TRAFFIC IMPACT STATEMENT

Project Everest
Port St. Lucie, FL

Prepared for:
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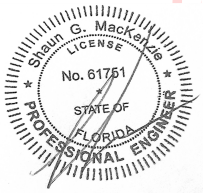

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CA 29013

EXECUTIVE SUMMARY

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for the development of Project Everest. Project Everest is 1,605,000 square feet (SF) of high – cube transload and short – term storage 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 east of Sansone Boulevard, north of Paar Drive, west of I-95 and south of Marshall Parkway in Port St. Lucie, Florida.

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

- 2,247 daily, 209 AM peak hour (163 in/46 out), and 273 PM peak hour (93 in/180 out) trips.

The truck access entrance on Paar Drive (Driveway #1) is restricted to a Left - in / Right - out driveway. Left-turn lane into the project is provided for a full opening driveway on Sansone Boulevard.

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INTRODUCTION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Project Everest. Project Everest 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 from 1,605,000 square feet (SF) of high – cube transload and short – term storage warehouse use. The project is east of Sansone Boulevard, north of Paar Drive, west of I-95 and south of Marshall Parkway in Port St. Lucie, Florida. Figure 1 illustrates the site location.

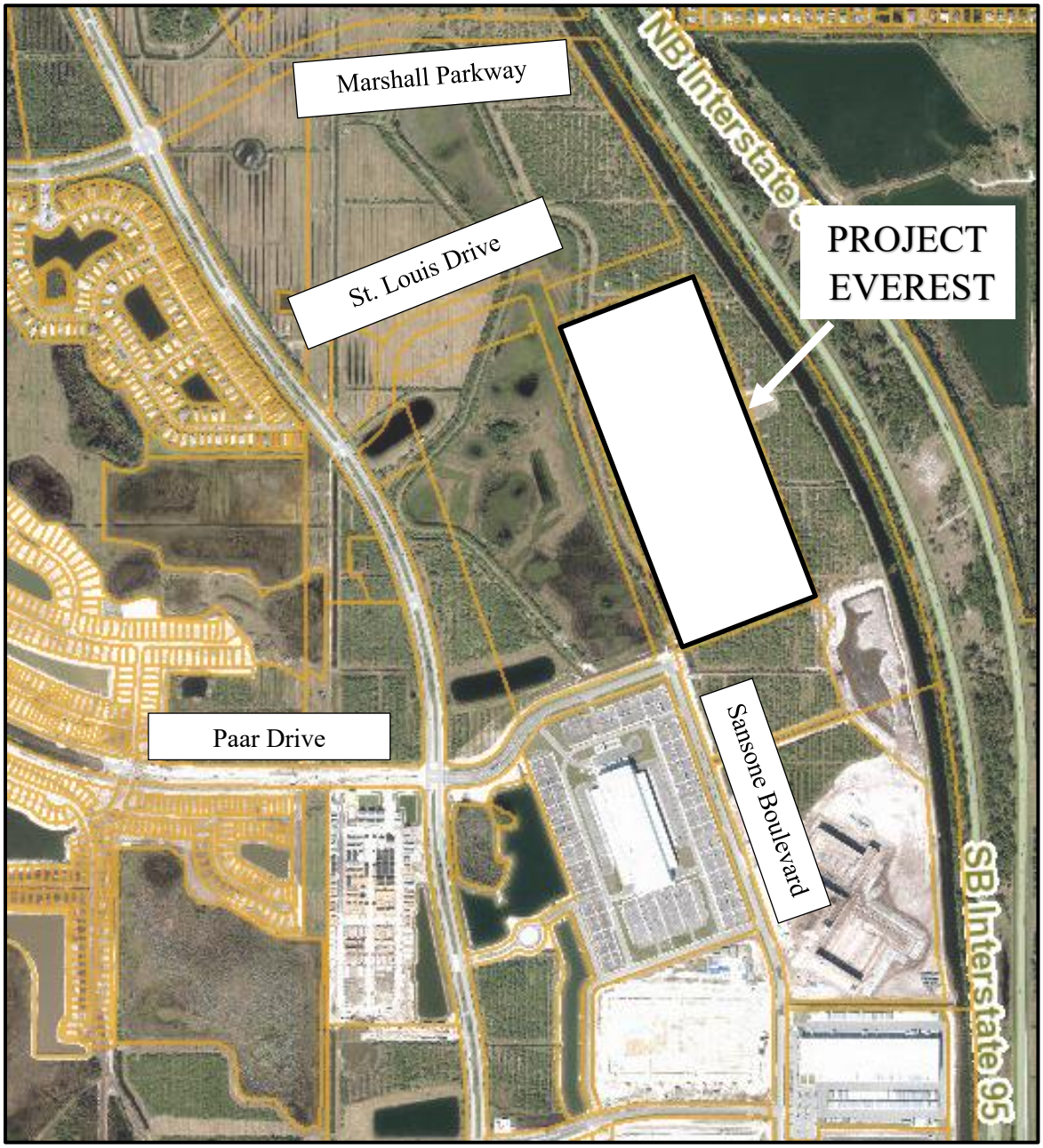
INVENTORY AND PLANNING DATA

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 High – Cube Transload and Short – Term Storage Warehouse (ITE Land Use 154) published in the Institute of Traffic Engineers' (ITE) report, *Trip Generation (11th Edition)*.

Proposed Site

The applicant proposes 1,605,000 SF of high – cube transload and short – term storage warehouse use. The proposed project is expected to generate the following driveway trips as shown in Table 1:

- 2,247 daily, 209 AM peak hour (163 in/46 out), and 273 PM peak hour (93 in/180 out) trips

Internal & Pass-by Capture

The site contains no internal or pass-by capture.

Table 1. Trip Generation (Peak Hour Generator)

Land Use	Intensity	Daily Trips	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
Proposed Site Traffic								
High-Cube Transload and Short-Term Storage Warehouse	1,605.000 1000 SF	2,247	209	163	46	273	93	180
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)		**2,247**	**209**	**163**	**46**	**273**	**93**	**180**
NET CHANGE IN DRIVEWAY VOLUMES		**2,247**	**209**	**163**	**46**	**273**	**93**	**180**

Note: Trip generation was calculated using the following data:

Land Use	ITE Code	Unit	Daily Rate	Pass-by Rate	AM Peak Hour in/out	AM Peak Hour Rate	PM Peak Hour in/out	PM Peak Hour Equation
High-Cube Transload and Short-Term Storage Warehouse	154	1000 SF	1.4	0%	78/22	0.13	34/66	0.17

ITE 11th Edition

TRAFFIC DISTRIBUTION

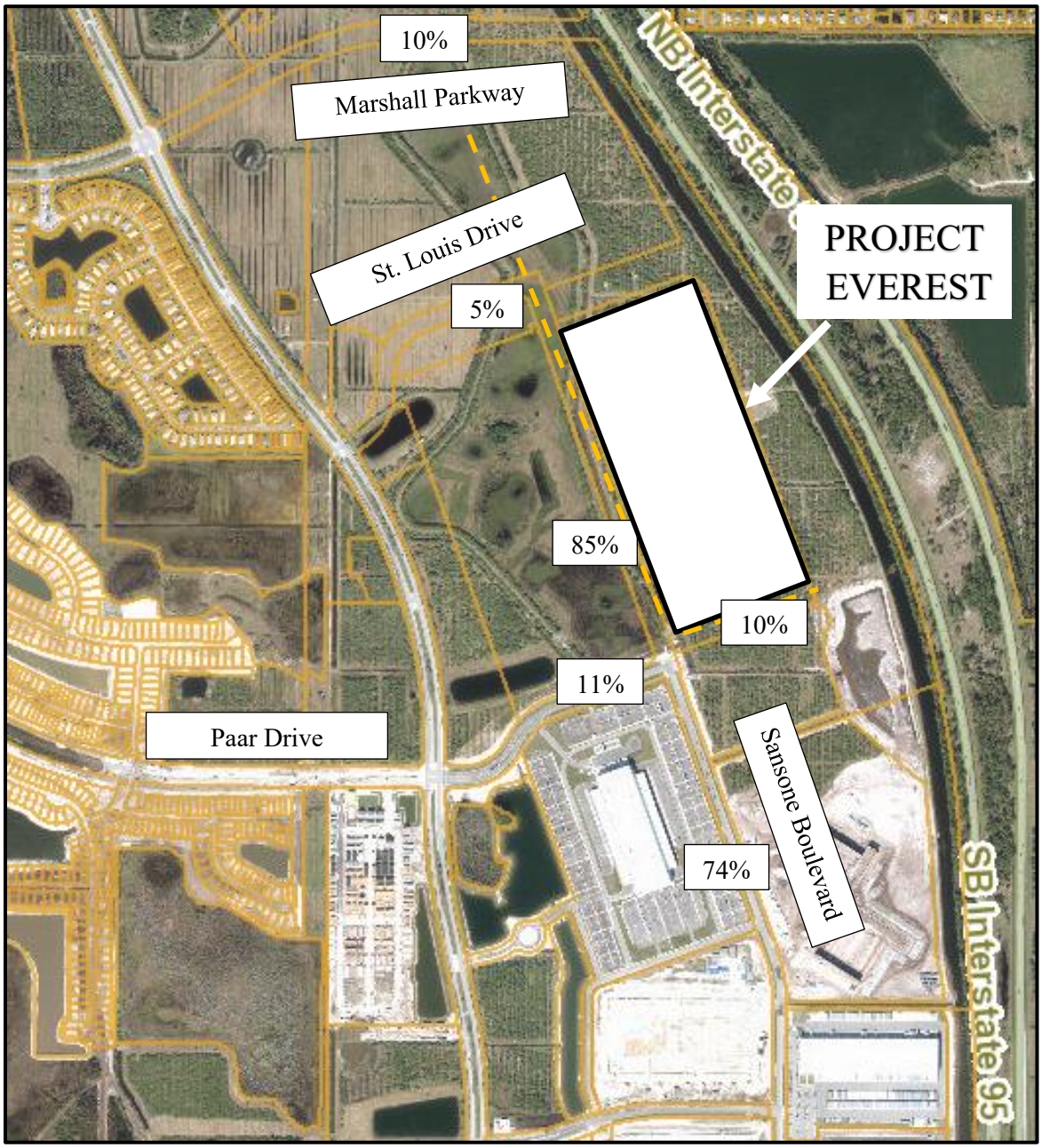
The traffic distribution is based on the approved Legacy Park at Tradition PUD (March 2023). The overall distribution is summarized by general directions and is depicted below:

North	-	15 percent
South	-	85 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

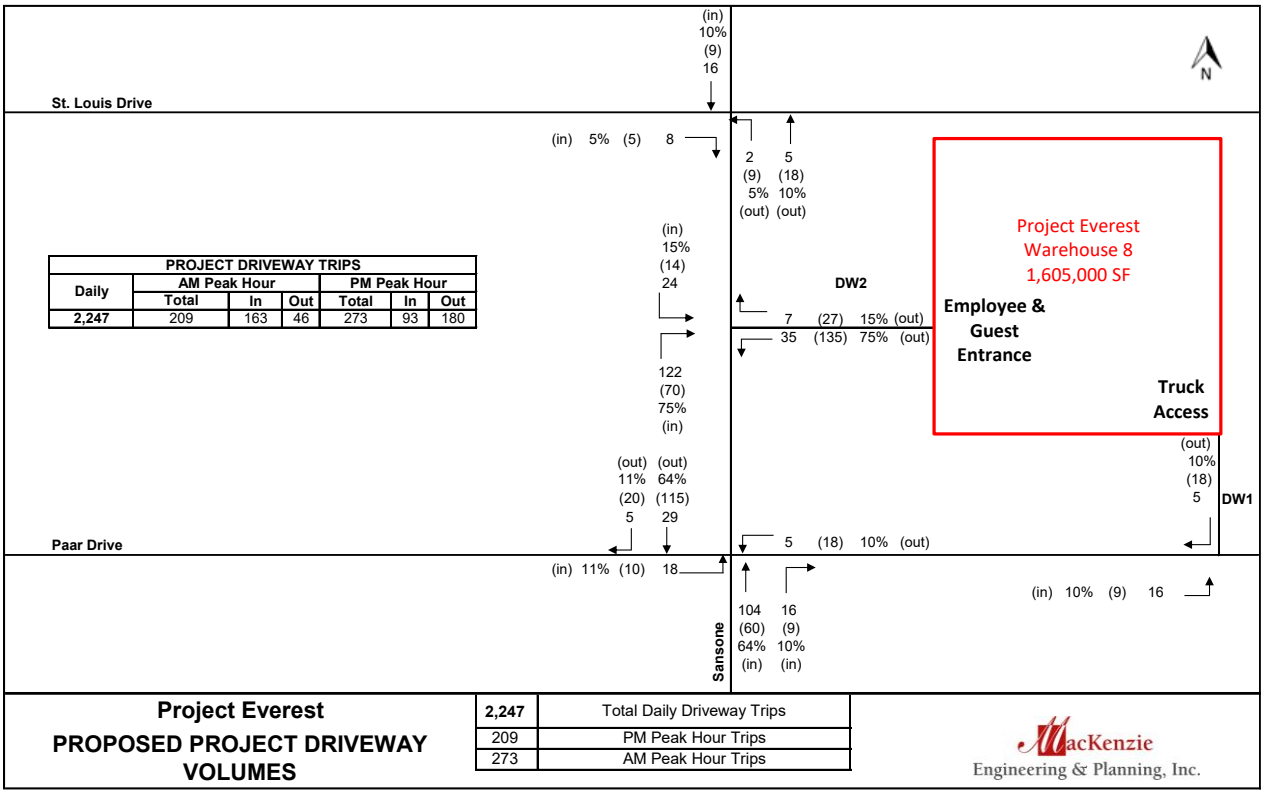
Driveway Access

The proposed site has two points of access:

- D/W 1 – Left - in / Right - out – Paar Drive West –Truck Access.
- D/W 2 – Full - Sansone Boulevard Employee and guest Entrance.

Driveway volumes are shown in Figure 3.

Figure 3. Proposed Driveway Volumes



Driveway Spacing

Driveway Spacing was analyzed in Table 2 according to the city code standards.

Table 2. Driveway Spacing Standards

Driveway	Road**	Type	Driveway Separation*	Driveway Code Spacing	Meets Code ?
1	Paar Drive	Left-in / Right-out	1100	150	Yes
2	Sansone	Full	1300	300	Yes

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

** St. Louis Drive and Sansone Boulevard evaluated based on proposed Legacy Park at Tradition PUD Traffic Impact Analysis recommendations.

Turn Lanes

Each driveway was evaluated for turn lane needs as shown in Table 3. All driveways provide adequate entry laneage. Left – turn lanes are provided on Sansone Boulevard. The need for a right-turn lane was evaluated using NCHRP Report 457, which is the current FDOT standard for installation of right-turn lanes on the major road. Based on the analysis, a right – turn lane is not required at Sansone Boulevard.

Table 3. Driveway Turn-Lane Standards

Driveway	Intersecting Road	Type	Peak Hour Left-Turn Volume	Left-Turn Lane Provided	Peak Hour Right-Turn Volume	Right-Turn Lane Provided	Meets Code
1	Paar Drive	Left-in / Right-out	16	No	0	No	Yes
2	Sansone	Full	24	Yes	122	No	Yes

CONCLUSION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for the development of Project Everest. Project Everest is 1,605,000 square feet (SF) of high – cube transload and short – term storage 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.: High – Cube Transload and Short – Term Storage Warehouse (Land Use 154)

B- Guideline for determining the need for a major road right-turn bay.

C- Sansone Boulevard maximum two-way hourly trips.

D- Site Plan

Land Use: 154
High-Cube Transload and Short-Term Storage 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 HCWs included in this land use include transload and short-term storage facilities. A transload facility has the primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. A transload facility typically has little storage duration, high throughput, and its operations are high efficiency. A short-term HCW is a distribution facility often with custom/special features built into the structure for the movement of large volumes of freight with only short-term storage of products.

Some limited assembly and repackaging may occur within the facility.

A high-cube warehouse may contain a mezzanine. In a HCW setting, a mezzanine is a free-standing, semi-permanent structure that is commonly supported by structural steel columns and that is lined with racks or shelves. The gross floor area (GFA) values for the study sites in the database for this land use do NOT include the floor area of the mezzanine. The GFA values represent only the permanent ground-floor square footage.

The amount of office/employee welfare space that is provided within a HCW can be highly variable but is typically an insignificant portion of the overall building square footage. Within the trip generation database, common values are between 3,000 and 5,000 square feet for a Cold Storage HCW and between 5,000 and 10,000 square feet for Transload, Fulfillment Center, and Parcel Hub HCW (all of which are less than one percent of total GFA for a site). Therefore, for the trip generation data plots, any office space that is part of the normal operation of the warehouse is included in the total GFA.

Warehousing (Land Use 150), 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 land uses.

The number of dock doors at a HCW is a potential independent variable. Future data submissions should include that information.

Additional Data

The High-Cube Warehouse/Distribution Center-related land uses underwent specialized consideration through a commissioned study titled “High-Cube Warehouse Vehicle Trip Generation Analysis,” published in October 2016. The results of this study are posted on the ITE website at http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498.

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 2000s, and the 2010s in Alberta (CAN), California, Florida, Michigan, New Jersey, Texas, and Washington.

Source Numbers

331, 605, 619, 642, 645, 649, 739, 750, 752, 903, 904, 941, 942, 943, 969

High-Cube Transload and Short-Term Storage Warehouse (154)

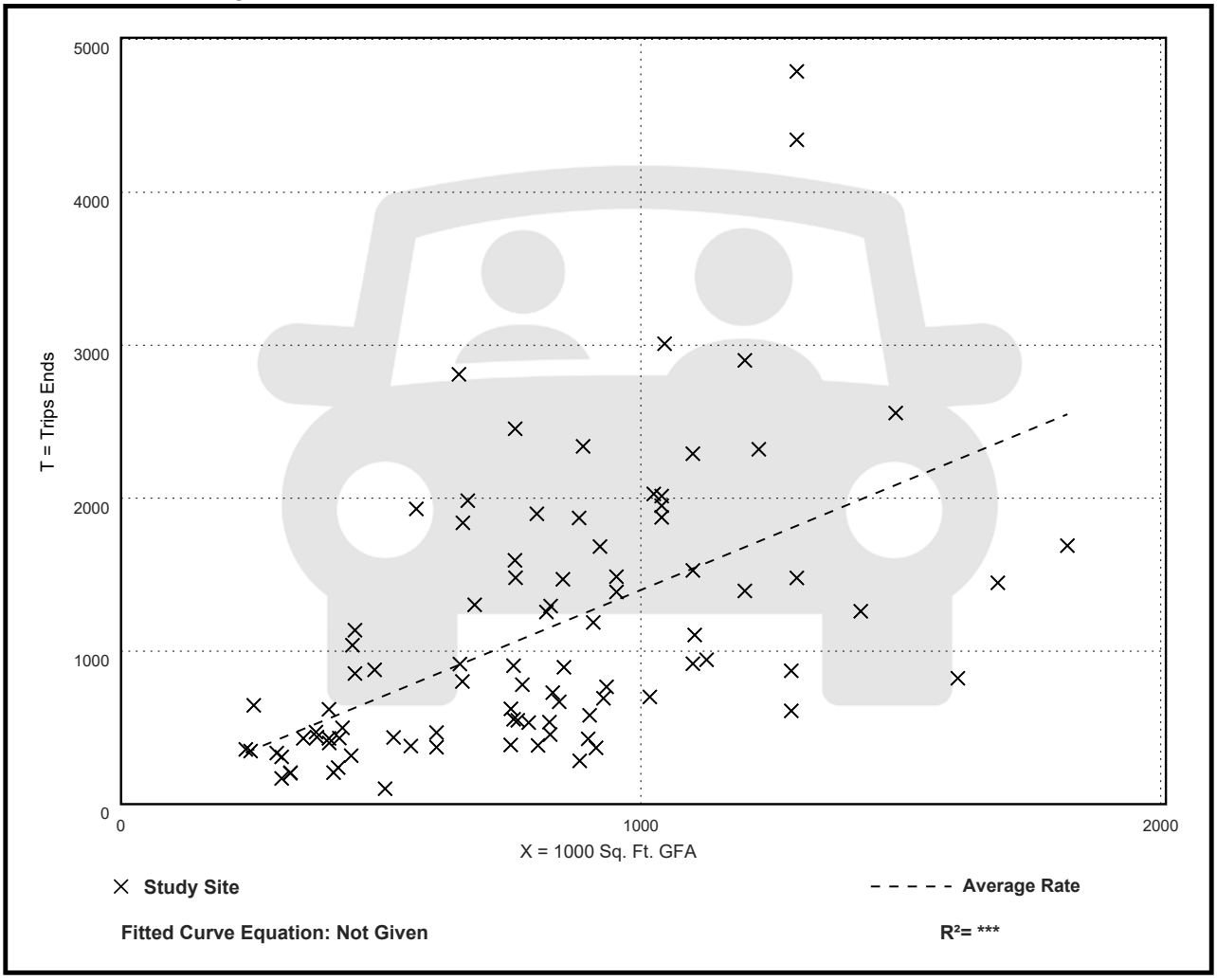
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 91
Avg. 1000 Sq. Ft. GFA: 798
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.40	0.20 - 4.32	0.86

Data Plot and Equation



High-Cube Transload and Short-Term Storage Warehouse (154)

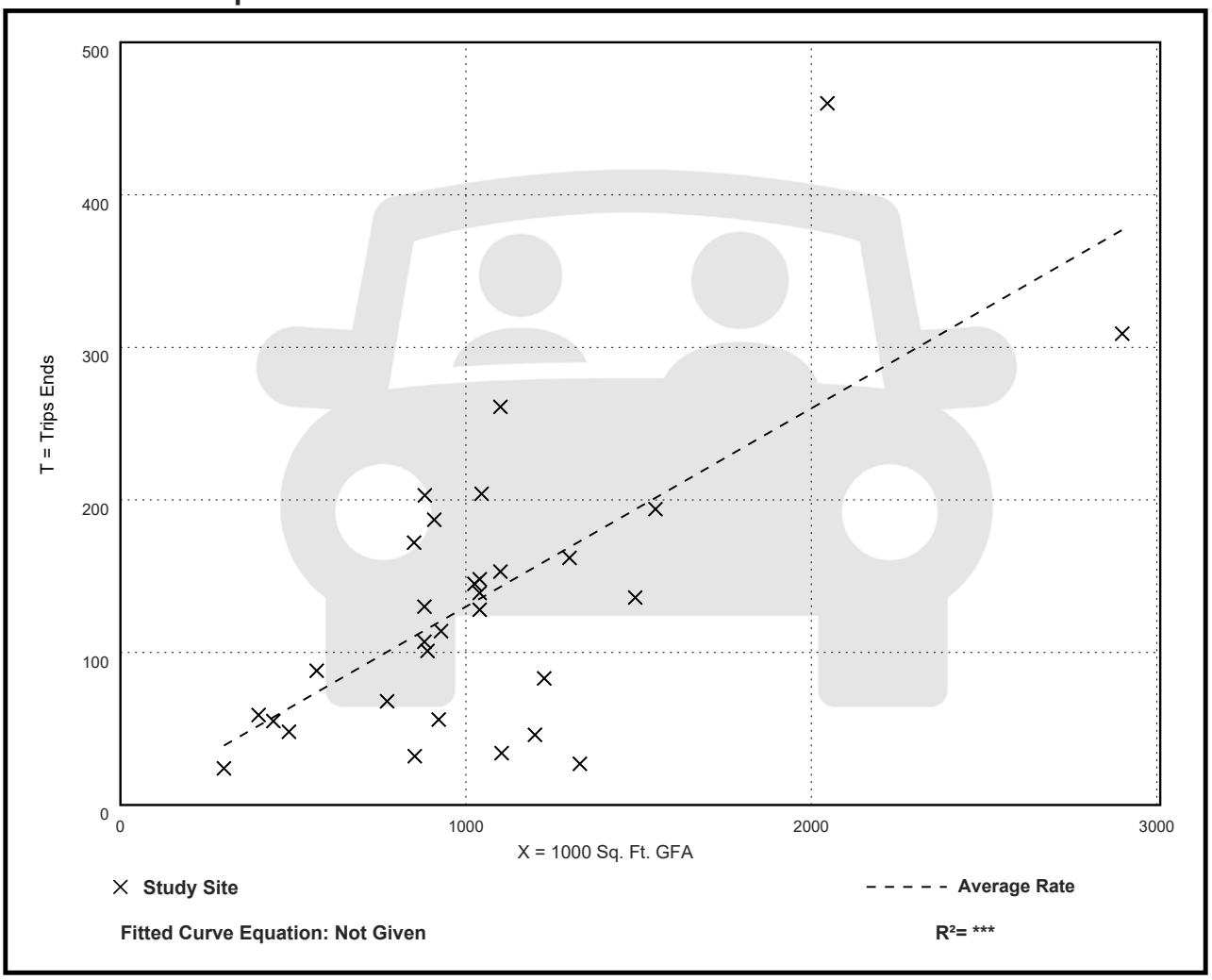
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. 1000 Sq. Ft. GFA: 1048
Directional Distribution: 78% entering, 22% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.13	0.02 - 0.24	0.06

Data Plot and Equation



High-Cube Transload and Short-Term Storage Warehouse (154)

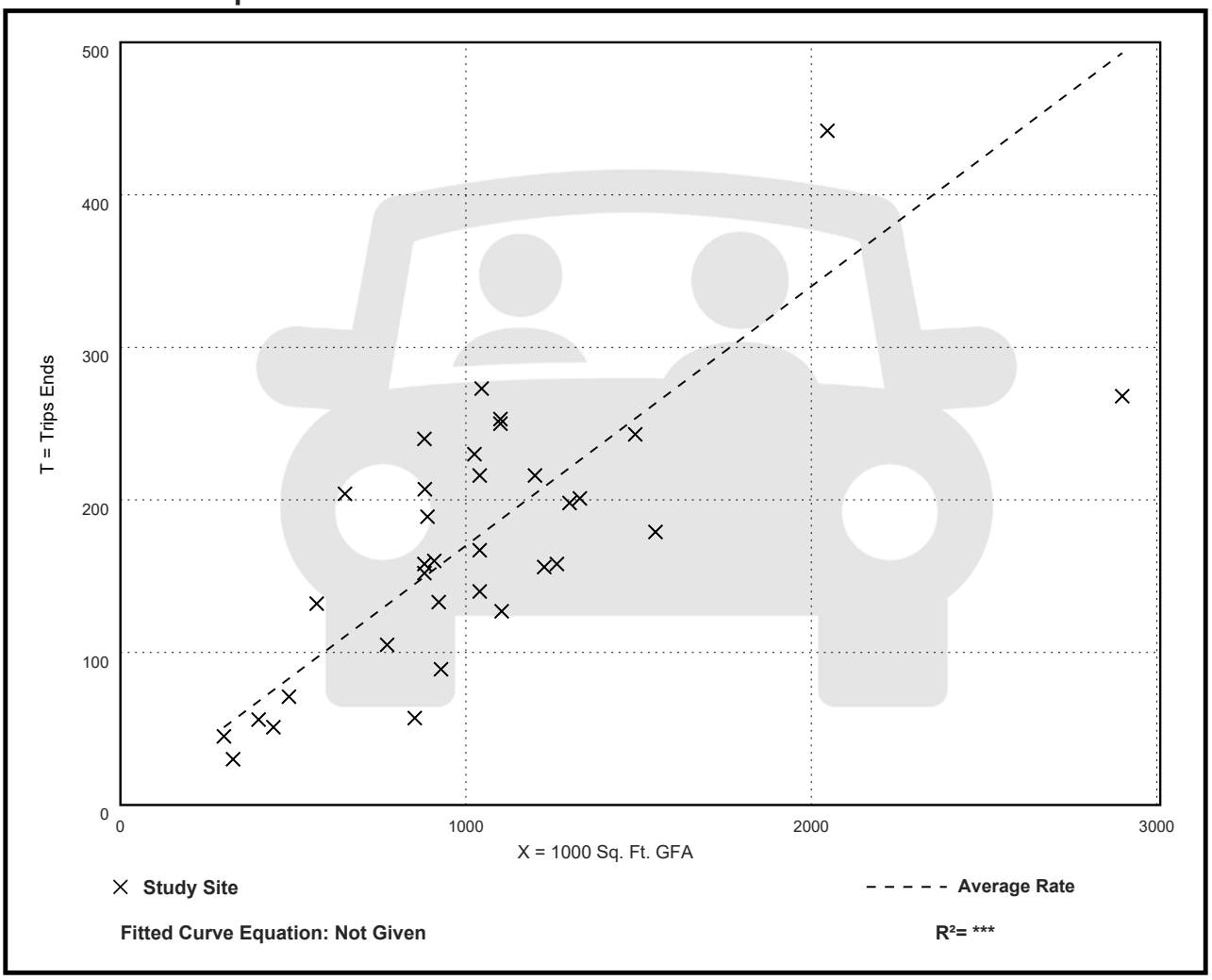
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 34
Avg. 1000 Sq. Ft. GFA: 1023
Directional Distribution: 34% entering, 66% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.07 - 0.31	0.06

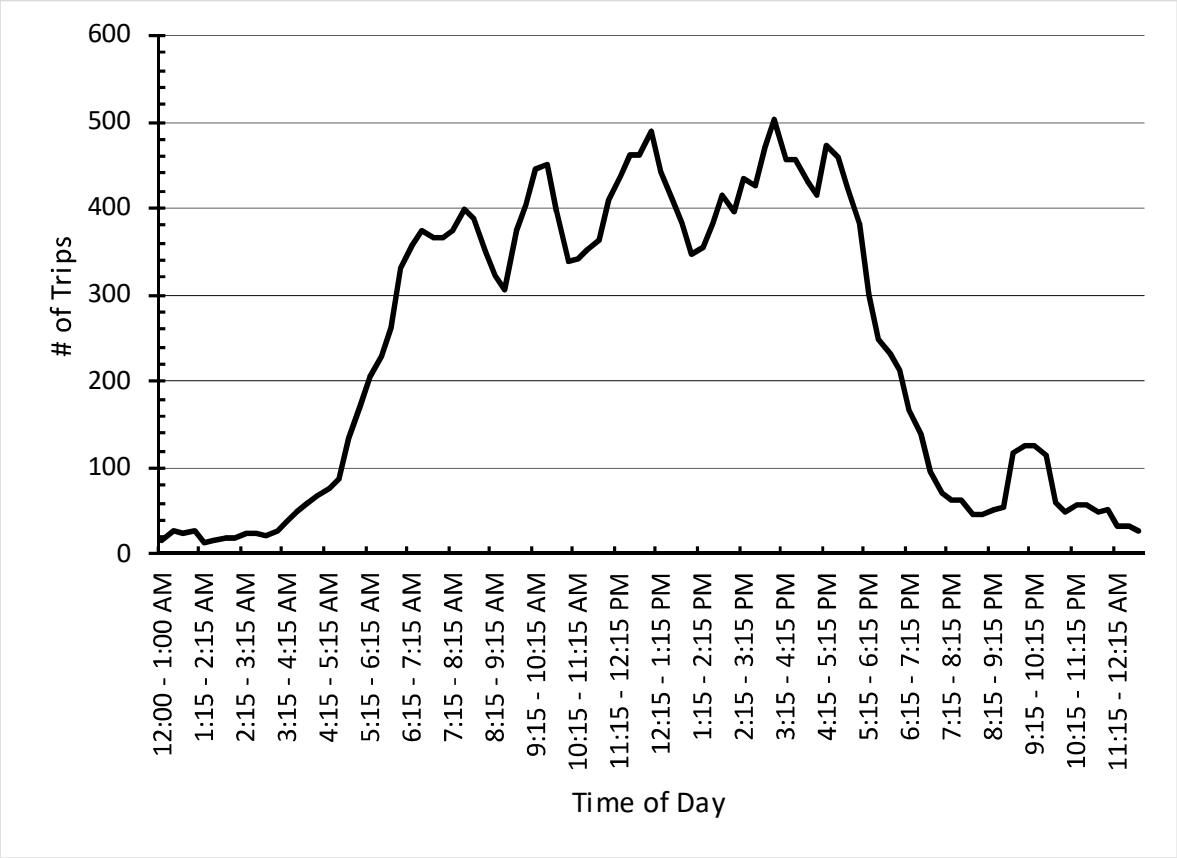
Data Plot and Equation



TIME OF DAY DISTRIBUTION - SANSONE BLVD.

Segment: Paar to Marshall

Maximum volume: 504 Two-Way Hourly Trips



Note: 2-Way Capacity of 1,400 to 1,600 vehicles per hour not reached

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

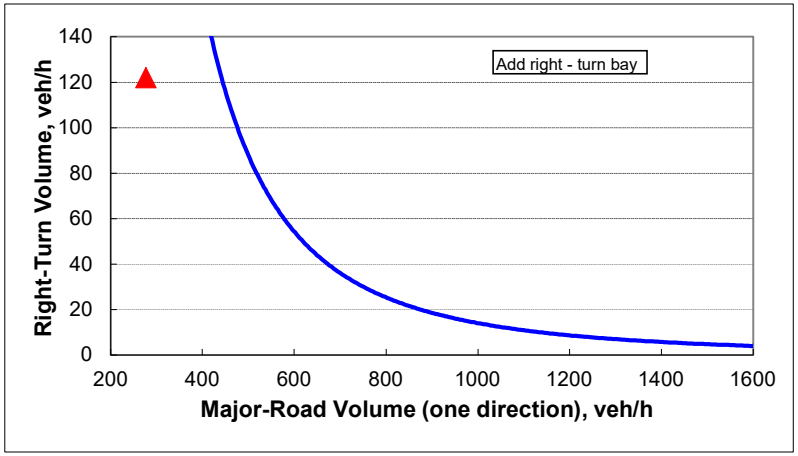
INPUT

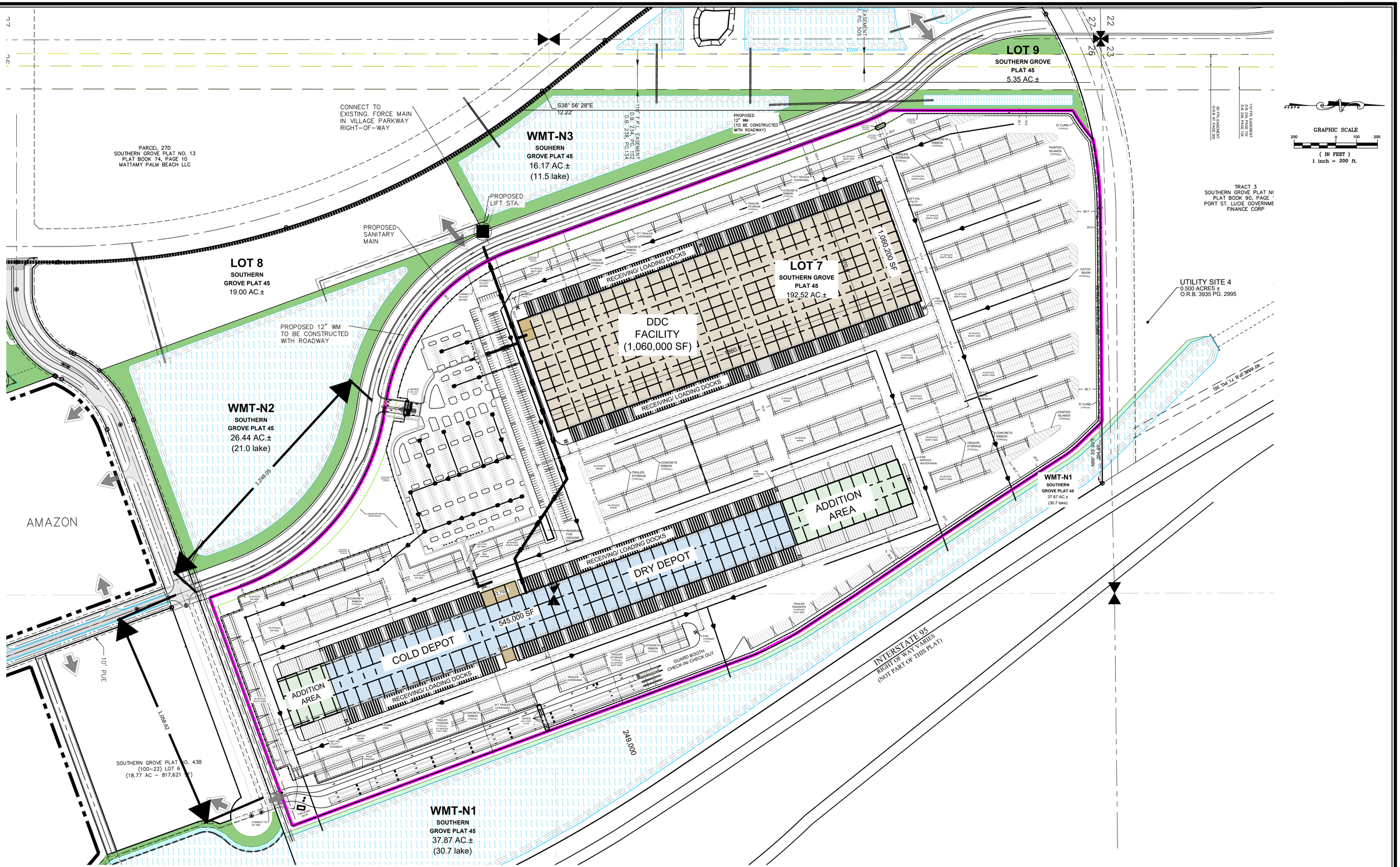
Roadway geometry:	2-lane roadw ay

Variable	Value
Major-road speed, mph:	40
Major-road volume (one direction), veh/h:	277.2
Right-turn volume, veh/h:	122

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	417
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	





COMPUTER FILE REF.	FIELD BK./PG.

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STATE OF FLORIDA BOARD OF PROFESSIONAL
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DESIGNED	##	##
CALCS.	##	##
DRAWN	DJM	9/20/23
DETAILED	##	##
CHECKED	##	##
APPROVED	##	##

PROJECT EVEREST

CONCEPTUAL SITE PLAN

DATE: 09/20/23
HORIZ. SCALE: 1:200
VERT. SCALE: #####
JOB No. 23-075
SHEET 2 of 5