

# TRAFFIC IMPACT STUDY

*For*

**Pallu Associates, LLC  
Proposed Residential Development**


*Property Located at:*


**Texas Road and Falson Lane  
Block 146 – Lots 25 & 26  
Township of Marlboro, Monmouth County, NJ**

Prepared by:



1904 Main Street | 245 Main Street, Suite #110  
Lake Como, NJ 07719 | Chester, NJ 07930  
(732) 681-0760

  
Justin Taylor, PE, PTOE  
NJ PE License #45988

  
Nick Verderese  
NJ PE License #38991

October 6, 2020

2841-99-001T

## INTRODUCTION

It is proposed to construct a residential development on a parcel of land currently undeveloped located in the northwest quadrant of the intersection of Texas Road and Wooleytown Road/Falson Lane in the Township of Marlboro, Monmouth County, New Jersey, see Figure 1 in Appendix A. The site is designated as Block 146 – Lots 25 and 26 on the Township of Marlboro Tax Maps. It is proposed to construct sixteen (16) 3-story residential buildings totaling 387 dwelling units (The Project). Access to the site is proposed via two (2) full movement driveways along Texas Road and one (1) full movement driveway along Falson Lane. Parking will be provided via eight hundred nine (809) on-site parking spaces.

Dynamic Traffic, LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.
- Existing traffic data was collected via manual turning movement (MTM) counts during the weekday morning and evening peak periods at the intersection of Texas Road with Wooleytown Road/Falson Lane.
- Projections of traffic to be generated by the proposed development were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the Existing, No Build, and Build conditions for the study intersections.
- The proposed points of ingress and egress were inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.
- The site plan as designed was reviewed for sufficiency in accommodating the anticipated automobile traffic.
- The parking layout and supply was assessed based on accepted design standards and demand experienced at similar developments.

## EXISTING CONDITIONS

A review of the existing roadway conditions near the proposed site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and analyses.

### Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

Texas Road is an Urban Minor Collector roadway under the jurisdiction of the Township of Marlboro. In the vicinity of the site the posted speed limit is 45 MPH and the roadway provides one travel lane in each direction. It should be noted that Texas Road is designated as a north/south roadway; however, it was assumed to have an east/west orientation for the purposes of this report. On-street parking is not permitted along either side of the roadway. Curb and sidewalk is provided along the north side of the roadway to the east of Wooleytown Road/Falson Lane while neither curb nor sidewalk is provided along either side of the roadway to the west of Wooleytown Road/Falson Lane. Texas Road provides a straight horizontal alignment and a rolling vertical alignment. The land uses along Texas Road in the vicinity of The Project are a mix of residential, commercial and undeveloped land.

Wooleytown Road is a local roadway under the jurisdiction of the Township of Marlboro. In the vicinity of the site the posted speed limit is 35 MPH and the roadway provides one travel lane in each direction with a general north/south orientation. No on-street parking restrictions are posted in the vicinity of the site and neither curb nor sidewalk are provided along either side of the roadway. Wooleytown Road provides a straight horizontal alignment and a slightly uphill vertical alignment from south to north. The land uses along Wooleytown in the vicinity of The Project are primarily residential, however it should be mentioned that the Sri Guruvaayoorappan Temple is located along the west side of the roadway approximately 850 feet from Texas Road.

Falson Lane is a local roadway under the jurisdiction of the Township of Marlboro. In the vicinity of the site the posted speed limit is 25 MPH and the roadway provides one travel lane in each direction with a general north/south orientation. No on-street parking restrictions are posted in the vicinity of the site and neither curb nor sidewalk are provided along either side of the roadway. Falson Lane provides a slightly curved horizontal alignment and an uphill vertical alignment from south to north. The land uses along Falson Lane in the vicinity of The Project are primarily residential and undeveloped land.

### Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Thursday, July 30, 2020 between 7:00 – 9:00 AM and between 4:30 – 6:30 PM at the intersection of Texas Road with Wooleytown Road/Falson Lane as well as between 7:45 – 8:45 AM and between 5:00 – 6:00 PM at the intersection of Texas Road with the Costco Driveway/Shopping Center Driveway to be used to normalize the counts.

It should be noted that traffic impacts associated with the COVID-19 pandemic were in effect as of the time of the traffic counts. As a result, current traffic volumes on the surrounding roadways are atypically low at this time and would not be representative of “existing” traffic conditions. Therefore, historical traffic volume data has been reviewed and compared with current traffic conditions.

MTM counts were previously conducted by Tri-State Traffic Data in September 2017 at the intersection of Texas Road with the Costco Driveway/Shopping Center Driveway. In order to better represent 2020 traffic volumes, the 2017 MTM peak hour volumes were grown utilizing an annual growth rate contained within the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 2.5% per year, for a period of three (3) years. The MTM traffic volumes representative of “existing” conditions were then compared to the July 2020 MTM peak hour volumes. Adjustment factors of 1.38 and 1.13 were then calculated and applied to the weekday morning and weekday evening counts, respectively, to develop traffic volumes that best represent “existing” conditions at the study intersections.

Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) occurs from 7:45 – 8:45 AM and the weekday evening PSH occurs from 4:45 – 5:45 PM. Figure 2, located in Appendix A, shows the existing peak hour traffic volumes at the study intersections. All MTM counts are contained in Appendix B.

**Existing Capacity Analysis**

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a “qualitative” evaluation of capacity based upon certain “quantitative” calculations related to empirical values, such as traffic volume and intersection control.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table I describes the Level of Service ranges for unsignalized (stop controlled) intersections.

**Table I  
Level of Service Criteria  
for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	greater than 50.0

It should be noted that the analyses within the *Highway Capacity Manual* assume a random arrival for all the movements. All capacity analyses were performed utilizing the Synchro software package (Synchro 11). Table II summarizes the existing Levels of Service (LOS) and delays. All capacity analysis calculation worksheets are contained in Appendix C.

**Table II  
Existing Levels of Service**

Intersection	Direction/ Movement		AM PSH	PM PSH	
Texas Road and Wooleytown Road/Falson Lane	Texas Road	EB	LTR	A (8)	A (8)
		WB	LTR	A (8)	A (8)
	Wooleytown Road	NB	LTR	B (13)	C (16)
	Falson Lane	SB	LTR	B (13)	B (15)

A (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

The following is a discussion pertaining to the existing intersection analyzed. It should be noted that the existing percentage of trucks and peak hour factors were used in the existing analysis.

**Texas Road and Wooleytown Road/Falson Lane**

Wooleytown Road/Falson Lane intersects Texas Road to form an unsignalized four-leg intersection with Wooleytown Road and Falson Lane under stop control. The eastbound and westbound approaches of Texas Road each provide a shared left turn/through/right turn lane. The northbound approach of Wooleytown Road provides a shared left turn/through/right turn lane. The southbound approach of Falson Lane provides a shared left turn/through/right turn lane.

A review of the existing analysis reveals that the individual intersection movements operate at Level of Service “C” or better during the analyzed peak periods. See Table II for the individual movement Levels of Service and delays.

## FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the Future No Build and Build conditions. The No Build conditions provide a baseline for assessing the impact of the site development traffic on the roadway system. The process of developing the No Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 2.5% per year.

Through consultation with Township of Marlboro staff, there are numerous developments in the vicinity of the site that have been approved but not yet constructed/occupied that should be considered, shown below. In addition, this office is aware of another residential development currently in the preliminary planning stages, which was conservatively considered as an additional adjacent development. It was assumed that the background growth rate was adequate to account for the traffic associated with all developments not listed hereafter.

- A residential development known as Marlboro Estates, consisting of 16 single family homes and located just east of Wooleytown Road/Falson Lane, is currently under construction. Projections of the associated traffic volumes were developed using Institute of Transportation Engineers (ITE) publication *Trip Generation, 10<sup>th</sup> Edition* for Land Use Code (LUC) 210 – Single-Family Detached Housing. The Adjacent Development Traffic Volumes at the study intersection from this development are shown on Figure 3.
- A residential development known as Monarch Pointe, consisting of 18 single family homes and located along the north side of Texas Road just east of Mountain Laurel Road, is currently under construction. Projections of the associated traffic volumes were developed using LUC 210 – Single-Family Detached Housing. The Adjacent Development Traffic Volumes at the study intersection from this development are also shown on Figure 3.
- A 5,085 SF Chick-Fil-A restaurant with drive-through, located along the south side of Texas Road within the Costco shopping center just east of Route 9, is currently under construction. Projections of the associated traffic volumes were developed using LUC 934 – Fast-Food Restaurant with Drive-Through Window. The Adjacent Development Traffic Volumes at the study intersection from this development are shown on Figure 4.
- A 21,820 SF Aldi Supermarket, also located within the Costco shopping center, is currently under construction. Projections of the associated traffic volumes were developed using LUC 854 – Discount Supermarket. The Adjacent Development Traffic Volumes at the study intersection from this development are shown on Figure 5.
- A residential development consisting of 120 dwelling units, located in the northwest corner of the intersection of Texas Road and Greenwood Road, is currently in the preliminary planning stages. Projections of the associated traffic volumes were developed using LUC 220 – Multifamily Housing (Low-Rise). The Adjacent Development Traffic Volumes at the study intersection from this development are shown on Figure 6.

Future No Build traffic volumes were developed by applying the background growth rate of 2.5% per year for two (2) years to the study area roadways existing traffic volumes and by adding the site generated traffic associated with the adjacent developments discussed above. Figure 7, in Appendix A of this report, shows the Total Adjacent Development Traffic Volumes at the study intersection and Figure 8 shows the Future No Build traffic volumes.

**Traffic Generation**

Trip generation projections for The Project were prepared utilizing trip generation research data as published under Land Use Code 220 – Multifamily Housing (Low-Rise) in the Institute of Transportation Engineers’ (ITE) publication, *Trip Generation, 10<sup>th</sup> Edition*. This publication sets forth trip generation rates based on traffic counts conducted at research sites throughout the country. Table III summarizes the projected trips generated by the proposed development utilizing the ITE data.

**Table III  
Trip Generation**

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
387 Residential Units	40	133	173	124	73	197

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of new traffic to the surrounding roadways is based on the location of primary arterial roadways, major signalized intersections and existing traffic patterns. Figure 9, located in Appendix A, illustrates the site generated trip distribution and Figure 10 illustrates the site generated traffic volumes for the proposed residential development. The site generated volumes were added to the Future No Build traffic volumes to generate the Future Build traffic volumes, which are shown in Figure 11.

**Future Capacity Analysis**

Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in Table IV below.

**Table IV  
Future Levels of Service**

Intersection	Direction/ Movement			AM PSH		PM PSH	
				No Build	Build	No Build	Build
Texas Road and Wooleytown Road/Falson Lane	Texas Road	EB	LTR	A (8)	A (8)	A (8)	A (8)
		WB	LTR	A (8)	A (8)	A (8)	A (8)
	Wooleytown Road	NB	LTR	B (15)	C (17)	C (21)	D (28)
	Falson Lane	SB	LTR	B (14)	C (16)	C (17)	C (20)
Texas Road and East Site Driveway	Texas Road	EB	LT	-	A (8)	-	A (8)
	Site Driveway	SB	LR	-	B (13)	-	B (14)
Texas Road and West Site Driveway	Texas Road	EB	LT	-	A (8)	-	A (8)
	Site Driveway	SB	LR	-	B (13)	-	B (14)
Falson Lane and Site Driveway	Site Driveway	EB	LR	-	A (9)	-	A (9)
	Falson Lane	NB	LT	-	A (7)	-	A (7)

A (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

**Texas Road and Wooleytown Road/Falson Lane**

With the addition of site generated traffic, the individual intersection movements are anticipated to operate at Level of Service “D” or better during the analyzed peak hours. See Table IV for the individual movement Levels of Service and delays.

**Texas Road and the East Site Driveway**

The east site driveway is proposed to intersect Texas Road to form an unsignalized T-intersection with the site driveway under stop control. The eastbound and westbound approaches of Texas Road will provide a shared left turn/through lane and a shared through/right turn lane, respectively. The southbound approach of the site driveway will provide a shared lane for left and right turns.

As designed, the individual intersection movements are anticipated to operate at Level of Service “B” or better during the studied peak hours. See Table IV for the individual movement Levels of Service and delays.

**Texas Road and the West Site Driveway**

The west site driveway is proposed to intersect Texas Road to form an unsignalized T-intersection with the site driveway under stop control. The eastbound and westbound approaches of Texas Road will provide a shared left turn/through lane and a shared through/right turn lane, respectively. The southbound approach of the site driveway will provide a shared lane for left and right turns.

As designed, the individual intersection movements are anticipated to operate at Level of Service “B” or better during the studied peak hours. See Table IV for the individual movement Levels of Service and delays.



### **Falson Lane and the Site Driveway**

The site driveway is proposed to intersect Falson Lane to form an unsignalized T-intersection with the site driveway under stop control. The northbound and southbound approaches of Falson Lane will provide a shared left turn/through lane and a shared through/right turn lane, respectively. The eastbound approach of the site driveway will provide a shared lane for left and right turns.

As designed, the individual intersection movements are anticipated to operate at Level of Service “A” during the studied peak hours. See Table IV for the individual movement Levels of Service and delays.

## **SITE PLAN**

### **Site Access and Circulation**

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via two (2) full movement driveways along Texas Road and one (1) full movement driveway along Falson Lane.

The newly constructed parking areas will be serviced by parking aisles with widths of 26' and 28', which are consistent with accepted engineering design standards and exceed the Residential Site Improvement Standards (RSIS) requirement of 24'. These aisles will provide for two-way circulation and 90-degree parking. Review of the site plan design indicates that the site can sufficiently accommodate the automobile traffic anticipated as well as refuse and emergency vehicles.

### **Parking**

Since the proposed development is exclusively residential, the RSIS requirements govern and were referenced. RSIS sets forth a parking requirement of 1.8 parking spaces per one-bedroom unit, 2 parking spaces per two-bedroom unit and 2.1 parking spaces per three-bedroom unit for low-rise developments. This equates to a parking requirement of 758 spaces for the proposed 99 one-bedroom units, 250 two-bedroom units and 38 three-bedroom units. The site as proposed provides 809 parking spaces and as such the RSIS requirement is exceeded.

It is proposed to provide parking stalls with dimensions of 9'x18', which are consistent with accepted engineering design standards and meet the RSIS requirement of 9'x18'. Given the low-turnover expected for the majority of the parking spaces, these dimensions will adequately accommodate the site.

## **FINDINGS & CONCLUSIONS**

### **Findings**

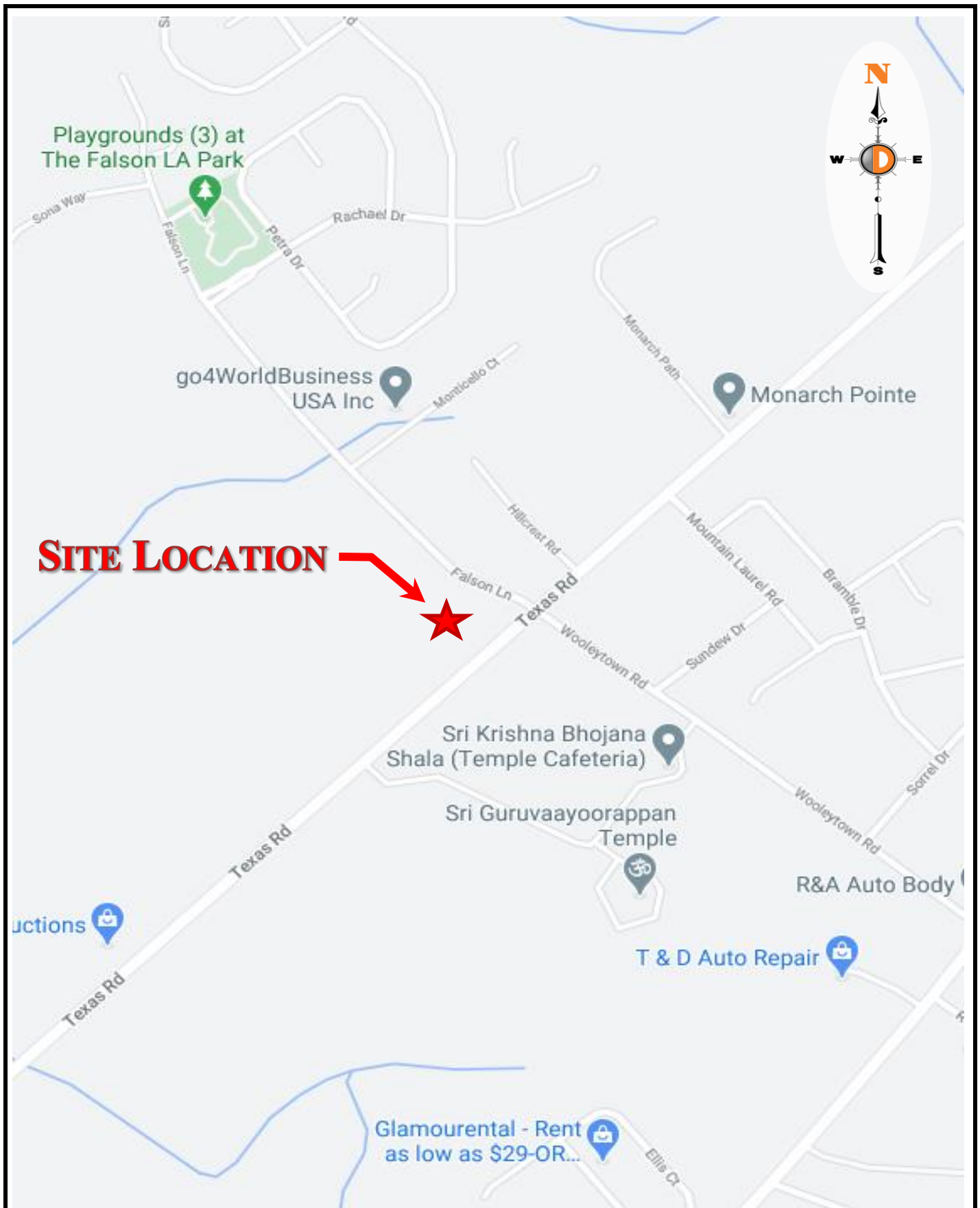
Based upon the detailed analyses as documented herein, the following findings are noted:

- The proposed 387 residential units are projected to generate 40 entering trips and 133 exiting trips during the weekday morning peak hour and 124 entering trips and 73 exiting trips during the evening peak hour.
- Access to The Project will be provided via two (2) full movement driveways along Texas Road and one (1) full movement driveway along Falson Lane with the exiting movements under stop control.
- With the addition of site generated traffic, the individual intersection movements of Texas Road and Wooleytown Road/Falson Lane are anticipated to operate at Level of Service “D” or better during the peak hours studied.
- As designed, the individual intersection movements of Texas Road and the east site driveway are anticipated to operate at Level of Service “B” or better during the peak hours studied.
- As designed, the individual intersection movements of Texas Road and the west site driveway are anticipated to operate at Level of Service “B” or better during the peak hours studied.
- As designed, the individual intersection movements of Falson Lane and the site driveway are anticipated to operate at Level of Service “A” during the peak hours studied.
- As proposed, The Project’s site driveways and internal circulation have been designed to provide for safe and efficient movement of automobiles.
- The proposed parking supply and design is sufficient to support the maximum anticipated demand and exceeds the RSIS requirement.

### **Conclusions**

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic, LLC that the adjacent street system of the Township of Marlboro will not experience any significant change in operating conditions with the construction of The Project. The site driveways are located to provide safe and efficient access to the adjacent roadway system. The site plan as proposed provides for good circulation within the parking area and provides adequate parking supply to accommodate The Project’s needs.

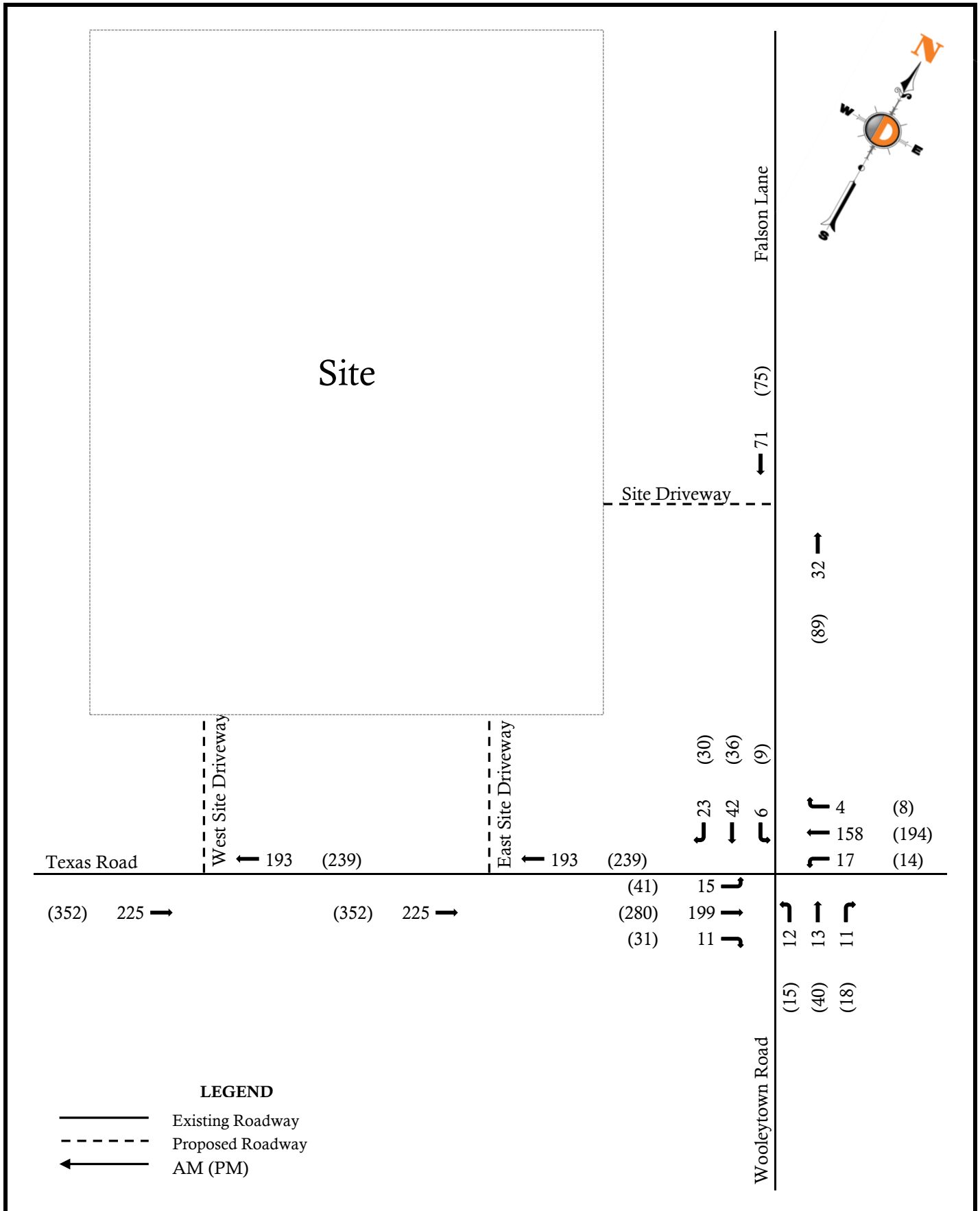
**Appendix A**  
**Traffic Volume Figures**



Proposed Residential Development  
 Traffic Impact Study  
 2841-99-001T  
 10/6/2020

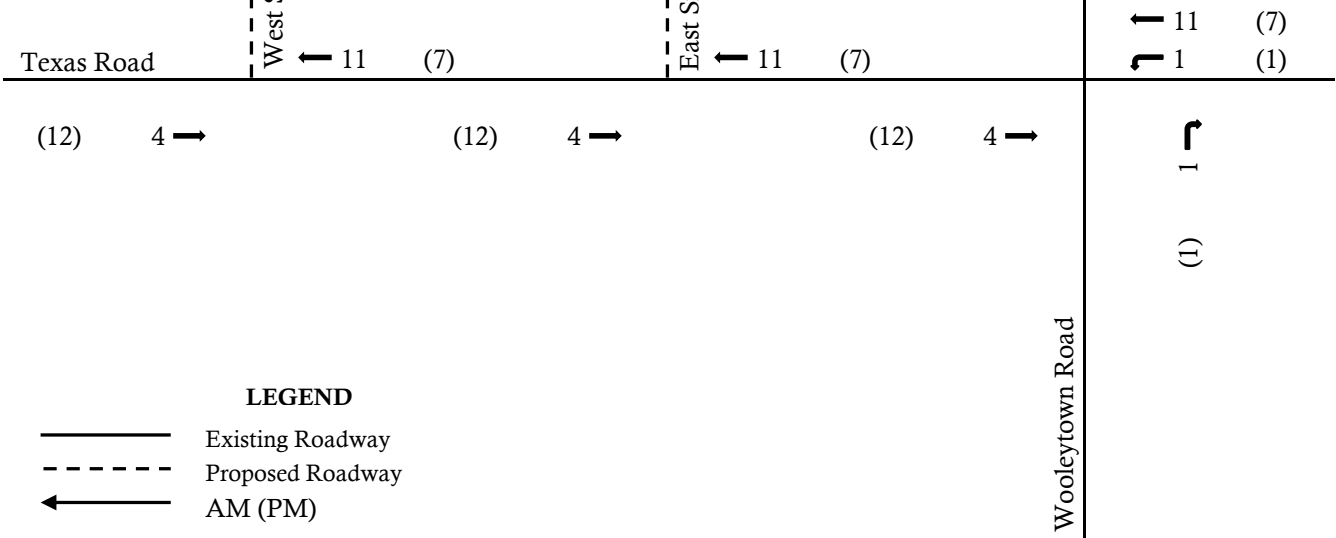
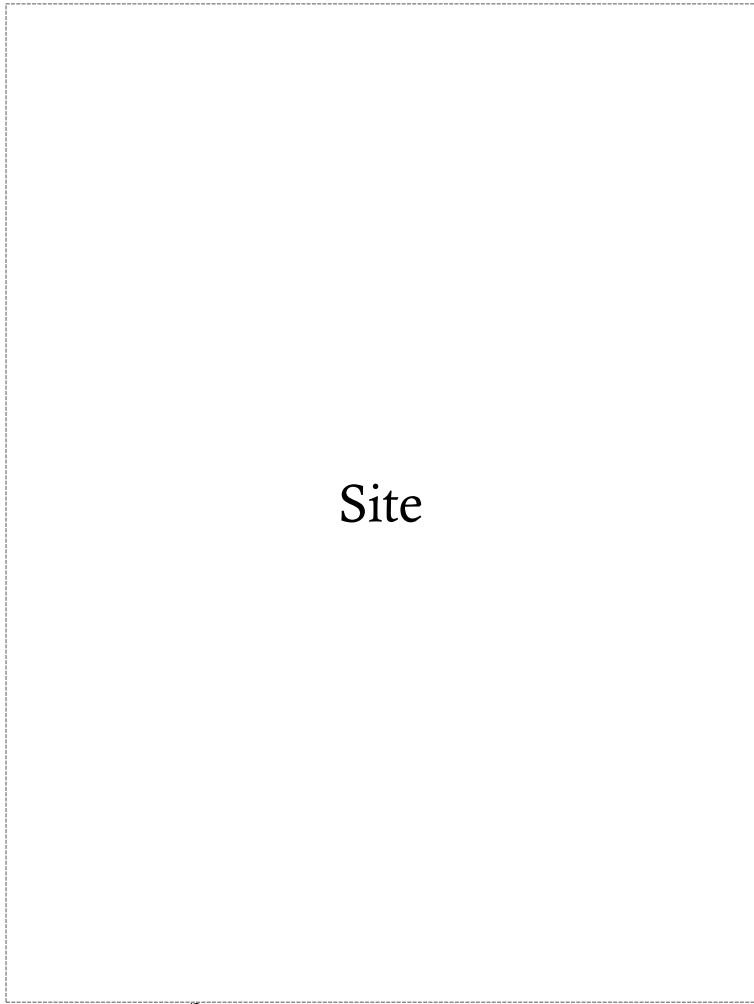
Figure 1

Site Location Map



**Figure 2**

**Existing Traffic Volumes**



**LEGEND**

- Existing Roadway
- - - Proposed Roadway
- ← AM (PM)



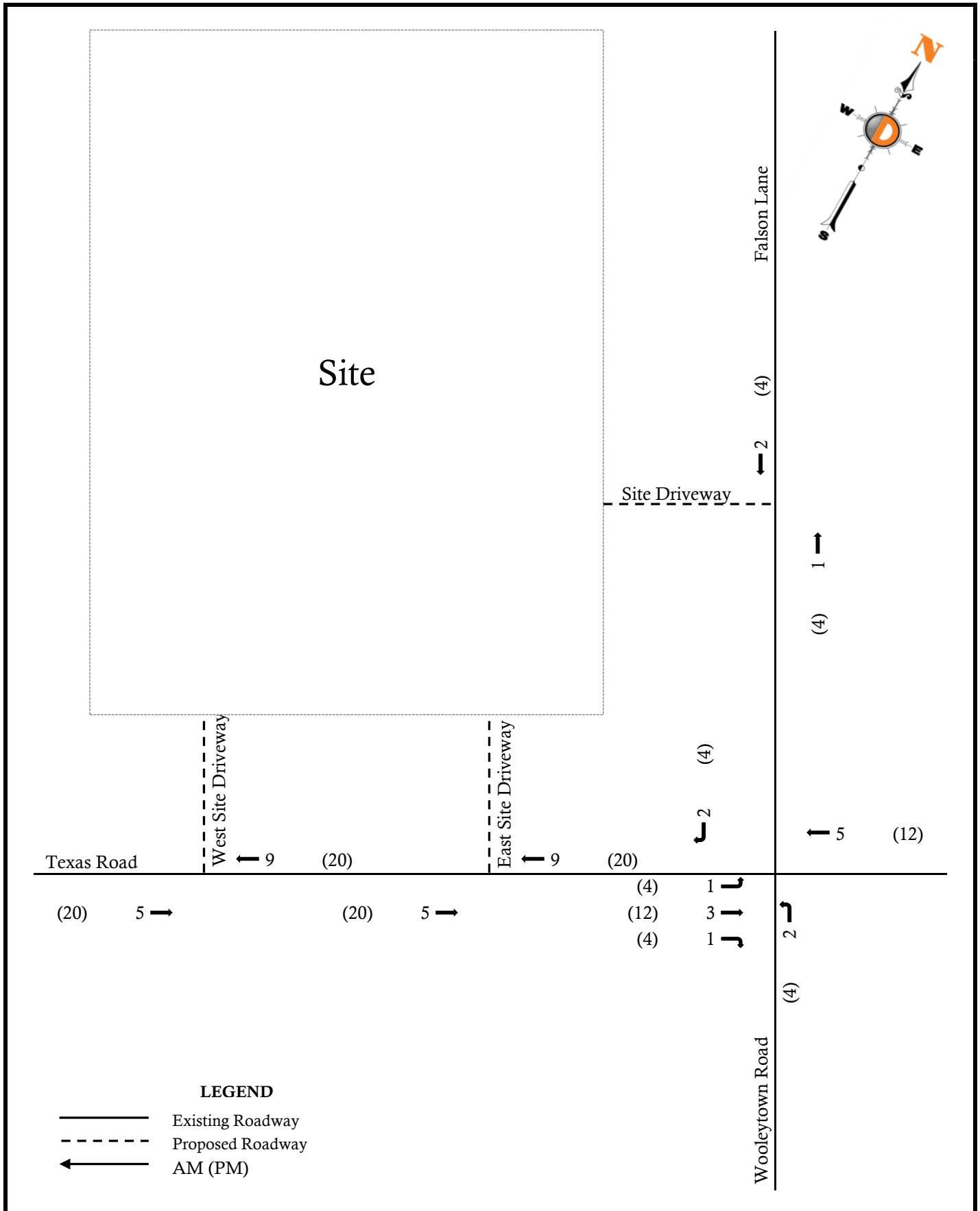
Proposed Residential Development  
 Traffic Impact Study  
 2841-99-001T  
 10/6/2020

**Figure 3**

**Adjacent Development Traffic Volumes [Marlboro Estates & Monarch Pointe]**

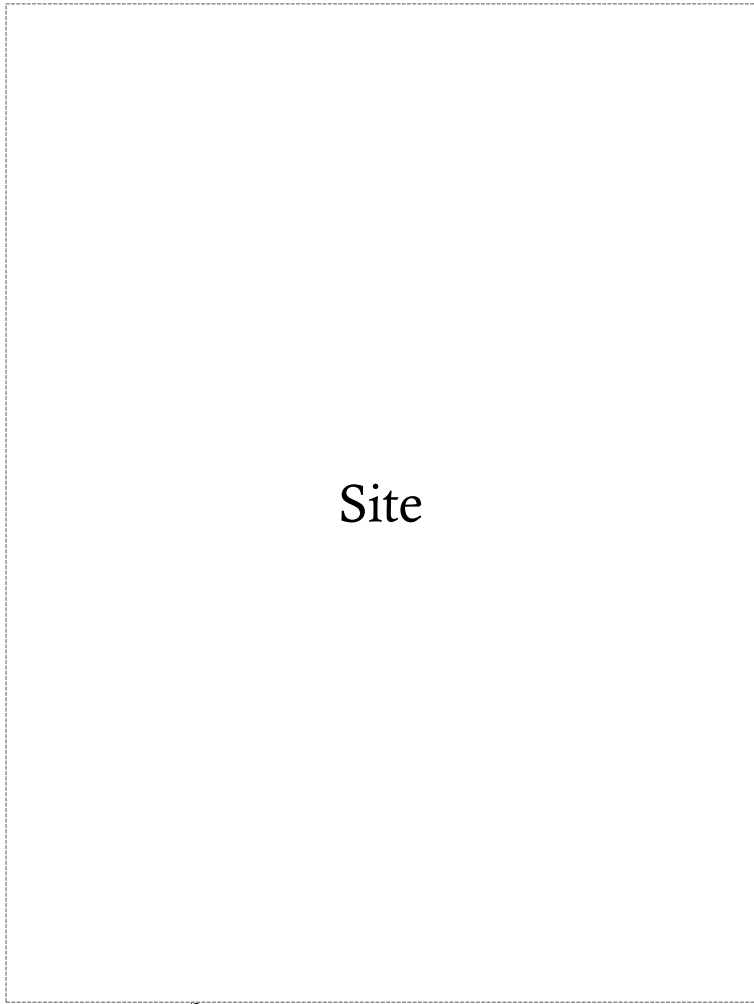






**Figure 5**

**Adjacent Development Traffic Volumes [Aldi]**



Texas Road	West Site Driveway	← 18 (11)	East Site Driveway	← 18 (11)	Falson Lane	↑ 18 (11) ↘ 2 (1)
(17) 4 →		(17) 4 →		(17) 4 →	Woolleytown Road	↘ 1 (2)

**LEGEND**

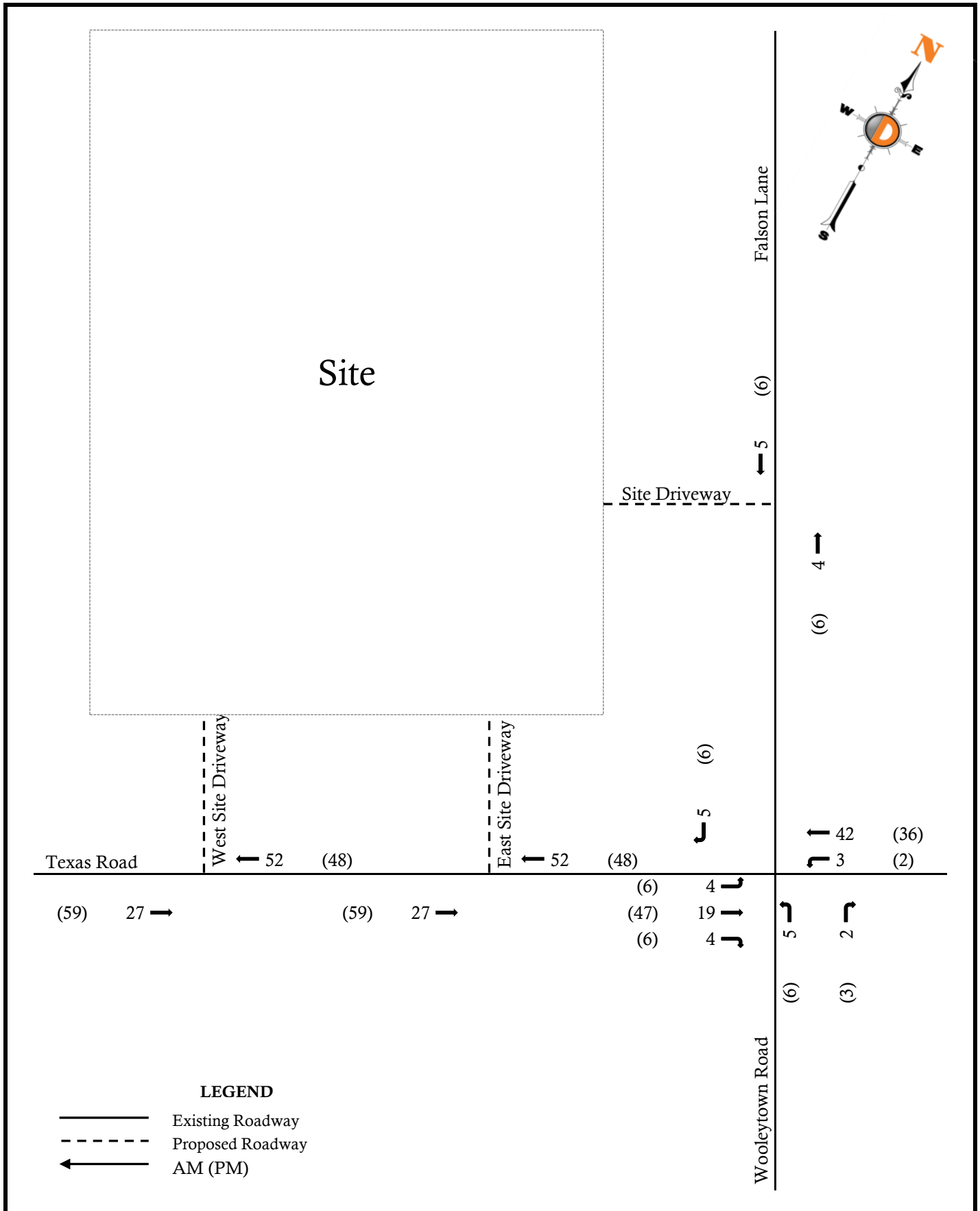
- Existing Roadway
- - - Proposed Roadway
- ← AM (PM)

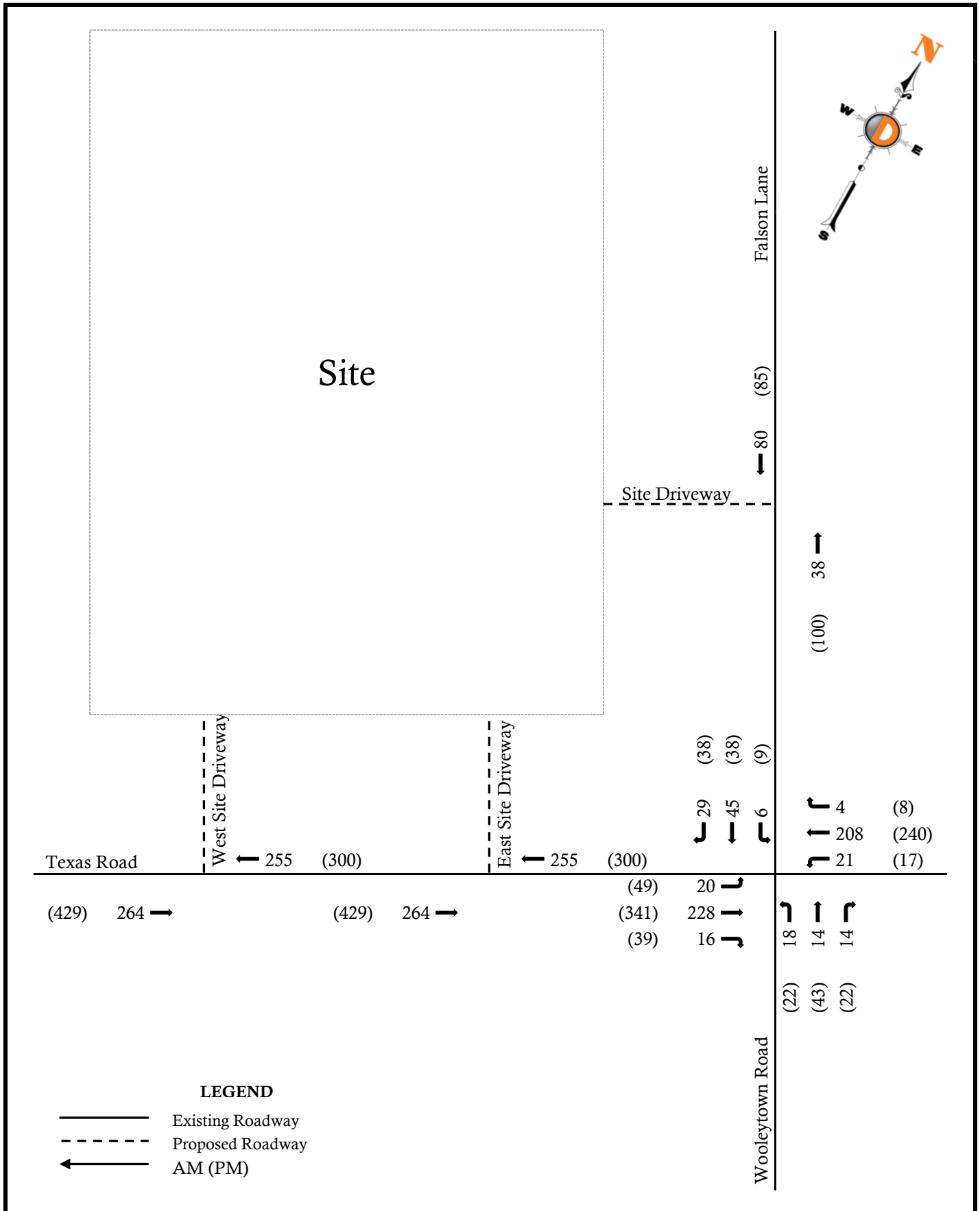


Proposed Residential Development  
 Traffic Impact Study  
 2841-99-001T  
 10/6/2020

**Figure 6**

**Adjacent Development Traffic Volumes [Ashbel Site]**

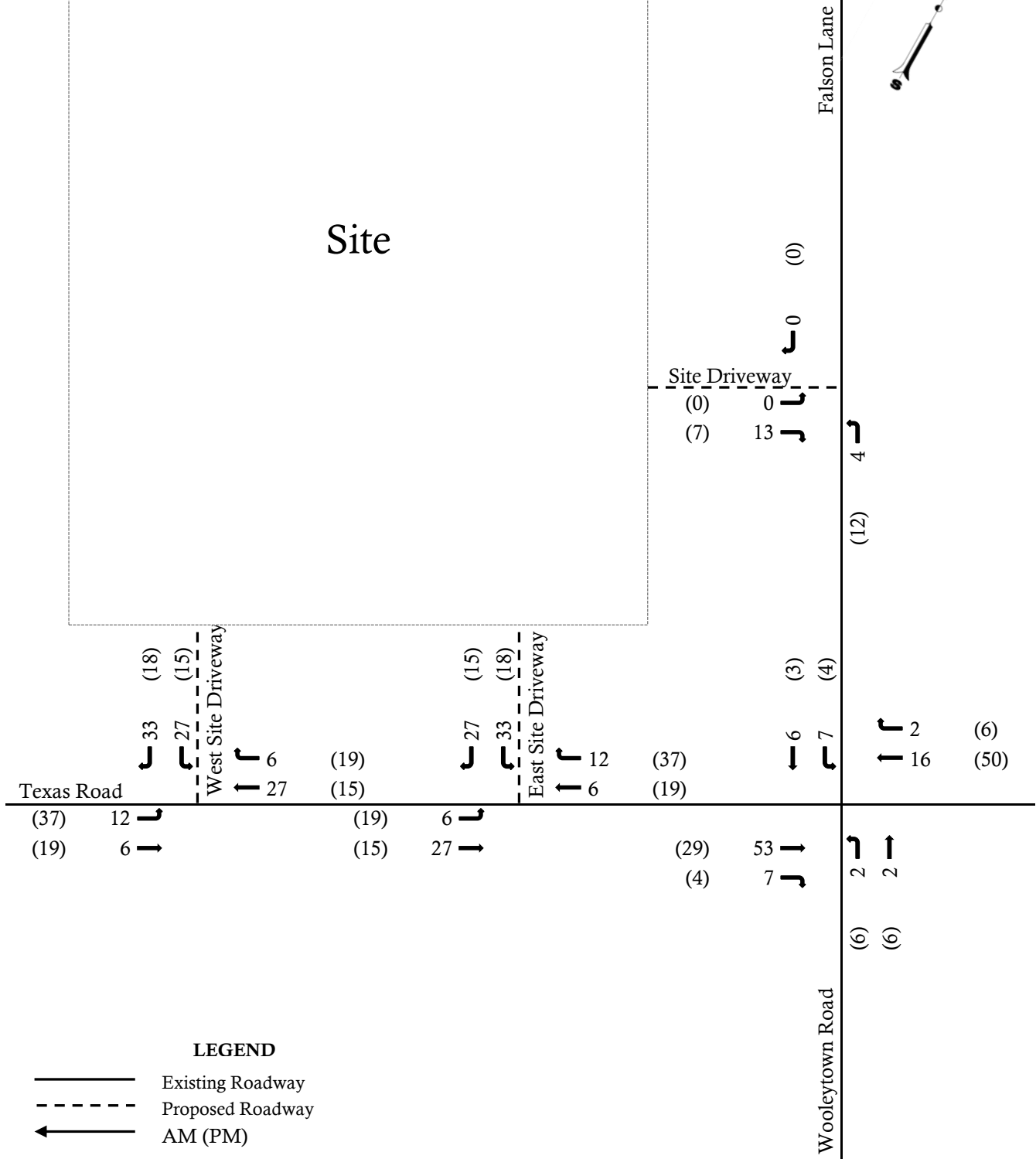
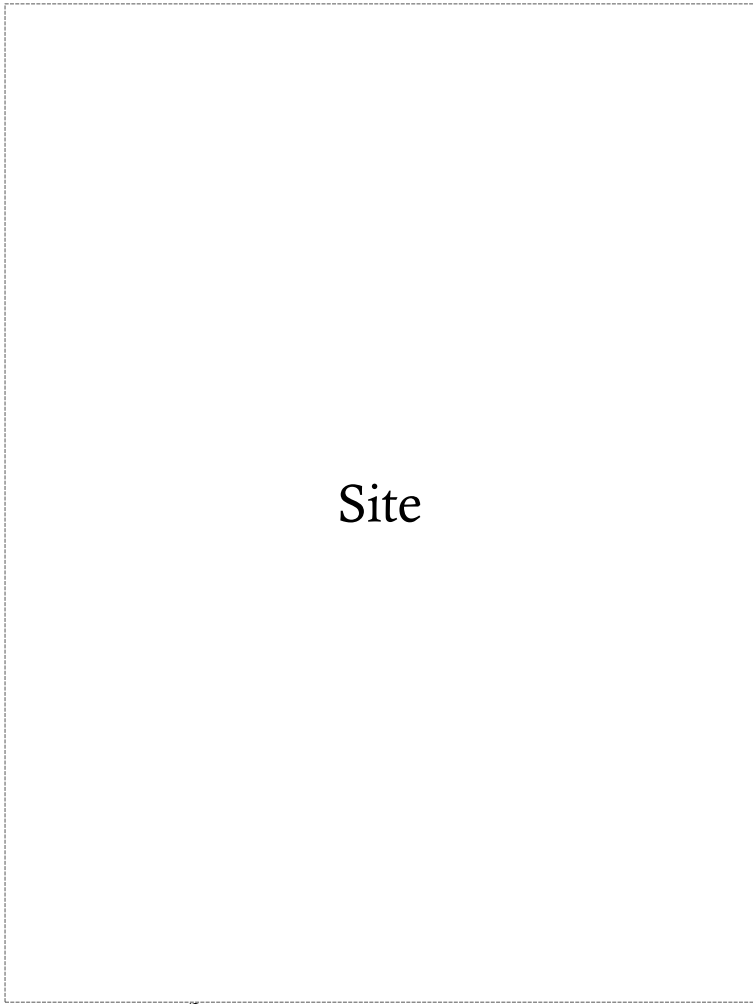




**Figure 8**

**No Build Traffic Volumes**





**LEGEND**

— Existing Roadway

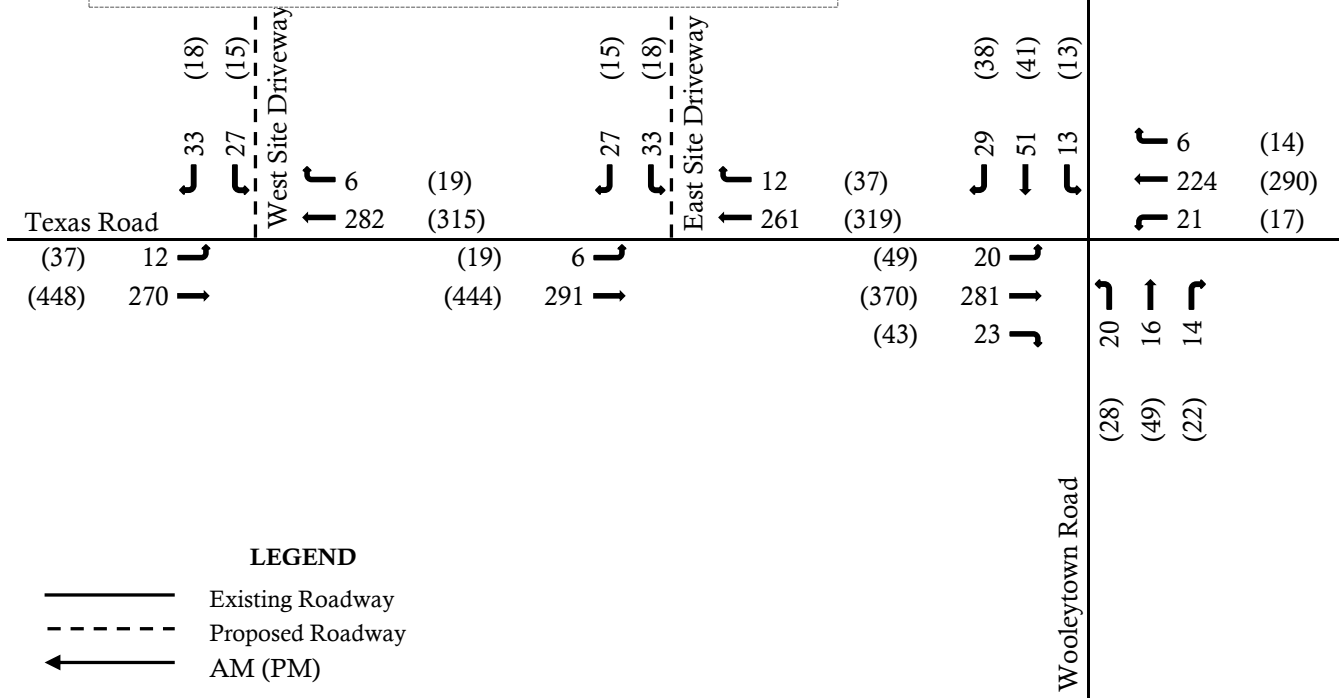
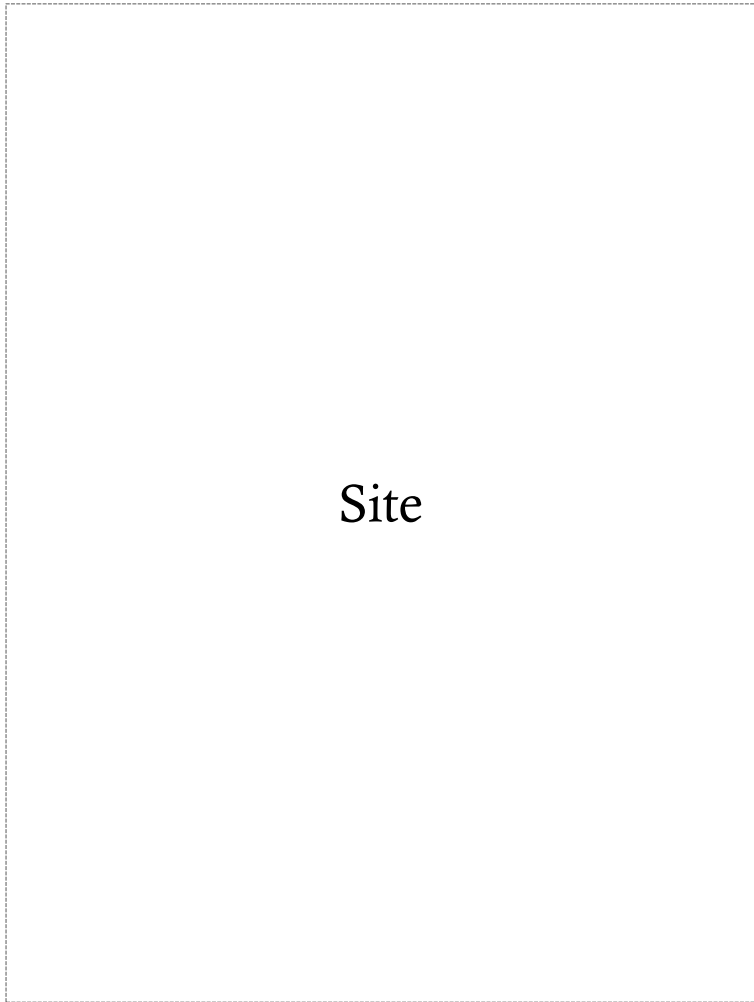
- - - Proposed Roadway

← AM (PM)



**Figure 10**

**Site Generated Trips**



**LEGEND**

— Existing Roadway

- - - Proposed Roadway

← AM (PM)



**Figure 11**

**Build Traffic Volumes**

**Appendix B**  
**Traffic Counts**





www.TSTData.com  
184 Baker Rd

Marlboro, NJ  
Texas Rd & Costco  
Thursday, September 28, 2017  
Location: 40.364634, -  
74.302214

Coatesville, Pennsylvania, United States 19320  
610-466-1469  
Serving Transportation Professionals Since 1995

Count Name: Texas Rd-Costco  
Site Code:  
Start Date: 09/28/2017  
Page No: 1

### Turning Movement Data

Start Time	Shopping Center Dwy Southbound							Texas Rd Westbound							Costco Dwy Northbound							Texas Rd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	7	1	1	4	0	6	13	4	0	107	34	0	0	145	1	3	0	7	0	1	11	4	1	45	4	0	1	54	223
7:15 AM	5	1	0	3	0	4	9	2	0	86	36	0	0	124	1	5	0	2	0	1	8	8	0	40	1	0	0	49	190
7:30 AM	4	1	1	3	0	1	9	5	1	106	28	0	0	140	1	2	1	5	0	0	9	6	1	52	0	0	0	59	217
7:45 AM	3	0	0	4	0	1	7	6	1	96	16	0	0	119	1	3	0	3	0	0	7	9	2	65	2	0	0	78	211
Hourly Total	19	3	2	14	0	12	38	17	2	395	114	0	0	528	4	13	1	17	0	2	35	27	4	202	7	0	1	240	841
8:00 AM	1	1	0	6	0	2	8	4	3	92	5	0	1	104	2	0	1	4	0	0	7	10	1	56	10	0	1	77	196
8:15 AM	5	1	0	5	0	1	11	6	3	84	14	0	0	107	3	2	0	8	0	0	13	10	2	60	12	0	0	84	215
8:30 AM	5	5	0	6	0	0	16	8	2	99	12	0	0	121	4	3	0	9	0	0	16	4	0	60	7	0	0	71	224
8:45 AM	2	2	0	1	0	0	5	12	1	86	10	0	0	109	2	1	0	8	0	0	11	5	0	63	5	0	0	73	198
Hourly Total	13	9	0	18	0	3	40	30	9	361	41	0	1	441	11	6	1	29	0	0	47	29	3	239	34	0	1	305	833
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	6	4	2	9	0	0	21	3	0	54	19	0	2	76	10	6	3	44	0	1	63	37	1	52	12	0	0	102	262
11:15 AM	14	5	3	6	0	1	28	3	0	65	15	0	0	83	10	17	2	52	0	0	81	26	6	57	16	0	0	105	297
11:30 AM	14	4	7	6	0	0	31	7	0	54	15	0	0	76	21	9	4	46	0	0	80	20	4	49	20	0	0	93	280
11:45 AM	13	3	4	9	0	1	29	10	0	42	17	1	0	70	18	9	4	49	0	0	80	41	0	49	10	0	1	100	279
Hourly Total	47	16	16	30	0	2	109	23	0	215	66	1	2	305	59	41	13	191	0	1	304	124	11	207	58	0	1	400	1118
12:00 PM	7	7	2	7	0	0	23	5	0	50	23	0	0	78	11	11	3	43	0	0	68	47	1	53	19	0	0	120	289
12:15 PM	9	5	2	9	0	1	25	11	1	56	11	0	1	79	15	17	7	57	0	0	96	37	3	52	10	0	0	102	302
12:30 PM	20	1	1	9	0	0	31	10	3	54	14	0	0	81	17	9	1	69	0	0	96	30	6	76	16	0	0	128	336
12:45 PM	15	7	3	11	0	1	36	15	4	46	17	0	0	82	11	8	4	48	0	0	71	36	3	61	18	0	0	118	307
Hourly Total	51	20	8	36	0	2	115	41	8	206	65	0	1	320	54	45	15	217	0	0	331	150	13	242	63	0	0	468	1234
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4:00 PM	12	8	1	12	0	0	33	3	1	82	17	0	0	103	26	8	3	55	0	0	92	39	0	107	14	0	0	160	388
4:15 PM	11	3	4	10	0	0	28	11	0	72	13	0	0	96	18	5	0	48	0	2	71	29	2	102	10	0	0	143	338
4:30 PM	6	8	0	9	0	0	23	7	0	83	17	0	0	107	20	12	4	49	0	0	85	44	5	110	13	0	0	172	387
4:45 PM	4	4	1	8	0	0	17	14	5	71	15	0	0	105	24	6	1	61	0	0	92	20	5	124	8	0	0	157	371
Hourly Total	33	23	6	39	0	0	101	35	6	308	62	0	0	411	88	31	8	213	0	2	340	132	12	443	45	0	0	632	1484
5:00 PM	8	6	4	4	0	2	22	8	0	77	14	0	0	99	22	10	1	61	0	0	94	32	6	98	15	0	0	151	366
5:15 PM	9	2	1	10	0	3	22	8	3	88	14	0	1	113	25	12	4	47	0	0	88	46	3	115	18	0	0	182	405
5:30 PM	9	9	1	10	0	1	29	15	2	76	16	0	0	109	22	13	1	49	0	0	85	32	2	106	23	0	0	163	386
5:45 PM	9	5	0	13	0	1	27	13	0	68	22	0	0	103	41	3	3	61	0	0	108	21	4	126	16	0	0	167	405
Hourly Total	35	22	6	37	0	7	100	44	5	309	66	0	1	424	110	38	9	218	0	0	375	131	15	445	72	0	0	663	1562
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	198	93	38	174	0	26	503	190	30	1794	414	1	5	2429	327	174	47	885	0	5	1433	593	58	1778	279	0	3	2708	7073
Approach %	39.4	18.5	7.6	34.6	0.0	-	-	7.8	1.2	73.9	17.0	0.0	-	-	22.8	12.1	3.3	61.8	0.0	-	-	21.9	2.1	65.7	10.3	0.0	-	-	-
Total %	2.8	1.3	0.5	2.5	0.0	-	7.1	2.7	0.4	25.4	5.9	0.0	-	34.3	4.6	2.5	0.7	12.5	0.0	-	20.3	8.4	0.8	25.1	3.9	0.0	-	38.3	-
Lights	194	93	38	173	0	-	498	190	30	1732	414	1	-	2367	326	174	46	876	0	-	1422	587	58	1699	275	0	-	2619	6906
% Lights	98.0	100.0	100.0	99.4	-	-	99.0	100.0	100.0	96.5	100.0	100.0	-	97.4	99.7	100.0	97.9	99.0	-	-	99.2	99.0	100.0	95.6	98.6	-	-	96.7	97.6
Buses	1	0	0	1	0	-	2	0	0	11	0	0	-	11	0	0	0	0	0	-	0	1	0	16	2	0	-	19	32
% Buses	0.5	0.0	0.0	0.6	-	-	0.4	0.0	0.0	0.6	0.0	0.0	-	0.5	0.0	0.0	0.0	0.0	-	-	0.0	0.2	0.0	0.9	0.7	-	-	0.7	0.5
Trucks	3	0	0	0	0	-	3	0	0	51	0	0	-	51	1	0	1	9	0	-	11	5	0	63	2	0	-	70	135
% Trucks	1.5	0.0	0.0	0.0	-	-	0.6	0.0	0.0	2.8	0.0	0.0	-	2.1	0.3	0.0	2.1	1.0	-	-	0.8	0.8	0.0	3.5	0.7	-	-	2.6	1.9
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	3.8	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	25	-	-	-	-	-	-	5	-	-	-	-	-	-	5	-	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	96.2	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

Marlboro, NJ  
Texas Rd & Costco  
Thursday, September 28, 2017  
Location: 40.364634, -  
74.302214

Coatesville, Pennsylvania, United States 19320  
610-466-1469  
Serving Transportation Professionals Since 1995

Count Name: Texas Rd-Costco  
Site Code:  
Start Date: 09/28/2017  
Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Shopping Center Dwy Southbound							Texas Rd Westbound							Costco Dwy Northbound							Texas Rd Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
7:45 AM	3	0	0	4	0	1	7	6	1	96	16	0	0	119	1	3	0	3	0	0	7	9	2	65	2	0	0	78	211
8:00 AM	1	1	0	6	0	2	8	4	3	92	5	0	1	104	2	0	1	4	0	0	7	10	1	56	10	0	1	77	196
8:15 AM	5	1	0	5	0	1	11	6	3	84	14	0	0	107	3	2	0	8	0	0	13	10	2	60	12	0	0	84	215
8:30 AM	5	5	0	6	0	0	16	8	2	99	12	0	0	121	4	3	0	9	0	0	16	4	0	60	7	0	0	71	224
Total	14	7	0	21	0	4	42	24	9	371	47	0	1	451	10	8	1	24	0	0	43	33	5	241	31	0	1	310	846
Approach %	33.3	16.7	0.0	50.0	0.0	-	-	5.3	2.0	82.3	10.4	0.0	-	-	23.3	18.6	2.3	55.8	0.0	-	-	10.6	1.6	77.7	10.0	0.0	-	-	-
Total %	1.7	0.8	0.0	2.5	0.0	-	5.0	2.8	1.1	43.9	5.6	0.0	-	53.3	1.2	0.9	0.1	2.8	0.0	-	5.1	3.9	0.6	28.5	3.7	0.0	-	36.6	-
PHF	0.70	0.350	0.000	0.875	0.000	-	0.656	0.750	0.750	0.937	0.734	0.000	-	0.932	0.625	0.667	0.250	0.667	0.000	-	0.672	0.825	0.625	0.927	0.646	0.000	-	0.923	0.944
Lights	12	7	0	21	0	-	40	24	9	362	47	0	-	442	10	8	1	23	0	-	42	32	5	216	30	0	-	283	807
% Lights	85.7	100.0	-	100.0	-	-	95.2	100.0	100.0	97.6	100.0	-	-	98.0	100.0	100.0	100.0	95.8	-	-	97.7	97.0	100.0	89.6	96.8	-	-	91.3	95.4
Buses	0	0	0	0	0	-	0	0	0	1	0	0	-	1	0	0	0	0	0	-	0	0	0	5	0	0	-	5	6
% Buses	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.3	0.0	-	-	0.2	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	2.1	0.0	-	-	1.6	0.7
Trucks	2	0	0	0	0	-	2	0	0	8	0	0	-	8	0	0	0	1	0	-	1	1	0	20	1	0	-	22	33
% Trucks	14.3	0.0	-	0.0	-	-	4.8	0.0	0.0	2.2	0.0	-	-	1.8	0.0	0.0	0.0	4.2	-	-	2.3	3.0	0.0	8.3	3.2	-	-	7.1	3.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	4	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-







# Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719  
 245 Main Street - Suite 110, Chester, NJ 07930  
 732-681-0760

E/W: Texas Rd File Name : Texas & Wooleytown-Falson - AMPM NORMALIZED  
 N/S: Wooleytown Rd/Falson Ln Site Code : 00000000  
 Town/County: Marlboro/Monmouth Start Date : 7/30/2020  
 Job #: 2841-99-001T Page No : 1

## Groups Printed- Cars - Trucks (SU) - Trucks (TT)

Start Time	Texas Road Eastbound					Texas Road Westbound					Wooleytown Road Northbound					Falson Lane Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	1	26	3	0	30	0	32	0	0	32	0	1	0	0	1	0	1	4	0	5	68
07:15 AM	1	25	3	0	29	1	37	0	0	38	4	3	1	0	8	0	6	7	0	13	88
07:30 AM	3	33	0	0	36	0	50	0	0	50	1	3	6	0	10	0	11	7	0	18	114
07:45 AM	1	55	6	1	63	3	28	1	1	33	1	4	4	0	9	1	11	7	1	20	125
Total	6	139	12	1	158	4	147	1	1	153	6	11	11	0	28	1	29	25	1	56	395
08:00 AM	4	43	1	0	48	7	37	1	0	45	0	4	3	0	7	1	7	8	0	16	116
08:15 AM	4	58	1	0	63	1	50	1	1	53	4	4	1	0	9	3	10	4	0	17	142
08:30 AM	6	43	3	0	52	6	43	1	0	50	7	1	3	0	11	1	14	4	0	19	132
08:45 AM	6	27	1	1	35	1	33	1	0	35	1	3	4	0	8	1	11	14	0	26	104
Total	20	171	6	1	198	15	163	4	1	183	12	12	11	0	35	6	42	30	0	78	494
*** BREAK ***																					
04:30 PM	8	59	3	0	70	6	50	0	0	56	1	7	1	0	9	1	7	5	0	13	148
04:45 PM	10	88	9	0	107	3	38	2	0	43	5	9	5	0	19	3	6	8	0	17	186
Total	18	147	12	0	177	9	88	2	0	99	6	16	6	0	28	4	13	13	0	30	334
05:00 PM	14	63	6	0	83	0	53	1	0	54	6	12	1	0	19	5	9	3	0	17	173
05:15 PM	2	77	7	0	86	8	51	3	0	62	2	12	6	0	20	1	10	12	0	23	191
05:30 PM	15	52	9	0	76	3	52	2	0	57	2	7	6	0	15	0	11	7	0	18	166
05:45 PM	6	67	3	0	76	1	32	3	0	36	5	6	1	0	12	0	9	3	0	12	136
Total	37	259	25	0	321	12	188	9	0	209	15	37	14	0	66	6	39	25	0	70	666
06:00 PM	2	64	6	0	72	5	37	1	0	43	2	15	6	0	23	3	9	7	0	19	157
06:15 PM	7	47	1	0	55	5	37	1	0	43	2	15	3	0	20	1	6	7	0	14	132
Grand Total	90	827	62	2	981	50	660	18	2	730	43	106	51	0	200	21	138	107	1	267	2178
Apprch %	9.2	84.3	6.3	0.2		6.8	90.4	2.5	0.3		21.5	53	25.5	0		7.9	51.7	40.1	0.4		
Total %	4.1	38	2.8	0.1	45	2.3	30.3	0.8	0.1	33.5	2	4.9	2.3	0	9.2	1	6.3	4.9	0	12.3	
Cars	90	818	61	2	971	49	654	17	2	722	43	106	51	0	200	21	137	107	1	266	2159
% Cars	100	98.9	98.4	100	99	98	99.1	94.4	100	98.9	100	100	100	0	100	100	99.3	100	100	99.6	99.1
Trucks (SU)	0	9	1	0	10	1	6	1	0	8	0	0	0	0	0	0	1	0	0	1	19
% Trucks (SU)	0	1.1	1.6	0	1	2	0.9	5.6	0	1.1	0	0	0	0	0	0	0.7	0	0	0.4	0.9
Trucks (TT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks (TT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Appendix C**  
**Capacity Analysis**

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	199	11	17	158	4	12	13	11	6	42	23
Future Vol, veh/h	15	199	11	17	158	4	12	13	11	6	42	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	1	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	0	25	0	0	0	0	0	0
Mvmt Flow	16	219	12	19	174	4	13	14	12	7	46	25
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	178	0	0	231	0	0	507	473	225	484	477	176
Stage 1	-	-	-	-	-	-	257	257	-	214	214	-
Stage 2	-	-	-	-	-	-	250	216	-	270	263	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.7	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1410	-	-	1349	-	-	466	480	814	496	490	872
Stage 1	-	-	-	-	-	-	741	689	-	793	729	-
Stage 2	-	-	-	-	-	-	748	719	-	740	694	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1410	-	-	1349	-	-	410	466	814	467	476	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	410	466	-	467	476	-
Stage 1	-	-	-	-	-	-	731	680	-	783	717	-
Stage 2	-	-	-	-	-	-	669	707	-	704	685	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.7			12.7			12.5		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	509	1410	-	-	1349	-	-	557				
HCM Lane V/C Ratio	0.078	0.012	-	-	0.014	-	-	0.14				
HCM Control Delay (s)	12.7	7.6	0	-	7.7	0	-	12.5				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.5				



Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	41	280	31	14	194	8	15	40	18	9	36	30
Future Vol, veh/h	41	280	31	14	194	8	15	40	18	9	36	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	1	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	3	0	2	0	0	0	0	0	0	0
Mvmt Flow	44	298	33	15	206	9	16	43	19	10	38	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	215	0	0	331	0	0	679	648	315	675	660	211
Stage 1	-	-	-	-	-	-	403	403	-	241	241	-
Stage 2	-	-	-	-	-	-	276	245	-	434	419	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.7	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1367	-	-	1240	-	-	355	378	724	371	386	834
Stage 1	-	-	-	-	-	-	614	590	-	767	710	-
Stage 2	-	-	-	-	-	-	723	698	-	604	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1367	-	-	1240	-	-	301	358	724	315	366	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	358	-	315	366	-
Stage 1	-	-	-	-	-	-	589	566	-	736	700	-
Stage 2	-	-	-	-	-	-	648	688	-	522	569	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.5			16.4			14.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	392	1367	-	-	1240	-	-	460
HCM Lane V/C Ratio	0.198	0.032	-	-	0.012	-	-	0.173
HCM Control Delay (s)	16.4	7.7	0	-	7.9	0	-	14.5
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	0.6

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	228	16	21	208	4	18	14	14	6	45	29
Future Vol, veh/h	20	228	16	21	208	4	18	14	14	6	45	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	1	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	0	25	0	0	0	0	0	0
Mvmt Flow	22	251	18	23	229	4	20	15	15	7	49	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	233	0	0	269	0	0	622	583	260	596	590	231
Stage 1	-	-	-	-	-	-	304	304	-	277	277	-
Stage 2	-	-	-	-	-	-	318	279	-	319	313	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.7	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1346	-	-	1306	-	-	388	413	778	418	423	813
Stage 1	-	-	-	-	-	-	698	655	-	734	685	-
Stage 2	-	-	-	-	-	-	685	673	-	697	661	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1346	-	-	1306	-	-	328	397	778	386	407	813
Mov Cap-2 Maneuver	-	-	-	-	-	-	328	397	-	386	407	-
Stage 1	-	-	-	-	-	-	685	643	-	720	671	-
Stage 2	-	-	-	-	-	-	597	660	-	654	648	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.7			14.6			13.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	425	1346	-	-	1306	-	-	495
HCM Lane V/C Ratio	0.119	0.016	-	-	0.018	-	-	0.178
HCM Control Delay (s)	14.6	7.7	0	-	7.8	0	-	13.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.6

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	49	341	39	17	240	8	22	43	22	9	38	38
Future Vol, veh/h	49	341	39	17	240	8	22	43	22	9	38	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	1	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	3	0	2	0	0	0	0	0	0	0
Mvmt Flow	52	363	41	18	255	9	23	46	23	10	40	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	264	0	0	404	0	0	824	788	384	818	804	260
Stage 1	-	-	-	-	-	-	488	488	-	296	296	-
Stage 2	-	-	-	-	-	-	336	300	-	522	508	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.7	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1312	-	-	1166	-	-	281	312	661	297	319	784
Stage 1	-	-	-	-	-	-	550	538	-	717	672	-
Stage 2	-	-	-	-	-	-	670	658	-	542	542	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1312	-	-	1166	-	-	226	291	661	239	297	784
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	291	-	239	297	-
Stage 1	-	-	-	-	-	-	522	511	-	680	660	-
Stage 2	-	-	-	-	-	-	586	646	-	452	514	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.5			21.3			16.7		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	313	1312	-	-	1166	-	-	397
HCM Lane V/C Ratio	0.296	0.04	-	-	0.016	-	-	0.228
HCM Control Delay (s)	21.3	7.9	0	-	8.1	0	-	16.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0	-	-	0.9

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	281	23	21	224	6	20	16	14	13	51	29
Future Vol, veh/h	20	281	23	21	224	6	20	16	14	13	51	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	1	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	0	25	0	0	0	0	0	0
Mvmt Flow	22	309	25	23	246	7	22	18	15	14	56	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	253	0	0	334	0	0	706	665	322	678	674	250
Stage 1	-	-	-	-	-	-	366	366	-	296	296	-
Stage 2	-	-	-	-	-	-	340	299	-	382	378	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.7	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1324	-	-	1237	-	-	340	369	717	369	379	794
Stage 1	-	-	-	-	-	-	644	614	-	717	672	-
Stage 2	-	-	-	-	-	-	666	659	-	645	619	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1324	-	-	1237	-	-	279	354	717	337	363	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	354	-	337	363	-
Stage 1	-	-	-	-	-	-	631	602	-	703	657	-
Stage 2	-	-	-	-	-	-	572	645	-	600	607	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.7			16.5			15.9		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	367	1324	-	-	1237	-	-	431
HCM Lane V/C Ratio	0.15	0.017	-	-	0.019	-	-	0.237
HCM Control Delay (s)	16.5	7.8	0	-	8	0	-	15.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.1	-	-	0.9

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	6	291	261	12	33	27
Future Vol, veh/h	6	291	261	12	33	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	2	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	0	2	2	2
Mvmt Flow	7	338	303	14	38	31

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	317	0	-	0	662 310
Stage 1	-	-	-	-	310 -
Stage 2	-	-	-	-	352 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1243	-	-	-	427 730
Stage 1	-	-	-	-	744 -
Stage 2	-	-	-	-	712 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1243	-	-	-	424 730
Mov Cap-2 Maneuver	-	-	-	-	424 -
Stage 1	-	-	-	-	739 -
Stage 2	-	-	-	-	712 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1243	-	-	-	523
HCM Lane V/C Ratio	0.006	-	-	-	0.133
HCM Control Delay (s)	7.9	0	-	-	12.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	12	270	282	6	27	33
Future Vol, veh/h	12	270	282	6	27	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	-2	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	0	2	2	2
Mvmt Flow	14	314	328	7	31	38
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	335	0	-	0	674	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	342	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1224	-	-	-	420	710
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1224	-	-	-	414	710
Mov Cap-2 Maneuver	-	-	-	-	414	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	719	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.3	0	12.7			
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1224	-	-	-	537	
HCM Lane V/C Ratio	0.011	-	-	-	0.13	
HCM Control Delay (s)	8	0	-	-	12.7	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.4	

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	4	38	80	0
Future Vol, veh/h	0	13	4	38	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	5	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	3	0	2
Mvmt Flow	0	14	4	40	84	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	132	84	84	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	856	973	1513	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	973	1513	-	-	-
Mov Cap-2 Maneuver	853	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	8.8		0.7		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1513	-	973	-	-	
HCM Lane V/C Ratio	0.003	-	0.014	-	-	
HCM Control Delay (s)	7.4	0	8.8	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	49	370	43	17	290	14	28	49	22	13	41	38
Future Vol, veh/h	49	370	43	17	290	14	28	49	22	13	41	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	1	-	-	-2	-	-	1	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	3	0	2	0	0	0	0	0	0	0
Mvmt Flow	52	394	46	18	309	15	30	52	23	14	44	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	324	0	0	440	0	0	916	881	417	912	897	317
Stage 1	-	-	-	-	-	-	521	521	-	353	353	-
Stage 2	-	-	-	-	-	-	395	360	-	559	544	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.7	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.7	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1247	-	-	1131	-	-	242	274	633	257	281	728
Stage 1	-	-	-	-	-	-	527	520	-	668	634	-
Stage 2	-	-	-	-	-	-	621	618	-	517	522	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1247	-	-	1131	-	-	188	254	633	197	260	728
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	254	-	197	260	-
Stage 1	-	-	-	-	-	-	497	491	-	631	622	-
Stage 2	-	-	-	-	-	-	535	606	-	420	493	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.4			27.5			20.2		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	263	1247	-	-	1131	-	-	333
HCM Lane V/C Ratio	0.4	0.042	-	-	0.016	-	-	0.294
HCM Control Delay (s)	27.5	8	0	-	8.2	0	-	20.2
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0	-	-	1.2



Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	19	444	319	37	18	15
Future Vol, veh/h	19	444	319	37	18	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	2	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	1	2	2	2	2
Mvmt Flow	20	472	339	39	19	16

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	378	0	-	0	871 359
Stage 1	-	-	-	-	359 -
Stage 2	-	-	-	-	512 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1180	-	-	-	322 685
Stage 1	-	-	-	-	707 -
Stage 2	-	-	-	-	602 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1180	-	-	-	315 685
Mov Cap-2 Maneuver	-	-	-	-	315 -
Stage 1	-	-	-	-	691 -
Stage 2	-	-	-	-	602 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1180	-	-	-	418
HCM Lane V/C Ratio	0.017	-	-	-	0.084
HCM Control Delay (s)	8.1	0	-	-	14.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

**Intersection**

Int Delay, s/veh 0.9

**Movement** EBL EBT WBT WBR SBL SBRLane Configurations 

Traffic Vol, veh/h 37 448 315 19 15 18

Future Vol, veh/h 37 448 315 19 15 18

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 1 -2 - 0 -

Peak Hour Factor 94 94 94 94 94 94

Heavy Vehicles, % 2 1 2 2 2 2

Mvmt Flow 39 477 335 20 16 19

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All 355 0 - 0 900 345

Stage 1 - - - - 345 -

Stage 2 - - - - 555 -

Critical Hdwy 4.12 - - - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 3.318

Pot Cap-1 Maneuver 1204 - - - 309 698

Stage 1 - - - - 717 -

Stage 2 - - - - 575 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1204 - - - 295 698

Mov Cap-2 Maneuver - - - - 295 -

Stage 1 - - - - 685 -

Stage 2 - - - - 575 -

**Approach** EB WB SB

HCM Control Delay, s 0.6 0 14.1

HCM LOS B

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1204 - - - 431

HCM Lane V/C Ratio 0.033 - - - 0.081

HCM Control Delay (s) 8.1 0 - - 14.1

HCM Lane LOS A A - - B

HCM 95th %tile Q(veh) 0.1 - - - 0.3

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	0	7	12	100	85	0
Future Vol, veh/h	0	7	12	100	85	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	5	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	0	0	2
Mvmt Flow	0	8	13	108	91	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	225	91	91	0	0
Stage 1	91	-	-	-	-
Stage 2	134	-	-	-	-
Critical Hdwy	6.62	6.32	4.12	-	-
Critical Hdwy Stg 1	5.62	-	-	-	-
Critical Hdwy Stg 2	5.62	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	754	964	1504	-	-
Stage 1	928	-	-	-	-
Stage 2	886	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	747	964	1504	-	-
Mov Cap-2 Maneuver	747	-	-	-	-
Stage 1	920	-	-	-	-
Stage 2	886	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1504	-	964	-	-
HCM Lane V/C Ratio	0.009	-	0.008	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-