

Bayshore Hotel

3016 Bayshore Drive
Fort Lauderdale, Florida 33304

Traffic Impact Statement



October 8, 2018

Prepared By:

Keith & Associates, Inc.

301 East Atlantic Boulevard

Pompano Beach, Florida 33060

Project No: 10056.00



Bayshore Hotel

Fort Lauderdale, Florida 33304

Traffic Impact Statement

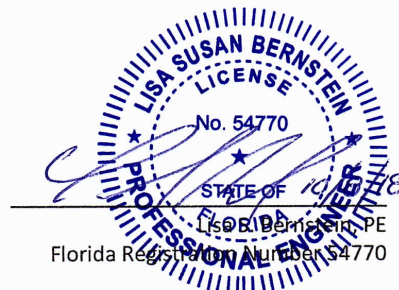
October 2018

Prepared For:

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TRAFFIC IMPACT STATEMENT
Bayshore Hotel
3016 Bayshore Drive
Fort Lauderdale, Florida 33304

Introduction

On behalf of their developer client, Borges Architects + Associates is proposing to develop the Bayshore Hotel, a hotel/condominium community located at 3016 Bayshore Drive in Fort Lauderdale, Florida. The developer is proposing to construct 168 resort hotel units, 115 condominium units and a 157-seat quality restaurant on the southeast corner of Bayshore Drive and North Birch Road, just west of SR A1A. The site is currently occupied by multiple motels/hotels. The City of Fort Lauderdale is requesting a Traffic Impact Statement for the proposed development.

Existing Conditions

The property is located at 3016 Bayshore Drive on the southeast corner of Bayshore Drive and North Birch Road, just west of SR A1A. The roadways are as follows:

- State Road A1A – A four-lane, north-south roadway. The speed limit is 30 mph.
- Bayshore Drive – A two-lane, east-west roadway. The speed limit is 25 MPH.
- North Birch Road – A two-lane, north-south, roadway. The speed limit is 25 MPH.

The site is currently occupied by multiple motels/hotels. Figure 1 shows the project location.

Proposed Conditions

The redevelopment of the site will result in the demolition of the existing building space and the construction of a new building with 168 resort hotel units and 115 condominium units. There will also be a quality restaurant with 157 seats available to the public. The proposed access to the property will be two (2) driveway connections on Bayshore Drive and one (1) driveway connection on North Birch Road. The buildout year is 2021. The proposed site plan is included in Appendix A.



Figure 1
Bayshore Hotel
Fort Lauderdale, Florida

Project Location

301 East Atlantic Boulevard
 Pompano Beach, Florida 33060



Trip Generation

The existing development includes 79 motel rooms. Trip generation calculations for the motel are based on trip generation rates and equations published in the Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition. ITE Land Use Code (LUC) 320 - Motel is used for the analysis. Rooms are used as the independent variable for the analysis.

The proposed development includes 168 resort hotel units, 115 condominium units and a 157-seat quality restaurant. Trip generation calculations for the proposed development are based on ITE Land Use Code (LUC) 320 – Motel; LUC 330 – Resort Hotel; LUC 221 – Multifamily Housing (Mid-rise) and LUC 931 – Quality Restaurant. There is no Daily rate for LUC 330 – Resort Hotel, therefore the Motel Daily equation is used to calculate those trips. Rooms, dwelling units and seats are used as the independent variables for the analysis. Appendix B contains the ITE Trip Generation worksheets.

The net new Daily trips for the proposed project are summarized in Table 1. The net new trips for the AM and PM Peak Hours are summarized in Tables 2 and 3, respectively.

Table 1
Daily - Trip Generation

Land Use	ITE Code	Intensity	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Existing Motel	320	79 Rooms	$T=3.62(X)-29.43$	50%	50%	128	129	257
Total Existing						128	129	257
Proposed Resort Hotel ¹	330	168 Rooms	$T=3.62(X)-29.43$	50%	50%	289	290	579
Multifamily Housing (Mid-Rise)	221	115 Dwelling Units	$T=5.45(X)-1.75$	50%	50%	312	313	625
Quality Restaurant	931	157 Seats	$T = 3.90(X) - 447.07$	50%	50%	82	83	165
Sub-Total						683	686	1,369
Internalization 10%						68	69	137
Total Proposed						615	617	1,232
Net New Trips						487	488	975

Source: ITE Trip Generation Handbook, 10 Edition

Table 2
AM Peak Hour - Trip Generation

Land Use	ITE Code	Intensity	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Existing Motel	320	79 Rooms	$T=0.36(X)+2.56$	37%	63%	11	20	31
Total Existing						11	20	31
Proposed Resort Hotel	330	168 Rooms	$T=0.38(X)-28.58$	72%	28%	25	10	35
Multifamily Housing (Mid-Rise)	221	115 Dwelling Units	$\ln(X)=0.98\ln(X)-0.98$	26%	74%	10	29	39
Quality Restaurant	931	157 Seats	$T = 0.02(X)$	50%	50%	2	1	3
Sub-Total						37	40	77
Internalization 10%						4	4	8
Total Proposed						33	36	69
Net New Trips						22	16	38

Source: ITE Trip Generation Handbook, 10 Edition

Table 3
PM Peak Hour - Trip Generation

Land Use	ITE Code	Intensity	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Existing Motel	320	79 Rooms	$T=0.35(X)+3.53$	54%	46%	17	14	31
Total Existing						17	14	31
Proposed Resort Hotel	330	168 Rooms	$T=0.52(X)-55.42$	43%	57%	14	18	32
Multifamily Housing (Mid-Rise)	221	115 Dwelling Units	$\ln(X)=0.96\ln(X)-0.63$	61%	39%	32	20	52
Quality Restaurant	931	157 Seats	$T = 0.28(X)$	50%	50%	22	22	44
Sub-Total						68	60	128
Internalization 10%						7	6	13
Total Proposed						61	54	115
Net New Trips						44	40	84

Source: ITE Trip Generation Handbook, 10 Edition

Conclusions

The trip generation analysis indicates that the net new trips anticipated to be generated by the proposed development will be 975 Daily trips, 38 AM Peak Hour trips and 84 PM Peak Hour trips. Traffic study requirements are based on The City of Fort Lauderdale Code of Ordinances, Article V. – Development Review Criteria, Section 47-25.2. – Adequacy Requirements, which states:

M. Transportation facilities.

4. Traffic impact studies.

- a. When the proposed development may generate over one thousand (1,000) daily trips; or
- b. When the daily trip generation is less than one thousand (1,000) trips; and (1) when more than twenty percent (20%) of the total daily trips are anticipated to arrive or depart, or both, within one-half ($\frac{1}{2}$) hour; or (2) when the proposed use creates varying trip generation each day, but has the potential to place more than twenty percent (20%) of its maximum twenty-four (24) hour trip generation onto the adjacent transportation system within a one-half ($\frac{1}{2}$) hour period; the applicant shall submit to the city a traffic impact analysis.

The proposed development will not generate over 1,000 daily trips. In addition, the project is expected to generate only 3.9 percent of the total daily volume in the AM Peak Hour and 8.6 percent of the total daily volume in the PM Peak Hour. Per the City of Fort Lauderdale's code requirements, a traffic impact study is not required for this proposed development application. The proposed Bayshore Hotel will not have a significant impact on the surrounding roadways.

Appendix A

Site Plan

Appendix B

Trip Generation

Land Use: 320 Motel

Description

A motel is a place of lodging that provides sleeping accommodations and often a restaurant. Motels generally offer free on-site parking and provide little or no meeting space and few (if any) supporting facilities. Exterior corridors accessing rooms—immediately adjacent to a parking lot—commonly characterize motels. Hotel (Land Use 310), all suites hotel (Land Use 311), business hotel (Land Use 312), and resort hotel (Land Use 330) are related uses.

Additional Data

Typically, the average employment at motels is much lower than at hotels.

Sixteen studies provided information on occupancy rates at the time the studies were conducted. The average occupancy rate for these studies was approximately 82 percent.

Time-of-day distribution data for this land use are presented in Appendix A. For the four general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 5:30 and 6:30 a.m. and 5:15 and 6:15 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Florida, Indiana, New Jersey, New York, Oregon, South Dakota, and Texas.

For all lodging uses, it is important to collect data on occupied rooms as well as total rooms in order to accurately predict trip generation characteristics for the site.

Source Numbers

172, 187, 191, 277, 295, 300, 357, 439, 443, 598, 877, 915

Motel (320)

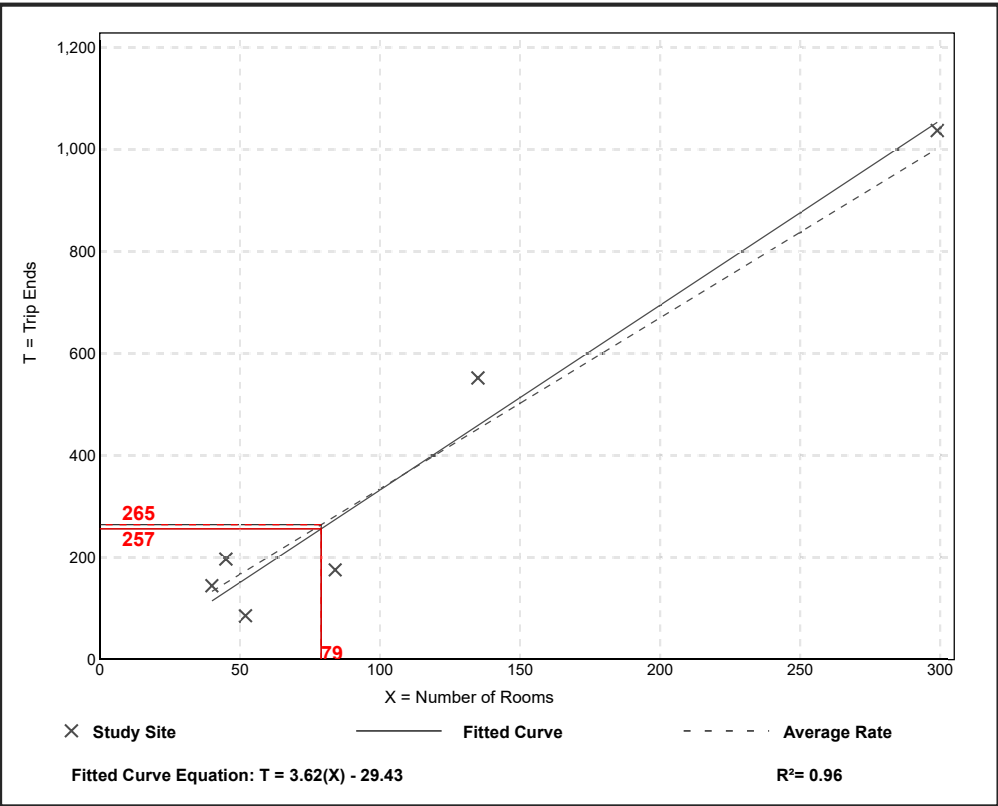
Vehicle Trip Ends vs: Rooms
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Rooms: 109
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
3.35	1.65 - 4.38	0.87

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

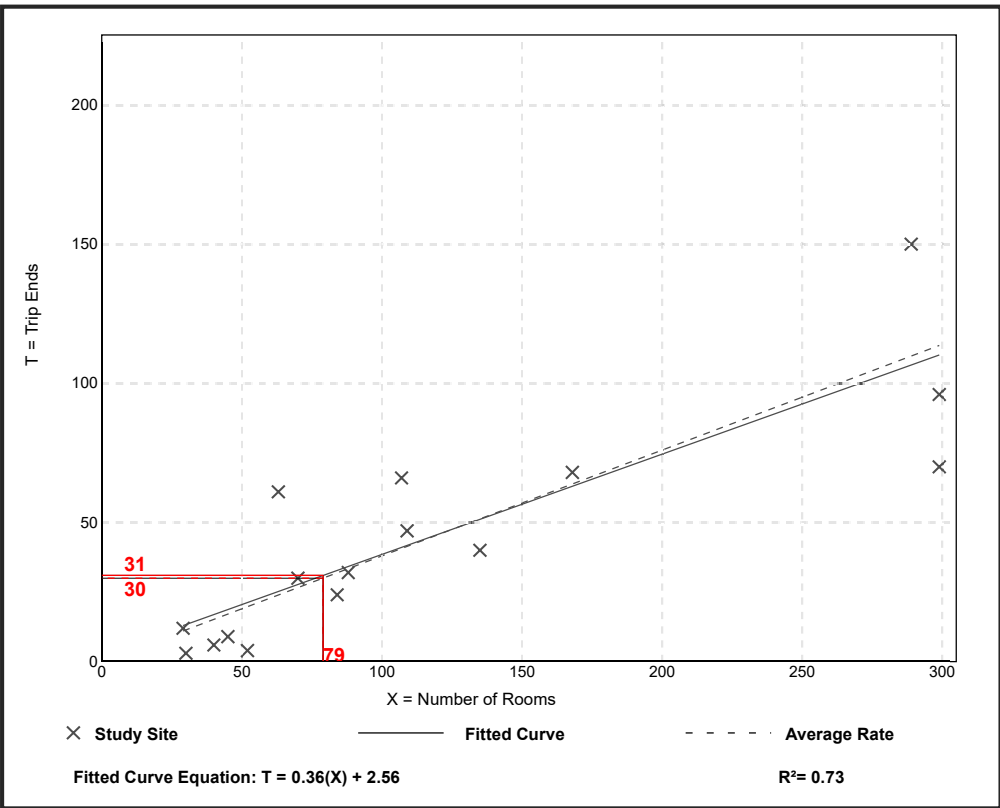
Motel (320)

Vehicle Trip Ends vs: Rooms
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: 16
Avg. Num. of Rooms: 119
Directional Distribution: 37% entering, 63% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.38	0.08 - 0.97	0.17

Data Plot and Equation



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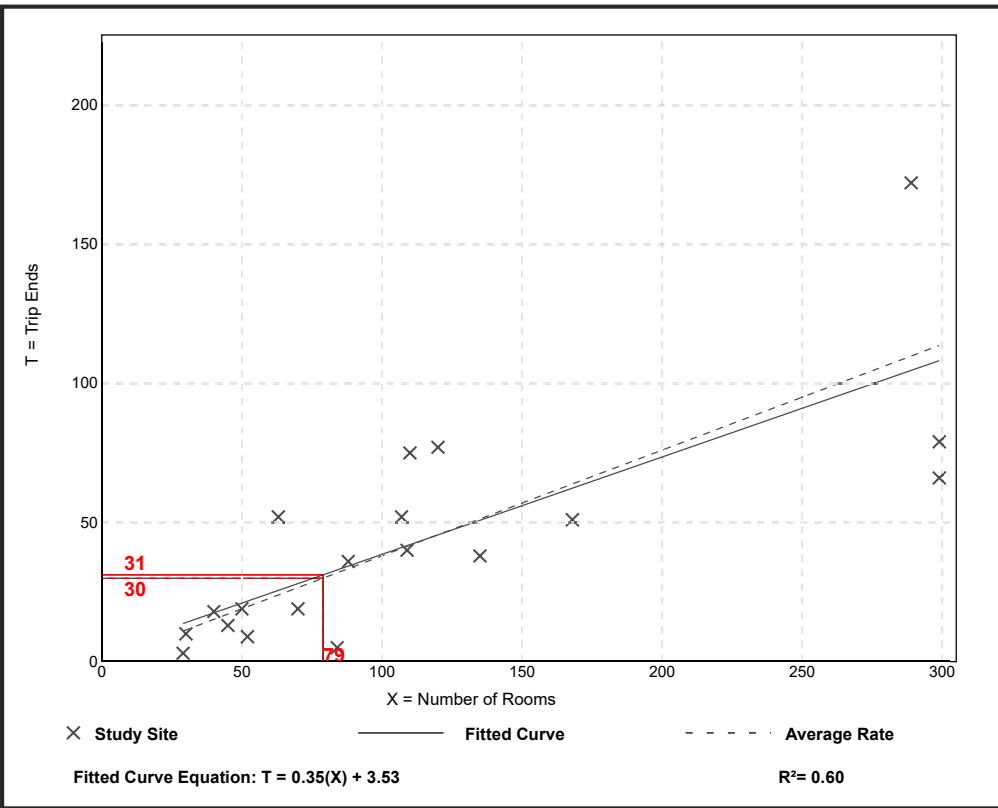
Motel (320)

Vehicle Trip Ends vs: Rooms
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: 19
Avg. Num. of Rooms: 115
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.38	0.06 - 0.83	0.19

Data Plot and Equation



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Land Use: 330 Resort Hotel

Description

A resort hotel is similar to a hotel (Land Use 310) in that it provides sleeping accommodations, restaurants, cocktail lounges, retail shops, and guest services. The primary difference is that a resort hotel caters to the tourist and vacation industry, often providing a wide variety of recreational facilities/programs (golf courses, tennis courts, beach access, or other amenities) rather than convention and meeting business. Hotel (Land Use 310), all suites hotel (Land Use 311), business hotel (Land Use 312), and motel (Land Use 320) are related uses.

Additional Data

Nine studies provided information on room occupancy at the time of data collection. The average occupancy rate for these sites was approximately 88 percent.

Some properties contained in this land use provide guest transportation services such as airport shuttles, limousine service, or golf course shuttle service, which may have an impact on the overall trip generation rates.

The sites were surveyed in the 1980s and the 1990s in California, Florida, and South Carolina.

For all lodging uses, it is important to collect data on occupied rooms as well as total rooms in order to accurately predict trip generation characteristics for the site.

Source Numbers

270, 381, 436

Motel (320)

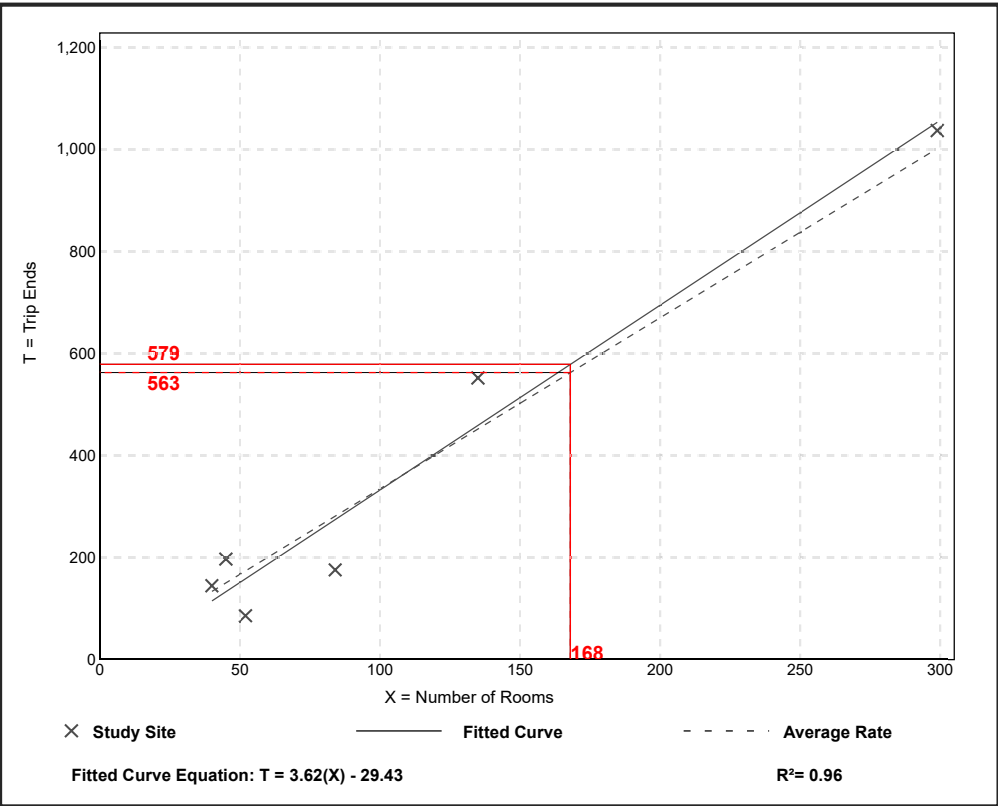
Vehicle Trip Ends vs: Rooms
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Rooms: 109
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
3.35	1.65 - 4.38	0.87

Data Plot and Equation



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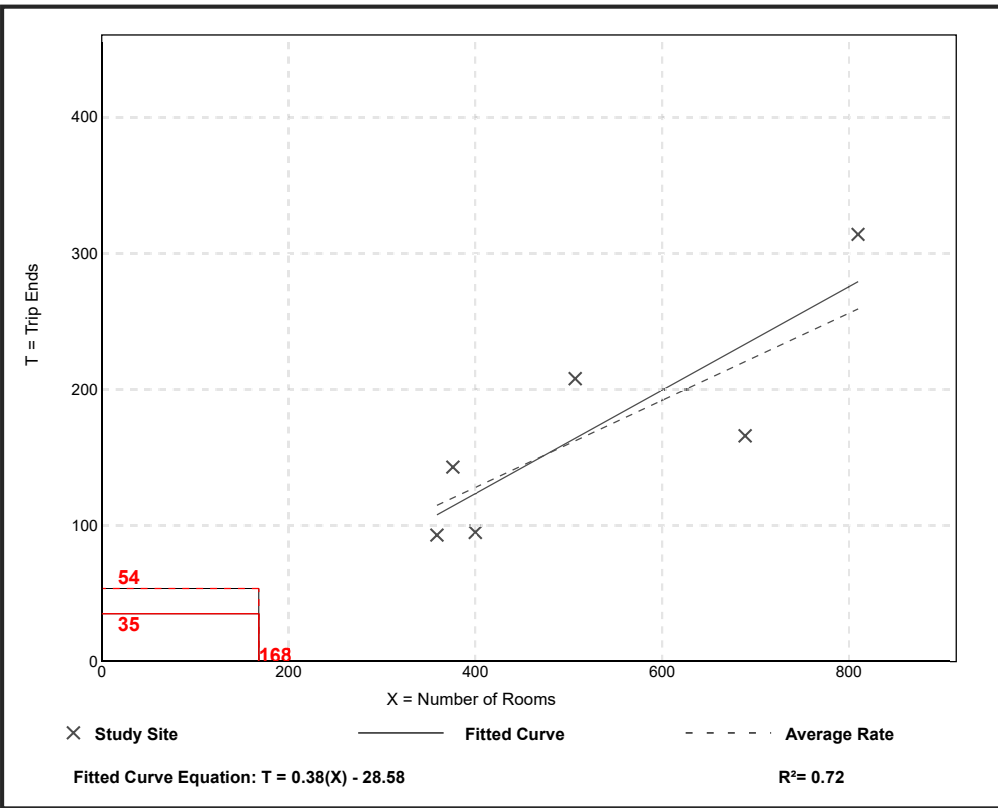
Resort Hotel (330)

Vehicle Trip Ends vs: Rooms
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: 6
Avg. Num. of Rooms: 524
Directional Distribution: 72% entering, 28% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.32	0.24 - 0.41	0.08

Data Plot and Equation



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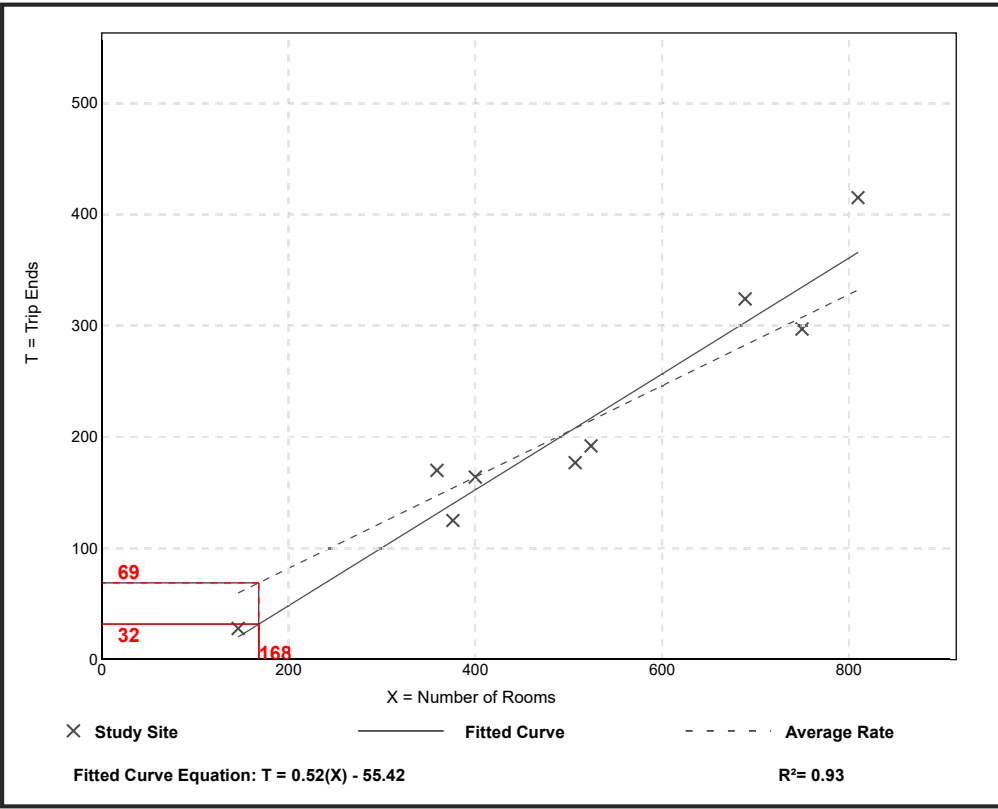
Resort Hotel (330)

Vehicle Trip Ends vs: Rooms
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: 9
Avg. Num. of Rooms: 507
Directional Distribution: 43% entering, 57% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.41	0.19 - 0.51	0.08

Data Plot and Equation



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Land Use: 221

Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors). Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), off-campus student apartment (Land Use 225), and mid-rise residential with 1st-floor commercial (Land Use 231) are related land uses.

Additional Data

In prior editions of *Trip Generation Manual*, the mid-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of vehicle trip data found no clear differences in trip making patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

For the six sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.46 residents per occupied dwelling unit.

For the five sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 95.7 percent of the total dwelling units were occupied.

Time-of-day distribution data for this land use are presented in Appendix A. For the eight general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:00 and 8:00 a.m. and 4:45 and 5:45 p.m., respectively.

For the four dense multi-use urban sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:15 and 5:15 p.m., respectively. For the three center city core sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 6:45 and 7:45 a.m. and 5:00 and 6:00 p.m., respectively.

For the six sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.46 residents per occupied dwelling unit.

For the five sites for which data were provided for both occupied dwelling units and total dwelling units, an average of 95.7 percent of the units were occupied.

The average numbers of person trips per vehicle trip at the five center city core sites at which both person trip and vehicle trip data were collected were as follows:

- 1.84 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.94 during Weekday, AM Peak Hour of Generator
- 2.07 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.59 during Weekday, PM Peak Hour of Generator



The average numbers of person trips per vehicle trip at the 32 dense multi-use urban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.90 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.90 during Weekday, AM Peak Hour of Generator
- 2.00 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.08 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 13 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.56 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.88 during Weekday, AM Peak Hour of Generator
- 1.70 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.07 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), British Columbia (CAN), California, Delaware, District of Columbia, Florida, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, Ontario, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Virginia, and Wisconsin.

Source Numbers

168, 188, 204, 305, 306, 321, 357, 390, 436, 525, 530, 579, 638, 818, 857, 866, 901, 904, 910, 912, 918, 934, 936, 939, 944, 947, 948, 949, 959, 963, 964, 966, 967, 969, 970

Multifamily Housing (Mid-Rise) (221)

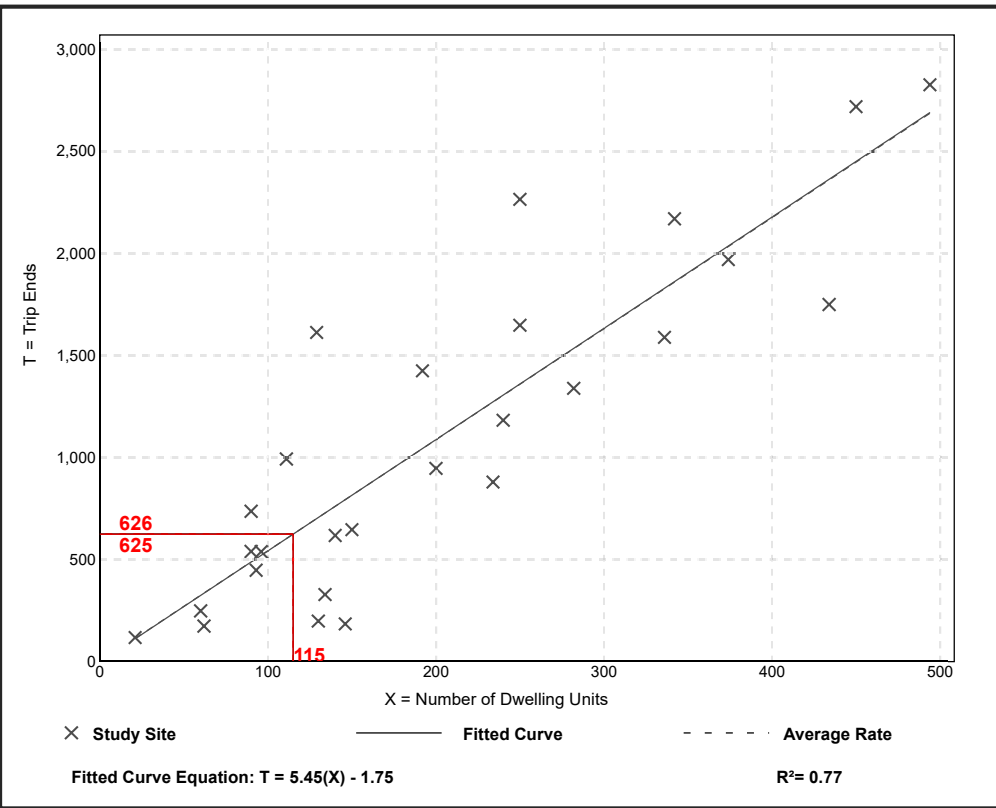
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 27
Avg. Num. of Dwelling Units: 205
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
5.44	1.27 - 12.50	2.03

Data Plot and Equation



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Multifamily Housing (Mid-Rise) (221)

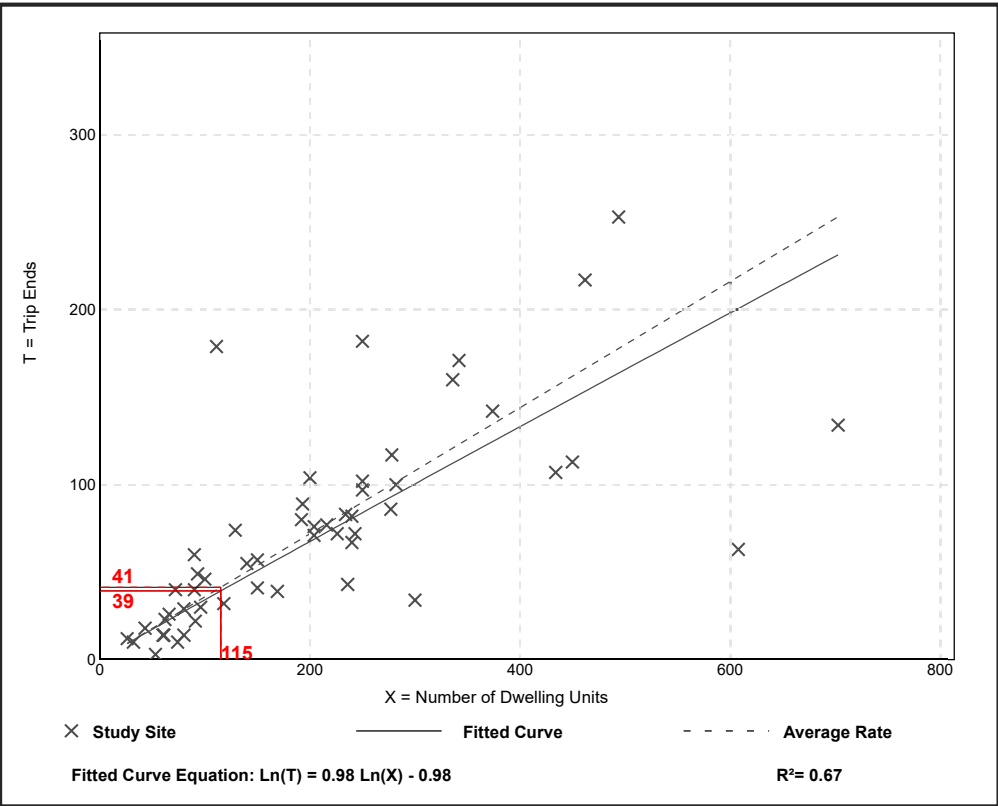
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban
Number of Studies: 53
Avg. Num. of Dwelling Units: 207
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

Data Plot and Equation



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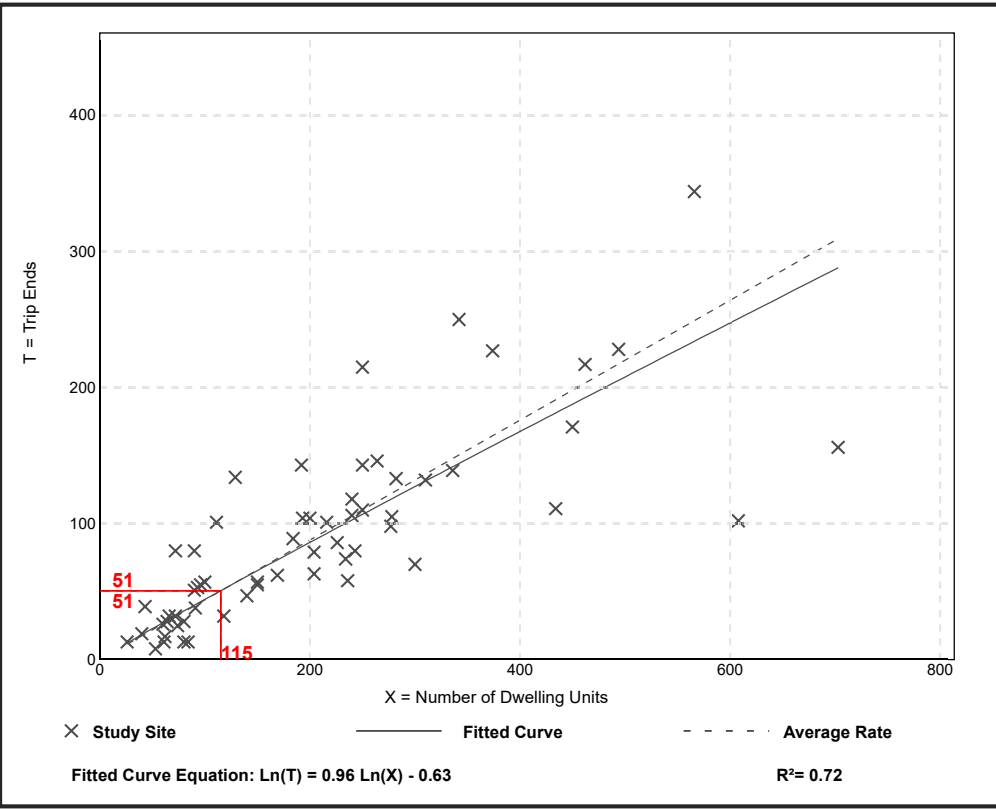
Multifamily Housing (Mid-Rise) (221)

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: 60
Avg. Num. of Dwelling Units: 208
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

Data Plot and Equation



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Land Use: 931

Quality Restaurant

Description

This land use consists of high quality, full-service eating establishments with a typical duration of stay of at least one hour. Quality restaurants generally do not serve breakfast; some do not serve lunch; all serve dinner. This type of restaurant often requests and sometimes requires reservations and is generally not part of a chain. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for meals after they eat. While some of the study sites have lounge or bar facilities (serving alcoholic beverages), they are ancillary to the restaurant. Fast casual restaurant (Land Use 930) and high-turnover (sit-down) restaurant (Land Use 932) are related uses.

Additional Data

The outdoor seating area is not included in the overall gross floor area. Therefore, the number of seats may be a more reliable independent variable on which to establish trip generation rates for facilities having significant outdoor seating.

The sites were surveyed in the 1980s and the 1990s in Alberta (CAN), California, Colorado, Florida, Indiana, Kentucky, New Jersey, and Utah.

Source Numbers

126, 260, 291, 301, 338, 339, 368, 437, 440, 976

Quality Restaurant (931)

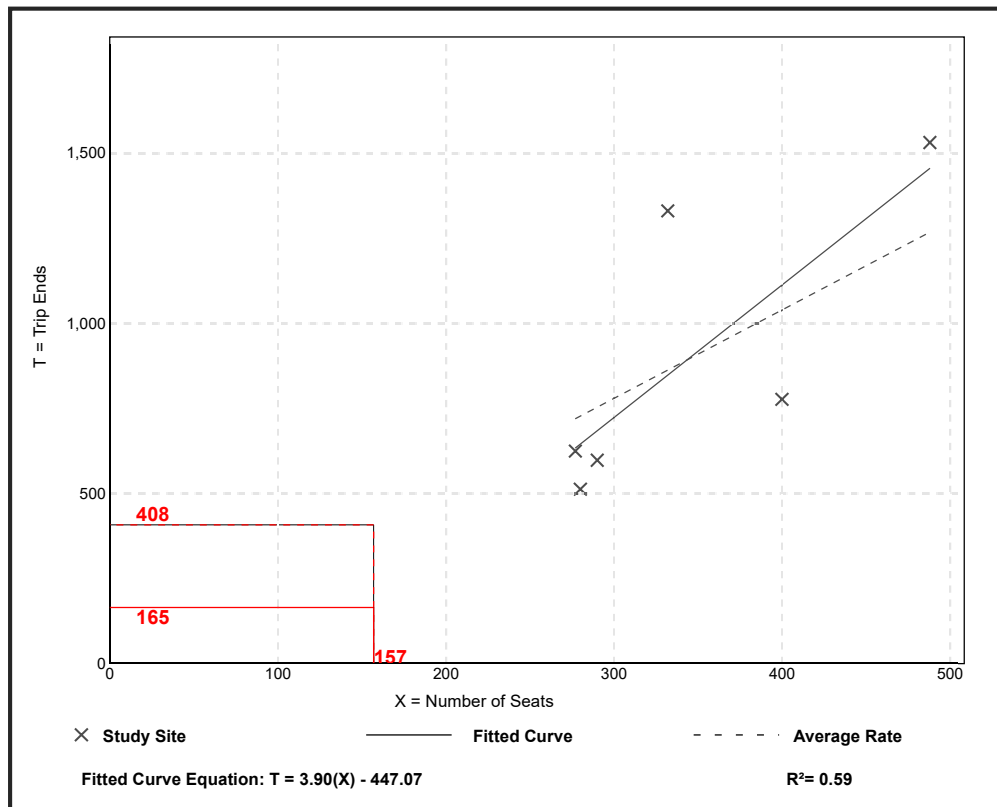
Vehicle Trip Ends vs: **Seats**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. Num. of Seats: 345
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
2.60	1.83 - 4.01	0.85

Data Plot and Equation



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Quality Restaurant (931)

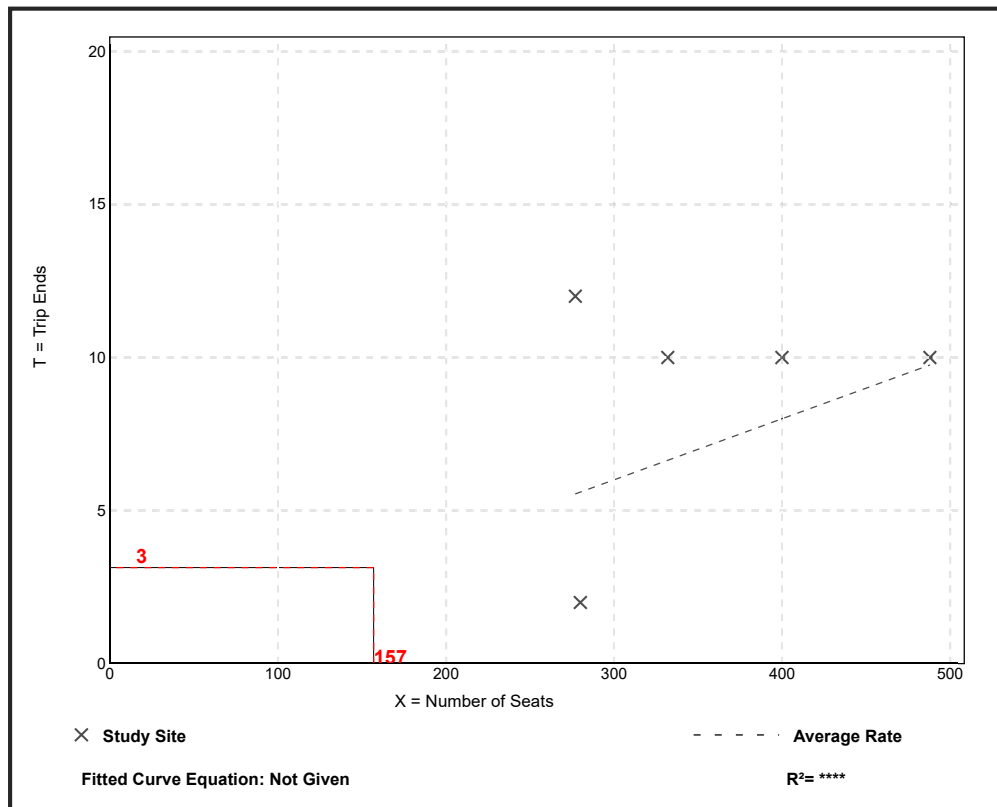
Vehicle Trip Ends vs: Seats
On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 5
 Avg. Num. of Seats: 355
 Directional Distribution: Not Available

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.02	0.01 - 0.04	0.01

Data Plot and Equation

Caution – Small Sample Size



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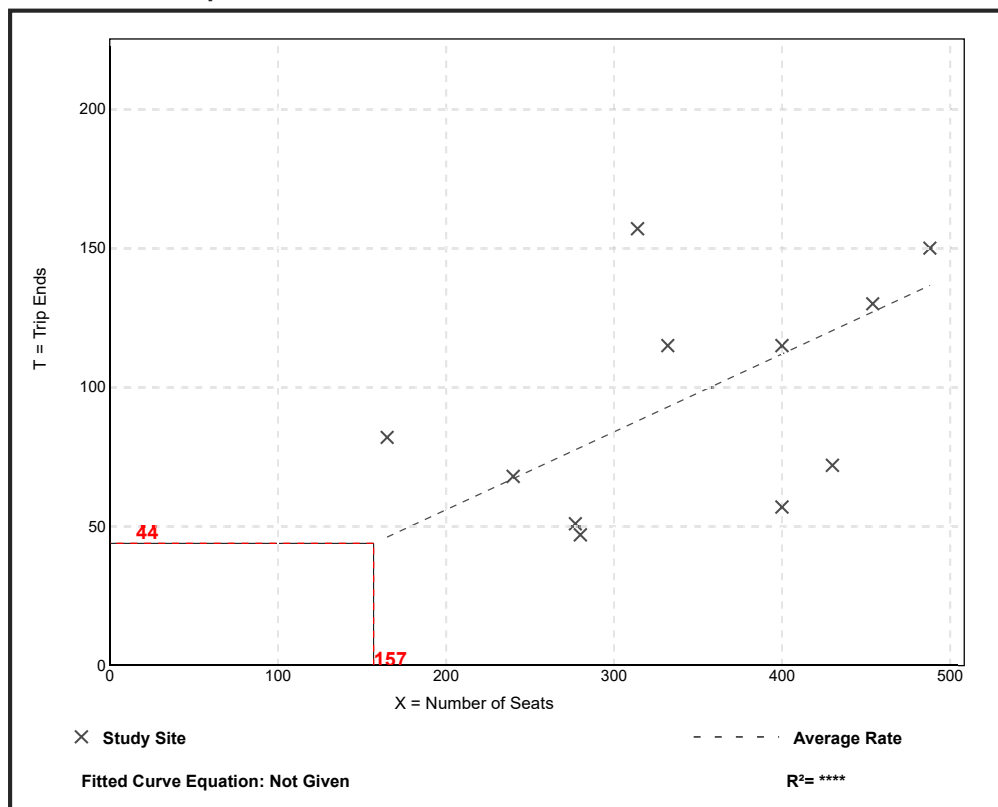
Quality Restaurant (931)

Vehicle Trip Ends vs: Seats
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: 11
 Avg. Num. of Seats: 344
 Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.28	0.14 - 0.50	0.11

Data Plot and Equation



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