

DATA SOURCE:

Trip Gen Manual, 10th Ed + Supplement

SEARCH BY LAND USE CODE:

210

LAND USE GROUP:

(200-299) Residential

LAND USE:

210 - Single-Family Detached Housing

LAND USE SUBCATEGORY:

All Sites

INDEPENDENT VARIABLE (IV):

Dwelling Units

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

SETTING/LOCATION:

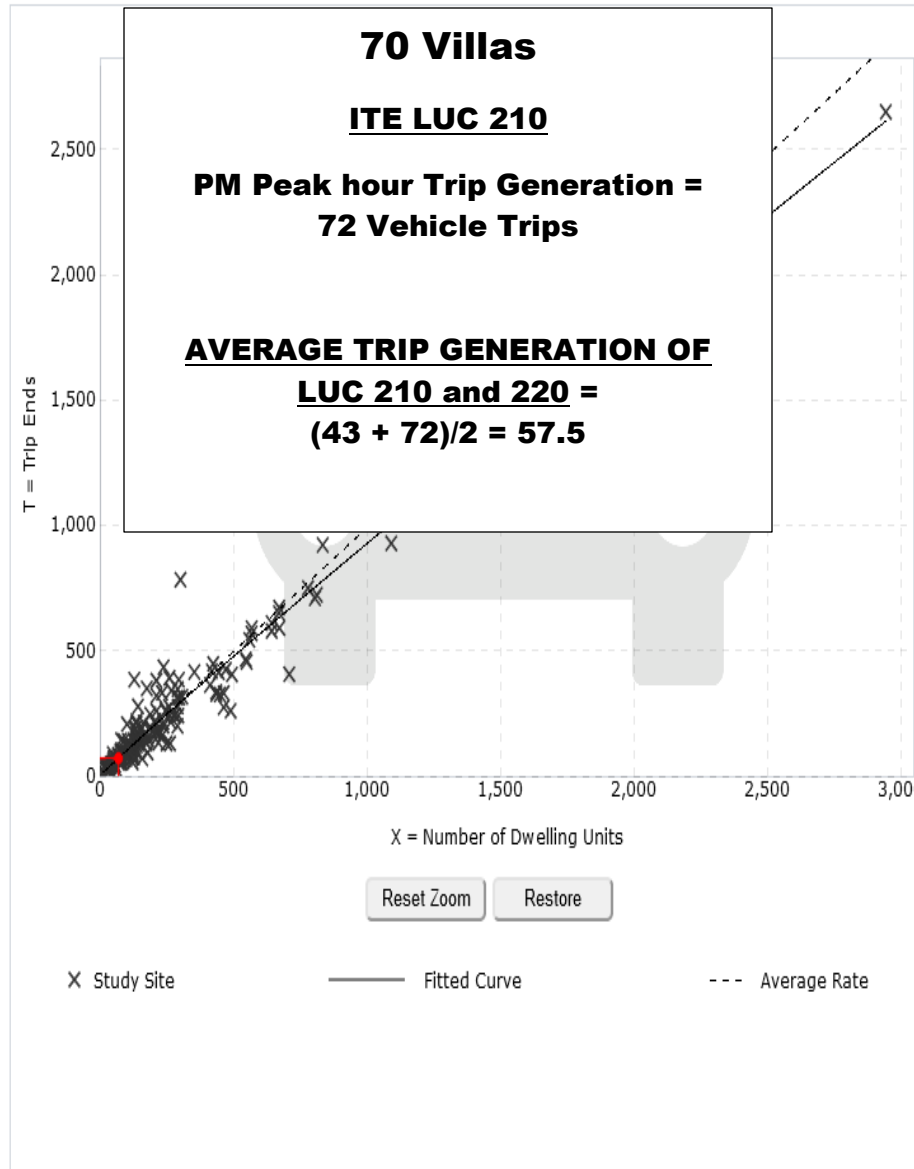
General Urban/Suburban

TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

70 Calculate



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

Land Use:	Single-Family Detached Housing (210) Click for more details
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:	190
Avg. Num. of Dwelling Units:	242
Average Rate:	0.99
Range of Rates:	0.44 - 2.98
Standard Deviation:	0.31
Fitted Curve Equation:	$\ln(T) = 0.96 \ln(X) + 0.20$
R²:	0.92
Directional Distribution:	63% entering, 37% exiting
Calculated Trip Ends:	Average Rate: 69 (Total), 43 (Entry), 26 (Exit)
	Fitted Curve: 72 (Total), 45 (Entry), 27 (Exit)

DATA SOURCE:
Trip Gen Manual, 10th Ed + Supplement

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE:
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
All Sites

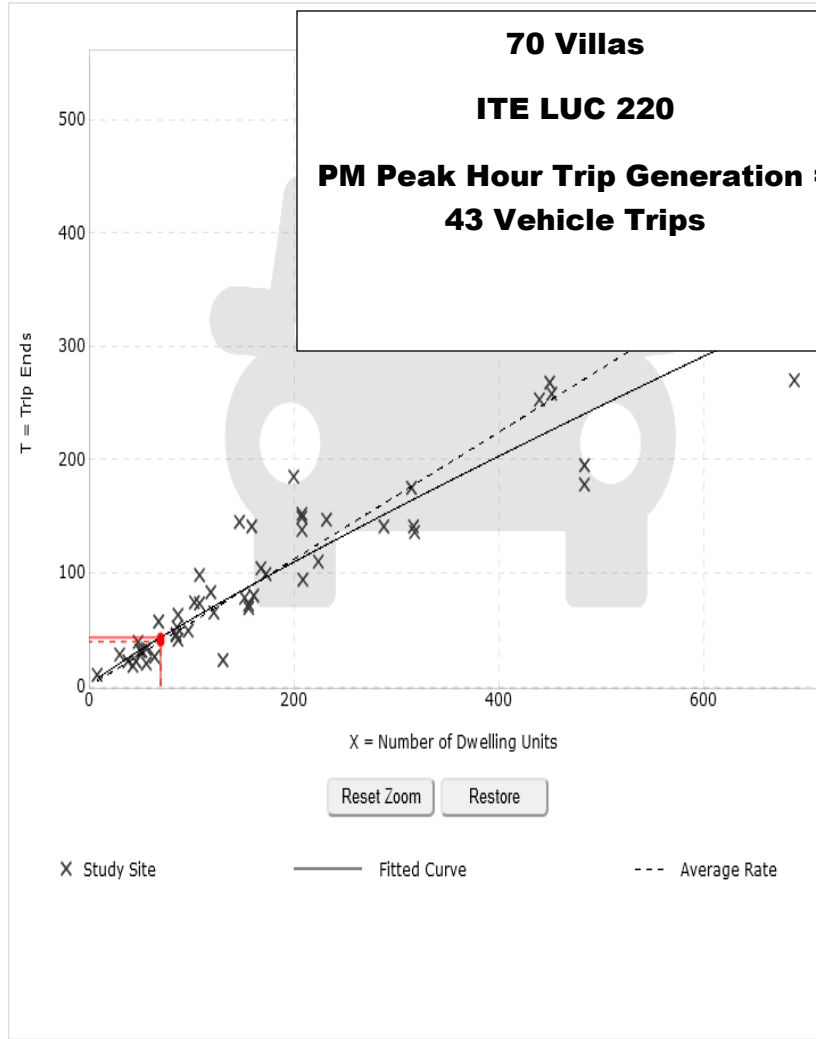
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

SETTING/LOCATION:
General Urban/Suburban

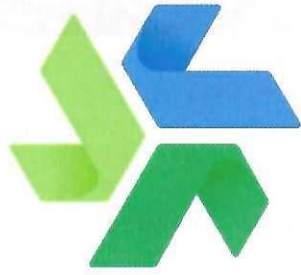
TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
70 Calculate



Land Use:	Multifamily Housing (Low-Rise) (220) Click for more details
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:	50
Avg. Num. of Dwelling Units:	187
Average Rate:	0.56
Range of Rates:	0.18 - 1.25
Standard Deviation:	0.16
Fitted Curve Equation:	$\ln(T) = 0.89 \ln(X) - 0.02$
R ² :	0.86
Directional Distribution:	63% entering, 37% exiting
Calculated Trip Ends:	Average Rate: 39 (Total), 24 (Entry), 15 (Exit)
	Fitted Curve: 43 (Total), 27 (Entry), 16 (Exit)

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

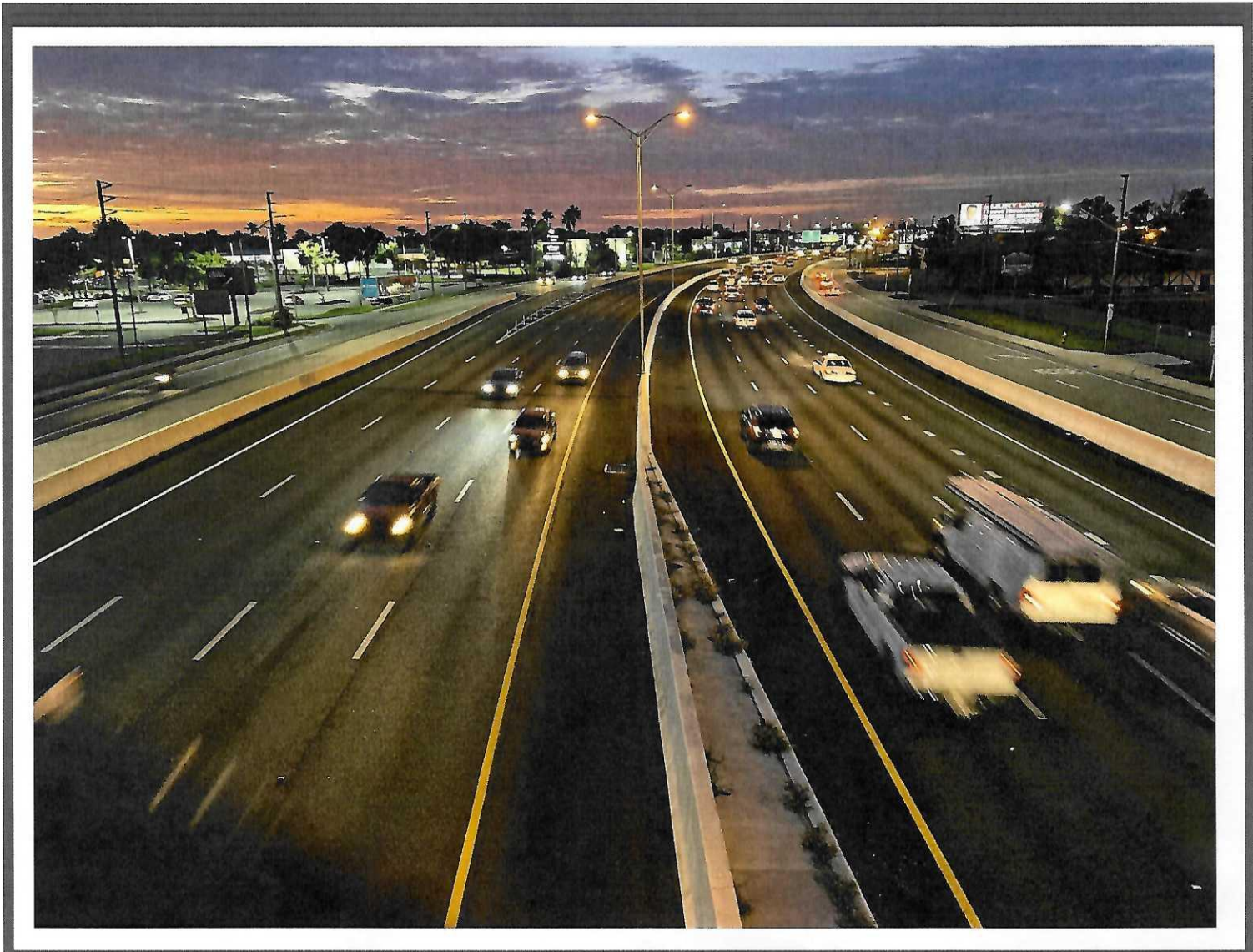


**FORWARD
PINELLAS**

Integrating Land Use & Transportation

2019 Annual Level of Service Report

2018 Data Year



Facility	Facility Type	Road Type	Juris	Length (miles)	Signals per Mile	LOS Meth.	AADT	Vol.	Physical Capacity	V:Cap Ratio	Def. Flag	Fac. LOS
365 - 102ND AVE N: (VONN RD -to- 137TH ST N)	SA	2U	CR	0.506	0	T	14500	757	1440	0.526	0	F
366 - 102ND AVE N: (137TH ST N -to- OAKHURST RD)	SA	4D	CR	0.249	4.01	T	14500	757	1683	0.45	0	D
367 - 102ND AVE N: (OAKHURST RD -to- HAMLIN BLVD)	NA	4D	CR	0.504	0	T	14500	757	3760	0.201	0	D
373 - 110TH AVE N: (43RD ST N -to- 49TH ST N)	SMC	2U	PP	0.5	2.002	T	5202	271	572	0.474	0	C
374 - 110TH AVE N: (49TH ST N -to- US 19)	SMC	2U	PP	0.412	2.428	T	5118	267	572	0.467	0	C
375 - 110TH AVE N: (US 19 -to- 62ND ST)	SA	2U	PP	0.839	0	T	2456	58	1440	0.04	0	C
376 - 113TH ST N: (ULMERTON RD -to- 102ND AVE N)	SC	4D	CR	2.01	0.995	T	21000	1097	1764	0.622	0	C
378 - 118TH AVE N: (BELCHER RD -to- 66TH ST N)	SC	2U	CR	1.054	1.9	T	4412	230	572	0.402	0	C
381 - 118TH AVE N: (62ND ST N -to- 66TH ST N)	SC	2U	CR	0.517	1.934	T	4127	215	572	0.376	0	C
388 - 125TH ST N: (PARK BLVD -to- 102ND AVE N)	SC	2U	CR	1.506	1.488	T	3617	189	572	0.33	0	C
410 - 142ND AVE N: (66TH ST N -to- BELCHER RD)	SMC	2U	CR	1.02	0.98	T	8700	454	572	0.794	0	D
421 - ALDERMAN RD: (ALT US 19 -to- US 19)	SA	4D	CR	2.013	1.667	T	16500	757	1764	0.429	0	D
422 - ALDERMAN RD: (US 19 -to- HIGHLANDS BLVD)	NMC	2U	CR	1.186	0	T	11400	595	1440	0.413	0	C
425 - ALT US 19/BAY PINES BLVD: (W END OF BRIDGE -to- PARK ST)	SA	4D	SR	0.92	0.984	T	47000	2455	1960	1.253	0	F
426 - ALT US 19/BAY PINES BLVD: (W END OF BRIDGE -to- 100TH WY)	SA	6D	SR	0.64	3.721	T	39500	2063	2830	0.729	0	C
427 - ALT US 19 BAY PINES BLVD: (100TH WY -to- SEMINOLE BLVD)	SA	6D	SR	0.543	0	T	39500	2063	5650	0.365	0	C
428 - ALT US 19 BAYSHORE BLVD: (SKINNER BLVD -to- CURLEW RD)	NA	6D	SR	2.415	1.792	T	21150	1034	924	1.119	0	F
429 - ALT US 19 BAYSHORE BLVD: (CURLLEW RD -to- TAMPA RD)	SA	2D	SR	1.467	0.354	T	19033	903	924	0.977	0	F
430 - ALT US 19 BROADWAY: (MAIN ST -to- SKINNER BLVD)	SA	2U	SR	0.256	3.914	T	19800	1034	860	1.202	0	F
431 - ALT US 19 CHESTNUT ST: (MYRTLE AVE -to- COURT ST)	NA	30	SR	0.185	0	T	17000	1615	6780	0.238	0	D
432 - ALT US 19/COURT ST: (CHESTNUT ST -to- FT HARRISON AVE)	SA	40	SR	0.454	4.469	T	14500	1377	4536	0.304	0	C
433 - ALT US 19/COURT ST: (CHESTNUT ST -to- MISSOURI AVE)	SA	4D	SR	0.318	1.972	T	33000	1724	1870	0.922	0	F
434 - ALT US 19 EDGEWATER DR: (MYRTLE AVE -to- BROADWAY AVE)	SA	2U	SR	2.041	0.996	T	15325	773	880	0.878	0	E
435 - ALT US 19 MISSOURI AVE: (COURT ST -to- BELLEAIR RD)	SA	6D	SR	1.511	3.975	T	26250	1332	2830	0.471	0	C
436 - ALT US 19 MISSOURI AVE: (BELLEAIR RD -to- E BAY DR)	SA	6D	SR	1.532	3.507	T	30700	1384	2830	0.489	0	C
437 - ALT US 19 MYRTLE AVE: (CHESTNUT ST -to- DREW ST)	SA	4U	SR	0.5	7.039	T	14100	736	1577	0.467	0	D
438 - ALT US 19 MYRTLE AVE: (DREW ST -to- FAIRMONT ST)	SA	4U	SR	0.981	5.681	T	12025	621	1776	0.35	0	C
439 - ALT US 19 MYRTLE AVE: (FAIRMONT ST -to- EDGEWATER DR)	NA	2U	SR	0.098	0	T	12151	634	1440	0.44	0	D
440 - ALT US 19 PALM HARBOR BLVD: (TAMPA RD -to- ALDERMAN RD)	SA	2D	SR	1.812	0.604	T	21500	1123	924	1.215	0	F
441 - ALT US 19/PALM HARBOR BLVD: (ALDERMAN RD -to- KLOSTERMAN RD)	SA	2D	SR	2.203	0.247	T	17800	930	924	1.006	0	F
442 - ALT US 19 PINELLAS AVE: (KLOSTERMAN RD -to- MERES BLVD)	SA	2U	SR	1.043	0.976	T	16300	851	880	0.967	0	D
443 - ALT US 19 PINELLAS AVE: (MERES BLVD -to- TARPON AVE)	SA	2D	SR	0.595	7.141	T	16300	851	830	1.025	0	F
444 - ALT US 19/PINELLAS AVE: (TARPON AVE -to- ANCLOTE AVE)	SA	2U	SR	1.98	3.52	T	16460	809	880	0.919	0	F
445 - ALT US 19 SEMINOLE BLVD: (BAY PINES BLVD -to- PARK BLVD)	SA	6D	SR	1.651	2.96	T	36500	1907	2830	0.674	0	C
446 - ALT US 19 SEMINOLE BLVD: (PARK BLVD -to- 102ND AVE N)	SA	6D	SR	1.766	2.934	T	37833	1854	2940	0.631	0	C
447 - ALT US 19 SEMINOLE BLVD: (102ND AVE N -to- ULMERTON RD)	SA	6D	SR	2.027	2.777	T	35200	1776	2830	0.628	0	C
448 - ALT US 19 SEMINOLE BLVD: (ULMERTON RD -to- E BAY DR)	SA	6D	SR	1.517	1.323	T	33666	1724	2940	0.586	0	C
449 - ALT US 19 TYRONE BLVD: (5TH AVE N -to- 9TH AVE N)	SA	4D	SR	0.253	3.96	T	20500	1071	1870	0.573	0	C
450 - ALT US 19 TYRONE BLVD: (9TH AVE N -to- 66TH ST N)	SA	4D	SR	1.18	4.564	T	34000	1776	1960	0.906	0	C
451 - ALT US 19 TYRONE BLVD: (66TH ST N -to- 38TH AVE N)	SA	4D	SR	1.586	1.63	T	33500	1750	1960	0.893	0	C
452 - ALT US 19 TYRONE BLVD: (38TH AVE N -to- PARK ST)	SA	6D	SR	0.36	2.776	T	39000	2037	2830	0.72	0	C
453 - ANCLOTE BLVD: (ANCLOTE RD -to- ALT US 19)	SMC	2U	CR	2.051	0.354	T	7500	391	572	0.684	0	C
454 - ANCLOTE RD: (ALT US 19 -to- ANCLOTE BLVD)	NC	2U	CR	1.897	0	T	3600	188	1440	0.131	0	C
470 - BAYSHORE BLVD: (SR 60 -to- MAIN ST)	NMC	2U	CL	2.345	0	T	7996	417	1440	0.29	0	D
476 - BAYSIDE BRIDGE: (SR 686 ROOSEVELT BLVD -to- GULF-TO-BAY BLVD)	NA	6D	CR	3.564	0	T	60437	3157	5650	0.559	0	F
487 - BECKETT WAY: (US 19 -to- OLD DIXIE HWY)	SA	2U	CR	0.501	1.998	T	4300	224	559	0.401	0	C
489 - BELCHER RD: (BRYAN DAIRY RD -to- PARK BLVD)	SC	6D	CR	1.516	2.477	T	23500	1227	2547	0.482	0	C
490 - BELCHER RD: (BRYAN DAIRY RD -to- ULMERTON RD)	SA	6D	CR	2.434	1.597	T	23500	1227	2646	0.464	0	C
491 - BELCHER RD: (ULMERTON RD -to- EAST BAY DR)	SA	6D	CR	1.526	1.474	T	25500	1332	2646	0.503	0	C
492 - BELCHER RD: (EAST BAY DR -to- BELLEAIR RD)	SA	4D	CR	1.522	1.469	T	21000	1097	1764	0.622	0	C
493 - BELCHER RD: (BELLEAIR RD -to- GULF-TO-BAY BLVD)	SA	4D	CR	1.516	4.886	T	21000	1097	1683	0.652	0	D

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

Table 1
Comparison of ITE Residential Land Use Codes, 4-6 PM Peak hour Trip Rates

April 6, 2021

ITE LUC	Description	Number of Dwelling Units per Building	Number of Floors	Average 4-6 PM Peak Hour Trip Rate
210	single family, detached Housing	1	unknown	0.99
220	multifamily housing, low-rise	Minimum of 4	1 to 2	0.56
221	multifamily housing, mid-rise	Minimum of 4	3 to 10	0.44
222	multifamily housing, high-rise	unknown	more than 10	0.36