

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)

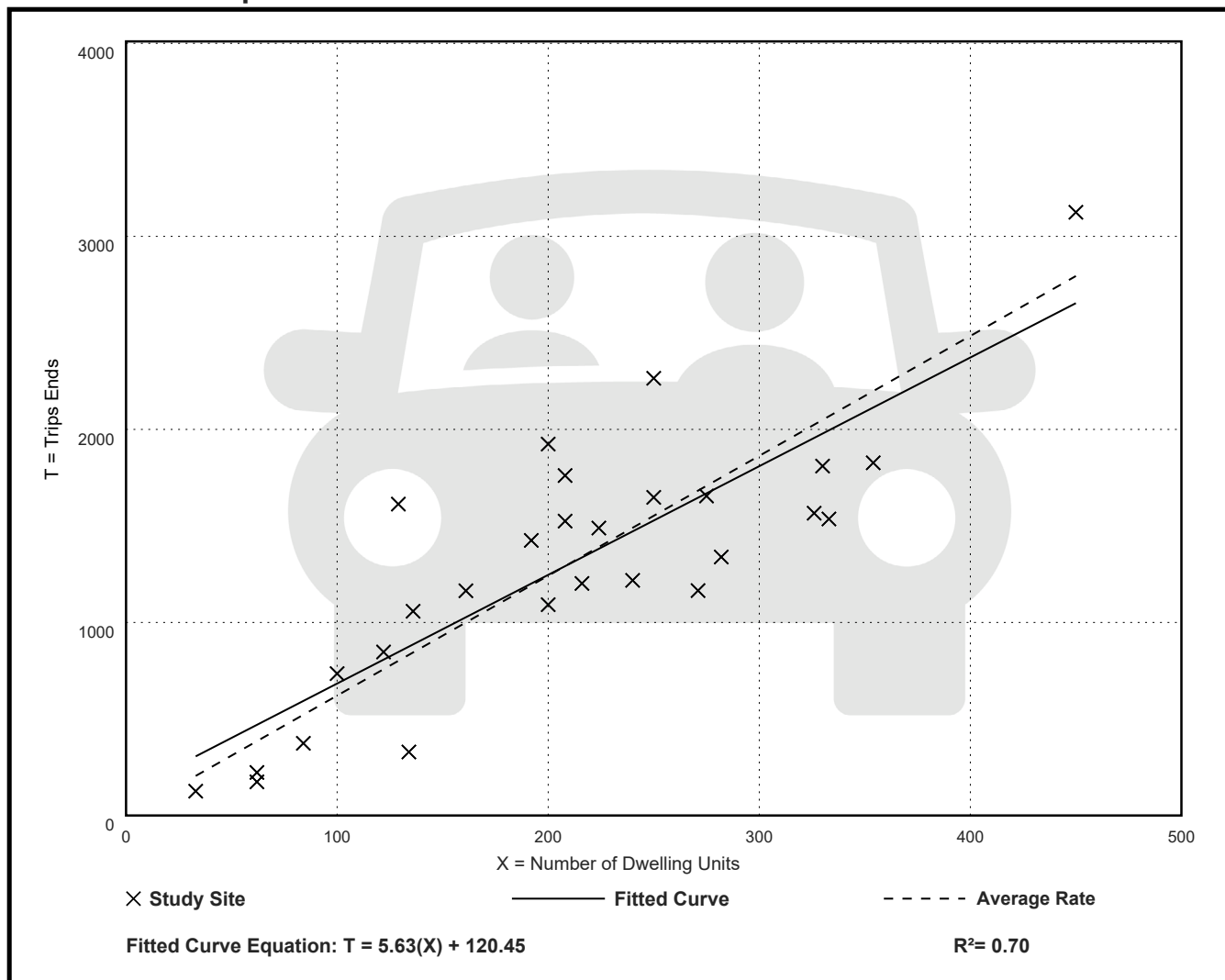
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

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



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

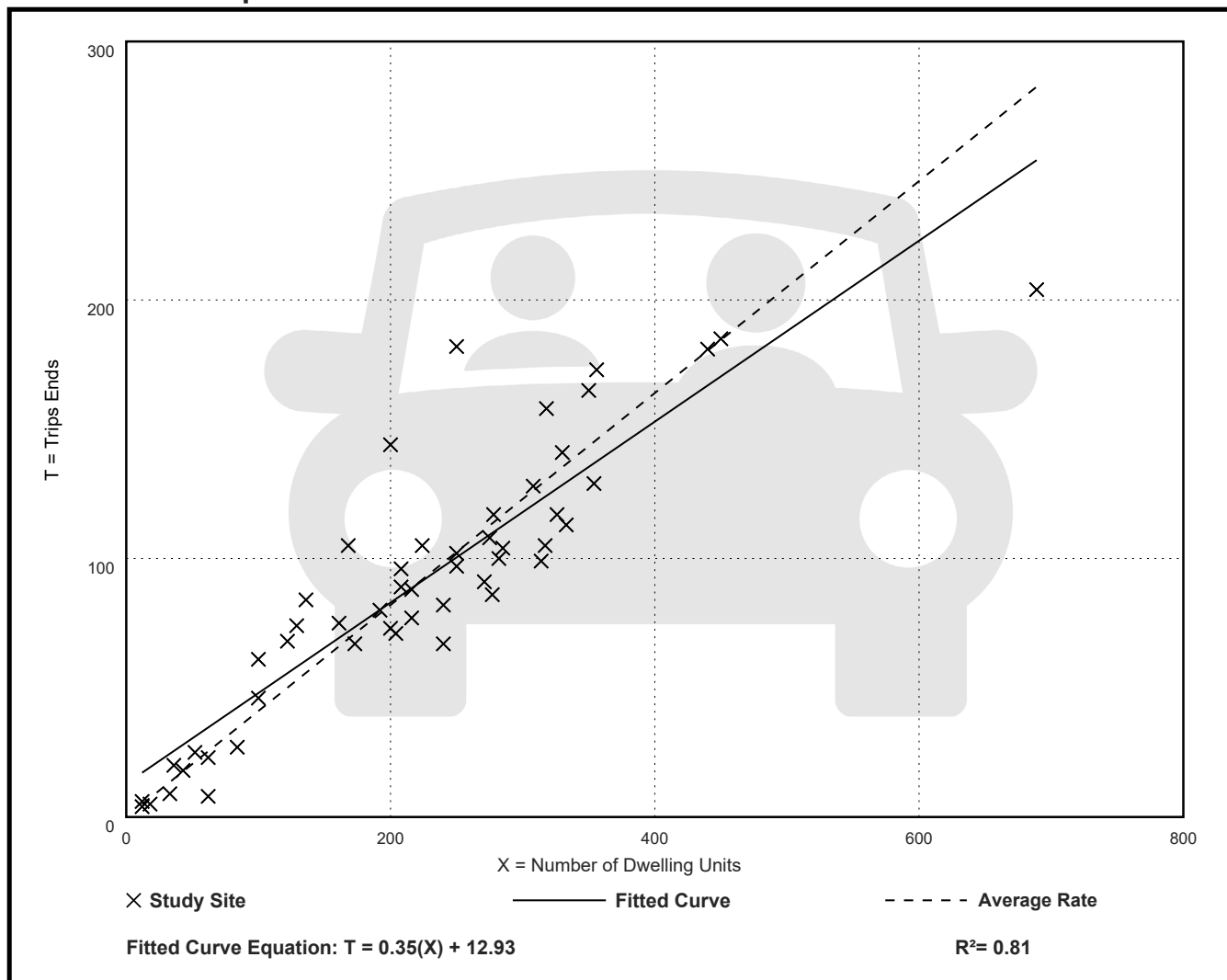
Avg. Num. of Dwelling Units: 219

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

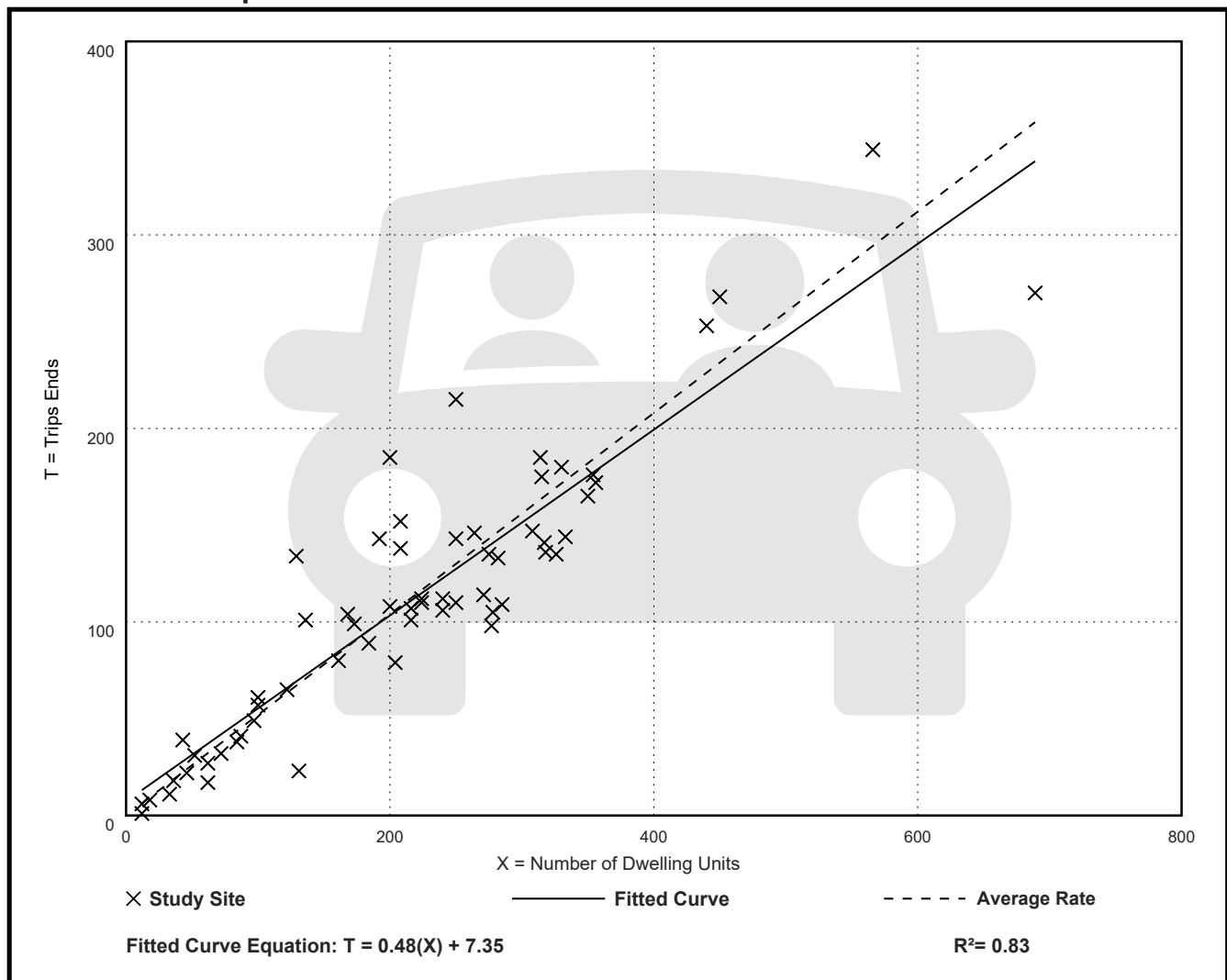
Avg. Num. of Dwelling Units: 215

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



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

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 25

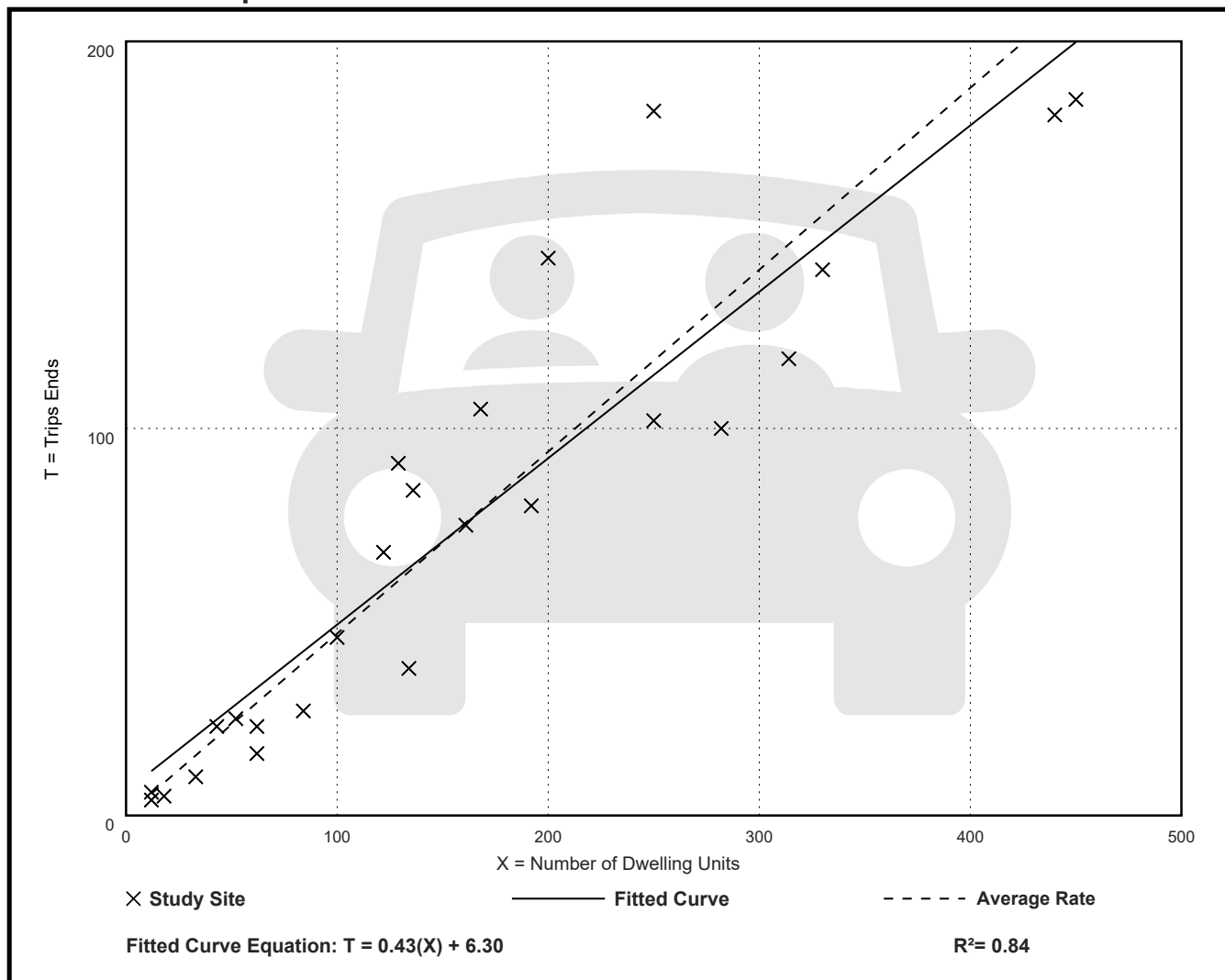
Avg. Num. of Dwelling Units: 161

Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.26 - 0.73	0.13

Data Plot and Equation



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

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 24

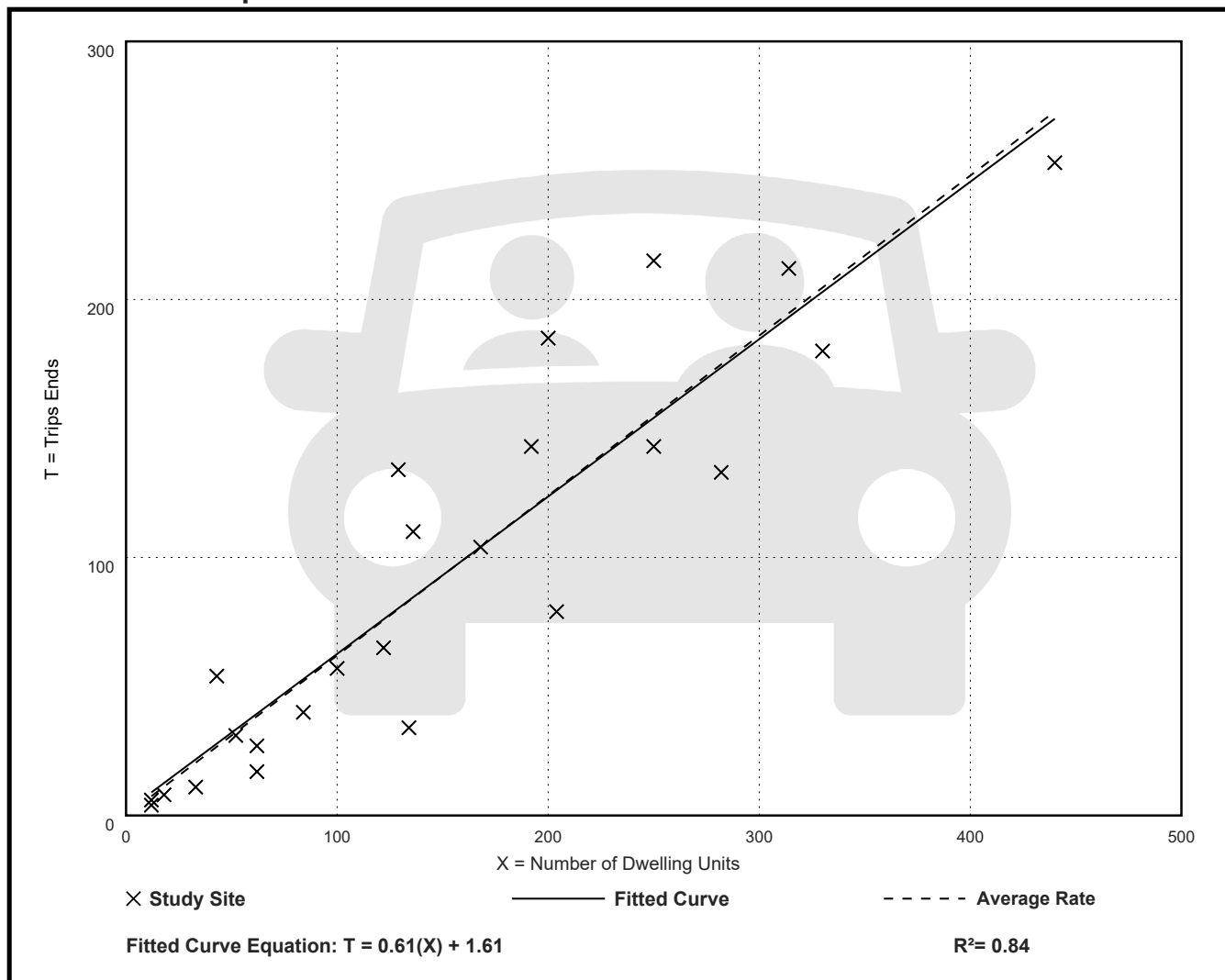
Avg. Num. of Dwelling Units: 151

Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.62	0.25 - 1.26	0.20

Data Plot and Equation



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

Vehicle Trip Ends vs: Dwelling Units

On a: Saturday

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Dwelling Units: 282

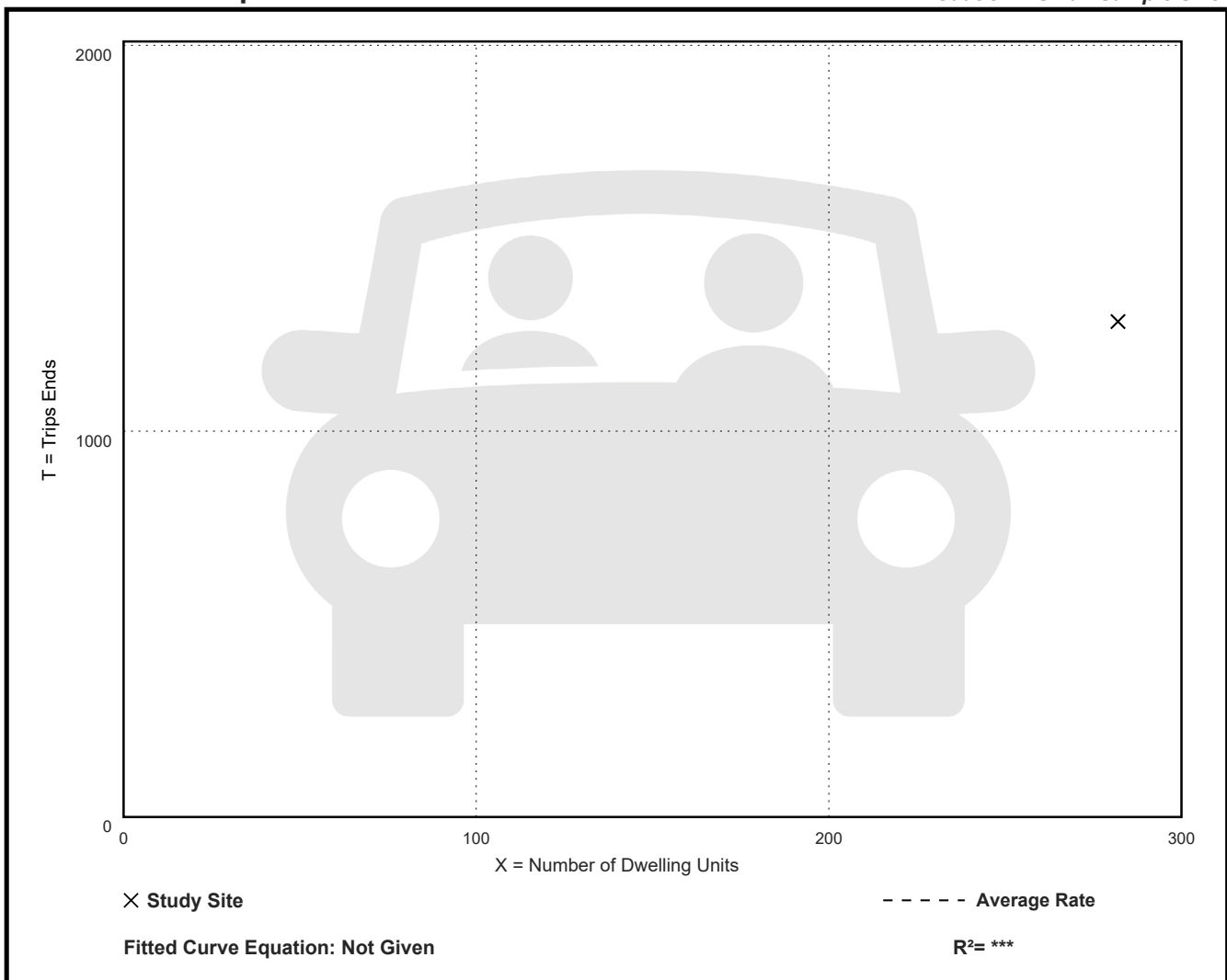
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.55	4.55 - 4.55	***

Data Plot and Equation

Caution – Small Sample Size



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

Vehicle Trip Ends vs: Dwelling Units

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 2

Avg. Num. of Dwelling Units: 167

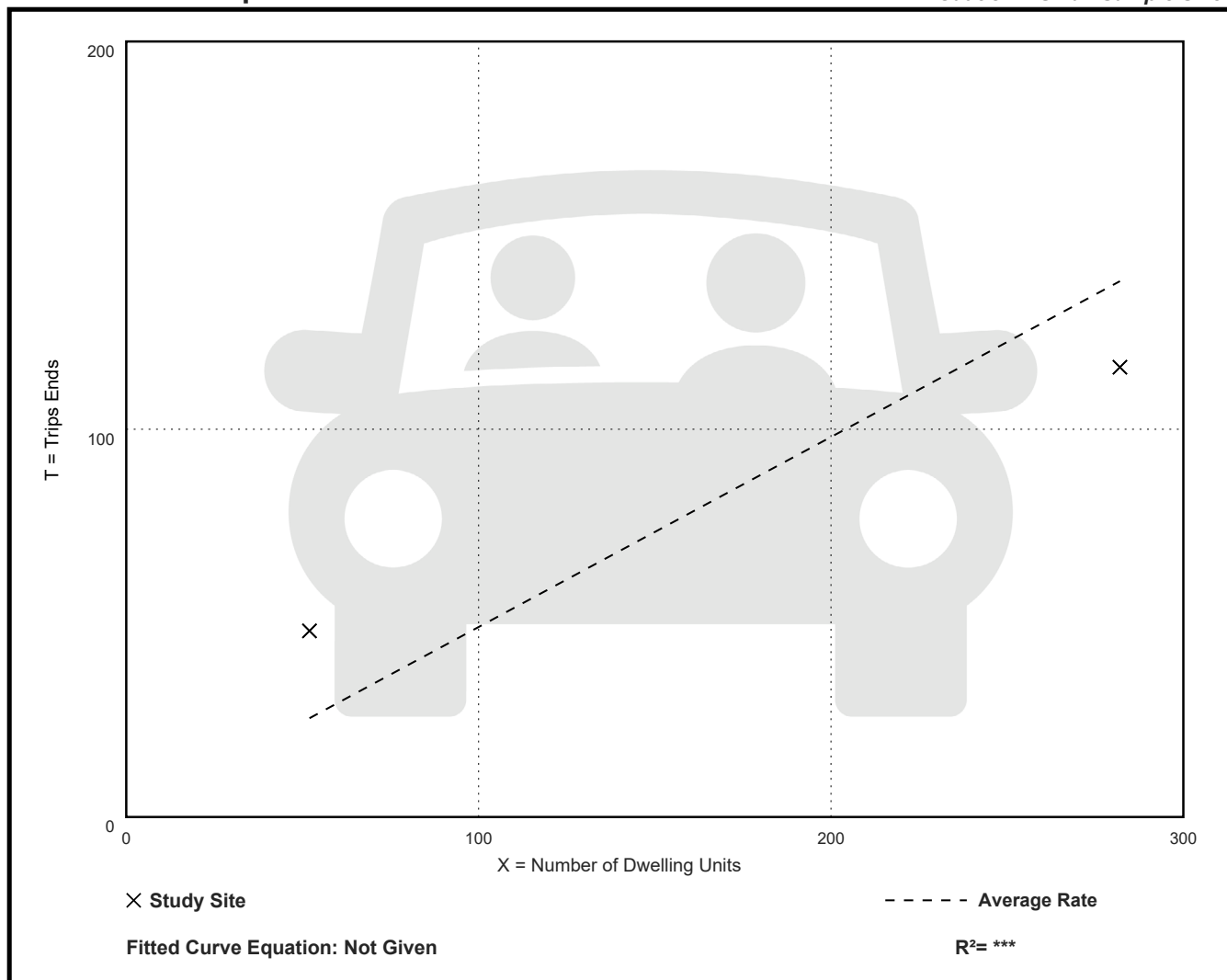
Directional Distribution: 38% entering, 62% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.49	0.41 - 0.92	***

Data Plot and Equation

Caution – Small Sample Size



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

Vehicle Trip Ends vs: Dwelling Units

On a: Sunday

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Dwelling Units: 282

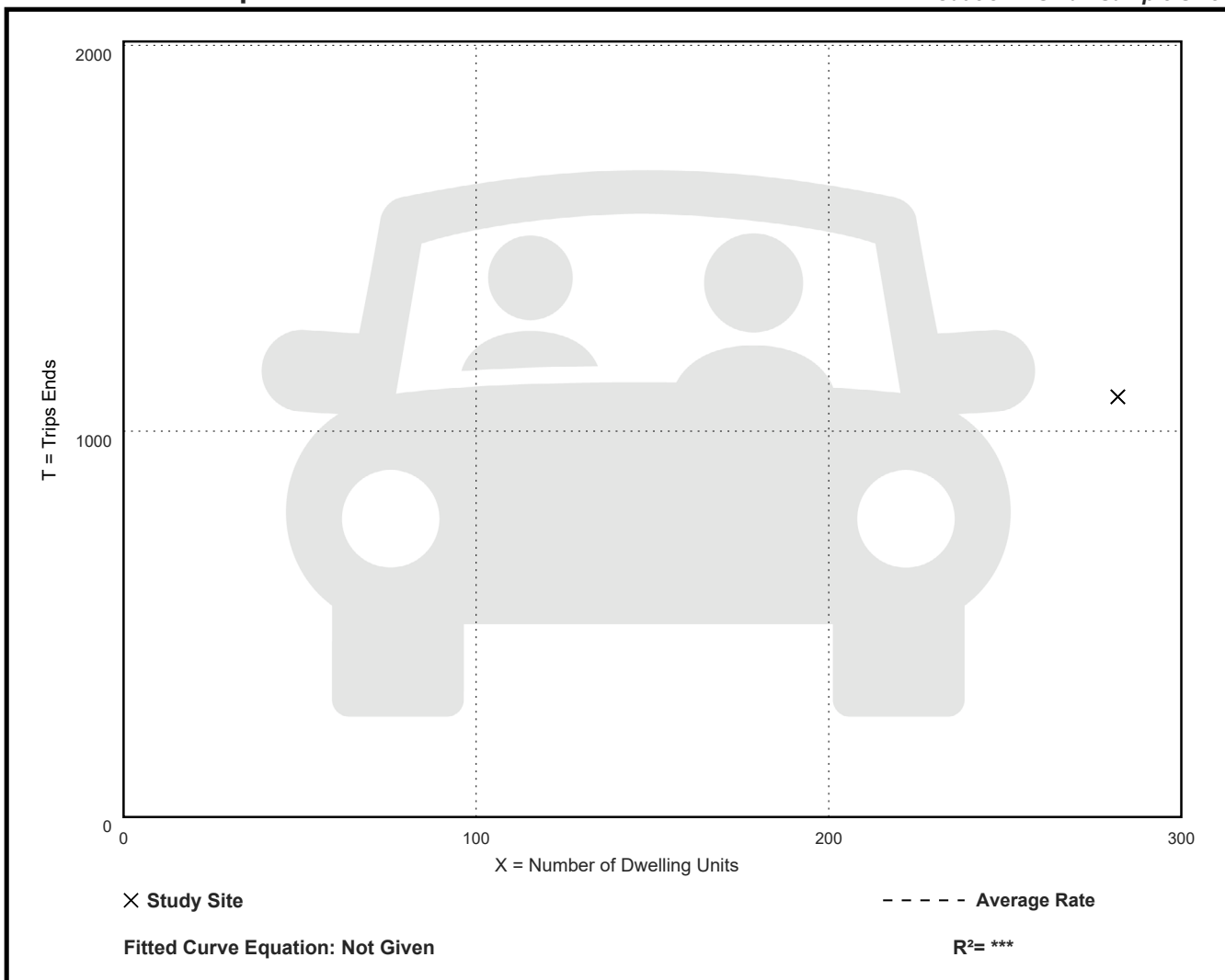
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
3.86	3.86 - 3.86	***

Data Plot and Equation

Caution – Small Sample Size



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

Vehicle Trip Ends vs: Dwelling Units

On a: Sunday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Dwelling Units: 282

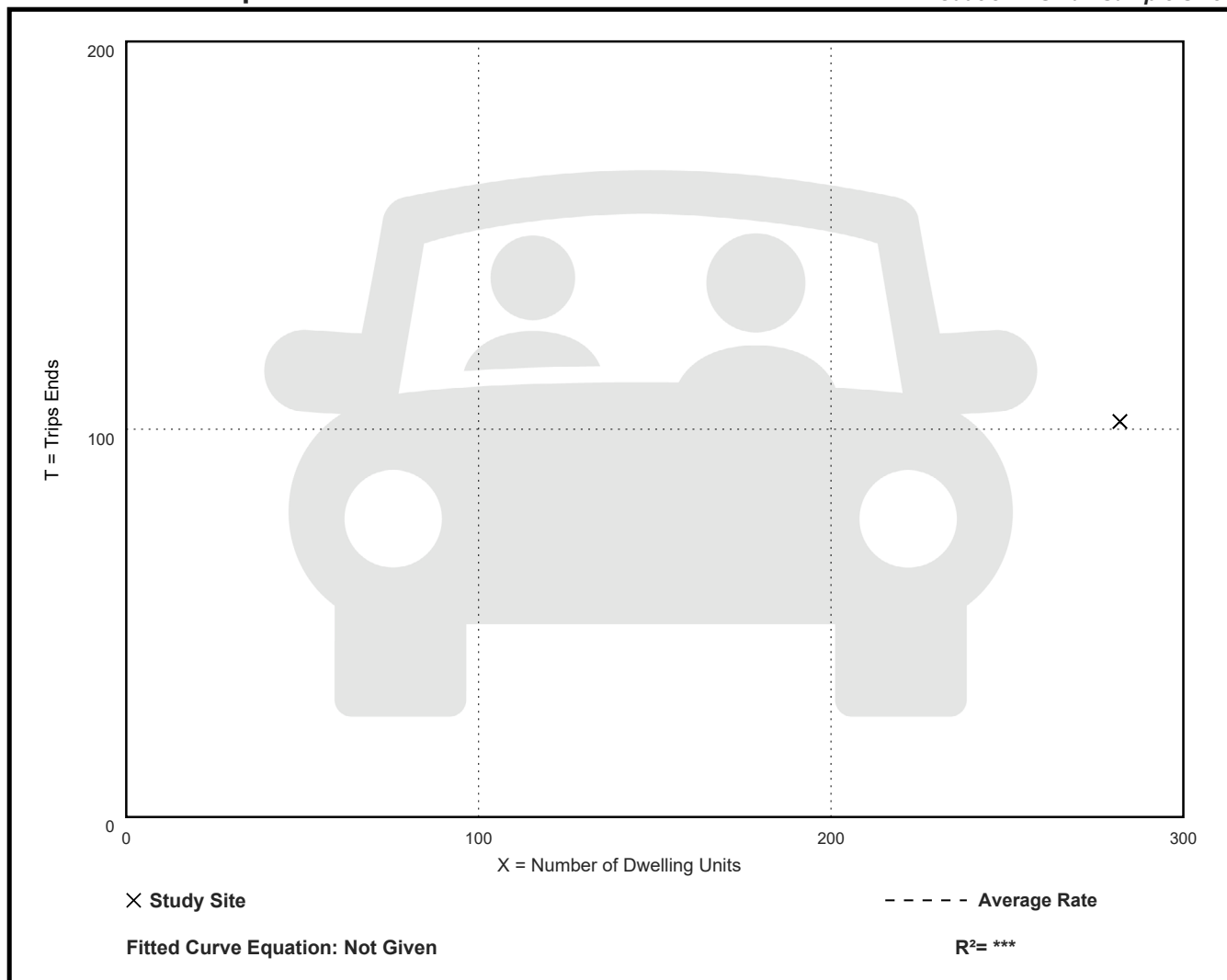
Directional Distribution: Not Available

Vehicle Trip Generation per Dwelling Unit

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

Data Plot and Equation

Caution – Small Sample Size



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

Vehicle Trip Ends vs: Residents
On a: Weekday

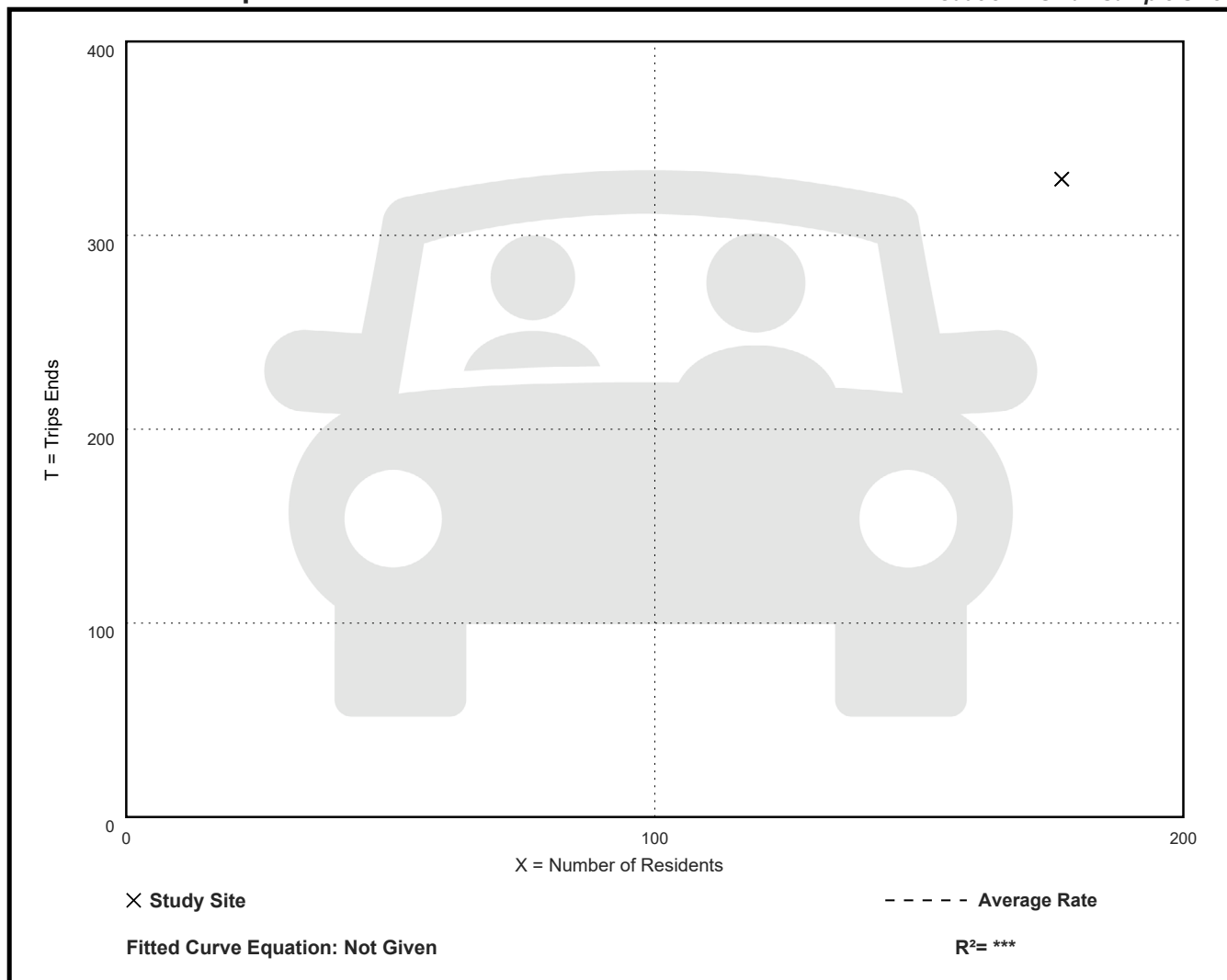
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. Num. of Residents: 177
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
1.86	1.86 - 1.86	***

Data Plot and Equation

Caution – Small Sample Size



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

Vehicle Trip Ends vs: Residents

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Residents: 177

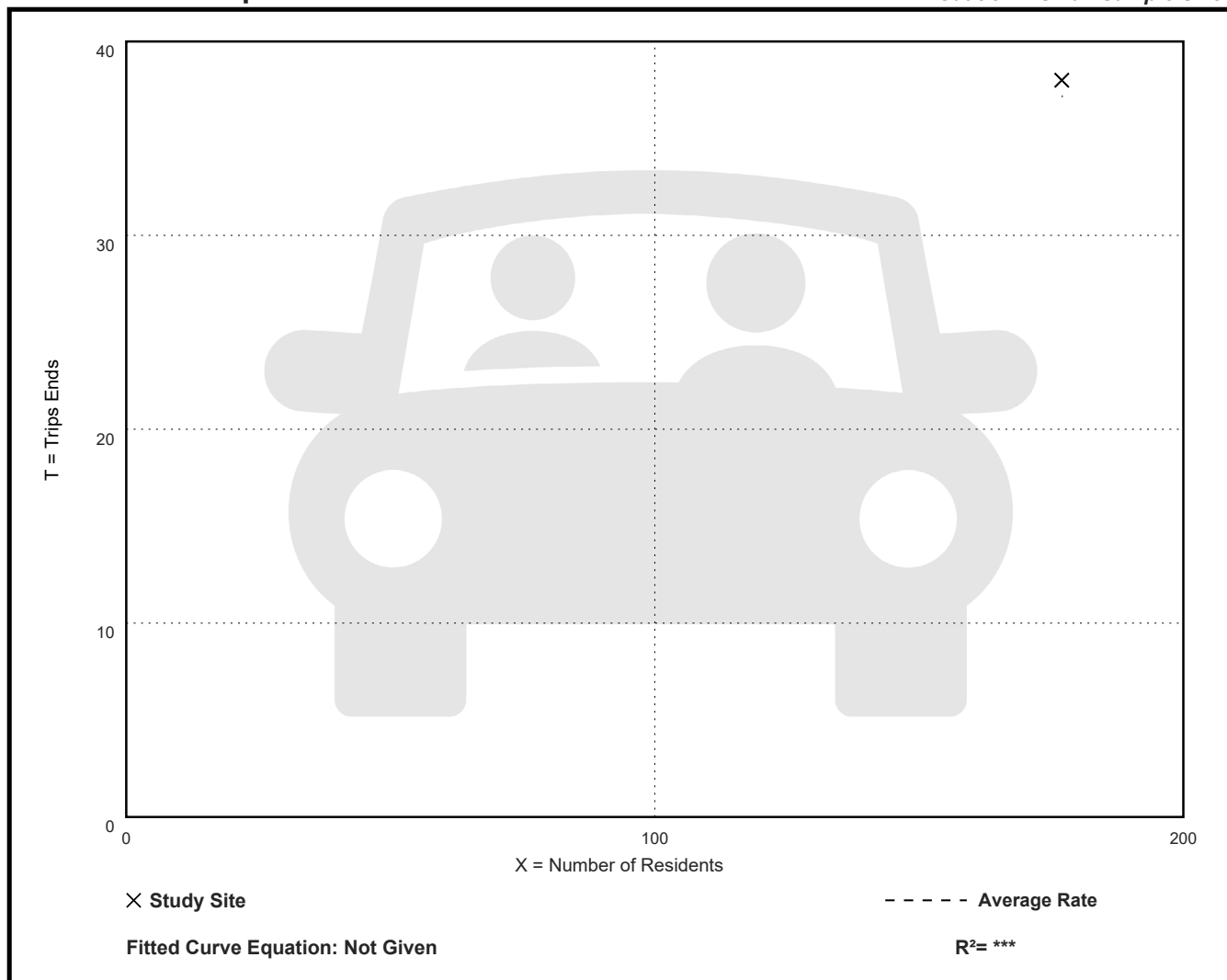
Directional Distribution: Not Available

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.21	0.21 - 0.21	***

Data Plot and Equation

Caution – Small Sample Size



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

Vehicle Trip Ends vs: Residents

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Residents: 177

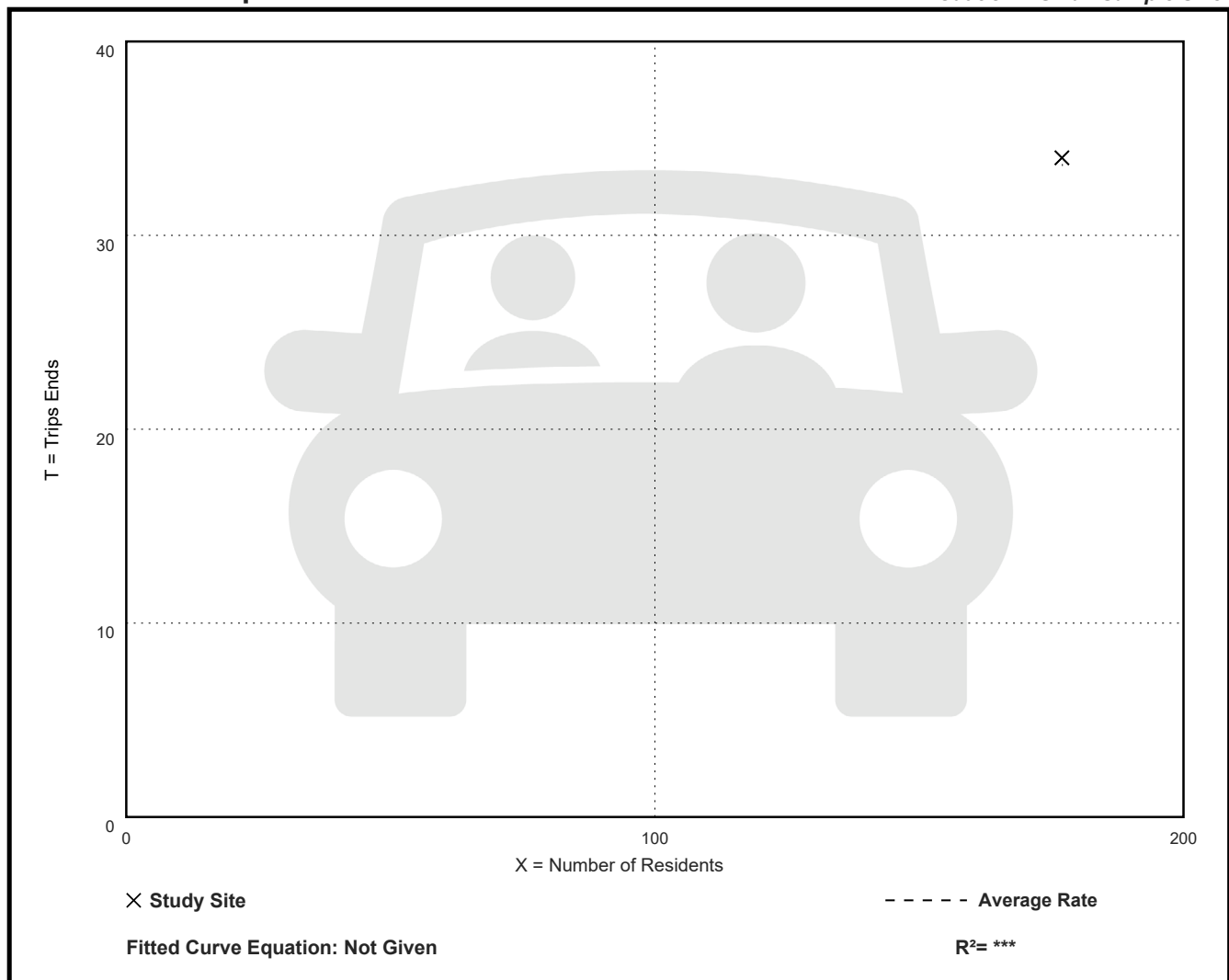
Directional Distribution: Not Available

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.19	0.19 - 0.19	***

Data Plot and Equation

Caution – Small Sample Size



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

Walk+Bike+Transit 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: 8

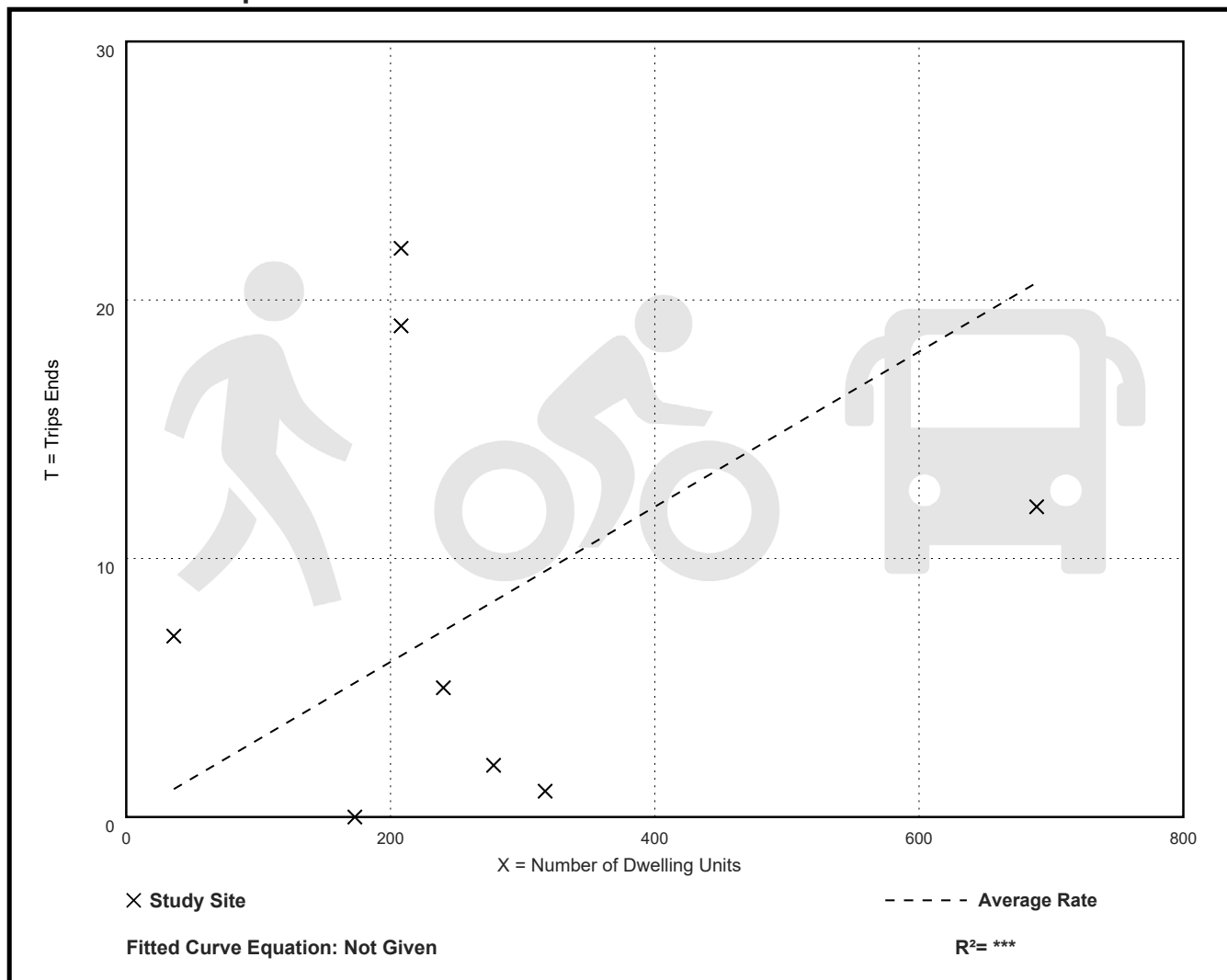
Avg. Num. of Dwelling Units: 269

Directional Distribution: 57% entering, 43% exiting

Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.19	0.04

Data Plot and Equation



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

Walk+Bike+Transit 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: 10

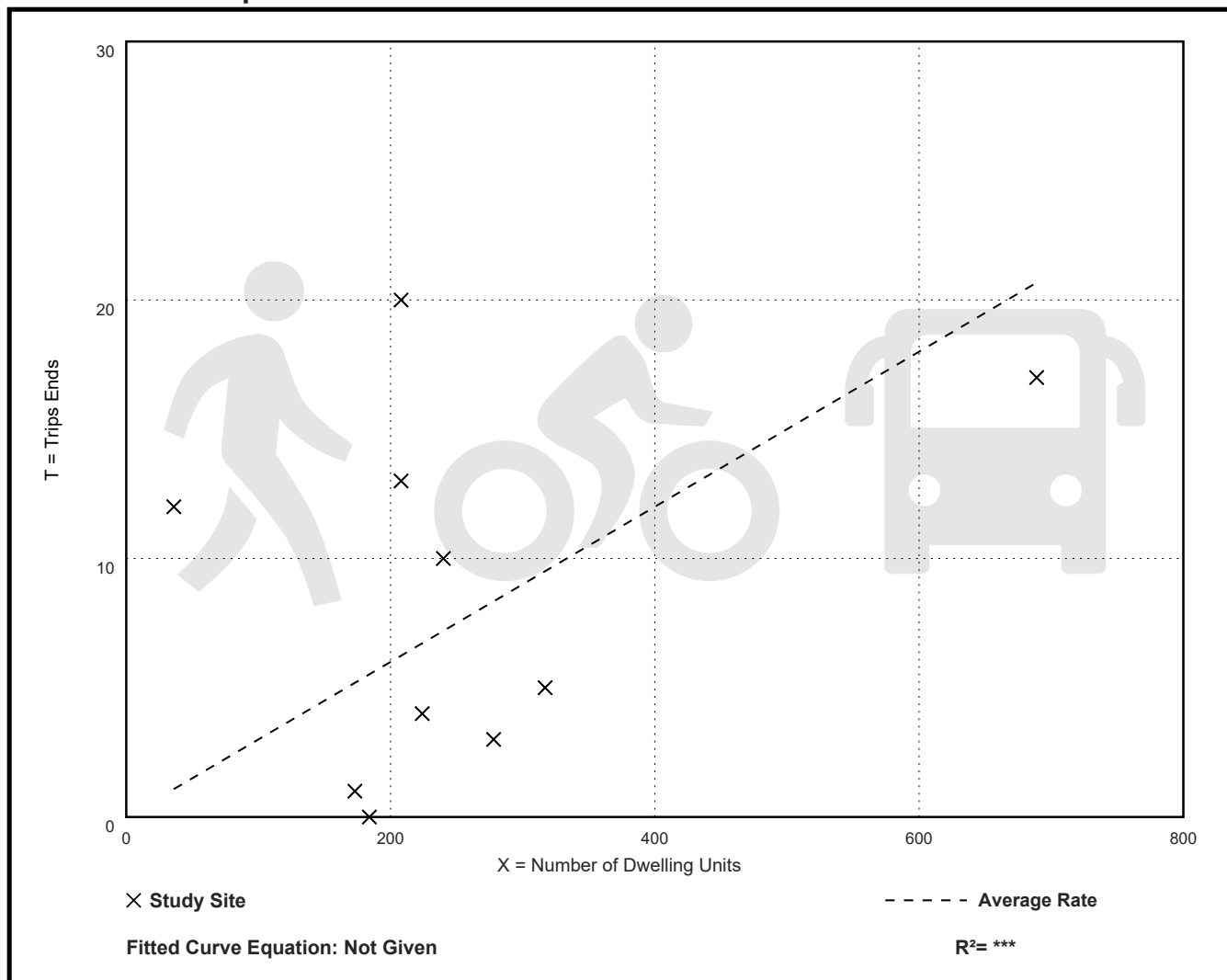
Avg. Num. of Dwelling Units: 256

Directional Distribution: 50% entering, 50% exiting

Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.33	0.05

Data Plot and Equation



Multifamily Housing (Low-Rise) Close to Rail Transit (220)

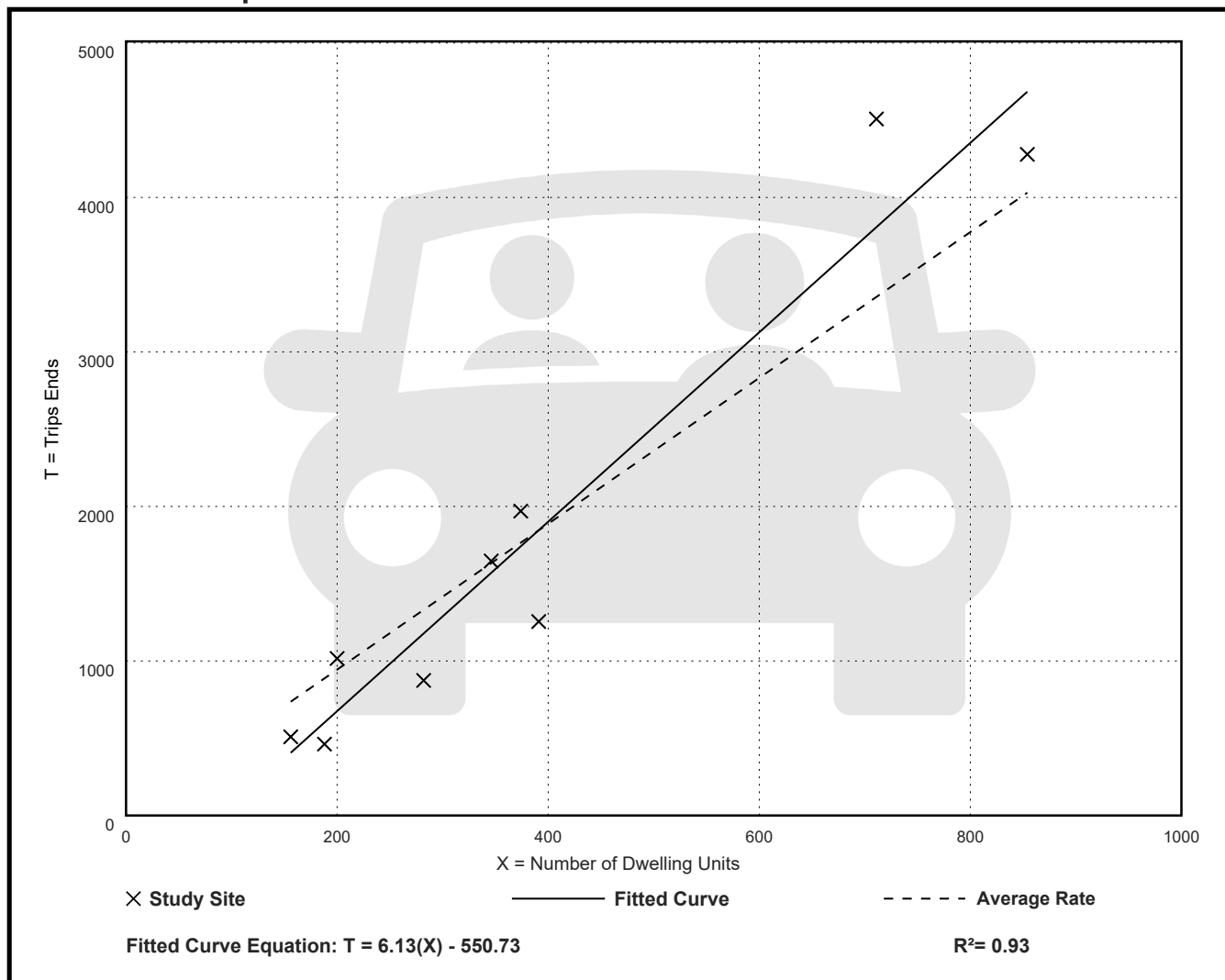
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 9
Avg. Num. of Dwelling Units: 389
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.72	2.46 - 6.34	1.27

Data Plot and Equation



Multifamily Housing (Low-Rise) 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: 3

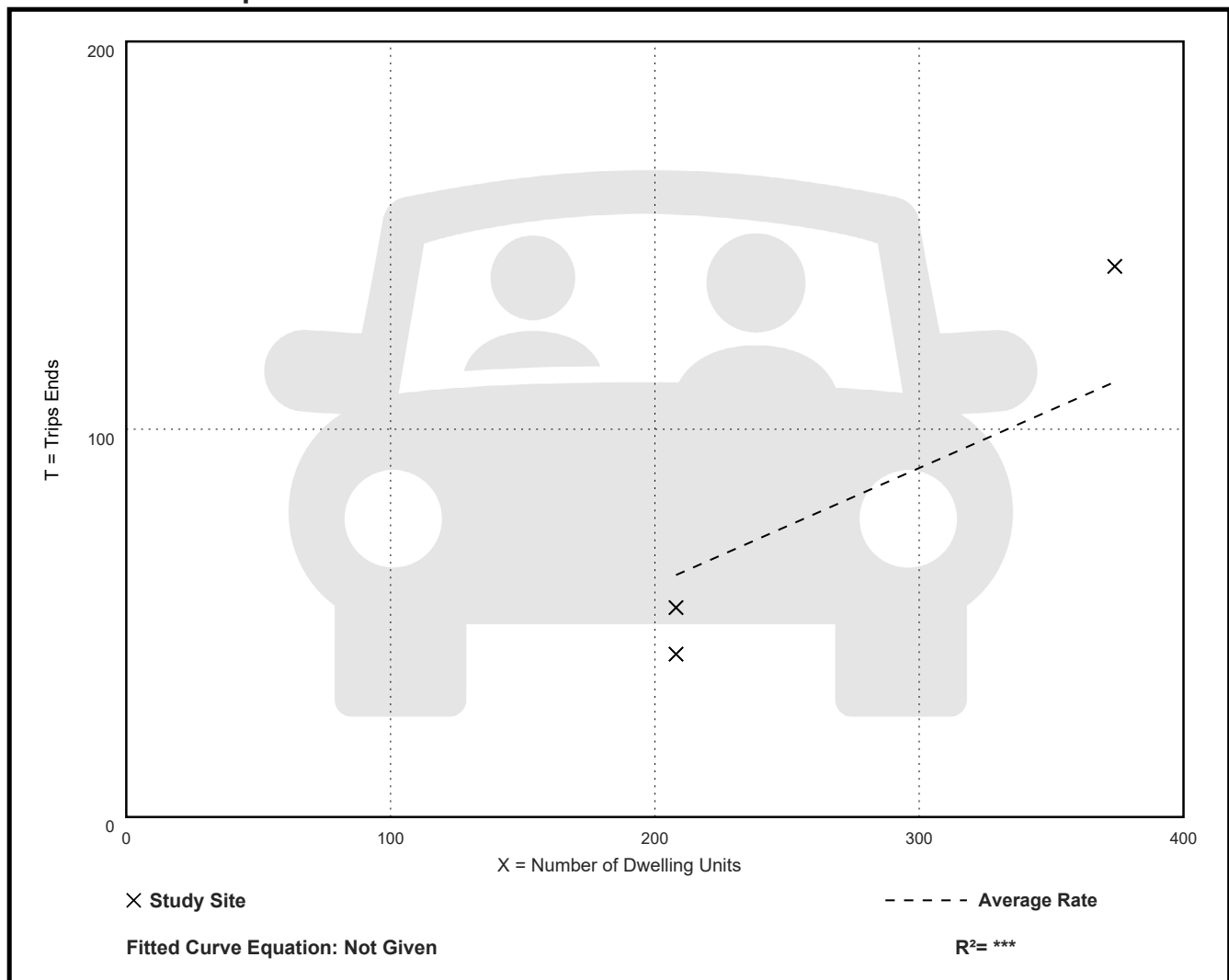
Avg. Num. of Dwelling Units: 263

Directional Distribution: 29% entering, 71% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.30	0.20 - 0.38	0.09

Data Plot and Equation



Multifamily Housing (Low-Rise) 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: 3

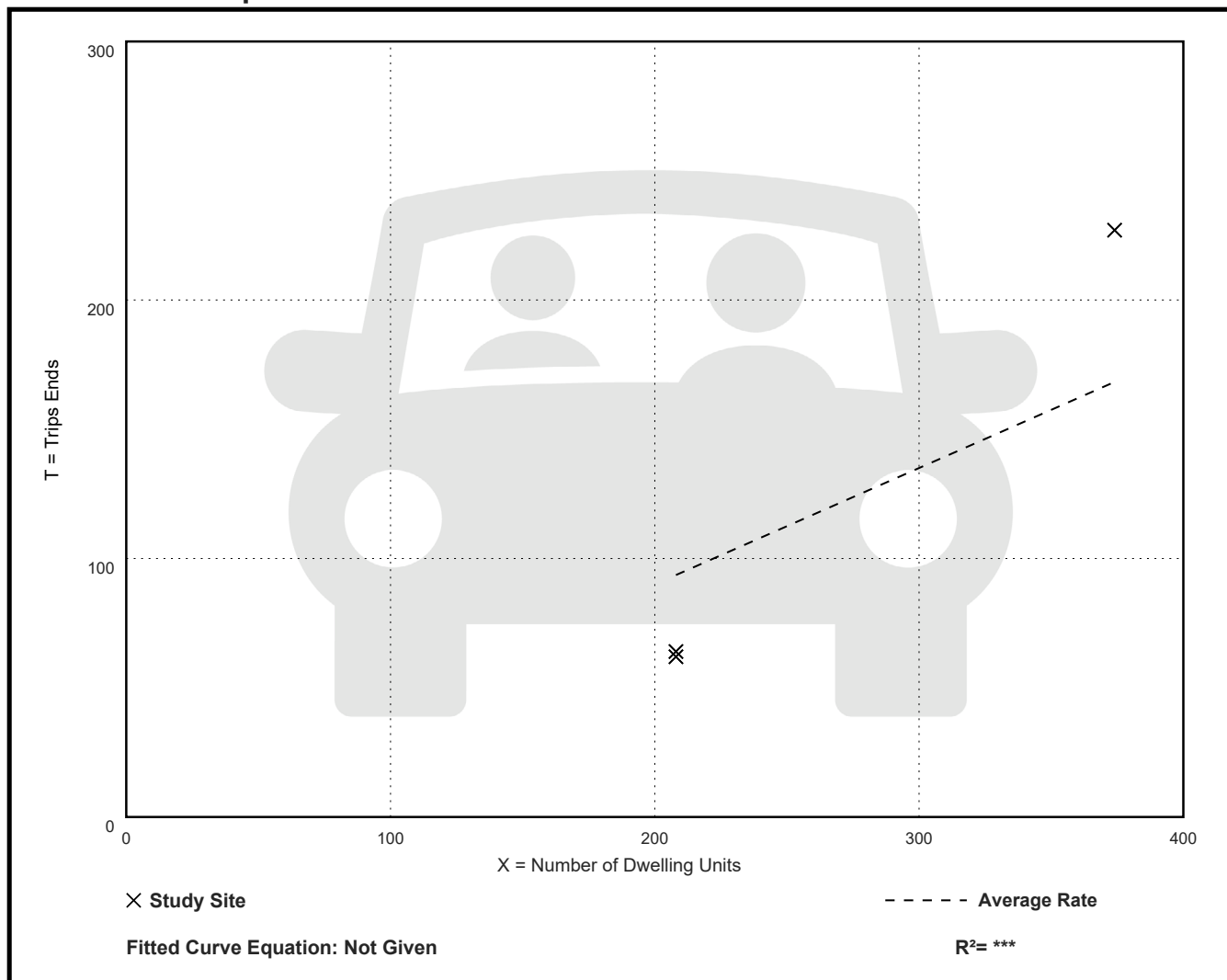
Avg. Num. of Dwelling Units: 263

Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.45	0.30 - 0.61	0.19

Data Plot and Equation



Multifamily Housing (Low-Rise) Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 3

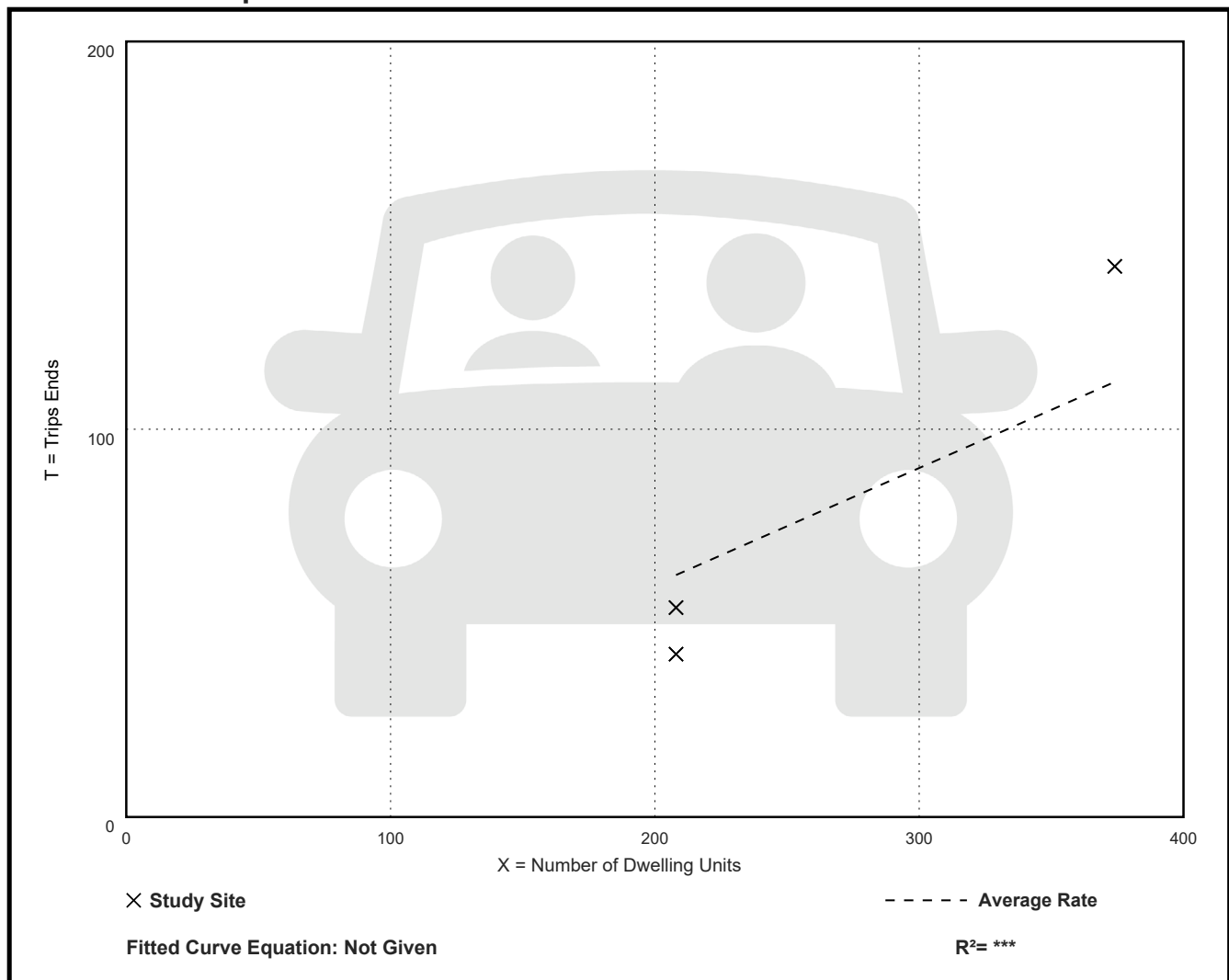
Avg. Num. of Dwelling Units: 263

Directional Distribution: 29% entering, 71% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.30	0.20 - 0.38	0.09

Data Plot and Equation



Multifamily Housing (Low-Rise) Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 3

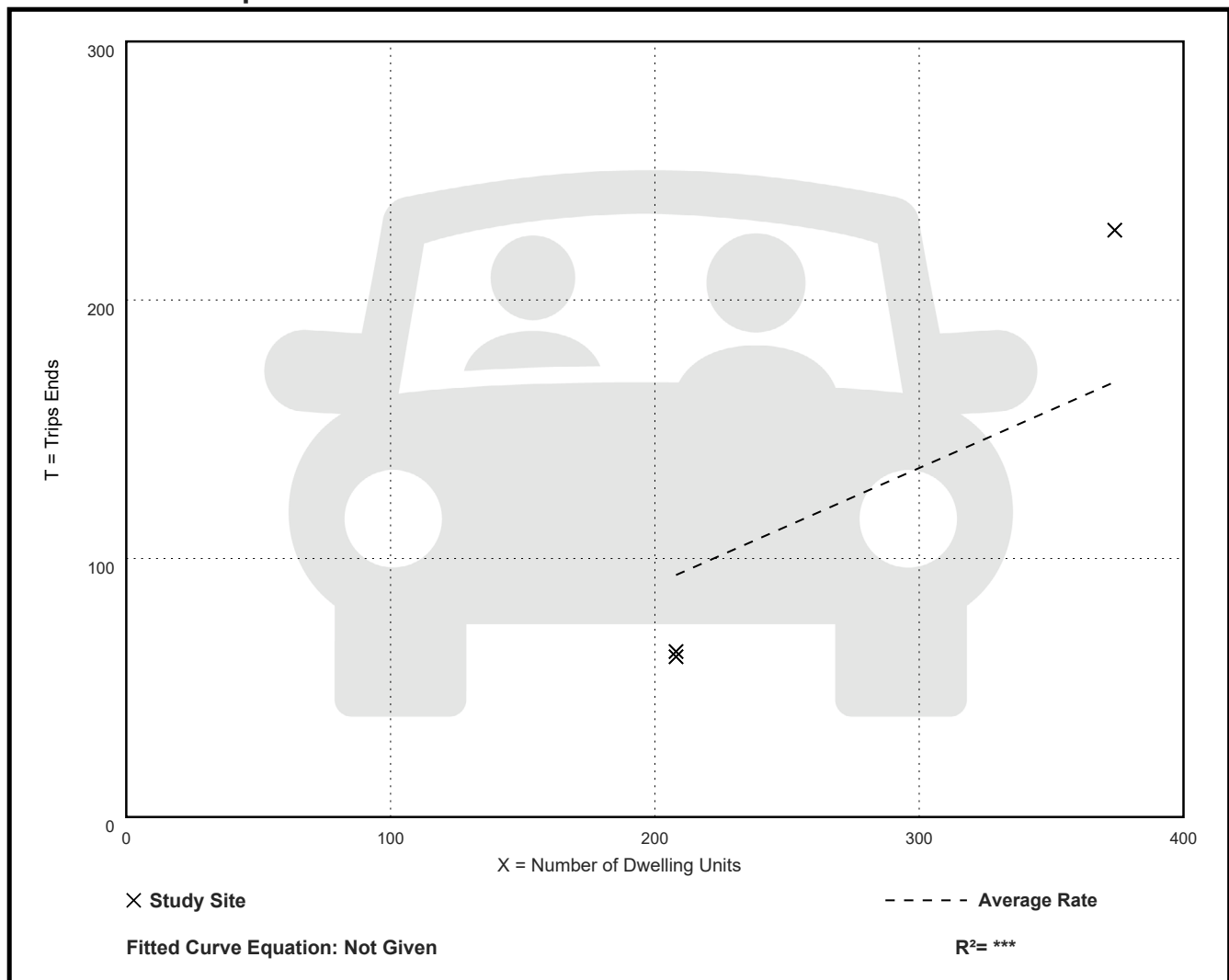
Avg. Num. of Dwelling Units: 263

Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.45	0.30 - 0.61	0.19

Data Plot and Equation



Multifamily Housing (Low-Rise) Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 2

Avg. Num. of Dwelling Units: 208

Directional Distribution: 43% entering, 57% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.22	0.21 - 0.24	***

Data Plot and Equation

Caution – Small Sample Size

