September 2002

Cordon Line Highway Traffic Survey for the Delaware Valley Region

I-95, US 202 and PA 41 South Cordon Stations in Chester and Delaware Counties

Report 2

Delaware Valley Regional Planning Commission

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I-95, US 202 AND PA 41 SOUTH CORDON STATIONS IN CHESTER AND DELAWARE COUNTIES

September 2002

Delaware Valley Regional Planning Commission
The Bourse Building
111 South Independence Mall East
Philadelphia, PA 19106-2582

Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty, and intercity agency which provides continuing, comprehensive, and coordinated planning to shape a vision for the future growth 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. DVRPC provides technical assistance and services, conducts high priority studies that respond to the request and demands of member state and local governments, fosters cooperation among various constituents to forge a consensus on diverse regional issues, determines and meets the needs of the private sector, and practices public outreach efforts to promote two-way communication and public awareness of regional issues and the commission.

Our logo is adapted from the official DVRPC seal, 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. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. This report was primarily funded by the Pennsylvania Department of Transportation and the Federal Highway Administration (FHWA). The authors, however, are solely responsible for its findings and conclusions, which may not represent the official views or policies of the funding agencies.

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EXECUTIVE SUMMARY

The External and Through Traffic Survey collected current information on traffic entering and exiting the DVRPC region. The traffic surveys at I-95 (consisting of I-95, I-495 and the Naamans Road Ramps survey stations), US 202, and PA 41 South (this is where PA 41 crosses state line between Chester and New Castle counties) taken together were five of fourteen stations surveyed around the region during the summer of 2001. Twenty four hour classification counts were performed prior to the roadside surveys; however, classification counts on I-95 were collected only in the northbound direction and I-495 counts (which were supplied by Delaware Department of Transportation) lack hourly classification counts. The I-95 counts have been factored to account for both directions.

Survey information was collected in both directions through a roadside interview, using the questionnaire shown on page 6. Questions were asked about trip origin and destination, purpose, highways used, vehicle type, occupancy, truck garage location and truck commodities. Detailed findings are available individually in Section III and in the Appendices in the back of the report. The survey was conducted with the cooperation of the Delaware Department of Transportation and Delaware State Police. Traffic was surveyed at each of the stations in both directions during the time period from 6:45 a.m. to 7:15 p.m. though some surveys were called early on account of darkness.

The major findings for these three survey stations are as follows:

- The 24 hour counts for I-95, US 202 and PA 41 South were 117,745, 41,300 and 17,810 AADT respectively.

- The completed survey samples for I-95, US 202 and PA 41 South was close to the desired goals. The I-95 stations completed 2,996 of 3,600 surveys for 83 percent of the desired sample goal. US 202 completed 1,665 of 1,800 surveys for about 93 percent of the desired sample goal, and PA 41 South completed 1,543 of 1,700 surveys for about 91 percent of the desired sample goal.

- The most common I-95 origin inbound was Brandywine with a 42 percent share and outbound was Philadelphia with a 30 percent share. There were two major US 202 inbound origins: Wilmington with 32 percent and Brandywine with 28 percent, and outbound with Concord at 15 percent. The most common origin inbound for PA 41 South was Piedmont with 24 percent and outbound New Garden with 24 percent.

- The automobile driver's reasons for traveling I-95 was 73 percent saving time and 22 percent most direct, while truck drivers responded with 73 percent saving time and 19 percent most direct. Along US 202, automobile driver's reasons were 60 percent to save time and 32 percent most direct, while truck drivers responded 76 percent saving time and 17 percent most direct. On PA 41 South, automobile driver's respones were 71 percent to save time and 22 percent most direct, while truck drivers responded 71 percent saving time and 24 percent most direct.

- The work trip was the main trip purpose for I-95, US 202 and PA 41 South with 62 percent, 54 percent, and 43 percent shares, respectively. The secondary trip purposes on I-95 and PA 41 South were for social visits with 16 percent and 31 percent respectively, while US 202 had shopping trips with a 22 percent share.

- The average total vehicle occupancy varied by survey stations, with I-95, US 202 and PA 41 South having 1.30, 1.34 and 1.61 persons per vehicle respectively, while the occupancy for work trips was 1.14, 1.12 and 1.23 persons per vehicle, respectively.

- The largest response regarding commodities carried by trucks on I-95, US 202 and PA 41 South were 24 percent "other", 29 percent building materials and 25 percent building materials, respectively.

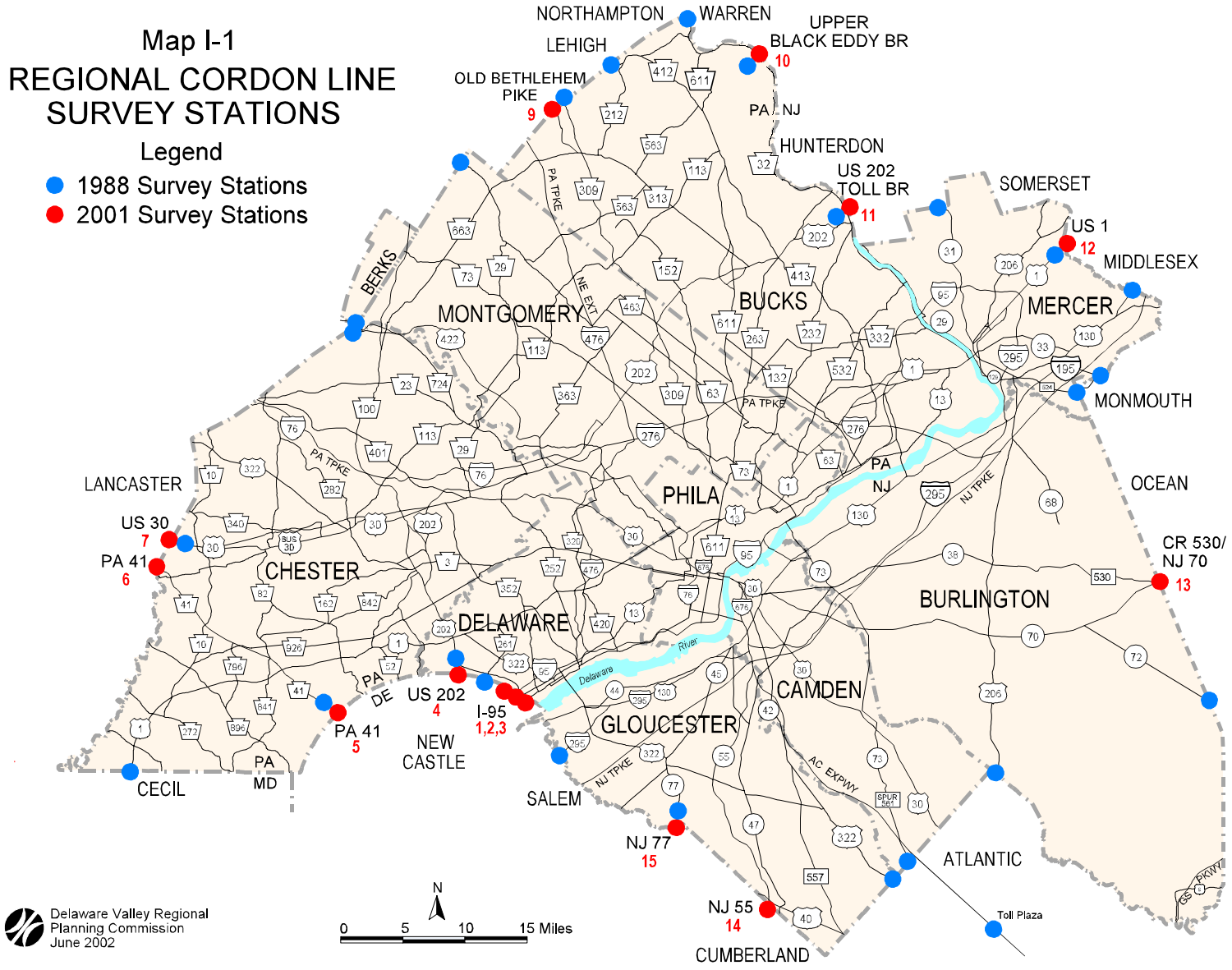
I. INTRODUCTION

The DVRPC cordon line traffic survey was conducted to collect current information on traffic volumes and determine the origin-destination travel patterns, travel activity, and travel mode of vehicles crossing the nine-county DVRPC cordon line which forms the regional boundary. The external and through trip travel patterns are especially critical for transportation facilities located near the nine-county boundary, as this is an area where in recent years major new development has occurred. The survey, conducted in the spring and summer of 2001, updated trip characteristics and patterns that were last collected in the 1980s. The survey data will be used in the ongoing planning process, validation of travel simulation models, traffic forecasting, preliminary engineering, estimation of vehicle miles of travel (VMT), and monitoring of external and through travel. The toll authorities of the region, state transportation departments, neighboring metropolitan planning organizations, county planners, and interregional freight operators will benefit from this survey, which will provide useful data for the improvement of highway facilities in the next 20 years.

Map I-1 displays the highway facilities which were surveyed in 2001 as well as the locations of the 1988 survey. Traffic counts and a sample of interviews were collected at 14 locations crossing the boundary of the nine-county region representing a broad range of highway types, from local to interstate facilities. This information was supplemented with data from two recently conducted surveys, one on the Pennsylvania Turnpike and the other on the New Jersey Turnpike. In addition, traffic counts were taken on an additional 140 highway facilities crossing the regional boundary and bus and rail ridership was collected from carriers crossing the boundary. Survey results are presented in a series of reports. This report presents briefly the surveys conducted at I-95, US 202 and PA 41, all at the Pennsylvania / Delaware state line.

The survey consisted of roadside interviews at each location. Questions were asked about trip origin, destination, and purpose; highway use and vehicle type; and vehicle occupancy. The questionnaire also asked about the reasons for travel and how people make their travel decisions and plan their daily trips. Truck type, garaging and commodity information were also included in the survey questionnaire. Section II of the report describes the design and conduct of the survey. Included are descriptions of the survey questionnaire, the sample size, and the collection method. A map and description of the survey sites are also presented. A summary tabulation of traffic volumes at each site and vehicle classification information are also included. Also included is a review of the processes employed to enter the survey data, geocode origin/destination information, and tabulate the answers to survey questions.

The survey results are presented in Section III. The major findings of the survey and traffic characteristics are presented; the findings for each question are offered in graphic and written form. Detailed survey information is provided in the Appendices, including traffic and vehicle classification counts. Simple and cross tabulations of survey responses are shown in a series of fifteen tables for each survey station.


Map I-1
REGIONAL CORDON LINE SURVEY STATIONS
Legend
1988 Survey Stations
2001 Survey Stations
NORTHAMPTON
WARREN
LEHIGH
UPPER BLACK EDDY BR
10
OLD BETHLEHEM PIKE
9
PA NJ
HUNTERDON
US 202 TOLL BR
11
SOMERSET
US 1
12
MIDDLESEX
MERCER
MONTGOMERY
BUCKS
BERKS
MONMOUTH
LANCASTER
PHILA
OCEAN
US 30
7
PA 41
6
CHESTER
DELAWARE
BURLINGTON
CR 530/ NJ 70
13
US 202
4
I-95
1,2,3
PA 41
5
NEW CASTLE
CAMDEN
GLOUCESTER
CECIL
PA
MD
PA
DE
SALEM
NJ 77
15
ATLANTIC
NJ 55
14
CUMBERLAND
Toll Plaza
Delaware River
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Delaware Valley Regional Planning Commission
June 2002
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II. DESIGN AND CONDUCT OF THE SURVEY

The cordon line survey was designed to gather information from a sample of drivers crossing the boundary of the DVRPC region. At each station, two types of traffic information was collected; total number of passing vehicles and driver trip-making characteristics. The recording of all traffic, by vehicle type and by the hour, was collected using DVRPC's Automatic Traffic Recorder units. This information was used to establish the sample size necessary for roadside interviews to collect trip-making characteristics. As shown on the following page, the survey questionnaire consists of 13 questions; two of which need not be asked since the surveyor would be able to check the vehicle type and occupancy. The following information was collected in the interview: time of trip, origin and destination of the trip, major highways used, number of travelers (including the driver). For commercial vehicles additional questions ascertained county where the vehicle is garaged or parked when not in service and the type of commodity carried by trucks.

A. Survey Locations

The results of the survey for three locations are included in this report: I-95, Delaware Expressway in New Castle County, Delaware; US 202 in Concord Township, Delaware County; and PA 41 in New Garden Township, Chester County. These facilities were chosen due to their strategic importance for travel to and from the Delaware Valley region. I-95 is an interstate facility, while both US 202 and PA 41 are major arterials carrying traffic into and out of the DVRPC region from the south.

1. I-95, Delaware Expressway

Interstate 95, stretching from Florida to Maine, is the primary route for traffic along the eastern seaboard of the United States. Due to a discontinuous section in the northern part of the DVRPC region, much traffic traveling through the region today uses the Delaware Memorial Bridge and the New Jersey Turnpike. However, this section of I-95 still serves a significant amount of interstate traffic between the Philadelphia metropolitan area and Wilmington, Baltimore and the Washington region. In addition, with the growth of Wilmington as a national banking center, I-95 provides access for Wilmington employers to the labor force in Delaware County. Finally, a significant amount of traffic crossing into Delaware takes advantage of "tax free" shopping, as Delaware has no excise tax. This has led to the development of several large retailing centers just south of the state line at the first exit from I-95, including the Tri State Mall and Northtowne Plaza.

I-95 at the cordon line is three lanes by direction, a road profile which makes it difficult to stop traffic. Due to this geometry at the regional boundary, the survey site was established approximately one mile south of the cordon where I-95 splits into I-95, providing local service to Wilmington and I-495, providing a bypass function around Wilmington. In addition, ramps provide access to DE 92, Naamans Rd, a major arterial

Figure II-1. External and Through Survey Field Form

Delaware Valley Regional Planning Commission **Nº** 10000
EXTERNAL AND THROUGH TRIP SURVEY **Time :** : 1[ ] AM 2[ ] PM

1. Where did you start this trip? (Origin) **2. Is this home?** 1[ ] Yes 2[ ] No

_____
Street address or nearest intersection

_____
Town or City County State Zip Code

3. Where will this trip end? (Destination) **4. Is this home?** 1[ ] Yes 2[ ] No

_____
Street address or nearest intersection

_____
Town or City County State Zip Code

5. Will you stop before arriving at your destination? **6. Is this home?** 1[ ] Yes 2[ ] No

1[ ] No 2[ ] Yes, If yes, where?

_____
Street address or nearest intersection

_____
Town or City County State Zip Code

7. Why do you use this road? (check one or more)
1[ ] Saves Time 3[ ] Less Congestion 5[ ] No Traffic Lights
2[ ] Saves Money 4[ ] Better Road Condition 6[ ] Other_____

8. What is/are the major road(s) that you will take to reach the destination after this road?

1st Highway_____ 2nd Highway _____

9. What type of vehicle is used for the trip?

Passenger Vehicles	**Light Trucks**	**Heavy Trucks (3 axles or more)**
1[ ] Auto	5[ ] Pickup	9[ ] Tractor-Trailer
2[ ] Van, Sta. Wagon	6[ ] Panel	10[ ] Double Trailer
3[ ] SUV	7[ ] Single Unit	11[ ] Other _____
4[ ] Other _____	8[ ] Other _____	

10. What is the purpose of this trip? (Passenger Vehicles Only)
1[ ] Work 3[ ] Eat Meal 5[ ] Social/Recreation 7[ ] Visitor/Tourist
2[ ] School 4[ ] Shopping 6[ ] Medical 8[ ] Other _____

11. How many people are in the vehicle? (Passenger Vehicles Only)
1[ ] One 2[ ] Two 3[ ] Three 4[ ] Four 5[ ] Five 6[ ] More than Five

12. Where is this truck garaged or parked when not in service? (Trucks Only)
1[ ] Bucks County 4[ ] Montgomery County 7[ ] Burlington County 10[ ] Mercer County
2[ ] Chester County 5[ ] Philadelphia County 8[ ] Camden County 11[ ] Other NJ County
3[ ] Delaware County 6[ ] Other PA County 9[ ] Gloucester County 12[ ] Other State

13. What type of commodities are you carrying? (Trucks Only)
1[ ] Empty 4[ ] Agricultural Products 7[ ] Retail Store Merchandise
2[ ] Manufactured Products 5[ ] Building Materials 8[ ] Parcels
3[ ] Petroleum Products 6[ ] Refrigerated Products 9[ ] Other _____

along which much of the retail mentioned above is situated (see Map II-1). This providing local service to Wilmington and I-495, providing a bypass function around Wilmington. This location offered a two lane by direction cross section on both I-95 and I-495 and traffic signal control at the ramps to Naamans Rd. Police from the Delaware State Police New Castle Barracks assisted with traffic control.

2. US 202

US 202, Wilmington West Chester Pike is the major north-south thoroughfare connecting the Wilmington region with Philadelphia's far western suburbs. It provides access to the high tech US 202 corridor in northeastern Chester county and connections with the Pennsylvania Turnpike via PA 100. South of the state line several large commercial developments, including Brandywine Town Center and Concord Mall, have situated offering excise tax free shopping to residents on both sides of the state line. Delaware DOT has invested heavily in US 202, channelizing intersections and providing sidewalks. On the Pennsylvania side of the region US 202 is a four lane arterial separated by a grass median with paved shoulders.

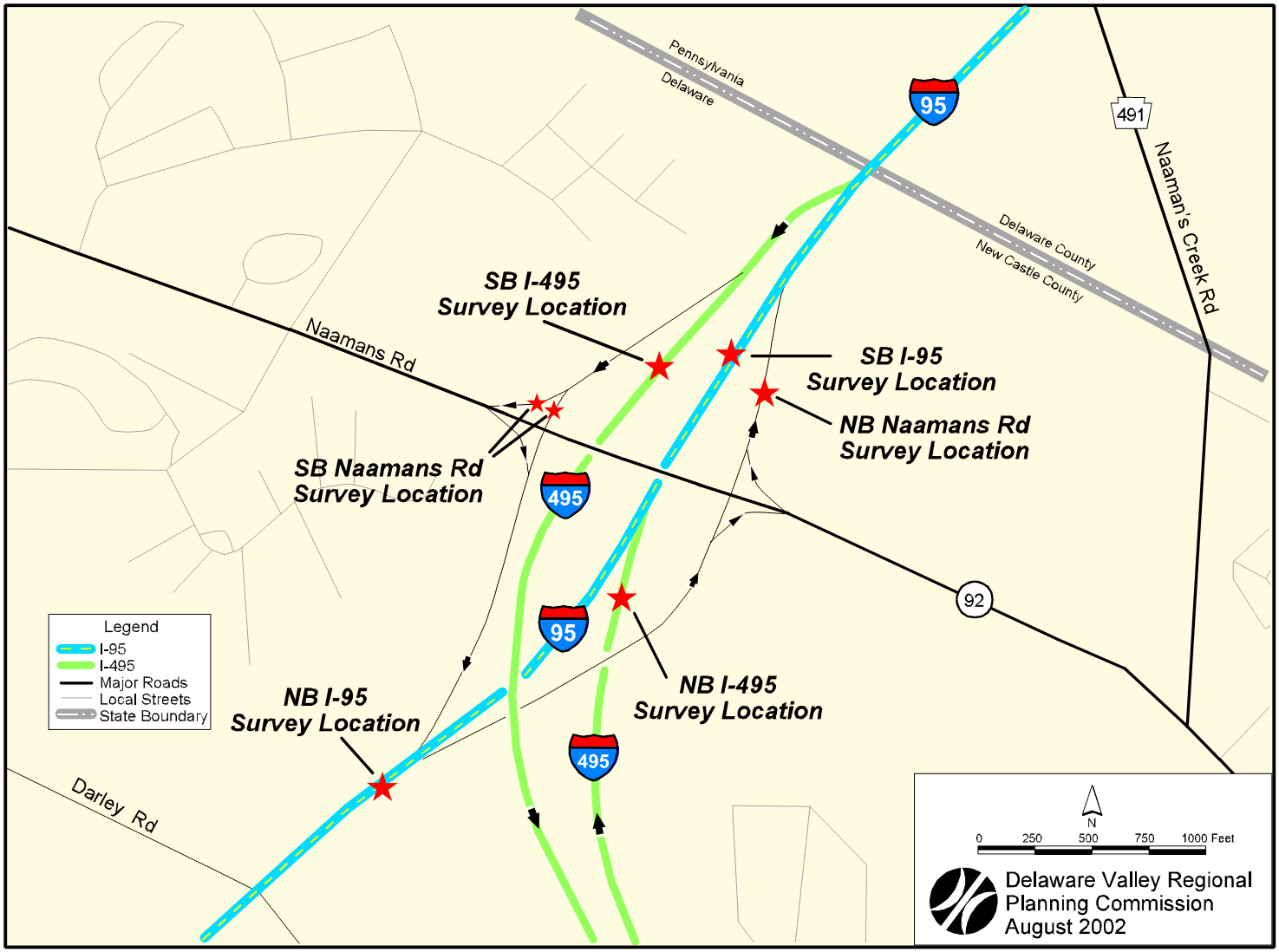
The survey site was in Pennsylvania approximately 1/10th of a mile north of the state line and just north of the unsignalized intersection with Pyle Road, a local road accessing residential uses. A traffic signal approximately ½ mile north of the site at the intersection with PA 491, Naamans Creek Rd, helped to provide some traffic control. Pennsylvania State Police from the Media barracks provided traffic control. Traffic flow was normal during the survey, although a midday northbound backup necessitated suspension of the survey for about 20 minutes.

3. PA 41

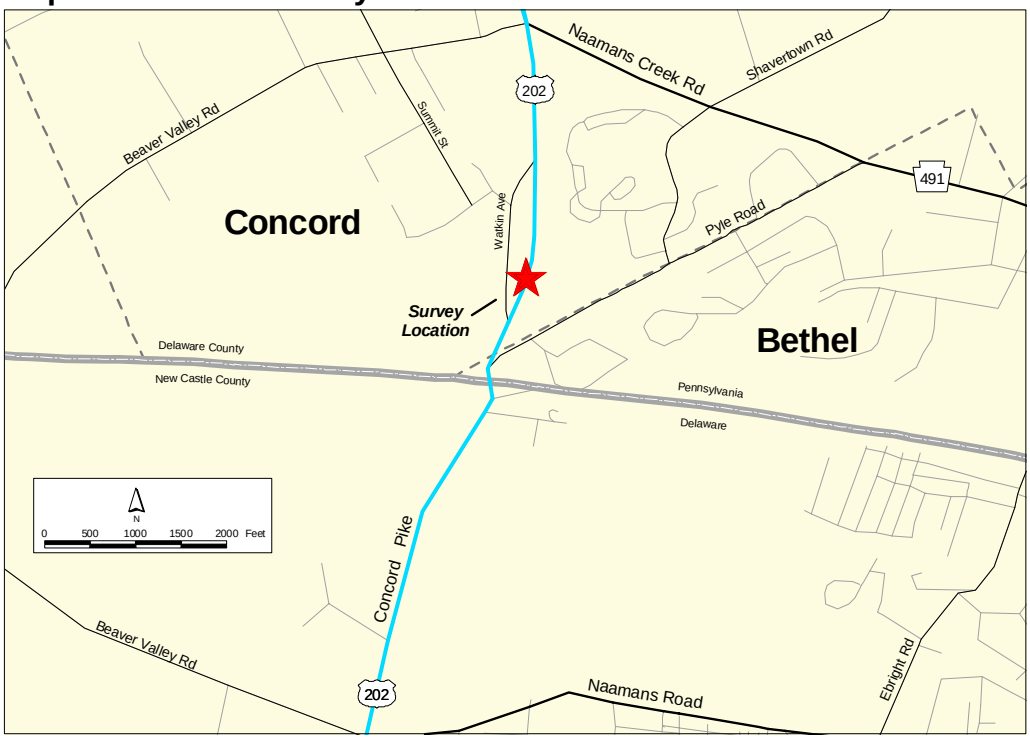
PA 41, Gap Newport Pike is a major arterial connecting the Wilmington area with Chester County and central Pennsylvania. It is an important freight corridor, connecting the Port of Wilmington with markets in the midwest. Land use on the Delaware side of the state line is predominantly residential, providing bedroom communities for the Wilmington area. On the Pennsylvania side, land use has been agricultural, with a focus on mushroom cultivation. Increasingly, however, residential development pressure is leading to the transformation of much land to residential use.

The survey site was approximately ½ mile north of the state line just north of an inter-change with Kaolin Rd (DE 7 on the Delaware side of the line). This provided the opportunity to survey traffic from both facilities, as much of the DE 7 traffic continues north on PA 41. At this location PA 41 is a two lane facility with narrow paved shoulders. This necessitated the offsetting of the survey directions to allow for traffic flow. Pennsylvania State Police from the Avondale barracks provided traffic control.

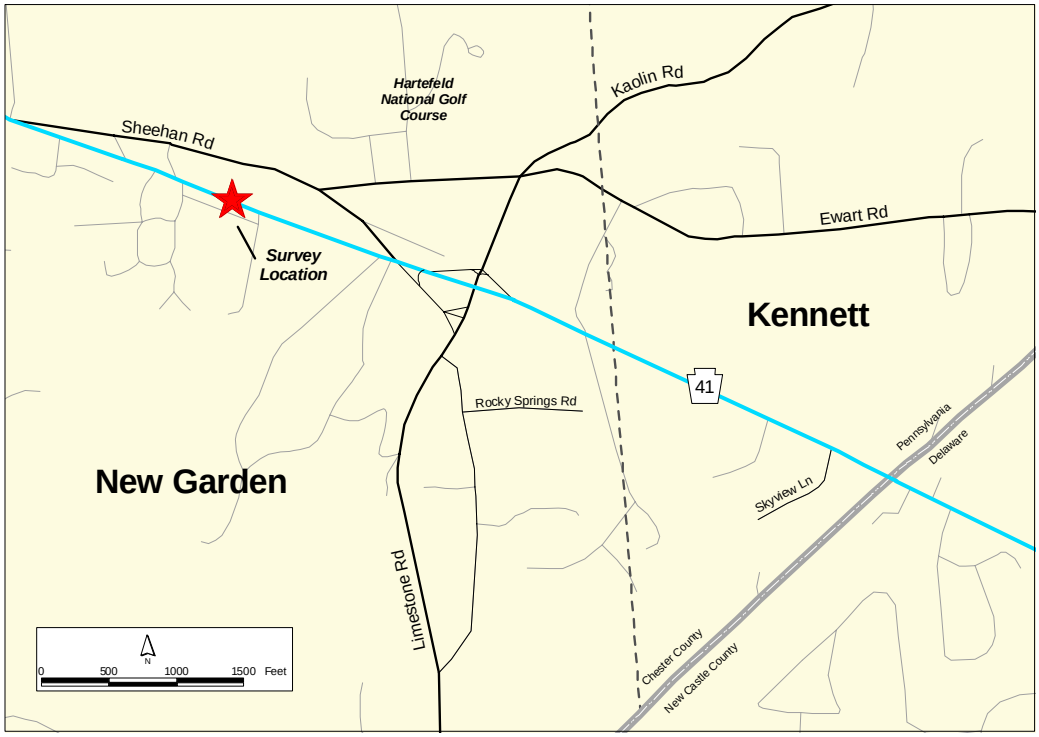
Map II-1. I-95 / I-495 and Naamans Road Ramps Survey Locations



Map II-2. US 202 Survey Location



Map II-3. PA 41 South Survey Location



B. Sample Methodology

Traffic and vehicle classification counts were taken at each site. The hourly vehicle classification counts, by direction, are presented in the Appendices. Based on these volumes, standard statistical methods were applied and a sample size was established for each location. The sample was then disaggregated into an appropriate number of surveys for passenger and commercial vehicles for each survey period as discussed below.

1. Traffic Counts

Traffic volumes at the I-95 survey sites are approximately 115,000 vehicles per day, which includes roughly 47,000 vehicles each on I-95 and I-495 (though it should be noted that vehicular traffic volumes were derived from incomplete 24 hour counts on I-95) and 22,000 on the ramps from I-95 southbound to Naamans Rd and the opposite movement from Naamans Rd to I-95 northbound. On I-95, morning traffic is oriented toward the Wilmington area and heavily peaked (9.7 K factor), with a peak hour of 8:00 - 9:00 a.m. reflecting the nature of Wilmington employment. The interstate nature of traffic on I-495 yields peak hour factors which are less peaked, while the Naamans Rd ramps demonstrate average peak hour factors (5.7 - 7.1 range) except for the southbound off ramp (9.7 K factor 5:00 - 6:00) in the afternoon. Trucks (commercial vehicles) comprise almost 8 percent of the traffic mix.

Traffic volumes at the US 202 survey site are approximately 41,000 vehicles per day. Peak hour factors are roughly 8 percent, with the morning K factor higher than in the afternoon for both directions. As with I-95, the Wilmington oriented (outbound) traffic exhibits an 8:00 - 9:00 a.m. peak hour. Trucks (commercial vehicles) account for about 5 percent of total traffic.

The effect of Wilmington is less pronounced at PA 41 than either the I-95 complex or at US 202, perhaps due to it's being geographically further removed. At the survey site, 17,800 vehicles were recorded. This total includes traffic from two major arterials, PA 41 and Limestone Rd (DE 7), which intersect just south of the survey site and which cross the state line within a mile of each other. Hourly traffic volumes vary little throughout the day; the a.m. K factor of 6.4 is only 1.6 percent higher than any other hour between 6 a.m. and noon. In the same manner, afternoon (12 noon to 6:00 p.m.) hourly factors range from 5.8 to 7.7. As PA 41 is a major goods movement corridor, truck traffic (commercial) is heavy, comprising approximately 14 percent of the traffic mix.

2. Sample Size

Based on the hourly traffic and vehicle classification counts, a sample size was determined for both passenger and commercial vehicles. This number of surveys by morning and afternoon period is presented in Section III. For the I-95 complex, a total of 3,600 surveys were scheduled for collection. This amounted to approximately 1,500 each for I-95 and I-495, and 600 for the ramps to and from Naamans Rd. Of this total,

3,480 forms were to be interviews of passenger vehicles, with the remaining 720 reserved for commercial vehicles.

On US 202, the total number of interviews was set at 1,800; 900 were to be filled out for traffic in each direction. Passenger vehicles accounted for about 1,460 surveys, with the balance of 340 surveys consisting of trucks.

For PA 41, 1,700 surveys were scheduled for collection. Due to the higher percentage of commercial vehicles on this facility, 340 were allocated to trucks. The remaining 1,360 survey forms were marked for passenger vehicles.

C. Survey Conduct

A manual was prepared to guide the conduct of the survey. It contained information on the distribution of surveys by survey period; partnering agency information; number of police officers needed for traffic control and staffing requirements for each site; a preliminary schedule of survey sites and shifts, as well as a listing of equipment requirements and diagram of a hypothetical site as it would be set up for survey operations.

Before the survey work could be initiated, a crew of temporary workers was hired and trained. General orientation sessions were followed with role playing by the survey crew. In this manner, the surveyor became familiar with the questions and possible problematic situations. It also allowed the surveyors to become comfortable with the survey process, so that once in the field, traffic delay would be minimal and the survey process would be safe and efficient. As the surveyors became experienced with the process, per survey time dropped to the range of 35 to 45 seconds.

While in the office prior to initiating field work, surveyors allocated the proper number of forms for passenger and commercial vehicles by time period. Four different colored forms were used to designate the traffic direction (inbound or outbound) and interview time (morning or afternoon). Forms were allocated to the following survey times:

Morning Survey	Afternoon Survey
6:45 - 8:30 a.m.	1:00 - 2:30 p.m.
8:30 - 9:30 a.m.	2:30 - 3:30 p.m.
9:30 - 10:30 a.m. (meal break)	*3:30 - 4:30 p.m. (meal break)*
10:30 - 12:00 noon	4:30 - 6:00 p.m.
12:00 - 1:00 p.m.	6:00 - 7:15 p.m.

Although in general the conduct was the same for each survey station, the geography of the site dictated a measure of innovation. Safety, both of the survey crew and the driving public, was the primary operating directive. For a four lane facility, the right lane

and shoulder were used for the survey. This provided the left lane for traffic to bypass the survey. Two lane facilities required the survey to be offset by direction. Multiple signs were placed in advance of the site in accordance with state guidelines and distance standards. These warned motorists of the traffic survey, to be prepared to stop, and that police control was in effect. Police vehicles were prominently displayed ahead of the site, with lights flashing, as this tended to slow traffic entering the vicinity of the survey. Police and traffic cones helped direct traffic through the site, and a sign announced the end of the survey site. All survey personnel were outfitted with safety vests. Although each site was visited before the survey date and preliminary sketches of the setup were prepared, the input of the police officers on site was solicited and followed.

Since only a sample of the drivers were interviewed, the platoon method was used in selecting vehicles to be surveyed. A crew chief was designated for each direction and assumed the last position in the survey line. The crew chief was responsible for communicating with the other surveyors and with the police officer. The crew chief would signal the officer when the crew was ready for a platoon of vehicles. Interviews would be conducted, and the appropriate information recorded. The lead surveyor would then assure the safe re-entry of the surveyed vehicles to the traffic stream and the crew chief would signal the police officer for another platoon of vehicles.

Coordinating the survey was the responsibility of the survey chief. This person was responsible for scheduling the appropriate number of survey staff, coordinating with the police, and assuring that the survey site was properly prepared. During the survey the survey chief had the responsibility of distributing and collecting survey forms, resolving situations with the police, seeing to the physical needs of the survey crew, and speaking with motorist regarding survey questions and concerns. The survey chief would join the line of surveyors when an extra person was needed to fill the quota of surveys.

The execution of the surveys at both US 202 and PA 41 was successful and the required surveys were completed on time without any incident. Due to extended coordination with DelDOT and the Delaware State Police as well as the September 11th terrorist attacks, three of the four survey days at the I-95 complex were not undertaken until October, by which time waning daylight hours restricted the ability to collect the full sample at this survey site.

D. Data Entry, Geocoding and Processing

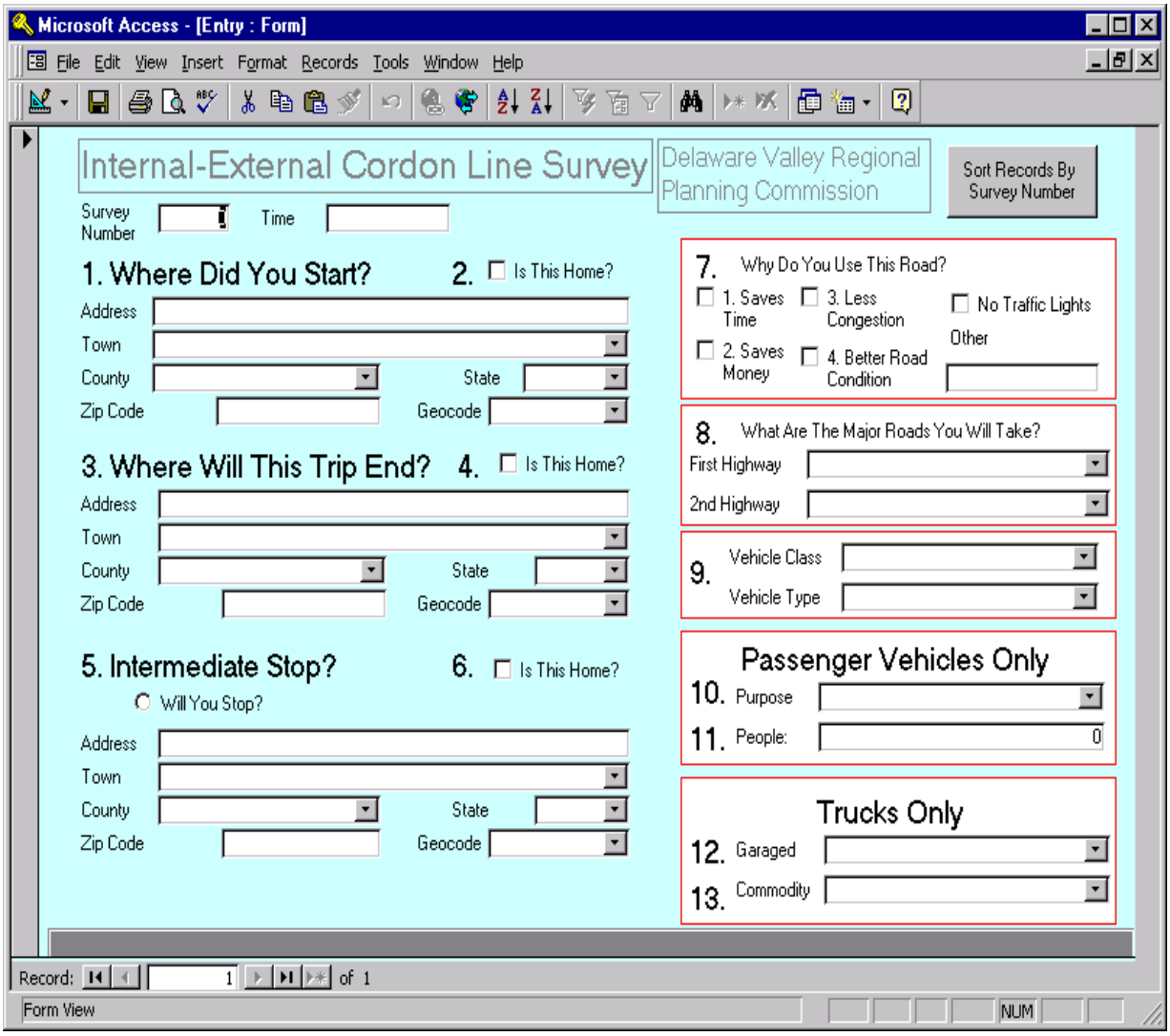
1. Data Entry

Paper field responses collected from survey station interviews were converted into an electronic form suitable for spatial and statistical analysis. A Microsoft Access database resembling the paper field survey form was used so the data entry approximated the entry of information in the field. Data entry goals included replicating the survey form to allow logical flow from paper to digital format; to standardize spelling

of responses; to ensure that entries were within acceptable geographic bounds; and to avoid duplicate entries.

Several methods to this end were employed. First, extensive lists of common names for the key variables were built into the Access entry form. These include common names for places, municipalities, counties, and roads. Second, responses on the field survey form for purpose, vehicle class, vehicle type, and commodity were all made part of menu choices. Third, where possible, allowable entries were limited by either forcing a binary yes/no response or use of a validation rule to limit the range of acceptable numbers. To ease review of entries, the database remained flat with all responses recorded in one data table. An example of this screen is shown in Figure II-2 below and can be compared with the survey form shown in Figure II-1.

Figure II-2. Survey Entry Form as Displayed on Computer Screen

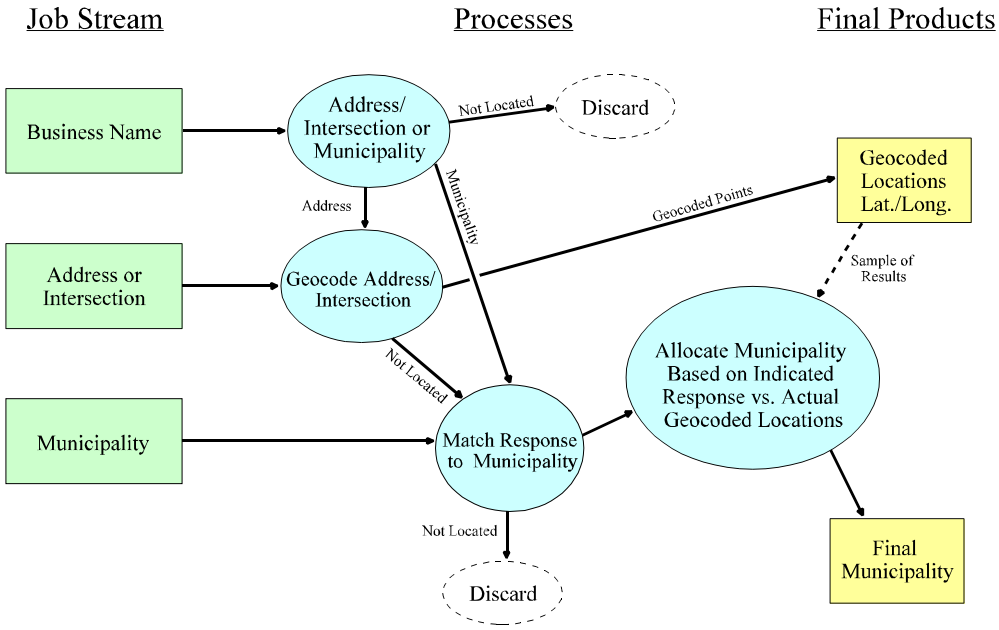


Finally, the survey number was used as both a unique identifier and a means to prevent duplication of data entry. The survey number also served to identify cordon station and direction. The database and entries were designed to allow further analysis and processing. One example is the geocode field that was used to specify a likely method of assigning geographic data, such as via municipality, business address, personal address, or intersection.

2. Geocoding

Geocoding refers to the assignment of geographic attributes based on entered survey data (See Figure II-3 for DVRPC Geocoding Process). Another term for this process is data conflation. The conflation process allows for spatial analysis of survey responses and separates the data into several job streams based upon likely geocoding method, and assigns unique identifiers to each address. To assign a unique identifier, full survey entries were separated into singular addresses using the survey ID number and either origin or destination. Note that stopover points were not assigned a geographic location. After separation of origin and destination, three categories were used to assign a method for data conflation: 1) where the address is a street address, intersection of named roads, or a partial combination of the two, 2) where the address is a business name with full or partial street and place information, and 3) where the address is a town, place, state, or other such designated area without a street address or road name. Those entries where the address was invalid, unreadable, or in any other way unable to be determined or placed into one of the three categories, were discarded.

Figure II-3. DVRPC Geocoding Process

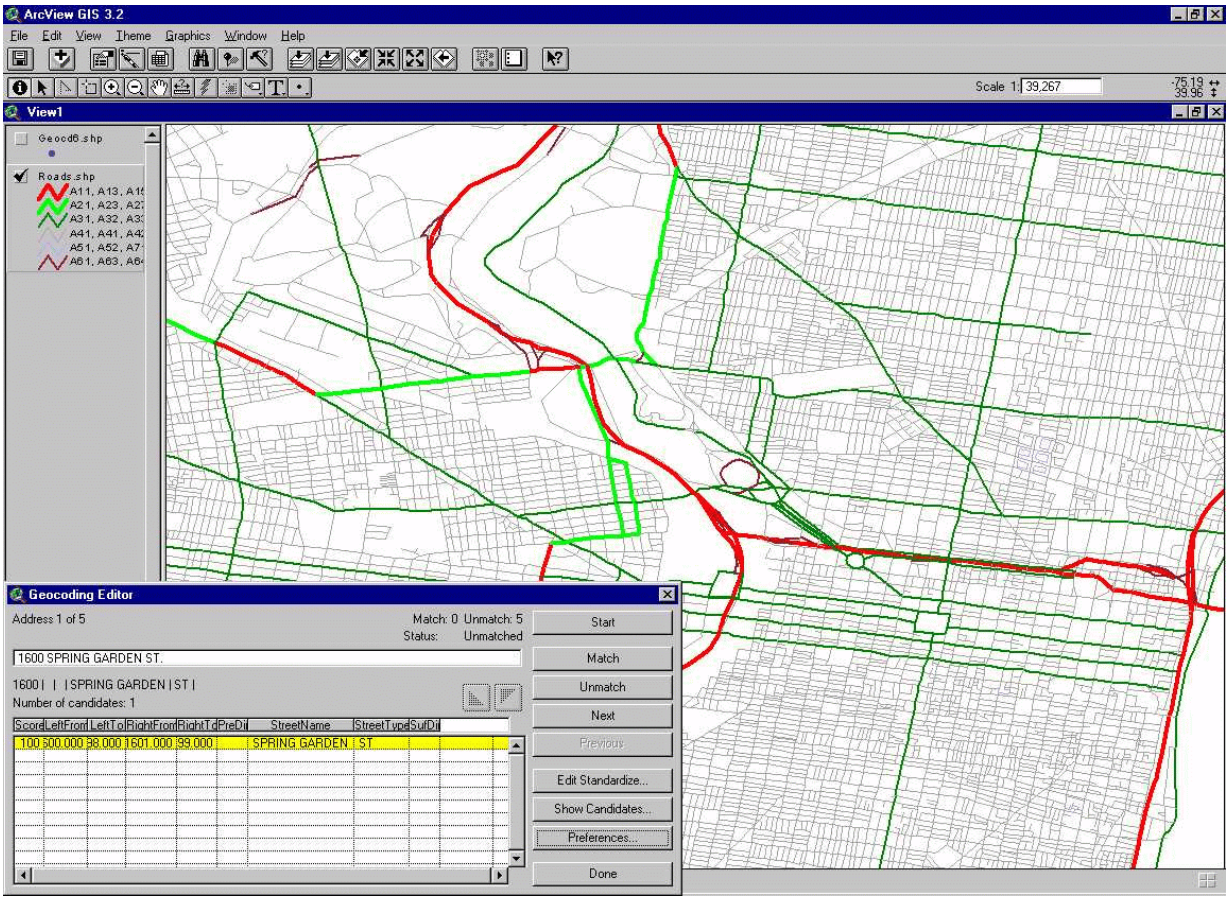


3. Street Addresses and Businesses

The first category of origins and destinations to be assigned geographic locations (latitude and longitude) was the group containing a street address, intersection, or road name. The ArcView 3.2 program was able to geocode many of the recognizable data entries. The underlying address and road name data to which it was matched was the U.S. Census TIGER files for the DVRPC region and adjacent counties. This group was first processed using the Geocoding interface in ArcView 3.2, automatically comparing entered address or intersection versus TIGER data. After the initial run, many of the addresses remained unmatched due to spelling errors in road names. To fix this, those addresses not found initially were again put through the geocoding program and checked against atlases of streets and roads in the chosen areas. This second attempt was done manually, and while very time consuming, yielded the vast majority of the remaining entries thought likely to be geocoded. Those few entries that could not be geocoded were grouped with entries where only municipality was known, or discarded.

Figure II-4 shows the ArcView Geocoding interface used to process those data items not found automatically. Entries that had a business address or name were assigned to an address using either the internet yellow pages or local phone books. After assigning the addresses to be geocoded they were “run” through the Arcview geocoding process as above. Any entries that still had not been assigned a geographic location were placed into the town/place entry file.

Figure II-4. Interface for ArcView Geocoding



4. Town / Place Addresses

All entries not processed using the prior two techniques were assigned geographic location via town/place name. The first part of this process was to standardize spelling and ancillary data such as county for each response. A process was developed to assign geography using surveyed town/place response, and appropriate latitude and longitude measurements. The process began with place names. Entries corresponding to placescompletely inside an MCD (Minor Civil Division) were assigned to either the geographic center of the place as defined by the Census Bureau, or the focal intersection for the named place. This was most effective for small villages.

The entries consisting of MCD names were allocated by comparing reported MCDs versus actual MCDs based upon the geocoding process. This process corrects for the variation between respondents conception of geographic bounds and actual political borders. Respondents indicating a specific MCD as a destination were equally likely to be traveling to the adjacent townships based upon given intersection or address. The responses were scattered across several MCDs based upon the ratio established from geocoded results, rather than assign all trips to the centroid of the MCD.

This process ensures that the geographic location for the entries assigned to municipalities near the reported MCD are representative of the actual sample. A similar procedure allocates responses when boroughs are surrounded by townships with the same name. Finally, state centroids were used to assign geographic location to states and provinces beyond 200 miles. This allows for reasonable distance calculations for longer trips.

The geocoding process yielded results allowing a full range of spatial analysis. To allow for differing geographic resolutions, survey data were grouped by accuracy. Consequently, 65.3 percent of survey responses could be assigned using address or intersection data, and 28.9 percent of responses could be assigned by municipality. Only 5.9 percent of all surveyed points were not assigned a geographic location.

III. SUMMARY SURVEY RESULT FOR I-95, US 202, AND PA 41 SOUTH SURVEY LOCATIONS PARTS 1, 2 AND 3

The summary survey results for I-95 (which is made up of I-95, I-495 and Naamans Road Ramps), US 202, and PA 41 south are shown in this section. Part 1 of this section consists of I-95, I-495 and Naamans Road Ramps survey results, Part 2 consists of US 202 survey results, and Part 3 consists of PA 41 south survey results. Information was collected in both inbound and outbound directions on these facilities through a roadside interview, using the questionnaire shown on page 6. Questions were asked about trip origin and destination, purpose, highways used, vehicle type, occupancy, truck garage location and commodities transported. Simple and cross tabulations of survey responses for each of the stations are summarized in Parts 1, 2, and 3.

The major findings of the survey and traffic characteristics are presented with the findings for each question are offered in graphic and written form. Included with each table or figure is text summarizing the highlights of the survey responses. The text summarizes the findings and describes points of interest not shown in the graphics. Detailed survey information is provided in the Appendices.

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PART 1
I-95 Survey Summary Results

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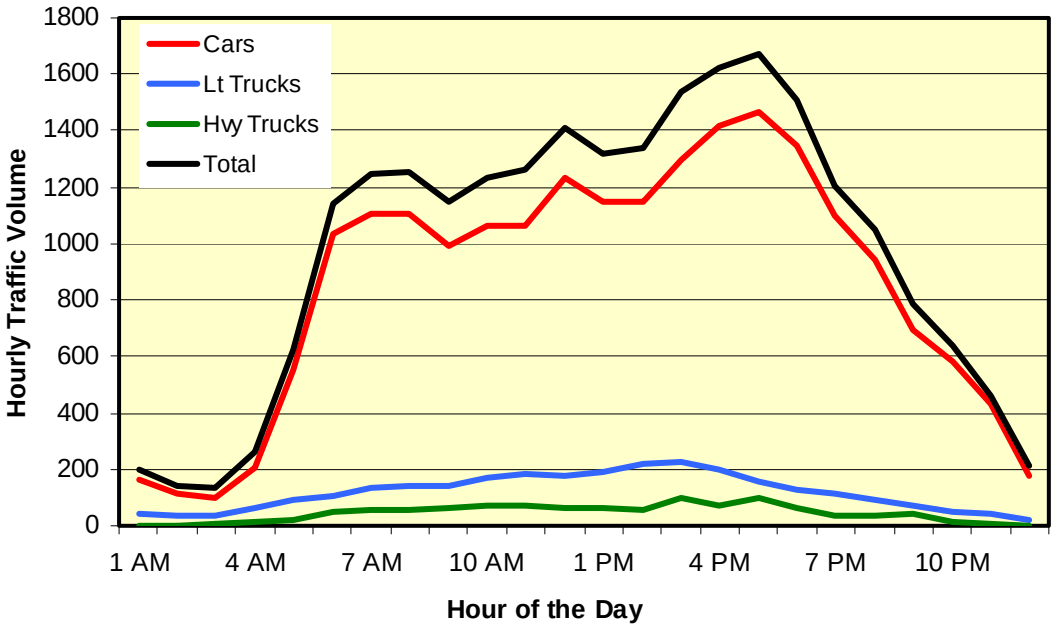
Daily Traffic Counts by Hour of the Day



- Vehicle classification traffic counts were collected during 24 hours preceding the survey. The I-95 traffic counts were taken where the field survey was conducted, but vehicle class results were only available in the northbound direction. It is reasonable to assume that southbound volumes are similar, but impossible to determine vehicle classification. The northbound traffic volume at that point was 23,394 vehicles classified by vehicle type. The full statistical portrait of the classification counts for I-95 is shown in Table A-1 in the Appendix A in the back of the report.

- The AM peak hour traffic occurred between the hours of 7:00 a.m. and 8:00 a.m. The count for that hour was 1,254 vehicles. This count was 5.4 percent of the 24 hour traffic volume. The PM peak occurred between the hours of 4:00 p.m. and 5:00 p.m. The count for that hour was 1,673 vehicles. This constitutes 7.2 percent of the 24 hour traffic volume.

- The vehicular counts were dominated by 20,485 automobiles. This is about 87 percent of the 24 hour vehicular count. Light trucks were 6 percent of the vehicles.

- Heavy trucks, those with more than two axles, make up 5 percent of the vehicular traffic. Buses and motorcycles together were only about 2 percent share of the vehicle counts.

Total Interviews by Survey Period

Survey Period	Total Surveys	Inbound Surveys	Inbound % of Total	Outbound Surveys	Outbound % of Total
Morning Shift					
6:30 a.m. - 10:30 a.m.	335	140	23%	195	33%
10:30 a.m. - 1:00 p.m.	351	173	28%	178	31%
Evening Shift					
1:00 p.m. - 4:30 p.m.	249	163	26%	86	15%
4:30 p.m. - 8:00 p.m.	267	143	23%	124	21%

- There were 1,202 drivers surveyed at this location. The hourly shift totals have been added together to create the table above. The disaggregated numbers are shown in greater detail in Table A-2 in the Appendix.

- There were 619 inbound and 583 outbound vehicles surveyed at the cordon station. The 6:30 a.m. to 8:30 a.m. morning peak time had about 14 percent of the total volume, while the 4:30 p.m. to 6:00 p.m. afternoon peak time had about 17 percent the total surveys.

- The evening outbound survey volumes have the lowest share of survey responses. The surveys between 1:00 p.m. and 4:30 p.m. are about 15 percent and between 4:30 p.m. and 8:00 p.m. about 21 percent of the traffic volume. These are the lowest shares of the survey periods, while both the morning peak and off-peak shifts each have over 30 percent shares of the traffic volume.

Place of Trip Origin by Municipality

Inbound Trip Origins		Outbound Trip Origins	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Brandywine	42%	1. Philadelphia	29%
2. Wilmington	21%	2. Chester	4%
3. New Castle	6%	3. Upper Chichester	3%
4. Pike Creek-Central	4%	4. Ridley	3%
5. Piedmont	4%	5. Lower Merion	2%
6. Lower Christiana	3%	6. Lower Chichester	2%
7. Washington	2%	7. Marple	2%
8. Baltimore	2%	8. Brookhaven	2%
9. Central Pencader	1%	9. Prospect Park	1%
10. Red Lion	1%	10. Upper Darby	1%

- There were 1,224 drivers responding to the question, "Where did you start this trip?" The numbers in the table above show only the trips originating in the top ten municipalities. The disaggregated numbers are shown in detail in Table A-3 in the Appendix.

- About 42 percent of the inbound trips originate in Brandywine and about 21 percent originate in Wilmington with the remaining eight trip origins equaling about 23 percent. A 29 percent share of the outbound trips originates in Philadelphia and the rest of the municipalities combine for about a 25 percent share with about 46 percent of the responses indicating miscellaneous "other" origins.

- About 60 percent of the surveyed trips have home-based trip origins. Brandywine and Philadelphia both are the largest share of inbound and outbound home-based trip origins with 46 and 25 percent, respectively.

- Truck trips constitute about 14 percent of the drivers surveyed. About 37 percent of the inbound trucks may be attributed to two origins: Brandywine (19%), and Wilmington (18%). The remaining truck origins have 6 percent or less shares, with the "other" category, not shown in the table and composed of miscellaneous responses, with 30 percent share. Similarly, the top outbound truck origin, Philadelphia, equals 2 percent with "other" having a dominant 64 percent share.

Place of Trip Destination by Municipality

Inbound Trip Destinations		Outbound Trip Destinations	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Philadelphia	25%	1. Brandywine	32%
2. Chester	18%	2. Wilmington	26%
3. Lower Chichester	5%	3. New Castle	5%
4. Upper Merion	5%	4. Lower Christiana	4%
5. Lower Merion	2%	5. Washington	3%
6. Upper Chichester	2%	6. Piedmont	3%
7. Cherry Hill	2%	7. Baltimore	3%
8. Media	2%	8. Pike Creek-Central	2%
9. Aston	2%	9. Greater Newark	2%
10. Bristol	2%	10. Lewes	1%

- There were 1,038 drivers responding to the question, “Where will this trip end?” The numbers in the table above show only the trip destinations aggregated for the top ten municipalities in each direction. The disaggregated numbers appear in detail in Table A-4 in the Appendix.

- The largest share of inbound trip destinations is to Philadelphia with 32 percent. Brandywine and Wilmington combine for a 58 percent share of the outbound destinations. The remaining inbound and outbound municipalities have relatively small trip shares.

- Home-based trip destinations constitute about 59 percent of all trips. About 26 percent of home-based inbound trips have Philadelphia as their destinations. About 59 percent of the home-based outbound trips are destined for Brandywine and Wilmington.

- Truck trips are a 10 percent share of the surveyed vehicles with an equal number of inbound and outbound responses. One third of inbound truck destinations are to the urban center of Philadelphia (32%). About 54 percent of the outbound truck destinations are destined for Brandywine and Wilmington. Trucks also have a large “other” destination response (35% inbound and 24% outbound), reflecting the multitude of delivery destinations made by commercial vehicles.

Trip Stops by Vehicle Type

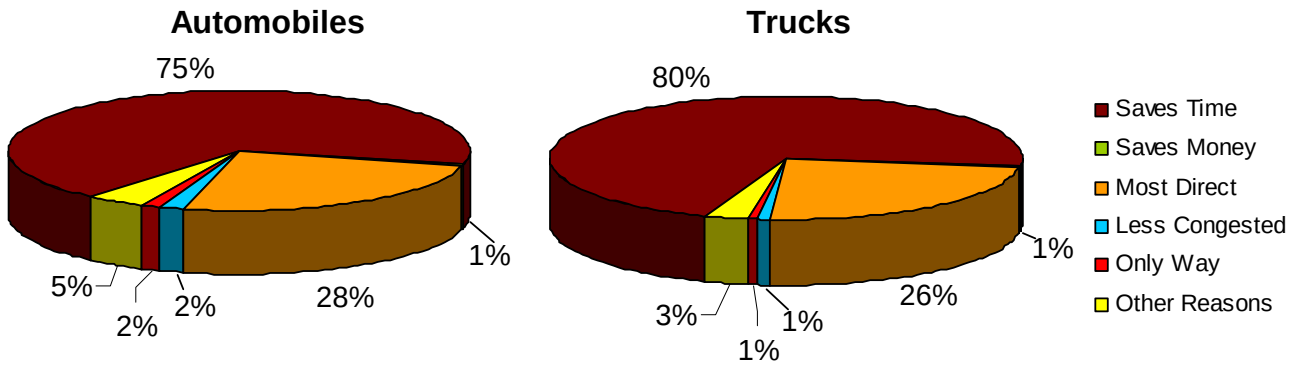
Survey Period	Passenger Vehicle Stopping	Commercial Vehicle Stopping	Total Stopping
Inbound Trips			
6:30 a.m. - 10:30 a.m.	2.5%	2.4%	2.5%
10:30 a.m. - 1:00 p.m.	0.7%	3.3%	1.2%
1:00 p.m. - 4:30 p.m.	5.1%	9.5%	5.7%
4:30 p.m. - 8:00 p.m.	3.7%	0.0%	3.3%
Outbound			
6:30 a.m. - 10:30 a.m.	0.0%	0.0%	0.0%
10:30 a.m. - 1:00 p.m.	3.6%	0.0%	3.1%
1:00 p.m. - 4:30 p.m.	0.0%	0.0%	0.0%
4:30 p.m. - 8:00 p.m.	2.6%	0.0%	2.4%

- There were 1,209 drivers responding to the question: "Will you stop before arriving at your destination?" The numbers in the table above were aggregated from the complete data set shown in Table A-5 in the Appendix.

- Only a few drivers responded that they were going to stop before arriving at their destination. Only 24 automobiles and 4 trucks responded affirmatively, meaning only about 2 percent of total drivers planned to stop before arriving at their destination.

- Over half of all the "stop" responses (18) were from passenger vehicles heading inbound. About 2 percent of trucks (4 of 187 trucks) responded that they were stopping prior to their final destination. There were zero affirmative answers by outbound truck drivers for this question.

Reason for Using I-95 by Automobile and Truck Drivers



*Totals may exceed 100% due to multiple answers

- There were 992 passenger and 175 commercial vehicles responding to the question, "Why do you use this road?" The drivers were permitted to provide more than one answer which means that totals in the Appendix tables can add to more than 100 percent. The complete data sets are in Tables A-6 and A-7 in the Appendix.

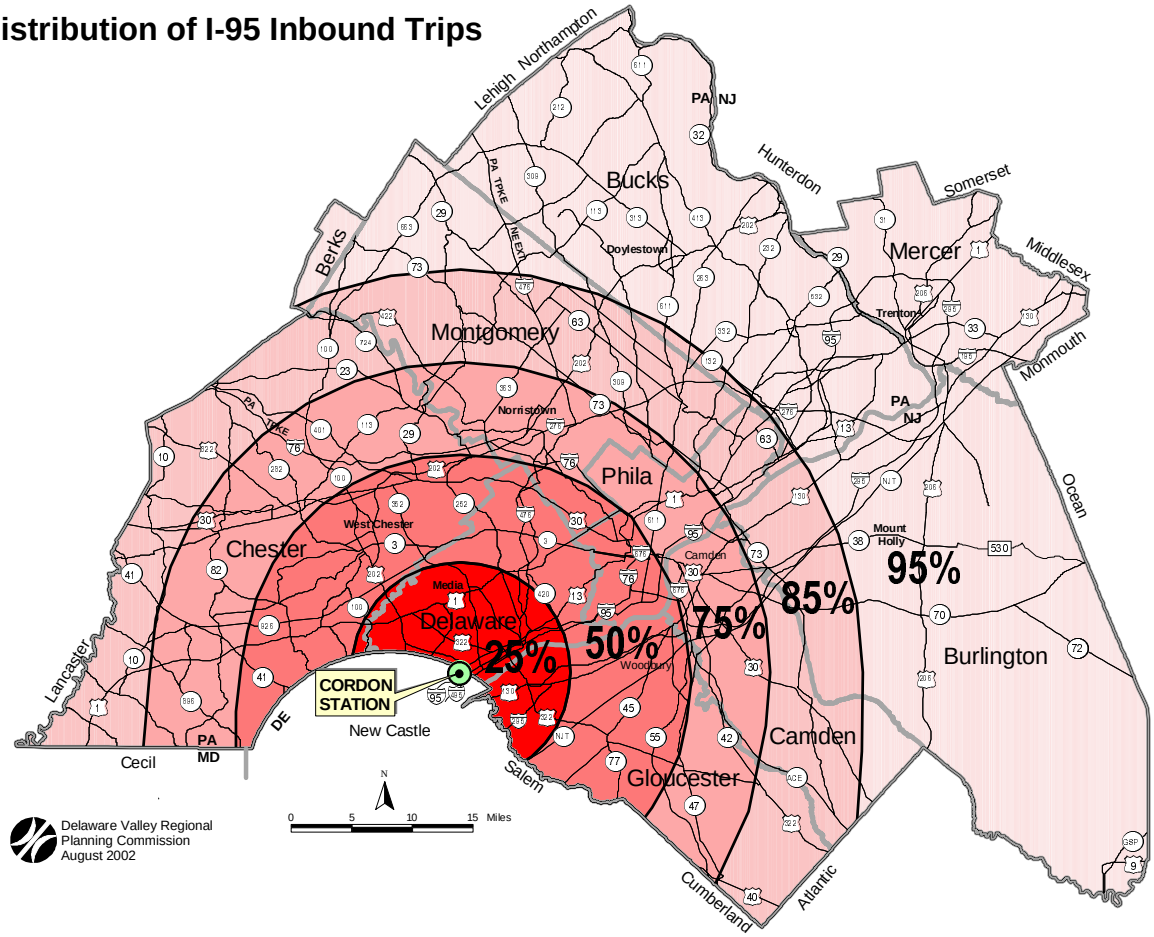
- "Saves time" was the dominant response for both vehicle types with 75 percent of the responses for automobiles and 80 percent for trucks. A combined total of about 4 percent of automobile drivers and about 2 percent of truck drivers had the same three responses: "saves money", "only way" and "less congested".

- The response of "most direct" for automobile and truck drivers (28% and 26% respectively) acknowledges that a driver may take a road because it is the only way to reach their destination.

- Between 1:00 p.m. and 4:30 p.m. 91 percent of automobile drivers proceeding outbound responded with "saves time", and between 6:00 a.m. and 10:30 a.m., and 1:00 p.m. and 4:30 p.m. 100 percent of outbound trucks responded with "saves time".

- Inbound automobile and truck drivers both responded "most direct" between 4:30 p.m. to 8:00 p.m. (43% and 67% respectively). These numbers are not, however, mirrored in the outbound direction

Distribution of I-95 Inbound Trips



- The map shows the distribution of inbound trips within the DVRPC region, though the percentages also include values outside the region but within the isochrone lines. About 92 percent of the trips end within the region, the through trips are described below.

- Only 8.2 percent of the surveyed vehicles were through trips with destinations outside the region. Of these trips about 1.3 percent of all trips were headed west out of the region into Pennsylvania towards Lancaster County..

- About 1.2 percent of the through trips went north of Pennsylvania up the Pennsylvania Turnpike North-East extension and beyond.

- About 4.5 percent of the trips had destinations outside the region in north New Jersey and north towards New York City.

- Only 1.2 percent of the trips were headed east toward shore points.

Major Roads Taken by all Vehicles

Inbound Trips		Outbound Trips	
Roads Used	**% of Total**	**Roads Used**	**% of Total**
1. I-476	33%	1. US 202	18%
2. I-76	15%	2. US 13	10%
3. I-295	9%	3. DE 141	9%
4. US 322	8%	4. I-295	7%
5. NJ Tpke	5%	5. I-495	5%
6. PA 291	4%	6. DE 273	3%

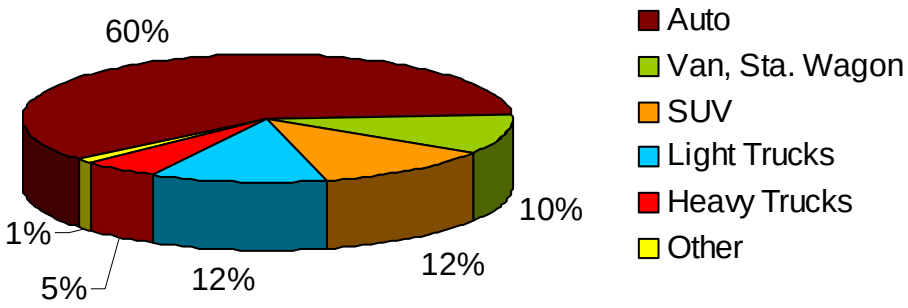
- There were 399 driver responses, other than I-95, to the question "What is/are the major roads that you will take to reach your destination after this road?" The complete data set is in Table A-8 in the Appendix.

- About 48 percent of the total inbound drivers responded that I-476 (33%) or I-76 (15%) would be the road they would use to reach their destination. This response is not surprising given that these two facilities are major through roads within the region.

- Conversely, outbound traffic had no dominant route response, though US 202 with 18 percent, US 13 with 10 percent and DE 141 with 9 percent constitute about 37 percent of the total responses. The "other" category had a dominant 45 percent share, with the remaining facilities having small shares of the total outbound volume.

- Inbound truck responses were largely indistinguishable from the passenger or total responses with I-476 (32%) or I-76 (13%), and "other" roads holding a 21 percent share. Outbound trucks mostly follow US 202, US 13, and I-295 for a total share of about 40 percent. Again, "other", a catch-all for miscellaneous responses, was the dominant response in the outbound direction with 47 percent of the responses.

Type of Vehicles Surveyed



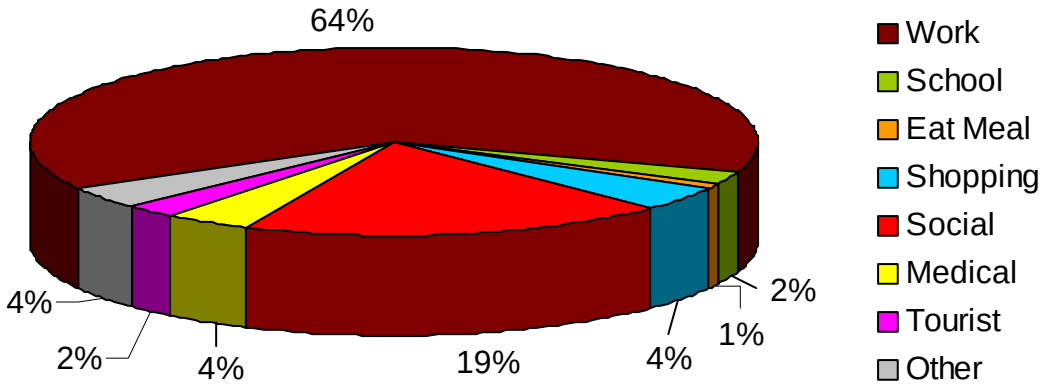
- The response to this question was obtained from observation rather than questioning the 1,202 drivers in the survey sample. The grouped categories are not aggregated the same as the 24 hour vehicle classification count, with some categories broken out and some combined in order to help with the analysis. As mentioned previously, class counts in both directions were not available, hence comparisons are limited. The complete data set is in Table A-9 in the Appendix.

- The composition of the surveyed vehicles differs from the one-way 24 hour vehicle classification counts. Surveyed passenger vehicles (autos, vans, SUVs) were a smaller share than the 24 hour count (82% versus 87%). Light truck traffic (pickup, panel, and single unit) was larger during the survey than the 24 hour (one-way) (12% versus 6%).

- Automobiles make up about 60 percent of the surveyed vehicle mix, while vans with 10 percent and SUVs with about 12 percent constitute the rest of the passenger vehicles.

- Light trucks, including pick-up trucks, are about a 12 percent share equaling the SUV share of the vehicle mix. Surveyed heavy trucks had a 5 percent share which is similar to the (one-way) 24 hour count of 5 percent.

Trip Purpose of Passenger Vehicles



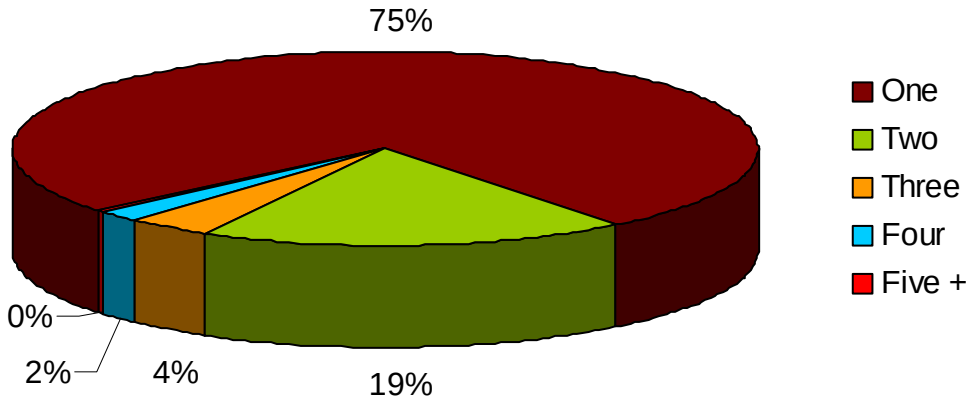
- Drivers in passenger vehicles were asked "What is the purpose of this trip?" Truck and commercial vehicle drivers were not asked this question as their purpose was evident. The complete data set is in Table A-10 in the Appendix.

- The work trip is the greatest trip purpose with 64 percent of the total trips. Work trips dominate the morning peak hours between 6:30 a.m. and 8:30 a.m. with inbound and outbound shares (89%and 86% respectively). The PM peak between 4:30 p.m. and 6:00 p.m. have inbound and outbound shares (77% and 68%) which are not as dominant as the AM peaks.

- The social trip is the secondary reason for making a trip, each with about 19 percent of total trips. Social trips are low during morning periods in both directions, but reach their greatest concentration outbound between 10:30 a.m. and 1:00 p.m. (36%).

- The remaining six categories are split among the remaining 17 percent of trip purposes. Shopping, medical and "other" each have about a 4 percent share for 12 percent total. School, tourist and eat meal each offer declining shares (2%, 2%, 1% respectively). None of these have notable shares in any survey period.

Vehicle Occupancy



- This question, “How many people are in the vehicle?” was obtained by observation rather than questioning the 1,021 drivers in the survey sample. This question was used for passenger vehicles only. The complete data set is in Table A-11 in the Appendix.

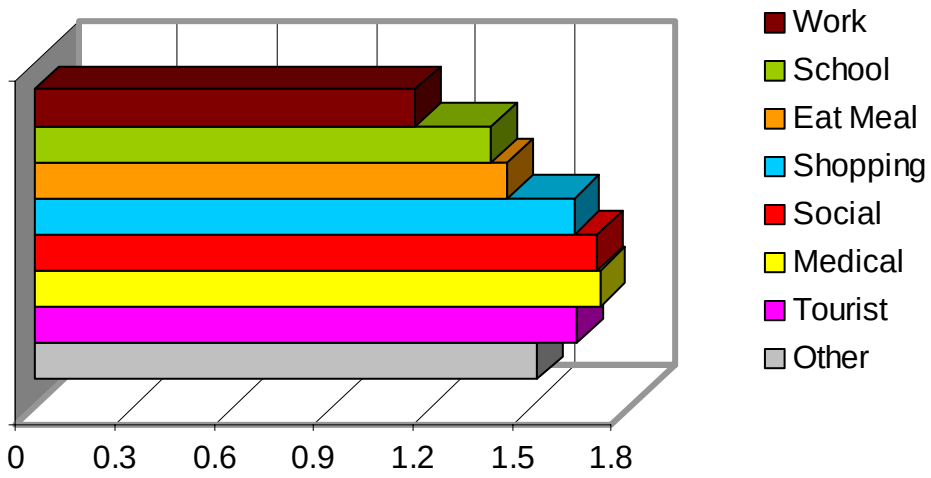
- One occupant vehicles were about 75 percent of total vehicles surveyed. The greatest share of these were distributed inbound between 6:30 a.m. and 8:30 a.m. (89%) and outbound between 8:30 a.m. and 10:30 a.m. (93%).

- Two occupant vehicles are a 19 percent share of the vehicles surveyed and they have a double digit share in every survey period except the outbound AM peak and 6:30 a.m. and 8:30 a.m.. The greatest inbound share is 26 percent during the 1:00 p.m. to 2:30 p.m. period, while the greatest outbound share is 40 percent during the 10:30 a.m. and 12:00 a.m. time period.

- Three and four occupant vehicles combine for about a 5 percent share of the total. During the 2:30 p.m. and 4:30 p.m. period, three occupant vehicles traveling outbound were about an 8 percent of the vehicles.

- Only four vehicles had 5+ occupants, giving it the smallest share with less than 1 percent of the total.

Average Vehicle Occupancy by Trip Purpose



- Average vehicle occupancy by trip purpose was obtained by cross tabulating the observed vehicle occupancy with the survey question regarding trip purpose. The complete data set is in Table A-12 in the Appendix.

- Average occupancy for the van/station wagons is the greatest (1.67), exceeding the average SUV occupancy (1.38) and average auto occupancy (1.27). It is intuitive that the vehicle with the greatest seating capacity would generally be carrying the greatest number of people.

- Total work trips have the lowest vehicle occupancy rates for any trip purpose (1.15). For this trip purpose the occupancy rate for automobiles (1.12) and SUVs (1.10), is exceeded by van/station wagons (1.37).

- The trip purposes with the greatest total occupancy rate are the medical and social categories with 1.71 and 1.70 persons per vehicle, respectively. The greatest occupancy rate overall is for the miscellaneous “other” purpose by van/station wagon (2.50). Closely following is the tourist and “other” purposes in the SUV mode with 2.33 and 2.25 respectively.

- Five different trip purposes have the same occupancy rate of 2.00 persons per vehicle (school, meal, shopping, social and medical trips) in the van/station wagon mode. About one quarter (7 of 24) of all the differing purpose/mode combinations have occupancy rates less than 1.5 persons per vehicle with four of them being with the automobile.

Vehicle Trip Length Distribution within the DVRPC Region

Trip Length	Work Trips	Auto Trips	Truck Trips
0-5 miles	16.1%	16.4%	10.8%
5-10 miles	13.2%	12.6%	10.1%
10-20 miles	39.1%	42.6%	39.8%
20-50 miles	30.0%	27.4%	39.1%
>50 miles	1.6%	1.0%	0.0%
Average Trip Length	**17.1**	**16.6**	**19.1**

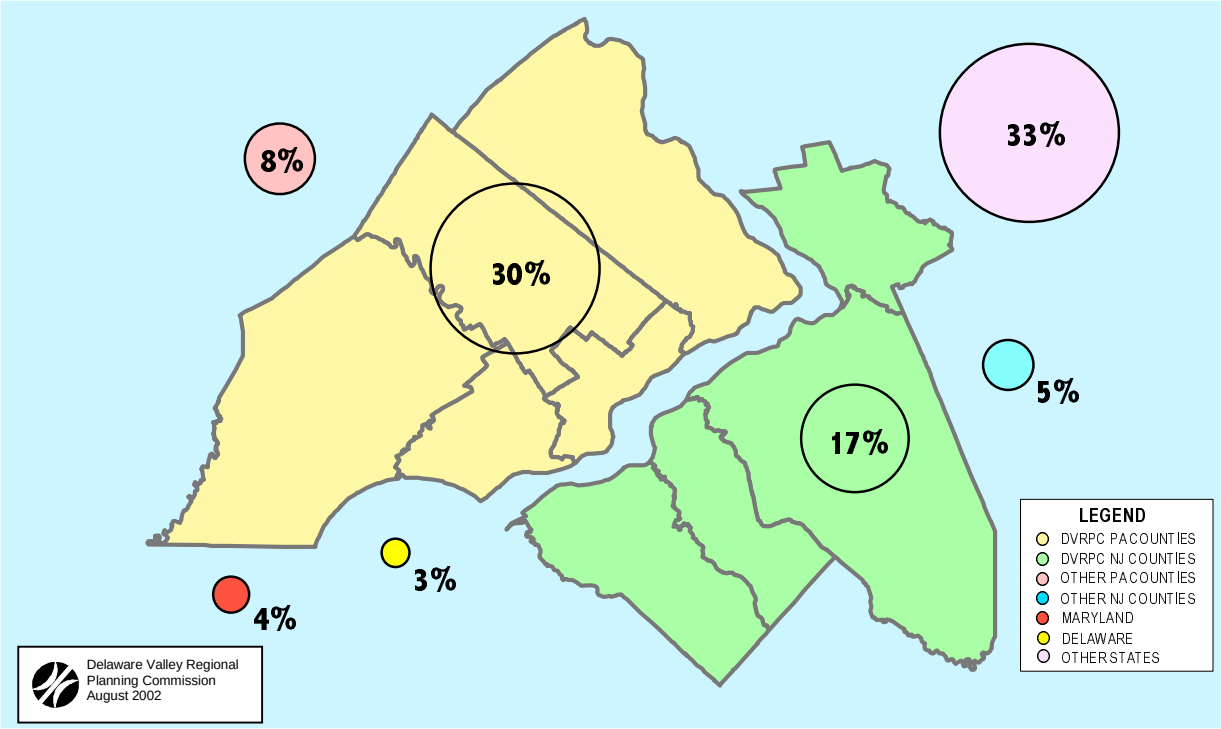
- The results for this query were obtained by using the GIS to compute distances between the cordon station and origins/destinations within the region gathered with the first two questions in the survey. This data is broken out by home-based work trips, passenger vehicle trips and truck trips. The data has been put into five general groupings by the distance traveled: 0-5 miles, 5-10 miles, 10-20 miles, 20-50 miles and above 50 miles. The complete data set is in Table A-13 in the Appendix.

- The average trip lengths vary from about 17 to 19 miles, with truck trips possessing the longest trip length (19 miles) and automobile trips the shortest (about 17 miles). The average distance for the trip purposes clustered at about 10-20 miles. The average values within this cluster vary slightly (39, 43, 40 miles respectively). There were zero trips recorded beyond 60 miles for any trip purpose.

- As would be expected, trip lengths for trucks are greater than automobile trips. The 10-50 mile trip length contains 79 percent of the commercial vehicle trips with 21 percent of the trips 10 miles and under. The other vehicle trips each have 69 percent of their values in the 10-50 mile range for home-based work and automobile trips.

- Work and automobile trips both have 16 percent shares in the 0 to 5 mile range and 13 percent shares in the 5 to 10 mile range. Work and automobile trips both have small numbers traveling 50-60 miles. There were 6 and 8 trips respectively in this distance category.

Trucks Garaged by State and County



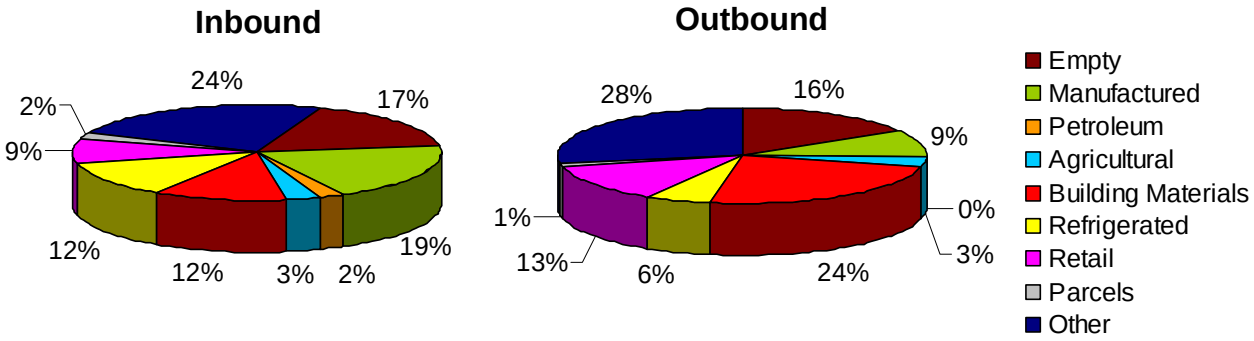
- There were 180 truck drivers asked "In what county is your truck garaged or parked when not in service?" Passenger vehicles were not asked this question. The complete data set is in Table A-14 in the Appendix.

- About one-half of the surveyed trucks are garaged within the DVRPC region (17% in New Jersey and 30% in Pennsylvania) while a few of truck drivers house their trucks outside the DVRPC region in New Jersey or Pennsylvania (5% and 8% respectively).

- Maryland and Delaware make up 3 percent and 4 percent of the garage locations. The remaining 33 percent of the responses are singular locations distributed throughout the United States.

- About 42 percent of the inbound traffic garaged in Pennsylvania, while only 17 percent did likewise in New Jersey, with the rest miscellaneous. This distribution is reversed somewhat with about 36 percent of the outbound traffic garaged in Pennsylvania, while 26 percent did likewise in New Jersey, with the rest miscellaneous.

Type of Commodities Carried by Trucks



- Truck drivers were asked “What type of commodities are you carrying?” Passenger vehicles were not asked this question. The complete data set is in Table A-15 in the Appendix.

- The number of inbound and outbound trucks surveyed were nearly equal (93 versus 87 surveyed trucks). The inbound and outbound results generally mirror each other, though there are some exceptions.

- The largest total response is “other“ (26% total) with 24 percent and 28 percent shares inbound and outbound. Building materials (18%), “empty” (17%), and manufactured products (14%) constitute the middle values. Agricultural (3%), parcels (2%), and petroleum products (1%) bring up the least common commodities carried by trucks.

- Trucks are equally likely to be traveling empty inbound and outbound (17% versus 16%). Manufactured products made up about 19 percent of the inbound traffic, but only 9 percent of the outbound flow. Building materials also showed a directional disparity with only 12 percent share in the inbound direction, but a 24 percent share outbound. Refrigerated products have twice the inbound (12%) as the outbound flow (6%).

- Parcels and petroleum products are a small share of the commodity flow at this cordon station with about 2 to 0 percent in each direction. Agricultural products are nearly equal inbound and outbound (about 3%).

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PART 2
I-495 Survey Summary Results

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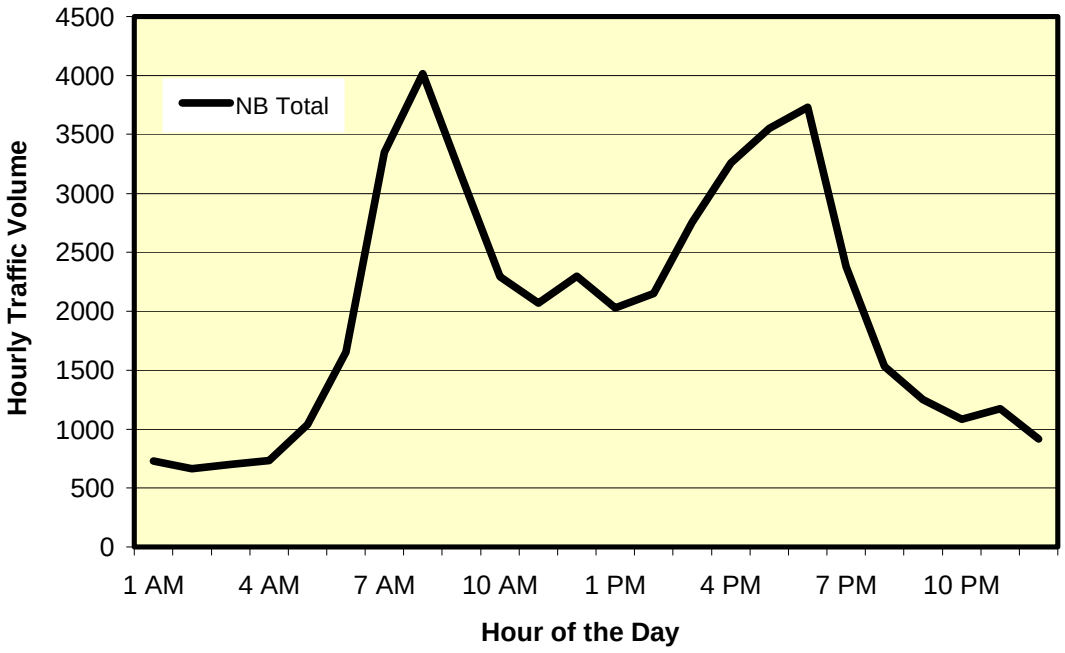
Daily Traffic Counts by Hour of the Day



- Vehicle classification traffic counts were collected during 24 hours preceding the survey. The I-495 traffic counts were supplied by Delaware Department Of Transportation (DelDOT) with vehicle class results available only in the aggregate, not broken out hourly by mode nor by direction. The statistical portrait of the classification counts for I-495 is shown in Table B-1 in the Appendix B in the back of the report.

- The AM peak hour traffic occurred between the hours of 7:00 a.m. and 8:00 a.m. The count for that hour was 4,016 vehicles. This count was 8.3 percent of the 24 hour traffic volume. The PM peak occurred between the hours of 5:00 p.m. and 6:00 p.m. The count for that hour was 3,732 vehicles. This constitutes 7.7 percent of the 24 hour traffic volume.

- The vehicular counts were dominated by 36,674 automobiles. This is about 76 percent of the 24 hour vehicular count. Light trucks were about 13 percent of the vehicles.

- Heavy trucks, those with more than two axles, make up about 9 percent of the vehicular traffic. Buses and motorcycles together, were only about 2 percent share of the vehicle counts.

Total Interviews by Survey Period

Survey Period	Total Surveys	Inbound Surveys	Inbound % of Total	Outbound Surveys	Outbound % of Total
Morning Shift					
6:30 a.m. - 10:30 a.m.	365	196	32%	169	28%
10:30 a.m. - 1:00 p.m.	341	174	29%	167	27%
Evening Shift					
1:00 p.m. - 4:30 p.m.	280	120	20%	160	26%
4:30 p.m. - 8:00 p.m.	232	115	19%	117	19%

- There were 1,218 drivers responding to survey at this location. The hourly shift totals have been added together to create the table above. The disaggregated numbers are shown in greater detail in Table B-2 in the Appendix.

- There was a similar number of surveys in each direction with 605 inbound and 613 outbound vehicles surveyed at the cordon station The 6:30 a.m. to 8:30 a.m. morning peak time had about 16 percent of the total volume, while the 4:30 p.m. to 6:00 p.m. afternoon peak time had about 14 percent the total surveys.

- The inbound morning shift (6:30 a.m. to 10:30 a.m.) volume is greater than the outbound morning shift volume (32% versus 28% respectively). This is reversed in the afternoon off-peak surveys (between 1:00 p.m. and 4:30 p.m.) with 20 percent inbound and 26 percent of the outbound surveys. The inbound and outbound responses in the other survey periods (morning off-peak and evening peak) are approximately equal (29% versus 27%, and 19% versus 19%, respectively.)

Place of Trip Origin by Municipality

Inbound Trip Origins		Outbound Trip Origins	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Brandywine	22%	1. Philadelphia	31%
2. New Castle	15%	2. Chester	7%
3. Wilmington	9%	3. Aston	4%
4. Baltimore	6%	4. Lower Chichester	4%
5. Upper Christiana	5%	5. Ridley	3%
6. Pike Creek-Central	5%	6. Prospect Park	3%
7. Central Pencader	4%	7. Lower Merion	3%
8. Dover	3%	8. Media	3%
9. Greater Newark	3%	9. Upper Chichester	2%
10. Lower Christiana	2%	10. Bristol	2%

- There were 1,166 drivers responding to the question, "Where did you start this trip?" The numbers in the table above show only the trips originating in the top ten municipalities. The disaggregated numbers are shown in detail in Table B-3 in the Appendix.

- About 22 percent of the inbound trips originate in Brandywine and about 15 percent originate in New Castle county with the remaining eight trip origins equaling about 42 percent. A 31 percent share of the outbound trips originates in Philadelphia and the rest of the municipalities combine for about a 37 percent share with about 32 percent of the responses indicating miscellaneous "other" origins.

- About 57 percent of the surveyed trips have home-based trip origins. Brandywine and Philadelphia both are the largest share of inbound and outbound home-based trip origins with 22 and 32 percent, respectively.

- Truck trips constitute about 17 percent of the drivers surveyed. About 34 percent of the inbound trucks may be attributed to three origins: Brandywine and New Castle with equal shares of 17 percent and Baltimore with 11 percent. The "other" category, not shown in the table and composed of miscellaneous responses, had a 28 percent share. The outbound truck origins are split between Philadelphia with 37 percent and with "other" having a 41 percent share.

Place of Trip Destination by Municipality

Inbound Trip Destinations		Outbound Trip Destinations	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Philadelphia	34%	1. Brandywine	25%
2. Chester	3%	2. Wilmington	12%
3. Upper Chichester	3%	3. New Castle	10%
4. Aston	3%	4. Pike Creek-Central	8%
5. Lower Merion	2%	5. Baltimore	4%
6. Upper Merion	2%	6. Lower Christiana	4%
7. Ridley	2%	7. Central Pencader	4%
8. Bensalem	2%	8. Upper Christiana	3%
9. Brookhaven	2%	9. Greater Newark	3%
10. Media	2%	10. Red Lion	2%

- There were 1,183 drivers responding to the question, “Where will this trip end?” The numbers in the table above show only the trip destinations aggregated for the top ten municipalities in each direction. The disaggregated numbers appear in detail in Table B-4 in the Appendix.

- The largest share of inbound trip destinations are to Philadelphia with a 34 percent share. Brandywine and Wilmington combine for a 37 percent share of the outbound destinations. The remaining inbound and outbound municipalities have relatively small trip shares, though miscellaneous destinations account for 41 percent of the total.

- Home-based trip destinations constitute about 52 percent of all trips. About 39 percent of home-based inbound trips have Philadelphia as their destinations. About 46 percent of the home-based outbound trips are destined for Brandywine, Wilmington, and New Castle county.

- Truck trips are a 17 percent share of the surveyed vehicles with 27 percent of the inbound trucks going to Philadelphia. About 31 percent of the outbound truck destinations are destined for Brandywine and Wilmington. Trucks also have a large “other” destination response (50% inbound and 31% outbound), reflecting the multitude of delivery destinations made by commercial vehicles.

Trip Stops by Vehicle Type

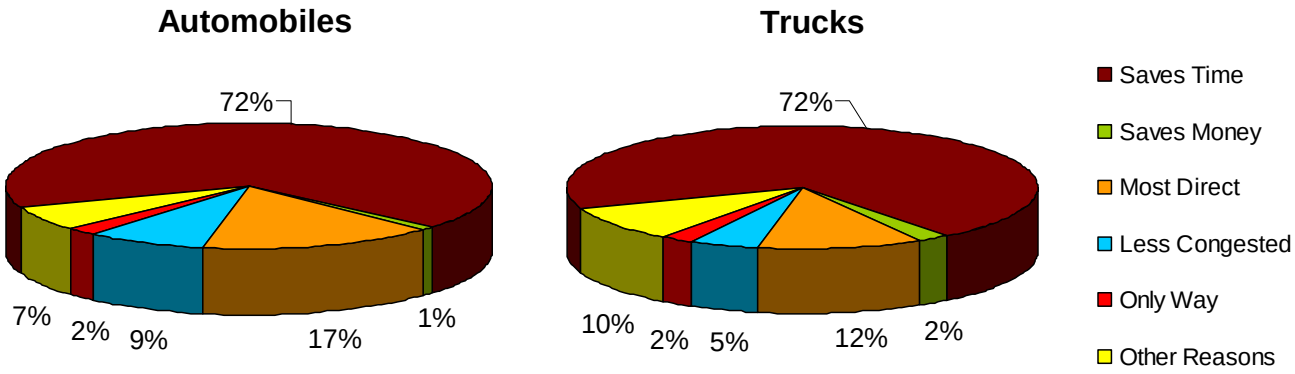
Survey Period	Passenger Vehicle Stopping	Commercial Vehicle Stopping	Total Stopping
Inbound Trips			
6:30 a.m. - 10:30 a.m.	2.5%	0.0%	2.0%
10:30 a.m. - 1:00 p.m.	5.1%	0.0%	4.0%
1:00 p.m. - 4:30 p.m.	1.0%	0.0%	0.8%
4:30 p.m. - 8:00 p.m.	0.0%	0.0%	0.0%
Outbound			
6:30 a.m. - 10:30 a.m.	0.7%	0.0%	0.6%
10:30 a.m. - 1:00 p.m.	2.3%	0.0%	1.8%
1:00 p.m. - 4:30 p.m.	2.3%	0.0%	1.9%
4:30 p.m. - 8:00 p.m.	0.9%	0.0%	0.9%

- There were 1,218 drivers responding to the question: "Will you stop before arriving at your destination?" The numbers in the table above were aggregated from the complete data set shown in Table B-5 in the Appendix.

- Only a few drivers responded that they were going to stop before arriving at their destination. Only 20 automobiles and zero trucks responded affirmatively, meaning only about 2 percent of total drivers planned to stop before arriving at their destination.

- Over half of all the "stop" responses (12) were from passenger vehicles heading inbound. One-half of the remaining 8 affirmative responses (4) were distributed outbound between 12:00 p.m. and 2:30 p.m.

Reason for Using I-495 by Automobile and Truck Drivers



*Totals may exceed 100% due to multiple answers

- There were 963 passenger and 207 commercial vehicles responding to the question, "Why do you use this road?" The drivers were permitted to provide more than one answer meaning that totals in the Appendix can add to more than 100 percent. The complete data sets are in Tables B-6 and B-7 in the Appendix.

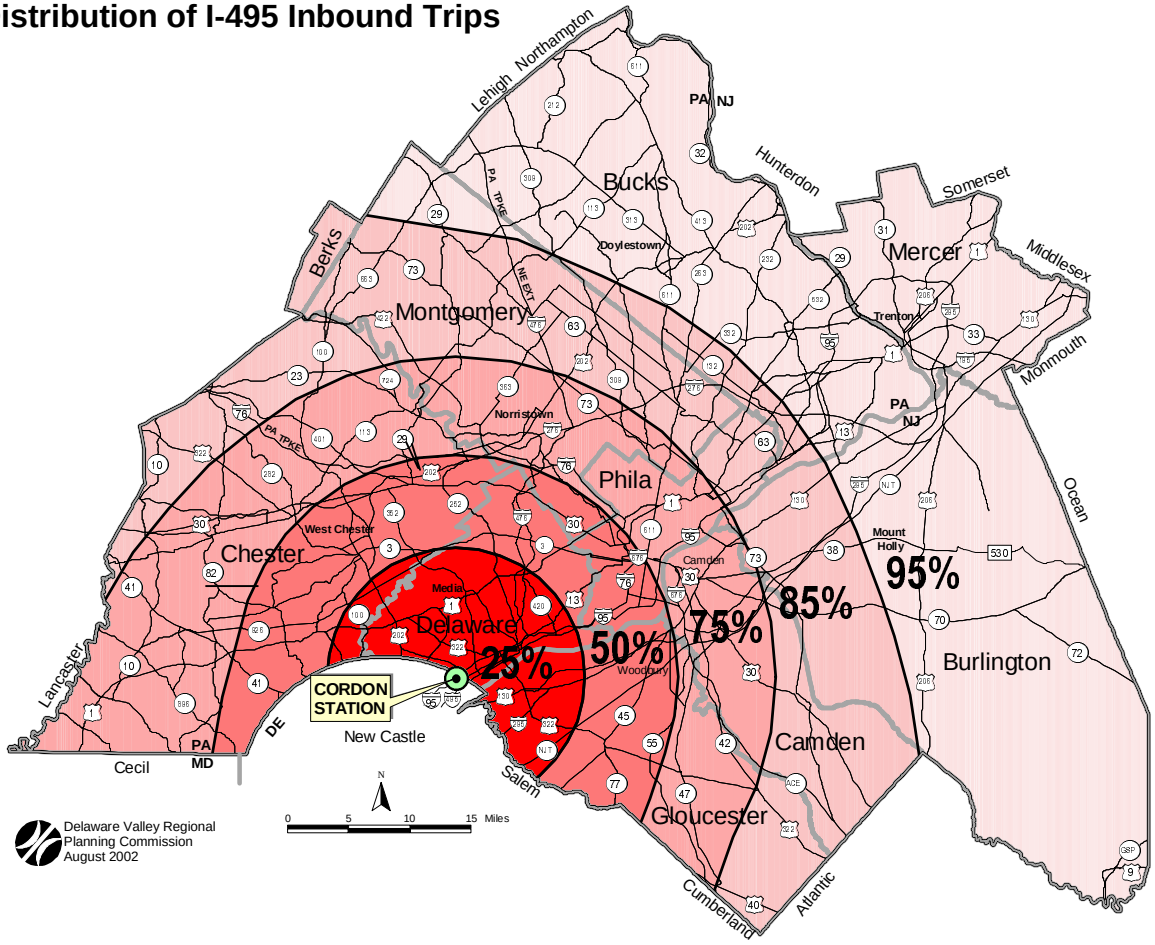
- "Saves time" was the dominant response for both vehicle types with 72 percent of the responses for automobiles and for trucks. Only a combined 3 percent of automobile and 5 percent of truck drivers responded with "saves money", "only way".

- The response of "most direct" for automobile and truck drivers (17% and 12% respectively) acknowledges that a driver may take a road because it is the only way to reach their destination.

- Between 1:00 p.m. and 2:30 p.m. 92 percent of automobile drivers proceeding inbound responded with "saves time". Inbound trucks between 2:30 p.m. and 4:30 p.m. responded "saves time" 100 percent.

- Inbound automobile drivers both responded "most direct" about 41 percent of the time in the morning peak period between 6:30 a.m. to 10:30 a.m. Truck drivers responded "most direct" inbound with 16 percent between 6:30 a.m. and 10:30 a.m. and outbound with 21 percent between 10:30 a.m. and 1:00 p.m.

Distribution of I-495 Inbound Trips



- The map shows the distribution of inbound trips within the DVRPC region, though the percentages also include values outside the region but within the isochrone lines. About 90 percent of the trips end within the region, the through trips are described below.

- Only 10.1 percent of the surveyed vehicles were through trips with destination outside the region. Of these trips about 5.7 percent of all trips were headed west out of the region into Pennsylvania towards Lancaster County..

- About 0.7 percent of the through trips went north of Pennsylvania up the Pennsylvania Turnpike North-East extension and beyond.

- About 2.8 percent of the trips had destinations outside the region in north New Jersey towards New York City

- Only 0.9 percent of the trips were headed east towards shore points.

Major Roads Taken by all Vehicles

Inbound Trips		Outbound Trips	
Roads Used	**% of Total**	**Roads Used**	**% of Total**
1. I-476	33%	1. I-95	44%
2. I-76	12%	2. US 13	14%
3. US 1	6%	3. DE 1	6%
4. I-676	4%	4. DE 141	5%
5. US 322	4%	5. DE 896	3%
6. PA 291	4%	6. DE 273	2%

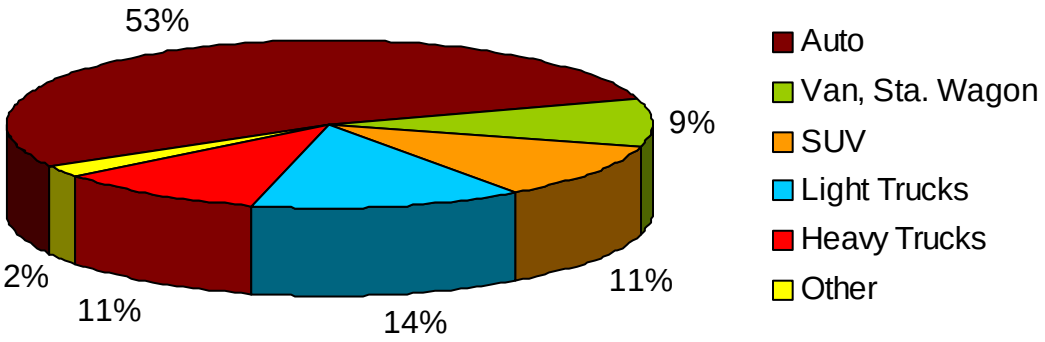
- There were 382 driver responses to the question "What is/are the major roads that you will take to reach your destination after this road?" The complete data set is in Table B-8 in the Appendix.

- About 45 percent of the total inbound drivers responded that I-476 (33%) or I-76 (15%) would be the road they would use to reach their destination. This response is not surprising given that these two facilities are major through roads within the region.

- Outbound traffic had a dominant route response with I-95 with 44 percent, US 13 with 14 percent. The "other" category had a 25 percent share, with the remaining facilities having small shares of the total outbound volume.

- Inbound truck responses were largely indistinguishable from the passenger or total responses with I-476 (26%) and "other" roads holding a 49 percent share. Outbound trucks mostly follow I-95 (40%) and US 13 (18%) for a combined 58 percent. Again, "other", a catch-all for miscellaneous responses, was the large response in the outbound direction with 33 percent of the responses. This result affirming the dispersed nature of the routes and destinations outside the region.

Type of Vehicles Surveyed



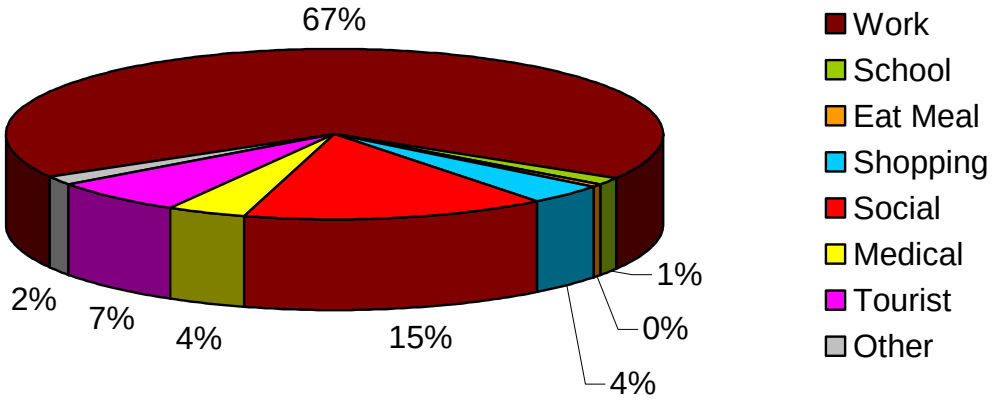
- The response to this question was obtained from observation rather than questioning the 1,218 drivers in the survey sample. The grouped categories are not aggregated the same as the 24 hour vehicle classification count, with some categories broken out and some combined in order to help with the analysis. As mentioned previously, class counts by hour and by direction were not available from the DelDOT 24 hour data, hence comparisons are limited. The complete data set is in Table B-9 in the Appendix.

- The composition of the surveyed vehicles differ from the one-way 24 hour vehicle classification counts. Surveyed passenger vehicles (autos, vans, SUVs) had a similar share to the 24 hour count (73% versus 76%). Light truck traffic (pickup, panel, and single unit) was similar during the survey and the 24 hour (14% versus 13%).

- Automobiles make up about 53 percent of the surveyed vehicle mix, while vans with 9 percent and SUVs with about 11 percent, constitutes the rest of the passenger vehicles.

- Surveyed heavy trucks had an 11 percent share which is slightly more than the 24 hour count of 9 percent.

Trip Purpose of Passenger Vehicles



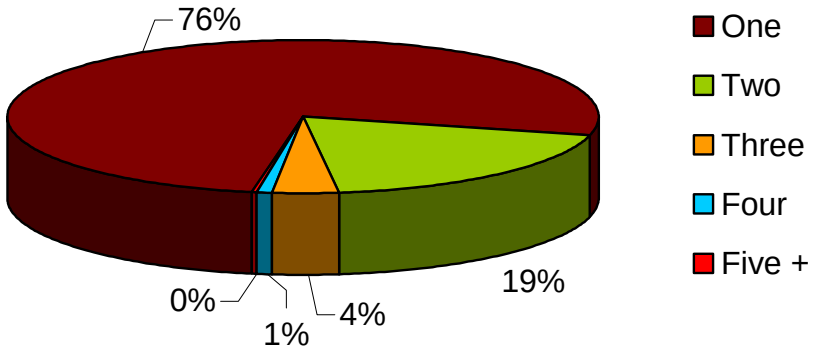
- Drivers in passenger vehicles were asked “What is the purpose of this trip?” Truck and commercial vehicle drivers were not asked this question as their purpose was evident. The complete data set is in Table B-10 in the Appendix.

- The work trip was the most common trip purpose with 67 percent of the total trips. Work trips dominate the morning peak hours between 6:30 a.m. and 8:30 a.m. with inbound and outbound shares of 89 percent and 66 percent respectively. The afternoon inbound and outbound peak hours between 4:30 p.m. and 6:00 p.m. have less dominant shares than the AM peaks (78% and 71%).

- The social trip is the secondary reasons for making a trip, with about 15 percent of total trips. Social trips are low during morning periods in both directions, but reach their greatest concentration inbound and outbound between 10:30 a.m. and 1:00 p.m. (21% and 26%).

- The remaining six categories are divided among the remaining 17 percent of trip purposes. Shopping, medical and tourist each have small shares of 4, 4, and 7 percent respectively. “Other”, school, and eat meal each offer declining shares (2%, 1%, 0% respectively). None of these have notable shares in any survey period.

Vehicle Occupancy



- The answer to the question, “How many people are in the vehicle?” was obtained by observation, rather than questioning the 1,021 drivers in the survey sample. This question was used for passenger vehicles only. The complete data set is in Table B-11 in the Appendix.

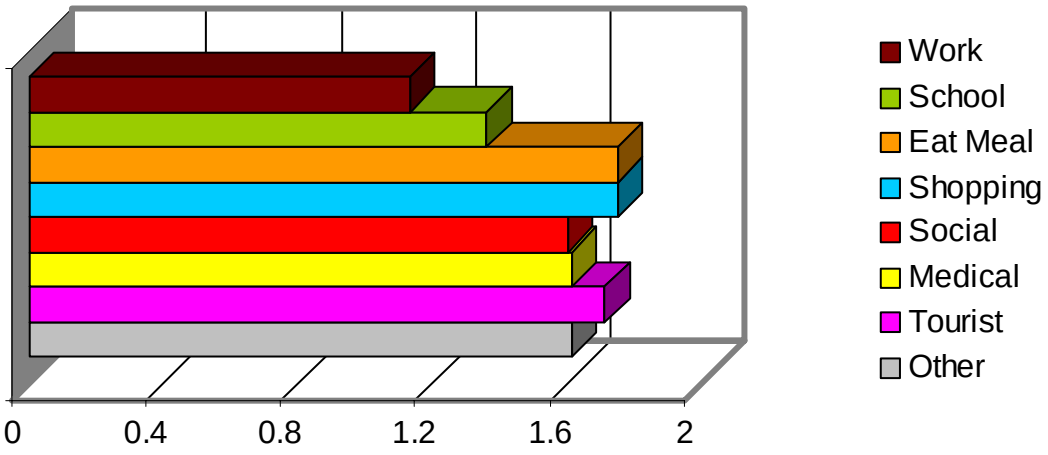
- One occupant vehicles were 76 percent of total vehicles surveyed. The greatest share of these were inbound and outbound between 6:30 a.m. and 8:30 p.m. (88% and 94% respectively).

- Two occupant vehicles are a 19 percent share of the vehicles surveyed and they have a double digit share in every survey period except the outbound AM peak between 6:30 a.m. and 8:30 a.m.. The greatest inbound share is 29 percent during the 10:30 a.m. to 12:00 p.m. period, while the greatest outbound share is 30 percent during the same time period.

- Three and four occupant vehicles combine for about a 5 percent share of the total (4% and 1% respectively). During the 12:00 p.m. to 1:00 p.m. period, three occupant vehicles traveling outbound reach their maximum with about an 13 percent share.

- Only two vehicles had 5+ occupants, giving it the smallest share with less than 1 percent of the total.

Average Vehicle Occupancy by Trip Purpose



- Average vehicle occupancy by trip purpose was obtained by cross tabulating the observed vehicle occupancy with the survey question regarding trip purpose. The complete data set is in Table B-12 in the Appendix.

- The total average for all vehicles is 1.3 persons per vehicle. Average occupancy for the van/station wagons is the greatest (1.43), exceeding the average SUV occupancy (1.26) and average automobile occupancy (1.29). The vehicle with the greatest occupancy rate is the van/station wagon on shopping and medical trips with 3.00 and 2.33 persons per van/station wagon respectively.

- Total work trips have the lowest vehicle occupancy rates for any trip purpose (1.13). The occupancy rate in this category for automobiles (1.10) and SUVs (1.09), is exceeded by van/station wagons (1.24).

- The overall trip purposes with the greatest total occupancy rate are the shopping and eat meal categories with 1.75 persons per vehicle. Of the vehicles, the SUV had a high of 1.88 persons per vehicle in the tourist category while the automobile had a 1.80 rate in the “other” category.

Vehicle Trip Length Distribution within the DVRPC Region

Trip Length	Work Trips	Auto Trips	Truck Trips
0-5 miles	15.7%	17.2%	10.1%
5-10 miles	13.8%	14.6%	11.2%
10-20 miles	44.1%	41.6%	34.4%
20-50 miles	26.2%	26.7%	43.4%
>50 miles	0.3%	0.1%	1.1%
Average Trip Length	**15.9**	**15.8**	**20.5**

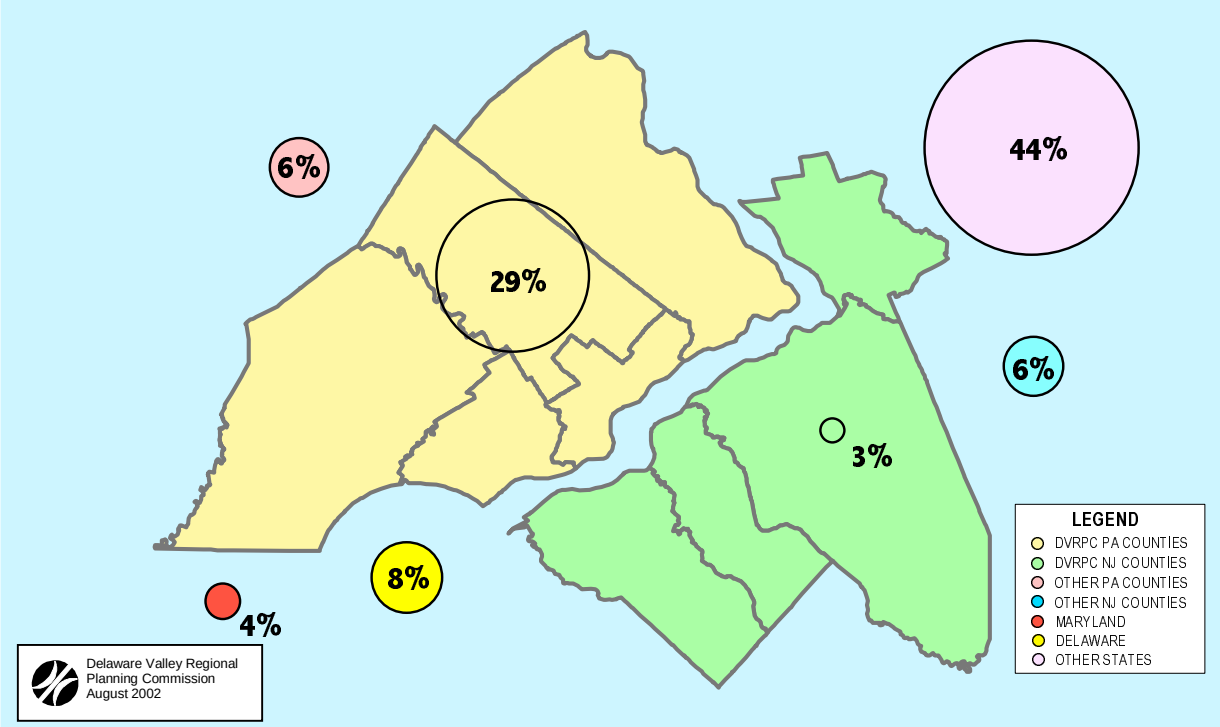
- The results for this query were obtained by using the GIS to compute distances between the cordon station and origins/destinations within the region gathered with the first two questions in the survey. This data is broken out by home-based work trips, passenger vehicle trips and truck trips. The data has been put into five general groupings by the distance traveled: 0-5 miles, 5-10 miles, 10-20 miles, 20-50 miles and above 50 miles. The complete data set is in Table B-13 in the Appendix.

- The average trip lengths vary from about 16 to 21 miles, with truck trips possessing the longest trip length (21 miles) and less for automobile and work trips with roughly the same trip length (about 16 miles). Auto and work trips generally mimic one another, while the truck trips show a greater clustering as the distances increase. There were zero trips recorded beyond 60 miles.

- Trip lengths for trucks are greater than automobile trip lengths. The 10-50 mile trip distance contains 78 percent of the truck trips with trips 10 miles and under having a 21 percent share. The work and auto trips each have about 69 percent of their values in the 10-50 mile range.

- Work and automobile trips both have similar shares in the 0 to 5 mile range (16% and 17%) and in the 5 to 10 mile range (14% and 15%). Work and automobile trips each have a single response traveling 50-60 miles.

Trucks Garaged by State and County



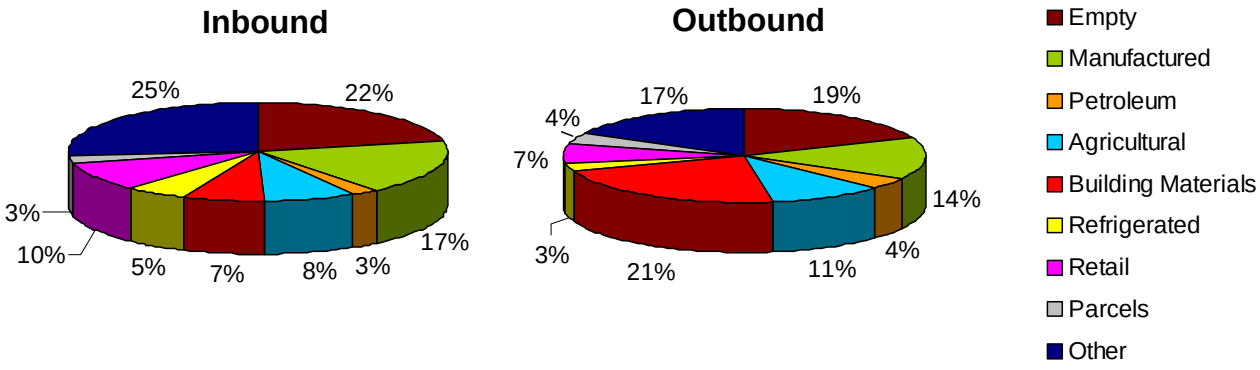
- There were 220 truck drivers responded to the question "In what county is your truck garaged or parked when not in service?" Passenger vehicles were not asked this question. The complete data set is in Table B-14 in the Appendix.

- About one-third of the surveyed trucks are garaged within the DVRPC region (3% in New Jersey and 29% in Pennsylvania) while a fewer truck drivers house their trucks outside the DVRPC region in New Jersey or Pennsylvania (6% for both).

- Delaware and Maryland make up 8 percent and 4 percent of the garage locations. The remaining 44 percent of the responses are singular locations distributed throughout the United States.

- About 38 percent of the inbound traffic garaged in Pennsylvania, while only 9 percent did likewise in New Jersey, with the rest in other states. This distribution is similar outbound with about 33 percent garaged in Pennsylvania, while 9 percent did likewise in New Jersey, and the rest elsewhere.

Type of Commodities Carried by Trucks



- Truck drivers were asked the question “What type of commodities are you carrying?” Passenger vehicles were not asked this question. The complete data set is in Table B-15 in the Appendix.

- The number of inbound and outbound trucks surveyed were similar (115 versus 105 surveyed trucks). The inbound and outbound results generally mirror each other, though there are some exceptions.

- The largest total response is “other“ (22% total) with inbound and outbound shares at 25 percent and 17 percent. Empty (21%), manufactured products (16%) and building materials (14%) constitute the lesser total values. Refrigerated (4%), parcels (3%), and petroleum products (3%) are the least common commodities carried by trucks.

- Trucks are equally likely to be traveling empty inbound and outbound (22% versus 19%). Building materials showed a directional disparity with only 7 percent share in the inbound direction, but a 22 percent share outbound.

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Part 3
Naamans Road Ramps Survey Summary Results

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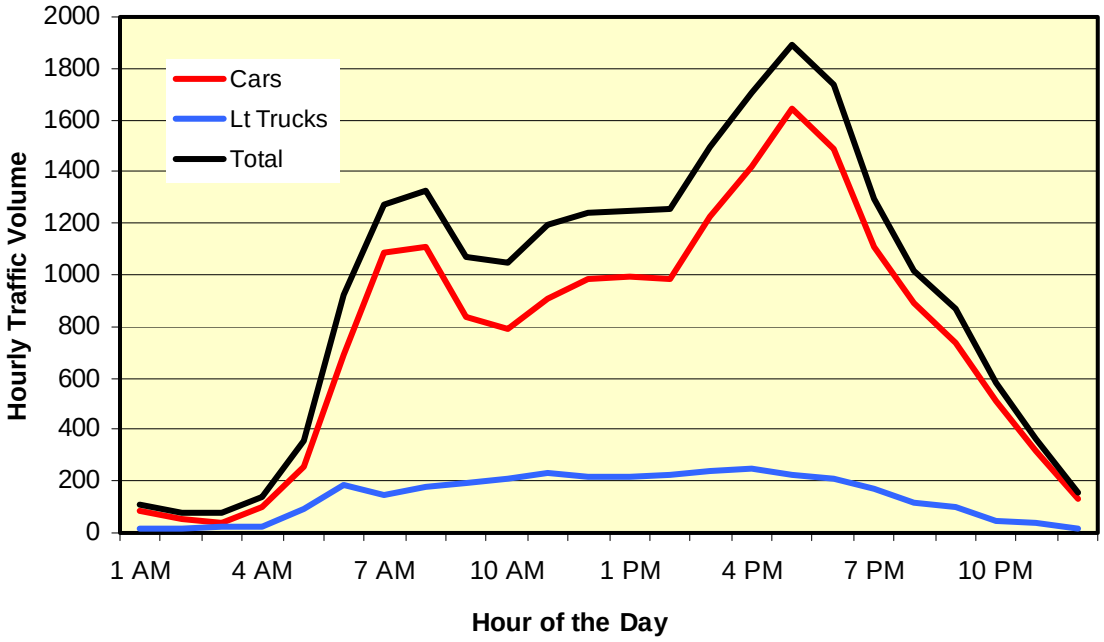
Daily Traffic Counts by Hour of the Day



- Vehicle classification traffic counts were collected during 24 hours preceding the survey. The Naamans Road traffic counts were taken near where the survey was conducted. The 24 hour total was recorded as 22,442 vehicles. The statistical portrait of the classification counts for Naamans Road is shown in Table C-1 in the Appendix C in the back of the report.

- The AM peak hour traffic occurred between the hours of 7:00 a.m. and 8:00 a.m. The count for that hour was 1,327 vehicles. This count was 5.9 percent of the 24 hour traffic volume. The PM peak occurred between the hours of 4:00 p.m. and 5:00 p.m. The count for that hour was 1,893 vehicles. This constitutes 8.4 percent of the 24 hour traffic volume.

- The vehicular counts were dominated by automobiles. They are about 82 percent of the 24 hour vehicular count. Light trucks were about 15 percent of the vehicles.

- Heavy trucks, those with more than two axles, make up about 2 percent of the vehicular traffic. Buses and motorcycles together, were only about 1 percent share of the vehicle counts.

Total Interviews by Survey Period

Survey Period	Total Surveys	Inbound Surveys	Inbound % of Total	Outbound Surveys	Outbound % of Total
Morning Shift					
6:30 a.m. - 10:30 a.m.	151	72	25%	79	28%
10:30 a.m. - 1:00 p.m.	143	71	24%	72	25%
Evening Shift					
1:00 p.m. - 4:30 p.m.	130	70	24%	60	21%
4:30 p.m. - 8:00 p.m.	152	79	27%	73	26%

- There were 576 drivers responding to the survey questions. The hourly shift totals have been added together to create the table above. The disaggregated numbers are shown in greater detail in Table C-2 in the Appendix.

- There were a similar number of surveys in each direction with 292 inbound and 284 outbound vehicles surveyed at the cordon station The 6:30 a.m. to 8:30 a.m. morning peak time had about 16 percent of the volume, while the 4:30 p.m. to 6:00 p.m. afternoon peak time had about 16 percent the total surveys.

- The outbound morning peak (6:30 a.m. to 10:30 a.m.) volume is slightly greater than the inbound morning peak volume (28% versus 25% respectively). This is switched in the evening off-peak shift (1:00 p.m. to 4:30 p.m.) when the inbound volume is slightly greater than the outbound volume (24% versus 21% respectively). The inbound and outbound responses in the other survey periods are approximately equal.

Place of Trip Origin by Municipality

Inbound Trip Origins		Outbound Trip Origins	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Brandywine	83%	1. Philadelphia	27%
2. Wilmington	5%	2. Chester	9%
3. New Castle	2%	3. Ridley	6%
4. West Chester	1%	4. Brookhaven	4%
5. Lower Chichester	1%	5. Aston	3%
6. Chadds Ford	1%	6. Upland	3%
7. Kennett	1%	7. Middletown	3%
8. Pike Creek-Central	1%	8. Upper Chichester	3%
9. Baltimore	1%	9. Lower Chichester	2%
10. Roanoke	0%	10. Prospect Park	2%

- There were 569 drivers responding to the question, "Where did you start this trip?" The numbers in the table above show only the trips originating in the top ten municipalities. The disaggregated numbers are shown in detail in Table C-3 in the Appendix.

- About 83 percent of the inbound trips originate in Brandywine and about 5 percent originate in Wilmington with the remaining eight trip origins equaling about 7 percent. A 27 percent and 9 percent share of the outbound trips originates in Philadelphia and Chester respectively. About 4 percent of inbound trips are "other", and 34 percent of the outbound responses indicate miscellaneous "other" origins.

- About 52 percent of the surveyed trips have home-based trip origins. Brandywine and Philadelphia both are the largest share of inbound and outbound home-based trip origins with 84 percent and 27 percent, respectively.

- Truck trips constitute about 19 percent of the drivers surveyed. About 84 percent of the inbound trucks may be attributed to two origins: Brandywine and Wilmington with 75 percent and 9 percent shares, respectively. The outbound truck origins are split between Philadelphia with 26 percent share and "other" with a 36 percent share.

Place of Trip Destination by Municipality

Inbound Trip Destinations		Outbound Trip Destinations	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Philadelphia	28%	1. Brandywine	79%
2. Chester	10%	2. Wilmington	7%
3. Ridley	6%	3. Chadds Ford	3%
4. Aston	4%	4. New Castle	3%
5. Lower Chichester	3%	5. Greater Newark	1%
6. Cherry Hill	3%	6. Upper Chichester	1%
7. Prospect Park	3%	7. Upper Christiana	1%
8. Lower Merion	3%	8. Piedmont	1%
9. Glenolden	2%	9. Lower Christiana	1%
10. Brookhaven	2%	10. Washington	0%

- There were 553 drivers responding to the question, "Where will this trip end?" The numbers in the table above show only the trip destinations aggregated for the top ten municipalities in each direction. The disaggregated numbers appear in detail in Table C-4 in the Appendix.

- The largest share of inbound trip destinations are to Philadelphia and Chester with a combined 38 percent share. Brandywine and Wilmington combine for a 86 percent share of the outbound destinations. The remaining inbound and outbound municipalities have relatively small trip shares, though "other" destinations account for 30 percent of the inbound total.

- Home-based trip destinations constitute about 64 percent of total trips. About 17 percent of home-based inbound trips have Philadelphia as their destinations. About 89 percent of the home-based outbound trips are destined for Brandywine and Wilmington (about 78% and 10% respectively).

- Truck trips are a 18 percent share of the surveyed vehicles, and of those about 21 percent of the inbound trucks aregoing to Philadelphia. About 83 percent of the outbound truck destinations are destined for Brandywine. Trucks also have a large "other" destination response inbound (59%) but a small "other" response outbound (4%).

Trip Stops by Vehicle Type

Survey Period	Passenger Vehicle	Commercial Vehicle	Total
Inbound Trips	**Stopping**	**Stopping**	**Stopping**
6:30 a.m. - 10:30 a.m.	3.3%	0.0%	2.9%
10:30 a.m. - 1:00 p.m.	0.0%	0.0%	0.0%
1:00 p.m. - 4:30 p.m.	3.6%	0.0%	2.9%
4:30 p.m. - 8:00 p.m.	0.0%	0.0%	0.0%
Outbound			
6:30 a.m. - 10:30 a.m.	3.2%	6.3%	3.8%
10:30 a.m. - 1:00 p.m.	3.6%	6.3%	4.2%
1:00 p.m. - 4:30 p.m.	6.1%	0.0%	5.0%
4:30 p.m. - 8:00 p.m.	5.0%	7.7%	5.5%
TOTAL	3.0%	2.6%	3.0%

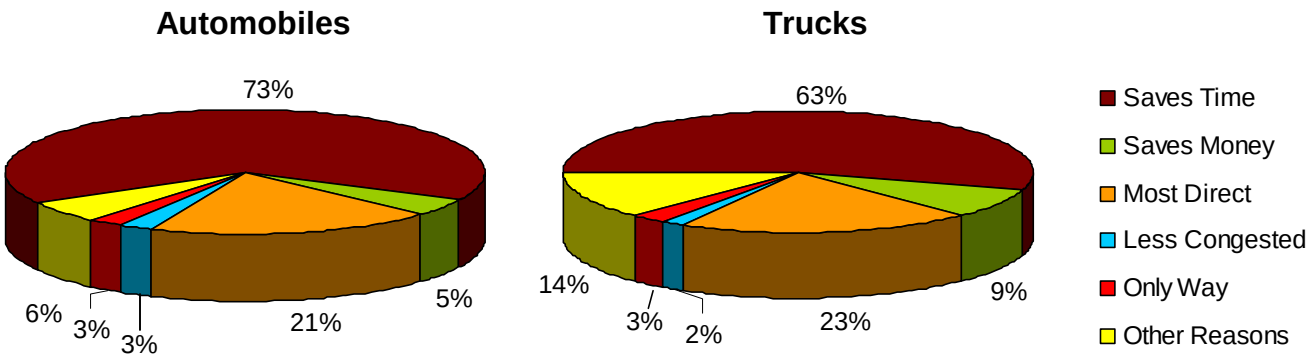
- There were 576 drivers responding to the question: "Will you stop before arriving at your destination?" The numbers in the table above were aggregated from the complete data set shown in Table C-5 in the Appendix.

- Only seventeen drivers responded that they were going to stop before arriving at their destination. Only 14 automobiles and 3 trucks responded affirmatively, meaning only about 3 percent of total drivers planned to stop before arriving at their destination.

- Only 4 "stop" responses were from passenger vehicles heading inbound. In the outbound direction 11 responses were distributed throughout the day with the exception of the time between 8:30 a.m. and 10:30 a.m.

- There were zero inbound and 3 outbound truck responses. These responses occurred through out the day, with no discernable clustering.

Reason for Using Naamans Road Ramps by Automobile and Truck Drivers



*Totals may exceed 100% due to multiple answers

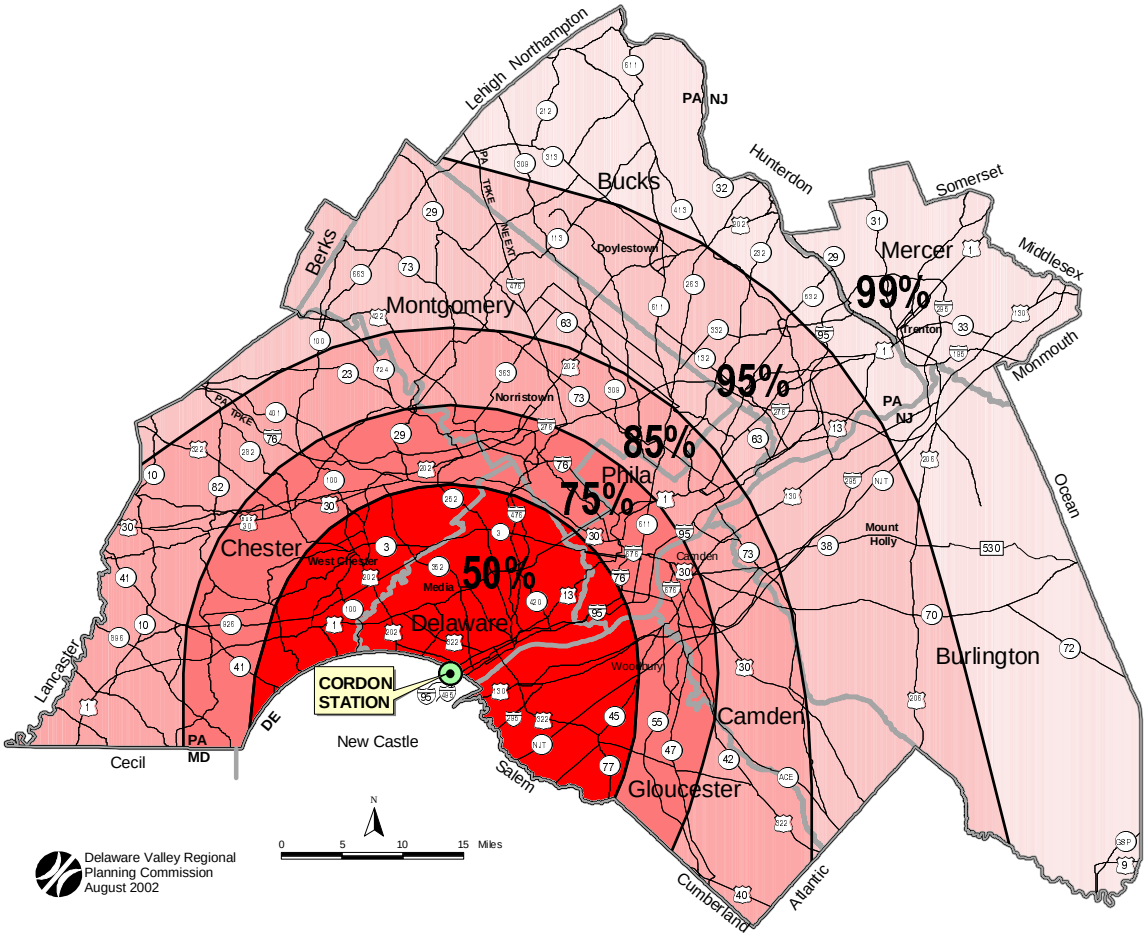
- There were 434 passenger and 104 commercial vehicles responding to the question, "Why do you use this road?" The drivers were permitted to provide more than one answer meaning that totals in the Appendix can add to more than 100 percent. The complete data sets are in Tables C-6 and C-7 in the Appendix.

- "Saves time" was the dominant response for both vehicle types with 73 percent of the responses for automobiles and 63 percent of the responses for trucks. Only 3 percent of automobile and 2 percent of truck drivers responded "less congested".

- The second most tallied response was "most direct" for automobile and truck drivers (21% and 23% respectively). This acknowledges that a driver may take a road because it is the only way to reach their destination.

- The greatest concentration of responses occurred between 12:00 p.m. and 1:00 p.m., 91 percent of automobile drivers proceeding outbound responded with "saves time". Outbound trucks between 8:30 a.m. and 10:30 a.m. responded "saves time" 100 percent.

Distribution of Naamans Road Ramps Inbound Trips



- The map shows the distribution of inbound trips within the DVRPC region, though the percentages also include values outside the region but within the isochrone lines. About 95 percent of the trips end within the region, the through trips are described below.

- Only 4.8 percent of the surveyed vehicles were through trips with destination outside the region. Of these trips about 1.1 percent of all trips were headed west out of the region into Pennsylvania towards Lancaster County..

- About 0.8 percent of the through trips went north of Pennsylvania up the Pennsylvania Turnpike North-East extension and beyond.

- About 1.5 percent of the trips had destinations outside the region in north New Jersey towards New York City

- Only 1.4 percent of the trips were headed east towards New Jersey shore points.

Major Roads Taken by all Vehicles

Inbound Trips		Outbound Trips	
Roads Used	**% of Total**	**Roads Used**	**% of Total**
1. I-476	25%	1. DE 92	42%
2. US 322	16%	2. US 202	17%
3. I-76	8%	3. US 13	7%
4. I-295	7%	4. I-495	2%
5. Kerlin St	6%	5. DE 141	1%
6. PA 420	4%	6. DE 896	1%

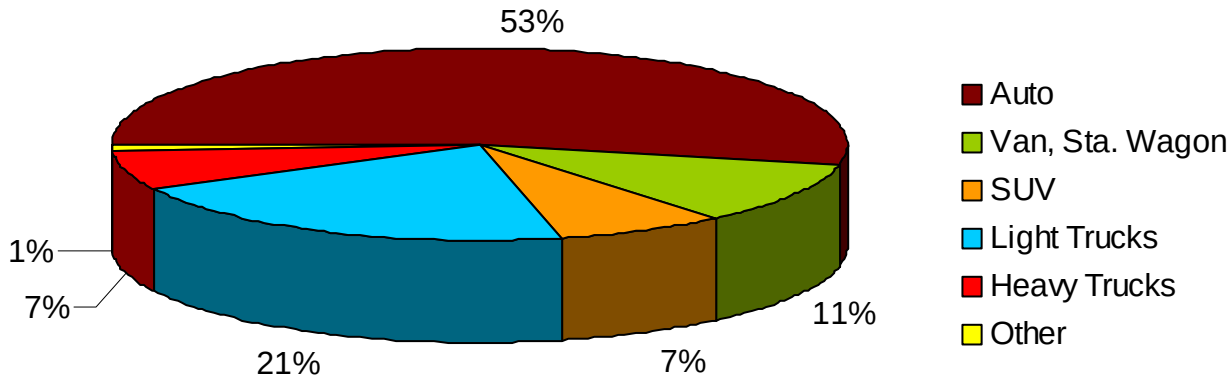
- There were 255 driver responses to the question "What is/are the major roads that you will take to reach your destination after this road?" The complete data set is in Table C-8 in the Appendix.

- About 41 percent of the total inbound drivers responded that I-476 (25%) or US 322 (16%) would be the road they would use to reach their destination. This response is not surprising given that these two facilities are major through roads within the region. The "other" response gathered a 29 percent share of the survey totals.

- Outbound vehicular traffic had a 42 percent response for DE 92 with and US 202 with 17 percent. The "other" category had a 29 percent share, with the remaining facilities having small shares of the total outbound volume.

- Inbound truck responses were slightly smaller from the passenger or total responses with I-476 (14%), US 322 (19%) and "other" roads holding a 34 percent share. Outbound trucks mostly follow DE 92 (38%) and US 202 (10%) for a combined 48 percent. Again, "other", a catch-all for miscellaneous or singular responses, was a large response in the outbound direction with 38 percent of the responses.

Type of Vehicles Surveyed



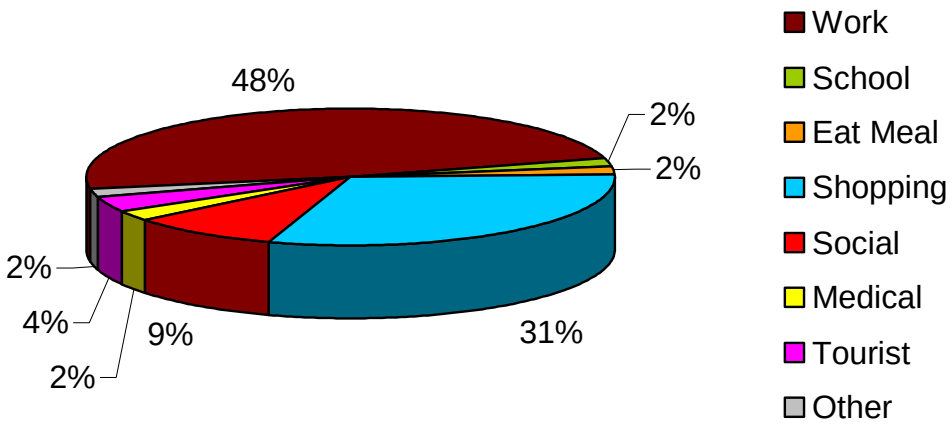
- The response to this question was obtained from observation rather than questioning the 576 drivers in the survey sample. The grouped categories are not aggregated like the 24 hour vehicle classification count, with some categories broken out and some combined in order to simplify the analysis. The complete data set is in Table C-9 in the Appendix.

- The composition of the surveyed vehicles differ from the 24 hour vehicle classification counts. Surveyed passenger vehicles (autos, vans, SUVs) had a similar share to the 24 hour count (71% versus 82%). Light truck traffic (pickup, panel, and single unit) was greater during the survey than the 24 hour (21% versus 15%).

- Automobiles make up about 53 percent of the surveyed vehicle mix, while vans and station wagons have about 11 percent and SUVs with about 7 percent, constitute the passenger vehicles.

- Heavy truck traffic (three or more axles) was greater during the survey than the 24 hour count (7% versus 5%).

Trip Purpose of Passenger Vehicles



- Drivers in passenger vehicles were asked the question "What is the purpose of this trip?" Truck and commercial vehicle drivers were not asked this question as their purpose was evident. The complete data set is in Table C-10 in the Appendix.

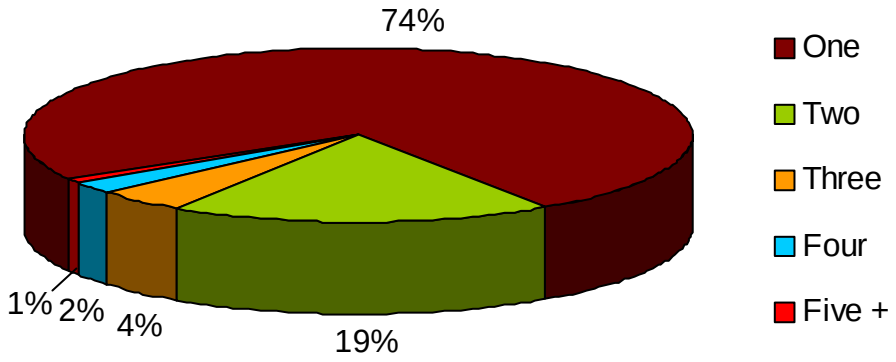
- The work trip was the most common trip purpose with a 48 percent share of the total trips. Work trips dominate the morning peak hours between 6:30 a.m. and 8:30 a.m. with inbound and outbound shares of 74 percent and 83 percent respectively. The afternoon inbound and outbound peak hours between 4:30 p.m. and 6:00 p.m. have less dominant shares than the AM peaks (64% and 49% respectively).

- Shopping was the second greatest response with a 31 percent share of the total responses. These trips clustered during the off-peak survey periods. Inbound shopping trips are largest between 1:00 p.m. and 2:30 p.m. with a 52 percent share and outbound between 10:30 a.m. and 12:00 p.m. with a 46 percent share.

- The social trip is a distant third with about 9 percent, but between 1:00 p.m. and 2:30 p.m. the share expands to 23 percent of total trips.

- The remaining five categories are divided among the remaining 12 percent of trip purposes. Tourism is the largest with about 4 percent, while medical "other", school, and eat meal each have similar shares of about 2 percent.

Vehicle Occupancy



- The answer to the question, “How many people are in the vehicle?” was obtained by observation, rather than questioning the 461 drivers in the survey sample. This question was used for passenger vehicles only. The complete data set is in Table C-11 in the Appendix.

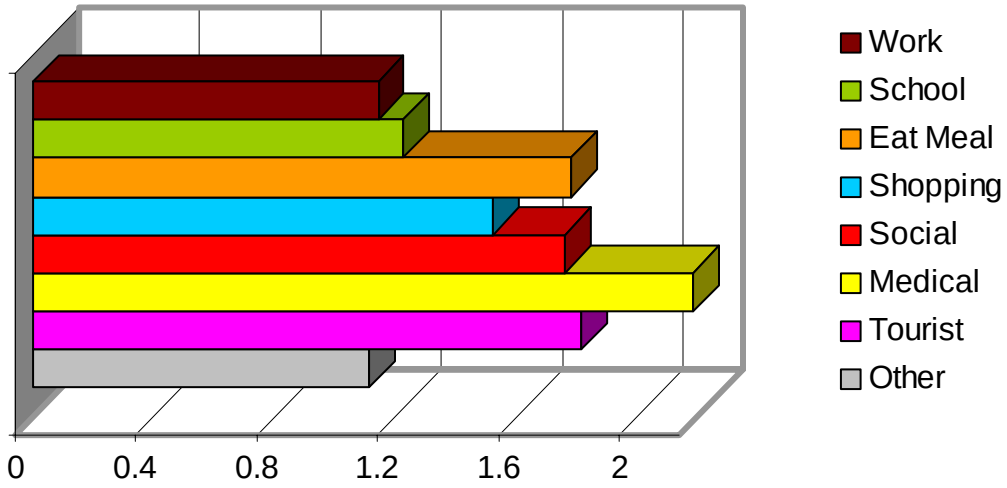
- One occupant vehicles were 74 percent of total vehicles surveyed. The greatest share of these were inbound and outbound between 6:30 a.m. and 8:30 p.m. (78% and 94% respectively).

- Two occupant vehicles are a 19 percent share of the vehicles surveyed and they have a double digit share in every survey period except the outbound AM peak between 6:30 a.m. and 8:30 a.m.. The greatest inbound share is 30 percent during the 2:30 p.m. to 4:30 p.m. period, while the greatest outbound share is 31 percent between 1:00 p.m. and 2:30 p.m.

- Three and four occupant vehicles combine for about 6 percent of the total (4% and 2% respectively). During the 2:30 p.m. to 4:30 p.m. period, three occupant vehicles traveling inbound reach their maximum with about a 13 percent share. Four occupant vehicles are at their greatest share (9%) between 12:00 p.m. and 1:00 p.m.

- Only three vehicles had 5+ occupants, giving it the smallest share with less than 1 percent of the total.

Average Vehicle Occupancy by Trip Purpose



- Average vehicle occupancy by trip purpose was obtained by cross tabulating the observed vehicle occupancy with the survey question regarding trip purpose. The complete data set is in Table C-12 in the Appendix.

- The total average for all vehicles is 1.37 persons per vehicle. Average occupancy for the van/station wagons is the greatest (1.76), exceeding the average SUV occupancy (1.50) and average automobile occupancy (1.31). The trip purposes with the greatest occupancy rate are the van/station wagon on tourist trips with 3.33 persons per vehicle and the SUV on medical trips, also with 3.33 persons per vehicle.

- Total work trips have low vehicle occupancy rates (1.14). The occupancy rate for this trip purpose for automobiles (1.11) and SUVs (1.50), is exceeded by van/station wagons (1.76).

- The overall trip purposes with the greatest total occupancy rate are the medical trips with 2.18 persons per vehicle followed closely by eat meal and tourist categories with 1.78 and 1.81 persons per vehicle.

Vehicle Trip Length Distribution within the DVRPC Region

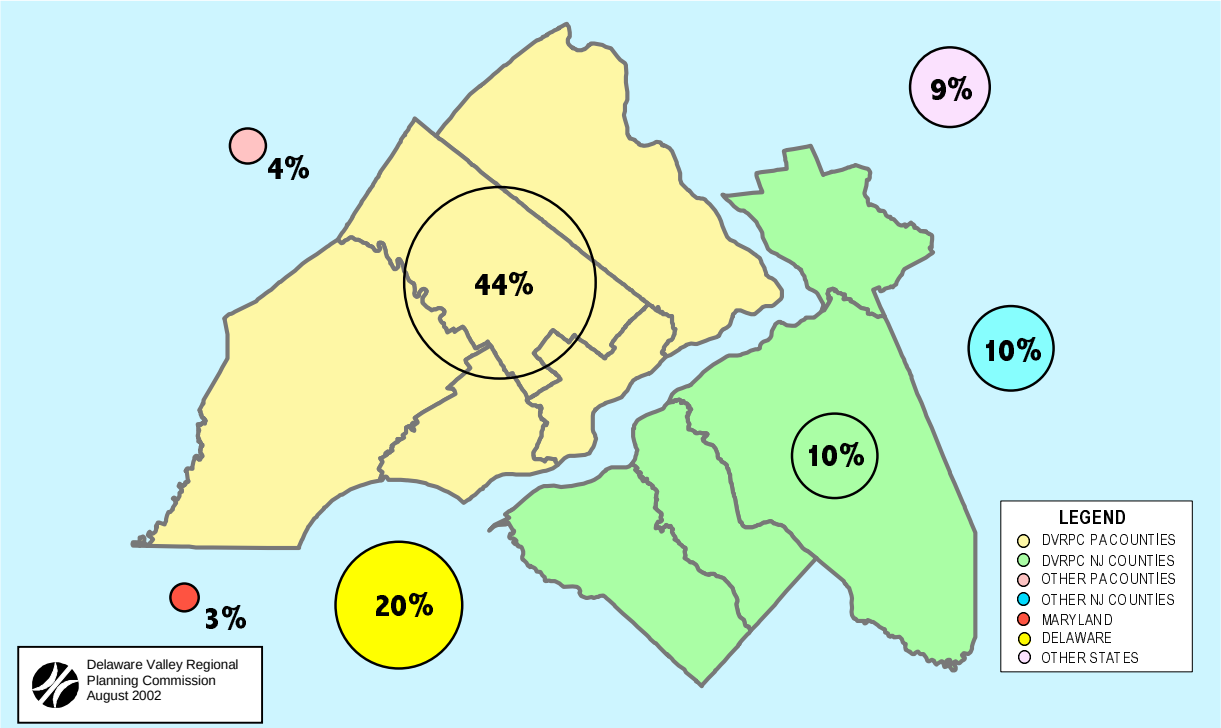
Trip Length	Work Trips	Auto Trips	Truck Trips
0-5 miles	13.6%	21.6%	14.0%
5-10 miles	21.1%	21.0%	20.0%
10-20 miles	37.6%	32.5%	37.0%
20-50 miles	28.0%	24.7%	29.0%
>50 miles	0.0%	0.0%	0.0%
Average Trip Length	**15.8**	**14.4**	**16.3**

- The results for the trip distance traveled were obtained by using the GIS to compute distances between the cordon station and origins/destinations within the region gathered with the first two questions in the survey. This data is broken out by home-based work trips, passenger vehicle trips and truck trips. The data has been put into five general groupings by the distance traveled: 0-5 miles, 5-10 miles, 10-20 miles, 20-50 miles and above 50 miles. The complete data set is in Table C-13 in the Appendix.

- The average trip lengths vary from about 14 to 16 miles, with truck trips possessing the longest trip length (16 miles) with automobile and work trips similar in distance (about 14 and 16 miles). The average distance for all the modes clustered at about 10-20 miles with similar work and truck trips at about 37 percent shares. There were zero trips recorded beyond 50 miles.

- Trip lengths for trucks and work trips are distributed almost identically. The automobile trips have 43 percent of their value in the 0-10 mile range while home-based work and truck trips have only 34 percent in that distance range.

Trucks Garaged by State and County



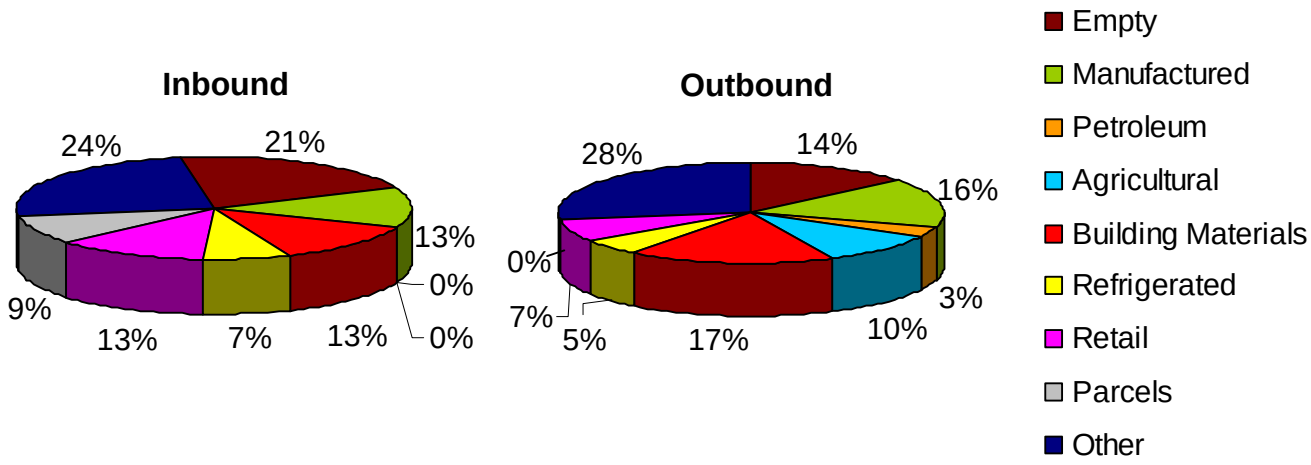
- There were 220 truck drivers responded to the question "In what county is your truck garaged or parked when not in service?" Passenger vehicles were not asked this question. The complete data set is in Table C-14 in the Appendix.

- Over one-half of the surveyed trucks are garaged within the DVRPC region (10% in New Jersey and 44% in Pennsylvania) while a few of truck drivers house their trucks outside the DVRPC region in New Jersey or Pennsylvania (10% and 4% respectively).

- Delaware and Maryland make up 20 percent and 3 percent of the garage locations. The remaining 9 percent of the responses are singular locations distributed throughout the United States.

- About 50 percent of the inbound traffic garaged in Pennsylvania, while about 28 percent did likewise in New Jersey, with the rest in other states. The distribution is different outbound with about 46 percent garaged in Pennsylvania, while 12 percent did likewise in New Jersey, and the remaining 41 percent garaged elsewhere.

Type of Commodities Carried by Trucks



- Truck drivers were asked the question "What type of commodities are you carrying?" Passenger vehicles were not asked this question. The complete data set is in Table C-15 in the Appendix.

- The number of inbound and outbound trucks surveyed were nearly equal (56 versus 58 surveyed trucks). The inbound and outbound results generally mirror each other, though there are some exceptions.

- The largest total response is "other" (26% total) with inbound and outbound shares at about 24 percent and 28 percent. Empty (17%), manufactured products (14%) and building materials (15%) constitute other total values. Agricultural (5%), parcels (4%), and petroleum products (2%) bring up the least common commodities carried by trucks.

- Trucks are more likely to be traveling empty inbound than outbound (21% versus 14%). Retail showed a directional disparity with 13 percent share inbound direction, but a 7 percent share outbound. Agricultural products registered a zero percent share inbound, but 10 percent outbound. Similarly, parcels registered a 9 percent share inbound, but zero percent outbound.

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Part 4
US 202 Survey Summary Results

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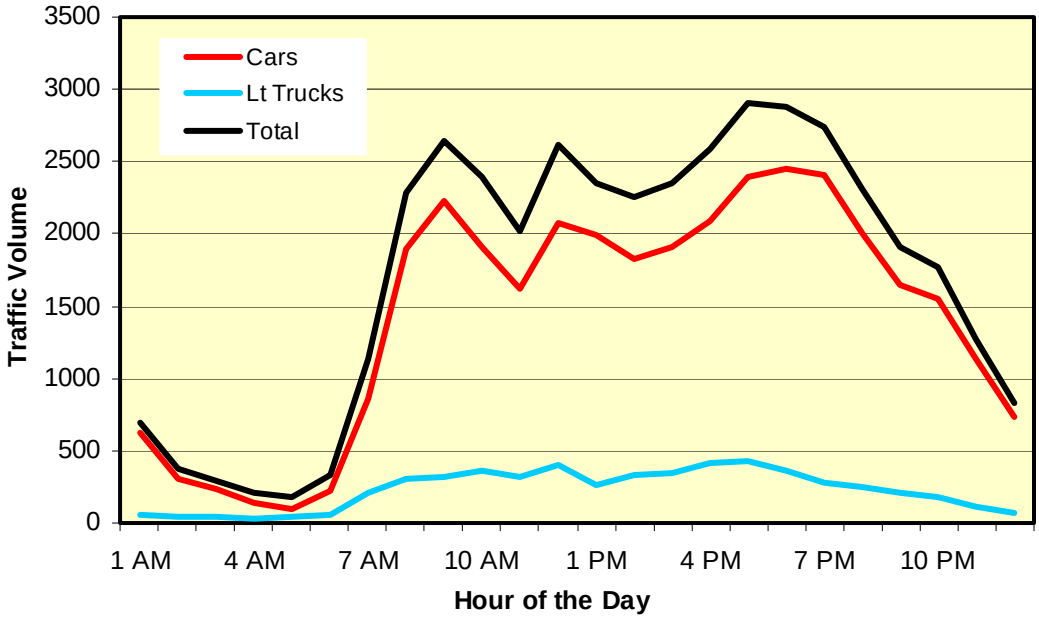
Daily Traffic Counts by Hour of the Day



- Vehicle classification counts were collected during a 24 hour count preceding each of the surveys. US 202 south hourly counts were taken just north of Pyle Road near the Delaware / New Castle County boundary where the field survey was conducted. The daily traffic volume at that point was 41,300 vehicles classified by vehicle type. The full statistical portrait of the classification counts for US 202 south is shown in Appendix D, Table D-1 in the back of the report.

- The AM peak hour occurred between the hours of 8:00 a.m. to 9:00 a.m. The count for that hour was 2,646 vehicles. This count was 6.4 percent of the 24 hour traffic volume. The PM peak occurred between the hours of 4:00 p.m. to 5:00 p.m. The count for this hour was about 2,904 vehicles. This constitutes 7.0 percent of the 24 hour traffic volume. It is worth noting that the next hour produced a nearly identical volume.

- The vehicular counts were dominated by 34,327 automobiles. This is 83 percent of total daily vehicular count.

- Light trucks (two axles) constitute 5,381 vehicles or 13 percent of total traffic volume, while heavy trucks (three or more axles) constitute about 3 percent of the total volume. Buses and motorcycles make up about 1 percent of the total traffic volume

Total Interviews by Survey Period

Survey Period	Total Surveys	Inbound Surveys	Inbound % of Total	Outbound Surveys	Outbound % of Total
Morning Shift					
6:30 a.m. - 10:30 a.m.	448	237	28%	211	26%
10:30 a.m. - 1:00 p.m.	364	201	24%	163	20%
Evening Shift					
1:00 p.m. - 4:30 p.m.	389	195	23%	194	24%
4:30 p.m. - 8:00 p.m.	464	222	26%	242	30%
TOTAL	**1665**	**855**	**100%**	**810**	**100%**

- The survey interviewed 1,665 drivers at this location This sample is about 93 percent of the desired goal of 1,800 responses. The hourly shift totals have been aggregated to create the table above. The reader may examine the disaggregated numbers in greater detail in Table D-2 in the Appendix.

- The difference in directional movement is small, but there are more inbound than outbound in the morning shift from 6:30 a.m. to 10:30 a.m. (28% versus 26%). These percentages are reversed in the evening shift between 4:30 p.m. and 8:00 p.m. when the outbound traffic (30%) is greater than the inbound traffic (26%). These numbers suggest slightly more commuters are finding their employment inside the region.

- The inbound and outbound volumes are fairly constant throughout the day, suggesting considerable interaction between Pennsylvania and Delaware through this station. The traffic volumes are smallest traveling outbound during the morning off-peak shift between 10:30 a.m. and 1:00 p.m. (20%), particularly during lunchtime between 12:00 p.m. and 1:00 p.m. when the traffic numbers dip to about 10 percent of the total volume.

Place of Trip Origin by Municipality

Inbound Trip Origins		Outbound Trip Origins	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Wilmington	32%	1. Concord	15%
2. Brandywine	28%	2. Chadds Ford	12%
3. New Castle	8%	3. West Goshen	10%
4. Greater Newark	4%	4. West Whiteland	5%
5. Piedmont	4%	5. Thornbury	4%
6. Lower Christiana	3%	6. West Chester	4%
7. Upper Christiana	2%	7. Westtown	3%
8. Concord	2%	8. East Whiteland	3%
9. Pike Creek-Central	2%	9. East Goshen	2%
10. Baltimore	1%	10. Tredyffrin	2%

- There were 1,592 drivers responding to the question, “Where did you start this trip?” The numbers in the table above only show the top ten trips origin municipalities. The reader may examine the disaggregated origin numbers in detail in table D-3 in the Appendix.

- About 60 percent of inbound trip origins are in two municipalities: Wilmington and Brandywine, while the remaining eight municipalities equal only about 23 percent. The top three outbound trip origins, Concord, Chadds Ford, and West Goshen, have a 37 percent share, while the remaining seven origins have a 24 percent share. The “other” category has three times the share of outbound trips (33%) than inbound trips (11%).

- About 56 percent of the surveyed trips have home-based trip origins. Inbound, 32 percent originate in Brandywine and 27 percent originate in Wilmington. Outbound the rankings are similar to the totals, though collectively the top three have smaller shares of home based trips than total trips.

- Truck trips make up about 16 percent of the total number of drivers surveyed. All of these trips do not fall in the same rank order as total or home-based trips. Wilmington, Brandywine and New Castle have a 46 percent share of the inbound truck origins. Outbound origins break with the rank order of the total trips with West Goshen, Concord, and West Whiteland making up the top three. The “other” inbound origins represent a 25 percent share, while outbound origins represent a 39 percent share.

Place of Trip Destination by Municipality

Municipality	% of Total	Municipality	% of Total
1. Concord	16%	1. Brandywine	42%
2. Chadds Ford	14%	2. New Castle	13%
3. West Goshen	9%	3. Wilmington	10%
4. West Chester	6%	4. Lower Christiana	6%
5. West Whiteland	4%	5. Piedmont	5%
6. Thornbury	4%	6. Pike Creek-Central	4%
7. East Whiteland	3%	7. Greater Newark	2%
8. Tredyffrin	3%	8. Central Pencader	2%
9. Westtown	3%	9. Upper Christiana	2%
10. East Goshen	1%	10. Baltimore	1%

- There were 1,578 drivers responding to the question, “Where will this trip end?” The readers may examine the disaggregated destination numbers in detail in Table D-4 in the Appendix.

- Inbound trips to Concord and Chadds Ford make up about 30 percent of total inbound trip destinations. The outbound destinations of Brandywine, New Castle and Wilmington have a combined 66 percent share, with Brandywine accounting for about 42 percent. “Other” destinations are 32 percent of inbound and only 10 percent of outbound trips.

- There is little variation between the total trips and home-based trips in either inbound or outbound direction. Inbound, Chadds Ford is slightly larger than Concord, but beyond that the differences are miniscule.

- Truck trips inbound and outbound vary from the total trip rankings, altering the rank trip order. Inbound destinations such as West Whiteland with about a 10 percent share and Chadds Ford with a 6 percent share, fall into a different truck order. Outbound trip destinations such as Dover and Central Pencader would both move up, while Pike Creek would disappear near the bottom from the truck rankings with a less than 1 percent share.

Trip Stops by Vehicle Type

Survey Period	Passenger Vehicle Stopping	Commercial Vehicle Stopping	Total Stopping
Inbound Trips			
6:30 a.m. - 10:30 a.m.	0.5%	0.0%	0.4%
10:30 a.m. - 1:00 p.m.	0.6%	5.1%	1.5%
1:00 p.m. - 4:30 p.m.	5.2%	0.0%	4.1%
4:30 p.m. - 8:00 p.m.	7.3%	0.0%	6.8%
Outbound Trips			
6:30 a.m. - 10:30 a.m.	1.1%	6.7%	1.9%
10:30 a.m. - 1:00 p.m.	4.4%	3.8%	4.3%
1:00 p.m. - 4:30 p.m.	2.0%	0.0%	1.5%
4:30 p.m. - 8:00 p.m.	0.9%	0.0%	0.8%
TOTAL	**2.7%**	**1.9%**	**2.6%**

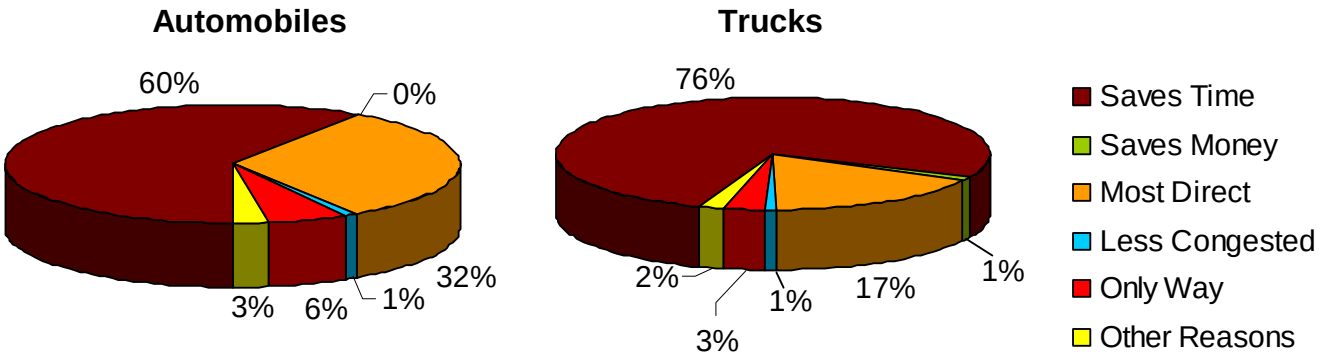
- There were 1,665 drivers responding to the question, "Will you stop before arriving at your destination?" The numbers in the above table were aggregated from the complete data set shown in Table D-5 in the Appendix.

- Only a few vehicles on 202 south stop before arriving at their destinations (43 of 1,665). Less than 3 percent of all drivers responded that they will stop before reaching their destination, with trucks slightly less likely to stop than automobiles (1.9% versus 2.7% respectively).

- Inbound and outbound vehicles exhibit slight differences in stopping rates, with 27 of 855 inbound vehicles stopping before reaching the final destination. The outbound direction, however, had 16 of 810 total trips stopping. The difference may lie with inbound travelers trip chaining, planning multiple stops as they approach the denser, more urban parts of the region.

- The greatest percentage of automobiles stopping (9% for the survey period) go inbound between 4:30 p.m. and 6:00 p.m., while about 6 percent of inbound truck drivers between 12:00 p.m. and 1:00 p.m. state they will be stopping. The largest percentage of outbound vehicles stopping before reaching their destination (6% for the survey period) occurs between 12:00 p.m. and 1:00 p.m., while 11 percent of outbound truck drivers between 6:30 a.m. and 8:30 a.m. state they will be stopping.

Reason for Using US 202 by Automobile and Truck Drivers



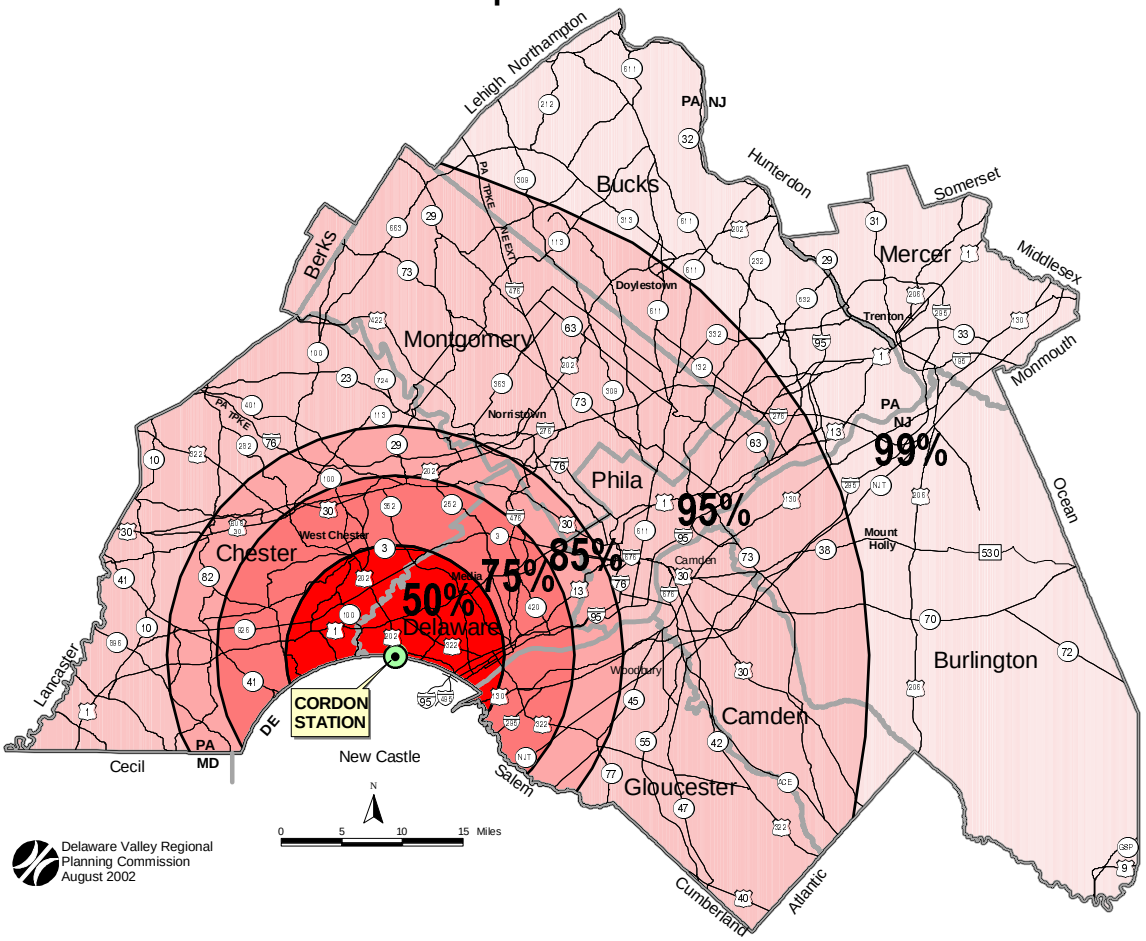
*Totals may exceed 100% due to multiple answers

- There were 1,392 passenger and 254 commercial vehicles responding to the question, “Why do you use this road?” The drivers were permitted to provide more than one answer. The complete data set is in Tables D-6 and D-7 in the Appendix.

- Passenger vehicle drivers responded with "save time" and "most direct" as the dominant reasons for using this facility with a 60 percent and 32 percent share respectively. “Only way” had a 6 percent share of the passenger vehicle responses, while the remaining three responses add up to about 3 percent.

- Truck responses had "save time" and "most direct" as the most reported reasons for using US 202 south, with 76 percent and 17 percent respectively. The other four reasons outlined by truck drivers had only 1 to 3 percent shares apiece. “Saves time” was the dominant response outbound with a 100 percent response for the 7 hour survey period from 1:00 p.m. and 8:00 p.m.

Distribution of US 202 Inbound Trips



- The map shows the distribution of inbound trips within the DVRPC region, though the percentages also include values outside the region but within the isochrone lines. About 94 percent of the trips end within the region, the through trips are described below.

- Only 6.2 percent of the surveyed vehicles were through trips with destination outside the region. Of these trips about 4.1 percent of all trips were headed west out of the region into Pennsylvania towards Lancaster County..

- About 1.6 percent of the through trips went north of Pennsylvania up the Pennsylvania Turnpike North-East extension and beyond.

- About 0.5 percent of the trips were headed towards miscellaneous points outside the region.

Major Roads Taken by all Vehicles

Inbound Trips		Outbound Trips	
Roads Used	**% of Total**	**Roads Used**	**% of Total**
1. US-1	31%	1. I-95	57%
2. PA 100	15%	2. US 13	5%
3. I-95	11%	3. DE 141	5%
4. US 30	8%	4. DE 100	4%
5. I-76 Tpke	5%	5. DE 92	4%
6. US 322	4%	6. PA 896	2%

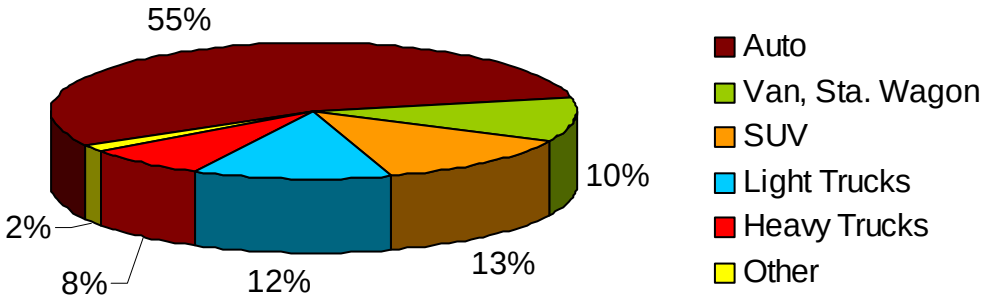
- There were 642 driver responses to the question, "What is/are the major roads that you will take to reach your destination after this road?" This survey question had the lowest response rate (39% of sample), perhaps owing to many driver's lack of knowledge or confusion with road or highway names. The complete data set is in Table D-8 in the Appendix.

- Inbound saw over half their trips taken on US 1, PA 100, and I-95 (31%, 15% and 11% respectively). The I-76 turnpike and US 322 were each identified with about 5 percent share of the responses. Outbound traffic was dominated by I-95 with a 57 percent share of the responses. The remaining outbound responses have similar percent shares to the lesser inbound roads. The "other" response was similar in both categories with about a 22 percent share.

- Passenger vehicles varied little in the inbound and outbound categories from the total vehicle responses, though US 13 fell from second place to fifth place.

- Trucks reported inbound trips on US 30, US 1, and I-95 all with similar 14 percent shares of traffic and US 100 taking the tops spot with 19 percent. The outbound shares in the "other" category have grown slightly while the other roads generally have smaller shares.

Type of Vehicles Surveyed

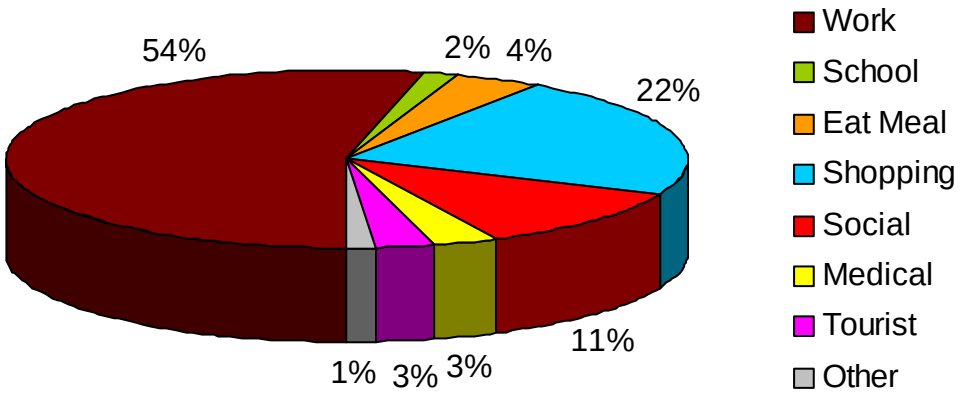


- The response to this question was obtained by observation rather than directly questioning the drivers of 1,665 vehicles in the survey sample. While the categories are not as extensive as the 24 hour vehicle classification count, passenger vehicles have been broken out and light trucks combined in order to simplify the analysis. The complete data set is in Table D-9 in the Appendix.

- The composition of the surveyed vehicles differ somewhat from the 24 hour vehicle classification counts. Surveyed passenger vehicles (auto, van, SUV) were smaller share to the 24 hour count (78% versus 83% respectively), light trucks (pickup, panel, and single unit) were nearly the same at this station with about 12% of survey and 13% of 24 hour sample. Heavy trucks were well represented at this station with about 8% of survey and 3% of 24 hour sample.

- The automobile share is greatest during the PM peak inbound and outbound (62%), though the smallest shares occurred inbound during the AM off-peak with a 49 percent share and outbound during the PM off-peak with a 47 percent share. Within the light truck category, pickup trucks were consistently near the about 7 percent average share. Conversely, heavy trucks had larger volumes overall than the 24 hour count particularly the PM off-peak with an 11 percent share of the responses.

Trip Purpose of Passenger Vehicles



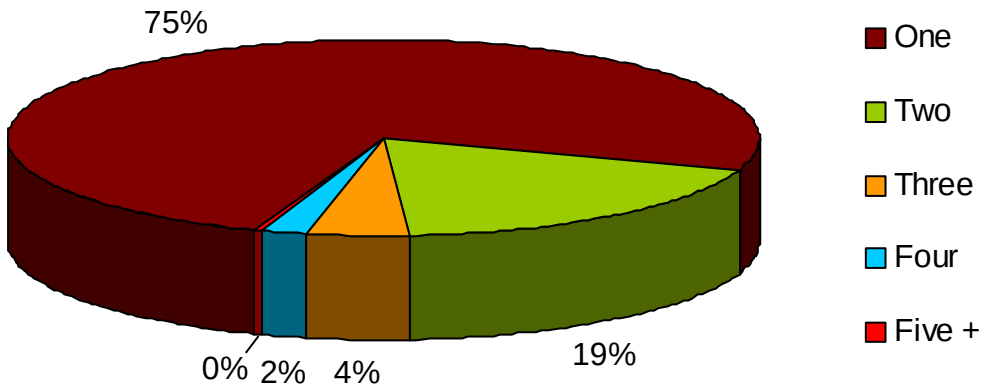
- Drivers in passenger vehicles were asked "What is the purpose of this trip?" Trucks and commercial vehicles were not asked this question as their trip purpose was evident. The complete data set is in Table D-10 in the Appendix.

- Work trips had the largest share of driver responses with about 54 percent of the total responses. Between 6:30 a.m. and 8:30 a.m. about 91 percent of the inbound and 90 percent of the outbound survey period is work related. Complimentary inbound (69%) and outbound volumes (54%) during the afternoon peak hours between 4:30 p.m. and 6:00 p.m. is not evident.

- Shopping occupies a 22 percent share with its greatest inbound volume occurring between 2:30 p.m. and 4:30 p.m. (41%) and its greatest outbound volume occurring 12:00 p.m. and 1:00 p.m. (52%). The social trip is about an 11 percent share with the largest inbound share (20%) occurring between 6:00 p.m. and 8:00 p.m. and the largest outbound share (22%) occurring between 2:30 p.m. and 4:30 p.m.

- The remaining 13 percent share is divided between the remaining six trip purposes. The "eat meal" purpose with a 4 percent share springs to life from 6:00 p.m. to 8:00 p.m. when it grows to a 13 percent share.

Vehicle Occupancy



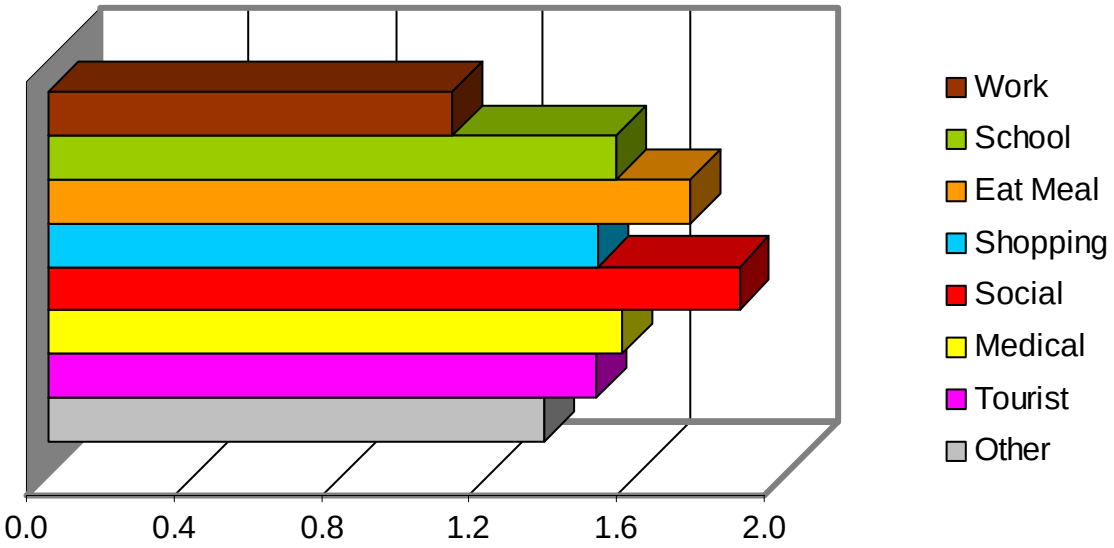
- The question, “How many people are in the vehicle?” was obtained by observation rather than questioning 1,402 drivers in the survey sample. This survey question was applied to passenger vehicles only. The complete data set is in Table D-11 in the Appendix.

- The single occupant vehicle is 75 percent of the surveyed traffic, and the two occupant vehicle is a 19 percent share, while the 3, 4, and 5+ occupant vehicles offer 4 percent, 2 percent and 0 percent shares of the traffic. These occupancy rates are not reflected in some of the individual peaks within the survey periods.

- One and two occupant vehicles dominate the surveyed traffic with a combined 94 percent share of the traffic surveyed. The largest inbound and outbound volume occurs between 6:30 a.m. and 10:30 a.m. with a reported an 88 and 86 percent share of single occupant vehicles. Between 1:00 p.m. and 2:30 p.m. inbound and outbound two occupant vehicles have 31 percent and 36 percent share of the traffic, relating perhaps to lunch time car pooling.

- Higher occupancy vehicles (3, 4, and 5+ occupants) make up a 6 percent share. Three occupant vehicles spike inbound at 11 percent between 6:00 p.m. and 8:00 p.m. Four occupant vehicles also spike, but outbound with about 5 percent shares between 6:00 p.m. and 8:00 p.m. The 5+ occupant vehicles add up to only 5 total vehicles through out the survey period.

Average Vehicle Occupancy by Trip Purpose



- Average Vehicle Occupancy by Trip Purpose was obtained by cross tabulating the observed vehicle occupancy with the survey question regarding trip purpose. The complete data set broken out by trip purpose and occupancy is in Table D-12 in the Appendix.

- Average occupancy (1.57) is largest for van/station wagon category, exceeding the average SUV occupancy (1.41) and auto occupancy (1.29). It is intuitive that the vehicle with the greatest seating capacity carries the greatest number of people.

- Work trips have the lowest vehicle occupancy of the trip purposes for any of the vehicle types (1.12). Automobile and SUVs have identical occupancy rates (1.22) for work trips.

- The trip purpose with greatest occupancy rate are social trips taken in vans/station wagons, averaging 2.96 persons per vehicle. Taking family trips is a logical explanation in this case. Eat meal has the second highest total with 1.74 people per vehicle, though the van/station wagon category is low with only 1.5 persons per vehicle.

- SUV occupancy is greatest for school (2.00 persons per vehicle), its larger size matching with vans/station wagons occupancy for this trip purpose.

Vehicle Trip Length Distribution within the DVRPC Region

Trip Length	Work Trips	Auto Trips	Truck Trips
0-5 miles	28.7%	33.5%	20.2%
5-10 miles	28.9%	29.8%	31.5%
10-20 miles	34.6%	29.3%	35.7%
20-50 miles	7.6%	7.3%	12.7%
>50 miles	0.2%	0.1%	0.0%
Average Trip Length	**10.0**	**9.3**	**11.5**

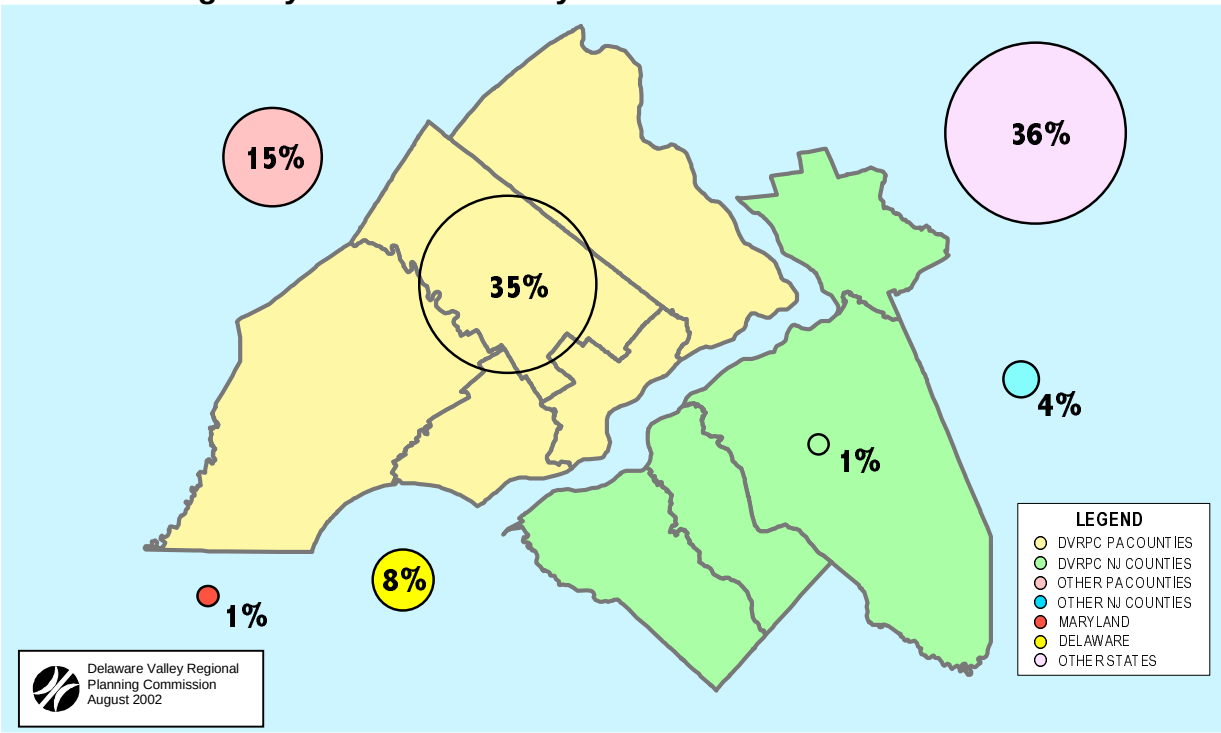
- The data for this query was obtained by using the GIS to compute distances between the cordon station and origins/destinations within the region gathered with the first two questions in the survey. This data is broken out by home based work trips, passenger vehicle trips and truck trips. The data has been put into three groupings by the distance: 0-5 miles, 5-10 miles, 10-20 miles, 20-50 miles and above 50 miles range. The average distances vary by the vehicle class. The complete data set is in Table D-13 in the Appendix.

- Trucks have the longest average trip length at about 11.5 miles per trip while passenger vehicles have the shortest with about 9.3 miles per trip on average. Home-based work trips are in between the other two vehicle categories, averaging about 10 miles per trip.

- While the average trip lengths are within 2 miles of one another, the distribution within the trip length categories are different. The percentage of work and truck trips increase (about 35% and 37% respectively) as the distances increase, tapering off after the 10-20 mile category. Automobile trips have their greatest percentage (33.5%) in the 0-5 mile category and decline in each distance category after that.

- A large percent of trips by trip length fall into the 8-10 mile range. Home-based work trips with about 17 percent and truck trips with about 19 percent of their respective totals both are in this range. Passenger vehicles, with the lowest average trip length, have about 17 percent of their trips in the 2-3 mile trip length.

Trucks Garaged by State and County



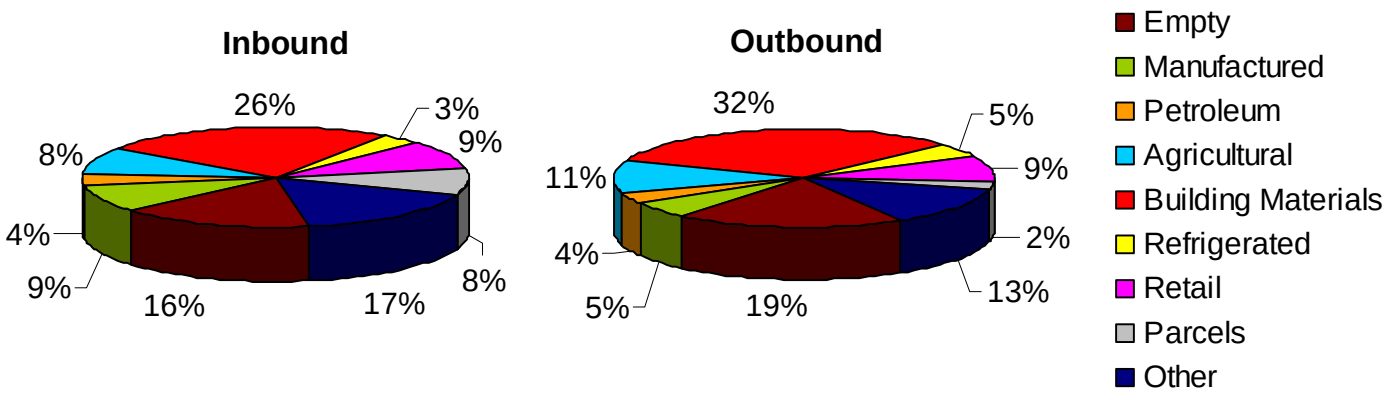
- There were 260 truck drivers who responded to the question, "In what county is your truck garaged or parked when not in service?" Passenger vehicles were not asked this question. The complete data set is in Table D-14 in the Appendix.

- About 36 percent of the trucks surveyed are garaged within the two state DVRPC region, but the largest share of trucks (35%) are garaged in the five counties making up the Pennsylvania side of the region. Only about 1 percent of the trucks were garaged on the New Jersey side of the region.

- About 15 percent of the responses were in Pennsylvania, but outside the DVRPC region. A smaller percentage of trucks were garaged in New Jersey (about 4%), but outside the DVRPC region.

- The remaining surveyed trucks are garaged in Maryland (1%), Delaware (8%), and the largest share is the "Other State" category with about a 36 percent share.

Type of Commodities Carried by Trucks



- Truck Drivers were asked the question "What type of commodities are you carrying?" Passenger vehicles were not asked this question. The sample of inbound and outbound trucks was nearly equal (131 versus 129 respectively). The complete data set is in Table D-15 in the Appendix.

- The greatest share of truck commodities was building materials with about 29 percent of the total trucks, though varying by direction with 26 percent inbound and 32 percent outbound. At the other extreme, only ten surveyed trucks were carrying petroleum products and ten were carrying refrigerated products (each about 4% of the total).

- The empty and "other" categories have similar inbound volumes (16% and 17% respectively), but divergent outbound volumes (19% and 13% respectively) and together they add up to about one-third the total.

- Agricultural (10%), retail (9%), manufactured (7%), and parcels (5%) constitute the balance of the total surveyed truck commodities. Both manufactured products (9% versus 5%) and parcels (8% versus 2%) have a larger inbound volume than outbound volumes.

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Part 5
PA 41 South Summary Survey Results

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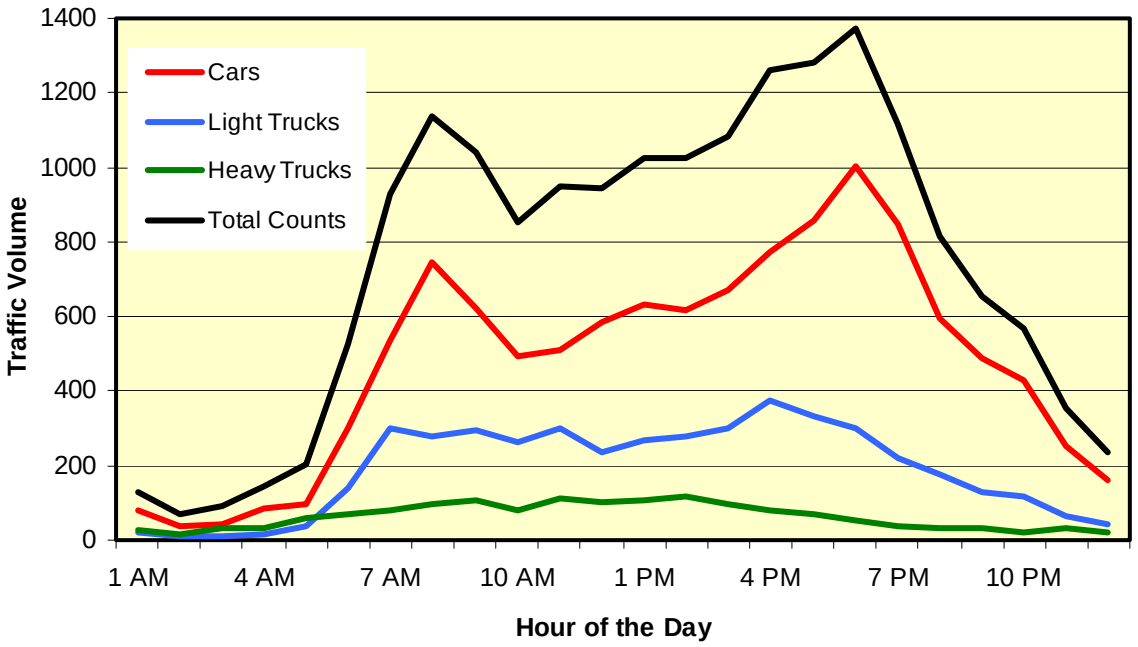
Daily Traffic Counts by Hour of the Day



- Vehicle classification counts were collected during a 24 hour count preceding each of the surveys. PA 41 south hourly counts were taken just north of Kaolin Road in New Garden Township where the field survey was conducted. The daily traffic volume at that point was 17,810 vehicles classified by vehicle type. The full statistical portrait of the classification counts for PA 41 south is shown in Appendix E, Table E-1 in the back of the report.

- The AM peak hour occurred between the hours of 7:00 a.m. to 8:00 a.m. The count for that hour was 1,366 vehicles. This count was about 6 percent of the 24 hour traffic volume. The PM peak occurred between the hours of 5:00 p.m. to 6:00 p.m. The count for that hour was about 1,375 vehicles. This constitutes about 8 percent of the 24 hour traffic volume.

- The vehicular counts were dominated by 11,469 automobiles. This is about 64 percent of total daily vehicular count.

- Light trucks (two axles) constitute 4,368 or about 25 percent of total traffic volume, while heavy trucks (three or more axles) constitute about 9 percent of the total volume. Buses and motorcycles make up about 2 percent of the total traffic volume

Total Interviews by Survey Period

Survey Period	Total Surveys	Inbound Surveys	Inbound % of Total	Outbound Surveys	Outbound % of Total
Morning Shift					
6:30 a.m. - 10:30 a.m.	338	162	21%	176	23%
10:30 a.m. - 1:00 p.m.	373	182	24%	191	25%
Evening Shift					
1:00 p.m. - 4:30 p.m.	396	201	26%	195	25%
4:30 p.m. - 8:00 p.m.	436	229	30%	207	27%
TOTAL	**1543**	**774**	**100%**	**769**	**100%**

- The survey interviewed 1,543 drivers. This sample is about 91 percent of the desired goal of 1,700 responses. The hourly shift totals have been aggregated to create the table above. The reader may examine the disaggregated numbers in greater detail in Table E-2 in the Appendix.

- The difference in directional movement is small, with similar inbound and outbound flows in the morning shift from 6:30 a.m. to 10:30 a.m. (21% versus 23%). These percentages are reversed in the evening shift between 4:30 p.m. and 8:00 p.m. when the inbound traffic (30%) is larger than the outbound traffic (27%).

- The inbound and outbound volumes are fairly constant throughout the day, suggesting considerable regional interaction through this station. Inbound and outbound flows are roughly similar in every time period with little directional traffic disparities.

Place of Trip Origin by Municipality

Inbound Trip Origins		Outbound Trip Origins	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. Piedmont	24%	1. New Garden	24%
2. Lower Christiana	14%	2. London Grove	15%
3. Pike Creek	11%	3. Avondale	4%
4. New Castle	8%	4. Penn	4%
5. Wilmington	7%	5. Lower Oxford	3%
6. Brandywine	5%	6. Harrisburg	3%
7. Greater Newark	5%	7. Kennett Square	2%
8. Upper Christiana	4%	8. Lancaster	2%
9. Ocean City, Md	3%	9. Salisbury	2%
10. Dover	2%	10. York	2%

- There were 1,416 drivers responding to the question, "Where did you start this trip?" The numbers in the table above only show the top ten trips origin municipalities. The readers may examine the disaggregated origin numbers in detail in table E-3 in the Appendix.

- About half of inbound trip origins (49%) are in three municipalities: Piedmont, Lower Christiana, and Pike Creek while the remaining seven municipalities add up to only about 38 percent. The top two outbound trip origins, New Garden and London Grove, have a 39 percent share, while the remaining eight municipalities have a 27 percent share. The "other" category has more than two times the outbound trips (34%) as inbound trips (13%).

- About 49 percent of the surveyed trips have home-based trip origins. The top three Inbound municipal origins are Piedmont, Lower Christiana, and Pike Creek with a combined 52 percent share. Outbound rankings are similar to the total trip rankings with New Garden and London Grove combining for a 40 percent share.

- Truck trips make up about 18 percent of the total number of drivers surveyed. All of these trips do not fall in the same rank order as total or home-based trips. Piedmont, Lower Christiana, and New Castle (replacing Pike Creek) have a 42 percent share of the inbound truck origins. Outbound origins stick with the rank order of the total trips with New Garden and London Grove remaining the top two. The "other" inbound origins represent a 19 percent share, while outbound origins represent a 44 percent share.

Place of Trip Destination by Municipality

Inbound Trip Destinations		Outbound Trip Destinations	
Municipality	**% of Total**	**Municipality**	**% of Total**
1. New Garden	22%	1. Piedmont	23%
2. London Grove	15%	2. Pike Creek	15%
3. Avondale	3%	3. Lower Christiana	15%
4. Lancaster	3%	4. New Castle	9%
5. Harrisburg	3%	5. Wilmington	8%
6. Penn	3%	6. Brandywine	4%
7. Kennett Square	3%	7. Ocean City, Md	4%
8. Manheim	3%	8. Upper Christiana	3%
9. York	3%	9. Greater Newark	3%
10. Salisbury	2%	10. Lewes	2%

- There were 1,455 drivers responding to the question, “Where will this trip end?” The readers may examine the disaggregated destination numbers in detail in Table E-4 in the Appendix.

- Inbound trips to New Garden and London Grove make up 37 percent share of total inbound trip destinations. The outbound destination trio of Piedmont, Lower Christiana, and Pike Creek are a 53 percent share, with Piedmont accounting for about 23 percent of the bunch. “Other” destinations are 33 percent of inbound and only 11 percent of outbound trips.

- Work trips make up 48 percent of the total trips. There is little variation between the total trips and home-based trips in either inbound or outbound direction. The only variation of note is that their are 84 fewer inbound than outbound home-based trips.

- Inbound and outbound truck trips vary slightly from the total trip rankings, requiring some changes in the rank trip order. Inbound destinations such as Harrisburg with about 7 percent and York with a 5 percent share rise into third and fourth place in the rankings. The outbound trip destination of New Castle rises to second place with a 14 percent share.

Trip Stops by Vehicle Type

Survey Period	Passenger Vehicle Stopping	Commercial Vehicle Stopping	Total Stopping
Inbound Trips			
6:30 a.m. - 10:30 a.m.	6.7%	9.3%	7.4%
10:30 a.m. - 1:00 p.m.	3.6%	11.9%	5.5%
1:00 p.m. - 4:30 p.m.	5.5%	0.0%	4.5%
4:30 p.m. - 8:00 p.m.	0.5%	0.0%	0.4%
Outbound Trips			
6:30 a.m. - 10:30 a.m.	2.1%	0.0%	1.7%
10:30 a.m. - 1:00 p.m.	0.0%	0.0%	0.0%
1:00 p.m. - 4:30 p.m.	1.3%	0.0%	1.0%
4:30 p.m. - 8:00 p.m.	2.9%	3.0%	2.9%

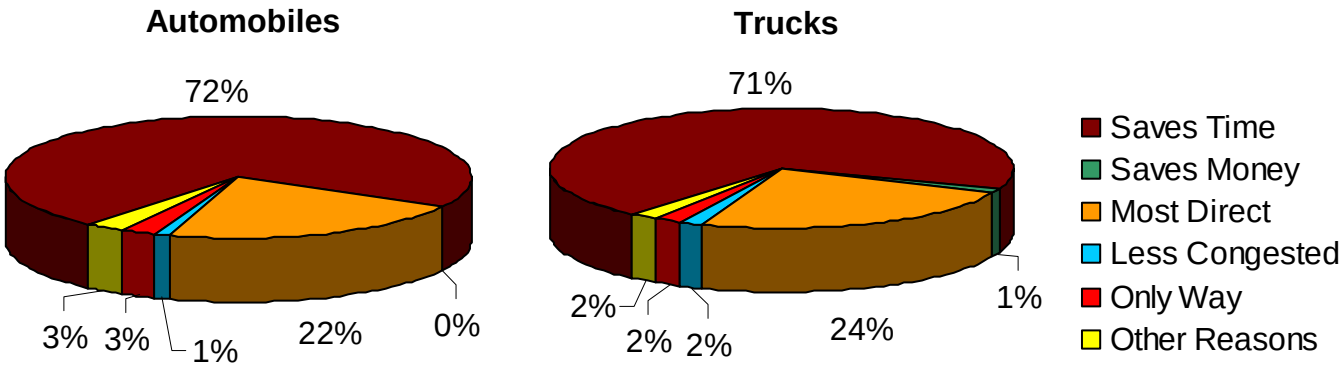
- There were 1,543 drivers responding to the question, "Will you stop before arriving at your destination?" The numbers in the above table were aggregated from the complete data set shown in Table E-5 in the Appendix.

- Only a few vehicles on PA 41 south stop before arriving at their destinations (43 of 1,543). Less than 3 percent of all vehicles stop before reaching their destination, with automobiles slightly less likely to stop than trucks (2.7% versus 3.2% respectively).

- Inbound and outbound vehicles exhibit difference in stopping rates, with 32 of 774 inbound vehicles stopping before reaching the final destination. The outbound direction, however, had 11 of 769 total trips stopping. The difference may lie with inbound travelers trip chaining, planning multiple stops as they approach the denser, more urban parts of the region.

- The greatest share of passenger vehicles stopping (7% for the time period) go inbound between 8:30 a.m. and 10:30 a.m., while 16 percent of inbound truck drivers between 12:00 p.m. and 1:00 p.m. state they will be stopping. The largest percentage of outbound vehicles stopping before reaching their destination (3% for the time period) occurs between 6:30 p.m. and 8:30 p.m., while 5 percent of outbound truck drivers between 4:30 p.m. and 6:00 p.m. state they will be stopping.

Reason for Using PA 41 South by Automobile and Truck Drivers



*Totals may exceed 100% due to multiple answers

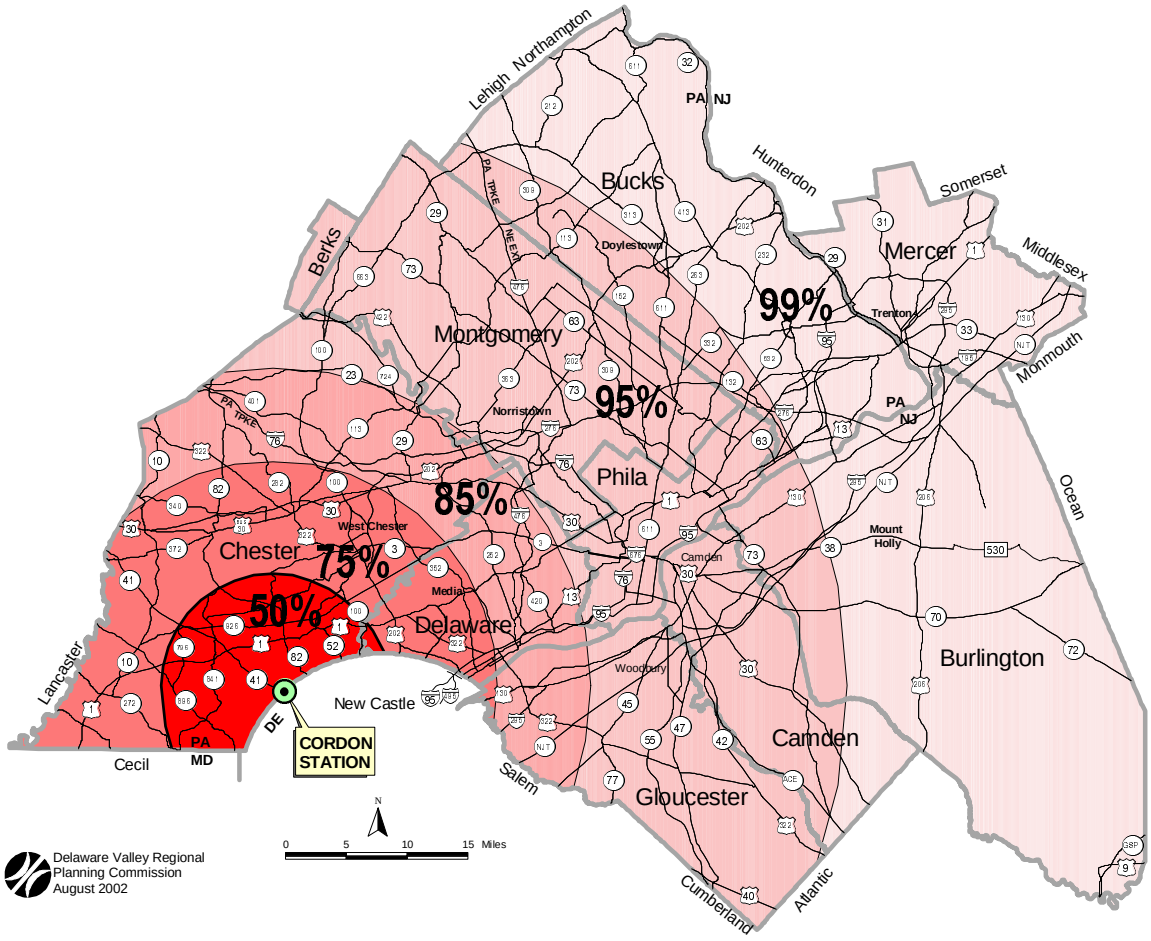
- There were 1,222 passenger and 313 commercial vehicles responding to the question, "Why do you use this road?" The drivers were permitted to provide more than one answer. The complete data set is in Tables E-6 and E-7 in the Appendix.

- "Save time" and "most direct" are the most reported overall reasons for passenger vehicles with 71 percent and 22 percent respectively. "Other reasons" and "only way" to a destination were third and fourth both with about 3 percent. Less congested" had about 1 percent of the responses.

- "Saves time" was the dominant response in both directions but particularly so outbound. Between 4:30 p.m. and 6:30 p.m. 98 percent of the inbound automobile surveys (107 of 109 responses) responded that "saves time" is the reason for using PA 41 south. Between 6:30 a.m. and 2:30 p.m. the outbound survey response rate was in the 90 percent range and the time from 1:00 p.m. to 2:30 p.m. peaked with a 98 percent automobile share (81 of 83) answering "saves time".

- "Save time" and "most direct" were the greatest reported truck reasons for using PA 41 south, with 71 percent and 24 percent respectively. The other four reasons outlined by truck drivers with about 2 percent apiece. "Saves time" was the dominant response outbound with a response rate in the 90 percent range from 6:30 a.m. to 6:00 p.m.

Distribution of PA 41 South Inbound Trips



- The map shows the distribution of inbound trips within the DVRPC region, though the percentages also include values outside the region but within the isochrone lines. About 65 percent of the trips end within the region, the through trips are described below.

- About 35 percent of the surveyed vehicles were through trips with destination outside the region. Of these trips about 32.5 percent of all trips were headed west out of the region into Pennsylvania towards Lancaster County.

- About 2.4 percent of the trips had destinations outside the region in north New Jersey and north towards New York City.

Major Roads Taken by all Vehicles

Inbound Trips		Outbound Trips	
Roads Used	**% of Total**	**Roads Used**	**% of Total**
1. US 30	28%	1. DE 7	33%
2. US 1	20%	2. I-95	11%
3. PA 283	11%	3. DE 48	8%
4. PA 10	4%	4. DE 141	6%
5. PA 896	3%	5. DE 1	5%
6. PA 772	2%	6. US 13	5%

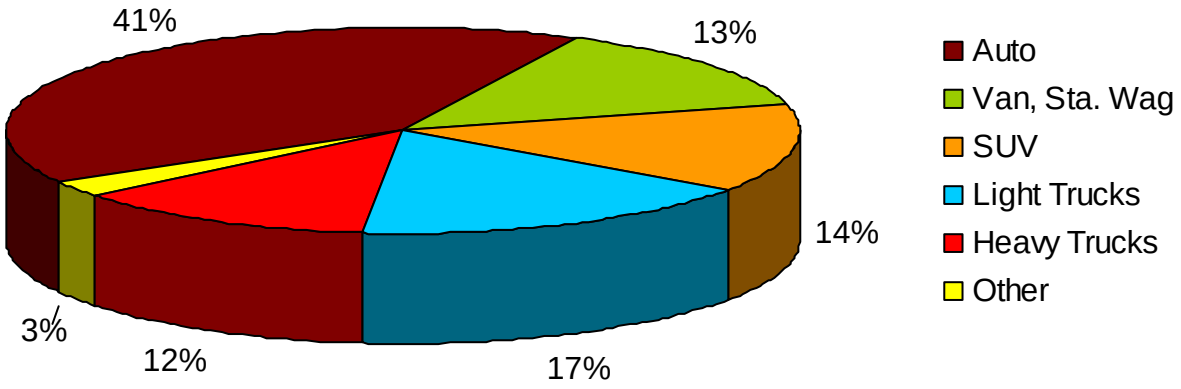
- There were 483 driver responses to the question, "What is/are the major roads that you will take to reach your destination after this road?" This survey question had the lowest response rate (31% of sample), perhaps owing to many driver's lack of knowledge or confusion with road or highway names. The complete data set is in Table E-8 in the Appendix.

- About half the inbound trips were taken on either US 30 or US 1 (28% and 20% respectively). PA 772 and PA 82 were each identified in about 2 percent of the responses, while PA 283 lies in the middle with an 11 percent share. Outbound responses had DE 7 and I-95 as the top two major roads (33% and 11% respectively), though the combined share is less than the top two inbound roads (48%). The "other" response was fairly consistent in every vehicle category with approximately 29 percent shares.

- Inbound passenger vehicle responses are similar to the total vehicle responses, though outbound passenger vehicles had a larger share identifying DE 7 than total vehicles (38% versus 33% respectively).

- Trucks generally identified the larger facilities as more likely to be used in their trip. Inbound trucks identified US 30, US 1, and PA 289 for about 65 percent of the trips, and "other" with a 28 percent share. The outbound direction's top two facilities make up about 40 percent and "other" has about 29 percent share of the responses.

Type of Vehicles Surveyed

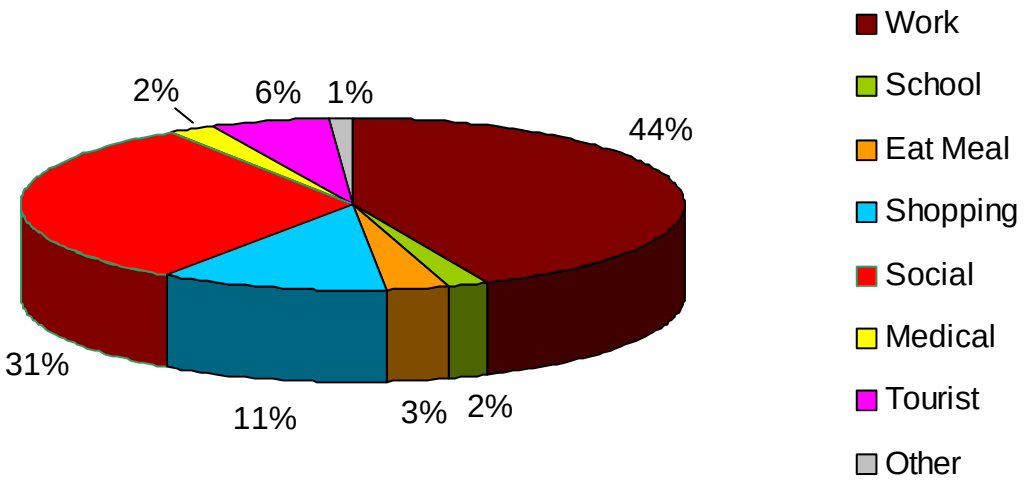


- The response to this question was obtained by observation rather than directly questioning the drivers of 1,543 vehicles in the survey sample. While the categories are not as extensive as the 24 hour vehicle classification count, some categories have been broken out and some combined in order to help with the analysis. The complete data set is in Table E-9 in the Appendix.

- The composition of the surveyed vehicles differ somewhat from the 24 hour vehicle classification counts. Surveyed passenger vehicles (auto, van, SUV) had similar shares to the 24 hour count (68% versus 64% respectively), light trucks (pickup, panel, and single unit) were underrepresented at this station with about 17% of survey and 25% of 24 hour sample, and heavy trucks were 14% of survey and 9% of 24 hour sample.

- The automobile share is greatest during the PM peak inbound and the PM off-peak outbound (44% and 45% respectively), though by far, the smallest share occurred inbound during the AM peak with only 33 percent share of the volume. Within the light truck category, pickup trucks showed a surge during the PM peak and off-peak outbound with a 15 percent share. Conversely, heavy trucks had the largest volumes recorded inbound during the AM peak and off-peak.

Trip Purpose of Passenger Vehicles



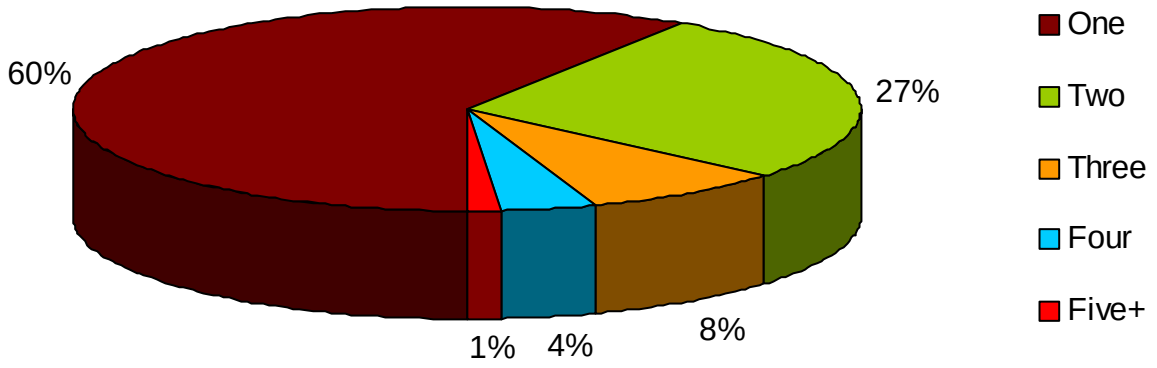
- Drivers in passenger vehicles were asked "What is the purpose of this trip?" Trucks and commercial vehicles were not asked this question as their trip purpose was evident. The complete data set is in Table E-10 in the Appendix.

- Work trips had the largest share of driver responses with about 44 percent of the total responses. Between 6:30 a.m. and 8:30 a.m. about 67 percent of the inbound and outbound survey period is work bound. A reciprocal inbound volume (62%) between 4:30 p.m. and 6:00 p.m. is not evident in the outbound direction (40%).

- The social trip is about a 31 percent share of the volume with an inbound peak (53%) and outbound peak (45%) between 10:30 a.m. and 12:00 p.m. corresponding with lunch time. Shopping occupies an 11 percent share with its peak times similarly occurring between 12:00 p.m. and 2:30 p.m. after lunch time.

- The remaining 25 percent share is divided between the remaining six trip purposes. Only the tourist purpose shows much life during the day with a 12 percent share between 10:30 a.m. and 12:00 p.m., which is twice the average total of about 6 percent.

Vehicle Occupancy



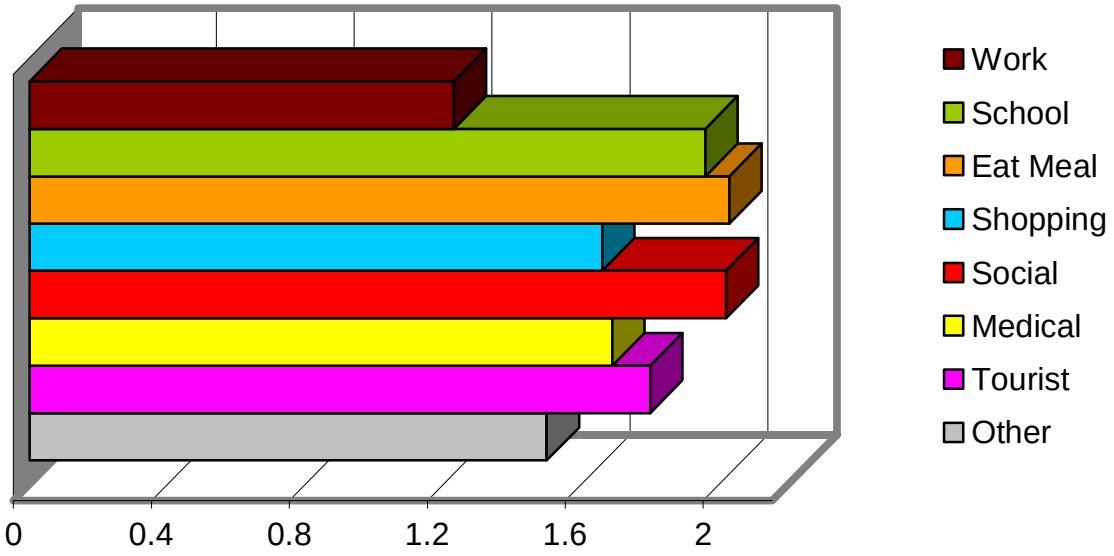
- The question, “How many people are in the vehicle?” was obtained by observation rather than questioning 1,543 drivers in the survey sample. This survey question was applied to passenger vehicles only. The complete data set is in Table E-11 in the Appendix.

- One and two occupant vehicles dominate the surveyed traffic with a combined 87 percent share of the traffic surveyed (60% and 27% respectively). During certain survey periods the shares exceed the average. The inbound PM off-peak time between 4:30 p.m. and 8:00 p.m. reported a 74 percent share of single occupant vehicles which is more than 10 percentage points greater than any other reported survey period. Between 12:00 p.m. and 1:00 p.m. inbound two occupant vehicles have about 38 percent share of the traffic, relating perhaps to lunch time car pooling.

- Higher occupancy vehicles (3, 4, and 5+ occupants) make up a combined 13 percent share. Three occupant vehicle shares spike outbound at 14 percent between 8:30 a.m. and 10:30 a.m. and inbound at 14 percent between 1:00 p.m. and 2:30 p.m. Four occupant vehicles also spike at 11 percent between 10:30 a.m. and 12:00 p.m. The other values keep close to their average occupancy rates through out the survey periods.

- The trend for the average vehicle occupancy shows that inbound and outbound trips are roughly similar by survey period. The exception is the outbound PM peak period where an increase in occupancy diverges from the general data trend (between 4:30 p.m. and 8:00 p.m.). Though this is not reflected in some of the individual peaks within the survey periods.

Average Vehicle Occupancy by Trip Purpose



- Average Vehicle Occupancy by Trip Purpose was obtained by cross tabulating the observed vehicle occupancy with the survey question regarding trip purpose. The complete data set broken out by trip purpose and occupancy is in Table E-12 in the Appendix.

- Average occupancy (1.88) is largest for van/station wagon category, exceeding the average SUV occupancy (1.71) and auto occupancy (1.57). It is intuitive that the vehicle with the greatest seating capacity carries the greatest number of people.

- The work trip has the lowest total vehicle occupancy (1.23). Automobile and SUVs have identical occupancy rates (1.22), while the van/station wagon has a greater occupancy rate (1.30). This affirms the dominance of single occupancy traffic found during the morning commute times in the previous table.

- The trip purpose with greatest occupancy rate are school trips taken in vans/station wagons, averaging 2.57 persons per vehicle. Taking more than one child to school is a logical explanation in this case. The van/station wagon has the highest rates of vehicle occupancy.

- SUV occupancy is greatest for social/recreation (2.23 persons per vehicle), reflecting its larger size permitting family outings.

Vehicle Trip Length Distribution within the DVRPC Region

Trip Length	Work Trips	Automobile Trips	Truck Trips
0-5 miles	63%	64%	66%
5-10 miles	16%	18%	8%
10-20 miles	22%	15%	22%
20-50 miles	0%	2%	4%
>50 miles	0%	0%	0%
Average Trip Length	**6.17**	**5.85**	**7.13**

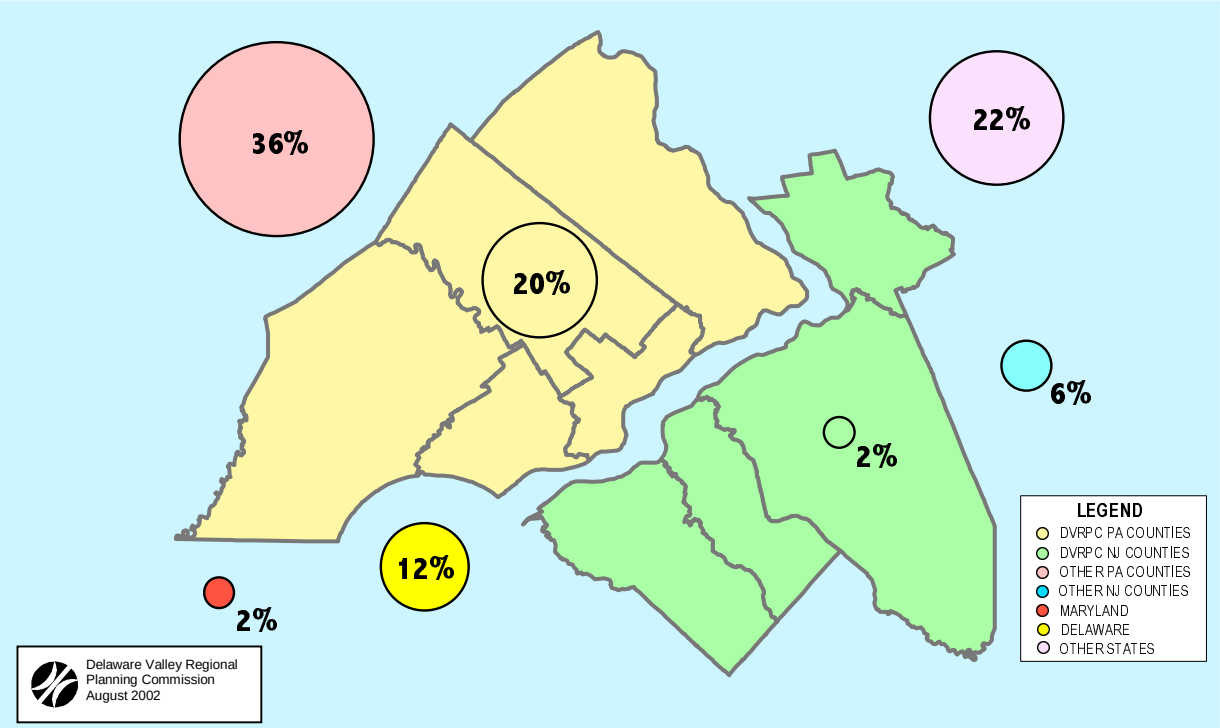
- The data for this query was obtained by using the GIS to compute distances between the cordon station and origins/destinations within the region gathered with the first two questions in the survey. This data is broken out by home based work trips, passenger vehicle trips and truck trips. The data has been put into three groupings by the distance: 0-5 miles, 5-10 miles, 10-20 miles, 20-50 miles and above 50 miles range. The average distances vary by the vehicle class. The complete data set is in Table E-13 in the Appendix.

- The greatest number of trips is between 0 and 5 miles, with trucks possessing the greatest share with about 66 percent, though automobile and work trips are close behind with about 64 percent and 63 percent, respectively.

- Generally there were two peak shares for the modes: between 0-5 and a secondary peak at 10-20 miles. The largest share of trips for work (63%), passenger (64%), and truck trips (66%) falling in the 0-5 mile range. The second peak for home-based and truck trips (22%) is at the 10-20 mile distance. Passenger vehicle trip lengths, however, are generally shorter with their secondary peak occurring at 5-10 miles.

- The average trip lengths for work and passenger vehicles are roughly the same at about 6 miles while trucks come in at about 7 miles for an average trip length. The range of trips falls to almost nothing after 20 miles and there are only three trips for distances more than 50 miles, reflecting the proximity of major destinations to the survey station.

Trucks Garaged by State and County

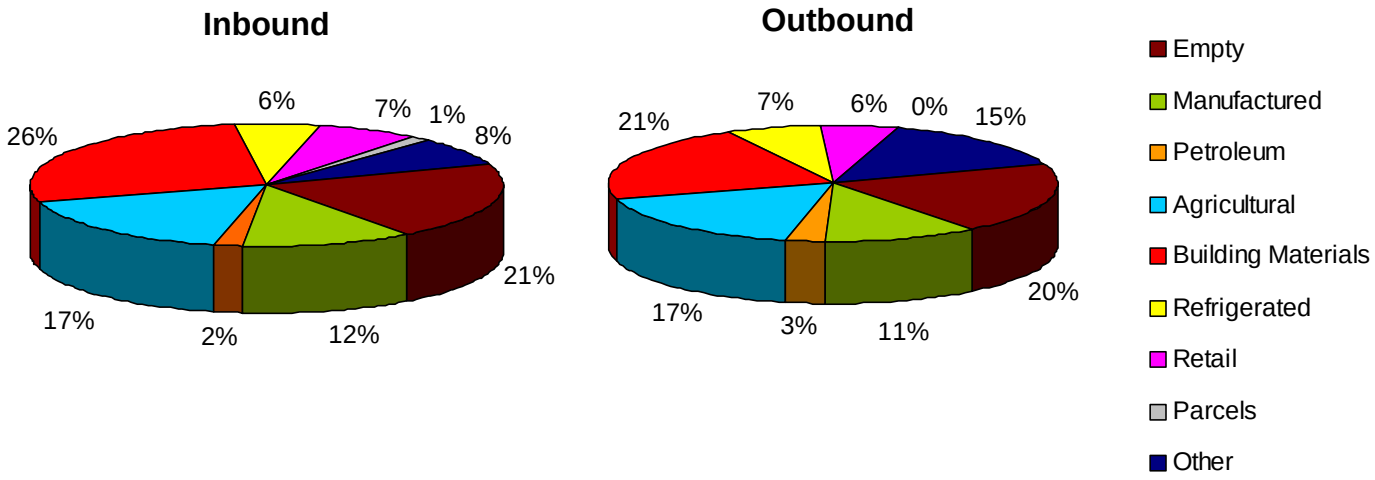


- There were 314 truck drivers were asked "In what county is your truck garaged or parked when not in service?" Passenger vehicles were not asked this question. The complete data set is in Table E-14 in the Appendix.

- About 22 percent of the trucks surveyed are garaged within the two state DVRPC region with 20 percent on the Pennsylvania side and 2 percent on the New Jersey side. The largest share of trucks (36%) are garaged in Pennsylvania but outside the DVRPC region. Only about 6 percent of the trucks were garaged in New Jersey, but outside the DVRPC region.

- The remaining shares of the surveyed trucks are garaged in Maryland (2%), Delaware (12%), and in the "Other State" category with about a 22 percent scattered singularly about the United States.

Type of Commodities Carried by Trucks



- Truck Drivers were asked "What type of commodities are you carrying?" Passenger vehicles were not asked this question. The complete data set is in Table E-15 in the Appendix.

- The volume of inbound and the outbound truck traffic sample was not equal (170 versus 144 respectively). The categories of agricultural products, manufactured products and "empty" have similar inbound and outbound volumes (17%, 12%, 20% respectively). These responses also represent about half (49%) of the surveyed truck drivers through the survey location.

- The greatest share of commodities was building materials with about 25 percent of the total trucks, though varying by direction with about 26 percent inbound and 21 percent outbound. At the other extreme, only two surveyed trucks were carrying parcels in both directions.

- "Other" products are 8 percent (inbound) and 15 percent (outbound) of trucked commodities. Other disparities are much smaller with retail merchandise making up 7 percent (inbound) and 6 percent (outbound) of trucked commodities. Petroleum and refrigerated products also vary by direction with inbound totals (2% and 6% respectively) slightly different than outbound totals(3% and 7% respectively)

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APPENDIX A

Survey Responses for I-95 Cordon Station at Claymont, New Castle County, Delaware

Table A-1. Daily Vehicle Classification Traffic Counts
(I-95 Cordon Station at Claymont)

Hour of Day	Vehicle Type 1	2	3	4	5	6	7	8	9	10	11	12	13	Hourly Counts	% of Total
12 am - 1 am	3	161	12	11	8	1	0	1	1	0	0	0	0	**198**	**0.8%**
1 am - 2 am	1	115	14	3	9	1	0	0	0	0	1	0	1	**145**	**0.6%**
2 am - 3 am	6	97	5	11	5	0	0	1	5	0	0	0	2	**132**	**0.6%**
3 am - 4 am	2	206	13	14	11	1	0	2	10	0	1	0	2	**262**	**1.1%**
4 am - 5 am	0	551	15	10	26	0	0	5	4	0	1	0	9	**621**	**2.7%**
5 am - 6 am	3	1033	35	8	14	5	0	5	3	4	0	0	31	**1141**	**4.9%**
6 am - 7 am	8	1107	40	12	20	1	1	10	4	1	0	0	43	**1247**	**5.3%**
7 am - 8 am	4	1109	56	7	18	2	0	12	4	2	0	0	40	**1254**	**5.4%**
8 am - 9 am	10	990	44	14	25	5	1	7	5	6	1	1	41	**1150**	**4.9%**
9 am -10 am	6	1065	60	20	15	5	1	5	7	2	2	0	46	**1234**	**5.3%**
10 am -11 am	8	1065	66	25	26	4	1	9	1	9	0	1	43	**1258**	**5.4%**
11 am -12 pm	11	1232	77	20	12	6	0	8	9	3	0	1	34	**1413**	**6.0%**
12 pm - 1 pm	8	1149	70	13	15	6	0	12	8	5	0	0	31	**1317**	**5.6%**
1 pm - 2 pm	11	1147	92	16	17	3	0	16	3	4	1	1	29	**1340**	**5.7%**
2 pm - 3 pm	23	1297	96	8	15	8	0	24	3	15	1	1	46	**1537**	**6.6%**
3 pm - 4 pm	14	1419	101	5	14	4	0	17	3	6	0	0	38	**1621**	**6.9%**
4 pm - 5 pm	17	1468	76	4	8	2	1	33	3	7	1	3	50	**1673**	**7.2%**
5 pm - 6 pm	19	1347	66	6	4	2	1	20	2	3	2	0	34	**1506**	**6.4%**
6 pm - 7 pm	10	1096	53	4	5	2	0	8	5	2	0	1	18	**1204**	**5.1%**
7 pm - 8 pm	6	946	47	4	6	4	0	8	4	0	0	0	21	**1046**	**4.5%**
8 pm - 9 pm	9	695	36	7	3	5	0	5	7	1	0	0	22	**790**	**3.4%**
9 pm -10 pm	5	578	27	5	4	1	0	2	2	0	1	0	10	**635**	**2.7%**
10 pm -11 pm	2	433	17	2	0	3	0	0	1	0	0	0	0	**458**	**2.0%**
11 pm -12 am	2	179	13	8	9	0	0	1	1	0	0	0	1	**214**	**0.9%**
TOTAL	**188**	**20485**	**1131**	**237**	**289**	**71**	**6**	**211**	**95**	**70**	**12**	**9**	**592**	**23396**	**100%**
% Of Total	**0.8%**	**87.6%**	**4.8%**	**1.0%**	**1.2%**	**0.3%**	**0.0%**	**0.9%**	**0.4%**	**0.3%**	**0.1%**	**0.0%**	**2.5%**	**100%**	

Legend

1. Motorcycle, Bicycle
2. Cars Trailers
3. Two Axle Long
4. Buses
5. Two Axle, Six Tire
6. Three Axle Single
7. Four Axle Single
8. Less Than Five Axle Double
9. Five Axle Double
10. Greater Than Five Axle Double
11. Less Than Six Axle Multi
12. Six Axle Multi
13. Greater Than Six Axle Multi

Table A-2. Survey Interviews at I-95 by Survey Period
(I-95 Cordon Station at Claymont)

Survey Period	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Surveys	% of Total	No. of Surveys	% of Total	No. of Surveys	% of Total
Morning Shift						
6:30 a.m. - 8:30 a.m.	44	7.1%	121	20.8%	165	13.7%
8:30 a.m. - 10:30 a.m.	96	15.5%	74	12.7%	170	14.1%
Subtotal	**140**	**22.6%**	**195**	**33.4%**	**335**	**27.9%**
10:30 a.m. - 12:00 p.m.	95	15.3%	102	17.5%	197	16.4%
12:00 p.m. - 1:00 p.m.	78	12.6%	76	13.0%	154	12.8%
Subtotal	**173**	**27.9%**	**178**	**30.5%**	**351**	**29.2%**
Evening Shift						
1:00 p.m. - 2:30 p.m.	92	14.9%	36	6.2%	128	10.6%
2:30 p.m. - 4:30 p.m.	71	11.5%	50	8.6%	121	10.1%
Subtotal	**163**	**26.3%**	**86**	**14.8%**	**249**	**20.7%**
4:30 p.m. - 6:00 p.m.	116	18.7%	90	15.4%	206	17.1%
6:00 p.m. - 8:00 p.m.	27	4.4%	34	5.8%	61	5.1%
Subtotal	**143**	**23.1%**	**124**	**21.3%**	**267**	**22.2%**
TOTAL	**619**	**100%**	**583**	**100%**	**1202**	**100%**

Table A-3. Place of Vehicle Trip Origin by Municipality
(I-95 Cordon Station at Claymont)

Municipality of Trip Origin	Home-Based Trips No. of Trips	Home-Based Trips % of Total	Total Trips No. of Trips	Total Trips % of Total	Truck Trips No. of Trips	Truck Trips % of Total
Inbound Trips						
1. Brandywine	183	45.6%	272	41.7%	17	19.3%
2. Wilmington	72	18.0%	136	20.8%	16	18.2%
3. New Castle	22	5.5%	36	5.5%	5	5.7%
4. Pike Creek-Central	15	3.7%	25	3.8%	5	5.7%
5. Piedmont	20	5.0%	24	3.7%	3	3.4%
6. Lower Christiana	16	4.0%	22	3.4%	1	1.1%
7. Washington	5	1.2%	14	2.1%	3	3.4%
8. Baltimore	5	1.2%	12	1.8%	5	5.7%
9. Central Pencader	6	1.5%	8	1.2%	3	3.4%
10. Red Lion	5	1.2%	8	1.2%	1	1.1%
11. Upper Christiana	6	1.5%	8	1.2%	1	1.1%
12. Pike Creek-Centra	2	0.5%	4	0.6%	0	0.0%
13. Dover	2	0.5%	4	0.6%	0	0.0%
14. Richmond	2	0.5%	3	0.5%	2	2.3%
15. Other	40	10.0%	77	11.8%	26	29.5%
TOTAL	**401**	**100%**	**653**	**100%**	**88**	**100%**
Outbound Trips						
1. Philadelphia	86	25.2%	168	29.4%	19	22.6%
2. Chester	14	4.1%	24	4.2%	3	3.6%
3. Upper Chichester	15	4.4%	18	3.2%	2	2.4%
4. Ridley	13	3.8%	16	2.8%	1	1.2%
5. Lower Merion	6	1.8%	11	1.9%	0	0.0%
6. Lower Chichester	7	2.1%	10	1.8%	0	0.0%
7. Marple	8	2.3%	9	1.6%	0	0.0%
8. Brookhaven	7	2.1%	9	1.6%	1	1.2%
9. Prospect Park	5	1.5%	8	1.4%	0	0.0%
10. Upper Darby	6	1.8%	8	1.4%	0	0.0%
11. Swarthmore	6	1.8%	7	1.2%	1	1.2%
12. Middletown	4	1.2%	7	1.2%	2	2.4%
13. Media	5	1.5%	7	1.2%	1	1.2%
14. Newtown	3	0.9%	6	1.1%	0	0.0%
15. Other	156	45.7%	263	46.1%	54	64.3%
TOTAL	**341**	**100%**	**571**	**100%**	**84**	**100%**

Table A-4. Place of Vehicle Trip Destination by Municipality
(I-95 Cordon Station at Claymont)

Municipality of Trip Destination	Home-Based Trips No. of Trips	Home-Based Trips % of Total	Total Trips No. of Trips	Total Trips % of Total	Truck Trips No. of Trips	Truck Trips % of Total
Inbound Trips						
1. Philadelphia	73	25.9%	147	24.9%	28	32.2%
2. Chester	15	5.3%	30	17.6%	4	8.0%
3. Lower Chichester	19	6.7%	27	5.1%	2	4.6%
4. Upper Merion	6	2.1%	14	4.6%	3	2.3%
5. Lower Merion	5	1.8%	13	2.4%	2	3.4%
6. Upper Chichester	7	2.5%	12	2.2%	2	2.3%
7. Cherry Hill	7	2.5%	10	2.0%	1	2.3%
8. Media	5	1.8%	9	1.7%	1	1.1%
9. Aston	7	2.5%	9	1.5%	0	1.1%
10. Bristol	5	1.8%	8	1.5%	2	0.0%
11. Allentown	4	1.4%	6	1.4%	3	2.3%
12. Marple	3	1.1%	5	1.0%	1	3.4%
13. Ridley	2	0.7%	5	0.8%	1	1.1%
14. Whitemarsh	3	1.1%	5	0.8%	0	1.1%
15. Other	121	42.9%	186	32.4%	30	34.5%
TOTAL	**282**	**100%**	**486**	**100%**	**80**	**100%**
Outbound Trips						
1. Brandywine	115	34.4%	178	32.2%	22	27.2%
2. Wilmington	81	24.3%	141	25.5%	22	27.2%
3. New Castle	19	5.7%	25	4.5%	3	3.7%
4. Lower Christiana	14	4.2%	22	4.0%	4	4.9%
5. Washington	10	3.0%	18	3.3%	0	0.0%
6. Piedmont	11	3.3%	16	2.9%	3	3.7%
7. Baltimore	9	2.7%	14	2.5%	2	2.5%
8. Pike Creek-Central	6	1.8%	11	2.0%	2	2.5%
9. Greater Newark	6	1.8%	10	1.8%	2	2.5%
10. Lewes	5	1.5%	7	1.3%	0	0.0%
11. Upper Christiana	3	0.9%	7	1.3%	1	1.2%
12. Richmond	3	0.9%	6	1.1%	1	1.2%
13. District 10, Ocea	2	0.6%	4	0.7%	0	0.0%
14. Central Pencader	3	0.9%	4	0.7%	0	0.0%
15. Other	47	14.1%	89	16.1%	19	23.5%
TOTAL	**334**	**100%**	**552**	**100%**	**81**	**100%**

Table A-5. Stopping Before Arriving at Final Destination
(I-95 Cordon Station at Claymont)

	Passenger Vehicles			Trucks			Total Vehicles		
Survey Period	No. of Vehicles Surveyed	Vehicles Stopping	% Stopping	No. of Vehicles Surveyed	Vehicles Stopping	% Stopping	No. of Vehicles Surveyed	Vehicles Stopping	% Stopping
Inbound									
6:30 a.m. - 8:30 a.m.	44	3	6.8%	19	1	5.3%	63	4	6.3%
8:30 a.m. - 10:30 a.m.	77	0	0.0%	22	0	0.0%	99	0	0.0%
Subtotal	**121**	**3**	**2.5%**	**41**	**1**	**2.4%**	**162**	**4**	**2.5%**
10:30 a.m. - 12:00 p.m.	73	1	1.4%	16	0	0.0%	89	1	1.1%
12:00 p.m. - 1:00 p.m.	62	0	0.0%	14	1	7.1%	76	1	1.3%
Subtotal	**135**	**1**	**0.7%**	**30**	**1**	**3.3%**	**165**	**2**	**1.2%**
1:00 p.m. - 2:30 p.m.	78	2	2.6%	13	2	15.4%	91	4	4.4%
2:30 p.m. - 4:30 p.m.	58	5	8.6%	8	0	0.0%	66	5	7.6%
Subtotal	**136**	**7**	**5.1%**	**21**	**2**	**9.5%**	**157**	**9**	**5.7%**
4:30 p.m. - 6:00 p.m.	108	3	2.8%	1	0	0.0%	109	3	2.8%
6:00 p.m. - 8:00 p.m.	26	2	7.7%	16	0	0.0%	42	2	4.8%
Subtotal	**134**	**5**	**3.7%**	**17**	**0**	**0.0%**	**151**	**5**	**3.3%**
Outbound									
6:30 a.m. - 8:30 a.m.	105	0	0.0%	17	0	0.0%	122	0	0.0%
8:30 a.m. - 10:30 a.m.	57	0	0.0%	22	0	0.0%	79	0	0.0%
Subtotal	**162**	**0**	**0.0%**	**39**	**0**	**0.0%**	**201**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	80	3	3.8%	17	0	0.0%	97	3	3.1%
12:00 p.m. - 1:00 p.m.	59	2	3.4%	4	0	0.0%	63	2	3.2%
Subtotal	**139**	**5**	**3.6%**	**21**	**0**	**0.0%**	**160**	**5**	**3.1%**
1:00 p.m. - 2:30 p.m.	32	0	0.0%	2	0	0.0%	34	0	0.0%
2:30 p.m. - 4:30 p.m.	48	0	0.0%	7	0	0.0%	55	0	0.0%
Subtotal	**80**	**0**	**0.0%**	**9**	**0**	**0.0%**	**89**	**0**	**0.0%**
4:30 p.m. - 6:00 p.m.	83	2	2.4%	2	0	0.0%	85	2	2.4%
6:00 p.m. - 8:00 p.m.	32	1	3.1%	7	0	0.0%	39	1	2.6%
Subtotal	**115**	**3**	**2.6%**	**9**	**0**	**0.0%**	**124**	**3**	**2.4%**
TOTAL	**1022**	**24**	**2.3%**	**187**	**4**	**2.1%**	**1209**	**28**	**2.3%**

Table A-6. Reasons for Using I-95 by Drivers of Passenger Vehicles
(I-95 Cordon Station at Claymont)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	36	11	30.6%	0	0.0%	23	63.9%	0	0.0%	3	8.3%	1	2.8%
8:30 a.m. - 10:30 a.m.	75	68	90.7%	0	0.0%	13	17.3%	0	0.0%	1	1.3%	1	1.3%
Subtotal	**111**	**79**	**71.2%**	**0**	**0.0%**	**36**	**32.4%**	**0**	**0.0%**	**4**	**3.6%**	**2**	**1.8%**
10:30 a.m. - 12:00 p.m.	73	64	87.7%	2	2.7%	15	20.5%	1	1.4%	0	0.0%	1	1.4%
12:00 p.m. - 1:00 p.m.	61	52	85.2%	0	0.0%	16	26.2%	1	1.6%	0	0.0%	0	0.0%
Subtotal	**134**	**116**	**86.6%**	**2**	**1.5%**	**31**	**23.1%**	**2**	**1.5%**	**0**	**0.0%**	**1**	**0.7%**
1:00 p.m. - 2:30 p.m.	76	58	76.3%	0	0.0%	24	31.6%	0	0.0%	1	1.3%	7	9.2%
2:30 p.m. - 4:30 p.m.	57	38	66.7%	0	0.0%	15	26.3%	0	0.0%	2	3.5%	4	7.0%
Subtotal	**133**	**96**	**72.2%**	**0**	**0.0%**	**39**	**29.3%**	**0**	**0.0%**	**3**	**2.3%**	**11**	**8.3%**
4:30 p.m. - 6:00 p.m.	103	67	65.0%	0	0.0%	41	39.8%	3	2.9%	3	2.9%	12	11.7%
6:00 p.m. - 8:00 p.m.	26	17	65.4%	1	3.8%	14	53.8%	1	3.8%	1	3.8%	1	3.8%
Subtotal	**129**	**84**	**65.1%**	**1**	**0.8%**	**55**	**42.6%**	**4**	**3.1%**	**4**	**3.1%**	**13**	**10.1%**
Outbound													
6:30 a.m. - 8:30 a.m.	104	76	73.1%	1	1.0%	24	23.1%	4	3.8%	2	1.9%	5	4.8%
8:30 a.m. - 10:30 a.m.	57	36	63.2%	1	1.8%	16	28.1%	2	3.5%	1	1.8%	5	8.8%
Subtotal	**161**	**112**	**69.6%**	**2**	**1.2%**	**40**	**24.8%**	**6**	**3.7%**	**3**	**1.9%**	**10**	**6.2%**
10:30 a.m. - 12:00 p.m.	78	45	57.7%	0	0.0%	29	37.2%	1	1.3%	2	2.6%	1	1.3%
12:00 p.m. - 1:00 p.m.	59	54	91.5%	0	0.0%	1	1.7%	0	0.0%	0	0.0%	4	6.8%
Subtotal	**137**	**99**	**72.3%**	**0**	**0.0%**	**30**	**21.9%**	**1**	**0.7%**	**2**	**1.5%**	**5**	**3.6%**
1:00 p.m. - 2:30 p.m.	30	28	93.3%	0	0.0%	7	23.3%	3	10.0%	0	0.0%	1	3.3%
2:30 p.m. - 4:30 p.m.	45	40	88.9%	1	2.2%	13	28.9%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**75**	**68**	**90.7%**	**1**	**1.3%**	**20**	**26.7%**	**3**	**4.0%**	**0**	**0.0%**	**1**	**1.3%**
4:30 p.m. - 6:00 p.m.	80	68	85.0%	0	0.0%	13	16.3%	3	3.8%	0	0.0%	3	3.8%
6:00 p.m. - 8:00 p.m.	32	24	75.0%	0	0.0%	9	28.1%	1	3.1%	0	0.0%	0	0.0%
Subtotal	**112**	**92**	**82.1%**	**0**	**0.0%**	**22**	**19.6%**	**4**	**3.6%**	**0**	**0.0%**	**3**	**2.7%**
TOTAL	**992**	**746**	**75.2%**	**6**	**0.6%**	**273**	**27.5%**	**20**	**2.0%**	**16**	**1.6%**	**46**	**4.6%**

Table A-7. Reasons for Using I-95 by Truck Drivers
(I-95 Cordon Station at Claymont)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	17	13	76.5%	0	0.0%	7	41.2%	1	5.9%	0	0.0%	0	0.0%
Subtotal	**17**	**13**	**76.5%**	**0**	**0.0%**	**7**	**41.2%**	**1**	**5.9%**	**0**	**0.0%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	22	19	86.4%	0	0.0%	6	27.3%	0	0.0%	0	0.0%	0	0.0%
12:00 p.m. - 1:00 p.m.	16	16	100%	0	0.0%	2	12.5%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**38**	**35**	**92.1%**	**0**	**0.0%**	**8**	**21.1%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
1:00 p.m. - 2:30 p.m.	14	9	64.3%	0	0.0%	4	28.6%	0	0.0%	0	0.0%	3	21.4%
2:30 p.m. - 4:30 p.m.	13	7	53.8%	0	0.0%	7	53.8%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**27**	**16**	**59.3%**	**0**	**0.0%**	**11**	**40.7%**	**0**	**0.0%**	**0**	**0.0%**	**3**	**11.1%**
4:30 p.m. - 6:00 p.m.	8	5	62.5%	0	0.0%	6	75.0%	0	0.0%	0	0.0%	1	12.5%
6:00 p.m. - 8:00 p.m.	1	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**9**	**6**	**66.7%**	**0**	**0.0%**	**6**	**66.7%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**11.1%**
Outbound													
6:30 a.m. - 8:30 a.m.	15	15	100%	1	6.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	17	17	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**32**	**32**	**100%**	**1**	**3.1%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	22	15	68.2%	0	0.0%	4	18.2%	1	4.5%	1	4.5%	2	9.1%
12:00 p.m. - 1:00 p.m.	16	12	75.0%	0	0.0%	4	25.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**38**	**27**	**71.1%**	**0**	**0.0%**	**8**	**21.1%**	**1**	**2.6%**	**1**	**2.6%**	**2**	**5.3%**
1:00 p.m. - 2:30 p.m.	4	4	100%	0	0.0%	3	75.0%	0	0.0%	0	0.0%	0	0.0%
2:30 p.m. - 4:30 p.m.	2	2	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**6**	**6**	**100%**	**0**	**0.0%**	**3**	**50.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
4:30 p.m. - 6:00 p.m.	7	4	57.1%	0	0.0%	3	42.9%	0	0.0%	0	0.0%	0	0.0%
6:00 p.m. - 8:00 p.m.	1	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**8**	**5**	**62.5%**	**0**	**0.0%**	**3**	**37.5%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
TOTAL	**175**	**140**	**80.0%**	**1**	**0.6%**	**46**	**26.3%**	**2**	**1.1%**	**1**	**0.6%**	**6**	**3.4%**

Table A-8. Major Roads Taken by Drivers to Reach Their Destinations
(I-95 Cordon Station at Claymont)

Roads Used	Passenger Vehicles		Trucks		All Vehicles	
	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound Traffic						
1. I-476	74	33.0%	12	31.6%	86	32.8%
2. I-76	34	15.2%	5	13.2%	39	14.9%
3. I-295	19	8.5%	4	10.5%	23	8.8%
4. US 322	18	8.0%	3	7.9%	21	8.0%
5. NJ T'Pike	10	4.5%	3	7.9%	13	5.0%
6. PA 291	7	3.1%	3	7.9%	10	3.8%
7. PA 452	9	4.0%	0	0.0%	9	3.4%
8. Other	53	23.7%	8	21.1%	61	23.3%
TOTAL	**224**	**100%**	**38**	**100%**	**262**	**100%**
Outbound Traffic						
1. US 202	19	19.2%	5	13.2%	24	17.5%
2. US 13	9	9.1%	5	13.2%	14	10.2%
3. DE 141	9	9.1%	3	7.9%	12	8.8%
4. I-295	5	5.1%	5	13.2%	10	7.3%
5. I-495	7	7.1%	0	0.0%	7	5.1%
6. DE 273	4	4.0%	0	0.0%	4	2.9%
7. DE 896	2	2.0%	2	5.3%	4	2.9%
8. Other	44	44.4%	18	47.4%	62	45.3%
TOTAL	**99**	**100%**	**38**	**100%**	**137**	**100%**

Table A-9. Type of Vehicles Used for the Trip
(I-95 Cordon Station at Claymont)

	Inbound Traffic					Outbound Traffic					
Vehicle Type	AM Peak (% of Total)	AM Off-Peak (%. of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Inbound Traffic (% of Total)	AM Peak (% of Total)	AM Off-Peak (% of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Outbound Traffic (% of Total)	TOTAL Traffic (% of Total)
Passenger Vehicles											
Auto	67.9%	48.8%	53.4%	78.2%	61.1%	56.3%	50.3%	60.5%	73.8%	58.8%	60.0%
Van, Sta. Wagon	5.7%	14.5%	8.6%	4.9%	8.8%	8.1%	15.4%	18.6%	9.0%	12.1%	10.4%
SUV	9.3%	13.4%	16.0%	7.7%	11.8%	14.7%	10.3%	10.5%	9.8%	11.7%	11.8%
Other	0.0%	0.0%	0.6%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Subtotal	**82.9%**	**76.7%**	**78.5%**	**90.8%**	**81.8%**	**79.2%**	**76.0%**	**89.5%**	**92.6%**	**82.6%**	**82.2%**
Light Trucks											
Pickup	7.1%	7.0%	6.1%	2.8%	5.8%	5.6%	4.0%	5.8%	1.6%	4.3%	5.1%
Panel	2.1%	6.4%	3.7%	2.1%	3.7%	3.6%	7.4%	1.2%	0.0%	3.6%	3.7%
Single Unit	1.4%	1.7%	4.9%	0.7%	2.3%	5.6%	5.1%	0.0%	0.8%	3.6%	2.9%
Other	0.7%	1.2%	0.0%	0.0%	0.5%	0.0%	1.1%	0.0%	0.0%	0.3%	0.4%
Subtotal	**11.4%**	**16.3%**	**14.7%**	**5.6%**	**12.3%**	**14.7%**	**17.7%**	**7.0%**	**2.5%**	**11.9%**	**12.1%**
Heavy Trucks											
Tractor-Trailer	5.0%	5.8%	5.5%	3.5%	5.0%	6.1%	5.1%	3.5%	4.1%	5.0%	5.0%
Double-Trailer	0.7%	0.0%	0.6%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Other	0.0%	1.2%	0.6%	0.0%	0.5%	0.0%	1.1%	0.0%	0.8%	0.5%	0.5%
Subtotal	**5.7%**	**7.0%**	**6.7%**	**3.5%**	**5.8%**	**6.1%**	**6.3%**	**3.5%**	**4.9%**	**5.5%**	**5.7%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A-10. Trip Purpose by Direction
(I-95 Cordon Station at Claymont)

Survey Period	Work (% of Total)	School (% of Total)	Eat Meal (% of Total	Shopping (% of Total)	Social Recreation (% of Total)	Medical (% of Total)	Visitor/ Tourist (% of Total)	Other (% of Total)	All Purposes
Inbound									
6:30 a.m. - 8:30 a.m.	88.6%	4.5%	0.0%	0.0%	4.5%	2.3%	0.0%	0.0%	100%
8:30 a.m. - 10:30 a.m.	76.3%	7.9%	0.0%	0.0%	9.2%	3.9%	0.0%	2.6%	100%
Subtotal	**80.8%**	**6.7%**	**0.0%**	**0.0%**	**7.5%**	**3.3%**	**0.0%**	**1.7%**	**100%**
10:30 a.m. - 12:00 p.m.	47.9%	2.7%	1.4%	11.0%	24.7%	8.2%	0.0%	4.1%	100%
12:00 p.m. - 1:00 p.m.	67.7%	0.0%	1.6%	4.8%	17.7%	8.1%	0.0%	0.0%	100%
Subtotal	**57.0%**	**1.5%**	**1.5%**	**8.1%**	**21.5%**	**8.1%**	**0.0%**	**2.2%**	**100%**
1:00 p.m. - 2:30 p.m.	51.3%	1.3%	1.3%	9.0%	29.5%	5.1%	1.3%	1.3%	100%
2:30 p.m. - 4:30 p.m.	51.7%	3.4%	0.0%	6.9%	24.1%	6.9%	3.4%	3.4%	100%
Subtotal	**51.5%**	**2.2%**	**0.7%**	**8.1%**	**27.2%**	**5.9%**	**2.2%**	**2.2%**	**100%**
4:30 p.m. - 6:00 p.m.	76.9%	2.8%	0.0%	0.9%	13.9%	0.0%	4.6%	0.9%	100%
6:00 p.m. - 8:00 p.m.	65.4%	0.0%	0.0%	3.8%	23.1%	0.0%	3.8%	3.8%	100%
Subtotal	**74.6%**	**2.2%**	**0.0%**	**1.5%**	**15.7%**	**0.0%**	**4.5%**	**1.5%**	**100%**
Outbound									
6:30 a.m. - 8:30 a.m.	86.4%	0.0%	0.0%	1.0%	11.7%	0.0%	1.0%	0.0%	100%
8:30 a.m. - 10:30 a.m.	78.9%	1.8%	0.0%	0.0%	15.8%	3.5%	0.0%	0.0%	100%
Subtotal	**83.8%**	**0.6%**	**0.0%**	**0.6%**	**13.1%**	**1.3%**	**0.6%**	**0.0%**	**100%**
10:30 a.m. - 12:00 p.m.	44.2%	1.3%	1.3%	6.5%	36.4%	3.9%	6.5%	0.0%	100%
12:00 p.m. - 1:00 p.m.	39.0%	1.7%	1.7%	10.2%	35.6%	8.5%	3.4%	0.0%	100%
Subtotal	**41.9%**	**1.5%**	**1.5%**	**8.1%**	**36.0%**	**5.9%**	**5.1%**	**0.0%**	**100%**
1:00 p.m. - 2:30 p.m.	51.6%	3.2%	3.2%	12.9%	12.9%	6.5%	3.2%	6.5%	100%
2:30 p.m. - 4:30 p.m.	50.0%	0.0%	2.1%	0.0%	25.0%	8.3%	4.2%	10.4%	100%
Subtotal	**50.6%**	**1.3%**	**2.5%**	**5.1%**	**20.3%**	**7.6%**	**3.8%**	**8.9%**	**100%**
4:30 p.m. - 6:00 p.m.	68.3%	3.7%	0.0%	0.0%	7.3%	1.2%	2.4%	17.1%	100%
6:00 p.m. - 8:00 p.m.	40.6%	3.1%	0.0%	9.4%	18.8%	3.1%	0.0%	25.0%	100%
Subtotal	**60.5%**	**3.5%**	**0.0%**	**2.6%**	**10.5%**	**1.8%**	**1.8%**	**19.3%**	**100%**
TOTAL	**63.5%**	**2.4%**	**0.7%**	**4.2%**	**19.1%**	**4.0%**	**2.2%**	**3.8%**	**100%**

Table A-11. Vehicle Occupancy by Traffic Direction and Time Period
(I-95 Cordon Station at Claymont)

Survey Period	One Occupant	% of Total	Two Occupants	% of Total	Three Occupants	% of Total	Four Occupants	% of Total	Five+ Occupants	% of Total	Total Passenger Vehicles	Average Vehicle Occupancy
Inbound												
6:30 a.m. - 8:30 a.m.	39	88.6%	4	9.1%	1	2.3%	0	0.0%	0	0.0%	44	1.14
8:30 a.m. - 10:30 a.m.	65	84.4%	9	11.7%	3	3.9%	0	0.0%	0	0.0%	77	1.19
Subtotal	**104**	**86.0%**	**13**	**10.7%**	**4**	**3.3%**	**0**	**0.0%**	**0**	**0.0%**	**121**	**1.17**
10:30 a.m. - 12:00 p.m.	51	69.9%	16	21.9%	6	8.2%	0	0.0%	0	0.0%	73	1.38
12:00 p.m. - 1:00 p.m.	51	82.3%	9	14.5%	1	1.6%	1	1.6%	0	0.0%	62	1.23
Subtotal	**102**	**75.6%**	**25**	**18.5%**	**7**	**5.2%**	**1**	**0.7%**	**0**	**0.0%**	**135**	**1.31**
1:00 p.m. - 2:30 p.m.	55	70.5%	20	25.6%	1	1.3%	1	1.3%	1	1.3%	78	1.37
2:30 p.m. - 4:30 p.m.	41	70.7%	12	20.7%	2	3.4%	2	3.4%	1	1.7%	58	1.45
Subtotal	**96**	**70.6%**	**32**	**23.5%**	**3**	**2.2%**	**3**	**2.2%**	**2**	**1.5%**	**136**	**1.33**
4:30 p.m. - 6:00 p.m.	93	86.1%	14	13.0%	1	0.9%	0	0.0%	0	0.0%	108	1.15
6:00 p.m. - 8:00 p.m.	17	65.4%	5	19.2%	2	7.7%	2	7.7%	0	0.0%	26	1.58
Subtotal	**110**	**82.1%**	**19**	**14.2%**	**3**	**2.2%**	**2**	**1.5%**	**0**	**0.0%**	**134**	**1.23**
Outbound												
6:30 a.m. - 8:30 a.m.	92	87.6%	9	8.6%	3	2.9%	1	1.0%	0	0.0%	105	1.17
8:30 a.m. - 10:30 a.m.	53	93.0%	3	5.3%	1	1.8%	0	0.0%	0	0.0%	57	1.09
Subtotal	**145**	**89.5%**	**12**	**7.4%**	**4**	**2.5%**	**1**	**0.6%**	**0**	**0.0%**	**162**	**1.14**
10:30 a.m. - 12:00 p.m.	40	50.0%	32	40.0%	2	2.5%	5	6.3%	1	1.3%	80	1.69
12:00 p.m. - 1:00 p.m.	32	54.2%	22	37.3%	3	5.1%	2	3.4%	0	0.0%	59	1.58
Subtotal	**72**	**51.8%**	**54**	**38.8%**	**5**	**3.6%**	**7**	**5.0%**	**1**	**0.7%**	**139**	**1.60**
1:00 p.m. - 2:30 p.m.	21	65.6%	7	21.9%	2	6.3%	2	6.3%	0	0.0%	32	1.53
2:30 p.m. - 4:30 p.m.	33	68.8%	10	20.8%	4	8.3%	1	2.1%	0	0.0%	48	1.44
Subtotal	**54**	**67.5%**	**17**	**21.3%**	**6**	**7.5%**	**3**	**3.8%**	**0**	**0.0%**	**80**	**1.48**
4:30 p.m. - 6:00 p.m.	67	81.7%	10	12.2%	5	6.1%	0	0.0%	0	0.0%	82	1.24
6:00 p.m. - 8:00 p.m.	22	68.8%	7	21.9%	2	6.3%	0	0.0%	1	3.1%	32	1.52
Subtotal	**89**	**78.1%**	**17**	**14.9%**	**7**	**6.1%**	**0**	**0.0%**	**1**	**0.9%**	**114**	**1.26**
TOTAL	**772**	**75.6%**	**189**	**18.5%**	**39**	**3.8%**	**17**	**1.7%**	**4**	**0.4%**	**1021**	**1.33**

Table A-12. Average Vehicle Occupancy by Trip Purpose
(I-95 Cordon Station at Claymont)

Trip Purpose	Auto (Persons Per Vehicle)	Van/ Station Wagon (Persons Per Vehicle)	SUV (Persons Per Vehicle)	Total (Persons Per Vehicle)
Work	1.12	1.37	1.10	1.15
School	1.18	2.00	1.67	1.38
Eat Meal	1.20	2.00	--	1.43
Shopping	1.56	2.00	1.56	1.63
Social/Recreation	1.66	2.00	1.75	1.70
Medical	1.67	2.00	1.25	1.71
Visitor/Tourist	1.53	1.50	2.33	1.64
Other	1.28	2.50	2.25	1.52
All Purposes	**1.27**	**1.67**	**1.38**	**1.33**

Table A-13. External-Internal and Internal-External Trip Length Frequency Distribution Within The DVRPC Region
(I-95 Cordon Station at Claymont)

Trip Length (Miles)	Home-Based Work Trips		Passenger Vehicle Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
<1	6	1.6%	7	0.9%	0	0.0%
1-2	20	5.4%	49	6.0%	5	3.6%
2-3	9	2.4%	11	1.3%	1	0.7%
3-4	14	3.8%	35	4.3%	6	4.3%
4-5	11	2.9%	32	3.9%	3	2.2%
5-6	6	1.6%	14	1.7%	2	1.4%
6-7	7	1.9%	13	1.6%	5	3.6%
7-8	16	4.3%	31	3.8%	4	2.9%
8-10	20	5.4%	45	5.5%	3	2.2%
10-12	18	4.8%	29	3.5%	5	3.6%
12-14	20	5.4%	65	8.0%	8	5.8%
14-16	30	8.0%	70	8.6%	7	5.1%
16-18	28	7.5%	82	10.0%	10	7.2%
18-20	50	13.4%	102	12.5%	25	18.1%
20-23	26	7.0%	71	8.7%	13	9.4%
23-26	15	4.0%	27	3.3%	6	4.3%
26-29	26	7.0%	42	5.1%	11	8.0%
29-32	22	5.9%	32	3.9%	7	5.1%
32-36	8	2.1%	17	2.1%	8	5.8%
36-40	5	1.3%	16	2.0%	5	3.6%
40-45	9	2.4%	14	1.7%	3	2.2%
45-50	1	0.3%	5	0.6%	1	0.7%
50-60	6	1.6%	8	1.0%	0	0.0%
60-70	0	0.0%	0	0.0%	0	0.0%
70-80	0	0.0%	0	0.0%	0	0.0%
> 80	0	0.0%	0	0.0%	0	0.0%
Average Trip Length	**17.13**	**100%**	**16.55**	**100%**	**19.12**	**100%**

Table A-14. County Where Trucks Are Garaged or Parked When Not in Service
(I-95 Cordon Station at Claymont)

County	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Bucks	5	5.4%	6	6.9%	11	6.1%
Chester	2	2.2%	2	2.3%	4	2.2%
Delaware	9	9.7%	10	11.5%	19	10.6%
Montgomery	2	2.2%	1	1.1%	3	1.7%
Philadelphia	12	12.9%	7	8.0%	19	10.6%
Other PA	9	9.7%	5	5.7%	14	7.8%
Subtotal	**39**	**41.9%**	**31**	**35.6%**	**70**	**38.9%**
Burlington	1	1.1%	6	6.9%	7	3.9%
Camden	6	6.5%	7	8.0%	13	7.2%
Gloucester	3	3.2%	6	6.9%	9	5.0%
Mercer	0	0.0%	1	1.1%	1	0.6%
Other NJ	6	6.5%	3	3.4%	9	5.0%
Subtotal	**16**	**17.2%**	**23**	**26.4%**	**39**	**21.7%**
Delaware	3	3.2%	2	2.3%	5	2.8%
Maryland	4	4.3%	3	3.4%	7	3.9%
Other State	31	33.3%	28	32.2%	59	32.8%
Subtotal	**38**	**40.9%**	**33**	**37.9%**	**71**	**39.4%**
TOTAL	**93**	**100%**	**87**	**100%**	**180**	**100%**

Table A-15. Type of Commodities Carried by Trucks
(I-95 Cordon Station at Claymont)

Commodity Carried	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Empty	16	17.2%	14	16.1%	30	16.7%
Manufactured Products	18	19.4%	8	9.2%	26	14.4%
Petroleum Products	2	2.2%	0	0.0%	2	1.1%
Agricultural Products	3	3.2%	3	3.4%	6	3.3%
Building Materials	11	11.8%	21	24.1%	32	17.8%
Refrigerated Products	11	11.8%	5	5.7%	16	8.9%
Retail Store Merchandise	8	8.6%	11	12.6%	19	10.6%
Parcels	2	2.2%	1	1.1%	3	1.7%
Other	22	23.7%	24	27.6%	46	25.6%
TOTAL	**93**	**100%**	**87**	**100%**	**180**	**100%**

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APPENDIX B

Survey Responses for I-495 Cordon Station at Claymont, New Castle County, Delaware

Table B-1. Daily Vehicle Classification Traffic Counts
(I-495 Cordon Station at Claymont)

Hour of Day	Hourly Counts	% of Total	Vehicle Type	% of Total
12 am - 1 am	731	1.5%	1	1.1%
1 am - 2 am	666	1.4%	2	75.6%
2 am - 3 am	700	1.4%	3	10.6%
3 am - 4 am	734	1.5%	4	1.0%
4 am - 5 am	1036	2.1%	5	2.5%
5 am - 6 am	1653	3.4%	6	1.1%
6 am - 7 am	3349	6.9%	7	0.2%
7 am - 8 am	4016	8.3%	8	1.0%
8 am - 9 am	3153	6.5%	9	6.5%
9 am -10 am	2294	4.7%	10	0.1%
10 am -11 am	2070	4.3%	11	0.1%
11 am -12 pm	2296	4.7%	12	0.0%
12 pm - 1 pm	2029	4.2%	13	0.0%
1 pm - 2 pm	2153	4.4%		
2 pm - 3 pm	2753	5.7%		
3 pm - 4 pm	3259	6.7%		
4 pm - 5 pm	3554	7.3%		
5 pm - 6 pm	3732	7.7%		
6 pm - 7 pm	2378	4.9%		
7 pm - 8 pm	1532	3.2%		
8 pm - 9 pm	1252	2.6%		
9 pm -10 pm	1084	2.2%		
10 pm -11 pm	1173	2.4%		
11 pm -12 am	914	1.9%		
TOTAL	**48511**	**100%**		

Legend

1. Motorcycle, Bicycle
2. Cars Trailers
3. Two Axle Long
4. Buses
5. Two Axle, Six Tire
6. Three Axle Single
7. Four Axle Single
8. Less Than Five Axle Double
9. Five Axle Double
10. Greater Than Five Axle Double
11. Less Than Six Axle Multi
12. Six Axle Multi
13. Greater Than Six Axle Multi

Table B-2. Survey Interviews at I-495 by Survey Period
(I-495 Cordon Station at Claymont)

Survey Period	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Surveys	% of Total	No. of Surveys	% of Total	No. of Surveys	% of Total
Morning Shift						
6:30 a.m. - 8:30 a.m.	94	15.5%	77	12.6%	171	14.0%
8:30 a.m. - 10:30 a.m.	102	16.9%	92	15.0%	194	15.9%
Subtotal	**196**	**32.4%**	**169**	**27.6%**	**365**	**30.0%**
10:30 a.m. - 12:00 p.m.	93	15.4%	91	14.8%	184	15.1%
12:00 p.m. - 1:00 p.m.	81	13.4%	76	12.4%	157	12.9%
Subtotal	**174**	**28.8%**	**167**	**27.2%**	**341**	**28.0%**
Evening Shift						
1:00 p.m. - 2:30 p.m.	49	8.1%	90	14.7%	139	11.4%
2:30 p.m. - 4:30 p.m.	71	11.7%	70	11.4%	141	11.6%
Subtotal	**120**	**19.8%**	**160**	**26.1%**	**280**	**23.0%**
4:30 p.m. - 6:00 p.m.	84	13.9%	87	14.2%	171	14.0%
6:00 p.m. - 8:00 p.m.	31	5.1%	30	4.9%	61	5.0%
Subtotal	**115**	**19.0%**	**117**	**19.1%**	**232**	**19.0%**
TOTAL	**605**	**100%**	**613**	**100%**	**1218**	**100%**

Table B-3. Place of Vehicle Trip Origin by Municipality
(I-495 Cordon Station at Claymont)

Municipality of Trip Origin	Home-Based Trips No. of Trips	Home-Based Trips % of Total	Total Trips No. of Trips	Total Trips % of Total	Truck Trips No. of Trips	Truck Trips % of Total
Inbound Trips						
1. Brandywine	65	21.9%	124	21.6%	18	17.3%
2. New Castle	44	14.8%	86	15.0%	18	17.3%
3. Wilmington	24	8.1%	50	8.7%	8	7.7%
4. Baltimore	16	5.4%	37	6.4%	11	10.6%
5. Upper Christiana	17	5.7%	28	4.9%	2	1.9%
6. Pike Creek-Central	16	5.4%	26	4.5%	4	3.8%
7. Central Pencader	13	4.4%	23	4.0%	3	2.9%
8. Dover	10	3.4%	17	3.0%	2	1.9%
9. Greater Newark	11	3.7%	17	3.0%	2	1.9%
10. Lower Christiana	8	2.7%	14	2.4%	0	0.0%
11. Washington	2	0.7%	10	1.7%	2	1.9%
12. Ocean City, MD	4	1.3%	10	1.7%	0	0.0%
13. Bel Air, MD	4	1.3%	7	1.2%	2	1.9%
14. Red Lion	2	0.7%	6	1.0%	3	2.9%
15. Other	61	20.5%	120	20.9%	29	27.9%
TOTAL	**297**	**100%**	**575**	**100%**	**104**	**100%**
Outbound Trips						
1. Philadelphia	101	32.1%	185	31.3%	34	36.6%
2. Chester	17	5.4%	40	6.8%	4	4.3%
3. Aston	16	5.1%	26	4.4%	0	0.0%
4. Lower Chichester	13	4.1%	23	3.9%	1	1.1%
5. Ridley	9	2.9%	20	3.4%	3	3.2%
6. Prospect Park	11	3.5%	20	3.4%	2	2.2%
7. Lower Merion	9	2.9%	16	2.7%	3	3.2%
8. Media	12	3.8%	15	2.5%	1	1.1%
9. Upper Chichester	8	2.5%	14	2.4%	1	1.1%
10. Bristol	6	1.9%	11	1.9%	3	3.2%
11. Upper Merion	6	1.9%	11	1.9%	2	2.2%
12. Tinicum	5	1.6%	10	1.7%	0	0.0%
13. Radnor	6	1.9%	7	1.2%	1	1.1%
14. Upper Dublin	0	0.0%	7	1.2%	0	0.0%
15. Other	96	30.5%	186	31.5%	38	40.9%
TOTAL	**315**	**100%**	**591**	**100%**	**93**	**100%**

Table B-4. Place of Vehicle Trip Destination by Municipality
(I-95 Cordon Station at Claymont)

Municipality of Trip Destination	Home-Based Trips No. of Trips	Home-Based Trips % of Total	Total Trips No. of Trips	Total Trips % of Total	Truck Trips No. of Trips	Truck Trips % of Total
Inbound Trips						
1. Philadelphia	117	38.9%	200	33.7%	31	27.4%
2. Chester	9	3.0%	19	3.2%	4	3.5%
3. Upper Chichester	9	3.0%	18	3.0%	4	3.5%
4. Aston	8	2.7%	16	2.7%	2	1.8%
5. Lower Merion	9	3.0%	14	2.4%	3	2.7%
6. Upper Merion	7	2.3%	13	2.2%	1	0.9%
7. Ridley	2	0.7%	11	1.9%	2	1.8%
8. Bensalem	4	1.3%	10	1.7%	1	0.9%
9. Brookhaven	3	1.0%	9	1.5%	1	0.9%
10. Media	7	2.3%	9	1.5%	0	0.0%
11. Middletown	4	1.3%	8	1.3%	2	1.8%
12. Plymouth	6	2.0%	8	1.3%	0	0.0%
13. Tinicum	4	1.3%	8	1.3%	4	3.5%
14. Upland	6	2.0%	8	1.3%	1	0.9%
15. Other	106	35.2%	243	40.9%	57	50.4%
TOTAL	**301**	**100%**	**594**	**100%**	**113**	**100%**
Outbound Trips						
1. Brandywine	81	26.0%	147	25.0%	15	16.0%
2. Wilmington	33	10.6%	72	12.2%	14	14.9%
3. New Castle	32	10.3%	56	9.5%	4	4.3%
4. Pike Creek-Central	27	8.7%	45	7.6%	4	4.3%
5. Baltimore	14	4.5%	26	4.4%	5	5.3%
6. Lower Christiana	14	4.5%	24	4.1%	5	5.3%
7. Central Pencader	15	4.8%	24	4.1%	4	4.3%
8. Upper Christiana	8	2.6%	20	3.4%	3	3.2%
9. Greater Newark	11	3.5%	17	2.9%	1	1.1%
10. Red Lion	4	1.3%	13	2.2%	2	2.1%
11. Washington	3	1.0%	11	1.9%	4	4.3%
12. Dover	7	2.3%	11	1.9%	1	1.1%
13. District 3, Elkton	6	1.9%	11	1.9%	2	2.1%
14. Millville	7	2.3%	10	1.7%	1	1.1%
15. Other	49	15.8%	102	17.3%	29	30.9%
TOTAL	**311**	**100%**	**589**	**100%**	**94**	**100%**

Table B-5. Stopping Before Arriving at Final Destination
(I-495 Cordon Station at Claymont)

	Passenger Vehicles			Trucks			Total Vehicles		
	No. of	Vehicles	%	No. of	Vehicles	%	No. of	Vehicles	%
Survey Period	Surveyed	Stopping	Stopping	Surveyed	Stopping	Stopping	Surveyed	Stopping	Stopping
Inbound									
6:30 a.m. - 8:30 a.m.	74	2	2.7%	20	0	0.0%	94	2	2.1%
8:30 a.m. - 10:30 a.m.	84	2	2.4%	18	0	0.0%	102	2	2.0%
Subtotal	**158**	**4**	**2.5%**	**38**	**0**	**0.0%**	**196**	**4**	**2.0%**
10:30 a.m. - 12:00 p.m.	75	5	6.7%	18	0	0.0%	93	5	5.4%
12:00 p.m. - 1:00 p.m.	63	2	3.2%	18	0	0.0%	81	2	2.5%
Subtotal	**138**	**7**	**5.1%**	**36**	**0**	**0.0%**	**174**	**7**	**4.0%**
1:00 p.m. - 2:30 p.m.	41	1	2.4%	8	0	0.0%	49	1	2.0%
2:30 p.m. - 4:30 p.m.	58	0	0.0%	13	0	0.0%	71	0	0.0%
Subtotal	**99**	**1**	**1.0%**	**21**	**0**	**0.0%**	**120**	**1**	**0.8%**
4:30 p.m. - 6:00 p.m.	67	0	0.0%	17	0	0.0%	84	0	0.0%
6:00 p.m. - 8:00 p.m.	28	0	0.0%	3	0	0.0%	31	0	0.0%
Subtotal	**95**	**0**	**0.0%**	**20**	**0**	**0.0%**	**115**	**0**	**0.0%**
Outbound									
6:30 a.m. - 8:30 a.m.	66	1	1.5%	11	0	0.0%	77	1	1.3%
8:30 a.m. - 10:30 a.m.	73	0	0.0%	19	0	0.0%	92	0	0.0%
Subtotal	**139**	**1**	**0.7%**	**30**	**0**	**0.0%**	**169**	**1**	**0.6%**
10:30 a.m. - 12:00 p.m.	74	1	1.4%	17	0	0.0%	91	1	1.1%
12:00 p.m. - 1:00 p.m.	58	2	3.4%	18	0	0.0%	76	2	2.6%
Subtotal	**132**	**3**	**2.3%**	**35**	**0**	**0.0%**	**167**	**3**	**1.8%**
1:00 p.m. - 2:30 p.m.	73	2	2.7%	17	0	0.0%	90	2	2.2%
2:30 p.m. - 4:30 p.m.	57	1	1.8%	13	0	0.0%	70	1	1.4%
Subtotal	**130**	**3**	**2.3%**	**30**	**0**	**0.0%**	**160**	**3**	**1.9%**
4:30 p.m. - 6:00 p.m.	78	1	1.3%	9	0	0.0%	87	1	1.1%
6:00 p.m. - 8:00 p.m.	29	0	0.0%	1	0	0.0%	30	0	0.0%
Subtotal	**107**	**1**	**0.9%**	**10**	**0**	**0.0%**	**117**	**1**	**0.9%**
TOTAL	**998**	**20**	**2.0%**	**220**	**0**	**0.0%**	**1218**	**20**	**1.6%**

Table B-6. Reasons for Using I-495 by Drivers of Passenger Vehicles
(I-495 Cordon Station at Claymont)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	73	38	52.1%	0	0.0%	29	39.7%	1	1.4%	3	4.1%	4	5.5%
8:30 a.m. - 10:30 a.m.	82	39	47.6%	0	0.0%	35	42.7%	5	6.1%	3	3.7%	1	1.2%
Subtotal	**155**	**77**	**49.7%**	**0**	**0.0%**	**64**	**41.3%**	**6**	**3.9%**	**6**	**3.9%**	**5**	**3.2%**
10:30 a.m. - 12:00 p.m.	75	62	82.7%	0	0.0%	13	17.3%	2	2.7%	0	0.0%	0	0.0%
12:00 p.m. - 1:00 p.m.	60	37	61.7%	1	1.7%	21	35.0%	0	0.0%	1	1.7%	0	0.0%
Subtotal	**135**	**99**	**73.3%**	**1**	**0.7%**	**34**	**25.2%**	**2**	**1.5%**	**1**	**0.7%**	**0**	**0.0%**
1:00 p.m. - 2:30 p.m.	36	33	91.7%	0	0.0%	0	0.0%	1	2.8%	0	0.0%	2	5.6%
2:30 p.m. - 4:30 p.m.	51	44	86.3%	2	3.9%	1	2.0%	0	0.0%	5	9.8%	2	3.9%
Subtotal	**87**	**77**	**88.5%**	**2**	**2.3%**	**1**	**1.1%**	**1**	**1.1%**	**5**	**5.7%**	**4**	**4.6%**
4:30 p.m. - 6:00 p.m.	63	54	85.7%	0	0.0%	4	6.3%	0	0.0%	3	4.8%	4	6.3%
6:00 p.m. - 8:00 p.m.	24	16	66.7%	0	0.0%	2	8.3%	0	0.0%	0	0.0%	8	33.3%
Subtotal	**87**	**70**	**80.5%**	**0**	**0.0%**	**6**	**6.9%**	**0**	**0.0%**	**3**	**3.4%**	**12**	**13.8%**
Outbound													
6:30 a.m. - 8:30 a.m.	66	40	60.6%	0	0.0%	17	25.8%	3	4.5%	0	0.0%	6	9.1%
8:30 a.m. - 10:30 a.m.	72	49	68.1%	0	0.0%	14	19.4%	1	1.4%	2	2.8%	6	8.3%
Subtotal	**138**	**89**	**64.5%**	**0**	**0.0%**	**31**	**22.5%**	**4**	**2.9%**	**2**	**1.4%**	**12**	**8.7%**
10:30 a.m. - 12:00 p.m.	74	48	64.9%	0	0.0%	17	23.0%	0	0.0%	0	0.0%	11	14.9%
12:00 p.m. - 1:00 p.m.	58	41	70.7%	0	0.0%	10	17.2%	1	1.7%	0	0.0%	6	10.3%
Subtotal	**132**	**89**	**67.4%**	**0**	**0.0%**	**27**	**20.5%**	**1**	**0.8%**	**0**	**0.0%**	**17**	**12.9%**
1:00 p.m. - 2:30 p.m.	67	47	70.1%	2	3.0%	0	0.0%	25	37.3%	2	3.0%	2	3.0%
2:30 p.m. - 4:30 p.m.	55	50	90.9%	0	0.0%	1	1.8%	12	21.8%	1	1.8%	2	3.6%
Subtotal	**122**	**97**	**79.5%**	**2**	**1.6%**	**1**	**0.8%**	**37**	**30.3%**	**3**	**2.5%**	**4**	**3.3%**
4:30 p.m. - 6:00 p.m.	78	66	84.6%	1	1.3%	0	0.0%	19	24.4%	0	0.0%	10	12.8%
6:00 p.m. - 8:00 p.m.	29	26	89.7%	1	3.4%	1	3.4%	13	44.8%	0	0.0%	1	3.4%
Subtotal	**107**	**92**	**86.0%**	**2**	**1.9%**	**1**	**0.9%**	**32**	**29.9%**	**0**	**0.0%**	**11**	**10.3%**
TOTAL	**963**	**690**	**71.7%**	**7**	**0.7%**	**165**	**17.1%**	**83**	**8.6%**	**20**	**2.1%**	**65**	**6.7%**

Table B-7. Reasons for Using I-495 by Truck Drivers
(I-495 Cordon Station at Claymont)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	19	18	94.7%	0	0.0%	1	5.3%	0	0.0%	0	0.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	18	11	61.1%	0	0.0%	5	27.8%	0	0.0%	1	5.6%	1	5.6%
Subtotal	**37**	**29**	**78.4%**	**0**	**0.0%**	**6**	**16.2%**	**0**	**0.0%**	**1**	**2.7%**	**1**	**2.7%**
10:30 a.m. - 12:00 p.m.	18	14	77.8%	0	0.0%	3	16.7%	0	0.0%	0	0.0%	1	5.6%
12:00 p.m. - 1:00 p.m.	18	16	88.9%	0	0.0%	0	0.0%	0	0.0%	1	5.6%	2	11.1%
Subtotal	**36**	**30**	**83.3%**	**0**	**0.0%**	**3**	**8.3%**	**0**	**0.0%**	**1**	**2.8%**	**3**	**8.3%**
1:00 p.m. - 2:30 p.m.	6	4	66.7%	0	0.0%	1	16.7%	0	0.0%	0	0.0%	1	16.7%
2:30 p.m. - 4:30 p.m.	11	11	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**17**	**15**	**88.2%**	**0**	**0.0%**	**1**	**5.9%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**5.9%**
4:30 p.m. - 6:00 p.m.	15	12	80.0%	0	0.0%	2	13.3%	0	0.0%	0	0.0%	1	6.7%
6:00 p.m. - 8:00 p.m.	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**16**	**12**	**75.0%**	**0**	**0.0%**	**2**	**12.5%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**6.3%**
Outbound													
6:30 a.m. - 8:30 a.m.	11	8	72.7%	0	0.0%	2	18.2%	0	0.0%	0	0.0%	1	9.1%
8:30 a.m. - 10:30 a.m.	17	10	58.8%	0	0.0%	3	17.6%	1	5.9%	1	5.9%	3	17.6%
Subtotal	**28**	**18**	**64.3%**	**0**	**0.0%**	**5**	**17.9%**	**1**	**3.6%**	**1**	**3.6%**	**4**	**14.3%**
10:30 a.m. - 12:00 p.m.	17	7	41.2%	1	5.9%	4	23.5%	1	5.9%	2	11.8%	3	17.6%
12:00 p.m. - 1:00 p.m.	17	9	52.9%	2	11.8%	3	17.6%	1	5.9%	0	0.0%	2	11.8%
Subtotal	**34**	**16**	**47.1%**	**3**	**8.8%**	**7**	**20.6%**	**2**	**5.9%**	**2**	**5.9%**	**5**	**14.7%**
1:00 p.m. - 2:30 p.m.	17	13	76.5%	2	11.8%	0	0.0%	4	23.5%	0	0.0%	1	5.9%
2:30 p.m. - 4:30 p.m.	13	8	61.5%	0	0.0%	0	0.0%	3	23.1%	0	0.0%	3	23.1%
Subtotal	**30**	**21**	**70.0%**	**2**	**6.7%**	**0**	**0.0%**	**7**	**23.3%**	**0**	**0.0%**	**4**	**13.3%**
4:30 p.m. - 6:00 p.m.	8	7	87.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%
6:00 p.m. - 8:00 p.m.	1	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**9**	**8**	**88.9%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**11.1%**
TOTAL	**207**	**149**	**72.0%**	**5**	**2.4%**	**24**	**11.6%**	**10**	**4.8%**	**5**	**2.4%**	**20**	**9.7%**

Table B-8. Major Roads Taken by Drivers to Reach Their Destinations
(I-495 Cordon Station at Claymont)

Roads Used	Passenger Vehicles		Trucks		All Vehicles	
	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound Traffic						
1. I-476	85	35.6%	19	26.0%	104	33.3%
2. I-76	33	13.8%	3	4.1%	36	11.5%
3. US 1	13	5.4%	5	6.8%	18	5.8%
4. I-676	10	4.2%	2	2.7%	12	3.8%
5. US 322	8	3.3%	3	4.1%	11	3.5%
6. PA 291	8	3.3%	3	4.1%	11	3.5%
7. PA 452	8	3.3%	2	2.7%	10	3.2%
8. Other	74	31.0%	36	49.3%	110	35.3%
TOTAL	**239**	**100%**	**73**	**100%**	**312**	**100%**
Outbound Traffic						
1. I-95	138	45.4%	31	39.7%	169	44.2%
2. US 13	39	12.8%	14	17.9%	53	13.9%
3. DE 1	18	5.9%	4	5.1%	22	5.8%
4. DE 141	18	5.9%	1	1.3%	19	5.0%
5. DE 896	11	3.6%	0	0.0%	11	2.9%
6. DE 273	8	2.6%	1	1.3%	9	2.4%
7. I-295	4	1.3%	1	1.3%	5	1.3%
8. Other	68	22.4%	26	33.3%	94	24.6%
TOTAL	**304**	**100%**	**78**	**100%**	**382**	**100%**

Table B-9. Type of Vehicles Used for the Trip
(I-495 Cordon Station at Claymont)

Vehicle Type	Inbound Traffic					Outbound Traffic					
	AM Peak (% of Total)	AM Off-Peak (%. of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Inbound Traffic (% of Total)	AM Peak (% of Total)	AM Off-Peak (% of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Outbound Traffic (% of Total)	TOTAL Traffic (% of Total)
Passenger Vehicles											
Auto	51.8%	42.4%	50.4%	62.3%	50.8%	56.5%	51.2%	53.5%	65.0%	55.9%	53.4%
Van, Sta. Wagon	10.1%	15.9%	8.4%	5.3%	10.5%	8.2%	9.6%	7.6%	6.0%	8.0%	9.2%
SUV	11.1%	13.5%	11.8%	10.5%	11.8%	9.4%	6.6%	13.4%	11.1%	10.0%	10.9%
Other	0.0%	0.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.6%	0.0%	0.2%	0.2%
Subtotal	**72.9%**	**72.4%**	**70.6%**	**78.1%**	**73.3%**	**74.1%**	**67.5%**	**75.2%**	**82.1%**	**74.1%**	**73.7%**
Light Trucks											
Pickup	5.5%	8.2%	13.4%	7.9%	8.3%	8.8%	13.9%	7.6%	10.3%	10.2%	9.2%
Panel	3.0%	1.8%	0.8%	0.0%	1.7%	1.2%	3.0%	0.6%	0.0%	1.3%	1.5%
Single Unit	6.0%	1.2%	4.2%	2.6%	3.7%	2.4%	3.6%	1.9%	0.0%	2.1%	2.9%
Other	0.5%	1.2%	0.0%	0.9%	0.7%	0.0%	1.8%	0.6%	0.0%	0.7%	0.7%
Subtotal	**15.1%**	**12.4%**	**18.5%**	**11.4%**	**14.3%**	**12.4%**	**22.3%**	**10.8%**	**10.3%**	**14.3%**	**14.3%**
Heavy Trucks											
Tractor-Trailer	9.5%	11.8%	10.1%	10.5%	10.5%	12.9%	10.2%	12.1%	7.7%	11.0%	10.7%
Double-Trailer	0.0%	0.0%	0.8%	0.0%	0.2%	0.0%	0.0%	0.6%	0.0%	0.2%	0.2%
Other	2.5%	3.5%	0.0%	0.0%	1.8%	0.6%	0.0%	1.3%	0.0%	0.5%	1.2%
Subtotal	**12.1%**	**15.3%**	**10.9%**	**10.5%**	**12.5%**	**13.5%**	**10.2%**	**14.0%**	**7.7%**	**11.6%**	**12.0%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table B-10. Trip Purpose by Direction
(I-495 Cordon Station at Claymont)

Survey Period	Work (% of Total)	School (% of Total)	Eat Meal (% of Total	Shopping (% of Total)	Social Recreation (% of Total)	Medical (% of Total)	Visitor/ Tourist (% of Total)	Other (% of Total)	All Purposes
Inbound									
6:30 a.m. - 8:30 a.m.	89.0%	1.4%	0.0%	0.0%	1.4%	2.7%	4.1%	1.4%	100%
8:30 a.m. - 10:30 a.m.	67.9%	0.0%	0.0%	0.0%	20.2%	10.7%	0.0%	1.2%	100%
Subtotal	**77.7%**	**0.6%**	**0.0%**	**0.0%**	**11.5%**	**7.0%**	**1.9%**	**1.3%**	**100%**
10:30 a.m. - 12:00 p.m.	42.7%	1.3%	0.0%	10.7%	21.3%	4.0%	18.7%	1.3%	100%
12:00 p.m. - 1:00 p.m.	44.3%	3.3%	0.0%	1.6%	18.0%	4.9%	27.9%	0.0%	100%
Subtotal	**43.4%**	**2.2%**	**0.0%**	**6.6%**	**19.9%**	**4.4%**	**22.8%**	**0.7%**	**100%**
1:00 p.m. - 2:30 p.m.	61.0%	0.0%	0.0%	9.8%	9.8%	0.0%	17.1%	2.4%	100%
2:30 p.m. - 4:30 p.m.	59.6%	0.0%	0.0%	3.5%	14.0%	7.0%	12.3%	3.5%	100%
Subtotal	**60.2%**	**0.0%**	**0.0%**	**6.1%**	**12.2%**	**4.1%**	**14.3%**	**3.1%**	**100%**
4:30 p.m. - 6:00 p.m.	77.6%	1.5%	0.0%	1.5%	16.4%	0.0%	1.5%	1.5%	100%
6:00 p.m. - 8:00 p.m.	71.4%	0.0%	0.0%	7.1%	7.1%	7.1%	0.0%	7.1%	100%
Subtotal	**75.8%**	**1.1%**	**0.0%**	**3.2%**	**13.7%**	**2.1%**	**1.1%**	**3.2%**	**100%**
Outbound									
6:30 a.m. - 8:30 a.m.	95.5%	1.5%	0.0%	0.0%	1.5%	0.0%	1.5%	0.0%	100%
8:30 a.m. - 10:30 a.m.	83.6%	2.7%	0.0%	2.7%	5.5%	0.0%	5.5%	0.0%	100%
Subtotal	**89.2%**	**2.2%**	**0.0%**	**1.4%**	**3.6%**	**0.0%**	**3.6%**	**0.0%**	**100%**
10:30 a.m. - 12:00 p.m.	48.6%	0.0%	2.7%	13.5%	25.7%	5.4%	4.1%	0.0%	100%
12:00 p.m. - 1:00 p.m.	58.6%	3.4%	1.7%	3.4%	19.0%	8.6%	0.0%	5.2%	100%
Subtotal	**53.0%**	**1.5%**	**2.3%**	**9.1%**	**22.7%**	**6.8%**	**2.3%**	**2.3%**	**100%**
1:00 p.m. - 2:30 p.m.	63.0%	0.0%	0.0%	4.1%	19.2%	5.5%	5.5%	2.7%	100%
2:30 p.m. - 4:30 p.m.	67.9%	1.8%	0.0%	3.6%	16.1%	5.4%	1.8%	3.6%	100%
Subtotal	**65.1%**	**0.8%**	**0.0%**	**3.9%**	**17.8%**	**5.4%**	**3.9%**	**3.1%**	**100%**
4:30 p.m. - 6:00 p.m.	70.5%	1.3%	0.0%	2.6%	17.9%	2.6%	3.8%	1.3%	100%
6:00 p.m. - 8:00 p.m.	65.5%	6.9%	3.4%	3.4%	20.7%	0.0%	0.0%	0.0%	100%
Subtotal	**69.2%**	**2.8%**	**0.9%**	**2.8%**	**18.7%**	**1.9%**	**2.8%**	**0.9%**	**100%**
TOTAL	**66.9%**	**1.4%**	**0.4%**	**4.0%**	**14.9%**	**4.1%**	**6.5%**	**1.7%**	**100%**

Table B-11. Vehicle Occupancy by Traffic Direction and Time Period
(I-495 Cordon Station at Claymont)

Survey Period	One Occupant	% of Total	Two Occupants	% of Total	Three Occupants	% of Total	Four Occupants	% of Total	Five+ Occupants	% of Total	Total Passenger Vehicles	Average Vehicle Occupancy
Inbound												
6:30 a.m. - 8:30 a.m.	65	87.8%	9	12.2%	0	0.0%	0	0.0%	0	0.0%	74	1.12
8:30 a.m. - 10:30 a.m.	63	75.0%	20	23.8%	0	0.0%	1	1.2%	0	0.0%	84	1.27
Subtotal	**128**	**81.0%**	**29**	**18.4%**	**0**	**0.0%**	**1**	**0.6%**	**0**	**0.0%**	**158**	**1.20**
10:30 a.m. - 12:00 p.m.	46	61.3%	22	29.3%	5	6.7%	2	2.7%	0	0.0%	75	1.51
12:00 p.m. - 1:00 p.m.	37	59.7%	15	24.2%	8	12.9%	1	1.6%	1	1.6%	62	1.61
Subtotal	**83**	**60.6%**	**37**	**27.0%**	**13**	**9.5%**	**3**	**2.2%**	**1**	**0.7%**	**137**	**1.52**
1:00 p.m. - 2:30 p.m.	31	75.6%	5	12.2%	4	9.8%	1	2.4%	0	0.0%	41	1.39
2:30 p.m. - 4:30 p.m.	47	82.5%	8	14.0%	2	3.5%	0	0.0%	0	0.0%	57	1.21
Subtotal	**78**	**79.6%**	**13**	**13.3%**	**6**	**6.1%**	**1**	**1.0%**	**0**	**0.0%**	**98**	**1.29**
4:30 p.m. - 6:00 p.m.	54	80.6%	11	16.4%	1	1.5%	0	0.0%	1	1.5%	67	1.25
6:00 p.m. - 8:00 p.m.	21	75.0%	6	21.4%	0	0.0%	1	3.6%	0	0.0%	28	1.32
Subtotal	**75**	**78.9%**	**17**	**17.9%**	**1**	**1.1%**	**1**	**1.1%**	**1**	**1.1%**	**95**	**1.22**
Outbound												
6:30 a.m. - 8:30 a.m.	62	93.9%	3	4.5%	1	1.5%	0	0.0%	0	0.0%	66	1.08
8:30 a.m. - 10:30 a.m.	63	86.3%	9	12.3%	1	1.4%	0	0.0%	0	0.0%	73	1.15
Subtotal	**125**	**89.9%**	**12**	**8.6%**	**2**	**1.4%**	**0**	**0.0%**	**0**	**0.0%**	**139**	**1.12**
10:30 a.m. - 12:00 p.m.	50	67.6%	22	29.7%	2	2.7%	0	0.0%	0	0.0%	74	1.35
12:00 p.m. - 1:00 p.m.	43	74.1%	12	20.7%	3	5.2%	0	0.0%	0	0.0%	58	1.31
Subtotal	**93**	**70.5%**	**34**	**25.8%**	**5**	**3.8%**	**0**	**0.0%**	**0**	**0.0%**	**132**	**1.33**
1:00 p.m. - 2:30 p.m.	51	70.8%	18	25.0%	1	1.4%	2	2.8%	0	0.0%	72	1.36
2:30 p.m. - 4:30 p.m.	41	71.9%	12	21.1%	4	7.0%	0	0.0%	0	0.0%	57	1.35
Subtotal	**92**	**71.3%**	**30**	**23.3%**	**5**	**3.9%**	**2**	**1.6%**	**0**	**0.0%**	**129**	**1.36**
4:30 p.m. - 6:00 p.m.	66	84.6%	8	10.3%	4	5.1%	0	0.0%	0	0.0%	78	1.21
6:00 p.m. - 8:00 p.m.	18	62.1%	9	31.0%	1	3.4%	1	3.4%	0	0.0%	29	1.48
Subtotal	**84**	**78.5%**	**17**	**15.9%**	**5**	**4.7%**	**1**	**0.9%**	**0**	**0.0%**	**107**	**1.28**
TOTAL	**758**	**76.2%**	**189**	**19.0%**	**37**	**3.7%**	**9**	**0.9%**	**2**	**0.2%**	**995**	**1.30**

Table B-12. Average Vehicle Occupancy by Trip Purpose
(I-495 Cordon Station at Claymont)

Trip Purpose	Auto (Persons Per Vehicle)	Van/ Station Wagon (Persons Per Vehicle)	SUV (Persons Per Vehicle)	Total (Persons Per Vehicle)
Work	1.10	1.24	1.09	1.13
School	1.25	2.00	1.50	1.36
Eat Meal	1.75	--	--	1.75
Shopping	1.74	3.00	1.80	1.75
Social/Recreation	1.57	1.94	1.63	1.60
Medical	1.62	2.33	1.50	1.61
Visitor/Tourist	1.70	1.43	1.88	1.71
Other	1.80	1.33	1.33	1.61
All Purposes	**1.29**	**1.43**	**1.26**	**1.30**

Table B-13. External-Internal and Internal-External Trip Length Frequency Distribution Within The DVRPC Region

(I-495 Cordon Station at Claymont)

Trip Length (Miles)	Home-Based Work Trips		Passenger Vehicle Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
<1	3	0.8%	5	0.6%	0	0.0%
1-2	17	4.3%	41	4.5%	5	2.8%
2-3	4	1.0%	9	1.0%	3	1.7%
3-4	26	6.6%	64	7.1%	3	1.7%
4-5	12	3.0%	36	4.0%	7	3.9%
5-6	5	1.3%	18	2.0%	1	0.6%
6-7	4	1.0%	12	1.3%	5	2.8%
7-8	18	4.6%	35	3.9%	3	1.7%
8-10	27	6.9%	67	7.4%	11	6.1%
10-12	15	3.8%	27	3.0%	8	4.4%
12-14	28	7.1%	70	7.7%	9	5.0%
14-16	41	10.4%	84	9.3%	20	11.1%
16-18	32	8.1%	69	7.6%	15	8.3%
18-20	58	14.7%	127	14.0%	10	5.6%
20-23	41	10.4%	86	9.5%	21	11.7%
23-26	9	2.3%	35	3.9%	4	2.2%
26-29	17	4.3%	31	3.4%	11	6.1%
29-32	16	4.1%	32	3.5%	12	6.7%
32-36	7	1.8%	23	2.5%	5	2.8%
36-40	8	2.0%	24	2.6%	14	7.8%
40-45	2	0.5%	5	0.6%	8	4.4%
45-50	3	0.8%	6	0.7%	3	1.7%
50-60	1	0.3%	1	0.1%	2	1.1%
60-70	0	0.0%	0	0.0%	0	0.0%
70-80	0	0.0%	0	0.0%	0	0.0%
> 80	0	0.0%	0	0.0%	0	0.0%
Average Trip Length	**15.94**	**100%**	**15.82**	**100%**	**20.50**	**100%**

Table B-14. County Where Trucks Are Garaged or Parked When Not in Service
(I-495 Cordon Station at Claymont)

County	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Bucks	10	8.7%	2	1.9%	12	5.5%
Chester	3	2.6%	1	1.0%	4	1.8%
Delaware	8	7.0%	13	12.4%	21	9.5%
Montgomery	5	4.3%	2	1.9%	7	3.2%
Philadelphia	8	7.0%	13	12.4%	21	9.5%
Other PA	10	8.7%	4	3.8%	14	6.4%
Subtotal	**44**	**38.3%**	**35**	**33.3%**	**79**	**35.9%**
Burlington	1	0.9%	1	1.0%	2	0.9%
Camden	1	0.9%	2	1.9%	3	1.4%
Gloucester	0	0.0%	2	1.9%	2	0.9%
Mercer	0	0.0%	0	0.0%	0	0.0%
Other NJ	8	7.0%	4	3.8%	12	5.5%
Subtotal	**10**	**8.7%**	**9**	**8.6%**	**19**	**8.6%**
Delaware	7	6.1%	10	9.5%	17	7.7%
Maryland	2	1.7%	7	6.7%	9	4.1%
Other State	52	45.2%	44	41.9%	96	43.6%
Subtotal	**61**	**53.0%**	**61**	**58.1%**	**122**	**55.5%**
TOTAL	**115**	**100%**	**105**	**100%**	**220**	**100%**

Table B-15. Type of Commodities Carried by Trucks
(I-495 Cordon Station at Claymont)

Commodity Carried	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Empty	25	21.7%	20	19.0%	45	20.5%
Manufactured Products	20	17.4%	15	14.3%	35	15.9%
Petroleum Products	3	2.6%	4	3.8%	7	3.2%
Agricultural Products	9	7.8%	11	10.5%	20	9.1%
Building Materials	8	7.0%	23	21.9%	31	14.1%
Refrigerated Products	6	5.2%	3	2.9%	9	4.1%
Retail Store Merchandise	11	9.6%	7	6.7%	18	8.2%
Parcels	3	2.6%	4	3.8%	7	3.2%
Other	30	26.1%	18	17.1%	48	21.8%
TOTAL	**115**	**100%**	**105**	**100%**	**220**	**100%**

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APPENDIX C

Survey Responses for I-95 NB on-ramp and SB off ramp at Naamans Road Cordon Station Claymont, New Castle County, Delaware

Table C-1. Daily Vehicle Classification Traffic Counts

(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Hour of Day	Vehicle Type 1	2	3	4	5	6	7	8	9	10	11	12	13	Hourly Counts	% of Total
12 am - 1 am	0	84	10	3	3	0	0	0	5	2	0	0	0	**107**	**0.5%**
1 am - 2 am	2	54	9	1	4	1	0	3	7	0	0	0	0	**81**	**0.4%**
2 am - 3 am	1	41	15	3	7	1	0	3	8	0	0	0	0	**79**	**0.4%**
3 am - 4 am	0	97	21	0	5	0	0	5	10	0	0	0	0	**138**	**0.6%**
4 am - 5 am	0	256	80	1	12	0	0	1	8	0	1	0	0	**359**	**1.6%**
5 am - 6 am	1	693	162	8	23	2	0	5	25	0	0	0	0	**919**	**4.1%**
6 am - 7 am	1	1085	114	8	34	5	1	5	14	2	1	1	0	**1271**	**5.7%**
7 am - 8 am	2	1111	158	8	23	0	0	7	17	0	0	1	0	**1327**	**5.9%**
8 am - 9 am	2	838	168	13	28	1	1	8	10	1	0	0	0	**1070**	**4.8%**
9 am -10 am	3	790	180	9	30	3	1	7	20	1	0	1	0	**1045**	**4.7%**
10 am -11 am	5	908	189	10	45	2	2	7	20	2	1	0	0	**1191**	**5.3%**
11 am -12 pm	2	982	180	3	36	3	3	10	21	1	0	0	1	**1242**	**5.5%**
12 pm - 1 pm	6	993	186	4	34	4	1	1	17	0	0	0	1	**1247**	**5.6%**
1 pm - 2 pm	9	988	198	8	29	3	0	3	12	2	0	1	0	**1253**	**5.6%**
2 pm - 3 pm	2	1223	214	1	30	1	0	5	14	2	1	0	1	**1494**	**6.7%**
3 pm - 4 pm	9	1421	219	3	30	2	0	9	10	3	0	0	0	**1706**	**7.6%**
4 pm - 5 pm	6	1647	194	3	28	0	0	3	8	3	0	0	1	**1893**	**8.4%**
5 pm - 6 pm	7	1489	185	2	28	0	0	5	11	6	0	0	1	**1734**	**7.7%**
6 pm - 7 pm	4	1105	157	2	15	1	0	5	2	1	0	0	0	**1292**	**5.8%**
7 pm - 8 pm	5	888	104	0	9	0	0	2	8	0	1	0	0	**1017**	**4.5%**
8 pm - 9 pm	2	739	89	1	10	1	0	13	14	0	1	0	0	**870**	**3.9%**
9 pm -10 pm	10	509	44	0	5	2	0	6	8	0	0	0	0	**584**	**2.6%**
10 pm -11 pm	0	318	29	2	7	1	0	2	7	0	0	0	0	**366**	**1.6%**
11 pm -12 am	0	132	13	2	2	1	0	3	4	0	0	0	0	**157**	**0.7%**
TOTAL	**79**	**18391**	**2918**	**95**	**477**	**34**	**9**	**118**	**280**	**26**	**6**	**4**	**5**	**22442**	**100%**
% Of Total	**0.4%**	**81.9%**	**13.0%**	**0.4%**	**2.1%**	**0.2%**	**0.0%**	**0.5%**	**1.2%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**100%**	

Legend

1. Motorcycle, Bicycle
2. Cars Trailers
3. Two Axle Long
4. Buses
5. Two Axle, Six Tire
6. Three Axle Single
7. Four Axle Single
8. Less Than Five Axle Double
9. Five Axle Double
10. Greater Than Five Axle Double
11. Less Than Six Axle Multi
12. Six Axle Multi
13. Greater Than Six Axle Multi

Table C-2. Survey Interviews at I-95 Naamans Road Ramps by Survey Period

(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Survey Period	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Surveys	% of Total	No. of Surveys	% of Total	No. of Surveys	% of Total
Morning Shift						
6:30 a.m. - 8:30 a.m.	42	14.4%	51	18.0%	93	16.1%
8:30 a.m. - 10:30 a.m.	30	10.3%	28	9.9%	58	10.1%
Subtotal	**72**	**24.7%**	**79**	**27.8%**	**151**	**26.2%**
10:30 a.m. - 12:00 p.m.	42	14.4%	44	15.5%	86	14.9%
12:00 p.m. - 1:00 p.m.	29	9.9%	28	9.9%	57	9.9%
Subtotal	**71**	**24.3%**	**72**	**25.4%**	**143**	**24.8%**
Evening Shift						
1:00 p.m. - 2:30 p.m.	41	14.0%	34	12.0%	75	13.0%
2:30 p.m. - 4:30 p.m.	29	9.9%	26	9.2%	55	9.5%
Subtotal	**70**	**24.0%**	**60**	**21.1%**	**130**	**22.6%**
4:30 p.m. - 6:00 p.m.	49	16.8%	44	15.5%	93	16.1%
6:00 p.m. - 8:00 p.m.	30	10.3%	29	10.2%	59	10.2%
Subtotal	**79**	**27.1%**	**73**	**25.7%**	**152**	**26.4%**
TOTAL	**292**	**100%**	**284**	**100%**	**576**	**100%**

Table C-3. Place of Vehicle Trip Origin by Municipality

(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Municipality of Trip Origin	Home-Based Trips		Total Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
Inbound Trips						
1. Brandywine	124	83.8%	242	83.2%	41	74.5%
2. Wilmington	7	4.7%	13	4.5%	5	9.1%
3. New Castle	3	2.0%	5	1.7%	2	3.6%
4. West Chester	1	0.7%	3	1.0%	0	0.0%
5. Lower Chichester	1	0.7%	3	1.0%	1	1.8%
6. Chadds Ford	3	2.0%	3	1.0%	0	0.0%
7. Kennett	1	0.7%	2	0.7%	0	0.0%
8. Pike Creek-Central	0	0.0%	2	0.7%	1	1.8%
9. Baltimore	0	0.0%	2	0.7%	0	0.0%
10. Roanoke	0	0.0%	1	0.3%	0	0.0%
11. Selbyville-Frankf	0	0.0%	1	0.3%	0	0.0%
12. Upper Christiana	0	0.0%	1	0.3%	1	1.8%
13. Piedmont	1	0.7%	1	0.3%	0	0.0%
14. District 2, Halls	1	0.7%	1	0.3%	0	0.0%
15. Other	6	4.1%	11	3.8%	4	7.3%
TOTAL	**148**	**100%**	**291**	**100%**	**55**	**100%**
Outbound Trips						
1. Philadelphia	39	26.5%	75	27.0%	14	25.5%
2. Chester	11	7.5%	25	9.0%	4	7.3%
3. Ridley	11	7.5%	16	5.8%	3	5.5%
4. Brookhaven	8	5.4%	12	4.3%	1	1.8%
5. Aston	5	3.4%	8	2.9%	1	1.8%
6. Upland	4	2.7%	7	2.5%	1	1.8%
7. Middletown	3	2.0%	7	2.5%	4	7.3%
8. Upper Chichester	5	3.4%	7	2.5%	0	0.0%
9. Lower Chichester	1	0.7%	6	2.2%	3	5.5%
10. Prospect Park	2	1.4%	6	2.2%	2	3.6%
11. Upper Merion	2	1.4%	5	1.8%	1	1.8%
12. Logan	3	2.0%	4	1.4%	0	0.0%
13. Media	3	2.0%	3	1.1%	0	0.0%
14. Lansdale	2	1.4%	3	1.1%	1	1.8%
15. Other	48	32.7%	94	33.8%	20	36.4%
TOTAL	**147**	**100%**	**278**	**100%**	**55**	**100%**

Table C-4. Place of Vehicle Trip Destination by Municipality
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Municipality of Trip Destination	Home-Based Trips		Total Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
Inbound Trips						
1. Philadelphia	38	17.1%	77	28.1%	11	20.8%
2. Chester	16	7.2%	28	10.2%	0	0.0%
3. Ridley	11	5.0%	17	6.2%	3	5.7%
4. Aston	7	3.2%	10	3.6%	1	1.9%
5. Lower Chichester	4	1.8%	8	2.9%	2	3.8%
6. Cherry Hill	2	0.9%	7	2.6%	1	1.9%
7. Prospect Park	3	1.4%	7	2.6%	2	3.8%
8. Lower Merion	5	2.3%	7	2.6%	0	0.0%
9. Glenolden	5	2.3%	6	2.2%	0	0.0%
10. Brookhaven	2	0.9%	5	1.8%	1	1.9%
11. Bristol	4	1.8%	5	1.8%	0	0.0%
12. Yeadon	5	2.3%	5	1.8%	0	0.0%
13. Upper Chichester	5	2.3%	5	1.8%	1	1.9%
14. Media	4	1.8%	5	1.8%	0	0.0%
15. Other	111	50.0%	82	29.9%	31	58.5%
TOTAL	**222**	**100%**	**274**	**100%**	**53**	**100%**
Outbound Trips						
1. Brandywine	105	78.4%	221	79.2%	39	83.0%
2. Wilmington	14	10.4%	18	6.5%	1	2.1%
3. Chadds Ford	5	3.7%	7	2.5%	0	0.0%
4. New Castle	1	0.7%	7	2.5%	4	8.5%
5. Greater Newark	0	0.0%	2	0.7%	0	0.0%
6. Upper Chichester	1	0.7%	2	0.7%	1	2.1%
7. Upper Christiana	0	0.0%	2	0.7%	0	0.0%
8. Piedmont	1	0.7%	2	0.7%	0	0.0%
9. Lower Christiana	2	1.5%	2	0.7%	0	0.0%
10. Washington	1	0.7%	1	0.4%	0	0.0%
11. Selbyville-Frankf	0	0.0%	1	0.4%	0	0.0%
12. Central Pencader	1	0.7%	1	0.4%	0	0.0%
13. Milford	0	0.0%	1	0.4%	0	0.0%
14. Bethel	1	0.7%	1	0.4%	0	0.0%
15. Other	2	1.5%	11	3.9%	2	4.3%
TOTAL	**134**	**100%**	**279**	**100%**	**47**	**100%**

Table C-5. Stopping Before Arriving at Final Destination
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

	Passenger Vehicles			Trucks			Total Vehicles		
Survey Period	No. of Vehicles Surveyed	Stopping	% Stopping	No. of Vehicles Surveyed	Stopping	% Stopping	No. of Vehicles Surveyed	Stopping	% Stopping
Inbound									
6:30 a.m. - 8:30 a.m.	35	1	2.9%	7	0	0.0%	42	1	2.4%
8:30 a.m. - 10:30 a.m.	25	1	4.0%	5	0	0.0%	30	1	3.3%
Subtotal	**60**	**2**	**3.3%**	**12**	**0**	**0.0%**	**72**	**2**	**2.8%**
10:30 a.m. - 12:00 p.m.	33	0	0.0%	9	0	0.0%	42	0	0.0%
12:00 p.m. - 1:00 p.m.	22	0	0.0%	7	0	0.0%	29	0	0.0%
Subtotal	**55**	**0**	**0.0%**	**16**	**0**	**0.0%**	**71**	**0**	**0.0%**
1:00 p.m. - 2:30 p.m.	33	0	0.0%	8	0	0.0%	41	0	0.0%
2:30 p.m. - 4:30 p.m.	23	2	8.7%	6	0	0.0%	29	2	6.9%
Subtotal	**56**	**2**	**3.6%**	**14**	**0**	**0.0%**	**70**	**2**	**2.9%**
4:30 p.m. - 6:00 p.m.	39	0	0.0%	10	0	0.0%	49	0	0.0%
6:00 p.m. - 8:00 p.m.	24	0	0.0%	6	0	0.0%	30	0	0.0%
Subtotal	**63**	**0**	**0.0%**	**16**	**0**	**0.0%**	**79**	**0**	**0.0%**
Outbound									
6:30 a.m. - 8:30 a.m.	42	2	4.8%	9	0	0.0%	51	2	3.9%
8:30 a.m. - 10:30 a.m.	21	0	0.0%	7	1	14.3%	28	1	3.6%
Subtotal	**63**	**2**	**3.2%**	**16**	**1**	**6.3%**	**79**	**3**	**3.8%**
10:30 a.m. - 12:00 p.m.	34	1	2.9%	10	0	0.0%	44	1	2.3%
12:00 p.m. - 1:00 p.m.	22	1	4.5%	6	1	16.7%	28	2	7.1%
Subtotal	**56**	**2**	**3.6%**	**16**	**1**	**6.3%**	**72**	**3**	**4.2%**
1:00 p.m. - 2:30 p.m.	26	1	3.8%	8	0	0.0%	34	1	2.9%
2:30 p.m. - 4:30 p.m.	23	2	8.7%	3	0	0.0%	26	2	7.7%
Subtotal	**49**	**3**	**6.1%**	**11**	**0**	**0.0%**	**60**	**3**	**5.0%**
4:30 p.m. - 6:00 p.m.	35	2	5.7%	9	1	11.1%	44	3	6.8%
6:00 p.m. - 8:00 p.m.	25	1	4.0%	4	0	0.0%	29	1	3.4%
Subtotal	**60**	**3**	**5.0%**	**13**	**1**	**7.7%**	**73**	**4**	**5.5%**
TOTAL	**462**	**14**	**3.0%**	**114**	**3**	**2.6%**	**576**	**17**	**3.0%**

Table C-6. Reasons for Using I-95 Naaman's Road Ramps by Drivers of Passenger Vehicles
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	33	24	72.7%	8	24.2%	9	27.3%	0	0.0%	1	3.0%	3	9.1%
8:30 a.m. - 10:30 a.m.	22	16	72.7%	0	0.0%	8	36.4%	0	0.0%	0	0.0%	2	9.1%
Subtotal	**55**	**40**	**72.7%**	**8**	**14.5%**	**17**	**30.9%**	**0**	**0.0%**	**1**	**1.8%**	**5**	**9.1%**
10:30 a.m. - 12:00 p.m.	33	26	78.8%	0	0.0%	8	24.2%	0	0.0%	0	0.0%	1	3.0%
12:00 p.m. - 1:00 p.m.	21	13	61.9%	0	0.0%	7	33.3%	0	0.0%	1	4.8%	0	0.0%
Subtotal	**54**	**39**	**72.2%**	**0**	**0.0%**	**15**	**27.8%**	**0**	**0.0%**	**1**	**1.9%**	**1**	**1.9%**
1:00 p.m. - 2:30 p.m.	28	17	60.7%	0	0.0%	6	21.4%	0	0.0%	2	7.1%	5	17.9%
2:30 p.m. - 4:30 p.m.	23	22	95.7%	0	0.0%	1	4.3%	1	4.3%	0	0.0%	0	0.0%
Subtotal	**51**	**39**	**76.5%**	**0**	**0.0%**	**7**	**13.7%**	**1**	**2.0%**	**2**	**3.9%**	**5**	**9.8%**
4:30 p.m. - 6:00 p.m.	32	25	78.1%	0	0.0%	3	9.4%	1	3.1%	2	6.3%	2	6.3%
6:00 p.m. - 8:00 p.m.	18	15	83.3%	0	0.0%	3	16.7%	0	0.0%	0	0.0%	1	5.6%
Subtotal	**50**	**40**	**80.0%**	**0**	**0.0%**	**6**	**12.0%**	**1**	**2.0%**	**2**	**4.0%**	**3**	**6.0%**
Outbound													
6:30 a.m. - 8:30 a.m.	42	37	88.1%	1	2.4%	2	4.8%	0	0.0%	1	2.4%	1	2.4%
8:30 a.m. - 10:30 a.m.	21	10	47.6%	0	0.0%	4	19.0%	3	14.3%	3	14.3%	1	4.8%
Subtotal	**63**	**47**	**74.6%**	**1**	**1.6%**	**6**	**9.5%**	**3**	**4.8%**	**4**	**6.3%**	**2**	**3.2%**
10:30 a.m. - 12:00 p.m.	34	23	67.6%	0	0.0%	8	23.5%	1	2.9%	1	2.9%	1	2.9%
12:00 p.m. - 1:00 p.m.	22	20	90.9%	0	0.0%	2	9.1%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**56**	**43**	**76.8%**	**0**	**0.0%**	**10**	**17.9%**	**1**	**1.8%**	**1**	**1.8%**	**1**	**1.8%**
1:00 p.m. - 2:30 p.m.	24	17	70.8%	2	8.3%	6	25.0%	0	0.0%	1	4.2%	0	0.0%
2:30 p.m. - 4:30 p.m.	23	12	52.2%	3	13.0%	5	21.7%	5	21.7%	0	0.0%	4	17.4%
Subtotal	**47**	**29**	**61.7%**	**5**	**10.6%**	**11**	**23.4%**	**5**	**10.6%**	**1**	**2.1%**	**4**	**8.5%**
4:30 p.m. - 6:00 p.m.	34	23	67.6%	4	11.8%	11	32.4%	0	0.0%	0	0.0%	2	5.9%
6:00 p.m. - 8:00 p.m.	24	15	62.5%	3	12.5%	10	41.7%	0	0.0%	0	0.0%	3	12.5%
Subtotal	**58**	**38**	**65.5%**	**7**	**12.1%**	**21**	**36.2%**	**0**	**0.0%**	**0**	**0.0%**	**5**	**8.6%**
TOTAL	**434**	**315**	**72.6%**	**21**	**4.8%**	**93**	**21.4%**	**11**	**2.5%**	**12**	**2.8%**	**26**	**6.0%**

Table C-7. Reasons for Using I-95 Naaman's Road Ramps by Truck Drivers
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	7	6	85.7%	1	14.3%	1	14.3%	0	0.0%	0	0.0%	1	14.3%
8:30 a.m. - 10:30 a.m.	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**11**	**6**	**54.5%**	**1**	**9.1%**	**1**	**9.1%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**9.1%**
10:30 a.m. - 12:00 p.m.	8	4	50.0%	0	0.0%	3	37.5%	0	0.0%	0	0.0%	2	25.0%
12:00 p.m. - 1:00 p.m.	7	4	57.1%	0	0.0%	2	28.6%	0	0.0%	0	0.0%	1	14.3%
Subtotal	**15**	**8**	**53.3%**	**0**	**0.0%**	**5**	**33.3%**	**0**	**0.0%**	**0**	**0.0%**	**3**	**20.0%**
1:00 p.m. - 2:30 p.m.	8	5	62.5%	0	0.0%	2	25.0%	0	0.0%	0	0.0%	1	12.5%
2:30 p.m. - 4:30 p.m.	6	3	50.0%	0	0.0%	0	0.0%	0	0.0%	1	16.7%	2	33.3%
Subtotal	**14**	**8**	**57.1%**	**0**	**0.0%**	**2**	**14.3%**	**0**	**0.0%**	**1**	**7.1%**	**3**	**21.4%**
4:30 p.m. - 6:00 p.m.	6	3	50.0%	0	0.0%	2	33.3%	0	0.0%	0	0.0%	1	16.7%
6:00 p.m. - 8:00 p.m.	4	2	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	50.0%
Subtotal	**10**	**5**	**50.0%**	**0**	**0.0%**	**2**	**20.0%**	**0**	**0.0%**	**0**	**0.0%**	**3**	**30.0%**
Outbound													
6:30 a.m. - 8:30 a.m.	9	8	88.9%	1	11.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	7	7	100%	1	14.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**16**	**15**	**93.8%**	**2**	**12.5%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	10	7	70.0%	0	0.0%	2	20.0%	0	0.0%	0	0.0%	1	10.0%
12:00 p.m. - 1:00 p.m.	6	2	33.3%	0	0.0%	3	50.0%	0	0.0%	1	16.7%	0	0.0%
Subtotal	**16**	**9**	**56.3%**	**0**	**0.0%**	**5**	**31.3%**	**0**	**0.0%**	**1**	**6.3%**	**1**	**6.3%**
1:00 p.m. - 2:30 p.m.	6	3	50.0%	1	16.7%	3	50.0%	0	0.0%	0	0.0%	1	16.7%
2:30 p.m. - 4:30 p.m.	3	2	66.7%	1	33.3%	0	0.0%	2	66.7%	0	0.0%	3	100%
Subtotal	**9**	**5**	**55.6%**	**2**	**22.2%**	**3**	**33.3%**	**2**	**22.2%**	**0**	**0.0%**	**4**	**44.4%**
4:30 p.m. - 6:00 p.m.	9	7	77.8%	3	33.3%	4	44.4%	0	0.0%	1	11.1%	0	0.0%
6:00 p.m. - 8:00 p.m.	4	2	50.0%	1	25.0%	2	50.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**13**	**9**	**69.2%**	**4**	**30.8%**	**6**	**46.2%**	**0**	**0.0%**	**1**	**7.7%**	**0**	**0.0%**
TOTAL	**104**	**65**	**62.5%**	**9**	**8.7%**	**24**	**23.1%**	**2**	**1.9%**	**3**	**2.9%**	**15**	**14.4%**

Table C-8. Major Roads Taken by Drivers to Reach Their Destinations
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Roads Used	Passenger Vehicles		Trucks		All Vehicles	
	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound Traffic						
1. I-476	34	28.6%	7	14.9%	41	24.7%
2. US 322	18	15.1%	9	19.1%	27	16.3%
3. I-76	8	6.7%	6	12.8%	14	8.4%
4. I-295	8	6.7%	4	8.5%	12	7.2%
5. Kerlin st	9	7.6%	1	2.1%	10	6.0%
6. PA 420	5	4.2%	2	4.3%	7	4.2%
7. PA 291	5	4.2%	2	4.3%	7	4.2%
8. Other	32	26.9%	16	34.0%	48	28.9%
TOTAL	**119**	**100%**	**47**	**100%**	**166**	**100%**
Outbound Traffic						
1. DE 92	29	42.6%	8	38.1%	37	41.6%
2. US 202	13	19.1%	2	9.5%	15	16.9%
3. US 13	5	7.4%	1	4.8%	6	6.7%
4. I-495	1	1.5%	1	4.8%	2	2.2%
5. DE 141	0	0.0%	1	4.8%	1	1.1%
6. DE 896	1	1.5%	0	0.0%	1	1.1%
7. DE 261	1	1.5%	0	0.0%	1	1.1%
8. Other	18	26.5%	8	38.1%	26	29.2%
TOTAL	**68**	**100%**	**21**	**100%**	**89**	**100%**

Table C-9. Type of Vehicles Used for the Trip
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

	Inbound Traffic					Outbound Traffic					
Vehicle Type	AM Peak (% of Total)	AM Off-Peak (%. of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Inbound Traffic (% of Total)	AM Peak (% of Total)	AM Off-Peak (% of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Outbound Traffic (% of Total)	TOTAL Traffic (% of Total)
Passenger Vehicles											
Auto	50.7%	52.1%	53.6%	47.4%	50.9%	59.5%	55.6%	50.0%	57.5%	56.0%	53.4%
Van, Sta. Wagon	13.7%	8.5%	10.1%	14.1%	11.7%	3.8%	11.1%	18.3%	6.8%	9.5%	10.6%
SUV	9.6%	8.5%	7.2%	14.1%	10.0%	5.1%	6.9%	3.3%	4.1%	4.9%	7.5%
Other	1.4%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Subtotal	**75.3%**	**69.0%**	**71.0%**	**75.6%**	**72.9%**	**68.4%**	**73.6%**	**71.7%**	**68.5%**	**70.4%**	**71.7%**
Light Trucks											
Pickup	13.7%	16.9%	11.6%	11.5%	13.4%	12.7%	8.3%	15.0%	16.4%	13.0%	13.2%
Panel	2.7%	0.0%	4.3%	2.6%	2.4%	10.1%	4.2%	8.3%	1.4%	6.0%	4.2%
Single Unit	4.1%	2.8%	4.3%	3.8%	3.8%	1.3%	5.6%	1.7%	2.7%	2.8%	3.3%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal	**20.5%**	**19.7%**	**20.3%**	**17.9%**	**19.6%**	**24.1%**	**18.1%**	**25.0%**	**20.5%**	**21.8%**	**20.7%**
Heavy Trucks											
Tractor-Trailer	2.7%	9.9%	7.2%	3.8%	5.8%	7.6%	6.9%	3.3%	11.0%	7.4%	6.6%
Double-Trailer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	1.4%	1.4%	1.4%	2.6%	1.7%	0.0%	1.4%	0.0%	0.0%	0.4%	1.0%
Subtotal	**4.1%**	**11.3%**	**8.7%**	**6.4%**	**7.6%**	**7.6%**	**8.3%**	**3.3%**	**11.0%**	**7.7%**	**7.7%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table C-10. Trip Purpose by Direction

(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Survey Period	Work (% of Total)	School (% of Total)	Eat Meal (% of Total	Shopping (% of Total)	Social Recreation (% of Total)	Medical (% of Total)	Visitor/ Tourist (% of Total)	Other (% of Total)	All Purposes
Inbound									
6:30 a.m. - 8:30 a.m.	**74.3%**	**14.3%**	**0.0%**	**0.0%**	**5.7%**	**2.9%**	**2.9%**	**0.0%**	100%
8:30 a.m. - 10:30 a.m.	62.5%	4.2%	0.0%	4.2%	12.5%	4.2%	8.3%	4.2%	100%
Subtotal	**69.5%**	**10.2%**	**0.0%**	**1.7%**	**8.5%**	**3.4%**	**5.1%**	**1.7%**	**100%**
10:30 a.m. - 12:00 p.m.	39.4%	0.0%	3.0%	36.4%	6.1%	3.0%	0.0%	12.1%	100%
12:00 p.m. - 1:00 p.m.	40.9%	0.0%	9.1%	31.8%	18.2%	0.0%	0.0%	0.0%	100%
Subtotal	**40.0%**	**0.0%**	**5.5%**	**34.5%**	**10.9%**	**1.8%**	**0.0%**	**7.3%**	**100%**
1:00 p.m. - 2:30 p.m.	27.3%	0.0%	0.0%	51.5%	9.1%	6.1%	6.1%	0.0%	100%
2:30 p.m. - 4:30 p.m.	30.4%	4.3%	0.0%	47.8%	4.3%	0.0%	4.3%	8.7%	100%
Subtotal	**28.6%**	**1.8%**	**0.0%**	**50.0%**	**7.1%**	**3.6%**	**5.4%**	**3.6%**	**100%**
4:30 p.m. - 6:00 p.m.	64.1%	2.6%	0.0%	25.6%	5.1%	2.6%	0.0%	0.0%	100%
6:00 p.m. - 8:00 p.m.	33.3%	0.0%	0.0%	29.2%	25.0%	0.0%	12.5%	0.0%	100%
Subtotal	**52.4%**	**1.6%**	**0.0%**	**27.0%**	**12.7%**	**1.6%**	**4.8%**	**0.0%**	**100%**
Outbound									
6:30 a.m. - 8:30 a.m.	83.3%	0.0%	0.0%	9.5%	2.4%	0.0%	4.8%	0.0%	100%
8:30 a.m. - 10:30 a.m.	66.7%	0.0%	0.0%	23.8%	0.0%	0.0%	4.8%	4.8%	100%
Subtotal	**77.8%**	**0.0%**	**0.0%**	**14.3%**	**1.6%**	**0.0%**	**4.8%**	**1.6%**	**100%**
10:30 a.m. - 12:00 p.m.	24.2%	3.0%	6.1%	45.5%	9.1%	3.0%	9.1%	0.0%	100%
12:00 p.m. - 1:00 p.m.	27.3%	0.0%	9.1%	36.4%	9.1%	9.1%	9.1%	0.0%	100%
Subtotal	**25.5%**	**1.8%**	**7.3%**	**41.8%**	**9.1%**	**5.5%**	**9.1%**	**0.0%**	**100%**
1:00 p.m. - 2:30 p.m.	30.8%	0.0%	3.8%	34.6%	23.1%	3.8%	0.0%	3.8%	100%
2:30 p.m. - 4:30 p.m.	52.2%	0.0%	0.0%	39.1%	4.3%	4.3%	0.0%	0.0%	100%
Subtotal	**40.8%**	**0.0%**	**2.0%**	**36.7%**	**14.3%**	**4.1%**	**0.0%**	**2.0%**	**100%**
4:30 p.m. - 6:00 p.m.	48.6%	0.0%	0.0%	40.0%	11.4%	0.0%	0.0%	0.0%	100%
6:00 p.m. - 8:00 p.m.	40.0%	0.0%	4.0%	48.0%	8.0%	0.0%	0.0%	0.0%	100%
Subtotal	**45.0%**	**0.0%**	**1.7%**	**43.3%**	**10.0%**	**0.0%**	**0.0%**	**0.0%**	**100%**
TOTAL	**48.3%**	**2.0%**	**2.0%**	**30.7%**	**9.1%**	**2.4%**	**3.7%**	**2.0%**	**100%**

Table C-11. Vehicle Occupancy by Traffic Direction and Time Period
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Survey Period	One Occupant	% of Total	Two Occupants	% of Total	Three Occupants	% of Total	Four Occupants	% of Total	Five+ Occupants	% of Total	Total Passenger Vehicles	Average Vehicle Occupancy
Inbound												
6:30 a.m. - 8:30 a.m.	29	82.9%	5	14.3%	1	2.9%	0	0.0%	0	0.0%	35	1.20
8:30 a.m. - 10:30 a.m.	17	70.8%	5	20.8%	1	4.2%	0	0.0%	1	4.2%	24	1.52
Subtotal	**46**	**78.0%**	**10**	**16.9%**	**2**	**3.4%**	**0**	**0.0%**	**1**	**1.7%**	**59**	**1.22**
10:30 a.m. - 12:00 p.m.	26	78.8%	7	21.2%	0	0.0%	0	0.0%	0	0.0%	33	1.21
12:00 p.m. - 1:00 p.m.	16	72.7%	6	27.3%	0	0.0%	0	0.0%	0	0.0%	22	1.27
Subtotal	**42**	**76.4%**	**13**	**23.6%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**55**	**1.24**
1:00 p.m. - 2:30 p.m.	22	66.7%	8	24.2%	1	3.0%	1	3.0%	1	3.0%	33	1.52
2:30 p.m. - 4:30 p.m.	13	56.5%	7	30.4%	3	13.0%	0	0.0%	0	0.0%	23	1.57
Subtotal	**35**	**62.5%**	**15**	**26.8%**	**4**	**7.1%**	**1**	**1.8%**	**1**	**1.8%**	**56**	**1.45**
4:30 p.m. - 6:00 p.m.	30	76.9%	4	10.3%	2	5.1%	2	5.1%	1	2.6%	39	1.46
6:00 p.m. - 8:00 p.m.	13	54.2%	7	29.2%	2	8.3%	2	8.3%	0	0.0%	24	1.71
Subtotal	**43**	**68.3%**	**11**	**17.5%**	**4**	**6.3%**	**4**	**6.3%**	**1**	**1.6%**	**63**	**1.48**
Outbound												
6:30 a.m. - 8:30 a.m.	40	95.2%	2	4.8%	0	0.0%	0	0.0%	0	0.0%	42	1.05
8:30 a.m. - 10:30 a.m.	19	90.5%	1	4.8%	1	4.8%	0	0.0%	0	0.0%	21	1.14
Subtotal	**59**	**93.7%**	**3**	**4.8%**	**1**	**1.6%**	**0**	**0.0%**	**0**	**0.0%**	**63**	**1.08**
10:30 a.m. - 12:00 p.m.	23	67.6%	7	20.6%	2	5.9%	2	5.9%	0	0.0%	34	1.50
12:00 p.m. - 1:00 p.m.	13	59.1%	6	27.3%	1	4.5%	2	9.1%	0	0.0%	22	1.64
Subtotal	**36**	**64.3%**	**13**	**23.2%**	**3**	**5.4%**	**4**	**7.1%**	**0**	**0.0%**	**56**	**1.55**
1:00 p.m. - 2:30 p.m.	18	69.2%	8	30.8%	0	0.0%	0	0.0%	0	0.0%	26	1.31
2:30 p.m. - 4:30 p.m.	20	87.0%	3	13.0%	0	0.0%	0	0.0%	0	0.0%	23	1.13
Subtotal	**38**	**77.6%**	**11**	**22.4%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**49**	**1.22**
4:30 p.m. - 6:00 p.m.	27	77.1%	3	8.6%	4	11.4%	1	2.9%	0	0.0%	35	1.40
6:00 p.m. - 8:00 p.m.	15	60.0%	7	28.0%	2	8.0%	1	4.0%	0	0.0%	25	1.56
Subtotal	**42**	**70.0%**	**10**	**16.7%**	**6**	**10.0%**	**2**	**3.3%**	**0**	**0.0%**	**60**	**1.47**
TOTAL	**341**	**74.0%**	**86**	**18.7%**	**20**	**4.3%**	**11**	**2.4%**	**3**	**0.7%**	**461**	**1.37**

Table C-12. Average Vehicle Occupancy by Trip Purpose
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Trip Purpose	Auto (Persons Per Vehicle)	Van/ Station Wagon (Persons Per Vehicle)	SUV (Persons Per Vehicle)	Total (Persons Per Vehicle)
Work	1.11	1.18	1.28	1.14
School	1.40	1.00	1.00	1.22
Eat Meal	1.50	1.00	4.00	1.78
Shopping	1.49	1.95	1.10	1.52
Social/Recreation	1.66	2.17	2.00	1.76
Medical	1.25	2.33	3.33	2.18
Visitor/Tourist	1.50	3.33	1.33	1.81
Other	1.20	1.00	--	1.11
All Purposes	**1.31**	**1.76**	**1.50**	**1.37**

Table C-13. External-Internal and Internal-External Trip Length Frequency Distribution Within The DVRPC Region

(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Trip Length (Miles)	Home-Based Work Trips		Passenger Vehicle Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
<1	0	0.0%	1	0.2%	1	1.0%
1-2	5	3.8%	17	4.0%	5	5.0%
2-3	1	0.8%	2	0.5%	0	0.0%
3-4	2	1.5%	32	7.5%	4	4.0%
4-5	10	7.5%	40	9.4%	4	4.0%
5-6	5	3.8%	19	4.5%	3	3.0%
6-7	2	1.5%	8	1.9%	6	6.0%
7-8	7	5.3%	14	3.3%	1	1.0%
8-10	14	10.5%	48	11.3%	10	10.0%
10-12	4	3.0%	15	3.5%	5	5.0%
12-14	12	9.0%	31	7.3%	4	4.0%
14-16	11	8.3%	25	5.9%	9	9.0%
16-18	12	9.0%	33	7.8%	4	4.0%
18-20	11	8.3%	34	8.0%	15	15.0%
20-23	13	9.8%	39	9.2%	7	7.0%
23-26	3	2.3%	7	1.7%	4	4.0%
26-29	6	4.5%	17	4.0%	5	5.0%
29-32	8	6.0%	20	4.7%	2	2.0%
32-36	1	0.8%	3	0.7%	6	6.0%
36-40	3	2.3%	11	2.6%	3	3.0%
40-45	1	0.8%	4	0.9%	1	1.0%
45-50	2	1.5%	4	0.9%	1	1.0%
50-60	0	0.0%	0	0.0%	0	0.0%
60-70	0	0.0%	0	0.0%	0	0.0%
70-80	0	0.0%	0	0.0%	0	0.0%
> 80	0	0.0%	0	0.0%	0	0.0%
Average Trip Length	**15.78**	**100%**	**14.44**	**100%**	**16.26**	**100%**

Table C-14. County Where Trucks Are Garaged or Parked When Not in Service

(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

County	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Bucks	3	5.2%	3	5.4%	6	5.3%
Chester	0	0.0%	2	3.6%	2	1.8%
Delaware	12	20.7%	15	26.8%	27	23.7%
Montgomery	3	5.2%	1	1.8%	4	3.5%
Philadelphia	7	12.1%	4	7.1%	11	9.6%
Other PA	4	6.9%	1	1.8%	5	4.4%
Subtotal	**29**	**50.0%**	**26**	**46.4%**	**55**	**48.2%**
Burlington	1	1.7%	0	0.0%	1	0.9%
Camden	5	8.6%	1	1.8%	6	5.3%
Gloucester	4	6.9%	1	1.8%	5	4.4%
Mercer	0	0.0%	0	0.0%	0	0.0%
Other NJ	6	10.3%	5	8.9%	11	9.6%
Subtotal	**16**	**27.6%**	**7**	**12.5%**	**23**	**20.2%**
Delaware	9	15.5%	14	25.0%	23	20.2%
Maryland	2	3.4%	1	1.8%	3	2.6%
Other State	2	3.4%	8	14.3%	10	8.8%
Subtotal	**13**	**22.4%**	**23**	**41.1%**	**36**	**31.6%**
TOTAL	**58**	**100%**	**56**	**100%**	**114**	**100%**

Table C-15. Type of Commodities Carried by Trucks
(I-95 NB on-ramp and SB off-ramp Cordon Station at Naamans Road, Claymont)

Commodity Carried	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Empty	12	21.4%	8	13.8%	20	17.5%
Manufactured Products	7	12.5%	9	15.5%	16	14.0%
Petroleum Products	0	0.0%	2	3.4%	2	1.8%
Agricultural Products	0	0.0%	6	10.3%	6	5.3%
Building Materials	7	12.5%	10	17.2%	17	14.9%
Refrigerated Products	4	7.1%	3	5.2%	7	6.1%
Retail Store Merchandise	7	12.5%	4	6.9%	11	9.6%
Parcels	5	8.9%	0	0.0%	5	4.4%
Other	14	25.0%	16	27.6%	30	26.3%
TOTAL	**56**	**100%**	**58**	**100%**	**114**	**100%**

APPENDIX D

Survey Responses for US 202 Cordon Station north of Pyle Road, Concord Township, Delaware County, Pennsylvania

Table D-1. Daily Vehicle Classification Traffic Counts

(US 202 Cordon Station north of Pyle Road, Concord Township)

Hour of Day	Vehicle Type 1	2	3	4	5	6	7	8	9	10	11	12	13	Hourly Counts	% of Total
12 am - 1 am	2	620	46	2	6	0	0	4	13	0	0	0	0	**693**	**1.7%**
1 am - 2 am	3	307	31	4	7	1	0	3	14	0	0	1	0	**371**	**0.9%**
2 am - 3 am	3	241	28	2	8	1	0	3	11	0	0	0	0	**297**	**0.7%**
3 am - 4 am	1	141	24	1	6	4	0	3	21	0	1	0	0	**202**	**0.5%**
4 am - 5 am	4	102	30	6	9	2	1	1	17	0	1	0	0	**173**	**0.4%**
5 am - 6 am	6	227	40	7	15	4	4	6	21	1	0	1	0	**332**	**0.8%**
6 am - 7 am	6	857	170	15	39	12	1	9	28	0	3	0	1	**1141**	**2.8%**
7 am - 8 am	4	1897	255	16	48	17	9	9	27	0	1	0	0	**2283**	**5.5%**
8 am - 9 am	2	2233	276	18	39	14	13	10	20	17	1	3	0	**2646**	**6.4%**
9 am -10 am	6	1913	307	29	58	27	19	6	22	2	1	0	1	**2391**	**5.8%**
10 am -11 am	4	1614	256	20	57	15	8	10	28	5	0	0	0	**2017**	**4.9%**
11 am -12 pm	8	2069	331	33	64	28	15	18	45	2	0	0	0	**2613**	**6.3%**
12 pm - 1 pm	4	1986	221	22	45	18	11	11	34	3	0	0	0	**2355**	**5.7%**
1 pm - 2 pm	4	1822	277	11	59	26	15	22	18	3	0	0	0	**2257**	**5.5%**
2 pm - 3 pm	7	1907	274	21	67	16	11	18	23	4	1	0	0	**2349**	**5.7%**
3 pm - 4 pm	10	2088	355	19	54	13	2	13	30	2	0	0	1	**2587**	**6.3%**
4 pm - 5 pm	11	2387	372	15	55	15	8	19	17	4	0	1	0	**2904**	**7.0%**
5 pm - 6 pm	6	2451	314	18	44	5	3	14	19	5	1	0	0	**2880**	**7.0%**
6 pm - 7 pm	10	2403	222	7	52	7	5	15	13	2	0	0	0	**2736**	**6.6%**
7 pm - 8 pm	5	2007	216	10	38	5	4	8	14	4	0	1	0	**2312**	**5.6%**
8 pm - 9 pm	3	1642	173	3	36	3	9	9	20	5	1	0	0	**1904**	**4.6%**
9 pm -10 pm	3	1549	155	5	27	5	5	2	13	0	1	0	0	**1765**	**4.3%**
10 pm -11 pm	3	1132	89	3	16	4	0	8	13	0	0	0	0	**1268**	**3.1%**
11 pm -12 am	0	732	61	4	9	2	4	3	8	0	1	0	0	**824**	**2.0%**
TOTAL	**115**	**34327**	**4523**	**291**	**858**	**244**	**147**	**224**	**489**	**59**	**13**	**7**	**3**	**41300**	**100%**
% Of Total	**0.3%**	**83.1%**	**11.0%**	**0.7%**	**2.1%**	**0.6%**	**0.4%**	**0.5%**	**1.2%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**100%**	

Legend

1. Motorcycle, Bicycle
2. Cars Trailers
3. Two Axle Long
4. Buses
5. Two Axle, Six Tire
6. Three Axle Single
7. Four Axle Single
8. Less Than Five Axle Double
9. Five Axle Double
10. Greater Than Five Axle Double
11. Less Than Six Axle Multi
12. Six Axle Multi
13. Greater Than Six Axle Multi

Table D-2. Survey Interviews at US 202 by Survey Period
(US 202 Cordon Station north of Pyle Road, Concord Township)

Survey Period	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Surveys	% of Total	No. of Surveys	% of Total	No. of Surveys	% of Total
Morning Shift						
6:30 a.m. - 8:30 a.m.	131	15.3%	118	14.6%	249	15.0%
8:30 a.m. - 10:30 a.m.	106	12.4%	93	11.5%	199	12.0%
Subtotal	**237**	**27.7%**	**211**	**26.0%**	**448**	**26.9%**
10:30 a.m. - 12:00 p.m.	115	13.5%	90	11.1%	205	12.3%
12:00 p.m. - 1:00 p.m.	86	10.1%	73	9.0%	159	9.5%
Subtotal	**201**	**23.5%**	**163**	**20.1%**	**364**	**21.9%**
Evening Shift						
1:00 p.m. - 2:30 p.m.	116	13.6%	115	14.2%	231	13.9%
2:30 p.m. - 4:30 p.m.	79	9.2%	79	9.8%	158	9.5%
Subtotal	**195**	**22.8%**	**194**	**24.0%**	**389**	**23.4%**
4:30 p.m. - 6:00 p.m.	126	14.7%	137	16.9%	263	15.8%
6:00 p.m. - 8:00 p.m.	96	11.2%	105	13.0%	201	12.1%
Subtotal	**222**	**26.0%**	**242**	**29.9%**	**464**	**27.9%**
TOTAL	**855**	**100%**	**810**	**100%**	**1665**	**100%**

Table D-3. Place of Vehicle Trip Origin by Municipality
(US 202 Cordon Station north of Pyle Road, Concord Township)

Municipality of Trip Origin	Home-Based Trips		Total Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
Inbound Trips						
1. Wilmington	112	27.0%	259	32.0%	24	19.0%
2. Brandywine	132	31.8%	225	27.8%	15	11.9%
3. New Castle	31	7.5%	65	8.0%	19	15.1%
4. Greater Newark	19	4.6%	30	3.7%	6	4.8%
5. Piedmont	22	5.3%	29	3.6%	3	2.4%
6. Lower Christiana	15	3.6%	28	3.5%	6	4.8%
7. Upper Christiana	11	2.7%	17	2.1%	1	0.8%
8. Pike Creek-Central	12	2.9%	15	1.9%	2	1.6%
9. Baltimore	5	1.2%	11	1.4%	1	0.8%
10. Dover	3	0.7%	10	1.2%	7	5.6%
11. Central Pencader	7	1.7%	7	0.9%	0	0.0%
12. Middletown-Odessa	4	1.0%	7	0.9%	2	1.6%
13. Penns Grove	0	0.0%	4	0.5%	4	3.2%
14. Lewes	2	0.5%	4	0.5%	1	0.8%
15. Other	40	9.6%	98	12.1%	35	27.8%
TOTAL	**415**	**100.0%**	**809**	**100.0%**	**126**	**100.0%**
Outbound Trips						
1. Concord	61	12.7%	118	15.1%	14	11.5%
2. Chadds Ford	50	10.4%	93	11.9%	7	5.7%
3. West Goshen	52	10.8%	80	10.2%	18	14.8%
4. West Whiteland	22	4.6%	41	5.2%	11	9.0%
5. Thornbury	28	5.8%	33	4.2%	3	2.5%
6. West Chester	21	4.4%	28	3.6%	3	2.5%
7. Westtown	13	2.7%	25	3.2%	4	3.3%
8. East Whiteland	13	2.7%	24	3.1%	2	1.6%
9. East Goshen	14	2.9%	18	2.3%	0	0.0%
10. Tredyffrin	13	2.7%	16	2.0%	0	0.0%
11. Downingtown	6	1.2%	15	1.9%	9	7.4%
12. Upper Merion	6	1.2%	11	1.4%	1	0.8%
13. Willistown	7	1.5%	10	1.3%	1	0.8%
14. Kennett Square	6	1.2%	10	1.3%	1	0.8%
15. Other	169	35.1%	261	33.3%	48	39.3%
TOTAL	**481**	**100%**	**783**	**100%**	**122**	**100%**

Table D-4. Place of Vehicle Trip Destination by Municipality
(US 202 Cordon Station north of Pyle Road, Concord Township)

Municipality of Trip Destination	Home-Based Trips		Total Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
Inbound Trips						
1. Concord	56	13.3%	129	15.5%	14	11.1%
2. Chadds Ford	64	15.2%	117	14.1%	8	6.3%
3. West Goshen	45	10.7%	72	8.7%	12	9.5%
4. West Chester	25	5.9%	53	6.4%	9	7.1%
5. West Whiteland	18	4.3%	36	4.3%	12	9.5%
6. Thornbury	12	2.8%	32	3.9%	5	4.0%
7. East Whiteland	19	4.5%	28	3.4%	3	2.4%
8. Tredyffrin	16	3.8%	26	3.1%	1	0.8%
9. Westtown	15	3.6%	21	2.5%	2	1.6%
10. East Goshen	9	2.1%	12	1.4%	0	0.0%
11. Upper Merion	6	1.4%	11	1.3%	0	0.0%
12. Malvern	5	1.2%	10	1.2%	1	0.8%
13. Downingtown	5	1.2%	10	1.2%	3	2.4%
14. East Bradford	4	0.9%	9	1.1%	1	0.8%
15. Other	123	29.1%	265	31.9%	55	43.7%
TOTAL	**422**	**100%**	**831**	**100%**	**126**	**100%**
Outbound Trips						
1. Brandywine	191	41.6%	317	42.4%	30	24.8%
2. New Castle	66	14.4%	99	13.3%	23	19.0%
3. Wilmington	55	12.0%	75	10.0%	8	6.6%
4. Lower Christiana	29	6.3%	46	6.2%	7	5.8%
5. Piedmont	28	6.1%	38	5.1%	3	2.5%
6. Pike Creek-Centra	13	2.8%	16	2.1%	0	0.0%
7. Greater Newark	6	1.3%	16	2.1%	3	2.5%
8. Central Pencader	6	1.3%	15	2.0%	5	4.1%
9. Upper Christiana	7	1.5%	13	1.7%	4	3.3%
10. Pike Creek-Central	7	1.5%	10	1.3%	1	0.8%
11. Baltimore	4	0.9%	9	1.2%	4	3.3%
12. District 3, Elkton	3	0.7%	7	0.9%	4	3.3%
13. Dover	0	0.0%	6	0.8%	5	4.1%
14. Christiana	5	1.1%	5	0.7%	0	0.0%
15. Other	39	8.5%	75	10.0%	24	19.8%
TOTAL	**459**	**100%**	**747**	**100%**	**121**	**100%**

Table D-5. Stopping Before Arriving at Final Destination
(US 202 Cordon Station north of Pyle Road, Concord Township)

	Passenger Vehicles			Trucks			Total Vehicles		
Survey Period	No. of Vehicles Surveyed	Vehicles Stopping	% Stopping	No. of Vehicles Surveyed	Vehicles Stopping	% Stopping	No. of Vehicles Surveyed	Vehicles Stopping	% Stopping
Inbound									
6:30 a.m. - 8:30 a.m.	117	0	0.0%	14	0	0.0%	131	0	0.0%
8:30 a.m. - 10:30 a.m.	87	1	1.1%	19	0	0.0%	106	1	0.9%
Subtotal	**204**	**1**	**0.5%**	**33**	**0**	**0.0%**	**237**	**1**	**0.4%**
10:30 a.m. - 12:00 p.m.	92	1	1.1%	23	1	4.3%	115	2	1.7%
12:00 p.m. - 1:00 p.m.	70	0	0.0%	16	1	6.3%	86	1	1.2%
Subtotal	**162**	**1**	**0.6%**	**39**	**2**	**5.1%**	**201**	**3**	**1.5%**
1:00 p.m. - 2:30 p.m.	91	6	6.6%	25	0	0.0%	116	6	5.2%
2:30 p.m. - 4:30 p.m.	62	2	3.2%	17	0	0.0%	79	2	2.5%
Subtotal	**153**	**8**	**5.2%**	**42**	**0**	**0.0%**	**195**	**8**	**4.1%**
4:30 p.m. - 6:00 p.m.	121	11	9.1%	5	0	0.0%	126	11	8.7%
6:00 p.m. - 8:00 p.m.	84	4	4.8%	12	0	0.0%	96	4	4.2%
Subtotal	**205**	**15**	**7.3%**	**17**	**0**	**0.0%**	**222**	**15**	**6.8%**
Outbound									
6:30 a.m. - 8:30 a.m.	97	0	0.0%	21	2	9.5%	118	2	1.7%
8:30 a.m. - 10:30 a.m.	84	2	2.4%	9	0	0.0%	93	2	2.2%
Subtotal	**181**	**2**	**1.1%**	**30**	**2**	**6.7%**	**211**	**4**	**1.9%**
10:30 a.m. - 12:00 p.m.	72	2	2.8%	18	1	5.6%	90	3	3.3%
12:00 p.m. - 1:00 p.m.	65	4	6.2%	8	0	0.0%	73	4	5.5%
Subtotal	**137**	**6**	**4.4%**	**26**	**1**	**3.8%**	**163**	**7**	**4.3%**
1:00 p.m. - 2:30 p.m.	90	0	0.0%	25	0	0.0%	115	0	0.0%
2:30 p.m. - 4:30 p.m.	62	3	4.8%	17	0	0.0%	79	3	3.8%
Subtotal	**152**	**3**	**2.0%**	**42**	**0**	**0.0%**	**194**	**3**	**1.5%**
4:30 p.m. - 6:00 p.m.	128	2	1.6%	9	0	0.0%	137	2	1.5%
6:00 p.m. - 8:00 p.m.	83	0	0.0%	22	0	0.0%	105	0	0.0%
Subtotal	**211**	**2**	**0.9%**	**31**	**0**	**0.0%**	**242**	**2**	**0.8%**
TOTAL	**1405**	**38**	**2.7%**	**260**	**5**	**1.9%**	**1665**	**43**	**2.6%**

Table D-6. Reasons for Using US 202 by Drivers of Passenger Vehicles
(US 202 Cordon Station north of Pyle Road, Concord Township)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	116	96	82.8%	0	0.0%	14	12.1%	2	1.7%	4	3.4%	0	0.0%
8:30 a.m. - 10:30 a.m.	85	71	83.5%	0	0.0%	14	16.5%	0	0.0%	2	2.4%	0	0.0%
Subtotal	**201**	**167**	**83.1%**	**0**	**0.0%**	**28**	**13.9%**	**2**	**1.0%**	**6**	**3.0%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	92	84	91.3%	0	0.0%	5	5.4%	0	0.0%	2	2.2%	1	1.1%
12:00 p.m. - 1:00 p.m.	70	60	85.7%	0	0.0%	9	12.9%	0	0.0%	0	0.0%	1	1.4%
Subtotal	**162**	**144**	**88.9%**	**0**	**0.0%**	**14**	**8.6%**	**0**	**0.0%**	**2**	**1.2%**	**2**	**1.2%**
1:00 p.m. - 2:30 p.m.	89	21	23.6%	0	0.0%	48	53.9%	3	3.4%	10	11.2%	8	9.0%
2:30 p.m. - 4:30 p.m.	62	14	22.6%	0	0.0%	39	62.9%	1	1.6%	11	17.7%	1	1.6%
Subtotal	**151**	**35**	**23.2%**	**0**	**0.0%**	**87**	**57.6%**	**4**	**2.6%**	**21**	**13.9%**	**9**	**6.0%**
4:30 p.m. - 6:00 p.m.	121	9	7.4%	1	0.8%	83	68.6%	3	2.5%	21	17.4%	5	4.1%
6:00 p.m. - 8:00 p.m.	84	22	26.2%	0	0.0%	48	57.1%	0	0.0%	15	17.9%	4	4.8%
Subtotal	**205**	**31**	**15.1%**	**1**	**0.5%**	**131**	**63.9%**	**3**	**1.5%**	**36**	**17.6%**	**9**	**4.4%**
Outbound													
6:30 a.m. - 8:30 a.m.	96	48	50.0%	0	0.0%	42	43.8%	0	0.0%	3	3.1%	3	3.1%
8:30 a.m. - 10:30 a.m.	84	25	29.8%	0	0.0%	53	63.1%	1	1.2%	5	6.0%	0	0.0%
Subtotal	**180**	**73**	**40.6%**	**0**	**0.0%**	**95**	**52.8%**	**1**	**0.6%**	**8**	**4.4%**	**3**	**1.7%**
10:30 a.m. - 12:00 p.m.	72	28	38.9%	0	0.0%	34	47.2%	1	1.4%	3	4.2%	6	8.3%
12:00 p.m. - 1:00 p.m.	65	22	33.8%	0	0.0%	39	60.0%	1	1.5%	4	6.2%	3	4.6%
Subtotal	**137**	**50**	**36.5%**	**0**	**0.0%**	**73**	**53.3%**	**2**	**1.5%**	**7**	**5.1%**	**9**	**6.6%**
1:00 p.m. - 2:30 p.m.	86	82	95.3%	0	0.0%	2	2.3%	0	0.0%	0	0.0%	2	2.3%
2:30 p.m. - 4:30 p.m.	62	59	95.2%	0	0.0%	2	3.2%	0	0.0%	0	0.0%	1	1.6%
Subtotal	**148**	**141**	**95.3%**	**0**	**0.0%**	**4**	**2.7%**	**0**	**0.0%**	**0**	**0.0%**	**3**	**2.0%**
4:30 p.m. - 6:00 p.m.	126	120	95.2%	0	0.0%	4	3.2%	0	0.0%	2	1.6%	0	0.0%
6:00 p.m. - 8:00 p.m.	82	77	93.9%	0	0.0%	4	4.9%	0	0.0%	1	1.2%	0	0.0%
Subtotal	**208**	**197**	**94.7%**	**0**	**0.0%**	**8**	**3.8%**	**0**	**0.0%**	**3**	**1.4%**	**0**	**0.0%**
TOTAL	**1392**	**838**	**60.2%**	**1**	**0.1%**	**440**	**31.6%**	**12**	**0.9%**	**83**	**6.0%**	**35**	**2.5%**

Table D-7. Reasons for Using US 202 by Truck Drivers
(US 202 Cordon Station north of Pyle Road, Concord Township)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	13	13	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	19	16	84.2%	0	0.0%	3	15.8%	1	5.3%	0	0.0%	0	0.0%
Subtotal	**32**	**29**	**90.6%**	**0**	**0.0%**	**3**	**9.4%**	**1**	**3.1%**	**0**	**0.0%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	19	17	89.5%	1	5.3%	1	5.3%	0	0.0%	1	5.3%	0	0.0%
12:00 p.m. - 1:00 p.m.	16	13	81.3%	0	0.0%	2	12.5%	0	0.0%	1	6.3%	0	0.0%
Subtotal	**35**	**30**	**85.7%**	**1**	**2.9%**	**3**	**8.6%**	**0**	**0.0%**	**2**	**5.7%**	**0**	**0.0%**
1:00 p.m. - 2:30 p.m.	25	6	24.0%	0	0.0%	13	52.0%	0	0.0%	3	12.0%	3	12.0%
2:30 p.m. - 4:30 p.m.	17	16	94.1%	1	5.9%	1	5.9%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**42**	**22**	**52.4%**	**1**	**2.4%**	**14**	**33.3%**	**0**	**0.0%**	**3**	**7.1%**	**3**	**7.1%**
4:30 p.m. - 6:00 p.m.	5	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
6:00 p.m. - 8:00 p.m.	12	3	25.0%	0	0.0%	7	58.3%	0	0.0%	2	16.7%	1	8.3%
Subtotal	**17**	**3**	**17.6%**	**0**	**0.0%**	**7**	**41.2%**	**0**	**0.0%**	**2**	**11.8%**	**1**	**5.9%**
Outbound													
6:30 a.m. - 8:30 a.m.	20	11	55.0%	1	5.0%	7	35.0%	0	0.0%	1	5.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	9	2	22.2%	0	0.0%	7	77.8%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**29**	**13**	**44.8%**	**1**	**3.4%**	**14**	**48.3%**	**0**	**0.0%**	**1**	**3.4%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	18	17	94.4%	0	0.0%	0	0.0%	1	5.6%	0	0.0%	0	0.0%
12:00 p.m. - 1:00 p.m.	8	6	75.0%	0	0.0%	1	12.5%	0	0.0%	0	0.0%	1	12.5%
Subtotal	**26**	**23**	**88.5%**	**0**	**0.0%**	**1**	**3.8%**	**1**	**3.8%**	**0**	**0.0%**	**1**	**3.8%**
1:00 p.m. - 2:30 p.m.	25	25	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
2:30 p.m. - 4:30 p.m.	17	17	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**42**	**42**	**100%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
4:30 p.m. - 6:00 p.m.	9	9	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
6:00 p.m. - 8:00 p.m.	22	22	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**31**	**31**	**100%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
TOTAL	**254**	**193**	**76.0%**	**3**	**1.2%**	**42**	**16.5%**	**2**	**0.8%**	**8**	**3.1%**	**5**	**2.0%**

Table D-8. Major Roads Taken by Drivers to Reach Their Destinations
(US 202 Cordon Station north of Pyle Road, Concord Township)

Roads Used	Passenger Vehicles		Trucks		All Vehicles	
	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound Traffic						
1. US 1	101	36.5%	11	13.6%	112	31.3%
2. PA 100	38	13.7%	15	18.5%	53	14.8%
3. I-95	28	10.1%	11	13.6%	39	10.9%
4. US 30	16	5.8%	11	13.6%	27	7.5%
5. I-76 Tpke	9	3.2%	8	9.9%	17	4.7%
6. US 322	13	4.7%	3	3.7%	16	4.5%
7. PA 3	11	4.0%	2	2.5%	13	3.6%
8. Other	61	22.0%	20	24.7%	81	22.6%
TOTAL	**277**	**100%**	**81**	**100%**	**358**	**100%**
Outbound Traffic						
1. I-95	111	56.1%	52	59.1%	163	57.4%
2. US 13	8	4.0%	7	8.0%	15	5.3%
3. DE 141	12	6.1%	2	2.3%	14	4.9%
4. DE 100	10	5.1%	2	2.3%	12	4.2%
5. DE 92	9	4.5%	3	3.4%	12	4.2%
6. DE 896	4	2.0%	1	1.1%	5	1.8%
7. I-295	3	1.5%	1	1.1%	4	1.4%
8. Other	41	20.7%	20	22.7%	59	20.8%
TOTAL	**198**	**100%**	**88**	**100%**	**284**	**100%**

Table D-9. Type of Vehicles Used for the Trip
(US 202 Cordon Station north of Pyle Road, Concord Township)

	Inbound Traffic					Outbound Traffic					
Vehicle Type	AM Peak (% of Total)	AM Off-Peak (%. of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Inbound Traffic (% of Total)	AM Peak (% of Total)	AM Off-Peak (% of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Outbound Traffic (% of Total)	TOTAL Traffic (% of Total)
Passenger Vehicles											
Auto	57.2%	48.5%	50.0%	62.2%	54.8%	59.0%	50.9%	46.9%	62.2%	55.4%	55.1%
Van, Sta. Wagon	8.1%	11.0%	8.2%	11.3%	9.6%	9.0%	12.4%	16.0%	8.7%	11.3%	10.4%
SUV	13.1%	14.0%	14.4%	13.5%	13.7%	11.3%	15.5%	12.4%	10.4%	12.1%	13.0%
Other	0.0%	0.0%	0.5%	0.5%	0.2%	0.5%	0.0%	0.0%	0.0%	0.1%	0.2%
Subtotal	**78.4%**	**73.5%**	**73.2%**	**87.4%**	**78.4%**	**79.7%**	**78.9%**	**75.3%**	**81.3%**	**79.0%**	**78.7%**
Light Trucks											
Pickup	7.6%	7.5%	6.7%	4.5%	6.6%	7.1%	6.8%	5.7%	8.7%	7.2%	6.9%
Panel	0.4%	2.5%	3.6%	2.3%	2.1%	0.5%	1.2%	2.6%	1.7%	1.5%	1.8%
Single Unit	3.4%	3.0%	5.2%	2.7%	3.5%	4.2%	2.5%	5.2%	2.1%	3.5%	3.5%
Other	1.3%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Subtotal	**12.7%**	**13.0%**	**15.5%**	**9.5%**	**12.6%**	**11.8%**	**10.6%**	**13.4%**	**12.4%**	**12.1%**	**12.3%**
Heavy Trucks											
Tractor-Trailer	8.1%	9.0%	9.3%	3.2%	7.3%	5.2%	8.7%	10.8%	6.2%	7.5%	7.4%
Double-Trailer	0.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.5%	0.0%	0.1%	0.1%
Other	0.4%	4.5%	2.1%	0.0%	1.6%	3.3%	1.9%	0.0%	0.0%	1.2%	1.4%
Subtotal	**8.9%**	**13.5%**	**11.3%**	**3.2%**	**9.0%**	**8.5%**	**10.6%**	**11.3%**	**6.2%**	**8.9%**	**9.0%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table D-10. Trip Purpose by Direction
(US 202 Cordon Station north of Pyle Road, Concord Township)

Survey Period	Work (% of Total)	School (% of Total)	Eat Meal (% of Total	Shopping (% of Total)	Social Recreation (% of Total)	Medical (% of Total)	Visitor/ Tourist (% of Total)	Other (% of Total)	All Purposes
Inbound									
6:30 a.m. - 8:30 a.m.	91.4%	1.7%	0.9%	1.7%	2.6%	0.0%	0.9%	0.9%	100%
8:30 a.m. - 10:30 a.m.	72.4%	4.6%	0.0%	2.3%	5.7%	8.0%	3.4%	3.4%	100%
Subtotal	**83.3%**	**3.0%**	**0.5%**	**2.0%**	**3.9%**	**3.4%**	**2.0%**	**2.0%**	**100%**
10:30 a.m. - 12:00 p.m.	40.2%	0.0%	3.3%	30.4%	14.1%	3.3%	7.6%	1.1%	100%
12:00 p.m. - 1:00 p.m.	42.9%	8.6%	8.6%	17.1%	7.1%	4.3%	8.6%	2.9%	100%
Subtotal	**41.4%**	**3.7%**	**5.6%**	**24.7%**	**11.1%**	**3.7%**	**8.0%**	**1.9%**	**100%**
1:00 p.m. - 2:30 p.m.	28.6%	1.1%	8.8%	39.6%	14.3%	3.3%	3.3%	1.1%	100%
2:30 p.m. - 4:30 p.m.	39.3%	1.6%	4.9%	41.0%	3.3%	4.9%	1.6%	3.3%	100%
Subtotal	**32.9%**	**1.3%**	**7.2%**	**40.1%**	**9.9%**	**3.9%**	**2.6%**	**2.0%**	**100%**
4:30 p.m. - 6:00 p.m.	69.4%	1.7%	0.0%	9.9%	9.1%	4.1%	5.8%	0.0%	100%
6:00 p.m. - 8:00 p.m.	46.4%	1.2%	8.3%	14.3%	20.2%	3.6%	4.8%	1.2%	100%
Subtotal	**60.0%**	**1.5%**	**3.4%**	**11.7%**	**13.7%**	**3.9%**	**5.4%**	**0.5%**	**100%**
Outbound									
6:30 a.m. - 8:30 a.m.	89.6%	4.2%	0.0%	2.1%	3.1%	1.0%	0.0%	0.0%	100%
8:30 a.m. - 10:30 a.m.	72.0%	0.0%	0.0%	13.4%	4.9%	7.3%	2.4%	0.0%	100%
Subtotal	**81.5%**	**2.2%**	**0.0%**	**7.3%**	**3.9%**	**3.9%**	**1.1%**	**0.0%**	**100%**
10:30 a.m. - 12:00 p.m.	36.1%	0.0%	2.8%	44.4%	11.1%	0.0%	1.4%	4.2%	100%
12:00 p.m. - 1:00 p.m.	21.5%	1.5%	9.2%	52.3%	9.2%	3.1%	1.5%	1.5%	100%
Subtotal	**29.2%**	**0.7%**	**5.8%**	**48.2%**	**10.2%**	**1.5%**	**1.5%**	**2.9%**	**100%**
1:00 p.m. - 2:30 p.m.	28.9%	0.0%	3.3%	38.9%	18.9%	3.3%	2.2%	4.4%	100%
2:30 p.m. - 4:30 p.m.	48.3%	0.0%	1.7%	24.1%	22.4%	3.4%	0.0%	0.0%	100%
Subtotal	**36.5%**	**0.0%**	**2.7%**	**33.1%**	**20.3%**	**3.4%**	**1.4%**	**2.7%**	**100%**
4:30 p.m. - 6:00 p.m.	53.6%	3.2%	5.6%	18.4%	17.6%	0.8%	0.8%	0.0%	100%
6:00 p.m. - 8:00 p.m.	36.1%	0.0%	13.3%	28.9%	19.3%	1.2%	0.0%	1.2%	100%
Subtotal	**46.6%**	**1.9%**	**8.7%**	**22.6%**	**18.3%**	**1.0%**	**0.5%**	**0.5%**	**100%**
TOTAL	**53.5%**	**1.9%**	**4.2%**	**21.8%**	**11.3%**	**3.1%**	**2.8%**	**1.4%**	**100%**

Table D-11. Vehicle Occupancy by Traffic Direction and Time Period
(US 202 Cordon Station north of Pyle Road, Concord Township)

Survey Period	One Occupant	% of Total	Two Occupants	% of Total	Three Occupants	% of Total	Four Occupants	% of Total	Five+ Occupants	% of Total	Total Passenger Vehicles	Average Vehicle Occupancy
Inbound												
6:30 a.m. - 8:30 a.m.	101	87.1%	10	8.6%	4	3.4%	1	0.9%	0	0.0%	116	1.18
8:30 a.m. - 10:30 a.m.	77	88.5%	9	10.3%	0	0.0%	0	0.0%	1	1.1%	87	1.15
Subtotal	**178**	**87.7%**	**19**	**9.4%**	**4**	**2.0%**	**1**	**0.5%**	**1**	**0.5%**	**203**	**1.14**
10:30 a.m. - 12:00 p.m.	68	73.9%	16	17.4%	5	5.4%	2	2.2%	1	1.1%	92	1.39
12:00 p.m. - 1:00 p.m.	55	78.6%	9	12.9%	3	4.3%	3	4.3%	0	0.0%	70	1.34
Subtotal	**123**	**75.9%**	**25**	**15.4%**	**8**	**4.9%**	**5**	**3.1%**	**1**	**0.6%**	**162**	**1.34**
1:00 p.m. - 2:30 p.m.	56	61.5%	28	30.8%	5	5.5%	2	2.2%	0	0.0%	91	1.48
2:30 p.m. - 4:30 p.m.	46	75.4%	10	16.4%	4	6.6%	0	0.0%	1	1.6%	61	1.36
Subtotal	**102**	**67.1%**	**38**	**25.0%**	**9**	**5.9%**	**2**	**1.3%**	**1**	**0.7%**	**152**	**1.40**
4:30 p.m. - 6:00 p.m.	107	88.4%	12	9.9%	2	1.7%	0	0.0%	0	0.0%	121	1.13
6:00 p.m. - 8:00 p.m.	58	69.0%	15	17.9%	9	10.7%	2	2.4%	0	0.0%	84	1.46
Subtotal	**165**	**80.5%**	**27**	**13.2%**	**11**	**5.4%**	**2**	**1.0%**	**0**	**0.0%**	**205**	**1.27**
Outbound												
6:30 a.m. - 8:30 a.m.	87	89.7%	9	9.3%	1	1.0%	0	0.0%	0	0.0%	97	1.11
8:30 a.m. - 10:30 a.m.	69	82.1%	14	16.7%	0	0.0%	1	1.2%	0	0.0%	84	1.20
Subtotal	**156**	**86.2%**	**23**	**12.7%**	**1**	**0.6%**	**1**	**0.6%**	**0**	**0.0%**	**181**	**1.15**
10:30 a.m. - 12:00 p.m.	45	62.5%	23	31.9%	3	4.2%	1	1.4%	0	0.0%	72	1.44
12:00 p.m. - 1:00 p.m.	43	67.2%	14	21.9%	4	6.3%	3	4.7%	0	0.0%	64	1.48
Subtotal	**88**	**64.7%**	**37**	**27.2%**	**7**	**5.1%**	**4**	**2.9%**	**0**	**0.0%**	**136**	**1.46**
1:00 p.m. - 2:30 p.m.	48	53.3%	32	35.6%	6	6.7%	3	3.3%	1	1.1%	90	1.63
2:30 p.m. - 4:30 p.m.	41	66.1%	15	24.2%	5	8.1%	1	1.6%	0	0.0%	62	1.45
Subtotal	**89**	**58.6%**	**47**	**30.9%**	**11**	**7.2%**	**4**	**2.6%**	**1**	**0.7%**	**152**	**1.53**
4:30 p.m. - 6:00 p.m.	98	76.6%	18	14.1%	9	7.0%	3	2.3%	0	0.0%	128	1.35
6:00 p.m. - 8:00 p.m.	50	60.2%	26	31.3%	2	2.4%	4	4.8%	1	1.2%	83	1.57
Subtotal	**148**	**70.1%**	**44**	**20.9%**	**11**	**5.2%**	**7**	**3.3%**	**1**	**0.5%**	**211**	**1.41**
TOTAL	**1049**	**74.8%**	**260**	**18.5%**	**62**	**4.4%**	**26**	**1.9%**	**5**	**0.4%**	**1402**	**1.34**

Table D-12. Average Vehicle Occupancy by Trip Purpose
(US 202 Cordon Station north of Pyle Road, Concord Township)

Trip Purpose	Auto (Persons Per Vehicle)	Van/ Station Wagon (Persons Per Vehicle)	SUV (Persons Per Vehicle)	Total (Persons Per Vehicle)
Work	1.09	1.11	1.09	1.12
School	1.45	2.00	2.00	1.54
Eat Meal	1.78	1.50	1.90	1.74
Shopping	1.46	1.54	1.54	1.49
Social/Recreation	1.66	2.96	1.88	1.87
Medical	1.54	1.86	1.40	1.56
Visitor/Tourist	1.42	2.00	1.50	1.49
Other	1.35	1.00	1.33	1.34
All Purposes	**1.29**	**1.57**	**1.41**	**1.34**

Table D-13. External-Internal and Internal-External Trip Length Frequency Distribution Within The DVRPC Region

(US 202 Cordon Station north of Pyle Road, Concord Township)

Trip Length (Miles)	Home-Based Work Trips		Passenger Vehicle Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
<1	10	2.1%	56	4.3%	1	0.5%
1-2	21	4.5%	46	3.5%	3	1.4%
2-3	72	15.3%	220	16.8%	26	12.2%
3-4	24	5.1%	88	6.7%	11	5.2%
4-5	8	1.7%	29	2.2%	2	0.9%
5-6	16	3.4%	77	5.9%	10	4.7%
6-7	9	1.9%	36	2.8%	5	2.3%
7-8	29	6.2%	72	5.5%	11	5.2%
8-10	82	17.4%	205	15.7%	41	19.2%
10-12	29	6.2%	69	5.3%	7	3.3%
12-14	51	10.8%	103	7.9%	28	13.1%
14-16	47	10.0%	113	8.6%	27	12.7%
16-18	22	4.7%	55	4.2%	9	4.2%
18-20	14	3.0%	44	3.4%	5	2.3%
20-23	13	2.8%	40	3.1%	12	5.6%
23-26	14	3.0%	26	2.0%	3	1.4%
26-29	6	1.3%	15	1.1%	7	3.3%
29-32	1	0.2%	4	0.3%	2	0.9%
32-36	2	0.4%	6	0.5%	2	0.9%
36-40	0	0.0%	3	0.2%	1	0.5%
40-45	0	0.0%	1	0.1%	0	0.0%
45-50	0	0.0%	0	0.0%	0	0.0%
50-60	1	0.2%	1	0.1%	0	0.0%
60-70	0	0.0%	0	0.0%	0	0.0%
70-80	0	0.0%	0	0.0%	0	0.0%
> 80	0	0.0%	0	0.0%	0	0.0%
Average Trip Length	**10.03**	**100%**	**9.27**	**100%**	**11.46**	**100%**

Table D-14. County Where Trucks Are Garaged or Parked When Not in Service
(US 202 Cordon Station north of Pyle Road, Concord Township)

County	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Bucks	2	1.5%	2	1.6%	4	1.5%
Chester	33	25.2%	18	14.0%	51	19.6%
Delaware	11	8.4%	8	6.2%	19	7.3%
Montgomery	5	3.8%	7	5.4%	12	4.6%
Philadelphia	2	1.5%	2	1.6%	4	1.5%
Other PA	22	16.8%	17	13.2%	39	15.0%
Subtotal	**75**	**57.3%**	**54**	**41.9%**	**129**	**49.6%**
Burlington	1	0.8%	0	0.0%	1	0.4%
Camden	0	0.0%	0	0.0%	0	0.0%
Gloucester	1	0.8%	1	0.8%	2	0.8%
Mercer	0	0.0%	0	0.0%	0	0.0%
Other NJ	7	5.3%	2	1.6%	9	3.5%
Subtotal	**9**	**6.9%**	**3**	**2.3%**	**12**	**4.6%**
Delaware	7	5.3%	13	10.1%	20	7.7%
Maryland	2	1.5%	2	1.6%	4	1.5%
Other State	38	29.0%	57	44.2%	95	36.5%
Subtotal	**47**	**35.9%**	**72**	**55.8%**	**119**	**45.8%**
TOTAL	**131**	**100%**	**129**	**100%**	**260**	**100%**

Table D-15. Type of Commodities Carried by Trucks
(US 202 Cordon Station north of Pyle Road, Concord Township)

Commodity Carried	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Empty	21	16.0%	25	19.4%	46	17.7%
Manufactured Products	12	9.2%	7	5.4%	19	7.3%
Petroleum Products	5	3.8%	5	3.9%	10	3.8%
Agricultural Products	11	8.4%	14	10.9%	25	9.6%
Building Materials	33	25.2%	41	31.8%	74	28.5%
Refrigerated Products	4	3.1%	6	4.7%	10	3.8%
Retail Store Merchandise	12	9.2%	11	8.5%	23	8.8%
Parcels	11	8.4%	3	2.3%	14	5.4%
Other	22	16.8%	17	13.2%	39	15.0%
TOTAL	**131**	**100%**	**129**	**100%**	**260**	**100%**

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APPENDIX E

Survey Responses for PA 41 South Cordon Station north of Kaolin Road, New Garden Township, Chester County, Pennsylvania

Table E-1: Daily Vehicle Classification Traffic Counts
(PA 41 Cordon Station north of Kaolin Rd., New Garden Township)

	Vehicle Type													Hourly	% of
Hour of Day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Counts**	**Total**
12 am - 1 am	0	81	15	1	4	0	2	3	24	0	0	0	0	**130**	**0.7%**
1 am - 2 am	1	35	7	6	0	2	0	2	16	0	0	0	0	**69**	**0.4%**
2 am - 3 am	0	45	9	6	1	1	1	2	26	1	0	0	0	**92**	**0.5%**
3 am - 4 am	0	87	12	7	6	0	4	3	26	0	0	0	0	**145**	**0.8%**
4 am - 5 am	1	99	28	6	9	1	15	2	42	0	0	0	0	**203**	**1.1%**
5 am - 6 am	4	300	110	10	27	1	10	4	57	1	0	0	0	**524**	**2.9%**
6 am - 7 am	8	539	236	6	55	7	7	7	64	1	0	0	0	**930**	**5.2%**
7 am - 8 am	3	743	225	14	49	6	21	11	59	5	0	0	0	**1136**	**6.4%**
8 am - 9 am	2	623	235	14	48	11	18	14	72	1	0	0	2	**1040**	**5.8%**
9 am -10 am	2	492	204	17	45	16	5	8	66	0	0	0	0	**855**	**4.8%**
10 am -11 am	1	510	239	28	45	14	17	10	87	0	0	0	0	**951**	**5.3%**
11 am -12 pm	1	583	181	17	43	14	15	8	77	2	0	0	2	**943**	**5.3%**
12 pm - 1 pm	2	631	206	20	49	11	9	16	80	0	0	0	2	**1026**	**5.8%**
1 pm - 2 pm	2	616	198	13	63	19	10	10	95	0	0	0	1	**1027**	**5.8%**
2 pm - 3 pm	5	668	237	14	53	9	11	17	67	2	0	0	0	**1083**	**6.1%**
3 pm - 4 pm	8	774	311	17	55	12	5	9	65	0	0	1	1	**1258**	**7.1%**
4 pm - 5 pm	5	859	269	12	53	12	0	13	57	0	0	0	1	**1281**	**7.2%**
5 pm - 6 pm	7	1003	251	9	47	2	0	11	42	2	0	0	1	**1375**	**7.7%**
6 pm - 7 pm	4	848	186	5	28	5	0	7	31	0	0	0	0	**1114**	**6.3%**
7 pm - 8 pm	5	598	151	3	23	2	0	5	27	0	0	0	1	**815**	**4.6%**
8 pm - 9 pm	1	489	118	6	11	2	0	4	25	1	0	0	0	**657**	**3.7%**
9 pm -10 pm	4	429	99	1	17	0	0	2	17	0	0	0	0	**569**	**3.2%**
10 pm -11 pm	0	254	54	5	7	1	0	3	28	0	0	0	0	**352**	**2.0%**
11 pm -12 am	5	163	38	5	5	0	0	2	17	0	0	0	0	**235**	**1.3%**
TOTAL	**71**	**11469**	**3619**	**242**	**743**	**148**	**150**	**173**	**1167**	**16**	**0**	**1**	**11**	**17810**	**100%**
% Of Total	**0.4%**	**64.4%**	**20.3%**	**1.4%**	**4.2%**	**0.8%**	**0.8%**	**1.0%**	**6.6%**	**0.1%**	**0.0%**	**0.0%**	**0.1%**	**100%**	

Legend

1. Motorcycle, Bicycle
2. Cars Trailers
3. Two Axle Long
4. Buses
5. Two Axle, Six Tire
6. Three Axle Single
7. Four Axle Single
8. Less Than Five Axle Double
9. Five Axle Double
10. Greater Than Five Axle Double
11. Less Than Six Axle Multi
12. Six Axle Multi
13. Greater Than Six Axle Multi

Table E-2. Survey Interviews at PA 41 by Survey Period
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Survey Period	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Surveys	% of Total	No. of Surveys	% of Total	No. of Surveys	% of Total
Morning Shift						
6:30 a.m. - 8:30 a.m.	71	9.2%	73	9.5%	144	9.3%
8:30 a.m. - 10:30 a.m.	91	11.8%	103	13.4%	194	12.6%
Subtotal	**162**	**20.9%**	**176**	**22.9%**	**338**	**21.9%**
10:30 a.m. - 12:00 p.m.	101	13.0%	108	14.0%	209	13.5%
12:00 p.m. - 1:00 p.m.	81	10.5%	83	10.8%	164	10.6%
Subtotal	**182**	**23.5%**	**191**	**24.8%**	**373**	**24.2%**
Evening Shift						
1:00 p.m. - 2:30 p.m.	115	14.9%	108	14.0%	223	14.5%
2:30 p.m. - 4:30 p.m.	86	11.1%	87	11.3%	173	11.2%
Subtotal	**201**	**26.0%**	**195**	**25.4%**	**396**	**25.7%**
4:30 p.m. - 6:00 p.m.	140	18.1%	114	14.8%	254	16.5%
6:00 p.m. - 8:00 p.m.	89	11.5%	93	12.1%	182	11.8%
Subtotal	**229**	**29.6%**	**207**	**26.9%**	**436**	**28.3%**
TOTAL	**774**	**100.0%**	**769**	**100.0%**	**1543**	**100.0%**

Table E-3. Place of Vehicle Trip Origin by Municipality
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Municipality of Trip Origin	Home-Based Trips		Total Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
Inbound Trips						
1. Piedmont	67	22.5%	163	23.7%	21	15.3%
2. Lower Christiana	49	16.4%	97	14.1%	20	14.6%
3. Pike Creek	40	13.4%	76	11.0%	11	8.0%
4. New Castle	24	8.1%	55	8.0%	17	12.4%
5. Wilmington	13	4.4%	45	6.5%	8	5.8%
6. Brandywine	14	4.7%	37	5.4%	8	5.8%
7. Greater Newark	13	4.4%	31	4.5%	6	4.4%
8. Upper Christiana	7	2.3%	25	3.6%	5	3.6%
9. Ocean City, Md	9	3.0%	20	2.9%	0	0.0%
10. Dover	3	1.0%	13	1.9%	9	6.6%
11. Middletown-Odessa	5	1.7%	11	1.6%	1	0.7%
12. Lewes	7	2.3%	10	1.5%	0	0.0%
13. New Garden	4	1.3%	9	1.3%	4	2.9%
14. Cape May	5	1.7%	7	1.0%	1	0.7%
15. Other	38	12.8%	89	12.9%	26	19.0%
TOTAL	**298**	**100%**	**688**	**100%**	**137**	**100%**
Outbound Trips						
1. New Garden	101	25.4%	175	24.0%	16	12.9%
2. London Grove	57	14.3%	111	15.2%	16	12.9%
3. Avondale	20	5.0%	32	4.4%	7	5.6%
4. Penn	19	4.8%	30	4.1%	1	0.8%
5. Lower Oxford	7	1.8%	19	2.6%	5	4.0%
6. Harrisburg	10	2.5%	18	2.5%	6	4.8%
7. Kennett Square	3	0.8%	16	2.2%	1	0.8%
8. Lancaster	7	1.8%	15	2.1%	5	4.0%
9. Salisbury	3	0.8%	13	1.8%	1	0.8%
10. York	7	1.8%	12	1.6%	2	1.6%
11. West Grove	6	1.5%	11	1.5%	1	0.8%
12. Kennett	7	1.8%	10	1.4%	1	0.8%
13. Franklin	6	1.5%	10	1.4%	2	1.6%
14. Ephrata	2	0.5%	8	1.1%	5	4.0%
15. Other	143	35.9%	248	34.1%	55	44.4%
TOTAL	**398**	**100%**	**728**	**100%**	**124**	**100%**

Table E-4. Place of Vehicle Trip Destination by Municipality
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Municipality of Trip Destination	Home-Based Trips		Total Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
Inbound Trips						
1. New Garden	71	23.1%	163	22.2%	32	20.8%
2. London Grove	44	14.3%	110	15.0%	19	12.3%
3. Avondale	10	3.2%	25	3.4%	2	1.3%
4. Lancaster	8	2.6%	24	3.3%	4	2.6%
5. Harrisburg	13	4.2%	24	3.3%	10	6.5%
6. Penn	6	1.9%	20	2.7%	2	1.3%
7. Kennett Square	6	1.9%	19	2.6%	4	2.6%
8. Manheim	8	2.6%	18	2.5%	6	3.9%
9. York	6	1.9%	18	2.5%	7	4.5%
10. Salisbury	7	2.3%	15	2.0%	4	2.6%
11. East Lampeter	4	1.3%	14	1.9%	2	1.3%
12. West Grove	9	2.9%	13	1.8%	0	0.0%
13. Upper Oxford	9	2.9%	13	1.8%	1	0.6%
14. Lower Oxford	8	2.6%	13	1.8%	3	1.9%
15. Other	99	32.1%	245	33.4%	58	37.7%
TOTAL	**308**	**100%**	**734**	**100%**	**154**	**100%**
Outbound Trips						
1. Piedmont	104	26.5%	168	23.3%	19	15.8%
2. Pike Creek	54	13.8%	108	15.0%	10	8.3%
3. Lower Christiana	61	15.6%	107	14.8%	10	8.3%
4. New Castle	27	6.9%	62	8.6%	17	14.2%
5. Wilmington	33	8.4%	55	7.6%	5	4.2%
6. Brandywine	17	4.3%	27	3.7%	7	5.8%
7. Ocean City, Md	19	4.8%	26	3.6%	0	0.0%
8. Upper Christiana	8	2.0%	24	3.3%	4	3.3%
9. Greater Newark	8	2.0%	22	3.1%	10	8.3%
10. Lewes	14	3.6%	16	2.2%	0	0.0%
11. Dover	3	0.8%	9	1.2%	4	3.3%
12. Middletown- Odessa	4	1.0%	7	1.0%	1	0.8%
13. Wildwood	6	1.5%	6	0.8%	0	0.0%
14. Baltimore	1	0.3%	5	0.7%	3	2.5%
15. Other	33	8.4%	79	11.0%	30	25.0%
TOTAL	**392**	**100%**	**721**	**100%**	**120**	**100%**

Table E-5. Stopping Before Arriving at Final Destination
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

	Passenger Vehicles			Trucks			Total Vehicles		
Survey Period	No. of Surveyed	Vehicles Stopping	% Stopping	No. of Surveyed	Vehicles Stopping	% Stopping	No. of Surveyed	Vehicles Stopping	% Stopping
Inbound									
6:30 a.m. - 8:30 a.m.	48	3	6.3%	23	1	4.3%	71	4	5.6%
8:30 a.m. - 10:30 a.m.	71	5	7.0%	20	3	15.0%	91	8	8.8%
Subtotal	**119**	**8**	**6.7%**	**43**	**4**	**9.3%**	**162**	**12**	**7.4%**
10:30 a.m. - 12:00 p.m.	76	2	2.6%	25	4	16.0%	101	6	5.9%
12:00 p.m. - 1:00 p.m.	64	3	4.7%	17	1	5.9%	81	4	4.9%
Subtotal	**140**	**5**	**3.6%**	**42**	**5**	**11.9%**	**182**	**10**	**5.5%**
1:00 p.m. - 2:30 p.m.	90	5	5.6%	25	0	0.0%	115	5	4.3%
2:30 p.m. - 4:30 p.m.	73	4	5.5%	13	0	0.0%	86	4	4.7%
Subtotal	**163**	**9**	**5.5%**	**38**	**0**	**0.0%**	**201**	**9**	**4.5%**
4:30 p.m. - 6:00 p.m.	109	1	0.9%	31	0	0.0%	140	1	0.7%
6:00 p.m. - 8:00 p.m.	73	0	0.0%	16	0	0.0%	89	0	0.0%
Subtotal	**182**	**1**	**0.5%**	**47**	**0**	**0.0%**	**229**	**1**	**0.4%**
Outbound									
6:30 a.m. - 8:30 a.m.	62	2	3.2%	11	0	0.0%	73	2	2.7%
8:30 a.m. - 10:30 a.m.	78	1	1.3%	25	0	0.0%	103	1	1.0%
Subtotal	**140**	**3**	**2.1%**	**36**	**0**	**0.0%**	**176**	**3**	**1.7%**
10:30 a.m. - 12:00 p.m.	84	0	0.0%	24	0	0.0%	108	0	0.0%
12:00 p.m. - 1:00 p.m.	74	0	0.0%	9	0	0.0%	83	0	0.0%
Subtotal	**158**	**0**	**0.0%**	**33**	**0**	**0.0%**	**191**	**0**	**0.0%**
1:00 p.m. - 2:30 p.m.	83	1	1.2%	25	0	0.0%	108	1	0.9%
2:30 p.m. - 4:30 p.m.	70	1	1.4%	17	0	0.0%	87	1	1.1%
Subtotal	**153**	**2**	**1.3%**	**42**	**0**	**0.0%**	**195**	**2**	**1.0%**
4:30 p.m. - 6:00 p.m.	95	4	4.2%	19	1	5.3%	114	5	4.4%
6:00 p.m. - 8:00 p.m.	79	1	1.3%	14	0	0.0%	93	1	1.1%
Subtotal	**174**	**5**	**2.9%**	**33**	**1**	**3.0%**	**207**	**6**	**2.9%**
TOTAL	**1229**	**33**	**2.7%**	**314**	**10**	**3.2%**	**1543**	**43**	**2.8%**

Table E-6. Reasons for Using PA 41 by Drivers of Passenger Vehicles
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	48	24	50.0%	0	0.0%	24	50.0%	0	0.0%	0	0.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	71	18	25.4%	0	0.0%	41	57.7%	1	1.4%	3	4.2%	8	11.3%
Subtotal	**119**	**42**	**35.3%**	**0**	**0.0%**	**65**	**54.6%**	**1**	**0.8%**	**3**	**2.5%**	**8**	**6.7%**
10:30 a.m. - 12:00 p.m.	75	24	32.0%	0	0.0%	36	48.0%	0	0.0%	5	6.7%	10	13.3%
12:00 p.m. - 1:00 p.m.	64	17	26.6%	0	0.0%	37	57.8%	3	4.7%	5	7.8%	2	3.1%
Subtotal	**139**	**41**	**29.5%**	**0**	**0.0%**	**73**	**52.5%**	**3**	**2.2%**	**10**	**7.2%**	**12**	**8.6%**
1:00 p.m. - 2:30 p.m.	90	49	54.4%	0	0.0%	29	32.2%	2	2.2%	9	10.0%	6	6.7%
2:30 p.m. - 4:30 p.m.	73	70	95.9%	0	0.0%	2	2.7%	0	0.0%	0	0.0%	1	1.4%
Subtotal	**163**	**119**	**73.0%**	**0**	**0.0%**	**31**	**19.0%**	**2**	**1.2%**	**9**	**5.5%**	**7**	**4.3%**
4:30 p.m. - 6:00 p.m.	109	107	98.2%	0	0.0%	1	0.9%	1	0.9%	0	0.0%	0	0.0%
6:00 p.m. - 8:00 p.m.	72	42	58.3%	0	0.0%	30	41.7%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**181**	**149**	**82.3%**	**0**	**0.0%**	**31**	**17.1%**	**1**	**0.6%**	**0**	**0.0%**	**0**	**0.0%**
Outbound													
6:30 a.m. - 8:30 a.m.	61	59	96.7%	0	0.0%	2	3.3%	0	0.0%	0	0.0%	1	1.6%
8:30 a.m. - 10:30 a.m.	78	76	97.4%	0	0.0%	2	2.6%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**139**	**135**	**97.1%**	**0**	**0.0%**	**4**	**2.9%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**0.7%**
10:30 a.m. - 12:00 p.m.	83	78	94.0%	0	0.0%	4	4.8%	0	0.0%	0	0.0%	1	1.2%
12:00 p.m. - 1:00 p.m.	74	68	91.9%	0	0.0%	6	8.1%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**157**	**146**	**93.0%**	**0**	**0.0%**	**10**	**6.4%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**0.6%**
1:00 p.m. - 2:30 p.m.	83	81	97.6%	0	0.0%	0	0.0%	2	2.4%	0	0.0%	0	0.0%
2:30 p.m. - 4:30 p.m.	70	47	67.1%	0	0.0%	16	22.9%	0	0.0%	4	5.7%	3	4.3%
Subtotal	**153**	**128**	**83.7%**	**0**	**0.0%**	**16**	**10.5%**	**2**	**1.3%**	**4**	**2.6%**	**3**	**2.0%**
4:30 p.m. - 6:00 p.m.	92	71	77.2%	0	0.0%	17	18.5%	3	3.3%	0	0.0%	1	1.1%
6:00 p.m. - 8:00 p.m.	79	53	67.1%	0	0.0%	21	26.6%	1	1.3%	4	5.1%	0	0.0%
Subtotal	**171**	**124**	**72.5%**	**0**	**0.0%**	**38**	**22.2%**	**4**	**2.3%**	**4**	**2.3%**	**1**	**0.6%**
TOTAL	**1222**	**884**	**72.3%**	**0**	**0.0%**	**268**	**21.9%**	**13**	**1.1%**	**30**	**2.5%**	**33**	**2.7%**

Table E-7. Reasons for Using PA 41 by Truck Drivers
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Survey Period	Total Drivers	Saves Time		Saves Money		Most Direct		Less Congested		Only Way		Other Reasons	
		No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound													
6:30 a.m. - 8:30 a.m.	23	8	34.8%	0	0.0%	15	65.2%	0	0.0%	1	4.3%	0	0.0%
8:30 a.m. - 10:30 a.m.	20	4	20.0%	0	0.0%	13	65.0%	3	15.0%	1	5.0%	0	0.0%
Subtotal	**43**	**12**	**27.9%**	**0**	**0.0%**	**28**	**65.1%**	**3**	**7.0%**	**2**	**4.7%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	25	8	32.0%	1	4.0%	13	52.0%	0	0.0%	1	4.0%	3	12.0%
12:00 p.m. - 1:00 p.m.	17	3	17.6%	1	5.9%	11	64.7%	0	0.0%	2	11.8%	1	5.9%
Subtotal	**42**	**11**	**26.2%**	**2**	**4.8%**	**24**	**57.1%**	**0**	**0.0%**	**3**	**7.1%**	**4**	**9.5%**
1:00 p.m. - 2:30 p.m.	25	13	52.0%	0	0.0%	11	44.0%	1	4.0%	1	4.0%	1	4.0%
2:30 p.m. - 4:30 p.m.	13	12	92.3%	0	0.0%	0	0.0%	1	7.7%	0	0.0%	0	0.0%
Subtotal	**38**	**25**	**65.8%**	**0**	**0.0%**	**11**	**28.9%**	**2**	**5.3%**	**1**	**2.6%**	**1**	**2.6%**
4:30 p.m. - 6:00 p.m.	31	31	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
6:00 p.m. - 8:00 p.m.	16	12	75.0%	0	0.0%	4	25.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**47**	**43**	**91.5%**	**0**	**0.0%**	**4**	**8.5%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Outbound													
6:30 a.m. - 8:30 a.m.	11	11	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
8:30 a.m. - 10:30 a.m.	24	23	95.8%	0	0.0%	1	4.2%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**35**	**34**	**97.1%**	**0**	**0.0%**	**1**	**2.9%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
10:30 a.m. - 12:00 p.m.	24	23	95.8%	0	0.0%	1	4.2%	0	0.0%	0	0.0%	0	0.0%
12:00 p.m. - 1:00 p.m.	9	8	88.9%	0	0.0%	1	11.1%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**33**	**31**	**93.9%**	**0**	**0.0%**	**2**	**6.1%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
1:00 p.m. - 2:30 p.m.	25	22	88.0%	0	0.0%	2	8.0%	0	0.0%	1	4.0%	0	0.0%
2:30 p.m. - 4:30 p.m.	17	17	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Subtotal	**42**	**39**	**92.9%**	**0**	**0.0%**	**2**	**4.8%**	**0**	**0.0%**	**1**	**2.4%**	**0**	**0.0%**
4:30 p.m. - 6:00 p.m.	19	17	89.5%	0	0.0%	2	10.5%	0	0.0%	0	0.0%	0	0.0%
6:00 p.m. - 8:00 p.m.	14	10	71.4%	2	14.3%	1	7.1%	0	0.0%	0	0.0%	1	7.1%
Subtotal	**33**	**27**	**81.8%**	**2**	**6.1%**	**3**	**9.1%**	**0**	**0.0%**	**0**	**0.0%**	**1**	**3.0%**
TOTAL	**313**	**222**	**70.9%**	**4**	**1.3%**	**75**	**24.0%**	**5**	**1.6%**	**7**	**2.2%**	**6**	**1.9%**

Table E-8. Major Roads Taken by Drivers to Reach Their Destinations
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Roads Used	Passenger Vehicles		Trucks		All Vehicles	
	No. of Drivers	% of Total	No. of Drivers	% of Total	No. of Drivers	% of Total
Inbound Traffic						
1. US 30	68	25.9%	39	32.2%	107	27.9%
2. US 1	57	21.7%	21	17.4%	78	20.3%
3. PA 283	22	8.4%	19	15.7%	41	10.7%
4. PA 10	8	3.0%	6	5.0%	14	3.6%
5. PA 896	11	4.2%	0	0.0%	11	2.9%
6. PA 772	8	3.0%	1	0.8%	9	2.3%
7. PA 82	8	3.0%	1	0.8%	9	2.3%
8. Other	81	30.8%	34	28.1%	115	29.9%
TOTAL	**263**	**100.0%**	**121**	**100.0%**	**384**	**100.0%**
Outbound Traffic						
1. DE 7	137	37.6%	23	19.3%	160	33.1%
2. I-95	26	7.1%	25	21.0%	51	10.6%
3. DE 48	35	9.6%	2	1.7%	37	7.7%
4. DE 141	18	4.9%	11	9.2%	29	6.0%
5. DE 1	16	4.4%	10	8.4%	26	5.4%
6. US 13	21	5.8%	4	3.4%	25	5.2%
7. I-295	10	2.7%	10	8.4%	20	4.1%
8. Other	101	27.7%	34	28.6%	135	28.0%
TOTAL	**364**	**100.0%**	**119**	**100.0%**	**483**	**100.0%**

Table E-9. Type of Vehicles Used for the Trip
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Vehicle Type	Inbound Traffic					Outbound Traffic					
	AM Peak (% of Total)	AM Off-Peak (%. of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Inbound Traffic (% of Total)	AM Peak (% of Total)	AM Off-Peak (% of Total)	PM Off-Peak (% of Total)	PM Peak (% of Total)	Outbound Traffic (% of Total)	TOTAL Traffic (% of Total)
Passenger Vehicles											
Auto	32.7%	41.1%	41.3%	43.7%	40.2%	40.6%	39.6%	44.8%	39.5%	41.1%	40.6%
Van, Sta. Wagon	15.4%	15.6%	11.9%	12.2%	13.6%	17.8%	16.0%	9.3%	10.7%	13.3%	13.5%
SUV	12.3%	8.9%	13.9%	13.5%	12.3%	13.3%	19.3%	11.9%	18.5%	15.8%	14.0%
Other	0.0%	1.1%	1.5%	0.0%	0.6%	0.0%	0.0%	0.0%	2.0%	0.5%	0.6%
Subtotal	**60.5%**	**66.7%**	**68.7%**	**69.4%**	**66.7%**	**71.7%**	**74.9%**	**66.0%**	**70.7%**	**70.8%**	**68.7%**
Light Trucks											
Pickup	13.0%	10.0%	11.4%	12.2%	11.7%	8.3%	9.1%	14.4%	14.6%	11.7%	11.7%
Panel	3.1%	0.6%	1.5%	2.6%	1.9%	1.7%	2.1%	1.5%	0.0%	1.3%	1.6%
Single Unit	4.3%	2.8%	5.0%	2.2%	3.5%	3.3%	2.7%	2.6%	5.4%	3.5%	3.5%
Other	0.0%	1.1%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Subtotal	**20.4%**	**14.4%**	**17.9%**	**17.0%**	**17.4%**	**13.3%**	**13.9%**	**18.6%**	**20.0%**	**16.6%**	**17.0%**
Heavy Trucks											
Tractor-Trailer	11.7%	17.8%	13.4%	10.5%	13.2%	14.4%	9.6%	12.9%	8.8%	11.4%	12.3%
Double-Trailer	1.2%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Other	6.2%	1.1%	0.0%	3.1%	2.5%	0.6%	1.6%	2.6%	0.5%	1.3%	1.9%
Subtotal	**19.1%**	**18.9%**	**13.4%**	**13.5%**	**15.9%**	**15.0%**	**11.2%**	**15.5%**	**9.3%**	**12.7%**	**14.3%**
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table E-10. Trip Purpose by Direction
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Survey Period	Work (% of Total)	School (% of Total)	Eat Meal (% of Total	Shopping (% of Total)	Social Recreation (% of Total)	Medical (% of Total)	Visitor/ Tourist (% of Total)	Other (% of Total)	All Purposes
Inbound									
6:30 a.m. - 8:30 a.m.	67.4%	4.3%	4.3%	2.2%	17.4%	0.0%	4.3%	0.0%	100%
8:30 a.m. - 10:30 a.m.	43.7%	1.4%	2.8%	8.5%	31.0%	2.8%	5.6%	4.2%	100%
Subtotal	**53.0%**	**2.6%**	**3.4%**	**6.0%**	**25.6%**	**1.7%**	**5.1%**	**2.6%**	**100%**
10:30 a.m. - 12:00 p.m.	20.8%	0.0%	0.0%	12.5%	52.8%	4.2%	6.9%	2.8%	100%
12:00 p.m. - 1:00 p.m.	24.2%	0.0%	4.8%	19.4%	38.7%	1.6%	11.3%	0.0%	100%
Subtotal	**22.4%**	**0.0%**	**2.2%**	**15.7%**	**46.3%**	**3.0%**	**9.0%**	**1.5%**	**100%**
1:00 p.m. - 2:30 p.m.	31.1%	4.4%	6.7%	20.0%	31.1%	3.3%	3.3%	0.0%	100%
2:30 p.m. - 4:30 p.m.	46.6%	4.1%	2.7%	6.8%	30.1%	4.1%	5.5%	0.0%	100%
Subtotal	**38.0%**	**4.3%**	**4.9%**	**14.1%**	**30.7%**	**3.7%**	**4.3%**	**0.0%**	**100%**
4:30 p.m. - 6:00 p.m.	62.4%	0.9%	3.7%	6.4%	20.2%	0.9%	3.7%	1.8%	100%
6:00 p.m. - 8:00 p.m.	59.4%	0.0%	2.9%	8.7%	26.1%	1.4%	1.4%	0.0%	100%
Subtotal	**61.2%**	**0.6%**	**3.4%**	**7.3%**	**22.5%**	**1.1%**	**2.8%**	**1.1%**	**100%**
Outbound									
6:30 a.m. - 8:30 a.m.	67.7%	3.2%	0.0%	0.0%	17.7%	4.8%	6.5%	0.0%	100%
8:30 a.m. - 10:30 a.m.	44.9%	3.8%	2.6%	6.4%	33.3%	1.3%	6.4%	1.3%	100%
Subtotal	**55.0%**	**3.6%**	**1.4%**	**3.6%**	**26.4%**	**2.9%**	**6.4%**	**0.7%**	**100%**
10:30 a.m. - 12:00 p.m.	29.3%	0.0%	1.2%	9.8%	45.1%	2.4%	12.2%	0.0%	100%
12:00 p.m. - 1:00 p.m.	27.4%	1.4%	5.5%	19.2%	43.8%	1.4%	1.4%	0.0%	100%
Subtotal	**28.4%**	**0.6%**	**3.2%**	**14.2%**	**44.5%**	**1.9%**	**7.1%**	**0.0%**	**100%**
1:00 p.m. - 2:30 p.m.	49.4%	1.2%	3.6%	14.5%	22.9%	1.2%	3.6%	3.6%	100%
2:30 p.m. - 4:30 p.m.	41.4%	2.9%	4.3%	5.7%	30.0%	4.3%	10.0%	1.4%	100%
Subtotal	**45.8%**	**2.0%**	**3.9%**	**10.5%**	**26.1%**	**2.6%**	**6.5%**	**2.6%**	**100%**
4:30 p.m. - 6:00 p.m.	40.0%	5.3%	3.2%	15.8%	27.4%	1.1%	7.4%	0.0%	100%
6:00 p.m. - 8:00 p.m.	42.7%	0.0%	0.0%	16.0%	32.0%	4.0%	4.0%	1.3%	100%
Subtotal	**41.2%**	**2.9%**	**1.8%**	**15.9%**	**29.4%**	**2.4%**	**5.9%**	**0.6%**	**100%**
TOTAL	**43.3%**	**2.1%**	**3.1%**	**11.1%**	**31.2%**	**2.4%**	**5.8%**	**1.1%**	**100%**

Table E-11. Vehicle Occupancy by Traffic Direction and Time Period
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Survey Period	One Occupant	% of Total	Two Occupants	% of Total	Three Occupants	% of Total	Four Occupants	% of Total	Five+ Occupants	% of Total	Total Passenger Vehicles	Average Vehicle Occupancy
Inbound												
6:30 a.m. - 8:30 a.m.	31	64.6%	14	29.2%	2	4.2%	1	2.1%	0	0.0%	48	**1.44**
8:30 a.m. - 10:30 a.m.	37	52.1%	25	35.2%	5	7.0%	3	4.2%	1	1.4%	71	**1.68**
Subtotal	**68**	**57.1%**	**39**	**32.8%**	**7**	**5.9%**	**4**	**3.4%**	**1**	**0.8%**	**119**	**1.58**
10:30 a.m. - 12:00 p.m.	36	48.0%	22	29.3%	10	13.3%	6	8.0%	1	1.3%	75	**1.85**
12:00 p.m. - 1:00 p.m.	33	51.6%	24	37.5%	3	4.7%	2	3.1%	2	3.1%	64	**1.69**
Subtotal	**69**	**49.6%**	**46**	**33.1%**	**13**	**9.4%**	**8**	**5.8%**	**3**	**2.2%**	**139**	**1.78**
1:00 p.m. - 2:30 p.m.	47	52.8%	28	31.5%	12	13.5%	2	2.2%	0	0.0%	89	**1.65**
2:30 p.m. - 4:30 p.m.	46	63.0%	17	23.3%	5	6.8%	3	4.1%	2	2.7%	73	**1.60**
Subtotal	**93**	**57.4%**	**45**	**27.8%**	**17**	**10.5%**	**5**	**3.1%**	**2**	**1.2%**	**162**	**1.63**
4:30 p.m. - 6:00 p.m.	81	74.3%	17	15.6%	7	6.4%	4	3.7%	0	0.0%	109	**1.39**
6:00 p.m. - 8:00 p.m.	53	73.6%	17	23.6%	1	1.4%	1	1.4%	0	0.0%	72	**1.31**
Subtotal	**134**	**74.0%**	**34**	**18.8%**	**8**	**4.4%**	**5**	**2.8%**	**0**	**0.0%**	**181**	**1.36**
Outbound												
6:30 a.m. - 8:30 a.m.	39	62.9%	16	25.8%	6	9.7%	1	1.6%	0	0.0%	62	**1.50**
8:30 a.m. - 10:30 a.m.	46	59.0%	19	24.4%	11	14.1%	1	1.3%	1	1.3%	78	**1.62**
Subtotal	**85**	**60.7%**	**35**	**25.0%**	**17**	**12.1%**	**2**	**1.4%**	**1**	**0.7%**	**140**	**1.56**
10:30 a.m. - 12:00 p.m.	46	55.4%	23	27.7%	3	3.6%	9	10.8%	2	2.4%	83	**1.77**
12:00 p.m. - 1:00 p.m.	40	54.1%	20	27.0%	9	12.2%	4	5.4%	1	1.4%	74	**1.73**
Subtotal	**86**	**54.8%**	**43**	**27.4%**	**12**	**7.6%**	**13**	**8.3%**	**3**	**1.9%**	**157**	**1.75**
1:00 p.m. - 2:30 p.m.	53	63.9%	19	22.9%	5	6.0%	3	3.6%	3	3.6%	83	**1.60**
2:30 p.m. - 4:30 p.m.	38	54.3%	25	35.7%	6	8.6%	1	1.4%	0	0.0%	70	**1.57**
Subtotal	**91**	**59.5%**	**44**	**28.8%**	**11**	**7.2%**	**4**	**2.6%**	**3**	**2.0%**	**153**	**1.59**
4:30 p.m. - 6:00 p.m.	55	57.9%	24	25.3%	9	9.5%	4	4.2%	3	3.2%	95	**1.69**
6:00 p.m. - 8:00 p.m.	45	57.0%	23	29.1%	9	11.4%	1	1.3%	1	1.3%	79	**1.61**
Subtotal	**100**	**57.5%**	**47**	**27.0%**	**18**	**10.3%**	**5**	**2.9%**	**4**	**2.3%**	**174**	**1.66**
TOTAL	**726**	**59.3%**	**333**	**27.2%**	**103**	**8.4%**	**46**	**3.8%**	**17**	**1.4%**	**1225**	**1.61**

Table E-12. Average Vehicle Occupancy by Trip Purpose
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Trip Purpose	Auto (Persons Per Vehicle)	Van/ Station Wagon (Persons Per Vehicle)	SUV (Persons Per Vehicle)	Total (Persons Per Vehicle)
Work	1.22	1.30	1.22	1.23
School	1.90	2.57	1.57	1.96
Eat Meal	1.96	2.29	1.75	2.03
Shopping	1.62	1.92	1.96	1.66
Social/Recreation	1.88	2.31	2.29	2.02
Medical	1.60	2.00	2.00	1.69
Visitor/Tourist	1.69	2.33	1.43	1.80
Other	1.50	2.00	1.40	1.50
All Purposes	**1.57**	**1.88**	**1.71**	**1.61**

Table E-13. External-Internal and Internal-External Trip Length Frequency Distribution Within The DVRPC Region
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Trip Length (Miles)	Home-Based Work Trips		Passenger Vehicle Trips		Truck Trips	
	No. of Trips	% of Total	No. of Trips	% of Total	No. of Trips	% of Total
<1	14	7.0%	62	7.3%	5	3.4%
1-2	31	15.4%	118	13.9%	21	14.4%
2-3	28	13.9%	123	14.5%	24	16.4%
3-4	29	14.4%	128	15.1%	22	15.1%
4-5	24	11.9%	112	13.2%	25	17.1%
5-6	8	4.0%	56	6.6%	4	2.7%
6-7	10	5.0%	29	3.4%	3	2.1%
7-8	6	3.0%	42	5.0%	2	1.4%
8-10	8	4.0%	29	3.4%	2	1.4%
10-12	8	4.0%	38	4.5%	5	3.4%
12-14	21	10.5%	62	7.3%	16	11.0%
14-16	11	5.5%	19	2.2%	5	3.4%
16-18	2	1.0%	7	0.8%	6	4.1%
18-20	1	0.5%	1	0.1%	0	0.0%
20-23	0	0.0%	4	0.5%	0	0.0%
23-26	0	0.0%	3	0.4%	0	0.0%
26-29	0	0.0%	0	0.0%	1	0.7%
29-32	0	0.0%	1	0.1%	0	0.0%
32-36	0	0.0%	0	0.0%	0	0.0%
36-40	0	0.0%	5	0.6%	0	0.0%
40-45	0	0.0%	2	0.2%	2	1.4%
45-50	0	0.0%	4	0.5%	3	2.1%
50-60	0	0.0%	1	0.1%	0	0.0%
60-70	0	0.0%	1	0.1%	0	0.0%
70-80	0	0.0%	1	0.1%	0	0.0%
> 80	0	0.0%	0	0.0%	0	0.0%
Average Trip Length	**6.17**	**100%**	**5.85**	**100%**	**7.13**	**100%**

Table E-14. County Where Trucks Are Garaged or Parked When Not in Service
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

County	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Bucks	1	0.6%	0	0.0%	1	0.3%
Chester	28	16.5%	24	16.7%	52	16.6%
Delaware	8	4.7%	0	0.0%	8	2.5%
Montgomery	0	0.0%	1	0.7%	1	0.3%
Philadelphia	0	0.0%	1	0.7%	1	0.3%
Other PA	79	46.5%	35	24.3%	114	36.3%
Subtotal	**116**	**68.2%**	**61**	**42.4%**	**177**	**56.4%**
Burlington	0	0.0%	1	0.7%	1	0.3%
Camden	0	0.0%	0	0.0%	0	0.0%
Gloucester	0	0.0%	3	2.1%	3	1.0%
Mercer	0	0.0%	1	0.7%	1	0.3%
Other NJ	8	4.7%	11	7.6%	19	6.1%
Subtotal	**8**	**4.7%**	**16**	**11.1%**	**24**	**7.6%**
Delaware	8	4.7%	28	19.4%	36	11.5%
Maryland	3	1.8%	4	2.8%	7	2.2%
Other State	35	20.6%	35	24.3%	70	22.3%
Subtotal	**46**	**27.1%**	**67**	**46.5%**	**113**	**36.0%**
TOTAL	**170**	**100.0%**	**144**	**100.0%**	**314**	**100.0%**

Table E-15. Type of Commodities Carried by Trucks
(PA 41 Cordon Station north of Kaolin Road, New Garden Township)

Commodity Carried	Inbound Traffic		Outbound Traffic		Total Traffic	
	No. of Trucks	% of Total	No. of Trucks	% of Total	No. of Trucks	% of Total
Empty	35	20.6%	29	20.1%	64	20.4%
Manufactured Products	20	11.8%	16	11.1%	36	11.5%
Petroleum Products	3	1.8%	4	2.8%	7	2.2%
Agricultural Products	29	17.1%	25	17.4%	54	17.2%
Building Materials	46	27.1%	31	21.5%	77	24.5%
Refrigerated Products	10	5.9%	10	6.9%	20	6.4%
Retail Store Merchandise	12	7.1%	8	5.6%	20	6.4%
Parcels	2	1.2%	0	0.0%	2	0.6%
Other	13	7.6%	21	14.6%	34	10.8%
TOTAL	**170**	**100.0%**	**144**	**100.0%**	**314**	**100.0%**

Cordon Line Highway Survey for the Delaware Valley Region - Report No. 2
I-95, US 202 and PA 41 South Cordon Stations in Chester and Delaware Counties

Publication No. : 02032

Date Published: September 2002

Geographic Area Covered: Delaware Valley metropolitan region comprised of five counties in Pennsylvania (Bucks, Chester, Delaware, Montgomery, and Philadelphia); and four counties in New Jersey (Burlington, Camden, Gloucester and Mercer) and includes some counties adjoining the region: (Lancaster, Berks, and Lehigh in PA; Hunterdon, Middlesex, Ocean, Cumberland and Salem in NJ; and New Castle County in Delaware).

Key Words: Traffic count, geocoding, cordon line, survey station, travel trends, vehicle trips, person trips, AM and PM peak hour, origin and destination, average vehicular occupancy, commodities.

ABSTRACT
A cordon line survey of traffic entering and leaving the Delaware Valley region was conducted during the summer of 2001. This summary report describes the characteristics of traffic crossing the regional cordon line at I-95, US 202, and PA 41 South. An accurate survey on I-95 required surveys at 3 sub-stations: I-95, I-495 and Naamans Road Ramps. The remaining two stations, US 202 and PA 41 South were surveyed individually. This includes information regarding the data collection, data summaries, and complete data tables in the Appendices.

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