



October 10, 2024

Mr. Brad Chaffee, President
Camford Property Group, Inc.
37 East Central Street
Franklin, MA 02038

**Re: Traffic Impact Assessment
Proposed Senior Village
Mixed-Use Development
Panther Way
Franklin, Massachusetts**

Dear Mr. Chaffee:

Tetra Tech has reviewed the potential traffic impacts associated with the proposed Senior Village mixed-use residential and commercial development to be located at 1 Panther Way in Franklin, Massachusetts. The project site currently supports an existing 39,062 square foot warehouse facility (100 Panther Way), accessed by a commercial driveway located on the west side of Panther Way (directly across from Edward Street). The existing warehouse facility would remain, and the proposed Senior Village mixed-use development would be constructed at the rear of the site. The proposed project will include 49 age-restricted (Age 55 and Older) residential housing units and a 5,000 square foot fine dining restaurant. Primary access to the proposed Senior Village mixed-use development will be provided by a new site driveway to be constructed on the west side of Panther Way (approximately 380 feet north of Edward Street), with secondary, gated emergency only access to be provided at the rear of the existing warehouse facility.

Our assessment is based on a review of the proposed site plan (Senior Village Panther Way, Franklin, Massachusetts – Dated July 9, 2024) prepared by United Consultants, Inc., and the anticipated vehicle trip generation characteristics of the proposed uses on site based on data presented in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*.

The ITE data indicates that the proposed project is expected to generate approximately 19 vehicle trips (7 entering trips and 12 exiting trips) during the weekday morning commuter peak hour and 56 vehicle trips (36 entering trips and 20 exiting trips) during the weekday evening commuter peak hour. These minor traffic increases are not anticipated to have a noticeable impact on future traffic operations on the surrounding area roadways.

This letter documents our findings.

Project Description

The project site consists of approximately 14.32± acres of land located on the west side of Panther Way in Franklin, Massachusetts. The project site currently supports an existing 39,062 square foot warehouse facility (100 Panther Way), accessed by a single commercial driveway located on the west side of Panther Way (directly across from Edward Street).

Marlborough Technology Park
100 Nickerson Road, Marlborough, MA 01752
Tel 508.786.2200 Fax 508.786.2201 tetratech.com

As currently proposed, the existing warehouse facility would remain, and the proposed Senior Village mixed-use development would be constructed at the rear of the site. The proposed project will include 48 age-restricted (Age 55 and Older) residential housing units and a 5,000 square foot fine dining restaurant. Primary access to the proposed Senior Village missed-use development will be provided by a new site driveway to be constructed on the west side of Panther Way (approximately 380 feet north of Edward Street), with secondary, gated emergency only access to be provided at the rear of the existing warehouse facility.

Vehicle Trip Generation Summary

Vehicle trip generation estimates for proposed Senior Village mixed-use development were based on data presented in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition* (2021). The proposed project will provide a total of 49 age-restricted (55 and Older) residential units, including 9 single-family units and 40 multifamily units and 5,000 square feet of commercial space. Vehicle trip estimates for the age-restricted residential units were based on the ITE trip generation rates for Land Use Code (LUC) 251 (Senior Adult Housing – Single-Family) assuming 9 units, and LUC 252 (Senior Adult Housing - Multi-Family Housing) assuming 40 units. For the purpose of this study, vehicle trip generation estimates associated with the commercial space were based on LUC 931 (Fine Dining Restaurant). The vehicle trip generation calculations are provided in the Attachments. A summary of the vehicle trip generation estimates for the weekday daily and weekday morning and evening commuter peak hours is provided in Table 1.

Table 1 Trip Generation Summary

Time Period	Residential Development			Commercial	Total Project Trips
	Single Family Home ¹ (9 Units)	Multi-Family Homes ² (40 Units)	Subtotal Residential Trips	Fine Dining Restaurant (5,000 Sq. Ft.) ³	
Weekday Daily					
Enter	39	70	109	210	319
Exit	<u>39</u>	<u>70</u>	<u>109</u>	<u>210</u>	319
<i>Total</i>	78	140	218	420	638
Weekday Morning Peak Hour					
Enter	2	3	5	2	7
Exit	<u>4</u>	<u>6</u>	<u>10</u>	<u>2</u>	12
<i>Total</i>	6	9	15	4	19
Weekday Evening Peak Hour					
Enter	4	6	10	26	36
Exit	<u>3</u>	<u>4</u>	<u>7</u>	<u>13</u>	20
<i>Total</i>	7	10	17	39	56

¹Source: ITE Trip Generation, 11th Edition, Land Use Code 251 (Senior Adult Housing – Single Family) assuming 9 units.

²Source: ITE Trip Generation, 11th Edition, Land Use Code 252 (Senior Adult Housing – Multifamily) assuming 40 units.

³Source: ITE Trip Generation, 11th Edition, Land Use Code 931 (Fine Dining Restaurant) assuming 5,000 square feet

As shown in Table 1, the proposed project is expected to generate approximately 638 trips (319 entering trips and 319 exiting trips) on a typical weekday, with 19 trips (7 entering trips and 12 exiting trips) during the weekday morning peak hour and 56 trips (36 entering trips and 20 exiting trips) during the weekday evening peak hour. These minor traffic increases are not anticipated to have a noticeable impact to future traffic operations on the surrounding area roadways.

Conclusion

The proposed development is expected to have minimal impacts to the surrounding area roadways. The site is expected to generate approximately 638 vehicles trips on a typical weekday, with 19 and 56 new vehicle trips during the morning and evening peak hours, respectively. These minor traffic increases are not expected to have a noticeable impact on future traffic operations on the surrounding area roadways.

We trust that this letter will prove useful to the Town of Franklin in their review of this proposed mixed-use development. Please do not hesitate to contact us if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Woodland". The signature is fluid and cursive, with a large initial "R" and "W".

Robert Woodland, PE
Senior Project Manager

P:\373141\143-373141-24002\DOCS\REPORTS\TRAFFIC IMPACT ASSESSMENT SENIOR VILLAGE MIXED-USE DEVELOPMENT FRANKLIN MA 10 10 2024.DOCX

Attachments

931 - Fine Dining Restaurant (5,000 SQ FT)

Weekday Daily

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
931

LAND USE GROUP:
(900-999) Services

LAND USE:
931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:
All Sites

SETTING LOCATION:
General Urban/Suburban

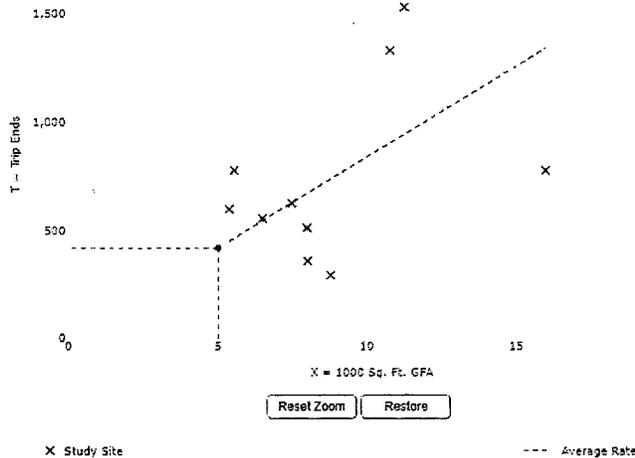
INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
5 **Calculate**

Data Plot and Equation



DATA STATISTICS

Land Use:
Fine Dining Restaurant (931) (General Urban/Suburban)
[View Data Points](#)

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday

Setting Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
10

Avg. 1000 Sq. Ft. GFA:
7

Average Rate:
93.04

Range of Rates:
32.45 - 139.92

Standard Deviation:
40.01

Fitted Curve Equation:
Not Given

R²:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 419 (Total); 216 (Entry); 209 (Exit)

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

931 - Fine Dining Restaurant (5,000 SQ FT)

Weekday AM Peak Hour of Adjacent Street

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
931

LAND USE GROUP:
(900-999) Services

LAND USE:
931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:
All Sites

SETTING LOCATION:
General Urban/Suburban

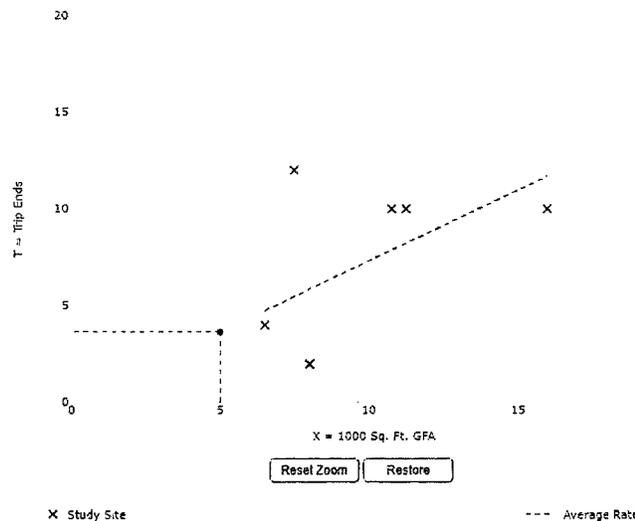
INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
5 **Calculate**

Data Plot and Equation



DATA STATISTICS

Land Use:
Fine Dining Restaurant (931) (General Urban/Suburban)
[View Data Points](#)

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday

Setting Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
7

Avg. 1000 Sq. Ft. GFA:
10

Average Rate:
0.73

Range of Rates:
0.25 - 1.50

Standard Deviation:
0.42

Fitted Curve Equation:
Not Given

R²:

Directional Distribution:
Not available

Calculated Trip Ends:
Average Rate: 4 (Total)

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

931 - Fine Dining Restaurant (5,000 SQ FT)

Weekday PM Peak Hour of Adjacent Street

Query

DATA SOURCE:
 Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

LAND USE GROUP:
 (900-999) Services

LAND USE:
 931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:
 All Sites

SETTING LOCATION:
 General Urban/Suburban

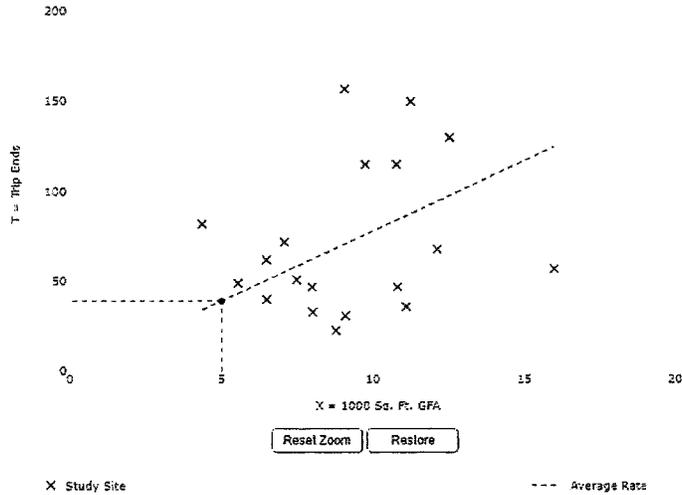
INDEPENDENT VARIABLE (X):
 1000 Sq. Ft. GFA

TIME PERIOD:
 Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
 Vehicle

ENTER IN VALUE TO CALCULATE TRIPS:

Data Plot and Equation



DATA STATISTICS

Land Use:
 Fine Dining Restaurant (931) [Click for Description and Data List](#)

Independent Variable:
 1000 Sq. Ft. GFA

Time Period:
 Weekday
 Peak Hour of Adjacent Street Traffic
 One Hour Between 4 and 6 p.m.

Setting Location:
 General Urban/Suburban

Trip Type:
 Vehicle

Number of Studies:
 15

Avg. 1000 Sq. Ft. GFA
 9

Average Rate
 7.60

Range of Rates:
 2.62 - 19.60

Standard Deviation
 4.49

Fitted Curve Equation:
 Not Given

R²:
 0.00

Directional Distribution:
 67% entering 33% exiting

Calculated Trip Ends:
 Average Rate, 38 (Total); 26 (Entry); 13 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.

251 - Senior Adult Housing – Single-Family – 9 Units

Weekday Daily

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
251

LAND USE GROUP:
(200-299) Residential

LAND USE:
251 - Senior Adult Housing - Single-Family

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

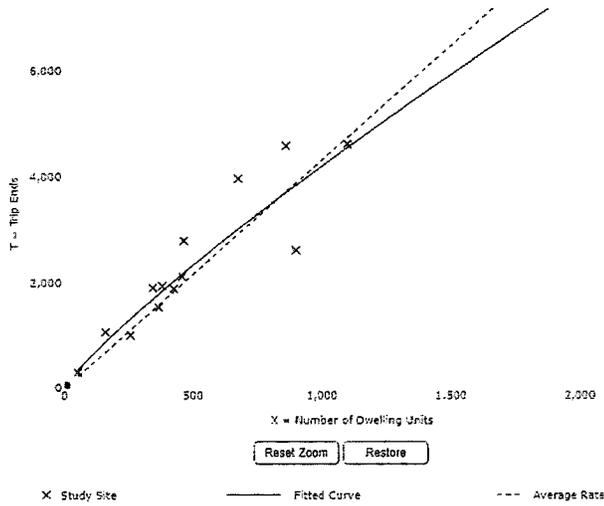
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
9 **Calculate**

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Single-Family (251); [Click for Data Plot and Equation](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
15

Avg. Num. of Dwelling Units:
646

Average Rate:
4.31

Range of Rates:
2.90 - 9.99

Standard Deviation:
1.37

Fitted Curve Equation:
 $Ln(T) = 0.65 Ln(X) + 2.47$

R^2 :
0.84

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 19 (Total: 19 (Entry); 19 (Exit),
Fitted Curve: 77 (Total: 38 (Entry); 39 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.

251 - Senior Adult Housing – Single-Family – 9 Units

Weekday AM Peak Hour of Adjacent Street

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
251

LAND USE GROUP:
(200-299) Residential

LAND USE:
251 - Senior Adult Housing - Single-Family

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

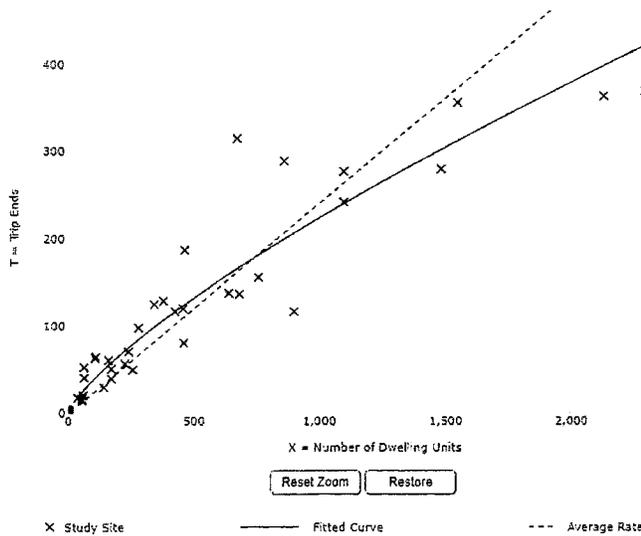
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
9 **Calculate**

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Single-Family (251); [Click for Data Plot and Equation](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday

Peak Hour of Adjacent Street Traffic:
One Hour Between 7 and 9 A.M.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
34

Avg. Num. of Dwelling Units:
557

Average Rate:
0.24

Range of Rates:
0.13 - 0.84

Standard Deviation:
0.10

Fitted Curve Equation:
 $Ln(T) = 0.73 Ln(X) + 0.16$

R^2 :
0.83

Directional Distribution:
33% entering, 67% exiting

Calculated Trip Ends:
Average Rate: 2 (Total); 1 (Entry); 1 (Exit);
Fitted Curve: 6 (Total); 2 (Entry); 4 (Exit)

Use the mouse wheel to Zoom Out or Zoom In.

251 - Senior Adult Housing – Single-Family – 9 Units

Weekday PM Peak Hour of Adjacent Street

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

LAND USE GROUP:
(200-299) Residential

LAND USE:
251 - Senior Adult Housing - Single-Family

LAND USE SUBCATEGORY:
All Sites

SETTING LOCATION:
General Urban/Suburban

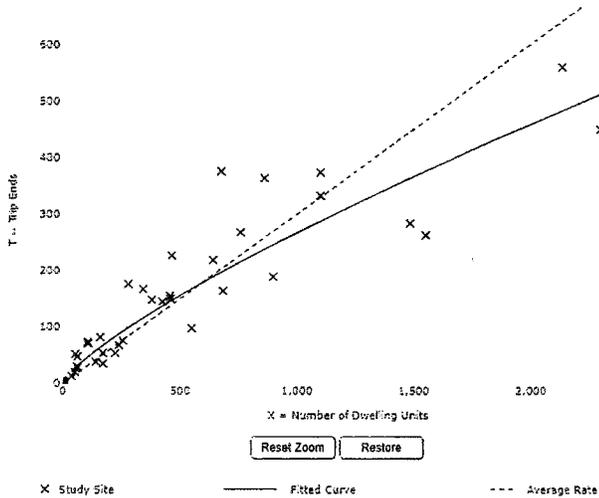
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Single-Family (251) (11th Ed)
[Return to Main Data Entry](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 5 p.m.

Setting Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
35

Avg. Num. of Dwelling Units:
532

Average Rate:
0.22

Range of Rates:
0.17 - 0.65

Standard Deviation:
0.12

Fitted Curve Equation:
 $Ln(T) = 0.75 Ln(X) + 0.22$

R^2
0.56

Directional Distribution:
61% entering 39% exiting

Calculated Trip Ends:
Average Rate: 3 (Total: 3) Entry: 1 Exit:
Fitted Curve: 7 (Total: 4) Entry: 3 Exit:

Use the mouse wheel to Zoom Out or Zoom In.

252 – Senior Adult Housing – Multi-Family – 40 Units

Weekday Daily

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

LAND USE GROUP:
(200-299) Residential

LAND USE:
252 - Senior Adult Housing - Multifamily

LAND USE SUBCATEGORY:
All Sites

SETTING LOCATION:
General Urban/Suburban

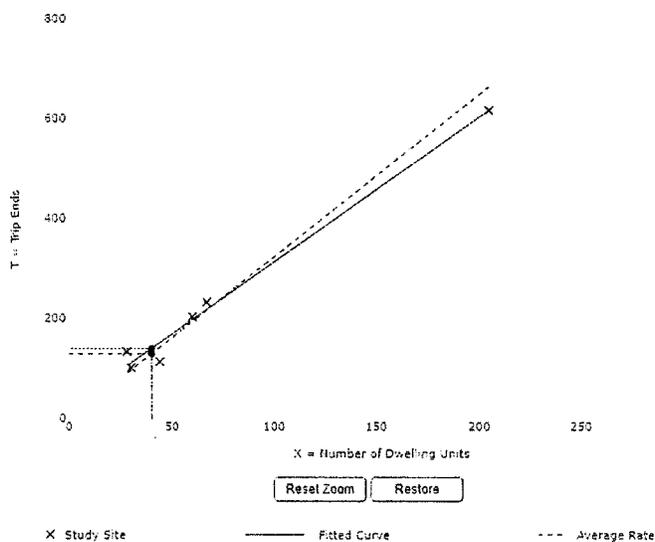
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Multi-Family (252) (11th Ed)
[Return to Main Data Entry](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday

Setting Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
6

Avg. Num. of Dwelling Units:
72

Average Rate:
3.24

Range of Rates:
2.59 - 4.79

Standard Deviation:
0.53

Fitted Curve Equation:
 $T = 3.29 X + 0.482$

R^2
0.95

Directional Distribution:
50% entering 50% exiting

Calculated Trip Ends:
Average Rate: 130 (Total: 65) Entry: 65 Exit:
Fitted Curve: 140 (Total: 70) Entry: 70 Exit:

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

252 – Senior Adult Housing – Multi-Family – 40 Units

Weekday AM Peak Hour of Adjacent Street

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
252

LAND USE GROUP:
(200-299) Residential

LAND USE:
252 - Senior Adult Housing - Multifamily

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

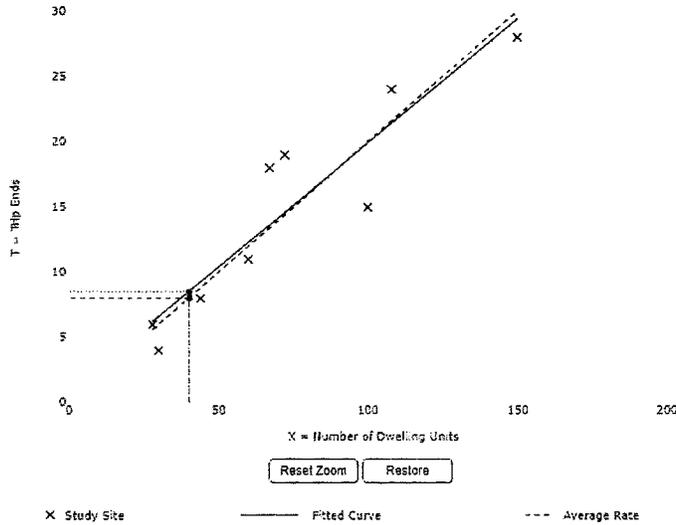
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
40

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Multifamily (252) [Click On](#)
[Description and Data Plots](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
9

Avg. Num. of Dwelling Units:
74

Average Rate:
0.20

Range of Rates:
0.13 - 0.27

Standard Deviation:
0.24

Fitted Curve Equation:
 $T = 0.18(X) + 9.50$

R^2 :
0.95

Directional Distribution:
34% entering, 66% exiting

Calculated Trip Ends:
Average Rate: 0 (Total), 0 (Entry), 0 (Exit)
Fitted Curve: 9 (Total), 1 (Entry), 8 (Exit)

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

252 – Senior Adult Housing – Multi-Family – 40 Units

Weekday PM Peak Hour of Adjacent Street

Query

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
252

LAND USE GROUP:
(200-299) Residential

LAND USE:
252 - Senior Adult Housing - Multifamily

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

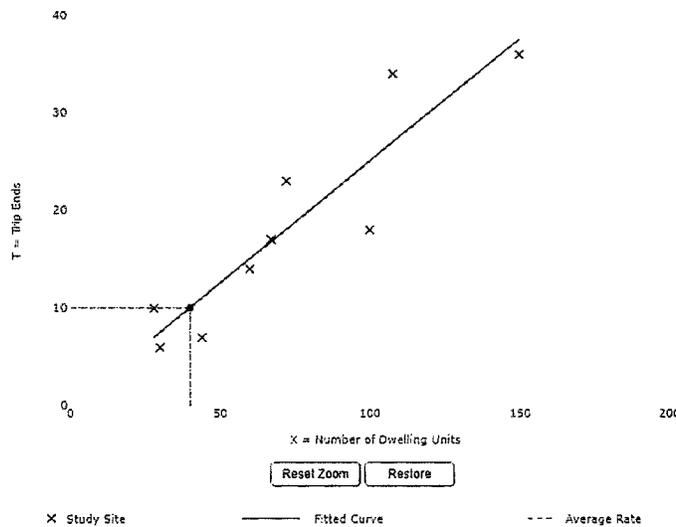
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
40

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Multifamily (252) [Click On](#)
[Description and Data Plots](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
9

Avg. Num. of Dwelling Units:
73

Average Rate:
0.25

Range of Rates:
0.16 - 0.35

Standard Deviation:
0.09

Fitted Curve Equation:
 $T = 0.25(X) + 9.07$

R^2 :
0.94

Directional Distribution:
56% entering, 44% exiting

Calculated Trip Ends:
Average Rate: 10 (Total), 6 (Entry), 4 (Exit)
Fitted Curve: 10 (Total), 6 (Entry), 4 (Exit)

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