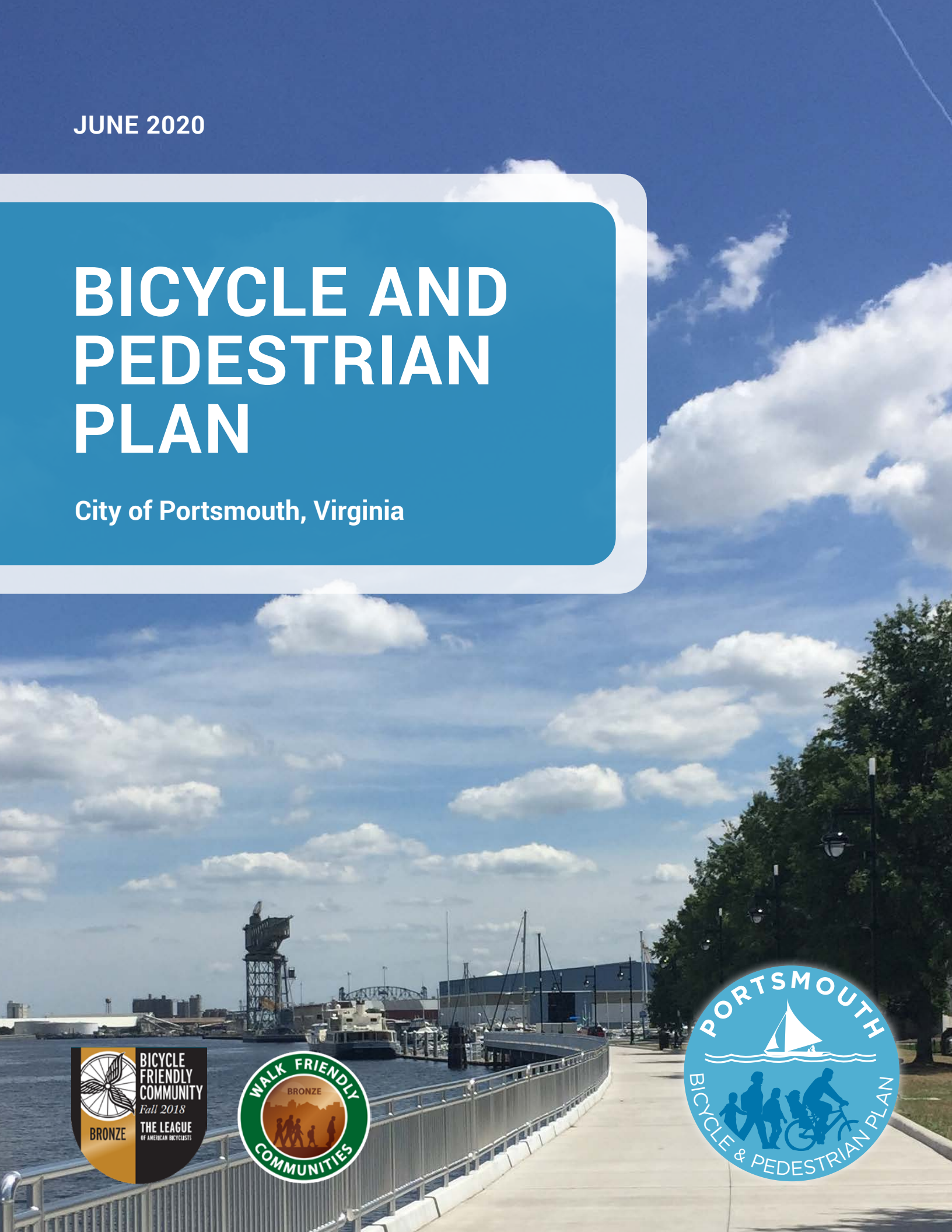
JUNE 2020

BICYCLE AND PEDESTRIAN PLAN

City of Portsmouth, Virginia



ACKNOWLEDGMENTS

The City of Portsmouth and project staff would like to thank the region's citizens, elected officials, and professional staff who supported this effort.

In particular, we are indebted to the Project Committee for their commitment and expertise, as well as to the people who provided their time and vision for a walking and bicycling-friendly city.

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SPECIAL THANKS TO THE PORTSMOUTH BICYCLE AND PEDESTRIAN CITIZEN'S ADVISORY COMMITTEE

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Executive Summary

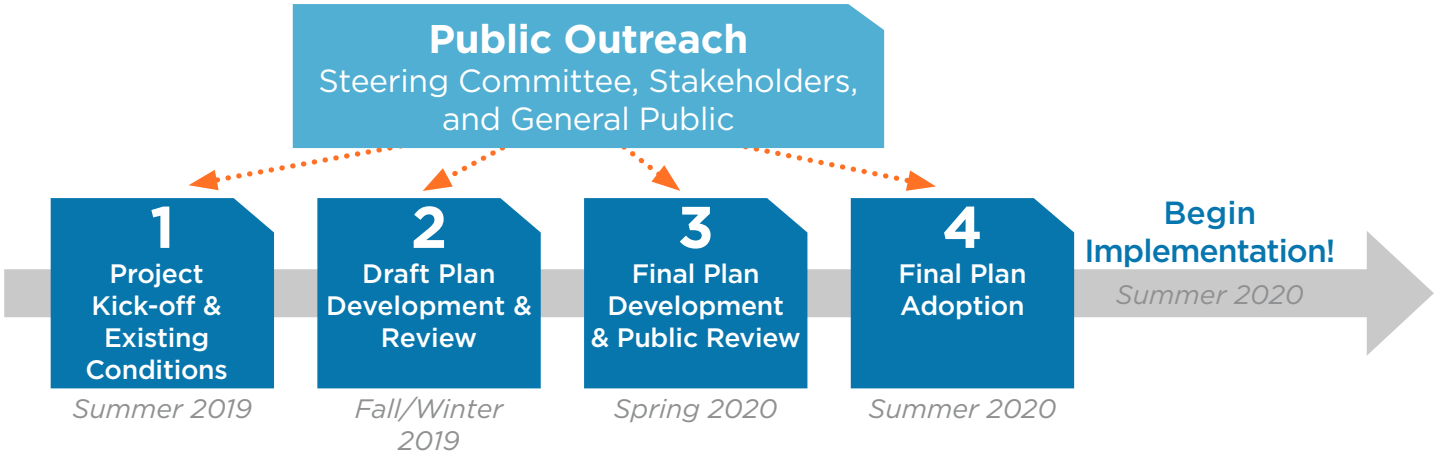
THE PLAN'S VISION

"The City of Portsmouth Bicycle and Pedestrian Plan builds upon efforts from the City to create an active community, where bicycling and walking are safe, healthy, and fun for all ages and abilities."

WHAT DOES THIS PLAN RECOMMEND?

This bicycle and pedestrian transportation plan features policy, program, and infrastructure recommendations that, if adopted, funded, and implemented, will create the bike- and walk-friendly community that residents have long supported. This plan documents the past and current active transportation planning processes in Portsmouth, and highlights some of the current conditions impacting active transportation today (see Chapter 2).

PROJECT TIMELINE



PUBLIC INPUT RESPONSE HIGHLIGHTS

64% said WALKING IN PORTSMOUTH today is *Fair*

57% said BIKING IN PORTSMOUTH today is *Fair*

70% said IMPROVING WALKING CONDITIONS is *Very Important*

65% said IMPROVING BIKING CONDITIONS is *Very Important*

81% said they WOULD WALK MORE IF there were *More Sidewalks*

81% said they WOULD BIKE MORE IF there were *More Bikeways*

OVERVIEW OF EXISTING CONDITIONS

Demand Analysis

The downtown core, Frederick Boulevard, and portions of High Street and Portsmouth Boulevard have been identified as areas with a particularly high demand for expected bicycle and pedestrian activity.

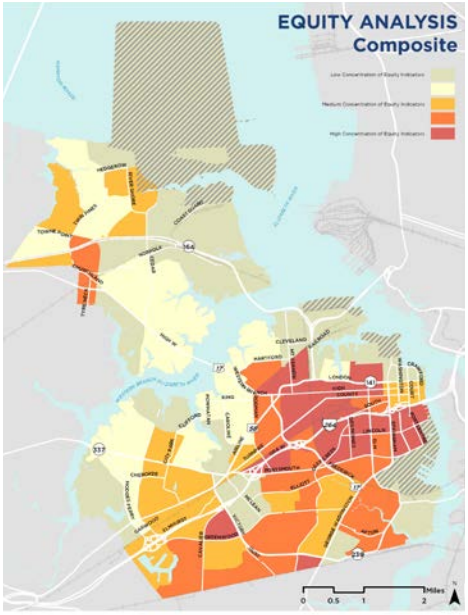
Equity Analysis

The analysis scored the study area to locate higher concentrations of traditionally vulnerable populations, such as minority groups, low-income individuals, children, older adults, and people with limited English proficiency. Results of the analysis (see map at right) were used to develop recommendations.

Safety Analysis

The majority of pedestrian and bicycle crashes occurred in the areas that fell in the highest equity tier *(49% of pedestrian crashes, including 2 fatalities)*.

Barriers within the study area include Elizabeth River and large highways like I-264 and VA-164.



See Chapter 2 for detailed maps and findings

BASIS OF RECOMMENDATIONS

Committee & Public Input

Online and In-person Public Input, Committee Map Mark-ups

Online Public Survey

+

Connecting Destinations

Downtown, parks, transit, schools, neighborhoods, commercial areas, and surrounding communities

+

Mapping Analysis

High Demand Areas

Equity

Safety Analysis

+

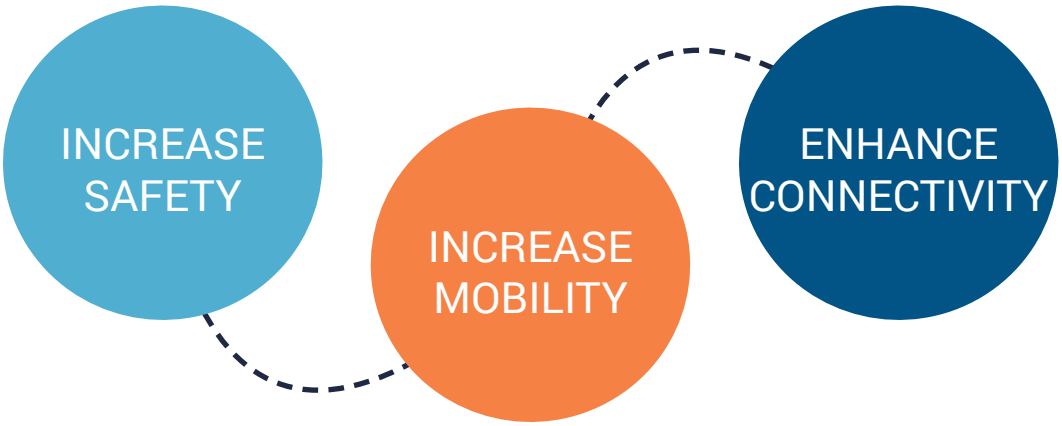
Existing Plans & Facilities

Portsmouth Rail to Trail

Build One Portsmouth

Master Transportation Plan

PERFORMANCE MEASURES

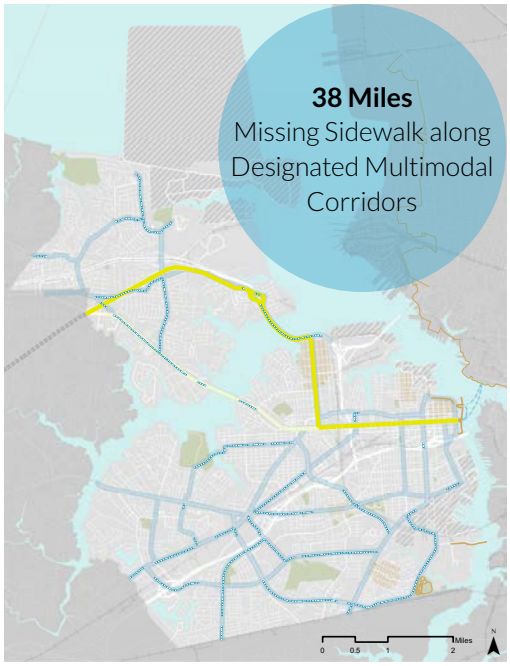


TOP 5 PRIORITY PROJECTS

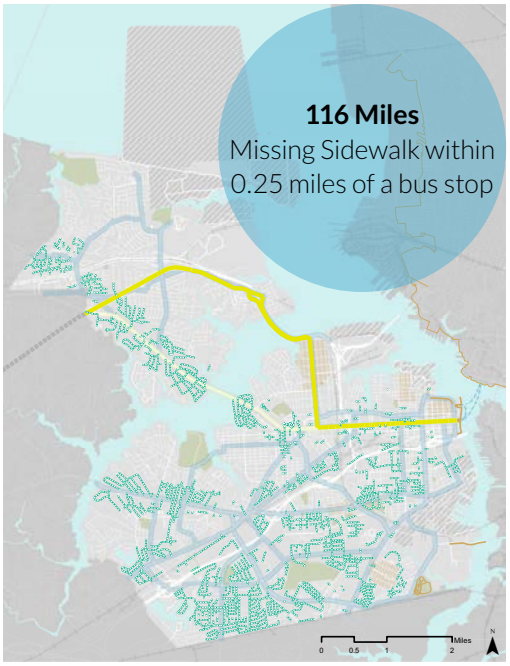
Project	Extents	Description
High Street	Churchland Bridge to Academy Avenue	Long-term: Shared Use Path Short-term: Sidewalk + Pedestrian Improvements
Victory Boulevard/ Jordan Bridge	Paradise Creek Park to Jordan Bridge	Long-term: Shared Use Path Short-term: Sidewalk + Pedestrian Improvements
Victory Boulevard	Greenwood Drive to George Washington Highway	Long-term: Shared Use Path Short-term: Sidewalk + Pedestrian Improvements
Portsmouth Boulevard	Alexander's Corner to Portsmouth Sportsplex	Long-term: Shared Use Path Short-term: Sidewalk + Pedestrian Improvements
Lincoln Street	Port Centre Parkway to Des Moines Avenue	Neighborhood Greenway + Sidewalks

RECOMMENDED SIDEWALK NETWORK

Tier 1: Multimodal Corridors



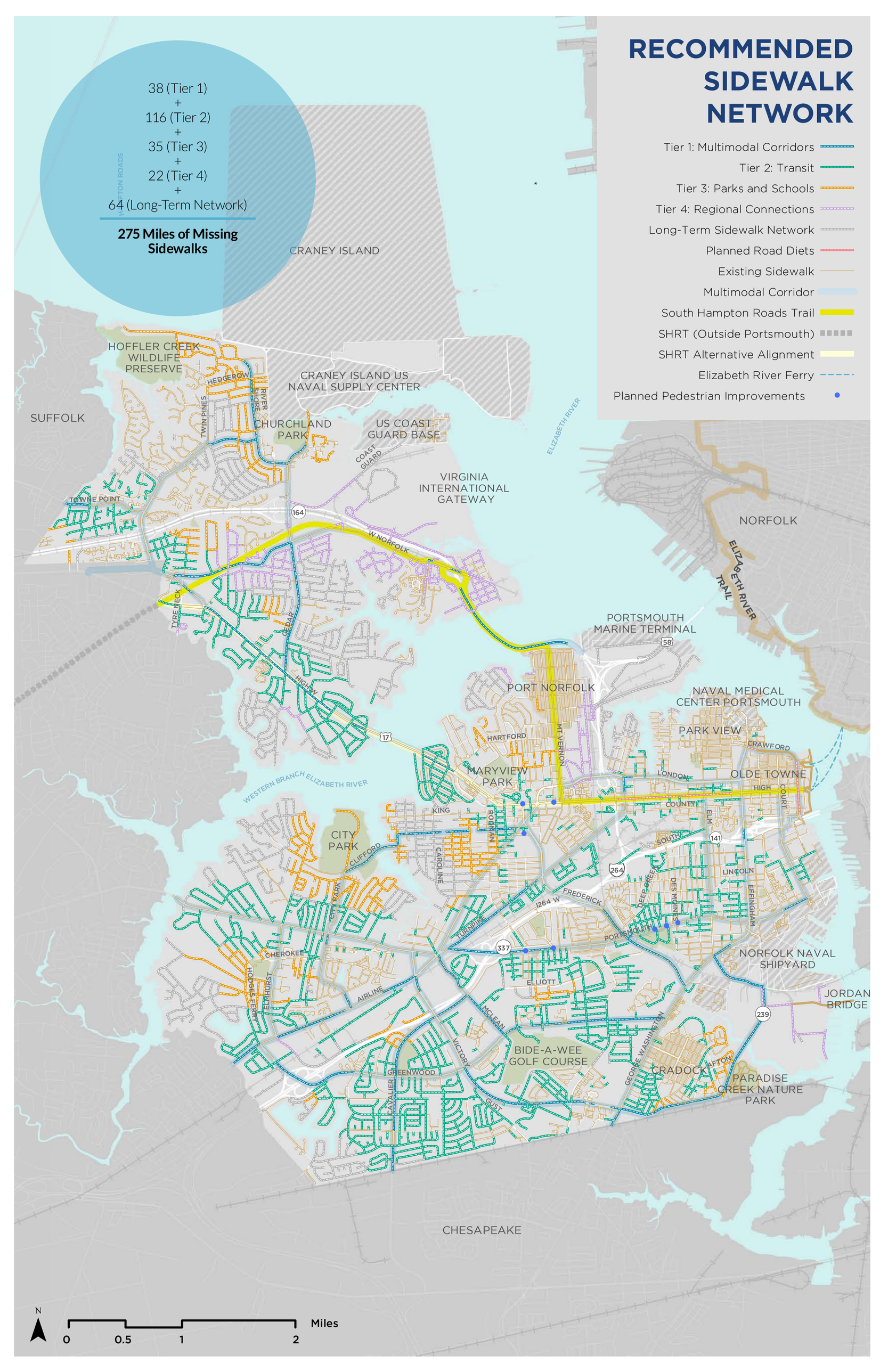
Tier 2: Transit



Tier 3: Recreation and Education

Tier 4: Regional Connections

* See pages 68-69 for more detail on proposed pedestrian crossing improvements.


38 (Tier 1)
+
116 (Tier 2)
+
35 (Tier 3)
+
22 (Tier 4)
+
64 (Long-Term Network)
275 Miles of Missing Sidewalks
RECOMMENDED SIDEWALK NETWORK
Tier 1: Multimodal Corridors
Tier 2: Transit
Tier 3: Parks and Schools
Tier 4: Regional Connections
Long-Term Sidewalk Network
Planned Road Diets
Existing Sidewalk
Multimodal Corridor
South Hampton Roads Trail
SHRT (Outside Portsmouth)
SHRT Alternative Alignment
Elizabeth River Ferry
Planned Pedestrian Improvements
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
HEDGEROW
RIVER SHORE
PINES
SUFFOLK
CHURCHLAND PARK
CRANEY ISLAND US NAVAL SUPPLY CENTER
US COAST GUARD BASE
COAST GUARD
VIRGINIA INTERNATIONAL GATEWAY
ELIZABETH RIVER
TOWNE POINT
164
W NORFOLK
NORFOLK
ELIZABETH RIVER TRAIL
TYRE NECK
CEDAR
HIGHW
PORTSMOUTH MARINE TERMINAL
58
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
17
HARTFORD
MT VERNON
PARK VIEW
CRAWFORD
MARYVIEW PARK
LONDON
OLDE TOWNE
HIGH
COURT
COUNTY
ELM
WESTERN BRANCH ELIZABETH RIVER
KING
CITY PARK
CLIFFORD
CAROLINE
NAMOZINE
141
SOUTH
264
LINCOLN
DES MOINES
EFFINGHAM
DEEP CREEK
FREDERICK
I-264 W
TURNPIKE
PORTSMOUTH
337
CHEROKEE
NORFOLK NAVAL SHIPYARD
ELLIOTT
JORDAN BRIDGE
239
HOBBS FERRY
SHOPHAM
AIRLINE
MCLEAN
VICTORY
BIDE-A-WEE GOLF COURSE
GEORGE WASHINGTON
CRADOCK
CLIFTON
PARADISE CREEK NATURE PARK
GREENWOOD
CAVALIER
GUST
CHESAPEAKE
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1
2
Miles


RECOMMENDED + EXISTING BIKEWAYS
Proposed Shared Use Path (SUP)
Proposed Barrier-Separated SUP
Proposed On-Street Bike Facility
Proposed Neighborhood Greenway
Existing Buffered Bike Lane
Existing Bike Lane
Existing Shared Use Path
Existing Shared Roadway (Sharrow)
Existing Paved Shoulder
South Hampton Roads Trail (SHRT)
SHRT (Outside Portsmouth Jurisdiction)
SHRT Alternative Alignment
Multimodal Corridor
Elizabeth River Ferry
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
CRANEY ISLAND US NAVAL SUPPLY CENTER
CHURCHLAND PARK
US COAST GUARD BASE
ELIZABETH RIVER
VIRGINIA INTERNATIONAL GATEWAY
PORTSMOUTH MARINE TERMINAL
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
PARK VIEW
OLDE TOWNE
MARYVIEW PARK
WESTERN BRANCH ELIZABETH RIVER
CITY PARK
NORFOLK NAVAL SHIPYARD
JORDAN BRIDGE
BIDE-A-WEE GOLF COURSE
CRADOCK
PARADISE CREEK NATURE PARK
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Miles

RECOMMENDED BIKEWAY NETWORK

The proposed bike network was developed with the goal of creating a network of well-connected facilities. Biking needs to be a safe, convenient, and pleasant form of transportation for the broadest array of people. This Plan recommends a network of shared use paths, on-street bike facilities, and neighborhood bikeways to connect people to destinations such as transit, parks, schools, and jobs. These facilities are described in detail on pages 86-88.

Shared use paths, on-street bike facilities, and neighborhood greenways all make biking more comfortable. However, perception of safety is largely driven by factors like vehicle speeds and traffic volumes. Not all routes are the same, and therefore design flexibility is essential to building a low-stress network. The network approach developed as part of this Plan sets the parameters for the bikeway network, but the project design process will determine the ultimate cross-section for each project using national best practices and engineering judgment. VDOT, AASHTO, and NACTO provide design guidance and standards for bikeway facilities.

82 miles
Proposed Bikeways

47 miles
Shared Use Path

13 miles
On-Street Bike Facility

22 miles
Neighborhood Bikeways

BASIS OF RECOMMENDATIONS

Committee & Public Input

Online and In-person Public Input, Committee Map Mark-ups

Online Public Survey

+

Connecting Destinations

Downtown, parks, transit, schools, neighborhoods, commercial areas, and surrounding communities

+

Mapping Analysis

High Demand Areas

Equity

Safety Analysis

+

Existing Plans & Facilities

Portsmouth Rail to Trail

Build One Portsmouth

Master Transportation Plan

POLICY RECOMMENDATIONS

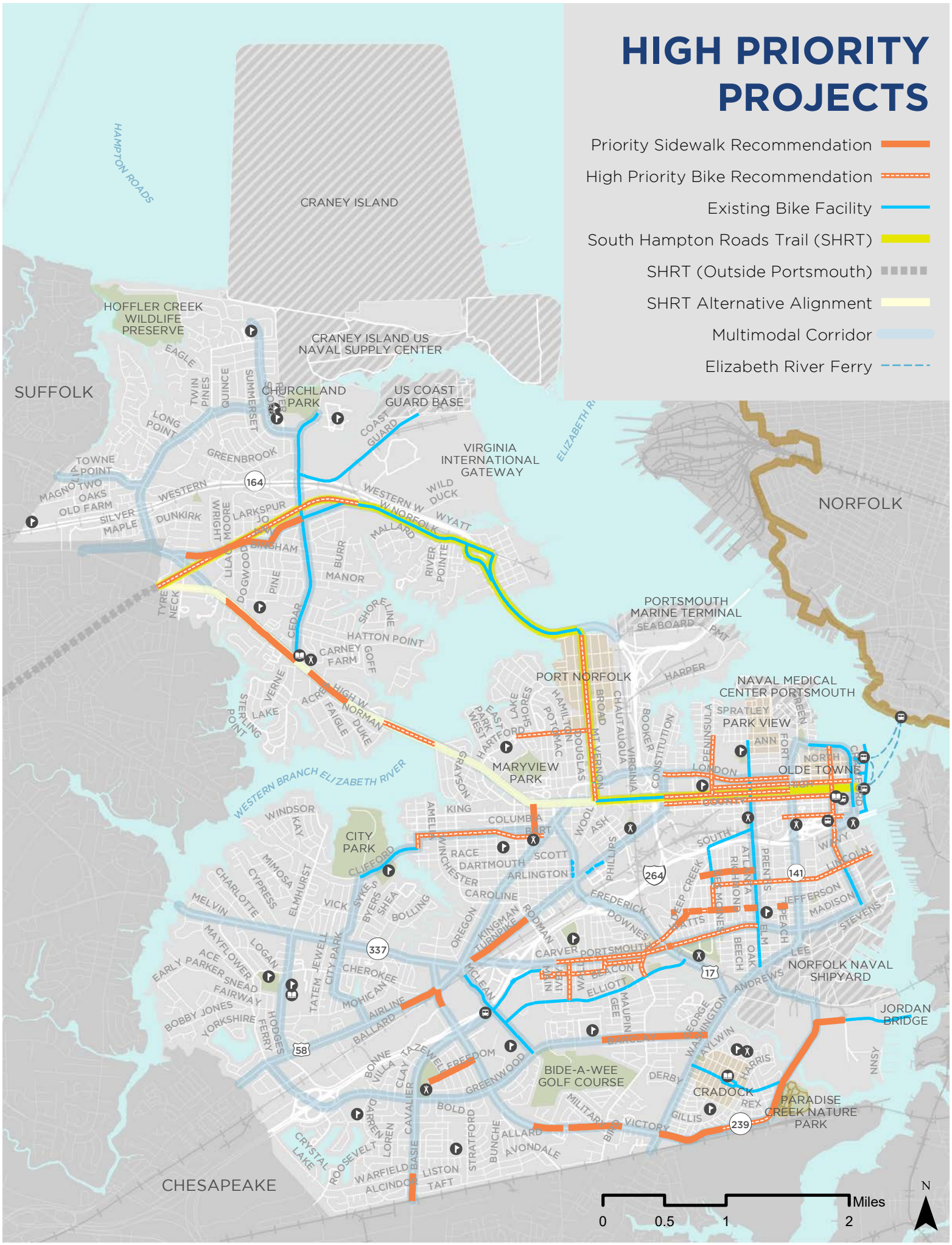
Policies add political backing and institutionalize recommendations and design guidelines into city codes. Policies may be specific to infrastructure elements such as bike parking requirements, or may be broad and include multiple municipal departments, such as Complete Streets Policies that may include design guidelines and evaluation metrics. Note: In addition to the policies listed below, the City of Portsmouth is currently developing a shared mobility program, which is the focus of Chapter 6 of this Plan.

Complete Streets (see Policy Spotlight starting on pg. 52)	Complete Streets policies call for a safe, accessible transportation network that accommodates users of all ages and abilities, which encompasses bicyclists, pedestrians, transit riders, and motorists.
Maintenance (see Policy Spotlight on pg. 56)	Ensuring facilities are in good shape and clear of debris is important to increase the number of people walking and biking
Vision Zero	Vision Zero is the concept that no loss of life is acceptable on our roadways. Jurisdictions across the nation and across the world are adopting Vision Zero policies to eliminate preventable traffic deaths.
Shared Mobility Program	Shared mobility programs are designed to provide cost-effective, environmentally-friendly and convenient travel options for short trips within a city or region. The systems consist of a fleet of user-friendly and durable bicycles, electric power-assisted bicycles or lightweight electric scooters (e-scooters) intended to be driven while standing.

PROGRAM RECOMMENDATIONS

Programs can engage the broader community to encourage more people to walk and bike, educate community members on rights and responsibilities, and enforce traffic laws to improve safety for all modes.

Safe Routes to Schools/ Safe Routes to Parks	Continue work started with the Safe Routes to Parks grant in order to increase the number of students and community members who walk or bike to schools/parks.
Expand Education, Safety, and Encouragement Programs	A targeted education/encouragement campaign that fits within the culture and brand of Portsmouth would help educate users and encourage walking and biking. Targeted safety campaigns can help prevent future crashes will improve the safety of walking and biking in Portsmouth.
Develop Process for Citizens to Report Sidewalk Access Issues	Provide an easily accessible resource for residents to report maintenance, safety, or accessibility issues.


HIGH PRIORITY PROJECTS
Priority Sidewalk Recommendation
High Priority Bike Recommendation
Existing Bike Facility
South Hampton Roads Trail (SHRT)
SHRT (Outside Portsmouth)
SHRT Alternative Alignment
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NORFOLK NAVAL SHIPYARD
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BIDE-A-WEE GOLF COURSE
CRADOCK
PARADISE CREEK NATURE PARK
CHESAPEAKE
EAGLE
TWIN PINES
QUINCE
SUMMERSET
LONG POINT
TOWNE POINT
GREENBROOK
MAGNOLIA
TWO OAKS
OLD FARM
SILVER MAPLE
WESTERN
DUNKIRK
WRIGHT
MOORE
LARKSPUR
JOHNSON
BRIGHAM
LILAC
DOGWOOD
PINE
BURR
MANOR
COAST GUARD
WESTERN W
W NORFOLK
WILD DUCK
WYATT
MALLARD
RIVER POINTE
TYRE NECK
CEDAR
SHORELINE
HATTON POINT
CARNEY FARM
GOFF
VERNE
ACRE
HIGH W
NORMAN
DUKE
FAIGLE
STERLING POINT
LAKE
GRAYSON
EASTFORD
WESTPARK
LAKE SHORES
HAMILTON
POTOMAC
DOUGLAS
BROAD
MT VERNON
CHAUTAUQUA
VIRGINIA
BOOKER
CONSTITUTION
HARPER
SEABOARD
PMT
PENINSULA
LONDON
ANN
FORT
NORTH
HIGH
COURT
GREEN
KING
COLUMBIA
BART
WOOL
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SMITH
SOUTH
WATTS
LINCOLN
WINDSOR
KAY
CLIFFORD
AMELIA
WINCHESTER
RACE
DARTMOUTH
SCOTT
ARLINGTON
CAROLINE
FREDERICK
DOWNES
DEEP CREEK
ATLANTIC
RICHMOND
PRENTIS
JEFFERSON
MADISON
STEVENS
PEACH
ELM
BEECH
OAK
LEE
ANDREWS
MELVIN
CHARLOTTE
CYPRESS
MIMOSA
ELMHURST
VICK
SYKES
BYERS
SHEA
BOLLING
OREGON
KINGMAN TURNPIKE
RODMAN
CARVER
PORTSMOUTH
BEACON
ELLIOTT
MAUPIN
GEE
DANIELS
MAYFLOWER
LOGAN
EARLY
PARKER
SNEAD
ACE
FAIRWAY
BOBBY JONES
YORKSHIRE
HODGES
FERRY
TATEM
JEWELL
CITY PARK
CHEROKEE
MOHICAN
AIRLINE
BALLARD
MCLEAN
GEORGE WASHINGTON
WAYLWIN
HARRIS
DERBY
REX
GILLIS
VICTORY
MILITARY
BONNE VILLA
CLAY
TAZEWELL
FREEDOM
GREENWOOD
CAVALIER
BOLD
DARREN
LOREN
ROOSEVELT
CRYSTAL LAKE
WARFIELD
ALCINDOR
BASIE
LISTON
TAFT
STRATFORD
BUNCHE
ALLARD
AVONDALE
NANSY
264
141
337
58
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239
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Miles
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CHAPTER 1:
Introduction

Bike Lanes on Elm Ave

PROJECT BACKGROUND

The Portsmouth Bicycle and Pedestrian Plan outlines a comprehensive bicycling and pedestrian network, policies, and programs aimed to create and bolster a safe biking and walking community in the City of Portsmouth. The City of Portsmouth is a mature waterfront community with a rich history, robust employment centers, and a strong infrastructure foundation. The downtown waterfront features a gridded street network of small blocks that encourages walkability and cohesive neighborhoods, and recent City projects have modernized aged infrastructure. Additionally, many people in the Portsmouth community rely on biking, walking, or transit for transportation. As such, opportunities to enhance connections throughout the area and foster an active community in Portsmouth set the stage for the Portsmouth Bicycle and Pedestrian Plan.

The City of Portsmouth, along with other stakeholders, will utilize the Plan for future implementation of the bicycling and walking network. The recommendations within the Plan culminate from extensive research into previous plans and current policies, comprehension and analysis of existing conditions, and community visions of bicycling and walking in Portsmouth. The City of Portsmouth Bicycling and Pedestrian Plan also prioritizes these recommendations and presents a set of funding opportunities for future implementation of high-quality infrastructure, high-impact programs, and supportive policies for walking and biking.

Common method of travel for workers in Portsmouth, VA

Walking 3.65%

Public Transit 2.25%

Bicycle <1%

2017 Census - ACS 5-Year Estimates. https://datausa.io/profile/geo/portsmouth-va#mode_transport

PROJECT OVERVIEW

Existing Conditions & Field Review

Existing Plans & Policies

Current Road Network Conditions

Needs Assessment

Equity Analysis

Demand Analysis

Safety Analysis

Shared Mobility Analysis

Public Outreach

Surveys

Stakeholder Interviews

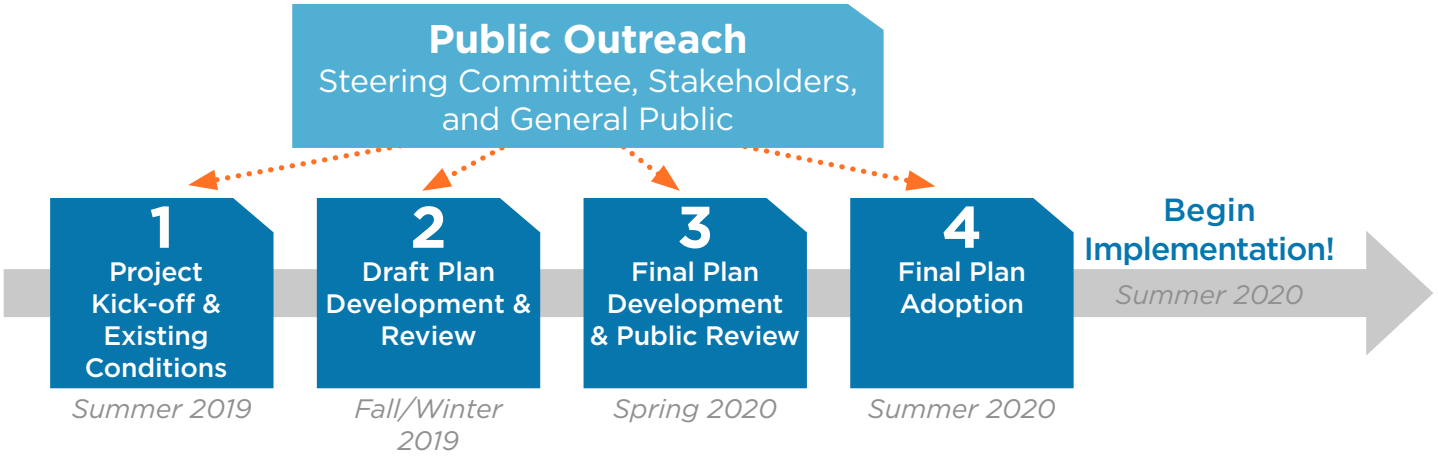
Community Events

Prioritization & Funding

Recommended Networks

Funding Resources

PROJECT TIMELINE



The Plan's Vision

"The City of Portsmouth Bicycle and Pedestrian Plan builds upon efforts from the City to create an active community, where bicycling and walking are safe, healthy, and fun for all ages and abilities."

How to Get There

The goals outlined below build upon the vision statement, relate to key themes from local plans, and expand upon national best practices.

Enhance Connectivity

Create connected walkable and bikeable streets that allow people of all ages and abilities to safely and conveniently get where they want and need to go.

Encourage Economic Growth

Recognize the economic benefits of walkable and bicycle-friendly communities, and capitalize on potential for economic growth and tourism

Promote Equity

Ensure that walking and bicycling infrastructure is provided in the areas with the greatest need.

Improve Health

Enhance access to active transportation and outdoor recreation for health and wellness.

Increase Safety

Address the safety of the transportation system for the most vulnerable users and aim for zero bicycle and pedestrian fatalities and serious injuries.

Increase Mobility

Provide active transportation choices that support healthy, safe, and walkable/bikeable neighborhoods, whether urban or suburban.

ACTIVE TRANSPORTATION AND BUILD ONE PORTSMOUTH

Portsmouth's 2018 Comprehensive Plan update, "Build One Portsmouth" (BOP), is a robust long-range plan that touches on nearly every aspect of life in the city. The Portsmouth Bicycle and Pedestrian Plan reinforces many of the elements of BOP, from detailed tools and actions to overarching concepts and community goals.

The information below illustrates some of the connections between BOP's three core elements (Strategic, Geographic, and Implementation Plans) and this Plan. It should be noted that the list is not exhaustive. Transportation systems are deeply connected to community development issues including housing, land use, economic development, sustainability, public health, equity, and more. The two plans should be used in tandem for both planning and implementation guidance by residents, stakeholders, City staff, and decision-makers.

STRATEGIC PLAN

The Strategic Plan component expresses the vision for Portsmouth. This effort was guided by extensive community engagement efforts. The content cascades from abstract vision statements and goals to specific strategies and tactics that support overarching themes.

Thriving

- T.2 Be a healthy city
- T.3 Expand economic opportunity

Resilient

- R.4 Strengthen connectivity to improve mobility

Evolving

- E.1 Promote a renaissance of our neighborhoods

Equitable

- EQ.2 Enhance city services, especially to the underserved
- EQ.3 Seek social and environmental justice in policies and practices

BUILD ONE PORTSMOUTH VISION THEMES

Thriving

We draw from our rich history to promote healthy individuals, local economies, regional collaboration, and vibrant neighborhoods with strong identities.

Resilient

We prepare for long-term prosperity by thoughtfully creating adaptable structures, systems, and practices to prepare for opportunities and to meet challenges.

Evolving

We embrace the future and respond positively to emerging opportunities to care for the people and places we love by balancing historic preservation with thoughtful reinvestment and redevelopment.

Equitable

We cultivate a vibrant city where equality is evident as we meet the needs of all our citizens in ways that are fair, meaningful, and empowering.

GEOGRAPHIC PLAN

The Geographic Plan provides spatial representation of targeted recommendations. The maps and associated guidance here are referenced throughout the Strategic Plan. The material in this section should be frequently referenced during a transportation project to ensure consistency with BOP guidance and goals.

The elements below are of particular relevance to the development of bicycle and pedestrian facilities.

Character Areas

Focus Areas

Environmental and Open Space Resources

Citywide Connectivity and Mobility Networks

IMPLEMENTATION PLAN

The Implementation Plan describes the tools and actions that can be used to help achieve the goals formulated during this process. The items are prioritized based on community and Planning Commission feedback.

The Tools that most directly relate to the advancement of walking and bicycling are listed below. Each tool in BOP includes a host of helpful details that will help stakeholders employ the tool.

Tools

- Complete Street Design Manual
- Corridor redevelopment Study and Plan
- Design Guidelines
- EcoDistricts
- Neighborhood Planning Programs
- Origin/Destination Study
- Tactical Urbanism
- Transit Needs Assessment

WHY WALK AND BIKE IN PORTSMOUTH?

The City of Portsmouth, VA is located within Hampton Roads coastal area of Virginia. Its shared waterfront with the adjacent city of Norfolk, VA presents opportunities to strengthen regional connections by extending the network of walkable and bikeable spaces into Portsmouth. The City has already begun this process with the Portsmouth Rail Trail, which is a portion of the planned South Hampton Roads Trail, a multi-city initiative connecting downtown Suffolk to Virginia Beach.

The compact, gridded street system of the City of Portsmouth is conducive to the creation of a safe, navigable, and enjoyable walking and biking network. This unique characteristic of historic cities, in addition to mild, coastal temperatures and flat terrain, are assets that place Portsmouth at an advantage for implementing the Portsmouth Bicycle and Pedestrian Plan. Biking and walking offer positive community health benefits such as physical activity and improved public health, local economic growth, additional transportation modes, and tourism.

The rapid development of a highway system which focused on moving cars within the area presents a challenge to enhanced bikeability and walkability in Portsmouth, VA. Such development led to patterns of growth wherein core commercial and residential areas are connected solely by high-volume road infrastructure that lack bicycle and pedestrian facilities.

However, several initiatives, such as Healthy Portsmouth and Safety Town, show commitment by decision makers for furthering bicycling and walking in the City of Portsmouth. Build One Portsmouth, adopted in November 2018, supports accommodating pedestrians and bicyclists through the development of complete streets as well as on specific corridor improvements such as the George Washington Highway Corridor. Additionally, the Crawford Street Corridor Study will inform the development of bicycle and pedestrian facilities along this section of the waterfront.

Family of Tourists on a Self-Guided History tour - https://portsvacation.com/history/

Celebrate Portsmouth's diverse natural setting with a network of greenways and blueways

- This citizen comment is supported in Portsmouth's Comprehensive Plan Update, Build One Portsmouth; Resilient Theme #5 - Increase Green Spaces in Our City; Strategy C.

THE VALUE OF WALKABLE AND BIKEABLE COMMUNITIES

Economic Benefits

In 2020, an economic study was conducted to evaluate **visitor spending in Hampton Roads due to the Virginia Capital Trail. Findings suggest that trail-based tourism contributes $4 to $6 million per year directly into the Hampton Roads community.**

VCT Economic Study Breakdown

Annual Users
120,000

% of Users that are Visitors
35%

Spending per person
$113

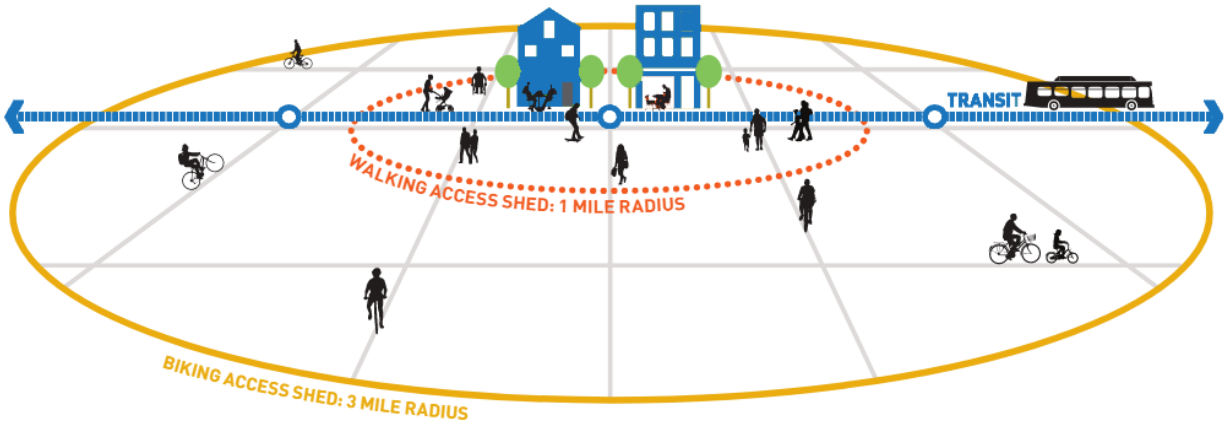
Houses in highly **walkable neighborhoods have property values $4,000 to $34,000 higher** than houses in areas with average walkability.

Building **sidewalk and bicycle facilities creates 36% more jobs** than building highways and almost **100% more jobs** than pavement improvements.

Sources: Cortright, J. (2009). Walking the Walk: How Walkability Raises Housing Values in U.S Cities. CEO for Cities; American Association of State Highway and Transportation Officials (AASHTO) Average Direct Jobs by Project Type (2012); Job in terms of full-time equivalents (FTE).

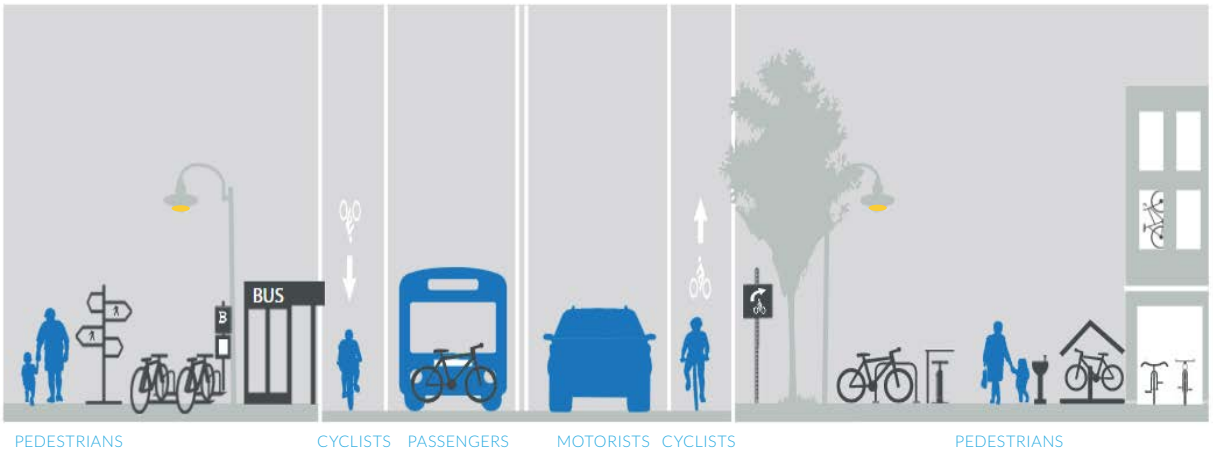
Accessibility and Mobility Benefits

On average, **30% of all trips** we make are for a distance of **two miles or less**—a distance that can easily be covered by a **10 minute bike ride or a 30 minute walk**.



Source: Alta Planning + Design graphic based on national data.

Complete streets design results in increased mobility options



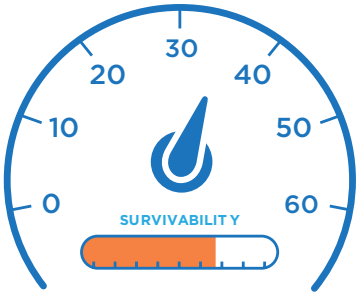
Safety Benefits

Speed + Survivability in Crashes

A pedestrian hit by a vehicle traveling at **25 MPH**

has an **89%** chance of survival

A pedestrian hit by a vehicle traveling at **35 MPH**



has a **68%** chance of survival

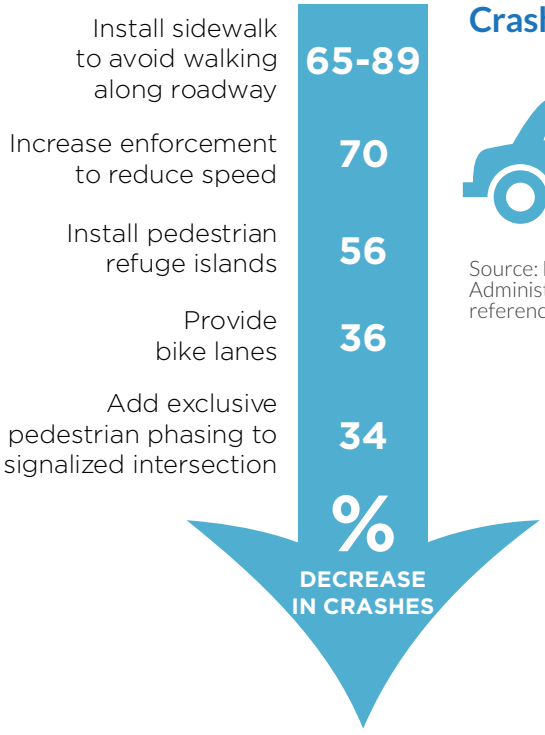
A pedestrian hit by a vehicle traveling at **45 MPH**

has a **35%** chance of survival

Source: Rosén, E., & Sander, U. (2009). Pedestrian fatality risk as a function of car impact speed. Accident Analysis & Prevention, 41(3), 536-542.

Crash Reduction Factors

Source: Federal Highway Administration. (2008). "Desktop reference for crash reduction factors."

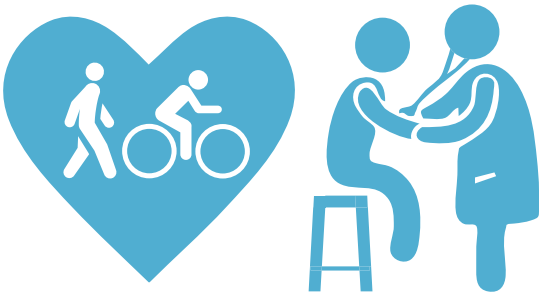


See Chapter 2 for a detailed safety analysis

Health and Environmental Benefits

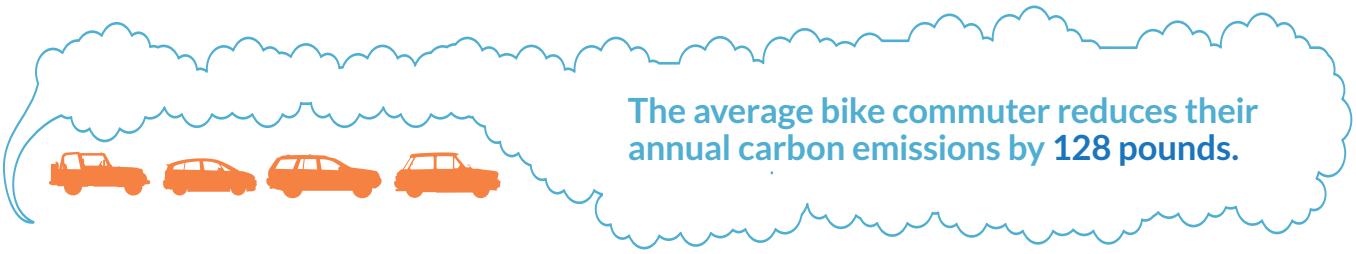
Residents who switch to **more walking and biking** for their commute weigh an average of **6.5 pounds less** than those who continue to drive to work.

Source: MacDonald, J.M., Stokes, R.J., Cohen, D.A., Kofner, A., & G.K. Ridgeway. (2010). The effect of light rail transit on body mass index and physical activity. American Journal of Preventive Medicine 39(2): 105-112.



Replacing automobile trips with biking/walking trips improves air quality and **decreases public health concerns** such as asthma.

Sources: Frank, L., et al. (2006). Many pathways from land use to health: Associations between neighborhood walkability and active transportation, body mass index, and air quality. Journal of the American Planning Association, 72, 75-8.; Friedman, M., et al. (2001) Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma. Journal of the American Medical Association, 285(7): 897



The average bike commuter reduces their annual carbon emissions by 128 pounds.

Sources: European Cyclists' Federations. (2016). Cycle More Often 2 Cool Down the Planet! Quantifying CO2 savings of cycling.

U.S. HEALTH STATISTICS

PORTSMOUTH HEALTH STATISTICS

80% of Americans **DO NOT ACHIEVE** the recommended 150 minutes per week of **MODERATE EXERCISE** (CDC)

42% of Portsmouth Residents **REPORT PHYSCIAL INACTIVITY**

66% of Americans **ARE OVERWEIGHT OR OBESE** (CDC)

57% of Portsmouth Residents **ARE OBESE**

ASTHMA IS THE LEADING CHRONIC DISEASE IN CHILDREN and the number one reason for missed school days (CDC)

17% of Portsmouth Residents **HAVE ASTHMA**

CARDIOVASCULAR DISEASES are the **#1 CAUSE OF DEATH** in the United States

(American Heart Association)

1,630 Americans **DIE EVERY DAY FROM CANCER**, mainly that of the lung, breast and colon (American Cancer Society)

61% of American adults 65 years or older **HAVE AT LEAST ONE ACTIVITY-BASED LIMITATION**

(CDC)

HEALTH BENEFITS

Residents of **WALKABLE COMMUNITIES** are **2x** as **LIKELY TO MEET PHYSICAL ACTIVITY GUIDELINES** compared to those who do not live in walkable neighborhoods

(Frank, 2005)

For every **0.6 MILE WALKED** there is a **5%** **REDUCTION IN THE LIKELIHOOD OF OBESITY**

(Frank, 2004)

A minimum of **20** **MINUTES OF PHYSICAL ACTIVITY, 3X WEEK, STRENGTHENS THE LUNGS,** including those of individuals living **with asthma**

(US National Lib of Medicine)

20 MINUTES WALKING OR BIKING each day is associated with **21%** **LOWER RISK OF HEART FAILURE FOR MEN** and **29%** **LOWER RISK FOR WOMEN**

(Rahman, 2014 and 2015)

MODERATE EXERCISE for 30-60 minutes a day **REDUCES THE RISK OF LUNG, BREAST AND COLON CANCER** by a minimum of **20%**

(National Cancer Institute)

PHYSICAL ACTIVITY HELPS PREVENT OR DELAY ARTHRITIS, OSTEOPOROSIS AND DIABETES, while helping maintain balance, mental congition, and independence

(NIH-National Institute on Aging)

CHAPTER 2:
Existing Conditions

INTRODUCTION

An existing conditions analysis was performed to better understand bicycle and pedestrian trends and issues. The following pages feature different types of analyses that were conducted to take a closer look at current walking and biking conditions in Portsmouth. Results of these analyses illustrate areas where improvements to safety and connectivity could be made.

The chart below provides an overview of the analyses conducted and how they relate to existing conditions in the City.

High Street near Commodore Theatre in Olde Towne

TYPE OF ANALYSIS	TO UNDERSTAND
• Past Accomplishments & Current Efforts	• Existing interest in bicycle and pedestrian projects and how the new Plan can support larger community goals and connect to existing infrastructure
• Demand	• Expected bicycle and pedestrian activity
• Equity	• Where there are concentrations of higher need populations
• Safety	• Where bicycle and pedestrian crashes are occurring and any trends or patterns related to where the crashes occur
• Opportunities & Constraints	• Where the most promise and greatest barriers exist in achieving the Plan's goals
• Public Input	• What the community wants

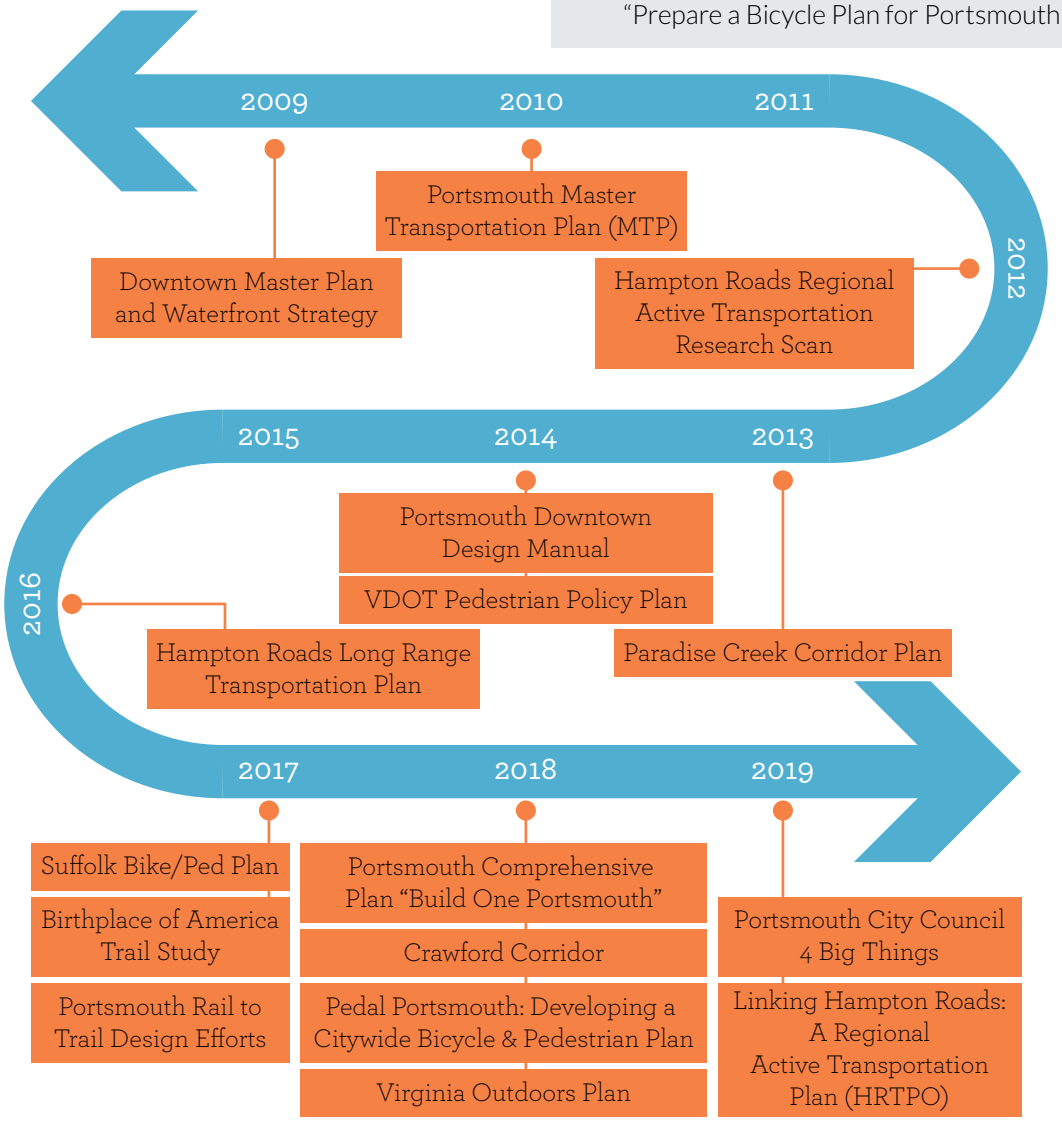
PAST ACCOMPLISHMENTS + CURRENT EFFORTS

PAST ACCOMPLISHMENTS

The following timeline illustrates the planning activity in and around Portsmouth over the last ten years. These plans were used as a foundation for developing the bicycle and pedestrian recommendations in this Plan.

Calls for a Portsmouth Bike Plan

- **Build One Portsmouth** (2018) - Strategy R.4.B - Tactic vi "Develop a bicycle and pedestrian plan, including an evaluation of the feasibility of a bike share program"
- **Portsmouth Master Transportation Plan** (2010) - Strategy 2 - Action B2.1 "Prepare a Bicycle Plan for Portsmouth"



CURRENT EFFORTS

Portsmouth has a foundation of existing bicycle and pedestrian infrastructure and programs, which will form a strong basis for this Plan's recommendations. A more in-depth analysis of existing facilities can be found in Chapter 4 of this Plan.

0.2
miles of
BUFFERED BIKE LANES

6.5
miles of
BIKE LANES

8
miles of
SHARED ROADWAYS (SHARROWS)

2
miles of
EXISTING SHARED USE PATHS

1.5
miles of
WIDE SHOULDER

18.2
total miles of
EXISTING BIKEWAYS

Existing Programs

- Safety Town
- Hampton Roads Transit (HRT) Smart Cities and Innovation Committee
- Safe Routes to School
- Healthy Portsmouth
- Bike Month & Bike to Work Events
- 2019 Bicycle Friendly Community (Bronze)
- 2014 Walk Friendly Community (Bronze)

62.2
miles of street with
SIDEWALK ON ONE SIDE

266.5
miles of street with
NO SIDEWALKS

138.7
miles of street with
SIDEWALKS ON BOTH SIDES

MULTIMODAL CORRIDORS

Multimodal corridors were identified in the 2010 City of Portsmouth Master Transportation Plan. They are the key links in Portsmouth's transportation network, intended to provide access to all road users between the major destinations in the City. This concept provides a framework for transportation investments that will facilitate the creation of complete streets in important corridors.

The multimodal corridor framework was used in this planning process as a foundation for the development of the bicycle and pedestrian network and priorities.

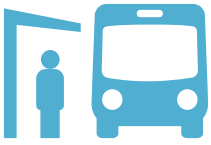
CONNECTIVITY

The multimodal corridors are the most direct links between destinations, i.e., neighborhoods to activity centers, parks, schools and employment areas.

MODAL IMPROVEMENTS

Bike/Ped

Create a basic level of accommodation and improve safety

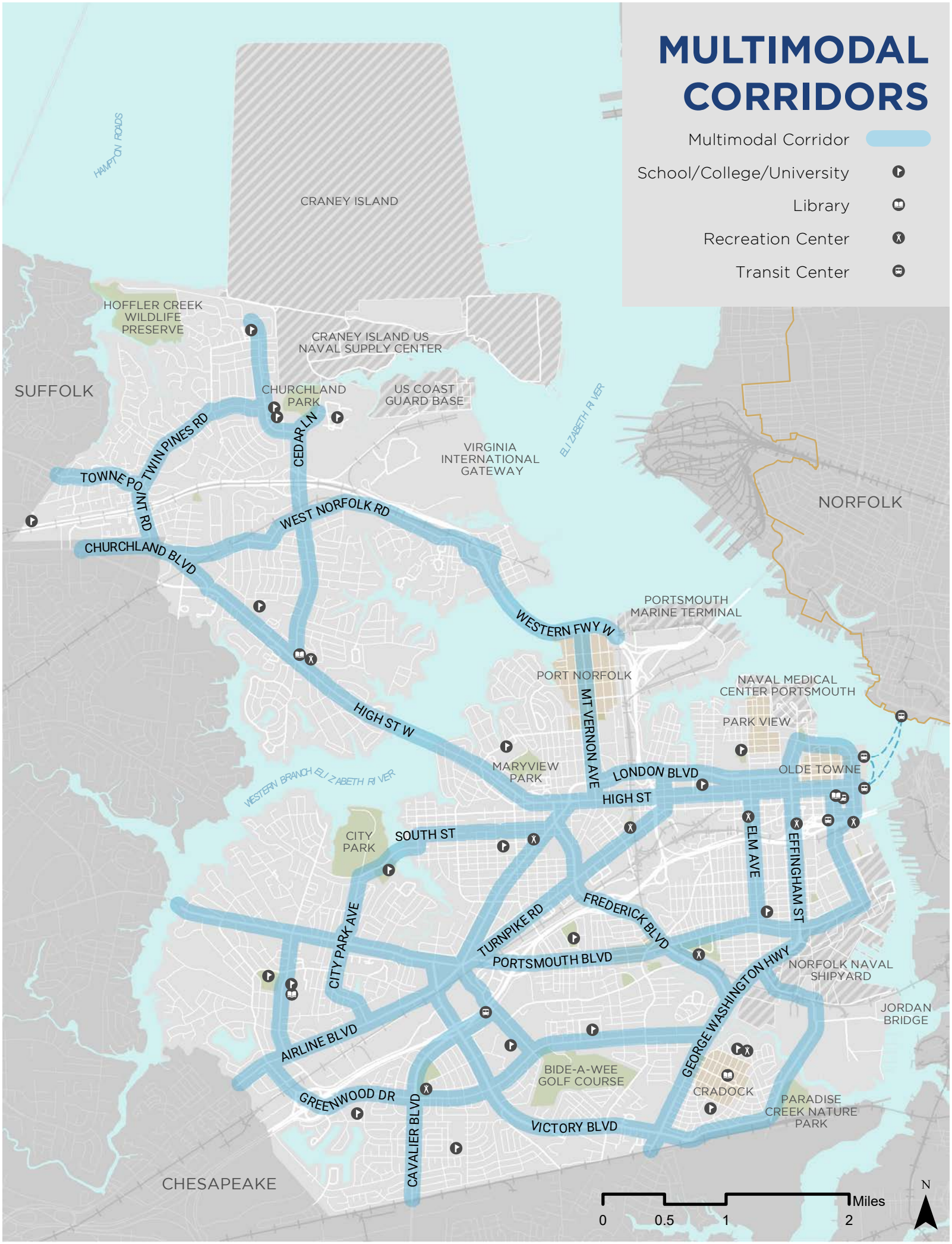


Transit

Increase the service frequency and accessibility of buses, and continuing to improve ferry service, transit facilities, and express bus service

Vehicular

Improve roadway safety and reduce traffic congestion


MULTIMODAL CORRIDORS
Multimodal Corridor
School/College/University
Library
Recreation Center
Transit Center
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
CRANEY ISLAND US NAVAL SUPPLY CENTER
SUFFOLK
CHURCHLAND PARK
US COAST GUARD BASE
ELIZABETH RIVER
VIRGINIA INTERNATIONAL GATEWAY
NORFOLK
TWIN PINES RD
CEDAR LN
TOWNE POINT RD
WEST NORFOLK RD
CHURCHLAND BLVD
WESTERN FWY W
PORTSMOUTH MARINE TERMINAL
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
PARK VIEW
HIGH ST W
MARYVIEW PARK
MT VERNON AVE
LONDON BLVD
OLDE TOWNE
HIGH ST
WESTERN BRANCH ELIZABETH RIVER
CITY PARK
SOUTH ST
ELM AVE
EFFINGHAM ST
CITY PARK AVE
TURNPIKE RD
FREDERICK BLVD
PORTSMOUTH BLVD
NORFOLK NAVAL SHIPYARD
GEORGE WASHINGTON HWY
JORDAN BRIDGE
AIRLINE BLVD
BIDE-A-WEE GOLF COURSE
CRADOCK
PARADISE CREEK NATURE PARK
GREENWOOD DR
VICTORY BLVD
CAVALIER BLVD
CHESAPEAKE
0
0.5
1
2
Miles
N

DEMAND ANALYSIS

A non-motorized demand analysis was completed for the City of Portsmouth to determine areas of expected pedestrian and bicyclist activity. The areas of high demand are focused within the more urban areas of the region, where residential and commercial density are highest. The downtown core and part of the US-17 corridor (High Street and Frederick Boulevard) between Hartford St and Turnpike Rd have particularly high demand.

The map on the following page shows the composite demand in Portsmouth, which was calculated based on a combination of the factors listed below. For a detailed look at the Demand Analysis, please see Appendix A.

WHERE PEOPLE LIVE

People are likely to walk near their homes for recreation or to visit nearby friends and family.

WHERE PEOPLE WORK

Higher densities of workers translates to higher propensity for people to walk or bike.

WHERE PEOPLE LEARN

Schools are a significant source of walking and biking by populations that either cannot drive because they are not old enough or are more likely to walk or bike for economic reasons.

WHERE PEOPLE ACCESS TRANSIT

All transit trips start or end with a walking trip.

WHERE PEOPLE PLAY

Trails and parks are attractors and generators of walking and biking activity.

WHERE PEOPLE SHOP

Retail shopping areas are attractors for walking and biking. Places where people can complete errands, such as banks, are also generators of walking and bicycling trips.

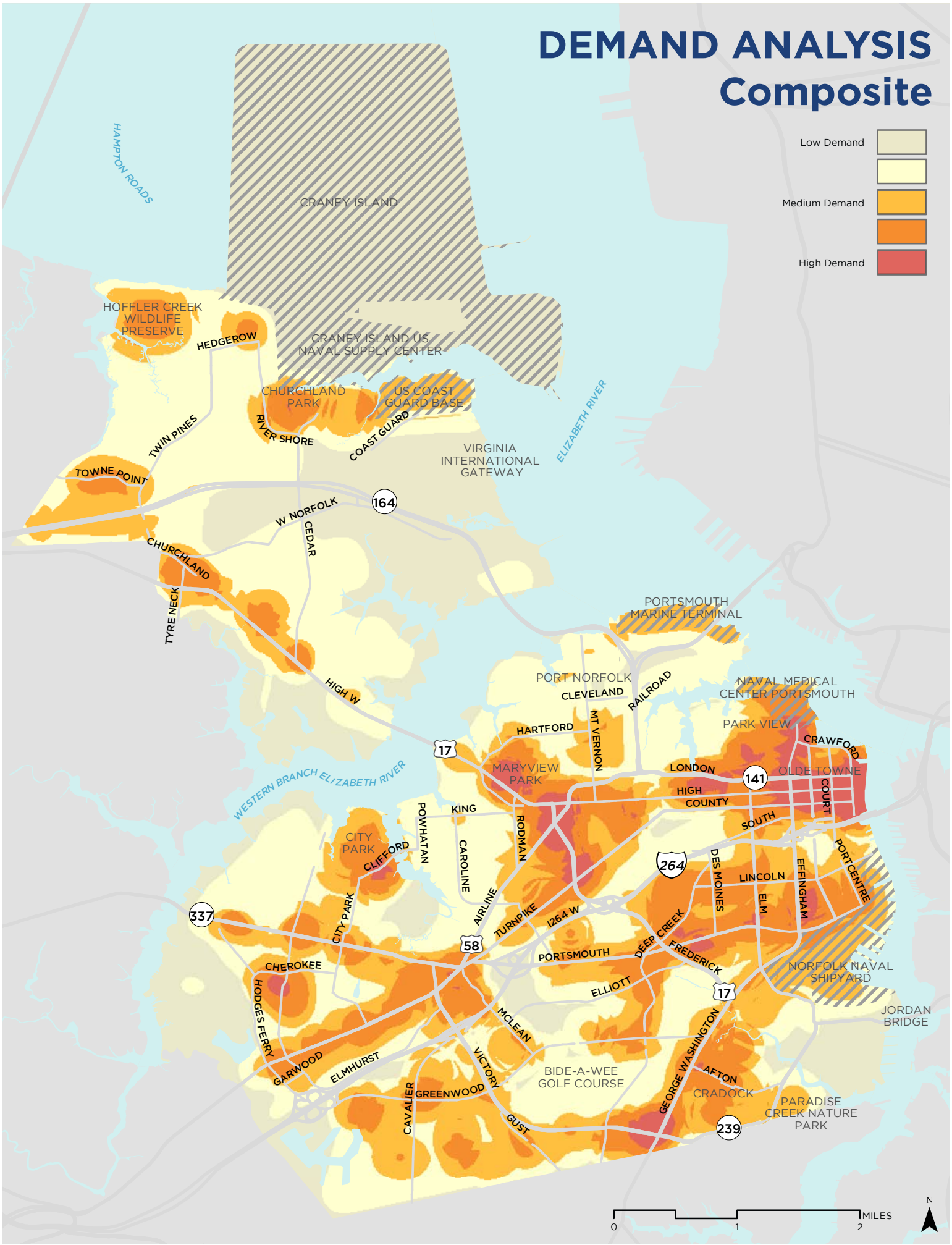
Common method of travel for workers in Portsmouth, VA

Walking
3.65%

Public Transit
2.25%

Bicycle
<1%

2017 Census - ACS 5-Year Estimates. https://datausa.io/profile/geo/portsmouth-va#mode_transport


DEMAND ANALYSIS
Composite
Low Demand
Medium Demand
High Demand
HAMPTON ROADS
CRANEY ISLAND
CRANEY ISLAND US NAVAL SUPPLY CENTER
HOFFLER CREEK WILDLIFE PRESERVE
HEDGEROW
CHURCHLAND PARK
US COAST GUARD BASE
RIVER SHORE
COAST GUARD
TWIN PINES
TOWNE POINT
VIRGINIA INTERNATIONAL GATEWAY
ELIZABETH RIVER
164
W NORFOLK
CEDAR
CHURCHLAND
TYRE NECK
HIGH W
PORTSMOUTH MARINE TERMINAL
PORT NORFOLK
CLEVELAND
RAILROAD
NAVAL MEDICAL CENTER PORTSMOUTH
PARK VIEW
CRAWFORD
HARTFORD
MT VERNON
17
MARYVIEW PARK
LONDON
141
OLDE TOWNE
HIGH
COUNTY
COURT
SOUTH
WESTERN BRANCH ELIZABETH RIVER
KING
POWHATAN
RODMAN
CITY PARK
CLIFFORD
CAROLINE
264
DES MOINES
LINCOLN
EFFINGHAM
PORT CENTRE
ELM
337
CITY PARK
AIRLINE
TURNPIKE
I264 W
58
PORTSMOUTH
DEEP CREEK
FREDERICK
NORFOLK NAVAL SHIPYARD
CHEROKEE
ELLIOTT
17
HODGES FERRY
MCLEAN
JORDAN BRIDGE
GARWOOD
ELMHURST
VICTORY
BIDE-A-WEE GOLF COURSE
GEORGE WASHINGTON
AFTON
CRADOCK
CAVALIER
GREENWOOD
GUST
239
PARADISE CREEK NATURE PARK
0
1
2
MILES
N

EQUITY ANALYSIS

Portsmouth Poverty Study (2019)

The Study was developed with assistance from Portsmouth's Planning Department, City Manager's Office , and a variety of community stakeholders.

The Study includes information on Poverty and its impacts, an overview of current efforts, a review of best practices examples, public engagement outcomes, and a set of recommendations.

Rate of Poverty

- 18%

Survey Results

- 67% responded that "Clean and well-lit streets and sidewalks" are a "High Priority"
- 48.9% responded that "Transportation to and from work" is a "High Priority"

Workforce Recommendation:

- "Work with regional transportation partners to help employees get to and from work."

http://www.portsmouthva.gov/DocumentCenter/View/7385/City-of-Portsmouth-Poverty-Study

Transportation facilities are essential components in creating communities of opportunity and reducing the disproportionate economic and health burdens on communities of concern. Often, traditionally vulnerable populations, such as minority groups, low-income individuals, children, older adults, and people with limited English proficiency rely heavily on affordable transportation options, specifically walking, biking, and transit.

The project team conducted an equity analysis using existing demographic information from the US Census Bureau. All data was obtained from the 2017 American Community Survey 5-year estimates and analysis was conducted at the census block group level for the City of Portsmouth.

Pedestrian crossing multiple driving lanes

The analysis scored the study area using the following economic and demographic indicators:

Minority Groups:

This indicator shows the percentage of the population that identifies as non-white or multiple races/ethnicities.

Youths & Older Adults:

These indicators show the percent of the population that is under the age of 18 and over the age of 64.

Poverty:

This indicator shows the percent of the population that is living at or below 200% of the Federal Poverty Level.

Limited Education:

This indicator shows the percent of the adult population over the age of 24 that does not have a high school diploma or equivalent degree.

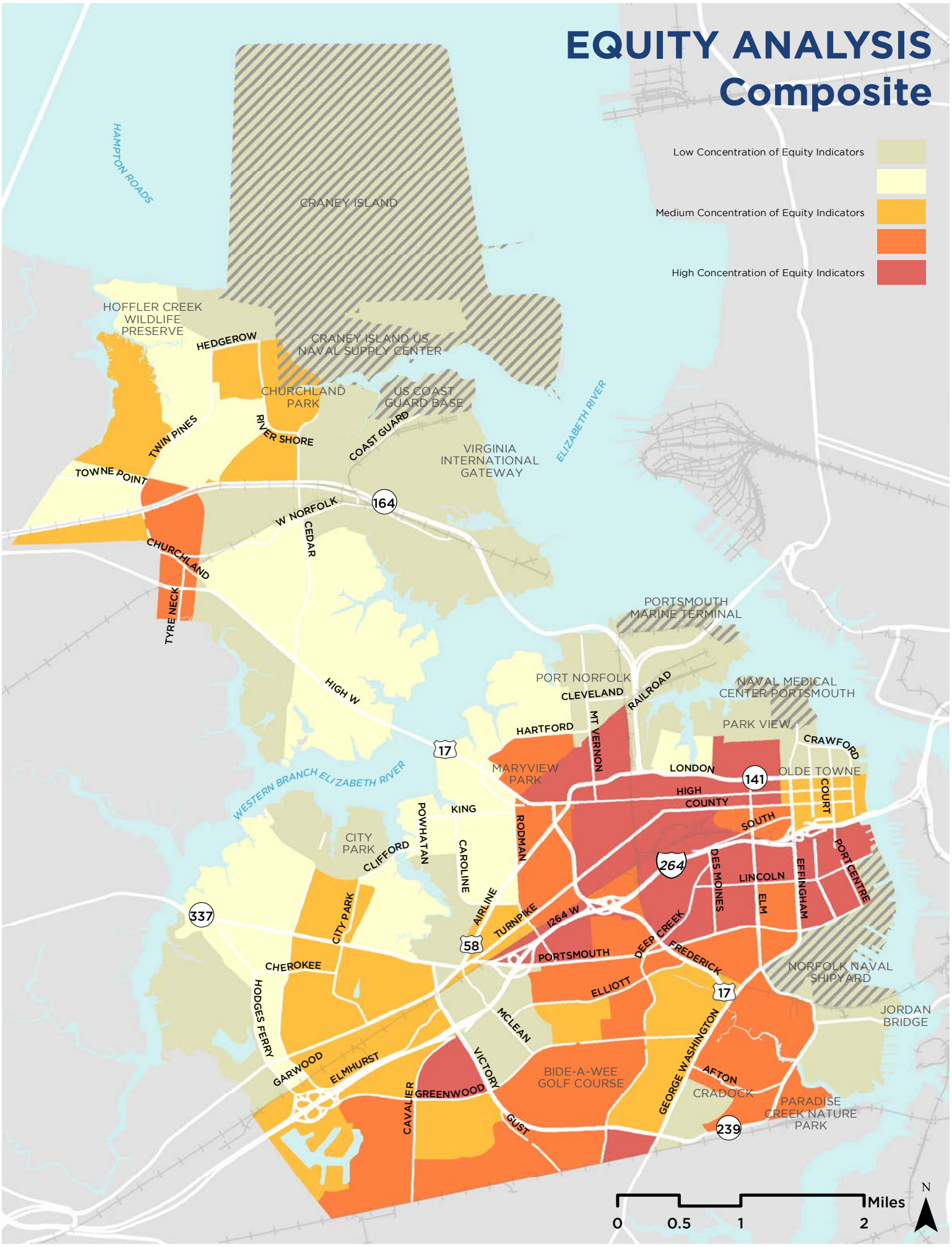
Limited English Proficiency:

This indicator shows the percent of the population that identified as not speaking English well or at all.

Carless Households:

This indicator shows the percent of households that said they did not have regular access to a motor vehicle.

For more information on the Equity Analysis, please see Appendix B.


EQUITY ANALYSIS
Composite
Low Concentration of Equity Indicators
Medium Concentration of Equity Indicators
High Concentration of Equity Indicators
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
HEDGEROW
CRANEY ISLAND US NAVAL SUPPLY CENTER
CHURCHLAND PARK
US COAST GUARD BASE
ELIZABETH RIVER
TWIN PINES
RIVER SHORE
COAST GUARD
VIRGINIA INTERNATIONAL GATEWAY
TOWNE POINT
164
W NORFOLK
CEDAR
CHURCHLAND
TYRE NECK
PORTSMOUTH MARINE TERMINAL
HIGH W
PORT NORFOLK
CLEVELAND
RAILROAD
NAVAL MEDICAL CENTER PORTSMOUTH
HARTFORD
MT VERNON
PARK VIEW
CRAWFORD
17
MARYVIEW PARK
LONDON
141
OLDE TOWNE
HIGH
COURT
COUNTY
SOUTH
WESTERN BRANCH ELIZABETH RIVER
KING
POWHATAN
RODMAN
CITY PARK
CLIFFORD
CAROLINE
264
DES MOINES
LINCOLN
EFFINGHAM
PORT CENTRE
ELM
337
CITY PARK
AIRLINE
TURNPIKE
I264 W
58
DEEP CREEK
PORTSMOUTH
FREDERICK
CHEROKEE
NORFOLK NAVAL SHIPYARD
ELLIOTT
17
HODGES FERRY
MCLEAN
JORDAN BRIDGE
GARWOOD
ELMHURST
VICTORY
BIDE-A-WEE GOLF COURSE
GEORGE WASHINGTON
AFTON
CAVALIER
GREENWOOD
CRADOCK
PARADISE CREEK NATURE PARK
GUST
239
0
0.5
1
2
Miles
N

SAFETY ANALYSIS (2016-2019)

Contributing Factors

- Mature Driver (65+) Involved **(26%)**
- Young Driver (15-20) Involved **(14%)**
- Distraction Involved **(10%)**
- Alcohol Related **(9%)**
- Speed Related **(5%)**

144
Reported Pedestrian Crashes

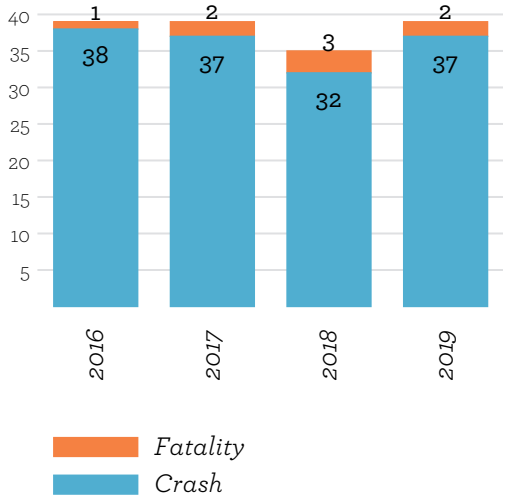
8
Pedestrian Fatalities

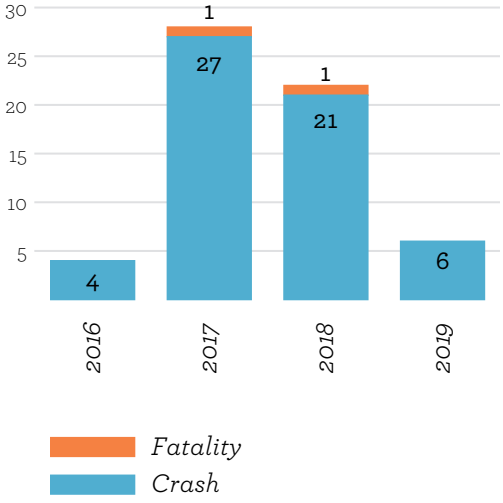
49%
occurred in a Census block group identified as the highest equity tier (most need) (including 2 of the fatal pedestrian crashes)

58
Reported Bicyclist Crashes

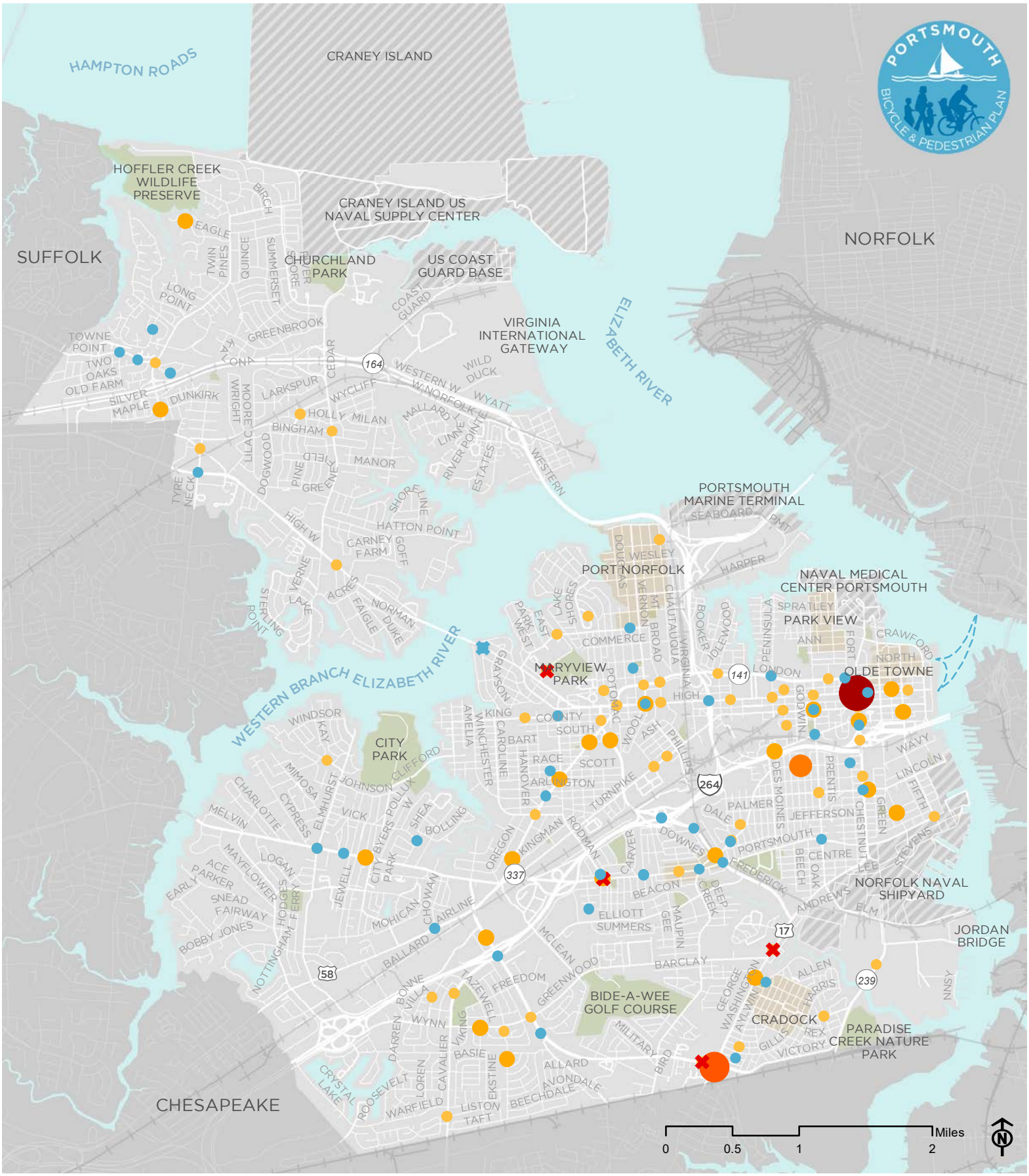
2
Bicyclist Fatalities

47%
occurred in a Census block group identified as the highest equity tier (most need)





For a detailed look at the Safety Analysis, please see Appendix C.



SAFETY ANALYSIS | 2016 - 2019

- Fatal Crash Pedestrian
- Bicyclist
- Number of Crashes Pedestrian: 1 2 3 4 5
- Bicyclist: 1
- High Need Census Block Group (Equity Analysis)
- Elizabeth River Ferry
- Railways
- Parks
- Water Body
- Historic District
- Port/Goverment
- Portsmouth City Limits
- Surrounding City

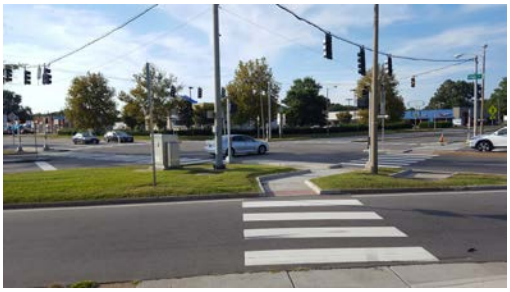
Crash Data Sourcea: Virginia Department of Transportation, City of Portsmouth Police Department.
Note: 44 crashes did not have precise location information in the data and are not mapped here.

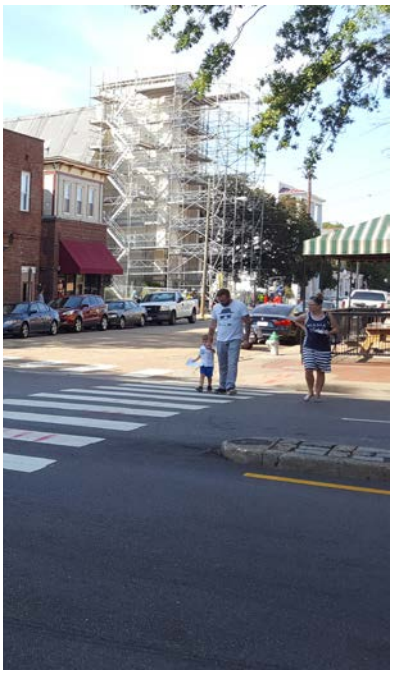
OPPORTUNITIES + CONSTRAINTS

OPPORTUNITIES

There are already many people riding bikes and walking around Portsmouth. Improving infrastructure will provide a more safe and comfortable experience for those current users, while also inviting others to walk and bike around town.

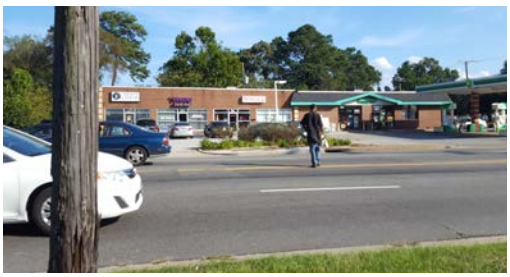
One of the greatest opportunities lies in Portsmouth's relatively consistent street grid. Strong street connectivity allows for creating a more simple network based on a combination of treatment types that is responsive to community contexts. Other opportunities include having a strong downtown that is in close proximity to other employment hubs like the Portsmouth Naval Medical Center and Norfolk Naval Shipyard. Connecting neighborhoods to these activity hubs will increase multimodal travel and economic development.

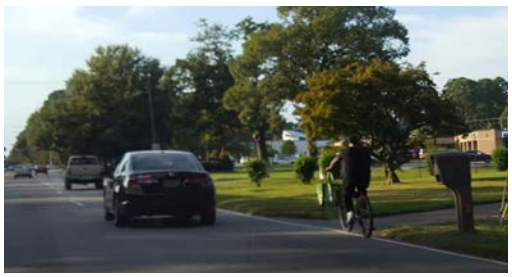




CONSTRAINTS

Portsmouth faces many challenges as it works to improve its bicycle and pedestrian networks. Some of the most difficult constraints to overcome are the abundance of physical barriers like the Elizabeth River and large highways like I-264, VA-164, and others. Additionally, many main corridors lack safe pedestrian crossings or bike facilities.





STAKEHOLDER MEETINGS

Stakeholder feedback and participation was an essential component of the development of this plan. The following summaries highlight the feedback received from key stakeholders.

CITIZEN ADVISORY COMMITTEE

The City of Portsmouth organized a Bicycle and Pedestrian Citizen Advisory Committee comprised of key stakeholders with varying backgrounds. The committee was charged with overseeing the development of this plan. The committee is intended to continue meeting after the plan is adopted to monitor implementation.

Citizen Advisory Committee Members

- Fred Brusso, Former Portsmouth Neighborhood Director
- Bruce LaLonde, Portsmouth City Treasurer, Safety Town
- Marjorie Mayfield-Jackson, Elizabeth River Project
- Tom Miano, Former Owner SCAT Bike Shop
- Jonathan Nye, Ecocycling
- Amy Paulson, Eastern Virginia Medical School/Healthy Portsmouth
- Susan Wilson, VDOT, Former Portsmouth Planning
- Yolima Carr, Elizabeth River Project

The committee met early in the planning process to discuss existing condition findings and opportunities and challenges associated with walking and biking in Portsmouth. Key discussion included:

- Sidewalks should focus on how to connect to key destinations.
- Not every street needs a sidewalk.
- Priority connections should focus on transit dependent areas.
- More sidewalks are needed in West Cradock.
- Two district groups of cyclists in Portsmouth - recreation riders and those that ride for transportation.
- Team Portsmouth developed recreational routes that would provide a connection to tourism.
- Challenges with connectivity in the northern part of the City.
- Opportunity for greenway connections between cul-de-sac communities.

The committee also met to review the full draft plan and provided the following key input:

- Plan needs more emphasis on education and programs.
- Neighborhood greenways provide a good alternative to main roads and could be featured more prominently in the plan.
- Funding is important and some opportunities include Made to Move Grant Program, People for Bikes, Virginia Recreational Trails Program, and the Elizabeth River Project.

BUSINESS ASSOCIATION

The project team met with several representatives of the business community to gather input about walking and biking. Feedback included:

- Bike parking is important to provide a convenient place to secure bikes at key destinations.
- Consider lowering speed limits along busy streets such as Martin Luther King, JR Boulevard and London Street.
- Critical that this plan is coordinated with and connected to transit planning and implementation.

PUBLIC SCHOOLS

Safe Routes to Schools is a priority for the City of Portsmouth. To understand the distinct opportunities and challenges associated with walking and biking to school, the project team met with several students and school staff. Feedback included:

- Biggest challenge currently is that Portsmouth isn't a walkable community and parents are afraid to let their kids walk or bike to school for several reasons such as personal safety and lack of crossing guards.
- Bicycle education is important for all users as there's currently a lot of wrong way riding. PSA's and social media videos about how to share the road would be helpful.
- Opportunity for a school project to paint crosswalks as a way to promote safety and public art.
- There are no sidewalks on South Street but a lot of people walking, including kids.

PORTSMOUTH NAVAL SHIPYARD

As the largest employer in Portsmouth, the project team met with shipyard staff to discuss opportunities and challenges associated with walking and biking. Feedback included:

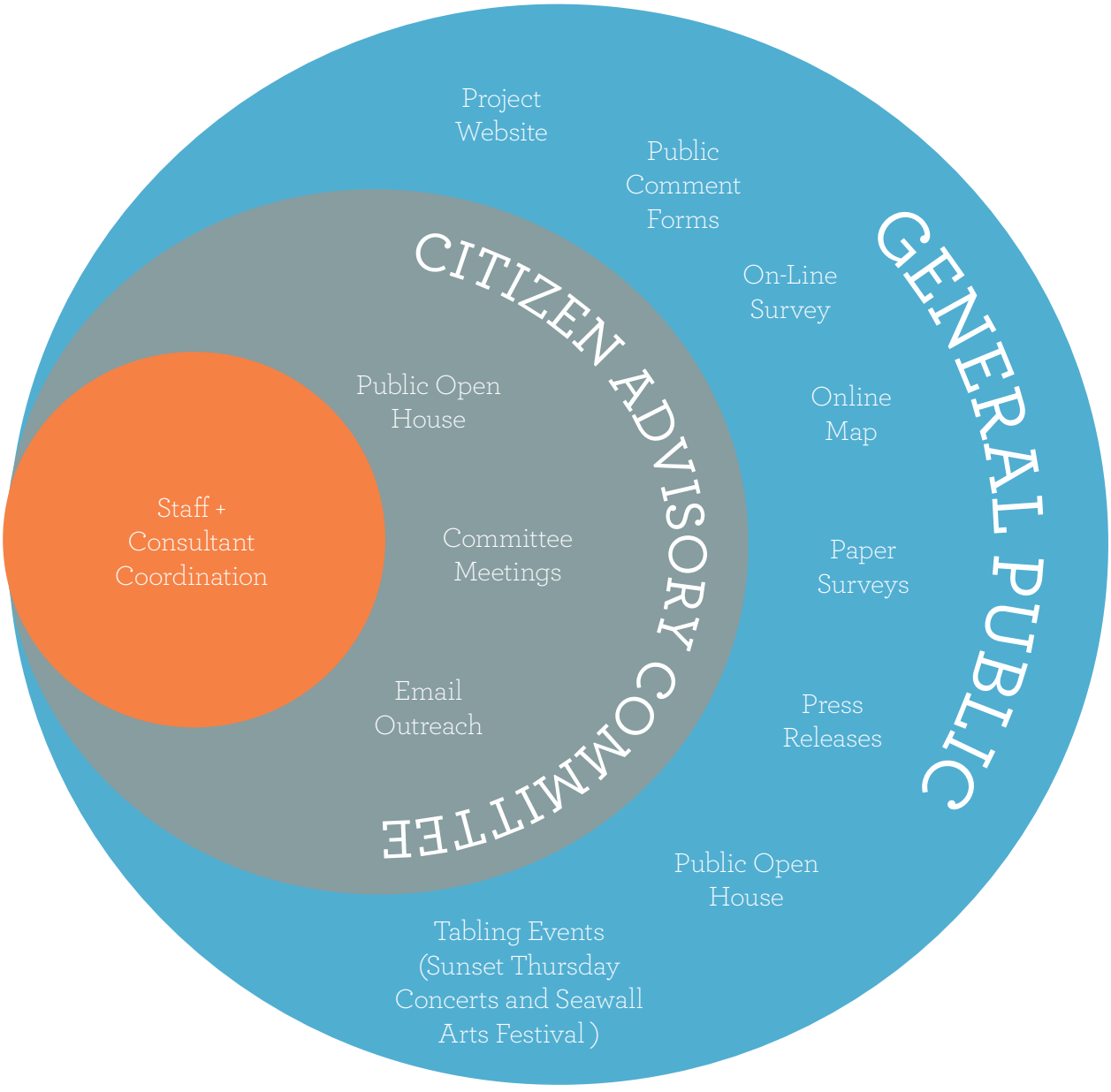
- 17% of the shipyard workforce lives in Portsmouth (about 2,000 people). Most employees either drive, carpool, or use rideshare. Very few walk or bike to work.
- The biggest barrier to walking and biking is the distance from the shipyard to key destinations.
- Sidewalk improvements along George Washington Street would be helpful as that's the main connection when the pedestrian bridge that connects Scott Center is closed.
- The shipyard is willing to work with the City to improve mobility options to and around the shipyard.

Prioritizing access to transit was a common theme among stakeholders.

PUBLIC INPUT

The graphic below demonstrates the various ways public input was collected. The page to the right illustrates some of the most powerful outcomes of the survey related to biking and walking in Portsmouth.

The program, policy, and infrastructure recommendations of this plan (see Chapters 3-5) stem directly from the findings of the public outreach efforts. For complete survey results, please see Appendix D.



327
ONLINE AND PAPER SURVEYS COMPLETED

64% said
WALKING IN PORTSMOUTH today

Fair

70% said
IMPROVING WALKING
CONDITIONS is

Very Important

81% said they WOULD WALK MORE
IF there were

More Sidewalks

PURPOSE OF WALKING trips

1. Exercise (85%)
2. To Enjoy Being Outside (72%)
3. Fun (51%)

TOP DESTINATIONS

1. Downtown
2. Local Parks
3. Restaurants

57% said
BIKING IN PORTSMOUTH today

Fair

65% said
IMPROVING BIKING
CONDITIONS is

Very Important

81% said they WOULD BIKE MORE
IF there were

More Bikeways

PURPOSE OF BIKING trips

1. Exercise (78%)
2. To Enjoy Being Outside (62%)
3. Fun (61%)

TOP DESTINATIONS

1. Downtown
2. Local Parks
3. Library

WHAT WE HEARD

I'd love to ride from Churchland to downtown, but it's completely unsafe, especially the Churchland Bridge. Also, there's no safe way to get to City Park.

There is not a safe way to get to a grocery store from downtown.

Crossing in front of the Naval Hospital on the corner of Effingham and Crawford Parkway. The traffic pattern is very dangerous and the cars at that light are not friendly to bikers and walkers.

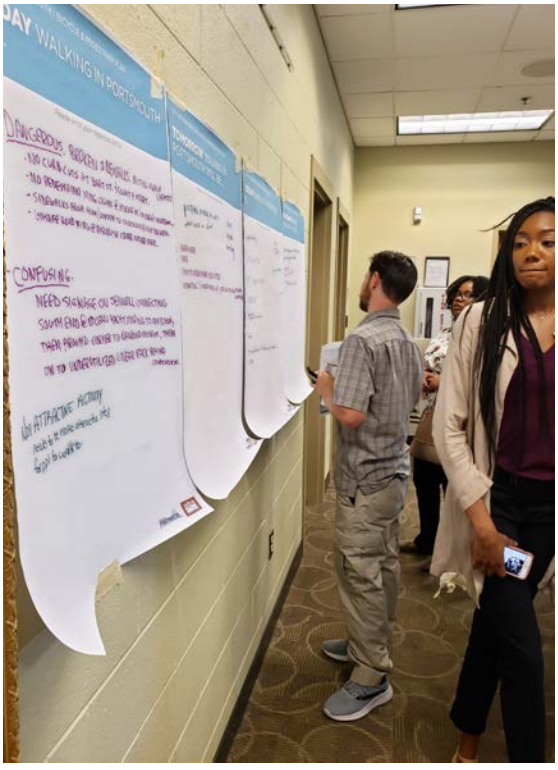
Bike and breakdown lanes are not regularly cleaned...for example, the West Norfolk Bridge. I'm glad there are shared lanes, but we need more dedicated bike lanes throughout the City.

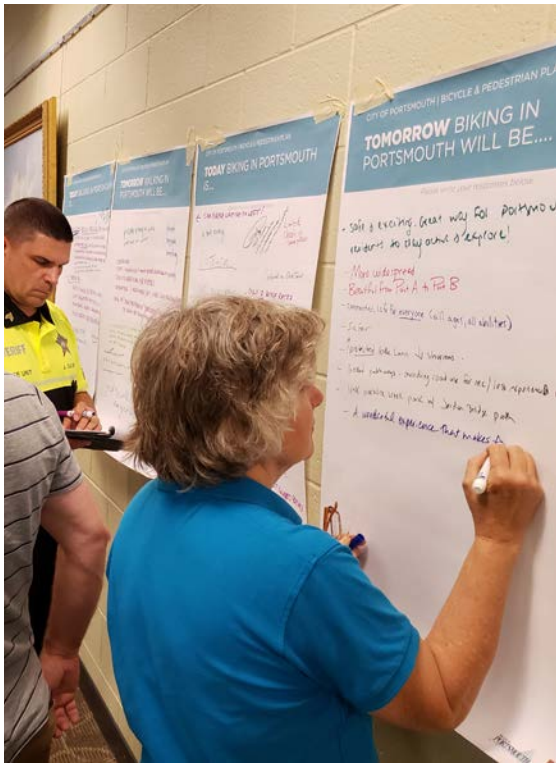
Walkability is a major draw for potential homeowners, especially young people. If we had sidewalks along High Street, we would walk/bike more.

Bike lanes are great; however if we aren't policing the speeding and reckless driving, we will never have safe, bike-able streets.

In the future, I want walking in Portsmouth to be organized, safe, easy to understand for visitors, and attractive (art, sign markers, etc).

Existing sidewalk network is decent. An education and safety campaign will increase pedestrian use.





CHAPTER 3:
Programs + Policies

INTRODUCTION

While transportation infrastructure – roads, sidewalks, crossings, bikeways – are critical for improving walking and bicycling, other components must also be used to create communities that are truly walking- and bicycling-friendly. This Plan incorporates these strategies to make walking and bicycling safe, comfortable, and common forms of transportation. By building on the region's existing resources and community spirit, the City of Portsmouth can lead the way to a more livable, multimodal future.

This chapter starts by discussing the potential partnerships and existing non-infrastructure efforts currently underway in Portsmouth. It then moves into recommendations that are organized according to four distinct categories:

- Policies
- Programs
- Design
- Evaluation

Officers from Portsmouth PD participating in a Safe Route to Schools event - https://wtkr.com/2019/01/10/portsmouth-police-departments-walking-program-encourages-fitness-keeps-kids-safe/

EXISTING EFFORTS

SAFETY TOWN

Safety Town is a partnership between Portsmouth's education, law enforcement, and legislative bodies designed to teach young children pedestrian and bicycle safety. Through the use of age-appropriate, hands-on interactive experiences, children enjoy learning lifesaving behaviors and practices that help reduce the chance of serious injury.

Safety Town provides a safe and interesting learning environment that is set up to simulate an actual neighborhood. Safety Town has working traffic signals, miniature buildings, cross walks, and a fire truck.[1]

HEALTHY PORTSMOUTH

Healthy Portsmouth is a city-wide health and wellness initiative led by a group of community leaders committed to changing the policies, systems and environments that affect neighborhoods, schools and workplaces to improve the health of Portsmouth's citizens.[2]

[1] *safetytownportsmouth.org*
[2] *www.portsmouthva.gov*
[3] *saferoutespartnership.org*

SAFE ROUTES TO PARKS GRANT

In 2019, The Elizabeth River Project won a Safe Routes to Parks Activating Communities Grant to improve safe, equitable access to Paradise Creek Nature Park. Paradise Creek Nature Park is an "urban oasis" of restored wetlands, forests, and trails adjacent to an inner-city community that struggles with gangs, poverty, and health challenges. The neighborhood is also isolated from the park by a high-traffic, four-lane arterial. The Elizabeth River Project will work to improve connections and signage to the park and a nearby bridge where people can run, jog, and bike, so that residents can enjoy the health and community benefits of their local park.[3]

OTHER EFFORTS

Bike Month: Portsmouth partners with the Hampton Roads Transportation Planning Organization (HRTPO) on many of its bike month events.

Safe Routes to School: Portsmouth and Portsmouth Public Schools is an active participant in the National Safe Routes to School initiative, enabling and encouraging children to walk and bicycle to school and making walking and bicycling to school safe and appealing.

PARTNERSHIPS

Implementation of the Portsmouth Bicycle and Pedestrian Plan will be a collaborative effort between regional and local partners.

While the City and its agency and jurisdictional partners are responsible for infrastructure projects, community programs and the non-infrastructure recommendations listed here can be supported and championed by outside partners such as nonprofits, advocacy groups, foundations, private sector businesses, and interested citizens.

POTENTIAL PARTNER AGENCIES

- Eastern Virginia Medical School
- Ecocycling
- Elizabeth River Project
- Hampton Roads Transit
- Hampton Roads Transportation Planning Organization
- Hampton Roads Pedestrian and Bicycle Advisory Committee
- Hampton Roads TRAFFIX
- Portsmouth City Schools
- Portsmouth Health Department
- Safe Routes to School Virginia
- Safety Town
- Team Portsmouth
- US Navy
- Virginia Department of Transportation (VDOT)

RECOMMENDATIONS

POLICIES

Policies add political backing and institutionalize recommendations and design guidelines into city codes. Policies may be specific to infrastructure elements such as bike parking requirements, or may be broad and include multiple municipal departments, such as Complete Streets Policies that may include design guidelines and evaluation metrics. Note: In addition to the policies listed below, the City of Portsmouth is currently developing a shared mobility program, which is the focus of Chapter 6 of this Plan.

VA Vision Zero Goals

- The Hampton Roads Transportation Planning Organization (HRTPO) aims for zero traffic deaths by 2045[1]
- The Virginia 2017-2021 Strategic Highway Safety Plan outlines how the Commonwealth will work to "Arrive Alive", or reach zero traffic deaths[2]

Complete Streets (see Policy Spotlight starting on pg. 52)	Develop a Complete Streets policy that calls for a safe, accessible transportation network that accommodates users of all ages and abilities, which encompasses bicyclists, pedestrians, transit riders, and motorists.
Maintenance (see Policy Spotlight on pg. 56)	Formulate processes that ensure facilities are in good shape and clear of debris
Vision Zero	Enact a Vision Zero policy with a clear process to achieving zero traffic deaths in the City of Portsmouth.
Dedicated Funding Stream	Identify a program funding strategy that would allow for more reliable and consistent long-term pedestrian and bicycle planning and implementation.

[1] https://www.hrtpo.org/page/regional-performance-measures-and-targets/
[2] https://www.virginiadot.org/info/resources/SHSP/VA_2017_SHSP_Final_complete.pdf

DESIGN

Design Guidelines are based on best practices in facility design and create clear and uniform regional standards for walkways and bikeways. The guidelines provide an explanation of facility types and direction for implementing the infrastructure recommendations.

Pop-Up Demonstration Projects	Provide the ability to test new infrastructure and allows for immediate public feedback and early detection of obstacles before making large investments.
Bike/Pedestrian Design Guidelines	Develop Bike/Pedestrian Design Guidelines based on the VDOT Complete Streets Design Guidelines that will support the Portsmouth Complete Streets Policy.
Bicycle/Shared Mobility Parking Study	Conduct a bicycle parking inventory and develop design guidelines for bicycle parking and shared mobility devices.

PROGRAMS

Programs can engage the broader community to encourage more people to walk and bike, educate community members on rights and responsibilities, and enforce traffic laws to improve safety for all modes.

Safe Routes to Schools/Safe Routes to Parks	Continue work started with the Safe Routes to Parks grant in order to increase the number of students and community members who walk or bike to schools/parks.
Education, Safety, and Encouragement Programs	Expand on the targeted education/encouragement campaign that fits within the culture and brand of Portsmouth would help educate users and encourage walking and biking. Targeted safety campaigns can help prevent future crashes will improve the safety of walking and biking in Portsmouth.
Safety Reporting System	Provide an easily accessible process for residents to report maintenance, safety, or accessibility issues.

Transportation Education Ideas

- Bike patrol
- Host educational videos on City online platforms
- Adult safety programs
- Promote protective gear use
- Walk audits and/or walking tours
- Motor vehicle driver education

EVALUATION

Evaluation assesses facility usage and user perceptions, as well as the progress of implementing infrastructure, program, and policy recommendations. Progress may measure benefits for safety, the economy, health, and the environment.

Citizen Advisory Committee	Maintain momentum with the Citizen Advisory Committee that convened during this planning process and provide opportunities for them to give oversight and guidance for the implementation of the Plan.
Re-Apply for Bike/Walk Designations	Applying for, and maintaining, Bicycle Friendly Community and Walk Friendly Community certifications from the League of American Bicyclists and Walk Friendly Communities organizations, respectively, will ensure consistent tracking of plan implementation.
Data Collection and Sharing	Develop a data collection and sharing process that assesses available data, identifies gaps, tracks progress, and routinely distributes updates. The CAC should be a primary stakeholder in the data sharing component and could potentially lead collection efforts like count programs.

COMPLETE STREETS

What Are Complete Streets

Complete Streets policies call for a safe, accessible transportation network that accommodates users of all ages and abilities, which encompasses bicyclists, pedestrians, transit riders, and motorists. The intent behind Complete Streets is that streets should be for everyone. To carry this vision out, a Complete Streets approach is integrated into the planning, design, construction, operation, and maintenance of the transportation system. In addition, Complete Streets redefines the goals a City is going to meet and how a community should prioritize funding. No single prescription exists in terms of what a Complete Street should look like; context-sensitive design drives Complete Streets principles, meaning that elements may change based on locally-appropriate solutions and environmental, physical, historic, cultural, or economic considerations. Examples of some elements of Complete Streets are crosswalks, sidewalks, bike lanes, bus shelters, and narrower travel lanes.

For More Information:

The full Portsmouth Bicycle and Pedestrian Plan Complete Streets Memo can be found in Appendix A. The memo includes specific design recommendations and language to be included in a Complete Streets policy for Portsmouth; in depth case studies; and links to local, state, and national resources for best practices referenced in this section.

Elements of a Complete Streets Policy

1. **Includes a vision** for how and why the community wants to complete its streets
2. Specifies that 'all users' includes **pedestrians, bicyclists, users of micro-mobility, and transit passengers of all ages and abilities**, as well as **trucks, buses, emergency vehicles, and automobiles**.
3. Encourages **street connectivity** and aims to create a comprehensive, integrated, connected network for all modes.
4. Is understood by **all agencies** to cover **all roads**.
5. Applies to both **new and retrofit projects**, including design, planning, maintenance, and operations, for the entire right of way.
6. Makes any exceptions specific and sets a clear procedure that requires high-level **approval of exceptions**.
7. Directs the use of the **latest and best design criteria** and guidelines while recognizing the need for **flexibility** in balancing user needs.
8. Directs that Complete Streets solutions will complement the **context of the community.**
9. Establishes performance standards with **measurable outcomes.**
10. Includes specific **next steps for implementation** of the policy

Complete Streets Decision Making Process: Best Practices

1 PROJECT INITIATION

Identify Project Location, Scope, & Goals

- Define clear and accountable project exemptions. Project decisions are on a case by case basis and complete streets often won't be the sole driver of a maintenance project.
- Prioritize projects that include multimodal accommodations. If there is a selection criteria rubric, change it to reflect these values.
- Adjust maintenance and operations procedures with the City of Portsmouth Public Works Department to prioritize Complete Streets. Find low-cost projects or routine repaving plans where bike lanes and sidewalks can be integrated.
- Review all City of Portsmouth documents that impact transportation decisions and modify to include language supportive of Complete Streets.
- If Level of Service (LOS) is a metric for transportation projects, then loosen standards in certain areas: decrease the rating for peak times, or utilize the Multimodal Level of Service Standards. Strict LOS standards even at peak times can impede projects having extra space used for transit, pedestrians, and bicyclists.

2 PLAN DEVELOPMENT

Conduct Initial Screening of Site Design Tools; Collect and Analyze Data

- The project development process can help facilitate incorporating Complete Streets. The Virginia Department of Rail and Public Transportation's (DRPT) Multimodal System Design Guidelines outlines a 6-Step Process for establishing an integrated land use and transportation multimodal system, including the important steps of data analysis and funding best practices.

3 FUNDING AND DESIGN

Secure Project Funding and Develop Design

- Establish a Bicycle and Pedestrian Advisory Committee, or Citizen's Advisory Committee, with representatives from local and regional agencies, school districts, and parks and health departments to oversee implementation.
- Utilize a Complete Streets Checklist when signing off on projects. There are many examples from around the country compiled in Smart Growth America's (SGA) Taking Action Guide, pages 25-26.
- Choose facilities based on the National Association of Transportation Officials (NACTO) Contextual Guidance tool.
- Save time and resources by adopting national or state design guidelines.

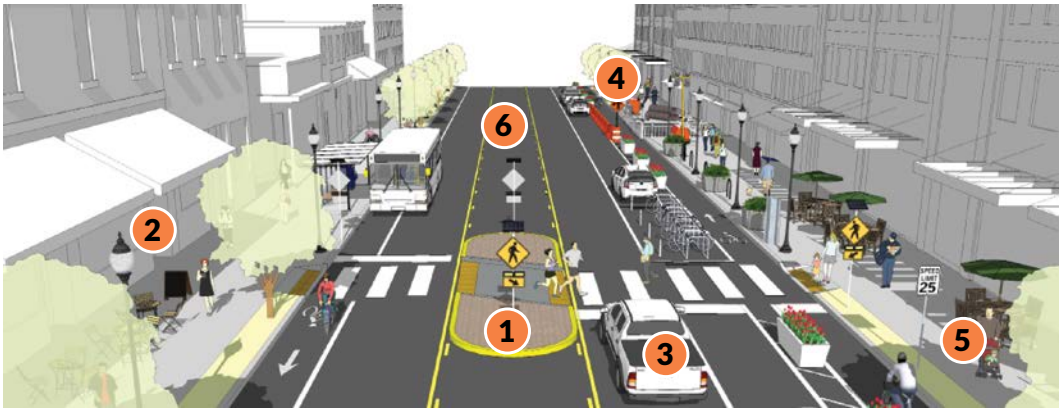
4 INSTALLATION

Construct Project, and Perform Post-Construction Evaluation

- The National Complete Streets Coalition promotes the use of performance measures that reflect multimodal needs to evaluate Complete Streets Projects. To undertake project evaluation, the following general steps should be taken:
  - » Agree to goals and objectives of the project
  - » Determine best ways to measure goals
  - » Implement measure
  - » Communicate the results of the evaluation
- For more detailed information, see SGA's Evaluating Complete Street Projects: A Guide for Practitioners.

Policies to Support Complete Streets

There are many elements that make a street complete and it is not always a one-size-fits-all approach. Rather, Complete Streets principles are context-sensitive and require engineering judgment. However, the elements described below highlight key complementary policy and program elements that should be considered along with any recommended Complete Street projects.



1 Adopt a Vision Zero Strategy

Vision Zero is the concept that no loss of life is acceptable on our roadways. Jurisdictions across the nation and across the world are adopting Vision Zero policies to eliminate preventable traffic deaths.

2 Update Land use and Development Codes

Local codes that encourage or require short block lengths, mixed use developments with street-fronting retail, and a connected network of streets with high-quality sidewalks form the bedrock of livable communities.

3 Rethink Parking Requirements

Parking policy reform includes better management of existing parking, pricing that reflects demand, lowering parking requirements for commercial and residential development, and bike parking minimums.

4 Create Safe Walkways and Bikeways in Construction Zones

Walkways in construction zones should be routed on the same side of the street, run on or parallel to the closed sidewalk, and must comply with the Americans with Disabilities Act and the Manual on Uniform Traffic Control Devices.

5 Establish Speed Reduction Policies

Traffic speed disproportionately threatens people walking and biking so speed should be managed through speed limit enforcement and traffic calming where appropriate.

6 Adopt a Local Complete Street Policy

A Complete Street policy asserts that all new street projects should accommodate all people who use the street, whether traveling on foot, bike, transit, or car.

Case Study: Arlington, VA Neighborhood Complete Streets

Arlington, Virginia developed a Neighborhood Complete Streets Program to improve the multimodal potential of eligible corridors. Through County Board-approved evaluation criteria, streets were scored and ranked to come up with a series of 3 pilot projects in 2018, 3 pilot projects in 2019, and identified 3 Capital Projects which are moving forward at present.

Neighborhood Complete Streets Pilot Project in Arlington, VA: North Buchanan Street at 13th and 14th Streets. Due to the existing street and sidewalk alignment, pedestrians were filtered into the middle of this intersection in order to cross North Buchanan Street and access Woodlawn Park. The project will be monitored for a year and evaluated for its effectiveness. (Image source: https://projects.arlingtonva.us/projects/n-buchanan-street-at-13th-street-n-and-14th-street-n-improvements/)

Case Study: City of Norfolk, VA Complete Streets Policy Implementation

The City of Norfolk adopted a Complete Streets policy in 2017. The Pilot Bike Loop, Lafayette Boulevard "Road Diet," Robin Hood Road bike lanes, and crosswalk safety improvements are examples of recent projects to integrate Complete Streets policy. The City of Norfolk utilized the NACTO Urban Street Design Guide and Urban Bikeway Design Guide as a basis for their plan. When a Norfolk transportation project is reviewed, Complete Streets elements need to be considered in the design, planning, construction, maintenance, and operations, encompassing all phases.

More recent efforts include an urban design manual specifically for outdoor dining; options would include parklets or enclosure designs suitable for narrow sidewalks.

Complete Streets Project in Norfolk, VA: East Ocean View Avenue Repaving/Road Diet with Bike Lanes (2018). Image source: https://www.norfolk.gov/AgendaCenter/ViewFile/Item/4186?fileID=8488.

MAINTENANCE

Why It's Important

Just as road and highway facilities are monitored and maintained to ensure safe and dependable use, the same commitment to maintenance should be made for active transportation facilities. Proper maintenance of the existing and expanded bicycle and pedestrian network is as integral to the initial planning and development of the overall network.

Appropriate and on-going maintenance of bike lanes, sidewalks, and trails leads to safe, comfortable, reliable, and accessible facilities for all active transport users. Preventative maintenance of sidewalks and bike lanes can often be incorporated into routine roadway maintenance and can serve to reduce hazards for users and facility life cycle costs.

Furthermore, continual upkeep of active transportation facilities improves community aesthetic and demonstrates an investment and dedication by local government to bicycle and pedestrian transportation.

Key Principles

Similar to streets, the active transportation network, consisting of sidewalks, bikeways and shared use paths in Portsmouth should be viewed and maintained as a public resource, serving generations to come. The following guiding principles will help assure the preservation of a high-quality system:

1. **Develop a management plan** that is reviewed and updated annually with tasks, operational policies, standards, and routine and remedial maintenance goals.
2. **Maintain quality control** and conduct regular inspections.
3. **Include field crews, police and fire/ rescue personnel** in both the design review and ongoing management process.
4. **Maintain an effective, responsive public feedback system** and promote public participation.

Action Steps

The action steps below provide guidance for improving and maintaining both existing and future bicycle and pedestrian facilities.

Implementation of these recommendations will require coordination across multiple departments, including local public works, state road crews, and parks and recreation agencies.

- Fund bicycle and pedestrian facility maintenance and consider funding additional maintenance equipment needed to adequately maintain an expanded network.

What Does Maintenance Include?

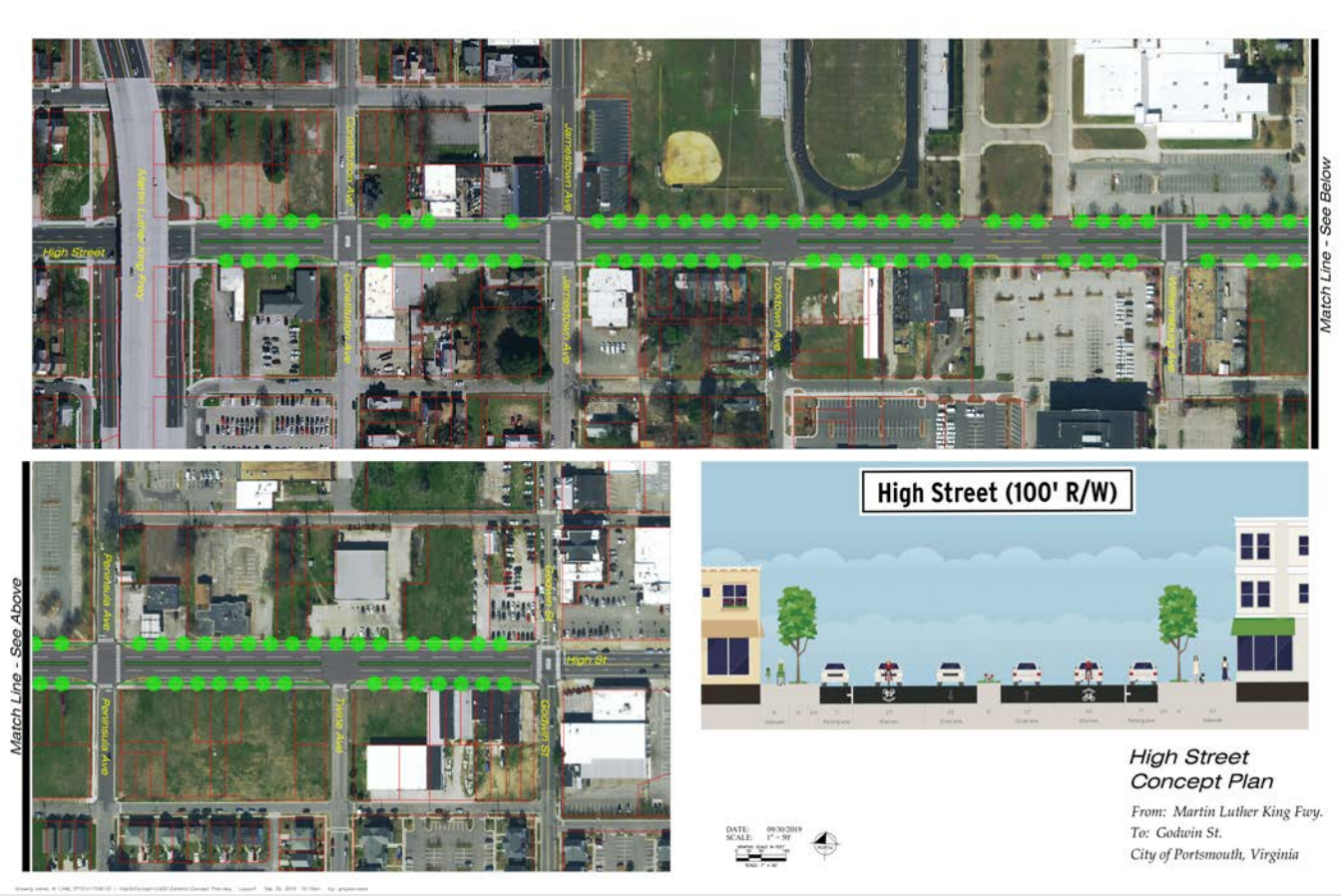
Routine maintenance tasks include those that should be addressed on a regular basis to keep all network facilities in good, usable condition. Maintenance tasks should be conducted more frequently on shared use path, bike, and pedestrian facilities where use is the most concentrated.

PREVIOUS PLAN HIGHLIGHT:

HIGH STREET CONCEPT PLAN

From: Martin Luther King Fwy.
To: Godwin St

The "Complete" High Street Pilot Project: High Street is identified as a multi-modal corridor in the 2010 Master Transportation Plan and as an on-street route for the regional South Hampton Roads Trail. The Uptown portion of High Street between Chestnut Street and the MLK Freeway is an excellent candidate for a Complete Streets conversion pilot project. Sufficient pavement width and right-of-way is available along most of the corridor to accommodate wider sidewalks, on-street parking, bus pull-offs, and shared travel lanes that are convertible to bike lanes. The pilot project should also include scenic streetscaping, utility relocations, landscaped medians, and high visibility crosswalks to reduce speeds within the corridor. The conversion should be done in phases to accompany the city's longterm revitalization efforts within the vicinity. Ultimately, this Complete Streets conversion could be replicated along other multimodal corridors across the city.

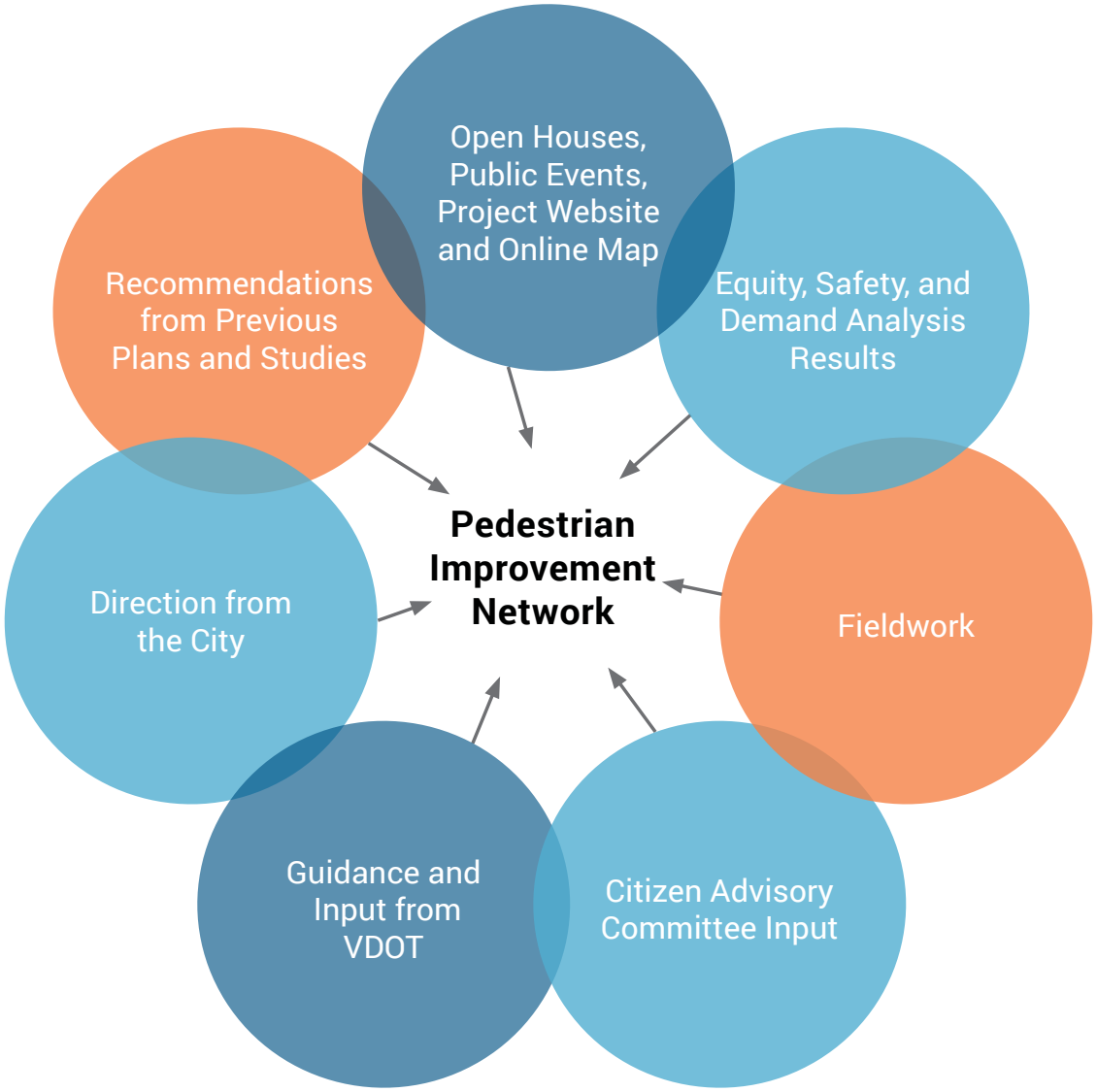


CHAPTER 4:
Sidewalk Network

SIDEWALK NETWORK APPROACH

The proposed sidewalk network seeks to:

- Reflect the Plan's vision + goals
- Address the needs of all ages and abilities
- Balance the transportation system for all roadway users
- Provide access to important destinations for all members of the community



EXISTING SIDEWALK NETWORK

The existing sidewalk network is a dense grid in the downtown area. However, the network starts to break down further from the downtown core. Currently, there are 139 miles of street that have sidewalk on both sides, 62 miles of street that have sidewalks on only one side, and 267 miles of street with no sidewalk on either side.

139 Miles of Street has Sidewalk on Both Sides

RECOMMENDED NETWORK APPROACH

The recommended sidewalk network is organized into tiers which focus on connections along key corridors and access to destinations.

Sidewalks on Both Sides

» Tier 1: Multimodal Corridors

Sidewalks on at Least One Side

» Tier 2: Transit (Within .25 miles of a Bus Stop)

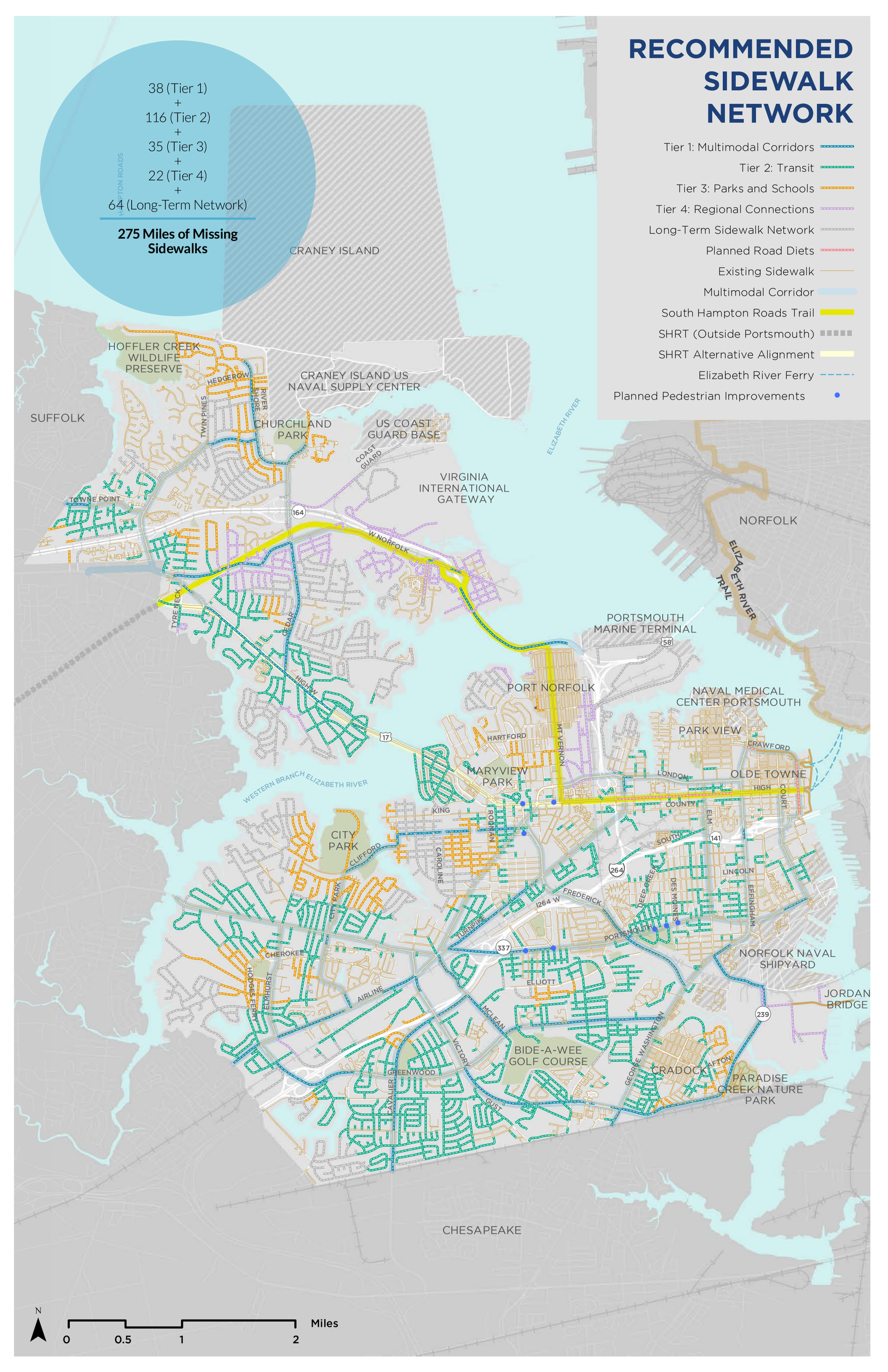
» Tier 3: Recreation and Education (Within .25 miles of a Park or School)

» Tier 4: Regional Connections (Within .25 miles of a Regional Trail Connection)

Long-Term Sidewalk Network

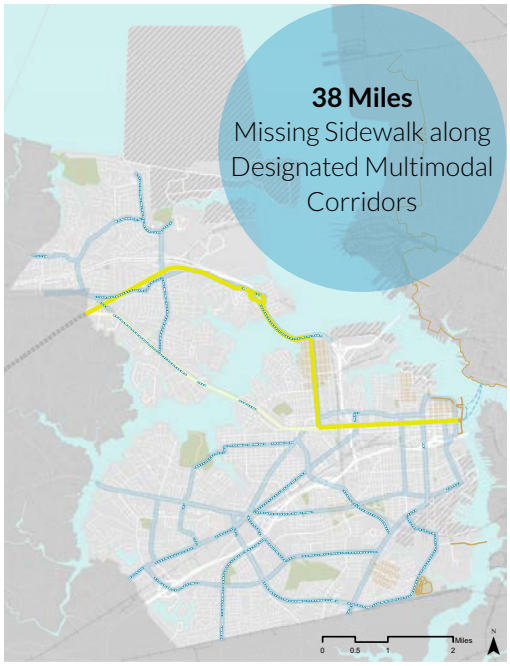
The tiers above identify missing portions of the sidewalk network located on main roads, or which provide access to key destinations throughout the City. In the future, as opportunities arise, Portsmouth should aim to install sidewalks on both sides of streets in any areas where they are missing. These portions of the network have been identified as long-term missing sidewalks.


EXISTING NETWORK
Existing Sidewalk
Existing Multi-Use Path
Multimodal Corridor
Elizabeth River Ferry
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
CRANEY ISLAND US NAVAL SUPPLY CENTER
SUFFOLK
CHURCHLAND PARK
US COAST GUARD BASE
ELIZABETH RIVER
VIRGINIA INTERNATIONAL GATEWAY
NORFOLK
PORTSMOUTH MARINE TERMINAL
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
PARK VIEW
OLDE TOWNE
MARYVIEW PARK
WESTERN BRANCH ELIZABETH RIVER
CITY PARK
NORFOLK NAVAL SHIPYARD
JORDAN BRIDGE
BIDE-A-WEE GOLF COURSE
CRADOCK
PARADISE CREEK NATURE PARK
CHESAPEAKE
N
0
0.5
1
2
Miles

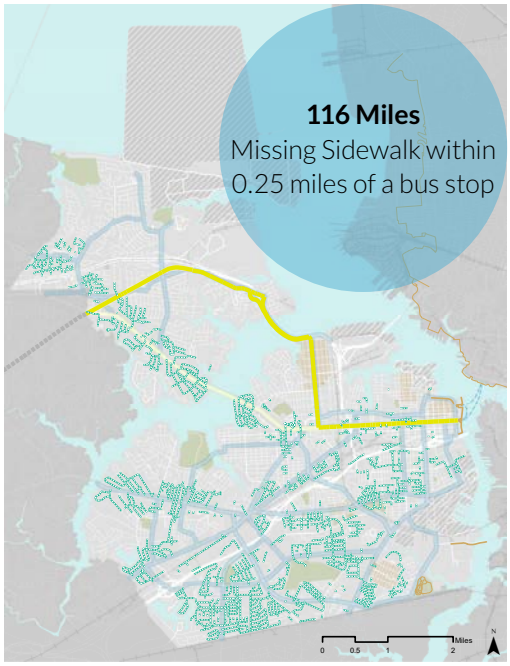

38 (Tier 1)
+
116 (Tier 2)
+
35 (Tier 3)
+
22 (Tier 4)
+
64 (Long-Term Network)
275 Miles of Missing Sidewalks
RECOMMENDED SIDEWALK NETWORK
Tier 1: Multimodal Corridors
Tier 2: Transit
Tier 3: Parks and Schools
Tier 4: Regional Connections
Long-Term Sidewalk Network
Planned Road Diets
Existing Sidewalk
Multimodal Corridor
South Hampton Roads Trail
SHRT (Outside Portsmouth)
SHRT Alternative Alignment
Elizabeth River Ferry
Planned Pedestrian Improvements
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
HEDGEROW
PINES
RIVER SHORE
CRANEY ISLAND US NAVAL SUPPLY CENTER
SUFFOLK
CHURCHLAND PARK
US COAST GUARD BASE
COAST GUARD
ELIZABETH RIVER
VIRGINIA INTERNATIONAL GATEWAY
TOWNE POINT
164
W NORFOLK
NORFOLK
ELIZABETH RIVER TRAIL
TYRE NECK
CEDAR
HIGHW
PORTSMOUTH MARINE TERMINAL
58
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
17
HARTFORD
MT VERNON
PARK VIEW
CRAWFORD
MARYVIEW PARK
LONDON
OLDE TOWNE
HIGH
COURT
COUNTY
WESTERN BRANCH ELIZABETH RIVER
KING
ROBERTSON
CAROLINE
ELM
SOUTH
141
CITY PARK
CLIFFORD
264
LINCOLN
DES MOINES
EFFINGHAM
FREDERICK
I-264 W
TURNPIKE
PORTSMOUTH
337
CHEROKEE
NORFOLK NAVAL SHIPYARD
ELLIOTT
JORDAN BRIDGE
AIRLINE
HOBBS FERRY
MCLEAN
239
VICTORY
BIDE-A-WEE GOLF COURSE
GEORGE WASHINGTON
CRADOCK
CRAFTON
PARADISE CREEK NATURE PARK
GREENWOOD
CAVALIER
GUST
CHESAPEAKE
N
0
0.5
1
2
Miles

RECOMMENDED SIDEWALK NETWORK

Tier 1: Multimodal Corridors



Tier 2: Transit



Tier 3: Recreation and Education

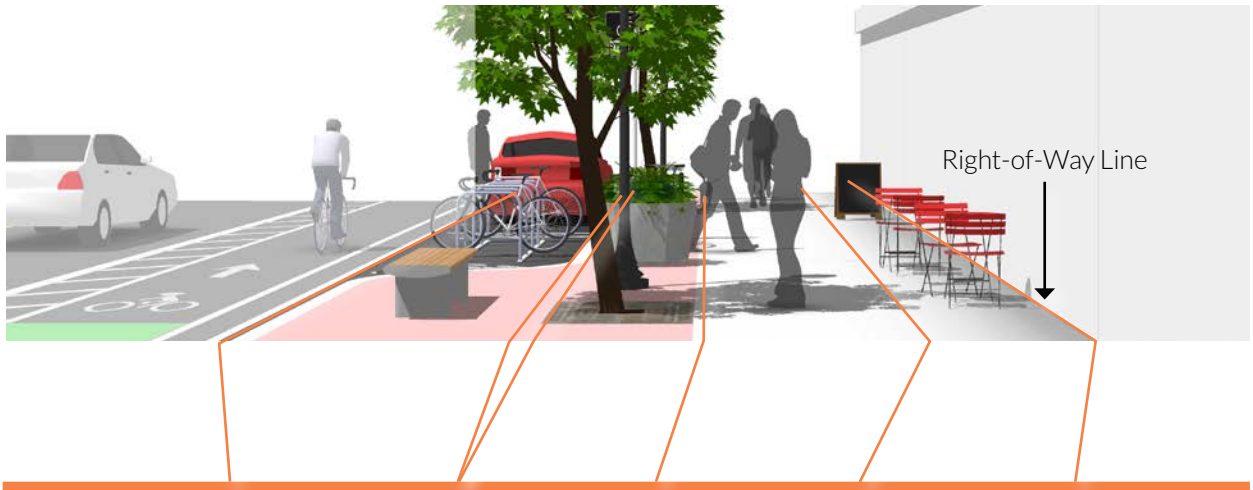
Tier 4: Regional Connections

* See pages 70-71 for more detail on proposed pedestrian crossing improvements.

DESIGN GUIDANCE

All sidewalks should include adequate crossing treatments along with the appropriate facilities and dimensions, as referenced in the policy and design guidance.

Sidewalks should contain adequate width to accommodate high volumes and different walking speeds of pedestrians. The Americans with Disabilities Act requires a 4 foot clear width in the pedestrian zone plus 5 foot passing areas every 200 feet. Recommended dimensions shown below are based on the VDOT Complete Streets Planning and Design Guidelines, DRPT Multimodal Corridor Guidelines, and City of Portsmouth Uptown D2 District Standards. Exact dimensions should be selected in response to local context and expected/ desired pedestrian volumes.



Street Classification	Parking Lane/ Enhancement Zone	Furnishing/ Green Zone*	Sidewalk Width	Frontage Zone**	Total Sidewalk Area
Local Streets	7 feet	3 - 8 feet	5 - 6 feet	N/A	9 - 14 feet
Commercial Areas	8 feet	6 - 8 feet	10 - 12 feet	4 feet	18- 34 feet
Arterials and Collectors	8 feet	6 - 8 feet	6 - 12 feet	4 feet	14 -24 feet

* If trees are planted in zone, minimum width is 6'. 3' buffer zone can be used where posted speed limit is 25 mph or less. If on-street parking is utilized - 8' minimum.

** Recommend as a minimum value

Six feet enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably

Total sidewalk area excludes parking dimensions

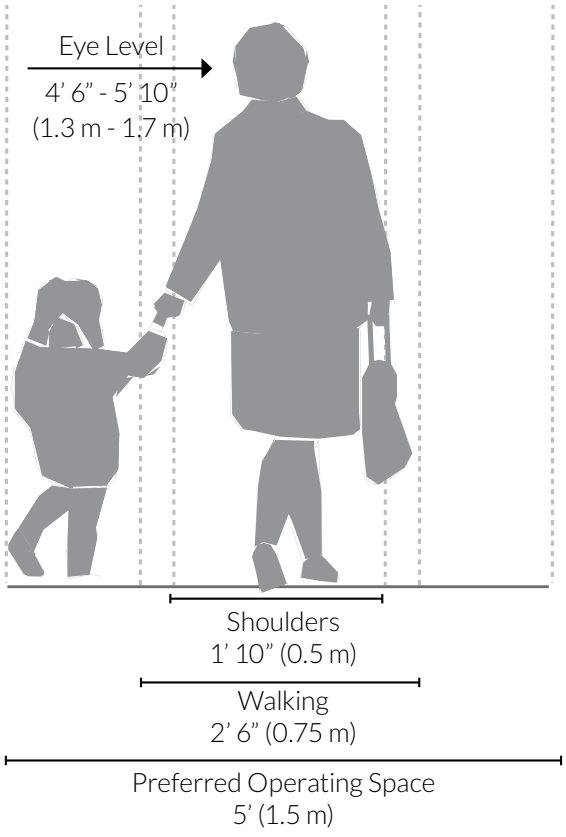
DESIGNING STREETS FOR ALL AGES

Types of Pedestrians

The transportation network should accommodate pedestrians with a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians' physical characteristics, walking speed, and environmental perception. Children have low eye height and walk at slower speeds than adults. Older adults walk more slowly and may require assistant devices to help with their walking stability, sight, and hearing. The table below summarizes common pedestrian characteristics for various age groups.

The Manual on Uniform Traffic Control Devices (MUTCD) recommends a normal walking speed of 3.5 feet per second when calculating the pedestrian clearance interval at traffic signals. The walking speed can drop to 3 feet per second for areas with older populations and persons with mobility impairments. The transportation system should accommodate these users to the greatest extent possible.

AGE	CHARACTERISTICS
0-4	Learning to walk
	Requires constant adult supervision
	Developing peripheral vision and depth perception
5-8	Increasing independence, but still requires supervision
	Poor depth perception
9-13	Susceptible to "darting out" in roadways
	Insufficient judgment
	Sense of invulnerability
14-18	Improved awareness of traffic environment
	Insufficient judgment
19-40	Active, aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street
	Vision loss
	Difficulty hearing vehicles approaching from behind



BARRIER ASSESSMENT

Two limited access highways cut through many Portsmouth communities leading to downtown. VA-164 and I-264 provide motor vehicle users speedy access to destinations throughout Portsmouth, but create physical barriers with pinch points that limit pedestrian movement due to unsafe or uncomfortable crossings or crossing distances.

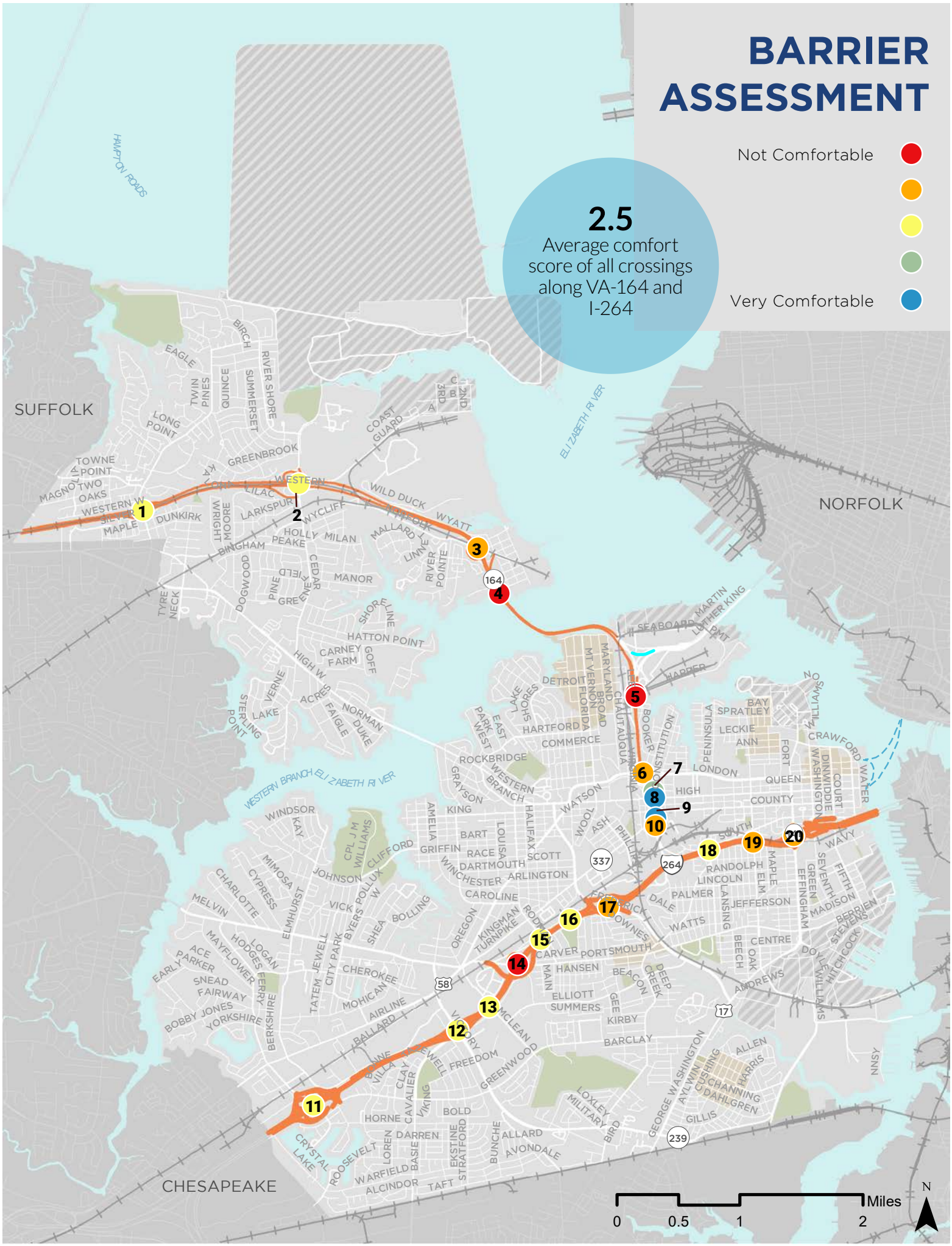
Each of the crossings along VA-164 and I-264 were evaluated based on its infrastructure needs and ranked according to a qualitative assessment of pedestrian comfort*.

Future bridges and reconstruction should provide accommodations for pedestrians.

**Comfort rankings are based on a qualitative assessment of factors including accessibility, land use, quality of infrastructure, buffers, lighting, street characteristics, etc.*

TABLE 4.1 BARRIER ASSESSMENT

Map ID	Cross Street	Existing Sidewalk	Buffer	ADA Ramps	Improvements Needed	Comfort Rating
1	Towne Point Rd	Both	No	Yes	Yes	3
2	Cedar Ln	Both	No	Yes	Yes	3
3	W Norfolk Rd	Both	No	Yes	Yes	2
4	Shipwright St	None	N/A	N/A	No	1
5	Railroad Ave	One Side	No	No	No	1
6	Harper Ave	None	N/A	N/A	No	1
7	London Blvd	Both	No	Partial	Yes	2
8	Queen St	Both	No	N/A	No	4
9	High Street	Both	Yes	Yes	No	5
10	Turnpike Rd	Both	No	Yes	No	5
11	Columbus Ave	None	N/A	N/A	Not able to determine	2
12	Greenwood Dr	Both	No	No	Yes	3
13	Victory Blvd	Both	No	Yes	Yes	3
14	McLean St	Both	No	Yes	Yes	3
15	Portsmouth Blvd	None	N/A	N/A	Yes	1
16	Rodman Ave	Both	No	Yes	Yes	3
17	Frederick Blvd	Both	Yes	Partial	Yes	2
18	Des Moines Ave	Both	Yes	Yes	Not able to determine	3
19	Elm Ave	Both	Yes	No	Yes	2
20	Effingham St	Both	No	Partial	Yes	2


BARRIER ASSESSMENT
Not Comfortable
Very Comfortable
2.5
Average comfort score of all crossings along VA-164 and I-264
SUFFOLK
NORFOLK
CHESAPEAKE
HAMPTON ROADS
ELIZABETH RIVER
WESTERN BRANCH ELIZABETH RIVER
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
164
264
337
58
17
239
0
0.5
1
2
Miles
N

CROSSING INVENTORY

Effingham Street (Fort Nelson Park to Portsmouth Blvd)

In addition to limited access highways, Portsmouth has many roadways with perceived high speeds, 4 or more travel lanes, limited pedestrian infrastructure, minimal streetscape, etc. These roadways can still act as barriers because pedestrians may feel unsafe or uncomfortable crossing them. Additionally, the presence of long crossing distances, limited pedestrian infrastructure, and concentration of destinations may present a more dangerous situation than a limited access highway because users may take great risks crossing the street if it is perceived as a more convenient option. A crossing inventory is a useful tool for identifying potential crossing and intersection improvements to improve pedestrian safety.

The crossings along Effingham Street (VA-141) between Fort Nelson Park and Portsmouth Blvd were analyzed as a pilot pedestrian crossing inventory that could be undertaken as multimodal corridors undergo planning development.

The crossing inventory found numerous locations where vehicular crossing was restricted due to median but was likely used as pedestrian crossing points.

The southern section between Lincoln St and Portsmouth Blvd (almost 4/10ths of a mile) has no traffic lights and effectively zero formal pedestrian crossing points. Here, the alternative medians become a de-facto pedestrian refuge are a safer pedestrian crossing option than the traditional four-way vehicular intersections.

This inventory can be used as a template for identifying crossing improvements on arterials throughout the City. Table 4.2 identifies several corridors recommended for further crossing inventory analysis.

TABLE 4.2 CROSSING INVENTORY CORRIDOR RECOMMENDATIONS

Street	To	From
High St	US 17 (Frederick Blvd)	Crawford St
US 17 (Frederick Blvd)	Portsmouth Blvd	VA-239 (Victory Blvd)
US-58 (Airline Blvd)	Portsmouth Blvd	High St
Turnpike Rd	US-58 (Airline Blvd)	VA-164 (MLK Fwy)
VA-239 (Victory Blvd)	Airline Blvd	US-17 (George Washington Hwy)

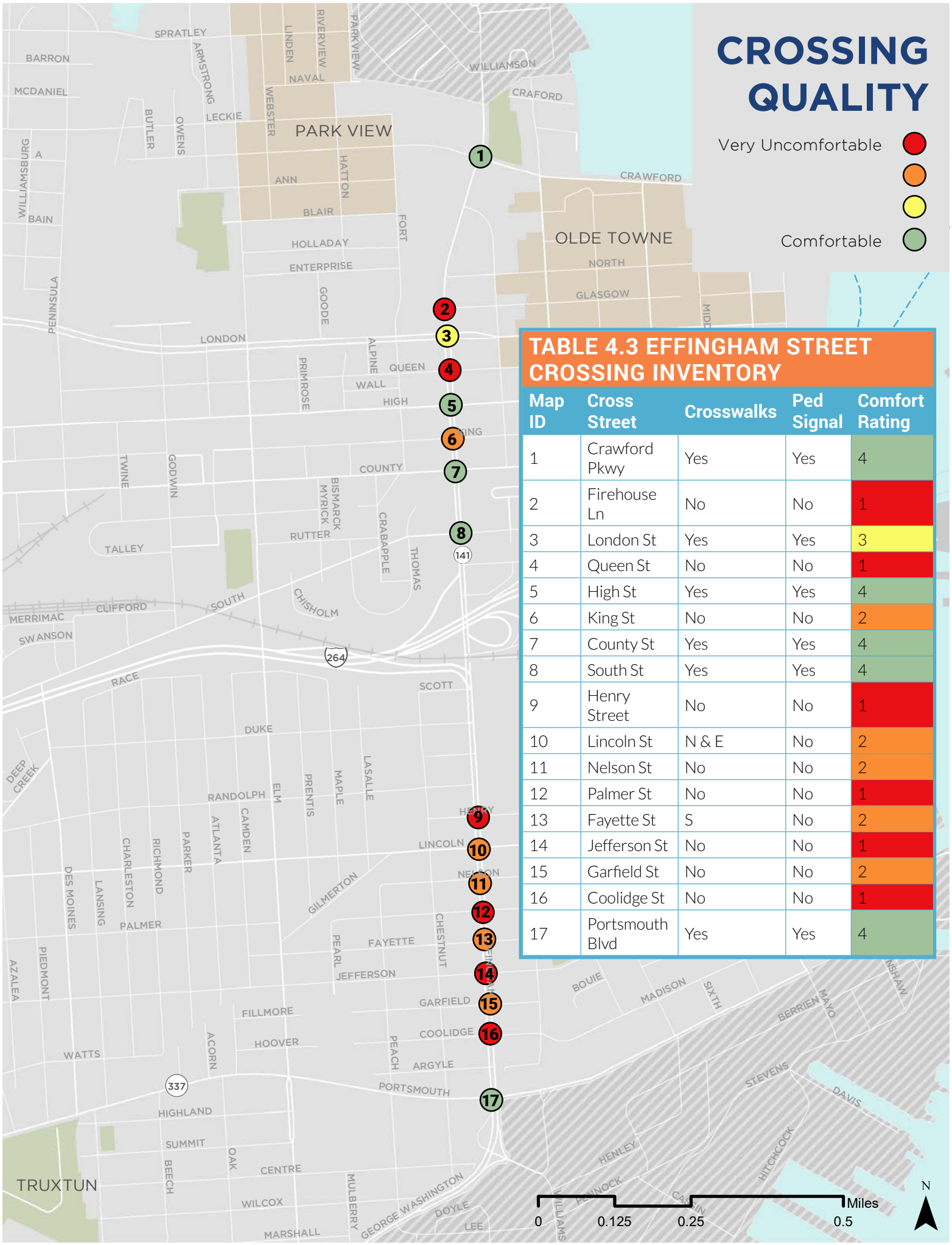


TABLE 4.3 EFFINGHAM STREET CROSSING INVENTORY

Map ID	Cross Street	Crosswalks	Ped Signal	Comfort Rating
1	Crawford Pkwy	Yes	Yes	4
2	Firehouse Ln	No	No	1
3	London St	Yes	Yes	3
4	Queen St	No	No	1
5	High St	Yes	Yes	4
6	King St	No	No	2
7	County St	Yes	Yes	4
8	South St	Yes	Yes	4
9	Henry Street	No	No	1
10	Lincoln St	N & E	No	2
11	Nelson St	No	No	2
12	Palmer St	No	No	1
13	Fayette St	S	No	2
14	Jefferson St	No	No	1
15	Garfield St	No	No	2
16	Coolidge St	No	No	1
17	Portsmouth Blvd	Yes	Yes	4

CROSSING IMPROVEMENTS

Intersections are an important part of the pedestrian network. Intersections pose a high rate of potential conflict between pedestrians, bicyclists, and vehicles. However, intersections can be designed to help reduce these conflicts, making them safer for all users.

The following guidelines should be considered when designing intersection improvements for pedestrians:

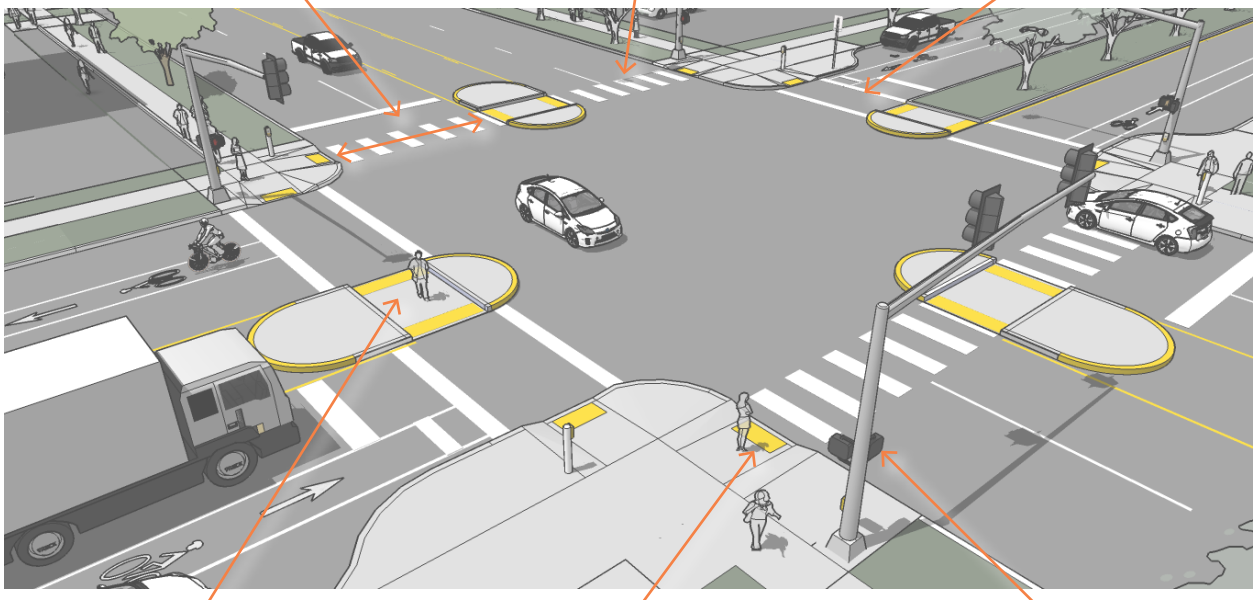
PEDESTRIAN INTERSECTION DESIGN GUIDELINES

The diagram below highlights best practices for pedestrian facility design at intersections.

The crosswalk should be located to align as closely as possible with the through pedestrian zone of the sidewalk corridor.

Continental markings provide additional visibility.

Parallel markings are the most basic crosswalk marking type.



Median refuge islands increase visibility and allow pedestrians to cross one direction of traffic at a time.

ADA compliant curb ramps allow all users to transition from the street to a sidewalk. Perpendicular curb ramps are preferred to diagonal curb ramps.

The use of a Leading Pedestrian Interval (LPI) to provide additional traffic-protected crossing time to pedestrians should be considered.

CROSSING TREATMENT SELECTION

The specific type of treatment at a crossing may range from a simple marked crosswalk to a full traffic signal or grade separated crossing. Before a marked crosswalk is installed, appropriate selection of crossing treatments should be evaluated in an engineering study, which should consider number of lanes, presence of a median, distance from adjacent signalized intersections, pedestrian volumes and delays, average daily traffic (ADT), speed limit, geometry of the location, possible consolidation of crossing points, availability of street lighting, and other appropriate factors.

PEDESTRIAN CROSSING CONTEXTUAL GUIDANCE
At unsignalized locations

FACILITY TYPE	Local Streets 15-25 mph		Collector Streets 25-30 mph			Arterial Streets 30-45 mph							
	2 lane	3 lane	2 lane	2 lane with median refuge	3 lane	2 lane	2 lane with median refuge	3 lane	4 lane	4 lane with median refuge	5 lane	6 lane	6 lane with median refuge
1 Crosswalk Only (high visibility)	✓	✓	EJ	EJ	X	EJ	EJ	X	X	X	X	X	X
2 Crosswalk with warning signage and yield lines	EJ	✓	✓	✓	✓	EJ	EJ	EJ	X	X	X	X	X
3 Active Warning Beacon (RRFB)	X	EJ	✓	✓	✓	✓	✓	✓	X	✓	X	X	X
4 Hybrid Beacon	X	X	EJ	EJ	EJ	EJ	✓	✓	✓	✓	✓	✓	✓
5 Full Traffic Signal	X	X	EJ	EJ	EJ	EJ	EJ	EJ	✓	✓	✓	✓	✓
6 Grade separation	X	X	EJ	EJ	EJ	X	EJ	EJ	✓	✓	✓	✓	✓

LEGEND	
Most Desirable	✓
Engineering Judgement	EJ
Not Recommended	X

MIDBLOCK CROSSINGS

Midblock crossings can provide legal crossings at locations where pedestrians want to travel, and can be safer than crossings at intersections because traffic is only moving in two directions. Locations where midblock crossings should be considered include:

- Long blocks (longer than 600 ft) with destinations on both sides of the street;
- Locations with heavy pedestrian traffic, such as schools or shopping centers; and
- Midblock transit stops, where transit riders must cross the street on one leg of their journey.

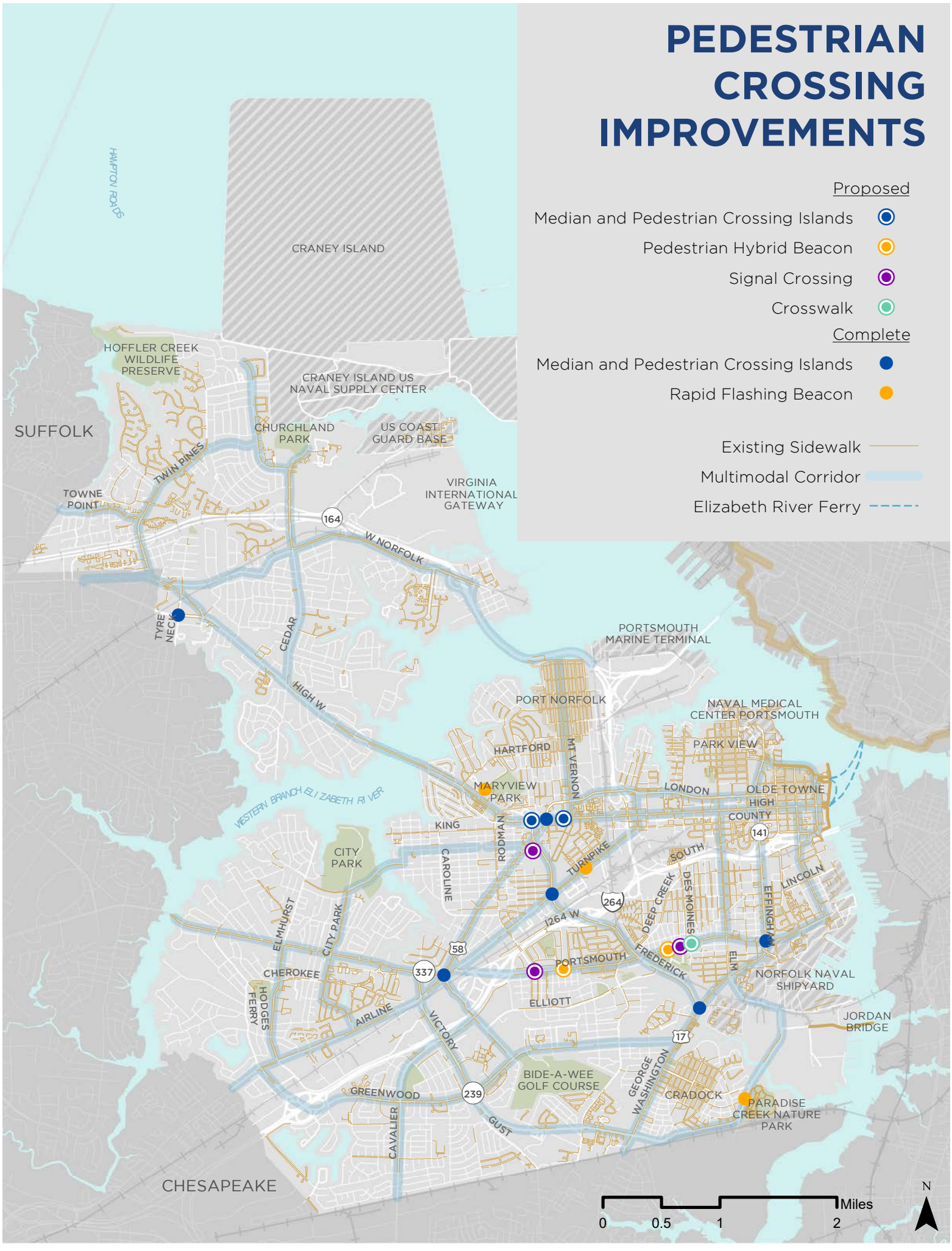
PROPOSED PEDESTRIAN CROSSING IMPROVEMENTS

The City of Portsmouth has recently completed several pedestrian crossing improvement projects, including median and pedestrian crossing islands and RRFBs. The map to the right shows additional proposed crossing improvements, including hybrid beacons, pedestrian signal crossings, and crosswalks.

TABLE 4.4 PROPOSED CROSSING IMPROVEMENTS

Type	Location	Status
Median and Pedestrian Crossing Islands	Alexander's Corner	Complete
	High & Florida	Planned
	High & London	Complete
	High & Tyre Neck	Complete
	Frederick & Turnpike	Complete
	Frederick & George Washington	Complete
	Portsmouth & Effingham	Complete
	Frederick & High	Proposed
Pedestrian Hybrid Beacons	Portsmouth & Grand	Proposed
	Portsmouth & Roanoke	Proposed
	Airline & Ponderosa	Proposed
RRFB	Turnpike Road	Complete
	Willett Drive	Complete
	Victory Boulevard	Complete
Pedestrian Signal Crossing	Bart at Walmart Supercenter	Proposed
	Portsmouth & Rodman	Proposed
	Portsmouth & Piedmont	Proposed
Crosswalk	Portsmouth & Lansing	Proposed

PEDESTRIAN CROSSING IMPROVEMENTS

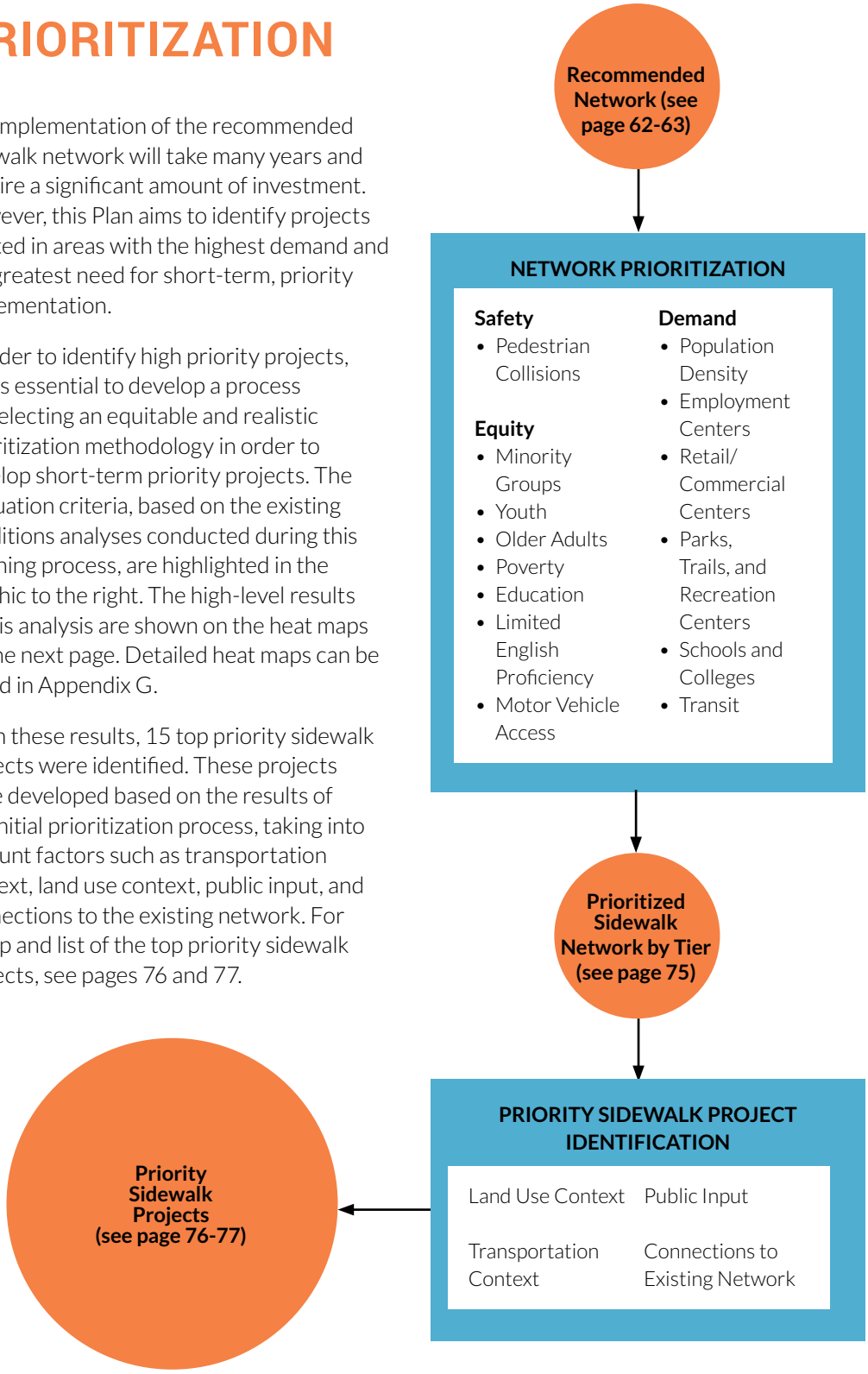


PRIORITIZATION

Full implementation of the recommended sidewalk network will take many years and require a significant amount of investment. However, this Plan aims to identify projects located in areas with the highest demand and the greatest need for short-term, priority implementation.

In order to identify high priority projects, it was essential to develop a process for selecting an equitable and realistic prioritization methodology in order to develop short-term priority projects. The evaluation criteria, based on the existing conditions analyses conducted during this planning process, are highlighted in the graphic to the right. The high-level results of this analysis are shown on the heat maps on the next page. Detailed heat maps can be found in Appendix G.

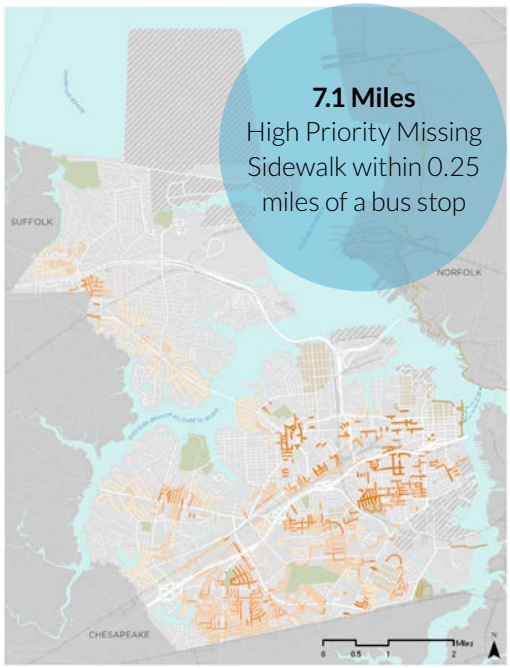
From these results, 15 top priority sidewalk projects were identified. These projects were developed based on the results of the initial prioritization process, taking into account factors such as transportation context, land use context, public input, and connections to the existing network. For a map and list of the top priority sidewalk projects, see pages 76 and 77.



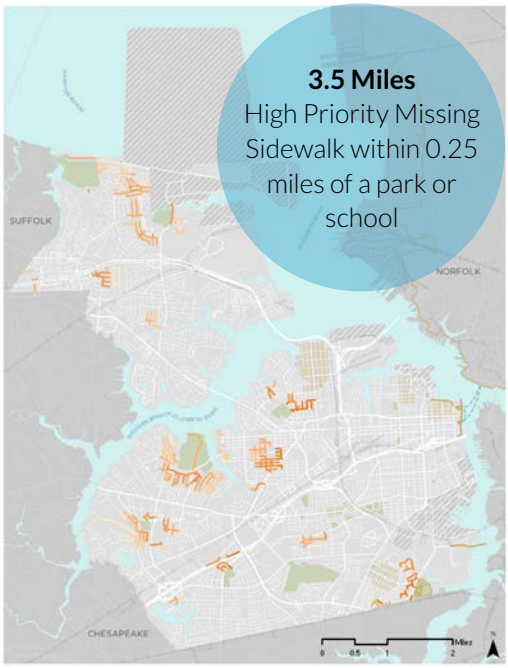
PRIORITIZED SIDEWALK NETWORK

Tier 1: Multimodal Corridors

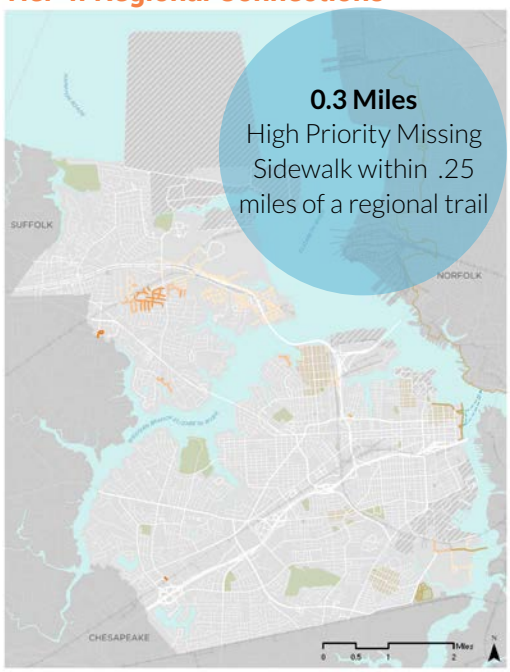
Tier 2: Transit



Tier 3: Recreation and Education



Tier 4: Regional Connections



Low → High Priority

PRIORITY SIDEWALK NETWORK

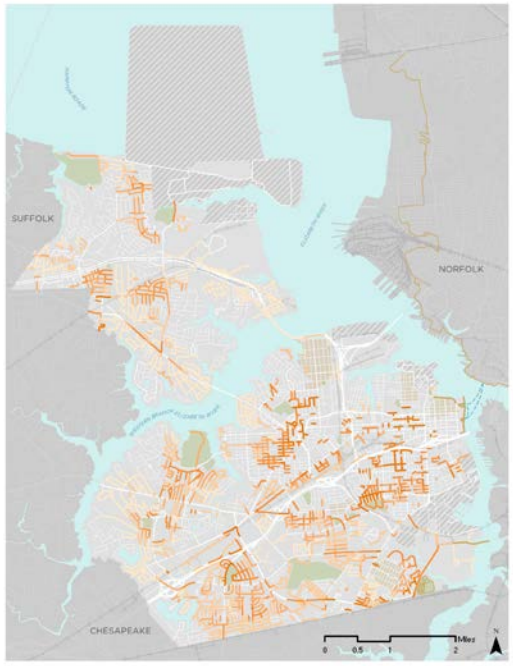
The top fifteen priority sidewalk projects are listed in the table below and highlighted on the map to the right. Together, these projects total approximately 8.5 miles of priority sidewalk projects.

TABLE 4.5 PRIORITY SIDEWALK NETWORK

Map ID	Street Name	From Street	To Street	Length (Miles)	Sidewalk Network Tiers: Multimodal Corridor	Transit Access	Park or School Access	Regional Connection
1	Airline/ Victory*	Chowan & Airline	Elmhurst & Victory	0.5	X	X		
2	Cavalier	Warfield	City Boundary (South of Taft)	0.2	X	X		
3	Cumberland	High	Clifford	0.3		X	X	X
4	Deep Creek	Columbus	Jefferson	0.1		X	X	
5	Elm/ Victory*	Paradise Creek	Jordan Bridge	1.1	X		X	X
6	Freedom	Victory	Viking	0.4		X	X	
7	Greenwood*	Independence	George Washington	0.9	X	X	X	
8	High*	Shirley	Garland	1.1	X	X	X	X
9	Jefferson*	Columbus	Chestnut	0.6		X	X	
10	W Norfolk	Tyre Neck	Cedar	1.1	X	X		X
11	Portsmouth	Frederick	Existing Sidewalks	0.05	X	X	X	
12	Randolph	Deep Creek	Elm	0.5		X		
13	Turnpike*	Rodman	Portsmouth	0.6	X	X	X	
14	Victory*	Victory Court	Deep Creek	0.7	X	X		
15	Victory	George Washington	Vail	0.5	X	X	X	

** Project bounds include minor segments of existing sidewalk or sidewalk on one side of the street.*

PRIORITY SIDEWALK NETWORK



HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
CRANEY ISLAND US NAVAL SUPPLY CENTER
SUFFOLK
CHURCHLAND PARK
US COAST GUARD BASE
COAST GUARD
TWIN PINES
TOWNE POINT
VIRGINIA INTERNATIONAL GATEWAY
ELIZABETH RIVER
164
W NORFOLK
NORFOLK
ELIZABETH RIVER TRAIL
TYRE NECK
CEDAR
PORTSMOUTH MARINE TERMINAL
HIGH W
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
PARK VIEW
HARTFORD
MT VERNON
MARYVIEW PARK
LONDON
OLDE TOWNE
HIGH
COUNTY
WESTERN BRANCH ELIZABETH RIVER
KING
RODMAN
CAROLINE
CITY PARK
CLIFFORD
ELMHURST
CITY PARK
SOUTH
DEEP CREEK
DES MOINES
ELM
EFFINGHAM
LINCOLN
264
I264 W
FREDERICK
TURNPIKE
AIRLINE
PORTSMOUTH
141
CHEROKEE
337
MCLEAN
ELLIOTT
NORFOLK NAVAL SHIPYARD
17
HODGES FERRY
VICTORY
JORDAN BRIDGE
BIDE-A-WEE GOLF COURSE
GREENWOOD
239
CRADOCK
GEORGE WASHINGTON
PARADISE CREEK NATURE PARK
CAVALIER
GUST
CHESAPEAKE
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
0.5
1
2
Miles
N

IMPLEMENTATION

Implementation of the recommended sidewalk network will require securing a variety of dedicated funding sources. This can be done through strategic collaboration with City, regional, and state agencies; the federal government; the private sector; and non-profit organizations. These funding mechanisms are discussed further in Chapter 7 of this report.

For implementation of the sidewalk network, typical cost estimates were developed for the recommended sidewalk network, as shown in Table 4.5. Per unit cost estimates for potential crossing improvements are shown in Table 4.6 . Detailed costing will be needed as part of the implementation of each individual project during the project development and design phase. Notably, the complexity of right-of-way (ROW) acquisition and design tends to increase with increasing roadway hierarchy, so the costs increase with hierarchy.

Detailed planning-level cost estimates for the Plan's top five priority projects are provided in Chapter 7

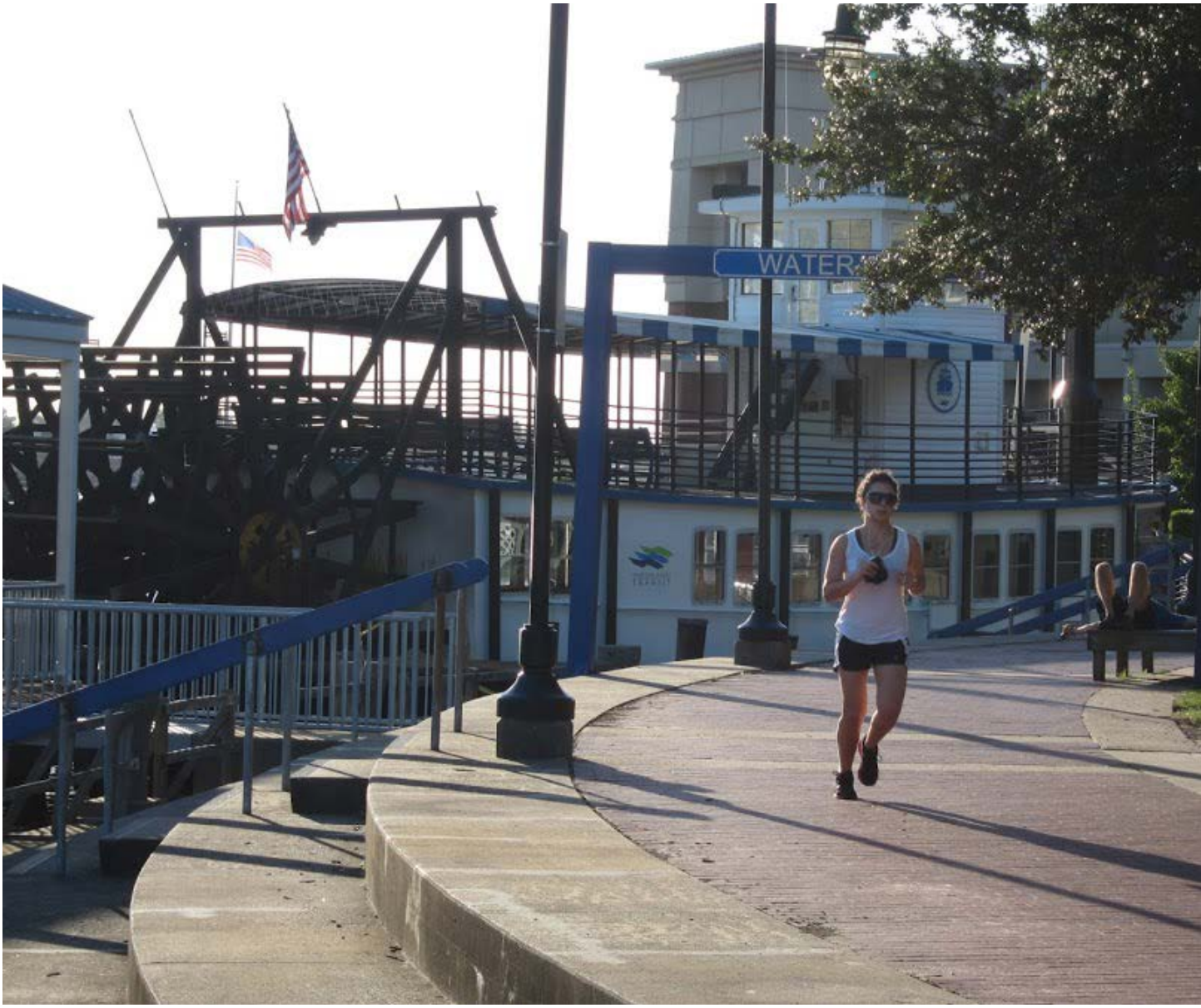
TABLE 4.6 SIDEWALK NETWORK COST ESTIMATES

	Length (LF)	Total Cost Estimate Range (million dollars)
Typical Cost Estimate for 5-foot concrete sidewalk: $32.50/LF		
Tier 1 Missing Sidewalks	198,900	$4.8M - $8.1M
Tier 2 Missing Sidewalks	610,800	$14.9M - $24.8M
Tier 3 Missing Sidewalks	184,400	$4.5M- $7.5M
Tier 4 Missing Sidewalks	116,200	$2.8M - $4.7M
Total Recommended Sidewalk Network	**1,110,300**	**$27.1M - $45.1M**
Priority Sidewalk Projects	**45,500**	**$1.1M - $1.8M**

TABLE 4.7 PEDESTRIAN CROSSING IMPROVEMENT COST ESTIMATES

Feature	Unit	Typical Cost Estimate
Curb Bulb-Out	linear foot	$87
ADA Ramp	each	$1,300
HAWK Signal	lump sum	$150,000
RRFB	lump sum	$15,000
Pedestrian Signal	lump sum	$20,000
Median Refuge Island	each	$3,000
High Visibility Crosswalk	linear foot	$47

Note: All cost estimates are order of magnitude estimates for generic situations and program planning level estimates. Prior to any detailed grant application, more project scoping and refined cost estimates would be required. Estimates include a 30% contingency factor. Estimates are specific to construction of identified item only and do not include cost for demolition of existing site, stormwater, right-of-way, utility relocations, or other site-specific conditions



Runner on a walking path along the Elizabeth River - https://www.flickr.com/photos/usepagov/9454348674/in/photostream/

CHAPTER 5:
Bike Network

DESIGNING BIKEWAYS FOR ALL USERS

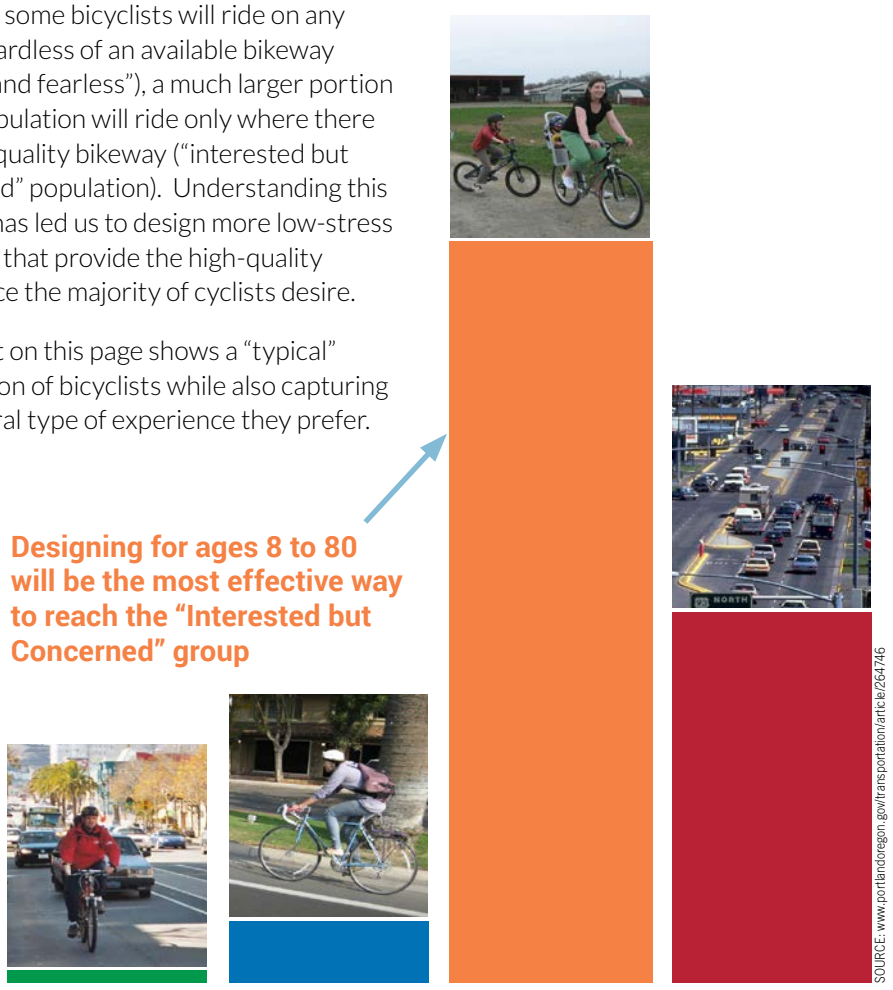
The last decade has seen tremendous investment in bicycle infrastructure locally and across the United States. However, one key realization is now shaping how bicycle investments are made.

DIFFERENT CYCLISTS HAVE DIFFERENT NEEDS

Although some bicyclists will ride on any road, regardless of an available bikeway ("strong and fearless"), a much larger portion of the population will ride only where there is a high-quality bikeway ("interested but concerned" population). Understanding this concept has led us to design more low-stress bikeways that provide the high-quality experience the majority of cyclists desire.

The chart on this page shows a "typical" distribution of bicyclists while also capturing the general type of experience they prefer.

Designing for ages 8 to 80 will be the most effective way to reach the "Interested but Concerned" group



< 2%
Strong & Fearless

5%
Enthused & Confident

60%
Interested but Concerned

35%
No Way, No How

SOURCE: www.portlandoregon.gov/transportation/article/264746

EXISTING BIKEWAY NETWORK

The City of Portsmouth currently has 18.2 miles of existing bikeways. While these facilities provide a foundation for the Portsmouth bikeway network, there are opportunities to build a more connected network that provides access to key destinations.

This chapter presents recommendations for building out Portsmouth's bikeway network, in order to provide safe transportation and recreation options for riders of all ages and abilities. The recommendations are categorized into three facility types: shared use paths, on-street bike facilities, and neighborhood greenways.

18.2 miles
Existing Bikeways

.2 miles
Buffered Bike Lanes

6.5 miles
Bike Lanes

9 miles
Shared Roadways (Sharrows)

2 miles
Existing Multi-Use Paths

1.5 miles
Paved Wide Shoulder

Bicyclist along Mt Vernon Ave - https://www.flickr.com/photos/usepagov/9454348164/in/photostream/


EXISTING BIKEWAYS
Buffered Bike Lane
Bike Lane
Shared Use Path
Shared Roadway (Sharrow)
Paved Shoulder
Multimodal Corridor
Elizabeth River Ferry
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
CRANEY ISLAND US NAVAL SUPPLY CENTER
SUFFOLK
CHURCHLAND PARK
US COAST GUARD BASE
ELIZABETH RIVER
VIRGINIA INTERNATIONAL GATEWAY
NORFOLK
PORTSMOUTH MARINE TERMINAL
PORTNORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
PARK VIEW
OLDE TOWNE
MARYVIEW PARK
WESTERN BRANCH ELIZABETH RIVER
CITY PARK
NORFOLK NAVAL SHIPYARD
JORDAN BRIDGE
BIDE-A-WEE GOLF COURSE
CRADOCK
PARADISE CREEK NATURE PARK
CHESAPEAKE
N
0
0.5
1
2
Miles


RECOMMENDED + EXISTING BIKEWAYS
Proposed Shared Use Path (SUP)
Proposed Barrier-Separated SUP
Proposed On-Street Bike Facility
Proposed Neighborhood Greenway
Existing Buffered Bike Lane
Existing Bike Lane
Existing Shared Use Path
Existing Shared Roadway (Sharrow)
Existing Paved Shoulder
South Hampton Roads Trail (SHRT)
SHRT (Outside Portsmouth Jurisdiction)
SHRT Alternative Alignment
Multimodal Corridor
Elizabeth River Ferry
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
CRANEY ISLAND US NAVAL SUPPLY CENTER
CHURCHLAND PARK
US COAST GUARD BASE
ELIZABETH RIVER
VIRGINIA INTERNATIONAL GATEWAY
PORTSMOUTH MARINE TERMINAL
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
PARK VIEW
OLDE TOWNE
MARYVIEW PARK
WESTERN BRANCH ELIZABETH RIVER
CITY PARK
NORFOLK NAVAL SHIPYARD
JORDAN BRIDGE
BIDE-A-WEE GOLF COURSE
CRADOCK
PARADISE CREEK NATURE PARK
N
0
0.5
1
2
Miles

RECOMMENDED BIKEWAY NETWORK

The proposed bike network was developed with the goal of creating a network of well-connected facilities. Biking needs to be a safe, convenient, and pleasant form of transportation for the broadest array of people. This Plan recommends a network of shared use paths, on-street bike facilities, and neighborhood bikeways to connect people to destinations such as transit, parks, schools, and jobs. These facilities are described in detail on pages 86-88.

Shared use paths, on-street bike facilities, and neighborhood greenways all make biking more comfortable. However, perception of safety is largely driven by factors like vehicle speeds and traffic volumes. Not all routes are the same, and therefore design flexibility is essential to building a low-stress network. The network approach developed as part of this Plan sets the parameters for the bikeway network, but the project design process will determine the ultimate cross-section for each project using national best practices and engineering judgment. VDOT, AASHTO, and NACTO provide design guidance and standards for bikeway facilities.

82 miles
Proposed Bikeways

47 miles
Shared Use Path

13 miles
On-Street Bike Facility

22 miles
Neighborhood Bikeways

BASIS OF RECOMMENDATIONS

Committee & Public Input

Online and In-person Public Input, Committee Map Mark-ups

Online Public Survey

+

Connecting Destinations

Downtown, parks, transit, schools, neighborhoods, commercial areas, and surrounding communities

+

Mapping Analysis

High Demand Areas

Equity

Safety Analysis

+

Existing Plans & Facilities

Portsmouth Rail to Trail

Build One Portsmouth

Master Transportation Plan

NEIGHBORHOOD GREENWAY

Definition:

In residential neighborhoods (when streets are low-volume and low-speed), neighborhood greenways provide key links and corridors for a bike network.

Benefits:

Neighborhood greenways are shared by automobiles and bicycles, but at speeds that make travel more comfortable for a wide range of bicyclists. These facilities have a low implementation and maintenance cost while also greening neighborhoods and improving travel.

22 Miles
Proposed
Neighborhood
Greenways

Implementation strategies include:

- Sharrow pavement markings
- Signage
- Traffic calming
- Speed reduction tools
- MUTCD approved wayfinding signage

ON-STREET BIKE FACILITY

Definition:

On-street bike facilities can include sharrows with signage, striped bike lanes, visually-buffered bike lanes, or physically separated bike lanes.

Benefits:

On-street bike facilities are the core component of a bicycle network. There are many types of facilities within this category allowing for implementation that meets the context and feasibility of the situation.

Implementation strategies include:

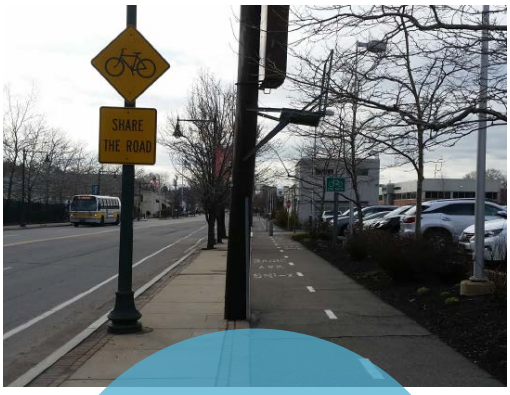
These treatments can be accomplished via new pavement markings, re-striping or road-diets on existing roadways.

13 Miles
Proposed
On-Street
Bike Facilities

SHARED USE PATHS

Definition:

Shared use paths are bi-directional multi-use paths completely separated from motorized vehicular traffic and are constructed in their own corridor, often within an open-space area.



Benefits:

A shared use path parallel to a roadway can encourage bicycling in areas where high-volume and high-speed motor traffic would otherwise discourage it.

47 Miles
Proposed
Shared Use Paths

Implementation strategies include:

Shared use paths can be paved and should be a minimum of 10' wide. Pavement widths of 12-, 14-, and even 16-feet are appropriate in high-use urban situations.

BIKEWAY NETWORK COST ESTIMATE

To understand the potential costs of implementing the recommended bikeway network, typical cost estimates were developed for each facility type, as shown in Tables 5.1. For shared use paths and on-street bike facilities, costs are shown as a range, representing different facility implementation options.

Detailed costing will be needed as part of the implementation of each individual project during the project development and design phase. Notably, the cost estimates below do not include right-of-way acquisition, utility relocations, and other site specific considerations. Especially for shared use paths, these costs can vary greatly and have a large impact on project cost, depending on the context of the facility.

Securing dedicated funding for bikeway projects will be a critical step in implementing the bikeway network. Funding sources, as well as detailed cost estimates for the Plan's top five priority projects, are provided in Chapter 7.

TABLE 5.1 RECOMMENDED BIKEWAY NETWORK: COST ESTIMATES

Implementation Strategy	Facility Description	Typical Unit Cost Estimate (per LF)	Length (LF)	Total Cost Estimate
SHARED USE PATHS				
Low Cost	8-foot asphalt shared use path	$35.00	249,000	$6.5 - $10.9
Medium Cost	10-foot asphalt shared use path	$44.00	249,000	$8.2 - $13.7
High Cost	12-foot asphalt shared use path	$52.00	249,000	$9.7 - $16.2
ON-STREET BIKE FACILITIES[1]				
Low Cost	Sharrows	$2.50	42,100	$106,000
Medium Cost	Striped bike lanes	$9.00	66,200	$596,000
High Cost	Buffered bike lanes	$32.50	80,400	$2,613,000
NEIGHBORHOOD GREENWAYS				
Typical Cost	Sharrows	$2.50	117,000	$293,000

Total Cost Estimate Range (million dollars)

Note: All cost estimates are order of magnitude estimates for generic situations and program planning level estimates. Estimates include a 30% contingency factor. Prior to any detailed grant application, more project scoping and refined cost estimates would be required. Estimates are specific to construction of identified item only and do not include cost for demolition of existing site, stormwater, right-of-way, utility relocations, or other site-specific conditions

[1] On-street cost estimates are for striping only. Costs for projects that involve additional pavement or changing curbs would be significantly higher. Some on-street bike facilities are recommended as upgrades to roadways with existing facilities. Roads with existing sharrows or bike lanes are not included in the estimates for sharrow costs; roads with existing bike lanes are not included in the estimates for bike lane costs.

INTERSECTION DESIGN GUIDANCE

Intersections are junctions at which different modes of transportation meet and facilities overlap. An intersection facilitates the interchange between bicyclists, motorists, pedestrians, and other modes in order to advance traffic flow in a safe and efficient manner. Designs for intersections with bicycle facilities should reduce conflict between bicyclists and motor vehicles by heightening the level of visibility, denoting clear right-of-way, and facilitating eye contact and awareness with other modes.

INTERSECTION TYPE AND TOOLS

For more information and design guidance see NACTO's Don't Give Up at the Intersection: Designing All Ages and Abilities Bicycle Crossings

REDUCING TURN CONFLICTS

Reduce Turn Speed

Drivers yield more frequently to people walking and biking when speeds are low, making it safer for bikes to pass in front of turning cars.

Make Bikes Visible

Setting back the bikeway crossing, installing recessed (early) stop lines for motor vehicles, and building raised bikeway crossings all make it easier for drivers to see people using the bikeway.

Give Bike the Right-Of-Way

People on bikes crossing a busy intersection need clear priority over turning motor vehicles.

CROSSING TREATMENT OPTIONS

The graphics below highlight different bicycle crossing treatments that can be implemented to improve bicycle safety at intersections throughout the network.

Bike Boxes

Bike boxes are designated areas at the front of a traffic lane that provide bicyclists with a safe and visible place to queue during a traffic signal.

Intersection Crossing Markings

Intersection crossing markings show drivers where a bicyclist will be traveling through an intersection, and provide bicyclists with a safe, direct path.

Median Refuge Island

Median refuge islands help facilitate comfortable bike and pedestrian crossings.

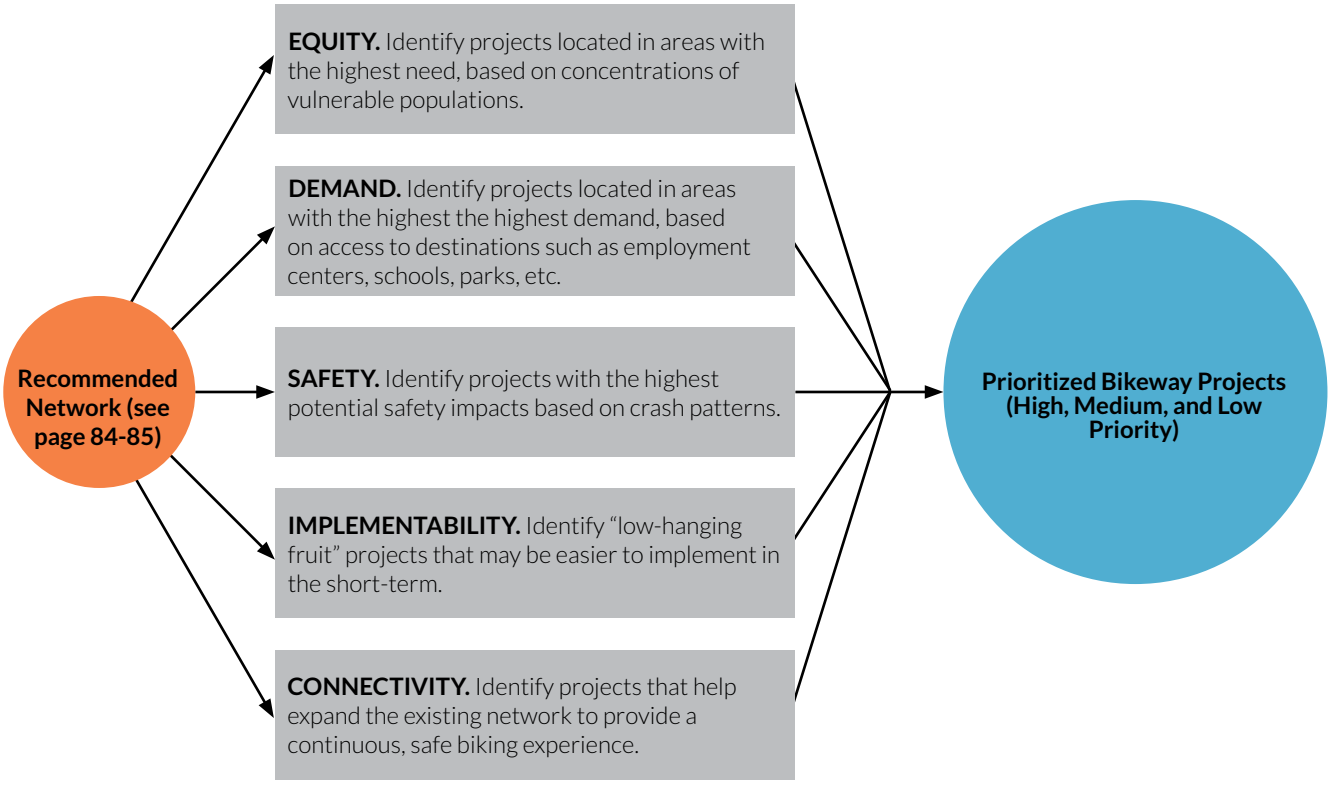
Two-Stage Turn Queue Boxes

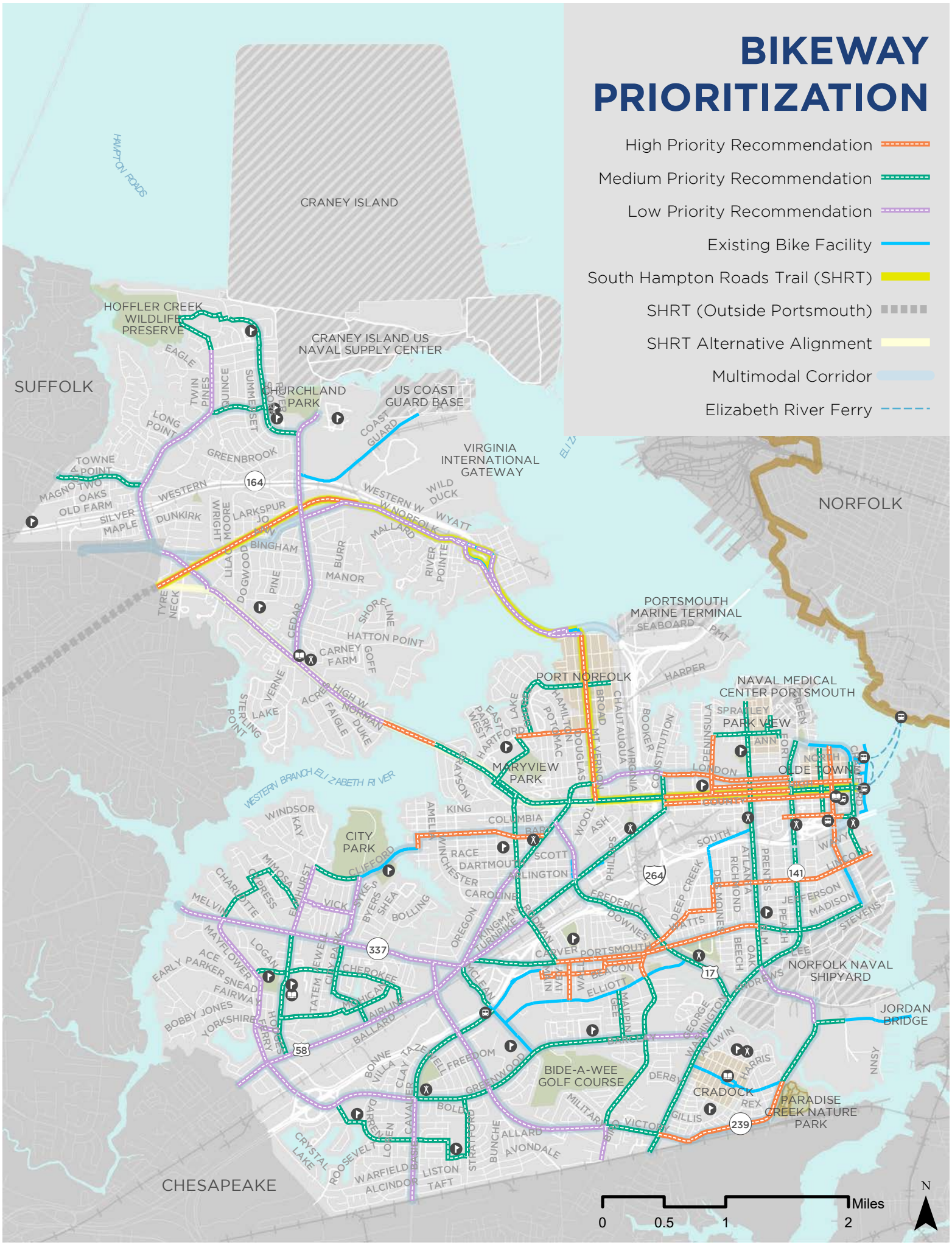
Two-stage turn boxes provide a way for bicyclists to make left turns via a two-step process so they do not have to merge into traffic lanes.

PRIORITIZATION

Implementation of the recommended bikeway network will require substantial funding and will happen over the course of many years. In order to identify high priority initiatives, the project team developed a methodology to determine high, medium, and low priority projects. The methodology can be used to revisit the priority project list on a regular basis to reevaluate a specific project's importance as the City builds out the bikeway network. In this way the City can ensure that the priority list achieves the desired goals while responding to changes in the needs and desires of the community, as well as funding availability over time.

Using the criteria shown below, a prioritized list of bikeway projects was developed. These recommendations are shown in the map to the right. The full prioritized bikeway project list can be found in Appendix H.




BIKEWAY PRIORITIZATION
High Priority Recommendation
Medium Priority Recommendation
Low Priority Recommendation
Existing Bike Facility
South Hampton Roads Trail (SHRT)
SHRT (Outside Portsmouth)
SHRT Alternative Alignment
Multimodal Corridor
Elizabeth River Ferry
HAMPTON ROADS
CRANEY ISLAND
HOFFLER CREEK WILDLIFE PRESERVE
CRANEY ISLAND US NAVAL SUPPLY CENTER
SUFFOLK
CHURCHLAND PARK
US COAST GUARD BASE
VIRGINIA INTERNATIONAL GATEWAY
NORFOLK
PORTSMOUTH MARINE TERMINAL
PORT NORFOLK
NAVAL MEDICAL CENTER PORTSMOUTH
MARYVIEW PARK
OLDE TOWNE
CITY PARK
NORFOLK NAVAL SHIPYARD
JORDAN BRIDGE
BIDE-A-WEE GOLF COURSE
CRADOCK
PARADISE CREEK NATURE PARK
CHESAPEAKE
WESTERN BRANCH ELIZABETH RIVER
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CHAPTER 6:
Shared Mobility

INTRODUCTION

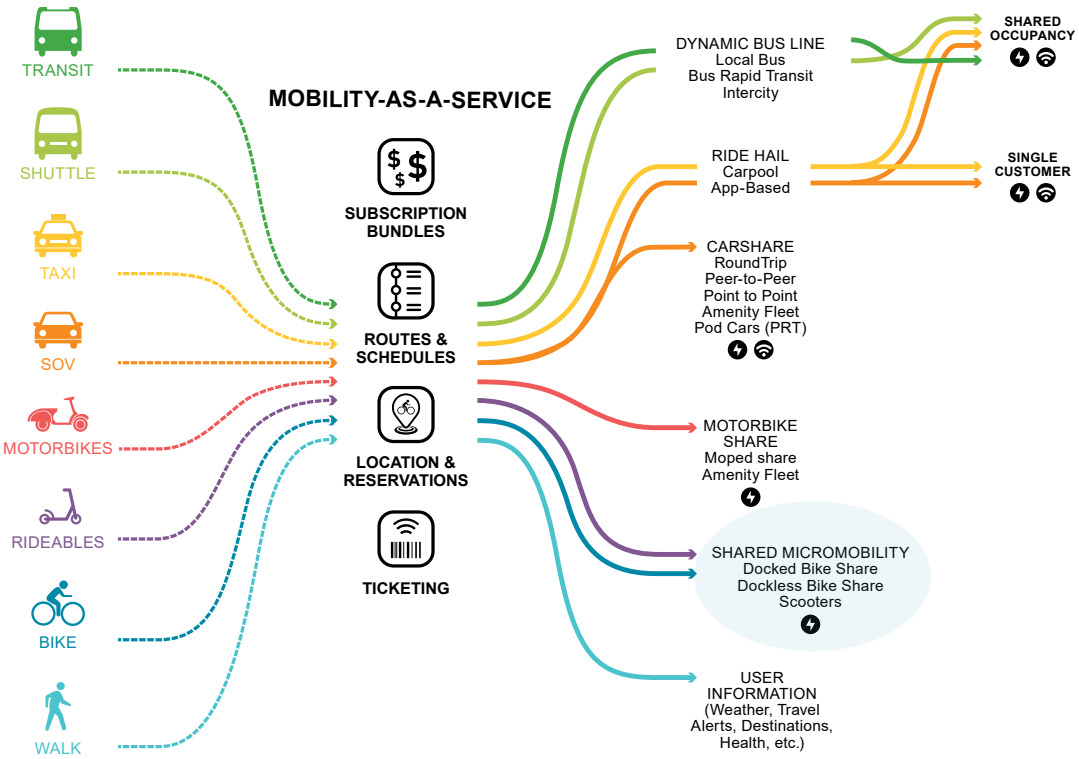
EXPANDED OPTIONS: SHARED MOBILITY

Transportation is evolving, and there are more mobility options than ever before including ride-hailing services, bikeshare, scooter share, e-bikes, and more. It is critical to think about these options not only as new applications of technology but also new ways to connect people. Shared mobility continues to change how we think about transportation as a service. This chapter will particularly focus on shared bikes and scooters, and presents an evaluation of demand for shared mobility in Portsmouth, and recommendations for implementing a bike and scooter share system.

These new shared mobility modes of transportation represent innovative responses to the demand for new options and offer an opportunity to:

- Provide more mobility choices
- Offer last mile and first mile connections
- Reduce traffic congestion
- Mitigate various forms of pollution
- Reduce transportation costs
- Improve efficiency
- Provide options for those who cannot afford to buy and maintain a vehicle
- Offer accessible mobility options for children, the elderly, disabled, and those with limited physical ability

MOBILITY-AS-A-SERVICE (MAAS)



WHAT ARE BIKE & SCOOTER SHARE SYSTEMS

Shared mobility programs are designed to provide cost-effective, environmentally-friendly and convenient travel options for short trips within a city or region. The systems consist of a fleet of user-friendly and durable bicycles, electric power-assisted bicycles or lightweight electric scooters (e-scooters) intended to be driven while standing. Both bike or scooter share programs are relatively inexpensive and quick to launch—compared to highway and transit projects—and can provide an extension to Portsmouth's public transportation system.

1. Dock-Based Bike Share

- Expensive (roughly $50,000 for a 10-bike, 20-dock station)
- Docking points use strong magnets to secure the bicycles, powered by a solar panel typically affixed to the transaction kiosk
- Bicycles within a dock-based system may only be secured properly at the station, so density of stations and high visibility is critical to success

2. Dockless Smart Bike

- Cheaper than dock-based systems
- Allows the user to retrieve or park the bicycle anywhere within the designated service area
- Potential for high rates of vandalism and theft

3. Lock-To Smart Bike

- Users are typically allowed to retrieve or park the bicycle anywhere within the designated service area but must lock to a fixed object
- Considered a hybrid of the dock-based and dockless systems in both cost and function

4. Electric-Assist Bike Share

- Companies that provide dock-based, dockless and lock-to hybrid systems all have e-assist models that can be integrated into a current or future bike share program
- Top speed for an e-bike share system is typically 15 mph
- Benefits include increased distance riders are able to cover and an enhanced ability to ride up and over hills

5. Scooter

- App-based technology allows short-term rentals of electric-powered scooters where users park at their destination within a defined geographic service area
- Typically picked up every night to be charged, and are deployed again the next day
- Benefits: broad appeal to a wide user base, first mile/last mile connectivity, and potential to reduce automobile trips
- Concerns: Use on sidewalks and paths, the sometimes-disorderly ways users park the scooters, and the safety of using such small-wheeled vehicles on busy streets.

POTENTIAL BENEFITS OF SHARED MOBILITY

The people who use and benefit from bike and scooter share systems are constantly changing. Initially, these programs in the U.S. were considered limited to only large cities with a high population and employment density and large mass transit systems. As more success has been realized, larger cities are expanding bike and scooter sharing into lower density and lower income areas, and mid-size and smaller cities have launched successful bike share and scooter share systems. Bike share and scooter share have been transformative transportation system offerings for many cities in North America. Some of the financial, health, transportation and safety benefits that can result from a successful bike share or scooter share system are discussed below.

Economic

- Infilling the city's transit system/last mile connectivity
- Enhancing Portsmouth's image as a city with sustainable transportation options
- Job creation
- Businesses can benefit from improved access to their stores
- Reduced transportation costs for household budgets

Health

- Because average bike share trips are just over one mile at relatively slow speeds, the typical 20-minute trip can help people get this needed physical activity as part of their daily commute or travel pattern

Transportation/Mobility

- Reduce reliance on private automobiles
- Extend the reach of transit
- Encourages active transportation
- Reduce barriers to active transportation

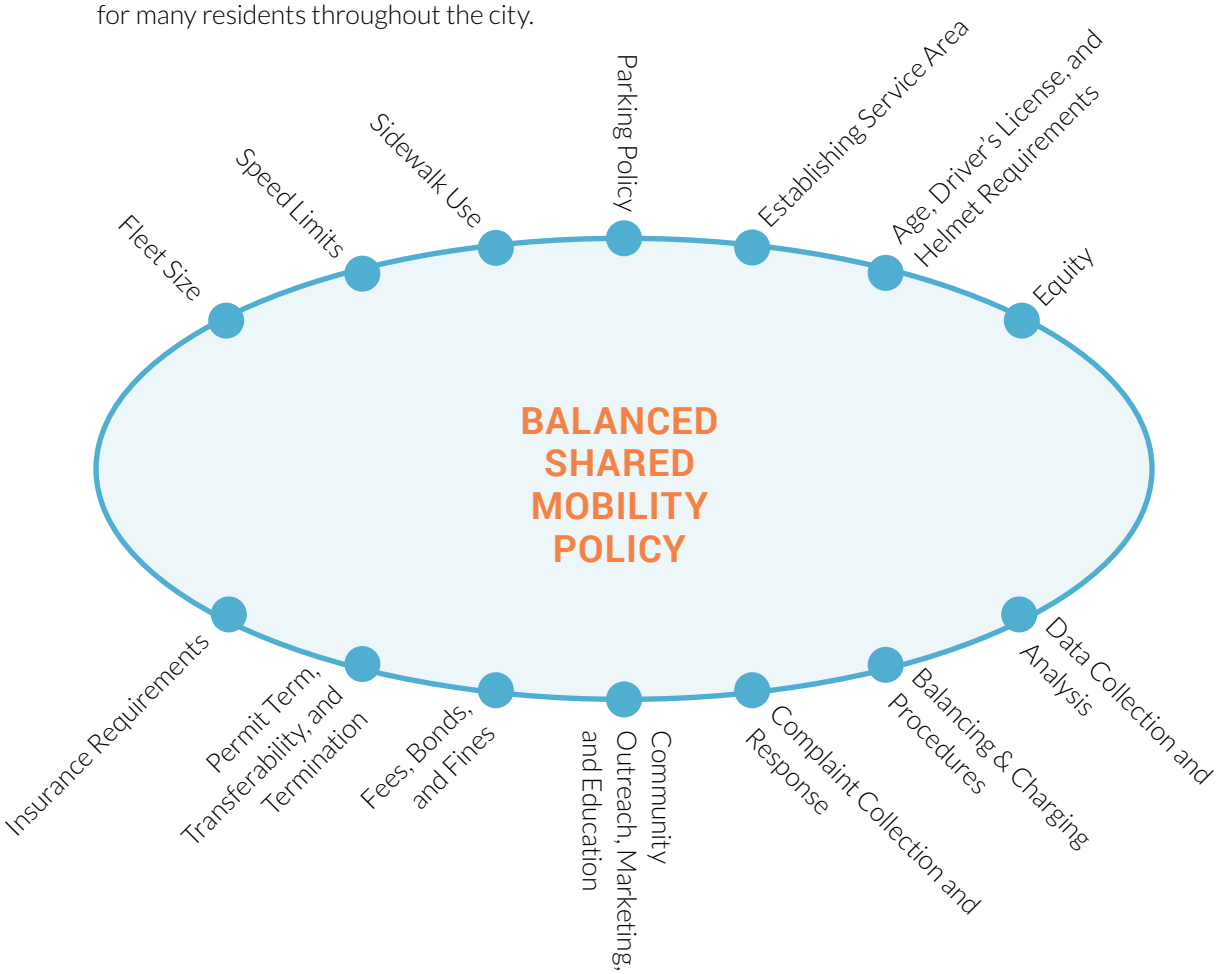
Safety

- Safety in numbers
- Heavy-duty design results in slower travel speeds
- Device safety features

POLICY RECOMMENDATIONS

This is an opportune time for consideration of shared mobility in Portsmouth. The Virginia General Assembly has issued legislation that requires local jurisdictions to regulate the operation of motorized skateboards or e-scooters, bicycles, or electric power-assisted bicycles for hire by January 1, 2020. Furthermore, national trends are showing a growing demand for sustainable and efficient means of transportation. A potential bike and/or scooter share program could complement this evolution, and at the same time provide enhanced mobility and public health benefits for many residents throughout the city.

Finding the right balance of the core policy elements below has been a challenge for many communities. There are large variances between shared mobility pilot programs just within the Commonwealth. These pilot program experiences are a good opportunity for sharing insight and lessons learned from fellow Commonwealth communities. Ideally, a positive relationship will form between the Shared Mobility Device (SMD) providers, City staff, and the community so Portsmouth can harness many of the positive benefits that stem from this technology.



POLICY CASE STUDY: SHARED MOBILITY IN VIRGINIA

The City of Portsmouth has conducted a thorough review of other shared mobility systems in Virginia. These case studies were used to develop specific policy language recommendations for Portsmouth's Shared Mobility Device policy, and incorporated into detailed policy and program recommendations in the Shared Mobility Assessment memo in Appendix J of this report. The table below highlights findings for Portsmouth's neighboring cities of Norfolk and Virginia Beach, as well as Charlottesville, which was one of the early adopters of shared mobility devices in Virginia.

TABLE 6.1: SHARED MOBILITY DEVICE POLICIES IN VA

	Norfolk, VA	Virginia Beach, VA	Charlottesville, VA	Portsmouth, VA
Pilot Program Shared Mobility Devices	Bicycles, e-scooters	E-scooters	Bicycles, e-bicycles, e-scooters	Bicycles, e-bicycles, scooters, e-scooters
Program Operations Agency	Department of Transit	City Manager	Department of Neighborhood Services	City Manager
Permit Required for Operation	Yes	Yes	Yes	Yes
Application Fee and Operation Cost	$15,000 + 5 cents per ride	$5,000 + $50/scooter/year + 50 cents/day/scooter	$500 + $1/day per device	$5,000 + $1/device/year
Fleet Size	100-500	1000+	100-200 per company	250 (initial)
Equipment Rebalancing	Required	Required	Not required	Required
Maximum Speed Limit	20 mph	15 mph; 10 mph on shared paths	15 mph	15 mph
Permitted Use Areas	Bike lanes, no sidewalks	Bike lanes, On-street (less than 25 mph), no sidewalks	On-street, bike lanes, no sidewalks	On-street, bike lanes, no sidewalks
Parking Requirements	Dockless and corrals, allowed on sidewalk without impediment	Dockless and corrals, staging allowed on public property	Racks or corrals, allowed on sidewalk or private property	Dockless and corrals in City approved geo-fenced parking areas
Equitable Access	Must have reduced/ low-income plan and meet ADA requirements	Must meet ADA requirements	Must provide access to the unbanked, must have reduced/ low-income cost plan, must meet ADA requirements	Must have reduced/ low-income operations, safety, and outreach plan and meet ADA requirements

SHARED MOBILITY ASSESSMENT

To determine the demand for a potential bike and/or scooter share system in Portsmouth, three important factors have been considered. Together, these factors have been used to identify areas where there is the most potential for a successful shared mobility system , as well as strategies for overcoming barriers and obstacles to implementation.

1. Level of Demand

2. Equity Goals

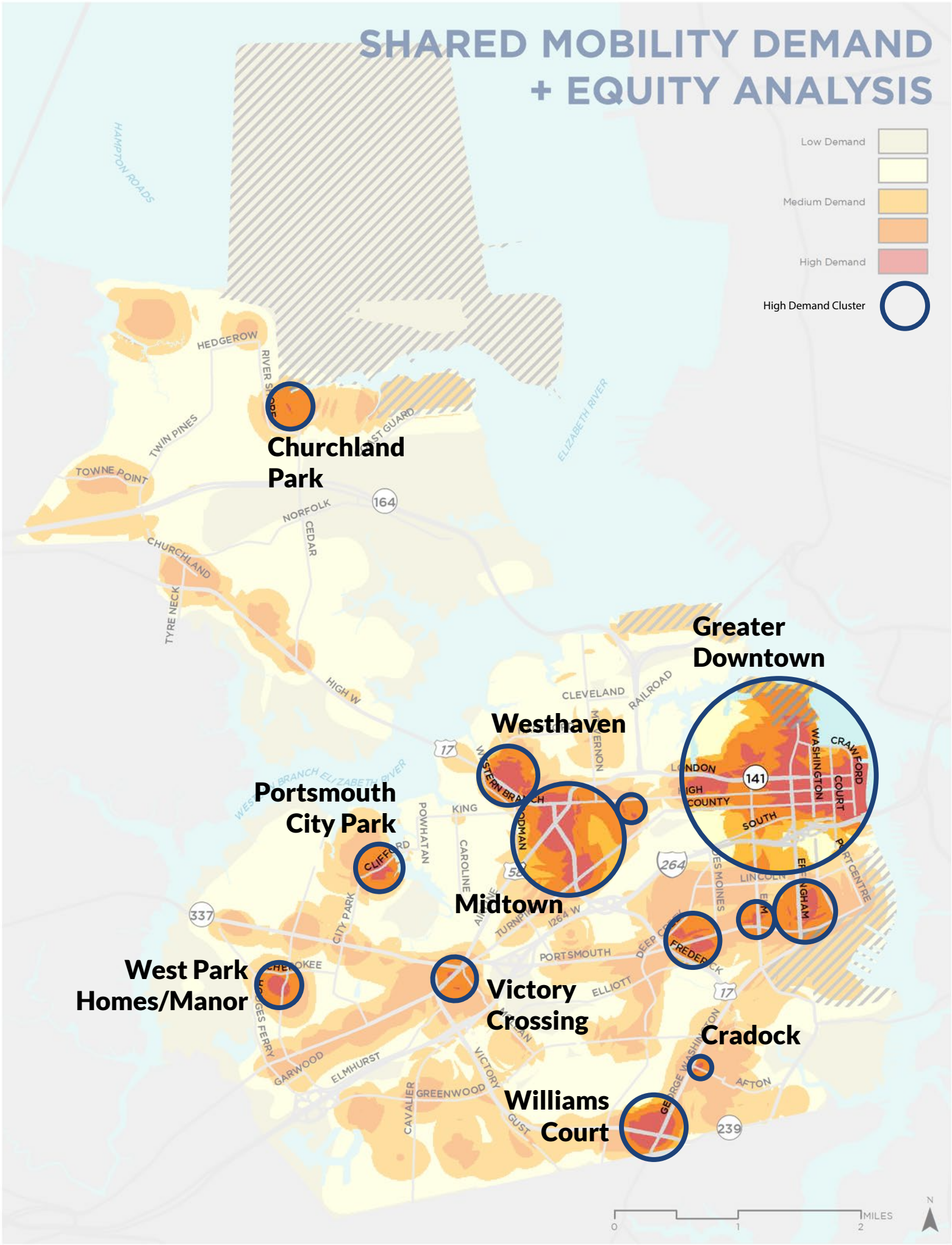
3. Qualitative Barriers Analysis

1. LEVEL OF DEMAND

The composite shared mobility demand analysis provides an aggregate look at the relative demand for shared mobility in Portsmouth. These results should act as a launching point where local knowledge and community input would contribute to station placement and distribution.

High Demand Clusters (by Approximate Neighborhood, from north to south)

- Churchland Park
- Midtown
- Westhaven
- Greater Downtown (includes Downtown, Olde Towne and Port-Centre)
- Portsmouth City Park
- West Park Homes/Manor
- Victory Crossing
- Cradock
- Williams Court


SHARED MOBILITY DEMAND
+ EQUITY ANALYSIS
Low Demand
Medium Demand
High Demand
High Demand Cluster
Churchland Park
Greater Downtown
Westhaven
Portsmouth City Park
Midtown
West Park Homes/Manor
Victory Crossing
Cradock
Williams Court
HAMPTON ROADS
ELIZABETH RIVER
HEDGEROW
TWIN PINES
TOWNE POINT
NORFOLK
CEDAR
CHURCHLAND
TYRE NECK
HIGH W
CLEVELAND
RAILROAD
KING
POWHATAN
CAROLINE
CITY PARK
PORTSMOUTH
ELLIOTT
GARWOOD
ELMHURST
GREENWOOD
CAVALIER
VICTORY
AFTON
LINCOLN
DES MOINES
FREDERICK
WASHINGTON
CRAWFORD
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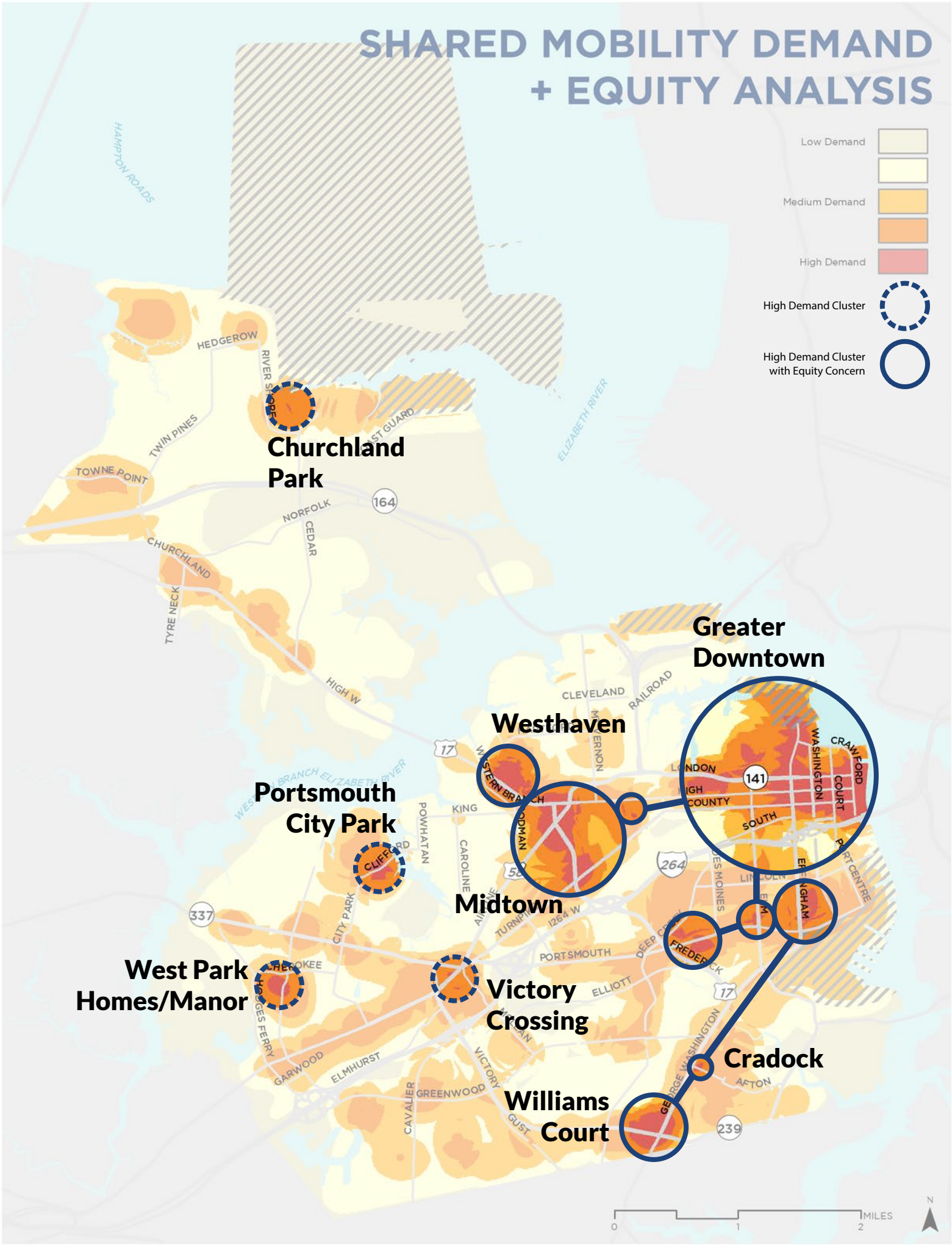
2. WORKING TOWARD EQUITY GOALS WITH SHARED MOBILITY

While shared mobility programs typically launch in the highest demand areas (e.g. downtowns or areas near universities), geographic and social equity are also important considerations. After launching bike share service in relatively-confined, high demand areas, cities such as Boston, Minneapolis, and Washington D.C. expanded into underserved communities that typically exhibit lower demand. Other cities such as Detroit and St Louis were keen to include bike share in lower-income and/or minority communities from the initial launch.

Access to transportation can help or hinder a person's ability to get to work, attend school, buy healthy food, or socialize. Traditionally, the people most susceptible to experiencing the negative impacts of limited mobility options have been children, seniors, people of color, and people with limited access to a car, limited formal education, living in a lower-income household, or with limited English-speaking proficiency. Identifying locations that can serve these "communities of concern" can help close the gap in individuals' access to Portsmouth's transportation network and can help foster new opportunities for economic and social inclusion.

The map on the following page highlights the areas of overlap between the shared mobility Demand Analysis results and where communities of concern are present. Locating shared mobility in or near these neighborhoods will provide greater transportation options for the identified communities of concern within Portsmouth. Since one of the goals of a shared mobility system in Portsmouth should be to "improve mobility options for communities of concern", understanding concentrations of the communities will help to inform recommendations related to the shared mobility service area.

The map shows all of the high demand areas with an equity concern being linked via corridors of medium to high demand. Churchland Park, Portsmouth City Park, West Park Homes/Manor, and Victory Crossing have areas of high demand but are largely disconnected from other high demand areas. Placing shared mobility stations in these areas may result in reduced use compared to areas of higher connectivity between high demand areas.


SHARED MOBILITY DEMAND
+ EQUITY ANALYSIS
Low Demand
Medium Demand
High Demand
High Demand Cluster
High Demand Cluster with Equity Concern
Churchland Park
Greater Downtown
Westhaven
Portsmouth City Park
Midtown
West Park Homes/Manor
Victory Crossing
Cradock
Williams Court
HAMPTON ROADS
HEDGEROW
TWIN PINES
TOWNE POINT
NORFOLK
CEDAR
CHURCHLAND
TYRE NECK
HIGH W
ELIZABETH RIVER
CLEVELAND
RAILROAD
WESTERN BRANCH ELIZABETH RIVER
KING
POWHATAN
CAROLINE
CLIFFORD
CITY PARK
PORTSMOUTH
ELLIOTT
DEEP CREEK
CHEROKEE
HODGES FERRY
GARWOOD
ELMHURST
GREENWOOD
CAVALIER
VICTORY
GUST
AFTON
WASHINGTON
CRAWFORD
COURT
SOUTH
PORT CENTRE
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3. BARRIERS AND OPPORTUNITIES

Shared Mobility and Covid-19[1]

- Shared mobility systems prior to the Coronavirus (Covid-19) pandemic were faced with difficult financial realities. The pandemic exacerbated those challenges with a plummeting user base due to stay at home orders, economic uncertainty, and concerns over sanitation.
- As the once booming, shared mobility sector consolidates and contracts, some cities are considering replacing their strict regulations with subsidization programs in an attempt to save the systems that they believe help fill crucial mobility gaps both before and during the pandemic.
- With the shared mobility pilot program in Portsmouth on hold, it will be important to continue looking to other communities for lessons learned in this unique time.

Within the City of Portsmouth, a number of physical barriers to shared mobility exist today: interstate highways, high-volume arterial roads, bodies of water with long bridges, and wide/busy intersections. These present real and perceived barriers to active transportation, discouraging connectivity not only for current bicyclists, but for potential shared mobility users as well. Because many users are likely to be visitors and/or novices, the visual and spatial barriers between Portsmouth's various districts and destinations could play a role in whether someone decides to participate in a shared mobility system.

The barriers listed below present some of the critical challenges to launching a bike or scooter share program in Portsmouth:

» I-264
» MLK Expressway (US-58)
» High St (US-17)
» Western Fwy (VA-164)
» Victory Blvd
» Portsmouth Blvd
» Effingham St
» High Street Bridge (US-17)
» W Norfolk Bridge (Western Fwy, VA-164)
» Lack of shared use trails and bicycle network
» Elizabeth River tributaries

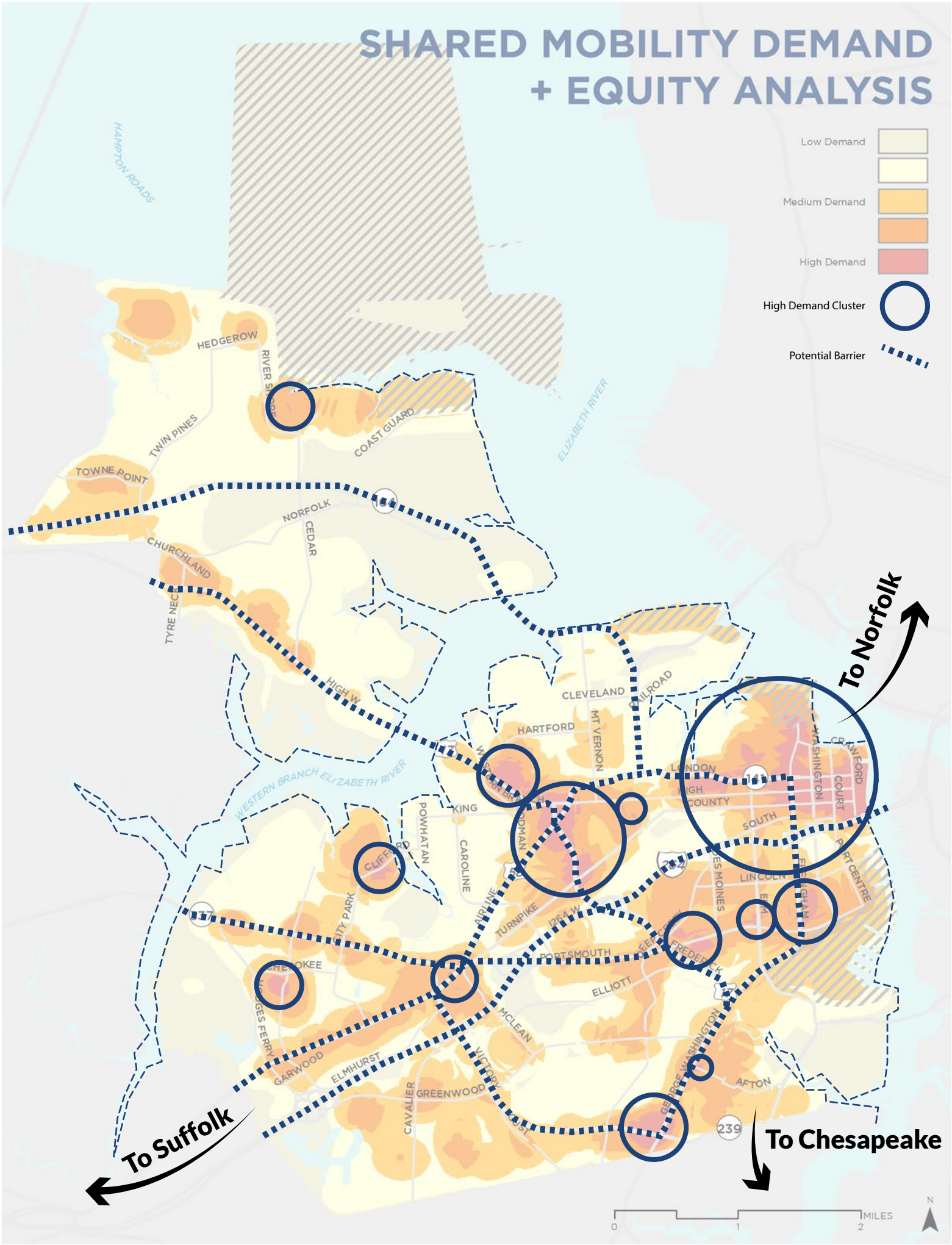
Although nearly all cities with shared mobility programs suffer from some discontinuity due to busy roads and highways, of particular concern in Portsmouth are the water bodies that separate parts of the city and can create a challenging experience for users and system implementation. The map to the right illustrates how many areas of high demand, where people would most likely want to travel to/from/about, often have barriers that impedes comfortable connectivity. This emphasizes the need to try to mitigate these challenges through improved infrastructure facilities that benefit both individual and shared micro-mobility transportation alternatives.

Regional Connectivity

The introduction of a shared mobility system in Portsmouth could increase multimodal opportunities for regional travel to and from neighboring communities, like Norfolk, Suffolk, or Chesapeake. Although geofencing and complicated agreements between vendors and municipalities make an open and unified regional system challenging, it's important to think regionally about shared micro-mobility. Using the same vendor as that of a neighboring community could increase implementation efficiency while taking advantage of brand recognition in the region, local knowledge acquired by the vendor, and user familiarity with the system.

Because there have already been instances of shared mobility devices making their way from Norfolk to Portsmouth via passenger ferry, an emphasis within the vendor's education program should focus on system boundaries and fees.

[1] https://www.citylab.com/perspective/2020/04/electric-scooters-coronavirus-bird-lime-bikesharing/610060/


SHARED MOBILITY DEMAND
+ EQUITY ANALYSIS
Low Demand
Medium Demand
High Demand
High Demand Cluster
Potential Barrier
HAMPTON ROADS
ELIZABETH RIVER
WESTERN BRANCH ELIZABETH RIVER
HEDGEROW
TWIN PINES
TOWNE POINT
COAST GUARD
NORFOLK
CEDAR
CHURCHLAND
TYRE NECK
HIGH W
CLEVELAND
RAILROAD
HARTFORD
MT VERNON
LONDON
COUNTY
SOUTH
WASHINGTON
CRAWFORD
COURT
PORT CENTRE
KING
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LINCOLN
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ELLIOTT
MCLEAN
VICTORY
CHEROKEE
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GREENWOOD
CAVALIER
GEORGE WASHINGTON
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To Chesapeake
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CHAPTER 7:
Implementation

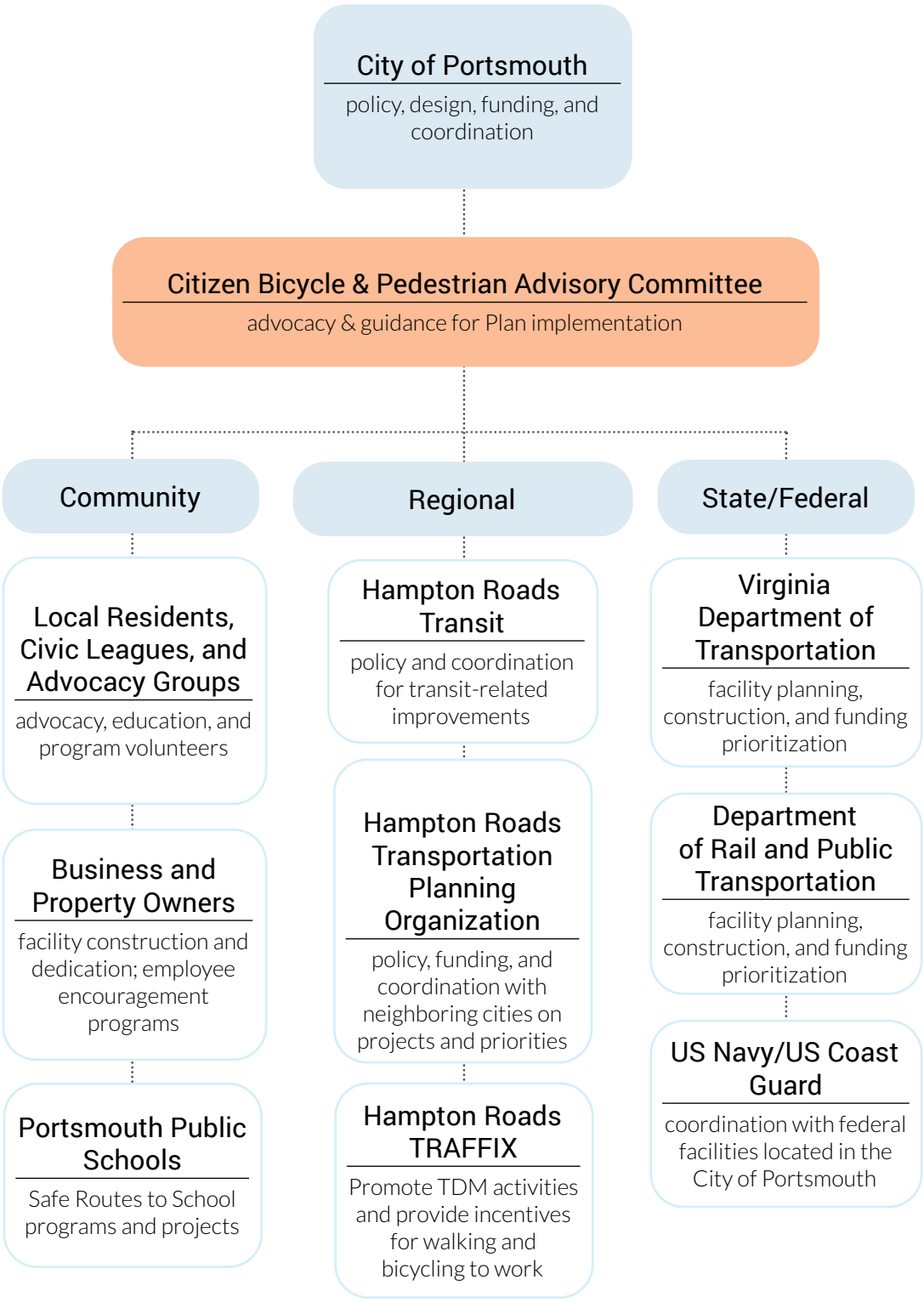
INTRODUCTION

The infrastructure, policy, and program recommendations in previous chapters provide strategies for making Portsmouth more bicycle and pedestrian friendly. The purpose of this chapter is to provide guidance and action steps for implementing the recommendations.

Implementing the recommendations within this Plan will require leadership and dedication to bicycle and pedestrian facility development on the part of a variety of groups and agencies. Equally critical, and perhaps more challenging, will be meeting the need for a recurring source of revenue. Even small amounts of local funding could be very useful and beneficial when matched with outside sources.

Most importantly, the City and its local partners need not accomplish the recommendations of this Plan by acting alone; success will be realized through collaboration with regional and state agencies, the private sector, and non-profit organizations. The chart on the following page provides a general description of potential partners and their roles in implementation.

ROLES FOR IMPLEMENTATION



PERFORMANCE MEASURES

Performance measures are critical for assessing and understanding whether the goals of the Plan are being achieved over time. While these measures focus on evaluating progress over the long-term, data should be collected on a regular basis to track interim progress (5 years). Frequent tracking will provide the City of Portsmouth and its partners with feedback on whether policy adjustments are needed to progress beyond the current baseline.

The performance measures outlined below are generally outcome based and focus on achieving policy objectives. The intent of outcome-based performance measures is to prioritize investments that best progress the safety, connectivity, and mobility goals of this Plan.

The key to meeting these measures will be data collection. Relevant data will need to be collected both now and in the future in order to effectively determine the outcomes of the performance measures.

The Citizen Bicycle and Pedestrian Advisory Committee will be routinely updated on the progress of the performance measures.

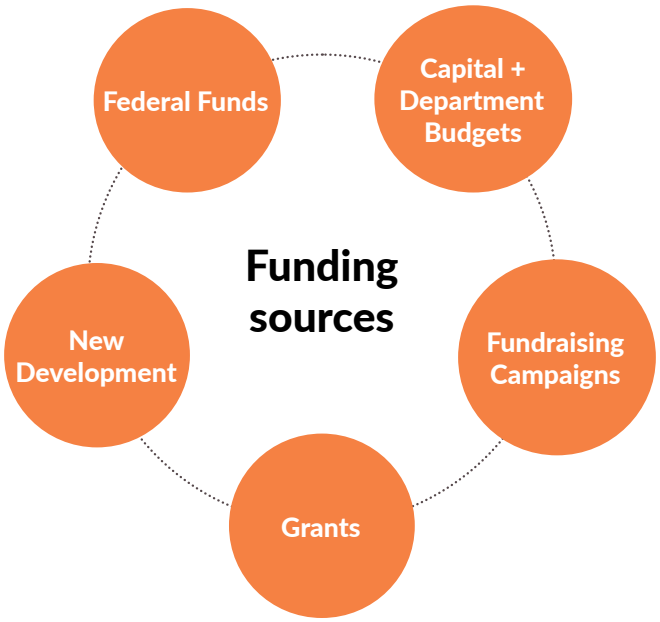
TABLE 7.1 PERFORMANCE MEASURES

Goal	Performance Measure	Baseline Measurement	Performance Target
Increase Safety	Bicycle and pedestrian crash rates	Average of 2016, 2017, and 2018 rates (average of 38 pedestrian crashes per year; average of 18 bicycle crashes per year)	Reduce bicycle and pedestrian crash rates by half (50%) between 2020 and 2045
Increase Mobility	Percentage of bikeway, trail and pedestrian improvement network completed	Total miles of existing bikeways (18.2 miles) and total miles of existing sidewalk (340 miles)	Priority projects constructed or funded by 2023
Enhance Connectivity	Percentage of intersections that are bicycle-friendly and pedestrian-friendly	2020 percentage (based on crossing inventories of intersections to be conducted along corridors identified in Table 4.2)	15% of intersections improved by 2045

POTENTIAL FUNDING SOURCES

In order to achieve the goals of this Plan, the City of Portsmouth and its local partners will need to fund improvements from a variety of funding sources and partners. Funding sources will need to be opportunistic and consistent in order to implement this Plan. Five primary funding sources make up the core funding strategy for this Plan:

- **Federal Funds.** Federal funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations, independent from state budgets. In Virginia, federal monies are administered through the Virginia Department of Transportation (VDOT) by the Commonwealth Transportation Board (CTB) and metropolitan planning organizations, such as the Hampton Roads TPO (HRTPO). Most, but not all, of these programs are oriented toward transportation, with an emphasis on reducing auto trips and providing intermodal connections.



- **Capital & Department Budgets.** Portsmouth can use the concepts and policies presented in this Plan to implement it through regularly scheduled capital projects, such as streetscape projects, street resurfacing, or new public or private property construction. Departments like Public Works or Parks and Recreation can use their maintenance resources and staff to support programs and infrastructure maintenance. Bicycle and pedestrian projects should be included in the local Capital Improvement Program (CIP), increasing consistent year-to-year funding levels.
- **Coordination with New Development.** Fostering partnerships with private developers provides an opportunity to generate revenue to fund infrastructure projects, such as sidewalk and shared use path construction, as well as programs, such as bicycle education classes.
- **Grants.** Competitive grants through public agencies or through private or non-profit foundations can generate additional resources for projects and programs. Grant funding may also be used to acquire right-of-way. To increase readiness for grant funding, preliminary plans (30% construction drawings) can be developed for priority bikeway and pedestrian projects.
- **Fundraising Campaigns.** Fundraising through neighborhood groups, advocacy groups, or even crowd-funding can help generate additional resources for projects and programs.

FUNDING SOURCES BY BUDGET SIZE

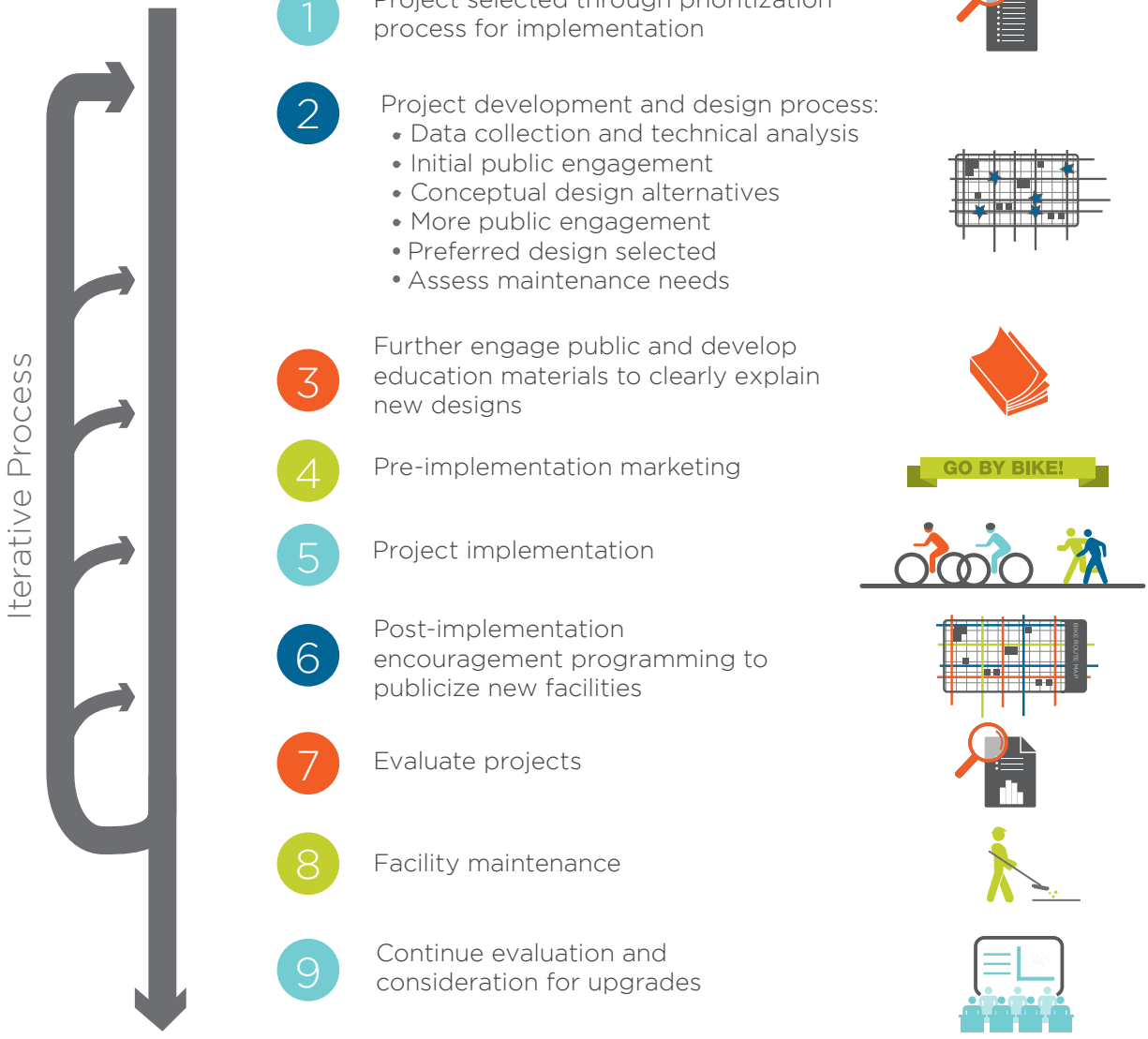
Given the constant change in funding availability at local, state, and federal levels, it is difficult to know what financial resources will be available at different time frames during the implementation of this Plan. The following table highlights funding options to consider for projects of various sizes.

TABLE 7.2 FUNDING SOURCES BY PROJECT SIZE

Small Budget	Large Budget
• Federal Transportation Funds - The Congestion Mitigation/Air Quality Improvement Program (CMAQ) and Transportation Alternatives Program (TAP) • U.S. Department of Urban Development (HUD) and U.S. Environmental Protection Agency (EPA) funds • Capital Improvement budget funds • Virginia Department of Transportation funds • Community Development Block Grant (CDBG) • Virginia's Smart Scale • FAST Act: Surface Transportation Block Grant funding for Transportation Alternatives • Safe Routes to School • Made to Move Grant Program • People for Bikes • Virginia Recreational Trails Program • Elizabeth River Project	• Highway Safety Improvement Program (HSIP) • Federal Transportation Funds • Foundation grants • Individual donors • Community Improvement Districts • Public-Private Partnerships • Infrastructure bonds • Dedicated local tax sources • Virginia's Smart Scale

PROJECT IMPLEMENTATION

An integrated and strategic project delivery process is an important element of public engagement and project evaluation. Consistency is critical to provide the public a general understanding of how a project will be developed, designed, and implemented. The flow chart below demonstrates a process for project implementation, from project selection through evaluation.



PRIORITY PROJECT CUTSHEETS

The following pages offer detailed information on five priority projects, including individual project maps. These projects were selected based on input from the public, City Staff, the Citizen Advisory Committee, and other stakeholders. The priority project cut sheets were designed based on the types of information required by potential funding partners, and feature the following information:

- **Project length**
- **Facility Types**
- **Jurisdiction**
- **Trip Generators**
- **ROW needs**
- **Traffic Volumes (AADTs)**
- **Projected Future Traffic Volumes**
- **Estimated Construction Costs**
- **Estimated Land Acquisition Costs**
- **Annotated Map of Project Corridor**

PRIORITY PROJECT CUTSHEETS

High Street

Paradise Creek Park/Jordan Bridge

Victory Boulevard

Portsmouth Boulevard

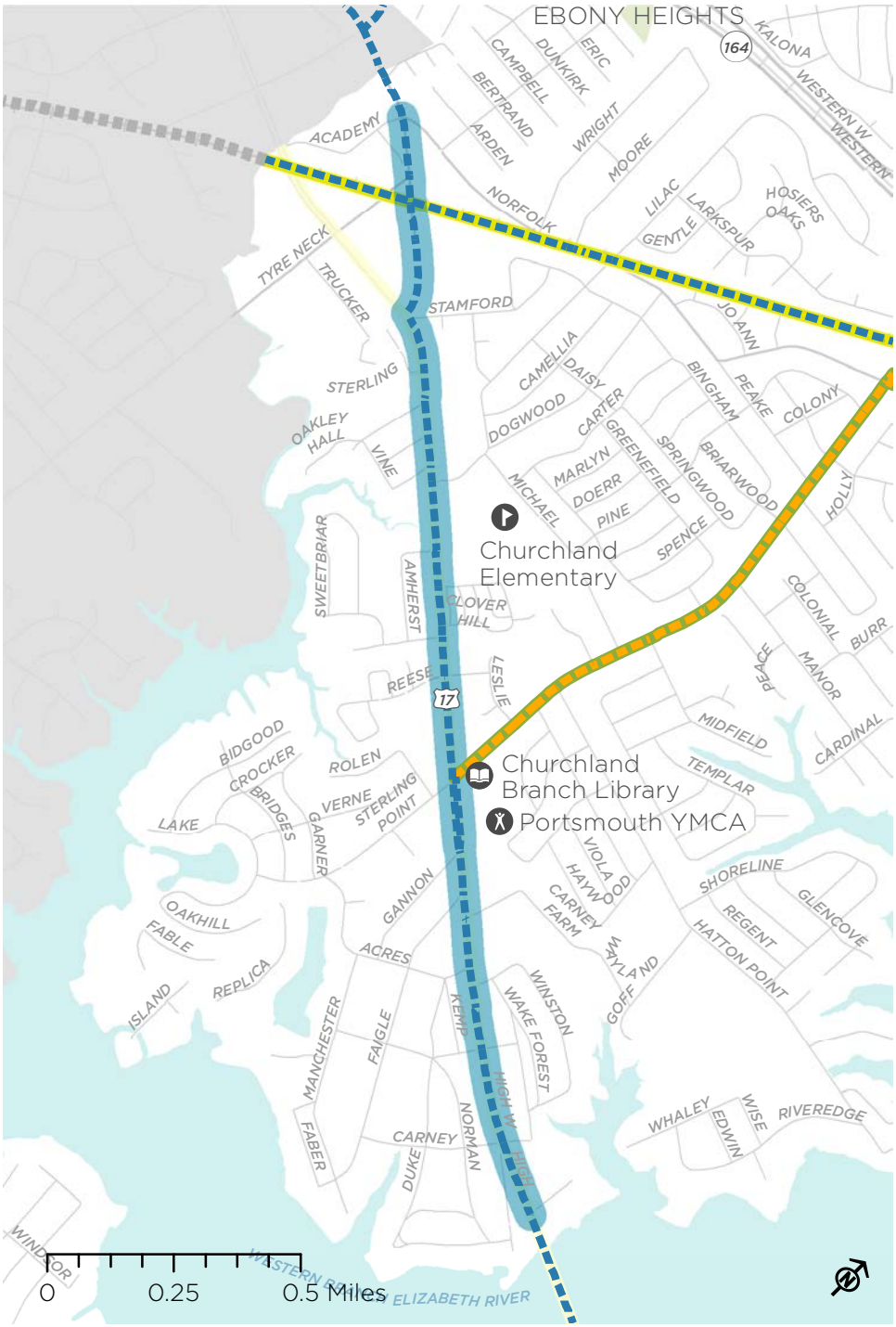
Lincoln Street

1 - HIGH STREET

FROM:
Churchland Bridge

TO:
Academy Avenue

LENGTH:
2.24 miles (11,800 LF)



- Priority Project
- Proposed Shared Use Path (SUP)
- Proposed On-Street Bike Facility
- Existing Shared Roadway (Sharrow)
- South Hampton Roads Trail (SHRT)
- SHRT (Outside Portsmouth Jurisdiction)
- SHRT Alternative Alignment

PROJECT DESCRIPTION:

High Street from Churchland Bridge to Churchland Blvd is an Urban Principal Arterial with intermittent curb and gutter and sidewalks along both sides of High Street. Sections of sidewalk and curb are in poor repair and need to be replaced. A 5-foot sidewalk (new and replacement) is recommended on the south side of High Street and a 10-foot Shared Use Path is recommended on the north side of High Street. (Certain segments of High Street near the Churchland Bridge have guardrail adjacent to roadway and construction of any type of pedestrian facility would be costly from a Right-of-Way perspective). Right-of-Way in this segment appears to be limited. Verge area contains mature trees as well as overhead utilities and public utilities where sidewalks currently exist and widening may impact both. Midway between Cedar Lane and Churchland Blvd is a river crossing . High Street would need to be widened with a new separate structure in order to accommodate pedestrian access. Wetlands are a concern in this area. Pavement is not wide enough to include on-street pavement markings.

ADT:

21,000 ADT (2018)

DESIGN CONSIDERATIONS

Biggest concern is condition and location of existing facilities/pavement, as well as RW, Utility, wetland and drainage issues

TRIP GENERATORS:

- Residential
- Schools
- Churches
- Commercial

POTENTIAL ROW NEEDS:

Major impacts as any widening to existing Sidewalks could impact not only RW, but Private utilities, requiring RW for relocations. *

** Existing RW was not available for this review and is based an engineering judgment.*

TABLE 7.3 HIGH STREET RECOMMENDATIONS

Timescale	Notes	Cost	ROW	Design Complexity	Provides Connectivity
Short Range	Perform maintenance on existing sidewalks. Research available City R/W and construct 5' sidewalk, with a buffer strip if possible, in existing R/W for connectivity along corridor, with minimal impacts to mature vegetation and utilities.	●●○○○	●○○○○	●○○○○	●●○○○
Mid Range	Construct structure to span tributary crossing High Street to allow for completion of connectivity of sidewalk along north side of High Street from Churchland Bridge to Academy Avenue. Develop a plan to engage with stakeholders regarding potential encroachments in the R/W.	●●●○○	●●○○○	●●●○○	●●●○○
Long Range	Research and purchase necessary R/W, resolve encroachment issues, and relocate utilities as necessary to construct new 10-foot Shared Use Path (SUP), along north side of High Street. Modify signalized intersections to provide accessible pedestrian signals and ADA compliant ramps to facilitate the SUP.	●●●●●	●●●●○	●●●●●	●●●●●

2 - VICTORY BLVD/JORDAN BRIDGE

FROM:
George Washington Highway

TO:
Jordan Bridge

LENGTH:
2 Miles (10,500 LF)

PROJECT DESCRIPTION:

Victory Boulevard is a Minor Arterial with shoulders and sparing and very limited pedestrian access. This project would construct a shared use path (SUP) on the west side of Victory to tie into existing facility along Elm Avenue leading to Jordan Bridge. Victory Boulevard Bridge (midway of the proposed project) cannot be expanded to accommodate a SUP. A separate facility would have to be constructed to accommodate a SUP. Portsmouth has a design and construction project to replace existing bridge over Paradise Creek in their Capital Improvement Program (project is currently under design with a SUP on the west side of the bridge). Construction of a SUP will require drainage improvements along the corridor. Depending on Right-of-Way, utility structures may be avoided, if not, cost of utility relocations will be a major risk to the project. Wetland concerns also exist at bridge crossing. This segment of Victory Boulevard is not wide enough for on-street bike lanes. Interim improvements would include construction of a 5' sidewalk along the west side of Victory Boulevard to provide access to local neighborhoods, as well as Sharrows on Afton Boulevard.

ADT:

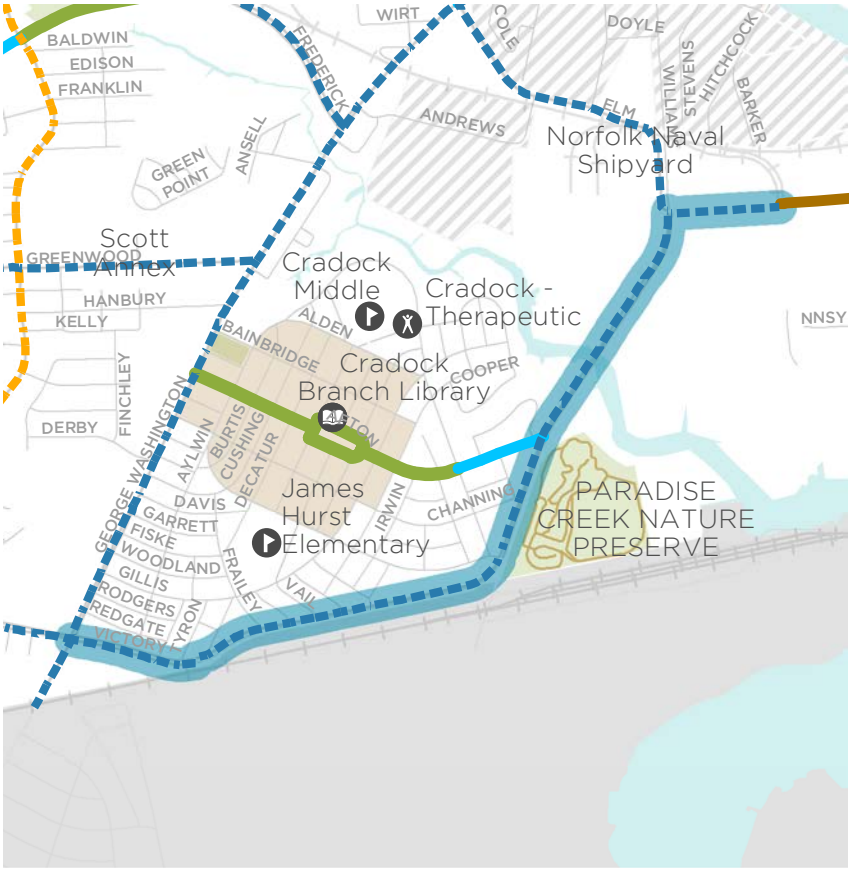
6,700 ADT (2018)

DESIGN CONSIDERATIONS

- Utility impacts
- Right-of-Way
- Drainage

TRIP GENERATORS:

- Residential
- Park



POTENTIAL ROW NEEDS:

RW may be required, however predominantly open space acquisition, no private or commercial properties. Utility relocations will be a major concern and avoidance factor. Drainage and wetlands are also major concerns. *

** Existing RW was not available for this review and is based an engineering judgment.*

TABLE 7.4 VICTORY BLVD/JORDAN BRIDGE RECOMMENDATIONS

Timescale	Notes	Cost	ROW	Design Complexity	Provides Connectivity
Short Range	Perform maintenance on existing sidewalks. Research available City R/W and construct 5' sidewalk, with a buffer strip if possible, in existing R/W for connectivity along corridor, with minimal impacts to mature vegetation and utilities. Provide Sharrows on Afton Boulevard	●●○○○	●○○○○	●○○○○	●●●○○
Long Range	Research and purchase necessary R/W, update drainage, and relocate utilities as necessary to construct new 10-foot Shared Use Path, along west side of Victory Boulevard.	●●●○○	●●●○○	●●●○○	●●●●●

3 - VICTORY BOULEVARD

FROM:
Greenwood Drive

TO:
George Washington Highway

LENGTH:
1.52 miles (8,000 LF)

PROJECT DESCRIPTION:

Victory Boulevard from Greenwood Drive to George Washington Highway is classified as a Minor Arterial. From Greenwood Drive to Deep Creek Boulevard, a new sidewalk or Shared Use Path (SUP) may be feasible along the south side of Victory Boulevard, however, Right-of-Way and utilities are a concern, with R/W being primarily commercial properties. There is an existing shoulder that can be utilized and repurposed as bike lanes for the majority of this segment (both directions).

From Deep Creek Boulevard to George Washington Highway, the south side of Victory Boulevard offers apparent Right-of-Way for a SUP while minimizing impacts to utilities. However, drainage will be impacted as the new alignment would likely traverse along existing drainage facilities. Again, there are shoulders that can be reutilized and marked for on-street bike lanes.

ADT:

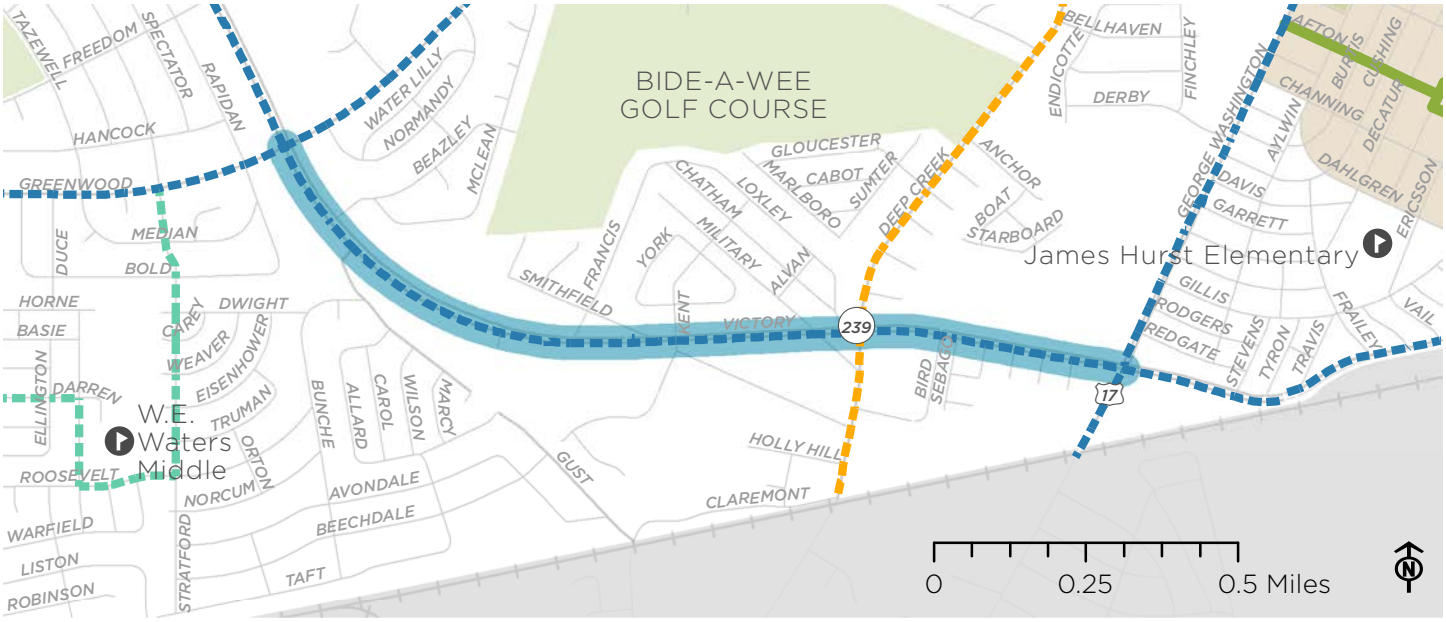
18,000 ADT (2018)

DESIGN CONSIDERATIONS

Biggest concern is condition and location of existing facilities, as well as Right-of-Way, Utility, and Drainage concerns.

TRIP GENERATORS:

- Residential
- Commercial



- Priority Project
- Proposed Shared Use Path (SUP)
- Proposed On-Street Bike Facility
- Proposed Neighborhood Greenway
- Existing Shared Roadway (Sharrow)

POTENTIAL ROW NEEDS:

Impacts to potential RW from commercial properties; Private utilities, requiring RW for relocations; drainage relocations and enhancements*

** Existing RW was not available for this review and is based an engineering judgment.*

TABLE 7.5 VICTORY BOULEVARD RECOMMENDATIONS

Timescale	Notes	Cost	ROW	Design Complexity	Provides Connectivity
Short Range	Perform maintenance on shoulders sufficient to provide on-street bike lane markings. Install all signage as required by MUTCD to adequately and safely mark the bike lanes.	●○○○○	●○○○○	●○○○○	●●○○○
Mid Range	Design and construct 10-foot SUP from Deep Creek Boulevard to George Washington Highway. This would provide a connection to previous Victory Boulevard project.	●●●○○	●●○○○	●○○○○	●●●○○
Long Range	Design and construct 10-foot Shared Use Path from Greenwood Drive to Deep Creek Boulevard. This would provide a continuous SUP along Victory Boulevard from Greenwood Street to Jordan Bridge.* Modify signalized intersection to provide accessible pedestrian signals and ADA compliant ramps to facilitate the SUP. * Continuous SUP along Victory depends on funding and priority of construction projects among the Victory Boulevard projects.	●●●○○	●●○○○	●●●○○	●●●●○

4 - PORTSMOUTH BOULEVARD

FROM:
Alexander's Corner

TO:
Portsmouth Sportsplex

LENGTH:
1.95 miles (10,300 LF)

POTENTIAL ROW NEEDS:

Major impacts as any widening to existing Sidewalks could impact not only RW, but Private utilities, requiring Right-of-Way for relocations. *

** Existing Right-of-Way was not available for this review and is based an engineering judgment.*

ADT:

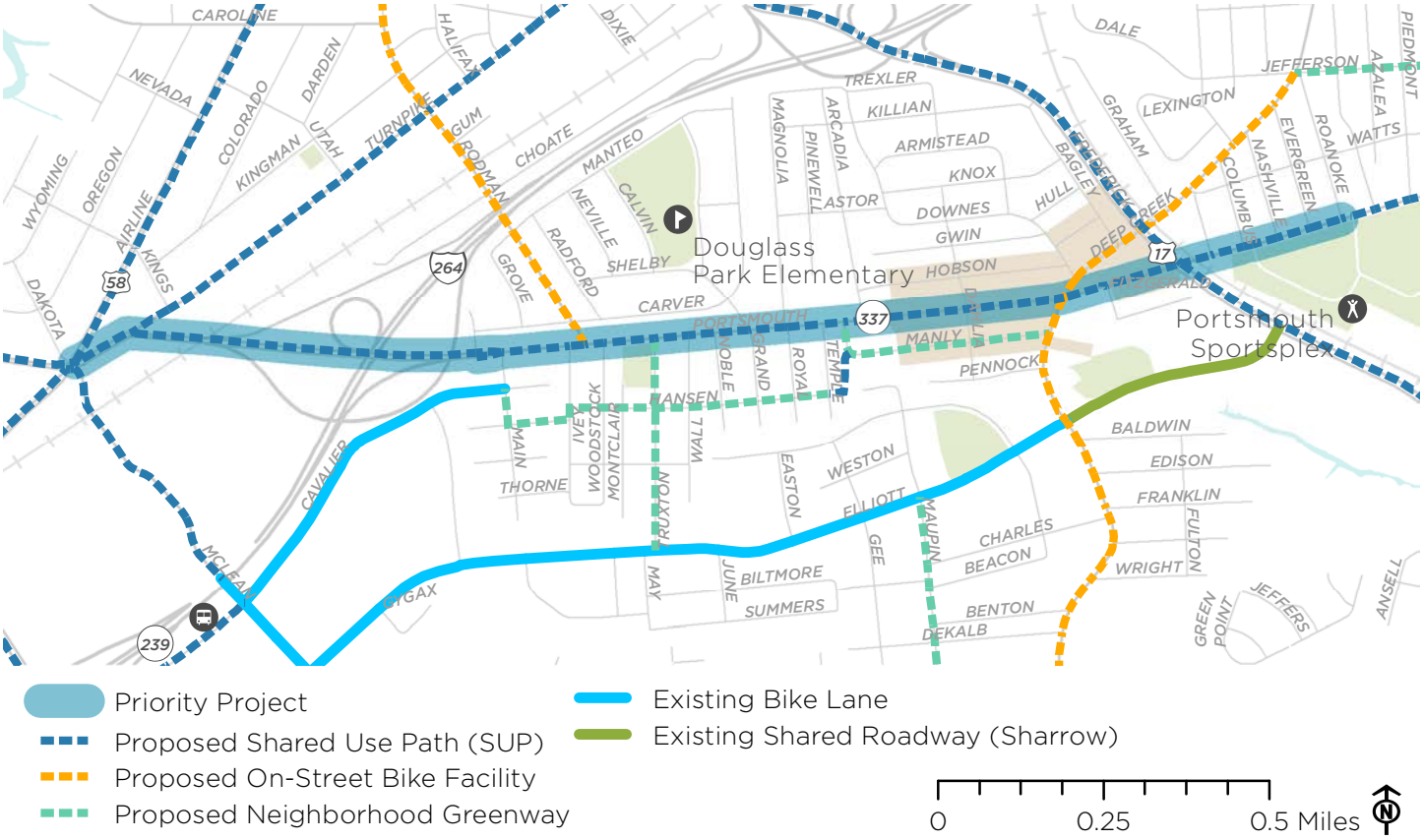
7,500 ADT (2018)

DESIGN CONSIDERATIONS

Biggest concern is condition and location of existing pedestrian facilities, as well as Right-of-Way, Utility, and Drainage issues.

TRIP GENERATORS:

- Residential
- Commercial
- Portsmouth Sportsplex



PROJECT DESCRIPTION:

Portsmouth Boulevard is classified as a Minor Arterial. Overall Project is to add 10' Shared Use Path (SUP) from Sportsplex to Airline Boulevard (along north side of Portsmouth Boulevard). Existing roadway does not have sufficient width for on-street bike lane markings. Recommend dividing into segments.

Segment 1 from Sportsplex to Rodman Avenue. Major concerns with potential Right-of-Way impacts, as well as utility relocations. Design standards require 8' from curb and gutter to SUP. Any widening of existing sidewalk may impact Right-of-Way. Widening existing facility toward the street would have major impacts to utilities and would not meet design standards. Do not recommend installation of on-street markings as existing pavement width does not accommodate on-street facilities. This segment has potential for road diet to accommodate facilities and providing safe access to Sportsplex considering low ADT on a 4-lane roadway.

Segment 2 from Rodman to Railroad tracks. Currently, there is no pedestrian facility in this segment. A majority of the existing Right-of-Way is currently owned by VDOT. Heavy vegetation in this area would require clearing, as well as utility concerns. There are 2 overpasses in this segment, but based on a cursory review, it appears there is room for a new facility, with design exceptions being acquired from the state.

Segment 3 from the railroad tracks to existing sidewalk on Turnpike Road. Although a short segment, potential impacts to parking for local businesses are likely as result of constructing a new facility.

TABLE 7.6 PORTSMOUTH BOULEVARD RECOMMENDATIONS

Timescale	Notes	Cost	ROW	Design Complexity	Provides Connectivity
Short Range	Perform maintenance on existing sidewalks. Research available City R/W and construct 5' sidewalk in existing R/W for connectivity along corridor, with minimal impacts to mature vegetation and utilities. Perform Traffic Analysis to evaluate feasibility of Road Diet along Portsmouth Boulevard from Sportsplex to Rodman Avenue.	●●○○○	●○○○○	●●○○○	●●○○○
Mid Range	Research and purchase necessary Right-of-Way, update drainage, and relocate utilities as necessary to construct new 5-foot Sidewalk, along north side of Portsmouth Boulevard.	●●●○○	●●●○○	●○○○○	●●●●○
Long Range	Research and purchase necessary Right-of-Way, update drainage, and relocate utilities as necessary to construct new 10-foot Shared Use Path, along north side of Portsmouth Boulevard.	●●●○○	●●●○○	●●●●○	●●●●●

5 - LINCOLN STREET

FROM:
Port Centre Parkway

TO:
Des Moines

LENGTH:
1.35 miles (7,100 LF)

PROJECT DESCRIPTION:

Lincoln Street from Des Moines Avenue to Effingham Street is primarily a Major Collector with curb and gutter and sidewalks along majority of both sides of Lincoln Street. Sidewalks and Curb are in poor repair and need to be replaced. A 5-foot sidewalk (new and replacement) on both sides of Lincoln Street is recommended, although it may not be feasible in some sections with structures and/or utilities within approximately 5-10 feet of roadway. Right-of-Way in this segment appears to be limited. Verge area contains mature trees as well as overhead utilities and public utilities and widening may not be an option. This segment of Lincoln is a candidate for traffic calming measures such as Median Islands. Pavement appears wide enough to include "Sharrows" road marking (although it is recommended that the pavement be milled and overlayed at a minimum due to existing conditions). Lincoln Street from Effingham Street to Norfolk Naval Shipyard is primarily a commercial area. Sidewalks are constructed on both sides of Lincoln Street within this segment with the exception of one block. Pavement is wide enough to include "Sharrows" pavement markings.

ADT:

3,800 ADT (2018)

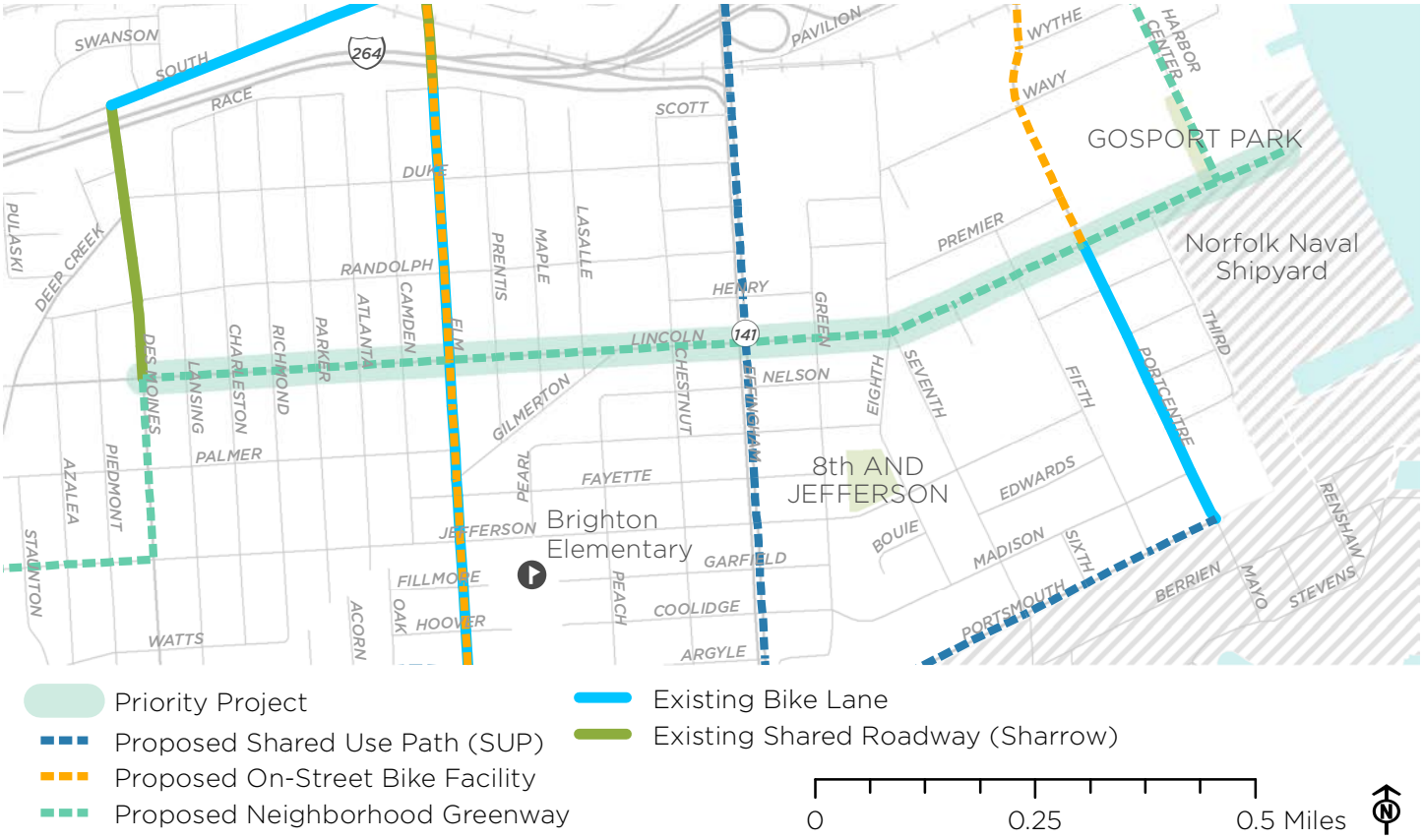
DESIGN CONSIDERATIONS

Biggest concern is condition and location of existing facilities/pavement from Des Moines to Effingham, as well as RW and Utility issues. Appears that any improvements in this segment would require complete reconstruction of Lincoln Street with all the issues/ concerns related to reconstruction projects. Drainage improvements are also a consideration.

TRIP GENERATORS:

» Residential

» Commercial near Effingham (7-Eleven, Dollar General)



POTENTIAL ROW NEEDS:

Des Moines to Effingham - Major impacts as any widening to existing Sidewalks could impact not only RW, but Private utilities, requiring RW for relocations.
Effingham to Shipyard - Minor impacts as missing segment is on vacant block and RW impacts may be minimal.*

** Existing RW was not available for this review and is based an engineering judgment.*

TABLE 7.7 LINCOLN STREET RECOMMENDATIONS

Timescale	Notes	Cost	ROW	Design Complexity	Provides Connectivity
Short Range	Perform maintenance on existing sidewalks. Research available City R/W and construct 5' sidewalk in existing right-of way for connectivity along corridor, with minimal impacts to mature vegetation and utilities. Construct sidewalk on property located on the south side of Lincoln Street between 5th Street and 6th Street. This will provide continuous pedestrian access from Effingham Street to Port Centre Parkway. Also, provide "Sharrows" on the segment of Lincoln Street between Effingham Street and Port Centre Parkway. Additionally, study the Lincoln Street Corridor, as well as neighboring streets within the neighborhood, to create a complete pedestrian access system, to include upgraded sidewalks and Neighborhood Greenway alternatives.	●●○○○	●○○○○	●●●○○	●●○○○
Mid Range	Perform pavement milling and overlay on Lincoln Street and install Sharrows. Pavement maintenance should be considered after maintenance to existing Curb and Gutter.	●●○○○	●○○○○	●○○○○	●●●○○
Long Range	Based on the analysis from the above recommended study, implement Neighborhood Greenway alternatives, such as median islands, 2-way chokers, improved pedestrian access with continuous sidewalk systems, etc.	●●●○○	●●●○○	●●●●○	●●●●○


PORTSMOUTH
BICYCLE & PEDESTRIAN PLAN

Appendix A:

City of Portsmouth Complete Streets Policy Recommendations

Introduction

This memo provides a framework for adopting and implementing a Complete Streets policy into each part of Portsmouth's planning and design processes. The memo includes recommendations for Complete Streets Policy Language, Incorporating Complete Streets into the Planning and Design Process, and Complete Streets Policy Resources that the City of Portsmouth can build upon as it develops its own Complete Streets policy.

Complete Streets Policy Language

The text below provides examples of policy language that can be used as a basis of the Portsmouth Complete Streets Policy.

Goals and Objectives

The City of Portsmouth recognizes the numerous benefits associated with the adoption of a Complete Streets policy, and aims to:

- Enhance mobility, improve safety, and expand transportation access/choice for people of all ages and abilities traveling by foot, bicycle, shared devices, automobile, public transportation, and commercial vehicle
- Create walking and bicycling options that are safer, more accessible, connected, and convenient
- Develop a user-friendly transportation network that accommodates, encourages, benefits and welcomes all users and transportation modes aligned with the 2018 Build One Portsmouth plan

Equity

In creating Complete Streets, the City recognizes equity as a motivation and will prioritize vulnerable users, as recognized by the Hampton Roads Transportation Planning Organization (TPO), to include:

- Women and minority populations
- Carless households
- Persons in poverty
- Single head of household with children
- Persons over 65 years of age
- Persons with limited English proficiency
- Persons with disabilities

Complete Streets Project Approach

In order to pursue the elements of Complete Streets in Portsmouth, the City will:

- Scope, plan, design, fund, construct, operate, and maintain all City streets to provide a comprehensive and integrated network of facilities
- Approach every city, state, and federally funded transportation project, as well as private development projects impacting the public way or where the public is allowed to travel, as an opportunity to create safer, more accessible streets for all users
- Establish a checklist to address Complete Street accommodations for all future projects

Design Guidelines

All new construction and reconstruction/retrofit projects must:

- Account for all modes of transportation and all users of the street in all phases of the project, including:

    - New projects: planning, programming, concept design, right-of-way acquisition, construction, construction engineering, reconstruction, and operations
    - Retrofit projects: any change to transportation facilities within street rights-of way such as capital improvements, re-channelization projects, and maintenance
    - Maintenance projects: ongoing operations including resurfacing, repaving, restriping, rehabilitation, and other major maintenance
- Provide accommodations for all modes of transportation to continue to use the road safely and efficiently during any construction or repair work that infringes on the right of way and/or sidewalk where feasible

This Complete Streets Policy shall apply to all City-owned streets and land within public ROWs. All Complete Streets improvements must be coordinated between all relevant City of Portsmouth departments such as Engineering and Technical Services, Public Works, Planning, Police, Emergency Management, Public Health, and Senior Services. All new private development projects, which propose improvements within the public ROW, shall comply with this Complete Streets policy.

Exceptions

All new construction and reconstruction/retrofit projects must adhere to the clear and accountable rules of exception, which include:

- Where specific users are prohibited by law from using the ROW, but exclusion of certain users on particular ROW's shall not exempt projects from accommodating other permitted users;
- Cost is disproportionate to the current need or projected future need for Complete Streets improvements, or unusual circumstances, such as where natural features (e.g. steep hills, ledge, shorelines) make it very costly or impossible to accommodate all modes, or funding is not available;
- There is an absence of current and future need (e.g. a rural road that carries low Average Daily Traffic (ADT) and is remote from neighborhoods, schools, or points of interest).

Incorporating Complete Streets into the Planning and Design Process

The National Complete Streets Coalition from Smart Growth America (SGA) has specific suggestions that the City of Portsmouth can use to alter their project decision-making process to better implement Complete Streets. The chart on the next page highlights action steps and best practices at each stage of the planning and design process, including project initiation, plan development, funding and design, and installation.

Complete Streets Decision Making Process: Best Practices

1. Project Initiation

Identify project location, scope, and goals.

- Define clear and accountable project exemptions.
- Prioritize projects that include multimodal accommodations. If there is a selection criteria rubric, change it to reflect these values.
- Adjust maintenance and operations procedures with the City of Portsmouth Public Works Department to prioritize Complete Streets. Find low-cost projects or routine repaving plans where bike lanes and sidewalks can be integrated.
- Review all City of Portsmouth documents that impact transportation decisions and modify to include language supportive of Complete Streets.
- If Level of Service is a metric for transportation projects, then loosen standards in certain areas: decrease the rating for peak times, or utilize the Multimodal Level of Service Standards. Strict LOS standards even at peak times can impede projects having extra space used for transit, pedestrians, and bicyclists.

2. Plan Development

Conduct initial screening of site design tools; collect and analyze data.

- The project development process can help facilitate incorporating Complete Streets. The City of Charlotte's Urban Street Design Guidelines provides a template for plan development that takes into account land use and transportation context, current deficiencies, and future objectives to develop cross-sections for new projects. See the graphic on the next page for a case study that uses this process.

3. Funding and Design

Secure project funding and develop design.

- Establish a Bicycle and Pedestrian Advisory Committee, with representatives from local and regional agencies, school districts, and parks and health departments to oversee implementation.
- Utilize a Complete Streets Checklist when signing off on projects, such as the detailed checklist from the New Jersey DOT and others from SGA's Taking Action Guide, pages 25-26.
- Choose facilities based on NACTO's Contextual Guidance tool.
- Save time and resources by adopting national or state design guidelines (Such as Virginia Department of Rail and Public Transportation's Multimodal System Design Guidelines). Visit the resources section of this memo for more.

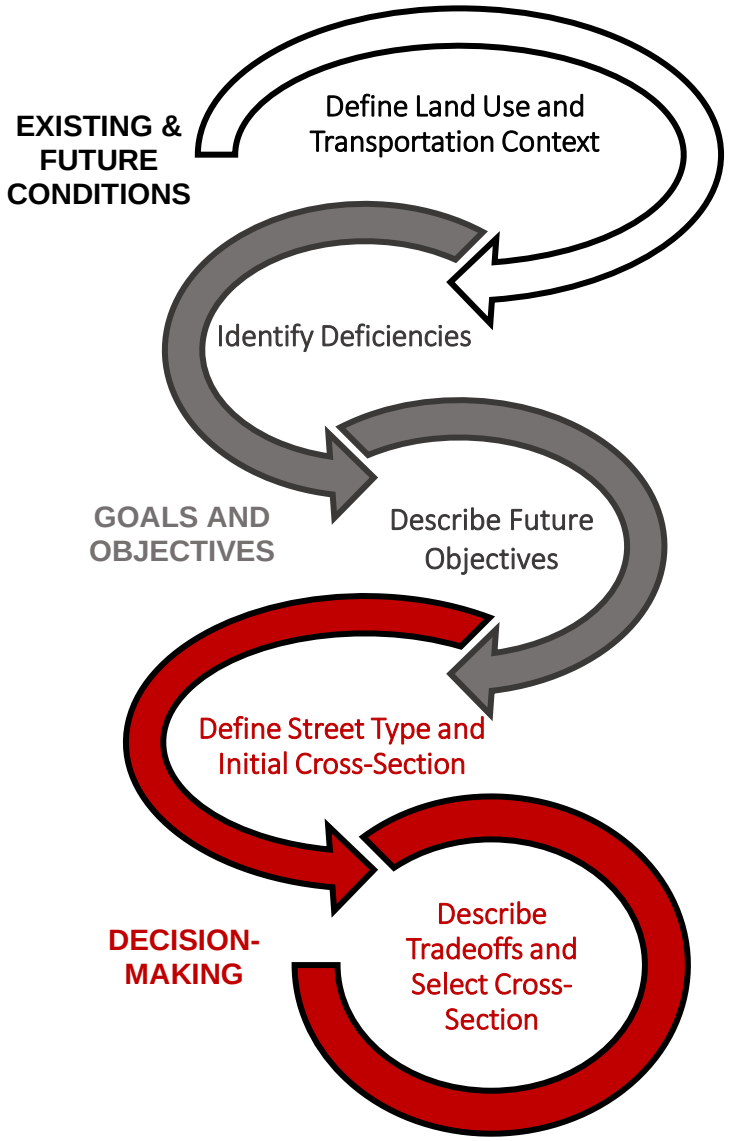
4. Installation

Construct project, and perform post-construction evaluation.

- The National Complete Streets Coalition promotes the use of performance measures that reflect multimodal needs to evaluate Complete Streets Projects. To undertake project evaluation, the following general steps should be taken:
    - Agree to goals and objectives of the project
    - Determine best mays to measure goals
    - Implement measure
    - Communicate the results of the evaluation.
- For more detailed information, see SGA's Evaluating Complete Street Projects: A Guide for Practitioners.

Case Study: East Covell and J Street Intersection, Davis, California

The case study below from Davis, California, utilizes the Charlotte decision-making framework at the second step of the Complete Streets process – Plan Development. See the image on the next page for the proposed Complete Streets intersection design.



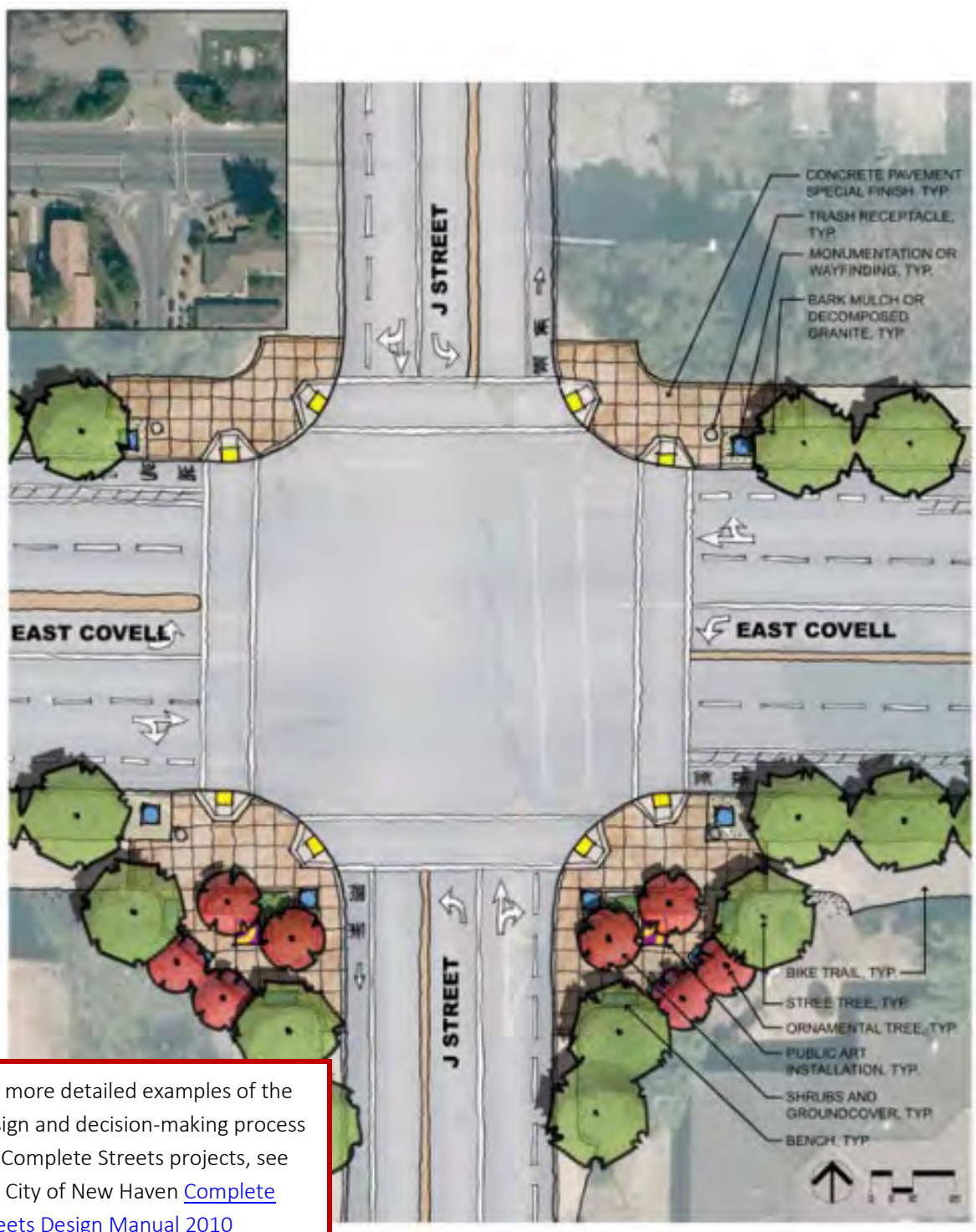
Define Land Use and Transportation Context: The East Covell and J Street Intersection is near The Cannery, a planned mixed use development with homes, commercial space, and an urban farm.

Identify Deficiencies: Time delay from intersection may add slightly to traffic. Right hook problem for intersection noted by planning staff (when a driver passes a bicyclist from the left and then turns right in front of the bicyclist, causing a crash).

Describe Future Objectives: The East Covell Boulevard Corridor Plan recommended reduced automobile speeds, shortened pedestrian crossings, ROW for pedestrian amenities, and improved bicycle lanes. In Resources, see the public outreach worksheet utilized to gather feedback.

Define Street Type and Initial Cross-Section/Describe Tradeoffs and Select Cross-Section: After considering three potential Dutch Junction configurations, the Bicycle, Transportation, and Street Safety Commission chose the third option, which included a right turn pocket for east bound traffic. This design resolved the right hook problem by pulling facilities away from the intersection.

Case Study: East Covell and J Street Intersection, Davis, California (continued)

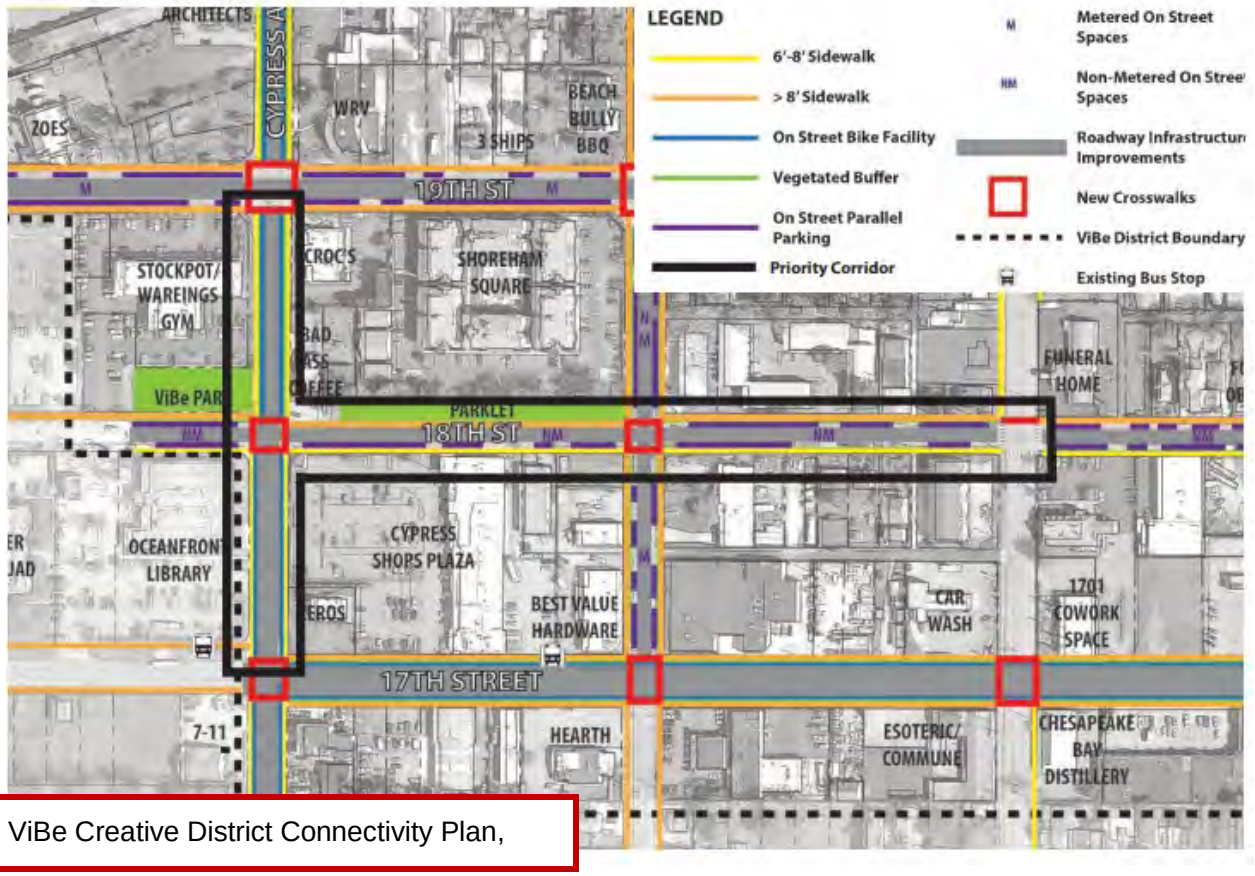


For more detailed examples of the design and decision-making process for Complete Streets projects, see the City of New Haven Complete Streets Design Manual 2010 (decision matrix on page 103).

Case Study: ViBe Creative District, Virginia Beach, Virginia

The City of Virginia Beach partnered with concerned citizens and businesses in 2008 to form an entity that focuses on attracting creative industries to a section of the Virginia Beach oceanfront area that needed revitalizing. This entity, called the ViBe Creative District, is working with the city to implement a connectivity plan that creates a walkable district complete with sidewalks, lighting, street trees, bike racks, crosswalks and accessibility upgrades. The plan analyzed the existing conditions, set a long-term vision of what improvements should happen in the district, and established streetscape standards and priorities.

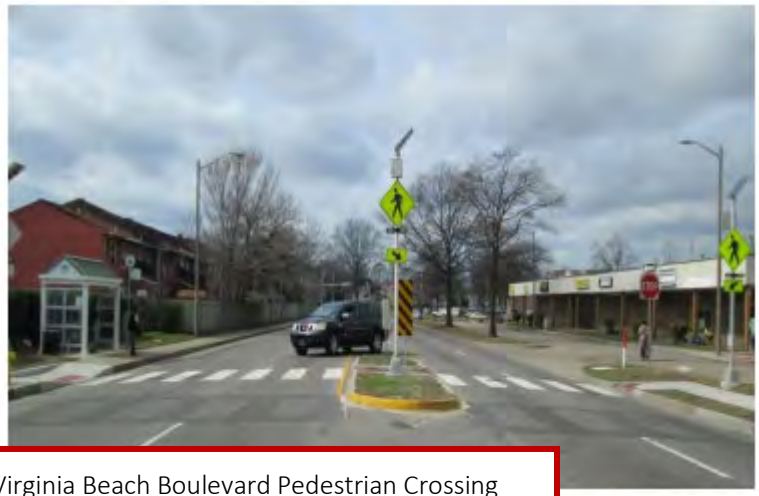
FIGURE 9. PRIORITY CORRIDORS FOR IMPROVEMENT



ViBe Creative District Connectivity Plan,

Case Study: City of Norfolk, Virginia Complete Streets Policy

The City of Norfolk's complete streets policy states that: "Norfolk shall develop, operate and maintain an integrated, connected network of streets that are safe and accessible for all people, regardless of age, ability, income, ethnicity, or chosen mode of travel, including pedestrians, bicyclists, motorists and transit riders, in a balanced, responsible and equitable manner consistent with and supportive of the surrounding community." Their policy requires a report from staff on the previous year's projects. Below is a photo of a recently implemented pedestrian safety improvement project on Virginia Beach Boulevard.



Virginia Beach Boulevard Pedestrian Crossing

Complete Streets Policy Resources

Policies and Best Practices

- Smart Growth America and the National Complete Streets Coalition:
    - Complete Streets Policy Workbook
    - Best Complete Streets Policies of 2018
    - Taking Action on Complete Streets
    - Policy Basics
    - Elements of a Complete Streets Policy
- League of American Bicyclists, The New Majority: Pedaling Towards Equity
- AARP Public Policy Institute, Planning Complete Streets for an Aging America
- League of American Bicyclists, Women on a Roll: Benchmarking Women's Bicycling in the United States – and Five Keys to Get More Women on Wheels
- The City of Norfolk, Norfolk Complete Streets Policy
- New Jersey Department of Transportation Complete Streets Policy
- Davis, California East Covell Corridor Plan Worksheet and Plan
- NACTO Case Study Finder

Organizations

- Vision Zero Network
- Safe Routes Partnership
- Smart Growth America
- League of American Bicyclists
- Project for Public Spaces
- Association of Pedestrian and Bicycle Professionals

Design Guidelines

The design of Complete Streets shall be context-sensitive and meet the needs of the community and surrounding area while emphasizing safe and accessible travel for all people. All facilities shall be designed in accordance with the best available standards and guidelines, such as:

- AASHTO's Guide for the Development of Bicycle Facilities; A Policy on Geometric Design of Highways and Streets; and Guide for the Planning, Design, and Operation of Pedestrian Facilities;
- Virginia Department of Transportation Complete Streets Bicycle and Pedestrian Facility Guidelines and Bus Stop Design and Parking Guidelines;
- Virginia Central Railway Trail Design Guidelines
- Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets and Highways;
- ITE Recommended Practice Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities;
- Alta Planning + Design's Lessons Learned: Evolution of the Protected Intersection;
- National Association of City Transportation Officials (NACTO) Urban Street Design Guide; Designing for All Ages and Abilities: Contextual Guidance for High-Comfort Bicycle Facilities; and Don't Give Up at the Intersection; Transit Street Design Guide;
- SANDAG Planning and Designing for Pedestrians and Designing for Smart Growth;
- City of Portsmouth Zoning Code; and,
- The International Fire Code

Sources

Policy language in this document is adapted from the City of Milwaukee, Wisconsin Complete Streets Resolution; the City of Des Moines, Iowa Complete Streets Policy; and the Town of Madison, Connecticut Complete Streets Policy, all passed or adopted in 2018.

Appendix B:
Demand Analysis

Introduction

The following memorandum discusses the approach taken to assessing relative bicycle and pedestrian demand in Portsmouth. The demand analysis is an objective, data-driven process that estimates the cumulative demand for active transportation and recreation depending on where people live, work, play, shop, learn, and access transit. This is accomplished by quantifying factors that generate bicycle and pedestrian movement. The analysis equally weights each of these variables, described in Table 1.

A composite demand score summarizes the geographic distribution of active transportation demand in Portsmouth. The results of the analysis will be used to help inform and prioritize recommendations.

Data Inputs

The model provides a general understanding of expected active transportation activity by analyzing spatial data representative of origins and destinations in the study area. In the model, demand for biking and walking opportunities is influenced by where people live, work, shop, access parks or trails, access education, and walk or bike as a commute mode. The resulting analyses shows where people are likely to walk and bike based upon the demand model inputs. The data inputs and findings are summarized in Table 1.

Table 1 – Draft Demand Analysis Inputs

Demand Indicator	Metric	Data	Findings
Live	Population Density per census block group	2012-2017 American Community Survey (US Census)	Demand based on where people live is highest in areas like Churchland/Armistead Forest, Airline Boulevard/City Park Ave, Westhaven Park, Norcom Park, Prentis Park, Newtown, City Center, and Cradock. These areas are characterized by multi-family housing or higher density single family residential.
Work	Employment Density per census block	2015 Longitudinal Employer-Household Dynamic (LEHD), Work-Area Characteristics	Demand based on where people work is concentrated around large employers like the Bon Secours Maryview Medical Center, Walmart, Port Norfolk, Naval Medical Center Portsmouth, Old Towne, the Naval Shipyard, Victory Crossing, and Churchland Shopping Center.
Shop	Retail Employment Density per census block	2015 Longitudinal Employer-Household Dynamic (LEHD), Work-Area Characteristics	Retail demand is concentrated around major shopping centers, including Victory Crossing, Walmart, Williams Court, and Churchland Shopping Center.
Play	Access to recreation destinations (parks, trails, community rec centers, libraries)	• Parks: provided by City of Portsmouth • Trails: provided by City of Portsmouth • Recreation Centers: digitized by Alta • Libraries: digitized by Alta • Entertainment destinations (provided by City, digitized by Alta)	Recreational demand is concentrated around the city's parks, trails, libraries, and recreation centers. Major destinations include City Park, Hoffler Creek Wildlife Preserve, Paradise Creek Nature Preserve, and downtown Olde Town entertainment destinations.

Demand Indicator	Metric	Data	Findings
Learn	Access to K-12 schools and community colleges/universities	• Schools: provided by City of Portsmouth • Colleges/Universities: provided by City of Portsmouth	This factor shows walking and biking demand based on educational destinations. Some of the more prominent areas of demand are located where schools are clustered in close proximity, such as Churchland Academy Elementary School, Churchland Middle School, and Churchland High School. Additionally, Elementary schools and community colleges/universities are assigned a slightly higher score since students are more likely to be walking from the neighborhood or walking on campus.
Transit	Access to transit	• HRT bus stops: provided by City of Portsmouth • Elizabeth River Ferry Terminals: provided by City of Portsmouth	Transit demand is concentrated around transit corridors with many bus stops, including High Street, Lincoln Street, Columbus Avenue, and Effingham Street.
Composite	Overall Demand	Composite demand score generated by assigning an equal value to all six demand factors	The areas of highest composite demand are present in areas including Waterview, River Park, London Boulevard/Mt. Vernon Ave, Westhaven Park, Norcom Park, City Center, Parkview, Cradock, and Williams Court.

Appendix C:
Equity Analysis

Introduction

Without access to transportation, people in our community will have a harder time getting to work, buying healthy food, seeing a doctor, going to school, or connecting with others. While all communities offer a variety of ways to get around, not everyone has equal access to a wide range of convenient, safe, and affordable means of transportation. Many communities rely on a variety of modes to connect to basic services that are necessary to live productive, fulfilling, and healthy lives. However, these transportation options are not always available to those who need them most. This analysis identifies concentrations of Portsmouth residents that have been historically disadvantaged or are otherwise considered vulnerable to unsafe, disconnected, or incomplete active transportation facilities.

Transportation facilities are essential components in helping to create opportunities and reducing the disproportionate economic and health burdens experienced by its most vulnerable residents. Often, traditionally vulnerable populations, such as minority groups, youths and older adults, people living in poverty, adults with no high school education, residents with limited English proficiency, and households with no access to a motor vehicle, may rely heavily on walking, biking, and transit. Concentrations of these vulnerable populations in areas with limited transportation infrastructure can contribute to longer travel times, more expensive commutes, and unsafe travel conditions. Building bicycling and walking facilities in these areas can help provide multiple transportation options and decrease some of the economic and health burdens experienced by residents. This technical memorandum identifies locations in Portsmouth with concentrations of vulnerable populations to help inform the needs assessment and to help prioritize development of bicycling and walking infrastructure where it could have the greatest impact on the lives of Portsmouth residents.

Methods

The following list of historically disadvantaged and vulnerable populations were identified as indicators of potential equity concerns. Data for each indicator was obtained from 2013-2017 American Community Survey (ACS) Block Group estimates from the U.S. Census Bureau:

- Minority Groups: This indicator shows the percentage of the population that identifies as non-white or multiple races/ethnicities.
- Youths & Older Adults: These indicators show the percent of the population that is under the age of 18 and over the age of 64.
- Poverty: This indicator shows the percent of the population that is living at or below 200% of the Federal Poverty Level.
- No High School Diploma: This indicator shows the percent of the adult population over the age of 24 that does not have a high school diploma or equivalent degree.
- Limited English Proficiency: This indicator shows the percent of the population that identified as not speaking English well or at all.
- No Access to a Motor Vehicle: This indicator shows the percent of households that said they did not have regular access to a motor vehicle.

Equity Indicators

Race (people of color)

Racial or ethnic minorities are more likely to live in areas with poor or limited active transportation facilities, educational opportunities, job resources, and healthy food outlets.[i,ii] Nationally, non-white populations tend to be more dependent on transit and active transportation; black individuals are more than four times and Hispanics are three times more likely to not have access to a household car compared to their white counterparts, regardless of income.[iii] In turn, these deficits exacerbate the disproportionate health burdens communities of color experience. For example, communities of color experience a greater proportion of pedestrian crashes and have increased risk of mortality after pedestrian injury.[iv,v] Improving active transportation facilities and connectivity may promote physical activity, enhance economic opportunities, and increase transportation safety.

Children (under 18 years old)

The population under 18 years of age is thought to have higher active transportation infrastructure need because they have less access to motor vehicles and may rely more on alternative modes of transportation. Other youth-related vulnerabilities may include lacking knowledge of safe travel behaviors; greater susceptibility to environmental exposures, such as damage caused to developing bodies through emissions; and difficulty navigating poorly-designed areas.[i] Youth especially need safe transportation to/from places to be physically active and to build social connections.[i] Research on transportation facilities shows that road design and sidewalk conditions determine youth physical activity; safe crossings, well-built sidewalks, and traffic calming strategies are all associated with greater physical activity in youth.[vi] Promoting physical activity in youth is important for physical and social development, boosting academic achievement and self-esteem, and preventing costly chronic diseases.[vii] Further, physical and cognitive development impact a child's ability to safely walk and bicycle in a high traffic scenario.[viii,ix] For younger children in particular, this means that children lack proficiency in actions such as scanning for traffic and identifying safe locations for crossing. Areas with high concentrations of youth populations will benefit from improved crossing conditions and additional separated facilities.

Senior Citizens (over 64 years old)

The population over 64 years of age may have more mobility needs than the general adult population, specifically in that they may require more alternatives to driving. Older adults increasingly depend on active transportation modes, such as using public transit, walking and/or biking when they decrease or stop driving. Prioritizing active transportation needs enables older adults to maintain positive well-being, despite the onset of functional limitations.[x] Walkable access to adequate public transportation is essential for older adults to maintain their daily activities and independence.[xi] Additionally, safe, walkable communities that promote physical activity help prevent or delay chronic diseases such as arthritis, osteoporosis, and diabetes in older adults.[xii] As 61 percent of American adults ages 65 years or older have at least one activity-based limitation, creating communities where older adults can safely be active and access necessary resources is crucial to the future prevention of such disability.[xiii] Lastly, older adults are especially vulnerable to social isolation, which can result in significant declines in physical health; increasing walkability enhances older adults' ability to connect with others.[xiv,xi]

Poverty (at or below 200% of Federal Poverty Level)

Poverty is a socioeconomic vulnerability linked with a disproportionate exposure to poor housing, homelessness, and limited access to resources, such as transportation services, quality food, recreation facilities and health care

facilities.[i,xv,xvi] With transportation costs, especially those associated with vehicle ownership, often comprising the second largest portion of an individual's income (second to housing), reduced access to transit and active transportation networks may lead to greater reliance on an automobile and therefore have significant financial impacts on poor households.[xvii] Populations with higher levels of poverty may have limited access to vehicles and rely more on active transportation networks to access daily trips. Of U.S. residents with incomes at or below 200 percent of the Federal Poverty Level (FPL), 32 percent overall do not have access to a household vehicle.[7] Comparatively, 55% of Black and 39% of Hispanic individuals at or below the 200% FPL do not have such access.[iii] Even with increased dependence on non-automotive transportation, low-income residential areas are often less walkable, a condition that creates barriers to living safe, social, and active lives.[i,xvi] Lastly, children living in low socioeconomic status areas are more likely to experience traffic injuries and more likely to die from traffic injuries than children in more affluent areas.[xviii] Increasing low-income residents' active transportation facilities can improve access to economic and educational opportunities, improve health through increased physical activity, and promote safety.[xix,xx]

Education Attainment (no high school diploma)

Nationwide those without high school diplomas have the highest rates of walking and the second highest rates of bicycling to and from work.[xxi] These individuals may depend on walking and bicycling due to financial constraints and lack of adequate and/or convenient transportation options. Educational attainment, as a socioeconomic indicator, correlates with income levels. Therefore, although this population is most likely to walk to work, individuals without high school diplomas tend to live in areas without adequate bicycling and walking facilities.[i] Boosting active transportation resources in areas where these individuals reside could promote increased access to educational resources and job opportunities.

Linguistic Isolation (does not speak English well or at all)

Individuals with Limited-English Proficiency (LEP), or who identify as not speaking English well or at all, tend to rely more on active transportation as their primary means of transportation than the average English speaker.[xix,xxii] General low economic status of LEP individuals may correlate with low car ownership rates and high reliance on active transportation facilities.[xxiii] Given low car ownership and poor active transportation conditions, immigrants and LEP individuals are more likely to walk and ride along roads that lack appropriate biking and walking facilities, forcing individuals into unsafe transportation situations.[xix] Therefore, access to active transportation services is critical for LEP individuals to access basic employment and other necessities.[xxiv] Further, LEP individuals are less likely to participate in decision-making processes, in part due to barriers caused by limited English proficiency and in part due to the correlation with low-income status and implications of work schedule.[xxv]

Commute (no access to a motor vehicle)

In less urbanized locations, specifically those with limited transit access and coverage, access to a motor vehicle carries strong implications for one's ability to reach employment, access healthy foods, and reach basic services.[xxvi] A diverse transportation system that offers multiple modes, including transit, bicycling, and walking, reduces reliance on automobiles and can provide for more equitable access to services.[xix] Providing access via quality walking and bicycling infrastructure is one method for increasing equity in access for locations with limited vehicle availability.[xix] Studies have also found that access to a motor vehicle improves employment rates, as it provides a reliable means to commute to work.[xxvi] The addition of safe and comfortable walking and bicycling routes, as well as developing improved connections to transit, have the ability to also serve as a reliable means to commute to work. This has the potential to alleviate the necessity of a motor vehicle to reach employment opportunities.

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Appendix D:
Safety Analysis

Introduction and Data Inputs

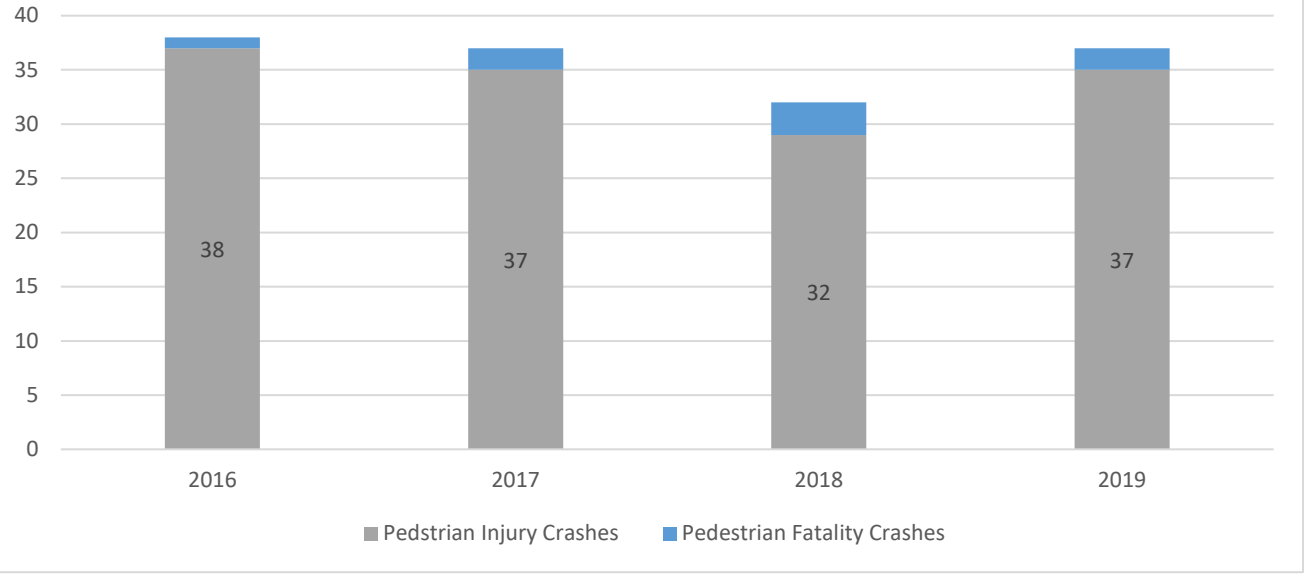
The following memorandum discusses the analysis conducted to assess pedestrian and bicycle safety in Portsmouth, using crash data from the Virginia Department of Transportation (VDOT) and the Portsmouth Police Department (PPD) from 2016 to 2019. For each mode, the memo will provide a safety overview, top contributing factors, and hot spot analysis. Finally, the memo will examine overlaps between safety and equity.

Pedestrian Safety Analysis

Overview

There were a total of 144 reported pedestrian crashes reported in the City of Portsmouth from 2016 to 2019, as shown in Figure 1. There were 8 fatalities during this time period.

Figure 1: Pedestrian Crashes, 2016-2019



Contributing Factors

The most common contributing factor for pedestrian crashes was distraction (17% of crashes were related to distraction). Alcohol was the second most common factor, accounting for 11% of pedestrian crashes. Considering only fatal crashes, alcohol was the most common factor, related to 3 out of 8 fatal crashes, followed by speed, which was related to 2 out of 8 fatal crashes. Figures 2-6 below show the prevalence of other contributing factors for all pedestrian crashes.

Figure 2: Distraction Involved

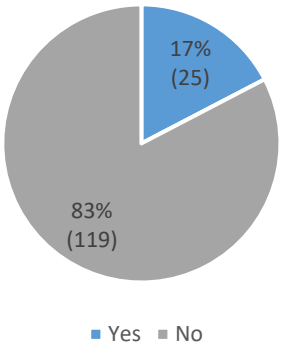


Figure 3: Alcohol Related

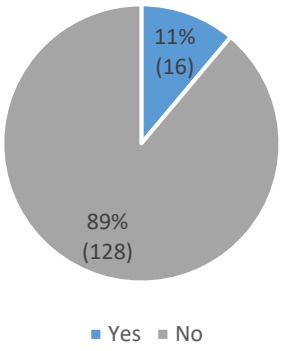


Figure 4: Mature Driver (65+) Involved

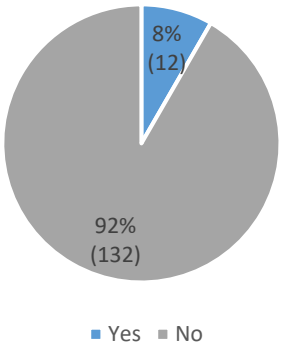


Figure 5: Young Driver (15-20) Involved

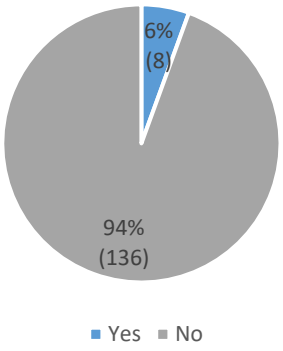
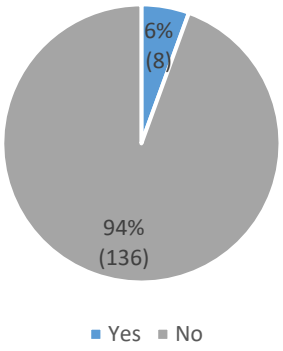


Figure 6: Speed Related



Hot Spots

The pedestrian crash data was mapped to determine hot spot locations where pedestrian crashes have occurred frequently. These crash clusters are shown on the map on the next page.[1]

The following areas were identified as hot spots with a high number of pedestrian crashes from 2016 to 2019:

	Pedestrian Crash Hot Spot	Number of Crashes	Contributing Factors
1	High Street & Effingham Street	5	Speed, Alcohol, Distraction, Young Driver, Mature Driver
2	Victory Boulevard & George Washington Highway	4	Speed, Mature Driver
3	Duke Street & Atlanta Avenue	3	Alcohol

Of the 8 fatal pedestrian crashes that occurred during this time period, 4 had precise location data associated with them. These crashes occurred in the following locations:

	Pedestrian Fatality Location	Year	Contributing Factors
1	Victory Boulevard between George Washington Highway and Bird Lane	2016	Unspecified
2	Portsmouth Boulevard & Rodman Avenue	2018	Alcohol
3	Willett Drive & West Road	2018	Unspecified
4	George Washington Highway between Greenwood Drive and Alabama Avenue	2018	Young Driver

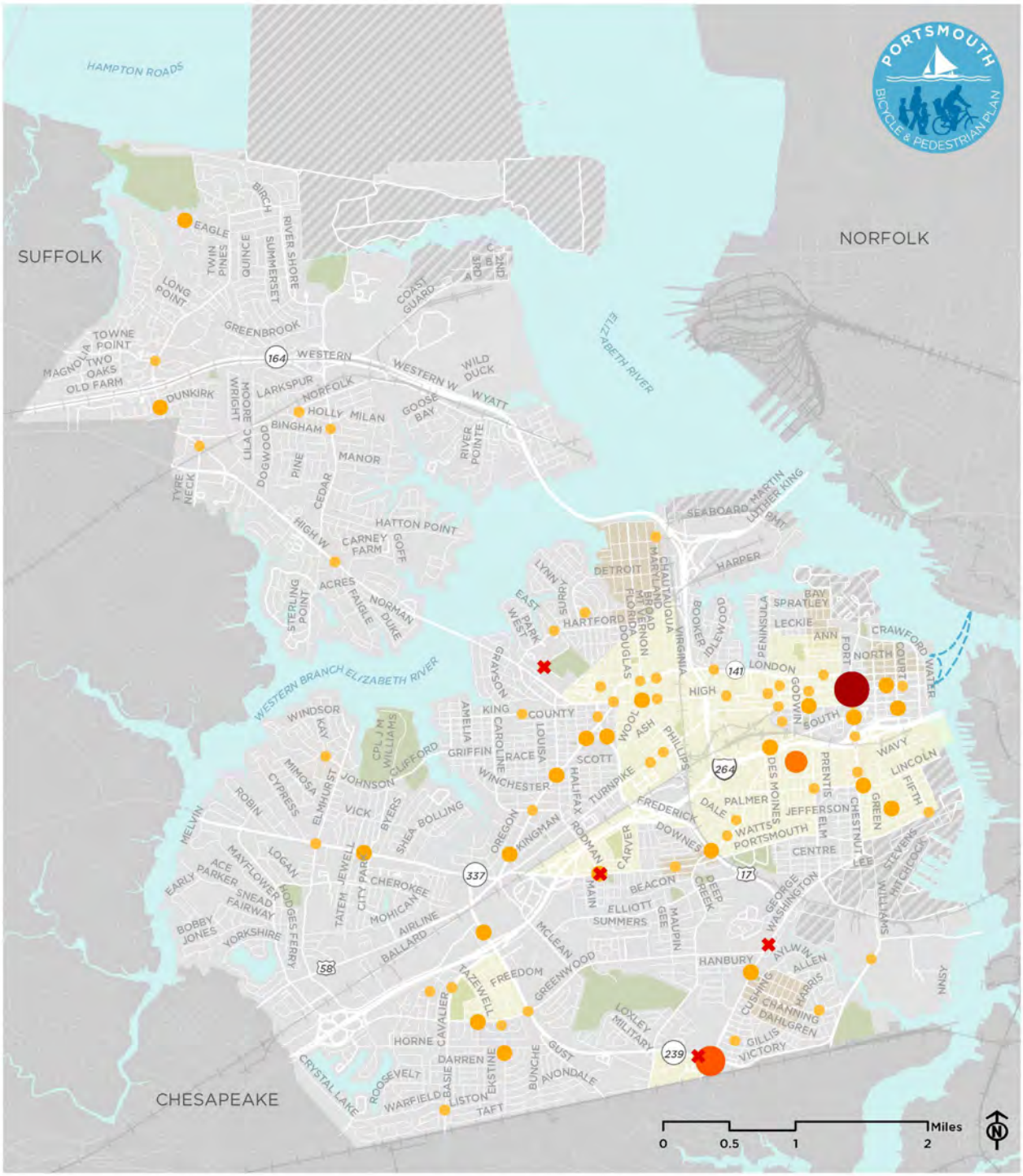
Equity + Pedestrian Safety

According to Smart Growth America's 2016 *Dangerous by Design* report, "older adults, people of color, and people walking in low-income communities are disproportionately represented in fatal crashes involving people walking."[2] In Portsmouth, 49% of the pedestrian crashes (including 2 of the fatal pedestrian crashes) occurred in a Census block group identified as the highest tier of need in the Portsmouth Bicycle &

[1] Note: 44 of the pedestrian crashes did not have sufficient location data for mapping. These are not included in the hot spot analysis.
[2] https://smartgrowthamerica.org/resources/dangerous-by-design-2019/

Pedestrian Plan Equity Analysis.[3] These block groups are highlighted in yellow in the map on the following page.

[3] The Equity Analysis reflects concentrations of disadvantaged communities based on several sociodemographic factors, including households living in poverty, limited motor vehicle access, non-white population, children, seniors, limited English proficiency, and no high school diploma. A search distance of 250 feet was used to capture crashes that occurred along roadways bordering the block groups.



SAFETY ANALYSIS | PEDESTRIAN CRASHES | 2016 - 2019

- Fatal Crash
- Number of Crashes: 1 2 3 4 5
- High Need Census Block Group (Equity Analysis)
- Elizabeth River Ferry
- Railways
- Parks
- Water Body
- Historic District
- Port/Goverment
- Portsmouth City Limits
- Surrounding City

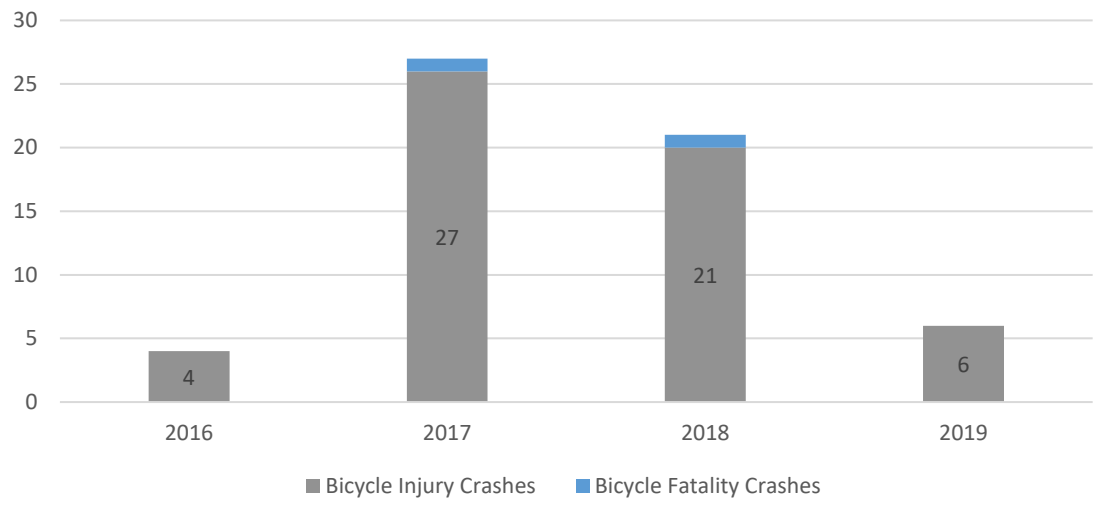
Crash Data Sourcea: Virginia Department of Transportation, City of Portsmouth Police Department.
Note: 44 crashes did not have precise location information in the data and are not mapped here.

Bicycle Safety Analysis

Overview

There were a total of 58 reported bicycle crashes reported in the City of Portsmouth from 2016 to 2019, as shown in Figure 7. There were 2 fatalities during this time period.

Figure 7: Bicycle Crashes, 2016-2019



Contributing Factors

The most common contributing factor for pedestrian crashes was mature driver involvement; 26% of bicycle crashes involved a driver over the age of 65. Young driver involvement was the second most common factor, with drivers age 15-20 involved in 14% of bicycle crashes. The factors involved in the two fatal crashes were alcohol and distraction. Figures 8-12 below show the prevalence of other contributing factors for all bicycle crashes.

Figure 8: Mature Driver (65+) Involved

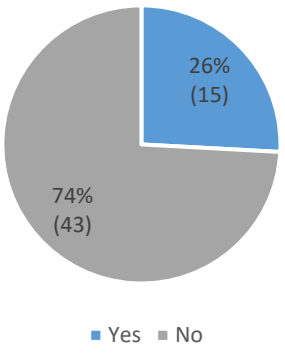


Figure 9: Young Driver (15-20) Involved

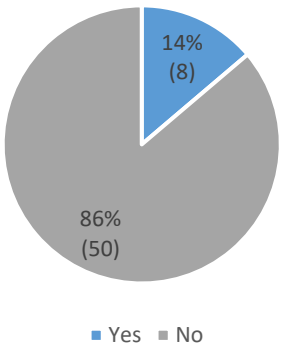


Figure 10: Distraction Involved

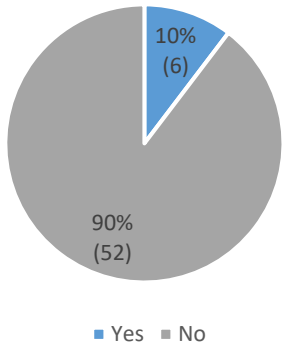


Figure 11: Alcohol Related

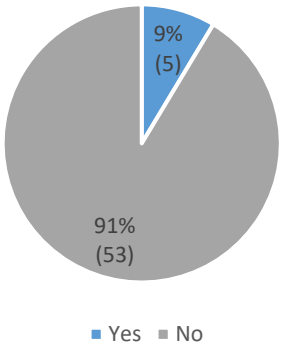
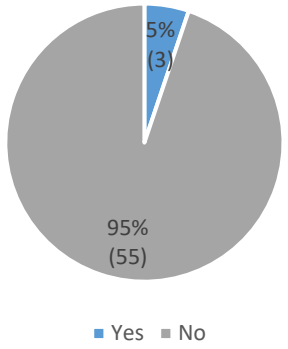


Figure 12: Speed Related



Hot Spots

The bicycle crash data was mapped to determine locations where bicycle crashes have occurred frequently. These crashes are shown on the map on page 8.[4] The spatial analysis of the data did not reveal any significant clusters; however, there are noticeably more crashes in the southern portion of the city (south of the Western Branch of the Elizabeth River).

There were 2 fatal bicycle crashes that occurred from 2016-2019. These crashes occurred in the following locations:

	Bicycle Fatality Location	Year	Contributing Factors
1	London Boulevard	2017	Distraction
2	High Street & Shenandoah Street	2018	Alcohol, Work Zone

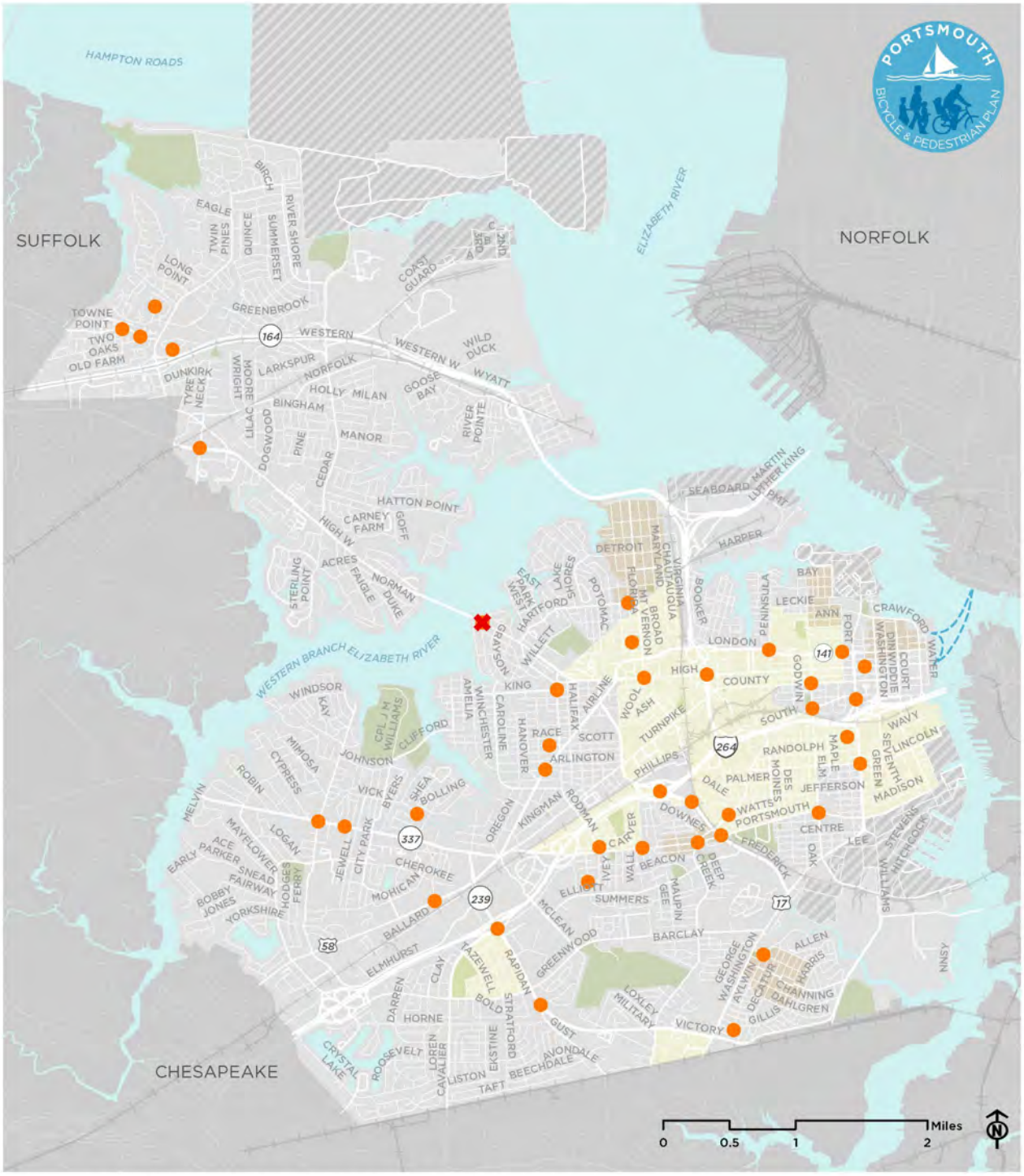
[4] Note: 15 of the bicycle crashes did not have sufficient location data for mapping. These are not included in the hot spot analysis.

Equity + Bicycle Safety

The Safe Routes to School National Partnership reports that people “bicycling in low income communities and communities of color suffer much higher injury rates than the general population.”[5] In Portsmouth, 47% of bicycle crashes occurred in a Census block group identified as the highest tier of need in the Portsmouth Bicycle & Pedestrian Plan Equity Analysis.[6] These block groups are highlighted in yellow in the map on the following page.

[5] https://www.saferoutespartnership.org/sites/default/files/resource_files/at-the-intersection-of-active-transportation-and-equity.pdf

[6] The Equity Analysis reflects concentrations of disadvantaged communities based on several sociodemographic factors, including households living in poverty, limited motor vehicle access, non-white population, children, seniors, limited English proficiency, and no high school diploma. A search distance of 250 feet was used to capture crashes that occurred along roadways bordering the block groups.



SAFETY ANALYSIS | BICYCLE CRASHES | 2016 - 2019

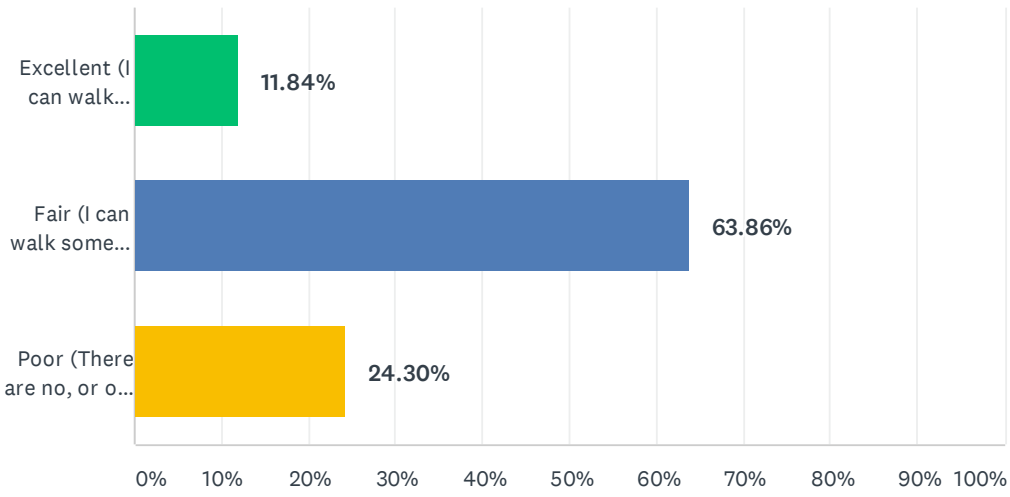
- Bicycle Crash
- Fatal Crash
- High Need Census Block Group (Equity Analysis)
- Elizabeth River Ferry
- Railways
- Parks
- Water Body
- Historic District
- VA Port Authority/Goverment
- Portsmouth City Limits
- Surrounding City

Crash Data Sources: Virginia Department of Transportation, City of Portsmouth Police Department.
Note: 15 crashes did not have precise location information in the data and are not mapped here.

Appendix E:
Survey Results

Q1 How would you rate walking in Portsmouth today?

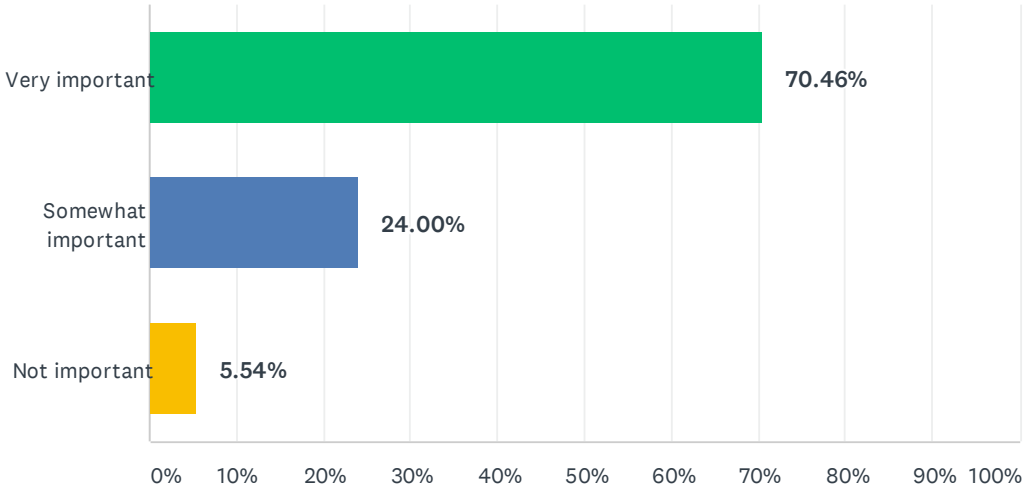
Answered: 321 Skipped: 6



ANSWER CHOICES	RESPONSES	
Excellent (I can walk everywhere)	11.84%	38
Fair (I can walk some places)	63.86%	205
Poor (There are no, or only a few places I can walk)	24.30%	78
TOTAL		321

Q2 How important to you is improving walking conditions in Portsmouth?

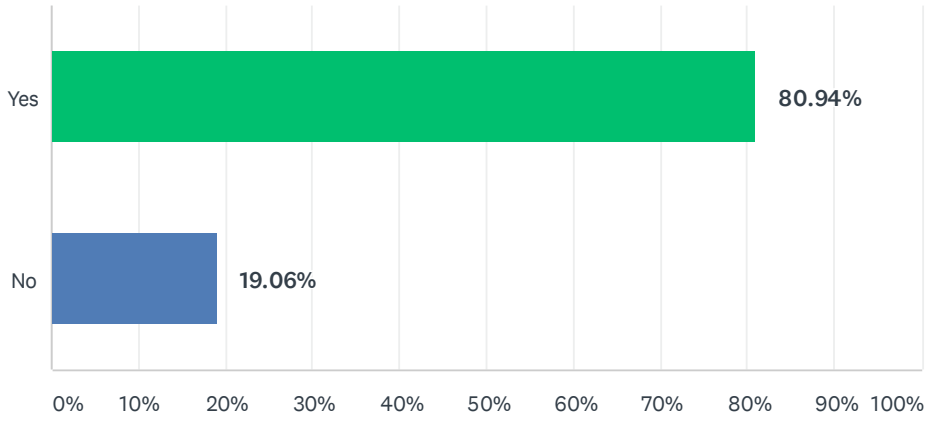
Answered: 325 Skipped: 2



ANSWER CHOICES	RESPONSES	
Very important	70.46%	229
Somewhat important	24.00%	78
Not important	5.54%	18
TOTAL		325

Q3 Would you walk more often if there were more sidewalks in Portsmouth?

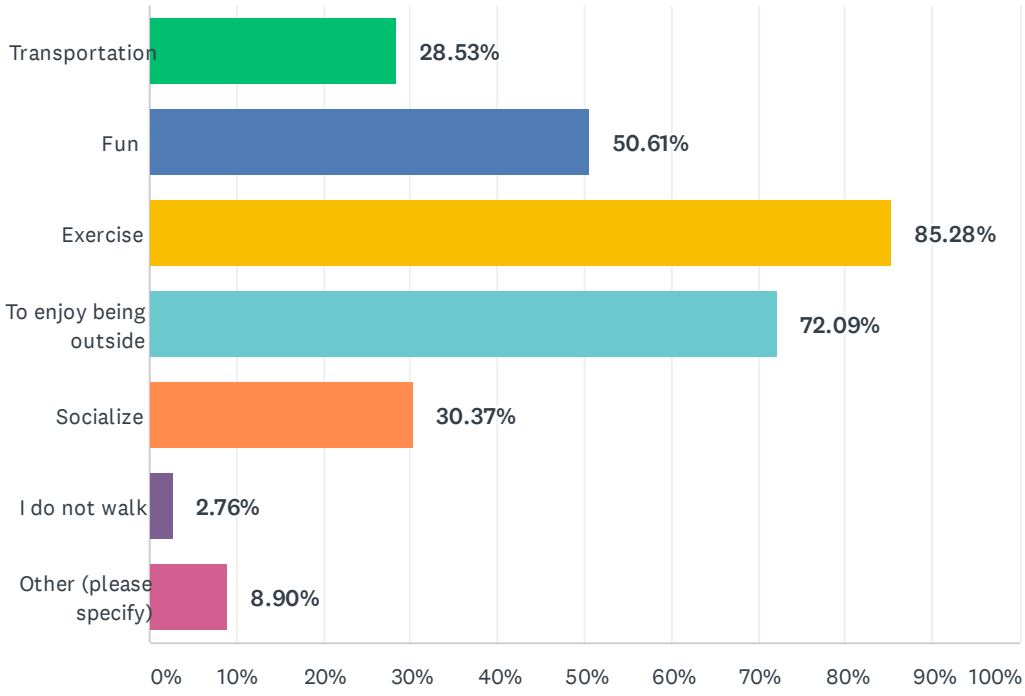
Answered: 320 Skipped: 7



ANSWER CHOICES	RESPONSES	
Yes	80.94%	259
No	19.06%	61
TOTAL		320

Q4 When you walk in Portsmouth, what is the purpose of your trip? (check all that apply)

Answered: 326 Skipped: 1

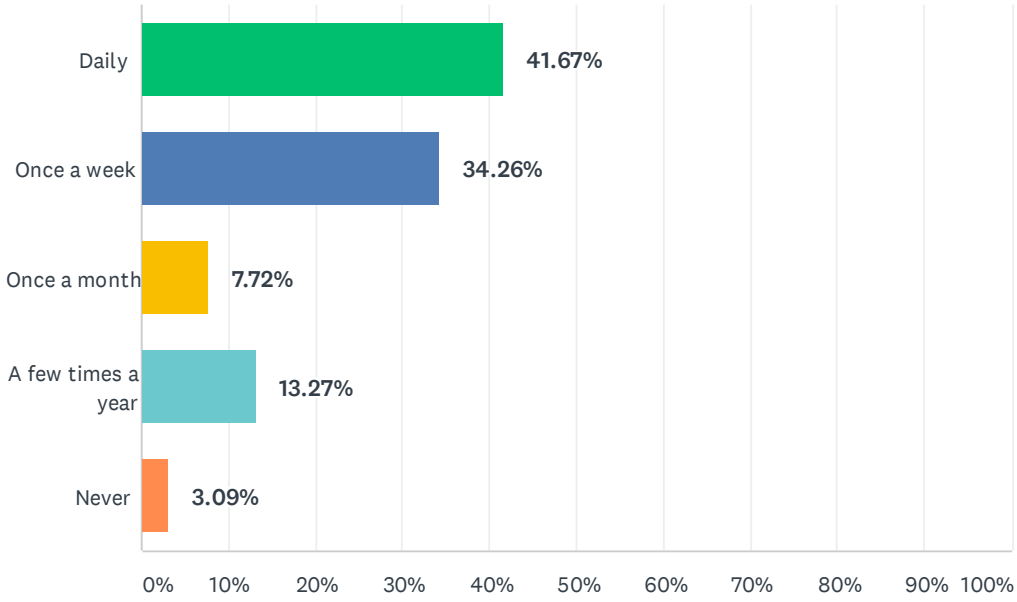


ANSWER CHOICES	RESPONSES	
Transportation	28.53%	93
Fun	50.61%	165
Exercise	85.28%	278
To enjoy being outside	72.09%	235
Socialize	30.37%	99
I do not walk	2.76%	9
Other (please specify)	8.90%	29
Total Respondents: 326		

#	OTHER (PLEASE SPECIFY)	DATE
1	walk dog	8/26/2019 9:33 PM
2	downtown festivals, entertainment; walk in the park	8/24/2019 7:55 PM
3	Groceries, household necessities, playground	8/20/2019 1:54 PM
4	Quality time with my dog and others walking their dogs. We need more dog parks. An excellent place would be along Booker Street. Half is alread fenced by the Martin Luther Highway leading to the tunnel.	8/18/2019 10:58 PM
5	Work	8/16/2019 4:20 PM
6	To get lunch downtown	8/16/2019 3:12 PM
7	I also bike	8/16/2019 10:49 AM
8	My dog	8/16/2019 9:43 AM
9	when i have walked on London from downtown to midtowne there are some breaks in the sidewalk	8/16/2019 7:03 AM
10	Restaurants and Groceries	8/15/2019 10:59 PM
11	Walking dog	8/15/2019 8:39 PM
12	Picking up trash	8/15/2019 7:25 PM
13	ENJOYING THE MUSEUMS, DOWNTOWN AREA, SHOPPING, ENTERTAINMENT, EVENTS.	8/15/2019 4:12 PM
14	walking dogs	8/15/2019 1:09 PM
15	For meditation and stress relief	8/15/2019 9:39 AM
16	shopping, restaurantys, church, theater - all in Olde Towne	8/8/2019 4:19 PM
17	walk dog	8/6/2019 9:11 PM
18	Safe for my teenagers	8/6/2019 5:01 PM
19	Work	8/1/2019 6:27 AM
20	Exercise for my dog.	7/31/2019 12:43 PM
21	To Get where I'm going.	7/31/2019 6:56 AM
22	walking and catching the bus used to be my primary means of transportation in Portsmouth to get to work, church and school. I used to walk/ bus all three places in this city.	7/30/2019 3:08 PM
23	Walking the dog	7/30/2019 12:55 PM
24	business	7/30/2019 12:46 PM
25	To get to business when my car is not available.	7/30/2019 12:41 PM
26	to go to a particular place, like a coffee shop around the corner etc.	7/30/2019 12:17 PM
27	All of the above	7/30/2019 12:13 PM
28	Bards and restaurants	7/30/2019 12:09 PM
29	work survey	7/5/2019 10:35 AM

Q5 Approximately, how often do you walk in Portsmouth?

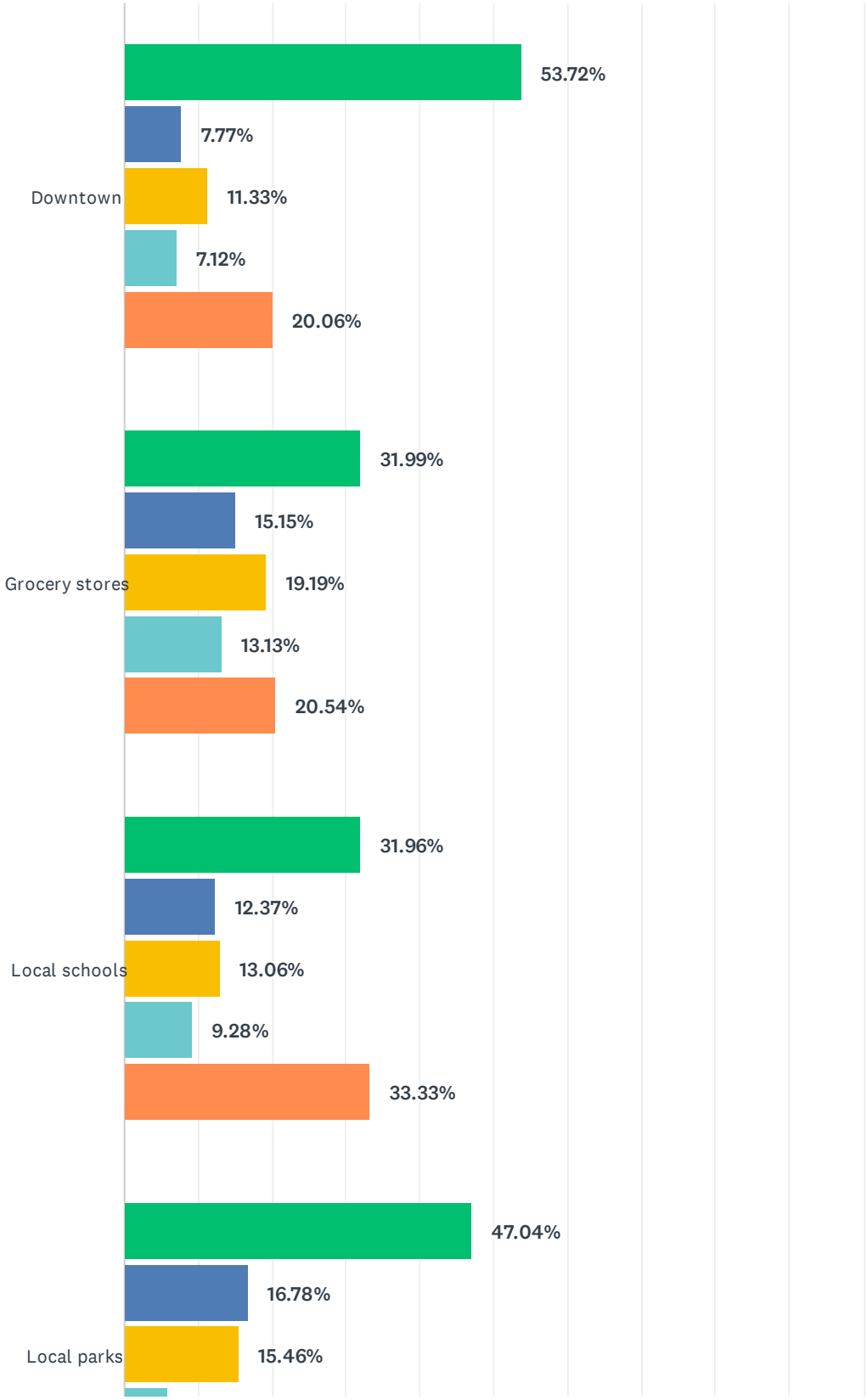
Answered: 324 Skipped: 3

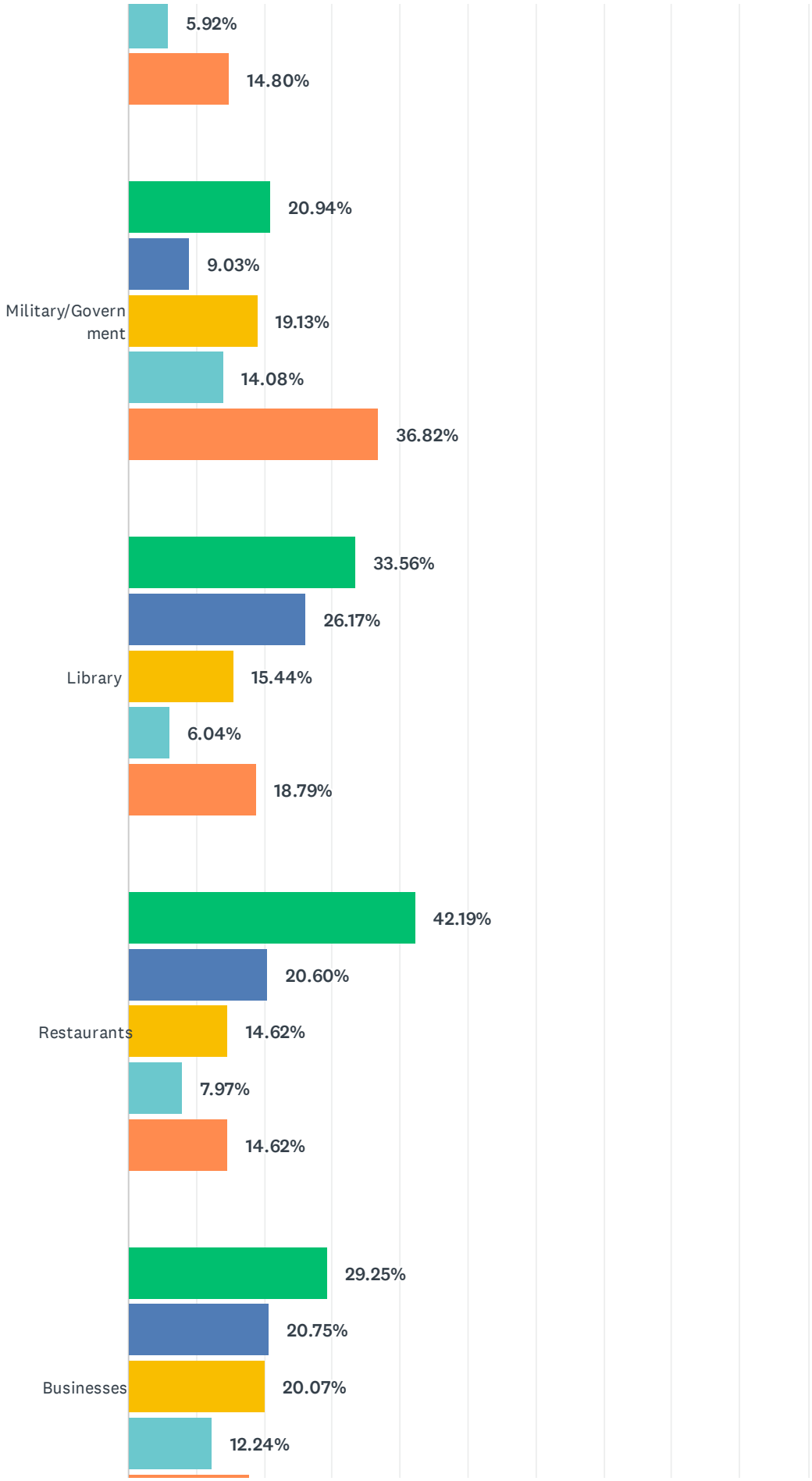


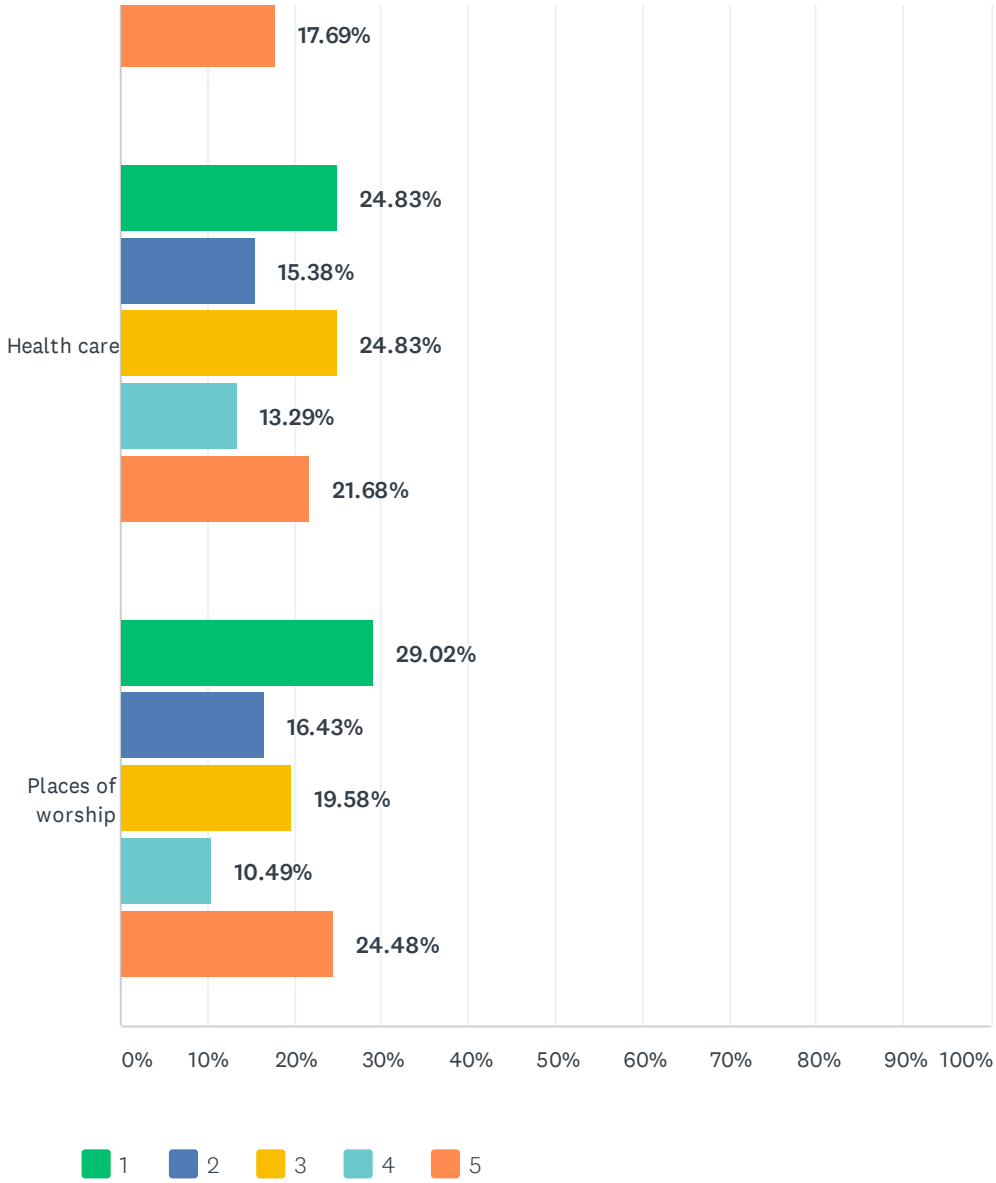
ANSWER CHOICES	RESPONSES	
Daily	41.67%	135
Once a week	34.26%	111
Once a month	7.72%	25
A few times a year	13.27%	43
Never	3.09%	10
TOTAL		324

Q6 Please rate the destinations below by how important it is for you to be able to walk to them.(1=most important, 5=not important)

Answered: 317 Skipped: 10




5.92%
14.80%
20.94%
9.03%
Military/Government
19.13%
14.08%
36.82%
33.56%
26.17%
Library
15.44%
6.04%
18.79%
42.19%
20.60%
Restaurants
14.62%
7.97%
14.62%
29.25%
20.75%
Businesses
20.07%
12.24%


17.69%
24.83%
15.38%
Health care
24.83%
13.29%
21.68%
29.02%
16.43%
Places of worship
19.58%
10.49%
24.48%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
1
2
3
4
5

	1	2	3	4	5	TOTAL
Downtown	53.72% 166	7.77% 24	11.33% 35	7.12% 22	20.06% 62	309
Grocery stores	31.99% 95	15.15% 45	19.19% 57	13.13% 39	20.54% 61	297
Local schools	31.96% 93	12.37% 36	13.06% 38	9.28% 27	33.33% 97	291
Local parks	47.04% 143	16.78% 51	15.46% 47	5.92% 18	14.80% 45	304
Military/Government	20.94% 58	9.03% 25	19.13% 53	14.08% 39	36.82% 102	277
Library	33.56% 100	26.17% 78	15.44% 46	6.04% 18	18.79% 56	298
Restaurants	42.19% 127	20.60% 62	14.62% 44	7.97% 24	14.62% 44	301
Businesses	29.25% 86	20.75% 61	20.07% 59	12.24% 36	17.69% 52	294
Health care	24.83% 71	15.38% 44	24.83% 71	13.29% 38	21.68% 62	286
Places of worship	29.02% 83	16.43% 47	19.58% 56	10.49% 30	24.48% 70	286

Q7 Where do you walk in Portsmouth that needs improvement? Please be specific.

Answered: 237 Skipped: 90

#	RESPONSES	DATE
1	Portsmouth Blvd, County St, Elm Ave, High St	9/3/2019 9:30 AM
2	High Street in Churchland near the Portsmouth YMCA and Churchland Library. The sidewalks disappear at times and High St is a busy road	9/3/2019 9:21 AM
3	I feel that some of the side streets need sidewalks	9/3/2019 9:13 AM
4	Long Point (Hoffler Creek Pkway), Twin Pines (going toward water)	9/3/2019 9:11 AM
5	Airline Blvd, Victory Blvd, City Park Ave	9/2/2019 10:22 AM
6	To and from the Shipyard from Olde Towne	8/31/2019 4:05 PM
7	Churchland high street	8/31/2019 2:00 PM
8	geo.wash.hwy. between effingham st. and fredrick blvd	8/26/2019 9:33 PM
9	Areas near downtown, some do not have sidewalks	8/26/2019 4:15 PM
10	On High street at the Churchland bridge, lacks a complete sidewalk.	8/25/2019 1:16 PM
11	City Park; live too far to other things to walk to them	8/24/2019 7:55 PM
12	Churchland. Cedar lane & West Norfolk rd, to Tyre neck Rd. To go to the gym and over to Momac	8/23/2019 2:42 PM
13	Olde Towne needs a better grocery store and park.	8/20/2019 1:54 PM
14	Nothing	8/19/2019 11:46 PM
15	Cavalier Manor	8/19/2019 7:25 PM
16	High St. from Sterling Point to Churchland Blvd. area.	8/19/2019 1:57 PM
17	Land/home owners need to keep their bushes and trees off the sidewalks or face fines. This is a problem on London at the head of Scotts Creek and on Constitution heading north past Chelsea. Areas where trees have lifted up the sidewalks need to have offending roots flattened. Crush and run should be placed in said areas to avoid the trip hazard created by the dangerous up-swelling of the sidewalks. People riding their bicycles on the wrong side of the street or or on pedestrian sidewalks should be fined. On major thoroughfares like London Blvd, Portsmouth Blvd, Airline Blvd, George Washington Highway, Victory Blvd, and Western Branch, bicycles should have their own side4cycling (previous sidewalks) with the opposite side of the street designated for pedestrians. This would improve safety for both cyclists and pedestrians. If sidewalks are too expensive, paths created from crush and run would be helpful in making more contiguous pedestrian or bicycle thoroughfares. School yards should have paths around their perimeters with the distance measured and marked so the community can use it and track their mileage in off hours. This walking trail should be used in nice weather in physical education classes where students can walk and socialize so as to promote socializing while walking as an enjoyable, life-long, transferrable, leisure activity that can be engaged in with success by those who may otherwise dislike exercise or sports. Small school staff meetings, A Walk and Talk, should also be encouraged to use schools' perimeter path in nice weather to promote movement/exercise while enhancing thought processes as the brain receives more oxygen. Progressive businesses are doing this with success. This would be healthful for teachers and admin staff and at the same time, enable them to serve as role models demonstrating walking as a "grown-up, enjoyable, adult activity."	8/18/2019 10:58 PM
18	Frederick Blvd from Bagley to Kroger	8/18/2019 3:39 PM
19	Evergreen Place then we walk down to OlympianSports club, then back to Evergreen Place.	8/18/2019 3:08 PM
20	A grocery store. There's not a safe way to get to a grocery store from downtown	8/17/2019 10:54 PM
21	High Street from Churchland Bridge down to Cedar and beyond	8/17/2019 3:39 PM
22	cedar lane	8/17/2019 3:11 PM
23	I live in Churchland area and there are no sidewalks on side streets or major streets. We cannot take or son for walks without driving somewhere walkable first.	8/17/2019 2:19 PM
24	My neighborhood? I live in Churchland and there are no sidewalks on side streets or major	8/17/2019 1:05 PM

	streets	
25	On Saunders drive kids ride bikes and we walk the neighborhood	8/17/2019 9:45 AM
26	Olde town brick walkways	8/17/2019 8:52 AM
27	Locations to buy groceries in olde towne	8/17/2019 8:19 AM
28	cedar road	8/17/2019 7:52 AM
29	There should be a side walk on main roads like High Street from the beginning to chesapeake	8/16/2019 11:04 PM
30	The transit needs improvement!	8/16/2019 10:58 PM
31	My runs end over the bridge on high street because the side walks end. Same with airline blvd.	8/16/2019 10:36 PM
32	No where	8/16/2019 10:17 PM
33	Commute via bike works well.	8/16/2019 9:58 PM
34	Need more park areas pathways that are safe.	8/16/2019 8:57 PM
35	High Street between the Churchland bridge and Tyre neck road	8/16/2019 8:19 PM
36	The only place to walk without traffic is at Olive Branch cemetery. A trial just for walking or biking would be great!	8/16/2019 7:56 PM
37	Lake shores	8/16/2019 7:53 PM
38	.ore continuous trails through ParkView into SheaTerrace and Port Norfolk	8/16/2019 6:49 PM
39	Cavalier Forest, Cedar Lane between W. Norfolk rd and High st	8/16/2019 6:27 PM
40	Twin Pines Road	8/16/2019 5:42 PM
41	Willett Hall, Port Norfolk Main Post Office	8/16/2019 5:12 PM
42	We need biking and walking paths not sidewalks	8/16/2019 5:04 PM
43	Churchland area, Cedar-West Norfolk Rd- Peake Rd	8/16/2019 5:02 PM
44	Certain areas of Olde Towne	8/16/2019 4:51 PM
45	High St., Cedar Lane(Churchland)	8/16/2019 4:11 PM
46	West Norfolk Road, Cedar Lane	8/16/2019 4:08 PM
47	Portsmouth City Park - There needs to be a sidewalk from City Park Avenue into the park, so people don't have to walk in the street. The cop that works there doesn't allow us to cut thru the cemetery with my dog. Therefore, we don't go there anymore.	8/16/2019 3:12 PM
48	oregon acers	8/16/2019 12:26 PM
49	Chesapeake Blvd	8/16/2019 12:26 PM
50	Anywhere outside of Olde Towne	8/16/2019 11:42 AM
51	Coummunities	8/16/2019 11:39 AM
52	Sea wall, neighborhoods in Churchland (many have few sidewalks)	8/16/2019 11:09 AM
53	Between downtown and parkview	8/16/2019 11:03 AM
54	Churchland, cedar lane	8/16/2019 10:49 AM
55	Park Manor	8/16/2019 10:11 AM
56	Churchland area	8/16/2019 10:01 AM
57	Parts of Rivershore & High Streets in Churchland	8/16/2019 10:00 AM
58	London blvd and effingham	8/16/2019 9:57 AM
59	Across the Churchland bridge. I would like there to be a sidewalk all the way to YMCA from Maryview	8/16/2019 9:45 AM

60	THere needs to be better lighting in Olde Town	8/16/2019 9:43 AM
61	Cedar Lane, Churchland and West Norfolk Bridges	8/16/2019 9:41 AM
62	The corridor on High Street from Churchland Blvd to Maryview Hospital.	8/16/2019 9:37 AM
63	Making great changes in my Cavalier manor area	8/16/2019 9:30 AM
64	Elmhurst from Park Manor to Portsmouth Blvd	8/16/2019 9:23 AM
65	I walk in the Pinehurst neighborhood as do a lot of our neighbors. It is a small area with very little traffic. I thought we were going to get a walking path on West Norfolk Rd along the old RR line.	8/16/2019 9:23 AM
66	It's only during construction projects that I have a hard time finding a walking path.	8/16/2019 9:04 AM
67	Crosswalk at Court and County and court and columbia. I have nearly been run over by motorists 3 times in 6 months.	8/16/2019 8:18 AM
68	crossing over in front of the Naval Hospital on the corner of Effingham and Crawford Pkwy. The traffic pattern is very dangerous and the cars at that light are not friendly to bikers and walkers.	8/16/2019 8:18 AM
69	deep creek blvd	8/16/2019 7:30 AM
70	Beginning Westhaven	8/16/2019 7:28 AM
71	between churchland bridge west to shopping centers	8/16/2019 7:03 AM
72	Douglas Park, Prentis Park, Truxtun, Craddock, Downtown, Southside, West Haven, Victory Manor, Cavalier Manor	8/16/2019 5:00 AM
73	High street between churchland and churchland bridge	8/15/2019 10:59 PM
74	The Port Norfolk area and the mount herman area.	8/15/2019 9:26 PM
75	I walk in my small neighborhood and to next small neighborhood because they are joined by a sidewalk. High Street traffic prohibits me from walking further. It would be great to have a safe path somewhere close by.	8/15/2019 8:39 PM
76	Every where	8/15/2019 8:17 PM
77	Nothing needs to be improved	8/15/2019 8:15 PM
78	Edgefield, Southhampton and Twin Pines Road	8/15/2019 8:14 PM
79	Neighborhoods Churchland	8/15/2019 7:38 PM
80	I run around my neighborhood for exercise a lot and it's hard for me to feel safe running on the streets because of all the cars.	8/15/2019 7:25 PM
81	Cedar Lane in Churchland, need sidewalks!	8/15/2019 7:22 PM
82	security is a priority	8/15/2019 7:10 PM
83	Hatton point road	8/15/2019 7:07 PM
84	Craddock	8/15/2019 5:33 PM
85	Downtown	8/15/2019 5:29 PM
86	CHURCHLAND AREA HAS NO SIDEWALKS, THERE ARE SIDEWALKS THAT END IN SOME AREAS. SOME SIDEWALKS NEED TO BE SMOOTHED OUT SO PEOPLE IF USING WHEELCHAIRS OR STROLLERS, CAN USE THEM.	8/15/2019 4:12 PM
87	Olde Towne & downtown - sidewalk brick repair, sidewalks for walking in the courthouse area.	8/15/2019 3:57 PM
88	Down Town / Olde Towne	8/15/2019 3:30 PM
89	West Norfolk road, bushes over grown	8/15/2019 3:26 PM
90	Westhaven, churchland, shopping centers, downtown portsmouth	8/15/2019 2:20 PM
91	Neighborhoods	8/15/2019 2:14 PM

92	Hatton Point Road to Cedar Lane, then in either direction. No sidewalks! Reduce the speed limit on Hatton Point! No other similar residential street in Portsmouth is marked at 35 mph! Ridiculous and unsafe for all traveling that route! Everyone in Portsmouth knows 35 means 50 mph, just travel down High St.	8/15/2019 2:07 PM
93	Peninsula Av (Cemetery side)	8/15/2019 2:02 PM
94	Cedar Lane	8/15/2019 1:56 PM
95	My husband and I walk for fitness almost everyday. A 5 mile loop from our home up to Old Town and back. Also on weekends we walk a 12 mile loop which includes ALOT of areas that have NO sidewalks at all! We are forced to walk in the ditch, or on the road with traffic. One stretch is leading from Effingham to the Jordan Bridge, more specifically from 7-11 (Effingham/Elm) to the Jordan. Lots of people walk the Jordan for exercise. But if your walking TO the Jordan, your forced to walk on the road with cars once you turn off Effingham onto Elm heading towards the Jordan. With Semis in and out of that road, as well as cars, its VERY dangerous walk to get to a well known exercise/fitness walk. Another long stretch is on Victory Blvd between the Golden Skillet (Victory & Greenwood) all the way to maybe 1 block short of George Washington Hwy. This is at least 2 miles where pedestrians are FORCED to walk on a 4-lane busy hwy with no protection from traffic. This stretch is also full of businesses and residential areas, so there should be sidewalks!! As active fitness walkers, I would LOVE for Ptown to set up a long walking trail, maybe 30+ mile loop (not that anyone would walk the entire loop, but bikers would love it. People can jump on or off easily from any location near where they live, walk as far as they'd like, 1mi, 3mi, 10mi or if on bicycle the entire 30mi loop) If this trail could stay away from busy streets and highways, but occasionally come near a food or water stop, and maybe focus on looping people thru parks or more nature type areas away from heavy traffic that would be great. My hometown has a trail that is dedicated to walking/jogging/fitness. You can walk/bike ride from Lincoln NE to Kansas and they are still building it out further :) People can jump on or off the trail from anywhere along that route, walk or bike as far as they want, then head back. You can google "Homestead Trail+Nebraska" to find their website, pics, how they built it, and more info. Its built following an old railroad line no longer in use. They did a wonderful job connecting lots of towns to the trail, its very nature oriented, safe, and is used by a lot of people both bikes, joggers and fitness and casual walkers.	8/15/2019 1:50 PM
96	Greenefield Farms and Hatton Point	8/15/2019 1:42 PM
97	Cedar Lane in Churchland	8/15/2019 1:27 PM
98	some neighborhoods haaave houses with overgrown trees and bushes and trash on the sidewaalks	8/15/2019 1:09 PM
99	Neighborhoods, we live in Southampton and have absolutely no sidewalks nor do any of our nearby communities we have more than 5 schools in the immdiate area and no where for our children to walk safely	8/15/2019 12:44 PM
100	Port Norfolk is pretty good for walking now	8/15/2019 12:34 PM
101	Olde Towne and Downtown	8/15/2019 12:30 PM
102	near Portsmouth BHS	8/15/2019 12:23 PM
103	right on portsmouth blvd down rodman avenue. very dark no sidewalks long tree limbs	8/15/2019 11:54 AM
104	I walk the Jordan Bridge. I wish Portsmouth would provide a parking lot and improve the ingress and egress for walking up to the bridge.	8/15/2019 11:03 AM
105	Anywhere west of Effingham St.	8/15/2019 10:49 AM
106	Cradock area	8/15/2019 10:08 AM
107	I live in Green Acres. I tend to stay to sidewalks when leaving the neighborhood, but would love to see full sidewalks on both sides of High Street from one end to the other. Many people walk to bus stops and such in Churchland and there are not sidewalks except near some major intersections.	8/15/2019 9:52 AM
108	Outside of the Olde Town/Downtown area	8/15/2019 9:51 AM
109	Churchland area near West Norfolk Road and Western Branch Blvd.	8/15/2019 9:39 AM

110	Neighborhood in Prentis Park	8/15/2019 9:35 AM
111	Churchland	8/10/2019 6:58 AM
112	No where in particular.	8/8/2019 6:05 PM
113	I walk mostly in Olde Towne, and the greatest important need is removing trip hazards.	8/8/2019 4:19 PM
114	Cedar Lane, Ebony Heights, High Street, West Norfolk Road, Churchland Blvd.	8/7/2019 10:02 AM
115	I live in Cradock. My walk daily starts in the community from my home to Paradise CreeK. A good walk around the Creek, then I head home though the other side of my neighbor hood. I spend about an hour, half in the neighborhood and the other half at the Creek. More than anything the side walks in Cradock are broken and uneven from all the tees we have in this aging neighbor hood. k	8/7/2019 7:09 AM
116	River Shore Road	8/6/2019 9:11 PM
117	Not all streets in Shea Terrace neighborhood have sidewalks	8/6/2019 6:19 PM
118	On west high street going west bound there are no sidewalks between cedar lane and tyre neck road. My teenagers would be able to ride there bikes to a job. Also from cedar lane to Rodman on high street after the bridge there are not sidewalks. My children would be able to commute to and from to their tri weekly martial arts practice	8/6/2019 5:01 PM
119	Walking and bike paths needed	8/6/2019 4:13 PM
120	Sterling Point	8/6/2019 3:36 PM
121	Churchland to downtown, perhaps not so much accessibility but beautification of what's there. Things are very overgrown and unkept in our city!	8/6/2019 2:47 PM
122	We live off of High Street in Churchland, the sidewalks end leaving our neighborhood by the churchland bridge if I want to walk or ride my bike to nearby stores.	8/6/2019 1:54 PM
123	I live in Greenefield Farms in Churchland and there are no sidewalks in my neighborhood so we have to walk on the street. We love to walk in Olde Towne, however, it requires a drive to get there. I would love to see sidewalks all along Cedar Lane. It would be a game changer for the families in 23703!	8/5/2019 8:03 PM
124	Churchland	8/4/2019 10:04 PM
125	London blvd from Effingham to food lion	8/4/2019 8:41 PM
126	Cradock to Paradise Creek Park and Jordan Bridge	8/4/2019 4:55 PM
127	Greenfield Farms. Greenfield Drive South to be specific. Churchland elementary is overcrowded with students and lots of kids walk to school. No sidewalks or trails currently exist to give the kids a safe place to walk on a highly traveled street.	8/2/2019 10:06 PM
128	Greenwood dr from Victory Elementary to George Washington Hwy	8/2/2019 4:22 PM
129	Westhaven to City Park. It is not very safe to walk down Powhatan due to traffic. There also needs to be a connection downtown where the marina is from one sidewalk to the next instead of going through a parking lot.	8/2/2019 1:23 PM
130	Neighborhoods could use more sidewalks.	8/2/2019 12:40 PM
131	Green Lakes	8/2/2019 12:07 PM
132	The city needs to clean up all the trash on the streets before you invest in sidewalks	8/2/2019 5:50 AM
133	Greenwood Drive	8/1/2019 6:54 PM
134	Pinehurst, Green Acres, Churchland Bridge	8/1/2019 6:20 PM
135	Need to fix the roads first.	8/1/2019 5:09 PM
136	West Park View some sidewalks are dangerous	8/1/2019 11:44 AM
137	down portsmouth blvd.	8/1/2019 10:26 AM
138	Port Norfolk	8/1/2019 9:39 AM

139	From downtown to Jordan Bridge-specifically Elm Ave	8/1/2019 9:19 AM
140	Churchland	8/1/2019 9:17 AM
141	Swimming Point Walk - bulkhead (dangerous)	8/1/2019 6:27 AM
142	I do not personally walk it, but High Street, especially in Churchland, needs sidewalks added, because quite a few people do walk by or sometimes in the roadway.	7/31/2019 10:58 PM
143	Bus stops to far from neighborhood	7/31/2019 7:30 PM
144	Cedar Lane	7/31/2019 7:22 PM
145	Olde Towne some brick sidewalks need repair	7/31/2019 5:33 PM
146	Access to Paradise Creek Nature Park	7/31/2019 2:07 PM
147	Highland Biltmore/Deep Creek Blvd.	7/31/2019 12:44 PM
148	NA	7/31/2019 12:43 PM
149	Twin Pines Rd near River Shore, and also going into Suffolk. The road has no sidewalks in these areas and is narrow so cars do not appreciate pedestrians in the lanes.	7/31/2019 12:02 PM
150	Along deep creek Blvd ; Along victory blvd	7/31/2019 11:07 AM
151	1800 Block Lasalle Ave	7/31/2019 11:00 AM
152	From port Norfolk to old Towne	7/31/2019 10:34 AM
153	N/A	7/31/2019 9:40 AM
154	A lot of areas in Cavalier Manor do not have sidewalks for pedestrians to walk or cyclists to ride their bicycles	7/31/2019 8:25 AM
155	Olde Town sidewalls	7/31/2019 6:59 AM
156	None	7/31/2019 6:56 AM
157	Regional Seaboard Coast Line Trail	7/30/2019 8:59 PM
158	Waterfront	7/30/2019 7:30 PM
159	There needs to be a grocery store in the Olde Towne Area preferably at the former Sports Hall of Fame so that individuals in Olde Towne will not have to leave that area	7/30/2019 4:51 PM
160	Cavalier Blvd needs some sidewalks for safety.	7/30/2019 4:31 PM
161	Rivershore Road in Churchland or Twin Pines and towne pointe Road in Churchland. In	7/30/2019 4:16 PM
162	High Street at Williamsburg. The cross walk that connects Norcom High School is extremely dangerous and unsafe to cross the street. The cars will continue to drive through the crosswalk while a pedestrian is in the middle of crossing the street. Please put additional signs/ warnings or a traffic light at the crossing. Please have a city official to come an sit an watch/observe the cars that donot yeild to a pedestrian in a crosswalk espcially at 7:40 am after the city bus let off a passenger at the bus stop.	7/30/2019 4:10 PM
163	Merrifields in churchland	7/30/2019 3:48 PM
164	Mount Hermont. Not safe to walk by self.	7/30/2019 3:33 PM
165	High Street	7/30/2019 3:30 PM
166	Neighborhoods	7/30/2019 3:30 PM
167	Deep Creek Blvd.	7/30/2019 3:17 PM
168	City Park ... add paths and benches	7/30/2019 3:09 PM
169	Churchland area of Portsmouth is not pedestrian friendly at all!	7/30/2019 3:08 PM
170	Cedar lane	7/30/2019 3:00 PM
171	Several neighborhoods in the Churchland area of the city do not have sidewalks. Pedestrians	7/30/2019 2:53 PM

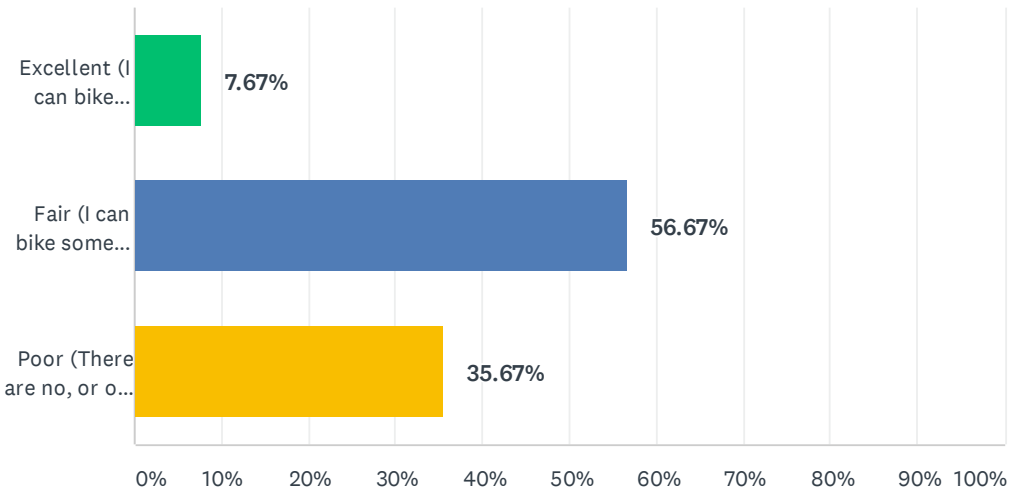
	have to walk in the street, which is extremely dangerous where speed limits exceed 25mph. Portions of Cedar Lane, West Norfolk Road, West High Street don't have sidewalks.	
172	4000 block of Deep Creek Blvd. by Safety Town	7/30/2019 2:42 PM
173	Brick sidewalks in downtown need repair and are very difficult to navigate	7/30/2019 2:41 PM
174	Cavalier Manor- no sidewalks	7/30/2019 2:19 PM
175	Shea Terrace to Olde Towne	7/30/2019 2:09 PM
176	Too much trash and grass not getting cute to walk.	7/30/2019 2:06 PM
177	Due to mobility issues, I do not walk like I used to.	7/30/2019 1:52 PM
178	Cedar Lane too many breaks to keep you away from traffic	7/30/2019 1:49 PM
179	I live in Olde Towne and the brick walkways are in great need of improvement. Some sidewalks are actually dangerous to transverse and it is probably safer to walk in the roadway.	7/30/2019 1:49 PM
180	Downtown sidewalks, especially the brick that is in disrepair	7/30/2019 1:45 PM
181	There still needs to be installed sidewalks in some neighborhoods -- especially on streets that are high traffic streets (cut through streets ... like Grayson St.) And High St. in Churchland -- this is not safe to walk or bike on that road.	7/30/2019 1:42 PM
182	the front street of crawford, if the tree shaping and if the sidewalk can be much smoother	7/30/2019 1:36 PM
183	Truxtun/Brighton Communities	7/30/2019 1:27 PM
184	I would like to see a sidewalk/bike path on Elmhurst lane, between Portsmouth blvd and Clifford st. It would be nice for the surrounding neighborhoods to have access to City Park and Elmhurst square shopping center.	7/30/2019 1:23 PM
185	Loxley Place. Nos sidewalks on Chatham Rd, Loxley Rd or Frances St, Allan Rd and Partial York Dr	7/30/2019 1:20 PM
186	From Midtown to Olde Towne	7/30/2019 1:17 PM
187	Cavalier Manor	7/30/2019 1:04 PM
188	neighborhood	7/30/2019 12:56 PM
189	high street	7/30/2019 12:45 PM
190	Paradise Creek park - it is too dangerous to cross the street without a cross walk there	7/30/2019 12:42 PM
191	High Street is hazardous! Brick Pavers are extremely uneven. Have witnessed MULTIPLE falls, especially in he elderly.	7/30/2019 12:38 PM
192	Though I love my neighborhood (Waterview) it does not have sidewalks and requires you to walk in the street during leisure walk and while walking our pets. The neighborhood is very pet friendly but as stated you have to walk in the street and watch for cars. It is also noted people drive fast through the neighborhood as a short cut I believe to High Street and off the Churchland Bridge to get to the back of the neighborhood en route to King Street which is a safety risk to possibly to children, adults, and pets being walked in the neighborhood.	7/30/2019 12:26 PM
193	Twin Pine Road. It needs a sidewalk.	7/30/2019 12:21 PM
194	The area around the City Hall Building to High Street	7/30/2019 12:20 PM
195	Olde Towne brick sidewalks needing leveling.	7/30/2019 12:20 PM
196	churchland	7/30/2019 12:17 PM
197	Powhatan Avenue to Clifford St to City Park!! No safe way to get to park from our neighborhood.	7/30/2019 12:15 PM
198	Churchland area between Cedar Lane and West Norfolk Rd	7/30/2019 12:11 PM
199	SIDEWALKS OLDE TOWN	7/30/2019 12:10 PM
200	Between Olde Towne and Elm Avenue	7/30/2019 12:09 PM

201	Along the waterfront and downtown and the streets of Churchland	7/30/2019 12:09 PM
202	Many sidewalks are disrupted by overgrown trees and roots in Olde Town. Ouside of Olde Town, safety is top concern. ,	7/30/2019 12:09 PM
203	PDBHS has very few crosswalks surrounding the building when majority of the people who come here are walking and have no transportation.	7/30/2019 12:06 PM
204	Olde Town	7/30/2019 12:06 PM
205	Green Lakes, Elizabeth Manor, Hodges Manor	7/30/2019 12:04 PM
206	Along rivershore road and Town Pointe Road. the sidewalks do not go all the way down the roads	7/30/2019 12:00 PM
207	Churchland - no sidewalks anywhere that I have seen	7/30/2019 11:55 AM
208	In my neighborhood	7/30/2019 11:54 AM
209	Park view to olde Towne	7/30/2019 11:51 AM
210	Cavalier Manor has no side walks around the neighborhood and it is very dangerous walking in the street.	7/30/2019 11:51 AM
211	every Place	7/25/2019 12:26 PM
212	Everywhere in Churchland!	7/18/2019 10:13 AM
213	Victory Blvd	7/17/2019 7:28 PM
214	High Street between Maryview hospital and the Churchland Library	7/17/2019 7:13 PM
215	Blighted areas: Truxton, Brighton, Prentis Park, and Portsmouth City Park	7/17/2019 5:13 PM
216	Churchland. There is almost no sidewalk on High St	7/17/2019 4:17 PM
217	MidTown Frederick Blvd area needs better connect to Port Norfolk	7/17/2019 4:16 PM
218	I-264 underpasses	7/17/2019 3:56 PM
219	High Street	7/11/2019 5:01 PM
220	Olde Towne - repair sidewalks and/or provide complete connectivity to all sidewalks	7/5/2019 2:57 PM
221	Crosswalk between Cradock and Paradise Creek Nature Park	7/5/2019 10:37 AM
222	Cradock (Afton Square)	7/5/2019 10:35 AM
223	Paradise Creek Park	7/5/2019 10:31 AM
224	Cedar Lane and hatton Pt Road - both very dangerous to walk, but there are LOTS of folks in those neighborhoods who like to walk!	7/5/2019 10:23 AM
225	Uneven sidewalks in some areas of downtown	7/5/2019 10:19 AM
226	Along High St.	7/5/2019 10:15 AM
227	I do not walk as often because I don't live around many businesses however I think there is a strong need for improvement on the Geo Washington Stretch	7/5/2019 10:07 AM
228	Olde Town Neighborhood to Seawalk and along Downtown Portsmouth	7/5/2019 10:03 AM
229	Cross High Street daily, can be dangerous	7/5/2019 9:56 AM
230	Paradise Creek Nature Park cross Victory to Cradock and northern Victory to Jordan Bridge	7/5/2019 9:50 AM
231	Cradock - sidewalks not maintained. Need path/crosswalk from Afton to Park to Jordan Bridge	7/5/2019 9:42 AM
232	Cedar [illegible], Hatton Point Road, High Street	7/5/2019 9:39 AM
233	No specific place, but gaps in existing network should be priority. [For #3, wrote in "There are a lot already. Condition is an issue, as is trash/grass maintenance."]	7/5/2019 9:35 AM
234	OREGON ACERS TO CITY PARK VIA WESTHEAVEN	7/5/2019 9:23 AM

235	Harbor Pavilion to Gosport Park - Closed due to construction. Crossing Court St. at dtwn tunnel. Crossing Effingham anywhere but especially if no light. [For number 3, did not select answer and wrote "more places"	7/5/2019 9:19 AM
236	High St west of the Churchland Bridge	7/2/2019 9:02 AM
237	Near the Portsmouth health department	6/26/2019 9:16 AM

Q8 How would you rate biking in Portsmouth today?

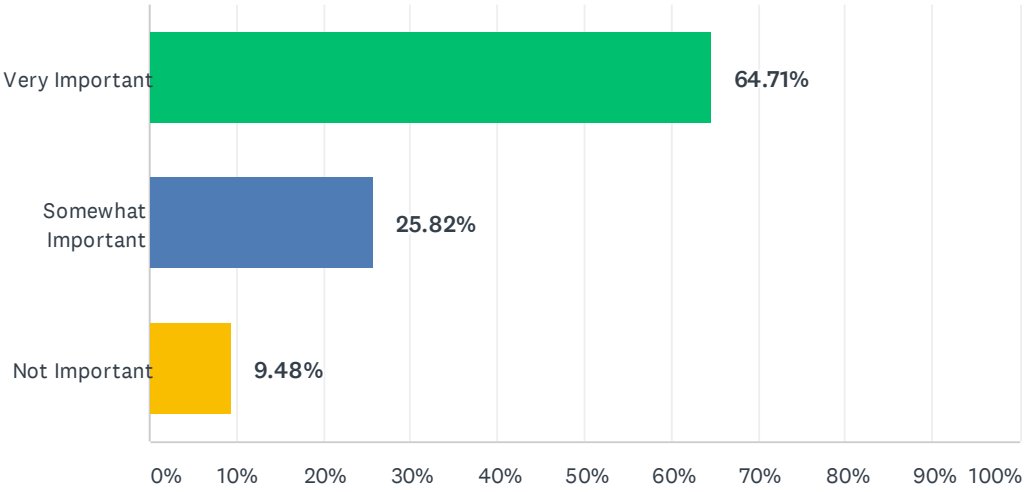
Answered: 300 Skipped: 27



ANSWER CHOICES	RESPONSES	
Excellent (I can bike everywhere)	7.67%	23
Fair (I can bike some places)	56.67%	170
Poor (There are no, or only a few places I can bike)	35.67%	107
TOTAL		300

Q9 How important to you is improving biking conditions in Portsmouth?

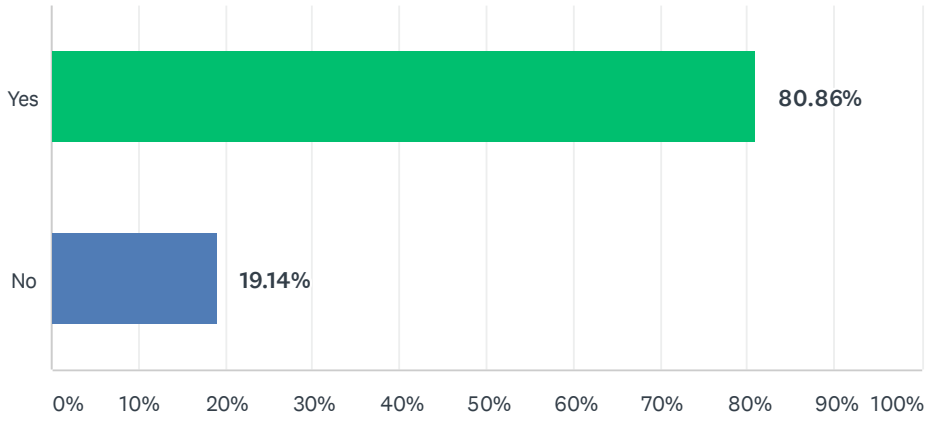
Answered: 306 Skipped: 21



ANSWER CHOICES	RESPONSES	
Very Important	64.71%	198
Somewhat Important	25.82%	79
Not Important	9.48%	29
TOTAL		306

Q10 Would you ride your bike more often if there were more bikeways in Portsmouth?

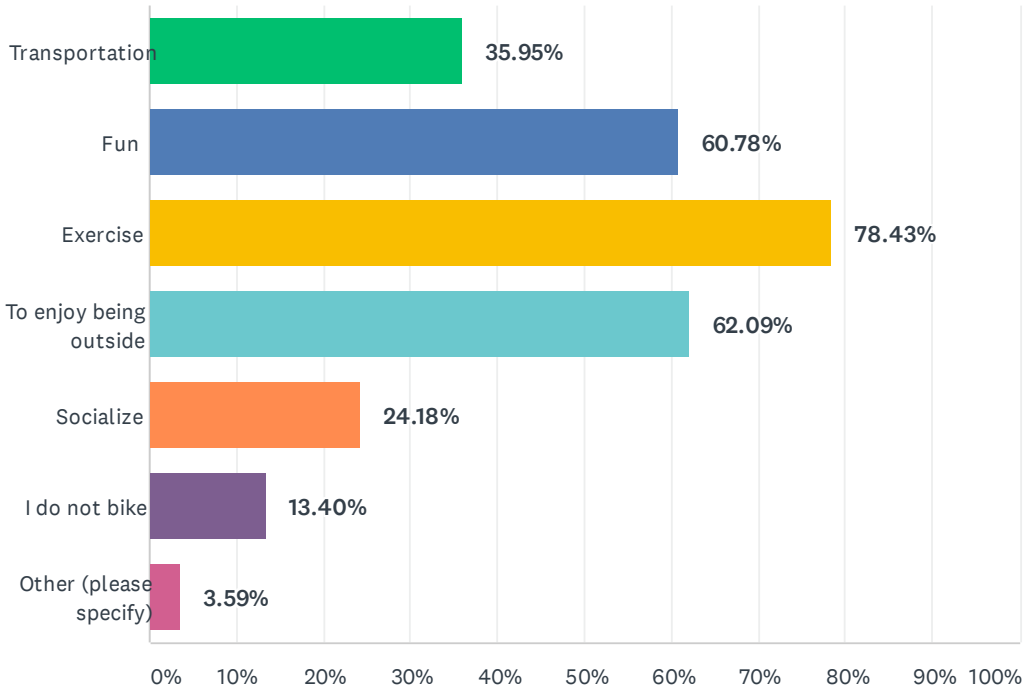
Answered: 303 Skipped: 24



ANSWER CHOICES	RESPONSES	
Yes	80.86%	245
No	19.14%	58
TOTAL		303

Q11 When you ride your bike in Portsmouth, what is the purpose of your trip? (check all that apply)

Answered: 306 Skipped: 21

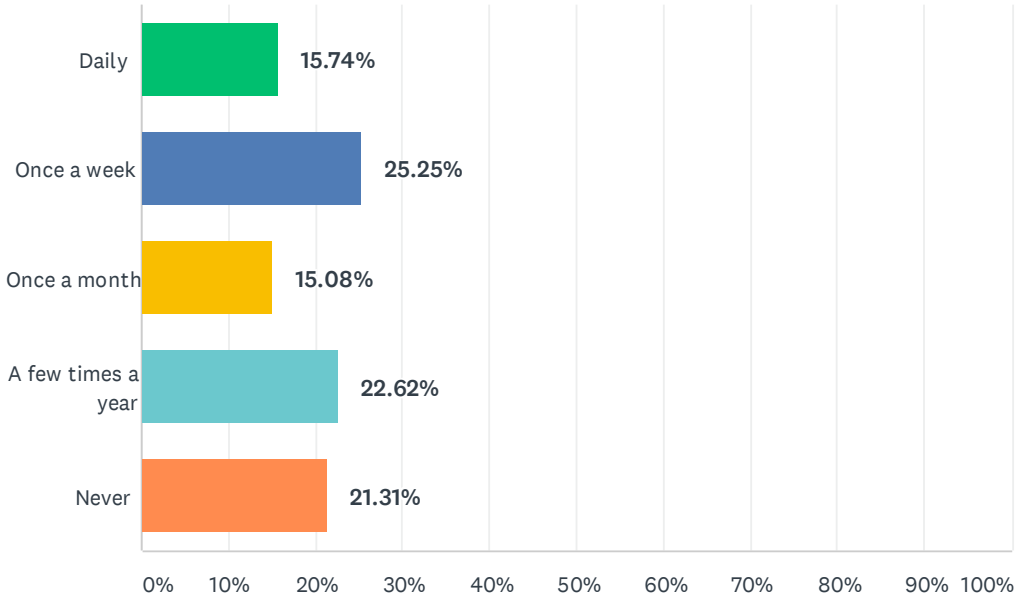


ANSWER CHOICES	RESPONSES	
Transportation	35.95%	110
Fun	60.78%	186
Exercise	78.43%	240
To enjoy being outside	62.09%	190
Socialize	24.18%	74
I do not bike	13.40%	41
Other (please specify)	3.59%	11
Total Respondents: 306		

#	OTHER (PLEASE SPECIFY)	DATE
1	Weight control	8/18/2019 11:06 PM
2	Restaurants and Groceries	8/15/2019 11:04 PM
3	I don't have a bike, but if there were better bike lanes in my community I would add to my daily routine.	8/7/2019 7:12 AM
4	Shopping @ grocery store. Drop off mail, pick up meds	8/6/2019 6:50 PM
5	Work	8/1/2019 6:30 AM
6	To Get to Where I am going.	7/31/2019 6:59 AM
7	I put my bike on the rack and head for Virginia Beach or the Dismal Swamp	7/30/2019 3:03 PM
8	I don't feel safe biking to the places I would go	7/30/2019 2:10 PM
9	All of the above	7/30/2019 12:14 PM
10	Drivers need to be made aware of the law against "dooring."	7/30/2019 12:12 PM
11	T	7/17/2019 5:17 PM

Q12 Approximately, how often do you ride your bike in Portsmouth?

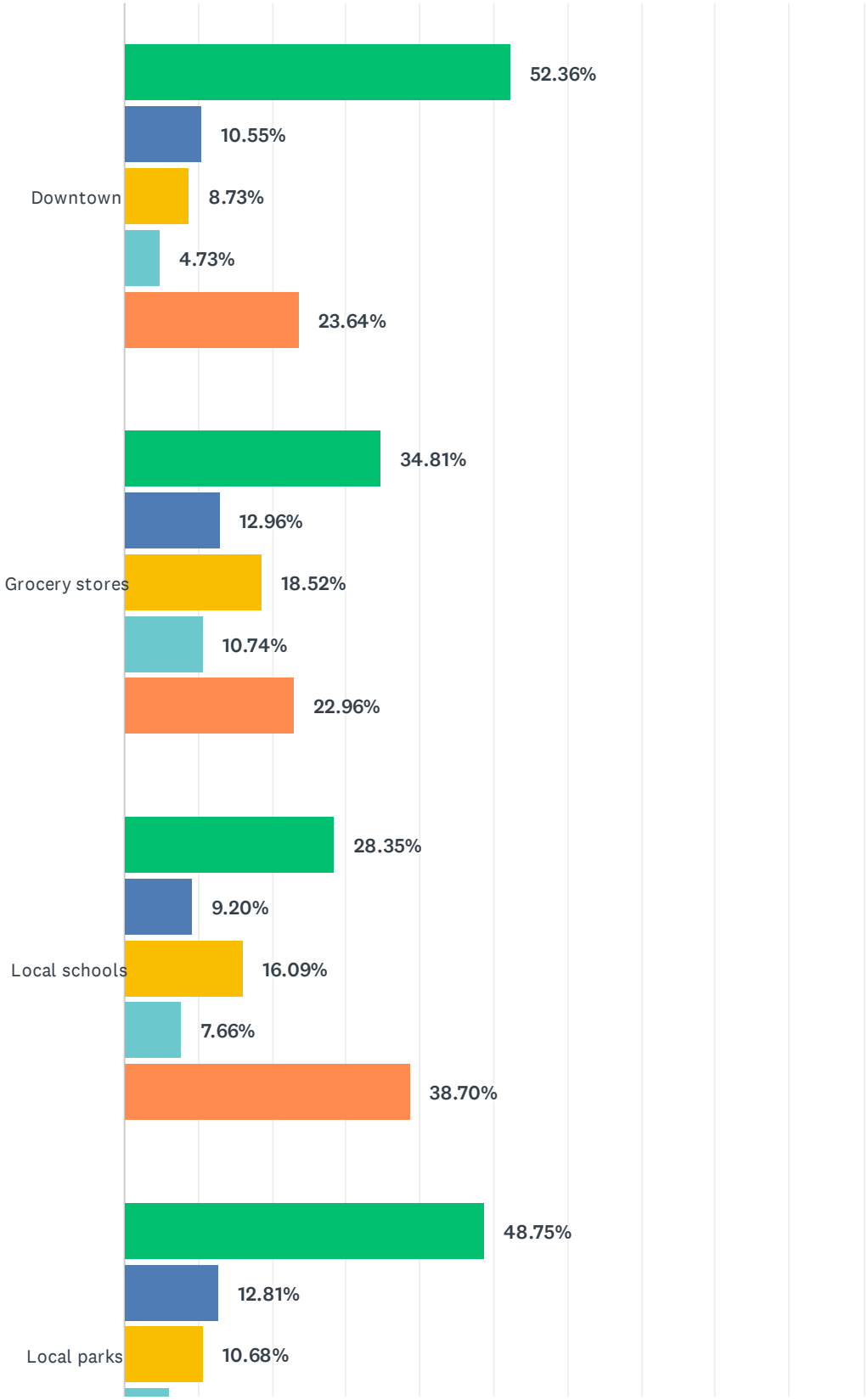
Answered: 305 Skipped: 22

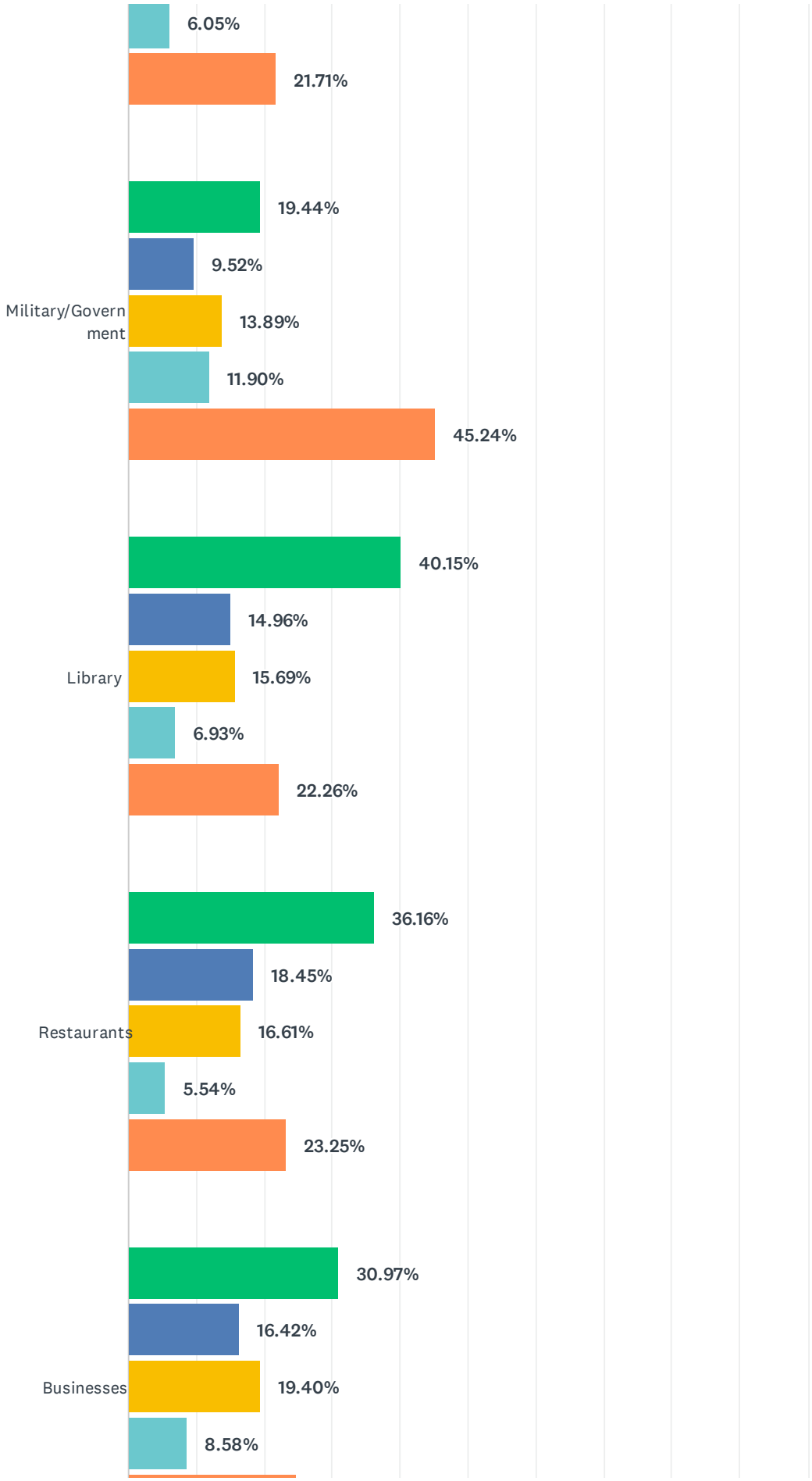


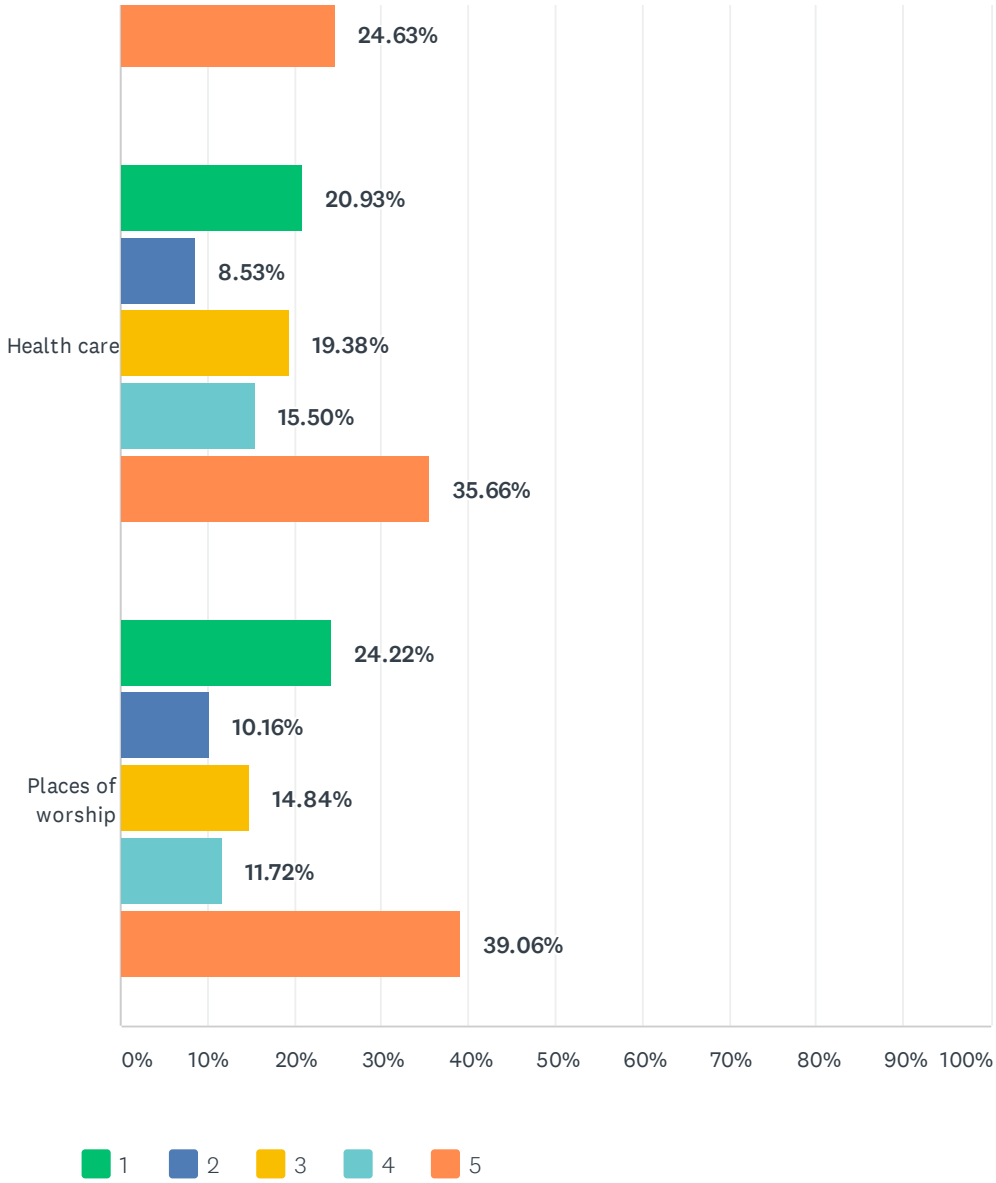
ANSWER CHOICES	RESPONSES	
Daily	15.74%	48
Once a week	25.25%	77
Once a month	15.08%	46
A few times a year	22.62%	69
Never	21.31%	65
TOTAL		305

Q13 Please rate the destinations below by how important it is for you to be able to bike to them.(1=most like to reach, 5=least like to reach)

Answered: 290 Skipped: 37



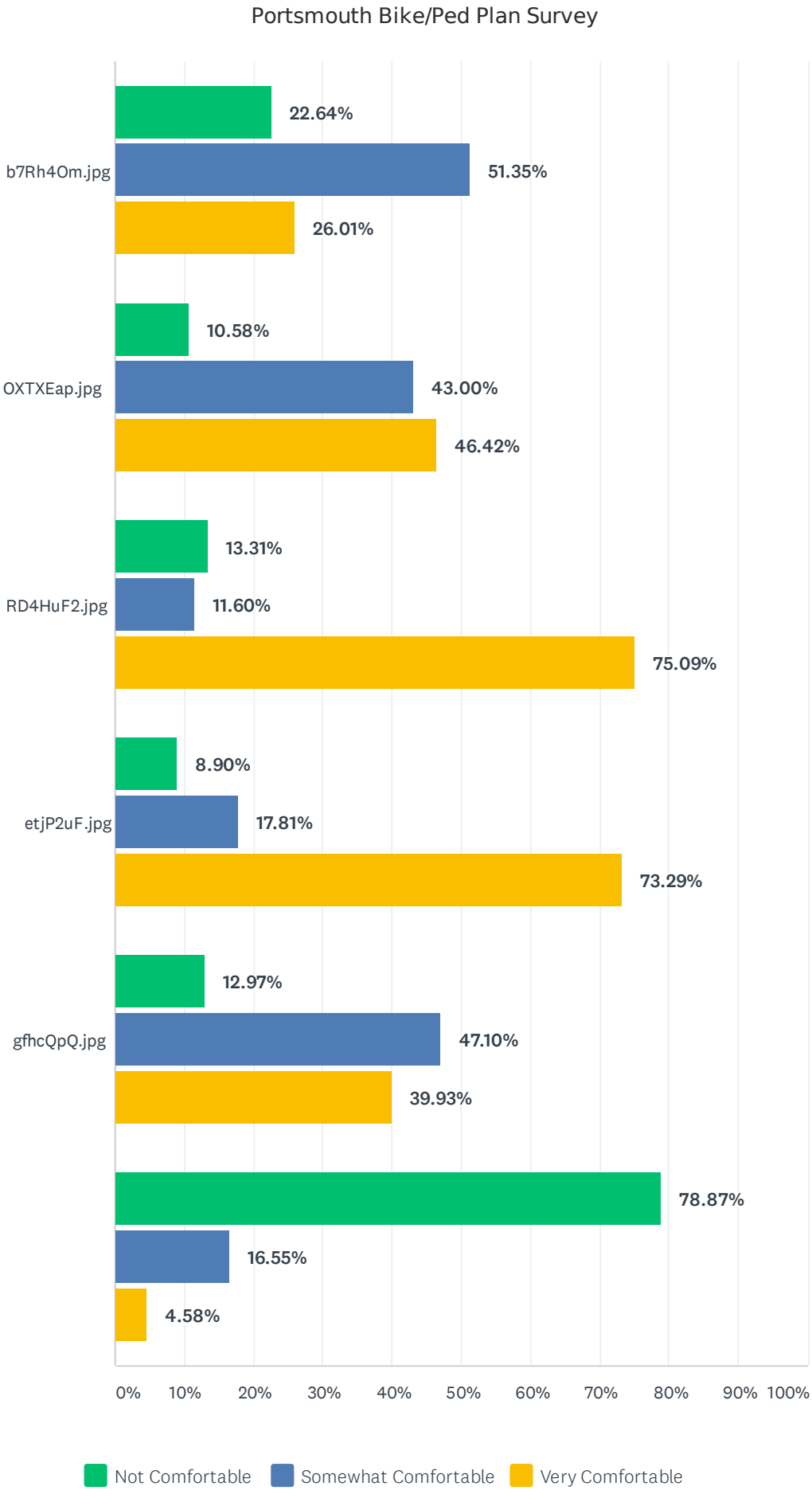

6.05%
21.71%
19.44%
9.52%
Military/Government
13.89%
11.90%
45.24%
40.15%
14.96%
Library
15.69%
6.93%
22.26%
36.16%
18.45%
Restaurants
16.61%
5.54%
23.25%
30.97%
16.42%
Businesses
19.40%
8.58%


24.63%
20.93%
8.53%
Health care
19.38%
15.50%
35.66%
24.22%
10.16%
Places of worship
14.84%
11.72%
39.06%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
1
2
3
4
5

	1	2	3	4	5	TOTAL
Downtown	52.36% 144	10.55% 29	8.73% 24	4.73% 13	23.64% 65	275
Grocery stores	34.81% 94	12.96% 35	18.52% 50	10.74% 29	22.96% 62	270
Local schools	28.35% 74	9.20% 24	16.09% 42	7.66% 20	38.70% 101	261
Local parks	48.75% 137	12.81% 36	10.68% 30	6.05% 17	21.71% 61	281
Military/Government	19.44% 49	9.52% 24	13.89% 35	11.90% 30	45.24% 114	252
Library	40.15% 110	14.96% 41	15.69% 43	6.93% 19	22.26% 61	274
Restaurants	36.16% 98	18.45% 50	16.61% 45	5.54% 15	23.25% 63	271
Businesses	30.97% 83	16.42% 44	19.40% 52	8.58% 23	24.63% 66	268
Health care	20.93% 54	8.53% 22	19.38% 50	15.50% 40	35.66% 92	258
Places of worship	24.22% 62	10.16% 26	14.84% 38	11.72% 30	39.06% 100	256

Q14 Looking at each picture, tell us how comfortable you would be biking.

Answered: 298 Skipped: 29


Portsmouth Bike/Ped Plan Survey
b7Rh4Om.jpg
22.64%
51.35%
26.01%
OXTXEap.jpg
10.58%
43.00%
46.42%
RD4HuF2.jpg
13.31%
11.60%
75.09%
etjP2uF.jpg
8.90%
17.81%
73.29%
gfhcQpQ.jpg
12.97%
47.10%
39.93%
78.87%
16.55%
4.58%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not Comfortable
Somewhat Comfortable
Very Comfortable

	NOT COMFORTABLE	SOMEWHAT COMFORTABLE	VERY COMFORTABLE	TOTAL
	22.64% 67	51.35% 152	26.01% 77	296
	10.58% 31	43.00% 126	46.42% 136	293
	13.31% 39	11.60% 34	75.09% 220	293
	8.90% 26	17.81% 52	73.29% 214	292
	12.97% 38	47.10% 138	39.93% 117	293
	78.87% 224	16.55% 47	4.58% 13	284

Q15 Where do you bike in Portsmouth that needs improvement? Please be specific.

Answered: 206 Skipped: 121

#	RESPONSES	DATE
1	Side streets like Des Moines Ave, Deep Creek Blvd, Parts of Portsmouth Bllvd, Jefferson St, Columbus Ave	9/3/2019 9:31 AM
2	Again, along High Street in Churchland near the YMCA and library. Also Downtown. We would use bike and walk trails if there were more.	9/3/2019 9:23 AM
3	Hoffler Creek Parkway, Peachtree Community	9/3/2019 9:12 AM
4	Portsmouth Blvd, Elmhurst, City Park Ave, Downtown Portsmouth (effingham, high street, etc.)	9/2/2019 10:24 AM
5	To and from the shipyard from Olde Towne	8/31/2019 4:07 PM
6	Town point rd	8/31/2019 2:08 PM
7	high street west	8/26/2019 9:44 PM
8	downtown	8/26/2019 4:17 PM
9	High street from the Western Branch blvd connection, all the way to downtown Portsmouth needs a proper bike lane. Specifically areas near the Portsmouth library, the Churchland bridge and from the IC Norcom school to Effingham.	8/25/2019 1:20 PM
10	only quiet residential streets which need no improvement	8/24/2019 7:58 PM
11	Churchland area to downtown via high street, I-164 to Naval station Norfolk, West Norfolk rd to Scott Annex and the Shipyard's.	8/23/2019 2:53 PM
12	Lake shores, airline blvd, London blvd	8/20/2019 10:13 PM
13	Older Towne could use more like Lanes	8/20/2019 1:57 PM
14	Mt Vernon Ave. and/or Florida Ave rough/broken surface needs repaving; bike lane on Mt. Vernon rough for cyclists. Many streets in town could use wider curb lanes or paved shoulders for those who use streets for transport. Shared use paths are marginal for the transportation cyclist who is riding at ten mph = five time walk pace; dangerous mix for everyone on a shared use path. Better to ride with traffic if surface and conditions are improved. Dedicated bike lanes are next best to wide curb lanes. Sharrows is good start. Thanks.	8/20/2019 10:06 AM
15	From Stratford Ave. area to Foodlion Greenwood Dr.	8/19/2019 7:30 PM
16	High St. from Sterling Point to Churchland shopping area.	8/19/2019 2:01 PM
17	London Blvd. needs one sidewalk turned into a bike lane. Major roads need one side, a path or sidewalk, turned into a bike lane. Bikeable cities are sought out as places to live as much or more than good schools. A bikeable city also draws tourism.	8/18/2019 11:06 PM
18	Portsmouth Blvd from Frederick to Chesapeake Square Mall	8/18/2019 3:41 PM
19	I bike from Olde Town to the Norfolk Naval Shipyard. There is a bike path close to the shipyard but then it abruptly stops right as you near 264 and if you aren’t familiar with it then you have to frantically try to get on the sidewalk to avoid the traffic congestion and getting hit. In Olde towne, it’s hard to bike due to some the the uneven brick on the sidewalks (court street andQueen street are notorious for these.	8/17/2019 10:58 PM
20	London Blvd, High Street	8/17/2019 3:41 PM
21	I live in churchland off high Street and the only way to get around on a bike is to bike in traffic. It is not ideal for adults, and unsafe for kids.	8/17/2019 2:26 PM
22	Bike and breakdown lanes are not regularly cleaned, causing tire hazards. For example, the West Norfolk Bridge. I'm glad there are more shared lanes, but we need more dedicated bike lanes throughout the city.	8/17/2019 1:27 PM
23	Pinecrest neighborhood onto Portsmouth city Park	8/17/2019 9:51 AM
24	Everywhere	8/17/2019 8:54 AM
25	Any of the main roads in olde towne and out high street on the way to Kroger	8/17/2019 8:21 AM
26	cedar lane, can the old railway track be made into a walk/bike path?	8/17/2019 7:54 AM

27	Airline Blvd, Portsmouth Blvd, Cavalier Manor	8/17/2019 5:07 AM
28	No where	8/16/2019 10:18 PM
29	From ferry to current bike Lanes	8/16/2019 10:00 PM
30	Do not like riding on roads.	8/16/2019 8:59 PM
31	High Street between waterview and Taylor road	8/16/2019 8:21 PM
32	I bike from Port Norfolk to Norfolk Naval Base	8/16/2019 8:05 PM
33	Only place to bike from traffic is Olive Branch cemetery. A trail just for walking or biking like in Suffolk would be awesome!	8/16/2019 7:56 PM
34	None	8/16/2019 7:55 PM
35	Fro. Old Towne into Park. View, Shea Terrace, and Port Norfolk	8/16/2019 6:52 PM
36	Cedar lane between W. Norfolk rd and High st. W. Norfolk rd between Cedar lane and Tyre Neck road	8/16/2019 6:31 PM
37	Twin pines road.	8/16/2019 5:44 PM
38	High St.	8/16/2019 5:16 PM
39	Everywhere!!!!	8/16/2019 5:07 PM
40	Churchland area, Cedar-West Norfolk rd- rivershore- Peake Lane	8/16/2019 5:07 PM
41	High Street East from Effingham to High Street Landing	8/16/2019 4:55 PM
42	Cedar Lane, High St.	8/16/2019 4:13 PM
43	Again, Portsmouth City Park. People will run you off the road!	8/16/2019 3:14 PM
44	High St to High St W	8/16/2019 1:28 PM
45	Separate bike lanes everywhere would be nice.	8/16/2019 11:44 AM
46	Everywhere	8/16/2019 11:17 AM
47	From downtown to parkview to port Norfolk to city park / mid town.	8/16/2019 11:05 AM
48	Churchland, cedar lane	8/16/2019 10:51 AM
49	City park area	8/16/2019 10:13 AM
50	Churchland to Downtown	8/16/2019 10:05 AM
51	London towards frederick Blvd	8/16/2019 10:00 AM
52	Cedar Lane, Churchland bridge, High Street West, London Blvd.	8/16/2019 9:44 AM
53	I don't ride..There are forced choices in this survey	8/16/2019 9:43 AM
54	Cavalier Blvd	8/16/2019 9:43 AM
55	I bike in my neighborhood. I don't think it's wise to have bikes share the road. These days too many people look at their handheld devices or just their dashboard gps or music selections while driving making it unsafe. I'm on the road enough to see cars weaving, overcorrecting and flat out running over the white line on the side of the road making it too unsafe for even a lone biker let alone a family out for a ride.	8/16/2019 9:42 AM
56	Elmhurst from Park Manor to Portsmouth Blvd	8/16/2019 9:26 AM
57	We bike along the seawall and regret that now we can't get past the Pavilion to go to the Shipyard fence.	8/16/2019 9:12 AM
58	The corner of Effingham and Crawford Pkwy in front of the Naval Hospital gate. The traffic pattern and drivers make it very very dangerous for pedestrians and bikers.	8/16/2019 8:25 AM
59	High Street	8/16/2019 7:55 AM
60	deep creek blvd	8/16/2019 7:34 AM

61	Beginning Westhaven	8/16/2019 7:30 AM
62	Truxtun, Douglas Park, Prentis Park, Mt Hermon	8/16/2019 5:06 AM
63	To the ferry landing	8/16/2019 12:14 AM
64	Between churchland and churchland bridge.	8/15/2019 11:04 PM
65	Mount Herman area	8/15/2019 9:28 PM
66	Everywhere I need to get to	8/15/2019 8:17 PM
67	Everywhere	8/15/2019 8:17 PM
68	Port Norfolk, twin pine Rd, Churchland bridge	8/15/2019 8:09 PM
69	I would love to have trails anywhere. I would love for our city to be known for biking and walking trails.	8/15/2019 7:41 PM
70	Around my neighborhood	8/15/2019 7:27 PM
71	Cedar lane, High street	8/15/2019 7:23 PM
72	security needed in all spots	8/15/2019 7:17 PM
73	Churchland bridge/ high street from churchland to downtown	8/15/2019 7:11 PM
74	A Safeway to get from Churchland to downtown	8/15/2019 6:51 PM
75	Craddock	8/15/2019 5:36 PM
76	I'd love to ride from Churchland to downtown, but it's completely unsafe, especially the Churchland bridge. Also, there's no safe way to get to City Park.	8/15/2019 5:06 PM
77	NEIGHBORHOODS; SIDEWALKS END IN PLACES.	8/15/2019 4:20 PM
78	Olde Towne/ downtown no separation between bikes and cars	8/15/2019 4:02 PM
79	Down Town / Olde Towne	8/15/2019 3:31 PM
80	West Norfolk Rd , cedar Lane , high Street West	8/15/2019 3:31 PM
81	Westhaven, City parks, shopping centers. downtown portsmouth	8/15/2019 2:22 PM
82	London Blvd, Elm Av, Deep Creek Blvd, Portsmouth Blvd, Effingham St, Jefferson St, King St (from Frederick to Clifford)	8/15/2019 2:18 PM
83	Nowhere	8/15/2019 2:17 PM
84	Hatton Point Road, Cedar Lane, High Street	8/15/2019 2:11 PM
85	Town Point Road, High Street (Midtown), London Blvd.	8/15/2019 1:59 PM
86	London, Airline, Victory, Frederick, Turnpike, see previous comments	8/15/2019 1:53 PM
87	Potholes and garbage in bike lane or shoulders across Norcom HS on way to City Park	8/15/2019 1:47 PM
88	All of Churchland	8/15/2019 1:43 PM
89	Although I don't bike, accessible biking is good for the city	8/15/2019 12:35 PM
90	n/a	8/15/2019 12:32 PM
91	i dont	8/15/2019 12:26 PM
92	Airline Blvd & Frederick	8/15/2019 11:56 AM
93	Everywhere west of Effingham St.	8/15/2019 10:51 AM
94	Cradock area	8/15/2019 10:09 AM
95	I mostly stick to my neighborhood. However, my children want to be able to bike to their grandmothers or the library. I just feel it is too dangerous for them. Mostly because vehicle traffic is rediculous. People don'e even remotely go the speed limit on High St, or even in the	8/15/2019 9:55 AM

	neighborhoods. Bike lanes are great, however, if we aren't policing the speeding and wreckless driving we will never have safe bike-able streets.	
96	All areas outside of Olde Town	8/15/2019 9:52 AM
97	Churchland area, cavalier manor, Victory Blvd & Cradock	8/15/2019 9:43 AM
98	Neighborhoods	8/8/2019 6:10 PM
99	Do not currently bike in Porftsmouth.	8/8/2019 4:21 PM
100	all over downtown and by Food Lion on London	8/7/2019 3:18 PM
101	High Street, Cedar Lane, West Norfolk road, Churchland Blvd.	8/7/2019 10:03 AM
102	don't bike as of now	8/7/2019 7:12 AM
103	River Shore Road	8/6/2019 9:12 PM
104	High Street between Effingham & Airline	8/6/2019 6:21 PM
105	Bike to and from small parks, places of work and exercise gyms	8/6/2019 5:03 PM
106	Sterling Point, Green Acres, Churchland	8/6/2019 3:39 PM
107	Same as walking segment question	8/6/2019 2:49 PM
108	Highstreet has no room for biking!	8/6/2019 1:56 PM
109	Churchland	8/5/2019 8:04 PM
110	Churchland	8/4/2019 10:04 PM
111	You name it	8/4/2019 4:57 PM
112	The entire city need. Improvement.. City park could use a bike and walking trail	8/2/2019 10:09 PM
113	greenwood drive	8/2/2019 9:19 PM
114	Greenwood Dr from Victory Elementary to George Washington Hwy	8/2/2019 4:27 PM
115	Westhaven and downtown. I also find that where there are bike lanes, they are not really helpful. This is because they are not where people need/want to bike.	8/2/2019 1:26 PM
116	Downtown	8/2/2019 12:08 PM
117	the city needs to clean up all the trash on the streets	8/2/2019 5:52 AM
118	More off Street facilities	8/1/2019 6:56 PM
119	High Street from Churchland Shopping to Downtown	8/1/2019 6:23 PM
120	Everywhere	8/1/2019 5:11 PM
121	Don’t spend my tax money on this.	8/1/2019 12:55 PM
122	London & High, from downtown to midtown	8/1/2019 11:50 AM
123	area around city park	8/1/2019 10:28 AM
124	From Port Norfolk to downtown and to Frederick Blvd/Turnpike Rd shopping and all neighborhoods in between.	8/1/2019 9:43 AM
125	Downtown to Churchland-specifically the bridges	8/1/2019 9:23 AM
126	Churchland	8/1/2019 9:18 AM
127	Court Street	8/1/2019 6:30 AM
128	High Street from Airline/London all the way through Churchland, especially including the Churchland Bridge.	7/31/2019 11:02 PM
129	Victory blvd., George Washington hwy. Portsmouth blvd. Deep Creek, Fedreck	7/31/2019 7:34 PM
130	Midtown to Cedar Lane	7/31/2019 7:24 PM

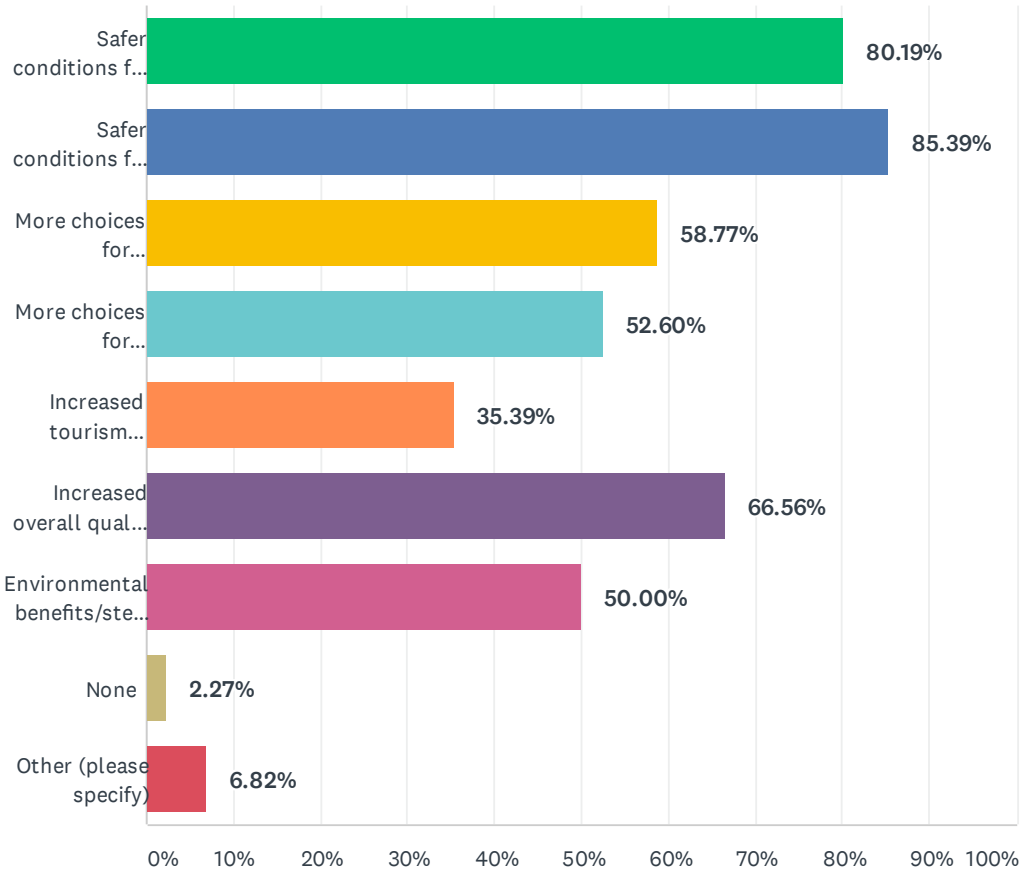
131	High Street. Airline Blvd. Frederick Blvd. Portsmouth Blvd.	7/31/2019 5:35 PM
132	I bike old town, sea wall areas it’s perfect	7/31/2019 4:55 PM
133	Around schools	7/31/2019 1:03 PM
134	Elliot Ave. (the bike lane cuts off), Frederick Blvd., Cavalier Manor nighborhood	7/31/2019 12:45 PM
135	Do not currently bike in Portsmouth	7/31/2019 12:44 PM
136	Twin Pines Rd near River Shore and also going into Suffolk. The lanes are narrow and vehicles have little room to go around cyclists and often pass in dangerous ways.	7/31/2019 12:06 PM
137	Don't bike	7/31/2019 11:10 AM
138	Residential area	7/31/2019 11:09 AM
139	Port Norfolk to old Towne	7/31/2019 10:35 AM
140	City streets	7/31/2019 9:43 AM
141	I have biked to the City Park and going into the park there is no bicycle paths in or around the park (Needs great improvement).	7/31/2019 8:25 AM
142	Olde Towne	7/31/2019 8:00 AM
143	Olde Town	7/31/2019 7:01 AM
144	None	7/31/2019 6:59 AM
145	Downtown	7/30/2019 9:01 PM
146	Downtown Portsmouth	7/30/2019 7:33 PM
147	Rivershore Rdi and Twin Pines Road in Churchland	7/30/2019 4:19 PM
148	If the picture is an example of a bike lane, a lot of accidents are going to happen.	7/30/2019 4:14 PM
149	High street churchland bridge	7/30/2019 3:50 PM
150	Allover the city.	7/30/2019 3:37 PM
151	High Street, Downtown Portsmouth	7/30/2019 3:31 PM
152	Neighborhoods	7/30/2019 3:31 PM
153	Deep Creek Blvd	7/30/2019 3:19 PM
154	I very rarely do	7/30/2019 3:03 PM
155	West Norfolk Road, Cedar Lane,West High Street	7/30/2019 2:56 PM
156	4000 block Deep Creek Blvd.	7/30/2019 2:45 PM
157	Downtown	7/30/2019 2:45 PM
158	Intersection of Clifford St. and Powhatan Ave. Most southbpund traffic on Powhatan turns right, ignoring bikes going straight.	7/30/2019 2:25 PM
159	Would love to bike from Shea terrace to Olde Towne	7/30/2019 2:10 PM
160	Due to mobility issues, I no longer bike.	7/30/2019 1:54 PM
161	Due to the lack of designated bike lanes, I just ride in my neighborhood or one of the neighboring ones.	7/30/2019 1:53 PM
162	Cavalier Forest	7/30/2019 1:51 PM
163	High St. -- this is not safe for biking. When the Churchland Bridge is replaced we need to have resources for walkers and bikers to connect to Churchland.	7/30/2019 1:44 PM
164	Loxley Place, Victory Blvd to Geo Wash Hwy, Deep Creek Blvd	7/30/2019 1:23 PM
165	I would like to see a bike path on Elmhurst lane between Portsmouth blvd and Clifford st. It would be nice for the surrounding neighborhoods to be able to bike to City Park.	7/30/2019 1:23 PM

166	neighborhood	7/30/2019 12:59 PM
167	Olde Towne, Park View	7/30/2019 12:56 PM
168	N/A	7/30/2019 12:41 PM
169	none noted	7/30/2019 12:29 PM
170	Old Town	7/30/2019 12:24 PM
171	downtown, more bike stations to lock them up, dedicated bike lanes and trails. Sharrows are not safe.	7/30/2019 12:23 PM
172	The High Street area.	7/30/2019 12:22 PM
173	The bike lanes on Cedar Lane are ridiculous, the markings are good but people drive at 55 MPH despite the speed limit being 35. Approaching the 164 merger is the most dangerous place as cars coming from the Coast Guard Base and those going either East or West on 164 change lanes and are not looking out for bicyclists or pedestrians. My priority would be to invest in paving the old railway right of pays and make them dedicated bike/pedestrian paths and connect them to other bikeways that go downtown or anywhere	7/30/2019 12:18 PM
174	Powhatan Ave to City Park.	7/30/2019 12:16 PM
175	most places	7/30/2019 12:14 PM
176	Churchland area...SHRT completion	7/30/2019 12:14 PM
177	High Street -- all the way down	7/30/2019 12:12 PM
178	OLDE TOWN	7/30/2019 12:11 PM
179	Olde Town	7/30/2019 12:11 PM
180	Bikers should not be allowed on the Churchland Bridge	7/30/2019 12:09 PM
181	PDBHS	7/30/2019 12:07 PM
182	Green Lakes, Elizabeth Manor, Hodges Manor	7/30/2019 12:06 PM
183	Town Pointe road is so narrow it is scary to bike on it	7/30/2019 12:02 PM
184	Churchland. I can only ride in my neighborhood. Otherwise I have to travel extremely busy roads to bike anywhere else.	7/30/2019 11:57 AM
185	Not in Portsmouth	7/30/2019 11:56 AM
186	all around the Portsmouth community, we should have a bike trail that will allow us to use for exercises as well as for the enjoyment of outside.	7/30/2019 11:53 AM
187	Everywhere in Churchland. Cedar Lane is not a good bike lane!	7/18/2019 10:16 AM
188	Victory Blvd from Deep Creek Blvd to the Jordan Bridge, Deep Creek Blvd from Chesapeake city border across victory blvd and all the way to Fredrick Blvd, Fredrick Blvd from Deep Creek Blvd to High Street, High Street from Fredrick Blvd to Suffolk City border, Portsmouth Blvd from Victory Crossing to Chesapeake City Blvd	7/17/2019 8:01 PM
189	High Street	7/17/2019 7:14 PM
190	N/A	7/17/2019 5:17 PM
191	Downtown/Frederick/City Park	7/17/2019 4:18 PM
192	George Washington Highway	7/17/2019 3:57 PM
193	High Street	7/11/2019 5:03 PM
194	Down Victory Blvd, past Paradise Creek Park (road to Jordan Bridge and the shipyards)	7/5/2019 10:37 AM
195	High St. Clifford and Powhatan to City Park	7/5/2019 10:24 AM
196	Churchland area	7/5/2019 10:16 AM
197	I don't bike	7/5/2019 10:08 AM

198	Downtown by Seawall	7/5/2019 10:04 AM
199	W. Norfolk Bridge - surface. Pot holes need repair. Surface West Bound Churchland Bridge	7/5/2019 10:01 AM
200	Only bike through neighborhoods; Waterview, [Illegible - Glenshield?], Merrimac Point, due to safety concerns Also bike through Westhaven to get to city park.* City Park not bike friendly	7/5/2019 9:59 AM
201	Paradise Creek Nature Park down Victory to Jordan Bridge - this could exponentially connect biking to Chesapeake, a park on other side of bridge, and increase healthy opportunities for Cradock	7/5/2019 9:53 AM
202	Don't bike. High Street, Hatton Point Lane, Cedar Road.	7/5/2019 9:40 AM
203	High St. sharrows need to be removed. They are unsafe = were a waste of paint. For a bicyclist, they don't actually provide a facility, much less a safe one.	7/5/2019 9:36 AM
204	AIRLINE BLVD/ LONDON BLVD-STREET (BLOCK 2400 TO WATER FRONT)	7/5/2019 9:25 AM
205	Don't bike often enough to answer.	7/5/2019 9:21 AM
206	High street	7/2/2019 9:04 AM

Q16 What should be the most important goals and outcomes of this plan? (check all that apply)

Answered: 308 Skipped: 19



ANSWER CHOICES	RESPONSES	
Safer conditions for walking	80.19%	247
Safer conditions for bicycling	85.39%	263
More choices for recreation/fun and exercise	58.77%	181
More choices for transportation between neighborhoods and local destinations	52.60%	162
Increased tourism opportunities	35.39%	109
Increased overall quality of life/livability	66.56%	205
Environmental benefits/stewardship of trail corridors	50.00%	154
None	2.27%	7
Other (please specify)	6.82%	21
Total Respondents: 308		

#	OTHER (PLEASE SPECIFY)	DATE
1	Safe bike path from Portsmouth to major places of employment, Naval bases and hospital. I would ride my bike to Naval station Norfolk every day if it was safe.	8/23/2019 2:57 PM
2	I suggest that none of your/our efforts will have beneficial effects without a continuous information and education program, public service announcement style, for EVERYONE; pedestrians, cyclists, motorists.	8/20/2019 10:10 AM
3	Incorporate biking and walking (hiking) into physical eduation programs. Developing a love of physical activity is a transferable leisure time activity that can last a lifetime. It's much more important than teaching a sport that is only engaged in during a person's school years. Students should be able to opt into cycling and/or walking instead of being pressured into participating in sports.	8/18/2019 11:11 PM
4	Safe areas from crime	8/16/2019 8:59 PM
5	A dog park ...Could be located by the new courthouse	8/16/2019 9:43 AM
6	Public safety	8/15/2019 3:32 PM
7	Lower crime so I can be outside more	8/15/2019 10:51 AM
8	give me an opportunity to inter-act with other members of my community,	8/7/2019 7:14 AM
9	Promotion campaign	8/6/2019 6:21 PM
10	Fix the roads first.	8/1/2019 5:11 PM
11	This is a waste of taxpayer money	8/1/2019 12:56 PM
12	Overall safety, better police prsents	7/31/2019 7:35 PM
13	Portsmouth should do more to promote bicycle riding.	7/31/2019 9:45 AM
14	Allow better transportation alternatives to downtown where poor vehicle parking keeps visitors away.	7/30/2019 9:03 PM
15	There needs to be a grocery store in the Olde Towne Area preferably at the former Sports Hall of Fame so that individuals in Olde Towne will not have to leave that area	7/30/2019 4:53 PM
16	healthy living	7/30/2019 3:17 PM
17	Bikeways and paved neighborhood sidewalks that are dedicated to pedestrians and cyclists	7/30/2019 12:20 PM
18	Get bikes off the streets altogether	7/30/2019 12:09 PM
19	Pace bikes, like Norfolk has, would be an excellent addition to the neighborhoods. Many residents would bike over walking if bikes were more affordable and more readily available to them.	7/30/2019 12:08 PM
20	better health for citizens	7/5/2019 10:24 AM
21	More accessible high quality options for vulnerably community	7/5/2019 10:09 AM

Q17 If you live in Portsmouth, what street do you live on?

Answered: 254 Skipped: 73

#	RESPONSES	DATE
1	Swanson Pkwy	9/3/2019 9:32 AM
2	Wake Forest Rd	9/3/2019 9:26 AM
3	Tidal	9/3/2019 9:12 AM
4	Court st	8/31/2019 4:10 PM
5	markham street	8/27/2019 9:01 AM
6	north street	8/26/2019 9:47 PM
7	Used to live on Westmoreland terrace.	8/25/2019 1:26 PM
8	Valhalla Drive	8/24/2019 8:00 PM
9	Larkspur road	8/23/2019 3:05 PM
10	Barlow dr	8/20/2019 10:15 PM
11	Crawford	8/20/2019 1:59 PM
12	Hancock Ave.	8/19/2019 7:39 PM
13	Lake Circle	8/19/2019 2:05 PM
14	Elizabeth pl	8/19/2019 1:56 PM
15	212 Chesapeake Ave.	8/18/2019 11:26 PM
16	Downes	8/18/2019 3:43 PM
17	London St	8/17/2019 11:00 PM
18	Shenandoah	8/17/2019 3:42 PM
19	Crabtree Place	8/17/2019 3:17 PM
20	Carney farm lane	8/17/2019 2:29 PM
21	Maryland Avenue	8/17/2019 1:28 PM
22	Saunders drive	8/17/2019 9:53 AM
23	Park road	8/17/2019 8:56 AM
24	London St	8/17/2019 8:23 AM
25	acres	8/17/2019 7:55 AM
26	I lived in Portsmouth for 30 years. 13 in Shea Terrace and 17 in Churchland (midfield Ct	8/16/2019 11:09 PM
27	Mt. Vernon	8/16/2019 11:01 PM
28	Plover Drive	8/16/2019 10:44 PM
29	Talley Circle	8/16/2019 10:39 PM
30	Crawford Parkway	8/16/2019 10:20 PM
31	High Street	8/16/2019 9:24 PM
32	Quince road	8/16/2019 9:01 PM
33	Oxford dr	8/16/2019 9:00 PM
34	Acres Road	8/16/2019 8:23 PM
35	Broad Street	8/16/2019 8:06 PM
36	Stanley Rd	8/16/2019 8:00 PM
37	Lake shores drive	8/16/2019 7:56 PM

38	Hampton Place	8/16/2019 6:53 PM
39	Burr lane	8/16/2019 6:38 PM
40	Bold Street	8/16/2019 6:19 PM
41	River shore road	8/16/2019 5:45 PM
42	Florida Avenue	8/16/2019 5:18 PM
43	Thornwood Street	8/16/2019 5:09 PM
44	Shannon Rd	8/16/2019 5:09 PM
45	Crawford Street	8/16/2019 4:56 PM
46	cypress	8/16/2019 4:43 PM
47	Sterling Point Dr.	8/16/2019 4:15 PM
48	Westcott Road	8/16/2019 4:13 PM
49	Byers Avenue	8/16/2019 3:23 PM
50	Darren Dr	8/16/2019 2:19 PM
51	Potomac Ave	8/16/2019 1:30 PM
52	Greenefield drive	8/16/2019 1:02 PM
53	eyoming	8/16/2019 12:30 PM
54	Court	8/16/2019 11:45 AM
55	Harrell	8/16/2019 11:30 AM
56	Columbia st	8/16/2019 11:18 AM
57	London St	8/16/2019 11:06 AM
58	Pine rd	8/16/2019 10:52 AM
59	London St.	8/16/2019 10:46 AM
60	Park Manor rd	8/16/2019 10:14 AM
61	Faigle Rd	8/16/2019 10:08 AM
62	Merrifields Blvd	8/16/2019 10:03 AM
63	Elm	8/16/2019 10:02 AM
64	sterling point	8/16/2019 9:48 AM
65	High Street	8/16/2019 9:47 AM
66	Sterling Point Drive	8/16/2019 9:45 AM
67	Hampton Pl	8/16/2019 9:44 AM
68	Cavalier Blvd	8/16/2019 9:44 AM
69	Bobby Jones Drive	8/16/2019 9:38 AM
70	Sandie Point Ln	8/16/2019 9:32 AM
71	Connor Place	8/16/2019 9:30 AM
72	Cavalier blvd	8/16/2019 9:30 AM
73	Wake Forest Rd	8/16/2019 9:26 AM
74	Crawford Parkway	8/16/2019 9:14 AM
75	Owens Street	8/16/2019 8:28 AM

76	County	8/16/2019 8:21 AM
77	Dinwiddie St.	8/16/2019 7:58 AM
78	starboard	8/16/2019 7:38 AM
79	Clifford Street	8/16/2019 7:33 AM
80	Douglas	8/16/2019 7:10 AM
81	Knox St	8/16/2019 5:09 AM
82	Flagship way	8/16/2019 4:53 AM
83	Gillis	8/16/2019 12:15 AM
84	Faigle Road	8/15/2019 11:08 PM
85	Douglas Ave	8/15/2019 9:30 PM
86	Sterling Way	8/15/2019 8:45 PM
87	Raintree lane	8/15/2019 8:29 PM
88	Not your business	8/15/2019 8:19 PM
89	Parish Lane	8/15/2019 8:19 PM
90	Holly Rd	8/15/2019 8:10 PM
91	Shoreline Drive	8/15/2019 7:50 PM
92	Shoreline Dr.	8/15/2019 7:30 PM
93	Aylwin	8/15/2019 7:27 PM
94	Shoreline Drive	8/15/2019 7:25 PM
95	Forresthills Drive	8/15/2019 7:19 PM
96	Shoreline dr	8/15/2019 7:14 PM
97	Point west dr	8/15/2019 6:53 PM
98	Travis Place	8/15/2019 5:38 PM
99	Elmhurst Court	8/15/2019 5:35 PM
100	Winston Rd	8/15/2019 5:08 PM
101	HARTFORD	8/15/2019 4:22 PM
102	Court Street	8/15/2019 4:04 PM
103	West Norfolk road	8/15/2019 3:34 PM
104	Goose bay dr	8/15/2019 2:25 PM
105	Valhalla Drive	8/15/2019 2:24 PM
106	McDaniel	8/15/2019 2:22 PM
107	Avondale Rd	8/15/2019 2:18 PM
108	Regent Dr	8/15/2019 2:16 PM
109	Regent Dr	8/15/2019 2:01 PM
110	Constitution	8/15/2019 1:55 PM
111	Live in VB	8/15/2019 1:52 PM
112	Glasgow st	8/15/2019 1:47 PM
113	Greenefield Dr S	8/15/2019 1:44 PM

114	Broad	8/15/2019 1:21 PM
115	Ann	8/15/2019 1:14 PM
116	High Street	8/15/2019 1:00 PM
117	Southampton arch	8/15/2019 12:46 PM
118	Douglas Ave	8/15/2019 12:37 PM
119	washington	8/15/2019 12:34 PM
120	Downes Street	8/15/2019 11:58 AM
121	River Pointe Drive	8/15/2019 11:06 AM
122	Carney St.	8/15/2019 10:31 AM
123	Eleanor Ct	8/15/2019 10:05 AM
124	Gateway Dr	8/15/2019 9:52 AM
125	Airline Blvd.	8/15/2019 9:46 AM
126	Roanoke	8/15/2019 9:39 AM
127	Harvey Street	8/10/2019 7:01 AM
128	Lake Shores Drive	8/8/2019 6:13 PM
129	Middle	8/8/2019 4:23 PM
130	Portland street	8/8/2019 1:40 PM
131	Glasgow	8/7/2019 3:19 PM
132	Eric Street	8/7/2019 10:04 AM
133	Farragut Street	8/7/2019 7:17 AM
134	River Shore Road	8/6/2019 9:16 PM
135	Crystal Lake Drive	8/6/2019 7:00 PM
136	Leckie St.	8/6/2019 6:24 PM
137	Acres circle	8/6/2019 5:06 PM
138	Springwood Dr	8/6/2019 4:15 PM
139	Sterling Point Drive	8/6/2019 3:41 PM
140	Hartford st	8/6/2019 2:50 PM
141	Duke Dr	8/6/2019 1:58 PM
142	Greenefield Drive South	8/5/2019 8:06 PM
143	Brookmere Lane	8/4/2019 10:05 PM
144	Washington	8/4/2019 8:44 PM
145	Florida Ave	8/3/2019 5:09 PM
146	Greenfield Drive South	8/2/2019 10:10 PM
147	Greenwood Dr	8/2/2019 4:37 PM
148	Hertford	8/2/2019 1:52 PM
149	Robin Road	8/2/2019 12:43 PM
150	Yorkshire Rd	8/2/2019 12:10 PM
151	McDaniel	8/2/2019 5:53 AM

152	Crawford	8/1/2019 6:57 PM
153	Carney Farm Lane	8/1/2019 6:24 PM
154	Ann	8/1/2019 12:57 PM
155	A Street	8/1/2019 11:52 AM
156	leonard ard	8/1/2019 10:28 AM
157	Hardy Place	8/1/2019 9:44 AM
158	High St	8/1/2019 9:24 AM
159	Cedar Lane	8/1/2019 9:20 AM
160	Craford Place	8/1/2019 6:32 AM
161	Riverside Drive	8/1/2019 12:18 AM
162	Gloucester Ave	7/31/2019 7:38 PM
163	Washington St	7/31/2019 7:25 PM
164	North Street	7/31/2019 5:36 PM
165	downtown	7/31/2019 5:17 PM
166	Water st.	7/31/2019 4:59 PM
167	Lilac Drive	7/31/2019 1:04 PM
168	Beacon Road	7/31/2019 12:46 PM
169	Watch Water Close	7/31/2019 12:46 PM
170	I live in the Churchland area.	7/31/2019 12:08 PM
171	Lasalle Ave	7/31/2019 11:16 AM
172	Holly Hill Crescent	7/31/2019 11:12 AM
173	Hardy place	7/31/2019 10:36 AM
174	Talley Circle	7/31/2019 9:47 AM
175	Freedom/Tazewell	7/31/2019 8:26 AM
176	Washington Street	7/31/2019 8:00 AM
177	Dinwiddie Street	7/31/2019 7:02 AM
178	Garland Drive	7/31/2019 7:01 AM
179	Carney Farm Lane	7/30/2019 9:08 PM
180	Edwards	7/30/2019 7:34 PM
181	High	7/30/2019 4:53 PM
182	Cavalier Manor	7/30/2019 4:45 PM
183	Birch Road	7/30/2019 4:21 PM
184	Glasgow	7/30/2019 4:13 PM
185	Lantern Way	7/30/2019 4:05 PM
186	High St	7/30/2019 3:54 PM
187	King street	7/30/2019 3:51 PM
188	Bunche Blvd	7/30/2019 3:33 PM
189	County	7/30/2019 3:31 PM

190	Webster Avenue	7/30/2019 3:22 PM
191	Rivermill Circle	7/30/2019 3:13 PM
192	Loxley Road	7/30/2019 2:47 PM
193	North	7/30/2019 2:29 PM
194	Peace Way	7/30/2019 2:26 PM
195	Irwin	7/30/2019 2:12 PM
196	Constiution	7/30/2019 2:11 PM
197	Lansing	7/30/2019 2:08 PM
198	Middle Street	7/30/2019 1:57 PM
199	Oregon Avenue	7/30/2019 1:55 PM
200	Thornwood Street	7/30/2019 1:54 PM
201	London	7/30/2019 1:54 PM
202	Grayson St.	7/30/2019 1:46 PM
203	Court St.	7/30/2019 1:34 PM
204	LaSalle Ave	7/30/2019 1:30 PM
205	Chatham Rd	7/30/2019 1:24 PM
206	Apache rd	7/30/2019 1:23 PM
207	Saunders	7/30/2019 1:00 PM
208	Riverview Ave	7/30/2019 12:58 PM
209	none	7/30/2019 12:50 PM
210	Crawford St	7/30/2019 12:44 PM
211	Long Point Blvd	7/30/2019 12:44 PM
212	Old Farm Rd	7/30/2019 12:34 PM
213	Sussex Drive	7/30/2019 12:31 PM
214	East Peachtree	7/30/2019 12:27 PM
215	Worthing Square	7/30/2019 12:24 PM
216	N/A	7/30/2019 12:23 PM
217	Cedar Lane	7/30/2019 12:21 PM
218	Westmoreland	7/30/2019 12:18 PM
219	Colonial Lane	7/30/2019 12:15 PM
220	Harbor Court	7/30/2019 12:12 PM
221	Nansemond	7/30/2019 12:10 PM
222	Leavell Road	7/30/2019 12:08 PM
223	Parish Lane	7/30/2019 12:03 PM
224	Hampton Place	7/30/2019 12:03 PM
225	Briawood Lane	7/30/2019 11:59 AM
226	Greenbrook drive	7/30/2019 11:58 AM
227	Dwight Dr	7/30/2019 11:54 AM

228	Mathews	7/30/2019 11:53 AM
229	Finchley Rd	7/25/2019 12:29 PM
230	Briarwood Lane	7/18/2019 10:18 AM
231	ShenandoahSt	7/18/2019 7:48 AM
232	Victory Blvd	7/17/2019 8:06 PM
233	High Street	7/17/2019 7:17 PM
234	Bagley Street	7/17/2019 5:19 PM
235	Tyler crescent W	7/17/2019 4:18 PM
236	Crawford Street	7/17/2019 3:58 PM
237	Cambridge Ave	7/11/2019 5:05 PM
238	North St	7/11/2019 4:22 PM
239	23320	7/5/2019 10:37 AM
240	Hatton Pt Lane	7/5/2019 10:29 AM
241	daniel Way	7/5/2019 10:21 AM
242	29 River Pointe Dr. S.	7/5/2019 10:12 AM
243	North Street	7/5/2019 10:06 AM
244	Western Branch	7/5/2019 10:02 AM
245	Western Branch Blvd	7/5/2019 10:00 AM
246	Work	7/5/2019 9:55 AM
247	Mathews Terrace	7/5/2019 9:49 AM
248	No	7/5/2019 9:45 AM
249	Hatton Point Lane	7/5/2019 9:41 AM
250	Constitution Ave.	7/5/2019 9:37 AM
251	WYOMING AVE	7/5/2019 9:26 AM
252	Water Street	7/5/2019 9:22 AM
253	Kemp Dr	7/2/2019 9:06 AM
254	Crawford Street	6/7/2019 11:47 AM

Q18 What is your zip code?

Answered: 277 Skipped: 50

#	RESPONSES	DATE
1	23513	9/3/2019 9:42 AM
2	23704	9/3/2019 9:32 AM
3	23703	9/3/2019 9:26 AM
4	23321	9/3/2019 9:15 AM
5	23703	9/3/2019 9:12 AM
6	23321	9/2/2019 10:25 AM
7	23704	8/31/2019 4:10 PM
8	23707	8/27/2019 9:01 AM
9	23321	8/26/2019 10:02 PM
10	23704	8/26/2019 9:47 PM
11	23704	8/26/2019 4:19 PM
12	Currently: 23321	8/25/2019 1:26 PM
13	23707	8/24/2019 8:00 PM
14	23703	8/23/2019 3:05 PM
15	23707	8/20/2019 10:15 PM
16	23704	8/20/2019 1:59 PM
17	23704	8/20/2019 10:20 AM
18	23701	8/19/2019 7:39 PM
19	23703	8/19/2019 2:05 PM
20	23704	8/19/2019 1:56 PM
21	23704	8/18/2019 11:26 PM
22	23704	8/18/2019 3:43 PM
23	23704	8/17/2019 11:00 PM
24	23706	8/17/2019 3:42 PM
25	23703	8/17/2019 3:17 PM
26	23703	8/17/2019 2:29 PM
27	23707	8/17/2019 1:28 PM
28	23701	8/17/2019 9:53 AM
29	23703	8/17/2019 8:56 AM
30	23704	8/17/2019 8:23 AM
31	23703	8/17/2019 7:55 AM
32	23701	8/17/2019 5:10 AM
33	23464	8/16/2019 11:09 PM
34	23707	8/16/2019 11:01 PM
35	23704	8/16/2019 10:44 PM
36	23704	8/16/2019 10:39 PM
37	23704	8/16/2019 10:20 PM

38	23507	8/16/2019 10:00 PM
39	23704	8/16/2019 9:24 PM
40	23703	8/16/2019 9:01 PM
41	23701	8/16/2019 9:00 PM
42	23703	8/16/2019 8:23 PM
43	23707	8/16/2019 8:06 PM
44	23701	8/16/2019 8:00 PM
45	23707	8/16/2019 7:56 PM
46	23704	8/16/2019 6:53 PM
47	23703	8/16/2019 6:38 PM
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52	23703	8/16/2019 5:09 PM
53	23704	8/16/2019 4:56 PM
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58	23701	8/16/2019 2:19 PM
59	23707	8/16/2019 1:30 PM
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61	23701	8/16/2019 12:30 PM
62	23704	8/16/2019 11:45 AM
63	23703	8/16/2019 11:43 AM
64	23704	8/16/2019 11:30 AM
65	23704	8/16/2019 11:18 AM
66	23704	8/16/2019 11:06 AM
67	23703	8/16/2019 10:52 AM
68	23704	8/16/2019 10:46 AM
69	23701	8/16/2019 10:14 AM
70	23703	8/16/2019 10:08 AM
71	23703	8/16/2019 10:03 AM
72	23704	8/16/2019 10:02 AM
73	23703	8/16/2019 9:48 AM
74	23707	8/16/2019 9:47 AM
75	23703	8/16/2019 9:45 AM

76	23704	8/16/2019 9:44 AM
77	23701	8/16/2019 9:44 AM
78	23701	8/16/2019 9:38 AM
79	23701	8/16/2019 9:32 AM
80	23702	8/16/2019 9:30 AM
81	23701	8/16/2019 9:30 AM
82	23703	8/16/2019 9:26 AM
83	23704	8/16/2019 9:14 AM
84	23704	8/16/2019 8:28 AM
85	23704	8/16/2019 8:21 AM
86	23704	8/16/2019 7:58 AM
87	23702	8/16/2019 7:38 AM
88	23707	8/16/2019 7:33 AM
89	23707	8/16/2019 7:10 AM
90	23704	8/16/2019 5:09 AM
91	23703-5314	8/16/2019 4:53 AM
92	23702	8/16/2019 12:15 AM
93	23703	8/15/2019 11:08 PM
94	23707	8/15/2019 9:30 PM
95	23703	8/15/2019 8:45 PM
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97	23707	8/15/2019 8:19 PM
98	23703	8/15/2019 8:19 PM
99	23703	8/15/2019 8:10 PM
100	23703	8/15/2019 7:50 PM
101	23703	8/15/2019 7:30 PM
102	23435	8/15/2019 7:27 PM
103	23703	8/15/2019 7:25 PM
104	23703	8/15/2019 7:19 PM
105	23703	8/15/2019 7:14 PM
106	23703	8/15/2019 6:53 PM
107	23702	8/15/2019 5:38 PM
108	23701	8/15/2019 5:35 PM
109	23703	8/15/2019 5:08 PM
110	23707	8/15/2019 4:22 PM
111	23704	8/15/2019 4:04 PM
112	23703	8/15/2019 3:34 PM
113	23703	8/15/2019 2:25 PM

114	23707	8/15/2019 2:24 PM
115	23704	8/15/2019 2:22 PM
116	23701	8/15/2019 2:18 PM
117	23703	8/15/2019 2:16 PM
118	23703	8/15/2019 2:01 PM
119	23704	8/15/2019 1:55 PM
120	23455	8/15/2019 1:52 PM
121	23704	8/15/2019 1:47 PM
122	23703	8/15/2019 1:44 PM
123	23707	8/15/2019 1:21 PM
124	23704	8/15/2019 1:14 PM
125	23704	8/15/2019 1:00 PM
126	23703	8/15/2019 12:46 PM
127	23707	8/15/2019 12:37 PM
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134	23701	8/15/2019 10:05 AM
135	23703	8/15/2019 9:52 AM
136	23321	8/15/2019 9:46 AM
137	23704	8/15/2019 9:39 AM
138	23321	8/15/2019 9:30 AM
139	23703	8/10/2019 7:01 AM
140	23707	8/8/2019 6:13 PM
141	23704	8/8/2019 4:23 PM
142	23707	8/8/2019 1:40 PM
143	23704	8/7/2019 3:19 PM
144	23701	8/7/2019 1:30 PM
145	23703	8/7/2019 10:04 AM
146	23702	8/7/2019 7:17 AM
147	23703	8/6/2019 9:16 PM
148	23701	8/6/2019 7:00 PM
149	23704	8/6/2019 6:24 PM
150	23703	8/6/2019 5:06 PM
151	23703	8/6/2019 4:15 PM

152	23703	8/6/2019 3:41 PM
153	23707	8/6/2019 2:50 PM
154	23703	8/6/2019 1:58 PM
155	23703	8/5/2019 8:06 PM
156	23703	8/4/2019 10:05 PM
157	23704	8/4/2019 8:44 PM
158	23707	8/3/2019 5:09 PM
159	23703	8/2/2019 10:10 PM
160	23702	8/2/2019 4:37 PM
161	23707	8/2/2019 1:52 PM
162	23707	8/2/2019 1:27 PM
163	23710	8/2/2019 12:43 PM
164	23701	8/2/2019 12:10 PM
165	23704	8/2/2019 5:53 AM
166	23704	8/1/2019 6:57 PM
167	23703-4219	8/1/2019 6:24 PM
168	23701	8/1/2019 5:13 PM
169	23704	8/1/2019 12:57 PM
170	23704	8/1/2019 11:52 AM
171	23701	8/1/2019 10:28 AM
172	23707	8/1/2019 9:44 AM
173	23704	8/1/2019 9:24 AM
174	23703	8/1/2019 9:20 AM
175	23707	8/1/2019 8:12 AM
176	23704	8/1/2019 6:32 AM
177	23707	8/1/2019 12:18 AM
178	23702	7/31/2019 7:38 PM
179	23704	7/31/2019 7:25 PM
180	23704	7/31/2019 5:36 PM
181	23704	7/31/2019 5:17 PM
182	23704	7/31/2019 4:59 PM
183	23703	7/31/2019 1:04 PM
184	23702	7/31/2019 12:46 PM
185	23703	7/31/2019 12:46 PM
186	23703	7/31/2019 12:08 PM
187	23704	7/31/2019 11:16 AM
188	23702	7/31/2019 11:12 AM
189	23707	7/31/2019 10:36 AM

190	23704	7/31/2019 9:47 AM
191	23701	7/31/2019 8:26 AM
192	23704	7/31/2019 8:00 AM
193	23704	7/31/2019 7:02 AM
194	23703	7/31/2019 7:01 AM
195	23703	7/30/2019 9:08 PM
196	23704	7/30/2019 7:34 PM
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198	23701	7/30/2019 4:45 PM
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200	23704	7/30/2019 4:13 PM
201	23703	7/30/2019 4:05 PM
202	23704	7/30/2019 3:54 PM
203	23707	7/30/2019 3:51 PM
204	23701	7/30/2019 3:33 PM
205	23704	7/30/2019 3:31 PM
206	23704	7/30/2019 3:22 PM
207	23703	7/30/2019 3:13 PM
208	23661	7/30/2019 3:05 PM
209	23702	7/30/2019 2:47 PM
210	23704	7/30/2019 2:29 PM
211	23703	7/30/2019 2:26 PM
212	23702	7/30/2019 2:12 PM
213	23704	7/30/2019 2:11 PM
214	23704	7/30/2019 2:08 PM
215	23704	7/30/2019 1:57 PM
216	23701	7/30/2019 1:55 PM
217	23703	7/30/2019 1:54 PM
218	23707	7/30/2019 1:46 PM
219	23701	7/30/2019 1:39 PM
220	23704	7/30/2019 1:34 PM
221	23704	7/30/2019 1:30 PM
222	23702	7/30/2019 1:24 PM
223	23701	7/30/2019 1:23 PM
224	23707	7/30/2019 1:21 PM
225	23701	7/30/2019 1:00 PM
226	23704	7/30/2019 12:58 PM
227	23704	7/30/2019 12:53 PM

228	23702	7/30/2019 12:50 PM
229	23434	7/30/2019 12:50 PM
230	23704	7/30/2019 12:44 PM
231	23703	7/30/2019 12:44 PM
232	23703	7/30/2019 12:34 PM
233	23707	7/30/2019 12:31 PM
234	23703	7/30/2019 12:27 PM
235	23704	7/30/2019 12:25 PM
236	23704	7/30/2019 12:24 PM
237	23505	7/30/2019 12:23 PM
238	23703	7/30/2019 12:21 PM
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241	23703	7/30/2019 12:15 PM
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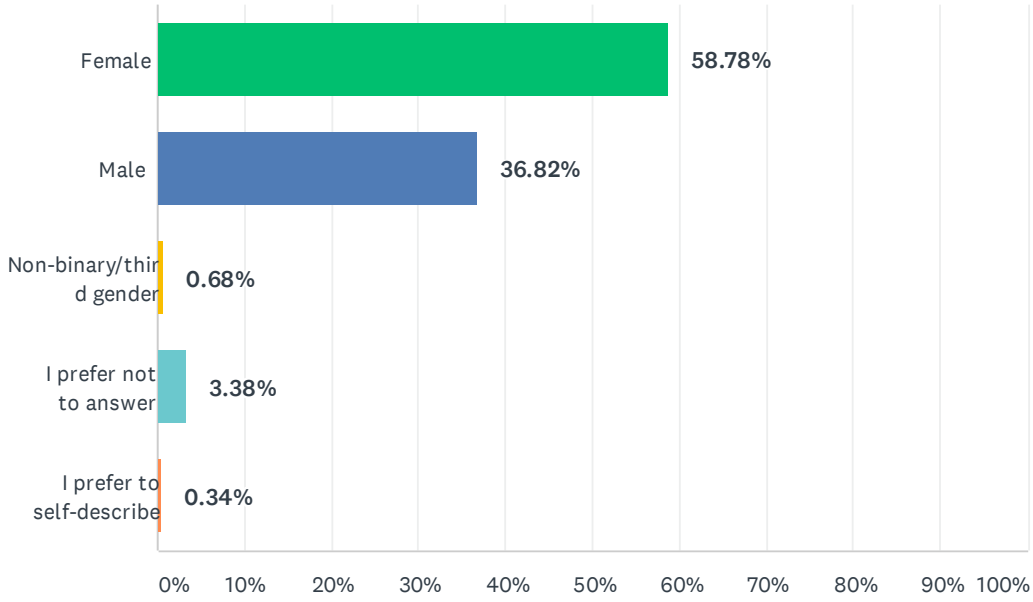
245	23703	7/30/2019 12:03 PM
246	23704	7/30/2019 12:03 PM
247	23703	7/30/2019 11:59 AM
248	23703	7/30/2019 11:58 AM
249	23701	7/30/2019 11:54 AM
250	23704	7/30/2019 11:53 AM
251	23702	7/25/2019 12:29 PM
252	23703	7/18/2019 10:18 AM
253	23707	7/18/2019 7:48 AM
254	23702	7/17/2019 8:06 PM
255	23707	7/17/2019 7:17 PM
256	23704	7/17/2019 5:19 PM
257	23707	7/17/2019 4:18 PM
258	23704	7/17/2019 3:58 PM
259	23707	7/11/2019 5:05 PM
260	23704	7/11/2019 4:22 PM
261	23703	7/5/2019 10:29 AM
262	23701	7/5/2019 10:21 AM
263	23704	7/5/2019 10:16 AM
264	23703	7/5/2019 10:12 AM
265	23704	7/5/2019 10:06 AM

266	23707	7/5/2019 10:02 AM
267	23707	7/5/2019 10:00 AM
268	23704	7/5/2019 9:55 AM
269	23704	7/5/2019 9:49 AM
270	23322	7/5/2019 9:45 AM
271	23703	7/5/2019 9:41 AM
272	23704	7/5/2019 9:37 AM
273	23701	7/5/2019 9:26 AM
274	23704	7/5/2019 9:22 AM
275	23703	7/2/2019 9:06 AM
276	23704	6/26/2019 9:19 AM
277	23704	6/7/2019 11:47 AM

Q19 What is your gender?

Answered: 296 Skipped: 31



ANSWER CHOICES	RESPONSES	
Female	58.78%	174
Male	36.82%	109
Non-binary/third gender	0.68%	2
I prefer not to answer	3.38%	10
I prefer to self-describe	0.34%	1
TOTAL		296

#	I PREFER TO SELF-DESCRIBE	DATE
1	Ui	7/30/2019 3:33 PM

Q20 What is your age?

Answered: 279 Skipped: 48

#	RESPONSES	DATE
1	59	9/3/2019 9:43 AM
2	42	9/3/2019 9:42 AM
3	60	9/3/2019 9:32 AM
4	39	9/3/2019 9:26 AM
5	77	9/3/2019 9:15 AM
6	49	9/3/2019 9:12 AM
7	34	9/2/2019 10:25 AM
8	47	8/31/2019 4:10 PM
9	50	8/27/2019 9:01 AM
10	37	8/26/2019 10:02 PM
11	55	8/26/2019 4:19 PM
12	37	8/25/2019 1:26 PM
13	65	8/24/2019 8:00 PM
14	35	8/23/2019 3:05 PM
15	59	8/20/2019 10:15 PM
16	37	8/20/2019 1:59 PM
17	54	8/19/2019 7:39 PM
18	70	8/19/2019 2:05 PM
19	38	8/19/2019 1:56 PM
20	68	8/18/2019 11:26 PM
21	40	8/18/2019 3:43 PM
22	25	8/17/2019 11:00 PM
23	52	8/17/2019 3:42 PM
24	71	8/17/2019 3:17 PM
25	39	8/17/2019 2:29 PM
26	49	8/17/2019 1:28 PM
27	65	8/17/2019 8:56 AM
28	28	8/17/2019 8:23 AM
29	57	8/17/2019 7:55 AM
30	54	8/17/2019 5:10 AM
31	37	8/16/2019 11:09 PM
32	65	8/16/2019 11:01 PM
33	37	8/16/2019 10:39 PM
34	41	8/16/2019 10:20 PM
35	49	8/16/2019 10:00 PM
36	44	8/16/2019 9:24 PM
37	63	8/16/2019 9:01 PM

38	35	8/16/2019 9:00 PM
39	54	8/16/2019 8:23 PM
40	62	8/16/2019 8:06 PM
41	39	8/16/2019 8:00 PM
42	49	8/16/2019 7:56 PM
43	48	8/16/2019 6:53 PM
44	45	8/16/2019 6:38 PM
45	60	8/16/2019 6:19 PM
46	Over 70	8/16/2019 5:18 PM
47	65	8/16/2019 5:09 PM
48	51	8/16/2019 5:09 PM
49	73	8/16/2019 4:56 PM
50	70	8/16/2019 4:43 PM
51	63	8/16/2019 4:15 PM
52	52	8/16/2019 4:13 PM
53	50	8/16/2019 3:23 PM
54	55	8/16/2019 2:19 PM
55	51	8/16/2019 1:30 PM
56	65+	8/16/2019 1:02 PM
57	66	8/16/2019 12:30 PM
58	40	8/16/2019 11:45 AM
59	44	8/16/2019 11:30 AM
60	56	8/16/2019 11:18 AM
61	33	8/16/2019 11:06 AM
62	51	8/16/2019 10:52 AM
63	60	8/16/2019 10:46 AM
64	64	8/16/2019 10:08 AM
65	44	8/16/2019 10:03 AM
66	27	8/16/2019 10:02 AM
67	50's	8/16/2019 9:48 AM
68	35	8/16/2019 9:47 AM
69	65	8/16/2019 9:45 AM
70	68	8/16/2019 9:44 AM
71	38	8/16/2019 9:44 AM
72	58	8/16/2019 9:38 AM
73	74	8/16/2019 9:32 AM
74	61	8/16/2019 9:30 AM
75	35	8/16/2019 9:30 AM

76	80	8/16/2019 9:26 AM
77	74	8/16/2019 9:14 AM
78	64	8/16/2019 8:28 AM
79	35	8/16/2019 8:21 AM
80	62	8/16/2019 7:58 AM
81	54	8/16/2019 7:38 AM
82	63	8/16/2019 7:33 AM
83	59	8/16/2019 7:10 AM
84	52	8/16/2019 5:09 AM
85	60	8/16/2019 4:53 AM
86	48	8/16/2019 12:15 AM
87	44	8/15/2019 11:08 PM
88	52	8/15/2019 9:30 PM
89	65	8/15/2019 8:45 PM
90	60+	8/15/2019 8:29 PM
91	Not needed for a survey	8/15/2019 8:19 PM
92	56	8/15/2019 8:19 PM
93	36	8/15/2019 8:10 PM
94	50	8/15/2019 7:50 PM
95	12	8/15/2019 7:30 PM
96	25	8/15/2019 7:27 PM
97	20	8/15/2019 7:25 PM
98	73	8/15/2019 7:19 PM
99	52	8/15/2019 7:14 PM
100	57	8/15/2019 6:53 PM
101	51	8/15/2019 5:38 PM
102	63	8/15/2019 5:35 PM
103	58	8/15/2019 5:08 PM
104	44	8/15/2019 4:22 PM
105	60	8/15/2019 4:04 PM
106	54	8/15/2019 3:34 PM
107	50+	8/15/2019 3:32 PM
108	37	8/15/2019 2:25 PM
109	49	8/15/2019 2:24 PM
110	50	8/15/2019 2:22 PM
111	54	8/15/2019 2:18 PM
112	60	8/15/2019 2:16 PM
113	61	8/15/2019 2:01 PM

114	50	8/15/2019 1:55 PM
115	71	8/15/2019 1:52 PM
116	31	8/15/2019 1:47 PM
117	56	8/15/2019 1:44 PM
118	58	8/15/2019 1:21 PM
119	57	8/15/2019 1:14 PM
120	56	8/15/2019 1:00 PM
121	29	8/15/2019 12:46 PM
122	76	8/15/2019 12:37 PM
123	61	8/15/2019 12:34 PM
124	42	8/15/2019 12:27 PM
125	58	8/15/2019 11:58 AM
126	50	8/15/2019 11:06 AM
127	42	8/15/2019 10:52 AM
128	47	8/15/2019 10:31 AM
129	51	8/15/2019 10:10 AM
130	62	8/15/2019 10:05 AM
131	26	8/15/2019 9:52 AM
132	31	8/15/2019 9:46 AM
133	28	8/15/2019 9:39 AM
134	44	8/15/2019 9:30 AM
135	47	8/15/2019 9:26 AM
136	30	8/10/2019 7:01 AM
137	59	8/8/2019 6:13 PM
138	75	8/8/2019 4:23 PM
139	33	8/8/2019 1:40 PM
140	64	8/7/2019 3:19 PM
141	65	8/7/2019 1:30 PM
142	55	8/7/2019 10:04 AM
143	67	8/7/2019 7:17 AM
144	67	8/6/2019 9:16 PM
145	63	8/6/2019 7:00 PM
146	33	8/6/2019 6:24 PM
147	40	8/6/2019 5:06 PM
148	67	8/6/2019 4:15 PM
149	70	8/6/2019 3:41 PM
150	30	8/6/2019 2:50 PM
151	59	8/6/2019 1:58 PM

152	37	8/5/2019 8:06 PM
153	58	8/4/2019 10:05 PM
154	33	8/4/2019 8:44 PM
155	63	8/4/2019 4:58 PM
156	41	8/3/2019 5:09 PM
157	35	8/2/2019 10:10 PM
158	45	8/2/2019 1:52 PM
159	34	8/2/2019 1:27 PM
160	48	8/2/2019 12:43 PM
161	66	8/2/2019 12:10 PM
162	60	8/2/2019 5:53 AM
163	38	8/1/2019 6:57 PM
164	62	8/1/2019 6:24 PM
165	60	8/1/2019 5:13 PM
166	51	8/1/2019 12:57 PM
167	66	8/1/2019 11:52 AM
168	34	8/1/2019 9:44 AM
169	60	8/1/2019 9:24 AM
170	25	8/1/2019 9:20 AM
171	50+	8/1/2019 8:12 AM
172	45	8/1/2019 6:32 AM
173	55	8/1/2019 12:18 AM
174	64	7/31/2019 7:38 PM
175	34	7/31/2019 7:25 PM
176	65	7/31/2019 5:36 PM
177	50	7/31/2019 5:17 PM
178	82	7/31/2019 4:59 PM
179	69	7/31/2019 3:39 PM
180	50	7/31/2019 2:10 PM
181	48	7/31/2019 1:04 PM
182	30	7/31/2019 12:53 PM
183	26	7/31/2019 12:46 PM
184	63	7/31/2019 12:46 PM
185	40's	7/31/2019 12:08 PM
186	?	7/31/2019 11:16 AM
187	73	7/31/2019 11:12 AM
188	30	7/31/2019 10:36 AM
189	74	7/31/2019 9:47 AM

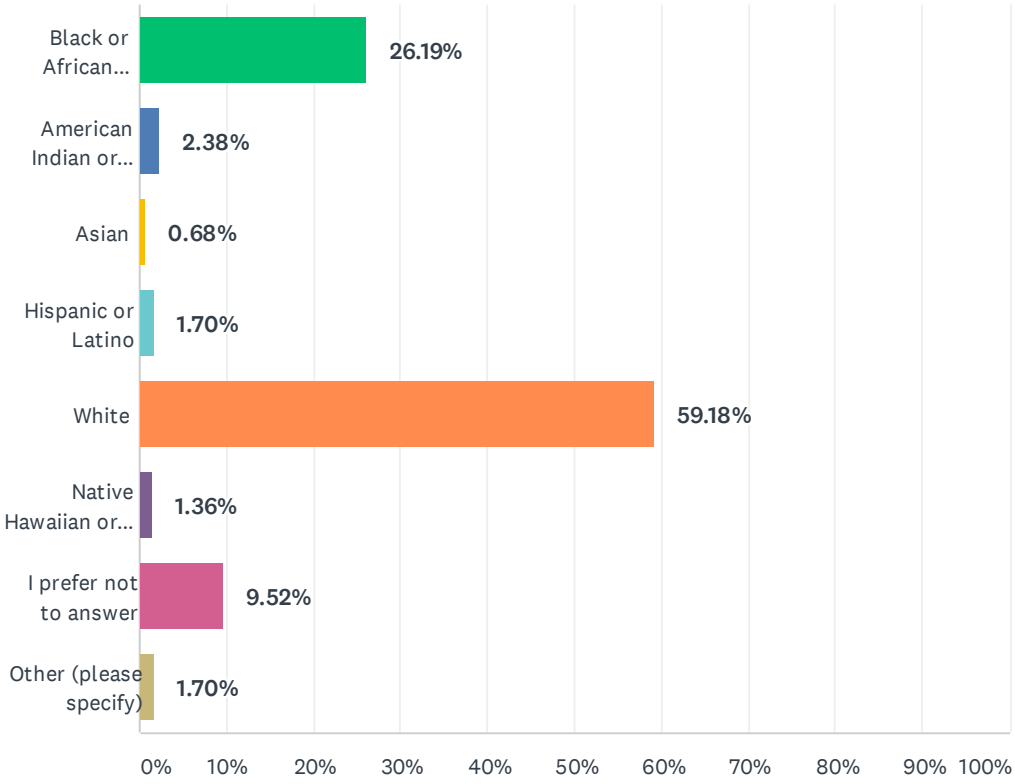
190	62	7/31/2019 8:26 AM
191	30	7/31/2019 8:00 AM
192	64	7/31/2019 7:02 AM
193	65	7/31/2019 7:01 AM
194	71	7/30/2019 9:08 PM
195	36	7/30/2019 7:34 PM
196	31	7/30/2019 4:53 PM
197	62	7/30/2019 4:21 PM
198	58	7/30/2019 4:16 PM
199	64	7/30/2019 4:05 PM
200	49	7/30/2019 3:54 PM
201	55	7/30/2019 3:51 PM
202	63	7/30/2019 3:33 PM
203	41	7/30/2019 3:31 PM
204	49	7/30/2019 3:22 PM
205	28	7/30/2019 3:19 PM
206	38	7/30/2019 3:13 PM
207	60	7/30/2019 3:05 PM
208	66	7/30/2019 2:47 PM
209	38	7/30/2019 2:29 PM
210	59	7/30/2019 2:26 PM
211	54	7/30/2019 2:12 PM
212	35	7/30/2019 2:11 PM
213	52	7/30/2019 2:08 PM
214	38	7/30/2019 1:57 PM
215	72	7/30/2019 1:55 PM
216	66	7/30/2019 1:54 PM
217	69	7/30/2019 1:54 PM
218	49	7/30/2019 1:46 PM
219	45	7/30/2019 1:39 PM
220	58	7/30/2019 1:34 PM
221	88	7/30/2019 1:30 PM
222	56	7/30/2019 1:24 PM
223	37	7/30/2019 1:23 PM
224	73	7/30/2019 1:21 PM
225	63	7/30/2019 1:00 PM
226	55	7/30/2019 12:58 PM
227	37	7/30/2019 12:53 PM

228	57	7/30/2019 12:50 PM
229	67	7/30/2019 12:47 PM
230	22	7/30/2019 12:44 PM
231	50+	7/30/2019 12:44 PM
232	25	7/30/2019 12:34 PM
233	59	7/30/2019 12:31 PM
234	32	7/30/2019 12:25 PM
235	73	7/30/2019 12:24 PM
236	61	7/30/2019 12:23 PM
237	60+	7/30/2019 12:21 PM
238	59	7/30/2019 12:18 PM
239	70	7/30/2019 12:15 PM
240	47	7/30/2019 12:15 PM
241	51	7/30/2019 12:12 PM
242	49	7/30/2019 12:12 PM
243	27	7/30/2019 12:10 PM
244	70	7/30/2019 12:10 PM
245	60	7/30/2019 12:08 PM
246	52	7/30/2019 12:03 PM
247	73	7/30/2019 12:03 PM
248	67	7/30/2019 11:59 AM
249	61yrs	7/30/2019 11:58 AM
250	50	7/30/2019 11:54 AM
251	33	7/30/2019 11:53 AM
252	55	7/18/2019 3:03 PM
253	71	7/18/2019 10:18 AM
254	66	7/18/2019 7:48 AM
255	20	7/17/2019 8:06 PM
256	62	7/17/2019 7:17 PM
257	52	7/17/2019 5:19 PM
258	33	7/17/2019 4:18 PM
259	38	7/17/2019 3:58 PM
260	36	7/12/2019 4:32 PM
261	45	7/11/2019 5:05 PM
262	26	7/11/2019 4:22 PM
263	46	7/5/2019 2:58 PM
264	22	7/5/2019 10:37 AM
265	21	7/5/2019 10:37 AM

266	55	7/5/2019 10:32 AM
267	over 60	7/5/2019 10:29 AM
268	33	7/5/2019 10:21 AM
269	21	7/5/2019 10:12 AM
270	62	7/5/2019 10:06 AM
271	70	7/5/2019 10:02 AM
272	65	7/5/2019 10:00 AM
273	64	7/5/2019 9:55 AM
274	65	7/5/2019 9:41 AM
275	60	7/5/2019 9:26 AM
276	56	7/5/2019 9:22 AM
277	45	7/2/2019 9:06 AM
278	24	6/26/2019 9:19 AM
279	38	6/7/2019 11:47 AM

Q21 What is your race? Select any that apply.

Answered: 294 Skipped: 33

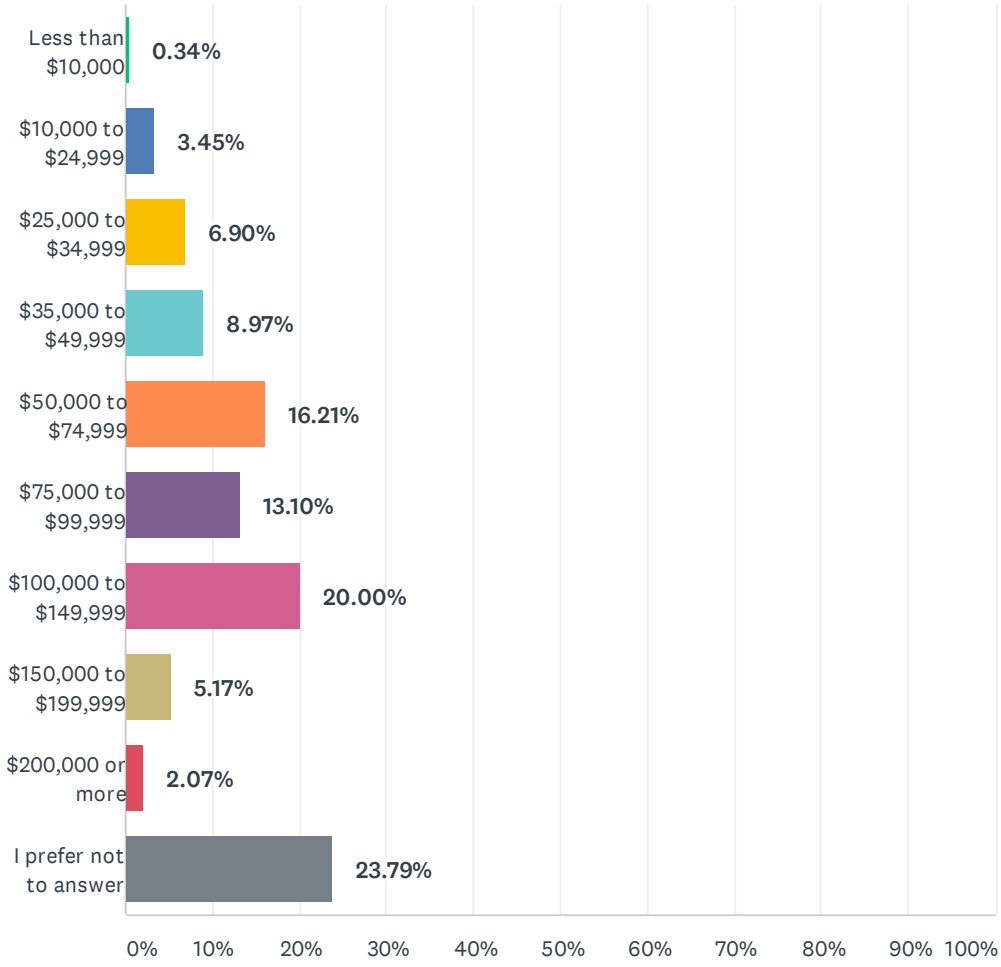


ANSWER CHOICES	RESPONSES	
Black or African American	26.19%	77
American Indian or Alaskan Native	2.38%	7
Asian	0.68%	2
Hispanic or Latino	1.70%	5
White	59.18%	174
Native Hawaiian or Other Pacific Islander	1.36%	4
I prefer not to answer	9.52%	28
Other (please specify)	1.70%	5
Total Respondents: 294		

#	OTHER (PLEASE SPECIFY)	DATE
1	Carib Indian	8/23/2019 3:05 PM
2	MIXED	8/15/2019 4:22 PM
3	European American	8/15/2019 1:55 PM
4	Why does this matter?	8/1/2019 5:13 PM
5	Everything under the sun, but Asian	7/12/2019 4:32 PM

Q22 What is your annual household income?

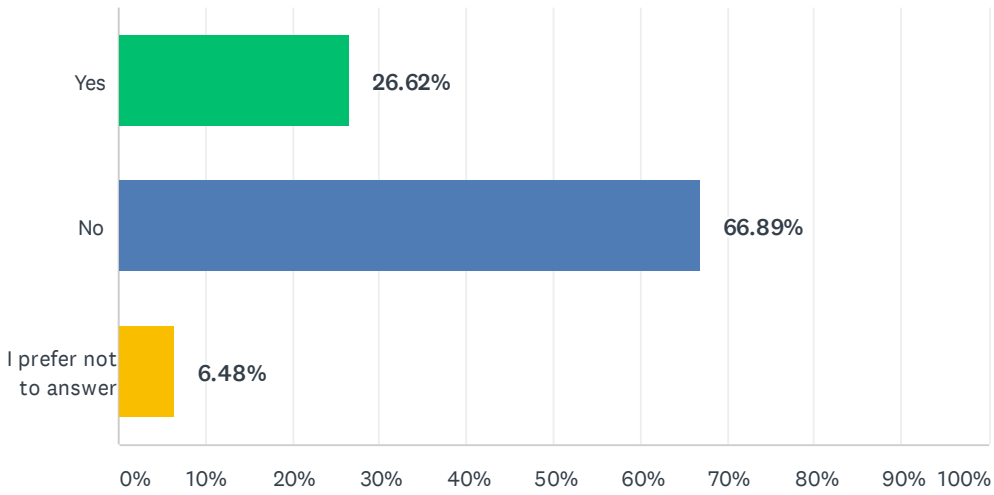
Answered: 290 Skipped: 37



ANSWER CHOICES	RESPONSES	
Less than $10,000	0.34%	1
$10,000 to $24,999	3.45%	10
$25,000 to $34,999	6.90%	20
$35,000 to $49,999	8.97%	26
$50,000 to $74,999	16.21%	47
$75,000 to $99,999	13.10%	38
$100,000 to $149,999	20.00%	58
$150,000 to $199,999	5.17%	15
$200,000 or more	2.07%	6
I prefer not to answer	23.79%	69
TOTAL		290

Q23 Do you have children in your household?

Answered: 293 Skipped: 34



ANSWER CHOICES	RESPONSES	
Yes	26.62%	78
No	66.89%	196
I prefer not to answer	6.48%	19
TOTAL		293

Q24 Do you have any other comments, questions,or concerns?

Answered: 97 Skipped: 230

#	RESPONSES	DATE
1	Better lights and safe bike lanes and law abiding citizens would be most helpful	9/3/2019 9:32 AM
2	Walkability is a major draw for potential homeowners especially young people. If we had sidewalks along High Street, we would walk/bike more. Also, downtown needs some work. We were walking along the water (Swimming Point) and there was trash in the sandy area. Also more should be done to encourage businesses and shops in Olde Towne near the Kitchen Koop and Gosport Tavern. Try to bring Manino's back! Give tax breaks to boutiques, antique shops, restaurants, etc, or subsidies to fix up buildings. We love Red Lion Square Park.	9/3/2019 9:26 AM
3	The only place I fear to ride my bike is the intersection of Court st and I-264 and Effingham and I-264.	8/31/2019 4:10 PM
4	Yes, the poor condition of some of the sidewalks	8/26/2019 4:19 PM
5	I frequently run and bike from western branch area of Chesapeake to downtown Portsmouth. Sometimes early in the morning. I use the ferry to commute to Norfolk. A dedicated bike lane and/or running path would be excellent.	8/25/2019 1:26 PM
6	do not feel safe walking many places in Portsmouth	8/24/2019 8:00 PM
7	Thanks for taking the time to consider expanding walking and cycling paths.	8/23/2019 3:05 PM
8	Some of the survey questions could be improved. Not all answers are yes/no, some are maybe. I do not ride all over town, but would extend my range and destinations if curb lanes were wider. I DO NOT RIDE THE SIDEWALKS. those are for pedestrians and the transition form sidewalk to roadway is fraught, even perilous. Example: riding from West Park View to Lowe's; no shoulders or wide curb lanes. Bike paths are marginal value to transport cyclists: those paths usually do not go where we go or take a longer time/distance. And, Multi use are dangerous because of the 5:1 difference between walking and cycling speeds.	8/20/2019 10:20 AM
9	The less Portsmouth offers, the more residents Portsmouth loses and the harder it is to appeal to new residents. We have higher taxes than a lot of cities yet offer little to justify those higher taxes	8/19/2019 7:39 PM
10	Walking (hiking) and Cycling need to be offered in school physical education programs along with a wide variety of dance/martial arts/diversity exercise i.e. hip hop, jazz, modern, ballet, square dance, ballroom/social, t'ai chi, rock climbing, yoga, and meditation. These skills can transfer to life-long fitness activities that people continue to do. That's the real objective of physical education. We need to do a better job of inclusiveness so as to motivate students who don't like sports. Those that do, will be active and receive the health benefits there of. We need to integrate physical education with academics exposing students to different cultures through such activities as yoga, of India, t'ai chi, of China, and many dance forms inspired by world wide cultures. Walking can be accomplished daily by most students for little to no cost. Therefore, it's an ideal activity. Schools need to promote it. Using the stairs instead of elevators should be promoted in appropriate buildings throughout Portsmouth. Lastly, handicapped individuals should be encouraged and enabled to participate in walking equivalents to the extent that they are able to do so. Hence, if a student can wheel themselves in a wheel chair they should be encouraged. For students who cannot move themselves, they should be pushed by someone who would like to be helpful and of course included in the walking activities using their wheel chair. Walking is a very inclusive activity.	8/18/2019 11:26 PM
11	I'd love to have a grocery store downtown (then I wouldn't have to have a car at all and could bike everywhere I need to go!)	8/17/2019 11:00 PM
12	Would love for two teenagers to ride more and I feel safe about it	8/17/2019 3:42 PM
13	Portsmouth is the heart of tidewater...I would love to see it improve. I love it!	8/16/2019 11:09 PM
14	We do not need bicycles in the roads. It's already to dangerous	8/16/2019 10:20 PM
15	Address the crime. Noone will walk in certain areas even if you build a path made of gold.	8/16/2019 9:00 PM
16	Biking and walking trails are the #1 thing missing in Portsmouth.	8/16/2019 8:00 PM
17	Na	8/16/2019 7:56 PM
18	Not sure if this is the top priority for the city. Especially with the deteriorating Stormwater drains. I have had a sinkhole in the street next to my driveway for over 8 years and it never gets	8/16/2019 6:38 PM

	repaired just filled.	
19	Still very physically active	8/16/2019 5:09 PM
20	Would like to see continuous sidewalks and bike paths, not the broken up things that we have now	8/16/2019 4:15 PM
21	Please spend money on other parts of the city, besides downtown! Also, crime is at an all time high. We NEED more officers on the street! Otherwise, no one will want to go anywhere! Do we really need flowers on every corner of High Street? Also, please trim trees on Crawford Street, as trucks hit them when driving by my office. Did we really need to pay extra to have stamped pavement on Middle Street? Can we do something about the panhandlers at all the corners with their cardboard signs, as well as the ones that hang out in front of Dollar General? If people don't feel safe, they won't want to walk or bike anywhere.	8/16/2019 3:23 PM
22	At this present time I don't go walking or biking in my neighborhood because I don't feel safe doing so. If there were safer and more spacious walk and bicycle thorough-ways I would consider getting out and doing those things I enjoy. However, I don't know what those desired improvements to the community would look like so I can't offer any input.	8/16/2019 2:19 PM
23	Would love to see the old train tracks converted to a multi use trail like the Seaboard Coastline Trail in Suffolk.	8/16/2019 10:03 AM
24	The corridors where the rail line used to be in Churchland is an obvious possibility for a greenway bike path. It would give many a safe, comfortable means to access many places from West norfolk to Churchland and Western Branch. Another would be at the end of Clifford Street. As long as the maximum speed limit is 25mph, that would be the only street I think a shared type of bike path should be on.	8/16/2019 9:48 AM
25	Please have someone review these surveys ... At least add a N/A selection to the questions...	8/16/2019 9:44 AM
26	We need pedestrian and bike safety taught in schools. We also need enforcement of laws concerning bikers and pedestrians. A lot of ignored crosswalk controls seen daily.	8/16/2019 9:32 AM
27	Being able to walk and bike to my destinations is one of my favorite things about living downtown. The bike lanes on Crawford are a great start.	8/16/2019 7:58 AM
28	Would love to have sidewalks for walking and designated bike lanes for riding my bike. At this time, it is very dangerous riding my bike or walking as I have to do it IN the street and drivers, sometimes, are not paying attention or just do not care about pedestrians or bike riders.	8/16/2019 7:33 AM
29	There should also be bike racks where you can secure your bike at stores, libraries, parks, places of worship, etc.	8/16/2019 5:09 AM
30	We would love to have at least a slightly bigger area to ride our bikes over the churchland bridge. It only needs about 8 to 12 inches. I also would like for the old train tracks to be turned into a trail and ways to get there from the neighborhoods.	8/15/2019 7:50 PM
31	We don't have many paved trails around where I live and I'd like more.	8/15/2019 7:30 PM
32	We need safe bike routes , high street is very dangerous	8/15/2019 7:14 PM
33	No	8/15/2019 5:35 PM
34	No	8/15/2019 5:08 PM
35	SAFER LANES, SIDEWALKS, BETTER DRAINAGE ON ROADS AND NEAR SIDEWALKS. ADD DRAINAGE OR IMPROVE IT. PROTECTED BARRIERS AND CROSSINGS	8/15/2019 4:22 PM
36	Glad to hear this is a priority.	8/15/2019 4:04 PM
37	Better cleaner roads	8/15/2019 3:34 PM
38	Please create more biking paths in Portsmouth.	8/15/2019 2:24 PM
39	Reduce the speed limit on Hatton Point Road! And, add sidewalks.	8/15/2019 2:16 PM
40	Portsmouth pavement is terrible. Trash in sidelanes full of glass	8/15/2019 1:52 PM
41	Back roads in neighborhoods (olde Towne) need to be more well lit at night for safety	8/15/2019 1:47 PM
42	None	8/15/2019 1:44 PM

43	Good luck!	8/15/2019 12:37 PM
44	Please enforce the current bicycle laws. People still ride bikes on sidewalks, going against traffic and darting in and out of traffic while ignoring the bike path.	8/15/2019 12:34 PM
45	I enjoy living in Portsmouth, however the trees overlap	8/15/2019 11:58 AM
46	I skateboard a lot and would love to be able to at least ride my board to the store. I would definitely bike all over Portsmouth if it were more feasible. Thank you for doing this study and taking this initiative!	8/15/2019 9:46 AM
47	The crime problem is the main safety concern for walking. The bootleg houses bring a lot of unsafe behaviors in the area.	8/15/2019 9:39 AM
48	No	8/8/2019 6:13 PM
49	Good idea to develop a walking/biking plan.	8/8/2019 4:23 PM
50	I see bike and walk lane a progressive move for my City. Portsmouth is RICH things to do. But I think quiet often they don't get utilized because folks just don't know about them.	8/7/2019 7:17 AM
51	I would love to see a bike path and more sidewalks.	8/6/2019 9:16 PM
52	Increased bike lanes. Media blitz in needed to inform all citizens of this change.....also citations should be issued to those who violate the law.	8/6/2019 7:00 PM
53	Existing sidewalk network is decent. An education campaign will increase pedestrian use. No more sharrows. They do nothing to provide a safe place to bicycle.	8/6/2019 6:24 PM
54	Bikinf and walking paths promote great living!	8/6/2019 1:58 PM
55	My business is in Portsmouth	8/4/2019 4:58 PM
56	Safety of Victory Elementary Students and those walking and biking in daily traffic . Not enough space on street Thank God on one I know of have got hurt but a lot of near accident	8/2/2019 4:37 PM
57	Please clean up all the trash on the streets	8/2/2019 5:53 AM
58	The city has gone to crap. It needs to improve city services instead of working on a new project.	8/1/2019 5:13 PM
59	I will like to comment on the bicycling because, I will be riding my bike for the first time!	8/1/2019 9:20 AM
60	1. I do not bike nearly as often as I would like because of my job and personal circumstances, as I have to be able to drive my personal vehicle throughout the region at almost any time. On a rare occasion when the weather is good and my schedule allows, I like to ride from home to downtown, catch the ferry and bike to my office from Waterside. I find the ride along High Street between Waterview and Frederick Blvd. to be especially unnerving at times, however, as the roadway is too narrow, and too many motorists are discourteous at best and potentially deadly at worst. 2. Most cyclists I see in Portsmouth pay ZERO attention to traffic laws, ordinances and regulations, and operate their bikes in very unsafe ways. Essentially, anything goes! This is how people get injured or killed. Examples I see all the time: -Riding against the traffic, even in marked bike lanes or lanes with "sharrows" with directional arrows pointing the right way! (violation of §5-70 of the Portsmouth City Code) -Riding on sidewalks (not good for pedestrians!) -Blowing through stop lights and signs (violation of §5-62) -Weaving every which way -No headlight at night as required by §5-73, or read light that may not be required, but is a great idea -No light or reflective clothing at night, making them hard to see -No helmet -No use of hand signals as required by §5-64 I know that the police are busy dealing with violent crime in our city, but they seem to tolerate blatant disregard for traffic safety by so many cyclists. The police need to crack down on safety and rule violations... ticket the offenders! Not enforcing the law means that the police tacitly APPROVE of unlawful and dangerous behaviour. Let's face it: many people who use bikes for transportation are not able to drive for whatever reason. But that, along with their overall apparent ignorance, are not excuses for them to violate the law and put themselves and others in danger. Educate them by enforcing the law! Word will get around, and no doubt the police will find people with outstanding warrants sometimes. 3. The "sharrows" are nice, but NOBODY SEEMS TO KNOW WHAT THE HELL THEY'RE ALL ABOUT! Same is true for the few bike lanes we have, as many cyclists pay zero attention to the arrows. Or, they will ride on the sidewalk when there is a very nice bike lane RIGHT THERE! Personal anecdote: back in June, I was riding east on High Street near Portsmouth Lumber, with the direction of traffic and staying far to the right, on my way to catch the ferry, when a	8/1/2019 12:18 AM

	pedestrian on the sidewalk hollered "you're gonna get a ticket" at me as I passed by. He had no idea that those painted bicycles and arrows on the roadway mean that cyclists are actually *encouraged* to ride there. Many people are still baffled by the "sharrows," thinking that cyclists have no right to use public streets. I do think that the signs that say, "May use full lane" could encourage unwise lane hogging by some inconsiderate cyclists. I don't need the whole lane, and I am perfectly happy to keep to the right, provided that the pavement is safe. 4. In addition to cyclists riding in unsafe manners, motorists can scare the hell out of a rider. Personal anecdote: On the same day that the fellow above shouted at me his warning that I would get a ticket for riding on a public street, a car nearly ran me off of High Street in Midtown, I think near the cemetery and the former Robertson's (Robbie's) Hardware store, as I headed home that afternoon. Too many motorists don't know and/or care that the law requires that they keep three full feet from a cyclist. 5. Did I miss something, or did the City get rid of the requirement for minors aged 14 and under to wear a helmet? That needs to be put back in. 6. When is that railway trail through Churchland going to be finished? 7. One really nice thing about Portsmouth (and other localities in our area) for cyclists is that the terrain is so very flat.	
61	Fix flooding issues, repair streets before bike paths	7/31/2019 7:38 PM
62	comment	7/31/2019 5:17 PM
63	Need better recreation area for teens in the old towns area	7/31/2019 4:59 PM
64	Some questions- not related to bike safety...	7/31/2019 11:16 AM
65	We can't afford to give people raises who work for the city and yet we can afford making bike lanes. This is an agenda 21/30 deal.	7/31/2019 7:01 AM
66	Only focusing on recreational biking is wrong headed. Bike riding should be encouraged as an alternate to motorized vehicles to area of the city where vehicle traffic and parking is a problem. Walking on the other hand is a great recreational activity so provide walking paths at public parks	7/30/2019 9:08 PM
67	There needs to be a grocery store in the Olde Towne Area preferably at the former Sports Hall of Fame so that individuals in Olde Towne will not have to leave that area	7/30/2019 4:53 PM
68	no	7/30/2019 3:22 PM
69	Nice job finishing the walkways by the waterfront/ferry stations/Crawford Street. They get a lot of use, people are always out walking!	7/30/2019 2:29 PM
70	Very bad to show a picture of a cyclist without a helmet	7/30/2019 2:26 PM
71	Olde Towne is a wonderful neighborhood to live in with small children because we have many walking/biking opportunities.	7/30/2019 1:57 PM
72	Of the 3 lanes of traffic on Cedar Lane, which lane is legal (preffered) to bicycle in?	7/30/2019 1:54 PM
73	This is an important endeavor. Our largest employers -- Naval Shipyard and Naval Hospital all could easily be accessed via walking or biking -- it would be an amazing commute to see hundreds of bikers going to work -- instead of miles and miles of car traffic.	7/30/2019 1:46 PM
74	Keep bike paths off of side/neighborhood streets.	7/30/2019 12:47 PM
75	We need to clean up Vagrants so people can walk/bike without being harassed, assaulted, or having to encounter individuals having sex or defecating in doorways/breezeways	7/30/2019 12:44 PM
76	no	7/30/2019 12:31 PM
77	Consider the Music Venue plan submitted by John Aragona and his dedicated, enthusiastic supporters. Biking and walking improvements would only add to and enhance the overall appeal of our beautiful Portsmouth.	7/30/2019 12:24 PM
78	paved sidewalks and bikeways should be a priority	7/30/2019 12:21 PM
79	Thank you for considering safe walking/biking from Westhaven area to City Park.	7/30/2019 12:18 PM
80	"Dooring" is the greatest danger, followed by cars turning without signaling. Get motorists to follow the rules and biking will be safer in Portsmouth.	7/30/2019 12:15 PM
81	Other areas that have built up their options for transportation, travel, and movement have seen increases in employment rate, overall health, and access to supportive services. Adding more	7/30/2019 12:10 PM

	bike lines, sidewalks, cross walks, and options for public transportation like a bike share service would increase ALL of Portsmouth including businesses, government organizations, and the lives of residents. I believe it would also increase the economy and create greater options for tourism, which brings in significant amounts of revenue.	
82	Why has the Rails to Trails been sitting unimproved for 2 years or more?	7/18/2019 10:18 AM
83	Portsmouth could really use an extensive web of separated bike lanes along major roads, and on-street bike lanes along smaller roads. That would allow people to be healthier, as well as not use thier car as much. It is important to hook up major accesses to the city as well - South Norfolk Jordan Bridge, High street Suffolk entrance, Portsmouth Blvd Chesapeake entrance.	7/17/2019 8:06 PM
84	New Churchland bridge coming and right now sidewalk ends once you cross the bridge headed to Churchland - will sidewalk be extended to library as part of bridge expansion?	7/17/2019 7:17 PM
85	[For questions 6 and 13, did not write numbers, and just checked next to each selection. Recorded in Survey Monkey as 1 for each value.]	7/5/2019 10:37 AM
86	I think it's sad that we have to drive somewhere in order to take a safe walk! We walk in Sterling Pt and Waterview but not where we reside.	7/5/2019 10:29 AM
87	Safety! [For questions 6 and 13, did not write numbers, and just checked next to each selection. Recorded in Survey Monkey as 1 for each value.]	7/5/2019 10:21 AM
88	Just to ensure that commuters such as Cavalier Manor [?], Swanson Homes, and communities of similar makeup.infrastructure are not overlooked	7/5/2019 10:12 AM
89	[For question 22 wrote in Retired]	7/5/2019 10:06 AM
90	Cell phone use while driving. need law change. Hit twice on bike when cell phone being used by car driver like bike stamps on streets	7/5/2019 10:02 AM
91	Wonderful to know that this is being looked at and improvements coming.	7/5/2019 10:00 AM
92	It's great that Portsmouth is creating this plan. I look forward to staying involved.	7/5/2019 9:55 AM
93	Vehicular Cycline Education on cycling law and etiquette for both cyclists and motorists	7/5/2019 9:49 AM
94	Keep shrubbery along sidewalks trimmed so they are usable. [For questions 6 and 13, wrote xs instead of numbers, so each x was entered as the value of 1.]	7/5/2019 9:41 AM
95	Plan to begin biking more.	7/5/2019 9:22 AM
96	I am glad to see the city is creating a bicycle and pedestrian plan, I am just concerned how/if it will be implemented.	7/2/2019 9:06 AM
97	Great Survey	6/7/2019 11:47 AM

Q25 Thank you for your time! If you are interested in additional opportunities to help with the planning process, please write your name and email below (survey results are anonymous).

Answered: 109 Skipped: 218

ANSWER CHOICES	RESPONSES	
Name	98.17%	107
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	109
Phone Number	0.00%	0

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2	Denise Crews	9/3/2019 9:26 AM
3	Ashley McCormick	9/2/2019 10:25 AM
4	John C Bradshaw	8/23/2019 3:05 PM
5	Nancy Lamartin	8/18/2019 11:26 PM
6	Sofia	8/17/2019 11:00 PM
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16	Carol Morse	8/16/2019 5:09 PM
17	Roger D. Peyton	8/16/2019 4:56 PM
18	Jessie Dobson	8/16/2019 11:06 AM
19	Barbara Martin	8/16/2019 10:46 AM
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30	Steven Holmes	8/16/2019 12:15 AM
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32	Peter B Foytik	8/15/2019 8:10 PM
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104	CRAIG SPRNKLE	7/5/2019 9:26 AM
105	Brian Shaffer	7/2/2019 9:06 AM
106	Tanisha	6/26/2019 9:19 AM
107	Carl Jackson	6/7/2019 11:47 AM
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	There are no responses.	
#	**ADDRESS 2**	**DATE**
	There are no responses.	

#	CITY/TOWN	DATE
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#	STATE/PROVINCE	DATE
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#	ZIP/POSTAL CODE	DATE
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#	COUNTRY	DATE
	There are no responses.	

#	EMAIL ADDRESS	DATE
1	rwharrell@gmail.com	9/3/2019 9:32 AM
2	dcrews@veritasca.com	9/3/2019 9:26 AM
3	ashley.mccormick@hotmail.com	9/2/2019 10:25 AM
4	johnb4life@gmail.com	8/23/2019 3:05 PM
5	hrc3@cox.net	8/18/2019 11:26 PM
6	calicchio.sofia@gmail.com	8/17/2019 11:00 PM
7	bettecathleen@live.com	8/17/2019 3:42 PM
8	shari_wiley@yahoo.com	8/17/2019 2:29 PM
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24	jbarba5@outlook.com	8/16/2019 9:30 AM
25	jimmywright1122@gmail.com	8/16/2019 9:30 AM
26	charlie@hanselunion.com	8/16/2019 8:21 AM
27	audlassiter@gmail.com	8/16/2019 7:58 AM
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29	mscavelino@hotmail.com	8/16/2019 5:09 AM
30	bug17t2@msn.com	8/16/2019 4:53 AM
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40	faulksk@portsmouthva.gov	8/15/2019 5:35 PM
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44	d_foster@verizon.net	8/15/2019 2:16 PM
45	ricewasser@gmail.com	8/15/2019 1:52 PM
46	VONDA.DANLEY@DSS.VIRGINIA.GOV	8/15/2019 10:10 AM
47	cjmarriner@gmail.com	8/15/2019 9:46 AM
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56	erinelizabeth81@gmail.com	8/5/2019 8:06 PM
57	scottknappster@gmail.com	8/4/2019 10:05 PM
58	mmayfield@elizabethriver.org	8/4/2019 4:58 PM
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66	bobbie@hanselunion.com	8/1/2019 6:32 AM
67	dmorgan12@cox.net	8/1/2019 12:18 AM
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71	anampeele@gmail.com	7/31/2019 12:46 PM
72	walker.banne@gmail.com	7/31/2019 10:36 AM
73	robin.eley@dss.virginia.gov	7/31/2019 8:26 AM
74	bethlehem2008@aol.com	7/31/2019 7:01 AM
75	parkwayfab@gmail.com	7/30/2019 9:08 PM

76	teresa.mckinney@vdh.virginia.gov	7/30/2019 4:16 PM
77	shavonepowell7@gmail.com	7/30/2019 3:13 PM
78	donnaj100@verizon.net	7/30/2019 2:47 PM
79	jmiz611917@aol.com	7/30/2019 1:55 PM
80	jclarke113@hotmail.com	7/30/2019 1:54 PM
81	r.neefe@gmail.com	7/30/2019 1:46 PM
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84	vltillage2@gmail.com	7/30/2019 12:34 PM
85	dominiquedarlene32@yahoo.com	7/30/2019 12:31 PM
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106	CRAIGSPRINKLE@ME.COM	7/5/2019 9:26 AM
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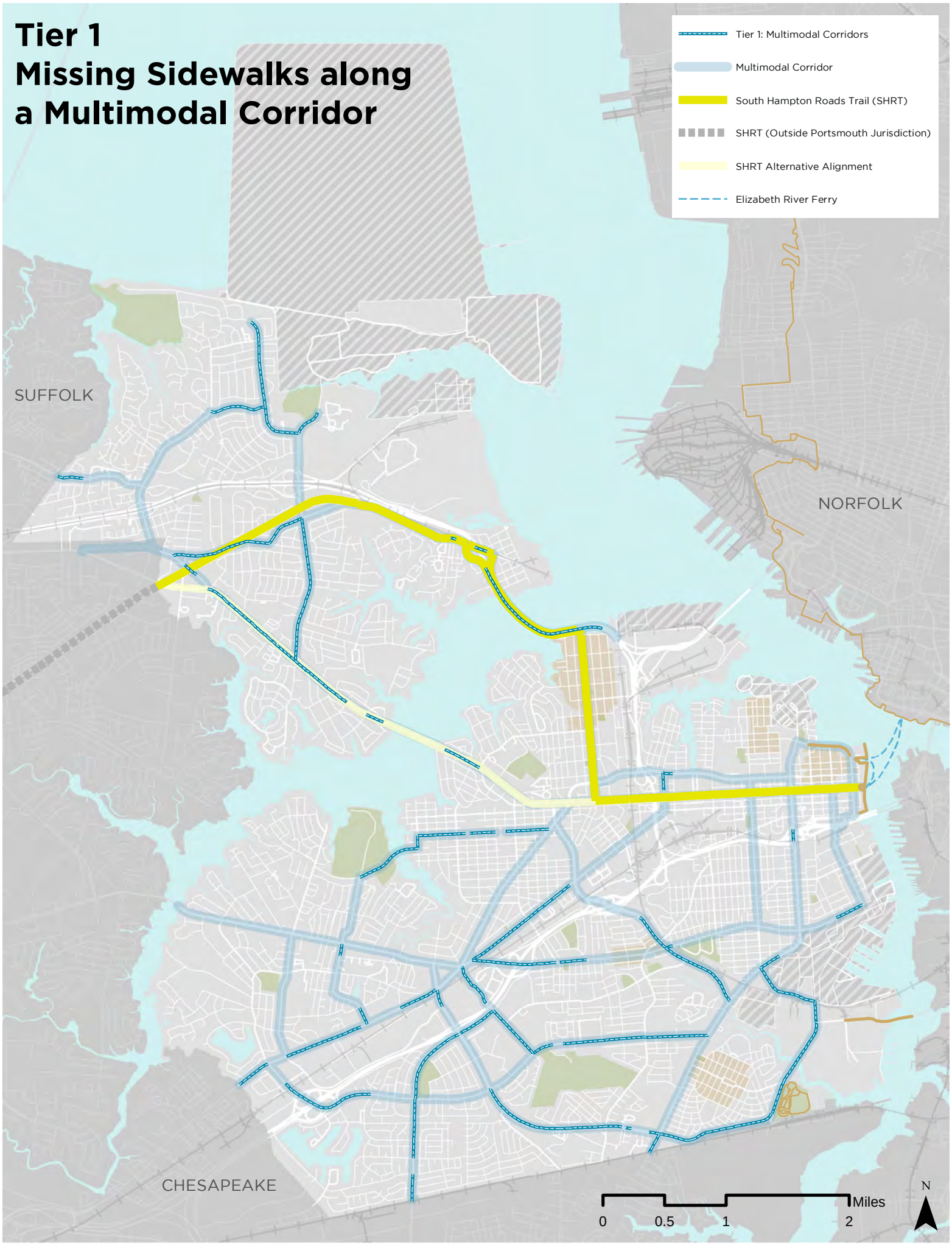
108	tanisha.coleman@vdh.virginia.gov	6/26/2019 9:19 AM
109	jacksonc@portsmouthva.gov	6/7/2019 11:47 AM
#	**PHONE NUMBER**	**DATE**
	There are no responses.	

Appendix F:

Recommended Sidewalk Network Maps


Tier 1
Missing Sidewalks along
a Multimodal Corridor
Tier 1: Multimodal Corridors
Multimodal Corridor
South Hampton Roads Trail (SHRT)
SHRT (Outside Portsmouth Jurisdiction)
SHRT Alternative Alignment
Elizabeth River Ferry
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NORFOLK
CHESAPEAKE
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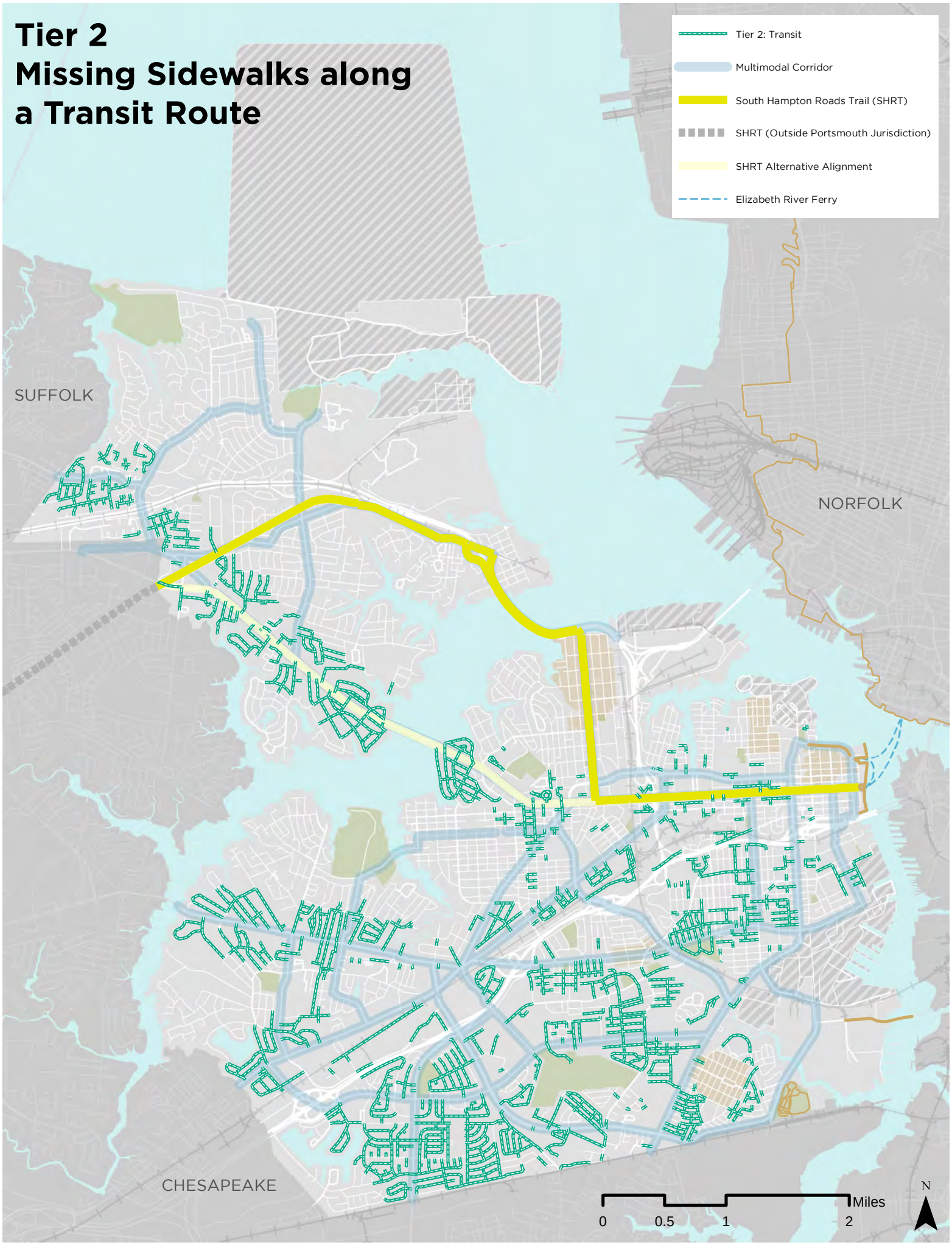
2
Miles
N


Tier 2
Missing Sidewalks along
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Tier 2: Transit
Multimodal Corridor
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SHRT (Outside Portsmouth Jurisdiction)
SHRT Alternative Alignment
Elizabeth River Ferry
SUFFOLK
NORFOLK
CHESAPEAKE
0
0.5
1
2
Miles
N

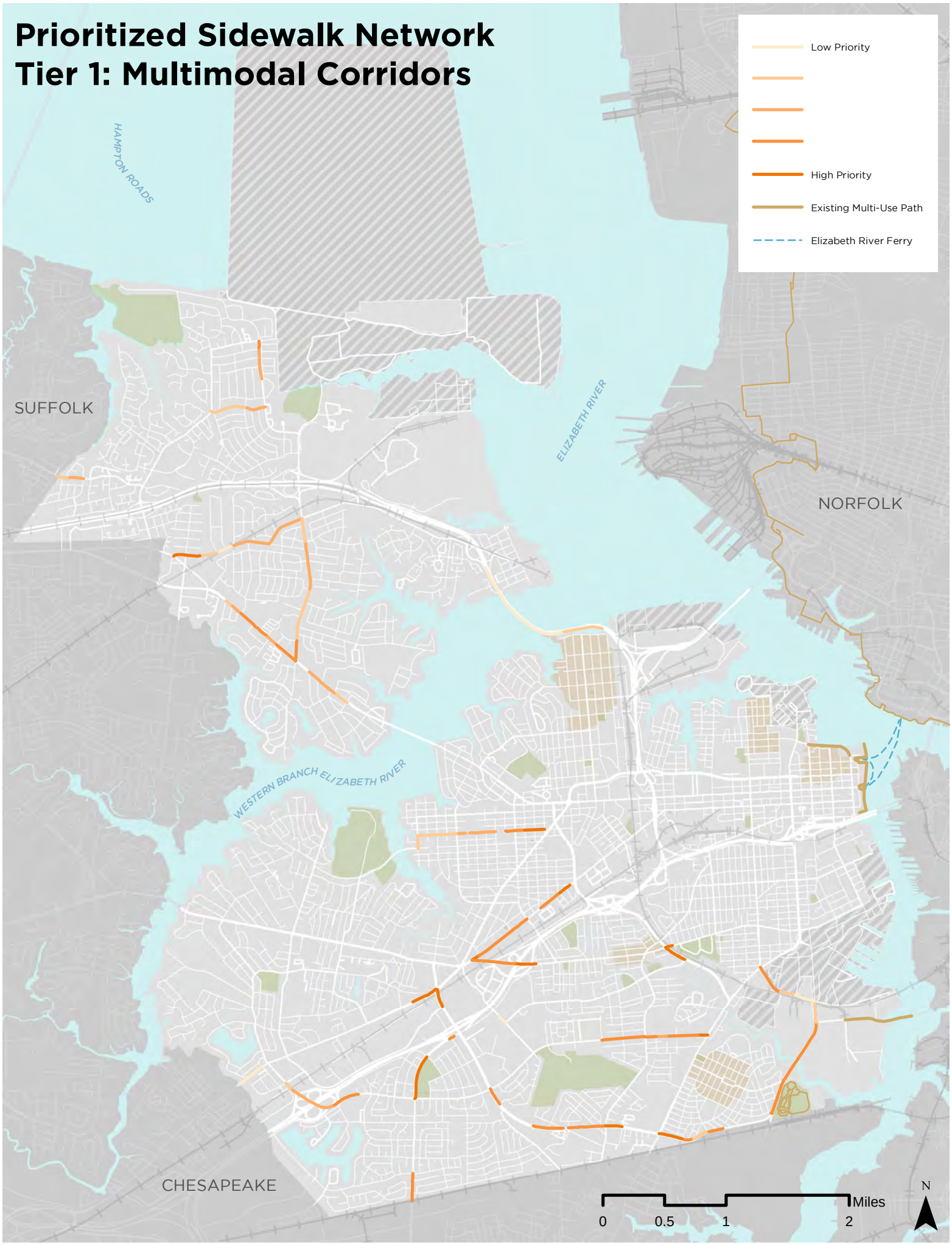
Tier 3
Missing Sidewalks near Recreation and Education Facilities

Tier 4
Missing Sidewalks near Regional Connections

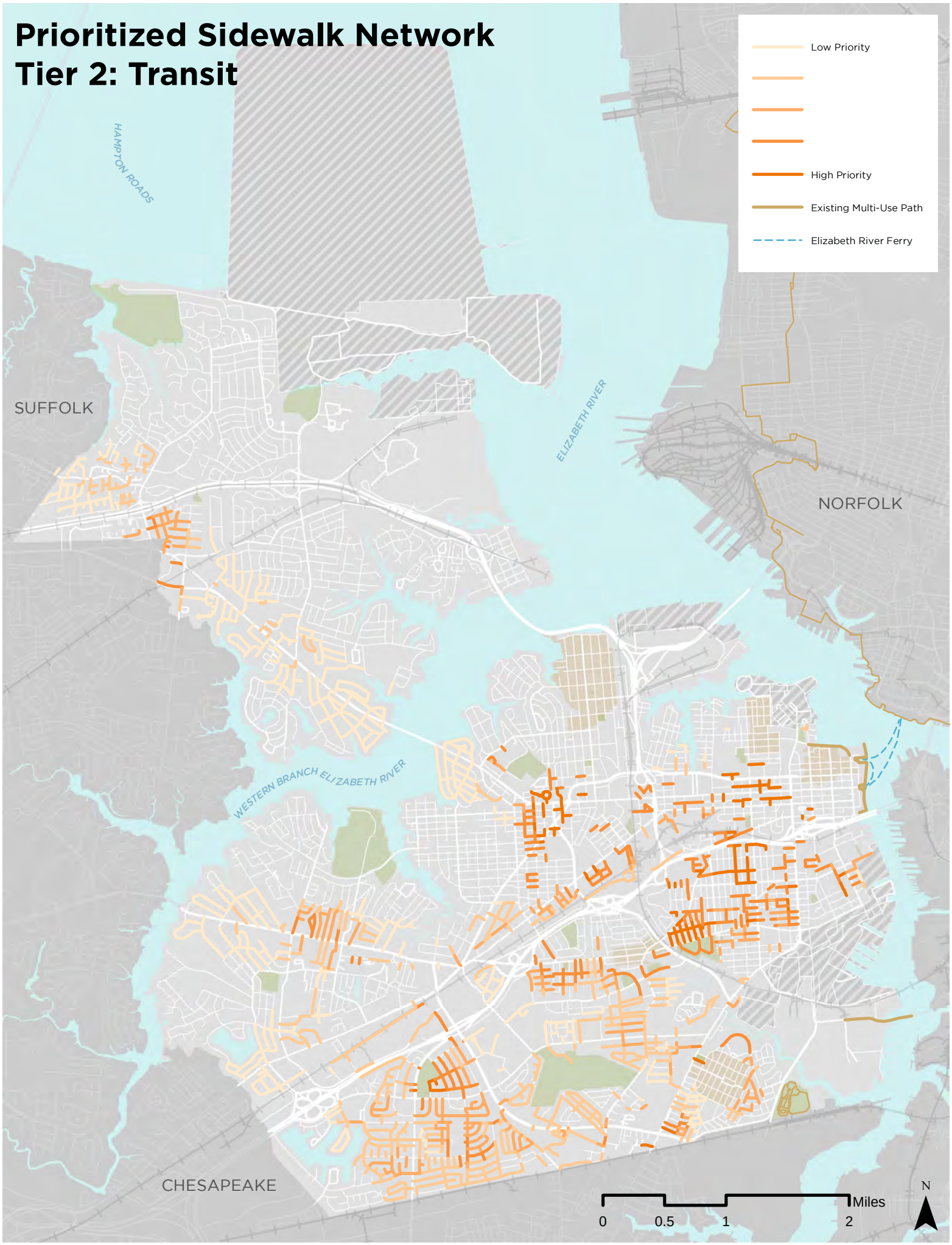
Appendix G:
Prioritized Sidewalk Network Maps

PORTSMOUTH BICYCLE & PEDESTRIAN PLAN

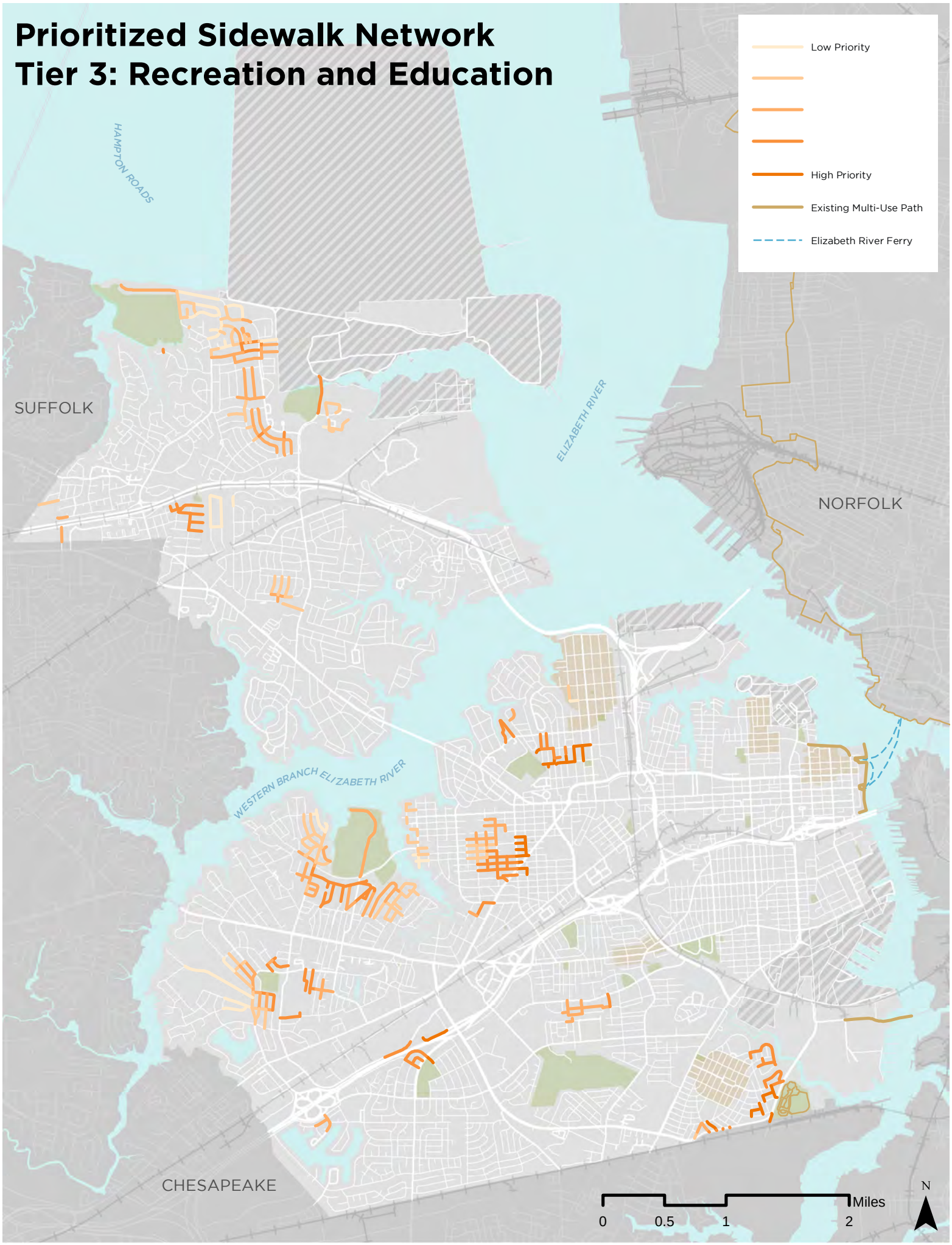
Prioritized Sidewalk Network
Tier 1: Multimodal Corridors



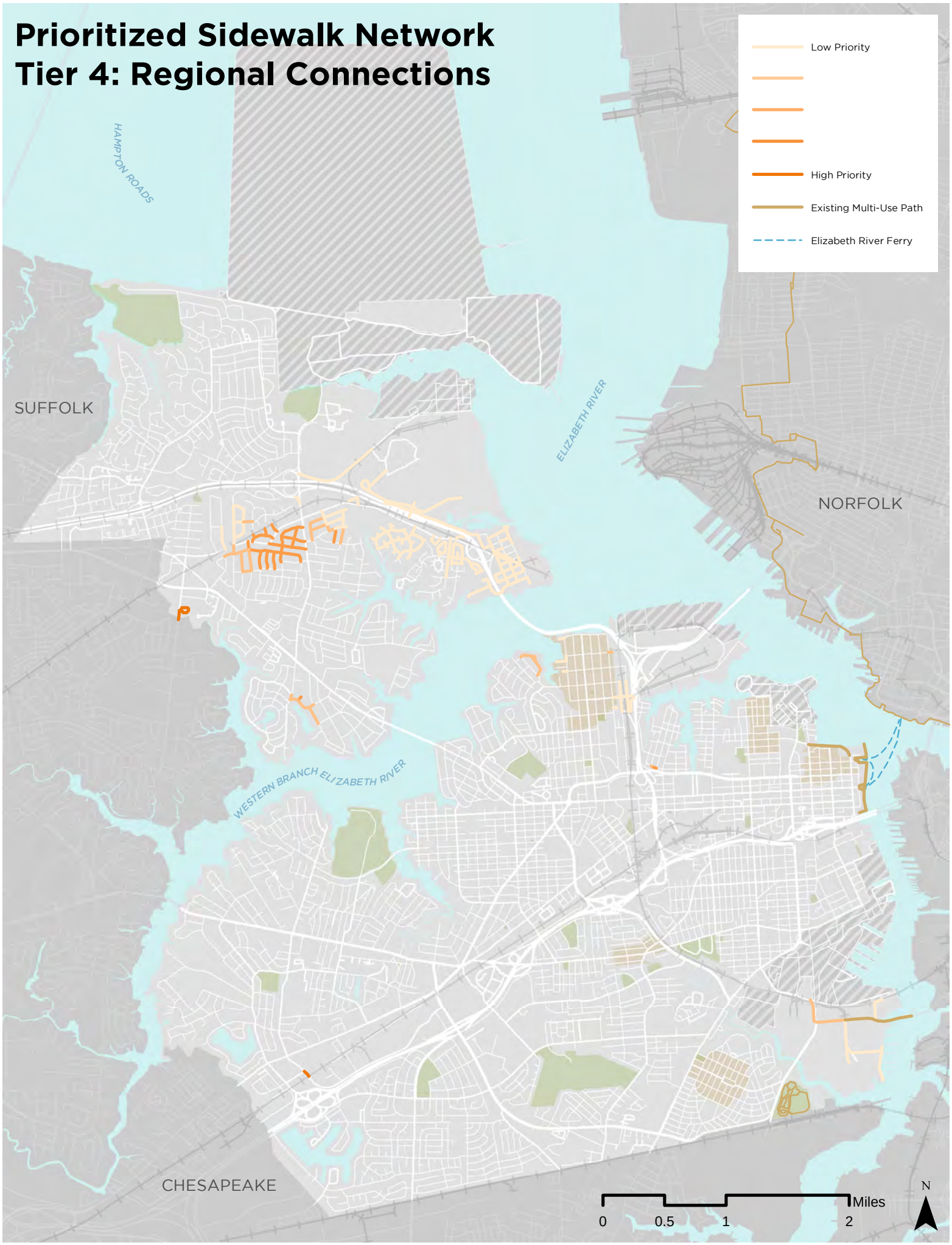
Prioritized Sidewalk Network
Tier 2: Transit



Prioritized Sidewalk Network
Tier 3: Recreation and Education



Prioritized Sidewalk Network
Tier 4: Regional Connections



Appendix H:
Full Bike Priority Project List

Name	ToStreet	FromStreet	Length (miles)	Category	PriorityScore
Churchland Bridge	High Street	High Street	0.45	Shared Use Path	10
King St	Effingham St	Court St	0.73	Neighborhood Greenway	23
Hansen/Manly	Cavalier Blvd	Deep Creek Blvd	0.99	Neighborhood Greenway	21
Truxton Ave	Ellliott Ave	Portsmouth Blvd	0.32	Neighborhood Greenway	21
Portsmouth Blvd	Frederick Blvd	Elm Ave	0.76	Shared Use Path	21
Bart/South/Powhatan	Airline Blvd	Clifford St	1.14	Neighborhood Greenway	19
Deep Creek Blvd	Jefferson St	Elliott Ave	0.68	On Street Bike Facility	19
Lincoln St	Des Moines Ave	Effingham St	0.68	Neighborhood Greenway	19
Des Moines/Jefferson	Lincoln St	Deep Creek Blvd	0.42	Neighborhood Greenway	19
Peninsula Ave	Leckie St	High St	0.48	Neighborhood Greenway	19
Queen St	Peninsula Ave	Effingham St	0.63	Neighborhood Greenway	19
King St	Constitution Ave	Effingham St	0.64	Neighbordhood Greenway	19
High Street	Constitution Ave	Effingham St	1.03	Shared Use Path	18
Lincoln St	Gosport Row	Effingham St	0.66	Neighborhood Greenway	18
London Blvd	Constitution Ave	Effingham St	1.04	Shared Use Path	18
Queen St	Effingham St	Crawford St	0.50	Neighborhood Greenway	18
Mt Vernon	Western Freeway	High St	1.34	On-Street Bike Facility	18
Portsmouth Rail Trail	Norfolk Rd	Portsmouth City Limits	1.82	Shared Use Path	17
Hartford St	Mt Vernon Ave	Willett Dr	0.60	Neighborhood Greenway	17
Portsmouth Blvd	Rodman Ave	Frederck Blvd	0.90	Shared Use Path	17
Victory Blvd	George Washington Hwy	Afton Pkwy	1.25	Shared Use Path	16
Court St	Lincoln St	London Blvd	0.83	On Street Bike Facility	16
Court St	London St	Crawford Pkwy	0.24	Neighborhood Greenway	16
South St	Court St	Thomas Circle	0.41	Neighborhood Greenway	16
Airline/Victory	Chowan and Airline	Elmhurst and Victory	0.47	Sidewalk	Multimodal corridor with high demand and equity score. Visible goat paths. Recent intersection improvements
Cavalier	Warfield	City Boundary (south of Taft)	0.22	Sidewalk	Gap in sidewalk on mulitmodal corridor in high need area. Location of a pedestrian crash.
Cumberland	High	Clifford	0.31	Sidewalk	Transit, Park/School, and Regional connection tiers. Provides access to senior center. Alternative to Airline (safety). Near employment centers: shopping center and hospital.
Deep Creek	Columbus	Jefferson	0.14	Sidewalk	Some portions have sidewalk on one side, but need to fill gaps in ths portion of multimodal corridor. High need equity area.
Elm/Victory	Paradise Creek	Jordan Bridge	1.07	Sidewalk	Multimodal Corridor with key regional connection to Jordan Bridge and Paradise Park. Also location of a pedestrian crash.
Freedom	Vicotry	Viking	0.42	Sidewalk	Transit and school access. High need equity area, provides access to TCC
Greenwood	Independence	George Wasington	0.86	Sidewalk	Multimodal corridor, with access to transit and schools also.
High	Shirley	Garland	1.14	Sidewalk	Identified in all four tiers. Provides access to school, library, and rec center. Connects to existing sidewalks.
Jefferson	Columbus	Chestnut	0.63	Sidewalk	Fill gaps in east-west connection. Provides alternative niehgborhood access to school, shipyard, through high need area.
Norfolk	Tyre Neck	Cedar	1.05	Sidewalk	Multimodal corridor with connections to regional trail network. Has pedestrian crash history. Comnmercial desitnation access.
Portsmouth	Frederick	Existing sidewalks	0.05	Sidewalk	Gap between sidewalks and intersection (across railroad track)
Randolph	Deep Creek	Elm	0.45	Sidewalk	Tier 2 sidewalk in high need and high demand area.
Turnpike	Rodman	Portsmouth	0.56	Sidewalk	Multimodal Corridor with transit and rec center access. Also access to commerical area. Observed goat paths in imagery.
Victory	Victory Ct	Deep Creek	0.68	Sidewalk	Multimodal with transit. Access to jobs/commercial destination.s
Victory	George Washington	Vail	0.54	Sidewalk	Multimodal corridor, providing access to transit on George Washington and park. Safety hot spot at intersection.

Appendix I:
Plan Comments

Comments on Draft Portsmouth Bicycle and Pedestrian Plan	
Chapter, Page	**Comment**
Universal map change	On all the maps, it should be “Paradise Creek Nature Park” not “Preserve”.
Universal map change	The place name for Craney Island is in the wrong place. That part is the dredge spoil site which is operated by the US Army Corps of Engineers. The Naval Supply Center is the part just north of the Coast Guard Base
Universal map change	Where did the name “Maryview Park” come from? I don’t think that's the city's official name for that area
Universal note	As a reminder, the Master Transportation Plan was developed with minimal input from the Engineering Department. This document should be revisited and updated. Should an update be listed as a recommendation
Universal note	Alexanders Corner is listed as an impediment for shared mobility. Does the study look to examine whether shared mobility options are appropriate for situations like this?
Universal note	The miles of streets listed in the draft report does not match the miles of streets in our VDOT Inventory
Universal note	Complete Streets should not be the determining factor as to how an existing street is reconstructed and/or rehabilitated as there are multiple factors that require consideration. Recognize that all road projects, specifically on local streets, are not usually transportation driven so complete streets cannot be the sole driver for the project. The policy should provide guidelines and options for consideration for reconstructed and rehabilitated streets while being flexible enough to realize that there are other criteria that go into the decision matrix. The policy should instead indicate that new street projects should accommodate all streets users to the **maximum extent practical**.
Universal note	Adjustment of maintenance to prioritize complete streets requires additional conversation.
Universal note	Note that some of the sidewalk design guidance in the chart is not practical due to right of way constraints. Suggest that you revisit the chart or provide additional clarification.
Universal note	The chart for the barrier assessment comes before the map display. Recommend adding an additional sentence to the italicized paragraph indicating how to interpret the scale.
Universal note	Several times it is mentioned that the city has areas of high speed. What is considered “high speed”?
Universal note	General Note: Verify your road segments. Frederick Blvd does not intersect Victory Blvd.
Universal note	General note: Verify your road names. It’s West Norfolk Rd not Norfolk Rd.
Universal note	Verify that there is a median/pedestrian crossing planned at High and Florida
Universal note	Recommendations for maintenance activities for frequency as they relate to checking signs after major weather events (staffing, priority), pavement resurfacing (funding, priority) and drainage upgrades (funding, priority) require additional discussion as the current chart does not appear realistic
Universal note	With respect to the estimates for sidewalks and shared use paths: the notes should be the same. Is design included in the contingency? It is stated that they the estimates do not include site demolition, utility relocation or other site conditions. Since you are adding impervious area, there will be need to be considerations for stormwater management. If curb and gutter and drainage are required, then the nature of the project changes and it may no longer be just a sidewalk or shared use path project. These things should be noted because it change the nature of how the project is executed and may change the priority.
Universal note	Do affordability and the degree of additional scoping required influence the prioritization? If not, should they (potential low-hanging fruit)?
Universal note	Who will be responsible for tracking performance measures?
Universal note	User/development fees and fundraising as funding alternatives may require additional discussion
Universal note	Who defines the size of the budget – large vs. small?

Universal note	The overall plan looks great, with only a few needed corrections. Hopefully it will be implemented sooner than later.
Universal note	Make sure to add actual appendix numbers where there are "XX" placeholders
Universal note	Mention ties to resliency when possible
Universal note	Tie into community health goals where possible
Universal note	Bob to send link to Poverty Analysis with references to mobility and transportation needs – opportunity for collaborative efforts between Bike Ped Plan, Poverty Task Force, and Housing Strategy
Universal note	Idea to highlight a Blue/Green infrastructure network, connecting parks and waterfront areas
Universal note	Plan could be better organized to follow priority of recommendations
TOC, page 3	that's the city's official name for that area.
Exec Summary, general	Include full network maps in exec summary
Exec Summary, Page 1	Wouldn't it be neat if the names of everyone in the Planning Department were listed on the "Acknowledgements" section like they did for the Build One Comprehensive Plan?
Exec Summary, page 5	Vision assumes biking walking are worthy goals by themselves. It would be nice to see this tied to a larger vision
Exec Summary, page 6	Map is crammed in here so it's unreadable. Figure out how to make it stand out so it's findings are readily apparent
Exec Summary, page 6	Did the equity analysis determine whether these groups had equitable access to bike/ped facilities?
Exec Summary, page 7	Why are priority projects the top priorities?
Exec Summary, page 7	Change name from South Norfolk Bridge to Jordan Bridge (more common name)
Exec Summary, page 8	Disappointing that policy recommendations are not tied to broader themes from BOP. This is an opportunity to connect with broader themes that were vetted by a larger population and by CC So there are specific goals and strategies, and I'll list some below, but there's just a broader connection to ideas that needs more than an email. One of my comments on the draft was that this reads like it's preaching to the choir. The underlying assumption seems to be that having bike and ped facilities is a self-evident need; that their existence justifies themselves. The authors need to instead demonstrate how these facilities support broader city goals like fighting climate change, creating equity, and improving health outcomes. In this way, the Plan ties into other City plans and policies, which helps to provide more justification for its recommendations. There also needs to be a lot more thought given to how these facilities help support our existing or future land use patterns. Check out the sections about Character Areas, Focus Areas, and Environmental/Open Space Resources. These sections contain a lot of guidelines or ideas that would benefit from more bike/ped options. Using mobility facilities to make these areas better is a compelling argument. For specific comp plan goals, strategies, and tactics, see: · T.2 (be a healthy city) · T.3 (expand economic opportunity) · R.4 (strengthen connectivity)
Exec Summary, page 8	Vision zero is being adopted, but has had no effects on safety (at least as its been studied in larger cities)

Exec Summary, page 8	Page 8, there is a typo in the very last blue shaded item. It reads “Provide easily accessible resource for residents to reports maintenance, safety, or accessibility issues.” Should read “report” instead of “reports”.
Exec Summary, page 8	Program Rec: fund Safety Town
Chapter 1, Page 11	Do many people in Portsmouth community rely on walking, biking, or transit for transportation? Data to support this?
Chapter 1, Page 13	Some of these don't seem to follow a cause and effect pattern. If the vision is to have "an active community," then goals that support the vision would include enhanced connectivity, and increased safety and mobility. It seems like an active community would then lead to economic growth, and greater equity and health outcomes. I don't think greater equity and health outcomes necessarily give you an active community.
Chapter 1, Page 14	By what measure is the area the busiest? (first sentence)
Chapter 1, Page 14	Comprehensive Plan has a name
Chapter 1, Page 14	End of second paragraph: This is the only part of the section that answers the question of why walk and bike. The rest assumes an "if you build it, they will come" mentality that doesn't speak to those outside of the existing bike community. We need to focus on the benefits of biking and walking, not just that we should do it because we can build sidewalks or bike lanes
Chapter 1, Page 14	End of second paragraph: This highlights my earlier point about goals supporting the vision vs. the vision leading to other outcomes (health, equity, economic growth)
Chapter 1, Page 14	Third paragraph: do we believe that Portsmouth is an example of sprawl?
Chapter 1, Page 14	Fourth paragraph, change"town of Portsmouth" to "City of Portsmouth
Chapter 1, Page 14	Add “Build One Portsmouth” to Comprehensive Plan
Chapter 1, Page 15	Where are our walkable neighborhoods? can this be tied to data in Portsmouth (like Walkscore)?
Chapter 1, Page 15	Can sources be linked?
Chapter 1, Page 15	Add location of Virginia Creeper Trail. Which two counties benefited?
Chapter 1, Page 15	She also pointed out that we need to use the nearby Virginia Capital Trail as a good model for economic benefits instead of the Creeper Trail.
Chapter 1, Page 16	Top graphic: this page doesn't really demonstrate value, just that these things exist
Chapter 1, Page 16	Top graphic: in America? In Portsmouth?
Chapter 1, Page 17	Crash reduction factor graphic: what about better street geometry? less/more narrow lanes naturally slow drivers and make roads safer
Chapter 1, Page 17	Crash reduction factor graphic: link this to later data on page 31 to show what it matters
Chapter 1, Page 17	What is a pedestrian refuse island? I can deduce what it is but might help to define.
Chapter 1, Page 19	We should make this a poster and place it around Portsmouth!
Chapter 2, Page 21	First paragraph: "current walking an biking" should be "current walking and biking
Chapter 2, Page 22	It reads “Virginia Outdoor Plan”. It should be “Virginia Outdoors Plan” instead.
Chapter 2, Page 23	It would be interesting to compare the stats of miles of streets with sidewalks with other localities in Hampton Roads.
Chapter 2, page 24	What is a multimodal corridor
Chapter 2, page 26	This is expected demand. Do we have any data for how many people are actually walking/biking/using transit?
Chapter 2, page 26	Isn't demand also a function of whether you can afford a car or not? Seems that way in Hampton roads, at least
Chapter 2, page 26	Can we also analyze how these areas are served by sidewalks, bike lanes, and HRT stops? That would help us identify priority areas
Chapter 2, page 30	This is the where, but do we have an analysis on the what
Chapter 2, page 31	Fatality x's don't match numbers reported on previous page
Chapter 2, page 32	What is "fair share?" where is the data related to this?

Chapter 2, page 32	Re: employment hubs: People who work in those facilities for the most part don't live in Portsmouth, plus both already have decent (by our standards) multi-modal networks in existence. And, people who choose to not use a car to get to these places still face a long journey to get to the building they work in, which further contributes to wanting/needing a car to commute. This section could use better examples.
Chapter 2, page 34	Change On-line to online
Chapter 2, page 35	This is mostly a repeat from an earlier page. Can you go into more depth from the responses? What did the other half of respondents say about walking and biking, for example?
Chapter 2, page 36	Aren't there sidewalks all the way down both High and London? It may be a long walk, but it's not unsafe
Chapter 2, page 36	In the top left blue balloon, spaces are missing between most of the words. It’s difficult to read like that.
Chapter 2, page 37	Same thing on the right side balloons.
Chapter 2, page 36 and 37	Update to include quotes from next round of community engagement too if possible
Chapter 3, General	If desired, could do a callout for partnerships with the Navy - opportunities to coordinate with Shipyard's internal mobility study and JLUS (Bob Baldwin would have a copy of this study)
Chapter 3, General	Bike parking is an issue downtown
Chapter 3, General	Add policy recommendation related to speed limit reductions (need to inlcude police department and engineering department)
Chapter 3, General	Add program recommendation for bike and ped safety programs for adults
Chapter 3, General	Beef up Vision Zero policy recommendation. Have had some high profile pedestrian crashes. Want to show how complete streets and Vision Zero work together
Chapter 3, General	Plan needs more emphasis on education. Ideas for education programs include: o City funding for Safety Town o A bike patrol o Videos on the City YouTube channel o Adult programming at Safety Town o Promoting helmet use for the shared mobility pilot • Walk audits/walking tours with different people (including drivers), Council, and Department of Transportation to help people understand why it is important to improve walking in Portsmouth
Chapter 3, General	Wayfinding and branding are important. Plan has focus on two different audiences: existing population, and also attracting visitors
Chapter 3, page 40	Plan should better spotlight existing efforts such as Safety Town and Healthy Portsmouth
Chapter 3, page 40	What about case study we used in BOP? Is that still alive?
Chapter 3, page 40	Re: Paradise Creek: Is Victory a highway?
Chapter 3, page 41	Change from Safe Routes "to" School
Chapter 3, page 42-43	On all the Recommendations pages, shouldn’t all the recommendations on the right side be actions? Some are, but some are just statements. In some cases the left side is an action and in some cases it isn’t. They should be consistent. Action on one side, description on the other. The same side.
Chapter 3, page 42	Most of these describe policies that exist. how are they supposed to be utilized in Portsmouth? The SRTS example is one of the few that calls for actual action
Chapter 3, page 42	Fix page numbers for Policy Spotlights

Chapter 3, page 43	What about creating ongoing data gathering programs and regularly reporting findings? We could measure progress towards building sidewalks and bike lanes, clearing and maintaining facilities, progress towards complete streets and/or vision zero, health indicators, etc. This is building off the initial data from this plan so we can evaluate if our actions are achieving our goals
Chapter 3, page 43	Identify a Program Funding Strategy is more policy than evaluation
Chapter 3, page 43	Re-Apply for Bike/Walk Designations: Why would this ensure tracking of implementation? Seems more like a program. If there are different categories of walk and bike friendly communities, seems like aiming for highest one and evaluating why we didn't get it would be an evaluation
Chapter 3, page 43	Also important to educate drivers and pedestrians/bicyclists on proper etiquette/laws to prevent injury and frustration.
Chapter 3, page 44	Are there any initiatives to incorporate mandating complete street design at the cost of developers with new developments? Is the hope for the Complete Streets Policy to be adopted by City Council and then enforced? Should we add anything in the zoning ordinance re-write? Do we need to lower parking requirements to accommodate this?
Chapter 3, page 44	Should “All Users” be expanded to include micro-mobility users (scooters)?
Chapter 3, page 44	First paragraph: are we a transportation agency? or are we talking about HRT?
Chapter 3, page 45	Link to references
Chapter 3, page 47	Norfolk case study: any data or anecdotes that this case study has had a positive effect?
Chapter 3, page 48	Action steps: why are these implementation steps buried? there needs to be an organized implementation chart so staff can clearly see recommended steps
Chapter 3, page 48	Why is the current system for maintaining sidewalks not equitable? Why would areas with increased equity factors be lower on the maintenance list than well-to-do areas?
Chapter 3, page 49	City needs to make sure we keep cross-walks maintained and visible.
Chapter 4, page 50	Craney Island US Naval Supply Depot is mislabeled, should be located on the "brim of the hat" see city map.
Chapter 4, page 50	Please also include the Virginia International Gateway port on the map
Chapter 4, page 50	Replace Virginia Port Authority with "Portsmouth Marine Terminal"
Chapter 4, page 50	Can you remove the "Norfolk" label from the middle of the map (near the W. Norfolk Bridge)?
Chapter 4, page 50	The Elizabeth River Trail in the City of Norfolk should have the same line weight as the SHRT (Outside of Portsmouth)
Chapter 4, page 50	Please remove the sidewalk improvements in the City of Chesapeake near the Portsmouth Boulevard Bridge
Chapter 4, page 50	In the legend, rename "Missing Sidewalk" to "Long Term Sidewalk Network"
Chapter 4, page 50	The Tier 2: Transit and Tier 3: Parks and Schools sidewalk networks seemed to be reversed, for instance there is no transit to Hoffler Creek Park or City Park and there are no schools or parks on Towne Point Road. This may also effect your overall data.
Chapter 4, page 50	The sidewalks near Port Norfolk and the Portsmouth Marine Terminal should be listed as Tier 4 Regional Connections
Chapter 4, page 50	Please list the portion of Elmhurst Lane east of the railroad tracks as Tier 4 Regional Connection
Chapter 4, page 50	Please label the Jordan Bridge
Chapter 4, page 52	For context, would be helpful to include the total mileage of streets in Portsmouth.
Chapter 4, page 54	Are these maps going to fold out for easier reading?
Chapter 4, page 55	These are too small! Why do they have to condensed onto one page?
Chapter 4, page 58	What is the range for the comfort rating?
Chapter 4, page 58	Why weren’t they able to determine a barrier assessment for Columbus Ave.?
Chapter 4, page 58	MapID 3: Change to "W Norfolk Road"
Chapter 4, page 58	Improvements needed column has blanks and not able to determing

Chapter 4, page 60	Not sure where this fits, but there are bike/ped facilities on 164 crossing over the river. We should evaluate those to see how we can improve them, especially since it's supposed to be our connection for the SHaRT
Chapter 4, page 63	EJ boxes should be in yellow
Chapter 4, page 63	Do we have suggested location for midblock crossing?
Chapter 4, page 64	Table 4.4: What are completed included? Many (most) were completed years ago. Alexanders Corner not complete on two legs - Airline EB and Portsmouth EB. High & London - ped signal was hit, not replaced
Chapter 4, page 66	Link to appendix
Chapter 4, page 66	Double check page numbers are the very end
Chapter 4, page 67	These need to be bigger, especially given the chosen color palette. May be helpful to use distinct colors (green, yellow, red, blue) instead of a gradation to better differentiate between priorities
Chapter 4, page 68	MapID 10: Change to "W Norfolk Road"
Chapter 4, page 70	What are these units?
Chapter 4, page 70	For ped crossing improvements, are these in hundreds? thousands? What's the actual cost estimate?
Chapter 5, General comment	Concern about recommending sharrows on anything besides neighborhood greenways. They are not safe on higher traffic roads, and can create a false sense of security. The plan should be a “wish list” of best possible options
Chapter 5, General comment	While the intention is to eventually have a bike lane or mixed used pedestrian lane on the High St West corridor, I believe we should do something now (bike logos for example). The logos are only a reminder for people; the law already exists that cyclists can use them. And I believe the logos are a very inexpensive way to promote safely. (I am a little disappointed we removed the logos on London Blvd. I understand the City’s logic for wanting people to used High St more, but I fail to see the logic of removing more safety signs (logos)? It seems regressive.
Chapter 5, General comment	On the overall plan, the “weighted” projects have the High St West corridor as a low priority. But this means the only connections to Dtown is via the West Norfolk Bridge. I believe High St West is, and will continue to be, used more than the West N Bridge. Thus, the High St West corridor needs to be a high priority.
Chapter 5, page 72	Please remove the bicycle improvements on Churchland Blvd within the City of Chesapeake.
Chapter 5, page 72	Please add a Shared Use Path along the portion of High Street between Churchland Blvd and the city line.
Chapter 5, page 72	Please add a Shared Use Path to a portion of the Westhaven Trail between South and Bart Street
Chapter 5, page 72	Convert McLean Street between the Railroad tracks and Cavalier Boulevard into a bike lane with the remaining sections of Mclean.
Chapter 5, page 72	Deep Creek Boulevard may serve better as a Greenway as there is insufficient right-of-way for on-street facilities
Chapter 5, page 72	Convert Gosport Park at the end of Lincoln Street to Shared Use Path.
Chapter 5, page 74	Fix justification of bubble text
Chapter 5, page 77	Fix justification of bubble text
Chapter 5, page 80	Wasn’t there a successful implementation of traffic calming in a Port Norfolk corridor in recent years? Could that be included as an example? I know the Civic League is very proud of this.
Chapter 5, page 81	Comment that low cost SUP should be 10', medium should be 12' and high cost should be 14-16'. Previous text said 10' should be minimum

Chapter 6, General comment	Highlight opportuntity for shared mobility parking (bikes and scooters) just outside base gates. Even though most employees are coming from elsewhere, this would provide opportunity to get off base for lunch breaks, etc. Also, The shared mobility pilot has more e-bikes than were originally expected. Opportunities to coordinate with the base for next steps after pilot program (bikes can go on base, scooters can't)
Chapter 6, page 80	Neighborhood greenways provide a really good alternative to main roads; these need to be sold better as a major part of the network, and wayfinding should be included
Chapter 6, page 82	"People on bikes crossing a busy intersection need clear priority over turning motor vehicles." Example of something that could be included in educational material for drivers and cyclists/pedestrians.
Chapter 6, page 87	What about role of equity?
Chapter 6, page 89	There has to be data on the usage of bike shares and scooters from other communities. Those analyses should be included in this plan so the pros and cons can be evaluated
Chapter 6, page 90	Is there evidence of a "growing demand for sustainable and efficient means of transportation"?
Chapter 6, page 91	Link to appendix
Chapter 6, page 91	Bikes and scooters are separate programs and should thus be separated into different charts
Chapter 6, page 91	Last row of Charlottesville: typo for word "must"
Chapter 6, page 94	These two paragraphs provide a good example of how to build from data (even if it's not transparent here) to a recommendation that achieves a higher purpose (cities using mobility programs-> helps people in underserved areas-> greater equity). This should serve as a model for organizing other sections of the Plan
Chapter 6, page 96	For last-mile devices like bikes and scooters, wouldn't they be more likely to go from residential areas to clusters, as opposed to going from one cluster to another? Feels like our analysis is focusing on an incorrect assumption, making most of the points moot
Chapter 7, page 101	I like that performance targets were identified so we can track progress.
Chapter 7, page 101	Table 7.1: What about use? Or maintenance? Or any number of data sets derived from the goals set out at the beginning of the Plan?
Chapter 7, page 101	Table 7.1: Enhance connectivity perf target: typo - intersections is missing an "s" at the end
Chapter 7, page 102	We need a person within the City to actually apply for these grants, etc. so we can get started on these projects.
Chapter 7, page 102-103	Historically, the City has not sought funding for purchasing right-of-way for projects; this may be needed for some projects
Chapter 7, page 103	Virginia's Smart scale is listed for both
Chapter 7, page 103	Add CMAQ and TAP
Chapter 7, page 103	Better partner with school district for SRTS mini grants
Chapter 7, page 103	Cut sheets are missing
Chapter 7, page 103	Funding is important. Some sources (included in the Safe Routes Plan) are: o Made to Move Grant Program o People for Bikes o Virginia Recreational Trails Program o Elizabeth River Project can provide support for grant proposals o Even though some grants are small, they can go towards funding engineering and design, or education programs
Chapter 7, page 105	Where are the project cutsheets?
Appendix	Include staff comments on the plan as an appendix

Comments on Draft Portsmouth Bicycle and Pedestrian Plan	
Chapter, Page	**Comment**
Universal note	I looked at the plan, and do not understand the definitions....can you please define the terms used in the legend?
Universal note	Having bike-only lanes on larger streets such as London Boulevard, High Street, and bridges will only cause more congestion and accidents in the area. The same bike plan was implemented in Ocean View in Norfolk, and the road went from two lanes in each direction down to only 1 lane in each direction which has caused the area to become a stop-and-go traffic concern. Continue to improve sidewalks for those walking, but bikes have to follow the same rules as cars and shouldn't be treated as any different by giving them their own lanes.
Universal note	I am opposed to specified bike paths. Bicycles are classified as moving vehicles, just like cars and trucks. Bicyclists need to understand that they have the same responsibilities and requirements as motorized vehicles of all sorts. Dedicating bike lanes or special paths creates confusion and is not compliant with Virginia State law. Furthermore, bike paths use up and constrict the city streets. Specialized paths, using off grid areas like railroad beds creates a problem for public safety and police or ambulance response. Sidewalks are no place for icicles. Bicycles should be using the roads, traveling with the traffic and obeying all the laws, just like all other vehicles. And other vehicles should treat bicycles and motorcycles just like all other vehicles. Bike paths are a gross waste of public funds. Our city in the next year or two is going to be in serious financial difficulties and we are going to have to curtail many expenses. The city has not even been taking care of routine traffic engineering matters like painting curbs and lanes, repairing potholes, killing grass, clearing Debra, or putting up or replacing signs in the last few years, but it wants to create bike paths? Stupid!
Universal note	First, a couple of "housekeeping" items: 1. What you call "Norfolk Road" is actually "West Norfolk Road," named after the area of the city that historically goes by that name: "West Norfolk." It's not the "western" portion of "Norfolk Road;" it's "West Norfolk Road." 2. What you call the "South Norfolk Bridge" is actually named the "South Norfolk Jordan Bridge." Locals know it as the "Jordan Bridge," named for the old bridge that was constructed in the 1920s and was closed in 2008, torn down and replaced with the new bridge. My comments about the substance of the plan: It is quite ambitious and worthy in a number of regards, and good luck in achieving even a small fraction of the goals within the next couple of decades. Sidewalks are desperately needed along High Street West in Churchland. Not for me, but for the poor souls who have to walk up and down along what used to be a rural road, now a busy city thoroughfare. Whatever happened to reconstructing the Churchland Bridge, and the promise of nice facilities for cyclists and pedestrians? If they had the money, it would have been finished by now. Unfortunately, the City Council will no doubt continue their misplaced priorities and find money for unnecessary endeavours whilst real needs will continue to be ignored. Also, the "Vision Zero" goal, although worthy, needs to have real law enforcement "teeth" in it, in addition to the educational component. Bike lanes, "sharrows," crosswalks and sidewalks are all wonderful things, but only if they are USED PROPERLY. I still see plenty of idiot cyclists blowing right through stop lights and signs, riding the wrong way in bike lanes (with arrows pointing the way!) and every which way on city streets, plus riding in crosswalks instead of walking the bike through. Lots of riding on sidewalks, too. Plus, at night, most cyclists I see do not have a required headlight or a rear light, and usually they're wearing dark, non-reflective clothing. Oftentimes, riding the wrong way against the traffic. And NO helmets! I also see pedestrians crossing everywhere BUT crosswalks in many places. Is that still considered "jaywalking?" Is it even ticketable? I see police ignore flagrant violations by both cyclists and pedestrians. If you want to get to zero deaths, you have a steep mountain of Darwinism to climb. Then there are the motorists, or, more accurately, idiots with "smart" phones who happen to be driving a motor vehicle as a secondary activity. On busy stretches like High Street west of London/Airline all the way into Churchland and beyond, one takes his life

Universal note	Who is funding this project? Where is this grant money coming from? How much is being initially granted? What is the initial overall cost? How much are the ongoing maintenance costs? How much has already been spent on this project? How will this resolve the disparity of treating bicyclists as pedestrians with the fact that they are considered vehicles under the law and for liability purposes? How is the City prepared to protect itself, or citizens from this legal disparity?

Appendix J:
Shared Mobility Assessment

Contents

Overview

The intent of this memo is to describe publicly-available shared mobility systems (specifically bicycle and e-scooter share)—what they are, the benefits they could bring and the potential challenges they pose—and assess existing conditions to recommend the conditions for bringing a bike and/or scooter share program to Portsmouth. The memo is intended to inform elected officials, City staff, stakeholders, and the general public of the needs related to policy, programs, physical infrastructure, and education/ marketing that will guide a successful program in Portsmouth. The memo provides analyses of demand for shared mobility and community equity considerations specific to Portsmouth, and outlines a phased approach to implementation.

This is an opportune time for consideration of shared mobility in Portsmouth. The Virginia General Assembly has issued legislation that that requires local jurisdictions to regulate the operation of motorized skateboards or e-scooters, bicycles, or electric power-assisted bicycles for hire by January 1, 2020. Furthermore, there is growing demand in the city for sustainable and efficient means of transportation. A potential bike and/or scooter share program could complement this evolution, and at the same time provide enhanced mobility and public health benefits for many residents throughout the city.

What is Shared Mobility?

Shared mobility programs are designed to provide cost-effective, environmentally-friendly and convenient travel options for short trips within a city or region. The systems consist of a fleet of user-friendly and durable bicycles, electric power-assisted bicycles or lightweight electric scooters (e-scooters) intended to be driven while standing. Both bike or scooter share programs are relatively inexpensive and quick to launch—compared to highway and transit projects—and can provide an extension to Portsmouth's public transportation system.

Bike Share

Bike share systems are typically structured to operate like automated bike rental for short periods. The structure encourages shorter, spontaneous trips in which bikes are checked out, ridden for a short period of time (typically 30 minutes or less) and either returned to any station in the system or parked at the final destination. Most systems employ a pricing schedule that encourages short, frequent trips and discourages bikes being in use for long periods of time. Some systems provide for unlimited, short trips for casual (24 hour) users or annual/monthly members—so-called "buffet" style of pricing—while others charge for each trip or each hour of use—so-called "ala carte" pricing. For either pricing model, the focus is getting to nearby destinations quickly and conveniently. Public bike share is not intended to compete with bike rental companies, which are intended for those interested in using a bicycle continuously for longer periods of time.

As of the end of 2018, over one hundred cities and regions have some form of bike share in the U.S., which has become a mainstream form of travel in many cities across the country. The rapid pace of development involving shared mobility devices makes tracking systems very challenging, especially considering the range of types (campus-based, municipal, dockless, regional, etc.).

Evolution of Bike Share Technology

Bike share is not a 21st century concept and has been around for decades. Most of the 1st generation "systems" were volunteer-led and informally organized in a handful of cities, such as Amsterdam, Netherlands and Portland, Oregon in the 1970's, 80's and 90's. These programs experienced low to moderate success because of theft, vandalism, inefficient technology and insufficient operational oversight. However, in the past ten years, innovations in technology have increased user accountability and given rise to a new generation of technology-driven bike share programs. Advancements in credit card transaction capabilities, WiFi and RFID (radio-frequency identification) chips have allowed operators to introduce accountability and reduce theft and vandalism.

The three bike share technology types are 1) "dock-based" equipment, 2) "dockless" smart-bike equipment and 3) "lock-to" smart-bike equipment. Dock-based bike-share technology options include modular systems consisting of docking stations and kiosks that use solar power and wireless communication. This technology allows for bike share stations to be moved, relocated, expanded, or reduced to meet demand. "Smart-bike" systems allow the shared bicycles to be locked anywhere within a designated service area, either locked to a fixed object, a designated rack, or locked to itself.

In all cases, they represent a fleet of shared bikes for use by members (hourly, daily, monthly or annually) within a designated service area of a city or region. Depending on levels of use, bicycles must to redistributed (a.k.a. "rebalancing") from one station or part of the city to another to ensure that bikes are available in areas where members would typically be looking for them. All require a software back-end that keeps track of ridership information and can be linked in real time to a website or mobile device applications. The back-end also tracks the number of trips, the distance travelled and where the bicycle was both accessed and parked. The differences among the three technologies are described below.

"Dock-Based" Equipment

Dock-based bike share systems have existed In North America since Montreal's Bixi program in 2007. Because the equipment is quite expensive—roughly $50,000 for a 10-bike, 20-dock station—most U.S. cities received federal transportation grants and/or large corporate sponsorship deals to cover the high capital and operations costs. Docking points use strong magnets to secure the bicycles, powered by a solar panel typically affixed to the transaction kiosk. The kiosk provides the opportunity for casual users to purchase a short-term membership on demand, using a credit card. Bicycles within a dock-based system may only be secured properly at the station, so density of stations and high visibility is critical to success.

Dock-based bike share station in Madison WI

"Dockless" Smart-Bike Equipment

Dockless smart-bikes at the pilot program in Durham

Dockless smart-bike equipment provides greater flexibility, as it allows the user to retrieve or park the bicycle anywhere within the designated service area. Dockless bikes are locked using a rear wheel lock enabled or disabled with a smart phone app. Because the technology is part of the design of the bike itself, centrally-located stations are not required for the system to function. As such, the costs are far lower than dock-based systems and they offer a level of flexibility that some cities find very attractive. Many dockless bike share companies are supported financially by Chinese and Silicon-Valley based venture capital firms and have offered their systems at very little or no cost to the respective cities (though City staff time to assist with launch and oversight is necessary). Staff time can range from 4-16 hours per week, with more time potentially being needed during the launch of a pilot program and at the conclusion of the program, for monitoring and evaluation. Because of the low cost of the equipment and the fact that they can be parked anywhere, some dockless systems have suffered with far higher rates of vandalism and theft.

"Lock-to" Smart-Bike Equipment

Lock-to smart-bike equipment also provides a high level of flexibility, as users are typically allowed to retrieve or park the bicycle anywhere within the designated service area. Unlike the dockless bikes, they do not feature built-in wheel locks and must be locked to a fixed object using a U-lock or heavy cable attached to the bike. Users are able to access a bike using an unlocking code received by text message, tapping their RFID card, or by scanning a QR code from the vendor's smart phone app.

"Lock-to" smart-bikes parked at a station in Orlando

These smart bikes are also considered a hybrid of the two options described above because the need to lock to a fixed object provides the opportunity to easily create a group of branded bike racks and designated them as a "station" (see photo at right). The physical presence of the bike share station provides high level of visibility for the bike share program, allows users to easily locate a pod of bicycles, and offers predictability for where bicycles can be found at a given moment. Because of these advantages, operators of the lock-to equipment encourage users to return the bike share bikes to designated stations (sometimes called "hubs") through economic incentives. Typically, an additional fee of $1-$2 is charged for locking the bike outside of the hub, as long as it is within the broadly-defined bike share service area.

Electric-assist Bike Share Equipment

Electric-assist bike share system in Birmingham

In the past few years, electric-assist bike (e-bike) share equipment has become more accessible. There are different types of systems but all models require the rider to pedal the bicycle in order to get an "assist" from the electric motor. Though commercially available for private bicycles, no bike share models offer a throttle-based e-bike. The top speed for an e-bike share system is typically 15 mph at which time the regulator cuts off any additional power. Because the e-bikes are powered by a battery, they must be recharged on a regular basis which creates a significant challenge for operators who must swap the batteries. The benefits of an e-bike share system (either partial or full) include the increased distance riders are able to cover and an enhanced ability to ride up and over hills (thus encouraging a larger pool of potential riders).

Evaluation of Bike Share Technology Options

The three bike share equipment locking types described above have strengths and weaknesses. To help determine which system is most appropriate for the City of Portsmouth's needs, it is helpful to consider key issues for each option based on some key criteria.

Table 1: Bike Share Technology Option Characteristics

Criterion	Dock-based Equipment	"Lock-to" Smart-bike Equipment	"Dockless" Smart-bike Equipment
Bicycle/Station Durability	40+ pound bike with proprietary components and internal cables to reduce vandalism; puncture proof tires	40+ pound bike with proprietary components and internal cables to reduce vandalism; puncture proof tires	Dockless bikes are described as "off the shelf" and tend to be of lower quality; frequent replacement is necessary
Ease of Use	Requires a key fob or swipe card for member access; casual users require interaction with transaction kiosk or a smart phone app to get a day pass	Members swipe or tap their RFID card, or punch-in access code onto bike-mounted interface; casual users require interaction with transaction kiosk or a smart phone app to get a day pass	Short-term or long-term members access a bike using a QR code from their smart phones; some systems offer opportunities to get an unlocking code at participating businesses using cash
Level of Visibility within	Highly visible stations, whether on-street or	Highly visible stations, whether on-street or sidewalk	Other than the busiest destinations, visibility is

Criterion	Dock-based Equipment	"Lock-to" Smart-bike Equipment	"Dockless" Smart-bike Equipment
the Given Context	sidewalk; transaction kiosk and map panel add to the presence of the station		minimal since bikes are typically parked alone or in small groups, sometimes off the beaten path
'Brandability' of Equipment	Branding space on rear fender, front basket and the kiosks that are required at every station	Branding space on rear fender, front basket and kiosks (though many stations may forego kiosk)	While branding space is available, because most dockless systems are at no cost to the city, they are typically without any branded logos
Site Planning and installation issues	Heavy steel plates require small crane and flatbed truck for installation of station docks; permits needed for the station to occupy the ROW	Standard or branded bike racks are typically mounted to small plate so no crane or large delivery truck required; permits needed for the station to occupy the ROW	Permits typically are needed for general use of the ROW, not to occupy a particular area within the street or sidewalk
Sustainability: solar power, local/domestic production, WiFi	All vendor options use solar power and are WiFi enabled; some products are manufactured in U.S. and Canada	All vendor options use solar power and are WiFi enabled; limited production in U.S. and Canada (more typically in China)	All vendor options use solar power and are WiFi enabled; limited production in U.S. and Canada (more typically in China)
Track Record of Existing Systems	Nearly all large and many mid-size cities use dock-based equipment with generally high levels of success and popularity	Deployed in many mid-size and small (<100,000) cities and generally well received	Dockless has existed in U.S. cities (primarily mid-size and small) for only a year or less, so success has been hard to gauge at this point
Equipment Costs	Typical station with 8-10 bikes: $45,000 to $55,000 (owned by city or non-profit group)	Typical station with 8-10 bikes: $20,000 to $25,000, less if no kiosk used (owned by city or non-profit group)	Systems are typically owned by the equipment/operations vendor and provided to the cities at no costs (other than staff time); some revenue available to cities, depending on permit fees
Operational Cost	Typical fees are in the $2,000-$2,500 per bike range, annually paid for	Typical fees are in the $2,000-$2,500 per bike range, annually paid for by	Operations come at no cost to the city; operators are supported by venture capital

Criterion	Dock-based Equipment	"Lock-to" Smart-bike Equipment	"Dockless" Smart-bike Equipment
	by sponsorship, user fees and occasional city/state grants	sponsorship, user fees and occasional city/state grants	funding and user fees; in some areas maintenance and customer service has suffered

Scooter Share

Scooter share systems first appeared in California in 2017 as a new and unique "micro-mobility" transportation option. Supplementing existing bike share service in most places, they have since quickly expanded to many communities across the U.S. The service utilizes app-based technology to offer short-term rentals of electric-powered scooters (aka "e-scooters"). Operation of the system functions much like that of a dockless bike share system described above, in which users park at their destination within a defined geographic service area. To end a trip, users are instructed to park the scooter on the sidewalk close to the curb and out of the pedestrian travel zone.

Similar to bike share, e-scooter share is designed to provide a cost-effective, environmentally-friendly and convenient travel option for short, one-way trips. However, e-scooters differ from bikes in that they require little physical effort on behalf of the user. Furthermore, operationally, e-scooter share differs in that units are typically picked up every night to be charged, and are deployed again the next day. Companies typically hire a mix of independent contractors as well as regular employees to charge, deploy, maintain, and respond to complaints and service requests. Throughout the day, e-scooters are distributed throughout the city based on where they are deployed by staff, and where people end their trips. There is more discussion regarding deployment and distribution in the Shared Mobility Policy Considerations and Recommendations section starting on page 18. In 2018, multiple companies introduced e-scooter models and entered the market. Benefits of e-scooter systems include broad appeal to a wide user base, their ability to customize short-term trips and close the gap between transit and destinations, and potential to reduce automobile trips. At the same time, the deployment of e-scooter programs around the country has revealed several areas where more consideration and work is needed to integrate e-scooters safely and smoothly into a community's traffic system. Concerns about e-scooters include their use on sidewalks and paths having a negative impact on pedestrian safety, the sometimes-disorderly ways users park the scooters—sometimes blocking sidewalks, bus stops and curb ramps—and the safety of using such small-wheeled vehicles on busy streets.

Designated Scooter Parking Area in Los Angeles

Vendors and cities have developed several options for scooter parking, charging, and storage. Most operators currently use dockless systems, in which scooters are picked up at the end of the day by contract employees to be recharged and rebalanced geographically. Although the dockless systems do not have permanent scooter parking locations associated with them, technologies such as geofencing can be used to limit where scooters are allowed to be parked. Other solutions, such as designated parking areas, encourage people to park scooters in certain locations. Recently, some communities have begun piloting charging docking stations for scooters. Typically, the cost of these stations would depend on the volume of charging stations; however, due to the fact that this is very new technology still in the pilot phase, industry-wide cost estimates are not yet available. Currently, pilot docked scooter programs are testing different variations of the programs, including where the stations are located (public right-of-way or private property) and incentives for dropping scooters at charging stations.

Over the relatively brief course of e-scooter share deployment, the geographic spread and regulation of e-scooter systems has evolved dramatically. The rise of e-scooter share has given way to an increased interest in private, individual e-scooter ownership and use, as well as more traditional business models of e-scooter rental, in which users rent an e-scooter for a full day with the intention of taking several trips. Jurisdictions must consider these additional applications of e-scooters when adopting regulations for their use in the public right-of-way.

Docked Scooter Charging Station in DC

Many cities have completed or are currently undergoing e-scooter pilot programs, in which one or more vendors are permitted to distribute a fleet of e-scooters within a defined geographic region for a fixed period of time. Pilot programs give communities access to new transportation options, while allowing the city to determine whether or not e-scooters help meet transportation needs. Data collection—not always available, depending on the vendor—including trip origins and destinations, routes, vehicle use, crash reports and complaints are collected and analyzed, in addition to structured community feedback. Pilot programs allow cities to stay adaptable and provide an opportunity to adjust permit terms, consider proposals from different service providers, and incorporate community input into program planning.

Potential Benefits of Shared Mobility

The people who use and benefit from shared mobility systems are constantly changing. Initially, these programs in the U.S. were considered limited to only large cities with a high population and employment density and large mass transit systems. As more success has been realized, larger cities are expanding shared mobility into lower density and lower income areas, and mid-size and smaller cities have launched successful bike share and scooter share systems. Bike share and scooter share have been transformative transportation system offerings for many cities in North America. This section provides a summary of some of the financial, health, transportation and safety benefits that can result from a successful bike share or scooter share system.

Many urban hubs in Virginia have some form of shared mobility program, including Arlington, Alexandria, Charlottesville, Fairfax, Norfolk, Richmond, and Virginia Beach. Virginia Beach manages an e-scooter program, Norfolk and Alexandria have bike and e-scooter systems, and Charlottesville and Richmond manage bikes, e-bikes, and e-scooters. As shared mobility providers look to mid-size markets, more

communities around the Commonwealth will bring systems online. Knowledge sharing about the successes and failures of pilot programs in different contexts will be invaluable as municipalities look to formalize ordinances. Please see Appendix A of this memo for an in-depth review of shared mobility programs operating in Virginia.

Financial Benefits

Shared Mobility systems are relatively inexpensive and quick-to-implement urban transportation options compared to other transportation modes. The financial and economic development benefits in Portsmouth could include:

- **Infilling the city's transit system/last mile connectivity.** When sited adjacent to key bus stops, shared mobility systems help fill in gaps between transit lines and a rider's home or place of employment.
- **Enhancing Portsmouth's image as a city with sustainable transportation options.** Shared mobility systems can become an attraction for residents, employees, visitors and businesses. They can also generate positive local and regional media exposure related to active transportation, in particular, that would otherwise be difficult or costly to generate.
- **Job creation.** On-going positions for operating the potential system or systems provide a benefit to the local economy.
- **Businesses can benefit from improved access to their stores.** Customers and employees can use shared mobility as an inexpensive transportation option for commuting or running errands. A 2014 Capital Bikeshare (Washington D.C.) user survey found that 67% of all induced trips (i.e. a trip otherwise not made without bike share as an option) were made by people "more likely" to patronize businesses proximate to bike share stations.
- **Reduced transportation costs for household budgets.** Like public transit, shared mobility share can help some households reduce their number of short vehicle trips, or eliminate the need for a second vehicle or even a vehicle altogether.

Shared mobility is an affordable form of transportation relative to other options. The cost of using a shared mobility system for a year can be as low as the annual membership fee, which is typically between $80 and $100 per year, compared to $6,000 for annual ownership and operation of a personal vehicle.

Transportation/Mobility Benefits

Shared Mobility provide additional transportation options for short urban trips for residents and visitors. They can fill existing gaps between trips too far to walk, but perhaps not long enough to justify waiting for a bus or the cost of driving or taking a taxi, Uber or Lyft.

Shared Mobility can also:

- **Reduce reliance on private automobiles.** Initial experience in American cities has shown that as much as 30% of shared mobility trips replace personal motor vehicle trips or ride hailing services like Uber or Lyft.

- **Extend the reach of transit** by providing a first and last-mile transportation solution, providing service to under-served areas or areas that do not justify the cost of other transit options.
- **Encourages active transportation.** According to a 2013 study from the Mineta Transportation Institute, over 70% of surveyed users in Minneapolis, Toronto, Montreal and Washington DC stated that they bicycle more since subscribing to bike share.
- **Reduce barriers to active transportation.** Bike share makes bicycling convenient - there is no need to own or store a personal bicycle or worry about locking your bike and having it stolen. In 2013, 40% of Capital Bikeshare survey respondents reported that they would not have otherwise made the trip in the past month, and almost 10% reduced their driving miles by using bike share.

Analyzing current bike and walk mode share trends is helpful in understanding how people are travelling. shared mobility is also a complementary mode of transportation to bus transit and can expand the geographic coverage for transit riders. These services could even encourage some to choose to use shared mobility instead of driving for some or all trips.

Health Benefits

The health benefits of shared mobility, particularly bicycling are well recognized and include the potential to reduce obesity levels, heart disease and other sedentary lifestyle diseases. The recommended amount of physical activity for adults is 150 minutes per week or 20-30 minutes of moderate physical activity each day. **Because average bike share trips are just over one mile at relatively slow speeds, the typical 20-minute trip can help people get this needed physical activity as part of their daily commute or travel pattern.**

For a shared e-scooter system, the health benefits would be minimal. Riding a scooter only requires the user to stand for the duration of the trip, and kick-start the scooter after stopping at a stop sign, traffic signal or to yield to pedestrians. Accessing a scooter typically would involve walking for a short or modest distance, depending on where the nearest unused scooter is parked.

Safety Benefits

Because shared mobility systems are still so new and there is not yet a consistent reporting system for crashes that occur while using these devices. Early evidence points to a large disparity between safety records of bike share vs scooter share.

Bike share systems have a generally positive safety record. In Washington DC, a total of 14 crashes were reported in the first year of operation, of which only one was serious in nature. Approximately one million trips were made during this same period for an injury crash rate of 0.83 injuries per million miles (the average trip length was approximately 1.2 miles per trip), which is lower than the injury rate of 7.3 injuries per million miles ridden for private bicycling in Washington, DC. Also, in its inaugural year, Citi Bike in New York City had over 12 million trips without fatality and fewer than 80 crashes that required trips to the hospital.

The safety record of scooter share systems is a lot more ambiguous due to a lack of consistent reporting which makes analysis difficult. The Virginia Department of Motor Vehicles (Virginia DMV) reported seven crashes involving injuries, electric scooters, and motor vehicles in 2018. However, that number is likely far lower than what hospitals or local police departments may report due to a lack of a consistent reporting

process. To better understand the safety impacts of scooter sharing systems, the Virginia DMV is considering adding scooters as an official mode type in crash reports which would greatly increase the tracking and analysis of crashes.

Some of the factors contributing to this safety record could include:

- The **"safety in numbers"** effect and increased driver awareness due to increased media; increased number of users on the street; and because more drivers use the shared mobility system or own a bicycle or scooter.
- Most shared mobility devices **are designed for the rigors of constant use in an urban environment**. As such, they are far heavier than most bicycles and are relatively slow to ride. The typical 3-speed hubs are geared low; thus most riders travel at speeds of roughly 10 mph. These slower speeds improve the safety record for shared mobility.
- The **safe design of the upright-position of most devices** fitted with internal safety features such as wide, puncture-proof tires, drum brakes, generator-powered lights and a bell. The devices are also regularly inspected to ensure that all safety features are in proper working order.

Safety Concerns

The small wheels and high center of gravity created by the need to stand when operating a shared scooter is a likely contributor to crashes

Because many shared mobility programs, particularly e-scooter share systems, have only been in use for one year or less, data is still lacking to make firm conclusions about the technology's safety benefits. However, there are reports from a number of cities' hospital emergency-room doctors that indicate a higher-than-expected number of ER visits with injuries arising from scooter use. Findings are showing crashes involving these devices can include a high risk of face and head injuries and other serious injuries. This has been reported in Atlanta, Austin, Nashville, San Francisco, and Santa Monica. NBC News-4 in Washington reports 16 US deaths after e-scooter rentals between September 2018 and August 2019 (Note that in many cities, the rate of scooter use is very high, so judgements about scooter safety will require further data analysis after a longer period of time).

One of the few studies related to e-scooter safety was conducted in November 2018 by the Austin Public Health Department in Texas. The study looked at 190 injured e-scooter riders who were involved in crashes between September and November, 2018 in Austin. The study found that 32% were using e-scooters for the first time, roughly 10% were wearing helmets and 48% suffered from head injuries. These findings imply that education and training programs should be considered in conjunction with the launch of an e-scooter program in order to heavily encourage helmet use and improve a user's skill level when using a scooter for the first time. Other safety studies include Los Angeles and Virginia Beach.[1] The Virginia Beach study, conducted by Virginia Beach EMS, reported that from August 2018 to August 2019, 63 EMS incidents involving 65 individuals with injuries related to an electric scooter have occurred. These incidents were

[1] https://southsidedaily.com/wp-content/uploads/2019/08/E-SCOOTER-INCIDENTS28461.pdf

primarily single rider crashes, and occurred among the 18-29 age group, happened during summer months, and resulted in minor injuries. A report summarizing the Charlottesville shared mobility pilot highlights the risk to head injury but near complete lack of helmet use among users. Visibility, lighting, and sidewalk use are also major safety concerns brought up in the report.

Concern has also been expressed about maneuverability, handling and braking ability of scooters on downhill slopes. Scooters' small wheels and the high center of gravity of users' standing position has been blamed for many crashes. [2] This is consistent with the results of the study from Austin, which found that only 10% of those injured were involved in a collision with a motor vehicle. Clearly, most injuries—and by extrapolation, most crashes—occurred due to the propensity of scooter users to crash after losing control of the vehicle or perhaps due to defective equipment.

Local Context Analysis

Demand Analysis

The intent of this section of the report is to help define a potential shared mobility service area in Portsmouth. To do so, three factors are important to consider and analyze:

- Level of demand
- Equity goals
- Qualitative barriers analysis

Maximizing Ridership vs. Providing Coverage

Attempting to maximize shared mobility ridership can be a lot like trying to maximize ridership for any other transportation mode. It requires locating shared devices where your customers are most likely to be and where they are most likely to want to go. With a dockless system, maximizing ridership will trigger likely expansion of the provider's especially into new parts of the city. In all cases, maximizing ridership increases the replacement of motor vehicle trips with shared mobility trips, improves public health outcomes and improves safety though the "safety in numbers" effect (i.e. increasing the likelihood that motorists will feel comfortable sharing the roadway with bicycles, scooters and other shared devices predicting their movements and behavior).

Typically, publicly supported and permitted bike share or scooter share programs attempt to **strike a balance between *maximizing ridership* and providing *coverage,*** however. A shared mobility system that focuses on coverage looks to spread the number of devices over as large of a geographic area as possible, in order to maximize the number of people that have access to the service. A system with wide coverage may sacrifice ridership but can help address equity concerns and can be a part of providing multiple low-cost transportation options for people with limited incomes or mobility options.

Demand Analysis Methodology

[2] Holley, Peter, Washington Post, "Scooter use is rising in major cities. So are trips to the emergency room." (September 6, 2018) and Quintana, Chris, The Chronicle of Higher Education, "On campuses, electric scooters meet speed bumps" (February 22, 2019)

The Shared Mobility demand analysis makes use of six major inputs:

- **Live** – where people live
- **Work** – where people work
- **Ride** – where people use transit
- **Play** – where people recreate
- **Learn** – where people to go school
- **Shop** – where people spend their money

The selection of these categories was based on research that explored factors influencing shared mobility use. In a study presented at the 2013 Transportation Research Board (TRB) Annual Meeting, R. Alexander Rixey found that **population density, employment density, and transit commuters** had a statistically significant correlation with station-level bikeshare ridership in Washington, D.C., Minneapolis, MN, and Denver, CO.[3] A second regression analysis conducted by Kim et al. found **that residential and commercial buildings, parks, schools, and subway stations** had a positive influence on bikeshare ridership.[4] Finally, a third study from Faghih-Imani found that **population density, employment density, access to restaurants and other commercial activity, proximity to a central business district, proximity to college campuses, and proximity to a transit station** was positively correlated with bikeshare ridership.[5]

[3] Rixey, R. Alexander. Station-Level Forecasting of Bike Sharing Ridership: Station Network Effects in Three U.S. Systems. 2012. 2013 TRB Annual Meeting. <https://nacto.org/wp-content/uploads/2015/07/2012_Rixey_Station-Level-Forecasting-of-Bike-Sharing-Ridership.pdf>

[4] Kim, DJ., Shin, HC, Im, H., and J. Park. Factors Influencing Travel Behaviors in Bikesharing. 2011. 2012 TRB Annual Meeting. <https://nacto.org/wp-content/uploads/2012/02/Factors-Influencing-Travel-Behaviors-in-Bikesharing-Kim-et-al-12-1310.pdf>

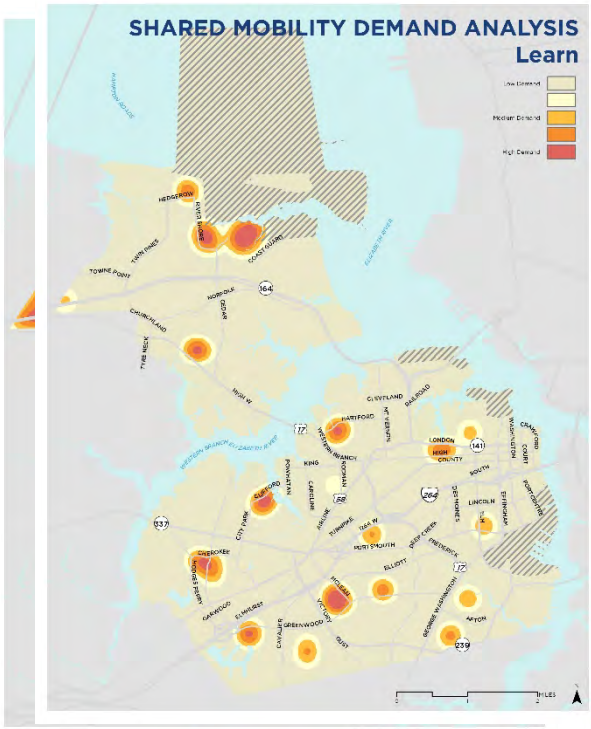
[5] Faghih-Imani, A., Eluru, N., El-Geneidy, A. M., Rabbat, M., & Haq, U. (2014). How Land-Use and Urban Form Impact Bicycle Flows: Evidence from the Bicycle-Sharing System (BIXI) in Montreal. Journal of Transport Geography, 41, 306-314.

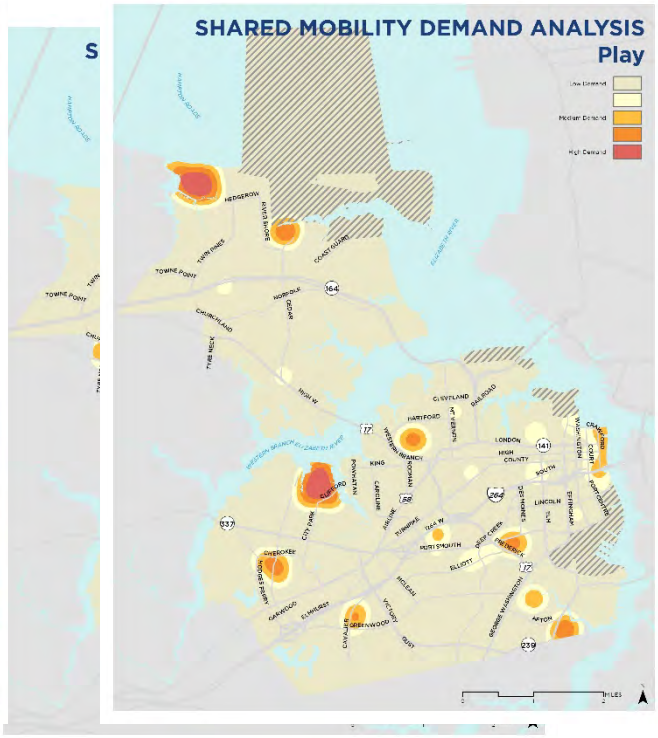
For additional research see:

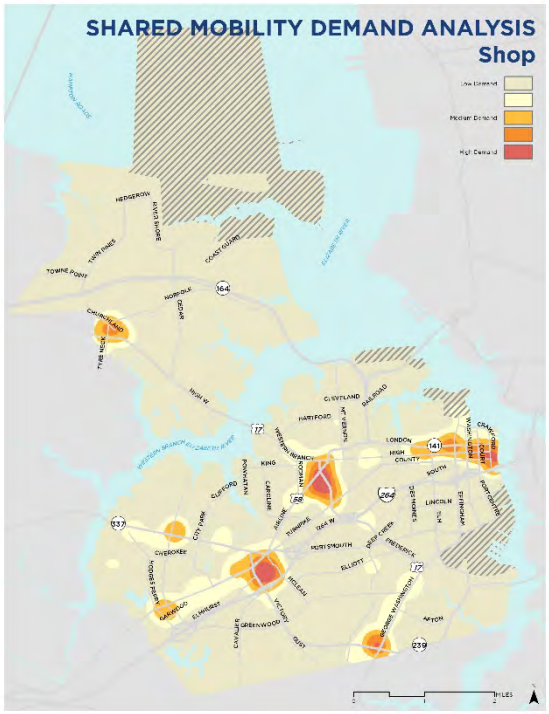
El-Assi, W., Mahmoud, M., & Habib, K. (2015). Effects of Built Environment and Weather on Bike Sharing Demand: A Station Level Analysis of Commercial Bike Sharing in Toronto. Transportation, 1-25.

Wang, X., Lindsey, G., Schoner, J. E., & Harrison, A. (2016). Modelling Bike Share Station Activity: Effects of Nearby Businesses and Jobs on Trips to and from Stations. Journal of Urban Planing and Development, 142(1), 04015001-.

The Figure 1 map series on the following pages illustrate the results of the demand analysis for each of the six individual layers described above. **See the separate Demand Memo for a detailed description of the methodology used to incorporate the six inputs into the individual and composite demand maps**

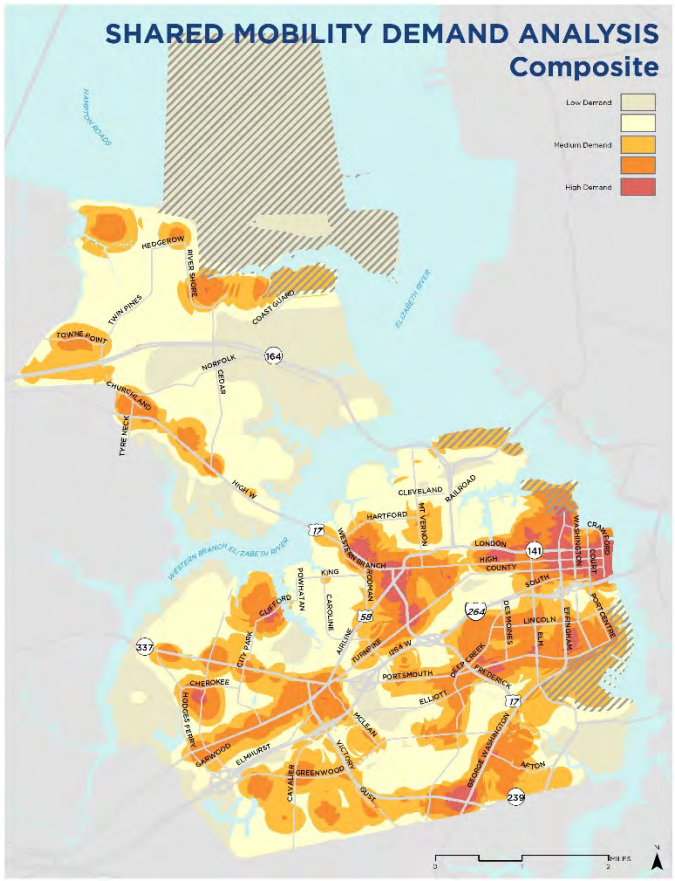






Demand Composite Results

Combining the individual demand analyses provides an aggregate look at the relative demand for shared mobility in Portsmouth. **Figure 2** shows the relative demand for shared mobility trips with all six analyses weighted equally. **Figure 3** highlights the clusters of moderate to high demand and the corridors of moderate demand connecting them, with clusters representing communities of concern highlighted. These results should act as a launching point where local knowledge and community input would contribute to device placement and distribution.



High Demand Clusters (by Approximate Neighborhood, from north to south)

- Churchland Park
- Midtown (*overlaps with community of concern*)
- Westhaven (*overlaps with community of concern*)
- Greater Downtown (includes Downtown, Olde Towne and Port-Centre (*overlaps with community of concern*)
- Portsmouth City Park
- West Park Homes/Manor
- Alexander's Corner
- Cradock (*overlaps with community of concern*)
- William's Court (*overlaps with community of concern*)

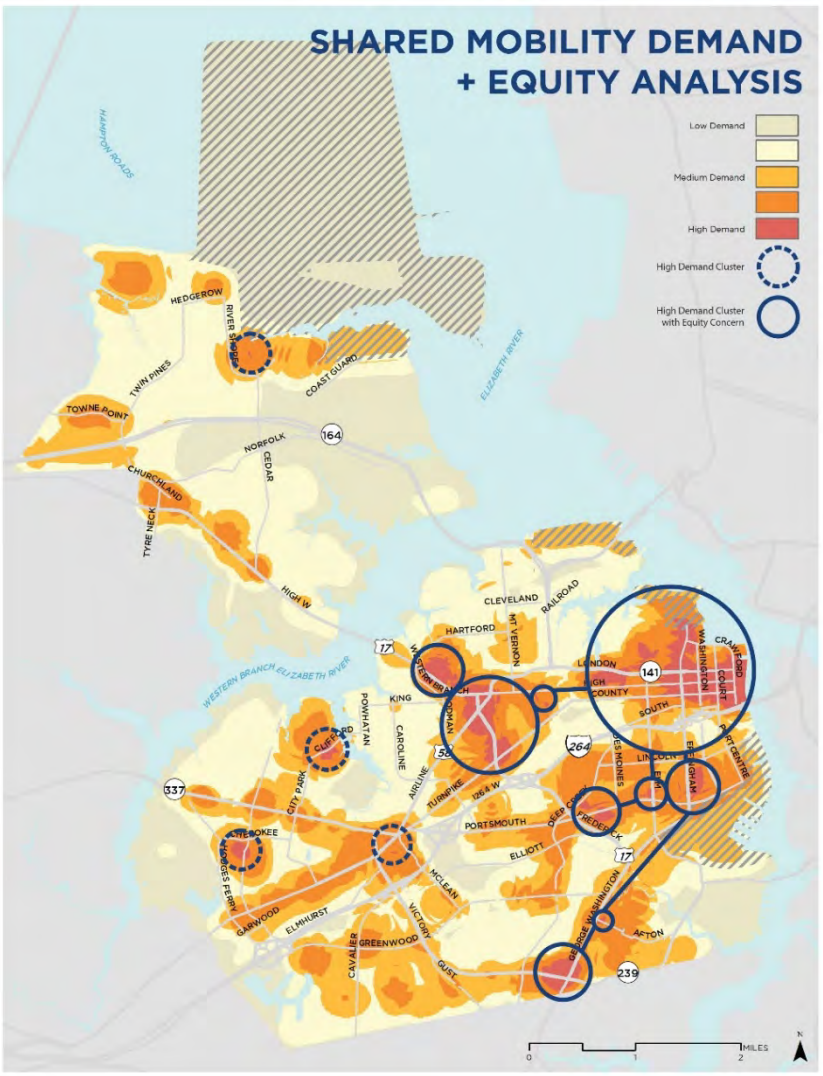
Among the identified high demand clusters, Churchland Park, Portsmouth City Park, West Park Homes/Manor, and Alexander's Corner are not connected to other clusters through a route of moderate demand, creating a small "island" of demand that may not be able to contribute fully to a citywide shared mobility network. In contrast, the **Midtown, Westhaven, Greater Downtown, Cradock, and William's Court** clusters showed the greatest combination of relative demand and connectivity to other high demand clusters.

Equity Analysis

While shared mobility programs typically launch in the highest demand areas (e.g. downtowns or areas near universities), geographic and social equity are also important considerations. After launching bike share service in relatively-confined, high demand areas, cities such as Boston, Minneapolis, and Washington D.C. expanded into underserved communities that typically exhibit lower demand. Other cities such as Detroit and St Louis were keen to include bike share in lower-income and/or minority communities from the initial launch.

Access to transportation can help or hinder a person's ability to get to work, attend school, buy healthy food, or socialize. Traditionally, the people most susceptible to experiencing the negative impacts of limited

mobility options have been children, seniors, people of color, and people with limited access to a car, limited formal education, living in a lower-income household, or with limited English-speaking proficiency. Identifying locations that can serve these “communities of concern” can help close the gap in individuals’ access to Portsmouth’s transportation network and can help foster new opportunities for economic and social inclusion.



Equity Analysis Methodology

A spatial analysis of seven socio-economic **indicators** pulled from the 2013-2017 American Community Survey (ACS) Block Group estimates, **that define the communities of concern**, including:

- **Minority Groups**: This indicator shows the percentage of the population that identifies as non-white or multiple races/ethnicities.
- **Youth & Older Adults**: These indicators show the percent of the population that is under the age of 18 and over the age of 64.
- **Poverty**: This indicator shows the percent of the population that is living at or below 200% of the Federal Poverty Level.
- **Limited Education**: This indicator shows the percent of the adult population over the age of 24 that do not have a high school diploma or equivalent degree.
- **Limited English Proficiency**: This indicator shows the percent of the population that identified as not speaking English well or at all.
- **Zero-Vehicle Household:** This indicator shows the percent of households that said they did not have regular access to a motor vehicle.

Each of the seven socio-economic indicators were mapped based on the percentage of the overall population that is impacted by each factor *(see separate Equity Memo for more details).*

Equity + Demand Overlap

The map on the following page highlights the areas of overlap between the shared mobility Demand Analysis results and where communities of concern are present. **Locating shared mobility in or near these neighborhoods will provide greater transportation options for the identified communities of concern within Portsmouth**. Since one of the goals of a shared mobility system in Portsmouth should be to

“improve mobility options for communities of concern”, understanding concentrations of the communities will help to inform recommendations related to the shared mobility service area.

Barriers and Opportunities

Within the City of Portsmouth, a number of physical barriers to shared mobility exist today: interstate highways, high-volume arterial roads, bodies of water with long bridges, and wide/busy intersections. These present real and perceived barriers to active transportation, discouraging connectivity not only for current bicyclists, but for potential shared mobility users as well. Because many users are likely to be visitors and/or novices, the visual and spatial barriers between Portsmouth’s various districts and destinations could play a role in whether someone decides to participate in a shared mobility system.

The barriers listed below present some of the critical challenges to launching a bike or scooter share program in Portsmouth:

- I-264
- MLK Expressway (US-58)
- High St(US-17)
- Western Fwy (VA-164)
- Victory Blvd
- Portsmouth Blvd
- Effingham St
- High Street Bridge (US-17)
- W Norfolk Bridge (Western Fwy, VA-164)
- Lack of shared use trails and bicycle network
- Elizabeth River tributaries

Although nearly all cities with shared mobility programs suffer from some discontinuity due to busy roads and highways, of particular concern in Portsmouth are the water bodies that separate parts of the city and can create a challenging experience for users and system implementation. This emphasizes **the need to try to mitigate these challenges through improved infrastructure facilities that benefit all lite individual transportation alternatives**.

Regional Connectivity

The introduction of a shared mobility system in Portsmouth could increase multi-modal opportunities for regional travel to and from neighboring communities, like Norfolk, Suffolk, or Chesapeake. Although geofencing and complicated agreements between vendors and municipalities make an open and unified regional system challenging, it’s important to think regionally about micro-mobility. Using the same vendor as that of a neighboring community could increase implementation efficiency while taking advantage of brand recognition in the region, local knowledge acquired by the vendor, and user familiarity with the system.

Because there have already been instances of shared mobility devices making their way from Norfolk to Portsmouth via passenger ferry, an emphasis within the vendor’s education program should focus on system boundaries and fees. Portsmouth and neighboring cities should work with shared mobility vendors to develop robust education and awareness campaigns., which can use creative signage, including pavement

markings for parking zones, yard signs, etc., to prevent the need for fines or law enforcement, which are not recommended at the launch of a pilot program.

Shared Mobility to and within Military Bases

The Norfolk Naval Shipyard and Naval Medical Center are both major employers in Portsmouth. The City should use this planning process to begin a dialogue with these stakeholders around issues of connectivity and shared mobility. The needs of the organization and user will differ dramatically within the context of a base or secure campus from those in a normal urban environment. Often, bike fleets on a base or campus are free for use at no cost to the user and the equipment resembles a more traditional cruiser bike style build. The organization will likely develop their own policies on operations, often through an internal transportation coordinator. Ideally, communication between the City and organization will lead to best practices that balances the needs of both the internal and external shared mobility systems. Strategies like shared education programs, discounts for Base operations staff on the municipal shared system, and rebalancing the fleets to serve rush hour users at access gates will make the two systems feel more fluid, increasing overall use.

Moving forward with shared mobility on the Naval campuses would likely mean one of two scenarios: 1) establishing a completely internal system that operates separately from that in the city, or 2) vendor access is granted to allow the shared mobility vendor security clearance for re-distribution and maintenance of equipment in the secure bases.

Shared Mobility Policy Considerations and Recommendations

Fleet Size

There are two major methodologies communities have deployed to manage shared mobility devices within their public right-of-way:

- **Static Fleet Caps:**

Communities piloting shared mobility for the first time may opt for deploying a limited fleet in the interest of gauging public interest in the service and observing modal interaction between e-scooters, bicycle, pedestrians, and motor vehicles. Other communities using static fleet caps may have determined the designated number of units is an appropriate or manageable amount for a community of their size, land-use pattern, or traffic conditions.

Neatly parked shared scooters in San Diego CA

- **Initial Fleet Size with Demand-based Expansion and Reduction Procedures:**

Other municipalities have chosen to utilize variable fleet caps based on resident demand, and plan for scalability from the beginning. For example, the City of Charlottesville, VA, a community just shy of 50,000

residents, launched a limited-term e-scooter pilot in the Fall of 2018 with two vendors and 200 units (100 per vendor). The City's permit agreement with Bird and Lime states that if either operator achieves an average of four or more trips per unit per day over the course of a calendar month, they may petition the city for a fleet expansion. The City of Charlotte, NC has a "dynamic cap" on the number of e-scooter units that can be actively deployed on city streets at any given time. Under this cap system, each vendor must track their average trips per day per unit and balance their fleet accordingly. Operators that fall below 2.0 rides per scooter per day must remove active units from the system, while vendors that achieve above 3.0 rides per scooter per day may deploy additional units.

Draft Recommendation: Portsmouth should set an initial fixed fleet size with immediate demand-based expansion and reduction procedures within a set pilot period. This approach gradually integrates shared mobility devices into the streetscape. Furthermore, operators can be responsive to user demand, meeting transportation needs while limiting the presence of underutilized units. This will also allow fleet sizes to naturally grow or shrink based on weather seasons or tourist peak times, which impact ridership.

Based on Portsmouth demographics, it is recommended to begin a six-month pilot with a limited deployment of 300 shared mobility devices (for example, if two vendors are permitted to operate, each may deploy 150 units). After the first six months of operation, this initial fleet size of 300 units can expand or contract based on ridership data collected by the vendor and submitted to the City (See the Data Collection & Analysis Section for data sharing requirements).

If the vendor can demonstrate an average of at least 3 daily trips per operational unit over a full month between May-October and 2 daily trips between November-April, the vendor may request in writing to expand its fleet size by 25%. Conversely, in the event that the vendor's fleet provides on average less than 2 trips per device per day (May-October, 1.25 in November-April), the City may require that the vendor reduce its fleet size by 25%. This dynamic system should continue throughout the duration of the pilot, constantly adjusting the fleet size to match ridership trends.

At the completion of the six-month pilot, the City is to evaluate the success of the program and, if deemed successful, draft a final ordinance for the year-round scooter share system. Depending on the daily-trip utilization numbers and other program goals, the City should reserve the right to increase the initial 300 shared mobility device recommendation in order to

Speed Limits

Shared Mobility devices are most compatible with designated bike lanes and low-to-mid speed travel lanes (under 25 MPH). Most municipalities regulating shared mobility systems require that vendors cap device speed at 15 MPH, a suitable speed for bike lanes, shared use paths and local streets.

Some jurisdictions are exploring requirements to cap device speeds in high-traffic areas, such as downtown centers or in public parks. For example, San Diego is currently reviewing a policy change that would maintain a 15 MPH speed limit in the general service area, but reduce the speed limit to 8 MPH in high-traffic commercial centers. Vendors are still working to determine the appropriate method of enforcing these

rules. In-app messaging and City-approved physical signage in areas where lower speeds are required can be used to notify users of speed regulations. Vendors have experimented with using geofencing technology to physically control speed limits of scooters within specific areas identified by cities; for example, in Santa Monica, Bird and Lime electric scooters established a speed limiting feature which allowed the companies to instantly slow a scooter's speed to 8 mph when the scooter entered a geo-fenced site. However, there are safety concerns surrounding this practice, particularly when a scooter automatically increases speed upon leaving a geographic boundary. Also, some users may feel their scooter isn't working correctly at the lower speed, which could impact use/ridership in the area where the speed restriction applies. While this technology in still under development, in theory, vendors could use real-time speed information to notify and/or fine users when speed limits are broken. Furthermore, geographically-based speed data could be provided to jurisdictions for planning and evaluative purposes.

Draft Recommendation: Portsmouth should clearly state in its permit regulations that all electric devices should be equipped to achieve a speed of no more than 15 MPH throughout the designated service area. If a lower speed limit (for example, 8 or 10 MPH) in particularly congested areas such as Downtown Portsmouth is desired, the City should clearly outline this requirement in its permitting regulations. The City should provide a map with clear geographic boundaries identifying areas in which scooter speed should be limited to 8-10 MPH and require that vendors create a system to educate and warn users of these speed requirements. Approaches can include in-app messages and reminders, digital campaigns (e-mails, social media), or City- approved physical signage in key areas. As the technology develops, Portsmouth may consider requiring that vendors collect data about users' speed and potentially fine users who break speed limits in specific areas. Privately owned electric devices should be subject to the same speed limit regulations, which the City may choose to enforce in specific lower-speed areas through signage, verbal warnings or ticketing.

Sidewalk Use

Most municipalities strongly discourage, if not outright prohibit the use of shared mobility devices on sidewalks to avoid posing unnecessary danger and discomfort to pedestrians. State law states that devices may be ridden on sidewalks unless prohibited by a municipality on "designated sidewalks or crosswalks" (section 46.2-903). Sidewalk riding is indeed one of the biggest challenges posed by e-scooter share, and consideration for discouragement will need to be considered. This can be mitigated by improving the on-street bike network and greenway trails. Cities which have implemented e-scooter programs have recorded lower rates of sidewalk riding on low-speed streets or those with dedicated space for bicyclists. There are variations and extensions to these norms. One unique policy from the City of Charlotte, NC, bans sidewalk riding on certain blocks in the city's pedestrian-dense Uptown Central Business District while allowing sidewalk riding throughout the rest of the city.

GPS technology is not accurate enough to geofence sidewalks as prohibited zones while still allowing 15 MPH speed on adjacent streets. Research is being conducted by tech firm Fantasmo to build sidewalk detection capabilities into e-scooter units but results are not complete. While the technology is not market-ready at this time, cross-referencing video data from device mounted cameras with 3D streetscape maps may allow scooter vendors to detect illegal sidewalk riding in the future. In the meantime, jurisdictions are

adopting policies that encourage shared mobility device vendors to explore mechanisms for managing sidewalk riding. Portland, OR included an incentive in the launch of its second, yearlong e-scooter pilot program regulations that invites permittees to implement technology or business practices to reduce sidewalk riding, promising potential fleet expansion allowances in return. This allows private companies to experiment and adapt as new technology emerges, with the City maintaining the right to determine when and how fleet expansion awards are distributed.

Draft Recommendation: On sidewalks, pedestrians and especially those with disabilities have the clear right of way. Therefore, sidewalk riding by shared scooters should be actively discouraged or prohibited in Downtown Portsmouth, to ensure pedestrian access, comfort, and safety where the highest levels of pedestrian activity occur. The City may consider prohibiting sidewalk use throughout all service areas, with potential exceptions in discrete areas where traffic speeds are high and pedestrian traffic is low. Significant gaps currently exist in the greenway and bike lane network in Portsmouth, coupled with a prevalence of high-volume arterial roads, bodies of water with long bridges, and wide/busy intersections. This presents safety challenges for potential e-scooter users. If sidewalk use is outright prohibited in all service areas, it is recommended that the City actively discourage e-scooter use on city streets with speed limits exceeding 35 MPH—unless a dedicated bike facility is present—to minimize conflict between scooter users and fast-moving traffic. Finally, the City should include the following incentive in its scooter pilot program regulations: “A permittee who implements innovative technology or business practices that reduce or eliminate sidewalk riding may be eligible for an up to 20% fleet size increase, to be determined by the City.”

Parking Policy

Improper parking procedures are another challenge, in that e-scooters can create hazards for people traveling on the sidewalk, particularly those in wheelchairs, with visual impairments or ambulatory disabilities. E-scooter parking policy has evolved immensely since the first generation of units deployed. While systems have long encouraged users to park in the “furnishing zone” of sidewalks (where bike racks, benches, trees and signage are located), some cities have enhanced the formality and enforceability of scooter parking policy.

Formalizing the relationship between device parking standards and pedestrian accessibility begins with setting a minimum sidewalk clearance requirement that riders are required to obey when parking. The City of Portsmouth should require that shared mobility devices are parked in the furnishing zone of the sidewalk, leaving at least 5’ of unobstructed pedestrian walkway. E-scooters may not be parked within 5’ of a crosswalk, curb ramp, loading zone, fire hydrant, or transit stop.

“Drop zones” are emerging tactic aimed at reducing improper parking procedures. Drop zones are small designated parking areas for dockless bikes or e-scooters within the public right of way, identified with paint and/or signage. Sidewalk drop zones have been installed in locations where bulb outs and extra-wide sidewalks leave ample right-of-way, while in-street drop zones may utilize no-parking zones with bollards outlining the box. Riders may receive in-app discounts for returning units previously outside of drop zones to drop zones, or may incur a small fee for parking units outside of drop zones. Drop zones functionally work like a bike share station, for a significantly lower cost. Ideal locations for drop zones can be determined through the same demand-based analysis used to cite potential locations for bike share stations. As

infrastructure planning for shared mobility expands in Portsmouth, consider the implementation of drop zones for bike and/or e-scooter share parking.

In-app messaging can be useful for educating users on legal parking procedures. Many companies require riders to confirm they have parked the e-scooter correctly by submitting a photo through the company's app in order to end their rental. However, e-scooter programs around the U.S. experience regular instances of illegal parking. When illegal parking does occur, detailing required complaint response times (generally one or two hours) in the permit terms and conditions holds vendors accountable for clearing public right-of-way in a timely fashion. Furthermore, explicitly stating that the City reserves the right to impound units that are left improperly parked beyond this complaint-initiated timeframe adds to the enforceability of parking standards. Municipalities may choose to charge a terms violation fine, release impounded scooters for a fee, or detract the cost of impound from a performance. Affected vendors may choose to charge responsible customers for improperly parking units. Finally, as discussed above regarding sidewalk riding, Portland, OR is adopting program rules that incentivize vendors to come up with solutions to parking issues. Under the new pilot program regulations, any vendor who implements practices that eliminate improper parking are eligible for fleet allotment increases.

Draft Recommendation: If a scooter share system is established, the City should mandate shared mobility parking areas/drop zones in busy pedestrian districts such as downtown and elsewhere, to mitigate blocked sidewalks and clutter. Where foot traffic is highest and/or sidewalks are less than 10' wide, on-street drop zones and/or share stations (to replace a parking space or two) should be considered. In areas with less pedestrian traffic, or in the case of privately-owned e-scooters, vehicles should be parked within the furnishing zone of the sidewalk. Finally, the City should include the following incentive in its scooter pilot program regulations: "A permittee who implements innovative technology or business practices that reduce or eliminate improper parking procedures may be eligible for an up to 20% fleet size increase, to be determined by the City."

Establishing Service Areas

Establishing service areas for shared mobility device deployment provides cities with some degree of control over the location of a permitted vendor's fleet. This may be desirable if city officials have identified particular areas, such as congested downtown centers or underserved low-income neighborhoods, that would benefit from enhanced mobility service. While there is no way to ensure riders will not remove e-scooters from designated service areas, under a service area model, vendors will collect and return "out-of-bounds" devices to the desired operating zone as they re-balance the system (which may occur as frequently as daily or as infrequently as weekly depending on a system's size and need). In-app user warnings, fees, and fines may also be useful for keeping units within a desired service area. Scooter vendor VeoRide combats out-of-bounds parking by disabling in-app trip conclusion procedures while a unit is outside of a geo-fenced service area. Riders would continue to be charged until they returned and parked their rented units within the service area boundaries. Some other vendors retroactively charge users retrieval fees for using or parking units in prohibited areas. Lyft, for example, reserves the right to charge users up to $100 for using and parking units outside of permitted boundaries, while Lime charges $50 for similar infractions.

Age, Driver's License, and Helmet Requirements

Some municipalities choose to set their own legal age requirement for operating shared devices, while others defer to vendors to decide who is eligible to rent their units. Virginia state law establishes 14 years of age as the minimum at which one can rent a motorized skateboard or scooter (46.2-908.1). Cities that do implement this type of requirement can vary greatly in age limit, but most frequently choose the ages of 16 or 18.

Generally, cities managing shared mobility systems are strongly encouraging riders to wear helmets, but ultimately defer to state helmet laws (or the absence thereof) to set regulations. Vendors also have the ability to set policies requiring riders to wear helmets while operating their units (though enforcement of such policies can be relatively resource-dependent).

Draft Recommendation: Although the State of Virginia would be the appropriate entity to set helmet requirements legally, stressing the importance of helmet use through in-app and online messaging is recommended. Driver's licenses should not be required, and age requirements should be determined by the operator.

Equity

Shared bikes and e-scooters represent relatively low-cost micro-mobility options for people who do not have access to a motor vehicle or a personal bicycle. Shared mobility is not an inherently equitable system, there are many operational policies that should be established to improve access for vulnerable users. A potential strategy for contracting a vendor willing to meet and/or exceed the equity standards below could be to limit the number of vendors, potentially even to a single vendor. The benefit of being the sole provider in a municipality could balance the cost of social subsidies paid by the vendor.

Draft Recommendation: The City of Portsmouth should consider the following to promote equitable access for potential bike and scooter share users, while maintaining safety for drivers and pedestrians.

- Provide a mechanism to sign up for an e-scooter service without the use of a smartphone app (i.e., through a Web-based portal). Some companies offer a call or text service to unlock for those without smartphones
- Require that vendors offer a tiered or discounted pricing system (for example, lower fees for participants in programs such as SNAP/food assistance)
- Require vendors to offer to qualifying low-income residents:
    - heavily-discounted or free helmets for those who purchase monthly, annual and frequent-user memberships/subscriptions
    - scholarships to attend local bicycle safety courses and workshops such as Smart Cycle
- Do not require a valid driver's license to operate bike or scooter share, unless required by state law for similar vehicles such as e-assist bicycles
- Require vendors to locate a certain percentage of their active fleet in low-income/high-unemployment areas
- Require 2-hour complaint response times to remove improperly parked units, to ensure that sidewalks remain a safe place for the elderly, people in wheelchairs and people with ambulatory disabilities
- Provide a complaint response platform that accommodates multiple languages, and provide web-based information in multiple languages as well

Data Collection & Analysis

Defining data goals/priorities prior to issuing a permit gives municipalities the ability to plug specific data collection and reporting needs into the permit agreements they sign with vendors. This is a vital first-step to establishing data sharing partnership norms and conducting data-based evaluative processes. Cities should be as clear as possible when outlining their data requirements, being sure to specify: exactly what data fields they expect vendors to collect and report, how often they expect vendors to report this data, and what format they expect to receive the data in. Scheduling quarterly or monthly performance summary reports for vendors is a common requirement across systems. In addition to the high-level data found in performance summary reports, some cities are utilizing web-based data sharing platforms to receive real-time system information from vendors (using Mobility Data Specification API formatting). From there some municipalities, such as the City of Austin and the City of Louisville, publish up to date scooter data online in the form of interactive maps, real-time data dashboards, and open source data files.

Draft Recommendation: Vendors should provide Portsmouth City staff access to raw ridership data in both spreadsheet and geodatabase format. It is preferable that this data would be shared real-time through a web-based platform, though it may be more feasible for raw data to be shared with the monthly summary report referenced below. Raw data provided should, at minimum, include:

- Trip date and time
- Point of origin
- Point of destination
- Length of trip (in miles)
- Duration of trip (in minutes)

Vendors should also submit a monthly report to Portsmouth City staff including each of the following, at the minimum, for the reporting term:

- Average number of trips per day
- Origin and destination locations (presented in a mapped format)
- Average trip distance
- Average trip duration (in minutes)
- Average number of unique riders per day
- Average number of trips per unique rider per day
- Location and details of all reported crashes involving e-scooters
- Location of each complaint
- Nature of each complaint
- Description of vendor response
- Vendor response time for each complaint

Finally, in order to address potential issues of user privacy, consider establishing a policy allowing system users to opt out of inclusion in data collection through in-app settings and messaging.

Balancing and Charging Procedures

Because electric units are powered by a battery, they must be collected and recharged on a regular basis. The charging process also provides the opportunity to "rebalance" the system each day, returning the charged scooters to high-demand areas where users will typically look for them. Charging and rebalancing units is a task that is clearly assigned to vendors in all permitting documents. While some vendors choose to employ in-house operations staff to balance and charge their system manually, contracting out day-to-day operations responsibilities to residents and local businesses is also prevalent. It is likely that vendors employ a mix of the two approaches; while contracting out the work is a lower-cost option, in-house staff will need to collect scooters on a regular basis for inspection and maintenance.

Draft Recommendation: The City should task the vendor with the responsibility of collecting and charging units daily, and allow the vendor to determine the means of staffing this effort. The City can use the Demand Analysis results of this study to determine locations in which charged fleets should be placed. Furthermore, during the implementation of a scooter share program, incoming trip data can be used to adjust these requirements based on ridership start and end points. In order to provide mobility options for residents who live in areas not well served by transit during evening hours, the collection and charging process should not begin before 10:00 PM on weekdays and 11:00 PM on weekends.

Complaint Collection and Response

Local jurisdictions are increasingly defining their complaint collection and response expectations for vendors prior to permit issuance. This is particularly important due to the incidence of improper parking procedures and the tendency for e-scooters to potentially block portions of sidewalks, curb ramps and bus stops.

Draft Recommendation: Vendors should provide a 24-hour customer complaint platform that is both screen reader accessible to accommodate those who are visually impaired, and capable of accommodating both English and Spanish speakers. Shared mobility device units should clearly be marked with a phone number and Web site that offers access to a customer complaint platform. The City should also stipulate complaint response times for improper parking procedures. At a minimum, vendors must respond to complaints of a unit obstructing public right-of-way (including pedestrian walkways, bicycle lanes, vehicle travel lanes, and on-street parking spaces) within two hours.

In general, vendors should deploy staff teams between the hours of 7 am – 10 pm daily to address field conditions including, but not limited to, rebalancing devices, inappropriate parking, sidewalk clutter, unsafe conditions and blocked passageways, curb ramps and bus stops.

Vendors who do not comply with permit terms, including complaint collection and response

Community Outreach, Marketing, and Education

Vendors should be required to share in community outreach, marketing, and public education responsibilities related to the benefits of shared mobility services, as well as educate their consumers on safe and appropriate scooter use.

Portland, OR, in addition to requiring a Communication and Outreach Plan as a component of the permit application process to evaluate how vendors intend to encourage sustainable transportation behavior and well as promote safety, uses engagement as an incentive for fleet size increases. Vendors who organize safety workshops in partnerships with local nonprofits can track and report attendance to the City in exchange for fleet expansions. Jurisdictions can also create opportunities to enhance engagement in underserved communities. For example, the City of Memphis requires that vendors conduct both general program marketing and targeted outreach to low-income communities.

Draft Recommendation: Program regulations should specify that vendors are required to participate in community outreach, marketing, and public education responsibilities related to the benefits of shared mobility services, as well as educate their consumers on safe and appropriate scooter use. Require that vendors submit a Communication and Outreach Plan that clearly states their intentions as a part of the application process. Furthermore, marketing efforts in Portsmouth should be sure to include neighborhoods that have been identified as communities of concern in within the Equity Analysis section of this report (page 19).

Fees, Bonds, and Fines

Permit application fees can range anywhere from $100 to $1,300 depending on market size and stringency of review, with annual permit renewal fees typically cost half the original application fee. Shared Mobility Device permits themselves generally cost between $20 to $50 per unit and are often sold in bundled increments of 100 units to 500 units. In addition to per unit annual permit fees, the City of Memphis charges vendors $1 per scooter per day (up to $73,000 annually).

Holding a security bond is one avenue some municipalities are pursuing to ensure public infrastructure damage and the cost of city labor to remove scooters is covered in the event a vendor is unwilling or unable to fulfill their obligations. The City of Dallas, for example, holds a $10,000 e-scooter bond. The City of Los Angeles, on the other hand, holds a bond of $80 per scooter to cover the cost of such circumstances. Charging fines between $500 and $1,000 for city code and permit terms violations is another mechanism for incentivizing regulation compliance. The City of Nashville utilizes a more unique fine structure, which charges e-scooter vendors a $25 per incident fee for improper parking incidences. These fines may be charged on a rolling basis throughout the course of the permit term or be charged in lump sum at the conclusion of a permit term.

Draft Recommendation: The following are recommended for the pilot program in Portsmouth:

- **$250 to $500 one-time application fee:** A six-month permit should fall towards the bottom of this spectrum while a one-year permit (in the event of a successful pilot) should fall towards the upper range of the spectrum.
- **$20 to $30 per vehicle licensing fee:** Vendors should pay a per unit annual permit fee between$20 and $30.
- **$300 to $500 per day fines:** Vendors should pay a $300-$500 fine for each day they operate out of compliance with City code and permit terms.

Hold a performance/compliance bond of at least $5,000 (consider fleet size when setting this requirement): Holding a permit bond will provide the City of Portsmouth with funding in the event a permit is terminated and the vendor is unable or unwilling to remove units from the system and/or repair damage.

Permit Term, Transferability, and Termination

Regardless of whether a city intends to run a temporary pilot or deploy permanent service, establishing fixed-term permits of 6 to 12 months is important for keeping programs and partnerships adaptable. Through an annual or bi-annual permit renewal process, cities have a natural opportunity to update the terms of granting a permit, terminate relationships with unsatisfactory operators, and consider proposals from new service providers. In addition to this natural reevaluation cycle, it is advisable that cities outline conditions under which they reserve the right to suspend or revoke a vendor's permit. Cities may also wish to specify whether permits are automatically transferable in the event a permitted e-scooter vendor is purchased by another company. Cities that choose to issue permits that are not automatically transferable have the option of requiring the new owner(s)/parent company to apply for a renewed permit or simply require the transfer approval be authorized by a suitable managerial figure.

Draft Recommendation: Should Portsmouth continue deployment past the original pilot, vendors should pay an annual permit renewal fee costing half of the original permit application. If the renewed-permit term is longer or shorter than the original, the price should be adjusted.

Insurance Requirements

Municipalities that outline insurance requirements in the permit application process sometimes require:

- Commercial general liability insurance of $500,000 to $1,000,000 per incident for death and bodily injury and $500,000 to $1,000,000 per incident for property damage (for a $1,000,000 to $2,000,000 annual aggregate)
- Cities may wish to negotiate coverage under a vendor's commercial liability insurance. The City of Los Angeles' permit terms stipulate that vendors must include "the City of Los Angeles, its officers, agents and employees" as additional primary insureds on their policy.

- Automotive liability insurance (for vendors that utilize motor vehicles in their operations procedures) of $500,000 to $1,000,000 per incident for death and bodily injury and $500,000 to $1,000,000 per incident for property damage (for a $1,000,000 to $2,000,000 annual aggregate)
- Employer liability insurance of $100,000 to $500,000 per incident bodily injury and disease (for a $100,000 to $500,000 annual aggregate)
- Workers' compensation insurance in compliance with state standards
- Cyber Liability/Information Technology Insurance of $500,000 to $1,000,000 per claim
- Sub-contractor coverage

Draft Recommendation: The City of Portsmouth should incorporate most, if not all, of the requirements outlined above, with input from the City Attorney's office.

Appendix A: Shared Mobility in Virginia

The table below provides an overview of several shared mobility pilot programs in Virginia. These case studies were used to inform recommendations for Portsmouth's shared mobility pilot program, highlighted in the last column of the table.

Table 2: Shared Mobility in Virginia

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Pilot Program (City)							
Effective Date	Nov 13, 2018 - July 31,2019	Nov 2018-Sept 2019	Jan 2019-Jan 2020	March 2019	July 1- June 30, 2020	June 2019-November 2019	Jan 2020- Jan 2021
Applicability	bicycles, e-bicycles, e-scooters	dockless bicycles, e-scooters	dockless scooters, boards, bikes	bicycles, e-bicycles, e-scooters	dockless, e-bicycles, e-scooters	E-scooters	Applies to all SMDS
Permit Application required	YES	YES	YES	YES	YES	NA	Require Permit Application
Request for Proposals (RFP) released	NO	NO	YES	YES	NO	NO	NO
Signed MOU/MOA required	NO	YES	YES	YES	YES	NO	YES
Number of Participating Vendors	2- (*Lime*, *Bird*)	4 - (*Lime, Skip, Bird, Bolt*)	1- (*Lime*)	1-(*Bolt*)	1- (*Lime*)	*2 - (Bird, Lime)*	1 -vendor at a time
Authorization & Enforcement (City)							

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Responsible for program authorization	Dept. of Neighborhood Services	City Manager	Dept. of Transit	Dept. of Public Works	TBD	City Manager	Depts. Planning & Engineering
Responsible for program enforcement	City Manager	Dept. of Transportation/ Police	Dept. of Public Works	Dept. of Public Works	TBD	City Manager	Dept. of Public Works
Penalties for non-compliance	Impoundment, fine per device	Impoundment	Impoundment/permit revoked	Impoundment	Revoke permit	Police Department	Impoundment/revoke permit
Application Requirements (Vendor)							
Requires an approved permit	YES	YES	YES	YES	YES (Proposed)	YES	Require Permit Application
Requires a current business license	YES	NO	YES	YES	YES	YES	Require Business License
Application fee and operation cost	$500 and $1 per day/device	$5000 per company	$15,000 & 5 cents per ride	$1500 & Annual $20,000-$45,000	$5000 & 5 cents per Trip	TBD	$5000-$10,000 per company
Requires Point of Contact (POC)	YES	YES	YES	YES	YES	YES	YES
Operational Requirements (Vendor)							

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Fleet size (minimum-maximum)	100-200	200 per company	100-500	500-1500	250 per company	1000+	250 MAX
Fleet expansion requirements	4 trips per day (up to 25%)	3 trips per day (up to 25 more)	YES	up to 25% per quarter & $72 Fee	TBD	TBD	up to 25% per month
Fixed power requirement	NO	NO	YES	NO	NO	NO	NO
Requires on-board GPS/Geo-fencing	YES	YES	YES	YES	YES	YES	YES
Requires remote disable and lock	YES	YES	YES	YES	YES	YES	YES
Requires equipment rebalancing	NO	NO	YES	NO	YES	YES	YES
Must be maintained working condition	YES (within 2 hours)	YES	YES	YES	YES	YES	YES
Requires City inspection	NO	YES	NO	NO	YES	NO	NO

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Only Permitted in Designated Service Areas	YES (Downtown Mall, others)	YES (Old Town only)	TBD	NO (permitted citywide)	Citywide	Banned from Boardwalk	YES (Downtown/ Olde Towne)
Safety Requirements (City/Vendor)							
Helmet required	YES (Company promotes usage)	YES (Company free & discounted)	YES (Recommended)	YES (Recommended)	YES (Recommended)	YES (Recommended)	YES (Free & Discounted)
Age Restrictions	Prohibited to 14 and under	Prohibited to 14 and under	Must be 18 years	Prohibited to 14 and under	Prohibited to 14 and under	Must be 18 years	Prohibited to 14 and under
Time Restrictions	NO	NO	NO	YES (5 am - 9pm)	NO	NO	5 AM- 9PM
Maximum Speed Limit	15 mph	20 mph	20 mph	15 mph	NO	TBD	15 mph
Requires headlights/ taillights	YES	YES	YES	YES	YES	YES	YES
Requires brakes and a bell	NO	YES	YES	YES	YES	YES	YES
Permitted on sidewalks?	NO	YES	NO	TBD	NO	NO	NO
Permitted use area	On-street & bike lanes only	On-street and sidewalks	Bike lanes, avoid sidewalks	On-street & bike lanes only	On-street and bike lanes	On-street (less than 25 MPH)	Only where bicycles permitted
Parking Requirements (City/Vendor)							

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Type of parking structure	Racks or corrals	Dockless	Dockless and corrals	Corral	Dockless & corrals	Dockless	Racks or corrals
Parking Location	Sidewalk or Private Property	Off-street without impediment	Sidewalk without impediment	TBD	Near bike racks, edge of Curb	Off-street or private property	Off-street or private property
Parking Orientation	Upright	Upright	Upright	Upright	Upright	Upright	Upright
Other Requirements	Photo location from user	TBD	Only 10 allowed per block	TBD	TBD	TBD	Only 10 allowed per block
Equitable Access (Vendor)							
Must provide access to the "unbanked"	YES	YES	NO	NO	NO	TBD	YES
Must have reduced/low-income cost plan	YES	NO	YES	YES (35% to Low Income)	NO	TBD	YES
Must meet ADA Requirements	YES	YES	YES	YES	YES	YES	YES
Customer Service Requirements (Vendor)							
Must have 24-hour call number	YES	YES	YES	YES	YES	YES	YES

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Must provide company website	YES	YES	YES	YES	YES	YES	YES
Provide Local Staffing/Operations Center	NO	YES	YES	YES	YES	YES	YES
Customer Protections (Vendor)							
Must have secure electronic pay system	YES (PCI DSS Standard)	NO	NO	NO	NO	TBD	YES
Privacy Policy Statement	YES	NO	NO	NO	NO	TBD	YES
Access to consumer information	YES (only opt-in & survey data)	NO	NO	NO	NO	TBD	YES
Information and Data Sharing (Vendor)							
Usage reporting requirement	YES (monthly)	YES (monthly/GBFS Data)	YES	YES	YES	YES	YES (monthly)
Real-time fleet information	YES	YES	YES	UES	YES	YES	YES
Insurance Requirements (Vendor)							
Workers Compensation	YES	YES ($100,000)	NO	TBD	TBD	TBD	YES

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Employer's Liability	$100,000	NO	NO	TBD	TBD	TBD	$100,000
Commercial General Liability	$1,000,000	$1,000,000	4,000,000	YES	YES	TBD	$1,000,000
Automobile Liability	$1,000,000	$1,000,000	NO	TBD	TBD	TBD	$1,000,000
Cyber Liability/Information Technology	$1,000,000	NO	NO	TBD	TBD	TBD	$1,000,000
Public Engagement (City)							
Information on City website	www.charlottesville.org	www.alexandriava.gov/106050	NO	NO	https://www.fairfaxva.gov	https://publicinput.com/E-Scooters	YES
Held community meetings	Council Meeting November 2018	Community Open House	City Council Mtg	Council Meeting January 2019	YES	City Council Mtg	YES
Identified stakeholder groups	TBD	Old Town Civic Association	TBD	TBD	YES	TBD	OTBA, Civic Leagues
Other	TBD	State and Regional Meetings	TBD	Fall Festival/ Demonstrations	TBD	TBD	TBD
Fiscal Impact							

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Estimated Cost to the City	TBD	$25,000	TBD	TBD	TBD	TBD	TBD
Estimated revenue from the program	TBD	$25,000	$15,000 & 5 cents per ride	$1500 & Annual $20,000-$45,000	TBD	TBD	TBD
Cited Regulations							
Federal Regulations	Title 16, Ch II, Sub C, Part 1512	Title 16, Ch II, Sub C, Part 1512	TBD	TBD	TBD	TBD	Title 16, Ch II, Sub C, Part 1512
State Regulations	VA 15.2-2015 (Right of Way) VA 15.2-2001 (Right of Way) VA 46.2-100 VA 46.2-1015 (Headlights)	VA 46.2-100 (Scooter Definition) VA 46.2-903 (Sidewalk Prohib)	TBD	TBD	TBD	TBD	VA 15.2-2015 (Right of Way) VA 15.2-2001 (Right of Way) VA 46.2-100 (Scooter Definition) VA 46.2-1015 (Headlights) VA 46.2-903 (Sidewalk Prohib)

	Charlottesville	Alexandria	Norfolk	Richmond	Fairfax (City)	Virginia Beach	Portsmouth: Recom-mendations
Local Regulations	TBD	Alex. City Code Sec 10-7-10	Norf. City Code Section 25 & 30	TBD	TBD	TBD	Ports.Code Sec. 5 (Bicycles) Ports.Code Sec. 22 (Vehicles) Ports.Code Sec. 32 (Streets)
Other Safety Requirements	Underwriters Laboratories	TBD	TBD	TBD	TBD	TBD	TBD