

Chapter II- THE D/KC MPO STUDY AREA CHARACTERISTICS AND PROJECTED CONDITIONS

General Area Characteristics

The D/KC MPO metropolitan planning area consists of Kent County, Delaware (the County). As the middle of the three counties in the state of Delaware, the County is situated between New Castle County (more intensely developed) to the north and Sussex County (predominantly rural) to the south. Although the three counties have different land use and transportation planning challenges, they share the fact that the Delaware Department of Transportation (DelDOT) is responsible for 90% of all roads within the State (DelDOT Annual Report and Transportation Facts, 2018, pp. 4).

In addition to different land use and transportation challenges, all three counties have a designated Urbanized Area associated with a metropolitan planning organization (MPO). The Dover, Delaware Urbanized Area (UA) (established after the 1990 US Census) is located in the middle of the County and extends (after the 2010 Census) just north into New Castle County. The small portion of the Dover, Delaware UA that extends into New Castle County is supported by WILMAPCO (the MPO responsible for New Castle County) through an agreement.

This chapter will focus on different types of land use information that helps define the general characteristics in the County and that help establish a baseline when measuring projected conditions out to 2045.

Data

An essential aspect of the MTP planning process includes obtaining and analyzing data to assist in the development of MTPs and, specifically, in this instance, the Innovation 2045 MTP Update. A variety of data and planning studies were collected and reviewed from federal, state, regional, and local agencies to ensure the latest available information was used to update Innovation 2045 MTP. The majority of data used throughout this document came from existing documents and are identified throughout this MTP. For example, most transportation-related data is from DelDOT documents and publications found on their [website](#). These documents were used extensively as well as the May 3, 2019, Delaware Department of Transportation's Long Range Transportation Plan (Innovation in Motion). Another example regarding land use data was the use of local comprehensive plans, especially the [2019 City of Dover Comprehensive Plan](#) and the [2018 Kent County Comprehensive Plan](#).

One challenge was the fact that many of our partners used different lengths of time to illustrate their data trends (annual, bi-annual, four-year, five-year, ten-year, twenty-year trends, etc.). One of the primary data collection initiatives for D/KC MPO staff was to show the effectiveness in projecting future trends in previous D/KC MPO MTPs and then utilize and document these trends in Innovation 2045 MTP.

The D/KC MPO staff used a different approach to show data trends in the County. Rather than listing data trends in the last four years since the MTP update, Vision 2040, adopted in 2017, we used annual data that corresponds to each of our previous MTPs (1996, 2001, 2005, 2009, 2013, and 2017). Data trends may fluctuate from any given year to the next. Using previous MTP years as data collection points might provide a better long-range analysis perspective regarding the effectiveness of projected conditions over a more extended period. Using the MTP

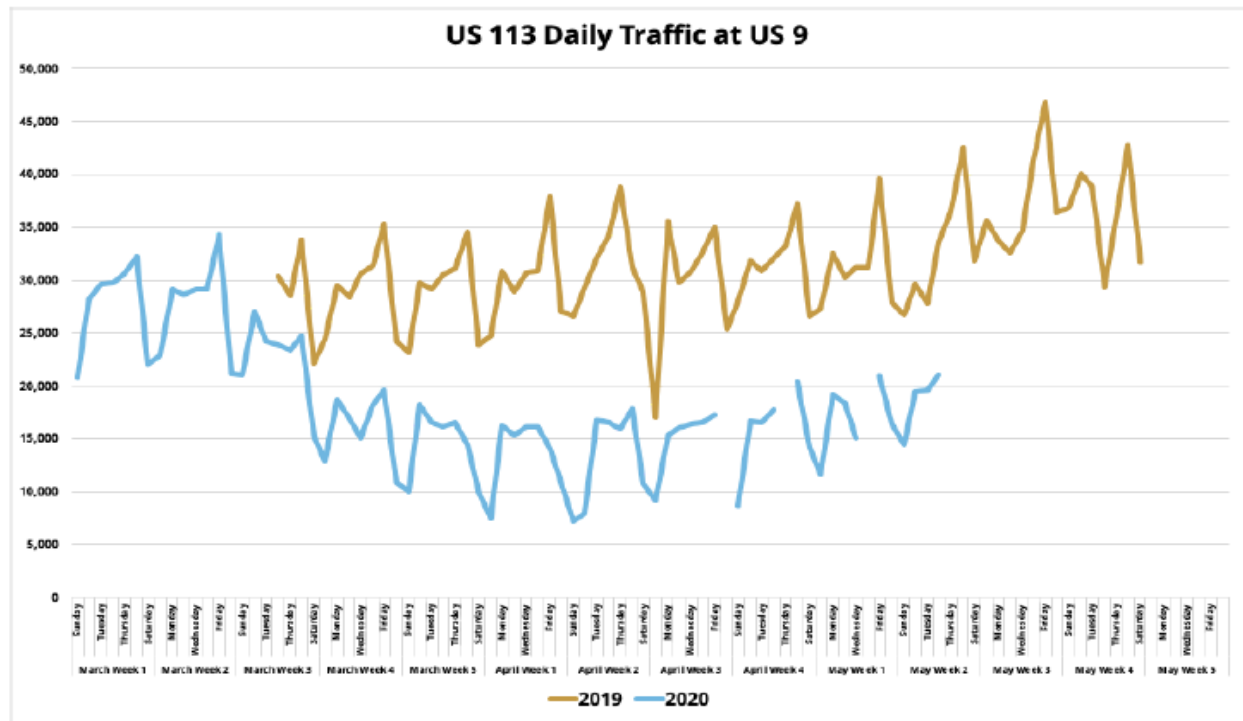
years 2005, 2009, 2013 and 2017, the chart below provides vehicular, bicycle, and pedestrian crash data from the [Delaware Annual Traffic Statistical Reports](#). (Note: there are no reports listed on-line for MTP years 1996 and 2001, although some annual reports included data that went back to 2001 for specific types of traffic crash types.)

Dover/Kent County MPO Region Crash data by MTP Year							
	1996	2001	2005	2009	2013	2017	4 or 5 year average
Kent County Population	121,646	129,021	143,577	158,038	169,150	176,824	N/A
Registered automotive licenses							
Registered motorcycle licenses							
Fatal Crashes and Fatalities- Crashes			29	17	13	21	20
Fatal Crashes and Fatalities- Deaths			37	22	14	23	24
Personal Injury Crashes			955	852	923	1012	935.5
Property Damage Crashes			1609	2406	2392	3117	2381
Injuries			1465	1249	1393	1599	1426.5
Alcohol Related Fatal Crashes and Fatalities- Crashes			15	7	6	10	9.5
Alcohol Related Fatal Crashes and Fatalities- Deaths			20	9	7	12	12
Alcohol Related Injuries			189	107	151	95	135.5
Alcohol Related Injury Crashes			123	83	89	69	91
Alcohol Related Property Damage Crashes			117	130	130	109	121.5
Motorcycle Crashes		51	76	58	73	61	63.8
Motorcycle Fatalities		2	5	2	5	1	3
Motorcycle Injuries		48	50	43	49	44	46.8
Bicycle Crashes			16	18	17	26	19.25
Bicycle Fatal Crashes			0	2	0	1	0.75
Bicycle Injuries			16	18	16	20	17.5
School Bus Crashes- Fatal		0	0	0	0	0	0
School Bus Crashes- Injured		8	4	4	5	13	6.8
School Bus Crashes- Property Damaged		11	12	6	19	21	13.8
Pedestrians Killed			4	2	1	6	3.25
Pedestrians Injured			28	26	37	39	32.5

Lastly, the data collected and shown throughout this MTP update will use the same color to represent that MTP year. These colors correspond to our geographic information system (GIS) map layers for previous MTP projects and other data used to illustrate each MTP year in our Innovation 2045 MTP Update Interactive Map and storyboard.

COVID-19 Pandemic

During the time data was being collected and used to create this Innovation 2045 MTP update, the World, including the United States and Delaware, experienced the worst pandemic since the 1918 Influenza outbreak. Delaware's Governor Carney declared a State of Emergency on March 13, 2020, which was updated several times and included a stay at home order for citizens and non-essential workers until May 15, 2020. In essence, the entire global community was affected and specific to this MTP update, data typically used to show economic, health, community, land use, and transportation trends. Data trends such as vehicular use, mass transit use, freight activity, pedestrian and bike statistics, traffic accidents, etc. from March 13, 2020 through the summer of 2020 were affected. These are vital issues that have affected the data collected for this update and may affect future transportation projects identified in the Innovation 2045.



Source: [Delaware Economic Reopening Phase I](#)

Population

Understanding demographic changes in the County is important in developing cogent transportation strategies. Demographic shifts can also influence Land Use and Employment strategies, which are also essential considerations when developing metropolitan transportation plans. Although Innovation 2045 was being written at the same time as the 2020 Census, the last official census figures used in this MTP were from the 2010 Census as updated by the Delaware Population Consortium. Once the 2020 Census has been completed and updated population counts finalized, amendments to Innovation 2045 may be considered. Until that time, the Delaware Population Consortium demographic information was the primary population source used in this MTP.

The Delaware Population Consortium's demographic data for the D/KC MPO area can be found in the Annual Population Projection reports ([Delaware Office of State Planning Coordination \(OSPC\) web page](#)). The most recent [report](#) is dated October 31, 2019. It provides a summary regarding the methodology used for the County population projections, which are found on pages A-12 through A-24. These population projections help shape decisions on future land use and transportation projects. They can be found in several transportation studies and local comprehensive plans. For example, on page I-20 in DelDOT's Long Range Plan (Innovation in Motion), there are several demographic changes shown for the County between 2015 to 2040. Specifically, the projected change in total population growth by the three counties in Delaware from 2015-2040 show:

- New Castle County with an 8.4% increase;
- Kent County with a 16.8% increase; and

- Sussex County with a 20% increase.

Information in various transportation long range plans and local comprehensive plans is a good starting point. However, the D/KC MPO staff primarily used demographic information found within the Delaware Population Consortium Annual Population Projection report dated October 31, 2019. Population projections available for any of the D/KC MPO MTP years (1996, 2001, 2005, 2009, 2013, and 2017) were also used to record historical population changes over a longer period, as seen in the chart below. Lastly, since this MTP Update goes out to the year 2045 (hence the name, Innovation 2045), population projection changes will be shown as a comparison from the year 2020 and the year 2045.

Dover/Kent County MPO Region Population data by MTP Year									
	1996	2001	2005	2009	2013	2017	2020	2045	2020-2045 % Increase
Kent County	121,646	129,021	143,577	158,038	169,150	173,900	178,650	187,714	5%
New Castle County	?	501,856	520,023	539,642	552,592	558,686	564,780	581,937	3%
Sussex County	?	157,459	175,409	187,870	213,704	224,027	234,350	280,007	16%

Note: Census data in 5 year increments as depicted in 2019 Delaware Population Consortium Report. MTP year 2001 used 2000 census data; 2009 used 2010 data; 2013 used 2015 data; 2017 used mid point increase from 2015 and 2020.

In using population projections from 2020 out to 2045, overall County population projection changes may be different from those used in other long range and comprehensive plans. For example, the 2019 DelDOT Long Range Transportation Plan used population projections from 2015 out to 2040.

State of Delaware Summary						
	2020	2020 % of State Population	2045	2045 % of State Population	Difference	% Change
New Castle	564,780	58%	581,937	55%	17,157	3%
Kent	178,650	18%	187,714	18%	9,064	5%
Sussex	234,350	24%	280,658	27%	46,308	16%
Totals	977,780	100%	1,050,309	100%	72,529	7%

The chart above uses population projections from the Delaware Population Consortium. The 2045 Kent County population changes show the County remaining the smallest populated county in Delaware. While maintaining an 18% portion of State population (2020 and 2045), there is only a 5% County population increase compared with 2020 projections. Regarding the County community who are 16 years and older (potential driver license holders), there is a 2% increase in the likely driver license holder population. The chart below highlights in brown the age categories that could be potential driver license holders. These age categories made up

81% of the 178,650 County population in 2020 and 83% of the 187,714 County population projected for 2045.

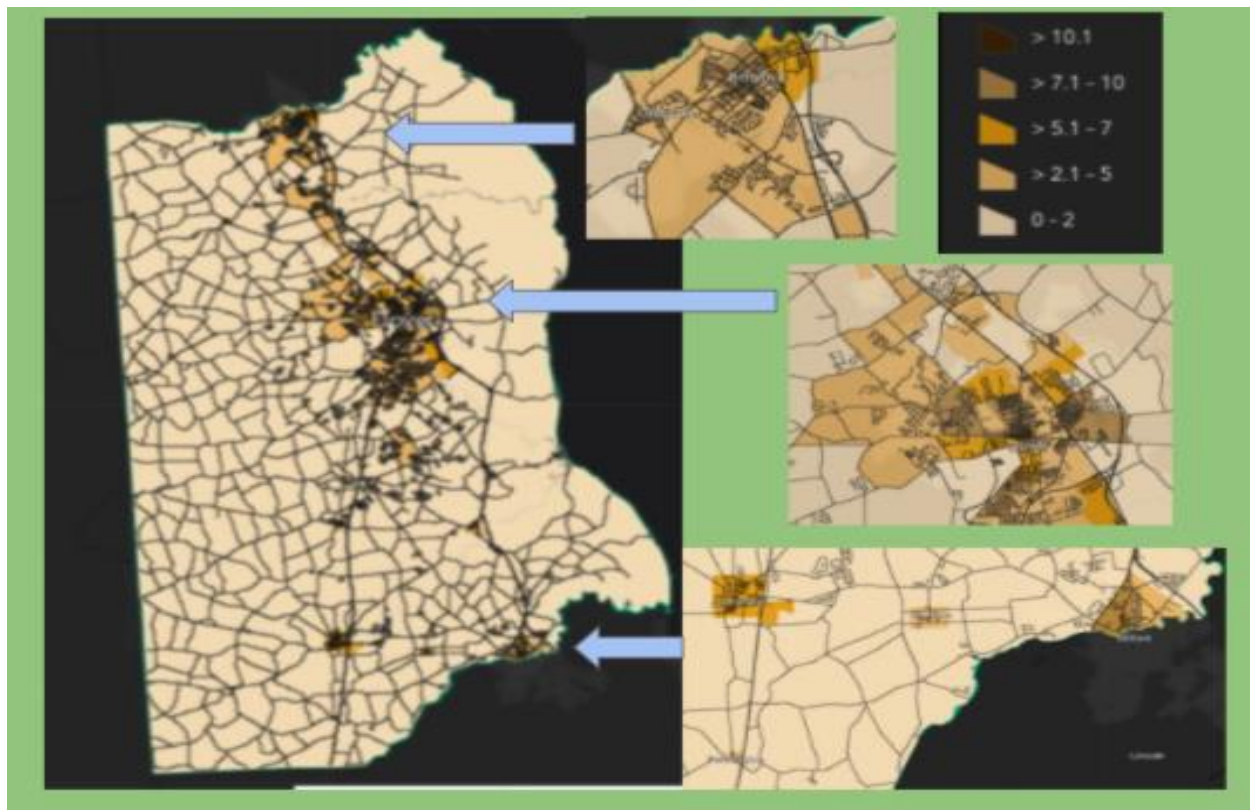
Kent County, Delaware Population Projections by Age							
	2020	2025	2030	2035	2040	2045	2020-2045 change
0 - 4	10,870	10,574	10,462	10,450	10,479	10,414	-4%
5 - 9	11,289	10,909	10,660	10,593	10,584	10,618	-6%
10 -14	11,740	11,352	11,008	10,807	10,745	10,741	-9%
15 -19	11,983	11,824	11,440	11,133	10,938	10,890	-10%
20 -24	11,696	12,043	11,934	11,562	11,254	11,068	-6%
25 -29	13,124	11,731	12,137	12,074	11,682	11,370	-14%
30 -34	12,678	13,137	11,792	12,256	12,200	11,785	-8%
35 -39	11,040	12,675	13,170	11,881	12,362	12,320	+11%
40 -44	10,011	11,020	12,687	13,218	11,944	12,444	+20%
45 -49	10,172	9,960	11,010	12,708	13,228	11,977	+16%
50 -54	11,143	10,052	9,893	10,979	12,659	13,163	+16%
55 -59	11,871	10,854	9,845	9,745	10,812	12,456	+5%
60 -64	10,922	11,374	10,453	9,528	9,450	10,483	+5%
65 -69	9,037	10,196	10,663	9,845	8,991	8,938	-2%
70 -74	7,983	8,092	9,180	9,632	8,899	8,141	+2%
75 -79	5,829	6,738	6,867	7,829	8,212	7,602	+24%
80 -84	3,812	4,507	5,246	5,373	6,130	6,428	+61%
85 & up	3,450	4,003	4,755	5,642	6,151	6,876	+50%
Totals	178,650	181,041	183,202	185,255	186,720	187,714	+5%

The chart above provides some interesting projections when comparing each age category in 2020 and 2045. The 2045 total projections in all age categories between 0 and 34, which represent 76,896 (41%) of the projected 187,714 population count, show decreases when compared to the same 2020 categories. In contrast, age categories between 35-64, which represent 72,843 (39%) in the 2045 population projections show increases. The age category 65-69, representing 8,938 (5%) in the 2045 population projections, decreases when compared to the 2020 projections. However, the age categories 70 and up, which represent 29,047 (15%) of the 2045 population projections, show increases over the 2020 categories. The 2020 projections for age categories 70 and up represent 21,074 (12%) of the total 178,650 projection. The 2045 projections for these same categories show these population groups as increasing to 15% of the population in the County. The Delaware Population Consortium also provides input into how these demographic figures are geographically displayed.

It is important to note that Delaware's population is projected within geographic areas called "Traffic Analysis Zones" (TAZs). TAZ's are considered to be select areas delineated by state and/or local transportation officials for tabulating traffic-related data, especially journey-to-work and place-of-work statistics. A TAZ usually consists of one or more census blocks, block groups, or census tracts. For the 1990 census, TAZs were defined as part of the Census Transportation Planning Package (CTPP). The US Census Bureau first provided data for TAZs in conjunction with the 1980 census, when it identified them as "traffic zones."

All three Delaware counties have TAZs. Population projections for these areas help predict transportation infrastructure (roads, sidewalks, bike lanes, traffic signals, etc.) and land use (residential and commercial subdivisions, municipal annexations, employment areas, etc.) needs. The D/KC MPO used population projection changes within the County TAZs out to 2050

to identify specific population increase locations. These locations need to be considered when proposing Innovation 2045 MTP transportation projects.



2050 TAZ Location Changes

In summary, the County will have a 5% overall population increase between in 2045. When comparing Kent County's 2045 projections to 2020 projections, the following points are noted:

- School-age (23% of the 2045 population) categories from 0-19 decreased;
- Young working age (18% of the 2045 population) categories from 20-34 decreased;
- Working-age (33% of the 2045 population) categories from 35-59 increased;
- Retirement age (26% of the 2045 population) categories from 60-64 and 70 up show increases, whereas the 65-69 category decreased.
- TAZ (population) changes occur in the southern portion of the City of Dover along the route US13 corridor, the western portion along the north side of Delaware Route 8 (DE8), and between US13 and Delaware Route 1 (DE1) in the northeastern portion of Dover. TAZ changes also occur in the northeastern portion of the City of Harrington and along the western side of Walnut Street in the City of Milford. Slight TAZ changes also occur within the town limits of both Houston and Farmington.

Economic Activity, Employment, and Labor Force

As briefly described in Chapter 1, the D/KC MPO has no legislative authority over federal, state, regional, or local governments, especially about economic development. However, by using the

3-C (continuing, cooperative, and comprehensive) transportation planning process, the D/KC MPO ensures transportation project considerations include a shared economic vision and goals for the D/KC MPO Planning Area. The County economic vision and goals are best described by the following organizations:

- 1) Kent Economic Partnership, provides [economic profiles for the County](#);
- 2) the [Greater Kent Committee](#), identifies emerging community economic issues;
- 3) the [Central Delaware Chamber of Commerce \(CDCC\)](#), promotes civic, industrial, commercial, agri-business and social-economic interests of the community; and
- 4) the [Delaware Prosperity Partnership](#), provides a link between State and Kent County economic goals and vision.

These four organizations provide specific County goals and visions regarding economic development in the D/KC MPO Planning Area. However, definitions for economic growth are very similar throughout the United States. Before identifying future employment goals and initiatives in the MTP update, current employment data for the County provides the economic development baseline.



Image came from the [Data USA web site](#)

Current employment occupational data shows that "from 2016 to 2017, employment in the County grew at a rate of 2.52%, from 76.2k employees to 78.1k employees. The most common job groups, by the number of people living in the County, are Office & Administrative Support Occupations (10,292), Sales & Related Occupations (7,620), and Management Occupations (7,487)". ([Kent County, Delaware Profile](#)).

Regarding occupations in the County, the "most common employment sectors for those who live in the County are Health Care & Social Assistance (11,889 people), Retail Trade (10,982 people), and Public Administration (8,069 people)." This chart shows the share breakdown of the primary industries for residents of the County, though some of these residents may live in the County and work somewhere else. Census data is tagged to a residential address, not a work address" ([Kent County, Delaware Profile](#)).

Another employment baseline data point is commute time. Using averages as seen in the chart below, "employees in the County have a longer commute time (25.2 minutes) than the normal US worker (25.1 minutes). Additionally, 3.2% of the workforce in the County has "super commutes" above 90 minutes. In 2017, the most common method of travel for workers in the County was driving alone (82.1%), followed by those who carpoolled (9.64%) and those who worked at home (4.18%)." ([Kent County, Delaware Profile](#)).

Understanding the current County economic activity baseline will provide a better insight as to D/KC MPO partner's economic development goals. Simply stated, "the goal of economic development should be to put a region on a path to higher growth by improving the productivity

of firms and people in ways that leads to better incomes and living standards for all." (Brookings, p1) Furthermore, "economic development is a process of targeted activities and programs that work to improve the economic wellbeing and quality of life of a community by building local wealth, diversifying the economy, creating and retaining jobs, and building the local tax base." (Vail Valley Partnership, p1) Specific to transportation planning however, economic development includes "investments in infrastructure systems (roadways, bridges, transit, railroads, water, sewer, intermodal connectors and telecommunications systems) result in higher property values and quality-of-life improvements, affect business decisions and connect communities into thriving regional economies." (NACO, p.8) One of the objectives for Innovation 2045 MTP and this section of Chapter II is to align County transportation projects and policies with County economic development goals.

In addition to linking future transportation projects that support economic initiatives from our Federal, State, and Regional partners, the D/KC MPO considers local economic planning programs. These include programs such as the Smyrna, Dover, and Milford [Opportunity Zones](#), and [Kent County Employment Center Master Plan](#). In addition to these economic program initiatives, current employment figures (in the chart below) and commercial zoning locations were analyzed to determine future transportation road projects and studies that support our D/KC MPO Partners' long range economic goals. As part of Innovation 2045 MTP, an interactive mapping program was developed to help our public, private, and governmental members visualize and compare past, current, and predicted transportation-related data and projects to ensure we leverage transportation and economic goals.



As mentioned previously in this chapter, the COVID-19 Pandemic had a major impact on our national economic status by reducing demand in the world economy and complicating supply chains. The drop in equity prices lowered household wealth to an extent that caused a sizable slowdown in the US economy (Brookings, 2020 P.1). The Labor Force chart above provides a picture regarding the unemployment rate in Delaware over the past twenty years. Delaware's unemployment rate began to rise in March 2020. That increase corresponds to the COVID-19 pandemic. A summary of the economic activity in the D/KC MPO Planning Area before COVID-19 will be provided as well as any predictions going out to 2045. Pre-COVID-19 summaries are found in many of the D/KC MPO partners' current comprehensive plans, especially the County and City of Dover comprehensive plans.

Chapter 2 of the 2018 Kent County Comprehensive Plan provides a thorough summary of the County's economic activity before COVID-19, as seen in the chart below. In addition to providing a review of economic trends, the plan described the County's future economic development analysis and strategic plan (developed by Rockport Analytics). The takeaway point was that Kent County should target:

- (1) Business and Legal Services (Computer design & programming, Scientific, R&D Services, Employment and Human Relations Services, Advertising and Public Relations, Legal Services, Accounting Services, Building Services;
- (2) Distribution, Warehousing, Logistics (Wholesale Trade, Logistics & Trucking, Warehousing & Storage); and
- (3) Health Care (Offices of Physicians, Outpatient Care Facilities, Nursing & Community Care, Medical & Diagnostic Labs).

All Occupation Kent County in 2018		Employment	Median Hourly	Mean Hourly	Mean Annual
00-0000	Total all occupations	63,240	\$17.34	\$21.69	\$45,125
11-0000	Management	2,240	\$48.74	\$53.02	\$110,274
13-0000	Business & Financial Operations	2,720	\$28.55	\$30.99	\$64,460
15-0000	Computer & Mathematical	1,050	\$33.83	\$35.95	\$74,769
17-0000	Architecture & Engineering	820	\$31.52	\$33.11	\$68,863
19-0000	Life, Physical & Social Science	640	\$28.49	\$32.12	\$66,804
21-0000	Community & Social Services	1,330	\$20.93	\$22.49	\$46,782
23-0000	Legal	480	\$32.17	\$45.04	\$93,689
25-0000	Education, Training & Library	4,660	\$25.98	\$26.99	\$56,132
27-0000	Arts, Design, Entertainment, Sports & Media	520	\$18.66	\$22.52	\$46,840
29-0000	Healthcare Practitioners & Technical	4,200	\$31.39	\$37.35	\$77,687
31-0000	Healthcare Support	1,900	\$14.02	\$15.16	\$31,536
33-0000	Protective Service	1,530	\$19.32	\$23.32	\$48,499
35-0000	Food Preparation & Serving-Related	6,640	\$10.11	\$11.81	\$24,573
37-0000	Building & Grounds Cleaning & Maintenance	2,250	\$12.51	\$13.50	\$28,087
39-0000	Personal Care & Service	2,300	\$11.47	\$13.62	\$28,324
41-0000	Sales & Related	6,840	\$11.98	\$15.95	\$33,176
43-0000	Office & Administrative Support	9,640	\$16.18	\$17.32	\$36,028
45-0000	Farming, Fishing & Forestry	150	\$16.07	\$18.18	\$37,814
47-0000	Construction & Extraction	2,140	\$19.42	\$21.76	\$45,251
49-0000	Installation, Maintenance & Repair	2,560	\$21.98	\$22.50	\$46,803
51-0000	Production	3,230	\$15.30	\$17.66	\$36,729
53-0000	Transportation & Material Moving	5,420	\$15.54	\$17.32	\$36,026

• NA in employment means the estimate doesn't meet publishability standards, but the wage estimates do.
 • N/A in one of the wage fields signifies that a large portion of the responses are in the highest, unbounded wage category and a valid wage estimate is not possible.
 • ND in any of the fields signifies that there is no data available for the currently displayed time period. There is, however, data available.

The City of Dover included an Economic Development Plan within its [2019 Comprehensive Plan](#). The City listed seven goals as part of its detailed economic development plan (Chapter 10):

- (1) Attract and Retain High-Paying Quality Jobs by Targeting Business Sectors that are Best Suited for Dover and Kent County ;
- (2) Encourage the Economic Revitalization and Integrity of Dover's Downtown, including the Historic Core and the Traditional Communities Surrounding It ;
- (3) Promote the Revitalization and Redevelopment of the Center City ;
- (4) Ensure that Land Development, Zoning, Infrastructure, and Other Development Requirements Encourage the Economic Development and Uses Desired ;
- (5) Actively market the Garrison Oak Business and Technology Center;
- (6) Pursue Economic Development Linked to Active Recreation;
- (7) Ensure Economic Development Linked to Improved Healthy Food Access.

Dover's Comprehensive Plan also provided employment projections in Chapter 3 (see chart below).

Frequency: Annual Source: Delaware Department of Labor Publisher: Delaware Department of Labor		Units: Employees Release date: 7/11/2019		Annual Growth Rate
Kent County: Long-Term Industry Projections		2016	2026	
Total Employment, All Jobs		71,730	75,250	0.5%
Total Self-Employed & Unpaid Family Workers, Primary Job		3,090	3,380	0.9%
Self-Employed Workers, Primary Job		3,020	3,310	0.9%
Unpaid Family Workers, Primary Job		70	70	0.0%
11Ag, For. Fishing		1,590	1,520	0.4%
21Mining		40	40	0.0%
22Utilities		280	290	0.4%
23Construction		2,530	2,690	0.6%
31Manufacturing		4,870	4,540	0.7%
42Wholesale Trade		1,060	1,050	0.1%
44Retail Trade		9,440	9,270	0.2%
48Transportation & Warehousing		2,480	2,770	1.1%
51Information		370	330	1.1%
52Finance & Insurance		1,250	1,360	0.8%
53Real Estate & Rental & Leasing		420	440	0.5%
54Professional & Technical Services		1,940	2,130	0.9%
55Management of Companies & Enterprises		260	240	0.8%
56Administrative & Waste Services		2,120	2,410	1.3%
61Educational Services		6,660	7,030	0.5%
62Health Care & Social Assistance		10,080	11,030	0.9%
71Arts, Entertainment & Recreation		2,790	3,050	0.9%
72Accommodation & Food Services		5,590	6,130	0.9%
81Other Services, Except Public Administration		2,960	3,230	0.9%
Government		11,910	12,320	0.3%
Federal Government, Excluding Postal Service		1,480	1,460	0.1%
State Government, Excluding Education & Hospitals		9,370	9,750	0.4%
Local government, Excluding Education & Hospitals		1,060	1,110	0.5%
Source- Delaware Department of Labor at website imi.delawareworks.com				

In addition to the D/KC MPO Partners' economic goals listed in comprehensive plans, projected economic activity data points can be found at the Delaware Department of Labor's [Office of Occupational and Labor Market Information](#). For example, the above-referenced chart provides the annual growth rate of County jobs from 2016 to 2026. Like many other economic data, tracking elements found on the Delaware Department of Labor website, this information was pre-COVID-19.

In summary, the economic goal for many of the D/KC MPO partners is to create a variety of opportunities for good-paying jobs in the County. However, Transportation and Warehousing opportunities, at a 1.1% annual growth rate, and Administrative and Waste Services at a 1.3% yearly growth rate provide a future projection regarding the businesses which could be profitable in the County. Future employment data projections, along with identified opportunity zones, employment centers, and shovel-ready commercial sites, etc., from County and municipal comprehensive plans, can help identify locations where future transportation road projects can best support economic development in the County.

Highways/Roadway Systems

The Delaware Department of Transportation (DelDOT) is responsible for maintaining nearly 90% of roads within the D/KC MPO planning area (D/KC MPO 2017 MTP, P.6). County roads range from freeways (Delaware Route 1/DE1) to collector roads (Delaware Route 12/DE12) to hundreds of local roads that cover the rural areas of the County.

Road miles (rural and urban) in Kent County Delaware by Road Classification										Daily Vehicles Miles Traveled			
Previous D/KC MPO MTP Year	Interstate	Other Freeways Expways	Other Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local	Total	Total State Miles	Percent of KC Rds to State	KC Daily vehicle miles traveled	Total State DVMT Miles	Percent of KC Rds to State
1996	0	57.9		75.06		261.83		918.41	1313.2	5,591.80	23%	1,179,315	
2001	0	9.75	50.44	76.64	231.32	34.91	949.88	1352.94	5,813.05	23%	3,809,012	23,466,117.00	16%
2005	0	10.13	50.06	111.98	182.66	86.69	992.82	1434.34	6,093.53	24%	4,545,409	25,989,692.00	17%
2009	0	20.00	37.00	115.00	178.00	90.00	1,070.00	1,510.00	6,337.00	24%	4,181,000	24,514,000	17%
2013	0	27.48	30.29	116.7	184.19	122.79	1,002.07	1,483.52	6,207.04	24%	4,517,772.54	26,218,926.92	17%
2017	0	27.48	30.29	119.55	185.18	122.79	1,081.80	1,567.09	6,452.45	24%	4,590,087.72	26,511,151.77	17%

Source: 11/21/19 e-mail from Mr. Jason Vogl (DelDOT)

The chart above shows the road miles per type of road in the County, from zero interstate roads to 1,567.09 local road miles, with the total number of road miles at 24% compared to Statewide figures. This chart also shows that the number of daily vehicle miles traveled (DVMT) has increased in each of the previous MTP years, but remained at 17% when compared to Statewide DVMT figures.

DelDOT maintains State routes that traverse County cities and towns. Local streets within the municipalities, such as Dover, Milford, Smyrna, Harrington, and Camden, are maintained by the local government. There are no County-maintained roads within the County. As seen in the chart below, the County had 3,314 lane miles in 2018, 42% less than New Castle County, and 33% less than Sussex County.

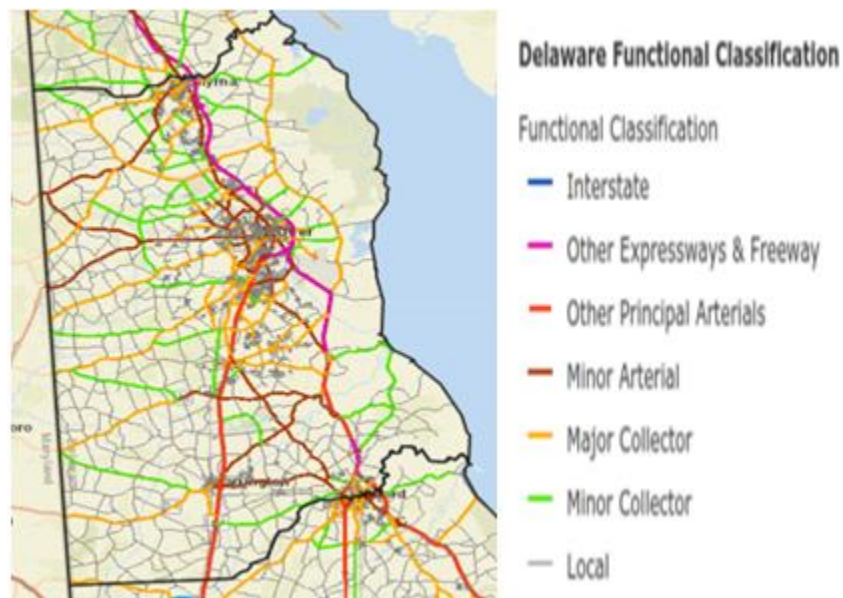
Figure A.2
LANE MILES IN DELAWARE, 2017-2018

	New Castle '17	New Castle '18	Kent '17	Kent '18	Sussex '17	Sussex '18
Interstate	257	257	0	0	0	0
Other Freeways & Expressways	132	134	110	110	0	0
Other Principal Arterial	555	557	120	120	497	497
Minor Arterial	396	394	292	292	115	112
Major Collector	521	524	376	376	732	732
Minor Collector	150	151	246	246	265	265
Local	3,675	3,679	2,164	2,170	3,352	3,356
Total Lane Miles	5,686	5,696	3,308	3,314	4,961	4,962

Source: DelDOT Planning

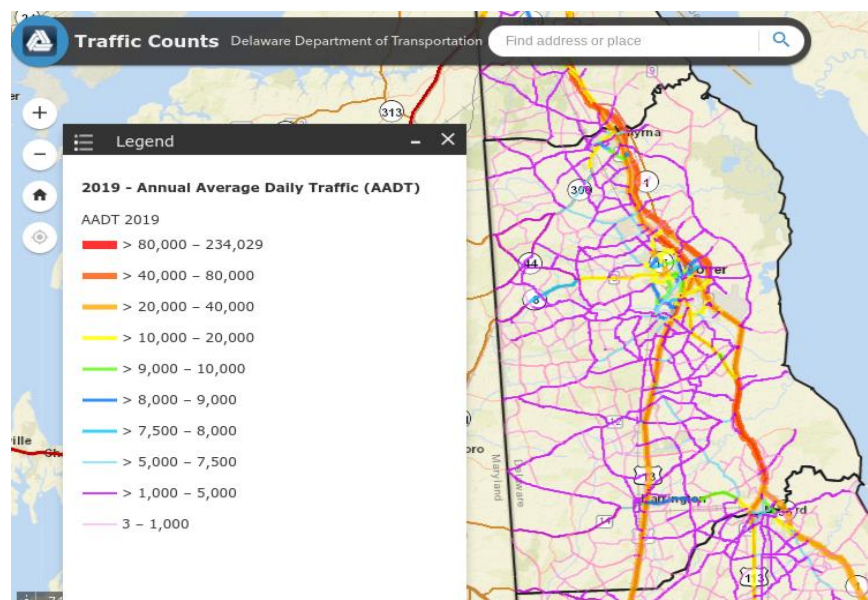
Source: DelDOT: 2018 Delaware Transportation Fact Book

The Federal Highway Administration (FHWA) classifies all roadways based on the character of the traffic they carry (through versus local) and the degree of land access they allow. There are three functional classifications of roads- arterials, collectors, and local roads. Examples of arterials include US 13 DE8 through the City of Dover. Collector road examples include Delaware Route 9 (DE9) in Little Creek and Delaware Route 42 (DE42) in Cheswold. The majority of roads in the D/KC MPO planning area are classified as local roads. These are generally low-volume roads that primarily serve low-density land use. The map below shows the functional road classifications in the County.



Map found at [DeIDOT Gateway](#)

Roadways in the D/KC MPO planning area serve a variety of transportation needs. Many local roads within the County provide access for agricultural vehicles and low-density residential uses. These roads have an average daily traffic volume of fewer than 1,000 vehicles per day, as seen in the chart below. State routes in rural areas (primarily west of US13) such as Delaware Route 300/DE300 southwest of Smyrna, Delaware Route 10/DE10 west of Camden, and Delaware Route 14/DE14 west of Harrington, provide both local and regional access for motorists, as well as facilitating freight movement via trucks and other commercial vehicles.



From DeIDOT Gateway [Traffic Counts](#).

These routes generally have average daily traffic volumes between 1,000 to 5,000 vehicles per day. DE8 from the City of Dover west, also provides regional commercial freight access to and

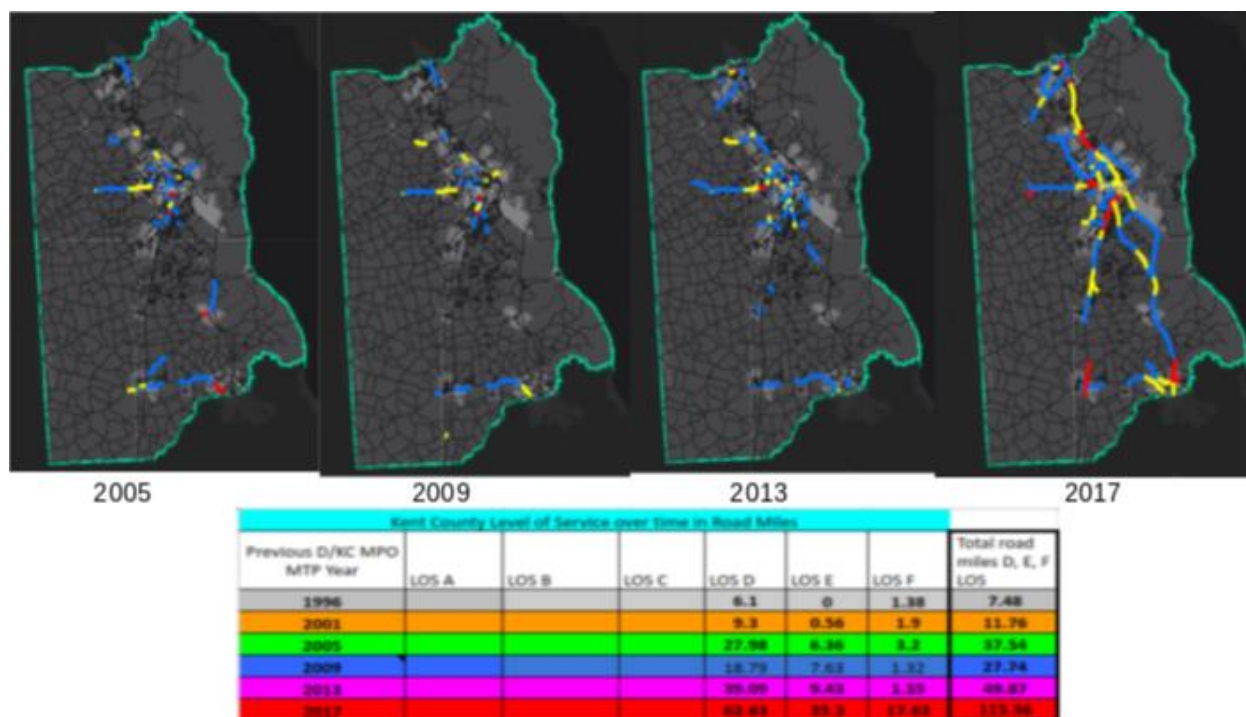
from the State of Maryland. The average daily traffic volumes vary from 7,500 to 20,000 vehicles per day. Kent County's North-South Routes US 13, US 113, and DE1 carry the highest traffic volumes between 20,000 and 80,000 average daily traffic.

Generally, the existing highway network facilitates the movement of traffic in and around the county with few corridors that would be considered as operating at an unacceptable level of service (LOS). LOS is a classification based primarily on vehicular travel time delay. LOS A represents free-flow conditions, and LOS F indicates traffic volumes exceed the roadway capacity to accommodate the traffic without significant queues. DeIDOT's implementation of new technologies, such as the computerized signal systems that determine appropriate signal needs in response to traffic, has improved the LOS at several traffic light locations, as seen in the illustration below.



Source: DeIDOT [Interactive Maps](#).

However, even with these new technologies, as land use (zoning) density, population, and motor vehicle use increase, road systems may experience delays. Traffic delays affect the travel time of commuters, increases vehicle emission levels at the delay site(s), and increases vehicle accident risk with stop-and-go traffic patterns. Moreover, the D/KC MPO uses LOS as a metric in evaluating future transportation projects regarding funding priority. For example, when evaluating proposed transportation road projects, the D/KC MPO uses a system called "Decision Lens," which considers past and current LOS data trends when evaluating the positive or negative impacts of the proposed projects. In other words, will that proposed transportation road project improve LOS along that roadway?



In summary, as land use and population increases within identified geographic areas in the County, future projections regarding highway and roadway systems start to emerge. As illustrated above, LOS and AADT are projected to be impacted primarily along US 13 in Smyrna, Dover, and Harrington; DE 8 outside Dover; and US 113 in Milford.

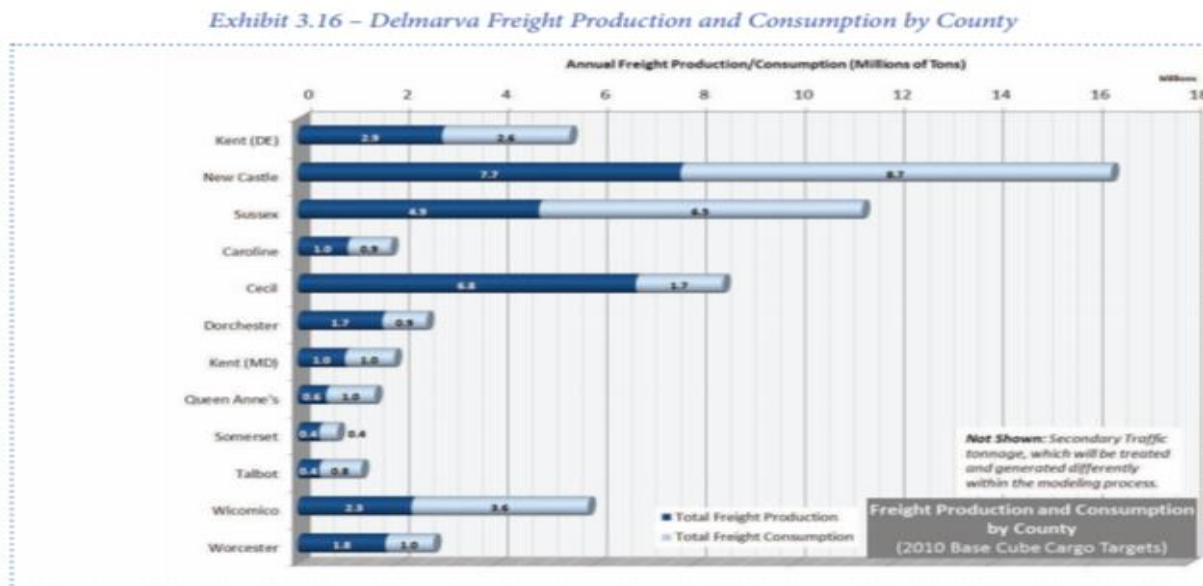
Freight System

"The movement of freight is a critical component to our region's economy, and DelDOT is committed to providing and enhancing freight-related transportation infrastructure" (DelDOT, 2019, p.II-7). The D/KC MPO shares and supports DelDOT's commitment.

Baseline freight data for the County comes from D/KC MPO partners' comprehensive plans and transportation studies. However, a majority of freight information came from the 2015 Delmarva Freight Plan and the 2017 Freight Plan Addendum. The 2015 Delmarva Freight Plan "summarizes current and future freight planning and transportation needs to enhance freight and goods movement and related economic opportunities on the 14-county tristate area of the Delmarva Peninsula. It supports a regional perspective of freight flows, targets freight issues relevant to the local and regional economies, integrates commodity flow modeling and performance-based scenario planning, and ultimately provides insights to help inform future decision-making, freight infrastructure investments, and related policy guidance. The plan recognizes and supports the need for multimodal freight planning collaboration within regional jurisdictions and across economic corridors to enhance mobility at the local, state, multi-state, and national level."

The 2015 Delmarva Freight plan encompasses a multi-state regional approach to freight planning. However, some data specific to the County (annual freight production and

consumption) in comparison to other counties is included in this plan, as shown in the chart found on page 55.

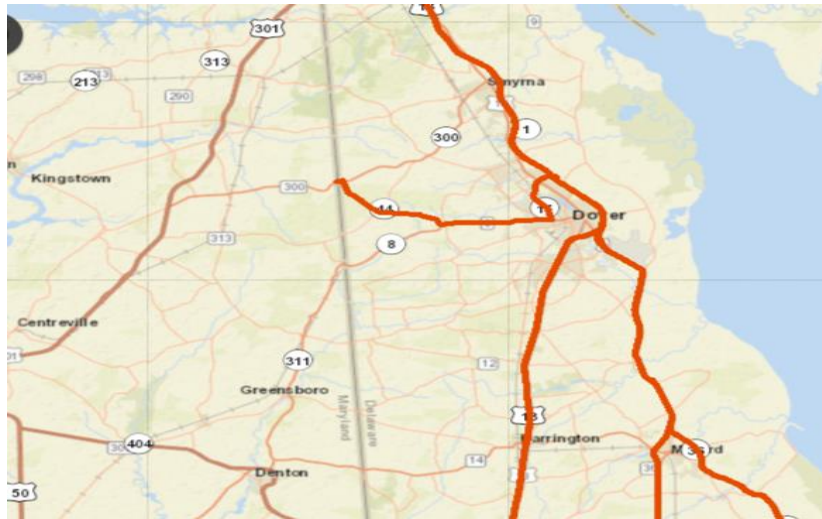


Based on research conducted as part of the Freight Plan, the vast majority (80%) of the freight in the region travels by truck. Primary freight commodities include chemicals, agricultural products, food products, coal and petroleum, and secondary traffic (such as products delivered to retailers such as Walmart). Agriculture is still the primary industry in the County, and the farming community is a significant user of the highway and rail network to transport and receive products. The County supports agriculture and explores ways to preserve and promote the agricultural industry. This effort is made through farmland preservation programs as well as creating a Food Innovation District (FID) program to enhance the local food processing industry.

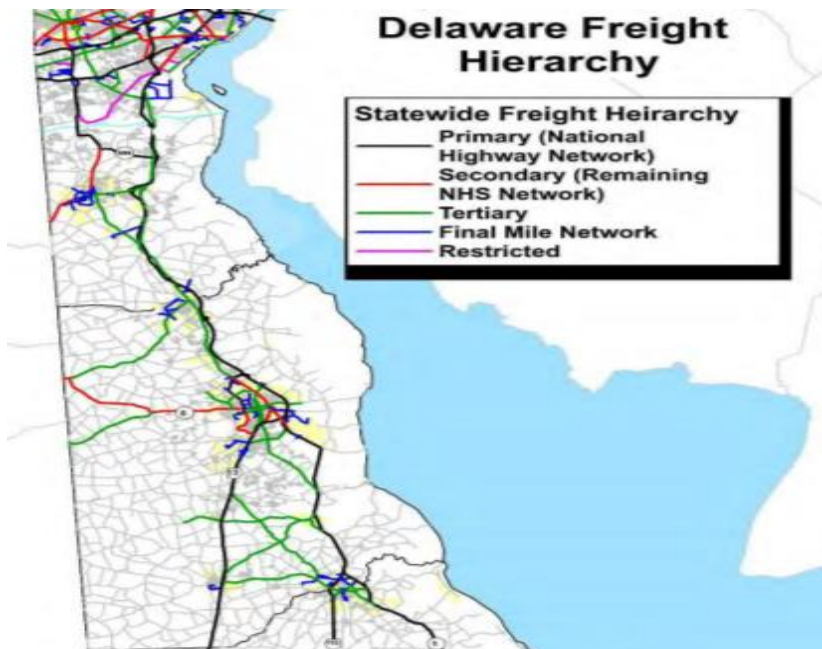
The County has several large industries that are heavily dependent upon the freight network for the delivery of goods and products. These include the Walmart Distribution Center in Smyrna, and Energizer-Playtex and Kraft Foods in Dover. The Dover Air Force Base is a major military facility that is dependent upon the existing roadway network (particularly DE 1) for the delivery of military-related freight. Also, trucks utilize US 13 extensively for local freight deliveries to the hundreds of businesses that front the highway.

Delmarva Central Railroad, a subsidiary of Carload Express, operates the region's only railroad facility. The rail line runs north-south through the entire county, with an east-west spur line between Harrington and Milford. Both rail lines continue through Sussex County. Primary commodities include coal and agricultural products.

As noted in the Freight Plan, the region contains a robust network of highways that serve as primary freight routes. The Freight Plan identifies six primary freight corridors throughout the Delmarva Peninsula. One of these corridors, known as the Coastal Corridor, is located in Kent County and consists of three National Highway System routes: US 13, DE 1, and US 113. Although not specifically named as part of the Coastal Corridor, DE 8 from the City of Dover west into Maryland, is also part of the National Highway System, as seen in the map below.



Source: DelDOT Gateway map, "National Highway System."



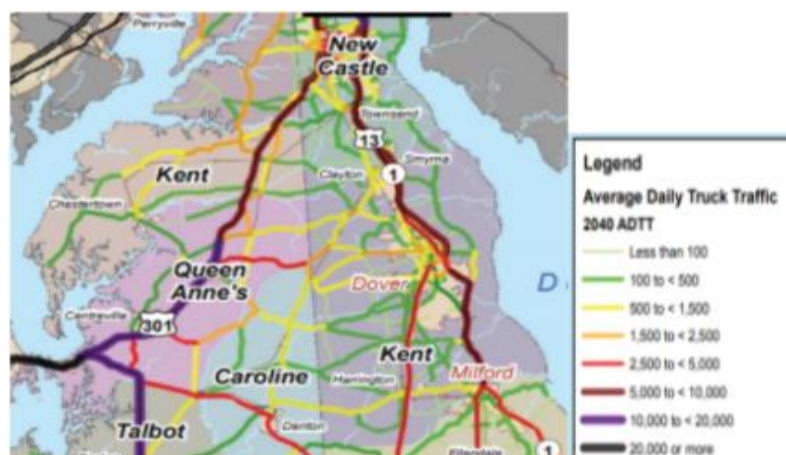
Source: 2017 Freight Plan Addendum, P. 16

Although the County currently has no passenger rail service, the County's rail freight opportunities provide commodity manufacturers another option for the transport of goods and services. The County has one primary north-south rail line from Smyrna past Harrington into Sussex County. There is an east-west spur line from Harrington into Milford, which also continues south into Sussex county. The current operator of the 55-mile rail line portion in the County is the Delmarva Central Railroad (DCR), a subsidiary of Carload Express Incorporated (CEI). Primary commodities include coal, stone, and agricultural products.

Future freight projections can be affected by factors such as fuel prices, global economies, changes in land use, and changes in consumer products. The 2015 Delmarva Freight Plan was an effort to identify these future projections. In addition to the 2015 Delmarva Freight Plan, for example, FHWA provides many freight-related sources available to the public. One link on the FHWA site goes to the US Department of Transportation's (US DOT) [Bureau of Transportation Statistics](#) (BTS). This site provides [freight-related facts and figures](#) which is, "a collection of charts and statistical tables about freight transportation in the United States. These interactive visualizations and tables provide a snapshot of freight movement; the extent, condition, and performance of the freight transportation system; the economic characteristics of the transportation industry and its contribution to the US economy; and the safety, energy, and environmental aspects of freight transportation." The below referenced, "[Moving Goods in the United States Freight Analysis Framework](#)" chart shows estimated freight tonnage in the US will increase at about 1.2 percent per year between 2018 and 2045. Further review of US domestic freight movement truck and rail (two main freight modes in Kent County) [projections from 2018 to 2045](#) shows a 22% increase for truck use and a 12% increase for rail use.

Other future truck and rail freight projects considered are:

- total freight movement by trucks in 2023 will be 69.63% (page 1-46 in DelDOT's 2019 long range plan (Innovation in Motion);
- freight volume will increase by 40% by 2045 (page 3 DOT's "Beyond Traffic 2045");
- US13 from Smyrna south past Harrington, DE1 from Smyrna south past Milford, and US113 from Milford south into Sussex County projecting a range from 2,500 to 10,000 average daily truck traffic out to the year 2040 (page 73 in the 2015 Delmarva Freight Plan, Exhibit 4.8 (Delmarva Peninsula Truck Volume Summary (2040 ADTT));
- Rail freight is expected to increase unless future land use constraints limit future land uses for rail freight-related manufacturing/employment centers in the County. (2018 Dover/Kent County Metropolitan Planning Organization Rail/Freight Zoning Study).



Source: 2015 Delmarva Freight Plan Exhibit 4.8 (Delmarva Peninsula Truck Volume Summary (2040 ADTT))

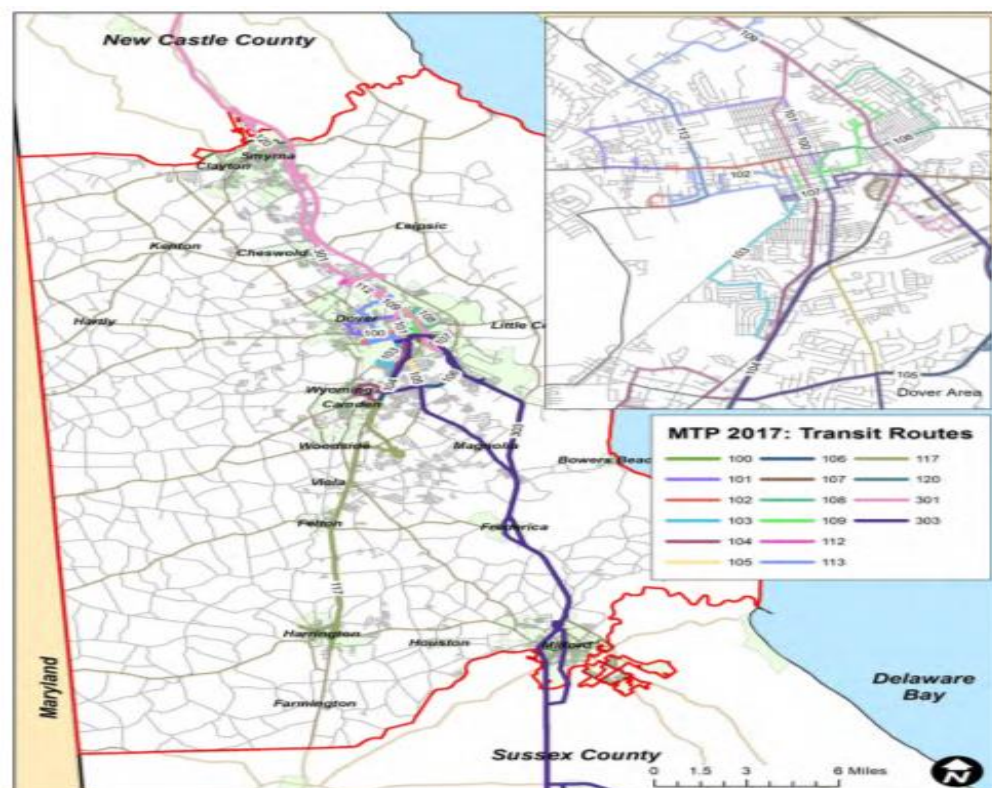
Overall, freight planning in the County continues to be a major focus. Specifically, in 2019, the D/KC MPO sponsored two freight-related transportation planning studies. The Freight Terminal Feasibility Study in Harrington addresses leveraging rail freight use along several large tracts of

land for warehousing in addition to a potential truck transportation hub. The Kent County East/West Freight Corridor Study looked at three east/west road corridors - one in the northern sector of Kent County (DE300), one in the center of Kent County (DE8), and one in the southern area of Kent County (DE14). These three routes would traverse into and out of Maryland, linking into US Route 301 (US301). It is also important to note that these two freight studies are projected to be completed sometime in 2021 after the Innovation 2045 MTP is approved. Nonetheless, the current draft studies expect corridor improvements to DE300, DE8, and DE14 to improve LOS and AADT for trucks along with a potential rail and truck terminal facility in Harrington.

Once completed sometime in 2021, the studies will recommend future transportation roadway and freight projects that need to be considered in future amendments to Innovation 2045 MTP.

Public Transit System

The Delaware Transportation Corporation (DTC), an operating division with the Department of Transportation, is the entity responsible for providing public transportation services within the MPO region. DART First State is the operator of the service. Within Kent County, 13 bus routes provide fixed-route, weekday transit service throughout the central portion of the County. Five of those routes also provide Saturday service. Three inter-county routes travel through Kent County. Route 301 provides weekday service from Wilmington to Dover, and Route 303 provides weekday service from Dover to Georgetown in Sussex County. During the summer, Route 305 provides weekend service from Wilmington and Dover to Rehoboth Beach.



Transit use projections are influenced by many factors:

- automobile ownership,
- land use density and mixture,
- proximity of the household to the downtown core,
- household income, and
- availability of high-quality transit service to name a few.
(City of Edmonton, 2016 P.2).

For example, despite having an average 25.2 minute commute time, employees in the County still appear to favor their automobiles over mass transit. As shown in the chart below, total Kent County transit ridership has decreased from FY13 figures to FY19 figures by 25%.

Summary Ridership						
	FY01	FY05	FY09	FY13	FY17	FY19
	Ridership	Ridership	Ridership	Ridership	Ridership	Ridership
KC Fixed Route	301,623.30	340,856.00	468,517.00	662,233.00	481,332.00	503,222.00
I/C Fixed Route	103,153.00	83,448.00	51,407.00	72,444.00	42,290.00	48,649.00
	404,776.30	424,304.00	519,924.00	734,677.00	523,622.00	551,871.00

Similar to figures in the summary ridership chart above, ridership by bus route is also down. The 100, 103, 113, and 119 bus routes have been discontinued or modified, as seen in the Ridership by Route chart below. Only routes 104, 106, and 112 increased ridership when comparing FY13 to FY 19, and these three routes are projected to continue ridership increases out to 2045.

Ridership By Route						
<i>This chart shows the routes included beginning with FY01. Prior historical data is not readily available. Route 305 had been included in the summary of historical data. It is excluded beginning in FY09.</i>						
Route	FY01	FY05	FY09	FY13	FY17	FY19
100			8,166.00	11,601.00		
101	31,397.09	40,685.76	47,192.00	54,760.53	40,973.00	49,744.00
102	35,685.46	25,190.23	39,218.00	44,503.00	31,246.00	31,453.00
103	18,761.95	21,209.85	28,339.00	44,250.00	12,978.00	
104	30,205.74	47,568.86	59,594.00	77,319.00	81,016.00	99,076.00
105	15,368.93	20,299.14	29,187.00	33,695.00	18,283.00	26,388.00
106	15,623.43	17,292.16	20,139.00	22,685.00	17,969.00	26,678.00
107	38,820.74	38,290.33	52,920.00	65,809.47	32,903.00	29,849.00
108	24,217.26	26,211.41	35,326.00	41,163.00	25,249.00	33,683.00
109	45,482.37	54,453.04	69,839.00	88,664.00	74,004.00	79,617.00
112	32,385.65	29,442.05	46,014.00	37,382.00	38,676.00	43,898.00
113	13,674.69	20,213.18	32,583.00	35,029.00	25,827.00	
117				24,144.00	22,743.00	21,057.00
119					3,357.00	
120				81,228.00	56,108.00	55,650.00
210						6,129.00
301	88,029.00	51,724.00				
303	6,835.00	21,679.00	38,064.00	72,444.00	42,290.00	39,688.00
307						8,961.00
304			13,343.00			
Shuttle	7,886.00	7,765.00				
	404,373.30	422,024.00	519,924.00	734,677.00	523,622.00	551,871.00
305	403.00	2,280.00	4,393.00	4,499.00	2,128.00	2,698.00
Total with 305	404,776.30	424,304.00	524,317.00	739,176.00	525,750.00	554,569.00
Per Summary	404,776.30	424,304.00	519,924.00	734,677.00	523,622.00	551,871.00

The overall goal is for transit use in the D/KC MPO planning to increase out to 2045. In addition to providing an alternate means of transportation, transit use can mitigate Clean Act (CAA) Ozone standards by reducing the number of single occupied vehicles on the road. Future transit route planning in and around the City of Dover, Smyrna, Milford, and Harrington should be continue to be considered as these areas are expected to have population increases.

Bicycle and Pedestrian System

The D/KC MPO has actively supported Federal and State level bicycle and pedestrian planning efforts, especially those efforts from DelDOT. Although bicycle and pedestrian efforts are separate programs at DelDOT, the long range goals for both are similar:

- improved safety by reducing injuries and fatalities; and
- improving network connectivity between modes.

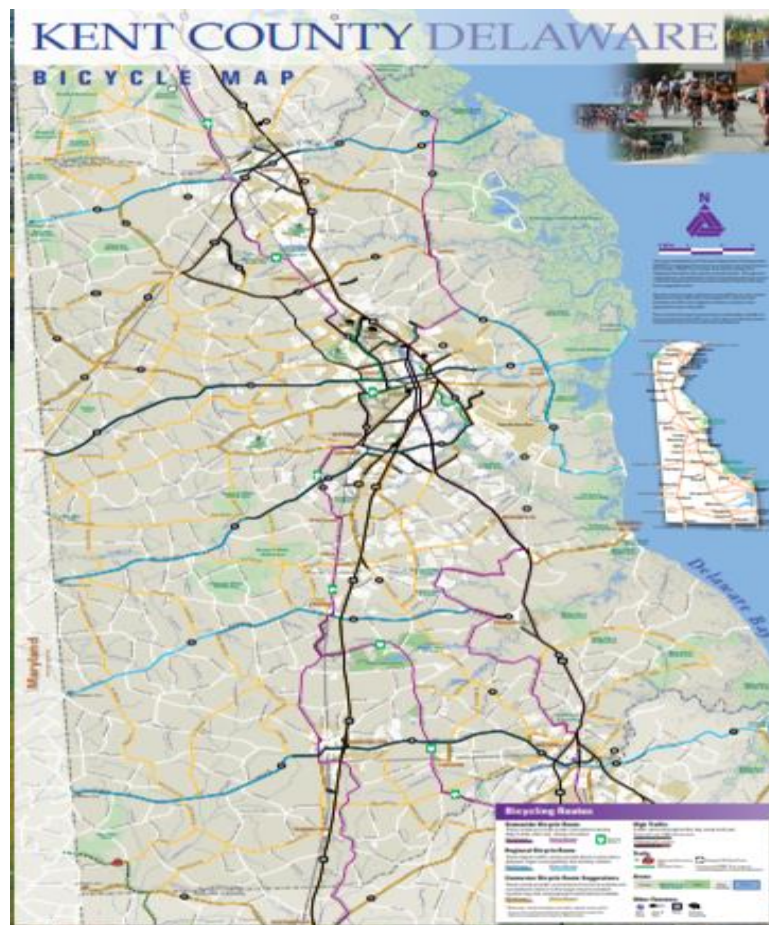
One method is to increase "Complete Communities" planning, which includes multi-modal, transportation, land use, urban design, and recreation icons (DelDOT, 2019 P. II-15). DelDOT's Innovation in Motion long range transportation plan provides many bicycle and pedestrian strategies on pages II-43 through II-51. This assists DelDOT with their long range goals, and guides the D/KC MPO regarding bicycle and pedestrian long range goals specific to Kent County.

Since first established 1992, the D/KC MPO has worked with many partners such as DelDOT, the City of Dover, and the City of Milford to incorporate bicycle and pedestrian studies and projects into long range planning for the region. Many of these studies can be found on the [resource tab at the D/KC MPO website](#) and provide recommended improvements and enhancements on or along the roadway system. DelDOT utilizes Delaware's Complete Streets Policy, which "highlights the benefits of a multi-modal system and ensures that any modifications are done in a way that provides safe and efficient access for all users" (DelDOT, 2019, P. II-44). Whether bicycle or pedestrian planning, the overall goal has been to foster a well-connected and safe bike and pedestrian system throughout Kent County.

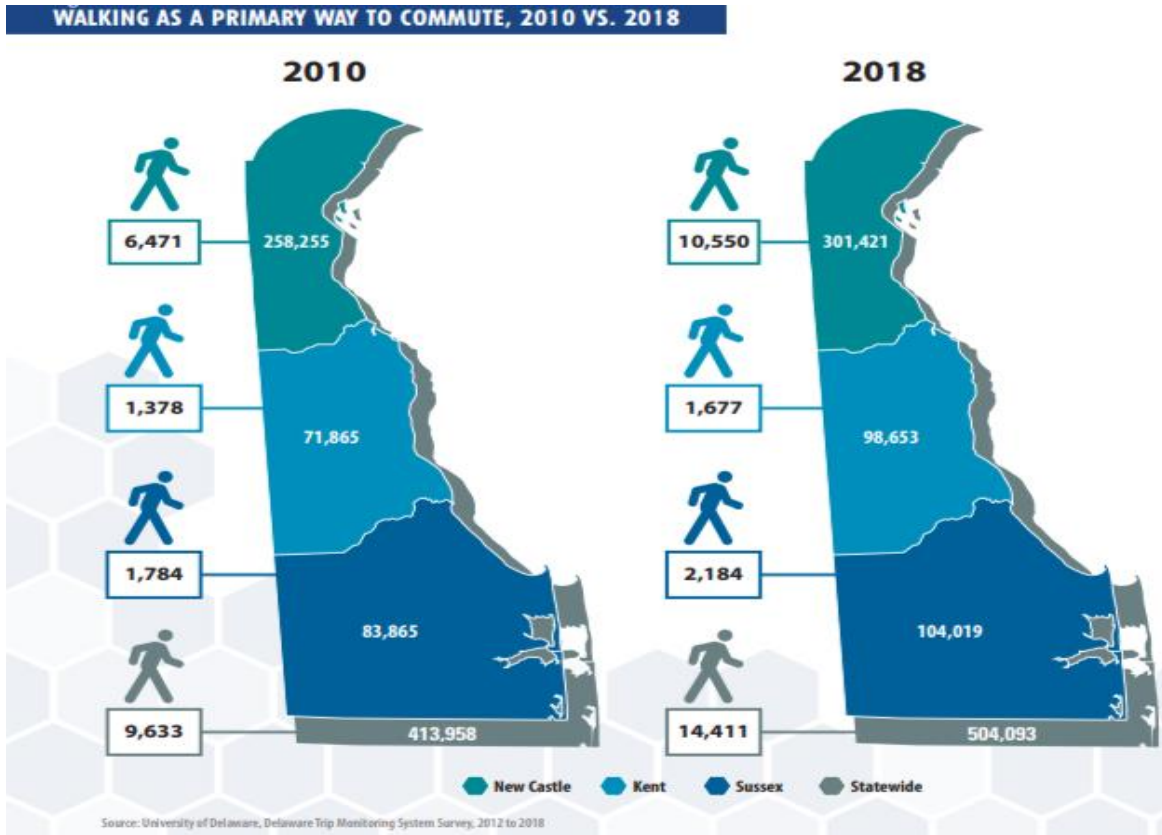
Specific to bicycling planning efforts, the D/KC MPO adopted its first Regional Bicycle Plan (RBP) in 2011 and proposed recommendations to improve the regional bicycle system in Kent County. The second D/KC MPO RBP was adopted in 2017 and used a 20-year planning timeframe (2017-2035) with prioritized recommended bicycle projects (12 in Dover, 5 in Smyrna-Clayton, 3 in Milford, 2 in Camden-Wyoming) along with recommendations for policies, ordinances, and other actions at the State, County or Local government level. In addition to these RBP's, the D/KC MPO supported Bike Plans for the City of Dover and City of Milford.

Bicycling is a viable form of transportation and DelDOT encourages cycling as a mode of transportation for both commuting and recreational purposes for residents and visitors (DelDOT, 2019, P.II-43). In fact, in 2018 DelDOT created and has since implemented a statewide policy plan called, "the Blueprint for a Bicycle Friendly Delaware" which, among other things, provides innovative bicycle design standards and guidance to assist planners and engineers in creating safe bicycle networks with three main goals: Develop a Complete, Comfortable, Connected Bicycle Network; Improve Bicyclist Safety and Confidence; and Foster a Culture of Bicycling that Benefits All Delawareans (DelDOT, 2018. P.8). Additionally, "DelDOT adopted a Level of Stress

(LTS) approach for evaluating bikeable roads in Delaware. LTS uses a stress level scale of 1-4. Each roadway is rated based on its design, traffic volumes, speed limits, and how these factors affect a bicyclist's perception of safety and choice of route." (DeIDOT, 2019. P. II-43)



Pedestrian systems in Delaware are an essential aspect of transportation planning. DeIDOT is responsible for the planning, design, construction, and maintenance of pedestrian facilities located within the State-owned public right-of-way (DeIDOT, 2019. PII-55). In addition as a leader in the Americans with Disabilities Act (ADA) pedestrian accessibility, DeIDOT's design guide, "Pedestrian Accessibility Standards for Facilities in the Public Right-of-Way" provides criteria for the design of Pedestrian Accessible Routes (PAR) elements. It ensures that pedestrian facilities are being consistently installed and updated to current ADA requirements (DeIDOT, 2019. P. II-55). Regarding future projections on walking to work, the below-referenced chart from the University of Delaware shows an 18% increase from 2010 to 2018 in Kent County, whereas New Castle County had a 39% increase, and Sussex County had a 19% increase.



Although bicycle and pedestrian projects are identified within the D/KC MPO MTP, RBP's and municipal Bike Plans, construction projects are at the Federal and State level. The [Blueprint for a Bicycle Friendly Delaware](#) document provides a nice flow chart regarding how projects are funded on page 105. Project funding includes both bicycle and pedestrian projects. Additional information on bicycle and pedestrian funding is found on the [Federal Highway Administration's \(FHWA\) Bicycle and Pedestrian Program](#). Federal-Aid Highway Program Funding for Pedestrian, Bicycle Facilities, and Programs are also found at this site. The following chart provides a snapshot of Bicycling and Pedestrian funding obligations for Delaware by previous D/C MPO MTP years.

2021 MTP Bike and Pedestrian Obligations 1999-2019								
	1999	2001	2005	2009	2013	2017	2019	1999-2019
Delaware Bike and Pedestrian Obligations	\$2,837,015.00	\$2,071,445.00	\$2,496,607.00	\$15,017,435.00	\$19,857,623.00	\$533,969.00	\$311,560.00	\$101,507,387.00

In summary, bicycle and pedestrian transportation projects will continue out to 2045. In addition to improving safety factors for both bicycle and pedestrian transportation users, bike and pedestrian facilities will be incorporated into land use projects as part of the Complete Communities initiative. These projects are also leveraged as mitigation factors to meet Clean Air Act (CAA) Ozone standards.