TRAFFIC IMPACT STATEMENT

Project Suburban
Port St. Lucie, FL

Prepared for:
Culpepper & Terpening, Inc.

Prepared by:

MacKenzie
Engineering & Planning, Inc.

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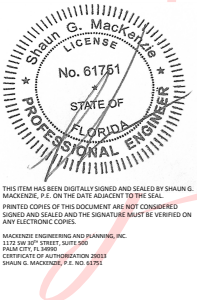

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080016
October 2023

CA 29013

EXECUTIVE SUMMARY

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Project Suburban. Project Suburban is 378,521 square feet (SF) of cold 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, south of Paar Drive, and west of I-95 in Port St. Lucie, Florida.

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

- 649 daily, 37 AM peak hour (19 in/18 out), and 34 PM peak hour (17 in/17 out) trips.

The driveway on Sansone Boulevard (Driveway #1) has a proposed left-turn lane and the truck court entrance on Paar Drive (Driveway #2) is restricted to a Right-in/Left-out driveway.

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INTRODUCTION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Project Suburban. Project Suburban 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 in 378,521 square feet (SF) of cold storage warehouse use. The project is east of Sansone Boulevard, south of Paar Drive, and west of I-95 in Port St. Lucie, Florida. Figure 1 illustrates the site location.

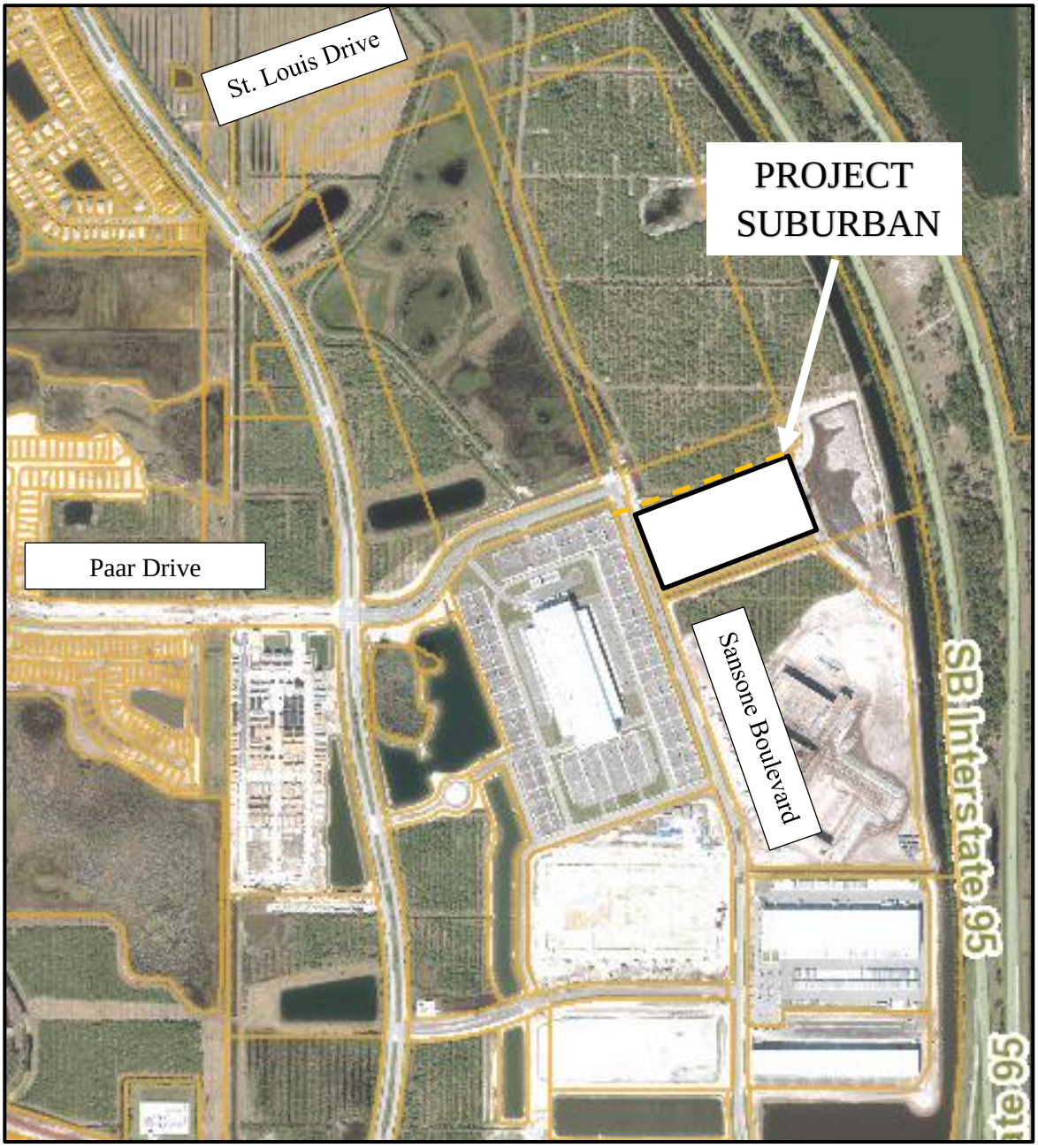
INVENTORY AND PLANNING DATA

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 Cold Storage Warehouse (ITE Land Use 157) published in the Institute of Traffic Engineers' (ITE) report, *Trip Generation (11th Edition)*.

Proposed Site

The applicant proposes 378,521 SF of high-cube cold storage warehouse. The proposed project is expected to generate the following driveway trips as shown in Table 1:

- 649 daily, 37 AM peak hour (19 in/18 out), and 34 PM peak hour (17 in/17 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
Proposed Site Traffic								
High-Cube Cold Storage Warehouse	378.521 1000 SF	649	37	19	18	34	17	17
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)		**649**	**37**	**19**	**18**	**34**	**17**	**17**
NET CHANGE IN DRIVEWAY VOLUMES		**649**	**37**	**19**	**18**	**34**	**17**	**17**

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 Cold Storage Warehouse	157	1000 SF	T = 2.91(X) - 452.80	0%	50/50	T = 0.15(X) - 19.75	50/50	T = 0.16(X) - 26.24

ITE 11th Edition

TRAFFIC DISTRIBUTION

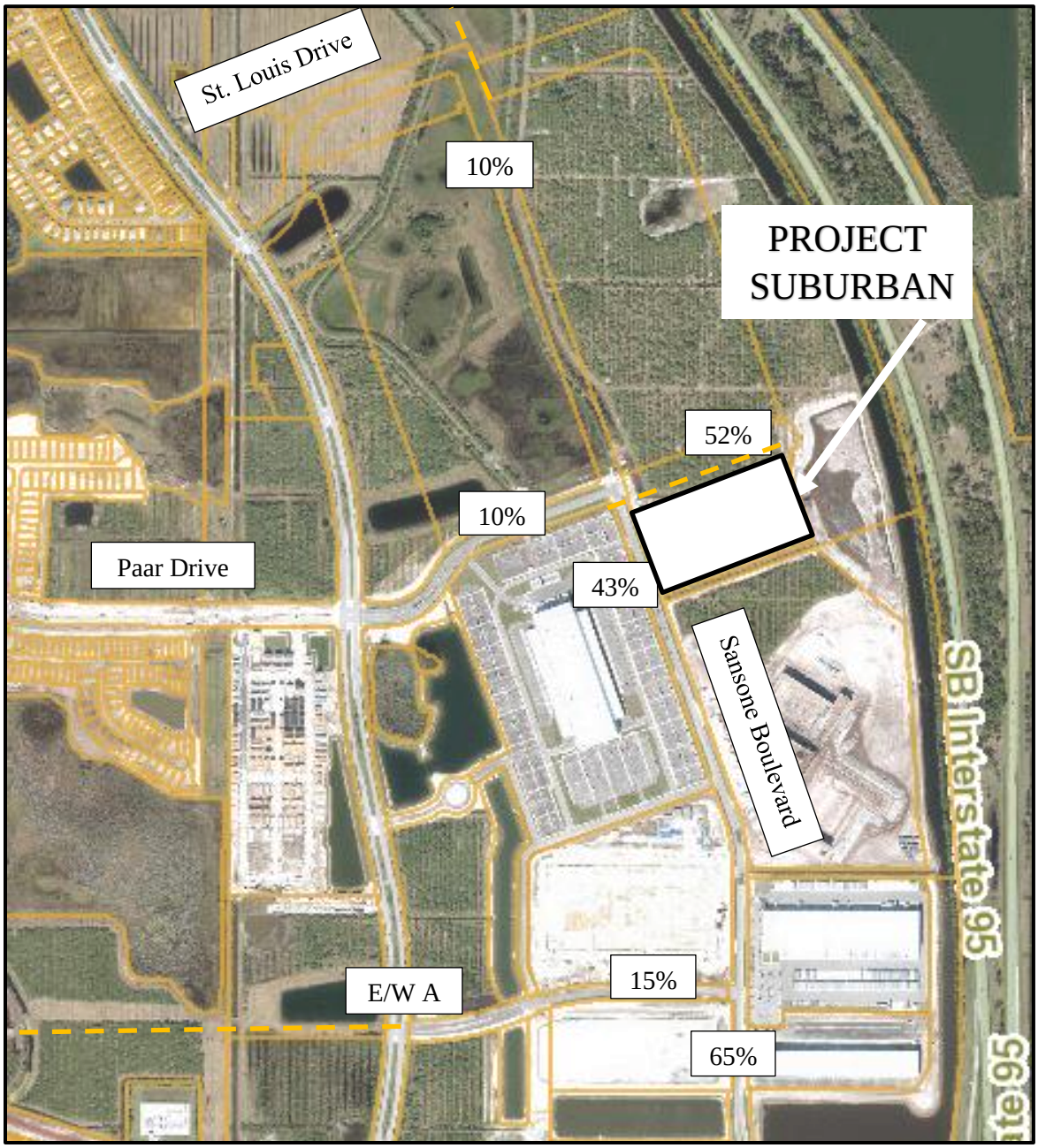
The traffic distribution is based on the approved Legacy Park at Tradition PUD (March 2023). The overall distribution is summarized by general directions and is depicted below:

North	-	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

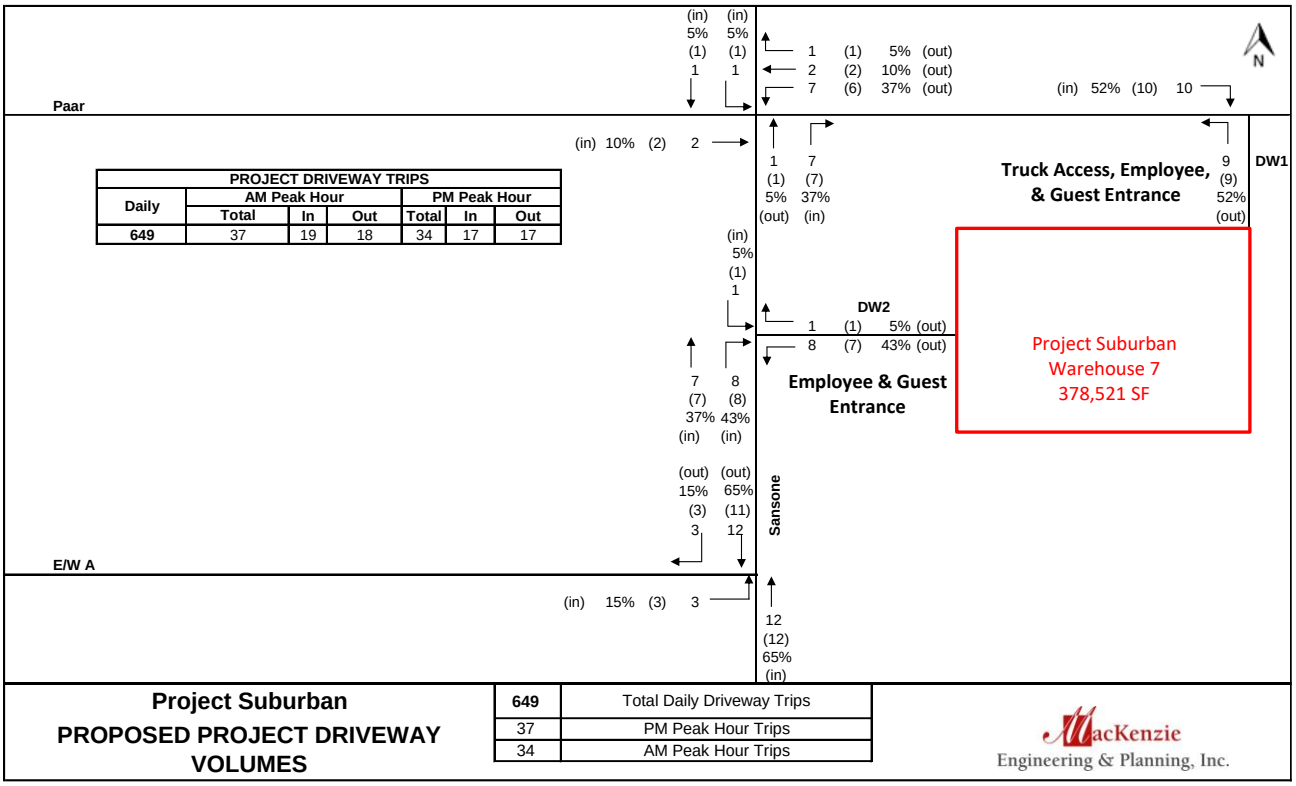
Driveway Access

The proposed site has two points of access:

- D/W 1 – Right-in/Left-out – Paar Drive East –Truck Access, Employee and Guest Entrance.
- 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	Right-in/Left-out	1070	150	Yes
2	Sansone	Full	630	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.

Table 3. 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 Provided	Meet Code
1	Paar Drive	Right-in/Left-out	0	No	Yes	10	No	Yes
2	Sansone	Full	1	Yes	Yes	8	No	Yes

CONCLUSION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Project Suburban. Project Suburban is 378,521 square feet (SF) of cold 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 – Cold Storage Warehouse (Land Use 157)

B- Site Plan

Land Use: 157
High-Cube Cold 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.

A high-cube cold store warehouse has substantial temperature-controlled environments for frozen food and other perishable products.

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 transload and short-term storage warehouse (Land Use 154), high-cube fulfillment center warehouse (Land Use 155), and high-cube parcel hub warehouse (Land Use 156) are related land uses.

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 sites were surveyed in the 2000s and the 2010s in California.

Source Numbers

619, 941, 942, 943

High-Cube Cold Storage Warehouse
(157)

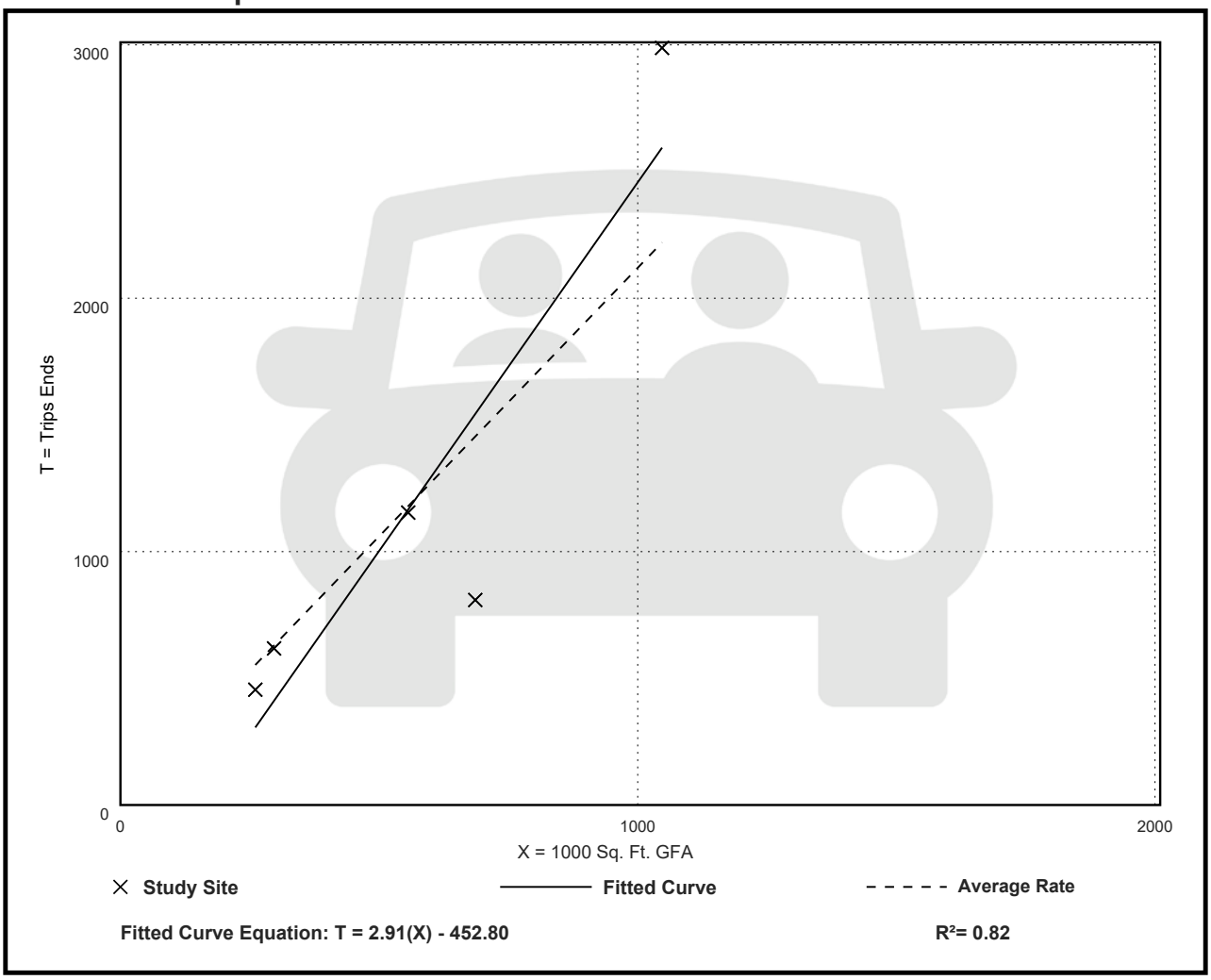
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GFA: 569
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.12	1.18 - 2.85	0.73

Data Plot and Equation



Fitted Curve Equation: T = 2.91(X) - 452.80

R^2= 0.82

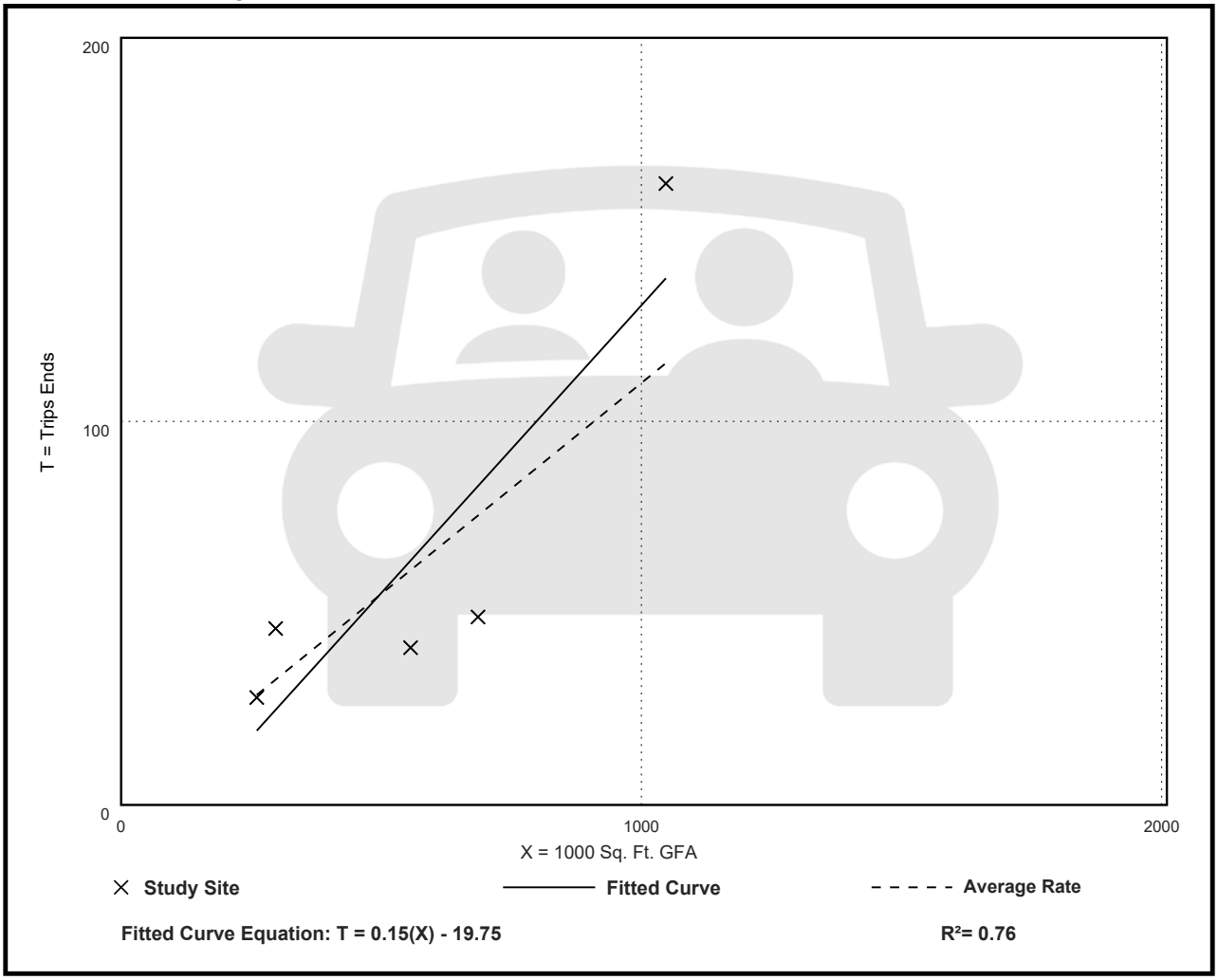
High-Cube Cold Storage Warehouse
(157)

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: 5
Avg. 1000 Sq. Ft. GFA: 569
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.11	0.07 - 0.15	0.04

Data Plot and Equation



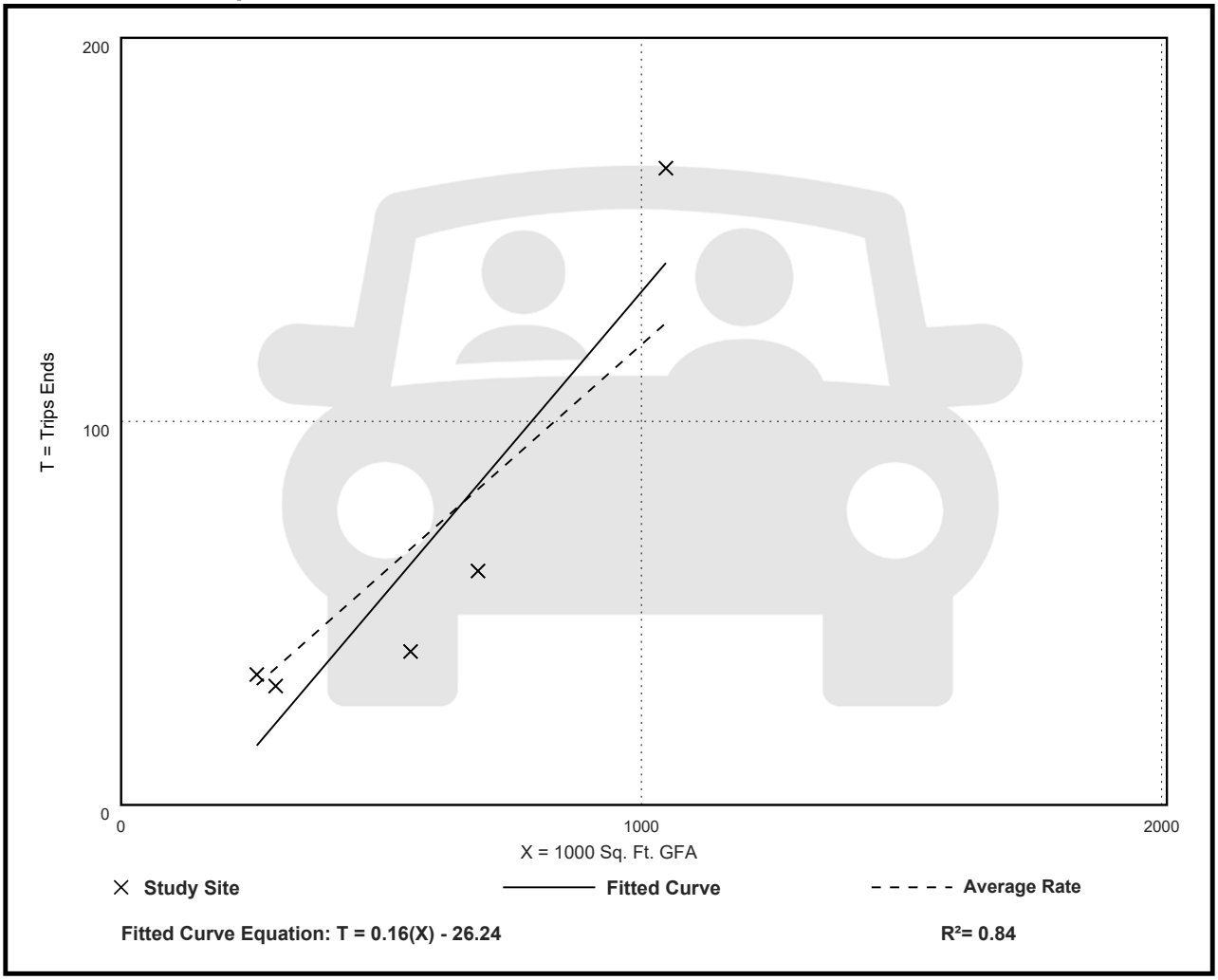
High-Cube Cold Storage Warehouse
(157)

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: 5
Avg. 1000 Sq. Ft. GFA: 569
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.12	0.07 - 0.16	0.04

Data Plot and Equation



LOT 7
SOUTHERN GROVE PLAT NO. 43
P.B. 109, PG 24

1060.86 ft

20' UE
P.B. 100, PG 13

PROP SIDEWALK

10' PUE
PB 109,
PG 22

PROP FLUME
(TYP.)

STORMWATER
OUTFALL

24" WATER MAIN
BY OTHERS

PROP SITE DRIVEWAY SECTION

PROP SWALE

4' PAVED
SHOULDER

10" WATER MAIN

PROP
SIDEWALK

PROP SWALE

10' PUE
PB 109, PG 22

PEDESTRIAN
GATE

R1-1 &
PM-1

10' LANDSCAPE BUFFER

EXIST
HYDRANT

TRANSFORMERS

20' SCREEN
WALL

221.88'

WATER AND
FIRE POS

MECH AREA
+/- 4,050 SF

EMERGENCY EXIT STAIRS
WITH CONCRETE LANDING
TYP.

697.17'

30"-36" FROM
FINISHED GRADE
TO TOP OF PAD

PRIVATE WATER LINE

7'
LANDSCAPE
FACADE

135.04'

PROP FDC

START 4' SHOULDER
END D CURB

VEHICLE
GATE
PROP 8'
BLACK CLF
(TYP)

TYPE D CURB
(TYP)

COMPACTOR

PM-2 (TYP)

10' PUE
PB 95, PG 37'

PROJECT SUBURBAN
COLD STORAGE WAREHOUSING
BUILDING AREA: 378,521 SF
MINIMUM FFE = 28.5 NAVD
BUILDING ELEVATION: 78'

LOT 6 SOUTHERN GROVE PLAT NO. 43
PLAT BOOK 109, PG 24

SW ANTHONY F ANSONE SR BLVD
SOUTHERN GROVE PLAT NO. 43
P.B. 95, PG 37

25' LANDSCAPE BUFFER

75'

55' (TYP)

12'
(TYP)

LOADING DOCK
+/- 90' DEPTH

FREEZER/COOLER
+/- 320,177 SF

STORM INLET
(TYP)

24" - 30" FROM
FINISHED GRADE
TO TOP OF PAD

EXIST WM

PROP 8' BLACK
CLF (TYP)

CONCRETE
PAVEMENT

PROP
HYDRANT (TYP)

EXIST POND
BANK

WMT N-1
P.B. 109, PG 24

PRIVATE WATER LINE

10' LANDSCAPE BUFFER

20' UE
P.B. 100, PG 13

7' LANDSCAPE
FACADE

PROP TYPE D
CURB (TYP)

EXIST
HYDRANT

16' SCREEN
WALL

EMPLOYEE OPEN AREA
(USABLE OPEN SPACE)
9150 SF

MONUMENT
SIGN

SANITARY POS

BIKE RACK

OFFICE AREA
+/- 5,225 SF

PROP FDC

PROP ADA
PARKING

LANDSCAPE
FACADE

PRIVATE WATER LINE

24" - 30" FROM
FINISHED GRADE
TO TOP OF PAD

EMERGENCY EXIT STAIRS
WITH CONCRETE LANDING
TYP.

SANITARY
SERVICE

ROLLING/LIFT
GATE

EXIST
SANITARY
STUB

GUARD HOUSE
300 SF

STORM INLET
(TYP)

PROP WATER
MAIN

PROP
HYDRANT (TYP)

24" WATER MAIN
BY OTHERS

PROP CULVERT

ROLLING/LIFT
GATE

INSTALL CROSSWALK AND
DETECTABLE WARNINGS

CONNECT TO EXIST
STRUCTURE

50' DE-3
P.B. 95, PG 37

TRACT A
SOUTHERN GROVE PLAT NO. 38
P.B. 105, PG 13

TYPE D CURB
(TYP)

STORMWATER
OUTFALL

GRAPHIC SCALE
40 0 20 40
(IN FEET)
1 inch = 40 ft.

LEGEND

- PROJECT BOUNDARY
- (12) NUMBER OF PARKING SPACES
- PROPOSED SIGN
- PROPOSED HANDICAP PARKING
- TRAFFIC FLOW DIRECTION
- DRAINAGE INFRASTRUCTURE
- FLOW ARROW
- PROPOSED CLEANOUT
- FS PROPOSED FIRE SERVICE
- WM PROPOSED WATER LINE
- X PROPOSED SECURITY FENCE
- PROPOSED UTILITY EASEMENT
- 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

Signing and Marking Legend

R1-1	STOP SIGN
R5-2	TRUCKS PROHIBITED
PM-1	STOP BAR
PM-2	THRU ARROW

Note: Signage designations correspond to that which is detailed in the MUTCD 2009 (2012 revision) Edition

CITY OF PSL PROJECT No. P23-122
PSLUSD FILE No. 5360K

P:\Proj-2023\23-073.100 Legacy Park Cold Storage Civil\Eng\23-073.100 Site Plan.dwg Plotted: 9/7/2023 10:47 PM By: ZACH MOUW

COMPUTER FILE REF.	FIELD BK./PG.

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	BY	DATE
DESIGNED	–	–
CALCS.	–	–
DRAWN	RT	7/11/23
DETAILED	–	–
CHECKED	ZM	–
APPROVED	JPT	–

PROJECT SUBURBAN

SITE PLAN

DATE: –
HORIZ. SCALE: 1"=40'
VERT. SCALE: –
JOB No. 23-073
SHEET 1 of 3