



**ALLEN & MAJOR ASSOCIATES, INC.**

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December 13, 2019

Matt Monohan  
Town Planner  
Allentown Circuit Rider Planner  
16 School Street  
Allentown, NH 03275

RE: A&M Project # 2638-01  
Proposed Change of Use  
Tenant Space #2  
43 Allentown Road  
Allentown, NH

Dear Mr. Monohan:

Allen & Major Associates, Inc. has prepared a memorandum to outline the anticipated traffic impacts generated by the proposed change of use for the Tenant Space #2 as indicated on the submitted site plans. The proposed development will convert an existing tenant space of approximately 2,115sf from a pharmacy to a landscape equipment rental center. Although, there is not a specific use code for landscape equipment rental, there are several similar uses which could be conducted as part of the business as outlined herein.

**Trip Generation**

Traffic generated by the development was determined based on the “Institute of Transportation Engineers (ITE) Trip Generation Manual, 10<sup>th</sup> Edition”. The trip generation rate for the existing facility was based on Land Use Code 880, defined as “Pharmacy”. The trip generation rate for the proposed facility was based on Land Use Code 841, defined as “Automobile Sales”, Land Use Code 842, defined as “Recreational Vehicle Sales” and Land Use Code 843, defined as “Automobile Parts Sales”.

To evaluate if the proposed re-development would have any appreciable effect on the existing surrounding roadway network, the existing trips for Land Use Code 880 were compared to a combination of the uses for Land Use Code 841, 842, & 843 which were equally to the existing tenant space. The estimated existing, proposed, and net vehicle trips are shown in the following table:

	Existing			Proposed			Net New Trips		
	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT
<b>Daily</b>	194	97	97	63	31	32	-131	-66	-65
<b>AM Peak</b>	7	4	4	7	3	4	0	-1	0
<b>PM Peak</b>	8	4	4	9	4	5	1	0	1

**Conclusion**

The proposed site will see a net decrease in vehicle trips from the existing condition of approximately 131 vehicle trips. Both the AM Peak and PM Peak remained relatively unchanged. As a result, the proposed development should have limited impacts on the surrounding roadway network.

Very truly yours,  
**ALLEN & MAJOR ASSOCIATES, INC.**

Michael A. Malynowski, PE  
Senior Project Manager

Attachments

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

880

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE :**

880 - Pharmacy/Drugstore without Drive-Thro

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday

**SETTING/LOCATION:**

General Urban/Suburban

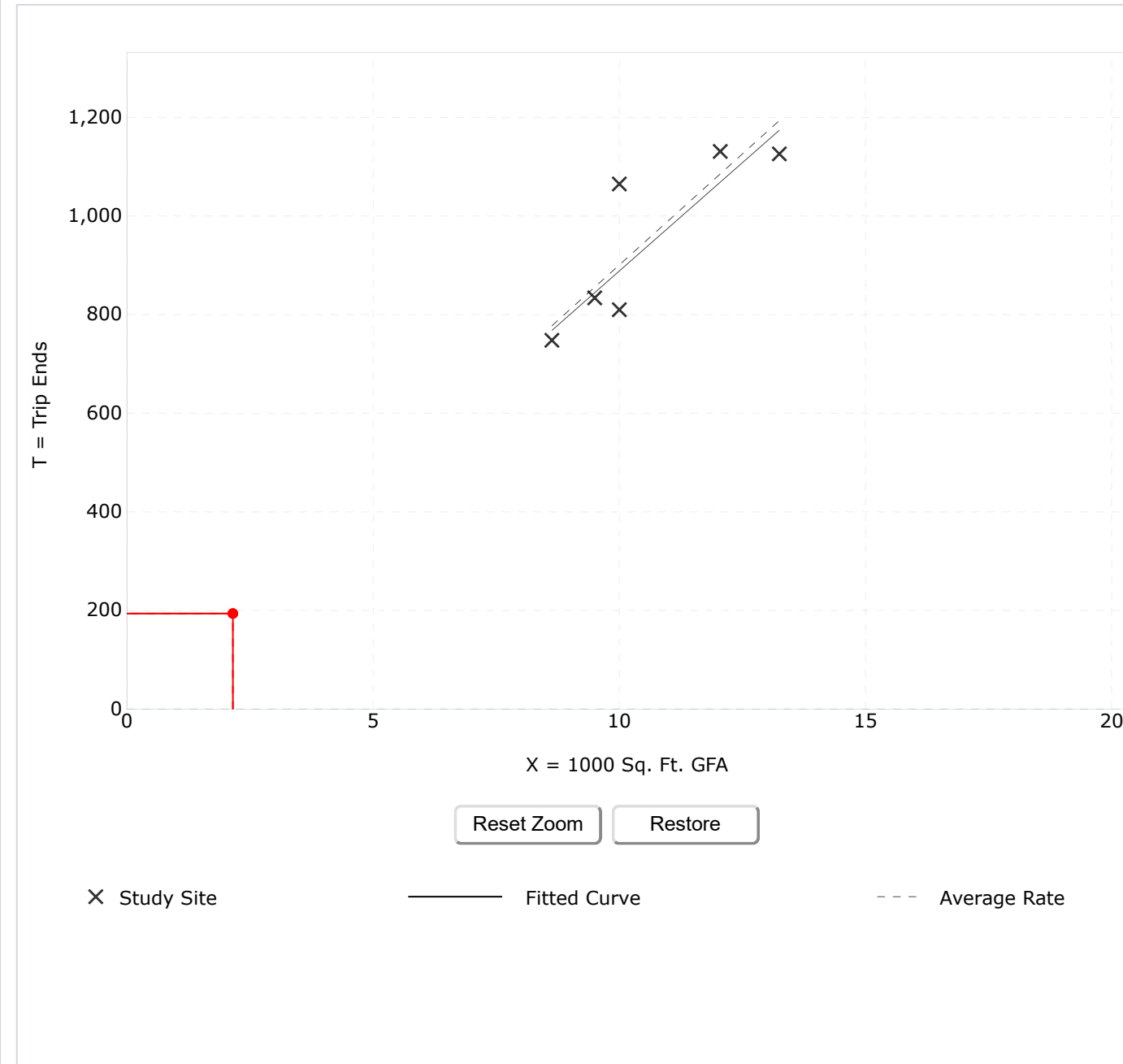
**TRIP TYPE:**

Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

2.15

## Data Plot and Equation



X Study Site      — Fitted Curve      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

Window (880) [Click for more details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

6

**Avg. 1000 Sq. Ft. GFA:**

11

**Average Rate:**

90.08

**Range of Rates:**

81.00 - 106.50

**Standard Deviation:**

8.90

**Fitted Curve Equation:**

$\ln(T) = 0.99 \ln(X) + 4.51$

**R<sup>2</sup>:**

0.73

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 194 (Total), 97 (Entry), 97 (Exit)

Fitted Curve: 194 (Total), 97 (Entry), 97 (Exit)

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

880

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE :**

880 - Pharmacy/Drugstore without Drive-Thro

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, AM Peak Hour of Generator

**SETTING/LOCATION:**

General Urban/Suburban

**TRIP TYPE:**

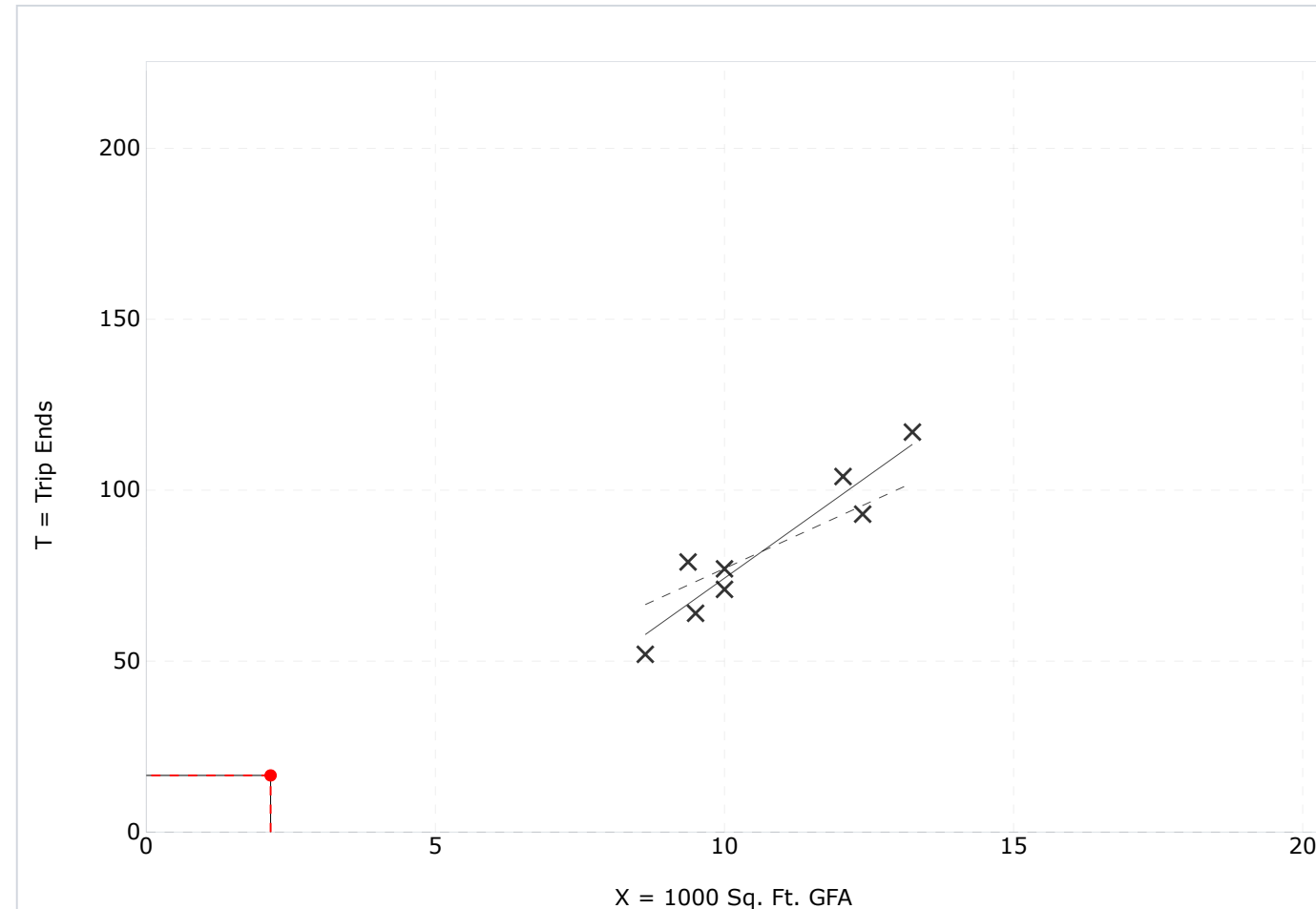
Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

2.15

Trip ends are not estimated for some methods as it yields negative values

## Data Plot and Equation



X Study Site      — Fitted Curve      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

**Independent Variable:**  
1000 Sq. Ft. GFA

**Time Period:**  
Weekday  
AM Peak Hour of Generator

**Setting/Location:**  
General Urban/Suburban

**Trip Type:**  
Vehicle

**Number of Studies:**  
8

**Avg. 1000 Sq. Ft. GFA:**  
11

**Average Rate:**  
7.71

**Range of Rates:**  
6.03 - 8.83

**Standard Deviation:**  
0.97

**Fitted Curve Equation:**  
 $T = 12.04(X) - 46.13$

**R<sup>2</sup>:**  
0.89

**Directional Distribution:**  
50% entering, 50% exiting

**Calculated Trip Ends:**  
Average Rate: 17 (Total), 8 (Entry), 9 (Exit)  
Fitted Curve: Not Available

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

880

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE :**

880 - Pharmacy/Drugstore without Drive-Thro

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, PM Peak Hour of Generator

**SETTING/LOCATION:**

General Urban/Suburban

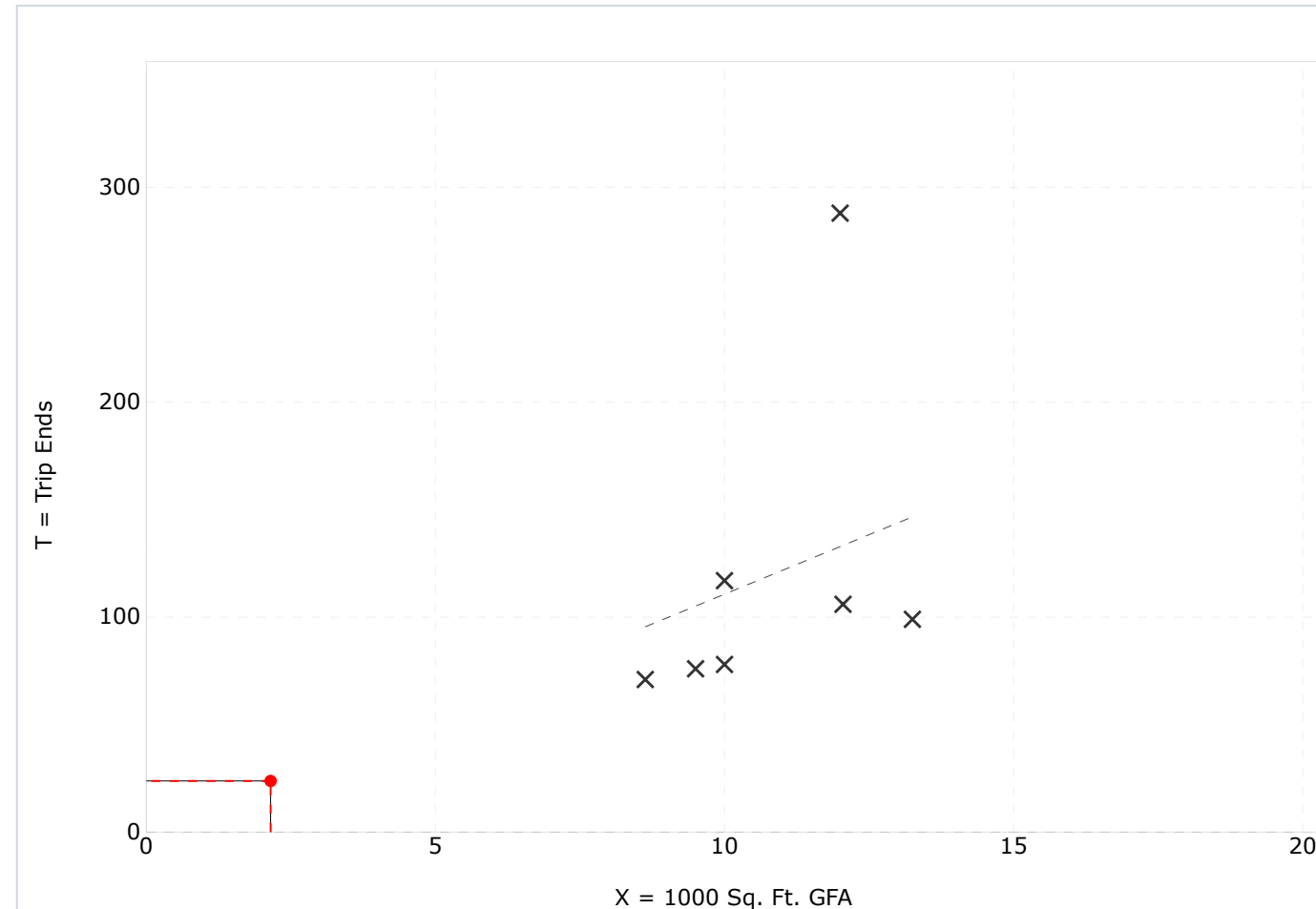
**TRIP TYPE:**

Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

2.15

## Data Plot and Equation



X Study Site      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
 Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

Window (880) [Click for more details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday  
 PM Peak Hour of Generator

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

7

**Avg. 1000 Sq. Ft. GFA:**

11

**Average Rate:**

11.07

**Range of Rates:**

7.47 - 24.00

**Standard Deviation:**

6.23

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 24 (Total), 12 (Entry), 12 (Exit)

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

841

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

841 - Automobile Sales (Used)

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday

**SETTING/LOCATION:**

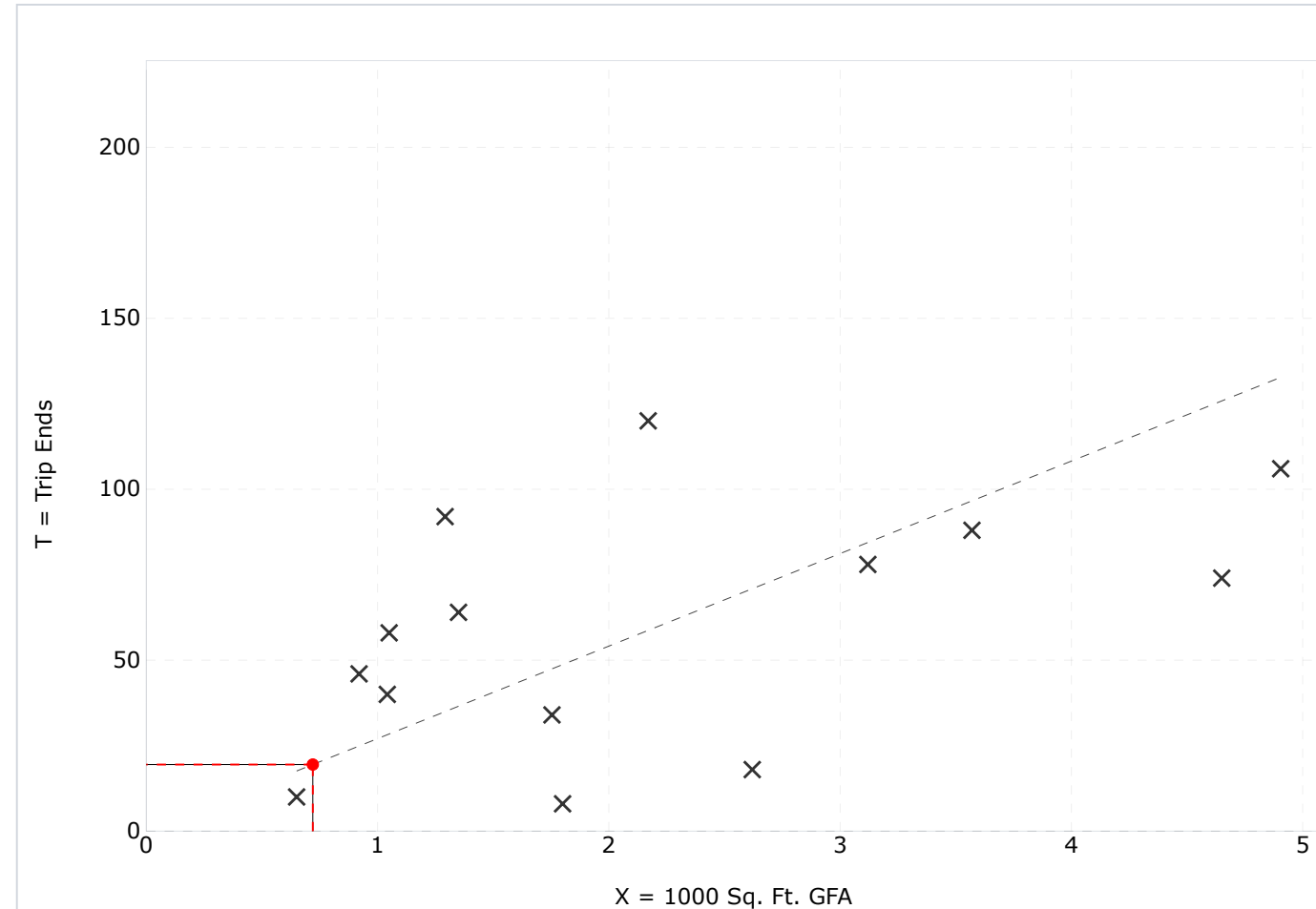
General Urban/Suburban

**TRIP TYPE:**

Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

## Data Plot and Equation



X Study Site

--- Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

Automobile Sales (Used) (841) [Click for more details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

14

**Avg. 1000 Sq. Ft. GFA:**

2

**Average Rate:**

27.06

**Range of Rates:**

4.44 - 71.21

**Standard Deviation:**

17.91

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 19 (Total), 9 (Entry), 10 (Exit)

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

841

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

841 - Automobile Sales (Used)

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, AM Peak Hour of Generator

**SETTING/LOCATION:**

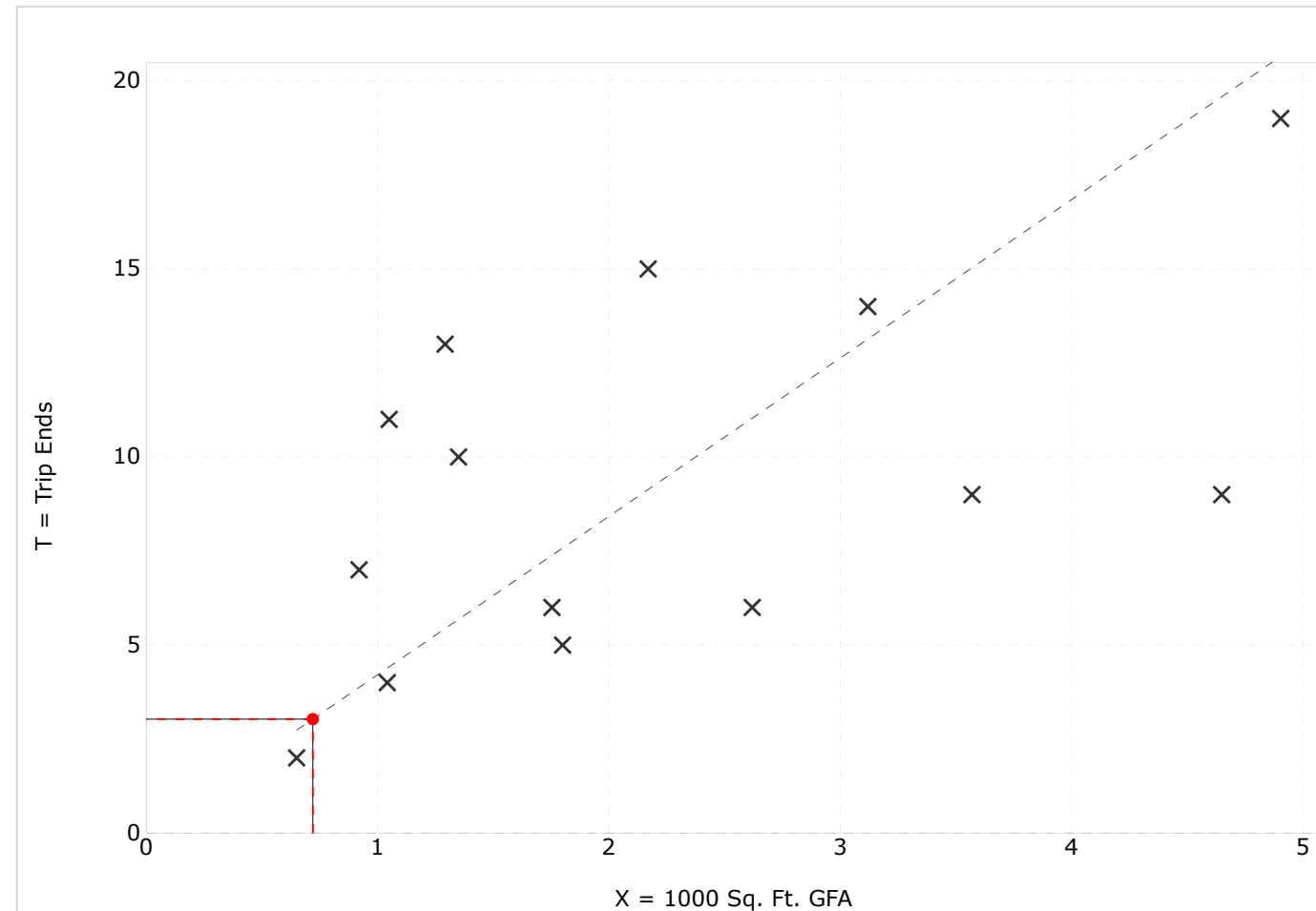
General Urban/Suburban

**TRIP TYPE:**

Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

## Data Plot and Equation



X Study Site      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

[details](#)

- Independent Variable:** 1000 Sq. Ft. GFA
- Time Period:** Weekday  
AM Peak Hour of Generator
- Setting/Location:** General Urban/Suburban
- Trip Type:** Vehicle
- Number of Studies:** 14
- Avg. 1000 Sq. Ft. GFA:** 2
- Average Rate:** 4.21
- Range of Rates:** 1.94 - 10.48
- Standard Deviation:** 2.48
- Fitted Curve Equation:** Not Given
- R<sup>2</sup>:** \*\*\*\*
- Directional Distribution:** 58% entering, 42% exiting
- Calculated Trip Ends:** Average Rate: 3 (Total), 2 (Entry), 1 (Exit)

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

841

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

841 - Automobile Sales (Used)

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, PM Peak Hour of Generator

**SETTING/LOCATION:**

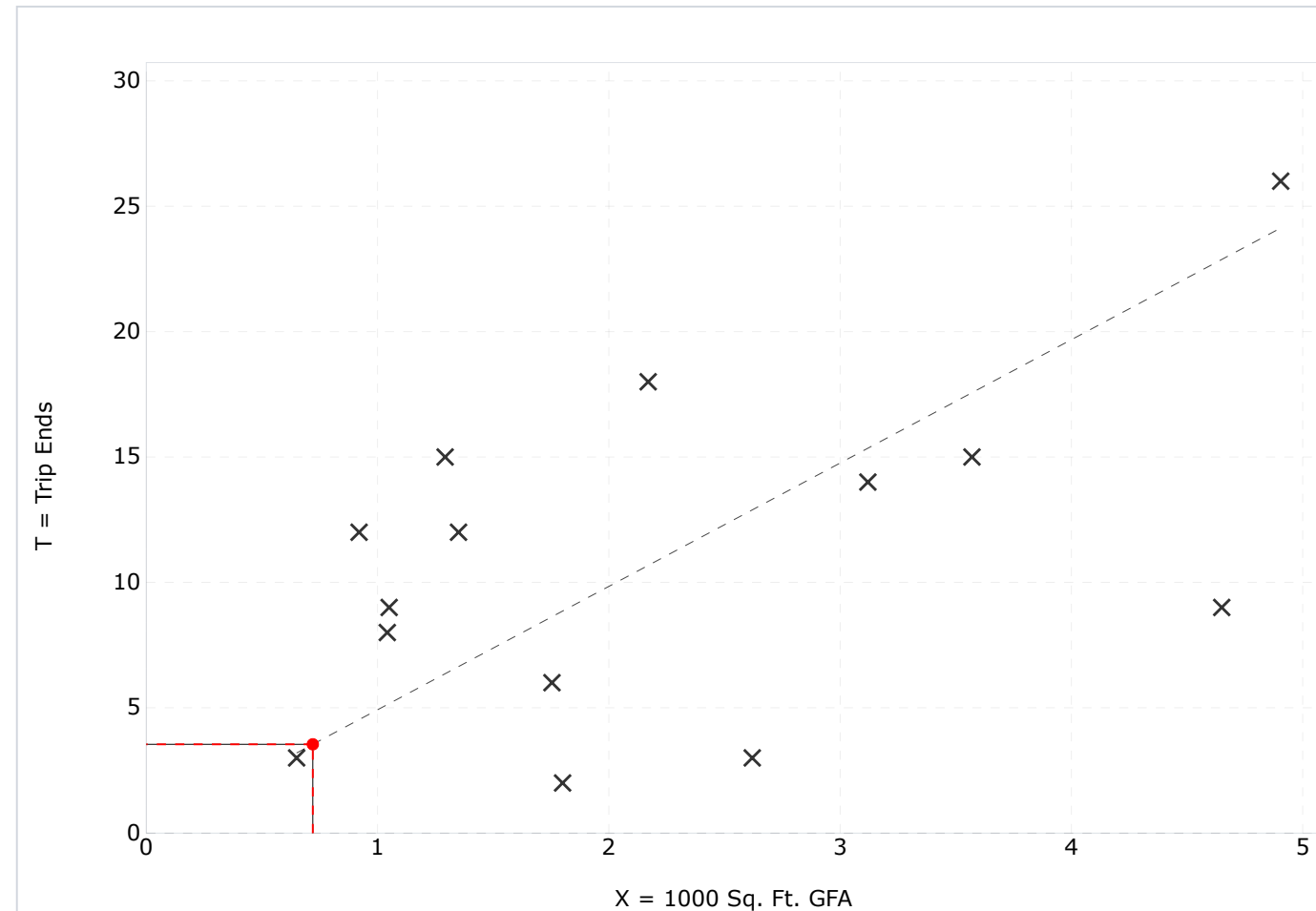
General Urban/Suburban

**TRIP TYPE:**

Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

## Data Plot and Equation



X Study Site      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

[details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday  
PM Peak Hour of Generator

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

14

**Avg. 1000 Sq. Ft. GFA:**

2

**Average Rate:**

4.92

**Range of Rates:**

1.11 - 13.04

**Standard Deviation:**

3.23

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 4 (Total), 2 (Entry), 2 (Exit)

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

842

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

842 - Recreational Vehicle Sales

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday

**SETTING/LOCATION:**

General Urban/Suburban

**TRIP TYPE:**

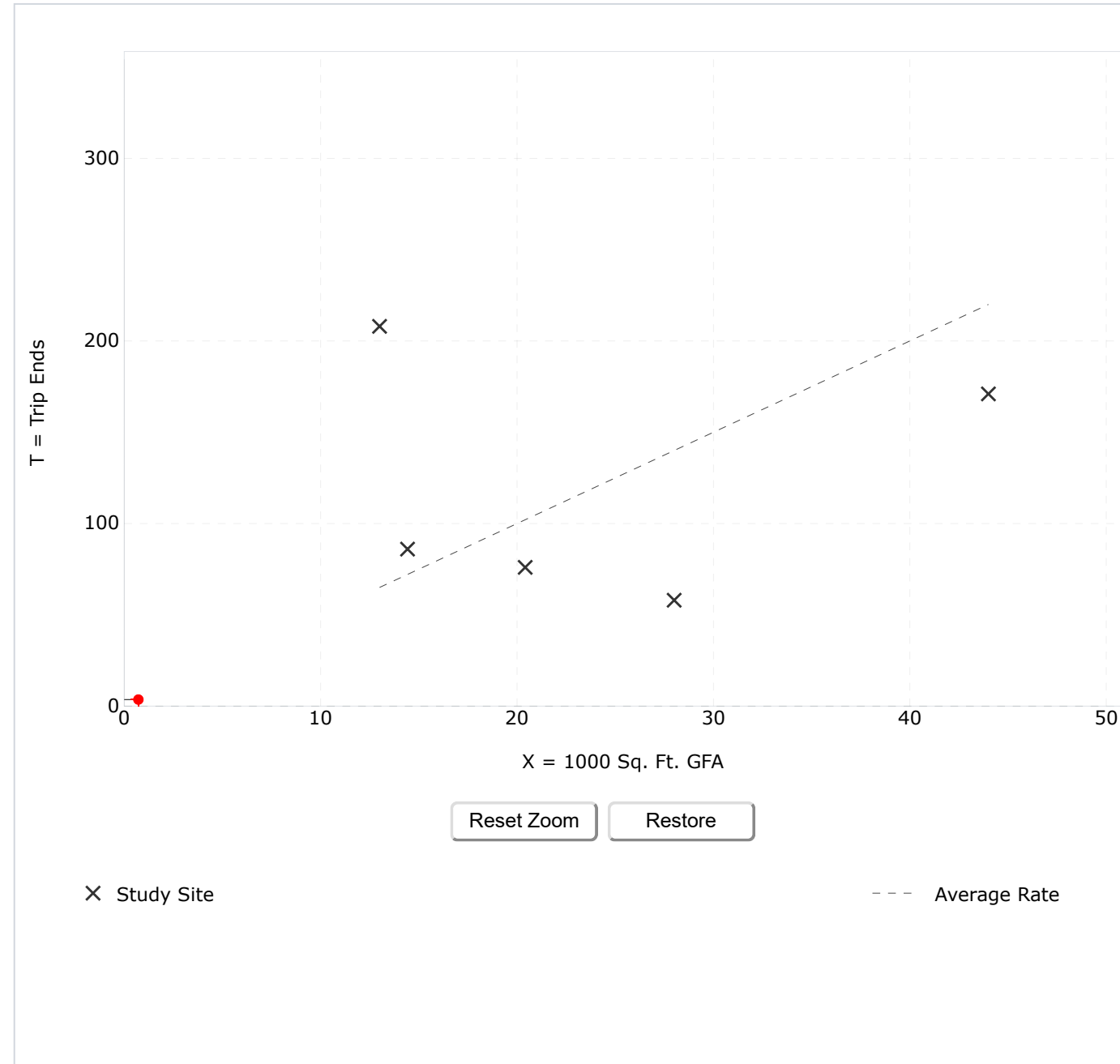
Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

0.72

**Data Plot and Equation**

*Caution – Small Sample Size*



X Study Site      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

**DATA STATISTICS**

Recreational Vehicle Sales (842) [Click for more details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

5

**Avg. 1000 Sq. Ft. GFA:**

24

**Average Rate:**

5.00

**Range of Rates:**

2.07 - 16.00

**Standard Deviation:**

4.47

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 4 (Total), 2 (Entry), 2 (Exit)



# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

842

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

842 - Recreational Vehicle Sales

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, AM Peak Hour of Generator

**SETTING/LOCATION:**

General Urban/Suburban

**TRIP TYPE:**

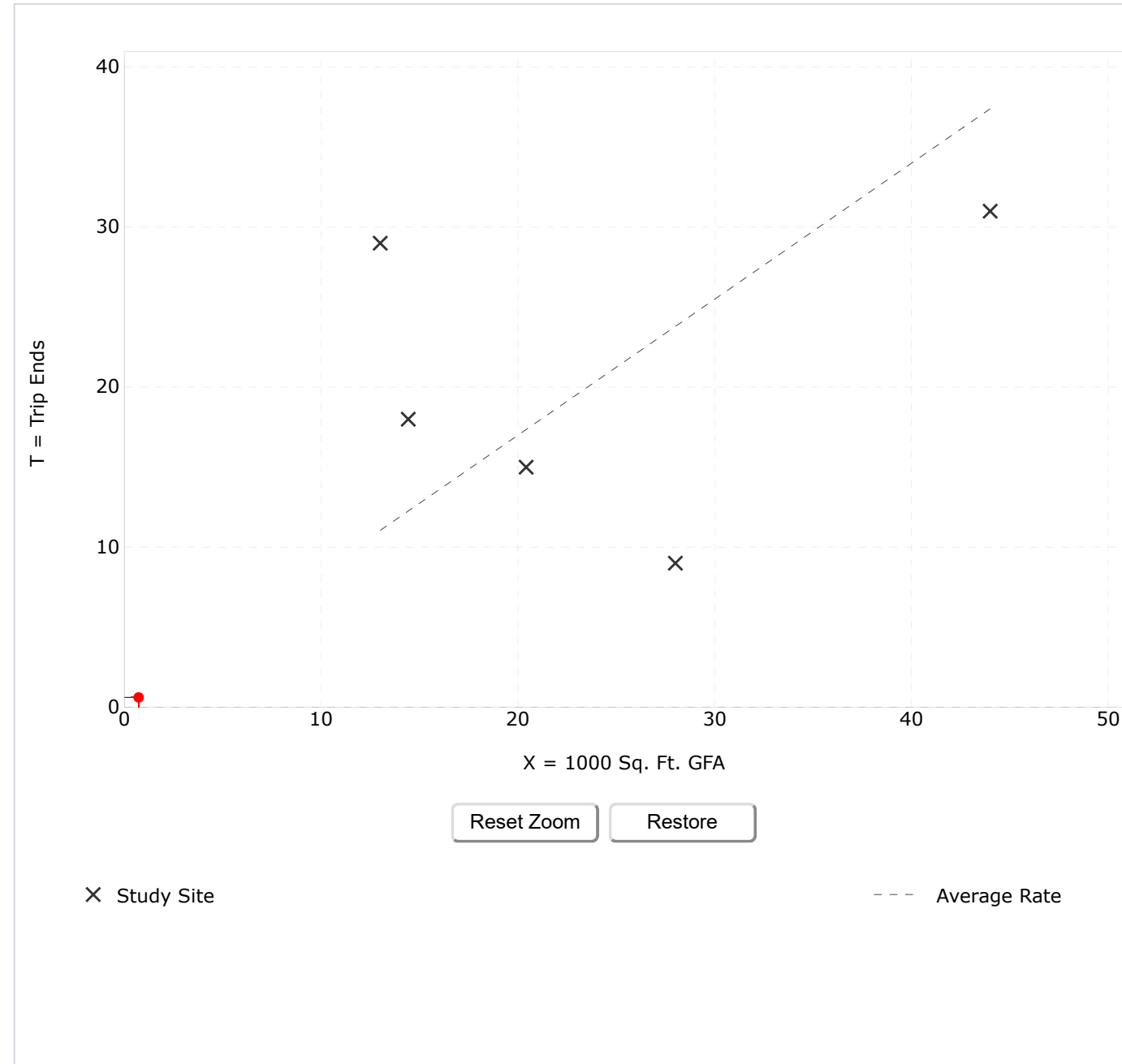
Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

0.72

**Data Plot and Equation**

*Caution – Small Sample Size*



Use the mouse wheel to Zoom Out or Zoom In.  
 Hover the mouse pointer on data points to view X and T values.

**DATA STATISTICS**

[details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday  
 AM Peak Hour of Generator

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

5

**Avg. 1000 Sq. Ft. GFA:**

24

**Average Rate:**

0.85

**Range of Rates:**

0.32 - 2.23

**Standard Deviation:**

0.61

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

54% entering, 46% exiting

**Calculated Trip Ends:**

Average Rate: 1 (Total), 0 (Entry), 1 (Exit)

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

842

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

842 - Recreational Vehicle Sales

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, PM Peak Hour of Generator

**SETTING/LOCATION:**

General Urban/Suburban

**TRIP TYPE:**

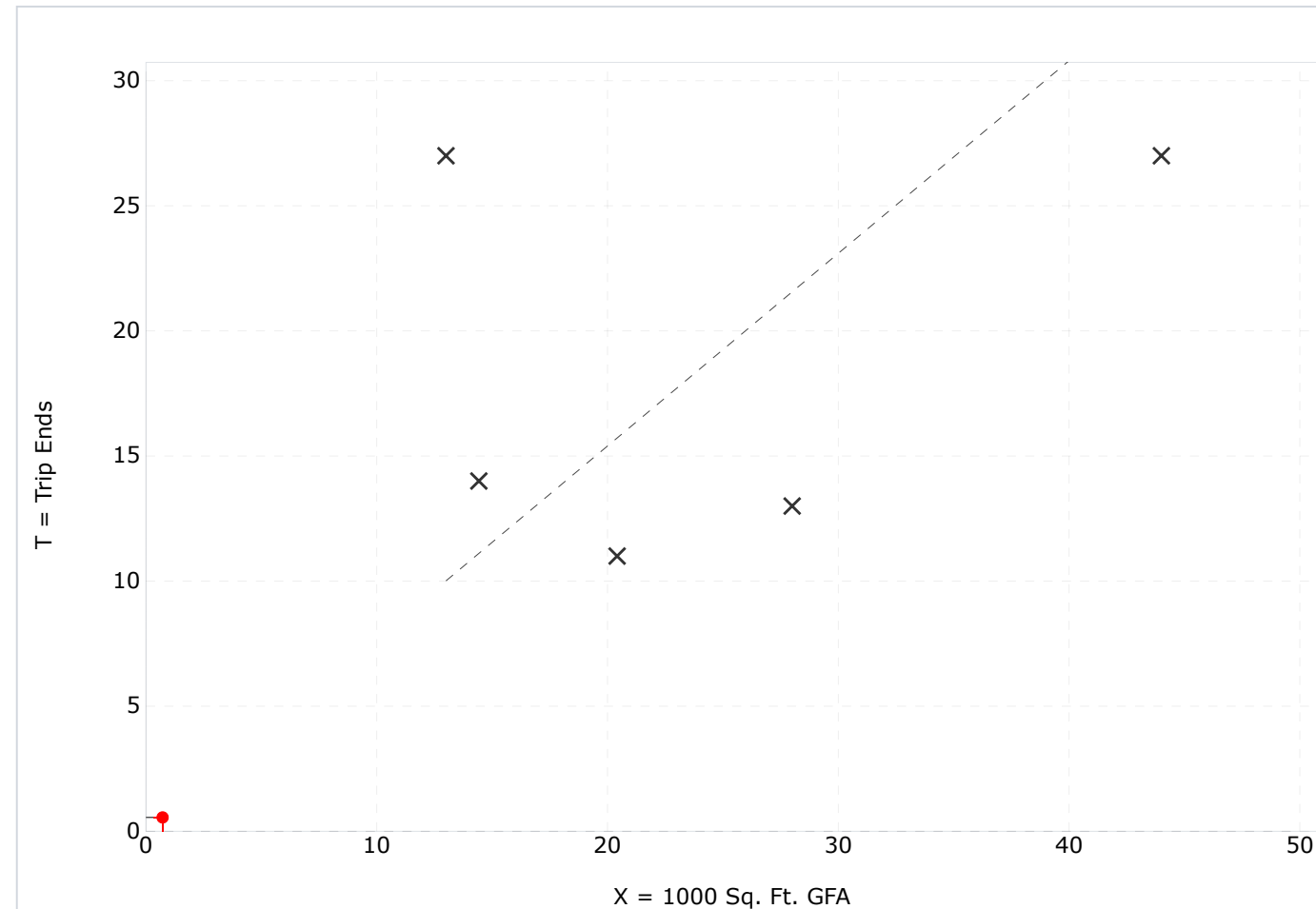
Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

0.72

**Data Plot and Equation**

*Caution – Small Sample Size*



X Study Site

--- Average Rate

**DATA STATISTICS**

[details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday  
PM Peak Hour of Generator

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

5

**Avg. 1000 Sq. Ft. GFA:**

24

**Average Rate:**

0.77

**Range of Rates:**

0.46 - 2.08

**Standard Deviation:**

0.54

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

37% entering, 63% exiting

**Calculated Trip Ends:**

Average Rate: 1 (Total), 0 (Entry), 1 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

843

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

843 - Automobile Parts Sales

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday

**SETTING/LOCATION:**

General Urban/Suburban

**TRIP TYPE:**

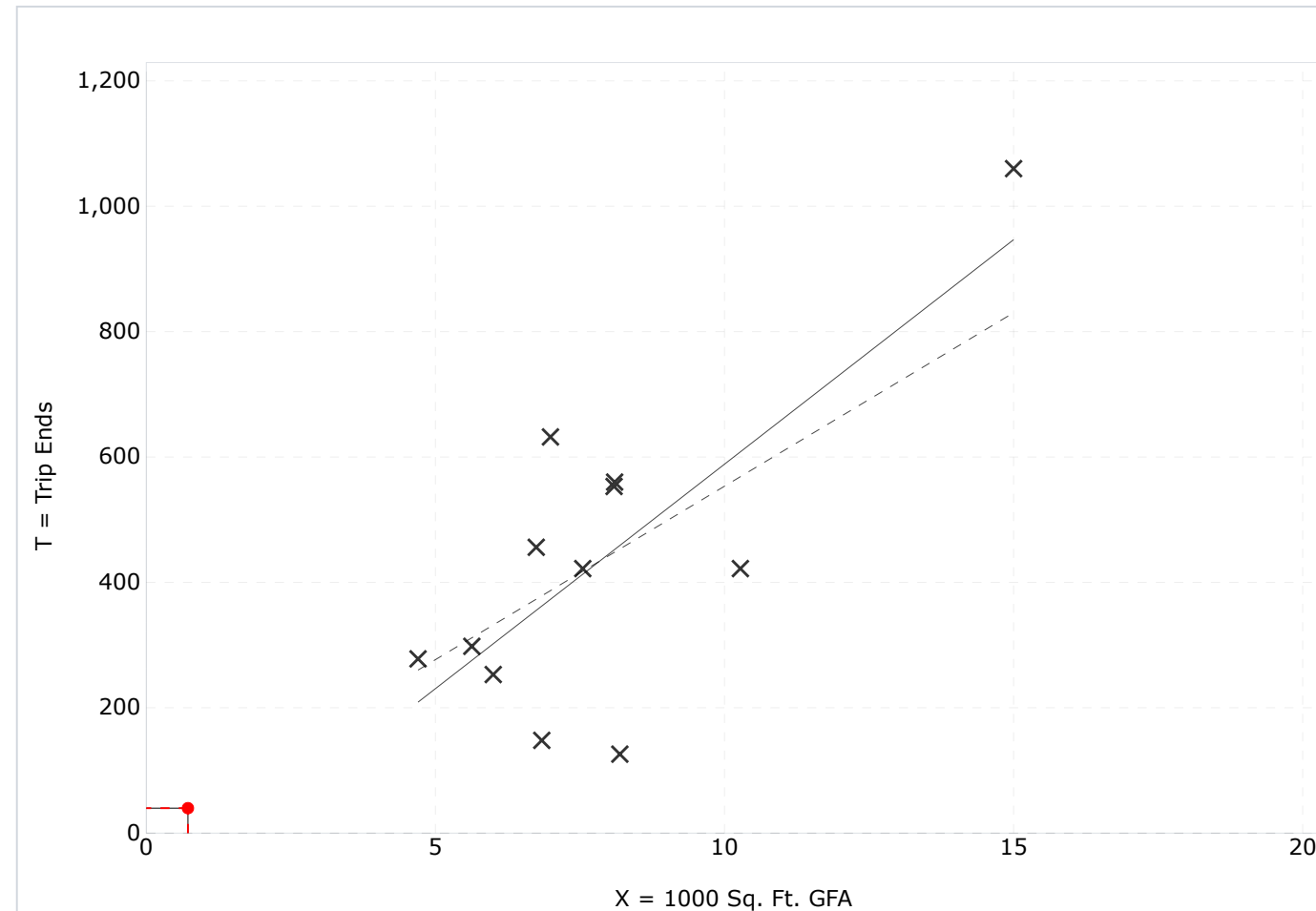
Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

0.72

Trip ends are not estimated for some methods as it yields negative values

## Data Plot and Equation



X Study Site      — Fitted Curve      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

Automobile Parts Sales (843) [Click for more details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

12

**Avg. 1000 Sq. Ft. GFA:**

8

**Average Rate:**

55.34

**Range of Rates:**

15.38 - 90.41

**Standard Deviation:**

21.57

**Fitted Curve Equation:**

$T = 71.62(X) - 127.66$

**R<sup>2</sup>:**

0.56

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 40 (Total), 20 (Entry), 20 (Exit)

Fitted Curve: Not Available

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

843

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

843 - Automobile Parts Sales

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, AM Peak Hour of Generator

**SETTING/LOCATION:**

General Urban/Suburban

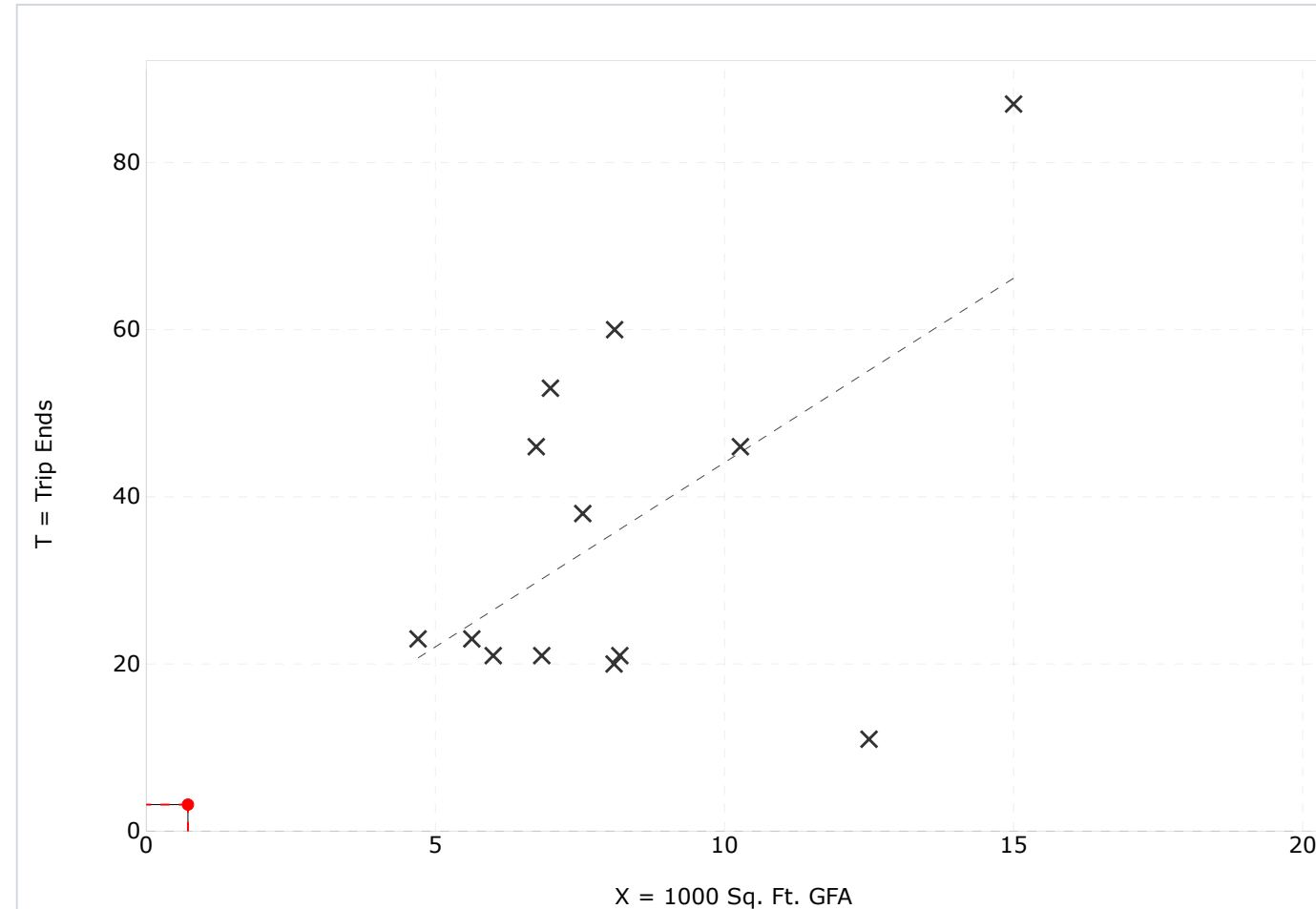
**TRIP TYPE:**

Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

0.72

## Data Plot and Equation



X Study Site      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

### DATA STATISTICS

Automobile Parts Sales (843) [Click for more details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday  
AM Peak Hour of Generator

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

13

**Avg. 1000 Sq. Ft. GFA:**

8

**Average Rate:**

4.41

**Range of Rates:**

0.88 - 7.58

**Standard Deviation:**

2.13

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 3 (Total), 1 (Entry), 2 (Exit)

# Graph Look Up



Query Filter

**DATA SOURCE:**

Trip Generation Manual, 10th Ed

**SEARCH BY LAND USE CODE:**

843

**LAND USE CATEGORY:**

(800-899) Retail

**LAND USE:**

843 - Automobile Parts Sales

**INDEPENDENT VARIABLE (IV):**

1000 Sq. Ft. GFA

**TIME PERIOD:**

Weekday, PM Peak Hour of Generator

**SETTING/LOCATION:**

General Urban/Suburban

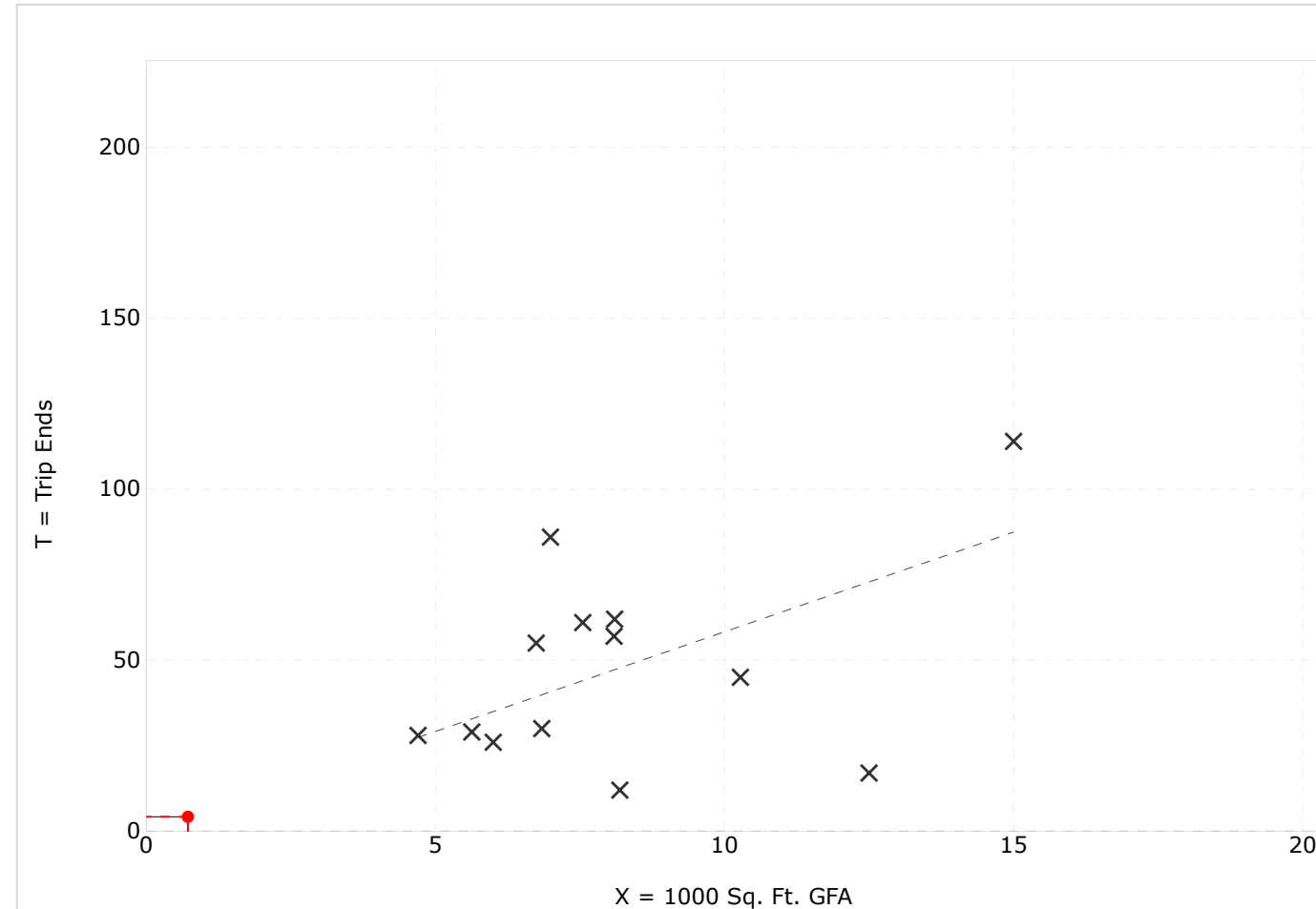
**TRIP TYPE:**

Vehicle

**ENTER IV VALUE TO CALCULATE TRIPS:**

0.72

**Data Plot and Equation**



x Study Site      - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.  
Hover the mouse pointer on data points to view X and T values.

**DATA STATISTICS**

Automobile Parts Sales (843) [Click for more details](#)

**Independent Variable:**

1000 Sq. Ft. GFA

**Time Period:**

Weekday  
PM Peak Hour of Generator

**Setting/Location:**

General Urban/Suburban

**Trip Type:**

Vehicle

**Number of Studies:**

13

**Avg. 1000 Sq. Ft. GFA:**

8

**Average Rate:**

5.83

**Range of Rates:**

1.36 - 12.30

**Standard Deviation:**

3.04

**Fitted Curve Equation:**

Not Given

**R<sup>2</sup>:**

\*\*\*\*

**Directional Distribution:**

50% entering, 50% exiting

**Calculated Trip Ends:**

Average Rate: 4 (Total), 2 (Entry), 2 (Exit)