2017

Salisbury

BICYCLE NETWORK PLAN

Prepared By:

ARRO

alta

PLANNING + DESIGN

RESOLUTION NO. 2712

A RESOLUTION OF THE CITY OF SALISBURY, MARYLAND APPROVING AND ADOPTING THE 2017 *SALISBURY BICYCLE NETWORK PLAN*

WHEREAS, the 2017 Salisbury Bicycle Network Plan is a guiding document for the Mayor, City Council, and developers of Salisbury, setting forth recommendations for prioritizing and creating bike routes within the City's limits; and

WHEREAS, the City of Salisbury strives to promote safe cycling opportunities for persons of all ages and abilities by creating a regional bike route network connecting citizens and visitors to destinations and major activity generators; and

WHEREAS, the development and implementation of the plan demonstrates the commitment of City officials, Salisbury's Bicycle & Pedestrian Advisory Committee, local residents, and non-profit organizations to embrace the Bicycle Friendly Community designation by continuing to establish a local and regional bike route network designed to provide an alternate mode of transportation, improve public health, and for the City to emerge into a major cyclist destination; and

WHEREAS, the implementation of the recommendations contained in the Plan are contingent upon future capital programming considerations from a variety of sources; and

WHEREAS, the draft *Salisbury Bike Network Plan* was finalized through a combined effort of the community to make known preferred solutions and prioritization thereof; and

WHEREAS, the 2017 *Salisbury Bike Network Plan* is consistent with the goals and objectives of the 2010 *City of Salisbury Comprehensive Plan*.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Salisbury, Maryland the 2017 *Salisbury Bike Network Plan* is adopted.

THIS RESOLUTION was duly passed at a meeting of the Council of the City of Salisbury held on December 12, 2016, and is to become effective immediately upon adoption.

ATTEST:

Kimberly R. Nichols, City Clerk

John R. Heath, President
Salisbury City Council

APPROVED BY ME THIS: 13th Day of DECEMBER, 2016.

Jacob R. Day, Mayor

2017 Salisbury Bicycle Network Plan

Prepared by:

ARRO Consulting, Inc. and **Alta Planning + Design**

with oversight and assistance provided by:

Office of the Mayor

Jacob R. Day, Mayor of Salisbury
Tom Stevenson, City Administrator
Julia Glanz, Assistant City Administrator
Chris Demone, Public Information Officer

City Council

John "Jack" R. Heath, President
Muir Boda, Vice President
April Jackson
Jim Ireton
R. Hardy Rudasill

Bicycle & Pedestrian Advisory Committee

Matt Drew, Chair
Rosa Roma McGregor, Vice Chair
John Foley
Joe Howard
Jeremy Kirkendall
Marion Keenan

Salisbury-Wicomico Co. Dept. of Planning, Zoning, and Community Development

Keith Hall, AICP

Citizens of Salisbury

CONTENTS

TABLE OF FIGURES

INTRODUCTION

The Bicycle Network Plan is a result of the City of Salisbury's commitment to creating a regional bike network for the benefit of citizens and tourist designed to be compatible with bicyclists of all abilities. Valuable input and guidance were provided by the City Staff, the Mayor and Council of Salisbury, private citizens, the City of Salisbury's Bicycle and Pedestrian Advisory Committee (BPAC), and several local advocacy groups, including Bike-SBY, ESIMBA, and Wicomico Environmental Trust. Collectively, a vision to improve the bicycling experience and culture was crafted. The area currently offers a variety of bicycle routes and facilities consistent with the City's Comprehensive Plan. However, many gaps exist both locally and regionally that make bicycling less than ideal. This Plan identified those gaps and proposes a network of facilities to complete a safe and efficient transportation network.

As a Network Plan, this document focuses mainly on infrastructure, planning level costs, and implementation phasing. The City and County should consider implementing other action steps in conjunction with facility improvements. The League of American Bicyclists identifies five key components that comprise a bicycle friendly community. These components are known as the "Five E's" – Engineering (which is the focus of this Plan), Education, Enforcement, Encouragement, and Evaluation. Salisbury has embraced the Five E approach, and in 2015 was awarded the Bronze Bicycle Friendly Community award by the League. As Salisbury continues to enhance bikeability as a component of overall livability for residents and enjoyment for visitors, additional programs should be folded into the implementation phasing of this Plan. This may include educational campaigns for youth, regularly scheduled enforcement workshops for the police department, events to encourage new ridership, and a consistent evaluation report card to track the cultural and infrastructure changes.

ROLE OF THE SALISBURY BICYCLE NETWORK PLAN

The purpose of the Salisbury Bicycle Network Plan is to provide a framework for implementing bicycle facilities across the City and provide connectivity to the County. For implementation of this Plan to be as successful as possible, it is important to realize that bicycle facilities cannot simply end at the City corporate boundaries. For this reason, facilities are shown extending beyond the City lines into the County in order to better coordinate and facilitate future improvements across jurisdictional boundaries. While proposed facilities have been demarcated outside of the incorporated City of Salisbury, implementation and programming considerations will be determined by the individual jurisdiction(s).

The framework consists of a map indicating where types of facilities are recommended, a matrix with the suggested method of implementation, a prioritization time frame, and planning level cost estimates. This study focuses on the network, action steps, and design guidelines to more effectively connect people with the places where they live, work, play, learn, and access multi-modal transportation facilities. The Plan advances the ideals of safety, connectivity, livability, awareness, and health and wellness that align with the values of the City and County as a whole.

The recommendations of this Plan build upon previous local and regional plans and are intended to be incorporated into future transportation and land use planning documents and decision-making.

While the implementation section provides phasing based on criteria established by the community BPAC, every opportunity should be seized to advance the development of the network. Rehabilitation and paving schedules, new development, changes in land ownership, and road improvement projects should be vetted prior to construction to evaluate if components of this bicycle network can be included in the improvement project.

SECTION 1. THE PLANNING PROCESS

1.1 SALISBURY BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE (BPAC)

The development of this Plan was guided by the community and Salisbury Bicycle and Pedestrian Advisory Committee, a group of individuals representing the bicycling and pedestrian interests of the community. The City staff, along with consultants, interacted with the community and committee to formulate specific recommendations on three (3) separate occasions throughout the process, focusing on the proper visions and goals. Ultimately, the Salisbury Mayor and Council reviewed and adopted the findings and recommendations contained in this Plan.

1.2 DATA COLLECTION AND ANALYSIS

After collecting baseline information about the study area, the consultants began assessing existing conditions. Aerial photography and geographic informational systems (GIS) data were used to identify opportunities and constraints for bicycle facility development. These preliminary findings were confirmed through a field reconnaissance of the area. The existing conditions and the preliminary findings were then presented to the community BPAC as a point of beginning for determining the recommendations.

Overall, Salisbury's roadway network provides ample opportunities to add bicycle infrastructure through restriping projects without significant infrastructure modifications to curbs and roadway widths. Many of the routes selected for the network are two-lane corridors with edge of pavement or curb-to-curb widths of thirty feet – which easily can be restriped for two five-foot

bicycle lanes and two ten-feet wide travel lanes. Based on locally adopted plans, community, and BPAC input to identify regional off-road/separated bike lane connections to major activity generators, the following two-game changing opportunities manifested:

The north/south rail line bisecting Salisbury connects the downtown to destinations south including Salisbury University and points north including residential areas. Heavy pedestrian traffic walking the rail alignment suggests an existing demand for connectivity along this corridor. Peppered along the alignment already are retail establishments, restaurants, and a brewery. This potential rail with trail corridor could become a catalyst for livability, economic development, and retaining students from Salisbury University who will choose to develop their professional lives and settle with families in a more walkable and bikeable environment. Also, this proposed rail trail affords opportunities to connect adjacent communities of Delmar and Fruitland to Salisbury.

The east/west abandoned rail line is an opportunity to pull people into Salisbury via a regional trail. This will provide opportunities for bicycle tourism and enhance the ability of residents to choose healthy transportation options to connect with other towns along the eastern shore. Connections to Hebron, Mardela Springs, Vienna, Cambridge, and Easton to the west and Parsonsburg, Pittsville, Willards, Berlin, and Ocean City to the east are possible with regional collaboration.

1.3 PUBLIC INVOLVEMENT

Public involvement efforts for the Salisbury Bicycle Network Plan were carried out in conjunction with the periodic meetings with the BPAC. Several different outreach tools were used to engage the public, including meetings, the City website with information on the Plan and planning process, informational displays and hard copies of the network and prioritization maps as the study progressed.

The BPAC played a key role in distributing information and gathering feedback from citizens. The first phase of public input consisted of establishing need and desire for a network. Determining key destinations and origins across the area established a series of "hubs" by which the new "spokes" of the bicycle network will connect.

In addition to gathering input for this Network Plan, the public input process allowed the BPAC to reach across the community to build momentum for implementation. As more residents are aware of the Plan, a critical mass of champions will begin to be the voice for improved facilities and safety for existing bicyclists and those who remain in the 56 percent (or more) of the population who are interested in riding, but concerned about bikeway types that are comfortable to ride on, connectivity to their destinations, and safety.

This process was the beginning of the Education and Encouragement components of the League of American Bicyclists "Five E's." The BPAC should identify and plan for future events and efforts to continue to build awareness of the Plan and how community members can monitor projects across the City that are opportunities to implement bicycle facilities or improve safe crossings and circulation for bicyclists of all ages and abilities.

1.4 THE CITY'S BRANDING EFFORT

A Bicycle Wayfinding Plan effort was completed in parallel to this Network Plan. The goal of the Wayfinding Plan was to establish a brand and creative package, as well as craft a sign family that could be used for off-road and on-road facilities. Prior to completing the Bicycle Wayfinding Plan, the City embarked on a re-branding effort to craft a new identity for Salisbury. This re-branding effort became the inspiration for the development of a wayfinding sign family that includes kiosks that featuring the new brand. In addition, the bicycle network will have three distinct creative sign packages connecting the overall network; one for the Park Drive Loop, one for Salisbury overall, and one featuring the new Downtown Logo.

As facilities are implemented throughout the City, the bicycle wayfinding signs can be added along corridors to direct bicyclists to key destinations and provide confidence that users are traveling along their intended path to their desired destination.

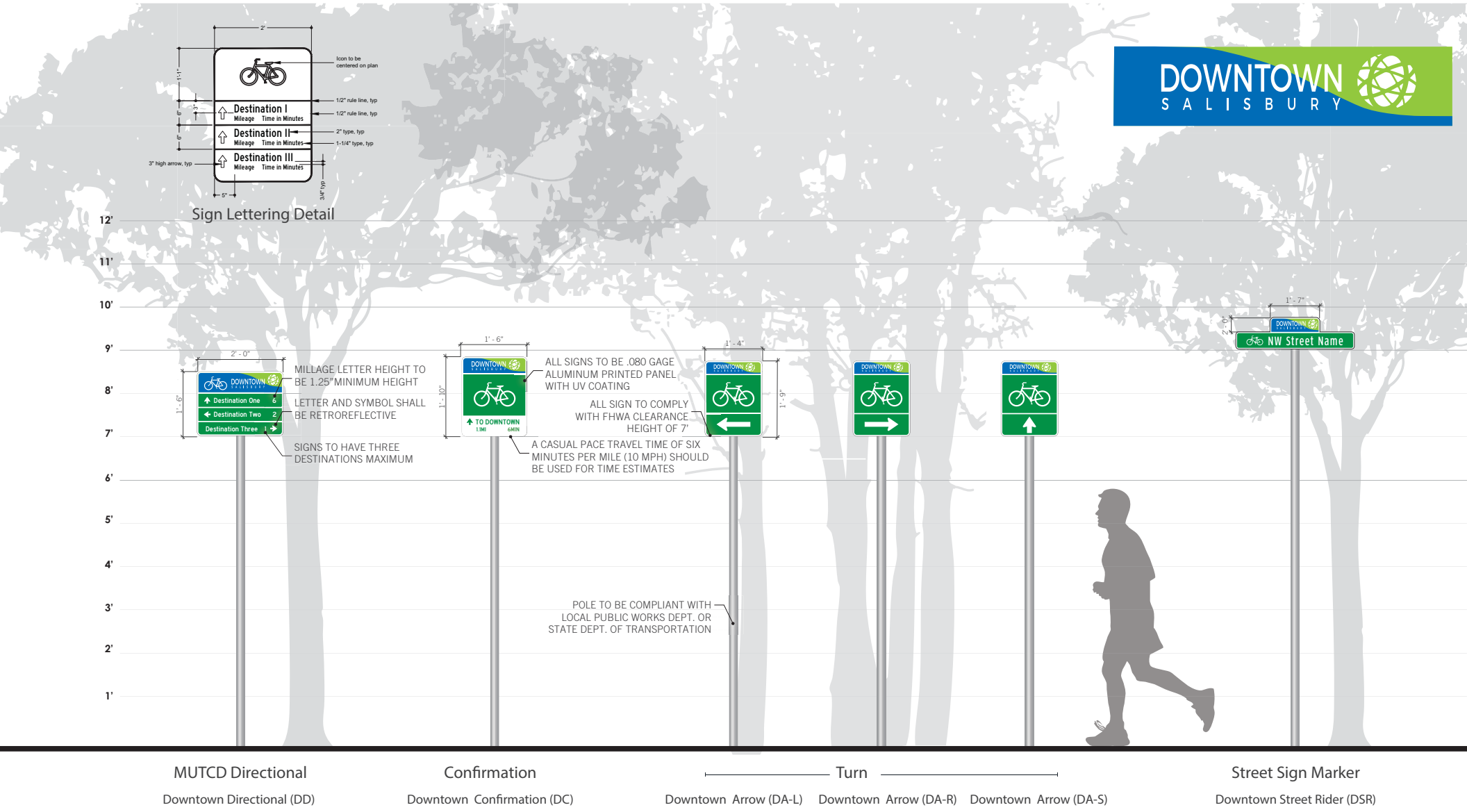


Figure 1-1.

Salisbury, MD Wayfinding Concept #1 Downtown Salisbury On-Street Bicycle Sign

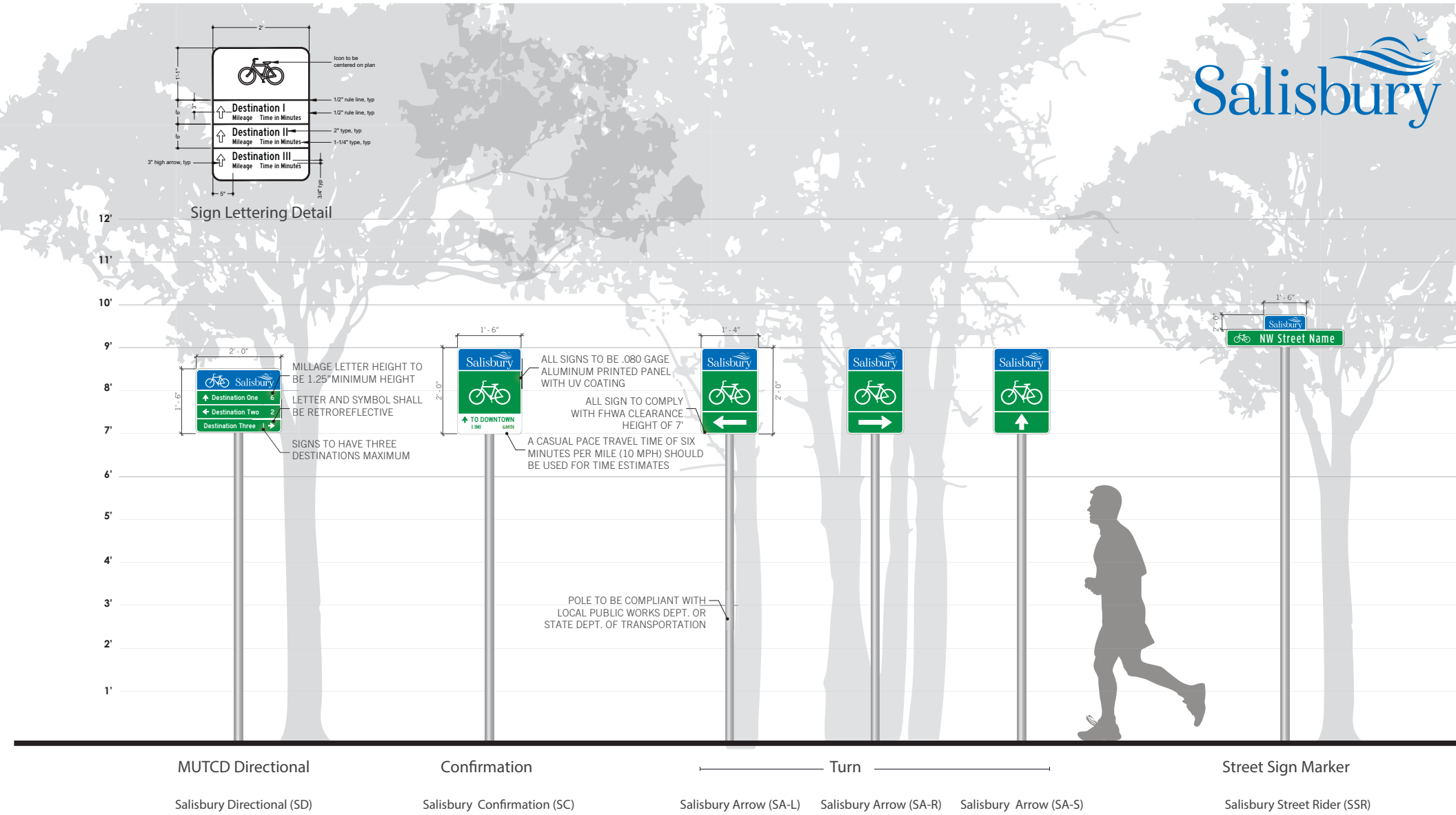


Figure 1-2.

Salisbury, MD Wayfinding Concept #2 City of Salisbury On-Street Bicycle Sign

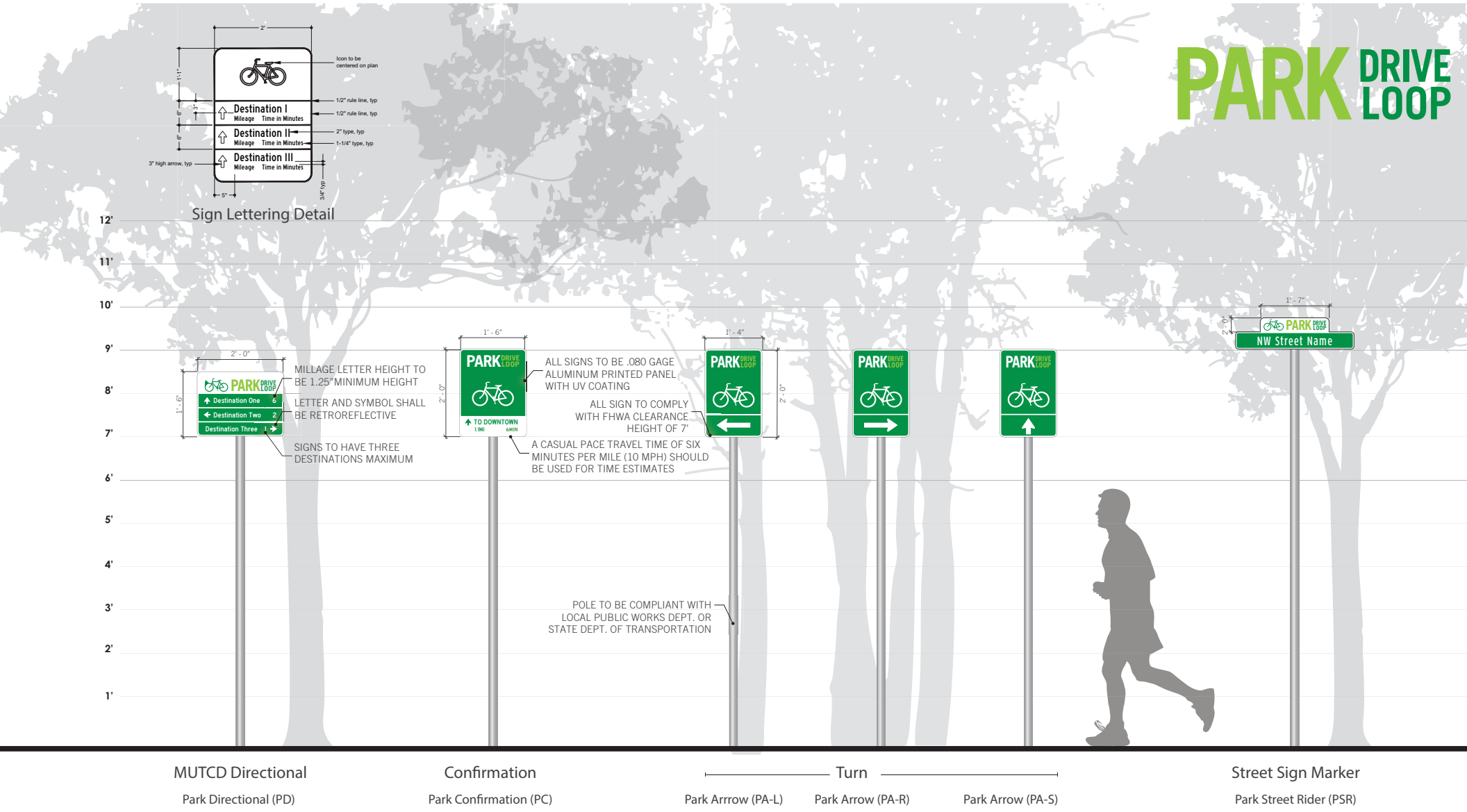


Figure 1-3.

Salisbury, MD Wayfinding Concept #3 Specialized Park Drive Loop Bicycle Sign

1.5 Planning GUIDANCE

Prior to developing facility recommendations, existing planning documents were reviewed to set a baseline for previously adopted facilities and efforts that may affect a bicycle network. A number of routes had already been established but few were currently implemented. In addition to local planning documents, a number of publications were consulted to support best practices for implementation and network development. Those include:

- Guide for the Development of Bicycle Facilities by the American Association of State Highway and Transportation Officials (AASHTO)
- National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide
- Bicycle Policy and Design Guidelines from the Maryland State Highway Administration
- Maryland Manual on Uniform Traffic Control Devices from the Maryland State Highway Administration

Publications such as these set minimum dimensional requirements for facilities and provide guidance for the integration of bicycle facilities along roadways and across intersections. As Salisbury implements the recommendations within this Plan, each project should be vetted to provide maximum comfort for the intended level of bicyclist.

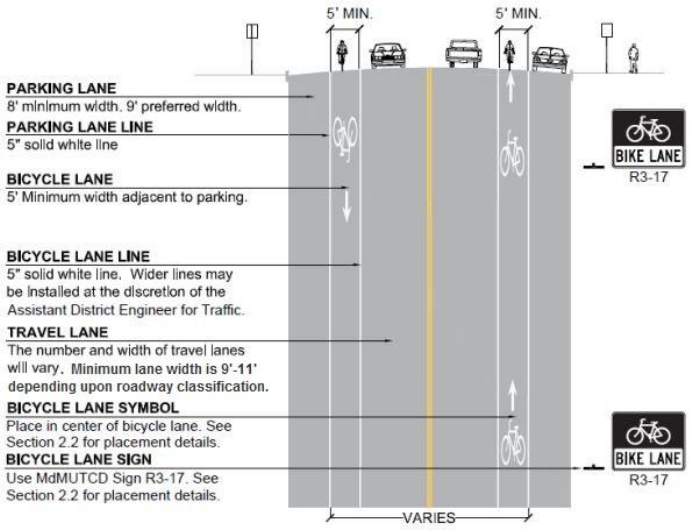


Figure 1-4. Designated Bicycle Lane: Closed Section - With Parking

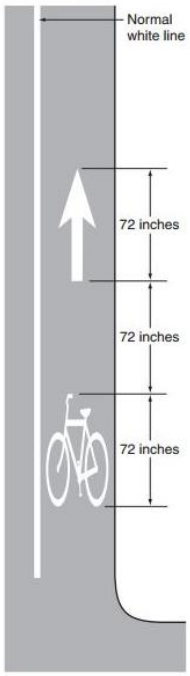


Figure 1-5. Bike Lane Marking

The bicycle network put forth in this document does not provide engineering level detail; however, the above documents can be referenced in conjunction with design to determine the best design details for implementation.

SECTION 2. NETWORK DEVELOPMENT

2.1 OVERVIEW

This Plan recommends a complete network of bicycle facilities for the City of Salisbury and surrounding Wicomico County that will link communities, neighborhoods, schools and colleges, and businesses. The network consists of existing and proposed facilities such as bicycle lanes, rails to trails, paved shoulders, bicycle boulevards, shared vehicle lanes and signed routes. This section includes an overview of the bicyclist we are planning for, bikeway types, bicycle network recommendations including bike routes, the project prioritization process, and program recommendations.

2.2 EXISTING CONDITIONS

EXISTING FACILITIES

The City of Salisbury has very few existing bicycle facilities. There are several routes that are already established but not currently implemented. According to The League of American Bicyclists' 2015 review of the City the existing bicycle network is comprised of only 7% of the total road network and only 1% of arterial streets have bike lanes. Overall, the City's current Network lacks continuity as existing routes are scattered and disconnected from one another.

TYPES OF BICYCLISTS

Bicyclists' skill levels greatly influence expected speeds and behavior, both in separated bikeways and on shared roadways. Each of these groups has different bicycle facility needs, so it is important to consider how a bicycle network will accommodate each type of cyclist when creating a non-motorized plan or project. The bicycle infrastructure should accommodate as many user types as possible, with decisions for separate or parallel facilities based on providing a comfortable experience for the greatest number of people. Since this Plan focuses on many user types, it is critical to consider in the hubs and spokes method WHO you are connecting to, WHERE, and WHICH facility type may be key to their comfort and safety.

Bicyclists can be categorized into four distinct groups based on comfort level and riding skills. The characteristics, attitudes, and infrastructure preferences of each type are described below.

STRONG AND FEARLESS (APPROXIMATELY 4% OF POPULATION)

This cyclist type is characterized by the bicyclists that will typically ride anywhere regardless of roadway conditions or weather. These bicyclists can ride faster than other user types, prefer direct routes, and will typically choose roadway connections even if shared with vehicles over separate bicycle facilities such as multi-use paths.

ENTHUSED AND CONFIDENT (APPROXIMATELY 9% OF POPULATION)

This user group includes bicyclists who are fairly comfortable riding on all types of bikeways but usually choose low traffic streets or multi-use paths when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists such as commuters, recreational riders, racers, and utilitarian bicyclists.

INTERESTED BUT CONCERNED (APPROXIMATELY 56% OF POPULATION)

This user type comprises the bulk of the cycling population and represents bicyclists who typically only ride a bicycle on low traffic streets or multi-use trails under favorable weather conditions. These bicyclists perceive significant barriers to their increased use of cycling, specifically traffic and other safety issues. These people may become "Enthused & Confident" with encouragement, education, and experience.

Figure 2-1. Who We Plan For

NO WAY, NO HOW (APPROXIMATELY 31% OF POPULATION)

Persons in this category are not bicyclists and perceive severe safety issues with riding in traffic. Some people in this group may eventually become more regular cyclists with time and education. A significant portion of these people will never ride a bicycle other than on rare occasions or under special circumstances (e.g., in a park or with a child).

With the presence of Salisbury University, the City experiences an influx of new bicyclists each year. Facilities surrounding the University and those connecting students and employees to housing should provide maximum protection and comfort for users. In addition, as Salisbury plans to retain and attract young families, areas around schools, daily uses, parks, and centers of entertainment should be evaluated to provide separation and clear wayfinding to build confidence for young riders. In addition, these populations require clear educational programming to establish proper behavior in both bicyclists and motorists to foster courteous and lawful behaviors.

BICYCLE FACILITY TYPES

When choosing facility types to generate a well-connected network for the region, it is essential to understand the different types of facilities and in what conditions they should be implemented. The following range of bikeway types summarizes the bicycle facilities by level of protection.

SIGNED SHARED ROADWAY (SIGNED ROUTE)

Signed routes use bicycle signage and markings to increase driver awareness on the roadway. Signed routes may also include traffic calming devices and intersection treatments to improve the safety for bicyclists and all other transportation modes. A signed shared roadway is recommended where calm roadways linking neighborhoods, schools, and parks serve as alternate routes to unsafe corridors. Sharrows may be used in areas with higher traffic volumes and vehicle conflicts.

SHARED LANE MARKINGS (SHARROWS)

Shared lane markings are pavement markings used to indicate shared space for bicyclists and motorists. Sharrows are used on roads where dedicated bicycle lanes are desirable, but not possible due to constraints

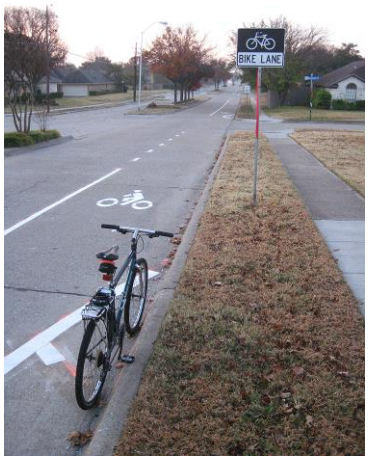
(roadway width, on-street parking, etc). Placed every 100 to 250 feet along a corridor, sharrows make motorists aware of the potential presence of cyclists, direct cyclists to ride in a specific direction, and guide cyclists to ride further from parked cars to avoid 'dooring' collisions.

PAVED SHOULDER

A paved shoulder is the part of a roadway that is continuous to the travel lane, separated by a stripe. A minimum of four feet is preferred where possible, although there is no minimum width for paved shoulders. Contingent upon available right-of-way, paved shoulders should be considered in the construction of new roadways or the upgrade of existing facilities. Paved shoulders are common on rural roads with low traffic volumes.

BICYCLE LANE

Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located adjacent to motor vehicle travel lanes and is generally used in the same direction as motor vehicle traffic. The bike lane is typically located on the right side of each travel lane, and should be wide enough for a bicyclist to ride comfortably between the adjacent travel lane and either the curb, road edge, or parking lane. The typical width for a bike lane is between four and six feet, depending on the roadway configuration.



BUFFERED BIKE LANE

Similar to a conventional bicycle lane, a buffered bicycle lane has an additional marked buffer component separating the bicyclists from the motor vehicle lane. The purpose of the buffered bicycle lane is to increase separation between motor vehicle traffic and bicyclists on high volume and/or high speed roads, especially those with a high frequency of large vehicle traffic. The added separation increases bicyclists' safety and comfort.

BICYCLE BOULEVARD

Bicycle boulevards are streets with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority. Bicycle boulevards use signs, pavement markings, and speed and volume management measures to discourage through trips by motor vehicles and create safe, convenient crossing of busy arterials. Many of the design treatments of bicycle boulevards not only benefit bicyclists, but they also help create "quiet" streets that benefit residents and improve safety for all road users.

CYCLE TRACK

A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks have different forms but all share common elements – they provide space that is intended to be exclusively or primarily used by bicycles, and are separated from motor vehicle travel lanes, parking lanes, and sidewalks.

Cycle tracks may be one-way or two-way, and may be at street level, sidewalk level, or at an intermediate level between the street and sidewalk height. A combination of curbs, medians, bollards, on-street parking, and different pavement/color is used to protect and differentiate the cycle track from motor traffic and the sidewalk.

SHARED-USE PATH

A shared-use path is physically separated from motorized traffic and accommodates pedestrians and two-way bicycle traffic. A shared-use path is often used for recreation and users of all skill levels preferring separation from vehicle traffic. Those within the roadway corridor right-of-way, or adjacent to roads, are called 'side paths.' Those within or adjacent to railroad right-of-way are called 'rail-trails' and shared-use trails within a greenspace corridor, utility corridor, or public use easement are often referred to as 'greenway trails.'

Facility Continua

The following continua illustrate the range of bicycle facilities applicable to various roadway environments, based on the roadway type and desired degree of separation. Engineering judgment, traffic studies, previous municipal planning efforts, community input and local context should be used to refine criteria when developing bicycle facility recommendations for a particular street. In some corridors, it may be desirable to construct facilities to a higher level of treatment than those recommended in relevant planning documents in order to enhance user safety and comfort. In other cases, existing and/or future motor vehicle speeds and volumes may not justify the recommended level of separation, and a less intensive treatment may be acceptable.

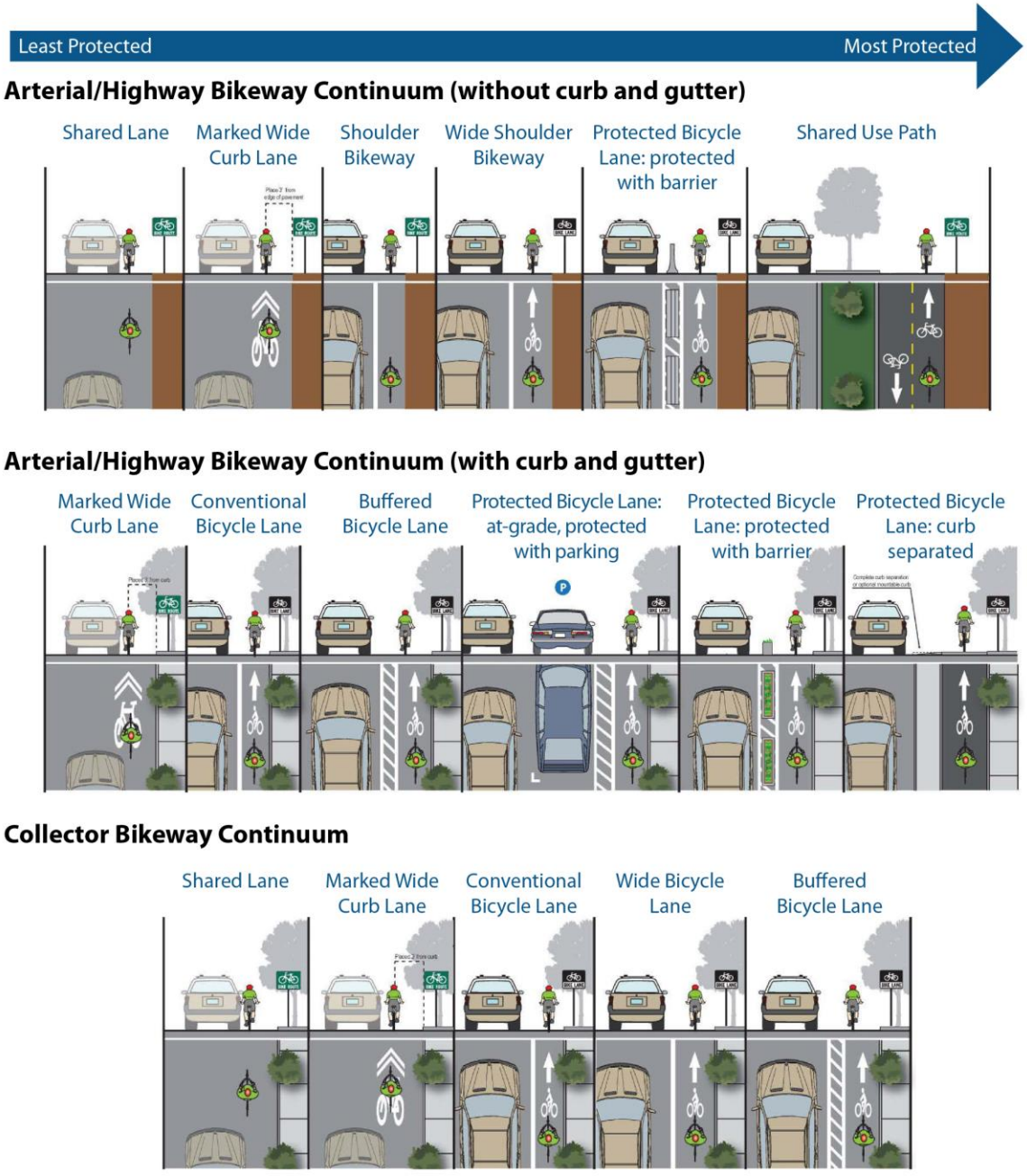


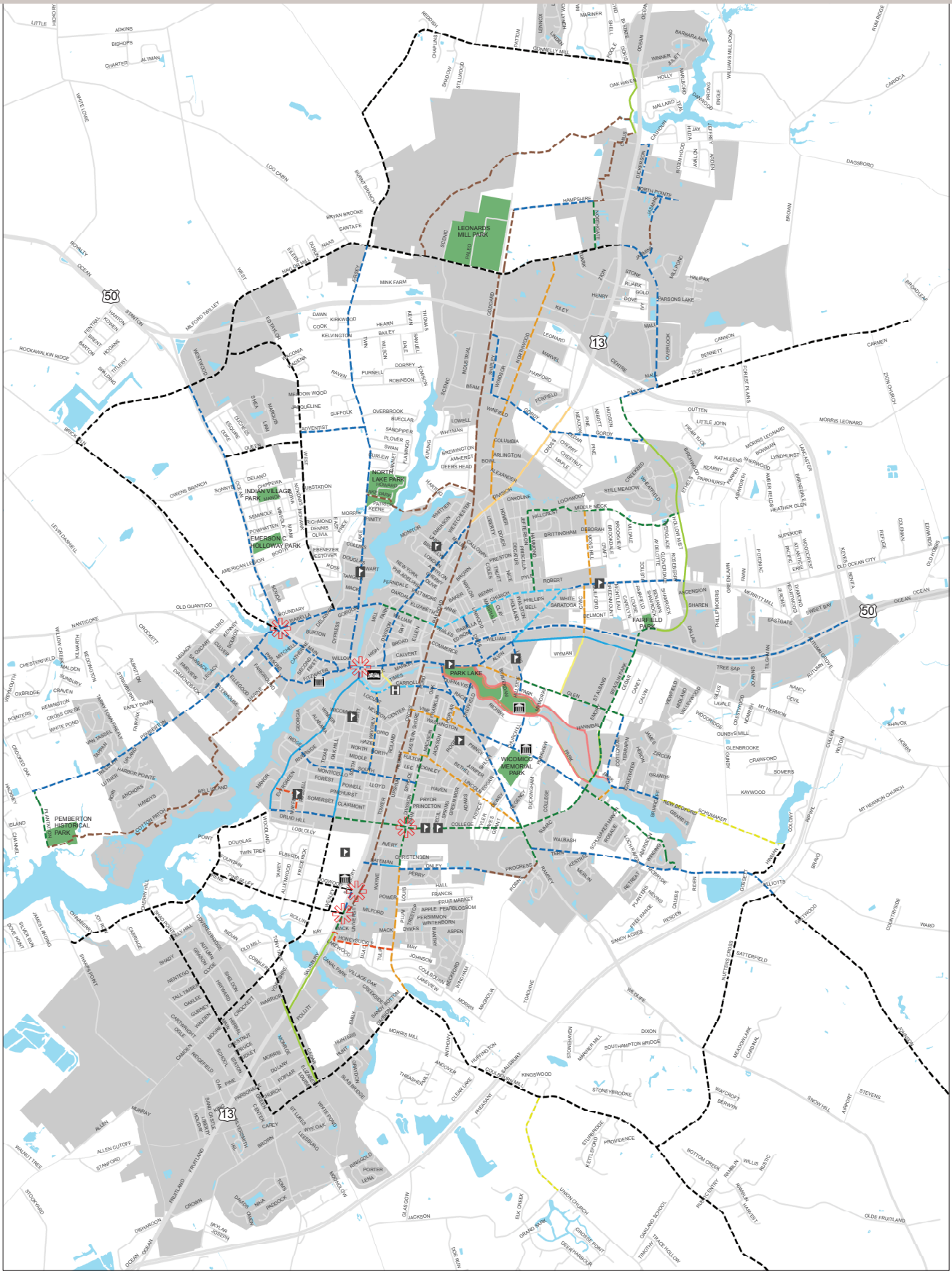
Figure 2-2. Facility Continua

2.3 NETWORK DEVELOPMENT

The recommended bicycle network was developed based on information from several sources: input from City Staff; input from the City's Bicycle and Pedestrian Advisory Committee (BPAC); public input obtained online and at public meetings; previous plans and studies; review of existing bicycle facilities; noted bicycle trip attractors; and the consultants' field analysis. Field reconnaissance focused on the potential and need for bicycle facilities along key roadway corridors that create links between neighborhoods and key destinations.

It is important to note, some of the proposed alignments are outside of Salisbury City limits; therefore, implementation is contingent upon future planning and programming considerations of the appropriate jurisdiction or entity (e.g. Delmar, Fruitland, Wicomico County, and Maryland State Highway Administration).

2.4 BICYCLE NETWORK



MAP 2-1. OVERALL EXISTING AND PROPOSED BIKE ROUTES

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.6 1.2 MILES

PROPOSED NETWORK

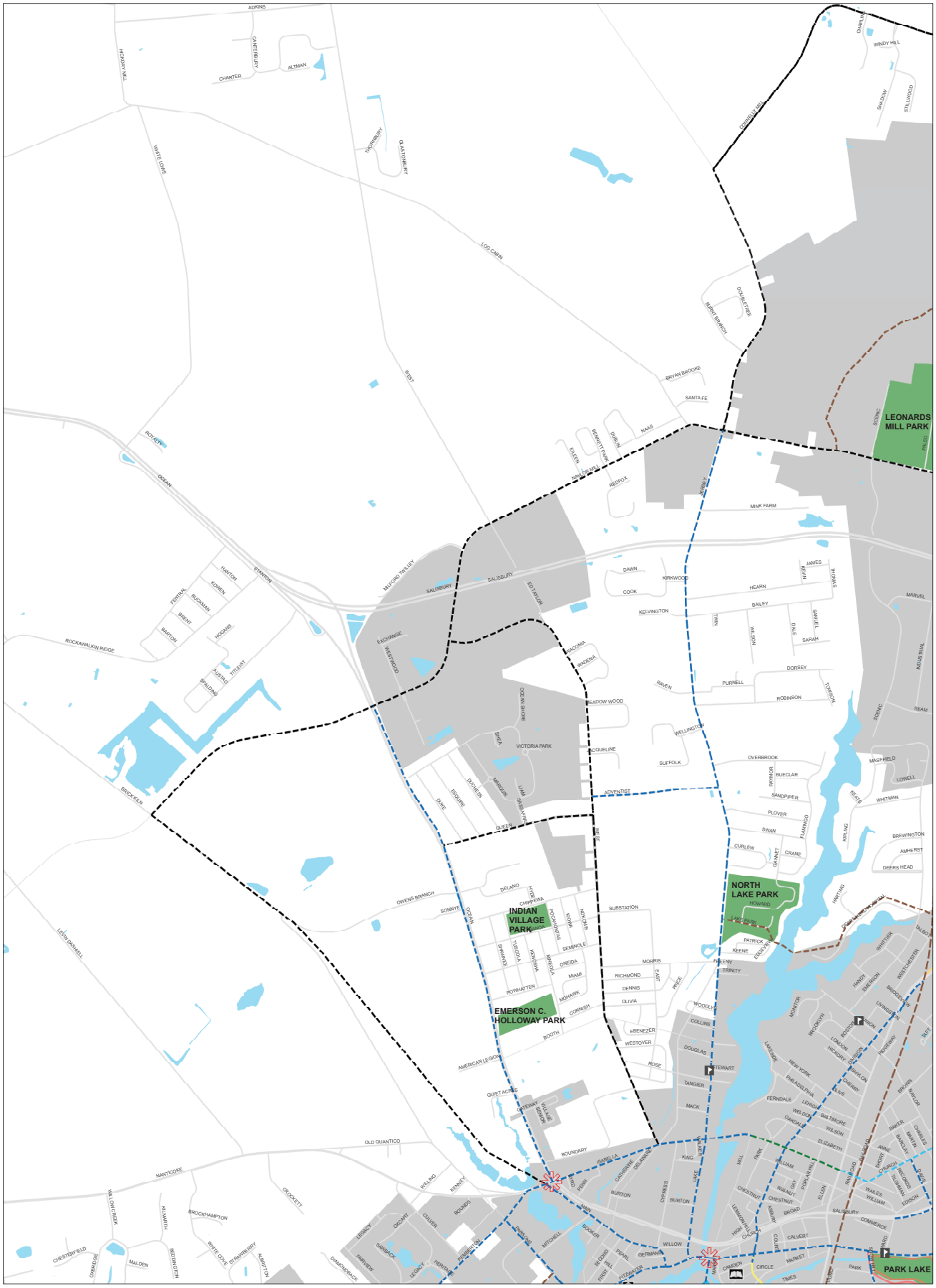
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- To Be Determined
- Key Intersection for Study

EXISTING NETWORK

- Bike Lane
- Bike Boulevard
- Bikes May Use Full Lane
- Sharrow
- Side Path
- Trail

BACKGROUND

- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits



MAP 2-2. NORTH WEST EXISTING AND PROPOSED BIKE ROUTES

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.3 0.6 MILES

N

PROPOSED NETWORK

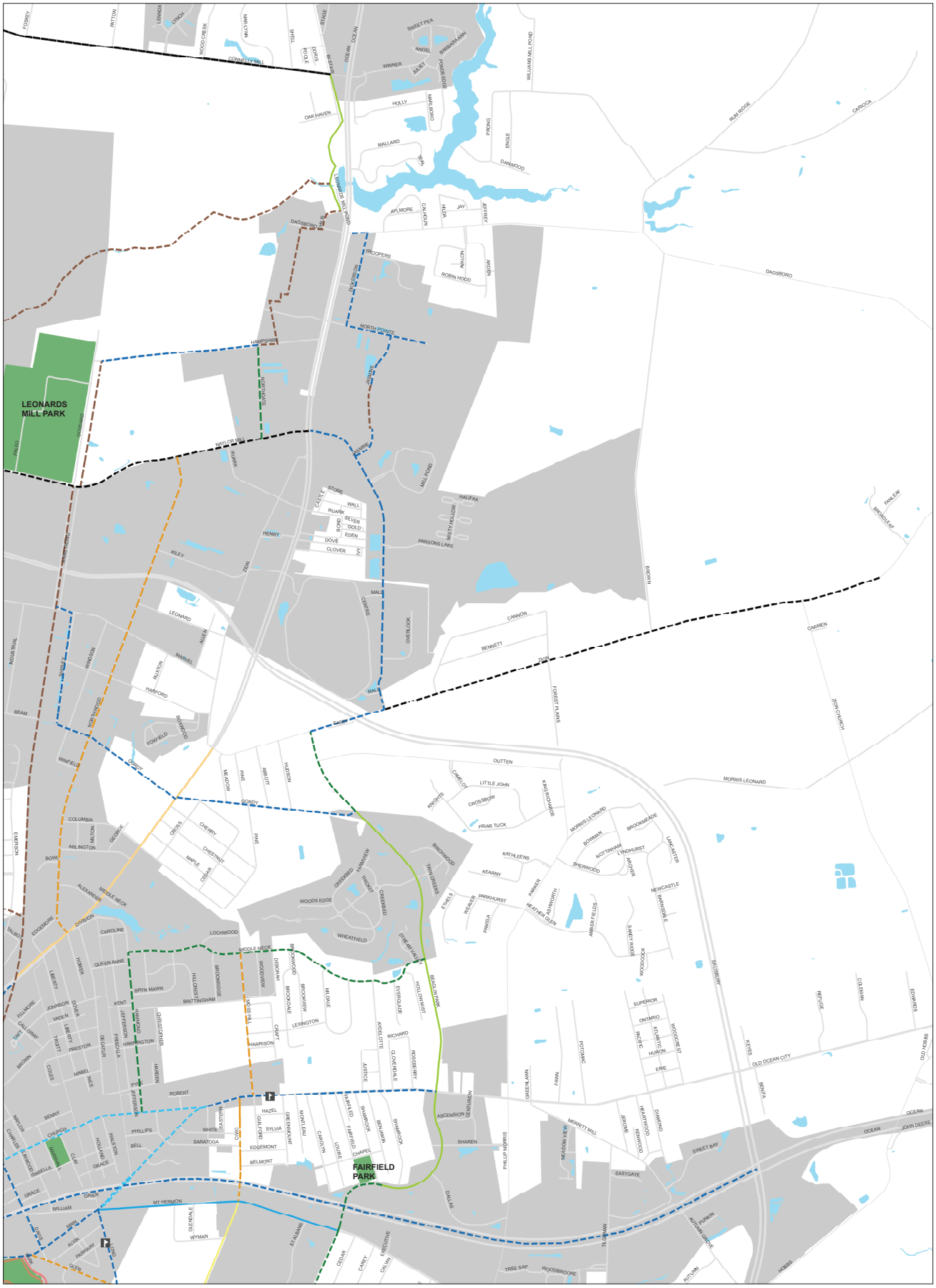
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- To Be Determined
- Key Intersection for Study

EXISTING NETWORK

- Bike Lane
- Bike Boulevard
- Bikes May Use Full Lane
- Sharrow
- Side Path
- Trail

BACKGROUND

- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits



MAP 2-3. NORTH EAST EXISTING AND PROPOSED BIKE ROUTES

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.3 0.6 MILES

N

PROPOSED NETWORK

- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- To Be Determined
- Key Intersection for Study

EXISTING NETWORK

- Bike Lane
- Bike Boulevard
- Bikes May Use Full Lane
- Sharrow
- Side Path
- Trail

BACKGROUND

- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits

MAP 2-4. SOUTH WEST EXISTING AND PROPOSED BIKE ROUTES

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.3 0.6 MILES

N

PROPOSED NETWORK

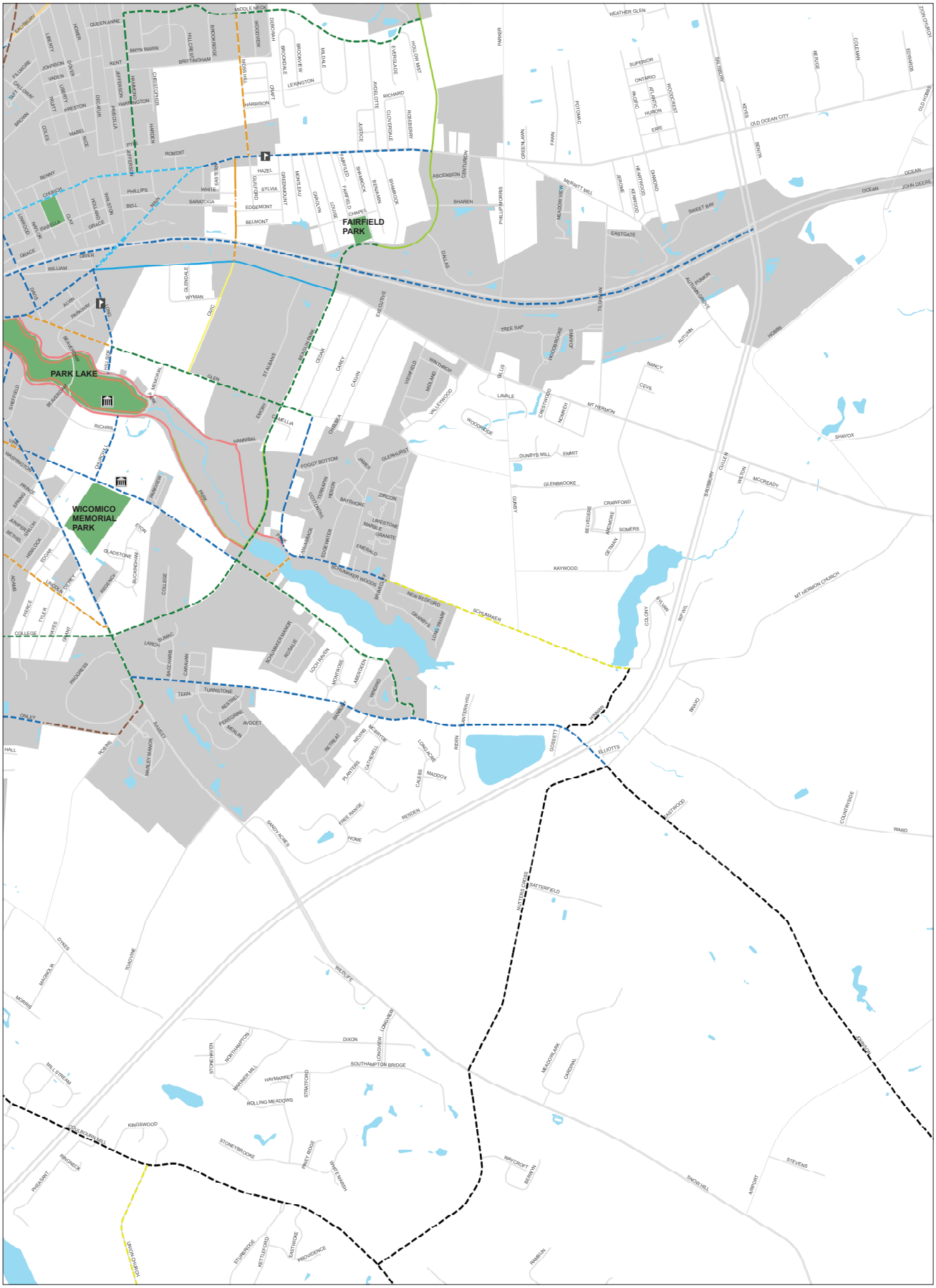
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- To Be Determined
- Key Intersection for Study

EXISTING NETWORK

- Bike Lane
- Bike Boulevard
- Bikes May Use Full Lane
- Sharrow
- Side Path
- Trail

BACKGROUND

- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits



MAP 2-5. SOUTH EAST EXISTING AND PROPOSED BIKE ROUTES

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.3 0.6 MILES

N

PROPOSED NETWORK

- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- To Be Determined
- Key Intersection for Study

EXISTING NETWORK

- Bike Lane
- Bike Boulevard
- Bikes May Use Full Lane
- Sharrow
- Side Path
- Trail

BACKGROUND

- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits

SECTION 3. IMPLEMENTATION

3.1 METHODS FOR IMPLEMENTATION

Once a network segment is selected for implementation, facility design typically follows. For this Plan, some facilities, such as bicycle routes or shared-lane markings, will require signage and limited construction activities. Others may require more intensive restriping, road reallocation, and reconstruction. Preliminary design plans should be reviewed by multiple stakeholders, including emergency service personnel and the local police department, so they can offer suggestions and have their voices heard from the very beginning.

Annual operations and maintenance costs vary, depending upon the facility to be maintained, level of use, location, and standard of maintenance. Operations and maintenance budgets should take into account routine and remedial maintenance over the life cycle of the improvements and on-going administrative costs for the operations and maintenance program.

On-road bicycle facilities can be implemented in a variety of ways. These are described briefly below:

Striping - Some roadways can be simply striped with bicycle lanes because of adequate, wide widths of the roadway's outside lanes. This is an inexpensive implementation method.

Pavement Marking – Shared Lane Markings, as described in Section 2, are simple pavement markings added to the roadway. In these cases, additional pavement width is not needed. Therefore, this is an inexpensive implementation method.

Roadway Retrofit (Lane Narrowing) - In some cases, existing roadway travel lanes can be narrowed to allow for a roadway restriped with bicycle lanes. The typical minimum travel lane is 10'. This is still inexpensive but requires removal of old striping. It is ideal to restripe during a scheduled resurfacing.

Roadway Retrofit (Road Reallocation) - In some cases, a reduction in travel lanes can be implemented to include bicycle lanes or other facilities. A full traffic analysis is required before implementing a road diet. A typical road diet occurs when converting a four-lane road to a three-lane with bicycle lanes.

Roadway Retrofit (Bicycle Boulevard) - The addition of pavement markings, signage, and traffic calming measures can be added at varying costs on an existing residential roadway.

New Construction - When a new roadway is constructed or existing roadway reconstructed, bicycle lanes, paved shoulders, sidepaths, or other facilities may be included in the project.

During Staff and Planning Commission review of private development plans, inclusion of any part of the Network Plan is advisable if the area to be developed or redevelopment overlaps one or more of the routes on the Network Plan.

Lane Narrowing

Description

Lane narrowing utilizes roadway space that exceeds minimum standards to provide the needed space for bike lanes. Many roadways have existing travel lanes that are wider than those prescribed in local and national roadway design standards, or which are not marked. Most standards allow for the use of 11 foot and sometimes 10 foot wide travel lanes to create space for bike lanes.

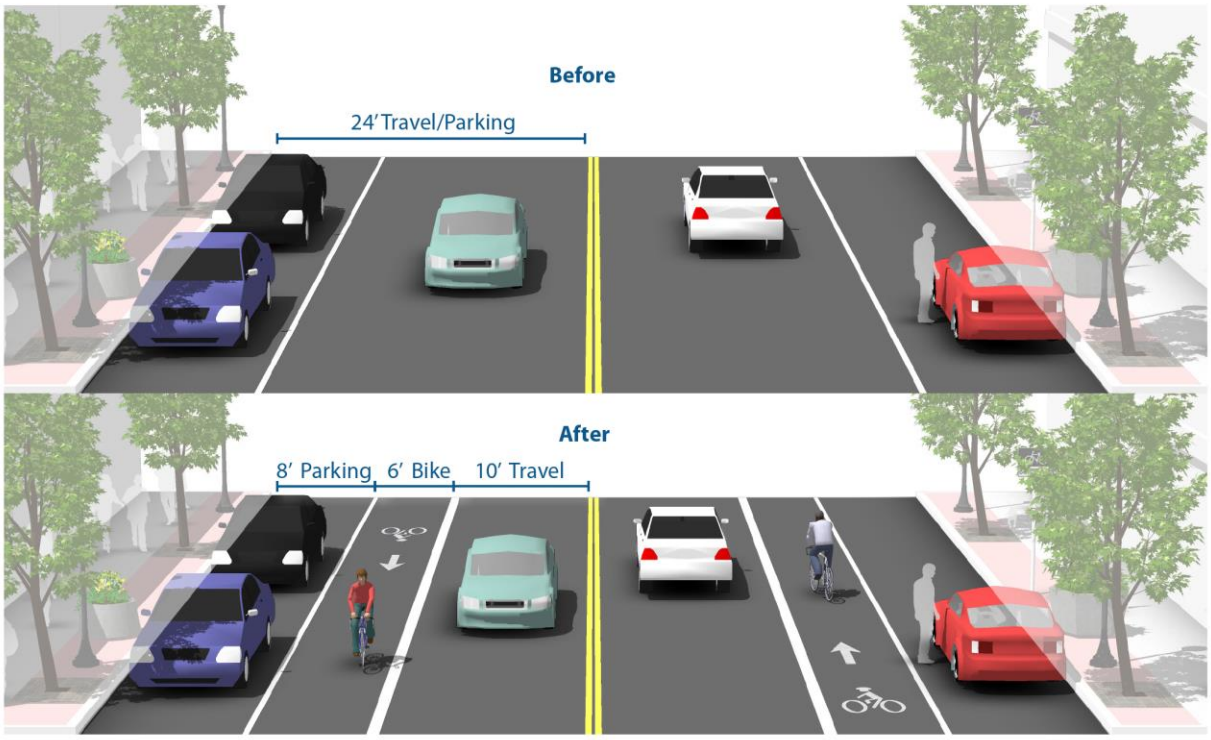
Guidance

Vehicle lane width:

- Before: 10-15 feet
- After: 10-11 feet

Bicycle lane width:

- Guidance on bicycle lanes applies to this treatment.



Discussion

Special consideration should be given to the amount of heavy vehicle traffic and horizontal curvature before the decision is made to narrow travel lanes. Center turn lanes can also be narrowed in some situations to free up pavement space for bike lanes.

AASHTO supports reduced width lanes in *A Policy on Geometric Design of Highways and Streets*: "On interrupted-flow operation conditions at low speeds (45 mph or less), narrow lane widths are normally adequate and have some advantages."

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities*. 2012.
AASHTO. *A Policy on Geometric Design of Highways and Streets*. 2004.
NACTO. *Urban Street Design Guide*. 2013.

Materials and Maintenance

Repair rough or uneven pavement surface. Use bicycle compatible drainage grates. Raise or lower existing grates and utility covers so they are flush with the pavement.

Figure 3-1. Lane Narrowing

Parking Reduction

Description

Bike lanes can replace one or more on-street parking lanes on streets where excess parking exists and/or the importance of bike lanes outweighs parking needs. For example, parking may be needed on only one side of a street. Eliminating or reducing on-street parking also improves sight distance for bicyclists in bike lanes and for motorists on approaching side streets and driveways.

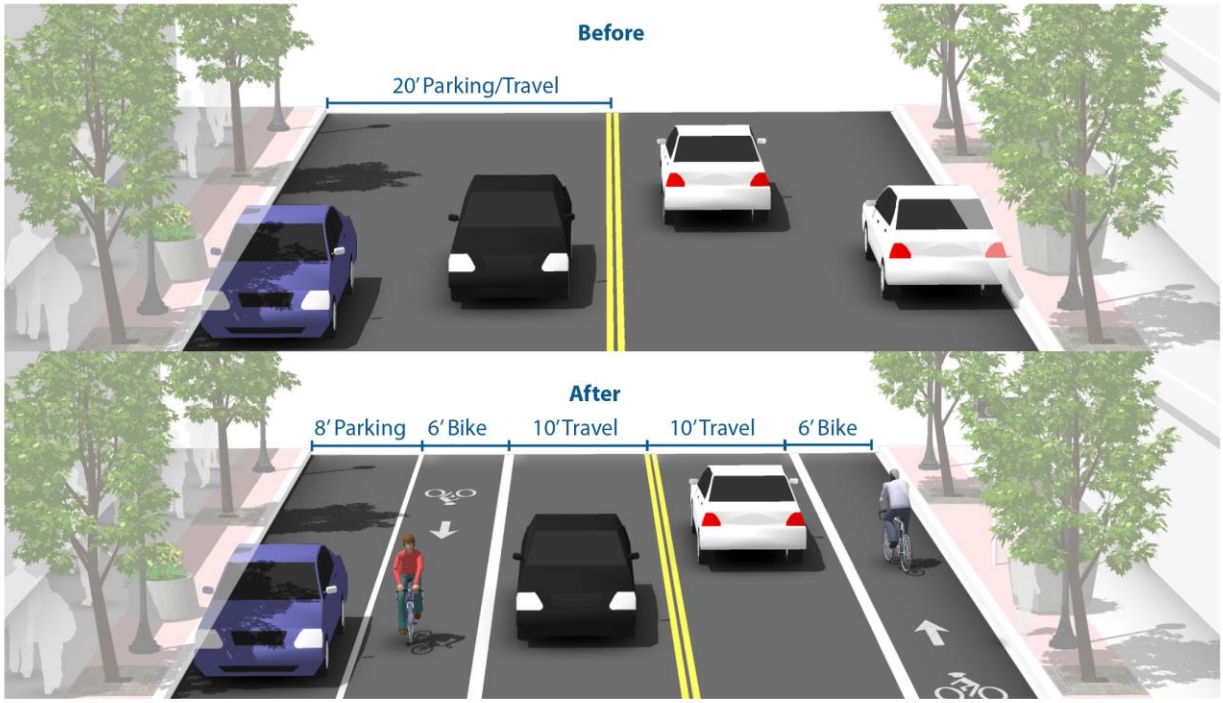
Guidance

Vehicle lane width:

- Parking lane width depends on project. No travel lane narrowing may be required depending on the width of the parking lanes.

Bicycle lane width:

- Guidance on bicycle lanes applies to this treatment.



Discussion

Removing or reducing on-street parking to install bike lanes requires comprehensive outreach to the affected businesses and residents. Prior to reallocating on-street parking for other uses, a parking study should be performed to gauge demand and to evaluate impacts to people with disabilities.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities*. 2012.
AASHTO. *A Policy on Geometric Design of Highways and Streets*. 2004.

Materials and Maintenance

Repair rough or uneven pavement surface. Use bicycle compatible drainage grates. Raise or lower existing grates and utility covers so they are flush with the pavement

Figure 3-2. Parking Reduction

Lane Reconfiguration

Description

The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street. Streets with excess vehicle capacity provide opportunities for bike lane retrofit projects.

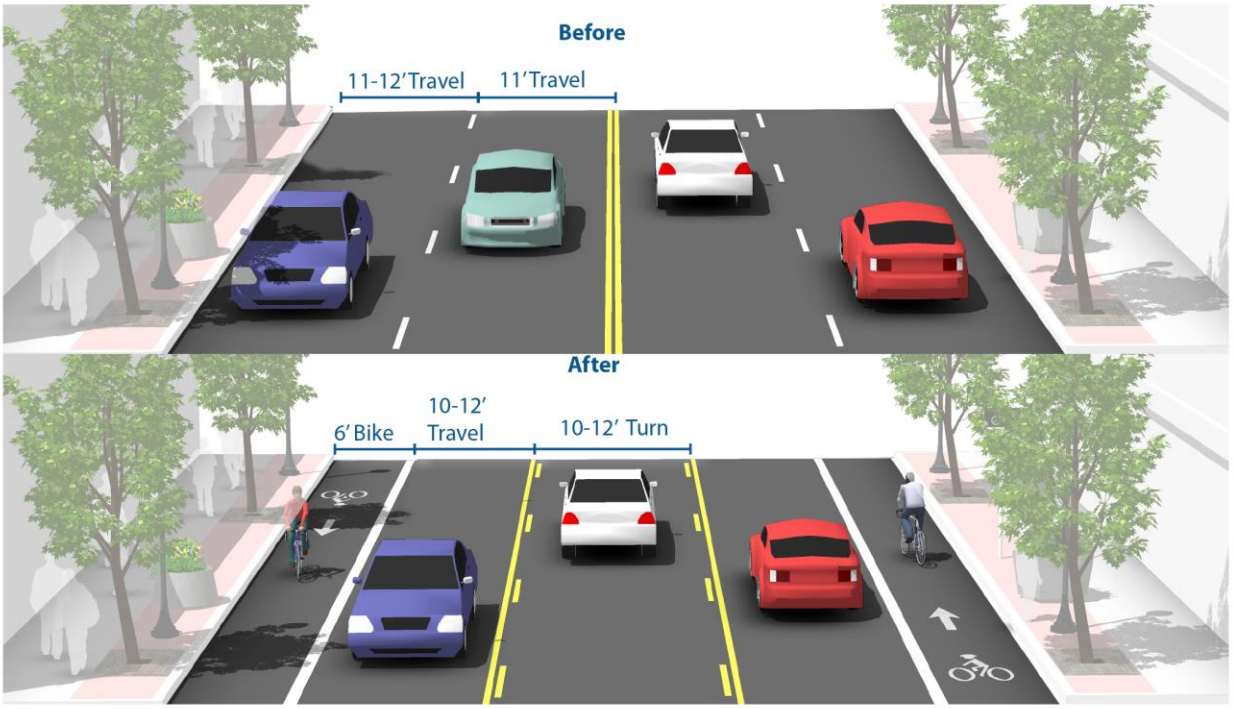
Guidance

Vehicle lane width:

- Width depends on project. No narrowing may be needed if a lane is removed.

Bicycle lane width:

- Guidance on bicycle lanes applies to this treatment.



Discussion

Depending on a street's existing configuration, traffic operations, user needs and safety concerns, various lane reduction configurations may apply. For instance, a four-lane street (with two travel lanes in each direction) could be modified to provide one travel lane in each direction, a center turn lane, and bike lanes. Prior to implementing this measure, a traffic analysis should identify potential impacts.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Evaluation of Lane Reduction "Road Diet" Measures on Crashes.* Publication Number: FHWA-HRT-10-053. 2010.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Repair rough or uneven pavement surface. Use bicycle compatible drainage grates. Raise or lower existing grates and utility covers so they are flush with the pavement.

Figure 3-3. Lane Configuration

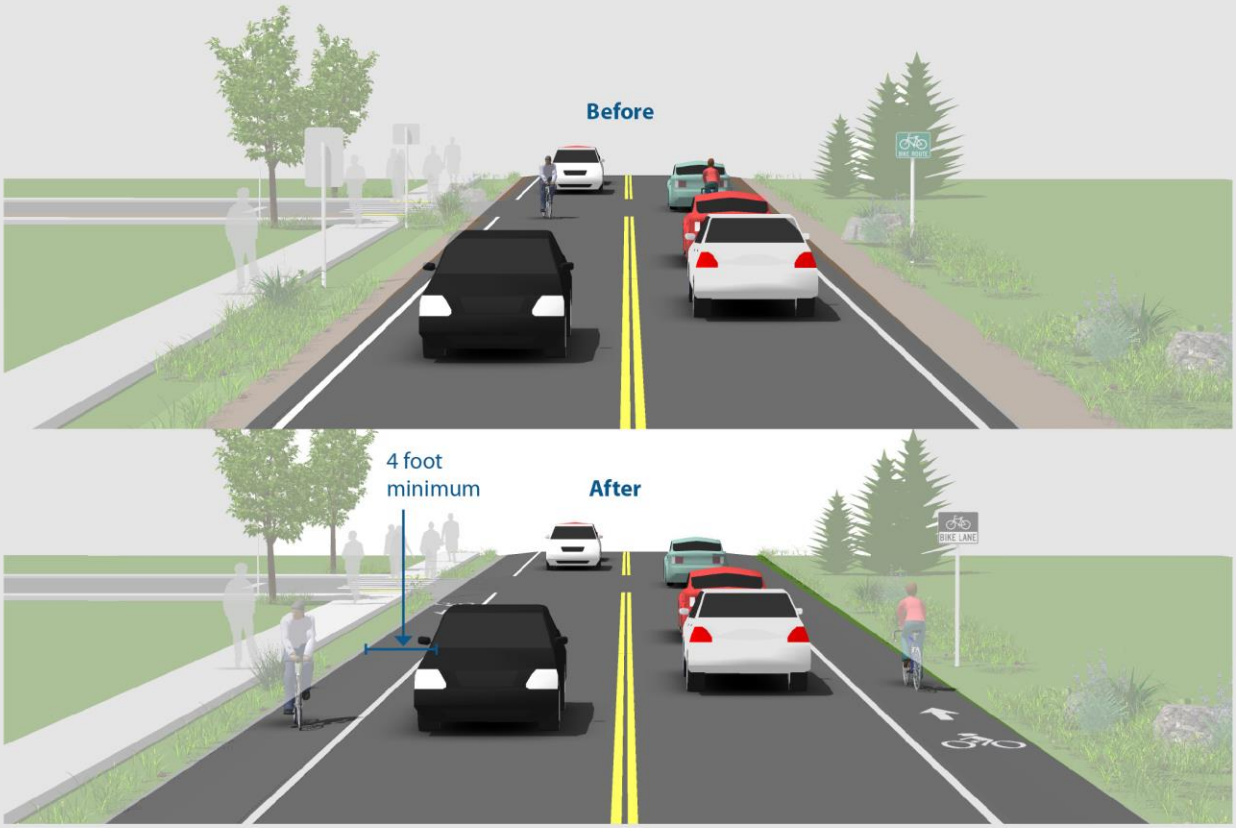
Roadway Widening

Description

Bike lanes can be accommodated on streets with excess right-of-way through shoulder widening. Although roadway widening incurs higher expenses compared with re-striping projects, bike lanes can be added to streets currently lacking curbs, gutters and sidewalks without the high costs of major infrastructure reconstruction.

Guidance

- Guidance on bicycle lanes applies to this treatment.
- 4 foot minimum width when no curb and gutter is present.
- 6 foot width preferred.



Discussion

Roadway widening is most appropriate on roads lacking curbs, gutters and sidewalks.

If it is not possible to meet minimum bicycle lane dimensions, a reduced width paved shoulder can still improve conditions for bicyclists on constrained roadways. In these situations, a minimum of 3 feet of operating space should be provided.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.

Materials and Maintenance

The extended bicycle area should not contain any rough joints where bicyclists ride. Saw or grind a clean cut at the edge of the travel lane, or feather with a fine mix in a non-ridable area of the roadway.

Figure 3-4. Roadway Widening

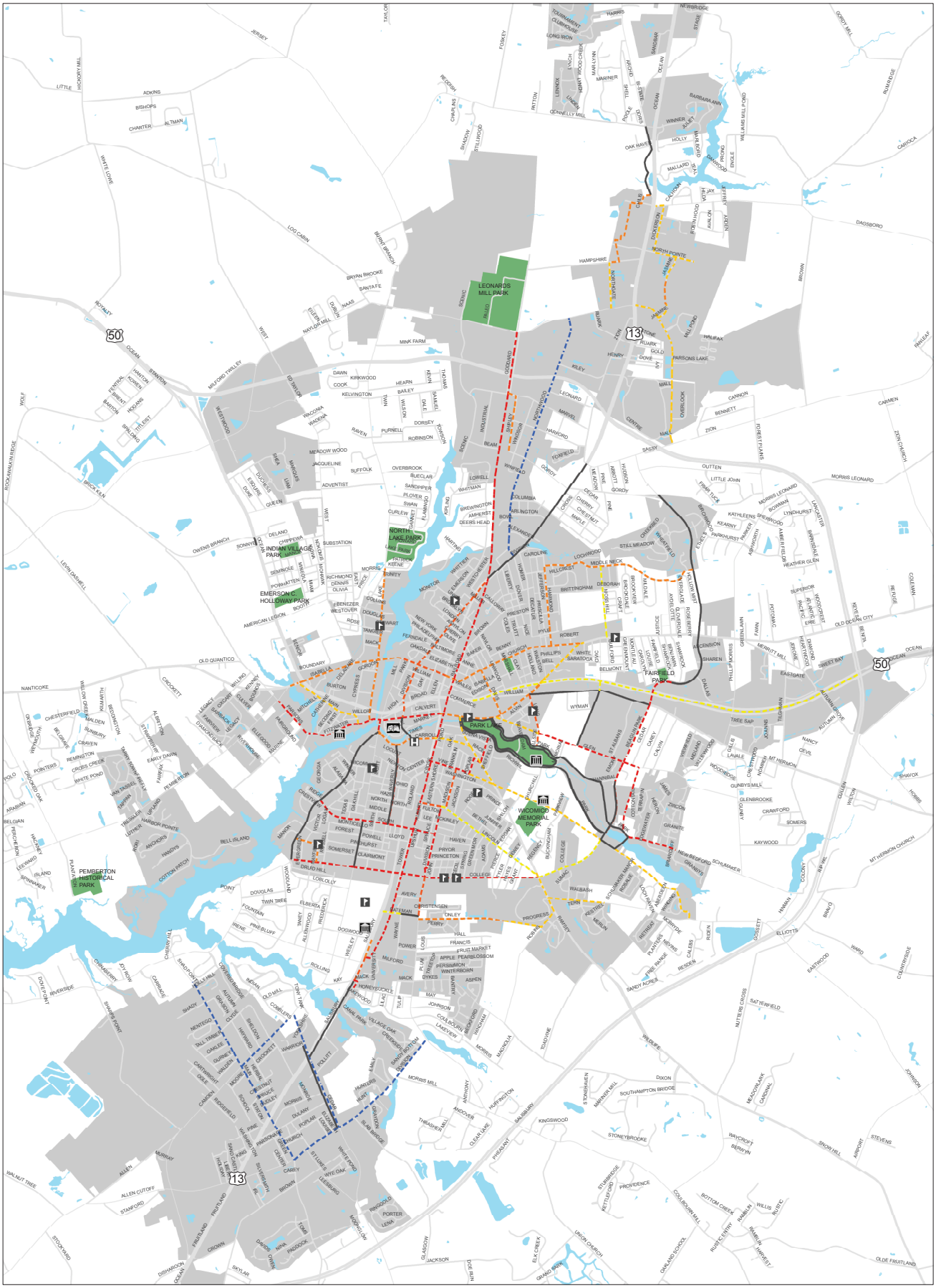
3.2 PRIORITIZATION PROCESS

The recommendations in this Plan include dozens of individual projects that together make up the overall proposed bicycle network. These projects will be developed incrementally over the coming years. Some will be developed based on locally determined priorities, while others will be built as opportunities arise (such as when funding or right-of-way becomes available, or when new development facilitates construction). While the partners of this Plan should certainly take advantage of implementation opportunities as they arise, there also needs to be a plan in place for proactively developing the network in a logical and strategic manner. This section outlines a set of prioritized projects for that purpose. These should be pursued for development as part of a coordinated effort among the many stakeholders included in this planning process.

3.3 CONSIDERATIONS FOR PRIORITIZATION

During the planning process, several factors or criteria were considered in determining relative priorities for implementation of individual routes. Those criteria included: community support; safety and comfort; access, multi-modal connections, gap closures; suitability (ease of implementation); and Low Stress Facility (will this be super easy for my kids and grandmother to ride?). Each factor was ranked for each route. The priorities as shown on the prioritization map are the result of this effort.

The first step in implementation will be to identify all the parties involved, their responsibilities, and designate a champion to monitor the process. This champion will coordinate with stakeholders to maintain momentum for implementation and record challenges and barriers to implementation and work with local and regional partners to focus on engineering, education, encouragement, enforcement, and evaluation. Each year, the priorities of this Network Plan should be evaluated to adjust implementation time frames and continue to understand how key players can work together to improve bicycle safety and comfort for residents and visitors of Salisbury, MD.



MAP 3-1. OVERALL BIKE ROUTE PRIORITIZATION

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.6 1.2 MILES

N

PROPOSED NETWORK

- Higher
- Lower
- Proposed (not prioritized)

BACKGROUND

- Existing Bicycle Facility
- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits

MAP 3-2. NORTH WEST BIKE ROUTE PRIORITIZATION

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.2 0.4 MILES

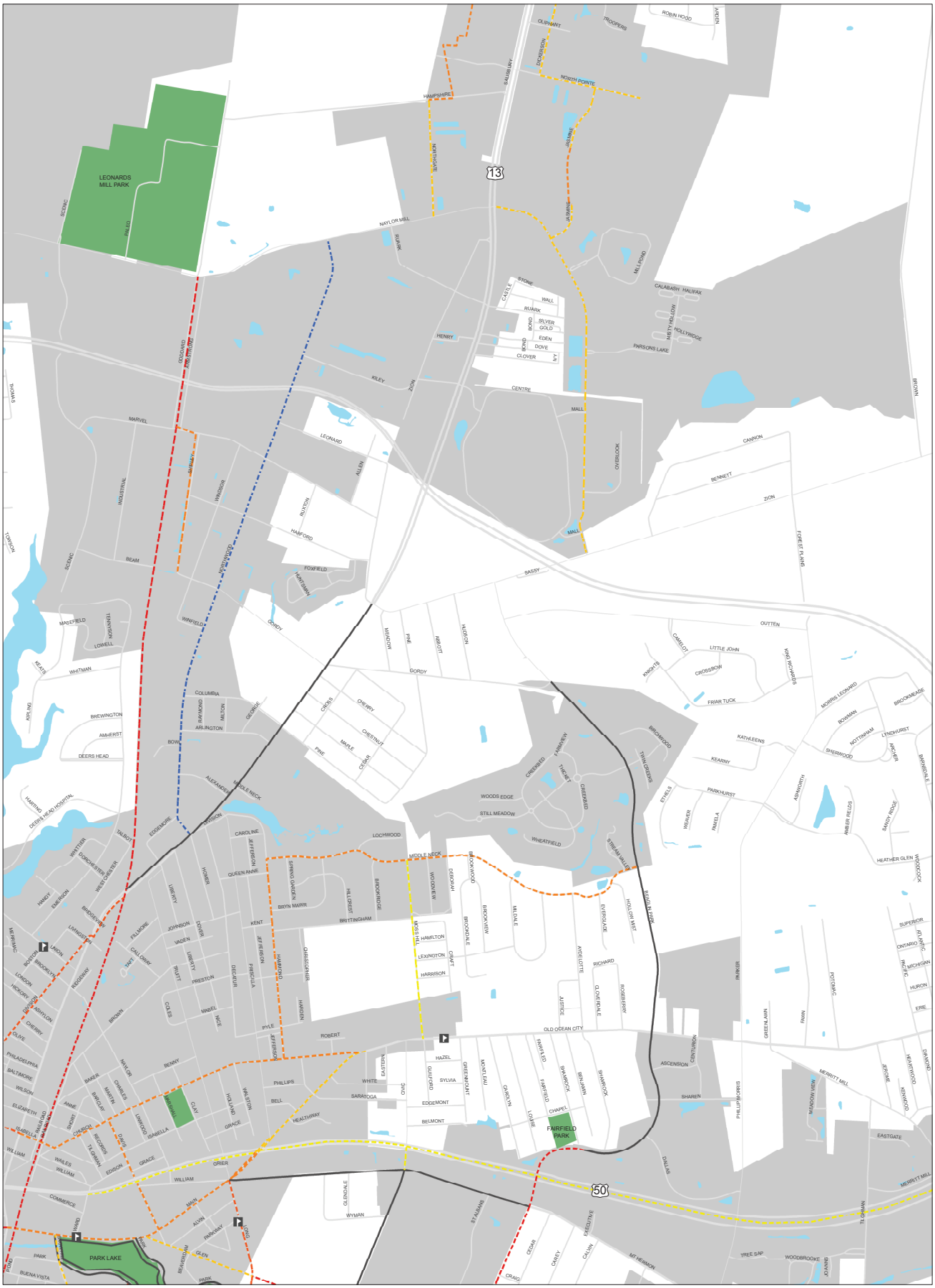
N

PROPOSED NETWORK

- Higher
- Lower
- Proposed (not prioritized)

BACKGROUND

- Existing Bicycle Facility
- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits



MAP 3-3. NORTH EAST BIKE ROUTE PRIORITIZATION

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.2 0.4 MILES

N

PROPOSED NETWORK

- Higher
- Lower
- Proposed (not prioritized)

BACKGROUND

- Existing Bicycle Facility
- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits

MAP 3-4. SOUTH WEST BIKE ROUTE PRIORITIZATION

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.2 0.4 MILES

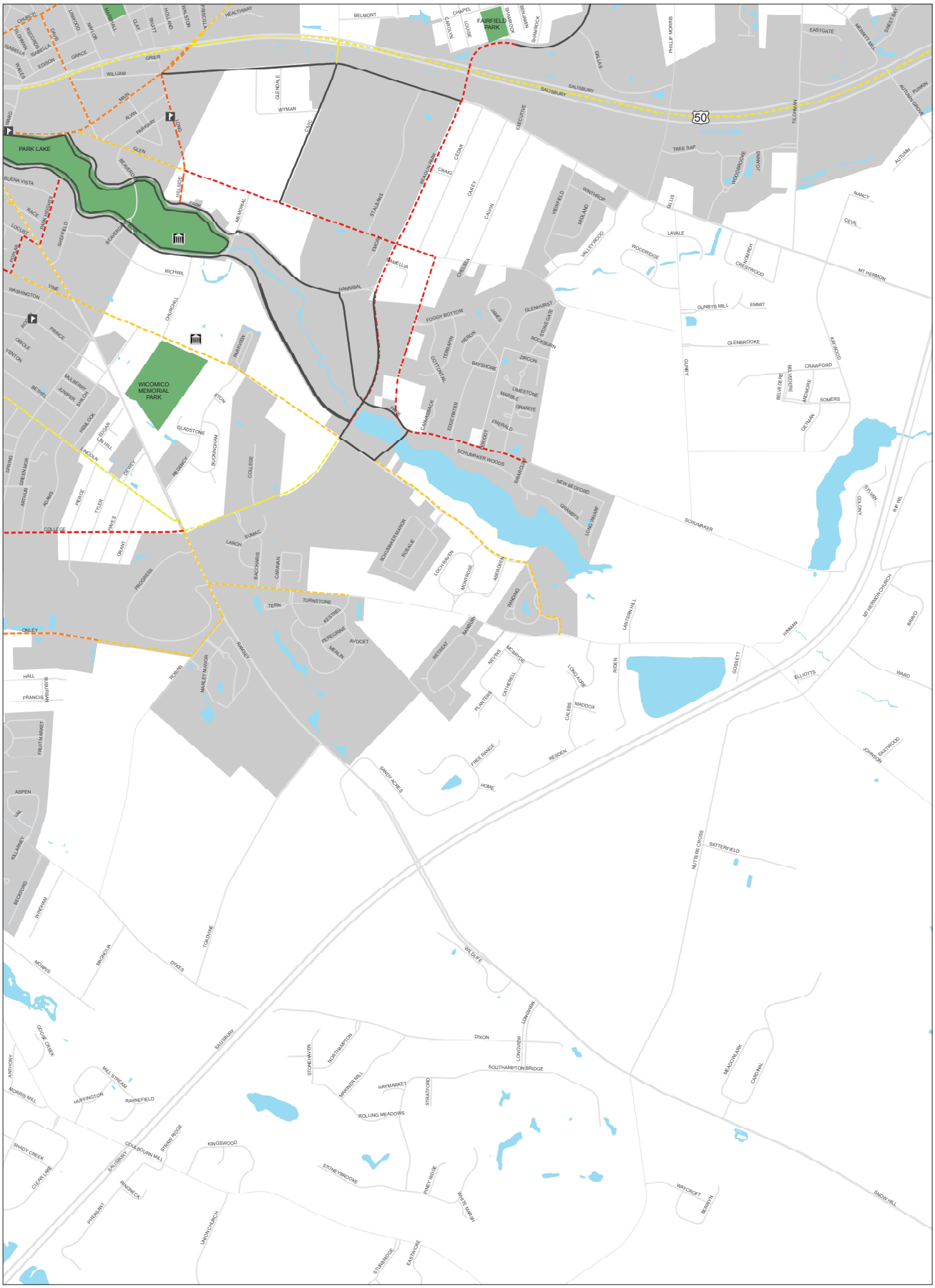
N

PROPOSED NETWORK

- Higher
- Lower
- Proposed (not prioritized)

BACKGROUND

- Existing Bicycle Facility
- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits



MAP 3-5. SOUTH EAST BIKE ROUTE PRIORITIZATION

2017 Salisbury Bicycle Network

Map created November 2016
Data provided by City of Salisbury, Wicomico County, and ESRI.

0 0.2 0.4 MILES

N

PROPOSED NETWORK

- Higher
- Lower
- Proposed (not prioritized)

BACKGROUND

- Existing Bicycle Facility
- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits

3.4 COST ESTIMATES

Cost estimates were developed for each route on the Bicycle Network Plan. The estimates are shown on the matrix, Table 3-1. The estimates were based on the following:

- Striping and pavement markings: $1.00 per LF
- Signage: $40 per SF (includes post)
- New asphalt paving: $100 per ton
- Kiosks: $20,000 each

TABLE 3-1
BICYCLE NETWORK PLAN
INDIVIDUAL ROUTE ANALYSIS

Road Name	From	To	Status	Facility_S	Length_Ft	Cost Estimate	Prioritization	Jurisdiction
Fitzwater	Parsons	Main	Proposed	Bike Lane	356.681	$1,000	1	City of Salisbury
Fitzwater	Parsons	Main	Proposed	Bike Lane	445.467	$1,000	1	City of Salisbury
Schumaker	(At the Curve by North Park Drive)	Glen	Proposed	Sharrow	718.309	$1,200	1	City of Salisbury
Fitzwater	Parsons	Main	Proposed	Bike Lane	1108.7	$1,500	1	City of Salisbury
Vine / Poplar / Locust / Park Heights	Rail Trail	S. Park	Proposed	Sharrow	936.323	$1,500	1	City of Salisbury
Fitzwater	Parsons	Main	Proposed	Bike Lane	532.741	$2,000	1	City of Salisbury
Vine / Poplar / Locust / Park Heights	Rail Trail	S. Park	Proposed	Bike Lane	1118.75	$2,000	1	City of Salisbury
Main / Mill	Division	Camdon	Proposed	Bike Lane	430.431	$2,000	1	City of Salisbury
Eastern Shore Drive	Division	College	Proposed	Multi-Use Shared Path	352.866	$2,500	1	City of Salisbury
Vine / Poplar / Locust / Park Heights	Rail Trail	S. Park	Proposed	Sharrow	1680.74	$2,500	1	City of Salisbury
Main / Mill	Division	Camdon	Proposed	Bike Lane	483.594	$2,500	1	City of Salisbury
Schumaker	(At the Curve by North Park Drive)	Glen	Proposed	Bike Boulevard	520.281	$4,000	1	City of Salisbury
Beaglin Park	Glen	South Park Drive	Proposed	Multi-Use Shared Path	3031.76	$5,000	1	City of Salisbury
Schumaker	Briarcliff	North Park Drive	Proposed	Bike Lane	1960.42	$6,000	1	City of Salisbury
Main / Mill	Division	Camden	Proposed	Bike Lane	1362.73	$6,500	1	City of Salisbury
Main	Division	13	Proposed	Bike Lane	1515	$7,500	1	City of Salisbury
College	Riverside	Camden	Proposed	Bike Lane	2496.5	$7,500	1	City of Salisbury
Waverly	South	Carroll	Proposed	Bike Lane	3191.47	$9,000	1	City of Salisbury
Schumaker	(At the Curve by North Park Drive)	Glen	Proposed	Bike Lane	2920.05	$9,000	1	City of Salisbury
South	Riverside	Division	Proposed	Bike Lane	4901.8	$14,000	1	City of Salisbury
Beaglin Park	Old Ocean City	Mt Hermon	Proposed	Multi-Use Shared Path	1494.49	$45,000	1	City of Salisbury
Beaglin Park	Mt Hermon	Glen	Proposed	Multi-Use Shared Path	2493.23	$66,000	1	City of Salisbury
Glen	Schumaker	Long	Proposed	Multi-Use Shared Path	4210.77	$115,000	1	City of Salisbury
College	Camden	Snowhill	Proposed	Multi-Use Shared Path	7349.64	$200,000	1	City of Salisbury
Along Rail Line	Carroll	College (Continue along entire rail line)	Proposed	Trail	25829.6	$750,000	1	City of Salisbury
Priority 1				**Subtotal**		**$1,264,200**		
Division	Main	RT 13	Proposed	Bike Lane	167.327	$1,500	2	City of Salisbury
Lincoln	Division	Trail	Proposed	Sharrow	813.606	$1,500	2	City of Salisbury
Long	School Entrance	Main	Proposed	Bike Lane	637.114	$3,500	2	City of Salisbury
Division	Main	RT 13	Proposed	Bike Lane	833.87	$3,500	2	City of Salisbury
Madison	Vine	Lincoln	Proposed	Multi-Use Shared Path	1622.35	$7,500	2	City of Salisbury
Long / Hillside	North Park Drive	School entrance	Proposed	Bike Lane	1482.39	$7,500	2	City of Salisbury
Division / Carrollton	Lincoln	Eastern Shore Drive	Proposed	Multi-Use Shared Path	2588.17	$10,000	2	City of Salisbury
Division	Main	RT 13	Proposed	Bike Lane	5579.63	$18,000	2	City of Salisbury
13	Mack	Milford	Proposed	Multi-Use Shared Path	1060.9	$30,000	2	City of Salisbury
Division or Through Campus	College	Bateman	Proposed	Multi-Use Shared Path	1576.71	$45,000	2	City of Salisbury
Isabella	Rt 13	Mill	Proposed	Multi-Use Shared Path	1885.84	$50,000	2	City of Salisbury
Priority 2				**Subtotal**		**$178,000**		
Pemberton	Nanticoke	Park Entrance	Proposed	Bike Lane	393.111	$1,500	3	City of Salisbury
Main	13	50	Proposed	Buffered Bike Lane	501.179	$2,000	3	City of Salisbury
Main	13	50	Proposed	Buffered Bike Lane	541.145	$2,500	3	City of Salisbury
Carroll	Riverside	13	Proposed	Buffered Bike Lane	202.041	$1,000	3	City of Salisbury
Isabella	Mill	Rt 50	Proposed	Bike Lane	233.876	$5,000	3	City of Salisbury
Pinehurst / Mayfield	Riverside	College	Proposed	Bike Boulevard	691.392	$5,000	3	City of Salisbury
Carroll	Riverside	13	Proposed	Buffered Bike Lane	230.295	$1,500	3	City of Salisbury
Pinehurst / Mayfield	Riverside	College	Proposed	Bike Boulevard	933.639	$6,000	3	City of Salisbury
Dogwood	Camden	Trail	Proposed	Bike Lane	2107.32	$6,500	3	City of Salisbury
Hammond	Church	Middleneck	Proposed	Multi-Use Shared Path	3187.19	$7,000	3	City of Salisbury
Onley	S Division	End	Proposed	Bike Lane	3397.22	$10,000	3	City of Salisbury
Middleneck	Hammond	Beaglin Park	Proposed	Multi-Use Shared Path	6310.15	$10,000	3	City of Salisbury
Gordy	Beaglin Park	Rail trail	Proposed	Bike Lane	3591.46	$10,000	3	City of Salisbury

Road Name	From	To	Status	Facility_S	Length_Ft	Cost Estimate	Prioritization	Jurisdiction
Isabella	Mill	Rt 50	Proposed	Bike Lane	3988.97	$12,000	3	City of Salisbury
Main	13	50	Proposed	Bike Lane	3908.42	$16,000	3	City of Salisbury
Carroll	Riverside	13	Proposed	Buffered Bike Lane	693.022	$3,500	3	City of Salisbury
Lake Street	Main	Keene	Proposed	Bike Lane	6125.06	$19,000	3	City of Salisbury
Carroll	Riverside	13	Proposed	Buffered Bike Lane	644.445	$3,000	3	City of Salisbury
Carroll	Riverside	13	Proposed	Buffered Bike Lane	940.028	$4,500	3	City of Salisbury
Trail	13	Hampshire	Proposed	Trail	934.643	$25,000	3	City of Salisbury
Church / Old Ocean City	13	Guilford	Proposed	Buffered Bike Lane	5738.94	$28,000	3	City of Salisbury
Pemberton	Nanticoke	Park Entrance	Proposed	Bike Lane	11254.6	$32,000	3	City of Salisbury
Trail	13	Hampshire	Proposed	Trail	4159.13	$125,000	3	City of Salisbury
Priority 3				**Subtotal**		**$336,000**		
E Vine	Poplar	Snow HIll	Proposed	Sharrow	1052.73	$1,500	4	City of Salisbury
Main	50	Church	Proposed	Buffered Bike Lane	351.873	$2,500	4	City of Salisbury
Glen	E Main	Long	Proposed	Sharrow	1794.68	$3,000	4	City of Salisbury
Main	50	Church	Proposed	Buffered Bike Lane	313.843	$4,000	4	City of Salisbury
Dickerson	Oliphant	Dagsboro	Proposed	Bike Lane	1445.61	$4,500	4	City of Salisbury
Carroll	13	Snow Hill	Proposed	Bike Lane	1495.96	$5,000	4	City of Salisbury
Jasmine	Naylor Mill	Northpointe	Proposed	Bike Lane	698.026	$6,000	4	City of Salisbury
Snow Hill	Carroll	S Schumaker	Proposed	Bike Lane	1731.65	$6,000	4	City of Salisbury
Johnson	Snowhill	Kestral Way	Proposed	Bike Lane	2236.86	$6,600	4	City of Salisbury
Dickerson / Northpointe	Jasmine	Oliphant	Proposed	Bike Lane	2429.1	$7,500	4	City of Salisbury
Main	Isabella	Fitzwater	Proposed	Bike Lane	3004.62	$8,500	4	City of Salisbury
Jasmine	Naylor Mill	Northpointe	Proposed	Bike Lane	1054.76	$10,000	4	City of Salisbury
Main	50	Church	Proposed	Buffered Bike Lane	2068.53	$12,000	4	City of Salisbury
S Schumaker	Snow Hill	Beaglin Park	Proposed	Bike Lane	4798.52	$15,000	4	City of Salisbury
Naylor Mill	Zion	Rt 13	Proposed	Bike Lane	6273.93	$19,000	4	City of Salisbury
Snowhill	Lincoln	Trail	Proposed	Multi-Use Shared Path	589.657	$20,000	4	City of Salisbury
Snowhill	Lincoln	Trail	Proposed	Multi-Use Shared Path	1116.64	$30,000	4	City of Salisbury
Northgate	Hampshire	Naylor Mill	Proposed	Multi-Use Shared Path	1856.94	$50,000	4	City of Salisbury
Onley Trail	Onley	Snowhill	Proposed	Trail	2289.65	$65,000	4	City of Salisbury
S. Schumaker	Beaglin	Johnson	Proposed	Multi-Use Shared Path	5053.18	$150,000	4	City of Salisbury
Priority 4				**Subtotal**		**$426,100**		
Civic	Old Ocean City	Mount Herman	Proposed	Sharrow	360.186	$1,000	5	City of Salisbury
Bateman	Division	Trail	Proposed	Bikes May Use Full Lane	1431.7	$2,000	5	City of Salisbury
Beaglin Park	South Park Drive/Vine	Snow Hill	Proposed	Multi-Use Shared Path	3259.58	$5,000	5	City of Salisbury
Moss Hill	Old Ocean City	Middleneck	Proposed	Sharrow	2850.94	$5,000	5	City of Salisbury
Lincoln	Division	Snowhill	Proposed	Sharrow	4623.13	$7,500	5	City of Salisbury
50	Ward	E Main	Proposed	Bike Lane	2738.97	$8,500	5	City of Salisbury
50	Main	13	Proposed	Bike Lane	13025.2	$35,000	5	City of Salisbury
Priority 5				**Subtotal**		**$64,000**		
Cedar	Division	Camden	Proposed	Bike Lane	94.1661	$500	Not Prioritized	City of Fruitland
Cedar	Shopping Center	13 (Around the corner up to Kay)	Proposed	Bike Lane	421.169	$1,500	Not Prioritized	City of Fruitland
Cedar	Shopping Center	13 (Around the corner up to Kay)	Proposed	Bike Lane	679.397	$3,000	Not Prioritized	City of Fruitland
Cedar	Division	Camden	Proposed	Bike Lane	1348.55	$3,500	Not Prioritized	City of Fruitland
Division	Main	Cedar	Proposed	Bike Lane	2188.93	$6,000	Not Prioritized	City of Fruitland
Cedar	Division	Camden	Proposed	Bike Lane	2342.52	$6,600	Not Prioritized	City of Fruitland
Camden	Main	Cobblers	Proposed	Bike Lane	2579.7	$7,000	Not Prioritized	City of Fruitland
Shads Point / Main	Holly Hill	Camden	Proposed	Bike Lane	3880.06	$7,500	Not Prioritized	City of Fruitland
Northwood	13	Naylor Mill	Proposed	Sharrow	9949.16	$8,000	Not Prioritized	City of Salisbury
Shads Point / Main	Holly Hill	Camden	Proposed	Bike Lane	4231.86	$12,500	Not Prioritized	City of Fruitland
Division	Colburn Mill / Division	Cedar / Traffic circle	Proposed	Bike Lane	4953.01	$15,000	Not Prioritized	City of Fruitland
Coulburn Mill	Division	Union Church	Proposed	Bikes May Use Full Lane	23063.5	$20,000	Outside Limits	Wicomico County
Unprioritized				**Subtotal**		**$91,100**		
Wesley	Pine Bluff	Dogwood	Proposed	Multi-Use Shared Path	983.872	$1,000	Outside Limits	Wicomico County
Shads Point	Riverside	Holly Hill	Proposed	Bikes May Use Full Lane	1253.78	$1,500	Outside Limits	Wicomico County
Hinman	Johnson	Schumaker	Proposed	Bikes May Use Full Lane	1877.92	$1,600	Outside Limits	Wicomico County
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Bikes May Use Full Lane	1399.79	$2,500	Outside Limits	Wicomico County
Colburn Mill	Union Church	SE	Proposed	Bikes May Use Full Lane	2920.36	$2,500	Outside Limits	Wicomico County
Owens Branch	50	Trail	Proposed	Connection	3420.58	$2,800	Outside Limits	Wicomico County
Union Church	Colburn Mill	S	Proposed	Bikes May Use Full Lane	4163	$3,000	Outside Limits	Wicomico County
Zion	Beaglin Park	Naylor Mill	Proposed	Bike Lane	1528.34	$4,500	Outside Limits	Wicomico County
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Multi-Use Shared Path	2254.68	$5,000	Outside Limits	Wicomico County
Honeysuckle	13	Division	Proposed	Bike Boulevard	2328.24	$5,000	Outside Limits	Wicomico County
Old Ocean City	Guilford	Beaglin Park	Proposed	Bike Lane	4559.95	$5,000	Outside Limits	Wicomico County

Road Name	From	To	Status	Facility_S	Length_Ft	Cost Estimate	Prioritization	Jurisdiction
Church Hill	S Park	S Schumaker	Proposed	Bike Lane	1365.07	$5,000	Outside Limits	Wicomico County
Schumaker	Hinman	Briarcliff	Proposed	Bikes May Use Full Lane	5122.61	$5,000	Outside Limits	Wicomico County
Jersey Rd	Naylor Mill	Connelly Mill	Proposed	Bikes May Use Full Lane	5573.37	$5,000	Outside Limits	Wicomico County
Adventist	Jersey	N. West	Proposed	Bike Lane	2516.5	$6,000	Outside Limits	Wicomico County
Gordy	Beaglin Park	Rail trail	Proposed	Bike Lane	2545.83	$7,500	Outside Limits	Wicomico County
Hamshire	Goddard Pkwy	Northgate	Proposed	Bike Lane	3117.45	$7,500	Outside Limits	Wicomico County
Division	Bateman	Division transition to Coulburn Mill	Proposed	Sharrow	5099.3	$8,500	Outside Limits	Wicomico County
Gordy	Beaglin Park	Rail trail	Proposed	Bike Lane	2821.31	$8,500	Outside Limits	Wicomico County
Zion	Beaglin Park	Naylor Mill	Proposed	Bikes May Use Full Lane	10217.1	$8,500	Outside Limits	Wicomico County
Riverside Drive	Loblolly	Sharps Point	Proposed	Bikes May Use Full Lane	10293.7	$8,500	Outside Limits	Wicomico County
Queen	N. West	50	Proposed	Bike Lane	3038.39	$8,500	Outside Limits	Wicomico County
Connelly Mill	Jersey	Rt 13	Proposed	Bikes May Use Full Lane	12257.5	$10,000	Outside Limits	Wicomico County
Nutters Cross	Johnson	Coulbourn Mill	Proposed	Bikes May Use Full Lane	11964.3	$10,000	Outside Limits	Wicomico County
Pine Bluff	13	Riverside Drive	Proposed	Bike Lane	5463.9	$15,000	Outside Limits	Wicomico County
West	Naylor Mill	Adventist	Proposed	Bike Lane	5681.85	$18,000	Outside Limits	Wicomico County
Camden	Cobblers	College	Proposed	Bike Lane	6857.63	$20,000	Outside Limits	Wicomico County
West	Adventist	Isabella	Proposed	Bike Lane	7136.01	$20,000	Outside Limits	Wicomico County
Johnson	Kestral Way	across bridge at 13 and beyond	Proposed	Bike Lane	7606.67	$22,000	Outside Limits	Wicomico County
Johnson	Kestral Way	across bridge at 13 and beyond	Proposed	Bikes May Use Full Lane	29992.5	$25,000	Outside Limits	Wicomico County
Jersey Rd	Keene	Naylor Mill	Proposed	Bike Lane	10581.1	$30,000	Outside Limits	Wicomico County
50	Isabella	Naylor Mill	Proposed	Bike Lane	10154.9	$30,000	Outside Limits	Wicomico County
Beaglin Park	Gordy	Zion	Proposed	Multi-Use Shared Path	1864.61	$50,000	Outside Limits	Wicomico County
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Trail	1596.19	$50,000	Outside Limits	Wicomico County
Along Rail Line	Carroll	College (Continue along entire rail line)	Proposed	Trail	2540.66	$70,000	Outside Limits	Wicomico County
Naylor Mill	Rt 13	Rail Trail	Proposed	Multi-Use Shared Path	25052.8	$75,000	Outside Limits	Wicomico County
Rail Trail	50	Naylor Mill	Proposed	Trail	3548.08	$100,000	Outside Limits	Wicomico County
Trail	Lake	Rail Trail	Proposed	Trail	4614.92	$125,000	Outside Limits	Wicomico County
Rail Trail	50	Naylor Mill	Proposed	Trail	7281.9	$200,000	Outside Limits	Wicomico County
Leonard Pond Run Trail	Side path	Naylor Mill	Proposed	Trail	10915.4	$300,000	Outside Limits	Wicomico County
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Trail	12491.1	$350,000	Outside Limits	Wicomico County
Outside City Limits				**Subtotal**		**$1,632,900**		
Riverside Drive	College	Loblolly	Proposed	Bikes May Use Full Lane	113.465	$500	Existing	City of Salisbury
Division	Caroll	Main	Existing	Existing Bikes May Use Full Lane	997.199	$1,000	Existing	City of Salisbury
Division	Main	Camden	Existing	Bike Lane	182.982	$1,500	Existing	City of Salisbury
North Park	Main	Beaglin Park	Existing	Bike Boulevard	189.36	$5,000	Existing	City of Salisbury
North Park	Main	Beaglin Park	Existing	Bike Boulevard	3442.43	$7,500	Existing	City of Salisbury
North Park	Main	Beaglin Park	Existing	Bike Boulevard	3753.2	$8,000	Existing	City of Salisbury
South Park / Snowhill	Main	Beaglin Park	Existing	Bike Boulevard	8295.21	$12,000	Existing	City of Salisbury
Beaglin Park	Old Ocean City	Mt Hermon	Existing	Existing Side Path	2775.15	$75,000	Existing	City of Salisbury
13	Cedar	Kay	Existing	Existing Side Path	3491.68	$95,000	Existing	City of Salisbury
Existing				**Subtotal**		**$205,500**		

3.5 FUNDING SOURCES

Federal funding from the Unites States Department of Transportation is typically directed through the State Highway Administration to local governments either in the form of grants or loans. Some Federal programs require matching or shared funds from the local government entity.

Maryland offers a wide variety of federal and state funded programs to help plan, design, and build projects throughout the state. The information below outlines key grant criteria and requirements as well as helpful information for Salisbury. Contact and online information is listed for each program.

PRIMARY GRANTS

These federal and state grants are the primary funding sources for bicycle and pedestrian projects. State staff can help local communities identify ways to combine the grants to successfully implement projects. All grant funding is provided on a reimbursement basis.

Transportation Alternatives Program (SHA): The program provides funding for projects that enhance the cultural, aesthetic, historic, and environmental aspects of the intermodal transportation system.

Eligible Grantees:

- Metropolitan Planning Organizations (select projects for 50% of available funding) with populations of 200,000 or greater
- Local/County Jurisdictions
- Transit Agencies
- Federal Public Land Agencies
- Local/County School Districts

Eligible Bike/Pedestrian Projects:

- Planning and Design of Bike/ Pedestrian Facilities and Safe Routes for Non-Drivers ($25,000 maximum)
- Construction of Bike/Pedestrian Facilities
- Construction of Safe Routes for Non-Drivers
- Conversion of Abandoned Rail to Bike/
- Pedestrian Trails

Requirements:

- Funding Source: Federal. All TAP projects must comply with ADA, NEPA, Davis-Bacon wage rates, Buy America, and other applicable state and federal regulations.

- Local match: 20 percent of total eligible project costs as a cash match. A TAP grant can cover up to 80 percent of the construction costs. Prior project work, right-of-way acquisition and in-kind services may not be counted toward the 20 percent match requirement.
- All TAP projects must meet the following criteria:
  - Open to the public and benefit all Marylanders, not a specific group or individual.
  - Serve a transportation purpose, connecting two destinations (TAP projects cannot be solely recreational in purpose, but may be phased as long as each phase continues to serve transportation destinations.)
  - Unrelated to planned or existing highway projects, routine highway improvements, or required mitigation for a planned or existing highway project. TAP projects may be enhancements to larger federal-aid highway projects.
  - Located on publicly-owned right-of-way or on right-of-way encumbered with a permanent easement held by a state agency or the government agency sponsoring or co-sponsoring the project.

Program Contact:

- Christy Bernal, SHA Assistant Transportation Alternative Program Liaison, 410-545-5675, cbernal@sha.state.md.us
- http://www.sha.maryland.gov/Index.aspx?PageID=144

Maryland Bikeways Program (MDOT): The program supports projects that maximize bicycle access and fill missing links in the state's bicycle system, focusing on connecting shared-use paths and roads and enhancing last-mile connections to work, school, shopping and transit.

Eligible Grantees:

- State Agencies
- Metropolitan Planning Organizations
  Local/County Jurisdictions
- Transit Agencies
- Federal Public Land Agencies

Eligible Bike/Pedestrian Projects:

- Feasibility Assessments, Design & Engineering
- Construction of Shared Use Paths, Cycletracks and Bicycle Lanes
- Shared Lane and other pavement markings
- Bicycle Route Signage and

Wayfinding
- Bicycle Capital Equipment (e.g. parking)
- Other Minor Retrofits to Support Bicycle Routes
- Education Materials to Support Bicycle Projects

Requirements:

- Funding Source: State
- Local Match: Zero percent for Priority Minor Retrofit projects, 20 percent for other Priority Projects, 50 percent for non-priority projects. Match may include cash or in-kind services contributing to the project, including expenditures up to 24 months prior to a Bikeways project award.
- All Bikeways Projects must meet at least one of the following criteria:
  - Located substantially within a Priority Funding Area, within 3 miles of a rail transit station or major bus transit hub;
  - Provide or enhance bicycle access along any gap identified in the Statewide Trails Plan;
  - Identified as a transportation priority in the County's most recent annual priority letter submitted to MDOT.
- Priority Projects are defined as any of the following:
  - Enhance bicycle access within 3 miles of a rail transit station
  - Provide or enhance bicycle access along a missing link identified in the Statewide Trails Plan
  - Enhance bicycle circulation within or access to a Sustainable Community, Designated Maryland Main Street, census tract at or below 60% of area median income, major university, central business district, or important tourist or heritage attraction.

Contact:

- MDOT Office of Planning and Capital Programming, 410-865-1304, MDBikeways@mdot.state.md.us
- http://www.mdot.maryland.gov/newMDOT/Planning/Bike/Bikeways.html

Recreational Trails Program (SHA): A federally-funded program assisting development and maintenance of smaller scale motorized and non-motorized trail, trailhead and restoration projects. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, canoeing, kayaking, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles. Recreational Trails is now a part of the larger Transportation Alternatives Program due to the latest federal transportation law, MAP-21, but has retained dedicated funding.

Eligible Grantees:

- State Agencies (DNR projects received 50% of funding
- Local/County Jurisdictions
- Private Groups/Individuals (with government agency co-sponsor)

Eligible Bike/Pedestrian Projects:

- Construction of New Trails
- Maintenance and Restoration of Existing Trails
- Development/Rehabilitation of Trailside Facilities and Linkages
- Purchase/Lease of Trail Construction Equipment
- Trail/Corridor Easement and Property Acquisition
- Interpretive/Educational Programs, Signage and Maps Related to Recreational Trails Use

Requirements:

- Funding Source: Federal. Grant awards cannot exceed $40,000 for new construction and $30,000 for other projects.
- Local match: 20 percent of total project cost as a cash match.
- Recreational Trails projects with the following criteria are preferred:
  - Connect communities with natural/cultural areas or tourism areas (ie. Scenic Byways, Heritage Areas, Canal Towns, etc.)
  - Broad-based community support
  - Complete a missing link in the State Trails Plan
  - Link or complete existing trails
  - Mitigate trail impacts on the natural environment

- Construction or maintenance accomplished with youth conservation corps or service groups
- Loop trails that do not connect to a broader network and sidewalk projects are not generally awarded funds.

Contact:

- Terry Maxwell, SHA Landscape Architecture, 410-545-8637, tmaxwell@sha.state.md.us
- http://www.sha.maryland.gov/Index.aspx?PageId=98

Safe Routes to Schools (SHA): A program providing funding for education and infrastructure improvements in the vicinity of state-funded K-8 institutions that promote students walking and cycling to school. Safe Routes to School projects must be requested through the larger Transportation Alternatives Program due to the latest federal transportation law, MAP-21.

Eligible Grantees:

- Local/County Jurisdictions
- Local/County School District

Eligible Bike/Pedestrian Projects:

- Construction of New Trails
- Bike/Pedestrian safety classes for students
- Traffic education and enforcement near schools
- Public awareness campaigns for press and community leaders
- Sidewalk Improvements (within 1.5 miles of school)
- Traffic calming and speed reduction improvements
- Bike/Pedestrian Crossing Improvements
- On- and Off-Street Bike/Pedestrian Improvements
- Bicycle Parking
- Traffic diversion, education and enforcement

Requirements:

- Funding Source: Federal (part of Transportation Alternatives)
- Local match: 20 percent of total project cost as a cash match
- Safe Routes to School projects with the following criteria are preferred:
  - The project and its outcomes are viable
  - Addresses an infrastructure or programmatic gap

Contact:

- Jessica Shearer, SHA Transportation Alternatives Program Manager, 410-545-5653, jshearer@sha.state.md.us
- http://www.roads.maryland.gov/Index.aspx?PageID=735

Maryland Highway Safety Office Grant (MVA): This grant aims to reduce the number of motor vehicle-related crashes, deaths, and injuries on Maryland highways. The State's Strategic Highway Safety Plan is a data-driven plan that identifies the top safety priorities that are eligible for funding. As of 2014, pedestrian safety is a top safety priority.

Eligible Grantees:

- State Agencies
- Local/County Jurisdictions
- Law Enforcement Agencies
- Non-Profit Organizations
- Higher Education Institutions

Eligible Bike/Pedestrian Projects:

- Pedestrian Safety Projects Consistent with SHSP Strategies (see below)

Requirements:

- Funding Source: Federal (Highway Safety Improvement Program funds)
- Local match: 20 percent of total project cost as a cash match.
- Projects must match one of the top safety priorities and implement the strategies identified in the Strategic Highway Safety Plan:
  - Develop model processes to identify and prioritize high-incident locations and system-wide pedestrian safety issues;

- Develop and evaluate model approaches to engineering built environments that accommodate safe pedestrian travel;
- Develop and evaluate model approaches to improving pedestrian and motorist awareness and behavior, including education and enforcement efforts; and
- Create partnerships among state, regional, and local stakeholders to develop action plans that address high-priority locations and system wide issues using comprehensive approaches to pedestrian safety.

Contact:

- MHSO Regional Traffic Safety Program contacts can be found at http://mhso.mva.maryland.gov/SafetyPrograms/program_regional_traffic_program.htm

STATE FUNDING PROGRAMS

These are State Highway Administration dedicated funding programs that support bicycle and pedestrian improvements on state roads. SHA internally identifies, designs and constructs many of the projects. Local communities can identify and request projects for SHA evaluation.

ADA Retrofit (SHA Fund 33): A fund to upgrade existing sidewalks, curb ramps, intersections and driveway entrances along state roadways to be compliant with the Americans with Disabilities Act (ADA).

Requirements:

- Fund 33's purpose is to retrofit existing, non-compliant sidewalks up to the latest ADA standards.
- Projects are not limited to Priority Funding Areas.

Contact:

- John Gover, SHA Innovative Contracting, 410-545-8766, wgover@sha.state.md.us

Sidewalk Retrofit (SHA Fund 79): A fund to construct missing sidewalk segments along State roadways to fill gaps within the pedestrian network. The missing segment must be located in an Urban Area (as defined by the Census). Local matching fund contributions may be reduced or eliminated for projects located in Designated Sustainable Communities, in a Priority Funding Area, or where SHA determines that there is a substantial public safety risk or significant impediment to pedestrian access.

Requirements:

- Local jurisdiction must provide public notice of the sidewalk project and citizens an opportunity to provide input; help secure right-of-way, easements, or right-of-entry agreements; and agree to maintain or repair the sidewalks after completion.
- The cost to construct or reconstruct a sidewalk shall be shared equally between the State and local government, except as provided below. If a sidewalk is located in a "Sustainable Community" per Housing and Community Development Article §§6-301 and 6-305, construction *may* be funded entirely by the state.
    - If a sidewalk is located in a Priority Funding Area and SHA determines that a *substantial* public safety risk or *significant* impediment to pedestrian access exists and the adjoining roadway is under neither construction nor reconstruction, sidewalk construction shall be identified as a system preservation project and *may* be funded 100 percent by the state.
    - If a sidewalk is located in a Priority Funding Area and requested by the local government, the construction costs may be split between the state (75 percent) and local jurisdiction (25 percent).

Contact:

- Sanjay Kumar, SHA Highway Design, 410-545-8826, skumar@sha.state.md.us

Community Safety and Enhancement Program (SHA Fund 84): A fund for highway reconstruction and improvements along SHA roadways within urban centers that promote safety and economic development. Projects are generally requested by local jurisdictions in the annual transportation priority letter sent to MDOT.

Requirements:

- Local jurisdiction must agree to maintain sidewalks and other improvements after completion.
- Project limits must be located within a Priority Funding Area.

Contact:

- Teri Soos, SHA Community Design, 410-545-8845, tsoos@sha.state.md.us

Bicycle Retrofit (SHA Fund 88): This is a fund to provide bicycle improvements along state roadways.

Requirements:

- Local jurisdiction must provide public opportunity to provide input and must help secure right-of-way, easements, or right-of-entry agreements.
- In cases of off-road improvements, such as a parallel or shared-use path, the local jurisdiction must agree to maintain improvements after completion.
- The parallel/shared-use path must be within 100 feet of a SHA roadway.
- If a shared-use path requested by a local jurisdiction is within a Priority Funding Area, the cost to construct shall be shared between the state (75 percent) and local government (25 percent).
- If SHA determines that a substantial public safety risk or significant impediment to pedestrian access exists and the adjacent roadway is not under concurrent construction or reconstruction, SHA may opt to fund 100 percent of the construction, provided funding is available.
- If a shared-use path requested by a local jurisdiction is *not* within a Priority Funding Area, the construction cost shall be shared between the state (50 percent) and local government (50 percent).

Contact:

- Luis Gonzalez, SHA Innovative Contracting, 410-545-8826, lgonzalez@sha.state.md.us

ADDITIONAL STATE GRANT OPPORTUNITIES

Community Legacy Program (DHCD): The program provides local governments and community development organizations with funding for essential projects aimed at strengthening communities through activities such as business retention and attraction, encouraging homeownership and commercial revitalization. Projects must be located within an approved Sustainable Community to be eligible for funding. Bicycle and pedestrian opportunities include streetscape improvements and as part of mixed-use developments.

Contact:

- Kevin Baynes, DHCD Community Programs, 410-209-5823, baynes@mdhousing.org

Program Open Space (DNR): The program consists of two components, a local grant component often called Localside POS and a component that funds acquisition and recreation facility development by the State. The localside component provides financial and technical assistance to local subdivisions for the planning, acquisition, and/or development of recreation land or open space areas.

Contact:

- Program Open Space Local Support Staff contacts can be found at http://www.dnr.state.md.us/land/localsupport/ls_contacts.asp

Community Parks and Playgrounds (DNR): The program provides funding to restore existing parks and create new park and green space systems in Maryland's cities and towns. Flexible grants are provided to local governments which help them rehabilitate, expand or improve existing parks. Funding can help develop environmentally oriented parks and recreation projects, create new parks, or purchase and install playground equipment in older neighborhoods and intensely developed areas throughout the state.

Contact:

- Community Parks and Playgroups Local Support Staff contacts can be found at http://www.dnr.state.md.us/land/localsupport/ls_contacts.asp

Maryland Heritage Areas Financial Assistance Programs (MHT): Designated Maryland Heritage Areas are eligible for various tax credits, grants and loans. These financial assistance programs support for a wide variety of historic preservation-related activities. Bicycle and pedestrian opportunities involve inclusion in heritage tourism development and educational programs.

Contact:

- Richard Hughes, Heritage Areas Program Administrator, 410-514-7685, richard.hughes@maryland.gov

ADDITIONAL FEDERAL GRANT OPPORTUNITIES

Transportation Investment Generating Economic Recover (TIGER) Grants (USDOT): The TIGER Discretionary Grant program, provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve critical national objectives. The TIGER program enables DOT to examine a broad array of projects on their merits, to help ensure that taxpayers are getting the highest value for every dollar invested. In each round of TIGER, DOT receives many applications to build and repair critical pieces of our freight and passenger transportation networks. Applicants must detail the benefits their project would deliver for five long-term outcomes: safety, economic competitiveness, state of good repair, livability and environmental sustainability.

Contact:

- FHWA Office of Infrastructure Finance and Innovation, 202-366-0301, TIGERgrants@dot.gov
- http://www.dot.gov/tiger

Rivers, Trails, and Conservation Assistance Program (NPS): The program extends and expands the benefits of the National Park Service by helping connect all Americans to their parks, trails, rivers, and other special places. When a community asks for assistance with a project, NPS staff provides free, on-location facilitation and planning expertise from conception to completion. Assistance can include visioning and planning, developing concept plans for trails, parks and natural areas, setting priorities and identifying funding sources.

Contact:

- RTCAP Maryland Support Staff can be found at http://www.nps.gov/orgs/rtca/contactus.htm#MD
- http://www.nps.gov/orgs/rtca/index.htm

Federal Lands Access Program (FHWA): The program is intended to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators. Bicycle and pedestrian opportunities include planning, design and engineering, construction, rehabilitation, and preventative maintenance of facilities accessing public lands.

Contact:

- Frances Ramirez, Federal Lands Highways Program Coordinator, 202-493-0271, frances.ramirez@dot.gov
- http://flh.fhwa.dot.gov/programs/flap/

ADDITIONAL PRIVATE GRANT OPPORTUNITIES

There are a variety of other public and private grant opportunities available to fund bicycle and pedestrian projects. The specific project type is the first step to determining funding eligibility. Several examples are included below.

- The **Robert Wood Johnson Foundation** (http://www.rwjf.org/) invests in grantees (e.g., public agencies, universities, and public charities) that are working to improve the health of all Americans. Current or past projects in the topic area "walking and biking" include greenway plans, trail projects, advocacy initiatives, and policy development.

- The **PeopleForBikes** Community Grant Program (http://www.peopleforbikes.org/pages/community-grants) provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives.

- The **National Center for Safe Routes to School** (http://www.saferoutesinfo.org/funding-portal/private-funding) identifies ways for communities to solicit non-government funding for Safe Routes to School activities. The multiple benefits of SRTS programs, including the safety, health, environment and community impacts, often align with the interests of the local community.

- Local Wellness Centers

- The **Cycle Maryland** initiative is an effort to encourage more Marylanders to get out and ride, and to make bicycling a true transportation alternative. Cycling is a great way to connect to your community, support a cleaner environment, encourage a healthier lifestyle, reduce household transportation costs and enjoy Maryland's magnificent landscape.

  www.cycle.maryland.gov provides an one-step web portal for information about cycling infrastructure, plans, funding opportunities and events.