TRAFFIC IMPACT STATEMENT

Project Apron
Port St. Lucie, FL

Prepared for:
Culpepper & Terpening, Inc.

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CA 29013

EXECUTIVE SUMMARY

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Project Apron. Project Apron is 1,240,000 square feet (SF) of warehouse and distribution 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 and south of Marshall Parkway in Port St. Lucie, Florida.

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

- 1,736 daily, 161 AM peak hour (126 in/35 out), and 211 PM peak hour (72 in/139 out) trips

Left-turn lanes into the project are provided for both full opening driveways on Sansone Boulevard.

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INTRODUCTION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Project Apron. Project Apron 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 1,240,000 square feet (SF) of warehouse and distribution use. The project is east of Sansone Boulevard, north of Paar Drive and south of Marshall Parkway in Port St. Lucie, Florida. Figure 1 illustrates the site location.

INVENTORY AND PLANNING DATA

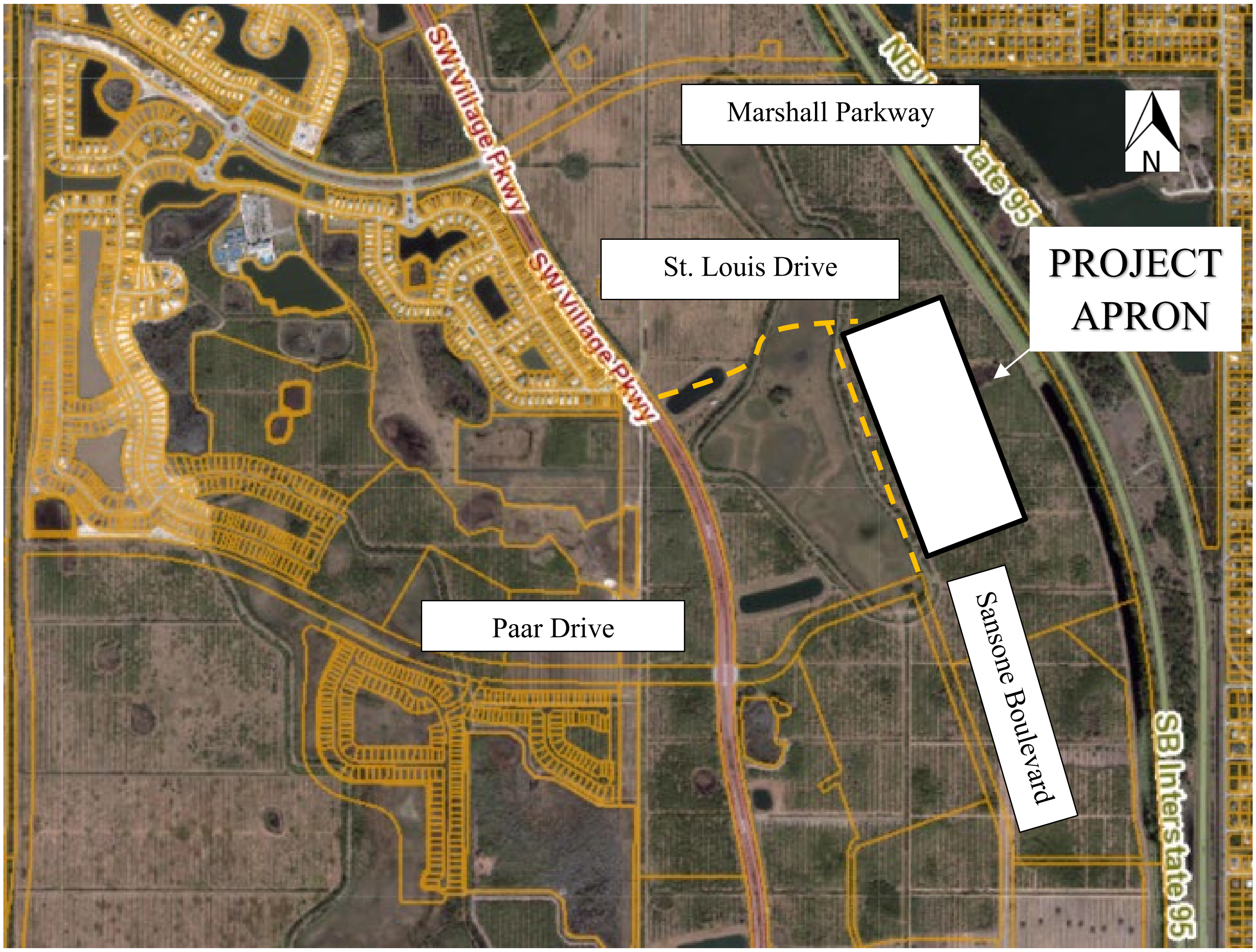
The traffic data used in this analysis includes:

- Roadway geometrics

Culpepper & Terpening, Inc. provided site information.

MacKenzie
Engineering & Planning, Inc.

Figure 1. Site Location Map



PROJECT TRAFFIC

Trip Generation

Project Apron is a defined warehouse and distribution facility. High-Cube Transload and Short-Term Storage Warehouse is the most appropriate defined use contained within the Institute of Transportation Engineers' (ITE) report, *Trip Generation (11th Edition)*. The study uses trip generation rates for High-Cube Transload and Short-Term Storage Warehouse (ITE Land Use 154).

Proposed Site

The applicant proposes 1,240,000 SF of Land Use 154. The proposed project is expected to generate the following net new external trips and driveway trips:

- 1,736 daily, 161 AM peak hour (126 in/35 out), and 211 PM peak hour (72 in/139 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 Transload and Short-Term Storage Warehouse	1,240 1000 SF	1,736	161	126	35	211	72	139

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

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ROADWAYS

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

- Paar Drive – Village Parkway to Sansone Boulevard
- Sansone Boulevard – Paar Drive to St. Louis Drive
- St. Louise Drive – Village Parkway to Sansone Boulevard

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	-	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 – Full - Sansone Boulevard North - Northern Parking and Truck Court
- D/W 2 – Full - Sansone Boulevard South @ Paar Southern Parking and Truck Court

Driveway Spacing

The driveway spacing was analyzed to determine its adequacy relative to Code requirements. In addition, Project Apron driveway 2 on Sansone Boulevard aligns with the Project Apron driveway in a plus configuration. Driveways 5 and 6 on Paar Drive align with the driveways across the street. All driveways meet code required spacing as shown in Table 2.

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	-	300	Yes	357	300	Yes
2	Sansone	Full	-	300	Yes	-	300	Yes

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

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

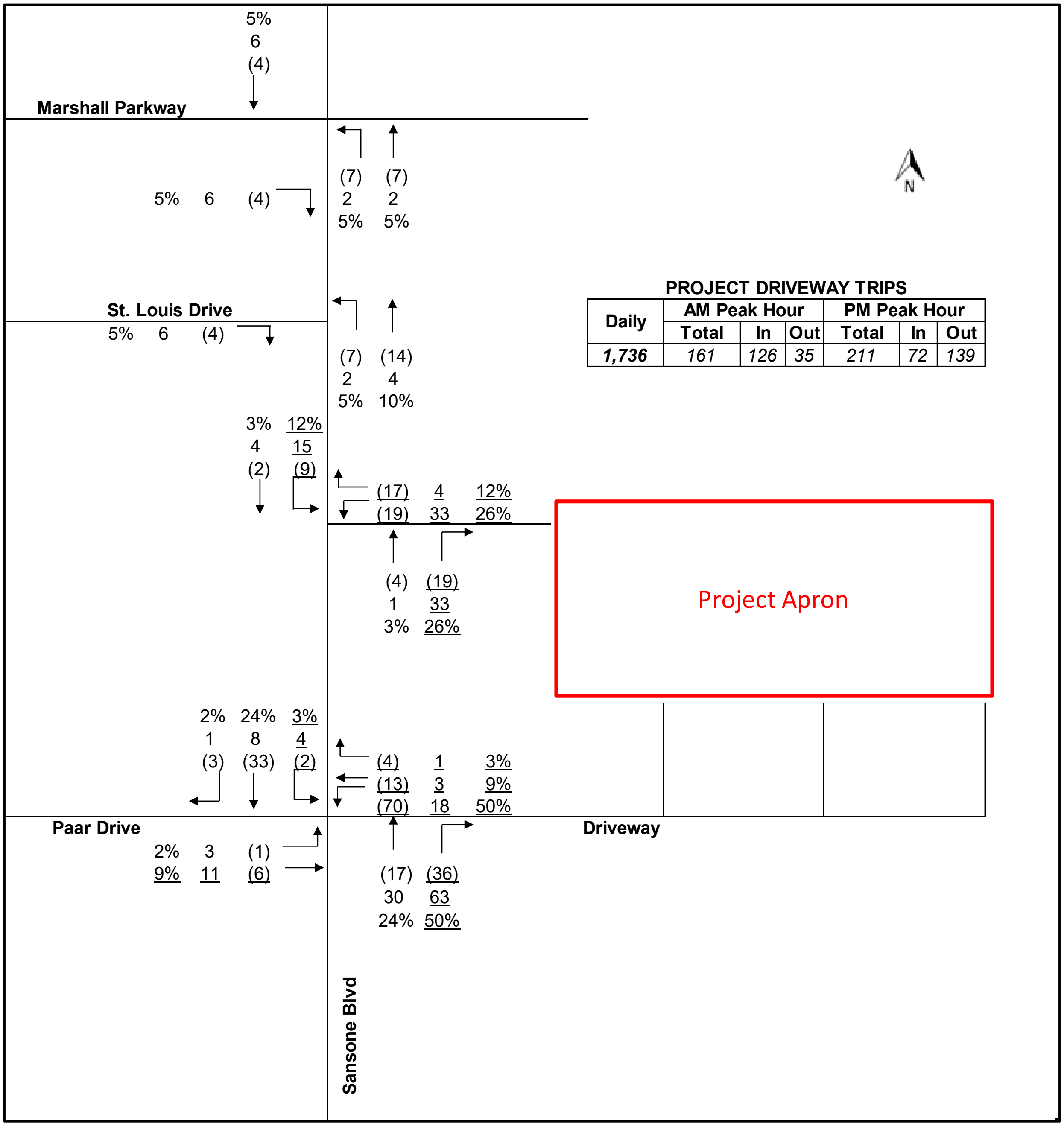
Turn Lanes

Each driveway was evaluated for turn lane needs. 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 Req'd
1	Sansone	Full	15	Yes	Yes	33	No
2	Sansone	Full	4	Yes	Yes	63	No

Figure 3. Proposed Driveway Volumes



Daily	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
1,736	*161*	*126*	*35*	*211*	*72*	*139*

CONCLUSION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for development of Project Apron. Project Apron is 1,240,000 square feet (SF) of warehouse and distribution 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: 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

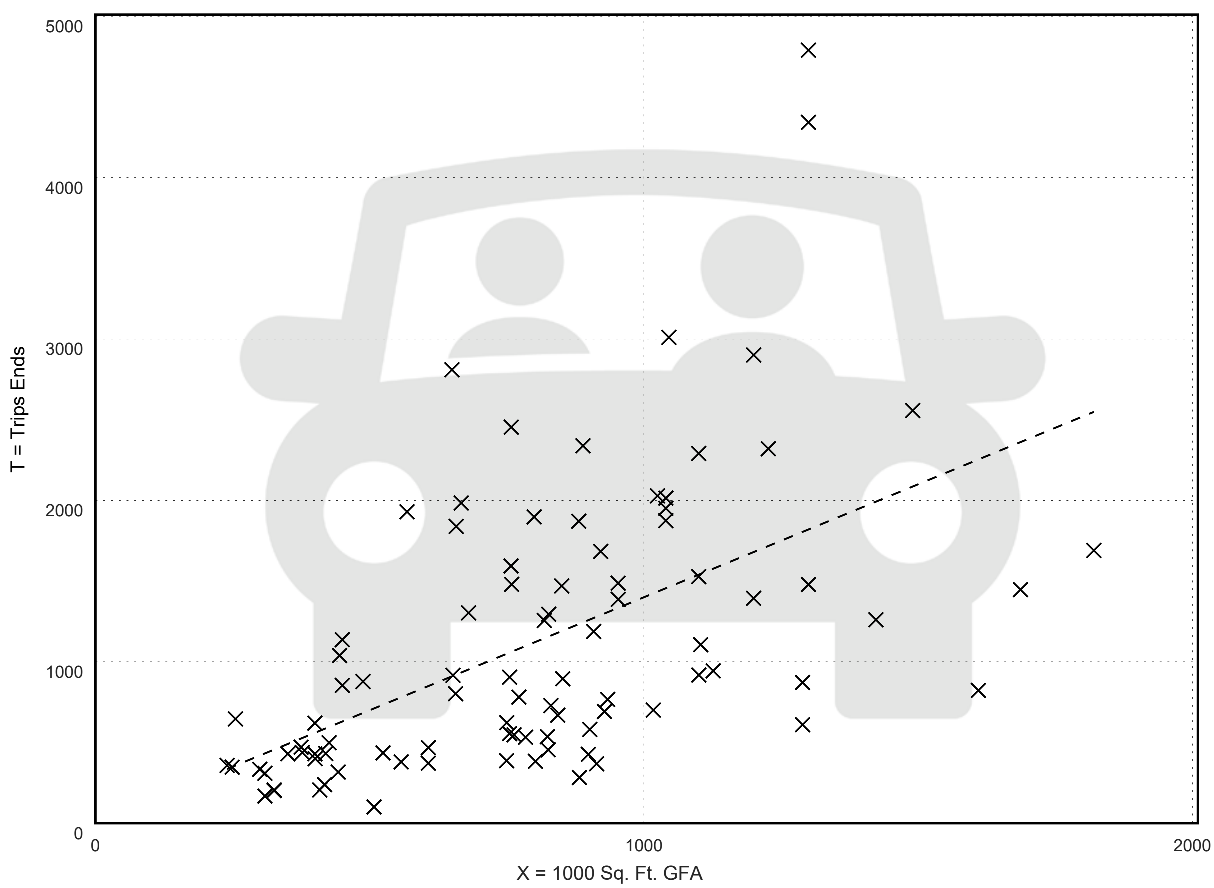
High-Cube Transload and Short-Term Storage Warehouse (154)

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



× **Study Site** - - - - - **Average Rate**

Fitted Curve Equation: Not Given **R^2= *****

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

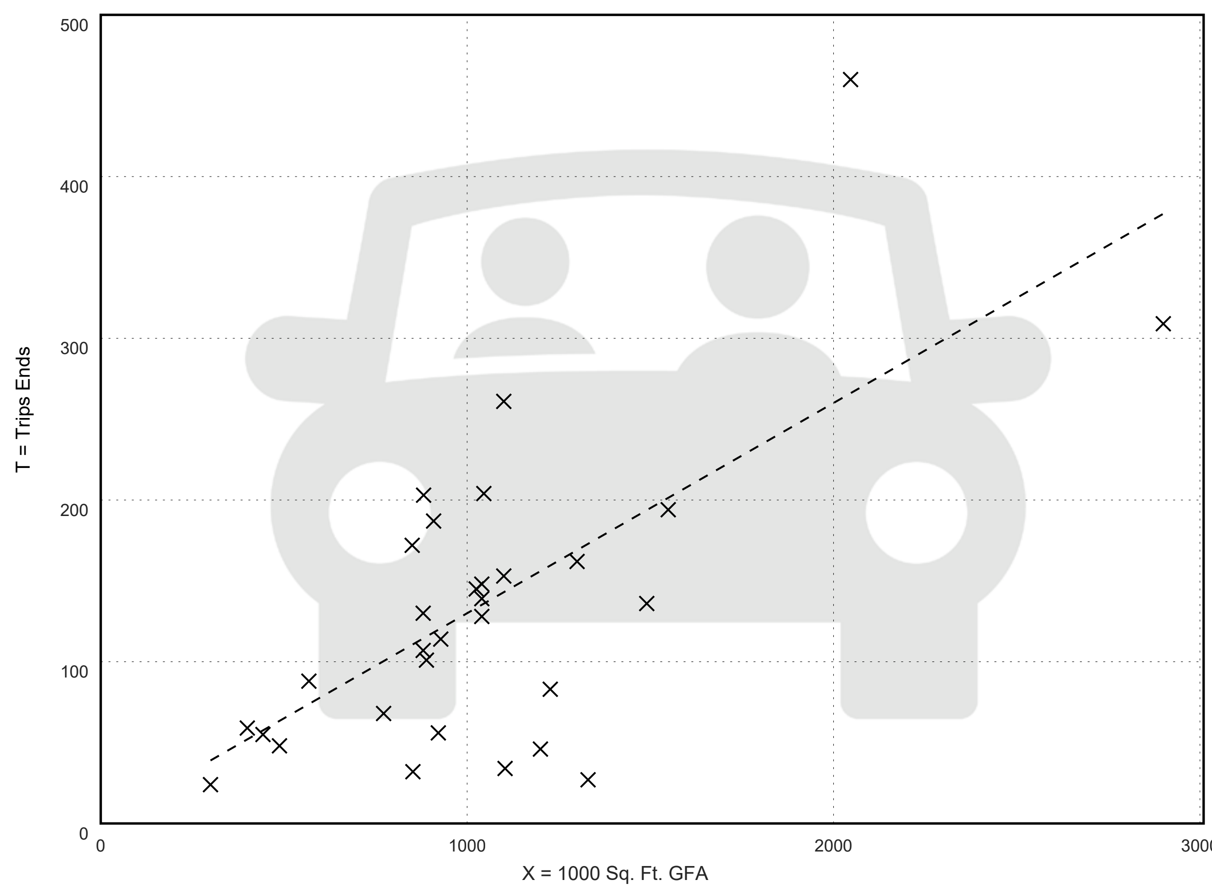
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
AM Peak Hour of Generator

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



× **Study Site** - - - - - **Average Rate**

Fitted Curve Equation: Not Given **R^2= *****

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

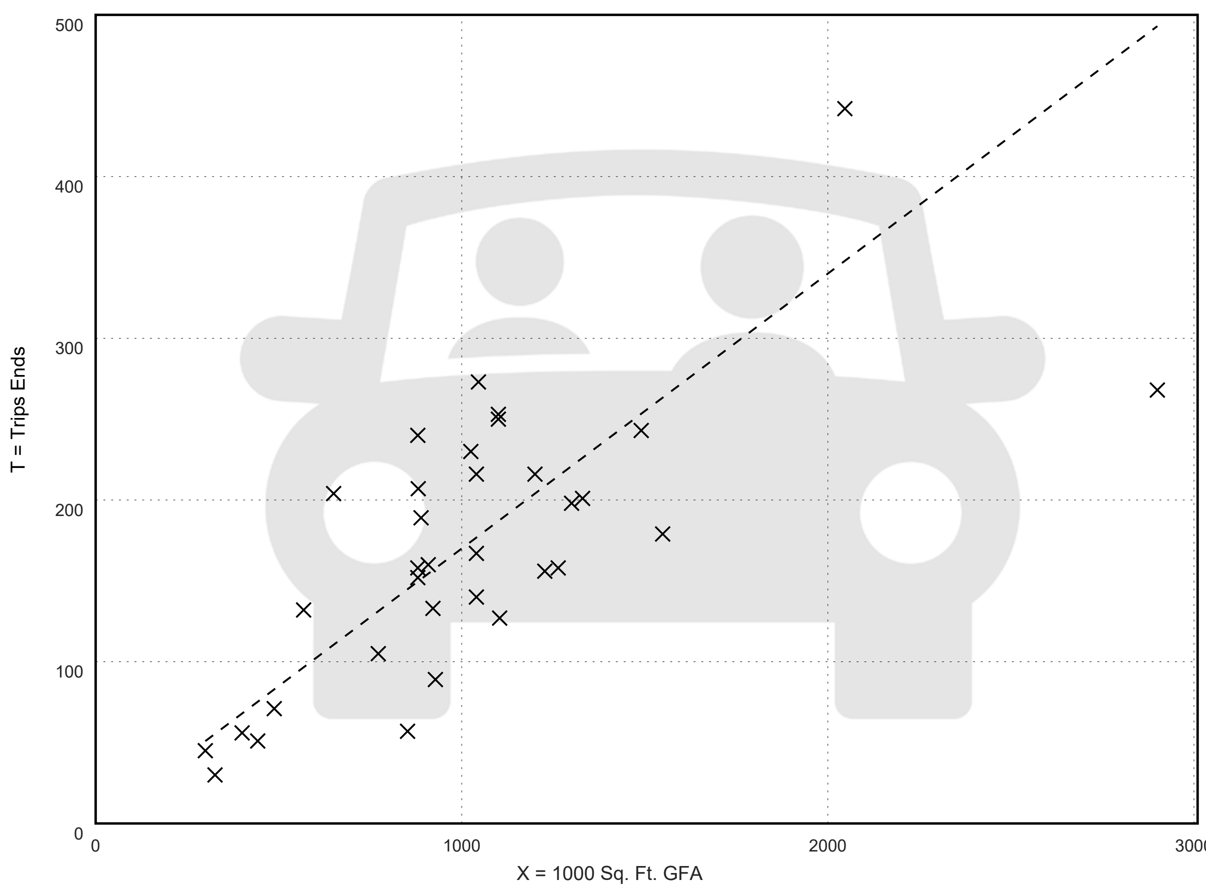
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

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



× **Study Site** - - - - - **Average Rate**

Fitted Curve Equation: Not Given **R^2= *****

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LEGACY PARK – PROJECT APRON

OVERALL SITE PLAN

DATE: –
HORIZ. SCALE: 1"=150'
VERT. SCALE: –
JOB No. 22-086
SHEET 1 of 6