LISA S. BERNSTEIN, PE

TRAFFIC ENGINEER

Mr. Lens J. Lubin, PE
Lubin Elite Engineering
7154 N. University Drive, Suite 131
Tamarac, Florida 33321

April 6, 2026

Re: Agreement for Professional Services

Project Name:	7-Eleven Fort Pierce
Project Location:	1008 Seaway Drive, Fort Pierce, Florida 34949
Project No.:	26-0283

Dear Mr. Lubin:

The existing 7-Eleven site, at 1008 Seaway Drive, Fort Pierce, is being redesigned to provide safer access, parking layout, and a slight increase in the square footage. A Trip Generation letter has been requested.

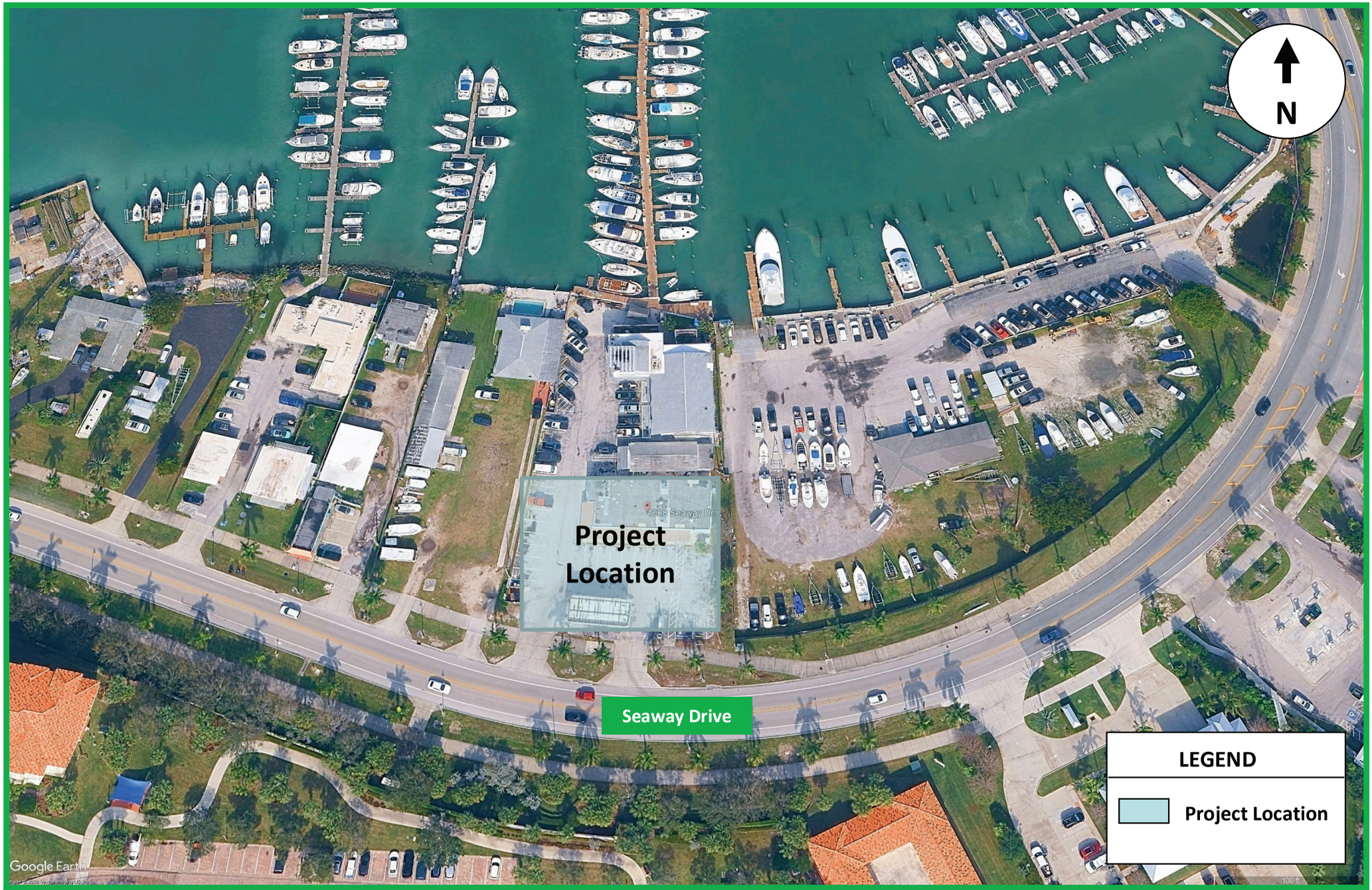
Existing Conditions

The existing site is occupied by the 3,548 Square Foot (SF) 7-Eleven with and a three-story multi-family residential building with nine (9) units. The site is currently used for maintenance activities and material storage.

The existing site is provided in Figure 1.

Proposed Conditions

The site is being reconfigured to increase both driveway widths, revise the existing parking spaces and increase the store by 68 SF. The Site Plan is attached.



LISA S. BERNSTEIN, PE
7660 NW 6 Court
Plantation, Florida 33324

Project Location

Figure 1
7-Eleven
Fort Pierce, Florida

Trip Generation

The Trip Generation for the proposed improvements are based land uses provided in the Institute of Transportation Engineers *Trip Generation Manual, 12th Edition.* The Land Use Codes (LUC) that will be used are LUC 945, Convenience Store with Gasoline Pumps GFA (2-4)/VFP (2-8) and LUC 220, Multifamily Housing (Low-Rise). The trips for the 7-Eleven are analyzed using both options, one with the Gross Floor Area (GFA) as the independent variable and one with the number of Vehicle Fueling Positions (VFP) as the independent variable. The ITE documentation is attached.

Using the VFP as the independent variable showed no net new trips as the number of fueling positions did not change and the proposed SF was still within the GFA range of 2-4k. Using the GFA as the independent variable, the net new Daily trips increased by 34 (pass-by reduction is not provided for daily trips), the net new AM Peak Hour by two (2) trips and the net new PM Peak Hour by one (1) trip.

The results are summarized in Tables 1A-B, 2A-B, and 3A-B for the Daily, AM and PM Peak Hour, respectively for both independent variables.

Table 1 A
Daily - Trip Generation

Land Use	ITE Code	Intensity		Trip Generation Rate	In	Out	Total Trips		
							In	Out	Total
Existing									
Convenience Store with Gasoline Pumps GFA (2-4k)	945	4	FP	T=211.05(X)	50%	50%	422	422	844
Multifamily Housing (Low-Rise)	220	9	Units	T=6.21(X)	50%	50%	28	28	56
Sub-Total							**450**	**450**	**900**
Total (Driveway)							**450**	**450**	**900**
Proposed									
Convenience Store with Gasoline Pumps GFA (2-4k)	945	4	FP	T=211.05(X)	50%	50%	422	422	844
Multifamily Housing (Low-Rise)	220	9	Units	T=6.21(X)	50%	50%	28	28	56
Sub-Total							**450**	**450**	**900**
Net New Trips							**0**	**0**	**0**

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 12th Edition

Table 1 B
Daily - Trip Generation

Land Use	ITE Code	Intensity		Trip Generation Rate	In	Out	Total Trips		
							In	Out	Total
Existing									
Convenience Store with Gasoline Pumps VFP (2-8)	945	3,548	SF	T=507.48(X)	50%	50%	899	900	1,799
Multifamily Housing (Low-Rise)	220	9	Units	T=6.21(X)	50%	50%	28	28	56
Sub-Total							**927**	**928**	**1,855**
Total (Driveway)							**927**	**928**	**1,855**
Proposed									
Convenience Store with Gasoline Pumps VFP (2-8)	945	3,616	SF	T=507.48(X)	50%	50%	916	917	1,834
Multifamily Housing (Low-Rise)	220	9	Units	T=6.21(X)	50%	50%	28	28	56
Sub-Total							**944**	**945**	**1,889**
Net New Trips							**17**	**17**	**34**

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 12th Edition

Table 2A
AM Peak Hour - Trip Generation

Land Use	ITE Code	Intensity		Trip Generation Rate	In	Out	Total Trips		
							In	Out	Total
Existing									
Convenience Store with Gasoline Pumps GFA (2-4k)	945	4	FP	T=13.65(X)	50%	50%	27	28	55
Pass-By (60%)							16	17	33
Sub-Total							**11**	**11**	**22**
Multifamily Housing (Low-Rise)	220	9	Units	T=0.35(X)+12.93	24%	76%	4	12	16
Total Trips							**15**	**23**	**38**
Total (Driveway)							**31**	**41**	**72**
Proposed									
Convenience Store with Gasoline Pumps GFA (2-4k)	945	4	FP	T=13.65(X)	50%	50%	27	28	55
Pass-By (60%)							16	17	33
Sub-Total							**11**	**11**	**22**
Multifamily Housing (Low-Rise)	220	9	Units	T=0.35(X)+12.93	24%	76%	4	12	16
Total Trips							**15**	**23**	**38**
Total (Driveway)							**31**	**41**	**72**
Net New Trips							**0**	**0**	**0**
Net New Driveway Trips							**0**	**0**	**0**

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 12th Edition

Table 3A
PM Peak Hour - Trip Generation

Land Use	ITE Code	Intensity		Trip Generation Rate	In	Out	Total Trips		
							In	Out	Total
Existing									
Convenience Store with Gasoline Pumps GFA (2-4k)	945	4	FP	T=15.85(X)	50%	50%	32	31	63
Pass-By (56%)							18	17	35
Sub-Total							**14**	**14**	**28**
Multifamily Housing (Low-Rise)	220	9	Units	T=0.48(X)+7.35	62%	38%	7	5	12
Total Trips							**21**	**18**	**40**
Total (Driveway)							**39**	**36**	**75**
Proposed									
Convenience Store with Gasoline Pumps GFA (2-4k)	945	4	FP	T=15.85(X)	50%	50%	32	31	63
Pass-By (56%)							18	17	35
Sub-Total							**14**	**14**	**28**
Multifamily Housing (Low-Rise)	220	9	Units	T=0.48(X)+7.35	62%	38%	7	5	12
Total Trips							**21**	**18**	**40**
Total (Driveway)							**39**	**36**	**75**
Net New Trips							**0**	**0**	**0**
Net New Driveway Trips							**0**	**0**	**0**

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 12th Edition

Table 3B
PM Peak Hour - Trip Generation

Land Use	ITE Code	Intensity		Trip Generation Rate	In	Out	Total Trips		
							In	Out	Total
Existing									
Convenience Store with Gasoline Pumps VFP (2-8)	945	3,548	SF	T=43.33(X)	49%	51%	75	79	154
Pass-By (56%)							42	44	86
Sub-Total							**33**	**35**	**68**
Multifamily Housing (Low-Rise)	220	9	Units	T=0.48(X)+7.35	62%	38%	7	5	12
Total Trips							**40**	**40**	**80**
Total (Driveway)							**82**	**84**	**166**
Proposed									
Convenience Store with Gasoline Pumps VFP (2-8)	945	3,616	SF	T=43.33(X)	49%	51%	77	80	157
Pass-By (56%)							43	45	88
Sub-Total							**34**	**35**	**69**
Multifamily Housing (Low-Rise)	220	9	Units	T=0.48(X)+7.35	62%	38%	7	5	12
Total Trips							**41**	**40**	**81**
Total (Driveway)							**84**	**85**	**169**
Net New Trips							**1**	**0**	**1**
Net New Driveway Trips							**2**	**1**	**3**

Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 12th Edition

Driveway Access

The site access will be revised by increasing the existing driveway width from 24 feet to 30 feet and provided more separation between them. This will allow the fuel truck to safely access the site.

Conclusion

The improvements to the site for the driveways and parking and a slight increase in square feet will provide safer access with better traffic and pedestrian circulation.

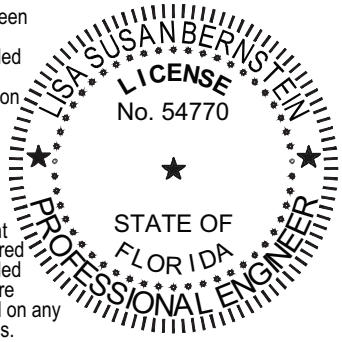
The net new trips from the slight increase in square feet will not have a significant impact on the surrounding roadway.

Lisa S. Bernstein, PE

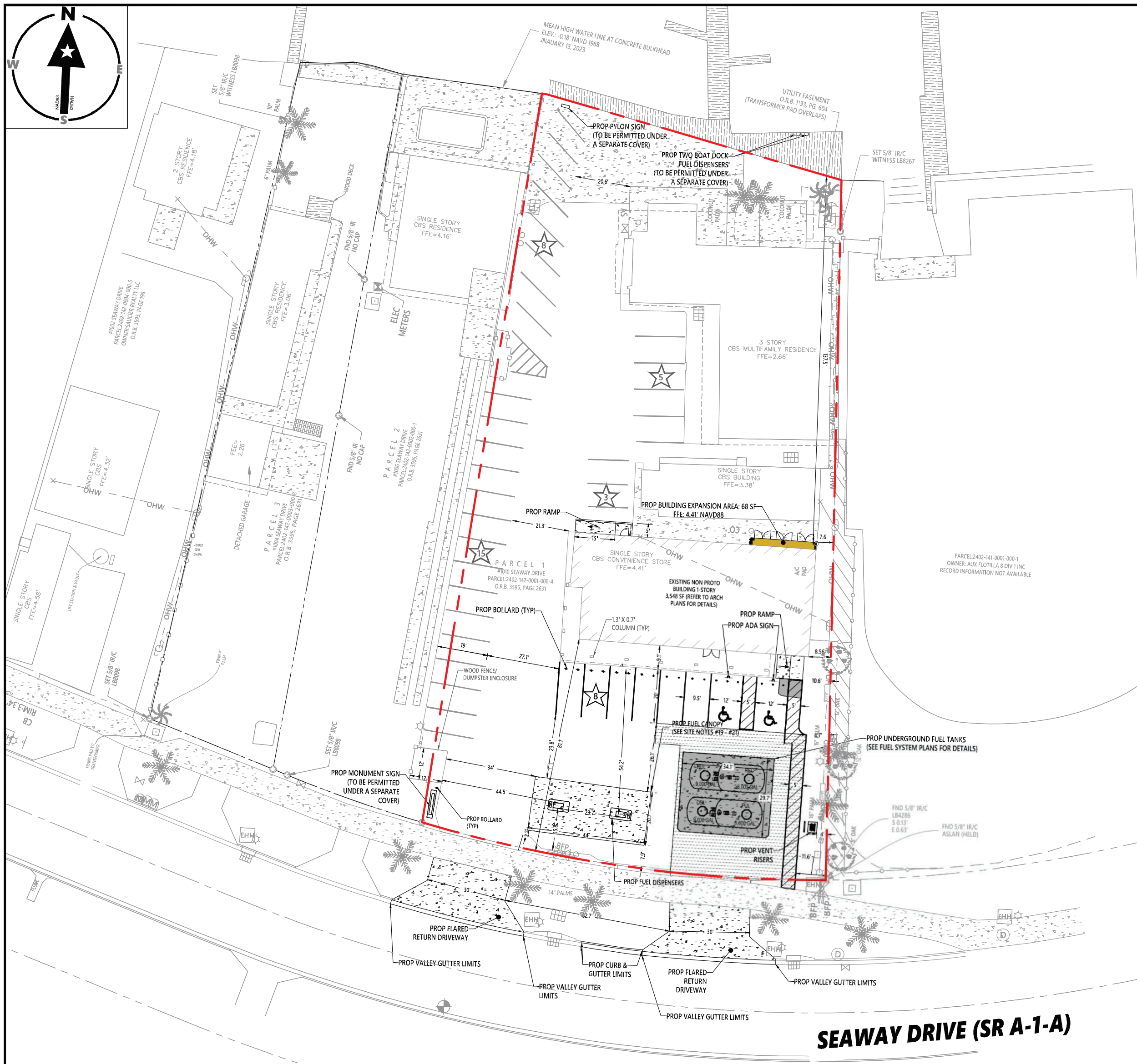
Attachments

This item has been electronically signed and sealed by Lisa Susan Bernstein, P.E. on the date below using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



Digitally signed by Lisa S Bernstein
Date: 2026.04.06 15:06:56-04'00'



VICINITY MAP
N.T.S

SITE DATA TABLE

JURISDICTION	CITY OF FORT PIERCE	
PROPERTY FOLIO #:	2402-142-0001-000-4	
CURRENT ZONING	TOURIST COMMERCIAL (C5)	
PROPOSED ZONING	TOURIST COMMERCIAL (C5)	
FEMA FLOOD DESIGNATION	ZONE AE	
TOTAL SITE AREA	36,565 SF (0.839 AC)	
EXISTING BUILDING AREA	3,548 SF	
EXISTING FUEL CANOPY AREA	888 SF	
PROPOSED BUILDING EXPANSION AREA	68 SF	
TOTAL RETAIL BUILDING AREA	3,616 SF	
EXISTING MULTI-FAMILY UNITS*	9 UNITS	
SITE AREA BREAKDOWN		
	EXISTING	PROPOSED
BUILDING AREA	3,548 SF (0.081 AC) (9.70%)	3,616 SF (0.083 AC) (9.89%)
FUEL CANOPY AREA	888 SF (0.020 AC) (2.43%)	888 SF (0.020 AC) (2.43%)
TOTAL IMPERVIOUS AREA	34,494 SF (0.792 AC) (94.34%)	34,345 SF (0.788 AC) (93.93%)
TOTAL PERVIOUS AREA	2,071 SF (0.047 AC) (5.66%)	2,220 SF (0.051 AC) (6.02%)
TOTAL SITE AREA	36,565 SF (0.839 AC) (100.00%)	36,565 SF (0.839 AC) (100.00%)
BUILDING SETBACKS		
BUILDING SETBACKS	REQUIRED	PROVIDED
FRONT	25.00'	81.1'
SIDE	7.50'	7.6'
REAR	15.00'	137.5'
PARKING		
TOTAL EXISTING CONDITIONS PARKING PROVIDED	41 PARKING SPACES	
TOTAL POST CONDITIONS PARKING REQUIRED	MULTI-FAMILY SPACES: 9 x 1.5 = 13.5 PARKING SPACES RETAIL SPACES: 3,616 / 200 SF = 18.1 PARKING SPACES 13.5 + 18.1 = 31.6 = 32 PARKING SPACES	
TOTAL POST CONDITIONS PARKING PROVIDED	39 PARKING SPACES	
ADA PARKING REQUIRED	2 PARKING SPACES	
ADA PARKING PROVIDED	2 PARKING SPACES	

*NINE (9) UNIT MULTI-FAMILY RESIDENCE IS PRESENT IN THE REAR OF THE RETAIL BUILDING.

SITE NOTES:

1. ALL PAVEMENT MARKINGS AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" LATEST EDITION; AND CITY OF FORT PIERCE LAND DEVELOPMENT CODE.
2. ALL PAVEMENT MARKINGS TO BE INSTALLED WITH SLIP RESISTANT PAINT.
3. CONTRACTOR TO MATCH EXISTING LOCATIONS OF CONCRETE EXPANSION JOINTS.
4. PROPOSED VALLEY GUTTER TO MATCH EXISTING.
5. CONTRACTOR TO FOLLOW SPECIFICATIONS FOR CONCRETE DRIVEWAY USING FDOT STANDARD DETAILS ON SHEET C-900.
6. CONTRACTOR TO ENSURE FLOW LINE OF PROPOSED VALLEY GUTTER ROUTES STORMWATER RUNOFF TO EXISTING INLET.
7. ALL GRASS AREAS TO REMAIN SHALL BE SODDED WITH MATCHING SOD TYPE.
8. ANY EXISTING DAMAGED OR REMOVED SIDEWALKS WITHIN R.O.W SHALL BE RESTORED WITHIN THREE (3) DAYS. WHEN EXISTING SIDEWALK IS REMOVED, IT IS TO BE REMOVED AT THE NEAREST JOINT.
9. ALL NEW CONCRETE WITHIN R.O.W SHALL BE A MINIMUM OF 6" THICK, 3,000 PSI WITH EITHER #10 WELDED WIRE OR FIBER REINFORCED.
10. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM EXISTING BUILDING.
11. CONTRACTOR TO MATCH EXISTING LOCATIONS OF SIDEWALK CONCRETE JOINTS.
12. CONTRACTOR TO ENSURE EXISTING ROOF LEADER CONNECTIONS IN IMPACTED AREAS ARE PROVIDING POSITIVE DRAINAGE IN POST CONDITIONS.
13. ALL IMPACTED PERVIOUS AREAS IN RIGHT-OF-WAY SHALL BE SODDED TO MATCH PRE-DEVELOPMENT SWALE GRADES.
14. CONTRACTOR TO ADJUST RIM ELEVATION OF EXISTING CLEANOUTS TO BE FLUSH WITH PROPOSED IMPERVIOUS SURFACES.
15. ALL RADII DIMENSIONS ARE 3' FROM FACE OR CURB UNLESS OTHERWISE NOTED.
16. CONTRACTOR TO REMOVE, HYDROBLAST, AND RESTRIPE ALL EXISTING ONSITE PAVEMENT MARKINGS.
17. CONTRACTOR TO RELOCATE ELECTRICAL BOXES AS NECESSARY.
18. PROPOSED DISPENSERS (TO BE PERMITTED UNDER A SEPARATE COVER)
19. THE EXISTING FUEL CANOPY IS A LEGALLY NONCONFORMING STRUCTURE. DEMOLITION OF THE CANOPY IS REQUIRED SOLELY TO FACILITATE THE REMOVAL OF EXISTING UNDERGROUND FUEL STORAGE TANKS LOCATED BENEATH THE CANOPY. THE CANOPY IS PROPOSED TO BE RECONSTRUCTED IN THE SAME LOCATION, FOOTPRINT, AND CONFIGURATION. NO EXPANSION, INTENSIFICATION, OR RELOCATION OF THE NONCONFORMITY IS PROPOSED.
20. ALL WORK ASSOCIATED WITH THE DEMOLITION AND RECONSTRUCTION OF THE FUEL CANOPY IS INTENDED TO MAINTAIN THE EXISTING LEGAL NONCONFORMING STATUS AND SHALL NOT BE INTERPRETED AS AN ABANDONMENT OF THE NONCONFORMITY.
21. SEE FUEL SYSTEMS PLANS FOR DETAILS.

LEGAL DESCRIPTION:

PARCEL NO. 1
FROM THE SOUTHEAST CORNER OF THE JOHN STENROOD'S PROPERTY, AS DESCRIBED IN DEED BOOK 182, PAGE 573, RUN SOUTH 70° 18' EAST ALONG THE NORTH RIGHT-OF-WAY OF STATE ROAD A-1-A 119.7 FEET TO THE POINT OF CURVATURE; THENCE CONTINUE ALONG THE NORTH RIGHT-OF-WAY LINE OF STATE ROAD A-1-A ON A CIRCULAR CURVE CONCAVE TO THE NORTH, HAVING A RADIUS OF 523.69 FEET, A DISTANCE OF 55.3 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE ALONG SAID CURVE 153.93 FEET; THENCE RUN NORTH 01°29' WEST 258.6 FEET, MORE OR LESS, TO THE INDIAN RIVER; THENCE MEANDERING A SHORE LINE WESTERLY TO A POINT ON A LINE WHICH BEARS NORTH 06°42'48" EAST FROM THE POINT OF BEGINNING; THENCE SOUTH 06°42'48" WEST 249.86 FEET TO THE POINT OF BEGINNING. ALL OF THE ABOVE LYING THE SOUTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 3, TOWNSHIP 35 SOUTH, RANGE 40 EAST, ST. LUCIE COUNTY, FLORIDA.

AND

PARCEL NO. 2
A PARCEL OF LAND LYING IN SECTION 3, TOWNSHIP 35 SOUTH, ST. LUCIE COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:
COMMENCE AT THE SOUTHEAST CORNER OF THE JOHN STENROOD'S PROPERTY AS DESCRIBED IN DEED BOOK 182, PAGE 573, PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA, LYING ON THE NORTHERLY RIGHT-OF-WAY LINE OF STATE ROAD 162 (N.K.A. STATE ROAD A1A). AS IDENTIFIED ON THE RIGHT-OF-WAY MAPS OF THE FLORIDA STATE ROAD DEPARTMENT, PROJECT NO. 9405-302, SHEET 1 OF 2; THENCE SOUTH 70°17'45" EAST, ALONG SAID NORTHERLY RIGHT-OF-WAY LINE 115.00 FEET FOR THE POINT OF BEGINNING, SAID POINT OF BEGINNING BEING A METAL AXLE.

THENCE CONTINUE SOUTH 70°17'45" EAST ALONG SAID NORTHERLY RIGHT-OF-WAY LINE 6.29 FEET TO A POINT OF CURVATURE OF A CURVE CONCAVE TO THE NORTHEAST, HAVING A RADIUS OF 523.69 FEET; THENCE CONTINUE SOUTHEASTERLY ALONG SAID NORTHERLY RIGHT-OF-WAY LINE AND ARC OF SAID CURVE, 53.71 FEET, THROUGH A CENTRAL ANGLE OF 05°52'41" TO THE SOUTHWEST CORNER OF A PARCEL OF LAND DESCRIBED IN OFFICIAL RECORDS BOOK 836, PAGE 2955, PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA; THENCE NORTH 06°42'48" EAST ALONG THE WESTERLY LINE OF SAID PARCEL, 276.82 FEET TO THE POINT OF INTERSECTION WITH THE MEAN HIGH WATER LINE OF THE INDIAN RIVER LYING ON THE WATERWARD FACE OF A VERTICAL BULKHEAD; THENCE ALONG SAID MEAN HIGH WATER LINE THE FOLLOWING COURSES AND DISTANCES: THENCE NORTH 83°53'21" WEST 14.35 FEET; THENCE NORTH 01°30'48" EAST 13.48 FEET; THENCE NORTH 85°40'40" WEST 15.32 FEET TO THE POINT OF INTERSECTION WITH THE EASTERLY LINE, AS MONUMENTED, OF A PARCEL DESCRIBED IN OFFICIAL RECORDS BOOK 1004, PAGE 2599, PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA; THENCE SOUTH 06°42'48" WEST 288.68 FEET TO THE POINT OF BEGINNING.

AND

PARCEL NO. 3
BEGINNING AT A POINT ONE HUNDRED SEVENTY AND EIGHTY HUNDREDTHS FEET (170.8 FEET), IN A WESTERLY DIRECTION FROM A CONCRETE MARKER ON THE NORTHEAST CORNER OF A TRACT OF LAND NOW OWNED BY JOHN STENROOD AS DESCRIBED IN DEED BOOK 182, PAGE 573-575, PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA; RUN THENCE IN A WESTERLY DIRECTION TWO HUNDRED FORTY (240) FEET; THENCE RUN IN A NORTHERLY DIRECTION TWO HUNDRED FIFTY-SEVEN (257) FEET; THENCE RUN IN AN EASTERLY DIRECTION A DISTANCE OF FIFTY (50) FEET; THENCE IN A SOUTHEASTERLY DIRECTION A DISTANCE OF TWO HUNDRED SEVENTY-SIX (276) FEET TO THE POINT OF BEGINNING, LYING AND BEING IN ST. LUCIE COUNTY, FLORIDA, CONTAINING 1.45 ACRES, MORE OR LESS.

ADA ACCESSIBILITY NOTES:

1. ALL ADA HANDICAPPED PARKING SPACES AND ACCESS AISLES ADJACENT TO THE HANDICAP PARKING SPACES SHALL HAVE A MAXIMUM OF 2% SLOPE IN ALL DIRECTIONS (THIS INCLUDES RUNNING SLOPE AND CROSS SLOPE).
2. IT WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENSURE THAT THE HANDICAP PARKING SPACES & ACCESSIBLE ROUTES ARE CONSTRUCTED TO MEET ADA REQUIREMENTS.
3. ANY REQUIREMENTS LISTED ABOVE THAT CAN NOT BE MET SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY. ANYTHING NOT BUILT TO THE ABOVE STANDARDS WILL REQUIRE REMOVAL AND REPLACEMENT OF THE NON COMPLIANT AREAS AT THE GENERAL CONTRACTOR'S COST.
4. ANY LIP FROM $\frac{1}{4}$" BUT NOT GREATER THAN $\frac{1}{2}$" WILL BE BEVELED TO MEET ADA REQUIREMENTS.

LUBIN ELITE ENGINEERING
-CIVIL ENGINEERS -PROJECT MANAGERS -LAND PLANNING
CREATING A BETTER TOMORROW THROUGH INNOVATION
7154 NORTH UNIVERSITY DRIVE
SUITE #131
TAMARAC, FL 33321
PHONE: 954-536-9058

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

DATUM: NAVD88

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT #: 25-0076
DRAWN BY: RLN
CHECKED BY: LJL
DATE: 2026-04-03
CAD ID: SITE

PROJECT:

#1057278 7-ELEVEN

FOR

1010 SEAWAY DREAM TEAM, LLC

PROJECT SITE LOCATION
1010 SEAWAY DRIVE
FORT PIERCE, FL 34949
ST.LUCIE COUNTY

This item has been digitally signed and sealed by Lens Joshua Lubin, PE, on the date adjacent to the seal. Signature must be verified on any electronic copies.

Lens J Lubin

LENS JOSHUA LUBIN, LICENSE No. 94189, STATE OF FLORIDA, PROFESSIONAL ENGINEER

SHEET TITLE: SITE LAYOUT PLAN

SHEET NUMBER: C-300

ORG. DATE - 2025-09-09

Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing is a residential building with two or three floors (levels) of residences. Various configurations fit this description, including the following:

- Walk-up apartment or multiplex—access to the individual dwelling units is typically internal to the structure and provided through a shared entry, stairway, and hallway.
- Mansion apartment with several dwelling units within what appears from the outside to be a single-family dwelling unit.
- Stacked townhouse designed to match the external appearance of a townhouse, but which has dwelling units that share both floors and walls and with access through a central entry and stairway.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there was an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Arizona, British Columbia (CAN), California, Delaware, Florida, Illinois, Maine, Massachusetts, Minnesota, New Jersey, New York, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, and Washington.

Source Numbers

357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076, 1219, 1236, 1265, 1267

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

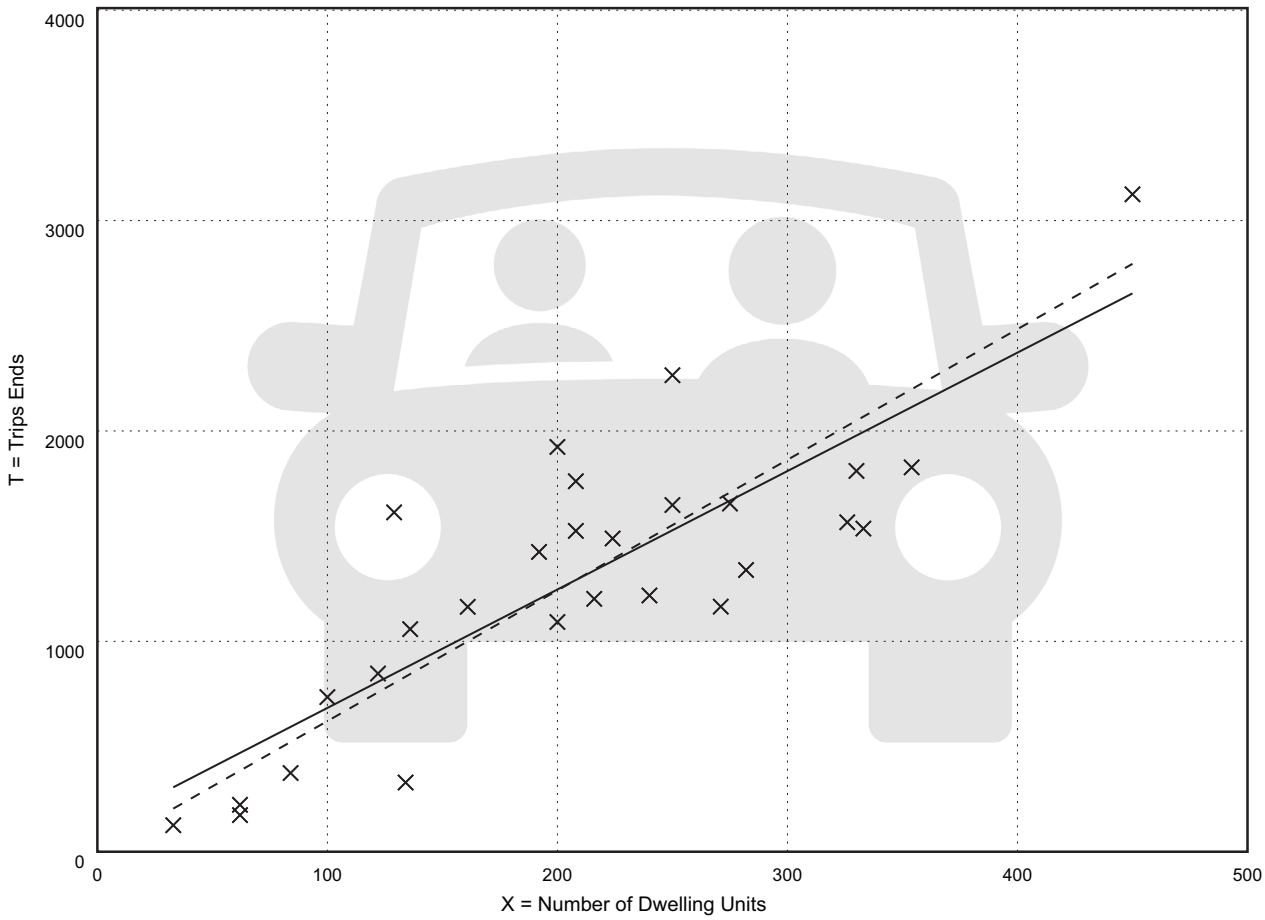
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 28
Avg. Num. of Dwelling Units: 208
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.21	2.46 - 12.50	1.87

Data Plot and Equation



Fitted Curve Equation: T = 5.63(X) + 120.45

R^2= 0.70

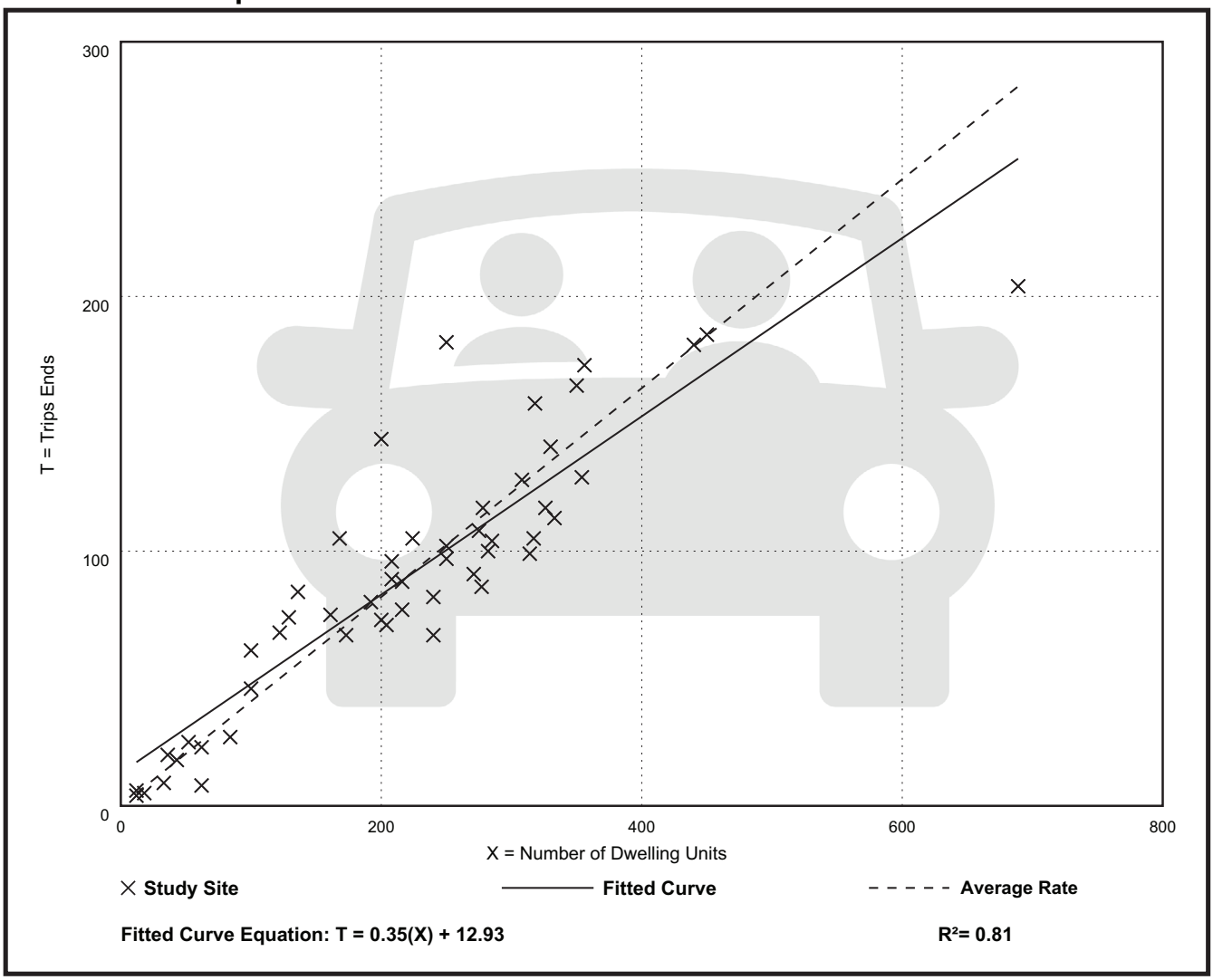
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
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:	51
Avg. Num. of Dwelling Units:	219
Directional Distribution:	24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.13 - 0.73	0.10

Data Plot and Equation



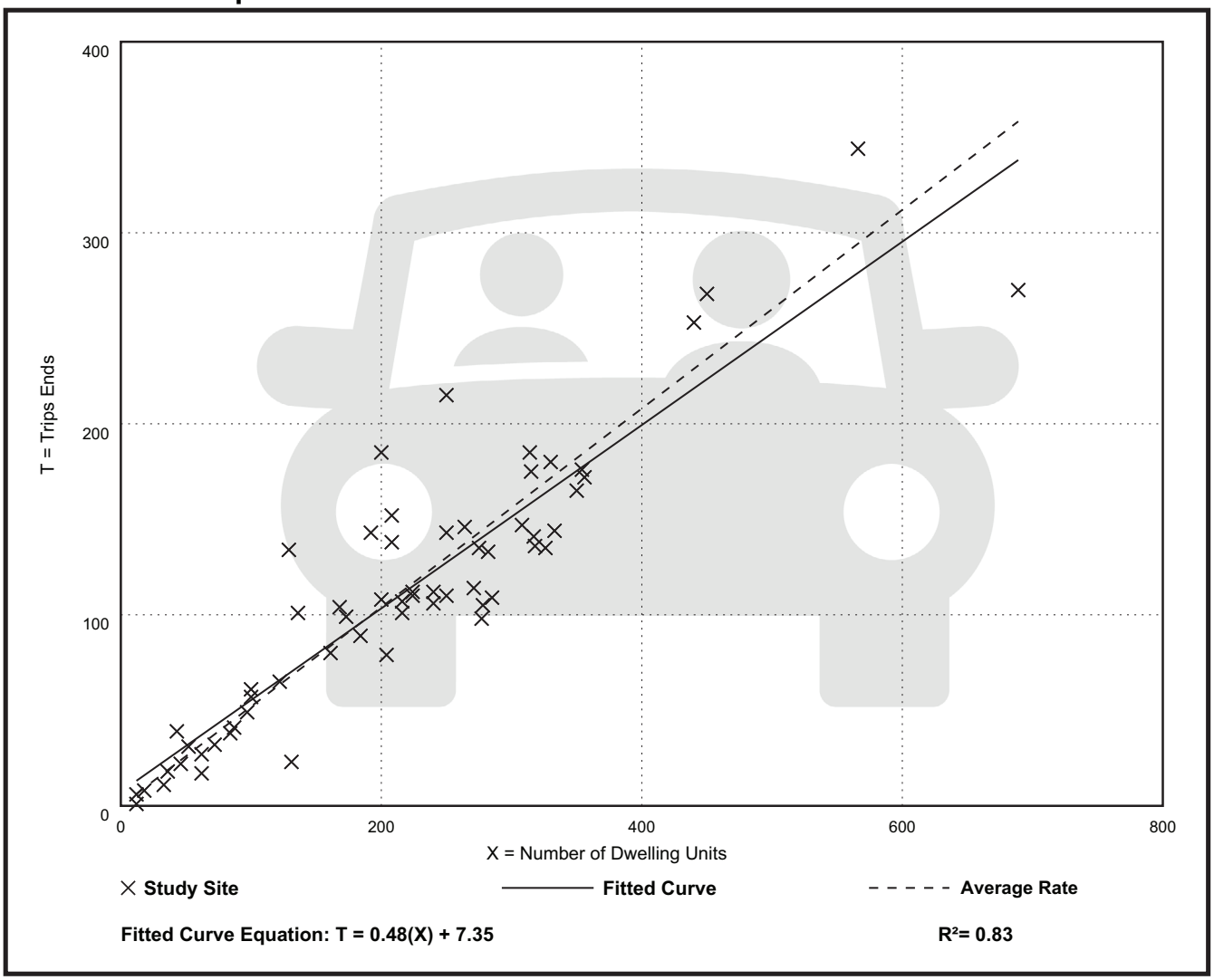
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
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:	61
Avg. Num. of Dwelling Units:	215
Directional Distribution:	62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.08 - 1.04	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.48(X) + 7.35

R^2= 0.83

Land Use: 945
Convenience Store/Gas Station

Description

A convenience store/gas station is a facility with a co-located convenience store and gas station. The convenience store sells groceries and other everyday items that a person may need or want as a matter of convenience. The gas station sells automotive fuels such as gasoline and diesel. The sites in this land use include both self-pump and attendant-pumped fueling positions and both pre-pay and post-pay operations.

A convenience store/gas station is typically located along a major thoroughfare to optimize motorist convenience. Extended hours of operation (with many open 24 hours, 7 days a week) are common at these facilities.

The convenience store product mix typically includes pre-packaged grocery items, beverages, dairy products, snack foods, confectionary, tobacco products, over-the-counter drugs, and toiletries. A convenience store may sell alcohol, often limited to beer and wine. Coffee and premade sandwiches are also commonly sold at a convenience store. Made-to-order food orders are sometimes offered. Some stores offer limited seating.

Convenience store (Land Use 851) is a related use.

Land Use Subcategory

Multiple subcategories were added to this land use to allow for multi-variable evaluation of sites with single-variable data plots. All study sites are assigned to one of four subcategories, based on the number of vehicle fueling positions (VFP) at the site: (1) between 2 and 8 VFP, (2) between 9 and 15 VFP, (3) between 16 and 24 VFP, and (4) more than 24 VFP. For each VFP range subcategory, data plots are presented with GFA as the independent variable for all time periods and trip types for which data are available. The use of both GFA and VFP (as the independent variable and land use subcategory, respectively) provides a significant improvement in the reliability of a trip generation estimate when compared to the single-variable data plots in prior editions of *Trip Generation Manual*.

Further, the study sites were also assigned to one of four other subcategories, based on the gross floor area (GFA) of the convenience store at the site: (1) between 2,000 and 4,000 square feet, (2) between 4,000 and 5,500 square feet, (3) between 5,500 and 10,000 square feet, and (4) greater than 10,000 square feet. For each GFA subcategory range, data plots are presented with VFP as the independent variable for all time periods and trip types for which data are available. The use of both VFP and GFA (as the independent variable and land use subcategory, respectively) provides a significant improvement in the reliability of a trip generation estimate when compared to the single-variable data plots in prior editions of *Trip Generation Manual*.

When analyzing the convenience store/gas station land use with each combination of GFA and VFP values as described above, the two sets of data plots will produce two estimates of site generated trips. Both values can be considered when determining a site trip generation estimate.

Data plots are also provided for three additional independent variables: AM peak hour traffic on adjacent street, PM peak hour traffic on adjacent street, and employees. These independent variables are intended to be analyzed as single independent variables and do not have subcategories associated with them. Within the data plots and within the ITETripGen web app, these plots are found under the land use subcategory “none.”

Additional Data

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Arizona, Arkansas, California, Delaware, Florida, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Minnesota, Nevada, New Hampshire, New Jersey, Ohio, Pennsylvania, South Dakota, Texas, Utah, Vermont, Washington, and Wisconsin.

Source Numbers

340, 350, 355, 359, 385, 617, 718, 810, 813, 844, 850, 853, 864, 865, 867, 869, 882, 883, 888, 904, 926, 927, 936, 938, 954, 960, 962, 1004, 1024, 1025, 1027, 1052, 1219, 1224, 1227, 1238, 1267

Convenience Store/Gas Station - GFA (2-4k) (945)

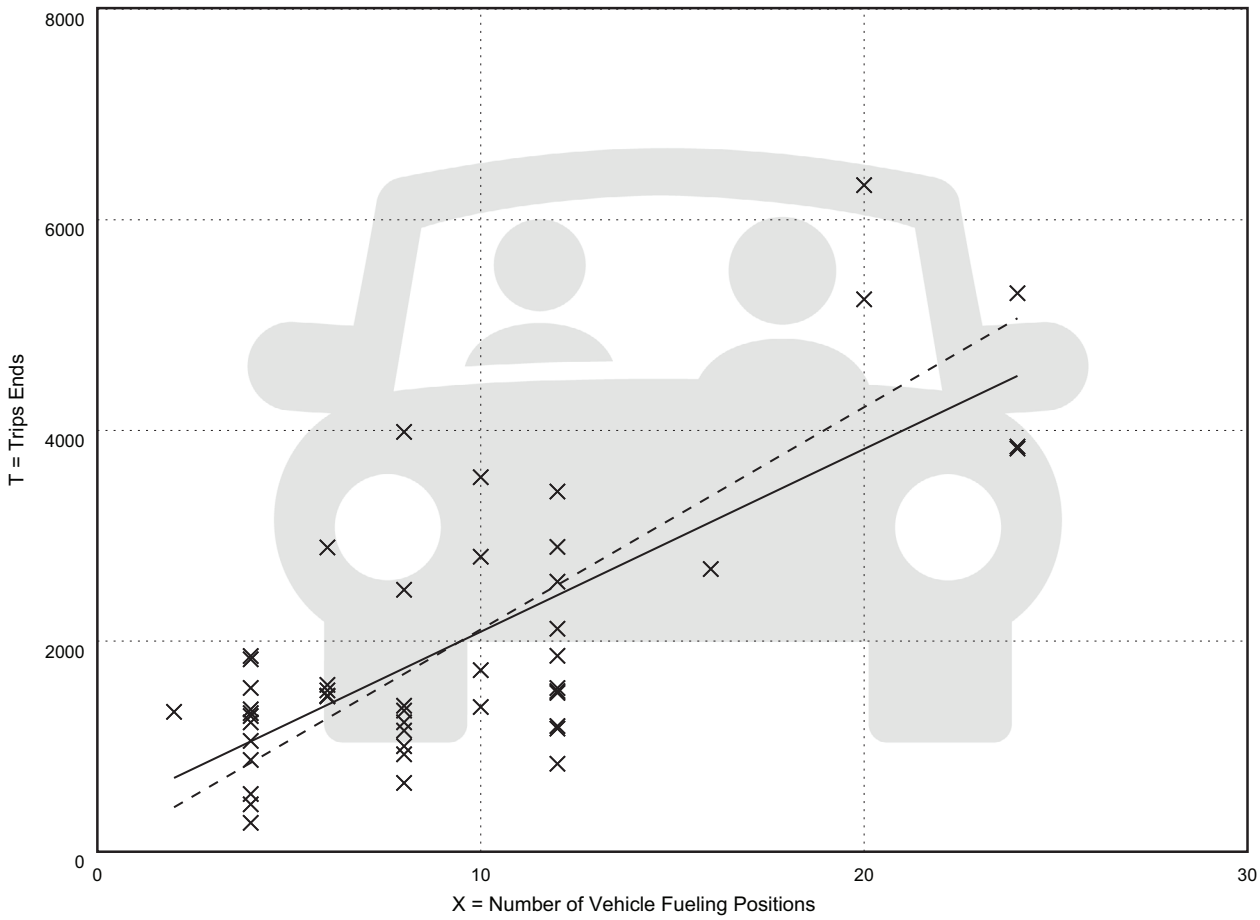
Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 48
Avg. Num. of Vehicle Fueling Positions: 9
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
211.05	68.50 - 664.00	102.55

Data Plot and Equation



Fitted Curve Equation: T = 173.51(X) + 353.51

R^2= 0.54

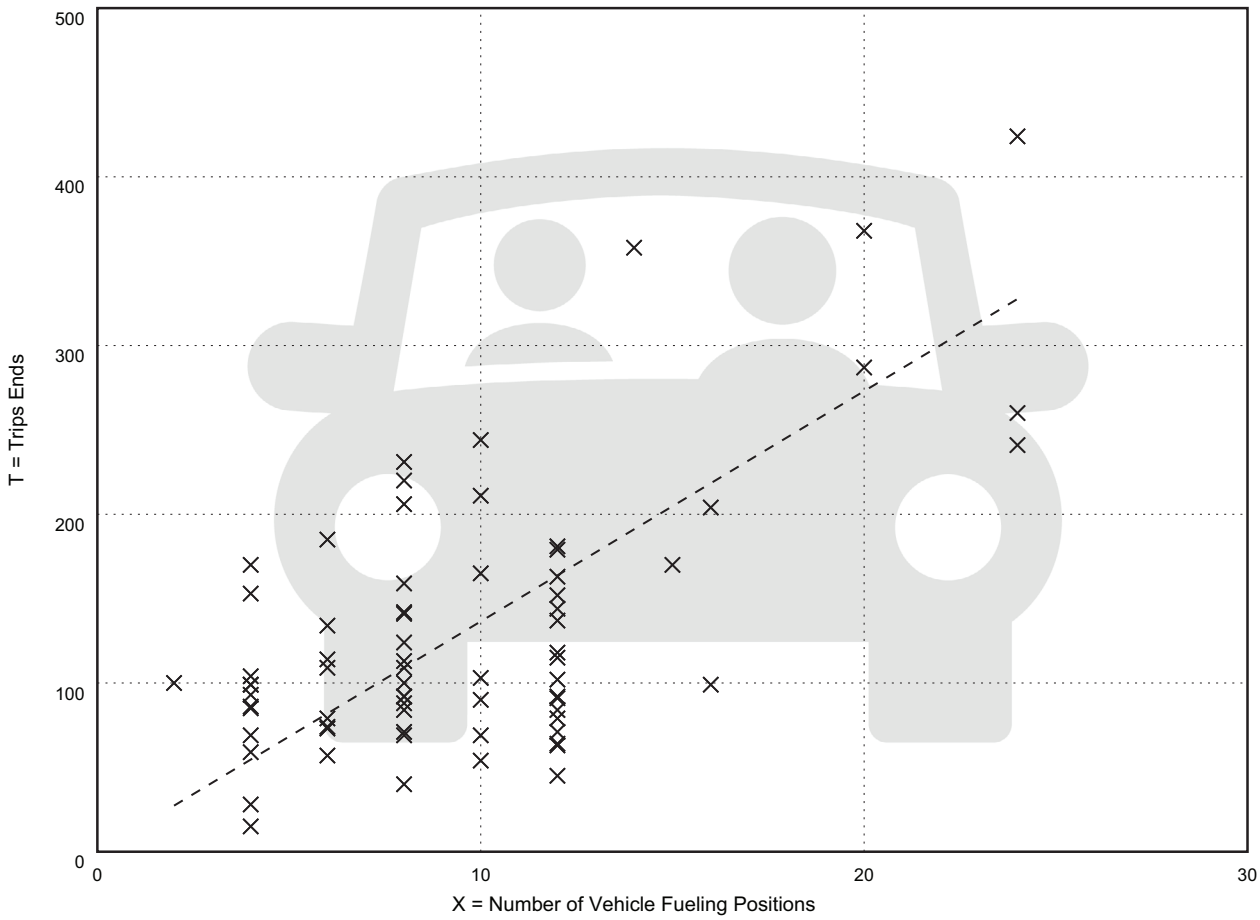
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs:	**Vehicle Fueling Positions**
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:	71
Avg. Num. of Vehicle Fueling Positions:	10
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
13.65	3.75 - 50.00	7.16

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

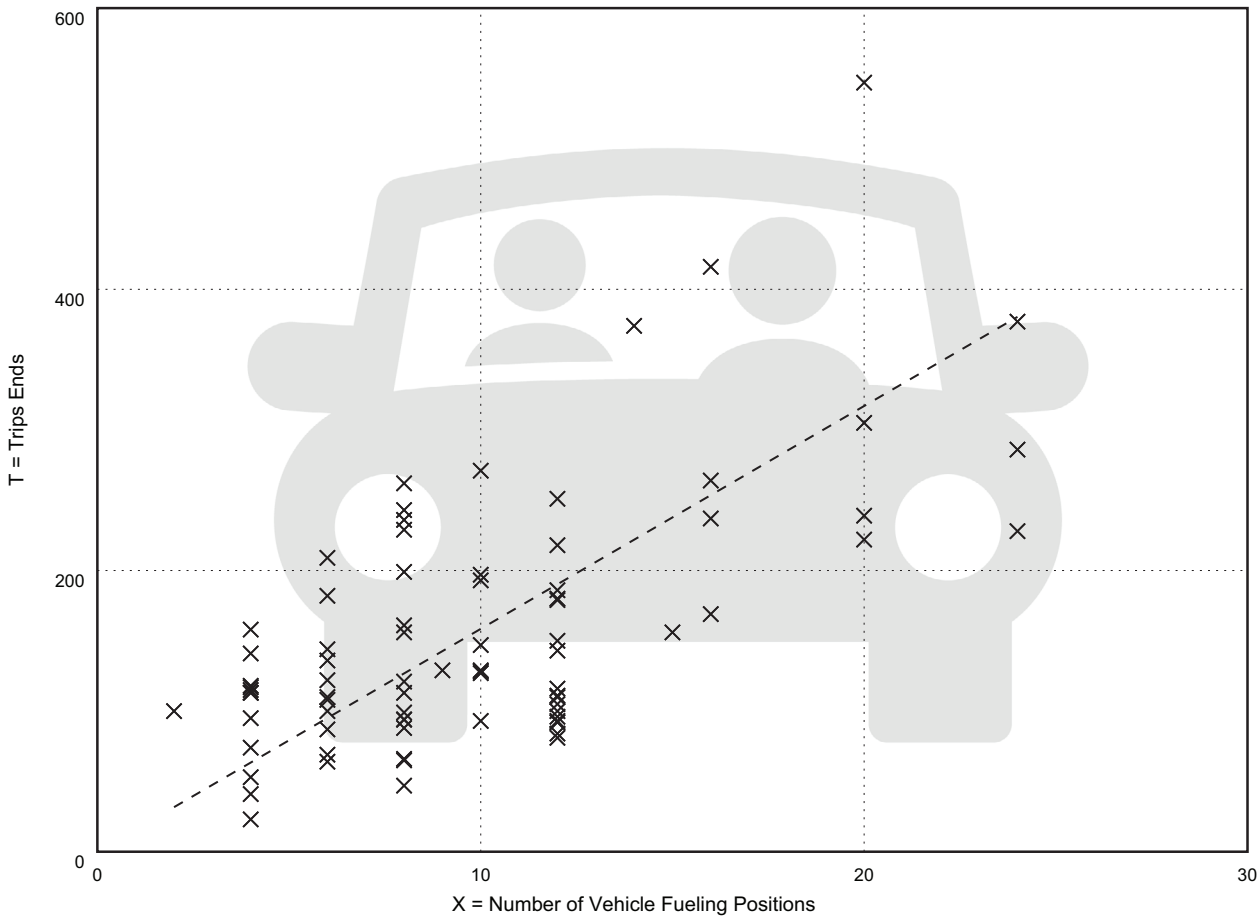
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs:	**Vehicle Fueling Positions**
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:	79
Avg. Num. of Vehicle Fueling Positions:	10
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
15.85	5.75 - 50.00	7.54

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

Convenience Store/Gas Station - GFA (2-4k) (945)

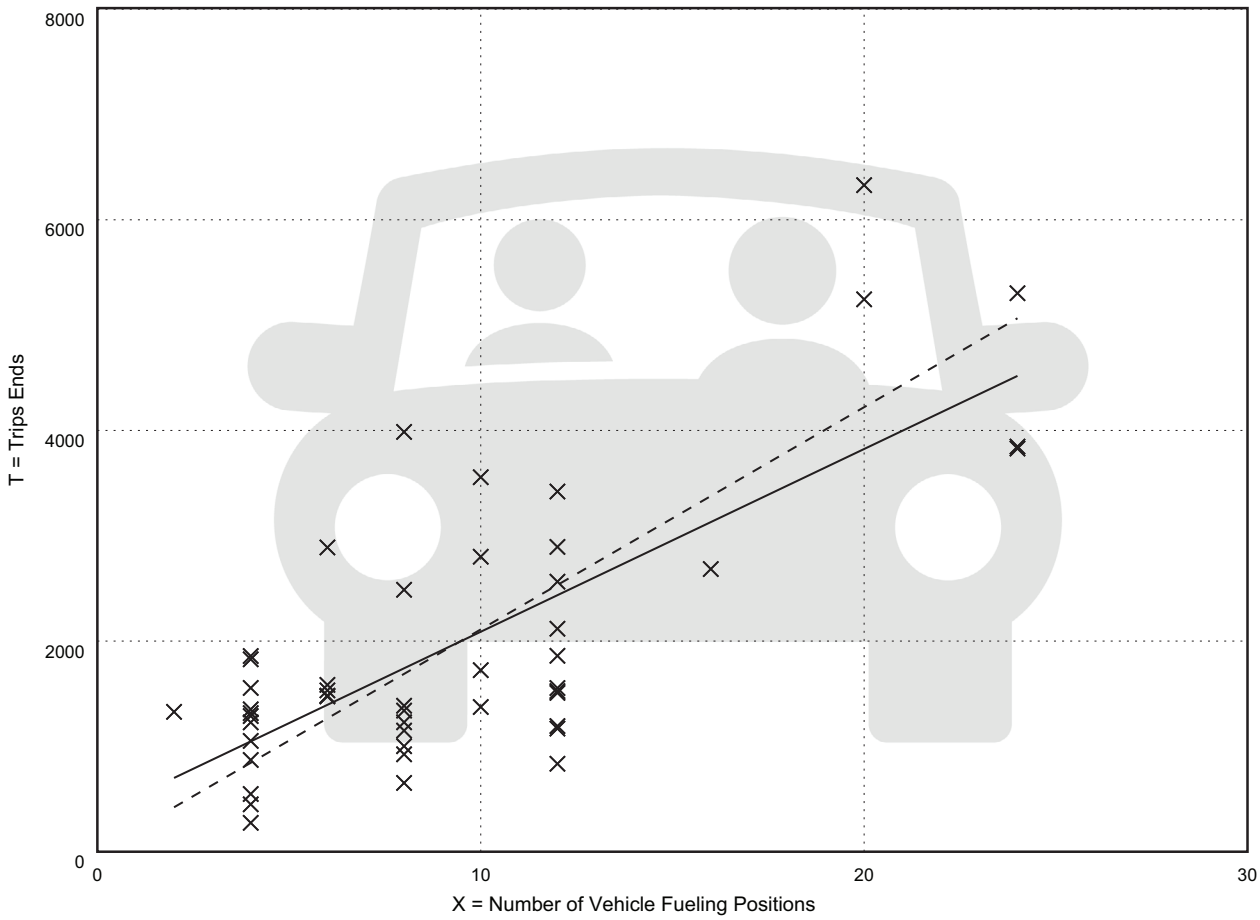
Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 48
Avg. Num. of Vehicle Fueling Positions: 9
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
211.05	68.50 - 664.00	102.55

Data Plot and Equation



Fitted Curve Equation: T = 173.51(X) + 353.51

R^2= 0.54

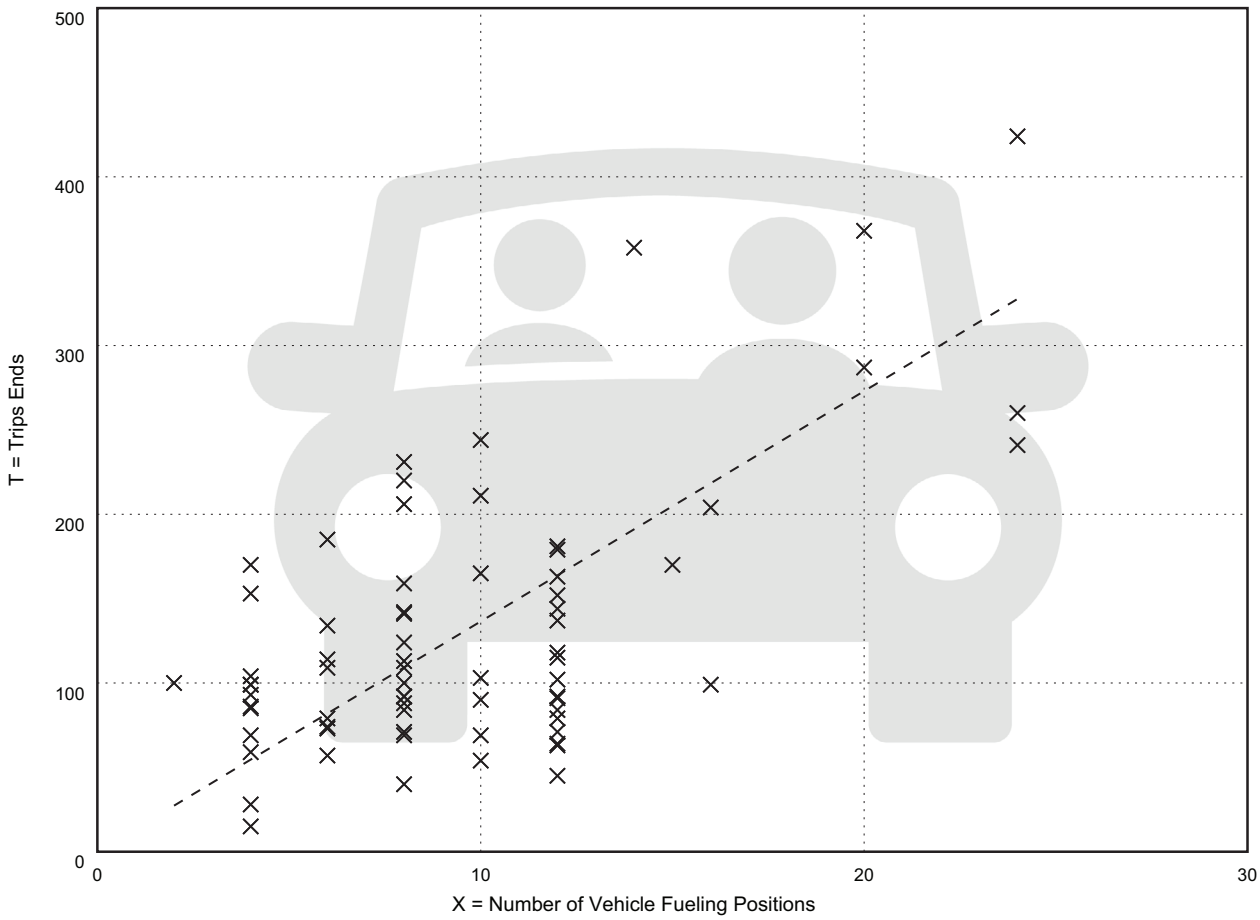
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs:	**Vehicle Fueling Positions**
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:	71
Avg. Num. of Vehicle Fueling Positions:	10
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
13.65	3.75 - 50.00	7.16

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

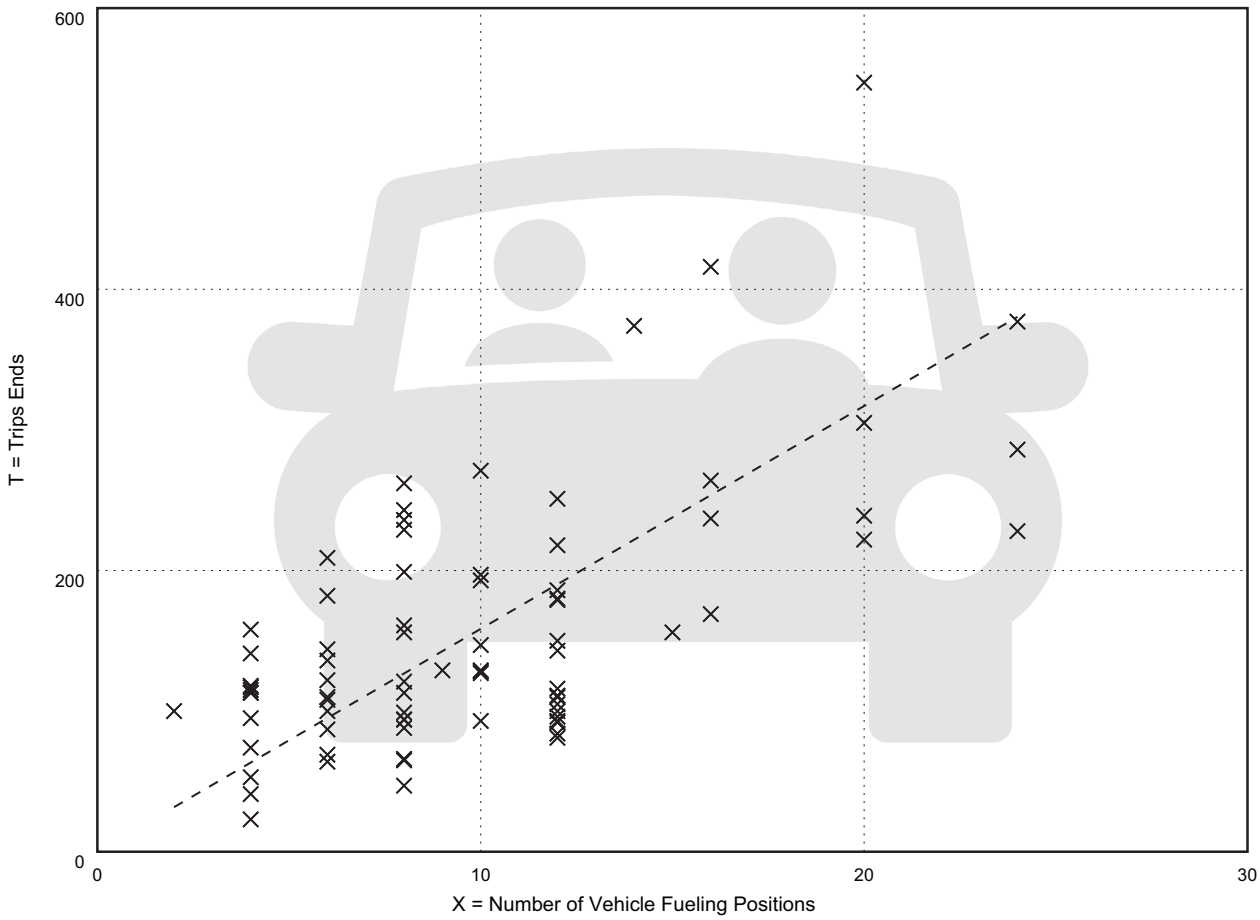
Convenience Store/Gas Station - GFA (2-4k) (945)

Vehicle Trip Ends vs:	**Vehicle Fueling Positions**
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:	79
Avg. Num. of Vehicle Fueling Positions:	10
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
15.85	5.75 - 50.00	7.54

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual*, 12th Edition

Land Use Code	945									
Land Use	Convenience Store/Gas Station									
Setting	General Urban/Suburban									
Time Period	Weekday AM Peak Period									
# Data Sites	16 Sites with between 2 and 8 VFP					28 Sites with between 9 and 20 VFP				
Average Pass-By Rate	60% for Sites with between 2 and 8 VFP					76% for Sites with between 9 and 20 VFP				
	Pass-By Characteristics for Individual Sites									
			Survey		Pass-By	Non-Pass-By Trips			Adj Street Peak	
GFA (000)	VFP	State or Province	Year	# Interviews	Trip (%)	Primary (%)	Diverted (%)	Total (%)	Hour Volume	Source
2	8	Maryland	1992	46	87	13	0	13	2235	25
2.1	6	Maryland	1992	26	58	23	19	42	2080	25
2.1	6	Maryland	1992	26	58	23	19	42	2080	25
2.2	8	Maryland	1992	31	47	34	19	53	1785	25
2.2	< 8	Indiana	1993	79	56	6	38	44	635	2
2.2	8	Maryland	1992	35	78	9	13	22	7080	25
2.3	6	Maryland	1992	37	32	41	27	68	2080	25
2.3	< 8	Kentucky	1993	58	64	5	31	36	1255	2
2.3	6	Maryland	1992	37	32	41	27	68	2080	25
2.4	< 8	Kentucky	1993	—	48	17	35	52	1210	2
2.6	< 8	Kentucky	1993	—	72	15	13	28	940	2
2.8	< 8	Kentucky	1993	—	54	11	35	46	1240	2
3	< 8	Indiana	1993	62	74	10	16	26	790	2
3.6	< 8	Kentucky	1993	49	67	4	29	33	1985	2
3.7	< 8	Kentucky	1993	49	66	16	18	34	990	2
4.694	12	Maryland	2000	—	72	—	—	28	2440	30
4.694	12	Maryland	2000	—	78	—	—	22	1561	30
4.694	12	Maryland	2000	—	79	—	—	21	2764	30
4.848	12	Virginia	2000	—	55	—	—	45	1398	30
5.06	12	Pennsylvania	2000	—	84	—	—	16	3219	30
5.242	12	Virginia	2000	—	74	—	—	26	1160	30
5.242	12	Virginia	2000	—	71	—	—	29	548	30
5.488	12	Delaware	2000	—	80	—	—	20	—	30
5.5	12	Pennsylvania	2000	—	85	—	—	15	2975	30
4.2	< 8	Kentucky	1993	47	62	19	19	38	1705	2
4.694	16	Maryland	2000	—	90	—	—	10	2278	30
4.694	16	Delaware	2000	—	74	—	—	26	2185	30
4.694	16	Delaware	2000	—	58	—	—	42	962	30
4.694	16	Delaware	2000	—	84	—	—	16	2956	30
4.694	16	New Jersey	2000	—	79	—	—	21	1859	30
4.694	20	Delaware	2000	—	84	—	—	16	3864	30
4.848	16	Virginia	2000	—	68	—	—	32	2106	30
4.848	16	Virginia	2000	—	85	—	—	15	2676	30
4.848	16	Virginia	2000	—	75	—	—	25	3244	30
4.848	16	Virginia	2000	—	71	—	—	29	1663	30
4.993	16	Pennsylvania	2000	—	75	—	—	25	1991	30
5.094	16	New Jersey	2000	—	86	—	—	14	1260	30
5.5	16	Pennsylvania	2000	—	82	—	—	18	1570	30
5.543	16	Pennsylvania	2000	—	84	—	—	16	1933	30
5.565	16	Pennsylvania	2000	—	77	—	—	23	2262	30
5.565	16	Pennsylvania	2000	—	68	—	—	32	2854	30
5.565	16	New Jersey	2000	—	58	—	—	42	1253	30
5.565	16	New Jersey	2000	—	79	—	—	21	1928	30
5.565	16	New Jersey	2000	---	84	---	---	16	1953	30

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual*, 12th Edition

Land Use Code	945									
Land Use	Convenience Store/Gas Station									
Setting	General Urban/Suburban									
Time Period	Weekday PM Peak Period									
# Data Sites	12 Sites with between 2 and 8 VFP					28 Sites with between 9 and 20 VFP				
Average Pass-By Rate	56% for Sites with between 2 and 8 VFP					75% for Sites with between 9 and 20 VFP				
	Pass-By Characteristics for Individual Sites									
			Survey		Pass-By	Non-Pass-By Trips			Adj Street Peak	
GFA (000)	VFP	State or Province	Year	# Interviews	Trip (%)	Primary (%)	Diverted (%)	Total (%)	Hour Volume	Source
2.1	8	Maryland	1992	31	52	13	35	48	1785	25
2.1	6	Maryland	1992	30	53	20	27	47	1060	25
2.2	< 8	Indiana	1993	115	48	16	36	52	820	2
2.3	< 8	Kentucky	1993	67	57	16	27	43	1954	2
2.3	6	Maryland	1992	55	40	11	49	60	2760	25
2.4	< 8	Kentucky	1993	—	58	13	29	42	2655	2
2.6	< 8	Kentucky	1993	68	67	15	18	33	950	2
2.8	< 8	Kentucky	1993	—	62	11	27	38	2875	2
3	< 8	Indiana	1993	80	65	15	20	35	1165	2
3.6	< 8	Kentucky	1993	60	56	17	27	44	2505	2
3.7	< 8	Kentucky	1993	70	61	16	23	39	2175	2
4.2	< 8	Kentucky	1993	61	58	26	16	42	2300	2
4.694	12	Maryland	2000	—	78	—	—	22	3549	30
4.694	12	Maryland	2000	—	67	—	—	33	2272	30
4.694	12	Maryland	2000	—	66	—	—	34	3514	30
4.848	12	Virginia	2000	—	71	—	—	29	2350	30
5.06	12	Pennsylvania	2000	—	91	—	—	9	4181	30
5.242	12	Virginia	2000	—	70	—	—	30	2445	30
5.242	12	Virginia	2000	—	56	—	—	44	950	30
5.488	12	Delaware	2000	—	73	—	—	27	—	30
5.5	12	Pennsylvania	2000	—	84	—	—	16	4025	30
4.694	16	Maryland	2000	—	89	—	—	11	2755	30
4.694	16	Delaware	2000	—	73	—	—	27	1858	30
4.694	16	Delaware	2000	—	59	—	—	41	1344	30
4.694	16	Delaware	2000	—	72	—	—	28	3434	30
4.694	16	New Jersey	2000	—	81	—	—	19	1734	30
4.694	20	Delaware	2000	—	76	—	—	24	1616	30
4.848	16	Virginia	2000	—	67	—	—	33	2.954	30
4.848	16	Virginia	2000	—	78	—	—	22	3086	30
4.848	16	Virginia	2000	—	83	—	—	17	4143	30
4.848	16	Virginia	2000	—	73	—	—	27	2534	30
4.993	16	Pennsylvania	2000	—	72	—	—	28	2917	30
5.094	16	New Jersey	2000	—	86	—	—	14	1730	30
5.5	16	Pennsylvania	2000	—	90	—	—	10	2616	30
5.543	16	Pennsylvania	2000	—	87	—	—	13	2363	30
5.565	16	Pennsylvania	2000	—	81	—	—	19	2770	30
5.565	16	Pennsylvania	2000	—	76	—	—	24	3362	30
5.565	16	New Jersey	2000	—	61	—	—	39	1713	30
5.565	16	New Jersey	2000	—	86	—	—	14	1721	30
5.565	16	New Jersey	2000	---	81	---	---	19	2227	30