

TRAFFIC IMPACT STUDY

For

**Ashbel Associates, LLC
Proposed Residential Development**


Property Located at:


**Texas Road and Greenwood Road
Block 119 – Lot 16
Township of Marlboro, Monmouth County, NJ**

Prepared by:



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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 Greenwood Road in the Township of Marlboro, Monmouth County, New Jersey, see Figure 1 in Appendix A. The site is designated as Block 119 – Lot 16 on the Township of Marlboro Tax Maps. It is proposed to construct five (5) 3-story residential buildings totaling 120 dwelling units (The Project). Access to the site is proposed via one (1) full movement driveway and one (1) right turn ingress/right turn egress driveway along Texas Road. Parking will be provided via two hundred thirty-five (235) 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 Greenwood Road.
- 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 40 MPH to the east of Greenwood Road and 45 MPH to the west. 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 Greenwood Road while curb only is provided along both sides of the roadway to the west of Greenwood Road. 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 and undeveloped land.

Greenwood 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. Greenwood Road provides a straight horizontal alignment and an uphill vertical alignment from north to south. The land uses along Greenwood Road in the vicinity of The Project are a mix of 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 Greenwood Road 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 5:15 – 6:15 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 Greenwood Road	Texas Road	EB LTR	A (8)	A (8)
		WB LTR	A (8)	A (8)
	Greenwood Road	NB LTR	B (12)	C (16)
		SB LTR	B (14)	C (19)

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 Greenwood Road

Greenwood Road intersects Texas Road to form an unsignalized four-leg intersection with Greenwood Road under stop control. The eastbound and westbound approaches of Texas Road each provide a shared left turn/through/right turn lane. The northbound and southbound approaches of Greenwood Road each provide 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, 10th 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 387 dwelling units, located in the northwest corner of the intersection of Texas Road and Wooleytown Road/Falson Lane, 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, 10th 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
120 Residential Units	13	44	57	43	26	69

It should be noted that the number of new trips falls below the industry accepted standard of a significant increase in traffic of 100 trips. Additionally, NJDOT has determined that the same 100 vehicle threshold is considered a “significant increase in traffic,” hence, it is not anticipated that the proposed development will have any perceptible impact on the traffic operation of the adjacent roadway network.

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 Greenwood Road	Texas Road	EB	LTR	A (8)	A (8)	A (8)	A (8)
		WB	LTR	A (8)	A (8)	A (8)	A (8)
	Greenwood Road	NB	LTR	B (14)	B (15)	C (20)	C (22)
		SB	LTR	C (16)	C (16)	D (26)	D (28)
Texas Road and East Site Driveway	Site Driveway	SB	R	-	A (10)	-	B (10)
Texas Road and West Site Driveway	Texas Road	EB	LT	-	A (8)	-	A (8)
	Site Driveway	SB	LR	-	B (13)	-	B (14)

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

Texas Road and Greenwood Road

With the addition of site generated traffic, the individual intersection movements are anticipated to continue to operate at Level of Service “D” or better during the analyzed peak hours, essentially maintaining No Build Levels of Service. 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 dedicated through lane and a shared through/right turn lane, respectively. The southbound approach of the site driveway will provide a single lane for right turns only.

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.

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 one (1) full movement driveway and one (1) right turn ingress/right turn egress driveway along Texas Road.

The newly constructed parking areas will be serviced by parking aisles with widths of 25' and 26', 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 235 spaces for the proposed 30 one-bedroom units, 77 two-bedroom units and 13 three-bedroom units. The site as proposed provides 235 parking spaces and as such the RSIS requirements are met.

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

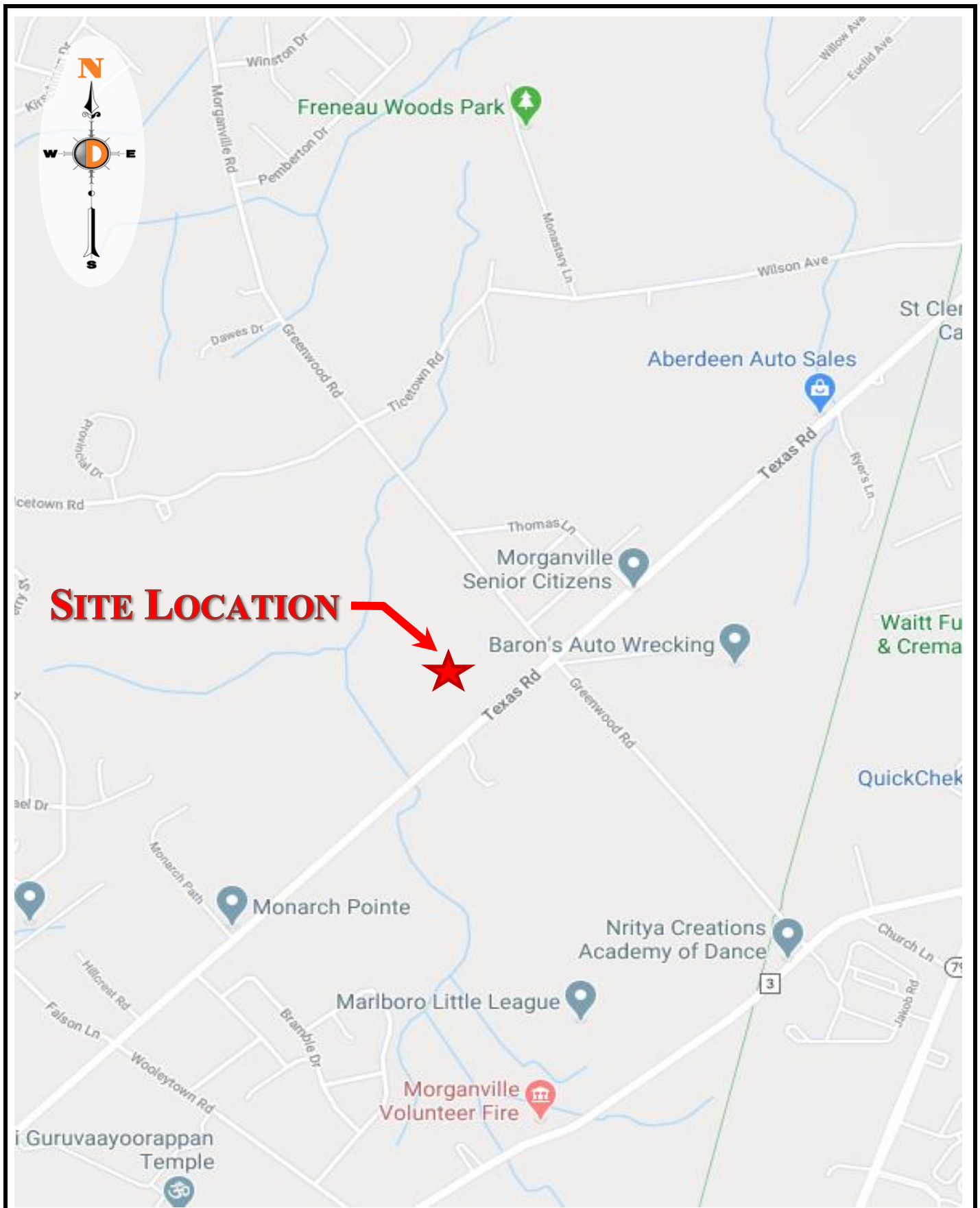
Based upon the detailed analyses as documented herein, the following findings are noted:

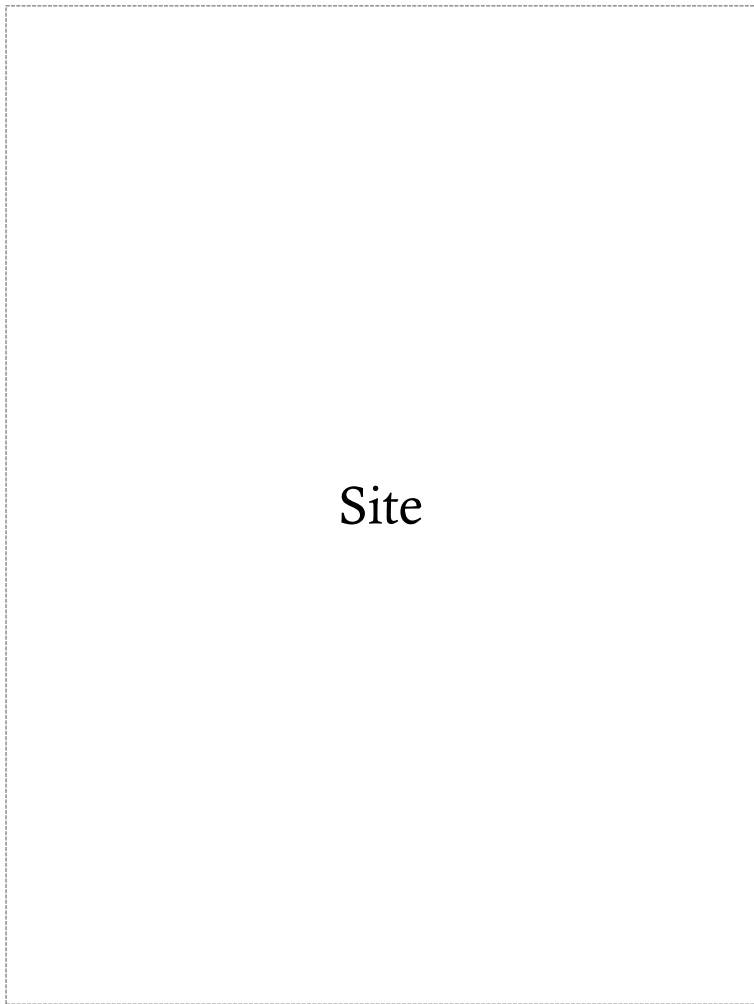
- The proposed 120 residential units are projected to generate 13 entering trips and 44 exiting trips during the weekday morning peak hour and 43 entering trips and 26 exiting trips during the evening peak hour.
- Access to The Project will be provided via one (1) full movement driveway and one (1) right turn ingress/right turn egress driveway along Texas Road with the exiting movements under stop control.
- With the addition of site generated traffic, the individual intersection movements of Texas Road and Greenwood Road are anticipated to continue 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 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 meets 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





Site

Greenwood Road

West Site Driveway

East Site Driveway

Texas Road

(307)

216 →

(307) 216 →

(10)

10 ↘

(290)

203 →

(7)

3 ↘

(8)

5 ↘

(66)

36 ↘

(9)

2 ↘

↘ 6

(10)

↘ 171

(202)

↘ 31

(48)

↘ 3

(6)

↘ 45

(68)

↘ 31

(48)

LEGEND

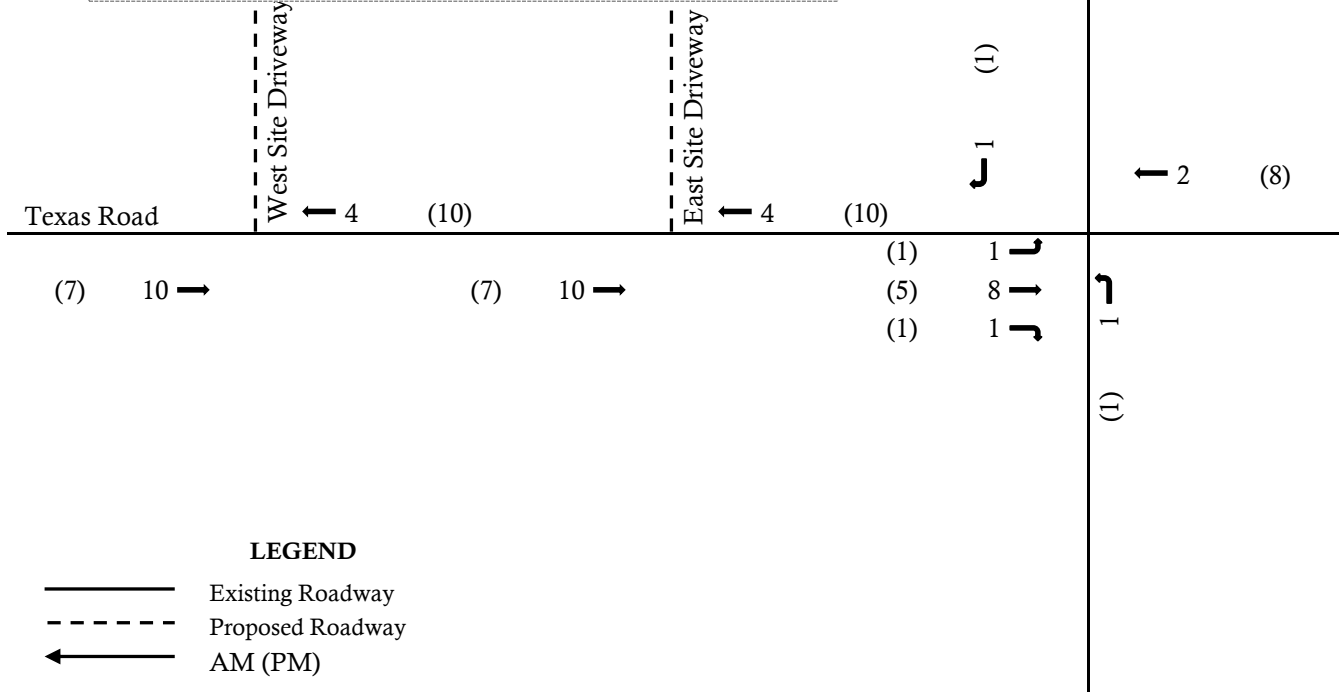
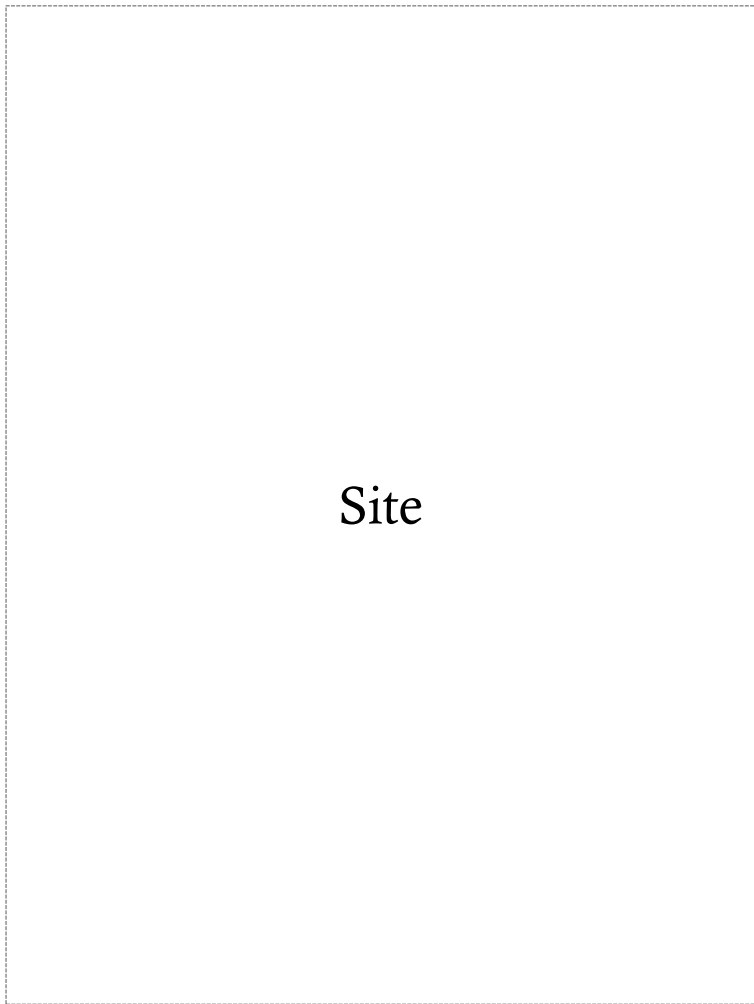
- Existing Roadway
- - - Proposed Roadway
- ← AM (PM)

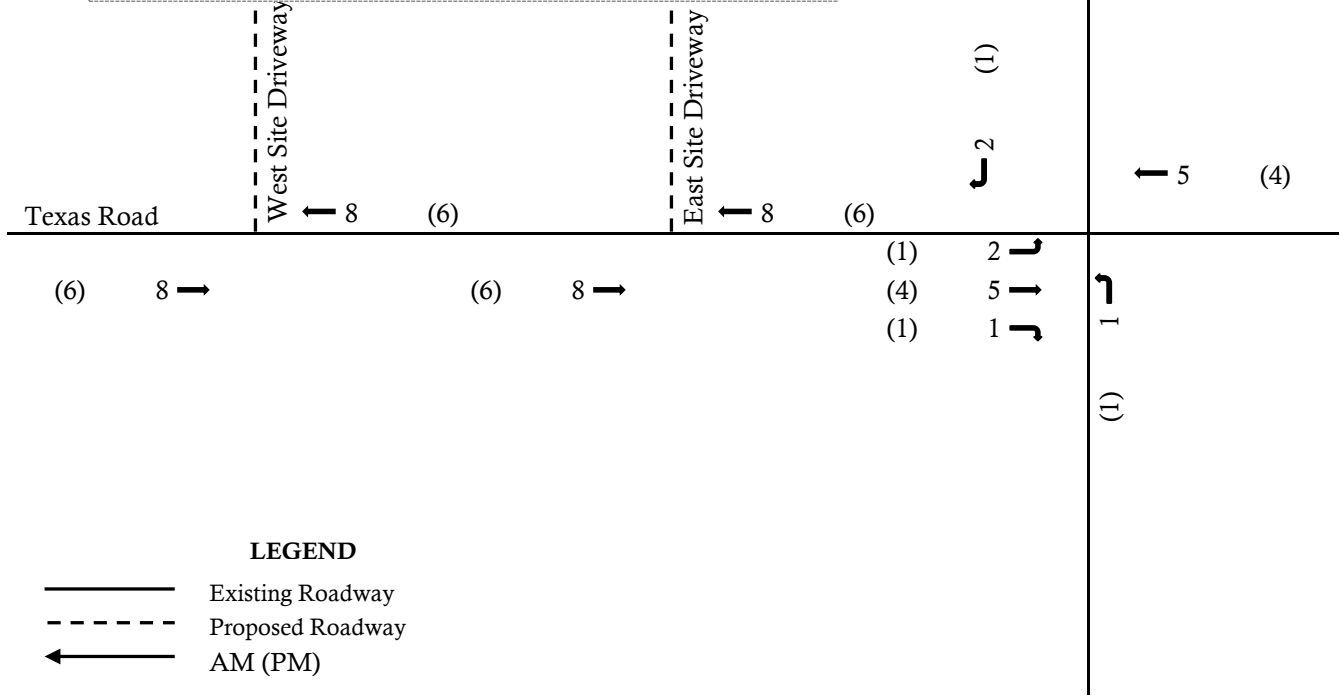
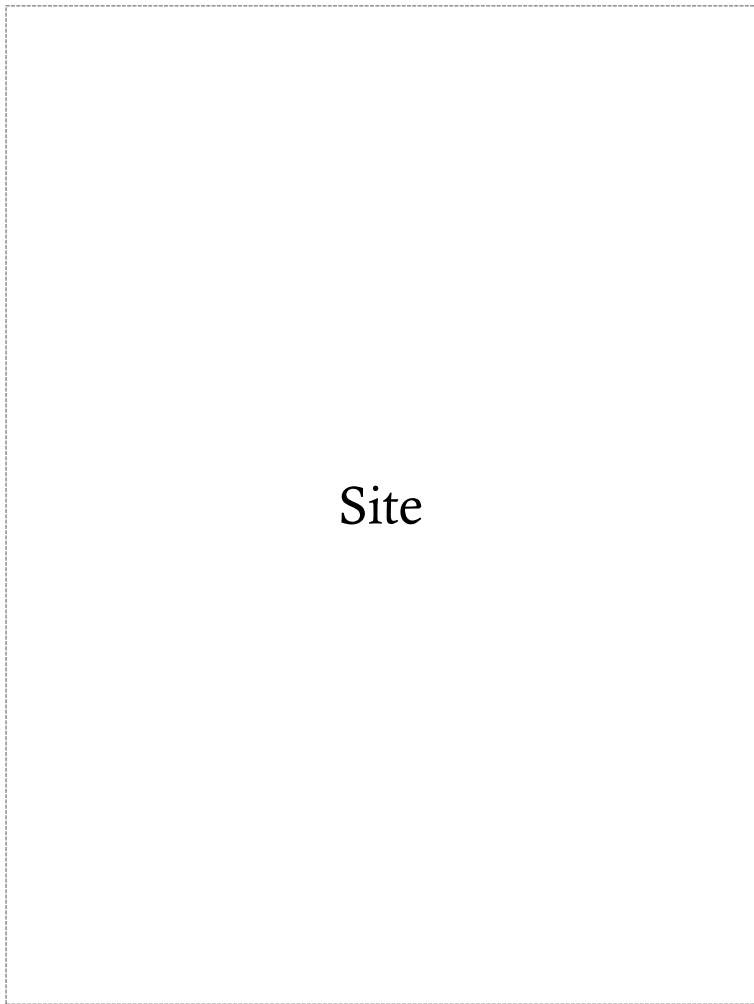


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Figure 2

Existing Traffic Volumes



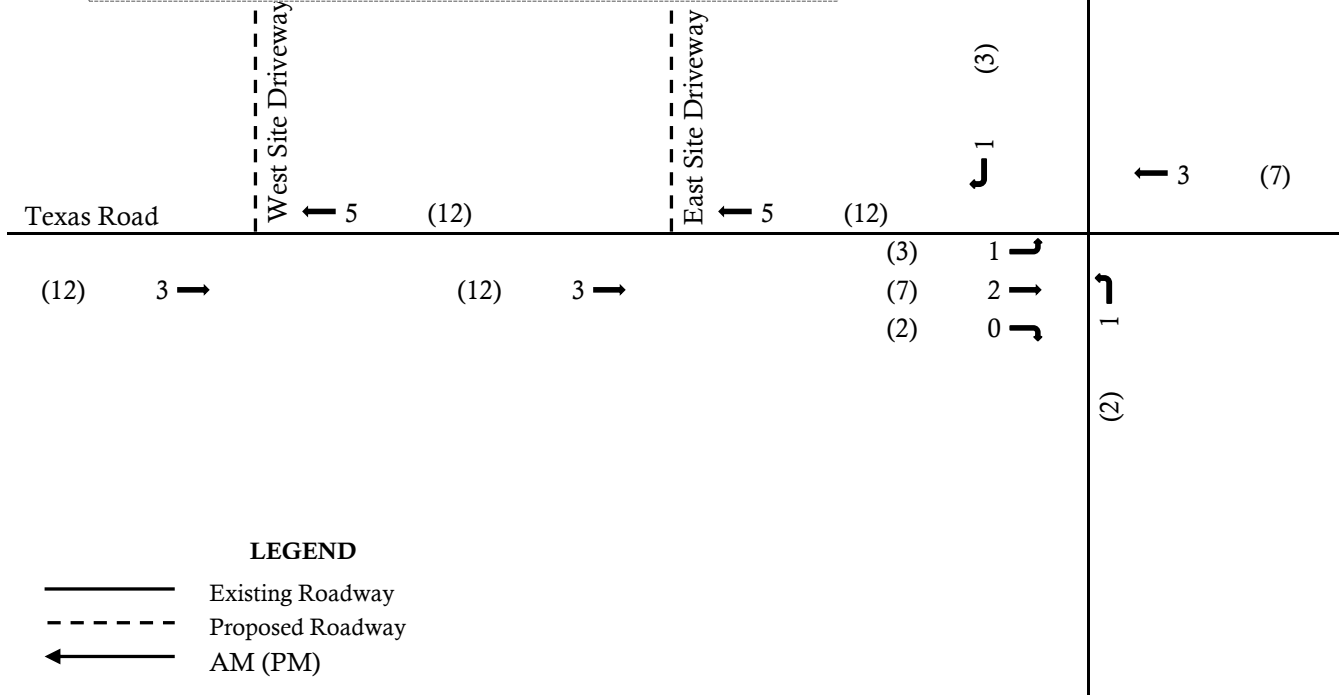
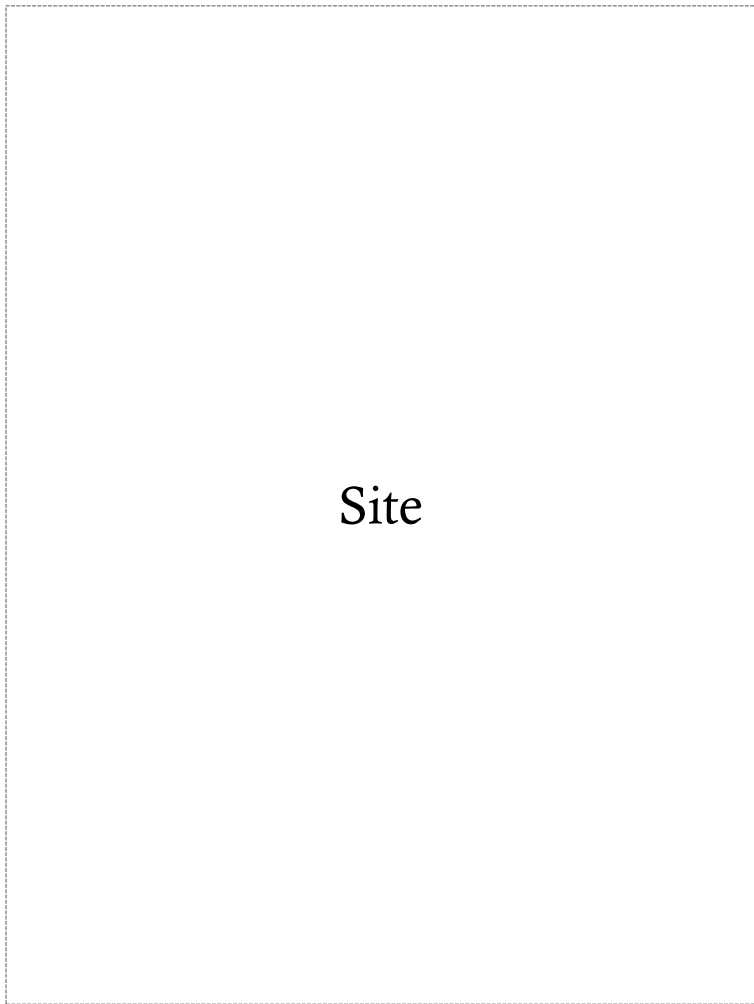


LEGEND

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



Figure 4



LEGEND

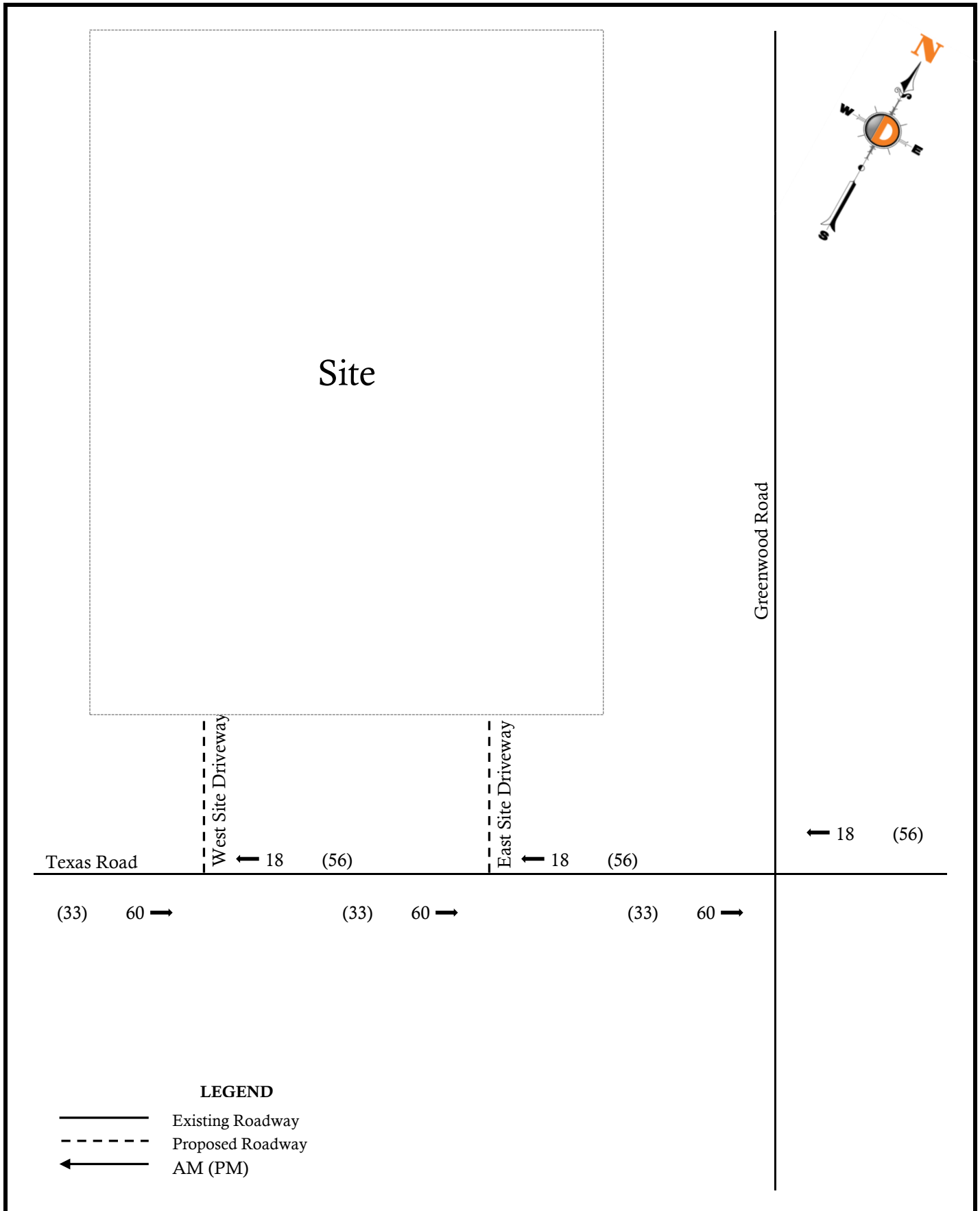
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- ← AM (PM)

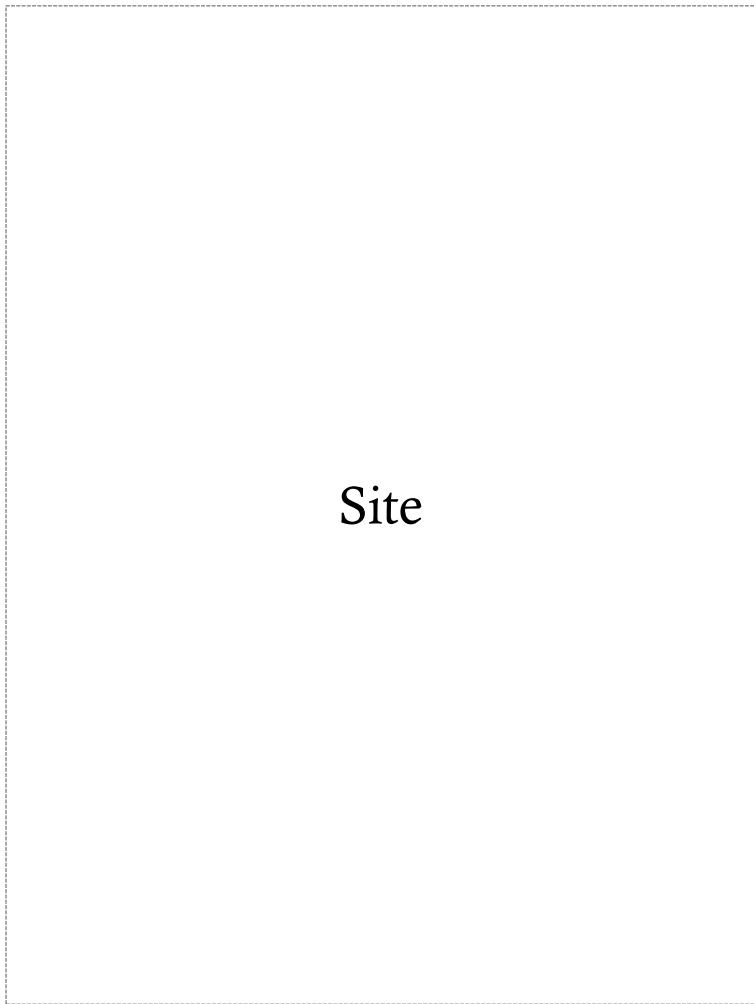


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Figure 5

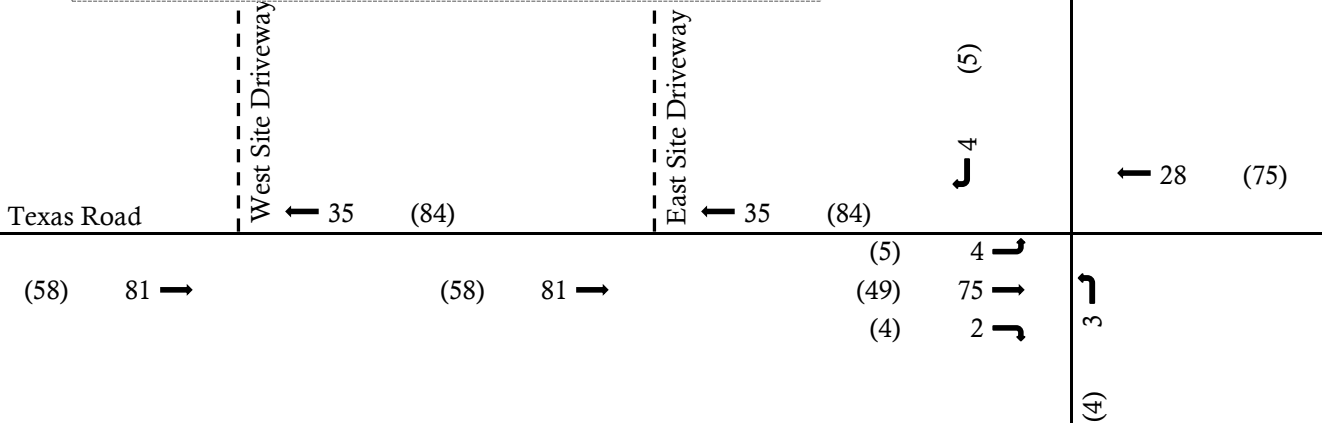
Adjacent Development Traffic Volumes [Aldi]





Site

Greenwood Road



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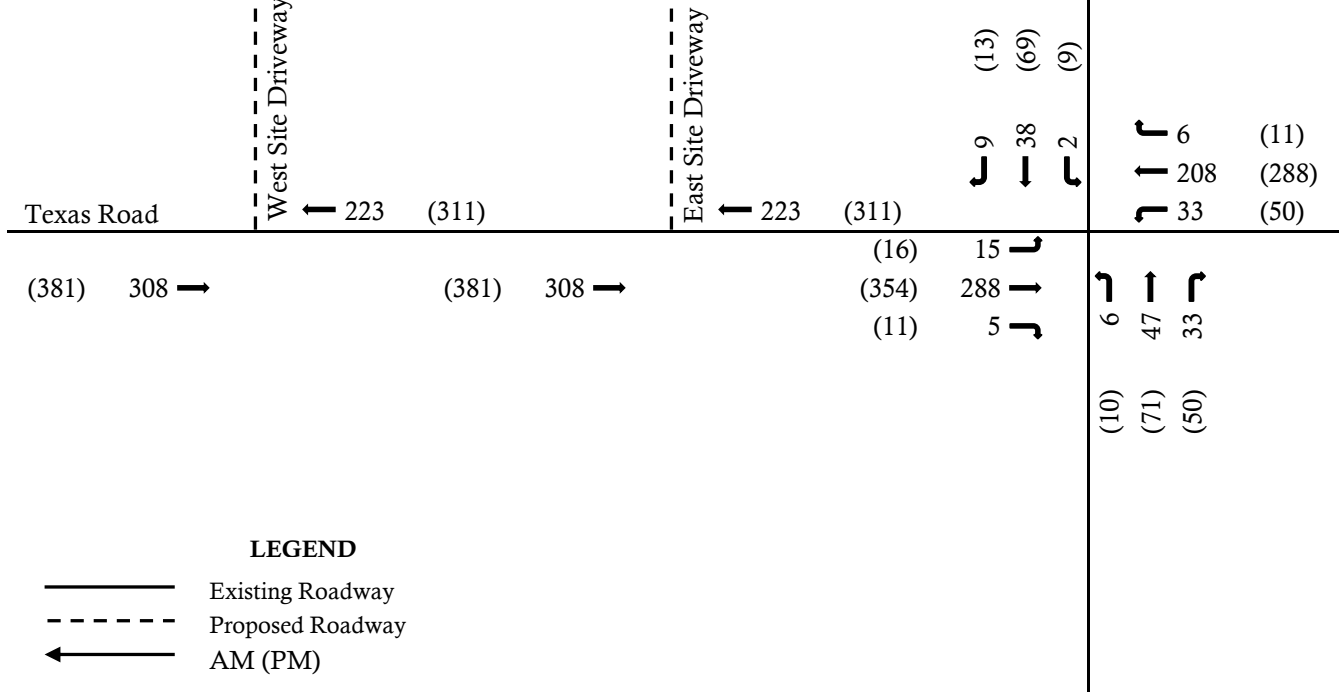
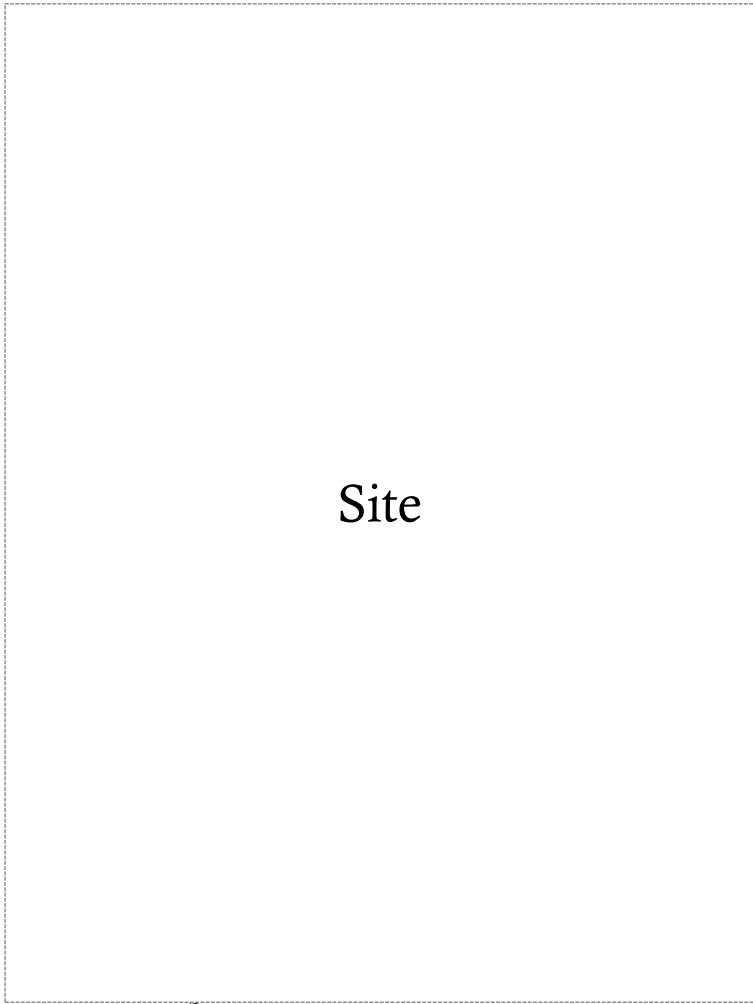
- Existing Roadway
- - - Proposed Roadway
- ← AM (PM)



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Figure 7

Adjacent Development Traffic Volumes [Total]



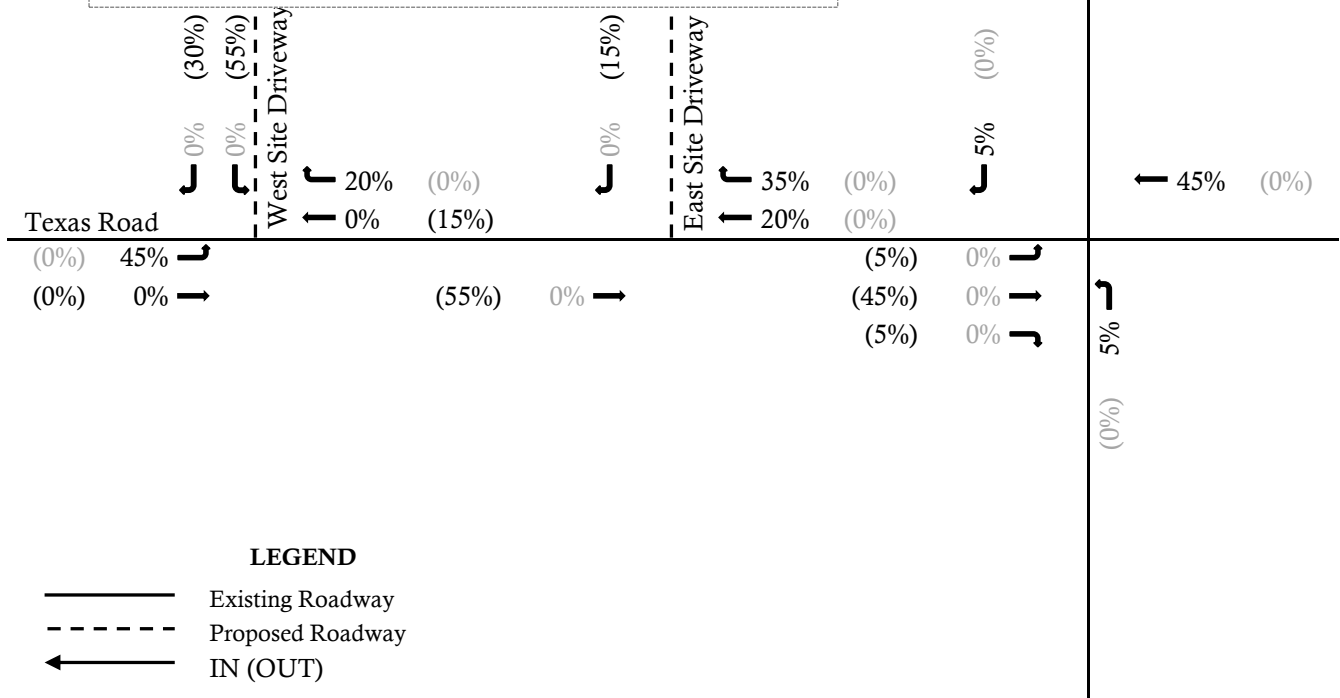
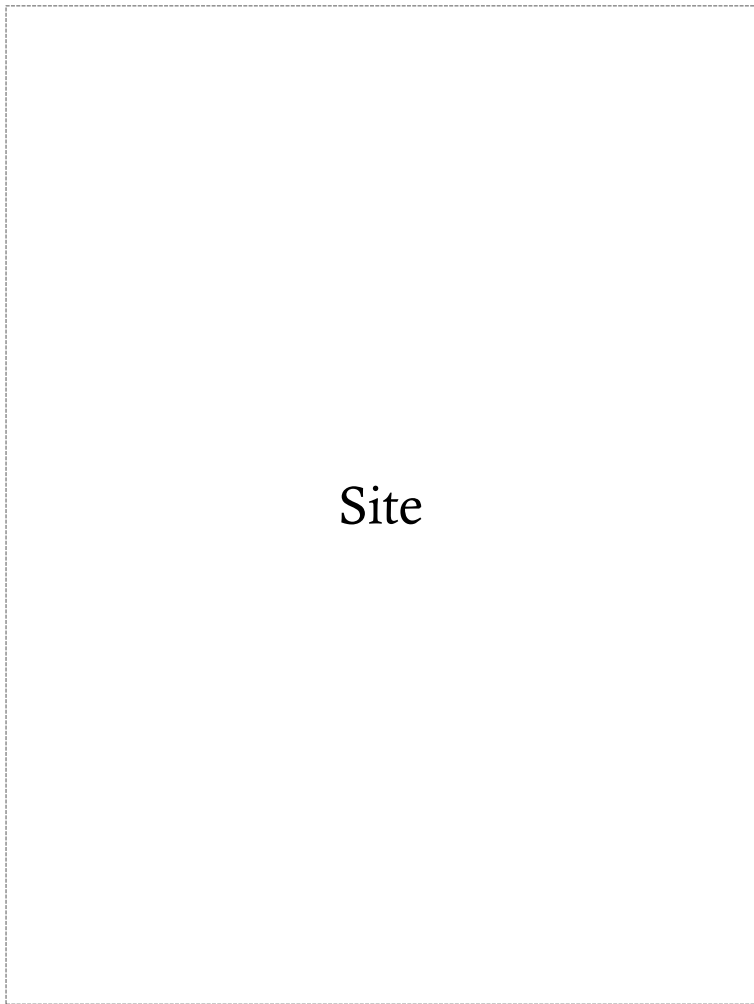
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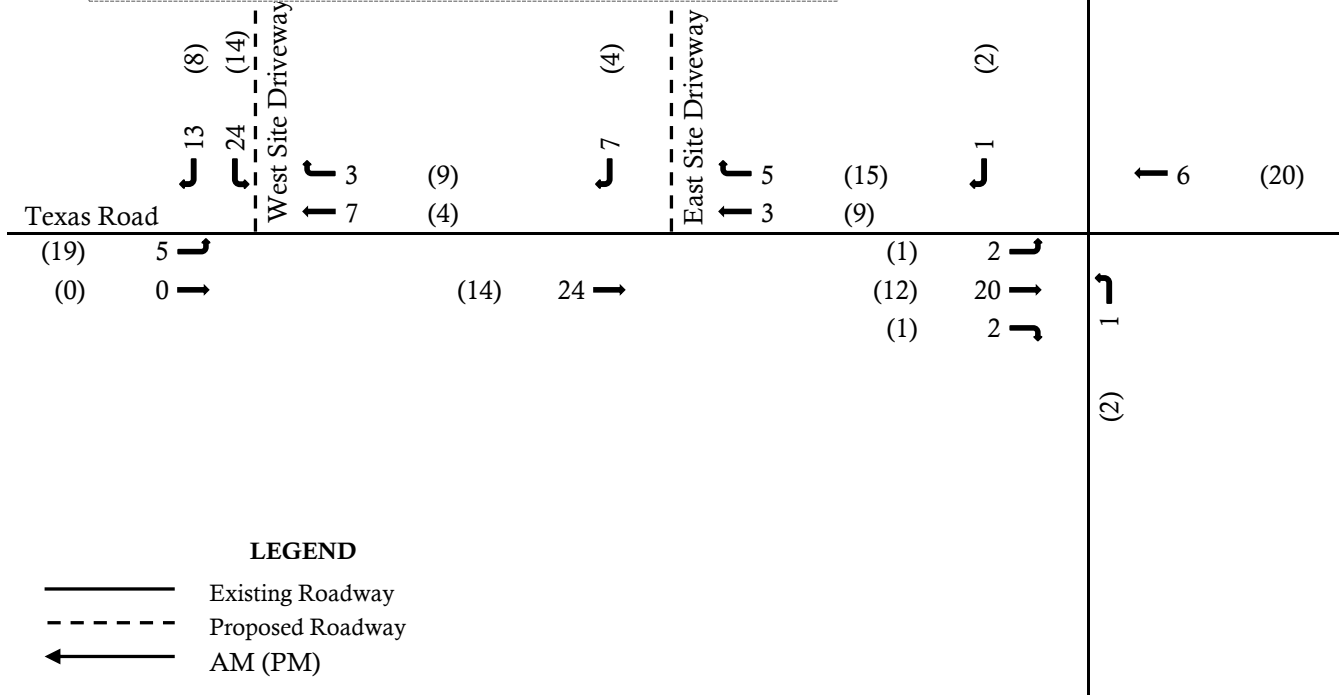
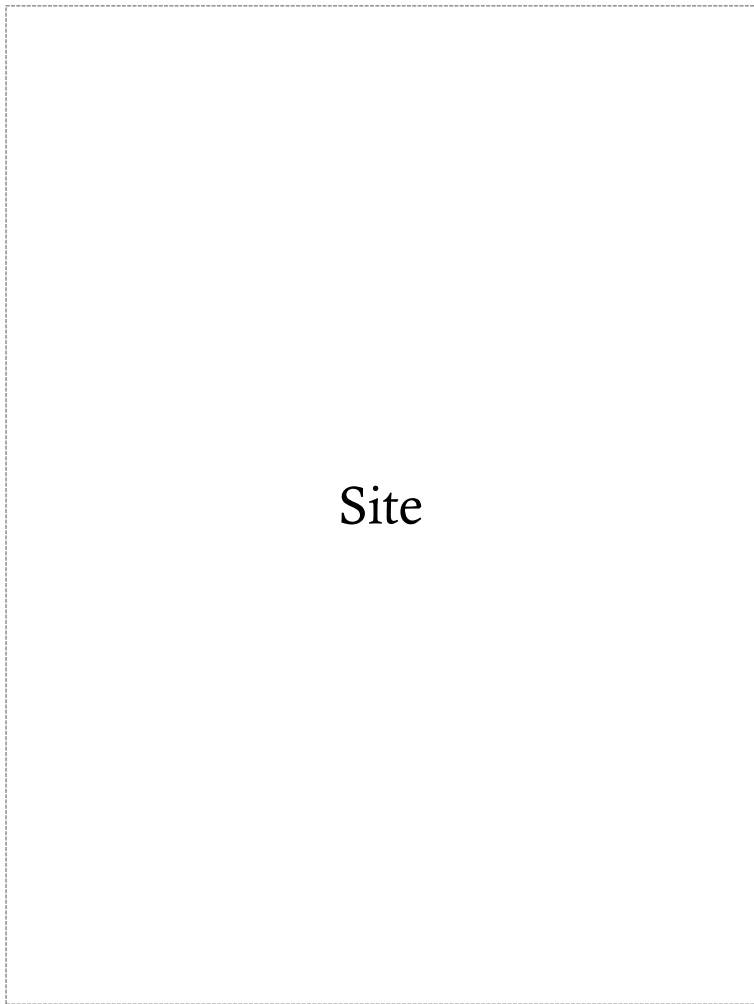
- Existing Roadway
- - - Proposed Roadway
- ← AM (PM)



Figure 8

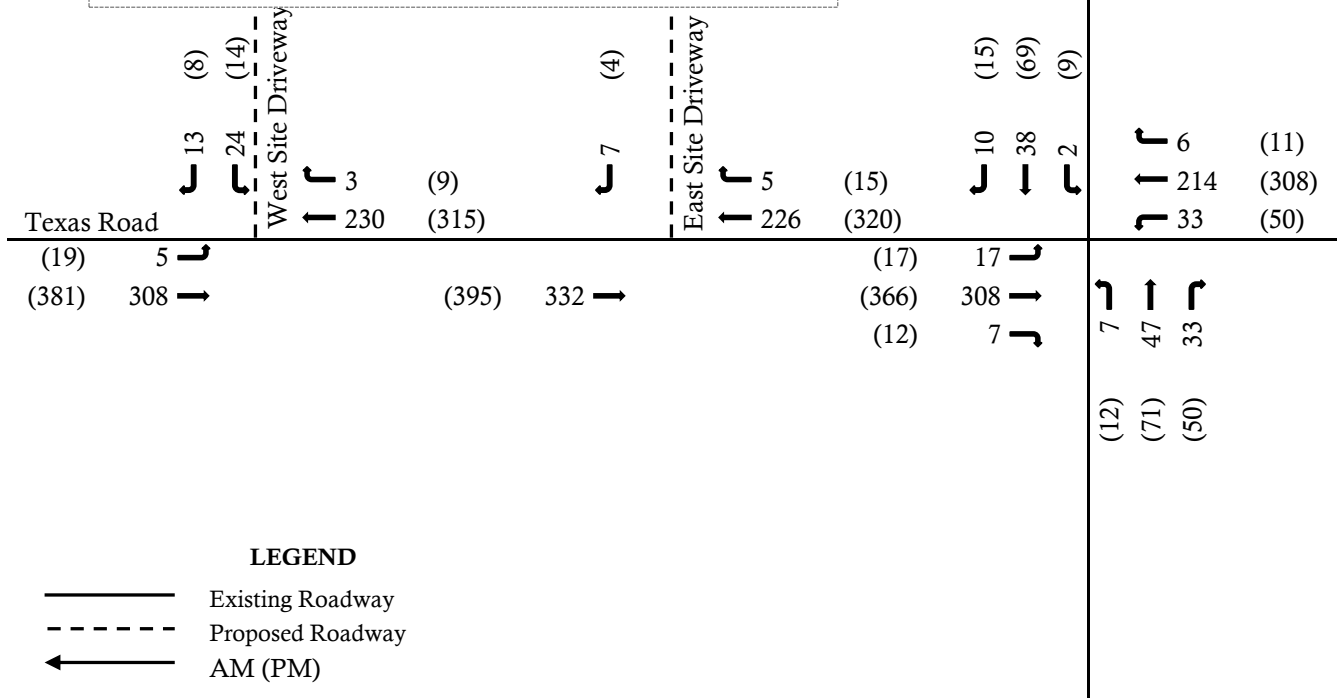
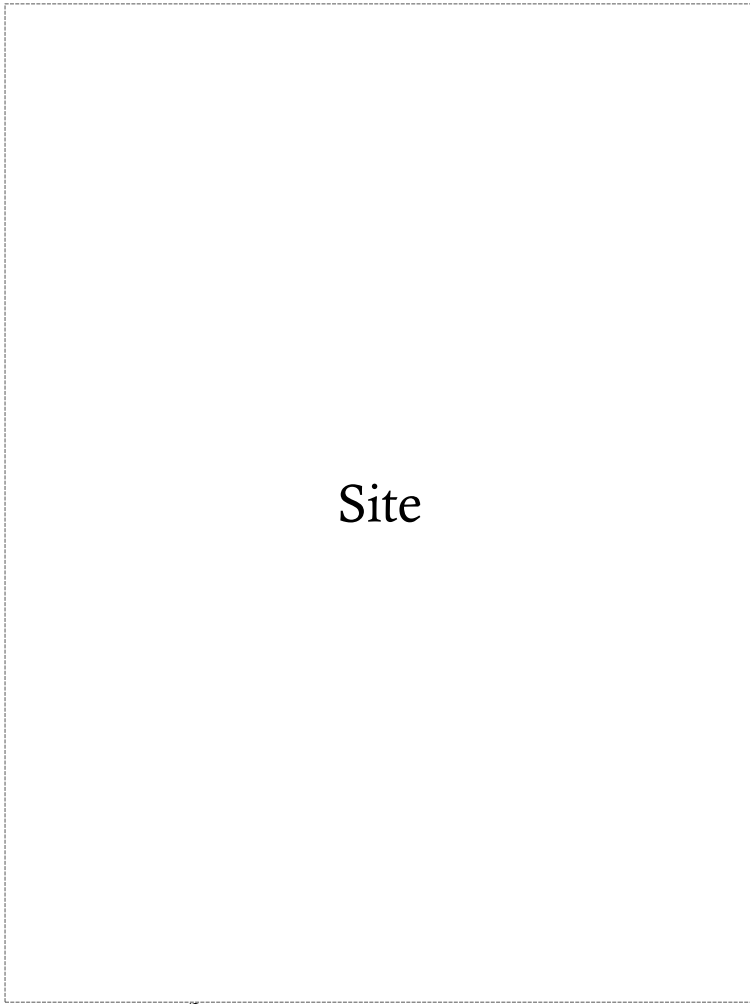
No Build Traffic Volumes





LEGEND

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



LEGEND

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



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
 N/S: Greenwood Rd
 Town/County: Marlboro/Monmouth
 Job #: 2841-99-001T

File Name : Texas Rd and Greenwood Rd - AMPM
 Site Code : 00000000
 Start Date : 7/30/2020
 Page No : 1

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

Start Time	Texas Road Eastbound					Texas Road Westbound					Greenwood Road Northbound					Greenwood Road 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	0	6	0	0	6	1	20	0	0	21	0	4	0	0	4	0	3	0	0	3	34
07:15 AM	1	16	0	0	17	0	12	3	0	15	0	7	5	0	12	0	3	0	0	3	47
07:30 AM	1	25	0	0	26	6	17	1	0	24	1	6	7	0	14	0	5	0	0	5	69
07:45 AM	1	19	0	0	20	8	33	1	0	42	0	8	6	0	14	1	5	1	0	7	83
Total	3	66	0	0	69	15	82	5	0	102	1	25	18	0	44	1	16	1	0	18	233
08:00 AM	1	25	1	0	27	5	23	2	0	30	2	8	6	0	16	1	5	1	0	7	80
08:15 AM	1	23	1	0	25	7	40	1	0	48	0	8	3	0	11	0	6	2	0	8	92
08:30 AM	2	28	0	0	30	3	26	1	0	30	0	9	8	0	17	0	10	0	0	10	87
08:45 AM	3	17	0	0	20	3	19	2	0	24	0	13	5	0	18	3	11	2	0	16	78
Total	7	93	2	0	102	18	108	6	0	132	2	38	22	0	62	4	32	5	0	41	337
*** BREAK ***																					
04:30 PM	1	33	1	0	35	9	42	1	0	52	0	13	10	0	23	1	10	0	0	11	121
04:45 PM	3	28	2	0	33	14	57	5	0	76	0	10	8	0	18	2	10	0	0	12	139
Total	4	61	3	0	68	23	99	6	0	128	0	23	18	0	41	3	20	0	0	23	260
05:00 PM	1	32	3	0	36	6	44	4	0	54	1	14	9	0	24	1	8	1	0	10	124
05:15 PM	2	39	2	0	43	5	34	2	0	41	2	11	10	0	23	2	10	2	0	14	121
05:30 PM	1	42	1	0	44	19	43	0	1	63	0	12	8	0	20	3	14	0	0	17	144
05:45 PM	1	21	0	0	22	9	47	2	0	58	3	16	10	0	29	1	20	2	0	23	132
Total	5	134	6	0	145	39	168	8	1	216	6	53	37	0	96	7	52	5	0	64	521
06:00 PM	1	24	0	0	25	10	44	5	0	59	1	21	15	0	37	3	14	3	0	20	141
06:15 PM	0	18	4	1	23	13	28	1	1	43	1	14	15	0	30	0	11	0	0	11	107
Grand Total	20	396	15	1	432	118	529	31	2	680	11	174	125	0	310	18	145	14	0	177	1599
Apprch %	4.6	91.7	3.5	0.2		17.4	77.8	4.6	0.3		3.5	56.1	40.3	0		10.2	81.9	7.9	0		
Total %	1.3	24.8	0.9	0.1	27	7.4	33.1	1.9	0.1	42.5	0.7	10.9	7.8	0	19.4	1.1	9.1	0.9	0	11.1	
Cars	20	388	14	1	423	114	521	31	2	668	11	171	122	0	304	18	142	13	0	173	1568
% Cars	100	98	93.3	100	97.9	96.6	98.5	100	100	98.2	100	98.3	97.6	0	98.1	100	97.9	92.9	0	97.7	98.1
Trucks (SU)	0	8	1	0	9	4	8	0	0	12	0	3	3	0	6	0	3	1	0	4	31
% Trucks (SU)	0	2	6.7	0	2.1	3.4	1.5	0	0	1.8	0	1.7	2.4	0	1.9	0	2.1	7.1	0	2.3	1.9
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

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 Rd and Greenwood Rd - AMPM NORMALIZED
 N/S: Greenwood Rd 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					Greenwood Road Northbound					Greenwood Road 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	0	8	0	0	8	1	27	0	0	28	0	6	0	0	6	0	4	0	0	4	46
07:15 AM	1	22	0	0	23	0	17	4	0	21	0	9	7	0	16	0	4	0	0	4	64
07:30 AM	1	35	0	0	36	8	23	1	0	32	1	8	10	0	19	0	7	0	0	7	94
07:45 AM	1	26	0	0	27	11	46	1	0	58	0	11	8	0	19	1	7	1	0	9	113
Total	3	91	0	0	94	20	113	6	0	139	1	34	25	0	60	1	22	1	0	24	317
08:00 AM	1	34	1	0	36	7	32	3	0	42	3	11	8	0	22	1	7	1	0	9	109
08:15 AM	1	31	1	0	33	9	55	1	0	65	0	11	4	0	15	0	8	3	0	11	124
08:30 AM	3	39	0	0	42	4	36	1	0	41	0	12	11	0	23	0	14	0	0	14	120
08:45 AM	4	23	0	0	27	4	26	3	0	33	0	18	7	0	25	4	15	3	0	22	107
Total	9	127	2	0	138	24	149	8	0	181	3	52	30	0	85	5	44	7	0	56	460
*** BREAK ***																					
04:30 PM	1	37	1	0	39	10	47	1	0	58	0	15	11	0	26	1	11	0	0	12	135
04:45 PM	3	32	2	0	37	16	64	6	0	86	0	11	9	0	20	2	11	0	0	13	156
Total	4	69	3	0	76	26	111	7	0	144	0	26	20	0	46	3	22	0	0	25	291
05:00 PM	1	36	3	0	40	7	50	5	0	62	1	16	10	0	27	1	9	1	0	11	140
05:15 PM	2	44	2	0	48	6	38	2	0	46	2	12	11	0	25	2	11	2	0	15	134
05:30 PM	1	47	1	0	49	21	48	0	1	70	0	14	9	0	23	3	16	0	0	19	161
05:45 PM	1	24	0	0	25	10	53	2	0	65	3	18	11	0	32	1	23	2	0	26	148
Total	5	151	6	0	162	44	189	9	1	243	6	60	41	0	107	7	59	5	0	71	583
06:00 PM	1	27	0	0	28	11	50	6	0	67	1	24	17	0	42	3	16	3	0	22	159
06:15 PM	0	20	5	1	26	15	32	1	1	49	1	16	17	0	34	0	12	0	0	12	121
Grand Total	22	485	16	1	524	140	644	37	2	823	12	212	150	0	374	19	175	16	0	210	1931
Apprch %	4.2	92.6	3.1	0.2		17	78.3	4.5	0.2		3.2	56.7	40.1	0		9	83.3	7.6	0		
Total %	1.1	25.1	0.8	0.1	27.1	7.3	33.4	1.9	0.1	42.6	0.6	11	7.8	0	19.4	1	9.1	0.8	0	10.9	
Cars	22	477	15	1	515	136	636	37	2	811	12	209	147	0	368	19	172	15	0	206	1900
% Cars	100	98.4	93.8	100	98.3	97.1	98.8	100	100	98.5	100	98.6	98	0	98.4	100	98.3	93.8	0	98.1	98.4
Trucks (SU)	0	8	1	0	9	4	8	0	0	12	0	3	3	0	6	0	3	1	0	4	31
% Trucks (SU)	0	1.6	6.2	0	1.7	2.9	1.2	0	0	1.5	0	1.4	2	0	1.6	0	1.7	6.2	0	1.9	1.6
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	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	203	3	31	171	6	3	45	31	2	36	5
Future Vol, veh/h	10	203	3	31	171	6	3	45	31	2	36	5
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	-	-	-2	-	-	2	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	7	1	0	0	2	0	0	3	20
Mvmt Flow	11	216	3	33	182	6	3	48	33	2	38	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	188	0	0	219	0	0	513	494	218	531	492	185
Stage 1	-	-	-	-	-	-	240	240	-	251	251	-
Stage 2	-	-	-	-	-	-	273	254	-	280	241	-
Critical Hdwy	4.1	-	-	4.17	-	-	6.7	6.12	6	7.5	6.93	6.6
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.12	-	6.5	5.93	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.12	-	6.5	5.93	-
Follow-up Hdwy	2.2	-	-	2.263	-	-	3.5	4.018	3.3	3.5	4.027	3.48
Pot Cap-1 Maneuver	1398	-	-	1321	-	-	503	503	837	436	451	805
Stage 1	-	-	-	-	-	-	789	726	-	737	678	-
Stage 2	-	-	-	-	-	-	760	717	-	709	686	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1398	-	-	1321	-	-	453	484	837	376	434	805
Mov Cap-2 Maneuver	-	-	-	-	-	-	453	484	-	376	434	-
Stage 1	-	-	-	-	-	-	782	719	-	730	659	-
Stage 2	-	-	-	-	-	-	691	697	-	630	680	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			1.2			12.3			13.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	578	1398	-	-	1321	-	-	455
HCM Lane V/C Ratio	0.145	0.008	-	-	0.025	-	-	0.101
HCM Control Delay (s)	12.3	7.6	0	-	7.8	0	-	13.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.3

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	290	7	48	202	10	6	68	48	9	66	8
Future Vol, veh/h	10	290	7	48	202	10	6	68	48	9	66	8
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	-	-	-2	-	-	2	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	2	2	0	0	2	0	0	2	0
Mvmt Flow	11	309	7	51	215	11	6	72	51	10	70	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	226	0	0	316	0	0	697	663	313	719	661	221
Stage 1	-	-	-	-	-	-	335	335	-	323	323	-
Stage 2	-	-	-	-	-	-	362	328	-	396	338	-
Critical Hdwy	4.1	-	-	4.12	-	-	6.7	6.12	6	7.5	6.92	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.12	-	6.5	5.92	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.12	-	6.5	5.92	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.018	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1354	-	-	1244	-	-	387	411	745	320	356	814
Stage 1	-	-	-	-	-	-	709	667	-	669	627	-
Stage 2	-	-	-	-	-	-	688	671	-	606	617	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1354	-	-	1244	-	-	308	388	745	245	336	814
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	388	-	245	336	-
Stage 1	-	-	-	-	-	-	702	660	-	662	598	-
Stage 2	-	-	-	-	-	-	573	639	-	498	611	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			1.5			15.5			19.2		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	471	1354	-	-	1244	-	-	342
HCM Lane V/C Ratio	0.276	0.008	-	-	0.041	-	-	0.258
HCM Control Delay (s)	15.5	7.7	0	-	8	0	-	19.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.1	0	-	-	0.1	-	-	1

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	288	5	33	208	6	6	47	33	2	38	9
Future Vol, veh/h	15	288	5	33	208	6	6	47	33	2	38	9
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	-	-	-2	-	-	2	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	7	1	0	0	2	0	0	3	20
Mvmt Flow	16	306	5	35	221	6	6	50	35	2	40	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	227	0	0	311	0	0	660	638	309	677	637	224
Stage 1	-	-	-	-	-	-	341	341	-	294	294	-
Stage 2	-	-	-	-	-	-	319	297	-	383	343	-
Critical Hdwy	4.1	-	-	4.17	-	-	6.7	6.12	6	7.5	6.93	6.6
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.12	-	6.5	5.93	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.12	-	6.5	5.93	-
Follow-up Hdwy	2.2	-	-	2.263	-	-	3.5	4.018	3.3	3.5	4.027	3.48
Pot Cap-1 Maneuver	1353	-	-	1222	-	-	408	423	748	343	367	763
Stage 1	-	-	-	-	-	-	704	663	-	695	646	-
Stage 2	-	-	-	-	-	-	722	690	-	617	612	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1353	-	-	1222	-	-	355	403	748	285	350	763
Mov Cap-2 Maneuver	-	-	-	-	-	-	355	403	-	285	350	-
Stage 1	-	-	-	-	-	-	694	654	-	685	625	-
Stage 2	-	-	-	-	-	-	645	667	-	535	603	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			1.1			14.2			15.8		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	484	1353	-	-	1222	-	-	385
HCM Lane V/C Ratio	0.189	0.012	-	-	0.029	-	-	0.135
HCM Control Delay (s)	14.2	7.7	0	-	8	0	-	15.8
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.5

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	354	11	50	288	11	10	71	50	9	69	13
Future Vol, veh/h	16	354	11	50	288	11	10	71	50	9	69	13
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	-	-	-2	-	-	2	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	2	2	0	0	2	0	0	2	0
Mvmt Flow	17	377	12	53	306	12	11	76	53	10	73	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	318	0	0	389	0	0	879	841	383	900	841	312
Stage 1	-	-	-	-	-	-	417	417	-	418	418	-
Stage 2	-	-	-	-	-	-	462	424	-	482	423	-
Critical Hdwy	4.1	-	-	4.12	-	-	6.7	6.12	6	7.5	6.92	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.12	-	6.5	5.92	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.12	-	6.5	5.92	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.018	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1253	-	-	1170	-	-	298	331	683	237	274	720
Stage 1	-	-	-	-	-	-	646	619	-	588	564	-
Stage 2	-	-	-	-	-	-	614	615	-	540	561	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1253	-	-	1170	-	-	215	307	683	168	255	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	215	307	-	168	255	-
Stage 1	-	-	-	-	-	-	635	608	-	578	533	-
Stage 2	-	-	-	-	-	-	491	581	-	429	551	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			1.2			20.3			26.1		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	1253	-	-	1170	-	-	266
HCM Lane V/C Ratio	0.374	0.014	-	-	0.045	-	-	0.364
HCM Control Delay (s)	20.3	7.9	0	-	8.2	0	-	26.1
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	1.6

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	308	7	33	214	6	7	47	33	2	38	10
Future Vol, veh/h	17	308	7	33	214	6	7	47	33	2	38	10
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	-	-	-2	-	-	2	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	7	1	0	0	2	0	0	3	20
Mvmt Flow	18	328	7	35	228	6	7	50	35	2	40	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	234	0	0	335	0	0	695	672	332	711	672	231
Stage 1	-	-	-	-	-	-	368	368	-	301	301	-
Stage 2	-	-	-	-	-	-	327	304	-	410	371	-
Critical Hdwy	4.1	-	-	4.17	-	-	6.7	6.12	6	7.5	6.93	6.6
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.12	-	6.5	5.93	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.12	-	6.5	5.93	-
Follow-up Hdwy	2.2	-	-	2.263	-	-	3.5	4.018	3.3	3.5	4.027	3.48
Pot Cap-1 Maneuver	1345	-	-	1197	-	-	388	406	728	324	349	756
Stage 1	-	-	-	-	-	-	683	647	-	689	641	-
Stage 2	-	-	-	-	-	-	715	686	-	595	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1345	-	-	1197	-	-	334	386	728	268	332	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	334	386	-	268	332	-
Stage 1	-	-	-	-	-	-	672	637	-	678	619	-
Stage 2	-	-	-	-	-	-	636	663	-	514	584	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			1.1			14.7			16.4		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	463	1345	-	-	1197	-	-	370
HCM Lane V/C Ratio	0.2	0.013	-	-	0.029	-	-	0.144
HCM Control Delay (s)	14.7	7.7	0	-	8.1	0	-	16.4
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.5

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	332	226	5	0	7
Future Vol, veh/h	0	332	226	5	0	7
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	87	87	87	87	87	87
Heavy Vehicles, %	2	1	1	2	2	2
Mvmt Flow	0	382	260	6	0	8
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	-	263
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	776
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	776
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	9.7			
HCM LOS				A		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	776		
HCM Lane V/C Ratio	-	-	-	0.01		
HCM Control Delay (s)	-	-	-	9.7		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	0		

Intersection

Int Delay, s/veh 0.9

Movement EBL EBT WBT WBR SBL SBRLane Configurations 

Traffic Vol, veh/h 5 308 230 3 24 13

Future Vol, veh/h 5 308 230 3 24 13

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, % - 4 1 - 0 -

Peak Hour Factor 87 87 87 87 87 87

Heavy Vehicles, % 2 1 1 2 2 2

Mvmt Flow 6 354 264 3 28 15

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 267 0 - 0 632 266

Stage 1 - - - - 266 -

Stage 2 - - - - 366 -

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 1297 - - - 444 773

Stage 1 - - - - 779 -

Stage 2 - - - - 702 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1297 - - - 441 773

Mov Cap-2 Maneuver - - - - 441 -

Stage 1 - - - - 774 -

Stage 2 - - - - 702 -

Approach EB WB SB

HCM Control Delay, s 0.1 0 12.6

HCM LOS B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1297 - - - 519

HCM Lane V/C Ratio 0.004 - - - 0.082

HCM Control Delay (s) 7.8 0 - - 12.6

HCM Lane LOS A A - - B

HCM 95th %tile Q(veh) 0 - - - 0.3

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	366	12	50	308	11	12	71	50	9	69	15
Future Vol, veh/h	17	366	12	50	308	11	12	71	50	9	69	15
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	-	-	-2	-	-	2	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	1	0	2	2	0	0	2	0	0	2	0
Mvmt Flow	18	389	13	53	328	12	13	76	53	10	73	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	340	0	0	402	0	0	917	878	396	936	878	334
Stage 1	-	-	-	-	-	-	432	432	-	440	440	-
Stage 2	-	-	-	-	-	-	485	446	-	496	438	-
Critical Hdwy	4.1	-	-	4.12	-	-	6.7	6.12	6	7.5	6.92	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	5.12	-	6.5	5.92	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	5.12	-	6.5	5.92	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.5	4.018	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1230	-	-	1157	-	-	282	316	672	223	260	699
Stage 1	-	-	-	-	-	-	636	611	-	571	550	-
Stage 2	-	-	-	-	-	-	599	603	-	529	551	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1230	-	-	1157	-	-	199	292	672	155	241	699
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	292	-	155	241	-
Stage 1	-	-	-	-	-	-	624	599	-	560	519	-
Stage 2	-	-	-	-	-	-	474	569	-	418	541	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			1.1			21.9			27.9		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	352	1230	-	-	1157	-	-	254
HCM Lane V/C Ratio	0.402	0.015	-	-	0.046	-	-	0.39
HCM Control Delay (s)	21.9	8	0	-	8.3	0	-	27.9
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.9	0	-	-	0.1	-	-	1.8

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	395	320	15	0	4
Future Vol, veh/h	0	395	320	15	0	4
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	91	91	91	91	91	91
Heavy Vehicles, %	2	1	2	2	2	2
Mvmt Flow	0	434	352	16	0	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	360
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	684
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	684
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	684
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	-	-	-	10.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	19	381	315	9	14	8
Future Vol, veh/h	19	381	315	9	14	8
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, %	-	4	1	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	1	2	2	2	2
Mvmt Flow	21	419	346	10	15	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	356	0	-	0	812 351
Stage 1	-	-	-	-	351 -
Stage 2	-	-	-	-	461 -
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	1203	-	-	-	348 692
Stage 1	-	-	-	-	713 -
Stage 2	-	-	-	-	635 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1203	-	-	-	340 692
Mov Cap-2 Maneuver	-	-	-	-	340 -
Stage 1	-	-	-	-	697 -
Stage 2	-	-	-	-	635 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1203	-	-	-	417
HCM Lane V/C Ratio	0.017	-	-	-	0.058
HCM Control Delay (s)	8	0	-	-	14.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2