



17 June 2023

Main Street Lofts LLC
16 N. York Road
Hatboro, PA 19040

VIA EMAIL ONLY

**RE: Trip Generation Investigations of
34 S. Main Street,
Borough of Phoenixville, Chester County
FTA Job #223-010**

F. Tavani and Associates, Inc. (FTA) has conducted trip generation investigations for the above-referenced project in Phoenixville.

BACKGROUND

34 S. Main Street is an existing multi-use three-story building. In the past it has been occupied with various commercial 1st floor tenants including a florist and a realtor with 2nd and 3rd floor office tenants, all of which are allowable uses under current zoning. The upper floors have also been used in the past as a fraternal lodge having hundreds of members. The property is proposed to be adaptively-reused maintaining the 1st floor retail / commercial use and substituting 22 apartments for the upper 2nd and 3rd floor uses. The apartments are expected to be a mix of 1-bedroom and efficiency units. The 1st floor use is not proposed to change, though the total available square footage for the retail tenant will reduce in size by about 20% by virtue of the apartment entrance and associated hallway, mail area, etc.

TRIP GENERATION

Trip generation for many land uses can be examined through consult with the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th edition. This publication is a collection of real-world, empirically-collected count data from dozens of different land uses. It is a useful tool to predict peak hour traffic demands associated with proposed land developments. Traffic engineers mainly focus on peak hour traffic flows such as commuter peak hours because it is during these times of day that roadway networks and intersections are most constrained.

The Trip Generation Manual includes Land Use Code (LUC) 230, Low Rise Residential with Ground Floor Commercial. The traffic-generating effects of both the residential (apartments) and 1st floor commercial components of a site is included in the output of this LUC, as are any internally-captured trip synergies among the two uses. Thus LUC 230 can be used to predict future weekday and commuter peak hour trip generation associated with both the apartments and the florist as proposed for this site.

A common question regarding land development involving an adaptive reuse is whether the proposed use(s) will generate more or less traffic than the former use(s). Knowing that the 1st floor is essentially the same in either case, the focus is on comparing the proposed use of the 2nd and 3rd floor, namely the prior office use with the proposed apartment use.

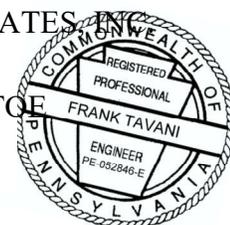
As mentioned above, LUC 230 is the most appropriate land use code for the site in the “proposed” condition. For the existing / former condition, the 2nd and 3rd floors it would be appropriate to trip generate using LUC 712, Small Office Building. The building has a footprint of approximately 5,000 SF so using a variable of 10 KSF for LUC 712 and a variable of 22 units for LUC 230, the following table summarizes the ITE predictions for daily and peak hour trip generation for both existing and proposed conditions.

**TRIP GENERATION COMPARISONS, UPPER FLOORS
(VEHICULAR TRIPS)**

	EXISTING	PROPOSED	DIFFERENCE
	10 KSF OFFICE	22 APARTMENTS	
Weekday (Daily)	144	76	- 68
Weekday AM Commuter Peak Hour	17	10	- 7
Weekday PM Commuter Peak Hour	22	8	- 14

As shown, the proposed apartment use results in a decrease in traffic at all times – both commuter peak hours as well as the overall daily condition. Note that, as mentioned earlier, the proposed trip generations shown above reflect the traffic contribution of the 1st floor commercial space as well, thus the comparison essentially (and unfairly) penalizes the proposed condition by including additional traffic which is not reflected in the ‘existing’ condition shown above, since what is shown under that condition reflects traffic associated with only the former office use. While the 1st floor commercial space could have been trip generated separately and added to the existing condition, it was purposely omitted, to be conservative. In light of these findings – that the proposed uses will result in a reduction of traffic -- it appears no further traffic study or traffic investigations are warranted or necessary. I hope this has been helpful. Please let me know if I can answer any questions.

Thank you,
F. TAVANI AND ASSOCIATES, INC.
FRANK TAVANI, P.E., PTCE
Principal



attachments

cc: SITE Engineering Concepts, LLC (SITE)

Land Use: 230

Low-Rise Residential with Ground-Floor Commercial

Description

Low-rise residential with ground-floor commercial is a mixed-use multifamily housing building with two or three floors of residential living space and commercial space open to the public on the ground level. These facilities are typically found in dense multi-use urban and center city core settings. Multifamily housing (low-rise) (Land Use 220), mid-rise residential with ground floor commercial (Land Use 231), and high-rise residential with ground-floor commercial (Land Use 232) are related land uses.

Land Use Subcategory

The data included in this land use have been stratified into two subcategories: (1) sites with a commercial gross leasable area that ranges between 1,000 and 25,000 square feet (2) sites with a commercial gross leasable area that ranges between 25,000 and 65,000 square feet.

Additional Data

The trips displayed in the data plots represent the total trips that enter or exit the site. Any trips internal to the site between its residential and commercial components are not included.

The ITE *Trip Generation Handbook* (TGH) presents an alternative approach for estimating trips generated by a site that fits this land use. The TGH method involves the estimation of the internal trip-making at a mixed-use site.

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/>).

Additional Data

The sites were surveyed in the 2010s in the District of Columbia and Oregon.

Source Numbers

901, 949, 950

Low-Rise Residential with Ground-Floor Commercial GFA (1-25k) (230)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Dwelling Units: 422

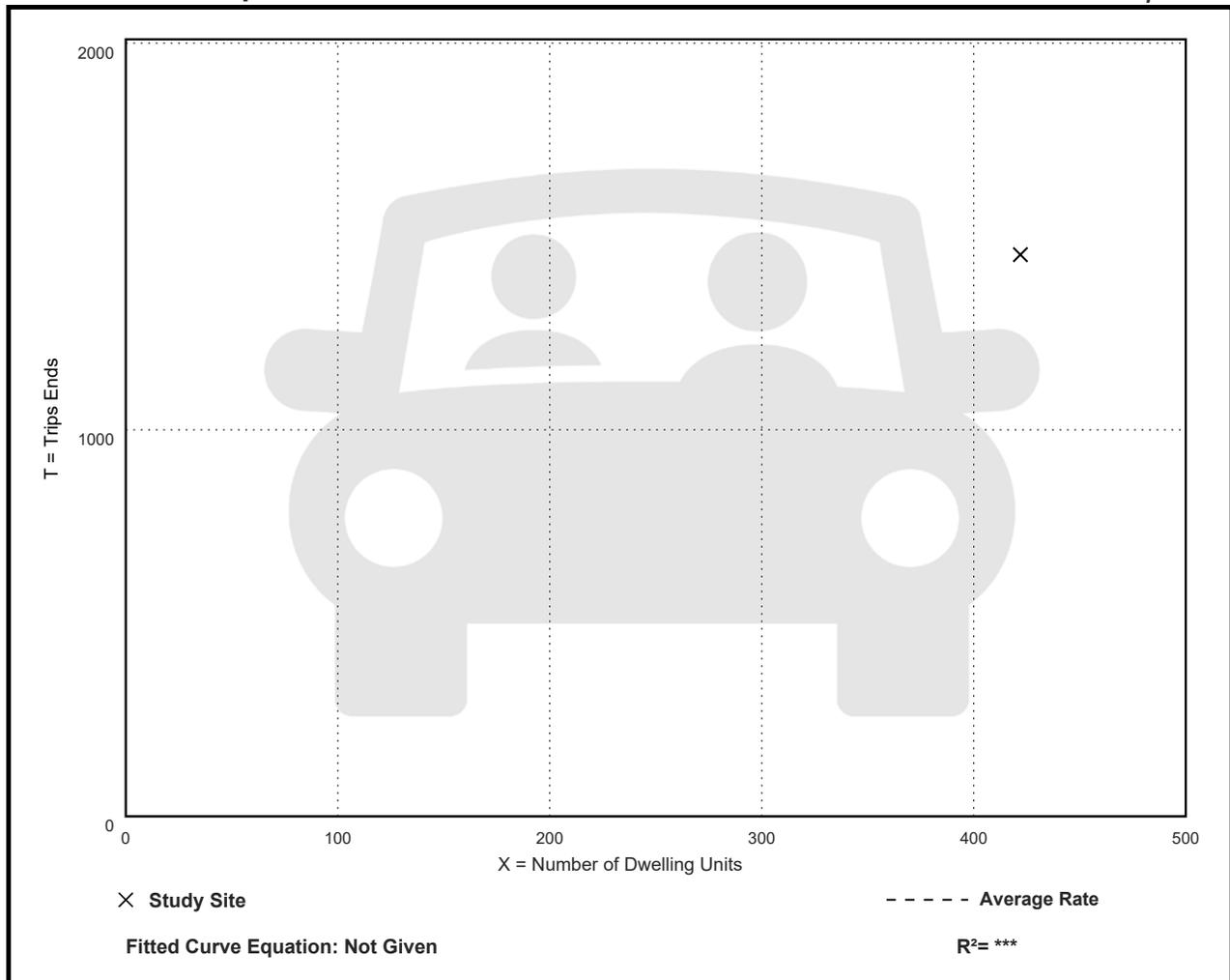
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
3.44	3.44 - 3.44	***

Data Plot and Equation

Caution – Small Sample Size



Low-Rise Residential with Ground-Floor Commercial GFA (1-25k) (230)

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: 2

Avg. Num. of Dwelling Units: 365

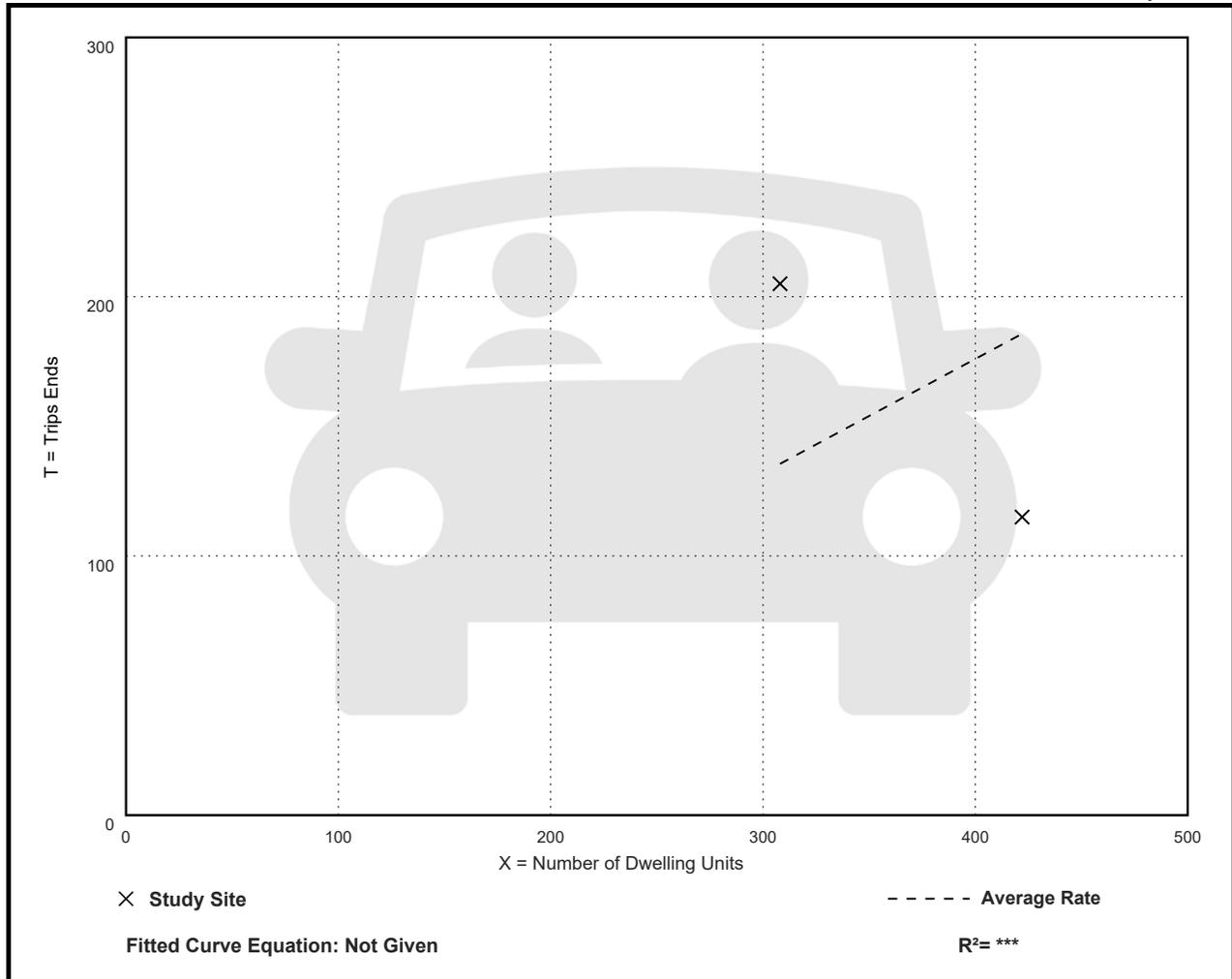
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.27 - 0.67	***

Data Plot and Equation

Caution – Small Sample Size



Low-Rise Residential with Ground-Floor Commercial GFA (1-25k) (230)

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: 2

Avg. Num. of Dwelling Units: 365

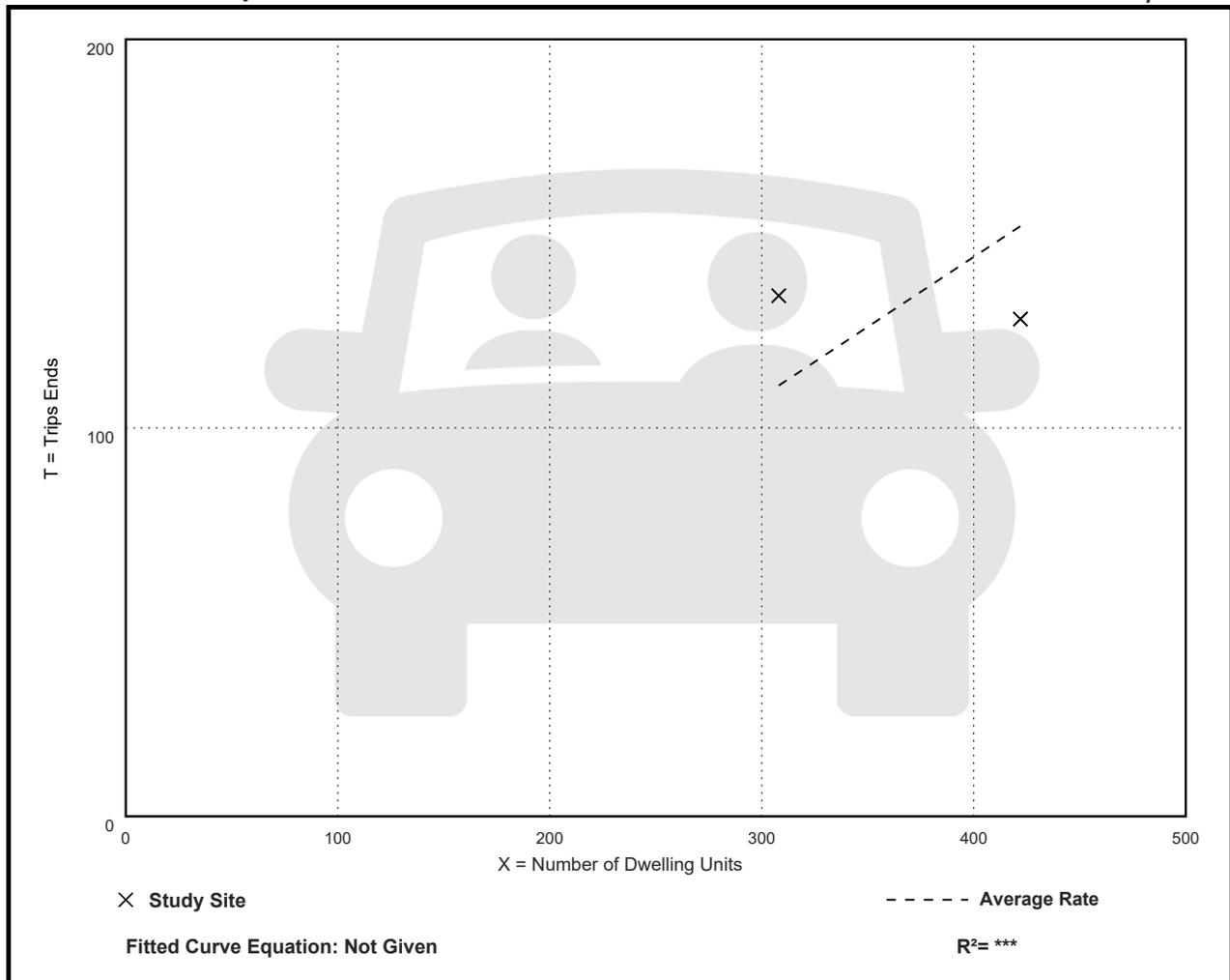
Directional Distribution: 71% entering, 29% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.30 - 0.44	***

Data Plot and Equation

Caution – Small Sample Size



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

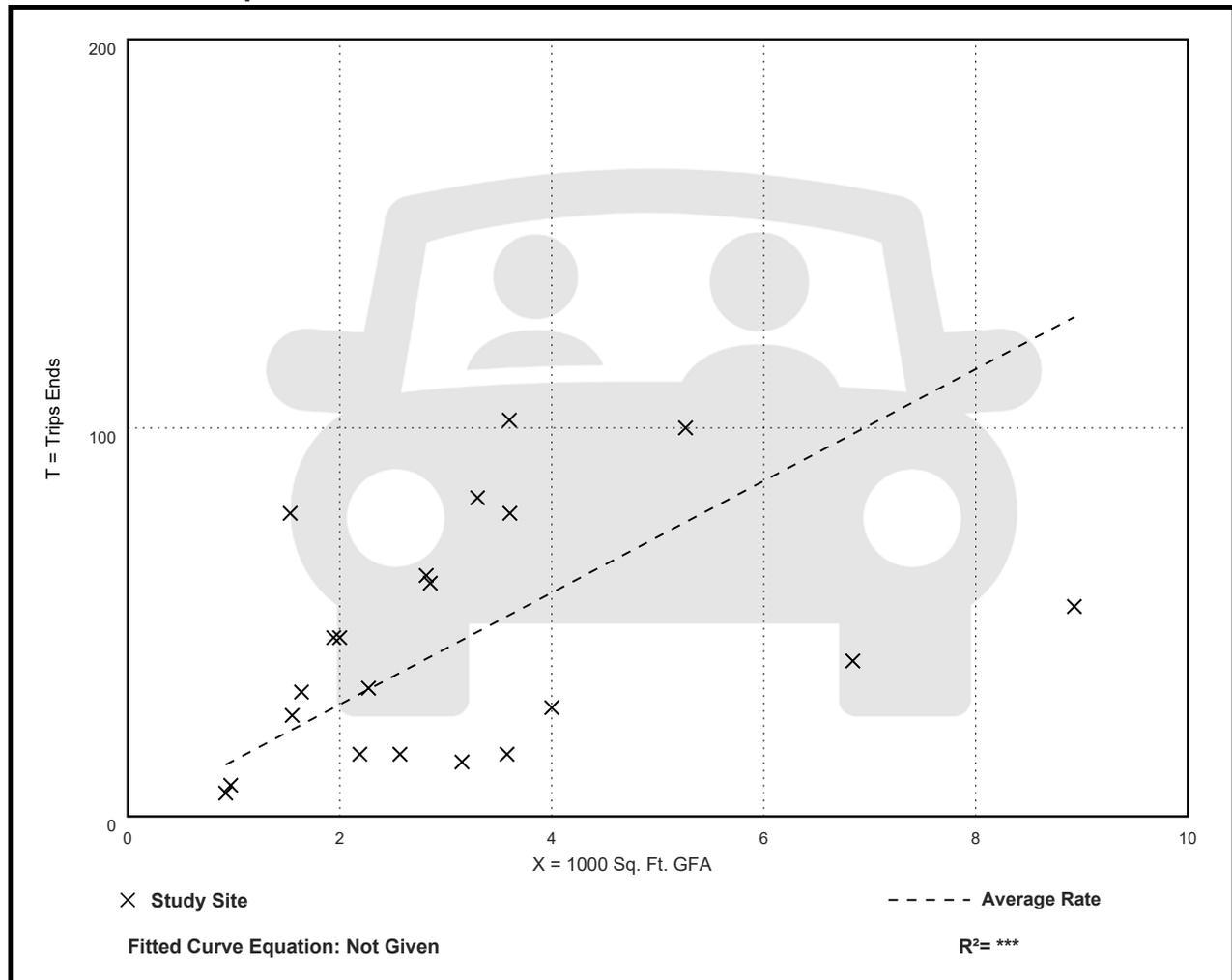
Avg. 1000 Sq. Ft. GFA: 3

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

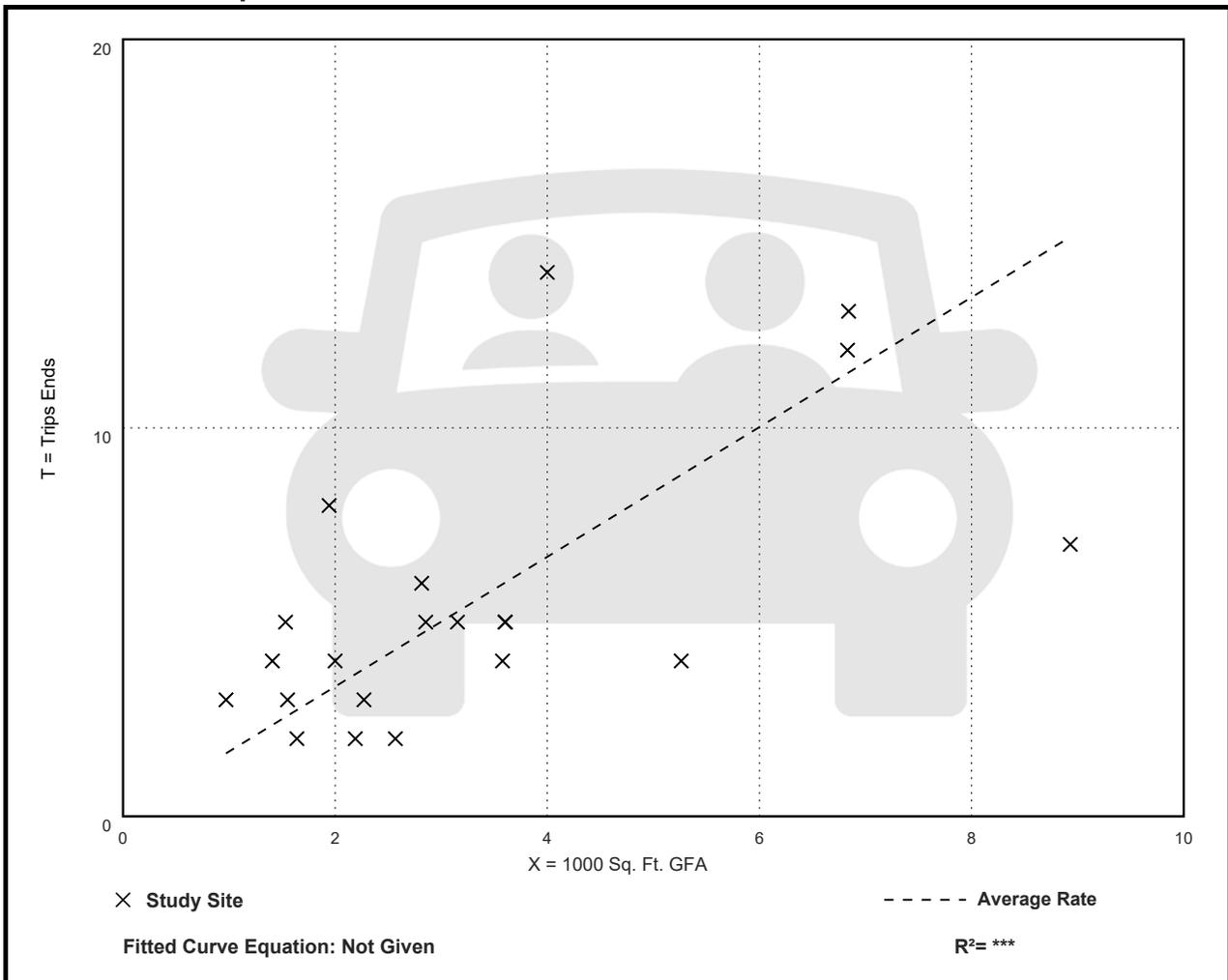
Avg. 1000 Sq. Ft. GFA: 3

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

