

**A Summary of the
Delaware Trip Monitoring System Survey
For Kent County, Years 1997 to 2006**

prepared for

Kent County Metropolitan Planning Organization

By

David P. Racca

October 2008

**Center for Applied Demography & Survey Research
College of Human Services, Education and Public Policy
University of Delaware**

Newark, Delaware

The University of Delaware is committed to assuring equal opportunity to all persons and does not discriminate on the basis of race, color, gender, religion, ancestry, national origin, sexual preference, veteran status, age, or disability in its educational programs, activities, admissions, or employment practices as required by Title IX of the Educational Amendments of 1972, Title VI of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, the Americans with Disabilities Act, other applicable statutes, and University policy. Inquiries concerning these statutes and information regarding campus accessibility and Title VI should be referred to the Affirmative Action Officer, 305 Hullihen Hall, 302/831-2835 (voice), 302/831-4552(TDD).

TABLE OF CONTENTS

	Page
List of Figures	iv
Introduction	1
Travel in Delaware.....	2
Transit, Carpooling, and EZ Pass.....	20
Opinions and Perceptions	24
Origins and Destinations	26
Appendix, Delaware Trip Monitoring System Survey	35

LIST OF FIGURES

Figure		Page
1	Did You Go Anywhere Yesterday?	2
2	Did You Go Anywhere Yesterday? By Employment Status	2
3	What was the Main Reason Why You Did Not Make Any Trips	3
4	Average Trips per Person per Weekday by Year.....	4
5	Average Trips per Person per Day by Household Income	4
6	Average Trips per Person per Day by Number of Vehicles	5
7	Average Trips per Person per Day by Employment Status	5
8	Average Trips per Person per Day by Age Grouping	5
9	Kent County Age Distribution	6
10	Distribution of Persons per Household	6
11	Average Trips per Person per Day by County.....	6
12	Average Trips per Person per Day by Gender.....	7
13	Average Trips per Person per Day by Type of Area	7
14	Travel Method/Mode Split Percentages	8
15	Trip Destination Percentages	8
16	Trip Destination by Trip Method	9
17	Household Income by Trip Method	9
18	Gender by Trip Method.....	10
19	Trip Method Percentages by Age Categories	10
20	Trip Method Percentages by Type of Area	11
21	Trip Purpose Percentages by Three Year Average, 2000 to 2004.....	11
22	Trip Purpose Percentages by Three Year Average, 2003 to 2006.....	12
23	Trip Purpose by Gender	12
24	Trip Purpose by Age Groupings.....	13
25	Average Vehicle Occupancy by Trip Purpose, Kent County, 2000 to 2004	13
26	Average Vehicle Occupancy by Trip Purpose, Kent County, 2003 to 2006	14
27	Average Vehicle Occupancy for Car Trips by Year	14
28	Trip Time in Minutes by Year.....	15
29	Trip Time by Travel Method/Mode	15
30	Trip Time by Trip Purpose, 1997 thru 2002.....	15
31	Trip Time by Trip Purpose, 2003 thru 2006	16

Figure	Page
32	Average Trip Time by County 16
33	Average Trip Time by Type of Area..... 16
34	Distributions of Trip During the Day 17
35	Distribution of Work and Nonwork Trip During the Day..... 17
36	Average Number of Vehicles per Household by Year 18
37	Average Number of Vehicle and Type per Household 18
38	What Best Describes Your Shopping Habits?..... 19
39	Has Any Household Member Used DART First State? 20
40	Would the Following Make You Use DART services? 20
41	What Are the Reasons DART Services Not Used?..... 21
42	Have You Heard of Rideshare Delaware? 22
43	Have You Ever Used Rideshare Delaware Services? 22
44	Did Rideshare Services Assist You or Your Group In Forming a Carpool? 22
45	Did You Know That Rideshare Delaware Offers an Emergency Ride Home?..... 22
46	Which of the Following Might Influence You to Car/Vanpool to Work 23
47	Are You Enrolled in EZ-Pass 23
48	Overall, How Would You Rate the Condition of Delaware Highways? 24
49	Overall, How Would You Rate the Performance of DelDOT in Managing Transportation? 24
50	When You Encounter Traffic Congestion in Delaware, What is it Usually Related to? 25
51	Estimate of Percentage of Travel Between Counties, All Trips 26
52	Estimate of Percentage of Travel Between Counties, Journey to Work..... 27
53	Estimate of Percentage of Travel Between Counties, All Trips, Kent Residents..... 27
54	Estimate of Percentage of Travel Between Counties, Journey to Work, Kent Residents..... 27
55	Distribution of Kent County Residents, Percentages by Zip code 28
56	Estimate of Percentage of Daily Trips for Origin-Destination Zip code Pairs 29
57	Estimate of Total Daily Trips for Origin-Destination Zip code Pairs 30
58	Distribution of Kent County Destinations, Percentages by Zip code 32
59	Distribution of Kent County Work Destinations, Percentages by Zip code 32
60	Average Trip Time, Distance, and Speed Estimates by County, 1997 to 2006..... 33
61	Average Trip Time, Distance, and Speed Estimates by County, 1995 to 2000..... 33
62	Average Trip Time, Distance, and Speed Estimates by County, 2001 to 2006? 33
63	Average Trip Time, Distance, and Speed Estimates by County, 1997 to 2006, JTW 34
64	Average Trip Time, Distance, and Speed Estimates by County, 1995 to 2000, JTW 34
65	Average Trip Time, Distance, and Speed Estimates by County, 2001 to 2006, JTW 34

Introduction

The Delaware Trip Monitoring System Survey, as part of the Delaware Statewide Model Improvement Project, is an ongoing survey that was designed and has been conducted by the Center for Applied Demography and Survey Research (CADSR) at the University of Delaware since 1995. The survey is utilized to gather information about the weekday travel behaviors and preferences of drivers 16 years and older across the State. It initially began to update DelDOT trip generation models and takes the place of trip diaries used by other States. Randomly selected respondents are asked to list the origin, destination, time, and trip method (mode) of every trip made in the preceding day. Demographic data is compiled for each respondent and public opinion on transportation issues is also obtained. More than 25,000 people have been surveyed and more than 50,000 trips have been documented.

This report focuses on information for Kent County and has four sections following this brief introduction. The first section discusses information related to the trips people make, which is the primary focus of the survey. The next section deals with questions related to transit usage and carpooling. The third section shows results of public opinion questions related to the condition of the transportation system and the Delaware Department of Transportation's (DelDOT) performance in managing it. The final section examines origin and destination information and estimates of trip distances. The survey itself is included in the appendix.

Travel in Delaware

The Delaware Trip Monitoring System asks each respondent information about trips made in the previous day, including location of origin and destination, trip time, trip method (i.e. car, transit, walk, bike), trip purpose, and other information about trips taken. This section summarizes information about trips and travel for Kent County. In viewing survey results throughout this report it is important to remember that only weekday travel (Monday through Friday) is surveyed. Trips that are part of a person's work, while at work, are not surveyed. So for example if someone is making sales calls or deliveries as part of their job, these trips are not surveyed.

One of the first questions was whether a respondent traveled on the previous day. If the answer was "No" they were asked the main reason why not. Figures 1 through 3 below summarize results. As shown in:

**Figure 1. "Did You Go Anywhere Yesterday?"
Kent County Percentages
DTMS Survey, Three Year Averages from 2000 thru 2006**

Percentage Responding in 3 Year Averages

	2000 to 2002	2001 to 2003	2002 to 2004	2003 to 2005	2004 to 2006
Yes	80.3	86.0	90	91.5	90
No	19.5	14.0	10	8.5	10

**Figure 2. "Did You Go Anywhere Yesterday?"
By Employment Status
Kent County, DTMS Survey Years 1997 to 2006**

Employment Status	Yes	No
Employed	91.4	8.5
Unemployed	61.1	38.9
Student	86.6	13.4
Retired	62.3	37.7
Homemaker	72.2	27.8
Self Employed	78.7	21.3

**Figure 3. “If You Did Not Go Anywhere Yesterday,
What Was The Main Reason Why You Did Not Make Any Trips?”
Percentages, Kent County
DTMS Survey Years 2000 to 2006**

Reason	Percent Responding
Working at Home	11
Sick (self or family member)	14.5
Vacation	9
Retired ,Unemployed or Homemaker	54
Other	12.5

Over the years there has been a concern whether the information indeed shows that the population as a whole is traveling more, as the data suggests, or whether to some extent trips are somehow being missed in the survey. This is an issue in all types of travel surveys, especially in diary based surveys where respondents may not document trips immediately but recall them days later. Through the past years of the survey, interviewers have been instructed to ask respondents again if in fact they made no trips with suggestions such as “Did you go to a store, or pick up or drop someone off, or make any kind of trip by walking or other method? In some cases, once other type of travel is suggested, respondents recall trips taken they did not at first indicate. The percentage of people taking no trips is expected to be around current surveyed levels of about 10%.

From the sample size and from statistics about trips taken and demographic data surveyed, an average value of trips per person can be calculated as presented in Figure 4 on the next page. The data shows a trend of more trips taken each year. How much a particular individual travels is influenced by many factors, including employment status, whether there are children in the household, income, housing type, and age.

The Delaware Trip Monitoring System Survey is a valuable tool in providing information on how various factors influence travel. A trip generation model that can predict trip generation in consideration of demographic factors was developed in research conducted by CADSR for the Delaware Center for Transportation* and serves as an example of how the survey data have been used to understand travel.

*Racca, David P., “Active Adult (55+) Community Trip Generation Rates”, Delaware Center for Transportation, University of Delaware, Newark, Delaware, January 2006.

Figure 4. Average Trips per Person per Weekday By Year
DTMS Survey
Kent County
 (Three year averages, includes persons who made no trips)

<u>Years</u>	<u>Average Trips per Person</u>
1997 thru 1999	2.2
1998 thru 2000	2.1
1999 thru 2001	1.8
2000 thru 2002	2.0
2001 thru 2003	2.4
2002 thru 2004	2.6
2003 thru 2005	3.0
2004 thru 2006	3.0

Examples of how various factors influence the number of trips taken are presented in the following figures. Results show that more vehicles, higher income, and being employed, are factors that are related to higher trip rates as shown in Figures 5 through 8 below. Also, increased household size indicates a greater likelihood of children in the household, as well as a number of trips related to the care and activities of children.

Figure 5. Average Trips per Person per Day by Household Income
Kent County
DTMS Survey Years 1997 to 2006

<u>Household Income</u>	<u>Trips per person per day</u>
Less than \$10,000	2.2
\$10,000- \$14,999	2.1
\$15,000 - \$19,999	1.9
\$20,000 - \$24,999	2.1
\$25,000 - \$29,999	2.1
\$30,000 - \$34,999	2.5
\$35,000 - \$39,999	2.6
\$40,000 - \$49,999	2.6
\$50,000 - \$74,999	2.7
\$75,000 - \$99,999	2.8
\$100,000 - \$149,000	3.3
\$150,000 or more	3.7

**Figure 6. Average Trips per Person per Day by Number of Vehicles
Kent County, DTMS Survey
(Three year averages, includes persons who made no trips)**

Number Of Vehicles

<u>Year</u>	<u>None</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>> 3</u>
1997 thru 1999	1.2	1.9	2.3	2.5	2.6
1998 thru 2000	0.9	1.5	2.0	2.1	2.1
1999 thru 2001	0.8	1.5	1.9	2.0	2.1
2000 thru 2002	0.6	1.8	2.1	1.9	2.3
2001 thru 2003	1.2	2.2	2.4	2.2	2.8
2002 thru 2004	1.9	2.4	2.6	2.6	2.8
2003 thru 2005	2.0	2.7	3.0	3.3	3.1
2004 thru 2006	1.7	2.6	2.9	3.3	3.0
1997 thru 2006	1.3	2.0	2.4	2.7	2.7

**Figure 7. Average Trips per Person per Day by Employment Status
Kent County, DTMS Survey Years 2000 thru 2006**

Employment Status	Trips per Person per Day
Employed	2.7
Unemployed	1.8
Student	2.3
Retired	1.9
Homemaker	2.2
Self Employed	2.5

The average number of trips per day also varies somewhat depending on age, as those 65 years and older travel less. Otherwise there is not much difference by age for total daily trips.

**Figure 8. Average Trips per Person per Day by Age Grouping
Kent County DTMS
Three Year averages, 2000 to 2006**

Trips/Person over 16/Day for 3 Year Averages

Age Group	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006
16 to 24	2.1	2.3	2.4	2.5	2.5
25 to 34	2.3	2.7	2.8	3.1	3.1
35 to 44	2.2	2.5	2.7	3.2	3.3
45to 54	2.0	2.3	2.5	3.1	3.2
55 to 64	1.7	2.3	2.6	3.0	2.9
65 and older	1.3	2.0	2.4	2.8	2.6
All ages	2.0	2.3	2.6	3.0	3.0

The following two tables are included to reference the age distribution and person per household distribution for Kent County

**Figure 9. Kent County Age Distribution
DTMS Survey Years 1998 thru 2006
Percent of Population, Three Year Averages**

Age Group	1997 - 1999	1998 - 2000	1999 - 2001	2000 - 2002	2001 - 2003	2002 - 2004	2003 - 2005	2004 - 2006
16 to 24	17	17	17	17	16	15	12	12
25 to 34	20	19	18	18	17	17	17	17
35 to 44	20	21	21	21	21	21	20	19
45to 54	15	16	16	16	17	17	19	19
55 to 64	13	12	13	12	12	13	14	14
65 and older	14	14	15	15	15	15	15	15

**Figure 10. Distribution of Persons per Household
Percent of Population, Three Year Averages
Kent County, DTMS Survey Years 1998 thru 2006**

	1998 - 2000	1999 - 2001	2000 - 2002	2001 - 2003	2002 - 2004	2003 - 2005	2004 - 2006
1	14	16	16	15	14	11	10
2	39	39	42	40	37	30	32
3	21	20	19	18	19	20	20
4	15	14	15	18	20	22	22
> 4	11	11	8	9	10	17	16

As shown in figures below there are no significant differences in average trips per person per day between counties in Delaware, or between males and females,

Figure 11. Average Trips per Person per Day by County

DTMS Year 2006	
Kent	3.2
New Castle	3.3
Sussex	3.2
Delaware	3.2

**Figure 12. Average Trips Per Person per Day by Gender
Kent County, DTMS Survey Years 2000 thru 2006**

Male	2.4
Female	2.5

In recent years, the average trips per person in the suburbs is a bit higher than for urban areas. This is probably related to factors such as higher income and a higher number of children living in the suburbs.

**Figure 13. Average Trips per Person per Day by Type of Area
Kent County DTMS
Three Year Averages, 2000 to 2006**

Trips/Person over 16/Day

Type of Area	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006
Urban	2.3	2.3	2.6	2.7	2.8
Suburban	2.1	2.3	2.5	3.0	3.1
Rural	2.1	2.2	2.4	2.7	2.9

Convenience store and stops for gas in route to a primary destination were not surveyed as separate trips. Instead respondents were asked for each trip whether they stopped on the way at a convenience store or for gas. Results of the survey show that between the years 2003 and 2006 about 10% of the time there is an incidental stop such as for gas or at a convenience store.

If respondents made one or more trips in the previous day, then questions were asked about each trip including origin, destination, travel mode, and travel time. For travel method (travel mode) results for the 2004 survey and previous years are tabulated below. Results for the year 2004 are similar to previous years. About 96 percent of trips surveyed were by car and the respondent was either as passenger or driver.

**Figure 14. Travel Method/Mode Split Percentages
Kent County, DTMS Survey Years 1997 to 2006, Three Year Averages**

Travel Method	1997-1999	1998-2000	1999-2001	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006
Car	99.0	98.7	98.4	97.9	96.9	96.1	96.4	96.0
Driver	88.9	87.5	83.7	77.9	79.4	81.9	87.1	86.5
Passngr	10.1	11.2	14.7	20.0	17.5	14.2	9.3	9.5
Public Bus	0.1	0.1	0.1	0.4	0.7	0.6	0.5	0.5
Walked	0.4	0.6	0.6	0.9	1.1	1.7	1.4	1.3
School Bus	0.4	0.4	0.6	0.6	0.7	0.5	0.8	0.7
Bicycle	0	0	0.2	0.1	0.1	0	0	0.2
Other	0.1	0.1	0.2	0.2	0.5	1.0	0.9	1.4

**Figure 15. Trip Destination Percentages
Kent County, DTMS Years 2003 to 2006**

	2003	2004	2005	2006	Total
Home	40.7	37.1	37.3	40.1	38.7
Work	25.4	22.4	21.4	22.7	22.7
Store	9.1	10.2	9.2	9.9	9.6
School	2.6	1.2	2.5	1.9	2.1
Drop off/Pick up a person	5.2	8.9	7.8	6.5	7.1
Social	2.5	3.5	4.1	2.1	3.1
Recreation	2.1	5.4	3.9	3.2	3.7
Eat out	2.6	2.6	3.8	2.9	3.1
Child Care	0.9	-	0.6	0.3	0.5
Doctors (medical)	2.5	2.5	3.3	2.5	2.8
Bank or Post Office	1.5	1.1	2.5	1.6	1.8
Public Transportation Stop (Train Bus)	0.1	0.4	0.2	0.5	0.3
Barber/Hairdresser	0.4	0.6	0.1	0.1	0.2
House of Worship	0.4	0.6	0.7	0.7	0.6
Other	3.9	3.6	2.6	5.2	3.7

With car trips it was also noted in the survey whether the respondent was the driver or a passenger. The destination or purpose of each trip was surveyed, so the travel method could be tabulated as it relates to destination as below in Figure 16 on the next page. An important note about this figure is that the DTMS only surveys persons 16 years or older so the figure shows the method of the 16 year or older respondent and is only a partial indicator of vehicle occupancy. For example, the high estimate for “Drv” (driver of the car) for “Drop Off/Pickup” is because most of these types of trips involve a parent and child or children and no other adult passengers. Only a few percentage points of the time is the person surveyed an adult passenger in the “Drop Off/Pickup” trip. Vehicle occupancy for “Drop Off/Pickup” actually averages about two persons per vehicle.

Figure 16. Trip Destination by Trip Method (percentages)
Kent County, DTMS 2003-2006 (3916 points)

Trip Method

Destination	Driver of car	Passenger in car	Public Bus	Walked	School bus	Rode bike	Other
Home	86.7	9.2	0.8	1.6	0.7	0.2	0.7
Work	90.6	5.8	0.2	1.7			1.6
Store	86.2	12.2	0.5	1.1			
School	72.6	2.4	2.4	4.8	13.1	3.6	1.2
Drop off/Pick up a person	97.1	1.1			0.7		1.1
Social	78.9	17.1	0.8	0.8			2.4
Recreation	83.9	13.3		0.7	0.7	0.0	1.4
Eat out	81.0	17.4		1.7			0.0
Child Care	100.0						
Doctors (medical)	80.9	17.3	0.9				0.9
Bank or Post Office	91.4	7.1	1.4				
Public Transportation Stop (Train Bus)	66.7		16.7				16.7
Barber/Hairdresser	90.0	10.0		0.0			
House of Worship (Church etc)	79.2	16.7		4.2			
Other specify	76.5	23.5					
All Destinations	86.9	9.1	0.6	1.4	0.6	0.2	1.0

Trip Method can also be viewed in relation to household income. Those in lower income households take less car trips and more transit (Bus) trips and walk trips.

Figure 17. Household Income by Trip Method
Kent County, DTMS Survey Years 1997 thru 2006

	Driver of car	Passenger in car	Public Bus	Walked	School bus	Rode bike	Other specify
less than \$10,000	71.2	16.8	4.0	5.6			2.2
\$10,000 - \$14,999	73.6	15.0	1.4	7.1	1.4		
\$15,000 - \$19,999	86.8	8.3	2.8	0.7			1.4
\$20,000 - \$24,999	88.8	10.4				0.4	0.4
\$25,000 - \$29,999	86.7	11.3	0.6		0.6		0.6
\$30,000 - \$34,999	84.8	10.1	0.7	3.4		0.0	0.9
\$35,000 - \$39,999	85.0	13.2	0.6	1.2			
\$40,000 - \$49,999	86.1	12.1		1.2			0.6
\$50,000 - \$74,999	90.5	7.8		0.4	0.4		0.9
\$75,000 - \$99,999	92.8	5.0	0.5	0.8	0.4		
\$100,000 - \$149,000	90.9	7.2		0.6		0.4	
\$150,000 or more	90.7	8.0					

Trip method/mode data would indicate that females are more often passengers than drivers and that females show a higher transit use, as also shown in national travel survey data.

**Figure 18. Gender by Trip Method
Kent County, DTMS Survey Years 1997 thru 2006**

	Car Driver	Car Passenger	Public Bus	Walk	School Bus	Bike	Other
Male	88.4	8.8	0.5	0.6	0.4	0.2	1.1
Female	82.7	14.7	0.4	1.2	0.7	0	0.3

As would be expected, there is some variation in trip method with age. Younger adults (age 25 to 34) show a higher use of transit. The youngest and oldest adult age categories show more likelihood of being a passenger in a car trip.

**Figure 19. Trip Method Percentages by Age Categories
Kent County, DTMS 1997 thru 2006**

Trip Method

Age Grouping	Driver	Passenger	Bus	Walk	School	Bike
Age 16 to 24	72.0	21.5	0.8	1.5	3.5	0.5
Age 25 to 34	89.6	8.9	0.9	0.1	0.1	0.2
Age 35 to 44	90.2	7.0	0.5	1.1	0	0
Age 45 to 54	89.3	8.6	0.4	1.0	0.1	0
Age 55 to 64	86.1	12.6	0.5	0.6	0	0
Age 65 and up	78.7	19.7	0.4	0.1	0	0
All ages	85.3	12.0	0.4	1.0	0.6	0.1

**Figure 20. Trip Method Percentages by Type of Area
Kent County, DTMS 1997 thru 2006**

Trip Method

Age Grouping	Driver	Passenger	Bus	Walk	School	Bike
Urban	82.6	14.0	0.8	1.5	0.8	0
Suburban	84.1	13.0	0.3	0.9	0.8	0.2
Rural	87.4	10.5	0.4	0.7	0.3	0
All types of area	85.2	12.1	0.4	0.9	0.6	0.1

The DTMS also surveys the purpose of every trip to better understand why Delawareans travel. In the following Figures the percentage of trips in each category are shown. This of course does not reference the total trips taken by various demographic factors, only the distribution by purpose. National transportation survey data has shown for the last 20 years that the trip purposes other than shopping, work, and school have been a significantly growing component of travel, and the DTMS survey shows that also.

**Figure 21. Trip Purpose Percentages by Three Year Average
Kent County, DTMS Years 2000 thru 2004, Three Year Averages**

	2000 thru 2002	2001 thru 2003	2002 thru 2004
Work	45.0	41.7	39.5
Store	18.6	17.2	16.8
School	5.7	5.1	3.9
Drop off /Pickup	5.0	7.1	9.3
Social	7.5	7.0	5.8
Recreation	3.0	3.5	5.9
Eat Out	6.9	7.0	5.6
Child Care	0.6	1.0	1.0
Other	7.6	9.8	12.2

**Figure 22. Trip Purpose Percentages by Three Year Average
Kent County, DTMS Years 2003 thru 2006**

	2003 thru 2005	2004 thru 2006
Work	36.7	35.7
Store	15.3	15.7
School	3.6	3.2
Drop Off/Pickup	11.8	12.2
Social	5.7	5.3
Recreation	6.2	6.5
Eat Out	5.2	5.2
Child Care	0.8	0.5
Doctors (medical)	4.7	4.7
Bank or Post Office	3.0	3.0
Public Transportation Stop	0.4	0.6
Barber / Hairdresser	0.5	0.3
House of Worship	1.0	1.1
Other	5.2	6.0

The major difference in trip purpose by gender is that females show less work trips and more “Drop Off/Pickup” trips as shown below.

**Figure 23. Trip Purpose by Gender
Kent County
Percentages (row) in Each Category, DTMS 2003 to 2006**

	Male	Female
Work	51	49
Store	43	57
School	33	67
Drop off/Pick up a person	25	75
Social	43	57
Recreation	39	61
Eat out	44	56
Child Care	24	76
Doctors (medical)	39	61
Bank or Post Office	35	65
Public Transportation Stop (Train Bus)	55	45
Barber/Hairdresser	20	80
House of Worship (Church etc)	17	83
Other specify	35	65
All trips	43	57

Trip purpose distribution is fairly similar for various age groupings except for the youngest and oldest categories as shown in below.

Figure 24. Trip Purpose by Age Groupings
Percentages in Each Category, DTMS 2003 to 2006
(only about a few hundred per age group in sample)

AGE GROUPINGS

	16-24	25-34	35-44	45-54	55-64	65 +
Work	35.1	35.6	42	41.9	37.1	16.6
Store	15.7	10.7	12.1	14.4	23.8	21.2
School	17.3	3.8	1.8	2	0	0.3
Drop off/Pick up	5	24	16.8	8	6.1	7.7
Social	10.4	3.5	2.8	4	6.8	8.3
Recreation	7.1	4.8	7.3	4.3	6	10.5
Eat out	2.1	2.9	3.8	7.1	6.6	8.1
Child Care	0.3	1.1	0.4	1	0	0
Doctors (medical)	2.4	3.2	4.6	4.2	4.2	9.4
Bank or Post Office	1.5	3.9	1.4	3.6	2.1	5.1
Trans Stop	0	1.9	0.4	0.7	0	0
Barber/Hairdresser	1	0	0.2	0.1	0.6	0.7
House of Worship	0	0.4	0.8	1.2	1.4	2.3
Other	2	4.1	5.7	7	5.2	9.8

Vehicle occupancy is a topic of interest particularly for those addressing commuting, congestion and transit. For car trips, the DTMS survey asks how many people are in the car during the trip. Work trips have always shown the lowest vehicle occupancy where workers usually drive alone to work. Other trip purposes such as for recreation or transporting children naturally show higher occupancy rates. The average for all trips tends to be about 1.6 persons per vehicle over the last few years.

Figure 25. Average Vehicle Occupancy (persons / vehicle) for Car Trips By Trip Purpose
Kent County, DTMS Years 2000 thru 2004

	2000 thru 2002	2001 thru 2003	2002 thru 2004
Work	1.3	1.3	1.3
Store	1.9	1.9	1.7
School	1.9	1.7	1.6
Drop Off/Pick Up	2.4	2.2	2.0
Social	1.8	1.9	1.6
Recreation	2.2	1.9	1.9
Eat Out	2.1	2.1	2.2
Child Care	1.8	1.5	1.5
Other	1.4	1.5	1.5
All	1.6	1.6	1.6

**Figure 26. Average Vehicle Occupancy (persons/vehicle) for Car Trips By Trip Purpose
Kent County, DTMS Years 2003 thru 2006**

	2003 thru 2005	2004 thru 2006
Work	1.3	1.2
Store	1.5	1.5
School	1.8	1.7
Drop off/Pickup	2.1	2.0
Social	1.7	1.9
Recreation	1.8	2.0
Eat out	2.2	2.2
Child Care	1.7	1.7
Doctors(medical)	1.6	1.7
Bank or Post Office	1.8	1.8
Public Trans Stop	2.0	1.8
Barber Hairdresser	1.4	1.3
House of Worship	1.6	1.5
Other	1.8	1.8
All	1.6	1.6

**Figure 27. Average Vehicle Occupancy for Car Trips by Year
Percentages in Each Category, DTMS 1997 to 2006
Kent County**

YEAR	Average Vehicle Occupancy
1997	1.5
1998	1.4
1999	1.3
2000	1.5
2001	1.6
2002	1.6
2003	1.6
2004	1.5
2005	1.6
2006	1.5
1997 thru 2006	1.5

Respondents in the DTMS survey are also asked for the beginning and end time of day of each trip so trip time can be examined. The average trip time for all trips in Kent County for the years 1997 to 2006 is 23 minutes.

**Figure 28. Trip Time in Minutes by Year
Trips Screened for Trips Less Than Two Hours
Percentages in Each Category, DTMS 1997 to 2006
Kent County**

YEAR	Trip Time in minutes
1997	20.5
1998	20.6
1999	22.2
2000	25.4
2001	22.7
2002	21.2
2003	24.2
2004	23.5
2005	24.1
2006	25.2
1997 through 2006	23.0

**Figure 29. Average Trip Time (minutes) by Travel Method/Mode
(Excluding trips greater than 2 hours)
DTMS Year 2003 to 2006**

Trip Method	Mean
Driver of car	23
Passenger in car	31
Public bus	49
Walked	13
School bus	24
Rode bike	21

**Figure 30. Average Trip Time in Minutes by Trip Purpose
Kent County, DTMS Years 1997 thru 2002
(excluding trip greater than two hours)**

Purpose	Average trip time (minutes)
Work	23
Store	18
School	18
Drop Off/Pick Up	18
Social	26
Recreation	21
Eat out	16
Child Care	15
Doctors (Medical)	19
All purpose	22

**Figure 31. Average Trip Time in Minutes by Trip Purpose
Kent County, DTMS Years 2003 thru 2006
(excluding trip greater than two hours)**

Purpose	Average Trip Time in Minutes
Work	26
Store	19
School	19
Drop Off/Pick Up	20
Social	28
Recreation	26
Eat Out	20
Child Care	19
Doctors (medical)	30
Bank or Post Office	11
Public Transportation Stop	50
Barber/Hairdresser	16
House of Worship	15
Other	31
All Purposes	24

**Figure 32. Average Trip Time (minutes) by County
(Excluding trips greater than two hours)
DTMS Year 2003 to 2006**

Kent	24.3
New Castle	23.8
Sussex	24.0

**Figure 33. Average Trip Time in Minutes by Type of Area
Kent County, DTMS Years 1997 thru 2006
(excluding trip greater than two hours)**

Type of Area	Average Trip Time
Urban	21
Suburban	22
Rural	25
All Areas	23

The figure below presents the distribution of beginning trip times for the DTMS Data. About a third of Delawarean's daily trips occur in the morning and afternoon peak times.

**Figure 34. Distribution of Trips During the Day
Kent County, DTMS Years 1997 thru 2006
(Trips less than two hours)**

	% daily trips at this time period
Midnight to 5am	3.2
5am to < 7am	8.4
7am to < 9am	18.0
9am to < noon	15.3
noon to 4pm	21.9
4pm to 6pm	18.3
6pm to 8pm	8.6
8pm to midnight	6.4

The figure shows the distribution of work trips during the day. Roughly 2/3 of work trips occur during what is considered the morning and afternoon peak hours. Figure 31 does not include the effect of trips that are chained, but only where the trip is clearly for work purposes, that is, where origin is "home" and the destination is "work" or where the origin is "work" and the destination is "home". Trips for a morning routine where children are dropped off at school before going to work, or a person stops off at a store on the way to home from work are not included in the tabulation.

**Figure 35. Distribution of Work and Nonwork Trips During the Day
Kent County, DTMS Years 1997 thru 2006
(Trips less than two hours)**

	% work trips at this time period	% nonwork trips at this time period
Midnight to 5am	3.3	3.1
5am to < 7am	17.9	2.7
7am to < 9am	30.3	10/8
9am to < noon	6.9	20.3
noon to 4pm	13.6	26.9
4pm to 6pm	19.1	17.8
6pm to 8pm	5.1	10.6
8pm to midnight	3.8	7.9

A factor that is frequently used in modeling travel demand is “Vehicles per household” . In general the more vehicles that are in the household, the more trips that are expected. Also, vehicles per household is a useful factor is predicting transit usage in an area.

**Figure 36. Average Number of Vehicles per Household by Year
Kent County, DTMS Years 1997 thru 2006**

Year	Average # of Vehicles
1997	2.2
1998	2.4
1999	2.3
2000	2.0
2001	2.1
2002	2.0
2003	2.3
2004	2.5
2005	2.5
2006	2.5
All Years	2.3

**Figure 37. Average Number of Vehicles per Household in Delaware
Kent County, DTMS Years 1997 thru 2006**

Cars/Vans/Pickups	2.0
Trucks	0.2
Motorcycles/Mopeds/Motor Scooters	0.1
Total Motorized vehicles	2.3

Another question asked on the DTMS survey dealing with travel behavior is one that asks about shopping habits as shown in the figure below. Shopping occurs most often on weekends or from home during the week.

**Figure 38. Which Of The Following Best Describes Your Shopping Habits?
Kent County, DTMS Years 1997 thru 2006
% Responding**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
I shop primarily on the weekends	36.7	26.1	28.8	32.9	41.1	49.7	39.7	42.9	35.1	42.9
I mostly shop on the way to or from work	10.1	9.7	13.5	19.7	13.1	10.1	10.9	17.1	14.8	14.7
I make shopping trips primarily from home, Monday thru Friday	34.1	47.1	48.7	44.7	42.7	36.2	42.4	37.7	40.7	32.9

Transit, Carpooling, and EZ Pass

There are several questions on the DTMS survey that are included to help transportation agencies understand the needs, perceptions, and demand for multi-modal facilities and programs to address congestion. The first questions addressed in this section deal with transit. Please refer to the figures below. DART First State is the group within DelDOT that manages the para-transit and fixed route public bus services in Delaware. About a third of Delawareans have used or know of a person in their household who has used the public transit services. Better schedules or information, or more service or transit routes are among the leading factors that would encourage people to use transit more often. The primary factor that would influence them to use services is no driver's license or no vehicle available. Other changes in services would seem to have only a slight impact on ridership.

**Figure 39. Has Any Household Member Ever Used Any of the
DART First State Transit Services for a Trip in Delaware?
Kent County, DTMS Years 1997 thru 2006
% Responding**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	All years
Yes	17	18	11	3	9	6	18	20	20	22	14
No	82	82	89	97	91	93	82	80	80	78	86

**Figure 40. If DART services were used,
“Would the Following Make You Use DART Services More Frequently?”
DTMS Year 1997 to 2006, % Responding**

	Yes	No
Lower Fares	4	84
More Frequent Service	6	75
Better Scheduling/Route Info	6	73
More Routes	7	69
Weekend Service	7	82
Later Operation Hours	7	81
Have No Driver's Licence/Car Unavailable	6	65

The main reason given for not using DART transit services is “Car is always available”, followed in a distant second place by “Inconvenient”. People do not use transit services mostly because in comparison with driving a car, the transit option is not considered a viable option.

**Figure 41, If the Respondent Had Not Used DART Services,
“What Are the Reasons These Services Are Not Used?”
DTMS Year 1997 to 2006, % Responding**

Applies	%
Car is always available	77
Inconvenient (eg. routes, bus stops)	19
Hours of service are not appropriate	12
Do not like buses	11
Want privacy (Do not like crowds)	10
Unaware of routes or schedules	17
Health problems	7
No public transportation in area	18

Rideshare Delaware is a program conducted by the Delaware Transportation Management Agency to encourage carpooling, particularly for the journey to work, toward a goal of decreased congestion and need for new roads, and better air quality. The program supports carpooling by helping to set up suitable carpooling opportunities and by providing a guaranteed ride home in emergencies, and other policies that make carpooling more desirable. The survey questions are geared toward understanding the awareness of Rideshare Delaware and in understanding the factors that may influence people to carpool. Close to 60 percent of the respondents said they were not interested in carpooling, but the services RideShare Delaware offers like assistance in setting up carpools and providing a guaranteed ride home would make a difference in encouraging people to carpool.

**Figure 42. For Employed Persons, “Have You Ever Heard of Rideshare Delaware?”
DTMS Year 2000 to 2006, % Responding
Kent County, Three Year Averages**

	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006	All Years
YES	38	45	55	68	68	56
NO	62	55	45	32	32	44

**Figure 43. For Employed Persons, Who Have Heard of Rideshare
“Have You Ever Used Rideshare Services?”
DTMS Year 2000 to 2006, % Responding
Kent County, 3 Year Averages**

	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006	All Years
YES	1	2	2	2	2	2
NO	99	98	98	98	98	98

**Figure 44. For Employed Persons Who Have Used Rideshare
“Did Using Rideshare Services Assist You or Your group in forming a carpool?”
DTMS Year 2001 to 2006, % Responding
Kent County**

Yes	48
No	48

**Figure 45. For Employed Persons Who Have Heard of Rideshare
“Did You Know That Rideshare Offers an Emergency Ride Home for Those Using it to
Get to Work?”
DTMS Year 2000 to 2006, % Responding
Kent County**

Yes	44
No	54

**Figure 46. For Employed Persons
“Which of the Following Might Influence You to Car/Vanpool to Work?”
DTMS Year 2000 to 2006, % Responding
Kent County**

	Yes	No
Reserved near the door parking for car/vanpools	14	86
Flexible work hours to accommodate ridesharing	20	80
Easy way to find carpool partners	20	80
Free guaranteed ride home in case of emergency	20	80
Priority lane on highway	15	85
I already car or vanpool	20	80
Not interested in carpooling	64	36
Vanpool subsidy	92	8

EZ Pass is the automated toll collection system where drivers put a transponder in their car and then can use the EZ Pass lanes rather than going to the toll booth cashiers. The DTMS survey includes two questions that ask about current and planned usage of the program. These results are seen as residential household estimates.

**Figure 47. Are You Enrolled in EZ-Pass?
Kent County DTMS Year 2003 to 2006
Percent Responding**

	2003	2004	2005	2006	2003-2006
Yes	30	41	45	48	42
No	70	59	55	52	58

Opinion and Perceptions

A few questions are included in the DTMS survey that asks users about their perceptions of the transportation system.

The first question has to do with public perceptions of the condition of Delaware's roads. As shown in Figure 44, close to two thirds of Delawareans believe roads are in good or better condition, with only about 10% saying they would rate the condition of roads as "Poor". There are no significant differences between counties for this question.

Figure 48.
"Overall, How Would You Rate the Condition of the Delaware Highways That You Use Daily?"
DTMS Year 1998 to 2006, % Responding
Kent County

	1998	1999	2000	2001	2002	2003	2004	2005	2006	All years
Excellent	6	19	3	3	6	12	6	10	5	8
Very Good	20	27	20	20	14	26	34	27	30	24
Good	49	36	58	63	72	35	35	42	45	48
Fair	18	7	14	13	5	20	17	17	14	14
Poor	6	2	4	0	3	7	7	4	7	4

As shown in the Figures below, a little less than two thirds believe that DeIDOT is doing a good or better job of managing transportation with only about eight percent believing that DeIDOT is doing a poor job.

Figure 49.
"Overall, How Would You Rate the Performance of DeIDOT in Managing Transportation in the State of Delaware?"
DTMS Year 2000 to 2006, % Responding
Kent County

	2000	2001	2002	2003	2004	2005	2006	00 to 06
Excellent	1	1	3	8	4	7	3	4
Very Good	14	12	11	17	23	22	18	17
Good	61	63	74	36	37	41	42	51
Fair	12	13	9	16	17	10	18	14
Poor	5	1	1	6	8	7	8	5

The DTMS also includes a question about traffic congestion and the perceived sources. The response “Typical rush hour traffic” always leads with “Road Construction” next.

Figure 50.
When You Encounter Traffic Congestion in Kent County, What is it Usually Related to?
Kent County, DTMS 2001 to 2006

	2001	2002	2003	2004	2005	2006	All years
An Accident	5	5	16	16	14	16	12
Construction	17	9	25	20	22	15	18
Typical rush hour	62	67	33	35	33	39	45
Special events	6	6	8	9	7	9	7
Don't Encounter Congestion	2	3	8	7	10	8	6
Other	10	10	10	14	14	14	12

Origins and Destinations

The DTMS survey asks the question, “What street or development do you live on? Or, where is the closest intersection to your home?” For each trip a similar question is asked for each origin and destination, and respondents are also asked for the zip code of destinations if they know it. From this information, the origin and destination for each trip is geocoded to the zip code level and to a more detailed demographic unit used in Delaware, the Modified Grid. There are about 2,300 modified grids delineated in Delaware, and they are about on average 500 acres in size (0.8 square miles). Placing the respondent, and spatially referencing origins and destinations allows for analysis of where travel is occurring and offers a means of estimating trip distances.

Figure 51, below tabulates the percentage of trips taken within and between counties in Delaware. Around 18% involves Kent County, 21% Sussex, and 65% New Castle. Distributions of flows do not significantly show differences between all trips and journey to work.

Figure 51.
Estimate of Percentage of Travel Between Counties
DTMS 1997 to 2006, Entire State (59816 trips)

Trips within Kent County	12.8
Trips within New Castle	56.3
Trips within Sussex	16.0
Trips between Kent and New Castle	2.0
Trips between Kent and Sussex	2.6
Trips between Kent and Outside of Delaware	0.8
Trips between New Castle and Sussex	0.6
Trips between New Castle and Outside of Delaware	6.2
Trips between Sussex and Outside of Delaware	2.0

Figure 52.
Estimate of Percentage of Travel Between Counties
Journey to Work
DTMS 1997 to 2006, All Delawareans (20921 trips)

Trips within Kent County	12.6
Trips within New Castle	55.5
Trips within Sussex	14.0
Trips between Kent and New Castle	2.9
Trips between Kent and Sussex	2.8
Trips between Kent and Outside of Delaware	0.9
Trips between New Castle and Sussex	0.3
Trips between New Castle and Outside of Delaware	8.4
Trips between Sussex and Outside of Delaware	1.8

Figures 53 and 54 show the county-based distributions for those living in Kent County. About six percent of trips are between Kent and New Castle, and about seven percent between Kent and Sussex. About five percent are to places outside of Delaware. Journey to work percentages are similar but slightly more than percentages for all trips.

Figure 53.
Estimate of Percentage of Travel Between Counties
DTMS 1997 to 2006, Those Living in Kent County (9360 trips)

Trips within Kent County	79.3
Trips within New Castle	0.9
Trips within Sussex	1.1
Trips between Kent and New Castle	6.1
Trips between Kent and Sussex	7.0
Trips between Kent and Outside of Delaware	4.7
Trips between New Castle and Sussex	0
Trips between New Castle and Outside of Delaware	0.1
Trips between Sussex and Outside of Delaware	0.1

Figure 54.
Estimate of Percentage of Travel Between Counties
Journey to Work
DTMS 1997 to 2006, Those Living in Kent County (3446 trips)

Trips within Kent County	74.5
Trips between Kent and New Castle	8.7
Trips between Kent and Sussex	9.2
Trips between Kent and Outside of Delaware	5.3

Origin and Destination information can be viewed from the zip code level for more detail. Figure 55, below, shows a thematic map of respondent home zip codes as the percentage of Kent County for surveys taken from 1997 thru 2006. The mapping is of course affected somewhat by the varying size of the zip codes, but it's clear that zip codes 19901 and 19904 contain a relatively larger percentage of Kent County population. With the amount of data available, it is not possible to show year-to-year trends. When data is split between the years 1997 thru 2001, and 2002 thru 2006, there's some indication that the population distribution is spreading slightly particularly in zip code 19963.

**Figure 55. Respondent Home Zip Codes (Origins)
As a Percentage of Kent County Population**

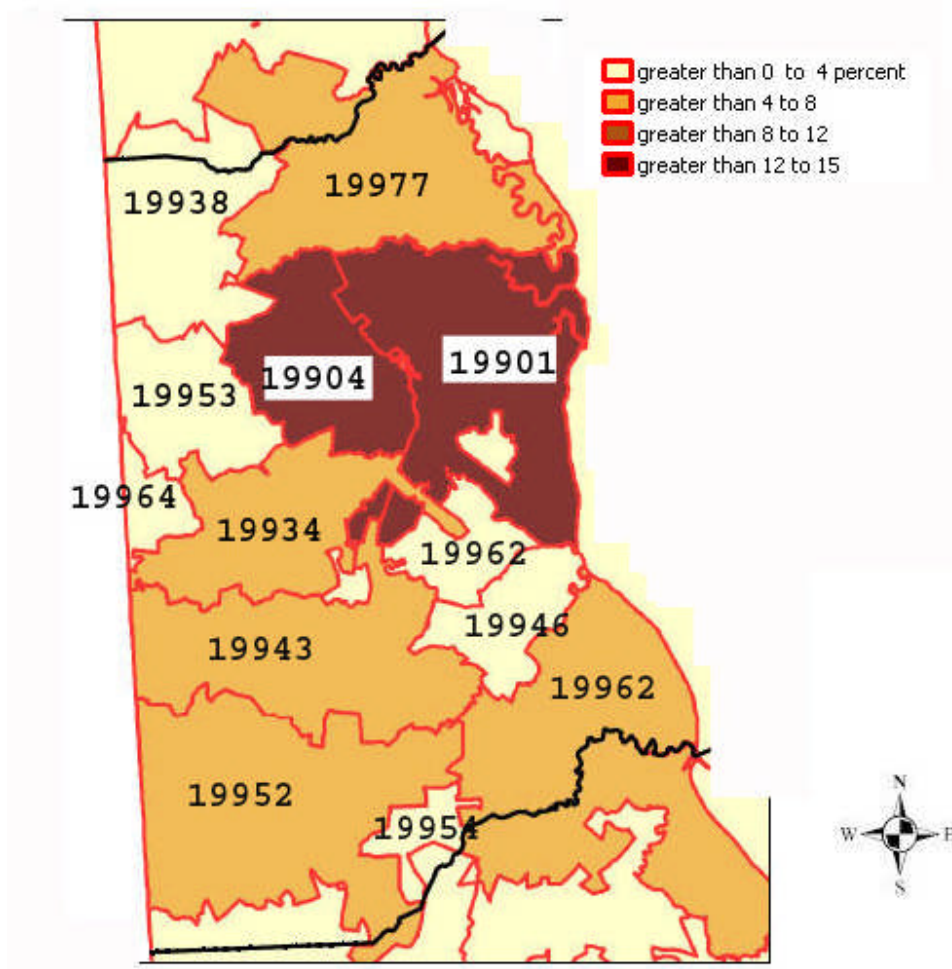


Figure 56, below, is a zip code based origin destination matrix for Kent County respondents and shows percentages of trips for each origin-destination pair. For destinations, zip codes 19901 and 19904 are the focus of travel for all trips (by a factor of 10) and for journey to work trips as well. There are also relatively higher trips involving zip codes 19934, 19963, and 19977. Figure 57 is a similar origin-destination table with values expressed in terms of the estimated total number of daily trips. Figures 58 and 59 on the next two pages show destination figures mapped for Kent County.

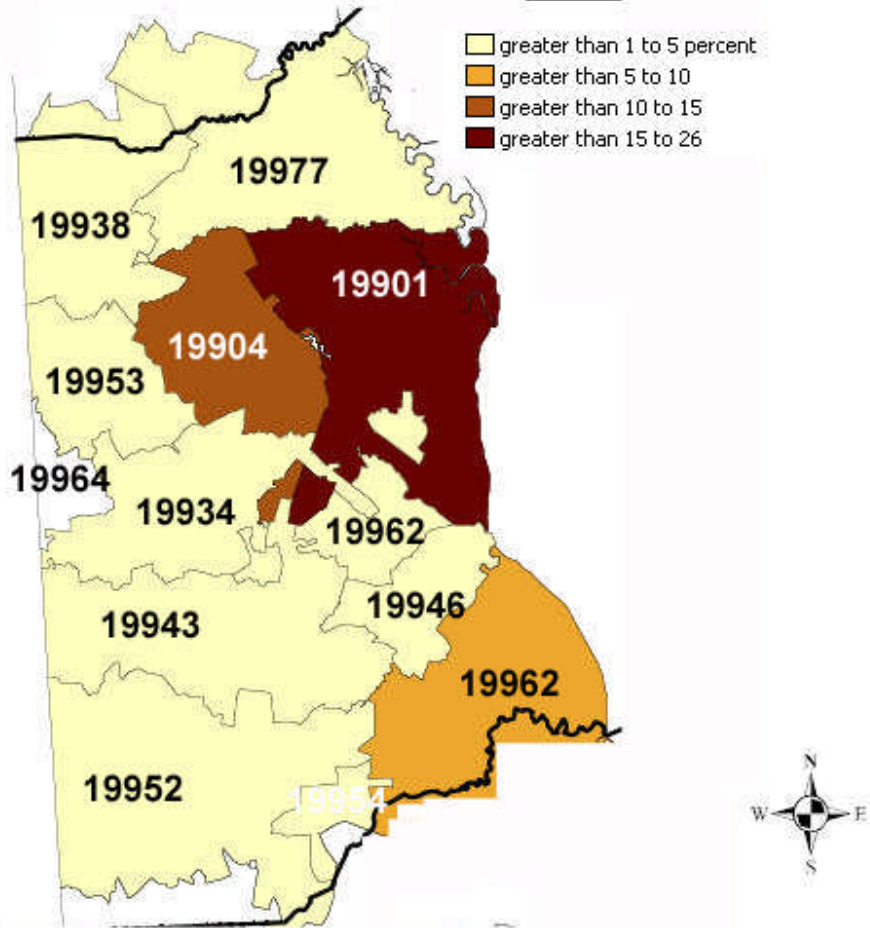
**Figure 56. Estimate of Percentage of Daily Trips for
Origin Destination Zip Code Pairs
For Those Living in Kent County and For Travel Within Kent County Zip Codes
Estimate Using DTMS 1996 to 2006**

	19901	19902	19904	19934	19938	19943	19946	19952	19963	19977
19901	16.9									
19902	1.9	0.4								
19904	15.3	1.0	8.0							
19934	5.6	0.6	3.0	2.8						
19938	1.1		0.5		0.5					
19943	2.9	0.3	1.6	0.7		2.0				
19946	1.3		0.5			0.4	0.5			
19952	1.3		0.4	0.3		1.4	0.5	2.0		
19953	0.9		0.8							
19962	2.0		0.8	0.7						
19963	1.2		0.7			0.7		1.6	3.8	
19977	2.8		1.6		1.3	0.4				3.4

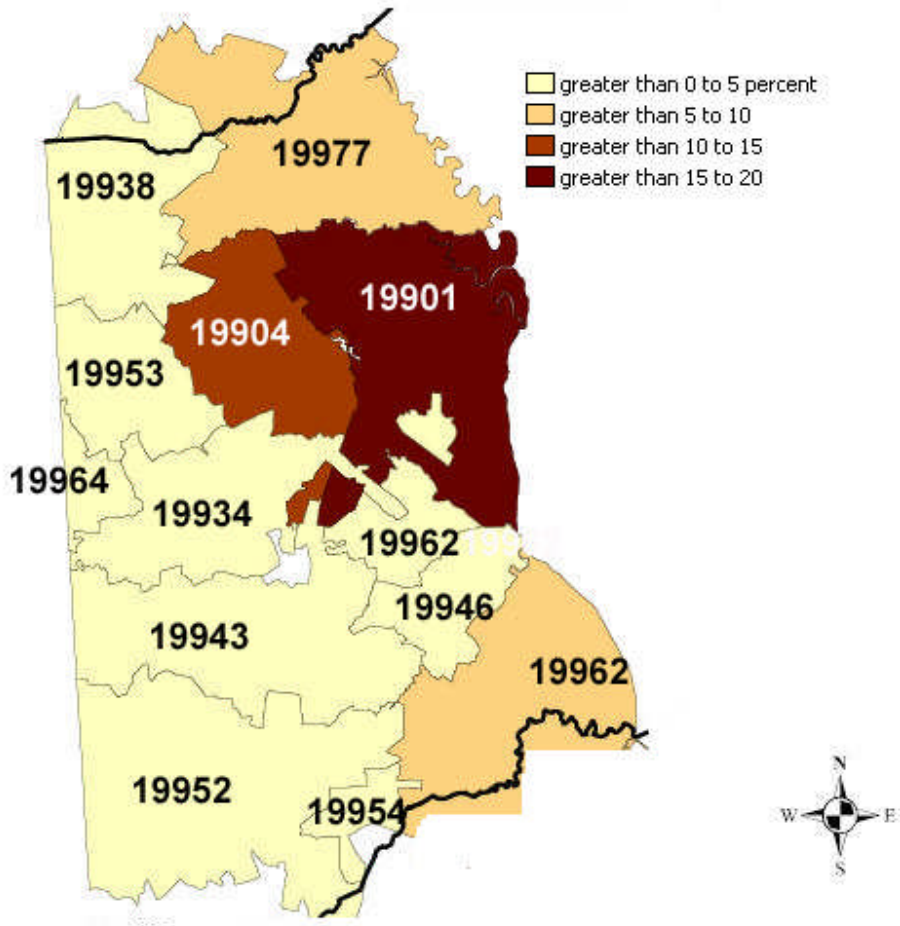
**Figure 57. Estimate of Total Daily Trips for Origin Destination Zip code Pairs
For Those Living in Kent County and For Travel Within Kent County Zip Codes
Estimate Using DTMS 1996 to 2006**

	19901	19902	19904	19934	19938	19943	19946	19952	19963	19977
19901	34067									
19902	3887	802								
19904	30804	1945	16075							
19934	11253	1190	5983	5584						
19938	2314		1089		1074					
19943	6179	683	3257	1442		3937				
19946	2546		1024			761	1029			
19952	2679		852	687		2904	970	4070		
19953	1735		1523							
19962	3959		1641	1428						
19963	2502		1397			1476		3152	7237	
19977	5601		3170		2582	810				6924

Figure 58. Kent County All Trip Destinations By Zip Code As A Percentage of Total Trips



**Figure 59. Kent County Work Trip Destinations
By Zip Code As a Percentage of Total Trips**



Using Geographical Information System (GIS) routing utilities, minimum path estimates were developed for each trip and distances calculated. Figure 60, below, shows a comparison of county-wide averages. Average trip distances and speeds are generally higher in lower density areas, and these figures reflect that data. Average trip times are similar however. To see if there were any changes through time, the data set was split into five year blocks and figures are similar. There is some indication that average trip times may have increased slightly over the last five years.

Figure 60.
Average Trip Time, Distance, and Speed Estimates
All Trips, DTMS 1997 to 2006

	Time	Distance	Speed (MPH)
Kent	22.2	9.7	26
New Castle	20.8	7.2	21
Sussex	22.0	9.7	26
Delaware	21.3	8.1	23

Figure 61.
Average Trip Time, Distance, and Speed Estimates
All Trips, DTMS 1995 to 2000

	Time	Distance	Speed (MPH)
Kent	21.2	9.5	26
New Castle	20.2	6.9	21
Sussex	22.7	10.0	27
Delaware	20.5	7.9	23

Figure 62.
Average Trip Time, Distance, and Speed Estimates
All Trips, DTMS 2001 to 2006

	Time	Distance	Speed (MPH)
Kent	23.0	9.9	25
New Castle	21.4	7.4	21
Sussex	23.1	9.4	24
Delaware	22.0	8.2	22

Separate estimates for journey-to-work trips were produced. Typically, journey-to-work trips take more time on average, which the data shows. There is not much difference when comparing the two five year blocks except for Sussex County. Perhaps areas of Sussex County are developing at a higher density, or employment is gradually being distributed closer to where people live.

Figure 63.
Average Trip Time, Distance, and Speed Estimates
Journey to Work, DTMS 1997 to 2006

	Time	Distance	Speed (MPH)
Kent	24.5	11.4	28
New Castle	24.2	8.6	22
Sussex	23.2	10.0	25
Delaware	24.1	9.1	23

Figure 64.
Average Trip Time, Distance, and Speed Estimates
Journey to Work, DTMS 1995 to 2000

	Time	Distance	Speed (MPH)
Kent	24.3	11.5	28
New Castle	24.3	8.0	21
Sussex	20.0	10.6	28
Delaware	23.9	9.0	24

Figure 65.
Average Trip Time, Distance, and Speed Estimates
Journey to Work, DTMS 2001 to 2006

	Time	Distance	Speed (MPH)
Kent	24.7	11.3	27
New Castle	24.1	8.5	22
Sussex	24.3	9.4	23
Delaware	24.2	9.2	23

APPENDIX

DELAWARE TRIP MONITORING SURVEY 2007

Questionnaire

2007 DelDOT Survey

INTRO Hello, I'm calling from the University of Delaware. We are conducting a survey of Delaware residents for the Delaware Dept of Transportation to collect information on travel patterns to determine current and future transportations needs and services.

Your phone number has been chosen randomly by the computer to be included in the study. For verification purposes, is this <phone #>?

- YES
- NO (number redialed)

Is this a private residence?

- YES
- NO (interview terminated)

We need to randomly select one adult who lives in your household to be interviewed. How many members of your household, including yourself, are 16 years of age or older?

Enter number of adults _____

How many of these adults are men?

Enter number of MEN ____

How many of these adults are women?

Enter number of WOMEN ____

The person in your household I need to speak with is the <Selected Respondent>.

May I speak with the <Selected Respondent>*?

- Yes, coming to the phone
- Not Available (set callback)

***IF SELECTED RESPONDENT IS ON THE PHONE**

Then you are the person I need to speak with. Once again, the purpose of the study is to gather information on travel patterns to determine current and future transportation needs and services.

*WHEN SELECTED RESPONDENT COMES TO THE PHONE

Hello, I'm calling from the University of Delaware. We are conducting a survey of Delaware residents for the Delaware Dept of Transportation to collect information on travel patterns to determine current and future transportations needs and services. Your answers will be completely confidential and no response will be identified with you personally.

Q1 DID YOU GO ANYWHERE YESTERDAY? This could include going to work, a shopping trip, stopping at the bank or convenience store, recreation, family responsibilities, dropping or picking up family members from school or events. ANY TYPE of TRAVEL, whether it is by car, bus, walking, bicycling or other means is of interest.

- Yes
- No
- DON'T KNOW
- REFUSED

Q2 What was the main reason why you did not make any trips yesterday?

- Working at home
- Sick (either yourself or a family member)
- Vacation
- Retired /Unemployed/Housewife
- DON'T KNOW
- REFUSED
- OTHER _____

INFO1 For each of the trips you made YESTERDAY we need to know where the trip began and ended, the start time of the trip, the means of travel, the number of passengers you traveled with, and the trip purpose. Let's go through each in turn, and I will record the information.

Q3 From what General Location did you begin your first trip?

- Home
- Work
- Store
- School
- Drop off/Pick up a person
- Social
- Recreation
- Eat out
- Child Care
- DON'T KNOW
- REFUSED
- OTHER _____

- Q4** Please specify the address of your first trip. We need either a Development, a Street, an Address, or the nearest intersection to this location as well as the city or town.

- Q5** What is the ZIP CODE FOR THIS LOCATION?

ZIP CODE FOR LOCATION _____
 DON'T KNOW
 REFUSED

- Q6** What time did you begin your trip.

Time _____
 DON'T KNOW
 REFUSED

- Q7** Was that AM or PM?

AM
 PM
 DON'T KNOW
 REFUSED

- Q8** Trip Method

Driver of car
 Passenger in car
 Public Bus
 Walked
 School bus
 Rode bike
 Vanpool
 DON'T KNOW
 REFUSED
 OTHER _____

- Q9** Including yourself, how many people were in the car or van?

Number of people ____
 DON'T KNOW
 REFUSED

- Q10** Where did you go or what was the purpose of this first trip?

Home
 Work
 Store
 School
 Drop off/Pick up a person

-
-] Social
 -] Recreation
 -] Eat out
 -] Child Care
 -] Doctors (medical)
 -] Bank or Post Office
 -] Public Transportation Stop (Train Bus)
 -] Barber/Hairdresser
 -] House of Worship (Church etc)
 -] DON'T KNOW
 -] REFUSED
 -] OTHER _____

Q11 Please specific the Location. We need either a Development, a Street, an Address, or the nearest intersection to this location as well as the city or town.

Q12 What is the ZIP CODE FOR THIS LOCATION?

- ZIP CODE FOR LOCATION _____
-] DON'T KNOW
 -] REFUSED

Q13 What time did you end your trip.

- Time _____
-] DON'T KNOW
 -] REFUSED

Q14 Was that AM or PM?

-] AM
-] PM
-] DON'T KNOW
-] REFUSED

Q15 Did you stop at convenience store or stop for gas anytime during this trip?

- Enter a value _____
-] DON'T KNOW
 -] REFUSED

Q16 You said that you went to a store. Was your shopping trip in a mall, a shopping center, or downtown retail area? If yes, how many stores did you go in?

Enter a value _____

DON'T KNOW

REFUSED

Q17 Did you eat while you in the mall, shopping center, or in the downtown retail area.

Yes

No

DON'T KNOW

REFUSED

Q18 Did you make more trips?

Yes

No

DON'T KNOW

REFUSED

----- REPEATS FOR UP TO 9 TRIPS -----

Q19 Which of the following best describes your shopping habits?

I shop primarily on the weekends

I mostly shop on the way to or from work

I make shopping trips primarily from home, Monday thru Friday

DON'T KNOW

REFUSED

OTHER _____

Q20 In order to analyze the data, we need the following household information, which will be kept completely confidential. How many people live in your household?

Enter a value _____

REFUSED

Q21 Starting with yourself, what is your age?

Enter a value _____

REFUSED

Q22 What is your status in the household?

-] Father (if child in HH)
-] Mother (if child in HH)
-] Child in HH (age 16 and over)
-] domestic (maid, Housekeeper, HH worker)
-] Relative (Grandparent/cousin/etc)
-] Boarder
-] Head of Household/Unrelative/boygirl friend/roomate
-] Living alone (no other person in HH)
-] Husband (if NO Child in HH)
-] Wife (if NO Child in HH)
-] REFUSED

Q23 What is your Employment Status?

-] Employed
-] Unemployed
-] Student
-] Retired
-] Homemaker
-] Self-employed
-] REFUSED

Q24 How do you normally get to school?

NOTE: If respondent does not attend school or is home schooled
select NA

-] Driver of a Car
-] Passenger in a Car
-] Public Bus
-] Walks
-] School Bus
-] Rides Bike
-] DON'T KNOW
-] NOT APPLICABLE
-] REFUSED

SEX Interviewer Only: Code gender

-] Male
-] Female
-] DON'T KNOW

Q25 The next person in your household what is their age?

Enter a value_____

-] REFUSED

Q26 What is their status in the household?

-] Father (if child in HH, this could include a grown child)
-] Mother (if child in HH, this could include a grown child)
-] Child (of Father or Mother) this could include a grown child
-] Domestic (maid, Housekeeper, etc)
-] Other Relative (Grandchild/Grandparent/Cousin/niece/nephew, Aunt, Uncle)
-] Boarder
-] Roommate (Unrelated/boyfriend/girlfriend/child of boyfriend/girlfriend)
-] Living Alone
-] Husband (NO Child in HH)
-] Wife (NO Child in HH)
-] REFUSED

Q27 What is their Status? Are they ___?

-] Employed
-] Unemployed
-] Student (age 6 and over)
-] Retired/Disable
-] Homemaker
-] Self-employed
-] Refused
-] Child 5 years or under
-] REFUSED

Q28 What is their sex?

-] Male
-] Female
-] REFUSED

----- REPEATS FOR UP TO 5 MORE HH MEMBERS -----

Q29 What is your Occupation?

Q30 How many of the household members are able to travel on their own who are Under 16 years old?

- Enter a value _____
-] DON'T KNOW
 -] REFUSED

Q31 How many of the household members are able to travel on their own who are 16 years and over?

Enter a value _____

DON'T KNOW

REFUSED

Q32 How many motorized vehicles of each type are available for use by residents of your household

1) Cars ____

2) SUVs ____

3) Trucks ____

4) Vans/Mini-Vans ____

5) Motorcycles/motorscooters/mopeds ____

DON'T KNOW

REFUSED

Q33 Does any household member have a disability that limits the type of transportation they can use?

Yes

No

DON'T KNOW

REFUSED

Q34 Does this person (or Do these persons) use specialized transportation services?

Yes

No

DON'T KNOW

REFUSED

Q35 Has any household member ever used any of the DART First State transit services for a trip in Delaware?

Yes

No

DON'T KNOW

REFUSED

Q36 What would make you use these services more frequently?
(Select all that apply)

1) Lower Fares

2) More frequent service

3) Better schedules/route information

4) More routes

5) Weekend service

6) Later operation hours (such as night service)

- 7) Have no driver's license/no car available
- 8) Employer transit benefit or subsidy
- 9) Other

Q37 What is the other reason that would make you use services more frequently?

Q38 What are the reasons these services are not used?
INTERVIEWER: Select all that apply

- 1) Car is always available
- 2) Inconvenient (eg. routes, bus stops)
- 3) Hours of service are not appropriate
- 4) Do not like buses
- 5) Want privacy (Do not like crowds)
- 6) Unaware of routes or schedules
- 7) Health problems
- 8) No public transportation in area
- 9) Other

Q39 What is the other reason these services are not used?

Q40 Have you ever heard of DART's Rideshare Delaware?

- Yes
- No
- DON'T KNOW
- REFUSED

Q41 Have you used its services?

- Yes
- No
- DON'T KNOW
- REFUSED

Q42 Did using DART's Rideshare Delaware services assist you or your group in forming a carpool?

- Yes
- No
- DON'T KNOW
- REFUSED

Q43 Did you know DART's Rideshare Delaware offers an emergency ride home benefit for its participants who use a rideshare mode to get to work?

- Yes
- No
- DON'T KNOW
- REFUSED

Q44 Which of following might influence you to car/vanpool to work.
INTERVIEWER: Select all that apply

- 1) Reserved, near the door parking for car/vanpools
- 2) Flexible work hours to accommodate ridesharing
- 3) Easy way to find carpool partners
- 4) Free Guaranteed Ride Home in case of emergency
- 5) Priority lane on Highway
- 6) Vanpool subsidy
- 7) I already car/vanpool
- 8) Not interested in care/vanpooling
- 9) Other

Q45 What other reason might influence you to car/vanpool to work?

Q50 What county do you live in

- Kent
- New Castle
- Sussex
- DON'T KNOW
- REFUSED

Q51 Which of the following best describes the type of area where you live

-] Urban
-] Suburban
-] Rural
-] DON'T KNOW
-] REFUSED

Q52 In what type of structure is your household located?

-] Single family house detached from any other house
-] Single family house attached to one or more houses (duplex, townhouse, or condominium)
-] Mobile home or trailer
-] Hotel/motel
-] Apartment building

Q53 Would that be a high rise, low rise, or a garden apartment?

-] High Rise
-] Low Rise
-] Garden
-] DON'T KNOW
-] REFUSED

Q54 you rent or own your home?

-] Rent
-] Own
-] DON'T KNOW
-] REFUSED
-] OTHER _____

Q55 What ethnic group best describes your household?

-] Latino/Hispanic/Mexican American
-] Black/African American
-] White/Caucasian
-] Asian/Pacific Islander
-] Native American/American Indian
-] DON'T KNOW
-] REFUSED
-] OTHER _____

Q56 What is your household income? Is it...

-] less than \$10,000
-] \$10,000- \$14,999
-] \$15,000 - \$19,999
-] \$20,000 - \$24,999
-] \$25,000 - \$29,999
-] \$30,000 - \$34,999
-] \$35,000 - \$39,999
-] \$40,000 - \$49,999

-] \$50,000 - \$74,999
-] \$75,000 - \$99,999
-] \$100,000 - \$149,000
-] \$150,000 or more
-] DON'T KNOW
-] REFUSED

Q57 Overall, how would you rate the condition of Delaware's highways and roads that you use DAILY?

-] Excellent
-] Very Good
-] Good
-] Fair
-] Poor
-] DON'T KNOW
-] REFUSED

Q58 Overall, how would you rate the performance of DelDOT in managing transportation in the state of Delaware?

-] Excellent
-] Very Good
-] Good
-] Fair
-] Poor
-] DON'T KNOW
-] REFUSED

Q59 Are you currently enrolled in EZ-Pass?

-] Yes
-] No
-] DON'T KNOW
-] REFUSED

Q60 Do you plan to enroll in EZ-Pass this year

-] Yes
-] No
-] DON'T KNOW
-] REFUSED

Q61 Do you own a computer?

-] Yes
-] No

] REFUSED

Q62 Does it have internet access?

] Yes
] No
] DON'T KNOW
] REFUSED

Q63 Do you have more than one telephone number?

] Yes
] No
] DON'T KNOW
] REFUSED

Q64 How many residential numbers do you have? (does NOT include business, computer or fax lines)

Number of telephone numbers ____
] DON'T KNOW
] REFUSED

Q65 When you encounter traffic congestion in Delaware, what is it usually related to?

] An Accident
] Road Construction
] Typical rush hour traffic
] Special events
] Don't encounter traffic congestion
] DON'T KNOW
] REFUSED
] OTHER _____

Q66 What is your zip code?

Enter Zip Code _____
] DON'T KNOW
] REFUSED

Q67 What street or development do you live on? Or where is the closest intersection to your home?

INTERVIEWER: If respondent is not willing to answer. Read: "I understand that you are not comfortable telling me the street or dev but we would like to know at least the nearest street intersection to your home."

That's all the questions I have. Thank you for your time and cooperation in doing this survey.