

Chapter 10

Transportation

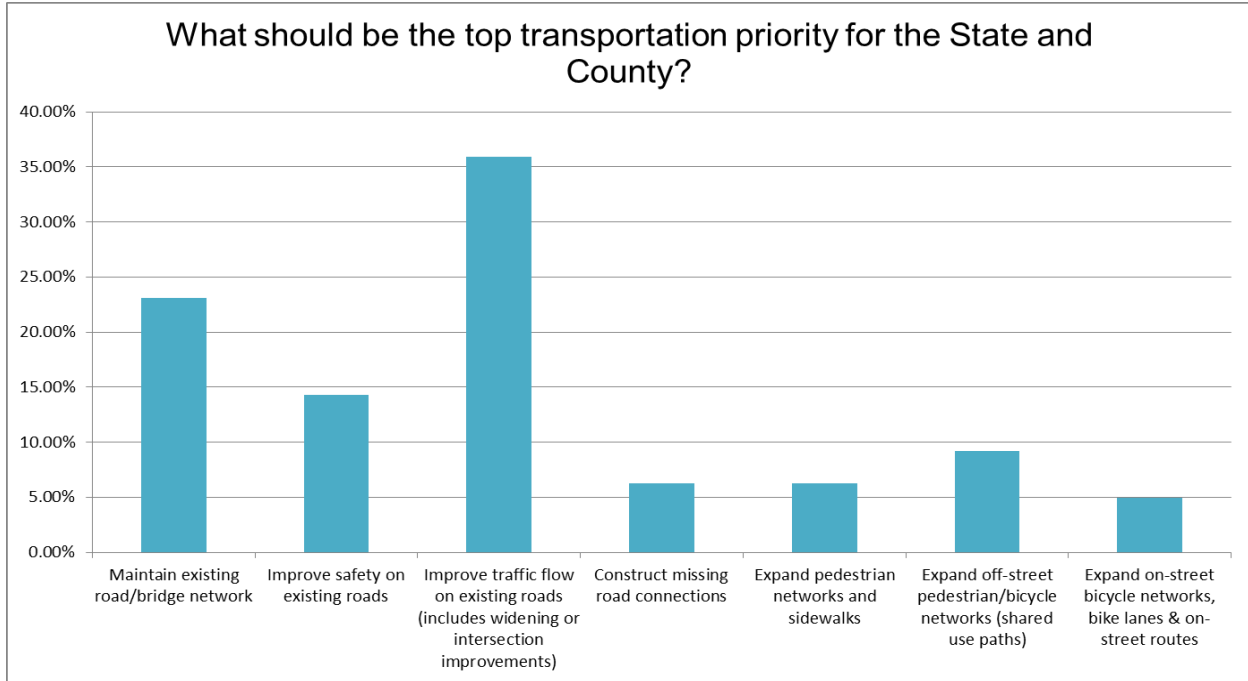


Overview

Land use, growth management, and transportation planning are inextricably linked and have to evolve and grow together. Despite the fact that Kent County is not responsible for maintenance of public roads, it is responsible for land use policy and the ultimate demands on those roads. Transportation systems affect most significant aspects of human society including:

- Settlement patterns;
- Land development and land use;
- Economic activity;
- Goods movement and trade;
- Jobs and wages;
- Energy and resource allocation;
- Access to places of work, education, health care, social life, and commerce;
- General social equity;
- Environmental quality; and
- Overall livability of communities.

Community outreach revealed that maintaining existing infrastructure, improving traffic flow, and improving safety are clear priorities. Given the wide reaching impacts of transportation systems, how well they function in turn affects the quality of the built and natural environment as well as the quality of life of citizens. A quality transportation system is also an essential element of attracting economic development. When developing a transportation plan, the overall net benefit with respect to environmental quality, growth management, land use, housing affordability, social equity, urban design, and economic development must be considered.



Transportation systems encompass a wide variety of modes including automobiles, bus transit, bicycle, pedestrian, airplanes, trucks, rails, and boats. These modes are not necessarily mutually exclusive and, in fact, should be considered complimentary. Walking is the most basic form of transportation and when road improvements for vehicular traffic are contemplated, multi-modal paths for bike and pedestrian traffic should be included in the design. System improvements and expansion are expensive and complicated undertakings that are designed, constructed, and maintained through a combination of public and private funding. Given the impact and expense of these improvements, it is essential that system improvements support the County’s direction for growth management articulated in this Plan.

Existing Conditions

Vehicle Miles Traveled

Functional Classification	Miles	Daily Vehicle Miles Traveled
Arterials (includes Freeways)	175 (11.8%)	3.2 Million (70.1%)
Collectors	307 (20.7%)	0.8 Million (18.5%)
Local	1,002 (67.5%)	0.5 Million (11.4%)
Total	1,484 Miles	4.5 Million Miles/Day

Source: De/IDOT 2014 Highway Performance Monitoring System (Dover/Kent MPO 2040 Metropolitan Transportation Plan)

Arterial roads account for only about 12% of the roadway miles in Kent County but accommodate 70 percent of vehicle miles traveled. According to the 2014 Highway Performance Monitoring System, 91% of Kent County roads are rated as being in good condition while only 1% is rated as poor.

Functional Classification

Each road in Kent County is classified according to the Functional Classification System developed by the Federal Highway Administration. Each classification carries with it standard construction specifications:

Freeways and Expressways

Highways with full control of access intended to provide for high levels of safety and efficiency in the movement of large volumes of traffic at high speeds. These are the largest type of principal arterials that serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel. They have 11 to 12 ft. travel lanes, shoulders from 6 to 12 ft. both inside and outside of travel lanes, and a minimum AADT of 4,000 cars. Examples: SR 1 and the Puncheon Run Connector to US 13.

Other Principal Arterials

These roads connect all or nearly all Urbanized Areas and a large majority of Urban Clusters with 25,000 and over population, and provide an integrated network of continuous routes without stub connections (dead ends). They have 11 to 12 ft. travel lanes, shoulders from 8 to 12 ft. on one side of the road, and a minimum AADT of 2,000 cars. Examples: US 13, US 113, and SR 1.

Minor Arterials

Highways and streets that link towns by distributing trips to smaller areas; serve higher classification roads by providing access to and from less developed areas. These are spaced at intervals consistent with population density, so that all developed areas within the State are within a reasonable distance of an Arterial roadway. They provide service to corridors with trip lengths and travel density greater than those served by Rural Collectors and Local Roads and with relatively high travel speeds and minimum interference to through movement. They have 10 to 12 ft. travel lanes, shoulders from 4 to 8 ft. on one side of the road, and a minimum AADT of 1,500 cars. Examples: US 13, SR 8, SR 15, and US 13A.

Collectors

Roads that enable moderate quantities of traffic to move between arterials and local roads; provide access to adjacent properties.

Major Collectors provide service to any county seat not on an Arterial route, to the larger towns not directly served by the higher systems, and to other traffic generators of equivalent intra-county importance such as consolidated schools, shipping points, county parks and important mining and agricultural areas. They have 10 to 12 ft. travel lanes, shoulders from 1 to 6 ft. on one side of the road, and a minimum AADT of 300 cars.

Minor Collectors provide service to travel over short distances as compared to higher classification categories. They have 10 to 11 ft. travel lanes, shoulders from 1 to 4 ft. on one side of the road, and a minimum AADT of 150 cars. In Kent County this is the remaining roadways that are the most heavily traveled and generally link the higher level roadways. Examples: Majority of State Routes in the County.

Local

Roads with a principal function of providing direct access to adjoining properties. Local roads have evolved over time in Kent County and in some cases were originally unimproved farm roads. They have 8 to 10 ft. travel lanes, shoulders from 0 to 2 ft. on one side of the road, and a minimum AADT of 15 cars and a maximum of 400. Examples: Majority of County Roads.

Many of the roads located within the Growth Zone Overlay have not been improved to existing design standards for their functional classification and certainly cannot safely support additional development. The County addressed future development by adopting adequate public facility provisions for roads. However, improving the roads to serve existing and approved development remains a challenge.

Going forward, the County must first work with the Delaware Department of Transportation (DelDOT) and the Dover/Kent County Metropolitan Planning Organization (MPO) to establish a schedule for improving the road network to meet current design standards; then time the development of existing and future projects with infrastructure improvements; and once the roads are upgraded to meet current design standards, identify any improvements needed to serve additional development for implementation concurrent with that development.

Modes of Transportation

The majority of trips within Kent County are made via automobile as would be expected in a largely rural and suburban County. Interestingly, the percentage of commuting trips by single-occupancy vehicle has been increasing while use of carpooling, transit, bicycling, and walking has decreased.

	Percentage	
	2011-2013	2013-2016
Single-occupancy vehicle	78.3%	82.8%
Multi-occupant vehicle	17.6%	13.9%
Walked	2.7%	2.3%
Public bus	1.1%	0.9%
Bicycle	0.4%	0.1%

Source: DelDOT 2016 Fact Book

Public Transit

Public transit in Kent County includes local fixed route and inter-county bus service as well as paratransit provided by the Delaware Transit Corporation (DTC) operating at DART First State. Local fixed route public transit is only available in the Dover area with some inter-city services between Dover and points to the north and southeast. Paratransit and special transit demand-response services are available for elderly and disabled residents. According to the Dover/Kent County MPO 2017 Metropolitan Transportation Plan, overall fixed route transit ridership actually fell by 20% between 2013 and 2016.

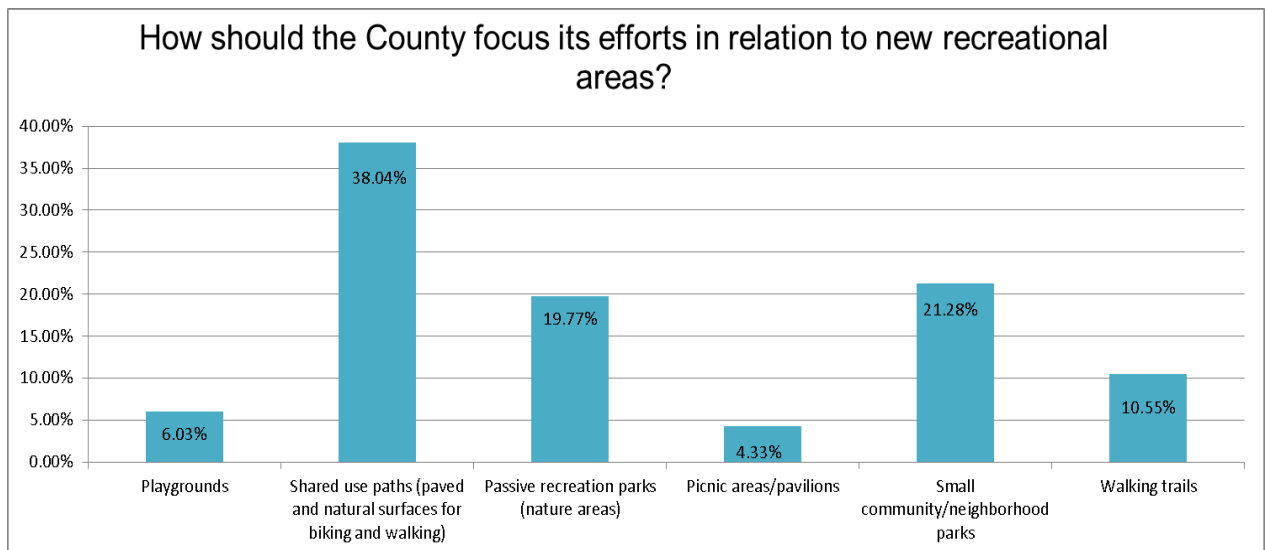
While public transportation is likely to always require subsidy by the State, its relative success is dependent upon enough people living in close proximity to support it and must be considered when

contemplating future development patterns. Densities to support fixed route public transportation are most likely to be achieved in and around municipalities.

Bicycle & Pedestrian

Walking and biking are both popular for recreation and can become more attractive modes of transportation as systems are connected. Several facilities accommodate bicycling and walking as a travel mode behind the curb or off the road, such as the path along Scarborough Road. Bicycle facilities on shared rights-of-way include bike lanes, paved shoulders, wide curb lanes, and shared roadways while bike routes are provided on separate rights-of-way.

According to mode choice studies, the average distance thresholds include $\frac{1}{4}$ to $\frac{1}{2}$ mile for walking and $\frac{5}{8}$ mile for biking. These thresholds are the average distance that people consider when deciding to use a particular mode for recreation, work, or school. Walking and biking are becoming more important to people for physical health as well as for economic reasons. When asked what focus the County should have in developing new recreational opportunities, walking and biking were fairly clear public priorities.



The bikeways in Kent County are predominantly paved shoulder roadways and are not necessarily shared-use signed as bike routes. Bicycles are also considered vehicles in Delaware and have the right to use nearly every roadway. Sidewalks are common within urbanized areas but less so in outlying unincorporated areas. Overall, the State, County, and larger municipalities have continued to expand opportunities for bicycling and walking with an emphasis on lower stress routes that are safe for all ages and comfort levels.

The County supports the recommendations included in the *2017 Dover/Kent County Regional Bike Plan* and the overall visions to "create a bicycle system where people feel comfortable riding bicycles, whether for commuting, errand trips, physical fitness or recreation." Specific projects located in the unincorporated area include:

St. Jones Greenway Trail, Phase 2

This proposed new trail would connect the bicycle facilities on Route 10 to Route 9, providing a safe, off-road north-south route from central Dover to the southern end of the city. It is the proposed southern extension of the St. Jones Greenway Trail. It would connect the downtown Dover historical attractions with the Dickinson Mansion, AMC Museum, Ted Harvey Conservation Area, and the St. Jones National Estuarine Reserve.

Hunn Property Connector

A shared-use path (800 feet) would connect the Hunn Property to the St. Jones Greenway Trail along Route 10.

Chestnut Grove Road

Chestnut Grove Road is a main connector route used by automobiles, bicycles, and horse-and-buggies from west of Dover to the northern US 13 commercial areas via Kenton Road. With the exception of a very short stretch, the road has no bike facilities, no shoulders, and fast, moderate volume auto traffic.

Route 8 Dover to Little Creek

Route 8 is one of the main routes between Dover and Little Creek. Shoulders exist between US 13 and Route 1, but not east of Route 1.

Brenford Road

This project is part of a larger route with Sunnyside Road and Rabbit Chase Road, linking the developing area to Smyrna. This bike path would also provide non-motorized access from a rapidly growing area to Big Oak Park and provide increased connectivity from the residential areas on the west side of US 13 to the commercial uses along US 13.

Clayton, DE to Easton, MD Rail Trail

The Clayton to Easton recreational rail trail would include over 27 miles of shared-use path in Delaware connecting Marydel, Hartley and Clayton with Greensboro, Goldsboro and Easton, Maryland. The State of Maryland owns the rail right-of-way along the abandoned rail line in Delaware.

Smyrna to Bombay Hook NWR

A marked bicycle route between Smyrna and Bombay Hook NWR could increase tourist and resident non-motorized visitation to Bombay Hook.

Route 15 (Moose Lodge & Dundee Road)

This segment of Route 15, part of Delaware Bike Route 1, is the major north-south bicycling route for the state. Along Moose Lodge and Dundee Roads there are no bicycle facilities, no shoulders and fast, moderate volume auto traffic.

Peachtree Run

Peachtree Run connects developments East of US 13 with the commercial areas on US 13. It is not a safe route for bicyclists because a vast majority of the road has no continuous shoulder.

Providing a bicycle lane along Peachtree Run will help to better accommodate bicyclists traveling from Canterbury through Woodside and into South Dover.

With respect to land use, it is essential to consider not only providing alternate modes of transportation, but also locating various residential, commercial, and public uses in close enough proximity to each other. Kent County continues to require the installation of sidewalks or multi-modal paths along all major collectors and many local streets as part of subdivision and land development approval. The Department of Community Services also continues to expand the trail network associated with the County's park system.

Railroads

Kent County has 56 miles of active freight railroad lines which are operated by Norfolk Southern. These lines include the *Delmarva Secondary Line* and *Indian River Secondary Line*. Rail lines must be considered when contemplating future land uses and economic development as they offer significant benefit for industrial development. Consequently, many of the proposed Industrial and Commerce Areas are located along the rail line. Aesthetic, noise, and safety buffers should be employed in cases where residential development is contemplated in close proximity to the rail line.

Aviation

Kent County has 7 aviation facilities available for public use, primary of which is the Dover Air Force Base Civil Air Terminal. Other facilities include the Smyrna Airport, Chandelle Estates Airport, Delaware Airpark, Jenkins Airport, Chorman Airport, and the DeIDOT Helistop. DeIDOT is undertaking significant improvements to Delaware Airpark which will improve travel and enable development of aviation related industry and business.

Marine

Rivers, ports, bays, and estuaries are all used for movement of people, goods and services, and can also serve as recreation destinations and uses. In Kent County, the Delaware Bay, Leipsic River, St. Jones River, Murderkill River, and other waterways provide avenues for recreation as well as the movement of people and goods. Most of the bay coastline in Kent County is marsh and forms the Bombay Hook National Wildlife Refuge and other important wildlife areas. Therefore, most of the water access in the County is in small-scale recreational use. The commercial and recreational fishing facilities in Bowers Beach are the most significant docking facilities. However, smaller operations can also be found in Leipsic.

Level of Service (LOS)

The Delaware Department of Transportation has completed a level of service (LOS) analysis for Kent County as part of the Comprehensive Plan. These maps will evaluate the existing LOS in 2017 and then the estimated LOS in 2040. They have included only the three lowest grades of service, D, E and F.

"D" roadways are those that are approaching unstable flow. Freedom to maneuver within the traffic stream is much more limited and driver comfort levels decrease. Examples are a busy shopping corridor in the middle of a weekday or a functional urban highway during commuting hours. It is a common goal

for urban streets during peak hours, as attaining LOS “C” would require prohibitive cost and societal impact in bypass roads and lane additions.

"E" roadways have an unstable flow, operating at capacity. Flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to maneuver in the traffic stream and speeds rarely reach the posted limit. Any incident will create serious delays. Drivers' level of comfort becomes poor.

"F" roadways have a forced or breakdown flow. Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required. Travel time cannot be predicted, with generally more demand than capacity. A road in a constant traffic jam is at this LOS, because LOS is an average or typical service rather than a constant state. These are the roads that DelDOT, the MPO, and the County should focus most of their efforts.

Map _____ shows what the level of service will be in just over 20 years if only the current road projects are completed. Most major routes through Kent County are proposed to have a decreased or stagnant level of service including portions of Rt. 1 and most of Rt. 13. We must work to implement the most effective transportation projects, as well as work with a defined and effective growth strategy to minimize the impact on the road systems.

The goal of the Adequate Public Facility Ordinance was to ensure that new development does not negatively impact the transportation system. In adopting the Adequate Public Facilities Ordinance for roads, Kent County established a minimum LOS “C” for all roads outside the Growth Zone Overlay District and “D” inside the District in an effort to ensure adequate road capacity is maintained for new development. It is worth noting, however, that as designated growth areas develop, an increase in congestion is to be expected. Maintaining an LOS “D” during peak hours is not necessarily practical in heavily developed areas. In limited highly developed areas, LOS “E” might be practical provided carrying capacity can be adequately managed.

Balancing safe and efficient transportation with the land use and economic development priorities of the County are essential. It is important to ensure that the measures used to evaluate level of service for transportation do not inadvertently inhibit economic development efforts. It could be useful to work with DelDOT and the Dover/Kent County MPO to examine alternative metrics such as travel time to measure traffic impact in a more meaningful way.

Transportation Improvement Districts

Currently, developers bear the responsibility for completing road improvements associated with their development. Those improvements are generally identified through the traffic impact study process for larger projects. Unfortunately, smaller projects and early projects have not necessarily triggered required improvements through this process resulting in an inequitable distribution of responsibility. In addition, there have been instances where rather than requiring improvements to the road serving a proposed subdivision, with the exception of safety improvements, DelDOT has instead required contributions to larger projects associated with SR 1 with an assurance that the State will construct the

improvements to the local roads. Ultimately, improvements are required on a case by case basis rather than a community-wide basis.

Transportation Improvement Districts (TIDs) are areas where rather than relying upon individual traffic impact studies, the County, DeDOT, the MPO, and the community will develop a more complete plan addressing a larger area for transportation improvements including road upgrades, interconnection of local roads, and bicycle and pedestrian facilities. These areas support the nodal concept of land development in that the intent is to develop a transportation network where residents can rely upon interconnected local roads for everyday needs whether work, school or recreation.

Creating such Districts will change the subdivision and land development approval process in these areas in that the roadway infrastructure is identified ahead of the land use application. The existing standard of requiring Traffic Impact Studies for individual developments should be replaced by the TID master plan, although the responsibility for funding the required improvements would remain with project developers based upon the traffic their project will create. In addition, to further ensure that infrastructure improvements are keeping pace with new residential and commercial development, building permits should be linked to completion of road improvements.

Map _____ identifies the two areas for Transportation Improvement District plans which were identified based upon existing and planned development. The boundaries of the Districts may be refined as the plans are developed. The development of the TID plans as a follow-up to the Comprehensive Planning effort is essential.

In addition to the areas designated for TIDs, there are specific corridors including Brenford Road and South State Street from Rising Sun to Dover that are largely developed or planned for development but suffer from poor level of service at peak hours. While the corridors are not necessarily fitting for a TID, they would benefit from additional study to identify specific alternatives to improve traffic flow, multi-modal improvements and connectivity. The County should coordinate with the Dover/Kent County MPO to complete corridor studies for both Brenford Road and South State Street.

Policy Emphasis

Create and maintain a transportation system within Kent County that is safe, supports economic development, allows easy access and mobility for people and goods to reach their destination, and serves the public's needs while reinforcing the unique character and quality of life of each community and preserving the region and natural resources.

Recommendations

1. Integrate land use with transportation by improving coordination between land use and transportation planning and project development in order to establish and maintain a transportation network that supports anticipated needs within the Growth Zone Overlay;
2. Coordinate with DeIDOT and the MPO to develop Transportation Improvement Districts, and pursue corridor studies for Brenford Road and South State Street;
3. Support healthy lifestyles, choices and opportunities, as well as reduce air, water and noise pollution by requiring facilities such as sidewalks, transit facilities, multi-use paths and bikeways as part of both transportation and land development projects;
4. Coordinate with DeIDOT, DNREC, and the Dover/Kent County MPO to continue developing the trail system within and among the County parks as well as improve bicycle and pedestrian access to the parks;
5. Continue to apply access management techniques preserving and improving the operating condition of corridors by regulating the number, spacing and design of access points;
6. Preserve and allow for expansion of existing rail facilities for both freight and passenger service, as well as a new intermodal freight yard;
7. Provide aesthetic value by incorporating aesthetic and non-vehicular improvements in transportation investments; and
8. Permit a mix of residential and nonresidential development at densities high enough to support bicycle & pedestrian access, as well as transit in the Growth Zone Overlay, particularly in areas near municipalities.

