Traffic Study

Terra Verde Meadow
(Proposed Single-Family Residential Subdivision)

prepared for:

Terra Verde, LLC

Church Street (Hwy 141) and
Bettie Court
Jonesboro, Arkansas

PETERS & ASSOCIATES
ENGINEERS, INC.
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Project No.: P-2149

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INTRODUCTION

Peters & Associates Engineers, Inc., has conducted a traffic engineering study relating to the proposed development of Terra Verde Meadow, an approximate 115 residential duplexes consisting of 230 total housing units. The site is located west of Church Street (Highway 141) and on the south side of Bettie Court in Jonesboro, Arkansas. There is also a proposed street connection to the south via French Street which has been taken into consideration for projected traffic conditions. The primary focus of this study is to assess traffic operational characteristics of the streets that will connect to the development and which will provide access. A reduced copy of the plan is included in the Appendix for reference.

This is a report of methodology and findings relating to a traffic engineering study undertaken to:

- Evaluate existing traffic conditions in the immediate vicinity of the site.

- Determine projected vehicular traffic volumes entering and exiting the development at the study intersection of Church Street and Bettie Court proposed to serve the site and on French Street which will connect from the south to Bettie Court within the subdivision.

- Identify the effects on traffic operations for existing traffic in combination with site-generated traffic associated with the site development.

- Evaluate projected traffic operations for the study intersection and make recommendations for mitigative improvements which may be necessary and appropriate for acceptable traffic operations.

In the following sections of this traffic study report are traffic data, study methods, findings and recommendations. The study is technical in nature. Analysis techniques employed are those most commonly used in the traffic engineering profession for traffic impact analysis. Certain data and calculations relative to traffic operational analysis are referenced in the report. Complete calculations and data are included in the Appendix of the report.

THE SITE

Terra Verde Meadow residential development is being developed by Terra Verde, LLC and is located west of Church Street and on the south side of Bettie Court in Jonesboro, Arkansas. Terra Verde Meadow is proposed to consist of approximately 115 residential duplexes consisting of 230 total housing units as indicated on the subdivision plat.

The proposed development site vicinity is shown on Figure 1, "Vicinity Map."

Access to the residential site is proposed to be provided primarily by Bettie Court and Church Street to the east, and by French Street connecting to the south.

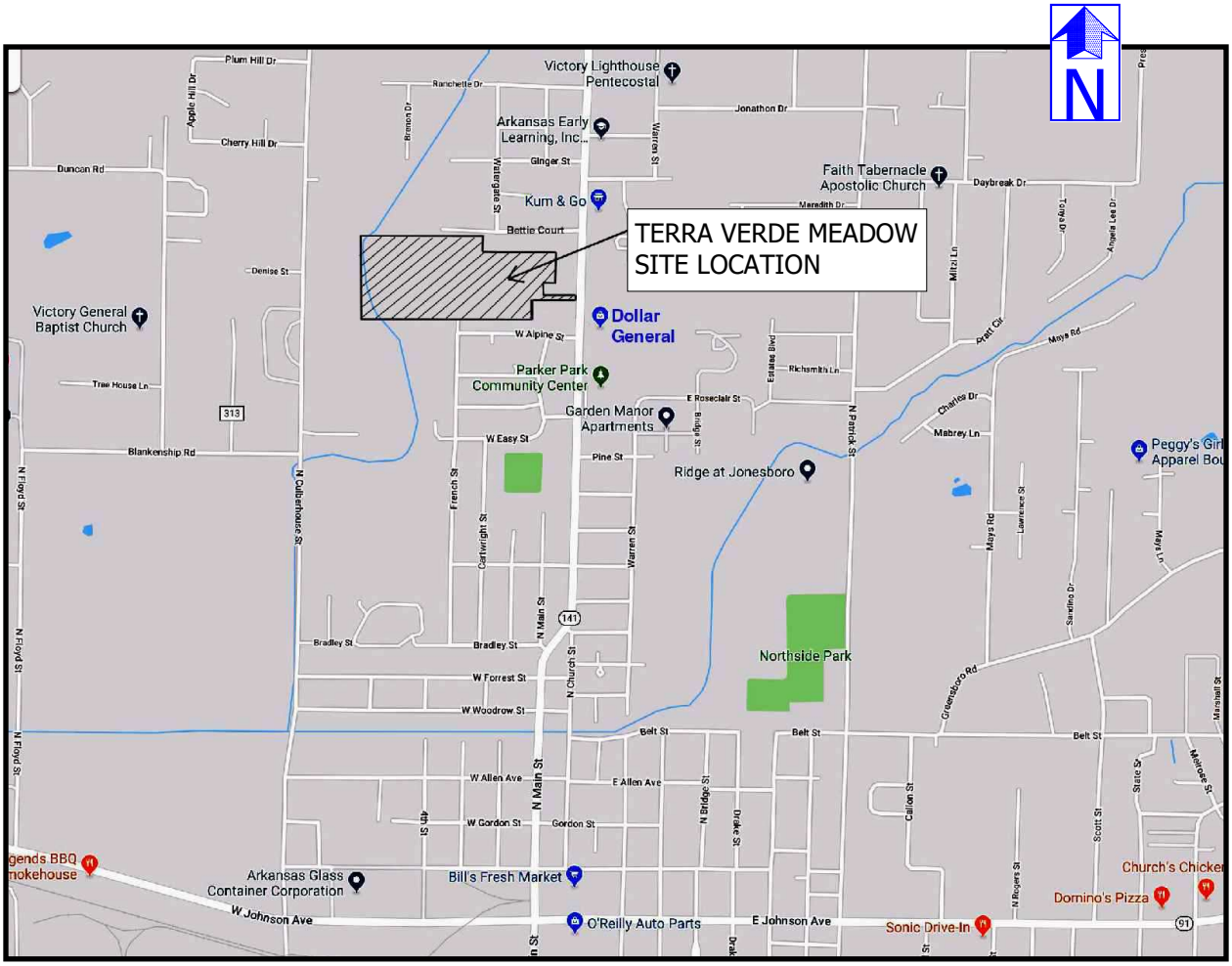


Figure 1 – Vicinity Map

EXISTING TRAFFIC CONDITIONS

Traffic count data collected as a part of this study include AM and PM peak hours vehicle turning movement counts at the intersection of Church Street and Bettie Court and vehicle traffic volume counts on French Street just south of the proposed connection to Bettie Court.

The AM and PM peak hours vehicle turning movement counts made as a part of this study are shown on Figure 2A, "Existing Traffic Volumes - AM Peak Hour," and Figure 2B, "Existing Traffic Volumes - PM Peak Hour." The count data are presented in more detail in the Appendix of this report.

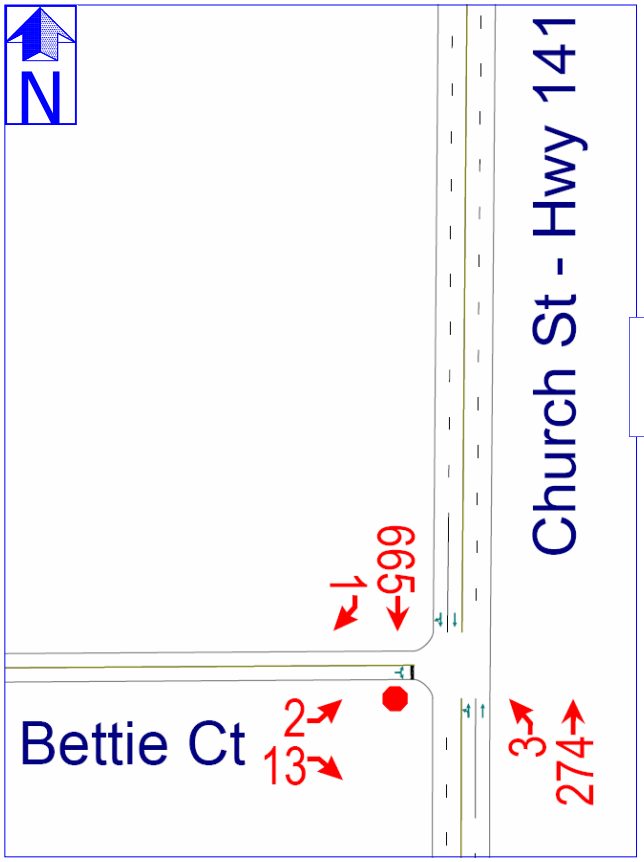


Figure 2A
Existing Traffic Volumes
AM Peak Hour

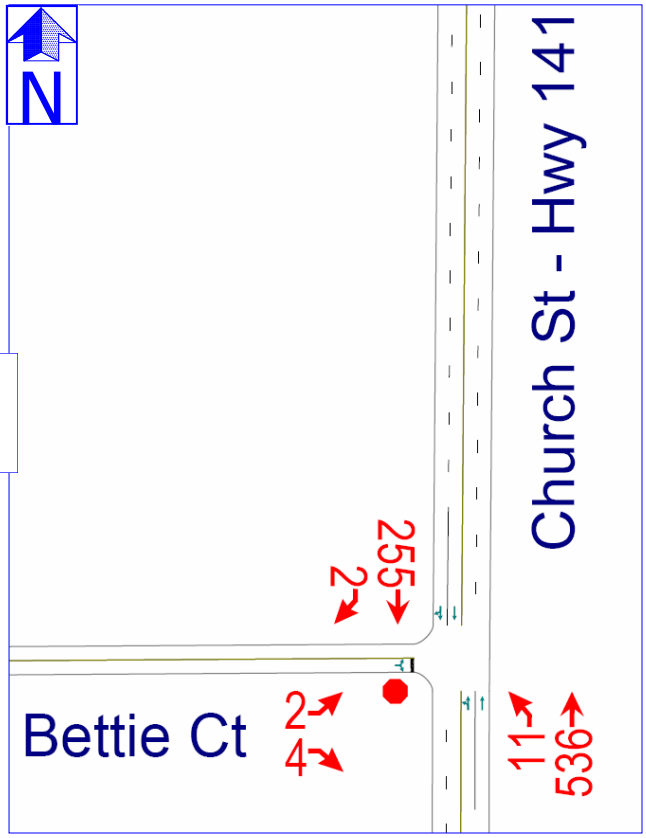


Figure 2B
Existing Traffic Volumes
PM Peak Hour

TRIP GENERATION and SITE TRAFFIC PROJECTIONS

The Trip Generation, an Informational Report, published by the Institute of Transportation Engineers (ITE) and The Trip Generation Manual 10th Edition, 2017, were utilized in calculating the magnitude of traffic volumes expected to be generated by the proposed land-use of the residential development. These are reliable sources for this information and are commonly used in the traffic engineering profession.

Using the selected trip generation rates, calculations were made as a part of this study to provide a reliable estimate of traffic volumes that can be expected to be associated with the proposed development. These calculations entail applying the appropriate trip-generation rates to the land use proposed for the development. Results of these calculations are summarized on Table 1, "Summary of Trip Generation - Terra Verde Meadow."

PROPOSED LAND USE	APPROXIMATE SIZE	ITE CODE	24-HOUR TWO-WAY WEEKDAY VOLUME	AM PEAK HOUR VOLUME		PM PEAK HOUR VOLUME	
				ENTER	EXIT	ENTER	EXIT
Residential	230 Units	210	2,171	42	128	143	85
TOTAL ENTERING + EXITING				170		228	

Table 1 – Summary of Trip-Generation - Terra Verde Meadow

These calculations indicate that approximately 2,171 vehicle trips (combined in and out) per average week-day are projected to be generated by the proposed residential development land use on this site. Of this total, approximately 170 vehicle trips are estimated during the traffic conditions of the AM peak hour and approximately 228 vehicle trips are estimated during the traffic conditions of the PM peak hour.

Residential traffic, as will be associated with site, ordinarily contributes to the adjacent street traffic conditions during the on-street AM and PM peak traffic hours. Accordingly, the AM and PM peak traffic periods are the focus of this study.

TRAFFIC VOLUME ASSIGNMENTS

Once projected traffic was estimated for the Terra Verde Meadow, directional distributions were made to reflect the percent of thru, left and right-turns at the study intersection of Church Street and Bettie Court and volume projected to use French Street. Directional distribution percentages used in this study are shown on Figure 3, "Directional Distribution - Site Traffic."

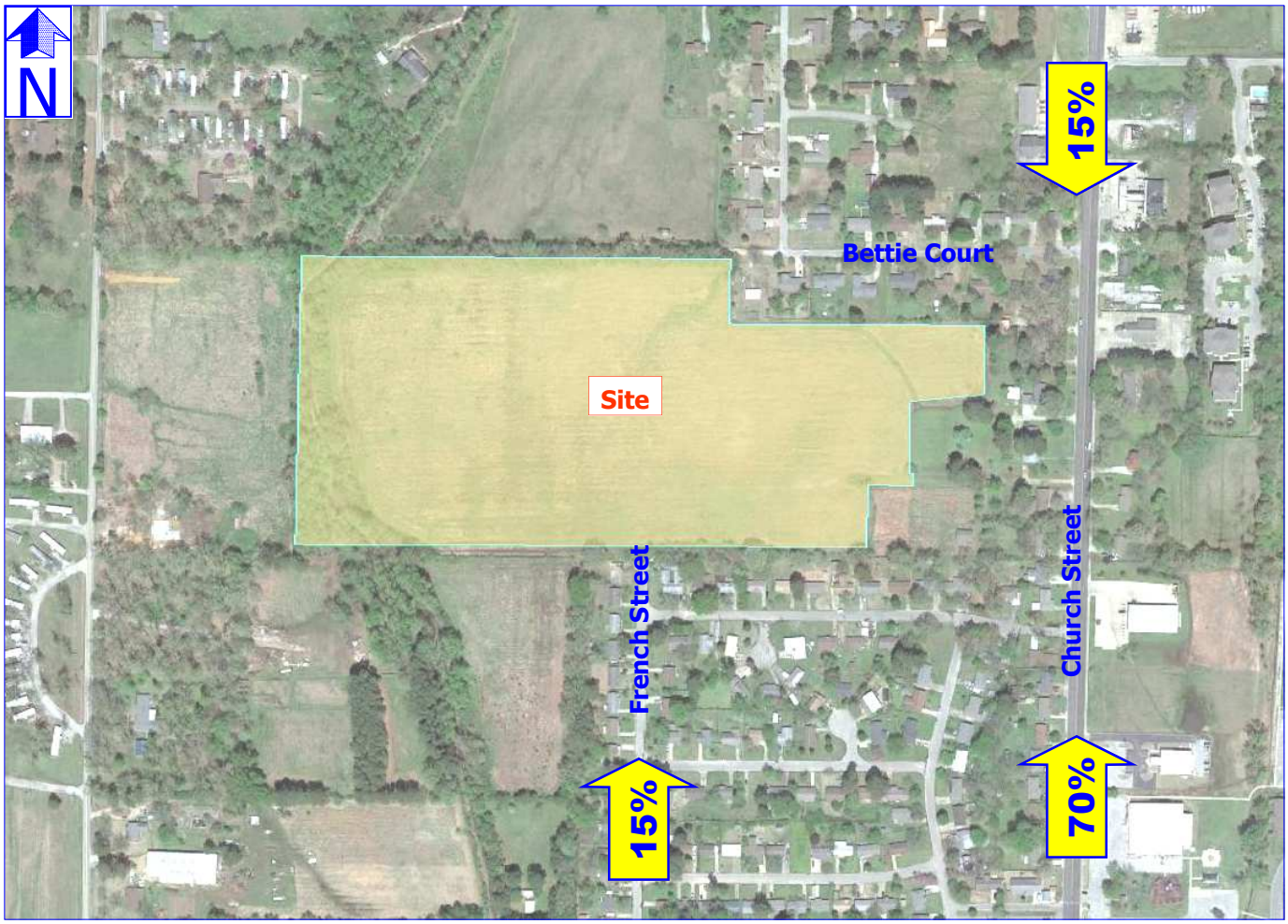


Figure 3
Directional Distribution - Site Traffic

The site-generated traffic volumes result from applying the directional distribution percentages to the corresponding projected traffic volumes summarized on Table 1, "Summary of Trip-Generation - Terra Verde Meadow."

Background traffic volume growth was researched on Church Street, just south of Bettie Court utilizing Arkansas Department of Transportation (ARDOT) published average daily traffic (ADT) volumes. It was found that there has not been an increase (there has actually been a decrease) in ADT volumes on Church Street, just south of Bettie Court. Therefore, a background traffic volume growth factor has not been added to the projected traffic volumes as a part of this study. ARDOT published traffic volumes at this location are as follows:

- 2019 (pre-Covid) = 9,200 ADT.
- 2014 = 9,200 ADT (shows no growth in 5 years).
- 2009 = 9,700 ADT (negative growth in 10 years).

The site-generated traffic volumes and corresponding existing background traffic volumes have been combined and the results are depicted on Figure 4A, "Projected Traffic Volumes - AM Peak Hour," and Figure 4B, "Projected Traffic Volumes - PM Peak Hour."

Traffic volumes shown on Figures 2A, 2B, 4A and 4B are the values used in capacity and level of service calculations conducted as a part of this study. The effect of existing traffic (i.e. the adjacent street non-site traffic which exists) and projected traffic associated with the site have thus been accounted for in this analysis.

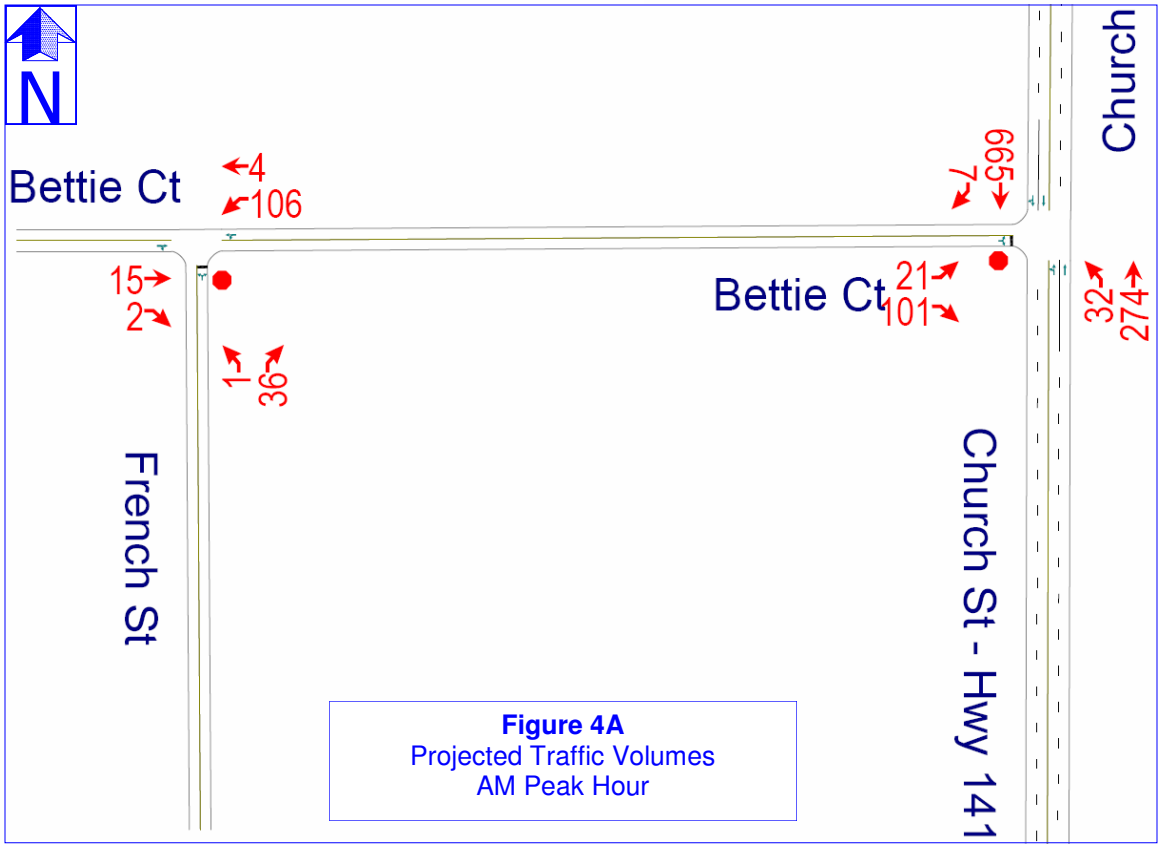


Figure 4A
Projected Traffic Volumes
AM Peak Hour

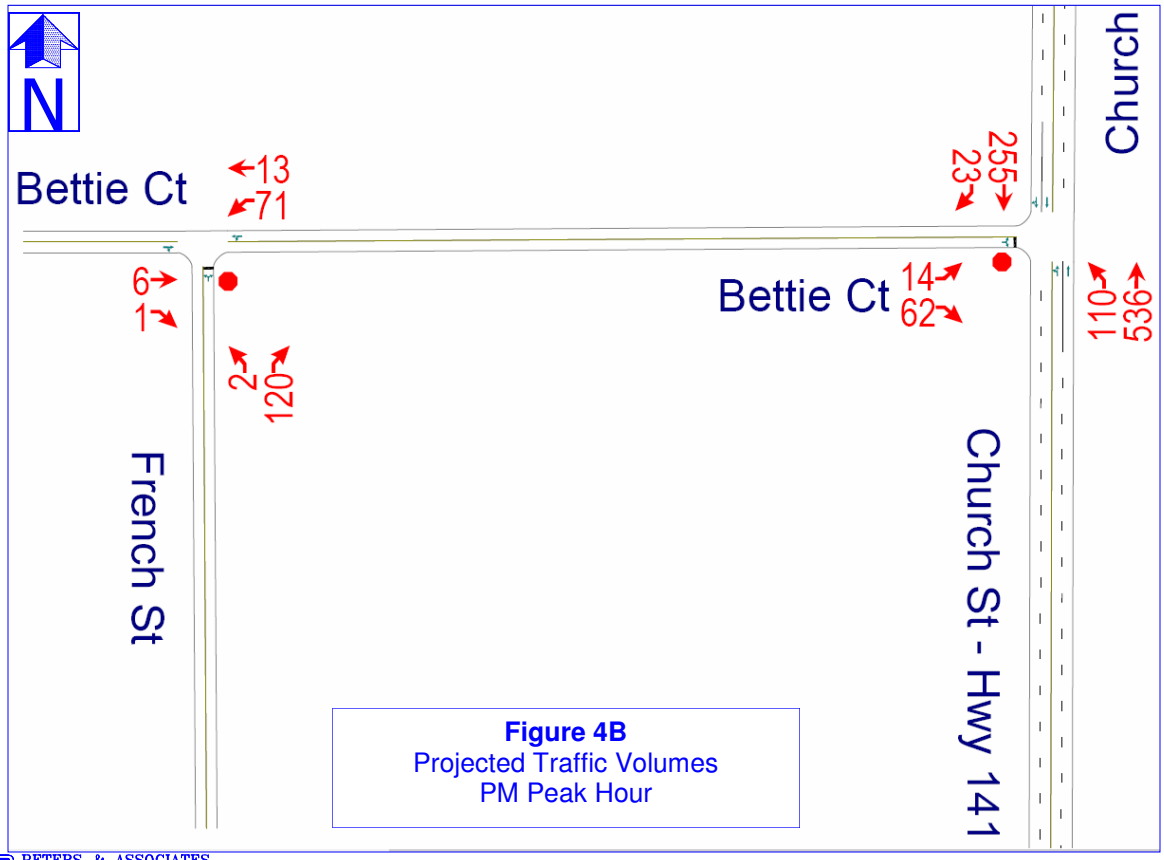


Figure 4B
Projected Traffic Volumes
PM Peak Hour

Once the vehicle turning movements were calculated for the study intersections, it allows volumes to be totaled at various street segments in the immediate vicinity of the proposed site. The volumes thus calculated for AM and PM peak hours and for daily volumes are depicted on Figure 5A, "Street Segments Traffic Volumes - AM Peak Hour," Figure 5B, "Street Segments Traffic Volumes - PM Peak Hour," and Figure 5C, "Street Segments Traffic Volumes - Typical Weekday." The volumes shown are two-way values, each for a hour in the respective peak traffic periods.

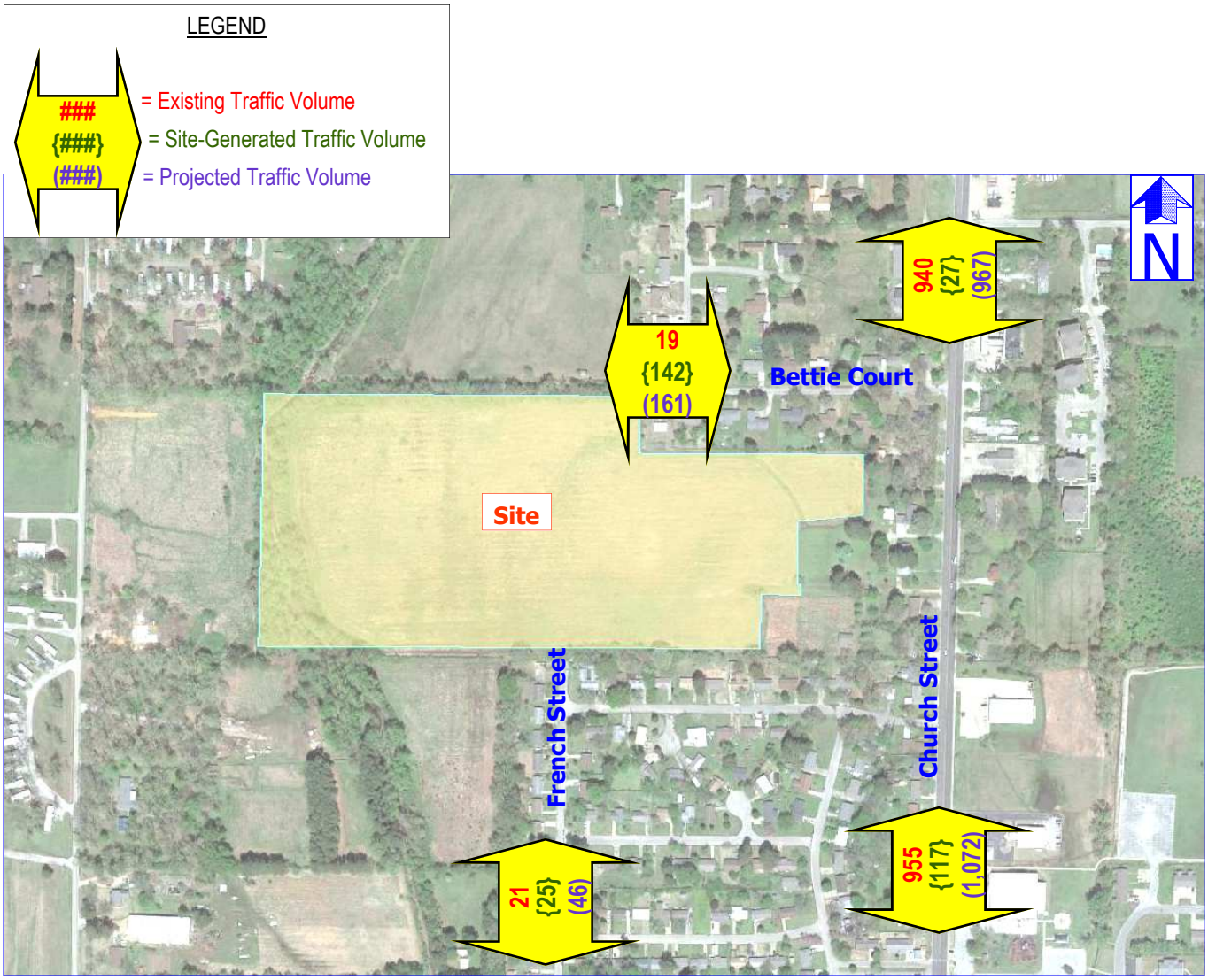


Figure 5A
Street Segments Traffic Volumes - AM Peak Hour

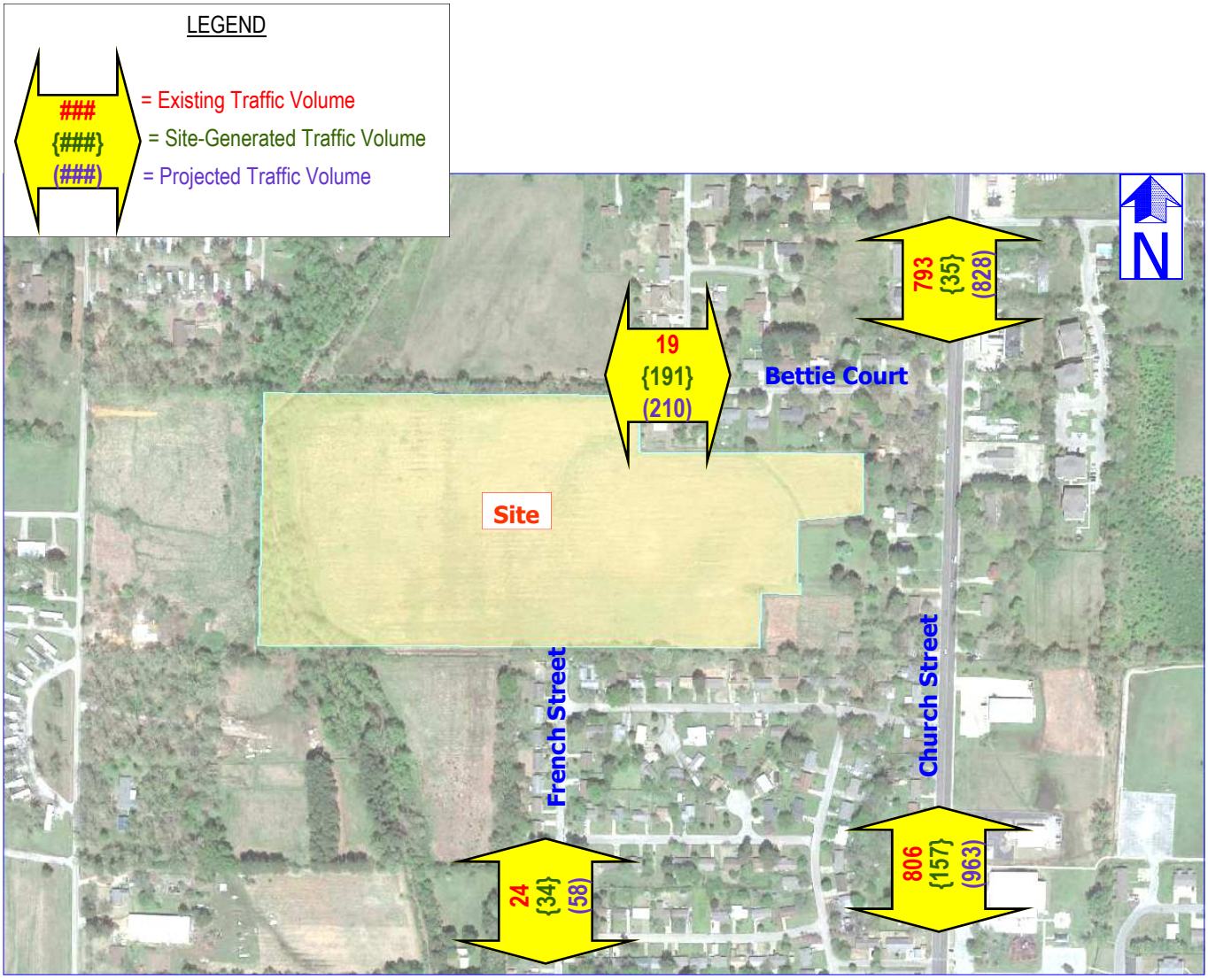


Figure 5B
Street Segments Traffic Volumes - PM Peak Hour

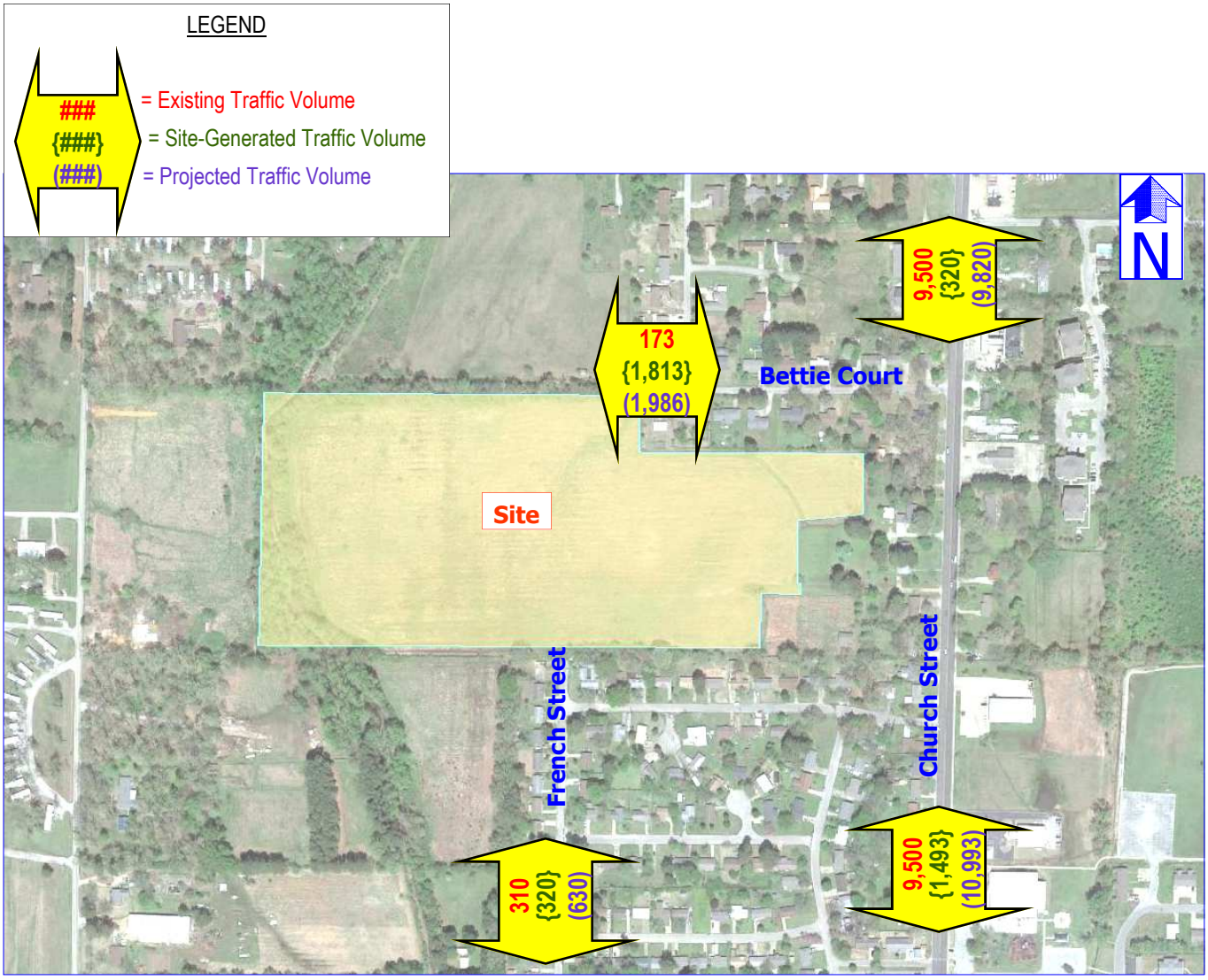


Figure 5C
Street Segments Traffic Volumes - Typical Weekday

CAPACITY and LEVEL OF SERVICE

Generally, the "capacity" of a street is a measure of its ability to accommodate a certain magnitude of moving vehicles. It is a rate as opposed to a quantity, measured in terms of vehicles per hour. More specifically, street capacity refers to the maximum number of vehicles that a street element (e.g. an intersection) can be expected to accommodate in a given time period under the prevailing roadway and traffic conditions.

Traffic operational analysis for the study intersection of Church Street and Bettie Court were evaluated based on the methodologies outlined in the Highway Capacity Manual, 2010 Edition, published by the Transportation Research Board. The operating conditions at an intersection are graded by the "level of service" experienced by drivers. Level of service (LOS) describes the quality of traffic operating conditions and is rated from "A" to "F". LOS "A" represents the most desirable condition with free-flow movement of traffic with minimal delays. LOS "F" generally excessive delays to motorists. Intermediate grades of B, C, D, and E reflect incremental increases in the average delay per stopped vehicle. Delay is measured in seconds per vehicle. The table below shows the upper limit of delay associated with each level of service for signalized and un-signalized intersections.

Intersection Level of Service Delay Thresholds

Level of Service (LOS)	Signalized	Un-Signalized
A	< 10 Seconds	< 10 Seconds
B	< 20 Seconds	< 15 Seconds
C	< 35 Seconds	< 25 Seconds
D	< 55 Seconds	< 35 Seconds
E	< 80 Seconds	< 50 Seconds
F	≥ 80 Seconds	≥ 50 Seconds

The LOS rating deemed acceptable varies by community, facility type and traffic control device. Typically, LOS "D" is the desirable goal for movements at unsignalized intersections that must yield to other movements; however, a LOS "E" or "F" is often accepted for low to moderate traffic volumes where the installation of a traffic signal is not warranted by the conditions at the intersection or the location is deemed undesirable for signalization for other reasons. Other reasons may include the close proximity of an existing traffic signal or the presence of a convenient alternative route. For signalized intersections, level of service and average delay relate to all vehicles using the intersection. LOS "D" is the typical desirable standard for signalized intersections. The study intersections were evaluated using the Synchro analysis software package based on Highway Capacity Manual methods. This computer program has been proven to be reliable when used to analyze capacity and levels of traffic service under various operating conditions. Detailed results for all capacity calculations are included in the Appendix. The adjacent street weekday AM and PM peak traffic periods were used for these calculations. Factors included in the analysis are as follows:

- Existing traffic volumes.
- Directional distribution of projected traffic volumes.
- Intersection geometry (including elements such as turn lanes, curb radii, etc.).
- Existing traffic volumes and estimated volumes for projected traffic conditions.
- Existing and proposed traffic control.

CAPACITY ANALYSIS

Level of Service Analysis Results

Existing Traffic Conditions

Capacity and LOS analysis was performed for existing traffic volumes, lane geometry and traffic control for the AM and PM peak hours for the intersection of Church Street and Bettie Court.

Traffic volumes used for this analysis are shown on Figure 2A, "Existing Traffic Volumes - AM Peak Hour," and Figure 2B, "Existing Traffic Volumes - PM Peak Hour."

As indicated in Table 2, "Level of Service Summary – Existing Traffic Conditions," all vehicle movements for the existing traffic conditions at the study intersection currently operate at what calculates as LOS "B" or better for the AM and PM peak hours with existing lane geometry and traffic control.

Projected Traffic Conditions

Capacity and LOS analysis was performed for projected traffic conditions to include development of Terra Verde Meadow for the AM and PM peak hours for the intersection of Church Street and Bettie Court and Bettie Court and French Street extension.

Traffic volumes used for these projected traffic conditions are shown on Figure 4A, "Projected Traffic Volumes - AM Peak Hour," and Figure 4B, "Projected Traffic Volumes - PM Peak Hour." The operating conditions projected to exist at the study intersection are summarized in Table 3, "Level of Service Summary - Projected Traffic Conditions."

As indicated in Table 3, all vehicle movements for the projected traffic conditions at the study intersections are expected to operate at what calculates as LOS "B" or better for the AM and PM peak hours.

EXISTING TRAFFIC CONDITIONS		Traffic Control	Eastbound Left-Turn	Eastbound Thru	Eastbound Right-Turn	Westbound Left-Turn	Westbound Thru	Westbound Right-Turn	Northbound Left-Turn	Northbound Thru	Northbound Right-Turn	Southbound Left-Turn	Southbound Thru	Southbound Right-Turn	Overall Intersection	Avg. Control Delay Seconds / Vehicle	Intersection Capacity Utilization (%)
INTERSECTION	PEAK HR		PEAK HOUR - LEVEL OF SERVICE														
Church Street & Bettie Court	AM	"STOP" SIGN	B		B				A				A		n/a	0.2	30.0%
	PM		B		B				A				A		n/a	0.2	34.6%

Table 2 - Level of Service Summary - Existing Traffic Conditions

PROJECTED TRAFFIC CONDITIONS		Traffic Control	Eastbound Left-Turn	Eastbound Thru	Eastbound Right-Turn	Westbound Left-Turn	Westbound Thru	Westbound Right-Turn	Northbound Left-Turn	Northbound Thru	Northbound Right-Turn	Southbound Left-Turn	Southbound Thru	Southbound Right-Turn	Overall Intersection	Avg. Control Delay Seconds / Vehicle	Intersection Capacity Utilization (%)
INTERSECTION	PEAK HR		PEAK HOUR - LEVEL OF SERVICE														
Church Street & Bettie Court	AM	"STOP" SIGN	B		B				A				A		n/a	1.9	47.5%
	PM		B		B				A				A		n/a	1.9	43.0%
French Street & Bettie Court	AM	"STOP" SIGN		A		A			A		A				n/a	6.7	23.3%
	PM			A		A			A		A				n/a	7.5	26.5%

Table 3 - Level of Service Summary - Projected Traffic Conditions

SUMMARY OF FINDINGS

Findings of this study are summarized as follows:

- Capacity and LOS analysis was performed for existing traffic volumes, lane geometry and traffic control for the AM and PM peak hours for the intersection of Church Street and Bettie Court. All vehicle movements for the existing traffic conditions at the study intersection currently operate at what calculates as LOS "B" or better for the AM and PM peak hours with existing lane geometry and traffic control.

- For the development as proposed, approximately 2,171 vehicle trips (combined in and out) per average weekday are projected to be generated by the proposed residential development land use on this site. Of this total, approximately 170 vehicle trips are estimated during the traffic conditions of the AM peak hour and approximately 228 vehicle trips are estimated during the traffic conditions of the PM peak hour.

- Capacity and LOS analysis was performed for projected traffic conditions to include development of Terra Verde Meadow for the AM and PM peak hours for the intersection of Church Street and Bettie Court and Bettie Court and French Street extension. All vehicle movements for the projected traffic conditions at the study intersections are expected to operate at what calculates as LOS "B" or better for the AM and PM peak hours.

- Projected traffic volume on French Street just south of the site is expected to be approximately 630 vehicle trips for a typical weekday with 46 vehicle trips in the AM and 58 vehicle trips in the PM peak hours.

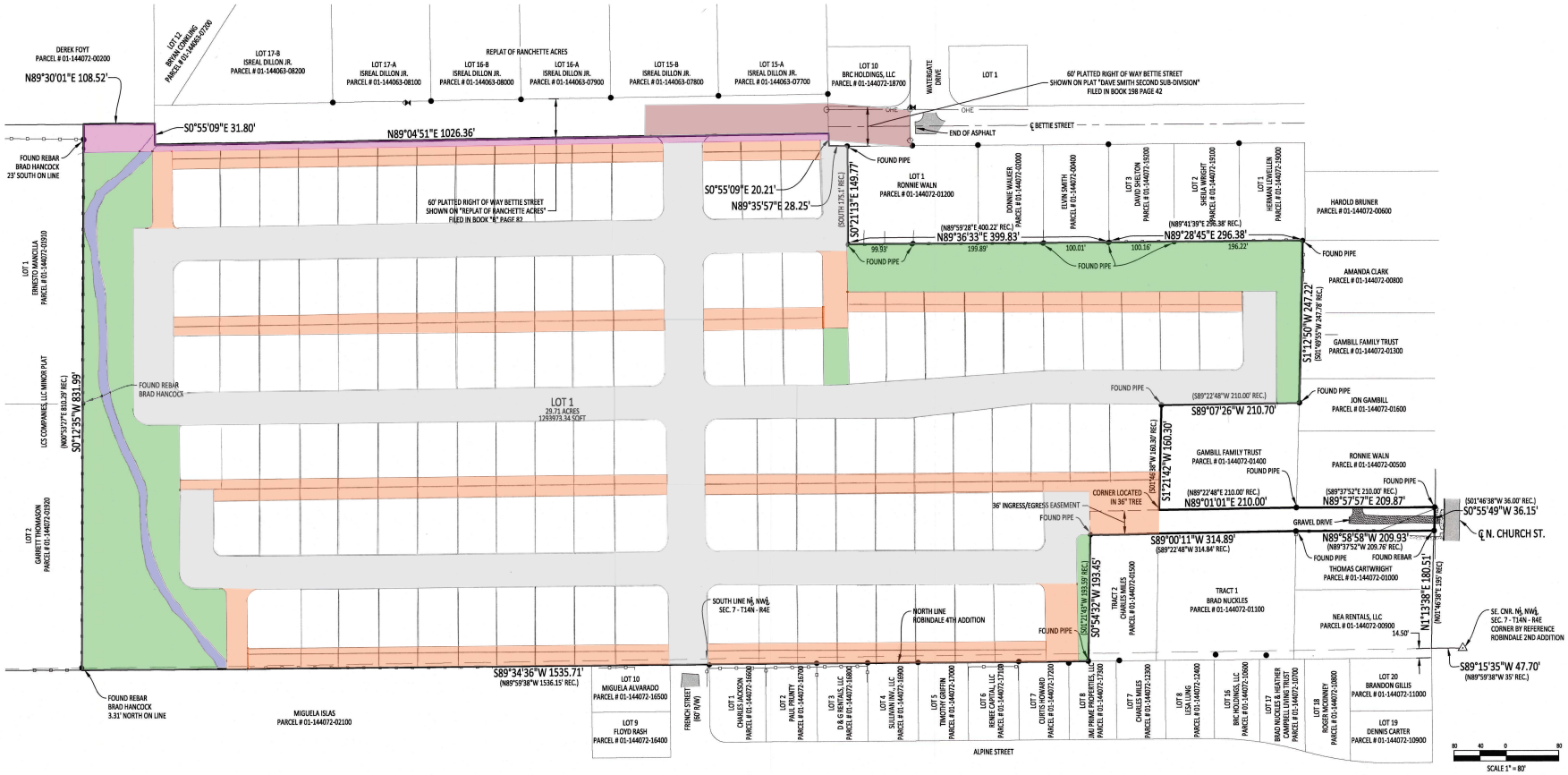
The conclusion of traffic operational findings associated with this study is that additional traffic expected to be generated by Terra Verde Meadow as proposed can be accommodated by the existing roadways of Bettie Court, French Street and Church Street, each with one lane in each direction.

PETERS & ASSOCIATES
ENGINEERS, INC.

APPENDIX

PETERS & ASSOCIATES
ENGINEERS, INC.

Subdivision Plat


DEREK FOYT
PARCEL # 01-144072-00200
N89°30'01"E 108.52'
LOT 13
BRYN COMING
PARCEL # 01-144063-07200
LOT 17-B
ISREAL DILLON JR.
PARCEL # 01-144063-08200
LOT 17-A
ISREAL DILLON JR.
PARCEL # 01-144063-08100
REPLAT OF RANCHETTE ACRES
LOT 16-B
ISREAL DILLON JR.
PARCEL # 01-144063-08000
LOT 16-A
ISREAL DILLON JR.
PARCEL # 01-144063-07900
LOT 15-B
ISREAL DILLON JR.
PARCEL # 01-144063-07800
LOT 15-A
ISREAL DILLON JR.
PARCEL # 01-144063-07700
LOT 10
BRC HOLDINGS, LLC
PARCEL # 01-144072-18700
WATERGATE DRIVE
LOT 1
60' PLATTED RIGHT OF WAY BETTIE STREET
SHOWN ON PLAT "DAVE SMITH SECOND SUB-DIVISION"
FILED IN BOOK 198 PAGE 42
OHE
END OF ASPHALT
℄ BETTIE STREET
S0°55'09"E 31.80'
N89°04'51"E 1026.36'
FOUND REBAR
BRAD HANCOCK
23' SOUTH ON LINE
60' PLATTED RIGHT OF WAY BETTIE STREET
SHOWN ON "REPLAT OF RANCHETTE ACRES"
FILED IN BOOK "R" PAGE 82
FOUND PIPE
S0°55'09"E 20.21'
N89°35'57"E 28.25'
(SOUTH 1.75' ± REC.)
S0°21'13"E 149.77'
LOT 1
RONNIE WALN
PARCEL # 01-144072-01200
DONNIE WALKER
PARCEL # 01-144072-02000
ELVIN SMITH
PARCEL # 01-144072-06400
LOT 3
DAVID SHELTON
PARCEL # 01-144072-19200
LOT 2
SHELLA MASSEY
PARCEL # 01-144072-19100
LOT 1
HERMAN LOVELLIN
PARCEL # 01-144072-19000
HAROLD BRUNER
PARCEL # 01-144072-00600
(N89°59'28"E 400.22' REC.)
N89°36'33"E 399.83'
(N89°41'39"E 296.38' REC.)
N89°28'45"E 296.38'
99.93'
199.89'
100.01'
100.16'
196.22'
FOUND PIPE
FOUND PIPE
FOUND PIPE
AMANDA CLARK
PARCEL # 01-144072-00800
S1°12'50"W 247.22'
(S01°09'55"W 247.78' REC.)
GAMBILL FAMILY TRUST
PARCEL # 01-144072-01300
LOT 1
ERNESTO MANCILLA
PARCEL # 01-144072-01910
FOUND REBAR
BRAD HANCOCK
LOT 1
29.71 ACRES
1293973.34 SQFT
LCS COMPANIES, LLC MINOR PLAT
(N00°53'27"E 831.29' REC.)
S0°12'35"W 831.99'
FOUND PIPE
(S89°22'48"W 210.00' REC.)
S89°07'26"W 210.70'
JON GAMBILL
PARCEL # 01-144072-01600
(S01°46'38"W 160.39' REC.)
S1°21'42"W 160.39'
GAMBILL FAMILY TRUST
PARCEL # 01-144072-01400
FOUND PIPE
RONNIE WALN
PARCEL # 01-144072-00500
FOUND PIPE
(S89°37'52"E 210.00' REC.)
N89°57'57"E 209.87'
(S01°46'38"W 36.00' REC.)
S0°55'49"W 36.15'
℄ N. CHURCH ST.
(N89°22'48"E 210.00' REC.)
N89°01'01"E 210.00'
CORNER LOCATED
IN 36" TREE
36' INGRESS/EGRESS EASEMENT
FOUND PIPE
GRAVEL DRIVE
S89°00'11"W 314.89'
(S89°22'48"W 314.84' REC.)
N89°58'58"W 209.93'
(N89°37'52"W 209.76' REC.)
FOUND REBAR
FOUND PIPE
THOMAS CARTWRIGHT
PARCEL # 01-144072-01000
LOT 2
GARBETT THOMASON
PARCEL # 01-144072-01920
SOUTH LINE N½ NW¼
SEC. 7 - T14N - R4E
NORTH LINE
ROBINDALE 4TH ADDITION
FOUND PIPE
S0°54'32"W 193.45'
(S01°21'43"W 193.59' REC.)
TRACT 2
CHARLES MILES
PARCEL # 01-144072-01500
TRACT 1
BRAD NUCKLES
PARCEL # 01-144072-01100
NEA RENTALS, LLC
PARCEL # 01-144072-00900
14.50'
N1°13'38"E 180.51'
(N01°46'38"E 180' REC.)
SE. CNR. N½ NW¼
SEC. 7 - T14N - R4E
CORNER BY REFERENCE
ROBINDALE 2ND ADDITION
S89°15'35"W 47.70'
(N89°59'38"W 47.70' REC.)
S89°34'36"W 1535.71'
(N89°59'38"W 1536.15' REC.)
FOUND REBAR
BRAD HANCOCK
3.31' NORTH ON LINE
MIGUELA ISLAS
PARCEL # 01-144072-02100
LOT 10
MIGUELA ALVARADO
PARCEL # 01-144072-16500
LOT 9
FLOYD RASH
PARCEL # 01-144072-16400
FRENCH STREET
(60' R/W)
LOT 1
CHARLES JACKSON
PARCEL # 01-144072-16600
LOT 2
PAUL MOTLEY
PARCEL # 01-144072-16700
LOT 3
D & G BRIDALS, LLC
PARCEL # 01-144072-16800
LOT 4
SUSAN HALL, LLC
PARCEL # 01-144072-16900
LOT 5
TRAVIS GRIFFIN
PARCEL # 01-144072-17000
LOT 6
RENEE HOWELL, LLC
PARCEL # 01-144072-17100
LOT 7
CURTIS HOWARD
PARCEL # 01-144072-17200
LOT 8
JMJ PRIME PROPERTIES, LLC
PARCEL # 01-144072-17300
LOT 7
CHARLES MILES
PARCEL # 01-144072-12300
LOT 8
LESA LUNG
PARCEL # 01-144072-12400
LOT 16
BRC HOLDINGS, LLC
PARCEL # 01-144072-10500
LOT 17
BRAD NUCKLES & HEATHER
CAMPBELL LIVING TRUST
PARCEL # 01-144072-10700
LOT 18
ROGER MCKINNEY
PARCEL # 01-144072-10800
LOT 20
BRANDON GILLIS
PARCEL # 01-144072-11000
LOT 19
DENNIS CARTER
PARCEL # 01-144072-10900
ALPINE STREET
80 40 0 80
SCALE 1" = 80'

PETERS & ASSOCIATES
ENGINEERS, INC.

Vehicle Turning Movement Count Data

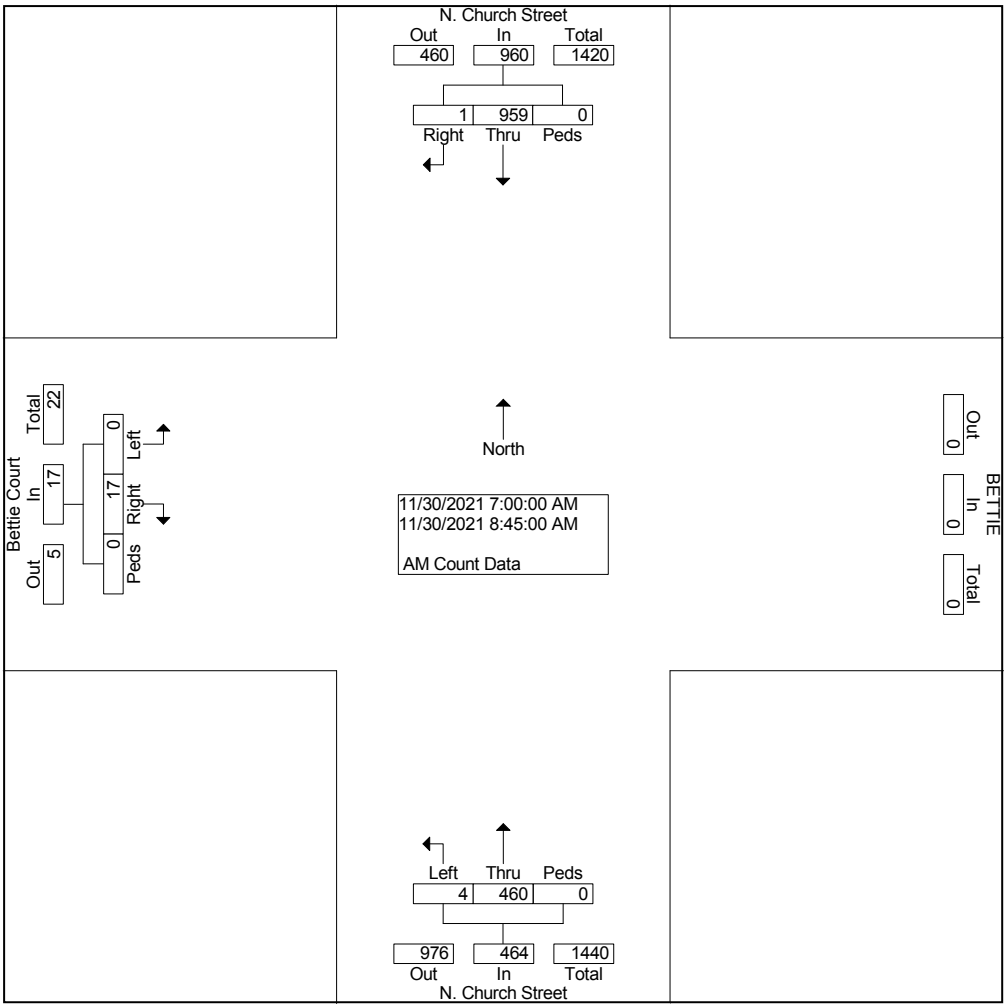
Peters & Associates Engineers, Inc.
Peak Hour Turning Movement Count Data

AM Hour Turning Movement Count Data
N. Church Street & Bettie Court
Jonesboro, Arkansas
P-2149

File Name : AM CH Be
Site Code : 00000000
Start Date : 11/30/2021
Page No : 1

Groups Printed- AM Count Data

	N. Church Street From North				N. Church Street From South				Bettie Court From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	0	85	0	85	38	0	0	38	2	0	0	2	125
07:15 AM	0	164	0	164	49	1	0	50	4	0	0	4	218
07:30 AM	0	212	0	212	68	1	0	69	4	0	0	4	285
07:45 AM	0	192	0	192	86	0	0	86	3	0	0	3	281
Total	0	653	0	653	241	2	0	243	13	0	0	13	909
08:00 AM	1	97	0	98	71	1	0	72	2	0	0	2	172
08:15 AM	0	70	0	70	57	0	0	57	2	0	0	2	129
08:30 AM	0	71	0	71	47	0	0	47	0	0	0	0	118
08:45 AM	0	68	0	68	44	1	0	45	0	0	0	0	113
Total	1	306	0	307	219	2	0	221	4	0	0	4	532
Grand Total	1	959	0	960	460	4	0	464	17	0	0	17	1441
Apprch %	0.1	99.9	0.0		99.1	0.9	0.0		100.0	0.0	0.0		
Total %	0.1	66.6	0.0	66.6	31.9	0.3	0.0	32.2	1.2	0.0	0.0	1.2	

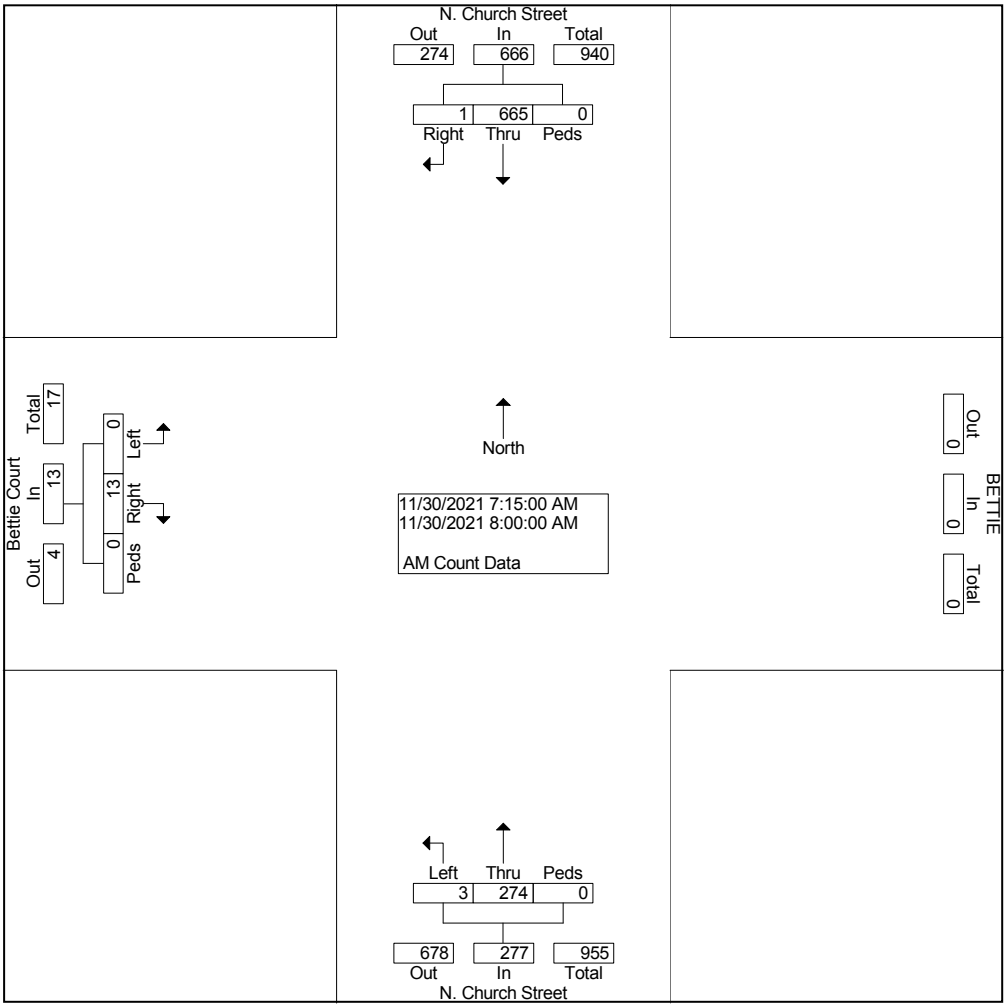


Peters & Associates Engineers, Inc.
Peak Hour Turning Movement Count Data

AM Hour Turning Movement Count Data
N. Church Street & Bettie Court
Jonesboro, Arkansas
P-2149

File Name : AM CH Be
Site Code : 00000000
Start Date : 11/30/2021
Page No : 2

	N. Church Street From North				N. Church Street From South				Bettie Court From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1													
Intersection	07:15 AM												
Volume	1	665	0	666	274	3	0	277	13	0	0	13	956
Percent	0.2	99.8	0.0		98.9	1.1	0.0		100.0	0.0	0.0		
07:30 Volume	0	212	0	212	68	1	0	69	4	0	0	4	285
Peak Factor													0.839
High Int.	07:30 AM				07:45 AM				07:15 AM				
Volume	0	212	0	212	86	0	0	86	4	0	0	4	
Peak Factor				0.785				0.805				0.813	



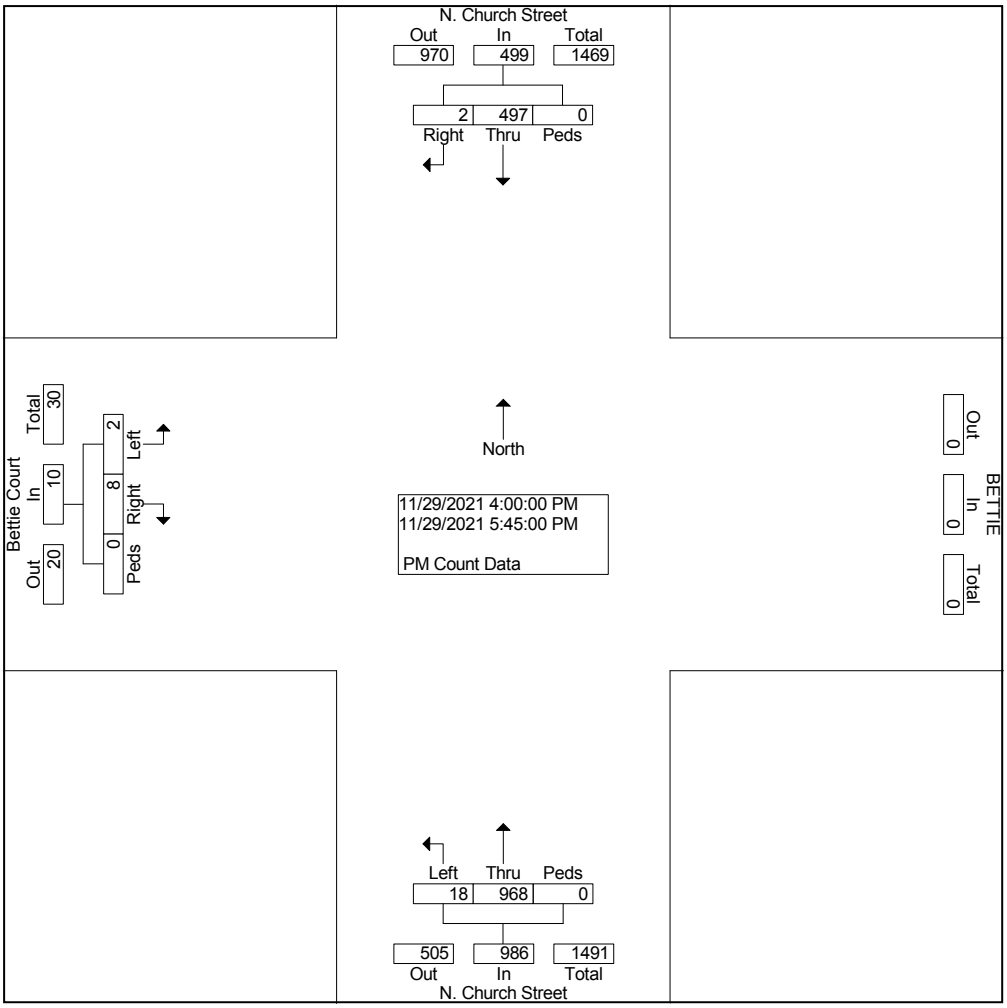
Peters & Associates Engineers, Inc.
Peak Hour Turning Movement Count Data

PM Hour Turning Movement Count Data
N. Church Street & Bettie Court
Jonesboro, AR
P-2149

File Name : PM Ch Be
Site Code : 00000000
Start Date : 11/29/2021
Page No : 1

Groups Printed- PM Count Data

	N. Church Street From North				N. Church Street From South				Bettie Court From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
04:00 PM	0	56	0	56	113	3	0	116	3	0	0	3	175
04:15 PM	0	74	0	74	111	2	0	113	0	1	0	1	188
04:30 PM	1	55	0	56	111	7	0	118	0	0	0	0	174
04:45 PM	1	71	0	72	127	2	0	129	0	0	0	0	201
Total	2	256	0	258	462	14	0	476	3	1	0	4	738
05:00 PM	0	62	0	62	144	1	0	145	3	0	0	3	210
05:15 PM	0	67	0	67	154	1	0	155	1	0	0	1	223
05:30 PM	0	60	0	60	110	2	0	112	1	1	0	2	174
05:45 PM	0	52	0	52	98	0	0	98	0	0	0	0	150
Total	0	241	0	241	506	4	0	510	5	1	0	6	757
Grand Total	2	497	0	499	968	18	0	986	8	2	0	10	1495
Apprch %	0.4	99.6	0.0		98.2	1.8	0.0		80.0	20.0	0.0		
Total %	0.1	33.2	0.0	33.4	64.7	1.2	0.0	66.0	0.5	0.1	0.0	0.7	

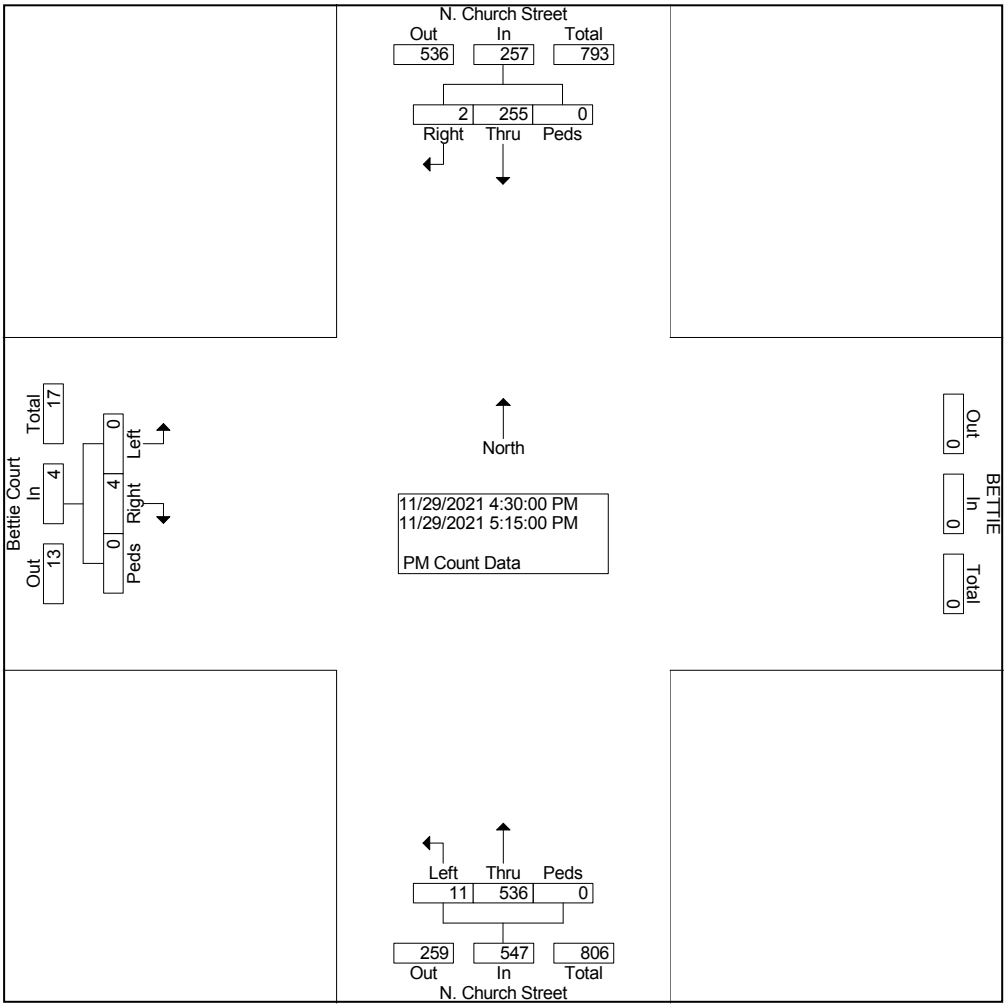


Peters & Associates Engineers, Inc.
Peak Hour Turning Movement Count Data

PM Hour Turning Movement Count Data
N. Church Street & Bettie Court
Jonesboro, AR
P-2149

File Name : PM Ch Be
Site Code : 00000000
Start Date : 11/29/2021
Page No : 2

	N. Church Street From North				N. Church Street From South				Bettie Court From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	04:30 PM												
Volume	2	255	0	257	536	11	0	547	4	0	0	4	808
Percent	0.8	99.2	0.0		98.0	2.0	0.0		100.0	0.0	0.0		
05:15 Volume	0	67	0	67	154	1	0	155	1	0	0	1	223
Peak Factor													0.906
High Int.	04:45 PM				05:15 PM				05:00 PM				
Volume	1	71	0	72	154	1	0	155	3	0	0	3	
Peak Factor				0.892				0.882				0.333	



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Trip-Generation Data

ITE TRIP-GENERATION 10TH EDITION
Terra Verde Meadow
115 Duplexes Consisting of 230 Total Units (ITE 210)
12/7/2021
P2149

Weekday Daily Volume

DATA STATISTICS

Land Use:
Single-Family Detached Housing (210) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
159

Avg. Num. of Dwelling Units:
264

Average Rate:
9.44

Range of Rates:
4.81 - 19.39

Standard Deviation:
2.10

Fitted Curve Equation:
Ln(T) = 0.92 Ln(X) + 2.71

R^2:
0.95

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 2171 (Total), 1085 (Entry), 1086 (Exit)
Fitted Curve: 2237 (Total), 1118 (Entry), 1119 (Exit)

Weekday AM Peak Hour of Adjacent Street

Directional Distribution:
25% entering, 75% exiting

Calculated Trip Ends:
Average Rate: 170 (Total), 42 (Entry), 128 (Exit)
Fitted Curve: 168 (Total), 42 (Entry), 126 (Exit)

Weekday PM Peak Hour of Adjacent Street

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 228 (Total), 143 (Entry), 85 (Exit)
Fitted Curve: 226 (Total), 142 (Entry), 84 (Exit)

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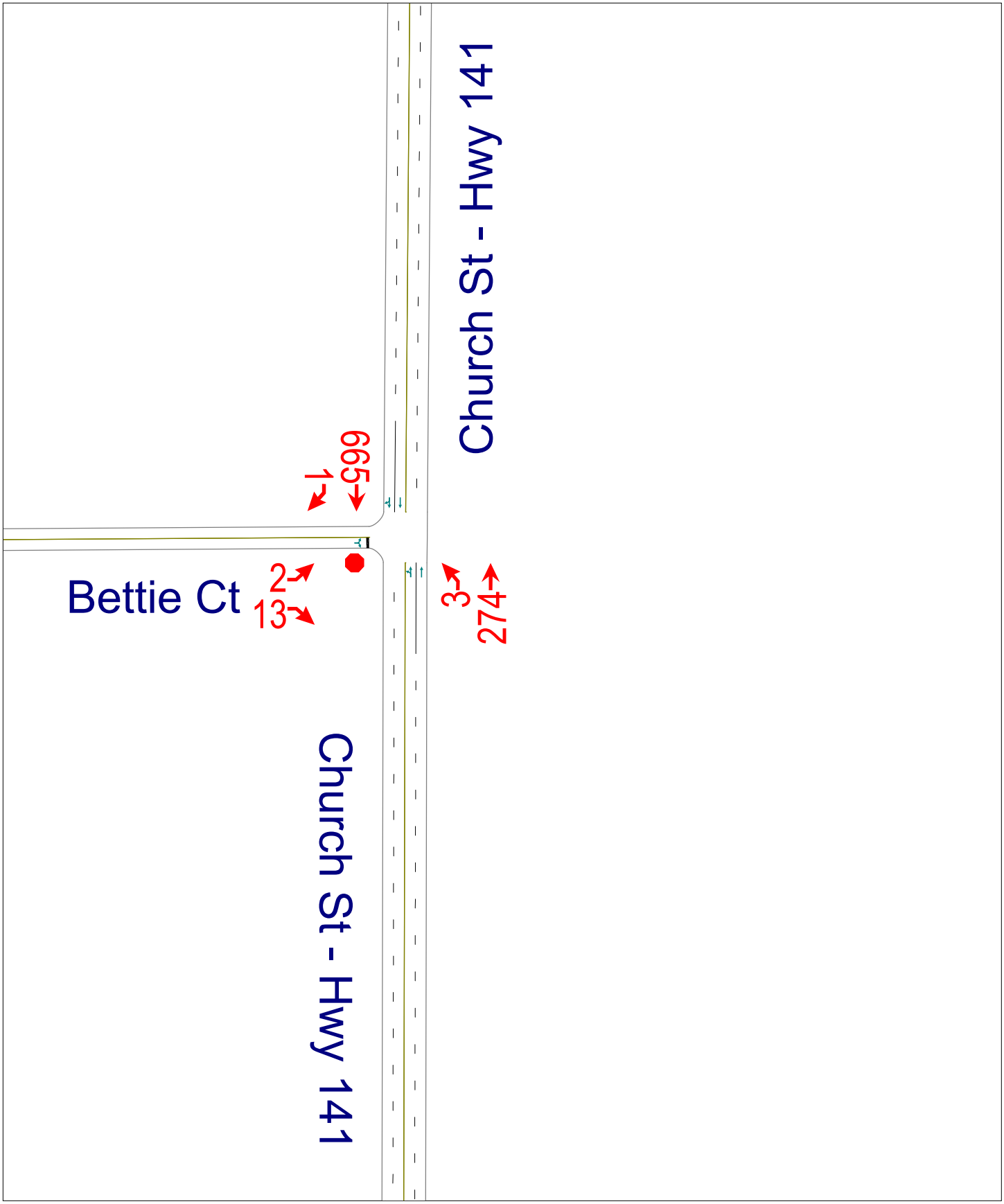
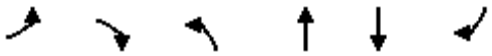
ENGINEERS, INC.

Capacity & Level of Service Calculations

P2149
EX AM

12/1/2021





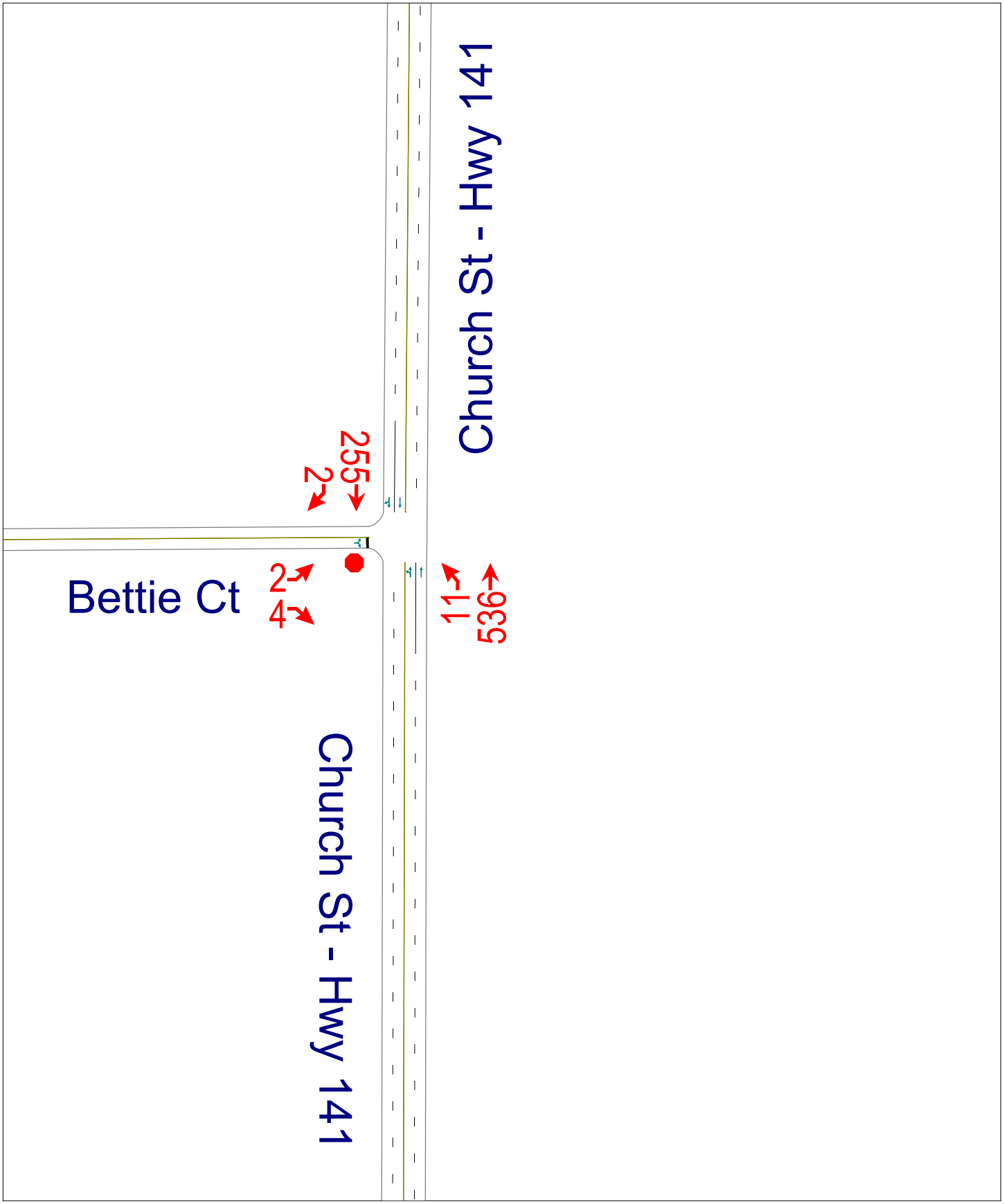
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	13	3	274	665	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	14	3	298	723	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	879	362	724			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	879	362	724			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	100			
cM capacity (veh/h)	286	635	874			

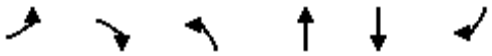
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	16	103	199	482	242
Volume Left	2	3	0	0	0
Volume Right	14	0	0	0	1
cSH	546	874	1700	1700	1700
Volume to Capacity	0.03	0.00	0.12	0.28	0.14
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	11.8	0.3	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	11.8	0.1		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

P2149
EX PM

12/1/2021

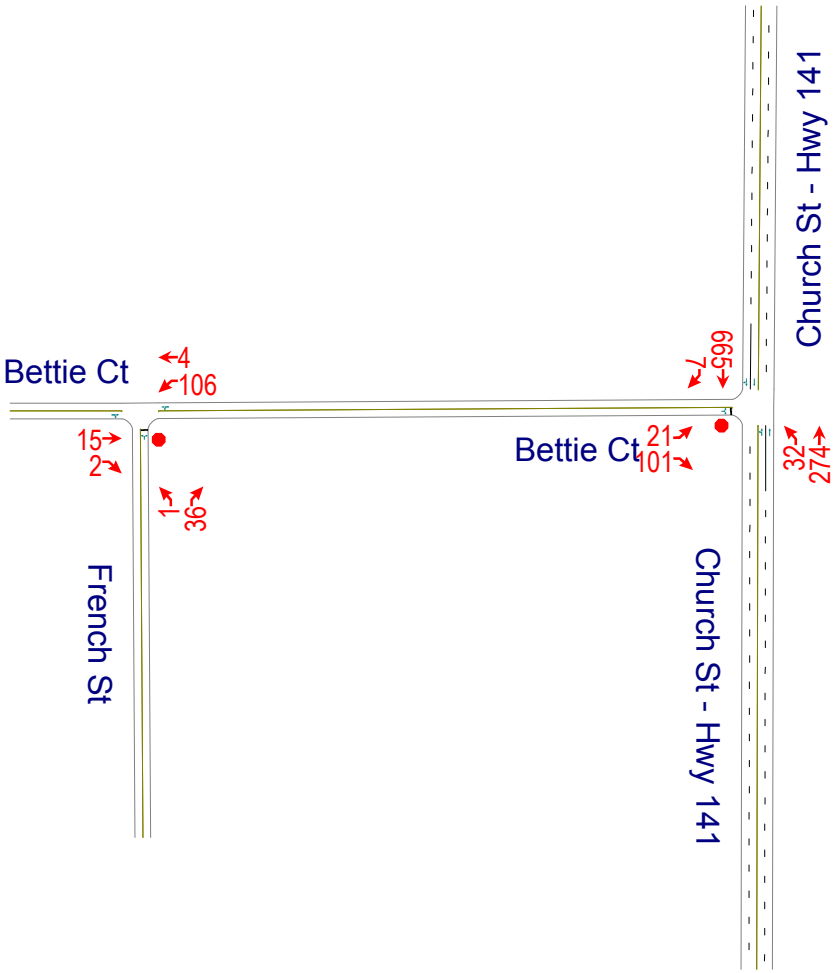


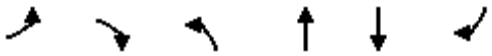


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	2	4	11	536	255	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	4	12	583	277	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	593	140	279			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	593	140	279			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	99			
cM capacity (veh/h)	432	883	1280			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	7	206	388	185	95
Volume Left	2	12	0	0	0
Volume Right	4	0	0	0	2
cSH	655	1280	1700	1700	1700
Volume to Capacity	0.01	0.01	0.23	0.11	0.06
Queue Length 95th (ft)	1	1	0	0	0
Control Delay (s)	10.5	0.5	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	10.5	0.2		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		


Church St - Hwy 141
Bettie Ct
4
106
665
7
15
2
Bettie Ct
21
101
32
274
1
36
French St
Church St - Hwy 141



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	21	101	32	274	665	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	110	35	298	723	8
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	945	365	730			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	945	365	730			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	83	96			
cM capacity (veh/h)	250	632	870			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	133	134	199	482	249
Volume Left	23	35	0	0	0
Volume Right	110	0	0	0	8
cSH	500	870	1700	1700	1700
Volume to Capacity	0.27	0.04	0.12	0.28	0.15
Queue Length 95th (ft)	26	3	0	0	0
Control Delay (s)	14.8	2.7	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	14.8	1.1		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

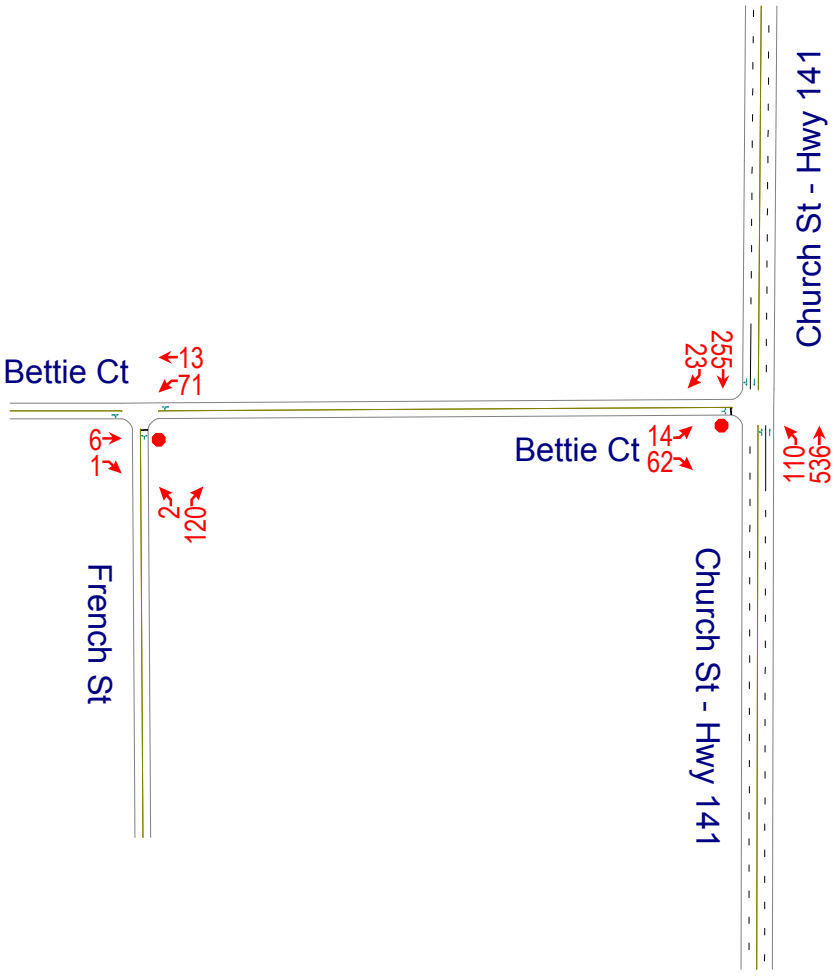
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	15	2	106	4	1	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	2	115	4	1	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			18		252	17
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			18		252	17
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		100	96
cM capacity (veh/h)			1598		683	1061

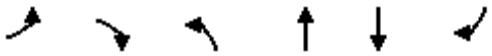
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	18	120	40
Volume Left	0	115	1
Volume Right	2	0	39
cSH	1700	1598	1046
Volume to Capacity	0.01	0.07	0.04
Queue Length 95th (ft)	0	6	3
Control Delay (s)	0.0	7.2	8.6
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.6
Approach LOS			A

Intersection Summary			
Average Delay		6.7	
Intersection Capacity Utilization		23.3%	ICU Level of Service A
Analysis Period (min)		15	

P2149
Projected PM

12/6/2021





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	14	62	110	536	255	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	67	120	583	277	25
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	820	151	302			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	820	151	302			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	92	90			
cM capacity (veh/h)	283	868	1256			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	83	314	388	185	117
Volume Left	15	120	0	0	0
Volume Right	67	0	0	0	25
cSH	629	1256	1700	1700	1700
Volume to Capacity	0.13	0.10	0.23	0.11	0.07
Queue Length 95th (ft)	11	8	0	0	0
Control Delay (s)	11.6	3.7	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	11.6	1.6		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	6	1	71	13	2	120
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	1	77	14	2	130
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			8		176	7
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			8		176	7
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	88
cM capacity (veh/h)			1613		775	1075

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	91	133
Volume Left	0	77	2
Volume Right	1	0	130
cSH	1700	1613	1069
Volume to Capacity	0.00	0.05	0.12
Queue Length 95th (ft)	0	4	11
Control Delay (s)	0.0	6.3	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	6.3	8.8
Approach LOS			A

Intersection Summary			
Average Delay		7.5	
Intersection Capacity Utilization		26.5%	ICU Level of Service A
Analysis Period (min)		15	

PETERS & ASSOCIATES
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