

Sweet Acacia

3939 Powerline Road
Oakland Park, Florida

TRAFFIC STUDY

prepared for:
Radonic Corporation

KBP CONSULTING, INC.

May 2021
Updated December 2021

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Traffic Study

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Prepared for:
Radonic Corporation

Prepared by:
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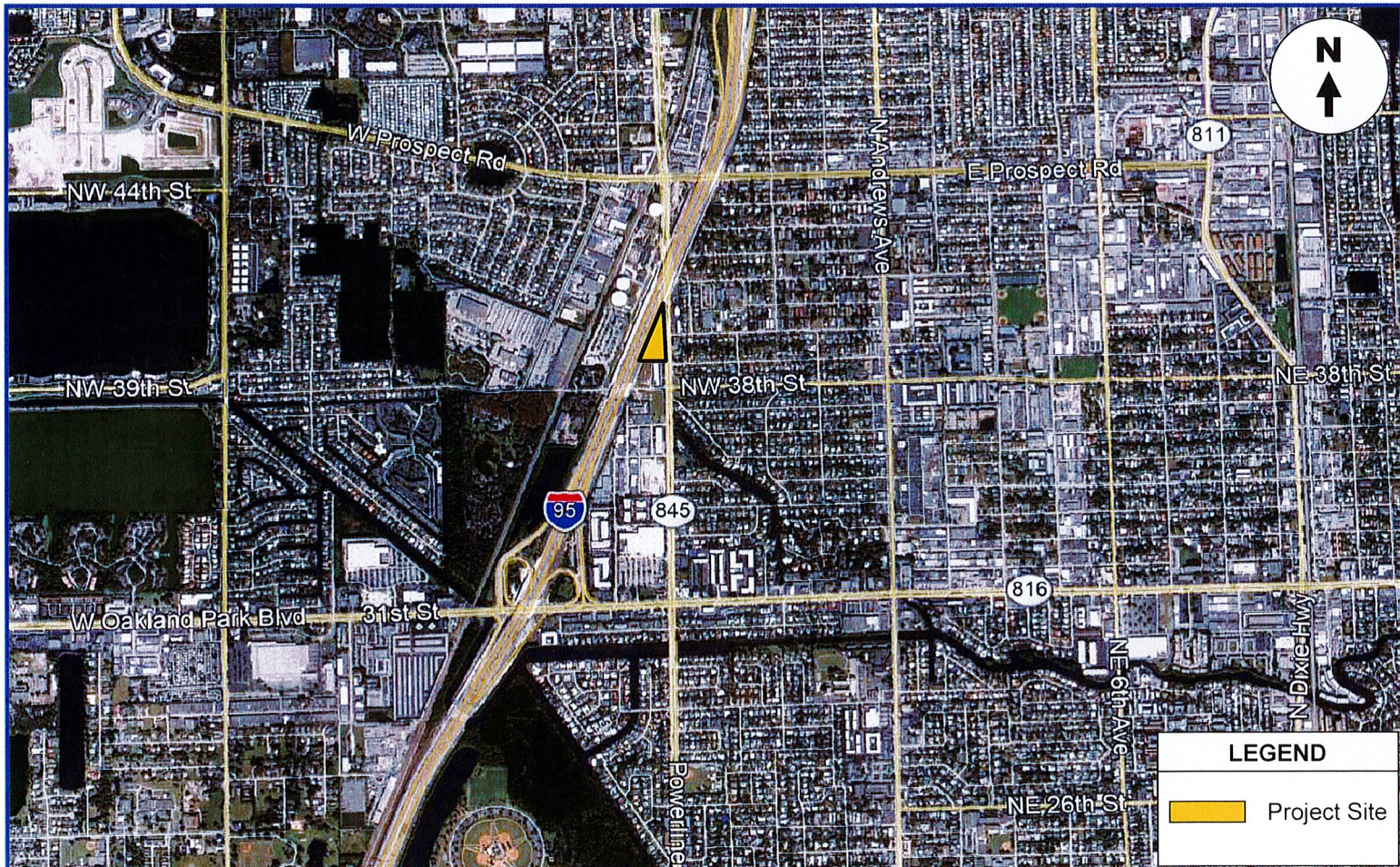
INTRODUCTION

Sweet Acacia is a proposed mixed-use building (residential and office uses) to be located on the west side of Powerline Road (State Road 845) generally between NW 39th Street and NW 40th Street in Oakland Park, Broward County, Florida. The location of this project site is illustrated in Figure 1 on the following page.

KBP Consulting, Inc. has been retained by Radonic Corporation to conduct a traffic study in connection with this proposed development. This study addresses the anticipated trip generation characteristics of the subject mixed-use building, the projected turning movement volumes at the project driveways, and the capacity / level of service characteristics of the nearby roadway network.

This traffic study is divided into five (5) sections, as listed below:

1. Inventory
2. Trip Generation
3. Trip Distribution and Traffic Assignment
4. Capacity / Level of Service Analyses
5. Summary & Conclusions



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Project Location Map

FIGURE 1
Sweet Acacia
Oakland Park, Florida

INVENTORY

Existing Land Use and Access

The subject +/- 1.1399-acre (49,656 square feet) site is comprised of two (2) parcels and is currently vacant. The Broward County Folio Numbers for these parcels are as follows:

- 4942 21 38 0010
- 4942 21 00 0051

There is a shared right-turn in / right-turn out only driveway (with an exclusive southbound right-turn lane) on Powerline Road along the south side of the site that provides vehicular access to the subject site as well as to the existing office / retail building to the south.

Proposed Land Uses and Access

The subject site will be developed with a +/- 42,857 square foot mixed-use building consisting of both residential and office uses. The proposed development plan includes 26 multifamily residential dwelling units and 6,883 square feet of general office space. Vehicular access will be provided via the existing right-turn in / right-turn out only driveway on Powerline Road and a new left-turn in / right-turn in / right-turn out only driveway on Powerline Road in the northern portion of the site. Appendix A contains the proposed site plan for the project.

Roadway System

Powerline Road (State Road 845) is located adjacent to the project site. This state-maintained arterial roadway is generally oriented in the north-south direction. Within the immediate project study area, this roadway is a six-lane divided facility with (3) northbound lanes and three (3) southbound lanes, a posted speed limit of 45 miles per hour (mph) and an FDOT access classification of "5". Prospect Road is located north of the site. This east-west minor arterial roadway is a four-lane divided facility with recently implemented bicycle lanes east of Powerline Road. And NW 38th Street is located south of the site. This two-lane collector roadway is oriented in the east-west direction and has bicycle lanes on both sides.

Transit Service

Transit service in this area is provided by Broward County Transit via Route 14. This route provides service between the Deerfield Mall (at Powerline Road and Hillsboro Boulevard) and the Broward Central Terminal in Fort Lauderdale. Service is provided seven (7) days per week and bus stops near the subject Sweet Acacia site are provided at the intersection of Powerline Road and NW 38th Street, approximately 350 feet south of the site.

TRIP GENERATION

A trip generation analysis has been conducted for the proposed mixed-use building. This analysis was performed using the trip generation rates and equations published in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual (11th Edition)*. The trip generation analysis was undertaken for daily, AM peak hour, and PM peak hour conditions. According to the referenced ITE report, the most appropriate "land use" categories (and corresponding trip generation equations) for the proposed development are as follows:

ITE Land Use #221 – Multifamily Housing (Mid-Rise)

- Weekday: $T = 4.54 (X)$
where T = number of trips and X = number of dwelling units
- AM Peak: $T = 0.37 (X)$ (23% in / 77% out)
- PM Peak: $T = 0.39 (X)$ (61% in / 39% out)

ITE Land Use #712 – Small Office Building

- Weekday: $T = 14.39 (X)$
where T = number of trips and X = 1,000 square feet of gross floor area
- AM Peak: $T = 1.67 (X)$ (82% in / 18% out)
- PM Peak: $T = 2.16 (X)$ (34% in / 66% out)

Utilizing the above-listed trip generation equations from the referenced ITE manual, a trip generation analysis was undertaken for the proposed mixed-use building. The results of this effort are documented in Table 1 below. Excerpts from the referenced ITE manual are presented in Appendix B.

Table 1 Sweet Acacia Trip Generation Analysis Oakland Park, Florida								
Land Use	Size	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Proposed								
Multifamily Housing (Mid-Rise)	26 DU	118	2	8	10	6	4	10
Small Office Building	6,883 SF	99	9	2	11	5	10	15
Total		217	11	10	21	11	14	25

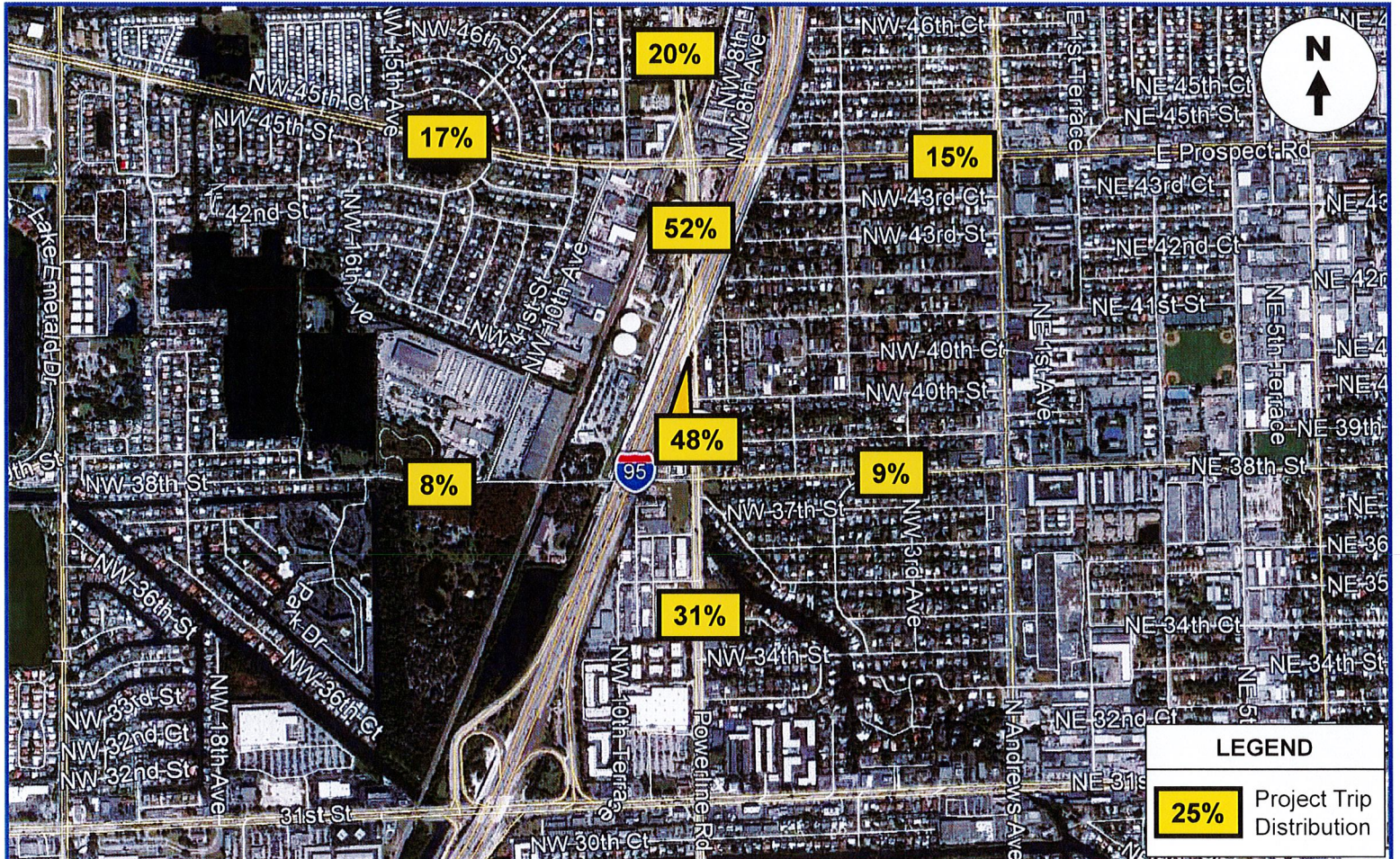
Compiled by: KBP Consulting, Inc. (December 2021).

Source: ITE Trip Generation Manual (11th Edition).

As indicated in Table 1 on the previous page, the proposed mixed-use building is anticipated to generate approximately 217 daily vehicle trips, approximately 21 AM peak hour vehicle trips (11 inbound and 10 outbound) and approximately 25 vehicle trips (11 inbound and 14 outbound) during the typical afternoon peak hour.

TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

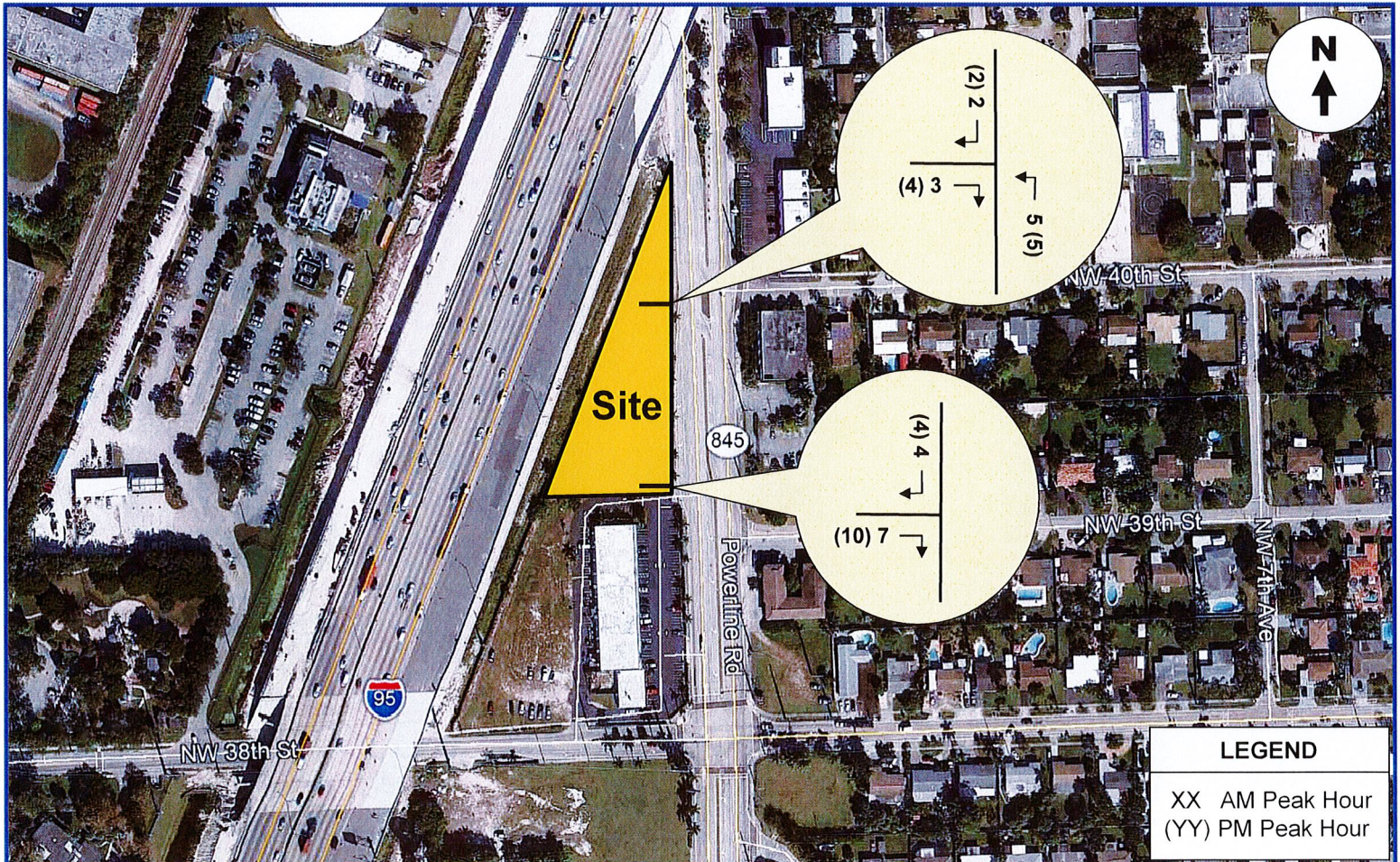
The trip distribution and traffic assignment for the proposed Sweet Acacia mixed-use building was developed based upon knowledge of the study area, examination of the surrounding roadway network characteristics, review of current traffic volumes, and existing land use patterns. Figure 2 on the following page depicts the anticipated trip distribution for this project. The AM and PM peak hour traffic generated by the project was assigned to the project driveways using the traffic assignment documented above. This driveway traffic assignment is summarized in Figure 3.



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Trip Distribution

FIGURE 2
Sweet Acacia
Oakland Park, Florida



CAPACITY / LEVEL OF SERVICE ANALYSES

Capacity / level of service (LOS) and project traffic impact analyses have been performed for each of the roadway segments in the immediate vicinity of the proposed Sweet Acacia building. These analyses are based upon the latest roadway capacity, volume and LOS information published by the Broward Metropolitan Planning Organization (MPO). Table 2 below presents the daily traffic analysis for the project study area.

Table 2 Daily Capacity / Level of Service Analysis ¹ Sweet Acacia - Oakland Park, Florida										
ID	Roadway	From	To	Daily Roadway Capacity (vpd)	Existing Daily		Daily Project Traffic		Total Daily	
					Vol. (vpd)	LOS	Vol. (vpd)	% Impact	Vol. (vpd)	LOS
661	Powerline Road	Oakland Park	NW 38th St	59,900	26,500	C	67	0.11%	26,567	C
661	Powerline Road	NW 38th St	Project Site	59,900	26,500	C	104	0.17%	26,604	C
661	Powerline Road	Project Site	Prospect Rd	59,900	26,500	C	113	0.19%	26,613	C
663	Powerline Road	Prospect Rd	Commercial	59,900	28,500	C	43	0.07%	28,543	C
614	NW 38th St	NW 21st Ave	Powerline Rd	13,320	6,800	D	17	0.13%	6,817	D
616	NE/NW 38th St	Powerline Rd	Dixie Hwy	13,320	7,200	D	20	0.15%	7,220	D
632	Prospect Road	Commercial	Powerline Rd	37,810	16,500	C	37	0.10%	16,537	C
634	Prospect Road	Powerline Rd	Andrews Ave	30,780	22,000	D	33	0.11%	22,033	D

Compiled by: KBP Consulting, Inc. (December 2021).

¹ Roadway capacities, volumes, and levels of service obtained from the latest Broward County Capacity and Level of Service tables published by the Broward MPO.

And the PM peak hour traffic analysis for the project study area is presented in Table 3 below.

Table 3 PM Peak Hour Capacity / Level of Service Analysis ¹ Sweet Acacia - Oakland Park, Florida										
ID	Roadway	From	To	Peak Hour Roadway Capacity (vph)	Existing Peak Hour		Peak Hour Project Traffic		Total Peak Hour	
					Vol. (vph)	LOS	Vol. (vph)	% Impact	Vol. (vph)	LOS
661	Powerline Road	Oakland Park	NW 38th St	5,390	2,518	C	8	0.15%	2,526	C
661	Powerline Road	NW 38th St	Project Site	5,390	2,518	C	12	0.22%	2,530	C
661	Powerline Road	Project Site	Prospect Rd	5,390	2,518	C	13	0.24%	2,531	C
663	Powerline Road	Prospect Rd	Commercial	5,390	2,708	C	5	0.09%	2,713	C
614	NW 38th St	NW 21st Ave	Powerline Rd	1,197	646	D	2	0.17%	648	D
616	NE/NW 38th St	Powerline Rd	Dixie Hwy	1,197	684	D	2	0.17%	686	D
632	Prospect Road	Commercial	Powerline Rd	3,401	1,568	C	4	0.12%	1,572	C
634	Prospect Road	Powerline Rd	Andrews Ave	2,774	2,090	D	4	0.14%	2,094	D

Compiled by: KBP Consulting, Inc. (December 2021).

¹ Roadway capacities, volumes, and levels of service obtained from the latest Broward County Capacity and Level of Service tables published by the Broward MPO.

As indicated in Tables 2 and 3 on the previous page, the traffic impacts on each of the study area roadway segments are all well below 1.0% and are, therefore considered to be “de minimis” or, negligible. Furthermore, the traffic associated with the Sweet Acacia project do not cause any of the roadway segments within the study area to degrade below LOS “C”. Three (3) of the study area roadway segments (NW 38th Street between NW 21st Avenue and Powerline Road, NW 38th Street between Powerline Road and Dixie Highway, and Prospect Road between Powerline Road and Andrews Avenue) are already operating at LOS “D”; however, the traffic associated with the subject project does not cause the LOS to degrade further.

SUMMARY & CONCLUSIONS

Sweet Acacia is a proposed mixed-use building (residential and office uses) to be located on the west side of Powerline Road (State Road 845) generally between NW 39th Street and NW 40th Street in Oakland Park, Broward County, Florida. The subject +/- 1.1399-acre (49,656 square feet) site is comprised of two (2) parcels and is currently vacant. The subject site will be developed with a +/- 42,857 square foot mixed-use building consisting of both residential and office uses. The proposed development plan includes 26 multifamily residential dwelling units and 6,883 square feet of general office space. Vehicular access will be provided via the existing right-turn in / right-turn out only driveway on Powerline Road and a new left-turn in / right-turn in / right-turn out only driveway on Powerline Road in the northern portion of the site.

The proposed mixed-use building is anticipated to generate approximately 217 daily vehicle trips, approximately 21 AM peak hour vehicle trips (11 inbound and 10 outbound) and approximately 25 vehicle trips (11 inbound and 14 outbound) during the typical afternoon peak hour.

And, as indicated by the capacity / level of service analyses, the traffic impacts on each of the study area roadway segments are all well below 1.0% and are, therefore considered to be “de minimis” or, negligible. Furthermore, the traffic associated with the Sweet Acacia project do not cause any of the roadway segments within the study area to degrade below LOS “C”. Three (3) of the study area roadway segments (NW 38th Street between NW 21st Avenue and Powerline Road, NW 38th Street between Powerline Road and Dixie Highway, and Prospect Road between Powerline Road and Andrews Avenue) are already operating at LOS “D”; however, the traffic associated with the subject project does not cause the LOS to degrade further.

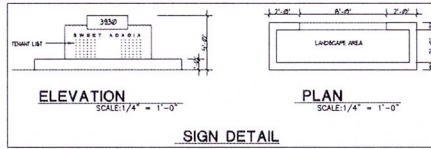
APPENDIX A

Sweet Acacia

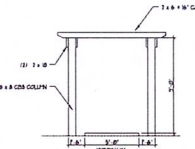
Site Plan

GENERATOR DETAILS

UNICO PROPOSED NATURAL GAS GENERATOR 750 KVA
DIMENSIONS: 11'0" x 32'0" x 10'0"



SIGN DETAIL



TRELLIS DETAIL

Miguel Sanchez
2021.11.03
10:43:24

SITE DATA

CURRENT USE	VACANT
LAND USE DESIGNATION	COMMERCIAL
ZONING DESIGNATION	PD20
UTILITY PROVIDER	CITY OF OAKLAND PARK
TOTAL AREA OF SITE	43,846 SF. 1,035 ACRES
ORDER AREA OF SITE	43,846 SF. 1,035 ACRES
GROUND FLOOR FLOOR FOOTPRINT	4,881 SF. 0.11 ACRES
PARKING STRUCTURE FOOTPRINT	3,545 SF. 0.08 ACRES

BUILDING DATA

OCCUPANCY TYPE	30' x 70' (PROPOSED)
BUILDING TYPE	TYPE 1A (REPRESENTATIVE)
PAVING & LANDSCAPE AREA	7,000 SF. 0.16 ACRES
VEGETABLE AREA	3,125 SF. 0.07 ACRES
LANDSCAPE AREA	3,831 SF. 0.09 ACRES
BUILDING FOOTPRINT	4,881 SF. 0.11 ACRES
FLOOR AREA RATIO (FAR)	0.11

FIRST FLOOR AREA (OFFICES)	4,881 SF.
SECOND FLOOR AREA (RESIDENTIAL CLUB ROOM)	5,555 SF.
THIRD FLOOR AREA (RESIDENTIAL)	8,000 SF.
FOURTH FLOOR AREA (RESIDENTIAL)	8,000 SF.
FIFTH FLOOR AREA (RESIDENTIAL)	8,000 SF.

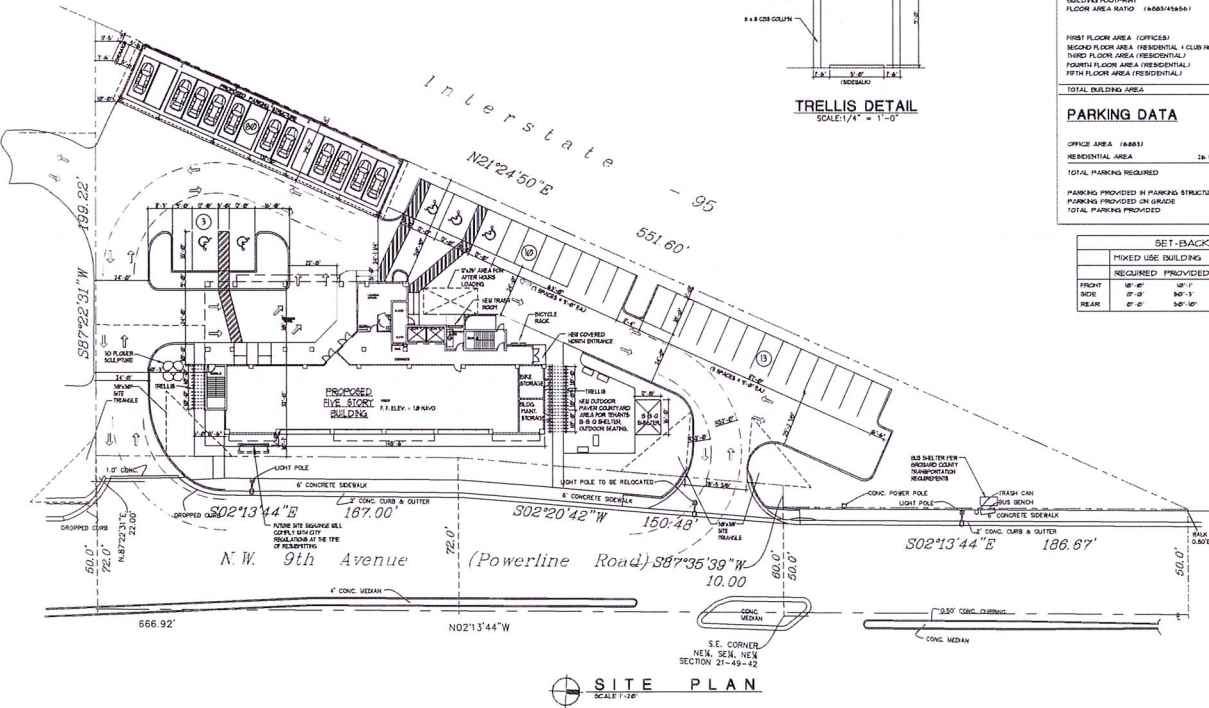
TOTAL BUILDING AREA 42,861 SF.

PARKING DATA

OFFICE AREA (4,881)	4,881 x 300 = 1,464 SPACES
RESIDENTIAL AREA	26 UNITS x 2 / UNIT = 52 SPACES
TOTAL PARKING REQUIRED	14 SPACES (11 HIC)
PARKING PROVIDED IN PARKING STRUCTURE	50 SPACES
PARKING PROVIDED ON GRADE	26 SPACES (INCL. 9 HIC)
TOTAL PARKING PROVIDED	76 SPACES (INCL. 9 HIC)

SET-BACK TABLE

	MIXED USE BUILDING	PARKING STRUCTURE
REQUIRED PROVIDED	REQUIRED PROVIDED	REQUIRED PROVIDED
FRONT	10'-0"	10'-0"
SIDE	10'-0"	10'-0"
REAR	10'-0"	10'-0"



SITE PLAN

DATE	BY	REVISIONS
11/03/21	Miguel Sanchez	1
11/03/21	Miguel Sanchez	2
11/03/21	Miguel Sanchez	3
11/03/21	Miguel Sanchez	4
11/03/21	Miguel Sanchez	5
11/03/21	Miguel Sanchez	6
11/03/21	Miguel Sanchez	7
11/03/21	Miguel Sanchez	8
11/03/21	Miguel Sanchez	9
11/03/21	Miguel Sanchez	10



SWEET ACACIA
FIVE STORY MIXED USE BUILDING

MS ARCHITECTS, INC.
ARCHITECTS, PLANNERS
100 N.W. 10th Ave, Suite 1000
Fort Lauderdale, Florida 33315
(954) 561-1111
www.msarchitects.com



AS-1

Sheet 1

APPENDIX B

**Relevant Excerpts from the ITE
*Trip Generation Manual (11th Edition)***

Land Use: 221

Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments and condominiums located in a building that has between four and 10 floors of living space. Access to individual dwelling units is through an outside building entrance, a lobby, elevator, and a set of hallways.

Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), off-campus student apartment (mid-rise) (Land Use 226), and mid-rise residential with ground-floor commercial (Land Use 231) are related land uses.

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 six sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.5 residents per occupied dwelling unit.

For the five sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96 percent of the total dwelling units were occupied.

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/>).

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 Alberta (CAN), California, District of Columbia, Florida, Georgia, Illinois, Maryland, Massachusetts, Minnesota, Montana, New Jersey, New York, Ontario (CAN), Oregon, Utah, and Virginia.

Source Numbers

168, 188, 204, 305, 306, 321, 818, 857, 862, 866, 901, 904, 910, 949, 951, 959, 963, 964, 966, 967, 969, 970, 1004, 1014, 1022, 1023, 1025, 1031, 1032, 1035, 1047, 1056, 1057, 1058, 1071, 1076

Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 11

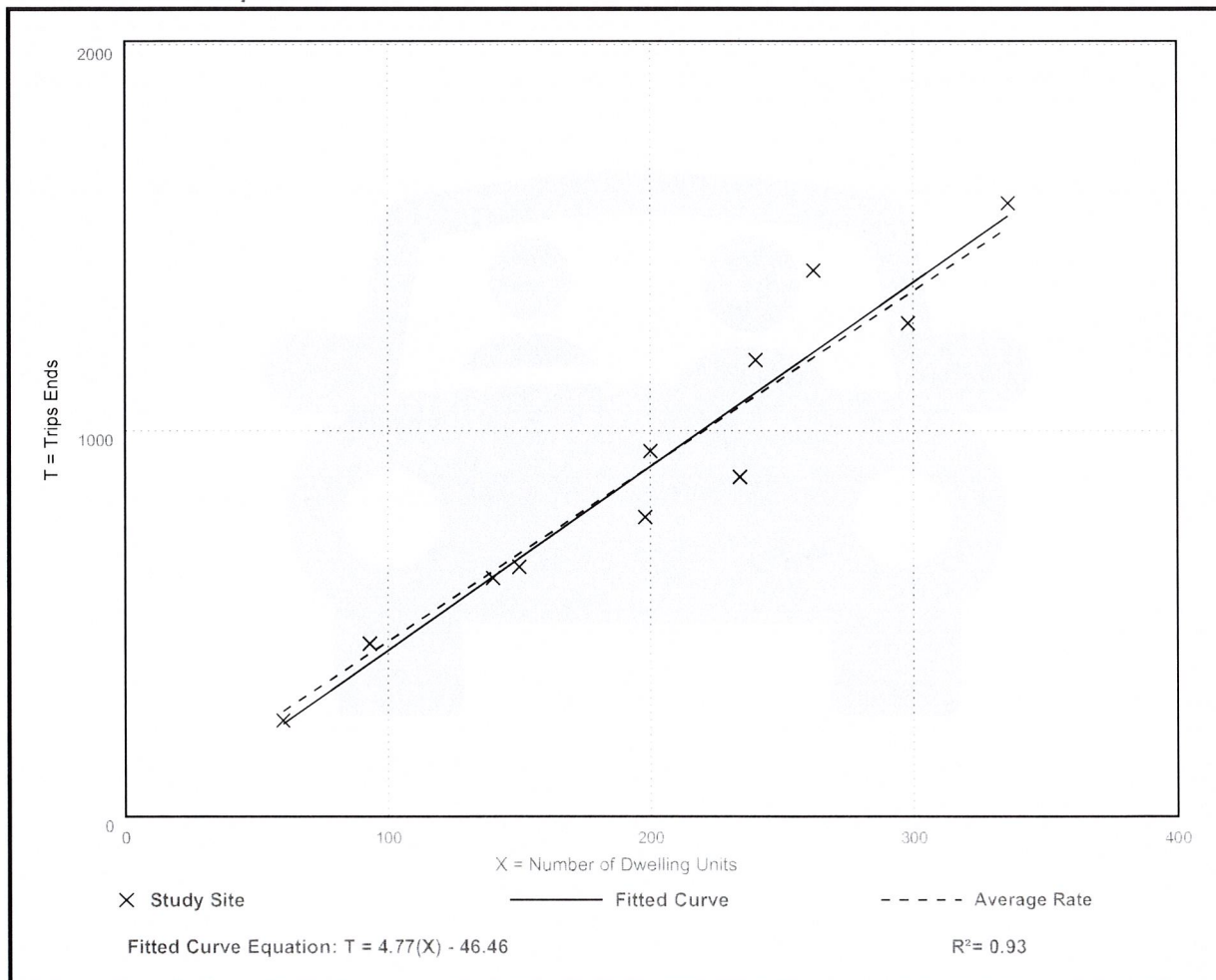
Avg. Num. of Dwelling Units: 201

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

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: 30

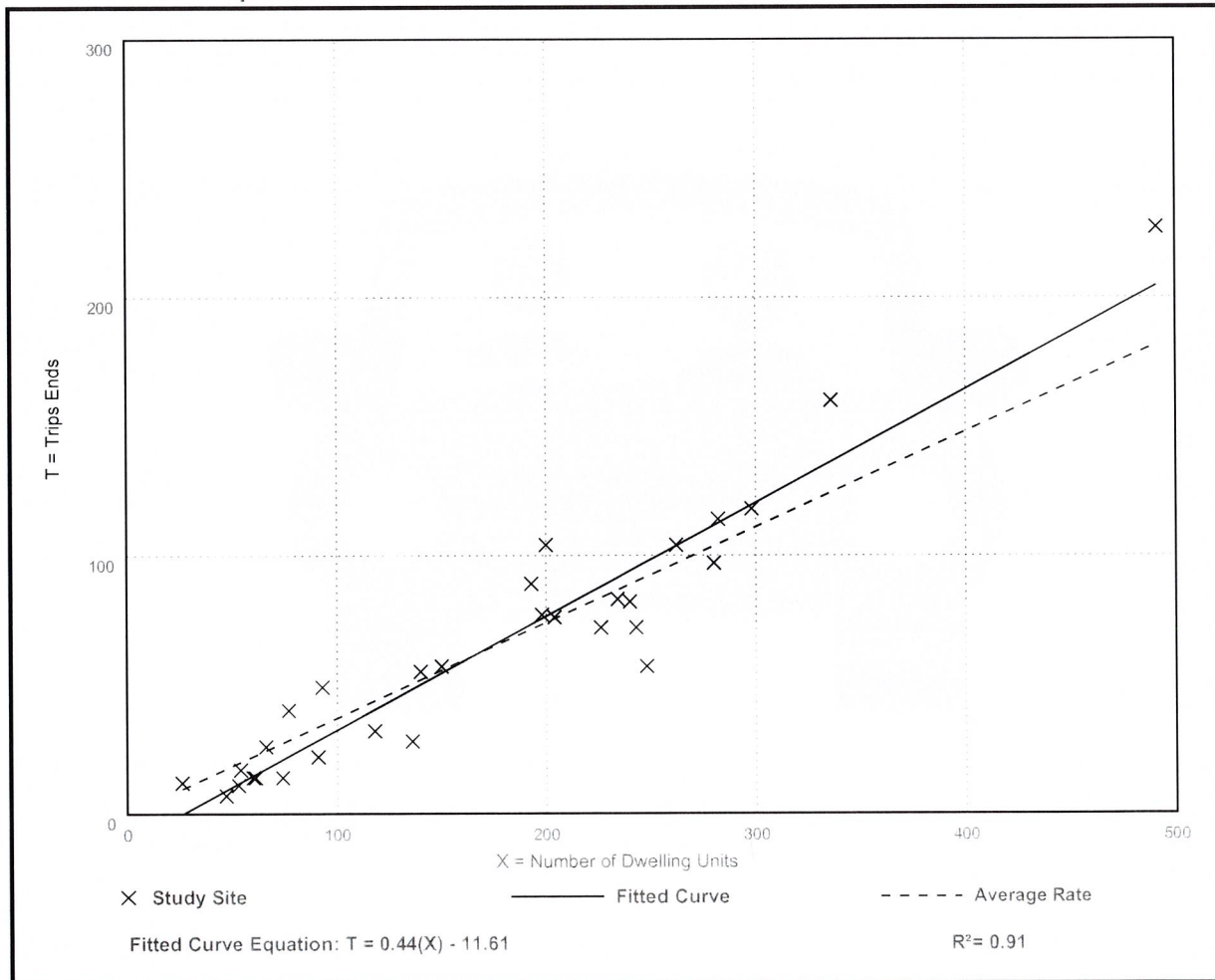
Avg. Num. of Dwelling Units: 173

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

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: 31

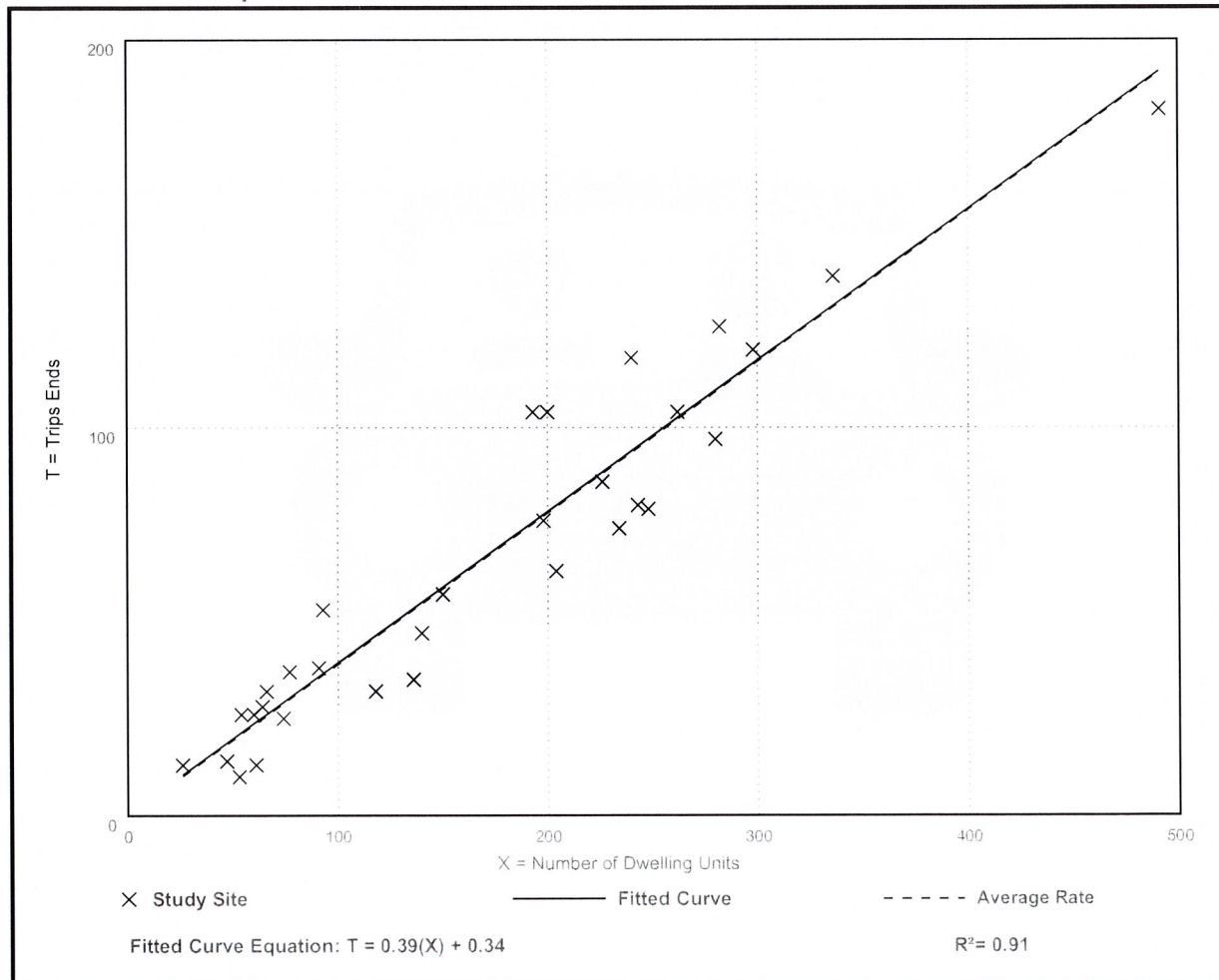
Avg. Num. of Dwelling Units: 169

Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



Land Use: 712

Small Office Building

Description

A small office building is the same as a general office building (Land Use 710) but with less than or equal to 10,000 square feet of gross floor area. The building typically houses a single tenant. It is a location where affairs of a business, commercial or industrial organization, or professional person or firm are conducted. General office building (Land Use 710) is a related use.

Additional Data

Attorney office, mortgage company, financial advisor, insurance agency, home health care provider, and real estate company are examples of tenants included in the small office building database. The diversity of employer types results in a wide range in employee density in the database. Densities range from a high of 1,300 to a low of 240 square feet per employee with an overall average of nearly 600 square feet per employee (a value much larger than the average observed in a general office building study sites).

In addition to the significant difference in employee density, small office buildings tend to be dominated by a single tenant (or very few) that are more service-oriented than a typical general office building. The result is more frequent and regular visitors and higher trip generation rates.

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 and the 2010s in Alberta (CAN), California, Texas, and Wisconsin.

Source Numbers

418, 890, 891, 959, 976

Small Office Building (712)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 21

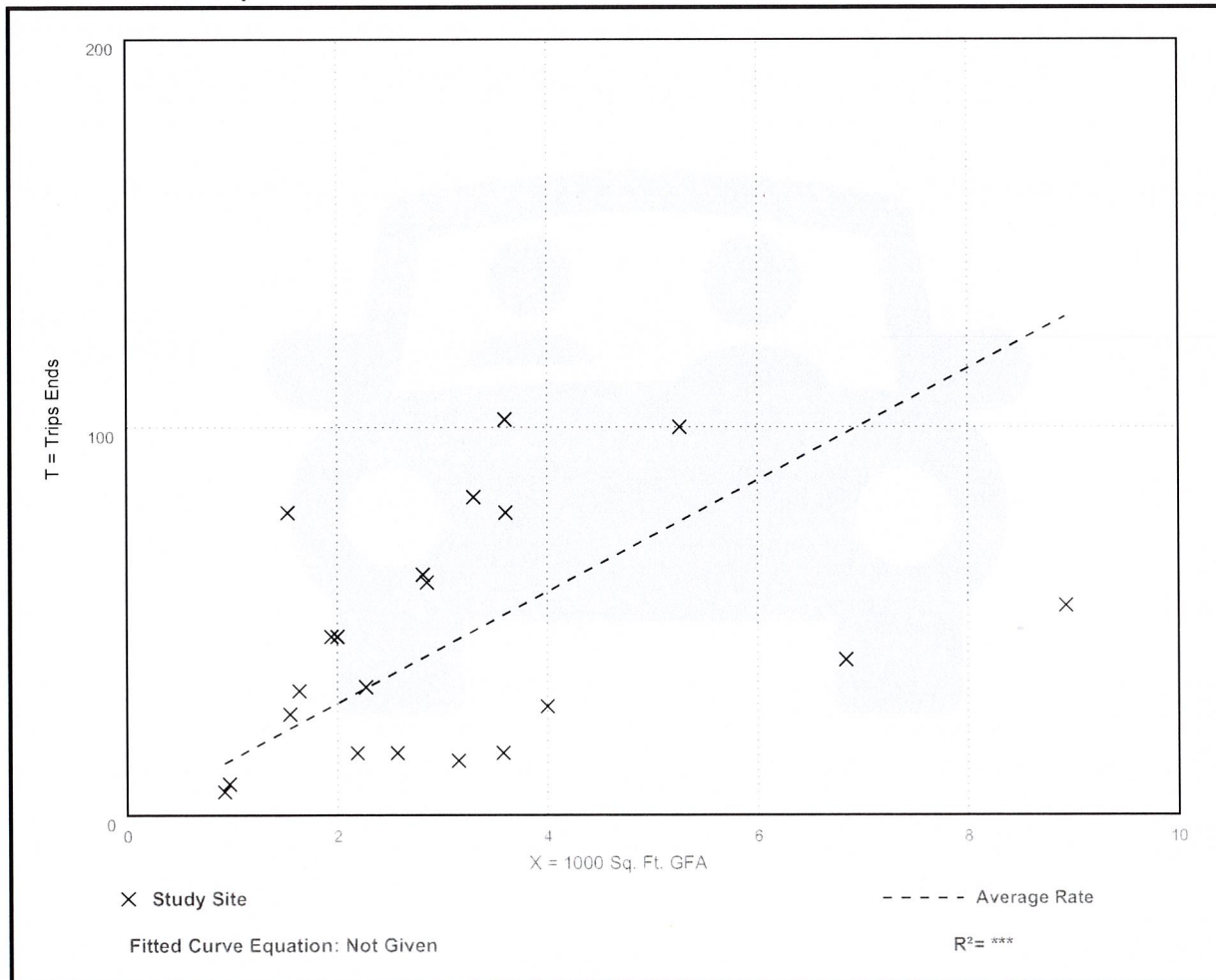
Avg. 1000 Sq. Ft. GFA: 3

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
14.39	4.44 - 50.91	10.16

Data Plot and Equation



Small Office Building (712)

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: 21

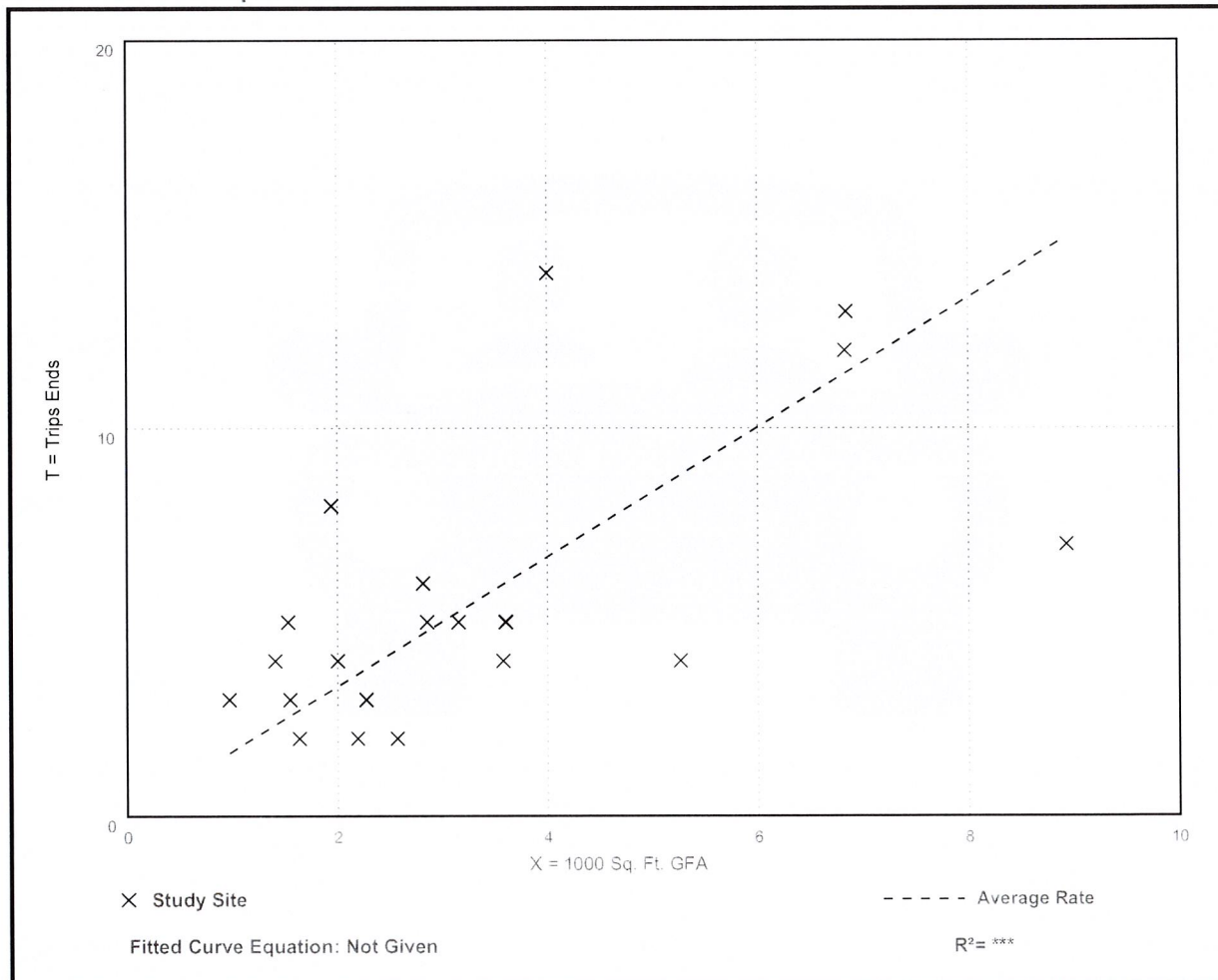
Avg. 1000 Sq. Ft. GFA: 3

Directional Distribution: 82% entering, 18% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.67	0.76 - 4.12	0.88

Data Plot and Equation



Small Office Building (712)

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: 21

Avg. 1000 Sq. Ft. GFA: 3

Directional Distribution: 34% entering, 66% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.16	0.56 - 5.50	1.26

Data Plot and Equation

