5601 Mariner Street
Suite 105
Tampa, FL 33609
Phone: 813.288.0233
Fax: 813.288.0433

November 25, 2020

Larry Torino
Growth Management
City of Flagler Beach
Florida

RE: Flagler Beach Resort – A18701
Traffic Generation Statement

Dear Mr. Torino,

A trip generation analysis has been performed for the proposed Flagler Beach Resort proposed on Moody Boulevard in Flagler Beach, Florida. The project includes a 97 room hotel with amenities and 10 townhomes. This analysis was prepared to determine how much additional traffic is anticipated as a result of the new development.

The land use descriptions used to determine trip generation potential for the project was based upon the *Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition.* ITE LUC 310 – Hotel and LUC 220 – Multi-Family (Low Rise) was used in the analysis.

Table 1 below outlines the anticipated increase in trip generation as a result of the new proposed development. The total gross trips is approximately 702 two-way daily, 48 two-way during the AM Peak Hour and 55 two-way during the PM Peak Hour.

Based upon the River to Sea TPO Transportation Impact Analysis Guidelines, developments generating less than 1,000 two-way daily trips or 100 peak hour two-way trips do not require a traffic impact analysis.

Table 1 – Trip Generation

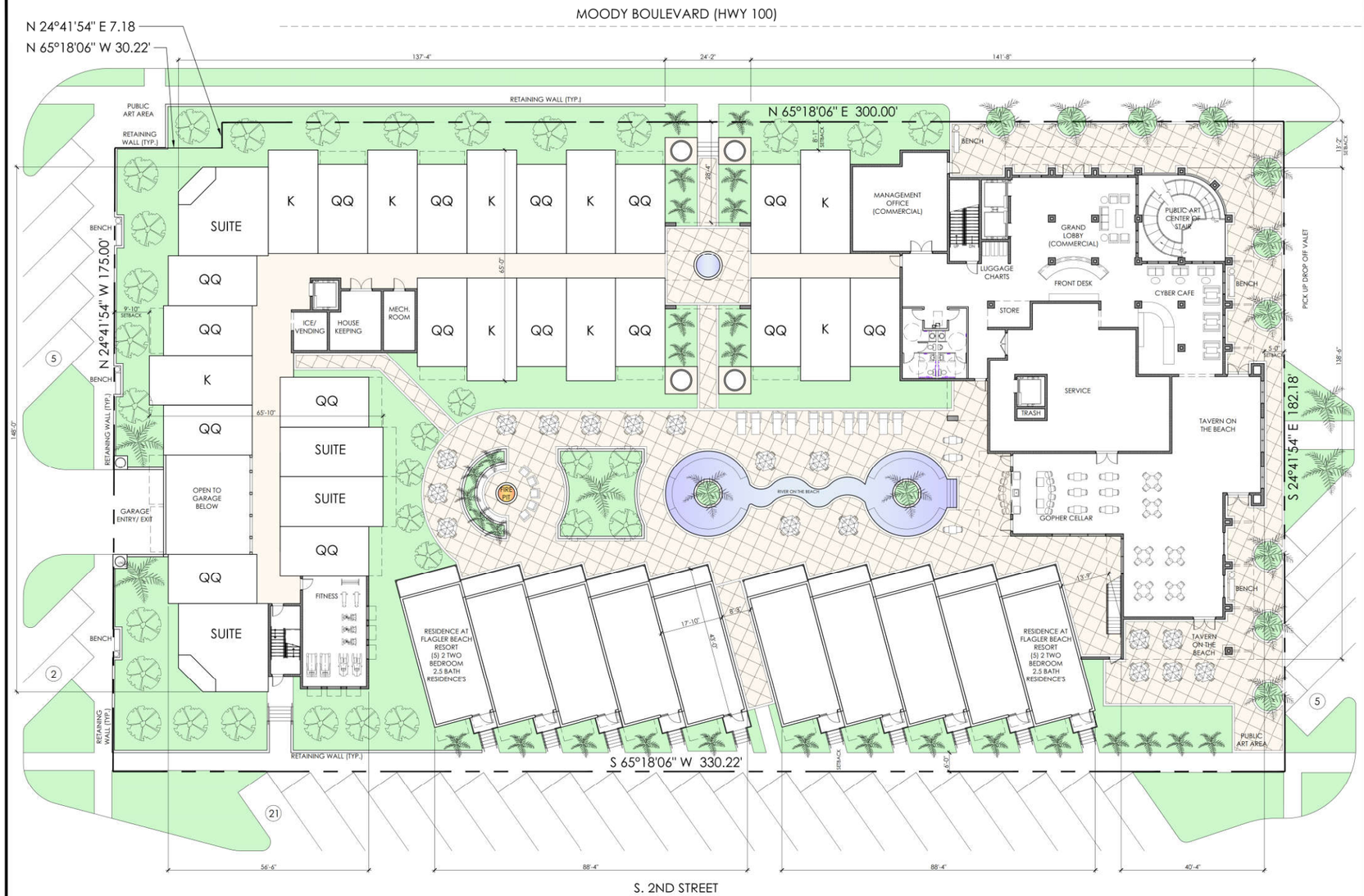
Scenario	Land Use	Size	Weekday			AM			PM		
			Entry	Exit	Total	Entry	Exit	Total	Entry	Exit	Total
Proposed	310 - Hotel	97 Rooms	334	334	668	25	18	43	24	23	47
	220 - Multi-Family (Low Rise)	10 Units	17	17	34	1	4	5	5	3	8
Total gross Trips			351	351	702	26	22	48	29	26	55

Attached you will find a site plan, detailed trip generation calculations from the OTISS Traffic Impact Study Software, and ITE Land Use descriptions. If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,
CPH, Inc.

Devin Barrs, P.E.
Traffic Engineer

Site Plan



ENLARGED SITE PLAN - GROUND FLOOR PLAN

SCALE: 1/16" = 1'-0"

SITE PLAN INFORMATION

SITE ADDRESS:	MOODY BOULEVARD
PARCEL I.D. NUMBER:	12-12-31-4500-00340-0000
SITE TOTAL AREA:	60,262 S.F (± 1.38 ACRES)
AREA OF IMPROVEMENT:	60,262 S.F (± 1.38 ACRES)
ZONING:	GC (GENERAL COMMERCIAL) DOWNTOWN MIXED USE DISTRICT OVERLAY.
FLUM:	MEDIUM DENSITY
EXISTING USE:	VACANT
PROPOSED USE:	MIXED USE
UNIT TYPE:	97 RESORT ROOMS 10 TOWN HOME CONDOMINIUMS (2 BEDROOM/ 2.5 BATHS)
MAX. BUILDING HEIGHT:	35' MAX.
PROPOSED BUILDING HEIGHT:	30'-6" A.F.F.

BUILDING 1 AREA (HOTEL):

FIRST FLOOR	= 23,724	S.F.
SECOND FLOOR	= 16,688	S.F.
THIRD FLOOR	= 20,208	S.F.
UTILITY FLOOR LEVEL	= 1,283	S.F.
TOTAL AREA	= 61,903	S.F.

BUILDING 2 AREA (6 TOWN HOUSES):

FIRST FLOOR	= 3,299	S.F.
SECOND FLOOR	= 3,299	S.F.
THIRD FLOOR	= 740	S.F.
TOTAL AREA	= 7,338	S.F.

BUILDING 3 AREA (5 TOWN HOUSES):

FIRST FLOOR	= 3,299	S.F.
SECOND FLOOR	= 3,299	S.F.
THIRD FLOOR	= 740	S.F.
TOTAL AREA	= 7,338	S.F.

TOTAL BUILDING AREA: = 76,579 S.F.

PROPOSED AREA CALCULATIONS:

BUILDING #1 FOOTPRINT	= 23,724	S.F. (39%)
BUILDING #2 FOOTPRINT	= 3,299	S.F. (5%)
BUILDING #3 FOOTPRINT	= 3,299	S.F. (5%)
PERVIOUS AREA	= 11,009	S.F. (18%)
SIDEWALK/ PAVER AREA	= 18,931	S.F. (33%)
TOTAL AREA	= 60,262	S.F. (100%)

MAX. ALLOWABLE IMPERVIOUS (85%):

BUILDING #1 FOOTPRINT	= 23,724	S.F. (39%)
BUILDING #2 FOOTPRINT	= 3,299	S.F. (5%)
BUILDING #3 FOOTPRINT	= 3,299	S.F. (5%)
SIDEWALK/ PAVER AREA	= 18,931	S.F. (31%)
PROPOSED IMPERVIOUS AREA	= 49,253	S.F. (82%)

BUILDING SETBACKS (BUILD TO LINE):

	REQUIRED	PROVIDED
FRONT	0' OR 5'	5'-0"
REAR	5' TO 10'	9'-10"
SIDE (MOODY BLVD.)	5' TO 10'	8'-1"
SIDE (S. 2ND STREET)	5' TO 10'	10'-0"

FLOOD ZONE:

THE ABOVE DESCRIBED PROPERTY APPEARS TO BE IN ZONE "C", IN ACCORDANCE WITH THE FIRM MAP PF FLAGLER COUNTY, COMMUNITY PANEL NUMBER 120087-0001B. (MAP REVISED JUNE 6, 2018.)

PARKING CALCULATIONS

REQUIRED PARKING SPACES:

97 RESORT ROOMS (1 PER ROOM PLUS ONE PER EACH FIVE OR PORTION THEREOF)	= 117	SPACES
10 TOWN HOUSES (SINGLE FAMILY/ ONE PER DWELLING UNIT)	= 20	SPACES
COMMERCIAL SPACES (MANAGEMENT OFFICE) 1,850 S.F. / 350	= 5	SPACES
TOTAL REQUIRED PARKING (5 HANDICAP PARKING SPACES REQUIRED)	= 142	SPACES

PARKING SPACES PROVIDED:

TOTAL PARKING PROVIDED ON SITE	= 116	SPACES, INCLUDING 5 HANDICAP SPACES. REQUEST 26 SPACES FROM PARKING POOL.

LEGAL DESCRIPTION

ALL BLOCK 34 GEORGE MOODY SUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 1 PAGE 24 PUBLIC RECORDS OF FLAGLER COUNTY FLORIDA.

PASQUALE KURITZKY ARCHITECTURE, INC
Urban ▪ Residential ▪ Commercial

5101 N.W. 21ST AVENUE, SUITE 360
FORT LAUDERDALE, FL 33309
T: (954) 332-0184
F: (954) 332-0187

AA0002517

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DESIGNED JP
DRAWN PKA
CHECKED JP/CO

☒ JOSEPH JOHN PASQUALE, JR. AR 0009261
☐ HARLAN L. KURITZKY AR 0009686

ANJON RESORT HOMES FLAGLER BEACH RESORT

MOODY BOULEVARD
FLAGLER BEACH, FLORIDA

PROJECT NO. 2029
DATE: 09/18/20

REVISIONS

1 DESIGN REVISIONS DATE: 10/22/20
- REVISIONS FROM FIRST PRELIMINARY MEETING WITH THE CITY OF FLAGLER BEACH.

2 DESIGN REVISIONS DATE: 11/06/20
- REVISIONS TO DRAWINGS BASED ON DESIGN REVIEW MEETING WITH OWNER.

ENLARGED SITE PLAN/ GROUND FLOOR PLAN

A-2.0

CONCEPTUAL DRAWINGS

Trip Generation

Scenario - 1

Scenario Name: Weekday
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method / Rate/Equation	Entry / Split%	Exit / Split%	Total
310 - Hotel	General Urban/Suburban	Rooms	97	Weekday	Best Fit (LIN)	334	334	668
Data Source: Trip Gen Manual, 10th Ed					T = 11.29(X) - 426.97	50%	50%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	10	Weekday	Best Fit (LIN)	17	17	34
Data Source: Trip Gen Manual, 10th Ed					T = 7.56(X) - 40.86	50%	50%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
310 - Hotel	100	100	1	1	50	50
220 - Multifamily Housing (Low-Rise)	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
310 - Hotel	334	334	0	0	334	334
	668		0		668	
220 - Multifamily Housing (Low-Rise)	17	17	0	0	17	17
	34		0		34	

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
310 - Hotel	Hotel
220 - Multifamily Housing (Low-Rise)	Residential

BALANCED PERSON TRIPS:

310 - Hotel								220 - Multifamily Housing (Low-Rise)
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
334	0	0	0	**0**	0	0	0	17
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
334	0	0	0	**0**	0	0	0	17

INTERNAL PERSON TRIPS:
310 - Hotel

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	**0**	**0**	**0**

220 - Multifamily Housing (Low-Rise)

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	**0**	**0**	**0**

INTERNAL VEHICLE TRIPS AND CAPTURE:

310 - Hotel

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	**0**	**0**	**0**
Total External Vehicle Trips	334	334	668
Internal Vehicle Trip Capture	**0%**	**0%**	**0%**

220 - Multifamily Housing (Low-Rise)

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	**0**	**0**	**0**
Total External Vehicle Trips	17	17	34
Internal Vehicle Trip Capture	**0%**	**0%**	**0%**

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	334	334	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	17	17	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	334	334	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	17	17	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	334	334	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	17	17	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
310 - Hotel	334	334	668
220 - Multifamily Housing (Low-Rise)	17	17	34

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	351	351	702
Internal Vehicle Trips	0	0	0
External Vehicle Trips	351	351	702
Internal Vehicle Trip Capture	0%	0%	0%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	351	351	702

Scenario - 2

Scenario Name: AM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
310 - Hotel	General Urban/Suburban	Rooms	97	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	25	18	43
Data Source: Trip Gen Manual, 10th Ed					T = 0.50(X) - 5.34	59%	41%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	10	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	1	4	5
Data Source: Trip Gen Manual, 10th Ed					Ln(T) =0.95Ln(X) - 0.51	23%	77%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
310 - Hotel	100	100	1	1	59	41
220 - Multifamily Housing (Low-Rise)	100	100	1	1	23	77

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
310 - Hotel	25	18	0	0	25	18
	43		0		43	
220 - Multifamily Housing (Low-Rise)	1	4	0	0	1	4
	5		0		5	

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
310 - Hotel	Hotel
220 - Multifamily Housing (Low-Rise)	Residential

BALANCED PERSON TRIPS:

310 - Hotel								220 - Multifamily Housing (Low-Rise)
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
18	0	0	0	**0**	0	0	0	1
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
25	0	0	0	**0**	0	0	0	4

INTERNAL PERSON TRIPS:
310 - Hotel

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	**0**	**0**	**0**

220 - Multifamily Housing (Low-Rise)

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	**0**	**0**	**0**

INTERNAL VEHICLE TRIPS AND CAPTURE:

310 - Hotel

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	**0**	**0**	**0**
Total External Vehicle Trips	25	18	43
Internal Vehicle Trip Capture	**0%**	**0%**	**0%**

220 - Multifamily Housing (Low-Rise)

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	**0**	**0**	**0**
Total External Vehicle Trips	1	4	5
Internal Vehicle Trip Capture	**0%**	**0%**	**0%**

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	25	18	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	1	4	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	25	18	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	1	4	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	25	18	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	1	4	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
310 - Hotel	25	18	43
220 - Multifamily Housing (Low-Rise)	1	4	5

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	26	22	48
Internal Vehicle Trips	0	0	0
External Vehicle Trips	26	22	48
Internal Vehicle Trip Capture	0%	0%	0%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	26	22	48

Scenario - 3

Scenario Name: PM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
310 - Hotel	General Urban/Suburban	Rooms	97	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LIN)	24	23	47
Data Source: Trip Gen Manual, 10th Ed					T = 0.75(X) - 26.02	51%	49%	
220 - Multifamily Housing (Low-Rise)	General Urban/Suburban	Dwelling Units	10	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	5	3	8
Data Source: Trip Gen Manual, 10th Ed					Ln(T) =0.89Ln(X) - 0.02	63%	37%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
310 - Hotel	100	100	1	1	51	49
220 - Multifamily Housing (Low-Rise)	100	100	1	1	63	37

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
310 - Hotel	24	23	0	0	24	23
	47		0		47	
220 - Multifamily Housing (Low-Rise)	5	3	0	0	5	3
	8		0		8	

INTERNAL VEHICLE TRIP REDUCTION

LAND USE GROUP ASSIGNMENT:

Land Use	Land Use Group
310 - Hotel	Hotel
220 - Multifamily Housing (Low-Rise)	Residential

BALANCED PERSON TRIPS:

310 - Hotel								220 - Multifamily Housing (Low-Rise)
Persons Exit	PAF	UIPTC	Unconstrained Demand	==>>> BALANCED ==>>>	Unconstrained Demand	UIPTC	PAF	Persons Entry
23	0	0	0	**0**	0	0	0	5
Persons Entry	PAF	UIPTC	Unconstrained Demand	<<<== BALANCED <<<==	Unconstrained Demand	UIPTC	PAF	Persons Exit
24	0	0	0	**0**	0	0	0	3

INTERNAL PERSON TRIPS:
310 - Hotel

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	**0**	**0**	**0**

220 - Multifamily Housing (Low-Rise)

Internal Person Trips From	Entry	Exit	Total
Total Internal Person Trips	**0**	**0**	**0**

INTERNAL VEHICLE TRIPS AND CAPTURE:

310 - Hotel

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	**0**	**0**	**0**
Total External Vehicle Trips	24	23	47
Internal Vehicle Trip Capture	**0%**	**0%**	**0%**

220 - Multifamily Housing (Low-Rise)

Total Internal Person Trips	0	0	0
Vehicle Mode Share	100%	100%	-
Vehicle Occupancy	1.00	1.00	-
Total Vehicle Internal Trips	**0**	**0**	**0**
Total External Vehicle Trips	5	3	8
Internal Vehicle Trip Capture	**0%**	**0%**	**0%**

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	24	23	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	5	3	0.00%	0.00%	0	0

DIVERTED VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Diverted Vehicle Trip %		Diverted Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	24	23	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	5	3	0.00%	0.00%	0	0

EXTRA VEHICLE TRIP REDUCTION

Land Use	(External - (Pass-by + Diverted)) Vehicle Trips		Extra Vehicle Trip Reduction %		Extra Reduced Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
310 - Hotel	24	23	0.00%	0.00%	0	0
220 - Multifamily Housing (Low-Rise)	5	3	0.00%	0.00%	0	0

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
310 - Hotel	24	23	47
220 - Multifamily Housing (Low-Rise)	5	3	8

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	29	26	55
Internal Vehicle Trips	0	0	0
External Vehicle Trips	29	26	55
Internal Vehicle Trip Capture	0%	0%	0%
Pass-by Vehicle Trips	0	0	0
Diverted Vehicle Trips	0	0	0
Extra Reduced Vehicle Trips	0	0	0
New Vehicle Trips	29	26	55

ITE Land Use Descriptions

Land Use: 310
Hotel

Description

A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool, fitness room), and/or other retail and service shops. All suites hotel (Land Use 311), business hotel (Land Use 312), motel (Land Use 320), and resort hotel (Land Use 330) are related uses.

Additional Data

Studies of hotel employment density indicate that, on the average, a hotel will employ 0.9 employees per room.[1]

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

Time-of-day distribution data for this land use are presented in Appendix A. For the one center city core site with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 8:30 and 9:30 a.m. and 3:15 and 4:15 p.m., respectively. On Saturday and Sunday, the peak hours were between 5:00 and 6:00 p.m. and 10:15 and 11:15 a.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, District of Columbia, Florida, Georgia, Indiana, Minnesota, New York, Pennsylvania, South Dakota, Texas, Vermont, Virginia, and Washington.

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.

Trip generation at a hotel may be related to the presence of supporting facilities such as convention facilities, restaurants, meeting/banquet space, and retail facilities. Future data submissions should specify the presence of these amenities. Reporting the level of activity at the supporting facilities such as full, empty, partially active, number of people attending a meeting/banquet during observation may also be useful in further analysis of this land use.

Source Numbers

170, 260, 262, 277, 280, 301, 306, 357, 422, 507, 577, 728, 867, 872, 925, 951

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[1] Buttke, Carl H. Unpublished studies of building employment densities, Portland, Oregon.

Hotel
(310)

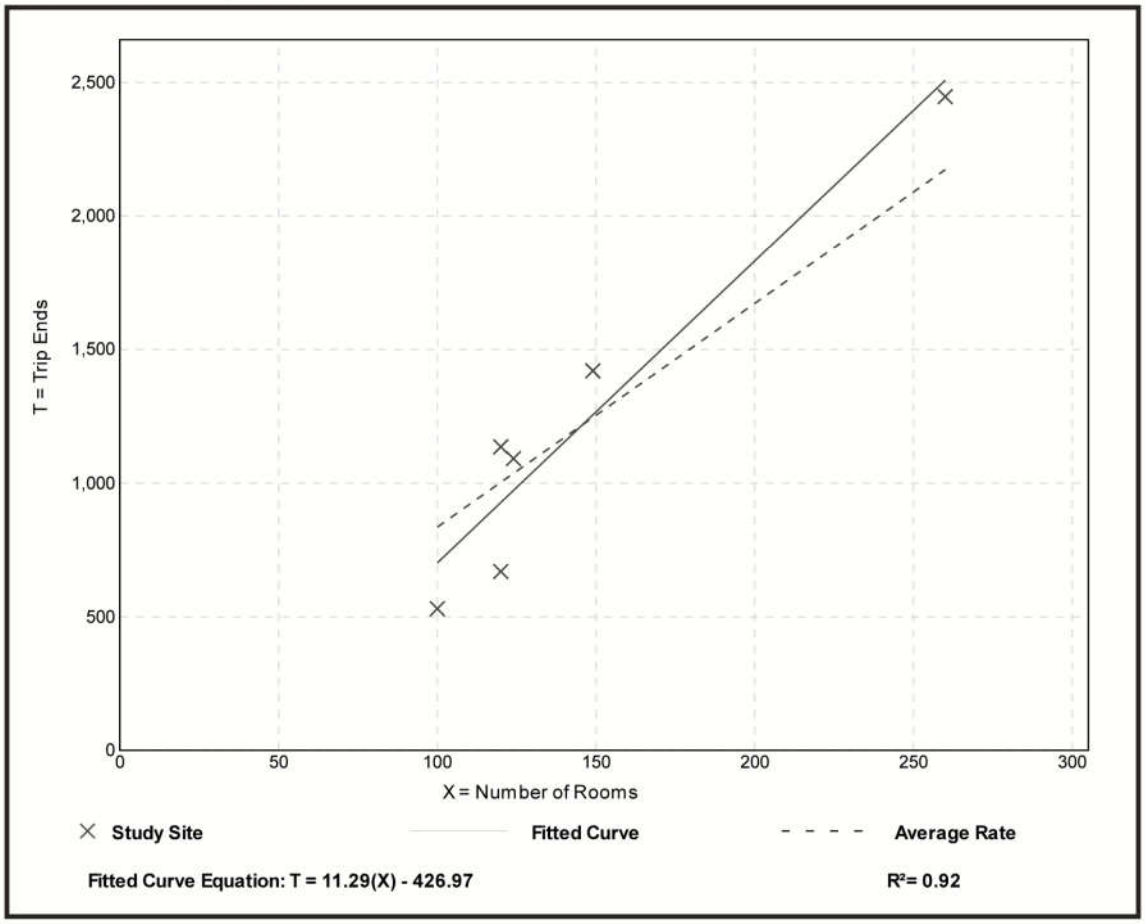
Vehicle Trip Ends vs: **Rooms**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. Num. of Rooms: 146
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
8.36	5.31 - 9.53	1.86

Data Plot and Equation



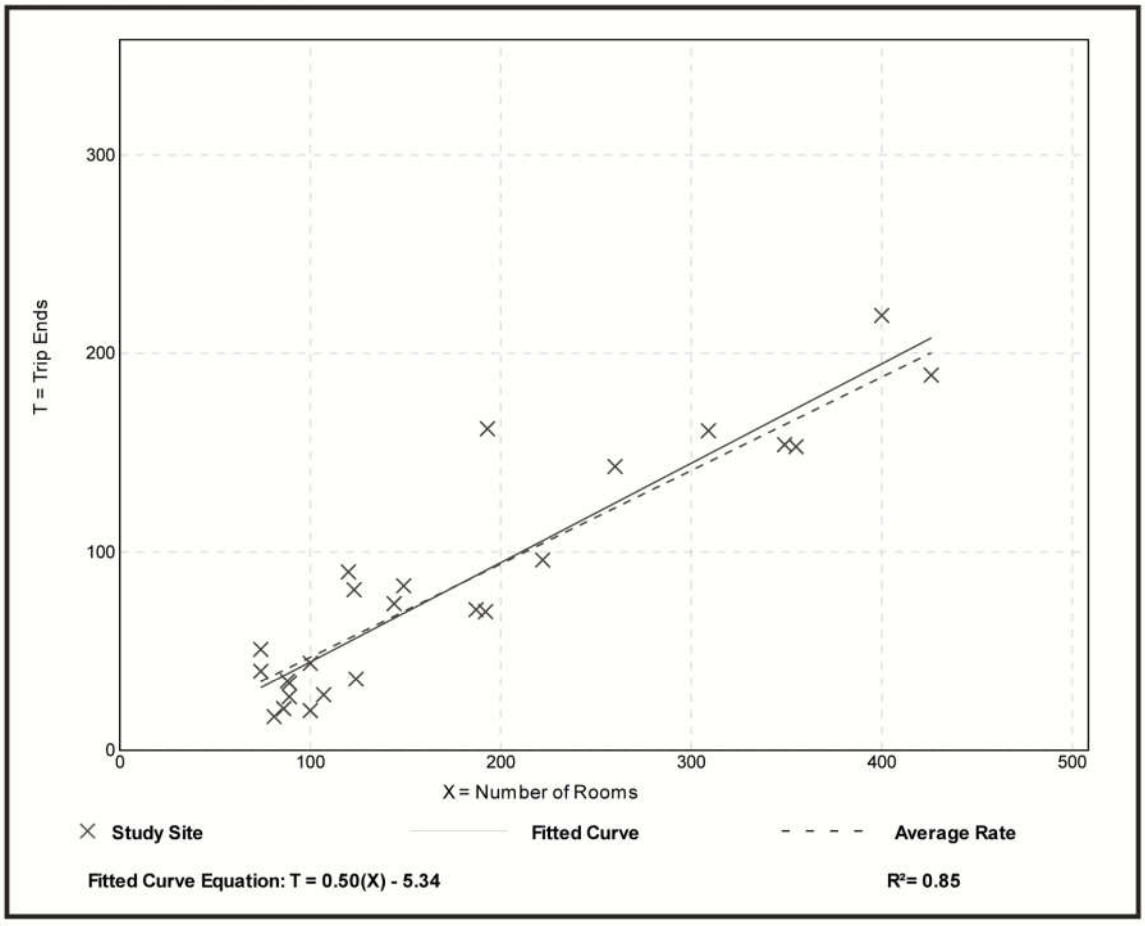
Hotel
(310)

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:	25
Avg. Num. of Rooms:	178
Directional Distribution:	59% entering, 41% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.47	0.20 - 0.84	0.14

Data Plot and Equation



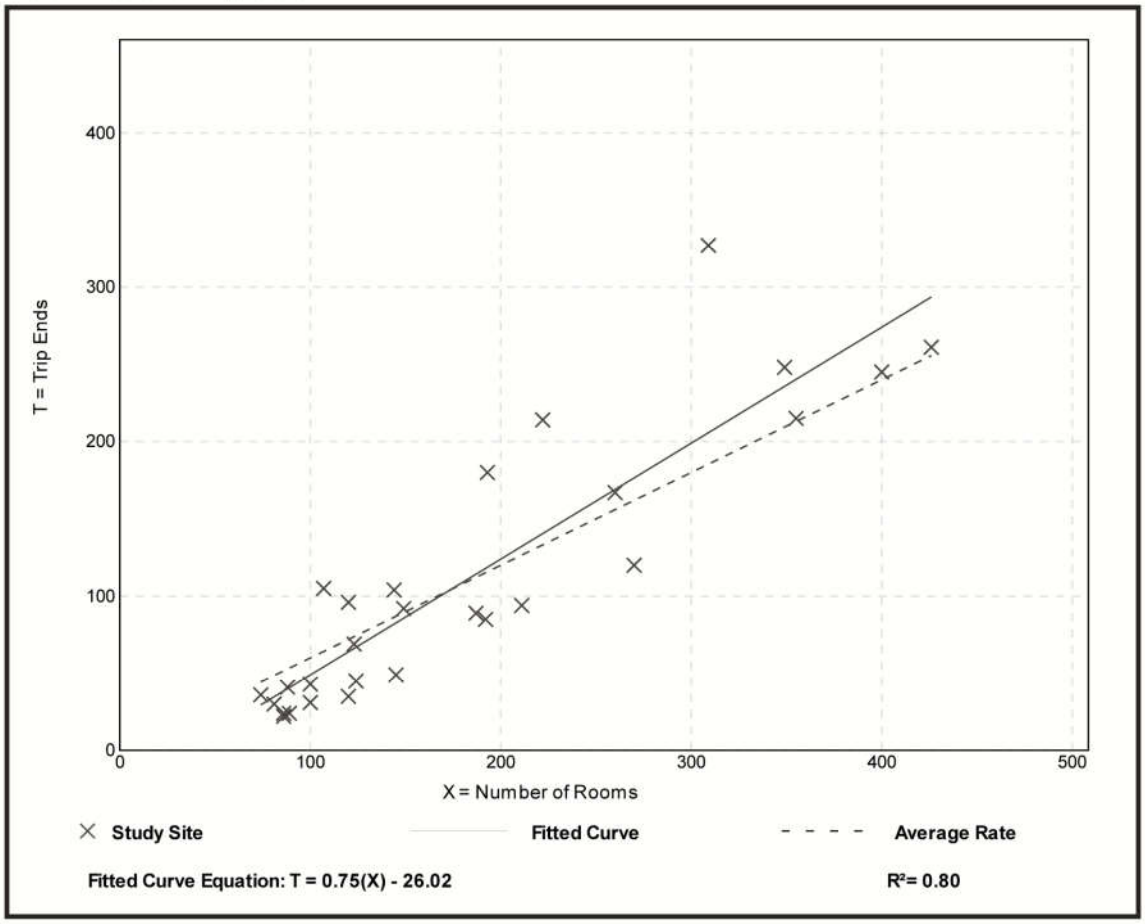
Hotel
(310)

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: 28
Avg. Num. of Rooms: 183
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.60	0.26 - 1.06	0.22

Data Plot and Equation



Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors). Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), and off-campus student apartment (Land Use 225) are related land uses.

Additional Data

In prior editions of *Trip Generation Manual*, the low-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 three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

This land use included data from a wide variety of units with different sizes, price ranges, locations, and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with 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 4:45 and 5:45 p.m., respectively. For the one site with Saturday data, the overall highest vehicle volume was counted between 9:45 and 10:45 a.m. For the one site with Sunday data, the overall highest vehicle volume was counted between 11:45 a.m. and 12:45 p.m.

For the one dense multi-use urban site with 24-hour count 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 6:15 and 7:15 p.m., respectively.

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

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

- 1.13 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.21 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, District of Columbia, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Minnesota, New Jersey, New York, Ontario, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, and Washington.

It is expected that the number of bedrooms and number of residents are likely correlated to the number of trips generated by a residential site. Many of the studies included in this land use did not indicate the total number of bedrooms. To assist in the future analysis of this land use, it is important that this information be collected and included in trip generation data submissions.

Source Numbers

168, 187, 188, 204, 211, 300, 305, 306, 319, 320, 321, 357, 390, 412, 418, 525, 530, 571, 579, 583, 864, 868, 869, 870, 896, 903, 918, 946, 947, 948, 951

Multifamily Housing (Low-Rise)
(220)

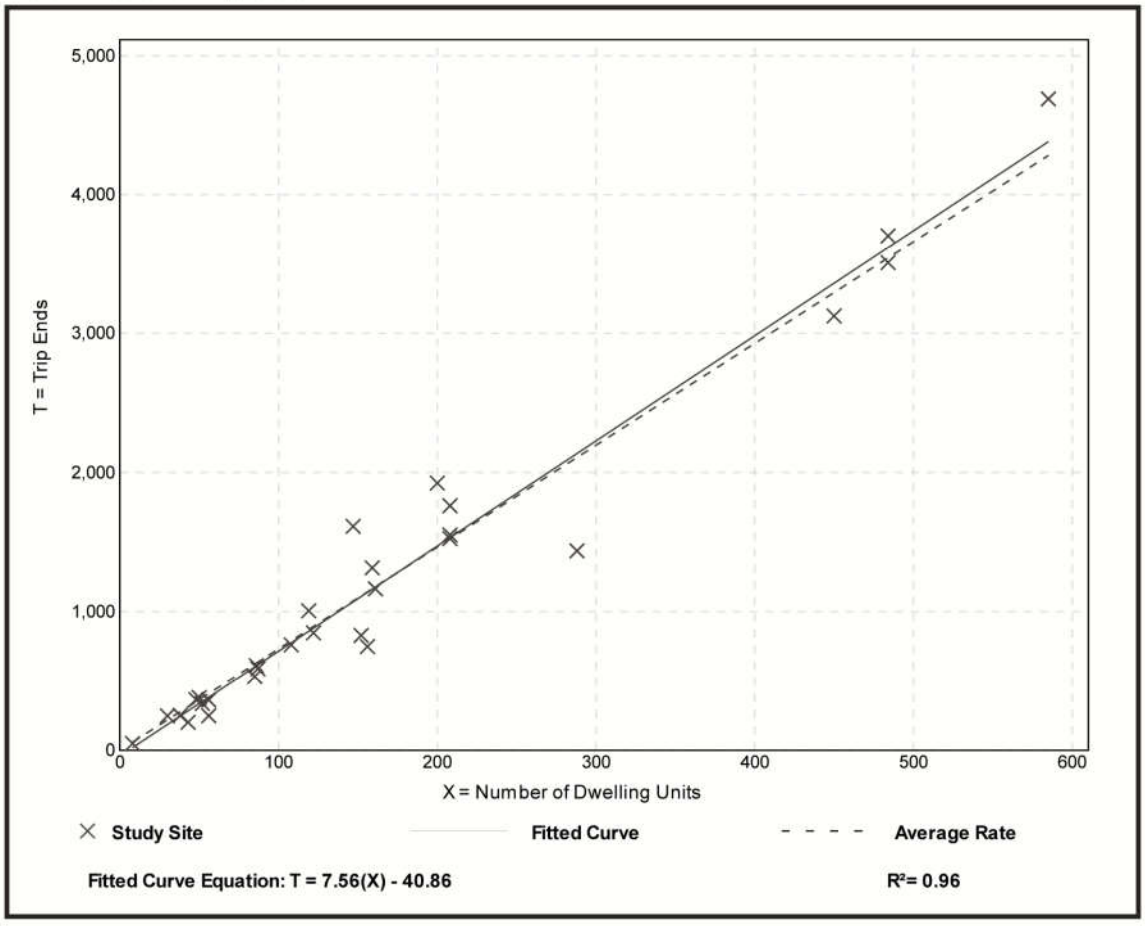
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



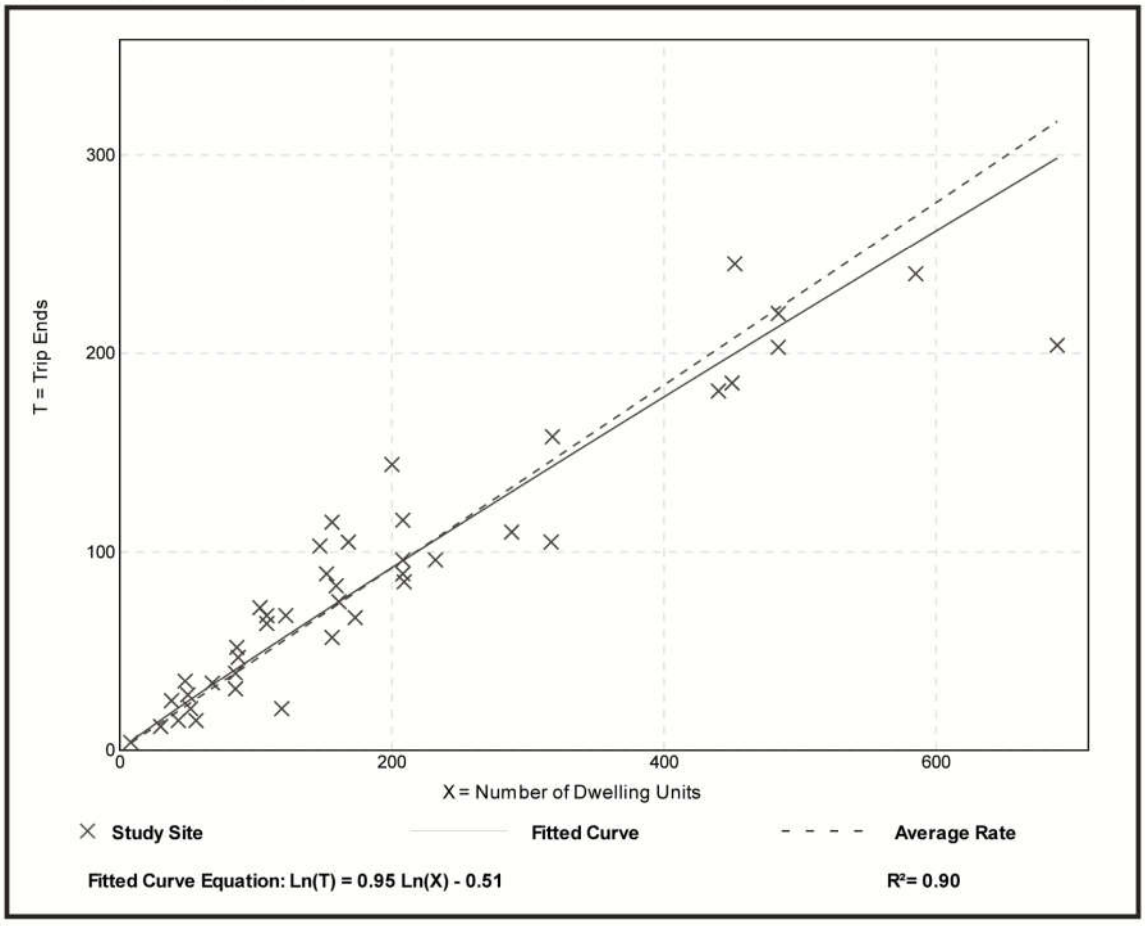
Multifamily Housing (Low-Rise)
(220)

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: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

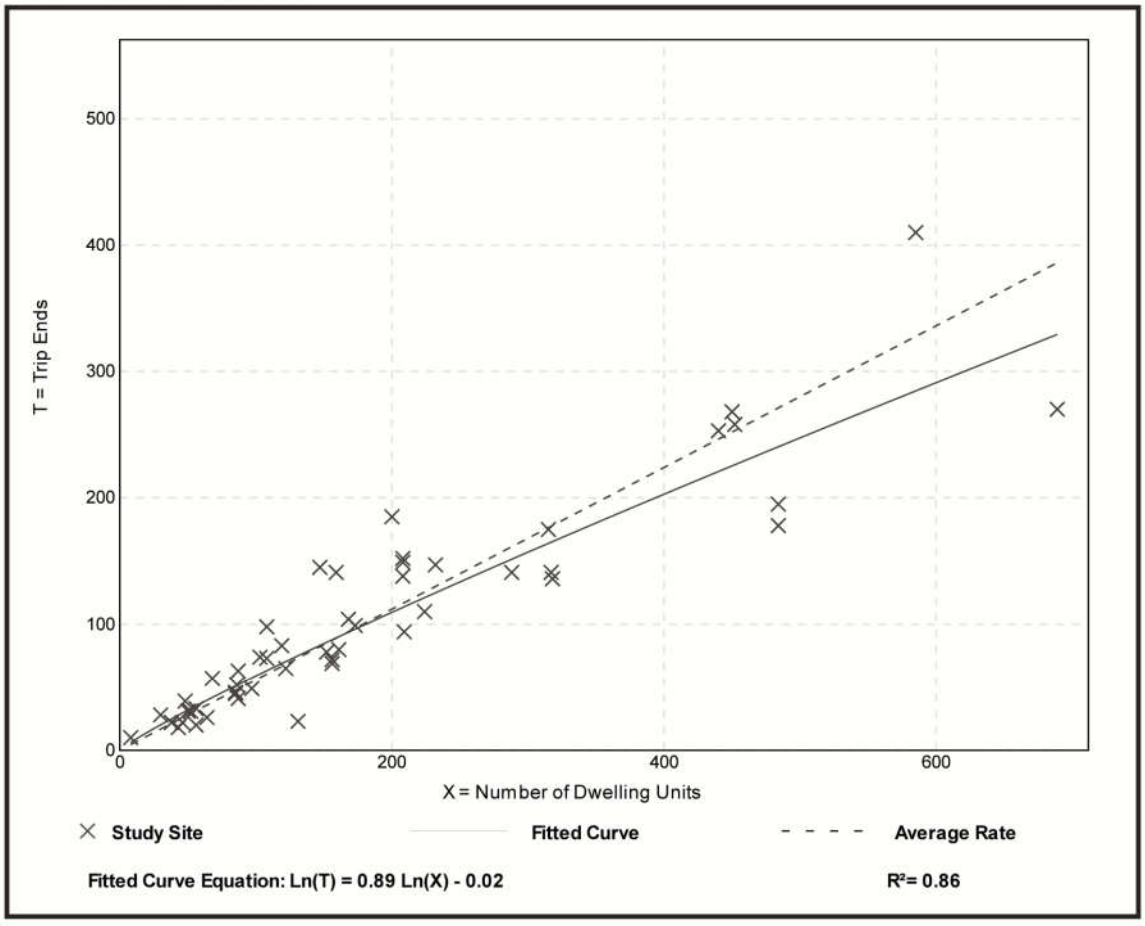
Data Plot and Equation



Multifamily Housing (Low-Rise)
(220)

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: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation