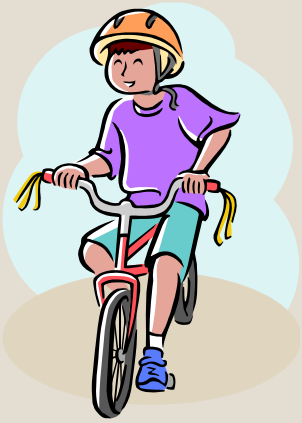
Dover/Kent County MPO
Regional Bicycle Plan

Adopted September 2011



Dover/Kent County MPO
Metropolitan Planning Organization

DOVER/KENT COUNTY
METROPOLITAN PLANNING ORGANIZATION

REGIONAL BICYCLE PLAN FOR 2030

ADOPTED SEPTEMBER 2011

PREPARED BY THE
DOVER/KENT COUNTY METROPOLITAN PLANNING ORGANIZATION

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DOVER/KENT COUNTY MPO REGIONAL BICYCLE PLAN – EXECUTIVE SUMMARY

A variety of issues including increasing roadway congestion, deteriorating air quality and increasing rates of obesity have made an automobile-centric transportation system an unsustainable solution to moving people and goods around the Dover/Kent County MPO region. By increasing the use of other transportation modes (i.e. walking and public transit), issues such as congestion, air quality, and poor health can be mitigated. Promoting the use of bicycles is an integral part of creating a truly multi-modal transportation system in the MPO region. A bicycle friendly community achieves a myriad of benefits, including creating safer streets, promoting a healthier environment, promoting active living and improving the quality of life or livability of the area.

The purpose of the Dover/Kent County Metropolitan Planning Organization's (MPO) Regional Bicycle Plan is to provide a plan for improving bicyclists' safety and access to local facilities and services. It is intended to help increase the number of trips made by bicycle and reduce automobile use. The Regional Bicycle Plan is designed to coordinate with existing local bicycle plans throughout the region. Work on the Regional Bicycle Plan began in November 2009 when the Bicycle Working Group was convened. The working group, which consisted of local recreational facility managers, agencies responsible for land-use and transportation planning and citizens interested in bicycling, held 11 meetings between November 2009 and May 2011 to determine key aspects of the plan. To gauge the needs and concerns of the public, the Dover/Kent County MPO conducted a four month outreach campaign between March and June of 2010.

The Regional Bicycle Plan identifies several objectives that could be accomplished through new policies and projects designed to improve bicycling conditions in the region:

Objective 1: Create an effective and safe bicycle transportation system

Objective 2: Create an environment where all bicyclists and motorists follow the rules of the road.

Objective 3: Increase the number of local utility trips made by bicycle

Objective 4: Increase the number of students riding their bicycles to school

Objective 5: Increase the number of people choosing to bicycle to work

Objective 6: Increase recreational and fitness riding

The Regional Bicycle Plan identifies existing and recommended policies as tools to help accomplish these objectives. The Delaware Department of Transportation's (DelDOT) Complete Streets Policy will be used to increase bicycle facilities in the MPO region by ensuring that multi-modal improvements are considered for applicable DelDOT construction projects. The Regional Bicycle Plan also notes several other existing DelDOT bicycle-related policies that provide guidance on intersection design, support facilities (bike racks, signal detection, etc.) and requirements, and prioritizing bicycle facility projects. The Regional Bicycle Plan outlines four new policies recommended by the Dover/Kent County MPO that will serve as guidance to cities and towns and/or for implementation by DelDOT on projects undertaken in the region:

Policy 1: **Selecting Appropriate Bicycle Facilities** – a variety of factors including roadway classification, location, types of vehicles on the roadway and speed of vehicles need to be considered when selecting a bikeway design for an on-street facility.

Policy 2: **Bicycle Facilities at Intersections** – in order to improve bicyclists' safety and comfort, intersections need to be designed in a manner that clearly guides the movement of both bicyclists and

motorists to avoid conflicts. Bicycle facilities and markings need to be continued through intersections to reduce bicycle facility gaps.

Policy 3: **Bicycle Parking** – to increase the use of bicycles for transportation and commuting, bicycle parking needs to be readily available to provide safe and convenient facilities for storing bicycles at both commercial and residential buildings.

Policy 4: **Education and Enforcement** – to ensure that bicycle access is safe throughout the MPO region, the Dover/Kent MPO needs to ensure that bicyclists and motorists are aware of traffic rules and how to interact in a multi-modal transportation system.

The Regional Bicycle Plan emphasizes that the most effective way to enhance the bicycle transportation system in the MPO region is to eliminate impediments and gaps in the current system. By prioritizing projects that connect existing facilities and key attractors or destinations, the region can work toward a safer and more consistent bicycle transportation system. To eliminate or mitigate gaps and impediments in the current system, the Regional Bicycle Plan identifies several types of improvements to implement:

- Widening the road to add a paved shoulder or bike lane
- Adjusting allocation of pavement to allow for bike lanes or facilities
- Adding striping to shoulders
- Implementing sharrow markings for roads where bicycles will travel among the cars
- Installing Share the road signs
- Removing on-street parking to increase the road width available for through traffic
- Identifying an alternative parallel route, such as a bicycle boulevard
- Adding an off-road path

The Regional Bicycle Plan includes recommendations for on-road construction projects, off-road/trail projects, sharrow locations, and intersection improvements that should be completed within the plan's 20-year timeframe. The projects are listed in order of priority, which was determined though the use of prioritization criteria (see Appendix C).

INTRODUCTION

Why A Bicycle Plan For The Dover/Kent County MPO Region?

Since the advent of the automobile, bicycling had been primarily a leisure activity or sport in the United States. With increased automobile traffic congestion, deteriorating air quality, and increased rates of obesity in the country, now is the time to expand bicycle use for short trips that might otherwise use an automobile. Currently, however, Kent County does not have adequate bicycle facilities to make safe and convenient trips by bicycle an option for most citizens. This Bicycle Plan is intended to satisfy that need.

Increasing the number of people using their bicycles to travel to and from work (bicycle commuting) is one tool in the county's toolbox for meeting air quality standards and for improving the quality of life and health of our citizens. In addition to bicycle commuting, errand trips, such as to the grocery store, post office, library, community center, etc., can often be done on a bike. According to the 2008 National Survey of Bicyclist and Pedestrian Attitudes and Behavior, the most common purposes of trips on bicycles were recreational or exercise related (a combined 53%). Five percent (5%) reported using their bicycles for commuting to work or school, while errands were reported as 14% and visiting a friend or relative, 10%.[1] The bicycle plan will focus on increasing bicycle use in these latter categories, where there is plenty of room for improvement, and where the trips would otherwise be done in an automobile.

Although Kent County's population is still the smallest of Delaware's three counties, it is growing. The July 2009 population estimate was 157,741, an increase of 24.5% from April 2000. During the same time period, statewide population only grew 13%. The County also has a relatively high percentage of children, both under 5 years old (7.2%) and under 18 years old (25.2%)[2]. Bicycle facilities must meet the needs of children wishing or needing to use bicycles for transportation to school or recreational facilities.

In 2009, only 1.7% of daily transportation trips nationwide were made on a bike.[3] The Dover/Kent County MPO Regional Bicycle Plan is intended to serve all types of bicyclists for trips of all purposes and to increase the percentage of trips that are accomplished via bicycle.

Making investments in bicycling infrastructure will provide additional benefits:

- Bicycling infrastructure creates safer streets - As roads are designed or marked to include bicycle facilities, they both become safer and appear safer to bicyclists. When people feel a road is safe for riding a bicycle, they are more likely to use their bicycle on that road.

- Bicycling reduces the causes of global climate change and promotes a healthy environment - The transportation sector, powered by the internal combustion engine, accounts for 40 percent of carbon dioxide emissions in Delaware, significantly contributing to greenhouse gas emissions.[4] A bicycle trip that replaces an automobile trip eliminates that vehicle's emissions for that trip.

- Bicycling helps reduce the causes and health care costs related to obesity - In 2001, the Centers for Disease Control and Prevention (CDC) labeled obesity a national health epidemic and linked obesity to insufficient physical activity. According to the CDC, "automobile trips that can be safely replaced by walking or biking

[1] National Highway Transportation Safety Administration (NHTSA). *National Survey of Bicyclist and Pedestrian Attitudes and Behavior.* August 2008
[2] U.S. Census Bureau. http://quickfacts.census.gov/qfd/states/10/10001.html. Last Revised: Monday, 16-Aug-2010
[3] NHTSA. *2001 National Household Travel Survey.*
[4] Governor's Energy Advisory Council. *Delaware Energy Plan 2009-2014.* 26 March 2009.

offer the first target for increased physical activity in communities." In 2009, 26.7% of Delawareans were obese. A safe and effective bikeway system can help residents achieve the 30 minutes of daily physical activity the CDC recommends for fighting obesity.[5]

- Bicycling (and other forms of exercise) improves the mood of the rider - The endorphins released during exercise provide people with an enhanced sense of well-being, and, thus, contribute to the quality of life in the community.

Purpose of the Dover/Kent County MPO Regional Bicycle Plan

The purpose of the Bicycle Plan is to establish goals, objectives, and benchmarks for improving safety and accessibility for bicyclists and increase the number of trips taken by bicycle. The Bicycle Plan discusses bicycle policy, and existing road conditions, provides a needs analysis, and prioritizes suggested projects. This plan has a 20-year timeframe and is intended to be updated every 4 years.

Development of the Regional Bicycle Plan

The Dover/Kent County MPO convened a Bicycle Working Group to guide development of the plan. The group began meeting in November 2009 and worked on all aspects of the plan from the scope of work to be completed to the recommendations and priority process. In total, the group held 11 meetings between November 2009 and May 2011.

Working group members included agencies responsible for recreational facilities, land-use planning and transportation as well as citizens interested in bicycling. The working group provided their expertise in bicycling and bicycling facilities to identify gaps and impediments in the system and help craft strategies for reducing or eliminating them. Other data were gathered through telephone, on-line and in-person surveys and interviews.

Community Outreach:

A public outreach campaign was conducted between March and June 2010 through live contact, e-mail, telephone and a 12-question survey on bicycle riding habits and interests in bike facilities and improvements. Nearly 200 comments were received and incorporated into the bicycle plan development process.

Surveys were made available in paper and online formats. The online version was available on the MPO's web site, and a link was e-mailed to the Central Delaware Chamber of Commerce. Paper copies of the survey were supplied to local bike shops and brought to public events, including:

- MPO's annual TIP bus tour
- Killen's Pond's Earth Day
- Milford's Bug n' Bud Festival
- Dover Days
- a car show put on by a Smyrna chapter of the Rotary Club
- Kent County Levy Court's Safe Summer Day
- Delmarva Chicken Festival

[5] National Center for Chronic Disease Prevention & Health Promotion. Behavioral Risk Factor Surveillance System. *Prevalence and Trends Data: Delaware - 2009 Overweight and Obesity (BMI).* http://apps.nccd.cdc.gov/BRFSS/display.asp?cat=OB&yr=2009&qkey=4409&state=DE.

- Delaware Bike Summit, and
- Dover/Kent County Levy Court Ride and Stride trails event.

As an incentive for people to fill out the survey, the MPO held a prize drawing at most of the events. Prizes included donations from local bicycle shops and MPO memorabilia. The prize drawing was held on June 22 at the MPO's Public Advisory Committee annual dinner meeting.

MPO staff visited the Wyoming Striders and Riders walk and bicycle club and Smyrna Town Council to talk about the bike plan and distribute surveys and information about the MPO. In addition to the surveys, MPO staff took phone calls and e-mails about the plan

Most survey respondents live and/or work in Kent County, are between the ages of 35 and 44, own cars and ride for recreation and exercise. Safety and accessibility greatly influence riding habits, according to responses. These factors not only affect where people ride, but why they do not ride bicycles. Health issues and a lack of a working bicycle also play a role into not riding.

Safety ranked highest among suggestions (~30%) for improvement among all means of communication with the MPO. Requests for improvements included more bike lanes and safer road shoulders.

The draft Bicycle Plan was released for a 30-day public comment period on July 20, 2011, during which presentations were given to interested groups to solicit comments on the draft. The plan was adopted by the Dover/Kent County MPO Council on September 7, 2011.

Plan Organization

The Dover/Kent County MPO Regional Bicycle Plan includes:

- Vision, Goals, objectives, and performance measures

- An examination of existing conditions, including identification of physical impediments to bicycle use, hazardous road segments and other deficiencies in the bicycle route system

- Identification of educational needs and opportunities, such as attitudes of motorists, perception of danger by potential bicyclists, etc.

- Proposals for new policies to address the identified needs and deficiencies

- A process for prioritizing bicycle projects

- A prioritized listing of proposed projects to address the impediments, deficiencies and educational needs

- Regional bicycle plan maps that show existing and proposed on- and off-road facilities.

VISION, GOALS & OBJECTIVES

Dover/Kent County MPO Transportation Vision For 2030[6]

"The future transportation system in the Dover/Kent County Metropolitan region is safe, supports economic development, allows easy access and mobility for people and goods to reach their destinations, and serves desired growth patterns. The transportation system meets the public's needs – simultaneously reinforcing the unique character and quality of life of each community while preserving the region and its natural resources."

Goals

Goals are the desired end-result and are general in nature. Goals are considered successful when the terms in the defined objectives have been satisfied.

In support of the 2030 Vision, the Goals of the Kent County Regional Bicycle Plan are to:

- Make bicycle riding a viable transportation option
- Increase the number of trips in the region that are made by bicycle

It should be noted that increasing the number of trips made by bicycle is more than a goal; it is a fundamental value that drove the development of this regional bicycle plan.

The Goals of the bicycle plan are aligned with the five transportation goals stated in the Regional Transportation Plan (RTP). Achieving the goals of the bicycle plan relates to each RTP goal as follows:

- Economic Development: Increasing bicycle use for utility and commuting trips can lead to reduced traffic congestion, a healthier and happier work force, and increase the ability to attract high quality companies to the region.
- Quality of Life: Reduced traffic congestion and increased opportunities to bicycle to errands, work, and recreation will lead to improved livability in the region.
- Growth Management/Land Use Coordination: To have an effective bicycle route and trail system will require land use coordination and planning.
- Access, Safety, Security, and Mobility: To increase bicycle riding, riders must feel safe and feel their bicycles are secure in bicycle parking areas.
- Transportation network or infrastructure: A safe and efficient bicycle infrastructure decreases personal travel costs, increases travel options, and reduces overall energy consumption.

Objectives

Objectives are how the goal, or desired end-result, is achieved. The path or strategy to reach the goal is defined under an objective. There are usually many ways to achieve a goal. Objectives involve specific projects and initiatives.

The goals of the Bike Plan will be achieved through the following Objectives:

- Increase the number of local utility trips that are made by bicycle;
- Increase the opportunities for students to ride their bicycles to school;

[6] Dover/Kent County MPO Regional Transportation Plan FY2009-FY2030

- Increase the number of people choosing to bicycle to work; and
- Increase recreational and fitness riding.

The goals and objectives of the Bicycle Plan have a 20 year planning horizon, to coincide with the 2030 Vision. The strategies to accomplish the objectives have a 4 year planning frame and include performance measures to be evaluated when the plan is revisited and revised every 4 years.

The goals of the Bike Plan will be achieved through the following strategies:

Goal: Make bicycle riding a viable transportation option

I. **Objective 1:** Create an effective and safe bicycle transportation system

The strategies to achieve this objective are mainly infrastructure-based:

Strategy 1.1: Increase the number of miles of on-street bikeways within the county.

Performance Measure: Number of lane miles

Highest priority projects are recommended to be implemented over the next 4 years. This plan will be updated and remaining project reevaluated every four years as part of the 20-year transportation plan. Full implementation of this plan would result in an increase in on-street facilities by approximately 50 miles by 2030.

Strategy 1.2: Make intersections accessible and safe for bicyclists.

Performance Measure: Number of intersections with striping or bike boxes

There are two approaches recommended in the bike plan for making intersections accessible and safe for bicyclists: striping to indicate bicycle routes through intersections and the use of bike boxes (advanced stop lines). Key intersections are identified for improvements; with a benchmark of 50% of identified intersections have striping or bike boxes by 2020 and 100% by 2030.

Strategy 1.3: Increase the number of miles of off-road, multi-use paths within the county.

Performance Measure: Number of miles of multi-use paths

Highest priority projects are recommended to be implemented over the next 4 years. This plan will be updated and remaining projects reevaluated every four years as part of the 20-year transportation plan. Full implementation of this plan would result in an increase in off-road, multi-use paths of between 39 and 42 miles by 2030.

Strategy 1.4: Increase the number of miles of roadways clearly marked for shared use by bicycles and motorized vehicles.

Performance Measure: Number of lane miles marked with sharrows or signage

Sharrow and signage projects are less costly and more readily implementable than projects involving creation of new bike lanes. Early implementation of these projects is recommended, with 50% of identified sharrow/signage projects to be implemented by 2020 and 100 % by 2030.

Strategy 1.5: Increase the amount of bicycle parking available to the public.

Performance Measures: Percentage of schools, parks, post offices and public buildings with installed bicycle parking facilities. Percentage of local governments adopting bicycle parking policies.

A map of all known bike racks and bike lockers has been reviewed and areas of priority need identified. The needs are for bicycle parking at public facilities, shopping areas, schools and employment centers. Public and private installations of bike racks will be required to truly create an effective bicycle system.

Strategy 1.6: The MPO should establish an ongoing bicycle (or non-motorized) committee to review project proposals on an ongoing basis.

Performance Measure: Establishment and regular meeting of the committee

Criteria have been developed by which bicycle project proposals can be evaluated and prioritized. The bicycle committee would be charged specifically with reviewing bicycle project proposals and with oversight of implementation of the strategies and policies in the bike plan.

II. Objective 2: Create an environment where all bicyclists and motorists follow the rules of the road.

The strategies to achieve this objective are education and enforcement-based:

Strategy 2.1: Create and secure funding for a bicycle and motorist education campaign to promote the rules of the road

Performance Measures:
- Number of law enforcement officials trained
- Number of jurisdictions with police on bikes programs
- Number of students receiving bicycle skills training
- Number of Drivers Education students receiving bicycle awareness training
- Number of tickets issued

Working with partners to implement the educational efforts in the education and enforcement policy would create education and training programs for law enforcement officials, students and other adult drivers and bicyclists.

Strategy 2.2: Create and secure funding for a bicycle enforcement campaign

Performance Measure: Number of tickets issued

Consistent enforcement of traffic laws pertaining to bicycles and bicyclist-motorist interactions will result in an initial increase in tickets issued, followed by a reduction over time. Benchmarks are the number of traffic violations pertaining to bicycles reduced by 25% by 2015, 35% by 2020, and 50% by 2025.

Goal: Increase the number of trips in the region that are made by bicycle

III. Objective 3: Increase the number of local utility trips that are made by bicycle.

Strategy 3.1: Increase local utility trips by bicycle through improved bicycle routes and increased parking

Performance Measure: Number of trips as measured by bicycle counts and surveys of roads and bicycle parking

Establish the baseline, then increase the total number of trips by 100% each year.

IV. Objective 4: Increase the number of students riding their bicycles to school.

Strategy 4.1: Increase Students riding bicycles to school through increasing the availability of bike lanes and off-road paths to schools

Performance Measure: Number of trips as measured by surveys of school bicycle parking.

Establish the baseline, then increase the total number of trips by 100% each year.

V. Objective 5: Increase the number of people choosing to bicycle to work.

Strategy 5.1: Increase bicycle commuting through improved bicycle routes and increased parking opportunities

Performance Measure: American Community Survey conducted by the US Census Bureau.

US Census 2000 data shows journey to work statistics that are now estimated yearly. The bicycle mode share in Kent County is .05%. Using the 2000 data as current (2010), increasing bicycle mode share (trips to work) by 50% per year will result in mode shares of .11% by 2020 and .25% by 2030.

VI. Objective 6: Increase recreational and fitness riding.

Strategy 6.1: Increase recreational and fitness riding through increasing the miles of bicycle lanes and off-road paths

Performance Measure: Off-road trail bicycle counts and surveys

Establish the baseline, then increase the total number of trips by 100% each year.

BICYCLING IN THE DOVER/KENT COUNTY MPO REGION

Types of Bicyclists

Each bicyclist has a different set of skills and abilities. Some bicyclists are comfortable using their bicycle as they would their car, on-road and with traffic. There are other adult riders who prefer to be in designated bike lanes or are even more comfortable on off-road, multi-use paths. Children and seniors have different needs that also must be considered in the bicycle plan.

Bicyclists can also be categorized by the types of trips they take:

- To and from work (Commuting)
- Errands and Shopping
- Recreation

DelDOT's 2005 Delaware Bicycle Facilities Master Plan uses the American Association of State Highway Transportation Officials (AASHTO) "ABC" categorization for bicyclists:

Advanced or experienced riders are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with a minimum of detour or delay. They are typically comfortable riding with motor vehicle traffic; however, they need sufficient operating space on the traveled way or shoulder to eliminate the need for either them or a passing vehicle to shift position.

Basic or less confident adult riders may also be using their bicycles for transportation purposes, e.g., to get to the store or to visit friends, but prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared use paths and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets.

Children, riding on their own or with their parents, may not travel as fast as their adult counterparts but still require access to key destinations in their community, such as schools, convenience stores and recreational facilities. Residential streets with low motor vehicle speeds, linked with shared use paths and busier streets with well-defined pavement markings between bicycles and motor vehicles can accommodate children without encouraging them to ride in the travel lane of major arterials.

Not every bicycle facility will accommodate the needs of every type of bicyclist. The Dover/Kent County MPO Regional Bicycle Plan strives to provide ample opportunities and options to serve the needs of all three classes of bicyclists.

The Existing Dover/Kent County MPO Region Bicycle Network

The existing bicycle network in Kent County includes state and regional routes identified by the DelDOT[7], roads with paved shoulders or other marked bicycle facilities, and off-road multi-use paved paths.
Figure 1 shows the map of the existing bicycle system in Dover/Kent County MPO Region as of July 2011. The map includes the state and regional bike routes included in the Delaware Bicycle Master Plan, roads with bike lanes, roads with paved shoulders and roads marked with sharrows or signage.

[7] Delaware Bicycle Facility Master Plan, DelDOT, Appendix B pp. 37-62. October 2005.

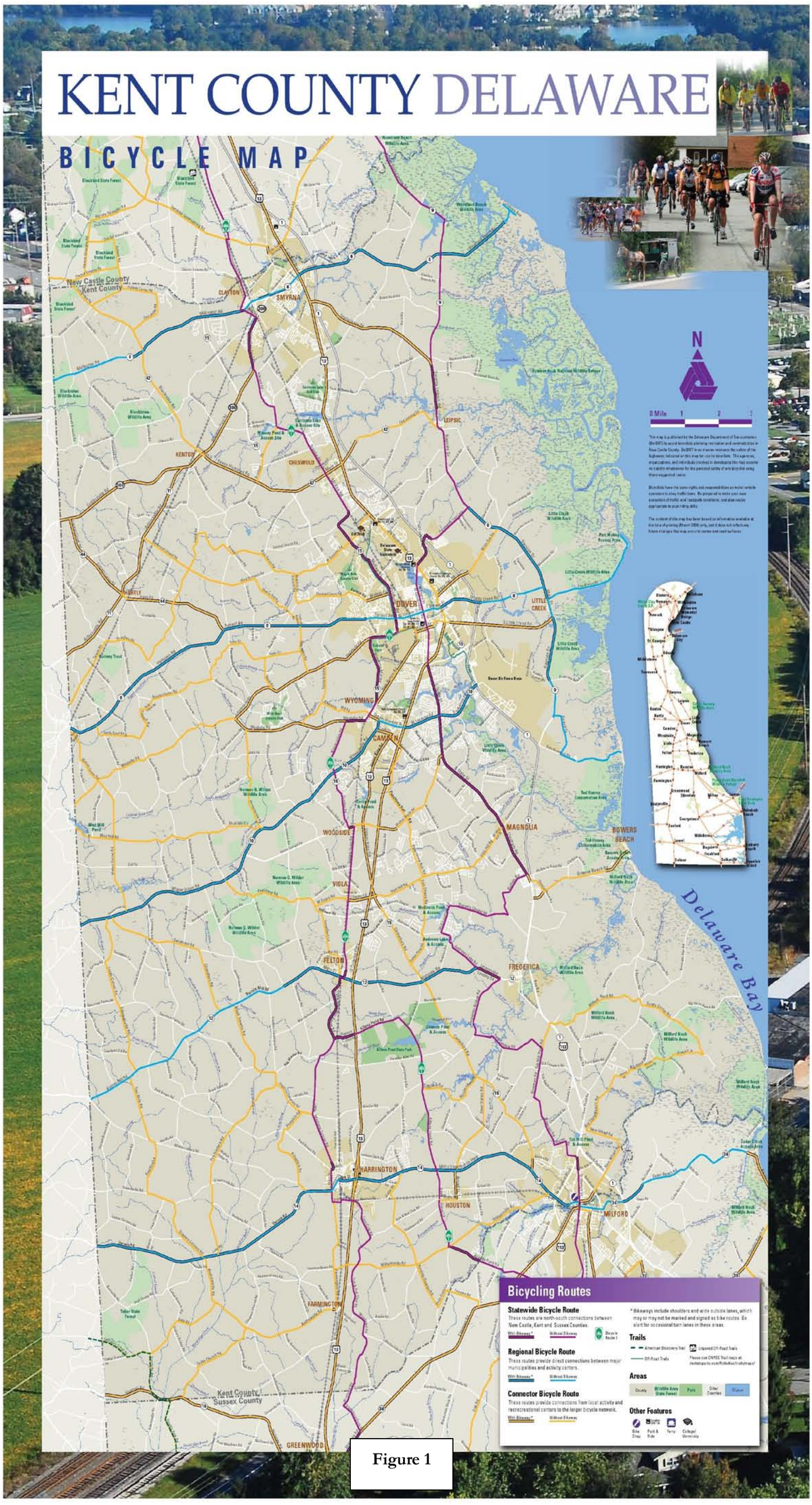
KENT COUNTY DELAWARE
BICYCLE MAP
New Castle County
Kent County
CLAYTON
SMYRNA
LEIPSIC
KENTON
CHESWOLD
DOVER
LITTLE CREEK
WYOMING
CAMDEN
WOODSIDE
MAGNOLIA
BOWERS BEACH
VIOLA
FELTON
FREDERICA
HARRINGTON
HOUSTON
MILFORD
FARMINGTON
GREENWOOD
Kent County
Sussex County
Delaware Bay
N
0 Mile 1 2
Bicycling Routes
Statewide Bicycle Route
Regional Bicycle Route
Connector Bicycle Route
Trails
Areas
Other Features

Figure 1

The state and regional bike routes are briefly described in Table 1 below; complete descriptions of the routes and are included in Appendix A, including identifications of the sections of the bicycle routes that have inadequate or no bicycle facilities.

Table 1. State and Regional Bicycle Routes

Route Name/Number	Route Overview	Purpose
Bicycle Route 1 - Kent County	This 37 mile portion of Bicycle Route 1 connects New Castle County with Sussex County and provides direct access to the state capital and to the other major municipalities in Kent County	To improve north-south bicycle mobility. Within Kent County, Bicycle Route 1 serves as a spine to the bicycle network, linking the major municipalities within Kent County and providing connections to all but one regional bicycle route in the county.
Bicycle Route 2 - Kent County (Wilmington-Selbyville)	This 42-mile portion of the Wilmington-Selbyville Statewide Bicycle Route provides north-south bicycle mobility along SR9 and the US 113 corridor in Kent County. The route provides access to Kent County and the City of Dover, from the municipalities of Wilmington and New Castle to the North and Milford, Ellendale, Georgetown and Dagsboro to the South.	The purpose of this route is to improve north-south bicycle mobility along the Delaware coast.
Bicycle Route 3 - Kent/Sussex County (Delmar-Felton)	This Statewide Bicycle Route is a 39-mile branch off of Bicycle Route 1, running along the US 13 corridor from Kent County to the border of the state with Maryland.	The purpose of this route is to improve bicycle mobility along the US 13 corridor.
Route K-1 - MD Border to Woodland Beach	The Maryland Border to Woodland Beach route is a 17.6-mile east-west Regional Bicycle Route. The route begins at the Maryland Border on SR 6 in the Blackiston Wildlife Area, travels through the Towns of Clayton and Smyrna, to Woodland Beach via the Woodland Beach Wildlife Area.	This route connects the Towns of Clayton and Smyrna with Maryland and Woodland Beach on the Delaware Bay.
Route K-2 NE Dover to Kitts Hummock/Delaware Bay	This 12 mile route borders Bombay Hook National Wildlife Refuge and the Little Creek Wildlife Area, Dover Air Force Base and the community of Kitts Hummock.	The purpose of this route is to provide linkages between the Bay coast east of Dover with Bicycle Route 1.

Table 1. State and Regional Bicycle Routes		
Route Name/Number	Route Overview	Purpose
Route K-3 MD Border to Port Mahon	This 24 mile Regional Bicycle Route bisects Kent County from the Maryland border to Delaware Bay.	The route provides east-west access and connectivity across Kent County by connecting Dover to the Maryland border to the west and the Little Creek Wildlife Area and Delaware Bay to the east.
Route K-4 MD Border to Dover AFB	This 16 mile Regional Bicycle Route travels from the Maryland Border along SR10 through central Kent County and the towns of Camden and Wyoming to the intersection with US113 near the Dover Air Force Base south of the City of Dover.	This route travels east from the western edge of Kent County to the towns of Camden and Wyoming, terminating at the Dover Air Force Base. It also connects two statewide bicycle routes, Bicycle Routes 1 and 2.
Route K-5 MD Border to Frederica	This 14.1 Regional Bicycle Route travels from State Route 12 at the Maryland Border to the intersection of SR12 and Andrews Lake Road (MR 380) at the western outskirts of Frederica.	This route provides east-west access and connectivity to Maryland and two towns in central Kent County. It also provides direct access to Statewide Bicycle Routes 1, 2 and 3.
Route K-6 MD Border to Slaughter Beach	The MD Border to Slaughter Beach Regional Bicycle Route provides a cross-Delaware route which connects southern Kent County and northern Sussex County from the Maryland border to Delaware Bay. This route also links Milford and Harrington. It also provides access to recreational destinations along the Delaware Shore including Slaughter Beach and federally protected wildlife refuges. The route is a total of 25 miles in length.	The purpose of this route is to provide access from the Maryland border to Delaware Bay.

County roads and city streets that are not designated as bike routes by DelDOT are nevertheless important for this regional bike plan, because short local trips will almost invariably take place on such roads. Many of these roads, or road segments, are currently bike friendly. These include country roads that have little traffic and city neighborhood streets, also with little automobile traffic and low speed limits. Inside the cities and towns, these bike-friendly streets often join with others to form a bike-friendly network. These networks, however are limited in size and disconnected from other such networks by impediments and barriers discussed later in this plan.

Many roads in Kent County are not bicycle-friendly due to the narrowness of the roadway, lack of shoulders, and/or speed and volume of auto traffic. Occasionally, a bike-unfriendly road may have a short or isolated section of striped shoulder or striped bike lane that was installed with a road improvement or new housing development. These short "bike-friendly" segments have limited usefulness without connection to other bike-friendly roads. On other routes, which provide striped shoulders or bike lanes along much of the route, but have shorter segments without bike facilities, the suitability for bicycling is greatly reduced.

Off-Road Routes

As shown in Figure 2, a limited number of paved, off-road, multi-use paths are available for bicyclists, pedestrians, skateboarders, inline skaters, etc. Few of these are long enough to be suitable for fitness cyclists, but they provide an extra-safe route of travel for the recreational adult and/or child. Some of the off-road paths have been poorly maintained, there are now cracks or dips in the pavement, and overgrown vegetation. Many of these routes cross other roads, usually at intersections, and it is at these crossing points that the routes become less safe. Crossing points involve two-way bike traffic crossing the intersection where the automobile driver may be assuming one-way bike travel.

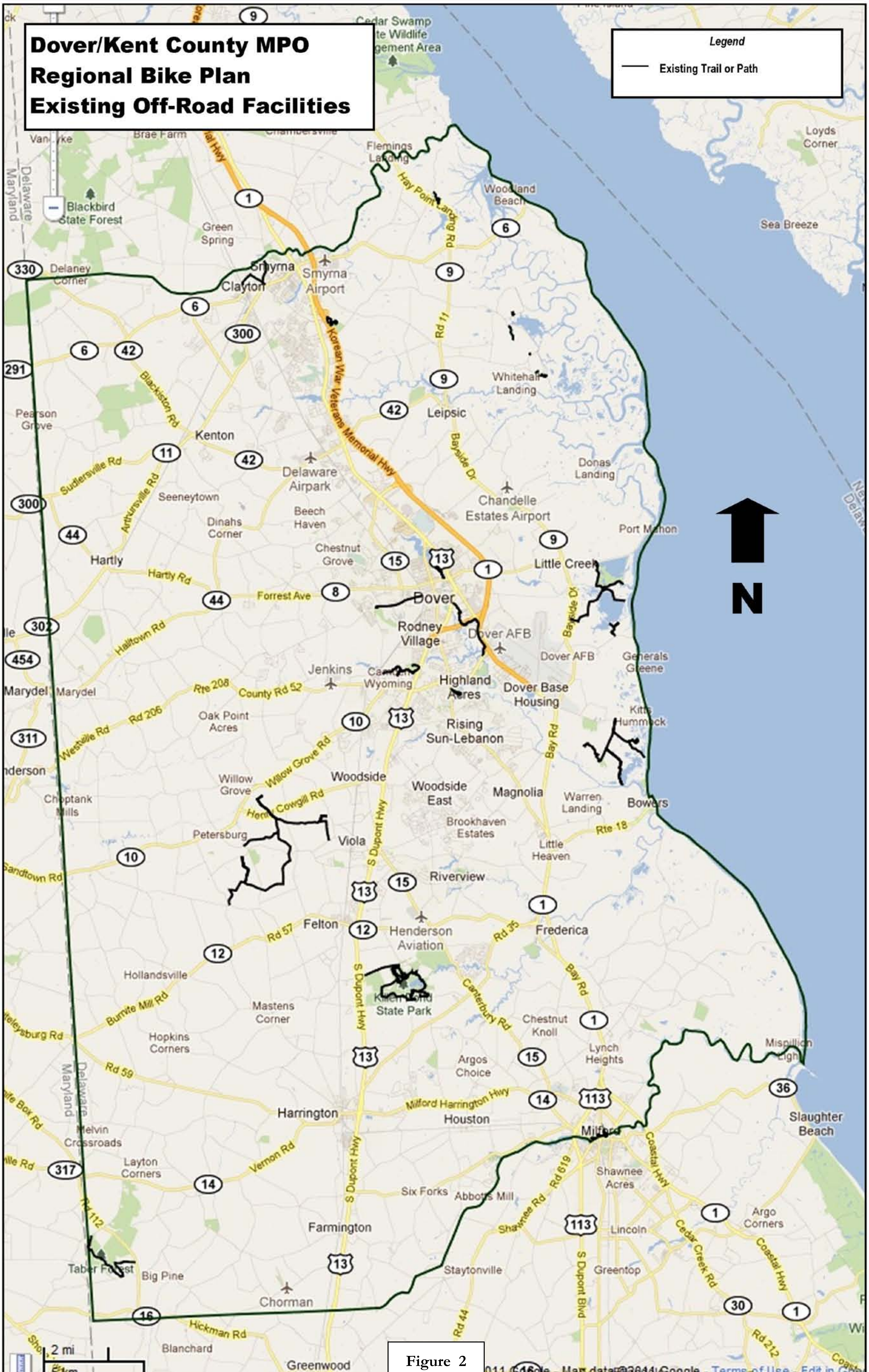
Dover/Kent County MPO
Regional Bike Plan
Existing Off-Road Facilities
Legend
Existing Trail or Path
N
Dover
Rodney Village
Dover AFB
Highland Acres
Dover Base Housing
Rising Sun-Lebanon
Smyrna
Clayton
Smyrna Airport
Leipsic
Little Creek
Kenton
Hartly
Woodside
Felton
Viola
Magnolia
Frederica
Harrington
Houston
Milford
Farmington
Killens Pond State Park
Henderson Aviation
Korean War Veterans Memorial Hwy
S Dupont Hwy
2 mi
5 km

Figure 2

Existing Bicycle Parking Facilities

During the spring, 2010, the Dover/Kent MPO conducted a survey of businesses and schools in the county to identify the locations and capacity of bicycle parking (racks). Of the 42 public schools, 57% responded that they have bicycle racks. Eight of the 10 middle schools have bicycle racks (there was no information from Central Middle School or Kent County Community School) and 13 of the 23 elementary schools have racks.

Three of the 6 public high schools have bicycle racks (Milford High School does not have bike racks and there was no information from Polytech High School or Lake Forest High School. None of the 13 private schools responded that they had bicycle racks and all of the colleges and universities except the University of Delaware's Paradee Center had bicycle racks.

Of the existing racks at schools, only 3% were reported as having frequent usage, 38% of the schools reported moderate usage, while 34% reported infrequent usage. It should be noted that no information was provided on usage by almost one-quarter (24%) of the schools.

Of the 119 businesses that responded to the survey, 26 (22%) had bicycle racks. Information on usage of the racks is not as clear, 41% provided no information on usage. Of the 10 businesses that did respond, 1 reported frequent usage, 5 reported moderate usage, and 4 reported infrequent usage.

Based on the survey responses, there are some locations that stand out as being in need of bicycle parking facilities. For example, in Milford, at present there are no bicycle parking facilities at the Milford Library, no intermodal connections such as the DART Stop at the WalMart, and no facilities for changing and storing clothes and equipment.

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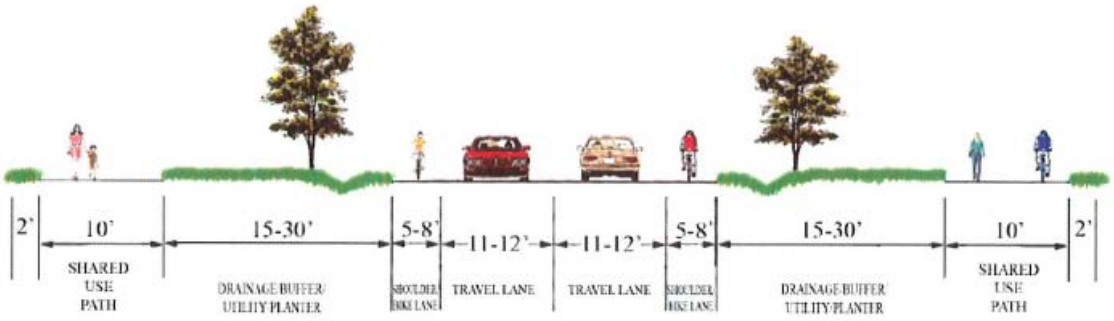
BICYCLE POLICIES

DelDOT Complete Streets Policy[8]

The purpose of the Complete Streets Policy is to ensure that DelDOT system modifications are routinely planned, designed, constructed, operated and maintained in a way that enables safe and efficient access for all users. The result should be a system for all users that is comprehensive, integrated, connected, safe, and efficient allowing users to choose among different transportation modes, both motorized and non-motorized.

The term "Complete Street" means a roadway that accommodates all travelers, particularly public transit users, bicyclists, pedestrians (including individuals of all ages and individuals with mobility, sensory, neurological, or hidden disabilities), and motorists, to enable all travelers to use the roadway safely and efficiently. An illustration of a complete street is shown in Figure 3. Creating complete streets means planning, designing, constructing, maintaining and operating streets and all directly related components for motorized and non-motorized modes of travel, as appropriate for the area. The most basic element of a complete streets policy is that it ensures that roads are planned and built to serve all users.

Figure 3. Complete Street Two-lane Suburban Roadway



Source: Delaware Department of Transportation

The policy applies to:

1. All projects in the state right-of-way that are considered road reconstruction, widens the pavement width, or allows for the inclusion of facilities for all users, shall consider all transportation modes and accommodate accordingly; facility type shall be based on the project location and the needs of the community.

2. System maintenance projects - while it is not the specific intent of these projects to expand existing facilities, opportunities to provide and improve safety for other modes shall be explored during the project development stage.

[8] P.I. Number No. 0-6 Complete Streets Policy. Delaware Department of Transportation. Effective 1/06/2010.

Exemptions to the policy include: roadways that prohibit by law use of the roadway by specific users. (Example I-95); if it is determined that a reasonable and equivalent alternative already exists for certain users or is programmed in the CTP/TIP as a separate project as determined by representatives of appropriate modes; and ordinary maintenance activities designed to keep transportation facilities in serviceable condition that do not interfere with existing facilities for longer than the time needed to perform maintenance.

Waivers to the policy may also be granted to avoid or mitigate impacts to natural and cultural resources. There may also be right-of-way and financial constraints associated with individual projects. Every effort should be made to identify constraints early in the project scoping phase. Therefore, Complete Street Waivers shall be initiated no later than the Semi-Final design phase of all projects.

The policy is the outgrowth of Governor Jack A. Markell's Executive Order No. 6 (April 24, 2009). This Executive Order directed that a Statewide Complete Streets Policy be delivered to the Governor by September, 2009. This step toward creating a transportation system in Delaware that provides facilities for biking, walking, and transit, can increase safety, reduce traffic congestion and improve air quality.

DelDOT Bicycle Policy[9]

Current DelDOT bicycle policy is to include appropriate accommodations for bicycles as part of all System Management and System Expansion projects. For System Preservation projects, those designed to keep existing facilities in good repair, opportunities to provide or enhance bicycle facilities will be explored during the program development stage of paving and bridge replacement projects. Items such as paving existing shoulders, minor widening around bypass lanes when right of way is available, and the addition of shoulders on bridge replacement projects are solutions that enhance cycling opportunities that could fit into the context of a System Preservation project. These items will be included in all System Preservation projects in "multi-modal" areas and on all roads classified as a minor arterial or above in "management" and "preservation" areas of the Long-Range Plan, unless exceptional circumstances exist that precludes the provision of these facilities for bicycling.

DelDOT utilizes the guidance provided by AASHTO's Guide for the Development of Bicycle Facilities and the Federal Highway Administration's (FHWA) "Selecting Roadway Design Treatments to Accommodate Bicyclists" in designing accommodations for bicycles. In determining priorities for bikeways, DelDOT policy is that priority is given to facilities that provide connections between neighborhoods, shopping, schools, transit, park and ride lots and employment centers.

In addition, DelDOT policy states that the continuity of existing paved shoulders shall be maintained at the widest possible width. The desirable width of 5-ft (1.5m) travel way on the shoulder shall be maintained for bicycle use unless exceptional circumstances occur that require emergency operational safety improvements that compromise this width. If the width of a paved shoulder area must be compromised to less than four feet, the area shall be appropriately marked as a hazard for bicyclists and the Department shall concurrently nominate a project that will result in the restoration of appropriate accommodations for bicycle travel. Impacts to the suitability of

[9] P.I. Number: D-06 Bicycle Policy. Delaware Department of Transportation. Effective: 12/22/2000.

roadways for bicycle travel due to traffic increases caused by land development shall be assessed and mitigated as part of the Department's Traffic Impact Study and Project Development process as recommended by the Bicycle and Pedestrian Coordinator.

Support facilities such as parking devices, transport racks on buses, and signal detection for bicycles shall be considered for incorporation into transportation projects during planning and project development. Bicycle friendly drainage grates shall be used to replace parallel bar grates on all roadway reconstruction and rehabilitation projects or replaced individually upon request.

The policy addresses intersections as follows: over and under crossings should be considered for roadway crossings with a high number of non-motorized users, high speed and high volumes of motorized traffic or specific safety concerns. The policy does not address bicycle travel markings through at-grade intersections.

POLICY RECOMMENDATIONS

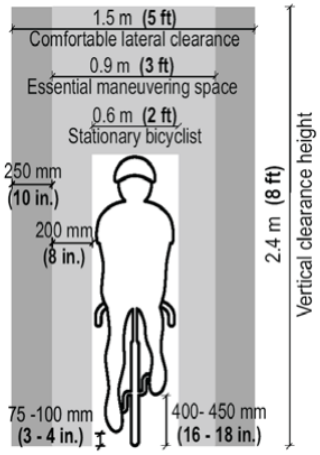
To improve the bicycle system in Kent County, specific bicycle policies are being recommended to address:

- Policy 1 - Selecting Appropriate Bicycle Facilities
- Policy 2 - Bicycle Facilities at Intersections
- Policy 3 - Bicycle Parking
- Policy 4 - Education and Enforcement

The policies are to be adopted by the Dover/Kent County MPO and serve as guidance to cities and towns and/or for implementation by DelDOT on projects undertaken in the County.

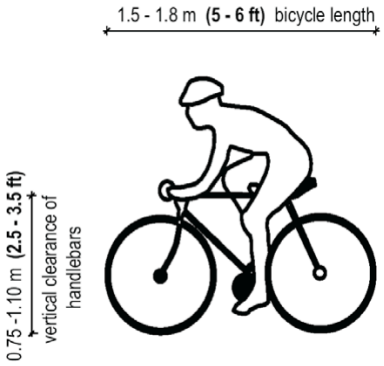
Policy 1 - Selecting Appropriate Bicycle Facilities

When determining the feasibility or planning for different types of bicycle facilities, the space requirements for bicycle travel must be taken into consideration. Figures 4 and 5[10] show the width and vertical space requirements for bicycle travel, with Figures 6 and 7 showing the added requirements of a bicyclist towing a trailer, such as one used to transport young children.



Front View

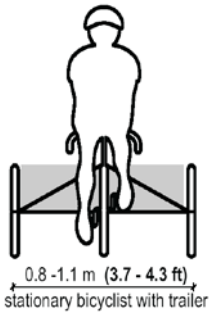
Figure 4.



Side View

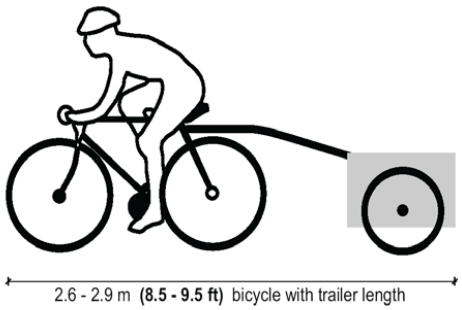
Figure 5.

[10] Bikeway Facility Design Manual. MN Department of Transportation. March 2007. Dimensions are consistent with AASHTO Guidance.



Front View

Figure 6.



Side View

Figure 7.

The following factors should be considered to determine appropriate on-street bicycle facility design:[11]

- Vehicles
  - Motor vehicle speeds
  - Average daily traffic volumes & peak-hour traffic volume
  - Traffic composition, especially volumes of large trucks
  - On-road parking
  - Bus routes

- Location
  - Urban or rural
  - Topography, grades, sight distances, and sight lines

- Road Design
  - Roadway functional classification
  - Intersections and driveways
  - Number of traffic lanes
  - Vehicle turn lane configuration
  - Right-of-way constraints

- Bicyclist characteristics (type of bicyclists served)

Selection of the type of bikeway for a specific travel corridor depends on many factors including bicyclists' abilities, corridor conditions, current and future land use, topography, population growth, roadway characteristics, and the cost to build and maintain the bikeway. Based on these factors and using engineering judgment, an appropriate bicycle treatment can be selected for a given corridor. Within any travel corridor, more than one option may be needed to serve all bicyclists. However, no one type of bikeway or road design suits every bicyclist.

[11] Draft Bicycle Master Plan. Minneapolis, MN. August 2010.

The Delaware Bicycle Facility Master Plan includes three types of on-road bikeways:

- Bike Lane. Five (5) foot minimum lane width with striping, bike symbols, and route designation. Warning and regulatory signage to be provided. The guidelines for Bike Lanes establish preferential use by bicyclists.
- Shared Shoulders. It should be noted that the Delaware plan sets minimums widths of 5 feet for paved striped shoulders. The plan also states that shared shoulders include some signage and bicycle symbols. As a shared bikeway this facility maintains use of the shoulder for motorist breakdowns or emergencies while providing a facility for bicyclists separated from the travel lane. Parking on shoulders should be prohibited.
- Wide Outside Travel Lane. A 14 foot wide outside travel lane to be shared by motorists and bicyclists. Warning and regulatory signage to be included but no striping to be provided. Wide outside travel lanes are seldom used with on street parking due to the amount of space that is needed for both parking and additional travel width.

A Shared Lane is another type of on-road bikeway, a normal travel lane shared by motor vehicles and bicyclists. Bicyclists share the same space with motor vehicles and follow the same laws as motor vehicles. The shared lane may or may not include road markings or signage for bicycles, such as "Share the Road".

A Shared Use Path is not an on-road bikeway but rather an off road multi-use trail. This approach is included in the chart as a suggested alternative to a shared shoulder when vehicle traffic volume and speeds are both high.

The following table lays out some guidelines for the type of on-road bicycle facility that should be used for given vehicle volume and speed combinations in urban areas. These roads include curbs, which are common in municipalities, but not present throughout much of Kent County.

Table 2. On-road Bikeway Design Selection for Urban Areas (road cross sections with curbs)

Motor Vehicle Avg. Daily Traffic (2 lanes, one in each direction)		<500	500-1,000	1,000-2,000	2,000-5,000	5,000-10,000	>10,000
Motor Vehicle Avg. Daily Traffic (4 lanes, 2 in each direction)		N/A	N/A	2,000-4,000	4,000-10,000	10,000-20,000	>20,000
Motor Vehicle Speed	25 mph	SL	WOL	WOL	WOL	BL=5ft	N/A
	30 mph	SL with sign	WOL	BL=5ft	BL=5ft	BL=6ft	BL=6ft
	35-40 mph	WOL	BL=5ft	BL=5ft	BL=6ft	BL=6ft	BL=6ft or SS=8ft
	45 mph and greater	BL=5ft	BL=5ft	BL=6ft	BL=6ft	BL=6ft or SS=8ft	SUP or SS=10ft
SL = Shared Lane; BL = Bike Lane; WOL = Wide Outside Lane SS = Shared Shoulder – Paved; SUP = Shared use Path							

Additional Approaches

Competition for space in a given roadway and its accompanying right-of-way often requires difficult choices to be made. Often there is not enough room to allow for bicycle lanes, adequate vehicle capacity, transit accommodations, parking needs, and sidewalks. In some cases the on-road approaches described above do not result in improved safety or increased bicycle travel. Alternative approaches, such as bicycle boulevards and Shared Use Pavement Markings with Signage have been found to more effectively attract bicyclists in other communities.

Bicycle Boulevards

Bicycle boulevards are enhanced local street corridors that give priority to bicycles. Bicycle boulevards typically run parallel to arterial or collector street corridors and generally serve bicyclists who are not comfortable riding on busy streets. The use of bicycle boulevards should be evaluated in urban settings such as Dover, Smyrna, and Milford, along low-volume local streets that parallel collector roads. For example, the local street network near State Street and Walker Road in Dover could potentially provide opportunities to implement bicycle boulevards. Bicycle boulevards usually allow motorists but often include traffic calming treatments such as diverters, bump-outs, and speed humps to discourage cut-through motor vehicle trips. In some cases speed limits are reduced or there is additional traffic enforcement. Bicycle boulevards include information and way finding signage in addition to special pavement markings. Special attention is also given to intersections to limit bicycle delay and to create free-flow conditions for bikes whenever possible.

Bicycle Boulevard Decision Factors:

- Bicycle Boulevards should be implemented on low volume local street corridors that are parallel to arterial and collector roadways.
- Candidate corridors should be located where there are existing diverters, ped/bike bridges, and signalized crossings to minimize the need for new infrastructure.
- Bicycle Boulevards should be spaced in a 1-mile grid.
- Bike Boulevards should be used when a bike lane is not practical and shared lanes, shared lanes with signage, and wide outside lanes are not expected to increase bicycle use or safety.

Shared Use Pavement Markings

Shared use pavement markings (also called Sharrows) are used when there is not enough space for bike lanes. The main reason shared use markings are used is to increase the awareness of drivers that bicycles may be present on the roadway. The markings also enhance the visibility of bicycles. Shared use markings are intended to accomplish the following:

- Help bikers position themselves in lanes too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane;
- Encourage safe passing of bicyclists by motorists;
- Reduce the chance of a bicyclist colliding with the open door of a vehicle parked in a shared lane with on-street parallel parking;
- Alert road users of the location bicyclists may occupy; and
- Reduce wrong-way bicycling.

Shared Use Markings Decision Factors:

- Sharrows are not to be used on shoulders or in designated bicycle lanes.
- Signage (share the road signage, or bike route signage) enhances the effectiveness of shared use pavement markings and should always be used when sharrows are utilized.
- Shared use markings should only be implemented on corridors with speed limits at or below 35 mph.
- When parallel parking exists, pavement marking should be placed 11 feet (or greater) from face of curb to avoid the door zone.
- Shared use markings should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter (2 markings on a short block, 3 on a long block).

The dimensions of a typical sharrow are shown in Figure 8 below. Use of a sharrow is shown in the picture (Minneapolis, MN).

Figure 8. Sharrow Dimensions

Policy 2 - Bicycle Facilities At Intersections

According to the Federal Highway Administration, an intersection is a planned point of conflict in the roadway system and intersection safety is a national, state and local priority since intersections represent a disproportionate share of the safety problem. It is at intersections that bicyclists are exposed at the greatest frequency to potential conflicts with motorized vehicles.

At many intersections, including intersections of bike routes and major roads, such as U.S.13, bike lanes are dropped at approaches to intersections with right turn lanes. This can result in unpredictable movements and conflicts between bicyclists and motorists. At intersections without right turn lanes, when bike lanes are brought up to the stop line, bicyclists are exposed to conflicts with right turning motorists. In addition left-turning bicyclists often cannot find a suitable gap in which to merge in preparation for the turn.

The goal in addressing intersections is to improve bicyclist safety and comfort through designing and implementing intersections to reduce confusion and conflicts. The intersection design should increase motorist awareness of bicycles and facilitate bicycle through-travel and turning movements. Techniques include striping to allow for predictable movements of both cars and bicycles, advanced stop bars (aka "bike box"), and bicycle only center turn lane striping.

Policy 2A - Bicycle Facilities At Intersections With Right-Turn Lanes

When roads with bike lanes or shared shoulders approach an intersection with a right-turn lane, markings shall be used to designate the bicycle pathway through the intersection. Two examples of approaches to marking the bicycle pathway are shown in Figure 9 below.[12]

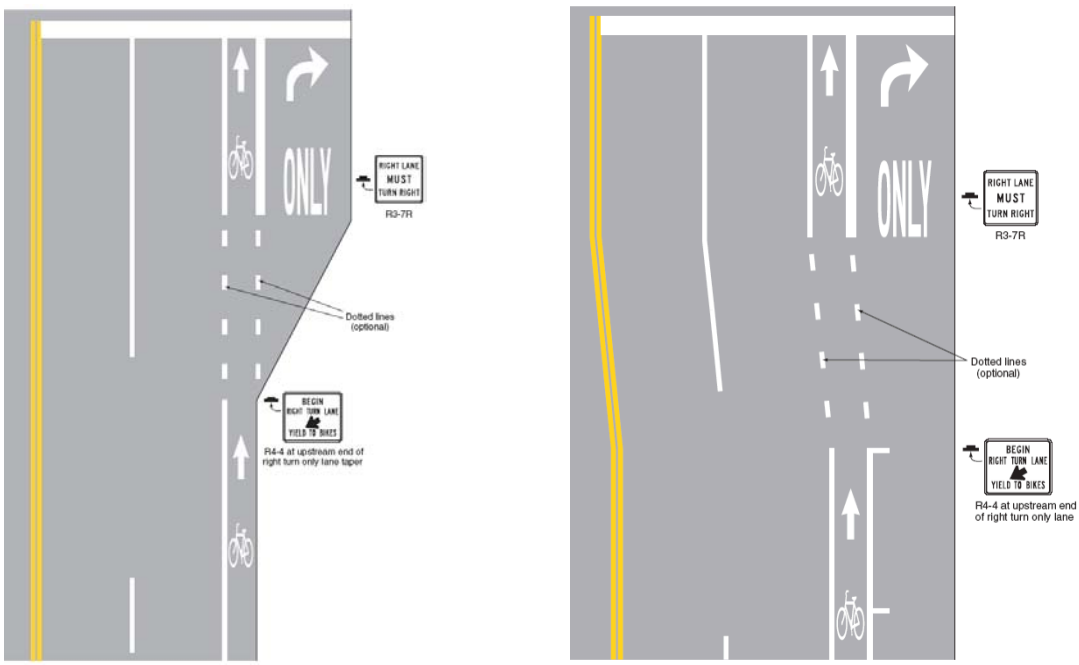


Figure 9. Markings to Designate Bike Lane At Intersections with a Right-turn Lane

Policy 2B - Install Bicycle Boxes At Intersections With High Bicyclist And Motor Vehicle Volumes

Bike box is a right angle extension to a bike lane at the head of an intersection. The box allows bicyclists to get to the head of the traffic queue on a red traffic signal indication and then proceed first when the traffic signal changes to green. Such a movement is beneficial to bicyclists and eliminates conflicts when, for example, there are many right-turning motor vehicles next to a right

[12] Source: Manual on Uniform Traffic Control Devices. DELDOT, June 2011.

side bike lane. Being in the box, and thus at the front of the traffic queue, also tends to make bicyclists more visible to motorists.
The design of a Bike box is two parallel stop lines at the intersection, the first one at which all traffic except that for which the facility is provided must stop, and a second one nearer the intersection to which only specified vehicles may proceed. The area between the stop lines is the "reservoir" or "box". Signage may be required to inform road users as to the meaning of the extra stop line. A separate set of traffic signals may be provided for the specified traffic, but all vehicles usually use the same signals. The pictures below show bike boxes as viewed from two directions.

Figure 10. Bicycle Boxes

Policy 3 - Bicycle Parking

<u>The Need for More Bicycle Parking and Standards</u>

In order to increase use of bicycles for transportation and commuting purposes, access to bicycle parking needs to be readily available at work locations, schools, parks, transit centers, government buildings as well as businesses such as stores and restaurants.

Kent County and the local governments should incorporate bicycle parking policies and standards into land use regulations regarding motor vehicle parking. Commercial and high-density residential land uses should provide an ample quantity of short- and long-term bicycle parking. In addition, owners of existing residential or commercial buildings should be encouraged to provide, supplement and upgrade bicycle parking at their facility.

Types of Bicycle Parking

There are two main types of bicycle parking, bicycle lockers and bicycle racks. Bicycle lockers provide the most secure method of bicycle parking. The security level of bicycle racks varies, with the most secure being racks which lock both the front and back wheels of the bicycle (as shown below, from Minneapolis, MN).

Figure 11. Secure Bike Racks – Minneapolis, MN

Bicycle Lockers - Bicycle lockers fully enclose the bicycle, protecting it from both weather and potential thieves. Although bicycle lockers provide long term high security they are the most expensive type of bicycle parking. They also take up more space than other types of bike parking and require enough additional room to get a bike in or out of the compartments.
Because of the cost, bicycle lockers need to be placed in high density locations. Most lockers accommodate two bicycles and are accessible on both ends. It is important that bicycle lockers be placed on a well drained concrete surface and that snow is cleared when access to the lockers is blocked.

Bicycle Racks – Bicycle racks come in many shapes and styles and are quite versatile. Bicycle racks take up less space and are cheaper than bicycle lockers, but are less secure. Bicycle racks are often placed on public sidewalks and can be effectively integrated with bus stops and transit shelters. Racks can also be designed with a custom look and can be painted any color. Bicycle racks should be mounted in concrete for maximum security, however rail mounted racks may be placed on grass surfaces.

Shelters — Covered bicycle parking helps protect bicycles from wind, snow, and rain. Bicycle Shelters, used in combination with bicycle racks, are preferred by bicyclists to racks alone and can

significantly increase bicycling to a particular area and are preferred by bicyclists.[13] However, shelters take up additional space, can be quite expensive, and require a significant amount of maintenance. They must be well lit and swept on a regular basis. It is important that bicycle shelters properly drain water and the roof must be able to support the weight of snow. To relieve some of the costs, similar to bus shelters, there may be opportunities for advertisements or billboards on shelter walls.

Bicycle Parking Decisions

Choosing the Appropriate Style of Bicycle Rack—The selection of the type of bicycle rack or locker is based on how much security is required at the location, the available space, and cost factors. Some rack styles take up more space than others and position parked bicycles differently. Other site factors include the location of utilities utility locations, fire escapes and exits, sidewalk dimensions, and visibility. Bike racks should reflect the character of the area.

Bike racks should not have sharp edges, welds must be grounded and smoothed; they should be at least 32 inches tall so that the bike rack will be clearly visible to pedestrians and will not be a trip hazard. Gaps in the bike rack must be wide enough to fit a chain, u-lock, or cable, but cannot be large enough for a child's arm or head to get stuck.

Choosing the Number of Bicycle Parking Spaces—Bicycle parking demand and cost are the two major factors when choosing the number of bicycle parking spaces. However, current demand is not the only determinant since one of the goals of this plan is not only to serve current bicyclist, but to increase the use of bicycles for transportation and commuting. Determining the number of employees or customers that bike or are likely to bike to a given destination at a given time is also helpful in determining the correct number of racks at a location. Future growth should be considered, but it is recommended that additional bicycle racks be installed as needed due to cost.[14]

Placement Considerations – Bicycle Lockers—Placement factors that need to be considered include:

- At least 3 feet of clearance is needed in front of the locker door to allow for bikes to get in and out.
- Bike lockers must be placed away from utilities (sewer, water, gas, and electricity).
- Bike lockers must not obstruct a sidewalk and must be placed on a flat concrete surface.
- Bike lockers must not be placed in a spot that blocks safe sight-lines for motor vehicles.
- Bike lockers should not be placed in front of a loading dock or unloading area at a bus stop.
- Bike lockers should be placed in a well lit area that is not hidden from public views. Areas that are under surveillance are recommended for bike lockers.
- Lockers should be placed in high density areas. Due to high costs, surveys should be done to determine the demand for lockers.

[13] Draft Bicycle Master Plan. Minneapolis MN. August 2010.
[14] Minneapolis Ordinances prescribe the number of needed bike parking spaces at new developments based on square footage.

Placement Considerations – Bicycle Racks—Placement factors that need to be considered include:

- Distance to front doorways should be minimized, but kept at least 2 feet from edge of door.
- Bike racks must be placed 2 feet away from utilities (sewer, water, gas, and electricity).
- Distance from fire hydrants—At least 10 feet
- Bike racks should be placed on a flat surface not to exceed a 2% slope.
- Mounted bike racks should be placed on a paved surface. Rail mounted bike racks may be placed in a grass or wood chip surface.
- Bike racks may not be directly placed in front of windows and doors that would act as a fire escape.
- Bike racks shall not be placed in a corner area that blocks safe sight lines for motor vehicles.
- Bike racks should not be placed in front of a loading or unloading area at a bus stop.

Table 3. Bike Parking Requirement Guide

Type of Facility	Minimum Bicycle Parking Recommendation
Multifamily dwellings (5 or more units)	1 space per two dwelling units
Schools (K-12)	3 spaces per classroom
Community centers	6 spaces
Theaters	3 spaces
General retail sales & services	3 spaces or 1 space per 5,000 sq. ft. of general floor area
Offices	3 spaces or 1 space per 15,000 sq. ft. of general floor area
Restaurant or coffee shop	3 spaces
Indoor or outdoor recreation facility	3 spaces
Sports & health facility	3 spaces or 1 space per 10,000 sq. ft. of general floor area
Medical clinic	3 spaces
Industrial uses	2 spaces or 1 space per 20,000/30,000/40,000 sq. ft.
Post office	3 spaces
Employment Center	Covered parking or shelters

Policy 4 - Education And Enforcement

The goal of Kent County's bicycle network is to provide safe, convenient access for bicyclists to travel to destinations throughout County. To be effective and safe, the facilities must be used appropriately. For example, bicycle facilities are designed under the assumption that bicyclists ride the correct direction on streets and stop at red traffic lights. It is also assumed that motorists yield to bicyclists when turning and do not drive or park in designated bicycle lanes.

Therefore, it is not acceptable for bicyclists or motorists to disregard traffic rules. Breaking these laws puts bicyclists and other roadway users at risk. Strong enforcement of laws regulating the interaction between vehicles and bicyclists is essential to a safe bicycling environment. Efforts must be made to encourage a culture of respect and shared usage.

Education of drivers and bicyclists at all levels is a key element of this plan. The Dover/Kent County MPO should work with DelDOT and other applicable agencies to:

- Create an awareness campaign emphasizing the rules of the road pertaining to bicycles as a part of the larger transportation community, including placing bike safety messages in the Department of Motor Vehicle waiting rooms;

- Inventory existing programs and support and promote enhancement and expansion of current drivers education and bicycle safety programs in the Capital, Caesar Rodney, Lake Forest, Milford, and Smyrna School Districts;

- Partner with local universities and colleges for bicycle safety education; and

- Partner with Delaware State Police to ensure that the importance of enforcing the rules of the road for both motorists and bicyclists is included in cadet training.

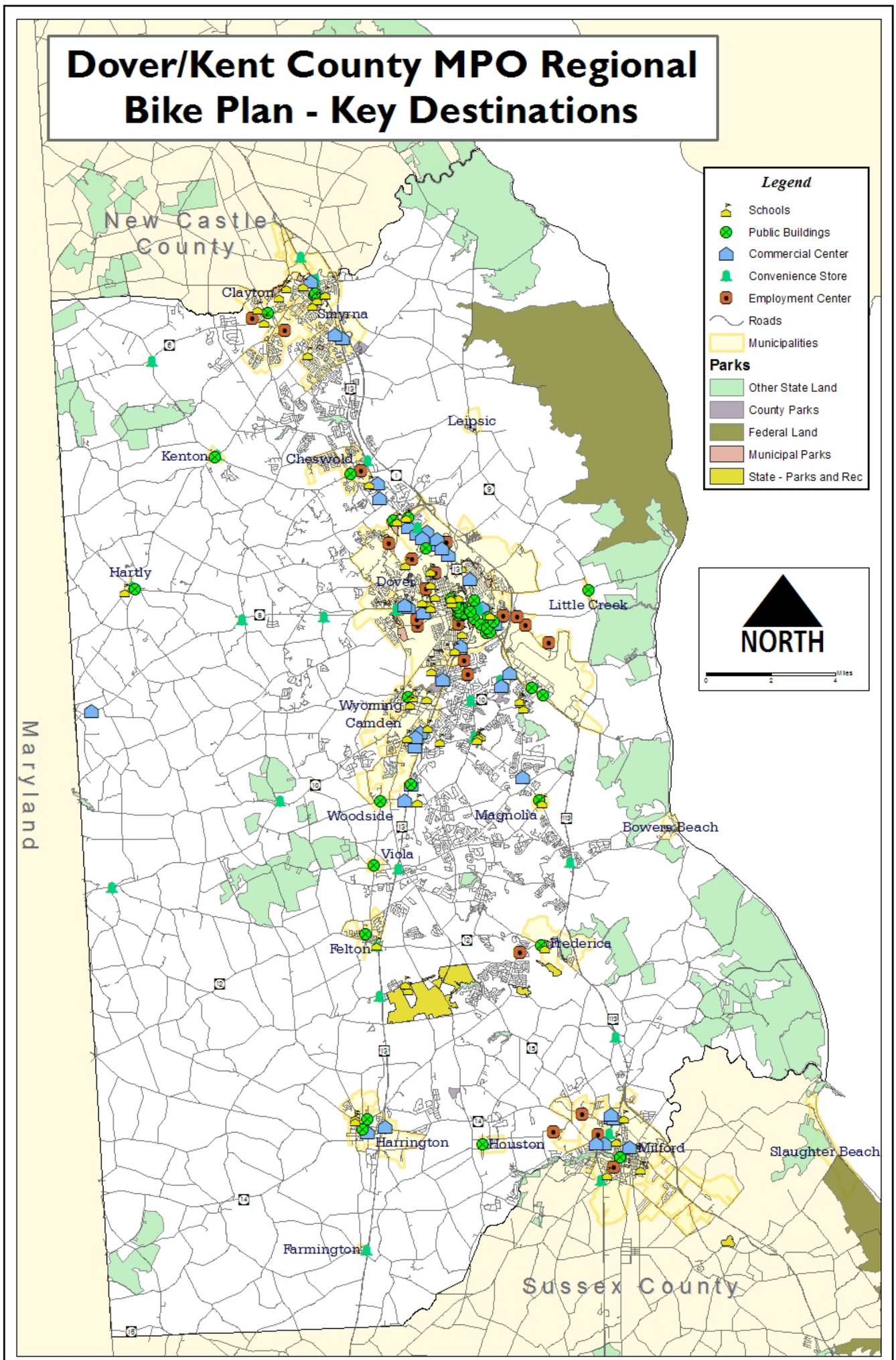

Dover/Kent County MPO Regional Bike Plan - Key Destinations
Legend
Schools
Public Buildings
Commercial Center
Convenience Store
Employment Center
Roads
Municipalities
Parks
Other State Land
County Parks
Federal Land
Municipal Parks
State - Parks and Rec
NORTH
New Castle County
Maryland
Sussex County
Clayton
Smyrna
Leipsic
Kenton
Cheswold
Hartly
Dover
Little Creek
Wyoming
Camden
Woodside
Magnolia
Bowers Beach
Viola
Felton
Frederica
Harrington
Houston
Milford
Slaughter Beach
Farmington

Figure 12

BICYCLE NETWORK IMPEDIMENTS AND GAPS

The regional bicycle network needs to connect riders with key destinations such as parks and recreational centers, schools, public buildings, employment centers and commercial/retail centers. Key destinations in the Dover/Kent County MPO region are shown in Figure 12.

There are two main types of impediments to bicycling:

- Physical Impediments
- Safety Impediments

Physical impediments include such things as railroads, rivers and highways, which reduce the options for crossing and tend to channel auto and bicycle traffic into close proximity. A river or a railroad track may block the neighborhood streets from continuing in a particular direction, where they might have connected to other neighborhoods. In some cases existing bridges can be retrofitted to accommodate bicycles, an example being the St. George's bridge on U.S.13 in New Castle County. In many cases, bicyclists must either travel out of their way to cross a physical impediment or use a roadway or bridge that may feel uncomfortable or be unsafe.

Many people will choose not to bike if they do not feel safe. In Kent County, lack of safety stems mainly from a lack of bicycle facilities or inadequate bicycle facilities where traffic is heavy and/or fast-moving.

The main types of safety impediments are listed below:

- Gaps in existing bicycle facilities
  - Bike lane disappears
  - Shoulder disappears
  - Shoulder striping disappears
  - No bicycle facilities at intersection
  - No bicycle facilities nor shoulder on road or significant road segment
  - Narrow shoulders, heavy auto traffic

Physical impediments can create safety impediments by limiting the number of crossings. This funnels auto traffic onto the crossings, increasing congestion, and often resulting in multiple lanes in each direction. The lanes get narrow and the shoulder disappears, making bicycle travel even more hazardous.

In the City of Dover, two impediments cause all travel modes to be funneled into the same road segments. East-west travel is funneled into 5 railroad crossings: College Road, Walker Road, Division St., Loockerman Street and North Street. The St. Jones River also impedes east-west travel, with crossings only at Division Street, Loockerman Street and Court Street. North-south travel is impeded by the St Jones River, with the only crossings being US 13 and N. State Street.

Safety and accessibility were the two most common reasons respondents to the MPO's survey gave as to where, or if, they choose to ride their bicycles.[15] Removing or mitigating impediments is key to improving safety and increasing bicycle use in Kent County.

Removing and Mitigating Impediments

Addressing existing bikeway gaps and discontinuities will improve both accessibility and safety and lead to increased bicycle usage for both transportation and recreation. Needed improvements include both system-wide improvements and site-specific fixes.

Systemwide improvements resolve region-wide problems that are not specific to location and can be approached more holistically. These include such things as bike rack policies, consistent signage and pavement markings, bike route cleanup programs, and replacing any unsafe manhole covers or storm sewer grates that are not bicycle friendly.

Site specific improvements will address the specific barrier or impediment in that road segment. The types of improvements include:

- Widening the road to add a paved shoulder or bike lane
- Adjusting allocation of pavement to allow for bike lanes or facilities
- Adding striping to shoulders
- Implementing sharrow markings for roads where bicycles will travel among the cars
- Share the road signs
- Removing on-street parking to increase the road width available for through traffic
- Identifying an alternative parallel route, such as a bicycle boulevard
- Adding an off-road path

Table 4 shows the types of improvements that can be used to mitigate or remove the safety impediments listed above.

[15] Dover Kent County Municipal Planning Organization, Survey, conducted Spring 2010.

Table 4. Improvements									
		Widen Road	Adjust Allocation of Pavement	Striping	Sharrows	Share the Road Signs	Remove On-Street Parking	Identify Alternative Parallel Route - Bike Blvd	Off-Road Path
Impediments	Bike Lane Disappears	x	x	x	x	x			
	Shoulder Disappears	x	x	x	x	x		x	x
	Shoulder Striping Disappears			x	x	x			
	No Bike Facilities @ Intersection		x	x					
	No Bike Facilities	x	x	x	x	x	x	x	x
	Narrow Shoulders, Heavy Auto Traffic	x	x		x	x		x	x

PROPOSED REGIONAL BICYCLE SYSTEM - PROJECT RECOMMENDATIONS

The following maps below show the proposed on-road and off-road bicycle systems for the Dover/Kent County MPO region.

To complete the proposed system, several different types of projects need to be undertaken:

- On-Road Projects
  - Projects that involved addition of shoulders and other construction issues;
  - Reallocation of lane width to accommodate bike lanes[16] ;
  - Striping of key intersections to direct bicycle traffic flow[17];
  - Signage and sharrows[18].

- Off-Road Projects
  - Construction of multi-use paths

[16] See description of bike lanes on p. 29.
[17] See intersection policy recommendation p. 31.
[18] See description of signage and sharrows on p. 30.

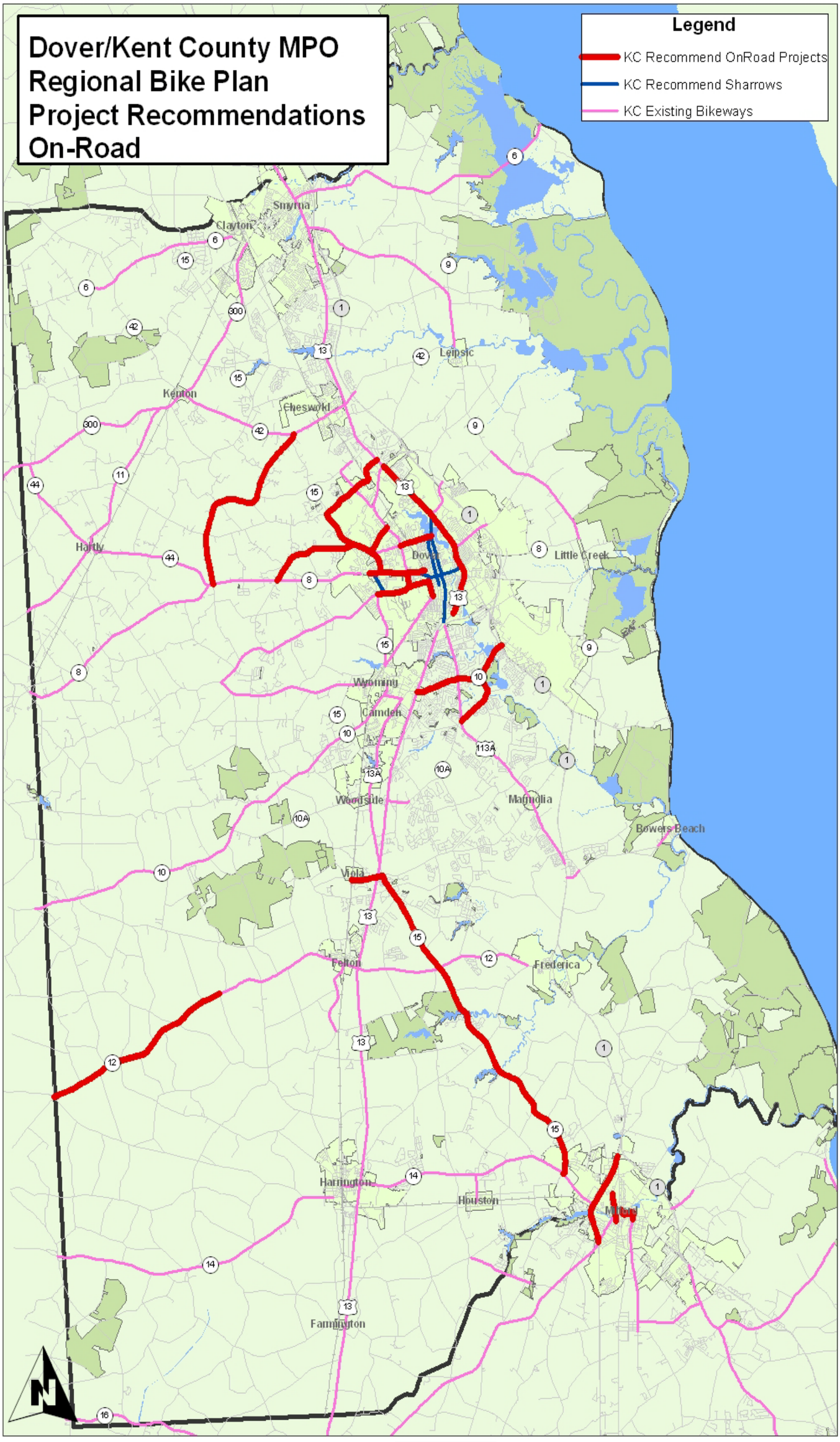
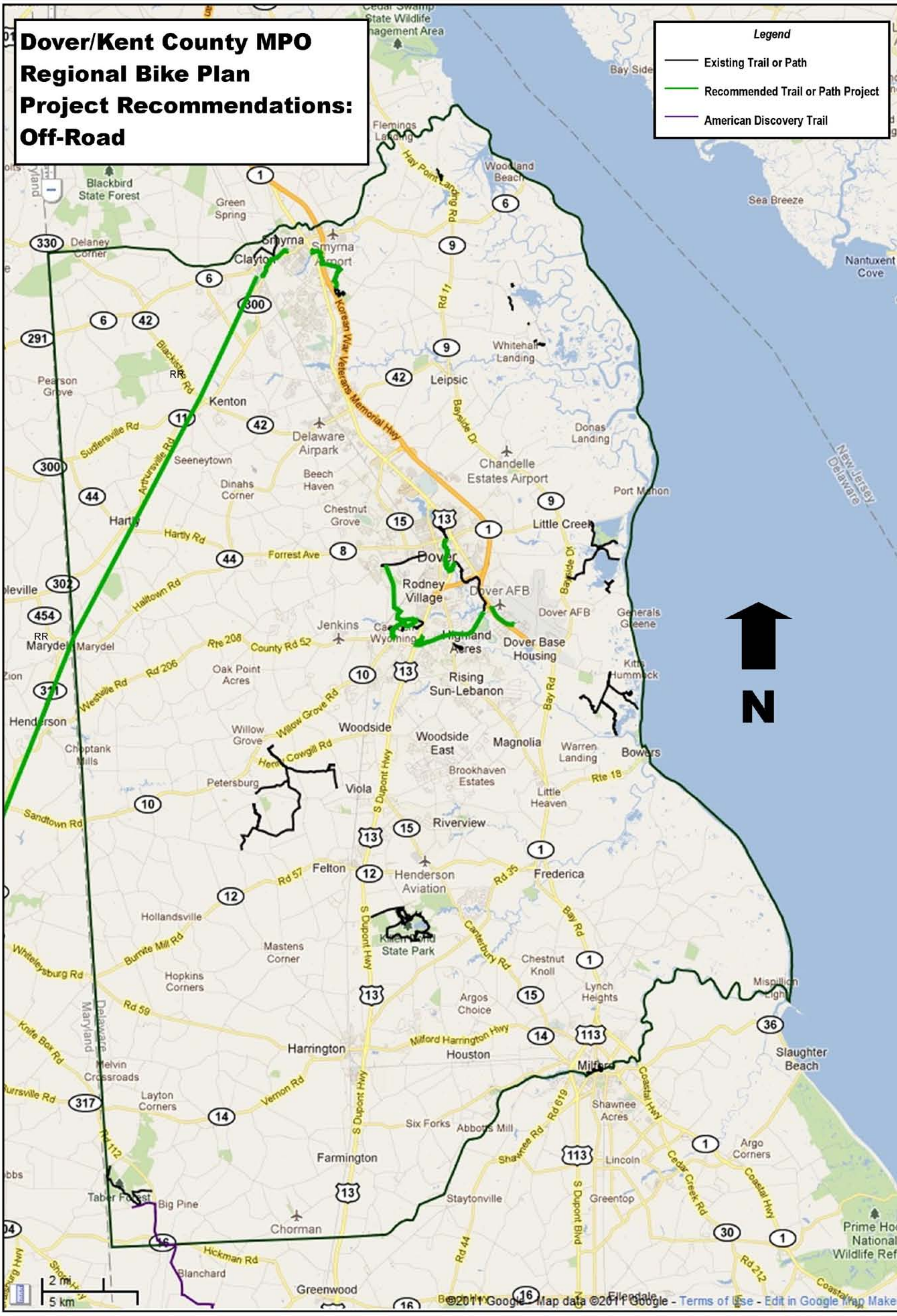

Dover/Kent County MPO
Regional Bike Plan
Project Recommendations
On-Road
Legend
KC Recommend OnRoad Projects
KC Recommend Sharrows
KC Existing Bikeways
Smyrna
Clayton
Leipsic
Kenton
Cheswold
Hartly
Dover
Little Creek
Wyoming
Camden
Woodside
Magnolia
Bowers Beach
Viola
Felton
Frederica
Harrington
Houston
Milford
Farmington

Figure 13



Dover/Kent County MPO
Regional Bike Plan
Project Recommendations:
Off-Road
Legend
Existing Trail or Path
Recommended Trail or Path Project
American Discovery Trail
N
Dover
Rodney Village
Dover AFB
Dover Base Housing
Smyrna
Clayton
Kenton
Leipsic
Felton
Harrington
Milford
Frederica
Magnolia
Killens Pond State Park
Korean War Veterans Memorial Hwy
Delaware
Maryland
2 mi
5 km
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Figure 14

Recommended On-Road Construction and Lane Width Reallocation Projects

The following projects include both construction and lane width reallocation in order to create bike lanes. The projects were reviewed and prioritized based on the review criteria included in Appendix C. They are presented in order of priority.

1. South West Street

South West Street is the location of the new Dover transit hub, but has no bicycle facilities to access the transit center. South from North Street (.40 miles) the road needs to be widened and a bike lane added, linking to the proposed bike lanes and multi-use path on North Street.

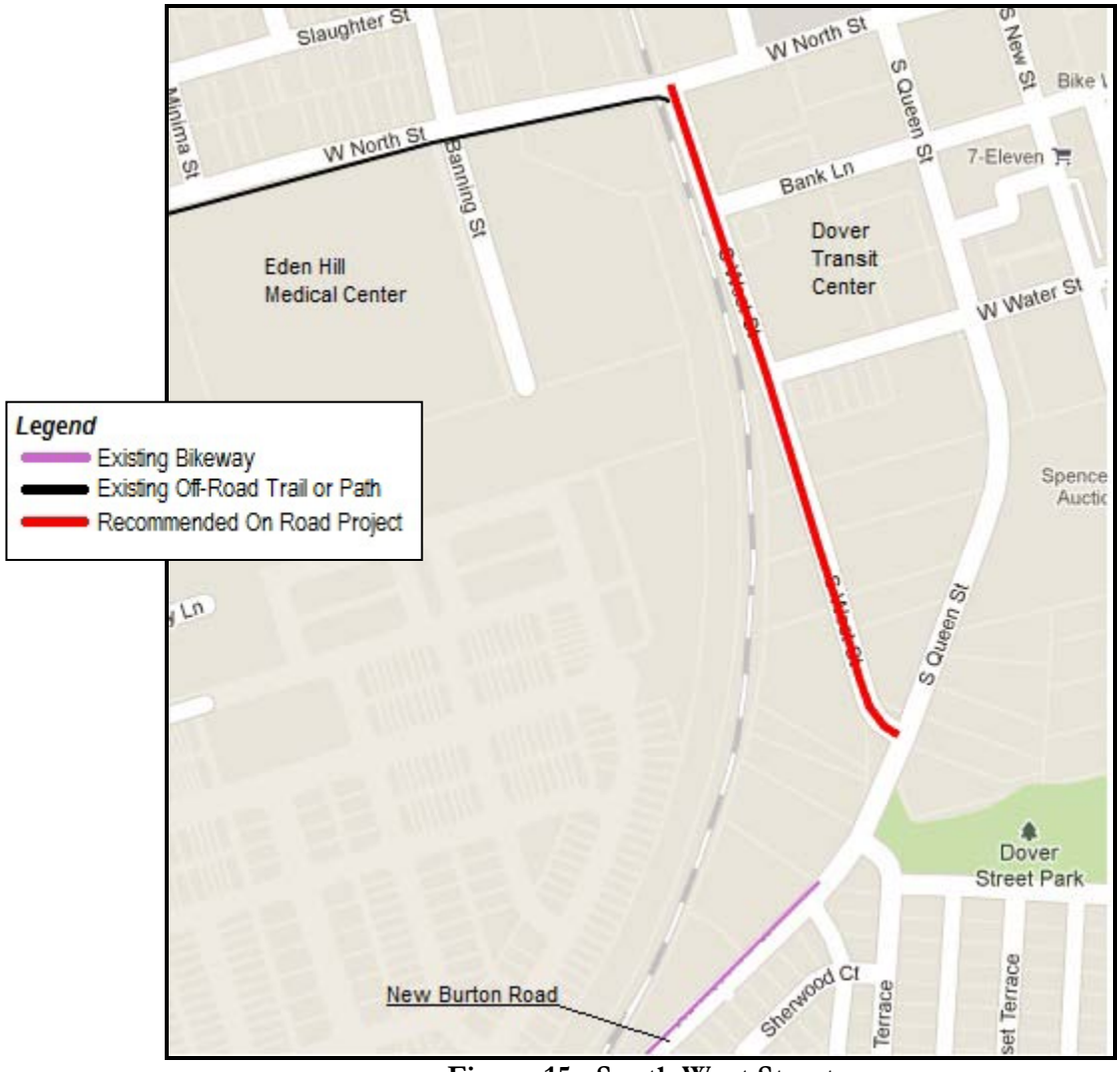

Figure 15. South West Street

2. US 13

US 13 is a major highway running north-south the length of the County, creating an impediment for bicyclists traveling east-west. Within Dover, US 13 is the main road to access many shopping and employment areas, but has no bicycle facilities and very heavy, fast-moving automobile traffic.

Scarborough Rd to Puncheon Run (4.61 miles) - Lane width should be reallocated to add bike lanes north and south-bound through this road segment during the upcoming road resurfacing project scheduled for spring 2012.

Intersections - To facilitate bicycles crossing US 13, bike lanes or directional markings should be added to cross streets at all intersections with traffic signals. Bike lanes are the preferred option.

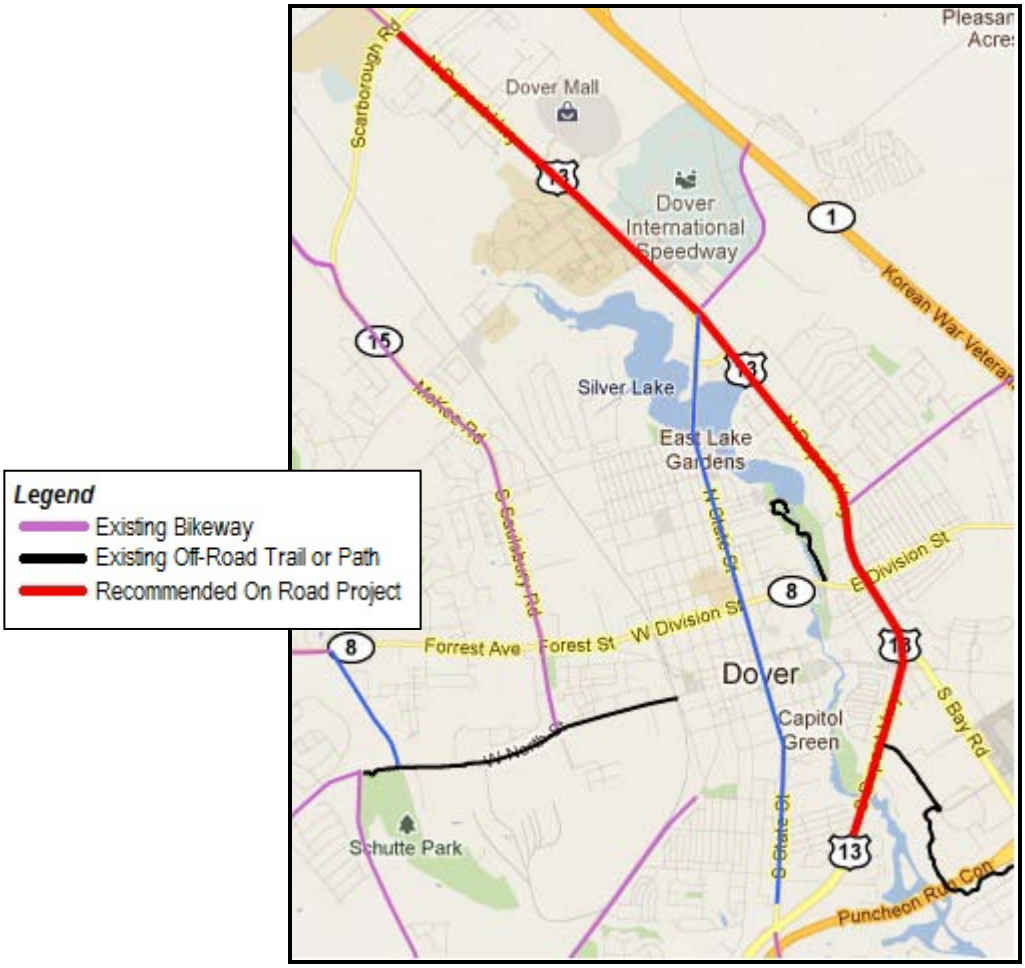

Figure 16. US 13

3. West Denney's Road

West Denney's Road is an east-west road connecting US 13 and Delaware Technical and Community College with existing and planned residential development west and north of Dover. The road segment between US 13 and Kenton Road is a winding, narrow 2-lane road with no shoulders but significant bicycle traffic.

Kenton Road to US 13 (2.2 miles) - widen the road to add bike lanes.

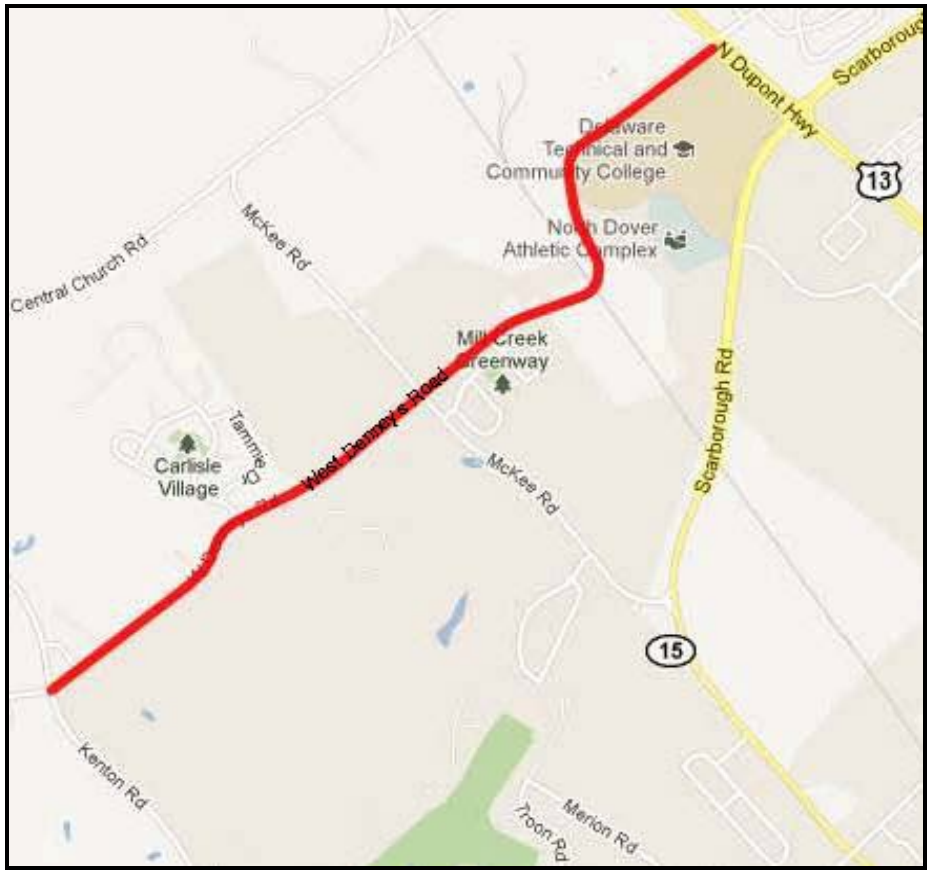

Figure 17. West Denney's Road

4. State Street

The segment of State Street south from US 13 to Walker Road has no bicycle facilities and very limited shoulders, and heavy, fast-moving traffic. In addition, the road is constrained by the bridge over Silver Lake. Between US 13 and Walker Road (approx .5 miles) - Reallocate lane width to add a bike lane.

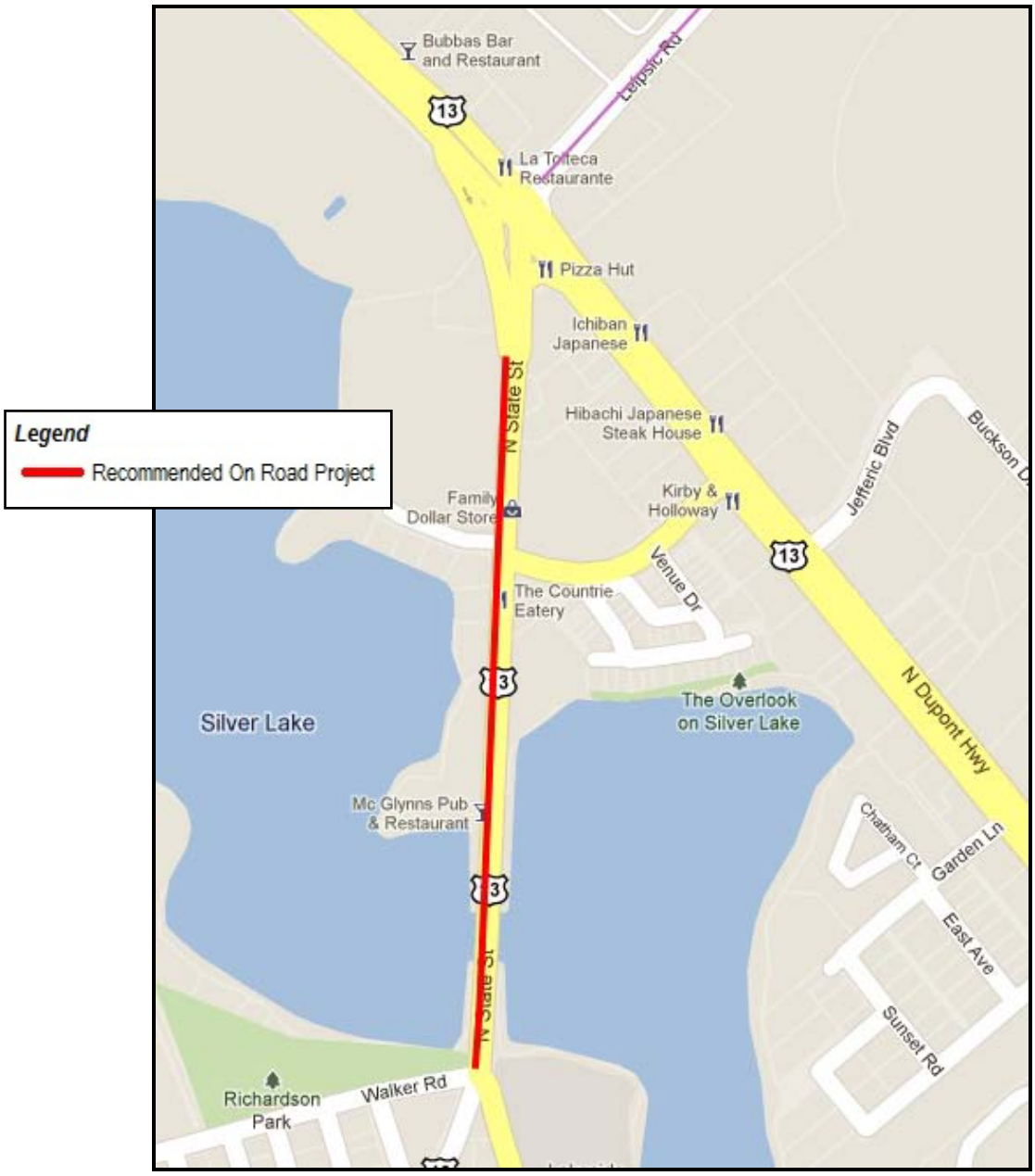

Figure 18. State Street

5. DE 8/Forest Ave

DE 8 is one of the major east-west routes through Dover. Between the railroad tracks and Kenton Road, DE 8 has no bike facilities, no shoulders and heavy auto traffic. The road will also be one of the main access roads to the new Dover High School.

Railroad tracks to Heatherfield Way (1.8 miles) - reallocate lane width to add bike lanes.

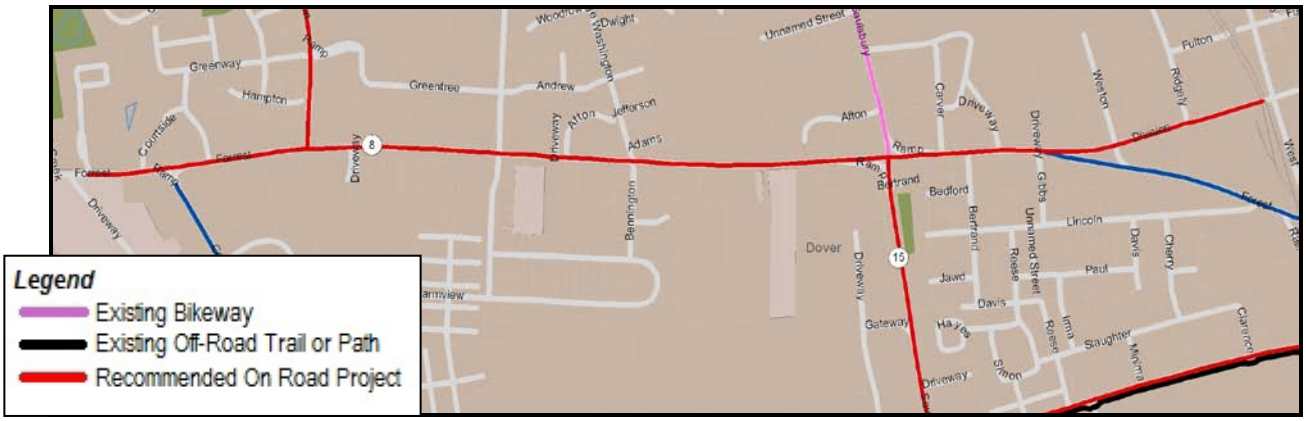

Figure 19. DE 8/Forest Avenue

6. Walker Road

Walker Road is a major east-west route connecting State Street and neighborhoods on the west side of the city. The road also has an elementary school and Dover High School. Between State Street and Saulsbury Road, Walker Road has a wide outside lane, no shoulders and moderate auto traffic. There is a bike lane between Saulsbury Rd and Kenton Road.

State Street to Saulsbury Road (approx. 1 mile) - reallocate lane width to add bike lanes.

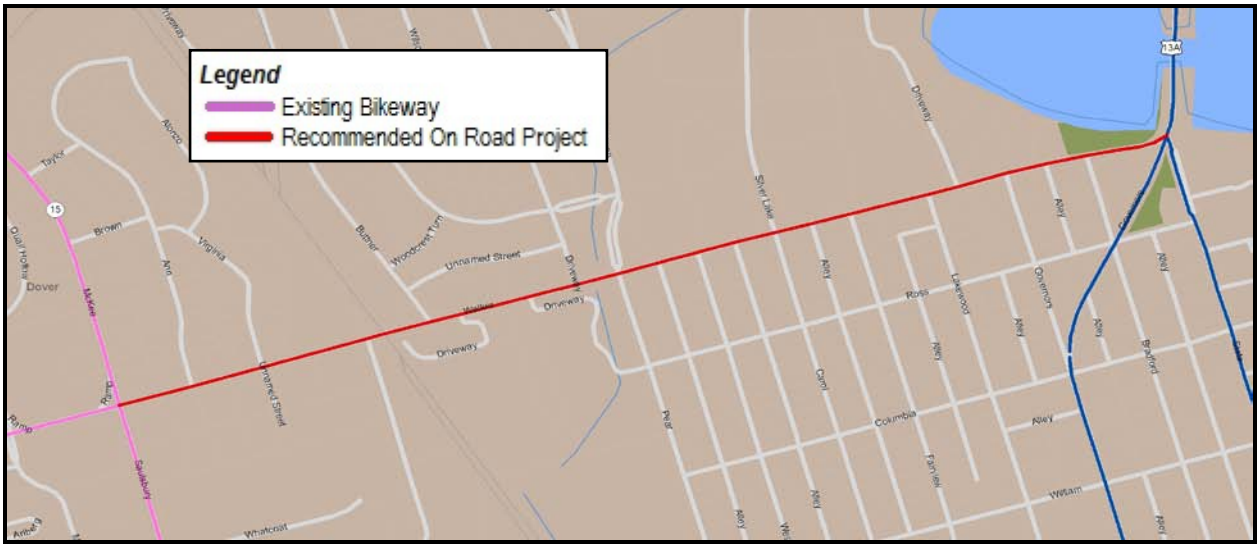

Figure 20. Walker Road

7. North Street

North Street/Hazlettville Road is a major route utilized to access Dover from the west. There is currently a multi-use path running on the eastbound side of the road between Shutte Park and the east end of the Eden Hill property. From the end of the multi-use path across the railroad tracks, the road is narrow and busy. On the westbound side, there is neither shoulder nor multi-use path, except for a short segment of bike lane between the railroad tracks and Minima Street.

Wyoming Mill Road to Railroad tracks (1.51 miles) - Bike lanes and a clear transition from the multi-use path to North Street need to be added.

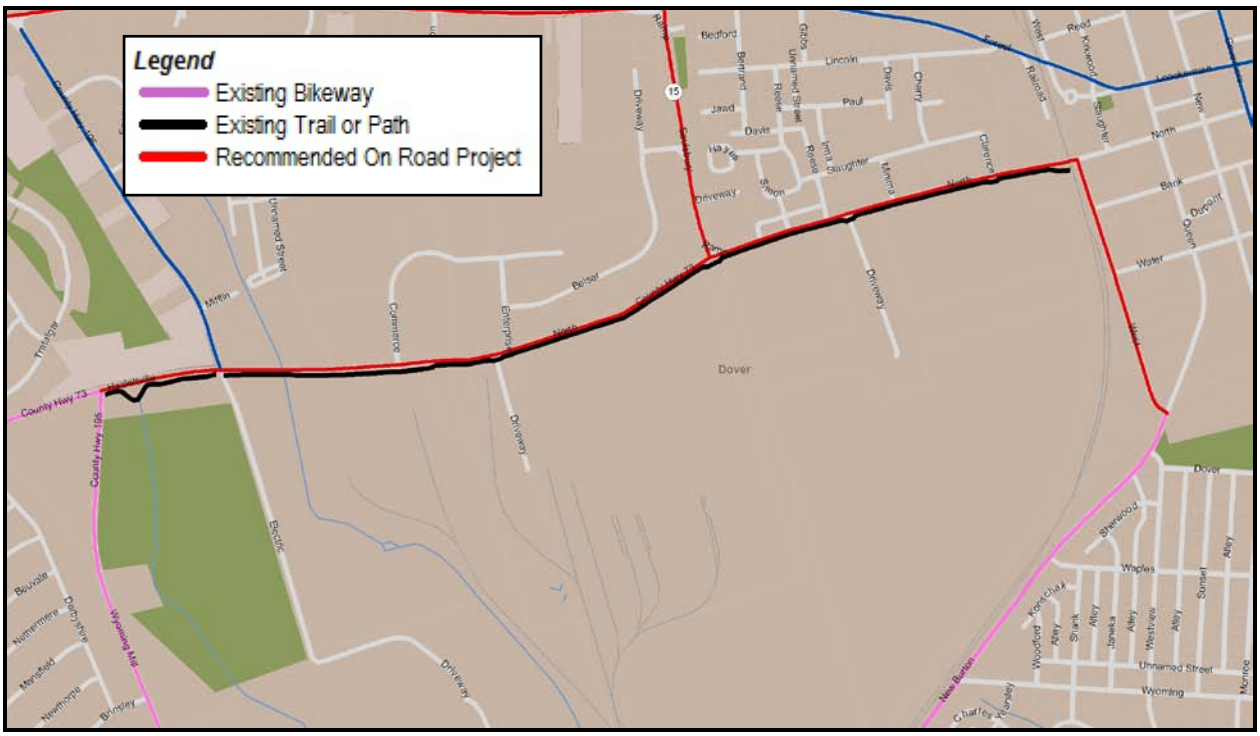

Figure 21. North Street

8. College Road

College Road is the main road, other than US 13, accessing Delaware State University, and serves as a connector from West Dover to commercial areas on US 13. The road segment west of McKee Road has no bike facilities, no shoulders, and heavy auto traffic. Between McKee Road and Dover-Kenton Road (0.81 miles) the road needs to be widened and a bike lane added.

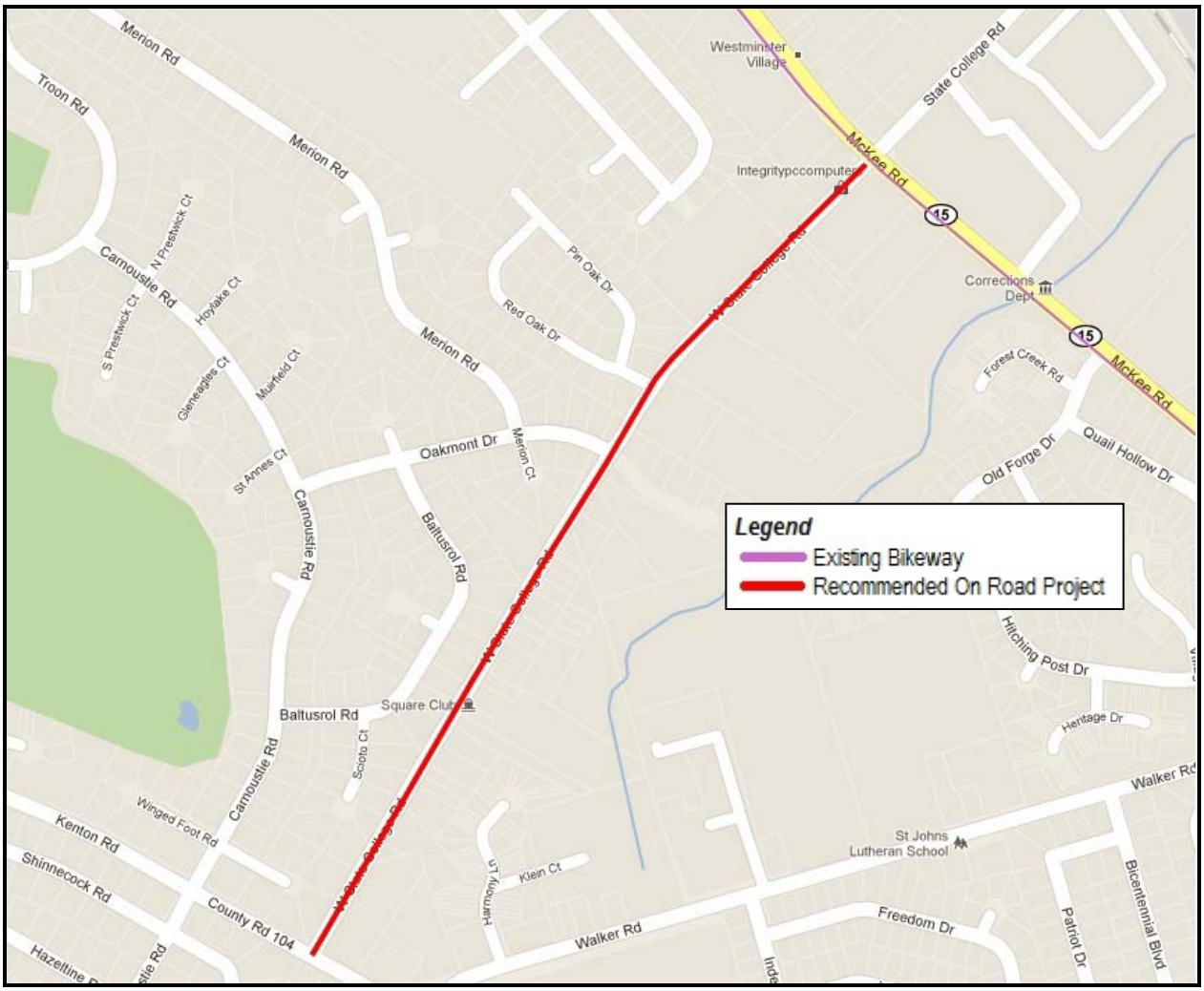

Figure 22. College Road

9. DE 10

DE 10 is the main road connecting Dover AFB with the towns of Camden and Wyoming. There are several schools just off the route. A key area of concern is the bridge over the St. Jones River; there are no shoulders on westbound side, and no bike facilities and heavy, fast-moving auto traffic in both directions. Eastbound the shoulder should be marked as a bike lane, westbound, lane width should be reallocated to add a bike lane. Ideally, the speed limit on the bridge should also be reduced. A continuous bike lane should be added in each direction between US 113 and US 13 (2.9 miles).

Figure 23. DE 10

10. Riverwalk

To connect existing residential development with the Downtown and the Riverwalk, and in conjunction with the Safe Routes to Schools Program, bike lanes need to be added to connect Banneker and Lulu Ross elementary schools with the Riverwalk.

1. From Lulu Ross Elementary School using Lovers Lane to SE Front St to Marshall Street to the Riverwalk (.83 miles).
2. From Banneker Elementary School using Church Street directly south to the Riverwalk (.63 miles).

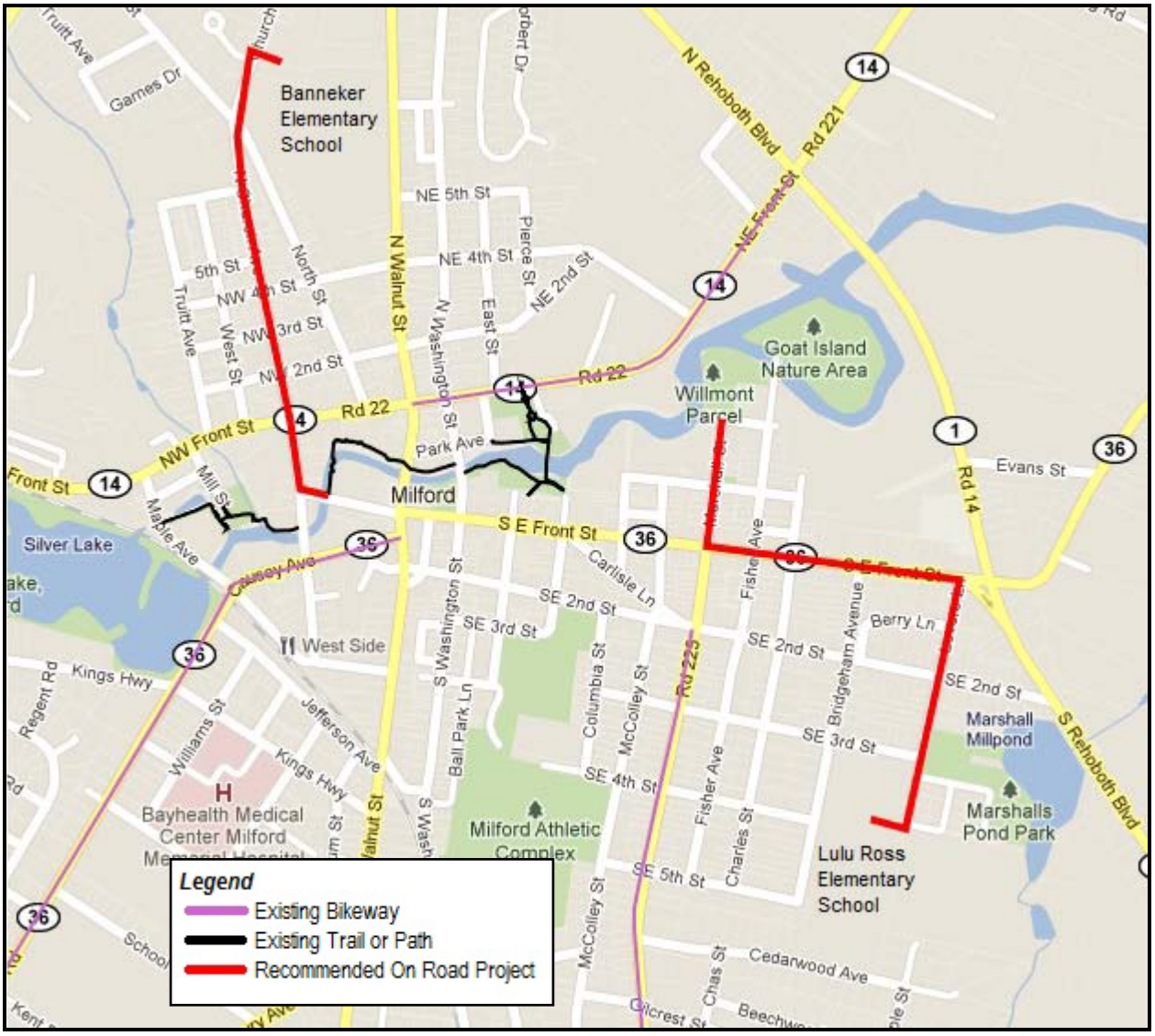

Figure 24. Milford Riverwalk

11. Saulsbury Road

Running between North Street and US 13, Saulsbury Rd/McKee Rd/Scarborough Rd connects Delaware Tech and shopping areas to West Dover, and connects to each of the main east-west routes through Dover. One problem point on the road is that the bike lane disappears just south of Rt 8 and the striped shoulder disappears halfway down block. The existing bike lane needs to be continued south of Route 8 and marked along the full length of the road (3.57 miles), including through the intersections at Walker Road, College Road, the railroad bridge and Crawford Carroll Avenue.

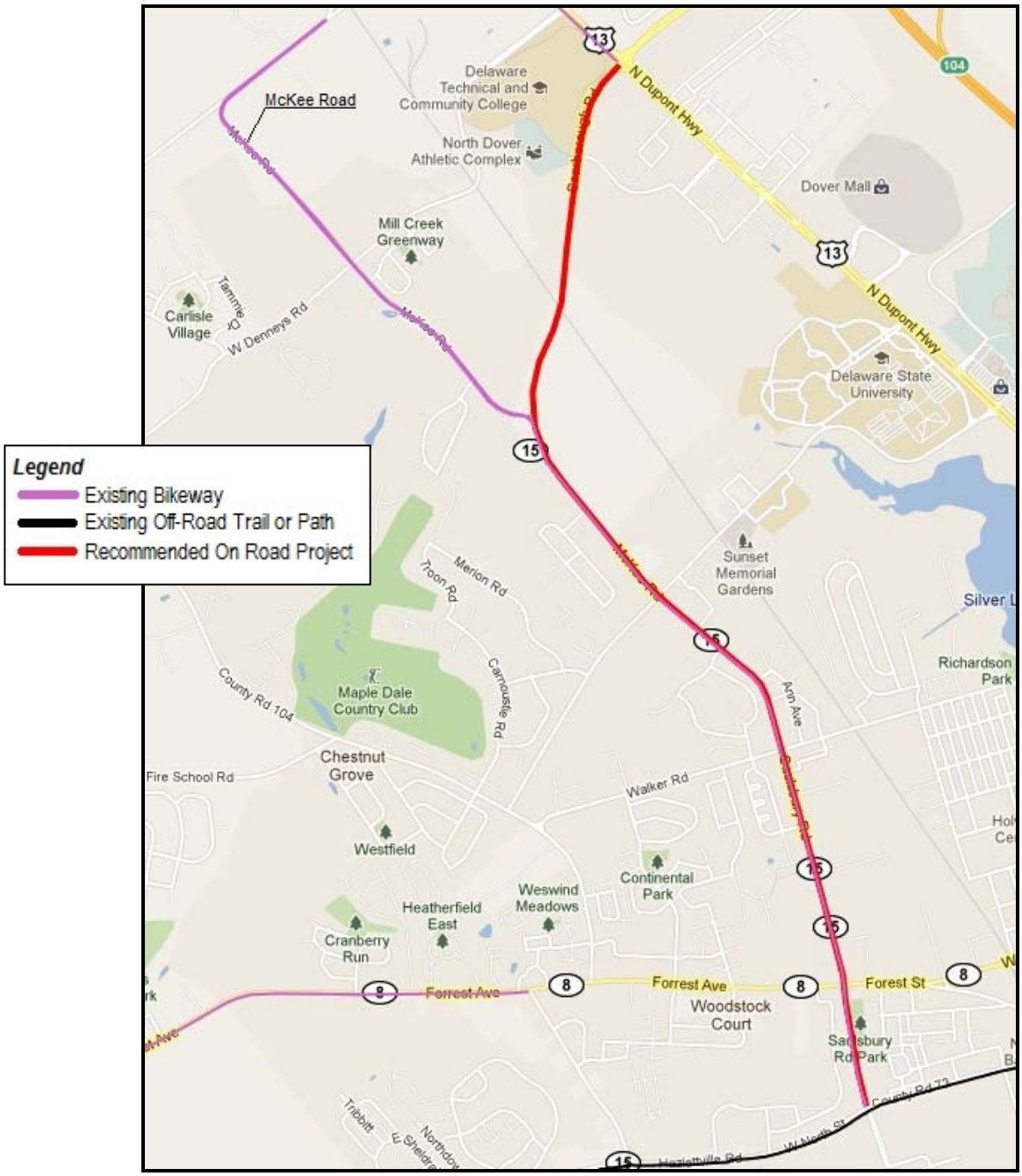

Figure 25. Saulsbury Road

12. US 113 - Milford

US 113 is the main north-south route through Milford, connecting numerous shopping areas. The road has no bicycle facilities and fast, heavy auto traffic. From SR1 south through to DE 36 (2.7 miles) a bike lane needs to be marked and/or added.

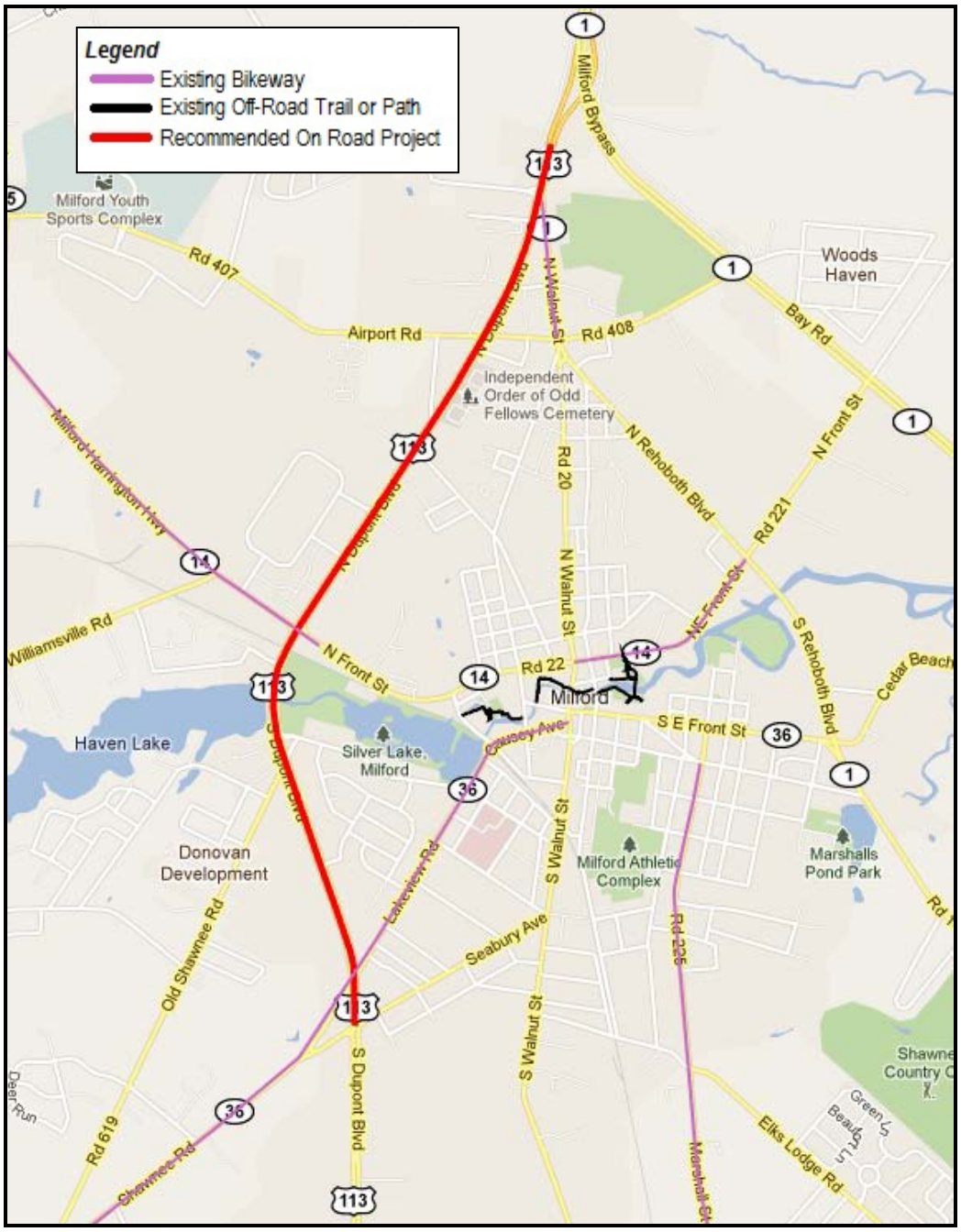

Figure 26. US 113 - Milford

13. Kenton Road

Kenton Road is a key commuting route for residents northwest of Dover, as well as a key route for recreational bicyclists. The road has no bicycle facilities and no or narrow shoulders and heavy, fast-moving automobile traffic. DE 8 to Denney's Road (2.35 miles) - lane width should be reallocated and the road widened if necessary to add a bike lane, including adding bike lane markings at the intersection with DE 8

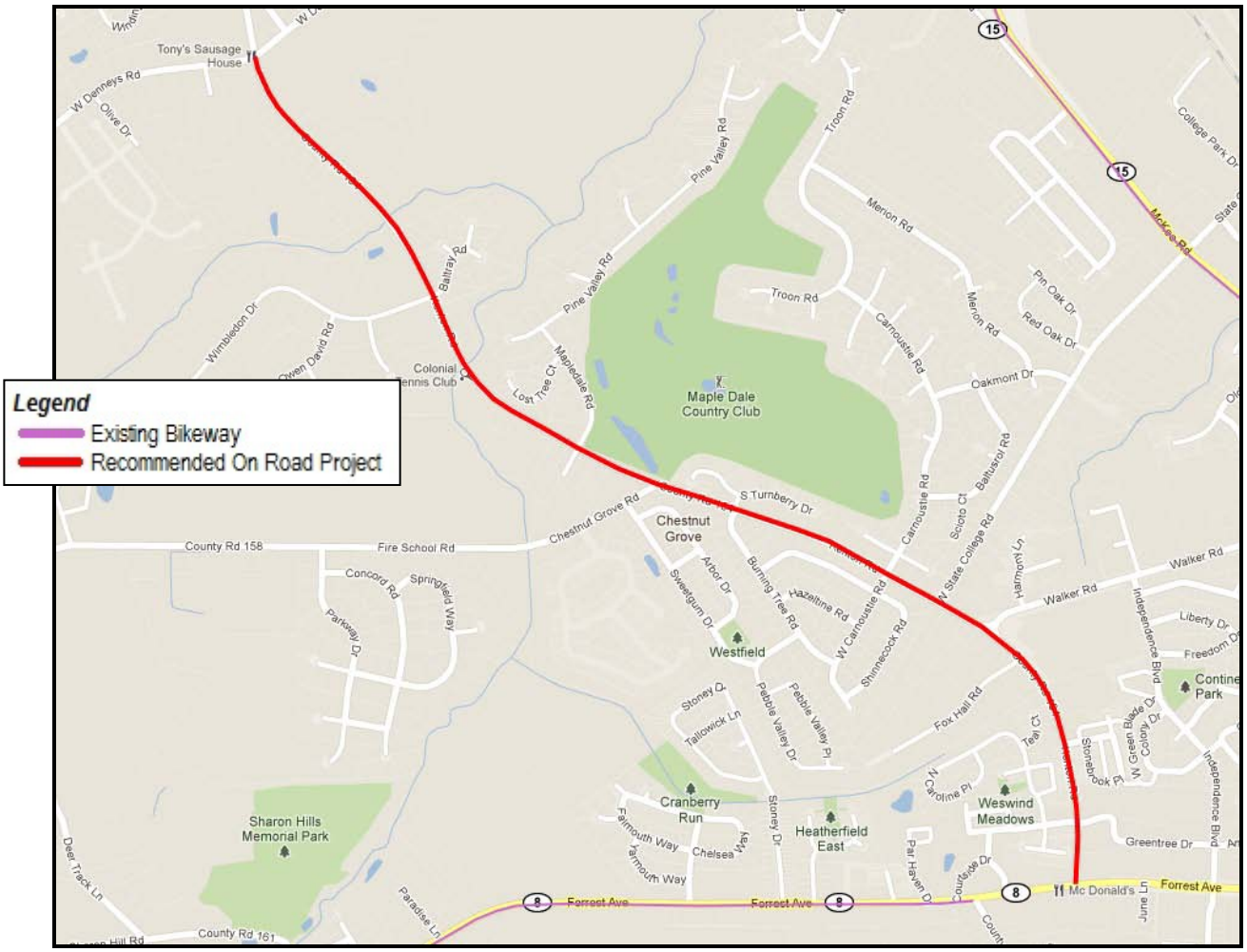

Figure 27. Kenton Road

14. Sorghum Mill Road

Sorghum Mill Road is part of the St. Jones Greenway trail system. The causeway connects from the Hunn Family Farm House to the Lebanon Landing Boat Ramp. From there a pedestrian bridge crosses over the St. Jones River to Old Lebanon Road. This road can be used by bicycles for approximately 2 miles until the path is blocked by the DAFB housing project. Sorghum Mill Road continues west to the small town of Lebanon and continues to multiple housing developments (Locust Grove, Eagle Meadow, and Quail Landing) as well as an elementary school, a middle school and the John S. Charlton facility. Between DE 10 and the Hunn Property (1.65 miles), the causeway needs to be widened and a bike lane added.

Figure 28. Sorghum Mill Road

15. Pearsons Corner Road

Pearsons Corner Road is a significant recreational biking road which is also used by horse and buggies and large trucks. The road has no bicycle facilities, no shoulders and moderate automobile volume. Between DE 8 and DE 42, Pearsons Corner Road needs to be widened to add striped shoulders.

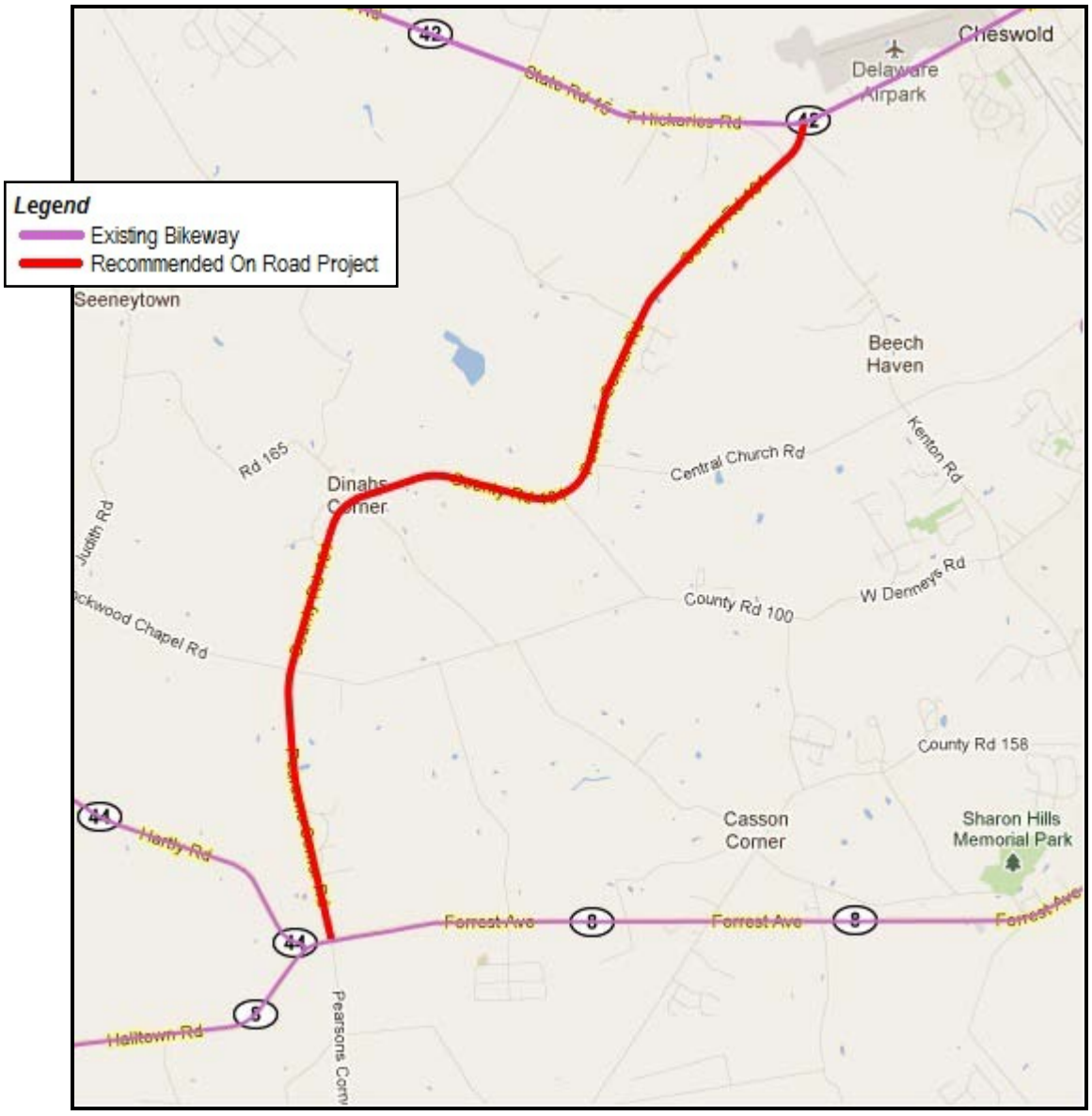

Figure 29. Pearson's Corner Road

16. Chestnut Grove Road

Chestnut Grove Road is a main connector route, used by automobiles, bicycles, and horse and buggies, from west of Dover to the northern commercial areas on US 13. The road has no bike facilities, no shoulders, and fast, moderate volume auto traffic. Between Kenton Road and DE 8 (2.59 miles) the road needs to be widened and striped shoulders added.

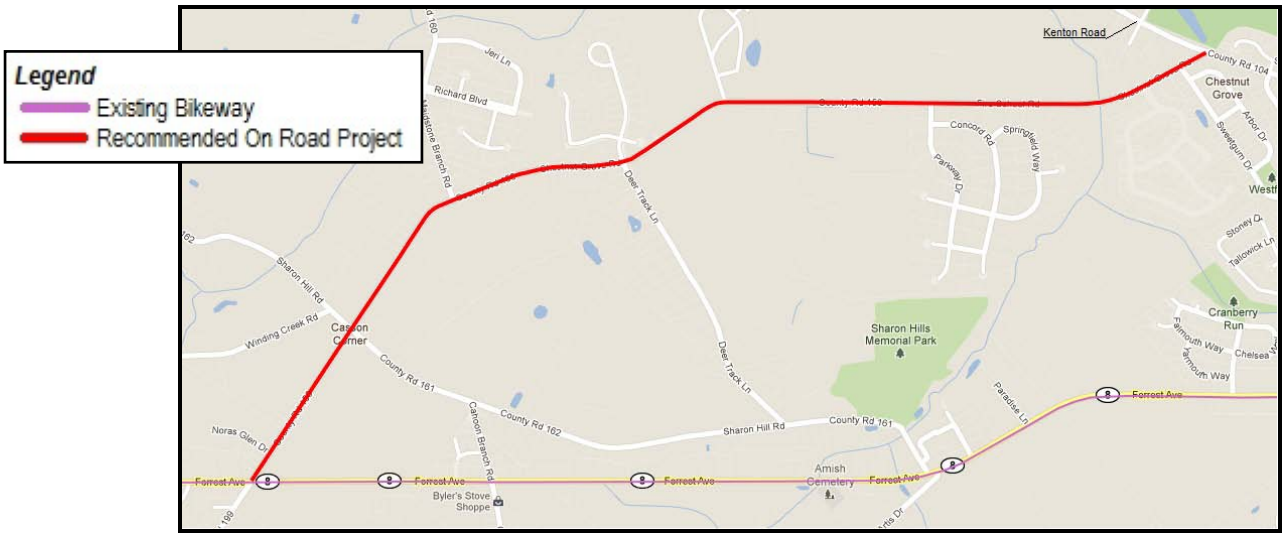

Figure 30. Chestnut Grove Road

17. DE 12

DE 12 is a main mid-county east-west bicycling route. West of Felton, the road has no bike facilities, no shoulders, and fast, moderate volume auto traffic. From Black Swamp Road to the Maryland line (10.75 miles), the road needs to be widened and striped shoulders added.

Figure 31. DE 12

18. DE 15

This segment of DE 15, a major north-south bicycling route, has no bike facilities, no shoulders, and fast, moderate volume auto traffic. From Viola to Airport Road (5.72 miles), the road needs to be widened and striped shoulders added.

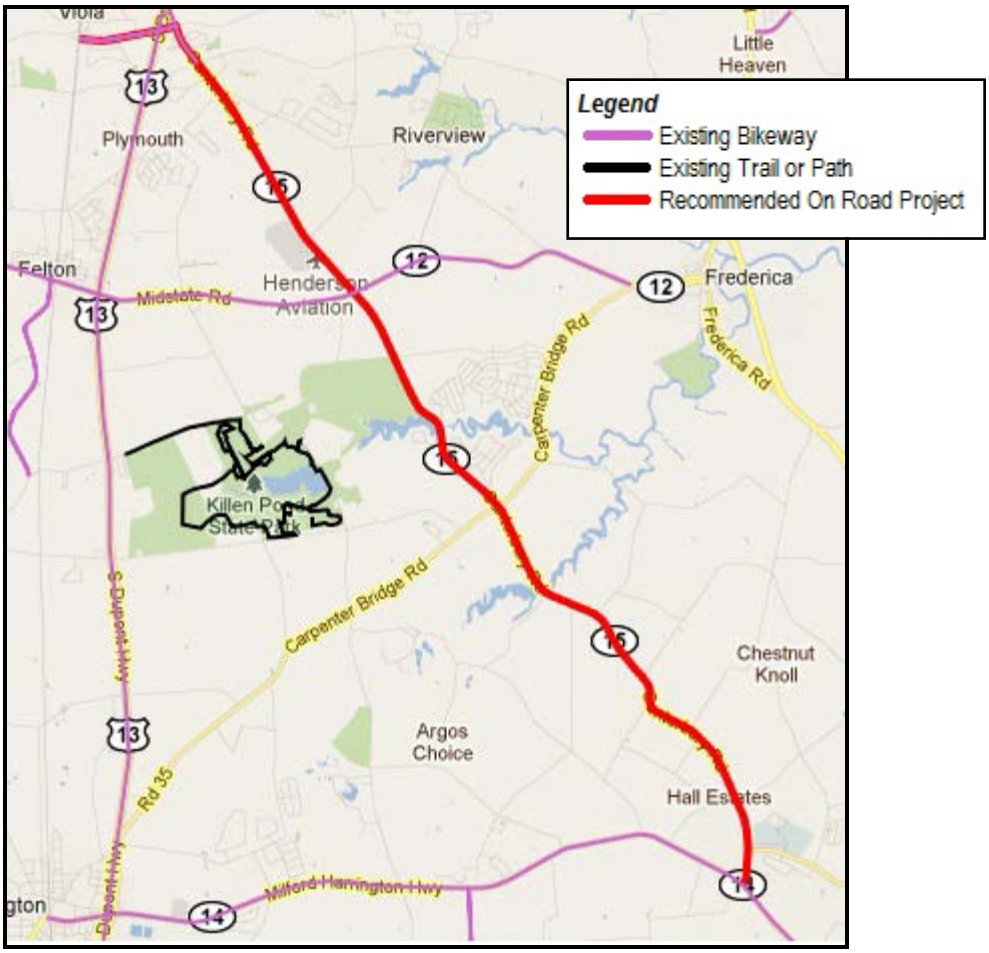

Figure 32. DE 15

Intersections

There are intersections along main bicycling routes that have high traffic volumes and the bicycle routing through the intersection may be unclear. The intersections listed in Table 5 and shown on Figure 33 should be striped to show the routing bicycles should take through the intersection. Although all the intersections need to be addressed, the ones with bile lanes leading to the intersection are the highest priority.

Table 5. Intersections Needing Bike Lanes or Directional Markings		
Saulsbury Rd./ DE 15	North Street to College Rd	No bike facilities at most intersections
US 13	Length of Kent County	US 13 is a four-lane divided highway with a median. Traffic volumes along this highway are high, and the posted speed is 50 mph.
DE 12	Intersection with US 13 in Felton	US 13 is a four-lane divided highway with a median. Traffic volumes along this highway are high, and the posted speed is 50 mph.
Rehoboth Blvd	Intersection of Warner Rd (K406) & US113	Warner Road (K406) & US 113 - traffic volumes are heavy along this segment of US 113. As Warner Road crosses US 113 right where it forks between US 113 and SR 14, the geometry of the intersection may confuse bicyclists traveling through the area for the first time.
10th Street, Milford	Intersections with US 113 and SR1	No bicycle facilities. 10th Street is a city-planned bike route.
DE 6 - Smyrna	Intersection of DE 6 and US 13	There are only two narrow lanes (10 feet) with turn lanes. There is no shoulder or extra space available for bicycle travel.
DE 14	Intersections with US13, US113, SR1	At its intersection with US 13, US 13 is a divided highway, with restaurants located in the median. The access points to these restaurants may create conflicts with bicycle traffic.
US 113A, S. State St.	Sorghum Mill Rd north to SR 1 bridge	No bike facilities at most intersections, fast auto traffic
DE 42	Kenton to Cheswold	No bike facilities through intersections, fast, heavy auto traffic

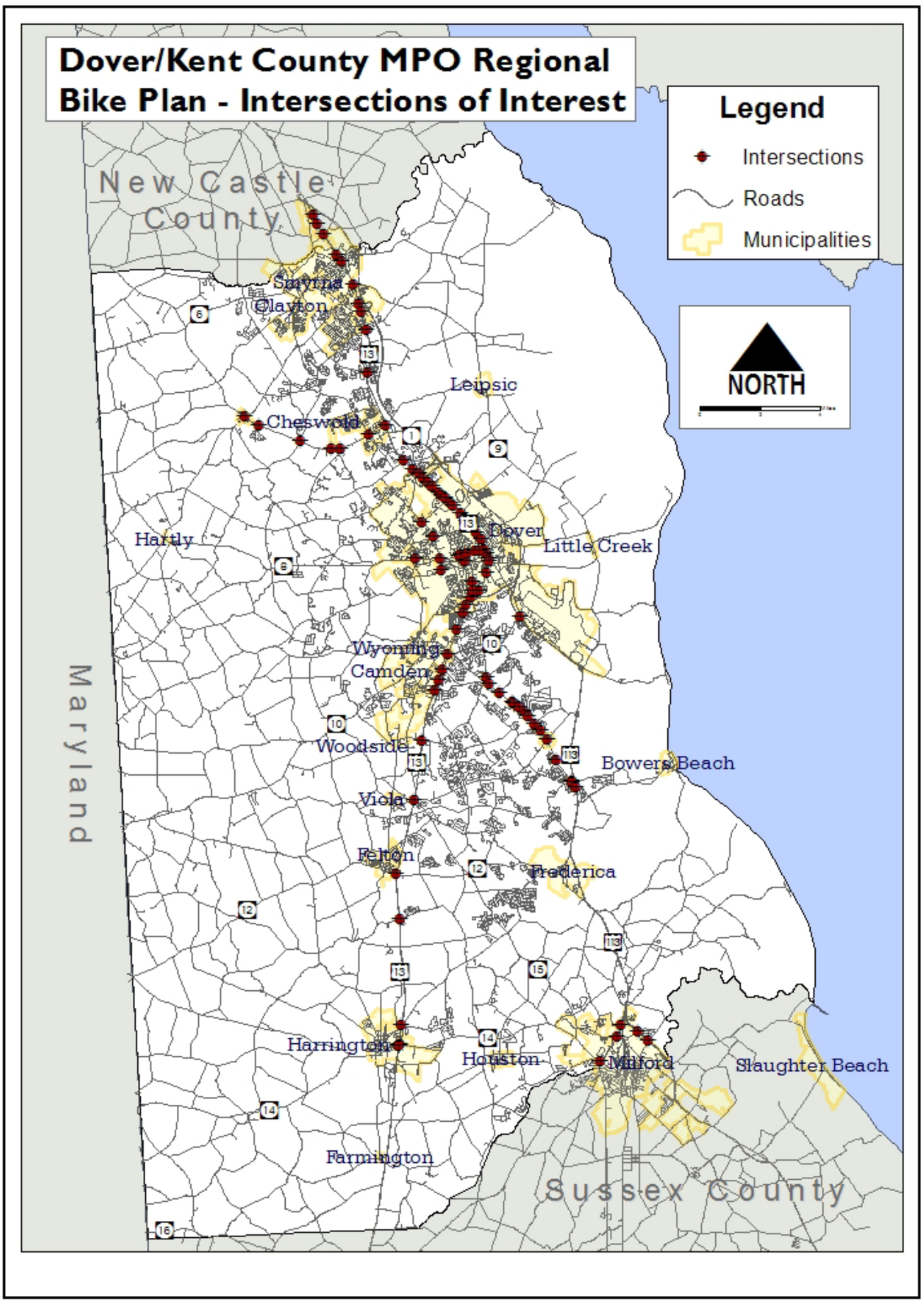
Dover/Kent County MPO Regional Bike Plan - Intersections of Interest
Legend
Intersections
Roads
Municipalities
NORTH
New Castle County
Maryland
Sussex County
Smyrna
Clayton
Leipsic
Cheswold
Hartly
Dover
Little Creek
Wyoming
Camden
Woodside
Bowers Beach
Viola
Felton
Frederica
Harrington
Houston
Milford
Slaughter Beach
Farmington

Figure 33

Sharrows and Signage

There are significant routes that bicyclists take in the County which are on roads that are not viable candidates for separate bike lanes. The vehicle traffic on these streets travel at speeds conducive to sharing the road with bicyclists (35 MPH or less), which make sharrows the appropriate bicycle facility.

The roads and road segments identified in the planning process as being in need of sharrows are listed in Table 6. Bicycle flow through key intersections on these roads should also be marked. Since the addition of sharrows only requires pavement markings, it is recommended that DelDOT or the appropriate local government add sharrows to these roads within the next year.

Table 6. Roads Identified for Sharrows

Road	Location/Segment
State St. - Dover	US 13 south to US 13, including intersections with Walker Rd, Division St, Loockerman St, North St, and Water St. (3.00 miles)
Governors Ave - Dover	Walker Rd to Water St, including intersections at Division St and Loockerman St. (1.35 miles)
Division St. - Dover	US 13 to RR (1.53 miles)
Loockerman St. - Dover	Division to US 13 (1.36 miles)
DE 10 - Camden/Wyoming	US 13 to railroad on west side of Wyoming
BICYCLE ROUTE 3 - Harrington	Within Harrington (3.55 miles)

DE 9 runs the length of the county and is designated as a scenic byway. The road has no shoulders and addition of shoulders for bike lanes is not under consideration. To alert cars to the presence of bicyclists, "Share the Road" signs should be added along the full length of the route through the count.

Marshall Street in Milford, between Elks Lodge Road and SE 2nd Street has shoulders wide enough for bike lanes, the lanes marked for part of the route; the road simply requires marking the rest of the segment as bike lanes.

Recommended Off-Road Projects

1. Silver Lake/St. Jones Connector

This 1.7 mile connector would create a link through the center of the state's capitol from the Silver Lake trail (.5 mi) and the St. Jones trail (2.66 miles) with very few road crossings. At the south end, the trail would parallel US 13 to the St. Jones River and cross under the highway at the bridge. The route requires construction of 2 bike bridges across the St. Jones River, one just south of Division St and the other near US 13.

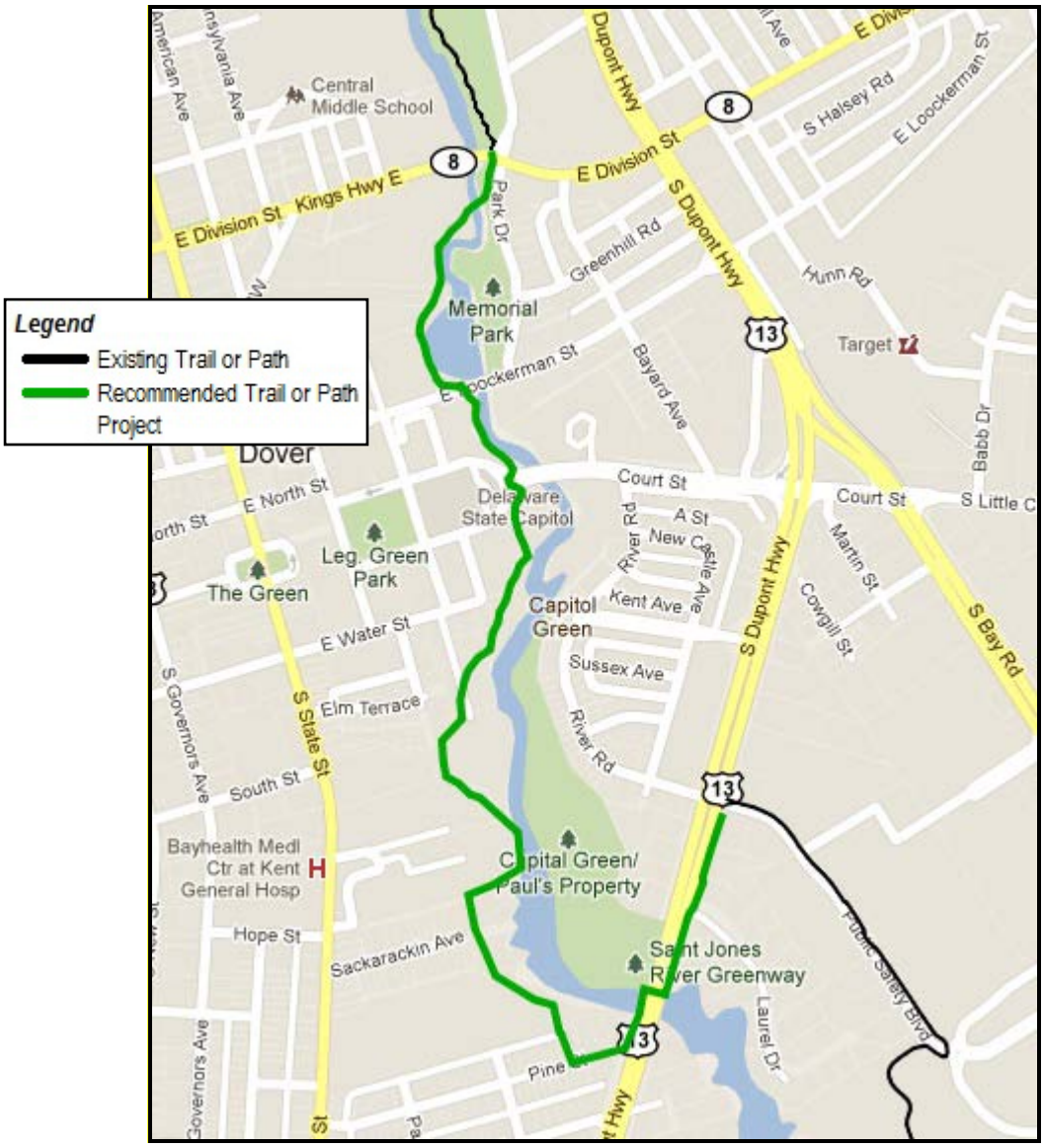

Figure 34. Silver Lake/St. Jones Connector

2. Camden to Dover Trail

The Camden to Dover Trail (4 to 4.5 miles depending on route), would connect from Camden-Wyoming Ave to North St in Dover. A completed trail along this corridor would connect schools, parks (including Brecknock, Schutte and the proposed County park adjacent to Brecknock) and transit facilities. The trail would take advantage of preexisting trail connections (Brecknock Park to Fifer Middle School) and the proposed Dover Western Connector. The Trail would also provide connections to other on road facilities, and an additional connection to the proposed SR 10 trail would help to provide a loop.

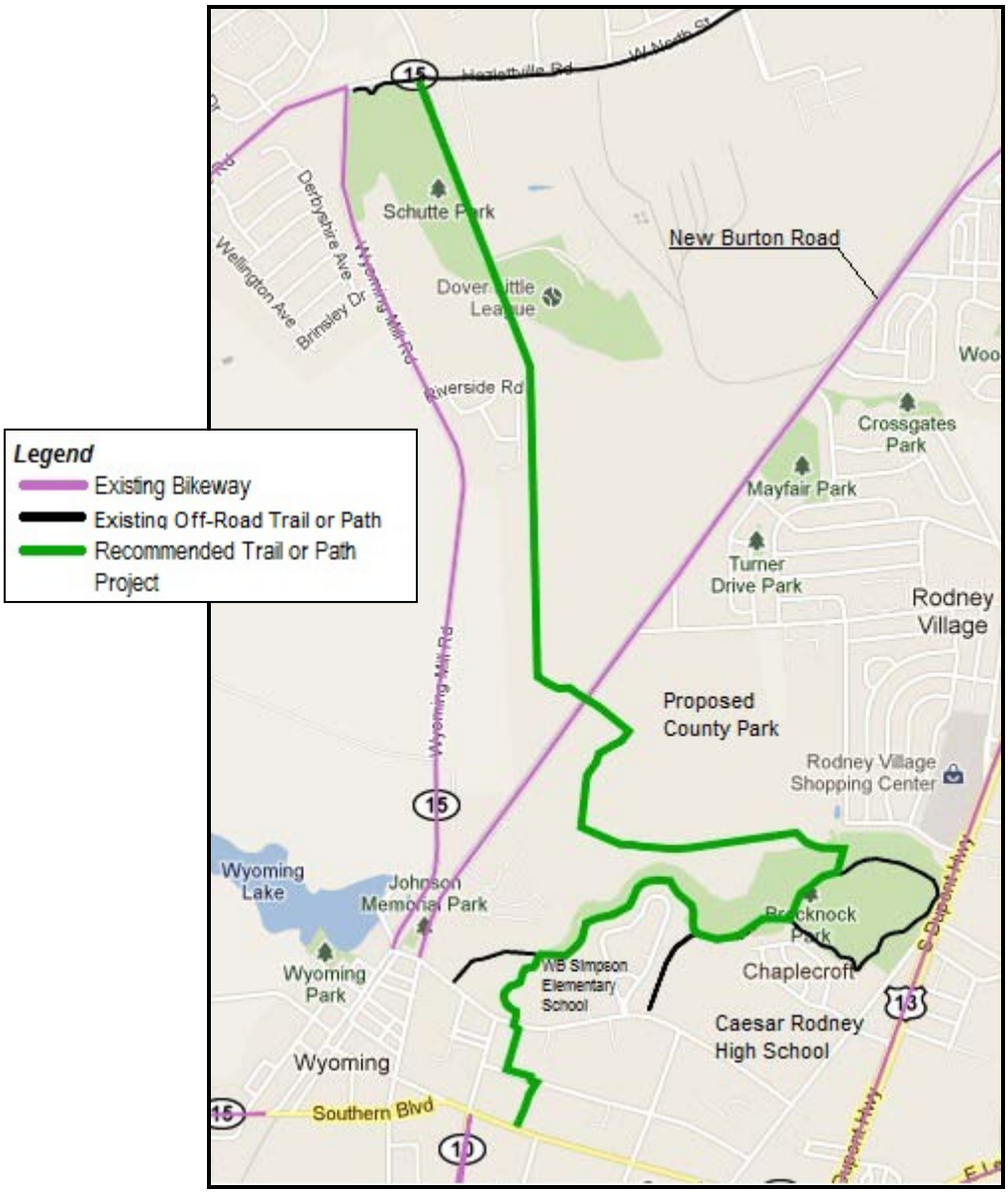

Figure 35. Camden to Dover Trail

3. Dover Air Force Base Trail

The Dover Air Base Trail (1.02 miles) will run along the Route 1 section of the outside of the Dover AFB fence line extending from the North Gate Intersection to the Main Gate. Currently, bikes and pedestrians do not have safe access to base when the North Gate is closed. The Dover AFB main gate is the only 24-hour access onto the base.The path will serve as an alternate route for bikes/pedestrians wishing to travel to and from the base and associated housing area at all times of the day.

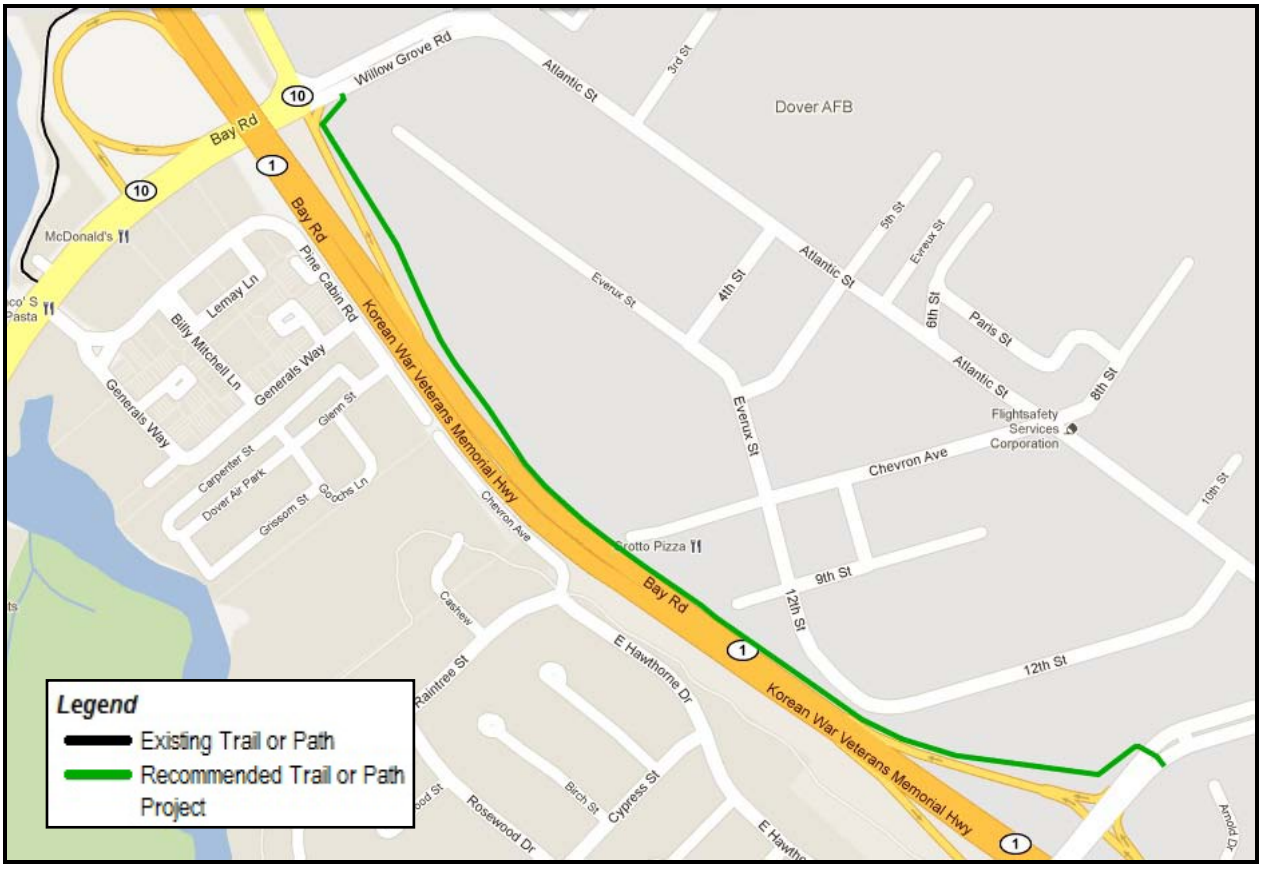

Figure 36. Dover Air Force Base Trail

4. Route 10 Trail

The Route 10 trail from the St. Jones Greenway to US 13 would be 2.7 miles if on one side of the road or 5.4 miles if trails are put on both sides of Route 10. A separate bicycle bridge over the St. Jones may be required. A recommended addition to this trail would be a connection to Caesar Rodney High School.

This trail will link to the Dover Air Force Base Trail discussed on p. 72.

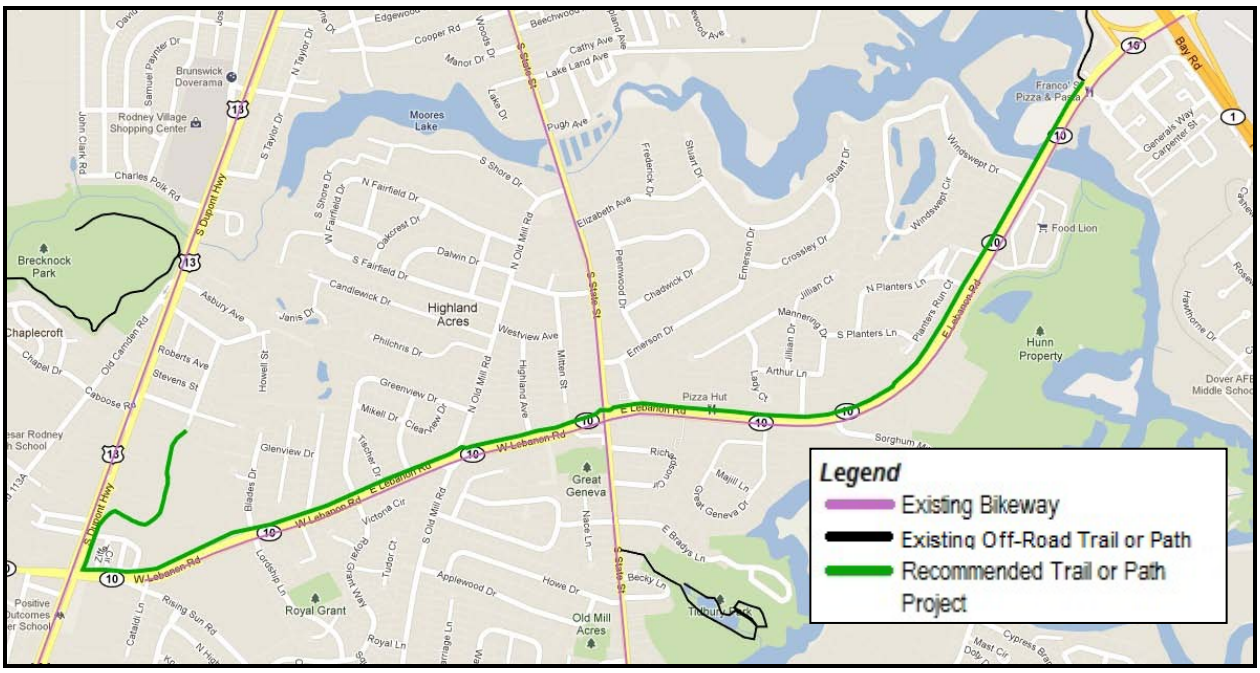

Figure 37. Route 10 Trail

5. Smyrna-Clayton Trail

The Smyrna to Clayton Trail (1.35 miles) would connect existing trails around schools and parks to communities of Smyrna and Clayton. The trail would also link to the proposed trail to Easton, MD.

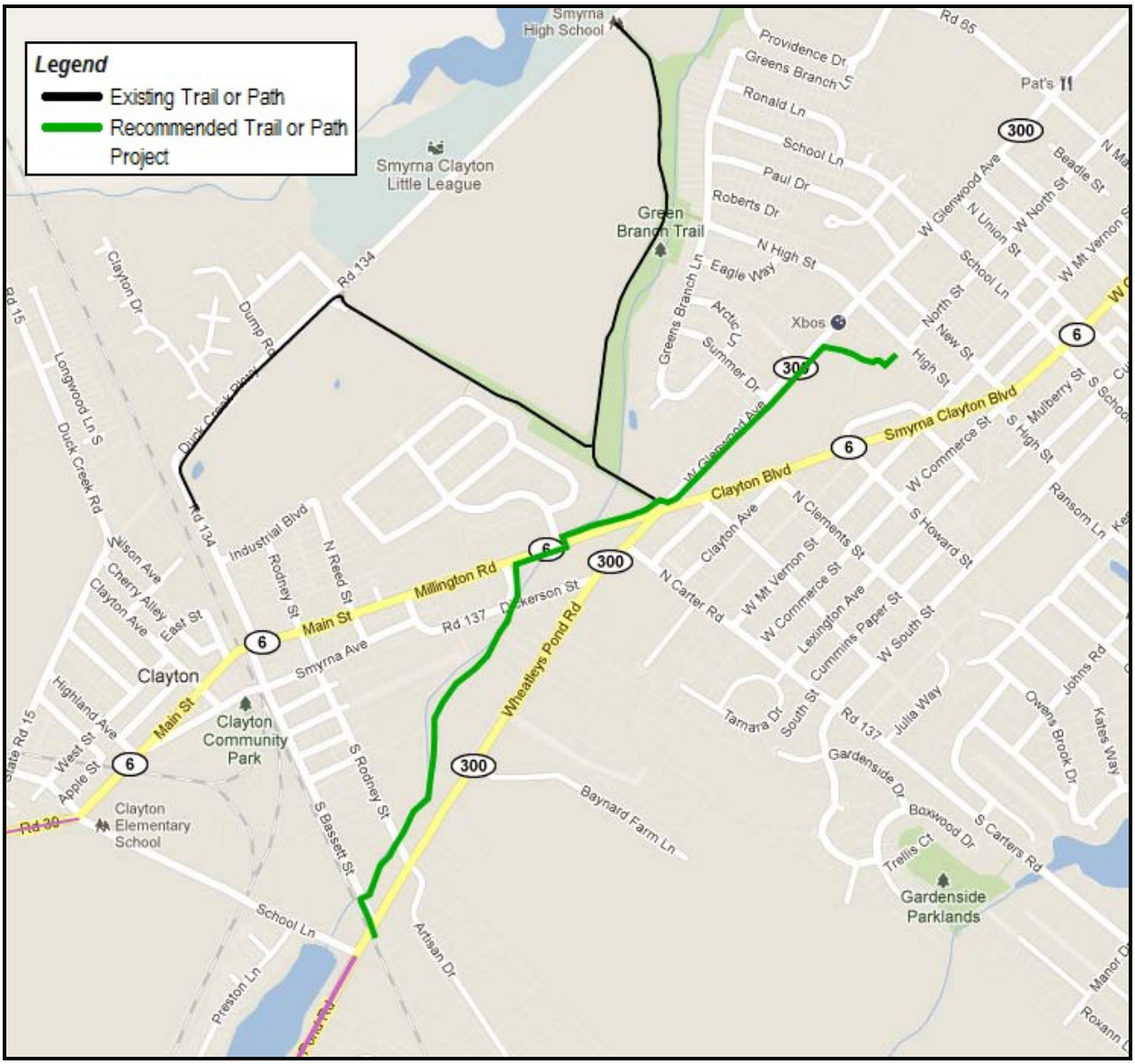

Figure 38. Smyrna-Clayton Trail

6. Smyrna - Big Oak Park Connection

The trail (2.20 miles) would provide a connection between Smyrna and Big Oak County Park east of SR 1, reducing the need to travel by car to use the park.

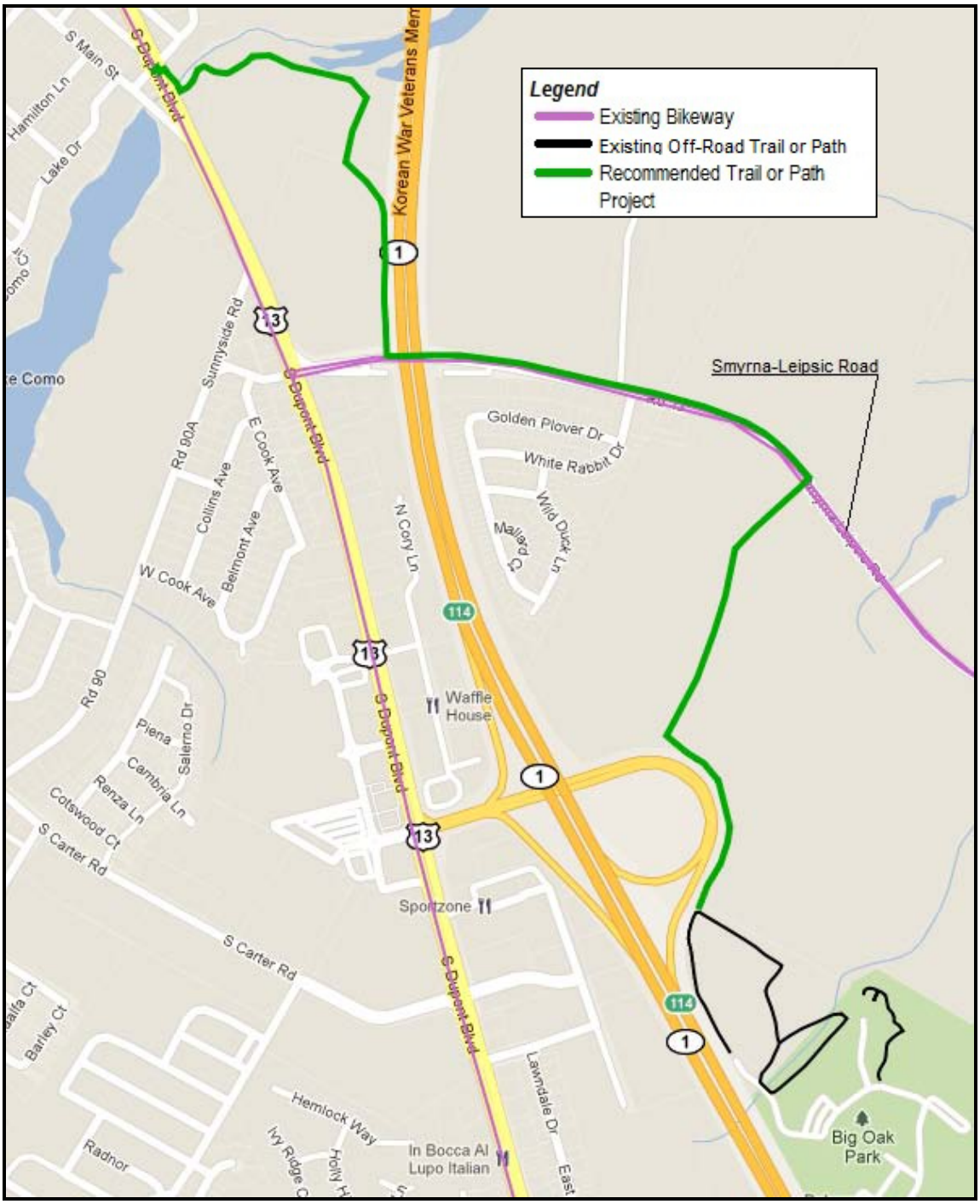

Figure 39. Smyrna – Big Oak Park Connection

7. Clayton, DE to Easton, MD Rail Trail

The Clayton to Easton recreational rail trail would include over 27 miles of trail in Delaware connecting Marydel, Hartly and Clayton with Greensboro, Goldsboro and Easton, Maryland. The State of Maryland owns the rail right of way in Delaware; negotiations are ongoing for Delaware to either lease or own the right of way for the purpose of creating the rail-to-trail.

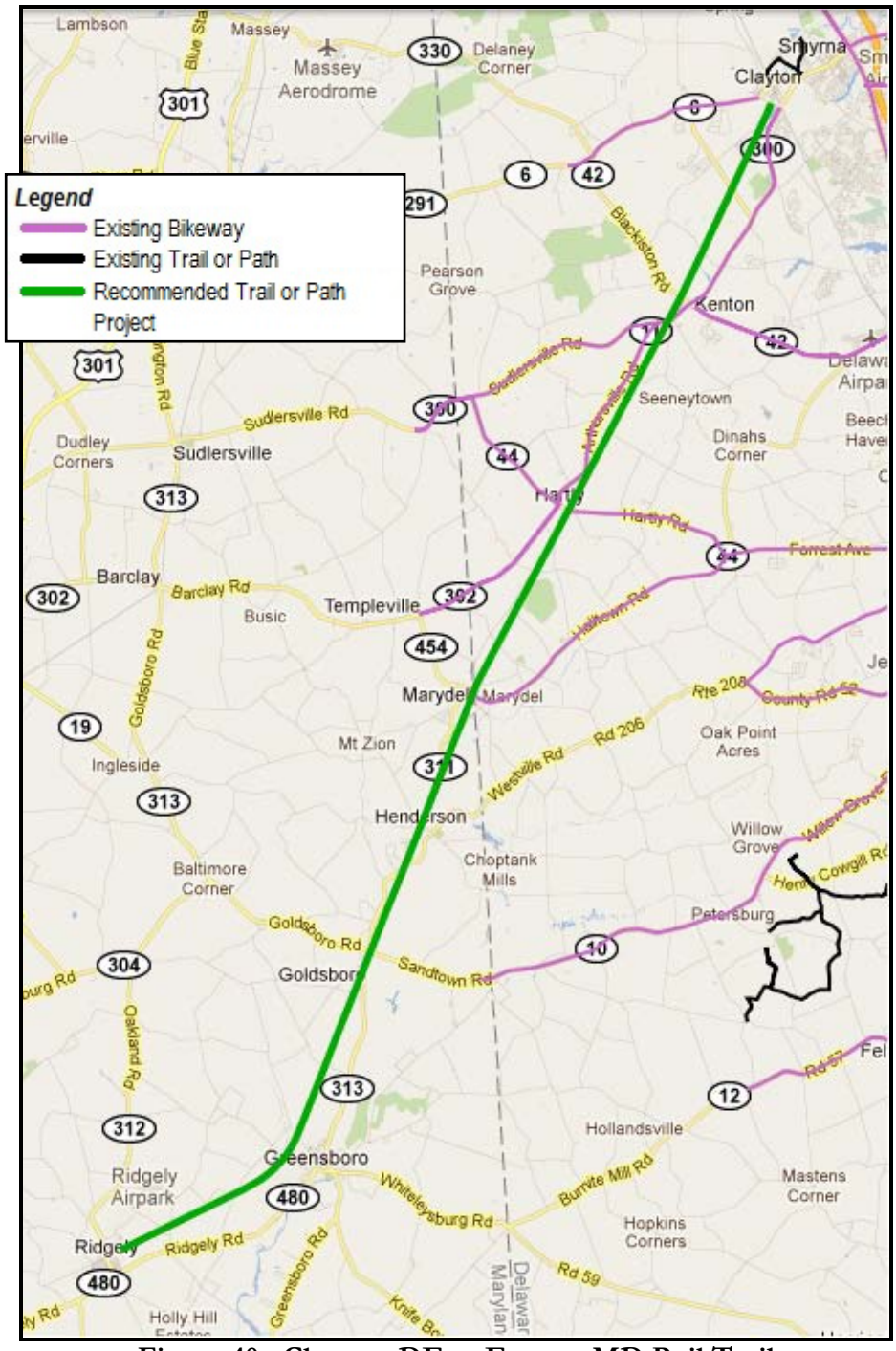

Figure 40. Clayton, DE to Easton, MD Rail Trail

Implementing Bicycle Plan Recommendations

This plan contains multiple types of recommendations, from simple signage and pavement marking, to more complicated road width reallocation and construction projects. Some are expensive to implement; some are not. While it is hoped that all of the recommendations will be implemented, inclusion in this plan does not guarantee that it will happen.

There are multiple ways to fund bicycle improvements. The most common way is in conjunction with roadway reconstruction or maintenance improvements that result in reallocation of lane width and/or striping the road surface to accommodate bicycles. As part of the Complete Streets Policy, DelDOT is required to evaluate all transportation modes as part of any reconstruction or widening project within the existing right-of-way. When the bicycle project requires additional right-of-way or pavement to be added to the transportation system, other funding must be used. Federal funding sources include the Surface Transportation, Transportation Enhancement (TE), and Congestion Mitigation/Air Quality Programs (CMAQ).

For off-road, multi-use paths, the Fiscal Year 2012 Bond Bill includes five million dollars ($5,000,000.00). A portion of this funding should be used to design and build the higher priority off-road bicycle path recommendations in this plan.

The signage and pavement marking projects should be implemented over the next several years and as time and funding allows.

Bicycle improvements requiring construction are only one of 12 different categories of projects funded through the Transportation Enhancement Program. Funds are requested by writing a letter to the Secretary of the Delaware Department of Transportation and describing the project desired. The program is completely administered within the Department of Transportation.

Projects that use Surface Transportation or Congestion Mitigation/Air Quality Program funds, must first be included in the statewide Capital Transportation Program (CTP) and the MPO's Transportation Improvement Program (TIP). Projects proposed for inclusion in the CTP and TIP must be submitted to the MPO for priority scoring. Set at a three point scale, projects receiving a score of 2.1 or higher are then forwarded to DelDOT for funding consideration.

The relationship between the Regional Bicycle Plan priority process and the TIP priority process is sequential. Bicycle projects are scored using the priority process established in this plan. The highest scoring projects that require higher funding levels are then scored using the TIP process along with all of the other types of projects for which funding is being requested. Consequently, a high scoring bicycle project may not score as well under the TIP scoring process.

A Bicycle Committee should be established for the MPO. The Committee would be responsible for bicycle project scoring and to pursue implementation of the policy recommendations. In addition, the Bicycle Committee would develop education and marketing of projects as bicycle projects are implemented.

APPENDIX A

BICYCLE ROUTES INCLUDED IN DELAWARE BICYCLE MASTER PLAN

APPENDIX A: BICYCLE ROUTES INCLUDED IN DELAWARE BICYCLE MASTER PLAN

STATEWIDE ROUTES

Bicycle Route 1 - Kent County[19]

Route Overview

This 37 mile portion of Bicycle Route 1 connects New Castle County with Sussex County and provides direct access to the state capital and to the other major municipalities in Kent County.

Description of Route

The purpose of Bicycle Route 1 is to improve north-south bicycle mobility. Within Kent County, Bicycle Route 1 serves as a spine to the bicycle network, linking the major municipalities within Kent County and providing connections to all but one regional bicycle route in the county. The portion of the route in Kent County begins in Clayton along Duck Creek Road West (SR 15). The route then proceeds west along Millington Road (K 39) and School Lane (K 40), and then continues south along Wheatleys Pond Road (SR 300), Moorton Road (K92), which becomes Commerce Street in Cheswold. Commerce Street then becomes McKee Road (K 156/SR 15) before entering the City of Dover. In Dover, the route becomes Salisbury Road and turns west onto North Street/Hazlettville Road (K 73/SR 15), south onto Wyoming Mill Road (K195), which becomes Railroad Avenue in Camden. In Wyoming, the route follows Westville Road (SR 15/K52) and proceeds along the western edge of Camden, continuing down SR 15 on Moose Lodge Road and Dundee Road. The route then continues east on Henry Cowgill Road (Route 10A) for a brief period, then continues south on Turkey Point Road (K240), passing through Woodside and Viola along the way. Once K240 enters Felton, the route intersects with Main Street (SR 12), then south onto Little Mastens Corner Road (K284). It then turns east onto Reeves Crossing Road (K 286), which becomes Killens Pond Road (K384) and continues east and then south, bordering Killens Pond State Park. After crossing SR 14, Killens Pond Road becomes Deep Grass Lane (K 384). The route then travels east on Williamsville Road (K 116) for a short stretch, and then continues southeast along Abbotts Pond Road (K 442) into Sussex County.

Barriers and Opportunities

- Lane Widths/Road Geometry. The majority of the route is on two-lane rural roads without shoulders. Between Cheswold and Wyoming, the roads have shoulders and cross-sections in keeping with an urbanized area.

- Major intersections. Bicycle Route 1 was originally designed to avoid as many major roadways as possible to provide a more recreational experience for cyclists; as such, the number of major intersections along the route has been minimized. The two most significant intersections in Kent County are at SR8 in Dover and at US 13 south of Felton. SR8 is a four-lane section with dedicated turning lanes at the intersection. The width of this intersection and the volume and speed of traffic here may deter less

[19] Delaware Bicycle Facility Master Plan, DelDOT, Appendix B pp. 37-62. October 2005.

experienced cyclists. US 13 is a four-lane divided highway with a median. Traffic volumes along this highway are high, and the posted speed is 50 mph. Signing and striping may be necessary to improve the safety of this intersection for bicyclists.

- Water crossings. There are no major water crossings along this route which would pose a serious deterrent to bicycle travel.

- Railroad crossings. There are three railroad crossings along Bicycle Route 1 in Kent County. The first is an abandoned at-grade crossing in Clayton, which is being discussed as a possible Rail-to-Trail connection to Easton, Maryland. The second crossing is at the Norfolk Southern Railroad at Reeves Crossing Road. This is an at-grade crossing. The third crossing is located where Deep Grass Lane intersects the east-west branch of the Norfolk Southern. This is also an at-grade crossing.

Opportunities for Connections

- Statewide and Long-Distance Bicycle Routes:
  - Delmar-Felton - Statewide Bicycle Route 3
  - Proposed Clayton-Easton Rail-to-Trail

- Regional Bicycle Routes:
  - MD Border to Woodland Beach (K-1)
  - MD Border to Port Mahon (K-3)
  - MD Border to DAFB (K-4)
  - MD Border to Frederica (K-5)
  - MD Border to Slaughter Beach (K-6)

- Recreational, local and other bike trails:
  - Local bicycle network within the City of Dover
  - Off-road network of trails at Killen's Pond State Park

Recommendations

The facility recommendations proposed for Statewide Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Statewide Bicycle Routes.

Bicycle Route 2 - Kent County Wilmington-Selbyville

Route Overview

This 42-mile portion of the Wilmington-Selbyville Statewide Bicycle Route provides north-south bicycle mobility along SR9 and the US 113 corridor in Kent County. The route provides access to Kent County City of Dover, from the municipalities of Wilmington and New Castle to the North and Milford, Ellendale, Georgetown and Dagsboro to the South.

Description of Route

The purpose of this route is to improve north-south bicycle mobility along the Delaware coast. The route enters Kent County along SR9. It continues south along Bayside Drive (SR 9), turning southwest onto White Oak Road (K 66) into Dover. In Dover, the route crosses DuPont Highway (US 13), then continues south as Kings Highway (K 66), west on Loockerman Street East, and then south on State Street South (SR 10A). The route follows State Street South out of Dover, to the town of Magnolia. South of Magnolia State Street becomes Clapham Road (K 27) and continues south to Buffalo Road (K 376). From Buffalo Road (K 376), the route turns west onto Barratts Chapel Road (K 371), then south onto McGinnis Pond Road (K 378). The route then continues southeast via Andrews Lake Road (K 380), and Johnnycake Landing Road (K 380), and then turns south onto Carpenter Bridge Road (K35), and east onto Fork Landing Road (K 390). From Fork Landing Road (K 390), the route continues east to Tub Mill Pond Road (K 119), and then south on Bowman Road (K 401) to Warner Road (K 406). Continuing east on Warner Road/11 Street, NW (K 406), the route enters Milford and then continues south via Walnut Street (K 20) to the Sussex County and the Mispillion River.

Barriers and Opportunities

- Lane Widths/Road Geometry. SR9 is a two-lane road without shoulders; however, traffic volumes along this road are low, and automobiles should be able to pass bicyclists without trouble. From Leipsic (K 11) to White Oak Road (K 66), the road is two-lanes wide with shoulders suitable for bicycle facilities. There are no shoulders along Kings Highway until approximately one-quarter-mile east of SR 1, where the shoulders become suitable for bicycle facilities. In Dover, Kings Highway lacks shoulders, but may be wide enough to accommodate bicycle facilities. South State Street in Dover has on-street parking which may create potential conflicts with bicycle traffic. South of Dover, South State Street (113A) has shoulders sufficient for bicycle facilities. The majority of the roads between Magnolia and Milton are two-lane roads without shoulders; however, traffic volumes on these segments of the route should be low enough to allow safe passing movements by automobiles around bicycles.

- Major intersections. There are two major intersections within this portion of the Wilmington-Selbyville route. The first major intersection is the intersection of Kings Highway with US 13. This intersection carries heavy volumes of traffic and has multiple dedicated turn lanes which may make this intersection difficult for bicyclists to cross. The second major intersection is at Warner Road (K406) and US 113. Again, traffic volumes are heavy along this segment of US 113. As Warner Road crosses US 113 right

where it forks between US 113 and SR 14, the geometry of the intersection may confuse bicyclists traveling through the area for the first time.

- Water crossings. There are several minor water crossings along SR9; at some of these, the shoulders are not wide enough for a bicycle facility and additional signage may be appropriate to alert bicyclists and motorists. The crossing of Browns Branch south of Frederica is wide enough to accommodate bicycle facilities.

- Railroad crossings. There are no railroad crossings along this portion of the Wilmington-Selbyville statewide route.

Opportunities for Connections

- Regional Bicycle Routes:
  - MD Border to Port Mahon (K-3)
  - SR9/MR337 to Delaware Bay (K-2)
  - MD Border to DAFB (K-4)
  - MD Border to Slaughter Beach (K-6)
  - MD Border to Frederica (K-5)
  - MD Border to Woodland Beach (K-1)

Recreational, local and other bicycle routes

- Local bicycle network in City of Dover
- Off-road trails in the Cedar Swamp Wildlife Area, as well as the proposed St. Jones Greenway.

Recommendations

The facility recommendations proposed for Statewide Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Statewide Bicycle Routes.

Bicycle Route 3 - Kent/Sussex County Delmar To Felton

Route Overview

This Statewide Bicycle Route is a 39-mile branch off of Bicycle Route 1, improving bicycle mobility along the US 13 corridor from Kent County to the border of the state with Maryland.

Description of Route

The route begins in Kent County south of Felton at Maintenance Road 286. It continues south along Little Mastens Corner Road (K284 and K 78) into Harrington. In Harrington, the route turns west onto Center Street, then south on West Street. The route then turns east onto Fairground Road (K316), crosses US 13 (DuPont Highway), and then turns southeast onto Corn Crib Road (K433).

The route then continues south on Gun & Rod Club Road (K434), then west on Woodyard Road (K117). From Woodyard Road (K117), the route turns south onto US 13, continuing through Greenwood until it reaches Cart Branch Road (K583A). At Cart Branch Road (K 583A), the route turns southwest, turning onto Adams Road, then Church Street, which it follows into Bridgeville. In Bridgeville, the route runs along Bus.13, and then turns west onto Market Street, then south onto Wilson Farm Road, which it follows into Seaford.

In Seaford, Speck Road (K546) becomes Ross Station Road, and continues south to SR 20 (Stein Highway). The route then runs east along SR 20 to Front Street/Market Street which it follows south over the Nanticoke River out of Seaford. Market Street then becomes Seaford Road (K 13) and continues south into Laurel. The route follows SR 13 into Delmar where it terminates at the Maryland border.

Barriers and Opportunities

- Lane Widths/Road Geometry. North of Seaford, the majority of the route is characterized by two-lane rural roads without shoulders. South of Seaford, the route continues as a two-lane road with sufficient shoulders for a bicycle facility. Within municipalities, the roads used by the route are typified by on-street parking, which may pose a conflict with bicycle travel in adjoining lanes. SR20 within Seaford is a five-lane roadway. In Greenwood, US 13 is a four-lane roadway with a median. The considerable volume of traffic along this section may deter less experienced bicyclists.

- Major intersections. The two most significant intersections along this route all occur with US 13. US 13 is a four-lane highway with a median. Traffic volumes along this road may deter less experienced cyclists

- Water crossings. There are two major water crossings along this route: one over the Nanticoke River between Seaford and Blades and one over Broad Creek in Laurel. Both of these are drawbridges with sidewalks which are barrier-separated from the travel lanes. The lack of a shoulder on either side of the roadway may require novice bicyclists to walk their bicycles using the sidewalks, which are available on both sides of the bridge.

- Railroad crossings. There are three at-grade crossings of the Norfolk Southern Railroad along this route: one south of Harrington, one south of Greenwood, and one north of Bridgeville.

Opportunities for Connections

- Statewide Bicycle Routes:
    - Bicycle Route 1
    - American Discovery Trail, a hiker-biker trail spanning the length of the United States.

Regional Bicycle Routes:

- MD Border to Slaughter Beach (K-6)
- Greenwood to Broadkill Beach (S-1)

- MD Border to Georgetown (S-4)
- MD Border to SR1 via Seaford and Millsboro (S-5)
- US 13/SR30 to Fenwick Island (S-9)

Recommendations

The facility recommendations proposed for Statewide Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Statewide Bicycle Routes.

REGIONAL ROUTES

Route K-1 MD Border To Woodland Beach

Route Overview

The Maryland Border to Woodland Beach route (as shown as Route K-1 on the Kent County map) is a 17.6-mile east-west Regional Bicycle Route. The route begins at the Maryland Border on SR 6 in the Blackiston Wildlife Area, travels through the Towns of Clayton and Smyrna, to Woodland Beach via the Woodland Beach Wildlife Area.

Description of Route

This route connects the Towns of Clayton and Smyrna with Maryland and Woodland Beach on the Delaware Bay. The route is comprised of two-lane roads with shoulders. The road narrows just east of Smyrna where it encounters a wetland area with the potential for flooding.

Barriers and Opportunities

- Lane widths/Road geometry. From the Maryland Border to SR 15, SR 6 has no shoulders and the edge is soft. At the time of data collection, it appeared as if this area may have been undergoing re-pavement. Most of the remaining length of the route provides ample shoulders for bicycle traffic. However, as SR 6 comes upon wetland and beach areas, the road narrows and less space is available for bicycles. This occurs at the following two locations:

    - Intersection of SR 6/SR 1 - the road narrows to only two, ten-foot lanes with no shoulders.
    - SR6 crosses SR9 into the Woodland Beach Wildlife Area - the shoulders are narrowed to only 4 feet and there is water on either side of the bridge.

- Major intersections. SR 6 crosses the following major roadways: SR 42, SR 15 (south), SR 15 (north), US 13, SR 1, and SR 9. The intersection of SR 6 with SR 13 is noted for having only two narrow lanes (10 feet) with turn lanes. There is no shoulder or extra

space available for bicycle travel. At SR 1, SR 6 crosses over the road and there are no exit ramps.

- Water Crossings. There is a water crossing of Duck Creek and the Smyrna River. The crossing of Duck Creek has two narrow shoulders and only jersey barriers separating cyclists from the water. The route encounters wetlands, signed with flood warnings as it exits the community of Smyrna from SR 1 to where SR 6 branches from Beach Road, a local road, and from SR 9 to Woodland Beach.

- Railroad crossings. There is one at-grade railroad crossing of an unused railroad in Clayton. This rail line has been identified as a possible candidate for the Clayton to Easton Rail-to-Trail project.

Opportunities for Connections

- Key Destinations and Activity Centers:
  - Clayton central business district
  - Smyrna central business district
  - Blackiston Wildlife Area
  - Woodland Beach Wildlife Area
  - Woodland Beach Statewide Bicycle Routes:
    - Bicycle Route 1
    - Wilmington-Selbyville (Route 2)

Recommendations

The facility recommendations proposed for Regional Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Regional Bicycle Routes.

Route K-2 NE Dover To Kitts Hummock/Delaware Bay

Route Overview

This 12 mile route borders Bombay Hook National Wildlife Refuge and the Little Creek Wildlife Area, Dover Air Force Base and the community of Kitts Hummock.

Description of Route

The purpose of this route is to provide linkages between the Bay coast east of Dover with the Wilmington-Selbyville Statewide Route. The route begins at the intersection of SR 9 and K 337 (Persimmon Tree Lane). It continues south on SR 9 and provides access to numerous recreational destinations near the Bombay Hook National Wildlife Refuge, the Little Creek Wildlife Area, the John Dickenson Plantation, and the Logan Tract of the Ted Harvey Wildlife Area. The route

traverses the Dover Air Force Base and then turns east onto Kitts Hummock Road at the intersection of SR 9 and US 113/SR1, and then continues to Delaware Bay. The route is primarily serviced by two-lane roads with shoulders. The terrain is largely rural, wooded, and flat.

Barriers and Issues

- Lane widths/Road geometry. As noted above, most roads provide adequate shoulders. The exception is in the community of Little Creek where roads serving the residential housing include on-street parking and narrow or no shoulders. Where SR 9 meets the community of Pickering Beach, the road is very narrow and has no shoulders.

- Major intersections. The only significant intersections are at North Little Creek Road (SR8), South Little Creek Road, and SR 1. However, the traffic volumes at these intersections are low, and there are good lines of sight.

- Water Crossings. Water crossings include the Herring Branch and Little River, which both flow into the Delaware Bay. The bridge over Little Creek does not have shoulders wide enough for bicyclists to use as a bicycle facility, although there is a sidewalk for dismounted cyclists to use.

- Railroad crossings. There are no railroad crossings along this route.

Opportunities for Connections

- Statewide Bicycle Routes:
  - Wilmington-Selbyville (Route 2)

- Regional Bicycle Routes:
  - MD Border to Port Mahon (Route K-3)

- Recreational connectors, local and other bicycle routes:
  - White Oak Road (K66)
  - S. Little Creek Road (K67)

- Major Highways:
  - SR8

Recommendations

The facility recommendations proposed for Regional Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Regional Bicycle Routes.

Route K-3 MD Border To Port Mahon

Route Overview

This 24 mile Regional Bicycle Route bisects Kent County from the Maryland border to Delaware Bay.

Description of Route

The route provides east-west access and connectivity across Kent County by connecting Dover to the Maryland border to the west and the Little Creek Wildlife Area and Delaware Bay to the east. The route begins at the Maryland border and runs along SR8 through Dover to SR15. The route then follows Main Street in Little Creek (Route 15) south until it reaches Port Mahon Road (K89). The route continues east Port Mahon Road (K 89) until it reaches its terminus at Port Mahon on Delaware Bay. The bicycle route operates entirely on existing roadways with mixed traffic. Most of the route is on State Route 8 which varies in width along its course based on the demands of varying traffic volumes and land use.

Barriers and Opportunities

- Lane Widths/Road Geometry. West of Dover, the route follows a rural roadway with shoulders. The roadway widens and the number of access points to local businesses increases as the route continues eastbound into Dover. Within Dover, there is on-street parking throughout a large portion of the route. The through lane displaces the shoulder when left turn lanes are present, creating a potential conflict point with bicycle travel. Shared use signs should be installed in this area. Between Dover and SR1, SR8 is a two-lane road with shoulders. East of SR1, the shoulders disappear. Along SR9 there are no shoulders. Port Mahon Road (K89) is a two-lane road with no shoulders.

- Major intersections. The most significant intersection along this route is where SR8 and US13 meet in Dover. This is a high-volume intersection, with minimal width on the eastbound approach. The interchange of SR1 at SR8 may also pose issues for less experienced cyclists. In addition, there are many high-volume intersections within the City of Dover, including those at State Street, Governors Avenue (Alt.13), and SR15.

- Traffic. Along rural portions of this route, traffic volumes are low. Although traffic speeds in rural areas are generally higher than in urban areas, the lower traffic volumes offset this issue. Automobiles can comfortably pass cyclists by crossing into the opposing traffic's lane. Traffic volumes pick up, however, as the route continues towards Dover. Access driveways and on street parking contribute to potential conflicts between motorists and bicycles. Both drivers and cyclists need to be extra careful to ensure that conflicts between automobile and bikes are minimized.

- Railroad crossings. The bicycle route crosses the Norfolk Southern mainline railroad tracks in Dover. The crossing is at grade and at a 90-degree angle. It does not pose a problem for bicycle travel.

Opportunities for Connections

- Statewide Bicycle Routes:
  - Bicycle Route 1
  - Wilmington-Selbyville, Bicycle Route 2

- Regional Bicycle Routes:
  - NE Dover to Kitts Hummock/Delaware Bay, Route K-2

- Recreational, local and other bicycle routes:
  - Feeder bicycle network in the City of Dover
  - Feeder Routes in Little Creek Wildlife Area.

- Major Highways:
  - SR44
  - US13
  - US113A
  - SR9
  - SR1

Recommendations

The facility recommendations proposed for Regional Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Regional Bicycle Routes.

Route K-4 MD Border To Dover Air Force Base

Route Overview

This 16 mile Regional Bicycle Route travels from the Maryland Border along SR10 through central Kent County and the towns of Camden and Wyoming to the intersection with US113 near the Dover Air Force Base south of the City of Dover.

Description of Route

This route travels east from the western edge of Kent County to the towns of Camden and Wyoming, terminating at the Dover Air Force Base. It also connects two statewide bicycle routes, Bicycle Routes 1 and 2. This bicycle facility is entirely on SR10. This road begins at the Maryland-Delaware border as a two-lane rural road with shoulders. Within Camden and Wyoming the road widens and on-street parking is provided. Between US13 and US113A (S. State Street), the road widens to four lanes. While there are shoulders on these sections, the roadway pavement is often used for turn lanes to accommodate access points to local businesses and subdivisions. The road narrows to two lanes with shoulders between US113A and Dover Air Force Base.

Barriers and Opportunities

- Lane Widths/Road Geometry. Most of the roadway in the rural areas features shoulders of varying width. In town at Camden/Wyoming there are areas where no shoulder exists and limited right of way would require sharing of the roadway lane. Low traffic speeds in the area allow for shared roadway use.

- Major intersections. Bicycle Route K-4 crosses major roadways in the Dover area - US13, US113, and SR1. At the intersections with US13 and US113 a bicyclist would have to transition from the shoulder to the through travel lane to safely cross the intersection, and then reenter the shoulder on the other side. The traffic volumes at these intersections are moderate-to-high, and may deter less experienced cyclists. At SR1, K-4 travels under the overpass. The roadway was designed with enough right-of-way to provide a shoulder with adequate space for bicycle travel.

- Traffic. SR 10 has lower traffic volumes at its western terminus on the Maryland border due to the rural nature of the land. Near Dover the traffic volumes become more moderate and typical of suburban areas. Speeds are higher in the rural areas and remain fairly low in the Camden/Wyoming area and in the area near Dover.

- Water Crossings. The route crosses the St. Jones River near US113 along a section of road that is two lanes wide with adequate shoulders for bicycle travel.

- Railroad crossings. The bicycle route crosses the Norfolk Southern rail line near Camden/Wyoming. The crossing here is at grade and at a direct angle and should not pose a problem for the novice or advanced bicyclist.

Opportunities for Connections

- Statewide Bicycle Routes
  - Bicycle Route 1
  - Bicycle Route 2

- Major Highways
  - US13
  - US113
  - SR1

Recommendations

The facility recommendations proposed for Regional Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Regional Bicycle Routes.

Route K-5 MD Border To Frederica

Route Overview

This 14.1 mile Regional Bicycle Route travels from State Route 12 at the Maryland Border to the intersection of SR12 and Andrews Lake Road (MR 380) at the western outskirts of Frederica.

Description of Route

This route provides east-west access and connectivity to Maryland and two towns in central Kent County. It also provides direct access to Statewide Bicycle Routes 1, 2 and 3.
The bicycle facility is entirely on SR12, a 2-lane roadway with adequate shoulders in most areas and low to moderate traffic volumes. In Felton, the road is two lanes with on-street parking but adequate lane width to accommodate both a bicyclist and an automobile. The route crosses the Norfolk Southern Rail line, US Route 13, SR15 and Bicycle Route 1. Traffic volumes are generally light, but speeds in the rural areas can be fast (over 45 mph).

Barriers and Opportunities

- Lane Widths/Road Geometry. Most of the bicycle route is on a two-lane rural roadway with shoulders. In one area west of Felton the road has no shoulders which may deter less experienced bicyclists, even though traffic volumes are low. Typical sections in the town centers include limited right-of-way and on-street parking. Where on-street parking is present, there is the potential for conflicts with bicycle traffic. However, fairly low traffic volumes and speeds improve the safety of bicycling in these areas. The Route 13 roadway crossing is challenging. However, adequate room exists for the bicyclist to travel next to the automobile through the intersection.

- Major intersections. As noted earlier, SR12 crosses US Highway 13 near Felton. This intersection carries moderate volumes of traffic. The dedicated turn lanes and access points to adjoining properties create potential conflicts between automobile and bicycle traffic.

- Railroad crossings. The bicycle route crosses over the Norfolk Southern rail line in downtown Felton. This is an at-grade and controlled crossing and the rail bed is metal. This crossing is at a 90 degree angle to the roadway and should not be particularly onerous. The road at this crossing is two-lanes wide, with an adequate shoulder.

Opportunities for Connections

- Statewide Bicycle Routes:
    - Bicycle Route 1
    - Wilmington-Selbyville, Bicycle Route 2

- Recreational, local and other bicycle routes:
    - This bicycle route provides access to a number of recreational connectors in western Kent County.

- Major Highways:
    - US13
    - US113
    - SR15

Recommendations

The facility recommendations proposed for Regional Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Regional Bicycle Routes.

Route K-6 Md Border To Slaughter Beach

Route Overview

The MD Border to Slaughter Beach Regional Bicycle Route provides a cross-Delaware route which connects southern Kent County and northern Sussex County from the Maryland border to Delaware Bay. This route also links Milford and Harrington. It also provides access to recreational destinations along the Delaware Shore including Slaughter Beach and federally protected wildlife refuges. The route is a total of 25 miles in length.

Description of Route

The MD Border to Slaughter Beach Regional Bicycle Route crosses both Kent and Sussex Counties providing access from the Maryland border to Delaware Bay. Beginning at the Maryland border, the route follows SR 14 to Walnut Street south in Milford. It then follows SR 36 until reaching Slaughter Beach.

Barriers and Opportunities

- Lane Widths/Road Geometry. The proposed bike route follows a typical rural roadway segment. SR 14 is without shoulders except when passing through Harrington and Milford. Additionally, traffic speeds are decreased significantly and on-street parking is provided. There are two key intersections of note along this route. At the intersection of SR 14 and US 113 on the western side of Milford, there are no shoulders on the intersection approaches. The number of lanes decreases from four to two between US 113 and Maple Avenue

- Major intersections. The route intersects three major roadways: US 13, US 113, and SR 1. At its intersection with US 13, US 13 is a divided highway, with restaurants located in the median. The access points to these restaurants may create conflicts with bicycle traffic. Where the route crosses US 113, there are higher volumes of traffic which may

deter less experienced cyclists. The interchange at SR1 may also require improvements to reduce conflicts between bicycles and traffic utilizing the ramps at this interchange. Other minor though potentially more complicated intersections occur within Milford where traffic is more concentrated. In implementing this route it is critical that provisions be made to maximize safety at these intersections including placement of stop bars, striping, signage and other relevant measures.

- Traffic. Along rural portions of this route, traffic volumes are low. Although traffic speeds in rural areas are generally higher than in urban areas, the lower traffic volumes offset this issue. Automobiles can comfortably pass cyclists by crossing into the opposing travel lane. Traffic volumes increase, however, in Milford and Harrington. Access driveways and on street parking contribute to potential conflicts between motorists and bicycles. Both drivers and cyclists need to be extra careful to ensure that conflicts between automobile and bikes are minimized.

- Railroad crossings. The bicycle route crosses the Norfolk Southern mainline railroad tracks in Dover. The crossing is at grade and at a 90-degree angle. It does not pose a problem for bicycle travel.

Opportunities for Connections

- Destinations and Activity Centers:
  - Haven Lake
  - Cedar Beach
  - Milford Neck Wildlife Area
  - Slaughter Beach
  - Direct connection between the cities of Milford and Harrington

- Statewide Bicycle Routes:
  - Bicycle Route 1
  - Delmar to Felton (Bicycle Route 3)
  - Wilmington to Selbyville (Bicycle Route 2)

Recommendations

The facility recommendations proposed for Regional Bicycle Routes in Section 3.0 of this plan should be applied to this route as part of regular roadway construction and maintenance activities. Existing bicycle facilities along this route should be preserved or improved to be consistent with the design guidelines for Regional Bicycle Routes.

APPENDIX B

PLANNING EFFORTS AFFECTING KENT COUNTY BICYCLING

APPENDIX B: PLANNING EFFORTS AFFECTING KENT COUNTY BICYCLING

Several plans have been developed that directly relate to bicycling in Kent County; these include the Delaware Bicycle Facility Master Plan, St. Jones River Greenway Plan, and the Milford Bicycle and Pedestrian Master Plan. The Kent County Regional Bicycle Plan is intended to complement these plans by providing clear recommendations on policies and projects that further the goals of each of these plans.

This section is intended to provide a brief summary of the goals and purpose of each of the plans and how it relates to bicycling in Kent County.

Delaware Bicycle Facility Master Plan

The DelDOT Delaware Bicycle Facility Master Plan covers the entire state of Delaware and designates a system of statewide and regional on-road bicycle routes. Implementation of the plan is intended to achieve the following goals:

- Integrate existing bicycle routes and trails to a larger, statewide bicycle network
- Establish bicycle routes between municipalities, activity centers, and recreational areas throughout the state

The plan designates the bicycle routes described in Table 1 and includes a set of design recommendations for each type of bikeway. The Dover/Kent County MPO Regional Bicycle Plan is intended to add additional policies and project recommendations specific to the needs of bicycling in the County. The recommendations will be consistent with the intent of the Bicycle Facility Master Plan.

St. Jones River Greenway Plan[20]

The purpose of the St. Jones River Greenway Plan (draft) is to provide a vision for the preservation and enhancement of the St. Jones River Greenway for future generations. The plan is intended to provide outdoor recreation opportunities and links for non-motorized transportation between activity centers, and is developed around the following vision:

> "...The greenway is composed of a system of trails stretching from Silver Lake in Dover all the way to the Delaware Bay. ... The primay greenway is a paved surface for walking, jogging, and bicycling which stretches along both sides of the St. Jones River. Secondary paths link the greenway to points of special interest, like the Dickinson Mansion and to lands along river tributaries, like the Isaac Branch, Tidbury Creek, and the Cypress Branch. "

The greenway plan includes a network of primary and secondary trails west of the river which connect Schutte Park in Dover, Caesar Rodney High School, Simpson Elementary School, Isaac Branch Nature trail, Brecknock Park, the Moore's Lake boat ramp, and the state fish hatchery. The Dover Segment west of the river is also the site of the Capital Bike/Belt Demonstration Project

[20] St. Jones River Greenway Plan (draft), Kent County, Delaware, October 1998, urban research and Development Corporation, Bethlehem, PA

which the plan states should be incorporated into the greenway's trail network. The system of hard surface bicycle pathways and designated road shoulders will link Schutte Park in the City of Dover to Brecknock Park.

The St. Jones River Greenway is a planned 14-mile long riverside pathway linking the greater Dover, central Kent County area to the Delaware Bay. When finished, the greenway will connect isolated residential communities, the City of Dover and recreation areas along the St. Jones River. Kent County residents will have access to a pathway designed for pedestrians and bicyclists; providing a choice of a non-vehicular means of commuting to work, accessing services and visiting family and friends. The greenway will also offer recreational, natural resource, cultural, and educational experiences.

The 3-mile long Isaac Branch Segment has been constructed. The Isaac Branch Segment begins on Public Safety Boulevard, continues behind the Softball Field at the back of the DelDOT Campus, meanders through the woodland, passes under the SR1 Puncheon Run Connector Bridge, runs between the Connector and Capital Park to Bay Road, crosses Presidents Drive and continues south between the SR1 roadway and a major wetland creation site, terminating at Route 10 at a signalized intersection.

Several project recommendations in the Kent County Regional Bicycle Plan directly relate to recommendations for the St. Jones River Greenway, including on-road #13, Sorghum Mill Road; off-road #1, Silver Lake/St. Jones Connector; and off-road #3, Route 10 Trail.

City of Milford Bicycle & Pedestrian Master Plan (draft)[21]

The purpose of the City of Milford's Bicycle & Pedestrian Master Plan (draft) is to provide the city with a strong planning tool that will facilitate the continued and orderly development of bicycle facilities and implementation strategies that encourage their use. The major bicycle trip generators and attractors include City Hall, the Milford Public Library, the Milford Hospital, recreational facilities, public schools both elementary and secondary, and existing and future residential developments. Since a majority of the population and a majority of trip generators are located in the central part of the City the primary recommendation is to encourage the use of bicycles in this area.

Specific recommendations include connecting the Banneker and Lulu Ross elementary schools with the Riverwalk and connecting residential developments, existing and future, in the southeast section of the City with the downtown area.

The specific bicycle facility projects identified in the Milford plan were included in the list of project proposals evaluated for inclusion in the Kent County Plan.

[21] Gary Norris, City of Milford. Bicycle and Pedestrian Master Plan "Walk It Bike It Share It " Draft. 2010.

City of Dover Bicycle and Pedestrian Transportation Plan[22]

Adopted in 1997, the Dover Bicycle and Pedestrian Plan was the product of a year-long planning process initiated by public interest and support. The plan identifies the following vision: "Dover is a place where people of all ages and abilities walk and bicycle conveniently, comfortably and safely for all purposes. Bicycling and walking are safe, convenient and accepted ways to travel in and around Dover for people of all abilities and for all purposes."

The plan outlines the steps necessary to create a bicycle and pedestrian friendly community, identified a network of bicycle routes and proposes a system-wide approach for recommended improvements. Ten top-priority projects were identified, including the following bicycle related projects:

- Schutte Park off-road path to south Dover neighborhoods
- Enhanced pedestrian crossing of New Burton Road near the off-road path above
- Multi-purpose path between Delaware State University and Delaware Tech
- Commercial corridors, such as Route 13, redesigned to enhance circulation and promote bicycling
- Walker Road bicycle facility improvements (partially completed)
- Improvements to Delaware Bicycle Route 1 (partially completed, problems still exist)
- Dover area greenways plan implementation
- Intersection improvements at Mifflin Rd and Hazlettville Rd (completed)

Recreational Trails Program Delaware Work Plan for FY 2011-2013[23]

The Recreational Trails Program (RTP) is authorized under the SAFETEA-LU and administered by the Department of Natural REsources and Environmental Control, Division of Parks and Recreation. Trails serve multiple purposes by serving as recreational facilities and alternative transportation facilities. Program objectives set priorities for spending to facilitate creation of an improved statewide trail network that is user friendly, educational and safe for all trail users. Objectives relating to bicycle trails include:

- Expand Delaware's trail network to fulfill the outdoor recreation demand for hiking, bicycling, walking and horseback riding.
- Create linkages from state parks to other adjoining park lands and to adjacent communities where feasible, without creating environmental impacts.
- Assure safe and accessible trail conditions.
- Promote appropriate trail etiquette and ethics among all trail users.
- Coordinate the creation of a statewide sustainable trail network through public-private partnerships.

The RTP includes the Clayton, DE to Easton, MD Rail Trail (Off-Road Project #6).

[22] City of Dover. Bicycle and Pedestrian Transportation Plan. June 1997.
[23] Department of Natural Resources and Environmental Control Division of Parks and Recreation. Recreational Trails Program Delaware Workplan for FY 2011-2013. June 2011.

APPENDIX C

REVIEW CRITERIA

APPENDIX C: REVIEW CRITERIA

The Bicycle Work Group developed the following criteria to rank proposed bicycle projects. The criteria were used to rank each of the groups of projects, on-road and off-road.

The criteria is intended to be used by an ongoing MPO Bicycle Committee to rank new bicycle proposals and to re-evaluate the remaining projects at the end of the four-year TIP planning period.

Criteria (Total Possible Points = 58)

- Barrier/Gap Elimination (Total Possible Points Barrier Elimination = 9, Gap Elimination = 7)
  Gaps and barriers in the bikeway and shoulder system create serious problems for bicyclists, especially those who are not comfortable riding with traffic. Score is based on extent of elimination, with total elimination receiving the maximum score. A barrier can be a physical feature, such as a freeway, railroad track or river, but also includes roadways with a speed limit of 35 mph or greater and no shoulder. A gap is a road segment with inadequate bicycle facilities that connects two or more road segments that have adequate bicycle facilities.
  Points ____

- Safety & Security (Total Possible Points = 10)
  Studies have shown that separating bicycles from motor vehicle traffic improves both safety and the perception of safety. Separation also attracts more bicyclists to a given corridor by making it more comfortable to bike. 10 points means the segment is extremely safe and secure, a segment with high-traffic volume, high-speed and no bicycle facilities would score 0 points.
  Points for post-project segment (___) – Points for existing segment (___) = Points ____

- Regional Significance (Total Possible Points = 9)
  Regional bicycle facilities are significant because they connect major nodes and are intended to serve users over long distances. Commuter routes would be included in bike routes of regional significance. A project with the potential to greatly increase the number of trips would score 9 points; a project with minimal potential to increase the number of trips would score 0 points.
  Points ____

- Local Significance (Total Possible Points = 9)
  Bicycle facilities that facilitate local utility trips and students riding their bicycles to school present opportunities to greatly increase the number of trips accomplished by bicycle. This measure applies to a project that is either within a municipality or has a maximum 1 mile radius of impact or maximum length of 5 miles. A project with the potential to greatly increase the number of trips would score 9 points; a project with minimal potential to increase the number of trips would score 0 points.
  Points ____

- Multi-modal Connections (Total Possible Points = 7)
  Bicycle facilities that connect to transit facilities significantly improve mobility and convenience for bicyclists. Placing bicycle racks and lockers at major bus stops and park and rides are also critical improvements that should not be overlooked. A project that connects the maximum

available modes and has the potential to greatly increase the number of bicycle trips would score 7 points, a project only impacting bicycle travel would score 0 points.
Points ____

- Connections to Recreational Facilities (Total Possible Points = 9)
  Connecting people to recreation areas, such as parks, ball fields, playgrounds, schools and museums, requires a double faceted approach. In addition to on-road bicycle routes to recreational facilities, families and children are often best served by off-road trails. A project with the potential to greatly increase the number of trips to the recreational facility would score 9 points; a project with minimal potential to increase the number of trips would score 0 points.
  Points ____

- Cost (Total Possible Points = 5)
  Cost should be determined for all projects including permitting, right-of-way acquisition, construction, etc. An expensive project should receive a low point value, an inexpensive project can receive up to 5 points.
  Points ____

APPENDIX D

SUMMARY OF PROJECT RECOMMENDATIONS

APPENDIX D: SUMMARY OF PROJECT RECOMMENDATIONS

Table 7. Construction and Lane-Width Reallocation Projects		
South West Street	South from North Street (.40 miles)	South West Street is the location of the new Dover transit hub, but has no bicycle facilities to access the transit center. The road needs to be widened and a bike lane added, linking to the proposed bike lanes and multi-use path on North Street.
US 13	Scarborough Rd to Puncheon Run (4.61 miles)	US 13 is a major highway running north-south the length of the County, creating an impediment for bicyclists traveling east-west. Within Dover, US 13 is the main road to access many shopping and employment areas, but has no bicycle facilities and very heavy, fast-moving automobile traffic. Lane width should be reallocated to add a bike lane through this road segment during the upcoming road resurfacing project.
State Street	Between US 13 and Walker Road (approx .5 miles)	The segment of State Street south from US 13 to Walker Road has no bicycle facilities and no shoulders, and heavy, fast-moving traffic. In addition, the road is constrained by the bridge over Silver Lake. Reallocate lane width to add a bike lane.
DE 8/Forest Avenue	Railroad tracks to Heatherfield Way (1.8 miles)	DE 8 is one of the major east-west routes through Dover. The road west of US 13 has no bike facilities, no shoulders and heavy auto traffic. The road will also be one of the main access roads to the new Dover High School. Reallocate lane width to add bike lanes.
Walker Road	State Street to Saulsbury Road (approx. 1 mile)	Walker Road is a major east-west route connecting State Street and neighborhoods on the west side of the city. The road also has an elementary school and Dover High School. Between State Street and Saulsbury Road, Walker Road has a wide outside lane, no shoulders and moderate auto traffic. There is a bike lane between Saulsbury Rd and Kenton Road. Reallocate lane width to add bike lanes.

North Street	Wyoming Mill Rd to Railroad tracks (1.51 miles)	North Street/Hazlettville Road is a major route utilized to access Dover from the west. There is currently a multi-use path running on the eastbound side of the road between Shutte Park and the east end of the Eden Hill property. From the end of the multi-use path across the railroad tracks, the road is narrow and busy. On the westbound side, there is no shoulder nor multi-use path, except for a short segment of bike lane between the railroad tracks and Minima Street. Bike lanes and a clear transition from the multi-use path to North Street need to be added.
College Road	Between McKee Road and Dover-Kenton Road (0.81 miles)	College Road is the main road, other than US 13, accessing Delaware State University, and serves as a connector from West Dover to commercial areas on US 13. The road segment west of McKee Road has no bike facilities, no shoulders, and heavy auto traffic. The road needs to be widened and a bike lane added.
DE 10	Between US 113 and US 13 (2.9 miles)	DE 10 is the main road connecting Dover AFB with the towns of Camden and Wyoming. There are several schools along or just off the route. A key hazard is the bridge over the St. Jones River, there are no shoulders on westbound side, and no bike facilities and heavy, fast-moving auto traffic in both directions. Eastbound the shoulder should be marked as a bike lane, westbound, lane width should be reallocated to add a bike lane. Ideally, the speed limit on the bridge should also be reduced. A continuous bike lane should be added in each direction
Riverwalk - Milford	From Lulu Ross Elem. School: Lovers Lane to SE Front St to Marshall Street to the Riverwalk (.83 miles). From Banaker Elem. School: Church Street south to the Riverwalk (.63 miles).	To connect existing residential development with the Downtown and the Riverwalk, and In conjunction with the Safe Routes to Schools Program.
Saulsbury Rd./ DE 15	Between North Street and US 13 (3.57 miles)	Saulsbury Rd/McKee Rd/Scarborough Rd connects Delaware Tech and shopping areas to West Dover, and connects to each of the main east-west routes through Dover. The existing bike lane needs to be continued along the full length of the road, including through the intersections.

US 113 - Milford	From SR1 south through Milford (2.7 miles)	US 113 is the main north-south route through Milford, connecting numerous shopping areas. The road has no bicycle facilities, no shoulders, and fast, heavy auto traffic. A bike lane needs to be marked and/or added.
Kenton Road	DE 8 to Denny's Road (2.35 miles)	Kenton Road is a key commuting route for residents northwest of Dover, as well as a key route for recreational bicyclists. The road has no bicycle facilities and no or narrow shoulders and heavy, fast-moving automobile traffic. Lane width should be reallocated and the road widened if necessary to add a bike lane, including adding bike lane markings at the intersection with DE 8.
Sorghum Mill Road	Between DE 10 and the Hunn Property (1.65 miles)	Part of the St. Jones Greenway trail system the causeway connects from the Hunn Family Farm House to the Lebanon Landing Boat Ramp. From there a pedestrian bridge crosses over the St. Jones River to Old Lebanon Road. This road can be used by bicycles for approximately 2 miles until the path is blocked by the DAFB housing project. Sorghum Mill Road continues west to the small town of Lebanon and continues to multiple housing developments (Locust Grove, Eagle Meadow, and Quail Landing) as well as an elementary school, a middle school and the John S. Charlton facility. The causeway needs to be widened and a bike lane added.
Pearsons Corner Road	Between DE 8 and DE 42	A significant recreational biking road which is also used by horse and buggies and large trucks. The road has no bicycle facilities, no shoulders and moderate automobile volume. Pearsons Corner Road needs to be widened to add striped shoulders.
Chestnut Grove Road	Between Kenton Road and DE 8 (2.59 miles)	Chestnut Grove Road is a main connector route, used by automobiles, bicycles, and horse and buggies, from west of Dover to the northern commercial areas on US 13. The road has no bike facilities, no shoulders, and fast, moderate volume auto traffic. The road needs to be widened and striped shoulders added.
DE 12	From Felton to the Maryland line (10.75 miles)	DE 12 is a main mid-county east-west bicycling route. West of Felton, the road has no bike facilities, no shoulders, and fast, moderate volume auto traffic. The road needs to be widened and striped shoulders added.
DE 15	From Viola to Airport Road (5.72 miles)	This segment of DE 15, a major north-south bicycling route, has no bike facilities, no shoulders, and fast, moderate volume auto traffic. The road needs to be widened and striped shoulders added.

Intersections Needing Bike Lanes or Directional Markings		
US 13	Length of Kent County	US 13 is a four-lane divided highway with a median. Traffic volumes along this highway are high, and the posted speed is 50 mph.
DE 12	Intersection with US 13 in Felton	US 13 is a four-lane divided highway with a median. Traffic volumes along this highway are high, and the posted speed is 50 mph.
Rehoboth Blvd	Intersection of Warner Rd (K406) & US113	Warner Road (K406) & US 113 - traffic volumes are heavy along this segment of US 113. As Warner Road crosses US 113 right where it forks between US 113 and SR 14, the geometry of the intersection may confuse bicyclists traveling through the area for the first time.
10th Street, Milford	Intersections with US 113 and SR1	No bicycle facilities. 10th Street is a city-planned bike route.
DE 6 - Smyrna	Intersection of DE 6 and US 13	There are only two narrow lanes (10 feet) with turn lanes. There is no shoulder or extra space available for bicycle travel.
DE 14	Intersections with US13, US113, SR1	At its intersection with US 13, US 13 is a divided highway, with restaurants located in the median. The access points to these restaurants may create conflicts with bicycle traffic.
US 113A, S. State St.	Voshell Mill Rd north to SR 1	No bike facilities at most intersections, fast auto traffic
DE 42	Kenton to Cheswold	No bike facilities through intersections, fast, heavy auto traffic
Road Segments Identified for Sharrows		
State St. - Dover		US 13 south to US 13, including intersections with Walker Rd, Division St, Loockerman St, North St, and Water St. (3.00 miles)
Governors Ave - Dover		Walker Rd to Water St, including intersections at Division St and Loockerman St. (1.35 miles)
Division St. - Dover		US 13 to RR (1.53 miles)
Loockerman St. - Dover		Division to US 13 (1.36 miles)
DE 10 - Camden/Wyoming		US 13 to railroad on west side of Wyoming
BICYCLE ROUTE 3 - Harrington		Within Harrington (3.55 miles)

Off-Road Bicycle Paths		
Silver Lake/St. Jones Connector	1.7 miles	This connector would create a link through the center of the state's capitol from the Silver Lake trail (.5 mi) and the St. Jones trail (2.66 miles) with very few road crossings.
Camden to Dover Trail	4 - 4.5 miles, depending upon the final route	The Camden to Dover Trail would connect from Camden-Wyoming Ave to North St in Dover. The Trail would also provide connections to other on road facilities, and an additional connection to the proposed SR 10 trail would help to provide a loop.
Route 10 Trail	One side of the road - 2.7 miles Both sides of the road - 5.4 miles	The Route 10 trail would run from the St. Jones Greenway to US 13 .
Smyrna-Clayton Trail	1.35 miles	The Smyrna to Clayton Trail would connect existing trails around schools and parks to communities of Smyrna and Clayton. The trail would also link to the proposed trail to Easton, MD.
Smyrna-Big Oak Park Connection	2.20 miles	The trail would provide a connection between Smyrna and Big Oak County Park east of SR 1.
Clayton, DE to Easton, MD Trail	27 miles in Delaware	The Clayton to Easton recreational rail trail would connect Marydel, Hartley and Clayton with Greensboro, Goldsboro and Easton, Maryland.
Dover Air Force Base Trail	1.02 miles	The Dover Air Base Trail will run along the Route 1 section of the outside of the Dover AFB fence line extending from the North Gate Intersection to the Main Gate.

APPENDIX E

PUBLIC COMMENT

APPENDIX E: PUBLIC COMMENT

There were three comments made to the MPO during the 30-day public comment period.

1. Dover Air Force Base recommended an off-road project along Route 1 from the North Gate intersection to the Main Gate.

The proposed project has been included as Off-Road Project #3.

2. Mr. Michael Tholstrup, a Dover resident, recommended bicycle facilities for West Denney's Road connecting Kenton Road and Delaware Technical and Community College. (original e-mail text included in this appendix)

The West Denney's Road project has been prioritized and included as on-road project #3.

3. Mr. James Wilson of Bike Delaware recommended that DelDOT or the MPO undertake a planning study to further evaluate the feasibility of a Dover-Smyrna multi-use path. (original e-mail text included in this appendix)

Recommendation for West Denney's Road - Received 8/12/11

I live in the Mill Creek development, at the corner of McKee Rd. and West Denney's Rd. and would like to suggest an addition to the regional bike plan.

West Denney's Rd. is currently a narrow 2-lane road with no shoulder and represents the northern border of the city limit. Unfortunately, the nearest access from the residential neighborhoods on W. Denney's Rd. to DART bus service is located at the Del-Tech campus. However, residents are forced to cross an at-grade railroad crossing and a sharp blind curve that make it unsafe for pedestrian or bicycle traffic.

The new facilities I'm suggesting should connect Kenton Rd. with the existing multi-use trail at the Delaware Technical College, Terry Campus, along W. Denney's Rd. There are currently 4 neighborhood developments along this section of W. Denney's Rd. and It is my understanding that two more have been planned at the corner of McKee and W. Denney's Rd. (as well as annexation of those sites).

For these reasons I think that this is a prime route/location for inclusion in your long range regional bike plan.

Thank You,
Michael Tholstrup

Bike DE Comments received 8/20/11

In May, the 146th Delaware General Assembly unanimously passed "Walkable, Bikeable Delaware", a Resolution which directs the state to build "*multi-use paths for pedestrian and bicycle user travel within and between cities and towns in Delaware on independent right-of-way outside of the right-of-way of existing roadways.*" In June, to fulfill the promise of that Resolution, the General Assembly voted $5,000,000 for state bike routes.

The decision by the General Assembly to make an unprecedented investment of public funds in "off-alignment" multi-use paths between cities and towns was justified by the General Assembly on the grounds that safe, convenient and enjoyable routes for walking and bicycling

- provide cost-effective transportation options for Delaware families,
- can help spur economic development, and
- will promote physical activity, which helps maintain a healthy weight, preventing heart disease, type 2 diabetes and other chronic diseases.

Kent County's two largest cities are Dover and Smyrna. An off-alignment multi-use path between these cities, passing through and near major population and employment centers is the obvious candidate in Kent County to take advantage of the unprecedented new funds voted by the General Assembly.

Just as we worked hard to secure the $5,000,000 in state bike route funds, Bike Delaware is now working equally hard to make sure those funds are used to advance projects to connect cities for walking and bicycling up and down the state. Last Thursday, the WILMAPCO Technical Advisory Committee voted to add the first of those projects, an off-alignment multi-use path connecting Wilmington to New Castle, to the FY2012 TIP for New Castle County. $120,000 of the new state bike route money will be used to leverage $480,000 in federal transportation matching funds. On this coming Tuesday, the Sussex County Council will likely vote to recommend adding an off-alignment multi-use path between Georgetown and Lewes to its list of transportation priorities for inclusion in the FY2012 STIP, with state bike route money again used to leverage federal transportation matching funds.

The money voted by the General Assembly is for *state* bike routes, however. It was not the intention of the General Assembly and Governor - nor would it be fair - to split these funds between New Castle and Sussex, while Kent County is left out. Bike Delaware would like to see substantial funding for a Dover-to-Smyrna multi-use path included in the FY2013 TIP. We are prepared to bring the same laser focus to making sure that happens that we are now bringing to projects in New Castle and Sussex Counties. It would make our job easier, however, (and make it more likely that Kent County will not get left out) if a Dover-to-Smyrna off-alignment multi-use path is included in your bicycle plan.

Warm regards,
James Wilson
Executive Director
BIKE DELAWARE
722-4591 ext. 6
"Bikeway networks that everyone can use to get where they want to go on a bike."
Visit us at http://www.bikede.org/