



**SALISBURY CITY COUNCIL  
WORK SESSION AGENDA**

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**NOVEMBER 21, 2016  
COUNCIL CHAMBERS  
GOVERNMENT OFFICE BUILDING**

- 4:30 p.m. Fire Service Agreement presentation
- 5:15 p.m. OPEB presentation- Keith Cordrey, Jeanne Loyd, Kevin Binder
- 5:45 p.m. City of Salisbury Bicycle Network Plan- Keith Hall
- 6:10 p.m. Solar Farm Text Amendment- Gloria Smith
- 6:30 p.m. Naylor Mill Park Deed Transfer- Tom Stevenson
- 6:45 p.m. Scenic Drive Agreement and Easement- Tom Stevenson
- 7:00 p.m. North Prong Park Plan- Property Acquisition- Tom Stevenson
- 7:25 p.m. Council discussion
- 7:30 p.m. Adjournment

*Times shown are approximate. Council reserves the right to adjust the agenda as circumstances warrant.  
The Council reserves the right to convene in Closed Session as permitted under the Annotated Code of Maryland 10-508(a).*

*Posted: 11/16/16*



City of  
**Salisbury**  
Jacob R. Day, Mayor

## MEMORANDUM

**To:** Tom Stevenson, City Administrator  
**From:** Julia Glanz, Asst. City Administrator  
**Subject:** Fire Service Agreement Presentation  
**Date:** 11/16/16

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In early 2016 the City of Salisbury and Wicomico County entered into an agreement with TriData LLC to provide an expert, unbiased evaluation of the Fire Service in the City of Salisbury and Wicomico County. The contract stated that TriData would evaluate the level of current services and provide a financial analysis, to include:

Task 1- Collection and Review of Background Information

Task 2- Triage of Issues

Task 3- Analyze SFD Coverage and Demand

Task 4- Cost Apportionment

Task 5- Draft and Final Report

During the Work Session on November 21, 2016 Dr. Harold Cohen will provide TriData's findings and answer any questions.

Unless you or the Mayor have additional questions, please advance this memorandum to the City Council for approval.



City of  
**Salisbury**  
Jacob R. Day, Mayor

## MEMORANDUM

**To:** Tom Stevenson, City Administrator  
**From:** Jeanne Loyd, Director of Human Resources  
**Subject:** OPEB Recommendations  
**Date:** November 3, 2016

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Please see the PowerPoint Presentation adjoining this memorandum to be included with the City Council Work Session meeting of November 21, 2016.

This presentation will be provided by Kevin Binder of Bolton Partners, our Health Insurance Brokers.

Please let me know if you have any questions regarding the PowerPoint presentation and its contents.

City of  
Salisbury OPEB Plan  
Presentation

# Current Plan

- City Pays 50 percent of the premium for Life
- Includes family coverage
- Eligible at retirement
- Current Premiums
  - EPO pre-65 \$469.71 per month
  - PPO pre-65 \$553.34 per month
  - Pre-65 real cost is higher because retirees are older than employees
  - Post 65 supplemental plan - \$519.46 per month
- Current Cash Cost - \$500,000 for 74 retirees

# Estimated Projected Cash Cost

<b>Fiscal Year Ending</b>	<b>Dollar</b>	<b>2016 Dollars 2.3% Inflation</b>
2021	642,000	573,000
2026	931,000	742,000
2031	1,463,000	1,040,000
2036	2,002,000	1,270,000

# Medical Trend

- Medical Costs increase faster than the rest of the economy
- Medical Costs are projected to increase a little over 5 percent through 2050
- A little over 3 percent in real dollar
- A 3 percent annual increase over 20 years is an 109 percent increase
- One way to control cost is to change the benefit from a percent of the premium to a fixed dollar model

# Maryland Governments that are moving toward fixed dollar benefits

- Baltimore County – all employees hired after 2007
- Housing Authority of Baltimore City – Benefit capped for all employees not retirement eligible in 2006
- Others already had fixed dollar subsidies
  - Cecil County
  - Cambridge
- Many governments to the South have fixed dollar benefits

# Option 1

- Three Tiers
  - current retirees
  - Current employee
  - Future hires
- No change for current retirees
- Current employees benefit
  - \$3,500 fixed dollar cap on employer subsidy
  - No spouse subsidy
- Future Hires
  - Same as current employees but a 20 year requirement to get benefit

# Option 2

- Three Tiers
  - current retirees
  - Current employee
  - Future hires
- No change for current retirees
- Current employees benefit
  - \$3,500 fixed dollar cap on employer subsidy
  - \$7,000 fixed dollar cap on H+W employer subsidy
  - \$9,500 fixed dollar cap on Family employer subsidy
- Future Hires
  - Same as Option 1 (20 year requirement and no spouse coverage)

# Option 3

- Two Tiers
  - current retirees and employees
  - Future hires
- No change for current retirees and employees
- Future Hires - No benefit

# Estimated Impact of Proposed Change Actuarial Accrued Liability

Actuarial Accrued Liability 3.5 percent Discount Rate				
FYE	Current Plan	Option 1	Option 2	Option 3
2016	27,661,000	18,273,000	19,428,000	27,661,000
2021	38,300,000	22,000,000	23,700,000	37,300,000
2026	51,500,000	25,800,000	28,000,000	46,700,000
2031	66,800,000	29,100,000	31,800,000	54,200,000

# Estimated Impact of Proposed Change Benefit Payments

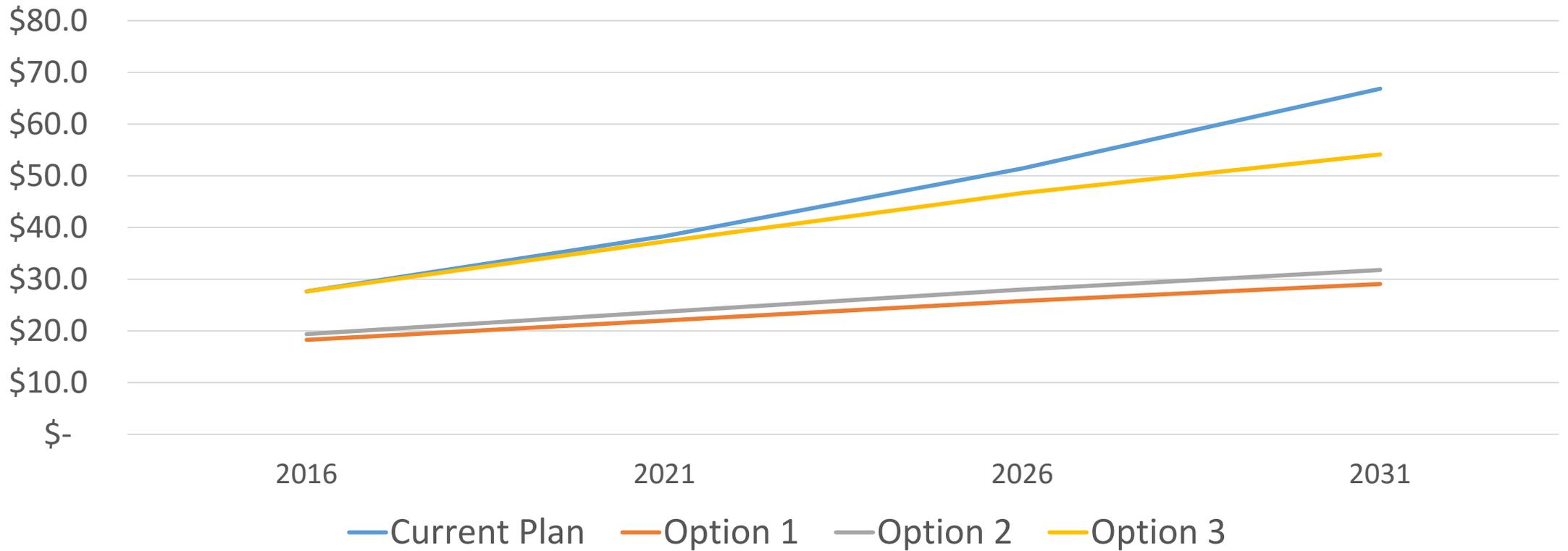
Cash Flow of Expected Benefit Payments				
Future Retirees				
FYE	Current Plan	Option 1	Option 2	Option 3
2021	208,000	143,000	177,000	208,000
2026	472,000	272,000	341,000	472,000
2031	886,000	450,000	554,000	886,000
2036	1,389,000	640,000	764,000	1,389,000

# Estimated Impact of Proposed Change Benefit Payments

Cash Flow of Expected Benefit Payments				
All Participants				
FYE	Current Plan	Option 1	Option 2	Option 3
2021	642,000	579,000	613,000	642,000
2026	931,000	733,000	802,000	931,000
2031	1,463,000	1,030,000	1,134,000	1,463,000
2036	2,002,000	1,257,000	1,381,000	2,002,000

# Comparison of Accrued Liability

Actuarial Liability \$ millions





# City of Salisbury – Wicomico County

DEPARTMENT OF PLANNING, ZONING AND COMMUNITY DEVELOPMENT

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JACOB R. DAY  
MAYOR

TOM STEVENSON  
CITY ADMINISTRATOR

BOB CULVER  
COUNTY EXECUTIVE

R. WAYNE STRAUSBURG  
DIRECTOR OF ADMINISTRATION

To: Tom Stevenson, City Administrator  
From: Keith D. Hall, Chief, Long Range and Transportation Planning Section *KDH*  
Date: November 10, 2016  
Re: Draft 2017 *Salisbury Bicycle Network Plan*

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In 2016, the Salisbury-Wicomico Department of Planning, Zoning, and Community Development retained professional planning services to assist with the development of a bicycle master plan for the City of Salisbury. Consistent with the scope of work for this planning initiative, the Plan contains a bicycle network map identifying routes and facility types, prioritization map for implementation of bicycle route network improvements, planning-level cost estimates for each recommended bike route, as well as potential funding opportunities for future capital programming considerations of the City.

As a result of a successful public involvement process, the Plan embodies the goals and visions of citizens to increase safe cycling facilities within the City and region for riders of all abilities. Moreover, the City's Bicycle & Pedestrian Advisory Committee (BPAC) had an integral role in public outreach efforts, as well as the development and review of the Draft Plan. On August 10, 2016, BPAC unanimously made a favorable recommendation to forward the Draft Plan to the City (Council and Administration) for review and action.

Contingent upon a satisfactory review at City Council work session on November 21, 2016, Staff recommends City Council adoption of the Draft 2017 *Salisbury Bicycle Network Plan*, via resolution, at a legislative meeting in the near future.

Unless the City Administration have further questions, please forward a copy of this memo and the Draft 2017 *Salisbury Bicycle Network Plan* to the City Council.



2017

# Salisbury

BICYCLE NETWORK PLAN

Prepared By:



# 2017 Salisbury Bicycle Network Plan

Prepared by:

ARRO Consulting, Inc. and Alta Planning + Design



with oversight and assistance provided by:

## Office of the Mayor

Jake 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

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## 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-foot 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.

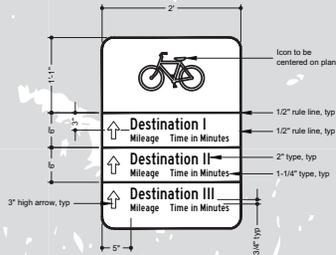


#### 1.4 THE CITY'S BRANDING EFFORT

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.





Sign Lettering Detail

12'  
11'  
10'  
9'  
8'  
7'  
6'  
5'  
4'  
3'  
2'  
1'



MILLAGE LETTER HEIGHT TO BE 1.25" MINIMUM HEIGHT  
LETTER AND SYMBOL SHALL BE RETROREFLECTIVE  
SIGNS TO HAVE THREE DESTINATIONS MAXIMUM

MUTCD Directional  
Salisbury Directional (SD)



A CASUAL PACE TRAVEL TIME OF SIX MINUTES PER MILE (10 MPH) SHOULD BE USED FOR TIME ESTIMATES

Confirmation  
Salisbury Confirmation (SC)



POLE TO BE COMPLIANT WITH LOCAL PUBLIC WORKS DEPT. OR STATE DEPT. OF TRANSPORTATION

Salisbury Arrow (SA-L)



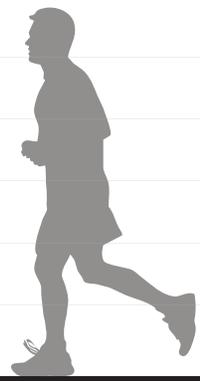
Salisbury Arrow (SA-R)



Salisbury Arrow (SA-S)

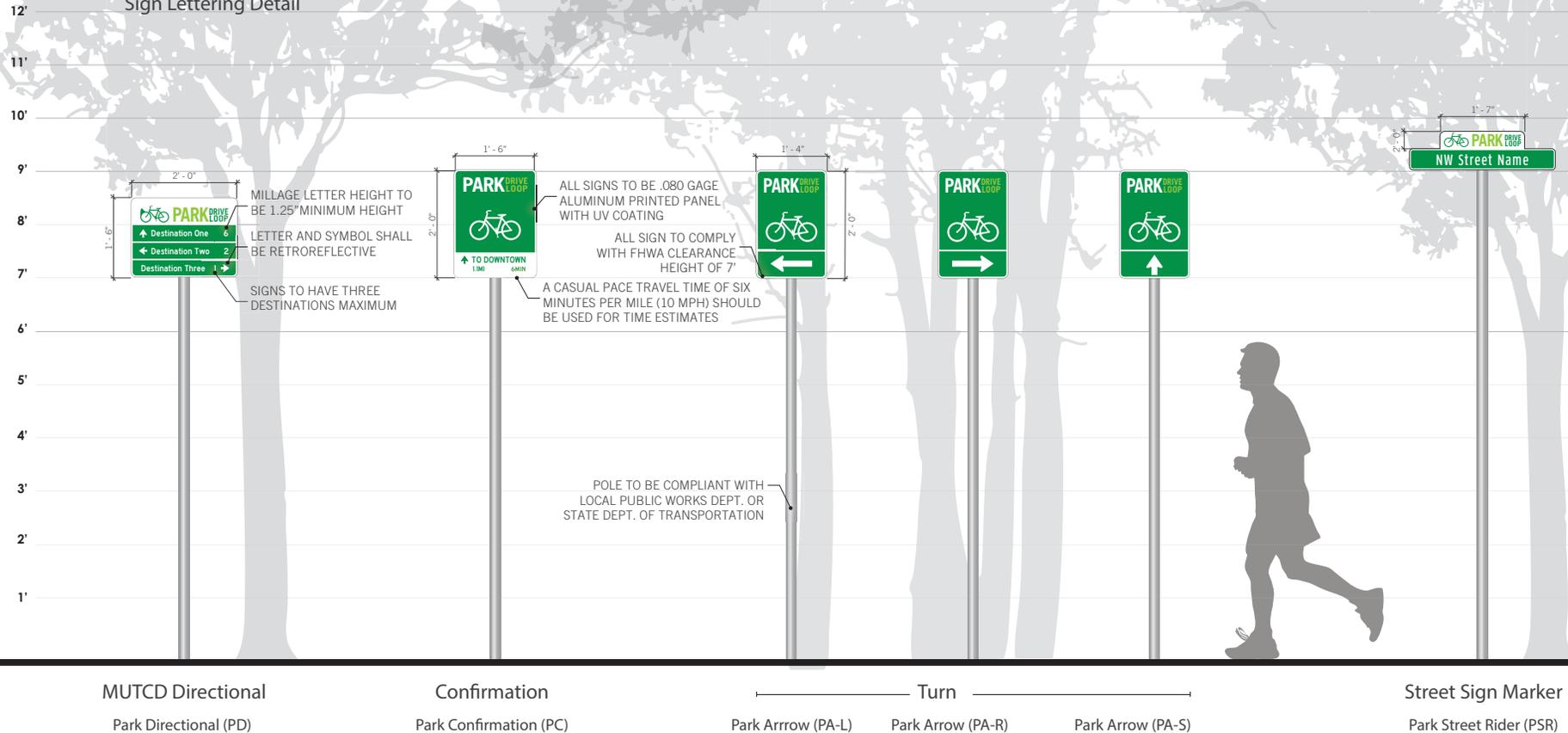


Street Sign Marker  
Salisbury Street Rider (SSR)



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

# PARK DRIVE LOOP



## 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.

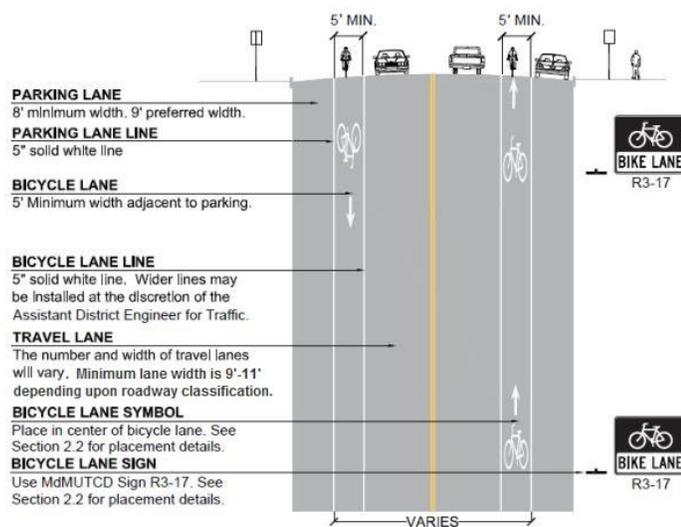


Figure 1-1: Designated Bicycle Lane: Closed Section - With Parking

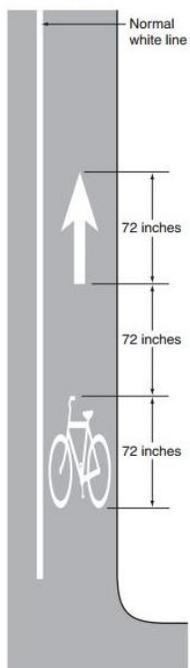


Figure 1-2: Bike Lane Marking

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 “Enthusied & 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.



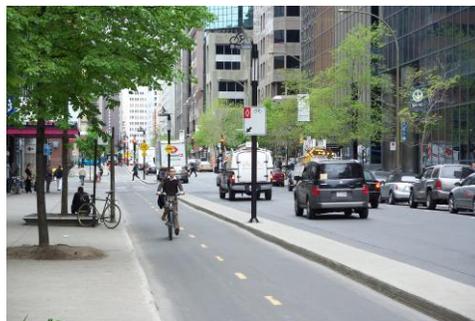
## BICYCLE BOULEVARD

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.



## Arterial/Highway Bikeway Continuum (without curb and gutter)



## Arterial/Highway Bikeway Continuum (with curb and gutter)



## Collector Bikeway Continuum

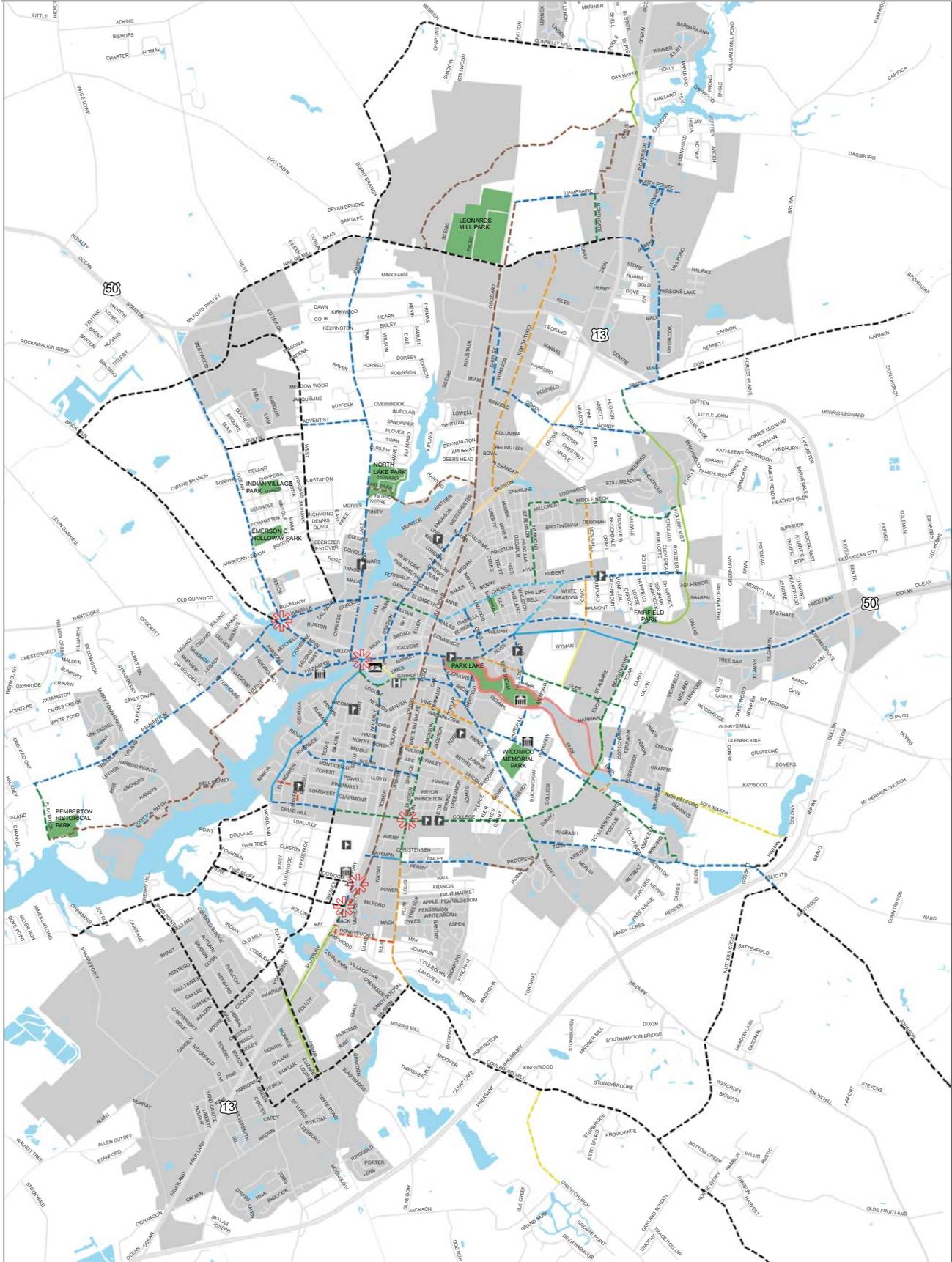


## 2.3 NETWORK DEVELOPMENT

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



### PROPOSED NETWORK

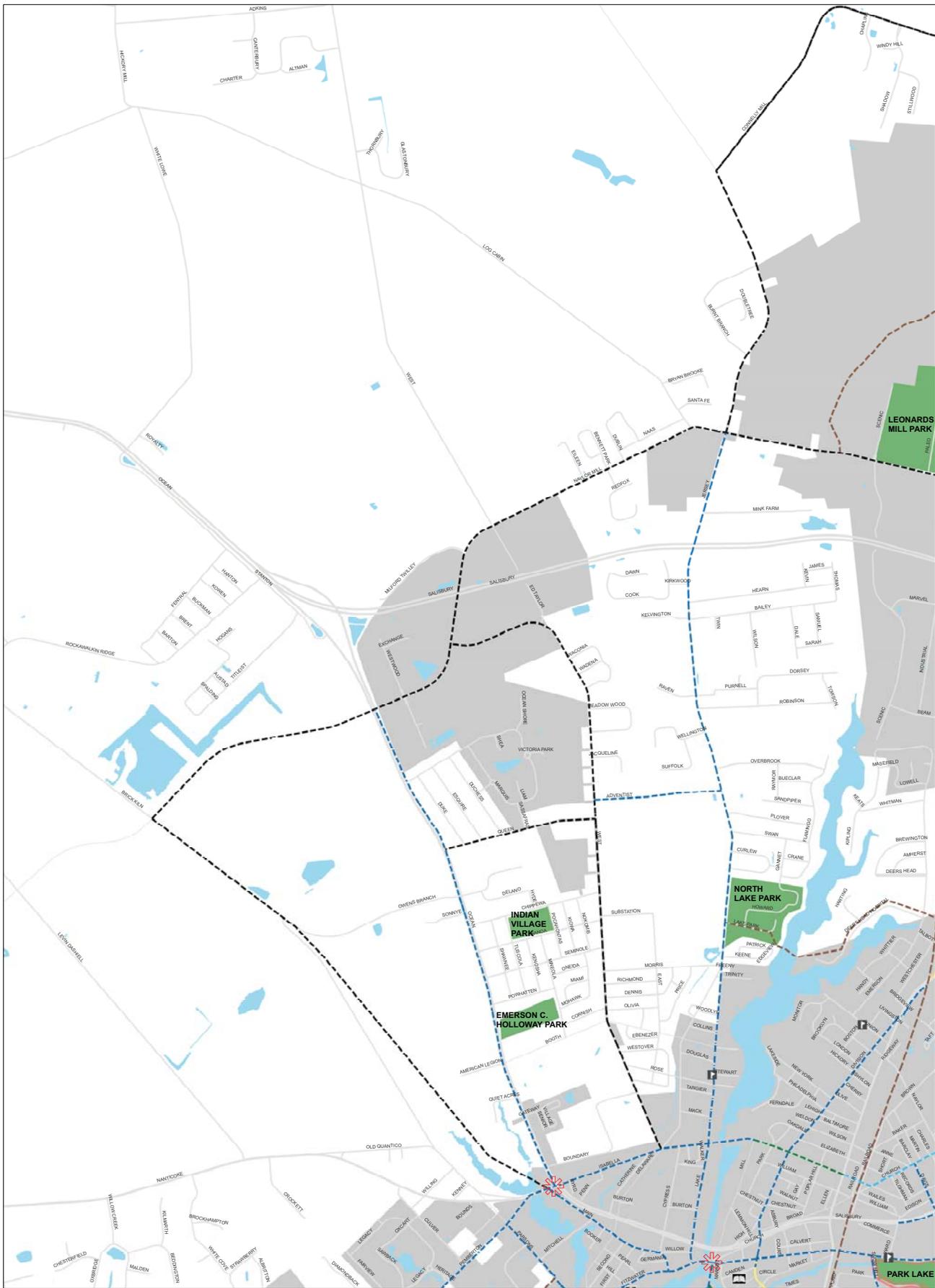
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- To Be Determined
- Multi-Use Side Path
- Trail
- Bikes May Use Full Lane
- \* Key Intersection for Study

### EXISTING NETWORK

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

### BACKGROUND

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



**EXISTING AND PROPOSED BIKE ROUTES**  
**2017 Salisbury Bicycle Network**

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



**PROPOSED NETWORK**

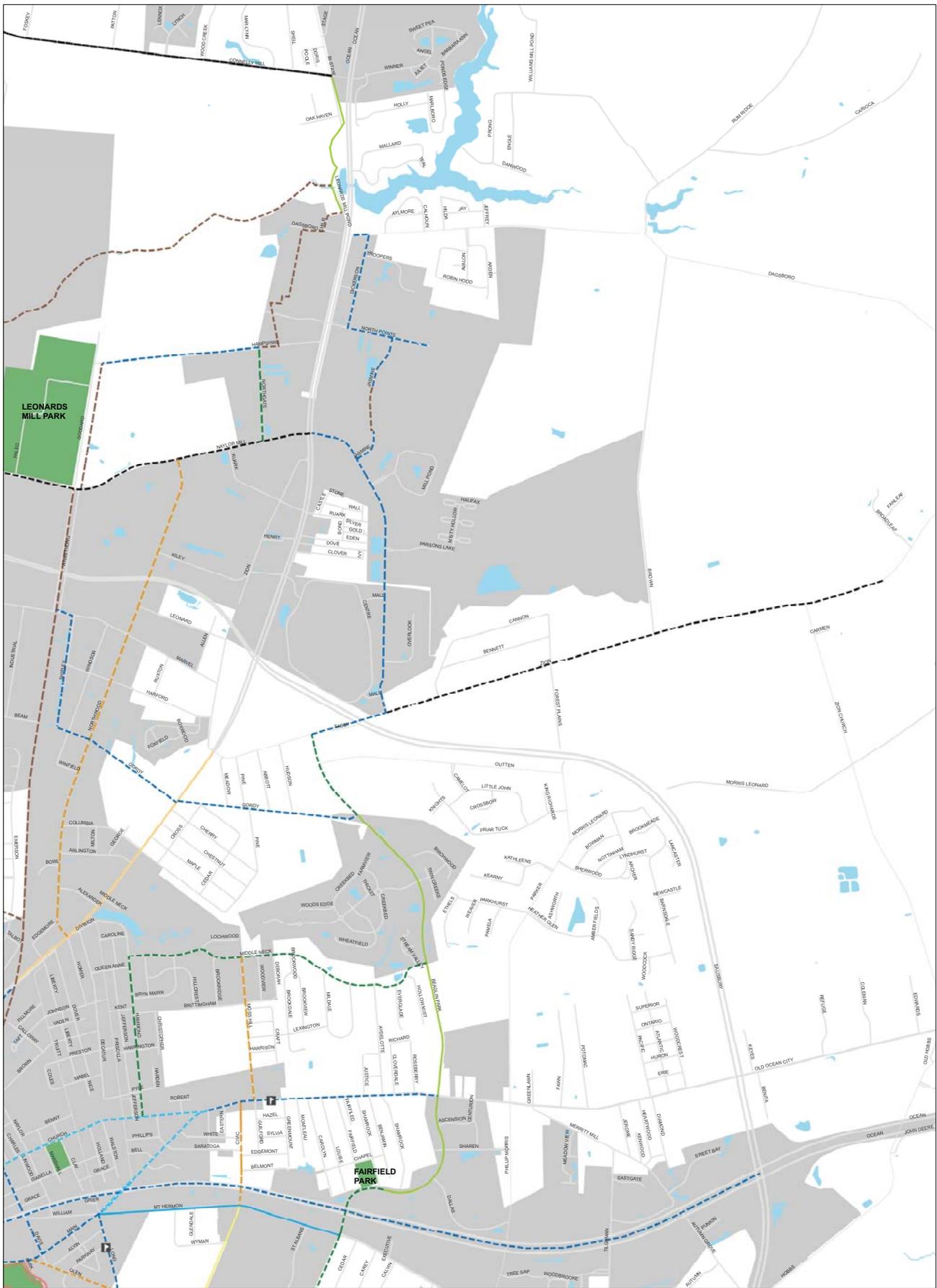
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- \* Sharrow
- \* Key Intersection for Study
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- To Be Determined

**EXISTING NETWORK**

- Bike Lane
- Bike Boulevard
- Bikes May Use Full Lane
- \* Sharrow

**BACKGROUND**

- Side Path
- Trail
- Local Roads
- Major Roads
- Minor Roads
- Parks
- Water
- City Limits



**EXISTING AND PROPOSED BIKE ROUTES**  
**2017 Salisbury Bicycle Network**

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



**PROPOSED NETWORK**

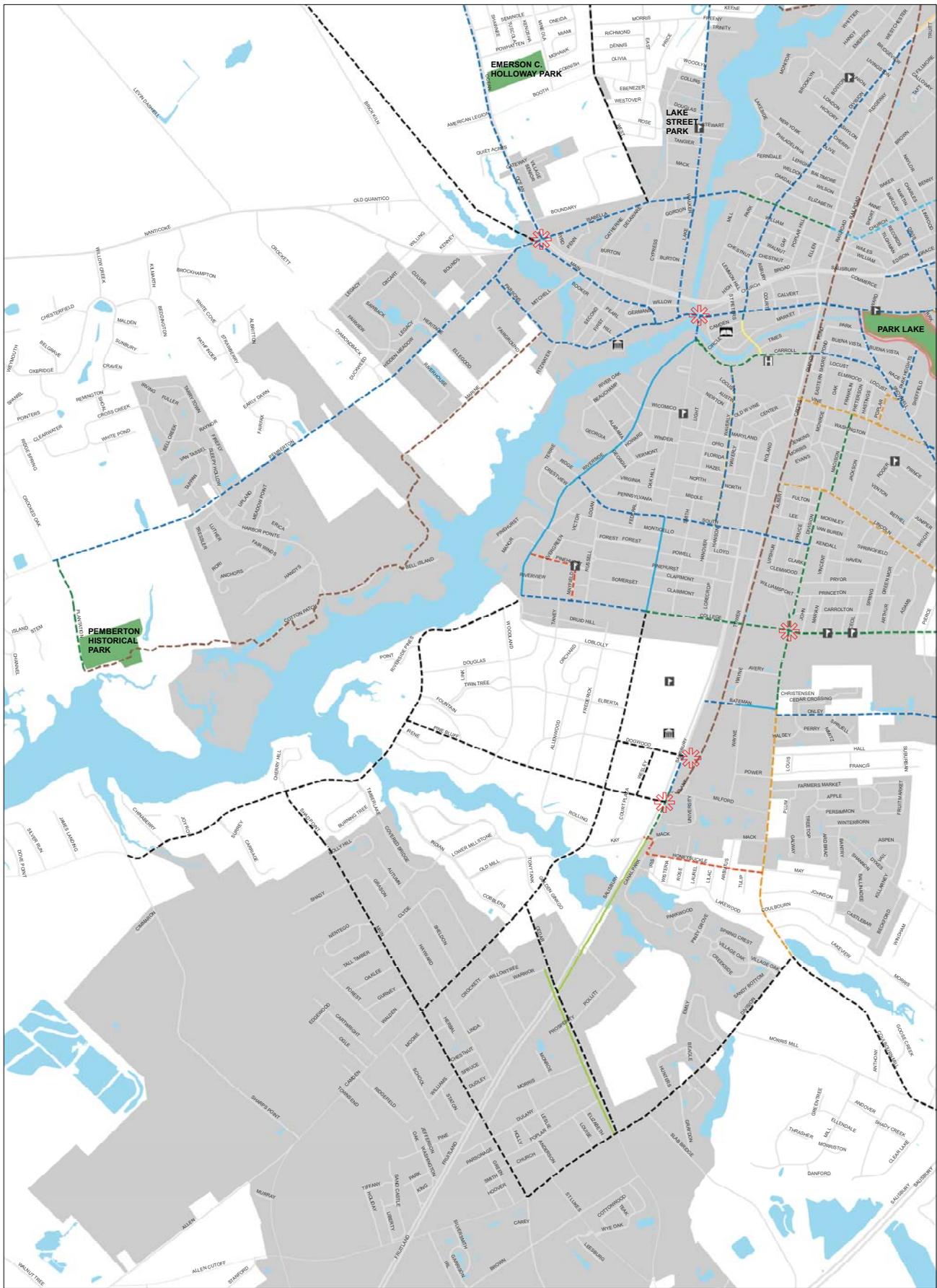
- Bike Lane
- - - Buffered Bike Lane
- - - Bike Boulevard
- - - Sharrow
- \* Key Intersection for Study
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- - - To Be Determined

**EXISTING NETWORK**

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

**BACKGROUND**

- Local Roads
- Major Roads
- Minor Roads
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- City Limits



**EXISTING AND PROPOSED BIKE ROUTES**  
**2017 Salisbury Bicycle Network**

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



**PROPOSED NETWORK**

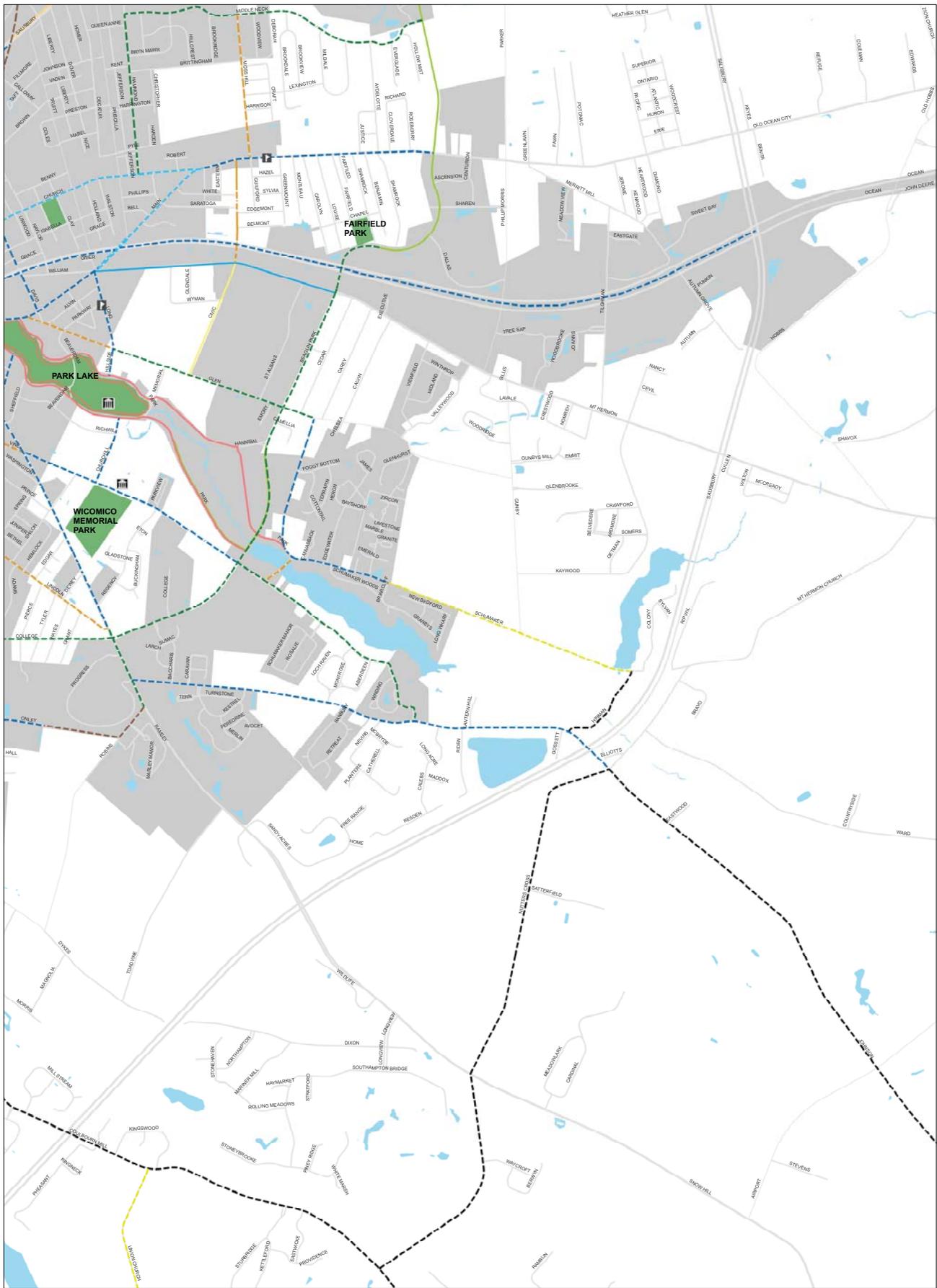
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- ✱ Key Intersection for Study
- Bikes May Use Full Lane
- Multi-Use Side Path
- Trail
- - - To Be Determined

**EXISTING NETWORK**

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

**BACKGROUND**

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



**EXISTING AND PROPOSED BIKE ROUTES**  
**2017 Salisbury Bicycle Network**

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



**PROPOSED NETWORK**

- Bike Lane
- Buffered Bike Lane
- Bike Boulevard
- Sharrow
- 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
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## 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.

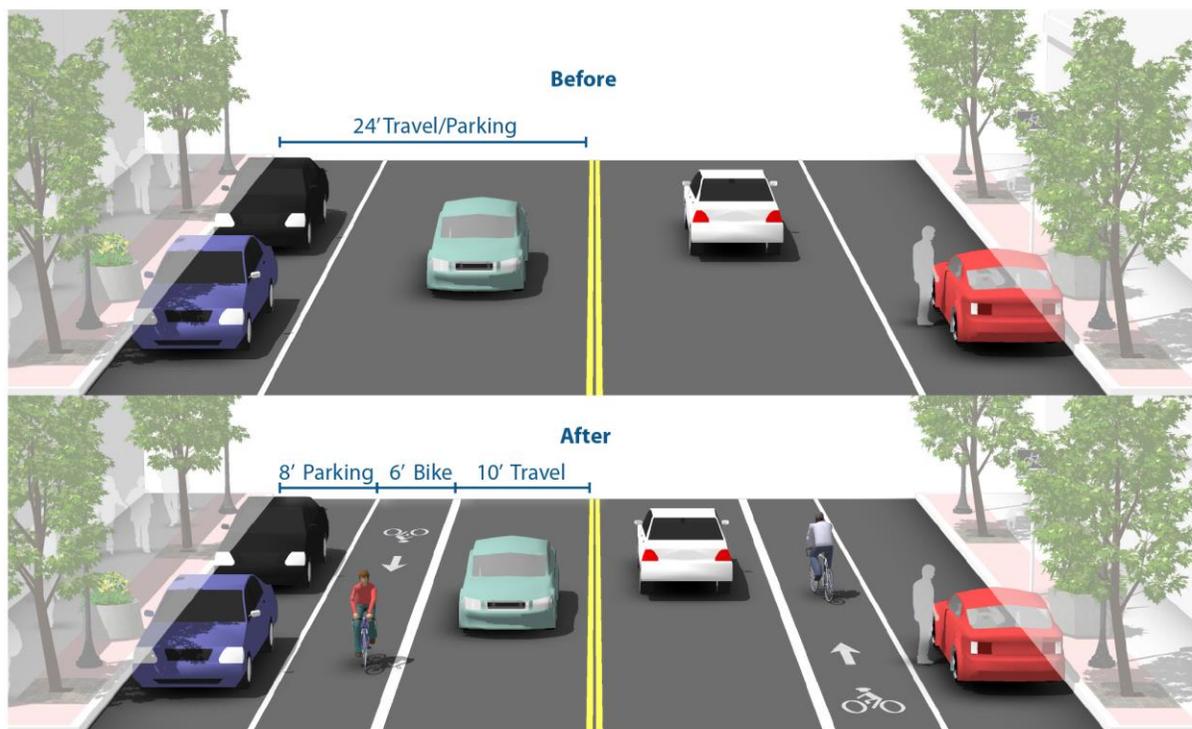
### Guidance

#### 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.

## 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.

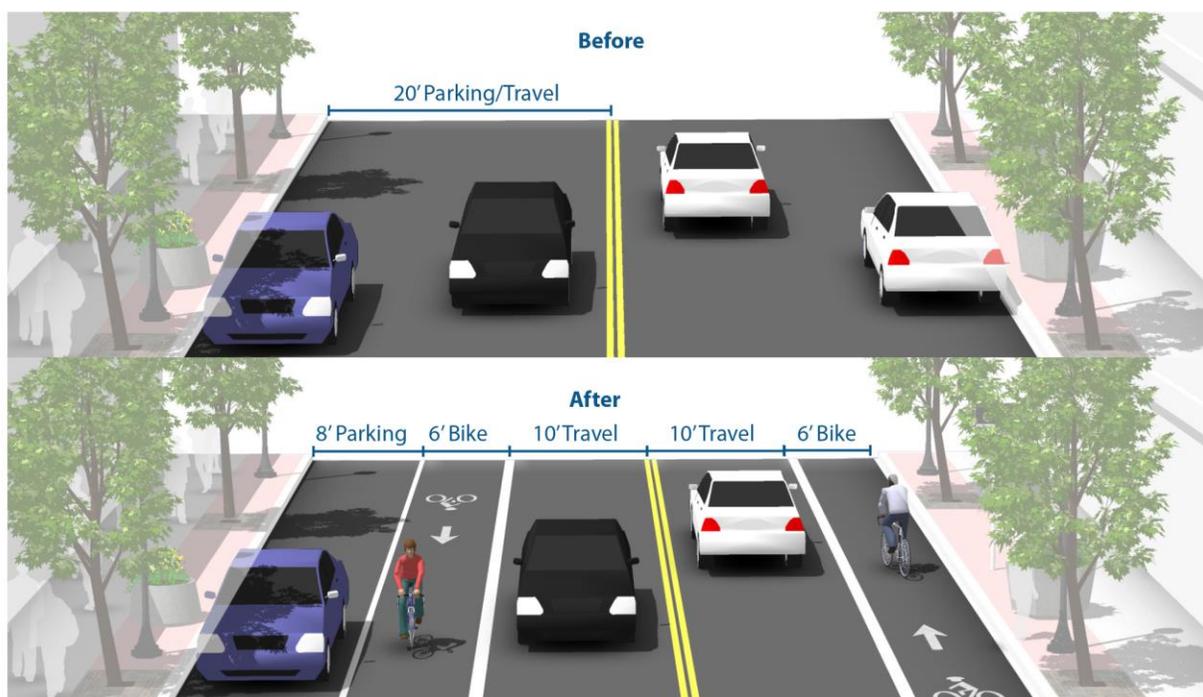
### Guidance

#### 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

## 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.

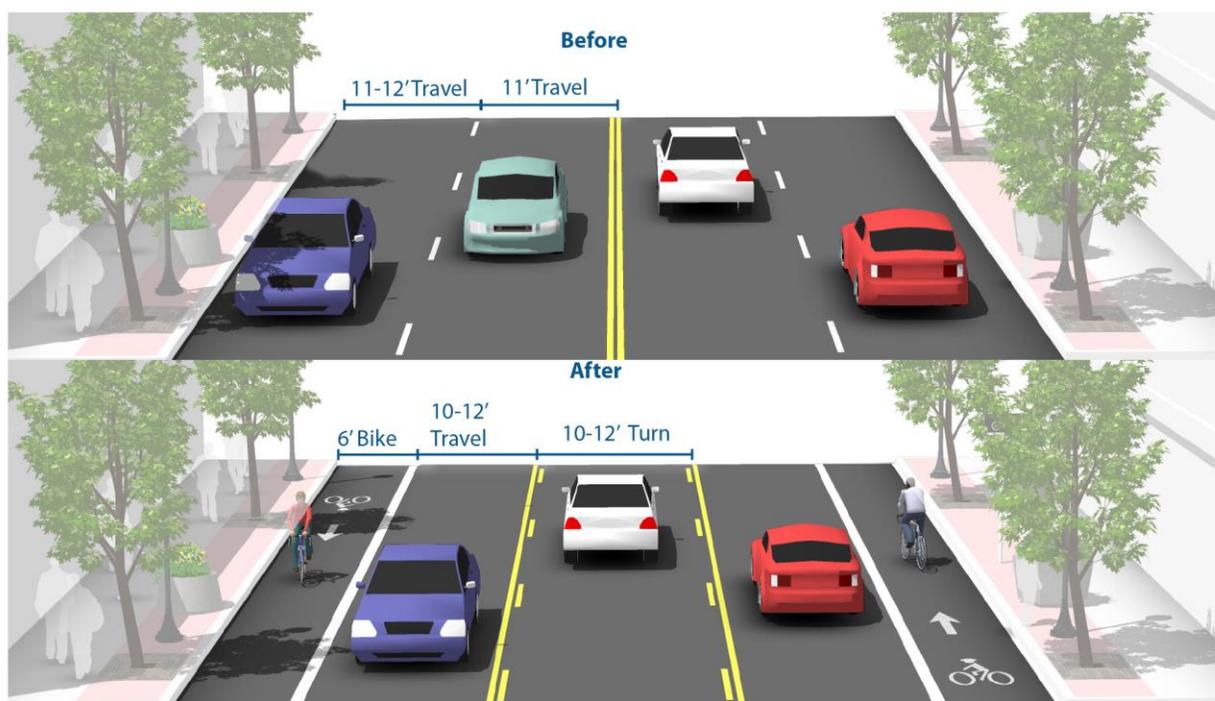
### Guidance

#### 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.

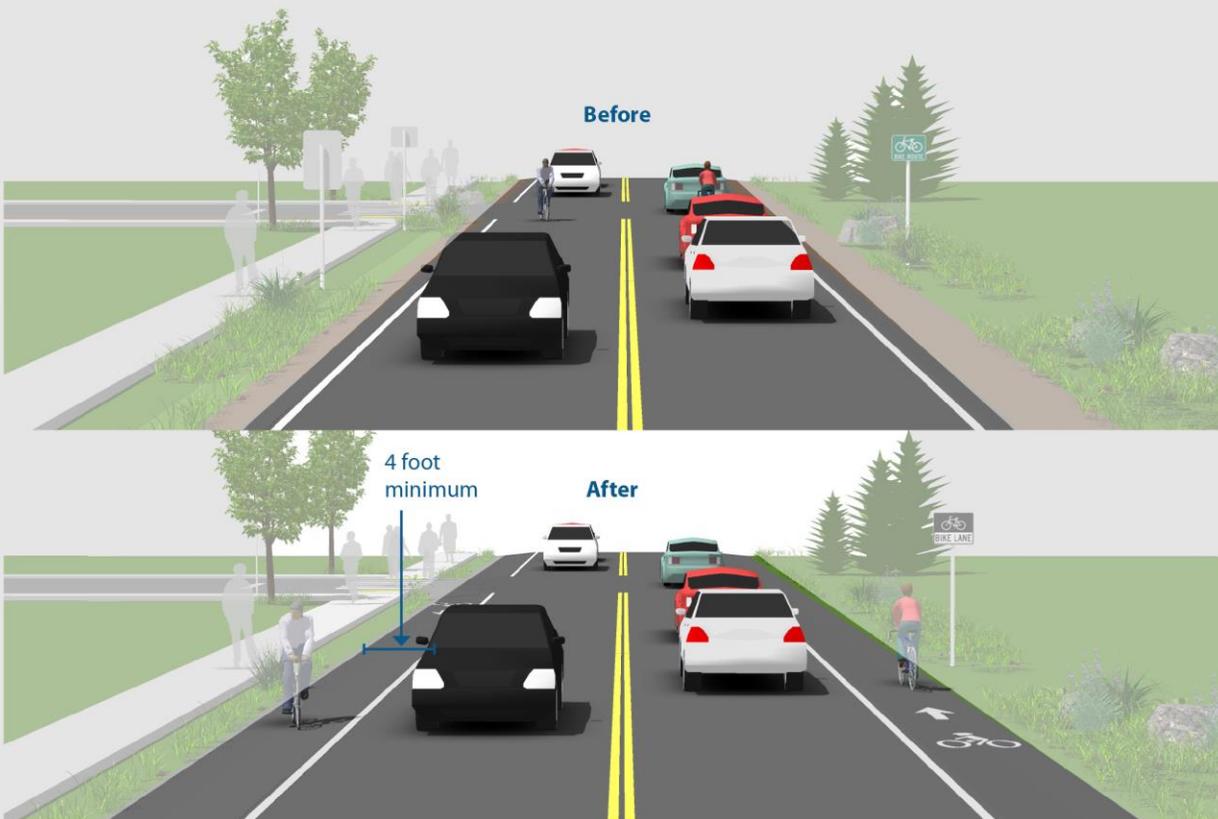
## Roadway Widening

### 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.

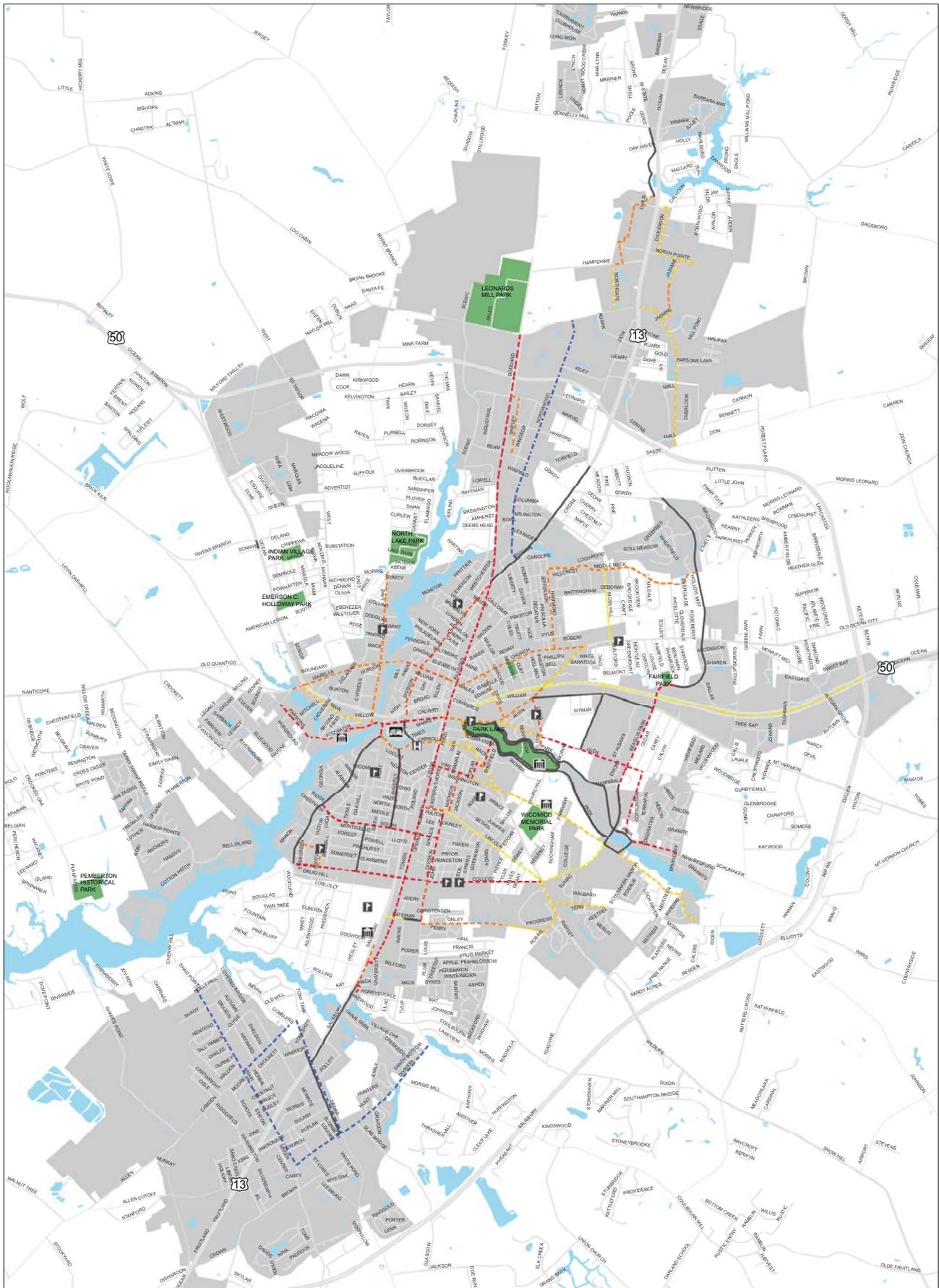
## 3.2 PRIORITIZATION PROCESS

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

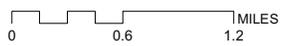
During the planning process, several factors or criteria were considered in determining relative priorities for implementation of individual routes. Those criteria included: community support; safety and comfort; access, multi-modal connections, gap closures; suitability (ease of implementation); and 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.



**BIKE ROUTE  
PRIORITIZATION  
2017 Salisbury Bicycle Network**

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



**PROPOSED NETWORK**

- Higher
- Medium
- Lower
- Proposed (not prioritized)

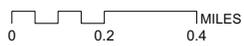
**BACKGROUND**

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



**BIKE ROUTE  
PRIORITIZATION  
2017 Salisbury Bicycle Network**

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

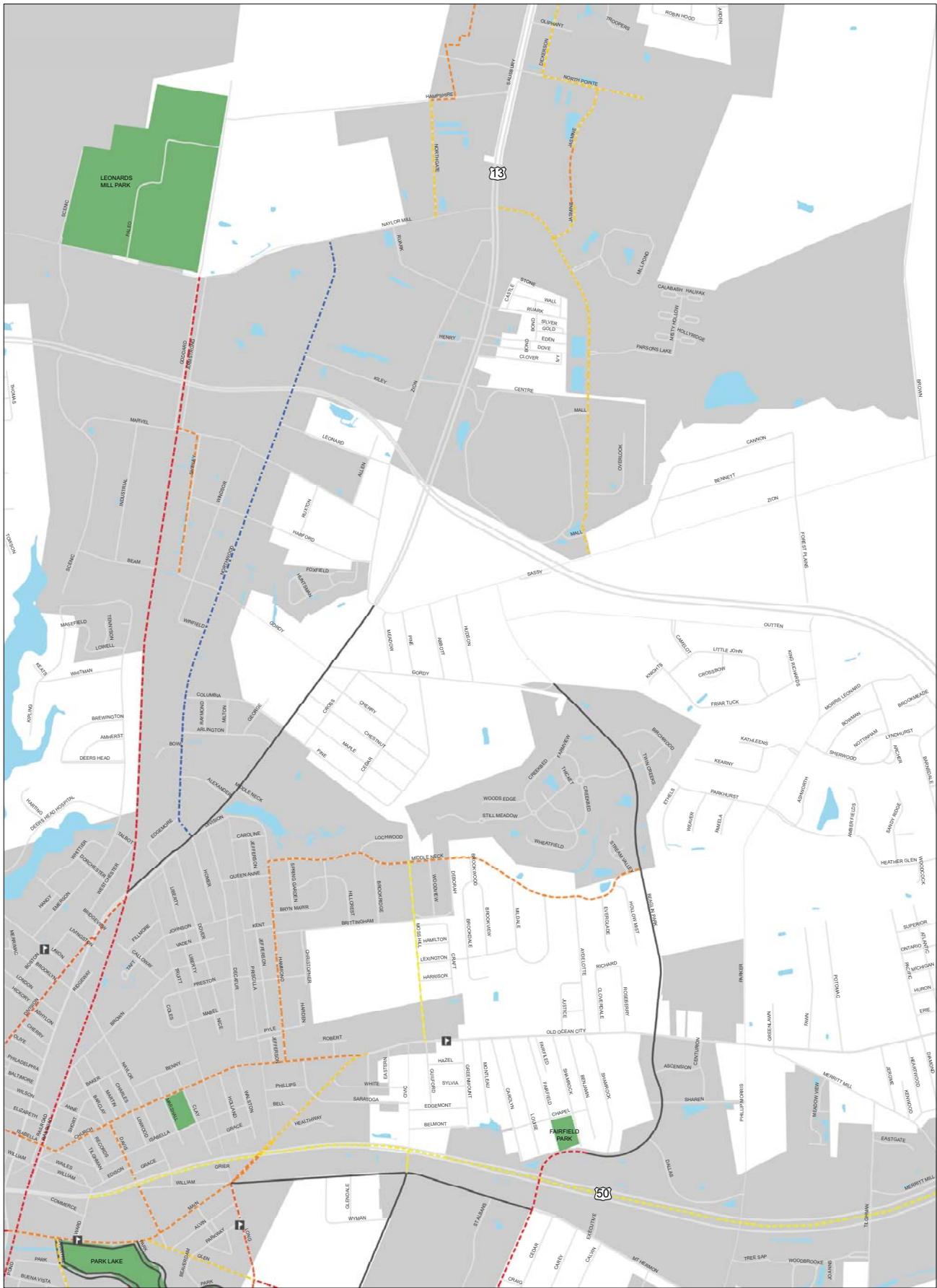


**PROPOSED NETWORK**

- - - Higher
- - - Medium
- - - Lower
- - - Proposed (not prioritized)

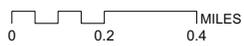
**BACKGROUND**

- Existing Bicycle Facility
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**BIKE ROUTE  
PRIORITIZATION  
2017 Salisbury Bicycle Network**

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

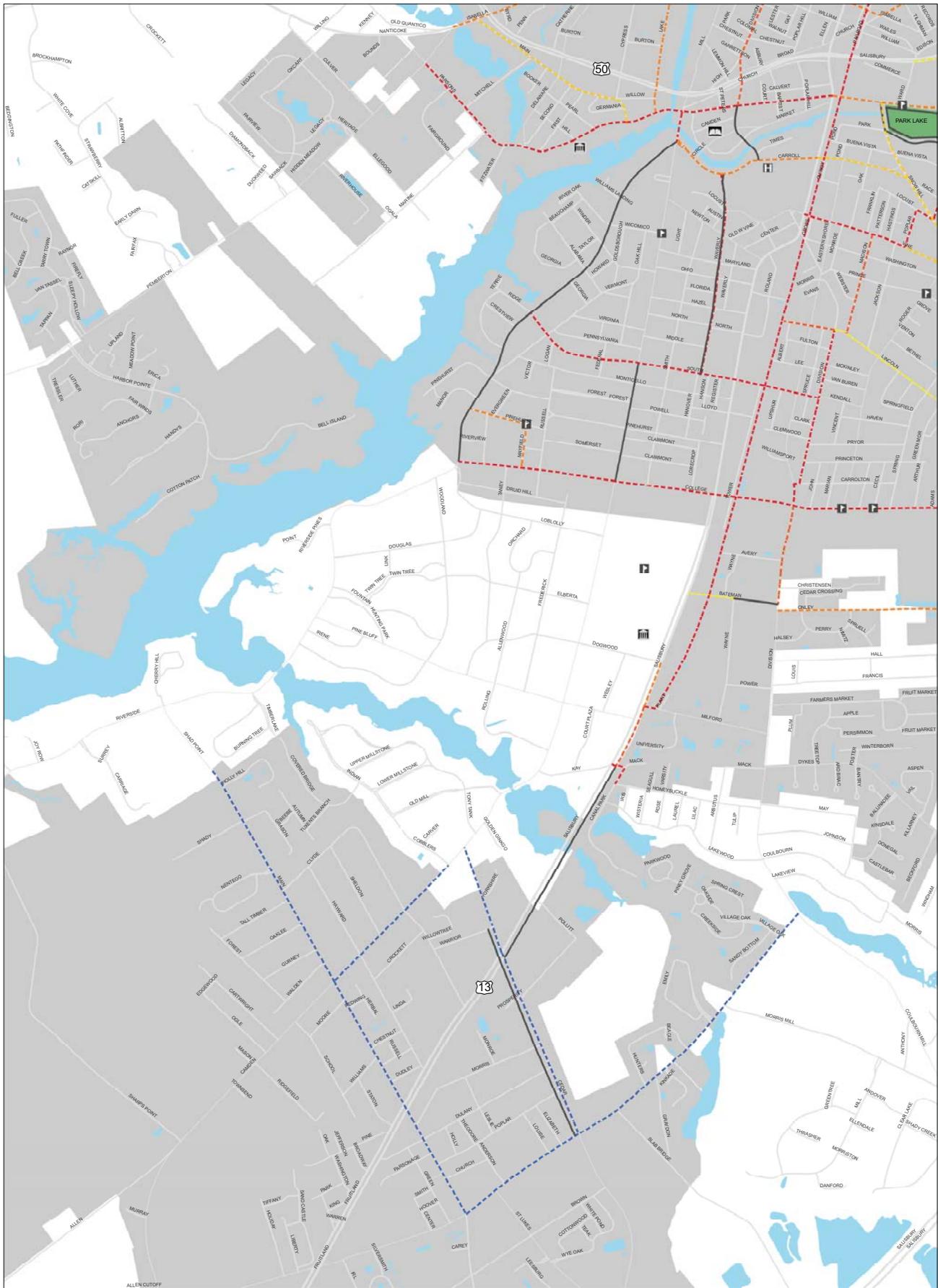


**PROPOSED NETWORK**

- - - Higher
- - - Medium
- - - Lower
- - - Proposed (not prioritized)

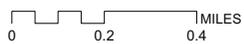
**BACKGROUND**

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**BIKE ROUTE  
PRIORITIZATION  
2017 Salisbury Bicycle Network**

Map created November 2016  
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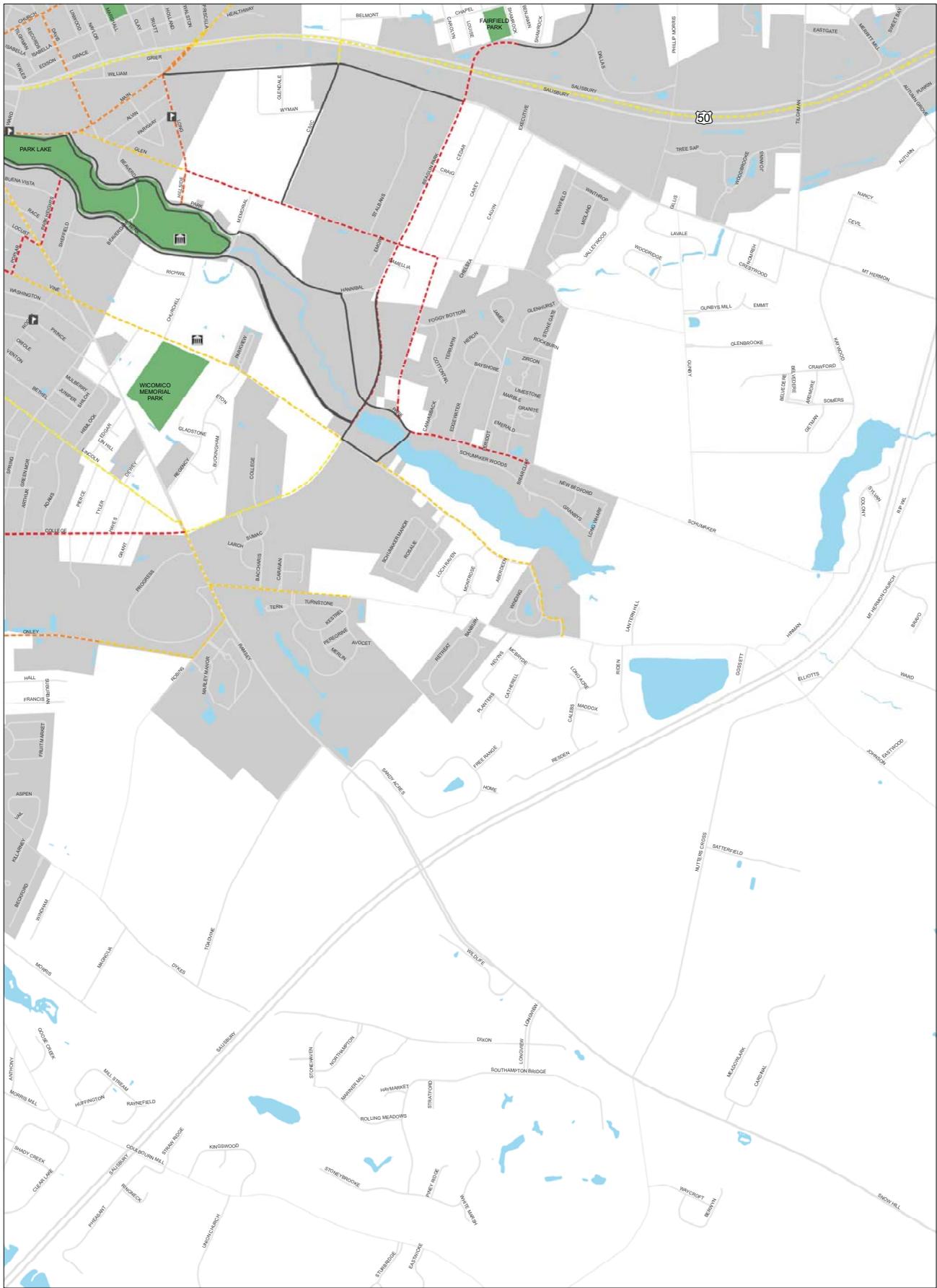


**PROPOSED NETWORK**

- Higher
- Medium
- Lower
- Proposed (not prioritized)

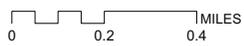
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**BIKE ROUTE  
PRIORITIZATION  
2017 Salisbury Bicycle Network**

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



**PROPOSED NETWORK**

- Higher
- Medium
- Lower
- Proposed (not prioritized)

**BACKGROUND**

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### 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
Fitzwater	Parsons	Main	Proposed	Bike Lane	356.681	\$1,000	1
Fitzwater	Parsons	Main	Proposed	Bike Lane	445.467	\$1,000	1
Schumaker	(At the Curve by North Park Drive)	Glen	Proposed	Sharrow	718.309	\$1,200	1
Fitzwater	Parsons	Main	Proposed	Bike Lane	1108.7	\$1,500	1
Vine / Poplar / Locust / Park Heights	Rail Trail	S. Park	Proposed	Sharrow	936.323	\$1,500	1
Fitzwater	Parsons	Main	Proposed	Bike Lane	532.741	\$2,000	1
Vine / Poplar / Locust / Park Heights	Rail Trail	S. Park	Proposed	Bike Lane	1118.75	\$2,000	1
Main / Mill	Division	Camdon	Proposed	Bike Lane	430.431	\$2,000	1
Eastern Shore Drive	Division	College	Proposed	Multi-Use Shared Path	352.866	\$2,500	1
Vine / Poplar / Locust / Park Heights	Rail Trail	S. Park	Proposed	Sharrow	1680.74	\$2,500	1
Main / Mill	Division	Camdon	Proposed	Bike Lane	483.594	\$2,500	1
Schumaker	(At the Curve by North Park Drive)	Glen	Proposed	Bike Boulevard	520.281	\$4,000	1
Beaglin Park	Glen	South Park Drive	Proposed	Multi-Use Shared Path	3031.76	\$5,000	1
Schumaker	Briarcliff	North Park Drive	Proposed	Bike Lane	1960.42	\$6,000	1
Main / Mill	Division	Camden	Proposed	Bike Lane	1362.73	\$6,500	1
Main	Division	13	Proposed	Bike Lane	1515	\$7,500	1
College	Riverside	Camden	Proposed	Bike Lane	2496.5	\$7,500	1
Waverly	South	Carroll	Proposed	Bike Lane	3191.47	\$9,000	1
Schumaker	(At the Curve by North Park Drive)	Glen	Proposed	Bike Lane	2920.05	\$9,000	1
South	Riverside	Division	Proposed	Bike Lane	4901.8	\$14,000	1
Beaglin Park	Old Ocean City	Mt Hermon	Proposed	Multi-Use Shared Path	1494.49	\$45,000	1
Beaglin Park	Mt Hermon	Glen	Proposed	Multi-Use Shared Path	2493.23	\$66,000	1
Glen	Schumaker	Long	Proposed	Multi-Use Shared Path	4210.77	\$115,000	1
College	Camden	Snowhill	Proposed	Multi-Use Shared Path	7349.64	\$200,000	1
Along Rail Line	Carroll	College (Continue along entire rail line)	Proposed	Trail	25829.6	\$750,000	1
<b>Priority 1</b>					<b>Subtotal</b>	<b>\$1,264,200</b>	
Division	Main	RT 13	Proposed	Bike Lane	167.327	\$1,500	2
Lincoln	Division	Trail	Proposed	Sharrow	813.606	\$1,500	2
Long	School Entrance	Main	Proposed	Bike Lane	637.114	\$3,500	2
Division	Main	RT 13	Proposed	Bike Lane	833.87	\$3,500	2
Madison	Vine	Lincoln	Proposed	Multi-Use Shared Path	1622.35	\$7,500	2
Long / Hillside	North Park Drive	School entrance	Proposed	Bike Lane	1482.39	\$7,500	2
Division / Carrollton	Lincoln	Eastern Shore Drive	Proposed	Multi-Use Shared Path	2588.17	\$10,000	2
Division	Main	RT 13	Proposed	Bike Lane	5579.63	\$18,000	2
13	Mack	Millford	Proposed	Multi-Use Shared Path	1060.9	\$30,000	2
Division or Through Campus	College	Bateman	Proposed	Multi-Use Shared Path	1576.71	\$45,000	2
Isabella	Rt 13	Mill	Proposed	Multi-Use Shared Path	1885.84	\$50,000	2
<b>Priority 2</b>					<b>Subtotal</b>	<b>\$178,000</b>	
Pemberton	Nanticoke	Park Entrance	Proposed	Bike Lane	393.111	\$1,500	3
Main	13	50	Proposed	Buffered Bike Lane	501.179	\$2,000	3
Main	13	50	Proposed	Buffered Bike Lane	541.145	\$2,500	3
Carroll	Riverside	13	Proposed	Multi-Use Shared Path	202.041	\$5,000	3
Isabella	Mill	Rt 50	Proposed	Bike Lane	233.876	\$5,000	3
Pinehurst / Mayfield	Riverside	College	Proposed	Bike Boulevard	691.392	\$5,000	3
Carroll	Riverside	13	Proposed	Multi-Use Shared Path	230.295	\$6,000	3
Pinehurst / Mayfield	Riverside	College	Proposed	Bike Boulevard	933.639	\$6,000	3
Dogwood	Camden	Trail	Proposed	Bike Lane	2107.32	\$6,500	3
Hammond	Church	Middleneck	Proposed	Multi-Use Shared Path	3187.19	\$7,000	3
Onley	S Division	End	Proposed	Bike Lane	3397.22	\$10,000	3
Middleneck	Hammond	Beaglin Park	Proposed	Multi-Use Shared Path	6310.15	\$10,000	3
Gordy	Beaglin Park	Rail trail	Proposed	Bike Lane	3591.46	\$10,000	3
Isabella	Mill	Rt 50	Proposed	Bike Lane	3988.97	\$12,000	3
Main	13	50	Proposed	Bike Lane	3908.42	\$16,000	3

Road Name	From	To	Status	Facility_S	Length_Ft	Cost Estimate	Prioritization
Carroll	Riverside	13	Proposed	Multi-Use Shared Path	693.022	\$18,000	3
Lake Street	Main	Keene	Proposed	Bike Lane	6125.06	\$19,000	3
Carroll	Riverside	13	Proposed	Multi-Use Shared Path	644.445	\$20,000	3
Carroll	Riverside	13	Proposed	Multi-Use Shared Path	940.028	\$25,000	3
Trail	13	Hampshire	Proposed	Trail	934.643	\$25,000	3
Church / Old Ocean City	13	Guilford	Proposed	Buffered Bike Lane	5738.94	\$28,000	3
Pemberton	Nanticoke	Park Entrance	Proposed	Bike Lane	11254.6	\$32,000	3
Trail	13	Hampshire	Proposed	Trail	4159.13	\$125,000	3
<b>Priority 3</b>					<b>Subtotal</b>	<b>\$396,500</b>	
E Vine	Poplar	Snow Hill	Proposed	Sharrow	1052.73	\$1,500	4
Main	50	Church	Proposed	Buffered Bike Lane	351.873	\$2,500	4
Glen	E Main	Long	Proposed	Sharrow	1794.68	\$3,000	4
Main	50	Church	Proposed	Buffered Bike Lane	313.843	\$4,000	4
Dickerson	Oliphant	Dagsboro	Proposed	Bike Lane	1445.61	\$4,500	4
Carroll	13	Snow Hill	Proposed	Bike Lane	1495.96	\$5,000	4
Jasmine	Naylor Mill	Northpointe	Proposed	Bike Lane	698.026	\$6,000	4
Snow Hill	Carroll	S Schumaker	Proposed	Bike Lane	1731.65	\$6,000	4
Johnson	Snowhill	Kestral Way	Proposed	Bike Lane	2236.86	\$6,600	4
Dickerson / Northpointe	Jasmine	Oliphant	Proposed	Bike Lane	2429.1	\$7,500	4
Main	Isabella	Fitzwater	Proposed	Bike Lane	3004.62	\$8,500	4
Jasmine	Naylor Mill	Northpointe	Proposed	Bike Lane	1054.76	\$10,000	4
Main	50	Church	Proposed	Buffered Bike Lane	2068.53	\$12,000	4
S Schumaker	Snow Hill	Beaglin Park	Proposed	Bike Lane	4798.52	\$15,000	4
Naylor Mill	Zion	Rt 13	Proposed	Bike Lane	6273.93	\$19,000	4
Snowhill	Lincoln	Trail	Proposed	Multi-Use Shared Path	589.657	\$20,000	4
Snowhill	Lincoln	Trail	Proposed	Multi-Use Shared Path	1116.64	\$30,000	4
Northgate	Hampshire	Naylor Mill	Proposed	Multi-Use Shared Path	1856.94	\$50,000	4
Onley Trail	Onley	Snowhill	Proposed	Trail	2289.65	\$65,000	4
S. Schumaker	Beaglin	Johnson	Proposed	Multi-Use Shared Path	5053.18	\$150,000	4
<b>Priority 4</b>					<b>Subtotal</b>	<b>\$426,100</b>	
Civic	Old Ocean City	Mount Herman	Proposed	Sharrow	360.186	\$1,000	5
Bateman	Division	Trail	Proposed	Bikes May Use Full Lane	1431.7	\$2,000	5
Beaglin Park	South Park Drive/Vine	Snow Hill	Proposed	Multi-Use Shared Path	3259.58	\$5,000	5
Moss Hill	Old Ocean City	Middleneck	Proposed	Sharrow	2850.94	\$5,000	5
Lincoln	Division	Snowhill	Proposed	Sharrow	4623.13	\$7,500	5
50	Ward	E Main	Proposed	Bike Lane	2738.97	\$8,500	5
50	Main	13	Proposed	Bike Lane	13025.2	\$35,000	5
<b>Priority 5</b>					<b>Subtotal</b>	<b>\$64,000</b>	
Cedar	Division	Camden	Proposed	Bike Lane	94.1661	\$500	Not Prioritized
Cedar	Shopping Center	13 (Around the corner up to Kay)	Proposed	Bike Lane	421.169	\$1,500	Not Prioritized
Cedar	Shopping Center	13 (Around the corner up to Kay)	Proposed	Bike Lane	679.397	\$3,000	Not Prioritized
Cedar	Division	Camden	Proposed	Bike Lane	1348.55	\$3,500	Not Prioritized
Division	Main	Cedar	Proposed	Bike Lane	2188.93	\$6,000	Not Prioritized
Cedar	Division	Camden	Proposed	Bike Lane	2342.52	\$6,600	Not Prioritized
Camden	Main	Cobblers	Proposed	Bike Lane	2579.7	\$7,000	Not Prioritized
Shads Point / Main	Holly Hill	Camden	Proposed	Bike Lane	3880.06	\$7,500	Not Prioritized
Northwood	13	Naylor Mill	Proposed	Sharrow	9949.16	\$8,000	Not Prioritized
Shads Point / Main	Holly Hill	Camden	Proposed	Bike Lane	4231.86	\$12,500	Not Prioritized
Division	Colburn Mill / Division	Cedar / Traffic circle	Proposed	Bike Lane	4953.01	\$15,000	Not Prioritized
Coulburn Mill	Division	Union Church	Proposed	Bikes May Use Full Lane	23063.5	\$20,000	Not Prioritized
<b>Unprioritized</b>					<b>Subtotal</b>	<b>\$91,000</b>	
Wesley	Pine Bluff	Dogwood	Proposed	Multi-Use Shared Path	983.872	\$1,000	Outside Limits
Shads Point	Riverside	Holly Hill	Proposed	Bikes May Use Full Lane	1253.78	\$1,500	Outside Limits
Hinman	Johnson	Schumaker	Proposed	Bikes May Use Full Lane	1877.92	\$1,600	Outside Limits
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Bikes May Use Full Lane	1399.79	\$2,500	Outside Limits
Colburn Mill	Union Church	SE	Proposed	Bikes May Use Full Lane	2920.36	\$2,500	Outside Limits
Owens Branch	50	Trail	Proposed	Connection	3420.58	\$2,800	Outside Limits
Union Church	Colburn Mill	S	Proposed	Bikes May Use Full Lane	4163	\$3,000	Outside Limits
Zion	Beaglin Park	Naylor Mill	Proposed	Bike Lane	1528.34	\$4,500	Outside Limits
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Multi-Use Shared Path	2254.68	\$5,000	Outside Limits
Honeysuckle	13	Division	Proposed	Bike Boulevard	2328.24	\$5,000	Outside Limits
Old Ocean City	Guilford	Beaglin Park	Proposed	Bike Lane	4559.95	\$5,000	Outside Limits
Church Hill	S Park	S Schumaker	Proposed	Bike Lane	1365.07	\$5,000	Outside Limits
Schumaker	Hinman	Briarcliff	Proposed	Bikes May Use Full Lane	5122.61	\$5,000	Outside Limits
Jersey Rd	Naylor Mill	Connelly Mill	Proposed	Bikes May Use Full Lane	5573.37	\$5,000	Outside Limits
Adventist	Jersey	N. West	Proposed	Bike Lane	2516.5	\$6,000	Outside Limits
Gordy	Beaglin Park	Rail trail	Proposed	Bike Lane	2545.83	\$7,500	Outside Limits
Hamshire	Goddard Pkwy	Northgate	Proposed	Bike Lane	3117.45	\$7,500	Outside Limits
Division	Bateman	Division transition to Coulburn Mill	Proposed	Sharrow	5099.3	\$8,500	Outside Limits
Gordy	Beaglin Park	Rail trail	Proposed	Bike Lane	2821.31	\$8,500	Outside Limits
Zion	Beaglin Park	Naylor Mill	Proposed	Bikes May Use Full Lane	10217.1	\$8,500	Outside Limits
Riverside Drive	Lobolly	Sharps Point	Proposed	Bikes May Use Full Lane	10293.7	\$8,500	Outside Limits
Queen	N. West	50	Proposed	Bike Lane	3038.39	\$8,500	Outside Limits

Road Name	From	To	Status	Facility_S	Length_Ft	Cost Estimate	Prioritization
Connelly Mill	Jersey	Rt 13	Proposed	Bikes May Use Full Lane	12257.5	\$10,000	Outside Limits
Nutters Cross	Johnson	Coulbourn Mill	Proposed	Bikes May Use Full Lane	11964.3	\$10,000	Outside Limits
Pine Bluff	13	Riverside Drive	Proposed	Bike Lane	5463.9	\$15,000	Outside Limits
West	Naylor Mill	Adventist	Proposed	Bike Lane	5681.85	\$18,000	Outside Limits
Camden	Cobblers	College	Proposed	Bike Lane	6857.63	\$20,000	Outside Limits
West	Adventist	Isabella	Proposed	Bike Lane	7136.01	\$20,000	Outside Limits
Johnson	Kestral Way	across bridge at 13 and beyond	Proposed	Bike Lane	7606.67	\$22,000	Outside Limits
Johnson	Kestral Way	across bridge at 13 and beyond	Proposed	Bikes May Use Full Lane	29992.5	\$25,000	Outside Limits
Jersey Rd	Keene	Naylor Mill	Proposed	Bike Lane	10581.1	\$30,000	Outside Limits
50	Isabella	Naylor Mill	Proposed	Bike Lane	10154.9	\$30,000	Outside Limits
Beaglin Park	Gordy	Zion	Proposed	Multi-Use Shared Path	1864.61	\$50,000	Outside Limits
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Trail	1596.19	\$50,000	Outside Limits
Along Rail Line	Carroll	College (Continue along entire rail line)	Proposed	Trail	2540.66	\$70,000	Outside Limits
Naylor Mill	Rt 13	Rail Trail	Proposed	Multi-Use Shared Path	25052.8	\$75,000	Outside Limits
Rail Trail	50	Naylor Mill	Proposed	Trail	3548.08	\$100,000	Outside Limits
Trail	Lake	Rail Trail	Proposed	Trail	4614.92	\$125,000	Outside Limits
Rail Trail	50	Naylor Mill	Proposed	Trail	7281.9	\$200,000	Outside Limits
Leonard Pond Run Trail	Side path	Naylor Mill	Proposed	Trail	10915.4	\$300,000	Outside Limits
Ellegood / Marine / Plantation	Fitzwater	Pemberton	Proposed	Trail	12491.1	\$350,000	Outside Limits
<b>Outside City Limits</b>					<b>Subtotal</b>	<b>\$1,632,900</b>	
Riverside Drive	College	Loblolly	Proposed	Bikes May Use Full Lane	113.465	\$500	Existing
Division	Carroll	Main	Existing	Existing Bikes May Use Full Lane	997.199	\$1,000	Existing
Division	Main	Camden	Existing	Bike Lane	182.982	\$1,500	Existing
North Park	Main	Beaglin Park	Existing	Bike Boulevard	189.36	\$5,000	Existing
North Park	Main	Beaglin Park	Existing	Bike Boulevard	3442.43	\$7,500	Existing
North Park	Main	Beaglin Park	Existing	Bike Boulevard	3753.2	\$8,000	Existing
South Park / Snowhill	Main	Beaglin Park	Existing	Bike Boulevard	8295.21	\$12,000	Existing
Beaglin Park	Old Ocean City	Mt Hermon	Existing	Existing Side Path	2775.15	\$75,000	Existing
13	Cedar	Kay	Existing	Existing Side Path	3491.68	\$95,000	Existing
<b>Existing</b>					<b>Subtotal</b>	<b>\$205,500</b>	

### 3.5 FUNDING SOURCES

Federal funding from the United 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](mailto: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](mailto:tmaxwell@sha.state.md.us)
- <http://www.sha.maryland.gov/Index.aspx?PagelD=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](mailto: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](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](mailto: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/lc\\_contacts.asp](http://www.dnr.state.md.us/land/localsupport/lc_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/lc\\_contacts.asp](http://www.dnr.state.md.us/land/localsupport/lc_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](mailto: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](mailto: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](mailto: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](http://www.cycle.maryland.gov) provides an one-step web portal for information about cycling infrastructure, plans, funding opportunities and events.



# City of Salisbury – Wicomico County

DEPARTMENT OF PLANNING, ZONING AND COMMUNITY DEVELOPMENT

P.O. BOX 870

125 NORTH DIVISION STREET, ROOMS 203 & 201

SALISBURY, MARYLAND 21803-4860

410-548-4860

FAX: 410-548-4955



JACOB R. DAY  
MAYOR

BOB CULVER  
COUNTY EXECUTIVE

TOM STEVENSON  
CITY ADMINISTRATOR

R. WAYNE STRAUSBURG  
DIRECTOR OF ADMINISTRATION

October 27, 2016

**TO:** Tom Stevenson, City Administrator

**FROM:** John F. Lenox, AICP, Director, Salisbury/Wicomico Planning & Zoning

**SUBJECT:** PUBLIC HEARING – Text Amendment – To add Solar Farms in the Residential Districts - Planning Commission Recommendation

## I. INTRODUCTION.

On October 20, 2016, the Salisbury Planning Commission held a public hearing on a request by Faith Baptist Church for the above-noted text amendment relative to the addition of Solar Farms in the Residential Districts. (See Attachments A-C.)

## II. RECOMMENDATION.

The Salisbury Planning Commission forwarded a **Favorable** recommendation to the Mayor and Council for proposed amendments as follows.

**AMEND SECTION 17.156.030, Uses permitted by Special Exception, by Adding the following Item:**

**F. Solar Farm.**

**AMEND SECTION 17.160.030, Uses permitted by Special Exception, by Adding the following Item:**

**F. Solar Farm.**

**AMEND SECTION 17.04.120 by Adding the following Item:**

**SOLAR FARM - A UTILITY-SCALE ENERGY GENERATION FACILITY, PRINCIPALLY USED TO CONVERT SOLAR ENERGY TO ELECTRICITY FOR THE PRIMARY PURPOSE OF WHOLESALE OR RETAIL SALES OF SAID ELECTRICITY.**

Unless you or the Mayor has further questions, please forward this memo and its attachments to the City Council.

### **III. BACKGROUND.**

The Zoning Code currently provides for Public or Private Utility Buildings inherently in the Industrial District and by Ordinance Permit in the General Commercial, Select Commercial, and Light Industrial Districts.

The decades-old definition for “Public or Private Utility Buildings” did not anticipate the development of solar technology. Renewable energy legislation (S.B. 277) was passed in Maryland in 2010 and became effective in 2011. The State has a renewable energy goal of 20 percent by 2022. The legislation was passed to provide guidance to utilities as they began including more renewable energy to their mix. The Public Service Commission (PSC) is authorized to issue a Certificate of Public Convenience and Necessity for the construction of new “generating Stations” having an output in excess of 2,000 kilowatts (2MW).

By permitting these uses by Special Exception, the applications would then be processed through the Salisbury Board of Zoning Appeals at a public hearing. Setbacks, screening or fencing, height, and bonds (for future decommissioning) can be addressed through conditions on a case-by-case basis.

Attachments



# City of Salisbury – Wicomico County

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R. WAYNE STRAUSBURG  
DIRECTOR OF ADMINISTRATION

October 24, 2016

Pastor Robert C. Reinert, Jr.  
30505 Dagsboro Road  
Salisbury, MD 21804

**FILE COPY**  
PLANNING

**RE: #SP-1608 – PUBLIC HEARING – TEXT AMENDMENT – To add Solar Farms by Special Exception in the Residential Districts – Faith Baptist Church.**

Dear Pastor Reinert:

The Salisbury Planning Commission at its October 20, 2016, meeting, forwarded a **FAVORABLE** recommendation to the Mayor and Council for the proposed amendment that would permit up Solar Farms by Special Exception in the Residential Districts: R-5, R-8, and R-10 Districts, R-5A, R-8A, and R-10A Districts, as follows:

**AMEND SECTION 17.156.030, Uses permitted by Special Exception, by Adding the following Item:**

**F. Solar Farm.**

**AMEND SECTION 17.160.030, Uses permitted by Special Exception, by Adding the following Item:**

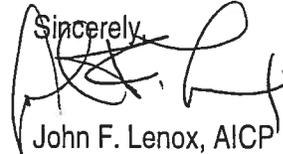
**F. Solar Farm.**

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**SOLAR FARM - A UTILITY-SCALE ENERGY GENERATION FACILITY, PRINCIPALLY USED TO CONVERT SOLAR ENERGY TO ELECTRICITY FOR THE PRIMARY PURPOSE OF WHOLESALE OR RETAIL SALES OF SAID ELECTRICITY.**

This recommendation will be forwarded to the City Administrator for scheduling with the City Council. You will be notified of future meeting dates.

If you have any questions concerning this matter, please don't hesitate to contact Gloria Smith or myself at 410-548-4860.

Sincerely,  


John F. Lenox, AICP  
Director  
Salisbury/Wicomico Planning & Zoning

cc: Mike Moulds, Director of City Public Works Department  
Bill Holland, Director of Building, Permits, and Inspections Department  
Assessments



# City of Salisbury – Wicomico County

DEPARTMENT OF PLANNING, ZONING AND COMMUNITY DEVELOPMENT  
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R. WAYNE STRAUSBURG  
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## **STAFF REPORT**

### MEETING OF OCTOBER 20, 2016

**CASE NO.:** #SP-1608

**APPLICANT:** Faith Baptist Church

**REQUEST:** **PUBLIC HEARING – Text Amendment -  
To amend Title 17, Zoning - to add Solar  
Farms in the Residential Districts.**

#### **I. REQUEST:**

Rev. Robert Reinert, Jr., on behalf of the Faith Baptist Church, has submitted a request to amend the text of Title 17, Zoning, to add Solar Farms as permitted uses in the Residential Districts. Specifically, the church proposes adding solar farms in the R-5A, R-8A, and R-10A Districts. **(See Attachment #1.)**

In accordance with the requirements of Section 17.228 of the Salisbury Municipal Code, the Planning Commission must hold a Public Hearing on proposed Text Amendments to the Code. The Commission must forward a recommendation (within six months) to the City Council. The City Council must also hold a public hearing before granting final approval to Code text amendments (by Ordinance).

#### **II. DISCUSSION:**

Faith Baptist Church owns 44.5 acres on Dagsboro Road that was annexed to the City in 2006. About 15 acres of the property is developed with the church and associated uses. Approximately 29 acres that was proposed for development as Martin's Mill remains largely undeveloped. The Annexation Plan as presented to the Mayor and Council included a concept plan for 149 townhouse and duplex units. The church now proposes installation of a solar farm on this property. This would necessitate both an amendment to the Zoning Code and approval of a significant change to the Concept Plan of annexation.

The Zoning Code currently provides for Public or Private Utility Buildings inherently in the Industrial District and by Ordinance Permit in the General Commercial, Select Commercial, and Light Industrial Districts. The following definition is included in the Code:

*"Public" or "private utility buildings and uses" means facilities and structures owned or maintained by a government a public or private agency or a public or private utility company for the purpose of and directly necessary for rendering or providing communication, electric, gas, sewer, water or comparable service of a public utility nature, and in fact used in the rendition of such service. Nothing in this title or amendment thereto is intended to limit or restrict the use of property in any zone for poles, mains, pipes, conduits or wires erected and maintained for the transmission and distribution of electric energy over wires for any lawful purpose or gas to customers for such energy or municipal water or sewer services or any equipment or device necessary or incident to such use or uses.*

This decades-old definition did not anticipate the development of solar technology. Renewable energy legislation (S.B. 277) was passed in Maryland in 2010 and became effective in 2011. The State has a renewable energy goal of 20 percent by 2022. The legislation was passed to provide guidance to utilities as they began including more renewable energy to their mix. The Public Service Commission (PSC) is authorized to issue a Certificate of Public Convenience and Necessity for the construction of new "generating Stations" having an output in excess of 2,000 kilowatts (2MW).

The American Planning Association has several briefing papers to assist Planners with common questions and concerns regarding solar energy. Many communities recognize the economic and environmental benefits of local renewable energy, generally, and solar energy specifically. By increasing their use of solar energy, communities can decrease air pollution, greenhouse gas emissions, and the impacts that mining or drilling for fossil fuels have on the environment and surrounding communities. One of the keys to local solar market growth is a supportive regulatory environment.

Other jurisdictions have addressed renewable energy, and particularly solar farms, in a number of ways, including the adoption of separate zoning chapters to address these developments. Everything from setbacks, height, fencing, screening, lot coverage and glare to decommissioning have been included in various ordinances. A variety of definitions have also been used, including the following from Dyersburg, Tennessee:

*"A utility-scale energy generation facility, principally used to convert solar energy to electricity for the primary purpose of wholesale or retail sales of said electricity."*

Setbacks have ranged from minimum setbacks for the zoning district, to 50 ft. from any lot line, to 100 ft. from all property lines, to 500 ft. from residentially zoned properties.

Height limitations have ranged from 10 ft. above the finished floor elevation of a principle structure, to 15 ft., to 20 ft., to 20 ft. if meeting the setback of the principle structure.

Warren County, North Carolina requires a vegetative buffer to be planted that is 3 ft. at the time of planting and reaches 8 ft. in height within 5 years. Fencing requirements range between 6 and 8.5 ft. in height. Port St. Lucie, Florida and Dyersburg, Tennessee require submission of Site Plans.

In Wicomico County, the use is considered a privately owned and operated utility. These uses are permitted inherently in the Industrial and Commercial Districts and are permitted by Special Exception in all other districts. The Code includes the following definition for a Public Utility:

*“Facilities and structures owned or maintained by a public agency or a public company for the purpose of and directly necessary for rendering or providing communication, electric, gas, sewer, water or comparable service and, in fact, used in the rendition of such services. For purposes of this definition, wireless telecommunication towers shall not be considered a public utility.”*

Solar panels have a projected life-span of 25 years. Several jurisdictions require a decommissioning plan for when the life-span of the system closes.

The applicants have proposed this use in residential districts where the Code requires a 25 ft. front setback, a 30 ft. rear setback and 10 ft. side setbacks for principle structures.

### **III. PLANNING COMMENTS/CONCERNS.**

The Planning Staff compiled a list of properties that have been annexed to the City since 2006 that remain undeveloped. Six of these properties are zoned R-10A Residential and three more are zoned R-10 Residential. The properties range in size from 16 acres to 156 acres. In addition, there are 234 acres off Connelly Mill Road zoned R-8A Residential that remains undeveloped.

For consistency between City and County applications, consideration should be given to permitting these uses by Special Exception. Applications would then be processed through the Salisbury Board of Zoning Appeals at a public hearing. Setbacks, screening or fencing, height, and bonds (for future decommissioning) can be addressed through conditions on a case-by-case basis.

The proposed solar farms are separate from and a larger scale than those installed as accessory uses to serve an individual home or small business. The Code defines Accessory Use as:

*"Accessory use" means a use which is customarily incidental and subordinate to a principal use and which is located on the same lot therewith.*

**IV. RECOMMENDATION.**

Staff recommends that the Commission forward a **FAVORABLE** recommendation to the Mayor and Council for the proposed amendment that would permit up Solar Farms by Special Exception in the Residential Districts: R-5, R-8, and R-10 Districts, R-5A, R-8A, and R-10A Districts, as follows:

**AMEND SECTION 17.156.030, Uses permitted by Special Exception, by Adding the following Item:**

**F. Solar Farm.**

**AMEND SECTION 17.160.030, Uses permitted by Special Exception, by Adding the following Item:**

**F. Solar Farm.**

**AMEND SECTION 17.04.120 by Adding the following Item:**

**SOLAR FARM - A UTILITY-SCALE ENERGY GENERATION FACILITY, PRINCIPALLY USED TO CONVERT SOLAR ENERGY TO ELECTRICITY FOR THE PRIMARY PURPOSE OF WHOLESALE OR RETAIL SALES OF SAID ELECTRICITY.**

**COORDINATOR:** Gloria Smith, Planner

**DATE:** October 13, 2016

**Vacant Annexed Lands**

<b>Name/Location</b>	<b>Zoning</b>	<b>Acres</b>
Faith Baptist Church – Dagsboro Road (Martin’s Mill)	R-10A	30.0
Village at Parsons Lake – Ruark – Brown Road	R-10A	168.37
Rajun Cajun – Naylor Mill Road	R-10A	40.0
Farlow Fields – Beaglin Park Drive Ext.	R-10A	37.5
Sassafras Meadows – West Road	R-10A	40.77
Glen Heights – Glen Avenue	R-10A	16.00
Cotton Patch – Pemberton Road	R-10	40.27
Johnson’s Retreat – Johnson Road	R-10	24.4
Three Creeks – Jersey Road	R-10	156.92
Hazel – Snow Hill Road	R-8A/Gen. Comm.	42.6
Millers Edge – Pemberton Drive	R-8	19.13
Causey rezoning – off Foskey Lane	R-8A	234.85
Forest Glen – Queen Avenue	R-5	19.12



**Robert C. Reinert, Jr.**  
SENIOR PASTOR

**Timothy J. Binkley**  
YOUTH PASTOR

**B. Mark Zockoll, Jr.**  
SCHOOL  
ADMINISTRATOR

September 9, 2016

Salisbury-Wicomico County  
Department of Planning, Zoning and  
Community Development  
Government Office Building  
P. O. Box 870  
Salisbury, MD 21803-0870

Attention: Gloria Smith, Planner

Gentlemen:

RE: Text Amendment Request

We would request a Text Amendment to Sect. 17.160 of the Salisbury Municipal Code for R-5A, R-8A and R-10A, to add Solar Farms to the permitted usages.

The necessity of this change will allow land within the city limits to be used in a way that will benefit the environment and the residents of our city.

Thank you for your consideration.

Sincerely yours,

Robert C. Reinert, Jr.  
Senior Pastor  
Faith Baptist Church

RCR:sab  
Enclosure: \$200 application fee

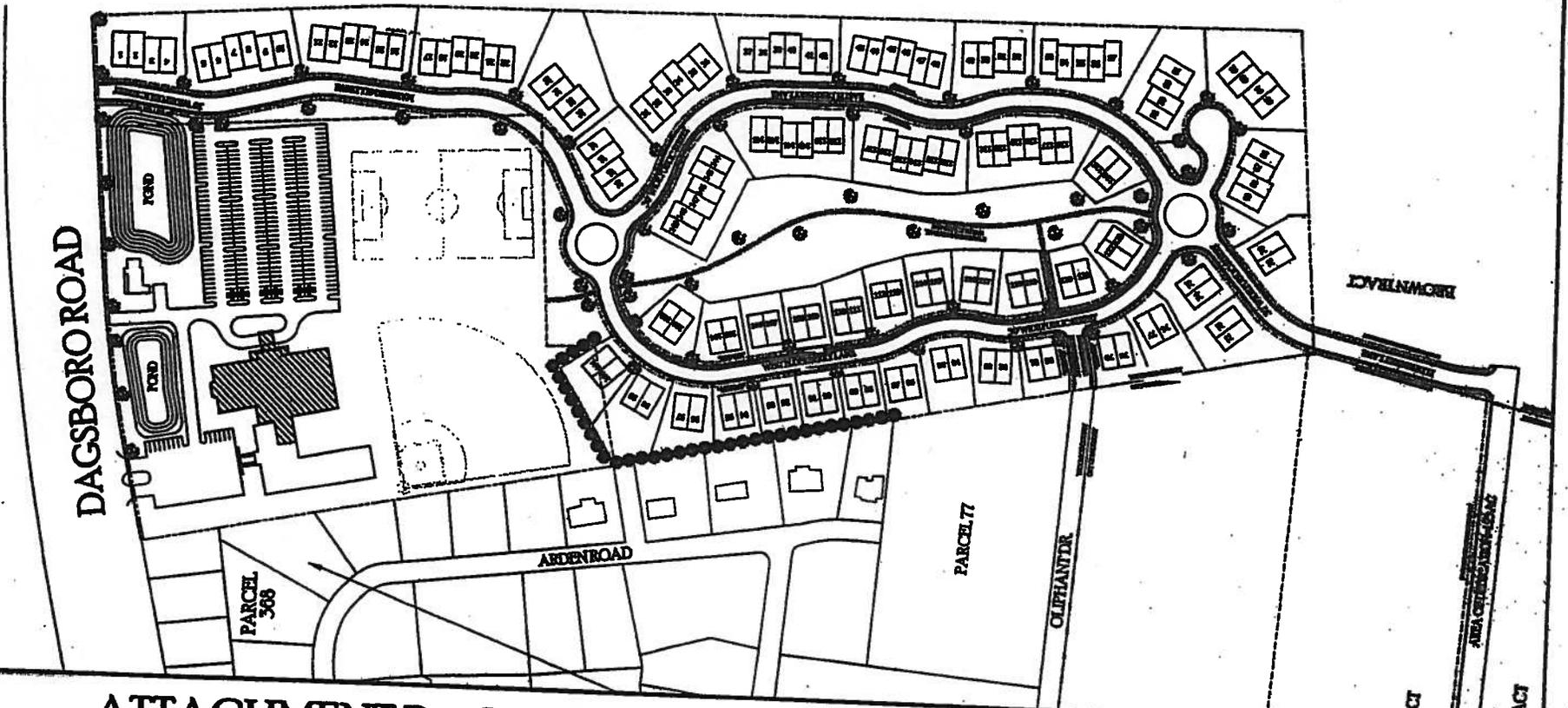
PLANNING DEPARTMENT

RECEIVED

DATE 9/15/16 BY [Signature]

30505 Dagsboro Road • Salisbury, MD 21804  
410-742-9516 • Fax: 410-742-2815  
e-mail: fbsalisb@dmv.com • www.faithbaptist.ws

Attachment #1



# ATTACHMENT B - CONCEPT DEVELOPMENT PLAN

FAITH BAPTIST CHURCH / MARTINS MILL ANNEXATION  
DAGSBORO ROAD, NORTH SALISBURY  
CITY OF SALISBURY, MARYLAND

SCALE 1"=200'



Attachment #2

EXHIBIT "B"



# City of Salisbury – Wicomico County

DEPARTMENT OF PLANNING, ZONING AND COMMUNITY DEVELOPMENT  
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MAYOR

BOB CULVER  
COUNTY EXECUTIVE

TOM STEVENSON  
CITY ADMINISTRATOR

R. WAYNE STRAUSBURG  
DIRECTOR OF ADMINISTRATION

## ORDINANCE NO. \_\_\_\_

**AN ORDINANCE OF THE CITY OF SALISBURY, MARYLAND, PURSUANT TO CHAPTER 17.228 OF TITLE 17, ZONING OF THE SALISBURY MUNICIPAL CODE AND SECTION 4.04 OF ARTICLE 66B OF THE ANNOTATED CODE OF MARYLAND FOR THE PURPOSE OF AMENDING SECTIONS 17.156.030, 17.160.030, AND 17.04.120 TO ADD SOLAR FARMS AND A DEFINITION OF SOLAR FARMS IN THE R-5, R-8, R-10, R-5A, R-8A, AND R-10A RESIDENTIAL DISTRICTS.**

**WHEREAS**, the ongoing application, administration and enforcement of Title 17, Zoning of the Salisbury Municipal Code, demonstrates a need for periodic review, evaluation, and amendments that will keep Title 17 current; and

**WHEREAS**, the Mayor and City Council may amend Title 17, Zoning, of the Salisbury Municipal Code, pursuant to the authority granted by Article 66B of the Maryland Annotated Code and in accordance with specific provisions of Chapter 17.228, Amendments and Rezoning, of Title 17, Zoning; and

**WHEREAS**, the Mayor and City Council requested that the Salisbury Planning and Zoning Commission periodically review Title 17 in light of existing procedural practices and input from the City Council and members of the public; and

**WHEREAS**, Pastor Robert C. Reinert, Jr. of Faith Baptist Church submitted an application to amend the text of the Residential Districts; and

**WHEREAS**, a Public Hearing on the proposed amendment was held by the Planning Commission in accordance with the provisions of Chapter 17.228, of Title 17, Zoning, of the Salisbury Municipal Code on October 20, 2016; and

**WHEREAS**, the Planning Commission did recommend approval of the proposed text amendments to Sections 17.156.030, 17.160.030, and 17.04.120;

**NOW, THEREFORE, BE IT ENACTED AND ORDAINED BY THE CITY OF SALISBURY, MARYLAND**, that Title 17, Zoning, of the Salisbury Municipal Code is hereby amended as follows:

**AMEND SECTION 17.156.030, USES PERMITTED BY SPECIAL EXCEPTION, BY ADDING THE FOLLOWING ITEM:**

**F. SOLAR FARM.**

**AMEND SECTION 17.160.030, USES PERMITTED BY SPECIAL EXCEPTION, BY ADDING THE FOLLOWING ITEM:**

**F. SOLAR FARM.**

**AMEND SECTION 17.04.120 BY ADDING THE FOLLOWING ITEM:**

**SOLAR FARM - A UTILITY-SCALE ENERGY GENERATION FACILITY, PRINCIPALLY USED TO CONVERT SOLAR ENERGY TO ELECTRICITY FOR THE PRIMARY PURPOSE OF WHOLESALE OR RETAIL SALES OF SAID ELECTRICITY.**

**AND BE IT FURTHER ORDAINED BY THE CITY OF SALISBURY, MARYLAND**, that this Ordinance shall take effect from and after the date of its final passage, but in no event until ten (10) days after the date of the Council's Public Hearing, and

**THE ABOVE ORDINANCE** was introduced at a meeting of the Council on the \_\_\_\_ day of \_\_\_\_\_, 2016, and thereafter, a statement of the substance of the ordinance having been published as required by law, in the meantime, was finally passed by the Council on the \_\_\_\_ day of \_\_\_\_\_, 2016.

ATTEST:

---

Kim Nichols  
City Clerk

---

John "Jack" Heath, President  
Salisbury City Council

Approved by me this

day of \_\_\_\_\_, 2016.

---

Jacob R. Day  
Mayor of the City of Salisbury



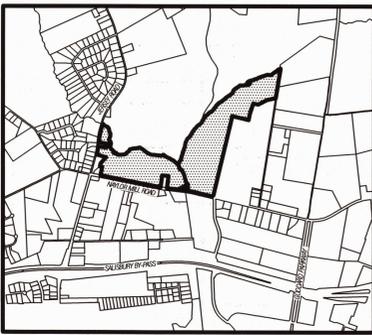
## MEMORANDUM

**To:** Tom Stevenson, City Administrator  
**From:** Julia Glanz, Asst. City Administrator JG  
**Subject:** Naylor Mill Park Deed Transfer  
**Date:** 11/16/16

---

Attached please find the deed that will have the effect of transferring a portion of currently owned City property in Naylor Mill Park, abutting Henry S. Parker Park, to the County.

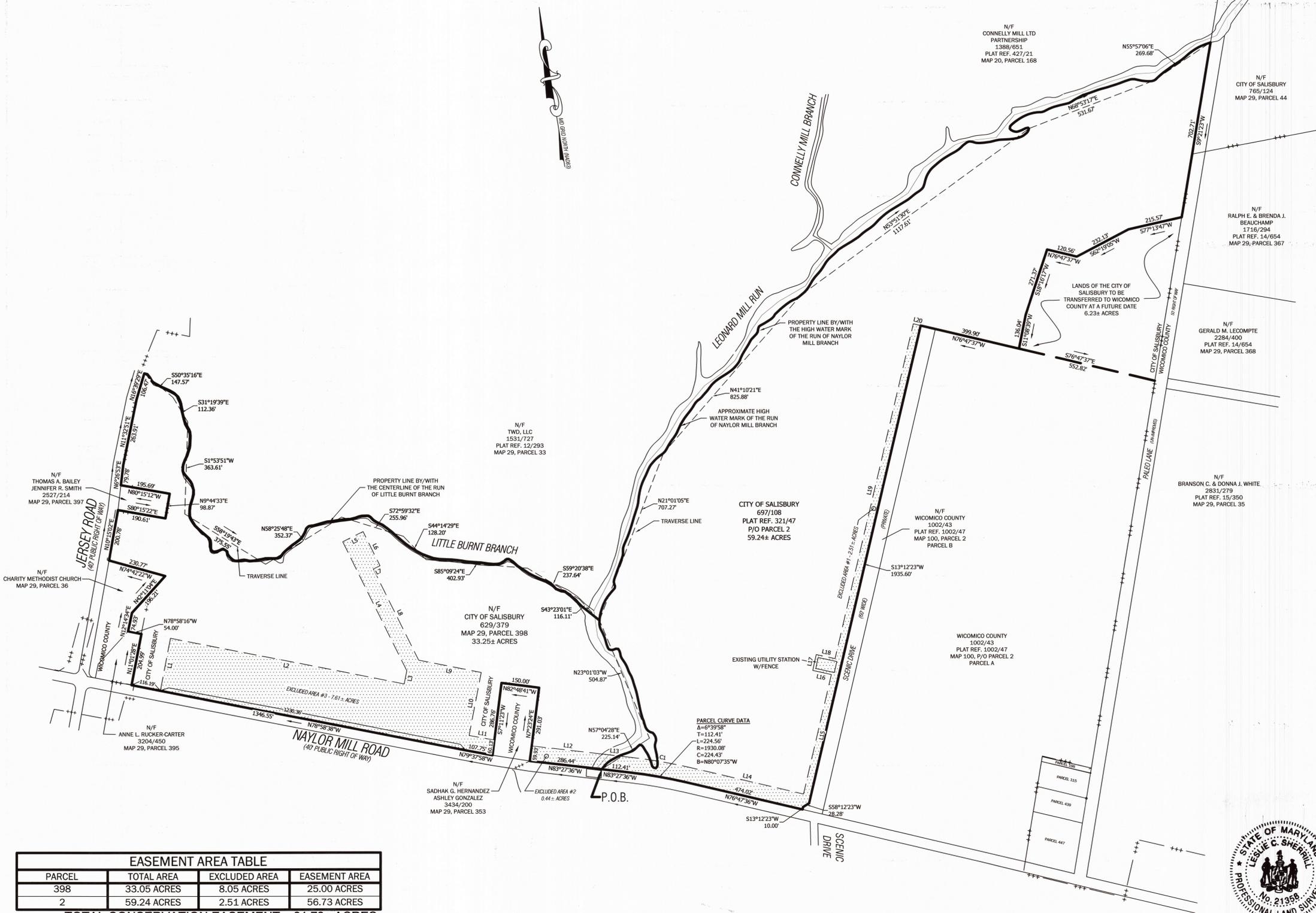
Unless you or the Mayor have additional questions, please advance this memorandum and resolution of support to the City Council for approval.



VICINITY MAP 1" = 2,000'±

Curve Table						
CURVE	LENGTH	RADIUS	CHORD	TANGENT	DELTA	CHD.BRG.
C1	231.54	1990.08	231.41	115.90	6°40'00"	N80°07'35"W

Line Table		
Line #	Direction	Length
L1	S11°01'30"W	210.05
L2	N78°58'40"W	942.02
L3	S11°01'20"W	52.43
L4	S26°23'50"E	568.50
L5	S63°36'10"W	90.00
L6	S26°23'50"E	150.00
L7	S63°36'10"W	29.41
L8	S26°23'50"E	402.48
L9	N78°58'40"W	252.03
L10	N11°01'20"E	252.00
L11	N79°38'00"W	101.66
L12	N83°28'40"W	285.34
L13	N83°27'40"W	112.41
L14	N76°47'40"W	464.02
L15	N13°12'20"E	483.54
L16	S77°45'20"E	74.93
L17	S12°16'30"W	64.14
L18	N77°54'10"W	75.98
L19	N13°12'20"E	1357.72
L20	S76°47'40"E	30.00



- GENERAL NOTES
1. ASSESSMENT MAP NO. 29 & 100
  2. PARCEL NO. (p/o) 2 & 398
  3. DEED REFERENCE: 697/108 & 629/379
  4. PLAT REFERENCE: 321/47 & 1002/47
  5. SALISBURY ELECTION DISTRICT
  6. CITY MAP NO. 135 & 136
  7. ZONED: CONSERVATION DISTRICT WITH PALEOCHANNEL & WELLHEAD PROTECTION DISTRICT OVERLAYS
  8. THIS PLAT HAS BEEN PREPARED WITHOUT THE BENEFIT OF A FIELD SURVEY AND IS FOR THE PURPOSE OF ESTABLISHING AREAS FOR CONSERVATION EASEMENTS ONLY.

EASEMENT AREA TABLE			
PARCEL	TOTAL AREA	EXCLUDED AREA	EASEMENT AREA
398	33.05 ACRES	8.05 ACRES	25.00 ACRES
2	59.24 ACRES	2.51 ACRES	56.73 ACRES
TOTAL CONSERVATION EASEMENT: 81.73± ACRES			



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE STATE OF MARYLAND, LICENSE NO. 21358, RENEWAL DATE: 07/17/2017.  
 LESLIE C. SHERRILL, PROF. LAND SURVEYOR  
 DATE: 9/29/16

SALISBURY DEPARTMENT OF PUBLIC WORKS  
 125 NORTH DIVISION STREET  
 SALISBURY, MARYLAND 21801  
 PHONE: 410-548-3170 FAX: 410-548-3107

**EXHIBIT A**  
**CONSERVATION EASEMENT SURVEY**  
 NAYLOR MILL ROAD & JERSEY ROAD  
 SALISBURY, MARYLAND

REVISIONS:

DATE:	SEPT. 2016
SCALE:	1" = 200'
DWN BY:	L.C.S.
PROJ. NO.:	XX-XXX
DWG. NO.:	

1 RESOLUTION NO. \_\_\_\_\_  
2

3 A RESOLUTION OF THE CITY OF SALISBURY, MARYLAND CONVEYING CITY OWNED  
4 PROPERTY ON NAYLOR MILL ROAD TO WICOMICO COUNTY.  
5

6 WHEREAS, the City of Salisbury owns land on Naylor Mill Road; and  
7

8 WHEREAS, Wicomico County owns land on Naylor Mill Road known as the Henry S. Parker Athletic  
9 Complex, which abuts the property owned by the City of Salisbury; and  
10

11 WHEREAS, Wicomico County owns the property known as Scenic Drive which abuts and provides  
12 access to property owned by the City of Salisbury; and  
13

14 WHEREAS, the City of Salisbury wishes to convey a parcel of land totaling 6.23 acres to Wicomico  
15 County; and  
16

17 WHEREAS, Wicomico County has agreed to give an easement to the City of Salisbury granting access  
18 over and use of Scenic Drive; and  
19

20 WHEREAS, the City of Salisbury and Wicomico County have agreed to shared maintenance and costs for  
21 Scenic Drive and possible future parking areas.  
22

23 NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SALISBURY,  
24 MARYLAND, that the City of Salisbury convey unto Wicomico County the said property which is  
25 described as follows:  
26

27 ALL that tract or parcel of land situate, lying and being in the Salisbury  
28 Election District of Wicomico County, State of Maryland, beginning for the same  
29 at a point 399.90' from the Westerly line of Scenic Drive; thence (1) North 11  
30 degrees 8 minutes 39 seconds East for a distance of 136.04 feet to a point; thence  
31 (2) North 18 degrees 16 minutes 17 seconds East for a distance of 271.37 feet to a  
32 point; thence (3) South 76 degrees 47 minutes 37 seconds East for a distance of  
33 120.56 feet to a point; thence (4) North 62 degrees 19 minutes 5 seconds East for a  
34 distance of 232.13 feet to a point; thence (5) North 77 degrees 13 minutes 47  
35 seconds East for a distance of 215.57 feet to a point on the Westerly line of Paleo  
36 Lane; thence (6) South 9 degrees 21 minutes 23 seconds West for a distance of  
37 654.11 feet by and with the Westerly line of Paleo Lane to the northerly line of  
38 land currently owned by Wicomico County; thence (7) North 76 degrees 47  
39 minutes 37 seconds East along the Northerly line of land currently owned by  
40 Wicomico County for a distance of 552.82 feet to the place of beginning, being  
41 shown as "Lands of the City of Salisbury to be transferred to Wicomico County at  
42 a future date 6.23 acres" on the plat entitled "Conservation Easement Survey"  
43 made by the Salisbury Department of Public Works dated September 2016 and  
44 intended to be recorded among the plat records of Wicomico County, Maryland.  
45  
46

47 BE IT FURTHER ENACTED AND RESOLVED that the Mayor is hereby authorized to negotiate,  
48 execute and deliver all documents on behalf of the City of Salisbury in connection with the conveyance of  
49 the Deed to Wicomico County and the execution of the Agreement and Easement with Wicomico County  
50 and to take any action which is necessary to consummate the transactions described herein.  
51

52 BE IT FURTHER ENACTED AND RESOLVED that the City of Salisbury has taken all requisite action  
53 according to the City of Salisbury Code and other governing documents to approve the conveyance of the  
54 Deed.

55  
56 AND BE IT FURTHER ENACTED AND RESOLVED that this resolution shall take effect from the date  
57 of its final passage.

58  
59 THE ABOVE RESOLUTION was introduced, read and passed at the regular meeting of the Council of  
60 the City of Salisbury held on this \_\_\_ day of \_\_\_\_\_, 2016, and is to become effective immediately  
61 upon adoption.

62  
63  
64 ATTEST

65  
66 \_\_\_\_\_  
67 Kimberly R. Nichols, City Clerk

\_\_\_\_\_

John R. Heath, President  
Salisbury City Council

68  
69  
70 Approved by me this \_\_\_ day of \_\_\_\_\_, 2016

71  
72 \_\_\_\_\_  
73 Jacob R. Day, Mayor

74  
75  
76  
77



City of  
**Salisbury**  
Jacob R. Day, Mayor

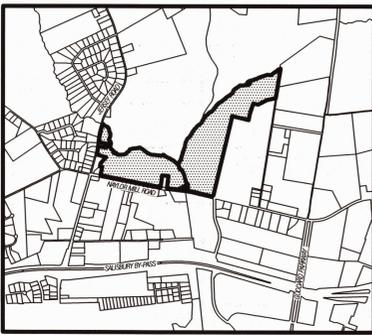
## MEMORANDUM

**To:** Tom Stevenson, City Administrator  
**From:** Julia Glanz, Asst. City Administrator  
**Subject:** Scenic Drive Agreement and Easement  
**Date:** 11/16/16

---

Attached please find an agreement and easement, between the City and County, for City use of Scenic Drive at Henry S. Parker Complex.

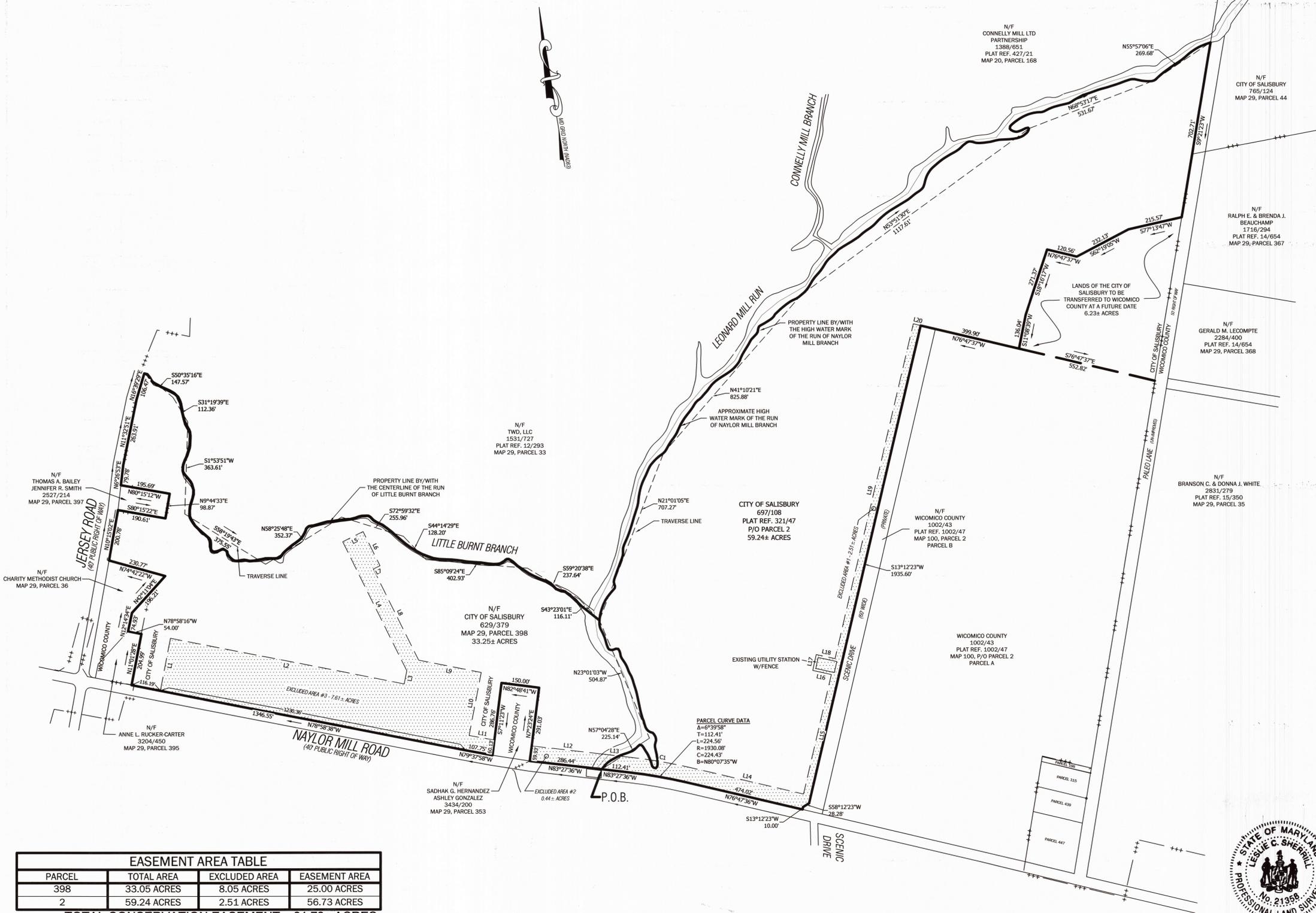
Unless you or the Mayor have additional questions, please advance this memorandum and resolution of support to the City Council for approval.



VICINITY MAP 1" = 2,000'±

Curve Table						
CURVE	LENGTH	RADIUS	CHORD	TANGENT	DELTA	CHD.BRG.
C1	231.54	1990.08	231.41	115.90	6°40'00"	N80°07'35"W

Line Table		
Line #	Direction	Length
L1	S11°01'30"W	210.05
L2	N78°58'40"W	942.02
L3	S11°01'20"W	52.43
L4	S26°23'50"E	568.50
L5	S63°36'10"W	90.00
L6	S26°23'50"E	150.00
L7	S63°36'10"W	29.41
L8	S26°23'50"E	402.48
L9	N78°58'40"W	252.03
L10	N11°01'20"E	252.00
L11	N79°38'00"W	101.66
L12	N83°28'40"W	285.34
L13	N83°27'40"W	112.41
L14	N76°47'40"W	464.02
L15	N13°12'20"E	483.54
L16	S77°45'20"E	74.93
L17	S12°16'30"W	64.14
L18	N77°54'10"W	75.98
L19	N13°12'20"E	1357.72
L20	S76°47'40"E	30.00



- GENERAL NOTES
- ASSESSMENT MAP NO. 29 & 100
  - PARCEL NO. (p/o) 2 & 398
  - DEED REFERENCE: 697/108 & 629/379
  - PLAT REFERENCE: 321/47 & 1002/47
  - SALISBURY ELECTION DISTRICT
  - CITY MAP NO. 135 & 136
  - ZONED: CONSERVATION DISTRICT WITH PALEOCHANNEL & WELLHEAD PROTECTION DISTRICT OVERLAYS
  - THIS PLAT HAS BEEN PREPARED WITHOUT THE BENEFIT OF A FIELD SURVEY AND IS FOR THE PURPOSE OF ESTABLISHING AREAS FOR CONSERVATION EASEMENTS ONLY.

EASEMENT AREA TABLE			
PARCEL	TOTAL AREA	EXCLUDED AREA	EASEMENT AREA
398	33.05 ACRES	8.05 ACRES	25.00 ACRES
2	59.24 ACRES	2.51 ACRES	56.73 ACRES

TOTAL CONSERVATION EASEMENT: 81.73± ACRES



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE STATE OF MARYLAND, LICENSE NO. 21358, RENEWAL DATE: 07/17/2017.  
 LESLIE C. SHERRILL, PROF. LAND SURVEYOR  
 DATE: 9/29/16

SALISBURY DEPARTMENT OF PUBLIC WORKS  
 125 NORTH DIVISION STREET  
 SALISBURY, MARYLAND 21801  
 PHONE: 410-548-3170 FAX: 410-548-3107

**EXHIBIT A**  
**CONSERVATION EASEMENT SURVEY**  
 NAYLOR MILL ROAD & JERSEY ROAD  
 SALISBURY, MARYLAND

REVISIONS:

DATE: SEPT. 2016  
 SCALE: 1" = 200'  
 DWN BY: L.C.S.  
 PROJ. NO.: XX-XXX  
 DWG. NO.:

*Proposed*

WICOMICO COUNTY- CITY OF SALISBURY  
SCENIC DRIVE AGREEMENT AND EASEMENT

This agreement made and executed this \_\_\_\_ day of \_\_\_\_\_, 2016, by and between Wicomico County, Maryland a body corporate and politic of the State of Maryland (hereinafter referred to as "County") and City of Salisbury, a municipal corporation of the State of Maryland (hereinafter referred to as "City"), a wit:

WHEREAS, this agreement and easement is exempt from transfer and recordation tax pursuant to the Maryland Annotated Code, *Tax-Property Article*, Section 12-108(a)(1)(iv); and

WHEREAS, the City has agreed to convey property to the County on the west side of and binding upon Paleo Lane; and

WHEREAS, the County has agreed to provide the City and the public with access to the parking facilities at the County's Henry S. Parker Athletic Complex for use while accessing the City's land on the west side of and binding upon Scenic Drive; and

NOW, THEREFORE, IN CONSIDERATION OF THE PREMISES and the conditions and obligations set forth herein, it is mutually agreed by and between the County and the City, as follows:

1. The portion of Scenic Drive which extends from the Northerly line of Naylor Mill Road in a Northerly direction to the end of paving adjacent to the Henry S. Parker Athletic Complex is a County road, with full access by City employees, residents and the general public. In addition the County hereby conveys to the City a perpetual easement over and across all that area now constituting the County road, Scenic Drive, for ingress and egress, to and from the property belonging to the City on the west side and binding upon Scenic Drive.
2. The County will allow parking at the Henry S. Parker Athletic Complex for City employees, residents and the general public for their use during visits to the City's property on the west side of and binding upon Scenic Drive. Should the County have a future need to deny parking to users of the said City property, the County will construct parking on the westerly portion of Scenic Drive for the use of City employees, residents, and the general public. The County shall procure all required permits and approvals for parking spaces, including, but not limited to stormwater management, sediment control and forest conservation.
3. The County shall plow and salt the road and the aforementioned future parking spaces on Scenic Drive in a similar manner as other County property.

TO HAVE AND TO HOLD the above describes easement unto City of Salisbury, Maryland, a body politic and corporate of the State of Maryland, its successors and assigns, forever, The covenants agreed to and the terms, conditions, and restrictions imposed as aforesaid shall be binding upon Grantors and

Grantees, their assigns and all other successors to them in interest, and shall continue as a servitude running in perpetuity with the Property.

AS WITNESS the due execution hereof the day and year first before written.

ATTEST:

WICOMICO COUNTY

\_\_\_\_\_  
Clerk

BY: \_\_\_\_\_  
Bob Culver, County Executive

CITY OF SALISBURY

\_\_\_\_\_  
Clerk

BY: \_\_\_\_\_  
Jacob R. Day, Mayor

STATE OF MARYLAND, COUNTY OF WICOMICO, TO WIT:

I HEREBY CERTIFY that on this \_\_\_\_ day of \_\_\_\_\_, 2016, before me, the subscriber, a Notary Public for the state and county aforesaid, personally appeared Bob Culver, County Executive, of WICOMICO COUNTY, and that he, as such County Executive, being authorized so to do, executed the foregoing deed for the purposed therein contained.

AS WITNESS my hand and Notarial Seal.

\_\_\_\_\_  
Notary Public  
My Commission Expires: \_\_\_\_\_

STATE OF MARYLAND, COUNTY OF WICOMICO, TO WIT:

I HEREBY CERTIFY that on this \_\_\_\_ day of \_\_\_\_\_, 2016, before me, the subscriber, a Notary Public for the state and county aforesaid, personally appeared Jacob R. Day, Mayor, of the CITY OF SALISBURY, and that he, as such Mayor, being authorized so to do, executed the foregoing deed for the purposed therein contained.

AS WITNESS my hand and Notarial Seal.

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

I HEREBY CERTIFY that I am an attorney admitted to practice before the Court of Appeals of Maryland,  
and that the foregoing instrument was prepared under my supervision.

\_\_\_\_\_  
S. Mark Tilghman



**To:** City Council  
**From:** Tom Stevenson, City Administrator  
**Subject:** North Prong Park – Kapiloff Property Acquisition Plan  
**Date:** November 9, 2016

---

In follow-up to the Council's recent review of the North Prong Park – Kapiloff Property Acquisition Plan, I offer the below summary:

**Subject property**

317 – 327 Lake Street                      aka, Kapiloff Property or Sal/Kap Property or Dale Petroleum

**History**

On September 14, 1990, a 12,000 gallon spill occurred at the site; approximately 4,000 gallons eventually made its way to the Wicomico River.

Subsequently, the Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE) were involved and notices of violation were issued, specifically for:

- 1) Above Ground Storage Tanks                      Case# 2008 – 0480WI
- 2) “Potential” Ground Water Contamination      Case# 1994 – 2539WI

Following the spill, the EPA and US Coast Guard (USACG):

- 1) Constructed a steel bulkhead along the property; and
- 2) Installed an oil/water separation system.

**Enforcement Outcome**

In a letter addressed to Bernard Kapiloff dated June 27, 2008 (attachment #1)

Mr. Ross Kelly, Region II Section Head, for the Compliance Division of the Oil Control Program wrote:

Abridged ...

A May 16, 2008 *Subsurface Investigation Report* prepared by *Advanced Environmental Concepts, Inc.* revealed that:

All above ground storage tanks and related piping (case #2008-0480WI, above) were emptied of liquid and removed from the property along with other items, such as loading racks, barrels containing firefighting powder, piping, etc.

*(Staff Note: This was due to Corrective Action Letters being issued by the City)*

A *Subsurface Investigation Work Plan* was prepared to identify subsurface conditions and contamination characteristics where the storage tanks once rested.

*(Staff Note: It is important to point out that the tanks rested on bare ground, no footers)*

Four tanks had been removed and groundwater data revealed the following:

There was contamination above the non-residential clean-up standards, notably

- 1) TPH-DRO “Total Petroleum Hydrocarbons” in the soil and groundwater; and
- 2) Naphthalene is a “crystalline aromatic hydrocarbon usually obtained by distillation of coal tar

Mr. Ross went on to say ... Based on the analytical data it appears the contaminations does **NOT** pose a threat to human health, safety and the environment. The Oil Control Program does **NOT** require any further action at the subject property. The property **IS** in compliance with COMAR 26.10.01.12A (2) (a) NFPA 30 Code Section 2.6.4.1 and the Oil Control Program (OCP) **closes the case.**

**If** contaminated soils are encountered they **must be** handled in a manner that will comply with state and local regulations.

### **Additional Correspondence**

I requested and received a letter from the EPA’s Oil Control Program regarding the disposition of the property.

In a letter dated March 11, 2009, (attachment #2) Mr. Herbert Meade, Administrator of the Oil Control Program confirmed that the aforementioned cases were **CLOSED.**

The letter was written by Mr. Meade in his capacity and under the authority of Code of Maryland Regulations (COMAR) 26.10.01.05 (attachment #3).

Further ...

COMAR 26.10.01.05 G states the purchaser of oil-contaminated property does not become responsible for a discharge solely because they purchased the property—that is, unless the purchaser is responsible for the discharge; we are not.

However ...

Residual petroleum contamination **MAY** remain.

That said, the contamination poses **NO THREAT** to human health or the environment.

Future excavation may encounter impacted soil.

If impacted soil is found, it must be handled in a way that will comply with state and local regulations.

**ONLY** soil related to construction activity need be addressed.

Now, to address the Council's question from the November 7, 2016 work session:

- 1) What are the legal repercussions once we put a shovel in the ground?
  - We are not responsible for the spill that occurred in 1990 COMAR 26.10.01.05 G.
  - We would have to remediate any contaminated soil.
- 2) How deep are the foundations on the property?
  - We can only reason at this time. The buildings likely have a footer poured at a depth below the frost line, that being approximately 30 inches. However, we are actively engaging a contractor to attempt to access the property and verify the footer depth.
  - The quote from Hynes and Associates (attachment #3) provides for soil testing at or near the footers to a depth of 3 feet below the surface. This is consistent with my above hypothesis.
  - Again, it is important to note that the tanks where the spill occurred did **NOT** have footers.
- 3) To what level do we have to remediate if it becomes a park?
  - No remediation is required.
  - However, we could, and probably should, provide a layer of topsoil to encapsulate the property. There are membranes and other products that could be used as well.
  - That being stated, again, "if" we disturb soil—say, for example, to install a water fountain—any "contaminated" soil would have to be properly remediated. We are also actively seeking to understand how contaminated soil must be handled and will have that information available during the upcoming work session.
- 4) Where does our responsibility begin once we own it?
  - Initially, general maintenance and upkeep; then
  - Removal of the blighting influences: buildings, walls containment areas, etc.
  - *(Staff Note: The City would seek Strategic Demolition Grant funds to cover the cost of the Phase II Study and to raze the structures, while simultaneously applying for POS Funds to build out the park space.)*



City of  
**Salisbury**  
Jacob R. Day, Mayor

## MEMORANDUM

### **Additional Information**

On December 1, 2004, Tetra Tech EM, Inc. provided a TRIP Report on the Lake Street Oil Farm Site for the U.S. Environmental Protection Agency (attachment #4). This comprehensive report is the stimulus for the action taken by the EPA and MDE.

Please review the above information and attachments, and, if you have any questions, please provide them as soon as possible so that we can prepare in advance for the upcoming work session.

SAC 410 713 3684  
OFF



MARYLAND DEPARTMENT OF THE ENVIRONMENT  
Oil Control Program, Suite 620, 1800 Washington Blvd., Baltimore MD 21230-1719  
410-537-3442 • 410-537-3092 (fax) 1-800-633-6101

Martin O'Malley  
Governor

Shari T. Wilson  
Secretary

Anthony G. Brown  
Lieutenant Governor

Robert M. Summers, Ph.D.  
Deputy Secretary

June 27, 2008

**NOTICE OF COMPLIANCE**

Mr. Bernard Kapiloff  
SALCAP, LLC.  
30 Courthouse Square  
Suite 405  
Rockville MD 20850

RE: Case No. 2008-0480WI  
SALCAP, LLC.  
313-327 Lake Street  
Salisbury, Maryland

Dear Mr. Kapiloff:

The Oil Control Program has recently completed a review of Case No. 2008-0480WI and the Subsurface Investigation Report prepared by Advanced Environmental Concepts, Inc., dated May 16, 2008, for the above referenced property located in Wicomico County. Based on this review it was determined that all aboveground storage tanks (ASTs) and related piping were emptied of liquids and removed from the property. Also, the loading rack, associated piping, and oil water separator has been removed. Numerous Foamite metal containers storing fire-fighting dry white powder were disposed at the Wicomico County Brick Kiln landfill.

The Subsurface Investigation Work Plan was prepared for the purpose of characterizing subsurface conditions and contamination characteristics in the area of former above ground storage tanks (AST's) #3, #4, #5, and #6. These tanks were resting on bare ground. A review of the soil and groundwater analytical data revealed levels of contamination are above the Department's non-residential clean-up standards. The contamination includes TPH-DRO in soils and groundwater, and Naphthalene in groundwater.

Based on the analytical data it appears the contamination does not pose a threat to human health, safety, and the environment. The Oil Control Program does not require any further action at the subject property based on the analytical results; the absence of liquid phase hydrocarbons in groundwater, and the site and vicinity is supplied with public water. Thus, the property is now in compliance with COMAR 26.10.01.12A(2)(a) NFPA Code 30 Section 2.6.4.1 and the Oil Control Program hereby closes its case for the above referenced facility.

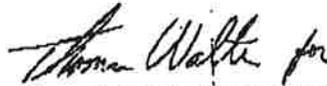
Mr. Bernard Kapiloff  
Page 2

Residual contamination remains on site in the vicinity of AST's #3, #4, #5, and #6. Future excavation in the immediate vicinity of the ASTs may create pathways for the contamination. Therefore, if contaminated soils are encountered, they must be handled in a manner that will comply with State and Local Regulations.

This letter does not address Case No. 1994-2539WI involving contaminated soil around former AST #13 and groundwater contamination on site. Questions regarding remedial activities may be directed to Yolande J.C. Norman, Chief of the Remediation Division at (410) 537-3470 or via Email: [ynorman@mde.state.md.us](mailto:ynorman@mde.state.md.us).

This notice should not be construed as a waiver of the Department's right to take enforcement action it deems appropriate with respect to this site. If there are any further questions regarding compliance activities, please contact me at (410) 537-3883 or via Email: [rkelly@mde.state.md.us](mailto:rkelly@mde.state.md.us).

Sincerely,



Ross L. Kelly, Region II Section Head  
Compliance Division  
Oil Control Program

RLK/sd

cc: Yolande J.C. Norman  
Mr. Jack Sipes  
Mr. Thomas L. Walter  
Mr. Herbert M. Meade  
Mr. Horacio Tablada



**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101

RECEIVED  
3/12/09

Martin O'Malley  
Governor

Shari T. Wilson  
Secretary

Anthony G. Brown  
Lieutenant Governor

Robert M. Summers, Ph.D.  
Deputy Secretary

March 11, 2009

Mr. Thomas Stevenson  
Director  
Neighborhood Services  
City of Salisbury  
501B East Church Street  
Salisbury MD 21801

**RE: Closed Case No. 2008-0480-WI  
Closed Case No. 1994-0421-WI  
Closed Case No. 1994-2539-WI  
Former Dale Petroleum Site  
a.k.a SALCCAP, LLC  
313-327 Lake Street, Salisbury  
Wicomico County, Maryland**

Dear Mr. Stevenson:

This letter is written under the authority of Code of Maryland Regulations (COMAR) 26.10.01.05. Per your request, the Oil Control Program is confirming the three referenced cases for the above-referenced property are in the closed status. At the date of case closure, the Oil Control Program required no further action at this site. Based on all available data, all petroleum issues at the subject property have been addressed and remediated to the Department's satisfaction.

COMAR 26.10.01.05G states: "A purchaser of oil-contaminated property does not become a person responsible for a discharge solely as a result of the purchase of the property, unless the purchaser is otherwise a person responsible for a discharge under Environmental Article, 4-401(i)." Site information indicates this location was once a bulk storage facility. Residual petroleum contamination may remain on site; however, it appears this contamination poses no threat to human health or the environment. Future excavation in the area may encounter petroleum-impacted soil. If impacted soil is found, it must be handled in a manner that will comply with State and local regulations. Only soil related to construction activities need be addressed.

Should you wish to review or request a copy of the case files, please submit your request in writing to the Waste Management Administration's Public Information Coordinator, Ms. Maria Stephens, Suite 610, at the above letterhead address. Ms. Stephens may be contacted at 410-537-3422.



Mr. Thomas Stevenson  
Page Two

This letter should not be considered as a waiver of the Department's right to take other enforcement action it deems appropriate with respect to this site. If you have questions, please contact me at 410-537-3442 or via email: [hmeade@mde.state.md.us](mailto:hmeade@mde.state.md.us).

Sincerely,



Herbert Meade, Administrator  
Oil Control Program

HMM/nln

cc: Mr. Horacio Tablada



26.10.01.05

**.05 Site Status Letters.**

A. The Department may issue notice of compliance, site condition, cleanup suspension, and final closure letters to either a person responsible for a discharge of oil, or any other person associated with a site subject to regulatory requirements under this subtitle.

B. A notice of compliance letter shall be issued, upon request, to a person who has received from the Department a notice of a violation of one or more of the regulatory provisions of this subtitle, after the violation is corrected to the satisfaction of the Department.

C. Site Condition Letter. A site condition letter shall be issued, upon request, stating whether the:

(1) Department requires remedial action at a site; or

(2) Site is in compliance with the regulations in this subtitle.

D. Cleanup Suspension Letter.

(1) Subject to §F of this regulation, a cleanup suspension letter shall be issued, upon request, if the Department determines that no further treatment of soil or ground water is required for a specific discharge being removed and remediated under Environment Article, Title 4, Subtitle 4, Annotated Code of Maryland, Regulation .04 of this chapter, or COMAR 26.10.09.

(2) The person responsible for the discharge of oil or the person performing the cleanup shall continue to monitor the site as may be required by the Department.

(3) If issued, a cleanup suspension letter is applicable to any transferee of title, successor or assign of the person responsible for the discharge of oil, or other person who performed the cleanup.

E. Final Closure Letter.

(1) Subject to §F of this regulation, a final closure letter shall be issued after the Department determines that a site at which a discharge of oil occurred is in compliance with Environment Article, Title 4, Subtitle 4, Annotated Code of Maryland, Regulation .04 of this chapter, or COMAR 26.10.09.

(2) A final closure letter shall state that the person responsible for the discharge of oil or the person performing the cleanup is released from any additional corrective action under this subtitle regarding the discharge, except in those circumstances described in §F of this regulation.

(3) A final closure letter is applicable to any transferee of title, successor or assign of the person responsible for the discharge of oil, or person who performed the cleanup.

F. The Department may require a person responsible for the discharge to take further remedial action at a site subject to a letter issued under this regulation if it determines that:

- (1) There is a threat to public health and welfare or the environment;
- (2) The discharge recurs as free phase oil product;
- (3) A letter issued under D and E of this regulation was obtained through fraud or misrepresentation; or
- (4) A new or previously undiscovered discharge of oil is found that would require a corrective action under Environment Article, Title 4, Subtitle 4, Annotated Code of Maryland, or this subtitle.

G. A purchaser of oil-contaminated property does not become a person responsible for a discharge solely as a result of the purchase of the property, unless the purchaser is otherwise a person responsible for a discharge under Environment Article, §4-401(i), Annotated Code of Maryland.

## **12 Requirements for Above-Ground Oil Storage Facilities.**

A. Standards Incorporated by Reference.

(1) Storage tanks, venting, piping, and metering devices installed shall be in accordance with the appropriate standards of the National Fire Protection Association, the American Petroleum Institute, and the Petroleum Equipment Institute. Any underground piping associated with above-ground oil systems shall be installed in accordance with the requirements of COMAR 26.10.03.02.

(2) The following National Fire Protection Association standards are incorporated by reference:

- (a) "NFPA 30 Flammable and Combustible Liquids Code 2008 Edition";
- (b) "NFPA 31 Standard for the Installation of Oil-Burning Equipment Code 1997 Edition", as incorporated in COMAR 26.10.02.06K; and
- (c) "NFPA 30A Code for Motor Fuel Dispensing Facilities and Repair Garages 2008 Edition".

(3) The following American Petroleum Institute Standards are incorporated by reference:

- (a) Standard Number 650, 1980, "Welded Steel Tanks for Oil Storage", Seventh Edition;

(b) Standard Number 620, 1982, "Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks", Seventh Edition;

(c) Standard Number 2000, 1982, "Venting Atmospheric and Low-Pressure Storage Tanks (Non-refrigerated and Refrigerated)", Third Edition;

(d) Specification Number 12 B, 1977 (and Supplement 1, 1982), "Specification for Bolted Tanks for Storage of Production Liquids", Twelfth Edition;

(e) Specification Number 12 D, 1982 (and Supplement 1, 1983), "Specification for Field Welded Tanks for Storage of Production Liquids", Ninth Edition;

(f) Specification Number 12 F, 1982 (and Supplement 1, 1983), "Specification for Shop Welded Tanks for Storage of Production Liquids", Eighth Edition.

(4) The following Petroleum Equipment Institute recommended practice is incorporated by reference: "PEI/RP200-96 Recommended Practice for Installation of Above-ground Storage Systems for Motor Vehicle Fueling".

B. The following requirements apply to all above-ground oil storage facilities:

(1) Above-ground storage sites with storage capacity of 10,000 gallons or more shall be surrounded with a continuous dike or wall capable of effectively holding the total volume of the largest storage container located within the area enclosed by the dike or wall. The construction and composition of this emergency holding area shall prevent movement of oil from this area into the waters of the State. The nature of the soil and the ground water conditions at the site shall be taken into consideration in the design or location, or both, of this emergency holding area. The floor and walls of the emergency holding areas shall have a permeability of 10<sup>(-4th power)</sup> centimeters/second or less as measured by a test approved by the Department. The Administration reserves the right to require oil storage facilities of less than 10,000 gallons capacity to be diked if the facility is in a location likely to pollute the waters of the State.

(2) The Administration may exempt from this diking requirement any facility that can provide adequate alternative procedures for oil spill control. Request for this exemption shall be submitted to the Administration in writing. The Administration shall advise the person of approval or disapproval in writing.

(3) The construction of above-ground oil storage tanks, dikes, or walls within the tidal wetlands or within the 100-year flood plain is prohibited unless a State Wetlands Permit is first obtained from the Department.

(4) Each pipeline which is connected to a tank below the liquid level shall have valves located immediately adjacent to the storage tank.

(5) Seams, rivets, nozzle connections, valves, pumps, and pipelines directly connected to above-ground storage tanks shall be visually examined at least once a month for any oil leaks. Any leaks shall be promptly corrected.

(6) Any oil contaminated surface drainage leaving the containment area shall be passed through an oil separating system approved by the Administration, unless other oil pollution control measures acceptable to the Administration are provided.

(7) Flapper-type drain valves may not be used to drain diked areas. Drain valves for dikes shall be kept in the closed position, and shall be locked when not used to drain trapped water.

(8) A high liquid level gauge, an alarm system, or a pump cut-off device shall be installed by the owner or person in charge on any oil storage tank, from which the Administration determines an overflow of oil is possible. Since these emergency devices can fail to operate, their use for spill prevention purposes shall be considered only as auxiliary and supplementary to the use of personnel engaged in the transfer operation.

(9) Before each filling of an existing oil storage system, the liquid level shall be gauged and the measurement shall be recorded in writing. The gauging records shall be maintained for 30 days and shall be made available for reasonable inspection by the Administration. This requirement does not apply to any oil storage system installed before April 21, 1978, without provisions for the measurement of content.

(10) The Administration may require additional procedures for an oil storage system not having a vent which may be seen by the person positioned at the fill.

NFPA 30 Section 2.6.4.1 Closure of Storage Tanks. States Aboveground tanks taken out of service or abandoned shall be emptied or liquid, rendered vapor-free, and safeguarded against trespassing.

**TRIP REPORT  
FOR THE  
LAKE STREET OIL FARM SITE  
SALISBURY, WICOMICO COUNTY, MARYLAND**

Prepared for

U.S. Environmental Protection Agency  
1650 Arch Street  
Philadelphia, PA 19103

Prepared by

Tetra Tech EM Inc.  
709 Chelsea Parkway  
Boothwyn, PA 19601

EPA Contract No. 68-S3-00-02

Technical Direction Document No. SE3-04-05-004  
Document Tracking No. 3517

December 1, 2004

Prepared by

\_\_\_\_\_  
Christopher Sklaney  
Project Manager

Approved by

\_\_\_\_\_  
Mark Johnson  
Vice President

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- B PHOTOGRAPHIC DOCUMENTATION LOG
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- D DIFFERENTIAL LEVELING DATA
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- A OIL SAMPLE ANALYSIS REPORT
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## 1.0 INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No.68-S3-00-02, Technical Direction Document No. 03-04-05-004, U.S. Environmental Protection Agency (EPA) Region III tasked Tetra Tech EM Inc. (Tetra Tech), to conduct an oil spill response at the Lake Street Oil Farm site in Salisbury, Wicomico County, Maryland. As part of oil spill response activities, Tetra Tech collected waste/source, groundwater, and surface water samples from the site, performed differential leveling, conducted a one-day monitoring well and surface water gauging event, and installed long-term groundwater monitoring devices in three on-site wells. The waste/source samples were forwarded to the U.S. Coast Guard Marine Safety Laboratory (USCG MSL) for petroleum identification analysis. The groundwater and surface water samples were forwarded to a private laboratory for volatile organic compound (VOC), semivolatile organic compound (SVOC), and total petroleum hydrocarbon (TPH) analyses.

This trip report details site location and background information in Section 2.0, site activities in Section 3.0, deviations from the Sampling and Analysis Plan (SAP) in Section 4.0, sample analytical results in Section 5.0, data evaluation in Section 6.0, and conclusions and recommendations in Section 7.0. All references cited in this report are listed after the text.

## 2.0 BACKGROUND

This section describes the site location, presents a description of the site, and summarizes previous site activities and investigations.

## 2.1 SITE LOCATION

The Lake Street Oil Farm site is an inactive petroleum storage facility located at 315 Lake Street, Salisbury, Wicomico County, Maryland, as shown in Figure 1, Site Location Map. The site is located northeast of the intersection of Lake and Burton Streets, and is bound to the north by Purdue Farms, to the east by the North Prong of the Wicomico River, to the south by a United Parcel Service processing facility, and to the west by Lake Street (EPA 1990b; Tetra Tech 2004). The site is located approximately 10 feet above mean sea level at 38.36881° north latitude and 75.60325° west longitude (U.S. Geological Survey [USGS] 1982).

## 2.2 SITE DESCRIPTION

The Lake Street Oil Farm site is located on two rectangular-shaped parcels approximately 3 acres in area, as shown on Figure 2, Site Layout Map. The site is flat and mostly paved. Fifteen aboveground storage tanks (ASTs) enclosed within four containment areas, two underground storage tanks (USTs), two pump islands, an oil-water separator, a steel bulkhead, an oil collection system consisting of an interceptor trench and bilge pump, several buildings, and approximately 78 55-gallon drums are present on site. The drums were observed primarily in three areas: inside Warehouse B, inside Warehouse C, and in a group southeast of the check post. The steel bulkhead and collection system, designed to restricted light non-aqueous phase liquids (LNAPL) from entering the Wicomico River, are located along the eastern edge of the site. Several dolphin pilings are located in river adjacent to the bulkhead (Tetra Tech 2004).

10 Ten monitoring wells and at least one subsurface pipe are present on site. All the monitoring wells are 4 inches in diameter, and all with the exception of monitoring well MW-1 are flush-mounted. A 4-inch polyvinyl chloride (PVC) stick-up without a protective casing is located east of above-ground storage tank (AST) No. 13 and west of the associated containment area. The PVC stick-up is in the reported vicinity of monitoring well MW-5 (Roy F. Weston, Inc. [Weston] 1999; Tetra Tech 2004).



Source: Modified from USGS 7.5-Minute Series Topographic Quadrangles  
 Delmar, Maryland-Delaware, 1992; Eden, Maryland, 1983;  
 Hebron, Maryland-Delaware, 1992; Salisbury, Maryland, 1982

0 0.25 0.5  
 Miles

Quadrangle Location 



Maryland

**Lake Street Oil Site**  
**Salisbury, Wicomico County, Maryland**

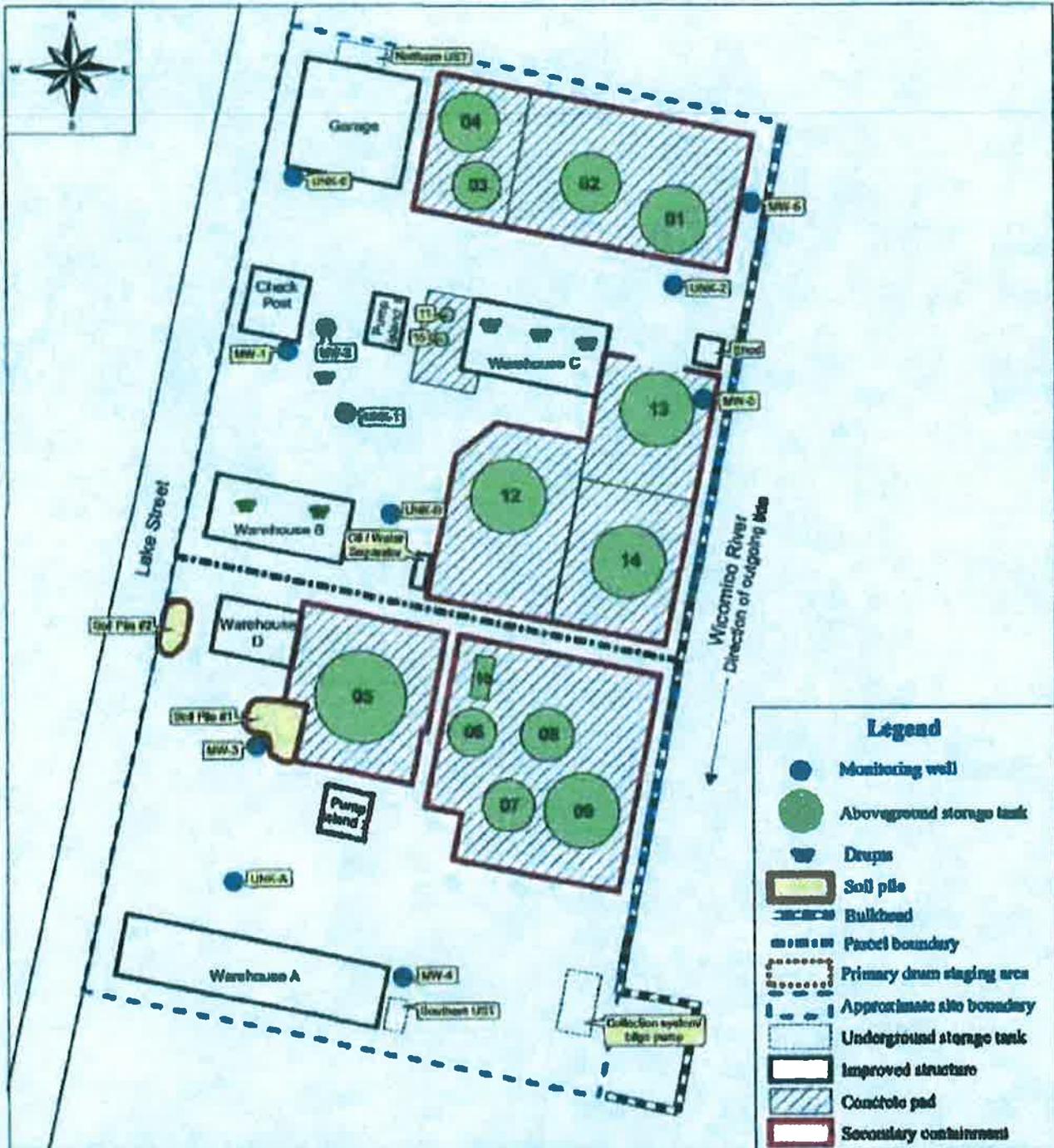
**Figure 1**  
**Site Location Map**

TDD No. S83-04-05-004  
 EPA Contract No. 68-S3-00-02

Map created September 30, 2004  
 by D. Call, TTEMI START



Tetra Tech EM Inc.



Source: Modified from Figure 3, Dale Oil Site Proposed Soil Gas Sampling Areas, Roy F. Weston, 1997

Not to scale

Approximate Site Location - ■



Maryland

**Lake Street Oil Site  
Salisbury, Wicomico County, Maryland**

**Figure 2  
Site Layout Map**

TDD No. SE13-04-05-004  
EPA Contract No. 68-S3-00-02

Map created September 30, 2004  
by D. Call, TTEMI START



Tetra Tech EM Inc.

## 2.3 SITE HISTORY

The Lake Street Oil Farm site, previously known as the Dale Enterprises site, was reportedly used as a heating oil storage facility from 1940 until 1984 (Weston 1997). The property was abandoned from 1984 until the spring of 1990, when it began operation as a waste oil processing facility (EPA 1990b). At an unknown time after September 1990, petroleum storage or processing ceased. The site is currently inactive (Tetra Tech 2004).

## 2.4 PREVIOUS SITE INVESTIGATIONS

In September 1990, a spill of approximately 12,000 gallons of No. 6 fuel oil occurred, of which approximately 4,000 gallons were released to the Wicomico River. EPA, U.S. Coast Guard Marine Safety Office, and Maryland Department of the Environment (MDE) responded to the release (EPA 1990b).

In May 1994 and August 1996, MDE issued two separate Notices of Violation (NOV) to the mortgage holder for the site properties at the time, Equitable Finance Group. The NOV were issued due to violations of Maryland law observed by MDE during site visits, including but not limited to a continuing release of waste oil from the site and improper closure of on-site USTs (Weston 1997).

In February and May 1997, EPA Site Assessment Technical Assistance (SATA) contractor Weston conducted two events at the site. Weston collected surface and subsurface soil, groundwater, sediment, and soil gas samples from the site. VOCs reported in groundwater samples included benzene, toluene, ethylbenzene, and xylenes (commonly referred to as "BTEX" compounds), in addition to numerous SVOCs. VOCs, SVOCs, pesticides, diesel-range organics, gasoline-range organics, TPH, and metals were reported in soil samples, and VOCs and

SVOCs were reported in a sediment sample collected from the Wicomico River. During the May sampling event, benzene was reported in monitoring well MW-4 at a concentration of 650 micrograms per liter ( $\mu\text{g/L}$ ) (Weston 1997).

In addition to sampling, Weston conducted gauging of the monitoring wells, oil-water separator, two sumps, and staff gauge in the Wicomico River. No elevation survey was conducted; the fluctuations of the water table in response to tidal changes were qualitatively evaluated. During site activities, Weston observed petroleum discharging from groundwater to the Wicomico River. The on-site ASTs were visually inspected and reported to be empty. In addition, 63 drums were reportedly observed on site (Weston 1997).

In July 1999, Weston conducted surface soil sampling at the site at the request of EPA. Composite samples were collected from surface soils inside secondary concrete containment surrounding Tank Nos. 6, 7, 8, and 9, and from three on-site soil piles. The samples were analyzed for VOC, SVOC, and pesticides. No compounds were detected above EPA removal action guidelines (Weston 1999).

In or about 2000, USACE contractors installed a steel bulkhead and an interceptor trench pumping and treatment system. The steel bulkhead was installed to prevent petroleum products in the on-site subsurface soils from entering the Wicomico River. The interceptor trench trends parallel to the Wicomico River, and was designed to collect and reroute petroleum products floating on the water table. The interceptor trench is located west of and adjacent to the steel bulkhead, and was installed just above the low tide level (USACE 2002).

In ~~October 2000~~, ECG Industries, Inc. (ECG), under contract with the U.S. Army Corps of Engineers (USACE), conducted a Phase I site investigation. During Phase I activities, ECG investigated the on-site oil-water separator, collected subsurface soil samples around the oil-water separator using direct-push methods, and conducted groundwater gauging in four on-site monitoring wells. The soil samples were submitted for TPH analysis and diesel-range organics

by EPA Method 8015B. ECG reported that TPH were detected in four of the six soil samples at concentrations exceeding 100 parts per million (ppm), and concluded that the oil-water separator would not be suitable for use in the light non-aqueous phase liquid (LNAPL) recovery system (ECG 2000).

In May 2002, USACE contractor ECG conducted well gauging, sampling, and a drum inventory at the site, summarized in a report entitled "Well Gauging and Drum Inventory Report." Groundwater gauging and sample collection was conducted in four monitoring wells. The samples were analyzed for benzene, toluene, ethyl benzene, and xylene (collectively referred to as "BTEX" compounds), methyl tert-butyl ether (MTBE), and TPH. Benzene was reported in the sample collected from one well, and TPH were reported in the samples collected from two wells. Seventy-eight drums were identified, inventoried, and sampled. Reportedly, the drums contained "waste oil," soil cuttings, or purge water (ECG 2002).

### 3.0 SITE ACTIVITIES

This section summarizes waste/source and environmental sampling, gauging, and differential leveling activities conducted at the site in July and August 2004. On May 24, 2004, EPA On-Scene Coordinator Robert Kelly and Tetra Tech representative Robert Helverson performed a site reconnaissance to identify site features, such as monitoring wells, fill pipes, and petroleum storage tanks, and to determine potential sampling locations. Site activities were documented in the site logbook in accordance with Tetra Tech SOP No. 024, "Recording of Notes in Field Logbook" (Tetra Tech 1999a). Copies of the field logbook notes maintained during site activities can be found in Appendix A. In addition to the field logbook notes, Tetra Tech conducted photographic documentation of observations made during site visits. The photographic documentation log is presented in Appendix B.

### 3.1 SAMPLING ACTIVITIES

On June 8 and 9, 2004, Tetra Tech personnel Christopher Sklaney and Robert Helverson conducted waste/source, groundwater, and surface water sampling activities. Sampling locations and procedures are outlined in the following sections.

#### 3.1.1 Waste/Source Sampling

During site activities, Tetra Tech collected <sup>9</sup>nine waste/source samples from nine potential source and target areas. Samples were collected from two on-site USTs, the oil/water separator, the bilge pump basin, measurable LNAPL observed in two monitoring wells, two pipes, and a thin sheen observed in the Wicomico River as described in Tetra Tech SOP No. 008, "Containerized Liquid, Sludge and Slurry Sampling" (Tetra Tech 2000a). Waste/source samples LS04-WS01, LS04-WS02, LS04-WS04, LS04-WS07, LS04-WS08, and LS04-WS10 were collected by gently submersing a dedicated Teflon bailer into the petroleum product or LNAPL layer. Water was decanted at much as possible, where present, prior to transfer into the appropriate sample container. Since no measurable LNAPL was observed on the surface of water in the bilge pump basin or oil-water separator, samples LS04-WS05 and LS04-WS06 were collected using a peristaltic pump. Tetrafluoroethene (TFE)-fluorocarbon nets designed for oil spill sampling were used to collect sample LS04-WS09 and an additional fraction of sample LS04-WS05. Thin sheens were observed at both locations where TFE-fluorocarbon nets were used. A summary of waste/source samples collected during the June 2004 sampling event is presented in Table 1, Sample Summary. Sampling locations are presented on Figure 3, Sampling Location Map.

The waste/source samples were forwarded to USCG MSL in Groton, Connecticut for qualitative petroleum identification analysis using both gas chromatograph (GC) and GC/mass spectrometer (MS) devices. No QA/QC samples were submitted, and all samples were collected without preservatives other than ice.

**TABLE 1**

**SAMPLE SUMMARY**

Tetra Tech Sample ID	Laboratory Sample ID	Collection Date, Time	Analysis	Container / Preservative	Sample Description
<b>WASTE/SOURCE SAMPLES</b>					
LS04-WS01	04-111-1	06/08/04, 1415	Petroleum ID	(1) 2- or 4-oz. clear jar / ice	Waste/source sample collected from reddish, clear, fluid liquid in UST located at north end of site, north of Garage. Liquid had color, consistency, and odor similar to heating oil.
LS04-WS02	04-111-2	06/08/04, 1400	Petroleum ID	(1) 2- or 4-oz. clear jar / ice	Waste/source sample collected from dark brown to black, moderately opaque, fluid liquid in pipe located at north end of site, between Check Post and Garage and approximately 20 feet from gate. Pipe is concealed by flush-mounted, unlabeled utility covering, and appears to bend at 90 degree angle toward the east approximately 2 feet below grade.

TABLE 1

SAMPLE SUMMARY (Continued)

Tetra Tech Sample ID	Laboratory Sample ID	Collection Date, Time	Analysis	Container / Preservative	Sample Description
<b>WASTE/SOURCE SAMPLES (Continued)</b>					
LS04-WS04	04-111-3	06/08/04, 0950	Petroleum ID	(1) 2- or 4-oz. clear jar / ice	Waste/source sample collected from LNAPL observed in monitoring well UNK-6. LNAPL is dark brown to black, moderately opaque, fluid liquid. LNAPL thickness 0.15 inches.
LS04-WS05	04-111-4 04-111-5	06/08/04, 1100	Petroleum ID	(1) 2- or 4-oz. clear jar / ice (1) TFE-fluorocarbon net / ice	Waste/source sample collected from water in bilge pump. Faint sheen observed on water surface.
LS04-WS06	04-111-6	06/08/04, 1450	Petroleum ID	(1) 2- or 4-oz. clear jar / ice	Waste/source sample collected from water in oil-water separator. No sheen observed on water surface.
LS04-WS07	04-111-7	06/08/04, 1050	Petroleum ID	(1) 2- or 4-oz. clear jar / ice	Waste/source sample collected from colorless, clear, fluid liquid in UST located at south end of site, west of Warehouse A. Liquid had color, consistency, and odor similar to gasoline.

**TABLE 1**

**SAMPLE SUMMARY (Continued)**

Tetra Tech Sample ID	Laboratory Sample ID	Collection Date, Time	Analysis	Container / Preservative	Sample Description
<b>WASTE/SOURCE SAMPLES (Continued)</b>					
LS04-WS08	04-111-8	06/08/04, 1310	Petroleum ID	(1) 2- or 4-oz. clear jar / ice	Waste/source sample collected from LNAPL observed in monitoring well UNK-6. LNAPL is reddish, clear, and fluid, similar to liquid present in UST located at north end of site, north of Garage. LNAPL thickness 0.34 inches.
LS04-WS09	04-111-9	06/08/04, 1545	Petroleum ID	(1) TFE-fluorocarbon net / ice	Waste/source sample collected from thin sheen observed on Wicomico River in the vicinity of monitoring well MW-6.
LS04-WS10	04-111-10	06/09/04, 1350	Petroleum ID	(1) 2- or 4-oz. clear jar / ice	Waste/source sample collected from 4-inch PVC stick-up located east of AST No. 13 and within the secondary containment barrier. Monitoring well MW-5 was reported in this area during previous investigations, although the stick-up was unlabeled and no outer protective casing was present.

TABLE 1

SAMPLE SUMMARY (Continued)

Tetra Tech Sample ID	Laboratory Sample ID	Collection Date, Time	Analysis	Container / Preservative	Sample Description
<b>GROUNDWATER SAMPLES</b>					
LS04-GW01	0406L825-002	06/09/04, 1235	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well MW-1.
LS04-GW02	0406L825-003	06/09/04, 1050	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well MW-2.
LS04-GW03	0406L825-004	06/08/04, 0920	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well MW-3.
LS04-GW04	0406L825-005	06/08/04, 1110	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well MW-4.
LS04-GW06	0406L825-006	06/09/04, 0828	VOCs SVOCs TPH	(9) 40-mL vials / HCl pH<2, ice (3) 1-L amber bottles / ice (3) 1-L amber bottles / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well MW-6. Extra volume submitted for MS/MSD analyses.
LS04-GW07	0406L825-007	06/08/04, 1705	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well UNK-2.

**TABLE 1**

**SAMPLE SUMMARY (Continued)**

<b>Tetra Tech Sample ID</b>	<b>Laboratory Sample ID</b>	<b>Collection Date, Time</b>	<b>Analysis</b>	<b>Container / Preservative</b>	<b>Sample Description</b>
<b>GROUNDWATER SAMPLES (Continued)</b>					
LS04-GW08	0406L825-008	06/08/04, 1505	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well UNK-6. Sample effervesced slightly in the presence of HCl.
LS04-GW09	0406L825-009	06/08/04, 1020	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well UNK-A.
LS04-GW10	0406L825-010	06/09/04, 1140	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Groundwater sample collected from monitoring well MW-1.
LS04-GW11	0406L825-011	06/09/04, 0828	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Field duplicate of aqueous sample LS04-GW06. False date and time recorded on chain of custody (06/08/04 and 1600) to conceal identity of sample from laboratory.

**TABLE 1**

**SAMPLE SUMMARY (Continued)**

<b>Tetra Tech Sample ID</b>	<b>Laboratory Sample ID</b>	<b>Collection Date, Time</b>	<b>Analysis</b>	<b>Container / Preservative</b>	<b>Sample Description</b>
<b>SURFACE WATER SAMPLES</b>					
LS04-SW01	0406L825-012	06/08/04, 1200	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Surface water sample collected from the Wicomico River at the southeastern corner of the site near the northern end of the bulkhead. Sample collected approximately at low tide.
LS04-SW02	0406L825-013	06/08/04, 1435	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Surface water sample collected from the Wicomico River at the northeastern corner of the site near the northern end of the bulkhead. Sample collected approximately at low tide.
<b>QA/QC SAMPLES</b>					
LS04-TB01	0406L825-001	06/08/04, 0705	VOCs	(3) 40-mL vials / HCl pH<2, ice	Trip blank sample collected to determine if VOC sample contamination occurred during sample handling and transport. Sample LS04-TB01 was collected before all other samples, and accompanied VOC sample fractions through delivery to the laboratory.

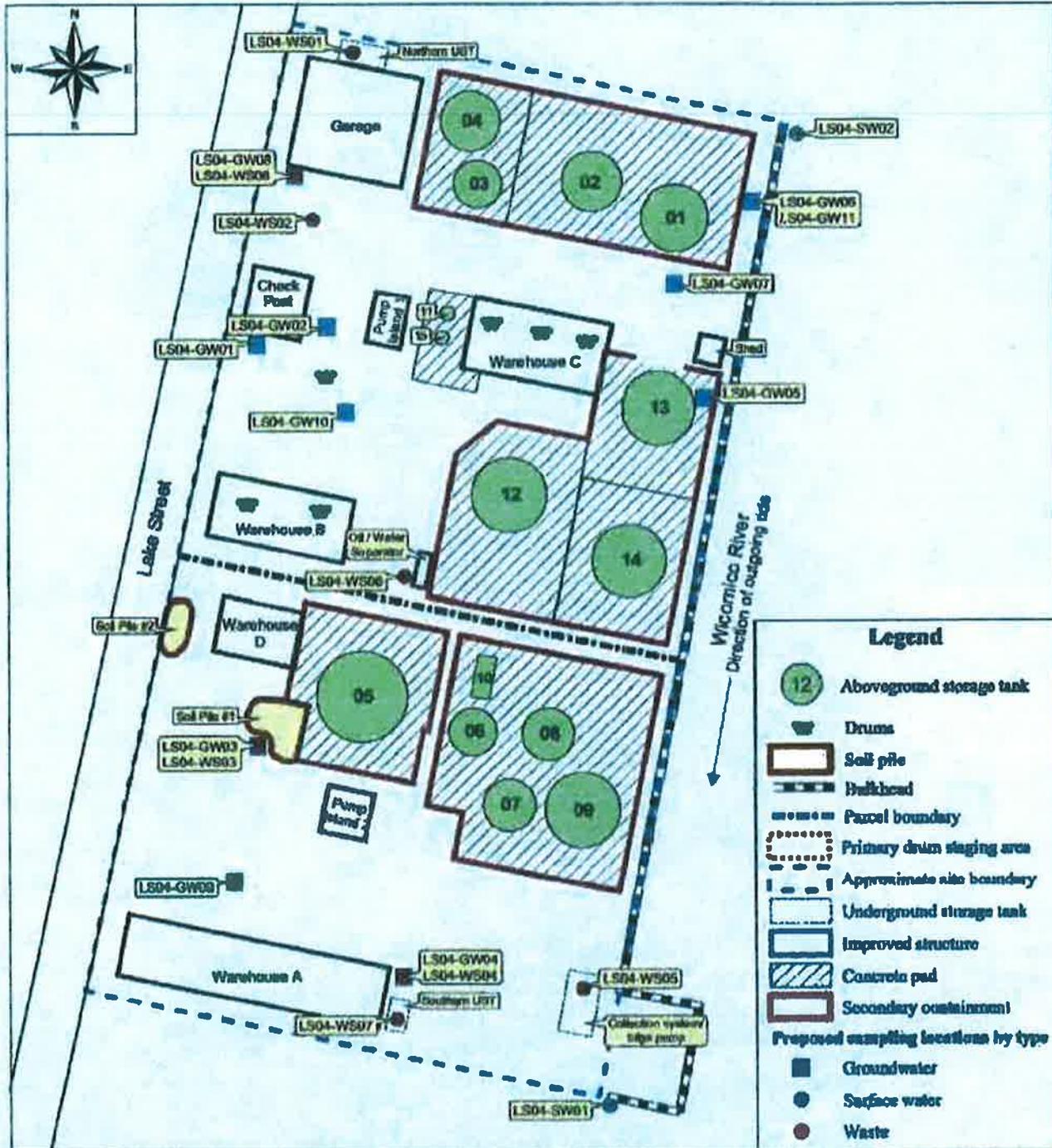
TABLE 1

SAMPLE SUMMARY (Continued)

Tetra Tech Sample ID	Laboratory Sample ID	Collection Date, Time	Analysis	Container / Preservative	Sample Description
<b>QA/QC SAMPLES (Continued)</b>					
LS04-FB01	0406L825-014	06/09/04, 0855	VOCs SVOCs TPH	(3) 40-mL vials / HCl pH<2, ice (1) 1-L amber bottle / ice (1) 1-L amber bottle / H <sub>2</sub> SO <sub>4</sub> pH<2, ice	Field blank sample collected to determine if dedicated groundwater sampling equipment, such as Teflon-lined tubing, and sample containers contributed to sample contamination.

Notes: Actual sample date and time of aqueous field duplicate sample LS04-GW11 are 06/09/04 and 0828 hours.  
Waste/source sample LS04-WS05 contained two sample fractions submitted for Petroleum ID analysis. One fraction consisted of petroleum product, and the other fraction consisted of petroleum product cohered to a TFE-fluorocarbon net. Both fractions were submitted to the laboratory in 2- or 4-oz. jars. The U.S. Coast Guard Marine Safety Laboratory assigned two separate sample IDs to the fractions; the fractions were collected from the same source material by two different methods.

- |                                |   |                                |        |   |                                     |
|--------------------------------|---|--------------------------------|--------|---|-------------------------------------|
| ID                             | = | Identification                 | MS/MSD | = | Matrix spike/matrix spike duplicate |
| VOC                            | = | Volatile organic compounds     | LNAPL  | = | Light non-aqueous phase liquid      |
| SVOC                           | = | Semivolatile organic compounds | UST    | = | Underground storage tank            |
| TPH                            | = | Total petroleum hydrocarbons   | TFE    | = | Tetrafluoroethene                   |
| mL                             | = | Milliliter                     | oz.    | = | Ounces                              |
| HCl                            | = | Hydrochloric acid              | PVC    | = | Polyvinyl chloride                  |
| L                              | = | Liter                          | AST    | = | Above-ground storage tank           |
| H <sub>2</sub> SO <sub>4</sub> | = | Sulfuric acid                  |        |   |                                     |



Source: Modified from Figure 3, Dale Oil Site Proposed Soil Gas Sampling Areas, Roy F. Weston, 1997

Not to scale



**Lake Street Oil Site  
Salisbury, Wicomico County, Maryland**

**Figure 3  
Sampling Location Map**

TDD No. SB3-04-05-004  
IIPA Contract No. 68-S3-00-02

Map created September 30, 2004  
by D. Call, TTEMI START



### 3.1.2 Groundwater Sampling

On June 8 and 9, 2004, Tetra Tech personnel Christopher Sklaney and Bob Helverson collected 10 groundwater samples from nine<sup>9</sup> on-site monitoring wells. All sampled wells were inspected as described in Tetra Tech Standard Operating Procedure (SOP) No. 010, "Groundwater Sampling" (Tetra Tech 2000c), and were sampled as described in SOP No. 010 or SOP No. 015, "Groundwater Sample Collection Using Micropurge Technology" (Tetra Tech 2000d). Prior to initiation of sampling at a particular well, a Solinst Model 122 oil-water interface probe was used to determine if light non-aqueous phase liquids (LNAPL) were present. Measurable LNAPL were present in monitoring wells MW-4 and UNK-6. Sheens and strong petroleum odors were observed in all monitoring wells.

After inspection for LNAPL, purging was initiated at each groundwater sampling location. At locations where well construction logs were available, the sampling intake depth was positioned at the approximate middle of the screened interval. Otherwise, the intake location was positioned approximately 5 feet from the bottom of the well, based on the presumption that the well was constructed with a typical 10-foot screened interval. Purging and sampling was conducted with a GeoTech Model II peristaltic pump. Where samples were collected using low-flow techniques, the peristaltic pump was adjusted to a pumping rate of 250 to 350 milliliters per minute (mL/min.), and a YSI 6820 Multiparameter Sonde with in-line flow-through cell was used to record parameters over 5- to 15-minute intervals during purging. No drawdown levels greater than approximately 3 inches were observed during purging or sampling. A partial list of parameters, including temperature, pH, conductivity, discharge rate, water level, and turbidity, were recorded during purging and sampling.

After purging, the samples were collected by filling the containers directly from the Teflon tubing. The VOC fraction of a particular sample was pre-preserved and collected before the SVOC and TPH fractions. The TPH fraction was preserved after collection. The groundwater samples were forwarded to Lionville Laboratory Inc. (Lionville Laboratory) in Exton,

Pennsylvania, under analytical project number SE3-04-06-L02 for analysis of VOCs, SVOCs, and TPH. In addition, one trip blank, one field (bottle) blank, and two surface water samples were forwarded to Lionville Laboratory as part of the same analytical project number. A summary of groundwater samples collected during the June 2004 sampling event is presented in Table 1, Sample Summary. Groundwater sampling locations area presented on Figure 3, Sampling Location Map. Surface water sample collection is described in Section 3.1.3, Surface Water Sampling.

### 3.1.3 Surface Water Sampling

During site activities, Tetra Tech collected <sup>2</sup> two surface water samples from the west bank of the Wicomico River, adjacent to the steel bulkhead. The samples were collected from the northeastern and southeastern corners of the site near low tide. No windrows, steamers, or persistent sheens were observed in the Wicomico River during the June 2004 sampling event, although thin sheens less than 6 inches in diameter were observed locally.

With the exception of the VOC fraction, the samples were collected by immersing sample containers just below the water surface, as described in Tetra Tech SOP No. 009, "Surface Water Sampling" (Tetra Tech 1999b). The VOC fraction was collected before the SVOC and TPH fractions. The one-liter container used for the SVOC fraction was partially filled with sample and poured into the pre-preserved VOC container. The TPH fraction was preserved after collection. The surface water samples were forwarded to Lionville Laboratory with the groundwater samples collected during this event for analysis of VOCs, SVOCs, and TPH. A summary of surface water samples collected during the June 2004 sampling event is presented in Table 1, Sample Summary. Surface water sampling locations are presented on Figure 3, Sampling Location Map.

### 3.2 SAMPLE HANDLING PROCEDURES

Samples collected during site activities were handled in accordance with Tetra Tech's "Quality Assurance Project Plan [QAPP] for START" (Tetra Tech 2001). Sample collection and shipping procedures were conducted in accordance with Tetra Tech SOP No. 019, "Packaging and Shipping Samples" (Tetra Tech 2000b). Samplers, sample identifiers, collection dates and times, container types and amounts, and preservative types were recorded on EPA Region 3, carbonless, chain-of-custody record forms. Copies of the chain-of-custody records for waste/source and environmental sample shipments can be found in Appendix C.

### 3.3 DIFFERENTIAL LEVELING SURVEY

On June 29, 2004, Tetra Tech personnel conducted a rod-and-transit leveling survey of the monitoring wells, oil-water separator, and staff gauge. The leveling survey was conducted using an AGL Corporation Eagle V2 Visible Electronic Level. A base station, turning points, and measuring points, including a staff gauge on the Wicomico River, were measured in reference to a temporary fixed benchmark established at the site. All measurements were recorded to 0.01 foot. Leveling data are presented in Appendix D. The geographic position of each sampling and gauging location, in addition to other site features of interest, was recorded to sub-meter accuracy using a Trimble Global Positioning System (GPS) Pathfinder Pro XRS receiver and data logger.

### 3.4 SHORT-TERM GAUGING SURVEY

On June 29, 2004, Tetra Tech personnel Christopher Sklaney, Brad White, and Robert Helverson conducted a gauging survey at the site. Gauging was conducted approximately every 30 minutes over one complete diurnal tidal cycle (approximately 12 hours) to determine hydraulic head changes in relation to tidal variations. Short-term gauging was conducted during "normal" flow conditions in the Wicomico River. The survey was conducted in <sup>10</sup> ten on-site monitoring wells,

the oil-water separator, the bilge pump basin, and at a staff gauge in the Wicomico River. In addition, one monitoring well was discovered during the one-day gauging event. The well is situated between the oil-water separator and monitoring well UNK-1, and was designated UNK-B by Tetra Tech. The gauging survey was conducted using Solinst Model 101 water level meters; the thicknesses of LNAPL layers were recorded with Solinst Model 122 oil-water interface meters. Gauging data recorded on June 29, 2004 are presented in Appendix E.

The water level in the oil-water separator fluctuated for approximately three hours near high tide, and was static for the remainder of the 12-hour period during which gauging was conducted. Presumably, the elevation of the water table is lower than the elevation of the oil-water separator intake during observed static periods. - WHY NOT INVESTIGATED?

### 3.5 LONG-TERM GAUGING SURVEY

On June 29, 2004, In-Situ MiniTroll Data Logger and Pressure Transducer monitoring devices were installed in <sup>3</sup> three on-site wells to record long-term water table variations due to monthly lunar tidal cycles. The transducers were programmed to record water level above a down-well sensor depth every three minutes. The transducers were placed at arbitrary depths below the predicted low-water level. However, water level readings were recorded with a Solinst Model 101 water level meter at the time of transducer placement. The transducers were installed in monitoring wells MW-1, MW-3, and MW-6, and removed on August 10, 2004.

### 4.0 DEVIATIONS FROM THE SAMPLING AND ANALYSIS PLAN

This section describes deviations from the Tetra Tech SAP necessary to address issues that occurred during the June 2004 sampling event. In Section 4.4.1, Groundwater Sampling, Tetra Tech proposed the collection of all groundwater samples by purging at least three well volumes, as outlined in Tetra Tech SOP No. 010, "Groundwater Sampling" (Tetra Tech 2000c). Due to



## 5.1

### WASTE/SOURCE SAMPLING ANALYTICAL RESULTS

USCG MSL conducted qualitative petroleum identification and oil fingerprint analyses. Petroleum identification is the determination of petroleum type through GC and GC/MS analyses. For the purposes of USCG MSL evaluation, the waste/source samples were classified as either "source" or "spill" (i.e., "target") samples. Oil fingerprinting, a comparison of "source" and "spill" sample analytical results, was conducted to determine if petroleum products found in "spill" samples were attributable to petroleum products identified in "source" samples. Waste/source samples LS04-WS01, LS04-WS02, LS04-WS07, and LS04-WS10 were classified as "source" samples, although only samples LS04-WS01 and LS04-WS07, collected from the northern UST and southern UST, respectively, were collected from primary petroleum storage vessels. All other waste/source samples were classified as "spill" samples. Analytical evaluations provided by USCG MSL are summarized in Table 3. The oil sample analysis report is provided in Attachment A.

**TABLE 3**  
**WASTE/SOURCE SAMPLE ANALYTICAL EVALUATION**

<b>Tetra Tech (USCG MSL) Sample ID</b>	<b>USCG MSL Sample Classification</b>	<b>Sample Location</b>	<b>USCG MSL Sample Evaluation</b>
LS04-WS01 (04-111-1)	Source	Northernmost UST	Light fuel oil
LS04-WS02 (04-111-2)	Source	Pipe between Check Post and Garage	Moderately evaporatively weathered and severely biodegraded light petroleum oil
LS04-WS04 (04-111-3)	Spill	LNAPL in MW-4	Moderately evaporatively weathered and severely biodegraded light petroleum oil
LS04-WS05 (04-111-4, 04-111-5)	Spill	Bilge pump	Insufficient quantity of petroleum for identification purposes
LS04-WS06 (04-111-6)	Spill	Oil-water separator	Insufficient quantity of petroleum for identification purposes
LS04-WS07 (04-111-7)	Source	Southernmost UST	Light fuel oil
LS04-WS08 (04-111-8)	Spill	LNAPL in UNK-6	Moderately evaporatively weathered and severely biodegraded light petroleum oil
LS04-WS09 (04-111-9)	Spill	Thin sheen in Wicomico River near MW-6	Insufficient quantity of petroleum for identification purposes
LS04-WS10 (04-111-10)	Source	4-inch PVC stick-up located east of AST No. 13 and within secondary containment area	Moderately degraded light fuel oil mixed with lubricating oil

AST = Above-ground storage tank  
 LNAPL = Light non-aqueous phase liquid  
 PVC = Polyvinyl chloride  
 USCG MSL = U.S. Coast Guard Marine Safety Laboratory  
 UST = Underground storage tank

## 5.2

### GROUNDWATER SAMPLING ANALYTICAL RESULTS

Analytical results were compared to EPA Risk-Based Concentrations (RBCs) and MDE Generic Numeric Cleanup Standards. Six VOCs (benzene, toluene, ethyl benzene, xylene, acetone, and 2-butanone) and one SVOC (2-methylnaphthalene) were detected in groundwater samples at concentrations greater than or equal to the compound-specific sample quantitation limit (SQL). Benzene was reported above both RBCs and MDE Cleanup Standards in three monitoring wells: MW-4, UNK-6, and UNK-A. TPH were reported in samples collected from monitoring wells MW-4 and MW-6. No known groundwater standards have been promulgated to date for TPH in non-residential groundwater. No other compounds were reported above Federal or State guidelines. A summary of compounds detected above SQLs in groundwater samples presented in Table 4. Analytical data packages for VOCs, SVOCs, and TPH are provided in Attachments B, C, and D, respectively.

## 5.3

### SURFACE WATER SAMPLING ANALYTICAL RESULTS

No VOCs, SVOCs, or TPH were detected in surface water samples at concentrations above SQLs. Analytical data packages for VOCs, SVOCs, and TPH are provided in Attachments B, C, and D, respectively.

TABLE 4

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
COMPOUNDS DETECTED ABOVE SAMPLE QUANTITATION LIMITS

Compound	EPA RBC	MDE Standard	Tetra Tech Sample Identifier/Monitoring Well					
			LS04-GW04/ MW-4	LS04-GW06/ MW-6	LS04-GW11/ MW-6	LS04-GW07/ UNK-2	LS04-GW08/ UNK-6	LS04-GW09/ UNK-A
<b>VOC</b>								
acetone	55,000	61	--	18	17	--	--	10
2-butanone	70,000	190	--	--	10	--	--	--
benzene	3.4	5	<u>170</u>	--	--	--	<u>150</u>	<u>110</u>
toluene	7,500	1,000	6	--	--	--	5	--
ethyl benzene	13,000	700	--	--	--	--	5	--
total xylene	2,100	10,000	--	15	16	--	6	--
<b>SVOC</b>								
2-methylnaphthalene	240	20	76	--	--	11	220	130
<b>TPH</b>								
TPH	NP	47	3,500	1,100	--	--	--	--

Notes: The EPA groundwater RBC was derived by multiplying the drinking water/surface water RBC by a factor of 10.  
Values underlined exceeded both EPA RBCs (2004) and MDE Generic Numeric Cleanup Standards for Type I and II Aquifers (2001) for groundwater. MDE standards for TPH are for Residential Cleanup Standards and presented for comparison purposes only; no known non-residential standards have been promulgated to date.  
Samples LS04-GW06 and LS04-GW11 are field duplicates.  
All results in micrograms per liter.

EPA = U.S. Environmental Protection Agency  
RBC = Risk-based concentration  
MDE = Maryland Department of the Environment  
-- = Not detected above sample quantitation limit

VOC = Volatile organic compounds  
SVOC = Semivolatile organic compounds  
TPH = Total petroleum hydrocarbons  
NP = Not promulgated

## 6.0 DATA EVALUATION

Waste/source and groundwater analytical data indicate that the water table aquifer has been impacted by a release of hazardous substances which may be at least partially attributable to on-site sources. No hazardous substances directly attributable to the site were detected in the two surface water samples collected from the property.

Long-term gauging data indicate that variations due to flood and neap tides were observed; diurnal tides are most likely skewed slightly according to the lunar stage. However, the long-term variations do not appear to have a significant impact on groundwater movement at the site. Short-term gauging data indicate that the water table aquifer fluctuates approximately 2 vertical feet or less during normal diurnal tidal cycles. The steel bulkhead and interceptor system prohibits discharge of groundwater and LNAPL on the water table surface directly into the Wicomico River. In addition, no LNAPL was observed discharging to the Wicomico River immediately north or south of the bulkhead. However, short-term gauging data indicate that the potentiometric surface of the water table at the site is not static, and that groundwater in the water table aquifer may have northerly, southerly, and westerly flow components due to the diurnal tidal fluctuations. Off-site migration of petroleum products present in sources at the site is unknown.

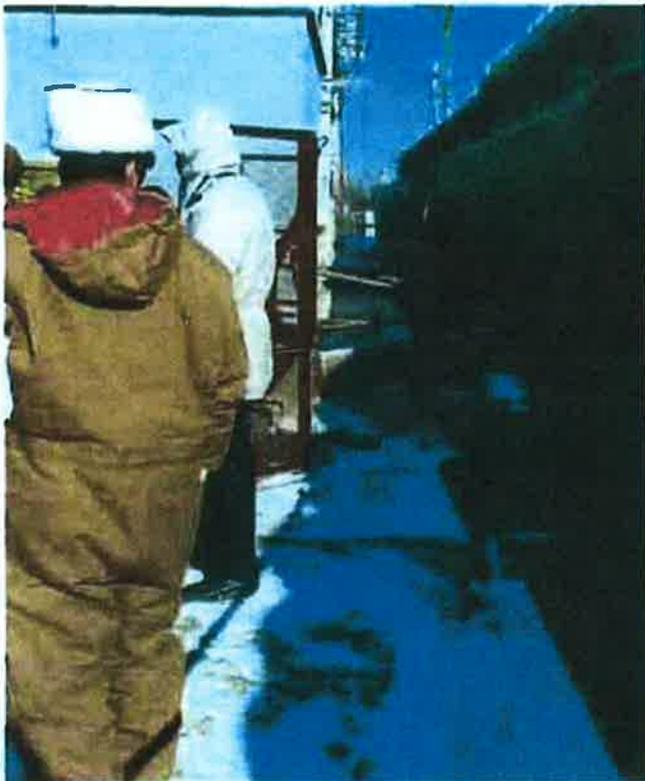
**REFERENCES**  
**(Continued)**

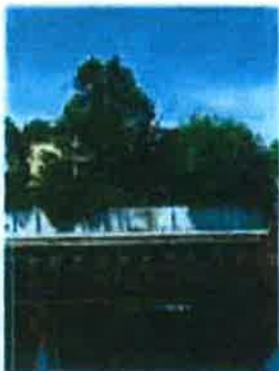
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**APPENDIX A**  
**FIELD LOGBOOK NOTES**

(7 pages)

2

Location SALISBURY, MD Date 06/08/04

Project / Client LAKE STREET OIL FARM

TUESDAY

SE3-04-05-004

0630 START R. HELVERSON AND C. SKIDNEY

ARRIVED ON SITE. CLEAR 70°F. CALM.

0700 Begin @ monitoring well LSO4-GW03 (MW3)

Air monitoring peaks at: CO = 4 ppm

VOC = 55.9 ppm LEL = 3%, O<sub>2</sub> = 20.9%.

0705 COLLECTED TRIP BLANK SAMPLE

LSO4-TB01.

0920 COLLECTED LSO4-GW03 FROM

MW-3.

BEGAN LOW-FLOW SAMPLING AT

UNK-A AT 0845.

0930 MOVED TO MW-4,

APPROXIMATELY 2 INCHES OF PRODUCT

(BLACK OIL) OBSERVED IN WELL.

0950 COLLECTED LSO4-WS04 BY

PUMPING WITH PERISTALTIC FROM

SURFACE OF WATER TABLE (LNAPL

LAYER). COLLECTED IN 4.02 JAR

1006 STARTED PUMPING MW-4. NOT USING

LOW FLOW AT THIS LOCATION.

C. Skidney 06/08/04

3

Location SALISBURY, MD Date 06/08/04

Project / Client LAKE STREET OIL FARM

TUESDAY

SE3-04-05-004

1030 COLLECTED LSO4-GW09 FROM

UNK-A.

1050 COLLECTED LSO4-WS07 FROM

UST LOCATED EAST OF WAREHOUSE A

USED PERISTALTIC PUMP.

1100 COLLECTED LSO4-WS05 FROM

BILGE PUMP. USED PERISTALTIC

PUMP TO COLLECT LIQUID, USED

SCRIP TFE SCREEN TO COLLECT

SECOND JAR.

1110 COLLECTED LSO4-GW04 FROM

MW-4.

SCREEN AT BILGE PUMP USED TO

FILTER OIL FROM WATER; FILTER

WILL BE SENT TO LAB.

1135 PARCEL OWNER MR. KLAUS ARRIVED

AT SITE.

1200 PLACED AND LABELED 55-GALLON

DRUM CONTAINING IDW FROM

ALL WELLS ON SOUTHERN PARCEL

C. Skidney 06/08/04

4

Location SALISBURY, MD Date 06/08/04  
 Project / Client LAKE STREET OIL FARM  
TUESDAY SE3-04-05-004

- 1205 COLLECTED SURFACE WATER —  
 SAMPLE LS04-SW01 FROM —  
 SOUTHERN EDGE OF BULKHEAD  
 ON SOUTHERN PARCEL. —
- 1230 DEPARTED SOUTHERN PARCEL —
- 1255 RETURNED TO SITE, AT NORTHERN  
 PARCEL. —  
 BEGAN AT UNK-6. —
- 1310 COLLECTED SAMPLE FROM LNAPL  
 LAYER IN UNK-6. REDDISH OIL,  
LS04-WS08 —
- 1400 COLLECTED LS04-WS02 FROM  
 VERTICAL PILL PIPE SOUTHEAST OF  
 UNK-6. —
- 1415 COLLECTED LS04-WS01 FROM  
 UST NORTH OF GARAGE. —  
 RED (HEATING?) OIL. —
- 1435 COLLECTED LS04-SW02 FROM LOCATION  
 ON PROPERTY ADJACENT TO BULKHEAD
- 1450 COLLECTED WASTE/SOURCE SAMPLE  
 C. SKLANEY, ~~06/08/04~~ 06/08/04

Location SALISBURY, MD Date 06/08/04 5  
 Project / Client LAKE STREET OIL FARM  
TUESDAY SE3-04-05-004

- ~~LS04-WS09~~ • LS04-WS06 FROM  
 OIL-WATER SEPARATOR. —
- 1505 COLLECTED LS04-GW08 FROM —  
 UNK-6. SHEEN IN SAMPLE, —  
 SLIGHT EFFERVESCENCE IN —  
 VOC SAMPLE (PRESERVED WITH  
 HCl). —
- 1540 BEGAN LOW-FLOW SAMPLING AT  
 UNK-2. —
- 1545 OBSERVED SHEEN IN WICOMICO  
 RIVER; SOURCE UNKNOWN.  
 COLLECTED WASTE/SOURCE  
 SAMPLE IN TFE NET, SAMPLE  
LS04-WS09. —
- 1625 C. SKLANEY INSPECTED MW-6. —
- 1705 COLLECTED LS04-GW07 FROM  
 MW-7. —
- NO SAMPLE TODAY FROM MW-6. —
- 1735 DC • —
- 1750 DEPARTED SITE —  
 C. SKLANEY, ~~06/08/04~~ 06/08/04

Location SALISBURY, MD Date 6/9/04

Project / Client LAKE STREET OIL FARM

WEDNESDAY SE3-04-05-004

0700 ARRIVED AT SITE, NORTHERN PARCEL.

PREPARING TO LOW-FLOW SAMPLE

MW-6.

RECORDED SAMPLE TIME OF 1600 ON

06/08/04 FOR FIELD DUPLICATE

LS04-GW11. ACTUAL SAMPLE DATE/TIME WILL MIMIC LS04-GW06.

0828 COLLECTED SAMPLE LS04-GW06 /

FIELD DUP LS04-GW11.

ALSO COLLECTED TRIPLE VOLUME FROM LS04-GW06 FOR MS/MSD.

0855 COLLECTED EQUIPMENT / FIELD

BLANK LS04-FB01, OVER BAIKER

AND TUBING USING PERISTALTIC

PUMP.

0945 TETRA TECH MEMBER ANN FELKEL

ARRIVED,

MOVED TO MW-2. ALSO STARTED

ON UNK-1.

1050 COLLECTED LS04-GW02 FROM MW-2.

C. SKLANEY, Chpt Stry 6/9/04

Location SALISBURY, MD Date 06/09/04

Project / Client LAKE STREET OIL FARM

WEDNESDAY SE3-04-05-004

1135 ANN FELKEL RETURNED FROM DEED

SEARCH AT TAX ASSESSOR'S,

DEPARTED SITE.

1140 COLLECTED ~~LS04-GW06~~ LS04-GW10

FROM UNK-1.

OBSERVED 72 DRUMS STOCKPILED

IN BUILDING AND OUTSIDE STORAGE

AREA AROUND ~~MW~~ @ UNK-1.

TOTAL DOES NOT INCLUDE DRUMS

ON SOUTHERN PARCEL OR TWO

TETRA TECH / EPA IDW DRUMS

GENERATED. DURING THIS EVENT

1235 COLLECTED LS04-GW01.

SAMPLE FROM MW-1.

1330 OBSERVED BLACK OIL SHEEN @ IN

PVC, 4" PIPE EAST OF TANK No. 13.

DOES NOT APPEAR TO BE MW-5. OIL

IS VISCOUS AND DID NOT ALLOW

ACCURATE READING ON O/W INTER-

FACE METER. LNAPL LAYER

C. SKLANEY, Chpt Stry 06/09/04

Location SALISBURY, MD Date 06/09/04

Project / Client LAKE STREET OIL FARM

WEDNESDAY SE3-04-05-004

OVER WATER WAS PRESENT IN PVC  
RISER. NO GROUNDWATER SAMPLE  
COLLECTED.

1350 COLLECTED WASTE/SOURCE SAMPLE  
LS04-WS10.

1430 DEPARTED SITE.

*C. Sklany*  
*06/09/04*

C. SKLANEY, C. Sklany 06/09/04

Location SALISBURY, MD Date 06/09/04

Project / Client LAKE STREET OIL FARM

SE3-04-05-004

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*C. Sklany*  
*06/09/04*

C. SKLANEY, C. Sklany 06/09/04

Location SALISBURY, MD Date 06/29/04  
 Project / Client LAKE STREET OIL FARM

0645 ARRIVED AT SITE. C. SKLANEY,  
 R. HELVERSON, B. WHITE PRESENT.  
 BEGAN GAUGING. LOW TIDE AT  
 SALISBURY ON WICOMICO RIVER  
 AT 0710.

0700 OBSERVED WELL BETWEEN OIL-  
 WATER SEPARATOR AND UNK-1  
 WHICH WAS NOT IDENTIFIED IN  
 SITE RECORDS. DESIGNATED  
 UNK-B.

1900 COMPLETED GAUGING, BEGAN TO  
 INSTALL TROLLS.

~~Cliff Sly 06/29/04~~

— C. SKLANEY, Cliff Sly 06/29/04

Location SALISBURY, MD Date 06/29/04<sup>11</sup>  
 Project / Client LAKE STREET OIL FARM

1911 SET IN-SITU MINITROLL IN MW-6.  
 BEGAN TEST.  
 TROLL No. 816 USED AT MW-6.  
 STARTED AT 19:10:11, COLLECTING  
 DEPTH AT ALL WELLS EVERY  
 3 MINUTES.

1923 SET MINITROLL IN MW-1. BEGAN TEST.  
 TROLL No. 8852 USED, STARTED AT  
 19:23:08.

1938 SET MINITROLL IN MW-3, AT 8' (BOTH  
 PREVIOUS TROLLS SET AT 15').  
 BEGAN TEST, USED TROLL No. 8927.  
 STARTED AT 19:38:49.

1945 DEPARTED SITE.

~~Cliff Sly 06/29/04~~

— C. SKLANEY, Cliff Sly 06/29/04

Location SALISBURY, MD Date 07/22/04Project / Client LAKE STREET OIL FARMTHURSDAY

1000 ARRIVED AT SITE, C. SKLANEY

1040 ARRIVED AT MW-1 TO CHECK TROLL.

WELL LOCKED UPON ARRIVAL.

WATER LEVEL MEASURED WITH

STANDARD METER 3.80 FT.

1104 DOWNLOADED DATA, BATTERY IN

TROLL AT 96%, ALLOWED TEST

TO CONTINUE. SECURED

WELL AND TROLL.

1112 ARRIVED AT MW-6 TO CHECK

TROLL. WELL LOCKED UPON

ARRIVAL.

TIDE FLOW IN INCOMING DIRECTION.

WATER LEVEL 3.26'

RIVER LEVEL AT SW MONITORING

POINT USED ON 06/29/04 4.26'

1122 CONNECTED TO TROLL, DOWNLOADED

UPLOADING DATA TO COMPUTER.

BATTERY AT 98%.

1125 UPLOAD COMPLETE, TEST ALLOWED

C. SKLANEY, Capt. Sg. 07/22/04

Location SALISBURY, MD Date 07/22/04Project / Client LAKE STREET OIL FARMTHURSDAY

TO CONTINUE. SECURED WELL AND TROLL.

1135 ARRIVED AT MW-3. NO WATER

LEVEL MEASUREMENT TAKEN.

DID NOT HAVE TO ADJUST TROLL

TO CONNECT CABLE FOR UPLOAD

FROM TROLL.

1138 DATA UPLOADED, TEST ALLOWED

TO CONTINUE. SECURED WELL AND

TROLL.

1140 COMPLETED TROLL INSPECTION,

DEPARTED PROPERTY. GATE.

SECURED.

~~Capt. Sg. 07/22/04~~

C. SKLANEY, Capt. Sg. 07/22/04

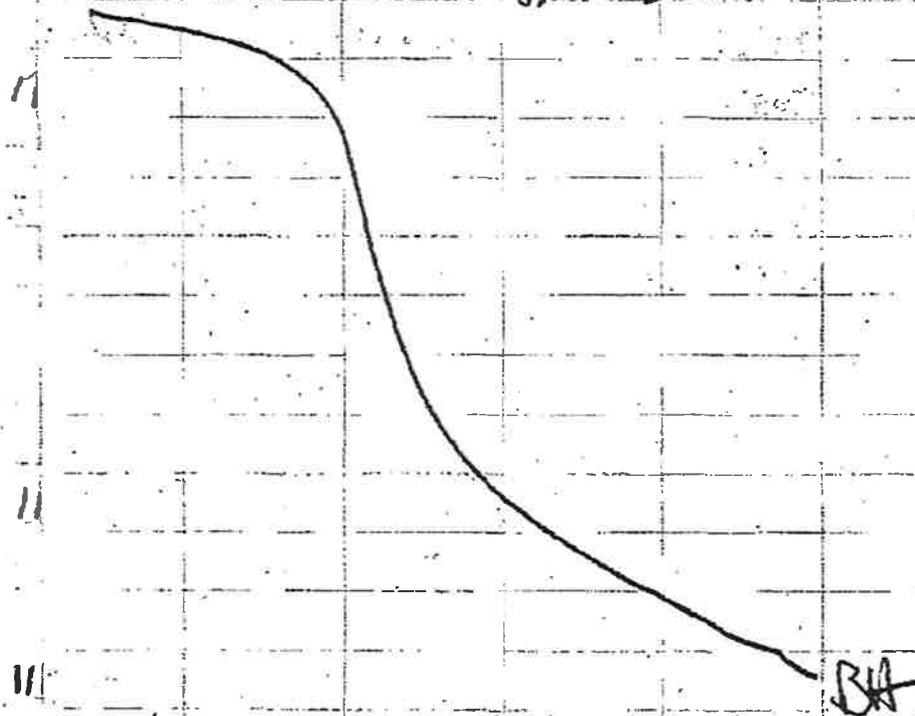
Location SALISBURY, MD Date 8-10-04

Project / Client LAKE STREET OIL FARM

10:30 START Helverson on site after mobilization from office to collect Trolls and upload data.

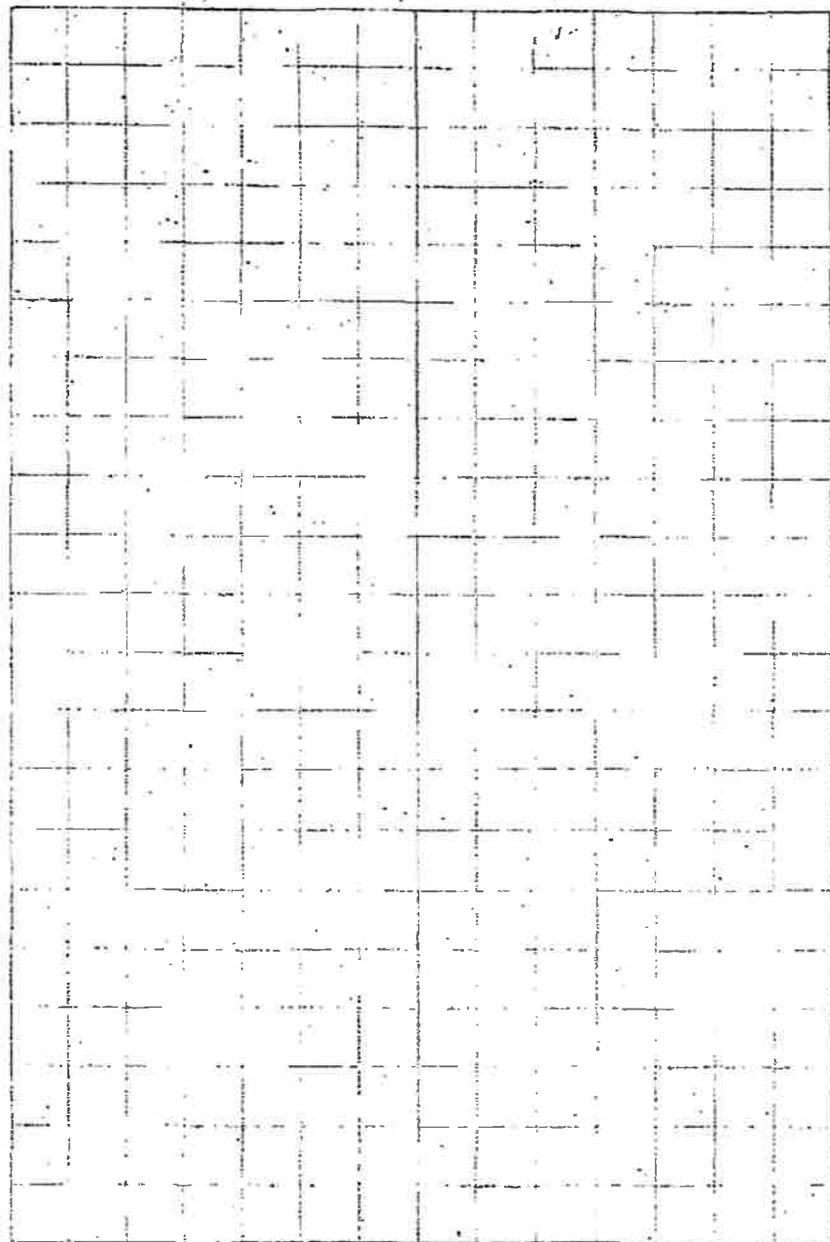
12:30 START completes downloads of each of 3 'Troll' Transducers, each with data from 6/29/04 to present in 3 minute intervals.

12:40 START demobes from site.



Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_



**APPENDIX B**  
**PHOTOGRAPHIC DOCUMENTATION LOG**  
(19 pages)



## **Photographic Documentation**

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

### **Photograph No. 1**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Northwest

**Description:** From left to right,  
Pump Island No. 2, AST No. 5,  
AST No. 7, and AST No. 9



### **Photograph No. 2**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** North

**Description:** From left to right,  
AST No. 7 and AST No. 9





## **Photographic Documentation**

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

### **Photograph No. 3**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Northeast

**Description:** Drums inside Warehouse C; labeling presumably conducted during previous investigations



### **Photograph No. 4**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Northwest

**Description:** Drums inside Warehouse C





## **Photographic Documentation**

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland  
**Photograph No. 5**

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** North

**Description:** Drums in  
Warehouse C



**Photograph No. 6**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Northwest

**Description:** Drums in  
Warehouse C





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 7**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Southwest

**Description:** Drums on north side of Warehouse C; Pump Island No. 1 in right background



**Photograph No. 8**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Northeast

**Description:** Drums located southeast of Check Post; Pump Island No. 1 and AST No. 11 and 15 in background





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 9**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** North

**Description:** Fill pipe for southernmost UST (indicated by metal dip stick in left foreground to left of string)



**Photograph No. 10**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** East to top

**Description:** Petroleum product on sorbent pad dipped in southernmost UST





## **Photographic Documentation**

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Terra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 11**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Southwest

**Description:** Pipe/possible pump well located between Garage and Check Post



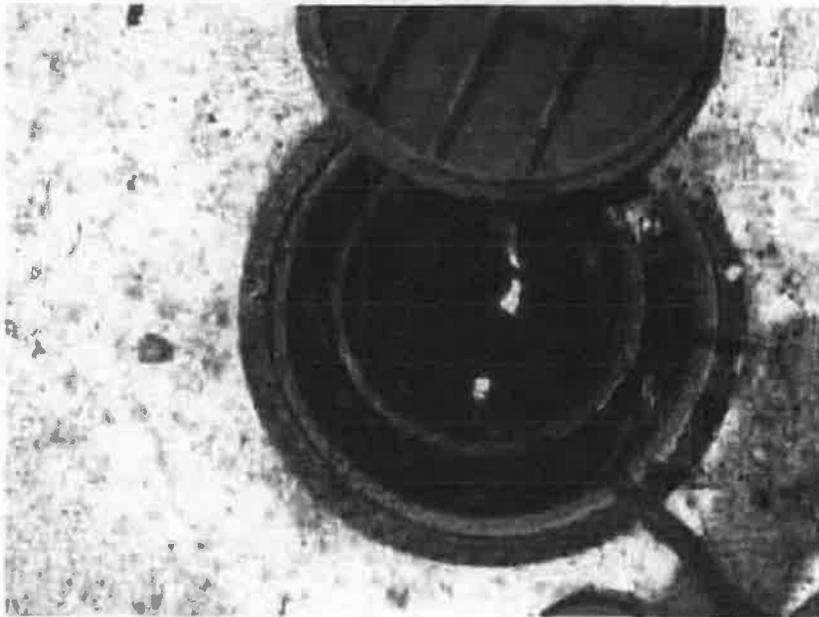
**Photograph No. 12**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Southwest to top

**Description:** Pipe/possible pump well located between Garage and Check Post





## **Photographic Documentation**

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 13**

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** Northeast to top

**Description:** Interior of oil-water separator



**Photograph No. 14**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** Southeast

**Description:** Location of oil-water separator (beneath iron plates in left and center of photograph); secondary concrete containment for AST No. 12 in background





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 15**

**Photograph Date:** 06/08/04

**Photographer:** C. Skianey

**Orientation:** East to top

**Description:** Interior of oil-water separator



**Photograph No. 16**

**Photograph Date:** 06/08/04

**Photographer:** C. Skianey

**Orientation:** North to top

**Description:** Interior of oil-water separator





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Team Tech EM Inc.  
**TDD No.:** SF3-04-05-004

### Photograph No. 17

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** Northwest

**Description:** Monitoring well UNK-B in foreground; from left to right in background: Warehouse B, Check Post, Garage and Pump Island 1; oil-water separator located out of picture to right of UNK-B



### Photograph No. 18

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** West

**Description:** Taken from same location as Photograph No. 17, showing Warehouse D behind fence on left and Warehouse B on right





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 19**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklancy

**Orientation:** East

**Description:** Empty and degraded AST in center of photograph and Warehouse D on right



**Photograph No. 20**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklancy

**Orientation:** South

**Description:** West end of Warehouse D on left and Warehouse A in background; Soil Pile No. 1 visible in left background (partially obscured by Warehouse D) and Soil Pile No. 2 visible in right foreground





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Terra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

### Photograph No. 21

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** South

**Description:** Interior of Warehouse D



### Photograph No. 22

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** South

**Description:** Interior of Warehouse D: plywood partially blocking entrance in foreground





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 23**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** North

**Description:** From left to right, Warehouse D, Soil Pile No. 1, AST No. 5; monitoring well MW-3 located in left foreground at edge of pavement



**Photograph No. 24**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** Northeast

**Description:** From left to right in background, AST Nos. 5, 6, and 7; Soil Pile No. 1 and Pump Island No. 2 in foreground





## **Photographic Documentation**

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Laks Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 25**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** Southwest

**Description:** Northwestern portion of Warehouse A



**Photograph No. 26**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** Southwest

**Description:** Warehouse A and protective casing for monitoring well UNK-A in foreground





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 27**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** South

**Description:** Monitoring well MW-4, located on east side of Warehouse A



**Photograph No. 28**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** East

**Description:** Dolphin next to boat slip at southern end of steel bulkhead; opening to interceptor trench located in center of photograph





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 29**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklancy

**Orientation:** West

**Description:** Shoreline adjacent to southern end of bulkhead; surface water sample LS04-SW01 collected from this locale



**Photograph No. 30**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklancy

**Orientation:** North

**Description:** Eastern edge of the property; protective cover over opening presumably to interceptor trench located in foreground





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

### Photograph No. 31

**Photograph Date:** 06/08/04

**Photographer:** C. Sklancy

**Orientation:** Southwest

**Description:** Monitoring well MW-6 and pipe extending from secondary containment around AST No. 1; shed and breached secondary containment around AST No. 13 in background; note stained riprap below pipe



### Photograph No. 32

**Photograph Date:** 05/24/04

**Photographer:** R. Helverson

**Orientation:** North

**Description:** Monitoring well MW-6 and northern edge of steel bulkhead





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3

**Prepared by:** Tetra Tech EM Inc.

**Site Name:** Lake Street Oil Farm

**TDD No.:** SE3-04-05-004

**Location:** Salisbury, Wicomico County, Maryland

**Photograph No. 33**

**Photograph Date:** 06/08/04

**Photographer:** C. Skianey

**Orientation:** West

**Description:** Close-up of staining below pipe extending from secondary containment around AST No. 1



**Photograph No. 34**

**Photograph Date:** 06/08/04

**Photographer:** C. Skianey

**Orientation:** West

**Description:** Close-up of staining below pipe extending from secondary containment around AST No. 1





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 35**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** South

**Description:** Shed and AST No. 13; monitoring well UNK-2 is located in foreground and monitoring well MW-5 is located out of picture in background adjacent to AST No. 13



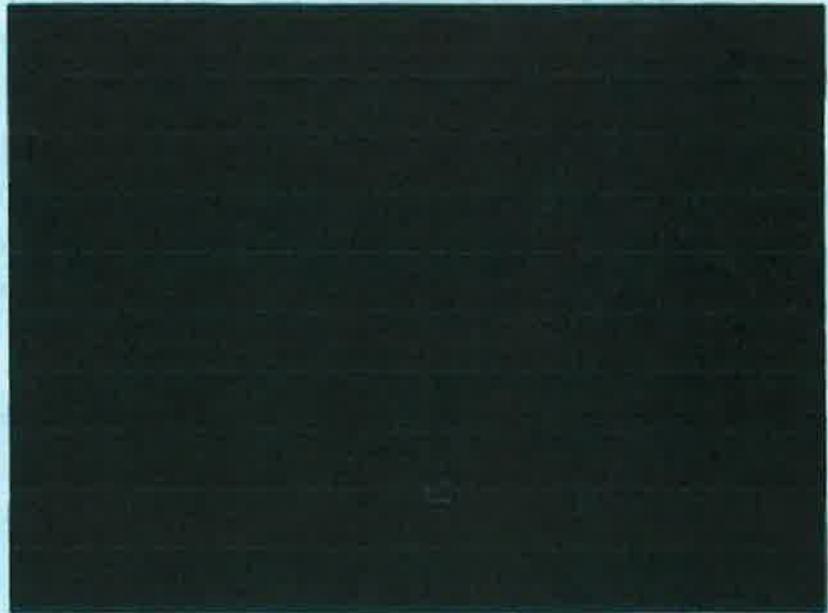
**Photograph No. 36**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** East

**Description:** Close-up of monitoring well MW-5





## Photographic Documentation

**Client:** U.S. Environmental Protection Agency Region 3  
**Site Name:** Lake Street Oil Farm  
**Location:** Salisbury, Wicomico County, Maryland

**Prepared by:** Tetra Tech EM Inc.  
**TDD No.:** SE3-04-05-004

**Photograph No. 37**

**Photograph Date:** 06/08/04

**Photographer:** C. Sklaney

**Orientation:** Southwest

**Description:** Northeastern corner of Warehouse C; AST No. 12 located in background



**Photograph No. 38**

**Photograph Date:** 05/24/04

**Photographer:** C. Sklaney

**Orientation:** East

**Description:** Fill and vent pipes for northern UST; northern boundary of the site marked by fence on left and Garage located on right



**APPENDIX C**  
**CHAIN OF CUSTODY RECORDS**

**(2 pages)**



# TETRA TECH EM INC.

## DIFFERENTIAL LEVELING DATA SHEET

SITE NAME: LAKE STREET OIL FARM

SITE LOCATION: SALISBURY, MD

PROJECT No.: SE3-04-05-004

DATE: 06/29/04

START TIME: 0900 STOP TIME: 1030

PERSONNEL: C. SKLANEY

WEATHER: SUNNY, 75°F

NOTE: AVOID LEVELING DURING EXCESSIVE TEMPERATURES DUE TO DIFFRACTION

STATION	BS	HI	FS	ELEVATION	REMARKS
A	4.98			5.00	TBM
		9.98			
B			5.20	4.78	MW-2
C			3.57	6.41	MW-1
D			4.82	5.16	UNK-6
E			5.17	4.81	UNK-B
F			5.50	4.48	UNK-1
G			4.43	5.55	OIL-WATER SEPARATOR
TP1			5.49	4.49	TP1, MOVED INSTRUMENT
H	5.25				BS TO TP1
		9.74			
I			4.40	5.34	MW-3
J			4.99	4.75	UNK-A
K			4.49	5.25	MW-4
TP2			4.93	4.81	TP2, MOVED INSTRUMENT
L	4.38				BS TO TP2
		9.19			
M			4.29	4.90	MW-6
N			4.31	4.88	UNK-2
O			4.38	4.81	SURFACE WATER REFERENCE POINT
TP3			4.07	5.12	TP3, MOVED INSTRUMENT
P	5.22				BS TO TP3
		10.34			
Q			5.38	4.96	BM (COMPLETED CIRCUIT)

Note: Elevation relative to temporary benchmark of 5.00 feet above mean sea level.

TBM = Temporary benchmark (elevation assumed)

BS = Backsight (reading recorded on a point of known or assumed height)

HI = Height of instrument

FS = Foresight (reading recorded on a point of unknown height)

TP = Turning point (point where readings are recorded before and after moving instrument)

**APPENDIX E**  
**SHORT-TERM GAUGING DATA**

(12 pages)