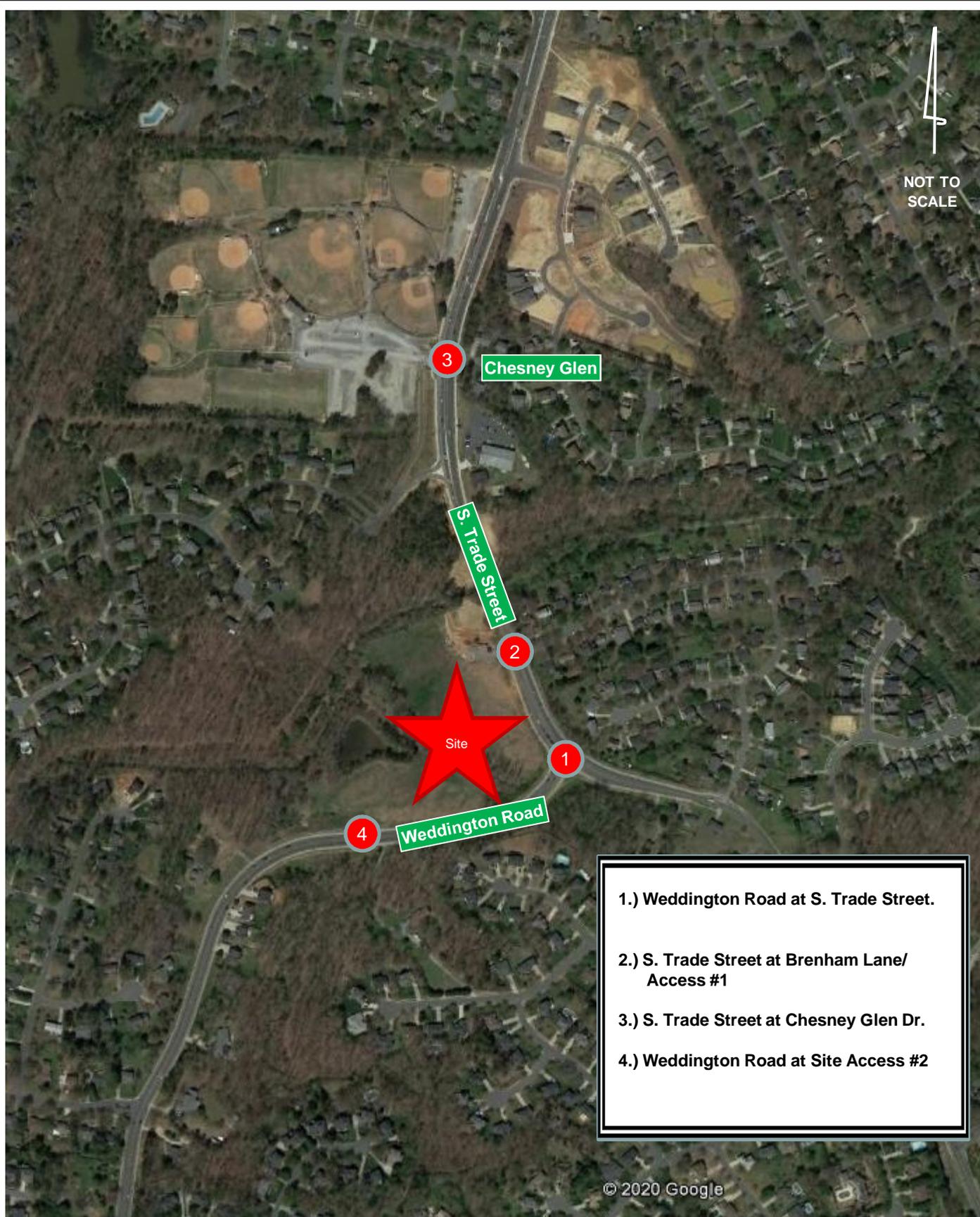
NCDOT TIA Submittal Checklist



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

Print Name

Date





NOT TO SCALE

- 131 Units
- 94 apartment flats
 - 52 (1) bedroom
 - 42 (2) bedroom
- 37 townhouse apartments
 - 16 (2) bedroom
 - 21 (3) bedroom

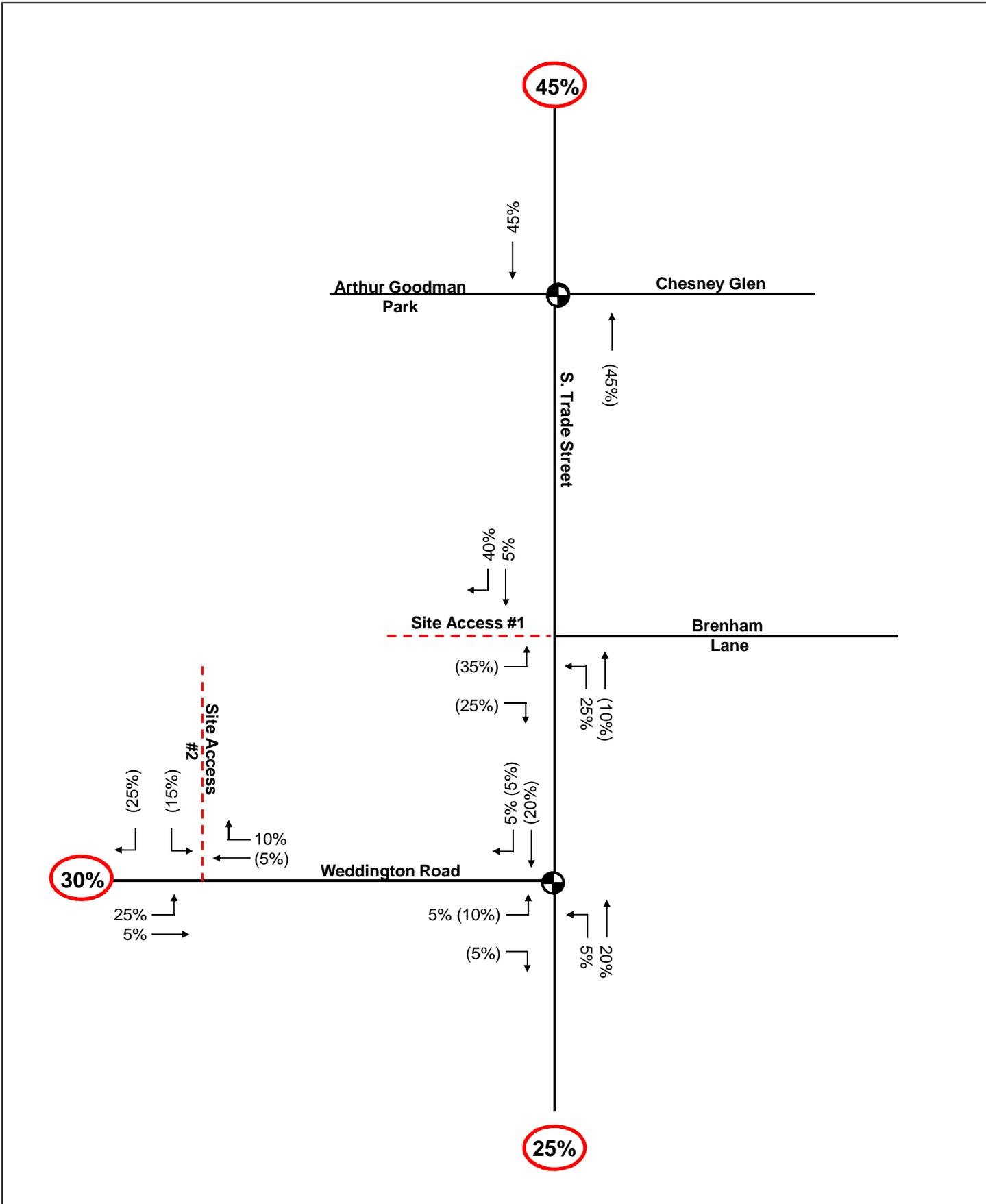


Matthews Density Study

Site Plan
3.5.2020



16/01/2020 4:49:13 PM



| | | | |
|---------------------------|---|--|------------------------|
| <p>Kimley»Horn</p> | <p>Weddington Road at S. Trade Street Multifamily Traffic Impact Study</p> | <p>Proposed Distribution and Assignment</p> | <p>Figure 3</p> |
|---------------------------|---|--|------------------------|

Turner, Dillon

From: Tagliaferri, Anthony <atagliaferri@ncdot.gov>
Sent: Monday, May 18, 2020 8:15 PM
To: Turner, Dillon; Susan Habina Woolard, PE
Subject: Re: [External] Traffic Counts in Matthews, NC

Categories: External

I'm ok with either of these - town's choice. Thanks!

Sent from mobile device

From: Turner, Dillon <Dillon.Turner@kimley-horn.com>
Sent: Monday, May 18, 2020 8:06:09 PM
To: Tagliaferri, Anthony <atagliaferri@ncdot.gov>; Susan Habina Woolard, PE <shwoolard@matthewsnc.gov>
Subject: RE: [External] Traffic Counts in Matthews, NC

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Tony and Susan,

In thinking through this and discussing this with other partners I see two paths forward.

1. We can get counts for the study area and compare them to the available 2016 data (NC 51 at Fullwood) and see how the volumes compare and factor them to 2020 based on this comparison. One intersection would drive the growth factor.
2. Utilize the data that we have (which is from 2012 for NC 51 at Fullwood and Fullwood at S Trade Street and 2004 for S Trade at Chesney Glen and S Trade at Weddington) for all the study area intersection except Breham Lane, trip gen (Brenham Lane), and factor them all up to 2020. The factor would be from the 2012 to 2016 data at NC 51 and Fullwood and Fullwood at S Trade Street.

Under either scenario we are making assumptions on what the level of growth, the directionality of movements and the ultimately the level of impact for a movement. Also as we look at the horizon year, the new interchange with Weddington Road will likely change the directionality of a portion of the traffic volume at the study intersections. The new interchange will pull and push volumes through the system differently than it does today.

I understand that neither approach is ideal, but we are not in ideal times either and if the intent is to understand impact and what mitigation might be required on the roadway network, it seems that factoring data up from the counts that we have, knowing that it will likely shift some based on the new interchange would make the most sense.

Thoughts? I know it is unconventional.

Thank You,

Dillon Turner

From: Tagliaferri, Anthony <atagliaferri@ncdot.gov>
Sent: Wednesday, May 13, 2020 10:12 AM
To: Susan Habina Woolard, PE <shwoolard@matthewsnc.gov>
Cc: Turner, Dillon <Dillon.Turner@kimley-horn.com>
Subject: RE: [External] Traffic Counts in Matthews, NC

Here's all we have. Not sure it will be of any use.

Tony Tagliaferri, PE
Division 10 Traffic Engineer
North Carolina Department of Transportation

704 983 4400 Office
atagliaferri@ncdot.gov

From: Susan Habina Woolard, PE <shwoolard@matthewsnc.gov>
Sent: Wednesday, May 13, 2020 9:52 AM
To: Tagliaferri, Anthony <atagliaferri@ncdot.gov>
Cc: Turner, Dillon <Dillon.Turner@kimley-horn.com>
Subject: Re: [External] Traffic Counts in Matthews, NC

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Tony,
This is for a town-required TIA. Since the consultant cannot count right now with the stay-at-home order, possible for NCDOT to give Dillon whatever is available and then he can attempt to grow those to current year? What are your thoughts on that?

Susan Habina-Woolard, PE
Town Engineer

Town of Matthews
Public Works Department
1600 Tank Town Rd
Matthews NC 28105

704-962-2274 cell
704-708-1243 office
shwoolard@matthewsnc.gov
www.matthewsnc.gov



Pursuant to North Carolina General Statutes Chapter 132, Public Records, this electronic mail message and any attachments hereto, as well as any electronic mail message(s) that may be sent in response to it may be considered public record and as such are subject to request and review.

On Wed, May 13, 2020 at 9:23 AM Tagliaferri, Anthony <atagliaferri@ncdot.gov> wrote:

Dillon,

In our database we don't have any of these that are within 5 years. Sorry

Tony Tagliaferri, PE
Division 10 Traffic Engineer
North Carolina Department of Transportation

704 983 4400 Office
atagliaferri@ncdot.gov

From: Turner, Dillon <Dillon.Turner@kimley-horn.com>
Sent: Wednesday, May 13, 2020 7:48 AM
To: shwoolard@matthewsnc.gov; Tagliaferri, Anthony <atagliaferri@ncdot.gov>
Subject: [External] Traffic Counts in Matthews, NC

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Tony,

I hope you are doing well! We are working on a traffic study (131 low rise multifamily units) in Matthews. The trips do not meet NCDOT thresholds but does meet the Town of Matthews thresholds. The Town wants us to study the following intersections:

- S Trade St at Weddington Road
- S Trade St at Brenham Lane
- S Trade Street at Chesney Glen
- S Trade Street at Fulwood Lane
- Fulwood Lane at NC 51

Do you happen to have recent counts at these intersections? Susan let us know there are a few active projects in the area.

Thank You,

Dillon Turner, P.E, PTOE | Project Manager
Kimley-Horn | 115 Fairchild Street, Suite 250, Charleston, SC 29492
Direct: 843 574 8593 | Mobile: 803 917 8216
Connect with us: [Twitter](#) | [LinkedIn](#) | [Facebook](#) | [Instagram](#) | Kimley-Horn.com
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