



TRAFFIC IMPACT STUDY

**NEW MARKET EAST WAREHOUSE
FREDERICK COUNTY, MARYLAND
MAY 27, 2022**

**PREPARED FOR:
KCI TECHNOLOGIES, INC.**

**PREPARED BY:
TRAFFIC CONCEPTS, INC.
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INTRODUCTION

Traffic Concepts, Inc. has prepared a traffic impact study for the New Market East Warehouse project. The site is located on the south side of Baldwin Road and east of MD 75 (Green Valley Road) (Tax Map 0088/ Parcel 0180). Exhibit 1 depicts the site location. The site is zoned ORI, LI, R-5 and is currently used for agricultural purposes.

Project Description

The developer proposes to construct a 1,386,880 gsf warehouse/ distribution center. As shown on the site plan, two full-movement access points are proposed onto Baldwin Road. The site plan, included in Appendix VI, designates the west access as the truck entrance and the east access as the employee/guest entrance.

Scope of Services

The scope of services was developed by Frederick County and lists the key intersections and study methodology, the trip generation, and the trip distribution and assignment patterns for both passenger cars and trucks. The scope of services is included in Appendix VI.

Key Intersections & Study Methodology

The key intersections and the intersection methodology listed below were analyzed during the weekday peak hours from 6 AM to 9 AM and 3 PM to 6 PM.

Signalized Intersections:

- i. MD 75 at MD 80 (west)
- ii. MD 75 at I-70 EB Ramps
- iii. MD 75 at I-70 WB Ramps
- iv. MD 75 at Old National Pike
- v. Old National Pike at Boyers Mill Road
- vi. Old National Pike @ Morning Gate Lane
- vii. Old National Pike @ CVS/Food Lion Access
- viii. Meadow Road at I-70 WB Ramps*
- ix. Old National Pike at I-70 EB Ramps (if open to traffic)*

* This intersection was under construction. Several movements were closed and a maintenance of traffic plan was enforced.

Analysis Methodology: CLV (SHA Method) & 95% Queues (HCM if mitigation is proposed)

Unsignalized Intersections:

- x. MD 75 at Baldwin Road East**
- xi. MD 75 at Baldwin Road West
- xii. Old National Pike at Meadow Road

Analysis Methodology: HCM Un-signalized Analysis (if > 30 site trips on non-free flowing approaches)

**HCM software does not model the 3-way stop control conditions at this intersection.

Trip Generation

The proposed new site trips were generated with land use data contained in the Institute of Transportation Engineers, Trip Generation Manual, 11th Edition (ITE). The ITE land-use utilized in the study to represent the proposed warehouse is as High-Cube Fulfillment Center Warehouse (non-sort) with the land use code 155.

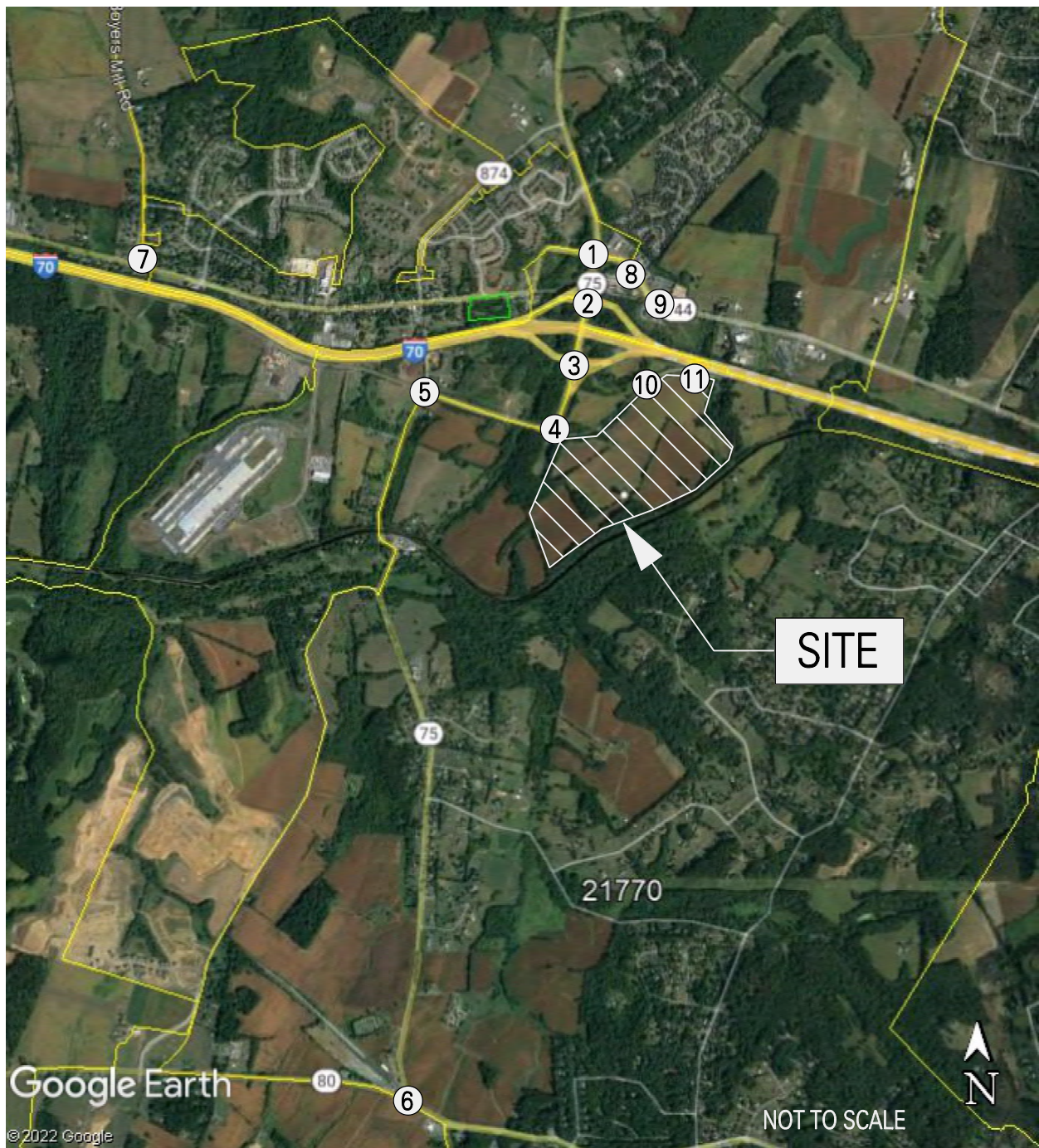
Trip Distribution

- a. Truck Trips
 - i. I-70 from the east 50%
 - ii. I-70 from the west 50%
- b. Passenger Car Trips
 - i. I-70
 - 1. 35% westbound traffic
 - 2. 25% eastbound traffic
 - ii. MD 144
 - 1. 10% from the west
 - 2. 5% from the east
 - iii. MD 75
 - 1. 10% from the north
 - 2. 15% from the south

Study Conditions

The study was conducted in three conditions that includes an existing, background, and future traffic condition. The background and the future site generated trips were determined with data contained in the ITE Trip Generation Manual, 11th Edition. The total future traffic volumes are described with the following formula:

$$\text{Total Future Traffic} = (\text{Existing Traffic} + \text{Growth in Existing Traffic} + \text{Approved Development Traffic} + \text{Site Generated Traffic})$$



Key Intersections:

- | | |
|--|--|
| 1 - MD 75 (Green Valley Rd) @ MD 144 (Old National Pike) | 7 - MD 144 (Old National Pike) @ Boyers Mill Road |
| 2 - MD 75 (Green Valley Rd) @ I-70 Westbound Ramps | 8 - MD 144 (Old National Pike) @ Morning Gate Road |
| 3 - MD 75 (Green Valley Rd) @ I-70 Eastbound Ramps | 9 - MD 144 (Old National Pike) @ Food Lion / CVS |
| 4 - MD 75 (Green Valley Rd) @ Baldwin Rd E/ Park & Ridge | 10 - Baldwin Road E @ Proposed Truck Access |
| 5 - MD 75 (Green Valley Rd) @ Baldwin Rd W | 11 - Baldwin Road E @ Proposed Car Access |
| 6 - MD 75 (Green Valley Rd) @ MD 80 (Fingerboard Rd) | |

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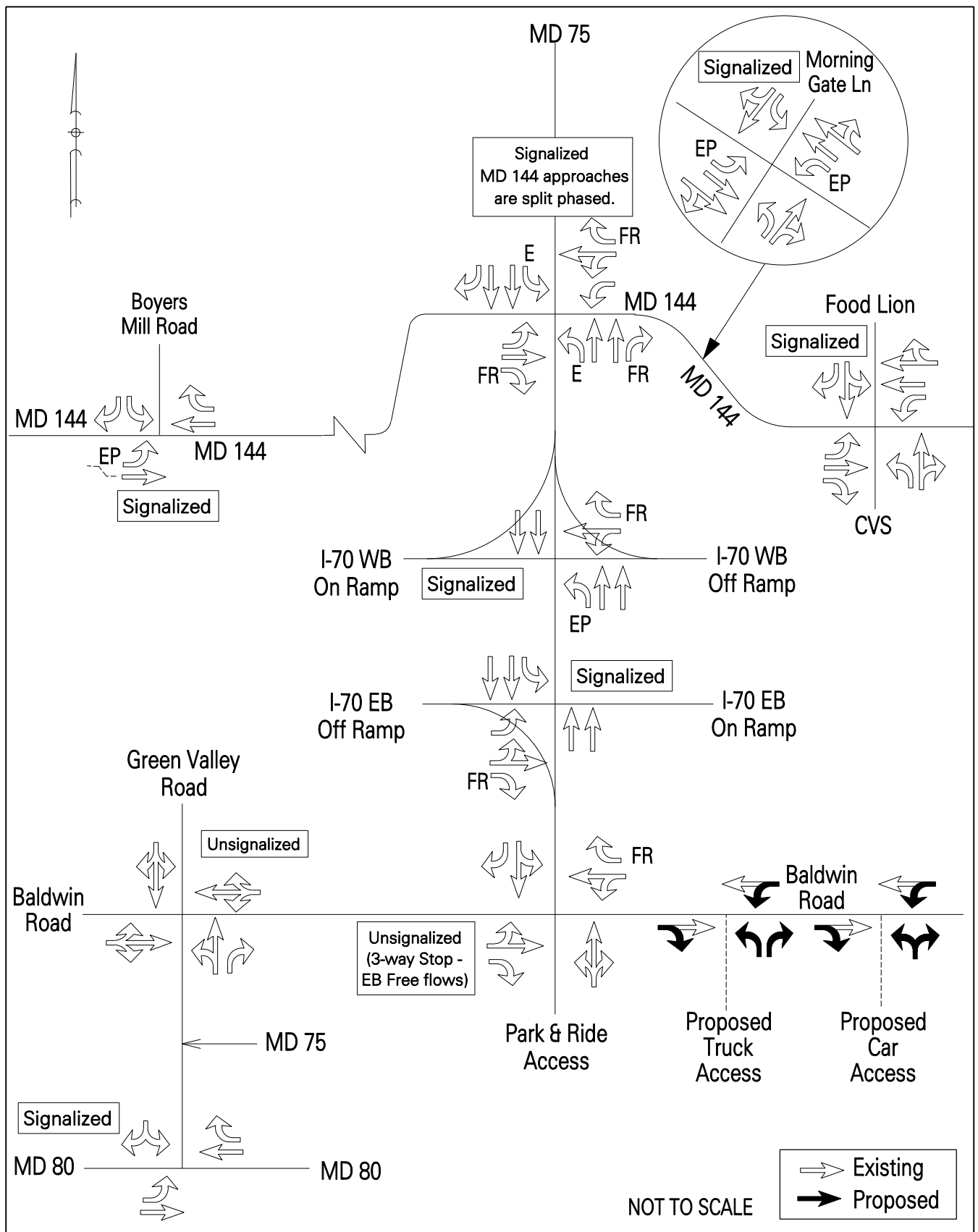
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EXHIBIT 1
Site Location

EXISTING CONDITION

The existing traffic condition is generated with intersection turning movement counts that were conducted at the key intersections during April of 2022. The existing intersection turning movements are needed to establish the baseline intersection levels of service.

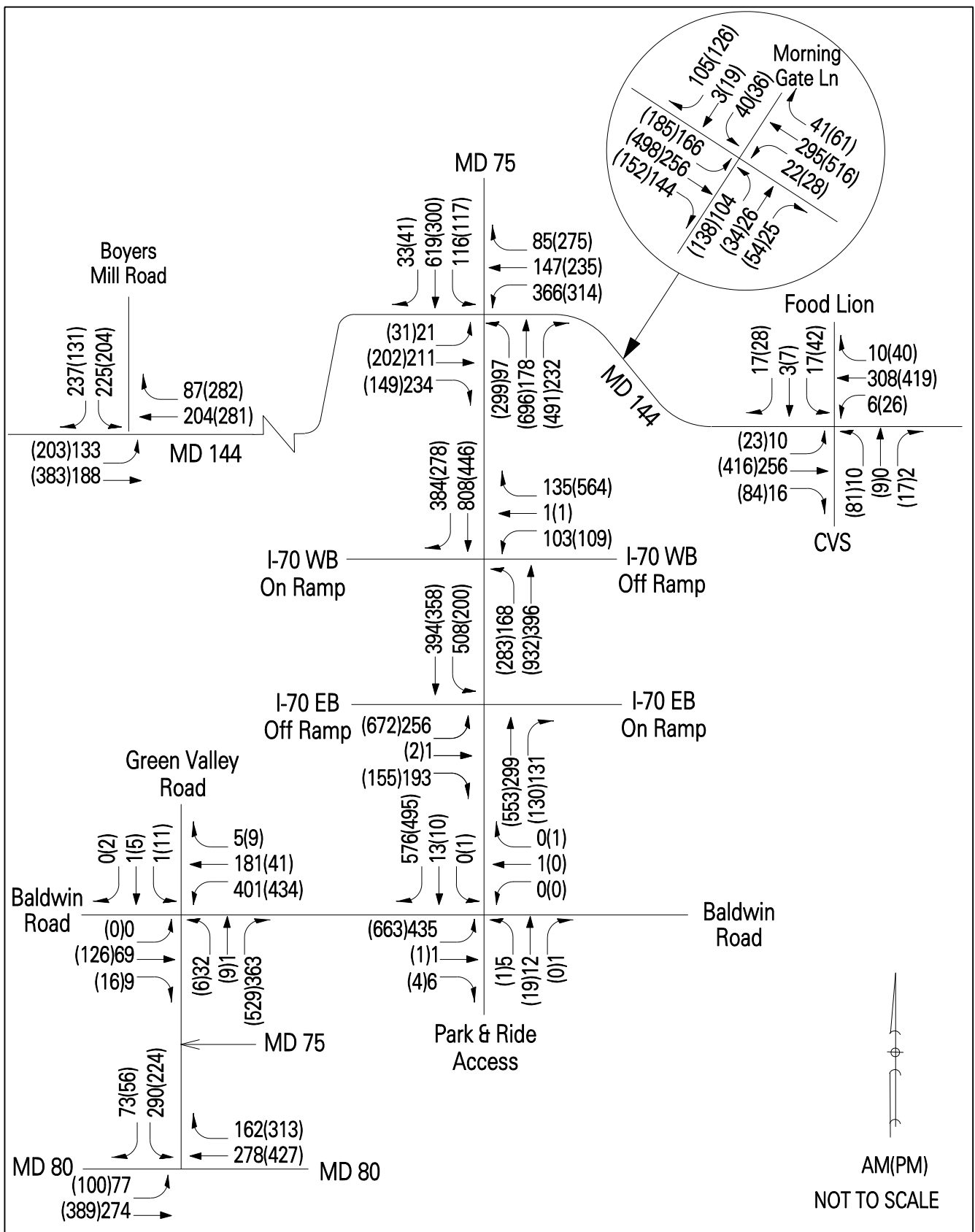
The lane use configurations at the key intersections are shown on Exhibit 2 and aerial exhibits are included in Appendix III. The existing intersection counts are provided in Appendix III and the peak hour counts are shown on Exhibit 3.



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EXHIBIT 2

Lane Configuration



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EXHIBIT 3

Existing Traffic Volumes

BACKGROUND CONDITION

The background traffic condition includes a regional growth rate that is compounded over the project build-out period and the approved nearby background developments.

Regional Traffic Growth

As required by the County, a one percent regional growth rate was applied to all arterial roadways located within the study area over the planned three-year project build-out period. The base 2025 traffic volumes are shown on Exhibit 4.

Background Developments

The following background developments are outlined in the County scoping agreement. The peak hour trips and the distribution patterns generated by the following projects were taken directly from their respective approved traffic impact studies.

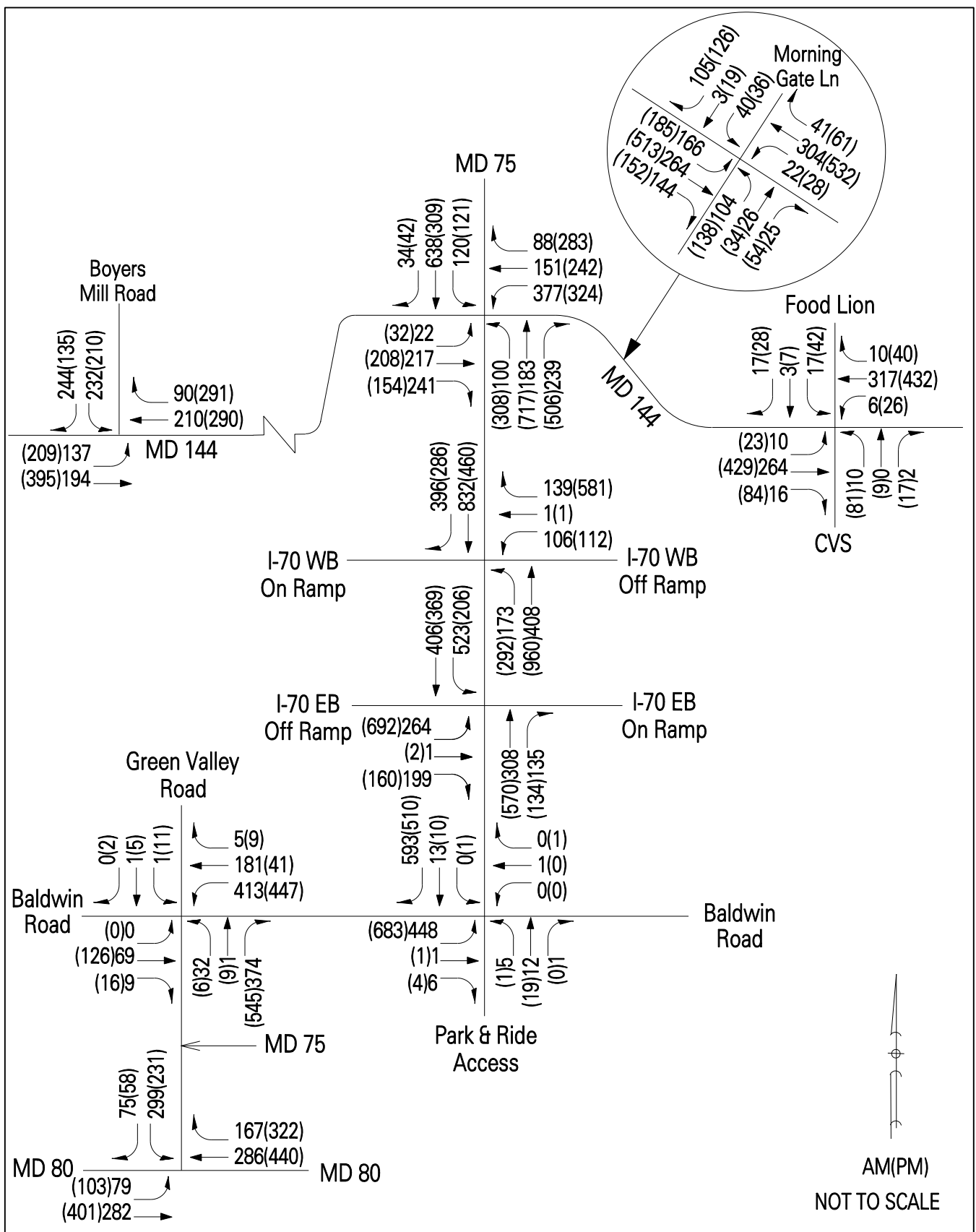
1. Eaglehead (Alpine, Hamptons West, Hamptons East, Town Center, Westridge, Woodridge, Eaglestream, Nightingale, Aspen)
2. Oakdale Village – remaining commercial lot (daycare)*
3. Marley Commons
4. Royal Oaks
5. LTC South Commercial
6. 105/113 West Main, New Market

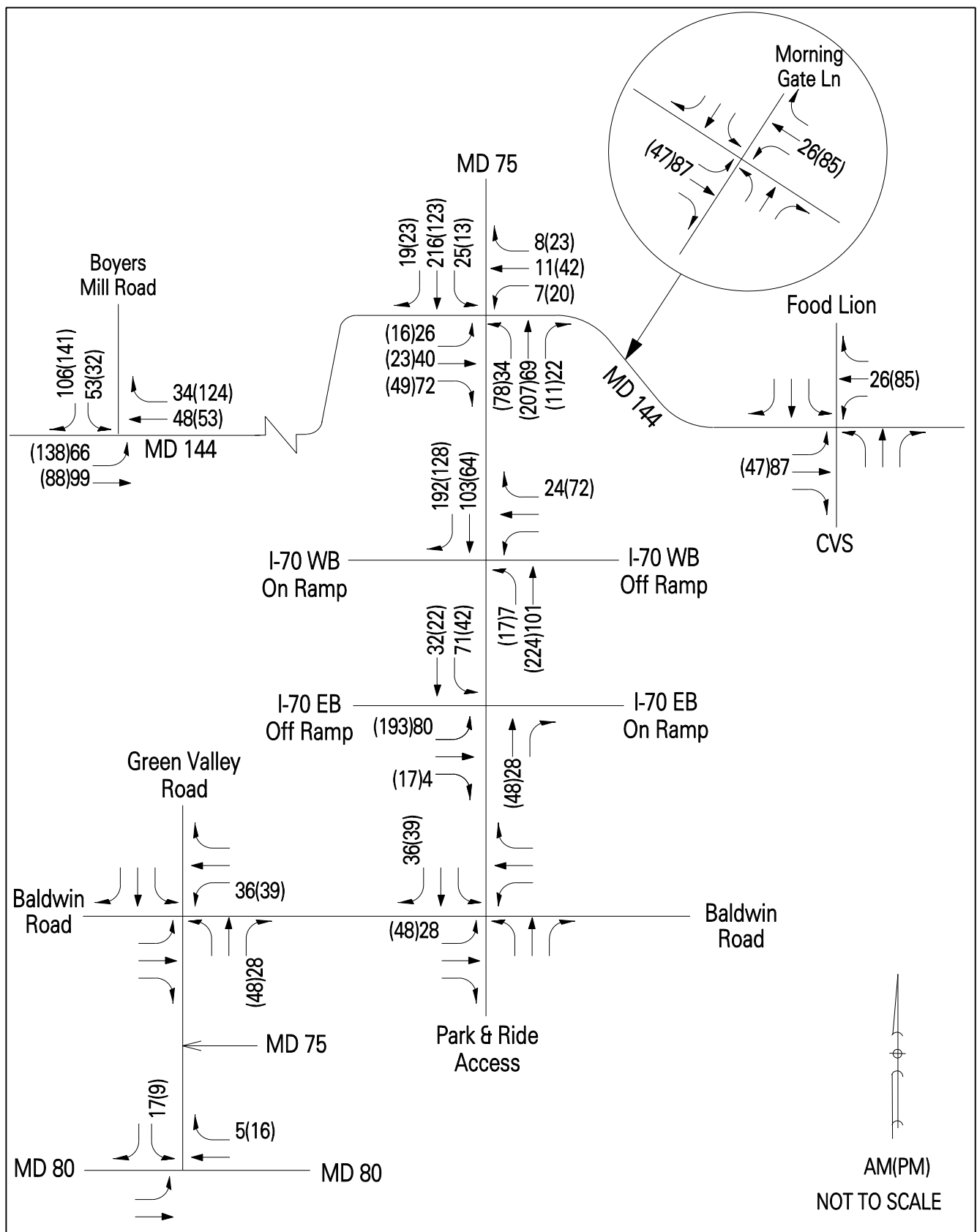
*This site was operating since 2021, therefore trips are included in the traffic counts.

The background trip distribution and assignment patterns are provided in Appendix IV.

The combined background development peak hour trips are shown on Exhibit 5.

The total background traffic volumes, as depicted on Exhibit 6, were determined by summing the base 2025 traffic volumes (Exhibit 4) with traffic generated by the background developments (Exhibit 5).

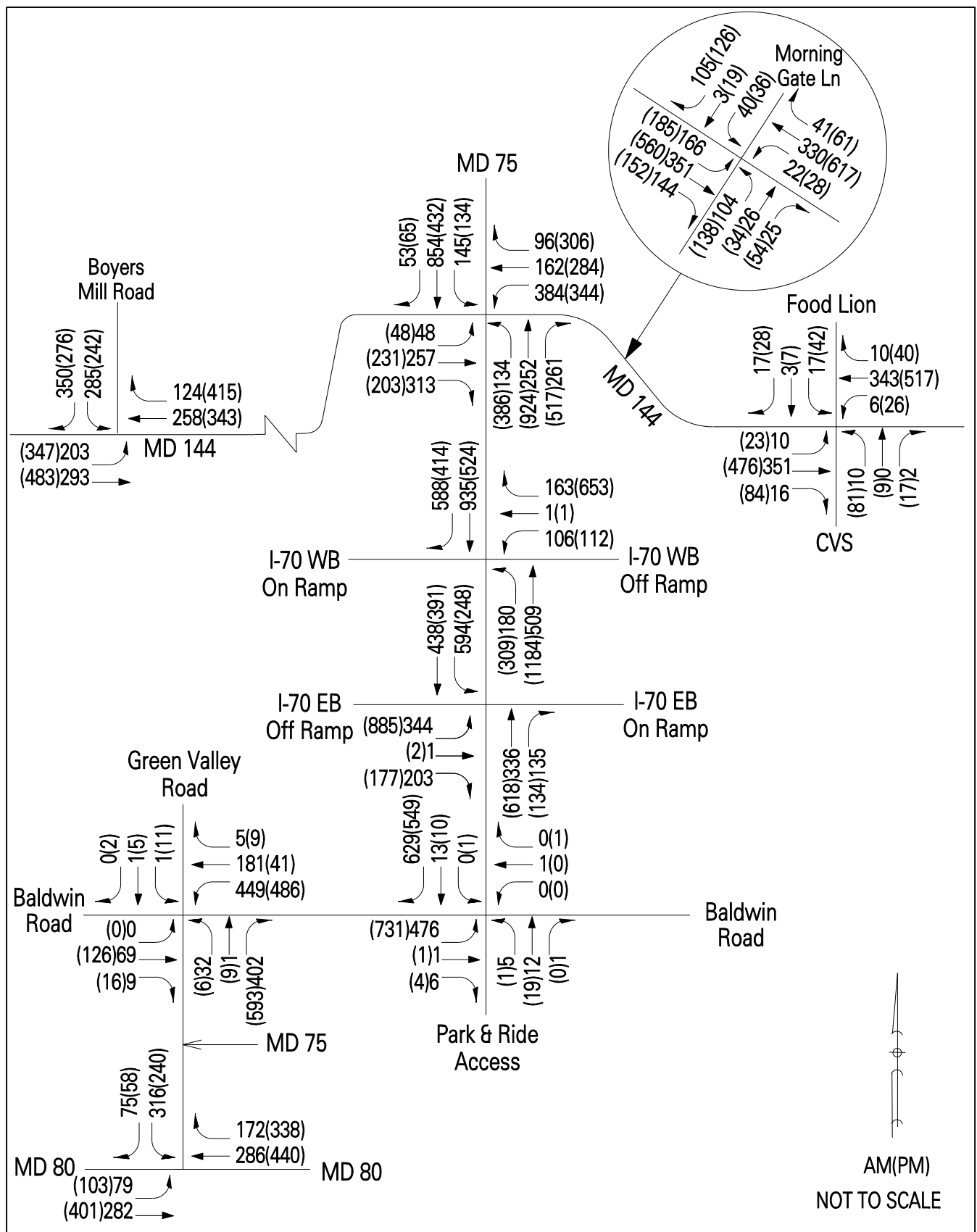




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EXHIBIT 5

Background Traffic Volumes



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EXHIBIT 6
Total Background Traffic Volumes (2025)

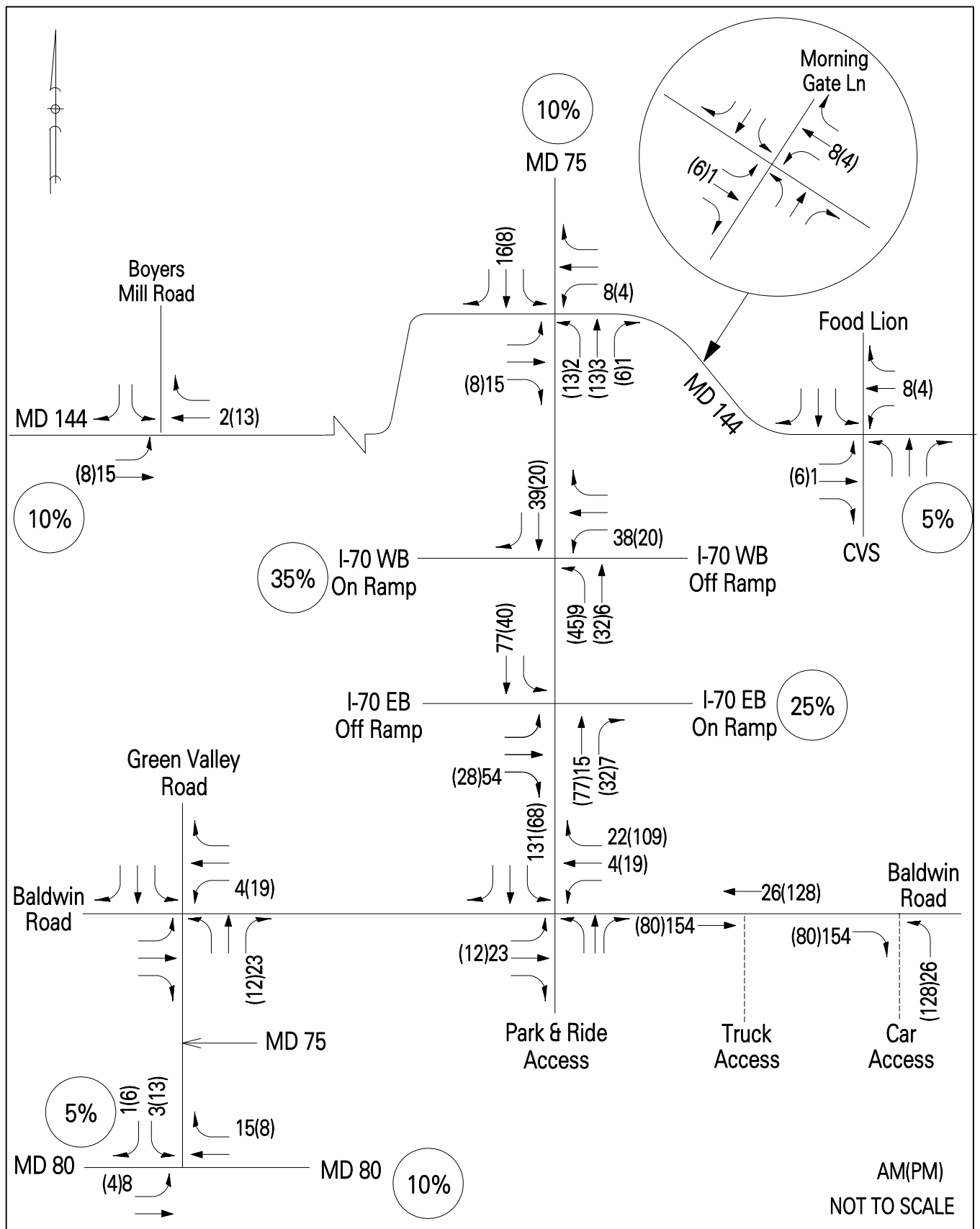
FUTURE CONDITION

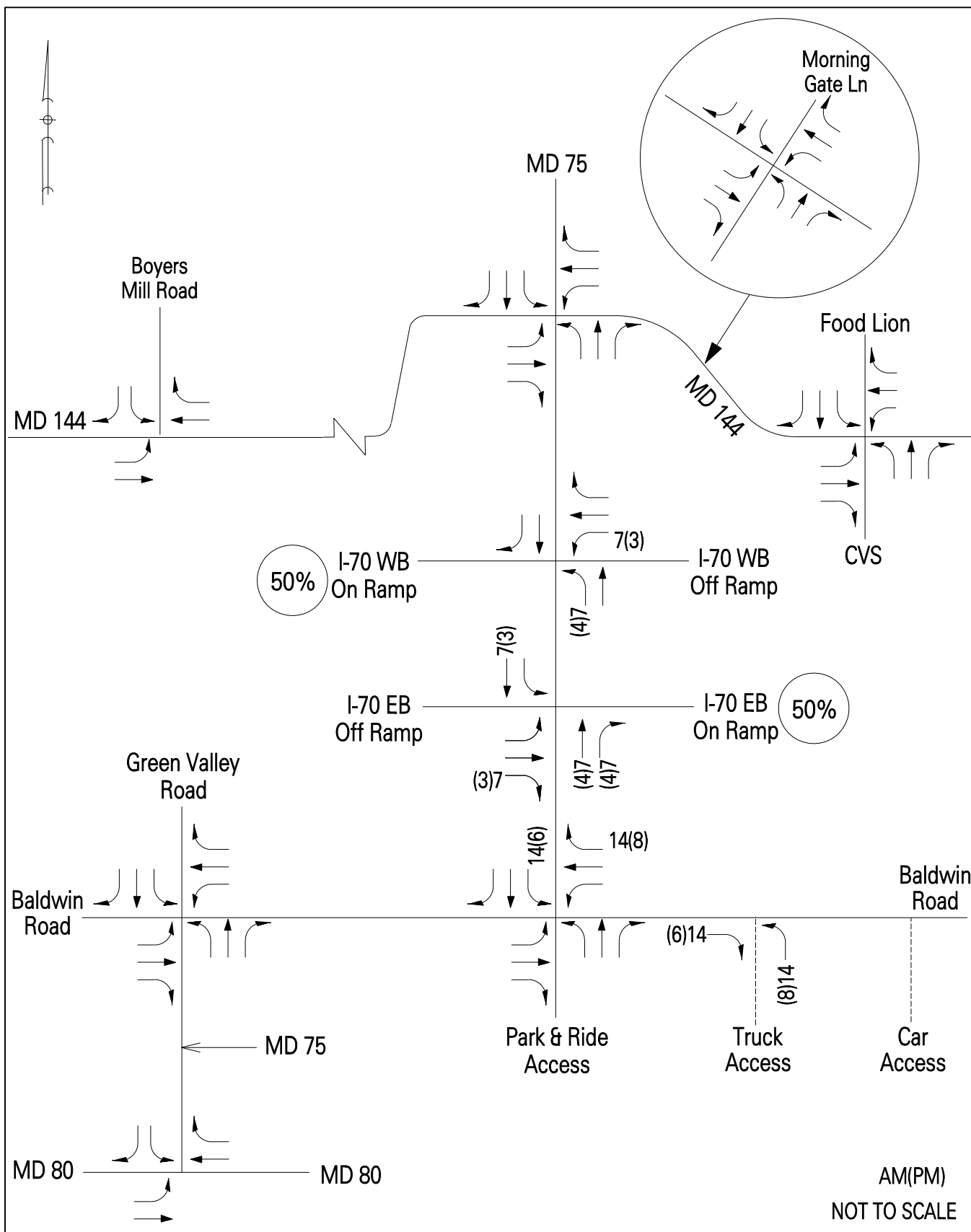
As stated, the developer proposes to construct a 1,386,880 s.f. warehouse/distribution center. As directed by the County, the weekday peak hour trips for this project were generated with the following rates from the *ITE, trip Generation Manual, 11th Edition*. Detailed ITE data is included in VI.

TABLE 1 - SITE GENERATED PEAK HOUR TRIPS

	AM		PM	
	<u>IN</u>	<u>OUT</u>	<u>IN</u>	<u>OUT</u>
(155) High-Cube Fulfillment Center Warehouse - Non-Sort				
1,386,880 gsf	168	40	86	136
Passenger Vehicles	154	26	80	128
Trucks Trips	14	14	6	8

The County approved distribution and assignment patterns for the passenger vehicles and trucks are shown on Exhibits 7 and 8, respectively. The site generated trips were then added to the total background traffic volumes to obtain the total future traffic volumes, as shown on Exhibit 9.

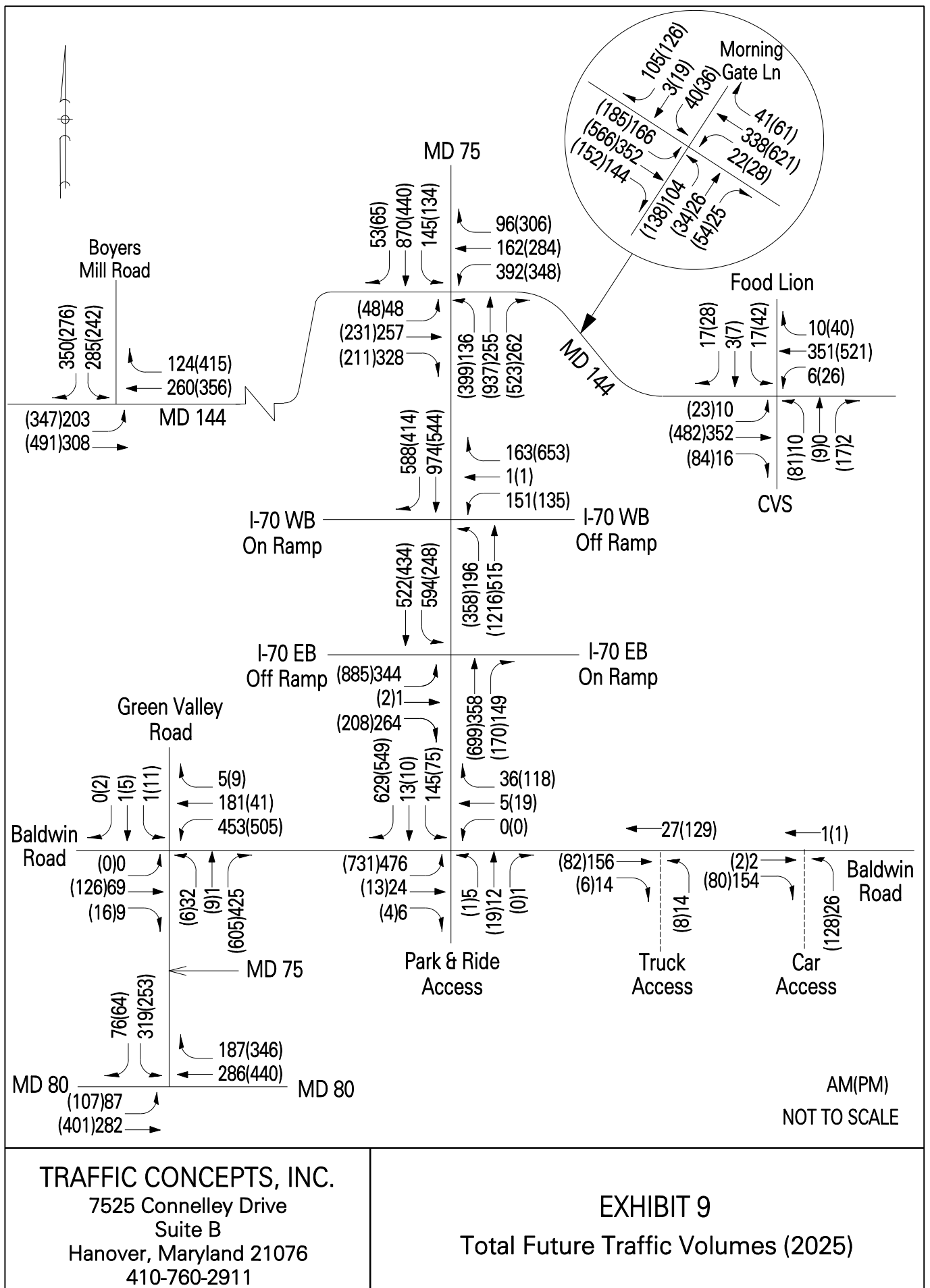




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EXHIBIT 8

Site Generated Traffic - Trucks



INTERSECTION CAPACITY ANALYSIS

The key intersections were analyzed during the existing, background, and future traffic conditions using the following methodologies. All intersections were analyzed using the Critical Lane Volume (CLV) method and the proposed site access intersections were analyzed with the Highway Capacity Manual (HCM) method. The results are listed in the following tables and the detailed calculations are included in Appendix I.

TABLE 2 - CRITICAL LANE VOLUME ANALYSIS			
AM PEAK HOUR			
KEY INTERSECTIONS	EXISTING CLV / LOS	BACKGROUND CLV / LOS	FUTURE CLV / LOS
MD 75 @ MD 144 (Old National Pike)	930 / A	1161 / C	1177 / C
MD 75 @ I-70 Westbound Ramps	706 / A	801 / A	884 / A
MD 75 @ I-70 Eastbound Ramps	813 / A	969 / A	981 / A
MD 75 @ MD 80	718 / A	756 / A	768 / A
MD 75 @ E Baldwin Road/Park & Ride	499 / A	544 / A	712 / A
MD 75 @ W Baldwin Road	664 / A	717 / A	717 / A
MD 144 @ Boyers Mill Road	562 / A	746 / A	748 / A
MD 144 @ Morning Gate Lane	563 / A	582 / A	586 / A
MD 144 @ Food Lion / CVS	294 / A	389 / A	390 / A
E Baldwin Road @ Truck Site Access	-	-	184 / A
E Baldwin Road @ Car Site Access	-	-	182 / A
PM PEAK HOUR			
KEY INTERSECTIONS	EXISTING CLV / LOS	BACKGROUND CLV / LOS	FUTURE CLV / LOS
MD 75 @ MD 144 (Old National Pike)	1004 / B	1218 / C	1228 / C
MD 75 @ I-70 Westbound Ramps	638 / A	764 / A	805 / A
MD 75 @ I-70 Eastbound Ramps	875 / A	1076 / B	1120 / B
MD 75 @ MD 80	797 / A	841 / A	864 / A
MD 75 @ E Baldwin Road/Park & Ride	751 / A	826 / A	912 / A
MD 75 @ W Baldwin Road	682 / A	746 / A	765 / A
MD 144 @ Boyers Mill Road	688 / A	932 / A	945 / A
MD 144 @ Morning Gate Lane	785 / A	841 / A	843 / A
MD 144 @ Food Lion / CVS	576 / A	636 / A	642 / A
E Baldwin Road @ Truck Site Access	-	-	137 / A
E Baldwin Road @ Car Site Access	-	-	210 / A

TABLE 3 - HIGHWAY CAPACITY MANUAL: STOP CONTROL			
AM PEAK HOUR			
KEY INTERSECTIONS	EXISTING Delay / LOS	BACKGROUND Delay / LOS	FUTURE Delay / LOS
Baldwin Rd @ Truck Access			
WB – Left/Thru – Baldwin	-	-	7.6 / A
NB – Left & Right	-	-	11.1 / B
Baldwin Rd @ Car Access			
WB – Left/Thru – Baldwin	-	-	7.5 / A
NB – Left/Right	-	-	9.1 / A
PM PEAK HOUR			
KEY INTERSECTIONS	EXISTING Delay / LOS	BACKGROUND Delay / LOS	FUTURE Delay / LOS
Baldwin Rd @ Truck Access			
WB – Left/Thru – Baldwin	-	-	7.4 / A
NB – Left & Right	-	-	11.3 / B
Baldwin Rd @ Car Access			
WB – Left/Thru – Baldwin	-	-	7.4 / A
NB – Left/Right	-	-	9.4 / A

QUEUING ANALYSIS

Queuing analyses were conducted for all dedicated left turn movements at the signalized key intersections using the MDOT SHA 95th Percentile Back-of-Queue methodology. The results are summarized in the following table. The MDOT SHA queuing analysis calculations are included in Appendix III.

TABLE 4 – QUEUING ANALYSIS RESULTS					
	EXISTING 95 TH Percentile Queue (ft) AM(PM)	BACKGROUND 95 TH Percentile Queue (ft) AM(PM)	FUTURE 95 TH Percentile Queue (ft) AM(PM)	Storage (ft)	SITE ADDS (ft)
MD 75 @ MD 144					
EB Left – MD 144	25(36)	56(56)	56(56)	200	*
WB L & L/Thru	329(353)	350(403)	355(406)	Continuous	*
NB Left – MD 75	113(349)	156(450)	159(466)	275	16
SB Left – MD 75	135(137)	169(156)	169(156)	425	*
MD 75 @ I-70 WB Ramps					
WB Left/Thru	121(128)	125(132)	177(159)	Continuous	*
NB Left – MD 75	196(330)	210(361)	229(418)	250	57
MD 75 @ I-70 EB Ramps					
EB Left & Left/Thru	165(432)	221(569)	221(569)	Continuous	*
SB Left – MD 75	593(233)	693(289)	693(289)	225	0
MD 75 @ MD 80					
EB Left – MD 75	90(117)	92(120)	102(125)	150	*
SB L & R – MD 80	424(327)	456(348)	461(370)	Continuous	*
MD 144 @ Boyers Mill					
EB Left – MD 144	155(237)	237(405)	237(405)	150	0
SB Left	263(238)	333(282)	333(282)	450	*
*This lane has adequate storage.					

CONCLUSIONS AND RECOMMENDATIONS

The CLV and the HCM intersection analysis results determined that all key intersections would continue to operate at acceptable “C” or better levels of service upon the build-out of the New Market East warehouse/distribution center.

The queuing analyses conducted with the MDOT SHA methodology determined adequate storage at the signalized left turn bays with the exception of the northbound MD 75 left turn lane onto the westbound I-70 ramp.

MD 75 at I-70 Westbound Ramps – NB MD 75 Left Turn Bay

The northbound MD 75 left turn lane to westbound I-70 ramp is 250 feet. The MDOT SHA queue method indicates the future PM queue extends beyond the existing 250-foot turn bay. The proposed site would add 57 feet or approximately 2 vehicles to this queue during the PM peak hour.

Therefore, the future PM peak hour volume was analyzed using the HCM 95th Percentile Back-of-Queue, Signalized method with field-measured signal timing. The northbound MD 75 (PM future) left turn queue is 113 feet and is contained within the available 250-foot left turn bay.

Additionally, our field observations at this intersection during the PM peak hour revealed all traffic movements cleared the intersection during each signal cycle. We also observed adequate storage along the left turn storage bays. The future PM queuing and level of service results are shown below and the HCM worksheet is included on the following page.

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)					173.8		112.8	221.8			189.3	
Back of Queue (Q), veh/ln (95 th percentile)					6.8		4.4	8.7			7.4	
Level of Service (LOS)					D	A	A	A			B	
Approach Delay, s/veh / LOS	0.0			7.5		A	6.7		A	15.4		B
Intersection Delay, s/veh / LOS	8.6						A					

Based on the adequate study findings, we respectfully request approval of this project from a traffic impact standpoint.

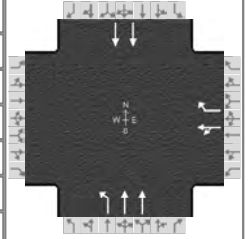
HCS7 Signalized Intersection Results Summary

General Information

Agency	Traffic Concepts, Inc.
Analyst	J. Carey
Jurisdiction	Frederick Co, MD
Urban Street	
Intersection	MD 75 at I-70 WB Ramps
Project Description	3877

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.95
Analysis Period	1> 4:30
File Name	MD 75 at I-70 WB -Future PM.xus



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				135	1	653	358	1216			544	

Signal Information

Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	20.0	63.0	20.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	5.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	2.0	1.0	0.0	0.0	0.0			

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		8.3
Phase Duration, s				25.0	25.0	95.0		70.0
Change Period, (Y+R c), s				5.0	5.0	7.0		7.0
Max Allow Headway (MAH), s				3.3	3.0	0.0		0.0
Queue Clearance Time (g s), s				24.0	10.4			
Green Extension Time (g e), s				0.0	0.5	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				1.00	0.01			

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	
Adjusted Flow Rate (v), veh/h				143	687		377	1280			573	
Adjusted Saturation Flow Rate (s), veh/h/ln				1839			1767	1766			1766	
Queue Service Time (g s), s				8.3			8.4	17.0			10.6	
Cycle Queue Clearance Time (g c), s				8.3			8.4	17.0			10.6	
Green Ratio (g/C)				0.18			0.74	0.75			0.54	
Capacity (c), veh/h				337			761	2650			1914	
Volume-to-Capacity Ratio (X)				0.425			0.495	0.483			0.299	
Back of Queue (Q), ft/ln (95 th percentile)				173.8			112.8	221.8			189.3	
Back of Queue (Q), veh/ln (95 th percentile)				6.8			4.4	8.7			7.4	
Queue Storage Ratio (RQ) (95 th percentile)				0.00			0.45	0.00			0.00	
Uniform Delay (d 1), s/veh				43.4			6.3	6.2			15.0	
Incremental Delay (d 2), s/veh				0.3			0.2	0.6			0.4	
Initial Queue Delay (d 3), s/veh				0.0			0.0	0.0			0.0	
Control Delay (d), s/veh				43.7	0.0		6.5	6.8			15.4	
Level of Service (LOS)					D	A	A	A			B	
Approach Delay, s/veh / LOS	0.0			7.5		A	6.7		A	15.4		B
Intersection Delay, s/veh / LOS				8.6					A			

Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

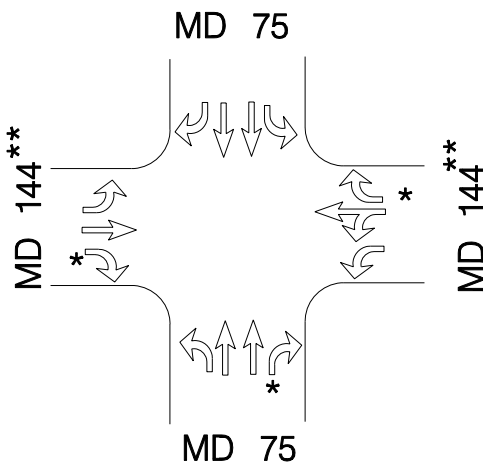
APPENDIX I

**CRITICAL LANE VOLUME
CALCULATIONS**

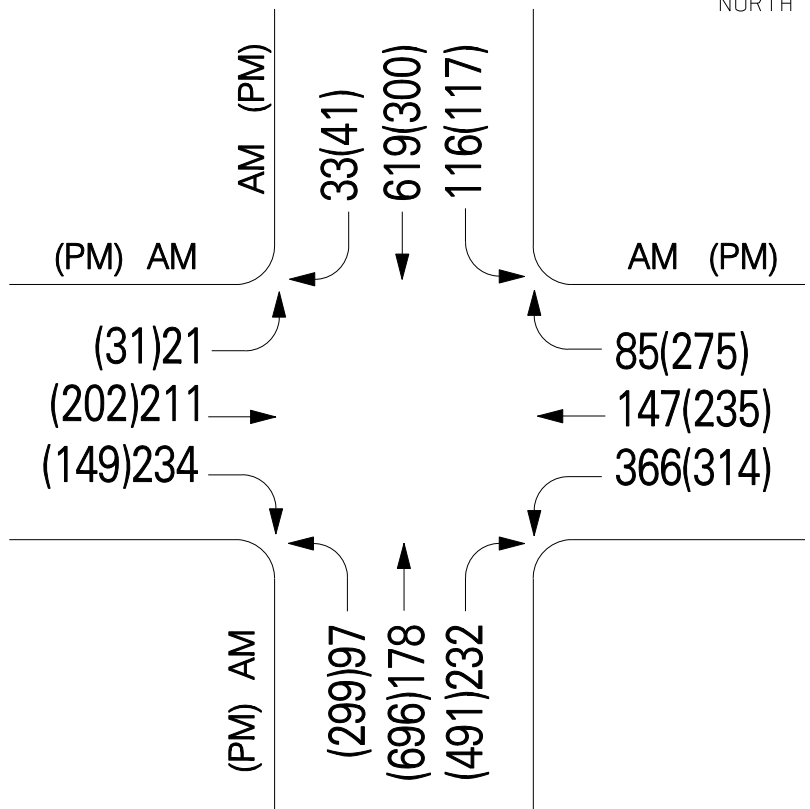
LANE CONFIGURATION

* FREE RIGHT

** SPLIT PHASED



TRAFFIC VOLUMES



		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =								CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	178	*	0.55	+	116	*	1	=	214	A 930
	SB	619	*	0.55	+	97	*	1	=	437*	
	EB	211	*	1					=	211*	
	WB	(366 + 147) * 0.55				=				282*	
PM	NB	696	*	0.55	+	117	*	1	=	500*	B 1004
	SB	300	*	0.55	+	299	*	1	=	464	
	EB	202	*	1					=	202*	
	WB	(314 + 235) * 0.55				=				302*	

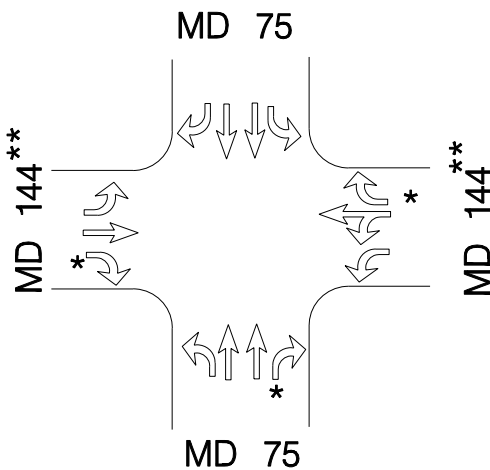
CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: EXISTING

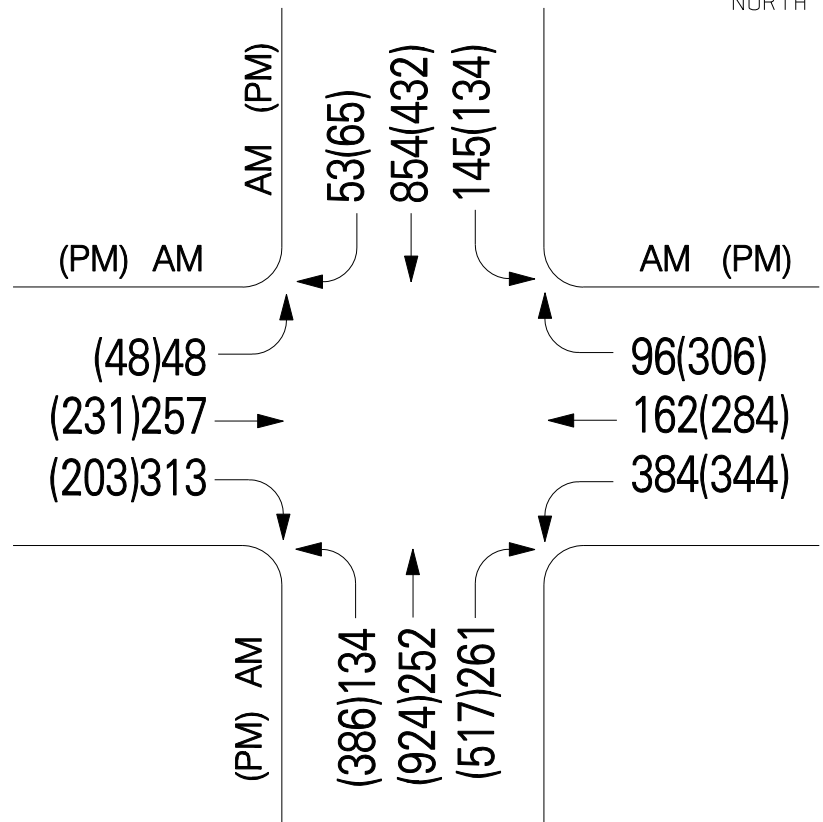
LANE CONFIGURATION

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** SPLIT PHASED



TRAFFIC VOLUMES



		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =								CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	252	*	0.55	+	145	*	1	=	284	C 1161
	SB	854	*	0.55	+	134	*	1	=	604*	
	EB	257	*	1					=	257*	
	WB	(384 + 162) * 0.55 =								300*	
PM	NB	924	*	0.55	+	134	*	1	=	642*	C 1218
	SB	432	*	0.55	+	386	*	1	=	624	
	EB	231	*	1					=	231*	
	WB	(344 + 284) * 0.55 =								345*	

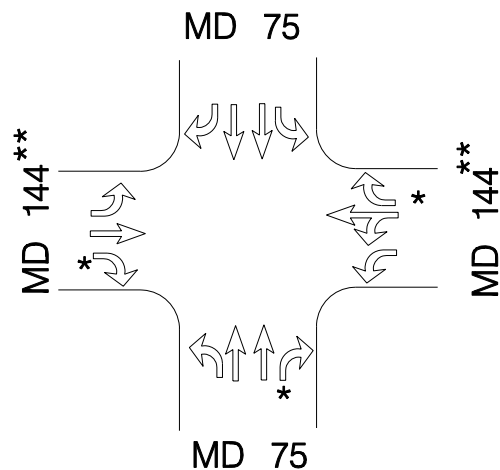
CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: BACKGROUND

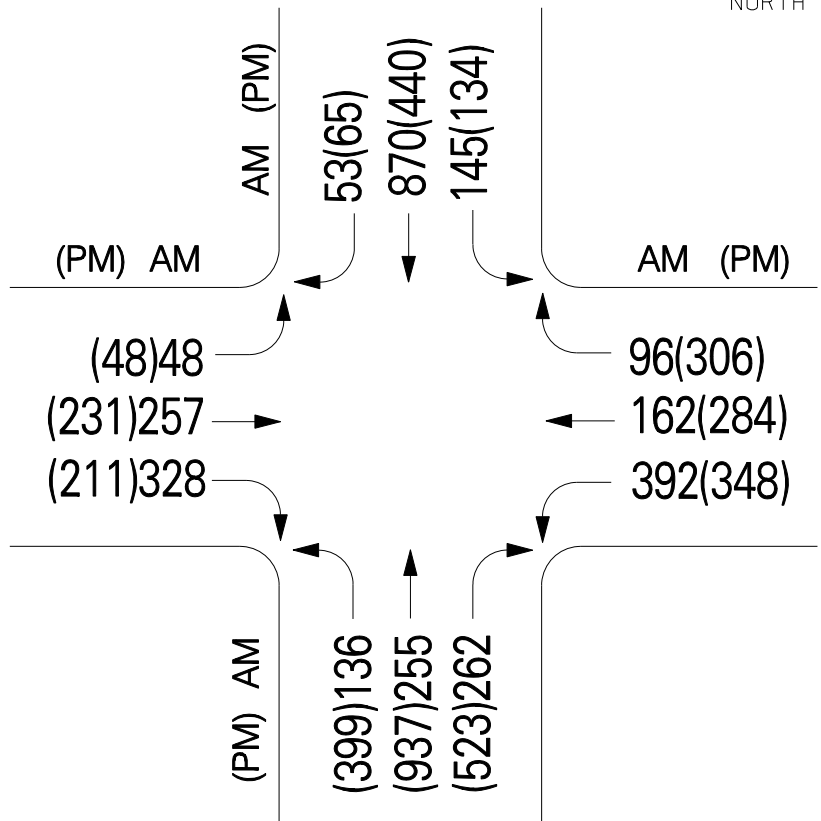
LANE CONFIGURATION

* FREE RIGHT

** SPLIT PHASED



TRAFFIC VOLUMES



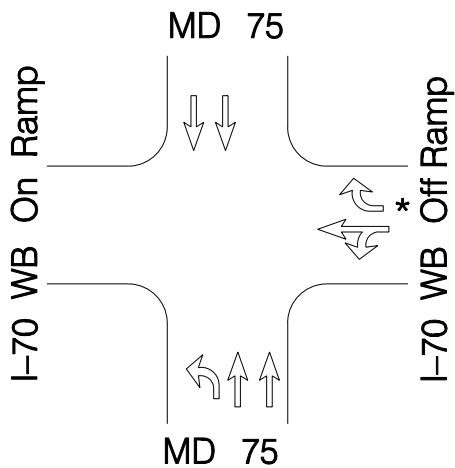
TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =									CRITICAL LANE VOLUME	LEVEL OF SERVICE
NB	255	*	0.55	+	145	*	1	=	285	
SB	870	*	0.55	+	136	*	1	=	615*	
EB	257	*	1					=	257*	
WB	(392 + 162)	*	0.55					=	305*	
NB	937	*	0.55	+	134	*	1	=	649*	
SB	440	*	0.55	+	399	*	1	=	641	
EB	231	*	1					=	231*	C 1228
WB	(348 + 284)	*	0.55					=	348*	

CRITICAL LANE ANALYSIS

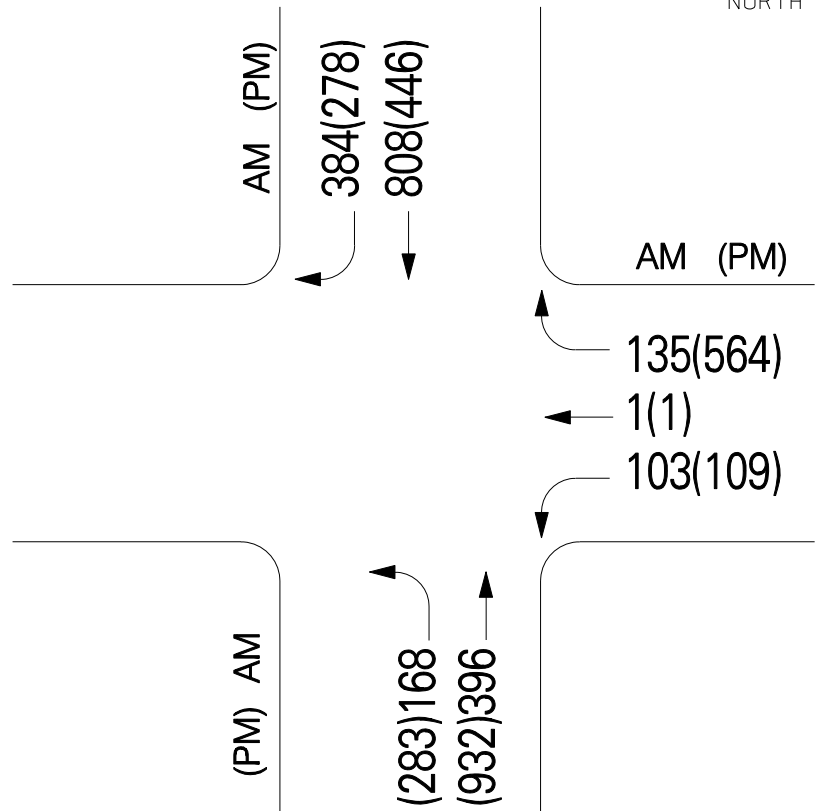
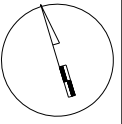
Prepared By: J. CAREY Condition: FUTURE

LANE CONFIGURATION

* FREE RIGHT



TRAFFIC VOLUMES



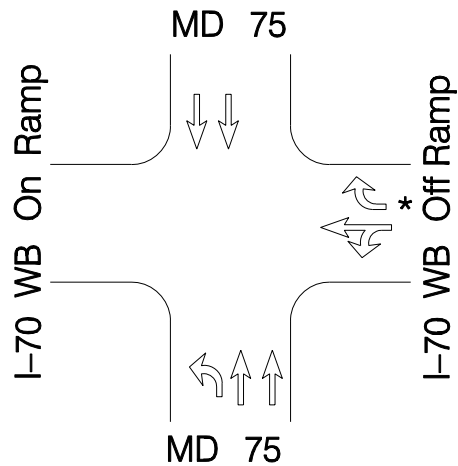
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =					CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	396	*	0.55	=		218	A 716
	SB	808	*	0.55	+	168 * 1 =	612*	
	EB	—					—	
	WB	(103 + 1)	*	1	=		104*	
PM	NB	932	*	0.55	=		513	A 638
	SB	446	*	0.55	+	283 * 1 =	528*	
	EB	—					—	
	WB	(109 + 1)	*	1	=		110*	

CRITICAL LANE ANALYSIS

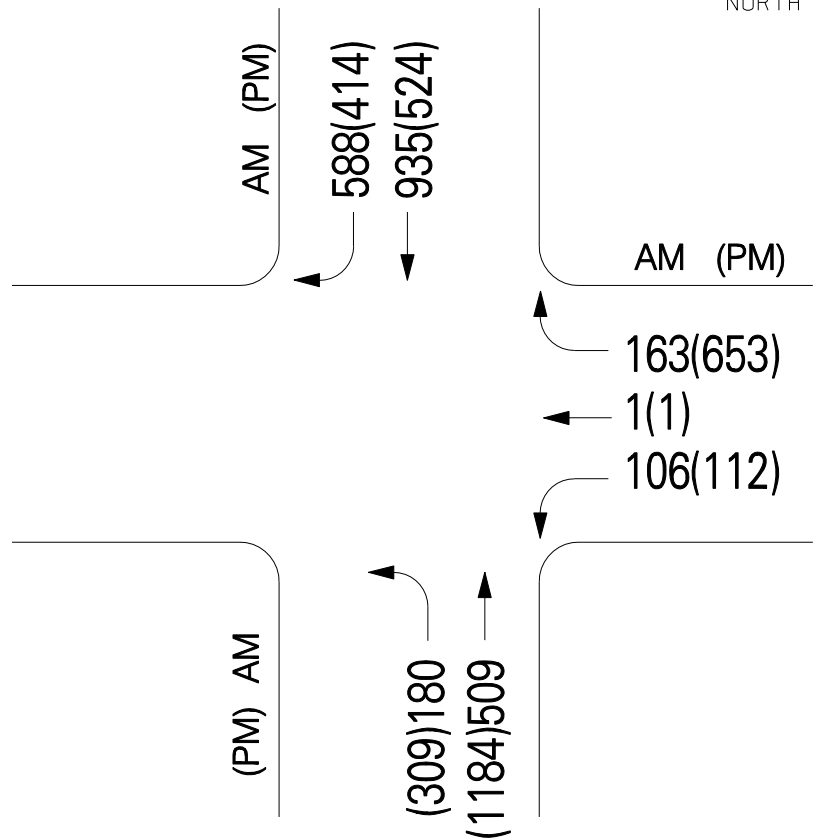
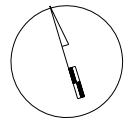
Prepared By: J. CAREY Condition: EXISTING

LANE CONFIGURATION

* FREE RIGHT



TRAFFIC VOLUMES



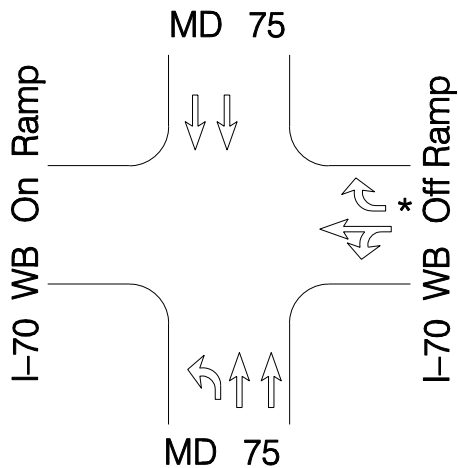
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =				CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	509	*	0.55	=	280	A 801
	SB	935	*	0.55	+	180	
	EB	—				—	
	WB	(106 + 1)	*	1	=	107*	
PM	NB	1184	*	0.55	=	651*	A 764
	SB	524	*	0.55	+	309	
	EB	—				—	
	WB	(112 + 1)	*	1	=	113*	

CRITICAL LANE ANALYSIS

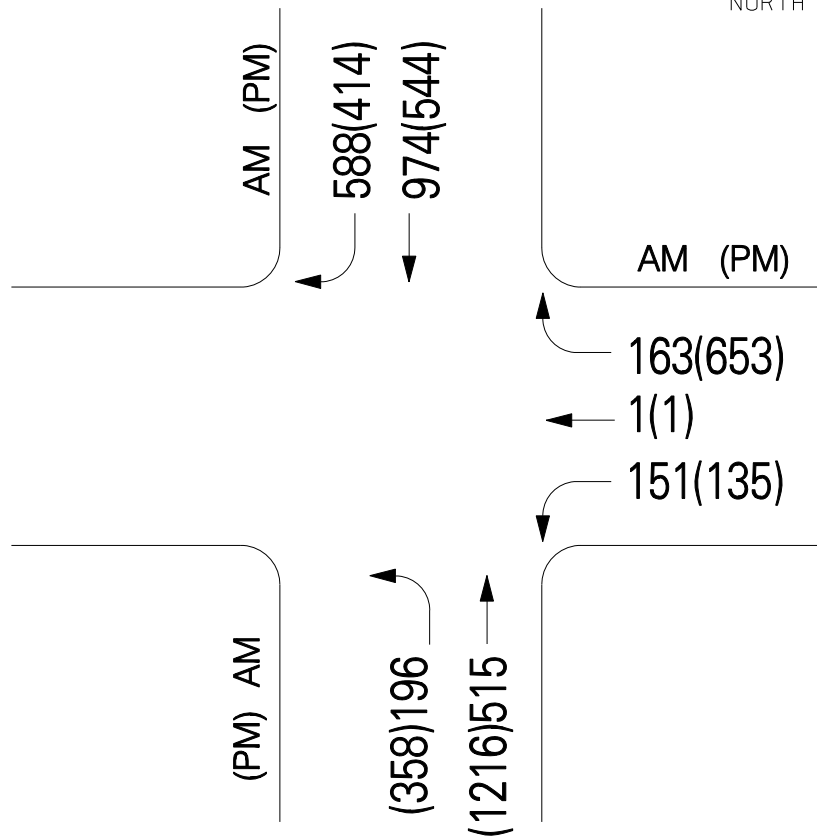
Prepared By: J. CAREY Condition: BACKGROUND

LANE CONFIGURATION

* FREE RIGHT



TRAFFIC VOLUMES



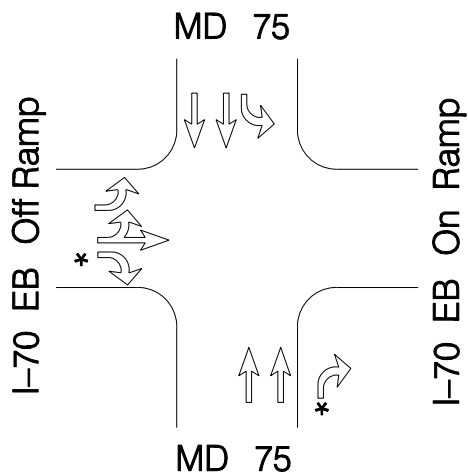
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =				CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	515	*	0.55	=	283	A 884
	SB	974	*	0.55	+ 196 * 1 =	732*	
	EB	—				—	
PM	WB	(151 + 1)	*	1	=	152*	A 805
	NB	1216	*	0.55	=	669*	
	SB	544	*	0.55	+ 358 * 1 =	657	
	EB	—				—	
	WB	(135 + 1)	*	1	=	136*	

CRITICAL LANE ANALYSIS

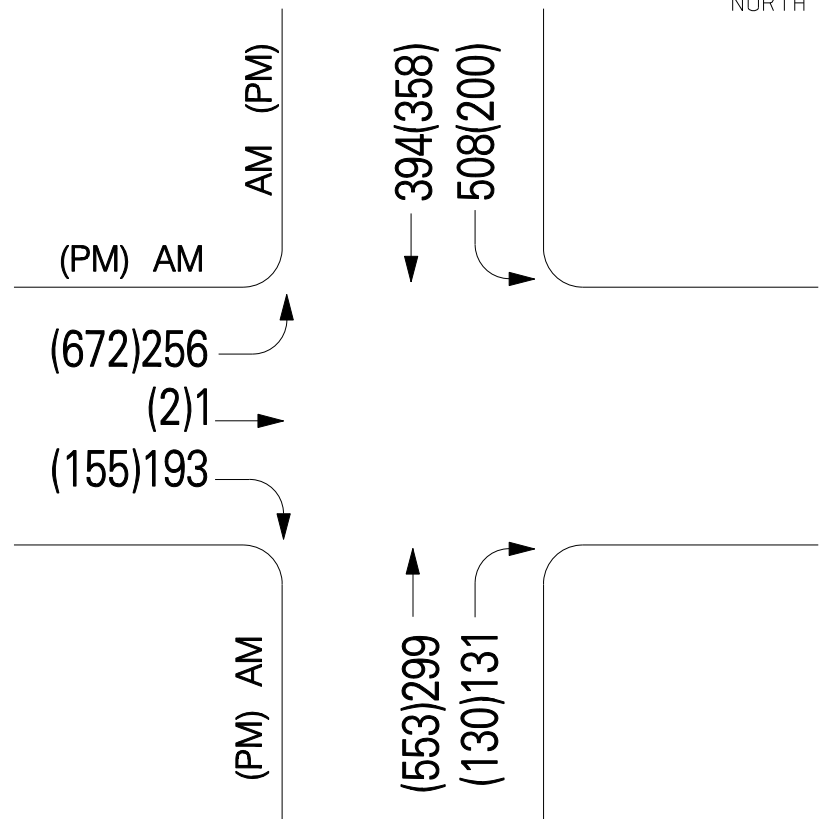
Prepared By: J. CAREY Condition: FUTURE

LANE CONFIGURATION

* FREE RIGHT



TRAFFIC VOLUMES



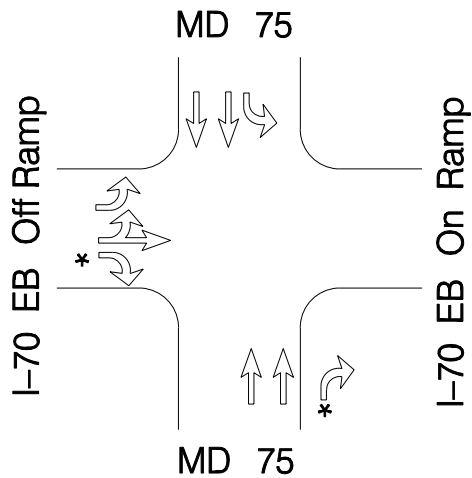
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =					CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	299	*	0.55	+	508 * 1 =	672*	A 813
	SB	394	*	0.55		=	217	
	EB	(256 + 1)	*	0.55		=	141*	
	WB					—	—	
PM	NB	553	*	0.55	+	200 * 1 =	504*	A 875
	SB	358	*	0.55		=	197	
	EB	(672 + 2)	*	0.55		=	371*	
	WB					—	—	

CRITICAL LANE ANALYSIS

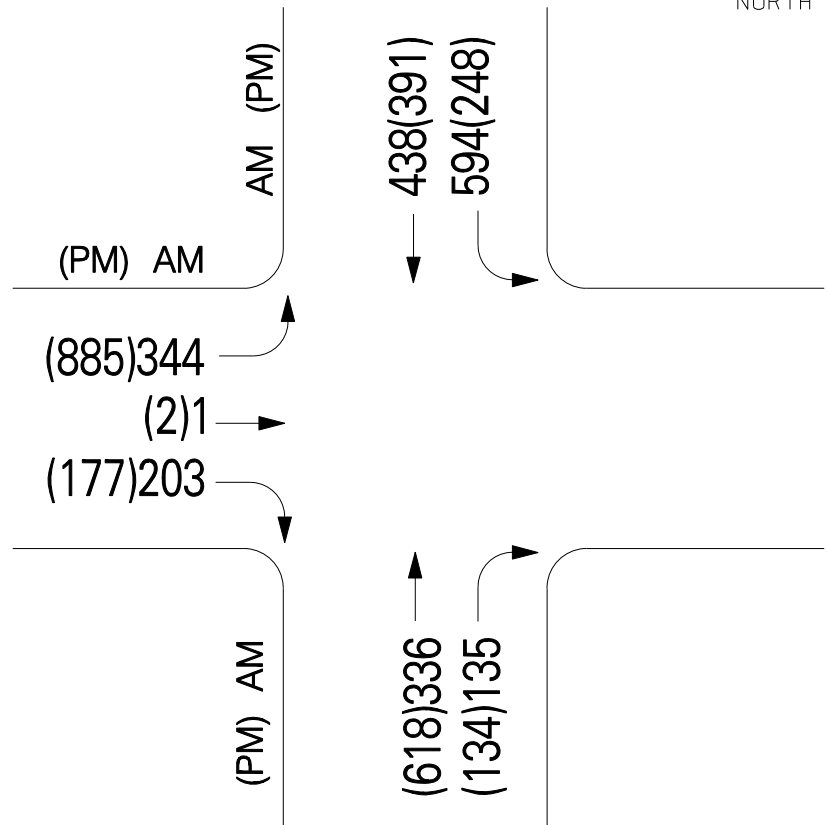
Prepared By: J. CAREY Condition: EXISTING

LANE CONFIGURATION

* FREE RIGHT



TRAFFIC VOLUMES



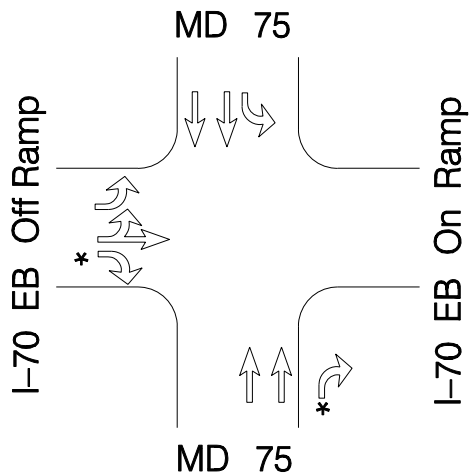
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =							CRITICAL LANE VOLUME	LEVEL OF SERVICE	
AM	NB	336	*	0.55	+	594	*	1	=	779*	A 969
	SB	438	*	0.55					=	241	
	EB	(344 + 1)	*	0.55					=	190*	
	WB	—							—		
PM	NB	618	*	0.55	+	248	*	1	=	588*	B 1076
	SB	391	*	0.55					=	215	
	EB	(885 + 2)	*	0.55					=	488*	
	WB	—							—		

CRITICAL LANE ANALYSIS

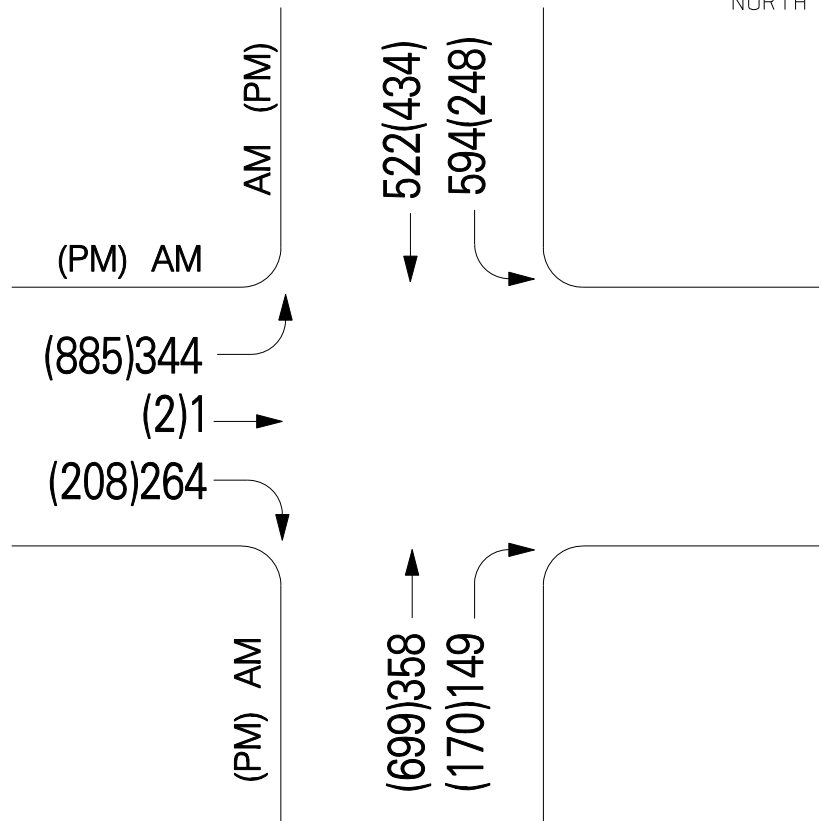
Prepared By: J. CAREY Condition: BACKGROUND

LANE CONFIGURATION

* FREE RIGHT



TRAFFIC VOLUMES



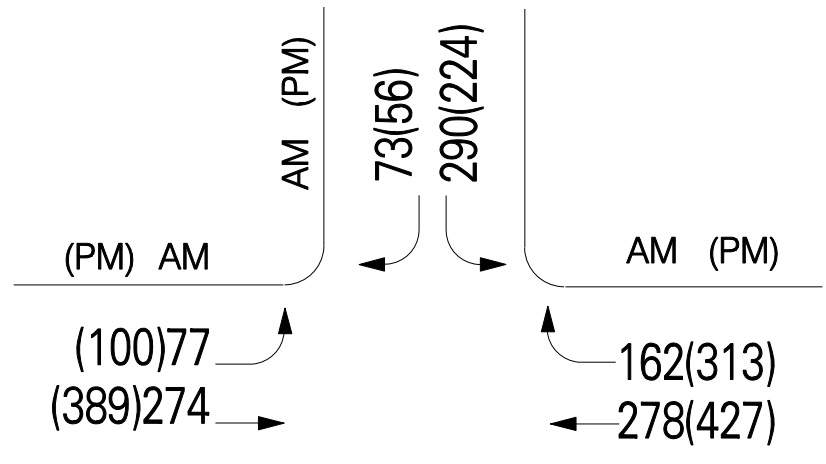
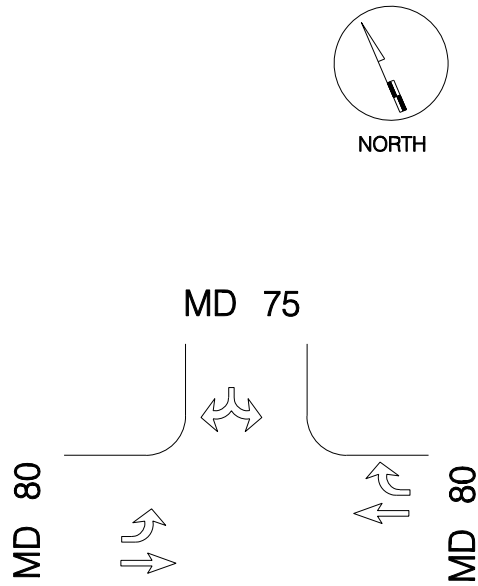
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =							CRITICAL LANE VOLUME	LEVEL OF SERVICE	
AM	NB	358	*	0.55	+	594	*	1	=	791*	A 981
	SB	522	*	0.55					=	287	
	EB	(344 + 1)	*	0.55					=	190*	
	WB	—								—	
PM	NB	699	*	0.55	+	248	*	1	=	632*	B 1120
	SB	434	*	0.55					=	239	
	EB	(885 + 2)	*	0.55					=	488*	
	WB	—								—	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE



LANE CONFIGURATION



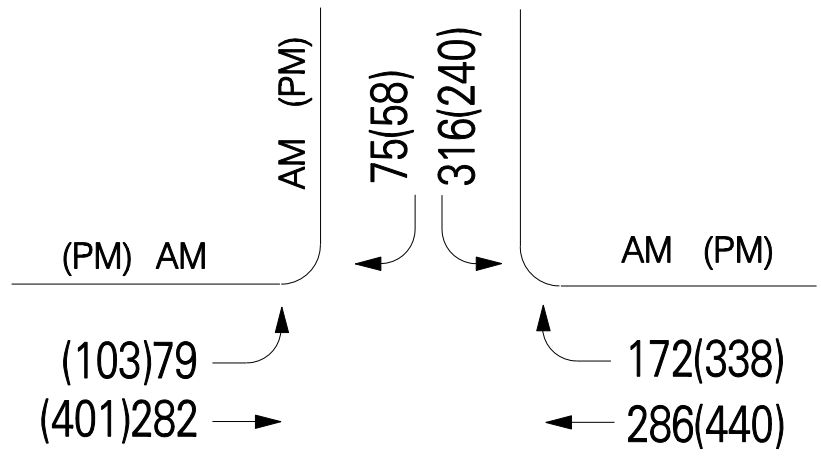
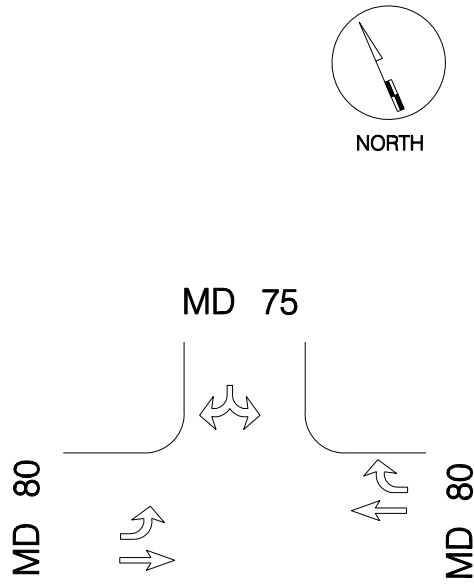
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =					CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	—					—	A 718
	SB	(73 + 290)	*	1	=		363*	
	EB	274	*	1	=		274	
	WB	278	*	1	+	77 * 1 =	355*	
PM	NB	—					—	A 797
	SB	(224 + 56)	*	1	=		270*	
	EB	389	*	1	=		389	
	WB	427	*	1	+	100 * 1 =	527*	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: EXISTING



LANE CONFIGURATION



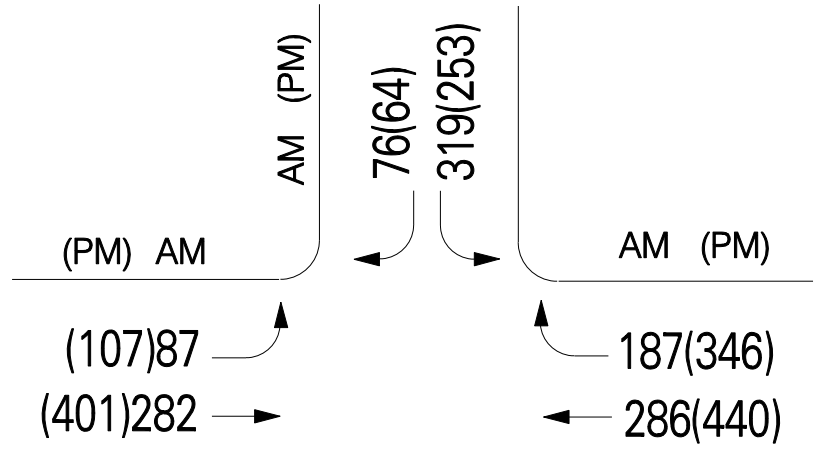
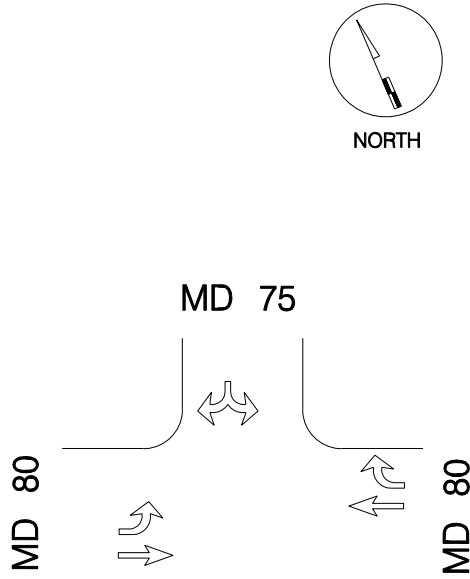
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =				CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	—				—	A 756
	SB	(316 + 75)	*	1	=	391*	
	EB	282	*	1	=	282	
	WB	286	*	1	+ 79 * 1 =	365*	
PM	NB	—				—	A 841
	SB	(240 + 58)	*	1	=	298*	
	EB	401	*	1	=	401	
	WB	440	*	1	+ 103 * 1 =	543*	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: BACKGROUND



LANE CONFIGURATION

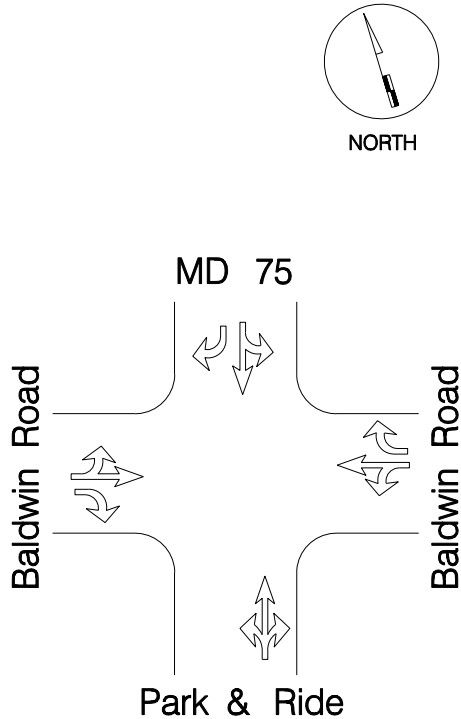


		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =				CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	—				—	
	SB	(319 + 76)	*	1	=	395*	
	EB	282	*	1	=	282	A 768
	WB	286	*	1	+ 87 * 1 =	373*	
PM	NB	—				—	
	SB	(253 + 64)	*	1	=	317*	
	EB	401	*	1	=	401	A 864
	WB	440	*	1	+ 107 * 1 =	547*	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE

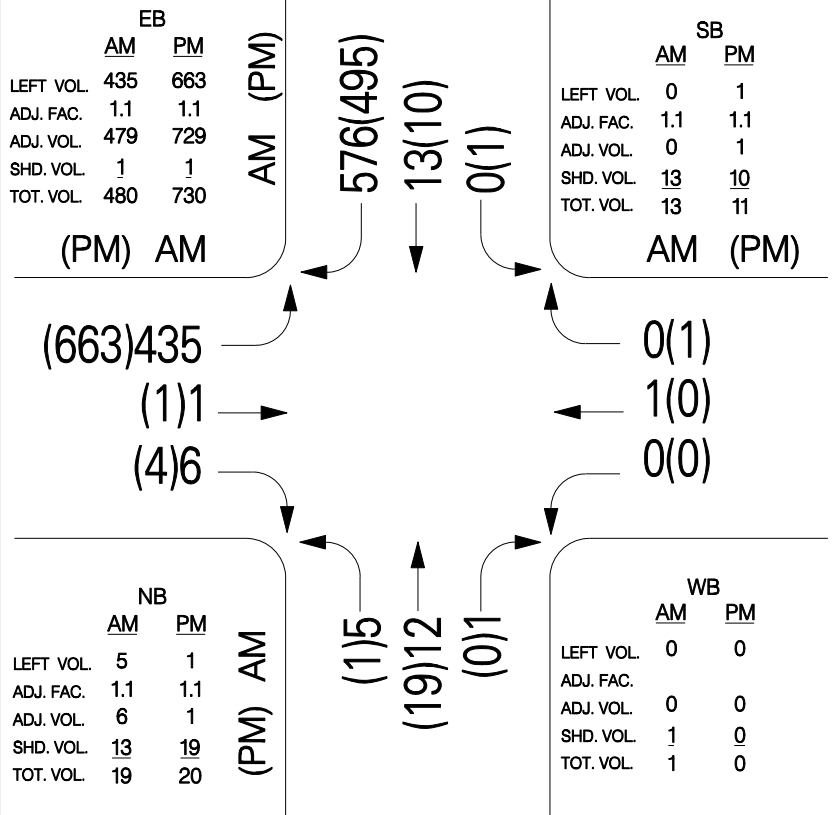
LANE CONFIGURATION



TRAFFIC VOLUMES



NORTH

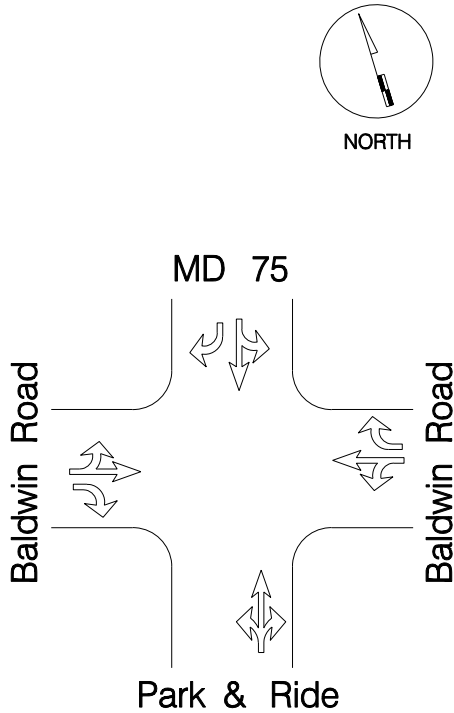


TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =									CRITICAL LANE VOLUME	LEVEL OF SERVICE
NB	19	*	1	+	0	*	1	=	19*	
SB	13	*	1	+	5	*	1	=	18	
EB	480	*	1	+	0	*	1	=	480*	A 499
WB	1	*	1	+	435	*	1	=	436	
NB	20	*	1	+	1	*	1	=	21*	
SB	11	*	1	+	1	*	1	=	12	
EB	730	*	1	+	0	*	1	=	730*	A 751
WB	0	*	1	+	663	*	1	=	663	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: EXISTING

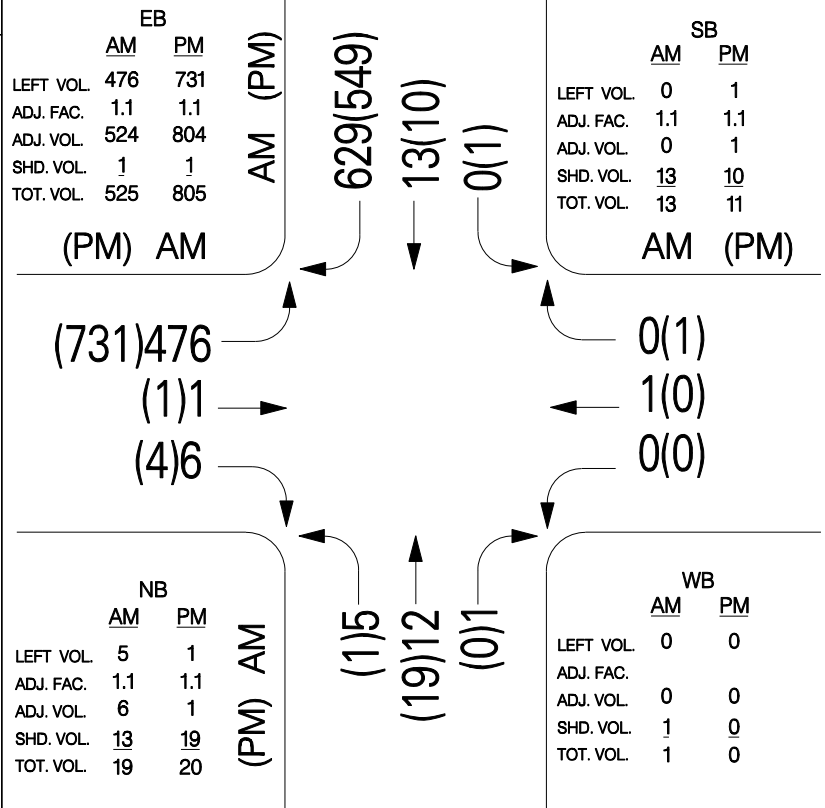
LANE CONFIGURATION



TRAFFIC VOLUMES



NORTH

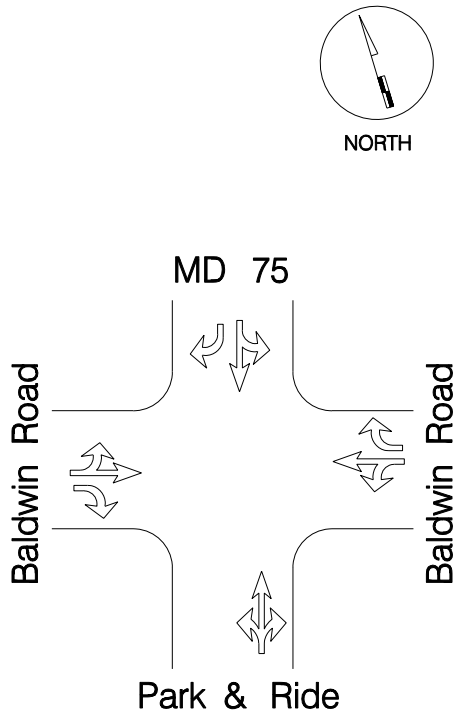


		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =								CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	19	*	1	+	0	*	1	=	19*	A 544
	SB	13	*	1	+	5	*	1	=	18	
	EB	525	*	1	+	0	*	1	=	525*	
	WB	1	*	1	+	476	*	1	=	477	
PM	NB	20	*	1	+	1	*	1	=	21*	A 826
	SB	11	*	1	+	1	*	1	=	12	
	EB	805	*	1	+	0	*	1	=	805*	
	WB	0	*	1	+	731	*	1	=	731	

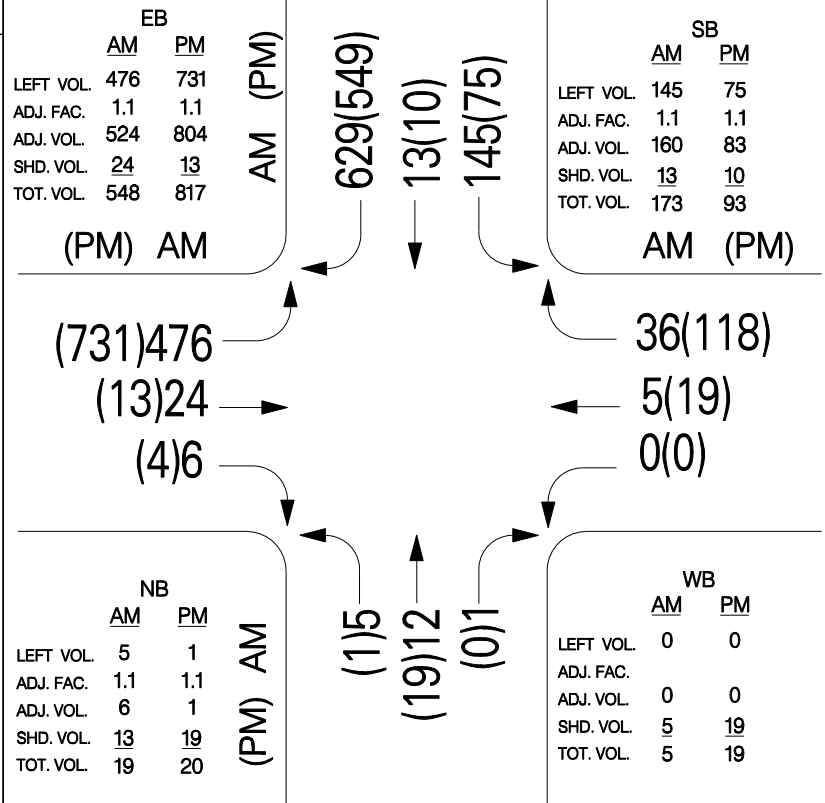
CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: BACKGROUND

LANE CONFIGURATION



TRAFFIC VOLUMES

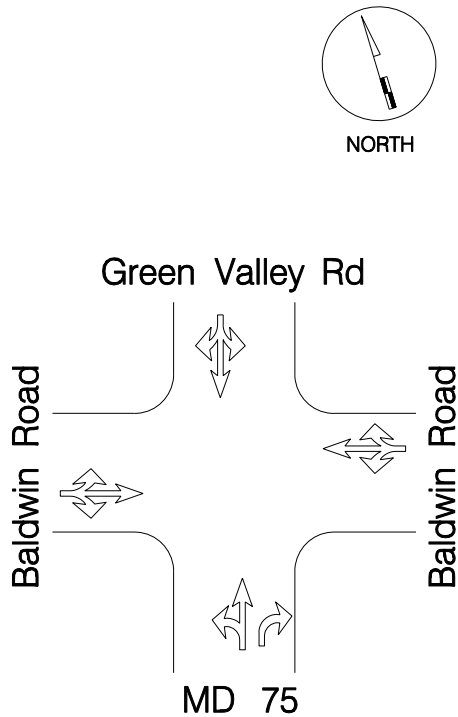


		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =								CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	19	*	1	+	145	*	1	=	164*	A 712
	SB	173	*	1	+	5	*	1	=	178	
	EB	548	*	1	+	0	*	1	=	548*	
	WB	5	*	1	+	476	*	1	=	481	
PM	NB	20	*	1	+	75	*	1	=	95*	A 912
	SB	93	*	1	+	1	*	1	=	94	
	EB	817	*	1	+	0	*	1	=	817*	
	WB	19	*	1	+	731	*	1	=	750	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE

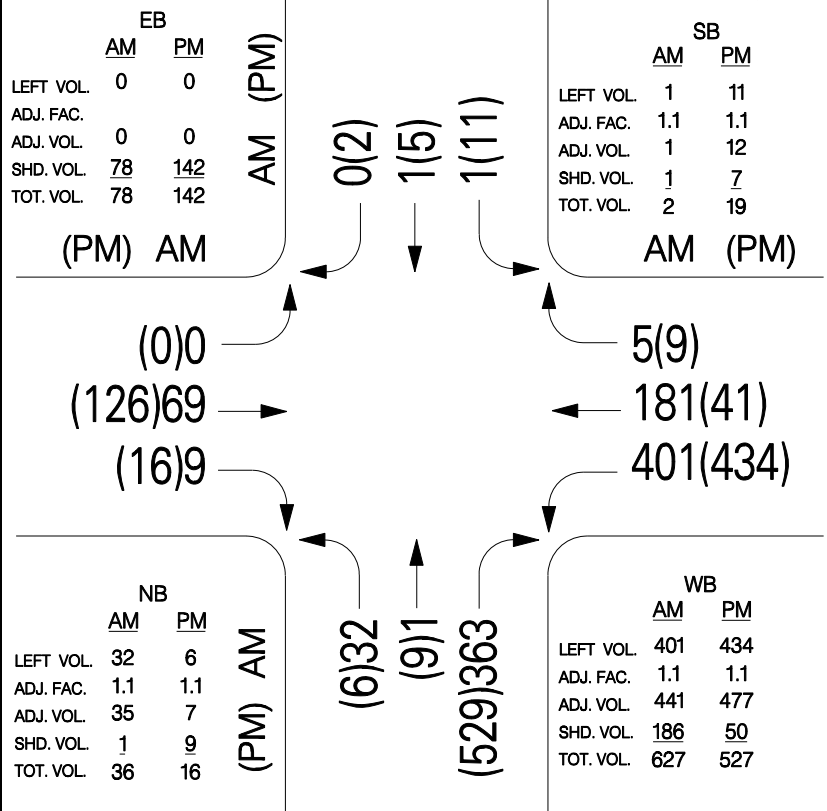
LANE CONFIGURATION



TRAFFIC VOLUMES



NORTH

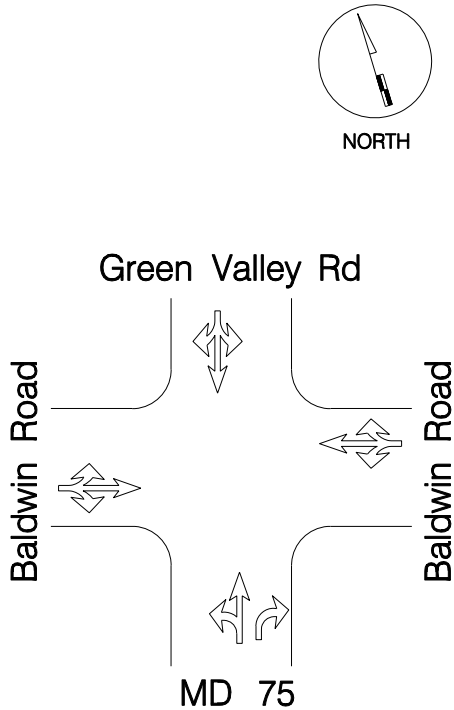


		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =								CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	36	*	1	+	1	*	1	=	37*	A 664
	SB	2	*	1	+	32	*	1	=	34	
	EB	78	*	1	+	401	*	1	=	479	
	WB	627	*	1	+	0	*	1	=	627*	
PM	NB	(529-434)	*	1	+	11	*	1	=	106*	A 682
	SB	19	*	1	+	6	*	1	=	25	
	EB	142	*	1	+	434	*	1	=	576*	
	WB	527	*	1	+	0	*	1	=	527	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: EXISTING

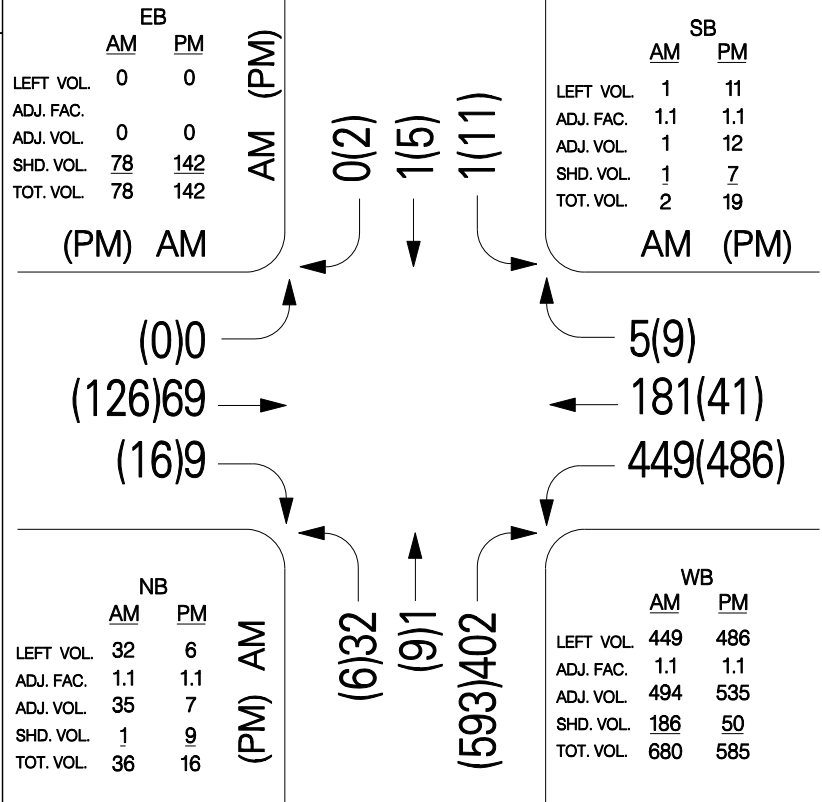
LANE CONFIGURATION



TRAFFIC VOLUMES



NORTH

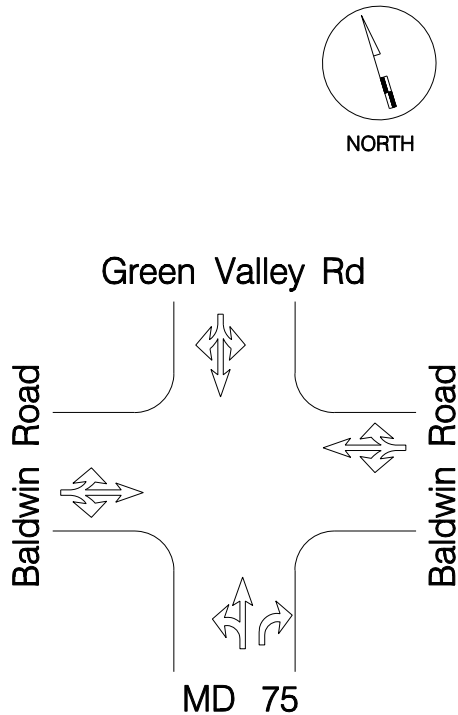


AM	TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =									CRITICAL LANE VOLUME	LEVEL OF SERVICE	
	NB	36	*	1	+	1	*	1	=	37*	A 717	
	SB	2	*	1	+	32	*	1	=	34		
	EB	78	*	1	+	449	*	1	=	527		
	WB	680	*	1	+	0	*	1	=	680*		
	PM	NB	(593–486)	*	1	+	11	*	1	=	118*	A 746
		SB	19	*	1	+	6	*	1	=	25	
		EB	142	*	1	+	486	*	1	=	628*	
		WB	585	*	1	+	0	*	1	=	585	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: BACKGROUND

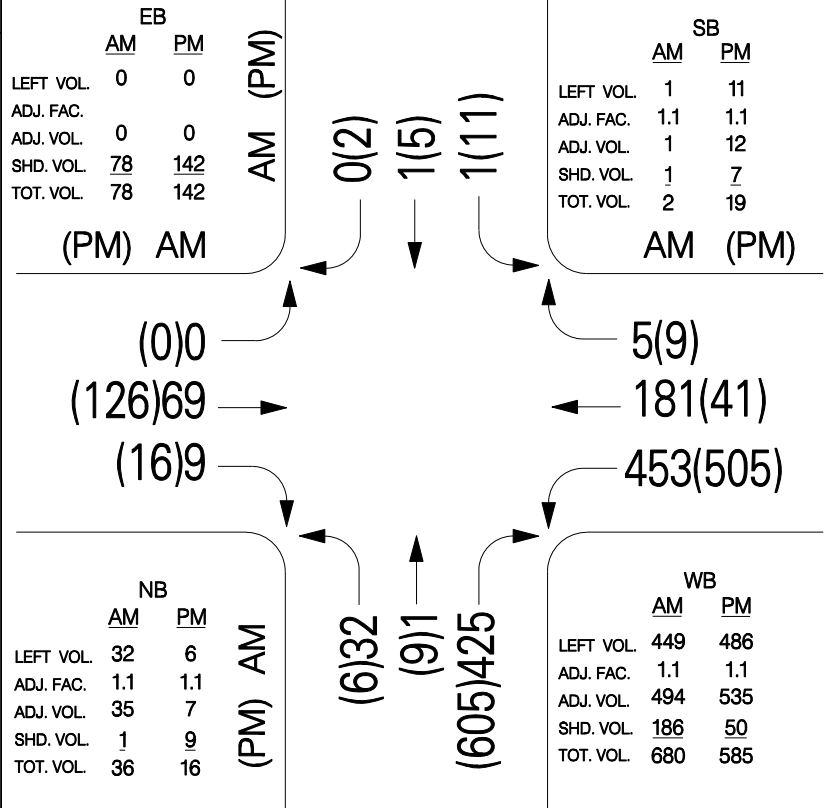
LANE CONFIGURATION



TRAFFIC VOLUMES



NORTH



		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =								CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	36	*	1	+	1	*	1	=	37*	A 717
	SB	2	*	1	+	32	*	1	=	34	
	EB	78	*	1	+	453	*	1	=	531	
	WB	680	*	1	+	0	*	1	=	680*	
PM	NB	(593–486)	*	1	+	11	*	1	=	118*	A 765
	SB	19	*	1	+	6	*	1	=	25	
	EB	142	*	1	+	505	*	1	=	647*	
	WB	585	*	1	+	0	*	1	=	585	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE

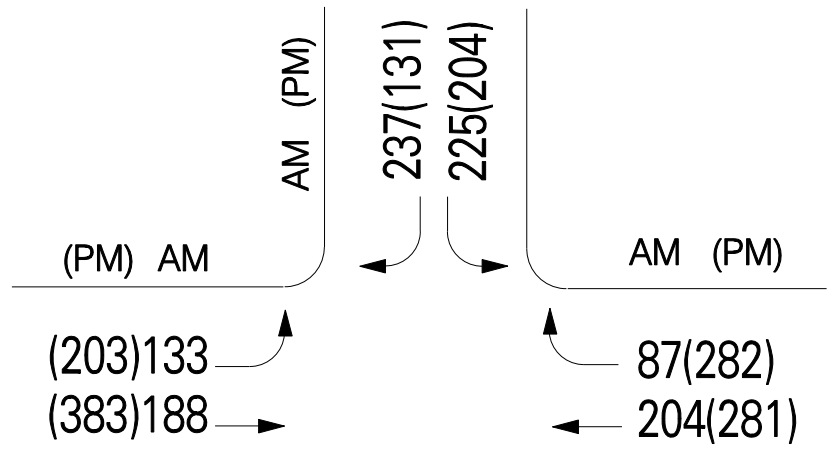
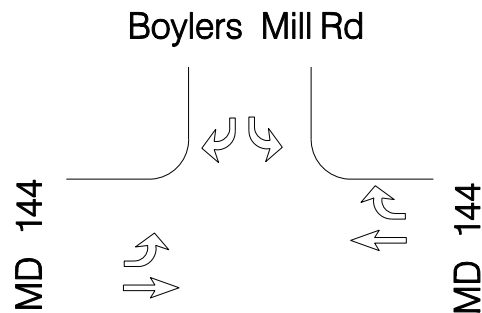


NORTH

LANE CONFIGURATION



NORTH



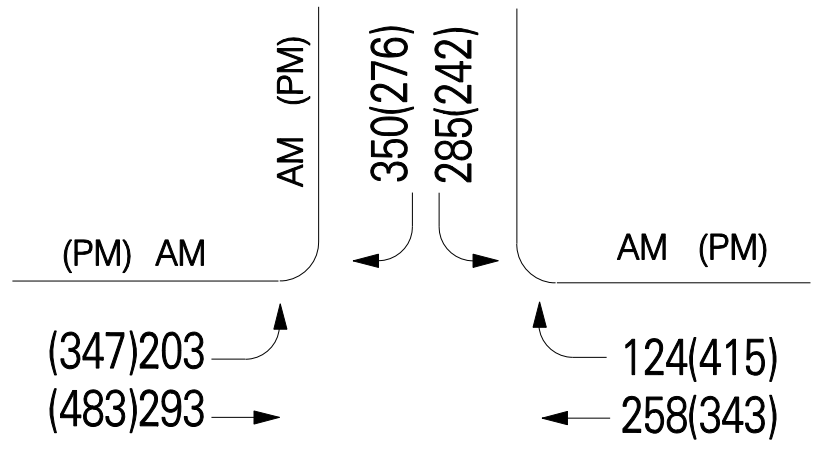
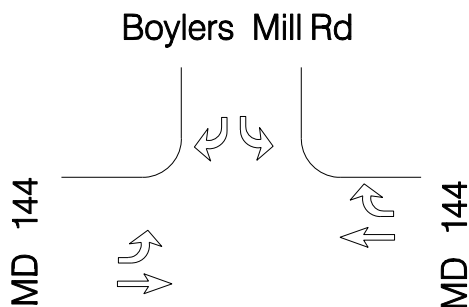
		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =						CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	—						—	A 562
	SB	225	*	1			=	225*	
	EB	188	*	1			=	188	
	WB	204	*	1	+	133	*	1 =	
PM	NB	—						—	A 688
	SB	204	*	1			=	204*	
	EB	383	*	1			=	383	
	WB	281	*	1	+	203	*	1 =	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: EXISTING



LANE CONFIGURATION



		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =					CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	—					—	A 746
	SB	285	*	1	=		285*	
	EB	293	*	1	=		293	
	WB	258	*	1	+	203 * 1	= 461*	
PM	NB	—					—	A 932
	SB	242	*	1	=		242*	
	EB	483	*	1	=		483	
	WB	343	*	1	+	347 * 1	= 690*	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: BACKGROUND

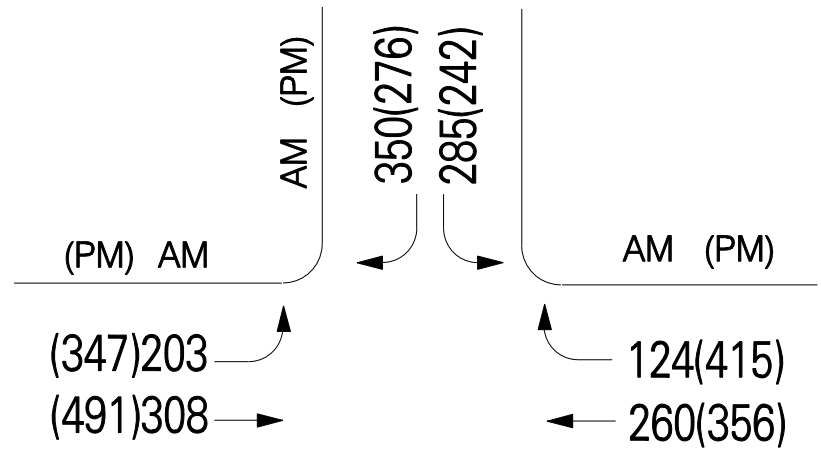
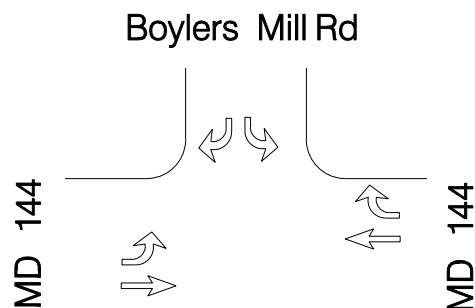


NORTH

LANE CONFIGURATION



NORTH

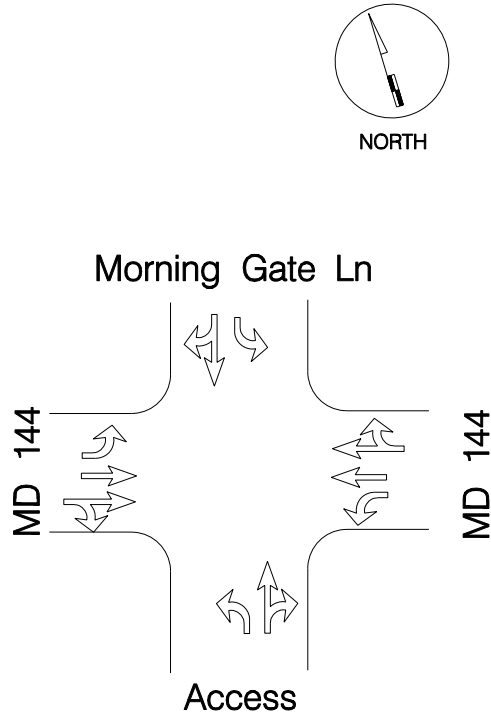


		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =					CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	—					—	A 748
	SB	285	*	1	=		285*	
	EB	308	*	1	=		308	
	WB	260	*	1	+	203 * 1 =	463*	
PM	NB	—					—	A 945
	SB	242	*	1	=		242*	
	EB	491	*	1	=		491	
	WB	356	*	1	+	347 * 1 =	703*	

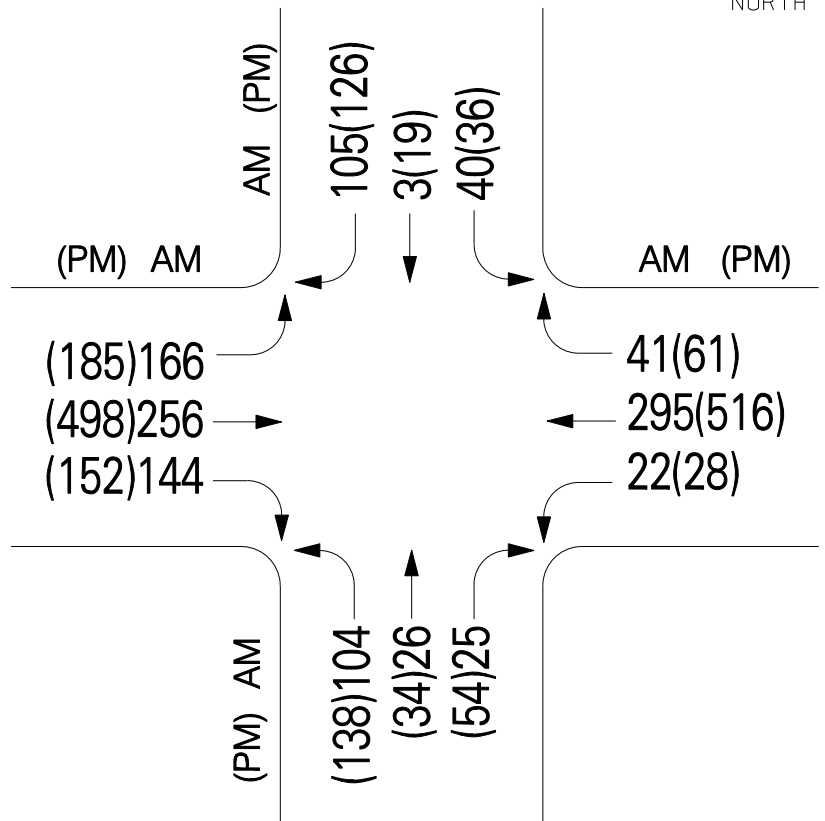
CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE

LANE CONFIGURATION



TRAFFIC VOLUMES



		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =							CRITICAL LANE VOLUME	LEVEL OF SERVICE	
AM	NB	(26 + 25)	*	1	+	40	*	1	=	91	
	SB	(105 + 3)	*	1	+	104	*	1	=	212*	
	EB	(256 + 144)	*	0.55	+	22	*	1	=	242	A 563
	WB	(295 + 41)	*	0.55	+	166	*	1	=	351*	
PM	NB	(34 + 54)	*	1	+	36	*	1	=	124	
	SB	(19 + 126)	*	1	+	138	*	1	=	283*	
	EB	(498 + 152)	*	0.55	+	28	*	1	=	386	A 785
	WB	(516 + 61)	*	0.55	+	185	*	1	=	502*	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: EXISTING

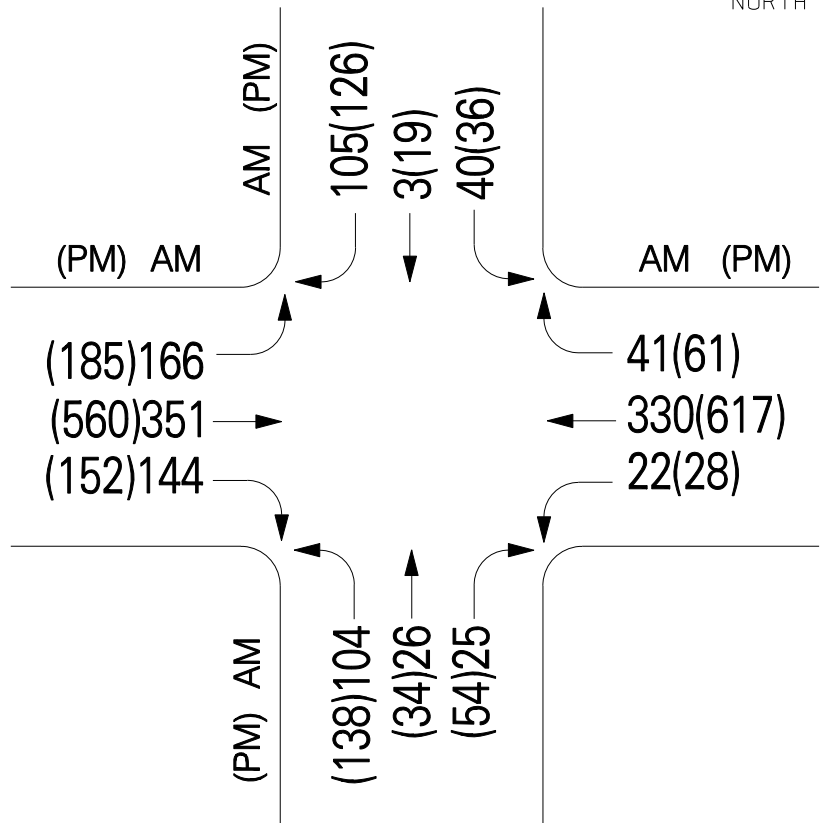
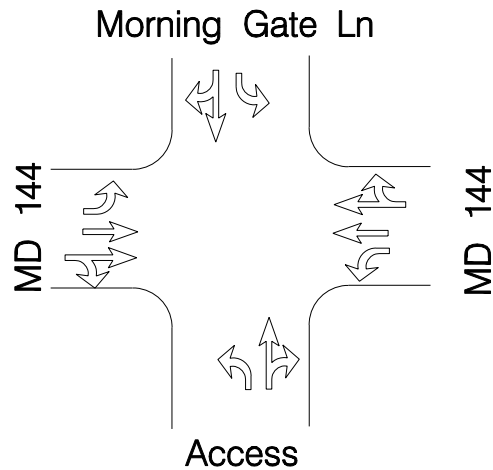


NORTH

LANE CONFIGURATION



NORTH

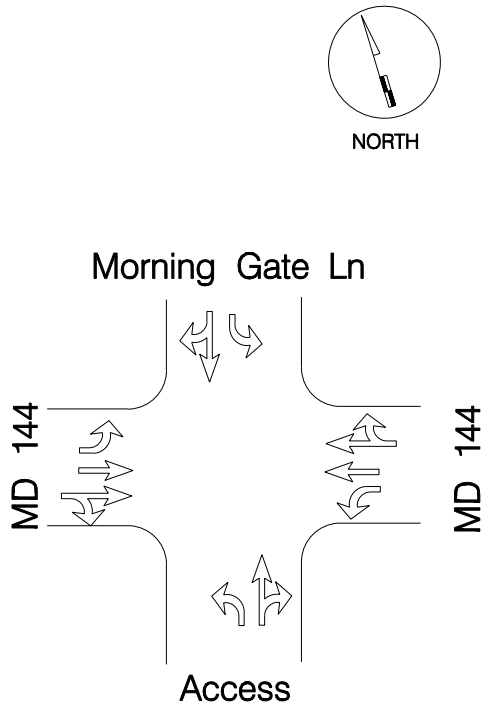


	TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =									CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	(26 + 25)	*	1	+	40	*	1	=	91	A 582
	SB	(105 + 3)	*	1	+	104	*	1	=	212*	
	EB	(351 + 144)	*	0.55	+	22	*	1	=	294	
	WB	(330 + 41)	*	0.55	+	166	*	1	=	370*	
PM	NB	(34 + 54)	*	1	+	36	*	1	=	124	A 841
	SB	(19 + 126)	*	1	+	138	*	1	=	283*	
	EB	(560 + 152)	*	0.55	+	28	*	1	=	420	
	WB	(617 + 61)	*	0.55	+	185	*	1	=	558*	

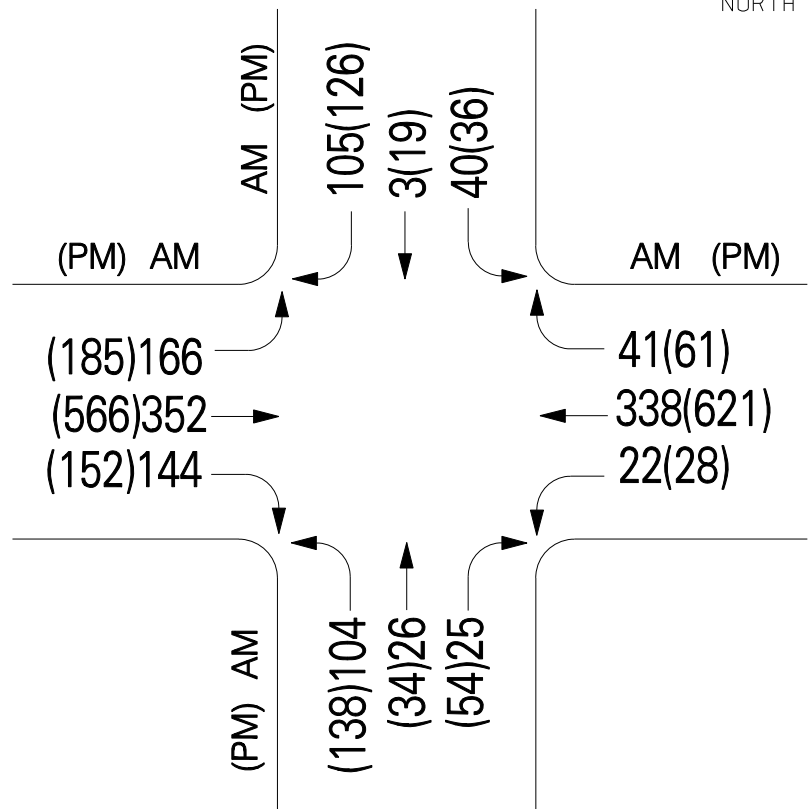
CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: BACKGROUND

LANE CONFIGURATION



TRAFFIC VOLUMES

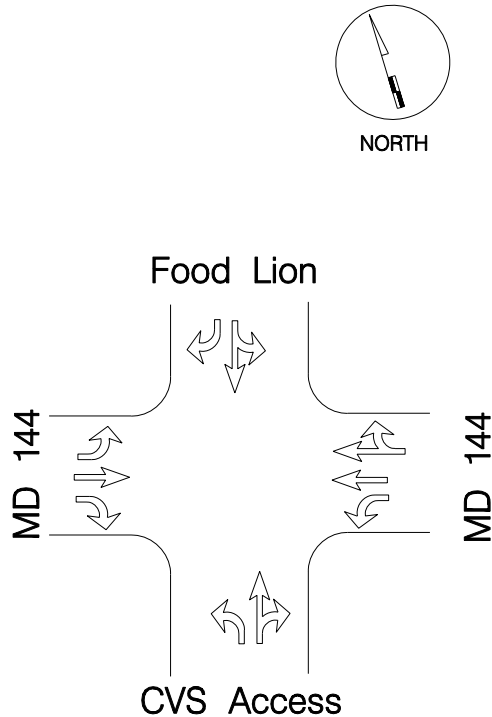


		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =							CRITICAL LANE VOLUME	LEVEL OF SERVICE	
AM	NB	(26 + 25)	*	1	+	40	*	1	=	91	A 586
	SB	(105 + 3)	*	1	+	104	*	1	=	212*	
	EB	(352 + 144)	*	0.55	+	22	*	1	=	295	
	WB	(338 + 41)	*	0.55	+	166	*	1	=	374*	
PM	NB	(34 + 54)	*	1	+	36	*	1	=	124	A 843
	SB	(19 + 126)	*	1	+	138	*	1	=	283*	
	EB	(566 + 152)	*	0.55	+	28	*	1	=	423	
	WB	(621 + 61)	*	0.55	+	185	*	1	=	560*	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE

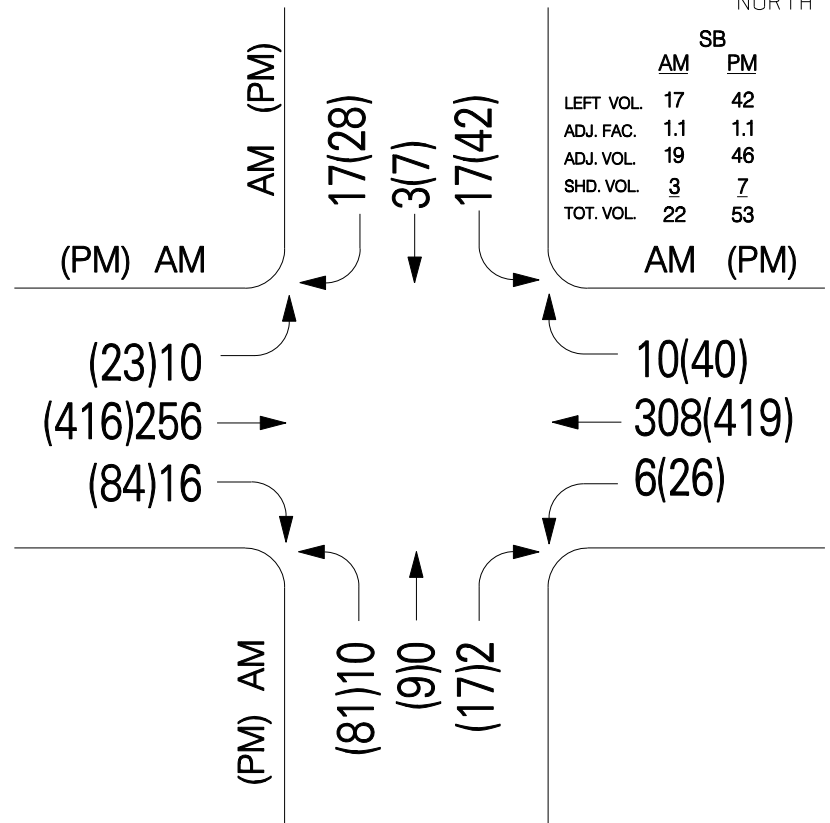
LANE CONFIGURATION



TRAFFIC VOLUMES



NORTH

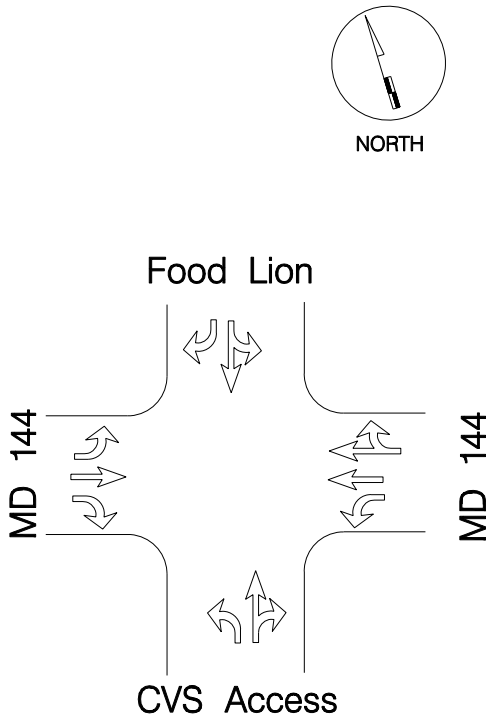


		TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =							CRITICAL LANE VOLUME	LEVEL OF SERVICE	
AM	NB	(0 + 2)	*	1	+	17	*	1	=	19	A 294
	SB	22	*	1	+	10	*	1	=	32*	
	EB	256	*	1	+	6	*	1	=	262*	
	WB	(308 + 10)	*	0.55	+	10	*	1	=	185	
PM	NB	(9 + 17)	*	1	+	17	*	1	=	43	A 576
	SB	53	*	1	+	81	*	1	=	134*	
	EB	416	*	1	+	26	*	1	=	442*	
	WB	(419 + 40)	*	0.55	+	23	*	1	=	275	

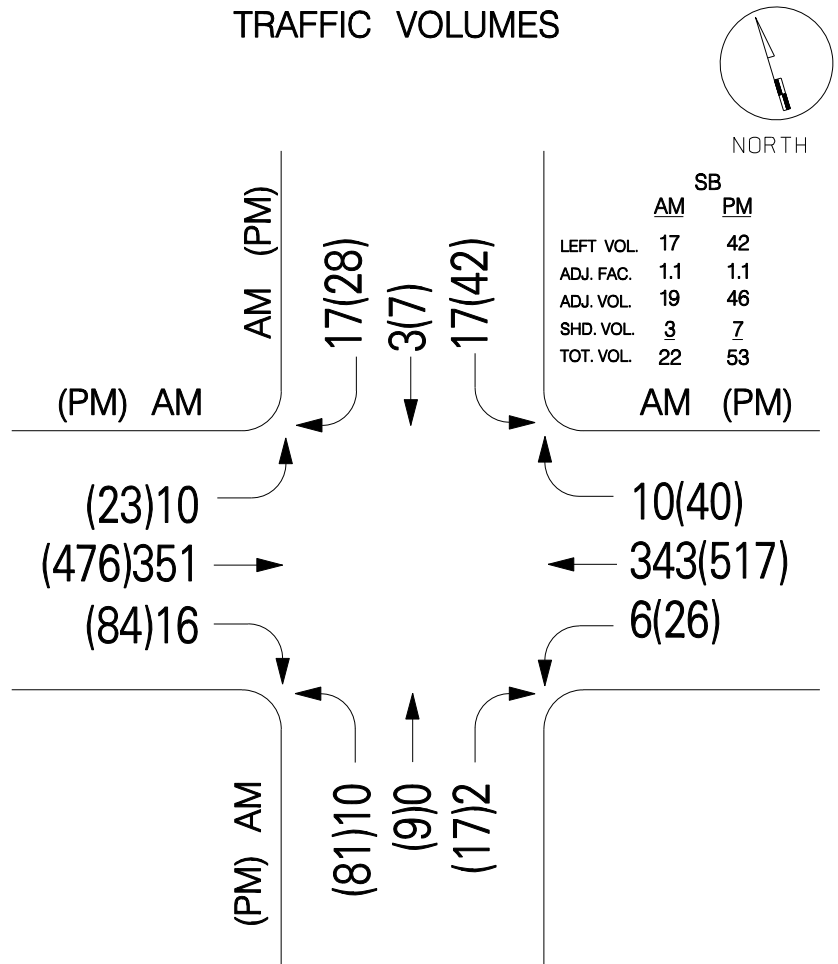
CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: EXISTING

LANE CONFIGURATION



TRAFFIC VOLUMES

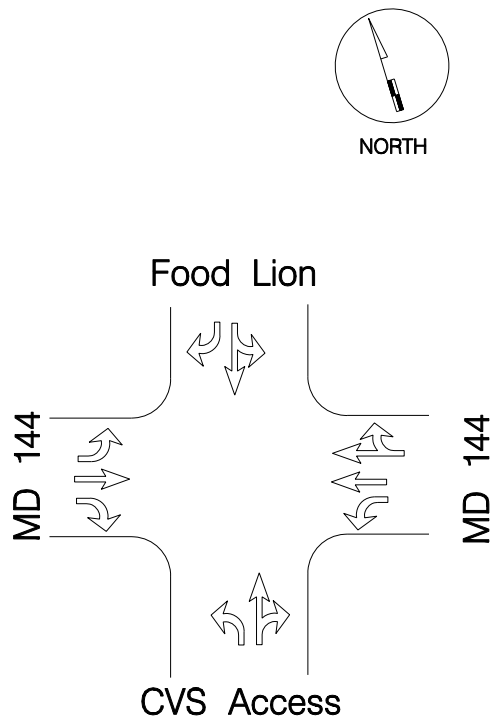


TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =									CRITICAL LANE VOLUME	LEVEL OF SERVICE
NB	(0 + 2)	*	1	+	17	*	1	=	19	A 389
SB	22	*	1	+	10	*	1	=	32*	
EB	351	*	1	+	6	*	1	=	357*	
WB	(343 + 10)	*	0.55	+	10	*	1	=	204	A 636
NB	(9 + 17)	*	1	+	17	*	1	=	43	
SB	53	*	1	+	81	*	1	=	134*	
EB	476	*	1	+	26	*	1	=	502*	A 636
WB	(517 + 40)	*	0.55	+	23	*	1	=	329	

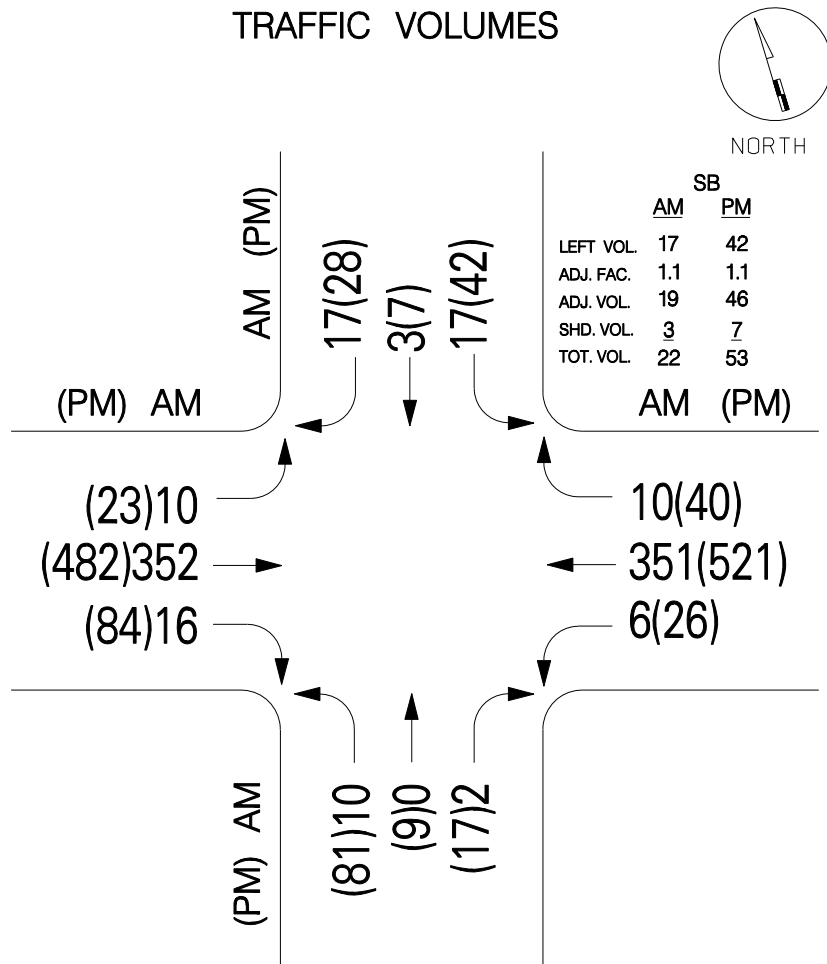
CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: BACKGROUND

LANE CONFIGURATION



TRAFFIC VOLUMES



	TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =									CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	(0 + 2)	*	1	+	17	*	1	=	19	A 390
	SB	22	*	1	+	10	*	1	=	32*	
	EB	352	*	1	+	6	*	1	=	358*	
	WB	(351 + 10)	*	0.55	+	10	*	1	=	209	
PM	NB	(9 + 17)	*	1	+	17	*	1	=	43	A 642
	SB	53	*	1	+	81	*	1	=	134*	
	EB	482	*	1	+	26	*	1	=	508*	
	WB	(521 + 40)	*	0.55	+	23	*	1	=	332	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE

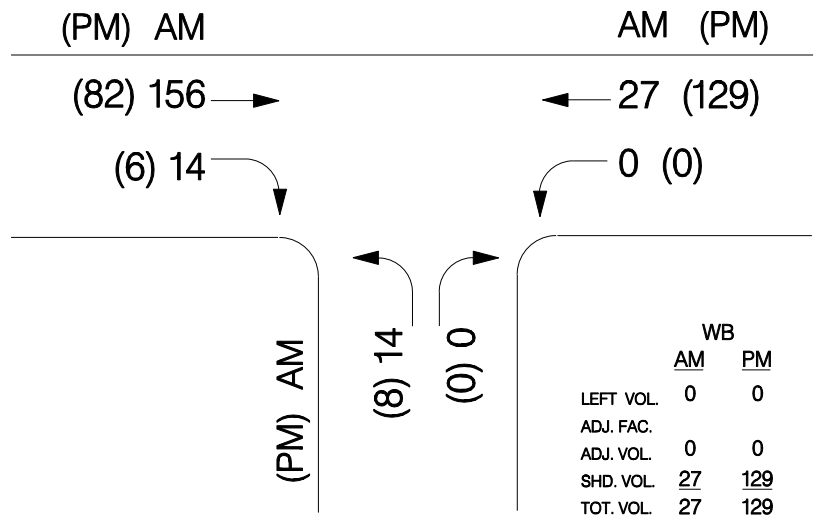
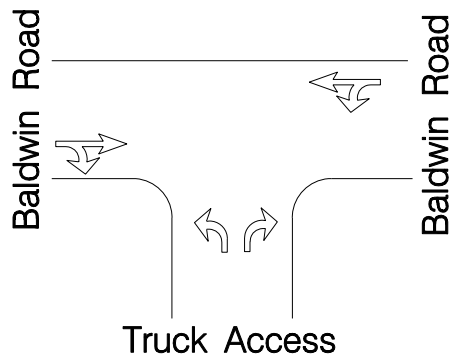


NORTH

LANE CONFIGURATION



NORTH



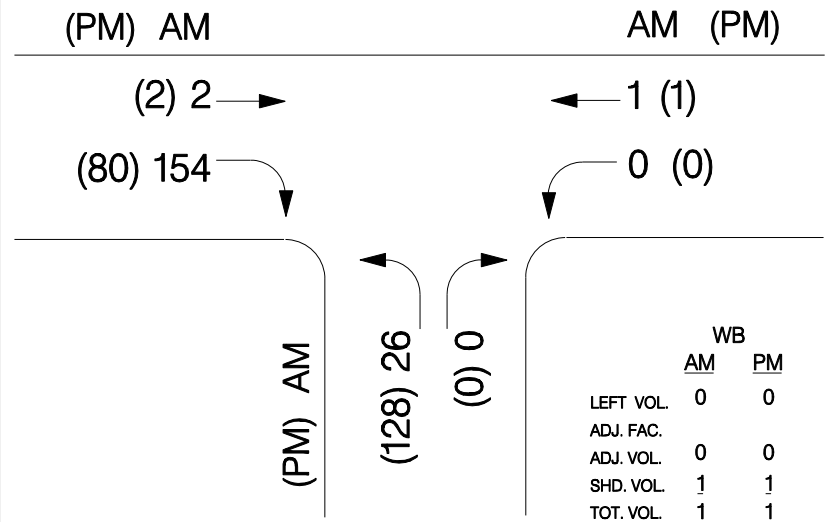
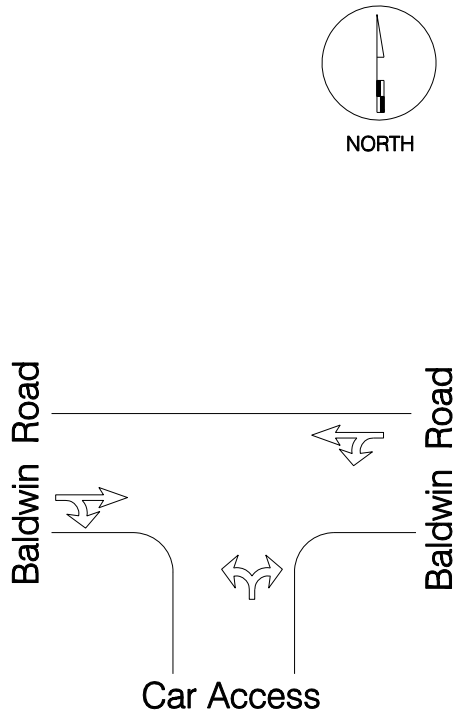
TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =						CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	14	*	1	=	14*	
	SB	—				—	
	EB	(156 + 14)	*	1	+ 0 * 1 =	170*	A 184
	WB	27	*	1	=	27	
PM	NB	8	*	1	1 =	8*	
	SB	—				—	
	EB	(82 + 6)	*	1	+ 0 * 1 =	88	A 137
	WB	129	*	1	=	129*	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE



LANE CONFIGURATION



TOTAL VOLUME * LUF + OPPOSING LEFTS * LUF =							CRITICAL LANE VOLUME	LEVEL OF SERVICE
AM	NB	(26 + 0)	*	1	=		26*	
	SB	—					—	
	EB	(2 + 154)	*	1	+	0 * 1 =	156*	A 182
	WB	1	*	1	=		1	
PM	NB	(128 + 0)	*	1	=	1	128*	
	SB	—					—	
	EB	(2 + 80)	*	1	+	0 * 1 =	82*	A 210
	WB	1	*	1	=		1	

CRITICAL LANE ANALYSIS

Prepared By: J. CAREY Condition: FUTURE

APPENDIX II

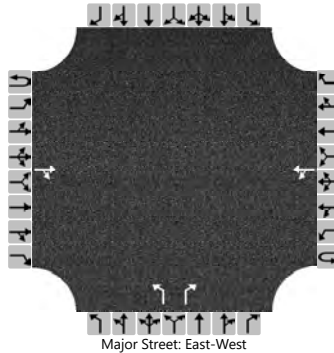
**HCM UNSIGNALIZED
REPORTS**

HCS7 Two-Way Stop-Control Report

General Information

Analyst	J. Carey	Intersection	Baldwin Rd at Truck Acces
Agency/Co.	Traffic Concepts, Inc.	Jurisdiction	Frederick Co, MD
Date Performed	5/19/2022	East/West Street	Baldwin Rd
Analysis Year	2025	North/South Street	Truck Access
Time Analyzed	Future AM	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	3877		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			156	14		0	27			14		0				
Percent Heavy Vehicles (%)						0				100		100				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				7.40		7.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				4.40		4.20				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0				16		0				
Capacity, c (veh/h)						1397				601		662				
v/c Ratio						0.00				0.03		0.00				
95% Queue Length, Q ₉₅ (veh)						0.0				0.1		0.0				
Control Delay (s/veh)						7.6				11.1		10.4				
Level of Service (LOS)						A				B		B				
Approach Delay (s/veh)					0.0				11.1							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

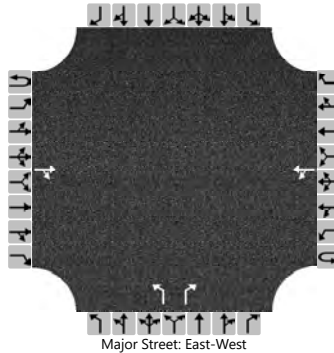
General Information

Analyst	J. Carey
Agency/Co.	Traffic Concepts, Inc.
Date Performed	5/19/2022
Analysis Year	2025
Time Analyzed	Future PM
Intersection Orientation	East-West
Project Description	3877

Site Information

Intersection	Baldwin Rd at Truck Acces
Jurisdiction	Frederick Co, MD
East/West Street	Baldwin Rd
North/South Street	Truck Access
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			82	6		0	129			8		0				
Percent Heavy Vehicles (%)						0				100		100				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				7.40		7.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				4.40		4.20				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0				9		0				
Capacity, c (veh/h)						1508				578		749				
v/c Ratio						0.00				0.02		0.00				
95% Queue Length, Q ₉₅ (veh)						0.0				0.0		0.0				
Control Delay (s/veh)						7.4				11.3		9.8				
Level of Service (LOS)						A				B		A				
Approach Delay (s/veh)					0.0				11.3							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

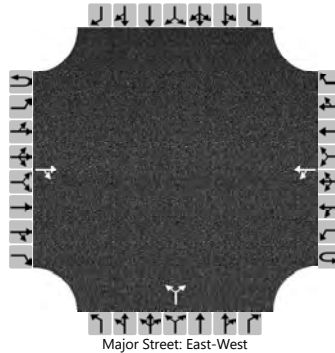
General Information

Analyst	J. Carey
Agency/Co.	Traffic Concepts, Inc.
Date Performed	5/19/2022
Analysis Year	2025
Time Analyzed	Future AM
Intersection Orientation	East-West
Project Description	3877

Site Information

Intersection	Baldwin Rd at Car Access
Jurisdiction	Frederick Co, MD
East/West Street	Baldwin Rd
North/South Street	Car Access
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			2	154		0	1			26		0				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

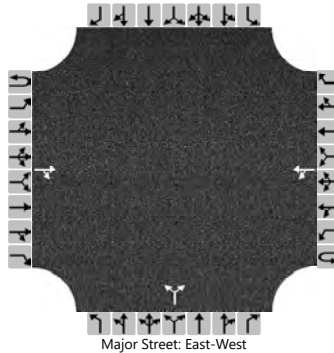
Flow Rate, v (veh/h)						0					29					
Capacity, c (veh/h)						1416					917					
v/c Ratio						0.00					0.03					
95% Queue Length, Q ₉₅ (veh)						0.0					0.1					
Control Delay (s/veh)						7.5					9.1					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.0				9.1							
Approach LOS									A							

HCS7 Two-Way Stop-Control Report

General Information

Analyst	J. Carey	Intersection	Baldwin Rd at Car Access
Agency/Co.	Traffic Concepts, Inc.	Jurisdiction	Frederick Co, MD
Date Performed	5/19/2022	East/West Street	Baldwin Rd
Analysis Year	2025	North/South Street	Car Access
Time Analyzed	Future PM	Peak Hour Factor	0.90
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	3877		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			2	80		0	1			128		0				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0					142					
Capacity, c (veh/h)						1517					967					
v/c Ratio						0.00					0.15					
95% Queue Length, Q ₉₅ (veh)						0.0					0.5					
Control Delay (s/veh)						7.4					9.4					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.0				9.4							
Approach LOS									A							

APPENDIX III

**SHA QUEUE ANALYSIS
CALCULATIONS**

95TH Percentile Queuing Analysis Calculations – Signalized Intersections

$$\text{SHA Formula} = \frac{\text{CLV Volume} \times \text{Cycle Length}}{3600 \text{ (sec/hr)}} = \text{Avg Veh/Cycle}$$

MD 75 @ MD 144 (120 sec AM, 120 sec PM)

	Calculations	Queue (ft)
EXISTING		
EB MD 144 Left – AM PEAK	$[(21 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	25
EB MD 144 Left – PM PEAK	$[(31 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	36
WB MD 144 L & L/Thru – AM PEAK	$[(513 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	329
WB MD 144 L & L/Thru – PM PEAK	$[(549 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	353
NB MD 75 Left – AM PEAK	$[(97 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	113
NB MD 75 Left – PM PEAK	$[(299 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	349
SB MD 75 Left – AM PEAK	$[(116 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	135
SB MD 75 Left – PM PEAK	$[(117 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	137
BACKGROUND		
EB MD 144 Left – AM PEAK	$[(48 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	56
EB MD 144 Left – PM PEAK	$[(48 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	56
WB MD 144 L & L/Thru – AM PEAK	$[(546 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	350
WB MD 144 L & L/Thru – PM PEAK	$[(628 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	403
NB MD 75 Left – AM PEAK	$[(134 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	156
NB MD 75 Left – PM PEAK	$[(386 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	450
SB MD 75 Left – AM PEAK	$[(145 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	169
SB MD 75 Left – PM PEAK	$[(134 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	156
FUTURE		
EB MD 144 Left – AM PEAK	$[(48 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	56
EB MD 144 Left – PM PEAK	$[(48 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	56
WB MD 144 L & L/Thru – AM PEAK	$[(554 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	355
WB MD 144 L & L/Thru – PM PEAK	$[(632 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	406
NB MD 75 Left – AM PEAK	$[(136 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	159
NB MD 75 Left – PM PEAK	$[(399 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	466
SB MD 75 Left – AM PEAK	$[(145 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	169
SB MD 75 Left – PM PEAK	$[(134 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	156

95TH Percentile Queuing Analysis Calculations – Signalized Intersections

$$\text{SHA Formula} = \frac{\text{CLV Volume} \times \text{Cycle Length}}{3600 \text{ (sec/hr)}} = \text{Avg Veh/Cycle}$$

MD 75 @ I- 70 Westbound Ramps (120 sec AM, 120 sec PM)

	Calculations	Queue Length (ft)
EXISTING		
WB I-70 Left/Thru – AM PEAK	$[(104 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	121
WB I-70 Left/Thru – PM PEAK	$[(110 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	128
NB MD 75 Left – AM PEAK	$[(168 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	196
NB MD 75 Left – PM PEAK	$[(283 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	330
BACKGROUND		
WB I-70 Left/Thru – AM PEAK	$[(107 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	125
WB I-70 Left/Thru – PM PEAK	$[(113 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	132
NB MD 75 Left – AM PEAK	$[(180 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	210
NB MD 75 Left – PM PEAK	$[(309 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	361
FUTURE		
WB I-70 Left/Thru – AM PEAK	$[(152 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	177
WB I-70 Left/Thru – PM PEAK	$[(136 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	159
NB MD 75 Left – AM PEAK	$[(196 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	229
NB MD 75 Left – PM PEAK	$[(358 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	418

95TH Percentile Queuing Analysis Calculations – Signalized Intersections

$$\text{SHA Formula} = \frac{\text{CLV Volume} \times \text{Cycle Length}}{3600 \text{ (sec/hr)}} = \text{Avg Veh/Cycle}$$

MD 75 @ I- 70 Eastbound Ramps (120 sec AM, 120 sec PM)

	Calculations	Queue Length (ft)
EXISTING		
EB I-70 L & L/Thru – AM PEAK	$[(257 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	165
EB I-70 L & L/Thru – PM PEAK	$[(674 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	432
SB MD 75 Left – AM PEAK	$[(508 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	593
SB MD 75 Left – PM PEAK	$[(200 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	233
BACKGROUND		
EB I-70 L & L/Thru – AM PEAK	$[(345 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	221
EB I-70 L & L/Thru – PM PEAK	$[(887 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	569
SB MD 75 Left – AM PEAK	$[(594 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	693
SB MD 75 Left – PM PEAK	$[(248 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	289
FUTURE		
EB I-70 L & L/Thru – AM PEAK	$[(345 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	221
EB I-70 L & L/Thru – PM PEAK	$[(887 \times 0.55 \times 120)/3600] \times 1.4 \times 25$	569
SB MD 75 Left – AM PEAK	$[(594 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	693
SB MD 75 Left – PM PEAK	$[(248 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	289

95TH Percentile Queuing Analysis Calculations – Signalized Intersections

$$\text{SHA Formula} = \frac{\text{CLV Volume} \times \text{Cycle Length}}{3600 \text{ (sec/hr)}} = \text{Avg Veh/Cycle}$$

MD 75 @ MD 80 (120 sec AM, 120 sec PM)

	Calculations	Queue Length (ft)
EXISTING		
EB MD 80 Left – AM PEAK	$[(77 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	90
EB MD 80 Left – PM PEAK	$[(100 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	117
SB MD 75 Left/Right – AM PEAK	$[(363 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	424
SB MD 75 Left/Right – PM PEAK	$[(280 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	327
BACKGROUND		
EB MD 80 Left – AM PEAK	$[(79 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	92
EB MD 80 Left – PM PEAK	$[(103 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	120
SB MD 75 Left/Right – AM PEAK	$[(391 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	456
SB MD 75 Left/Right – PM PEAK	$[(298 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	348
FUTURE		
EB MD 80 Left – AM PEAK	$[(87 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	102
EB MD 80 Left – PM PEAK	$[(107 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	125
SB MD 75 Left/Right – AM PEAK	$[(395 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	461
SB MD 75 Left/Right – PM PEAK	$[(317 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	370

95TH Percentile Queuing Analysis Calculations – Signalized Intersections

$$\text{SHA Formula} = \frac{\text{CLV Volume} \times \text{Cycle Length}}{3600 \text{ (sec/hr)}} = \text{Avg Veh/Cycle}$$

MD 144 @ Boyers Mill Road (120 sec AM, 120 sec PM)

	Calculations	Queue Length (ft)
EXISTING		
EB MD 144 Left – AM PEAK	$[(133 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	155
EB MD 144 Left – PM PEAK	$[(203 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	237
SB Boyers Mill Left – AM PEAK	$[(225 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	263
SB Boyers Mill Left – PM PEAK	$[(204 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	238
BACKGROUND		
EB MD 144 Left – AM PEAK	$[(203 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	237
EB MD 144 Left – PM PEAK	$[(347 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	405
SB Boyers Mill Left – AM PEAK	$[(285 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	333
SB Boyers Mill Left – PM PEAK	$[(242 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	282
FUTURE		
EB MD 144 Left – AM PEAK	$[(203 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	237
EB MD 144 Left – PM PEAK	$[(347 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	405
SB Boyers Mill Left – AM PEAK	$[(285 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	333
SB Boyers Mill Left – PM PEAK	$[(242 \times 1.0 \times 120)/3600] \times 1.4 \times 25$	282

APPENDIX IV

**BACKGROUND
DEVELOPMENT DATA**

Table 1. Trip Generation Rates and Totals for Background Developments**TRIP GENERATION (USE ITE BY REGION)****1. Eaglehead on the Lakes**

Traffic Impact Study Approved Units	Proposed Units	MORNING PEAK HOUR			EVENING PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
	Alpine						
		Trips/SFD (Region 4)			0.18	0.53	0.71
		0.53	0.31	0.84			
100	100 Single-Family Detached Units	18	53	71	53	31	84
	Hamptons West						
		Trips/SFD (Region 1&2)			0.18	0.53	0.71
		0.46	0.27	0.73			
300	217 Single-Family Detached Units	39	115	154	100	59	159
		Trips/Townhouse (Region 1&2)			0.06	0.27	0.33
		0.27	0.13	0.40			
150	189 Townhouse Units	11	51	62	51	25	76
	Total trips for Hamptons West	50	166	216	151	84	235
	Hamptons East						
		Trips/SFD (Region 1&2)			0.18	0.53	0.71
		0.46	0.27	0.73			
300	300 Single-Family Detached Units	54	159	213	138	81	219
		Trips/Townhouse (Region 1&2)			0.06	0.27	0.33
		0.27	0.13	0.40			
135	135 Townhouse Units	8	36	44	36	18	54
	Total trips for Hamptons East	62	195	257	174	99	273
	Town Center (11 SFH, 52 TH built)						
		Trips/SFD (Region 5)			0.18	0.54	0.72
		0.55	0.32	0.87			
300	136 (125 units remaining)						
	Single-Family Detached Units (11 units built)	23	68	91	69	40	109
		Trips/Townhouse (Region 5)			0.05	0.27	0.32
		0.26	0.13	0.39			
900	631 (579 units remaining)						
	Townhouse Units (52 units built)	29	156	185	151	75	226
400	418 Apartment Units	42	167	209	161	87	248
200,000	200,000 sq.ft. Shopping Center	142	90	232	496	516	1012
	Pass-by trips (PM-32%)				-159	-165	-324
	Net Shopping Center trips	142	90	232	337	351	688
	100,000 sf commercial will remain on the north side of MD 144; 100,000 sf commercial will be replaced by South Commercial						
	Total trips for Town Center	236	481	717	718	553	1271

Table 1. Trip Generation Rates and Totals for Background Developments, Continued**1. Eaglehead on the Lakes**

Traffic Impact Study Approved Units	Proposed Units	MORNING PEAK HOUR			EVENING PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
300	Westridge	<i>Trips/SFD (Region 1&2)</i>					
		<i>0.18</i>	<i>0.53</i>	<i>0.71</i>	<i>0.46</i>	<i>0.27</i>	<i>0.73</i>
	300 Single-Family Detached Units	54	159	213	138	81	219
100		<i>Trips/Townhouse (Region 1&2)</i>					
		<i>0.06</i>	<i>0.27</i>	<i>0.33</i>	<i>0.27</i>	<i>0.13</i>	<i>0.40</i>
	100 Townhouse Units	6	27	33	27	13	40
	Total trips for Westridge	60	186	246	165	94	259
100	Woodridge (12 SFH built)	<i>Trips/SFD (Region 1&2)</i>					
		<i>0.18</i>	<i>0.53</i>	<i>0.71</i>	<i>0.46</i>	<i>0.27</i>	<i>0.73</i>
	150 (138 units remaining)						
50		<i>Trips/SFD (Region 1&2)</i>					
		<i>0.18</i>	<i>0.53</i>	<i>0.71</i>	<i>0.46</i>	<i>0.27</i>	<i>0.73</i>
	Single-Family Detached Units (12 units built)	25	73	98	63	37	100
50		<i>Trips/Townhouse (Region 1&2)</i>					
		<i>0.06</i>	<i>0.27</i>	<i>0.33</i>	<i>0.27</i>	<i>0.13</i>	<i>0.40</i>
	0 Townhouse Units	0	0	0	0	0	0
	Total trips for Woodridge	25	73	98	63	37	100
50	Eaglestream	<i>Trips/Townhouse (Region 1&2)</i>					
		<i>0.06</i>	<i>0.27</i>	<i>0.33</i>	<i>0.27</i>	<i>0.13</i>	<i>0.40</i>
	50 Townhouse Units	3	14	17	14	7	21
50	Nightingale	<i>Trips/SFD (Region 3)</i>					
		<i>0.18</i>	<i>0.55</i>	<i>0.73</i>	<i>0.59</i>	<i>0.34</i>	<i>0.93</i>
	50 Single-Family Detached Units	9	28	37	30	17	47
100	Aspen	<i>Trips/Townhouse (Region 1&2)</i>					
		<i>0.06</i>	<i>0.27</i>	<i>0.33</i>	<i>0.27</i>	<i>0.13</i>	<i>0.40</i>
	100 Townhouse Units	6	27	33	27	13	40
	Day Care - Finn Drive						
	11,000 SF Day Care Center	Built					

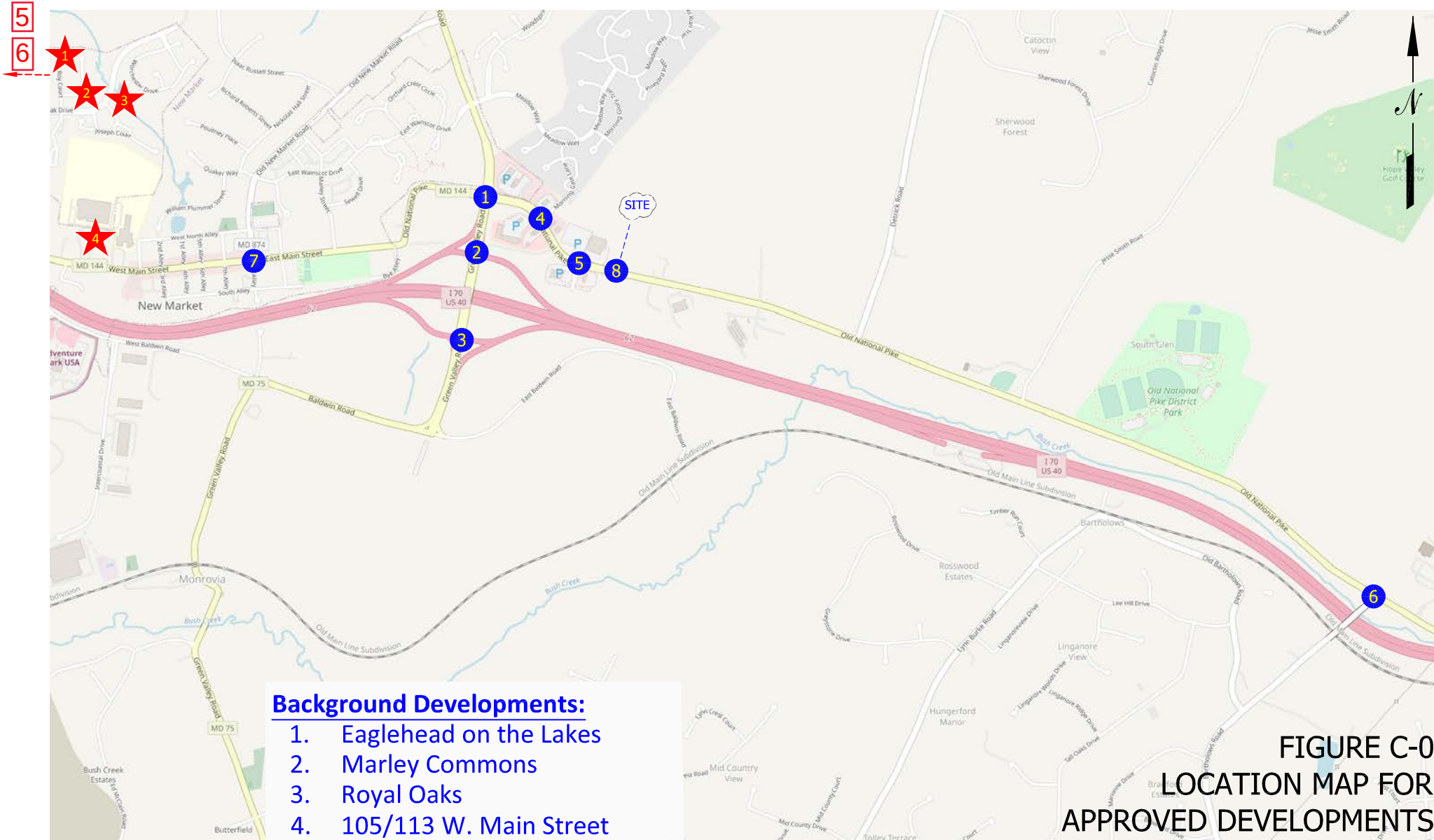
Table 1. Trip Generation Rates and Totals for Background Developments, Continued**Linganore Town Center - South Commercial**

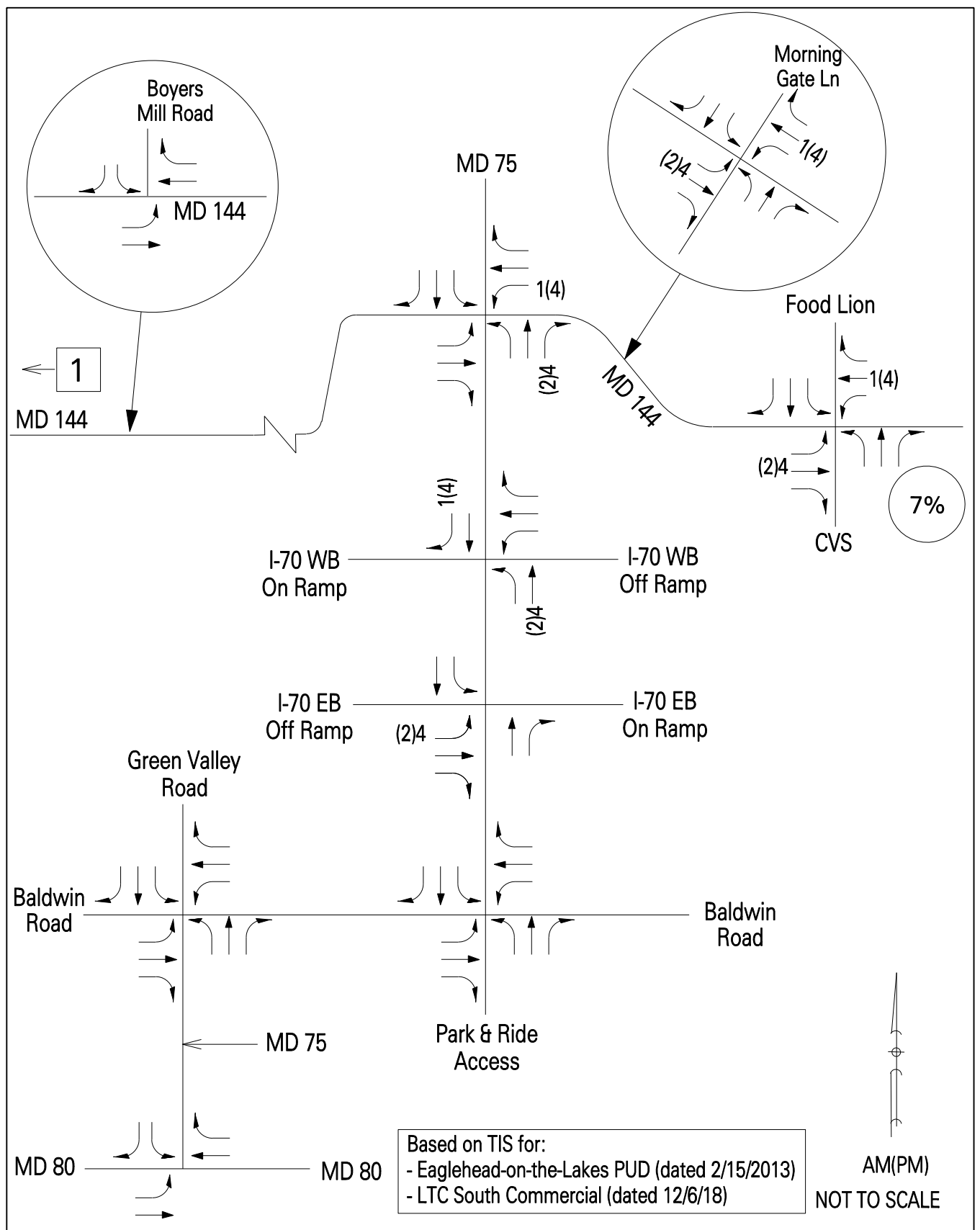
TRIP TOTALS	MORNING PEAK HOUR			EVENING PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
<i>Fast Food Rest. w/Drive-Thru (ksf, ITE-934)</i>						
10,000 sq.ft.	205	197	402	170	157	327
Less Internal Trips	-8	-6	-14	-28	-55	-83
<u>Pass-by Trips (49%, 50%, 50%)</u>	<u>-97</u>	<u>-94</u>	<u>-191</u>	<u>-71</u>	<u>-51</u>	<u>-122</u>
New Trips	100	97	197	71	51	122
<i>High Turnover (Sit-Down) Rest. (ksf, ITE-932)</i>						
19,500 sq.ft.	107	87	194	118	73	191
Less Internal Trips	-4	-3	-7	-19	-26	-45
<u>Pass-by Trips (0, 43%, 43%)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>-43</u>	<u>-20</u>	<u>-63</u>
New Trips	103	84	187	56	27	83
<i>Convenience Market w/Gasoline Pumps (ksf, ITE-853)</i>						
3,000 sq.ft.	61	61	122	74	74	148
Less Internal Trips	-5	-8	-13	-37	-22	-59
<u>Pass-by Trips (63%)</u>	<u>-35</u>	<u>-33</u>	<u>-68</u>	<u>-23</u>	<u>-33</u>	<u>-56</u>
New Trips	21	20	41	14	19	33
<i>Drive-in Bank (ksf, ITE-912)</i>						
8,500 sq.ft.	47	34	81	87	87	174
Less Internal Trips	-4	-4	-8	-44	-25	-69
<u>Pass-by Trips (29%, 35%, 38%)</u>	<u>-12</u>	<u>-9</u>	<u>-21</u>	<u>-15</u>	<u>-22</u>	<u>-37</u>
New Trips	31	21	52	28	40	68
<i>Day Care Center (ksf, ITE-565)</i>						
11,000 sq.ft.	64	57	121	57	65	122
Total	Pass-by Trips	144	136	280	152	126
	New Trips	319	279	598	226	202

Table 1. Trip Generation Rates and Totals for Background Developments, Continued

		MORNING PEAK HOUR			EVENING PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
2. Marley Commons							
8	Single-Family Detached Un	1	5	6	5	3	8
3. Royal Oaks							
31	Single-Family Detached Un	8	23	31	23	14	37
4. 105/113 W. Main Street							
Existing/Approved Uses		(Trips obtained from 105/113 W. Main Street TIS dated 12/21/2020, prepared by Wells + Associates)					
1	Single-Family Detached Un	0	1	1	1	0	1
3,712	sq. ft. Arts and Crafts Store	9	9	18	11	13	24
7,520	sq. ft. Tractor Supply Store	7	3	10	5	6	11
8	Mobile Home Units	<u>1</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>	<u>4</u>
Total Trips		17	15	32	19	21	40
Proposed Uses							
1,540	sq. ft. Small Office Building	2	1	3	1	3	4
4,105	sq. ft. Restaurant	23	18	41	25	16	41
3,270	sq. ft. Restaurant	2	2	4	21	23	44
27	Townhouse Units	<u>3</u>	<u>11</u>	<u>14</u>	<u>12</u>	<u>7</u>	<u>19</u>
Total Trips		30	32	62	59	49	108
Net Difference		13	17	30	40	28	68

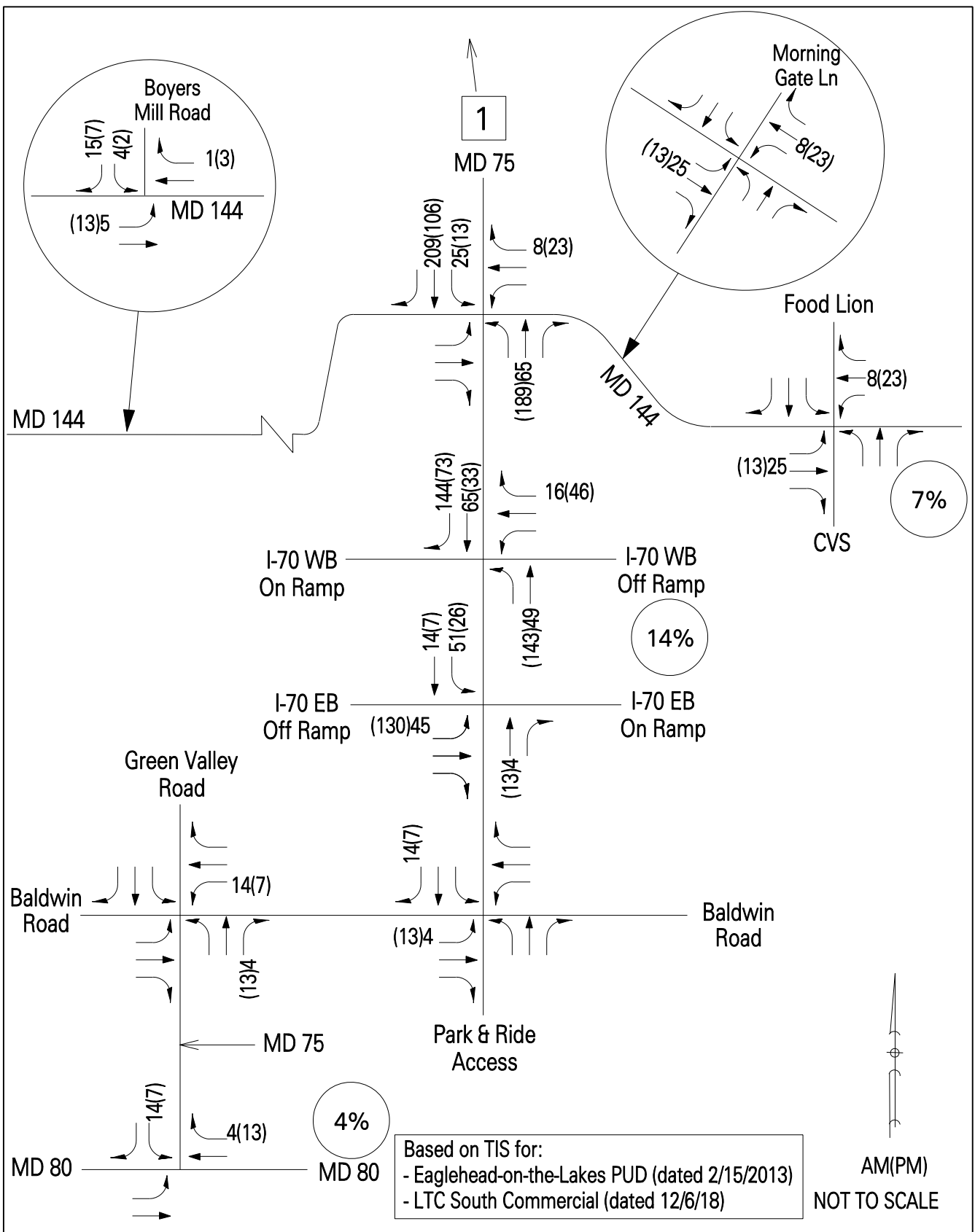
Trips from these background developments were assigned throughout the roadway network based on the previously approved Traffic Impact Studies. The trip assignment for all these developments is found on Figure 6 while the individual background development trip distribution can be found in Appendix C.





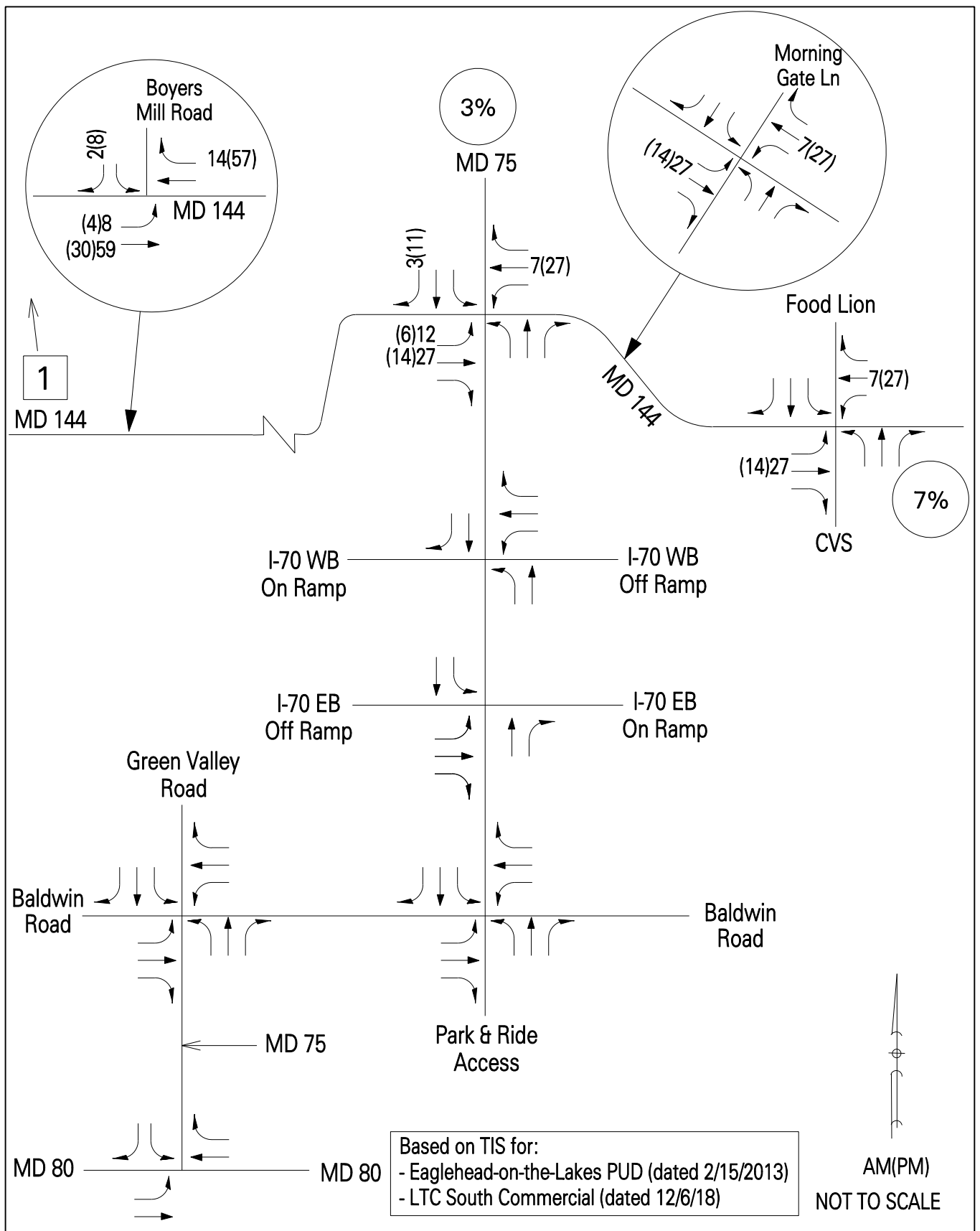
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BACKGROUND 1
 Eaglehead (Alpine)



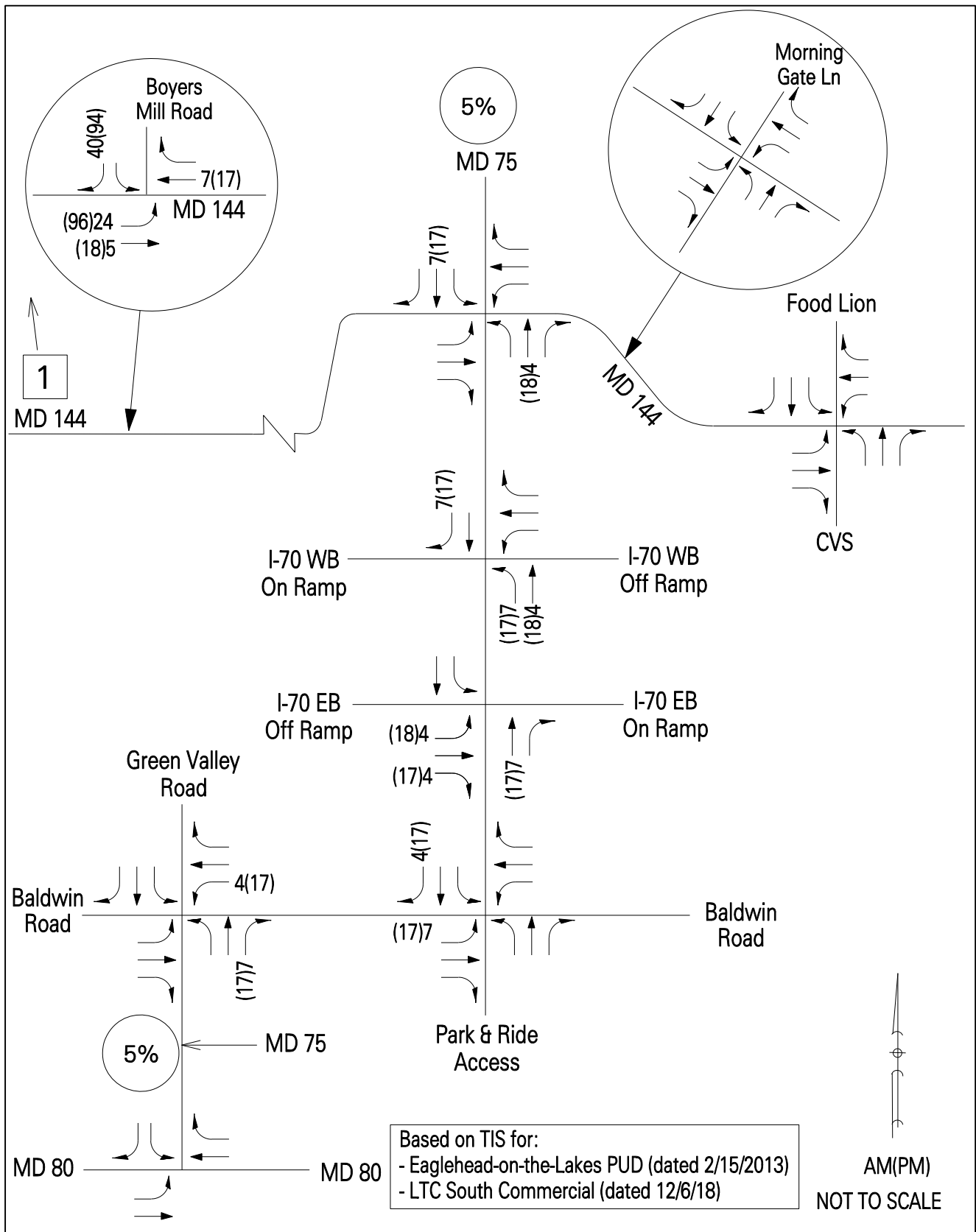
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BACKGROUND 1
Eaglehead (Hamptons West; Hamptons East)



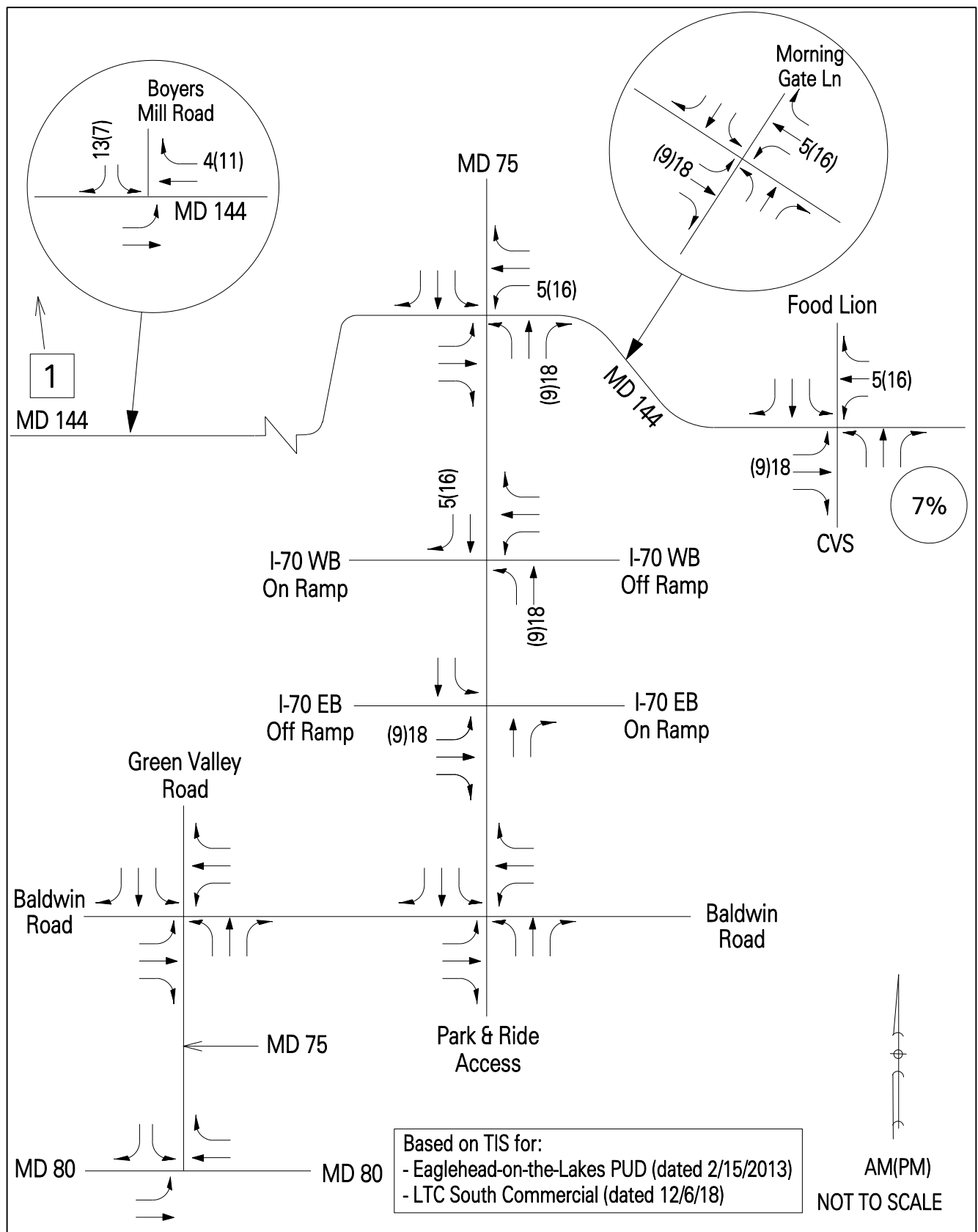
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BACKGROUND 1
Eaglehead (Town Center Residential)



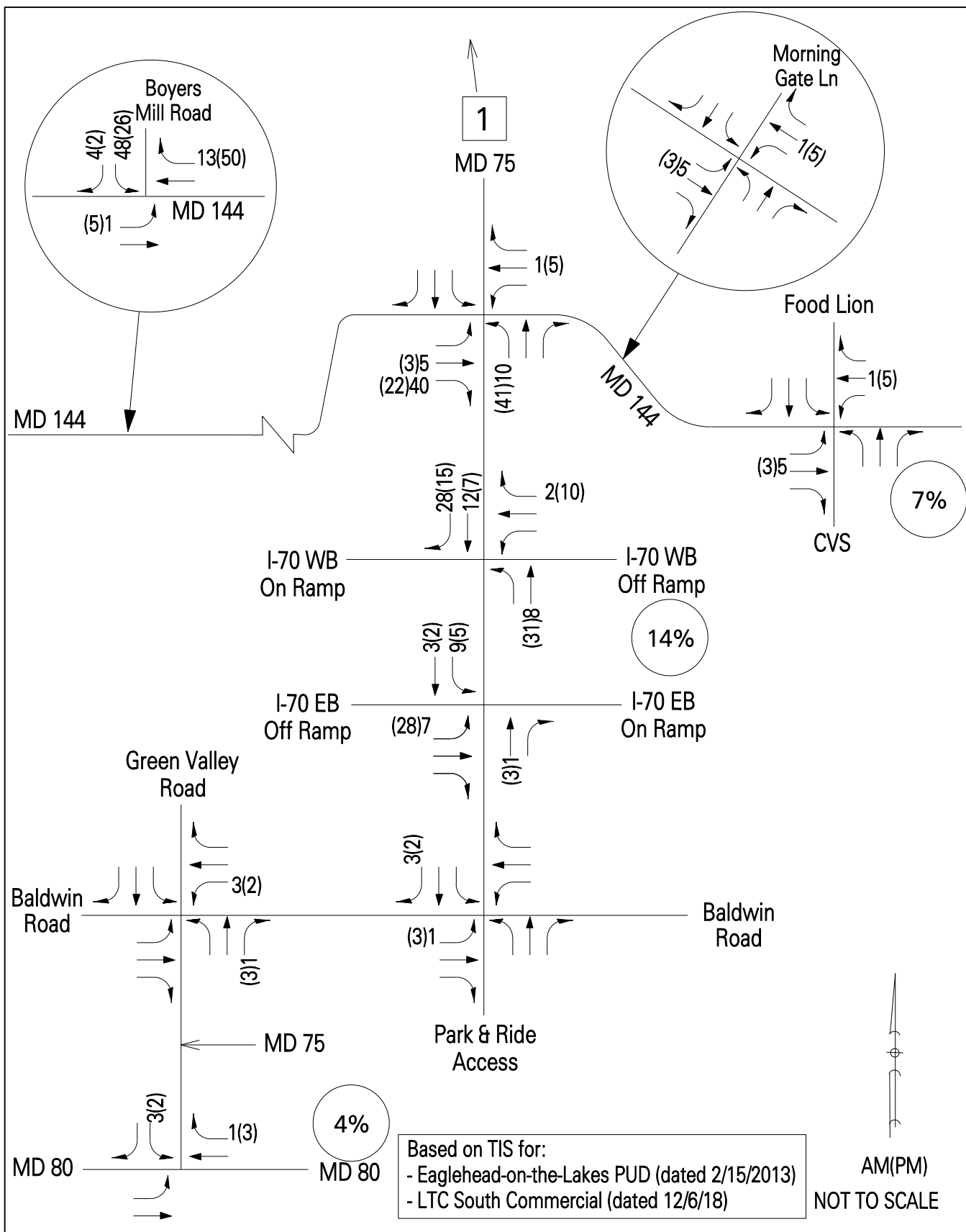
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BACKGROUND 1
 Eaglehead (Town Center Commercial)



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BACKGROUND 1
Eaglehead (Westridge & Woodridge)

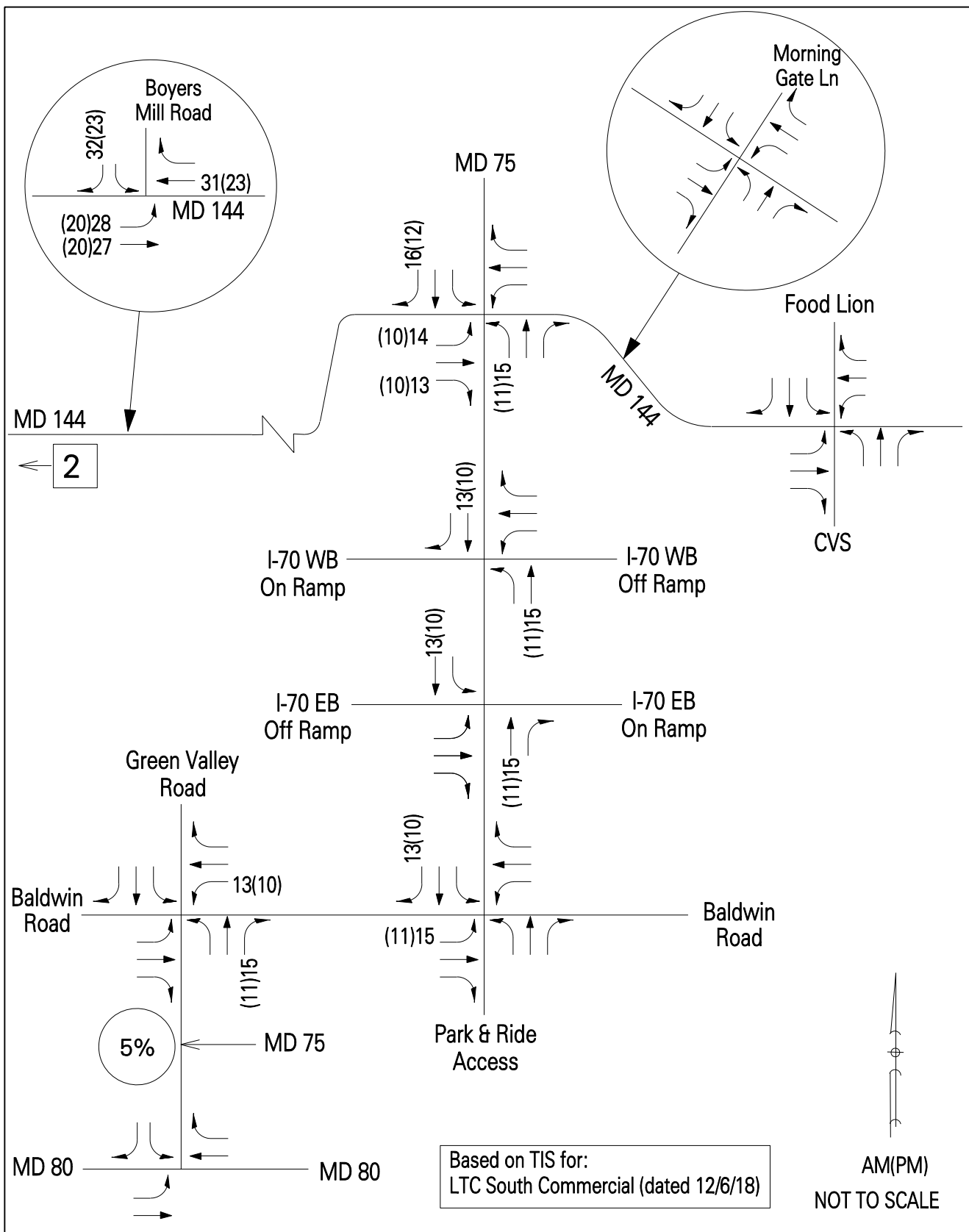


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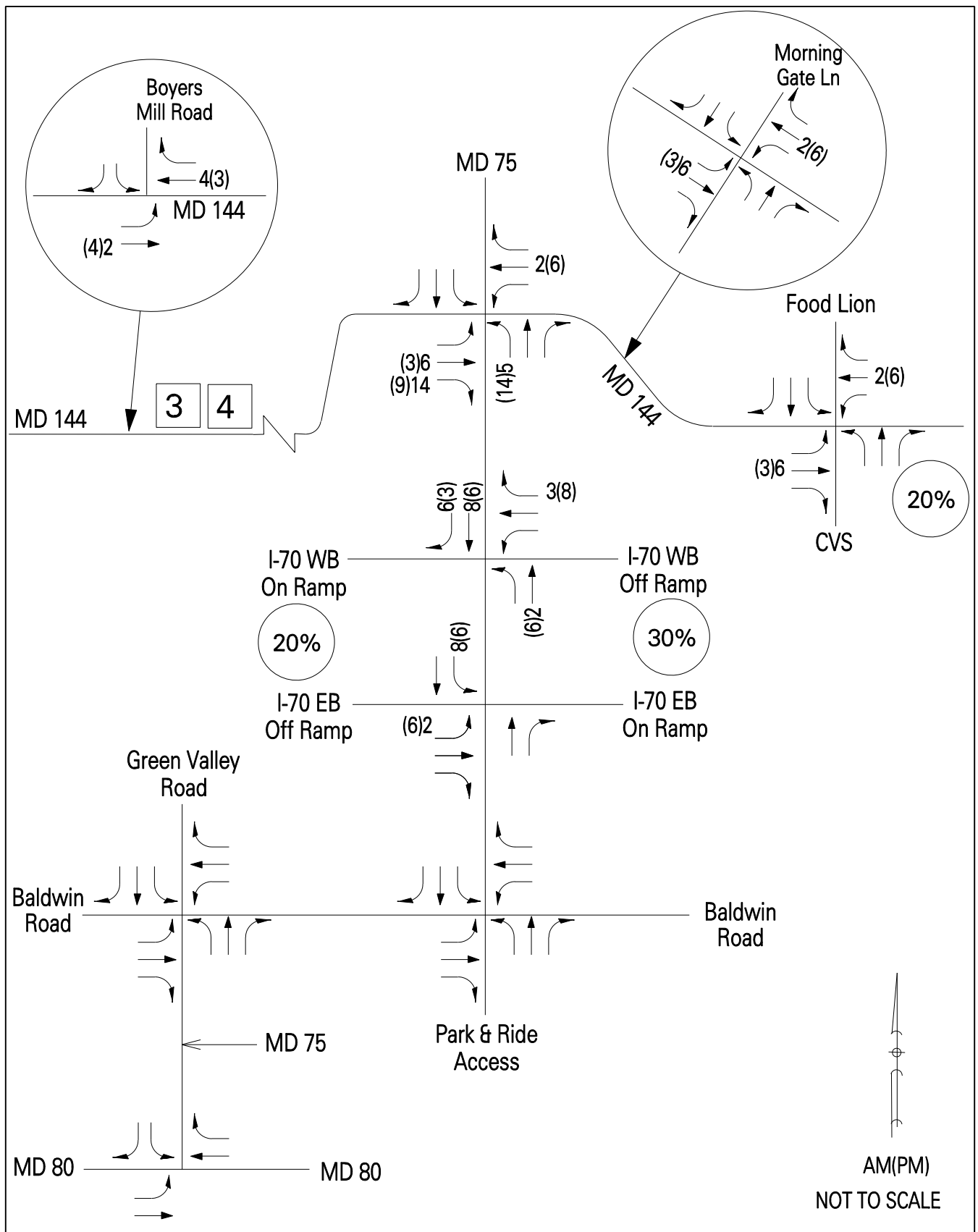
BACKGROUND 1

Eaglehead (Eaglestream; Nightingale; Aspen)



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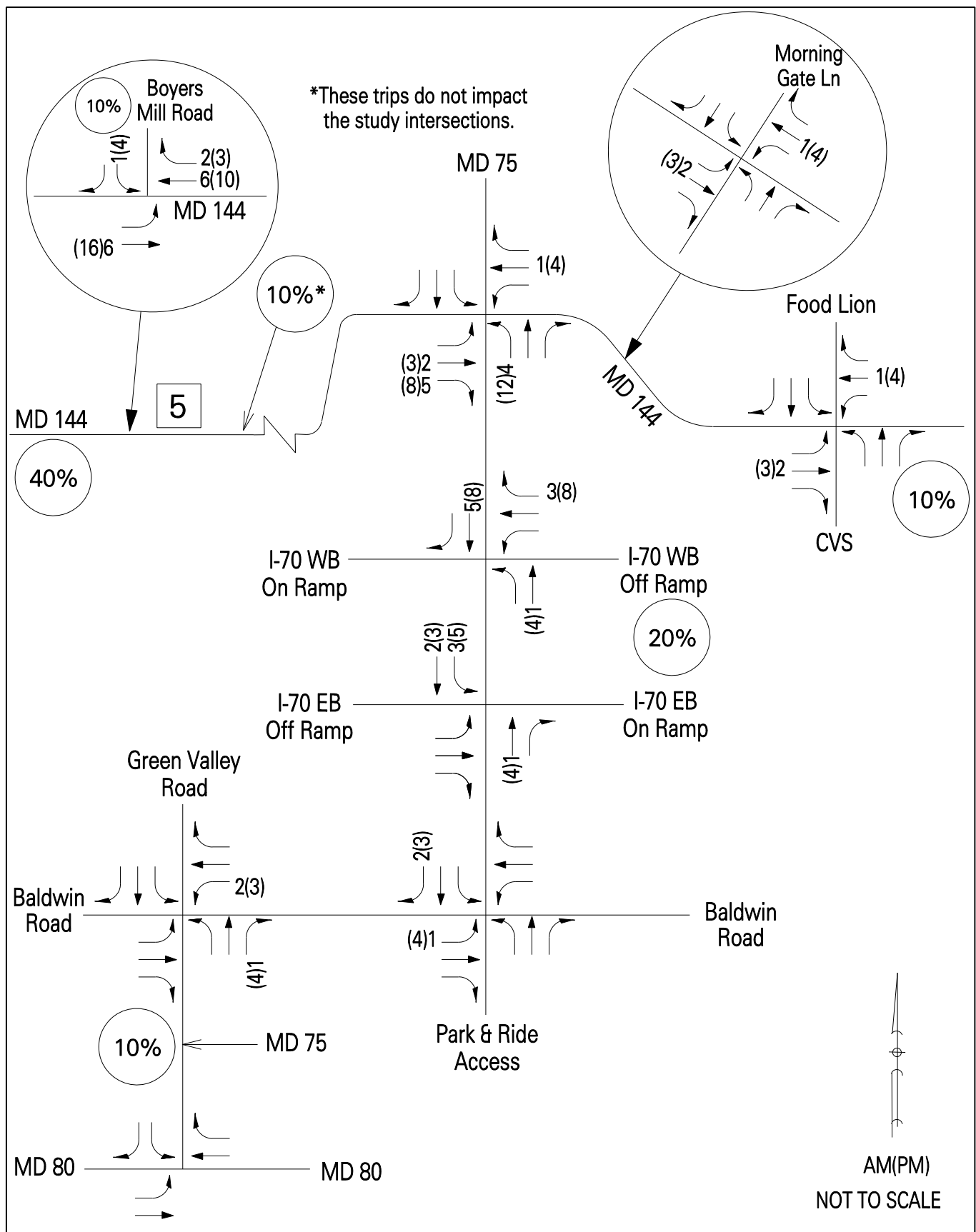
BACKGROUND 2
 LTC South Commercial



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BACKGROUNDS 3 & 4
Marley Commons; Royal Oaks



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BACKGROUND 5
150/113 West Main, New Market

APPENDIX V

TRAFFIC COUNTS/ AERIAL EXHIBITS

PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 75 (GREEN VALLEY) @ MD 144 (OLD NATIONAL PIKE) COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

TIME	GREEN VALLEY RD NORTHBOUND			GREEN VALLEY RD SOUTHBOUND			OLD NATIONAL PIKE EASTBOUND			OLD NATIONAL PIKE WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15	4	18	22	15	96	2	0	19	41	38	2	2	259
6:15-6:30	7	28	32	12	128	0	0	15	49	51	6	6	334
6:30-6:45	8	32	31	20	135	2	0	17	51	62	6	11	375
6:45-7:00	15	66	40	18	132	3	4	21	60	63	8	29	459
7:00-7:15	15	95	35	27	156	0	7	21	52	85	19	42	554
7:15-7:30	23	44	46	25	184	10	3	41	45	80	21	27	549
7:30-7:45	20	49	59	42	161	11	5	64	64	105	45	15	640
7:45-8:00	32	45	62	24	156	10	6	47	48	89	47	22	588
8:00-8:15	22	40	65	25	118	2	7	59	77	92	34	21	562
8:15-8:30	31	66	44	25	124	9	2	42	61	81	30	26	541
8:30-8:45	22	48	52	27	129	6	3	50	61	82	33	25	538
8:45-9:00	32	43	63	26	95	4	9	64	66	93	34	24	553
PEAK HR 7:15-8:15	97	178	232	116	619	33	21	211	234	366	147	85	PHF 0.91
TOTALS													
PM													
3:00-3:15	52	117	101	23	60	5	13	45	33	85	35	33	602
3:15-3:30	48	133	137	18	66	3	10	40	40	78	43	59	675
3:30-3:45	42	123	96	18	55	7	11	68	29	80	55	54	638
3:45-4:00	55	158	112	30	71	4	8	63	33	85	58	49	726
4:00-4:15	51	181	121	29	82	6	16	50	26	83	37	61	743
4:15-4:30	59	186	133	23	81	6	7	58	35	50	31	74	743
4:30-4:45	61	172	118	27	77	18	5	38	37	80	49	75	757
4:45-5:00	84	202	130	34	76	6	11	54	31	79	56	63	826
5:00-5:15	78	139	104	27	70	8	7	53	43	85	68	62	744
5:15-5:30	76	183	139	29	77	9	8	57	38	70	62	75	823
5:30-5:45	71	112	105	29	75	10	10	54	33	104	59	61	723
5:45-6:00	67	117	95	38	82	5	9	55	29	76	62	40	675
PEAK HR 4:30-5:30	299	696	491	117	300	41	31	202	149	314	235	275	PHF 0.95
TOTALS													

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M:\3877



MD 75 & Old National Pike

Legend

Google Earth

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200 ft

PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 75 (GREEN VALLEY RD) @ I-70 WB RAMPS

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

TIME	GREEN VALLEY RD NORTHBOUND			GREEN VALLEY RD SOUTHBOUND			EASTBOUND			I-70 WB OFF RAMP WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15	10	35			151	25				10	1	8	240
6:15-6:30	15	47			182	43				15	0	21	323
6:30-6:45	19	54			166	63				26	0	15	343
6:45-7:00	21	90			184	67				21	0	26	409
7:00-7:15	36	120			192	85				23	1	34	491
7:15-7:30	41	81			214	93				33	0	26	488
7:30-7:45	38	88			203	111				23	0	40	503
7:45-8:00	53	107			199	95				24	0	35	513
8:00-8:15	33	89			178	96				31	0	39	466
8:15-8:30	44	102			157	79				23	0	35	440
8:30-8:45	51	88			162	84				23	0	37	445
8:45-9:00	47	99			140	88				19	0	38	431
PEAK HR 7:00-8:00 TOTALS	168	396			808	384				103	1	135	PHF 0.97
PM													
3:00-3:15	43	163			81	84				32	0	104	507
3:15-3:30	64	199			95	83				22	0	112	575
3:30-3:45	71	184			84	78				28	0	100	545
3:45-4:00	76	224			100	78				31	1	113	623
4:00-4:15	83	224			81	95				29	0	142	654
4:15-4:30	48	230			99	70				30	0	115	592
4:30-4:45	77	245			105	81				24	0	155	687
4:45-5:00	60	236			110	70				25	0	139	640
5:00-5:15	92	215			106	66				33	0	133	645
5:15-5:30	54	236			125	61				27	1	137	641
5:30-5:45	66	175			106	90				34	0	128	599
5:45-6:00	64	167			110	66				22	0	108	537
PEAK HR 4:30-5:30 TOTALS	283	932			446	278				109	1	564	PHF 0.95



MD 75 @ I-70 WB Ramps

Legend

National Pike

Green Valley Rd

75

Google Earth

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200 ft



PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 75 (GREEN VALLEY RD) @ I-70 EB RAMPS

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

SEE - FACTORED 2021 PM COUNT

TIME	GREEN VALLEY RD NORTHBOUND			GREEN VALLEY RD SOUTHBOUND			I-70 EB OFF RAMP EASTBOUND			WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15		16	31	93	76		27	0	16				259
6:15-6:30		24	24	122	54		34	0	27				285
6:30-6:45		33	36	124	51		40	0	30				314
6:45-7:00		48	32	139	60		57	2	34				372
7:00-7:15		100	24	120	96		60	0	41				441
7:15-7:30		58	43	138	98		58	0	55				450
7:30-7:45		69	39	130	105		58	0	48				449
7:45-8:00		72	25	120	95		80	1	49				442
8:00-8:15		68	22	118	88		60	0	29				385
8:15-8:30		63	33	93	73		79	3	33				377
8:30-8:45		87	29	108	73		55	0	27				379
8:45-9:00		72	27	92	56		71	0	27				345
PEAK HR 7:00-8:00 TOTALS		299	131	508	394		256	1	193				PHF 0.99

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ALL PM PEAK HOUR VOLUMES FACTORED TO BALANCE 2022 COUNTS
 (*EB RIGHT VOLUME FACTORED 10%; ALL OTHER VOLUMES FACTORED 30%)

TOTALS TURNING MOVEMENT COUNT - SUMMARY																					
Intersection of: MD 75 and: I-70 EB Ramps Location: Frederick County, Maryland										Counted by: VCU Date: February 25, 2021 Weather: Sunny/Cool Entered by: SN					Thursday Star Rating: 4						
TIME	TRAFFIC FROM NORTH MD 75					TRAFFIC FROM SOUTH MD 75					TRAFFIC FROM EAST I-70 EB On Ramp					TRAFFIC FROM WEST I-70 EB Off Ramp					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
6:00 - 6:15	0	71	81	0	152	19	19	0	0	38	0	0	0	0	0	34	0	20	0	54	244
6:15 - 6:30	0	60	88	0	148	15	28	0	0	43	0	0	0	0	0	28	0	34	0	62	253
6:30 - 6:45	0	68	114	0	182	22	43	0	0	65	0	0	0	0	0	30	0	40	0	70	317
6:45 - 7:00	0	73	106	0	179	21	35	0	0	56	0	0	0	0	0	34	0	57	0	91	326
7:00 - 7:15	0	71	126	0	197	22	54	0	0	76	0	0	0	0	0	41	0	44	0	85	358
7:15 - 7:30	0	87	133	0	220	35	50	0	0	85	0	0	0	0	0	42	0	55	0	97	402
7:30 - 7:45	0	95	110	0	205	22	75	0	0	97	0	0	0	0	0	47	0	50	0	97	399
7:45 - 8:00	0	67	111	0	178	30	69	0	0	99	0	0	0	0	0	67	1	54	0	122	399
8:00 - 8:15	0	56	90	0	146	38	65	0	0	103	0	0	0	0	0	44	0	59	0	103	352
8:15 - 8:30	0	65	81	0	146	30	64	0	0	94	0	0	0	0	0	45	0	66	0	111	351
8:30 - 8:45	0	39	85	0	124	21	73	0	0	94	0	0	0	0	0	31	0	62	0	93	311
8:45 - 9:00	0	54	66	0	120	20	65	0	0	85	0	0	0	0	0	25	0	64	0	89	294
3 Hr Totals	0	806	1191	0	1997	295	640	0	0	935	0	0	0	0	0	468	1	605	0	1074	4006
1 Hr Totals																					
6:00 - 7:00	0	272	389	0	661	77	125	0	0	202	0	0	0	0	0	126	0	151	0	277	1140
6:15 - 7:15	0	272	434	0	706	80	160	0	0	240	0	0	0	0	0	133	0	175	0	308	1254
6:30 - 7:30	0	299	479	0	778	100	182	0	0	282	0	0	0	0	0	147	0	196	0	343	1403
6:45 - 7:45	0	326	475	0	801	100	214	0	0	314	0	0	0	0	0	164	0	206	0	370	1485
7:00 - 8:00	0	320	480	0	800	109	248	0	0	357	0	0	0	0	0	197	1	203	0	401	1558
7:15 - 8:15	0	305	444	0	749	125	259	0	0	384	0	0	0	0	0	200	1	218	0	419	1552
7:30 - 8:30	0	283	392	0	675	120	273	0	0	393	0	0	0	0	0	203	1	229	0	433	1501
7:45 - 8:45	0	227	367	0	594	119	271	0	0	390	0	0	0	0	0	187	1	241	0	429	1413
8:00 - 9:00	0	214	322	0	536	109	267	0	0	376	0	0	0	0	0	145	0	251	0	396	1308
PEAK HOUR																					
7:00 - 8:00	0	320	480	0	800	109	248	0	0	357	0	0	0	0	0	197	1	203	0	401	1558
PM																					
4:00 - 4:15	0	63	38	0	101	16	106	0	0	122	0	0	0	0	0	32	0	128	0	160	383
4:15 - 4:30	0	46	47	0	93	34	100	0	0	134	0	0	0	0	0	40	0	111	0	151	378
4:30 - 4:45	0	60	54	0	114	27	79	0	0	106	0	0	0	0	0	48	0	104	0	152	372
4:45 - 5:00	0	68	40	0	108	25	117	0	0	142	0	0	0	0	0	32	0	116	0	148	398
5:00 - 5:15	0	61	28	0	89	26	134	0	0	160	0	0	0	0	0	29	2	137	0	168	417
5:15 - 5:30	0	84	47	0	131	23	89	0	0	112	0	0	0	0	0	43	0	138	0	181	424
5:30 - 5:45	0	62	39	0	101	26	85	0	0	111	0	0	0	0	0	37	0	126	0	163	375
5:45 - 6:00	0	62	46	0	108	16	85	0	0	101	0	0	0	0	0	34	0	103	0	137	346
2 Hr Totals	0	506	339	0	845	193	795	0	0	988	0	0	0	0	0	295	2	963	0	1260	3093
1 Hr Totals																					
4:00 - 5:00	0	237	179	0	416	102	402	0	0	504	0	0	0	0	0	152	0	459	0	611	1531
4:15 - 5:15	0	235	169	0	404	112	430	0	0	542	0	0	0	0	0	149	2	468	0	619	1565
4:30 - 5:30	0	273	169	0	442	101	419	0	0	520	0	0	0	0	0	152	2	495	0	649	1611
4:45 - 5:45	0	275	154	0	429	100	425	0	0	525	0	0	0	0	0	141	2	517	0	660	1614
5:00 - 6:00	0	269	160	0	429	91	393	0	0	484	0	0	0	0	0	143	2	504	0	649	1562
PEAK HOUR																					
4:45 - 5:45	0	275	154	0	429	100	425	0	0	525	0	0	0	0	0	141	2	517	0	660	1614

358 200

130 553

155* 2 672

MD 75 @ I-70 EB Ramps

Legend



Google Earth

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PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 75 (FINGERBOARD RD) @ MD 80 (GREEN VALLEY RD)

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

TIME	NORTHBOUND			GREEN VALLEY RD SOUTHBOUND			FINGERBOARD RD EASTBOUND			FINGERBOARD RD WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15				39		5	9	27			18	9	107
6:15-6:30				63		8	12	31			19	15	148
6:30-6:45				46		11	16	36			37	25	171
6:45-7:00				52		13	20	36			53	26	200
7:00-7:15				52		14	10	53			56	51	236
7:15-7:30				76		15	17	61			52	46	267
7:30-7:45				88		15	24	88			62	48	325
7:45-8:00				75		15	12	73			73	43	291
8:00-8:15				55		20	26	59			76	34	270
8:15-8:30				72		23	15	54			67	37	268
8:30-8:45				56		9	14	67			112	61	319
8:45-9:00				60		11	16	91			82	34	294
PEAK HR 7:30-8:30 TOTALS				290		73	77	274			278	162	PHF 0.89
PM													
3:00-3:15				35		26	9	62			90	67	289
3:15-3:30				43		9	17	86			72	105	332
3:30-3:45				44		24	22	85			39	94	308
3:45-4:00				51		26	28	33			65	84	287
4:00-4:15				44		12	31	73			106	100	366
4:15-4:30				57		18	33	83			99	100	390
4:30-4:45				58		13	18	123			103	78	393
4:45-5:00				51		14	19	93			122	86	385
5:00-5:15				58		15	30	90			103	78	374
5:15-5:30				52		14	21	89			93	71	340
5:30-5:45				51		17	26	101			91	63	349
5:45-6:00				48		14	16	66			78	61	283
PEAK HR 4:15-5:15 TOTALS				224		60	100	389			427	342	PHF 0.98

PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 75 (GREEN VALLEY) @ BALDWIN RD/PARK-N-RIDE

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

TIME	PARK-N-RIDE NORTHBOUND			GREEN VALLEY RD SOUTHBOUND			BALDWIN RD EASTBOUND			BALDWIN RD WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15	0	3	0	0	3	81	44	0	1	0	0	1	133
6:15-6:30	0	2	1	0	4	100	51	0	4	0	0	0	162
6:30-6:45	1	5	0	0	4	97	65	0	4	0	0	0	176
6:45-7:00	0	3	0	0	5	123	89	0	2	0	1	0	223
7:00-7:15	0	2	0	0	4	111	114	0	1	0	0	0	232
7:15-7:30	1	4	1	0	1	152	107	0	3	0	0	0	269
7:30-7:45	1	5	0	0	3	170	100	0	1	0	0	0	280
7:45-8:00	3	1	0	0	5	143	114	1	1	0	1	0	269
8:00-8:15	0	2	0	0	2	135	86	0	0	0	0	0	225
8:15-8:30	0	1	0	0	4	120	97	0	0	0	0	0	222
8:30-8:45	2	4	0	0	5	117	114	0	1	0	0	0	243
8:45-9:00	0	2	0	0	1	116	96	0	0	0	0	1	216
PEAK HR 7:00-8:00 TOTALS	5	12	1	0	13	576	435	1	6	0	1	0	PHF 0.94
PM													
3:00-3:15	2	5	0	0	5	91	137	1	0	0	0	2	243
3:15-3:30	0	6	0	0	2	105	154	0	1	0	0	0	268
3:30-3:45	2	6	0	0	3	100	178	1	2	0	0	0	292
3:45-4:00	0	5	0	0	2	120	154	0	1	0	0	1	283
4:00-4:15	1	8	0	2	5	94	172	0	0	1	0	1	284
4:15-4:30	1	6	0	1	6	119	153	0	1	0	0	0	287
4:30-4:45	0	9	0	0	3	118	181	0	2	0	0	1	314
4:45-5:00	1	5	0	0	2	116	163	1	0	0	0	0	288
5:00-5:15	0	3	0	1	1	128	170	0	1	0	0	0	304
5:15-5:30	0	2	0	0	4	133	149	0	1	0	0	0	289
5:30-5:45	1	5	0	0	6	101	143	1	1	0	1	1	260
5:45-6:00	3	3	0	2	4	103	135	0	1	0	0	0	251
PEAK HR 4:30-5:30 TOTALS	1	19	0	1	10	495	663	1	4	0	0	1	PHF 0.95

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MD 75 @ Baldwin Rd E / Park & Ride



PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 75 (GREEN VALLEY) @ BALDWIN RD

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

TIME	GREEN VALLEY RD NORTHBOUND			GREEN VALLEY RD SOUTHBOUND			BALDWIN RD EASTBOUND			BALDWIN RD WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15	2	0	33	1	0	0	0	11	1	57	24	0	129
6:15-6:30	7	0	44	0	0	0	0	8	0	71	30	1	161
6:30-6:45	2	0	59	0	0	0	0	12	1	58	36	0	168
6:45-7:00	6	0	83	0	0	0	0	9	4	87	46	0	235
7:00-7:15	9	0	99	0	0	0	0	15	0	83	32	0	238
7:15-7:30	7	0	86	0	0	0	0	21	6	108	41	1	270
7:30-7:45	9	1	92	0	0	0	0	12	2	113	51	2	282
7:45-8:00	7	0	86	1	1	0	0	21	1	97	57	2	273
8:00-8:15	4	0	65	0	0	0	0	23	5	92	30	4	223
8:15-8:30	6	2	77	0	1	0	0	19	8	95	32	5	245
8:30-8:45	10	0	83	1	0	0	0	29	2	84	31	3	243
8:45-9:00	7	1	60	0	0	0	0	28	3	78	31	2	210
PEAK HR 7:00-8:00 TOTALS	32	1	363	1	1	0	0	69	9	401	181	5	PHF 0.94
PM													
3:00-3:15	1	1	92	0	0	0	0	48	5	89	7	3	246
3:15-3:30	0	1	128	1	0	0	0	18	2	89	16	1	256
3:30-3:45	1	3	145	3	3	0	0	38	4	92	7	4	300
3:45-4:00	2	1	120	4	4	0	0	30	7	93	25	4	290
4:00-4:15	2	2	133	6	1	0	0	29	5	78	7	5	268
4:15-4:30	3	6	125	4	2	0	0	17	3	102	14	2	278
4:30-4:45	2	1	130	3	2	1	0	42	4	103	11	5	304
4:45-5:00	1	0	141	3	0	0	0	30	3	98	12	2	290
5:00-5:15	0	2	133	1	1	1	0	37	6	131	4	0	316
5:15-5:30	1	0	128	2	0	0	0	17	3	116	8	0	275
5:30-5:45	7	0	103	4	0	0	0	34	13	101	9	1	272
5:45-6:00	0	2	112	3	0	0	1	26	6	87	11	1	249
PEAK HR 4:15-5:15 TOTALS	6	9	529	11	5	2	0	126	16	434	41	9	PHF 0.94

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MD 75 @ Baldwin Rd W



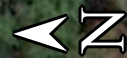
Baldwin Rd

75

75

Baldwin Rd

Green Valley Rd



PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 144 (OLD NATIONAL PIKE) @ BOYERS MILL RD

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

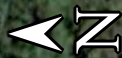
DAY: WEDNESDAY

TIME	NORTHBOUND			BOYERS MILL RD SOUTHBOUND			OLD NATIONAL PIKE EASTBOUND			OLD NATIONAL PIKE WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15				37		28	3	9			16	3	96
6:15-6:30				34		40	5	16			20	3	118
6:30-6:45				40		38	16	13			37	6	150
6:45-7:00				54		44	13	23			26	10	170
7:00-7:15				39		69	14	31			45	5	203
7:15-7:30				63		60	29	39			40	14	245
7:30-7:45				61		48	36	50			55	15	265
7:45-8:00				49		69	34	45			56	25	278
8:00-8:15				52		60	34	54			53	33	286
8:15-8:30				54		42	38	36			40	19	229
8:30-8:45				66		60	21	42			48	35	272
8:45-9:00				62		51	34	54			50	30	281
PEAK HR 7:15-8:15 TOTALS				225		237	133	188			204	87	PHF 0.94
PM													
3:00-3:15				30		20	39	46			65	50	250
3:15-3:30				24		32	48	49			55	56	264
3:30-3:45				39		27	58	71			55	59	309
3:45-4:00				50		32	51	64			61	50	308
4:00-4:15				30		32	49	47			74	47	279
4:15-4:30				48		35	57	73			54	52	319
4:30-4:45				36		43	51	92			87	62	371
4:45-5:00				43		32	54	90			59	62	340
5:00-5:15				63		28	49	94			62	63	359
5:15-5:30				62		28	49	107			73	95	414
5:30-5:45				43		29	52	81			80	67	352
5:45-6:00				44		28	59	79			75	73	358
PEAK HR 4:30-5:30 TOTALS				204		131	203	383			281	282	PHF 0.90

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MD 144 @ Boyers Mill Rd



PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 144 (OLD NATIONAL PIKE) @ MORNING GATE LANE

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

TIME	COMMERCIAL ACCESS NORTHBOUND			MORNING GATE LANE SOUTHBOUND			OLD NATIONAL PIKE EASTBOUND			OLD NATIONAL PIKE WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15	10	1	1	2	3	13	21	25	8	1	20	6	111
6:15-6:30	13	5	3	7	2	19	20	20	17	1	27	6	140
6:30-6:45	9	2	3	2	1	14	23	32	14	1	45	5	151
6:45-7:00	16	1	2	8	0	17	26	36	19	7	46	6	184
7:00-7:15	22	1	1	6	0	28	22	46	19	9	79	14	247
7:15-7:30	26	2	4	10	4	24	27	52	32	2	68	9	260
7:30-7:45	26	5	4	3	0	29	50	77	36	6	78	11	325
7:45-8:00	25	6	11	15	0	29	46	60	32	4	74	11	313
8:00-8:15	26	8	3	7	1	23	40	68	40	5	75	9	305
8:15-8:30	27	7	7	15	2	24	30	51	36	7	68	10	284
8:30-8:45	22	4	7	8	1	19	36	47	40	7	81	9	281
8:45-9:00	23	2	3	9	1	23	34	79	46	9	69	14	312
PEAK HR 7:30-8:30 TOTALS	104	26	25	40	3	105	166	256	144	22	295	41	PHF 0.94
PM													
3:00-3:15	29	8	9	5	4	31	36	90	33	8	90	17	360
3:15-3:30	33	8	8	10	5	35	55	103	42	9	103	11	422
3:30-3:45	37	8	10	11	3	18	34	91	55	12	117	12	408
3:45-4:00	38	5	20	8	4	20	51	125	31	9	103	15	429
4:00-4:15	33	9	12	11	4	33	47	101	49	11	111	15	436
4:15-4:30	18	17	15	5	6	35	54	127	42	8	103	13	443
4:30-4:45	27	23	14	16	3	35	45	95	38	11	118	13	438
4:45-5:00	26	11	12	9	6	29	53	130	39	6	132	13	466
5:00-5:15	38	11	12	13	5	32	47	101	48	4	115	17	443
5:15-5:30	39	5	13	7	3	43	41	145	38	9	124	15	482
5:30-5:45	35	7	17	7	5	22	44	122	27	9	145	16	456
5:45-6:00	39	7	13	13	6	16	50	107	34	7	95	13	400
PEAK HR 4:45-5:45 TOTALS	138	34	54	36	19	126	185	498	152	28	516	61	PHF 0.96

TRAFFIC CONCEPTS, INC.
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M:\3877

Old National Pike @ Morning Gate Lane

Legend



Google Earth

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PEAK HOUR TURNING MOVEMENT COUNT

INTERSECTION: MD 144 (OLD NATIONAL PIKE) @ FOOD LION / CVS

COUNTY: FREDERICK

COUNT BY: CAMERA

DATE: APRIL 13, 2022

WEATHER: OVERCAST

DAY: WEDNESDAY

TIME	CVS ACCESS NORTHBOUND			FOOD LION SOUTHBOUND			OLD NATIONAL PIKE EASTBOUND			OLD NATIONAL PIKE WESTBOUND			TOTAL
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
AM													
6:00-6:15	0	0	0	0	0	0	1	30	0	0	31	1	63
6:15-6:30	0	0	0	0	0	0	0	32	0	0	33	0	65
6:30-6:45	0	0	0	2	0	0	0	34	0	0	51	0	87
6:45-7:00	0	0	0	0	0	0	0	43	0	0	63	2	108
7:00-7:15	1	0	0	1	0	1	1	48	1	0	97	3	153
7:15-7:30	0	0	0	2	0	3	2	59	0	0	69	8	143
7:30-7:45	0	0	0	3	0	6	3	64	4	1	86	3	170
7:45-8:00	0	0	1	6	0	4	1	70	3	2	80	2	169
8:00-8:15	4	0	1	5	2	4	4	55	4	2	73	2	156
8:15-8:30	6	0	0	3	1	3	2	67	5	1	69	3	160
8:30-8:45	7	0	1	3	1	1	0	47	10	0	86	5	161
8:45-9:00	4	2	1	4	1	5	2	75	7	0	73	1	175
PEAK HR 7:30-8:30 TOTALS	10	0	2	17	3	17	10	256	16	6	308	10	PHF 0.96
PM													
3:00-3:15	14	5	1	5	3	7	2	75	12	4	88	2	218
3:15-3:30	14	3	5	4	3	7	6	89	12	5	86	6	240
3:30-3:45	15	4	6	4	1	8	2	72	25	7	106	5	255
3:45-4:00	23	5	6	6	1	7	6	117	22	6	79	9	287
4:00-4:15	19	3	2	12	2	6	6	87	14	2	106	9	268
4:15-4:30	11	4	6	8	2	10	4	102	18	9	103	11	288
4:30-4:45	21	2	3	15	3	5	8	89	20	3	95	12	276
4:45-5:00	26	2	4	13	5	5	7	100	26	5	97	11	301
5:00-5:15	16	2	3	8	2	6	3	97	11	3	97	12	260
5:15-5:30	16	3	4	10	0	10	8	112	23	8	110	8	312
5:30-5:45	23	2	6	11	0	7	5	107	24	10	115	9	319
5:45-6:00	19	2	8	6	2	3	4	105	15	9	70	7	250
PEAK HR 4:45-5:45 TOTALS	81	9	17	42	7	28	23	416	84	26	419	40	PHF 0.93

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Old National Pike @ CVS/Food Lion Acces

Legend



Google Earth

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APPENDIX VI

SITE DATA & SCOPING AGREEMENT

Frederick County
Planning & Permitting Division

**Final TIA Scoping Proposal
New Market East Warehouse**

1. LOCATION: South side of Baldwin Road and east of Green Valley Road (MD 75)
2. EXISTING USE: Agricultural/Vacant
3. PROPOSED USE: 1,386,000 SF Warehouse
4. CIP/CTP ASSUMED IMPROVEMENTS:
 - a. I-70/Meadow Road full movement interchange
5. OTHER IMPROVEMENTS: TBD County
6. BACKGROUND GROWTH & DEVELOPMENT: Assume 1% growth in through traffic for three (3) years (2025 build out year) on all arterials and arterial to arterial TM's. Pipeline development would include:
 - a. Eaglehead (Alpine, Hamptons West, Hamptons East, Town Center, Westridge, Woodridge, Eaglestream, Nightingale, Aspen)
 - b. Oakdale Village – remaining commercial lot (daycare)
 - c. Marley Commons
 - d. Royal Oaks
 - e. LTC South Commercial
 - f. 105/113 West Main, New Market
7. EXISTING TRAFFIC: Traffic counts less than two years old may be used or older counts can be factored with 3% annual growth.
8. TRIP GENERATION: Per IT Trip Generation Manual 11th Edition Rates for a High-Cube Fulfillment Center Warehouse (155), **non-sort**. The site will generate 208 am and 222 pm peak hour trips. Peak hour counts will be conducted from 6am-9am and 3pm-6pm.

Land Use: 155 High-Cube Fulfillment Center Warehouse Description - A high-cube warehouse (HCW) is a building that typically has at least 200,000 gross square feet of floor area, has a ceiling height of 24 feet or more, and is used primarily for the storage and/ or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. A typical HCW has a high level of on-site automation and logistics management. The automation and logistics enable highly-efficient processing of goods through the HCW. A high-cube warehouse can be free-standing or located in an industrial park.

The developer has stated the 1600 parking spaces is required by the user to handle shift change overlap and parking for tractor trailers. Additional information on the parking lot can

be provided by the developer. Should shift change fall outside of the identified peak hours, further data collection may be warranted.

9. TRIP DISTRIBUTION:

- a. Truck Trips
 - i. I-70 from the east 50%
 - ii. I-70 from the west 50%
- b. Passenger Car Trips
 - i. I-70
 - 1. 35% westbound traffic
 - 2. 25% eastbound traffic
 - ii. MD 144
 - 1. 10% from the west
 - 2. 5% from the east
 - iii. MD 75
 - 1. 10% from the north
 - 2. 15% from the south

The separate truck distribution is needed due to the distinct travel patterns of the trucks visiting the site. The truck travel pattern, as represented by the developer is predominately to/from the Port of Baltimore via I-70. The employee traffic distribution would be dispersed along I-70 and along the local road network.

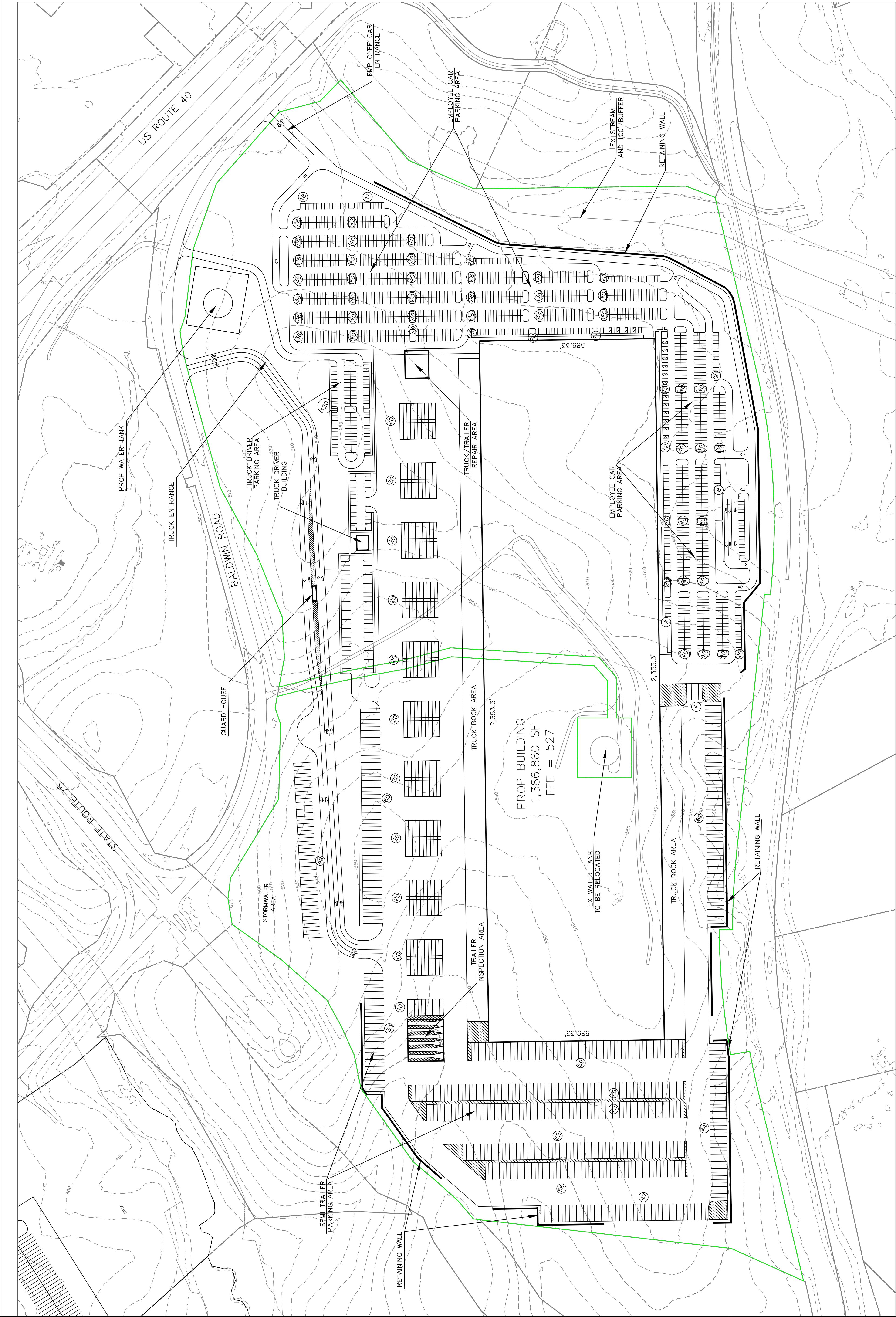
10. ANALYSIS:

- a. CLV (SHA Method) & 95% Queues (HCM if mitigation is proposed):
 - i. MD 75 at MD 80 (west)
 - ii. MD 75 at I-70 EB Ramps
 - iii. MD 75 at I-70 WB Ramps
 - iv. MD 75 at Old National Pike
 - v. Old National Pike at Boyers Mill Road
 - vi. Old National Pike @ Morning Gate Lane
 - vii. Old National Pike @ CVS/Food Lion Access
 - viii. Meadow Road at I-70 WB Ramps
 - ix. Old National Pike at I-70 EB Ramps (if open to traffic)
- b. HCM Un-signalized Analysis (if > 30 site trips on non-free flowing approaches):
 - i. MD 75 at Baldwin Road East
 - ii. MD 75 at Baldwin Road West
 - iii. Old National Pike at Meadow Road

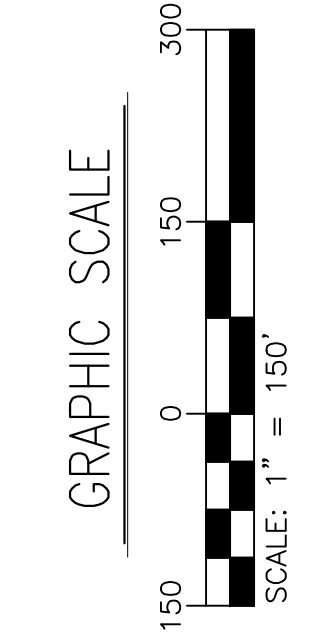
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Transportation Engineering Supervisor
Frederick County Government
Division of Permitting and Development Review (DPDR)
30 North Market Street
Frederick, MD 21701
717-387-3235 phone
301-600-1645 facsimile

MMishler@FrederickCountyMD.gov



- SITE DATA:
TAX IDENTIFICATION No.: 1109317822
TAX MAP / PARCEL: 0088/0180
LIBER / FOLIO: 766/463
WATER DESIGNATION: W-4
SEWER DESIGNATION: S-4
ELECTION DISTRICT: 9, NEW MARKET
SITE AREA: 131.487 AC.
SITE ADDRESS: BALDWIN ROAD
PARCEL 2
NEW MARKET, MD 21774
- EXISTING USE: AGRICULTURE
- PROPOSED USE: WAREHOUSE
- ZONING OF SITE IS: ORI, LI, R-5
- BOUNDARY AND TOPOGRAPHY INFORMATION SHOWN HEREON IS BASED ON AVAILABLE FREDRICK COUNTY GIS OPEN DATA.
- SOIL TYPE:
(6aB) CATOCTIN-SPOOLSVILLE COMPLEX, 2 TO 8% SLOPES.
(6aC) CATOCTIN-SPOOLSVILLE COMPLEX, 2 TO 8% SLOPES.
(6aD) CATOCTIN-SPOOLSVILLE COMPLEX, 2 TO 8% SLOPES.
(6bB) LANGANORE-HYATTSVILLE CHANNERY SILT LOAMS, 3 TO 8% SLOPES.
(6bC) LANGANORE-HYATTSVILLE CHANNERY SILT LOAMS, 8 TO 15% SLOPES.
(6bD) LANGANORE-HYATTSVILLE CHANNERY SILT LOAMS, 8 TO 15% SLOPES.
(6bE) LANGANORE-HYATTSVILLE CHANNERY SILT LOAMS, 15% SLOPES.
(6bF) LANGANORE-HYATTSVILLE CHANNERY SILT LOAMS, 15% SLOPES.
(6bG) LANGANORE-HYATTSVILLE CHANNERY SILT LOAMS, 15% SLOPES.
(6bH) LANGANORE-HYATTSVILLE CHANNERY SILT LOAMS, 15% SLOPES.
- PROVIDED PARKING SPACES:
1,686 STANDARD SPACES (20' x 9')
834 TRAILER SPACES (55' x 12')
50 SEMI TRACTOR SPACES (30 x 15')



KCI
TECHNOLOGIES

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

11831 WEST MARKET PLACE
FULTON, MD 20759
TELEPHONE: (410) 792-5086
FAX: (410) 792-7419

REVISIONS		DATE		BY	
NO.	DESCRIPTION	DATE	SCALE	DESIGNED BY	CHECKED BY

NEW MARKET EAST
DISTRIBUTION CENTER
FREDERICK COUNTY, MD

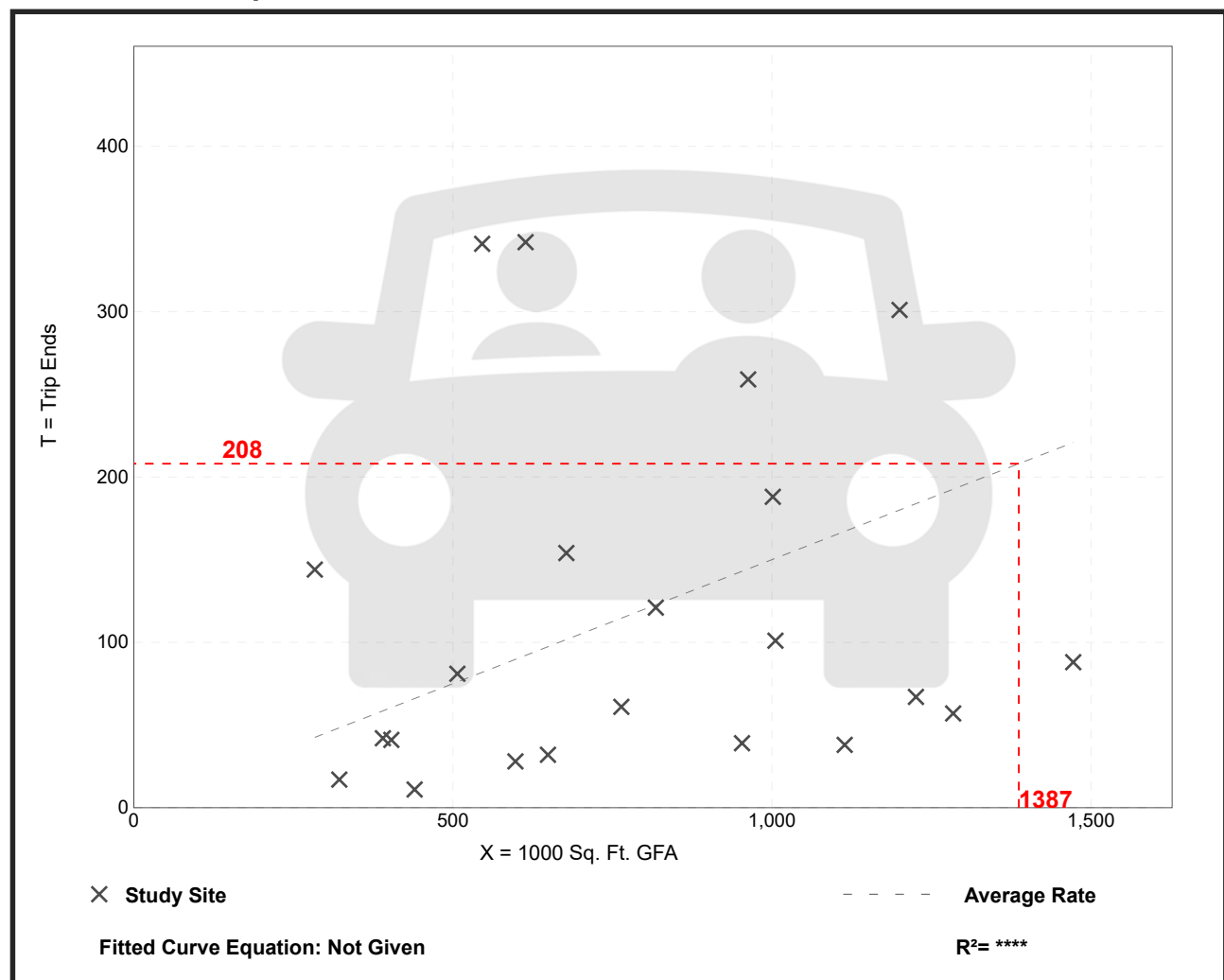
High-Cube Fulfillment Center Warehouse - Non-Sort (155)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 22
 Avg. 1000 Sq. Ft. GFA: 783
 Directional Distribution: 81% entering, 19% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.15	0.03 - 0.62	0.15

Data Plot and Equation



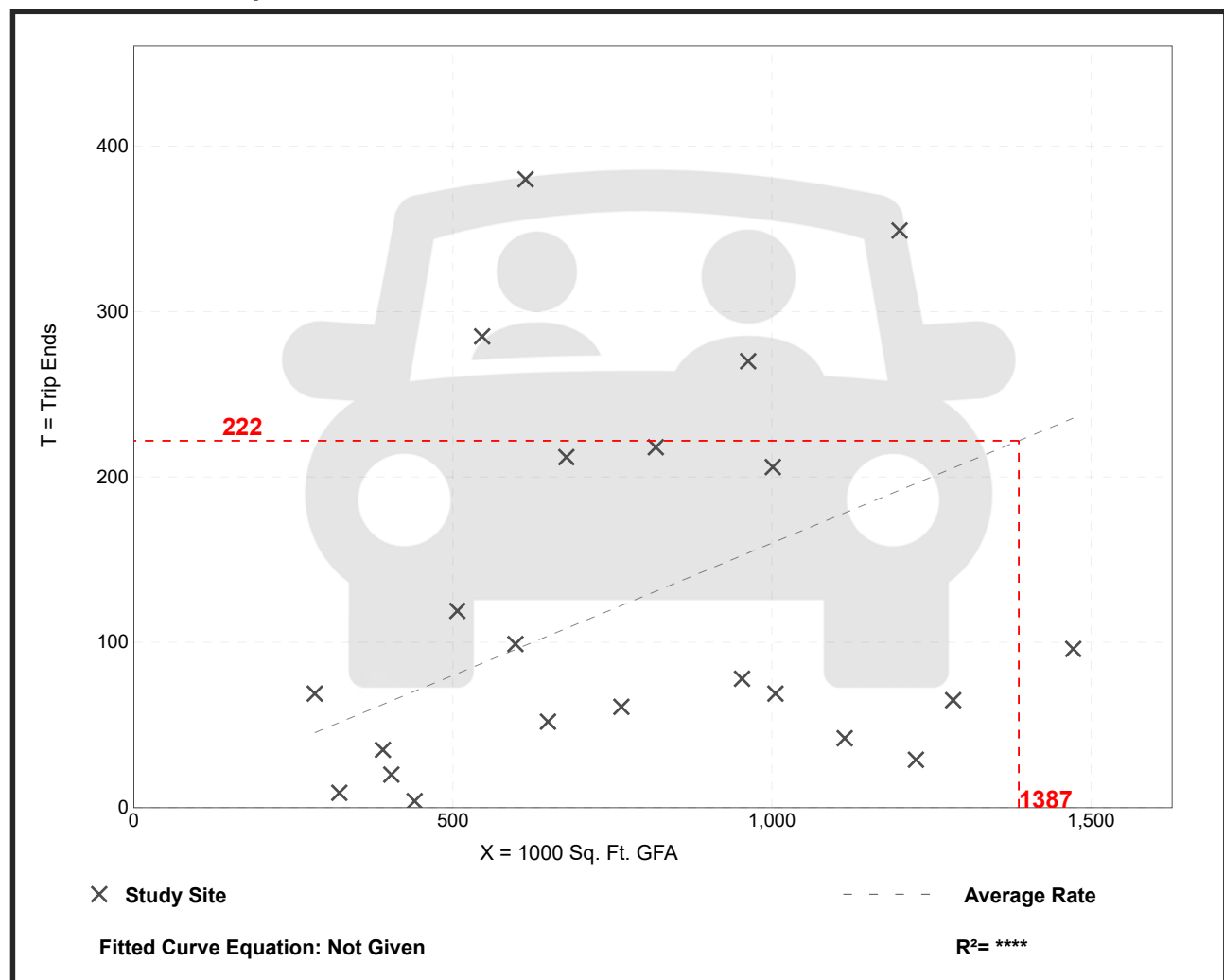
High-Cube Fulfillment Center Warehouse - Non-Sort (155)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 22
 Avg. 1000 Sq. Ft. GFA: 783
 Directional Distribution: 39% entering, 61% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.16	0.01 - 0.62	0.15

Data Plot and Equation



High-Cube Fulfillment Center Warehouse - Non-Sort (155)

Truck Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 21

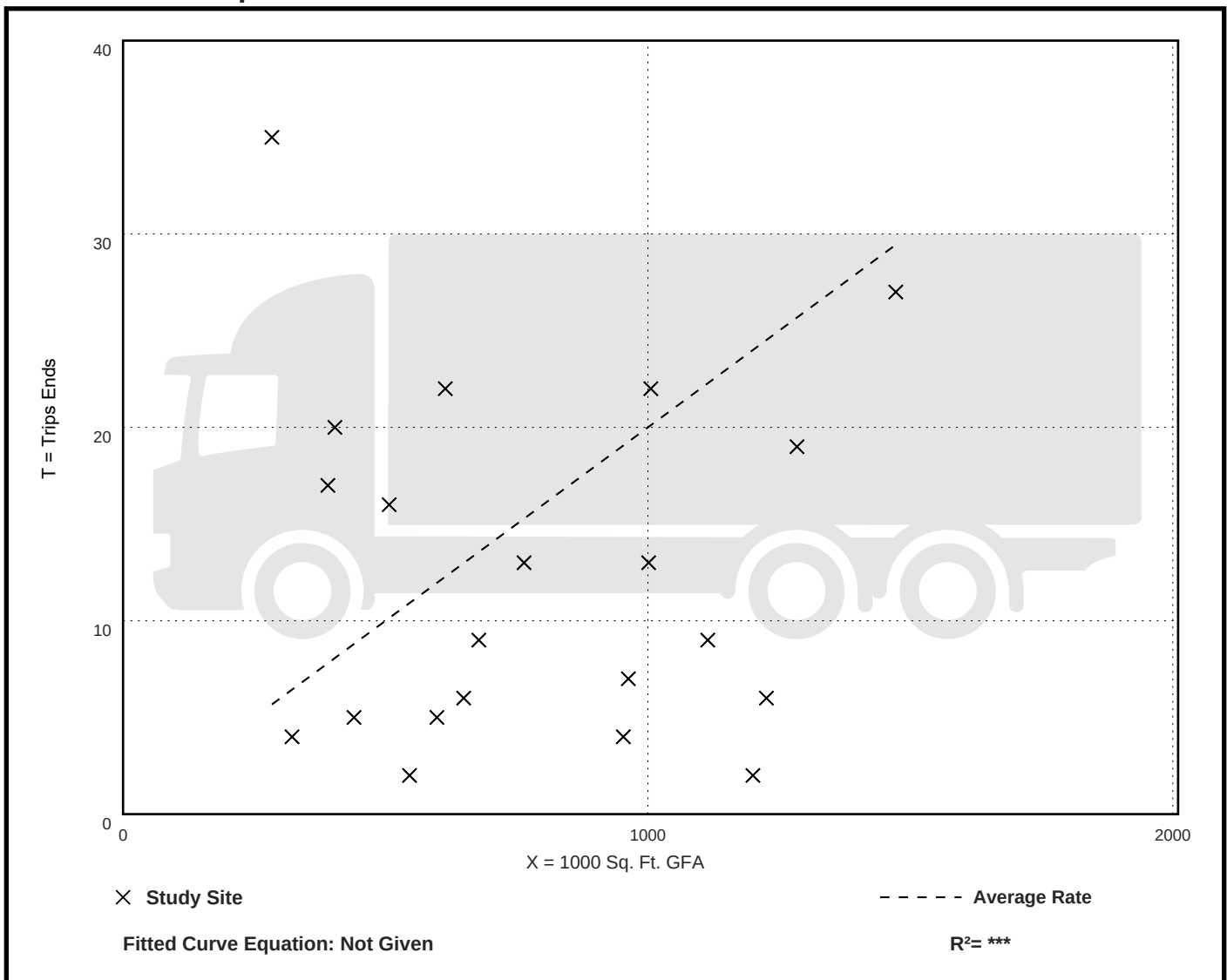
Avg. 1000 Sq. Ft. GFA: 782

Directional Distribution: 50% entering, 50% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.02	0.00 - 0.12	0.02

Data Plot and Equation



High-Cube Fulfillment Center Warehouse - Non-Sort (155)

Truck Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 21

Avg. 1000 Sq. Ft. GFA: 782

Directional Distribution: 46% entering, 54% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.01	0.00 - 0.05	0.01

Data Plot and Equation

