

Chapter 4

4. Trends and Implications on Future Transportation Needs

How effectively transportation systems function affects the quality of the built and natural environments as well as the quality of life of residents and visitors. Transportation needs are determined by comparing the demand for movement of goods and people to the supply of transportation facilities. To understand the future transportation needs of Kent County, it is necessary to understand where people will live and work, the ways in which they will make use of the land, and the travel choices they will make. Various trends are examined and modeled to support identification of future transportation needs. This chapter discusses population and employment trends, transportation network use, future land use, and travel trends based on public opinion.

4.1 Population and Employment Trends

Population and employment trends compared with existing conditions indicate future transportation needs. The population and employment trends of the MPO region indicate potential deficiencies in the system if unfettered growth or even growth at a pace similar to recent periods continues. The MPO reviewed past trends and distributed projected future population growth to predict the

future conditions of our transportation network. As described in subsequent pages, the transportation network may not be able to adequately accommodate the anticipated demands in some areas, based upon the additional vehicles that accompany most growth. The MPO adopted population projections using 2011 data from the Delaware Population Consortium (DPC). The consortium uses data gathered by the U.S. Census Bureau and other federal and state agencies and projects growth based on national trends, local land use plans, local trends, and local knowledge provided by area planning officials. The DPC collects data at the county level. To use the data in transportation planning, it is distributed among Traffic Analysis Zones (TAZs), which are the base units of DelDOT's travel demand model. The Census Bureau requested the MPO create larger geographies to cover a greater population and designate them as Transportation Analysis Districts (TADs). **Exhibit 4.1** represents the area covered by each TAD. **Exhibit 4.2** portrays the 2010 population density in the MPO area by TAZ. For presentation and analysis purposes, the Traffic Analysis Zones are combined to create Traffic Analysis Districts (TADs). The table in **Exhibit 4.3** documents the largest growth is expected to occur in the Milford TAD area, followed by the Magnolia TAD area.

Exhibit 4.1: Traffic Analysis Districts

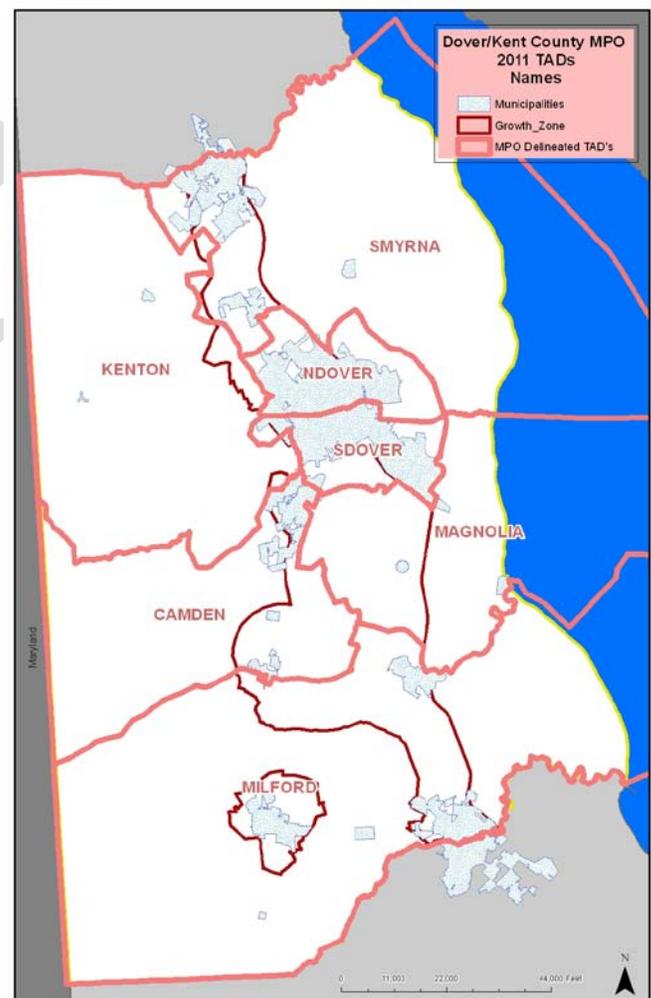
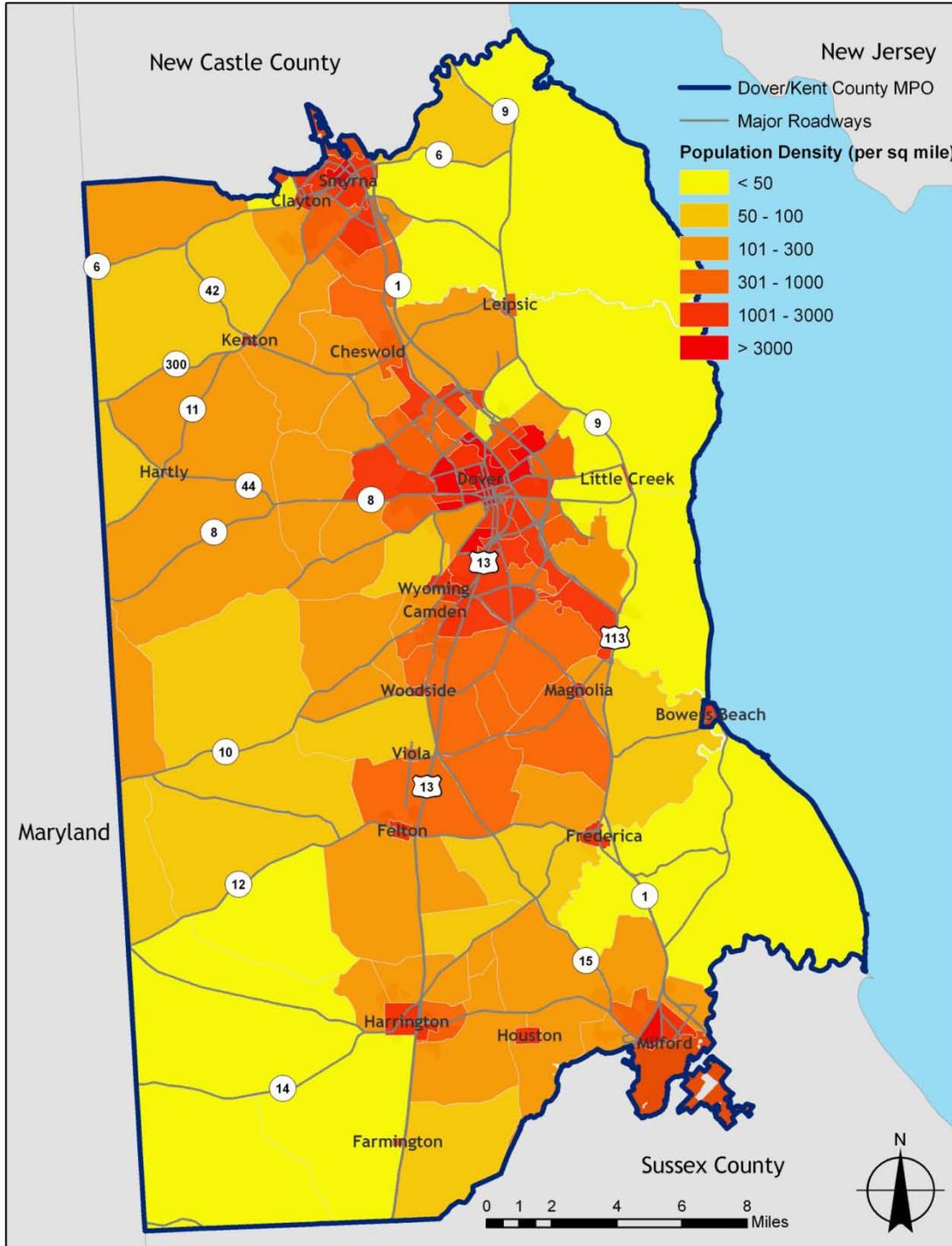


Exhibit 4.2: 2010 Population Density



Source: Dover/Kent County MPO

Exhibit 4.3: Population Projections by Traffic Analysis District (TAD)

MPO Area by TAD	2010	2020	2030	2040	% Change 2010 to 2040
Camden TAD	20,307	22,892	24,563	25,917	27.6%
Kenton TAD	21,211	23,239	24,588	25,904	22.1%
Magnolia TAD	19,352	21,966	23,985	24,980	29.1%
Milford TAD	24,922	29,304	32,914	35,811	43.7%
North Dover TAD	24,971	26,334	27,532	28,666	14.8%
South Dover TAD	24,495	26,679	28,214	29,973	22.4%
Smyrna TAD	27,052	29,908	32,374	34,608	27.9%
Total	162,310	180,321	194,196	205,049	26.3%

Source: US Census, Delaware Population Consortium, Dover/Kent County MPO

4.1.1 Total Population

The DPC released their 2012 edition of population projections in October 2012, so only summary numbers are reported in this plan. Compared to New Castle and Sussex counties, the Kent County population is projected to continue to have the smallest population in the state. The population of Kent County is projected to increase 26 percent between 2010 and 2040 as compared to the state's 25 percent projected increase for the same period. This growth puts increased demands on the existing transportation network in Kent County.

Exhibit 4.4: Population Projections

Area	2010	2020	2030	2040
State of Delaware	901,208	996,150	1,060,249	1,099,293
Kent County	162,310	180,321	194,196	205,049

Source: Delaware Population Consortium, 2012

4.1.2 Age

The Dover/Kent County MPO region has an aging population as shown in **Exhibit 4.5**. The population over 65 years will grow at a faster rate than the population of youth or the population of working age residents. This population is projected to slow near the year 2040. The relative proportion of the population by age group is included as **Exhibit 4.6**. This chart again shows the increase of the older population and the relative extraordinary growth of the elderly over 85 years. The proportion in the age group over 60 years is projected to grow from 16% in 2000 to 25% by 2040. While the whole population of the County is projected to increase through 2040, the proportion under 20 and those between 20 and 39 will decrease in the period. The proportion between 40 and 59 is expected to remain approximately 1/4 of the residents. Those older will create an increasing presence in the County, in terms of projected numbers and in proportion of the population. As the aging population continues to grow, the demand for medical transportation and other coordinated human services transportation is also expected to climb. Mobility and access will become increasingly important for this population, and will need to be considered in decision-making for multiple modes, including roadway design standards and public transit.

Exhibit 4.5: Population Projections By Age

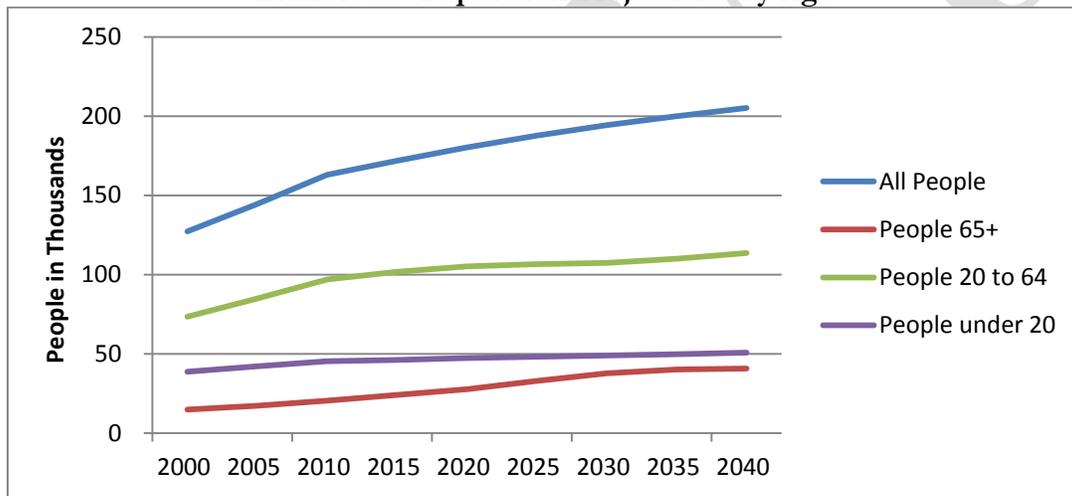
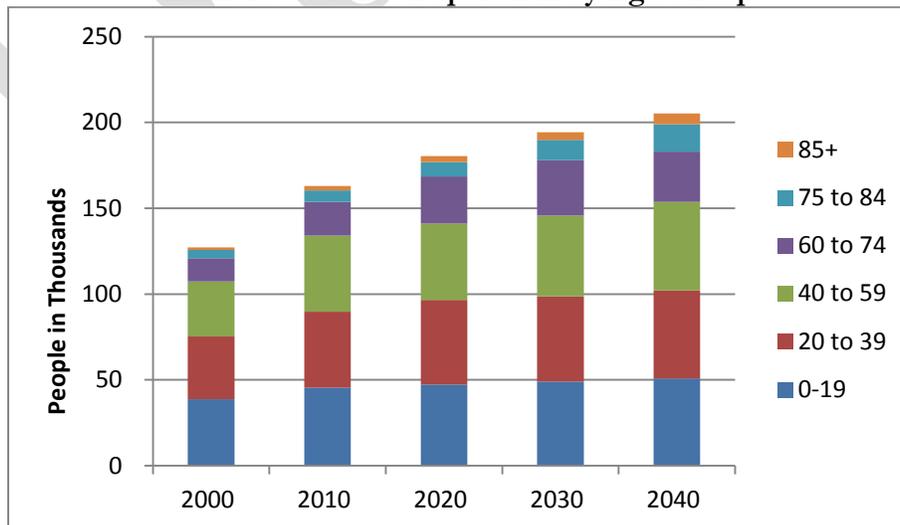


Exhibit 4.6: MPO Population by Age Group



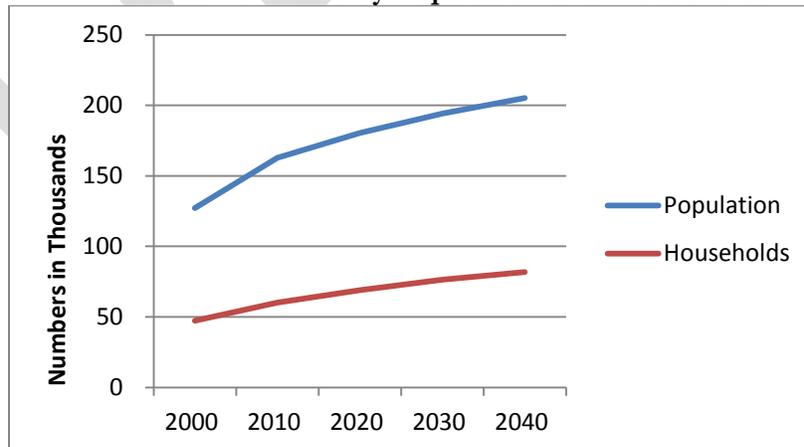
4.1.3 Households

Population and household size, coupled with levels of automobile ownership, can indicate demand for transportation. As shown in **Exhibit 4.7**, according to the Delaware Population Consortium projections, an average of 2.71 persons resided in each household in 2010. The projected person per household average is expected to continue to decrease to 2.48 persons by 2040 while the number of households is expected to increase. Thus, the number of persons living in Dover/Kent County MPO households will decrease. Nonetheless, the projected increase in households translates to a greater demand for goods, services, and employment, thereby placing a greater demand on the transportation system. At the same time, smaller household sizes combined with larger numbers of households means more trips per person. **Exhibit 4.8** provides a graphical representation of the projected trends.

Exhibit 4.7: Kent County Population and Household Size

Year	Population	Households	Average Persons per Household
2010	162,310	60,277	2.71
2020	180,321	69,572	2.59
2030	194,196	76,501	2.52
2040	205,049	81,450	2.48

Exhibit 4.8: Kent County Population and Households



4.1.4 Employment

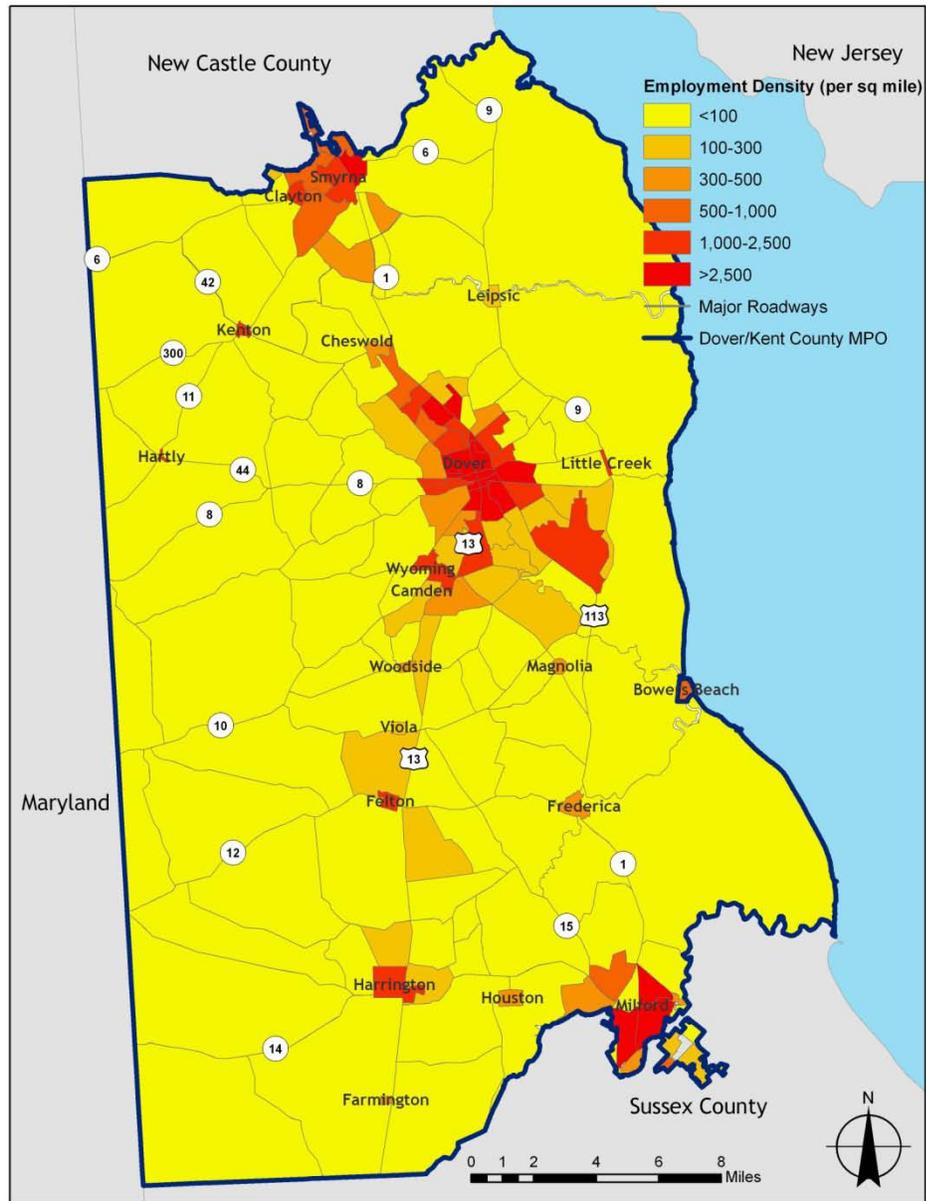
Employment is expected to increase in the County at rates consistent with the population increases. By 2040, employment is expected to reach 71,488, which represents a 15 percent increase over the 2010 employment of 61,913, as shown in **Exhibit 4.9**. The biggest increases are expected to occur in the Milford area. **Exhibit 4.10** shows employment density per square mile in 2040. Government and community services are expected to remain the most important segment of the economy. Dover Air Force Base remains a major engine of economic stability in the area, being directly responsible for 1,040 civilian and 5,300 military jobs and having an economic annual impact of over \$460 million (based on 2010 information).

Exhibit 4.9: Dover/Kent County MPO Employment Change

MPO Area by CCD	2010	2020	2030	2040
Camden TAD	3,103	3,276	3,418	3,581
Kenton TAD	1,503	1,587	1,656	1,735
Magnolia TAD	1,474	1,556	1,624	1,701
Milford TAD	8,463	8,935	9,321	9,803
North Dover TAD	15,071	15,911	16,599	17,393
South Dover TAD	24,770	26,152	27,281	28,586
Smyrna TAD	7,529	7,949	8,293	8,689
Total	61,913	65,367	68,191	71,488

Source: Delaware Population Consortium Projections, 2011 and Dover/Kent County MPO

Exhibit 4.10: Dover/Kent County MPO 2040 Employment Density



Source: Dover/Kent County MPO

4.1.5. Projected Vehicle Miles Traveled

As part of the air quality conformity analysis conducted for the MTP update, DelDOT's travel demand model (CUBE Voyager 6.0) estimated the existing and projected vehicle miles traveled (VMT) in Kent County. Listed below in **Exhibit 4.11** and **Exhibit 4.12** are the projected Annual VMT and the Average Daily VMT, respectively.

Exhibit 4.11: Kent County Annual VMT

	2012	2020	2030	2040
VMT (Billions)	1.70	2.04	2.33	2.86

Source: DelDOT Planning

Exhibit 4.12: Kent County Average Daily VMT

	2012	2020	2030	2040
VMT (Millions)	4.65	5.56	6.37	7.81

Source: DelDOT Planning

In summary:

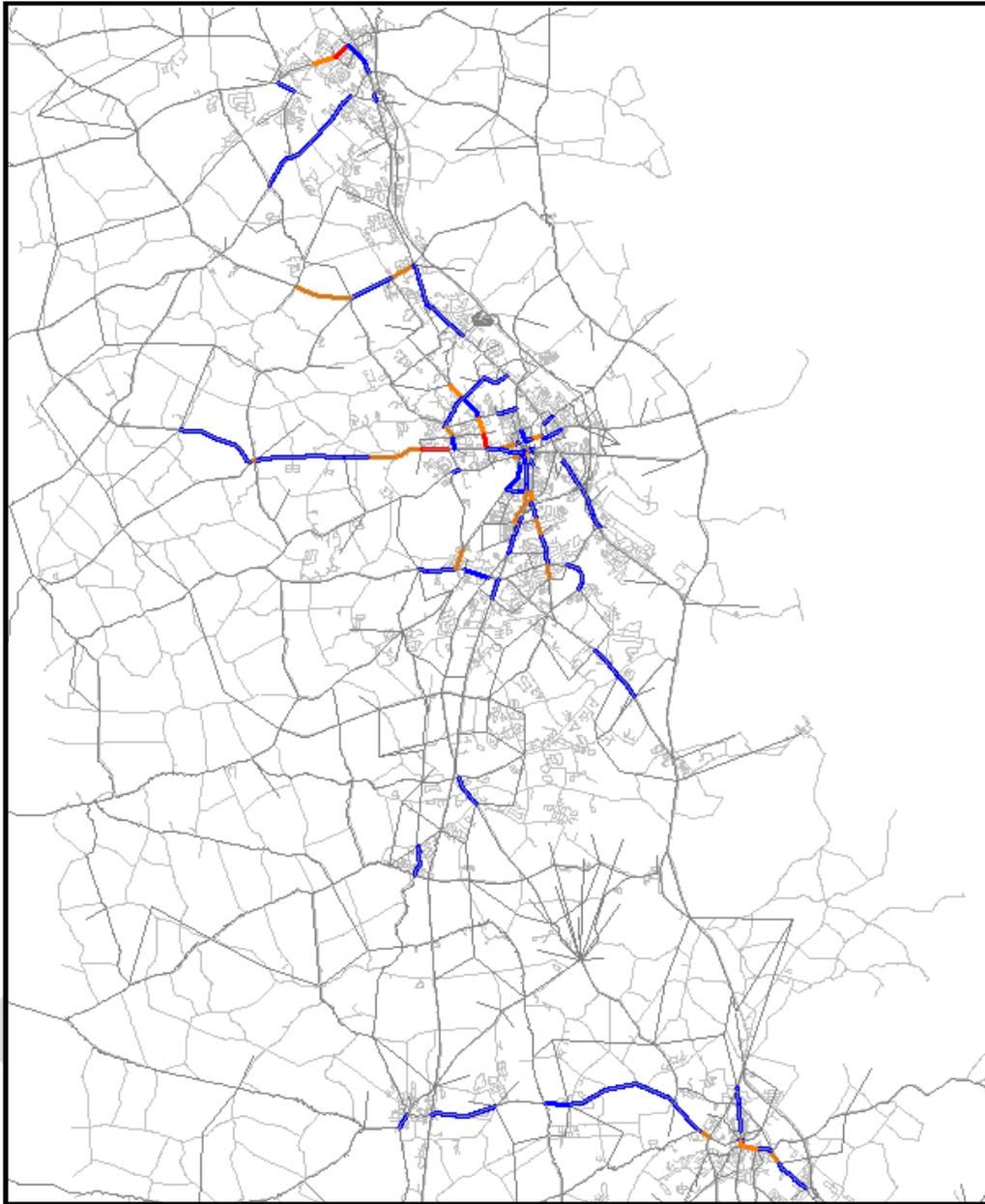
- The annual vehicle miles traveled in Kent County are projected to increase over 1 billion miles between 2012 and 2040 (a 68% increase).
- The average daily VMT in Kent County is projected to increase 68% between 2012 and 2040.

4.1.6 Projected Level of Service

In addition to the projected vehicle miles traveled, the DelDOT travel demand model also estimated future Level of Service (LOS) for a variety of major roads within Kent County. Level of Service is a rating system used to evaluate the effectiveness and efficiency of the transportation system. It is based on a numerical grading system, ranging from Level of Service A (representing optimum free flow conditions) to Level of Service F (indicating a system with more demand than capacity).

Listed in **Exhibit 4-13** and **Exhibit 4-14** are the 2012 Level of Service and projected 2040 Level of Service for the major roads in the County.

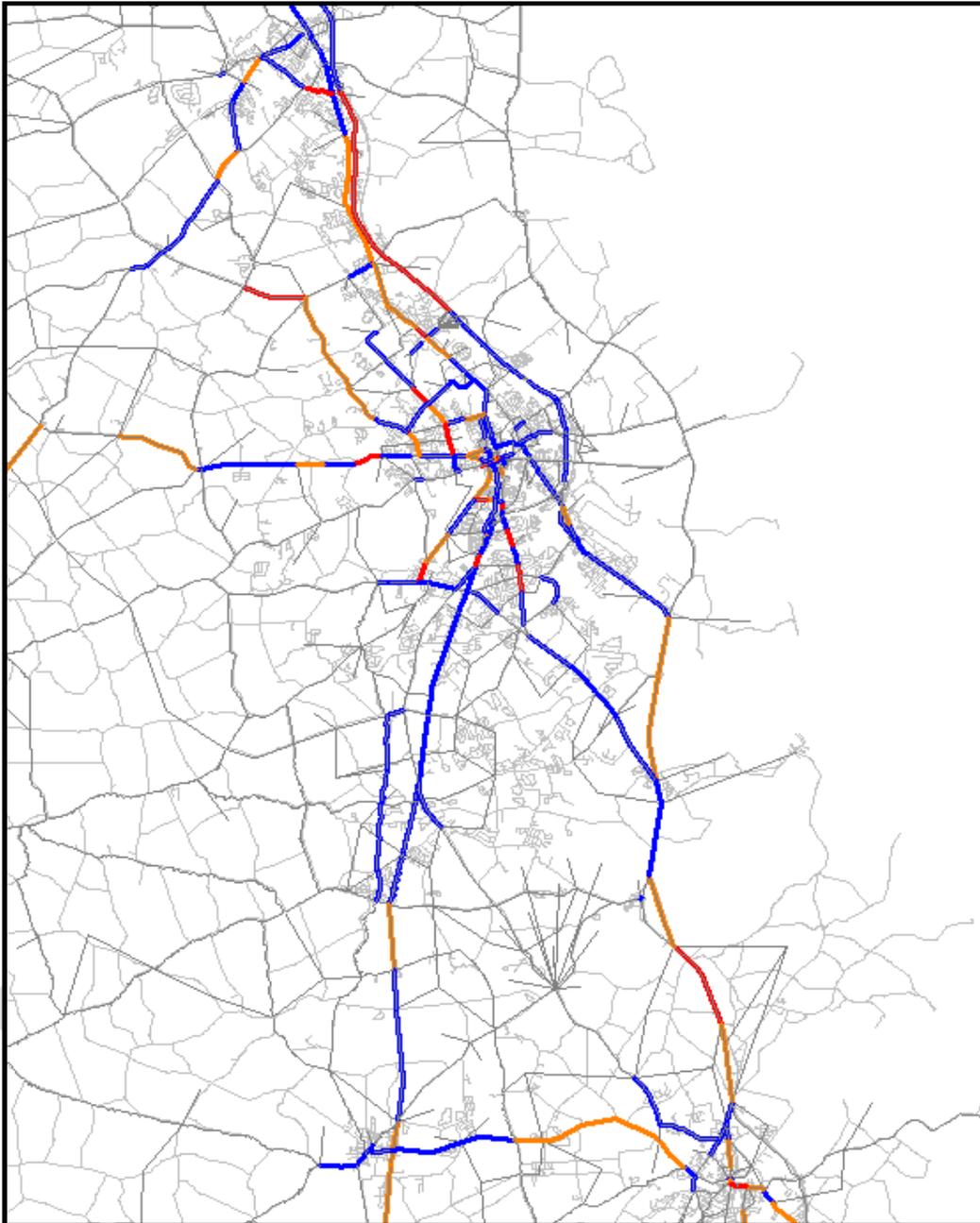
Exhibit 4-13: 2012 Level of Service



Source: DelDOT Planning

Color	Level of Service
Grey	A - C
Blue	D
Yellow	E
Red	F

Exhibit 4-14: 2040 Projected Level of Service



Source: DelDOT Planning

Color	Level of Service
Grey	A - C
Blue	D
Yellow	E
Red	F

In summary:

- Based on current traffic data, LOS E and LOS F roadways are concentrated in Dover, with several poor LOS road sections in Smyrna and Milford.
- Existing LOS E and LOS F areas include portions of the following roads, as shown in **Exhibit 4-13**:
 - U.S. 13 (south Dover)
 - Route 8 (west Dover)
 - South State Street (south Dover)
 - Saulsbury Road (west Dover)
 - Route 6 (Smyrna)
 - Downtown Milford
- Based on projected 2040 traffic conditions, there will be significantly more road sections in Kent County with a LOS E or LOS F condition. These areas include portions of the following roads, as shown in **Exhibit 4-14**:
 - U.S. 13 (through Dover, north Dover, south Dover)
 - Route 1 (north Dover, south Dover, north Milford)
 - Route 8 (west Dover)
 - Route 14 (between Harrington and Milford)
 - Kenton Road
 - Saulsbury Road
 - Division Street
 - New Burton Road
 - South State Street