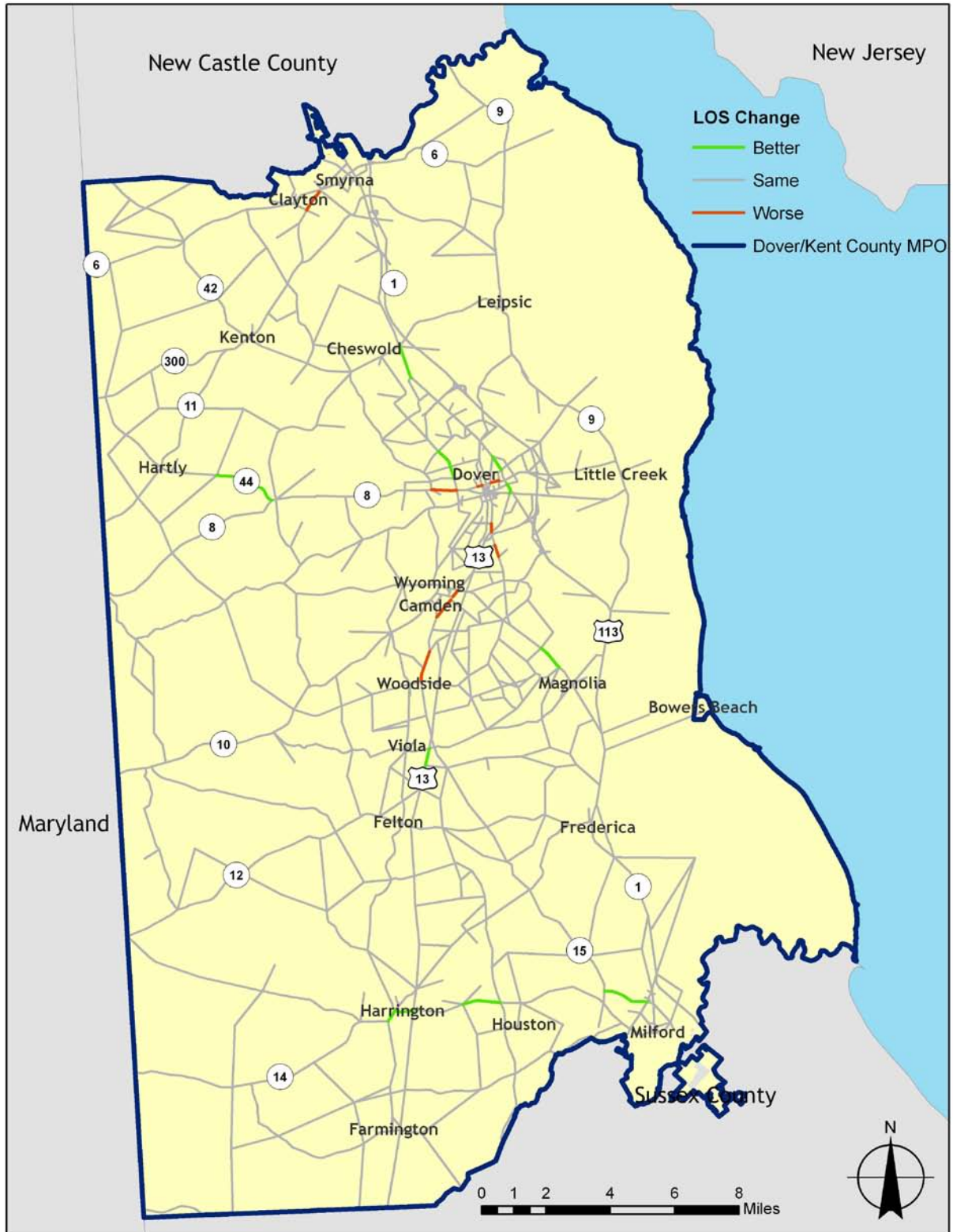


Exhibit 4.25: Level of Service Change between 2030 “Base” and “Shift” Scenarios



Source: DelDOT

**4.12.5 Future Transportation Needs Summary**

The road network in the MPO area is projected to become taxed under any scenario. A number of improvements will be necessary to the transportation network, including promoting transit and non-motorized transportation options. The level of service throughout the county will become increasingly deficient by 2030 under the “Base” Scenario.

**Exhibit 4.26: Number of Miles with LOS E and F**

	2005	2030 “Base” Scenario	2030 “Shift” Scenario
<b>LOS E</b>	8.4	58	41.3
<b>LOS F</b>	2.3	71	66.04

*Source: DelDOT*

Overall, the “Shift” Scenario appears to move a portion of travel in the county toward areas with existing and planned infrastructure, including roadways, transit, and bike and pedestrian modes. DelDOT concluded from the “Shift” Scenario results that there would be slightly higher volumes on certain roads in the growth area and slightly lower volumes on the majority of other roads. The “Shift” Scenario does not increase the number, length, or severity of anticipated level of service issues on Kent County roads. In fact, there is a noticeable improvement in total number of miles of roadway in LOS E and F as seen in **Exhibit 4.26**. There is projected to be a 35.7% decrease in road miles that did not meet the target minimum LOS under the “Shift” scenario.

**4.13 Conclusions**

The development the MPO area has experienced in the recent past has burdened the transportation infrastructure at a pace greater than the necessary improvements will be made. The development and driving habits of our residents have combined to decrease the drivability of our roads and worsen the quality of our air. The response by the State Department of Transportation and Kent County and local land use controls will influence the future we will enjoy.

## 5. Transportation Strategies and Actions: 2009 – 2030

Chapter 5 discusses the fundamental strategies that form the framework around which the Regional Transportation Plan is constructed. This chapter also discusses transportation investment strategies from the Strategies for State Policies and Spending, as well as other state agency plans. This chapter further recommends actions that should be taken to implement the strategies.

### 5.1 RTP Framework

#### 5.1.1 Fundamental Strategies

There are five fundamental strategies that form the framework of the RTP. The strategies are listed in order of their relative importance and impact on the region and its residents. The more cost-effective strategies are listed with a higher preference.

These strategies were developed to ensure that investments are made to support the vision of this RTP. The strategies are made to concentrate transportation investments in areas where growth is needed and is desirable. Using the fundamental strategies, transportation investments can be coordinated with land use decisions to create a comprehensive transportation system for Dover/Kent County MPO region.

#### FUNDAMENTAL STRATEGIES

1. **Preserve and maintain the existing transportation system while improving safety and security**
2. **Improve the management of the existing transportation system**
3. **Develop and expand other modes of transportation**
4. **Provide additional system capacity**
5. **Focus transportation investments**

These strategies concur with the Livable Delaware Agenda which describes guidelines regarding the general types of investments to be made in different areas of the county. Strategies from the Livable Delaware Agenda support the vision of this RTP update. This initiative guides growth in areas that are prepared for infrastructure investments and planning.

Each of the five fundamental strategies is briefly discussed below and then in detail, including associated actions. Actions are identified to meet the strategies that guide the RTP.

#### ***Fundamental Strategy 1: Preserve and Maintain the Existing Transportation System***

Preserving and maintaining the existing transportation system is the first step to maximizing the value of the network. The base transportation system must be maintained to operate at the same, or better, functional level in 2030 as in the present. A reduction in the network's operating capacity must be prevented. Maintenance must also occur to ensure the safe movement of goods and people. By guiding development, controlling access, and taking active steps to preserve the existing transportation system, investments that have already been made can largely be maintained.

***Fundamental Strategy 2: Improve the Management of the Existing Transportation System***

Improving efficiency through the use of technology, such as intelligent transportation systems, to better manage the existing system can increase capacity. DelDOT continues to improve the current system's capacity through its Transportation Management Program and through implementation of various technology and management strategies referred to as Integrated Transportation Management Systems (ITMS). Actions which help improve management of the existing transportation system can avert the need for new roadway facilities.

***Fundamental Strategy 3: Develop and Expand Other Modes of Transportation***

Providing transportation options beyond the personal vehicle helps to meet the access and mobility needs of Kent County residents. Expanding facilities and services for modes such as walking, bicycling, ridesharing, and transit supports the plan's vision by increasing travel options for residents, providing basic mobility for those who cannot drive, and reducing the need to own an automobile. Expanding facilities and improving efficiencies for other modes including freight supports the vision by increasing economic development while reducing vehicle emission impacts on the environment. Actions that provide for other modes of transportation reduce reliance on personal vehicles and the need for new roadways.

***Fundamental Strategy 4: Provide Additional Roadway System Capacity***

Adding new roadways to increase capacity will be necessary where other strategies are not sufficient. Constructing new roads is not the emphasis of the RTP, but is a necessary part of producing and maintaining a sustainable transportation system. Providing for additional roadway capacity includes complementary facilities for walking, bicycling, and transit, where possible.

***Fundamental Strategy 5: Focus Transportation Investments***

The first four transportation strategies identified need to be supported by focusing transportation investments in areas where growth and development are desired and should be supported. Consequently, the strategy of focusing transportation investments equates to the need to link land use and transportation. This strategy focuses on how existing land uses and land use plans are currently affecting and will shape future transportation demand. Delaware and Kent County have developed policies for focusing transportation investments, which are supported and embraced by this plan. These policies and the geographic areas associated with them are based on land use and the type of activities that would typically be in those areas.

**5.1.2 Kent County Comprehensive Plan**

Kent County began its efforts to focus development and infrastructure investments, including transportation, when it adopted its Growth Zone Overlay District, which encompasses an area that Kent County determined new development should be encouraged. To that end, incentives such as area and bulk requirement reductions were developed to encourage development within the zone rather than in the more rural areas of the County. The Growth Zone Overlay District was also an area that Kent County identified where infrastructure such as water, sewer, and transportation facilities existed or were planned to serve development. Growth Zone boundary, the geographic area of the district was integrated into the Kent County Comprehensive Plan, as well as the Official Zoning Map.

Kent County also supports the focusing infrastructure investments through its Transfer of Development Rights program, adopted in August 2004. The purpose of the program is to enable owners of land located outside the designated Growth Zone Overlay to sell the rights to develop their land to buyers for utilization within designated growth areas. The program was developed in response to increasing pressure to develop rural agricultural areas outside the designated Growth Zone Overlay where essential infrastructure and support services necessary to sustain suburban and urban land uses do not exist and are not planned.

Kent County adopted its Adequate Public Facilities Ordinance (APFO) in October 2007 for the purpose of ensuring that essential public facilities, such as roads, needed to support new development meet or exceeds defined level of service standards and that they are available concurrent with the impacts of the new development. The ordinance ties the analysis of the impact of a proposed development on the public facilities to the development approval process in an effort to coordinate the provision of public facilities with development. This ordinance supports making infrastructure investments where they are needed most.

Most recently, Kent County developed Transportation Improvement Districts (TIDs) as part of the 2007 Comprehensive Plan: Building Communities. TIDs are a geographic representation of developing areas where the transportation system must be integrated with land use and significant investment in the system is required. Within these areas, the County, DelDOT, the MPO, and the community intend to develop specific plans for transportation improvements. TIDs support land use plans and have a network of roads that supports everyday transportation needs related to work, school, or recreation. TIDs are meant to reduce the number of required studies in a specific area by utilizing a master plan. The districts help to ensure the infrastructure improvements are keeping pace with new residential and commercial development.

### **5.1.3 Strategies for State Policies and Spending**

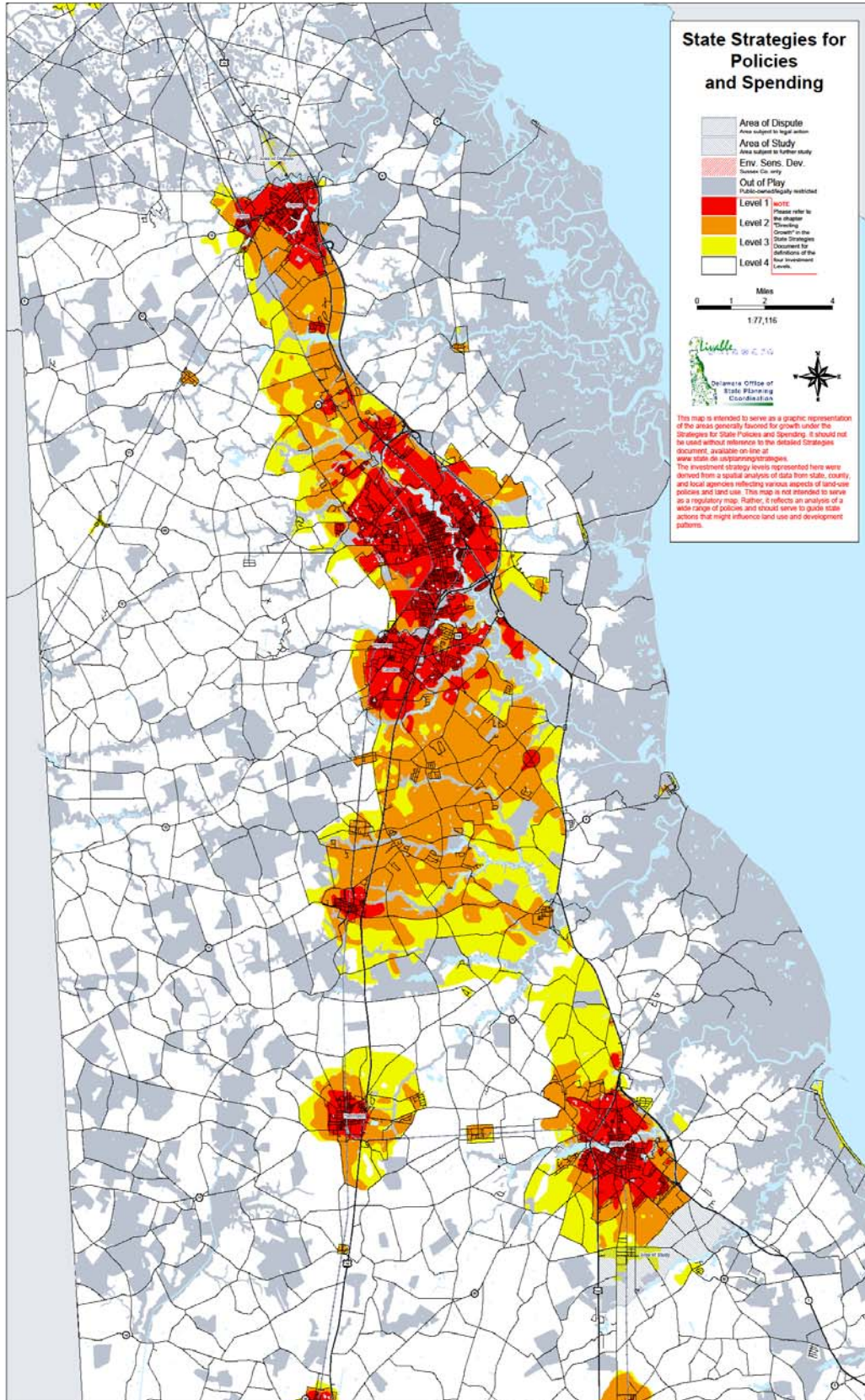
As discussed in Chapter 1, the Livable Delaware Agenda builds on the foundation of the 2004 Strategies for State Policies and Spending, which identify levels of transportation investment areas. This is a guideline for the type of transportation investments to be made at each of these levels and where they should be located. **Exhibit 5.1** shows where each of the investment levels is identified in Kent County.

Each investment level and its corresponding transportation strategies are described in the following section. Definitions provide an explanation of the various investment levels with a description of each associated investment area. In addition to the investment areas associated with investment levels, there are areas that require resource protection and sustainable growth in environmentally-sensitive areas.

There are four levels of investment areas. The levels range from urban areas with compact development to transitional areas to environmentally-sensitive and agricultural lands. The majority of Kent County is included in investment Level 4, which is characterized by mostly rural land.



Exhibit 5.1: State Strategies for Policy and Spending



### 5.1.3.1 Level 1 Investment Area and Transportation Strategies

#### *Description of Level 1 Investment Area*

People have historically congregated for access to convenient housing, commerce, and social interaction. Whether they are called villages, towns, or cities, these areas are characterized by a lively pace, a core commercial area, several modes of transportation, and a variety of housing options ranging from detached single family homes to multi-family apartments.

These population centers are often built around a traditional central business district or “downtown,” which offers a wide range of opportunities for employment, shopping, and recreation. They usually have a concentration of cultural and entertainment facilities, and a wide array of public institutions, services, and amenities (such as post offices, police and fire stations, libraries, hospitals, and other health care facilities). Although the scale of these population centers varies throughout the region, from the City of Dover to smaller towns such as Felton, the Strategies for State Policies and Spending document calls them all by one name: Investment Level 1 Areas.

These relatively compact patterns of development tend to have a human scale and are notably walkable, with the generally accepted range of one-quarter to one-half mile being the farthest that people are willing to walk to reach their destination. Beyond this distance, another mode of transportation is usually sought. Investment Level 1 Areas provide a range of transportation choices, making it possible to pursue daily requirements by foot, bike, private vehicle, and in limited quantities and locations, by transit.

Investment Level 1 Areas may also have overlooked opportunities in the form of underused or previously used sites (some of which are called “brownfields”), as well as a century or more of public and private investment in services, facilities, and buildings. These are places where significant investment already exists in roads, bridges, airports, water and sewer systems, schools, commercial and industrial buildings, and houses.

Investment Level 1 Areas provide regional and local identity and a sense of place to employment centers and recreational venues. The Dover/Kent County MPO region contains 20 incorporated communities varying in size from its largest city, Dover, to smaller towns such as Hartley and Farmington. Intensely developed areas in and around Dover, Milford, and Smyrna function in a similar manner. These Investment Level 1 Areas drive Delaware’s economic engine.

The state’s goals clearly recognize the value of these Investment Level 1 Areas and provide for their continued health and vitality through reinvestment and redevelopment, and through the efficient use and maintenance of existing public and private investments.<sup>1</sup>

#### *Investment Level 1 Transportation Strategies*

The following transportation strategies correspond with the characteristics of a Level 1 Investment Area.

- Provide the greatest number of transportation options, emphasizing public transportation, walking, and bicycling.

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<sup>1</sup> <http://stateplanning.delaware.gov/strategies/strategies.shtml>  
*Adopted January 28, 2009*

- Make existing infrastructure and planned improvements as safe and efficient as possible.
- Projects typically should include new or expanded facilities and services for all modes of transportation, including public transportation facilities and services when compatible with development patterns.
- Projects include those that manage traffic flow and congestion, support economic development and redevelopment efforts, and encourage connections between communities.

### **5.1.3.2 Level 2 Investment Area and Transportation Strategies**

#### *Description of Level 2 Investment Area*

These diverse areas surround many municipalities and also seem to be the most popular portion of Delaware's developed landscape. They serve as transition areas between the Investment Level 1 Areas and the state's more open, less populated areas.

These areas are often characterized by a limited variety of housing types (predominantly detached single family dwellings); commercial and office uses serving primarily local residents (examples include food, drug, and video rental stores); and a limited range of entertainment, parks and recreation, and cultural and institutional facilities.

Innovative developers, architects, and land use experts recognize that the historic design of suburban developments could be improved by incorporating a mix of housing types and commercial uses as well as interconnecting roads, walkways, and bikeways between developments. They also recognize that compact development strategies may fit within areas adjacent to existing towns and population centers. These elements, designed with a greater concern for aesthetics and the environment, would revive the feel of the traditional "village," providing a stronger sense of community.<sup>2</sup>

#### *Investment Level 2 Transportation Strategies*

The following transportation strategies correspond with the characteristics of a Level 2 Investment Area.

- Encourage sensible development through a planned set of phased transportation investments, land use coordination, and policy actions consistent with zoning densities and designations.
- Transportation projects should expand or provide roadways, public transportation, pedestrian walkways, bicycle paths, and other transportation modes.
- Manage traffic flow, support economic development efforts, and encourage connections between communities.

### **5.1.3.3 Level 3 Investment Area and Transportation Strategies**

#### *Description of Level 3 Investment Area*

Investment Level 3 Areas are portions of county-designated growth zones, development districts, or long-term annexation areas in municipal comprehensive plans that aren't in the Investment Level 1 or 2 designations on the state's strategy map. In Kent County they mostly include areas outside Investment Level 1 or 2 Areas built within the county-designated "Growth (Overlay) Zone." This growth zone includes the area within a two-mile radius of existing

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<sup>2</sup> <http://stateplanning.delaware.gov/strategies/strategies.shtml>



wastewater system pumping stations. There are also areas designated as Investment Level 3 in the region where there are environmentally-sensitive features, agricultural preservation issues, or other infrastructure issues which should be considered by state agencies and local governments when evaluating spending decisions and/or development proposals.

Although these areas may be primarily used for agriculture today, they are experiencing development pressure, and may not remain predominantly rural in the long term.<sup>3</sup>

#### *Investment Level 3 Transportation Strategies*

The following transportation strategies correspond with the characteristics of a Level 3 Investment Area.

- Continue to invest in the regional roadway network, maintenance of the existing roadway system, and roadway safety.
- Continue to protect the capacity of major transportation corridors such as Routes 1, 113, and 13 through the Corridor Capacity Preservation Program.
- Roadway improvements that are necessary to support new development activities will not be preferred. Investments will be prioritized in Investment Level 1 and 2 areas.

#### **5.1.3.4 Level 4 Investment Area and Transportation Strategies**

##### *Description of Level 4 Investment Area*

Agriculture continues to be a major industry in Delaware, as it was a century ago. The state's open spaces and rural vistas are critical components of the quality of life Delawareans enjoy, as are the small settlements and historic villages reflecting earlier times. Marshlands, wooded areas, and a network of waterways support an abundance of wildlife, provide recreation, and help define the Delaware scene.

Delaware's Investment Level 4 Areas are predominantly agricultural. These areas contain agribusiness activities, farm complexes, and small settlements. They are typically found at historic crossroads or points of trade, often with rich cultural ties, such as Little Creek, east of Dover.

Investment Level 4 Areas also boast undeveloped natural areas, such as forestlands, and large recreational uses, state and county parks, and fish and wildlife preserves. Sometimes private recreational facilities such as campgrounds or golf courses (often with associated residential developments), are situated in Investment Level 4 Areas.

Some limited institutional uses may exist in such areas. Delaware's Investment Level 4 Areas are also the location of scattered residential uses, featuring almost entirely single family detached residential structures. These are homes for those who value the quiet and isolation provided by locations away from more developed settings, albeit with an almost total reliance on private vehicles for every transportation need.

Delaware's Investment Level 4 Areas also include many unincorporated communities, typically with their own distinctive character and identity. These places reflect the rich rural heritage of

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<sup>3</sup> <http://stateplanning.delaware.gov/strategies/strategies.shtml>  
*Adopted January 28, 2009*

the state. Investment Level 4 Areas depend on a transportation system of primarily secondary roads linked to roadways used as regional thoroughfares for commuting and trucking.<sup>4</sup>

*Investment Level 4 Transportation Strategies*

The following transportation strategies correspond with the characteristics of a Level 4 Investment Area.

- Preserve existing transportation facilities and services and manage the transportation system to support the preservation of the natural environment.
- Transportation projects should only include necessary drainage, maintenance, and safety improvements and programs to manage regional highway facilities.

#### **5.1.4 Comparison with other state agency plans**

##### **5.1.4.1 State Resource Areas (SRAs)**

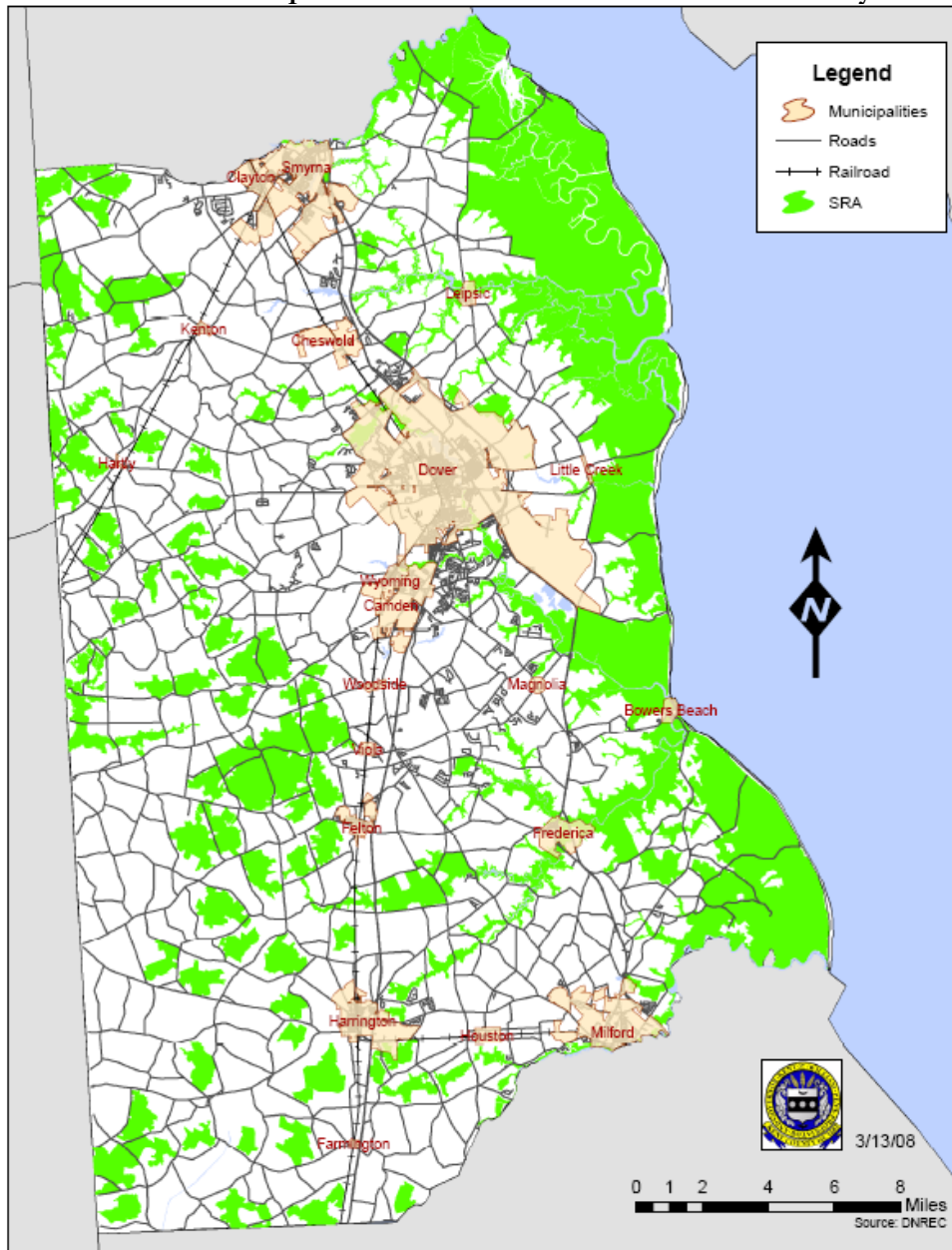
SRAs are the most important natural open space lands valued for their natural, cultural, and geological significance as determined by the Delaware Department of Natural Resources and Environmental Control (DNREC). Proposed natural and open space areas designated for protection have been included in the SRA map. It is proposed that Kent County have 69,594 acres (69 percent) of its SRAs under protection, with another 31,964 acres (31 percent) of its SRAs—or 8 percent of the overall county acreage—afforded additional protection.

Providing additional protections for Kent County’s designated SRAs would help focus future development in areas with or near existing infrastructure. Less new transportation infrastructure would be needed in these environmentally sensitive areas, resulting in the need for less mitigation of negative impacts.

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<sup>4</sup> <http://stateplanning.delaware.gov/strategies/strategies.shtml>  
*Adopted January 28, 2009*

Exhibit 5.2: Proposed State Resource Areas in Kent County



#### 5.1.4.2 Delaware Economic Development Office (DEDO), Kent County Action Plan

The Kent County Action Plan sets forth a series of goals, objectives, and recommendations that the Kent Comprehensive Economic Development Strategy (CEDS) Committee feels are appropriate to address economic development in the county and achieve their vision for the future. The Kent CEDS Committee's vision, goals, objectives, and recommendations collectively comprise the Kent County Action Plan.

CEDS sets the following vision: “While capitalizing on and preserving its small town, agricultural, and historic characteristics and its status as the home of major government and higher-education facilities, Kent County will, through:

- infrastructure improvement;
- a diverse, qualified workforce; and
- unified public and private stakeholders;

support an economy that fosters and maintains a diverse set of industries, providing residents with quality jobs.”<sup>5</sup>

The Kent County Action Plan continues with a series of goals, objectives, and recommendations that support these areas. Of most relevance to this RTP update is Goal 6, focusing on infrastructure: To provide Kent County with adequate infrastructure and transportation resources to support economic development. The Kent CEDS Committee includes the following objectives and recommendations in order to address infrastructure issues.

- Objective 6-1: Provide adequate utilities to meet the needs of business centers, residential growth areas, and existing communities that need infrastructure improvements.
- Objective 6-2: Provide an adequate vehicle, bicycle, pedestrian, freight, and public transportation network to meet the needs of business centers and residential growth areas.
- Objective 6-3: Provide adequate education infrastructure.
  - Recommendation 1: Identify infrastructure deficiencies by utilizing the work of existing organizations such as the Dover/Kent MPO where feasible, and further study where needed.
  - Recommendation 2: Utilize public-private partnerships and intergovernmental coordination mechanisms to fund needed infrastructure improvements.
  - Recommendation 3: Advocate that Kent County receives its fair share of state resources.
  - Recommendation 4: Ensure that adequate public facilities are in place for both new and existing development.
  - Recommendation 5: In coordination or partnership with the Central Delaware Economic Development Council, establish a committee to prioritize the most-needed infrastructure improvements and seek Economic Development Administration and other funding for these improvements.
  - Recommendation 6: Generate funding devoted to assessing and expanding the number of “shovel-ready” business and industrial parks within the county.
  - Recommendation 7: Coordinate with Dover Air Force Base (AFB) and its supporting businesses to protect and support its mission.

These recommendations have been considered with the goals and projects embodied within the RTP update, related to the role transportation plays in support of economic development.

#### **5.1.4.3 Kent County Economic Development Strategy Initiative**

Published in October 2006, the objectives of this 10-year economic development strategy were to:

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<sup>5</sup> Delaware CEDS: Comprehensive Economic Development Strategy for the State of Delaware, Final CEDS Summary, August 2006, page 16.

- Address the employment needs of current and future residents while responding to the resource requirements of its businesses.
- Understand Kent County’s economic development strengths and weaknesses from the “big picture” perspective, taking into account competition from other mid-Atlantic counties.
- Respond to a changing economy as well as unprecedented population growth by providing a strategic plan for Kent County’s economic development program.
- Identify the facilities, resources, and organizational support necessary to achieve Kent County’s goals for economic growth and development.

The transportation-related assessment focused on transportation access.

- The county has rail access and a good network of highways, but not direct access to an interstate highway. SR 1 will need additional interchanges to facilitate traffic flow to employers located within the central corridor and relieve traffic on US Route 13.
- The closest commercial air access is 60+ minutes to Philadelphia. There needs to be additional hangar and runway capacity within the county apart from the Dover AFB facility—particularly as security tightens in the future.

These recommendations complement projects to which Delaware has made a commitment and are included in this plan. First is the construction of grade-separated intersections on SR 1, toward the goal of creating a totally limited-access highway. The second commitment is upgrading the runway at the Delaware Air Park. Further studies are recommended for the Civil Air Terminal and joint use of the DAFB facility.

## 5.2 Detailed Discussion of Strategies and Actions

A series of identified actions related to the fundamental strategies is summarized at the end of this chapter in **Exhibit 5.10**.

### 5.2.1 Fundamental Strategy 1: Preserve and Maintain Existing Transportation System

The first fundamental strategy of the RTP is the most cost-effective. This strategy has the highest preference to conserve capacity for the future and better manage transportation resources. To meet the purpose of this strategy, a number of actions are recommended. These actions focus on maintaining the existing transportation system and the future capacity of roads and vehicle miles traveled. These actions also need to meet air quality standards, which are more readily attained when the transportation system functions at a desired level.

#### *Summary of Recommended Actions:*

- Maintain the existing highway system  
The existing highway system is the basic and most used part of the transportation network in Kent County. The system must be maintained to achieve the level of service indicated in land use scenarios/modeling output.
- Participate in the Corridor Capacity Preservation Program (CCPP)  
DelDOT’s Corridor Capacity Preservation Program was developed to preserve the current operating conditions of arterial roadways, minimize transportation impacts



of economic growth, and prevent the need to build a new road on a new alignment. Corridor preservation allows roads to be protected for their intended function, which will maintain the existing transportation system. This program is supported by emphasizing the use of local roads. Routes can be included in the program through a nomination process. Currently within Kent County, SR 1, US 13, and US 113 are included in the program. All routes that are in the CCPP are north-south. East-west routes should be considered for inclusion in the program, including SRs 8, 10, and 12.

- **Construct roadways to their functional classification**  
Different types of functional roadway classifications dictate the geometric design of the facilities and are closely linked to the types of uses expected. New construction should occur in concert with the guidelines for types of facilities built and existing roads should be maintained at their specified functional classification.
- **Maintain the primary truck routes**  
Primary truck routes are discussed in Chapter 3. These routes need to be maintained for the movement of goods in and through the region. They also need to be maintained in safe operational conditions at a standard that assists in the movement of goods.
- **Preserve existing rail facilities**  
The location of existing rail facilities is discussed in Chapter 3. Rail freight transportation is vital for several local industries in the Dover/Kent County MPO region. However, there is no regularly-scheduled passenger service. Preserving rail facilities helps to potentially reinstate, and expand, passenger rail service to Kent County.
- **Maintain existing transit and paratransit services**  
Existing transit and paratransit services should be maintained with a focus to increase ridership. Maintenance should include a clean, comfortable, reliable, and safe operating condition to attract riders to fixed-route transit services. Paratransit vehicles and systems should be provided to those who truly need it.
- **Maintain the infrastructure to support Dover Air Force Base's military mission**  
Dover AFB should continue to play an important economic and strategic role in the county. The roadway network needs to be maintained to support Dover AFB's shipment of goods.
- **Maintain access to major airport hubs**  
Access to air service should be maintained and made attractive to increase users. Roadways to airports should be maintained, well signed, and be part of the Intelligent Transportation System (ITS) network.
- **Preserve capacity at key routes**  
As development occurs, it is crucial that capacity for future growth be preserved. New roadway or other expansion projects should not progress unless right-of-way is considered along county and state routes early on in the process. The

Dover/Kent County MPO and DelDOT should develop a “hybrid” CCPP program that takes into account the specifics of planned developments that may affect county and state routes.

- Continue improving transportation network safety and security  
Work with DelDOT Operations on assuring that key network elements follow federal security guidelines. Safety standards on all roadway and intersection improvements and upgrade projects should be promoted. Recommendations of DelDOT’s 2006 Strategic Highway Safety Plan should be implemented.

### 5.2.2 Fundamental Strategy 2: Improve Management of Existing System

#### *Summary of Recommended Actions:*

- Implement Intelligent Transportation Systems  
Intelligent Transportation Systems (ITS) are designed to increase the efficiency and capacity of transportation infrastructure in order to manage congestion. DelDOT assists drivers through the use of new technologies including electronic toll collection; smarter, more responsive traffic signals; real-time information; and in-vehicle information systems.

In 1997, DelDOT adopted the Integrated Transportation Management Strategic Plan (ITMS). DelTrac implements the program. Since adoption of this plan, several actions have taken place:

- The E-ZPass electronic toll collection system has been instituted at the SR 1 Dover toll plaza; installation of a smarter signal system on US 13 and US 113 from Smyrna to Milford has been initiated; and a statewide transportation management center has been constructed in the Smyrna area. A network of 13 real-time video cameras provide instantaneous information as part of the Video Monitoring System that supplies information to the Web, radio, television, and other media.
- Signalization improvements have been implemented in the Dover area. In the last decade, DelDOT has incorporated an increasing number of state-controlled traffic signals into the DelTrac system. Its initial focus was on US 13, SR 113, SR 10, and Division Street. These improvements were part of a two-phased program, allowing DelDOT to reduce traffic jams and travel time by monitoring current conditions and adjusting traffic signals.
- DART First State implemented an automated fare collection system and an automated vehicle location system to improve demand responsiveness and decrease travel delay.
- DART First State also implemented real-time traveler information at bus stops to inform passengers of bus arrival times.
- Corridor, intersection, and facility upgrades  
When other management techniques fail to provide needed capacity, resulting in a poor level of service, existing roadways should be upgraded. Upgrading a facility means that existing travel lanes may be widened (typically by one or two feet), or new shoulders or turning lanes may be added, but additional travel lanes are not added. Access can also be better managed in order to preserve the roadway’s capacity. For example, if the facility is part of DelDOT’s CCPP, the type of

solution implemented can minimize the transportation impacts of increased growth.

As described under Fundamental Strategy 3, to develop and expand other modes of transportation, the concept of Complete Streets can and should be considered when existing facilities are improved, particularly if the project is not a part of the CCPP.

- Commercial corridors

Commercial corridors are roadways that serve primarily retail and other commercial land uses. These corridors enhance access and circulation to adjacent businesses for all modes of transportation. Commercial corridors are attractive to businesses and other development.

The Town of Camden Comprehensive Plan indicates the potential for development into areas south of Camden along US 13A and SR 10. These areas are identified for Highway Commercial uses. US 13A and SR 10 need to be upgraded to serve commercial uses and attract this type of development.

South State Street is a crucial north-south roadway. This corridor has long been recognized as a problem area by members of the community and state and local officials. The South State Street Area and Access Study identifies the problems along this corridor and makes recommendations for the future. The study suggests making improvements through the use of Transportation System Management options, Travel Demand Management options, alternate travel methods promotion, and two-way center left turn lanes.

- Increase the efficiency of existing transit services

Fixed-route and paratransit services can operate more cost-effectively by increasing ridership and promoting a shift from paratransit to fixed-route service by those passengers able to use it. Management activities that can result in increased ridership are better advertising and promotion, travel training to increase passenger confidence, providing passenger amenities such as protected benches and continuous sidewalks, minimizing non-revenue mileage, using equipment that fits the type and magnitude of the service being provided, and dispatching equipment more efficiently.

- Increase usage of existing park-and-ride/park-and-pool facilities

Existing park-and-ride and park-and-pool facilities in the MPO region can be used to a greater degree. Promotion of the facilities should be improved to make potential riders aware of the locations and services of the facilities. If feasible, facilities should be added in areas that do not have convenient access to this service.

- Support Transportation Demand Management (TDM) strategies  
Techniques are available to reduce travel demand that require very little or no public investment in the transportation system. In addition to transit, these include ridesharing, flexible work hours, telecommuting, and parking management. For example, subdivision and zoning ordinances could be revised to reduce parking requirements in exchange for on-site transit amenities. Adopting the recommendations of the MPO's *Suburban and Community Street Design Study* would support transit-friendly development as well as walking and bicycling. Establishing telecommuting centers in proximity to major transportation centers could reduce long-distance commuting. Being an active member of the Transportation Management Association of Delaware would help efforts to get more local employers to offer employer-based commuting options.

TDM strategies have proven to be effective and efficient methods to combat traffic congestion and promote accessibility. As part of a jurisdiction's comprehensive plan, TDM tactics offer low-cost and flexible transportation solutions. Whether accommodating growth or responding to unmet transportation needs, TDM programs can support travel for every purpose and segment of the community.

DART's RideShare Delaware provides a number of TDM suggestions for use by planners, consultants, and elected officials, to be included in comprehensive plans:

- Require TDM plans for all site plans and use permits for developments that have a negative impact on travel as determined by level-of-service triggers.
  - Require TDM plans for all existing public buildings and facilities.
  - Execute annual travel surveys to determine travel habits and characteristics.
  - Annually evaluate levels of TDM activities with the results of the annual travel survey.
  - Require TDM plans for all non-work travel activities that are publicly-funded.
  - Encourage employers large and small to offer employees transit benefit programs.
  - Initiate parking cash-out programs.
  - Implement traffic impact or parking fees.
  - It is further recommended that state and local government agencies take a lead in incorporating TDM strategies at their respective worksites as a means to lead by example.
- Apply access management techniques  
Access management focuses on preserving and improving the operating condition of corridors by regulating the number, spacing, and design of access points (i.e., driveways). Among its benefits are fewer and less severe accidents, increased roadway capacity, less congestion, reduced travel delay, support for economic development, improved fuel economy and reduced motor vehicle emissions, enhanced mobility of people, and improved accessibility. Access management achieves these benefits by applying the following principles:
    - Limiting the number of conflict points by designing entrances that minimize the number of turning movements.

- Separating conflict points by regulating the proximity of entrances to street intersections and establishing minimum spacing standards for interchanges, intersections, median openings, entrances, and driveways.
- Removing slower-moving turning traffic from through traffic lanes by ensuring adequate entrance widths and turning radii, using acceleration and/or deceleration lanes, using turn lanes, and designing adequate on-site circulation and parking.
- Maintaining a smooth flow of traffic between signals through proper signal spacing.

The guidelines for access management techniques are outlined in DelDOT's "Standards and Regulations for Subdivision Streets and State Highway Access."

### 5.2.3 Fundamental Strategy 3: Develop and Expand Other Modes of Transportation

#### *Summary of Recommended Actions:*

- Expand existing DART First State transit service hours and route coverage. Expand DART First State Transit Service and routes to include areas not currently served.  
The Delaware Transit Corporation (DTC) Business Plan for Fiscal Years 2008-2013 identified the following needs for Kent County:
  - Continue the Dover GoLink Project and examine its potential for other regions of Delaware.
  - Continue Saturday service and institute Sunday service.
  - Review system design and expand services to newly-developed areas.
  - Institute local transit service in Milford and between Smyrna and Dover.
- Support opportunities for expanded rail freight service  
Rail service is used only for inbound bulk shipments to agricultural, chemical, construction, and utility companies in Kent County. Opportunities for increased utilization of rail service should be developed and accommodated. There are major manufacturing industries that could use rail service to ship finished products. Expanding rail freight transportation opportunities supports the vision of this RTP.
- Facilitate access to the rail system  
Complementary to expanding use of the rail system, particularly by industries not adjacent to the tracks, is the need for good intermodal connections between rail and highway facilities. Candidate sites should be considered south of Dover and in the Smyrna and Harrington areas, adjacent to the mainline track. These studies should also examine relocating the switching operations taking place along New Burton Road in Dover and in downtown Harrington.
- Support opportunities to expand aviation facilities  
Based on the Air Cargo Study, the Civil Air Terminal has the potential to be expanded to accommodate the commercial air cargo that serves Dover AFB. This opportunity could result in non-military commercial air freight in the future. In addition, the study examined expanding the facility for use during NASCAR races. Both of these options warrant further investigation.



Improvements identified for the Delaware AirPark need to be completed to ensure its establishment as Kent County's general aviation airport. These improvements need to be accomplished while taking into consideration the residents and burgeoning development in and around Cheswold. Of particular interest is the addition of new hangars to accommodate additional airplanes.

- Facilitate access to public/private airports in the region's transportation system  
Kent County has several privately-owned airports that are frequently used by an active general aviation community. Concern has been expressed, however, that the continued existence of general aviation airports is entirely dependent upon the business decisions of their owners. In response to these concerns, the state has acquired Delaware AirPark, located seven miles north of Dover off Route 42. The Delaware River and Bay Authority (DRBA) has leased and operates the airport for the state. This is a giant step for aviation in Kent County since there was no publicly-owned airport in the county prior to this venture. Over the next five years, the DRBA and the state will make improvements to the runway and taxiway and install new hangars.

- Design streets for use by all ("Complete Streets")  
Many benefits may be realized by planning, designing, and constructing streets that accommodate a variety of user groups. Chief among these are:

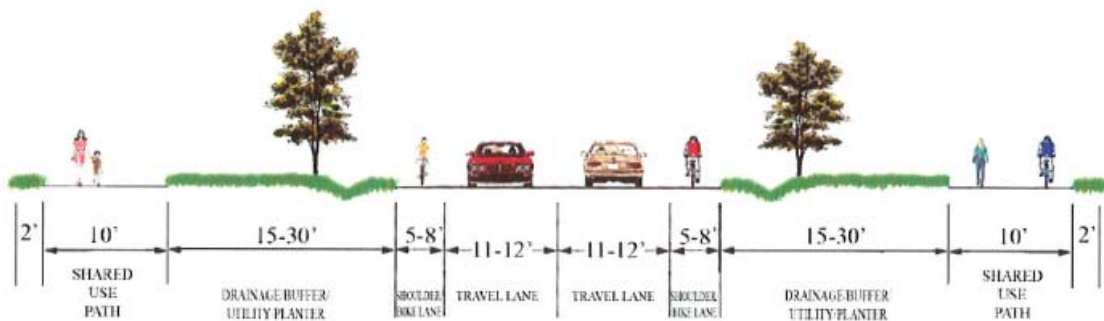


- Providing mobility options for users of all ages and ability levels, including motorists, transit riders, walkers, bicyclists, and other users;
- Increasing safety by reducing crashes, particularly those associated with bicyclists and pedestrians;
- Promoting environmentally-friendly and healthy travel choices such as walking, bicycling, and transit use;
- Producing communities that are walkable, well-connected, and livable.

Recommended Complete Streets actions are:

- Consider all potential user groups and abilities during the planning, design, and implementation stages of all transportation projects. Such groups include motorists, transit-riders, pedestrians, bicyclists, and others as needed (e.g., horse-drawn vehicles).

Exhibit 5.3: Two-lane Suburban Roadway with Shoulder and Multi-use Path<sup>6</sup>



- Design facilities in concurrence with the USDOT policy statement *Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*. Appropriate bicycle facilities may range from on-street bicycle lanes to the provision of wide curb lanes, depending on the roadway context. Support facilities such as parking devices, transport racks on buses, signal detectors for bicycles, bicycle-friendly drainage grates, signage, over- and under-crossings, and pavement striping play an important role in many cases. Where bicycle lanes are not provided, paved shoulders should be provided with a desirable width of five feet. Rumble strips, drainage grates with openings running parallel to the direction of travel, and railroad crossings at oblique angles create hazards for bicyclists and should be avoided.
- Support the Delaware Bicycle Facility Master Plan, which calls for the establishment of specific bicycle corridors and the development of bicycle design criteria that apply to these corridors through the creation of consistent projects. The plan suggests that the development of a statewide bicycle network may help to promote local bicycle facility improvements by putting them in the context of local, regional, and statewide bicycle mobility.
- Develop a regional bicycle plan for the Dover/Kent County MPO region to be completed by the end of fiscal year 2010.
- Develop and construct additional bicycle facilities and related improvements through the development process, as stand-alone projects, and through reconstruction or reconfiguration of existing roadways.

Appropriate pedestrian facilities will generally include sidewalks, pedestrian crossings (signalized or marked), curb ramps, and street lighting. In some cases, multi-use pathways may be appropriate. Pedestrian facilities should be designed to accommodate users of all abilities. Facilities should be consistent with and support the Delaware Statewide Pedestrian Action Plan.

<sup>6</sup> DelDOT, Department of Planning  
*Adopted January 28, 2009*

Exhibit 5.4: Kent County Bicycle Map



A special requirement in Kent County is the need to accommodate horse-drawn vehicles, particularly along the SR 8 and 44 corridors west of Dover. Improvements such as widened shoulders are needed to ensure safe travel for these vehicles, while preserving capacity for other modes of travel.

#### 5.2.4 Fundamental Strategy 4: Provide Additional System Capacity

*Summary of Recommended Actions:*

- Complete committed projects  
**Exhibit 5.5** lists improvements that are programmed for funding and are included in the current 2009-2012 Transportation Improvement Program (TIP). However, only one of these projects—West Dover Connector—provides more capacity to the transportation network.

**Exhibit 5.5: List of 2009-2012 TIP Projects**

Map Reference	CTP Page No.	Project Name	System	Class
A	557	US 13 Sidewalks from South Court Street to Loockerman Street	Roadway	Arterial
B	559	US 13 Pedestrian Improvements, Townsend Boulevard	Roadway	Arterial
C	555	US 13 Sidewalks from Delaware State University to Smith Street	Roadway	Arterial
D	527	HSIP - Kent County	Roadway	Arterial
d1		SR 10 at WaWa/Gateway South and Sorghum Mill Road		
d2		US 13 at Division Street		
d3		US 13 at Carpenter Bridge Road		
E	533	Governor's Avenue, Webb's Lane to Water Street	Roadway	Arterial
F	539	SR 1, Little Heaven Grade-Separated Intersection	Roadway	Arterial
G	549	SR 10, Pine Cabin Road to US 113	Roadway	Arterial
H	545	SR 1, Frederica to Milford	Roadway	Arterial
I	565	Carter Road (K137), Sunnyside Road to Wheatley	Roadway	Collector
J	567	K134, Duck Creek Parkway, Sidewalk & Shoulder I	Roadway	Collector
K	563	Barratt's Chapel Road	Roadway	Collector
L	578	Harrington Truck Route	Roadway	Collector
1	553	US 13 Roosevelt Avenue, Pedestrian Crossing Improvement	Roadway	Arterial
2	547	SR 1, North Frederica Grade-Separated Intersection	Roadway	Arterial
3	537	SR 1 & 9 Grade-Separated Intersections at DAFB	Roadway	Arterial
4	543	SR 1, Bay Road/K19 Thompsonville Road, Intersection	Roadway	Arterial
5	551	SR 8, Forrest Avenue and K44, Pearson's Corner Ro	Roadway	Arterial
6	541	SR 1, South Frederica Grade-Separated Intersection	Roadway	Arterial
7	531	Smyrna Curbing - US 13	Roadway	Arterial
8	569	West Dover Connector	Roadway	Collector
9	576	Clarence Street Extension	Roadway	Local
10	580	Wyoming Mill Road Realignment	Roadway	Collector
11	574	Bombay Hook Road	Roadway	Local
12	583	BR 2-124D on K124 over Grecos Canal, NE of Milford	Roadway	Bridge
13	587	BR 2-254A on Mt. Olive Cemetery over Wildcat Bran	Roadway	Bridge
14	589	BR 2-227A on Fox Hunters Road, West of Harrington	Roadway	Bridge
15	585	BR 2-222A on Sandy Bend Road over Tappahanna Ditch	Roadway	Bridge
16	591	BR 2-296A on Layton Corners Road over Green Branch	Roadway	Bridge

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Map Reference	CTP Page No.	Project Name	System	Class
17	597	Delaware AirPark - DRBA - Runway Extension	Support	Aeronautics
18	605	Dover Maintenance Building Lift Replacement	Transit	Facilities
	613	Preventive Maintenance - Kent County	Transit	Vehicles
	615	Transit Vehicle Expansion, Kent County	Transit	Vehicles
	617	30-foot Low Floor (4) Smyrna/Cheswold/Dover	Transit	Vehicles
	619	Paratransit Buses (1,1,2,2,3,2)	Transit	Vehicles
	621	Transit Vehicle Replacement and Refurbishment	Transit	Vehicles
	625	30-foot Low Floor (8) Replace MD 30-foot	Transit	Vehicles
	629	Paratransit Buses (0,5,15,20,14,9)	Transit	Vehicles
	205	5310 Program - Kent County	Transit	Vehicles
	627	Support Vehicles (1,4,0,0,0,0) - Kent County	Transit	Vehicles
	611	Farebox Replacement - Kent County	Transit	Vehicles
19	603	Dover Facility – Interior Repair	Transit	Facilities
20	607	Dover Transit Center	Transit	Facilities

*Note: HSIP = Highway Safety Improvement Program*

- Continue with new studies and projects from which future TIPs can be established. New projects and studies are essential for a transportation system to support anticipated development within the county.

**Exhibit 5.6: List of Recommended Projects and Studies**

<b>Dover-Kent County MPO RTP Recommended Projects</b>			
Score	Project	Year of Completion	Road Classification
	<b>Highway</b>		
37.0	<b>DE 8:</b> Construct recommendations from the DE 8 Concept and Operations Study	<b>2030</b>	Minor Arterial
37.0	- D8: Intersection Improvements: Left turn phasing at 4 intersections	<b>2030</b>	Minor Arterial
37.0	- D8: Intersection Improvements: Access to the new High School site (Carey Farm), Calvary Church site	<b>2030</b>	Minor Arterial
37.0	- D8: Intersection Improvements: Mifflin Road right turn and realignment of Brandywine Apts entrance	<b>2030</b>	Minor Arterial
37.0	- D8: N/S Connector Road: Chestnut Hill Road to Rt 8	<b>2030</b>	Major Collector
37.0	- D8: N/S Connector Road: Rt 8 to Hazletville Rd	<b>2030</b>	Major Collector
37.0	- D8: N/S Connector Road: Connection above road to Artis Drive	<b>2030</b>	Major Collector
37.0	- D8: Install Bicycle and pedestrian improvements including bike lanes, designated, controlled crossings with ped signals and an alternative shared use path	<b>2030</b>	Minor Arterial
37.0	- D8: Connector Road behind Greentree Shopping Center between Independence Blvd and Kenton Road	<b>2030</b>	Local
37.0	- D8: Interconnections to enhance Rt 8 Corridor Capacity Independence south of Rt 8 to Mifflin Road, Dove View to Modern Maturity, Heatherfields/Fox Hall West & Cranberry Run,	<b>2030</b>	Local
37.0	- D8: Connector Road south of Gateway West to Commerce Way	<b>2030</b>	Local
37.0	<b>NDS:</b> Implement the recommendations of the Concept Plan for US	<b>2030</b>	Minor Arterial



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<b>Dover-Kent County MPO RTP Recommended Projects</b>			
<b>Score</b>	<b>Project</b>	<b>Year of Completion</b>	<b>Road Classification</b>
	13 and 113 in Dover		
37.0	- NDS: Construct a collector road between the Scarborough Rd. and US 13 to the East of Dover Mall and Dover Downs, to Leipsic Road (NDS is North Dover Study)	2030	Major Collector
37.0	- NDS: Construct a collector between above and US 13 adjacent to Best Buy	2030	Major Collector
37.0	- NDS: Realign Exit 104 toll plaza and access roads to accommodate above	2030	Other Freeway
37.0	- NDS: Realign Leipsic Road and connect to US 13 at Jefferic Blvd. and to the Barry Van Lines site	2030	Major Collector
37.0	- NDS: Construct Crawford Carroll Rd extension from behind Lowes to College Rd east of DSU	2030	Major Collector
37.0	- NDS: Construct a local road between above and US 13 across from a realigned Dover Mall North entrance	2030	Major Collector
34.7	Upgrade Kenton Road from DE 8 to Chestnut Grove Road in Dover with shoulders, sidewalks, bike and transit facilities and closed drainage	2030	Minor Arterial
33.2	Intersection Improvements to South State Street at SR 10 (Lebanon Road)	2020	Minor Arterial
33.2	Intersection Improvements to South State Street: Sorghum Mill Rd. to SR 10 (Lebanon Road)	2020	Minor Arterial
33.2	South State St. Intersection Improvements various intersections (8 total) between US 13 and SR 1	2020	Minor Arterial
32.4	Upgrade West Street from New Burton Road (Queen Street) to North Street in Dover to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	2020	Major Collector
32.4	Construct pedestrian improvements on US 13 from Duck Creek to the north Smyrna SR 1 interchange	2030	Major Collector
30.8	Upgrade Front Street corridor from Rehoboth Blvd to SR 1, Milford to include adequate travel lanes, shoulders, curbs, drainage, bicycle and pedestrian improvements and intersection improvements	2030	Major Collector
30.8	Construct /fill gaps in pedestrian improvements on US 13 in Smyrna	2030	Minor Arterial
30.7	Upgrade corridor of DE 14 from DE 15 to Church Street and from Washington Street to SR 1 with adequate lane width, shoulders, sidewalks and transit facilities	2030	Minor Arterial
30.7	Complete upgrade of DE 300 from railroad tracks to US 13 to include sidewalks, bicycle and transit facilities and intersection improvements at Carter Rd/DE 6 area	2030	Major Collector
30.7	Upgrade Irish Hill Road from SR 1 to US 13 to include adequate travel lanes, shoulders, and bicycle and pedestrian improvements	2030	Major Collector
30.7	Upgrade College Road from Salisbury to Kenton Road to include turn lanes where needed, shoulders, sidewalks or multi-use path, curbing and closed drainage	2030	Minor Arterial
29.1	Construct a connector road from White Oak Road to DE 8	2015	Major Collector
29.1	Upgrade Sunnyside Road from DE 300 to US 13 in Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	>2030	Major Collector
29.1	Construct/fill gaps in pedestrian facilities on US 113 between Court Street and Lafferty Lane	>2030	Minor Arterial
28.5	Upgrade N. Main Street in Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	>2030	Major Collector
28.5	Upgrade Joe Goldsborough Road from Duck Creek Road to US 13 to include adequate travel lanes, shoulders and bicycle and pedestrian facilities	>2030	Major Collector
28.5	Upgrade Paddock Road from US 13 to SR 1 to include adequate travel	>2030	Major Collector

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Dover-Kent County MPO RTP Recommended Projects			
Score	Project	Year of Completion	Road Classification
	lanes, shoulders and bicycle and pedestrian facilities		
27.15	Construct a grade separated intersection at SR 1 and NE Front St. (DE 14) in Milford	2020	Primary Arterial
27.3	Upgrade Messina Hill Road to improve safety and include adequate travel lanes, shoulders and bicycle and pedestrian facilities	>2030	Major Collector
	<b>Transit</b>		
	Expand fixed-route bus service	2010	
	Expand paratransit service	2020	
	Create/operate the Smyrna Shuttle	2020	
	Delaware Air Park - DRBA - Runway Extension	2020	
	Implement recommendations of Civil Air Terminals Studies	2020	
	Construct the Dover Transit Center at Water and West Streets	2020	
	<b>Planning Studies</b>		
34.8	Develop a commercial corridor/modified corridor preservation concept for US 13 in Camden	2010	
34.8	Develop commercial corridor concepts for US 113 in Milford, and DE 10 from US 113 to US 13	2010	
33.1	Study the need to upgrade DE 14 west of DE 15	2010	
32.5	Develop a Main Street concept plan for DE 42 in Cheswold	2020	
30.8	Reassess feasibility study of implementing passenger rail service between Dover and Wilmington	2020	
29.1	Study the need to upgrade DE 15 west of Wyoming in future annexation areas	2020	
29.1	Study US 13 Alt. south of South Street in Camden to determine how to improve safety and traffic flow	2020	
28.5	Study the need to bring Denneys Road in Dover to urban standards	2020	
26.8	Study the need to upgrade Church Hill Road north of Milford between DE 14 and Road 119	2020	
25	Monitor conditions on DE 8 between Forest Street and US 13 to determine the need for additional corridor and intersection improvements	2020	
25	Study the transportation system south of Smyrna to determine required future transportation improvements	2020	
25	Study where/how to make a new connection(s) between SR-1 and DE-12 outside of Frederica	2020	
25	Develop an access management program to preserve capacity on key roadways serving regional travel needs such as DE 15, DE 12, DE 14	2020	
24.5	Conduct walkable community workshops in the region's municipalities as a means to creating local bicycle and pedestrian plans and accomplishing ADA compliance	2020	
23.3	Study ways to reduce congestion on SR 1 north of Dover	2020	
22.8	Study access to employment and commercial areas of Milford	2020	
22.7	Expand the Corridor Capacity Preservation Program to include DE 10	2020	
21.1	Conduct site studies to determine the best locations for intermodal freight transfer facilities	2020	
19.4	Study how pinchpoints on DE 15 west of Smyrna and Clayton can be improved to constitute a westerly bypass of those towns	2020	
16.7	Study creating a truck route outside of/around the Milford historic district	2020	

### 5.2.5 Fundamental Strategy 5: Focus Transportation Investments

#### *Summary of Recommended Actions:*

- Transportation Improvement Districts (TIDs)  
Currently, developers bear the responsibility for completing road improvements associated with their developments. Those improvements are generally identified through the traffic impact study process for larger projects. Unfortunately, smaller projects and projects in early stages have not necessarily triggered the required improvements through this process, resulting in an inequitable distribution of responsibility.

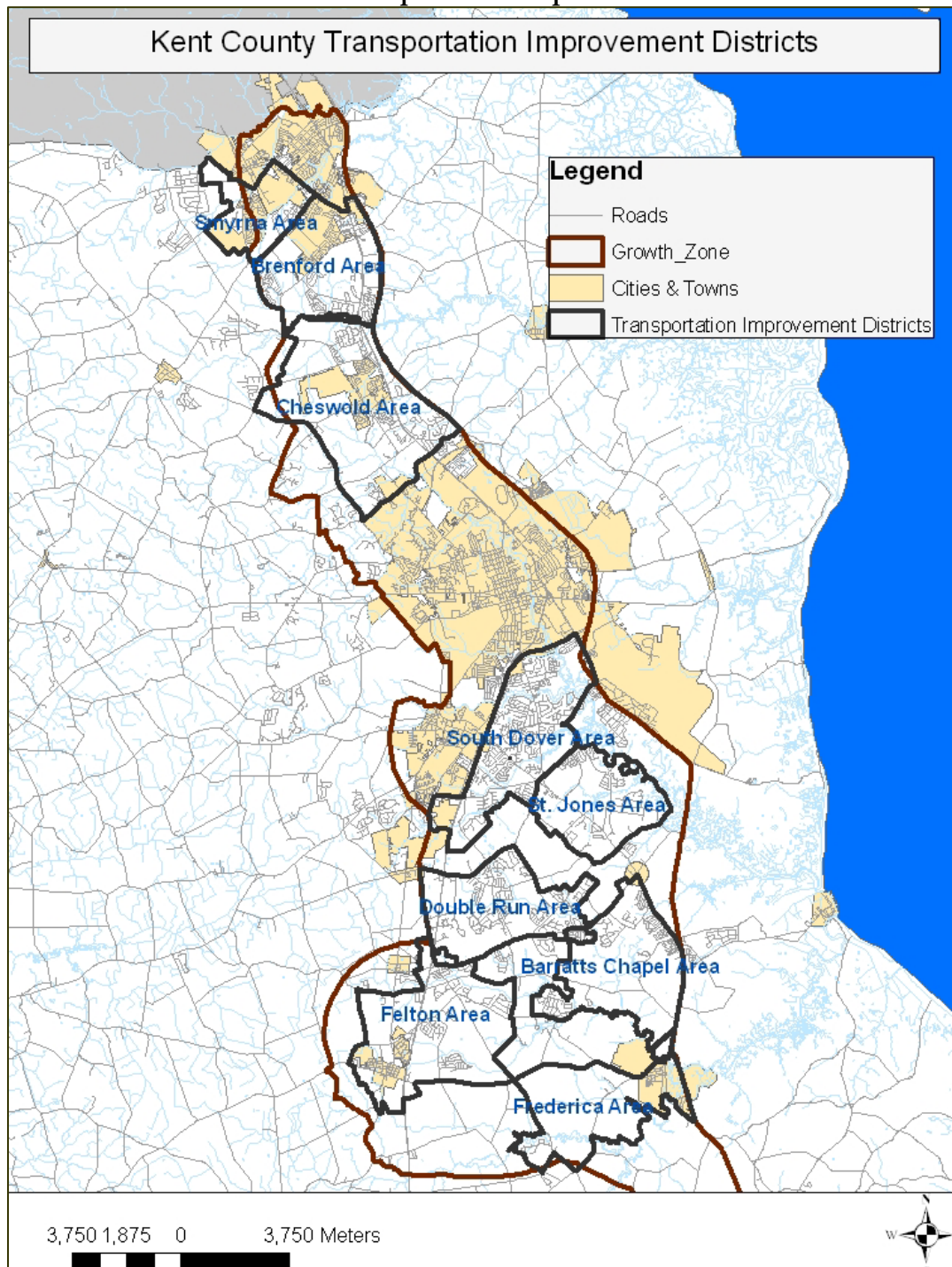
TIDs are areas where—rather than relying upon individual traffic impact studies—the county, the MPO, DelDOT, and the community will develop a more complete plan addressing a larger area for transportation improvements including road upgrades, interconnection of local roads, and bicycle, transit and pedestrian facilities. These areas support the nodal concept of the land development in that the intent is to develop a transportation network on which residents can rely upon interconnected local roads for everyday needs, whether they be work, school, or recreation. By their design, these districts are supportive of pedestrian, bicycle and transit access in addition to automobiles because areas for transit-ready development and walkable communities are identified ahead of time. The pattern of future development can support multiple modes without every parcel in the growth area being developed to the highest allowable density.

Forming such districts changes the subdivision and land development approval process in these areas in that the transportation 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 creates. Proposed TIDs are shown in **Exhibit 5.7**.<sup>7</sup> Public Facilities Ordinances may be a potential funding source for TIDs.

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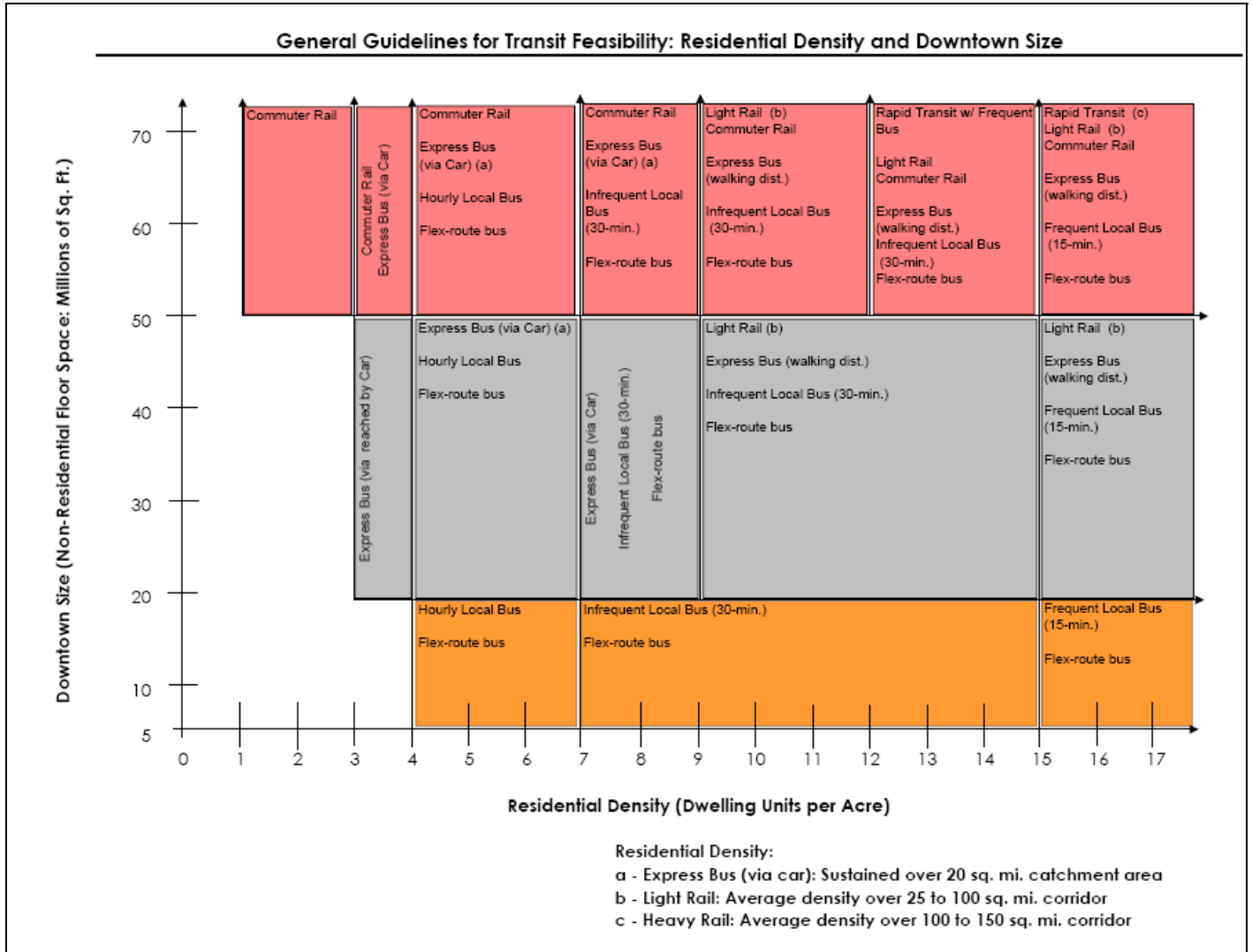
<sup>7</sup> Kent County Comprehensive Plan Adopted 10/7/2008  
*Adopted January 28, 2009*

Exhibit 5.7: Transportation Improvement Districts



- Make investments and decisions according to current and planned intensity of land use and presence of infrastructure  
The framework for the strategies and actions is an investment strategy that focuses investments according to the intensity of land use anticipated in a given area and the presence of existing infrastructure. The locations of recommended improvements are located predominantly in existing communities or developing areas, which is consistent with state and county policies.
- Coordinate land use and transportation projects for sustainability to promote established long-range land use and transportation goals  
Coordinate land use and transportation projects in a manner that promotes long-term transportation efficiency; promotes sustainability within designated areas; directs programs, services, and facilities to support the Livable Delaware Agenda; and addresses the six core principles of the plan which include development, travel opportunities and choices, cost effectiveness, quality of life, economic development and growth, and planning and coordination.
- Identify future transit corridors to focus development in areas that may be efficiently served by transit  
Efficient operation of transit services operating at half hour intervals requires a minimum of seven residential units per acre or 20 million square feet of non-residential floor space. A table showing the intensity of land uses needed to support a variety of transit services is shown in **Exhibit 5.8**. Identification of potential transit corridors in the region can help increase the efficiency and expansion of future transit services by focusing growth into transit-ready communities. In growth areas (such as Strategies for State Policies and Spending Level 1 areas), Kent County can encourage a mix of residential and nonresidential development at higher densities along these corridors to provide access to greater numbers of potential mass transit users. The existing and potential transit corridors are portrayed in **Exhibit 5.9**. This Transit-Ready Development (TRD) provides more transportation and housing choices and creates a sense of community and place.

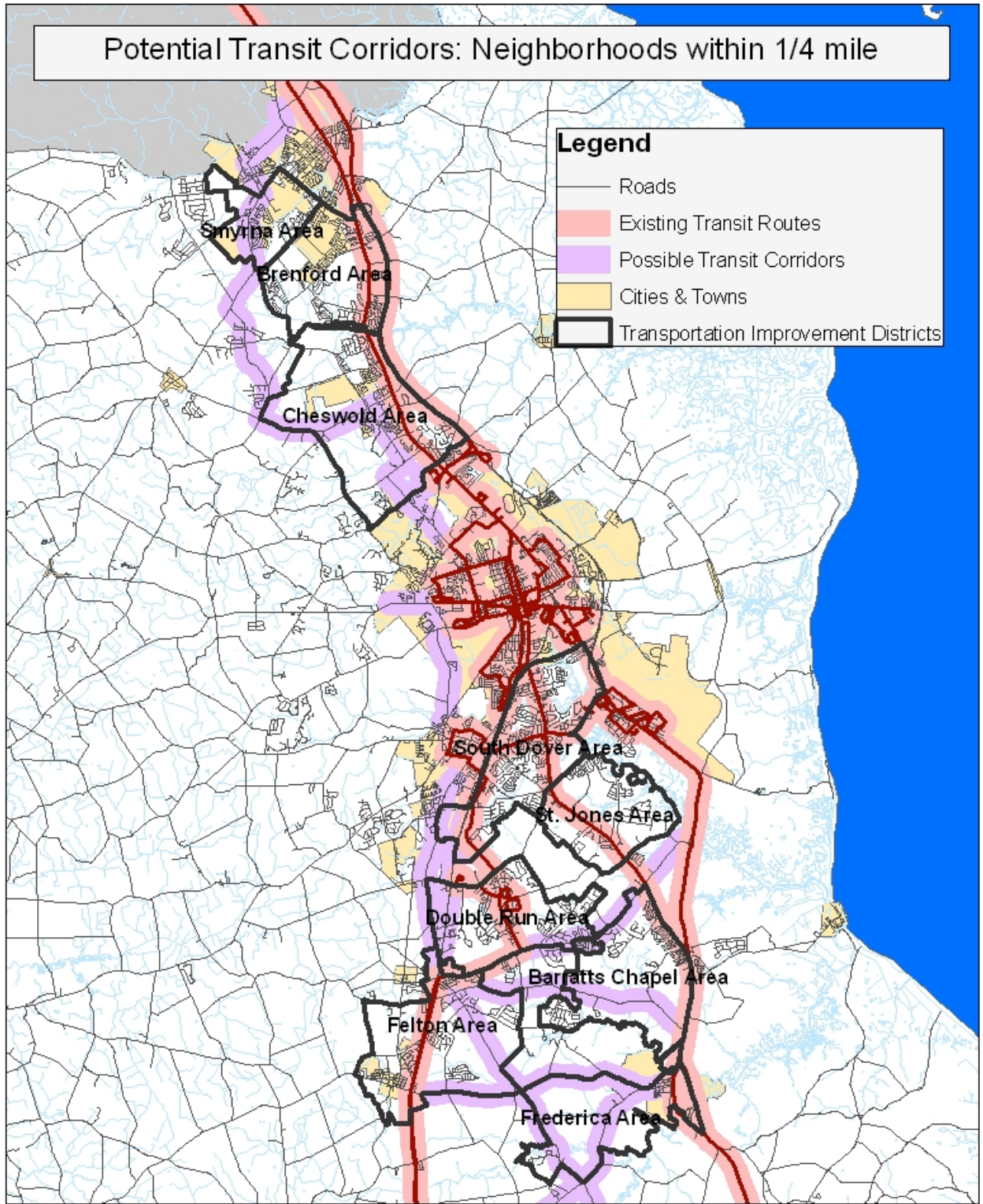
Exhibit 5.8: Guidelines for Transit Feasibility



Source: DART First State



Exhibit 5.9: Potential Transit Corridors



3,800 1,900 0 3,800 Meters



### 5.3 Project Prioritization

Projects being considered for inclusion in the RTP were prioritized using a numerical scoring system to reflect qualitative ratings based on transportation system data. This process is similar to what is used for TIP project scoring.

**Exhibit 5.10** shows the weights assigned to each goal. Every project was reviewed to see whether it satisfies each one of the goals below. If the project satisfied a goal, a given weight was assigned to the project shown in column “Weight.” The total score was then summed up to arrive at the “score” for each project. In the phasing analysis, these scores were considered to determine the order for phasing the projects. The recommended list of projects for which funding has not been committed is sorted in score order and it is anticipated that the projects will be funded in that order

**Exhibit 5.10: Scoring Matrix**

	<b>Weight</b>
<b>Goal 1: Strengthen the local economy</b>	<b>17</b>
Support business retention and creation of high quality employment by investing in transportation improvements?	5
Provide businesses with adequate access to labor by encouraging affordable, multimodal transportation options?	4
Reduce the expense and time delays of shipping and receiving freight by enhancing access to retail and industrial areas and improving the interconnectivity of all modes of the transportation network?	4
Ensure community cohesion by appropriately connecting developed areas with target growth areas for new development?	4
<b>Goal 2: Improve quality of life</b>	<b>15</b>
Protect, preserve, and enhance natural, historic, and cultural resources?	3
Support healthy lifestyles, choices, and opportunities?	3
Promote context sensitivity?	3
Provide aesthetic value?	3
Reduce air, water, and noise pollution?	3
<b>Goal 3: Support desired land use and effective growth management</b>	<b>22</b>
Support desired land use patterns?	5.5
Integrate land use with transportation?	5.5
Foster growth and development in desired areas?	5
Provide transportation alternatives?	6
<b>Goal 4: Improve access and mobility while ensuring the safety of all citizens</b>	<b>22.5</b>
Improve mobility?	4.5
Provide an integrated transportation system, enhancing accessibility and mobility for all?	5
Provide access to transportation services for people with special needs?	4
Improve accessibility, mobility, and safety?	4
Enhance security?	5
<b>Goal 5: Safely and efficiently transport people and goods</b>	<b>23.5</b>
Preserve and expand the existing transportation infrastructure?	3.5
Promote the use of technology to enhance the transportation system?	3.5
Ensure adequate transportation facilities?	4
Establish aesthetically pleasing and cost effective transportation facilities?	3.5
Improve efficiency and safety of the existing system?	5
Direct or focus transportation investments?	4



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## 6. Paying for the Transportation Plan

A plan without a strategy to pay for it is really nothing more than a wish list of projects. Fiscal constraint, proposing only projects that could realistically come to fruition given expected revenue levels, has become an important practice in creating reasonably buildable transportation plans. The practice is now required of Metropolitan Planning Organizations (MPOs) with the passage of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation. The Dover/Kent County MPO Regional Transportation Plan update has been designed to meet the needs of the region within conservative budget estimates. This means that the plan has been developed by using conservative funding estimates—what is expected to be “reasonably available”—as well as realistic estimates in terms of project costs at the time the project is undertaken.

The requirement for estimated of funding being reasonably available is not aimed at having planning organizations create detailed long-range budgets to accompany their long-range plans. Such budgets are done in a different part of the planning process—the Transportation Improvement Program (TIP) and for a shorter time horizon. The TIP document is prepared annually, covers a four-year period, and is a financially-constrained document. Under SAFETEA-LU, the Regional Transportation Plan must also be financially constrained. However, since it includes projects 25 years in the future, the projected availability and amount of funding is less precise.

### 6.1 Availability of Funding

Future funding is highly unpredictable and difficult to estimate. Funding depends on the decisions of the federal, state, and local government; the general state of the economy; and many other issues. For example, as gasoline prices increase influencing a decrease in vehicular travel, the potential for error in estimating gasoline tax revenue becomes greater. That said, however, past funding trends are still the best indicators for projecting future funding levels.

The first step in estimating the amount of funding available was to analyze the historical levels of statewide total authorizations for DelDOT between the years of FY 2003 and FY 2009. The actual annual authorizations are translated into 2008 dollars using an assumed inflation index of 3.5 percent in available funding. **Exhibit 6.1** presents statewide total authorizations in year-specific dollars and authorizations converted to 2008 dollars.

**Exhibit 6.1: Statewide Total Authorizations (in thousands of dollars)**

	Average Annual Authorizations	2003	2004	2005	2006	2007	2008	2009
Total Annual Authorizations		\$340,805	\$420,556	\$443,807	\$485,100	\$448,868	\$620,912	\$620,912
Authorizations (2008 dollars) Adjusted for Inflation	\$512,813	\$395,086	\$473,339	\$484,960	\$499,653	\$476,204	\$639,539	\$620,912

*Source: 2003, 2004, 2005, 2006, 2007, 2008, Dover-Kent MPO Transportation Improvement Program ; 2009 DelDOT Capital Transportation Program*

This means it can be expected, on average, that annual authorizations for the state will be approximately \$510 million.

The second step is to compile historical levels of funding received by the Dover/Kent MPO through the Capital Transportation Program (CTP) to arrive at the ratio of total authorizations allocated to Dover/Kent projects. The CTP is a six-year program of transportation investments that is updated yearly and presented for approval and funding by the Delaware General Assembly.<sup>1</sup>

Currently, DelDOT submits a proposed annual update to Delaware's six-year Capital Transportation Program to the Governor's Council on Transportation (COT). The COT reviews proposed projects, works with the MPOs to prioritize new projects, holds public meetings and hearings, and submits the CTP to the governor and budget office by March of each year. Expenditure of CTP funds is authorized when the General Assembly passes the "Bond Bill" in June.

DelDOT coordinates closely with the MPOs to ensure that their long-range plans complement DelDOT's long-range plans, and that MPO transportation improvement plans align with the first three years of Delaware's Capital Transportation Program. **Exhibit 6.2** provides CTP authorizations for the entire state in fiscal years (FY) 2006 through 2008. Exhibit 6.3 graphically represents the sources of past funds.

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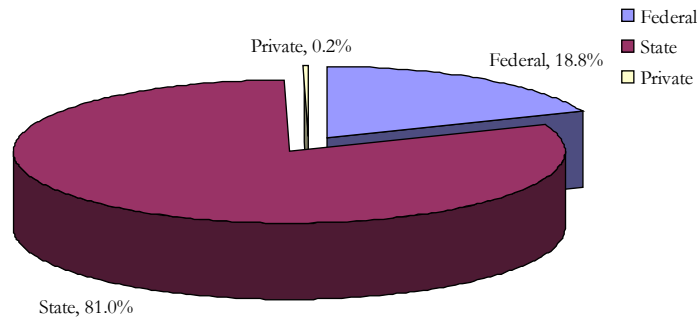
<sup>1</sup> 2007 Delaware Transportation Fact Book  
*Adopted January 28, 2009*

**Exhibit 6.2: FY 2006-2008 Capital Transportation Program Summary of Authorizations (in thousands of dollars)<sup>2</sup>**

	FY 2006	FY 2007	FY 2008	FY 2009-2011	FY 2006-2011
<b>I. Road Systems</b>					
Municipal Funding Private Funding	\$1,000	\$0	\$0	\$0	\$1,000
FHWA Apportionment Funding	\$79,500	\$32,600	\$21,360	\$64,080	\$197,540
Transportation Trust Fund	\$345,000	\$81,300	\$52,090	\$156,270	\$634,660
<b>Total Road Systems</b>	<b>\$425,500</b>	<b>\$113,900</b>	<b>\$73,450</b>	<b>\$220,350</b>	<b>\$833,200</b>
<b>II. Grants and Allocations</b>					
Transportation Trust Fund	\$21,600	\$21,600	\$21,600	\$64,800	\$129,600
<b>Total Grants and Allocations</b>	<b>\$21,600</b>	<b>\$21,600</b>	<b>\$21,600</b>	<b>\$64,800</b>	<b>\$129,600</b>
<b>III. Transit System County Funding</b>					
FTA Apportionment Funding	\$400	\$1,200	\$1,200	\$3,600	\$6,400
Transportation Trust Fund	\$400	\$2,400	\$2,400	\$7,200	\$12,400
<b>Total Transit</b>	<b>\$800</b>	<b>\$3,600</b>	<b>\$3,600</b>	<b>\$10,800</b>	<b>\$18,800</b>
<b>IV. Support Systems</b>					
FHWA Apportionment Funding	\$4,600	\$4,600	\$4,600	\$13,800	\$27,600
FTA Apportionment Funding	\$3,600	\$5,100	\$1,100	\$3,300	\$13,100
Federal Aviation Administration Funding	\$2,900	\$0	\$0	\$0	\$2,900
Transportation Trust Fund	\$26,100	\$30,700	\$25,700	\$77,100	\$159,600
<b>Total Support Systems</b>	<b>\$37,200</b>	<b>\$40,400</b>	<b>\$31,400</b>	<b>\$94,200</b>	<b>\$203,200</b>
<b>Total Capital Transportation Program</b>					
Private Funding	\$1,000	\$0	\$0	\$0	\$1,000
FHWA Apportionment Funding	\$84,100	\$37,200	\$25,960	\$77,880	\$225,140
FTA Apportionment Funding	\$4,000	\$6,300	\$2,300	\$6,900	\$19,500
Federal Aviation Administration Funding	\$2,900	\$0	\$0	\$0	\$2,900
Transportation Trust Fund	\$393,100	\$136,000	\$101,790	\$305,370	\$936,260
<b>Total Capital Transportation Program</b>	<b>\$485,100</b>	<b>\$179,500</b>	<b>\$130,050</b>	<b>\$390,150</b>	<b>\$1,184,800</b>

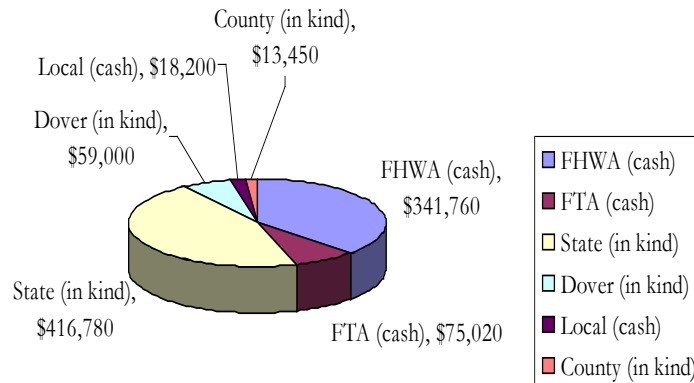
<sup>2</sup> Dover/Kent MPO TIP FY 2006-2009

**Exhibit 6.3: FY 2006 Statewide Capital Transportation Program Authorizations<sup>3</sup>**



In addition to the program/project-specific funding outlined above in the CTP, the Dover/Kent County MPO also receives funding for transportation and regional planning from a variety of sources, including federal, state, and local governments. The funding designated for planning is outlined in **Exhibit 6.4**.

**Exhibit 6.4: Dover/Kent MPO Planning Funding<sup>4</sup>**

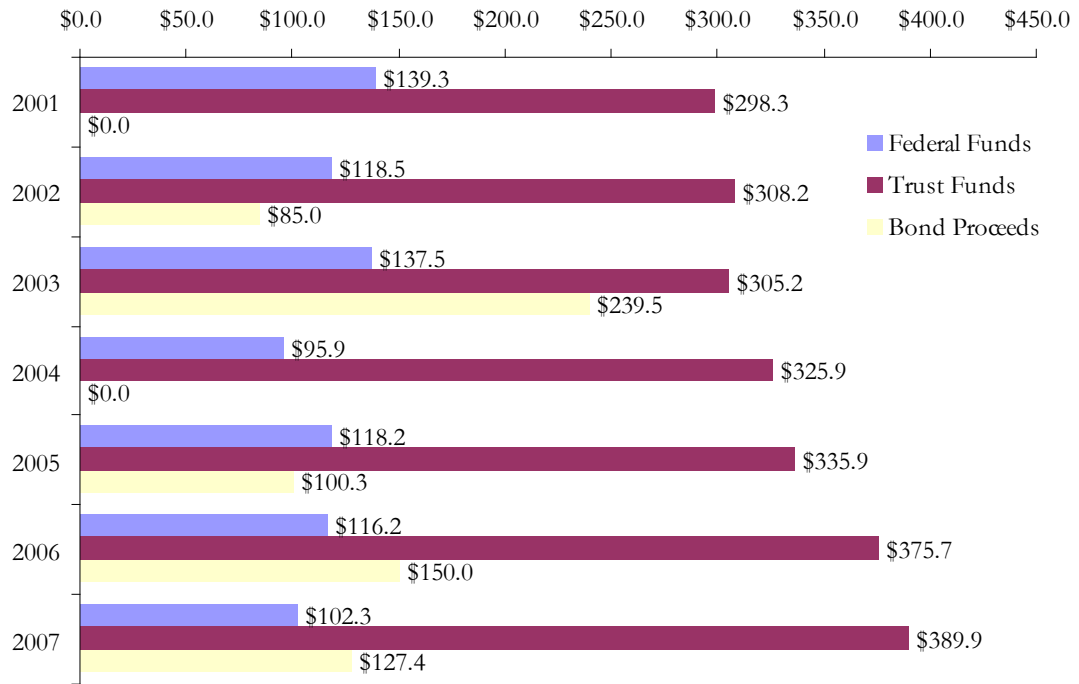


As previously demonstrated, funding for the entire state has varied year to year. Federal funding, however, has remained fairly constant and may be predicted with more accuracy. It has been the state and bond-based funding that has varied as noted in **Exhibit 6.5**.

<sup>3</sup> Dover/Kent MPO TIP FY 2006-2009

<sup>4</sup> Dover/Kent MPO UPWP 2007

**Exhibit 6.5: Major Sources of Transportation Revenue in Delaware (in millions of dollars) FY 2001-2007<sup>5</sup>**



Funding allocated to the MPOs through the CTP is project-specific. Funding is usually allocated for MPO-specific projects and for statewide projects in the MPO area, which include items such as Rail Preservation, Recreation Trails, Bridge Management, Paving and Rehabilitation, Rail Crossing Safety, Traffic Calming, Transportation Management Improvements, Job Access Reverse Commute Funding, and many others.

Similar to the calculation of the statewide authorizations, funding for MPO-specific and statewide projects was reviewed between 2003 and 2009. Actual year-specific amounts were inflated to 2008 dollars using published inflation rates to make the values consistent across years. **Exhibit 6.6** shows the allocation of the statewide total authorizations to the Dover/Kent County MPO.

**Exhibit 6.6: MPO-Specific Funding (in thousands of dollars)**

	Average Annual Funding	2003	2004	2005	2006	2007	2008	2009
Dover-Kent County MPO Projects*		\$25,845	\$10,988	\$21,160	\$766	\$2,266	\$166	\$60,143
<b>D-K MPO Projects Adjusted for Inflation (2008 dollars)</b>	<b>\$18,423</b>	<b>\$29,961</b>	<b>\$12,367</b>	<b>\$23,122</b>	<b>\$789</b>	<b>\$2,404</b>	<b>\$171</b>	<b>\$60,143</b>
Statewide Projects*		\$152,940	\$162,839	\$157,255	\$218,033	\$242,546	\$239,490	\$216,808
Statewide Projects Adjusted for Inflation (2008 dollars)		\$177,299	\$183,277	\$171,837	\$224,574	\$257,317	\$246,675	\$216,808
Percent of Statewide Funding Allocated to D-K		15%	15%	15%	15%	15%	15%	15%
<b>Statewide Funding Allocated to D-K MPO</b>	<b>\$31,667</b>	<b>\$26,595</b>	<b>\$27,492</b>	<b>\$25,776</b>	<b>\$33,686</b>	<b>\$38,598</b>	<b>\$37,001</b>	<b>\$32,521</b>
<b>Total Funding for D-K MPO</b>	<b>\$50,090</b>	<b>\$56,556</b>	<b>\$39,859</b>	<b>\$48,898</b>	<b>\$34,475</b>	<b>\$41,002</b>	<b>\$37,172</b>	<b>\$92,664</b>

*Source: Transportation Improvement Program*

<sup>5</sup> Delaware Transportation Facts 2006

The Dover/Kent County MPO received an estimated 15 percent<sup>6</sup> of the statewide funding for the state in the past five years.

Under Federal Highway Administration (FHWA) guidance on fiscal constraint for metropolitan plans, this plan uses historical dollar allocations to the MPO, translating these into "forecast year" dollars to prepare cost projections for funding and construction costs. Based on guidance from the FHWA Office of Planning, this plan does not increase funding levels through 2012, and from 2012 through 2030, assuming a conservative 3.5 percent funding increase. An assumed 5 percent annual inflation rate for construction costs for 2008 and beyond was used for both highway and transit improvements. This is consistent with last 15 years escalation, using the construction cost and the inflation indexes.

Based on this analysis, \$50.1 million is expected to be available annually to the MPO for both its portion of the statewide projects and the MPO-specific projects. Of this amount, \$18.4 million will be available for MPO-specific projects and \$31.7 million will be available for MPO's share of statewide projects. Also, MPO-specific projects are further subdivided among roadway, transit, and other projects based upon historic commitments. The division of funding for these categories is done using the historical allocation in the ratio of:

- Roadway: 92 percent
- Transit: 5 percent
- Other: 3 percent

The ultimate analysis further assumes there will be other source of funding. For any project where part of the cost will come from sources other than those described above, such as private funding, from the Federal Aviation Administration, or any other sources, only the costs that will be paid for with state or federal funds are estimated.

### **6.1.1 Federal Funding Sources**

Delaware is a unique state in that DelDOT is responsible for maintaining nearly 90 percent of the roadways. Approximately 25 to 30 percent of Delaware's roads are eligible for federal funding for rehabilitation and restoration projects. Therefore, the majority of funding for road rehabilitation is the responsibility of the state.

SAFETEA-LU legislation authorized continued federal aid for transportation in all states for projects, as long as certain requirements are abided. The FHWA funds authorized in SAFETEA-LU support capital transportation improvements. State funds are necessary to match the federal funds at a rate of 20 to 50 percent, depending upon the specific program.

Currently, there are several federally-funded programs being utilized to fund projects. These include the Highway Safety Improvement Program, National Highway System, Interstate, Surface Transportation Program, Transportation Enhancements Program, Congestion Mitigation and Air Quality Improvement Program, Bridge Replacement and Rehabilitation, and the State Planning and Research Program.

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<sup>6</sup> Based on review of 2003-2009 CTPs

### 6.1.2 State Funding Sources

The Transportation Trust Fund (TFF) is the main source of income covering the cost of transportation infrastructure paid for by the state. At least half of the capital program must come from annual revenue, most of which is generated from tolls, concessions, motor fuel tax, Department of Motor Vehicles (DMV) fees, and interest income. Bonds sold against the revenue stream account for the remaining portion of the fund.<sup>7</sup> DelDOT's resources are available to pay for operations, debt service, and capital improvements. Funding for infrastructure is listed in the Capital Transportation Program. The non-pledged revenue sources include tolls, violations and fines, escheat (transferring of property to the state in the absence of legal heirs), transit, Port of Wilmington refinancing, and other dedicated transportation sources.

The 2004 *Strategies for State Policies and Spending* identifies levels of transportation investment areas. This is a guideline for the type of investments, including transportation investments, may be made at each of these levels and where they could be located.

### 6.1.3 Local Funding Sources

One local source of transportation-related funding is the Kent County Levy Court Capital Projects Fund. These capital projects are funded each fiscal year as a means of enhancing the quality of life in Kent County. For FY 2007, the main areas of improvement included enhancing recreational parkland, adding a regional library, and economic development efforts.<sup>8</sup> These funds may enhance the transportation system by providing funding for projects, such as the St. Jones River Greenway Development, which increases the pedestrian and bicycle facilities available in Kent County.

Another important potential funding option comes from the Adequate Public Facilities Ordinances (APFO) adopted by Kent County Levy Court. The four different facilities areas include Central Water Services, Emergency Medical Services, Roads, and Schools. These were enacted to ensure that before new development is put in place, there are adequate public facilities available to serve the residents. New development needs to meet the minimum level of service established for the different facilities. If the level of service is not being met, the developer will have to provide the necessary improvements and/or contributions to mitigate the reduction of the public facility service capacity caused by the proposed development. The developer has the ability to alter the plans, if possible, in a way that the level of service can be maintained.<sup>9</sup> With the extensive growth occurring in Kent County this legislation helps ensure development decisions are made more effectively. Transportation impacts may be assessed more efficiently, with developers knowing which projects will require Traffic Impact Studies for new subdivisions or site plans.

Areas identified by the county as Transportation Improvement Districts, as described in Chapter 4, or Sub-area Plans will help DelDOT determine which projects will be funded or undertaken.

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<sup>7</sup> Delaware Transportation Facts 2006

<sup>8</sup> Kent County Levy Court Adopted Operation Budget FY 2008

<sup>9</sup> Kent County Code, Vol. 11, Chapter 187, Subdivision and Land Development, Article XVII, Supplementary Regulations § 187-90.2 Adequate Public Facilities



#### **6.1.4 Private Funding Sources**

Private funds may be available for specific transportation projects. These funds usually are associated with one or more development projects. In some cases, a private developer may directly make or pay for transportation improvements in order to mitigate the transportation impacts of their developments. In others, they may choose to make the improvements before other development of a site. Because the availability of these funds is driven by market forces, it is impossible to predict the amount of funding that would be reasonably available from these sources during the life of the RTP.

#### **6.2 Cost of the Proposed Transportation Improvements**

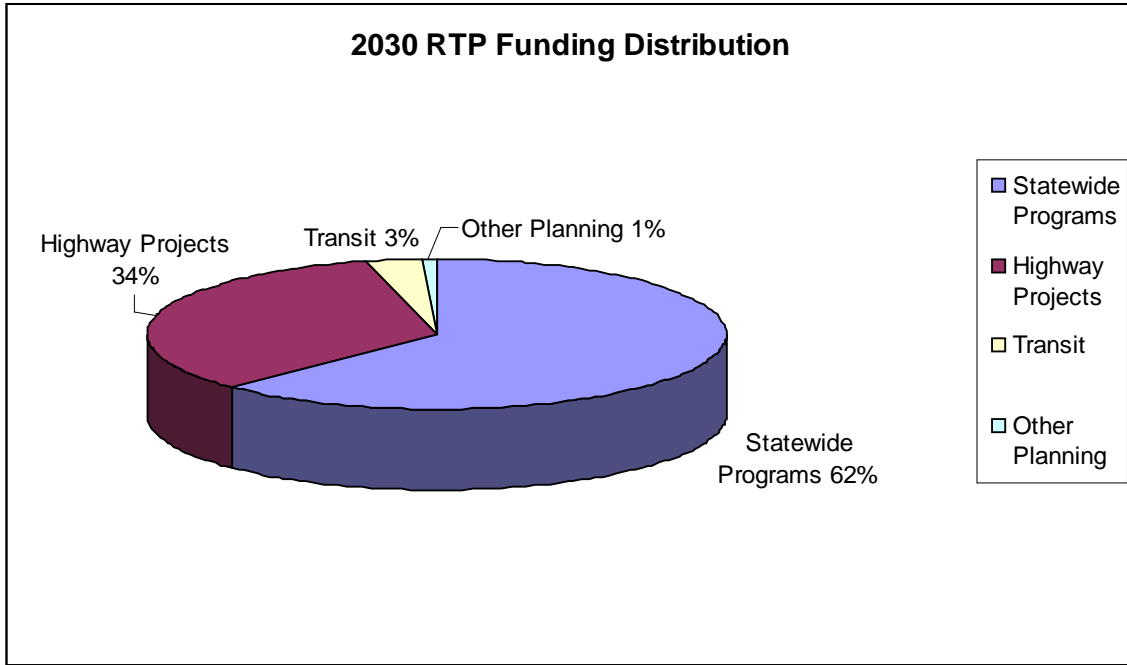
Estimating the level of funding that will be reasonably available is only half of the equation. The cost of projects to be completed during the lifetime of the plan is the other part of the budgeting process. For the statewide projects, estimates from prior years were used to arrive at the annual costs of projects. For the MPO-specific projects, costs were estimated using amounts available from the related project studies, per-mile unit costs, and other projected information. Given that the current CTP extends to 2014, cost estimates from the document were used for those projects.

Projects included in this RTP are phased according to the level of funding expected to be available in ten-year intervals. The initial phase begins upon the plan's completion and goes through 2010, the second phase begins in 2010 and go through 2020, and the third phase begins in 2020 and goes through 2030. In addition to these three phases, there is a number of projects for which funding will not be available until after 2030. These projects may have scored lower than those included in earlier phases due to cost and/or their relevance to the RTP's goals and objectives. Those projects are included on an "aspirations list" to be addressed if additional funding is made available before 2030. They also form the basis for future updates of the RTP. In terms of studies and other planning efforts, it is assumed that the MPO would lead a maximum of five each year to be nominated by member agencies.

#### **6.3 Funding Cost Comparison**

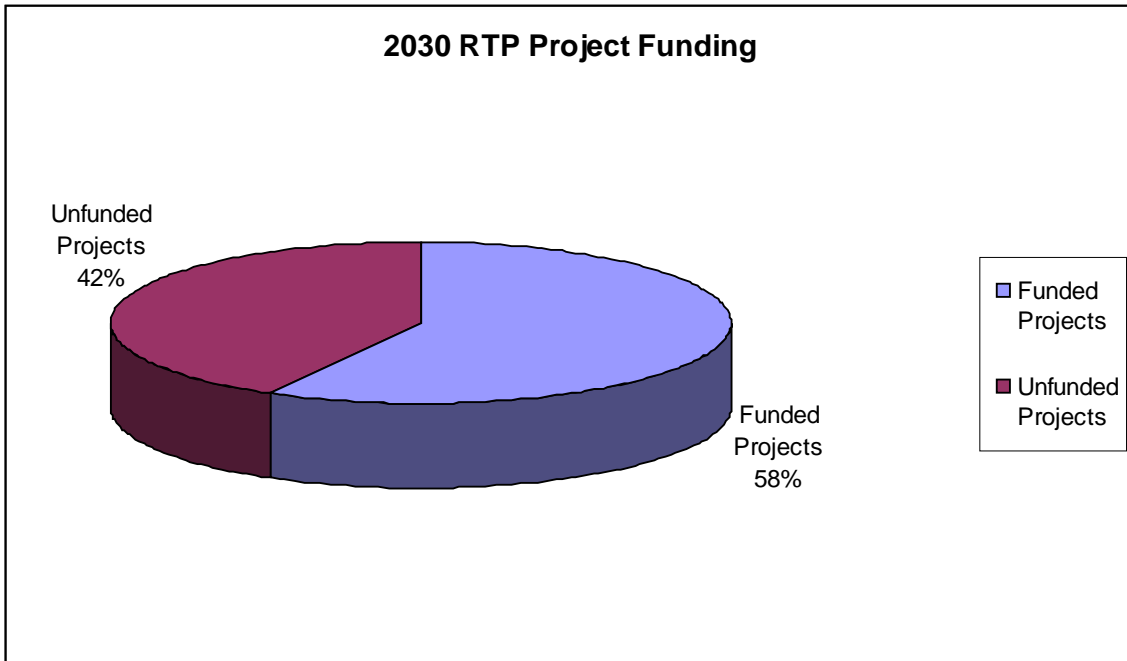
Based on all of the preceding, the MPO estimates a total of \$1.7 billion will be available for transportation and transit uses in Kent County over the term of the RTP. The estimated funding available is distributed as follows: \$1.05 billion in the Kent County portion of Statewide programs, \$567 million for Highway projects funding, \$49 million for the Kent County portion of Transit funds, and \$16 million for Other Planning, as represented in Exhibit 6.7.

**Exhibit 6.7: RTP Period Distribution of Projected Funds**



The Highway projects are most influenced by the MPO Council, Committees, participating communities and interested residents. The estimate of the amount of available funds for the period of the Plan is \$567 million. Through development of the Plan, the combined estimated amount to complete the reasonable, vetted list of needed projects exceeds \$978 million attached as Appendix X. The difference between the estimated available funding and the expressed need is over \$411 million.

**Exhibit 6.8: RTP Period Projects**





## 7. Conformity Analysis

### 7.1 Overview

The Dover/Kent County MPO is a federally-designated Metropolitan Planning Organization. As such, the organization is required through federal regulations to show that the Regional Transportation Plan conforms to the requirements of the 1990 Clean Air Act Amendments (CAAA). These air quality standards, called emissions budgets, set standards that the MPO must abide by for specific milestone years. Emissions contribute to air pollution. If the emissions generated from the projects in the transportation plan are equal to or less than these emissions budgets, then the transportation plan conforms to the State Implementation Plan (SIP).

In an attempt to reduce emissions nationwide, the CAAA developed a rating system for metropolitan area non-compliance with federal air quality standards, with levels of non-compliance ranging from “marginal” to “extreme.” The Dover/Kent County MPO region, as part of the Philadelphia-Wilmington-Trenton non-attainment area, was classified as severe. The CAAA of 1990 required severe non-attainment areas, or areas that did not meet national air quality standards, to develop a plan to show how they would achieve the National Ambient Air Quality Standard (NAAQS) for ozone by 2005. A rate-of-progress plan showing emission reductions of 3 percent per year between 1996 and 2005 was required to ensure that proper strategies were being employed to decrease emissions.

Effective June 15, 2004, the United States Environmental Protection Agency (EPA) finalized ground-level ozone designations under the new eight-hour ozone NAAQS. These standards replaced the one-hour ozone NAAQS.

Kent County, part of the Philadelphia-Wilmington-Trenton non-attainment area, is classified as moderate under the eight-hour standard. For Kent County, the eight-hour ozone non-attainment area boundary is the same as the one-hour non-attainment area boundary. Based on this designation, transportation conformity must be based on the existing one-hour attainment budget for all applicable analysis years until the new eight-hour ozone SIPs are implemented. Attainment of the new federal zone standards is required by the year 2010, which becomes a new milestone year for the conformity analysis.

The emissions targeted for the Dover/Kent County MPO region are the two major ozone contributors, volatile organic compounds (VOCs) and nitrogen oxide (NOx). While naturally-produced ozone in the upper atmosphere protects life on earth by filtering out radiation from the sun, ozone at the ground level is a noxious pollutant. Ground-level ozone is the major component of smog and can damage lung tissue, worsen respiratory diseases, increase chances of pulmonary diseases, and make people more susceptible to respiratory infections. Automobile emissions are one of the major contributors to ozone formation. Both VOCs and NOx are the result of combustion within a vehicle engine. VOCs and NOx at the ground level form ozone in the presence of sunlight.

This chapter demonstrates the transportation conformity of the 2030 Regional Transportation Plan to the eight-hour NAAQS.

## **7.2 Methodology**

The air quality analysis conducted for the 2030 RTP uses a series of computer-based modeling techniques which are described below. These methodologies are consistent with techniques that the Dover/Kent County MPO and DelDOT have used to conduct previously required air quality analyses and to assist DNREC with various SIP documents. They are similar to methods other state and regional agencies use to prepare air quality analysis.

### **7.2.1 Travel Demand Modeling**

A travel demand model for Kent County is maintained by DelDOT. The model uses a variety of data about the roadway network, travel patterns, and automobile ownership, as well as demographic information such as population and employment sites. The model follows the traditional four-step modeling approach that includes trip generation, trip distribution, mode split, and assignment. The model is run in the QUBE software package.

The modeling process developed for the Regional Transportation Plan uses a 2008 base year network validated against DelDOT traffic counts. Model networks were developed for 10-year intervals, 2010, 2020, and 2030 for Kent County. The types of projects tested were corridor improvements, highway widening, and new roadway construction. Each project was added to the network in the year when the improvement was completed. Socioeconomic projects such as population, employment, and household size were developed for the same 10-year intervals.

Exhibit 7.1: Included Projects

Project Phasing			Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale	
Capital Projects - Highway	Committed Projects	score	<b>Highway Projects</b>					
			South Governors Ave Reconstruction Webbs Lane to Water Street	2011	Arterial	Exempt		No capacity increase
		27.1	Complete the SR 1 Little Heaven Grade Separated Intersection	2015	Arterials	Exempt		Intersection Reconstruction
		26.4	Complete the SR 1 and SR 9 Grade Separated Intersection at DAFB	2010	Arterials	Exempt		
		23.2	Complete the SR 1 / Thompsonville Road Grade Separated Intersection (K 19)	2014	Arterials	Exempt		
		23.2	Complete the SR 1 South Frederica Grade Separated Intersection (Cedar Neck Road K 120)	2015	Arterials	Exempt		
		23.2	Complete the SR 1, North Frederica Grade Separated Intersection	2012	Arterials	Exempt		
		27.15	Complete the SR 1/NE Front St. Grade Separated Intersection	2020	Arterial	Exempt		
		29.0	Upgrade Barratts Chapel Road from SR 1 to Kersey Rd to include adequately wide travel lanes and shoulders and include bicycle, pedestrian and transit facilities as appropriate	2020	Major Collector	Exempt		Shoulders, Bike/Ped
		29.0	Improve Carter Road from Sunnyside Road to Wheatley's Pond Road (DE 300) to include adequately wide travel lanes and shoulders and pedestrian and bicycle facilities	2020	Major Collector	Exempt		Shoulders, Bike/Ped
		28.3	Upgrade Duck Creek Parkway from Bassett Street to Main Street in north Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	2020	Major Collector	Exempt		Shoulders, Bike/Ped
		28.3	Construct the West Dover Connector	2020	Minor Arterial	Non-exempt		Regionally Significant

Project Phasing			Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale
Included New Projects	25.1	Realign Wyoming Mill Road with the Village of Westover entrance and signalize	2012	Major Collector	Exempt		Realignment
	28.3	Construct the Clarence Street Extension	2020	Local	Non-exempt		Not Regionally Significant
	29.0	Complete gateway improvements on Forest St, including a roundabout at the intersection of Loockerman Street and Forest Street	2016	Minor Arterial	Exempt		Intersection Improvements
	37.0	<b>DE 8: Construct recommendations from the DE 8 Concept and Operations Study</b>	2030	Minor Arterial			
	37.0	- D8: Intersection Improvements: Left turn phasing at 4 intersections	2030	Minor Arterial	Exempt		Intersection Improvements
	37.0	- D8 : Intersection Improvements: Access to the new High School site (Carey Farm), Calvary Church site	2030	Minor Arterial	Exempt		Intersection Improvements
	37.0	- D8 : Intersection Improvements: Mifflin Road right turn and realignment of Brandywine Apts entrance	2030	Minor Arterial	Exempt		Intersection Improvements
	37.0	- D8: N/S Connector Road: Chestnut Hill Road to Rt 8	2030	Major Collector	Non-exempt		Not Regionally Significant
	37.0	- D8: N/S Connector Road: Rt 8 to Hazletville Rd	2030	Major Collector	Non-exempt		Not Regionally Significant
	37.0	- D8 : N/S Connector Road: Connection above Road to Artis Drive	2030	Major Collector	Non-exempt		Not Regionally Significant
	37.0	- D8 : Install Bicycle and pedestrian Improvements including bike lanes, designated, controlled crossings with ped signals and an alternative shared use path	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
	37.0	- D8 : Connector Road behind Greentree Shopping Center between Independence Blvd and Kenton Road	2030	Local	Non-exempt		Not Regionally Significant
37.0	- D8: Realign intersection of Artis Drive with DE 8	2030	Local	Exempt		Intersection Improvements	

Project Phasing			Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale	
37.0	-	D8: Interconnections to enhance Rt 8 Corridor Capacity Independence south of Rt 8 to Mifflin Road, Dove View to Modern Maturity, Heatherfields/Fox Hall West & Cranberry Run,	2030	Exempt	Exempt		Intersection Improvements	
		D8 : Connector Road south of Gateway West to Commerce Way	2030	Local			Below Arterial	
		<b>NDS: Implement the recommendations of the Concept Plan for US 13 and 113 in Dover</b>		2030	Minor Arterial			
		NDS: Construct a collector road between the Scarborough Rd. and US 13 to the East of Dover Mall and Dover Downs, to Leipsic Road (NDS is North Dover Study)	2030	Major Collector	Non-exempt		Not Regionally Significant	
		NDS: Construct a collector between above and US 13 adjacent to Best Buy	2030	Major Collector	Non-exempt		Not Regionally Significant	
		NDS: Realign Exit 104 toll plaza and access roads to accommodate above	2030	Other Freeway	Exempt		Intersection Improvements	
		NDS: Realign Leipsic Road and connect to US 13 at Jefferic Blvd. and to the Barry Van Lines site	2030	Major Collector	Exempt		Roadway Redesign	
		NDS: Construct Crawford Carroll Rd extension from behind Lowes to College Rd east of DSU	2030	Major Collector	Non-exempt		Not Regionally Significant	
		NDS: Construct a local road between above and US 13 across from a realigned Dover Mall North entrance	2030	Major Collector	Exempt		Below Arterial	
		Upgrade Kenton Road from DE 8 to Chestnut Grove Road in Dover with shoulders, sidewalks, bike and transit facilities and closed drainage	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped	
		Intersection Improvements to South State Street at SR 10 (Lebanon Road)	2020	Minor Arterial	Exempt		Intersection Improvements	
		Intersection Improvements to South State Street: Sorghum Mill Rd. to SR 10 (Lebanon Road)	2020	Minor Arterial	Exempt		Intersection Improvements	
		South State St. Intersection Improvements various intersections (8 total) between US 13 and SR 1	2020	Minor Arterial	Exempt		Intersection Improvements	



Project Phasing			Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale
32.4	32.4	Upgrade West Street from New Burton Road (Queen Street) to North Street in Dover to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	2020	Major Collector	Exempt		Shoulders, Bike/Ped
		Construct pedestrian improvements on US 13 from Duck Creek to the north Smyrna SR 1 interchange	2030	Major Collector	Exempt		Shoulders, Bike/Ped
		Upgrade Front Street corridor from Rehoboth Blvd to SR 1, Milford to include adequate travel lanes, shoulders, curbs, drainage, bicycle and pedestrian improvements and intersection improvements	2030	Major Collector	Exempt		Shoulders, Bike/Ped
		Construct /fill gaps in pedestrian improvements on US 13 in Smyrna	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
		Upgrade corridor of DE 14 from DE 15 to Church Street and from Washington Street to SR 1 with adequate lane width, shoulders, sidewalks and transit facilities	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
		Complete upgrade of DE 300 from railroad tracks to US 13 to include sidewalks, bicycle and transit facilities and intersection improvements at Carter Rd/DE 6 area	2030	Major Collector	Exempt		Shoulders, Bike/Ped
		Upgrade Irish Hill Road from SR 1 to US 13 to include adequate travel lanes, shoulders, and bicycle and pedestrian improvements	2030	Major Collector	Exempt		Shoulders, Bike/Ped
		Upgrade College Road from Salisbury to Kenton Road to include turn lanes where needed, shoulders, sidewalks or multi-use path, curbing and closed drainage	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
		Construct a connector road from White Oak Road to DE 8	2015	Major Collector	Non-exempt		Not Regionally Significant
		Upgrade Sunnyside Road from DE 300 to US 13 in Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	>2030	Major Collector	Exempt		Shoulders, Bike/Ped

Project Phasing			Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale
New Projects	29.1	Construct/fill gaps in pedestrian facilities on US 113 between Court Street and Lafferty Lane	>2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
	28.5	Upgrade N. Main Street in Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
	28.5	Upgrade Joe Goldsborough Road from Duck Creek Road to US 13 to include adequate travel lanes, shoulders and bicycle and pedestrian facilities	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
	28.5	Upgrade Paddock Road from US 13 to SR 1 to include adequate travel lanes, shoulders and bicycle and pedestrian facilities	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
	27.3	Upgrade Messina Hill Road to improve safety and include adequate travel lanes, shoulders and bicycle and pedestrian facilities	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
Capital Projects - Transit	<b>Transit Projects</b>						
		Expand fixed-route bus service	2010		Non-exempt		Regionally Significant
		Expand paratransit service	2020		Non-exempt		Not Regionally Significant
		Create/operate the Smyrna Shuttle	2020		Non-exempt		Not Regionally Significant
		Delaware Air Park - DRBA - Runway Extension	2020		Exempt		No New Emissions
		Implement recommendations of Civil Air Terminals Studies	2020		Exempt		Categorically
		Construct the Dover Transit Center at Water and West Streets	2020		Exempt		No New Emissions

The network horizon years used in the model were selected in accordance with EPA regulations.

### 7.2.2 Emissions Factor Model

The second major software used in this air quality analysis was MOBILE6.2, a program developed by the EPA to calculate mobile source emission rates for each one-mile-per-hour increment up to 65 miles per hour. The factors determined the emission rates for various vehicle classifications at different speeds. Factors were needed for each of these increments because speed is a critical element in determining the total amount of emissions.

The overall structure of the MOBILE6.2 program is defined by the EPA. DNREC uses this model to predict the level of emissions. The input file for the modeling process reflects air quality strategies anticipated according to the SIP and its amendments.

### 7.2.3 Mobile Source Emissions

The estimates of emissions for Kent County are generated jointly by DelDOT and DNREC. The post-processor takes data produced by the QUBE model output and adjusts it for input into the mobile emissions model. This process links the speeds and volumes generated by the travel demand model with emission factors from MOBILE6.2. Once emissions for each segment are calculated, they are summed to identify the countywide totals presented below.

The vehicle miles traveled and emissions data for Kent County were adjusted to be compatible with data contained in the SIP. The adjustments represent factors to account for seasonal traffic variations and to align the travel demand estimates with DelDOT's HPMS traffic level reporting system.

## 7.3 Mobile Source Emissions Data

Both NO<sub>x</sub> and VOC emissions were tested in Kent County for 2010, 2020, and 2030 against the MOBILE6.2 eight-hour ozone standard attainment plan budgets. These amounts mirror the budgets set in the latest revision to the Kent County rate of progress plan which the EPA approved on November 20, 2008. **Exhibit 7.2** summarizes this information.