

TRAFFIC IMPACT STATEMENT

Legacy Park - Lot 3 Port St. Lucie, FL

Prepared for:
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Prepared by:



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EXECUTIVE SUMMARY

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Legacy Park - Lot 3. Legacy Park - Lot 3 is 250,000 square feet (SF) of warehouse use and is located within the approved Southern Grove Development of Regional Impact. The project is approved for traffic concurrency. The analysis was conducted in accordance with the requirements of the City of Port St. Lucie.

The project is located east of Village Parkway, north of Becker Road and west of Sansone Boulevard within the Legacy Park at Tradition PUD in Port St. Lucie, Florida. Figure 1 illustrates the site location.

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

- 433 daily, 56 AM peak hour (37 in/19 out), and 58 PM peak hour (14 in/44 out) trips

Left-turn lanes into the project are provided on Sansone Boulevard and at the western East-West Road 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	3
Trip Generation.....	3
Internal & Pass-by Capture.....	3
ROADWAYS	4
TRAFFIC DISTRIBUTION	4
TRAFFIC ASSIGNMENT	5
DRIVEWAYS	6
Driveway Access	6
Driveway Spacing.....	7
Turn Lanes	8
CONCLUSION.....	10
APPENDICES	11

LIST OF TABLES

Table 1. Trip Generation..... 3
Table 2. Driveway Spacing Standards 7
Table 3. Driveway Standards* 8
Table 4. Driveway Turn-Lane Standards 8

LIST OF FIGURES

Figure 1. Site Location Map 2
Figure 2. Traffic Assignment..... 5
Figure 3. Driveway Locations..... 6
Figure 4. Proposed Driveway Volumes (Peak Hour of Generator) 9

LIST OF EXHIBITS

INTRODUCTION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Legacy Park - Lot 3. Legacy Park - Lot 3 is located within the approved Southern Grove Development of Regional Impact. The project is approved for traffic concurrency. A trip generation and analysis of access is required to determine necessary laneage at the project driveways.

This document presents the methodology used and the findings of this traffic statement. 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 250,000 square feet (SF) of warehouse use. The project is located east of Village Parkway, north of Becker Road and west of Sansone Boulevard within the Legacy Park at Tradition PUD in Port St. Lucie, Florida. Figure 1 illustrates the site location.

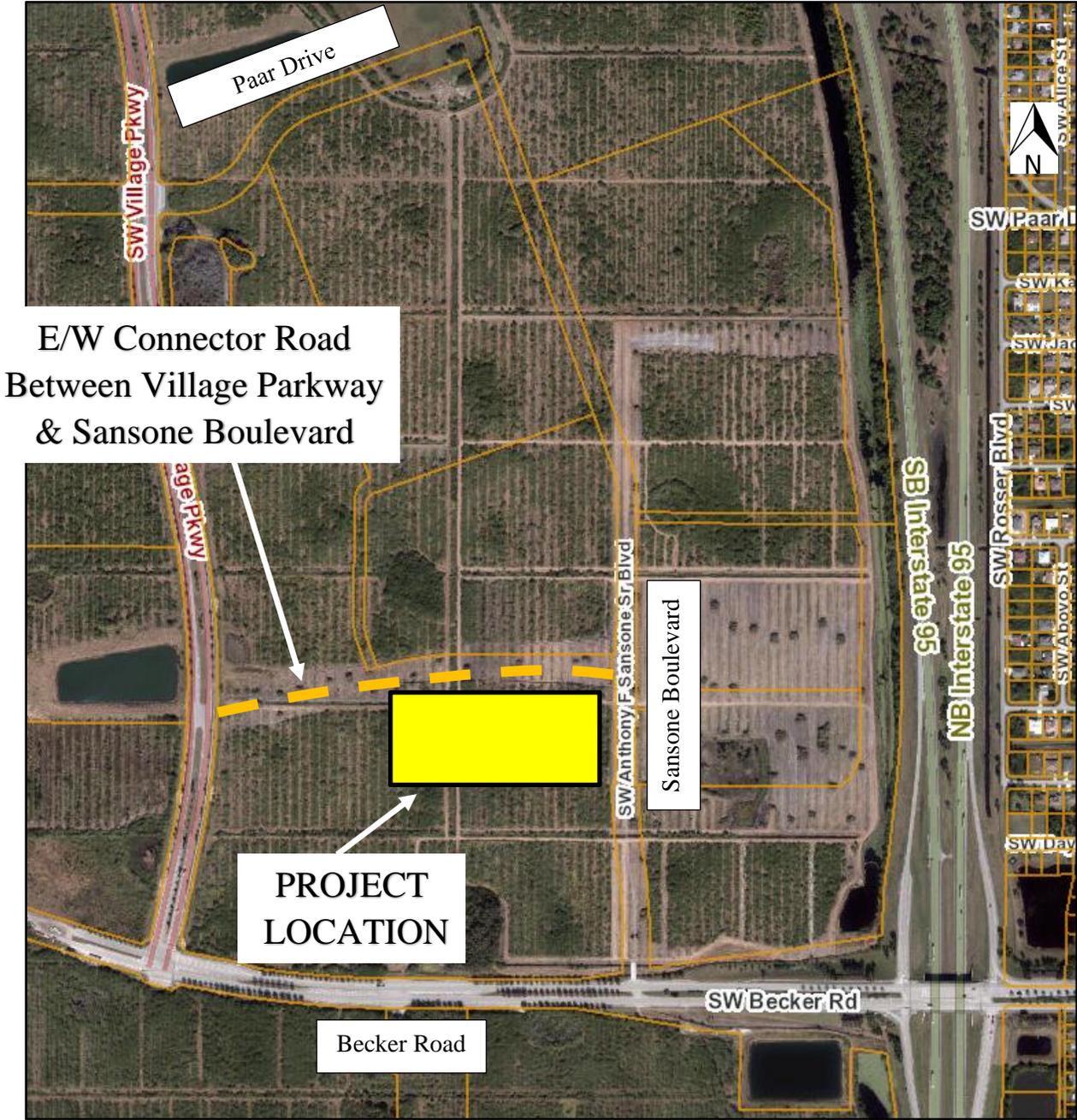
INVENTORY AND PLANNING DATA

The traffic data used in this analysis includes:

- Roadway geometrics

Culpepper & Terpening, Inc. provided site information.

Figure 1. Site Location Map



PROJECT TRAFFIC

Trip Generation

The study uses trip generation rates for Warehouse and Distribution (ITE Land Use 150) published in the Institute of Traffic Engineers' (ITE) report, *Trip Generation (11th Edition)*.

Proposed Site

The applicant proposes 250,000 SF of warehouse and distribution use. The proposed project is expected to generate the following net new external trips and driveway trips:

- 433 daily, 56 AM peak hour (37 in/19 out), and 58 PM peak hour (14 in/44 out) trips

Internal & Pass-by Capture

The site contains no internal or pass-by capture.

Table 1. Trip Generation

Land Use	Intensity	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
<u>Proposed Site Traffic</u> Warehousing	250 1000 SF	433	56	37	19	58	14	44
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	
Warehousing	150	1000 SF	$T = 1.58(X) + 38.29$	0%	in/out	Rate	in/out	Equation
					66/34	$T = 0.11(X) + 28.55$	24/76	$T = 0.12(X) + 26.48$

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ROADWAYS

The following connecting roadway segments will be constructed concurrent with the project:

- East-West Connector Road – Village Parkway to Sansone Boulevard
- Sansone Boulevard – Becker Road to East-West Connector Road

TRAFFIC DISTRIBUTION

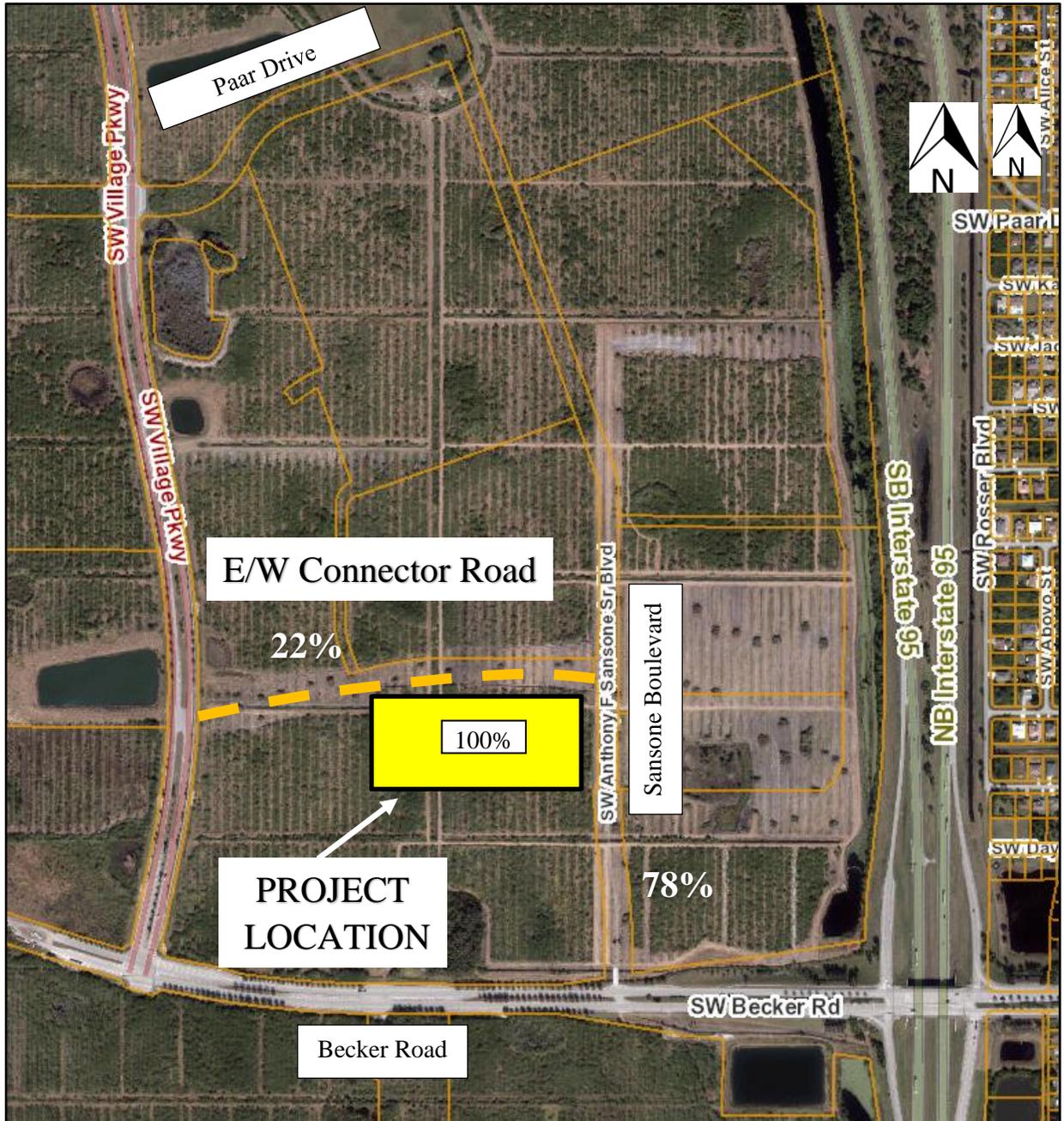
Traffic distribution and assignment was determined using engineering judgment, trip lengths, surrounding uses and review of the roadway network. The overall distribution is summarized by general directions and is depicted below:

West	-	20 percent
South	-	80 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



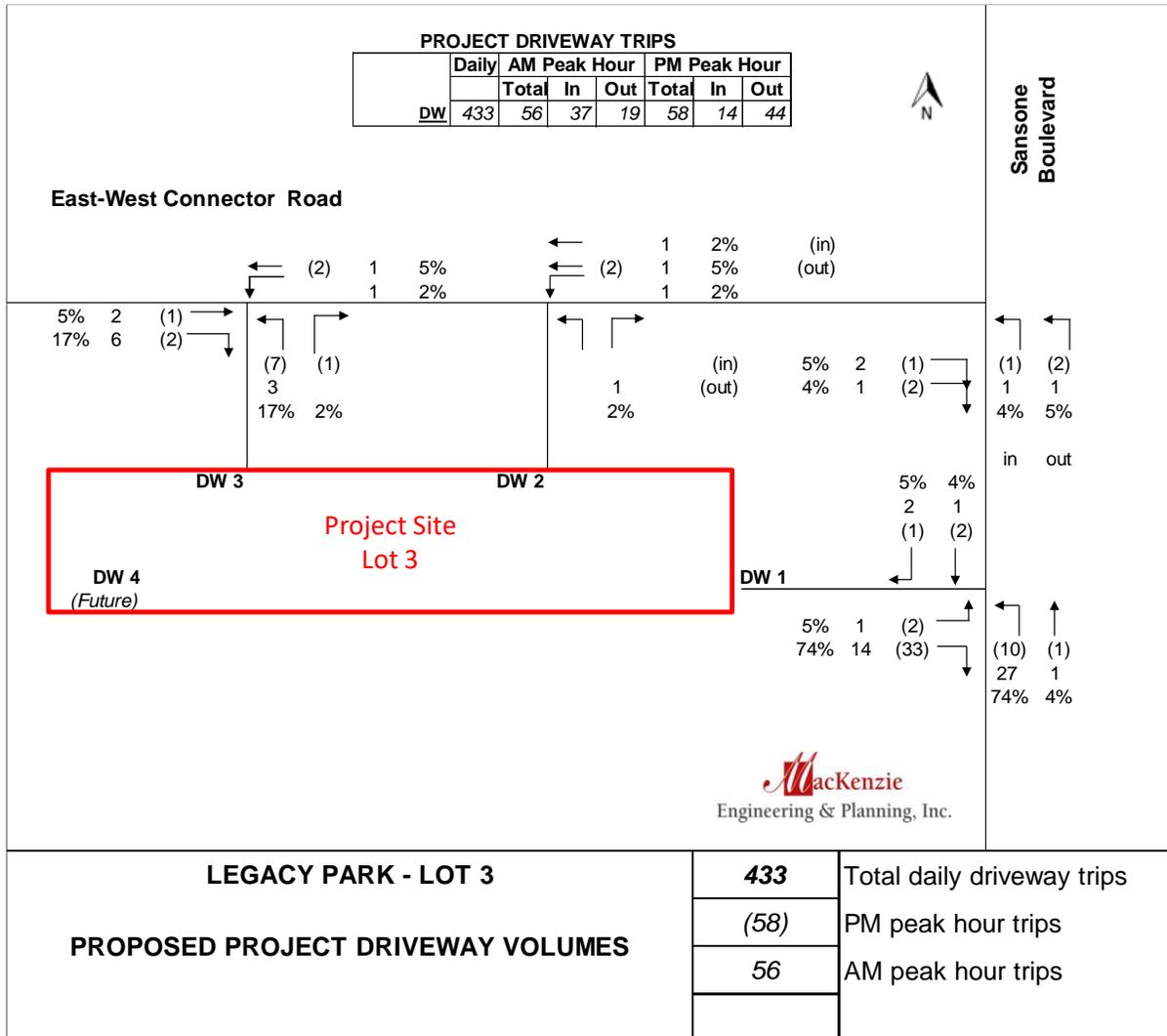
DRIVEWAYS

Driveway Access

The proposed site has four points of access:

- D/W 1 – Full - Sansone Boulevard - Parking
- D/W 2 – Full – East-West Connector Road (East) - Truck Court
- D/W 3 – Full - East-West Connector Road (West) - Truck Court & Parking
- D/W 4 – Full – Future North-South Road Connecting to Becker Road

Figure 3. Driveway Locations



Driveway Spacing

The driveway spacing was analyzed to determine its adequacy relative to Code requirements. In addition, Legacy Park - Lot 3 driveway 1 on Sansone Boulevard aligns with the Project to east of Sansone Boulevard in a plus configuration. Driveways 2 and 3 on the East-West Connector Road align with the driveways across the street on the north side of the road. All driveways meet code required spacing as shown in Table 2. The driveways meet size requirements as shown in Table 3.

Table 2. Driveway Spacing Standards

Driveway	Road**	Type	Driveway Separation*	Driveway Code Spacing	Meets Code ?	Intersection Separation	Intersection Separation Code**	Meets Code ?
1	Sansone	Full	-	150	Yes	357	200	Yes
2	E-W Road (East)	Full	772	50	Yes	229	50	Yes
3	E-W Road (West)	Full	219	50	Yes	144.84	50	Yes
4	N-S Road	Full	-	50	Yes	455	50	Yes

* Measured from the midpoint - Sec. 158.222 (B)

** Measured from ROW to Center of Driveway - Sec. 158.222 (B)(4)

Table 3. Driveway Standards*

Driveway	Road*	Type	Width (feet)	Max Width	Meets Code ?
1	Sansone	Full	26	40	Yes
2	E-W Road (East)	Full	35	40	Yes
3	E-W Road (West)	Full	35	40	Yes
4	N-S Road	Full	35	40	Yes

* Sec. 158.222 (B)(2)

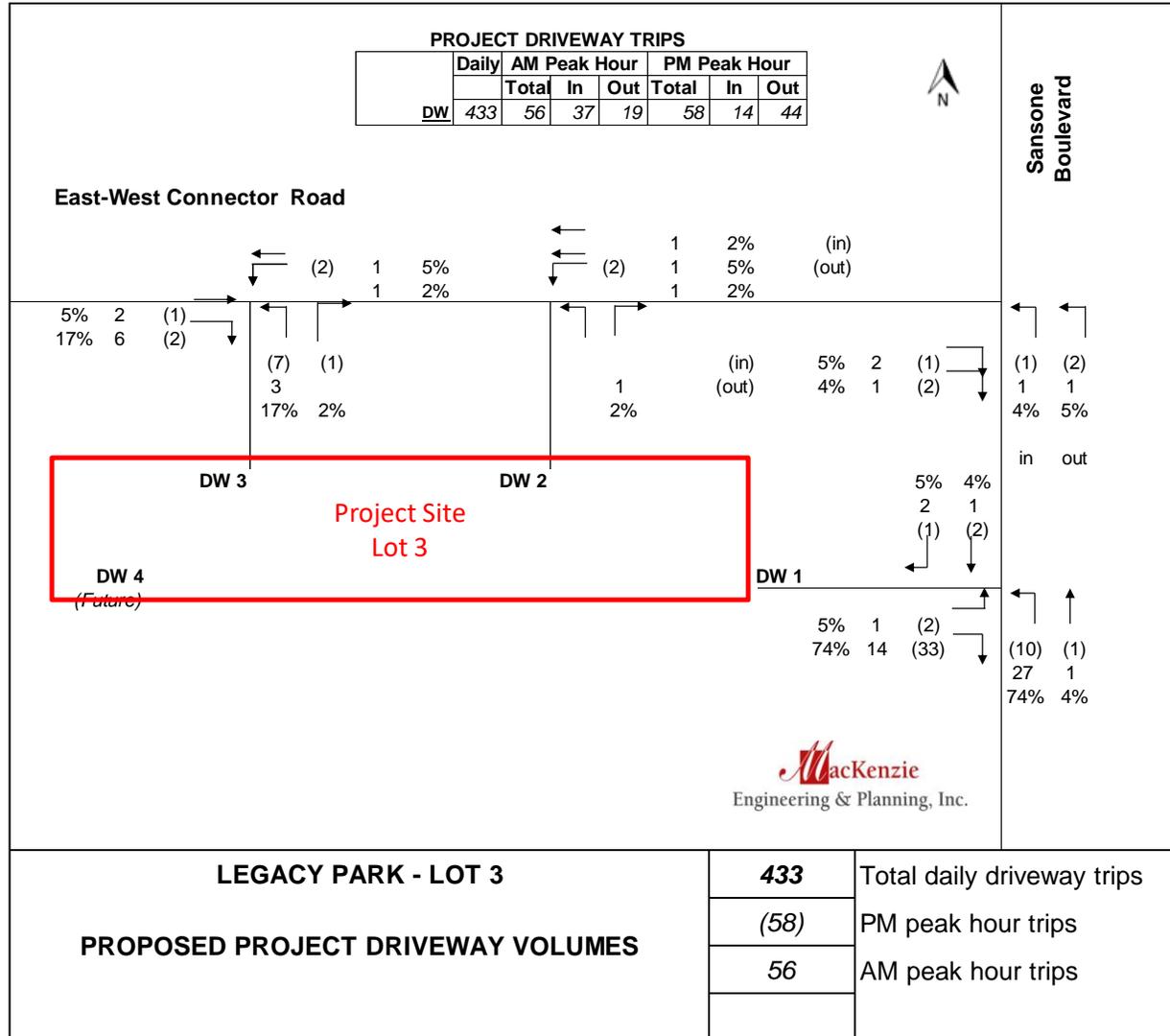
Turn Lanes

Each driveway was evaluated for turn lane needs. All driveways provide adequate entry laneage as shown in Table 4. Project peak hour driveway volumes are shown in Figure 4.

Table 4. Driveway Turn-Lane Standards

Driveway	Intersecting Road	Type	Peak Hour Left-Turn Volume	Left-Turn Lane Provided	Meets Code	Peak Hour Right-Turn Volume	Right-Turn Lane Req'd
1	Sansone	Full	27	Yes	Yes	2	No
2	E-W Road (East)	Full	1	No	Yes	0	No
3	E-W Road (West)	Full	1	Yes	Yes	6	No
4	N-S Road	Full	-	No	Yes	-	No

Figure 4. Proposed Driveway Volumes (Peak Hour of Generator)



CONCLUSION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Legacy Park - Lot 3. Legacy Park - Lot 3 is 250,000 square feet (SF) of warehouse use and is located within the approved Southern Grove Development of Regional Impact. The project is approved for traffic concurrency. The analysis was conducted in accordance with the requirements of the City of Port St. Lucie.

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APPENDICES

- A- ITE Trip Generation 11th Ed.: Warehouse (Land Use 150)
- B- Site Plan

Land Use: 150

Warehousing

Description

A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas. High-cube transload and short-term storage warehouse (Land Use 154), high-cube fulfillment center warehouse (Land Use 155), high-cube parcel hub warehouse (Land Use 156), and high-cube cold storage warehouse (Land Use 157) 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 California, Connecticut, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, and Texas.

Source Numbers

184, 331, 406, 411, 443, 579, 583, 596, 598, 611, 619, 642, 752, 869, 875, 876, 914, 940, 1050

Warehousing (150)

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

Setting/Location: General Urban/Suburban

Number of Studies: 31

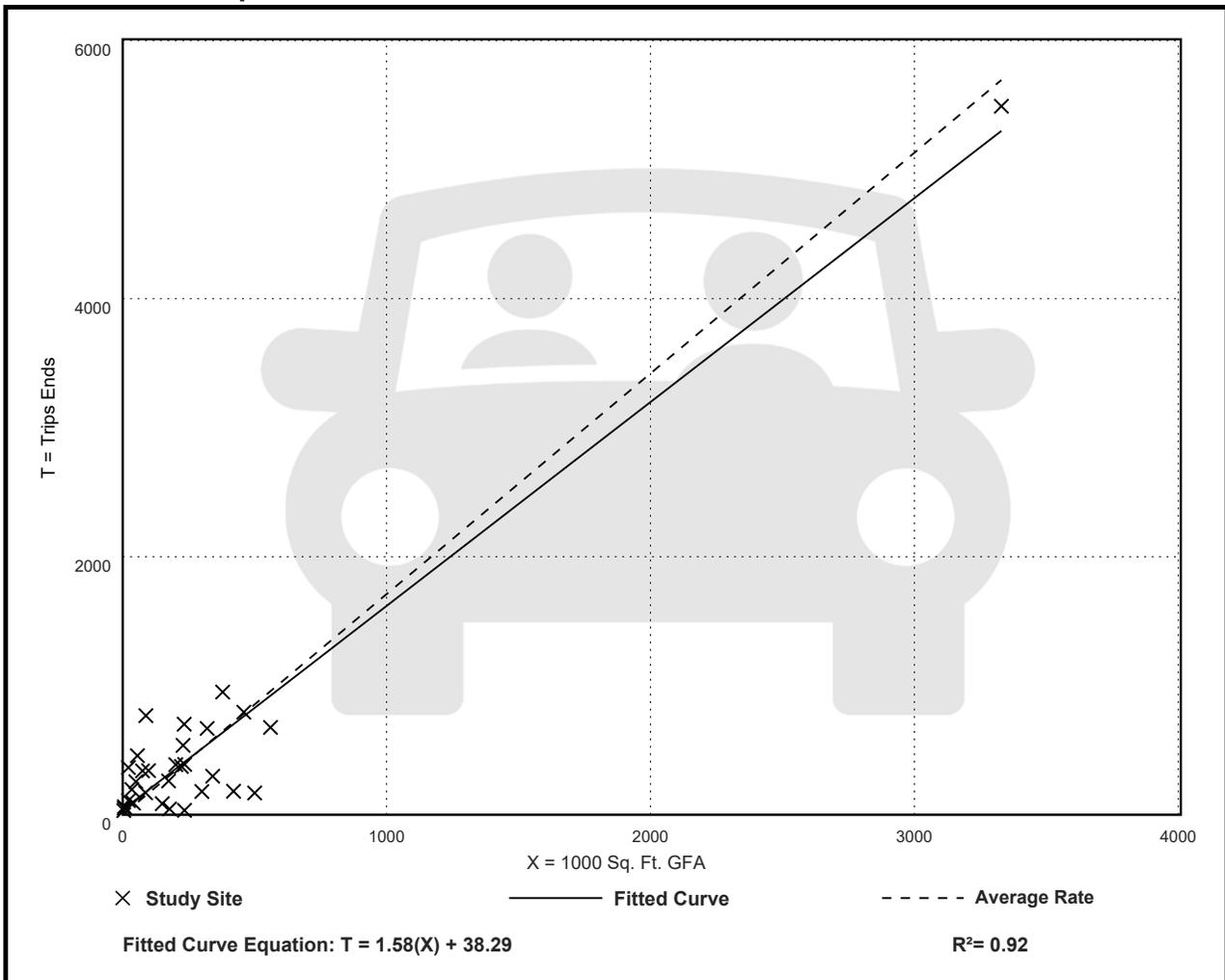
Avg. 1000 Sq. Ft. GFA: 292

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.71	0.15 - 16.93	1.48

Data Plot and Equation



Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

**On a: Weekday,
AM Peak Hour of Generator**

Setting/Location: General Urban/Suburban

Number of Studies: 25

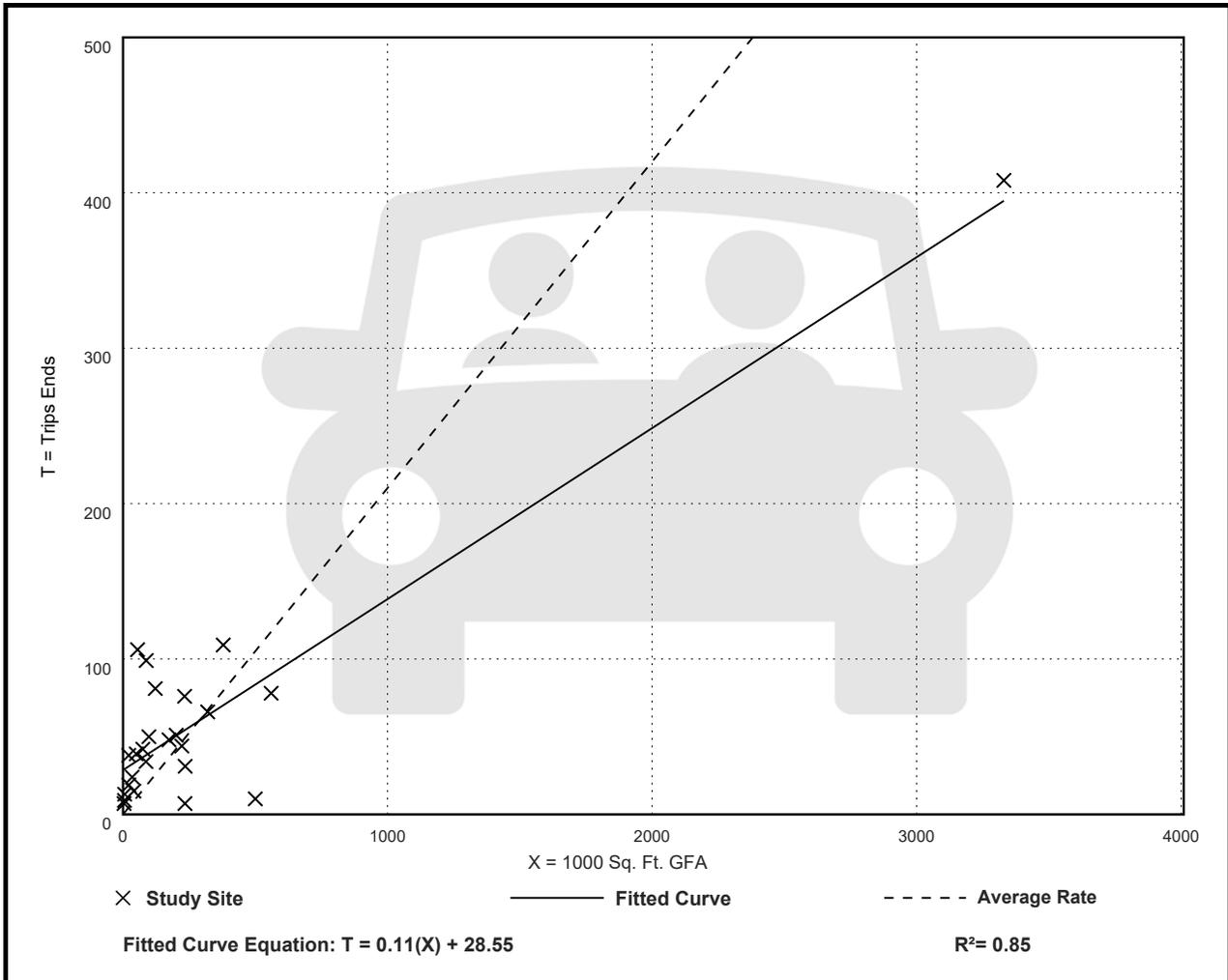
Avg. 1000 Sq. Ft. GFA: 284

Directional Distribution: 66% entering, 34% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.21	0.02 - 2.08	0.26

Data Plot and Equation



Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

**On a: Weekday,
PM Peak Hour of Generator**

Setting/Location: General Urban/Suburban

Number of Studies: 27

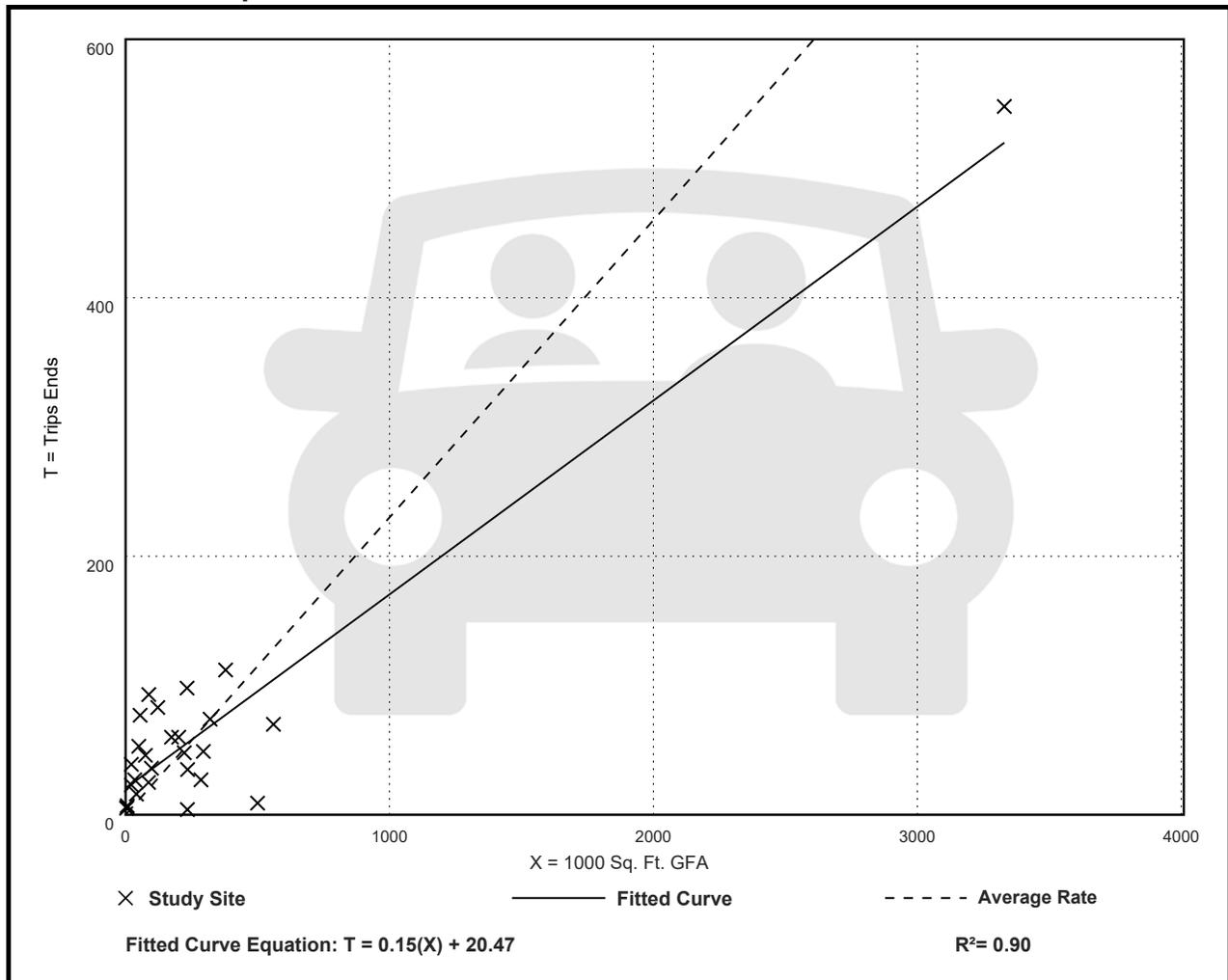
Avg. 1000 Sq. Ft. GFA: 284

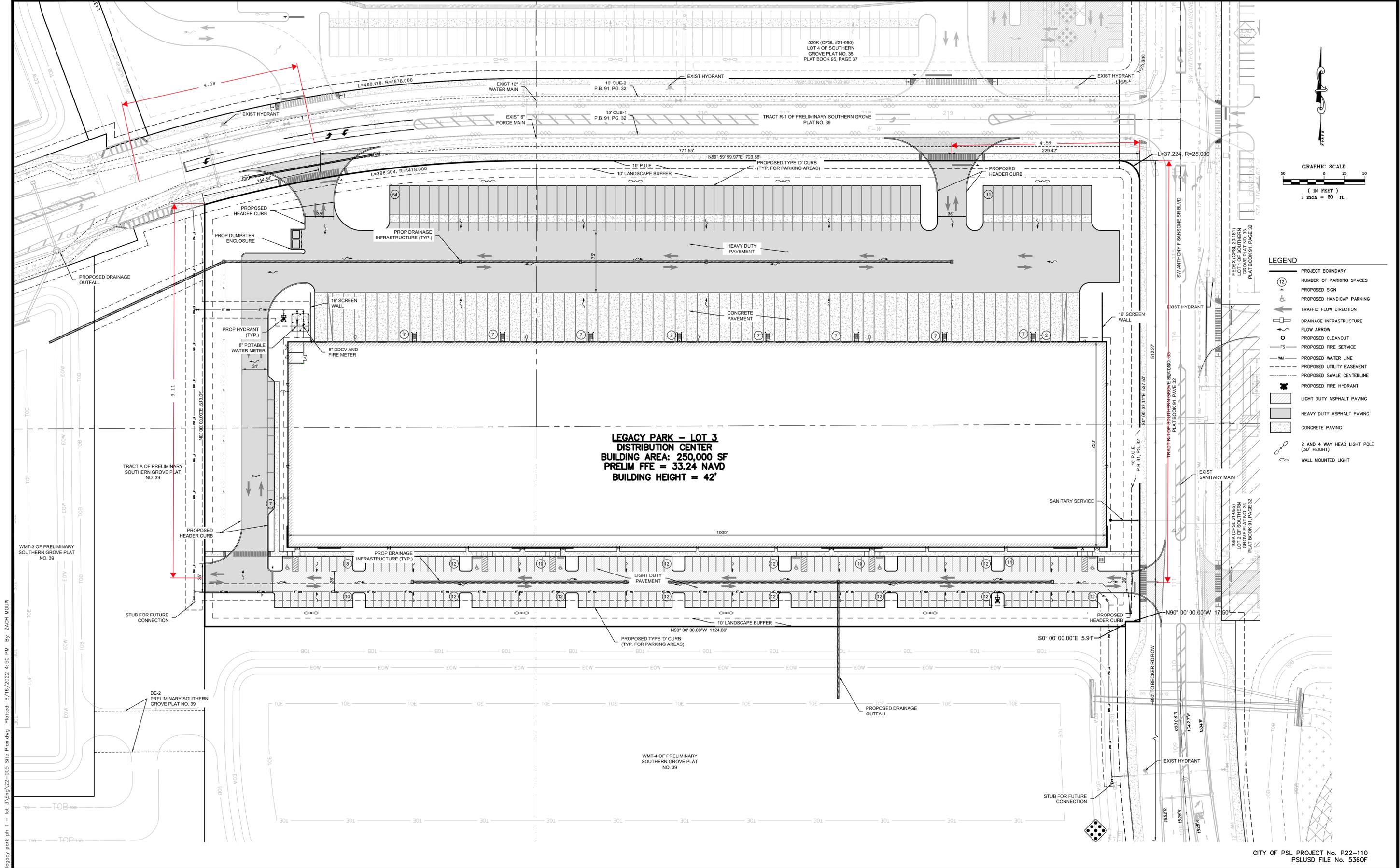
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

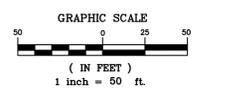
Average Rate	Range of Rates	Standard Deviation
0.23	0.02 - 1.80	0.23

Data Plot and Equation





**LEGACY PARK - LOT 3
DISTRIBUTION CENTER**
 BUILDING AREA: 250,000 SF
 PRELIM FFE = 33.24 NAVD
 BUILDING HEIGHT = 42'



- LEGEND**
- PROJECT BOUNDARY
 - NUMBER OF PARKING SPACES
 - PROPOSED SIGN
 - PROPOSED HANDICAP PARKING
 - TRAFFIC FLOW DIRECTION
 - DRAINAGE INFRASTRUCTURE
 - FLOW ARROW
 - PROPOSED CLEANOUT
 - PROPOSED FIRE SERVICE
 - PROPOSED WATER LINE
 - PROPOSED UTILITY EASEMENT
 - PROPOSED SWALE CENTERLINE
 - PROPOSED FIRE HYDRANT
 - LIGHT DUTY ASPHALT PAVING
 - HEAVY DUTY ASPHALT PAVING
 - CONCRETE PAVING
 - 2 AND 4 WAY HEAD LIGHT POLE (30' HEIGHT)
 - WALL MOUNTED LIGHT

P:\Proj-2022\22-005 - legacy park ph 1 - lot 3\Eng\22-005 Site Plan.dwg Plotted: 6/16/2022 4:30 PM By: ZACH MOUW

CITY OF PSL PROJECT No. P22-110
 PSLUSD FILE No. 5360F

COMPUTER FILE REF.	FIELD BK./PG.

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- REVISIONS -		BY	DATE

	BY	DATE
DESIGNED		
CALCS.		
DRAWN	ZM	1/28/22
DETAILED		
CHECKED	DM	
APPROVED	JPT	

LEGACY PARK - LOT 3

OVERALL SITE PLAN

DATE: -
 HORIZ. SCALE: 1"=50'
 VERT. SCALE: -
 JOB No. 22-005
 SHEET 1 of 5

Sec. 158.222. - Access Standards, Sidewalks, and Bikepaths.

(A) General Requirements.

- (1) All new development or redevelopment will be provided with the appropriate access and traffic facilities to serve the transportation needs of the development in a safe and efficient manner while simultaneously preserving the flow of traffic on the surrounding public road system.
- (2) It is intended that access be restricted on arterial and collector streets in order to limit traffic conflicts and to preserve the capacity of these roads.
- (3) All new development shall be required to dedicate to the public, or a private maintenance entity, the necessary rights-of-way for all new streets and roads within the development. Additional rights-of-way shall be dedicated on existing roads to bring that road to the necessary right-of-way indicated in the functional classification system contained in the transportation element of the Comprehensive Plan. All new development shall be required to construct or contribute towards off-site road improvements necessary to serve the development, unless otherwise addressed by the City Council. Necessary road improvements may include road construction, road widening, left and right turn lanes, traffic signals, regulatory signs and pavement markings. A traffic study may be required by the Zoning Administrator in order to properly identify the traffic impacts of the new development and measures needed to mitigate the impact of the new development.
- (4) Every building, structure, or use hereafter erected, moved, or established shall be on a lot adjacent to a public street by means of an approved private street, and all buildings, structures, and uses shall be so located on lots so as to provide safe and convenient access for servicing, fire protection, and required off-street parking and loading. No building, structure, or use shall be erected on, moved onto, or established upon a lot which does not abut on at least one (1) public street or approved private street for a distance of at least twenty (20) feet.
- (5) No lot which is residentially zoned shall be used for driveway, walkway, or access purposes to any lot which is zoned nonresidential or used for any purpose not permitted within the applicable residential zoning district except for ingress and egress to and from an existing use which does not abut a street.
- (6) All new development shall be required to provide a traffic analysis appropriate to the magnitude of the new development including impacts to affected roadway facilities and construct or contribute towards off-site road improvements necessary to serve the development, unless otherwise addressed by the City Council. Necessary road improvements may include, but are not limited to, road construction, road widening, left and right turn lanes, traffic signals, regulatory signs and pavement markings.

(7) Internal circulation systems, interconnected parking lots, and/or frontage roads shall be utilized wherever possible.

(8) Temporary driveway permits may be issued as an interim measure until interconnected parking lots or frontage roads can be feasibly developed.

(B) **Design Requirements.** General design standards for the drive width, allowable number of driveways, and driveway spacing are provided below. Traffic generators with volumes of one thousand (1,000) plus trips per day, shall have driveways designed as a street intersection. Refer to the City's Engineering Standards for Land Development for additional information on requirements for pavement design, driveway profile, driveway radius, throat lengths, medians, median openings, and turn lanes.

(1) **Driveway Surface.** All driveways shall be paved with concrete, asphalt, or comparable hard surfacing and shall be in accordance with the City's Engineering Standards for Land Development.

(2) **Driveway Width.** The minimum and maximum driveway widths shall be as follows:

District and Driveway Type	Driveway Width	
	Minimum (feet)	Maximum (feet)
Residential		
Single-family, detached	10	32
Single-family, detached (circular, main portion to garage)	10	32
Single-family, detached (circular, secondary portion)	10	20
Multi-family	20	24
Multi-family (one way)	12	16
Commercial		
One way	12	16

Two way	24	36
Industrial		
One way	12	24
Two way	24	40

(3) **Number of Driveways.** Driveways shall be limited to the minimum necessary to provide access to the land uses. The following standards for the number of driveways are a guideline for the City to utilize in the review of specific development projects. Standards in excess of the guideline are preferable and may be required for driveways located within the functional area of an intersection or areas where access restrictions are necessary to reduce conflicts, preserve the safety of the traveling public, or to preserve the function of the adjacent roadway. These guidelines may not always apply to conversion areas. Approval from the owner of the roadway is required for driveway connections to roads that are not owned by the City. Access restrictions shall be more severe for projects located on arterial or collector roads, especially for areas of strip commercial development.

Allowable Number of Driveways			
District	Number of Driveways, Type, and Frequency		
	Arterial Road	Collector Road	Local Road
Residential			
Single-family (Lots < 18,500 square feet)	1 two-way per lot or 1 circular per lot	1 two-way per lot or 1 circular per lot	1 two-way per lot or 1 circular per lot
Single-family (Lots > 18,500 square feet)	2 two-way per lot or 1 circular per lot	2 two-way per lot or 1 circular per lot	2 two-way per lot or 1 circular per lot

Multi-family	1 two-way or 2 one-way per each 500 feet of road frontage	1 two-way or 2 one-way per each 350 feet of road frontage	1 two-way per each 100 feet of road frontage
Commercial	1 two-way or 2 one-way per each 500 feet of road frontage	1 two-way or 2 one-way per each 350 feet of road frontage	1 two-way or 2 one-way per each 100 feet of road frontage
Industrial	1 two-way or 2 one-way per each 500 feet of road frontage	1 two-way or 2 one-way per each 250 feet of road frontage	1 two-way or 2 one-way per each 100 feet of road frontage

(4) **Driveway Spacing from Intersections.** Driveway spacing from intersections shall be measured from the right-of-way line of the intersecting street to the midpoint of the driveway. Spacing between driveways shall be measured from the midpoint of each driveway. Standards in excess of these requirements are preferable and may be required for driveways located within the functional area of an intersection or areas where access restrictions are necessary to reduce conflicts, preserve the safety of the traveling public, or to preserve the function of the adjacent roadway. The spacing requirements are shown in the following table:

Driveway Spacing from Intersections			
District	Driveway Location		
	Arterial Road	Collector Road	Local Road
Residential			
Single-family	50'	50'	25'
Multi-family	250'	250'	50'

Commercial	250'	250'	50'
Industrial	250'	200'	50'

(5) **Driveway Spacing Between Driveways.** The spacing requirements are shown in the following table where the spacing between driveways shall be measured from the midpoint of each driveway.

Driveway Spacing Between Driveways			
District	Driveway Location		
	Arterial Road	Collector Road	Local Road
Residential			
Single-family	20'	20'	20'
Multi-family	150'	100'	50'
Commercial	250'	200'	50'
Industrial	n/a	150'	50'

(C) **Exceptions.** The Site Plan Review Committee may exempt utilities, cellular towers, billboards, and other similar uses from the aforementioned requirements for access standards provided sufficient access to the facility is provided and the facility is not accessible for the benefit of the general public.

(D) **Drive-Throughs.** No drive-through windows located between the right-of-way of a primary collector/arterial roadway and a building are permitted. If there is no viable location, the entire drive-through lane must be completely screened from adjacent view using a continuous planting of vegetation at a height of six (6) feet at time of planting. Vegetation shall be maintained at a height of at least six (6) feet.

(E) **Sidewalks and Bikepaths. Minimum design and construction standards**

- (1) New development located along existing streets. New development located along an existing street right-of-way that is 60 feet in width or greater shall provide a sidewalk that is at least 5 feet in width, typically along the property line and within the street right-of-way. However, in such case where the Engineering Department determines that a sidewalk located within a right-of-way is not appropriate or will be in conflict with other public works, the Engineering Department may require that the sidewalk be located on the subject property to be developed, typically along the property line. Location and design shall be subject to review by the Site Plan Review Committee. In areas where the City plans to install and finance the construction of a sidewalk, the developer shall not be required to install the sidewalk. However, the developer shall be required to pay the current bid price for the installation of the proposed sidewalk for the length of the subject property unless previous agreement or ordinance indicates otherwise. In areas where a design plan for sidewalks and/or bikepaths has been adopted or established, the design plan shall take precedence as to the location, size, and other features of the sidewalk and/or bikepath. Sidewalks shall not encroach into landscape strips.
- (2) Existing development located along existing streets. Existing development located along an existing street right-of-way that is 60 feet in width or greater seeking major revisions of a site plan pursuant to Section 158.237(D) of the Zoning Code, shall provide a sidewalk that is at least 5 feet in width, typically along the property line and within the street right-of-way. However, in such case where the Engineering Department determines that a sidewalk located within a right-of-way is not appropriate or will be in conflict with other public works, the Engineering Department may require that the sidewalk be located on the subject property to be developed, typically along the property line. Location and design shall be subject to review by the Site Plan Review Committee. In areas where the City plans to install and finance the construction of a sidewalk, the developer shall be required to pay the current bid price for the installation of the proposed sidewalk for the length of the subject property unless previous agreement or ordinance indicates otherwise. In areas where a design plan for sidewalks and/or bikepaths has been adopted or established, the design plan shall take precedence as to the location, size, and other features of the sidewalk and/or bikepath. Sidewalks shall not encroach into landscape strips. Existing development seeking minor revisions of a site plan pursuant to Section 158.237(C) shall not be subject to the sidewalk requirement.
- (F) **Public and Private Streets or Driveways.** A sidewalk that is at least 5 feet in width shall be located along the side or sides of the following proposed street rights-of-way or main access routes:
- (1) A public or private street right-of-way located adjacent to a non-residential use. A sidewalk shall be located along the side of the street located adjacent to the non-residential use.
- (2)

A public or private street right-of-way or driveway that serves as a main access route to a residential development having 400 units or more. Sidewalks shall be located on both sides.

(3) All collector or arterial roads. Sidewalks shall be located on both sides.

(G) Whenever possible, a sidewalk shall be located along the edge of the street right-of-way, leaving a green space located between the street pavement and the sidewalk. See Subdivision Regulations, Chapter 156, for additional requirements concerning sidewalks for subdivisions. Where there is conflict, the more stringent code requirement shall take precedence.

(H) All sidewalks shall comply with the Americans with Disabilities Act, the Florida Accessibility Code for Construction and the Engineering Department's Standards Book.

(I) In order to avoid installing a sidewalk that will lead nowhere nor have a functional purpose, where developed properties located along both sides of the subject property do not have sidewalks and it is unlikely that in the near future that sidewalks will be installed, the installation of a sidewalk shall not be required.

(Ord. No. 98-84, § 1, 3-22-99; Ord. No. 11-69, § 1, 9-12-11; Ord. No. 15-85, § 1, 12-7-15; Ord. No. 22-11, § 3, 2-28-22)

Editor's note— Ord. No. 15-85, § 1, adopted December 7, 2015, amended § 158.222, to read as set out herein. Previously § 158.222 was titled "Access Standards."