



Tyrone Planning Commission Agenda

April 25th, 2019
7:00 PM

Planning Commission

David Nebergall
Chairman

Dia Hunter
Vice-Chairman

Jeff Duncan
Commissioner

Carl Schouw
Commissioner

Scott Bousquet
Commissioner

Staff

Phillip Trocquet
Planning &
Development
Coordinator

Patrick Stough Town
Attorney

Meeting Information

2nd & 4th Thursday
of each month @
7:00pm

881 Senoia Road
Tyrone, Ga 30290

I. Call to Order

II. Approval of Agenda

III. Approval of Minutes from January 24, 2019

IV. Public Hearing

1. To consider a petition from applicant Sandra Stiltner for the rezoning of a 5.89 acre tract with parcel number 0742-023 at property address 520 Briarwood Road from AR (Agricultural Residential) to R-12 (Residential 1200 s.f. min.). **Phillip Trocquet, Planning & Development Coordinator.**

V. New Business

1. Consideration to approve a site plan for a Bethel Church at 926 Tyrone Road by applicant Paul Gresham. **Phillip Trocquet, Planning & Development Coordinator.**

VI. Staff Comments

1. Zoning Ordinance Updates and Sandy Creek Corners (FKA Founders District) Update. **Phillip Trocquet, Planning & Development Coordinator.**

VII. Commission Comments

VIII. Adjournment

Staff Report

Date: April 11, 2019

Town of Tyrone, Department of Planning & Zoning
881 Senoia Road, Tyrone GA 30290Phillip Trocquet, Planning & Zoning Coordinator
ptrocquet@tyrone.org (770) 487-4038 ex. 108**DOCKET/CASE/APPLICATION NUMBER**

RZ-2019-001

APPLICANT/PROPERTY OWNER

Sandra Stiltner

PLANNING COMMISSION MEETING DATE

April 11, 2019

TOWN COUNCIL MEETING DATE

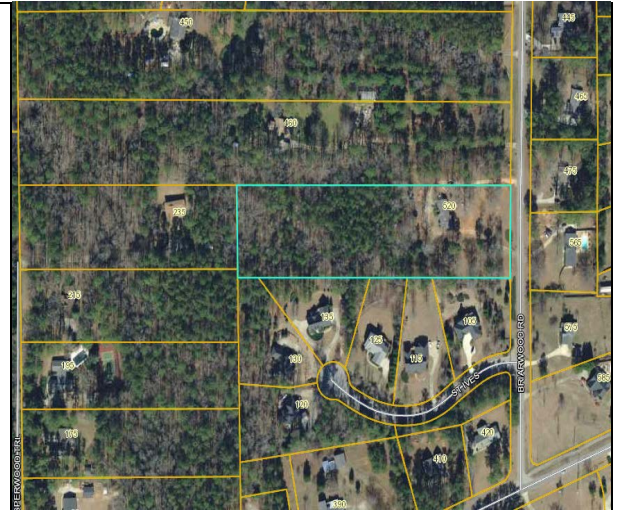
April 18, 2019

ADDRESS/LOCATION

520 Briarwood Road

Summary

Applicant Sandra Stiltner has submitted a petition to rezone a 5.83 acre parcel at address 520 Briarwood Road from AR (Agricultural Residential) to R-12 (Residential 1200 s.f. min.)



MAP SOURCE: Fayette County Tax Assessor

EXISTING ZONING	EXISTING LAND USE	SURROUNDING ZONING & LAND USE	SITE IMPROVEMENTS	SIZE OF PROPERTY
AR (Agricultural Residential)	Single-Family Residential	North: R-12 South: R-18 East: R-12 West: R-12	Water Single Family Home	5.83 Acres

COMPATIBILITY WITH FUTURE DEVELOPMENT MAP & COMPREHENSIVE PLAN	PROPERTY HISTORY
Petition is consistent with the Future Development Map and Comprehensive Plan. Both call for the area to develop as Rural/Estate-Residential. This character area should be defined by single-family low-density development and encouraged to preserve green space and conservation.	N/A. Existing occupied home currently sits on the east end of the property.
COMPATABILITY WITH ZONING ORDINANCE	
This rezoning petition is consistent with the zoning ordinance. R-12 land exists to the north, east, and west of the property in question. The proposed rezoning does not adversely affect the existing use or usability of adjacent or nearby property and will not result in a use which could cause excessive or burdensome use of existing infrastructure.	

STAFF RECOMMENDATION**APPROVE****APPROVE WITH CONDITIONS****DENY**

Zoning Map

520 Briarwood Road

Legend

- Tyrone Roads 2018
- CR-2
- R-18 Residential (1800 sq.ft. min.)
- AR Agricultural Residential
- R-12 Residential Multifamily (1200 sq.ft. min)





Staff Report

Date: April 25, 2019

Town of Tyrone, Department of Planning & Zoning
881 Senoia Road, Tyrone GA 30290Phillip Trocquet, Planning & Zoning Coordinator
ptrocquet@tyrone.org (770) 487-4038 ex. 108**DOCKET/CASE/APPLICATION NUMBER**

PC04252019

APPLICANT/PROPERTY OWNER

Paul Gresham

PLANNING COMMISSION MEETING DATE

April 25, 2019

TOWN COUNCIL MEETING DATE**ADDRESS/LOCATION**

926 Tyrone Road

Summary

Bethel Church is applying for the approval of a site plan to accommodate parking and access driveways for their current tent and future permanent structure. The property currently has two existing permanent structures utilized as offices as well as a temporary tent for the purposes of church services.

The proposed site plan has been approved by the Town's TRC (Technical Review Committee).



MAP SOURCE

EXISTING ZONING	EXISTING LAND USE	SURROUNDING ZONING & LAND USE	SITE IMPROVEMENTS	SIZE OF PROPERTY
AR Agricultural Residential	Church Office & Assembly @ current Tent	North: O-I & R-18 South: R-18 East: R-18 West: AR	Water	~37 Acres

COMPATIBILITY WITH FUTURE DEVELOPMENT MAP & COMPREHENSIVE PLAN	PROPERTY HISTORY
This submission is compatible with both the Comp Plan and the Future Development Map. This property lies Rural-Estate Residential character area which accommodates churches.	Northern property applied for a rezoning six months ago from R-12 to AR. It was denied.

COMPATABILITY WITH ZONING ORDINANCE
This submission is compatible with the zoning ordinance. Churches are allowed in residentially zoned districts with conditions. Bethel Church's plans meet the Town's Conditional use development regulations.

APPROVESTAFF RECOMMENDATION
APPROVE WITH CONDITIONS**DENY**

N/F
SUSAN E. & ERIC HEIM
PARCEL #0727 002
DB 2801 - PGS 184-185

NEW DRIVEWAY

EXISTING F.H.

TEMP. TENT PAD

50' BUFFER

30" PINE

H.C. ACCESSIBLE RESTROOM FACILITIES

FUTURE PAD

25' LAKE BUFFER

"No specimen trees will not be removed during road construction"

TIE INTO EXIST. DRIVEWAY AT THIS POINT

EXIST. DRIVEWAY TO BE WIDENED

TIE INTO EXIST. DRIVEWAY AT THIS POINT

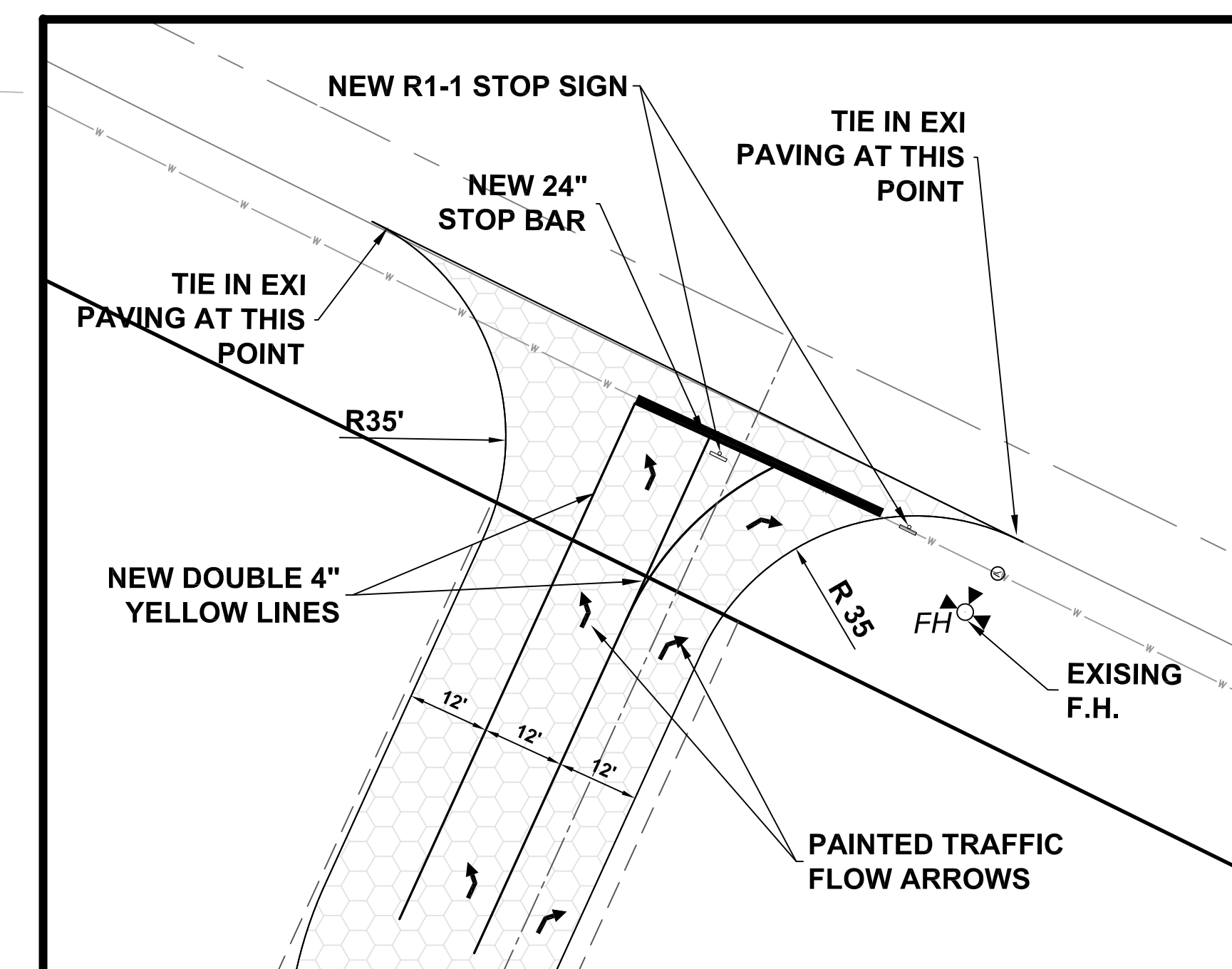
Site plan details include:

- Proposed road layout with various radii (R10', R15', R20', R25', R32', R35', R45', R55', R62.9', R75', R100', R18').
- Parking areas with dimensions (e.g., 27', 20', 24', 189', 64').
- Environmental features like a 30" pine tree and a 25' lake buffer.
- Infrastructure like a temporary tent pad and future pad.
- Access points to existing facilities and driveways.
- Annotations for tree preservation during construction.



PARCEL DATA

PROPOSED: = 154 SPACES ONSITE MEETS ARTICLE REQUIREMENTS



GRAPHIC SCALE

0 20 40

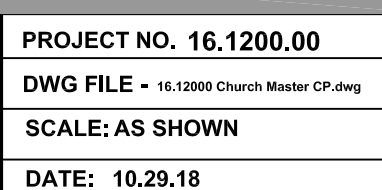
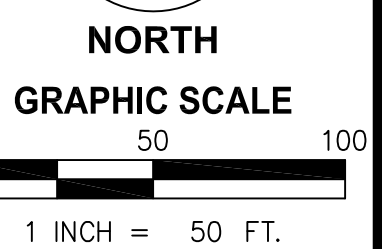
1 INCH = 20 FT.



CLIENT

2020 TYRONE ROAD
CITY OF TYRONE
FAYETTE COUNTY, GEORGIA
LAND LOT 118
7th DISTRICT

PROJECT



SHEET 1



Curve Table				
Curve #	Radius	Length	Chord Direction	Delta
C35	32.00	36.67	S8° 17' 11.84"E	65°39'13"
C36	55.00	67.29	S26° 29' 32.68"E	70°05'52"
C37	45.08	76.77	S56° 09' 55.14"W	97°33'32"
C38	75.00	27.08	N85° 16' 40.48"W	20°41'21"
C41	75.00	39.68	S86° 05' 25.36"W	30°18'35"
C42	100.00	22.42	S6° 57' 15.93"E	12°50'49"
C43	100.00	125.09	S35° 18' 18.86"W	71°40'20"
C44	100.00	76.91	S49° 06' 26.70"W	44°04'04"
C39	250.00	168.90	S53° 55' 07.81"W	38°42'36"
C40	62.88	117.87	S11° 09' 21.75"W	107°23'53"

ALIGNMENT PLAN
SCALE: 1" = 50'-0"

Omni
Consulting Services
Atlanta Tallahassee
Jacksonville Washington D.C.
401 Westpark Court, Suite 200
Peachtree City, GA 30269
ph: 770.302.1701
fax: 770.816.5663

Construction Documents
PREPARED FOR:
BETHEL ATLANTA CHURCH
362 FARR ROAD
CITY OF TYRONE

#	DATE & BY
1.	1.3.19 - PER CITY COMMENTS
2.	1.30.19 - PER CITY COMMENTS
3.	4.22.19 - PER CITY COMMENTS

BETHEL ATLANTA CHURCH
Tent Plans
362 FARR ROAD
CITY OF TYRONE
FAYETTE COUNTY, GEORGIA
LAND LOT 118
7th DISTRICT

4.22.2019
SEAL

PROJECT NO. 16.1200.00
DWG FILE - 16.1200 Church Master CP.dwg
SCALE: AS SHOWN
DATE: 10.29.18

ROAD & PARKING
ALIGNMENT
C 3.1
SHEET



TRAFFIC STUDY

Prepared By

Maldino & Wilburn

For

Bethel Atlanta Church

BETHEL ATLANTA CHURCH EXPANSION AND ACCESS MODIFICATION

TYRONE, GA

March 27, 2019

Report Submitted:

March 27, 2019

Prepared For:

Mr. Steve Hale, Senior Pastor
Bethel Atlanta Church
2020 Tyrone Road
Tyrone, GA 30290

Prepared By:

Vern Wilburn, PE, PTOE
Maldino & Wilburn
75 Jackson Street, Suite 402
Newnan, GA 30263
770.683.2124
vern@mwtraffic.com

Additional investigation by:
Mallory Maldino, EIT

Maldino & Wilburn Project No.:

19-09

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The study area is shown in closer detail below in Figure 2, including the location of the proposed access to Tyrone Road. The intersections included in the analysis for the study are as follows:

- SR 74 and Tyrone Road
- Tyrone Road and Farr Road
- Farr Road and Existing Church Access to Farr

Figure 2: STUDY INTERSECTION MAP



Chapter 2. METHODOLOGY

The process for evaluating the traffic-related impact of the new Tyrone Road access and the projected membership of the church included the following steps:

- Collecting an inventory of existing conditions, i.e. traffic control types, geometric conditions, speed limits, traffic volumes, etc.
- Analyzing traffic operation under existing conditions
- Redistributing existing church trips to the roadway network with the new church access to Tyrone Road
- Estimating the trips expected to be generated by the projected 400 additional guests to the church and assigning these trips to the roadway network to model projected conditions
- Analyzing traffic operation under projected conditions

EXISTING CONDITIONS (Chapter 3)

The inventory of existing conditions included the collection of traffic control types, geometric conditions, speed limits, traffic volumes, and other data used in simulating the existing conditions within the study area. All of these elements, with the exception of traffic volumes, were observed during a field visit conducted at the site and/or by studying aerial imaging in Google Earth.

Existing Sunday peak hour traffic volumes were collected during Turning Movement Counts (TMC's) on Sunday, March 10, 2019 from 9:00AM to 12:30PM to capture trips to and from the church. An additional count was conducted upon request by Bethel Atlanta Church on Monday, March 11, 2019 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. All TMC data is provided in Appendix A.

PROJECTED CONDITIONS (Chapter 4)

Projected conditions were developed based on the construction of the new church access to Tyrone Road and the projected membership of the church.

First, the existing church trips were redistributed to the roadway network with the new access to Tyrone Road. Next, *TripGen 10* software by Trafficware was used to estimate the expected trips which would be generated by a potential for 400 additional guests to the church. These new trips were then superimposed onto the roadway network with the new access to Tyrone Road.

CAPACITY ANALYSIS (Chapter 5)

Traffic operation within the study area for existing conditions, existing membership with the new church access to Tyrone Road, and projected membership with the new church access to Tyrone Road was analyzed through capacity analysis using *Synchro 10* software by Trafficware. The results of capacity analysis are reported in terms of level of service, which is a function of average delay per vehicle, in seconds. The level of service scale according to the *Highway Capacity Manual* (HCM) is shown below in Table 1.

Table 1: HCM LEVEL OF SERVICE SCALE

LEVEL OF SERVICE	AVERAGE DELAY PER VEHICLE (SECONDS)	
	STOP CONTROL	SIGNAL CONTROL
A	≤10.0	≤10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	>50.0	>80.0

The results of capacity analysis for each set of conditions were compared to observe the impact of the changes to the church.

Capacity analysis results for existing conditions, existing membership with the new church access to Tyrone Road, and projected membership with the new church access to Tyrone Road are provided in Appendix B, Appendix C, and Appendix D, respectively.

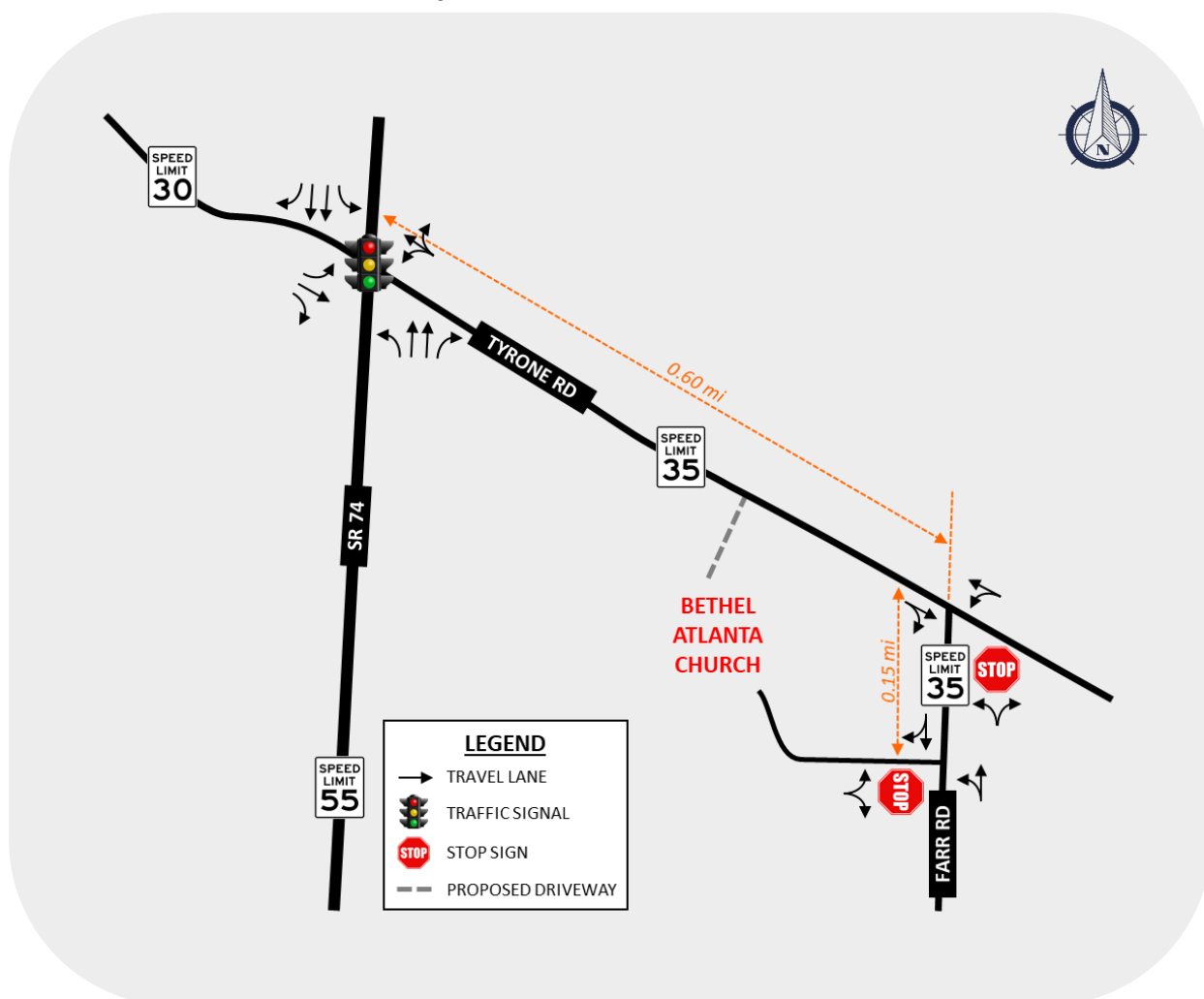
Chapter 3. EXISTING CONDITIONS

An inventory of existing conditions was collected and includes traffic control forms, geometric conditions, traffic volumes, and other pertinent information within the study area.

TRAFFIC CONTROL, GEOMETRY, AND SPEED LIMITS

The traffic control and geometric conditions found at the study intersections are shown below in Figure 3.

Figure 3: EXISTING SITE FEATURES

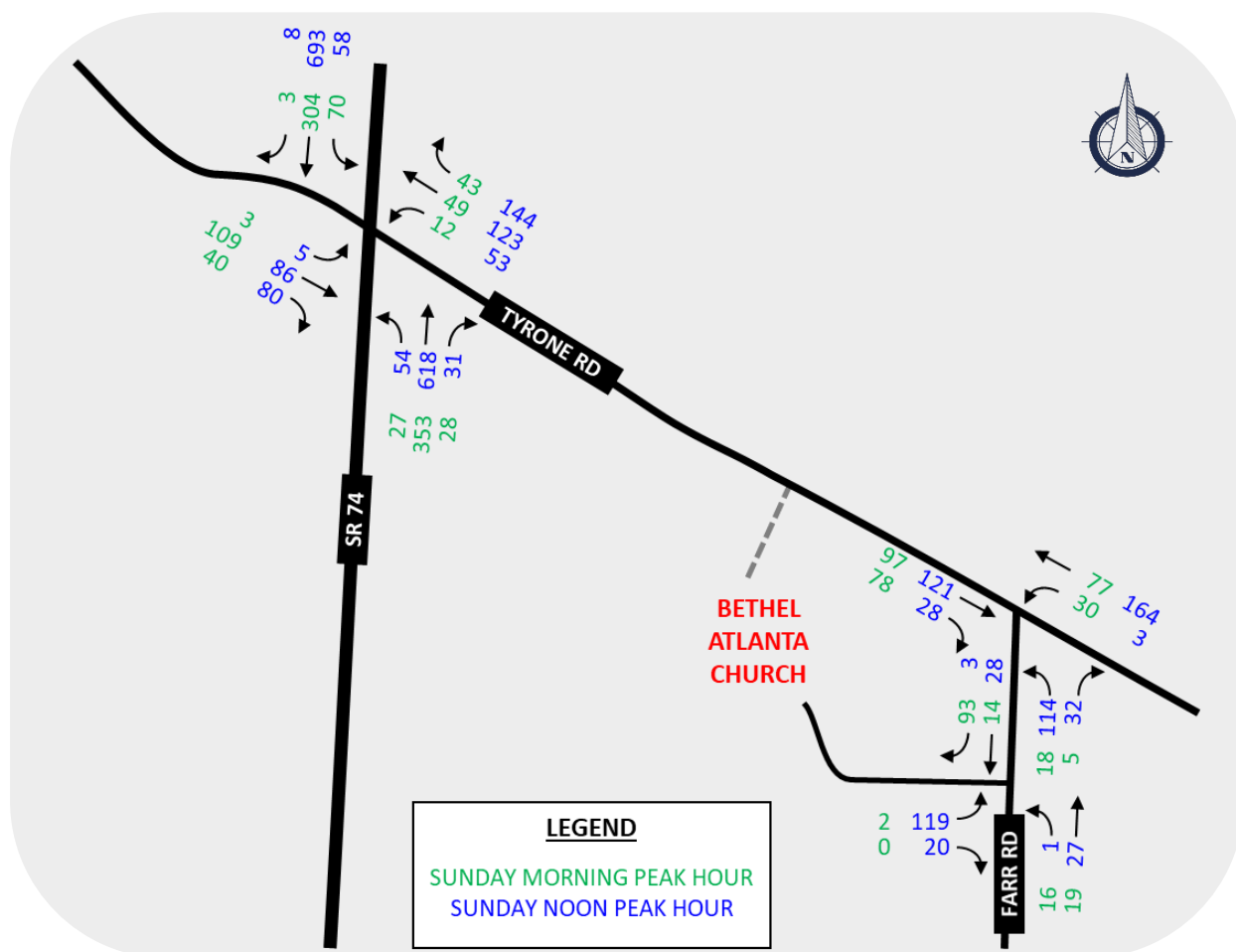


TRAFFIC VOLUMES

Peak hour traffic volumes were collected during Turning Movement Counts (TMC's) at both study intersections on Sunday, March 10, 2019, from 9:00 AM to 12:30 PM. The hours of 9:00 AM to 10:00 AM (Sunday Morning Church Peak Hour) and 11:30 PM to 12:30 PM (Sunday Noon Church Peak Hour) were analyzed to capture all traffic entering the church prior to the start of service and all traffic exiting the church after the conclusion of the service.

The traffic data recorded during the TMC's are provided below in Figure 4.

Figure 4: EXISTING TRAFFIC VOLUMES



SIGHT DISTANCE

During the field visit conducted at the site, the sight distance was evaluated at the location of the proposed new church access to Tyrone Road. It was determined that sight distance is adequate in both directions from the proposed new driveway. The left and right views at the proposed driveway location are shown on the following page in Figure 5.

Figure 5: LEFT & RIGHT VIEWS AT PROPOSED NEW DRIVEWAY



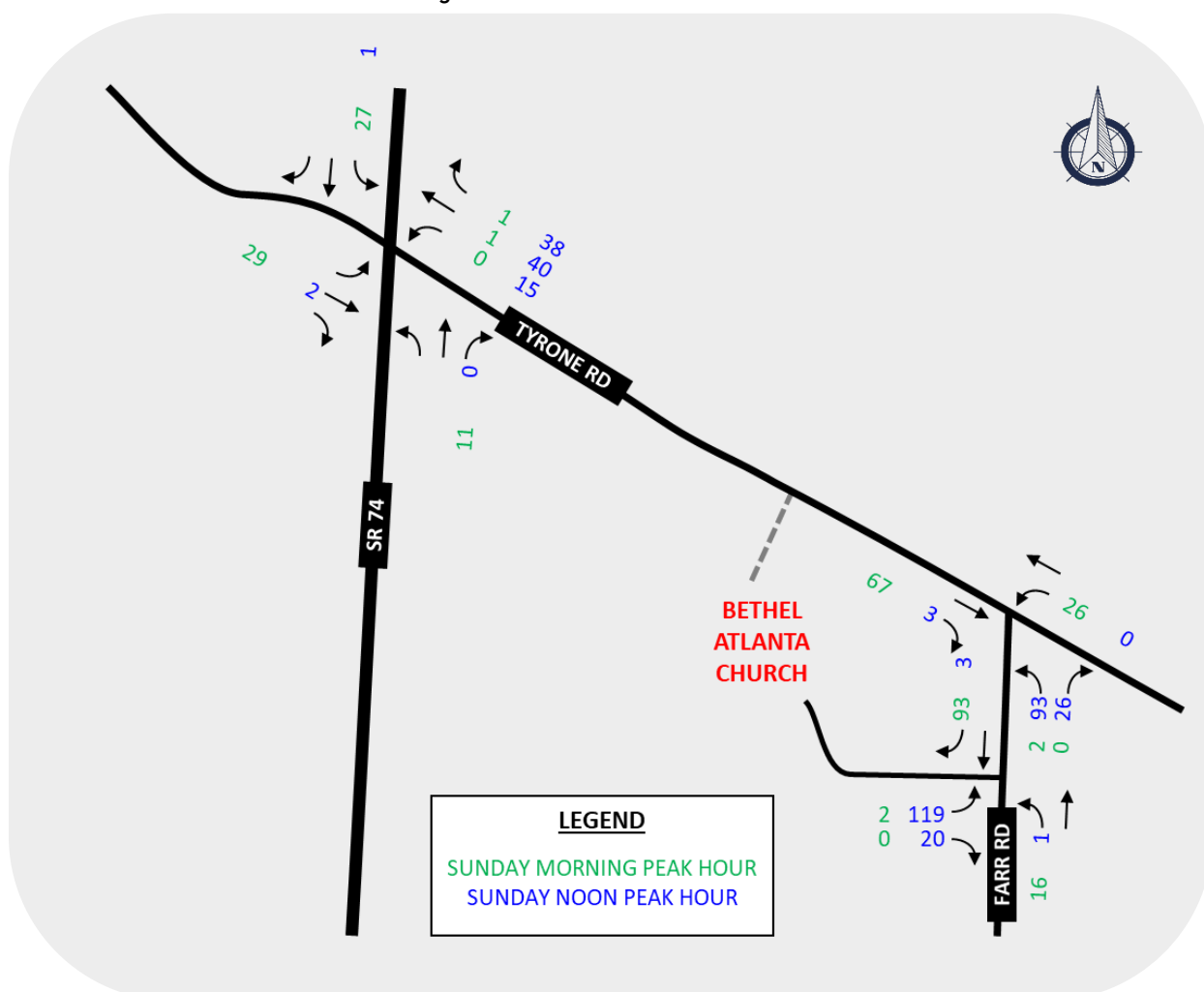
Chapter 4. PROJECTED CONDITIONS

To model the projected conditions around the site, the existing church trips were first redistributed to the projected roadway network with the new access to Tyrone Road. Next, the trips expected to be generated by the potential 400 new guests to the church were estimated and assigned to the projected roadway network. The result is a set of total projected volumes which include existing church trips, existing non-church trips, and new generated church trips which have been assigned to the roadway network with the new access to Tyrone Road.

REDISTRIBUTION OF EXISTING CHURCH TRIPS

The trips currently being made to and from the church during the Sunday Peak Hours are shown below in Figure 6.

Figure 6: EXISTING CHURCH TRIPS

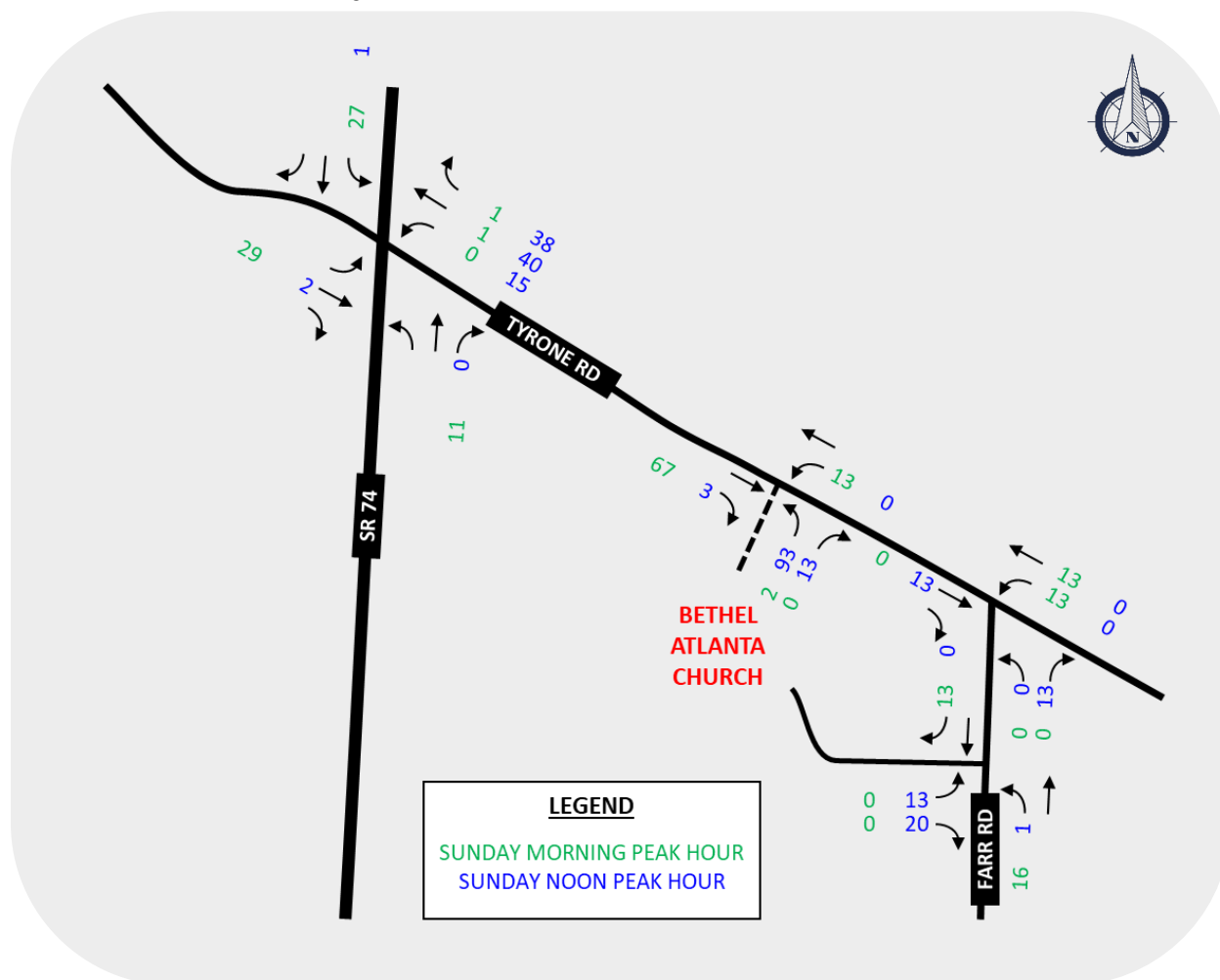


To redistribute these existing church trips, it was necessary to make assumptions regarding driveway usage once the new access to Tyrone Road is completed. These trips were redistributed based on the following assumptions:

- Of trips originating from or destined for the east on Tyrone Road, 50% will enter and exit via the new access to Tyrone Road and 50% will enter and exit via the existing access on Farr Road.
- Of trips originating from or destined for the south on Farr Road, 100% will enter and exit via the existing access on Farr Road.
- Of trips originating from or destined for the north or south on SR 74 or the west on Tyrone Road, 100% will enter and exit via the new access to Tyrone Road.

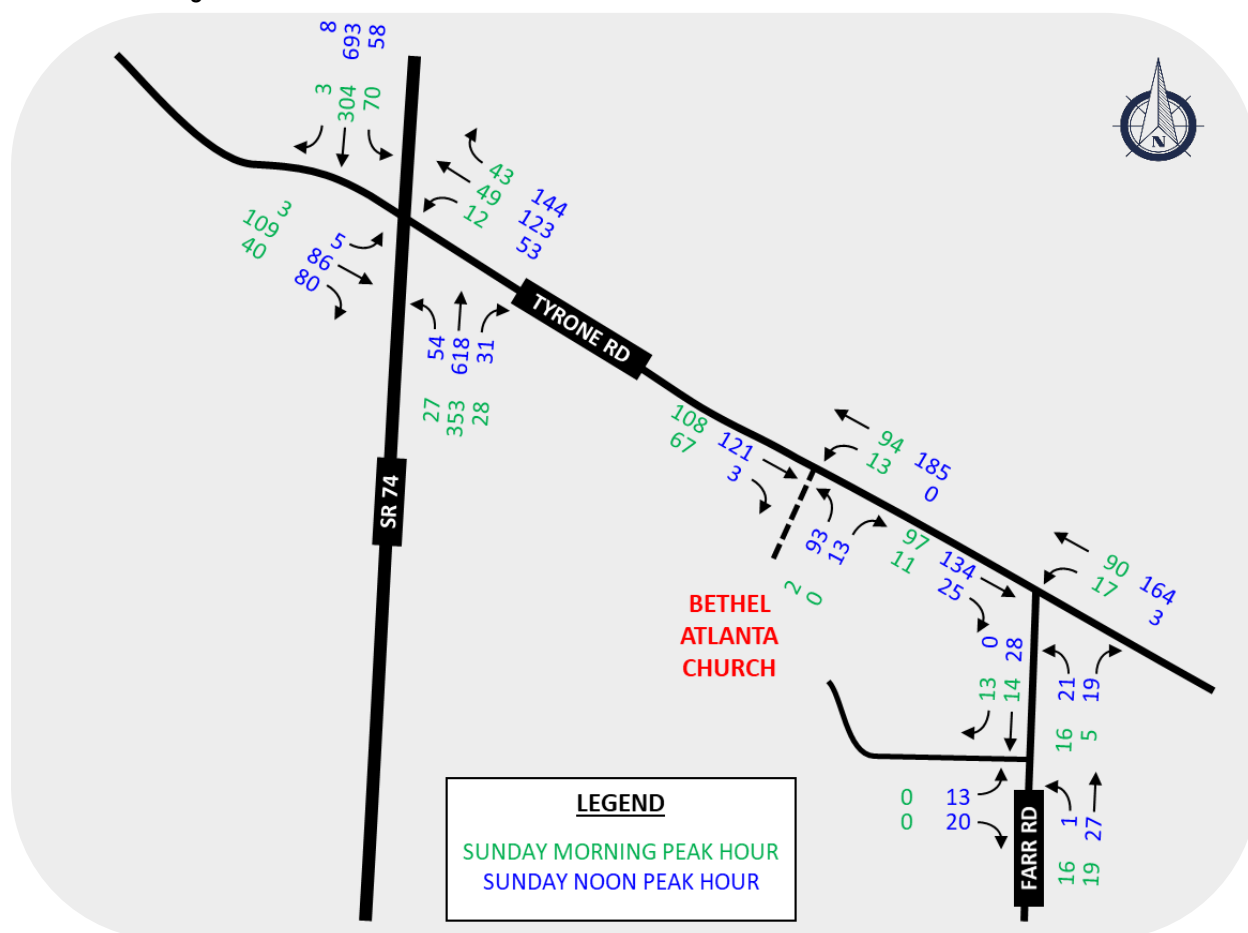
The resulting redistributed existing church trips are shown below in Figure 7.

Figure 7: REDISTRIBUTED EXISTING CHURCH TRIPS



The total volumes at the study intersections following the redistribution of existing church trips to the new access to Tyrone Road is shown below in Figure 8.

Figure 8: TOTAL EXISTING VOLUMES WITH NEW CHURCH ACCESS TO TYRONE RD



TRIP GENERATION

The trips expected to be generated by the potential 400 new guests to the church membership are summarized below in Table 2.

Table 2: NEW TRIP GENERATION

LAND USE CODE	LAND USE	SIZE	TOTAL DAILY TRIPS	DAILY ENTERING TRIPS	DAILY EXITING TRIPS
560	Church	400 Seats	484	242	242

The volume data collected during the TMC's indicate not all trips to the church occur between 9:00 AM and 10:00 AM and not all trips leaving the church occur between 11:30 AM and 12:30 PM. However, to analyze worst-case conditions, it was assumed that all daily entering trips would occur during the 9:00 AM to 10:00 AM hour and all daily exiting trips during the 11:30 AM to 12:30 PM hour.

TRIP DISTRIBUTION & ASSIGNMENT

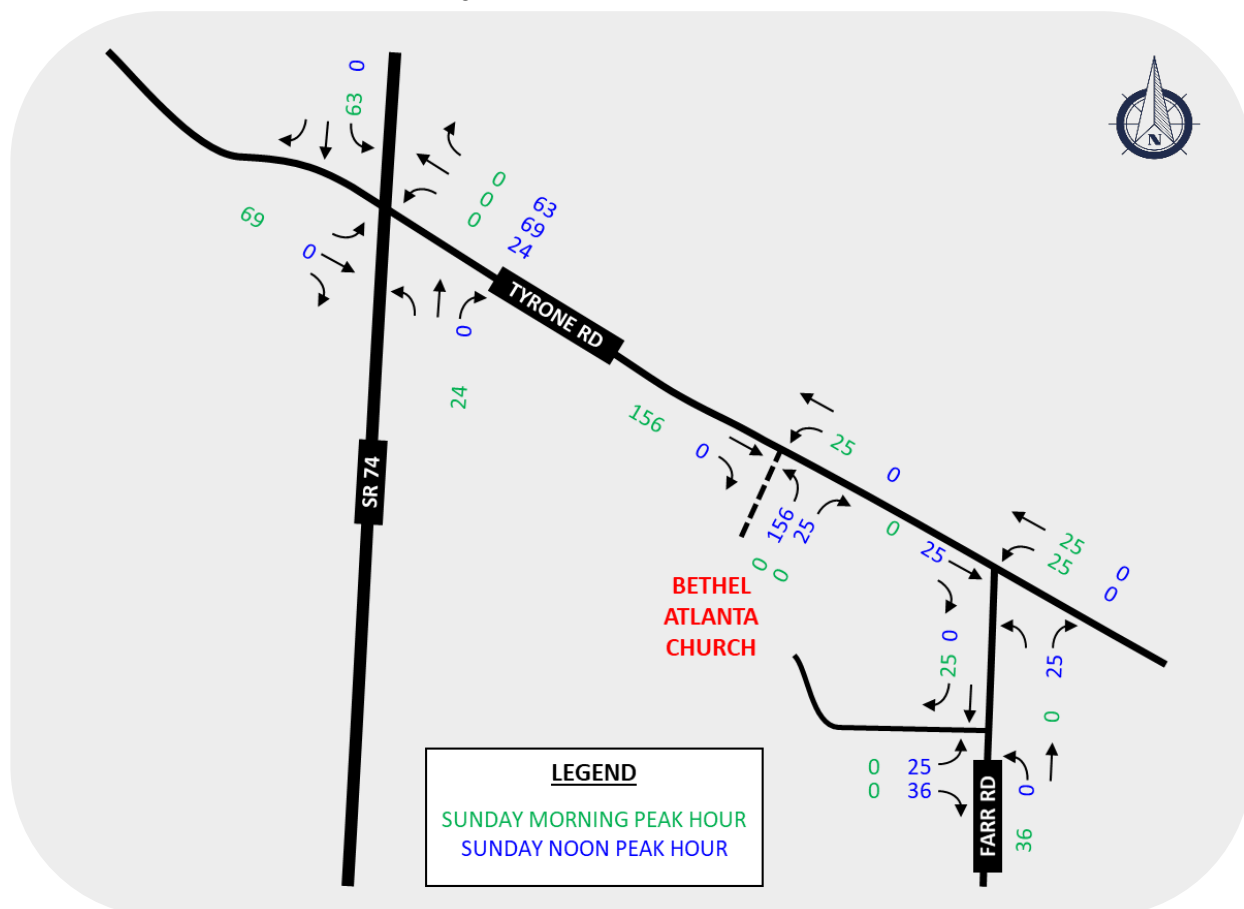
The trips expected to be generated by the potential new membership of the church were assigned to the network based on the same assumptions as are listed on the previous page and the distribution of existing church traffic, shown below in Table 3.

Table 3: NEW TRIP DISTRIBUTION

TO/FROM	DISTRIBUTION %	IN	OUT
NORTH ON SR 74	26%	63	63
WEST ON TYRONE RD	28%	69	69
SOUTH ON SR 74	10%	24	24
SOUTH ON FARR RD	15%	36	36
EAST ON TYRONE RD	21%	50	50
TOTAL	100%	242	242

The resulting assignment of newly generated trips is shown below in Figure 9.

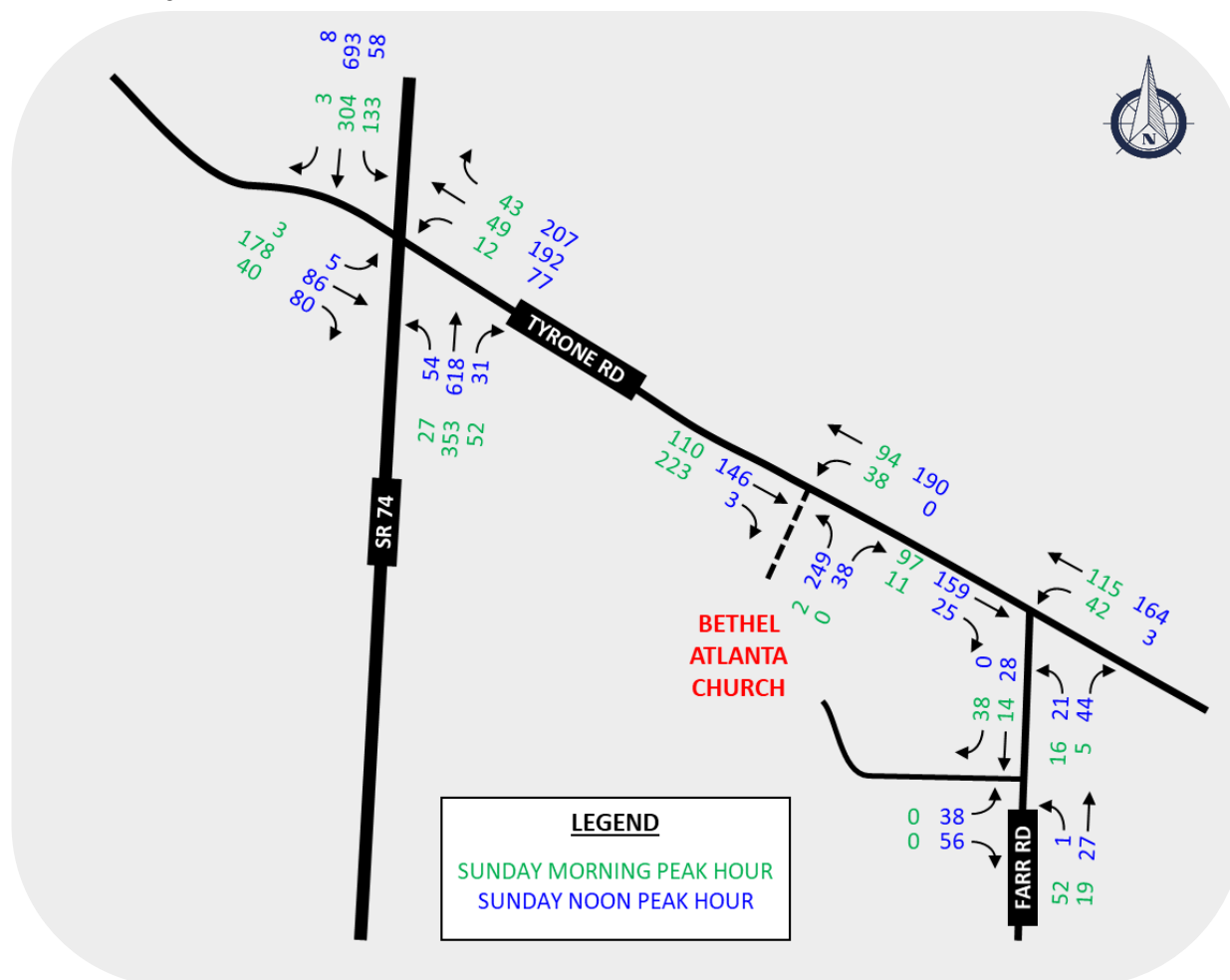
Figure 9: NEW TRIP ASSIGNMENT



TOTAL PROJECTED VOLUMES

The total projected volumes expected at the study intersections once the new access to Tyrone Road is completed and the projected membership of the church is fulfilled are shown below in Figure 10.

Figure 10: TOTAL PROJECTED VOLUMES WITH NEW CHURCH ACCESS TO TYRONE RD



Chapter 5. CAPACITY ANALYSIS

Results of the capacity analysis for existing conditions, existing membership with only the new access to Tyrone Road, and projected membership with the new access to Tyrone Road are provided below in Table 4, shown side-by-side for ease of comparison. Results are shown in terms of level of service, per approach for unsignalized intersections, followed parenthetically by average delay per vehicle, in seconds. The new church access to Tyrone Road was analyzed as a single-lane shared left-right driveway.

Table 4: CAPACITY ANALYSIS SUMMARY

INTERSECTION, APPROACH	SUNDAY AM PEAK HOUR			SUNDAY NOON PEAK HOUR		
	EXISTING	EXISTING MEMBERSHIP WITH NEW DRIVEWAY	PROJECTED MEMBERSHIP WITH NEW DRIVEWAY	EXISTING	EXISTING MEMBERSHIP WITH NEW DRIVEWAY	PROJECTED MEMBERSHIP WITH NEW DRIVEWAY
SR 74 & Tyrone Rd	B (11.4)	B (11.4)	B (14.3)	B (15.7)	B (15.7)	B (17.5)
Tyrone Rd & New Church Access	EB -	A (0.0)	A (0.0)	-	A (0.0)	A (0.0)
	WB -	A (1.1)	A (3.1)	-	A (0.0)	A (0.0)
	NB -	B (11.9)	B (13.6)	-	C (16.8)	E (40.0)
Tyrone Rd & Farr Rd	EB A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WB A (2.4)	A (1.1)	A (2.3)	A (0.2)	A (0.2)	A (0.2)
	NB B (10.8)	B (10.1)	B (11.0)	B (13.2)	B (10.8)	B (10.8)
Farr Rd & Existing Church Access	EB A (9.7)	A (0.0)	A (0.0)	B (10.1)	A (8.9)	A (9.3)
	NB A (3.6)	A (3.5)	A (5.7)	A (0.3)	A (0.3)	A (0.3)
	SB A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)

Capacity analysis results indicate all movements at all study intersections operate at Level of Service ‘C’ or better during both peak hours under all sets of conditions.

With existing membership and the new access to Tyrone Road, operation at the intersections of Tyrone Road at Farr Road and Farr Road at the existing church access are slightly improved from that under existing conditions due to a majority of the church traffic utilizing the new driveway.

With projected membership and the new access to Tyrone Road, all study intersections except the intersection of Tyrone Road at the new church access are expected to experience an increase in average delay per vehicle no greater than three seconds during both peak hours. This is a very minimal increase in delay and does not warrant mitigations from a capacity analysis standpoint.

With projected membership and the new access to Tyrone Road, the new intersection of Tyrone Road and the new church access is expected to experience Level of Service ‘E’ with delays up to 40 seconds per vehicle. Based on these results, the single shared-lane geometry used in the analysis of the new church driveway is not the ideal configuration at this location. However, it is important to note that these results represent the worst possible conditions at the intersection, meaning delays will likely not be this significant a majority of the time. Mitigations for the new church access to Tyrone Road are presented in the following section.

MITIGATIONS

The new church driveway to Tyrone Road was analyzed with a dedicated left turn lane and a dedicated right turn lane. The results of this analysis are provided below in Table 5, shown side-by-side with the results from the analysis with the single shared-lane driveway. Results are shown in terms of level of service, followed parenthetically by average delay per vehicle, in seconds.

Table 5: CAPACITY ANALYSIS FOR NEW DRIVEWAY MITIGATIONS

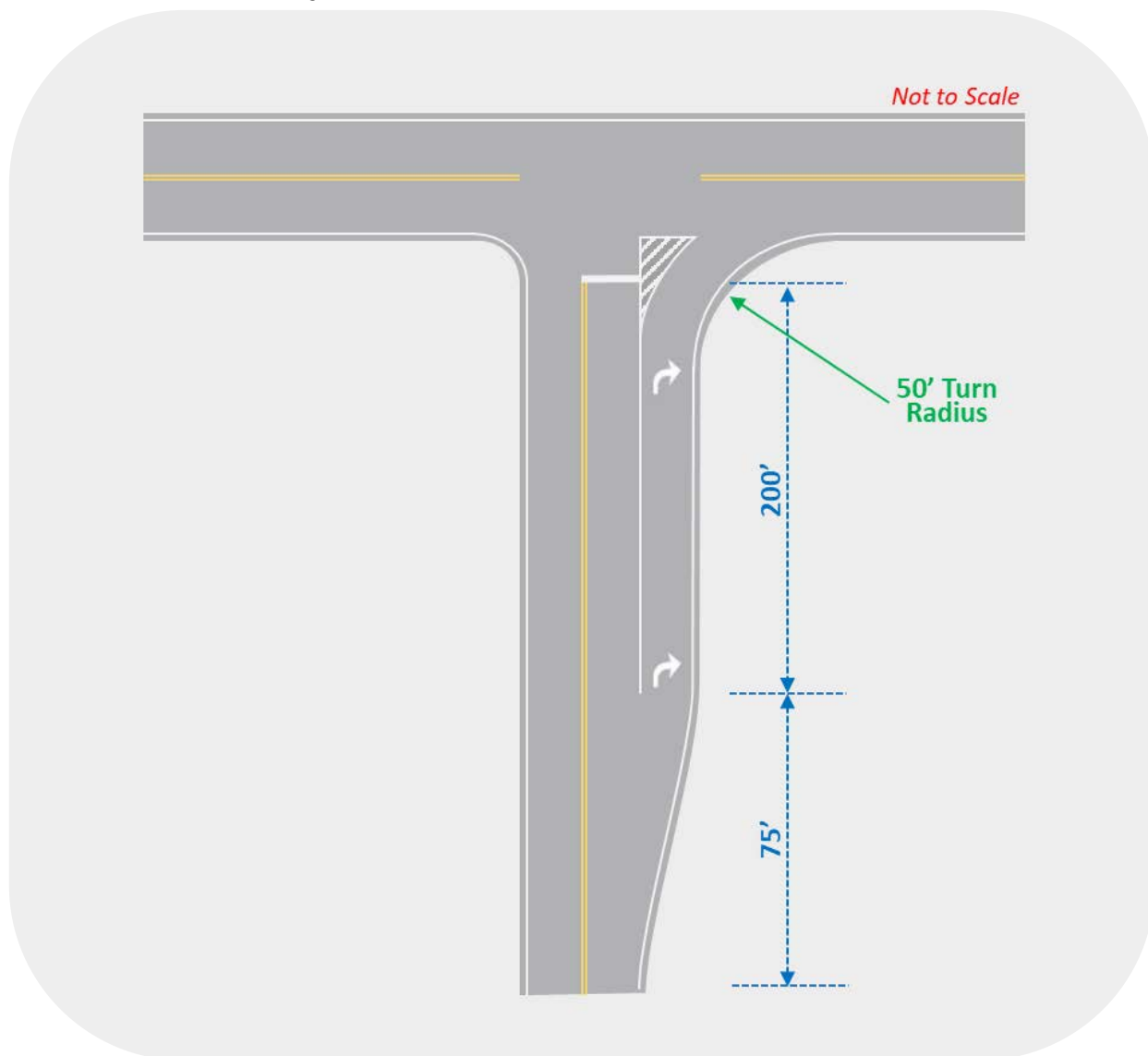
INTERSECTION, APPROACH		SUNDAY AM PEAK HOUR		SUNDAY NOON PEAK HOUR	
		SINGLE SHARED-LANE	DEDICATED LEFT AND RIGHT TURN LANES	SINGLE SHARED-LANE	DEDICATED LEFT AND RIGHT TURN LANES
Tyrone Rd & New Church Access	EB	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WB	A (3.1)	A (3.1)	A (0.0)	A (0.0)
	NB	B (13.6)	B (13.5)	E (40.0)	D (30.1)

With the dedicated left and right turn lanes on the new church driveway, the average delay per vehicle is reduced from 40.0 seconds per vehicle to 30.1 seconds per vehicle, which is a significant reduction. While other geometric or traffic control changes may yield even further improvement at this intersection during the Sunday Noon Peak Hour, the installation of dedicated left and right turn lanes is likely the only feasible and realistic option at this location.

Chapter 6. RECOMMENDATIONS

Based on the findings of this study, it is recommended that the new access driveway to Tyrone Road be constructed with a dedicated left turn lane and a dedicated right turn lane. A turn bay should be constructed for the right turn lane with a minimum storage length of 200 feet with a taper length of 75 feet. These recommendations are shown graphically below in Figure 11.

Figure 11: RECOMMENDED DRIVEWAY CONFIGURATION



APPENDICES

TURNING MOVEMENT COUNT DATA	A
CAPACITY ANALYSIS REPORTS – EXISTING CONDITIONS.....	B
CAPACITY ANALYSIS REPORTS – EXISTING MEMBERSHIP WITH NEW DRIVEWAY	C
CAPACITY ANALYSIS REPORTS – PROJECTED MEMBERSHIP WITH NEW DRIVEWAY	D

APPENDIX A

TURNING MOVEMENT COUNT DATA

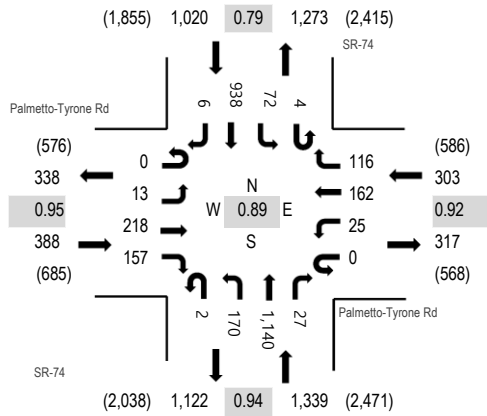




(303) 216-2439
www.alltrafficdata.net

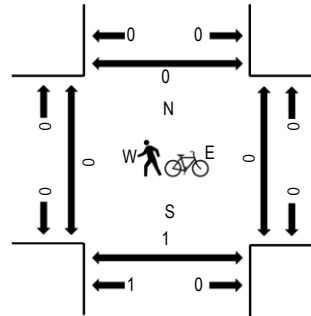
Location: #1 SR-74 & Palmetto-Tyrone Rd AM
Date and Start Time: Monday, March 11, 2019
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Palmetto-Tyrone Rd Eastbound				Palmetto-Tyrone Rd Westbound				SR-74 Northbound				SR-74 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	1	26	19	0	9	23	29	0	24	264	3	0	15	171	1	585	2,863	0	0	0	0
7:15 AM	0	0	50	32	0	5	41	32	0	33	271	2	0	12	192	1	671	2,995	0	0	0	0
7:30 AM	0	6	48	32	0	4	33	25	1	53	302	2	1	25	215	3	750	3,050	0	0	0	0
7:45 AM	0	5	51	47	0	13	43	32	0	50	288	7	1	17	302	1	857	2,962	0	0	0	0
8:00 AM	0	1	65	37	0	5	48	29	0	37	262	8	0	12	213	0	717	2,734	0	0	1	0
8:15 AM	0	1	54	41	0	3	38	30	1	30	288	10	2	18	208	2	726		0	0	0	0
8:30 AM	0	4	53	33	0	9	40	35	0	18	246	5	0	14	203	2	662		0	0	0	0
8:45 AM	0	2	39	38	0	5	30	25	0	20	232	14	1	18	200	5	629		0	0	0	0

Peak Rolling Hour Flow Rates

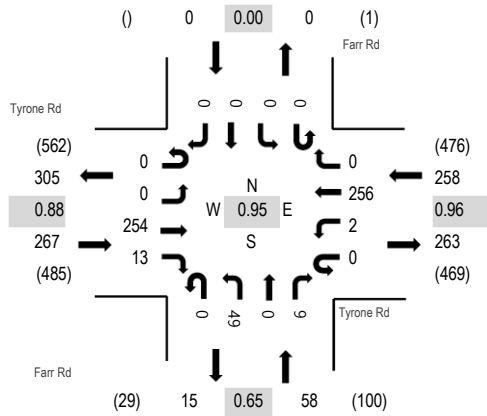
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	1	4	0	0	1	0	0	1	20	0	0	0	26	0	53
Lights	0	10	213	149	0	25	151	112	2	167	1,093	26	4	69	878	5	2,904
Mediums	0	3	4	4	0	0	10	4	0	2	27	1	0	3	34	1	93
Total	0	13	218	157	0	25	162	116	2	170	1,140	27	4	72	938	6	3,050



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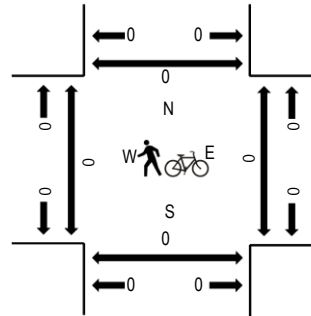
Location: #2 Farr Rd & Tyrone Rd AM
Date and Start Time: Monday, March 11, 2019
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Tyrone Rd Eastbound				Tyrone Rd Westbound				Farr Rd Northbound				Farr Rd Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	42	2	0	0	0	53	0	0	13	1	0	0	0	0	111	540	0	0	0	0
7:15 AM	0	0	57	2	0	0	0	50	0	0	11	0	1	0	0	0	121	570	0	0	0	0
7:30 AM	0	0	74	2	0	1	63	0	0	10	0	4	0	0	0	0	154	583	0	0	0	0
7:45 AM	0	0	57	5	0	0	67	0	0	22	0	3	0	0	0	0	154	571	0	0	0	0
8:00 AM	0	0	64	0	0	1	65	0	0	10	0	1	0	0	0	0	141	521	0	0	0	0
8:15 AM	0	0	59	6	0	0	61	0	0	7	0	1	0	0	0	0	134		0	0	0	0
8:30 AM	0	0	61	4	0	0	64	0	0	13	0	0	0	0	0	0	142		0	0	0	0
8:45 AM	0	0	45	5	0	1	50	0	0	3	0	0	0	0	0	0	104		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lights	0	0	254	13	0	2	255	0	0	49	0	9	0	0	0	0	582
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	254	13	0	2	256	0	0	49	0	9	0	0	0	0	583



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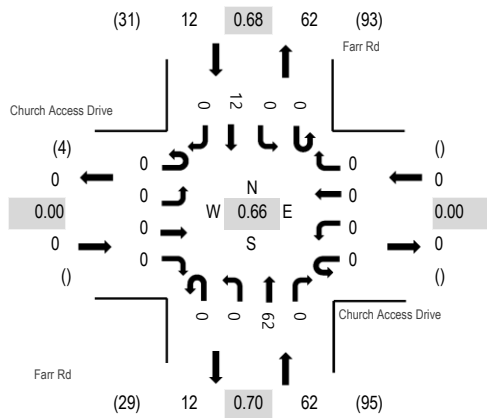
Location: #3 Farr Rd & Church Access Drive AM

Date and Start Time: Monday, March 11, 2019

Peak Hour: 07:00 AM - 08:00 AM

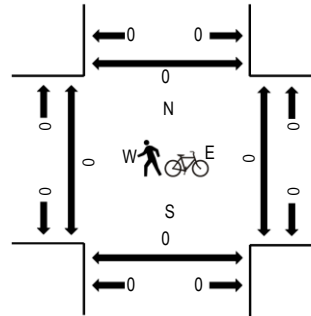
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Church Access Drive Eastbound				Church Access Drive Westbound				Farr Rd Northbound				Farr Rd Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	2	0	16	74	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	2	0	14	70	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	2	0	16	69	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	22	0	0	0	6	0	28	70	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	10	0	0	0	1	0	12	52	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	1	13		0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	5	0	17		0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	1	3	0	0	0	5	1	10		0	0	0	0

Peak Rolling Hour Flow Rates

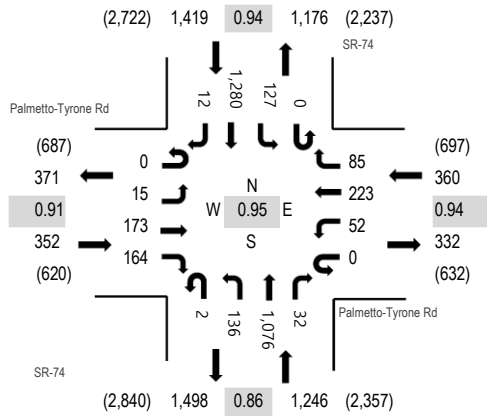
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	0	0	0	0	0	0	0	0	62	0	0	0	12	0	74
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	62	0	0	0	12	0	74



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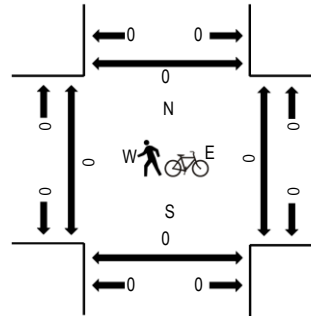
Location: #1 SR-74 & Palmetto-Tyrone Rd PM
Date and Start Time: Monday, March 11, 2019
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Palmetto-Tyrone Rd Eastbound				Palmetto-Tyrone Rd Westbound				SR-74 Northbound				SR-74 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	3	34	31	0	13	50	23	0	37	213	15	0	28	274	4	725	3,030	0	0	0	0
4:15 PM	0	3	35	34	0	6	59	21	1	26	274	12	0	22	279	2	774	3,140	0	0	0	0
4:30 PM	0	3	35	27	0	14	44	25	1	25	233	9	0	36	297	1	750	3,259	0	0	0	0
4:45 PM	0	2	42	44	0	17	49	15	1	33	252	6	0	28	288	4	781	3,377	0	0	0	0
5:00 PM	0	6	45	38	0	14	54	22	0	33	257	8	0	27	328	3	835	3,366	0	0	0	0
5:15 PM	0	2	41	35	0	12	64	20	1	36	319	8	0	27	324	4	893		0	0	0	0
5:30 PM	0	5	45	47	0	9	56	28	0	34	248	10	0	45	340	1	868		0	0	0	0
5:45 PM	0	2	31	30	0	10	40	32	1	27	228	9	1	34	324	1	770		0	0	0	0

Peak Rolling Hour Flow Rates

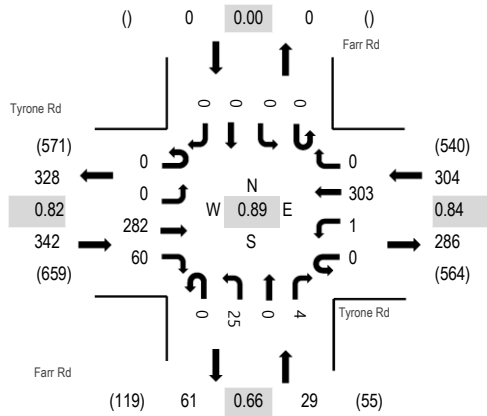
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	2	1	0	1	17	0	0	1	14	2	39
Lights	0	15	167	159	0	51	218	82	2	134	1,032	32	0	125	1,248	10	3,275
Mediums	0	0	6	4	0	1	3	2	0	1	27	0	0	1	18	0	63
Total	0	15	173	164	0	52	223	85	2	136	1,076	32	0	127	1,280	12	3,377



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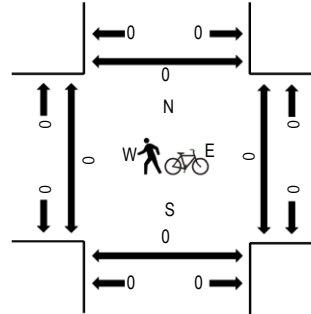
Location: #2 Farr Rd & Tyrone Rd PM
Date and Start Time: Monday, March 11, 2019
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Tyrone Rd Eastbound				Tyrone Rd Westbound				Farr Rd Northbound				Farr Rd Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	69	9	0	0	67	0	0	3	0	0	0	0	0	0	148	634	0	0	0	0
4:15 PM	0	0	63	11	0	1	65	0	0	8	0	0	0	0	0	0	148	675	0	0	0	0
4:30 PM	0	0	85	10	0	0	69	0	0	4	0	2	0	0	0	0	170	652	0	0	0	0
4:45 PM	0	0	54	14	0	0	91	0	0	9	0	0	0	0	0	0	168	645	0	0	0	0
5:00 PM	0	0	80	25	0	0	78	0	0	4	0	2	0	0	0	0	189	620	0	0	0	0
5:15 PM	0	0	48	11	0	2	61	0	0	3	0	0	0	0	0	0	125		0	0	0	0
5:30 PM	0	0	88	10	0	2	54	0	0	8	0	1	0	0	0	0	163		0	0	0	0
5:45 PM	0	0	66	16	0	8	42	0	0	5	0	6	0	0	0	0	143		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lights	0	0	280	60	0	1	303	0	0	25	0	4	0	0	0	0	673
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	282	60	0	1	303	0	0	25	0	4	0	0	0	0	675



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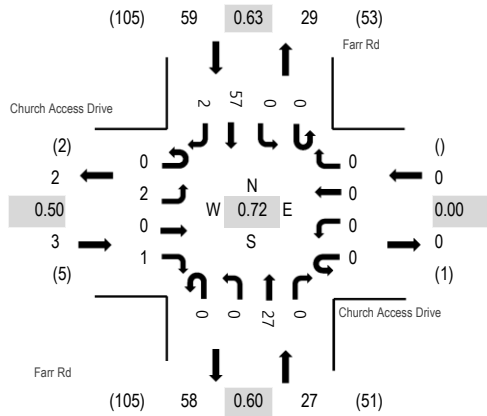
Location: #3 Farr Rd & Church Access Drive PM

Date and Start Time: Monday, March 11, 2019

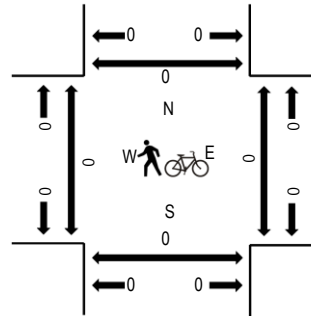
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	Church Access Drive Eastbound				Church Access Drive Westbound				Farr Rd Northbound				Farr Rd Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	0	0	0	0	0	0	0	0	6	1	0	0	14	0	21	75	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	10	0	22	70	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	3	0	0	0	9	0	13	71	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	11	1	19	89	0	0	0	0
5:00 PM	0	1	0	1	0	0	0	0	0	0	5	0	0	0	9	0	16	86	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	8	0	0	0	14	0	23		0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	23	1	31		0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	13	0	16		0	0	0	0

Peak Rolling Hour Flow Rates

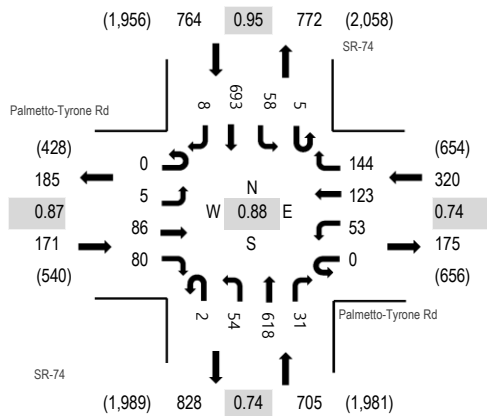
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	2	0	1	0	0	0	0	0	0	27	0	0	0	57	2	89
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	1	0	0	0	0	0	0	27	0	0	0	57	2	89



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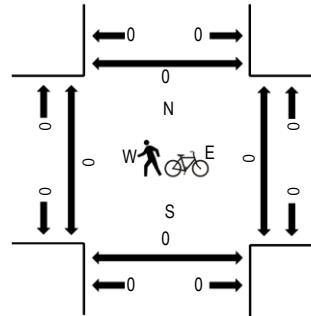
Location: #1 SR-74 & Palmetto-Tyrone Rd AM
Date and Start Time: Sunday, March 10, 2019
Peak Hour: 11:30 AM - 12:30 PM
Peak 15-Minutes: 12:15 PM - 12:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Palmetto-Tyrone Rd Eastbound				Palmetto-Tyrone Rd Westbound				SR-74 Northbound				SR-74 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
9:00 AM	0	0	24	5	0	2	14	4	0	8	71	3	0	10	63	2	206	1,044	0	0	0	0
9:15 AM	0	1	24	5	0	3	11	16	0	7	84	5	1	12	71	1	241	1,148	0	0	0	0
9:30 AM	0	2	28	11	0	5	9	12	0	5	91	4	0	17	80	0	264	1,250	0	0	0	0
9:45 AM	0	0	33	19	0	2	15	11	2	7	107	16	0	31	90	0	333	1,372	0	0	0	0
10:00 AM	0	1	33	15	0	4	15	8	0	5	113	9	0	36	71	0	310	1,419	0	0	0	0
10:15 AM	0	0	22	15	0	5	15	19	0	8	135	5	0	19	100	0	343	1,432	0	0	0	0
10:30 AM	0	1	19	22	0	4	16	18	0	13	130	5	1	21	135	1	386	1,474	0	0	0	0
10:45 AM	0	0	17	11	0	4	22	22	0	12	124	3	0	22	143	0	380	1,513	0	0	0	0
11:00 AM	0	0	11	10	0	6	13	17	0	9	135	0	1	12	108	1	323	1,603	0	0	0	0
11:15 AM	0	3	24	13	0	6	19	17	0	15	141	4	0	12	131	0	385	1,786	0	0	0	0
11:30 AM	0	1	23	18	0	4	24	24	0	7	129	5	0	16	173	1	425	1,960	0	0	0	0
11:45 AM	0	0	17	21	0	13	21	34	0	8	147	8	3	7	190	1	470		0	0	0	0
12:00 PM	0	3	25	18	0	19	44	45	1	16	142	4	1	21	164	3	506		0	0	0	0
12:15 PM	0	1	21	23	0	17	34	41	1	23	200	14	1	14	166	3	559		0	0	0	0

Peak Rolling Hour Flow Rates

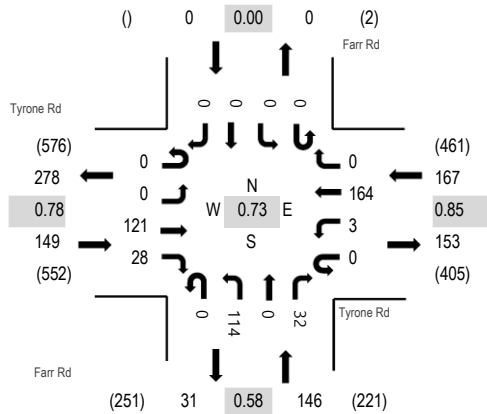
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4
Lights	0	5	86	80	0	53	123	143	2	54	612	31	5	58	688	8	1,948
Mediums	0	0	0	0	0	0	0	1	0	0	4	0	0	0	3	0	8
Total	0	5	86	80	0	53	123	144	2	54	618	31	5	58	693	8	1,960



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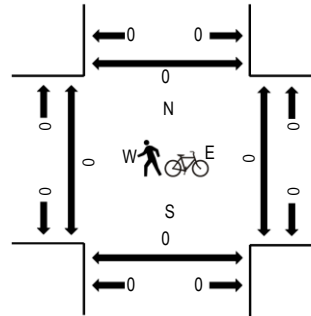
Location: #2 Farr Rd & Tyrone Rd AM
Date and Start Time: Monday, March 11, 2019
Peak Hour: 11:30 AM - 12:30 PM
Peak 15-Minutes: 12:00 PM - 12:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Tyrone Rd Eastbound				Tyrone Rd Westbound				Farr Rd Northbound				Farr Rd Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
9:00 AM	0	0	30	2	0	5	17	0	0	2	1	1	0	0	0	0	58	305	0	0	0	0
9:15 AM	0	0	28	11	0	3	20	0	0	4	0	1	0	0	0	0	67	355	0	0	0	0
9:30 AM	0	0	17	23	0	10	19	0	0	7	0	0	0	0	0	0	76	371	0	0	0	0
9:45 AM	0	0	22	42	0	12	21	0	0	4	0	3	0	0	0	0	104	372	0	0	0	0
10:00 AM	0	0	26	42	0	12	22	0	0	4	0	2	0	0	0	0	108	347	0	0	0	0
10:15 AM	0	0	22	16	0	9	28	0	0	6	0	2	0	0	0	0	83	292	0	0	0	0
10:30 AM	0	0	21	11	0	2	30	0	0	8	0	5	0	0	0	0	77	276	0	0	0	0
10:45 AM	0	1	30	7	0	1	27	0	0	13	0	0	0	0	0	0	79	286	0	0	0	0
11:00 AM	0	0	15	7	0	1	23	0	0	7	0	0	0	0	0	0	53	288	0	0	0	0
11:15 AM	0	0	27	3	0	1	31	0	0	5	0	0	0	0	0	0	67	393	0	0	0	0
11:30 AM	0	0	34	9	0	0	37	0	0	5	0	2	0	0	0	0	87	462	0	0	0	0
11:45 AM	0	0	17	8	0	1	35	0	0	17	0	3	0	0	0	0	81		0	0	0	0
12:00 PM	0	0	40	6	0	1	48	0	0	47	0	16	0	0	0	0	158		0	0	0	0
12:15 PM	0	0	30	5	0	1	44	0	0	45	0	11	0	0	0	0	136		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	121	28	0	3	164	0	0	114	0	32	0	0	0	0	462
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	121	28	0	3	164	0	0	114	0	32	0	0	0	0	462



(303) 216-2439
www.alltrafficdata.net

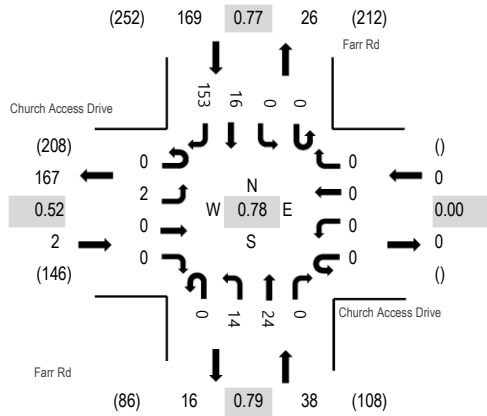
Location: #3 Farr Rd & Church Access Drive AM

Date and Start Time: Monday, March 11, 2019

Peak Hour: 09:30 AM - 10:30 AM

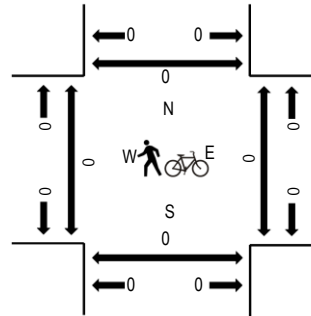
Peak 15-Minutes: 09:45 AM - 10:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Church Access Drive Eastbound				Church Access Drive Westbound				Farr Rd Northbound				Farr Rd Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
9:00 AM	0	1	0	0	0	0	0	0	0	5	1	0	0	0	3	4	14	144	0	0	0	0
9:15 AM	0	1	0	0	0	0	0	0	0	1	5	0	0	0	2	10	19	195	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	5	6	0	0	0	1	32	44	209	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	5	7	0	0	0	8	47	67	189	0	0	0	0
10:00 AM	0	1	0	0	0	0	0	0	0	4	5	0	0	0	1	54	65	140	0	0	0	0
10:15 AM	0	1	0	0	0	0	0	0	0	0	6	0	0	0	6	20	33	89	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	4	9	24	66	0	0	0	0
10:45 AM	0	2	0	0	0	0	0	0	0	0	8	0	0	0	3	5	18	57	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	5	3	14	70	0	0	0	0
11:15 AM	0	0	0	1	0	0	0	0	0	0	5	0	0	0	4	0	10	135	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0	0	0	5	0	0	0	9	0	15	198	0	0	0	0
11:45 AM	0	13	0	0	0	0	0	0	0	0	9	0	0	0	8	1	31		0	0	0	0
12:00 PM	0	58	0	9	0	0	0	0	0	0	5	0	0	0	7	0	79		0	0	0	0
12:15 PM	0	47	0	11	0	0	0	0	0	1	8	0	0	0	4	2	73		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	2	0	0	0	0	0	0	0	14	24	0	0	0	16	153	209
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	14	24	0	0	0	16	153	209

APPENDIX B

CAPACITY ANALYSIS REPORTS:
EXISTING CONDITIONS



Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Existing
Sunday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	109	40	12	49	43	27	353	28	70	304	3
Future Volume (vph)	3	109	40	12	49	43	27	353	28	70	304	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		210	210		170	235		260	285		85
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			120			115		
Satd. Flow (prot)	1805	1900	1615	1805	1900	1615	1805	3574	1615	1787	3574	1615
Flt Permitted	0.375			0.669			0.524			0.436		
Satd. Flow (perm)	712	1900	1615	1271	1900	1615	996	3574	1615	820	3574	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			234			234			234
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		748			3137			2816			548	
Travel Time (s)		17.0			61.1			34.9			6.8	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	138	51	15	62	54	34	447	35	89	385	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Total Split (s)	11.0	34.0	34.0	23.0	23.0	23.0	11.0	25.0	25.0	11.0	25.0	25.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	9.6	9.8	9.8	8.2	8.2	8.2	14.8	14.0	14.0	17.1	18.2	18.2
Actuated g/C Ratio	0.26	0.26	0.26	0.22	0.22	0.22	0.40	0.37	0.37	0.46	0.49	0.49
v/c Ratio	0.01	0.28	0.10	0.05	0.15	0.10	0.07	0.33	0.05	0.17	0.22	0.00
Control Delay	11.7	13.8	0.4	16.8	16.5	0.4	8.4	14.9	0.1	8.8	10.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	13.8	0.4	16.8	16.5	0.4	8.4	14.9	0.1	8.8	10.6	0.0
LOS	B	B	A	B	B	A	A	B	A	A	B	A
Approach Delay		10.2			9.9			13.5			10.2	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	1	25	0	3	11	0	3	47	0	9	22	0
Queue Length 95th (ft)	5	54	0	15	40	0	17	93	0	34	81	0
Internal Link Dist (ft)		668			3057			2736			468	
Turn Bay Length (ft)	175		210	210		170	235		260	285		85
Base Capacity (vph)	341	1487	1294	629	941	918	513	2172	1073	515	2180	1076
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Maldino & Wilburn

Synchro 10 Report

Lanes, Volumes, Timings 1: SR 74 & Tyrone Rd

Existing
Sunday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.09	0.04	0.02	0.07	0.06	0.07	0.21	0.03	0.17	0.18	0.00

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 37.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 11.4

Intersection LOS: B

Intersection Capacity Utilization 36.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: SR 74 & Tyrone Rd

 Ø1		 Ø2		 Ø4	
11 s		25 s		34 s	
 Ø5		 Ø6		 Ø7	
11 s		25 s		23 s	

HCM Unsignalized Intersection Capacity Analysis

2: Farr Rd & Tyrone Rd

Existing
Sunday AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	97	78	30	77	18	5
Future Volume (Veh/h)	97	78	30	77	18	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	133	107	41	105	25	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			240		374	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			240		374	186
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		96	99
cM capacity (veh/h)			1339		612	861
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	240	146	32			
Volume Left	0	41	25			
Volume Right	107	0	7			
cSH	1700	1339	653			
Volume to Capacity	0.14	0.03	0.05			
Queue Length 95th (ft)	0	2	4			
Control Delay (s)	0.0	2.4	10.8			
Lane LOS		A	B			
Approach Delay (s)	0.0	2.4	10.8			
Approach LOS			B			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			28.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Farr Rd & Farr Church Driveway

Existing
Sunday AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	16	19	14	93
Future Volume (Veh/h)	2	0	16	19	14	93
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	4	0	30	35	26	172
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	207	112	198			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	112	198			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	98			
cM capacity (veh/h)	769	947	1387			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	4	65	198			
Volume Left	4	30	0			
Volume Right	0	0	172			
cSH	769	1387	1700			
Volume to Capacity	0.01	0.02	0.12			
Queue Length 95th (ft)	0	2	0			
Control Delay (s)	9.7	3.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.7	3.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		18.6%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Existing
Sunday Noon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	86	80	53	123	144	54	618	31	58	693	8
Future Volume (vph)	5	86	80	53	123	144	54	618	31	58	693	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		210	210		170	235		260	285		85
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			120			115		
Satd. Flow (prot)	1805	1900	1615	1805	1900	1599	1805	3406	1615	1805	3438	1615
Flt Permitted	0.406			0.694			0.250			0.306		
Satd. Flow (perm)	771	1900	1615	1319	1900	1599	475	3406	1615	581	3438	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147			244			244			244
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		748			3137			2816			548	
Travel Time (s)		17.0			61.1			34.9			6.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	6%	0%	0%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	98	91	60	140	164	61	702	35	66	788	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Total Split (s)	11.0	22.5	22.5	22.5	22.5	22.5	11.0	22.5	22.5	11.0	22.5	22.5
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	10.9	10.9	10.9	9.3	9.3	9.3	19.6	17.0	17.0	19.6	17.0	17.0
Actuated g/C Ratio	0.23	0.23	0.23	0.20	0.20	0.20	0.42	0.37	0.37	0.42	0.37	0.37
v/c Ratio	0.02	0.22	0.19	0.23	0.37	0.32	0.17	0.57	0.05	0.17	0.63	0.01
Control Delay	13.8	15.7	1.8	20.3	21.0	2.7	9.4	17.5	0.1	9.3	18.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	15.7	1.8	20.3	21.0	2.7	9.4	17.5	0.1	9.3	18.9	0.0
LOS	B	B	A	C	C	A	A	B	A	A	B	A
Approach Delay		9.1			12.6			16.1			18.0	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	1	23	0	14	34	0	7	83	0	7	96	0
Queue Length 95th (ft)	8	50	9	47	89	12	33	#210	0	35	#250	0
Internal Link Dist (ft)		668			3057			2736			468	
Turn Bay Length (ft)	175		210	210		170	235		260	285		85
Base Capacity (vph)	299	1201	1075	500	720	757	353	1405	809	385	1418	809
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Maldino & Wilburn

Synchro 10 Report

Lanes, Volumes, Timings

1: SR 74 & Tyrone Rd

Existing

Sunday Noon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.02	0.08	0.08	0.12	0.19	0.22	0.17	0.50	0.04	0.17	0.56	0.01

Intersection Summary

Area Type: Other

Cycle Length: 67

Actuated Cycle Length: 46.5

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 47.9%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 74 & Tyrone Rd

 Ø1	 Ø2	 Ø4
11 s	22.5 s	22.5 s
 Ø5	 Ø6	 Ø7
11 s	22.5 s	11 s
		 Ø8
		22.5 s

HCM Unsignalized Intersection Capacity Analysis

2: Farr Rd & Tyrone Rd

Existing
Sunday Noon Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	121	28	3	164	114	32
Future Volume (Veh/h)	121	28	3	164	114	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	166	38	4	225	156	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume				204	418	185
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				204	418	185
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	74	95
cM capacity (veh/h)				1380	594	862
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	204	229	200			
Volume Left	0	4	156			
Volume Right	38	0	44			
cSH	1700	1380	637			
Volume to Capacity	0.12	0.00	0.31			
Queue Length 95th (ft)	0	0	33			
Control Delay (s)	0.0	0.2	13.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.2	13.2			
Approach LOS			B			
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			26.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Farr Rd & Farr Church Driveway

Existing
Sunday Noon Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	119	20	1	27	28	3
Future Volume (Veh/h)	119	20	1	27	28	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	189	32	2	43	44	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	94	46	49			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	94	46	49			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	97	100			
cM capacity (veh/h)	910	1029	1571			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	221	45	49			
Volume Left	189	2	0			
Volume Right	32	0	5			
cSH	926	1571	1700			
Volume to Capacity	0.24	0.00	0.03			
Queue Length 95th (ft)	23	0	0			
Control Delay (s)	10.1	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.1	0.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		7.1				
Intersection Capacity Utilization		17.8%		ICU Level of Service		A
Analysis Period (min)		15				

APPENDIX C

CAPACITY ANALYSIS REPORTS:
EXISTING MEMBERSHIP WITH NEW DRIVEWAY



Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Existing Members, New Driveway
Sunday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	109	40	12	49	43	27	353	28	70	304	3
Future Volume (vph)	3	109	40	12	49	43	27	353	28	70	304	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		210	210		170	235		260	285		85
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			120			115		
Satd. Flow (prot)	1805	1900	1615	1805	1900	1615	1805	3574	1615	1787	3574	1615
Flt Permitted	0.375			0.669			0.524			0.436		
Satd. Flow (perm)	712	1900	1615	1271	1900	1615	996	3574	1615	820	3574	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			234			234			234
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		748			3137			2816			548	
Travel Time (s)		17.0			61.1			34.9			6.8	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	138	51	15	62	54	34	447	35	89	385	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Total Split (s)	11.0	34.0	34.0	23.0	23.0	23.0	11.0	25.0	25.0	11.0	25.0	25.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	9.6	9.8	9.8	8.2	8.2	8.2	14.8	14.0	14.0	17.1	18.2	18.2
Actuated g/C Ratio	0.26	0.26	0.26	0.22	0.22	0.22	0.40	0.37	0.37	0.46	0.49	0.49
v/c Ratio	0.01	0.28	0.10	0.05	0.15	0.10	0.07	0.33	0.05	0.17	0.22	0.00
Control Delay	11.7	13.8	0.4	16.8	16.5	0.4	8.4	14.9	0.1	8.8	10.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	13.8	0.4	16.8	16.5	0.4	8.4	14.9	0.1	8.8	10.6	0.0
LOS	B	B	A	B	B	A	A	B	A	A	B	A
Approach Delay		10.2			9.9			13.5			10.2	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	1	25	0	3	11	0	3	47	0	9	22	0
Queue Length 95th (ft)	5	54	0	15	40	0	17	93	0	34	81	0
Internal Link Dist (ft)		668			3057			2736			468	
Turn Bay Length (ft)	175		210	210		170	235		260	285		85
Base Capacity (vph)	341	1487	1294	629	941	918	513	2172	1073	515	2180	1076
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Maldino & Wilburn

Synchro 10 Report

Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Existing Members, New Driveway
Sunday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.09	0.04	0.02	0.07	0.06	0.07	0.21	0.03	0.17	0.18	0.00

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 37.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 11.4

Intersection LOS: B

Intersection Capacity Utilization 36.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: SR 74 & Tyrone Rd

 Ø1		 Ø2		 Ø4			
11 s		25 s		34 s			
 Ø5		 Ø6		 Ø7		 Ø8	
11 s		25 s		11 s		23 s	

HCM Unsignalized Intersection Capacity Analysis 2: Farr Rd & Tyrone Rd

Existing Members, New Driveway

Sunday AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↘↙	
Traffic Volume (veh/h)	97	11	14	90	16	5
Future Volume (Veh/h)	97	11	14	90	16	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	133	15	19	123	22	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			148		302	140
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			148		302	140
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1446		685	913
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	148	142	29			
Volume Left	0	19	22			
Volume Right	15	0	7			
cSH	1700	1446	729			
Volume to Capacity	0.09	0.01	0.04			
Queue Length 95th (ft)	0	1	3			
Control Delay (s)	0.0	1.1	10.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.1	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			22.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Farr Rd & Farr Church Driveway

Existing Members, New Driveway

Sunday AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	16	19	14	13
Future Volume (Veh/h)	0	0	16	19	14	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	0	30	35	26	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	133	38	50			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	133	38	50			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	98			
cM capacity (veh/h)	849	1040	1570			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	65	50			
Volume Left	0	30	0			
Volume Right	0	0	24			
cSH	1700	1570	1700			
Volume to Capacity	0.00	0.02	0.03			
Queue Length 95th (ft)	0	1	0			
Control Delay (s)	0.0	3.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	0.0	3.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		2.0				
Intersection Capacity Utilization		11.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

4: New Church Driveway & Tyrone Rd

Existing Members, New Driveway

Sunday AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	110	67	13	94	2	0
Future Volume (Veh/h)	110	67	13	94	2	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	204	124	24	174	4	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			328		488	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			328		488	266
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	100
cM capacity (veh/h)			1232		528	773
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	328	198	4			
Volume Left	0	24	4			
Volume Right	124	0	0			
cSH	1700	1232	528			
Volume to Capacity	0.19	0.02	0.01			
Queue Length 95th (ft)	0	1	1			
Control Delay (s)	0.0	1.1	11.9			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.1	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			25.9%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Existing Members, New Driveway
Sunday Noon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	86	80	53	123	144	54	618	31	58	693	8
Future Volume (vph)	5	86	80	53	123	144	54	618	31	58	693	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		210	210		170	235		260	285		85
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			120			115		
Satd. Flow (prot)	1805	1900	1615	1805	1900	1599	1805	3406	1615	1805	3438	1615
Flt Permitted	0.406			0.694			0.250			0.306		
Satd. Flow (perm)	771	1900	1615	1319	1900	1599	475	3406	1615	581	3438	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147			244			244			244
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		748			3137			2816			548	
Travel Time (s)		17.0			61.1			34.9			6.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	6%	0%	0%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	98	91	60	140	164	61	702	35	66	788	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Total Split (s)	11.0	22.5	22.5	22.5	22.5	22.5	11.0	22.5	22.5	11.0	22.5	22.5
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	10.9	10.9	10.9	9.3	9.3	9.3	19.6	17.0	17.0	19.6	17.0	17.0
Actuated g/C Ratio	0.23	0.23	0.23	0.20	0.20	0.20	0.42	0.37	0.37	0.42	0.37	0.37
v/c Ratio	0.02	0.22	0.19	0.23	0.37	0.32	0.17	0.57	0.05	0.17	0.63	0.01
Control Delay	13.8	15.7	1.8	20.3	21.0	2.7	9.4	17.5	0.1	9.3	18.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	15.7	1.8	20.3	21.0	2.7	9.4	17.5	0.1	9.3	18.9	0.0
LOS	B	B	A	C	C	A	A	B	A	A	B	A
Approach Delay		9.1			12.6			16.1			18.0	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	1	23	0	14	34	0	7	83	0	7	96	0
Queue Length 95th (ft)	8	50	9	47	89	12	33	#210	0	35	#250	0
Internal Link Dist (ft)		668			3057			2736			468	
Turn Bay Length (ft)	175		210	210		170	235		260	285		85
Base Capacity (vph)	299	1201	1075	500	720	757	353	1405	809	385	1418	809
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Maldino & Wilburn

Synchro 10 Report

Lanes, Volumes, Timings 1: SR 74 & Tyrone Rd

Existing Members, New Driveway
Sunday Noon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.02	0.08	0.08	0.12	0.19	0.22	0.17	0.50	0.04	0.17	0.56	0.01

Intersection Summary

Area Type: Other

Cycle Length: 67

Actuated Cycle Length: 46.5

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 47.9%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 74 & Tyrone Rd

 Ø1	 Ø2	 Ø4
11 s	22.5 s	22.5 s
 Ø5	 Ø6	 Ø7
11 s	22.5 s	11 s
		 Ø8
		22.5 s

HCM Unsignalized Intersection Capacity Analysis 2: Farr Rd & Tyrone Rd

Existing Members, New Driveway

Sunday Noon Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	139	25	3	164	21	19
Future Volume (Veh/h)	139	25	3	164	21	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	190	34	4	225	29	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			224			440 207
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			224			440 207
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			100			95 97
cM capacity (veh/h)			1357			577 839
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	224	229	55			
Volume Left	0	4	29			
Volume Right	34	0	26			
cSH	1700	1357	676			
Volume to Capacity	0.13	0.00	0.08			
Queue Length 95th (ft)	0	0	7			
Control Delay (s)	0.0	0.2	10.8			
Lane LOS			A B			
Approach Delay (s)	0.0	0.2	10.8			
Approach LOS			B			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			21.0%		ICU Level of Service A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Farr Rd & Farr Church Driveway

Existing Members, New Driveway

Sunday Noon Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	20	1	27	28	0
Future Volume (Veh/h)	13	20	1	27	28	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	21	32	2	43	44	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	91	44	44			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	91	44	44			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	100			
cM capacity (veh/h)	913	1032	1577			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	53	45	44			
Volume Left	21	2	0			
Volume Right	32	0	0			
cSH	981	1577	1700			
Volume to Capacity	0.05	0.00	0.03			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	8.9	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.9	0.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

4: New Church Driveway & Tyrone Rd

Existing Members, New Driveway
Sunday Noon Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	146	121	0	185	93	13
Future Volume (Veh/h)	146	121	0	185	93	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	232	192	0	294	148	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			424		622	328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			424		622	328
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		67	97
cM capacity (veh/h)			1135		450	713
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	424	294	169			
Volume Left	0	0	148			
Volume Right	192	0	21			
cSH	1700	1135	472			
Volume to Capacity	0.25	0.00	0.36			
Queue Length 95th (ft)	0	0	40			
Control Delay (s)	0.0	0.0	16.8			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	16.8			
Approach LOS			C			
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization			27.7%	ICU Level of Service		A
Analysis Period (min)			15			

APPENDIX D

CAPACITY ANALYSIS REPORTS:
PROJECTED MEMBERSHIP WITH NEW DRIVEWAY



Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Projected Members, New Driveway
Sunday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	178	40	12	49	43	27	353	52	133	304	3
Future Volume (vph)	3	178	40	12	49	43	27	353	52	133	304	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		210	210		170	235		260	285		85
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			120			115		
Satd. Flow (prot)	1805	1900	1615	1805	1900	1615	1805	3574	1615	1787	3574	1615
Flt Permitted	0.446			0.618			0.524			0.358		
Satd. Flow (perm)	847	1900	1615	1174	1900	1615	996	3574	1615	673	3574	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			234			327			327			234
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		748			1978			2816			548	
Travel Time (s)		17.0			38.5			34.9			6.8	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	225	51	15	62	54	34	447	66	168	385	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Total Split (s)	10.0	25.0	25.0	15.0	15.0	15.0	11.0	27.0	27.0	18.0	34.0	34.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	11.4	11.4	11.4	9.9	9.9	9.9	14.8	11.0	11.0	21.8	18.5	18.5
Actuated g/C Ratio	0.25	0.25	0.25	0.21	0.21	0.21	0.32	0.24	0.24	0.47	0.40	0.40
v/c Ratio	0.01	0.48	0.09	0.06	0.15	0.09	0.08	0.53	0.10	0.32	0.27	0.01
Control Delay	14.7	19.6	0.3	19.6	19.3	0.3	8.7	20.4	0.3	9.2	12.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	19.6	0.3	19.6	19.3	0.3	8.7	20.4	0.3	9.2	12.1	0.0
LOS	B	B	A	B	B	A	A	C	A	A	B	A
Approach Delay		16.0			11.5			17.3			11.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	1	50	0	3	13	0	4	57	0	22	26	0
Queue Length 95th (ft)	6	101	0	17	44	0	16	103	0	53	75	0
Internal Link Dist (ft)		668			1898			2736			468	
Turn Bay Length (ft)	175		210	210		170	235		260	285		85
Base Capacity (vph)	296	819	829	266	430	619	411	1704	941	626	2272	1112
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Projected Members, New Driveway
Sunday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01	0.27	0.06	0.06	0.14	0.09	0.08	0.26	0.07	0.27	0.17	0.00

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 46.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 14.3

Intersection LOS: B

Intersection Capacity Utilization 42.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: SR 74 & Tyrone Rd



HCM Unsignalized Intersection Capacity Analysis 2: Farr Rd & Tyrone Rd

Projected Members, New Driveway
Sunday AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↘	
Traffic Volume (veh/h)	97	11	42	115	16	5
Future Volume (Veh/h)	97	11	42	115	16	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	133	15	58	158	22	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			148		414	140
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			148		414	140
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		96	99
cM capacity (veh/h)			1446		574	913
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	148	216	29			
Volume Left	0	58	22			
Volume Right	15	0	7			
cSH	1700	1446	631			
Volume to Capacity	0.09	0.04	0.05			
Queue Length 95th (ft)	0	3	4			
Control Delay (s)	0.0	2.3	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	2.3	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay		2.1				
Intersection Capacity Utilization		25.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

3: Farr Rd & Farr Church Driveway

Projected Members, New Driveway
Sunday AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	52	19	14	38
Future Volume (Veh/h)	0	0	52	19	14	38
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	0	96	35	26	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	288	61	96			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288	61	96			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	94			
cM capacity (veh/h)	662	1010	1510			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	131	96			
Volume Left	0	96	0			
Volume Right	0	0	70			
cSH	1700	1510	1700			
Volume to Capacity	0.00	0.06	0.06			
Queue Length 95th (ft)	0	5	0			
Control Delay (s)	0.0	5.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	0.0	5.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		13.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 4: New Church Driveway & Tyrone Rd

Projected Members, New Driveway
Sunday AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↘↙	
Traffic Volume (veh/h)	110	223	38	94	2	1
Future Volume (Veh/h)	110	223	38	94	2	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	204	413	70	174	4	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			617		724	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			617		724	410
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		99	100
cM capacity (veh/h)			963		364	641
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	617	244	6			
Volume Left	0	70	4			
Volume Right	413	0	2			
cSH	1700	963	425			
Volume to Capacity	0.36	0.07	0.01			
Queue Length 95th (ft)	0	6	1			
Control Delay (s)	0.0	3.1	13.6			
Lane LOS		A	B			
Approach Delay (s)	0.0	3.1	13.6			
Approach LOS			B			
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			39.9%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: SR 74 & Tyrone Rd

Projected Members, New Driveway
Sunday Noon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	86	80	77	192	207	54	618	31	58	693	8
Future Volume (vph)	5	86	80	77	192	207	54	618	31	58	693	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		210	210		170	235		260	285		85
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			50			120			115		
Satd. Flow (prot)	1805	1900	1615	1805	1900	1599	1805	3406	1615	1805	3438	1615
Flt Permitted	0.409			0.694			0.282			0.282		
Satd. Flow (perm)	777	1900	1615	1319	1900	1599	536	3406	1615	536	3438	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			235			234			234
Link Speed (mph)		30			35			55			55	
Link Distance (ft)		748			1848			2816			548	
Travel Time (s)		17.0			36.0			34.9			6.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	6%	0%	0%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	98	91	88	218	235	61	702	35	66	788	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			44			44	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Total Split (s)	11.0	33.5	33.5	22.5	22.5	22.5	11.0	25.5	25.5	11.0	25.5	25.5
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Act Effect Green (s)	12.9	12.9	12.9	11.5	11.5	11.5	16.7	14.2	14.2	16.7	14.2	14.2
Actuated g/C Ratio	0.28	0.28	0.28	0.25	0.25	0.25	0.36	0.31	0.31	0.36	0.31	0.31
v/c Ratio	0.02	0.18	0.16	0.27	0.46	0.41	0.17	0.67	0.05	0.19	0.74	0.01
Control Delay	14.2	15.3	1.8	20.5	21.6	6.0	10.2	19.6	0.2	10.3	21.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	15.3	1.8	20.5	21.6	6.0	10.2	19.6	0.2	10.3	21.9	0.0
LOS	B	B	A	C	C	A	B	B	A	B	C	A
Approach Delay		9.0			14.6			18.0			20.8	
Approach LOS		A			B			B			C	
Queue Length 50th (ft)	1	23	0	21	54	0	8	91	0	8	105	0
Queue Length 95th (ft)	8	53	10	67	139	47	34	196	0	36	#233	0
Internal Link Dist (ft)		668			1768			2736			468	
Turn Bay Length (ft)	175		210	210		170	235		260	285		85
Base Capacity (vph)	344	1287	1139	536	772	789	349	1636	897	349	1651	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Maldino & Wilburn

Synchro 10 Report

Lanes, Volumes, Timings 1: SR 74 & Tyrone Rd

Projected Members, New Driveway
Sunday Noon Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.02	0.08	0.08	0.16	0.28	0.30	0.17	0.43	0.04	0.19	0.48	0.01

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 46.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 17.5

Intersection LOS: B

Intersection Capacity Utilization 49.3%

ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: SR 74 & Tyrone Rd

 Ø1	 Ø2	 Ø4
11 s	25.5 s	33.5 s
 Ø5	 Ø6	 Ø7
11 s	25.5 s	11 s
		 Ø8
		22.5 s

HCM Unsignalized Intersection Capacity Analysis 2: Farr Rd & Tyrone Rd

Projected Members, New Driveway
Sunday Noon Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	159	25	3	164	21	44
Future Volume (Veh/h)	159	25	3	164	21	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	218	34	4	225	29	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			252		468	235
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			252		468	235
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	93
cM capacity (veh/h)			1325		555	809
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	252	229	89			
Volume Left	0	4	29			
Volume Right	34	0	60			
cSH	1700	1325	704			
Volume to Capacity	0.15	0.00	0.13			
Queue Length 95th (ft)	0	0	11			
Control Delay (s)	0.0	0.2	10.8			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.2	10.8			
Approach LOS			B			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			21.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Farr Rd & Farr Church Driveway

Projected Members, New Driveway
Sunday Noon Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	56	1	27	28	0
Future Volume (Veh/h)	38	56	1	27	28	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	60	89	2	43	44	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	91	44	44			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	91	44	44			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	91	100			
cM capacity (veh/h)	913	1032	1577			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	149	45	44			
Volume Left	60	2	0			
Volume Right	89	0	0			
cSH	980	1577	1700			
Volume to Capacity	0.15	0.00	0.03			
Queue Length 95th (ft)	13	0	0			
Control Delay (s)	9.3	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	0.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		5.9				
Intersection Capacity Utilization		15.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

4: New Church Driveway & Tyrone Rd

Projected Members, New Driveway
Sunday Noon Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↗	
Traffic Volume (veh/h)	146	3	0	190	249	38
Future Volume (Veh/h)	146	3	0	190	249	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	232	5	0	302	395	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			237		536	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			237		536	234
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		22	93
cM capacity (veh/h)			1330		505	805
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	237	302	455			
Volume Left	0	0	395			
Volume Right	5	0	60			
cSH	1700	1330	531			
Volume to Capacity	0.14	0.00	0.86			
Queue Length 95th (ft)	0	0	229			
Control Delay (s)	0.0	0.0	40.0			
Lane LOS			E			
Approach Delay (s)	0.0	0.0	40.0			
Approach LOS			E			
Intersection Summary						
Average Delay		18.3				
Intersection Capacity Utilization		32.8%	ICU Level of Service	A		
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

4: New Church Driveway & Tyrone Rd

New Driveway Mitigations
Sunday AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	110	223	38	94	2	1
Future Volume (Veh/h)	110	223	38	94	2	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	204	413	70	174	4	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						8
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			617		724	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			617		724	410
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		99	100
cM capacity (veh/h)			963		364	641
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	617	244	6			
Volume Left	0	70	4			
Volume Right	413	0	2			
cSH	1700	963	546			
Volume to Capacity	0.36	0.07	0.01			
Queue Length 95th (ft)	0	6	1			
Control Delay (s)	0.0	3.1	13.5			
Lane LOS		A	B			
Approach Delay (s)	0.0	3.1	13.5			
Approach LOS			B			
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			39.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: New Church Driveway & Tyrone Rd

New Driveway Mitigations
Sunday Noon Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↱	↱
Traffic Volume (veh/h)	146	3	0	190	249	38
Future Volume (Veh/h)	146	3	0	190	249	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	232	5	0	302	395	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						10
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			237		536	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			237		536	234
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		22	93
cM capacity (veh/h)			1330		505	805
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	237	302	455			
Volume Left	0	0	395			
Volume Right	5	0	60			
cSH	1700	1330	582			
Volume to Capacity	0.14	0.00	0.78			
Queue Length 95th (ft)	0	0	184			
Control Delay (s)	0.0	0.0	30.1			
Lane LOS			D			
Approach Delay (s)	0.0	0.0	30.1			
Approach LOS			D			
Intersection Summary						
Average Delay		13.8				
Intersection Capacity Utilization		30.5%	ICU Level of Service	A		
Analysis Period (min)		15				