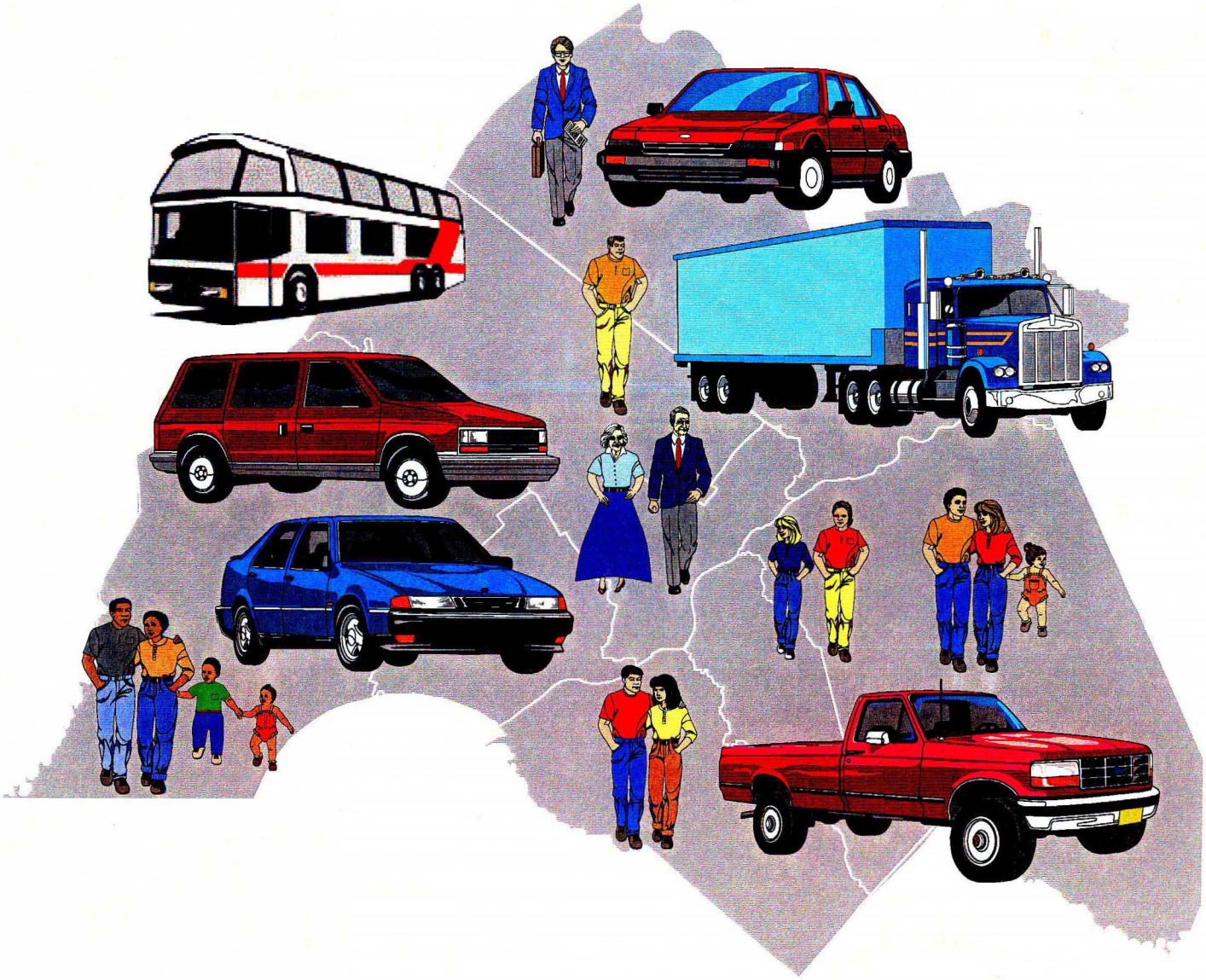
VEHICLE OCCUPANCY FOR THE DELAWARE VALLEY REGION



Delaware Valley Regional Planning Commission

April 1998

VEHICLE OCCUPANCY STUDY FOR THE DELAWARE VALLEY REGION

April 1998

Delaware Valley Regional Planning Commission
The Bourse Building
111 S. Independence Mall East
Philadelphia, PA 19106-2515

The preparation of this report was funded through federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA), the Pennsylvania and New Jersey Departments of Transportation, and DVRPC's member governments. The authors, however, are solely responsible for its finding and conclusions, which may not represent the official views or policies of the funding agencies.

Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty, and intercity agency which provides continuing, comprehensive, and coordinated planning for the orderly growth and development of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties, as well as the City of Philadelphia, in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties in New Jersey. The Commission is an advisory agency which divides its planning and service functions between the Office of the Executive Director, the Office of Public Affairs, and three line Divisions: Transportation Planning, Regional Planning, and Administration. DVRPC's mission for the 1990s is to emphasize technical assistance and services, and to conduct high priority studies for member state and local governments, while determining and meeting the needs of the private sector.

The DVRPC logo is adapted from the official seal of the Commission and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River flowing through it. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey. The logo combines these elements to depict the areas served by DVRPC.

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Publication Abstract

TITLE	Date Published: April 1998
Vehicle Occupancy Study for the Delaware Valley Region	Publication No. 98010

Geographic Area Covered:

Delaware Valley Region comprising five counties in Pennsylvania (Bucks, Chester, Delaware, Montgomery, and Philadelphia); and four in New Jersey (Burlington, Camden, Gloucester, and Mercer)

Key Words:

Vehicle occupancy, vehicle availability, traffic counts, vehicle trends, surveys, highway functional class, vehicle type

ABSTRACT

This report presents the methodology and documents the results of field surveys conducted by DVRPC to determine average vehicle occupancy rates for the nine counties comprising the Delaware Valley Region. The resulting rates are reported at state and county levels. Also included are rates determined by vehicle type, highway functional class, area type, and hour of the day.

For More Information Contact:

Delaware Valley Regional Planning Commission
Regional Planning Division
The Bourse Building
111 South Independence Mall East
Philadelphia, PA 19106-2515
Telephone: (215) 592-1800 FAX: (215) 592-9125

TABLE OF CONTENTS

MAPS

TABLES

EXECUTIVE SUMMARY

Federal regulations require that areas with severe air quality problems, measure and monitor the number of occupants in vehicles using the highway network. Currently, the Philadelphia area is classified as an ozone non-attainment area. In FY 1996, the New Jersey and Pennsylvania Departments of Transportation (NJDOT and Penn DOT), as required by federal regulations, requested that the Delaware Valley Regional Planning Commission (DVRPC) undertake a study to determine the average vehicle occupancy (AVO) rates found in the region. The region comprises Burlington, Camden, Gloucester, and Mercer counties in New Jersey; and Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania. The AVO rate is derived by dividing the total number of observed occupants, including the driver, by the number of vehicles surveyed.

A total of 109 locations was sampled, 54 in New Jersey and 55 in Pennsylvania, which is sufficient to provide statistical validity to the study at the state level, with the recommended 95 percent confidence level and ± 3 percent sampling error. The survey was conducted for a classification of eight vehicle types that included passenger cars, vans, trucks, and buses. The survey also recorded additional parameters (e.g., functional class, area type, time interval) that provided supplementary information needed for detailed analyses.

The analysis of the field data provided the following important conclusions:

- On a typical day, the average vehicle occupancy rate for all vehicles in the New Jersey portion of the region was 1.30, with the rate ranging from 1.24 in Mercer County to 1.41 in Camden. In Pennsylvania, the rate was somewhat lower and ranged from 1.17 in Delaware County to 1.24 in Bucks, for an average of 1.21. This interstate difference was observed across all vehicle types and highway functional classes, although for trucks the difference was statistically insignificant.

- The class of vehicles with the lowest occupancy rate was represented by trucks with a rate of 1.06 in New Jersey and 1.05 in Pennsylvania. The combined rate for automobiles, pick ups, and vans was 1.22 persons per vehicle in New Jersey and 1.17 in Pennsylvania, and that for buses was 9.30 and 8.51, respectively. The largest variance occurred in this last class, which ranged from 8.05 in Chester County to 10.08 in Camden County. In contrast, the largest variation among the nine counties found for any other vehicle type was 0.15 person per vehicle.

- The aggregate rate for all vehicles shows an inverse relation with functional class, i.e., the higher the functional class of a road the lower the rate. In New Jersey, the rates ranged from 1.22 for interstate highways to 1.33 for minor arterials, collectors, and local roads; and in Pennsylvania, from 1.17 for interstates to 1.28 for local roads.

- Average vehicle occupancy rates tend to be lowest during the morning peak hour, rising during the day, reaching a peak in midafternoon, falling somewhat for the afternoon peak, and then rising into the evening. In New Jersey, the combined rate for autos,

pickups, and vans rose from 1.15 persons per vehicle before 8:00 a.m. to a peak of 1.26 in the afternoon, falling to 1.18 after 4:00 p.m., and then climbing back to 1.29 after 6:00. In Pennsylvania, the rates rise from 1.13 in the morning peak to 1.22 in early afternoon, fall to 1.17 in the afternoon peak. In this case, no recovery from the minimum was observed by 6:30, when counting was discontinued. This diurnal variation is correlated to the field observations that reflect different trip purposes on the roads in the morning peak (home to work), during midday (business, shopping, recreation, etc.), and in the evening peak (a mix of work to home with other trip purposes).

A comparison of the results of this study with the results of previous surveys, shows shown that AVO rates are decreasing. This conclusion is supported by the ongoing growth in vehicle ownership, decreases in family size, and rising income that the region has been experiencing in the past few decades.

I. INTRODUCTION

Federal regulations to implement the 1990 Clean Air Act Amendments (CAAA) and the Intermodal Surface Transportation Efficiency Act (ISTEA) call for a cooperative effort among the states, metropolitan planning organizations, and transit operators to collect data on the average number of persons occupying vehicles traveling on regional highways. In addition, the results of such a study will be used to update and support various projects in the DVRPC work program dealing with transportation management systems, travel monitoring, and travel simulation. Average vehicle occupancy (AVO) rates are derived from surveys. The federal guidelines governing ozone non-attainment areas, such as the Philadelphia region, leave the data collection method, duration, and extent of geographic coverage to the discretion of the data collector. To monitor this characteristic, vehicle occupancy data should be updated every three years. To comply with this federal requirement, the Pennsylvania and New Jersey Departments of Transportation (PennDOT and NJ DOT), have requested the Delaware Valley Regional Planning Commission (DVRPC) to undertake a study of vehicle occupancy in the Delaware Valley Region, comprised by Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties in New Jersey.

This two-phase project started in Fiscal Year 1996 with Phase 1 covering the collection and processing of data for the New Jersey portion of the DVRPC region, and Phase 2 in FY 1997 covered the Pennsylvania portion.

This report on average vehicle occupancy describes the study, the survey sample design, methodology, processing and analysis, and conclusions. Section II describes the sample design, and Section III the methodology used to collect the counts. Since the New Jersey and Pennsylvania portions of the DVRPC region were covered in two separate surveys, the analysis is presented separately, with that for New Jersey in Section IV and Pennsylvania in Section 5. Appendices describing the theory linking sample size and accuracy, listing survey locations, and tabulating vehicle counts and average occupancy rates by location and vehicle type are also included.

II. SAMPLE DESIGN

The first step in sample design is to choose a sampling procedure that will provide the study with the desired statistical reliability. The size of the sample used for this study was determined by the statistical equation shown in the appendix (see page A-1). The sample was designed to yield a precision rate of ±3 percent at a 95 percent confidence level at the state and regional levels. The confidence level represents the probability (here, 95%) that the count will fall within the range specified by the precision rate (here, ±3%). The precision rate represents the maximum tolerable sampling error.

In total, 109 locations were surveyed, 54 in New Jersey and 55 in Pennsylvania. This sample, however, does not provide the number of counts required to yield the same precision rate and confidence level for each highway stratum when the results are disaggregated by federal functional classification and area type. To obtain the desired precision for each of these strata would require a budget and manpower beyond the resources available.

With the exception of the functional classification and area type at regional and state levels, the sampling plan of this study should generate expected results with margins of error less than ±3 percent with the sampling error allowance at the 95 percent confidence level, since the number of survey days exceeded the minimum of 16 link-days as indicated in the Appendix. A link-day represents a full day count taken at one location.

III. METHODOLOGY

1. Selection of Vehicle Categories

Vehicle occupancy data was collected on the following vehicle classifications: automobiles, passenger pickups, work pickups, passenger vans, work vans, light trucks, heavy trucks, and buses. For tabulating purposes, passenger and work pickup occupancy data were aggregated into a "total pickup" occupancy category, that for passenger and work van data into a "total van" occupancy category, and that for light and heavy truck data into a "total truck" occupancy category. Finally, automobile, pickup, and van occupancy data were combined into an "aggregated automobiles, pickups, and vans" category. In summary, the following vehicle classification categories were used:

A. Automobiles, Pickups, and Vans
   1. Automobiles
   2. Pickups
      a. Passenger pickups
      b. Work pickups
   3. Vans
      a. Passenger vans
      b. Work vans

B. Trucks
   1. Light trucks
   2. Heavy trucks

C. Buses

2. Location Selection

After designing the sample size, DVRPC, in cooperation with PennDot and NJ DOT, selected the individual sample locations to be counted in each county. The samples were distributed among various types of functionally classified highways as follows:

Functional Class	NJ	PA
Interstate	4	6
Other Expressway	4	6
Principal Arterial	12	11
Minor Arterial	11	10
Collector	14	12
Local	9	10
Total	54	55

In addition, the Interstate and Other Expressway categories were aggregated to determine combined vehicle occupancy data for limited access highways, as were the Minor Collector and Local categories for neighborhood facilities.

The locations selected for the study were chosen to provide a representative sample of all types of facilities with both urban and rural characteristics, and accommodating various levels of traffic, in each of the nine counties of the region.

A prime consideration in choosing a count location is the physical characteristic of the site. The selected locations provided a place to set the counting equipment and a safe and accessible location for DVRPC personnel to perform the manual counts. Whenever possible, Interstate and Other Expressway sample locations were selected on the basis of the existence of a median to permit traffic counters to be secured and protected from damage and vandalism.

3. Data Collection Equipment and Counting Techniques

DVRPC used two counting techniques for this study: the automatic classification recorder count, which efficiently and cheaply provided vehicle counts and classification; and manual counts, which were needed to obtain the number of occupants and verify vehicle classification.

a. Automatic Classification Counts - Automatic traffic counters are used to determine the number and type of vehicles passing a particular location. The counters are anchored to a fixed object, such as a utility pole, and use sensors (rubber hoses) that stretch across the width of the road. A diaphragm switch, actuated by the tires of a vehicle passing over the hose, sends an air pulse to the recorder, which in turn activates the electronic memory. A clock mechanism set by the field operator determines the time for tallying the number of vehicles counted. At the end of a counting interval, usually a sixty minute period, the data is electronically stored in the counter memory. Power for the counters is supplied by long lasting, rechargeable batteries.

By using two road tubes spaced at a known distance, the electronic counters can classify vehicles according to their standard axle-pattern and group them into the eight categories used in this study. If a machine had bidirectional classification capability, it was set accordingly. Field personnel set the counters for approximately 48 hours over a three-day period. The second day of the count provided a full 24-hour analysis period, and was scheduled to coincide with the day of the manual count. At the end of a 48-hour counting period, a field technician picked up the recorded counts from the locations and returned to the office to download and print the data. Software in the Travel Monitoring Unit of DVRPC allowed the data to be transferred directly from the electronic counters to the PC using the serial computer input port and cable.

Finally, each Friday, field personnel made sure that all of the counting devices were synchronized to a common time basis, checked battery voltage, and verified the performance conditions of each recorder in order to minimize errors or biased counts.

DVRPC uses two automatic classification counters, the Peek TrafiCOMP III, Model 241 and the Timemark Delta I. The Peek TrafiCOMP III, Model 241 is a computerized traffic counter used to perform volume and classification studies. The standard machine comes equipped with an internal computer containing 64 kilobytes of memory, a keyboard interface with a digital display, two air switches, one serial port, and a ten ampere-hour battery. This combination yields a simple, easily contained method to gather, store, and process traffic count data.

At a traffic count location, the machine is configured to perform the appropriate type of study. The user must input a station identification number, count interval, and count type to the machine. Additionally, for a classification count, the spacing between the two road tubes is entered. To this information, the counter automatically adds the date and time of the count. The counter is then armed and ready to begin the count.

The Timemark Delta I is an automatic traffic recorder that comes with a graphic user interface. On the control panel of the counter, eight different sensor configurations are presented, including two that are user defined. This allows the user to quickly and easily choose the correct layout for both the machine and the road tubes. The Delta I also comes equipped with two air switches, thirty-two kilobytes of internal memory, a slot for a one megabyte memory card, and a six-volt, ten ampere-hour lead gel battery.

The procedure for setting up a Delta I for traffic counting differs from that followed for most other counters. At the count location, the user must simply select the proper sensor configuration from the control panel shown on the counter screen. The counter does not require a station identification number or any other data from the user. It keeps the date and time internally, and uses this information and the sensor configuration to store the data. When the count is complete, the machine is downloaded to a personal computer for processing and analysis.

The Delta I does not process the count in real time, as all processing is done later by the software. This provides flexibility in choosing the information to be extracted from the count.

b. Manual Classification - The manual classification is generally considered to be more reliable and accurate than the electronic recorder classification. In its simplest form, the manual count is performed by field personnel using a counting tabulator, a sheet of paper, and a pencil. However, most of the manual counts performed by DVRPC involved the use of hand-held electronic counters. This type of counter is a state of the art device that allows the user to count vehicles continuously, without having to take one's eyes off of the road. The device tallies the vehicles counted at predetermined intervals, so that the field personnel need not do so themselves. After the count is completed, the machine is downloaded onto a personal computer (PC) where the data is integrated into a spreadsheet program for easy handling and processing.

DVRPC uses the TDC-8 manual classifier, manufactured by Jamar Technologies, Inc., a tool that helps in performing the most common traffic data collection studies, including total volumes, turning movements, classification counts, and travel time studies. The TDC-8 stores the type of study, the date and time, the interval used, a site code, and the data for each location. At any convenient time, one can transfer the data to a personal computer through a serial port and process it. A software program is available to read, edit, and print a variety of reports.

A full range of built-in diagnostic tests assures that the TDC-8 is working satisfactorily. Four disposable AA batteries provide the power necessary to perform the counts, with the counter storing all data in its internal memory. The manufacturer provides four templates showing how the keys are to be used when performing a selected study.

The manual counts were performed by two teams of two people at each location. The manual classification counts were taken by direction and vehicles were classified into the eight categories as described in the section on vehicle categories. The counting periods were from 7:00 a.m. to 9:30 a.m., 10:30 a.m. to 1:00 p.m., 1:00 p.m. to 3:30 p.m., and 4:00 p.m. to 6:30 p.m.. Each period was counted on 30 minute intervals.

Safety of field personnel was a prime consideration in this type of count. Therefore, field conditions at each particular location, such as darkness or inclement weather, dictated the actual count hours. The New Jersey counts were taken in the fall of 1995, ending in early December 1995, and the Pennsylvania counts in the summer of 1996.

Once the field data were delivered to the office, checks were performed to verify that no unusual conditions were reported that would lead to erroneous results. Individual spread sheets were created for each survey station, and files were then combined for further analysis. One of the initial processing steps was to determine the various criteria to be used for calculating the occupancy rates. The rates can then be determined by any item contained in the database.

Vehicle occupancy rates were calculated by dividing the total number of occupants recorded by the total number of vehicles observed, i.e.,

$$Vehicle\ Occupancy\ Rate = \frac{Total\ Vehicle\ Occupants}{Total\ Vehicles}$$

The raw data from the field were grouped and imported into a spreadsheet application software package, which is ideal for calculating the rates. The results were then presented in a practical and easy-to-understand spreadsheet format.

IV. NEW JERSEY ANALYSIS

1. Survey Locations

The 54 survey locations for the New Jersey counties are shown in Map 1 following, and listed in Table A-1 found in Appendix II. The tables also provide information on highway functional class and area type. The locations are distributed almost evenly among the four counties, with about 60 percent of the locations classified as urban. Care was taken to see that all highway functional classes and area types were represented in each county's selection.

2. AVO By Vehicle Type and By County

The AVO rates by county and vehicle type are reported in Table 1. The average for all vehicles in the four New Jersey counties is 1.30 persons per vehicle, with the average for individual counties ranging from 1.24 persons in Mercer County to 1.41 in Camden County. Low auto availability and high transit usage probably combine to keep Camden County at the top of the range, whereas heavy commuting to Trenton and the US 1 Corridor keep Mercer County's rate low. Burlington County and Gloucester County occupy the middle ground with 1.28 persons per vehicle.

The occupancy rates by vehicle type for all four counties are 1.22 for autos, 1.17 for pickups, 1.25 for vans, 1.06 for trucks, and 9.3 persons for buses. Trucks are the vehicles with the lowest rate of all, followed by pickups, and not surprisingly, buses display the highest occupancy rate, ranging from 8.51 in Mercer County to 10.08 persons in Camden County. The last result is a consequence of heavy bus loads on the Atlantic City Expressway.

3. Functional Class and Area Type

The functional class analysis indirectly provides insight into the average occupancy rate for rural and urban areas. Results are tabulated in Table 2. In rural areas, the highest rates were recorded, 1.31 or higher, for the lower functional classes, i.e., those represented by local, collector, and arterial roads. In contrast, rates on expressways were 1.22 or lower. A similar dependence on functional class was not observed for roads in urban areas.

Relatively much lower rates were found for the lower functional classes in urban areas, when a comparison is made with the rural rates. Major variations between rural and urban areas became apparent, especially with vans and trucks, with the urban areas displaying higher rates. With buses, urban area showed higher rates for the higher functional classes, but the situation reverses for the lower classes of roads.

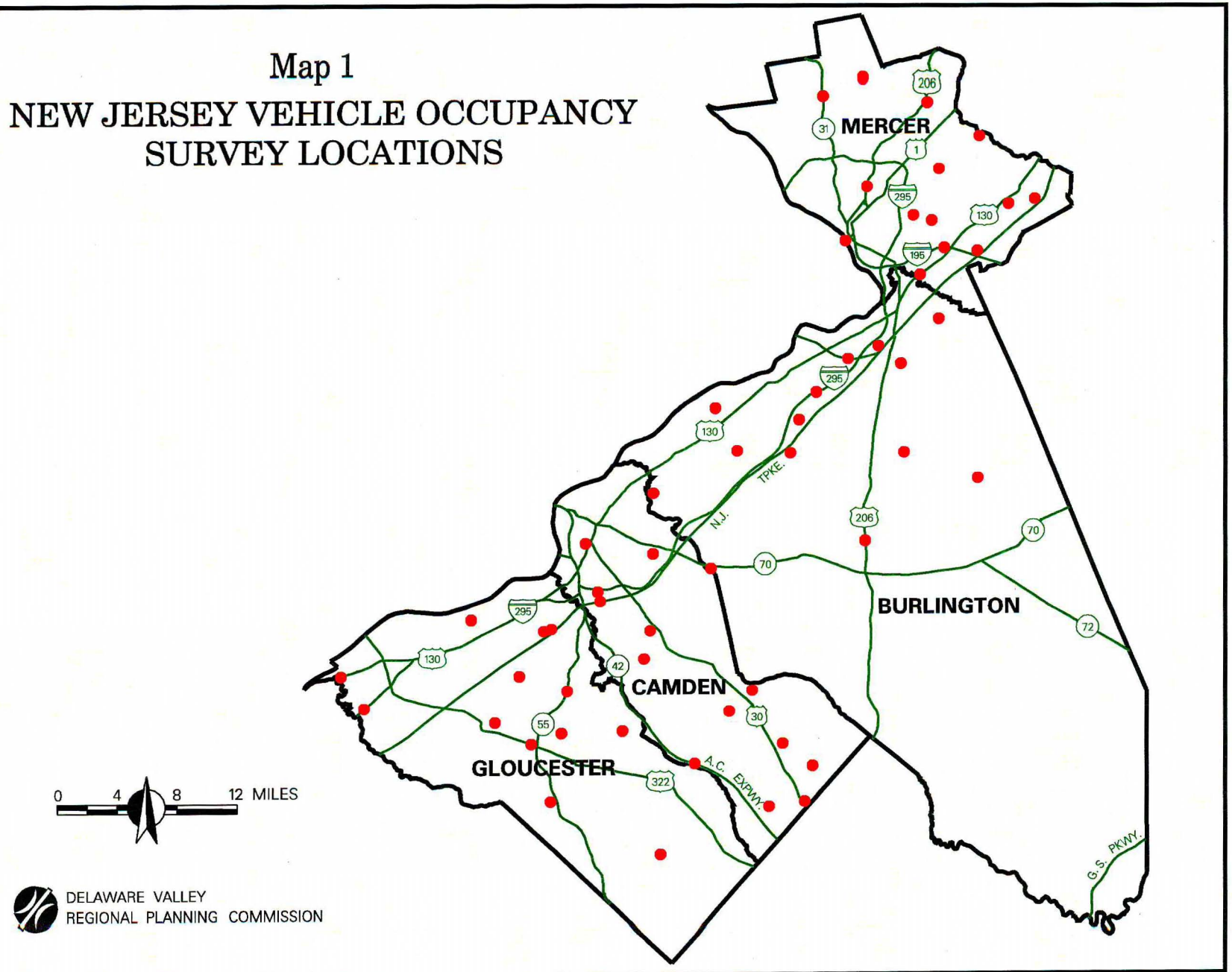
Table 1

AVERAGE VEHICLE OCCUPANCY BY COUNTY AND VEHICLE TYPE FOR THE NEW JERSEY COUNTIES

County	Auto	Pickup	Van	Auto, Pick-up, Van	Truck	Bus	All Vehicles
Burlington	1.21	1.15	1.23	1.21	1.04	9.44	1.28
Camden	1.29	1.20	1.31	1.28	1.12	10.08	1.41
Gloucester	1.20	1.17	1.25	1.21	1.08	8.84	1.28
Mercer	1.19	1.16	1.23	1.19	1.05	8.51	1.24
Avg. NJ Counties	**1.22**	**1.17**	**1.25**	**1.22**	**1.06**	**9.30**	**1.30**

Map 1

NEW JERSEY VEHICLE OCCUPANCY SURVEY LOCATIONS



DELAWARE VALLEY
REGIONAL PLANNING COMMISSION

Table 2

AVERAGE VEHICLE OCCUPANCY BY HIGHWAY FUNCTIONAL CLASS AND VEHICLE TYPE FOR THE NEW JERSEY COUNTIES

Highway Functional Class and Area Type	Auto	Pickup	Van	Auto, Pickup, and Van	Truck	Bus	All Vehicles
Interstate	**1.21**	**1.15**	**1.24**	**1.21**	**1.04**	**8.98**	**1.22**
Rural	1.21	1.19	1.24	1.21	1.06	8.39	1.22
Urban	1.21	1.14	1.24	1.20	1.03	9.19	1.22
Other Expressway	**1.20**	**1.13**	**1.19**	**1.19**	**1.04**	**13.06**	**1.28**
Rural	1.17	1.10	1.15	1.16	1.03	8.85	1.18
Urban	1.21	1.14	1.20	1.20	1.04	13.80	1.31
Principal Arterial	**1.23**	**1.18**	**1.27**	**1.23**	**1.08**	**8.75**	**1.32**
Rural	1.26	1.18	1.27	1.25	1.10	8.51	1.31
Urban	1.23	1.18	1.27	1.23	1.08	8.82	1.32
Minor Arterial	**1.22**	**1.19**	**1.27**	**1.22**	**1.13**	**9.03**	**1.33**
Rural	1.24	1.20	1.27	1.24	1.08	9.71	1.44
Urban	1.22	1.18	1.27	1.22	1.17	8.66	1.31
Collector	**1.20**	**1.20**	**1.27**	**1.21**	**1.12**	**8.14**	**1.33**
Rural	1.21	1.22	1.25	1.21	1.12	9.52	1.38
Urban	1.20	1.16	1.29	1.21	1.13	6.65	1.29
Local	**1.21**	**1.22**	**1.35**	**1.23**	**1.12**	**8.12**	**1.33**
Rural	1.21	1.23	1.28	1.22	1.07	7.94	1.40
Urban	1.22	1.22	1.39	1.24	1.25	8.93	1.27
All Highways	**1.22**	**1.17**	**1.25**	**1.22**	**1.06**	**9.30**	**1.30**
Rural	**1.23**	**1.18**	**1.24**	**1.22**	**1.07**	**9.04**	**1.31**
Urban	**1.22**	**1.16**	**1.26**	**1.22**	**1.06**	**9.40**	**1.29**

4. Analysis by Hour of Day

The counting periods of this study were designed in such a way that it is possible to aggregate AVO rates for the morning peak hours (7:00 - 9:30 a.m.), midday period hours (10:30 a.m. - 3:30 p.m.), and the evening peak hour (4:00 - 6:30 p.m.). Results are shown in Table 3.

The lowest rate for autos occurs during the morning rush hours (1.16). The rate climbs to a peak in early afternoon (1.26), and then falls back to 1.21 for the evening rush. The mix of trip purposes that occurs during the afternoon and evening hours helps raise the rates as the day progresses. Within the broader peak categories, the lowest morning rate occurs between 7:30 and 8:00 a.m. (1.14), and in the evening between 4:30 and 5:00 p.m. (1.18), i.e., at the peak of the peak. Pickups do not show this clear diurnal variation, never moving far from the full day average of 1.17. Buses, on the other hand, carry their heaviest loads during the peak periods (9.41), with their lightest during the post peak morning hours (8.59). This tends to dampen the variation observed for all vehicles, which climbs from 1.28 during the morning peak to 1.34 in the afternoon, falling back to 1.25 in the evening peak.

5. Vehicle Availability and Occupancy

Finally, trend comparisons of vehicle availability for each county for the 1980 and 1990 Censuses, and vehicle occupancy for the 1987 household and 1995 roadside surveys are shown in Table 4. Vehicle availability is defined as the number of vehicles available per person, and has been calculated from Census data by dividing the available vehicles by the population for each county. Unfortunately, the Census Bureau changed the way it counted available vehicles. The 1980 number represents the total number of operable automobiles owned or leased by county residents. In 1990 the category was expanded to include pickups and vans available for personal transportation. In 1987 the New Jersey Department of Transportation conducted a telephone survey of regional households, in order to determine the travel patterns of local residents. The collected data included information on vehicle occupancy.

Vehicle availability from 1980 to 1990 increased in each of the four counties, with the average being about 22 percent. Because of the change in the Census numeration, the actual increase is somewhat lower, but still substantial. The table also shows vehicle occupancy declining by an average of 8 percent. With the exception of Mercer County, which showed an anomalously large occupancy rate in 1987, a larger increase in vehicle availability produces a larger decline in vehicle occupancy.

Table 3

AVERAGE VEHICLE OCCUPANCY BY HOUR OF DAY AND VEHICLE TYPE FOR THE NEW JERSEY COUNTIES

Hour of Day	Auto	Pickup	Van	Auto, Pick-up, Van	Truck	Bus	All Vehicles
7:00 a.m. - 7:30 a.m.	1.15	1.13	1.21	1.15	1.05	9.48	1.26
7:30 a.m. - 8:00 a.m.	1.14	1.16	1.19	1.15	1.08	9.47	1.29
8:00 a.m. - 8:30 a.m.	1.15	1.14	1.19	1.16	1.07	11.03	1.32
8:30 a.m. - 9:00 a.m.	1.17	1.16	1.23	1.18	1.07	7.98	1.27
9:00 a.m. - 9:30 a.m.	1.19	1.19	1.19	1.19	1.05	8.32	1.25
7:00 a.m. - 9:30 a.m.	**1.16**	**1.15**	**1.20**	**1.17**	**1.06**	**9.40**	**1.28**
10:30 a.m. - 11:00 a.m.	1.22	1.16	1.26	1.22	1.05	8.01	1.25
11:00 a.m. - 11:30 a.m.	1.24	1.15	1.23	1.23	1.05	7.93	1.29
11:30 a.m. - 12:00 p.m.	1.24	1.13	1.22	1.23	1.05	8.17	1.27
12:00 p.m. - 12:30 p.m.	1.24	1.14	1.21	1.23	1.03	9.92	1.29
12:30 p.m. - 1:00 p.m.	1.23	1.16	1.17	1.22	1.05	8.84	1.25
10:30 a.m. - 1:00 p.m.	**1.24**	**1.15**	**1.22**	**1.23**	**1.05**	**8.59**	**1.27**
1:00 p.m. - 1:30 p.m.	1.27	1.20	1.25	1.26	1.07	7.37	1.29
1:30 p.m. - 2:00 p.m.	1.26	1.18	1.27	1.25	1.08	12.94	1.36
2:00 p.m. - 2:30 p.m.	1.26	1.18	1.29	1.26	1.06	8.91	1.35
2:30 p.m. - 3:00 p.m.	1.26	1.18	1.27	1.25	1.07	8.64	1.36
3:00 p.m. - 3:30 p.m.	1.26	1.21	1.28	1.26	1.08	8.99	1.33
1:00 p.m. - 3:30 p.m.	**1.26**	**1.19**	**1.27**	**1.26**	**1.07**	**9.26**	**1.34**
4:00 p.m. - 4:30 p.m.	1.21	1.16	1.26	1.21	1.07	8.35	1.25
4:30 p.m. - 5:00 p.m.	1.18	1.15	1.25	1.18	1.06	9.97	1.21
5:00 p.m. - 5:30 p.m.	1.21	1.18	1.29	1.21	1.10	10.65	1.25
5:30 p.m. - 6:00 p.m.	1.27	1.19	1.42	1.28	1.15	8.38	1.31
6:00 p.m. - 6:30 p.m.	1.29	1.21	1.40	1.29	1.11	10.99	1.33
4:00 p.m. - 6:30 p.m.	**1.21**	**1.17**	**1.30**	**1.22**	**1.08**	**9.42**	**1.25**
All Day	**1.22**	**1.17**	**1.25**	**1.22**	**1.06**	**9.30**	**1.29**

Table 4
VEHICLE AVAILABILITY AND OCCUPANCY CHANGES IN THE NEW JERSEY COUNTIES

County	Vehicle Availability			Vehicle Occupancy		
	1980	1990	Change	1987 House-hold Survey	1995 Road-side Survey	Change
Burlington	0.50	0.64	26.1%	1.29	1.21	-6.2%
Camden	0.47	0.56	18.8%	1.35	1.28	-5.2%
Gloucester	0.49	0.62	25.2%	1.34	1.21	-9.7%
Mercer	0.48	0.58	20.8%	1.40	1.19	-15.0%
Total	**0.48**	**0.59**	**22.4%**	**1.33**	**1.22**	**-8.3%**

Note: Vehicle Availability represents the number of vehicles available per person. The 1980 and 1990 ratios are not strictly comparable, as the 1980 Census counted automobiles only, whereas the 1990 Census included passenger vans and pickups. Vehicle Occupancy is the average occupancy of autos, pickups, and vans.

V. PENNSYLVANIA ANALYSIS

1. Survey Locations

The survey locations for Pennsylvania are shown in Map 2 following, and listed in Table A-4 (Appendix II). The latter also provide information on highway functional class and area type. The 55 locations are distributed evenly among the five counties, with about 67 percent of the locations classified as urban. Care was taken to see that all highway functional classes and area types were represented in each county's selection, with the exception of Philadelphia where all locations are classified as urban.

2. Analysis by Vehicle Type and by County

A summary of overall AVO rates for the five Pennsylvania counties is reported in Table 5. The average for all vehicles in the five counties is 1.21 persons per vehicle, ranging from 1.17 persons recorded in Delaware County to 1.24 in Bucks County. The low rate in Delaware was driven primarily by a low rate for automobiles, the other categories remaining comparable to the other counties. Chester, Montgomery, and Philadelphia counties contributed 1.21, 1.20, and 1.23 persons per vehicle, respectively.

For the five counties as a group, the occupancy rates by vehicle type at state level were 1.17 for autos, 1.14 for pickups, 1.19 for vans, 1.05 for trucks, and 8.51 persons for buses. As expected, trucks produced the lowest average rate and buses the highest. Buses also showed the greatest variability between counties, with Chester County at the low end (8.05) and Montgomery at the high (8.75). No other category varied by more than 0.04 occupant per vehicle from low to high.

3. Analysis by Functional Class and Area Type

Average vehicle occupancy rates for the Pennsylvania counties are shown in Table 6. In general, occupancy rates varied inversely with function class, i.e., the higher the class, the lower the rate. Occupancy rates for all vehicles on expressways were 1.2 persons per vehicle or lower, whereas the rates on other roads were generally higher than 1.23.

The functional class analysis indirectly provides an insight into the average occupancy rate for rural and urban areas. In the Pennsylvania portion of the region, no consistent difference was observed between rural and urban highways. However, buses did carry significantly higher passenger loads in urban areas than in rural areas, 7.31 versus 8.71.

Table 5

AVERAGE VEHICLE OCCUPANCY BY COUNTY AND VEHICLE TYPE FOR THE PENNSYLVANIA COUNTIES

County	Auto	Pickup	Van	Auto, Pick-up, Van	Truck	Bus	All Vehicles
Bucks	1.18	1.16	1.20	1.18	1.07	8.52	1.24
Chester	1.17	1.12	1.18	1.17	1.03	8.05	1.21
Delaware	1.14	1.12	1.19	1.15	1.04	8.13	1.17
Montgomery	1.16	1.14	1.16	1.16	1.06	8.75	1.20
Philadelphia	1.18	1.16	1.21	1.18	1.05	8.69	1.23
Avg. PA Counties	**1.17**	**1.14**	**1.19**	**1.17**	**1.05**	**8.51**	**1.21**

Map 2

PENNSYLVANIA VEHICLE OCCUPANCY SURVEY LOCATIONS

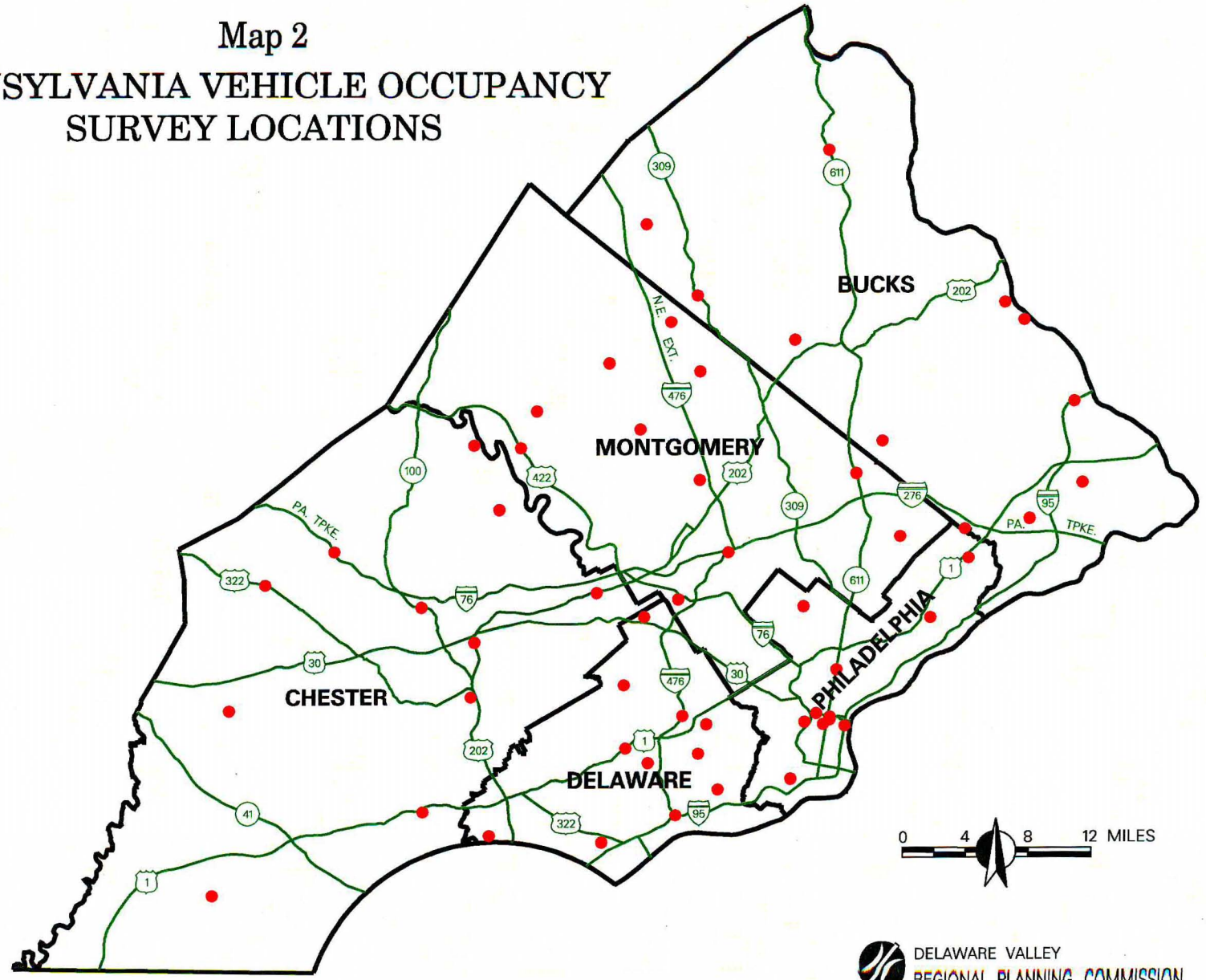


Table 6

AVERAGE VEHICLE OCCUPANCY BY HIGHWAY FUNCTIONAL CLASS AND VEHICLE TYPE FOR THE PENNSYLVANIA COUNTIES

Highway Functional Class and Area Type	Auto	Pickup	Van	Auto, Pickup, and Van	Truck	Bus	All Vehicles
Interstate	**1.14**	**1.10**	**1.14**	**1.14**	**1.03**	**8.59**	**1.17**
Rural	1.17	1.12	1.21	1.17	1.01	7.73	1.18
Urban	1.14	1.10	1.14	1.14	1.03	8.65	1.17
Other Expressway	**1.17**	**1.15**	**1.16**	**1.17**	**1.05**	**7.60**	**1.20**
Rural	1.18	1.14	1.16	1.17	1.06	7.18	1.20
Urban	1.17	1.15	1.16	1.17	1.04	7.74	1.20
Principal Arterial	**1.18**	**1.16**	**1.25**	**1.18**	**1.07**	**8.78**	**1.25**
Rural	1.19	1.15	1.26	1.19	1.11	6.55	1.25
Urban	1.18	1.16	1.25	1.18	1.07	9.19	1.25
Minor Arterial	**1.20**	**1.17**	**1.23**	**1.23**	**1.12**	**9.03**	**1.23**
Rural	1.19	1.14	1.14	1.14	1.04	10.17	1.14
Urban	1.20	1.18	1.24	1.24	1.14	8.90	1.24
Collector	**1.19**	**1.19**	**1.32**	**1.20**	**1.20**	**6.89**	**1.24**
Rural	1.18	1.16	1.33	1.19	1.20	6.75	1.24
Urban	1.19	1.20	1.32	1.20	1.21	7.00	1.24
Local	**1.23**	**1.19**	**1.29**	**1.23**	**1.22**	**8.13**	**1.28**
Rural	1.23	1.26	1.22	1.23	1.29	7.19	1.37
Urban	1.23	1.19	1.29	1.23	1.22	8.39	1.27
All Highways	**1.17**	**1.14**	**1.19**	**1.17**	**1.05**	**8.51**	**1.21**
Rural	**1.18**	**1.15**	**1.20**	**1.18**	**1.05**	**7.31**	**1.22**
Urban	**1.16**	**1.14**	**1.19**	**1.16**	**1.05**	**8.71**	**1.21**

4. Analysis by Hour of The Day

The variation over the course of the day in 30-minute increments is shown in Table 7, and follows a pattern similar to that seen for New Jersey. The lowest rate for autos occurs during the morning rush hours (1.14). The rate climbs to a peak in early afternoon (1.22), and then falls back to 1.17 for the evening rush hours.

However, unlike New Jersey, buses carried heavier loads in the late morning (9.57), than during the peak periods (a.m., 8.76; p.m., 7.75). This may be the result of heavy transit dependency in Philadelphia, senior citizen patronage (free carriage at off-peak times), and reduced midday service.

Occupancy rates for autos, pickups, and vans are higher during the evening peak, just the opposite of buses. This almost suggests that some commuters take buses to work in the morning, but ride home with someone at the end of the day. Other explanations include school trips that are taken during the peak in the morning, but earlier than the peak in the afternoon. Also contributing is the more diverse array of trip purposes experienced during the evening rush.

5. Vehicle Availability and Occupancy Rates

As can be seen in Table 8, vehicle availability increased in every county from 1980 to 1990 by an average of 22 percent. [The actual rate is slightly lower, because of the previously stated change in Census methodology.] Only in Philadelphia was the increase significantly lower (11%). Its low vehicle ownership (0.34 vehicles per person) is just one-half the overall availability for the region. The largest rate of increase was observed in Chester County (28%), the most rural of the five counties. Chester County in 1990 had the highest level of vehicle availability (0.67), whereas in 1980 it ranked behind Montgomery and Bucks counties.

Vehicle occupancy declined by an average of 16 percent, with Chester County recording the biggest drop (22%) and Philadelphia the least (15%). In general, the larger the increase in vehicle availability, the larger the decline in vehicle occupancy.

Table 7

AVERAGE VEHICLE OCCUPANCY BY HOUR OF DAY AND VEHICLE TYPE FOR THE PENNSYLVANIA COUNTIES

Hour of Day	Auto	Pickup	Van	Auto, Pick-up, Van	Truck	Bus	All Vehicles
7:00 a.m. - 7:30 a.m.	1.13	1.11	1.16	1.13	1.03	8.60	1.18
7:30 a.m. - 8:00 a.m.	1.13	1.11	1.16	1.13	1.04	7.91	1.19
8:00 a.m. - 8:30 a.m.	1.14	1.12	1.14	1.14	1.04	9.20	1.22
8:30 a.m. - 9:00 a.m.	1.15	1.14	1.18	1.15	1.05	9.32	1.21
9:00 a.m. - 9:30 a.m.	1.16	1.11	1.15	1.15	1.05	8.87	1.21
7:00 a.m. - 9:30 a.m.	**1.14**	**1.12**	**1.16**	**1.14**	**1.04**	**8.76**	**1.20**
10:30 a.m. - 11:00 a.m.	1.18	1.16	1.17	1.18	1.05	11.30	1.23
11:00 a.m. - 11:30 a.m.	1.19	1.15	1.18	1.19	1.06	9.88	1.25
11:30 a.m. - 12:00 p.m.	1.19	1.15	1.18	1.19	1.04	8.90	1.25
12:00 p.m. - 12:30 p.m.	1.19	1.14	1.19	1.18	1.04	8.30	1.23
12:30 p.m. - 1:00 p.m.	1.18	1.15	1.21	1.18	1.04	10.30	1.24
10:30 a.m. - 1:00 p.m.	**1.19**	**1.15**	**1.19**	**1.18**	**1.05**	**9.57**	**1.24**
1:00 p.m. - 1:30 p.m.	1.22	1.20	1.25	1.22	1.08	7.96	1.25
1:30 p.m. - 2:00 p.m.	1.21	1.18	1.25	1.22	1.06	6.81	1.25
2:00 p.m. - 2:30 p.m.	1.20	1.17	1.23	1.20	1.07	8.75	1.28
2:30 p.m. - 3:00 p.m.	1.19	1.14	1.23	1.19	1.06	7.90	1.24
3:00 p.m. - 3:30 p.m.	1.19	1.14	1.24	1.19	1.07	9.16	1.24
1:00 p.m. - 3:30 p.m.	**1.20**	**1.16**	**1.24**	**1.20**	**1.07**	**8.18**	**1.25**
4:00 p.m. - 4:30 p.m.	1.18	1.15	1.23	1.18	1.05	8.18	1.21
4:30 p.m. - 5:00 p.m.	1.17	1.14	1.18	1.17	1.08	8.78	1.20
5:00 p.m. - 5:30 p.m.	1.17	1.17	1.20	1.17	1.08	7.66	1.21
5:30 p.m. - 6:00 p.m.	1.16	1.18	1.24	1.17	1.08	7.12	1.20
6:00 p.m. - 6:30 p.m.	1.17	1.17	1.24	1.17	1.09	7.27	1.20
4:00 p.m. - 6:30 p.m.	**1.17**	**1.16**	**1.22**	**1.17**	**1.08**	**7.75**	**1.20**
All Day	**1.17**	**1.15**	**1.20**	**1.17**	**1.06**	**8.59**	**1.22**

Table 8

VEHICLE AVAILABILITY AND OCCUPANCY CHANGES IN THE PENNSYLVANIA COUNTIES

	Vehicle Availability			Vehicle Occupancy		
County	1980	1990	Change	1988 House-hold Survey	1996 Road-side Survey	Change
Bucks	0.54	0.66	24.1%	1.40	1.18	-15.7%
Chester	0.52	0.67	27.8%	1.51	1.17	-22.5%
Delaware	0.48	0.58	20.6%	1.39	1.15	-17.3%
Montgomery	0.55	0.66	21.8%	1.37	1.16	-15.3%
Philadelphia	0.30	0.34	11.4%	1.39	1.18	-15.1%
Total	**0.42**	**0.51**	**21.9%**	**1.40**	**1.17**	**-16.4%**

Note: Vehicle Availability represents the number of vehicles available per person. The 1980 and 1990 ratios are not strictly comparable, as the 1980 Census counted automobiles only, whereas the 1990 Census included passenger vans and pickups. Vehicle Occupancy is the average occupancy of autos, pickups, and vans.

VI. CONCLUSIONS

This report documents the sample size, methodology, and results of a DVRPC effort to determine average vehicle occupancy rates for the nine counties of the region by means of a field survey. The following highlights are reported from the findings derived through the analysis of additional criteria collected at 109 locations to enhance the scope of the study:

- At the state level the average occupancy rate for all vehicles was 1.30 persons per vehicle in New Jersey and 1.21 in Pennsylvania. At the county level, the range varied from a low of 1.17 in Delaware County to a high of 1.41 in Camden County. The values for the remaining counties all fell between 1.20 and 1.28.
- In New Jersey, the rate for autos, pickups, and vans was 1.22, for trucks 1.06, and for buses 9.30 occupants per vehicle. In Pennsylvania the corresponding rates were 1.17, 1.05, and 8.51, respectively.
- It was found that the lower the functional class of the highway system, the higher the occupancy rate for all vehicles combined.
- Peak and off-peak rates are derived from a detailed analysis of the results by hour of the day. In New Jersey, the average vehicle rate during the morning peak was 1.28, and during the evening peak, 1.25. The highest rates were observed during the early afternoon period, when they averaged 1.34 persons per vehicle. In Pennsylvania, both peak periods averaged 1.20, and the midday periods about 1.24.
- Vehicle availability continues to increase and vehicle occupancy to decline across the region. Generally, the larger the increase in availability, the greater the drop in occupancy. These results are consistent with those observed in other metropolitan areas.

APPENDICES

APPENDIX I - Sample Size

SAMPLE SIZE

The sample size is usually estimated based on assumed values for the composite standard deviation of vehicle occupancy, sampling error allowance, and confidence level desired. Generally, large variation in observed vehicle occupancy rates would require a larger sample size for a given sampling error allowance and confidence level. Since the sampling error allowance and confidence level are chosen based on budget and desirable accuracy, the composite standard deviation is the only parameter that needs to be determined before estimating the sample size. According to the method described in the federal guidelines[1], the composite standard deviation is estimated as shown in the following formula.

$$SO = \sqrt{SOL^2 + SOS^2 + SOW^2}$$

where:

SO = composite standard deviation of vehicle occupancy,
SOL = standard deviation of average occupancy across link-days within a season,
SOS = standard deviation of average occupancy across seasons,
SOW = standard deviation of average occupancy across time periods during the day.

A link-day represents a count taken for a full day at one location.

The sample size of link-days (N) needed to estimate average occupancy within a desired tolerance is computed as:

$$N = \left(\frac{Z \times SO}{DOCC} \right)^2$$

where:

Z = standard score under normal distribution, which is 1.96 at 95% confidence level,
DOCC = acceptable sampling error allowance between the estimated average occupancy and the true value,
SO = composite standard deviation of average occupancy.

Using the values of standard deviations of vehicle occupancy obtained from a DVRPC survey, SOL, SOS, and SOW are chosen as 0.043, 0.015, and 0.039, respectively. The composite

---

[1]Guide for Estimating Urban Vehicle Classification and Occupancy, USDOT, Federal Highway Administration, September 1980.

standard deviation is:

$$SO = \sqrt{0.043^2 + 0.015^2 + 0.039^2} = 0.060$$

Therefore, at 95% confidence interval, given ±0.03 persons/vehicle as the sampling error allowance the sample size for estimating annual average vehicle occupancy is computed as follows:

$$N = \left(\frac{1.96 \ x \ 0.060}{0.03} \right)^2 = 16 \ Link\text{-}Days$$

Thus, a minimum of 16 randomly chosen link-days should be sampled at the regional level to achieve the defined survey objective. However, the survey also requires that the results be tabulated by federal functional classification and area type. In this case, the total of 16 link-days of sample size will not be sufficient of maintain the sampling error allowance for each stratum. In order to maintain the ±0.03 sampling error at 95% confidence level for each highway stratum, the sample size should be the product of the number of strata by the 16 link-days, which is 112 link-days (7 Functional Classes x 16 = 112 Link-Days). Practically, this sample size would make the survey very expensive.

On the other hand, the proportion of truck travel will also be tallied from this survey. A similar methodology is used to estimate the sample size for this purpose. In this case, the composite standard deviation consists of three components, which are variation of the truck proportion across link-days within a season, variation across seasons, and variation across time periods during the day. The composite standard deviation for the proportion of trucks can be expressed as:

$$ST = \sqrt{STL^2 + STS^2 + STW^2}$$

where:

ST = composite standard deviation of the proportion of trucks,
STL = standard deviation of the proportion of trucks across link-days within a season,
STS = standard deviation of the proportion of trucks across season,
STW = standard deviation of the proportion of trucks across time periods during the day.

Using the recommended values for STL, STS, and STW (0.040, 0.014, and 0.009,

respectively), the composite standard deviation is estimated as follows:

$$ST = \sqrt{0.040^2 + 0.014^2 + 0.009^2} = 0.043$$

At a 95 percent confidence level and a sampling error allowance of ±1% trucks (expressed as 0.01), the sample size can be computed as follows:

$$N = \left(\frac{Z \; x \; ST}{DTR} \right)^2$$

$$= \left(\frac{1.96 \; x \; 0.043}{0.01} \right)^2 = 72 \; link\text{-}days$$

where:

DTR	=	acceptable difference between the estimated truck proportion and the true value (sampling error allowance),
Z	=	standard score under normal distribution for the specified confidence level; two-tailed test,
N	=	number of link-days of data collection required.

Thus, a minimum of 72 randomly chosen link-days should be sampled in the DVRPC region, which is larger than that estimated for vehicle occupancy surveys. In practice, the sample size for proportion of truck survey will dictate the scale of the project.

APPENDIX II - Tables

Table A-1

VEHICLE OCCUPANCY SURVEY LOCATIONS IN NEW JERSEY BY HIGHWAY FUNCTIONAL CLASS AND COUNTY

Sample No.	Route	Survey Location	FHWA Functional Class	Code Number	Area Type	Average Daily Traffic (ADT)	Total Sample	Percent of ADT
	BURLINGTON COUNTY							
1	I-295	Bet Tr 541 & Tr 656	Interstate	11	Urban	50,600	24,529	48.5%
2	PA-NJ Tpk Conn	Bet US 130 & NJ Tpk	Other Expressway	2	Rural	26,500	13,734	51.8%
3	US 206	Bet Tr 642 & NJ 70	Principal Arterial	2	Rural	15,400	8,559	55.6%
4	Tr 541	Bet I-295 & NJ Tpk	Principal Arterial	14	Urban	30,000	22,677	75.6%
5	Tr 626	Bet I-295 & Tr 637	Principal Arterial	14	Urban	16,300	10,242	62.8%
6	Tr 669	Bet Pointville Rd & Tr 530	Minor Arterial	6	Rural	5,200	2,983	57.4%
7	Tr 636	Bet Tr 613 & I-295	Minor Arterial	16	Urban	6,300	3,695	58.7%
8	Tr 600	Bet NJ 70 & Cropwell Rd	Minor Arterial	16	Urban	17,600	8,312	47.2%
9	Tr 677	Bet Tr 660 & Tr 528	Major Collector	7	Rural	3,100	1,695	54.7%
10	Tr 668	Bet Tr 669 & Tr 630	Minor Collector	8	Rural	3,500	2,049	58.5%
11	Tr 624	Bet Tr 543 & Bridgeboro Rd.	Collector	17	Urban	3,500	1,913	54.7%
12	Tr 678	Bet NJ Tpk & US 206	Local	9	Rural	500	389	77.8%
13	Mansfield-G'town Rd	Bet US 206 & NJ 68	Local	9	Rural	700	560	80.0%
14	Collins Ln	Bet Fork Landing Rd & N Coles Av	Local	19	Urban	1,600	875	54.7%
	CAMDEN COUNTY							
15	New Jersey Tpk	at Interchange #3	Interstate	11	Urban	8,600	5,578	64.9%
16	Atlantic City Expwy	Bet Freedom & Malaga Rds.	Other Expressway	12	Urban	38,800	10,832	27.9%
17	US 30	Bet Walker Rd & Atlantic Co Line	Principal Arterial	2	Rural	11,100	7,713	69.5%
18	NJ 168	Bet I-295 & Tr 659	Principal Arterial	14	Urban	25,400	18,474	72.7%
19	NJ 154	Bet Evans Mill Rd & NJ 70	Principal Arterial	14	Urban	16,400	10,982	67.0%
20	Tr 561	Bet NJ 73 & Tr 710	Minor Arterial	6	Rural	4,100	2,716	66.2%
21	Tr 534	Bet Tr 683 & Tr 673	Minor Arterial	16	Urban	13,200	9,414	71.3%
22	Tr 536	Bet Tr 716 & Church Av	Major Collector	7	Rural	2,500	1,746	69.8%
23	Tr 723	Bet Tr 726 & Tr 561	Minor Collector	8	Rural	2,100	1,387	66.0%
24	Tr 715	Bet Tr 534 & Raritan Av	Collector	17	Urban	1,600	1,117	69.8%
25	Tr 727	Bet Columbia & Cornell Avs.	Collector	17	Urban	4,800	2,911	60.6%
26	Pestleton Rd	Bet Tr 536 & Wharton Av	Local	9	Rural	1,000	652	65.2%
27	4th Av	Bet Evergreen & Elm Avs	Local	19	Urban	900	452	50.2%

Table A-1 (cont.)

VEHICLE OCCUPANCY SURVEY LOCATIONS IN NEW JERSEY BY HIGHWAY FUNCTIONAL CLASS AND COUNTY

Sample No.	Route	Survey Location	FHWA Functional Class	Code Number	Area Type	Average Daily Traffic (ADT)	Total Sample	Percent of ADT
	GLOUCESTER COUNTY							
28	I-295	Bet Salem Co Line & Tr 620	Interstate	1	Rural	29,000	13,212	45.6%
29	NJ 55	Bet Tr 553 & NJ 47	Other Expressway	12	Urban	43,500	21,870	50.3%
30	US 322	Bet Tr 635 & Tr 609	Principal Arterial	2	Rural	14,400	8,666	60.2%
31	Tr 553	Bet Cooper St & Barber Rd	Principal Arterial	14	Urban	20,700	7,078	34.2%
32	Tr 534	Bet Tr 553 & NJ Tpk	Principal Arterial	14	Urban	15,700	11,954	76.1%
33	US 130	Bet Salem Co Line & Center Square Rd	Minor Arterial	6	Rural	5,400	2,784	51.6%
34	NJ 45	Bet Tr 678 & Tr 632	Minor Arterial	16	Urban	13,100	9,203	70.3%
35	Tr 655	Bet NJ 42 & Tr 654	Minor Arterial	16	Urban	10,200	7,821	76.7%
36	Tr 555	Bet Tr 538 & Tr 659	Major Collector	7	Rural	5,100	2,822	55.3%
37	Tr 667	Bet Tr 619 & Tr 553	Minor Collector	8	Rural	1,600	619	38.7%
38	Mantua Av	Bet NJ 44 & 2nd St	Collector	17	Urban	3,700	1,398	37.8%
39	Walters Rd	Bet Tr 667 & US 322	Local	9	Rural	1,100	562	51.1%
40	Crafton Av	Bet Oak Crest Av & Highland Ter	Local	19	Urban	700	444	63.4%
	MERCER COUNTY							
41	I-195	Bet Interchanges 3 & 4	Interstate	11	Urban	30,400	17,622	58.0%
42	US 1 Toll Booth	Bet NJ & PA	Other Expressway	12	Urban	35,000	13,552	38.7%
43	NJ 31	Bet Tr 612 & Yard Rd	Principal Arterial	2	Rural	14,500	8,008	55.2%
44	US 130	Bet Burlington Co Line & Arlington Av	Principal Arterial	14	Urban	28,400	15,169	53.4%
45	US 206	Bet Fairfield Av & Eggert Crossing Rd	Principal Arterial	14	Urban	16,700	8,987	53.8%
46	Tr 526	Bet I-195 & Spring Garden Rd	Minor Arterial	6	Rural	6,400	3,482	54.4%
47	Tr 539	Bet Airport & Conover Rds	Minor Arterial	16	Urban	4,800	2,896	60.3%
48	Nottingham Way	Bet Tr 535 & Berkley St	Minor Arterial	16	Urban	10,900	6,569	60.3%
49	Penn.-Rocky Hill Rd	Bet Moore's Mill Rd & Tr 569	Major Collector	7	Rural	3,200	2,166	67.7%
50	Perrineville Rd	Bet Tr 641 & Voelbel Rd	Minor Collector	8	Rural	1,500	501	33.4%
51	Cranbury Rd	Bet Rabbit Hill Rd & Middlesex C. Line	Collector	17	Urban	4,500	3,369	74.9%
52	Village Rd	Bet Tr 533 & N Post Rd	Collector	17	Urban	7,600	5,108	67.2%
53	Park Av	Bet Nottingham Way & Maple Shade Av	Local	19	Urban	800	423	52.9%
54	Hibben Rd	Bet US 206 & Tr 583	Local	19	Urban	1,300	856	65.8%

Table A-2
VEHICLE OCCUPANCY COUNTS BY VEHICLE TYPE
FOR SURVEY LOCATIONS IN NEW JERSEY

No.	Route	Auto	% of Total	Pass Pickup	Work Pickup	Total Pickup	% of Total	Pass Van	Work Van	Total Van	% of Total	Auto, Pick-up, Van	% of Total	Light Truck	Heavy Truck	Total Truck	% of Total	Bus	% of Total	Total
1	I-295	16,238	66.2%	1,100	779	1,879	7.7%	1,226	591	1,817	7.4%	19,934	81.3%	950	3,530	4,480	18.3%	115	0.5%	24,529
2	PA-NJ Tpk Conn	8,632	62.9%	592	422	1,014	7.4%	773	414	1,187	8.6%	10,833	78.9%	720	2,103	2,823	20.6%	78	0.6%	13,734
3	US 206	5,353	62.5%	702	451	1,153	13.5%	638	279	917	10.7%	7,423	86.7%	423	593	1,016	11.9%	120	1.4%	8,559
4	TR 541	16,184	71.4%	1,207	615	1,822	8.0%	2,109	643	2,752	12.1%	20,758	91.5%	714	946	1,660	7.3%	259	1.1%	22,677
5	TR 626	8,006	78.2%	537	158	695	6.8%	707	215	922	9.0%	9,623	94.0%	180	226	406	4.0%	213	2.1%	10,242
6	TR 669	2,089	70.0%	320	60	380	12.7%	242	44	286	9.6%	2,755	92.4%	83	10	93	3.1%	135	4.5%	2,983
7	TR 636	2,657	71.9%	558	72	630	17.1%	180	96	276	7.5%	3,563	96.4%	6	125	131	3.5%	1	0.0%	3,695
8	TR 600	7,307	87.9%	173	120	293	3.5%	358	243	601	7.2%	8,201	98.7%	48	23	71	0.9%	40	0.5%	8,312
9	TR 677	1,091	64.4%	262	92	354	20.9%	114	63	177	10.4%	1,622	95.7%	46	6	52	3.1%	21	1.2%	1,695
10	TR 668	1,571	76.7%	166	30	196	9.6%	151	37	188	9.2%	1,955	95.4%	16	4	20	1.0%	74	3.6%	2,049
11	TR 624	1,486	77.7%	159	21	180	9.4%	52	39	91	4.8%	1,757	91.8%	63	73	136	7.1%	20	1.0%	1,913
12	TR 678	232	59.6%	70	8	78	20.1%	38	4	42	10.8%	352	90.5%	1	30	31	8.0%	6	1.5%	389
13	Mansfield Rd	375	67.0%	57	12	69	12.3%	31	12	43	7.7%	487	87.0%	10	53	63	11.3%	10	1.8%	560
14	Collins Ln	757	86.5%	15	6	21	2.4%	64	19	83	9.5%	861	98.4%	11	1	12	1.4%	2	0.2%	875
Total	Burlington	71,978	70.4%	5,918	2,846	8,764	8.6%	6,683	2,699	9,382	9.2%	90,124	88.2%	3,271	7,723	10,994	10.8%	1,094	1.1%	102,212
15	NJ Tpk	3,863	69.3%	247	225	472	8.5%	474	203	677	12.1%	5,012	89.9%	199	346	545	9.8%	21	0.4%	5,578
16	AC Expwy	8,113	74.9%	514	325	839	7.7%	731	312	1,043	9.6%	9,995	92.3%	274	278	552	5.1%	285	2.6%	10,832
17	US 30	5,654	73.3%	628	279	907	11.8%	485	231	716	9.3%	7,277	94.3%	267	115	382	5.0%	54	0.7%	7,713
18	NJ 168	13,086	70.8%	1,075	642	1,717	9.3%	1,370	875	2,245	12.2%	17,048	92.3%	671	580	1,251	6.8%	175	0.9%	18,474
19	NJ 154	8,199	74.7%	607	277	884	8.0%	1,078	253	1,331	12.1%	10,414	94.8%	262	82	344	3.1%	224	2.0%	10,982
20	TR 561	1,982	73.0%	181	82	263	9.7%	178	60	238	8.8%	2,483	91.4%	68	55	123	4.5%	110	4.1%	2,716
21	TR 534	7,113	75.6%	486	449	935	9.9%	644	243	887	9.4%	8,935	94.9%	236	78	314	3.3%	165	1.8%	9,414
22	TR 536	1,153	66.0%	262	66	328	18.8%	95	51	146	8.4%	1,627	93.2%	72	25	97	5.6%	22	1.3%	1,746
23	TR 723	942	67.9%	217	55	272	19.6%	64	28	92	6.6%	1,306	94.2%	28	28	56	4.0%	25	1.8%	1,387
24	TR 715	865	77.4%	107	33	140	12.5%	52	15	67	6.0%	1,072	96.0%	18	4	22	2.0%	23	2.1%	1,117
25	TR 727	2,432	83.5%	184	54	238	8.2%	110	42	152	5.2%	2,822	96.9%	46	12	58	2.0%	31	1.1%	2,911
26	Pestleton Rd	410	62.9%	79	40	119	18.3%	31	17	48	7.4%	577	88.5%	25	9	34	5.2%	41	6.3%	652
27	4th St	318	70.4%	45	17	62	13.7%	56	5	61	13.5%	441	97.6%	4	1	5	1.1%	6	1.3%	452
Total	Camden	54,130	73.2%	4,632	2,544	7,176	9.7%	5,368	2,335	7,703	10.4%	67,991	91.9%	2,170	1,613	3,783	5.1%	1,182	1.6%	73,974

Table A-2 (cont.)
VEHICLE OCCUPANCY COUNTS BY VEHICLE TYPE
FOR SURVEY LOCATIONS IN NEW JERSEY

No.	Route	Auto	% of Total	Pass Pickup	Work Pickup	Total Pickup	% of Total	Pass Van	Work Van	Total Van	% of Total	Auto, Pick-up, Van	% of Total	Light Truck	Heavy Truck	Total Truck	% of Total	Bus	% of Total	Total
28	I-295	7,253	54.9%	754	512	1,266	9.6%	977	360	1,337	10.1%	9,856	74.6%	575	2,694	3,269	24.7%	87	0.7%	13,212
29	NJ 55	14,525	66.4%	1,327	1,096	2,423	11.1%	2,004	738	2,742	12.5%	19,690	90.0%	672	1,387	2,059	9.4%	121	0.6%	21,870
30	US 322	5,617	64.8%	928	341	1,269	14.6%	692	225	917	10.6%	7,803	90.0%	288	498	786	9.1%	77	0.9%	8,666
31	TR 553	5,229	73.9%	454	294	748	10.6%	659	169	828	11.7%	6,805	96.1%	113	65	178	2.5%	95	1.3%	7,078
32	TR 534	8,859	74.1%	778	463	1,241	10.4%	1,041	259	1,300	10.9%	11,400	95.4%	254	126	380	3.2%	174	1.5%	11,954
33	US 130	1,705	61.2%	294	84	378	13.6%	134	40	174	6.3%	2,257	81.1%	117	370	487	17.5%	40	1.4%	2,784
34	NJ 45	6,481	70.4%	598	344	942	10.2%	1,018	252	1,270	13.8%	8,693	94.5%	294	95	389	4.2%	121	1.3%	9,203
35	TR 655	5,527	70.7%	634	281	915	11.7%	727	208	935	12.0%	7,377	94.3%	227	116	343	4.4%	101	1.3%	7,821
36	TR 555	1,903	67.4%	347	97	444	15.7%	174	68	242	8.6%	2,589	91.7%	85	65	150	5.3%	83	2.9%	2,822
37	TR 667	401	64.8%	107	16	123	19.9%	43	11	54	8.7%	578	93.4%	21	3	24	3.9%	17	2.7%	619
38	Mantua Av	956	68.4%	134	4	138	9.9%	44	18	62	4.4%	1,156	82.7%	64	130	194	13.9%	48	3.4%	1,398
39	Walters Rd	426	75.8%	72	6	78	13.9%	34	8	42	7.5%	546	97.2%	6	4	10	1.8%	6	1.1%	562
40	Crafton Av	358	80.6%	26	6	32	7.2%	36	5	41	9.2%	431	97.1%	11	1	12	2.7%	1	0.2%	444
Total Gloucester		59,240	67.0%	6,453	3,544	9,997	11.3%	7,583	2,361	9,944	11.2%	79,181	89.5%	2,727	5,554	8,281	9.4%	971	1.1%	88,433
41	I-195	11,207	63.6%	1,019	383	1,402	8.0%	1,208	639	1,847	10.5%	14,456	82.0%	648	2,414	3,062	17.4%	104	0.6%	17,622
42	US 1 Toll Booth	10,262	75.7%	766	161	927	6.8%	691	266	957	7.1%	12,146	89.6%	601	767	1,368	10.1%	38	0.3%	13,552
43	NJ 31	4,722	59.0%	653	357	1,010	12.6%	665	289	954	11.9%	6,686	83.5%	577	627	1,204	15.0%	118	1.5%	8,008
44	US 130	10,587	69.8%	925	295	1,220	8.0%	985	314	1,299	8.6%	13,106	86.4%	566	1,469	2,035	13.4%	28	0.2%	15,169
45	US 206	7,009	78.0%	362	197	559	6.2%	533	267	800	8.9%	8,368	93.1%	196	212	408	4.5%	211	2.3%	8,987
46	TR 526	2,402	69.0%	259	104	363	10.4%	292	86	378	10.9%	3,143	90.3%	115	202	317	9.1%	22	0.6%	3,482
47	TR 539	2,092	72.2%	264	110	374	12.9%	169	107	276	9.5%	2,742	94.7%	88	53	141	4.9%	13	0.4%	2,896
48	Nottingham Way	4,884	74.3%	476	132	608	9.3%	563	147	710	10.8%	6,202	94.4%	163	77	240	3.7%	127	1.9%	6,569
49	Pennington Rd	1,753	80.9%	75	46	121	5.6%	138	50	188	8.7%	2,062	95.2%	49	37	86	4.0%	18	0.8%	2,166
50	Perrineville Rd	343	68.5%	44	38	82	16.4%	62	2	64	12.8%	489	97.6%	4	5	9	1.8%	3	0.6%	501
51	Cranbury Rd	2,871	85.2%	135	34	169	5.0%	234	40	274	8.1%	3,314	98.4%	4	1	5	0.1%	50	1.5%	3,369
52	Village Rd	3,937	77.1%	289	71	360	7.0%	504	115	619	12.1%	4,916	96.2%	95	26	121	2.4%	71	1.4%	5,108
53	Park Av	329	77.8%	55	1	56	13.2%	34	1	35	8.3%	420	99.3%	1	1	2	0.5%	1	0.2%	423
54	Hibben Rd	620	72.4%	60	61	121	14.1%	78	13	91	10.6%	832	97.2%	17	3	20	2.3%	4	0.5%	856
Total Mercer		63,018	71.0%	5,382	1,990	7,372	8.3%	6,156	2,336	8,492	9.6%	78,882	88.9%	3,124	5,894	9,018	10.2%	808	0.9%	88,708
Total Region		248,366	70.3%	22,385	10,924	33,309	9.4%	25,790	9,731	35,521	10.1%	316,178	89.5%	11,292	20,784	32,076	9.1%	4,055	1.1%	353,327

Table A-3
AVERAGE VEHICLE OCCUPANCY BY VEHICLE TYPE
FOR SURVEY LOCATIONS IN NEW JERSEY

No.	Route	Auto	Passenger Pickup	Work Pickup	All Pickups	Passenger Van	Work Van	All Vans	Auto, Pickup, and Van	Light Truck	Heavy Truck	All Trucks	Bus	All Vehicles
1	I-295	1.20	1.10	1.09	1.10	1.29	1.10	1.23	1.20	1.06	1.01	1.02	7.26	1.19
2	PA-NJ Tpk Conn	1.17	1.07	1.13	1.10	1.17	1.11	1.15	1.16	1.09	1.01	1.03	8.85	1.18
3	US 206	1.23	1.16	1.29	1.21	1.30	1.14	1.25	1.23	1.17	1.04	1.10	9.83	1.33
4	Tr 541	1.23	1.15	1.24	1.18	1.23	1.32	1.26	1.23	1.14	1.03	1.08	9.21	1.31
5	Tr 626	1.20	1.14	1.11	1.13	1.27	1.16	1.25	1.20	1.09	1.05	1.07	8.22	1.34
6	Tr 669	1.25	1.24	1.28	1.25	1.32	1.09	1.29	1.25	1.29	1.00	1.26	14.15	1.84
7	Tr 636	1.25	1.14	1.22	1.15	1.16	1.14	1.15	1.22	1.33	1.00	1.02	15.00	1.22
8	Tr 600	1.19	1.12	1.25	1.17	1.19	1.37	1.26	1.19	1.21	1.09	1.17	8.88	1.23
9	Tr 677	1.21	1.13	1.24	1.16	1.26	1.19	1.24	1.20	1.09	1.17	1.10	11.19	1.32
10	Tr 668	1.22	1.11	1.10	1.11	1.17	1.08	1.15	1.20	1.06	1.25	1.10	9.32	1.49
11	Tr 624	1.22	1.10	1.10	1.10	1.27	1.13	1.21	1.20	1.03	1.03	1.03	6.50	1.25
12	Tr 678	1.23	1.19	1.00	1.17	1.32	1.25	1.31	1.23	2.00	1.00	1.03	9.17	1.33
13	Mansfield-G'town Rd	1.23	1.25	1.00	1.20	1.19	1.00	1.14	1.22	1.00	1.02	1.02	8.00	1.32
14	Collins Ln	1.24	1.33	1.17	1.29	1.39	1.47	1.41	1.25	1.00	1.00	1.00	7.50	1.27
	BURLINGTON COUNTY	1.21	1.14	1.18	1.15	1.25	1.19	1.23	1.21	1.11	1.02	1.04	9.44	1.28
15	New Jersey Tpk	1.27	1.19	1.27	1.23	1.51	1.25	1.43	1.29	1.26	1.05	1.13	18.57	1.33
16	Atlantic City Expwy	1.41	1.19	1.21	1.20	1.33	1.20	1.29	1.38	1.12	1.05	1.09	15.25	1.73
17	US 30	1.32	1.13	1.17	1.14	1.37	1.20	1.32	1.29	1.12	1.04	1.10	9.35	1.34
18	NJ 168	1.27	1.18	1.20	1.19	1.31	1.17	1.25	1.26	1.13	1.05	1.09	8.43	1.31
19	NJ 154	1.21	1.21	1.20	1.21	1.36	1.35	1.36	1.23	1.23	1.27	1.24	8.82	1.39
20	Tr 561	1.28	1.25	1.24	1.25	1.35	1.18	1.31	1.28	1.09	1.05	1.07	6.41	1.48
21	Tr 534	1.29	1.16	1.19	1.18	1.32	1.19	1.29	1.28	1.17	1.05	1.14	8.15	1.40
22	Tr 536	1.24	1.37	1.39	1.38	1.32	1.16	1.26	1.27	1.17	1.00	1.12	10.45	1.38
23	Tr 723	1.28	1.24	1.22	1.24	1.53	1.21	1.43	1.28	1.04	1.04	1.04	8.00	1.39
24	Tr 715	1.25	1.13	1.24	1.16	1.37	1.33	1.36	1.24	1.22	1.75	1.32	6.96	1.36
25	Tr 727	1.26	1.30	1.19	1.27	1.32	1.33	1.32	1.26	1.33	1.50	1.36	7.74	1.33
26	Pestleton Rd	1.16	1.14	1.10	1.13	1.26	1.00	1.17	1.15	1.08	1.33	1.15	7.07	1.52
27	4th Av	1.28	1.11	1.24	1.15	1.68	1.20	1.64	1.31	2.25	1.00	2.00	9.17	1.42
	CAMDEN COUNTY	1.29	1.20	1.21	1.20	1.35	1.21	1.31	1.28	1.16	1.07	1.12	10.08	1.41

Table A-3 (cont.)
AVERAGE VEHICLE OCCUPANCY BY VEHICLE TYPE
FOR SURVEY LOCATIONS IN NEW JERSEY

No.	Route	Auto	Passenger Pickup	Work Pickup	All Pickups	Passenger Van	Work Van	All Vans	Auto, Pickup, and Van	Light Truck	Heavy Truck	All Trucks	Bus	All Vehicles
28	I-295	1.21	1.18	1.21	1.19	1.27	1.14	1.24	1.21	1.16	1.03	1.06	8.39	1.22
29	NJ 55	1.15	1.10	1.11	1.11	1.17	1.11	1.15	1.14	1.09	1.01	1.03	11.12	1.19
30	US 322	1.27	1.20	1.26	1.22	1.39	1.23	1.35	1.27	1.25	1.07	1.13	7.86	1.32
31	Tr 553	1.24	1.21	1.19	1.20	1.34	1.30	1.33	1.25	1.28	1.02	1.19	7.63	1.33
32	Tr 534	1.23	1.16	1.13	1.15	1.32	1.18	1.29	1.23	1.15	1.10	1.14	9.25	1.34
33	US 130	1.20	1.18	1.17	1.17	1.25	1.08	1.21	1.20	1.12	1.05	1.07	5.25	1.23
34	NJ 45	1.18	1.14	1.25	1.18	1.26	1.21	1.25	1.19	1.18	1.20	1.19	9.30	1.30
35	Tr 655	1.22	1.20	1.30	1.23	1.41	1.30	1.38	1.24	1.30	1.10	1.23	9.26	1.35
36	Tr 555	1.19	1.16	1.21	1.17	1.17	1.15	1.16	1.18	1.11	1.03	1.07	9.04	1.41
37	Tr 667	1.18	1.15	1.44	1.19	1.30	1.00	1.24	1.19	1.19	0.67	1.13	11.18	1.46
38	Mantua Av	1.18	1.09	1.50	1.10	1.55	1.22	1.45	1.18	1.09	1.00	1.03	5.21	1.30
39	Walters Rd	1.21	1.26	4.00	1.47	1.56	1.38	1.52	1.27	1.33	1.00	1.20	12.50	1.39
40	Crafton Av	1.25	1.12	1.33	1.16	1.39	1.40	1.39	1.26	1.36	2.00	1.42	30.00	1.33
GLOUCESTER COUNTY		1.20	1.16	1.19	1.17	1.28	1.18	1.25	1.21	1.17	1.04	1.08	8.84	1.28
41	I-195	1.19	1.16	1.16	1.16	1.21	1.14	1.18	1.19	1.06	1.01	1.02	9.42	1.21
42	US 1 Toll Booth	1.14	1.14	1.25	1.16	1.28	1.17	1.25	1.15	1.05	1.03	1.04	11.45	1.17
43	NJ 31	1.22	1.13	1.12	1.13	1.13	1.24	1.17	1.20	1.07	1.07	1.07	7.20	1.26
44	US 130	1.19	1.13	1.19	1.14	1.25	1.22	1.24	1.19	1.05	1.01	1.02	7.50	1.18
45	US 206	1.24	1.21	1.21	1.21	1.25	1.19	1.23	1.24	1.11	1.05	1.08	9.62	1.43
46	Tr 526	1.23	1.17	1.09	1.15	1.29	1.12	1.25	1.23	1.07	1.03	1.05	7.05	1.25
47	Tr 539	1.25	1.19	1.20	1.19	1.33	1.16	1.26	1.24	1.19	1.02	1.13	10.38	1.28
48	Nottingham Way	1.17	1.16	1.22	1.17	1.22	1.15	1.21	1.18	1.21	1.06	1.16	7.95	1.31
49	Penn.-Rocky Hill Rd	1.18	1.21	1.37	1.27	1.38	1.32	1.36	1.20	1.31	1.19	1.26	10.83	1.28
50	Perrineville Rd	1.18	1.30	1.32	1.30	1.29	2.50	1.33	1.22	1.25	1.20	1.22	5.00	1.24
51	Cranbury Rd	1.16	1.10	1.03	1.08	1.42	1.10	1.38	1.18	1.00	1.00	1.00	8.60	1.29
52	Village Rd	1.18	1.15	1.34	1.18	1.23	1.21	1.23	1.19	1.25	1.23	1.25	5.70	1.25
53	Park Av	1.11	1.16	1.00	1.16	1.24	1.00	1.23	1.13	1.00	1.00	1.00	5.00	1.13
54	Hibben Rd	1.21	1.37	1.20	1.28	1.24	1.46	1.27	1.23	1.18	1.00	1.15	5.00	1.24
MERCER COUNTY		1.19	1.16	1.18	1.16	1.24	1.18	1.23	1.19	1.08	1.03	1.05	8.51	1.24

Table A-4

VEHICLE OCCUPANCY SURVEY LOCATIONS IN PENNSYLVANIA BY HIGHWAY FUNCTIONAL CLASS AND BY COUNTY

Sample No.	Route	Survey Location	FHWA Functional Class	Code Number	Area Type	Average Daily Traffic (ADT)	Total Sample	Percent of ADT
	BUCKS COUNTY							
1	I-95	Bet PA 332 & Taylorsville Rd	Interstate	11	Urban	51,567	14,151	27.4%
2	PA 263	Bet PA 132 & Roberts Rd	Principal Arterial	14	Urban	27,284	17,479	64.1%
3	Levittown Pkwy	Bet Trenton Rd & Hood Blvd	Minor Arterial	16	Urban	20,428	13,546	66.3%
4	Trevose Rd	Bet County Line Rd & Lukens St	Collector	17	Urban	6,450	969	15.0%
5	Mayflower Av	Bet Donnallen & Declaration Drs	Local	19	Urban	1,956	1,016	51.9%
6	PA 309	Bet State Rd & PA 152	Other Expressway	2	Rural	34,312	10,350	30.2%
7	PA 611	Bet Durham & Farm School Rds	Principal Arterial	2	Rural	11,135	4,362	39.2%
8	PA 32, River Rd	Bet Brownsburg & Lurgan Rds	Minor Arterial	6	Rural	6,280	1,329	21.2%
9	Aquetong Rd	Bet Covered Brdg & Old Windy Bush Rds	Major Collector	7	Rural	1,637	798	48.7%
10	Callowhill Rd	Bet Ferry & Creek Rds	Minor Collector	8	Rural	991	1,792	180.8%
11	Creamery Rd	Bet Kumry & Trumbauersville Rd	Local	9	Rural	657	365	55.6%
	CHESTER COUNTY							
12	US 202	Bet King Rd & RR Overpass	Other Expressway	12	Urban	38,035	16,497	43.4%
13	PA 100	Bet Gordon Dr & PA 113	Principal Arterial	14	Urban	24,208	20,974	86.6%
14	PA 252	Bet Contention Ln & Valley Forge Rd	Minor Arterial	16	Urban	11,219	9,319	83.1%
15	Hares Hill Rd	Bet Miller Rd & PA 23	Collector	17	Urban	2,876	888	30.9%
16	Lincoln Av	Bet Point Rd & Garfield St	Local	19	Urban	2,218	1,229	55.4%
17	I-76, PA Tpke	Bet Interchanges 22 & 23	Other Expressway	2	Rural	31,564	8,825	28.0%
18	US 322	Bet Chestnut Tree & Cupola Rds	Principal Arterial	2	Rural	10,600	4,178	39.4%
19	PA 724	Bet Anderson & Wells Rds	Minor Arterial	6	Rural	11,602	3,828	33.0%
20	Strasburg Rd	Bet PA 372 & Wagner Lyons Rd	Major Collector	7	Rural	3,881	504	13.0%
21	Oxford Rd	Bet PA 896 & Hutchinson Rd	Minor Collector	8	Rural	2,045	1,153	56.4%
22	Woodchuck Way	Bet US 1 & Turkey Hollow Rd	Local	9	Rural	915	139	15.2%

Table A-4 (cont.)

VEHICLE OCCUPANCY SURVEY LOCATIONS IN PENNSYLVANIA BY HIGHWAY FUNCTIONAL CLASS AND BY COUNTY

Sample No.	Route	Survey Location	FHWA Functional Class	Code Number	Area Type	Average Daily Traffic (ADT)	Total Sample	Percent of ADT
	DELAWARE COUNTY							
23	I-476	Bet US 1 & PA 3	Interstate	11	Urban	69,200	61,714	89.2%
24	I-95 NB	Bet I-476 Ramps	Interstate	11	Urban	40,500	29,982	74.0%
25	US 1	Bet Baltimore Pike & PA 252	Other Expressway	12	Urban	37,242	13,225	35.5%
26	PA 3	Bet Boot Rd & PA 252	Principal Arterial	14	Urban	26,966	8,570	31.8%
27	Baltimore Pike	Bet North Av & Norwinden Dr	Principal Arterial	14	Urban	29,608	10,976	37.1%
28	Burmont Rd	Bet State Rd & Woodland Av	Minor Arterial	16	Urban	11,590	3,007	25.9%
29	Meetinghouse Rd	Bet Rogers Av & Locust St	Minor Arterial	16	Urban	6,916	2,560	37.0%
30	Beatty Rd	Bet PA 252 & Baltimore Pike	Collector	17	Urban	4,500	3,472	77.2%
31	Cleveland Av	Bet Printz & Elmwood Avs	Local	19	Urban	2,280	898	39.4%
32	Walnut Av	Bet Oak Ln & Radnor Rd	Local	19	Urban	1,536	942	61.3%
33	Smith Bridge Rd	Bet Ridge Rd & Wildness Way	Major Collector	7	Rural	947	729	77.0%
	MONTGOMERY COUNTY							
34	I-476	Bet Germantown Pike EB & WB Ramps	Interstate	11	Urban	75,000	33,020	44.0%
35	PA 611	Bet Meetinghouse Rd & PA 463	Principal Arterial	14	Urban	23,458	17,442	74.4%
36	Montgomery Av	Bet I-76 & Upper Gulph Rd	Minor Arterial	16	Urban	18,643	16,398	88.0%
37	Terwood Rd	Bet PA 63 & Fetter's Mill Rd	Collector	17	Urban	5,982	3,609	60.3%
38	Fairground Rd	Bet Funks & Elroy Rds	Local	19	Urban	2,837	1,592	56.1%
39	US 422	Bet Township Line & Lewis Rd	Other Expressway	2	Rural	41,099	13,310	32.4%
40	PA 73	Bet Store & Evansburg Rds	Principal Arterial	2	Rural	15,929	6,337	39.8%
41	Whitehall Rd	Bet PA 73 & Bean Rd	Minor Arterial	6	Rural	5,995	2,206	36.8%
42	Old Skippack Pike	Bet Shelley & Freeman School Rds	Major Collector	7	Rural	2,148	736	34.3%
43	Limerick Rd	Bet Ridge Pike & Graterford Rd	Minor Collector	8	Rural	1,322	378	28.6%
44	Bergey Rd	Bet Morwood & Indian Creek Rds	Local	9	Rural	542	196	36.2%

Table A-4 (cont.)

VEHICLE OCCUPANCY SURVEY LOCATIONS IN PENNSYLVANIA BY HIGHWAY FUNCTIONAL CLASS AND BY COUNTY

Sample No.	Route	Survey Location	FHWA Functional Class	Code Number	Area Type	Average Daily Traffic (ADT)	Total Sample	Percent of ADT
	PHILADELPHIA COUNTY							
45	I-676 WB	Bet 22nd & 23rd St Ramps	Interstate	11	Urban	125,000	32,495	26.0%
46	I-95 SB	Bet Center City Off Ramps & Penns Lndg	Interstate	11	Urban	41,900	26,804	64.0%
47	PA 63	Bet US 1 & Thornton Rd	Other Expressway	12	Urban	58,575	36,946	63.1%
48	Broad St NB	Bet Erie Av & Venango St	Principal Arterial	14	Urban	21,840	8,105	37.1%
49	Chestnut St	Bet 34th & 36th Sts	Principal Arterial	14	Urban	21,781	5,443	25.0%
50	PA 291	Bet Lanier Av & Platt Bridge	Principal Arterial	14	Urban	42,973	30,336	70.6%
51	Arch St	Bet 11th & 12th Sts	Minor Arterial	16	Urban	10,977	3,817	34.8%
52	Race St	Bet 11th & 12th Sts	Minor Arterial	16	Urban	na	3,876	na
53	Allens Ln	Bet Germantown Av & Bryan St	Collector	17	Urban	6,257	4,035	64.5%
54	Cresco Av	Bet Rhawn St & Welsh Rd	Local	19	Urban	2,335	1,535	65.7%
55	Sansom St	Bet 16th & 17th Sts	Local	19	Urban	na	2,665	na

Table A-5
VEHICLE OCCUPANCY COUNTS BY VEHICLE TYPE
FOR SURVEY LOCATIONS IN PENNSYLVANIA

No.	Route	Auto	% of Total	Pass Pickup	Work Pickup	Total Pickup	% of Total	Pass Van	Work Van	Total Van	% of Total	Auto, Pick-up, Van	% of Total	Light Truck	Heavy Truck	Total Truck	% of Total	Bus	% of Total	Total
1	I-95	12,191	86.1%	344	63	407	2.9%	242	75	317	2.2%	12,915	91.3%	321	780	1,101	7.8%	135	1.0%	14,151
2	PA 263	13,752	78.7%	874	271	1,145	6.6%	1,486	324	1,810	10.4%	16,707	95.6%	352	199	551	3.2%	221	1.3%	17,479
3	Oxford Valley Rd	11,380	84.0%	789	141	930	6.9%	757	191	948	7.0%	13,258	97.9%	142	61	203	1.5%	85	0.6%	13,546
4	Trevose Rd	787	81.2%	99	19	118	12.2%	14	10	24	2.5%	929	95.9%	23	13	36	3.7%	4	0.4%	969
5	Mayflower Av	814	80.1%	21	32	53	5.2%	90	28	118	11.6%	985	96.9%	19	1	20	2.0%	11	1.1%	1,016
6	PA 309	7,247	70.0%	1,082	151	1,233	11.9%	905	285	1,190	11.5%	9,670	93.4%	334	299	633	6.1%	47	0.5%	10,350
7	PA 611	3,004	68.9%	662	108	770	17.7%	233	54	287	6.6%	4,061	93.1%	136	123	259	5.9%	42	1.0%	4,362
8	PA 32	1,139	85.7%	55	39	94	7.1%	21	10	31	2.3%	1,264	95.1%	30	19	49	3.7%	16	1.2%	1,329
9	Aquetong Rd	658	82.5%	36	20	56	7.0%	54	16	70	8.8%	784	98.2%	11	1	12	1.5%	2	0.3%	798
10	Callowhill Rd	1,453	81.1%	195	31	226	12.6%	22	29	51	2.8%	1,730	96.5%	19	8	27	1.5%	35	2.0%	1,792
11	Creamery Rd	278	76.2%	37	10	47	12.9%	12	8	20	5.5%	345	94.5%	13	3	16	4.4%	4	1.1%	365
Total Bucks		**52,703**	**79.7%**	**4,194**	**885**	**5,079**	**7.7%**	**3,836**	**1,030**	**4,866**	**7.4%**	**62,648**	**94.7%**	**1,400**	**1,507**	**2,907**	**4.4%**	**602**	**0.9%**	**66,157**
12	US 202	13,431	81.4%	611	209	820	5.0%	588	356	944	5.7%	15,195	92.1%	599	580	1,179	7.1%	123	0.7%	16,497
13	PA 100	18,030	86.0%	652	279	931	4.4%	523	380	903	4.3%	19,864	94.7%	465	551	1,016	4.8%	94	0.4%	20,974
14	PA 252	8,060	86.5%	291	115	406	4.4%	470	112	582	6.2%	9,048	97.1%	166	71	237	2.5%	34	0.4%	9,319
15	Hares Hill Rd	719	81.0%	102	14	116	13.1%	23	15	38	4.3%	873	98.3%	11	1	12	1.4%	3	0.3%	888
16	Lincoln Av	779	63.4%	170	59	229	18.6%	45	29	74	6.0%	1,082	88.0%	78	65	143	11.6%	4	0.3%	1,229
17	PA Tpk	6,075	68.8%	379	89	468	5.3%	196	84	280	3.2%	6,823	77.3%	385	1,551	1,936	21.9%	66	0.7%	8,825
18	US 322	2,754	65.9%	602	116	718	17.2%	244	35	279	6.7%	3,751	89.8%	129	206	335	8.0%	92	2.2%	4,178
19	PA 724	2,868	74.9%	247	116	363	9.5%	175	95	270	7.1%	3,501	91.5%	142	164	306	8.0%	21	0.5%	3,828
20	Strasburg Rd	336	66.7%	75	25	100	19.8%	25	22	47	9.3%	483	95.8%	14	6	20	4.0%	1	0.2%	504
21	Oxford Rd	786	68.2%	131	29	160	13.9%	127	31	158	13.7%	1,104	95.8%	22	14	36	3.1%	13	1.1%	1,153
22	Woodchuck Way	127	91.4%	5	1	6	4.3%	2	1	3	2.2%	136	97.8%	1	1	2	1.4%	1	0.7%	139
Total Chester		**53,965**	**79.9%**	**3,265**	**1,052**	**4,317**	**6.4%**	**2,418**	**1,160**	**3,578**	**5.3%**	**61,860**	**91.6%**	**2,012**	**3,210**	**5,222**	**7.7%**	**452**	**0.7%**	**67,534**
23	I-476	46,248	74.9%	2,753	1,184	3,937	6.4%	4,937	1,457	6,394	10.4%	56,579	91.7%	1,506	3,431	4,937	8.0%	198	0.3%	61,714
24	I-95	24,235	80.8%	817	455	1,272	4.2%	1,208	580	1,788	6.0%	27,295	91.0%	832	1,745	2,577	8.6%	110	0.4%	29,982
25	US 1	10,951	82.8%	736	158	894	6.8%	653	249	902	6.8%	12,747	96.4%	244	133	377	2.9%	101	0.8%	13,225
26	PA 3	6,299	73.5%	463	236	699	8.2%	879	282	1,161	13.5%	8,159	95.2%	232	137	369	4.3%	42	0.5%	8,570
27	Baltimore Pike	9,422	85.8%	481	116	597	5.4%	505	225	730	6.7%	10,749	97.9%	124	48	172	1.6%	55	0.5%	10,976
28	Burmont Rd	2,433	80.9%	188	53	241	8.0%	90	64	154	5.1%	2,828	94.0%	121	23	144	4.8%	35	1.2%	3,007
29	Meetinghouse Rd	1,938	75.7%	265	65	330	12.9%	209	56	265	10.4%	2,533	98.9%	21	2	23	0.9%	4	0.2%	2,560
30	Beatty Rd	2,921	84.1%	149	80	229	6.6%	173	98	271	7.8%	3,421	98.5%	38	5	43	1.2%	8	0.2%	3,472
31	Cleveland Rd	641	71.4%	43	52	95	10.6%	108	43	151	16.8%	887	98.8%	8	2	10	1.1%	1	0.1%	898
32	Walnut Av	812	86.2%	22	18	40	4.2%	64	18	82	8.7%	934	99.2%	6	1	7	0.7%	1	0.1%	942
33	Smith Bridge Rd	581	79.7%	70	23	93	12.8%	18	15	33	4.5%	707	97.0%	10	11	21	2.9%	1	0.1%	729
Total Delaware		**106,481**	**78.3%**	**5,987**	**2,440**	**8,427**	**6.2%**	**8,844**	**3,087**	**11,931**	**8.8%**	**126,839**	**93.2%**	**3,142**	**5,538**	**8,680**	**6.4%**	**556**	**0.4%**	**136,075**

Table A-5 (cont.)
VEHICLE OCCUPANCY COUNTS BY VEHICLE TYPE
FOR SURVEY LOCATIONS IN PENNSYLVANIA

No.	Route	Auto	% of Total	Pass Pickup	Work Pickup	Total Pickup	% of Total	Pass Van	Work Van	Total Van	% of Total	Auto, Pick-up, Van	% of Total	Light Truck	Heavy Truck	Total Truck	% of Total	Bus	% of Total	Total
34	I-476	24,779	75.0%	1,718	384	2,102	6.4%	2,964	448	3,412	10.3%	30,293	91.7%	926	1,669	2,595	7.9%	132	0.4%	33,020
35	PA 611	12,872	73.8%	893	486	1,379	7.9%	1,311	556	1,867	10.7%	16,118	92.4%	569	628	1,197	6.9%	127	0.7%	17,442
36	Montgomery Av	14,537	88.7%	435	209	644	3.9%	426	200	626	3.8%	15,807	96.4%	292	82	374	2.3%	217	1.3%	16,398
37	Terwood Rd	2,786	77.2%	193	62	255	7.1%	314	91	405	11.2%	3,446	95.5%	87	58	145	4.0%	18	0.5%	3,609
38	Fairground Rd	1,147	72.0%	110	32	142	8.9%	170	44	214	13.4%	1,503	94.4%	27	46	73	4.6%	16	1.0%	1,592
39	US 422	9,982	75.0%	860	145	1,005	7.6%	897	157	1,054	7.9%	12,041	90.5%	407	776	1,183	8.9%	86	0.6%	13,310
40	PA 73	4,761	75.1%	690	118	808	12.8%	394	92	486	7.7%	6,055	95.5%	167	62	229	3.6%	53	0.8%	6,337
41	Whitehall Rd	1,939	87.9%	107	23	130	5.9%	25	41	66	3.0%	2,135	96.8%	17	32	49	2.2%	22	1.0%	2,206
42	Old Skippack Pike	554	75.3%	106	13	119	16.2%	20	10	30	4.1%	703	95.5%	18	8	26	3.5%	7	1.0%	736
43	Limerick Rd	287	75.9%	35	12	47	12.4%	7	10	17	4.5%	351	92.9%	15	11	26	6.9%	1	0.3%	378
44	Bergey Rd	149	76.0%	15	9	24	12.2%	8	1	9	4.6%	182	92.9%	2	1	3	1.5%	11	5.6%	196
Total Montgomery		**73,793**	**77.5%**	**5,162**	**1,493**	**6,655**	**7.0%**	**6,536**	**1,650**	**8,186**	**8.6%**	**88,634**	**93.1%**	**2,527**	**3,373**	**5,900**	**6.2%**	**690**	**0.7%**	**95,224**
45	I-676	26,717	82.2%	844	516	1,360	4.2%	1,642	717	2,359	7.3%	30,436	93.7%	910	912	1,822	5.6%	237	0.7%	32,495
46	I-95	18,004	67.2%	1,088	345	1,433	5.3%	2,759	533	3,292	12.3%	22,729	84.8%	567	3,263	3,830	14.3%	245	0.9%	26,804
47	PA 63	28,712	77.7%	1,769	534	2,303	6.2%	2,804	936	3,740	10.1%	34,755	94.1%	830	1,206	2,036	5.5%	155	0.4%	36,946
48	Broad St	6,862	84.7%	184	114	298	3.7%	616	152	768	9.5%	7,928	97.8%	105	26	131	1.6%	46	0.6%	8,105
49	Chestnut St	4,797	88.1%	98	41	139	2.6%	91	124	215	4.0%	5,151	94.6%	111	22	133	2.4%	159	2.9%	5,443
50	PA 291	24,884	82.0%	842	262	1,104	3.6%	1,978	592	2,570	8.5%	28,558	94.1%	552	959	1,511	5.0%	267	0.9%	30,336
51	Arch St	3,397	89.0%	50	29	79	2.1%	83	59	142	3.7%	3,618	94.8%	99	23	122	3.2%	77	2.0%	3,817
52	Race St	3,202	82.6%	97	47	144	3.7%	247	136	383	9.9%	3,729	96.2%	90	11	101	2.6%	46	1.2%	3,876
53	Allens Ln	3,415	84.6%	147	109	256	6.3%	112	92	204	5.1%	3,875	96.0%	101	17	118	2.9%	42	1.0%	4,035
54	Cresco Av	1,319	85.9%	54	42	96	6.3%	35	43	78	5.1%	1,493	97.3%	14	6	20	1.3%	22	1.4%	1,535
55	Sansom St	2,222	83.4%	48	41	89	3.3%	177	94	271	10.2%	2,582	96.9%	76	3	79	3.0%	4	0.2%	2,665
Total Philadelphia		**123,531**	**79.2%**	**5,221**	**2,080**	**7,301**	**4.7%**	**10,544**	**3,478**	**14,022**	**9.0%**	**144,854**	**92.8%**	**3,455**	**6,448**	**9,903**	**6.3%**	**1,300**	**0.8%**	**156,057**
Total Region		**410,473**	**78.8%**	**23,829**	**7,950**	**31,779**	**6.1%**	**32,178**	**10,405**	**42,583**	**8.2%**	**484,835**	**93.1%**	**12,536**	**20,076**	**32,612**	**6.3%**	**3,600**	**0.7%**	**521,047**

Table A-6
AVERAGE VEHICLE OCCUPANCY BY VEHICLE TYPE
FOR SURVEY LOCATIONS IN PENNSYLVANIA

No.	Route	Auto	Passenger Pickup	Work Pickup	All Pickups	Passenger Van	Work Van	All Vans	Auto, Pickup, and Van	Light Truck	Heavy Truck	All Trucks	Bus	All Vehicles
1	I-95	1.14	1.08	1.06	1.08	1.16	1.05	1.14	1.14	1.03	1.01	1.02	11.30	1.22
2	PA 263	1.17	1.16	1.20	1.17	1.22	1.17	1.21	1.18	1.11	1.05	1.09	8.82	1.27
3	Levittown Pkwy	1.22	1.21	1.22	1.22	1.19	1.19	1.19	1.22	1.17	1.13	1.16	6.71	1.25
4	Trevose Rd	1.26	1.22	1.16	1.21	1.21	1.20	1.21	1.25	1.22	1.00	1.14	5.00	1.26
5	Mayflower Av	1.18	1.14	1.09	1.11	1.32	1.21	1.30	1.19	1.26	1.00	1.25	8.64	1.28
6	PA 309	1.22	1.14	1.19	1.15	1.17	1.17	1.17	1.20	1.09	1.06	1.07	5.74	1.21
7	PA 611	1.19	1.13	1.16	1.13	1.19	1.13	1.18	1.18	1.13	1.11	1.12	7.98	1.24
8	PA 32, River Rd	1.18	1.25	1.23	1.24	1.05	1.20	1.10	1.18	1.03	1.11	1.06	6.25	1.24
9	Aquetong Rd	1.18	1.03	1.15	1.07	1.59	1.25	1.51	1.21	1.09	1.00	1.08	12.50	1.23
10	Callowhill Rd	1.15	1.13	1.35	1.16	1.59	1.31	1.43	1.16	1.16	1.13	1.15	6.29	1.26
11	Creamery Rd	1.19	1.38	1.10	1.32	1.33	1.00	1.20	1.21	1.23	1.33	1.25	5.00	1.25
BUCKS COUNTY		1.18	1.16	1.19	1.16	1.20	1.17	1.20	1.18	1.10	1.04	1.07	8.52	1.24
12	US 202	1.16	1.06	1.09	1.06	1.07	1.10	1.08	1.15	1.06	1.01	1.04	7.44	1.19
13	PA 100	1.17	1.12	1.08	1.10	1.19	1.14	1.17	1.17	1.03	1.01	1.02	9.04	1.20
14	PA 252	1.18	1.16	1.18	1.17	1.24	1.15	1.23	1.18	1.16	1.06	1.13	10.00	1.21
15	Hares Hill Rd	1.19	1.14	1.36	1.16	1.35	1.33	1.34	1.19	1.18	1.00	1.17	5.00	1.21
16	Lincoln Av	1.17	1.14	1.20	1.16	1.29	1.17	1.24	1.17	1.17	1.17	1.17	7.50	1.19
17	I-76, PA Tpke	1.17	1.11	1.13	1.12	1.29	1.01	1.21	1.17	1.02	1.00	1.01	7.73	1.18
18	US 322	1.25	1.15	1.30	1.18	1.39	1.17	1.36	1.25	1.19	1.01	1.08	5.87	1.33
19	PA 724	1.18	1.07	1.06	1.07	1.14	1.00	1.09	1.16	1.02	1.01	1.01	16.43	1.23
20	Strasburg Rd	1.15	1.12	1.24	1.15	1.36	1.18	1.28	1.16	1.36	1.33	1.35	5.00	1.17
21	Oxford Rd	1.22	1.18	1.17	1.18	1.31	1.13	1.28	1.22	1.00	1.21	1.08	6.54	1.27
22	Woodchuck Way	1.29	1.20	1.00	1.17	1.00	2.00	1.33	1.29	1.00	1.00	1.00	1.00	1.28
CHESTER COUNTY		1.17	1.12	1.14	1.12	1.21	1.12	1.18	1.17	1.07	1.01	1.03	8.05	1.21
23	I-476	1.12	1.06	1.05	1.06	1.13	1.12	1.13	1.12	1.04	1.01	1.02	8.21	1.13
24	I-95 NB	1.13	1.12	1.15	1.13	1.15	1.14	1.15	1.13	1.05	1.01	1.02	7.95	1.15
25	US 1	1.16	1.16	1.20	1.17	1.21	1.19	1.21	1.17	1.11	1.08	1.10	5.99	1.20
26	PA 3	1.15	1.13	1.34	1.20	1.27	1.22	1.25	1.17	1.08	1.08	1.08	11.55	1.22
27	Baltimore Pike	1.21	1.22	1.39	1.25	1.50	1.30	1.44	1.23	1.32	1.15	1.27	11.18	1.28
28	Burmont Rd	1.18	1.15	1.08	1.14	1.09	1.05	1.07	1.17	1.03	1.13	1.05	6.71	1.23
29	Meetinghouse Rd	1.24	1.23	1.25	1.24	1.54	1.21	1.47	1.26	1.14	1.50	1.17	5.00	1.27
30	Beatty Rd	1.24	1.14	1.38	1.22	1.60	1.23	1.47	1.25	1.32	1.40	1.33	5.63	1.26
31	Cleveland Av	1.16	1.05	1.00	1.02	1.09	1.14	1.11	1.13	1.00	1.00	1.00	5.00	1.14
32	Walnut Av	1.23	1.14	1.33	1.23	1.28	1.28	1.28	1.24	1.00	1.00	1.00	5.00	1.24
33	Smith Bridge Rd	1.20	1.23	1.30	1.25	1.39	1.20	1.30	1.21	1.30	1.45	1.38	5.00	1.22
DELAWARE COUNTY		1.14	1.12	1.14	1.12	1.20	1.16	1.19	1.15	1.07	1.02	1.04	8.13	1.17

Table A-6 (cont.)
AVERAGE VEHICLE OCCUPANCY BY VEHICLE TYPE FOR PENNSYLVANIA LOCATIONS

No.	Route	Auto	Passenger Pickup	Work Pickup	All Pickups	Passenger Van	Work Van	All Vans	Auto, Pickup, and Van	Light Truck	Heavy Truck	All Trucks	Bus	All Vehicles
34	I-476	1.14	1.13	1.10	1.13	1.12	1.17	1.13	1.14	1.06	1.00	1.02	6.93	1.15
35	PA 611	1.16	1.13	1.18	1.15	1.16	1.22	1.18	1.16	1.14	1.03	1.08	10.04	1.22
36	Montgomery Av	1.18	1.11	1.09	1.10	1.27	1.09	1.21	1.18	1.14	1.04	1.12	10.28	1.30
37	Terwood Rd	1.16	1.13	1.27	1.16	1.16	1.24	1.18	1.17	1.17	1.16	1.17	5.56	1.19
38	Fairground Rd	1.20	1.13	1.09	1.12	1.25	1.20	1.24	1.20	1.15	1.35	1.27	10.63	1.29
39	US 422	1.15	1.11	1.23	1.13	1.16	1.15	1.16	1.15	1.08	1.03	1.05	7.97	1.18
40	PA 73	1.16	1.13	1.19	1.14	1.28	1.17	1.26	1.16	1.11	1.18	1.13	6.60	1.21
41	Whitehall Rd	1.19	1.26	1.39	1.28	1.40	1.32	1.35	1.20	1.24	1.22	1.22	7.05	1.26
42	Old Skippack Pike	1.17	1.13	1.31	1.15	1.15	1.20	1.17	1.17	1.17	1.00	1.12	8.57	1.24
43	Limerick Rd	1.21	1.14	1.25	1.17	1.14	1.20	1.18	1.21	1.13	1.55	1.31	5.00	1.22
44	Bergey Rd	1.24	1.20	1.11	1.17	1.25	1.00	1.22	1.23	1.50	2.00	1.67	8.18	1.63
MONTGOMERY COUNTY		1.16	1.13	1.16	1.14	1.16	1.19	1.16	1.16	1.10	1.03	1.06	8.75	1.20
						Table A-6 (cont.)								
45	I-676 WB	1.17	1.21	1.15	1.19	1.25	1.21	1.23	1.17	1.12	1.08	1.10	9.54	1.23
46	I-95 SB	1.15	1.08	1.10	1.08	1.09	1.23	1.12	1.14	1.03	1.01	1.02	7.92	1.18
47	PA 63	1.18	1.19	1.11	1.17	1.18	1.13	1.17	1.17	1.04	1.03	1.03	9.13	1.20
48	Broad St NB	1.27	1.26	1.38	1.30	1.44	1.29	1.41	1.29	1.21	1.42	1.25	14.24	1.36
49	Chestnut St	1.13	1.12	1.32	1.18	1.31	1.21	1.25	1.13	1.13	1.14	1.13	8.11	1.34
50	PA 291	1.17	1.11	1.13	1.11	1.21	1.39	1.25	1.18	1.05	1.03	1.04	8.13	1.23
51	Arch St	1.22	1.20	1.34	1.25	1.30	1.27	1.29	1.22	1.19	1.48	1.25	8.64	1.37
52	Race St	1.23	1.31	1.21	1.28	1.34	1.24	1.31	1.24	1.28	1.18	1.27	8.04	1.32
53	Allens Ln	1.16	1.29	1.17	1.24	1.46	1.37	1.42	1.18	1.23	1.29	1.24	8.21	1.25
54	Cresco Av	1.28	1.48	1.48	1.48	1.80	1.51	1.64	1.31	1.64	1.67	1.65	6.59	1.39
55	Sansom St	1.27	1.31	1.20	1.26	1.36	1.29	1.34	1.28	1.17	1.67	1.19	11.25	1.29
PHILADELPHIA COUNTY		1.18	1.17	1.16	1.16	1.20	1.24	1.21	1.18	1.09	1.03	1.05	8.69	1.23