SPECIAL LAND USE TRIP GENERATION IN VIRGINIA

by

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Research Scientist

(The opinions, findings, and conclusions expressed in this report are those of the author and not necessarily those of the sponsoring agencies.)

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ABSTRACT

Vehicle trip rates at shopping centers, apartment complexes, and subdivisions throughout Virginia were determined from seven-day volume counts. These rates were then compared with rates reported in four recognized sources of trip rate statistics and with Virginia rates developed approximately ten years ago. Within the Virginia data, the rates in the various areas of the state and the rates at sites served by transit and not served by transit were compared. Also, the time of occurrence of the peak traffic flow at the three land uses was investigated. Conclusions regarding the above were developed, and recommendations regarding the use of trip rates in planning were made.

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INTRODUCTION

The amount of travel demand is a fundamental parameter of any transportation planning process or traffic engineering analysis. Multiple regression analysis and other techniques are used in the formal planning process to estimate the number of trips generated by or attracted to relatively large geographic areas having similar land use characteristics. These estimates have proven satisfactory in the planning of transportation systems for a region or specific corridor, but not for the planning and traffic engineering analyses related to proposed special land uses such as shopping centers, apartments and subdivisions. Estimates of the travel demand to be generated by these specific land uses are typically needed to determine such items as the requirements of the internal circulatory system, parking requirements, the number and design of entrances and exits, signal timing and phasing, and impacts on the surrounding network of roads. The rate at which trips will be generated based on a specific characteristic of the land use is frequently used to estimate the demand. For example, the number of trips per 1,000 square feet (93 square meters) of gross floor area and trips per dwelling unit are often used to estimate the travel demand from proposed shopping centers and apartment complexes, respectively. Inherent in trip generation rates, which are based on the travel demand at similar existing sites, are the assumptions of a linear relationship between the number of trips and an easily measurable characteristic of the specific land use and transferability of the rates between geographical areas.

Many studies have been conducted in various parts of the country to determine the trip rates for specific land uses. In the early 1970's the Virginia Department of Highways and Transportation undertook two such studies.[1,2] Additionally, there have been several major efforts to collect and compile the results of all these individual studies from throughout the country. Probably the most well known are the Institute of Transportation Engineers (ITE) Informational Report entitled Trip Generation,[3] and the Arizona Department of Transportation (ADOT) report entitled Trip Generation Intensity Factors.[4] Another very recent summary is included in the National Cooperative Highway Research Program (NCHRP) Report 187 entitled Quick-Response Urban Travel Estimation Techniques and Transferable Parameters.[5] Finally, a recent report by Simpson and Curtin, Inc. entitled Guidelines for Traffic Impact Study contains a chapter on trip generation.[6] The consultants reviewed the most recognized sources of trip rates and then developed a set of rates applicable to the Richmond area.

Although these documents provide excellent sources for trip generation rates, it is often questioned whether these summarized results can be applied indiscriminately in Virginia. This report describes an investigation of this question and several other issues concerning special land use trip generation.

PURPOSE AND SCOPE

The main purpose of the study was to investigate whether the average rates calculated from the results of special land use trip generation studies throughout the country can be applied satisfactorily in Virginia. In other words, the purpose was to provide an answer to the question of whether the trip rates developed in the aforementioned reports by the ITE, the ADOT, the NCHRP and Simpson and Curtin can be used for planning and traffic engineering analyses in Virginia. Since data for a large number of specific land uses were available, the scope of the study was necessarily limited to several test cases. Therefore, initially the trip rates for existing shopping centers, subdivisions, and multi-family housing complexes located throughout the state were measured and then compared with the aforementioned average trip rates.

The sites studied were located in the seven urban areas with a population over 50,000 and several smaller urban areas. Therefore, a second purpose of the research was to determine if trip rates differ among the areas of the state. Also, the study sites included several that were surveyed by the Department in the early 1970's and reported on in references 1 and 2. Thus a third purpose of the research was to investigate how trip rates may change over time. Finally, the Department's policy regarding the acceptance of subdivision streets into the state maintained secondary road system is to assume "that each lot will generate seven vehicles per day for residential developments.' Since this rate is significantly lower than that cited in the aforementioned rate guides, the fourth purpose of the research was to evaluate the Department's current policy of using 7.0 trips per dwelling unit for traffic projections at subdivisions.

Additionally, information concerning the time of occurrence of the peak traffic flow at the three land use types was developed, and trip rates at sites served by transit were compared with rates at sites not served by transit.

METHODOLOGY

The research was conducted in accordance with the major activities described below.

Site Selection

A total of 76 sites throughout the state were selected for study. These sites included 22 shopping centers, 29 subdivisions, and 25 apartment complexes, the distribution of which is shown in Table 1. A more consistent distribution based on population was indicated in the working plan; however, data collection schedules allowed the survey of additional sites in some areas. Also, as discussed later in this section, the number of shopping centers was less than planned in two areas. It should be noted that 6 sites were eliminated in the data analysis phase.

Table 1

Location and Number of Selected Study Sites

Urban Area	Shopping Center	Subdivision	Apartments
Northern Virginia[a]	2	7	4
Southeast[b]	2	4	3
Peninsula[c]	4	4	3
Richmond	3	3	3
Roanoke	2	2	2
Tri-Cities[d]	2	2	2
Lynchburg	2	2	2
Danville	1	1	1
Charlottesville	1	1	2
Winchester	1	1	1
Staunton	1	1	1
Harrisonburg	1	1	1
Totals	22	29	25

(a) Includes Loudoun, Fairfax, Prince William counties, and cities within.
(b) Includes Norfolk, Portsmouth, Virginia Beach, Chesapeake, and Suffolk.
(c) Includes Newport News, Hampton, and surrounding area.
(d) Includes Petersburg, Hopewell, Colonial Heights, and surrounding area.

Since the project was designed for the exclusive use of automatic traffic recorders (ATR's), the primary consideration in selecting sites was the capability of obtaining accurate machine counts. Accordingly, all sites had well-defined and relatively long entrances such that vehicles passed over the counter's pressure tube at right angles. Sites where through or short-cut traffic likely occurred were avoided where possible.

In the case of shopping centers, regional centers were selected if the configuration allowed the use of ATR's; otherwise, the largest center in the area having a satisfactory layout was selected. It should be noted that in two areas, Northern Virginia and Southeast, the number of centers selected was less than planned because of the geometric criterion and, in one case, the inability to obtain permission to count the traffic.

Efforts were made to select residential developments that had the same general characteristics such that reasonable comparisons could ultimately be made. Based on discussions with local officials and field observations, housing developments for middle-income families were selected. In particular, low-income or subsidized developments were not selected. Likewise, apartments catering to students, the elderly, or other particular groups were avoided. An attempt was made to select both subdivisions and apartment complexes that contained a number of units falling within a certain range; however, this generally was unsuccessful except that extremely small and extremely large

developments were avoided. With one exception, the subdivisions selected contained only single-family units, and not churches, schools, etc., sometimes found within housing developments. Finally, all apartment complexes selected contained only rental units; however, the complexes did vary between the garden apartment and town house styles.

Data Collection

Two types of data were collected — background information for each site and, of course, count data. For shopping centers, information was obtained from the center's manager, rental agent, or owner, with the essential data item being the gross leasable floor area (GLFA), excluding vacancies, of the center plus any perimeter stores within the boundaries defined by the counted entrances. Other information included the number of acres on the site, the number of parking spaces, the number of stores, estimated number of employees, hours of operation, and year opened. For the residential land uses, the essential data item gathered was the number of dwelling units (D.U.). The number of occupied units was obtained from the apartment complex's resident manager or rental agent, while the number of houses in a subdivision was obtained by field count.

As mentioned previously, the count data for each site were obtained with ATR's having solid-state electronics and being activated by switches attached to rubber roadway hoses. The number of entering and exiting vehicles at all entrances to a site was counted for a minimum of 7 days. The paper tape recording mode was set to record the counts on a 15-minute basis so that peak hour information could be accurately determined. The average weekday peak hour traffic volume of the street adjacent to the site was needed for each of the periods 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. This information was obtained either from existing data sources or from field counting. In the latter case, the two-way vehicle count was recorded on a 15-minute basis for the five weekdays and used to determine the peak hours.

Efforts were made to collect data during typical weeks. For example, the major holidays were avoided. Data were not collected at shopping centers between Thanksgiving and the second week in January and at residential sites between the week before Christmas and the second week in January. Exceptionally large sales promotions at shopping centers were avoided. All such atypical occurrences could not be avoided. For example, it is recognized that shopping center business is atypically low during the first several months of a calendar year; however, it was necessary to count traffic at some centers during that period.

Data Analysis

Since the primary purpose of the study was to compare Virginia data with the nationally averaged data, the most comprehensive of the aforementioned references, viz., the ITE report, was used as a model for data output requirements. Accordingly, computer programs were developed to process and analyze the large amounts of data generated by the data collection phase. An example

of the two key printout sheets is shown in Figure 1. Once these base data items were produced, the various comparisons and tabulations described later under FINDINGS were developed.

As should be expected in a project of this magnitude, problems were encountered in data collection, and adjustments had to be made in the data analysis phase. Various types of equipment failures occurred; typically, counters jammed or hoses pulled loose from the pavement. Where feasible, the missing data were estimated based primarily on the data from a similar day at the same site and entrance. If significant amounts of data were missing, then a recount was undertaken.

Two other problems were uncovered in the data analysis phase. There were cases of extremely high trip rates for shopping centers, i.e., at least twice the documented rate, and cases for all land uses where the daily totals of inbound and outbound trips were unequal. In the latter cases, small differences can be explained by unanticipated vehicle travel paths at two-way entrances, by the small error rate inherent in the equipment, and by the somewhat arbitrary assumption of a 24-hour life cycle from 12:01 a.m. to 12:00 p.m. No matter how carefully road tubes are placed, some drivers will always find a way to run over the wrong tube or even both tubes. This problem had been anticipated, however, and the general practice was to place one ATR to count the total traffic and one ATR to count either entering or exiting traffic. With this information it can be assumed that the total count is correct because it is not dependent on traffic placement. Unfortunately, this did not explain the large differences in inbound and outbound traffic found in some cases, particula at those sites having only divided entrances.

With the cooperation of personnel from the Department's Central Office, field tests were conducted to evaluate the performance of the counters. It was found that the ATR's were counting high, even to the point of double counting, where slow moving, stop-and-go traffic was being recorded. Double counting can be caused by vehicles crossing a hose at an angle such that all four tires actuate the switch, and thus two vehicles are "detected". In the test cases the vehicles appeared to cross the tubes at right angles; however, it was concluded that at very slow speeds even a very slight, undetectable angle could cause double counting due to the speed and sensitivity of the solid-state air switches. This was confirmed by the fact that counters with mechanical diaphragm switches could be adjusted to stop the double counting. Further, the counters with solid-state air switches recorded correctly at the test site when arranged such that only the right side of the vehicles would run over the hoses. This conclusion could explain the high trip rates and, since the very slow speeds would most likely occur in outbound movements at stop signs and signals, it could also explain the grossly incorrect directional distributions.

After this slow speed problem was detected, greater care was taken in placing the counters. The counters were placed as far back from intersections as possible, and the hoses were often kept short to detect only the right side of the vehicles. At sites where these precautions did not eliminate inaccurate counts, the hoses were placed at exaggerated angles to ensure double counting, and then the counts were adjusted later in the data analysis.

TRAFFIC INFORMATION FOR
DATA GATHERED DURING WEEK BEGINNING ON 11-07-79

SOURCE	DAY	START OF PEAK HOUR	TOTAL TRAFFIC	INCOMING TRAFFIC	OUTGOING TRAFFIC
GENERATOR	AVERAGE WEEKDAY MORNINGS	7:30	83	20	63
GENERATOR	AVERAGE WEEKDAY AFTERNOONS	17:00	132	71	60
GENERATOR	SATURDAYS	13:45	83	39	44
GENERATOR	SUNDAYS	12:30	109	56	53
ADJACENT STREET	AVERAGE WEEKDAY MORNINGS	7:30	83	20	63
ADJACENT STREET	AVERAGE WEEKDAY AFTERNOONS	16:45	129	69	60

AVERAGE WEEKDAY VEHICLE TRIP ENDS : 1118

SATURDAY VEHICLE TRIP ENDS : 945

SUNDAY VEHICLE TRIP ENDS : 839

MISCELLANEOUS STATISTICS

% WEEKDAY TRIPS IN:

A.M. PEAK HOUR OF ADJACENT STREET	7.4
P.M. PEAK HOUR OF ADJACENT STREET	11.5
A.M. PEAK HOUR OF GENERATOR	7.4
P.M. PEAK HOUR OF GENERATOR	11.8

RATES PER DWELLING UNIT

SOURCE	DAY	START OF PEAK HOUR	TOTAL TRAFFIC	INCOMING TRAFFIC	OUTGOING TRAFFIC
GENERATOR	AVERAGE WEEKDAY MORNINGS	7:30	.7	.2	.5
GENERATOR	AVERAGE WEEKDAY AFTERNOONS	17:00	1.1	.6	.5
GENERATOR	SATURDAYS	13:45	.7	.3	.4
GENERATOR	SUNDAYS	12:30	.9	.5	.5
ADJACENT STREET	AVERAGE WEEKDAY MORNINGS	7:30	.7	.2	.5
ADJACENT STREET	AVERAGE WEEKDAY AFTERNOONS	16:45	1.1	.6	.5

AVERAGE WEEKDAY VEHICLE TRIP ENDS : 9.7

SATURDAY VEHICLE TRIP ENDS : 8.2

SUNDAY VEHICLE TRIP ENDS : 7.3

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Figure 1. Example of Key Data Printout Sheet

These measures greatly reduced the previously described problems; however, some adjustment was needed for the data collected previously. Thus, it was assumed that on a daily basis the entering and exiting traffic should be equal. Accordingly, after the data from each site were analyzed and the daily totals of inbound and outbound traffic compared, multiplicative factors were developed for each day to make the ins and outs equal. Depending on the geometrics of the site and the placement of the counters, these factors adjusted the ins to equal the outs, the outs to equal the ins, or both ins and outs to equal the previous total. The most typical adjustments were to (1) lower the number of exiting trips to equal the number of entering trips in recognition of the slow speed problem with outbound traffic, and (2) change both entering and exiting trips to maintain the same totals where total counts had been taken at two-way entrances. These adjustment factors were then applied to the raw count data under the assumption that the directional errors were distributed equally throughout the day and at all entrances in the case of sites with more than one entrance. This may have introduced some error in the hourly statistics as several arguments could be advanced against the equal distribution assumption; however, no other method of applying the adjustment factors was reasonable. The analysis programs were then rerun with the adjusted data. In the interest of consistency and uniformity within the project, this adjustment technique was employed for every site, regardless of the magnitude of the previously described problems.

At several sites the data analysis yielded statistics that were obviously in error. In all cases the problem could be traced to too much missing data, to site geometrics, or to traffic patterns unrecognized when the site was initially selected. The total count data were salvaged at two of the sites; however, six sites were deleted from the project. Accordingly, the findings were based on a total of 21 shopping centers (a deletion in Danville), 28 subdivisions (a deletion in Northern Virginia), and 21 apartments (deletions in Southeast, Tri-Cities, Charlottesville, and Danville).

FINDINGS

The findings of the study and general discussion pertaining to each major purpose are presented in this section of the report. More detailed discussion is presented where feasible in the next section on statistical analyses. As mentioned previously, the terminology and definitions used in the ITE report[3] were employed in the analyses. In particular, it should be noted that weighted averages were developed for the various comparative analyses; that is, average trip rates were calculated by dividing the sum of the trip ends by the sum of the independent variables. Tabulations in the body of the report have been reduced to the fewest possible; however, very detailed supportive data are contained in the appendices in order to benefit planners and engineers in each area. Appendix A, for example, contains comprehensive statistics for each of the 70 sites.

Virginia Trip Rates Versus National Averages

The information presented in Tables 2 through 13 addresses the question of whether Virginia statistics are comparable to nationally derived statistics.

Table 2

Comparison of Trip Generation Statistics
Category: Shopping Center; 50,000-99,999 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF[a]	TGIF Range	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	101.2	90.4-116.6	79.1	25.5-161.3	64.4	7.7-158.6	62.1	97.0
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	10.2	10.0-10.6	8.2	--	--	--	6.7	11.2
Weekday Vehicle Trip Ends During PM Peak Hour Generator	10.8	10.5-11.3	9.1	--	6.8	--	6.8	12.0
Saturday Vehicle Trip Ends	129.7	116.9-147.8	107.6	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	11.3	10.4-11.9	12.6	--	--	--	--	--

[a]Zero generator shopping center.

Table 3

Comparison of Trip Generation Statistics
Category: Shopping Center; 100,000-199,999 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF[a]	TGIF Range	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	76.2	53.9-104.9	60.4	32.1-103.7	64.4	7.7-158.6	44.8	45.9
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	7.3	4.9-11.1	5.0	--	--	--	4.7	5.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	7.9	5.1-11.7	5.5	--	6.8	--	5.7	5.2
Saturday Vehicle Trip Ends	92.5	58.8-115.0	79.7	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	8.8	5.0-10.9	7.9	--	--	--	--	--

[a]Zero generator shopping center.

Table 4

Comparison of Trip Generation Statistics
Category: Shopping Center; 200,000-299,999 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF (a)	TGIF Range	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	45.3	43.8-48.1	49.9	18.0-92.0	41.0	23.8-66.7	44.8	45.9
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	4.2	3.7-4.5	4.8	--	--	--	4.7	5.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	4.4	3.9-4.6	5.3	--	4.5	--	5.7	5.2
Saturday Vehicle Trip Ends	62.6	56.3-74.8	82.7	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	6.1	4.7-7.6	8.3	--	--	--	--	--

(a) One generator shopping center.

Table 5

Comparison of Trip Generation Statistics
Category: Shopping Center; 300,000-399,999 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF[a]	TGIF Range	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	72.5	--	40.4	16.0-58.4	41.0	23.8-66.7	44.8	45.9
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	7.4	--	5.2	--	--	--	4.7	5.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	7.4	--	5.2	--	4.5	--	5.7	5.2
Saturday Vehicle Trip Ends	91.9	--	78.9	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	9.5	--	10.8	--	--	--	--	--

[a] One generator shopping center.

Table 6

Comparison of Trip Generation Statistics
Category: Shopping Center; 400,000-499,999 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF[a]	TGIF Range	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	47.2	--	47.6	29.9-90.0	47.6	19.3-71.4	44.8	45.9
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	3.8	--	5.7	--	--	--	4.7	5.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	4.2	--	5.0	--	4.4	--	5.7	5.2
Saturday Vehicle Trip Ends	59.5	--	66.1	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	5.2	--	--	--	--	--	--	--

[a] Small two + generator shopping center.

Table 7

Comparison of Trip Generation Statistics
Category: Shopping Center; 500,000-999,999 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF[a]	TGIF Range	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	36.5	27.6-44.8	34.5	17.3-61.2	32.6	14.0-63.2	41.7	34.7
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	3.2	2.3-4.0	3.3	2.4-5.1	--	--	3.5	3.3
Weekday Vehicle Trip Ends During PM Peak Hour Generator	3.4	2.5-4.1	3.0	1.5-4.8	3.3	--	4.2	--
Saturday Vehicle Trip Ends	51.1	33.3-70.4	43.9	27.2-55.8	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	5.0	2.9-6.9	6.0[b]	4.2-10.0[b]	--	--	--	--

[a] Medium two + generator shopping center.
[b] Estimated by adding ins and outs.

Table 8

Comparison of Trip Generation Statistics
Category: Shopping Center; Over 1,250,000 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF[a]	TGIF Range	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	34.0	--	26.5	18.9-35.7	29.6	17.0-57.1	41.7	33.5
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	2.5	--	2.6	1.8-2.9	--	--	3.5	3.2
Weekday Vehicle Trip Ends During PM Peak Hour Generator	3.1	--	3.1	2.3-4.1	2.3	--	4.2	3.9
Saturday Vehicle Trip Ends	42.2	--	34.3	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	3.8	--	4.3	--	--	--	--	--

[a] Large two + generator shopping center.

Table 9

Comparison of Trip Generation Statistics
Category: Neighborhood Shopping Center; Under 100,000 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE(a)	ITE Range(a)	Average for TGIF(b)	TGIF Range(b)	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	101.2	90.4-116.6	88.6	21.5-270.9	64.4	7.7-158.6	62.1	97.0
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	10.2	10.0-10.6	11.1	--	--	--	6.7	11.2
Weekday Vehicle Trip Ends During PM Peak Hour Generator	10.8	10.5-11.3	11.2	--	6.8	--	6.8	12.0
Saturday Vehicle Trip Ends	129.7	116.9-147.8	117.3	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	11.3	10.4-11.9	12.6	--	--	--	--	--

(a) Estimated by averaging ITE rates in categories less than 100,000 square feet.
(b) Zero generator shopping center.

Table 10

Comparison of Trip Generation Statistics
Category: Community Shopping Center; 100,000-499,999 Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE (a)	ITE Range (a)	Average for TGIF (b)	TGIF Range (b)	GTIS	NCHRP
Average Weekday Vehicle Trip Ends	61.2	43.8-104.9	48.9	16.0-103.7	51.6	7.7-158.6	44.8	45.9
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	5.7	3.7-11.1	5.1	--	--	--	4.7	5.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	6.1	3.9-11.7	5.2	--	5.4	--	5.7	5.2
Saturday Vehicle Trip Ends	77.5	56.3-115.0	74.9	--	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	26.4	5.3-87.7	8.8	--	--	--	--	--

(a) Estimated by averaging ITE rates in categories between 100,000 and 499,999 square feet.
(b) Estimated by averaging TGIF rates for zero generator, one generator, and small two + generator shopping centers.

Table 11

Comparison of Trip Generation Statistics
Category: Regional Shopping Center; 500,000 and Over Square Feet
Trips/1000 sq. ft. GLFA

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE (a)	ITE Range (a)	Average for TGIF (b)	TGIF Range (b)	GTIS	NCHRP (c)
Average Weekday Vehicle Trip Ends	35.9	27.6-44.8	32.0	16.4-61.2	31.7	14.0-63.2	41.7	34.1
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	3.0	2.3-4.0	2.9	1.8-5.1	--	--	3.5	3.3
Weekday Vehicle Trip Ends During PM Peak Hour Generator	3.3	2.5-4.1	3.3	1.5-4.8	3.0	--	4.2	3.9
Saturday Vehicle Trip Ends	49.1	33.3-70.4	40.1	27.2-55.8	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	4.7	2.9-6.9	5.6	4.2-10.0	--	--	--	--

(a) Estimated by averaging ITE rates in categories 500,000 and over square feet.
(b) Estimated by averaging TGIF rates for medium two + generator and large two + generator shopping center.
(c) Estimated by averaging NCHRP rates in categories 500,000 and over square feet.

Table 12

Comparison of Trip Generation Statistics
Category: Apartments; Trips/Dwelling Unit

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF	TGIF Range	GTIS	NCHRP[a]
Average Weekday Vehicle Trip Ends	6.9	5.1-9.2	6.1	0.5-12.3	6.7	0.9-13.3	7.5	6.0/7.0
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	0.6	0.4-0.9	0.7	0.1-1.6	--	--	0.8	0.6/0.8
Weekday Vehicle Trip Ends During PM Peak Hour Generator	0.7	0.5-0.9	0.7	0.1-1.6	0.9	--	0.8	0.6/0.8
Saturday Vehicle Trip Ends	7.2	4.4-9.2	6.5	2.8-8.4	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	0.6	0.3-0.8	0.5	--	--	--	--	--

(a) Rates for apartments/town houses.

Table 13

Comparison of Trip Generation Statistics
Category: Single-Family Detached Housing; Trips/Dwelling Unit

ITE = Institute of Transportation Engineers, Ref. 3
TGIF = Trip Generation Intensity Factors, Ref. 4
GTIS = Guidelines for Traffic Impact Study, Ref. 6
NCHRP = National Cooperative Highway Research Program Report 187, Ref. 5

Statistic \ Source	Average for Virginia	Virginia Range	Average for ITE	ITE Range	Average for TGIF	TGIF Range	GTIS	NCHRP[a]
Average Weekday Vehicle Trip Ends	10.0	6.6-13.5	10.0	4.3-21.9	9.9	4.3-21.8	10.0	9.3/10.2
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	0.9	0.7-1.4	1.0	0.4-3.0	--	--	1.0	1.0/1.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	1.0	0.7-1.4	1.0	0.4-3.0	1.0	--	1.0	1.0/1.1
Saturday Vehicle Trip Ends	10.2	7.0-13.9	10.1	6.3-14.7	--	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	0.9	0.7-1.2	1.0	0.7-1.7	--	--	--	--

[a] Rates for 1 to 2 DU/Acre / 3-4 DU/Acre.

Specifically, key statistics calculated by combining the data from various sites in Virginia are compared in the tables with the statistics contained in the four documents cited previously. The maximum and minimum rates are shown where available. Several categories contain only one Virginia site; accordingly, a range of values is not given. The categorical stratification is the same as used by the ITE, with the exception that shopping centers have also been stratified into the traditional neighborhood, community, and regional shopping center classifications. Appendix B contains a more complete set of Virginia statistics for each of the categories in the tables. Following are general observations on the comparisons.

Shopping Centers

Average weekday trip rates for shopping centers in Virginia are generally higher than the comparable rates listed in the references. In some instances, primarily within the ITE categories, the rates are substantially higher. Unfortunately, these large differences are probably the result of the limited number of Virginia sites in several of the categories. As the sites are aggregated into the three traditional classifications, these large differences are reduced.

There is very little uniformity or consistency within the comparisons as to which source of data provides a rate closest to the Virginia rate. Again, as the sites are aggregated, patterns begin to emerge. The rates reported in the GTIS, which were developed for the Richmond area, are the most inaccurate in the three categories of neighborhood, community, and regional shopping centers. The ITE rates consistently rank second in closeness to the Virginia rate; however, the rates are always reasonably close.

It is also important to consider the range of rates where available in each category. With only one exception, the average weekday rates for Virginia shopping centers in each category fall within the maximum and minimum rates tabulated in the ITE and TGIF reports, and only one Virginia site is included in this particular category. When the range of statistics for Virginia sites is considered, one additional Virginia site falls above the maximum in the ITE data in that category.

Apartments

Average weekday trip rates for Virginia apartments are reasonably close to the estimates in all four references, being only 13% higher than the most inaccurate rate. The rate in the TGIF report is the closest, with the ITE rate being the most different. Again, it is important to note that the differences are relatively small. As to the range of rates, all the Virginia sites have trip rates within the maximum and minimum rates given in the ITE and TGIF reports.

Subdivisions

Average weekday trip rates for single-family detached housing in Virginia are essentially the same as the rates provided in the ITE, TGIF, and GTIS reports. Since two rates are provided in the NCHRP report, depending on the density of the development, it is impossible to say that the rates are the same

as Virginia rates. It is certainly reasonable, however, to note that the rates are very close. Rates for all the Virginia sites fall within the reported maximum and minimum rates.

Comparison of Trip Rates Among Urban Areas in Virginia

Tables 14 through 18 present the statistics comparing trip rates among the urban areas in Virginia. The tables have the same format as the previous tables, except that the statistics for each urban area are contained in the columns. Data for the five urban areas having a population of less than 50,000 have been combined into a "small urban" category. Also, the shopping centers are stratified by only the neighborhood, community, and regional classifications. Appendix C contains a complete set of statistics for each urban area. Following are general observations on the comparisons.

Shopping Centers

The average weekday trip rates for community shopping centers throughout the state are for the most part reasonably close to the state average. The largest difference is for the Peninsula, where the rate is 33% above the average. Northern Virginia is excluded from this observation as data were not obtained for community centers in that area. The Southeast and Peninsula rates exhibit the largest difference between two areas, with the Peninsula rate being 66% higher.

Average weekday trip rates for regional centers are even closer, with the largest difference of plus 25% occurring in Roanoke. The largest difference in rates between two areas occurs between Roanoke and Peninsula, with the Roanoke rate being 52% higher. Again, due to data limitations, it is noted that the Southeast, Tri-Cities, Lynchburg, and the small urban areas are excluded from this observation.

Data are available for only two neighborhood centers, one in Peninsula and one in Lynchburg. The Peninsula rate is 29% higher than the Lynchburg rate.

Apartments

Average weekday trip rates for Virginia apartments are spaced relatively close around the state average, with the largest difference being in Lynchburg, where the rate is 25% higher. The rate in Peninsula is 22% lower, which means that Lynchburg has a rate 59% higher than Peninsula. The trip rate tends to be larger in the smaller urban areas.

Subdivisions

Average weekday trip rates for single-family detached housing in Virginia are even more tightly spaced around the state average. The rate in Richmond, which is 16% lower than the average, exhibits the largest difference. This is followed closely by the Peninsula rate, which is 13% lower. The maximum

Table 14

Comparison of Trip Generation Statistics Among Virginia Areas
Category: Neighborhood Shopping Center; Under 100,000 Square Feet
Trips/1000 sq. ft. GLFA

Statistic \ Area	Northern Virginia	Southeast	Peninsula	Richmond	Roanoke	Tri-Cities	Lynchburg	Small Urban
Average Weekday Vehicle Trip Ends	--	--	116.6	--	--	--	90.4	--
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	--	--	10.6	--	--	--	10.0	--
Weekday Vehicle Trip Ends During PM Peak Hour Generator	--	--	11.3	--	--	--	10.5	--
Saturday Vehicle Trip Ends	--	--	147.8	--	--	--	116.9	--
Saturday Vehicle Trip Ends During Peak Hour Generator	--	--	10.4	--	--	--	11.9	--

Table 15

Comparison of Trip Generation Statistics Among Virginia Areas
Category: Community Shopping Center; 100,000-499,999 Square Feet
Trips/1000 sq. ft. GLFA

Statistic \ Area	Northern Virginia	Southeast	Peninsula	Richmond	Roanoke	Tri-Cities	Lynchburg	Small Urban
Average Weekday Vehicle Trip Ends	--	49.1	81.7	72.5	78.9	62.2	68.8	57.1
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	--	4.1	7.0	7.4	8.5	6.5	7.1	5.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	--	4.5	8.2	7.4	8.5	6.7	7.5	5.5
Saturday Vehicle Trip Ends	--	59.3	83.1	91.9	103.5	74.6	96.5	78.1
Saturday Vehicle Trip Ends During Peak Hour Generator	--	5.1	7.5	9.5	9.5	7.6	9.1	7.6

Table 16

Comparison of Trip Generation Statistics Among Virginia Areas
Category: Regional Shopping Center; 500,000 and Over Square Feet
Trips/1000 sq. ft. GLFA

Statistic \ Area	Northern Virginia	Southeast	Peninsula	Richmond	Roanoke	Tri-Cities	Lynchburg	Small Urban
Average Weekday Vehicle Trip Ends	37.1	--	29.4	37.6	44.8	--	--	--
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	2.8	--	2.5	3.5	4.0	--	--	--
Weekday Vehicle Trip Ends During PM Peak Hour Generator	3.4	--	2.7	3.5	4.0	--	--	--
Saturday Vehicle Trip Ends	45.4	--	36.8	60.6	63.9	--	--	--
Saturday Vehicle Trip Ends During Peak Hour Generator	4.3	--	3.2	6.2	6.1	--	--	--

Table 17

Comparison of Trip Generation Statistics Among Virginia Areas
Category: Apartments; Trips/Dwelling Unit

Statistic \ Area	Northern Virginia	Southeast	Peninsula	Richmond	Roanoke	Tri-Cities	Lynchburg	Small Urban
Average Weekday Vehicle Trip Ends	6.8	6.9	5.4	6.7	8.1	6.7	8.6	7.7
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	0.6	0.6	0.5	0.7	0.7	0.7	0.8	0.6
Weekday Vehicle Trip Ends During PM Peak Hour Generator	0.7	0.6	0.6	0.7	0.7	0.8	0.9	0.7
Saturday Vehicle Trip Ends	7.2	7.1	5.6	7.3	8.3	7.5	8.7	7.7
Saturday Vehicle Trip Ends During Peak Hour Generator	0.6	0.6	0.5	0.6	0.6	0.8	0.7	0.7

Table 18

Comparison of Trip Generation Statistics Among Virginia Areas
Category: Single Family Detached Housing; Trips/Dwelling Unit

Statistic \ Area	Northern Virginia	Southeast	Peninsula	Richmond	Roanoke	Tri-Cities	Lynchburg	Small Urban
Average Weekday Vehicle Trip Ends	10.2	10.3	8.7	8.4	10.4	10.2	10.6	10.8
Weekday Vehicle Trip Ends During PM Peak Hour Adjacent Street	0.9	0.9	0.9	1.0	1.1	1.0	1.0	0.9
Weekday Vehicle Trip Ends During PM Peak Hour Generator	1.0	0.9	0.9	1.0	1.2	1.0	1.0	1.0
Saturday Vehicle Trip Ends	10.7	10.0	9.7	9.3	10.5	10.3	10.3	10.5
Saturday Vehicle Trip Ends During Peak Hour Generator	0.9	0.8	0.9	0.8	1.0	0.9	0.9	0.9

difference in rates between two areas is for the "small urban" areas and Richmond, where the "small urban" areas have a rate 29% higher. Again, there is a tendency for the trip rate to be higher in the smaller areas.

Temporal Changes in Trip Rates

During the conduct of this study, data were obtained at eight sites for which similar data were also available from studies conducted around 1970. These sites consisted of 5 shopping centers, 1 apartment, and 2 subdivisions. Table 19 summarizes the comparison of key statistics from the current study to the same statistics from the previous studies.

Since 1970, average weekday trip rates at 4 of the 5 shopping centers have increased, with the increases ranging from 30% to 66%. The one exception, which is the only regional center, has experienced a slight decrease of 6%. These statistics suggest that the numbers of shopping trips have certainly been unaffected by the energy shortage and fuel price increases. The statistics might also suggest that shopping trips have become shorter, shifting to the more localized neighborhood and community center. Both observations are speculative at best due to the limited data.

Average weekday trip rates have decreased by 7% and 21% at 2 of the 3 residential sites, with the other site experiencing a slight rate increase of 6%. These statistics are more reasonable with respect to the aforementioned energy situation; however, such an observation is still speculative at best due to the limited data.

Evaluation of the Department's Subdivision Policy

Based on a total of 28 subdivisions located throughout Virginia, the average subdivision generates 10.0 trips per dwelling unit per day. Individual subdivisions have trip rates ranging from 6.6 to 13.5 trips per dwelling unit per day. Subdivisions were also stratified by urban area, and the average rates for each of the seven largest metropolitan areas and a combination of five small urban areas range from 8.4 to 10.8 trips per dwelling unit per day. Although a few subdivisions had rates of 7.0 or lower, the statistics above indicate that the Department's policy of 7.0 trips per dwelling unit per day is considerably lower than the average rates found in Virginia.

Temporal Distribution of the Peak Hours

Based on the statistics available in Appendix A, the temporal distribution of the peak hours of traffic volume among the various land uses can be reviewed. Following is a discussion of the peak hours by land use.

Shopping Centers

As might be expected, the peak a.m. two-way traffic flow occurs between 11:00 a.m. and noon on the typical weekday for all of the shopping centers sur-

Table 19

Current Trip Rates Versus 1970 and 1971 Trip Rates
(Trips per 1000 Square Feet GLFA or Dwelling Unit)

Statistic \ Site Number / Source of Data	No. 101		No. 102		No. 110		No. 115		No. 116		No. 211		No. 309		No. 327	
	Reference 3	Current	Reference 1	Current	Reference 2	Current	Reference 1	Current	Reference 1	Current	Reference 2	Current	Reference 1	Current	Reference 1	Current
Average Weekday Vehicle Trip Ends	45.4	42.8	35.1	53.9	55.7	72.5	43.8	68.8	54.4	90.4	6.8	6.3	13.9	11.0	11.5	12.2
Weekday Vehicle Trip Ends During AM Peak Hour Generator	--	3.2	3.2	4.2	4.0	6.0	2.9	4.7	3.9	7.5	0.6	0.6	0.6	0.5	--	1.1
Weekday Vehicle Trip Ends During PM Peak Hour Generator	--	4.1	3.9	5.1	5.8	7.4	4.7	7.5	8.1	10.5	0.7	0.7	1.2	1.0	--	1.2
Saturday Vehicle Trip Ends	50.8	51.3	--	58.8	79.7	91.9	60.8	96.5	--	116.9	7.7	7.1	12.0	10.6	9.7	12.1

References:
1) Comparison of Virginia Urban Trip Generation Studies with Similar Investigations Conducted by the States of Maryland and California, December 9, 1971.
2) Richmond Trip Generation Study, February 1970.
3) Unpublished data from Metropolitan Washington Council of Governments, May 1970.

veyed. The p.m. peak volumes are very stratified when considered on a 15-minute basis; however, 16 of the 21 sites have peak flows that begin during the traditional peak work trip hours of 4 p.m. to 6 p.m. Fourteen centers have peak hours beginning between 4:15 p.m. and 5:15 p.m. On Saturday, the peak hours generally occur during midday, with 14 sites having the beginning of the peak hour between 11:30 a.m. and 3:00 p.m.

Apartments and Subdivisions

Both apartments and subdivisions follow the expected pattern of having peak hour volumes between the traditional work trip peaks of 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. Exceptions occur at only 8 of the 49 sites. The most frequent a.m. peak hours begin between 7:00 a.m. and 7:30 a.m.; whereas the most frequent p.m. peak hours begin at either 4:45 p.m. or 5:00 p.m. Peak hours on Saturday occur throughout the day, and are somewhat concentrated around the hours of 4:00 p.m. to 7:00 p.m.

Comparison of Sites With Transit Service and Sites With No Transit Service

It is logical to assume that sites which have no transit service would have higher vehicle trip rates than comparable sites having transit service. This stratification was made within the sites surveyed in this study, and a discussion of the results follows.

Shopping Centers

The community shopping center is the only category of shopping centers having enough sites to develop a comparison of transit service versus no transit service. The average weekday trip rate of the 5 centers having no transit service is 76.9 vehicle trip ends per 1,000 square feet GLFA, whereas the comparable statistic for the 7 centers having transit service is 58.9. This difference in trip rate suggests that transit service does indeed cause a reduction in vehicle trips.

Apartments and Subdivisions

In the case of apartments, the comparison is based on 11 complexes with transit service and 10 complexes with no transit service, whereas only 6 of the 28 subdivisions are served by transit. For both land uses the average weekday trip rate per dwelling unit is higher for the group served by transit. Obviously, this is contrary to the hypothesis.

STATISTICAL ANALYSES

If certain assumptions are made regarding the data collected, some basic statistics can be calculated for the various categories and some basic statistical testing can be conducted. The key assumption is that of homogeneity within each group. That is, within each category, e.g., subdivisions in Virginia, it must be assumed that the results from each surveyed site represent an

estimate of that category or population. If that is true, the various statistical procedures can be employed.

The results of any statistical evaluations must be used cautiously in view of the adjustments to the data described earlier in the report. It is simply not valid to draw detailed conclusions based on the results of statistical analyses performed on data that are not that accurate. Categories containing a relatively large number of sites can be assumed to be more accurate than categories containing relatively few sites.

Statistical confidence intervals can be placed on the data collected at the various sites in Virginia, and these are shown in Table 20 for the key statistics often used by planners. A normal distribution was assumed.

The TGIF and ITE reports are the only two that provide enough statistics for statistical comparisons of Virginia data and the nationally averaged data. As noted previously, the neighborhood shopping center data for Virginia are inadequate for statistical computations due to the sample size; therefore, comparisons can be made only for community shopping centers, regional shopping centers, apartments, and subdivisions. The sample size, the average, and the variance are needed to statistically test for differences between two sets of data. All three statistics are available, or can be calculated, from information provided in the TGIF report. The ITE report does not provide a variance; therefore, it was assumed that the variances for each category are the same as the variances found in the comparable category in the TGIF report. While this is not exactly correct, it does provide an estimate that is certainly within the degree of accuracy of the data. In comparing Virginia average weekday trip rates for the four aforementioned land use categories and the comparable average rates provided in the TGIF and ITE reports, statistical testing resulted in only one finding of a significant difference, that being the rate of Virginia apartments versus the rate reported by the ITE. This lone exception is based statistically on the fact that a difference of 1.0 in the average rates is greater than the computed test criterion of 0.9. In view of the aforementioned data limitations and assumptions, however, this difference is not practically significant.

In reviewing the data for the various urban areas, it is apparent that most stratifications by urban area result in sample sizes too small to yield valid statistical comparisons, especially in view of the data limitations. Several comparisons, however, were developed for the residential land uses. First, both apartments and subdivisions were stratified by their location in urbanized areas (greater than 50,000 population) versus small urban areas. In each case, statistical testing resulted in the conclusion that there is no difference between the average weekday trip rate at locations in urbanized areas and that for small urban areas. Second, it was hypothesized that residential trip rates in the largest urban areas, i.e., Northern Virginia, Southeast, Peninsula, and Richmond, are higher than rates in the smaller areas. Average weekday trip rates for subdivisions in the larger urban areas do not differ statistically from the rates in smaller areas. However, the average weekday trip rate for apartments in the larger areas is significantly lower than the rate in smaller areas; 6.6 versus 7.9. This conclusion was based on the fact that the difference of 1.3 is greater than the computed test criterion

Table 20

Statistical Analyses of Virginia Data

Category/Statistic	Sample Size	Arithmetic Average	95% Confidence Intervals
Shopping Centers (Trips/1000 ft.^{2} GLFA)			
Neighborhood - Average Weekday	2	103.5	*
- PM Peak Hour Adjacent Street	2	10.3	*
- PM Peak Hour Generator	2	10.9	*
Community - Average Weekday	12	66.4	54.2-78.6
- PM Peak Hour Adjacent Street	12	6.3	4.9-7.7
- PM Peak Hour Generator	12	6.7	5.2-8.2
Regional - Average Weekday	7	36.6	30.5-42.7
- PM Peak Hour Adjacent Street	7	3.1	2.5-3.7
- PM Peak Hour Generator	7	3.4	2.8-4.0
Apartments (Trips/D.U.)			
- Average Weekday	21	7.1	6.5-7.7
- PM Peak Hour Adjacent Street	21	0.6	0.5-0.7
- PM Peak Hour Generator	21	0.7	0.6-0.8
Subdivisions (Trips/D.U.)			
- Average Weekday	28	10.0	9.3-10.7
- PM Peak Hour Adjacent Street	28	0.9	0.8-1.0
- PM Peak Hour Generator	28	1.0	0.9-1.1

*Not valid due to sample size

of 1.0, and, due to the data limitations, it is somewhat questionable whether this difference is practically significant.

With regard to the Department's policy of using 7.0 daily trips per dwelling unit for subdivisions, the statistics in Table 20 add credibility to the conclusion that this rate is low. Statistically, one can be 95% confident that the true daily rate for subdivisions in Virginia falls within the range of 9.3 to 10.7 trips per dwelling unit.

Finally, statistical testing was applied to the average weekday trip rates for community shopping centers having transit service versus those for centers not having service. As described previously, the data suggest that transit service does indeed cause a reduction in trip rates. Because of the large variability in the data, however, the statistical test resulted in the conclusion that there is no reason to believe that the average trip rate of 76.9 at community shopping centers having no transit service is higher than the rate of 58.9 found at community centers served by transit.

CONCLUSIONS

Based on the findings of the study, and in recognition of the data limitations described, the following conclusions have been developed.

1. Although trip generation rates for shopping centers, apartment complexes, and subdivisions in Virginia do differ from comparable rates derived from averaging nationwide statistics and reported in the reviewed references, there is no reason to conclude that these differences are statistically significant. These differences are small for those categories having large sample sizes, i.e. apartments and subdivisions. As the individual shopping center data are aggregated into the traditional categories of neighborhood, community, and regional, that is, when the sample sizes are increased, the differences between Virginia statistics and nationwide statistics become less.

2. The above conclusion cannot be literally applied to other land uses for which planners often need to develop trip forecasts; however, there is certainly no strong evidence that trip rates specific to Virginia are needed for other land use categories. It is suspected that the large variabilities encountered within the surveyed land use categories will also occur within other land uses, which would likely result in a finding of no statistically significant differences.

3. The review of the referenced documents revealed no general pattern as to which one provides the most accurate estimate of the average Virginia rates developed for the various land use categories. The statistics in the ITE report are the most current, and while not always the closest, they are consistently reasonably close to the Virginia statistics.

4. Trip generation rates differ among the urban areas of the state; however, these differences tend to be less as the sample size is increased. That is, the differences in trip rates at apartments and subdivisions located in the various urban areas are not as great as the trip rate differences at shopping centers, which generally have a fewer number of samples in

each category. In applying statistical tests to several stratifications of the residential land uses, the only evidence of a significant difference was that apartment complexes in Northern Virginia, Southeast, Peninsula, and Richmond generate fewer trips than do complexes in the other areas. This conclusion is suspect, however, due to the magnitude of the test numbers and data limitations. Therefore, while the various urban areas do exhibit different average trip rates for all the land use categories surveyed, the lack of data precludes statistical conclusions regarding these differences. As supported by the previous comments regarding sample sizes, there is reason to believe that these differences would decrease with larger sample sizes.

5. There is evidence that the number of shopping trips has increased since 1970; however, the trips may have shifted to sites closer to home. On the other hand, overall home-based trips have decreased. Both observations are speculative at best because of the extremely limited data.

6. The Department's current policy of using 7.0 trips per dwelling unit to derive estimates of daily traffic at proposed subdivisions is not in line with the findings of this study. Data from the study indicate that at the 95% confidence level the daily trip rate for subdivisions in Virginia lies between 9.3 and 10.7 trips per dwelling unit, with an average of 10.0 trips/D.U. At the same confidence level, it can be said that a rate of 0.9 to 1.1 trips per dwelling unit, with an average of 1.0, occurs during the p.m. peak hour of the subdivisions, which most typically occurs during the traditional p.m. rush hours. There is also no evidence to conclude that these rates differ statistically among the areas of the state.

7. During the week the peak morning traffic flow at shopping centers occurs between 11:00 a.m. and noon, whereas the peak traffic hour during the afternoon and evening most typically occurs between 4:15 p.m. and 6:15 p.m. On Saturday, shopping centers most typically experience peak traffic during midday. The majority of both apartment complexes and subdivisions experience weekday peak hour traffic between 7:00 a.m. and 8:30 a.m. and again between 4:45 p.m. and 6:00 p.m. The peak Saturday hour at apartments and subdivisions occurs most often between 4:00 p.m. and 8:00 p.m.

8. There is no evidence to support the hypothesis that trip rates are higher at sites not served by transit. In fact, the average rates at both apartments and subdivisions not served by transit are actually lower than those at sites having transit service. Although the trip rate at community shopping centers not served by transit is higher than the rate at those served by transit, the difference is not statistically significant.

RECOMMENDATIONS

Based on the results of this study, the following recommendations are made.

1. When the need arises to forecast trip productions or attractions for a shopping center, apartment complex, or subdivision in Virginia, it is recommended that the most current trip rates developed by the Institute of

Transportation Engineers in its Informational Report entitled Trip Generation be utilized as a starting point. This document is the most current and comprehensive of those reviewed, and there is no evidence to conclude that Virginia rates differ in statistical comparisons. Rates do differ somewhat among the areas of the state, and rates can be modified if local data suggest that the ITE rate is substantially different. Although this recommendation applies only to the above three categories of land use, it is suggested that, in the absence of better information, the above procedure be used for any other category of land use.

2. The Department should change its current policy concerning subdivision trip generation to reflect the findings of this study; that is, each lot will generate 10 vehicles per day. The peak hour generation of 1.0 trip per dwelling unit should also be incorporated into the policy as there is sometimes a need to consider impacts at peak hours.

3. Based on the experience gained during the data collection phase of the study, it is recommended that anyone collecting volume data with automatic traffic recorders exercise extreme care in placing the road tubes near intersections. The slow speed, stop-and-go situation results in inaccurate counts. The discussion in the body of this report suggests ways to mitigate this problem.

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APPENDIX A

Comprehensive Virginia Statistics for Each Site

INDEX TO SITE NUMBERS

Area	Shopping Center Site No.	Apartment Site No.	Subdivision Site No.
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TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.5		
Adjacent Street P.M. Peak Hour	7.3		
Generator A.M. Peak Hour	6.3		
Generator P.M. Peak Hour	9.1		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			34.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4
		Exit	0.1
		Total	0.5
	P.M. Between 4 and 6	Enter	1.1
		Exit	1.3
		Total	2.5
Peak Hour of Generator	A.M.	Enter	1.3
		Exit	0.8
		Total	2.1
	P.M.	Enter	1.9
		Exit	1.2
		Total	3.1
SATURDAY VEHICLE TRIP ENDS			42.2
Peak Hour of Generator		Enter	1.8
		Exit	2.1
		Total	3.8
SUNDAY VEHICLE TRIP ENDS			21.8
Peak Hour of Generator		Enter	1.5
		Exit	1.7
		Total	3.2

Site: 100 Date: 8/5/80 - 8/12/80

Independent Variable: 1000 sq.ft. GLFA - 1,268.0

Adjacent St. Peak Hours: 7:30-8:30 AM; 4:15-5:15 PM

Generator Peak Hours:

Weekday 11:00-12:00 A.M. 7:00-8:00 PM

Sat. 2:30-3:30 PM

Sun. 2:15-3:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.1		
Adjacent Street P.M. Peak Hour	7.8		
Generator A.M. Peak Hour	7.5		
Generator P.M. Peak Hour	9.6		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			42.8
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3
		Exit	0.1
		Total	0.5
	P.M. Between 4 and 6	Enter	1.7
		Exit	1.7
		Total	3.3
Peak Hour of Generator	A.M.	Enter	1.9
		Exit	1.4
		Total	3
	P.M.	Enter	2.1
		Exit	2.1
		Total	4.1
SATURDAY VEHICLE TRIP ENDS			51.3
Peak Hour of Generator		Enter	2.7
		Exit	2.6
		Total	5.3
SUNDAY VEHICLE TRIP ENDS			20.0
Peak Hour of Generator		Enter	1.7
		Exit	1.7
		Total	3.4

Site: 101 Date: 8/13/80 - 8/20/80

Independent Variable: 1000 sq.ft. GLFA - 685.0

Adjacent St. Peak Hours: 7:15-8:15AM; 4:15-5:15PM

Generator Peak Hours:

Weekday 11:00-12:00 AM 5:45-6:45 PM

Sat. 11:30-12:30 PM

Sun. 1:30-2:30 PM

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TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.8		
Adjacent Street P.M. Peak Hour	9.2		
Generator A.M. Peak Hour	7.7		
Generator P.M. Peak Hour	9.5		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			53.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.7
		Exit	0.3
		Total	1.0
	P.M. Between 4 and 6	Enter	2.4
		Exit	2.5
		Total	4.9
Peak Hour of Generator	A.M.	Enter	2.1
		Exit	2.1
		Total	4.2
	P.M.	Enter	2.4
		Exit	2.7
		Total	5.1
SATURDAY VEHICLE TRIP ENDS			58.8
Peak Hour of Generator		Enter	2.5
		Exit	2.5
		Total	5.0
SUNDAY VEHICLE TRIP ENDS			20.5
Peak Hour of Generator		Enter	1.4
		Exit	0.9
		Total	2.3

Site: 102 Date: 7/9/80 - 7/16/80
Independent Variable: 1000 sq.ft. GLFA - 179.0
Adjacent St. Peak Hours: 7:45-8:45AM; 4:15-5:15PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 4:30-5:30 PM
Sat. 4:15-5:15 PM
Sun. 6:00-7:00 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.0		
Adjacent Street P.M. Peak Hour	8.0		
Generator A.M. Peak Hour	7.5		
Generator P.M. Peak Hour	9.0		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			47.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3
		Exit	0.2
		Total	0.5
	P.M. Between 4 and 6	Enter	1.9
		Exit	1.9
		Total	3.8
Peak Hour of Generator	A.M.	Enter	2.0
		Exit	1.6
		Total	3.6
	P.M.	Enter	2.2
		Exit	2.1
		Total	4.2
SATURDAY VEHICLE TRIP ENDS			59.4
Peak Hour of Generator		Enter	2.4
		Exit	2.8
		Total	5.2
SUNDAY VEHICLE TRIP ENDS			10.2
Peak Hour of Generator		Enter	0.6
		Exit	0.8
		Total	1.3

Site: 103 Date: 7/17/80 - 7/24/80
Independent Variable: 1000 sq.ft. GLFA - 473.0
Adjacent St. Peak Hours: 7:15-8:15AM; 4:15-5:15PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 5:00-6:00 PM
Sat. 8:00-9:00 PM
Sun. 6:30-7:30 PM

TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.1		
Adjacent Street P.M. Peak Hour	8.4		
Generator A.M. Peak Hour	7.0		
Generator P.M. Peak Hour	9.2		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			27.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.1
		Total	0.3
	P.M. Between 4 and 6	Enter	1.2
		Exit	1.1
		Total	2.3
Peak Hour of Generator	A.M.	Enter	1.1
		Exit	0.8
		Total	1.9
	P.M.	Enter	1.4
		Exit	1.2
		Total	2.5
SATURDAY VEHICLE TRIP ENDS			33.3
Peak Hour of Generator		Enter	1.0
		Exit	1.9
		Total	2.9
SUNDAY VEHICLE TRIP ENDS			5.1
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.6

Site: 104 Date: 6/26/80 - 7/3/80
Independent Variable: 1000 sq.ft. GLFA - 778.0
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 12:00-1:00 PM
Sat. 8:30-9:30 PM
Sun. 6:15-7:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.1		
Adjacent Street P.M. Peak Hour	8.7		
Generator A.M. Peak Hour	6.8		
Generator P.M. Peak Hour	9.2		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			31.1
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.1
		Total	0.3
	P.M. Between 4 and 6	Enter	1.4
		Exit	1.3
		Total	2.7
Peak Hour of Generator	A.M.	Enter	1.3
		Exit	0.8
		Total	2.1
	P.M.	Enter	1.5
		Exit	1.4
		Total	2.8
SATURDAY VEHICLE TRIP ENDS			40.1
Peak Hour of Generator		Enter	1.8
		Exit	1.6
		Total	3.4
SUNDAY VEHICLE TRIP ENDS			5.3
Peak Hour of Generator		Enter	0.2
		Exit	0.2
		Total	0.4

Site: 105 Date: 6/4/80 - 6/11/80
Independent Variable: 1000 sq.ft. GLFA - 849.7
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 5:00-6:00 PM
Sat. 1:30-2:30 PM
Sun. 3:30-4:30 PM

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TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	2.8		
Adjacent Street P.M. Peak Hour	9.1		
Generator A.M. Peak Hour	6.2		
Generator P.M. Peak Hour	9.7		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			116.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.7
		Exit	1.6
		Total	3.3
	P.M. Between 4 and 6	Enter	5.1
		Exit	5.5
		Total	10.6
Peak Hour of Generator	A.M.	Enter	3.8
		Exit	3.4
		Total	7.2
	P.M.	Enter	5.5
		Exit	5.7
		Total	11.3
SATURDAY VEHICLE TRIP ENDS			147.8
Peak Hour of Generator		Enter	5.1
		Exit	5.2
		Total	10.4
SUNDAY VEHICLE TRIP ENDS			100.9
Peak Hour of Generator		Enter	4.1
		Exit	4.1
		Total	8.2

Site: 106 Date: 6/11/80-6/18/80
Independent Variable: 1000 sq.ft. GLFA - 66.0
Adjacent St. Peak Hours: 7:00-8:00AM; 4:15-5:15PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 4:30-5:30 PM
Sat. 12:00-1:00 PM
Sun. 12:30-1:30 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	3.8		
Adjacent Street P.M. Peak Hour	8.6		
Generator A.M. Peak Hour	6.8		
Generator P.M. Peak Hour	10.1		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			81.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.6
		Exit	1.5
		Total	3.1
	P.M. Between 4 and 6	Enter	3.4
		Exit	3.6
		Total	7.0
Peak Hour of Generator	A.M.	Enter	2.6
		Exit	2.9
		Total	5.5
	P.M.	Enter	4.0
		Exit	4.2
		Total	8.2
SATURDAY VEHICLE TRIP ENDS			83.1
Peak Hour of Generator		Enter	3.6
		Exit	3.9
		Total	7.5
SUNDAY VEHICLE TRIP ENDS			51.0
Peak Hour of Generator		Enter	2.7
		Exit	2.5
		Total	5.2

Site: 107 Date: 6/18/80 - 6/25/80
Independent Variable: 1000 sq.ft. GLFA - 175.6
Adjacent St. Peak Hours: 7:00-8:00AM; 4:00-5:00PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 4:45-5:45 PM
Sat. 12:00-1:00 PM
Sun. 12:00-1:00 PM

TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour			1.8
Adjacent Street P.M. Peak Hour			8.9
Generator A.M. Peak Hour			7.0
Generator P.M. Peak Hour			9.1
AVERAGE WEEKDAY VEHICLE TRIP ENDS			42.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.5
		Exit	0.3
		Total	0.8
	P.M. Between 4 and 6	Enter	2.0
		Exit	1.8
		Total	3.8
Peak Hour of Generator	A.M.	Enter	1.6
		Exit	1.3
		Total	3.0
	P.M.	Enter	2.0
		Exit	1.9
		Total	3.9
SATURDAY VEHICLE TRIP ENDS			70.4
Peak Hour of Generator		Enter	3.7
		Exit	3.2
		Total	6.9
SUNDAY VEHICLE TRIP ENDS			9.3
Peak Hour of Generator		Enter	0.5
		Exit	0.9
		Total	1.4

Site: 108 Date: 9/25/79 - 10/3/79
Independent Variable: 1000 sq.ft. GLFA - 696.2
Adjacent St. Peak Hours: 7:15-8:15AM; 4:45-5:45PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 5:30-6:30 PM
Sat. 2:00-3:00 PM
Sun. 4:15-5:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour			3.2
Adjacent Street P.M. Peak Hour			9.5
Generator A.M. Peak Hour			6.2
Generator P.M. Peak Hour			9.7
AVERAGE WEEKDAY VEHICLE TRIP ENDS			33.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.6
		Exit	0.5
		Total	1.1
	P.M. Between 4 and 6	Enter	1.6
		Exit	1.6
		Total	3.2
Peak Hour of Generator	A.M.	Enter	1.2
		Exit	0.9
		Total	2
	P.M.	Enter	1.6
		Exit	1.6
		Total	3.2
SATURDAY VEHICLE TRIP ENDS			52.4
Peak Hour of Generator		Enter	2.6
		Exit	3.0
		Total	5.7
SUNDAY VEHICLE TRIP ENDS			4.1
Peak Hour of Generator		Enter	0.2
		Exit	0.2
		Total	0.4

Site: 109 Date: 1/22/80 - 1/29/80
Independent Variable: 1000 sq.ft. GLFA - 829.0
Adjacent St. Peak Hours: 7:30-8:30AM; 5:00-6:00PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 5:15-6:15 PM
Sat. 3:00-4:00 PM
Sun. 12:00-1:00 PM

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TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	2.4		
Adjacent Street P.M. Peak Hour	10.2		
Generator A.M. Peak Hour	8.3		
Generator P.M. Peak Hour	10.2		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			72.5
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.0
		Exit	0.8
		Total	1.7
	P.M. Between 4 and 6	Enter	3.7
		Exit	3.6
		Total	7.4
Peak Hour of Generator	A.M.	Enter	3.0
		Exit	3.0
		Total	6.0
	P.M.	Enter	3.7
		Exit	3.6
		Total	7.4
SATURDAY VEHICLE TRIP ENDS			91.9
Peak Hour of Generator		Enter	4.9
		Exit	4.7
		Total	9.5
SUNDAY VEHICLE TRIP ENDS			23.1
Peak Hour of Generator		Enter	1.3
		Exit	1.5
		Total	2.8

Site: 110 Date: 1/10/80 - 1/17/80
Independent Variable: 1000 sq.ft. GLFA - 314.0
Adjacent St. Peak Hours: 7:30-8:30AM; 4:45-5:45PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 4:45-5:45 PM
Sat. 2:00-3:00 PM
Sun. 3:15-4:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.6		
Adjacent Street P.M. Peak Hour	8.8		
Generator A.M. Peak Hour	7.2		
Generator P.M. Peak Hour	8.9		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			44.8
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4
		Exit	0.3
		Total	0.7
	P.M. Between 4 and 6	Enter	2.0
		Exit	2.0
		Total	4.0
Peak Hour of Generator	A.M.	Enter	1.8
		Exit	1.5
		Total	3.3
	P.M.	Enter	2.0
		Exit	2.0
		Total	4.0
SATURDAY VEHICLE TRIP ENDS			63.9
Peak Hour of Generator		Enter	2.9
		Exit	3.2
		Total	6.1
SUNDAY VEHICLE TRIP ENDS			19.2
Peak Hour of Generator		Enter	1.1
		Exit	1.2
		Total	2.3

Site: 111 Date: 10/4/79 - 10/11/79
Independent Variable: 1000 sq.ft. GLFA - 669.2
Adjacent St. Peak Hours: 7:30-8:30AM; 4:45-5:45PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 4:15-5:15 PM
Sat. 4:00-5:00 PM
Sun. 4:00-5:00 PM

TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 2.7			
Adjacent Street P.M. Peak Hour 10.8			
Generator A.M. Peak Hour 6.4			
Generator P.M. Peak Hour 10.8			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			78.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.1
		Exit	1.1
		Total	2.1
	P.M. Between 4 and 6	Enter	4.4
		Exit	4.1
		Total	8.5
Peak Hour of Generator	A.M.	Enter	2.6
		Exit	2.4
		Total	5.0
	P.M.	Enter	4.4
		Exit	4.1
		Total	8.5
SATURDAY VEHICLE TRIP ENDS			103.4
Peak Hour of Generator		Enter	4.6
		Exit	4.9
		Total	9.5
SUNDAY VEHICLE TRIP ENDS			45.3
Peak Hour of Generator		Enter	2.4
		Exit	2.3
		Total	4.7

Site: 112 Date: 10/12/79 - 10/19/79
Independent Variable: 1000 sq.ft. GLFA - 164.7
Adjacent St. Peak Hours: 7:30-8:30AM; 4:45-5:45PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 5:00-6:00 PM
Sat. 5:15-6:15 PM
Sun. 12:30-1:30 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 2.7			
Adjacent Street P.M. Peak Hour 10.6			
Generator A.M. Peak Hour 6.5			
Generator P.M. Peak Hour 11.2			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			104.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.6
		Exit	1.2
		Total	2.8
	P.M. Between 4 and 6	Enter	5.8
		Exit	5.4
		Total	11.1
Peak Hour of Generator	A.M.	Enter	3.7
		Exit	3.1
		Total	6.8
	P.M.	Enter	5.8
		Exit	5.9
		Total	11.7
SATURDAY VEHICLE TRIP ENDS			115.0
Peak Hour of Generator		Enter	5.7
		Exit	5.3
		Total	10.9
SUNDAY VEHICLE TRIP ENDS			51.0
Peak Hour of Generator		Enter	2.6
		Exit	2.4
		Total	5.1

Site: 113 Date: 2/13/80 - 2/20/80
Independent Variable: 1000 sq.ft. GLFA - 113.8
Adjacent St. Peak Hours: 7:00-8:00AM; 4:30-5:30PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 5:00-6:00 PM
Sat. 11:30-12:30 PM
Sun. 12:30-1:30 PM

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TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.6		
Adjacent Street P.M. Peak Hour	10.1		
Generator A.M. Peak Hour	8.5		
Generator P.M. Peak Hour	10.5		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			44.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4
		Exit	0.3
		Total	0.7
	P.M. Between 4 and 6	Enter	2.1
		Exit	2.3
		Total	4.5
Peak Hour of Generator	A.M.	Enter	2.0
		Exit	1.8
		Total	3.8
	P.M.	Enter	2.3
		Exit	2.3
		Total	4.6
SATURDAY VEHICLE TRIP ENDS			57.6
Peak Hour of Generator		Enter	3.2
		Exit	3.1
		Total	6.2
SUNDAY VEHICLE TRIP ENDS			10.6
Peak Hour of Generator		Enter	0.6
		Exit	0.7
		Total	1.3

Site: 114 Date: 2/21/80 - 2/28/80

Independent Variable: 1000 sq.ft. GLFA - 270.4

Adjacent St. Peak Hours: 7:15-8:15AM; 5:00-6:00PM

Generator Peak Hours:

Weekday 11:00-12:00 AM 4:30-5:30 PM

Sat. 2:15-3:15 PM

Sun. 3:30-4:30 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.5		
Adjacent Street P.M. Peak Hour	10.4		
Generator A.M. Peak Hour	6.8		
Generator P.M. Peak Hour	10.9		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			68.8
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.5
		Exit	0.5
		Total	1.0
	P.M. Between 4 and 6	Enter	3.5
		Exit	3.7
		Total	7.1
Peak Hour of Generator	A.M.	Enter	2.5
		Exit	2.2
		Total	4.7
	P.M.	Enter	3.7
		Exit	3.8
		Total	7.5
SATURDAY VEHICLE TRIP ENDS			96.5
Peak Hour of Generator		Enter	4.6
		Exit	4.5
		Total	9.1
SUNDAY VEHICLE TRIP ENDS			49.2
Peak Hour of Generator		Enter	2.7
		Exit	3.0
		Total	5.9

Site: 115 Date: 10/24/79 - 11/1/79

Independent Variable: 1000 sq.ft. GLFA - 145.0

Adjacent St. Peak Hours: 7:30-8:30AM; 4:45-5:45PM

Generator Peak Hours:

Weekday 11:00-12:00 AM 5:15-6:15 PM

Sat. 4:00-5:00 PM

Sun. 1:30-2:30 PM

TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 2.4				Adjacent Street A.M. Peak Hour 1.5			
Adjacent Street P.M. Peak Hour 11.0				Adjacent Street P.M. Peak Hour 9.6			
Generator A.M. Peak Hour 8.3				Generator A.M. Peak Hour 7.4			
Generator P.M. Peak Hour 11.7				Generator P.M. Peak Hour 10.3			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			90.4	AVERAGE WEEKDAY VEHICLE TRIP ENDS			82.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.1	Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.6
		Exit	1.0			Exit	0.6
		Total	2.2			Total	1.2
	P.M. Between 4 and 6	Enter	5.0		P.M. Between 4 and 6	Enter	3.9
		Exit	5.0			Exit	4.0
		Total	10.0			Total	7.9
Peak Hour of Generator	A.M.	Enter	3.8	Peak Hour of Generator	A.M.	Enter	3.3
		Exit	3.6			Exit	2.8
		Total	7.5			Total	6.1
	P.M.	Enter	5.6		P.M.	Enter	4.2
		Exit	5.0			Exit	4.2
		Total	10.5			Total	8.5
SATURDAY VEHICLE TRIP ENDS			116.9	SATURDAY VEHICLE TRIP ENDS			98.3
Peak Hour of Generator		Enter	6.1	Peak Hour of Generator		Enter	5.2
		Exit	5.8			Exit	4.8
		Total	11.9			Total	10.0
SUNDAY VEHICLE TRIP ENDS			55.8	SUNDAY VEHICLE TRIP ENDS			33.6
Peak Hour of Generator		Enter	3.8	Peak Hour of Generator		Enter	1.9
		Exit	3.1			Exit	2.0
		Total	6.9			Total	3.8
Site: 116 Date: 11/7/79 - 11/14/79				Site: 117 Date: 9/4/79 - 9/11/79			
Independent Variable: 1000 sq.ft. GLFA - 94.0				Independent Variable: 1000 sq.ft. GLFA - 184.9			
Adjacent St. Peak Hours: 7:30-8:30AM;4:45-5:45PM				Adjacent St. Peak Hours: 7:00-8:00AM;4:00-5:00PM			
Generator Peak Hours:				Generator Peak Hours:			
Weekday 11:00-12:00 AM 4:15-5:15 PM				Weekday 11:00-12:00 AM 4:45-5:45 PM			
Sat. 2:30-3:30 PM				Sat. 11:30-12:30 PM			
Sun. 12:00-1:00 PM				Sun. 3:30-4:30 PM			

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TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.7	
Adjacent Street P.M. Peak Hour	8.5	
Generator A.M. Peak Hour	8.1	
Generator P.M. Peak Hour	8.9	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		43.8
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.5
		Exit 0.3
		Total 0.8
	P.M. Between 4 and 6	Enter 1.8
		Exit 1.9
		Total 3.7
Peak Hour of Generator	A.M.	Enter 1.8
		Exit 1.8
		Total 3.6
	P.M.	Enter 2.0
		Exit 1.9
		Total 3.9
SATURDAY VEHICLE TRIP ENDS		56.3
Peak Hour of Generator		Enter 2.4
		Exit 2.3
		Total 4.7
SUNDAY VEHICLE TRIP ENDS		15.6
Peak Hour of Generator		Enter 0.8
		Exit 0.8
		Total 1.6

Site: 118 Date: 7/31/79-8/7/80
Independent Variable: 1000 sq.ft. GLFA - 298.0
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 12:00-1:00 PM
Sat. 2:45-3:45 PM
Sun. 5:45-6:45 PM

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	1.6	
Adjacent Street P.M. Peak Hour	8.2	
Generator A.M. Peak Hour	6.3	
Generator P.M. Peak Hour	9.4	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		70.1
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.7
		Exit 0.4
		Total 1.1
	P.M. Between 4 and 6	Enter 2.9
		Exit 2.8
		Total 5.7
Peak Hour of Generator	A.M.	Enter 2.3
		Exit 2.1
		Total 4.4
	P.M.	Enter 3.7
		Exit 2.8
		Total 6.6
SATURDAY VEHICLE TRIP ENDS		105.6
Peak Hour of Generator		Enter 6.3
		Exit 4.5
		Total 10.8
SUNDAY VEHICLE TRIP ENDS		87.7
Peak Hour of Generator		Enter 6.2
		Exit 5.0
		Total 11.2

Site: 119 Date: 8/22/79 - 8/30/79
Independent Variable: 1000 sq.ft. GLFA - 131.3
Adjacent St. Peak Hours: 7:30-8:30AM;4:15-5:15 PM
Generator Peak Hours:
Weekday 11:00 AM - 12:00 PM 6:45-7:45 PM
Sat. 6:45 - 7:45 PM
Sun. 1:15 - 2:15 PM

TRIP GENERATION RATES

SHOPPING CENTERS

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	0.6			Adjacent Street A.M. Peak Hour	—		
Adjacent Street P.M. Peak Hour	9.0			Adjacent Street P.M. Peak Hour	—		
Generator A.M. Peak Hour	6.8			Generator A.M. Peak Hour	—		
Generator P.M. Peak Hour	9.6			Generator P.M. Peak Hour	—		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			48.1	AVERAGE WEEKDAY VEHICLE TRIP ENDS			
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	
		Exit	0.1			Exit	
		Total	0.3			Total	
	P.M. Between 4 and 6	Enter	2.2		P.M. Between 4 and 6	Enter	
		Exit	2.2			Exit	
		Total	4.3			Total	
Peak Hour of Generator	A.M.	Enter	1.8	Peak Hour of Generator	A.M.	Enter	
		Exit	1.5			Exit	
		Total	3.3			Total	
	P.M.	Enter	2.6		P.M.	Enter	
		Exit	2.0			Exit	
		Total	4.6			Total	
SATURDAY VEHICLE TRIP ENDS			74.8	SATURDAY VEHICLE TRIP ENDS			
Peak Hour of Generator		Enter	4.4	Peak Hour of Generator		Enter	
		Exit	3.2			Exit	
		Total	7.6			Total	
SUNDAY VEHICLE TRIP ENDS			5.3	SUNDAY VEHICLE TRIP ENDS			
Peak Hour of Generator		Enter	0.4	Peak Hour of Generator		Enter	
		Exit	0.4			Exit	
		Total	0.8			Total	

Site: 120 Date: 9/12/79 - 9/19/79
Independent Variable: 1000 sq.ft. GLFA - 267.0
Adjacent St. Peak Hours: 7:00-8:00AM;4:00-5:00PM
Generator Peak Hours:
Weekday 11:00-12:00 AM 7:00-8:00PM
Sat. 12:45-1:45 PM
Sun. 1:00-2:00 PM

Site: Date:
Independent Variable:
Adjacent St. Peak Hours:
Generator Peak Hours:
Weekday
Sat.
Sun.

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TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	9.2		
Adjacent Street P.M. Peak Hour	8.4		
Generator A.M. Peak Hour	9.4		
Generator P.M. Peak Hour	9.9		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			5.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.5
		Total	0.5
	P.M. Between 4 and 6	Enter	0.3
		Exit	0.2
		Total	0.5
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.5
		Total	0.6
	P.M.	Enter	0.4
		Exit	0.2
		Total	0.6
SATURDAY VEHICLE TRIP ENDS			6.1
Peak Hour of Generator		Enter	0.3
		Exit	0.2
		Total	0.5
SUNDAY VEHICLE TRIP ENDS			5.1
Peak Hour of Generator		Enter	0.2
		Exit	0.2
		Total	0.5

Site: 200 Date: 11/30/79-12/7/79
Independent Variable: Dwelling Units - 409
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 4:30-5:30 PM
Sat. 4:15-5:15 PM
Sun. 4:15-5:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	10.1		
Adjacent Street P.M. Peak Hour	7.7		
Generator A.M. Peak Hour	10.3		
Generator P.M. Peak Hour	9.1		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.6
		Total	0.7
	P.M. Between 4 and 6	Enter	0.4
		Exit	0.1
		Total	0.5
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.6
		Total	0.7
	P.M.	Enter	0.4
		Exit	0.2
		Total	0.6
SATURDAY VEHICLE TRIP ENDS			7.0
Peak Hour of Generator		Enter	0.3
		Exit	0.2
		Total	0.5
SUNDAY VEHICLE TRIP ENDS			5.7
Peak Hour of Generator		Enter	0.3
		Exit	0.2
		Total	0.5

Site: 201 Date: 12/10/79-12/17/79
Independent Variable: Dwelling Units - 339
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 5:15-6:15 PM
Sat. 4:15-5:15 PM
Sun. 3:45-4:45 PM

TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	6.8	
Adjacent Street P.M. Peak Hour	8.8	
Generator A.M. Peak Hour	7.9	
Generator P.M. Peak Hour	9.9	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		7.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.1
		Exit 0.4
		Total 0.5
	P.M. Between 4 and 6	Enter 0.5
		Exit 0.2
		Total 0.7
Peak Hour of Generator	A.M.	Enter 0.1
		Exit 0.5
		Total 0.6
	P.M.	Enter 0.5
		Exit 0.3
		Total 0.8
SATURDAY VEHICLE TRIP ENDS		8.5
Peak Hour of Generator		Enter 0.4
		Exit 0.3
		Total 0.7
SUNDAY VEHICLE TRIP ENDS		7.1
Peak Hour of Generator		Enter 0.3
		Exit 0.2
		Total 0.6

Site: 202 Date: 12/10/79 - 12/17/79
Independent Variable: Dwelling Units - 412
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 5:15-6:15 PM
Sat. 5:45-6:45 PM
Sun. 7:45-8:45 PM

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	4.5	
Adjacent Street P.M. Peak Hour	9.6	
Generator A.M. Peak Hour	6.3	
Generator P.M. Peak Hour	10.2	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		6.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.1
		Exit 0.2
		Total 0.3
	P.M. Between 4 and 6	Enter 0.4
		Exit 0.3
		Total 0.6
Peak Hour of Generator	A.M.	Enter 0.1
		Exit 0.3
		Total 0.4
	P.M.	Enter 0.4
		Exit 0.3
		Total 0.7
SATURDAY VEHICLE TRIP ENDS		6.8
Peak Hour of Generator		Enter 0.3
		Exit 0.2
		Total 0.5
SUNDAY VEHICLE TRIP ENDS		6.0
Peak Hour of Generator		Enter 0.3
		Exit 0.2
		Total 0.5

Site: 203 Date: 8/20/80 - 8/27/80
Independent Variable: Dwelling Units - 238
Adjacent St. Peak Hours: 7:00-8:00AM;4:45-5:45PM
Generator Peak Hours:
Weekday 6:00-7:00 AM 5:30-6:30 PM
Sat. 3:00-4:00 PM
Sun. 7:45-8:45 PM

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TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		4.1	
Adjacent Street P.M. Peak Hour		8.2	
Generator A.M. Peak Hour		4.9	
Generator P.M. Peak Hour		8.2	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.2
		Total	0.3
	P.M. Between 4 and 6	Enter	0.4
		Exit	0.2
		Total	0.7
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.3
		Total	0.4
	P.M.	Enter	0.4
		Exit	0.2
		Total	0.7
SATURDAY VEHICLE TRIP ENDS			8.6
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.6
SUNDAY VEHICLE TRIP ENDS			8.8
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7

Site: 204 Date: 7/8/80 - 7/15/80

Independent Variable: Dwelling Units - 158

Adjacent St. Peak Hours: 8:00-9:00AM;4:45-5:45PM

Generator Peak Hours:

Weekday 6:15-7:15 AM 4:45-5:45 PM

Sat. 8:30-9:30 PM

Sun. 8:15-9:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		4.7	
Adjacent Street P.M. Peak Hour		8.4	
Generator A.M. Peak Hour		5.4	
Generator P.M. Peak Hour		9.6	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			5.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.2
		Total	0.3
	P.M. Between 4 and 6	Enter	0.3
		Exit	0.2
		Total	0.5
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.2
		Total	0.3
	P.M.	Enter	0.4
		Exit	0.2
		Total	0.6
SATURDAY VEHICLE TRIP ENDS			6.2
Peak Hour of Generator		Enter	0.3
		Exit	0.2
		Total	0.5
SUNDAY VEHICLE TRIP ENDS			5.3
Peak Hour of Generator		Enter	0.2
		Exit	0.3
		Total	0.5

Site: 205 Date: 7/25/80 - 8/1/80

Independent Variable: Dwelling Units - 242

Adjacent St. Peak Hours: 8:00-9:00AM;4:45-5:45PM

Generator Peak Hours:

Weekday 7:15-8:15 AM 5:15-6:15 PM

Sat. 2:30-3:30 PM

Sun. 7:15-8:15 PM

TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour				Adjacent Street A.M. Peak Hour			6.9
Adjacent Street P.M. Peak Hour				Adjacent Street P.M. Peak Hour			10.7
Generator A.M. Peak Hour				Generator A.M. Peak Hour			7.4
Generator P.M. Peak Hour				Generator P.M. Peak Hour			10.9
AVERAGE WEEKDAY VEHICLE TRIP ENDS				AVERAGE WEEKDAY VEHICLE TRIP ENDS			5.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter		Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit				Exit	0.3
		Total				Total	0.4
	P.M. Between 4 and 6	Enter			P.M. Between 4 and 6	Enter	0.4
		Exit				Exit	0.2
		Total				Total	0.6
Peak Hour of Generator	A.M.	Enter		Peak Hour of Generator	A.M.	Enter	0.2
		Exit				Exit	0.3
		Total				Total	0.5
	P.M.	Enter			P.M.	Enter	0.4
		Exit				Exit	0.2
		Total				Total	0.6
SATURDAY VEHICLE TRIP ENDS				SATURDAY VEHICLE TRIP ENDS			7.0
Peak Hour of Generator		Enter		Peak Hour of Generator		Enter	0.3
		Exit				Exit	0.3
		Total				Total	0.6
SUNDAY VEHICLE TRIP ENDS				SUNDAY VEHICLE TRIP ENDS			5.6
Peak Hour of Generator		Enter		Peak Hour of Generator		Enter	0.3
		Exit				Exit	0.3
		Total				Total	0.5

Site: Deleted Date:

Independent Variable:

Adjacent St. Peak Hours:

Generator Peak Hours:

Weekday

Sat.

Sun.

Site: 207 Date: 3/11/80 - 3/18/80

Independent Variable: Dwelling Units - 285

Adjacent St. Peak Hours: 7:15-8:15AM; 4:45-5:45PM

Generator Peak Hours:

Weekday 7:00-8:00 AM 5:00-6:00 PM

Sat. 5:45-6:45 PM

Sun. 4:00-5:00 PM

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TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	7.0		
Adjacent Street P.M. Peak Hour	9.1		
Generator A.M. Peak Hour	7.2		
Generator P.M. Peak Hour	9.2		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			5.1
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.3
		Total	0.4
	P.M. Between 4 and 6	Enter	0.3
		Exit	0.1
		Total	0.5
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.3
		Total	0.4
	P.M.	Enter	0.3
		Exit	0.1
		Total	0.5
SATURDAY VEHICLE TRIP ENDS			5.0
Peak Hour of Generator		Enter	0.2
		Exit	0.2
		Total	0.4
SUNDAY VEHICLE TRIP ENDS			4.9
Peak Hour of Generator		Enter	0.2
		Exit	0.2
		Total	0.4

Site: 208 Date: 6/3/80-6/10/80
Independent Variable: Dwelling Units - 281
Adjacent St. Peak Hours: 7:00-8:00AM;4:00-5:00PM
Generator Peak Hours:
Weekday 6:45-7:45 AM 4:30-5:30 PM
Sat. 7:00-8:00 PM
Sun. 6:30-7:30 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	9.5		
Adjacent Street P.M. Peak Hour	9.8		
Generator A.M. Peak Hour	9.5		
Generator P.M. Peak Hour	10.8		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			5.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M. Between 4 and 6	Enter	0.3
		Exit	0.2
		Total	0.5
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M.	Enter	0.4
		Exit	0.2
		Total	0.6
SATURDAY VEHICLE TRIP ENDS			4.4
Peak Hour of Generator		Enter	0.1
		Exit	0.2
		Total	0.3
SUNDAY VEHICLE TRIP ENDS			4.2
Peak Hour of Generator		Enter	0.2
		Exit	0.1
		Total	0.3

Site: 209 Date: 6/3/80-6/10/80
Independent Variable: Dwelling Units - 210
Adjacent St. Peak Hours: 7:00-8:00AM;4:00-5:00PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 4:30-5:30 PM
Sat. 10:30-11:30 AM
Sun. 6:00-7:00 PM

TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour			9.0
Adjacent Street P.M. Peak Hour			7.9
Generator A.M. Peak Hour			9.8
Generator P.M. Peak Hour			9.5
AVERAGE WEEKDAY VEHICLE TRIP ENDS			5.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M. Between 4 and 6	Enter	0.3
		Exit	0.1
		Total	0.4
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.4
		Total	0.6
	P.M.	Enter	0.4
		Exit	0.2
		Total	0.5
SATURDAY VEHICLE TRIP ENDS			6.1
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.5
SUNDAY VEHICLE TRIP ENDS			5.1
Peak Hour of Generator		Enter	0.2
		Exit	0.3
		Total	0.5

Site: 210 Date: 1/17/80-1/24/80
Independent Variable: Dwelling Units - 293
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 5:15-6:15 PM
Sat. 3:15-4:15 PM
Sun. 12:30-1:30 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour			9.6
Adjacent Street P.M. Peak Hour			11.6
Generator A.M. Peak Hour			9.6
Generator P.M. Peak Hour			11.6
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.5
		Total	0.6
	P.M. Between 4 and 6	Enter	0.5
		Exit	0.2
		Total	0.7
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.5
		Total	0.6
	P.M.	Enter	0.5
		Exit	0.2
		Total	0.7
SATURDAY VEHICLE TRIP ENDS			7.1
Peak Hour of Generator		Enter	0.3
		Exit	0.2
		Total	0.5
SUNDAY VEHICLE TRIP ENDS			5.9
Peak Hour of Generator		Enter	0.3
		Exit	0.2
		Total	0.5

Site: 211 Date: 1/10/80-1/17/80
Independent Variable: Dwelling Units - 438
Adjacent St. Peak Hours: 7:15-8:15AM;4:45-5:45PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 4:45-5:45 PM
Sat. 4:15-5:15 PM
Sun. 4:30-5:30 PM

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TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	9.8		
Adjacent Street P.M. Peak Hour	10.5		
Generator A.M. Peak Hour	10.3		
Generator P.M. Peak Hour	10.5		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.7
		Total	0.9
	P.M. Between 4 and 6	Enter	0.6
		Exit	0.3
		Total	0.9
Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.7
		Total	0.9
	P.M.	Enter	0.6
		Exit	0.3
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			9.1
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			7.6
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7

Site: 212 Date: 1/17/80-1/24/80

Independent Variable: Dwelling Units - 229

Adjacent St. Peak Hours: 7:30-8:30AM; 5:00-6:00PM

Generator Peak Hours:

Weekday 7:15-8:15 AM 5:00-6:00 PM

Sat. 7:00-8:00 PM

Sun. 5:00-6:00 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	6.4		
Adjacent Street P.M. Peak Hour	8.3		
Generator A.M. Peak Hour	6.4		
Generator P.M. Peak Hour	8.5		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.4
		Total	0.6
	P.M. Between 4 and 6	Enter	0.4
		Exit	0.3
		Total	0.7
Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.4
		Total	0.6
	P.M.	Enter	0.4
		Exit	0.3
		Total	0.7
SATURDAY VEHICLE TRIP ENDS			9.2
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			8.2
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.6

Site: 213 Date: 10/4/79 - 10/11/79

Independent Variable: Dwelling Units - 209

Adjacent St. Peak Hours: 7:15-8:15AM; 4:15-5:15PM

Generator Peak Hours:

Weekday 7:15-8:15 AM 4:00-5:00 PM

Sat. 6:30-7:30 PM

Sun. 6:45-7:45 PM

TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	7.2			Adjacent Street A.M. Peak Hour	—		
Adjacent Street P.M. Peak Hour	9.7			Adjacent Street P.M. Peak Hour	—		
Generator A.M. Peak Hour	7.2			Generator A.M. Peak Hour	—		
Generator P.M. Peak Hour	9.7			Generator P.M. Peak Hour	—		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.3	AVERAGE WEEKDAY VEHICLE TRIP ENDS			
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	
		Exit	0.4			Exit	
		Total	0.5			Total	
	P.M. Between 4 and 6	Enter	0.5		P.M. Between 4 and 6	Enter	
		Exit	0.3			Exit	
		Total	0.7			Total	
Peak Hour of Generator	A.M.	Enter	0.1	Peak Hour of Generator	A.M.	Enter	
		Exit	0.4			Exit	
		Total	0.5			Total	
	P.M.	Enter	0.5		P.M.	Enter	
		Exit	0.3			Exit	
		Total	0.7			Total	
SATURDAY VEHICLE TRIP ENDS			6.8	SATURDAY VEHICLE TRIP ENDS			
Peak Hour of Generator		Enter	0.3	Peak Hour of Generator		Enter	
		Exit	0.2			Exit	
		Total	0.5			Total	
SUNDAY VEHICLE TRIP ENDS			6.1	SUNDAY VEHICLE TRIP ENDS			
Peak Hour of Generator		Enter	0.2	Peak Hour of Generator		Enter	
		Exit	0.3			Exit	
		Total	0.5			Total	

Site: 214 Date: 10/12/79-10/19/79
Independent Variable: Dwelling Units - 126
Adjacent St. Peak Hours: 7:30-8:30AM;4:45-5:45PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 4:45-5:45 PM
Sat. 6:15-7:15 PM
Sun. 2:00-3:00 PM

Site: Deleted Date:
Independent Variable:
Adjacent St. Peak Hours:
Generator Peak Hours:
Weekday
Sat.
Sun.

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TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		9.5	
Adjacent Street P.M. Peak Hour		10.6	
Generator A.M. Peak Hour		9.5	
Generator P.M. Peak Hour		12.5	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.6
		Total	0.6
	P.M. Between 4 and 6	Enter	0.5
		Exit	0.2
		Total	0.7
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.6
		Total	0.6
	P.M.	Enter	0.5
		Exit	0.3
		Total	0.8
SATURDAY VEHICLE TRIP ENDS			7.5
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			5.5
Peak Hour of Generator		Enter	0.4
		Exit	0.5
		Total	0.9

Site: 216 Date: 2/5/80-2/12/80
Independent Variable: Dwelling Units - 114
Adjacent St. Peak Hours: 7:00-8:00AM;4:15-5:15PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 4:45-5:45 PM
Sat. 6:00-7:00 PM
Sun. 3:45-4:45 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		6.5	
Adjacent Street P.M. Peak Hour		8.2	
Generator A.M. Peak Hour		8.0	
Generator P.M. Peak Hour		9.9	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.4
		Total	0.6
	P.M. Between 4 and 6	Enter	0.5
		Exit	0.3
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.3
		Exit	0.4
		Total	0.7
	P.M.	Enter	0.5
		Exit	0.4
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			9.2
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			8.2
Peak Hour of Generator		Enter	0.7
		Exit	0.4
		Total	1.2

Site: 217 Date: 10/24/79 - 10/31/79
Independent Variable: Dwelling Units - 180
Adjacent St. Peak Hours: 7:15-8:15AM;4:30-5:30PM
Generator Peak Hours:
Weekday 8:00-9:00 AM 5:30-6:30 PM
Sat. 4:30-5:30 PM
Sun. 7:15-8:15 PM

TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		10.4	
Adjacent Street P.M. Peak Hour		10.7	
Generator A.M. Peak Hour		10.8	
Generator P.M. Peak Hour		11.6	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.8
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.6
		Total	0.8
	P.M. Between 4 and 6	Enter	0.5
		Exit	0.3
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.6
		Total	0.8
	P.M.	Enter	0.6
		Exit	0.3
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			8.0
Peak Hour of Generator		Enter	0.3
		Exit	0.4
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			7.0
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7

Site: 218 Date: 11/7/79 - 11/14/79
Independent Variable: Dwelling Units - 124
Adjacent St. Peak Hours: 7:30-8:30AM; 4:45-5:45PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 5:00-6:00 PM
Sat. 12:30-1:30 PM
Sun. 5:00-6:00 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		4.9	
Adjacent Street P.M. Peak Hour		7.2	
Generator A.M. Peak Hour		5.3	
Generator P.M. Peak Hour		9.5	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	--
		Exit	-
		Total	0.3
	P.M. Between 4 and 6	Enter	--
		Exit	--
		Total	0.5
Peak Hour of Generator	A.M.	Enter	-
		Exit	--
		Total	0.4
	P.M.	Enter	--
		Exit	--
		Total	0.7
SATURDAY VEHICLE TRIP ENDS			7.8
Peak Hour of Generator		Enter	--
		Exit	--
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			5.5
Peak Hour of Generator		Enter	--
		Exit	--
		Total	0.5

Site: 219 Date: 8/8/79-8/15/79
Independent Variable: Dwelling Units - 158
Adjacent St. Peak Hours: 7:15-8:15AM; 4:15-5:15PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 5:00-6:00 PM
Sat. 11:00-12:00 AM
Sun. 4:00-5:00 PM

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TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour				Adjacent Street A.M. Peak Hour			6.0
Adjacent Street P.M. Peak Hour				Adjacent Street P.M. Peak Hour			8.8
Generator A.M. Peak Hour				Generator A.M. Peak Hour			6.1
Generator P.M. Peak Hour				Generator P.M. Peak Hour			9.1
AVERAGE WEEKDAY VEHICLE TRIP ENDS				AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.1
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter		Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit				Exit	0.3
		Total				Total	0.5
	P.M. Between 4 and 6	Enter			P.M. Between 4 and 6	Enter	0.4
		Exit				Exit	0.3
		Total				Total	0.7
Peak Hour of Generator	A.M.	Enter		Peak Hour of Generator	A.M.	Enter	0.1
		Exit				Exit	0.3
		Total				Total	0.4
	P.M.	Enter			P.M.	Enter	0.4
		Exit				Exit	0.3
		Total				Total	0.7
SATURDAY VEHICLE TRIP ENDS				SATURDAY VEHICLE TRIP ENDS			8.1
Peak Hour of Generator		Enter		Peak Hour of Generator		Enter	0.3
		Exit				Exit	0.3
		Total				Total	0.7
SUNDAY VEHICLE TRIP ENDS				SUNDAY VEHICLE TRIP ENDS			5.7
Peak Hour of Generator		Enter		Peak Hour of Generator		Enter	0.3
		Exit				Exit	0.2
		Total				Total	0.5

Site: Deleted Date:

Independent Variable:

Adjacent St. Peak Hours:

Generator Peak Hours:

Weekday

Sat.

Sun.

Site: 221 Date: 8/8/79-8/15/79

Independent Variable: Dwelling Units - 156

Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM

Generator Peak Hours:

Weekday 7:15-8:15 AM 5:15-6:15 PM

Sat. 1:00-2:00 PM

Sun. 3:30-4:30 PM

TRIP GENERATION RATES

APARTMENTS

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		7.3	
Adjacent Street P.M. Peak Hour		8.9	
Generator A.M. Peak Hour		7.3	
Generator P.M. Peak Hour		8.9	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3
		Exit	0.4
		Total	0.7
	P.M. Between 4 and 6	Enter	0.4
		Exit	0.4
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.3
		Exit	0.4
		Total	0.7
	P.M.	Enter	0.4
		Exit	0.4
		Total	0.8
SATURDAY VEHICLE TRIP ENDS			7.7
Peak Hour of Generator		Enter	0.3
		Exit	0.4
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			6.4
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.6

Site: 222 Date: 8/22/79 - 8/29/79
Independent Variable: Dwelling Units - 55
Adjacent St. Peak Hours: 7:45-8:45AM;4:00-5:00PM
Generator Peak Hours:
Weekday 7:45-8:45 AM 4:00-5:00 PM
Sat. 10:45-11:45 AM
Sun. 6:30-7:30 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		5.8	
Adjacent Street P.M. Peak Hour		8.3	
Generator A.M. Peak Hour		6.7	
Generator P.M. Peak Hour		8.5	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.4
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.3
		Total	0.4
	P.M. Between 4 and 6	Enter	0.3
		Exit	0.3
		Total	0.6
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M.	Enter	0.4
		Exit	0.2
		Total	0.6
SATURDAY VEHICLE TRIP ENDS			6.8
Peak Hour of Generator		Enter	0.4
		Exit	0.2
		Total	0.6
SUNDAY VEHICLE TRIP ENDS			6.4
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.6

Site: 223 Date: 9/12/79-9/19/79
Independent Variable: Dwelling Units - 126
Adjacent St. Peak Hours: 8:00-9:00AM;4:15-5:15PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 4:30-5:30 PM
Sat. 4:45-5:45 PM
Sun. 6:15-7:15 PM

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TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 6.1			
Adjacent Street P.M. Peak Hour 7.0			
Generator A.M. Peak Hour 6.3			
Generator P.M. Peak Hour 8.9			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.5
		Total	0.6
	P.M. Between 4 and 6	Enter	0.4
		Exit	0.3
		Total	0.7
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.5
		Total	0.7
	P.M.	Enter	0.6
		Exit	0.3
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			9.6
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			7.8
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.6

Site: 300 Date: 8/12/80 - 8/19/80
Independent Variable: Dwelling Units - 450
Adjacent St. Peak Hours: 7:00-8:00AM;4:00-5:00PM
Generator Peak Hours:
Weekday 6:45-7:45 AM 5:30-6:30 PM
Sat. 11:45-12:45 PM
Sun. 1:00-2:00 PM

% Weekday Trips In:			Measured Trip Rat
Adjacent Street A.M. Peak Hour 4.7			
Adjacent Street P.M. Peak Hour 10.4			
Generator A.M. Peak Hour 4.8			
Generator P.M. Peak Hour 10.5			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.3
		Total	0.5
	P.M. Between 4 and 6	Enter	0.7
		Exit	0.4
		Total	1.1
Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.3
		Total	0.5
	P.M.	Enter	0.7
		Exit	0.4
		Total	1.1
SATURDAY VEHICLE TRIP ENDS			13.8
Peak Hour of Generator		Enter	0.5
		Exit	0.5
		Total	1.0
SUNDAY VEHICLE TRIP ENDS			10.8
Peak Hour of Generator		Enter	0.5
		Exit	0.5
		Total	1.0

Site: 301 Date: 12/10/79 - 12/17/79
Independent Variable: Dwelling Units - 193
Adjacent St. Peak Hours: 7:00-8:00AM;5:00-6:00PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 4:30-5:30 PM
Sat. 4:00-5:00 PM
Sun. 12:00-1:00 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 6.2 Adjacent Street P.M. Peak Hour 10.3 Generator A.M. Peak Hour 6.2 Generator P.M. Peak Hour 10.7				Adjacent Street A.M. Peak Hour 7.8 Adjacent Street P.M. Peak Hour 9.1 Generator A.M. Peak Hour 8.7 Generator P.M. Peak Hour 10.0			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			11.0	AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.8
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.6			Exit	0.6
		Total	0.7			Total	0.8
	P.M. Between 4 and 6	Enter	0.7		P.M. Between 4 and 6	Enter	0.7
		Exit	0.5			Exit	0.2
		Total	1.1			Total	0.9
Peak Hour of Generator	A.M.	Enter	0.1	Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.6			Exit	0.7
		Total	0.7			Total	0.9
	P.M.	Enter	0.7		P.M.	Enter	0.7
		Exit	0.5			Exit	0.3
		Total	1.2			Total	1.0
SATURDAY VEHICLE TRIP ENDS			11.8	SATURDAY VEHICLE TRIP ENDS			9.3
Peak Hour of Generator		Enter	0.5	Peak Hour of Generator		Enter	0.4
		Exit	0.6			Exit	0.3
		Total	1.1			Total	0.8
SUNDAY VEHICLE TRIP ENDS			11.5	SUNDAY VEHICLE TRIP ENDS			8.5
Peak Hour of Generator		Enter	0.7	Peak Hour of Generator		Enter	0.2
		Exit	0.5			Exit	0.5
		Total	1.2			Total	0.7

Site: 302 Date: 8/21/80 - 8/28/80
Independent Variable: Dwelling Units - 316
Adjacent St. Peak Hours: 7:30-8:30AM; 5:00-6:00PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 5:15-6:15 PM
Sat. 10:00-11:00 AM
Sun. 12:15-1:15 PM

Site: 303 Date: 12/10/79-12/18/79
Independent Variable: Dwelling Units - 251
Adjacent St. Peak Hours: 7:30-8:30AM; 4:30-5:30PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 5:00-6:00 PM
Sat. 4:00-5:00 PM
Sun. 8:00-9:00 PM

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TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	4.8		
Adjacent Street P.M. Peak Hour	8.8		
Generator A.M. Peak Hour	4.8		
Generator P.M. Peak Hour	8.8		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M. Between 4 and 6	Enter	0.6
		Exit	0.4
		Total	0.9
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M.	Enter	0.6
		Exit	0.4
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			11.4
Peak Hour of Generator		Enter	0.5
		Exit	0.5
		Total	1.0
SUNDAY VEHICLE TRIP ENDS			9.3
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7

Site: 304 Date: 8/20/80 - 8/27/80
Independent Variable: Dwelling Units - 270
Adjacent St. Peak Hours: 7:00-8:00AM;5:00-6:00PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 5:00-6:00 PM
Sat. 7:30-8:30 PM
Sun. 6:00-7:00 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	4.7		
Adjacent Street P.M. Peak Hour	9.5		
Generator A.M. Peak Hour	7.5		
Generator P.M. Peak Hour	10.3		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.0
		Exit	0.3
		Total	0.3
	P.M. Between 4 and 6	Enter	0.5
		Exit	0.2
		Total	0.7
Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.4
		Total	0.5
	P.M.	Enter	0.4
		Exit	0.3
		Total	0.7
SATURDAY VEHICLE TRIP ENDS			7.1
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			6.3
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7

Site: 305 Date: 8/21/80 - 8/28/80
Independent Variable: Dwelling Units - 100
Adjacent St. Peak Hours: 7:00-8:00AM;5:00-6:00PM
Generator Peak Hours:
Weekday 7:45-8:45 AM 5:30-6:30 PM
Sat. 11:30-12:30 PM
Sun. 4:15-5:15 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		4.2		Adjacent Street A.M. Peak Hour		4.5	
Adjacent Street P.M. Peak Hour		9.5		Adjacent Street P.M. Peak Hour		9.3	
Generator A.M. Peak Hour		5.1		Generator A.M. Peak Hour		5.1	
Generator P.M. Peak Hour		9.9		Generator P.M. Peak Hour		9.4	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.1	AVERAGE WEEKDAY VEHICLE TRIP ENDS			11.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.3			Exit	0.4
		Total	0.4			Total	0.5
	P.M. Between 4 and 6	Enter	0.6		P.M. Between 4 and 6	Enter	0.7
		Exit	0.3			Exit	0.4
		Total	0.9			Total	1.0
Peak Hour of Generator	A.M.	Enter	0.1	Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.4			Exit	0.5
		Total	0.5			Total	0.6
	P.M.	Enter	0.6		P.M.	Enter	0.7
		Exit	0.3			Exit	0.4
		Total	0.9			Total	1.1
SATURDAY VEHICLE TRIP ENDS			9.2	SATURDAY VEHICLE TRIP ENDS			10.7
Peak Hour of Generator		Enter	0.3	Peak Hour of Generator		Enter	0.5
		Exit	0.5			Exit	0.4
		Total	0.9			Total	0.9
SUNDAY VEHICLE TRIP ENDS			7.2	SUNDAY VEHICLE TRIP ENDS			9.8
Peak Hour of Generator		Enter	0.3	Peak Hour of Generator		Enter	0.4
		Exit	0.3			Exit	0.4
		Total	0.7			Total	0.8

Site: 306 Date: 7/8/80 - 7/15/80
Independent Variable: Dwelling Units - 181
Adjacent St. Peak Hours: 7:45-8:45AM;5:00-6:00PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 4:45-5:45 PM
Sat. 10:45-11:45 AM
Sun. 5:30-6:30 PM

Site: 307 Date: 7/8/80-7/15/80
Independent Variable: Dwelling Units - 139
Adjacent St. Peak Hours: 7:15-8:15AM;4:45-5:45PM
Generator Peak Hours:
Weekday 6:45-7:45 AM 5:00-6:00 PM
Sat. 4:00-5:00 PM
Sun. 5:00-6:00 PM

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TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	4.9		
Adjacent Street P.M. Peak Hour	7.2		
Generator A.M. Peak Hour	6.2		
Generator P.M. Peak Hour	7.9		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M. Between 4 and 6	Enter	0.4
		Exit	0.2
		Total	0.7
Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.4
		Total	0.6
	P.M.	Enter	0.5
		Exit	0.3
		Total	0.8
SATURDAY VEHICLE TRIP ENDS			9.4
Peak Hour of Generator		Enter	0.6
		Exit	0.3
		Total	0.9
SUNDAY VEHICLE TRIP ENDS			9.4
Peak Hour of Generator		Enter	0.6
		Exit	0.3
		Total	0.9

Site: 308 Date: 7/25/80-8/1/80
Independent Variable: Dwelling Units - 234
Adjacent St. Peak Hours: 8:00-9:00AM; 4:30-5:30PM
Generator Peak Hours:
Weekday 9:45-10:45 AM 5:15-6:15 PM
Sat. 5:15-6:15 PM
Sun. 4:45-5:45 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	5.0		
Adjacent Street P.M. Peak Hour	8.6		
Generator A.M. Peak Hour	5.0		
Generator P.M. Peak Hour	9.1		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			11.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M. Between 4 and 6	Enter	0.6
		Exit	0.3
		Total	0.9
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.4
		Total	0.5
	P.M.	Enter	0.6
		Exit	0.4
		Total	1.0
SATURDAY VEHICLE TRIP ENDS			10.6
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			9.7
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.8

Site: 309 Date: 7/24/80 - 7/31/80
Independent Variable: Dwelling Units - 292
Adjacent St. Peak Hours: 7:15-8:15AM; 4:15-5:15PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 4:45-5:45 PM
Sat. 5:15-6:15 PM
Sun. 5:15-6:15 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 9.0			
Adjacent Street P.M. Peak Hour 9.2			
Generator A.M. Peak Hour 9.0			
Generator P.M. Peak Hour 9.3			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			12.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3
		Exit	0.8
		Total	1.1
	P.M. Between 4 and 6	Enter	0.7
		Exit	0.4
		Total	1.1
Peak Hour of Generator	A.M.	Enter	0.3
		Exit	0.8
		Total	1.1
	P.M.	Enter	0.8
		Exit	0.4
		Total	1.1
SATURDAY VEHICLE TRIP ENDS			13.9
Peak Hour of Generator		Enter	0.6
		Exit	0.7
		Total	1.2
SUNDAY VEHICLE TRIP ENDS			9.8
Peak Hour of Generator		Enter	0.5
		Exit	0.4
		Total	0.9

Site: 310 Date: 3/12/80-3/19/80
Independent Variable: Dwelling Units - 127
Adjacent St. Peak Hours: 7:15-8:15AM; 4:45-5:45PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 5:00-6:00 PM
Sat. 12:45-1:45 PM
Sun. 1:30-2:30 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 9.1			
Adjacent Street P.M. Peak Hour 12.3			
Generator A.M. Peak Hour 9.2			
Generator P.M. Peak Hour 12.3			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.8
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.5
		Total	0.6
	P.M. Between 4 and 6	Enter	0.6
		Exit	0.2
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.3
		Exit	0.5
		Total	0.8
	P.M.	Enter	0.4
		Exit	0.4
		Total	0.8
SATURDAY VEHICLE TRIP ENDS			8.6
Peak Hour of Generator		Enter	0.5
		Exit	0.3
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			6.2
Peak Hour of Generator		Enter	0.5
		Exit	0.3
		Total	0.7

Site: 311 Date: 3/12/80-3/19/80
Independent Variable: Dwelling Units - 216
Adjacent St. Peak Hours: 7:15-8:15AM; 4:45-5:45PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 4:45-5:45 PM
Sat. 1:30-2:30 PM
Sun. 12:00-1:00 PM

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TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	10.2	
Adjacent Street P.M. Peak Hour	10.6	
Generator A.M. Peak Hour	10.2	
Generator P.M. Peak Hour	11.2	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		7.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.2
		Exit 0.6
		Total 0.8
	P.M. Between 4 and 6	Enter 0.6
		Exit 0.2
		Total 0.8
Peak Hour of Generator	A.M.	Enter 0.2
		Exit 0.6
		Total 0.8
	P.M.	Enter 0.6
		Exit 0.2
		Total 0.9
SATURDAY VEHICLE TRIP ENDS		8.9
Peak Hour of Generator		Enter 0.4
		Exit 0.4
		Total 0.8
SUNDAY VEHICLE TRIP ENDS		6.5
Peak Hour of Generator		Enter 0.4
		Exit 0.3
		Total 0.7

Site: 312 Date: 3/11/80-3/18/80
Independent Variable: Dwelling Units - 266
Adjacent St. Peak Hours: 7:15-8:15AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 4:45-5:45 PM
Sat. 5:30-6:30 PM
Sun. 4:15-5:15 PM

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	5.4	
Adjacent Street P.M. Peak Hour	8.6	
Generator A.M. Peak Hour	5.7	
Generator P.M. Peak Hour	8.9	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		10.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.1
		Exit 0.5
		Total 0.6
	P.M. Between 4 and 6	Enter 0.6
		Exit 0.4
		Total 0.9
Peak Hour of Generator	A.M.	Enter 0.3
		Exit 0.3
		Total 0.6
	P.M.	Enter 0.6
		Exit 0.4
		Total 0.9
SATURDAY VEHICLE TRIP ENDS		9.3
Peak Hour of Generator		Enter 0.4
		Exit 0.4
		Total 0.8
SUNDAY VEHICLE TRIP ENDS		7.9
Peak Hour of Generator		Enter 0.5
		Exit 0.3
		Total 0.8

Site: 313 Date: 6/17/80-6/24/80
Independent Variable: Dwelling Units - 145
Adjacent St. Peak Hours: 7:00-8:00AM;5:00-6:00PM
Generator Peak Hours:
Weekday 10:30-11:30 AM 4:30-5:30 PM
Sat. 12:15-1:15 PM
Sun. 4:45-5:45 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		7.4	
Adjacent Street P.M. Peak Hour		11.0	
Generator A.M. Peak Hour		7.5	
Generator P.M. Peak Hour		11.0	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.6
		Total	0.7
	P.M. Between 4 and 6	Enter	0.7
		Exit	0.4
		Total	1.1
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.6
		Total	0.7
	P.M.	Enter	0.7
		Exit	0.4
		Total	1.1
SATURDAY VEHICLE TRIP ENDS			10.1
Peak Hour of Generator		Enter	0.5
		Exit	0.5
		Total	1.0
SUNDAY VEHICLE TRIP ENDS			6.8
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7

Site: 314 Date: 9/25/79-10/3/79

Independent Variable: Dwelling Units - 154

Adjacent St. Peak Hours: 7:30-8:30AM; 4:45-5:45PM

Generator Peak Hours:

Weekday 7:00-8:00 AM 4:45-5:45 PM

Sat. 12:30-1:30 PM

Sun. 2:00-3:00 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		10.1	
Adjacent Street P.M. Peak Hour		12.7	
Generator A.M. Peak Hour		10.1	
Generator P.M. Peak Hour		15.5	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.6
		Total	0.7
	P.M. Between 4 and 6	Enter	0.6
		Exit	0.2
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.6
		Total	[illegible]
	P.M.	Enter	[illegible]
		Exit	[illegible]
		Total	1.0
SATURDAY VEHICLE TRIP ENDS			7.0
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			5.7
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.6

Site: 315 Date: 1/24/80-2/1/80

Independent Variable: Dwelling Units - 132

Adjacent St. Peak Hours: 7:30-8:30AM; 4:30-5:30PM

Generator Peak Hours:

Weekday 7:30-8:30 AM 5:15-6:15 PM

Sat. 1:15-2:15 PM

Sun. 4:15-5:15 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	9.8		
Adjacent Street P.M. Peak Hour	10.6		
Generator A.M. Peak Hour	10.1		
Generator P.M. Peak Hour	10.6		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.8
		Total	0.9
	P.M. Between 4 and 6	Enter	0.7
		Exit	0.2
		Total	0.9
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.8
		Total	0.9
	P.M.	Enter	0.7
		Exit	0.2
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			10.6
Peak Hour of Generator		Enter	0.5
		Exit	0.3
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			9.3
Peak Hour of Generator		Enter	0.7
		Exit	0.4
		Total	1.1

Site: 316 Date: 3/6/80-3/13/80
Independent Variable: Dwelling Units - 129
Adjacent St. Peak Hours: 7:15-8:15AM;5:00-6:00PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 5:00-6:00 PM
Sat. 3:45-4:45 PM
Sun. 12:15-1:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	8.5		
Adjacent Street P.M. Peak Hour	10.2		
Generator A.M. Peak Hour	9.9		
Generator P.M. Peak Hour	10.6		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			13.5
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4
		Exit	0.8
		Total	1.1
	P.M. Between 4 and 6	Enter	0.9
		Exit	0.5
		Total	1.4
Peak Hour of Generator	A.M.	Enter	0.4
		Exit	0.9
		Total	1.3
	P.M.	Enter	0.9
		Exit	0.5
		Total	1.4
SATURDAY VEHICLE TRIP ENDS			13.9
Peak Hour of Generator		Enter	0.7
		Exit	0.6
		Total	1.2
SUNDAY VEHICLE TRIP ENDS			12.3
Peak Hour of Generator		Enter	0.9
		Exit	0.6
		Total	1.5

Site: 317 Date: 10/12/79-10/19/79
Independent Variable: Dwelling Units - 95
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 5:00-6:00 PM
Sat. 11:15-12:15 PM
Sun. 3:45-4:45 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 11.2			
Adjacent Street P.M. Peak Hour 10.8			
Generator A.M. Peak Hour 13.4			
Generator P.M. Peak Hour 13.0			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.5
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.7
		Total	0.8
	P.M. Between 4 and 6	Enter	0.6
		Exit	0.2
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.9
		Total	1.0
	P.M.	Enter	0.7
		Exit	0.3
		Total	1.0
SATURDAY VEHICLE TRIP ENDS			7.3
Peak Hour of Generator		Enter	0.3
		Exit	0.4
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			5.4
Peak Hour of Generator		Enter	0.3
		Exit	0.3
		Total	0.6

Site: 318 Date: 10/12/79-10/19/79
Independent Variable: Dwelling Units - 101
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:00-8:00 AM 5:00-6:00 PM
Sat. 2:00-3:00 PM
Sun. 1:00-2:00 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 8.6			
Adjacent Street P.M. Peak Hour 9.4			
Generator A.M. Peak Hour 8.6			
Generator P.M. Peak Hour 10.0			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3
		Exit	0.6
		Total	0.9
	P.M. Between 4 and 6	Enter	0.6
		Exit	0.4
		Total	1.0
Peak Hour of Generator	A.M.	Enter	0.3
		Exit	0.6
		Total	0.9
	P.M.	Enter	0.5
		Exit	0.4
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			11.3
Peak Hour of Generator		Enter	0.5
		Exit	0.4
		Total	0.9
SUNDAY VEHICLE TRIP ENDS			9.2
Peak Hour of Generator		Enter	0.5
		Exit	0.4
		Total	0.9

Site: 319 Date: 2/21/80-2/28/80
Independent Variable: Dwelling Units - 309
Adjacent St. Peak Hours: 7:30-8:30AM;5:00-6:00PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 4:30-5:30 PM
Sat. 5:30-6:30 PM
Sun. 3:45-4:45 PM

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TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	9.1	
Adjacent Street P.M. Peak Hour	9.9	
Generator A.M. Peak Hour	9.1	
Generator P.M. Peak Hour	10.0	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		8.4
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.1
		Exit 0.7
		Total 0.8
	P.M. Between 4 and 6	Enter 0.6
		Exit 0.2
		Total 0.8
Peak Hour of Generator	A.M.	Enter 0.1
		Exit 0.7
		Total 0.8
	P.M.	Enter 0.6
		Exit 0.2
		Total 0.8
SATURDAY VEHICLE TRIP ENDS		7.7
Peak Hour of Generator		Enter 0.5
		Exit 0.3
		Total 0.8
SUNDAY VEHICLE TRIP ENDS		6.3
Peak Hour of Generator		Enter 0.3
		Exit 0.3
		Total 0.6

Site: 320 Date: 2/5/80-2/12/80
Independent Variable: Dwelling Units - 111
Adjacent St. Peak Hours: 7:15-8:15AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 4:45-5:45 PM
Sat. 1:00-2:00 PM
Sun. 3:15-4:15 PM

% Weekday Trips In:		Measured Trip Rate
Adjacent Street A.M. Peak Hour	7.5	
Adjacent Street P.M. Peak Hour	8.8	
Generator A.M. Peak Hour	7.6	
Generator P.M. Peak Hour	9.6	
AVERAGE WEEKDAY VEHICLE TRIP ENDS		11.1
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter 0.2
		Exit 0.6
		Total 0.8
	P.M. Between 4 and 6	Enter 0.6
		Exit 0.4
		Total 1.0
Peak Hour of Generator	A.M.	Enter 0.3
		Exit 0.6
		Total 0.9
	P.M.	Enter 0.7
		Exit 0.4
		Total 1.1
SATURDAY VEHICLE TRIP ENDS		11.8
Peak Hour of Generator		Enter 0.6
		Exit 0.5
		Total 1.0
SUNDAY VEHICLE TRIP ENDS		9.0
Peak Hour of Generator		Enter 0.7
		Exit 0.4
		Total 1.0

Site: 321 Date: 10/24/79-10/31/79
Independent Variable: Dwelling Units - 168
Adjacent St. Peak Hours: 7:30-8:30AM;4:15-5:15PM
Generator Peak Hours:
Weekday 7:45-8:45 AM 5:15-6:15 PM
Sat. 3:45-4:45 PM
Sun. 1:15-2:15 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	8.3		
Adjacent Street P.M. Peak Hour	10.3		
Generator A.M. Peak Hour	9.3		
Generator P.M. Peak Hour	10.3		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.7
		Total	0.8
	P.M. Between 4 and 6	Enter	0.7
		Exit	0.3
		Total	1.0
Peak Hour of Generator	A.M.	Enter	0.2
		Exit	0.7
		Total	0.9
	P.M.	Enter	0.7
		Exit	0.3
		Total	1.0
SATURDAY VEHICLE TRIP ENDS			8.2
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7
SUNDAY VEHICLE TRIP ENDS			7.3
Peak Hour of Generator		Enter	0.5
		Exit	0.4
		Total	1.0

Site: 322 Date: 11/7/79-11/14/79

Independent Variable: Dwelling Units - 115

Adjacent St. Peak Hours: 7:30-8:30AM;4:45-5:45PM

Generator Peak Hours:

Weekday 7:15-8:15 AM 4:45-5:45 PM

Sat. 1:30-2:30 PM

Sun. 12:15-1:15 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour	7.4		
Adjacent Street P.M. Peak Hour	8.2		
Generator A.M. Peak Hour	11.1		
Generator P.M. Peak Hour	10.5		
AVERAGE WEEKDAY VEHICLE TRIP ENDS			9.4
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2
		Exit	0.5
		Total	0.7
	P.M. Between 4 and 6	Enter	0.4
		Exit	0.3
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.3
		Exit	0.7
		Total	1.0
	P.M.	Enter	0.7
		Exit	0.3
		Total	1.0
SATURDAY VEHICLE TRIP ENDS			9.8
Peak Hour of Generator		Enter	0.4
		Exit	0.5
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			7.7
Peak Hour of Generator		Enter	0.4
		Exit	0.3
		Total	0.7

Site: 323 Date: 9/4/79-9/11/79

Independent Variable: Dwelling Units - 201

Adjacent St. Peak Hours: 7:00-8:00AM;4:00-5:00PM

Generator Peak Hours:

Weekday 7:45-8:45 AM 5:00-6:00 PM

Sat. 10:15-11:15 AM

Sun. 12:15-1:15 PM

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TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		7.1	
Adjacent Street P.M. Peak Hour		7.0	
Generator A.M. Peak Hour		8.3	
Generator P.M. Peak Hour		8.2	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			11.1
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3
		Exit	0.5
		Total	0.8
	P.M. Between 4 and 6	Enter	0.5
		Exit	0.3
		Total	0.8
Peak Hour of Generator	A.M.	Enter	0.3
		Exit	0.6
		Total	0.9
	P.M.	Enter	0.5
		Exit	0.4
		Total	0.9
SATURDAY VEHICLE TRIP ENDS			9.9
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			8.1
Peak Hour of Generator		Enter	0.3
		Exit	0.4
		Total	0.7

Site: 324 Date: 8/8/79-8/16/79
Independent Variable: Dwelling Units - 194
Adjacent St. Peak Hours: 7:45-8:45AM;4:15-5:15PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 5:00-6:00 PM
Sat. 6:30-7:30 PM
Sun. 2:00-3:00 PM

% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour		6.2	
Adjacent Street P.M. Peak Hour		9.9	
Generator A.M. Peak Hour		6.4	
Generator P.M. Peak Hour		9.9	
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.5
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1
		Exit	0.5
		Total	0.6
	P.M. Between 4 and 6	Enter	0.7
		Exit	0.4
		Total	1.0
Peak Hour of Generator	A.M.	Enter	0.1
		Exit	0.5
		Total	0.6
	P.M.	Enter	0.7
		Exit	0.4
		Total	1.0
SATURDAY VEHICLE TRIP ENDS			10.7
Peak Hour of Generator		Enter	0.4
		Exit	0.4
		Total	0.8
SUNDAY VEHICLE TRIP ENDS			9.1
Peak Hour of Generator		Enter	0.5
		Exit	0.4
		Total	0.9

Site: 325 Date: 8/22/79-8/29/79
Independent Variable: Dwelling Units - 108
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:45-8:45 AM 5:00-6:00 PM
Sat. 7:30-8:30 PM
Sun. 12:15-1:15 PM

TRIP GENERATION RATES

SINGLE-FAMILY DETACHED HOUSING

% Weekday Trips In:			Measured Trip Rate	% Weekday Trips In:			Measured Trip Rate
Adjacent Street A.M. Peak Hour 8.2				Adjacent Street A.M. Peak Hour 8.9			
Adjacent Street P.M. Peak Hour 10.1				Adjacent Street P.M. Peak Hour 9.0			
Generator A.M. Peak Hour 8.2				Generator A.M. Peak Hour 8.9			
Generator P.M. Peak Hour 10.4				Generator P.M. Peak Hour 9.5			
AVERAGE WEEKDAY VEHICLE TRIP ENDS			12.2	AVERAGE WEEKDAY VEHICLE TRIP ENDS			12.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	--
		Exit	0.8			Exit	--
		Total	1.0			Total	1.1
	P.M. Between 4 and 6	Enter	0.8		P.M. Between 4 and 6	Enter	--
		Exit	0.5			Exit	--
		Total	1.2			Total	1.1
Peak Hour of Generator	A.M.	Enter	0.2	Peak Hour of Generator	A.M.	Enter	--
		Exit	0.8			Exit	--
		Total	1.0			Total	1.1
	P.M.	Enter	0.8		P.M.	Enter	--
		Exit	0.5			Exit	--
		Total	1.3			Total	1.2
SATURDAY VEHICLE TRIP ENDS			11.0	SATURDAY VEHICLE TRIP ENDS			12.1
Peak Hour of Generator		Enter	0.6	Peak Hour of Generator		Enter	--
		Exit	0.4			Exit	--
		Total	1.0			Total	1.1
SUNDAY VEHICLE TRIP ENDS			10.4	SUNDAY VEHICLE TRIP ENDS			10.1
Peak Hour of Generator		Enter	0.5	Peak Hour of Generator		Enter	--
		Exit	0.5			Exit	--
		Total	1.0			Total	1.0

Site: 326 Date: 9/19/79 - 9/26/79
Independent Variable: Dwelling Units - 105
Adjacent St. Peak Hours: 7:30-8:30AM;4:30-5:30PM
Generator Peak Hours:
Weekday 7:30-8:30 AM 4:45-5:45 PM
Sat. 4:00-5:00 PM
Sun. 5:00-6:00 PM

Site: 327 Date: 11/15/79-11/22/79
Independent Variable: Dwelling Units - 95
Adjacent St. Peak Hours: 7:15-8:15AM;4:15-5:15PM
Generator Peak Hours:
Weekday 7:15-8:15 AM 3:30-4:30 PM
Sat. 4:00-5:00 PM
Sun. 5:15-6:15 PM

APPENDIX B

Comprehensive Virginia Statistics Stratified by Land Use

Table B-1

2606

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: 50,000-99,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			101.2	116.6	90.4	2	80
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.4	1.7	1.1	2	80
		Exit	1.3	1.6	1.0	2	80
		Total	2.6	3.3	2.2	2	80
	P.M. Between 4 and 6	Enter	5.0	5.1	5.0	2	80
		Exit	5.2	5.5	5.0	2	80
		Total	10.2	10.6	10.0	2	80
Peak Hour of Generator	A.M.	Enter	3.8	3.8	3.8	2	80
		Exit	3.5	3.6	3.4	2	80
		Total	7.4	7.5	7.2	2	80
	P.M.	Enter	5.5	5.6	5.5	2	80
		Exit	5.3	5.7	5.0	2	80
		Total	10.8	11.3	10.5	2	80
SATURDAY VEHICLE TRIP ENDS			129.7	147.8	116.9	2	80
Peak Hour of Generator		Enter	5.7	6.1	5.1	2	80
		Exit	5.6	5.8	5.2	2	80
		Total	11.3	11.9	10.4	2	80
SUNDAY VEHICLE TRIP ENDS			74.4	100.9	55.8	2	80
Peak Hour of Generator		Enter	3.9	4.1	3.8	2	80
		Exit	3.5	4.1	3.1	2	80
		Total	7.4	8.2	6.9	2	80
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.6	2.8	2.4	2	80
Adjacent Street P.M. Peak Hour			10.1	11.0	9.1	2	80
Generator A.M. Peak Hour			7.3	8.3	6.2	2	80
Generator P.M. Peak Hour			10.7	11.7	9.7	2	80

Table B-2

2607

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: 100,000-199,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			76.2	104.9	53.9	7	156.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.0	1.6	0.5	7	156.3
		Exit	0.8	1.5	0.3	7	156.3
		Total	1.7	3.1	1.0	7	156.3
	P.M. Between 4 and 6	Enter	3.7	5.8	2.4	7	156.3
		Exit	3.7	5.4	2.5	7	156.3
		Total	7.3	11.1	4.9	7	156.3
Peak Hour of Generator	A.M.	Enter	2.7	3.7	2.1	7	156.3
		Exit	2.5	3.1	2.1	7	156.3
		Total	5.2	6.8	4.2	7	156.3
	P.M.	Enter	4.0	5.8	2.4	7	156.3
		Exit	3.9	5.9	2.7	7	156.3
		Total	7.9	11.7	5.1	7	156.3
SATURDAY VEHICLE TRIP ENDS			92.5	115.0	58.8	7	156.3
Peak Hour of Generator		Enter	4.5	6.3	2.5	7	156.3
		Exit	4.3	5.3	2.5	7	156.3
		Total	8.8	10.9	5.0	7	156.3
SUNDAY VEHICLE TRIP ENDS			46.4	87.7	20.5	7	156.3
Peak Hour of Generator		Enter	2.7	6.2	1.4	7	156.3
		Exit	2.5	5.0	0.9	7	156.3
		Total	5.2	11.2	2.3	7	156.3
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.3	3.8	1.5	7	156.3
Adjacent Street P.M. Peak Hour			9.6	10.8	8.2	7	156.3
Generator A.M. Peak Hour			6.9	7.7	6.3	7	156.3
Generator P.M. Peak Hour			10.3	11.2	9.4	7	156.3

Table B-3

2608

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: 200,000-299,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			45.3	48.1	43.8	3	278.5
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4	0.5	0.2	3	278.5
		Exit	0.2	0.3	0.1	3	278.5
		Total	0.6	0.8	0.3	3	278.5
	P.M. Between 4 and 6	Enter	2.0	2.2	1.8	3	278.5
		Exit	2.1	2.3	1.9	3	278.5
		Total	4.2	4.5	3.7	3	278.5
Peak Hour of Generator	A.M.	Enter	1.8	2.0	1.8	3	278.5
		Exit	1.7	1.8	1.5	3	278.5
		Total	3.5	3.8	3.3	3	278.5
	P.M.	Enter	2.3	2.6	2.0	3	278.5
		Exit	2.1	2.3	1.9	3	278.5
		Total	4.4	4.6	3.9	3	278.5
SATURDAY VEHICLE TRIP ENDS			62.6	74.8	56.3	3	278.5
Peak Hour of Generator		Enter	3.3	4.4	2.4	3	278.5
		Exit	2.9	3.2	2.3	3	278.5
		Total	6.1	7.6	4.7	3	278.5
SUNDAY VEHICLE TRIP ENDS			10.7	15.6	5.3	3	278.5
Peak Hour of Generator		Enter	0.6	0.8	0.4	3	278.5
		Exit	0.7	0.8	0.4	3	278.5
		Total	1.2	1.6	0.8	3	278.5
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.3	1.6	0.6	3	278.5
Adjacent Street P.M. Peak Hour			9.2	10.1	8.5	3	278.5
Generator A.M. Peak Hour			7.8	8.5	6.8	3	278.5
Generator P.M. Peak Hour			9.6	10.5	8.9	3	278.5

Table B-4

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: 300,000-399,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			72.5	N/A	N/A	1	314
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.0	N/A	N/A	1	314
		Exit	0.8	N/A	N/A	1	314
		Total	1.7	N/A	N/A	1	314
	P.M. Between 4 and 6	Enter	3.7	N/A	N/A	1	314
		Exit	3.6	N/A	N/A	1	314
		Total	7.4	N/A	N/A	1	314
Peak Hour of Generator	A.M.	Enter	3.0	N/A	N/A	1	314
		Exit	3.0	N/A	N/A	1	314
		Total	6.0	N/A	N/A	1	314
	P.M.	Enter	3.7	N/A	N/A	1	314
		Exit	3.6	N/A	N/A	1	314
		Total	7.4	N/A	N/A	1	314
SATURDAY VEHICLE TRIP ENDS			91.9	N/A	N/A	1	314
Peak Hour of Generator		Enter	4.9	N/A	N/A	1	314
		Exit	4.7	N/A	N/A	1	314
		Total	9.5	N/A	N/A	1	314
SUNDAY VEHICLE TRIP ENDS			23.1	N/A	N/A	1	314
Peak Hour of Generator		Enter	1.3	N/A	N/A	1	314
		Exit	1.5	N/A	N/A	1	314
		Total	2.8	N/A	N/A	1	314
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.4	N/A	N/A	1	314
Adjacent Street P.M. Peak Hour			10.2	N/A	N/A	1	314
Generator A.M. Peak Hour			8.3	N/A	N/A	1	314
Generator P.M. Peak Hour			10.2	N/A	N/A	1	314

Table B-5

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: 400,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			47.2	N/A	N/A	1	472.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3	N/A	N/A	1	472.9
		Exit	0.2	N/A	N/A	1	472.9
		Total	0.5	N/A	N/A	1	472.9
	P.M. Between 4 and 6	Enter	1.9	N/A	N/A	1	472.9
		Exit	1.9	N/A	N/A	1	472.9
		Total	3.8	N/A	N/A	1	472.9
Peak Hour of Generator	A.M.	Enter	2.0	N/A	N/A	1	472.9
		Exit	1.6	N/A	N/A	1	472.9
		Total	3.5	N/A	N/A	1	472.9
	P.M.	Enter	2.2	N/A	N/A	1	472.9
		Exit	2.1	N/A	N/A	1	472.9
		Total	4.2	N/A	N/A	1	472.9
SATURDAY VEHICLE TRIP ENDS			59.5	N/A	N/A	1	472.9
Peak Hour of Generator		Enter	2.4	N/A	N/A	1	472.9
		Exit	2.8	N/A	N/A	1	472.9
		Total	5.2	N/A	N/A	1	472.9
SUNDAY VEHICLE TRIP ENDS			10.2	N/A	N/A	1	472.9
Peak Hour of Generator		Enter	0.6	N/A	N/A	1	472.9
		Exit	0.8	N/A	N/A	1	472.9
		Total	1.3	N/A	N/A	1	472.9
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.0	N/A	N/A	1	472.9
Adjacent Street P.M. Peak Hour			8.0	N/A	N/A	1	472.9
Generator A.M. Peak Hour			7.5	N/A	N/A	1	472.9
Generator P.M. Peak Hour			9.0	N/A	N/A	1	472.9

Table B-6

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: 500,000-999,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			36.5	44.8	27.6	6	751.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4	0.6	0.2	6	751.2
		Exit	0.2	0.4	0.1	6	751.2
		Total	0.6	1.1	0.3	6	751.2
	P.M. Between 4 and 6	Enter	1.6	2.0	1.2	6	751.2
		Exit	1.5	2.0	1.1	6	751.2
		Total	3.2	4.0	2.3	6	751.2
Peak Hour of Generator	A.M.	Enter	1.4	1.9	1.1	6	751.2
		Exit	1.1	1.5	0.8	6	751.2
		Total	2.5	3.2	1.9	6	751.2
	P.M.	Enter	1.7	2.1	1.4	6	751.2
		Exit	1.7	2.1	1.2	6	751.2
		Total	3.4	4.1	2.5	6	751.2
SATURDAY VEHICLE TRIP ENDS			51.1	70.4	33.3	6	751.2
Peak Hour of Generator		Enter	2.4	3.7	1.0	6	751.2
		Exit	2.5	3.2	1.6	6	751.2
		Total	5.0	6.9	2.9	6	751.2
SUNDAY VEHICLE TRIP ENDS			10.0	20.0	4.1	6	751.2
Peak Hour of Generator		Enter	0.6	1.7	0.2	6	751.2
		Exit	0.7	1.7	0.2	6	751.2
		Total	1.3	3.4	0.4	6	751.2
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.7	3.2	1.1	6	751.2
Adjacent Street P.M. Peak Hour			8.7	9.5	7.3	6	751.2
Generator A.M. Peak Hour			7.0	7.5	6.2	6	751.2
Generator P.M. Peak Hour			9.3	9.7	8.9	6	751.2

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Table B-7

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: Over 1,250,000 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			34.0	N/A	N/A	1	1,268.2
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4	N/A	N/A	1	1,268.2
		Exit	0.1	N/A	N/A	1	1,268.2
		Total	0.5	N/A	N/A	1	1,268.2
	P.M. Between 4 and 6	Enter	1.1	N/A	N/A	1	1,268.2
		Exit	1.3	N/A	N/A	1	1,268.2
		Total	2.5	N/A	N/A	1	1,268.2
Peak Hour of Generator	A.M.	Enter	1.3	N/A	N/A	1	1,268.2
		Exit	0.8	N/A	N/A	1	1,268.2
		Total	2.1	N/A	N/A	1	1,268.2
	P.M.	Enter	1.9	N/A	N/A	1	1,268.2
		Exit	1.2	N/A	N/A	1	1,268.2
		Total	3.1	N/A	N/A	1	1,268.2
SATURDAY VEHICLE TRIP ENDS			42.2	N/A	N/A	1	1,268.2
Peak Hour of Generator		Enter	1.8	N/A	N/A	1	1,268.2
		Exit	2.1	N/A	N/A	1	1,268.2
		Total	3.8	N/A	N/A	1	1,268.2
SUNDAY VEHICLE TRIP ENDS			21.8	N/A	N/A	1	1,268.2
Peak Hour of Generator		Enter	1.5	N/A	N/A	1	1,268.2
		Exit	1.7	N/A	N/A	1	1,268.2
		Total	3.2	N/A	N/A	1	1,268.2
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.5	N/A	N/A	1	1,268.2
Adjacent Street P.M. Peak Hour			7.3	N/A	N/A	1	1,268.2
Generator A.M. Peak Hour			6.3	N/A	N/A	1	1,268.2
Generator P.M. Peak Hour			9.1	N/A	N/A	1	1,268.2

Table B-8

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: Neighborhood, Under 100,000 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			101.2	116.6	90.4	2	80
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.4	1.7	1.1	2	80
		Exit	1.3	1.6	1.0	2	80
		Total	2.6	3.3	2.2	2	80
	P.M. Between 4 and 6	Enter	5.0	5.1	5.0	2	80
		Exit	5.2	5.5	5.0	2	80
		Total	10.2	10.6	10.0	2	80
Peak Hour of Generator	A.M.	Enter	3.8	3.8	3.8	2	80
		Exit	3.5	3.6	3.4	2	80
		Total	7.4	7.5	7.2	2	80
	P.M.	Enter	5.5	5.6	5.5	2	80
		Exit	5.3	5.7	5.0	2	80
		Total	10.8	11.3	10.5	2	80
SATURDAY VEHICLE TRIP ENDS			129.7	147.8	116.9	2	80
Peak Hour of Generator		Enter	5.7	6.1	5.1	2	80
		Exit	5.6	5.8	5.2	2	80
		Total	11.3	11.9	10.4	2	80
SUNDAY VEHICLE TRIP ENDS			74.4	100.9	55.8	2	80
Peak Hour of Generator		Enter	3.9	4.1	3.8	2	80
		Exit	3.5	4.1	3.1	2	80
		Total	7.4	8.2	6.9	2	80
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.6	2.8	2.4	2	80
Adjacent Street P.M. Peak Hour			10.1	11.0	9.1	2	80
Generator A.M. Peak Hour			7.3	8.3	6.2	2	80
Generator P.M. Peak Hour			10.7	11.7	9.7	2	80

Table B-9

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			61.2	104.9	43.8	12	226.4
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.7	1.6	0.2	12	226.4
		Exit	0.5	1.5	0.1	12	226.4
		Total	1.2	3.1	0.3	12	226.4
	P.M. Between 4 and 6	Enter	2.9	5.8	1.8	12	226.4
		Exit	2.9	5.4	1.9	12	226.4
		Total	5.7	11.1	3.7	12	226.4
Peak Hour of Generator	A.M.	Enter	2.4	3.7	1.8	12	226.4
		Exit	2.1	3.1	1.5	12	226.4
		Total	4.5	6.8	3.3	12	226.4
	P.M.	Enter	3.1	5.8	2.0	12	226.4
		Exit	3.0	5.9	1.9	12	226.4
		Total	6.1	11.7	3.9	12	226.4
SATURDAY VEHICLE TRIP ENDS			77.5	115.0	56.3	12	226.4
Peak Hour of Generator		Enter	3.8	6.3	2.4	12	226.4
		Exit	3.6	5.3	2.3	12	226.4
		Total	7.4	10.9	4.7	12	226.4
SUNDAY VEHICLE TRIP ENDS			26.4	87.7	5.3	12	226.4
Peak Hour of Generator		Enter	1.5	6.2	0.4	12	226.4
		Exit	1.5	5.0	0.4	12	226.4
		Total	3.0	11.2	0.8	12	226.4
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.9	3.8	0.6	12	226.4
Adjacent Street P.M. Peak Hour			9.4	10.8	8.2	12	226.4
Generator A.M. Peak Hour			7.4	8.5	6.3	12	226.4
Generator P.M. Peak Hour			10.0	11.2	9.4	12	226.4

Table B-10

Average Trips per 1000 Square Feet GLFA for
Virginia Shopping Centers
Size: Regional, 500,000 and Over Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			35.9	44.8	27.6	7	825
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4	0.6	0.2	7	825
		Exit	0.2	0.4	0.1	7	825
		Total	0.6	1.1	0.3	7	825
	P.M. Between 4 and 6	Enter	1.5	2.0	1.1	7	825
		Exit	1.5	2.0	1.1	7	825
		Total	3.0	4.0	2.3	7	825
Peak Hour of Generator	A.M.	Enter	1.4	1.9	1.1	7	825
		Exit	1.0	1.5	0.8	7	825
		Total	2.5	3.2	1.9	7	825
	P.M.	Enter	1.8	2.1	1.4	7	825
		Exit	1.6	2.1	1.2	7	825
		Total	3.3	4.1	2.5	7	825
SATURDAY VEHICLE TRIP ENDS			49.1	70.4	33.3	7	825
Peak Hour of Generator		Enter	2.3	3.7	1.0	7	825
		Exit	2.4	3.2	1.6	7	825
		Total	4.7	6.9	2.9	7	825
SUNDAY VEHICLE TRIP ENDS			12.6	21.8	4.1	7	825
Peak Hour of Generator		Enter	0.8	1.7	0.2	7	825
		Exit	0.9	1.7	0.2	7	825
		Total	1.8	3.4	0.4	7	825
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.6	3.2	1.1	7	825
Adjacent Street P.M. Peak Hour			8.4	9.5	7.3	7	825
Generator A.M. Peak Hour			6.8	7.5	6.2	7	825
Generator P.M. Peak Hour			9.2	9.7	8.9	7	825

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Table B-11

Average Trips per Dwelling Unit for
Virginia Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.9	9.2	5.1	21	228
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.3	0.1	20	231
		Exit	0.4	0.7	0.2	20	231
		Total	0.5	0.9	0.3	21	228
	P.M. Between 4 and 6	Enter	0.4	0.6	0.3	20	231
		Exit	0.2	0.4	0.1	20	231
		Total	0.6	0.9	0.4	21	228
Peak Hour of Generator	A.M.	Enter	0.1	0.3	0.1	20	231
		Exit	0.4	0.7	0.2	20	231
		Total	0.6	0.9	0.3	21	228
	P.M.	Enter	0.4	0.6	0.3	20	231
		Exit	0.2	0.4	0.1	20	231
		Total	0.7	0.9	0.5	21	228
SATURDAY VEHICLE TRIP ENDS			7.2	9.2	4.4	21	228
Peak Hour of Generator		Enter	0.3	0.4	0.1	20	231
		Exit	0.3	0.4	0.2	20	231
		Total	0.6	0.8	0.3	21	228
SUNDAY VEHICLE TRIP ENDS			6.1	8.8	4.2	21	228
Peak Hour of Generator		Enter	0.3	0.7	0.2	20	231
		Exit	0.3	0.5	0.1	20	231
		Total	0.6	1.2	0.3	21	228
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			7.6	10.4	4.1	21	228
Adjacent Street P.M. Peak Hour			9.1	11.6	7.2	21	228
Generator A.M. Peak Hour			8.1	10.8	4.9	21	228
Generator P.M. Peak Hour			9.9	12.5	8.2	21	228

Table B-12

Average Trips per Dwelling Unit for
Virginia Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.0	13.5	6.6	28	186
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	0.3	0.0	27	189
		Exit	0.5	0.8	0.3	27	189
		Total	0.7	1.1	0.3	28	186
	P.M. Between 4 and 6	Enter	0.6	0.9	0.4	27	189
		Exit	0.3	0.5	0.2	27	189
		Total	0.9	1.4	0.7	28	186
Peak Hour of Generator	A.M.	Enter	0.2	0.4	0.1	27	189
		Exit	0.6	0.9	0.3	27	189
		Total	0.7	1.2	0.5	28	186
	P.M.	Enter	0.6	0.9	0.4	27	189
		Exit	0.3	0.5	0.2	27	189
		Total	1.0	1.4	0.7	28	186
SATURDAY VEHICLE TRIP ENDS			10.2	13.9	7.0	28	186
Peak Hour of Generator		Enter	0.5	0.7	0.3	27	189
		Exit	0.4	0.7	0.3	27	189
		Total	0.9	1.2	0.7	28	186
SUNDAY VEHICLE TRIP ENDS			8.6	12.3	5.4	28	186
Peak Hour of Generator		Enter	0.4	0.9	0.2	27	189
		Exit	0.4	0.6	0.3	27	189
		Total	0.8	1.5	0.6	28	186
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			7.0	11.2	4.2	28	186
Adjacent Street P.M. Peak Hour			9.2	12.7	7.0	28	186
Generator A.M. Peak Hour			7.5	13.4	4.8	28	186
Generator P.M. Peak Hour			9.9	15.5	7.9	28	186

APPENDIX C

Comprehensive Virginia Statistics Stratified by Land Use and Urban Area

Table C-1

Average Trips per 1000 Square Feet GLFA for
Northern Virginia Shopping Centers
Size: Regional, 500,000 and Over Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			37.1	42.8	34.0	2	976.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4	0.4	0.3	2	976.6
		Exit	0.1	0.1	0.1	2	976.6
		Total	0.5	0.5	0.5	2	976.6
	P.M. Between 4 and 6	Enter	1.3	1.7	1.1	2	976.6
		Exit	1.4	1.7	1.3	2	976.6
		Total	2.8	3.3	2.5	2	976.6
Peak Hour of Generator	A.M.	Enter	1.5	1.9	1.3	2	976.6
		Exit	1.0	1.4	0.8	2	976.6
		Total	2.5	3.2	2.1	2	976.6
	P.M.	Enter	1.9	2.1	1.9	2	976.6
		Exit	1.5	2.1	1.2	2	976.6
		Total	3.4	4.1	3.1	2	976.6
SATURDAY VEHICLE TRIP ENDS			45.4	51.3	42.2	2	976.6
Peak Hour of Generator		Enter	2.1	2.7	1.8	2	976.6
		Exit	2.2	2.6	2.1	2	976.6
		Total	4.3	5.3	3.8	2	976.6
SUNDAY VEHICLE TRIP ENDS			21.2	21.8	20.0	2	976.6
Peak Hour of Generator		Enter	1.6	1.7	1.5	2	976.6
		Exit	1.7	1.7	1.7	2	976.6
		Total	3.3	3.4	3.2	2	976.6
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.3	1.5	1.1	2	976.6
Adjacent Street P.M. Peak Hour			7.5	7.8	7.3	2	976.6
Generator A.M. Peak Hour			6.8	7.5	6.3	2	976.6
Generator P.M. Peak Hour			9.3	9.6	9.1	2	976.6

Table C-2

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Average Trips per 1000 Square Feet GLFA for
Southeast Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			49.1	53.9	47.2	2	326.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4	0.7	0.3	2	326.0
		Exit	0.2	0.3	0.2	2	326.0
		Total	0.6	1.0	0.5	2	326.0
	P.M. Between 4 and 6	Enter	2.0	2.4	1.9	2	326.0
		Exit	2.0	2.5	1.9	2	326.0
		Total	4.1	4.9	3.8	2	326.0
Peak Hour of Generator	A.M.	Enter	2.0	2.1	2.0	2	326.0
		Exit	1.7	2.1	1.6	2	326.0
		Total	3.7	4.2	3.5	2	326.0
	P.M.	Enter	2.2	2.4	2.2	2	326.0
		Exit	2.2	2.7	2.1	2	326.0
		Total	4.5	5.1	4.2	2	326.0
SATURDAY VEHICLE TRIP ENDS			59.3	59.5	58.8	2	326.0
Peak Hour of Generator		Enter	2.4	2.5	2.4	2	326.0
		Exit	2.7	2.8	2.5	2	326.0
		Total	5.1	5.2	5.0	2	326.0
SUNDAY VEHICLE TRIP ENDS			13.0	20.5	10.2	2	326.0
Peak Hour of Generator		Enter	0.8	1.4	0.6	2	326.0
		Exit	0.8	0.9	0.8	2	326.0
		Total	1.6	2.3	1.3	2	326.0
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.2	1.8	1.0	2	326.0
Adjacent Street P.M. Peak Hour			8.4	9.2	8.0	2	326.0
Generator A.M. Peak Hour			7.5	7.7	7.5	2	326.0
Generator P.M. Peak Hour			9.1	9.5	9.0	2	326.0

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Table C-3

Average Trips per 1000 Square Feet GLFA for
Peninsula Shopping Centers
Size: Regional, 500,000 and Over Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independ. Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			29.4	31.1	27.6	2	813.9
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	0.2	0.2	2	813.9
		Exit	0.1	0.1	0.1	2	813.9
		Total	0.3	0.3	0.3	2	813.9
	P.M. Between 4 and 6	Enter	1.3	1.4	1.2	2	813.9
		Exit	1.2	1.3	1.1	2	813.9
		Total	2.5	2.7	2.3	2	813.9
Peak Hour of Generator	A.M.	Enter	1.2	1.3	1.1	2	813.9
		Exit	0.8	0.8	0.8	2	813.9
		Total	2.0	2.1	1.9	2	813.9
	P.M.	Enter	1.4	1.5	1.4	2	813.9
		Exit	1.3	1.4	1.2	2	813.9
		Total	2.7	2.8	2.5	2	813.9
SATURDAY VEHICLE TRIP ENDS			36.8	40.1	33.3	2	813.9
Peak Hour of Generator		Enter	1.4	1.8	1.0	2	813.9
		Exit	1.7	1.9	1.6	2	813.9
		Total	3.2	3.4	2.9	2	813.9
SUNDAY VEHICLE TRIP ENDS			5.2	5.3	5.1	2	813.9
Peak Hour of Generator		Enter	0.2	0.3	0.2	2	813.9
		Exit	0.3	0.3	0.2	2	813.9
		Total	0.5	0.6	0.4	2	813.9
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.1	1.1	1.1	2	813.9
Adjacent Street P.M. Peak Hour			8.6	8.7	8.4	2	813.9
Generator A.M. Peak Hour			6.9	7.0	6.8	2	813.9
Generator P.M. Peak Hour			9.2	9.2	9.2	2	813.9

Table C-4

Average Trips per 1000 Square Feet GLFA for
Peninsula Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			81.7	N/A	N/A	1	175.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.6	N/A	N/A	1	175.6
		Exit	1.5	N/A	N/A	1	175.6
		Total	3.1	N/A	N/A	1	175.6
	P.M. Between 4 and 6	Enter	3.4	N/A	N/A	1	175.6
		Exit	3.6	N/A	N/A	1	175.6
		Total	7.0	N/A	N/A	1	175.6
Peak Hour of Generator	A.M.	Enter	2.6	N/A	N/A	1	175.6
		Exit	2.9	N/A	N/A	1	175.6
		Total	5.5	N/A	N/A	1	175.6
	P.M.	Enter	4.0	N/A	N/A	1	175.6
		Exit	4.2	N/A	N/A	1	175.6
		Total	8.2	N/A	N/A	1	175.6
SATURDAY VEHICLE TRIP ENDS			83.1	N/A	N/A	1	175.6
Peak Hour of Generator		Enter	3.6	N/A	N/A	1	175.6
		Exit	3.9	N/A	N/A	1	175.6
		Total	7.5	N/A	N/A	1	175.6
SUNDAY VEHICLE TRIP ENDS			51.0	N/A	N/A	1	175.6
Peak Hour of Generator		Enter	2.7	N/A	N/A	1	175.6
		Exit	2.5	N/A	N/A	1	175.6
		Total	5.2	N/A	N/A	1	175.6
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			3.8	N/A	N/A	1	175.6
Adjacent Street P.M. Peak Hour			8.6	N/A	N/A	1	175.6
Generator A.M. Peak Hour			6.8	N/A	N/A	1	175.6
Generator P.M. Peak Hour			10.1	N/A	N/A	1	175.6

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Table C-5

Average Trips per 1000 Square Feet GLFA for
Peninsula Shopping Centers
Size: Neighborhood, Under 100,000 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			116.6	N/A	N/A	1	66.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.7	N/A	N/A	1	66.0
		Exit	1.6	N/A	N/A	1	66.0
		Total	3.3	N/A	N/A	1	66.0
	P.M. Between 4 and 6	Enter	5.1	N/A	N/A	1	66.0
		Exit	5.5	N/A	N/A	1	66.0
		Total	10.6	N/A	N/A	1	66.0
Peak Hour of Generator	A.M.	Enter	3.8	N/A	N/A	1	66.0
		Exit	3.4	N/A	N/A	1	66.0
		Total	7.2	N/A	N/A	1	66.0
	P.M.	Enter	5.5	N/A	N/A	1	66.0
		Exit	5.7	N/A	N/A	1	66.0
		Total	11.3	N/A	N/A	1	66.0
SATURDAY VEHICLE TRIP ENDS			147.8	N/A	N/A	1	66.0
Peak Hour of Generator		Enter	5.1	N/A	N/A	1	66.0
		Exit	5.2	N/A	N/A	1	66.0
		Total	10.4	N/A	N/A	1	66.0
SUNDAY VEHICLE TRIP ENDS			100.9	N/A	N/A	1	66.0
Peak Hour of Generator		Enter	4.1	N/A	N/A	1	66.0
		Exit	4.1	N/A	N/A	1	66.0
		Total	8.2	N/A	N/A	1	66.0
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.8	N/A	N/A	1	66.0
Adjacent Street P.M. Peak Hour			9.1	N/A	N/A	1	66.0
Generator A.M. Peak Hour			6.2	N/A	N/A	1	66.0
Generator P.M. Peak Hour			9.7	N/A	N/A	1	66.0

Table C-6

Average Trips per 1000 Square Feet GLFA for
Richmond Shopping Centers
Size: Regional, 500,000 and Over Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			37.6	42.3	33.6	2	762.6
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.6	0.6	0.5	2	762.6
		Exit	0.4	0.4	0.3	2	762.6
		Total	0.9	1.1	0.8	2	762.6
	P.M. Between 4 and 6	Enter	1.8	2.0	1.6	2	762.6
		Exit	1.7	1.8	1.6	2	762.6
		Total	3.5	3.8	3.2	2	762.6
Peak Hour of Generator	A.M.	Enter	1.4	1.6	1.2	2	762.6
		Exit	1.1	1.3	0.9	2	762.6
		Total	2.5	3.0	2.1	2	762.6
	P.M.	Enter	1.8	2.0	1.6	2	762.6
		Exit	1.7	1.9	1.6	2	762.6
		Total	3.5	3.9	3.2	2	762.6
SATURDAY VEHICLE TRIP ENDS			60.6	70.4	52.4	2	762.6
Peak Hour of Generator		Enter	3.1	3.7	2.6	2	762.6
		Exit	3.1	3.2	3.0	2	762.6
		Total	6.2	6.9	5.7	2	762.6
SUNDAY VEHICLE TRIP ENDS			6.5	9.3	4.1	2	762.6
Peak Hour of Generator		Enter	0.3	0.5	0.2	2	762.6
		Exit	0.5	0.9	0.2	2	762.6
		Total	0.9	1.4	0.4	2	762.6
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.5	3.2	1.8	2	762.6
Adjacent Street P.M. Peak Hour			9.2	9.5	8.9	2	762.6
Generator A.M. Peak Hour			6.6	7.0	6.2	2	762.6
Generator P.M. Peak Hour			9.4	9.7	9.1	2	762.6

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Table C-7

Average Trips per 1000 Square Feet GLFA for
Richmond Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			72.5	N/A	N/A	1	314.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.0	N/A	N/A	1	314.0
		Exit	0.8	N/A	N/A	1	314.0
		Total	1.7	N/A	N/A	1	314.0
	P.M. Between 4 and 6	Enter	3.7	N/A	N/A	1	314.0
		Exit	3.6	N/A	N/A	1	314.0
		Total	7.4	N/A	N/A	1	314.0
Peak Hour of Generator	A.M.	Enter	3.0	N/A	N/A	1	314.0
		Exit	3.0	N/A	N/A	1	314.0
		Total	6.0	N/A	N/A	1	314.0
	P.M.	Enter	3.7	N/A	N/A	1	314.0
		Exit	3.6	N/A	N/A	1	314.0
		Total	7.4	N/A	N/A	1	314.0
SATURDAY VEHICLE TRIP ENDS			91.9	N/A	N/A	1	314.0
Peak Hour of Generator		Enter	4.9	N/A	N/A	1	314.0
		Exit	4.7	N/A	N/A	1	314.0
		Total	9.5	N/A	N/A	1	314.0
SUNDAY VEHICLE TRIP ENDS			23.1	N/A	N/A	1	314.0
Peak Hour of Generator		Enter	1.3	N/A	N/A	1	314.0
		Exit	1.5	N/A	N/A	1	314.0
		Total	2.8	N/A	N/A	1	314.0
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.4	N/A	N/A	1	314.0
Adjacent Street P.M. Peak Hour			10.2	N/A	N/A	1	314.0
Generator A.M. Peak Hour			8.3	N/A	N/A	1	314.0
Generator P.M. Peak Hour			10.2	N/A	N/A	1	314.0

Table C-8

Average Trips per 1000 Square Feet GLFA for
Roanoke Shopping Centers
Size: Regional, 500,000 and Over Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			44.8	N/A	N/A	1	669.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.4	N/A	N/A	1	669.0
		Exit	0.3	N/A	N/A	1	669.0
		Total	0.7	N/A	N/A	1	669.0
	P.M. Between 4 and 6	Enter	2.0	N/A	N/A	1	669.0
		Exit	2.0	N/A	N/A	1	669.0
		Total	4.0	N/A	N/A	1	669.0
Peak Hour of Generator	A.M.	Enter	1.8	N/A	N/A	1	669.0
		Exit	1.5	N/A	N/A	1	669.0
		Total	3.2	N/A	N/A	1	669.0
	P.M.	Enter	2.0	N/A	N/A	1	669.0
		Exit	2.0	N/A	N/A	1	669.0
		Total	4.0	N/A	N/A	1	669.0
SATURDAY VEHICLE TRIP ENDS			63.9	N/A	N/A	1	669.0
Peak Hour of Generator		Enter	2.9	N/A	N/A	1	669.0
		Exit	3.2	N/A	N/A	1	669.0
		Total	6.1	N/A	N/A	1	669.0
SUNDAY VEHICLE TRIP ENDS			19.2	N/A	N/A	1	669.0
Peak Hour of Generator		Enter	1.1	N/A	N/A	1	669.0
		Exit	1.1	N/A	N/A	1	669.0
		Total	2.3	N/A	N/A	1	669.0
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.6	N/A	N/A	1	669.0
Adjacent Street P.M. Peak Hour			8.8	N/A	N/A	1	669.0
Generator A.M. Peak Hour			7.2	N/A	N/A	1	669.0
Generator P.M. Peak Hour			8.9	N/A	N/A	1	669.0

Table C-9

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Average Trips per 1000 Square Feet GLFA for
Roanoke Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			78.9	N/A	N/A	1	164.7
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.1	N/A	N/A	1	164.7
		Exit	1.1	N/A	N/A	1	164.7
		Total	2.1	N/A	N/A	1	164.7
	P.M. Between 4 and 6	Enter	4.4	N/A	N/A	1	164.7
		Exit	4.1	N/A	N/A	1	164.7
		Total	8.5	N/A	N/A	1	164.7
Peak Hour of Generator	A.M.	Enter	2.6	N/A	N/A	1	164.7
		Exit	2.4	N/A	N/A	1	164.7
		Total	5.0	N/A	N/A	1	164.7
	P.M.	Enter	4.4	N/A	N/A	1	164.7
		Exit	4.1	N/A	N/A	1	164.7
		Total	8.5	N/A	N/A	1	164.7
SATURDAY VEHICLE TRIP ENDS			103.5	N/A	N/A	1	164.7
Peak Hour of Generator		Enter	4.6	N/A	N/A	1	164.7
		Exit	4.9	N/A	N/A	1	164.8
		Total	9.5	N/A	N/A	1	164.7
SUNDAY VEHICLE TRIP ENDS			45.3	N/A	N/A	1	164.7
Peak Hour of Generator		Enter	2.4	N/A	N/A	1	164.7
		Exit	2.3	N/A	N/A	1	164.7
		Total	4.7	N/A	N/A	1	164.7
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.7	N/A	N/A	1	164.7
Adjacent Street P.M. Peak Hour			10.8	N/A	N/A	1	164.7
Generator A.M. Peak Hour			6.4	N/A	N/A	1	164.7
Generator P.M. Peak Hour			10.8	N/A	N/A	1	164.7

Table C-10

2329

Average Trips per 1000 Square Feet GLFA for
Tri-Cities Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			62.2	104.9	44.2	2	192.1
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.8	1.6	0.4	2	192.1
		Exit	0.5	1.2	0.3	2	192.1
		Total	1.3	2.8	0.7	2	192.1
	P.M. Between 4 and 6	Enter	3.2	5.8	2.1	2	192.1
		Exit	3.2	5.4	2.3	2	192.1
		Total	6.5	11.1	4.5	2	192.1
Peak Hour of Generator	A.M.	Enter	2.5	3.7	2.0	2	192.1
		Exit	2.2	3.1	1.8	2	192.1
		Total	4.7	6.8	3.8	2	192.1
	P.M.	Enter	3.3	5.8	2.3	2	192.1
		Exit	3.4	5.9	2.3	2	192.1
		Total	6.7	11.7	4.6	2	192.1
SATURDAY VEHICLE TRIP ENDS			74.6	115.0	57.6	2	192.1
Peak Hour of Generator		Enter	3.9	5.7	3.2	2	192.1
		Exit	3.7	5.3	3.1	2	192.1
		Total	7.6	10.9	6.2	2	192.1
SUNDAY VEHICLE TRIP ENDS			22.6	51.0	10.6	2	192.1
Peak Hour of Generator		Enter	1.2	2.6	0.6	2	192.1
		Exit	1.2	2.4	0.7	2	192.1
		Total	2.4	5.1	1.3	2	192.1
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.1	2.7	1.6	2	192.1
Adjacent Street P.M. Peak Hour			10.4	10.6	10.1	2	192.1
Generator A.M. Peak Hour			7.5	8.5	6.5	2	192.1
Generator P.M. Peak Hour			10.8	11.2	10.5	2	192.1

Table C-11

2630

Average Trips per 1000 Square Feet GLFA for
Lynchburg Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independ. Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			68.8	N/A	N/A	1	145.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.5	N/A	N/A	1	145.0
		Exit	0.5	N/A	N/A	1	145.0
		Total	1.0	N/A	N/A	1	145.0
	P.M. Between 4 and 6	Enter	3.5	N/A	N/A	1	145.0
		Exit	3.7	N/A	N/A	1	145.0
		Total	7.1	N/A	N/A	1	145.0
Peak Hour of Generator	A.M.	Enter	2.5	N/A	N/A	1	145.0
		Exit	2.2	N/A	N/A	1	145.0
		Total	4.7	N/A	N/A	1	145.0
	P.M.	Enter	3.7	N/A	N/A	1	145.0
		Exit	3.8	N/A	N/A	1	145.0
		Total	7.5	N/A	N/A	1	145.0
SATURDAY VEHICLE TRIP ENDS			96.5	N/A	N/A	1	145.0
Peak Hour of Generator		Enter	4.6	N/A	N/A	1	145.0
		Exit	4.5	N/A	N/A	1	145.0
		Total	9.1	N/A	N/A	1	145.0
SUNDAY VEHICLE TRIP ENDS			49.2	N/A	N/A	1	145.0
Peak Hour of Generator		Enter	2.7	N/A	N/A	1	145.0
		Exit	3.2	N/A	N/A	1	145.0
		Total	5.9	N/A	N/A	1	145.0
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.5	N/A	N/A	1	145.0
Adjacent Street P.M. Peak Hour			10.4	N/A	N/A	1	145.0
Generator A.M. Peak Hour			6.8	N/A	N/A	1	145.0
Generator P.M. Peak Hour			10.9	N/A	N/A	1	145.0

Table C-12

2631

Average Trips per 1000 Square Feet GLFA for
Lynchburg Shopping Centers
Size: Neighborhood, Under 100,000 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			90.4	N/A	N/A	1	94.0
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	1.1	N/A	N/A	1	94.0
		Exit	1.0	N/A	N/A	1	94.0
		Total	2.2	N/A	N/A	1	94.0
	P.M. Between 4 and 6	Enter	5.0	N/A	N/A	1	94.0
		Exit	5.0	N/A	N/A	1	94.0
		Total	10.0	N/A	N/A	1	94.0
Peak Hour of Generator	A.M.	Enter	3.8	N/A	N/A	1	94.0
		Exit	3.6	N/A	N/A	1	94.0
		Total	7.5	N/A	N/A	1	94.0
	P.M.	Enter	5.6	N/A	N/A	1	94.0
		Exit	5.0	N/A	N/A	1	94.0
		Total	10.5	N/A	N/A	1	94.0
SATURDAY VEHICLE TRIP ENDS			116.9	N/A	N/A	1	94.0
Peak Hour of Generator		Enter	6.1	N/A	N/A	1	94.0
		Exit	5.8	N/A	N/A	1	94.0
		Total	11.9	N/A	N/A	1	94.0
SUNDAY VEHICLE TRIP ENDS			55.8	N/A	N/A	1	94.0
Peak Hour of Generator		Enter	3.8	N/A	N/A	1	94.0
		Exit	3.1	N/A	N/A	1	94.0
		Total	6.9	N/A	N/A	1	94.0
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			2.4	N/A	N/A	1	94.0
Adjacent Street P.M. Peak Hour			11.0	N/A	N/A	1	94.0
Generator A.M. Peak Hour			8.3	N/A	N/A	1	94.0
Generator P.M. Peak Hour			11.7	N/A	N/A	1	94.0

Table C-13

Average Trips per 1000 Square Feet GLFA for
Small Urban Area (Less than 50,000) Shopping Centers
Size: Community, 100,000-499,999 Square Feet

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			57.1	82.3	43.8	4	220.3
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.5	0.7	0.2	4	220.3
		Exit	0.3	0.6	0.1	4	220.3
		Total	0.8	1.2	0.3	4	220.3
	P.M. Between 4 and 6	Enter	2.5	3.9	1.8	4	220.3
		Exit	2.6	4.0	1.9	4	220.3
		Total	5.1	7.9	3.7	4	220.3
Peak Hour of Generator	A.M.	Enter	2.2	3.3	1.8	4	220.3
		Exit	2.0	2.8	1.5	4	220.3
		Total	4.1	6.1	3.3	4	220.3
	P.M.	Enter	2.9	4.2	2.0	4	220.3
		Exit	2.6	4.2	1.9	4	220.3
		Total	5.5	8.5	3.9	4	220.3
SATURDAY VEHICLE TRIP ENDS			78.1	105.6	56.3	4	220.3
Peak Hour of Generator		Enter	4.2	6.3	2.4	4	220.3
		Exit	3.4	4.8	2.3	4	220.3
		Total	7.6	10.8	4.7	4	220.3
SUNDAY VEHICLE TRIP ENDS			27.0	87.7	5.3	4	220.3
Peak Hour of Generator		Enter	1.7	6.2	0.4	4	220.3
		Exit	1.6	5.0	0.4	4	220.3
		Total	3.2	11.2	0.8	4	220.3
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			1.3	1.7	0.6	4	220.3
Adjacent Street P.M. Peak Hour			8.9	9.6	8.2	4	220.3
Generator A.M. Peak Hour			7.2	8.1	6.3	4	220.3
Generator P.M. Peak Hour			9.6	10.3	8.9	4	220.3

Table C-14

2633

Average Trips per Dwelling Unit for
Northern Virginia Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.8	7.7	5.9	4	350
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.1	0.1	4	350
		Exit	0.4	0.6	0.2	4	350
		Total	0.5	0.7	0.3	4	350
	P.M. Between 4 and 6	Enter	0.4	0.5	0.3	4	350
		Exit	0.2	0.3	0.1	4	350
		Total	0.6	0.7	0.5	4	350
Peak Hour of Generator	A.M.	Enter	0.1	0.1	0.1	4	350
		Exit	0.5	0.6	0.3	4	350
		Total	0.6	0.7	0.4	4	350
	P.M.	Enter	0.4	0.5	0.4	4	350
		Exit	0.2	0.3	0.2	4	350
		Total	0.7	0.8	0.6	4	350
SATURDAY VEHICLE TRIP ENDS			7.2	8.5	6.1	4	350
Peak Hour of Generator		Enter	0.3	0.4	0.3	4	350
		Exit	0.2	0.3	0.2	4	350
		Total	0.6	0.7	0.5	4	350
SUNDAY VEHICLE TRIP ENDS			6.0	7.1	5.1	4	350
Peak Hour of Generator		Enter	0.3	0.3	0.2	4	350
		Exit	0.2	0.2	0.2	4	350
		Total	0.5	0.6	0.5	4	350
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			7.9	10.1	4.5	4	350
Adjacent Street P.M. Peak Hour			8.6	9.6	7.7	4	350
Generator A.M. Peak Hour			8.6	10.3	6.3	4	350
Generator P.M. Peak Hour			9.8	10.2	9.1	4	350

Table C-15

Average Trips per Dwelling Unit for
Southeast Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.9	8.3	5.9	2	200
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.1	0.1	2	200
		Exit	0.2	0.2	0.2	2	200
		Total	0.3	0.3	0.3	2	200
	P.M. Between 4 and 6	Enter	0.4	0.4	0.3	2	200
		Exit	0.2	0.2	0.2	2	200
		Total	0.6	0.7	0.5	2	200
Peak Hour of Generator	A.M.	Enter	0.1	0.1	0.1	2	200
		Exit	0.2	0.3	0.2	2	200
		Total	0.4	0.4	0.3	2	200
	P.M.	Enter	0.4	0.4	0.4	2	200
		Exit	0.2	0.2	0.2	2	200
		Total	0.6	0.7	0.6	2	200
SATURDAY VEHICLE TRIP ENDS			7.1	8.6	6.2	2	200
Peak Hour of Generator		Enter	0.3	0.3	0.3	2	200
		Exit	0.3	0.3	0.2	2	200
		Total	0.6	0.6	0.5	2	200
SUNDAY VEHICLE TRIP ENDS			6.7	8.8	5.3	2	200
Peak Hour of Generator		Enter	0.3	0.4	0.2	2	200
		Exit	0.3	0.3	0.3	2	200
		Total	0.6	0.7	0.5	2	200
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			4.4	4.7	4.1	2	200
Adjacent Street P.M. Peak Hour			8.3	8.4	8.2	2	200
Generator A.M. Peak Hour			5.1	5.4	4.9	2	200
Generator P.M. Peak Hour			8.9	9.6	8.2	2	200

Table C-16

2635

Average Trips per Dwelling Unit for
Peninsula Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			5.4	5.9	5.1	3	259
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.1	0.1	3	259
		Exit	0.3	0.4	0.3	3	259
		Total	0.4	0.5	0.4	3	259
	P.M. Between 4 and 6	Enter	0.3	0.4	0.3	3	259
		Exit	0.2	0.2	0.1	3	259
		Total	0.5	0.6	0.5	3	259
Peak Hour of Generator	A.M.	Enter	0.1	0.2	0.1	3	259
		Exit	0.3	0.4	0.3	3	259
		Total	0.4	0.5	0.4	3	259
	P.M.	Enter	0.4	0.4	0.3	3	259
		Exit	0.2	0.3	0.1	3	259
		Total	0.6	0.6	0.5	3	259
SATURDAY VEHICLE TRIP ENDS			5.6	7.0	4.4	3	259
Peak Hour of Generator		Enter	0.2	0.3	0.1	3	259
		Exit	0.2	0.3	0.2	3	259
		Total	0.5	0.6	0.3	3	259
SUNDAY VEHICLE TRIP ENDS			5.0	5.6	4.2	3	259
Peak Hour of Generator		Enter	0.2	0.3	0.2	3	259
		Exit	0.2	0.3	0.1	3	259
		Total	0.4	0.5	0.3	3	259
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			7.6	9.5	6.9	3	259
Adjacent Street P.M. Peak Hour			9.9	10.7	9.1	3	259
Generator A.M. Peak Hour			7.9	9.5	7.2	3	259
Generator P.M. Peak Hour			10.3	10.9	9.2	3	259

Table C-17

Average Trips per Dwelling Unit for
Richmond Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.7	8.9	5.7	3	320
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.2	0.1	3	320
		Exit	0.5	0.7	0.4	3	320
		Total	0.6	0.9	0.5	3	320
	P.M. Between 4 and 6	Enter	0.5	0.6	0.3	3	320
		Exit	0.2	0.3	0.1	3	320
		Total	0.7	0.9	0.4	3	320
Peak Hour of Generator	A.M.	Enter	0.1	0.2	0.1	3	320
		Exit	0.5	0.7	0.4	3	320
		Total	0.7	0.9	0.6	3	320
	P.M.	Enter	0.5	0.6	0.4	3	320
		Exit	0.2	0.3	0.2	3	320
		Total	0.7	0.9	0.5	3	320
SATURDAY VEHICLE TRIP ENDS			7.3	9.1	6.1	3	320
Peak Hour of Generator		Enter	0.3	0.4	0.3	3	320
		Exit	0.3	0.4	0.2	3	320
		Total	0.6	0.7	0.5	3	320
SUNDAY VEHICLE TRIP ENDS			6.0	7.6	5.1	3	320
Peak Hour of Generator		Enter	0.3	0.4	0.2	3	320
		Exit	0.3	0.3	0.2	3	320
		Total	0.5	0.7	0.5	3	320
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			9.5	9.8	9.0	3	320
Adjacent Street P.M. Peak Hour			10.3	11.6	7.9	3	320
Generator A.M. Peak Hour			9.9	10.3	9.6	3	320
Generator P.M. Peak Hour			10.7	11.6	9.5	3	320

Table C-18

Average Trips per Dwelling Unit for
Roanoke Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.1	8.6	7.3	2	168
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	0.2	0.1	2	168
		Exit	0.4	0.4	0.4	2	168
		Total	0.5	0.6	0.5	2	168
	P.M. Between 4 and 6	Enter	0.4	0.5	0.4	2	168
		Exit	0.3	0.3	0.3	2	168
		Total	0.7	0.7	0.7	2	168
Peak Hour of Generator	A.M.	Enter	0.2	0.2	0.1	2	168
		Exit	0.4	0.4	0.4	2	168
		Total	0.5	0.6	0.5	2	168
	P.M.	Enter	0.4	0.5	0.4	2	168
		Exit	0.3	0.3	0.3	2	168
		Total	0.7	0.7	0.7	2	168
SATURDAY VEHICLE TRIP ENDS			8.3	9.2	6.8	2	168
Peak Hour of Generator		Enter	0.4	0.4	0.3	2	168
		Exit	0.2	0.3	0.2	2	168
		Total	0.6	0.7	0.5	2	168
SUNDAY VEHICLE TRIP ENDS			7.4	8.2	6.1	2	168
Peak Hour of Generator		Enter	0.3	0.4	0.2	2	168
		Exit	0.3	0.3	0.3	2	168
		Total	0.6	0.6	0.5	2	168
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			6.7	7.2	6.4	2	168
Adjacent Street P.M. Peak Hour			8.8	9.7	8.3	2	168
Generator A.M. Peak Hour			6.7	7.2	6.4	2	168
Generator P.M. Peak Hour			8.9	9.7	8.5	2	168

Table C-19

Average Trips per Dwelling Unit for
Tri-Cities Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			6.7	N/A	N/A	1	114
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	N/A	N/A	1	114
		Exit	0.6	N/A	N/A	1	114
		Total	0.6	N/A	N/A	1	114
	P.M. Between 4 and 6	Enter	0.5	N/A	N/A	1	114
		Exit	0.2	N/A	N/A	1	114
		Total	0.7	N/A	N/A	1	114
Peak Hour of Generator	A.M.	Enter	0.1	N/A	N/A	1	114
		Exit	0.6	N/A	N/A	1	114
		Total	0.6	N/A	N/A	1	114
	P.M.	Enter	0.5	N/A	N/A	1	114
		Exit	0.3	N/A	N/A	1	114
		Total	0.8	N/A	N/A	1	114
SATURDAY VEHICLE TRIP ENDS			7.5	N/A	N/A	1	114
Peak Hour of Generator		Enter	0.4	N/A	N/A	1	114
		Exit	0.4	N/A	N/A	1	114
		Total	0.8	N/A	N/A	1	114
SUNDAY VEHICLE TRIP ENDS			5.5	N/A	N/A	1	114
Peak Hour of Generator		Enter	0.4	N/A	N/A	1	114
		Exit	0.5	N/A	N/A	1	114
		Total	0.9	N/A	N/A	1	114
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			9.5	N/A	N/A	1	114
Adjacent Street P.M. Peak Hour			10.6	N/A	N/A	1	114
Generator A.M. Peak Hour			9.5	N/A	N/A	1	114
Generator P.M. Peak Hour			12.5	N/A	N/A	1	114

Table C-20

2639

Average Trips per Dwelling Unit for
Lynchburg Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.6	9.2	7.8	2	152
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	0.2	0.2	2	152
		Exit	0.5	0.6	0.4	2	152
		Total	0.7	0.8	0.6	2	152
	P.M. Between 4 and 6	Enter	0.5	0.5	0.5	2	152
		Exit	0.3	0.3	0.3	2	152
		Total	0.8	0.8	0.8	2	152
Peak Hour of Generator	A.M.	Enter	0.3	0.3	0.2	2	152
		Exit	0.5	0.6	0.4	2	152
		Total	0.8	0.8	0.7	2	152
	P.M.	Enter	0.5	0.6	0.5	2	152
		Exit	0.4	0.4	0.3	2	152
		Total	0.9	0.9	0.9	2	152
SATURDAY VEHICLE TRIP ENDS			8.7	9.2	8.0	2	152
Peak Hour of Generator		Enter	0.3	0.4	0.3	2	152
		Exit	0.4	0.4	0.4	2	152
		Total	0.7	0.8	0.7	2	152
SUNDAY VEHICLE TRIP ENDS			7.7	8.2	7.0	2	152
Peak Hour of Generator		Enter	0.6	0.7	0.4	2	152
		Exit	0.4	0.4	0.3	2	152
		Total	1.0	1.2	0.7	2	152
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			8.0	10.4	6.5	2	152
Adjacent Street P.M. Peak Hour			9.1	10.7	8.2	2	152
Generator A.M. Peak Hour			9.0	10.8	8.0	2	152
Generator P.M. Peak Hour			10.6	11.6	9.9	2	152

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Table C-21

Average Trips per Dwelling Unit for
Small Urban Area (Less than 50,000) Apartments

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			7.7	9.2	7.0	4	124
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	0.3	0.1	3	112
		Exit	0.3	0.4	0.3	3	112
		Total	0.4	0.7	0.3	4	124
	P.M. Between 4 and 6	Enter	0.4	0.4	0.3	3	112
		Exit	0.3	0.4	0.3	3	112
		Total	0.6	0.8	0.5	4	124
Peak Hour of Generator	A.M.	Enter	0.2	0.3	0.1	3	112
		Exit	0.4	0.4	0.3	3	112
		Total	0.5	0.7	0.4	4	124
	P.M.	Enter	0.4	0.4	0.4	3	112
		Exit	0.3	0.4	0.3	3	112
		Total	0.7	0.8	0.6	4	124
SATURDAY VEHICLE TRIP ENDS			7.7	8.1	6.9	4	124
Peak Hour of Generator		Enter	0.4	0.4	0.3	3	112
		Exit	0.3	0.4	0.2	3	112
		Total	0.7	0.7	0.6	4	124
SUNDAY VEHICLE TRIP ENDS			5.9	6.4	5.5	4	124
Peak Hour of Generator		Enter	0.3	0.3	0.3	3	112
		Exit	0.3	0.3	0.2	3	112
		Total	0.5	0.6	0.5	4	124
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			5.8	7.3	4.9	4	124
Adjacent Street P.M. Peak Hour			8.2	8.9	7.2	4	124
Generator A.M. Peak Hour			6.2	5.3	7.3	4	124
Generator P.M. Peak Hour			9.0	9.5	8.5	4	124

Table C-22

Average Trips per Dwelling Unit for
Northern Virginia Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.2	11.0	7.2	6	263
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.2	0.0	6	263
		Exit	0.5	0.6	0.3	6	263
		Total	0.6	0.8	0.3	6	263
	P.M. Between 4 and 6	Enter	0.6	0.7	0.4	6	263
		Exit	0.3	0.5	0.2	6	263
		Total	0.9	1.1	0.7	6	263
Peak Hour of Generator	A.M.	Enter	0.1	0.2	0.1	6	263
		Exit	0.5	0.7	0.3	6	263
		Total	0.6	0.9	0.5	6	263
	P.M.	Enter	0.6	0.7	0.4	6	263
		Exit	0.4	0.5	0.3	6	263
		Total	1.0	1.2	0.7	6	263
SATURDAY VEHICLE TRIP ENDS			10.7	13.8	7.1	6	263
Peak Hour of Generator		Enter	0.5	0.5	0.4	6	263
		Exit	0.4	0.6	0.3	6	263
		Total	0.9	1.1	0.7	6	263
SUNDAY VEHICLE TRIP ENDS			9.2	11.5	6.3	6	263
Peak Hour of Generator		Enter	0.4	0.7	0.2	6	263
		Exit	0.4	0.5	0.3	6	263
		Total	0.8	1.2	0.6	6	263
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			5.9	7.8	4.7	6	263
Adjacent Street P.M. Peak Hour			8.9	10.4	7.0	6	263
Generator A.M. Peak Hour			6.3	8.7	4.8	6	263
Generator P.M. Peak Hour			9.7	10.7	8.8	6	263

2642

Table C-23

Average Trips Per Dwelling Unit for
Southeast Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.3	11.0	9.1	4	212
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.1	0.1	4	212
		Exit	0.4	0.4	0.3	4	212
		Total	0.5	0.5	0.4	4	212
	P.M. Between 4 and 6	Enter	0.6	0.7	0.4	4	212
		Exit	0.3	0.4	0.2	4	212
		Total	0.9	1.0	0.7	4	212
Peak Hour of Generator	A.M.	Enter	0.1	0.2	0.1	4	212
		Exit	0.4	0.5	0.4	4	212
		Total	0.5	0.6	0.5	4	212
	P.M.	Enter	0.6	0.7	0.5	4	212
		Exit	0.3	0.4	0.3	4	212
		Total	0.9	1.1	0.8	4	212
SATURDAY VEHICLE TRIP ENDS			10.0	10.7	9.2	4	212
Peak Hour of Generator		Enter	0.5	0.6	0.3	4	212
		Exit	0.4	0.5	0.3	4	212
		Total	0.8	0.9	0.8	4	212
SUNDAY VEHICLE TRIP ENDS			9.1	9.8	7.2	4	212
Peak Hour of Generator		Enter	0.4	0.6	0.3	4	212
		Exit	0.4	0.4	0.3	4	212
		Total	0.8	0.9	0.7	4	212
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			4.7	5.0	4.2	4	212
Adjacent Street P.M. Peak Hour			8.5	9.5	7.2	4	212
Generator A.M. Peak Hour			5.3	6.2	5.0	4	212
Generator P.M. Peak Hour			9.0	9.9	7.9	4	212

Table C-24

2643

Average Trips per Dwelling Unit for
Peninsula Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.7	12.2	6.8	4	189
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.3	0.1	4	189
		Exit	0.6	0.8	0.5	4	189
		Total	0.7	1.1	0.6	4	189
	P.M. Between 4 and 6	Enter	0.6	0.7	0.6	4	189
		Exit	0.3	0.4	0.2	4	189
		Total	0.9	1.1	0.8	4	189
Peak Hour of Generator	A.M.	Enter	0.2	0.3	0.1	4	189
		Exit	0.6	0.8	0.3	4	189
		Total	0.8	1.1	0.6	4	189
	P.M.	Enter	0.6	0.8	0.6	4	189
		Exit	0.3	0.4	0.2	4	189
		Total	0.9	1.1	0.8	4	189
SATURDAY VEHICLE TRIP ENDS			9.7	13.9	8.6	4	189
Peak Hour of Generator		Enter	0.5	0.6	0.4	4	189
		Exit	0.4	0.7	0.3	4	189
		Total	0.9	1.2	0.8	4	189
SUNDAY VEHICLE TRIP ENDS			7.2	9.8	6.2	4	189
Peak Hour of Generator		Enter	0.4	0.5	0.4	4	189
		Exit	0.3	0.4	0.3	4	189
		Total	0.8	0.9	0.7	4	189
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			8.6	10.2	5.4	4	189
Adjacent Street P.M. Peak Hour			10.2	12.3	8.6	4	189
Generator A.M. Peak Hour			8.6	10.2	5.7	4	189
Generator P.M. Peak Hour			10.4	12.3	8.9	4	189

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Table C-25

Average Trips per Dwelling Unit for
Richmond Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			8.4	9.7	6.6	3	138
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.1	0.1	0.1	3	138
		Exit	0.6	0.8	0.6	3	138
		Total	0.7	0.9	0.7	3	138
	P.M. Between 4 and 6	Enter	0.7	0.7	0.6	3	138
		Exit	0.3	0.4	0.2	3	138
		Total	1.0	1.1	0.8	3	138
Peak Hour of Generator	A.M.	Enter	0.1	0.1	0.1	3	138
		Exit	0.6	0.8	0.6	3	138
		Total	0.8	0.9	0.7	3	138
	P.M.	Enter	0.7	0.7	0.7	3	138
		Exit	0.3	0.4	0.2	3	138
		Total	1.0	1.1	0.9	3	138
SATURDAY VEHICLE TRIP ENDS			9.3	10.6	7.0	3	138
Peak Hour of Generator		Enter	0.5	0.5	0.4	3	138
		Exit	0.4	0.5	0.3	3	138
		Total	0.8	1.0	0.7	3	138
SUNDAY VEHICLE TRIP ENDS			7.2	9.3	5.7	3	138
Peak Hour of Generator		Enter	0.4	0.7	0.3	3	138
		Exit	0.3	0.4	0.3	3	138
		Total	0.8	1.1	0.6	3	138
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			8.8	10.1	7.4	3	138
Adjacent Street P.M. Peak Hour			11.3	12.7	10.6	3	138
Generator A.M. Peak Hour			9.0	10.1	7.5	3	138
Generator P.M. Peak Hour			12.0	15.5	10.6	3	138

Table C-26

2645

Average Trips per Dwelling Unit for
Roanoke Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.4	13.5	7.5	2	98
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3	0.4	0.1	2	98
		Exit	0.7	0.8	0.7	2	98
		Total	1.0	1.1	0.8	2	98
	P.M. Between 4 and 6	Enter	0.7	0.9	0.6	2	98
		Exit	0.4	0.5	0.2	2	98
		Total	1.1	1.4	0.8	2	98
Peak Hour of Generator	A.M.	Enter	0.3	0.4	0.1	2	98
		Exit	0.9	0.9	0.9	2	98
		Total	1.2	1.3	1.0	2	98
	P.M.	Enter	0.8	0.9	0.7	2	98
		Exit	0.4	0.5	0.3	2	98
		Total	1.2	1.4	1.0	2	98
SATURDAY VEHICLE TRIP ENDS			10.5	13.9	7.3	2	98
Peak Hour of Generator		Enter	0.5	0.7	0.3	2	98
		Exit	0.5	0.6	0.4	2	98
		Total	1.0	1.2	0.7	2	98
SUNDAY VEHICLE TRIP ENDS			8.7	12.3	5.4	2	98
Peak Hour of Generator		Enter	0.6	0.9	0.3	2	98
		Exit	0.4	0.6	0.3	2	98
		Total	1.0	1.5	0.6	2	98
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			9.5	11.2	8.5	2	98
Adjacent Street P.M. Peak Hour			10.4	10.8	10.2	2	98
Generator A.M. Peak Hour			11.2	13.4	9.9	2	98
Generator P.M. Peak Hour			11.5	13.0	10.6	2	98

Table C-27

2646

Average Trips per Dwelling Unit for
Tri-Cities Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.2	10.9	8.4	2	210
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.3	0.3	0.1	2	210
		Exit	0.6	0.7	0.6	2	210
		Total	0.9	0.9	0.8	2	210
	P.M. Between 4 and 6	Enter	0.6	0.6	0.6	2	210
		Exit	0.4	0.4	0.2	2	210
		Total	1.0	1.0	0.8	2	210
Peak Hour of Generator	A.M.	Enter	0.3	0.3	0.1	2	210
		Exit	0.6	0.7	0.6	2	210
		Total	0.9	0.9	0.8	2	210
	P.M.	Enter	0.6	0.7	0.6	2	210
		Exit	0.4	0.4	0.2	2	210
		Total	1.0	1.1	0.8	2	210
SATURDAY VEHICLE TRIP ENDS			10.3	11.3	7.7	2	210
Peak Hour of Generator		Enter	0.5	0.5	0.5	2	210
		Exit	0.4	0.4	0.3	2	210
		Total	0.9	0.9	0.8	2	210
SUNDAY VEHICLE TRIP ENDS			8.5	9.2	6.3	2	210
Peak Hour of Generator		Enter	0.5	0.5	0.3	2	210
		Exit	0.4	0.4	0.3	2	210
		Total	0.8	0.9	0.6	2	210
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			8.7	9.1	8.6	2	210
Adjacent Street P.M. Peak Hour			9.5	9.9	9.4	2	210
Generator A.M. Peak Hour			8.7	9.1	8.6	2	210
Generator P.M. Peak Hour			10.0	10.0	10.0	2	210

Table C-28

Average Trips per Dwelling Unit for
Lynchburg Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.6	11.1	9.7	2	142
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	0.2	0.1	2	142
		Exit	0.6	0.7	0.6	2	142
		Total	0.8	0.8	0.8	2	142
	P.M. Between 4 and 6	Enter	0.6	0.7	0.6	2	142
		Exit	0.3	0.4	0.3	2	142
		Total	1.0	1.0	1.0	2	142
Peak Hour of Generator	A.M.	Enter	0.2	0.3	0.2	2	142
		Exit	0.6	0.7	0.6	2	142
		Total	0.9	0.9	0.9	2	142
	P.M.	Enter	0.7	0.7	0.7	2	142
		Exit	0.4	0.4	0.3	2	142
		Total	1.0	1.1	1.0	2	142
SATURDAY VEHICLE TRIP ENDS			10.3	11.8	8.2	2	142
Peak Hour of Generator		Enter	0.5	0.6	0.4	2	142
		Exit	0.4	0.5	0.3	2	142
		Total	0.9	1.0	0.7	2	142
SUNDAY VEHICLE TRIP ENDS			8.3	9.0	7.3	2	142
Peak Hour of Generator		Enter	0.6	0.7	0.5	2	142
		Exit	0.4	0.4	0.4	2	142
		Total	1.0	1.0	1.0	2	142
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			7.8	8.3	7.5	2	142
Adjacent Street P.M. Peak Hour			9.4	10.3	8.8	2	142
Generator A.M. Peak Hour			8.3	9.3	7.6	2	142
Generator P.M. Peak Hour			9.9	10.3	9.6	2	142

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Table C-29

Average Trips per Dwelling Unit for
Small Urban Area (Less than 50,000) Single-Family Detached Housing

			Average Trip Rate	Maximum Rate	Minimum Rate	Number of Studies	Average Size of Independent Variable
AVERAGE WEEKDAY VEHICLE TRIP ENDS			10.8	12.2	9.4	5	141
Peak Hour of Adjacent Street Traffic	A.M. Between 7 and 9	Enter	0.2	0.3	0.1	4	152
		Exit	0.6	0.8	0.5	4	152
		Total	0.8	1.1	0.6	5	141
	P.M. Between 4 and 6	Enter	0.6	0.8	0.4	4	152
		Exit	0.3	0.5	0.3	4	152
		Total	0.9	1.2	0.8	5	141
Peak Hour of Generator	A.M.	Enter	0.3	0.3	0.1	4	152
		Exit	0.7	0.8	0.5	4	152
		Total	1.0	1.1	0.7	5	141
	P.M.	Enter	0.6	0.8	0.5	4	152
		Exit	0.4	0.5	0.3	4	152
		Total	1.0	1.3	0.9	5	141
SATURDAY VEHICLE TRIP ENDS			10.5	12.1	9.8	5	141
Peak Hour of Generator		Enter	0.4	0.6	0.4	4	152
		Exit	0.4	0.5	0.4	4	152
		Total	0.9	1.1	0.8	5	141
SUNDAY VEHICLE TRIP ENDS			8.7	10.4	7.7	5	141
Peak Hour of Generator		Enter	0.4	0.5	0.3	4	152
		Exit	0.4	0.5	0.3	4	152
		Total	0.8	1.0	0.7	5	141
% WEEKDAY TRIPS IN:			Average %	Maximum %	Minimum %		
Adjacent Street A.M. Peak Hour			7.5	8.9	6.2	5	141
Adjacent Street P.M. Peak Hour			8.6	10.1	7.0	5	141
Generator A.M. Peak Hour			8.8	11.1	6.4	5	141
Generator P.M. Peak Hour			9.6	10.5	8.2	5	141