

*TRAFFIC ANALYSIS REPORT*

Farrell Southern Grove  
Port St. Lucie, FL

*Prepared for:*  
Farrell

*Prepared by:*



Engineering & Planning, Inc.

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CA 29013

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## ***EXECUTIVE SUMMARY***

MacKenzie Engineering and Planning, Inc. performed an analysis of the traffic impacts resulting from the proposed Farrell Southern Grove. The project is located along Village Parkway, Port St. Lucie, Florida. The applicant proposes 172,120 SF of mini-warehouses along with 20,000 SF of strip retail center.

The proposed project is expected to generate the following net new external trips:

- 903 daily, 122 AM peak hour (62 in/60 out), and 190 PM peak hour (102 in/88 out) trips.

The proposed project is expected to generate the following driveway trips:

- 1,339 daily, 183 AM peak hour (92 in/91 out), and 296 PM peak hour (159 in/137 out) trips.

The proposed project trips generated by Eden Living the residential parcel on the south. Eden Living trips was included to analyze the southern driveway. Eden Living generates the following driveway trips:

- 1575 daily, 110 AM peak hour (26 in/84 out), and 133 PM peak hour (82 in/51 out) trips.

No right turn lanes are required or recommended and left turn lanes exist for D/W 1 and D/W 3 (Shared Driveway).

## ***TABLE OF CONTENTS***

EXECUTIVE SUMMARY .....	i
TABLE OF CONTENTS.....	ii
LIST OF TABLES.....	iii
LIST OF FIGURES .....	iii
LIST OF EXHIBITS.....	iii
INTRODUCTION .....	1
INVENTORY AND PLANNING DATA .....	1
PROJECT TRAFFIC .....	2
Trip Generation.....	2
Internal Capture .....	2
Pass-by Trip Capture.....	2
TRAFFIC DISTRIBUTION .....	4
TRAFFIC ASSIGNMENT .....	4
GROWTH.....	5
DRIVEWAYS .....	5
Driveway Access .....	5
Driveway 1.....	9
CONCLUSION.....	10
LIST OF EXHIBITS.....	11

***LIST OF TABLES***

Table 1. Trip Generation..... 3  
Table 2. Growth Rate Calculation ..... 5  
Table 3. Village Parkway & Driveway 1 Queuing Analysis ..... 9

***LIST OF FIGURES***

Figure 1. Site Location Map ..... 1  
Figure 2. Traffic Assignment..... 4  
Figure 3. Proposed Driveway Volumes ..... 6  
Figure 4. Eden Living Committed Traffic ..... 7  
Figure 5. Total Driveway Traffic (Project + Committed)..... 8

***LIST OF EXHIBITS***

- Exhibit 1. Trip Generation
- Exhibit 2. Intersection Volumes Worksheet
- Exhibit 3. Intersection Analysis Results

Appendix A. ITE Trip Generation

- ITE Land Use 151 - Mini-Warehousing
- ITE Land Use 822 –Strip Retail Center (<40k)

Appendix B. ITE Pass-By Rates

- ITE Land Use 821 – Shopping Center

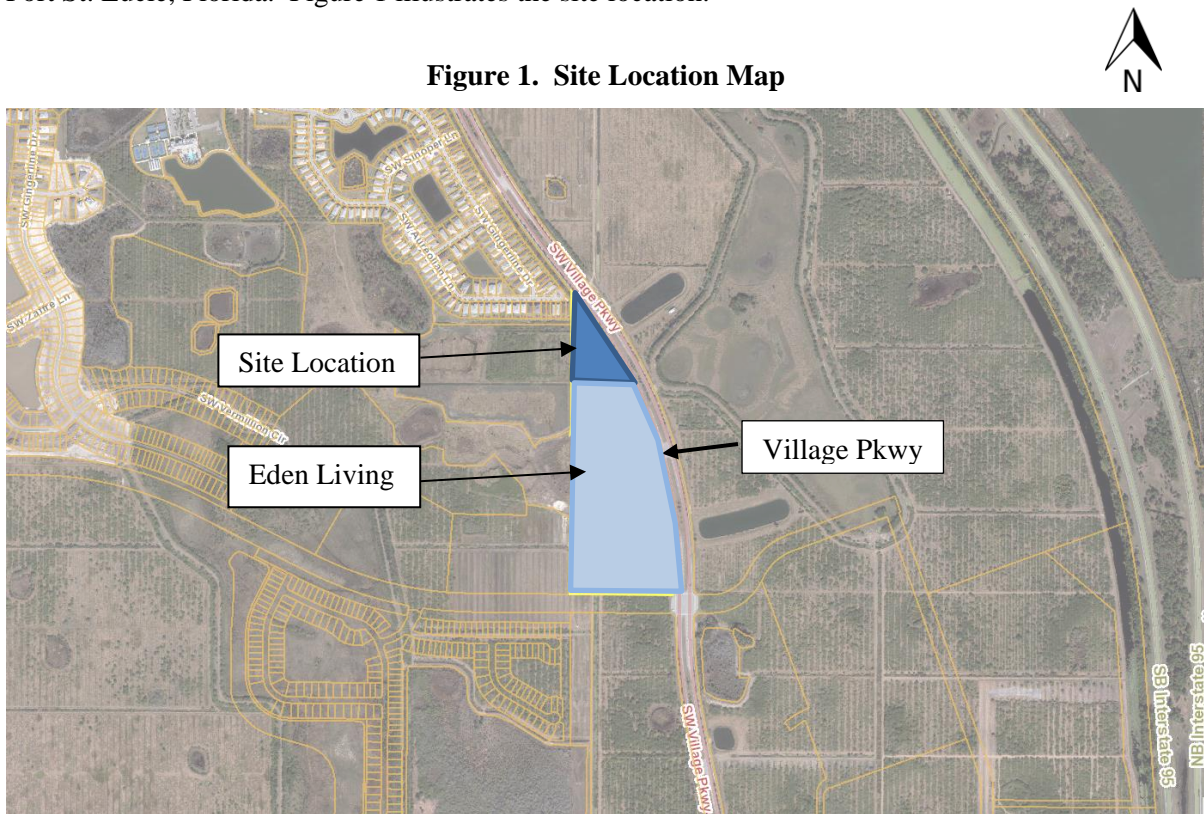
Appendix C. Site Plan

## ***INTRODUCTION***

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for the Farrell Southern Grove. This document presents the methodology used and the findings of the traffic impact analysis. The analysis was conducted in accordance with the requirements of the City of Port St. Lucie.

This analysis has been prepared to evaluate traffic impacts resulting from 172,120 SF of mini-warehouses along with 20,000 SF of strip retail center. The project is located long Village Parkway in Port St. Lucie, Florida. Figure 1 illustrates the site location.

**Figure 1. Site Location Map**



## ***INVENTORY AND PLANNING DATA***

The traffic data used in this analysis includes:

- Roadway geometrics

Litterick Landscape Architecture provided site information.

## ***PROJECT TRAFFIC***

### ***Trip Generation***

The study uses trip generation rates for Mini Warehouse (ITE Land Use 151) and Strip Retail Center (ITE Land Use 822) published in the Institute of Traffic Engineers' (ITE) report, *Trip Generation (11<sup>th</sup> Edition)*. Table 1 shows the trip generation for the site.

The applicant proposes 172,120 SF of mini-warehouse along with 20,000 SF of shopping center.

The proposed project is expected to generate the following net new external trips:

- 903 daily, 122 AM peak hour (62 in/60 out), and 190 PM peak hour (102 in/88 out) trips.

The proposed project is expected to generate the following driveway trips:

- 1,339 daily, 183 AM peak hour (92 in/91 out), and 296 PM peak hour (159 in/137 out) trips.

### ***Internal Capture***

The site contains no internal capture.

### ***Pass-by Trip Capture***

The proposed pass-by capture is in accordance with ITE's report, *Trip Generation Handbook (3<sup>rd</sup> Edition)*, as shown in Appendix B.

Table 1. Trip Generation

Land Use	Intensity		Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
<b>Proposed Site Traffic</b>									
Mini-Warehouse/SS	172.120	1000 SF	250	31	16	15	31	16	15
Strip Retail Plaza	20.000	1000 SF	1,089	152	76	76	265	143	122
<b>Pass-By Traffic</b>									
Mini-Warehouse/SS	0.0%		0	0	0	0	0	0	0
Strip Retail Plaza	40.0%		436	61	30	31	106	57	49
<b>Net Proposed Trips</b>			<b>903</b>	<b>122</b>	<b>62</b>	<b>60</b>	<b>190</b>	<b>102</b>	<b>88</b>
<b>Total Proposed Driveway Volumes</b>			<b>1,339</b>	<b>183</b>	<b>92</b>	<b>91</b>	<b>296</b>	<b>159</b>	<b>137</b>
Note: Trip generation was calculated using the following data:									
Land Use	ITE Code	Unit	Daily Rate	Pass-by Rate	AM Peak Hour		PM Peak Hour		
					in/out	Rate	in/out	Equation	
Mini-Warehouse/SS	151	1000 SF	1.45	0%	51/49	0.18	51/49	0.18	
Strip Retail Plaza	822	1000 SF	54.45	40%	50/50	7.60	54/46	13.24	

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## **TRAFFIC DISTRIBUTION**

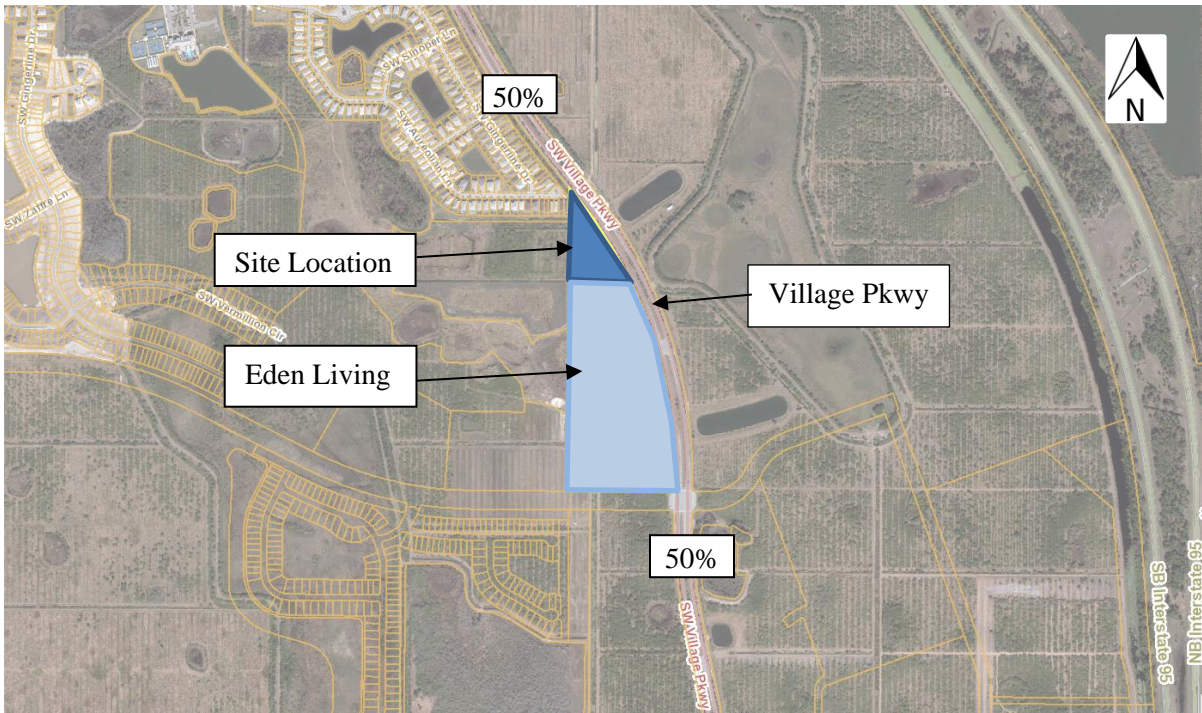
Traffic distribution and assignment was determined using engineering judgment, trip lengths, surrounding uses and review of the roadway network. The overall distribution is summarized by general directions and is depicted below:

NORTH	-	50 percent
SOUTH	-	50 percent

## **TRAFFIC ASSIGNMENT**

The distributed external trips for the project were assigned to the roadway network within the radius of influence. The project assignment is shown in Figure 2.

**Figure 2. Traffic Assignment**





## **GROWTH**

Historic growth rate was determined based on FDOT Traffic Online data as shown in Table 2. The historic annual growth on the surrounding facilities between 2017 and 2021 is 5.7%.

Table 2. Growth Rate Calculation

Road Name	From	To	2017	2018	2019	2020	2021	Annual Absolute Growth	Growth Rate
Village Pkwy	Becker Rd	Westcliffe Ln	10,100	10,100	13,200	12,600	12,400	710	5.7%
Weighted Average									5.7%
<b>Growth Rate Used</b>									<b>5.7%</b>

## **DRIVEWAYS**

### Driveway Access

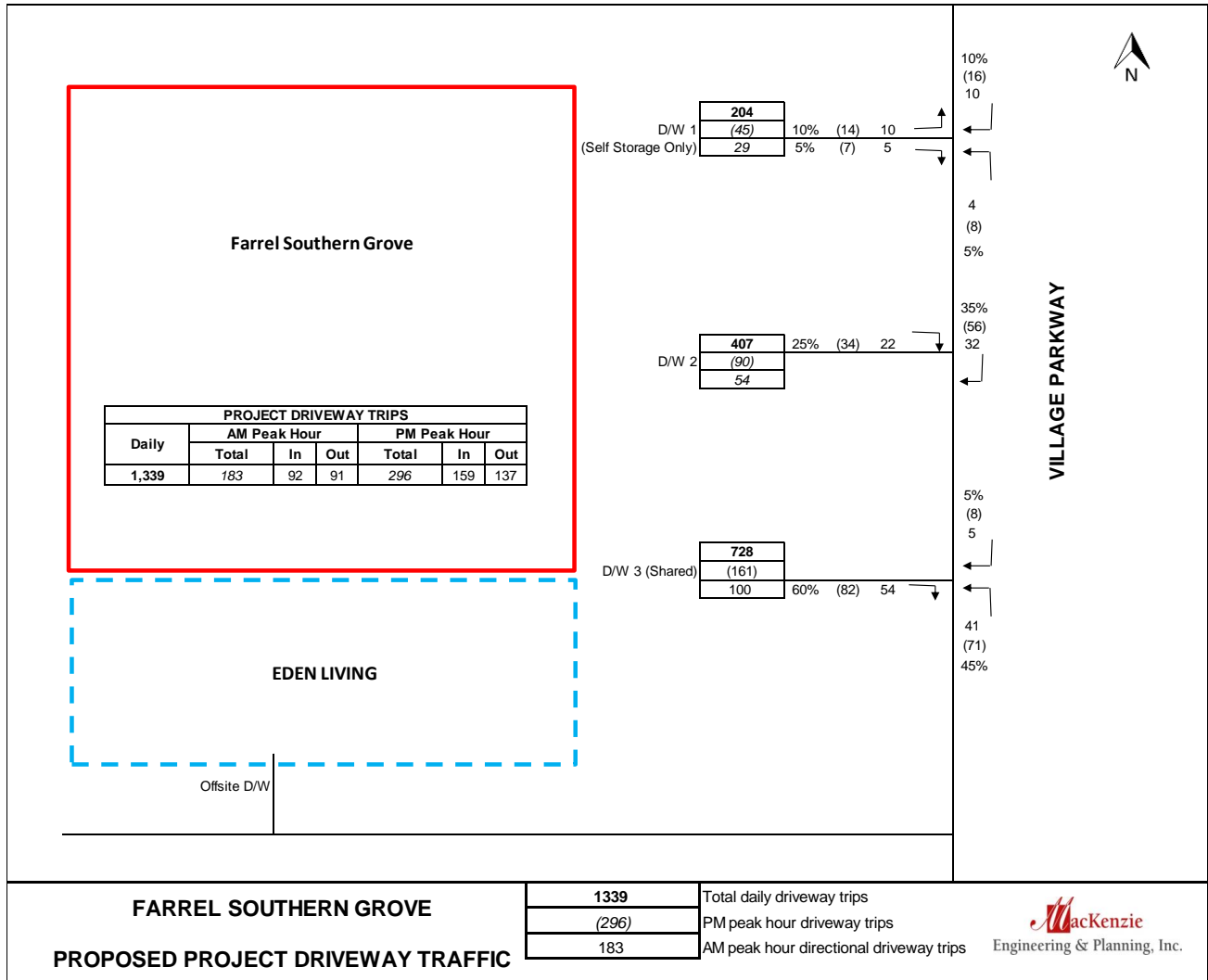
The project proposes the following driveways:

- D/W 1 – Village Parkway – Full opening (Self Storage Only)
- D/W 2 – Village Parkway – Right-in/Right out
- D/W 3 (Shared Access) – Village Parkway – Left-in/Right-in/Right-out

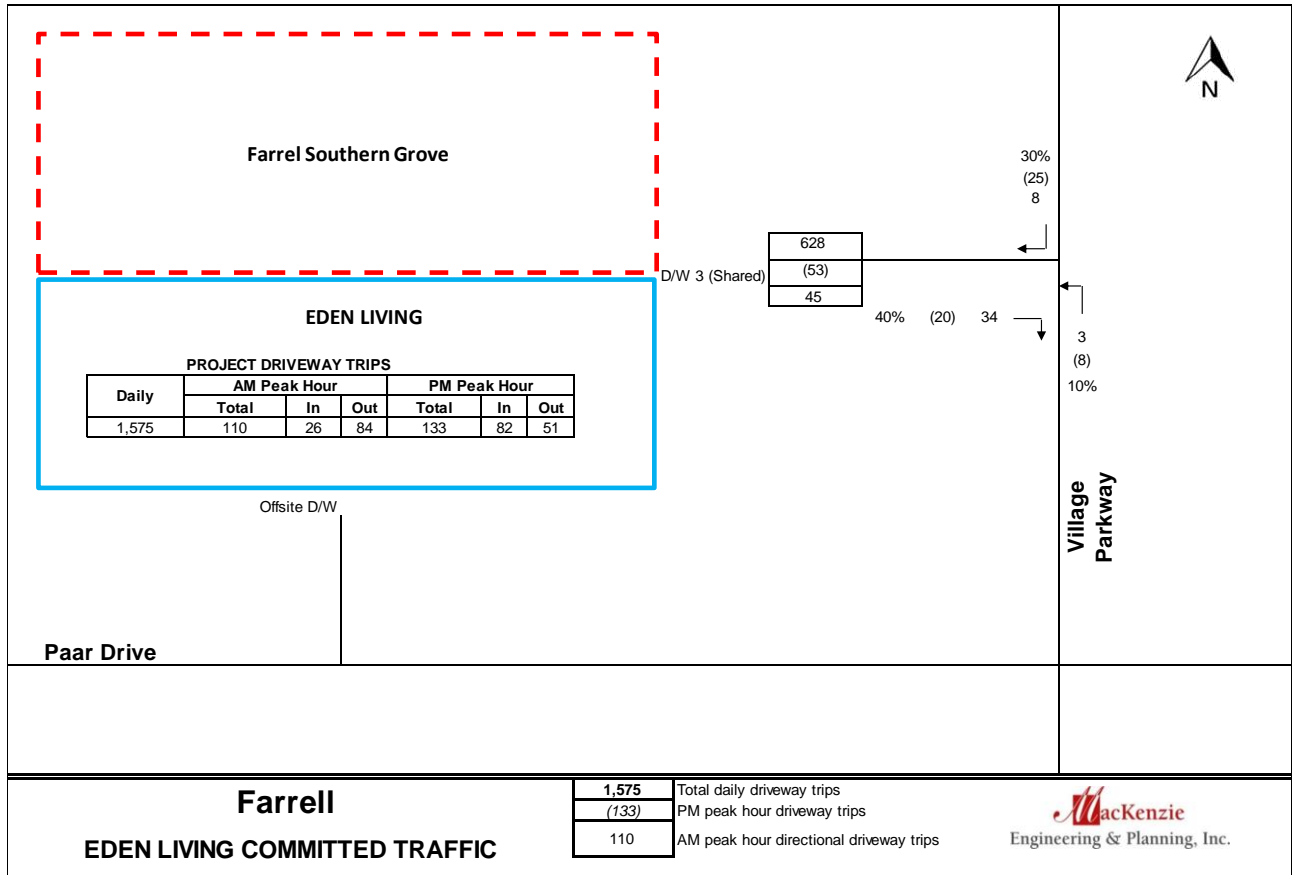
D/W 3 is a shared access with Eden Living. The committed traffic from Eden Living was added to the project shared driveway. Figure 3 displays the proposed driveway volumes. The committed traffic is shown in Figure 4. The total traffic is shown in Figure 5.

No right turn lanes are required or recommended and left turn lanes exist for D/W 1 and D/W 3 (Shared Driveway)

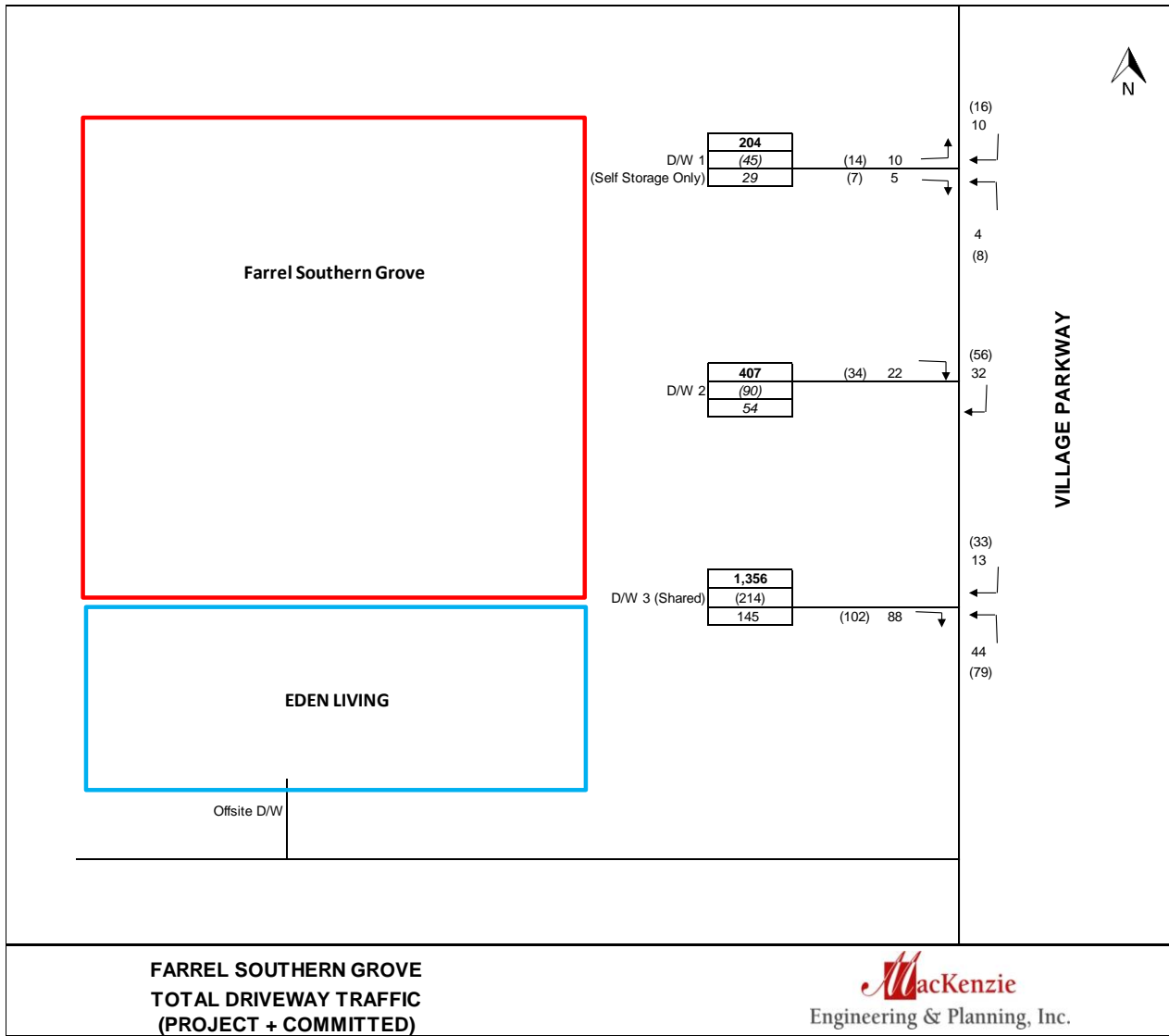
**Figure 3. Proposed Driveway Volumes**



**Figure 4. Eden Living Committed Traffic**



**Figure 5. Total Driveway Traffic (Project + Committed)**



## Driveway 1

MEP evaluated the Driveway 1 entrance using HCS 7. With project traffic, the intersection is projected to be under capacity with all movements operating under capacity (v/c ratio less than 1.0). The intersection is projected to operate acceptably. MEP obtained the 95th percentile queue from HCS 7 for each turn-lane at the intersection.

Table 3. Village Parkway & Driveway 1 Queuing Analysis

Scenario	Direction	Turn-Lane	PM Peak 95th% Queue Length (ft)
Signalized	Eastbound	Left	25
Unsignalized	Eastbound	Left	25

## ***CONCLUSION***

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Exhibit 2. Intersection Volumes Worksheet

Exhibit 3. Intersection Analysis Results

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Appendix B. ITE Pass-By Rates

- ITE Land Use 821- Shopping Center

Appendix C. Site Plan

**EXHIBIT 1A**  
**Farrell**  
**TRIP GENERATION**

Land Use	Intensity		Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
<b><u>Proposed Site Traffic</u></b>									
Mini-Warehouse/SS	172.120	1000 SF	250	31	16	15	31	16	15
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<b><i>Net Proposed Trips</i></b>			<b>903</b>	<b>122</b>	<b>62</b>	<b>60</b>	<b>190</b>	<b>102</b>	<b>88</b>
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Note: Trip generation was calculated using the following data:

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**Exhibit 1B**  
**Trip Generation - Peak Hour of Generator**  
**Eden Living**

Land Use	Intensity	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
<b>Proposed Use</b> Multi-family Housing (Low-rise)	234 DU	1,575	110	26	84	133	82	51
<b>NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)</b>		<b>1,575</b>	<b>110</b>	<b>26</b>	<b>84</b>	<b>133</b>	<b>82</b>	<b>51</b>
<b>NET CHANGE IN DRIVEWAY VOLUMES</b>		<b>1,575</b>	<b>110</b>	<b>26</b>	<b>84</b>	<b>133</b>	<b>82</b>	<b>51</b>

Note: Trip generation was calculated using the following data:

Land Use	ITE Code	Unit	Daily Rate	Pass-by Rate	AM Peak Hour		PM Peak Hour	
					in/out	Rate	in/out	Equation
Multi-family Housing (Low-rise)	220	DU	$T = 6.41(X) + 75.31$	0%	24/76	$T = 0.35(X) + 28.13$	62/38	$T = 0.42(X) + 34.78$

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 PM PEAK HOUR TURNING MOVEMENTS  
 EXHIBIT 2  
 Village & DW 1

		ebu	ebl	ebt	ebr	wbu	wbl	wbt	wbr	nbu	nbl	nbt	nbr	sbu	sbl	sbt	sbr
4:00 PM	4:15 PM	0				0				0		63		0		82	
4:15 PM	4:30 PM	0				0				0		63		0		76	
4:30 PM	4:45 PM	0				0				0		59		0		81	
4:45 PM	5:00 PM	0				0				0		58		0		70	
5:00 PM	5:15 PM	0				0				0		58		0		75	
5:15 PM	5:30 PM	0				0				0		63		0		80	
5:30 PM	5:45 PM	0				0				0		72		0		79	
5:45 PM	6:00 PM	0				0				0		54		0		50	

**Peak Hour Traffic Volume**

4:45 PM	5:45 PM	0	0	0	0	0	0	0	0	0	0	251	0	0	0	304	0
---------	---------	---	---	---	---	---	---	---	---	---	---	-----	---	---	---	-----	---

Count Taken: 8/11/2021  
 Buildout year: 2025  
 Growth Rate: 5.7%  
 PSCF 1.18

	ebu	ebl	ebt	ebr	wbu	wbl	wbt	wbr	nbu	nbl	nbt	nbr	sbu	sbl	sbt	sbr
8/11/2021	0	0	0	0	0	0	0	0	0	0	251	0	0	0	304	0
Peak Season Factor	0	0	0	0	0	0	0	0	0	0	45	0	0	0	55	0
Adjusted Volumes	0	0	0	0	0	0	0	0	0	0	296	0	0	0	359	0
		5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
Growth 5.7%	0	0	0	0	0	0	0	0	0	0	73	0	0	0	89	0
2025 Volumes	0	0	0	0	0	0	0	0	0	0	369	0	0	0	448	0
Pre Dev	0	0	0	0	0	0	0	0	0	0	369	0	0	0	448	0
Project	14	0	7	0	0	0	0	0	0	8	55	0	0	0	64	16
Post Dev	14	0	7	0	0	0	0	0	0	8	424	0	0	0	512	16

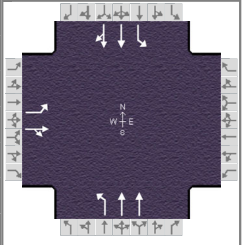
Project Traffic Assignment		Out	Out						In	Out				In	In
	0%	10%	0%	5%	0%	0%	0%	0%	5%	40%	0%	0%	0%	40%	10%

## HCS7 Signalized Intersection Input Data

General Information					Intersection Information												
Agency	MEP				Duration, h	0.250											
Analyst	MEP		Analysis Date	8/2/2022		Area Type	Other										
Jurisdiction	PSL		Time Period			PHF	0.95										
Urban Street			Analysis Year	2025		Analysis Period	1 > 16:00										
Intersection	Village Pkwy & DW 1		File Name	Village & DW 1 PM 2025 POST.xus													
Project Description	2025 Post-Development PM																
Demand Information					EB			WB			NB			SB			
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h					14	0	7				8	424		0	512	16	
Signal Information																	
Cycle, s	19.1	Reference Phase	2		Green	6.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Offset, s	0	Reference Point	End		Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Uncoordinated	Yes	Simult. Gap E/W	On		Red	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On														
Traffic Information					EB			WB			NB			SB			
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h					14	0	7				8	424		0	512	16	
Initial Queue (Q <sub>b</sub> ), veh/h					0	0	0				0	0		0	0	0	
Base Saturation Flow Rate (s <sub>0</sub> ), veh/h					1900	1900	1900				1900	1900		1900	1900	1900	
Parking (N <sub>m</sub> ), man/h					None						None				None		
Heavy Vehicles (P <sub>HV</sub> ), %					0	0					0	0		0	0		
Ped / Bike / RTOR, /h					0	0	0	0	0		0	0		0	0	0	
Buses (N <sub>b</sub> ), buses/h					0	0	0				0	0	0	0	0	0	
Arrival Type (AT)					3	3	3				3	3		3	3	3	
Upstream Filtering (I)					1.00	1.00	1.00				1.00	1.00		1.00	1.00	1.00	
Lane Width (W), ft					12.0	12.0					12.0	12.0		12.0	12.0		
Turn Bay Length, ft					0	0					0	0		0	0		
Grade (P <sub>g</sub> ), %						0			0			0			0		
Speed Limit, mi/h					35	35	35				35	35		35	35	35	
Phase Information					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G <sub>max</sub> ) or Phase Split, s					30.0	30.0				70.0	20.0	70.0					
Yellow Change Interval (Y), s					4.0	4.0				4.0	4.0	4.0					
Red Clearance Interval (R <sub>c</sub> ), s					2.0	2.0				2.0	2.0	2.0					
Minimum Green (G <sub>min</sub> ), s					6	6				6	6	6					
Start-Up Lost Time (l <sub>t</sub> ), s					2.0	2.0			2.0	2.0	2.0	2.0					
Extension of Effective Green (e), s					2.0	2.0			2.0	2.0	2.0	2.0					
Passage (PT), s					2.0	2.0				2.0	2.0	2.0					
Recall Mode					Off	Off				Min	Off	Min					
Dual Entry					No	Yes				Yes	No	Yes					
Walk (Walk), s						0.0		0.0				0.0					
Pedestrian Clearance Time (PC), s						0.0		0.0				0.0					
Multimodal Information					EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius					0	No	25	0	No	25				0	No	25	
Walkway / Crosswalk Width / Length, ft					9.0	12	0	9.0	12	0				9.0	12	0	
Street Width / Island / Curb					0	0	No		0		0		No	0	0	No	
Width Outside / Bike Lane / Shoulder, ft					12	5.0	2.0				12	5.0	2.0	12	5.0	2.0	
Pedestrian Signal / Occupied Parking					No	0.50		No				0.50		No	0.50		

# HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	MEP			Duration, h	0.250		
Analyst	MEP		Analysis Date	8/2/2022		Area Type	Other
Jurisdiction	PSL		Time Period			PHF	0.95
Urban Street			Analysis Year	2025		Analysis Period	1 > 16:00
Intersection	Village Pkwy & DW 1		File Name	Village & DW 1 PM 2025 POST.xus			
Project Description	2025 Post-Development PM						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	14	0	7				8	424		0	512	16

Signal Information				Signal Timing (s)									
Cycle, s	19.1	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	6.4	0.7	0.0	0.0	0.0	0.0			
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0			

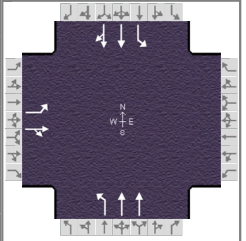
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8				6	5	2
Case Number		10.0				6.3	1.0	4.0
Phase Duration, s		6.7				12.4	0.0	12.4
Change Period, ( $Y+R_c$ ), s		6.0				6.0	6.0	6.0
Max Allow Headway ( $MAH$ ), s		3.2				3.0	0.0	3.0
Queue Clearance Time ( $g_s$ ), s		2.2				4.3		4.2
Green Extension Time ( $g_e$ ), s		0.0				2.1	0.0	2.1
Phase Call Probability		0.11				1.00		1.00
Max Out Probability		0.00				0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18				1	6		5	2	12
Adjusted Flow Rate ( $v$ ), veh/h	15	7					8	446		0	279	277
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1810	1610					866	1809		1810	1900	1879
Queue Service Time ( $g_s$ ), s	0.2	0.1					0.1	1.8		0.0	2.2	2.2
Cycle Queue Clearance Time ( $g_c$ ), s	0.2	0.1					2.3	1.8		0.0	2.2	2.2
Green Ratio ( $g/C$ )	0.03	0.03					0.34	0.34		0.12	0.34	0.34
Capacity ( $c$ ), veh/h	64	57					570	1209		619	635	628
Volume-to-Capacity Ratio ( $X$ )	0.232	0.130					0.015	0.369		0.000	0.440	0.440
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)	1.9	0.9					0.4	5.3		0	7.3	7.3
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	0.1	0.0					0.0	0.2		0.0	0.3	0.3
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay ( $d_1$ ), s/veh	8.9	8.9					5.8	4.8		0.0	4.9	4.9
Incremental Delay ( $d_2$ ), s/veh	0.7	0.4					0.0	0.1		0.0	0.2	0.2
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0					0.0	0.0		0.0	0.0	0.0
Control Delay ( $d$ ), s/veh	9.6	9.3					5.8	4.9		0.0	5.1	5.1
Level of Service ( LOS )	A	A					A	A			A	A
Approach Delay, s/veh / LOS	9.5	A		0.0			4.9	A		5.1	A	
Intersection Delay, s/veh / LOS	5.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.27	B	1.34	A	1.86	B
Bicycle LOS Score / LOS	0.52	A			0.86	A	0.95	A

## HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	MEP			Duration, h	0.250
Analyst	MEP	Analysis Date	8/2/2022	Area Type	Other
Jurisdiction	PSL	Time Period		PHF	0.95
Urban Street		Analysis Year	2025	Analysis Period	1 > 16:00
Intersection	Village Pkwy & DW 1	File Name	Village & DW 1 PM 2025 POST.xus		
Project Description	2025 Post-Development PM				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	14	0	7				8	424		0	512	16

Signal Information													
Cycle, s	19.1	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	6.4	0.7	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0			

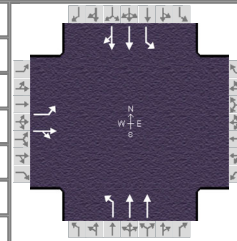
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor ( $f_w$ )	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor ( $f_{HVg}$ )	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor ( $f_p$ )	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor ( $f_{bb}$ )	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor ( $f_a$ )	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor ( $f_{LU}$ )	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor ( $f_{LT}$ )	0.952	0.000					0.456	0.000		0.952	0.000	
Right-Turn Adjustment Factor ( $f_{RT}$ )		0.847	0.847					1.000	1.000		0.989	0.989
Left-Turn Pedestrian Adjustment Factor ( $f_{LPB}$ )	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor ( $f_{RPB}$ )			1.000						1.000			1.000
Work Zone Adjustment Factor ( $f_{wz}$ )	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor ( $f_{DDI}$ )	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	0	1610				866	3709	0	1810	3665	114
Proportion of Vehicles Arriving on Green (P)	0.04	0.00	0.04	0.00	0.00	0.00	0.33	0.33	0.00	0.00	0.33	0.33
Incremental Delay Factor (k)	0.04	0.04					0.04	0.04			0.04	0.04

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time ( $t_L$ )		6.0				6.0	6.0	6.0
Green Ratio ( $g/C$ )		0.03				0.34	0.12	0.34
Permitted Saturation Flow Rate ( $s_p$ ), veh/h/ln		1810				866	959	0
Shared Saturation Flow Rate ( $s_{sh}$ ), veh/h/ln								
Permitted Effective Green Time ( $g_p$ ), s		0.0				6.4	8.4	0.0
Permitted Service Time ( $g_u$ ), s		0.0				4.2	4.6	0.0
Permitted Queue Service Time ( $g_{ps}$ ), s						0.1	0.0	
Time to First Blockage ( $g_f$ ), s		0.0				0.0	0.0	0.0
Queue Service Time Before Blockage ( $g_{ts}$ ), s								
Protected Right Saturation Flow ( $s_R$ ), veh/h/ln								
Protected Right Effective Green Time ( $g_R$ ), s								

Multimodal	EB		WB		NB		SB	
Pedestrian $F_w / F_v$	1.557	0.000	1.557	0.000	0.681	0.000	1.198	0.000
Pedestrian $F_s / F_{delay}$	0.000	0.115	0.000	0.109	0.000	0.058	0.000	0.058
Pedestrian $M_{corner} / M_{cw}$								
Bicycle $c_b / d_b$	-734.54	17.82	-524.67	15.19	670.95	4.21	670.95	4.21
Bicycle $F_w / F_v$	-3.64	0.04	-3.64		-3.64	0.38	-3.64	0.46

# HCS7 Signalized Intersection Results Graphical Summary

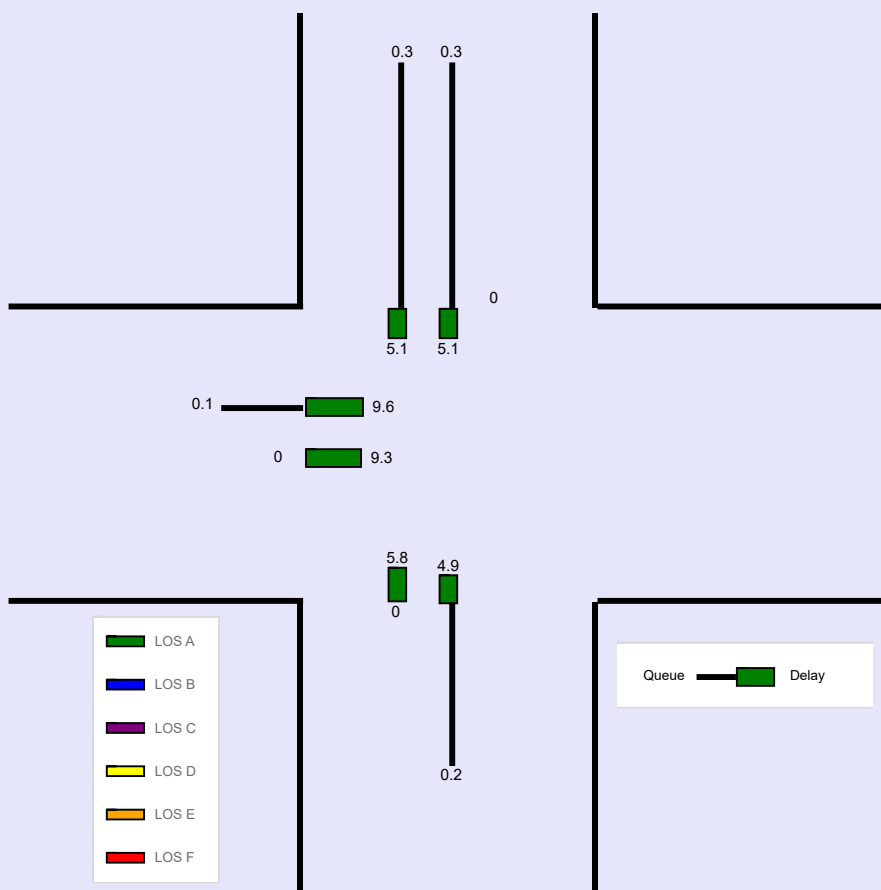
General Information				Intersection Information			
Agency	MEP			Duration, h	0.250		
Analyst	MEP		Analysis Date	8/2/2022		Area Type	Other
Jurisdiction	PSL		Time Period			PHF	0.95
Urban Street			Analysis Year	2025		Analysis Period	1 > 16:00
Intersection	Village Pkwy & DW 1		File Name	Village & DW 1 PM 2025 POST.xus			
Project Description	2025 Post-Development PM						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	14	0	7				8	424		0	512	16

Signal Information														
Cycle, s	19.1	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On											
				Green	6.4	0.7	0.0	0.0	0.0	0.0				
				Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
				Red	2.0	2.0	0.0	0.0	0.0	0.0				

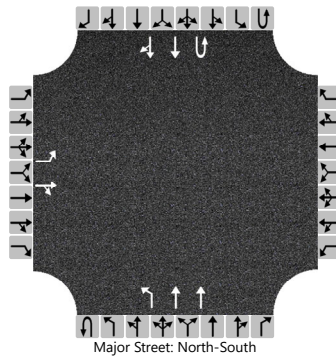
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue ( Q ), ft/ln ( 95 th percentile)	1.9	0.9					0.4	5.3		0	7.3	7.3
Back of Queue ( Q ), veh/ln ( 95 th percentile)	0.1	0.0					0.0	0.2		0.0	0.3	0.3
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00					0.00	0.00		0.00	0.00	0.00
Control Delay ( d ), s/veh	9.6	9.3					5.8	4.9		0.0	5.1	5.1
Level of Service ( LOS)	A	A					A	A			A	A
Approach Delay, s/veh / LOS	9.5		A	0.0			4.9		A	5.1		A
Intersection Delay, s/veh / LOS	5.1						A					



# HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	MEP			Intersection	DW 1 & Village Pkwy		
Agency/Co.	MEP			Jurisdiction	PSL		
Date Performed	8/2/2022			East/West Street	DW 1		
Analysis Year	2025			North/South Street	Village Pkwy		
Time Analyzed				Peak Hour Factor	0.95		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	DW 1 & Village Pkwy PM Post-Development						

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	10	11	12		7	8	9		1U	1	2	3	4U	4	5	6
Number of Lanes	1	1	0		0	0	0		0	1	2	0	1	0	2	0
Configuration	L			TR						L	T		U		T	TR
Volume (veh/h)	14	0	7						0	8	424		0		512	16
Percent Heavy Vehicles (%)	2	2	2						2	2			2			
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9						4.1				6.4		
Critical Headway (sec)		7.54	6.54	6.94						4.14				6.44		
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.5		
Follow-Up Headway (sec)		3.52	4.02	3.32						2.22				2.52		

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		15		7						8				0			
Capacity, c (veh/h)		280		719						1011				749			
v/c Ratio		0.05		0.01						0.01				0.00			
95% Queue Length, Q <sub>95</sub> (veh)		0.2		0.0						0.0				0.0			
Control Delay (s/veh)		18.6		10.1						8.6				9.8			
Level of Service (LOS)		C		B						A				A			
Approach Delay (s/veh)		15.7								0.2				0.0			
Approach LOS		C															

# Land Use: 151

## Mini-Warehouse

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### Description

A mini-warehouse is a building in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as “self-storage” facilities. Each unit is physically separated from other units, and access is usually provided through an overhead door or other common access point.

### Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Colorado, Massachusetts, Minnesota, Nevada, New Jersey, Texas, and Utah.

### Source Numbers

212, 403, 551, 568, 642, 708, 724, 850, 868, 876, 1024, 1035



# Mini-Warehouse (151)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA  
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 16

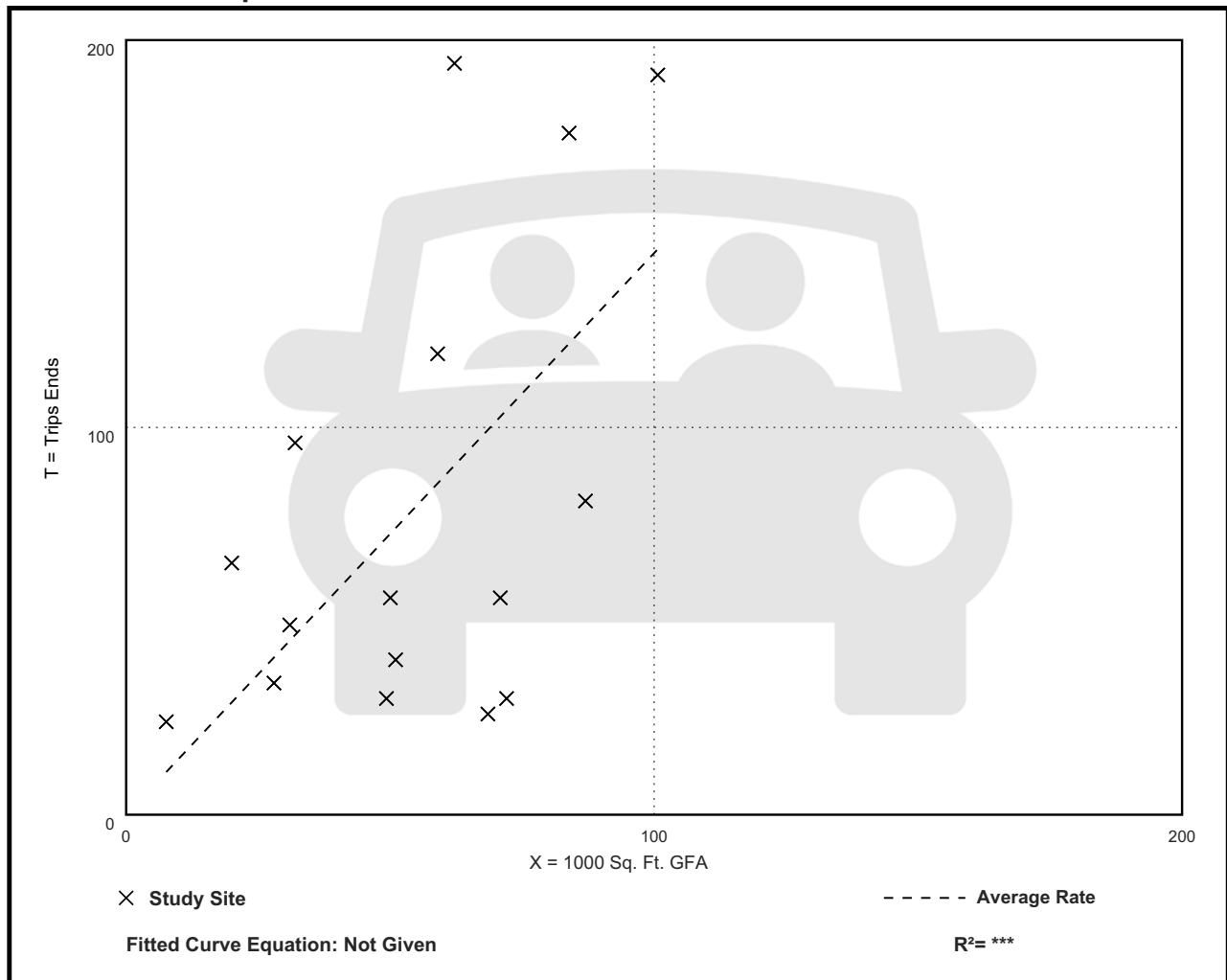
Avg. 1000 Sq. Ft. GFA: 55

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.45	0.38 - 3.25	0.92

## Data Plot and Equation



# Mini-Warehouse (151)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 11

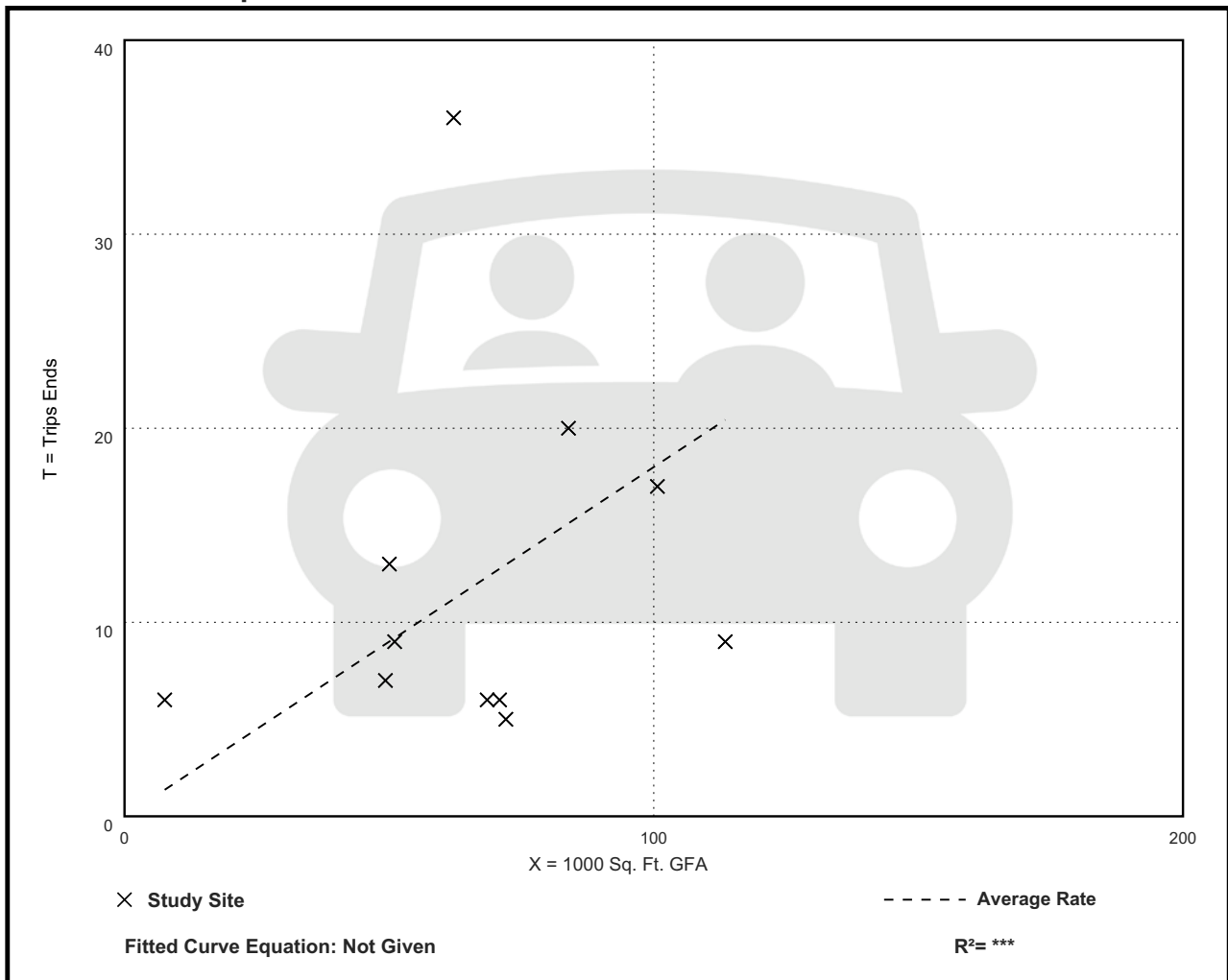
Avg. 1000 Sq. Ft. GFA: 66

Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.07 - 0.79	0.16

## Data Plot and Equation



# Mini-Warehouse (151)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 16

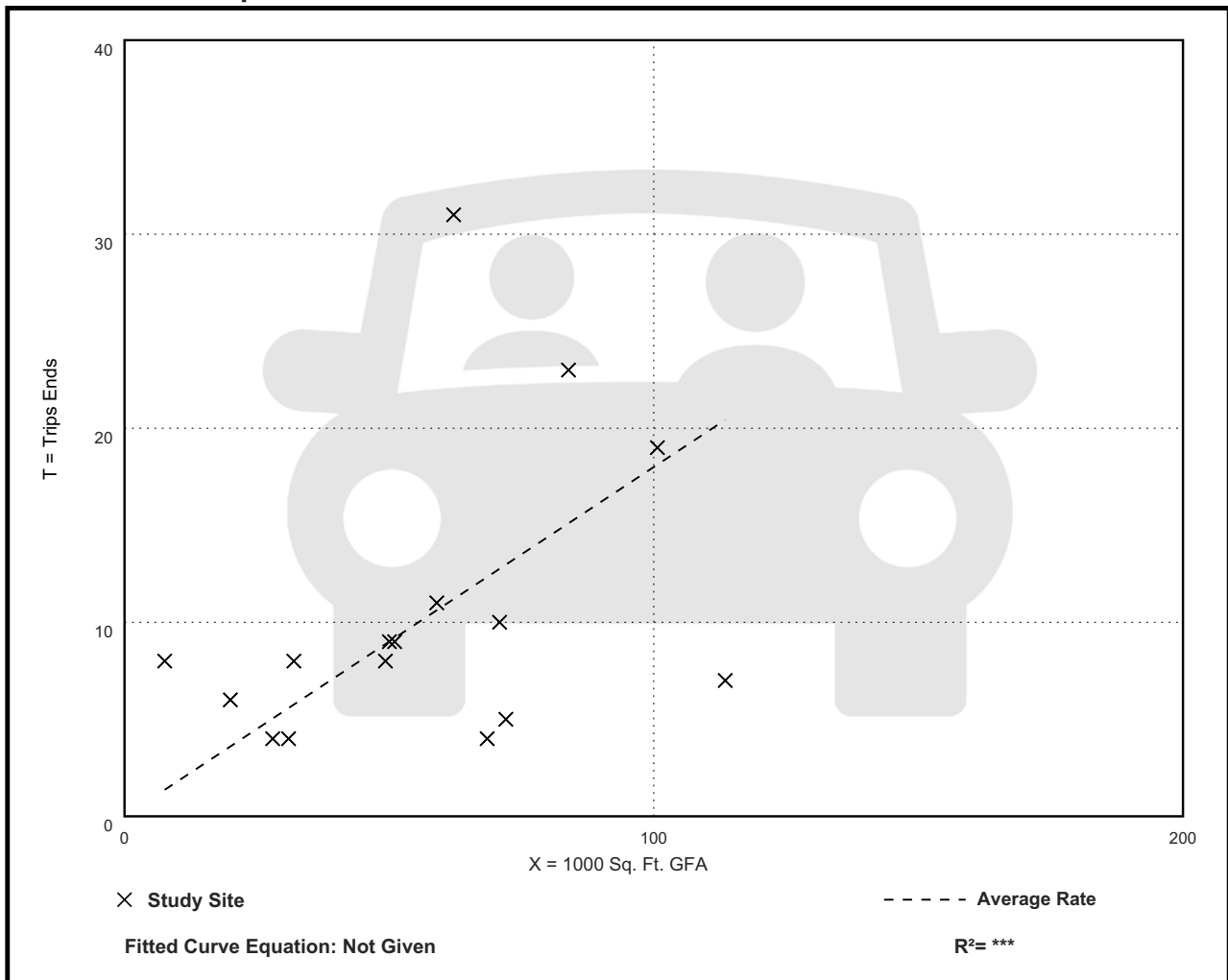
Avg. 1000 Sq. Ft. GFA: 56

Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.06 - 1.05	0.14

## Data Plot and Equation



# Land Use: 822

## Strip Retail Plaza (<40k)

---

### Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

### Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

### Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009

# Strip Retail Plaza (<40k) (822)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GLA**  
On a: Weekday

**Setting/Location: General Urban/Suburban**

Number of Studies: 4

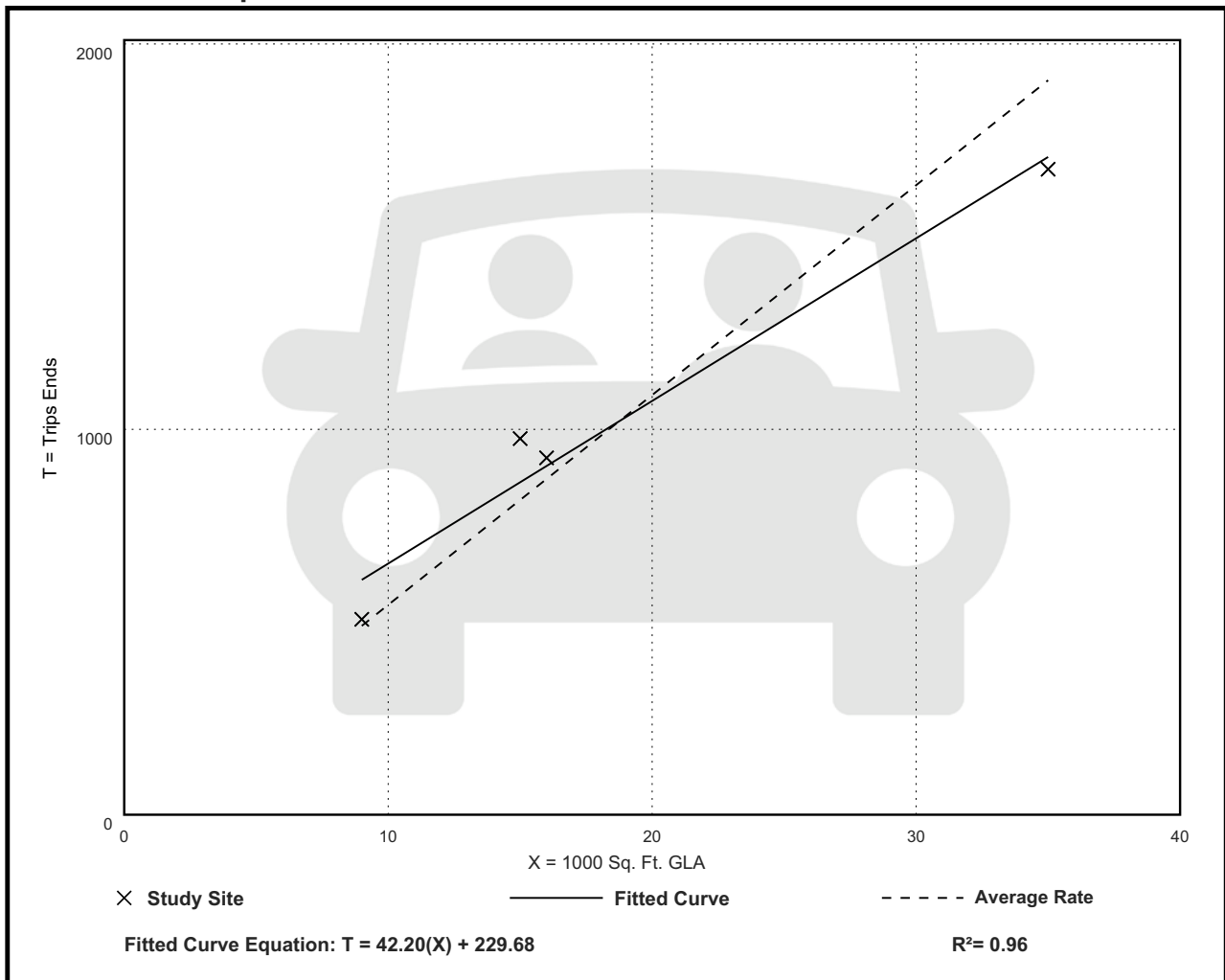
Avg. 1000 Sq. Ft. GLA: 19

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

## Data Plot and Equation







2021 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL  
 CATEGORY: 9402 WEST-W OF I95

WEEK	DATES	SF	MOCF: 0.93 PSCF
1	01/01/2021 - 01/02/2021	0.97	1.04
2	01/03/2021 - 01/09/2021	0.99	1.06
3	01/10/2021 - 01/16/2021	1.01	1.09
4	01/17/2021 - 01/23/2021	0.99	1.06
* 5	01/24/2021 - 01/30/2021	0.97	1.04
* 6	01/31/2021 - 02/06/2021	0.95	1.02
* 7	02/07/2021 - 02/13/2021	0.93	1.00
* 8	02/14/2021 - 02/20/2021	0.91	0.98
* 9	02/21/2021 - 02/27/2021	0.91	0.98
*10	02/28/2021 - 03/06/2021	0.91	0.98
*11	03/07/2021 - 03/13/2021	0.90	0.97
*12	03/14/2021 - 03/20/2021	0.90	0.97
*13	03/21/2021 - 03/27/2021	0.92	0.99
*14	03/28/2021 - 04/03/2021	0.93	1.00
*15	04/04/2021 - 04/10/2021	0.95	1.02
*16	04/11/2021 - 04/17/2021	0.96	1.03
*17	04/18/2021 - 04/24/2021	0.98	1.05
18	04/25/2021 - 05/01/2021	0.99	1.06
19	05/02/2021 - 05/08/2021	1.01	1.09
20	05/09/2021 - 05/15/2021	1.03	1.11
21	05/16/2021 - 05/22/2021	1.03	1.11
22	05/23/2021 - 05/29/2021	1.03	1.11
23	05/30/2021 - 06/05/2021	1.03	1.11
24	06/06/2021 - 06/12/2021	1.03	1.11
25	06/13/2021 - 06/19/2021	1.03	1.11
26	06/20/2021 - 06/26/2021	1.04	1.12
27	06/27/2021 - 07/03/2021	1.05	1.13
28	07/04/2021 - 07/10/2021	1.07	1.15
29	07/11/2021 - 07/17/2021	1.08	1.16
30	07/18/2021 - 07/24/2021	1.09	1.17
31	07/25/2021 - 07/31/2021	1.09	1.17
32	08/01/2021 - 08/07/2021	1.10	1.18
33	08/08/2021 - 08/14/2021	1.10	1.18
34	08/15/2021 - 08/21/2021	1.11	1.19
35	08/22/2021 - 08/28/2021	1.11	1.19
36	08/29/2021 - 09/04/2021	1.10	1.18
37	09/05/2021 - 09/11/2021	1.10	1.18
38	09/12/2021 - 09/18/2021	1.09	1.17
39	09/19/2021 - 09/25/2021	1.07	1.15
40	09/26/2021 - 10/02/2021	1.06	1.14
41	10/03/2021 - 10/09/2021	1.04	1.12
42	10/10/2021 - 10/16/2021	1.02	1.10
43	10/17/2021 - 10/23/2021	1.01	1.09
44	10/24/2021 - 10/30/2021	1.01	1.09
45	10/31/2021 - 11/06/2021	1.00	1.08
46	11/07/2021 - 11/13/2021	1.00	1.08
47	11/14/2021 - 11/20/2021	0.99	1.06
48	11/21/2021 - 11/27/2021	0.98	1.05
49	11/28/2021 - 12/04/2021	0.98	1.05
50	12/05/2021 - 12/11/2021	0.97	1.04
51	12/12/2021 - 12/18/2021	0.97	1.04
52	12/19/2021 - 12/25/2021	0.99	1.06
53	12/26/2021 - 12/31/2021	1.01	1.09

\* PEAK SEASON

08-MAR-2022 12:36:27

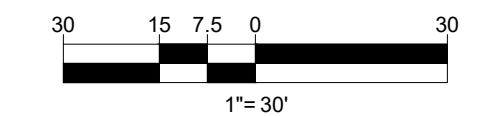
830UPD

4\_9402\_PKSEASON.TXT





**MATCH LINE SHEET 3**



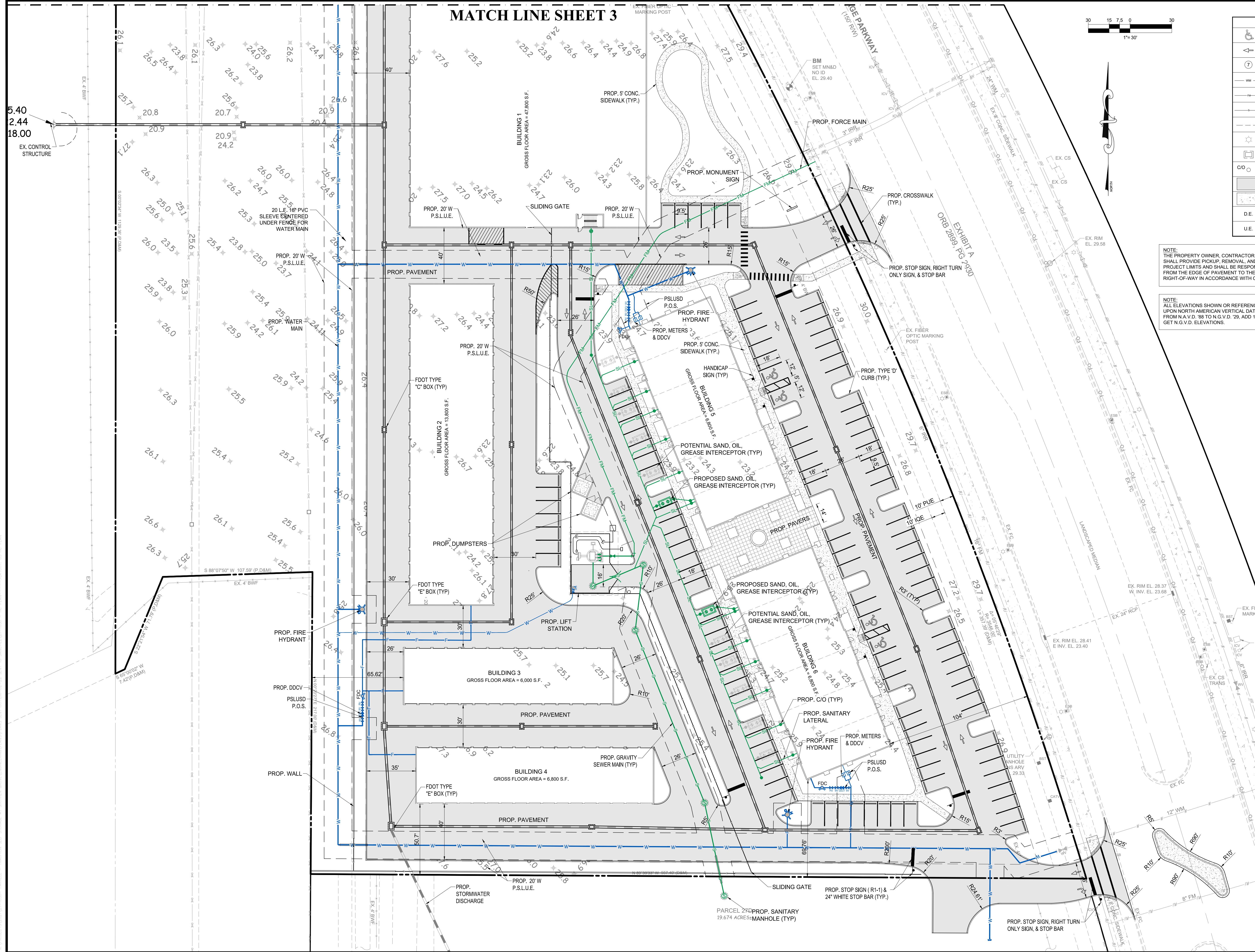
LEGEND	
	HANDICAP STALL
	TRAFFIC FLOW DIRECTION
	NUMBER OF PARKING SPACES
	EXISTING WATER MAIN
	EXISTING FORCE MAIN
	EXISTING GRAVITY SEWER MAIN
	EXISTING EDGE OF PAVEMENT
	EXISTING LIGHT POLE
	PROPOSED CATCH BASIN
	PROPOSED CLEAN OUT
	PROPOSED ASPHALT PAVEMENT
	PROPOSED CONCRETE SIDEWALK
	D.E. DRAINAGE EASEMENT
	U.E. UTILITY EASEMENT



REVISIONS:		
BY:	DATE:	COMMENT:

NOTE:  
THE PROPERTY OWNER, CONTRACTOR, AND AUTHORIZED REPRESENTATIVES SHALL PROVIDE PICKUP, REMOVAL, AND DISPOSAL OF LITTER WITHIN THE PROJECT LIMITS AND SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE AREA FROM THE EDGE OF PAVEMENT TO THE PROPERTY LINE WITHIN THE CITY'S RIGHT-OF-WAY IN ACCORDANCE WITH CITY CODE, SECTION 41.08(g).

NOTE:  
ALL ELEVATIONS SHOWN OR REFERENCED WITHIN THESE PLANS ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (N.A.V.D.), TO CONVERT FROM N.A.V.D. '88 TO N.G.V.D. '29, ADD 1.48' TO THE N.A.V.D. ELEVATIONS TO GET N.G.V.D. ELEVATIONS.



PROJECT:  
**SOUTHERN GROVE**  
**PLAT NO. 13**  
CITY OF PORT ST. LUCIE,  
FLORIDA

CLIENT:  
**FARRELL**  
**ORGANIZATION**

PROJECT No.: 21-1030  
DRAWN BY: TG  
CHECKED BY: RR  
DATE: 10/28/2021  
CAD ID.: 21-1030 - HC PLAN

SHEET TITLE:  
**CONCEPTUAL**  
**ENGINEERING**  
**PLAN**



SHEET NUMBER:  
**03**

CITY OF PSL PROJECT NO. PXX-XXX  
PSLUSD FILE NO. XXXX

Printed on: Tuesday, August 02, 2022, 11:28 AM by: Tony Dobson