

2017 Regional Bike Plan

Dover/Kent County MPO

Approved
September 2017

DOVER/KENT COUNTY MPO REGIONAL BICYCLE PLAN UPDATE

TABLE of CONTENTS

INTRODUCTION.....	3
ACCOMPLISHMENTS.....	5
VISION, GOALS & OBJECTIVES.....	6
EXISTING BICYCLING-RELATED POLICIES, ORDINANCES PLANS & COMMITTEES.....	7
Statewide.....	7
Local/Regional.....	10
EXISTING BICYCLE FACILITIES.....	13
GOAL 1 RECOMMENDATIONS - REGIONAL BICYCLE SYSTEM PROJECTS.....	19
Criteria for Project Evaluation.....	19
Recommended Projects.....	23
Dover Projects.....	24
Smyrna-Clayton Projects.....	41
Milford Projects.....	47
Camden-Wyoming Projects.....	51
Intersection Recommendations.....	54
GOAL 2 RECOMMENDATIONS – ORDINANCES, POLICIES, & PROGRAMS.....	55
Objective 1 Recommendations - Increase the viability of bicycling as a solution for any daily need...	55
Objective 2 Recommendations - Create an environment where all bicyclists and motorists know and follow the rules of the road.....	55
Objective 3 Recommendations - Promote bicycle transportation.....	56
Objective 4 Recommendations - Increase availability of bicycles.....	57
APPENDIX 1 – IMPLEMENTATION CHART.....	58
APPENDIX 2 – CONSIDERATIONS FOR FUTURE PLANNING.....	61
APPENDIX 3 – ACKNOWLEDGEMENTS.....	62

INTRODUCTION

Creating a bicycle system where people feel comfortable riding bicycles, whether for commuting, errand trips, physical fitness or recreation, is the ultimate purpose of developing a bicycle plan for the Dover/Kent County Metropolitan Planning Organization (MPO) region¹.

The first Regional Bicycle Plan (RBP) was adopted in 2011 and proposed recommendations to improve the regional bicycle system focused on increasing the number of people to use their bicycles for trips they would previously have made using motor vehicles. The plan acknowledged the need for the bicycle system to also meet the needs of children who would use bicycles for transportation to school or recreational facilities.²

Since development of the 2011 RBP, there have been advances in analysis techniques and a greater focus on the concept of "Level of Traffic Stress" and "Level of Stress Analysis" in evaluating and identifying not only safe bicycling routes, but what types of riders would use different bicycle routes based on their tolerance for traffic stress.³

This has enabled the focus of this plan to be not only on increasing the number of people switching from using motor vehicles to bicycles, but also on increasing the number of people who will ride bicycles at all. The first step in getting people to switch their mode of travel is to enable them to feel comfortable and safe riding a bicycle. With this new information, enabling families to have opportunities to ride their bicycles together takes on a greater importance in this plan than in the previous plan.

Purpose of the Regional Bicycle Plan Update

The purpose of the Regional Bicycle Plan Update is to review the progress under the RBP and establish goals and objectives for improving the safety and effectiveness of the bicycle system. The Plan Update identifies and prioritizes recommended projects and makes recommendations for policies, ordinances, and other actions that should be taken at either the State, County or Local government level. The Plan Update uses a 20-year planning timeframe with the plan being updated for accomplishments and changes every 5 years. This timeframe for this Plan Update is 2017-2037.

Process for Development of the Regional Bicycle Plan Update

The Dover/Kent County MPO convened a Bicycle Working Group to develop the Plan Update. The working group began meeting in July 2016 and identified the goals and objectives that guided the development of the plan. The working group met monthly, holding 11 meetings between July 2016 and June 2017, during which they identified bicycle facility needs, developed evaluation criteria, and prioritized projects. The working group identified non-project recommendations that would lead to creating a bicycle system where people feel comfortable riding bicycles and increasing the number of people riding.

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.

Public Workshops:

Two public workshops were held to gather input into the Plan Update. The first, focused on gathering information on gaps and impediments in the existing bicycle system, was held in September 2016. The second public workshop was held in June 2017 to gather comments on the proposed recommendations to be

¹ The MPO region includes all of Kent County, the City of Smyrna and the City of Milford.

² *Regional Bicycle Plan for 2030*. Dover/Kent County Metropolitan Planning Organization. 2011.

³ Mineta Transportation Institute, "Low-Stress Bicycling and Network Connectivity", May 2012.

included in the Plan Update.

In addition to the 2 public meetings, the MPO Executive Director and project consultant met with the Dover Bicycle and Pedestrian Subcommittee in November 2016 and with the Smyrna Planning & Zoning Commission in May 2017 to gather additional input.

A second public workshop was held on June 26, 2017 and the draft Bicycle Plan was released for a 30-day public comment period in July. The Dover/Kent County MPO Council held its meeting to adopt the plan on {DATE}.

ACCOMPLISHMENTS

The following projects have been implemented following publication of the 2011 RBP:

- Capital City Trail (completed)
- West Street Pathway (design, construction 2017)
- Route 10 Bridge Bikeway (completed)
- West Dover Connector Trail (open Summer 2017)
- US 13 Bike Lanes (completed)
- South Governors Avenue Bike Lanes (completed)
- Sharrows painted on Loockerman Street and Governors Avenue



Additional accomplishments include:

- City of Dover Bicycle & Pedestrian Subcommittee established (2013)
- City of Dover Bicycle Plan (2015)
- Senator Bikeway (design 2017, construction starting in 2018)
- City of Dover received Honorable Mention as a Bike Friendly City by the League of American Bicyclists (2013)
- Signature bicycle racks designed by Dover High School students, first rack installed in 2017 at Dover Public Library
- City of Milford Bicycle & Pedestrian Master Plan
- Amish Bike Tour continued expansion



VISION, GOALS & OBJECTIVES

Dover/Kent County MPO Transportation Goals from Vision 2040⁴

Goal 1 - Move People Safely and Efficiently

The primary goal of a transportation system is to move people as safely and efficiently as possible, for all modes of travel. Safe and efficient transportation is inextricably linked to improved quality of life, reduced delays, and increased economic development opportunities.

Goal 2 - Strengthen Communities

A transportation system is at its most effective when it safely moves people and goods as efficiently as possible, with minimal delay and disruption to the user. However, a transportation network is also a vital component to a strong, active, and vibrant community. An ineffective transportation system undoubtedly has an adverse impact on an area's quality of life.

Goal 3 - Promote Economic Development

Transportation is undoubtedly one of the key components to the success or failure of a community's economy, whether on a local, regional, or national level. Access to key freight routes, highways that are free of congestion, the ability to receive and ship materials in a timely fashion, and even the ability for workers to safely walk to work, are all vital for businesses to succeed in today's global economy.

Regional Bicycle Plan Goals and Objectives

Two goals specifically focused on the bicycling portion of the transportation system were identified for the Regional Bicycle Plan. Objectives were developed for each goal, stating how the goal, or desired end-result, will be achieved. The overarching goal of the work group is to get more people using bicycles; the two goals below represent what is needed in order to achieve that.

Vision – Kent County will become a place where many people, young and old, use bicycles for transportation and/or recreation

Goal I - Create an effective and safe bicycle transportation system

Objective 1 - Ensure that bicycle routes reach high-demand destinations such as schools, employment centers, and parks

Objective 2 - Maintain and improve existing bicycle facilities

Goal II - Make bicycle riding a viable transportation option for persons of all ages in Kent County

Objective 1 - Increase the viability of bicycling as a solution for any daily need

Objective 2 - Create an environment where all bicyclists and motorists know and follow the rules of the road

Objective 3 - Promote bicycle transportation

Objective 4 - Increase availability of bicycles

⁴ Vision 2040 - Metropolitan Transportation Plan. Dover Kent County MPO, 2017

EXISTING BICYCLING-RELATED POLICIES, ORDINANCES PLANS & COMMITTEES

Statewide

DelDOT Blueprint for a Bicycle-Friendly Delaware – A Statewide Bicycle Policy Plan

DelDOT is in the process of working with stakeholders to develop a policy-oriented master plan that will help make Delaware more bicycle friendly. The project started in December 2016 and is anticipated to be completed December 2017. Four key purposes of this project include:

- Integrating broad bicycle goals of agencies and major stakeholder groups into a unified strategic plan
- Identifying and promoting the many effects already underway to enhance and encourage bicycling in Delaware
- Ensuring the progress toward a more bicycle-friendly state is maintained, and
- Ensuring that all of the Department's efforts make bicycling safer, more comfortable, more convenient

Healthy and Transit-Friendly Development Act

The Healthy and Transit-Friendly Development Act was signed into law on May 5, 2016. The law enables local governments and the DelDOT to jointly designate "Complete Community Enterprise Districts". Within a designated District, the local government partner must zone and plan for mixed uses and higher density development and relinquish counter-productive and burdensome parking regulations. In return, DelDOT must design streets in the District to be slow so that both walking and cycling are safe and inviting and must also prioritize capital investments in transit, walking and cycling improvements.

First State Trails and Pathways Initiative

The First State Trails and Pathways Initiative was created in 2012 and is managed by DelDOT and the Department of Natural Resources and Environmental Control (DNREC). The goals of the Initiative are:

- Establish Delaware as a Top Ten Bicycle Friendly State (as designated by the League of American Bicyclists)
- Support the creation of jobs resulting from investments in biking and walking
- Create/expand community connections
- Create healthy and active communities
- Provide safe, affordable transportation and recreational choices
- Incorporate environmentally-friendly practices into trail projects

Since the program was initiated, numerous trails and pathways projects have been planned, designed, and constructed throughout the state. Delaware has improved its ranking as a Bicycle Friendly State by the League of American Bicyclists, jumping from a national ranking of #10 in 2012 to #3 in 2015, ranking Delaware as the most Bicycle Friendly State east of the Mississippi River.

One of the Kent County projects was the Capital City Trail, completed in 2014. The Capital City Trail is a shared-use pathway that provides a direct connection from Silver Lake Park to the Isaac Branch Trail (a 2.6-mile greenway that connects US 13 and Route 10 – Effectively implementing the Silver Lake to St. Jones project from the 2011 MPO Bicycle Plan). The Capital City Trail was completed through a combination of widening existing sidewalks and installing new pathways to create an important pedestrian and biking facility in the heart of downtown Dover.

DelDOT Complete Streets Policy

In 2010, DelDOT adopted its Complete Streets Policy. As noted in the Policy, “the term Complete Street means a roadway that accommodates all travelers, particularly public transit users, bicyclists, pedestrians, and motorists, to enable all travelers to use the roadway safely and efficiently.” The purpose of the Complete Streets Policy is “to ensure that the 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.”

A primary objective of the Policy is “to define and implement changes to the project development process that will value all transportation modes during the project scoping phase and enhance currently used design practices through updates to DelDOT subdivision and design manuals, design memoranda, and policies.” The Policy indicates “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.”

DelDOT Safe Routes to School Program

Safe Routes to School (SRTS) is a DelDOT program to facilitate and encourage children to walk and bike to school safely. The program was established in 2002, and the corresponding Federal SRTS program was initiated in 2005. Any public, private or charter schools are eligible to participate in the program, provided the projects benefit elementary and middle school age children. The SRTS program contains 5 components (the 5E's): Engineering, Education, Enforcement, Encouragement, and Evaluation. DelDOT works with each school in the program to develop a Safe Routes to School Plan that incorporates each of these five elements into a comprehensive program. Examples of eligible infrastructure and non-infrastructure costs are listed below.

Infrastructure

- Sidewalk improvements
- Traffic calming
- Pedestrian signals
- Bicycle parking

Non-infrastructure

- Traffic education and enforcement
- Student sessions on safety
- Parent education materials
- Evaluation and data gathering



Twelve SRTS projects have been completed in Kent County.

Capital School District

- Booker T Washington Elementary School (2010)
- William Henry Middle School (2010)
- Central Middle School (2011)
- Towne Point Elementary School (2011)

Lake Forest School District

- Chipman Middle School (2011)
- Lake Forest South Elementary School (2011)

Caesar Rodney School District

- Fifer Middle School (2011)
- Nellie Stokes Elementary School (2015)
- W. Reilly Brown Elementary School (2015)

Smyrna School District

- JB Moore Intermediate School (2011)

Milford School District

- Milford Central Academy (2015)
- Banneker Elementary School (2016)

Delaware Bicycle Council

The Delaware Bicycle Council consists of 15 members who represent various government agencies (public safety, transportation, education, recreation, public health), as well as citizen representatives from each county. The primary purpose of the Delaware Bicycle Council is to “consider, review, and work on matters

pertaining to bicycling, bicycle safety, and bicycle education, and to make recommendations to various state agencies." The Delaware Bicycle Council serves as a resource in policy-making and legislative issues, in order to ultimately increase facilities and opportunities for bicyclists in Delaware.

Bike Delaware

Bike Delaware is an independent, non-government, member-supported non-profit advocacy organization. Its mission is to make cycling and walking safe, convenient, and fun transportation options in Delaware by working in partnership with government, business, and community groups. The Bike Delaware vision is bikeway networks that everyone can use to get where they want to go on a bike.

Local/Regional

City of Milford

The City of Milford issued its Bicycle & Pedestrian Master Plan in 2011. The City's 2008 Comprehensive Plan included a vision that included to the desire for creating a more livable community through walking and biking. The purpose of the Bicycle & Pedestrian Plan was to provide the city with a strong planning tool to facilitate the continued and orderly development of bicycle and pedestrian facilities and implementation strategies that encourage their use. The Master Plan includes goals and objectives and recommendations for both pedestrian and bicycle projects.

City of Dover

The City of Dover created a Bicycle and Pedestrian Subcommittee in 2013 and issued the City of Dover Bicycle Plan in March 2015⁵. The Subcommittee works on implementation of the Bicycle Plan, including the highest prioritized project in the plan, the Senator Bikeway. Senator Bikeway segments are in various stages of implementation.⁶

The Bicycle Plan included recommendations for Education and Encouragement activities in addition to project recommendations. Education recommendations included activities involving classes, workshops and educational support. Encouragement recommendations related to specific proposals for activities and group rides to encourage increased bicycle riding.

The City's Code of Ordinances addresses bicycling in several ways:

- For large-scale development projects, "bicycle parking shall be provided for parking spaces at a rate of one bicycle parking space for every 20 vehicular parking spaces."
- A Corridor Overlay Zone has been established along Route 8 (RR tracks to western City limits) and McKee/Saulsbury Road (Dennys Road to North St). Among its primary purposes is to promote superior urban design, which by Code reference includes "transportation amenities for bicycles, pedestrians, and transit that exceed those required by the zoning ordinance."
- Traditional Neighborhood Design (TND), a zoning designation. As stated in the Code, "the intent of the TND zone is to create a walkable and pedestrian-friendly, economically viable professional, commercial and mixed use residential neighborhood for people of different ages and incomes that draw from the best architectural and community design features of Delaware and the Delmarva Peninsula from its colonial past to the mid 20th century." "The TND shall have a pedestrian walkway and/or bicycle system through the open spaces that connect to the street system or connects a series of open spaces. Bicycle parking and locking facilities should be provided in public spaces..."
- The city encourages the registration of bicycles with the police department for identification purposes.

Health and Equity Analysis Of City of Dover and Kent County Regional Bicycle and Pedestrian Plans

Through funding from the American Planning Association's (APA) Plan4Health program, the Delaware Chapter of the APA, the Delaware Public Health Association and Delaware Coalition for Healthy Eating and Active Living (DE HEAL) sought to create an approach to integrate health and equity in planning. Using feedback from the community, the Delaware Plan4Health team has examined opportunities to integrate health and equity in the update of the Kent County Bicycle Plan

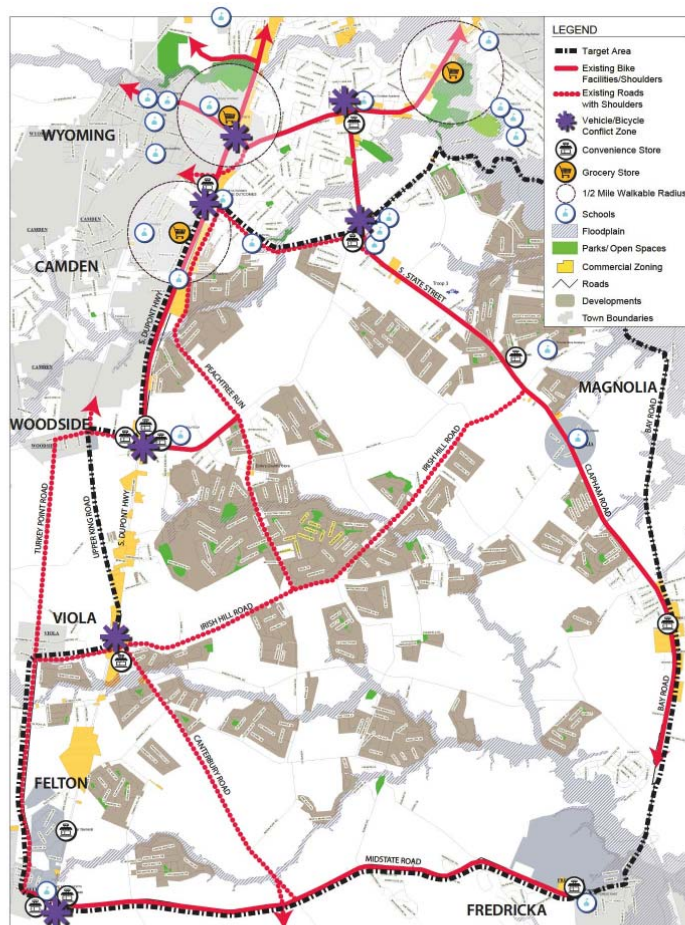
⁵ *City of Dover Bicycle Plan*. City of Dover, Delaware. March 2015.

⁶ The Senator Bikeway is an ongoing project and thus is not included as a recommendation in this plan. The work group is highly supportive of the Senator Bikeway and has assumed its completion as part of the existing Kent County bicycle system. The recommended projects are intended to be in addition to, not in place of, the Senator Bikeway.

With findings from health and equity analyses and information gathered from the charrettes held in Dover and Kent County, the team identified several improvements to the pedestrian and bicycle networks that will enhance connectivity to retail, grocery, public spaces, and other community assets.

Kent Network

The pedestrian and bicycle network for Kent County, named “Heart of Delaware Trail” by those at the charrette, forms a loop of some of Kent County’s small towns, and some of the local farmer’s markets or produce stands. The Heart of Delaware Trail can be an attraction for residents and visitors to explore small Delaware towns, as well as Amish and farming communities. In addition, the proposed trail would bring more active transportation opportunities to the area, while also connecting residents to various destinations in neighboring communities, such as grocery stores, schools, and other commercial and retail uses.



Heart of Delaware Trail-
Plan 4 Health Kent County, DE Proposed Bicycle Network

Delaware
PLAN4Health
An American Planning Association Project

Planning4Health Solutions
Creating Healthy Environments

CRJA (B) landscape architects



The routes identified are along rural roads in a suburbanizing area. The team discussed the following potential upgrades to these routes to make them a part of an identifiable “network” for bicycles and pedestrians:

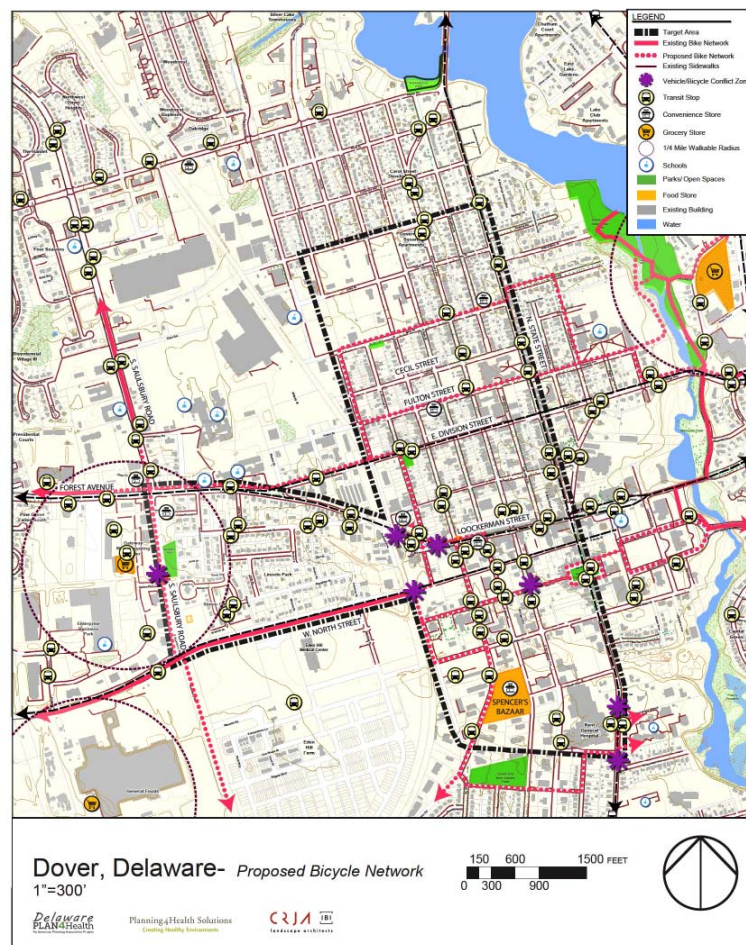
- Many of the roads have existing shoulders, which have the potential to be repurposed as multi-modal lanes.
- New shoulders and multi-modal lanes would be needed on other roads for the network to be completed, and connect neighborhoods to important destinations.
- These routes should be marked so that people know to use them as the safest routes to bicycle between their destinations.

Dover Network

A conceptual Pedestrian and Bicycle Network Plan was created with the aim to expand and define a pedestrian and bicycle system for the City of Dover, including connecting neighborhoods to parks, historic sites, schools, and commercial areas, especially locations with healthy foods.

Many of the routes identified are local streets in a downtown, urban environment with on-street parking and sidewalks on both sides of the street. The routes selected tended to be lower traffic streets that connected neighborhoods to important destinations, as described above. The team discussed potential upgrades to these routes to make them a part of an identifiable “network” for bicycles and pedestrians:

- Enhanced bicycle infrastructure appropriate to their context, i.e. bike lanes in some areas, sharrows in others, and possibly off road trails in certain locations.
- Routes should be marked so that people know to use them as the safest routes to walk or bicycle between their destinations.







EXISTING BICYCLE FACILITIES

There are a variety of bicycle facilities that are used to provide safe and efficient bicycle travel. When selecting and designing bicycle facilities, several factors need to be taken into account:

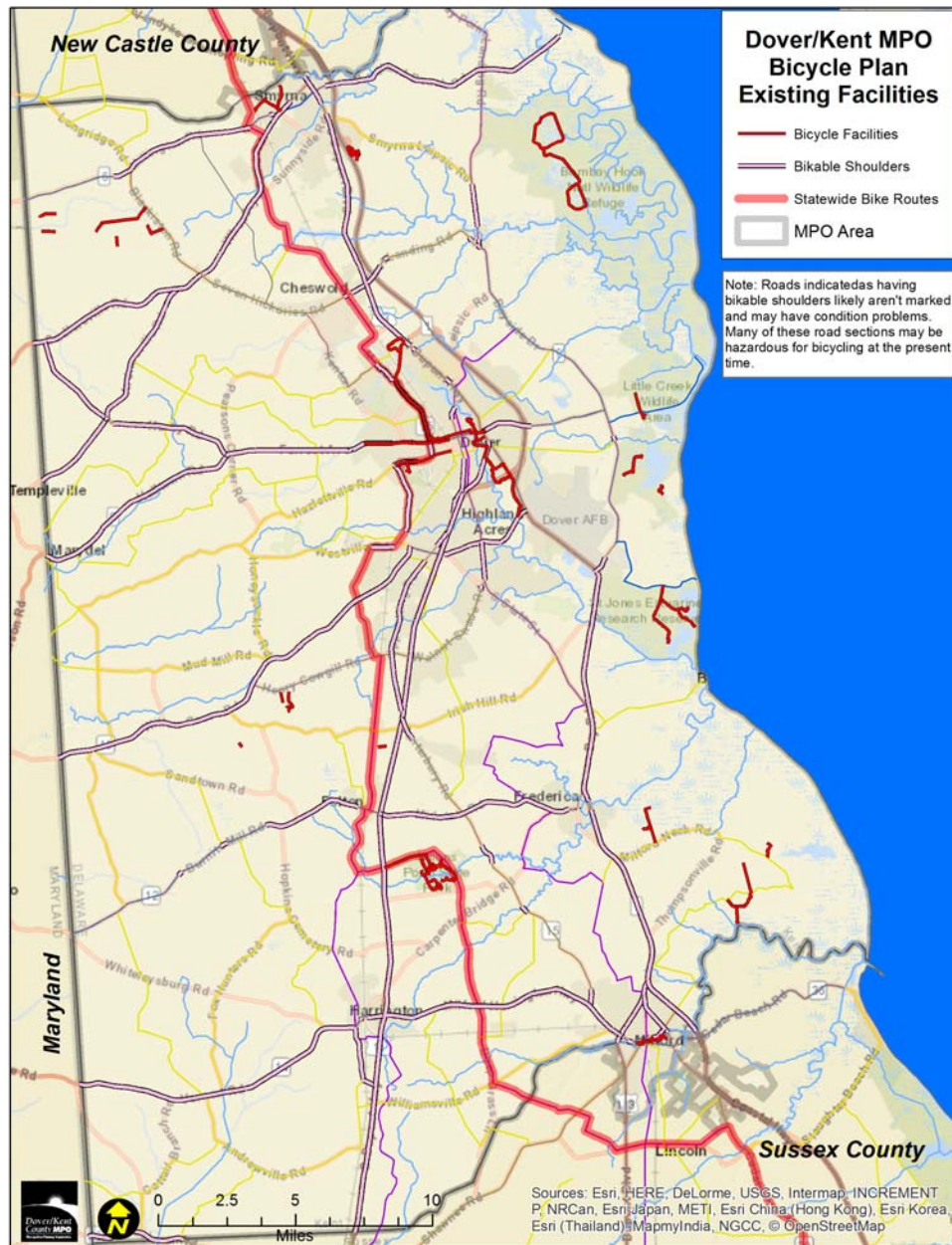
- Space requirements for bicyclists and their potential loads
- Type of bicyclist expected to be served by the facility
- Speed on the roadway, for on-road bicycle facilities

The table below provides a summary of the different facilities commonly used. These techniques are cited in publications such as the DelDOT Road Design Manual, the Delaware Manual on Uniform Traffic Control Devices (MUTCD), the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, and the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide.

On-Road Bicycle Facilities	Width	Intended Use	Example
Bike Lane	4–6 ft.	Bicycle travel along a roadway	
A. Striped			
B. Colored			
C. Buffered			
Cycle Track	10-16 ft.	Bicycle route within the road, physically separated from motor vehicles and pedestrians	

Sharrow	N/A	On low volume, low speed roads where bike lanes are not practical or feasible	
Bicycle Boulevard	N/A	On low-volume, low- speed roads where bicycle travel is given priority over motor vehicles	
Intersections - Striping	4-6 ft.	Intersections with right-turn lanes	
Intersections – Bicycle Box	14-17 ft.	Intersections with high bicyclist and motor vehicle volumes	
Off-Road Bicycle Facilities	Width	Intended Use	Example
Shared-Use Path	8-10 ft.	Bicycle route separated from motor vehicles and shared with pedestrians. Often parallel to high-speed roads	
Trail	8-10 ft.	Recreational route that connects with the overall bicycle network	

The existing bicycle system is shown on the map below.



Although no overall inventory of bicycle parking in Kent County has been completed, an inventory of key bicycle parking facilities (bike racks) was made in the City of Dover in 2013. At that time there were spaces to park 455 bicycles, with the following distribution:

Location	# Spaces
Schools	174
Colleges	102
Government Buildings	50
Luther Towers/Luther Village	38
Parks/YMCA	38
Dover Downs	18
Library	12
Target	5
Transit Center	4
TOTAL	455

Bicycle Network Impediments and Gaps

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, but 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.



Safety impediments include:

Gaps in existing bicycle facilities, such as a bike lane or a shoulder disappears or no bicycle facilities at an intersection.

- Lack of bicycle facilities on a road, such as no bike lane or narrow shoulders with heavy motor vehicle traffic and high vehicular speeds.

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.

A 2-step process was used to identify gaps and deficiencies in the Kent County Bicycle System. The first step was identification of gaps and impediments by the working group. The working group identified stretches of roads and specific locations of concern. The second step was additional data gathering through a public workshop held September 21, 2016. MPO staff and the consultant reviewed the areas of concern identified during each session to determine specific road conditions in those areas. These were then developed into the projects reviewed and ranked by the working group.

Low Stress Bicycling and Connectivity

DelDOT has begun using a system of bicycle route classification relating to the level of stress a bicyclist would feel on that route, "Level of Stress Analysis". To attract more people to bicycling, there is a need for low-stress connectivity – providing routes that link origins and destinations that do not require bicyclists to travel on routes that exceed their tolerance for traffic stress.⁷

Level of Stress Analysis assigns road segments into 4 classifications:

Level of Traffic Stress 1 – Safe for children to use, usually completely separated from Traffic.



Level of Traffic Stress 2 – Tolerated by most mainstream adult populations of cyclists, roads with low volume and low speed motor vehicle traffic.



Level of Traffic Stress 3 – Tolerated by riders who are enthused and confident, road has heavy traffic with separated bicycle facility.



Level of Traffic Stress 4 – Only tolerated by strong and fearless riders, cyclists must interact with high volumes or speeds of auto traffic.

The goal of most bicycle system improvements is to reduce the level of traffic stress classification.

⁷ Mineta Transportation Institute, "Low-Stress Bicycling and Network Connectivity", May 2012.

GOAL 1 RECOMMENDATIONS - REGIONAL BICYCLE SYSTEM PROJECTS

In continuing to pursue the goal of creating an effective and safe bicycle system in Kent County, the working group examined the map of the existing bicycle network and identified a number of projects to help complete in the system, particularly in the main metropolitan areas of the County. An overall system map, including existing, planned and recommended projects is shown on the next page. An electronic version of the map is available at _____. The electronic version also includes data layers for Level of Traffic Stress, showing the low-stress bicycle network in addition to bike lanes and shared-use paths.

The recommended projects are intended to close gaps in the regional bicycle network. The two main purposes of the projects are to connect riders with key destinations, such as parks, recreational centers, schools, public buildings, employment centers and commercial/retail centers, and to provide low stress linkages between existing low-stress bicycling areas such as neighborhoods.

CRITERIA FOR PROJECT EVALUATION

The working group used seven criteria to evaluate potential projects:

1. Barrier/Gap Elimination
2. Regional Significance
3. Local Significance
4. Connections to Recreational Facilities/Points of Interest
5. Multi-Modal Connections
6. State Investment Strategies
7. Level of Traffic Stress Reduction

The criteria were assigned weighting factors through a group process utilizing DecisionLens.⁸ The process was based on a trade-off analysis using paired comparisons between the criteria. The working group members went through a system of pairwise comparisons in order to weight the criteria relative to one another. After the weights were determined, work group member assigned each project a score for each criterion, as described below. The weights were then applied to the scores and the weighted scores were aggregated to determine the prioritization of each proposed project.

Barrier/Gap Elimination

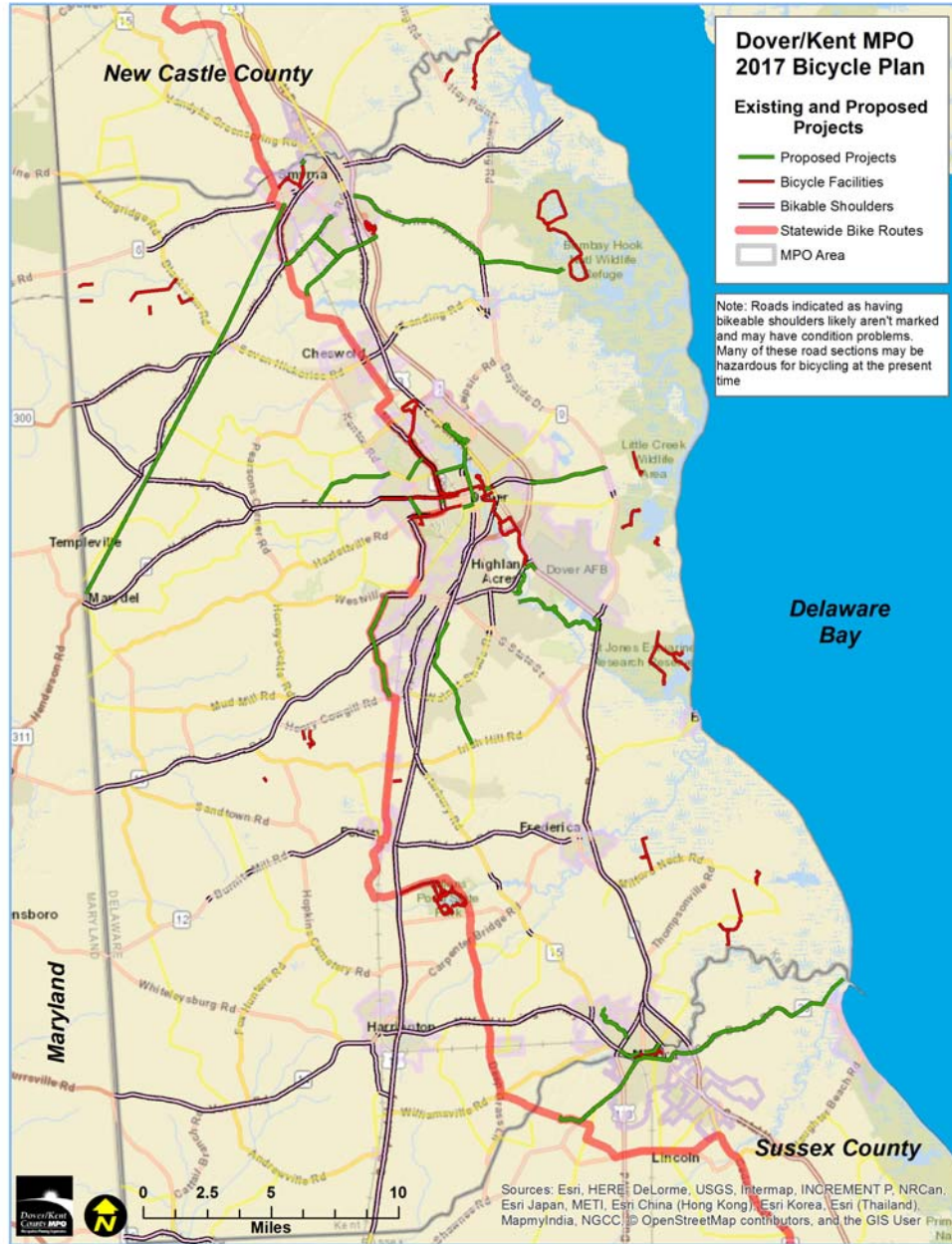
Gaps and barriers in the bikeway and shoulder system create serious problems for bicyclists, especially those who are not comfortable riding with traffic. A barrier can be a physical feature, such as a freeway, railroad track or river, but also includes roadways with a speed limit of 35 mph or greater 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.

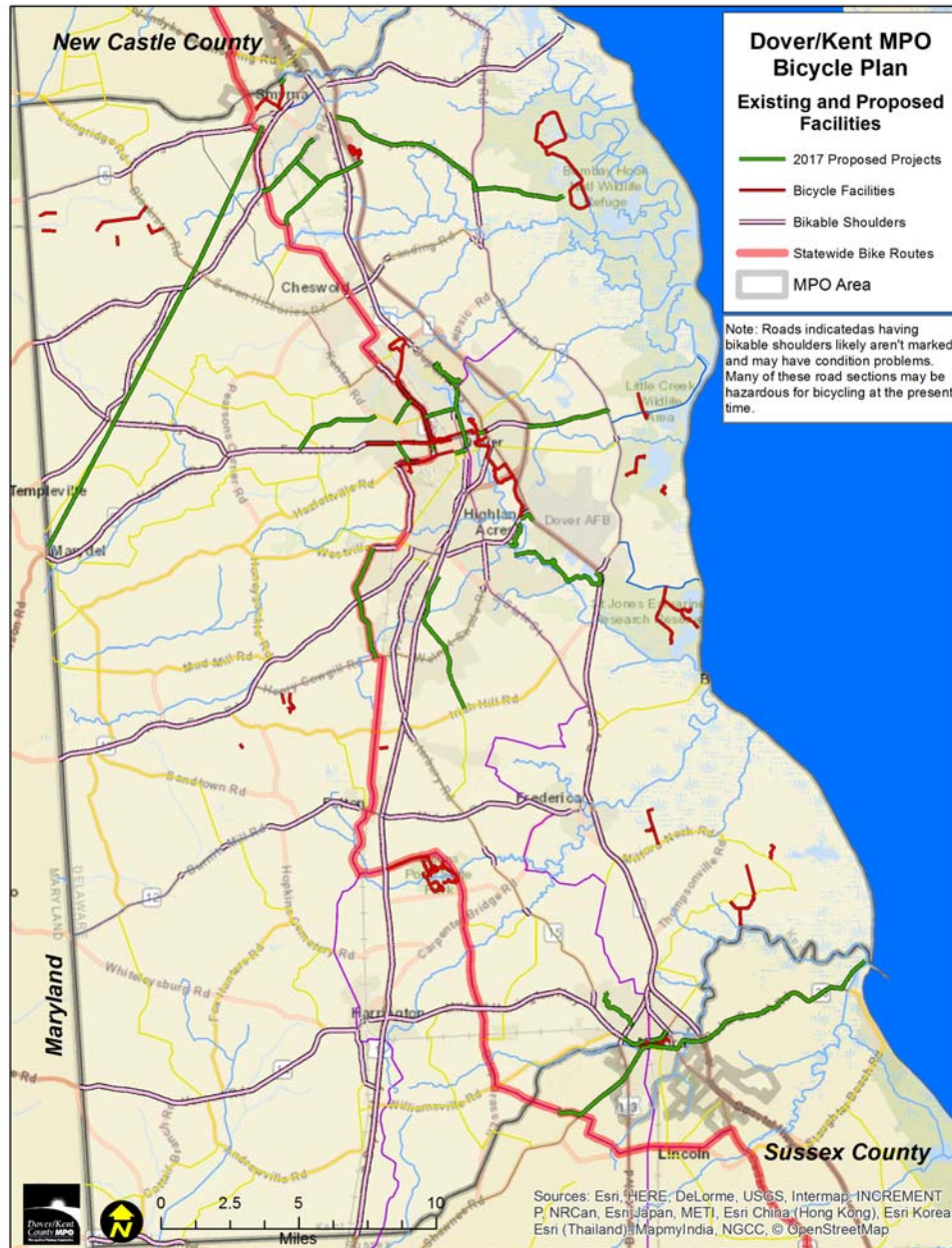
Score: Scale between 0 – 10, with 10 indicating the highest level of benefit, 0 indicating that no gap or barrier was eliminated and the project does not link to any other bicycle route.

Factors to consider in the score:

- How centrally located the project is. A project closer to the center of town (or population) would score higher than a project in the same bikeway system that is farther toward the fringe.
- How many people would potentially benefit from the project, the more people who can benefit, the higher the score. A project linking to more densely populated areas would score higher than one that connects to smaller populations.

⁸ <https://decisionlens.com/>





- Overall length of the system being connected with the elimination of the gap or barrier. A project linking into a larger system would score higher than one linking into a shorter system. E.G. a project with a higher connectivity quotient⁹, would receive a higher score.
- Removal of a physical barrier may score higher than filling in a gap.
- Total elimination of a barrier or gap would receive a higher score than a partial elimination.
- Existence of an alternative route. A project that addresses a gap/barrier on a route that is the sole route between destinations would score higher than the same project on a route for which a viable alternative route already exists.

Weighting factor: 0.175

Regional Significance

Regional bicycle facilities connect major nodes and are intended to serve users over long distances. Commuter routes would be included in bike routes of regional significance.

Score: scale between 0 – 10, with 10 indicating the potential to greatly increase the number of trips and a project with minimal potential to increase the number of trips would score 0 points.

Factors to consider in the score:

- Would the project serve as part of a commuter route? A project that is part of a commuter system would score higher than an isolated route.
- Does the project connect separate towns or connect into a system connecting separate towns? A project connecting towns or closing a gap connecting unconnected towns would score higher than a route solely within one town.
- Would the project serve long-distance recreational cyclists? A project serving long-distance cyclists would score higher than a local route.

Weighting factor: 0.087

Local Significance

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.

Score: scale between 0 – 10, with 10 indicating the potential to greatly increase the number of trips and a project with minimal potential to increase the number of trips would score 0 points.

Factors to consider in the score:

- Does the project provide a safe route to a school(s)? A route connecting to a school would score higher than one not connecting to schools.
- Does the project connect adjoining neighborhoods? A project creating a connection between neighborhoods that have no other safe connections would score higher than one that does not create a new connection.
- Would the project facilitate utility trips such as to local stores/banks/library, etc.? A project that links neighborhoods to these resources would score higher than one that does not.

Weighting factor: 0.132

⁹ Connectivity Quotient = length of the total system/length of the project

Connections to Recreational Facilities/Points of Interest

Connecting people to recreation areas, such as parks, ball-fields, playgrounds, 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. Providing connections between museums and other points of interest such as nature areas has the potential to increase tourism by creating a bicycle friendly tourism environment.

Score: scale between 0 – 10, with 10 indicating the potential to greatly increase the number of trips to a recreational facility and a project with minimal potential to increase the number of trips would score 0 points.

Factors to consider in the score:

- Does the project provide a child/family-friendly route (Level of Traffic Stress 1 or 2)? A project that provides a LTS of 1 or 2 would score higher than one that is LTS 3 or 4 or does not connect to recreational facilities.
- Does the project provide connections to and between tourism destinations? A project that creates connections between tourism destinations would score higher than one that does not connect to tourism destinations.
- Does the project provide connections to and between recreational facilities? A project that creates connections to recreational facilities would score higher than one that does not.

Weighting factor: 0.181

Projects were assigned standard scores for the following three criteria; work group members did not individually score them:

Multi-modal Connections

Bicycle facilities that connect to transit facilities significantly improve mobility and convenience for bicyclists. Multi-modal connections of relevance in Kent County include bus stops and park and ride lots within 1 mile of the project.

Score: 0 – no multi-modal connections

Score: 5 – 1 – 3 multi-modal connections

Score: 10 – 4 or more multi-modal connections

Weighting factor: 0.051

Level of Traffic Stress Reduction

DelDOT has identified Level of Traffic Stress designations for roads in the county, with LTS 1 being an off-road bicycle path and LTS 4 being riding on a road with traffic and/or high speeds and no bike lane.

Score: 0 – No reduction in LTS

Score: 4 – Reduction from LTS 4 to LTS 3 or LTS 3 to LTS2 or LTS2 to LTS1

Score: 7 – Reduction from LTS 4 to LTS2 or LTS 3 to LTS1

Score: 10 – Reduction from LTS4 to LTS1

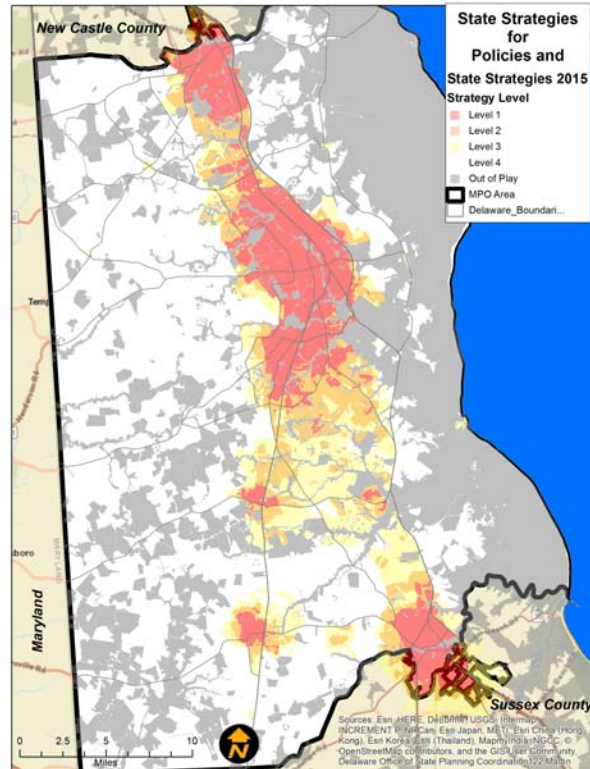
Weighting factor: 0.241

State Investment Strategies

The State has identified areas of the state that fall into 4 levels of investment categories, with 1 being the highest level of investment and 4 being an area outside the growth zone that should be given minimal investment in infrastructure.

Score: 1 – Investment area 4
Score: 4 – Investment area 3
Score: 7 – Investment area 2
Score: 10 – Investment area 1

Weighting factor: 0.134



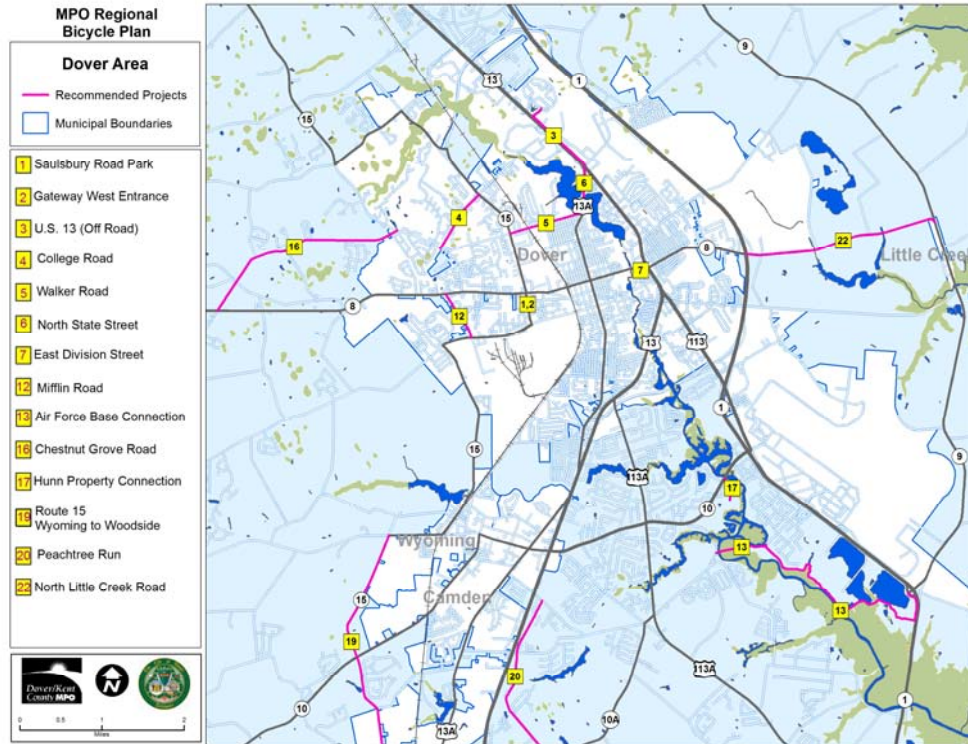
RECOMMENDED PROJECTS

The recommended projects are presented geographically, with projects grouped into the follow regions:

- DOVER
- SMYRNA/CLAYTON
- MILFORD
- CAMDEN/WYOMING

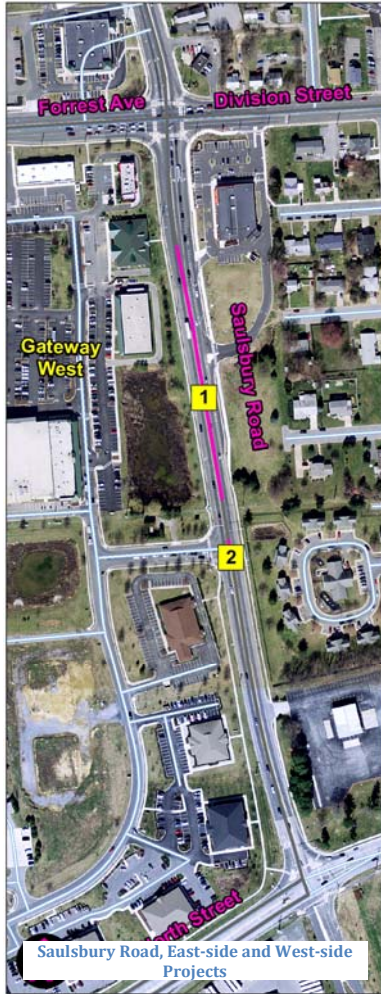
For each geographic area, the projects are presented in order of ranking, with the highest ranked projects being presented first. Signage and road marking projects were not ranked since they do not involve capital construction costs.

DOVER PROJECTS



Project	Score
Saulsbury Road – Saulsbury Road Park	103.0
Saulsbury Road – Gateway West Entrance	92.2
Dover Mall - Leipsic Road	91.9
College Road	85.9
Walker Road	84.5
State Street Silver Lake Crossing	81.9
Route 8 Park Drive - US 13	78.7
Mifflin Road	70.5
Route 10 – Route 9 Connector	69.3
Chestnut Grove Road	63.5
Hunn Property Connector	60.0
Route 8 Dover – Little Creek	51.3

Project: Saulsbury Road- Saulsbury Road Park (1)



The shared-use path of the West Dover Connector will terminate at North Street. At this point the path is on the east (northbound) side of the West Dover Connector. Across North Street there is an isolated segment of shared-use path that fronts the Royal Farms gas station on the NE corner. There is also a shared-use path that fronts the CVS drug store on the SE corner of Saulsbury Road and Route 8. This shared-use path extends south along Saulsbury Road part way along Saulsbury Park. A 5-foot wide sidewalk fills the gap between the ends of these two paths.



Project specifics:

The 500-ft long sidewalk between the two shared-use paths needs to be widened to connect the two segments of shared-use path. In addition, a shared-use path link through Saulsbury Park to the Lincoln Park neighborhood is needed.

Intersections Included:

The widened shared-use path needs a connection into the Lincoln Park neighborhood. Already, residents are walking or bicycling across the grass of Saulsbury Park to get out to Saulsbury Road, demonstrating a need for this link. The link was also suggested as a part of the Delaware Plan4Health health planning workshop held in conjunction with Restoring Central Dover in July of 2016, as well as the City of Dover Bicycle Plan.

Connections with the Low-Stress Bicycle Network:

This project is a key connector that will help link together five important components of the Low-Stress Bicycle Network:

1. The new West Dover Connector (WDC) shared-use path, at the south end of the project travels south to Rodney Village Shopping Center, US 13, and Brecknock Park.
2. The existing North Street shared-use path, also at the south end of the project, provides east-west travel, east into downtown Dover, and west to Schutte Park.
3. The Senator Bikeway (in design), at the north end of the project provides east-west travel through the central part of Dover.
4. The existing shared-use path extending along the west side of Saulsbury Road from Route 8, also at the north end of this project, extends to Delaware Technical College at the north end of the city.

5. The Lincoln Park Neighborhood (a network of low-stress residential streets) is located across Saulsbury Park, east of the project. This neighborhood is within the boundaries of the Restoring Central Dover initiative. Without the added link, the neighborhood will continue to be underserved and somewhat cut off from the community at large.

Project score: 103.0

Project: Saulsbury Road – Gateway West Entrance (2)

A bicycle lane exists along the southbound side of Saulsbury Road, at the intersection with Route 8, and extending to the south for a short distance. This bike lane disappears before it reaches the entrance to the Gateway West shopping center (Gateway Blvd), and there is no further bike lane from the shopping center entrance south to North Street.



Project specifics:

The bike lane needs to be continuous along the west side of Saulsbury Road between Route 8 and North St., including filling in the gap through the shopping center entrance, and extending the bike lane that currently exists north of Gateway Blvd all the way south to the intersection with North Street.

Intersections Included:

Gateway Blvd and Saulsbury Road (a “T” intersection): On the east side, there is a striped shoulder that could easily be converted to a bike lane. On the west side, approaching the intersection from the north, there is a right turn

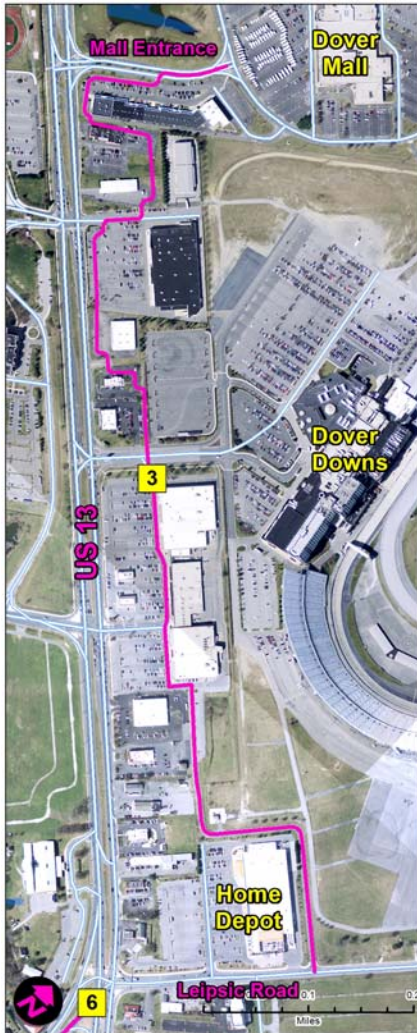
lane, which currently replaces the bike lane. The striping needs to be changed to include the bike lane as well.

Connection to the Kent County Bicycle Network:

This project provides a key connection between the striped shoulders currently existing on Saulsbury Road and the bike lanes of the nearly built West Dover Connector. Without this project, there will be a facilities gap for bicyclists traveling southbound on Saulsbury Road from the northern parts of Dover who have destinations south of Route 8. There are no nearby parallel routes available.

Project score: 92.2

Project: US 13 Commercial District Bicycle Pathway (3)



A 0.75-mile off-road route is needed to provide for low-stress bicycle access to the commercial properties between the Dover Mall and Leipsic Road. An off-road route can be created through a series of small connections between the business parking lots, along with striping and signage.

Project specifics:

This is not a construction project; Dover zoning change may be required, allowing the businesses to give up parking spaces without being penalized. Signage and paint striping could then be used to direct bicyclists along the route.

Intersections Included:

Special consideration will be needed to assist bicyclists to cross the entrance road into Dover Downs.

Connections with the Low-Stress Bicycle Network:

1. This project would be a low-stress alternative to the bike lanes that currently exist on US 13, a high-speed roadway with heavy auto volumes.
2. It would connect, at its southern end, with proposed bike & pedestrian improvements on North State Street and with the (in design) multi-use path that follows the east side of US 13 from Leipsic Road south to Townsend Boulevard.

Project score: 91.9



Project: College Road (4)



College Road is the main road, other than US 13, accessing Delaware State University, and serves as the main connector from West Dover to commercial areas on US 13. The road segment between Kenton Road and McKee Road has no bike facilities, no shoulders, and heavy auto traffic.



Project specifics:

College Road needs to be widened to include bike lanes and/or a shared-use path between McKee Road and Kenton Road.

Intersections included:

1. Kenton Road
2. Oakmont Drive
3. McKee Road

Special facilities treatment may be needed to assist bicyclists needing to cross College Road at these intersections, due to the high volume of traffic that currently exists on this roadway.

Connections with the Kent County Bicycle Network:

1. The shared-use path in this project will connect, at its eastern end, to the existing shared-use path along the west side of McKee Road, and thus to the Delaware Technical and Community College campus shared-use path loop.
2. Midway along the project, at the intersection with Oakmont Drive, the project will connect with the low-stress bicycle network of the Fox Hall neighborhood.
3. On the western end of College Road, the bike lanes will connect with new bike lanes planned for Kenton Rd, connecting the route to destinations along Route 8.

Project Score: 85.9

Project: Walker Road (5)



Walker Road, one of the main east-west transportation routes in West Dover, is not currently bike friendly along the eastern half of its length. There are no bicycle facilities along the road segment from Saulsbury Road to State Street.

Project specifics:

Bike lanes and/or a shared-use path need to be added to Walker Road between State St and Saulsbury Road.

Intersections included:

1. Saulsbury Road
2. Pear Street
3. Carol Street/Silver Lake Blvd
4. State Street

Both the Saulsbury Road and State Street intersections will require special facilities treatment to make bicycle transportation safe in these areas because of the high volume of auto traffic and the relatively narrow nature of the roadway, including multiple turn lanes for autos.



Connection to the Kent County Bicycle Network:

1. Walker Road currently has bicycle lanes along its length west of Saulsbury Road, so this project improves the remainder of the road for bicycle transportation.
2. The project will connect to the Saulsbury Road striped shoulders and multi-use path that runs north to Delaware Tech and south to Route 8 and the (proposed) continuation of the shoulders and shared-use path connecting to the West Dover Connector shared-use path.
3. At the east end of the project will be the (proposed) bike & pedestrian improvements on North State Street, leading out to the US 13 Commercial District. Again, special attention will need to be paid to facilitate bicyclists transition from Walker Road onto North State Street.
4. This project also connects to the low-stress network of neighborhood streets, to the south, that connect to Central Dover, Wesley College and Central Middle School.

Project score: 84.5

Project: State Street Silver Lake Crossing, Dover (6)

There is no existing on or off-road bike access from downtown Dover to US 13, north of Loockerman Street. The narrow roadway at the North State Street bridge across Silver Lake creates a barrier to bicyclists traveling on State Street who wish to continue north past Walker Road and on to US 13, or those on US 13 who wish to travel southwest into central Dover.

Project specifics:

A protected bike lane or bike bridge needs to be added to State Street between US 13 and Walker Road. The project needs to address bicycle navigation through State Street's intersections with US 13 and Walker Road.



Intersections included:

1. State Street, Governor's Avenue and Walker Road
2. Lepore Road/Hiawatha Lane
3. US 13

Intersection design will need to take into account the multiple directions that bicyclists may take after traveling the length of this project, heading either north or south.

Connections with the Low-Stress Bicycle Network:

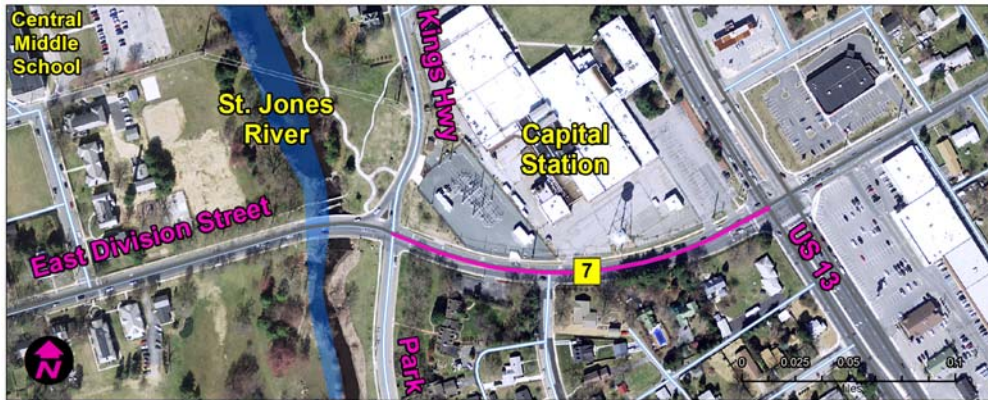
1. At the south end is central Dover's network of neighborhood streets, providing access to Downtown Dover and Legislative Hall and connecting with the Senator Bikeway to travel westward, or the Capital City Trail south to the St. Jones River Trail.
2. The (proposed) US 13 Commercial District Bicycle Pathway is on the east side of the intersection with US 13.
3. Cyclists may travel southbound on the east side of US 13 on the (in design) shared-use path that will extend to Townsend Blvd, connecting to commercial properties and to the large low-stress network of neighborhood streets east of the highway.
4. The shared-use path on the west side of US 13 runs north from State Street, by Delaware State University and extending to the Dover Mall.

Connection to the Kent County Bicycle Network:

1. Cyclists may travel northbound or southbound from State Street on the US 13 bike lanes.
2. The (proposed) Walker Road bike facilities will provide a connection to west Dover.
3. Cyclists may cross US 13 to travel east along Leipsic Road, which contains a wide, striped shoulder.

Project score: 81.9

Project: Route 8 from Park Drive through US 13 (7)



This road segment presents a problem due to the narrow nature of the road, the multiple auto travel lanes involved, and right of way constraints.

Project specifics:

A shared-use path needs to be created on the north side of Route 8 between Park Drive and US 13. The project needs to address bicycle navigation through the US 13 intersection. At its west end, the project needs to connect with the striped shoulders east of the bridge over the St. Jones River. At its east end, the project needs to connect with the striped shoulders on East Division Street that begin past the commercial developments on the east side of US 13.



Intersections included:

1. At the NW corner of Park Drive, the right turn lane is currently only a “yield” situation. Cyclists crossing Park Drive to enter the shared-use path into Silver Lake Park will need structural help in crossing the turn lane. Some cyclists will want to turn left to go south on the Capital City Trail, and cyclists coming north on the Capital City Trail may want to turn right to head east along Route 8.
2. US 13, with numerous travel and turn lanes in all four directions.

Connections with the Low-Stress Bicycle Network:

1. At Park Drive the project connects with the shared-use path running north into Silver Lake Park, which will connect into the Senator Bikeway (in design), providing low-stress east-west travel.
2. The project connects with the Capital City Trail, which travels south to the St. Jones Greenway Trail.
3. At its east end, the project connects with the low-stress network of neighborhood streets east of US 13. This provides for extensive low-stress travel, especially to the north.

Connection to the Kent County Bicycle Network:

1. At the west end of this project, Division Street has striped shoulders for several blocks, connecting to the north-south neighborhood streets.
2. On Park Drive there are striped shoulders to the north and south.
3. At US 13 there are bike lanes on the southbound side, but not on the northbound side.
4. At the east end, Division Street has striped shoulders to Fox Road at Dover’s eastern edge.

Project score: 78.72

Project: Mifflin Road (12)



This project would improve access to/from Schutte Park, Dover High School, North Street trail, and the (in design) Senator Bikeway.



Project specifics:

Marked bike lanes need to be added to the shoulders along the length of Mifflin Road. In addition, the roundabout needs to be improved to support bicycle use.

Intersections included:

1. North Street/Hazletville Road
2. Woodmill Drive
3. Forrest Avenue (Route 8)

Connections with the Low-Stress Bicycle Network:

1. At the south end of this project, it connects to the North Street Bicycle Path, an east-west path on the south side of North Street that provides for bicycle transport east into downtown Dover.
2. At the midway point in this project, at Woodmill Road, the project connects to the low-stress network of neighborhood streets to the east.
3. Also near the midway point, the project connects to a shared-use path connecting to the low-stress network of neighborhood streets to the west.
4. At the north end of the project, it connects to the (proposed) Senator Bikeway, the major east-west bicycle and pedestrian path through the center of the community.

Project score: 70.5

Project: St. Jones Greenway Trail, Phase 2 (13)



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



Project specifics:

This shared-use path would run from the bend in Sorghum Mill Road along the east side of Sorghum Mill Road for approximately ¼ mile, to the old path and bike bridge across the St. Jones River, continue to the south side of DAFB housing and continue around the outside of DAFB housing to the Route 9 overpass over Route 1. If possible, an extension of the shared-use path to Route 10 would link the project to the planned shared-use path on Route 10 and the St. Jones Greenway Trail.

Intersections included:

1. Route 10 and Sorghum Mill Road
2. Route 9 overpass over Route 1: The overpass needs to have bike lanes or a striped shoulder.

Connections with the Low-Stress Bicycle Network:

1. At the north end of the project, the shared-use path connects with the (proposed) shared-use path that follows Route 10 on the eastbound (south) side of the highway, which connects, about a half-mile to the east, with the St. Jones River Greenway Trail, heading north into central Dover. The Route 10 path also heads west to Camden, Brecknock Park, Schutte Park (via the West Dover Connector path), and into west Dover.
2. Near the north end of the project the path connects with the paths inside the Hunn Property.
3. This project extends the St. Jones River Greenway further south, nearly doubling the length of the Greenway.

Connection to the Kent County Bicycle Network:

1. At the south end of the project, the shared-use path connects, via the overpass over Route 1, to the southern terminus of Route 9, which has striped shoulders leading north to Bombay Hook National Wildlife Refuge, Augustine Wildlife Area and the Mike Castle Trail along the C&D Canal.

Project score: 69.3

Project: Chestnut Grove Road, Dover (16)



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

Project specifics:

Chestnut Grove Road needs to be widened and bike lanes added between Kenton Road and Route 8.

Intersections included:

No special upgrades to intersections are anticipated for this project.

Connection to the Kent County Bicycle Network:

1. The west end of the project connects to Route 8, with striped shoulders.
2. The east end of the project connects to Kenton Road. A proposed upgrade to Kenton Road will provide bike lanes or striped shoulders leading south to College Road, Walker Road and Route 8, all of which have existing, or proposed bicycle facilities.

Project score: 63.5

Project: Hunn Property Connector (17)



Project specifics:

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

Intersections included:

No intersections are included in this project

The Hunn property is a County-owned park and natural area with walking and biking paths.

Connections with the Low-Stress Bicycle Network:

1. At the north end of this project, the shared-use path connects to the St. Jones Greenway Trail that heads north into central Dover.
2. Also at the north end of this project, the shared-use path connects to the (proposed) Route 10 shared-use path that extends west to Camden, Brecknock Park, Schutte Park (via the West Dover Connector path), and into west Dover.
3. At the south end of this project, the shared-use path extends through the Hunn Property to connect to the (proposed) St. Jones River Greenway Trail extension that follows along Sorghum Mill Road.

Project score: 60.0

Project: Route 8 Dover – Little Creek (22)



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



Project specifics:

Bike lanes and/or shoulders need to be added on Route 8 between Route 1 and Route 9.

Intersections included:

No special upgrades to intersections are anticipated for this project.

Connection to the Kent County Bicycle Network:

1. At the west end of this project, Route 8/North Little Creek Road has striped shoulders leading west into Dover.
2. At the east end of this project is the intersection with Route 9 which contains striped shoulders heading south through the Town of Little Creek, and north to Bombay Hook National Wildlife Refuge, Augustine Wildlife Area and the Mike Castle Trail along the C&D Canal.

Project score: 51.3

Signage & Road Marking (25)

Project: State Street



State Street is a main north-south route through Dover, used by many bicyclists.

Project specifics:

State Street should be marked with sharrows between Walker Road and North Street.

Project: Bank Lane (23)



Bank Lane is a low volume east-west road, between West St. and the Green. Bank Lane can serve as a bicycle route into Downtown from the Transit Center on West St.

Project specifics:

Signage designating the road, as “Bike Route to Downtown” or “Downtown Bike Route,” should be designed and put in place at key points along the road.

Connections with the Low-Stress Bicycle Network:

1. At the west end of Bank Lane, the intersection with S West Street, a shared-use path (in design) along the east side of S West Street will run south to the Transit Center, and north to connect with the existing shared-use path along the south side of North Street, which extends westward to Schutte Park, and also connects with shared-use paths that follow the West Dover Connector and Saulsbury Road.
2. At the east end of Bank lane is the Green, the Historic District and the government complex.

Project: The Green to Capital City Trail



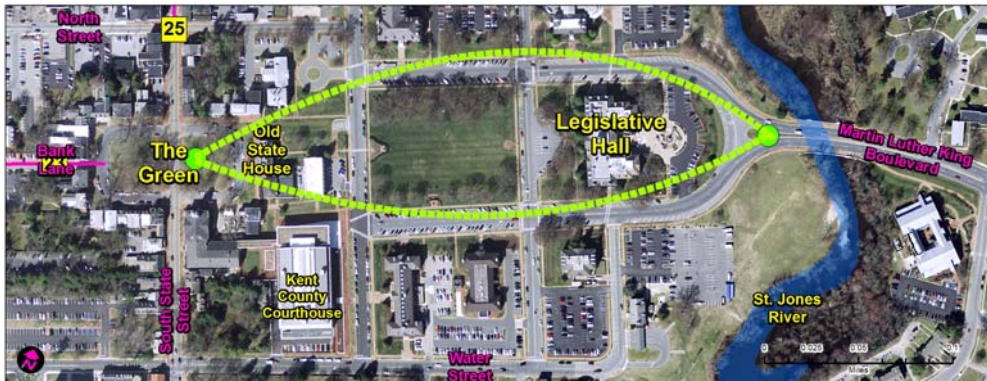
A safe bicycle route is needed to connect downtown Dover and the National Historic Park with the Capital City Trail.

Project specifics:

Either an off- or on-road safe bicycle route needs to be identified between the Capital City Trail and The Green.

Connections with the Low-Stress Bicycle Network:

1. The Capital City Trail provides a low-stress route from Silver Lake Park, north Dover neighborhoods, and the (in design) Senator Bikeway, south to the eastern side of Legislative Hall.
2. From the south, the Capital City Trail provides a low-stress route from Route 10, the DelDOT complex, and portions of US 13, north to the eastern side of Legislative Hall.
3. The project would connect the Capital City Trail to the (proposed) bicycle Boulevard along Bank Lane, which provides a low-stress connection from the western parts of Dover into the Historic District and Legislative Hall.



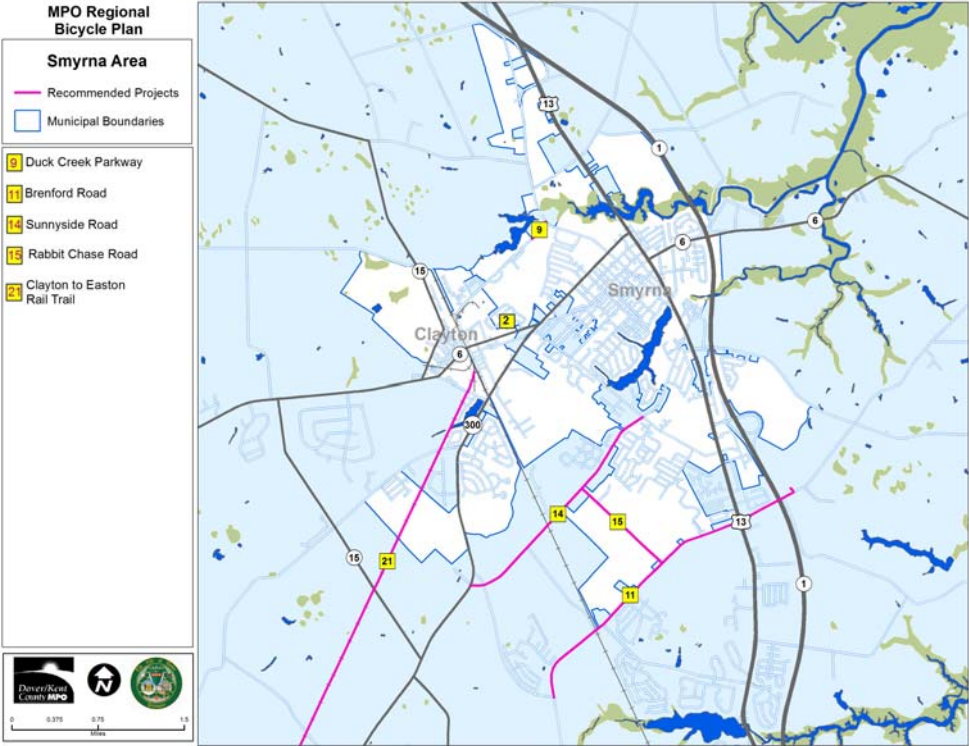
Project: Pine Cabin Road (24)



Dover AFB will be installing a bicycle gate at the entrance to base housing on Pine Cabin Road. The road is extremely dark at night and needs to be marked and lit in order to safely link the base with the bicycle facilities on Route 10.

Project specifics: Pine Cabin Road needs to be marked with sharrowes and evaluated as to whether additional lighting should be added.

SMYRNA-CLAYTON PROJECTS

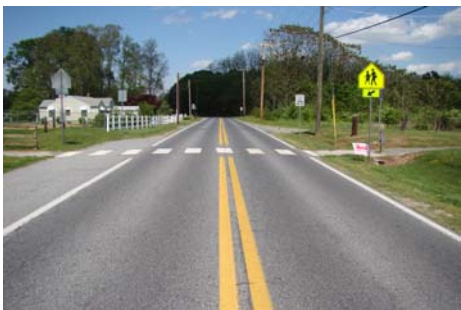


Project	Score
Smyrna School Link, Smyrna	78.1
Brenford Road, Smyrna	71.8
Sunnyside Road, Smyrna	67.1
Rabbit Chase Road, Smyrna	66.1
Clayton, DE – Easton, MD Rail Trail	55.9

Project: Smyrna School Link (9)



There are existing trails around the Smyrna High School and Smyrna Middle School complex on Duck Creek Parkway. Connecting these trails from Duck Creek Pkwy to North Main Street would create an eastern route to the schools while also linking together residential and commercial uses. In addition, this extension would provide a much safer pedestrian route to school for those living near the Governor's Place subdivision



Project specifics:

Install a (1,000 ft.) bicycle trail connecting the eastern terminus of the existing trails to North Main Street.

Connection to the low-stress bicycle network:

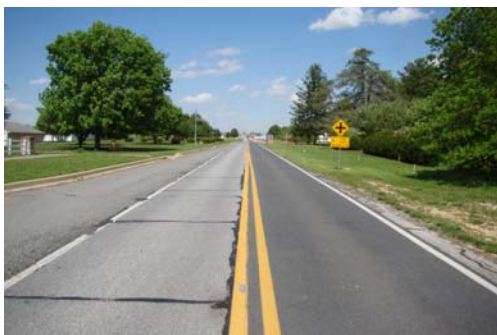
This trail would create a low-stress connection from the schools to neighboring subdivisions with low-stress streets.

Project score: 78.1



Project: Brenford Road, Smyrna (11)

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



Project specifics:

Continuous bike lanes and/or a shared-use path need to be added or completed on Brenford Road between the entrance to Big Oak Park and Masseys Mill Pond Road.

Intersection included:

- Brenford Rd and US 13

Project score: 71.8

Project: Sunnyside Road, Smyrna (14)

This project is part of a larger route, with Brenford Road and Rabbit Chase Road, linking a developing area to Smyrna. A few new developments have added bike lanes through their entrances, so adding bike lanes would create a consistent route throughout the corridor. Connecting these routes together would greatly expand the local bicycle network and better facilitate bicycling as a potential alternative transportation mode in Smyrna.



Project specifics:

Continuous bike lanes need to be added on Sunnyside Road between Carter Road and the Bike Route 1 (Route 15).

Project score: 67.1

Project: Rabbit Chase Road, Smyrna (15)

This project is part of a larger route, with Brenford Road and Sunnyside Road, linking a developing area to Smyrna. This project would provide improved bike access from the residential areas to the Sunnyside Elementary School.



Project specifics:

Either Bike lanes or a shared-use path need to be added on Rabbit Chase Road between Sunnyside Road and Brenford Road.

Connection to the Kent County Bicycle Network:

This route would provide a low stress, north-south connection between the proposed bicycle facilities on Brenford Road and Sunnyside Road.

Project score: 66.1

Project: Clayton, DE to Easton, MD Rail Trail (21)



The Clayton to Easton recreational rail trail would include over 27 miles of shared-use path in Delaware connecting Marydel, Hartley and Clayton with Greensboro, Goldsboro and Easton, Maryland. The State of Maryland owns the rail right of way along the abandoned rail line in Delaware. The northernmost section of the trail would connect downtown Clayton to Clayton Intermediate School; phase 1 of the project could contain the segment between School Lane and Sorrento Drive.



Project specifics:

The project involves conversion of railroad tracks into rail trail between Clayton, DE and the Maryland state line.

Intersections included:

- County road crossings will need to be addressed with signage to ensure safe passage along the trail.

Connections to the Kent County Bicycle Network:

The Clayton to Easton rail trail would provide a low-stress scenic, north-south shared-use path, linking together the Towns of Hartly, Clayton, and Smyrna in Delaware as well as to towns in Maryland.

Project score: 55.9

Signage & Road Marking Project

Project: Smyrna to Bombay Hook NWR (24)



A marked bicycle route between Smyrna and Bombay Hook NWR could increase tourist and resident non-motorized visitation to Bombay Hook. Bombay Hook is a key part of Delaware's birding eco-tourism base, due to its expansive wetlands and international importance to migratory bird populations.



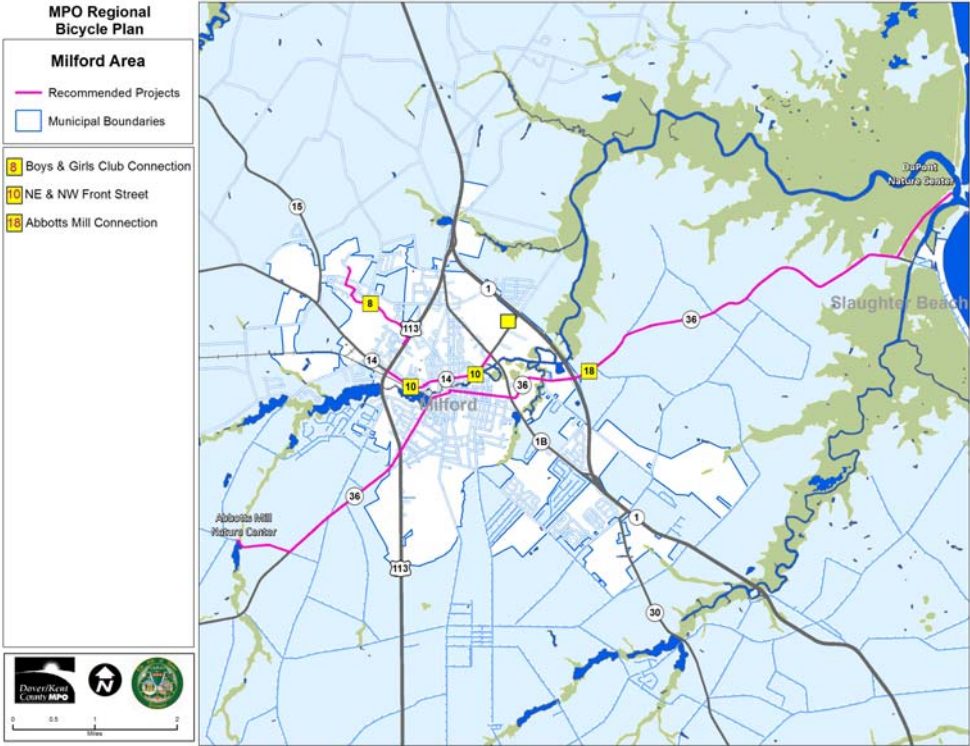
Project specifics:

Bike lanes should be marked in the shoulders on Smyrna-Leipsic Road between US 13 and Route 9 and share-the-road signage added on Whitehall Neck Road between Route 9 and Bombay Hook NWR.

Connections to the Kent County Bicycle Network:

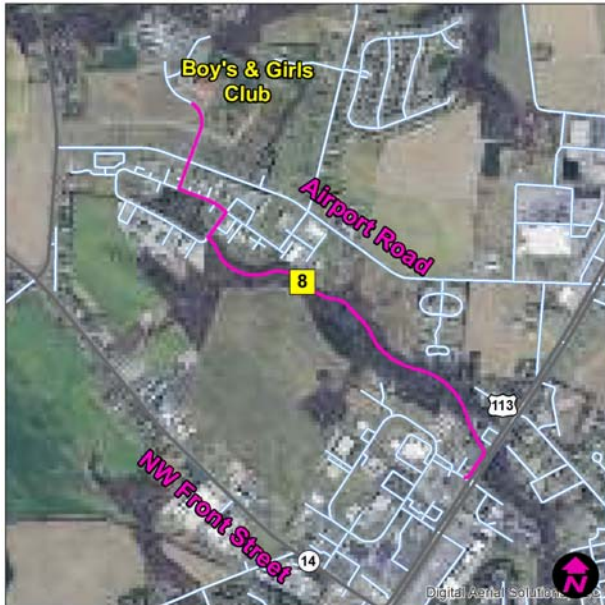
1. At the western end of this project, the bike lanes will connect to the striped shoulders along US 13.
2. At the eastern end of this project, the bike lanes will connect to the striped shoulders along Route 9.

MILFORD PROJECTS



Project	Score
B&G Club, Parks & Rec, Milford	78.2
Route 14, Milford	76.5
Abbotts Mill – DuPont Nature Center	57.7

Project: Boys & Girls Club, Milford Parks and Recreation (8)



Project specifics:

A potential wooded trail option would follow Mullet Run stream from US 113 to the Greater Milford Business Park, then across Airport Road to the community facilities. A controlled crossing of Airport Road would need to be included in the project. In addition, signalized pedestrian facilities should be constructed at the intersection of US 113 and the Milford Plaza Shopping Center.

The Boys and Girls Club and Milford Parks and Recreation “Can-do” Playground are located within the Independence Commons professional park along the north side of Airport Road. Airport Road does not have continuous bicycle and pedestrian facilities between US 113 to Route 15 and is flanked on both sides by swale-type drainage, which prohibits widening of the roadway without additional right-of-way acquisition. The proposed shared-use path would provide safe bicycle and pedestrian access from areas in central Milford to these community facilities and employment areas within Independence Commons and Greater Milford Business Park.

Intersections Included:

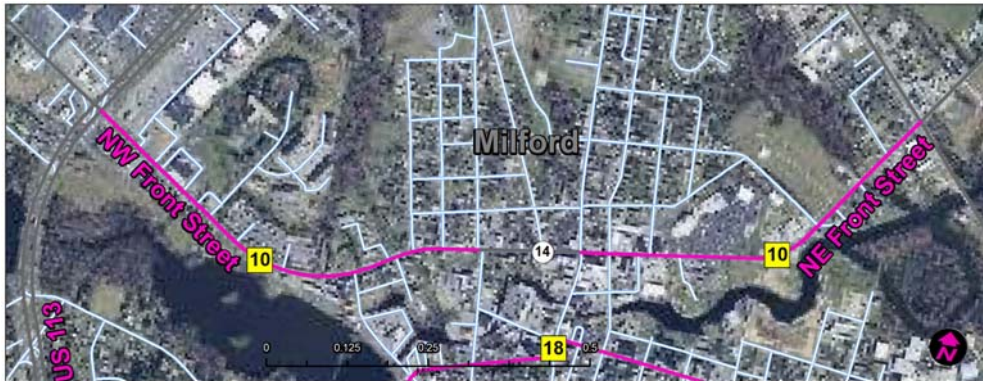
Airport Road and Delaware Veterans Boulevard should include a controlled pedestrian crossing. The Milford Plaza Shopping Center entrance should be improved to include bike and pedestrian crossing of US 113.

Connections with the Low-Stress Bicycle Network:

The proposed trail would link to existing pedestrian facilities east of US 113 and would connect to the existing Riverwalk trail system in the Downtown area.

Project score: 78.2

Project: Route 14, Milford (10)



This project is part of an effort to make downtown Milford more bicycle friendly and is consistent with the Milford Comprehensive Plan, Downtown Master Plan and City's Bike and Pedestrian Plan. Route 14 is a heavily traveled roadway through downtown and includes significant local and regional truck traffic. The project would provide residents with safer bicycle access to commercial and employment areas along US 113 and Rehoboth Boulevard.



Project specifics:

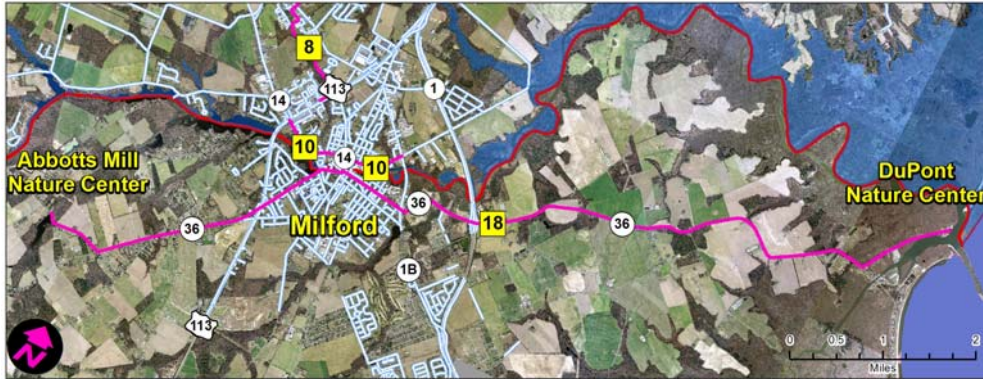
Bicycle facilities need to be added on Route 14 between US 113 and Rehoboth Boulevard. Although Route 14 through town is a low speed roadway, on-street parking and high volumes of car and truck traffic pose hazards for inexperienced riders.

Connection to Kent County Bicycle Network:

Route 14 west of US 113 has been striped with bike lanes, US 113 includes multi-modal paths heading north and south, and Rehoboth Boulevard has been recently overlayed and striped to include bike lanes. Improvements to Route 14 would complement these facility improvements.

Project score: 76.5

Project: Abbotts Mill Nature Center to DuPont Nature Center, Milford (18)



This project will provide alternative, recreational access to the Abbotts Mill and DuPont Nature Centers. This bicycle route, consistent with the City of Milford Bike and Pedestrian Plan, would run along Shawnee Road and connect to Cedar Beach Road and then Lighthouse Road. The project would provide a regional recreational bike trail connecting two natural areas.

Project specifics:

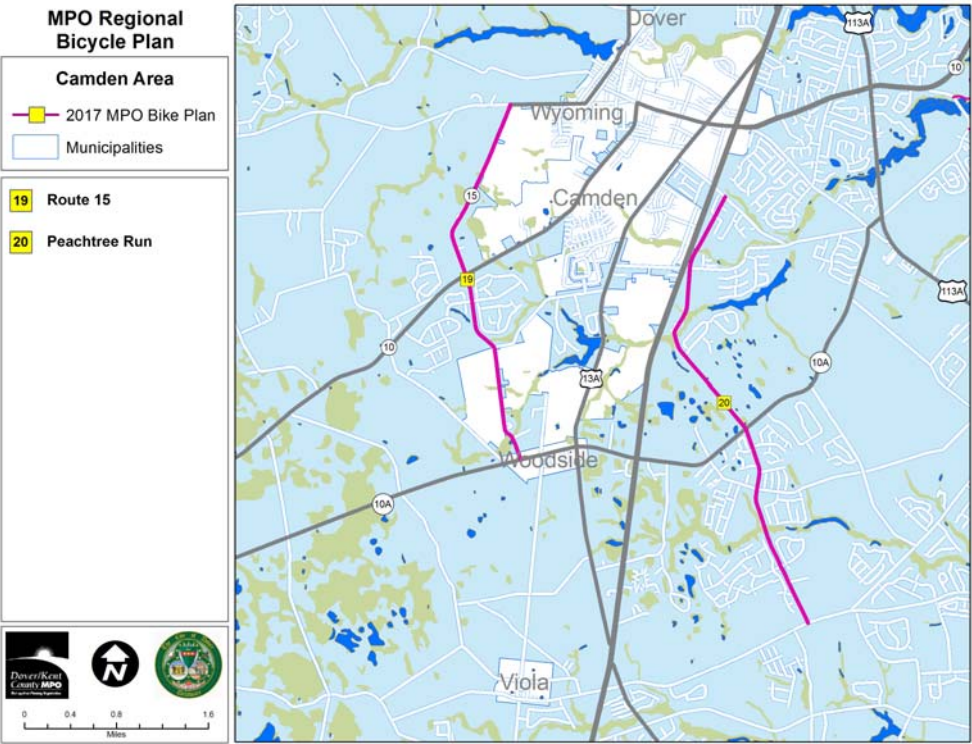
Bike lanes need to be added to Abbotts Mill Pond Road between Abbotts Nature Center and Route 36 (Shawnee Road), then along Route 36 to the DuPont Nature Center. SE Front Street would be marked with signage and sharrows.

Intersections Included:

The intersections of Route 36 with US 113 and Business Route 1 are included in this project.

Project score: 57.7

CAMDEN-WYOMING PROJECTS



Project	Score
Route 15 (Moose Lodge & Dundee Road), Wyoming	56.9
Peach Tree Run, Camden	56.3

Project: Route 15 (Moose Lodge & Dundee Road), Wyoming (19)

This segment of Route 15, part of Delaware Bike Route 1, the major north-south bicycling route for the state. Along Moose Lodge and Dundee Roads there are no bicycle facilities, no shoulders and fast, moderate volume auto traffic. The posted speed limit is 50 mph.



Project specifics:

The roads need to be widened and bike lanes added along the lengths of Moose Lodge and Dundee Roads, between Westville Road near Wyoming to Main Street in Woodside, a length of 3.3 miles.

Intersections included:

The intersection of Route 15 and Route 10 is along this segment, and is currently in design for the construction of a roundabout to improve safety. This roundabout needs to incorporate special facilities for bicyclists traveling along Route 15, or along Route 10 (which has a striped shoulder).

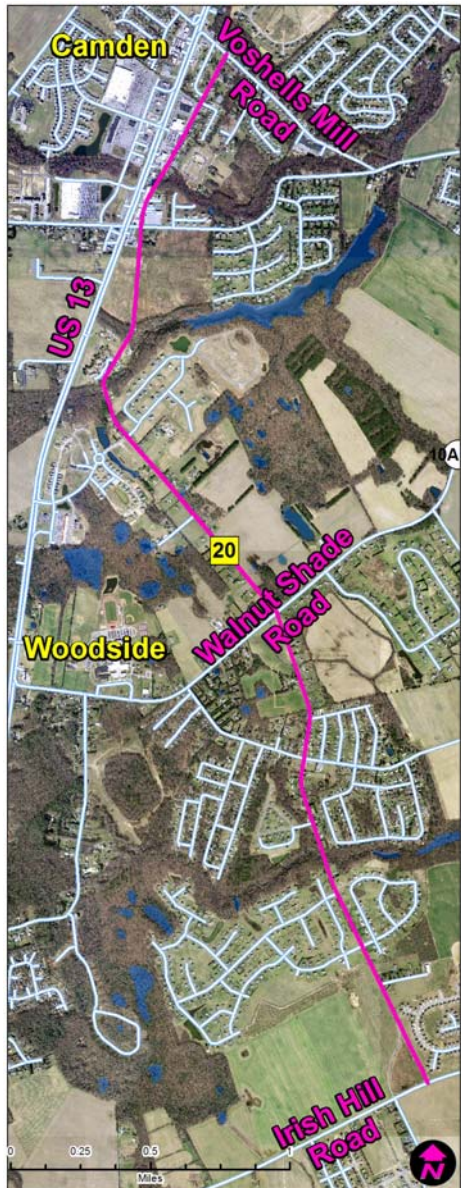
Connections with the Kent County Bicycle Network:

Bicycle Route 1 runs the length of the state, connecting many communities and bicycle facilities. This project upgrades a central segment of this important route to a workable standard for most fitness riders and commuters and would create a safe north-south route for bicyclists attempting to travel from Woodside to the Camden Wyoming area while also connecting together adjacent subdivisions.

Project score: 56.9

Project: Peachtree Run (20)

Peachtree Run connects developments East of US 13 with the commercial areas on US 13. It is not a safe route for bicyclists because a vast majority of the road has no continuous shoulder. Speed limits along Peachtree Run vary from 35-50 mph, and the travel speed of vehicles has led to the installation of automatic speed signs on this route. Providing a bicycle lane along Peachtree Run will help to better accommodate bicyclists traveling from Canterbury through Woodside and into South Dover.



Project specifics:

Shoulders or bike lanes need to be completed to be continuous along the length of Peachtree Run, from Voshells Mill/Star Hill Road to Irish Hill Road, a distance of 4 miles. In addition, the segment of Voshells Mill/Star Hill Road, from Peachtree Run to US 13, needs shoulders or bike lanes.

Intersection included:

US 13 and Voshells Mill Road. Cyclists will need assistance crossing the wide and busy highway to the shared-use path along US 13. Right- and left-turning traffic poses hazards to cyclists attempting to cross safely. Refuges on the median should be included. Two-way bicycle traffic needs to be facilitated, either with crossings on both the north and south side of the intersection, or with a two-way path on one side of the Voshells Mill /Star Hill Road segment.

Connections with the Kent County Bicycle Network:

1. At the north end of this project is the intersection of Voshells Mill Road and US 13, where a shared-use path (in design) will run along both sides of US 13, linking to Camden and Dover.
2. Along the length of this project are a number of housing developments with residents who will benefit from this new connection to the bicycle network.

Project score: 56.3

INTERSECTION RECOMMENDATIONS

In addition to intersections included in the specific bikeway projects, the following recommendations are made with regard to intersections. The purpose of these recommendations is to provide safe travel for bicycles through intersections, to reduce stress levels and the probability of injurious contact between bicyclists and vehicular traffic.

Recommendation I-1: When any bicycle project is designed, the project needs to include the intersections linking to the project as well as those within the project.

Recommendation I-2: Intersections within and connecting to current bikeways should be reviewed for safe bicycle navigation and striped or redesigned as necessary. The following intersections have been identified as needing striping or a bicycle box:

- a. North State Street & US 13, Dover
- b. Route 1 & North Rehoboth Boulevard at northbound flyover, Milford
- c. Rehoboth Boulevard at N. Church Street, N. Walnut Street, NE. Tenth Street & Rehoboth Boulevard area, Milford
- d. US 113 & entrance to Milford Plaza Shopping Center, Milford

Recommendation I.3: For any projects on any roadway where bicycles are permitted, intersections should be designed and striped for bicycle navigation.



Intersection at Walker Road, Governors Avenue and North State Street prior to recent improvements

GOAL 2 RECOMMENDATIONS - ORDINANCES, POLICIES, & PROGRAMS

The purpose of the following recommendations is to make bicycle riding a viable transportation option for persons of all ages in Kent County. Implementation of these recommendations falls under the control of various state agencies, Kent County, local governments and other organizations, such as the Delaware Bicycle Council and Bike Delaware. For each recommendation, the implementing body for the recommendation is identified. Where appropriate, the potential role of the Dover-Kent County Metropolitan Planning Organization (Dover-Kent MPO) is also identified. An implementation-tracking chart is included in Appendix 1.

Objective 1: Increase the viability of bicycling as a solution for any daily need

Recommendation 2-1.1: Develop information on the bicycle equipment that is available to carry various types of loads, in order to educate the public about the multiple uses of bicycles.

This would help inform people about how bicycles can be used to accomplish various errands. The information can be distributed through the DMV, Office of Highway Safety, local governments, school districts, libraries, and community centers.

Implementing organizations: Bike Delaware or Delaware Bicycle Council (The Dover-Kent County MPO will coordinate with the organizations in developing the information.)

Recommendation 2-1.2: Encourage the implementation of mixed-use, walkable, bikeable and sustainable design (complete communities).

Destinations such as restaurants, entertainment, parks, stores, and medical facilities should be close enough for residents to have the option to walk or ride a bicycle. Including connections between contiguous subdivisions will provide low-traffic-stress linkages between low-traffic-stress street networks within the subdivisions.

Implementing organizations: Kent County and local governments, Delaware Association of Home Builders

Recommendation 2-1.3: Include requirements for bicycle parking in county and municipal commercial zoning ordinances.

For existing businesses, offer incentives for adding bicycle parking (monetary or perhaps tradeoffs with traditional parking). Examples include:

- Cambridge, MA (<http://www.cambridgema.gov/CDD/Projects/Planning/bicycleparkingzoning>)
- Pittsburgh, PA (https://www.municode.com/library/pa/pittsburgh/codes/code_of_ordinances?nodeId=PIZO00_TITNINEZOCO_ARTVIDEST_CH914PALOAC_914.05BIPA)

Implementing organizations: Kent County and local governments

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

Recommendation 2-2.1: In working with Capital School District to develop and implement its bicycle program (including rules of the road) through its physical education programs, create a model that can be used by other school districts in Kent County.

The Delaware Bicycle Council may be able to provide assistance in developing or sharing the model.

Implementing organization: City of Dover Bicycle & Pedestrian Subcommittee

Recommendation 2-2.2: Update the Drivers Education manual and exam to current include rules of the road with respect to bicycles.

The Dover-Kent County MPO will coordinate with the agencies in identifying necessary updates. Examples would include, among others, not to park in bike lanes or stop in bike boxes at intersections. The 3-foot rule is currently included, but should be highlighted in the text of the manual.

Implementing organizations: Division of Motor Vehicles and Department of Education

Recommendation 2-2.3: To promote safe driving habits, develop handouts on rules of the road with respect to bicycles and provide them to people when they come in for driver's license renewals or vehicle registration and as a link or attachment with notification emails

The Dover-Kent County MPO will coordinate with the agency in identifying the information to include.

Implementing organization: Division of Motor Vehicles

Recommendation 2-2.4: Co-locate signs showing rules of the road for bicyclists with signs identifying local bicycling routes.

This signage would prove to be not only a valuable navigational tool, but also an educational tool for all bicyclists. The Dover-Kent County MPO will coordinate with DelDOT in identifying the information to include on the signs.

Implementing organization: DelDOT

Recommendation 2-2.5: Create public service announcements (PSAs) and/or billboards providing information on rules of the road with respect to bicycles.

These should be placed on the monitors in Division of Motor Vehicle waiting areas and in communal public areas such as at local transit shelters, where they are easily visible to the community. The Dover-Kent County MPO will coordinate with the agency in identifying the information to include in the PSAs.

Implementing organization: Office of Highway Safety

Objective 3: Promote bicycle transportation

Recommendation 2-3.1: Hold public events to publicize the openings of new bicycle trails in order to increase public awareness of the availability of local bicycle trails.

Implementing organization: DelDOT

Recommendation 2-3.2: Promote the inclusion of bicycling activities and/or information in community-wide events, such as Heritage Days.

Implementation of this recommendation should include sending an informational letter and offering potential assistance on ways to include bicycling activities.

Implementing organization: Delaware Bicycle Council

Recommendation 2-3.3: Update the county bicycle maps to reflect the latest updates to the bicycle network.

Implementing organization: DelDOT

Objective 4: Increase availability of bicycles

Recommendation 2-4.1: Include a listing of bicycle retailers on relevant websites that include bicycling information.

The Dover-Kent County MPO will develop and provide the listing of bicycle retailers in Kent County.

Implementing organizations: DelDOT, Department of Natural Resources & Environmental Control, local governments

Recommendation 2-4.2: As the Downtown Dover Partnership and City of Dover develop a bike-sharing program; document the model so that it can be shared with other municipalities.

Implementing organizations: Downtown Dover Partnership & City of Dover

APPENDIX 1 - GOAL 2 RECOMMENDATIONS

Implementation Chart

(to be updated quarterly)

DATE: _____

Recommendation	Implementing Organization	Contact Assigned	Status	Next Steps
<u>Recommendation 2-1.1:</u> Develop information on the bicycle equipment that is available to carry various types of loads, in order to educate the public about the multiple uses of bicycles.	Bike Delaware or Delaware Bicycle Council			
	Dover-Kent County MPO			
<u>Recommendation 2-1.2:</u> Encourage the implementation of mixed-use, walkable, bikeable and sustainable design (complete communities).	Kent County			
	Dover			
	Smyrna			
	Milford			
	Delaware Association of Home Builders			
<u>Recommendation 2-1.3:</u> Include requirements for bicycle parking in county and municipal commercial zoning ordinances.	Kent County			
	Dover			
	Smyrna			
	Milford			
<u>Recommendation 2-2.1:</u> In working with Capital School District to develop and implement its bicycle program through its physical education programs, create a model that can be used by other school districts in Kent County.	City of Dover Bicycle & Pedestrian Subcommittee			

<u>Recommendation 2-2.2:</u> Update the Drivers Education manual and exam to current include rules of the road with respect to bicycles.	Division of Motor Vehicles			
	Department of Education			
	Dover-Kent County MPO			
<u>Recommendation 2-2.3:</u> To promote safe driving habits, develop handouts on rules of the road with respect to bicycles and provide them to people when they come in for driver's license renewals or vehicle registration and as a link or attachment with notification emails	Division of Motor Vehicles			
	Dover-Kent County MPO			
<u>Recommendation 2-2.4:</u> Co-locate signs showing rules of the road for bicyclists with signs identifying local bicycling routes.	DelDOT			
	Dover-Kent County MPO			
<u>Recommendation 2-2.5:</u> Create public service announcements (PSAs) and/or billboards providing information on rules of the road with respect to bicycles.	Office of Highway Safety			
	Dover-Kent County MPO			
<u>Recommendation 2-3.1:</u> Hold public events to publicize the openings of new bicycle trails in order to increase public awareness of the availability of local bicycle trails.	DelDOT			
<u>Recommendation 2-3.2:</u> Promote the inclusion of bicycling activities and/or information in community-wide events, such as Heritage Days.	Delaware Bicycle Council			
<u>Recommendation 2-3.3:</u> Update the county bicycle maps to reflect the latest updates to the bicycle network.	DelDOT			

<u>Recommendation 2-4.1:</u> Include a listing of bicycle retailers on relevant websites that include bicycling information.	Dover-Kent County MPO			
	DelDOT			
	DNREC			
	Kent County			
	Dover			
	Milford			
	Smyrna			
<u>Recommendation 2-4.2:</u> As the Downtown Dover Partnership and City of Dover develop a bike-sharing program; document the model so that it can be shared with other municipalities.	Downtown Dover Partnership or City of Dover			

Appendix 2 – Considerations for Future Planning

Level of Traffic Stress – Creating a Low-Stress Bicycle System

During this planning process, DelDOT had not completed Level of Stress analyses for all of the areas being examined for the bicycle system network. For the areas where the analyses were completed, such as Smyrna, the information was valuable in identifying gaps in creating a low-stress bicycle network. The next plan update will be greatly enhanced by the addition of level of stress data.

Smaller Towns

Due to lack of staff capacity, the smaller towns did not participate in the working group. For the next update, a separate effort should be made to meet with the towns to identify bicycle system needs within their communities and linking to services and key destinations. Information on Level of Stress should be provided to each of the towns as they develop their next comprehensive plans.

Regional Bike Plan Updates

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The 2017 Regional Bike Plan was developed over the course of a year by a large and participatory working group. The items mentioned above may be amended into this Plan when available. As municipal and county Comprehensive Plans are developed, the MPO will encourage that they include identification of bicycle facilities or critical improvements to their system, presented in a prioritized list. Once the Level Of Stress (LOS) index is developed, a committee should work with MPO staff to incorporate the index into the priority scoring matrix, potentially re-using Decision Lens and then rescoring the recommended projects.

When more than 50 percent of the projects recommended in this Plan have been completed, the MPO will contact the stakeholders, similar to the members in the Bicycle Working Group, to consider a next full update to the Regional Bicycle Plan unless there is/are some other change(s) that would require an earlier comprehensive response.

Appendix 3 - Acknowledgements

Bicycle Working Group Members

Win Abbot, Town of Smyrna
Anthony Aglio, DelDOT
Chris Asay, public member
Jason Berry, Kent County Planning
Tremica Cherry, DE Transit Corporation
Lauren DeVore, DNREC Air Quality
Eddie Diaz, City of Dover
David Edgell, Office of State Planning & Coordination
John T. Fiori, DelDOT Planning
Jamila Jones, DE Transit Corporation
Matt Jordan, Dover AFB
Lauren Kunter-Chupp, Dover AFB
Paul Moser, DelDOT
Rob Pierce, City of Milford
Mary Ridgeway, FHWA
Mila Robinson, DelDOT Planning
Jeremy Sheppard, Kent County Parks & Recreation
James Wilson, Bike Delaware

Dover-Kent County MPO Staff

Rich Vetter, Executive Director (thru June 2017)
Catherine Samardza, Executive Secretary
James Galvin, Principal Planner
Kate Layton, Public Liaison

Consultant

Andrea Kreiner, A.Kreiner Company