

ZONING

500 Attachment 1

Township of Middletown

Table 2: Trip Generation Rates

KEY:

- DU = Dwelling unit
- GSF = Gross square feet
- () = Data not available

Type of Land Use	Type of Development	Average Trip Generation Rates	Weekday												Saturday			
			Peak Hour Rates of Generator						Peak Hour of Adjacent Street Traffic									
			A.M.			P.M.			A.M. (7:06 to 9:00)			P.M. (4:00 to 6:00)			Average Trip Generation Rates	Peak Hour of Generator		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total		In	Out	Total
Residential	Single-family detached	10.0 trips per DU	0.21	0.55	0.76	0.63	0.37	1.00	0.21	0.55	0.76	0.63	0.37	1.00	10.1 trips per DU	0.50	0.44	0.96
	Townhouse, multiplex, duplex, patio and atrium*	5.2 trips per DU	0.07	0.37	0.41	0.37	0.18	0.51	0.07	0.37	0.41	0.37	0.18	0.51	5.3 trips per DU	0.26	0.22	0.44
	Garden apartment, 1 or 2 floors	6.6 trips per DU	0.1	0.4	0.6	0.4	0.2	0.7	0.1	0.4	0.5	0.4	0.2	0.6	7.2 trips per DU	0.3	0.3	0.6
	Mid- and high-rise apartment, 3 or more floors	4.0 trips per DU	—	—	—	—	—	—	0.1	0.2	0.3	0.2	0.2	0.4	—	—	—	—
	Mobile home	4.8 trips per DU	0.16	0.38	0.46	0.29	0.22	0.59	0.13	0.38	0.46	0.29	0.18	0.59	4.7 trips per DU	0.24	0.22	0.52
	Retirement community	3.3 trips per DU	—	—	0.4	—	—	0.4	—	—	0.4	—	—	0.4	2.6 trips per DU	—	—	—
	Planned unit development	7.8 trips per DU	0.1	0.5	0.7	0.5	0.3	0.8	0.1	0.5	0.7	1.5	0.3	0.8	8.0 trips per DU	—	—	—
Commercial	Shopping center																	
	0 to 49,999 GSF	117.8/1,00 GSF	2.07	2.03	8.88	8.84	7.03	15.51	0.91	0.80	2.93	5.77	5.81	14.42	—	3.20	9.75	12.72
	50,000 to 99,999 GSF	82.0/1,000 GSF	3.0	2.9	7.5	3.9	3.8	9.3	1.4	1.3	2.4	3.2	3.4	7.8	107.0/1,000 GSF	5.1	5.3	11.1

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			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total		In	Out	Total
	100,000 to 199,999 GSF	66.7/1,000 GSF	2.6	2.5	5.3	3.6	3.5	6.6	0.9	0.8	1.7	2.9	3.1	5.9	112.4/1,000 GSF	4.4	4.1	8.9
	200,000 to 299,999 GSF	50.6/1,000 GSF	2.0	2.2	3.9	2.5	2.7	5.2	0.4	0.2	0.6	2.1	2.2	4.8	74.2/1,000 GSF	3.5	3.3	8.8
	300,000 to 399,999 GSF	41.9/1,000 GSF	3.0	3.0	3.5	3.7	3.6	4.8	1.6	0.7	2.3	3.1	3.3	5.5	69.6/1,000 GSF	3.8	3.6	7.2
	400,000 to 499,999 GSF	49.7/1,000 GSF	2.0	1.8	3.7	2.2	2.1	4.9	0.3	0.2	0.5	1.9	1.9	4.9	61.4/1,000 GSF	2.4	2.6	5.2
	500,000 to 599,999 GSF	37.2/1,000 GSF	1.40	1.35	2.54	1.68	1.81	3.83	0.38	0.23	0.61	1.59	1.65	3.12	45.3/1,000 GSF	2.30	2.35	4.67
	1,000,000 to 1,249,999 GSF	37.1/1,000 GSF	—	1.5	—	3.0	1.9	4.7	—	—	—	1.4	1.9	—	39.2/1,000 GSF	—	2.1	3.3
	Over 1,250,000 GSF	34.1/1,000 GSF	1.20	1.39	1.94	1.42	1.76	2.93	0.36	0.13	0.45	1.10	1.41	2.51	39.0/1,000 GSF	1.83	2.23	3.84
	Discount store	70.1/1,000 GSF	—	—	5.59	2.60	2.40	6.97	—	—	0.51	1.4	1.9	3.79	72.7/1,000 GSF	—	—	6.89
	Restaurant																	
	Quality restaurant	2.34 trips per seat	—	—	—	0.16	0.15	0.24	0.03	0.02	0.02	0.09	0.05	0.14	260 trips per seat	0.22	0.28	0.59
	High turnover	74.9/1,000 GSF	6.48	1.14	6.70	7.71	2.60	10.35	0.85	0.46	1.02	2.74	1.69	6.14	99.2/1,000 GSF	9.38	5.8	10.94
	Sit-down	164.4/1,000 GSF	10.1	5.5	15.7	13.0	9.2	22.2	—	—	47.5	9.9	4.0	10.5	67.8/1,000 GSF	—	—	10.0
	Drive-in restaurant	553.0/1,000 GSF	—	—	—	44.4	41.9	78.8	49.7	40.2	89.9	17.0	14.6	31.6	—	—	—	—
	Supermarket	125.5/1,000 GSF	—	—	—	5.97	6.73	15.7	0.36	0.16	0.54	4.54	4.29	8.82	—	6.17	5.83	11.9
	Office																	
	General office building	12.3/1,000 GSF	1.86	0.35	2.32	0.27	1.36	2.20	1.86	0.35	2.32	0.27	1.36	2.20	3.34/1,000 GSF	0.19	0.2	0.1
	0 to 99,999 GSF	17.7/1,000 GSF	2.23	0.45	2.92	0.36	1.88	2.84	1.45	0.25	2.50	0.19	1.14	2.82	2.4/1,000 GSF	—	—	0.48
	10,000 to 199,999 GSF	14.3/1,000 GSF	1.87	0.22	2.00	0.44	1.76	2.03	1.87	0.22	2.00	0.44	1.76	2.03	3.5/1,000 GSF	0.22	0.19	0.45
	Over 200,000 GSF	10.9/1,000 GSF	1.81	0.34	2.18	0.23	1.70	2.04	—	—	—	—	—	—	—	—	—	—

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			A.M.			P.M.			A.M. (7:06 to 9:00)			P.M. (4:00 to 6:00)			Average Trip Generation Rates	Peak Hour of Generator		
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total		In	Out	Total
	Medical office building	54.6/1,000 GSF	2.68	4.51	5.30	3.47	5.17	2.79	0.64	0.21	0.85	0.89	3.05	3.94	34.7/1,000 GSF	—	4.3	—
	Government office building	68.93/1,000 GSF	4.92	0.96	5.88	8.20	2.83	11.03	4.92	0.96	5.88	—	—	—	—	—	—	—
	Office park	20.65/1,000 GSF	1.96	0.28	2.63	0.33	1.84	2.38	1.96	0.26	2.63	0.33	1.84	2.38	—	—	—	—
	Research center	5.3/1,000 GSF	—	—	2.5	—	—	2.1	2.5	0.2	1.2	0.1	0.9	0.9	1.8/1,000 GSF	—	—	—
	Hotel	10.5 trips per occupied room	—	—	0.90	—	—	0.87	0.58	0.29	0.85	0.36	0.37	0.73	8.1 trips per occupied room	—	—	0.67
	Motel	10.14 trips per occupied room	—	—	0.81	—	—	0.83	—	—	0.74	—	—	0.65	8.86 trips per occupied room	—	—	0.76
	Specialty retail center	40.7/1,000 GSF	1.99	—	—	2.25	—	—	—	—	—	—	—	—	42.0/1,000 GSF	2.91	—	—
	Hardware/paint store	51.3/1,000 GSF	—	—	5.1	—	—	5.2	—	—	1.1	—	—	4.9	—	—	—	11.2
	New car sales	47.5/1,000 GSF	2.88	2.30	6.00	2.65	2.42	—	2.12	2.94	3.88	1.76	2.32	4.58	20.9/1,000 GSF	—	1.76	—
	24-hour open convenience market	625.2/1,000 GSF	—	—	54.8	—	—	46.8	—	—	54.8	—	—	46.7	—	—	—	—
	Wholesale	6.73/1,000 GSF	—	—	0.58	—	—	0.52	—	—	0.50	—	—	0.21	1.59/1,000 GSF	—	—	0.18
	Service station**	133.0/pump or 748.0/station	—	—	21.00	—	—	25.00	—	—	—	—	—	—	—	—	—	—
Industrial/ Agricultural	General light industrial	5.46/1,000 GSF	—	—	—	0.32	0.69	1.13	0.85	0.15	1.11	0.32	0.63	1.18	3.09/1,000 GSF	—	—	0.62
	General heavy industrial	1.50/1,000 GSF	—	—	0.69	—	—	0.68	—	—	0.51	—	—	0.19	—	—	—	—
	Industrial park	7.00/1,000 GSF	0.59	0.10	0.83	0.28	0.47	0.89	0.54	0.16	0.93	0.18	0.59	0.99	2.73/1,000 GSF	0.13	0.18	0.35
	Manufacturing	3.86/1,000 GSF	0.79	0.40	0.78	0.52	0.59	0.75	—	—	0.78	0.52	0.39	0.75	1.49/1,000 GSF	—	—	0.28
	Warehousing	4.86/1,000 GSF	—	—	1.61	—	—	1.63	—	—	0.66	—	—	1.63	—	—	—	—
	Mini warehousing	2.80/1,000 GSF	—	—	0.26	—	—	0.32	—	—	0.17	—	—	0.29	2.5/1,000 GSF	—	—	0.40
Institutional	Library	41.80/1,000 GSF	1.10	1.10	2.60	3.00	2.70	6.70	—	—	—	—	—	—	33.6/1,000 GSF	1.70	1.30	3.80
	Elementary school	1.02 trips per student	0.11	0.05	0.26	0.04	0.07	0.24	—	—	0.15	—	—	0.03	—	—	—	—

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	High school	1.39 trips per student	0.19	0.07	0.30	0.07	0.13	0.27	—	—	0.27	—	—	0.20	0.77 trips per student	0.11	0.04	0.15
	Junior community college	1.55 trips per student	0.16	0.03	0.18	0.05	0.11	0.16	0.15	0.02	0.18	0.04	0.08	0.12	—	—	—	—
	Hospital	11.4 trips per bed	0.94	0.40	1.18	0.65	0.94	1.36	0.73	0.78	1.01	0.46	0.81	1.17	9.3 trips per bed	—	—	0.69
	Nursing home	2.6 trips per bed	—	—	0.20	0.20	0.23	0.38	—	—	0.14	0.05	0.16	0.21	2.1 trips per bed	—	—	0.37
Services	Bank (walk-in)	169.0/1,000 GSF	—	—	33.2	7.0	7.0	35.8	—	—	4.4	5.9	5.9	16.7	14.8/1,000 GSF	—	—	5.2
	Bank (drive-in)	192.0/1,000 GSF	15.3	15.3	27.7	17.6	15.7	28.4	3.0	0.3	5.4	14.0	15.1	25.3	8.3/1,000 GSF	—	—	—
	Savings and loan (walk-in)	61.0/1,000 GSF	—	—	9.3	—	—	9.7	—	—	1.3	—	—	5.3	109.0/1,000 GSF	—	—	19.7
	Savings and loan (drive-in)	74.0/1,000 GSF	—	—	9.3	—	—	9.7	—	—	1.0	—	—	6.8	28.0/1,000 GSF	—	—	5.3
	Insurance	11.5/1,000 GSF	—	—	2.3	—	—	2.4	—	—	2.3	—	—	2.4	2.1/1,000 GSF	—	—	0.5
Terminal	Truck terminal	9.86/1,000 GSF	0.36	0.54	0.90	0.35	0.47	0.82	0.36	0.54	0.90	0.35	0.47	0.82	1.89/1,000 GSF	0.11	0.18	0.29

NOTES:

* Development type names revised from ITE Manual.

** Source: Transportation and Traffic Engineering Handbook, second edition. Institute of Transportation Engineers, 1982.

These rates shall be reviewed by the Township Planning Commission for any changes that may be appropriate. The applicant is required to use the above rates where applicable. Where the appropriate data is not available, the developer shall provide the rates and document the appropriate source. If the developer requests to use significantly different rates than those given, he shall submit the rates with the specific justification to the Township Planning Commission prior to submission of the transportation impact study for its approval or denial.

Source: Trip Generation, Institute of Transportation Engineers, 1982.