TRAFFIC ANALYSIS REPORT

Legacy Park – Spac 2
Port St. Lucie, FL

Prepared for:
Culpepper & Terpening, Inc.

Prepared by:

MacKenzie
Engineering & Planning, Inc.

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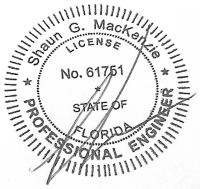

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MACKENZIE ENGINEERING AND PLANNING, INC.
1172 SW 30TH STREET, SUITE 500
PALM CITY, FL 34990
CERTIFICATE OF AUTHORIZATION 29013
SHAUN G. MACKENZIE, P.E. NO. 61751

Digitally signed by Shaun G MacKenzie
Date: 2021.07.02 16:50:09 -04'00'

080007
July 2021

CA 29013

Shaun G. MacKenzie P.E.
Florida License # 61751

EXECUTIVE SUMMARY

MacKenzie Engineering and Planning, Inc. performed an analysis of the traffic impacts resulting from Legacy Park – Spac 2. The project is located at the northeast corner of Becker Road and Village Parkway, Port St. Lucie, Florida. The applicant proposes 520,000 SF Regional Distribution Center.

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

- 728 daily, 42 AM peak hour (32 in/10 out), and 52 PM peak hour (15 in/37 out) trips.

The project is located within the approved Southern Grove DRI. The property meets concurrency because the Southern Grove has satisfied its transportation conditions to date.

No turn lanes are recommended along the Legacy Park east-west road based on the low volumes and travel speeds.

Sansone Boulevard is projected to become a north-south road collector for the area and has posted speed limit of 40 miles per hour (MPH). Further, Sansone Boulevard is the expected truck route within this area of Southern Grove. Therefore, we recommend that the developer construct left-turn lanes or two-way left-turn lanes on front of the site on Sansone Boulevard at all driveways for both safety and capacity.

Additionally, all truck driveways and intersections (e.g. Sansone Boulevard & Legacy Park East-West Road intersection) are recommended to use 50-foot radii.

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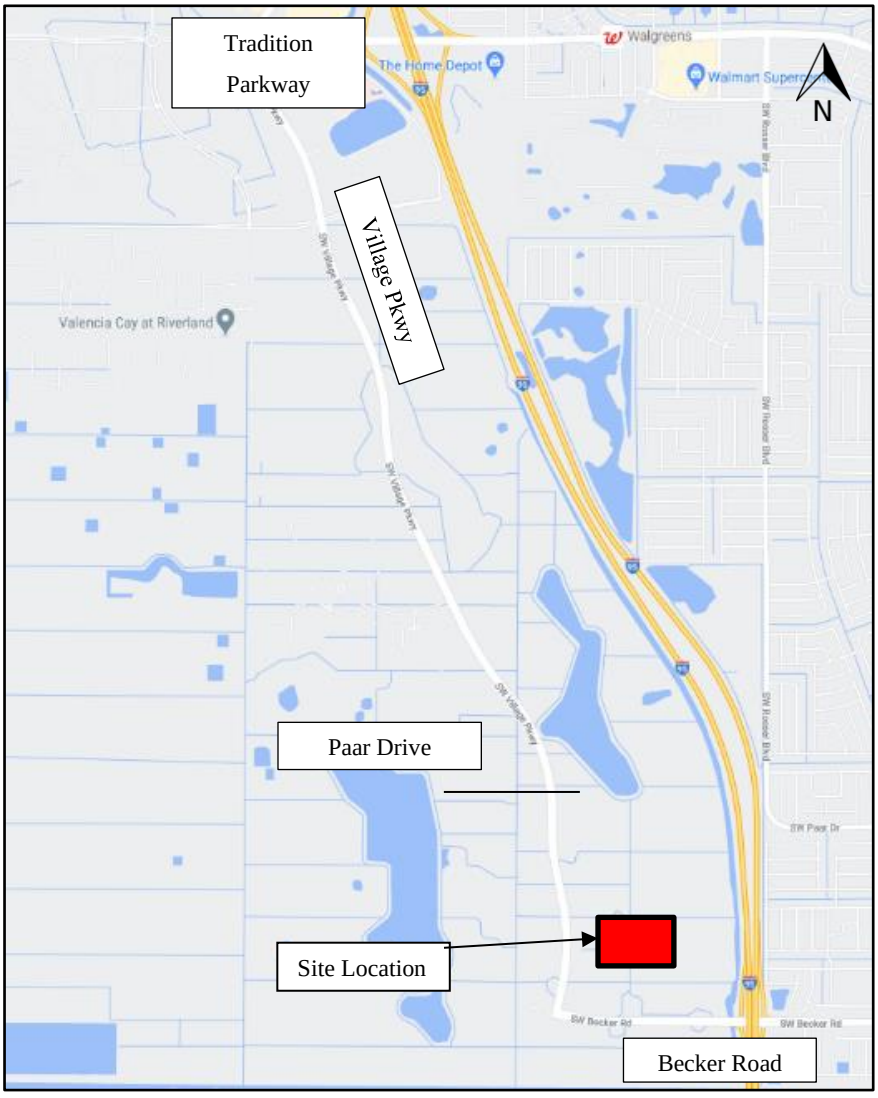
INTRODUCTION

MacKenzie Engineering & Planning, Inc. was retained to prepare a traffic impact analysis for Legacy Park – 2. 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 520,000 SF Regional Distribution Center. The project is located at the northeast corner of Becker Road and Village Parkway. The project is located within the approved Southern Grove DRI. The property meets concurrency because the Southern Grove has satisfied its transportation conditions to date.

Figure 1. Site Location Map



PROJECT TRAFFIC

Trip Generation

The study uses trip generation rates for High-Cube Transload & Short-Term Storage Warehouse (ITE Land Use 154) published in the Institute of Traffic Engineers' (ITE) report, *Trip Generation (10th Edition)*.

Approved Use

- 245,000 SF FedEx (ITE Land Use 156)
- 219,000 SF BTS
- 168,000 SF Reginal Distribution Center/Warehouse (Sansone Lot 2) (ITE Land Use 154)

Proposed Use

- 520,000 SF Regional Distribution Center/Warehouse (ITE Land Use 154)

Internal Capture

The site contains no internal capture.

Pass-by Trip Capture

The pass-by trip capture rate is 0.

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

- 728 daily, 42 AM peak hour (32 in/10 out), and 52 PM peak hour (15 in/37 out) trips.

Table 1. Trip Generation

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 & Short-Term Storage Warehouse	Lot 4	520.000	1000 SF	728	42	32	10	52	15	37
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)				**728**	**42**	**32**	**10**	**52**	**15**	**37**
NET CHANGE IN DRIVEWAY VOLUMES				**728**	**42**	**32**	**10**	**52**	**15**	**37**

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 & Short-Term Storage Warehouse	154	1000 SF	1.4	0%	77/23	0.08	28/72	0.1

TRAFFIC DISTRIBUTION

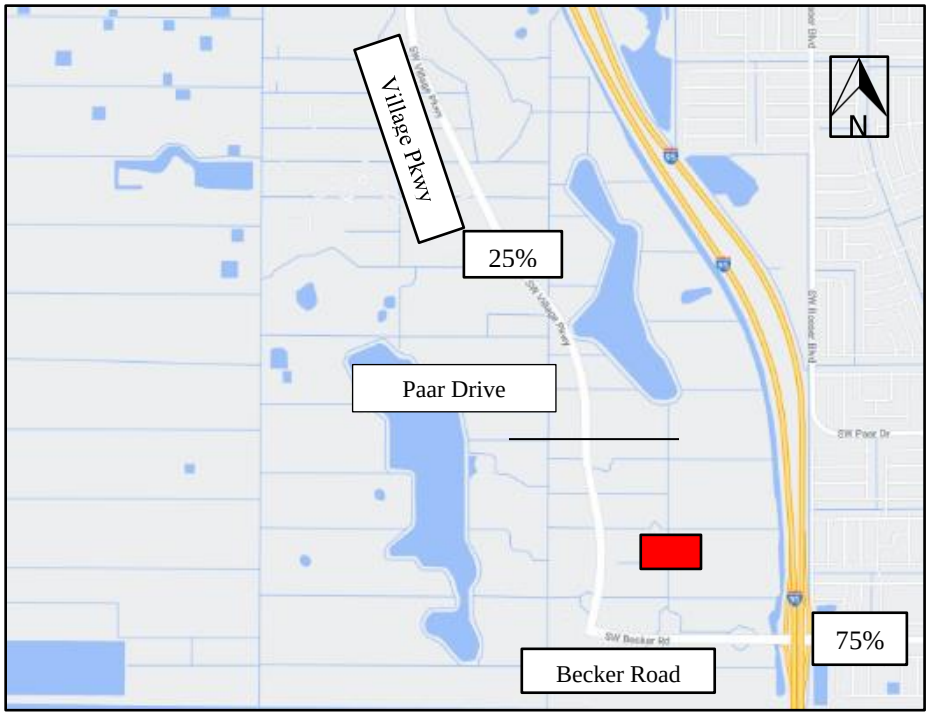
Traffic distribution and assignment was determined using engineering judgment, trip lengths, surrounding uses and review of the roadway network. The overall distribution is summarized by general directions and is depicted below:

NORTH	-	25 percent
SOUTH	-	0 percent
WEST	-	0 percent
EAST	-	75 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



INTERSECTION ANALYSIS

Paar Drive & Village Parkway

The Paar Drive and Village Parkway intersection is currently not constructed. The traffic volumes on Village Parkway are currently too low to warrant a traffic signal based on existing traffic volumes. A traffic signal is expected to be warranted in the future.

The following are recommended initially:

1. Restripe the southbound left-turn with left-turn arrows.
2. Install stop signs on the side street approach(es).

The intersection should be monitored for signalization in the future.

Legacy Park East-West Road & Village Parkway

The Legacy Park East-West Road and Village Parkway intersection is currently not constructed. The traffic volumes on Village Parkway are currently low.

The following are recommended initially:

1. Restripe the southbound left-turn with left-turn arrows.
2. Install stop signs on the side street approach(es).

Legacy Park North-South Road & Becker Road

The Legacy Park North-South Road and Becker Road intersection is currently not constructed. The traffic volumes on Becker Road are currently low. The west driveway is projected to have 29 peak hour right-turning vehicles.

A right-turn lane is constructed at this location. At such time, as the Legacy Park North-South Road is constructed, the following are recommended:

1. Remove the existing hatching and stripe a right-turn lane.
2. Install stop signs on the side street approach(es).

Sansone Boulevard & Becker Road

The Sansone Boulevard and Becker Road intersection is currently not constructed. The traffic volumes on Becker Road are currently low. The west driveway is projected to have 79 peak hour right-turning vehicles. A right-turn lane is constructed at this location. A signal is recommended at this location upon satisfaction of Traffic Signal Warrants.

DRIVEWAYS

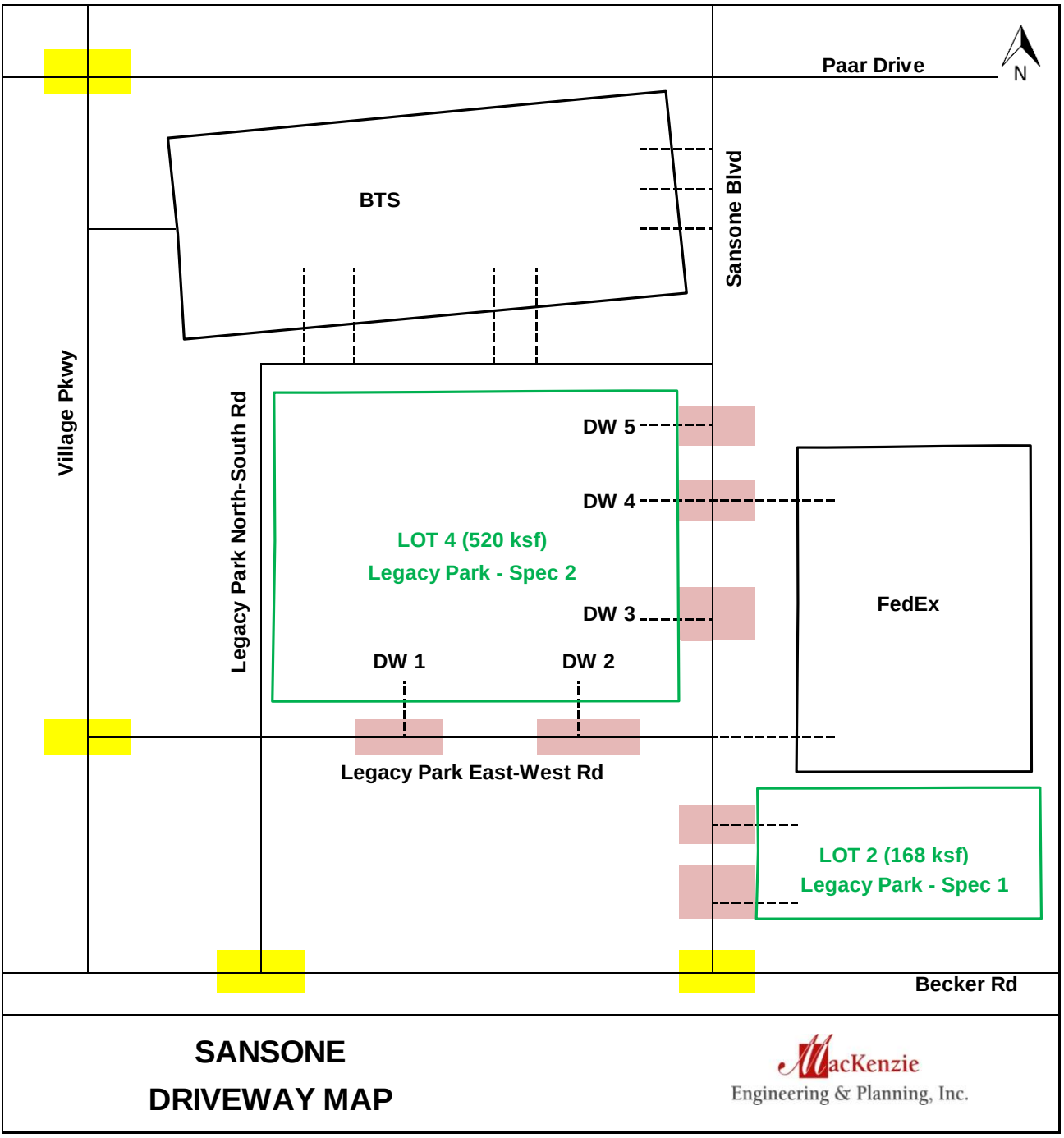
Proposed Access

The site proposes five points of access:

- DW 1 (West) – Full Opening
- DW 2 (East) – Full Opening
- DW 3 (South) – Full Opening
- DW 4 (Central) – Full Opening
- DW 5 (North) – Full Opening

Figure 3 shows the driveway map. Exhibit 2D displays the proposed driveway volumes. Exhibit 2E displays the projected driveway volumes in Legacy Park based on the currently approved development.

Figure 3. Driveway Map



Driveway 1 (West) & Legacy Park East-West Road

Driveway 1 (west) is a full opening. Based on the existing road network, no traffic is destined to or from the west because the roadway does not exist. Based on the approved land uses (BTS and FedEx) in Legacy Park, only a small amount of traffic will be destined to or from the east in the future on the Legacy Park East-West Road.

Based on the low projected use and low speeds on this facility no turn lanes are recommended.

Driveway 2 (East) & Legacy Park East-West Road

Driveway 2 (east) is a full opening. Based on the existing road network, no traffic is destined to or from the west because the roadway does not exist. Based on the approved land uses (BTS and FedEx) in Legacy Park, only a small amount of traffic will be destined to or from the east in the future on the Legacy Park East-West Road.

Based on the low projected use and low speeds on this facility no turn lanes are recommended.

Driveway 3 (South) & Sansone Boulevard

Driveway 3 (south) is a full opening, only a small amount of traffic will be destined to the south in the future. The volumes at this driveway are relatively low and do not warrant turn lanes. However, Sansone Boulevard will become a north-south road for the area and has posted speed limit of 40 miles per hour (MPH). Further, Sansone Boulevard is the expected truck route within this area of Southern Grove. Therefore, we recommend that the developer construct left-turn lanes or two-way left-turn lanes on front of the site on Sansone Boulevard for both safety and capacity.

Driveway 4 (Central) & Sansone Boulevard

Driveway 4 (central) is a full opening. The volumes at this driveway are relatively low and do not warrant turn lanes. However, Sansone Boulevard will become a north-south road for the area and has posted speed limit of 40 miles per hour (MPH). Further, Sansone Boulevard is the expected truck route within this area of Southern Grove. Therefore, we recommend that the developer construct left-turn lanes or two-way left-turn lanes on front of the site on Sansone Boulevard for both safety and capacity.

Driveway 5 (North) & Sansone Boulevard

Driveway 5 (north) is a full opening. The volumes at this driveway are relatively low and do not warrant turn lanes. However, Sansone Boulevard will become a north-south road for the area and has posted speed limit of 40 miles per hour (MPH). Further, Sansone Boulevard is the expected truck route within this area of Southern Grove. Therefore, we recommend that the developer construct left-turn lanes or two-way left-turn lanes on front of the site on Sansone Boulevard for both safety and capacity.

Additionally, all truck driveways and intersections (e.g. Sansone Boulevard & Legacy Park East-West Road intersection) are recommended to use 50-foot radii.

CONCLUSION

MacKenzie Engineering and Planning, Inc. performed an analysis of the traffic impacts resulting from Legacy Park – Spac 2. The project is located at the northeast corner of Becker Road and Village Parkway, Port St. Lucie, Florida. The applicant proposes 520,000 SF Regional Distribution Center.

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

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No turn lanes are recommended along the Legacy Park east-west road based on the low volumes and travel speeds.

Sansone Boulevard is projected to become a north-south road collector for the area and has posted speed limit of 40 miles per hour (MPH). Further, Sansone Boulevard is the expected truck route within this area of Southern Grove. Therefore, we recommend that the developer construct left-turn lanes or two-way left-turn lanes on front of the site on Sansone Boulevard at all driveways for both safety and capacity.

Additionally, all truck driveways and intersections (e.g. Sansone Boulevard & Legacy Park East-West Road intersection) are recommended to use 50-foot radii.

EXHIBIT 1A
SANSONE
TRIP GENERATION

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										
FedEx		245.000	1000 SF	1,899	118	59	59	91	62	29
BTS		219.000	1000 SF	2,196	3	1	2	136	91	45
High-Cube Transload & Short-Term Storage Warehouse	Legacy Park - Spec 2	520.000	1000 SF	728	42	32	10	52	15	37
High-Cube Transload & Short-Term Storage Warehouse	Legacy Park - Spec 1	168.000	1000 SF	235	13	10	3	17	5	12
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)				**5,058**	**176**	**102**	**74**	**296**	**173**	**123**
NET CHANGE IN DRIVEWAY VOLUMES				**5,058**	**176**	**102**	**74**	**296**	**173**	**123**

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 & Short-Term Storage Warehouse	154	1000 SF	1.4	0%	77/23	0.08	28/72	0.1
High-Cube Parcel Hub Warehouse	156	1000 SF	7.75	0%	50/50	T = 1.37 (X) - 218.14	68/32	T = 1.41 (X) - 254.12
BTS	BTS	1000 SF	10.03	0%	33/67	0.01	67/33	0.62

EXHIBIT 1B
SANSONE - BTS (APPROVED)
TRIP GENERATION

Land Use	Intensity		Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
Proposed Site Traffic									
BTS	219.000	1000 SF	2,196	3	1	2	136	91	45
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)			**2,196**	**3**	**1**	**2**	**136**	**91**	**45**
NET CHANGE IN DRIVEWAY VOLUMES			**2,196**	**3**	**1**	**2**	**136**	**91**	**45**

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
BTS	BTS	1000 SF	10.03	0%	33/67	0.01	67/33	0.62

EXHIBIT 1C
SANSONE - FEDEX (APPROVED)
TRIP GENERATION

Land Use	Intensity		Daily Trips	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
Proposed Site Traffic									
FedEx	245.000	1000 SF	1,899	118	59	59	91	62	29
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)			**1,899**	**118**	**59**	**59**	**91**	**62**	**29**
NET CHANGE IN DRIVEWAY VOLUMES			**1,899**	**118**	**59**	**59**	**91**	**62**	**29**

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 Parcel Hub Warehouse	156	1000 SF	7.75	0%	50/50	T = 1.37 (X) - 218.14	68/32	T = 1.41 (X) - 254.12

EXHIBIT 1D
SANSONE - Legacy Park - Spec 1
TRIP GENERATION

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 & Short-Term Storage Warehouse	Legacy Park – Spec 1	168.000	1000 SF	235	13	10	3	17	5	12
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)				**235**	**13**	**10**	**3**	**17**	**5**	**12**
NET CHANGE IN DRIVEWAY VOLUMES				**235**	**13**	**10**	**3**	**17**	**5**	**12**

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 & Short-Term Storage Warehouse	154	1000 SF	1.4	0%	77/23	0.08	28/72	0.1

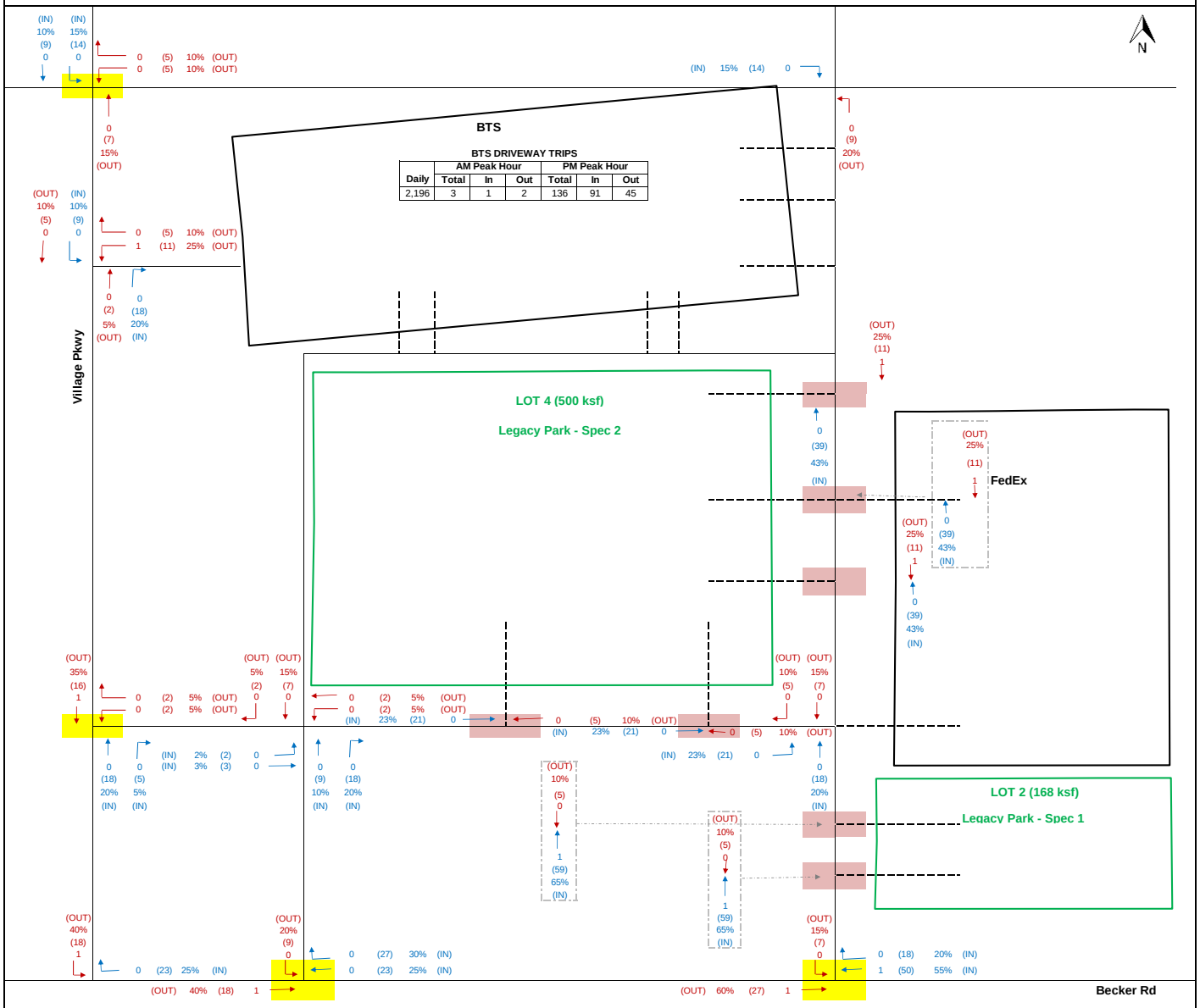
EXHIBIT 1E
SANSONE - Legacy Park - Spec 2
TRIP GENERATION

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 & Short-Term Storage Warehouse	Legacy Park – Spec 2	520.000	1000 SF	728	42	32	10	52	15	37
NET CHANGE IN TRIPS (FOR THE PURPOSES OF CONCURRENCY)				**728**	**42**	**32**	**10**	**52**	**15**	**37**
NET CHANGE IN DRIVEWAY VOLUMES				**728**	**42**	**32**	**10**	**52**	**15**	**37**

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 & Short-Term Storage Warehouse	154	1000 SF	1.4	0%	77/23	0.08	28/72	0.1

EXHIBIT 2A

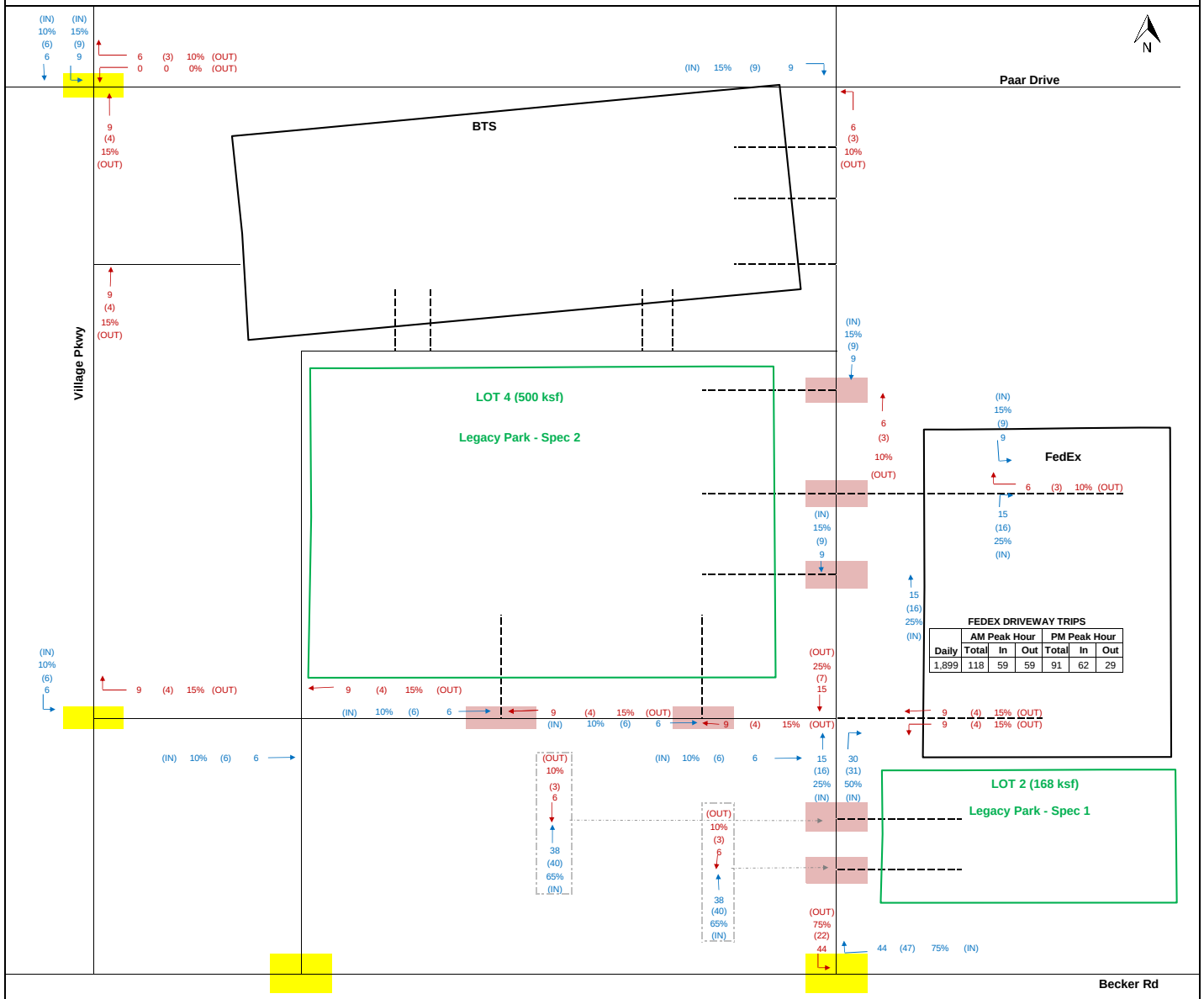


SANSONE - BTS
DRIVEWAY TRIPS

2,196	Total daily driveway trips
(136)	PM peak hour driveway trips
3	AM peak hour driveway trips

MacKenzie Engineering & Planning, Inc.

EXHIBIT 2B

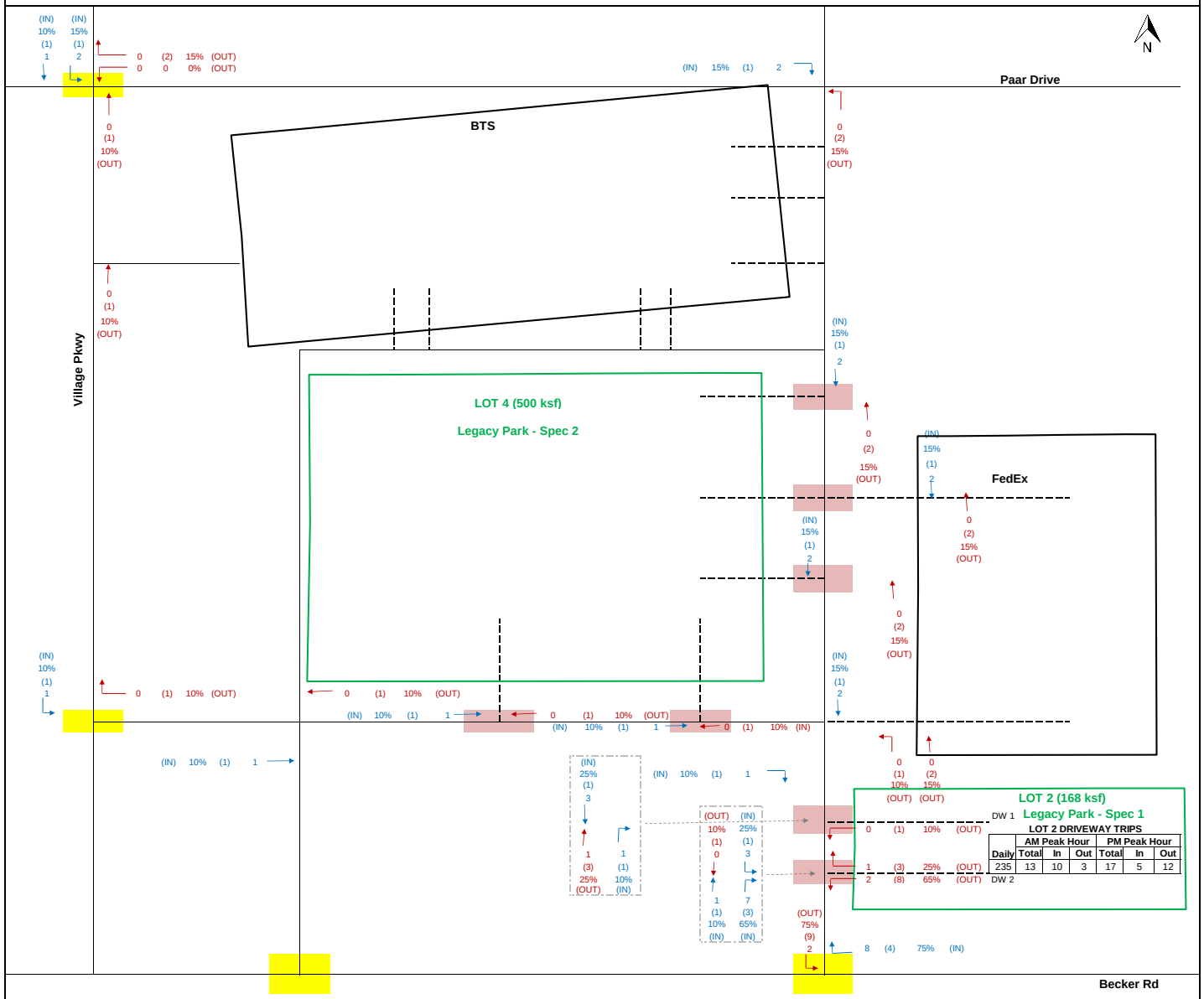


SANSONE - FEDEX
DRIVEWAY TRIPS

1,899	Total daily driveway trips
(91)	PM peak hour driveway trips
118	AM peak hour driveway trips

MacKenzie Engineering & Planning, Inc.

EXHIBIT 2C



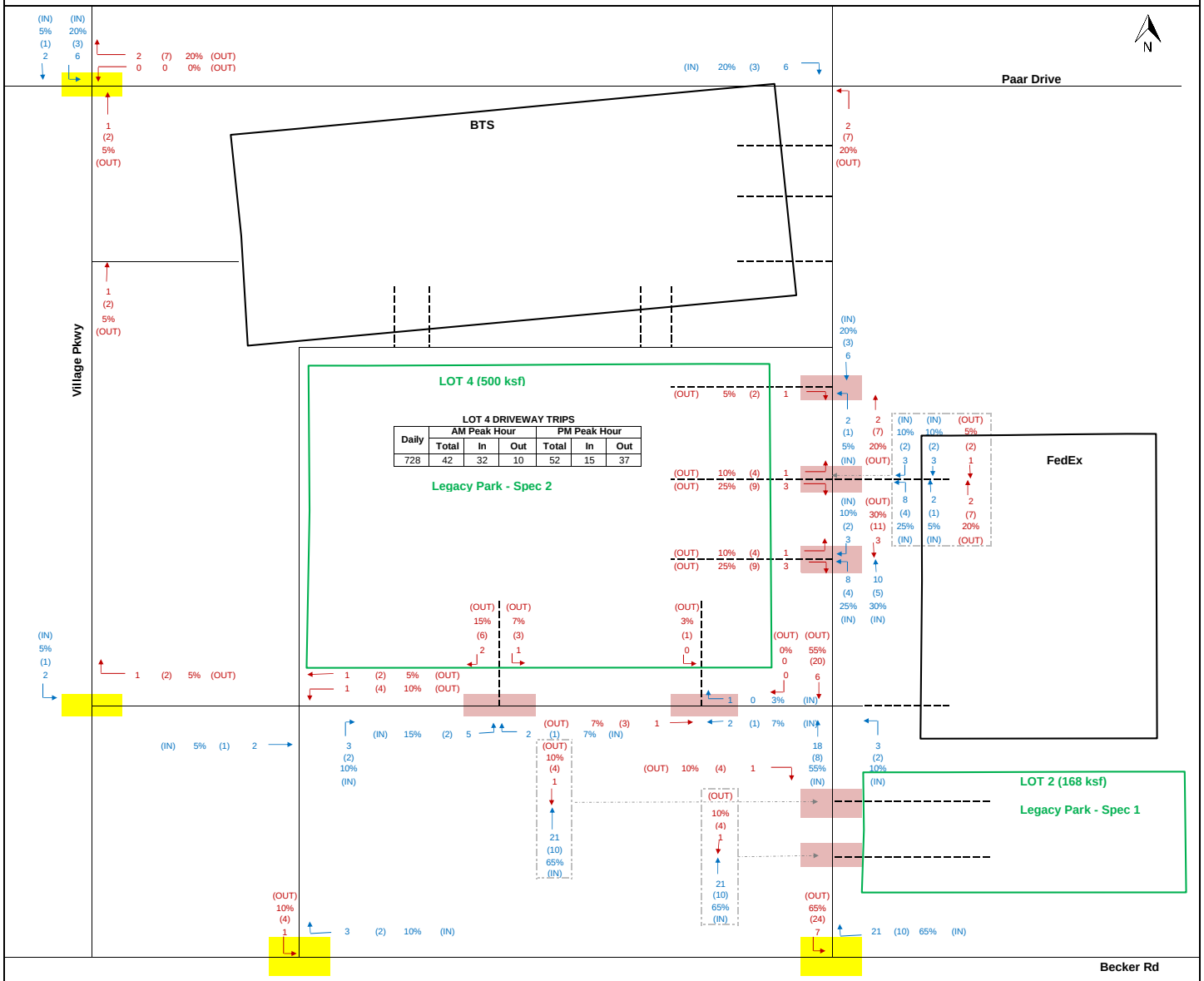
Daily	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
235	13	10	3	17	5	12

SANSONE - Legacy Park - Spec 1
DRIVEWAY TRIPS

235	Total daily driveway trips
(17)	PM peak hour driveway trips
13	AM peak hour driveway trips

MacKenzie Engineering & Planning, Inc.

EXHIBIT 2D

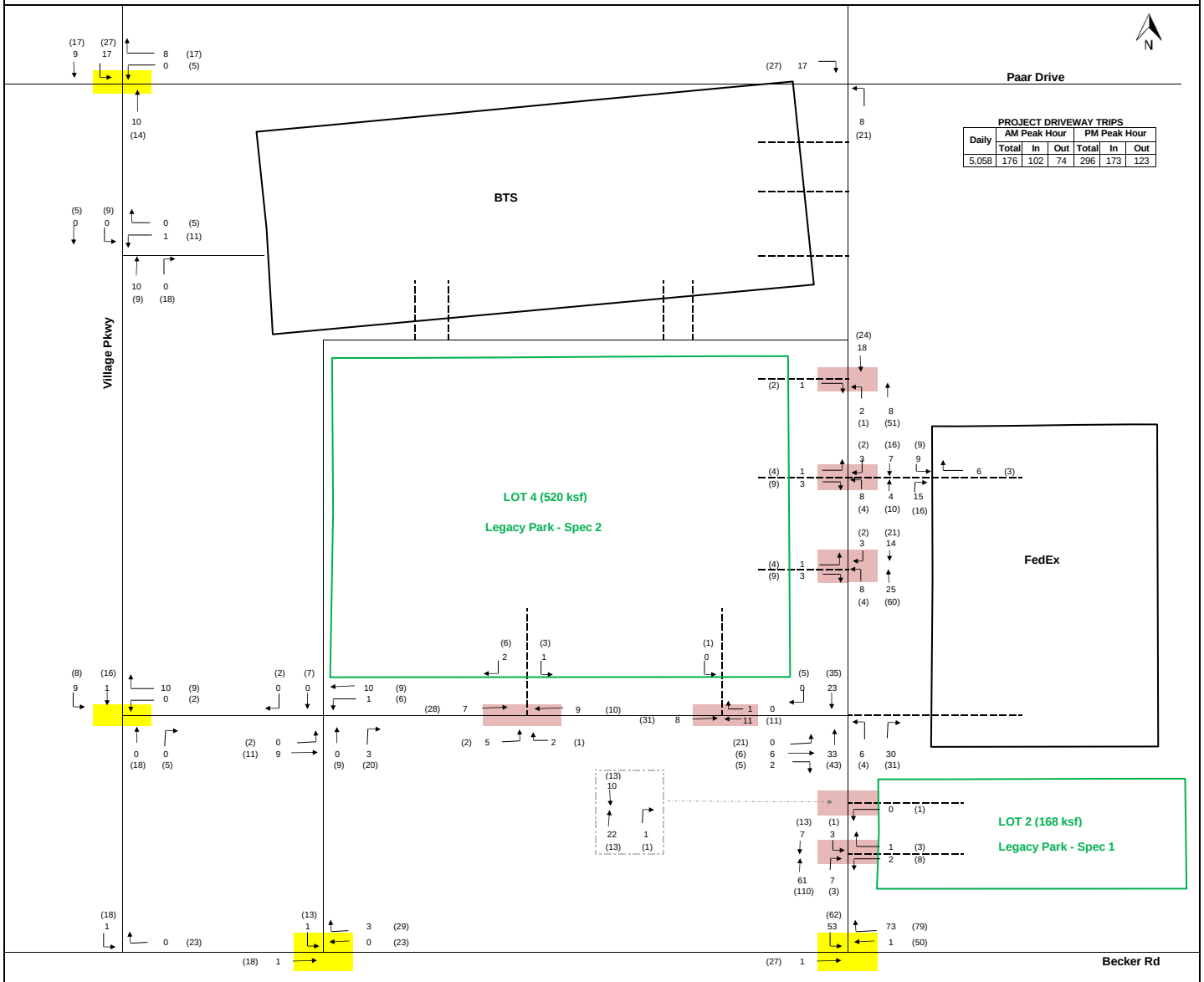


SANSONE - Legacy Park - Spec 2
DRIVEWAY TRIPS

728	Total daily driveway trips
(52)	PM peak hour driveway trips
42	AM peak hour driveway trips

MacKenzie Engineering & Planning, Inc.

EXHIBIT 2E



PROJECT DRIVEWAY TRIPS

Daily	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
5,058	176	102	74	296	173	123

SANSONE
PROJECT TOTAL DRIVEWAY TRIPS

5,058	Total daily driveway trips
(296)	PM peak hour driveway trips
176	AM peak hour driveway trips

MacKenzie
Engineering & Planning, Inc.

MATCHLINE A

MATCHLINE A

FUTURE PARCEL FOR PROJECT P21-057
(BY OTHERS)

N70° 00' 00.00"E 1185.40'
10' LANDSCAPE BUFFER

PROPOSED LOOP DRIVE (BY PROJECT SENIOR)

PARCEL ID NO. 4335-500-0002-000-0
ZONING: MPUD
LAND USE: GRZNG SLD CP

FUTURE SOUTHERN GROVE CDD STORMWATER INFRASTRUCTURE

PROPOSED DRAINAGE EASEMENT

DRAINAGE EASEMENT DE-1 PER SOUTHERN GROVE PLAT NO. 35

PROPOSED DRAINAGE INFRASTRUCTURE

PROPOSED TYPE 'D' CURB (TYP.)

PROPOSED 6' RAISED SIDEWALK (TYP.)

PROPOSED 20' PSLUSD EASEMENT

PROPOSED 8" WM

PROPOSED FIRE HYDRANT (TYP.)

FLUSH SIDEWALK

MAIN ENTRANCE

PROPOSED 12'x60' CBS SCREEN WALL

PROPOSED STOP SIGN/STOP BAR (TYP.)

AREA DETAIL - WEST PARKING

PROPOSED DUMPSTER

PROPOSED TRUCK PARKING

PROPOSED DRAINAGE INFRASTRUCTURE

PROPOSED HEAVY DUTY ASPHALT PAVEMENT

PROPOSED TRUCK LOADING BAY (TYP.)

PROPOSED CONCRETE PAVEMENT

PROPOSED POTABLE WATER P.O.S.

PROPOSED FIRE P.O.S.

PROPOSED WHEEL STOPS (TYP.)

10' DOLLY STRIP CONCRETE PAVEMENT

PROPOSED TRUCK PARKING

PROPOSED HEAVY DUTY ASPHALT PAVEMENT

RESERVED PARKING AREA

PROPOSED 8'x8' BIKE RACK

10' LANDSCAPE BUFFER
10' P.U.E. P.B.91, PG. 32

AREA DETAIL - EAST PARKING

SANITARY P.O.S.

L=191.986, R=550.000

SW ANTHONY F. SANSONE BLVD.
(PSL PROJECT NO. P20-71)
(PSLUSD PROJECT NO. 5360)

PARCEL ID NO. 4335-500-0003-000-1
ZONING: MPUD
LAND USE: VCNT INDUS
(PSL PROJECT NO. P20-181)
PSLUSD PROJECT NO. 5360A)

10' CUE-2
P.B. 91, PG. 32

15' CUE-1
P.B. 91, PG. 32

10' P.U.E.

EAST/WEST ROADWAY TO BE CONSTRUCTED
CONCURRENTLY WITH LEGACY PARK - SPEC 2
UTILITIES ARE CURRENTLY UNDER CONSTRUCTION

LEGACY PARK - SPEC 2
BUILDING AREA: 520,000 SF
FFE = 33.40 NAVD
BUILDING HEIGHT - 35'

PROJECT LOCATION

LOCATION MAP N.T.S.

GRAPHIC SCALE
60 0 30 60
(IN FEET)
1 inch = 60 ft.

LEGEND

- PROJECT BOUNDARY
- NUMBER OF PARKING SPACES
- PROPOSED STOP SIGN
- PROPOSED HANDICAP PARKING
- TRAFFIC FLOW DIRECTION
- DRAINAGE INFRASTRUCTURE
- FLOW ARROW
- PROPOSED CLEANOUT
- WM — PROPOSED WATER LINE
- 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

CITY OF PSL PROJECT No. P21-096
PSLUSD FILE No. 5360E

P:\Proj-2020\20-251 Arco Murray - Legacy Park 520\Eng\20-251 Base.dwg Plotted: 6/16/2021 5:56 PM By: ZACH MOUW

COMPUTER FILE REF.	FIELD BK./PG.

CULPEPPER & TERPENING INC
2980 SOUTH 25th STREET • FORT PIERCE, FLORIDA 34981
PHONE 772-464-3537 • FAX 772-464-9497 • www.ct-eng.com
STATE OF FLORIDA BOARD OF PROFESSIONAL
ENGINEERS AUTHORIZATION NO. 4286

- REVISIONS -	BY	DATE
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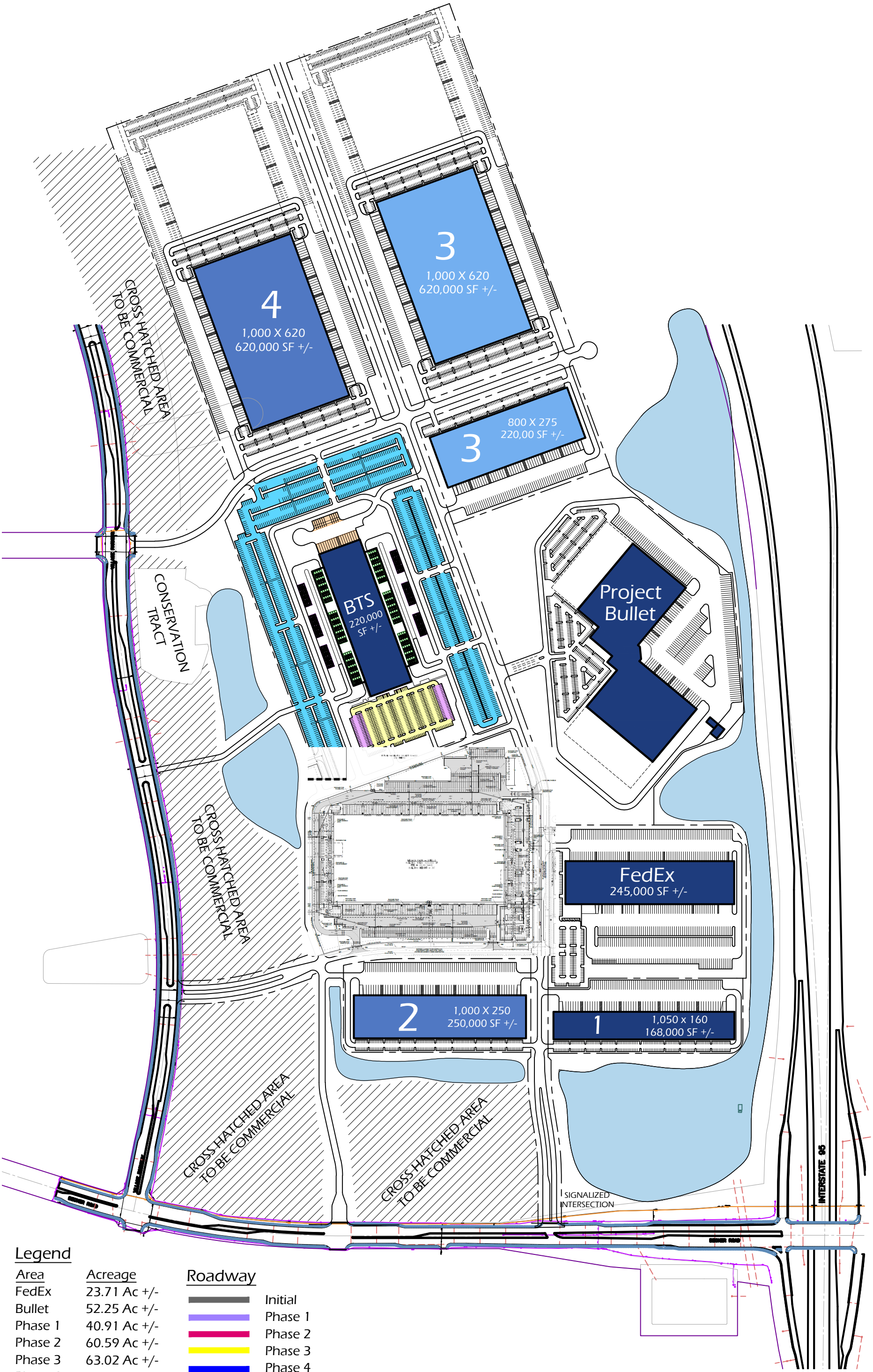
	BY	DATE
DESIGNED	-	-
CALCS.	-	-
DRAWN	ZM	4-16-2021
DETAILED	-	-
CHECKED	DM	-
APPROVED	JPT	-

LEGACY PARK - SPEC 2

SITE PLAN

DATE: -
HORIZ. SCALE: 1"=60'
VERT. SCALE: NA
JOB No. 20-251
SHEET 1 of 3



Legend

Area	Acreage
FedEx	23.71 Ac +/-
Bullet	52.25 Ac +/-
Phase 1	40.91 Ac +/-
Phase 2	60.59 Ac +/-
Phase 3	63.02 Ac +/-
Phase 4	49.10 Ac +/-

Roadway

- Initial
- Phase 1
- Phase 2
- Phase 3
- Phase 4

SANSONE group

Legacy Park At Tradition

Phasing Plan

SCALE : N.T.S.

01.14.2021

ARCO MURRAY DESIGN BUILD

GMA ARCHITECTS

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. The HCWs included in this land use include transload and short-term facilities. Transload facilities have a primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. They typically have little storage duration, high throughput, and are high-efficiency facilities. Short-term HCWs are high-efficiency distribution facilities often with custom/special features built into structure for movement of large volumes of freight with only short-term storage of products. 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.

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 have been incorporated into the 10th Edition *Trip Generation Manual* and are published on the ITE website at http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498 where the study is posted.

Time-of-day distribution data for this land use are presented in Appendix A. For the three general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 9:00 and 10:00 a.m. and 3:00 and 4:00 p.m., respectively.

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)

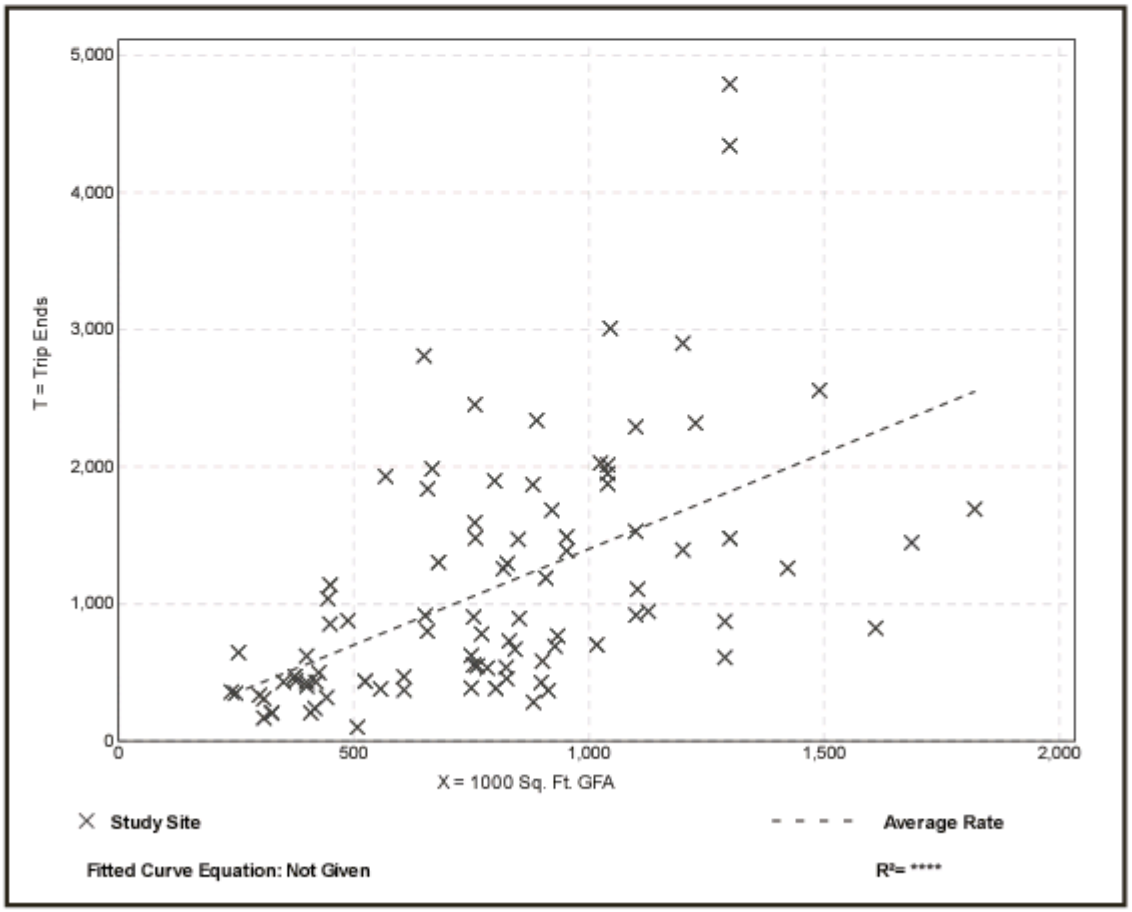
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 91
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



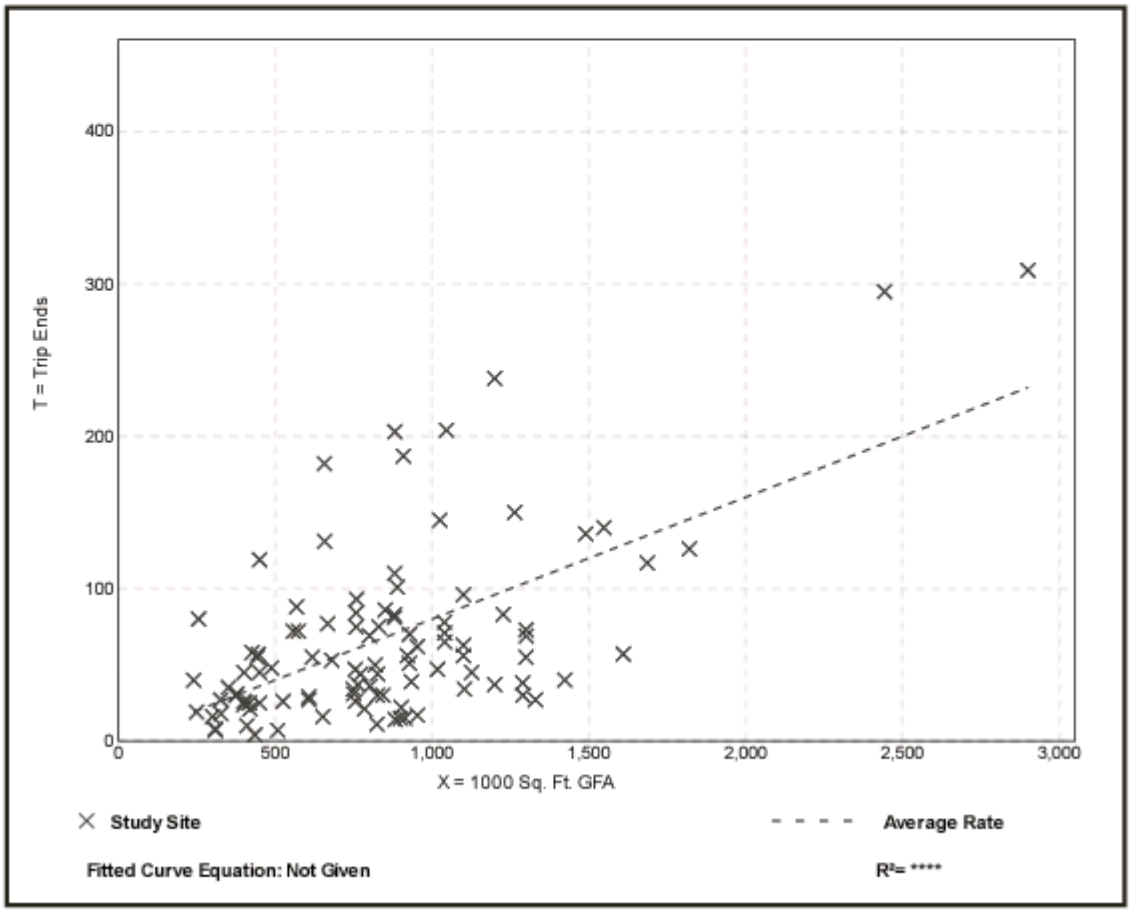
High-Cube Transload and Short-Term Storage Warehouse
(154)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 102
1000 Sq. Ft. GFA: 846
Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.08	0.01 - 0.31	0.05

Data Plot and Equation



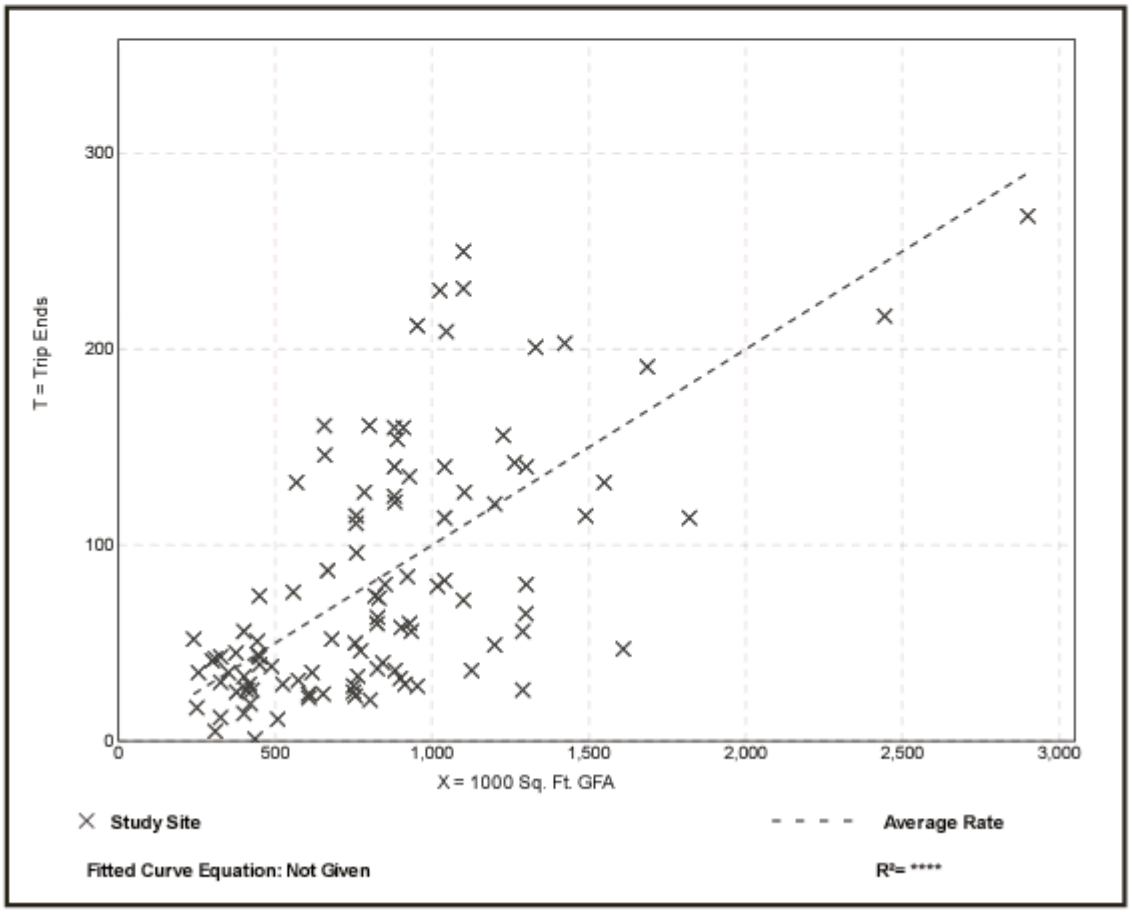
High-Cube Transload and Short-Term Storage Warehouse
(154)

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: 103
1000 Sq. Ft. GFA: 840
Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.10	0.00 - 0.25	0.06

Data Plot and Equation



Land Use: 156
High-Cube Parcel Hub 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. High-cube parcel hub warehouses typically serve as regional and local freight-forwarder facilities for time sensitive shipments via airfreight and ground carriers. These sites also often include truck maintenance, wash, or fueling facilities. 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 cold storage warehouse (Land Use 157) 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 have been incorporated into the 10th Edition *Trip Generation Manual* and are published on the ITE website at http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498 where the study is posted.

Time-of-day distribution data for this land use are presented in Appendix A. For the two general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 8:15 and 9:15 a.m. and 5:15 and 6:15 p.m., respectively.

The sites were surveyed in the 2010s in California, Connecticut, and Minnesota.

Source Numbers

869, 892, 941

High-Cube Parcel Hub Warehouse
(156)

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

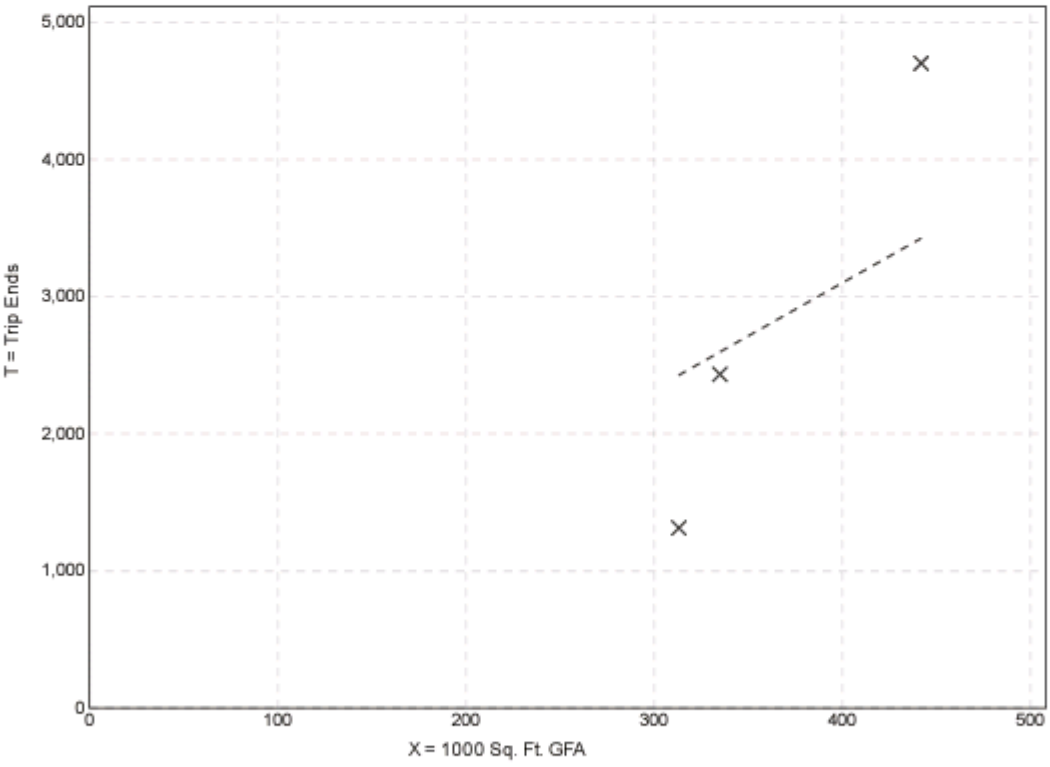
Setting/Location: General Urban/Suburban
Number of Studies: 3
1000 Sq. Ft. GFA: 363
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.75	4.20 - 10.64	9.58

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

High-Cube Parcel Hub Warehouse
(156)

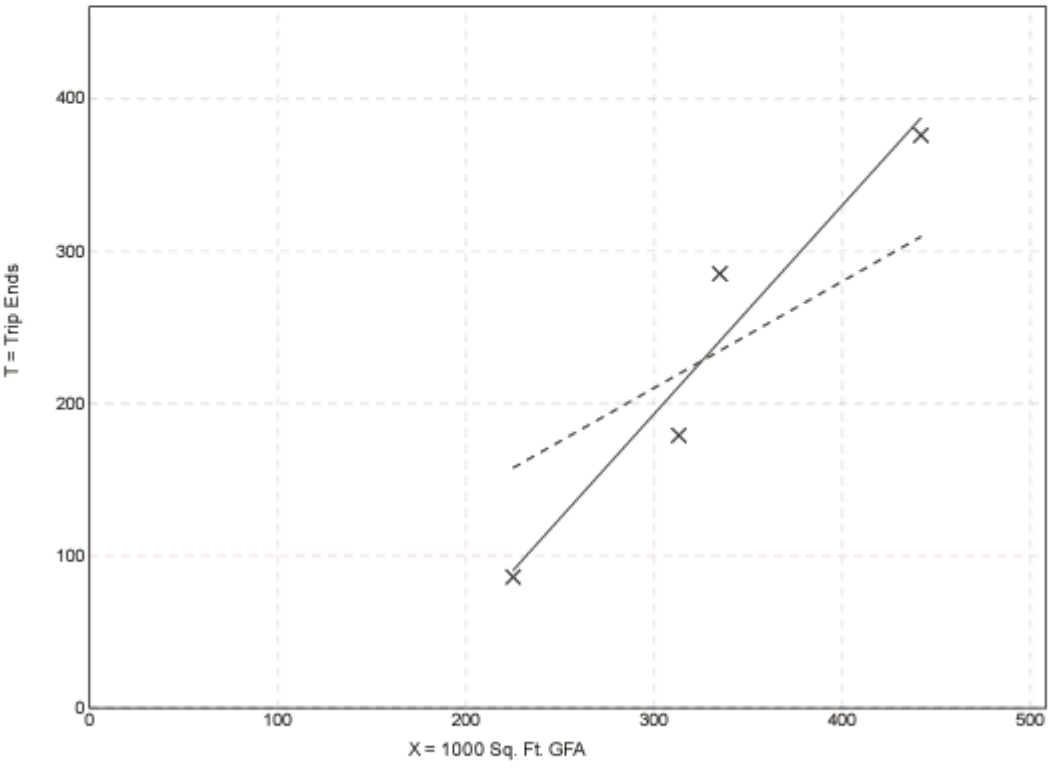
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 4
1000 Sq. Ft. GFA: 329
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.70	0.38 - 0.85	0.21

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: T = 1.37(X) - 218.14 **R^2= 0.93**

High-Cube Parcel Hub Warehouse
(156)

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: 4
1000 Sq. Ft. GFA: 329
Directional Distribution: 68% entering, 32% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.64	0.26 - 0.86	0.27

Data Plot and Equation

Caution – Small Sample Size