


MEMORANDUM

TO: Ms. Yali Wang
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Head of U.S. Real Estate Development
Manulife Investment Management
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Boston, MA 02116

FROM: Mr. Jeffrey S. Dirk, P.E., PTOE, FITE 
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Professional Engineer in CT, MA, ME, NH, RI and VA

DATE: November 28, 2022

RE: 9539

SUBJECT: Preliminary Transportation Impact Assessment
Wellesley Park Zoning Amendment – William Street
Wellesley, Massachusetts

Vanasse & Associates, Inc. (VAI) has completed a comparative assessment of the traffic impacts associated with a proposed amendment to the Wellesley Park Smart Growth Overlay District, an overlay zoning district approved pursuant to M.G.L. c. 40R and accompanying regulations at 760 CMR 59.00. Specifically, VAI assessed a proposed zoning amendment (the “Zoning Amendment”) that would permit the construction of a 250-unit multifamily residential development in place of the 175 room/key hotel that is currently permitted pursuant to the Wellesley Park Smart Growth Overlay District.

VAI prepared a preliminary assessment of the potential impacts on the transportation infrastructure for the Wellesley Park Smart Growth Overlay District in November 2018¹ that was updated in March 2019² to reflect refinements to the elements of the transportation improvement program.

As defined in the March 2019 *Preliminary Transportation Impact Assessment Update*,³ the redevelopment of Wellesley Park will be phased, with the first phase to include the 350 multifamily residential units and 4,000± square feet (sf) of retail space that are associated with The Nines that has been constructed at 20 and 40 William Street, and subsequent phases to include the development of no more than 250 multifamily residential units (600 units total, including the 350 units associated with The Nines), small scale retail establishments not to exceed 15,500 sf (19,500 sf total, including the 4,000 sf associated with The Nines), offices and office/high technology space not exceeding 700,000 sf and hotels not to exceed 175 rooms.

¹*Preliminary Transportation Impact Assessment*, Wellesley Office Park Redevelopment – William Street, Wellesley, Massachusetts; November 15, 2018.

²*Preliminary Transportation Impact Assessment Update*, Wellesley Office Park Redevelopment – William Street, Wellesley, Massachusetts; March 21, 2019.

³*Ibid.*



Pursuant to the Zoning Amendment, the refined development program will entail replacing the 175 hotel rooms with 250 multifamily residential units, resulting in the following overall build-out inclusive of The Nines:

- Multifamily dwellings – no more than 850 total dwelling units
- Small-Scale Retail Establishments – not to exceed a total of 19,500 gross square feet
- Office and Office-High Tech – not to exceed a total of 700,000 gross square feet

Table 1 summarizes and compares the traffic characteristics of the proposed 250 multifamily residential units to those of the 175 hotel rooms that will be replaced by the additional residential units developed using trip-generation data available from the Institute of Transportation Engineers (ITE)⁴ for similar land uses.

Table 1
TRIP-GENERATION SUMMARY AND COMPARISON

Time Period/Direction	Vehicle Trips		
	(A) Additional Multifamily Units (250 Units) ^a	(B) Approved Hotel Rooms (175 Rooms) ^b	(C = A - B) Difference
<i>Average Weekday Daily:</i>			
Entering	568	699	
<u>Exiting</u>	<u>568</u>	<u>699</u>	
Total	1,136	1,398	-262
<i>Weekday Morning Peak Hour:</i>			
Entering	22	45	
<u>Exiting</u>	<u>76</u>	<u>35</u>	
Total	98	80	+18
<i>Weekday Evening Peak Hour:</i>			
Entering	60	52	
<u>Exiting</u>	<u>38</u>	<u>50</u>	
Total	98	102	-4

^aBased on ITE Land Use Code (LUC) 221, *Multifamily Housing (Mid-Rise)*.

^bBased on ITE LUC 310, *Hotel*.

As can be seen in Table 1, the 250-unit multifamily residential development is predicted to generate approximately 1,136 vehicle trips on an average weekday (two-way, 24-hour volume, or 568 vehicles entering and 568 exiting), with 98 vehicle trips expected during the weekday morning peak-hour (22 vehicles entering and 76 exiting) and 98 vehicle trips expected during the weekday evening peak-hour (60 vehicles entering and 38 exiting).

⁴*Trip Generation*, 11th Edition; Institute of Transportation Engineers; Washington, DC; 2021.



In comparison to the 175 hotel rooms that are associated with the current Wellesley Park Smart Growth Overlay District, the additional residential units will generate 262 *fewer* vehicle trips on an average weekday, with 18 *additional* vehicle trips expected during the weekday morning peak-hour and four (4) *fewer* vehicle trips expected during the weekday evening peak-hour.

On balance, it is apparent that the replacement of the 175 hotel rooms with 250 multifamily residential units pursuant to the Zoning Amendment will result in comparable peak-hour traffic volumes and a modest reduction in traffic (19 percent) on an average weekday. As such, the elements of the transportation improvement program that are defined in the March 2019 Preliminary Transportation Impact Assessment Update that is referenced in the April 19, 2019 Development Agreement between the Town of Wellesley and John Hancock Life Insurance Company (U.S.A.) continue to be appropriate to support the modified development program that is contemplated as a part of the Zoning Amendment.

Attachments: Trip-Generation Worksheets



Graph Look Up



ITETripGen Web-based App

Graph Look Up

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TGM Appendices

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

310

LAND USE GROUP:

(300-399) Lodging

LAND USE :

310 - Hotel

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Rooms

TIME PERIOD:

Weekday

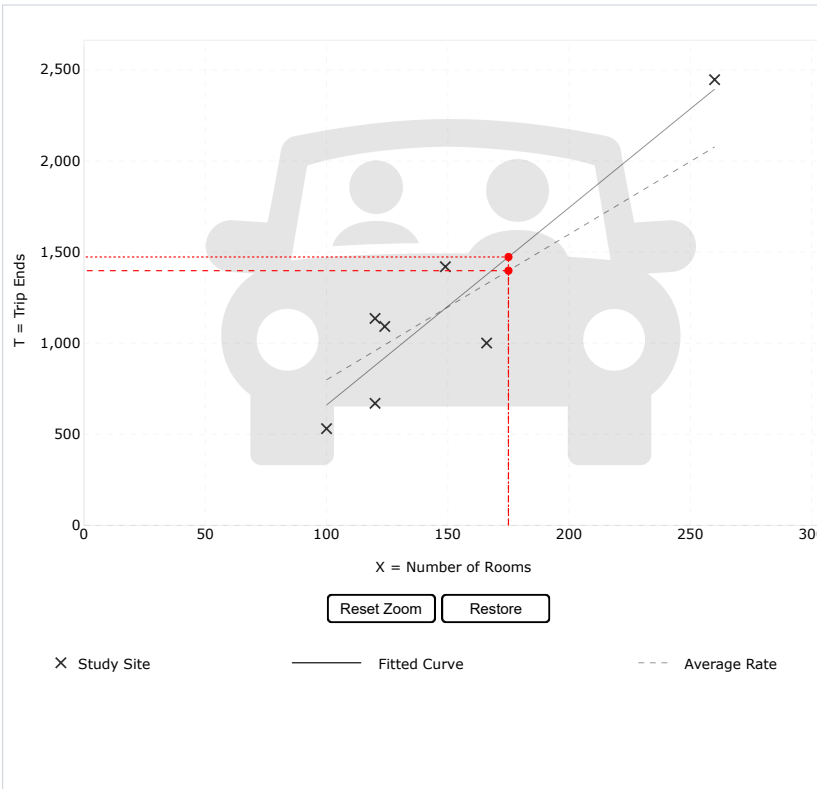
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

175 Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:
Hotel (310) [Click for Description and Data Plots](#)

Independent Variable:
Rooms

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
7

Avg. Num. of Rooms:
148

Average Rate:
7.99

Range of Rates:
5.31 - 9.53

Standard Deviation:
1.92

Fitted Curve Equation:
 $T = 10.84(X) - 423.51$

R²:
0.85

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 1398 (Total), 699 (Entry), 699 (Exit)
Fitted Curve: 1473 (Total), 736 (Entry), 737 (Exit)

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Query Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

310

LAND USE GROUP:

(300-399) Lodging

LAND USE :

310 - Hotel

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Rooms

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

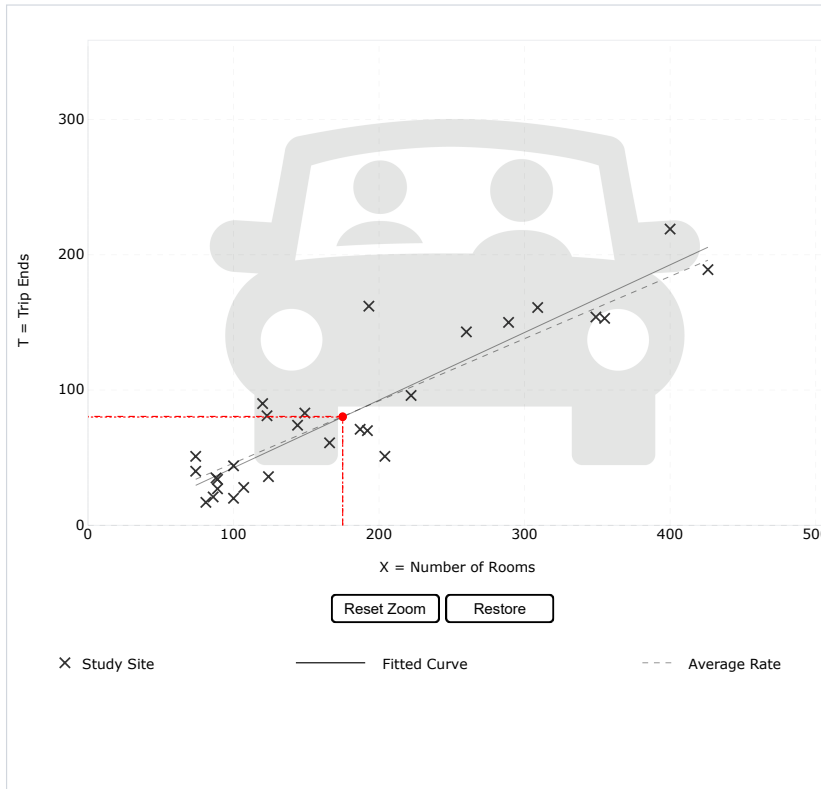
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

175 Calculate

Data Plot and Equation



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

Land Use:
Hotel (310) [Click for Description and Data Plots](#)

Independent Variable:
Rooms

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:
28

Avg. Num. of Rooms:
182

Average Rate:
0.46

Range of Rates:
0.20 - 0.84

Standard Deviation:
0.14

Fitted Curve Equation:
 $T = 0.50(X) - 7.45$

R²:
0.84

Directional Distribution:
56% entering, 44% exiting

Calculated Trip Ends:
Average Rate: 81 (Total), 45 (Entry), 36 (Exit)
Fitted Curve: 80 (Total), 45 (Entry), 35 (Exit)

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Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

310

LAND USE GROUP:

(300-399) Lodging

LAND USE :

310 - Hotel

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Rooms

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

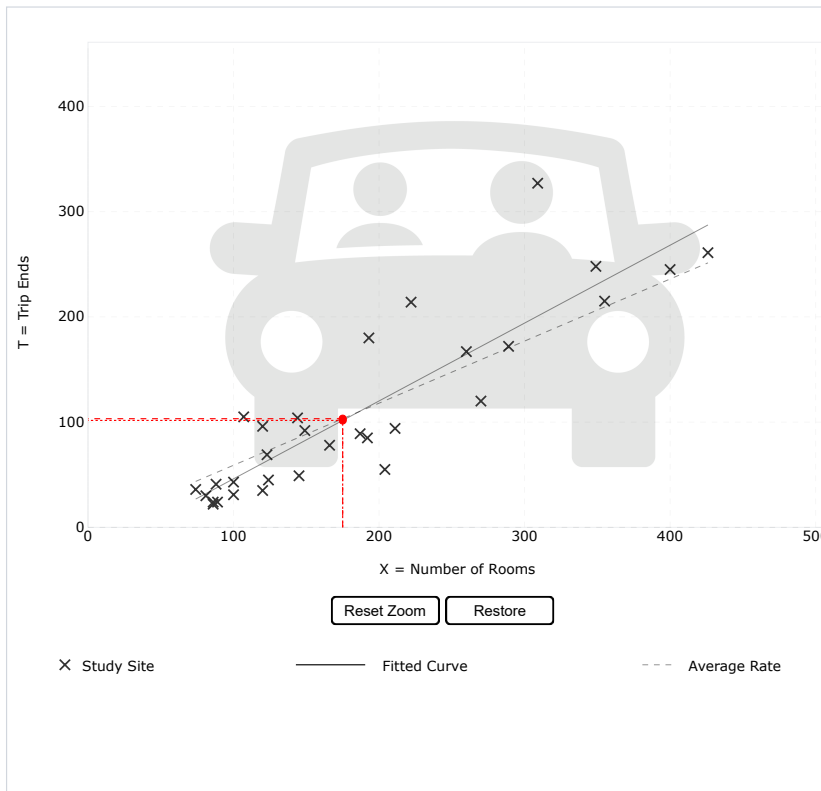
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

175 Calculate

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

Land Use:
Hotel (310) [Click for Description and Data Plots](#)

Independent Variable:
Rooms

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:
31

Avg. Num. of Rooms:
186

Average Rate:
0.59

Range of Rates:
0.26 - 1.06

Standard Deviation:
0.22

Fitted Curve Equation:
 $T = 0.74(X) - 27.89$

R²:
0.78

Directional Distribution:
51% entering, 49% exiting

Calculated Trip Ends:
Average Rate: 103 (Total), 52 (Entry), 51 (Exit)
Fitted Curve: 102 (Total), 52 (Entry), 50 (Exit)

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DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

221

LAND USE GROUP:

(200-299) Residential

LAND USE :

221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:

Not Close to Rail Transit

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Dwelling Units

TIME PERIOD:

Weekday

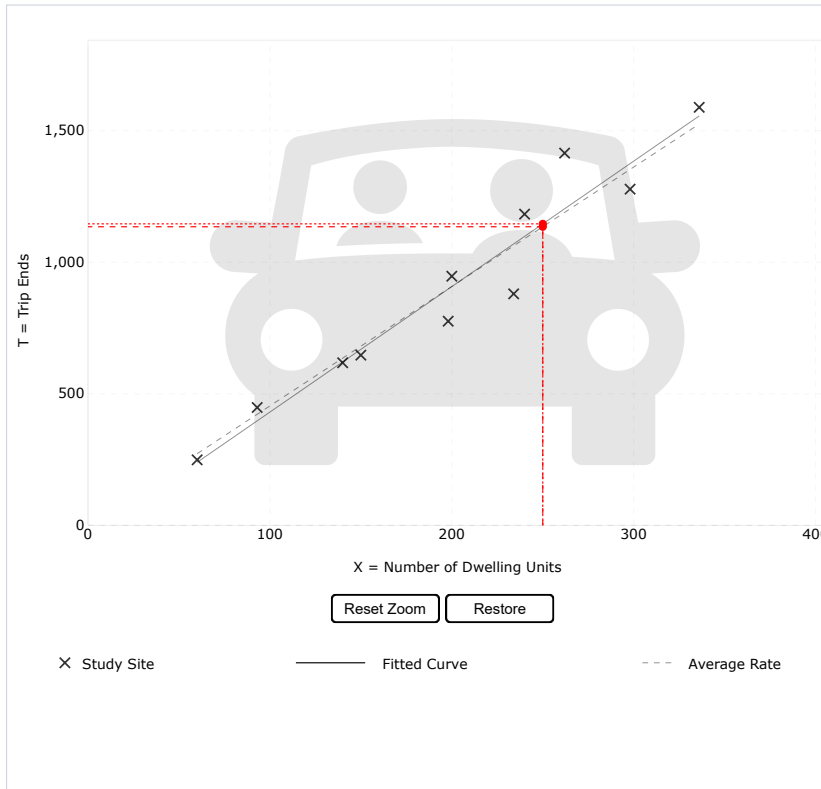
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

250 Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) [Click for Description and Data Plots](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
11

Avg. Num. of Dwelling Units:
201

Average Rate:
4.54

Range of Rates:
3.76 - 5.40

Standard Deviation:
0.51

Fitted Curve Equation:
 $T = 4.77(X) - 46.46$

R²:
0.93

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 1135 (Total), 567 (Entry), 568 (Exit)
Fitted Curve: 1146 (Total), 573 (Entry), 573 (Exit)

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SEARCH BY LAND USE CODE:

221

LAND USE GROUP:

(200-299) Residential

LAND USE :

221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:

Not Close to Rail Transit

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Dwelling Units

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

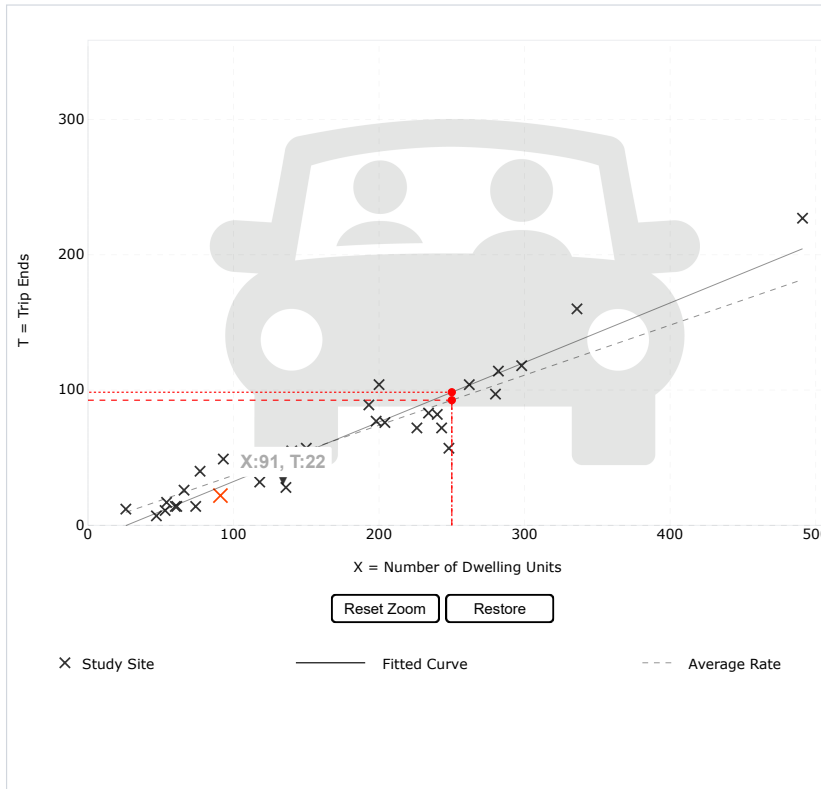
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

250 Calculate

Data Plot and Equation



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

Land Use:
Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) [Click for 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:
30

Avg. Num. of Dwelling Units:
173

Average Rate:
0.37

Range of Rates:
0.15 - 0.53

Standard Deviation:
0.09

Fitted Curve Equation:
 $T = 0.44(X) - 11.61$

R²:
0.91

Directional Distribution:
23% entering, 77% exiting

Calculated Trip Ends:
Average Rate: 93 (Total), 21 (Entry), 72 (Exit)
Fitted Curve: 98 (Total), 22 (Entry), 76 (Exit)

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Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE :
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

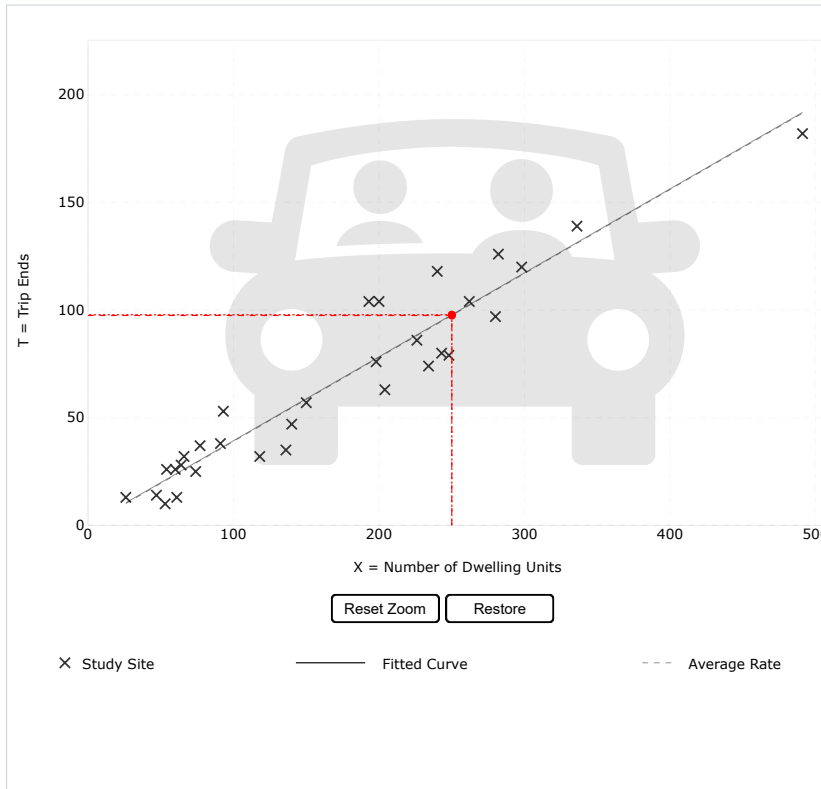
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
250

Data Plot and Equation



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

Land Use:
 Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) [Click for 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:
 31

Avg. Num. of Dwelling Units:
 169

Average Rate:
 0.39

Range of Rates:
 0.19 - 0.57

Standard Deviation:
 0.08

Fitted Curve Equation:
 $T = 0.39(X) + 0.34$

R²:
 0.91

Directional Distribution:
 61% entering, 39% exiting

Calculated Trip Ends:
 Average Rate: 98 (Total), 59 (Entry), 39 (Exit)
 Fitted Curve: 98 (Total), 60 (Entry), 38 (Exit)

Add-ons to do more

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