Memorandum

TO: Mr. Erik Van Someren
Charleston Building and Development

FROM: Stephen B. Corcoran, P.E., PTOE
Director of Traffic Engineering

DATE: June 2, 2022 **Revised**

RE: Trip Generation Analysis
1508 Aurora Avenue
Naperville, Illinois

This memorandum summarizes a trip generation analysis conducted for the redevelopment of an existing animal hospital located at 445 Aurora Avenue in Naperville, Illinois. An eight-unit rowhome development is proposed on the site. The purpose of the study was to estimate the change in traffic volumes generated by the redevelopment.

The site traffic generated by the existing use and proposed development was estimated from data in the Institute of Transportation Engineer's Trip Generation 11th Ed. manual which contains trip generation surveys of similar uses. The resulting site traffic volumes for the existing or proposed uses are shown in **Table 1.** A copy of the trip generation calculations are attached.

While both uses have a low volume of trips, the rowhomes generate less traffic than the animal hospital. The daily traffic volumes are 23% lower. The morning peak-hour trips are 70% lower with the evening peak-hour trips 58% lower. Overall, the proposed rowhome project has a less impact on traffic conditions compared to the previous use as an animal hospital.

The existing access drive for the animal hospital near the east property line will be removed and a new drive for the rowhomes will built near the west property line. This increases the distance from the traffic signal to the east serving Naperville Central High School and Rotary Park by 58 feet.

Table 1
Site Traffic Volume Comparison

Use and Size	ITE LUC	Daily Trips	Morning Peak			Evening Peak		
			In	Out	Total	In	Out	Total
Animal Hospital (3,500 sq. ft.)	640	75	9	4	13	5	7	12
8 Rowhomes	215	58	1	3	4	3	2	5
Change in Volume		**-17**	**-8**	**-1**	**-9**	**-2**	**-5**	**-7**

Charleston was asked to review the traffic impact to Aurora to West Street left turn lane and to confirm storage and taper. Upon review of the anticipated traffic volumes, the project reduces traffic so impact on the turn lane will be reduced.

Single-Family Attached Housing
(215)

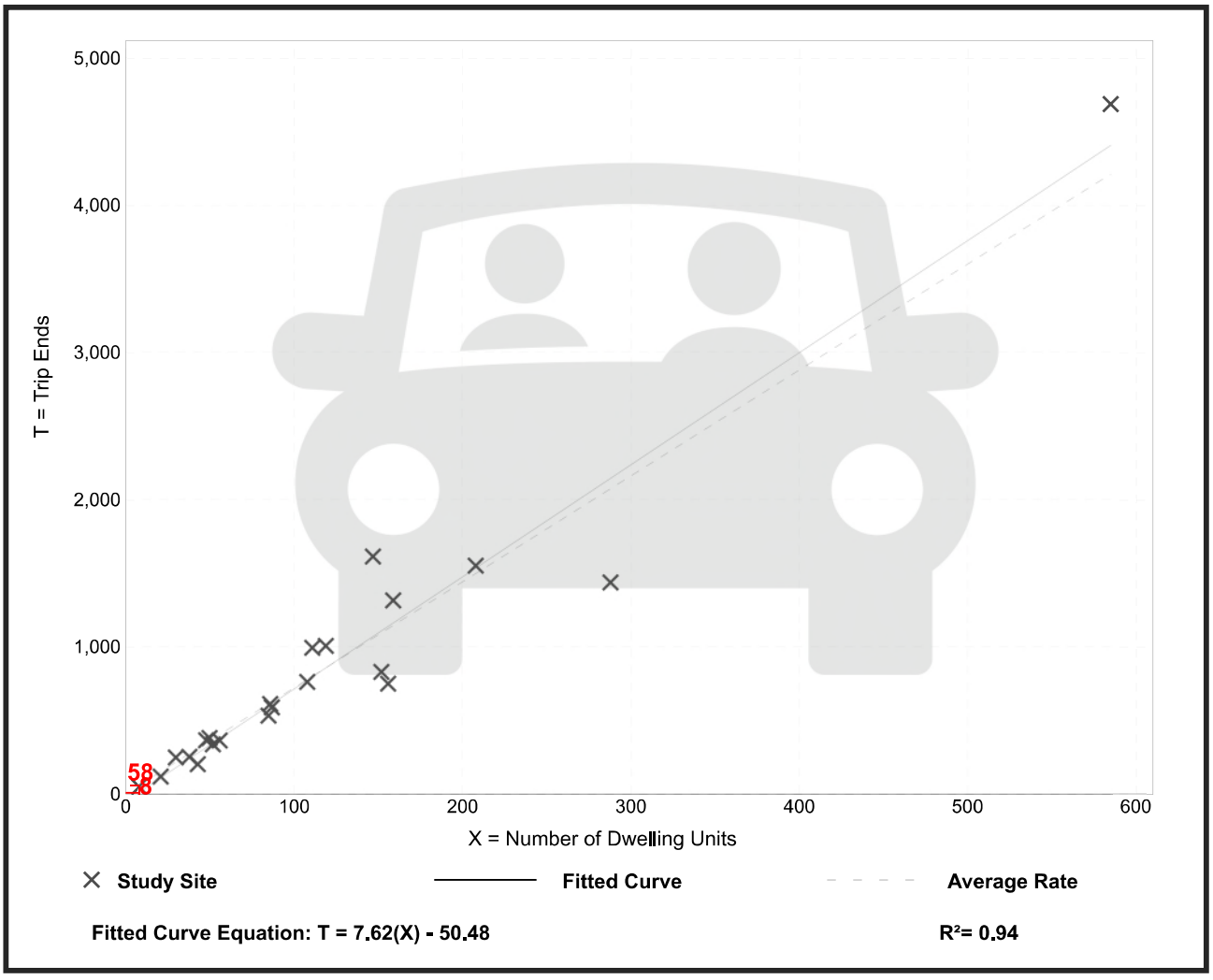
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
Avg. Num. of Dwelling Units: 120
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61

Data Plot and Equation



Fitted Curve Equation: T = 7.62(X) - 50.48

R^2= 0.94

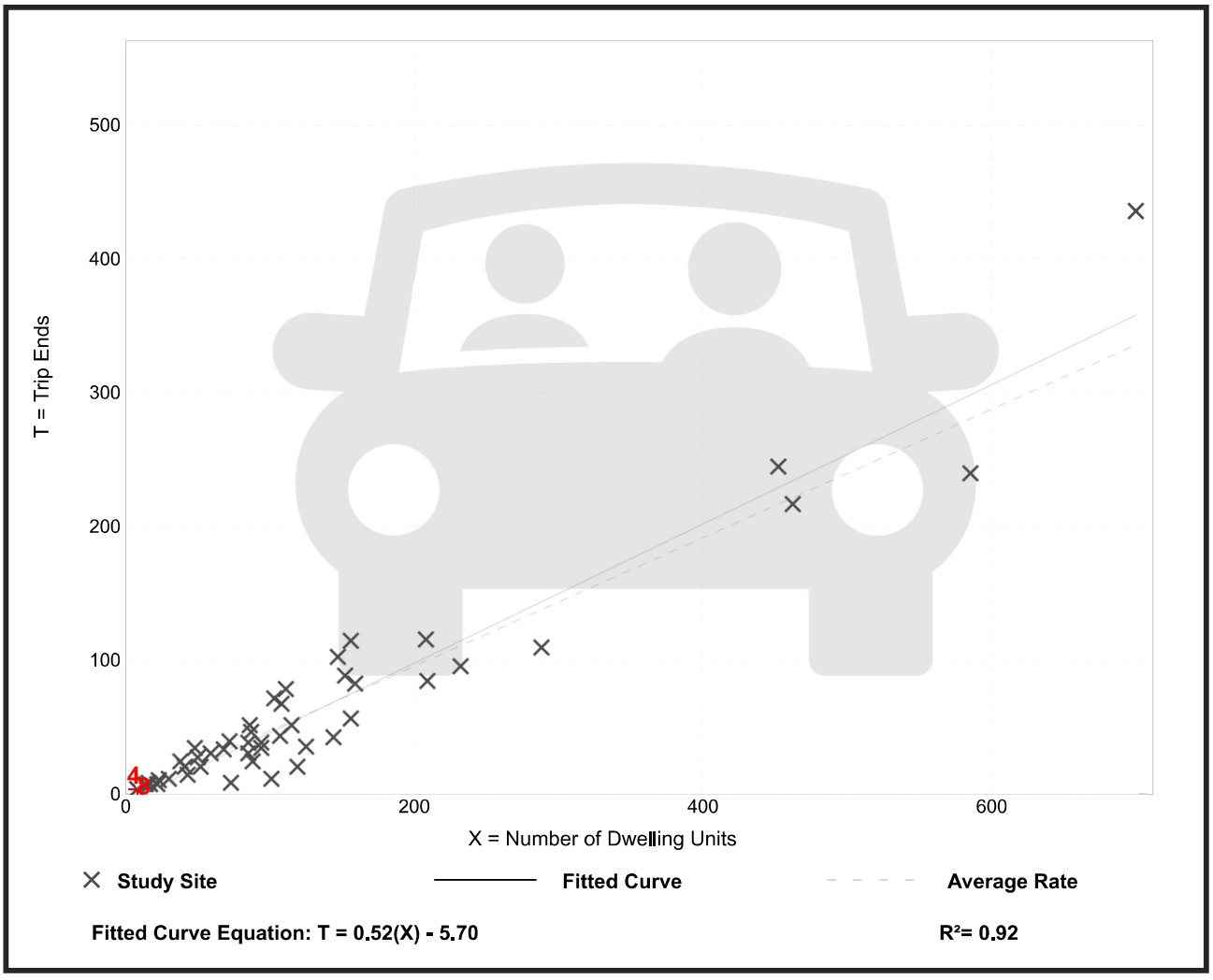
Single-Family Attached Housing
(215)

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:	46
Avg. Num. of Dwelling Units:	135
Directional Distribution:	31% entering, 69% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14

Data Plot and Equation



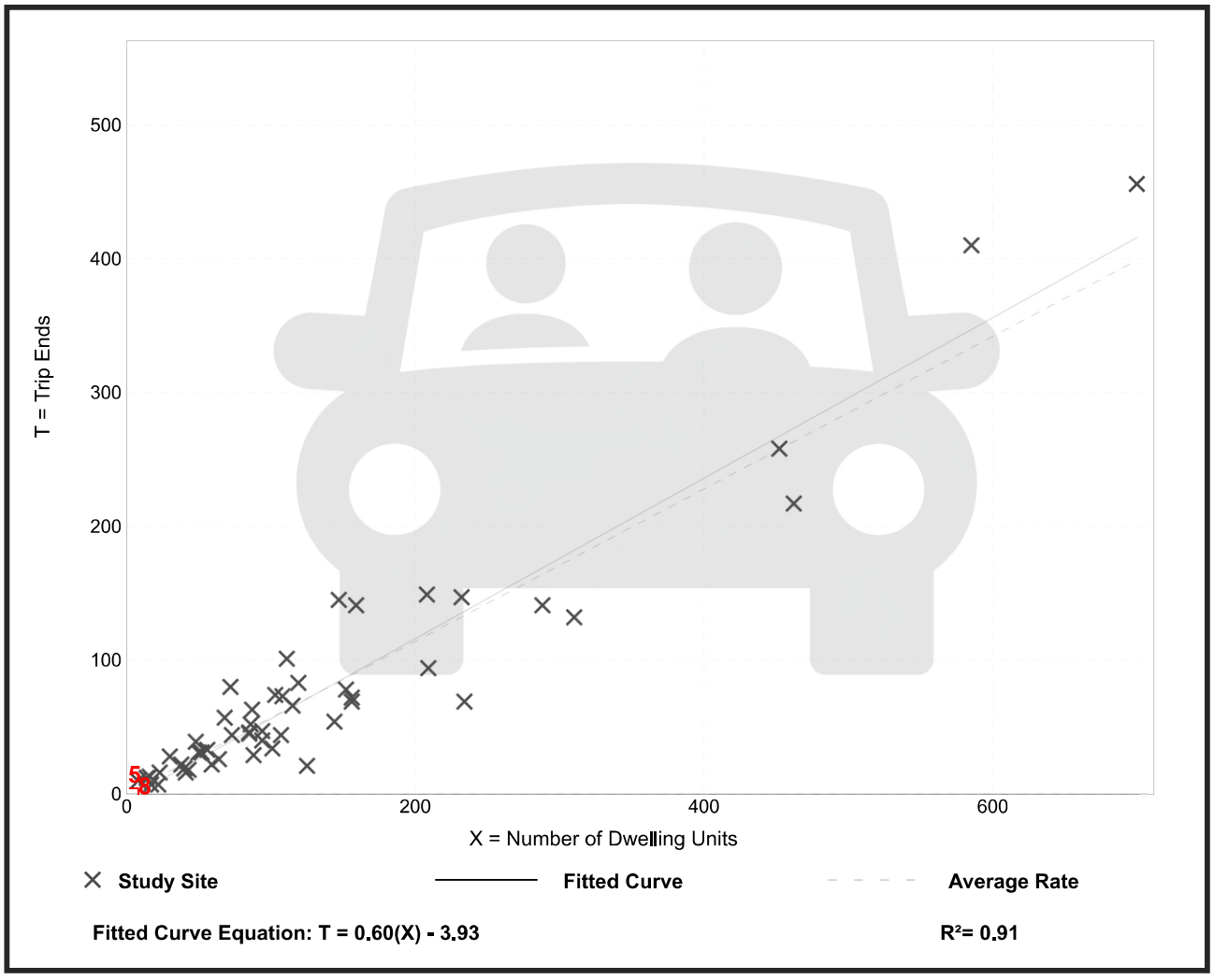
Single-Family Attached Housing
(215)

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:	51
Avg. Num. of Dwelling Units:	136
Directional Distribution:	57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18

Data Plot and Equation



Animal Hospital/Veterinary Clinic
(640)

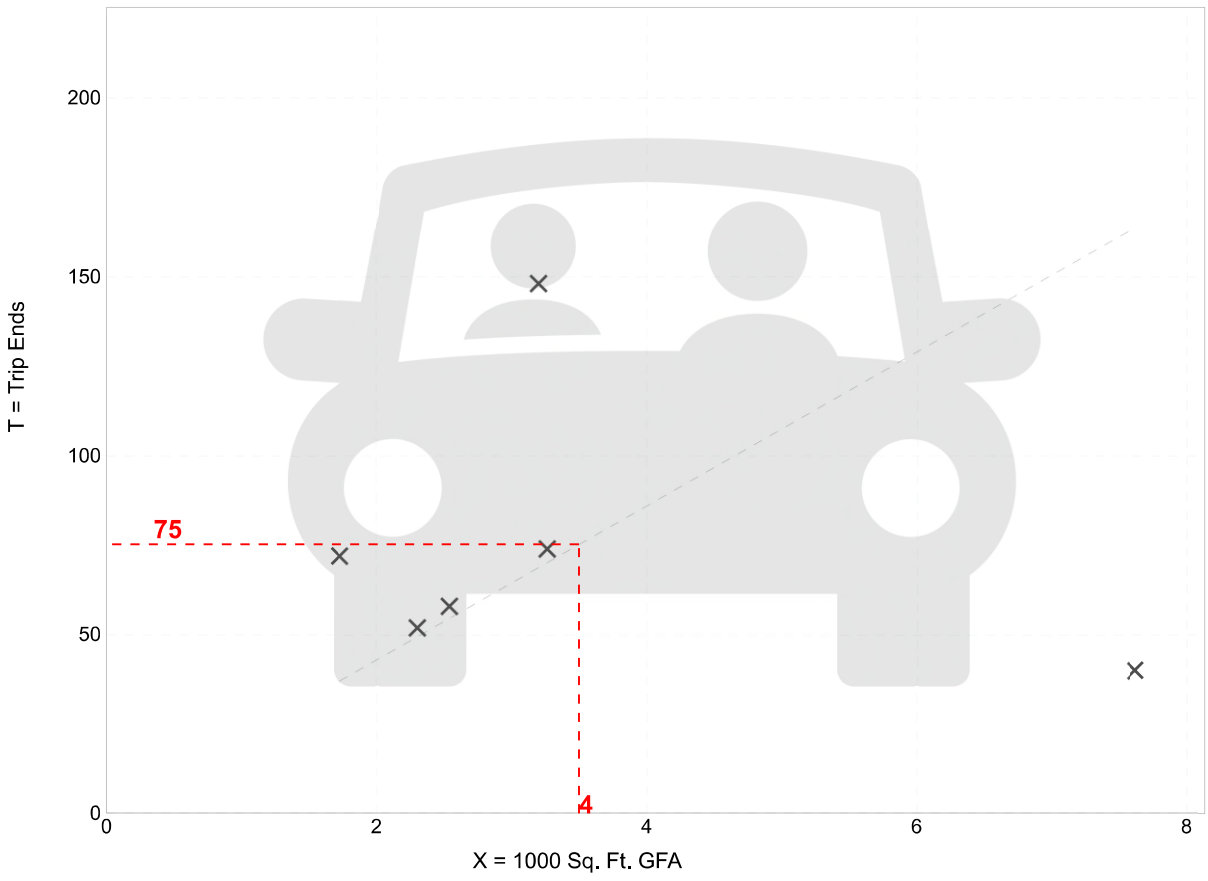
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
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
21.50	5.25 - 46.25	16.50

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= **

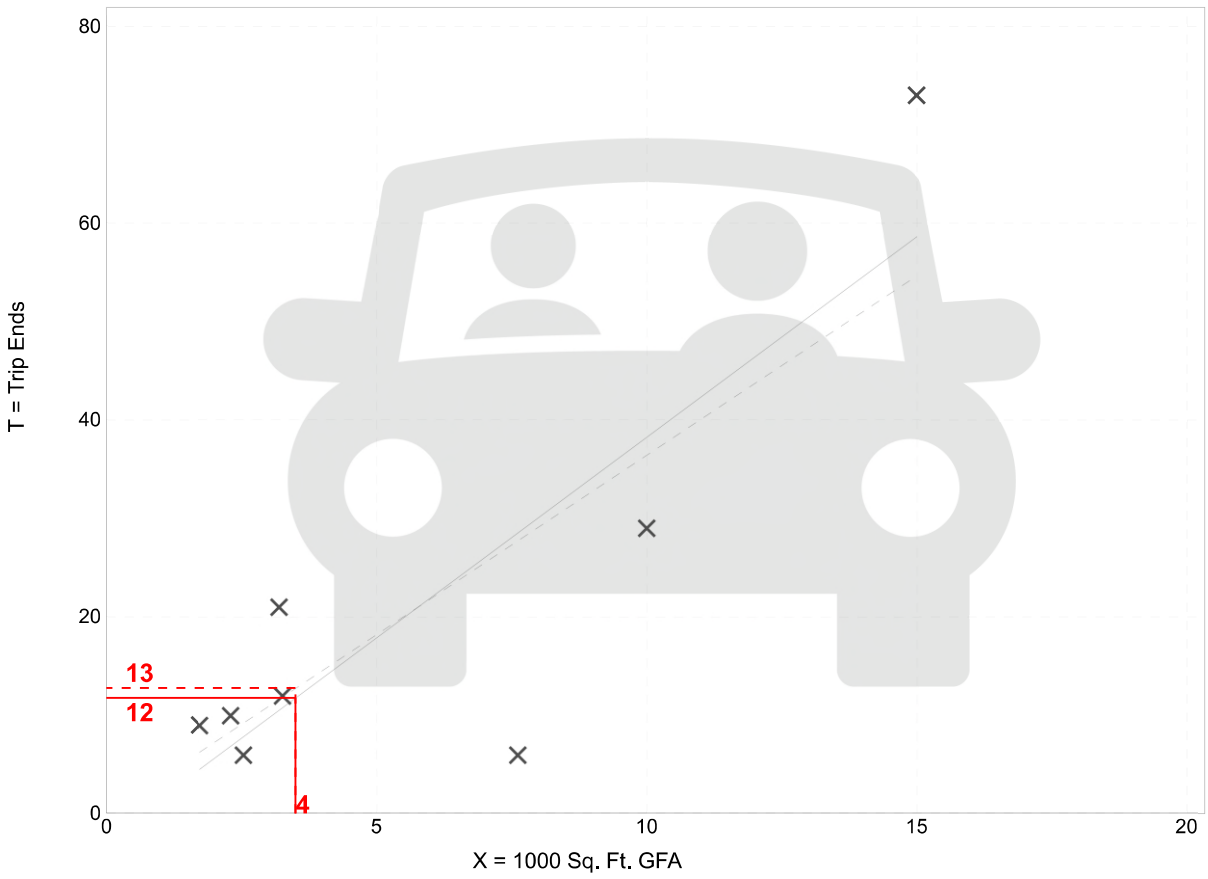
Animal Hospital/Veterinary Clinic
(640)

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: 8
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.64	0.79 - 6.56	1.78

Data Plot and Equation



Fitted Curve Equation: T = 4.07(X) - 2.48

R^2= 0.74

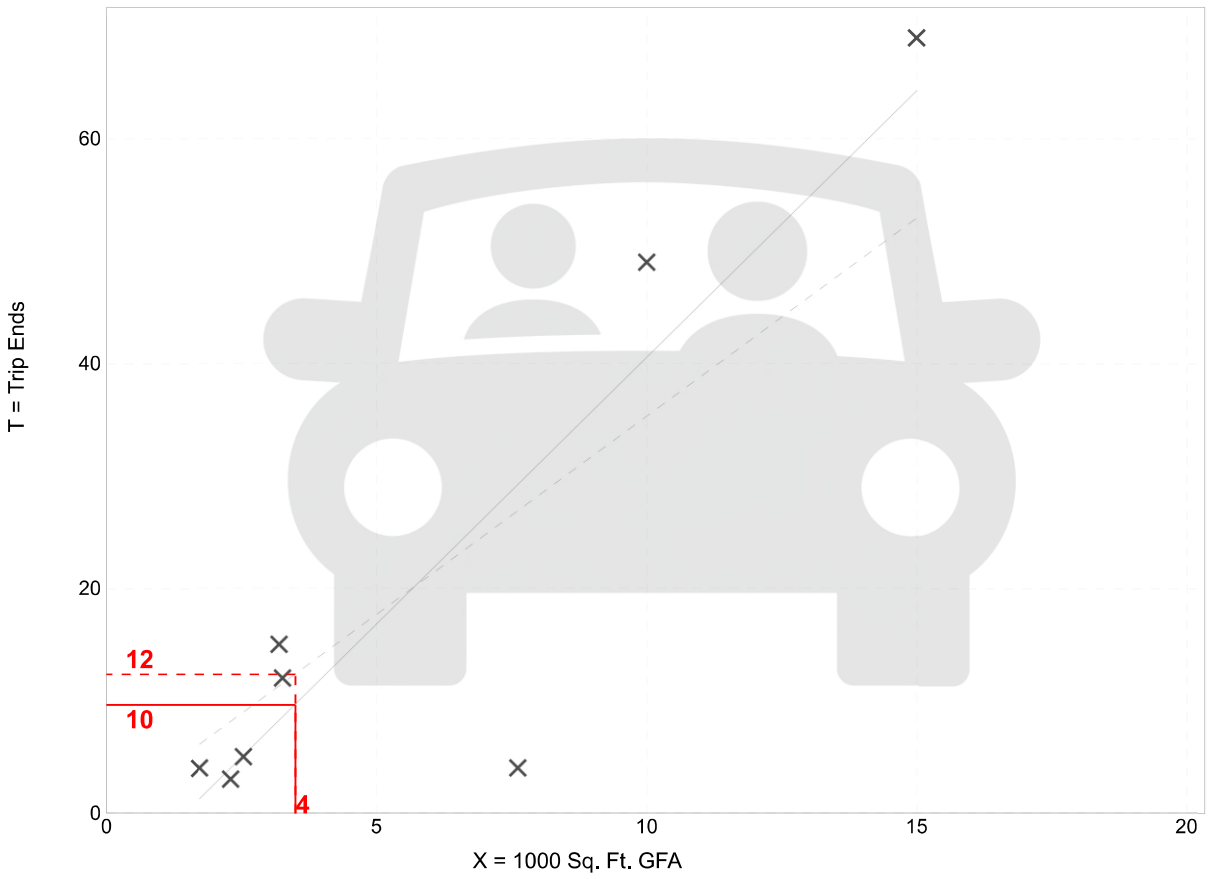
Animal Hospital/Veterinary Clinic
(640)

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: 8
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 40% entering, 60% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.53	0.53 - 4.90	1.80

Data Plot and Equation



Fitted Curve Equation: T = 4.75(X) - 6.96

R^2= 0.82