



SUFFOLK BICYCLE AND PEDESTRIAN MASTER PLAN

City of Suffolk, Virginia



2017

Adopted September 20, 2017



ACKNOWLEDGEMENTS

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- > Rhodesside & Harwell, Inc.

Adopted by the Suffolk City Council
September 20, 2017
Resolution #17-R-025

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PLAN SUMMARY

The City of Suffolk Bicycle and Pedestrian Master Plan creates a framework for the future of non-motorized travel in Suffolk. It guides the City toward a multimodal future and begins the process of creating a network of paths that provide community members and visitors with real options for traveling and recreating within and between the City's two Growth Areas.

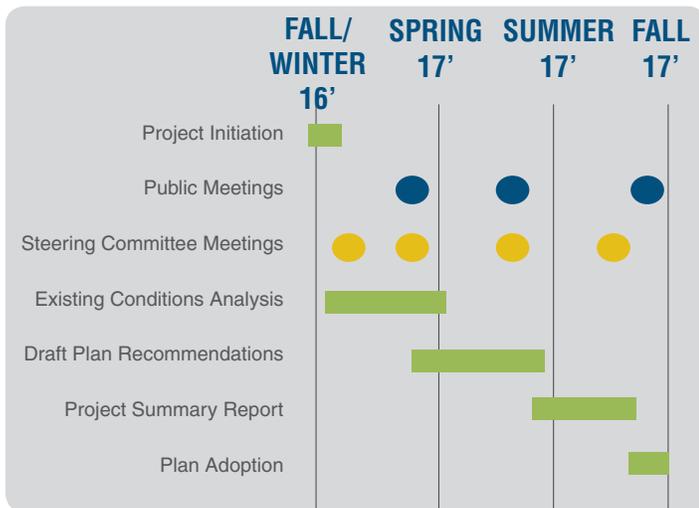


GOALS

- > Create **safe and convenient bicycle and pedestrian networks** that connect people to neighborhoods, destinations, and transit.
- > Support a **range of users** by considering variations in physical abilities, perceptions of safety, trip types, and trip purposes of different users.
- > Explore **opportunities to connect the two Growth Areas** for non-motorized travelers.
- > Increase options for people to **walk and ride bicycles for recreation and to recreation** (e.g., parks).
- > Provide **educational opportunities** for all road users, including people who drive and people who ride bicycles.
- > Identify ways that the **built environment** can better support bicycle and pedestrian movement.

PROCESS

The Bicycle and Pedestrian Master Plan process began with an understanding of needs and opportunities based on data analysis, observation, and community input. It evolved into a set of goals, and a draft network of important multimodal corridors. A Tool Kit was provided to compile a range of strategies for providing facilities, routes, and other amenities. As a final step, the City refined a set of strategic actions to be taken related to projects, policies, and programs.



CONTENTS OF THE PLAN

INTRODUCTION

- > Project overview, goals, and benefits of improving facilities for bicyclists and pedestrians in Suffolk.

COMMUNITY ENGAGEMENT

- > Overview of community outreach methods and feedback, including a summary of the community survey.

EXISTING CONDITIONS

- > Review of existing challenges and opportunities related to non-motorized travel in Suffolk.

OPPORTUNITY CORRIDORS

- > Corridors that address needs and/or opportunities to expand the non-motorized network.

TOOL KIT

- > Highlights of methods that may be employed to improve bicycle and pedestrian infrastructure in Suffolk.

STRATEGIC ACTIONS

- > Specific projects that begin to address needs and opportunities.
- > Policies and programs to increase user safety and access to bicycle and pedestrian amenities.



URBAN DEVELOPMENT AREA TECHNICAL ASSISTANCE GRANT

Completion of this bicycle and pedestrian plan was made possible through an Urban Development Area technical assistance grant provided by the Office of Intermodal Planning and Investment. In accordance with § 15.2-2223.1 of the Code of Virginia, this Plan promotes the development of urban development areas in a way that is consistent with Traditional Neighborhood Design. This Plan will be adopted as an amendment to the City of Suffolk Comprehensive Plan (2015). The City of Suffolk received the grant in the form of a direct on-call consultant services contract with Rhodeside and Harwell, Inc.

1 INTRODUCTION

The City of Suffolk is committed to future growth that includes safe transportation options and opportunities for people walking and riding bicycles. The City has policies that support the development of multimodal infrastructure, but **this is the City's first plan focused on these needs**. People walk and ride bicycles for many reasons. For example, some do it for recreation, some for transportation; some do it as a choice, and some out of necessity. **This plan will provide a path forward for addressing the needs of all users.**

The City of Suffolk Comprehensive Plan (2015) includes policies and actions that support the concept of "complete streets" - streets that provide facilities for all users - and the development of a plan for people who want to walk (or jog/run) and ride bicycles. Discussion of the need for walkable and bicycle-friendly roads and communities are contained throughout the Plan, supporting the need to develop a strategy to achieve these goals.

In addition, it is clear that facilities that have been built by the City, including the Seaboard Coastline Trail, are well-used, and previous surveys conducted by the City of Suffolk have indicated that there is a community desire for more trails and other enhancements for people walking and riding bicycles. Several regional trails are completed or under development, and the City of Suffolk can provide key pieces for many of the routes, drawing bicycle tourists into the City.

The plan was guided by input from community members, as well as an Internal/Technical Committee (comprising several City departments) and an External/Community Committee (comprising representatives from several stakeholder groups).



WHAT IS IN THIS PLAN

THIS PLAN PROVIDES:

- > A conceptual framework of key streets and routes that could provide circulation within each of the two Growth Areas, and connections between the two areas.
- > A Tool Kit of strategies (including facilities, routes, and other amenities) for addressing the needs of people who are walking/running and riding bicycles.
- > A set of priority actions to be addressed by the City of Suffolk.

THIS PLAN DOES NOT PROVIDE:

- > A map showing a network of specific facilities to be built.

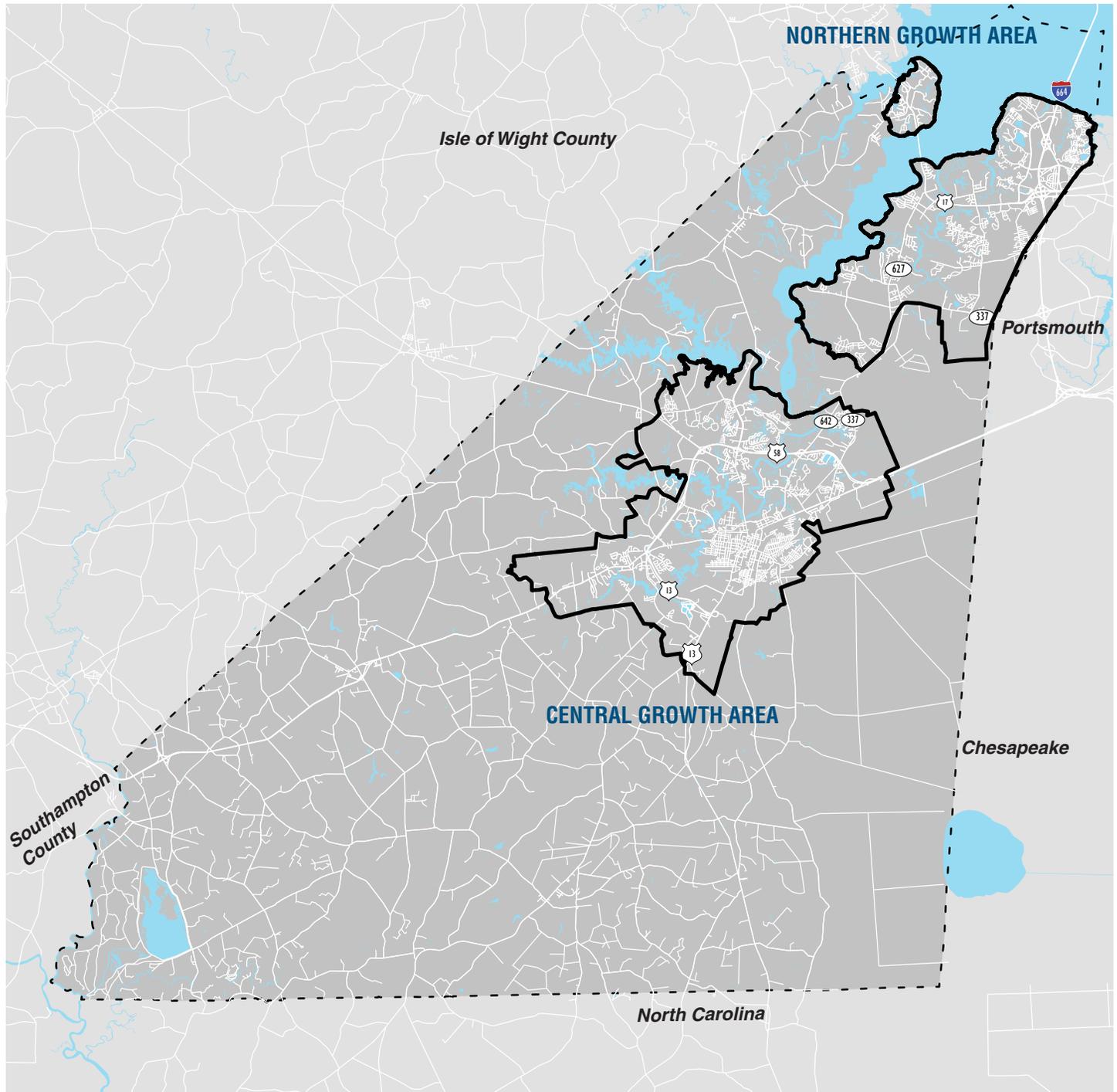
GOALS

The following goals were developed based on existing plans and policies (e.g., from the Comprehensive Plan), input from City staff and Committee members, and input received during the first community meeting. **The goals that guided the overall vision for the plan include:**

- > Create **safe and convenient bicycle and pedestrian networks** that connect people to neighborhoods, destinations, and transit.
- > **Support a range of users** by considering variations in physical abilities, perceptions of safety, trip types, and trip purposes of different users.
- > Explore opportunities to **connect the two Growth Areas** for non-motorized travelers.
- > Increase options for people to walk and ride bicycles **for recreation and to recreation** (e.g., parks).
- > **Provide educational opportunities** for all road users, including people who drive and people who ride bicycles.
- > Identify ways that the **built environment** can better support bicycle and pedestrian movement.

MASTER PLAN FOCUS AREAS

The City of Suffolk has two master plan focus areas - the Central Growth Area and the Northern Growth Area. These were designated in the Comprehensive Plan as areas in which to focus growth, in order to protect the many natural resources and undeveloped areas in the City.



-  Master Plan Focus Areas (Growth Areas)
-  Suffolk City Boundary
-  Streets and Roadways
-  Waterbody



BENEFITS OF FOSTERING A MORE WALKABLE, BIKEABLE SUFFOLK

Between 2000 and 2013, the percentage of commutes made by bicycle in the United States increased by 62% (League of American Bicyclists, 2015). Many communities are making significant investments in infrastructure to support bicycling and walking: adding bicycle lanes, improving sidewalks, installing shared use paths, and providing related amenities. There are many benefits to fostering a multimodal city:

HEALTH BENEFITS

Increasing active transportation options can have an enormous positive impact on the physical health of a community. Regular physical activity (such as walking and biking) reduces depression, and helps prevent heart disease, obesity, diabetes, and other ailments (U.S. Department of Health and Human Services, 2015). Integrating physical activity, such as walking or riding a bicycle, into the lifestyle of a sedentary adult is three to four times less expensive than enrolling into a structured exercise program (Sevick, 2000).

ECONOMIC BENEFITS

Property Values

Investing in non-motorized infrastructure encourages economic development, improves property values, and helps create new jobs and businesses. After the City of San Francisco made a street more conducive to pedestrian and bicycle travel, nearly 40% of the local merchants reported increased sales and 60% reported more area residents shopping locally. Two-thirds of merchants believed business improved with increased levels of bicycling and walking (Drennan, 2003).

Transportation Savings

Bicycling and walking are affordable forms of transportation, which is particularly important for low-income or no-car communities. In 2015, the American Automobile Association found that the average sedan costs about \$8,698 to own and operate (Stepp, 2015). By comparison, the Sierra Club estimates that the average cost to operate a bicycle is about \$308 (Sierra Club, n.d.).

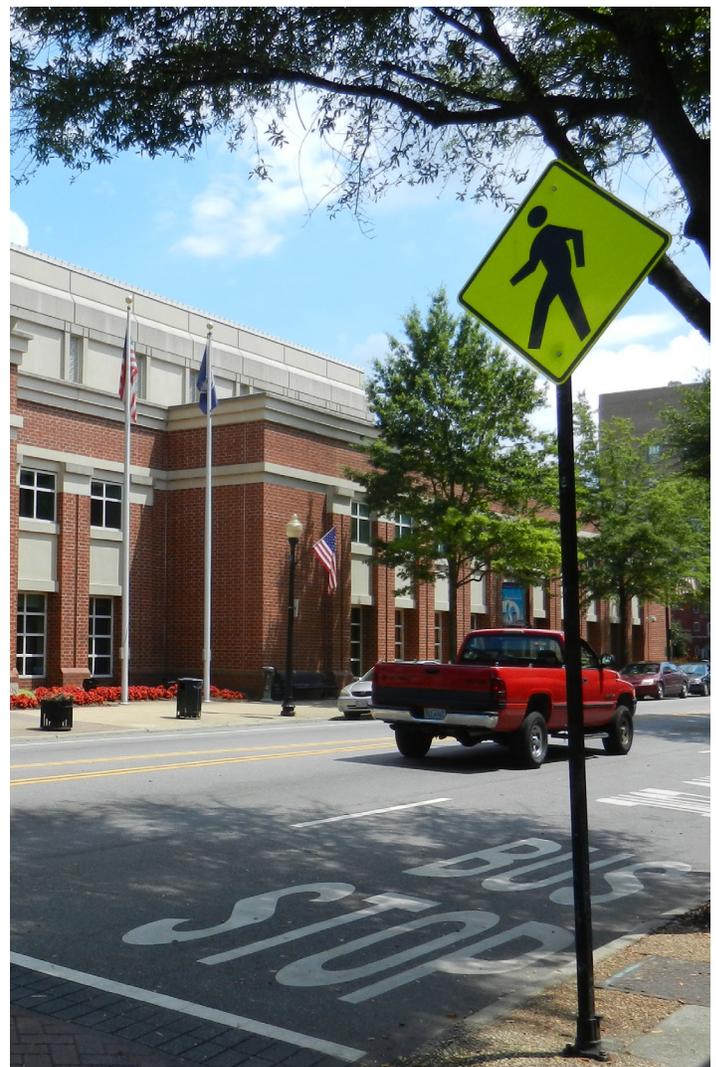
Tourism

Trails don't only draw local users. Bicycle tourism has been shown to create significant positive impacts on local

economies. For example, in the Central Shenandoah Valley region, bicycle tourism is estimated to have generated \$8.6 million in sales activity in 2015 (Central Shenandoah Planning District Commission, 2016). By providing connections to other regional trails, or actively working to establish sections of long trails through Suffolk, the City could see more day or overnight tourists, all of whom are likely to shop, eat, or sleep in Suffolk.

ENVIRONMENTAL BENEFITS

A city's air quality can be improved through increased bicycling and walking: according to Transportation Alternatives, if 5% of New Yorkers commuting by private car or taxi switched to commuting by bicycle to work, 150 million pounds of CO₂ emissions per year could be reduced. This is equivalent to the amount reduced by planting a forest 1.3 times the size of Manhattan (Transportation Alternatives, 2008).



2 EXISTING CONDITIONS

OVERVIEW

In order to better understand the existing conditions within the City of Suffolk (with a focus within the two Growth Areas), the team toured the City, spoke with City staff to build more on-the-ground knowledge, reviewed existing plans and policies to understand the current framework for development, and analyzed available data. This base of understanding was enhanced by a community review at the first public meeting.

CHARACTER

CENTRAL GROWTH AREA

The Central Growth Area includes the historic downtown core of Suffolk, as well as the retail areas and neighborhoods surrounding downtown. It also contains long-standing neighborhoods interspersed with industrial areas. Many of these areas, especially Downtown, have traditional grid of street grids, though many streets lack sidewalks.

Sitting just to the northwest of the Great Dismal Swamp National Wildlife Refuge, the Central Growth Area is crisscrossed by wetlands and the Nansemond River, with few options for crossing. It is also traversed by several active rail lines that are known to hold up traffic, and which are difficult to cross on foot or bicycle.

There are several neighborhood-scale parks throughout the area, including the iconic Peanut Park and Planters Park. The newly-developing plaza associated with the Historic Main Street Station is also a key public gathering place. Constant's Wharf Public Park & Marina provides a place to access the river, in addition to a pedestrian and bicycle bridge. A portion of the Seaboard Coastline Trail has been built extending out from the station; this is planned to eventually connect with other areas of the trail.



NORTHERN GROWTH AREA

The Northern Growth Area is comprised of the far northern section of Suffolk, including Crittenden. It is generally characterized by retail areas, newly-developed neighborhoods, and large parcels of undeveloped land. Street connectivity issues are pronounced in the Northern Growth Area, as many neighborhoods have developed in a more suburban style than Downtown, but many new developments include sidewalks, bike lanes, paths, and/or neighborhood-scale parks.

Interstate 664 runs through the Northern Growth Area. While this provides great visibility for the City, it also presents a significant barrier between several developing areas.

There are fewer public parks in the Northern Growth area than the Central Growth Area, but those that exist are relatively large, and many neighborhoods have private recreation areas available to residents. A large portion of the Seaboard Coastline trail has been built in the abandoned rail right-of-way.



One Portion of the Northern Growth Area



Neighborhood with Sidewalks and a Large Park



Seaboard Coastline Trail

DEMOGRAPHICS: QUICK FACTS

Suffolk is large, with 400 square miles of land and 29 square miles of water

- > The average land area per county in Virginia is about 295 square miles!

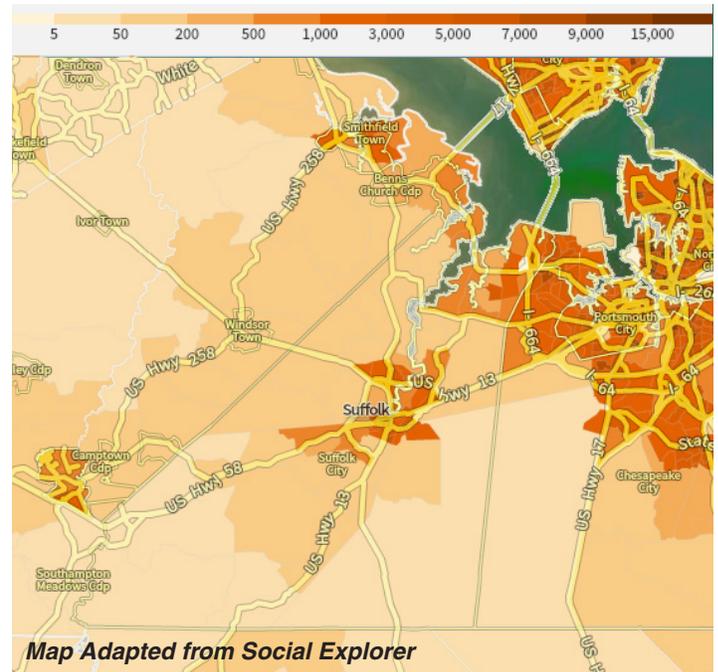
About 86,180 people live in Suffolk

- > Over 80% of the population of Suffolk lives within the two Growth Areas.
- > 50% of the population is white (non-hispanic), and 41% identifies as black or African American.
- > 91% of families have an income at or above poverty level.

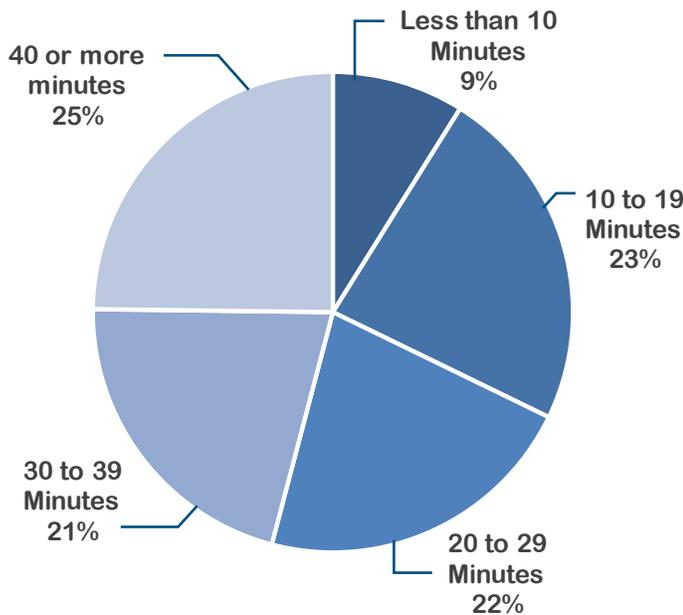
The majority of commuters (94%) currently drive to work, while 1.3% walk, and 0.3% ride a bicycle

- > The average commute is 28 minutes, but 32% of the population reports a commute time of 19 minutes or less, which means that there may be interested in shifting modes if more facilities are available.

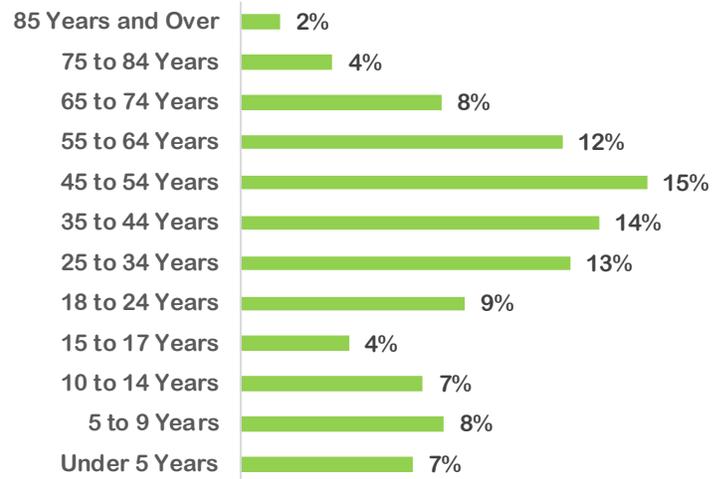
Population Density (2015) - People per Square Mile, by Census Block group



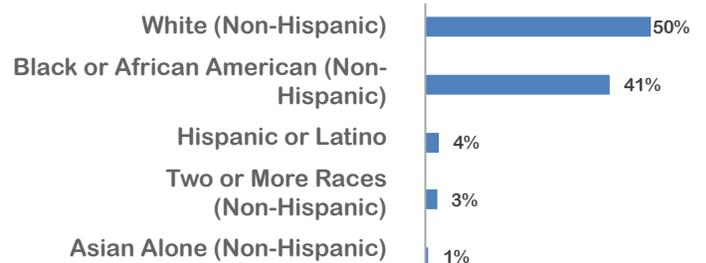
Commute Times (2015) - Travel Time to Work for Workers 16 Years and Over Who Did Not Work at Home (Proportion of 39,262 people)



Age (2015) - Proportion of Total Population by Age Range



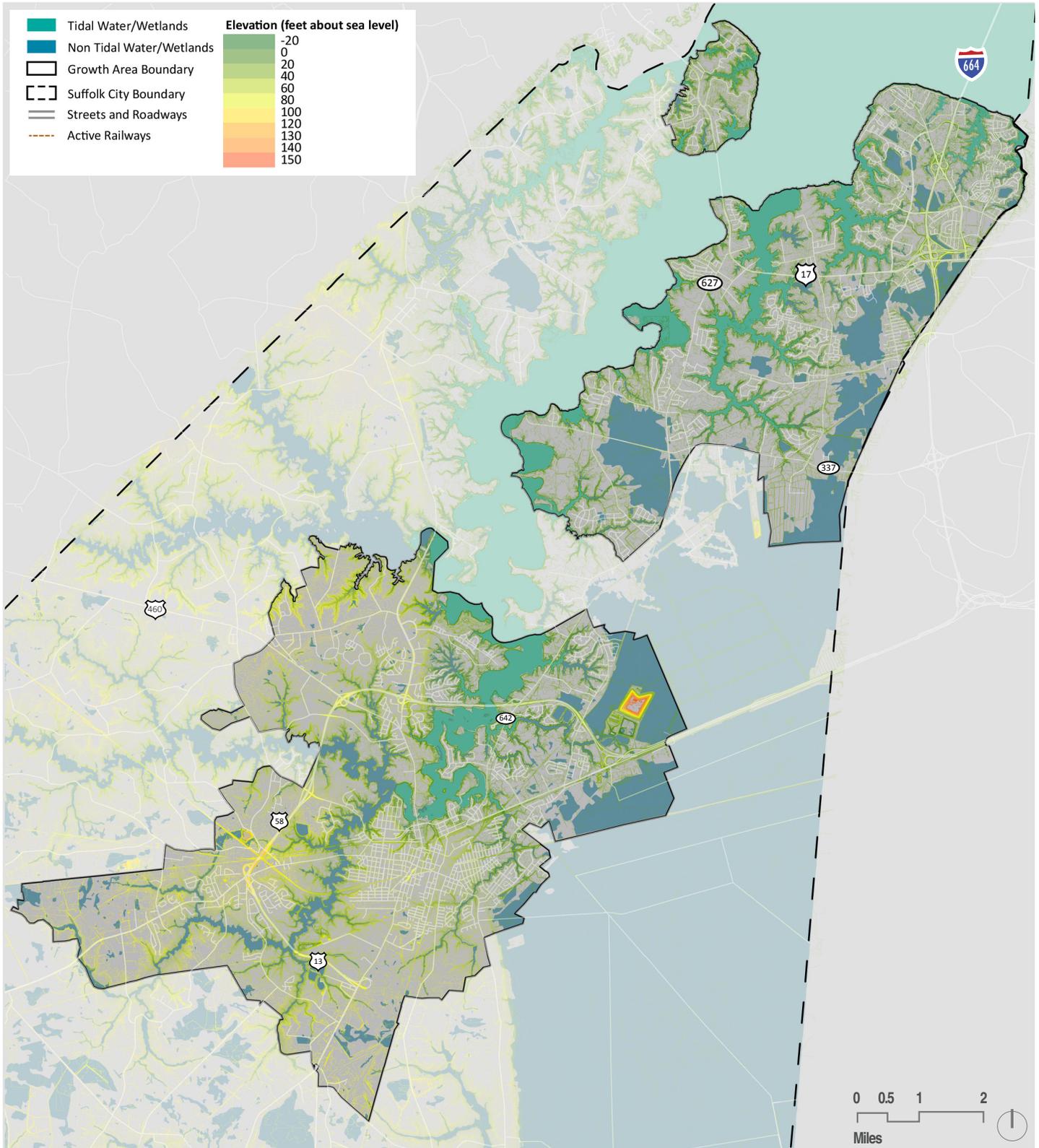
Race (2015) - Proportion of Total Population by Race



In addition, less than 1% each from the following: American Indian and Alaska Native (Non-Hispanic), Native Hawaiian and Other Pacific Islander (Non-Hispanic), Other Race (Non-Hispanic)

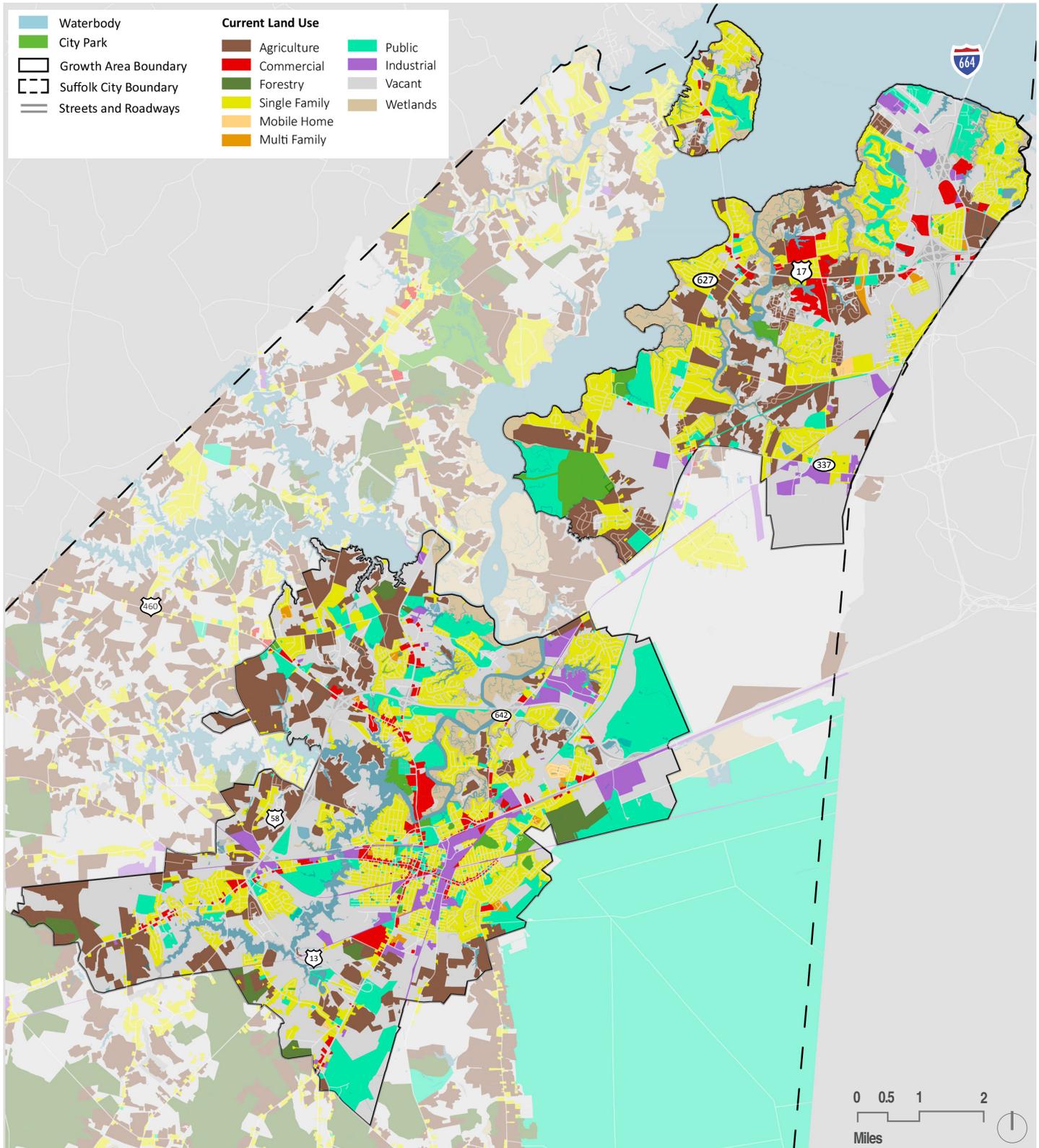
ENVIRONMENTAL CONDITIONS

Suffolk has a wealth of environmental resources, including rivers and wetlands. While these can present a barrier to travel, they should also be seen as a benefit, and a draw. The city is fairly flat, which is a positive factor for walking and riding bicycles. The Central Growth Area has a greater (though gradual) change in elevation than the Northern Growth Area.



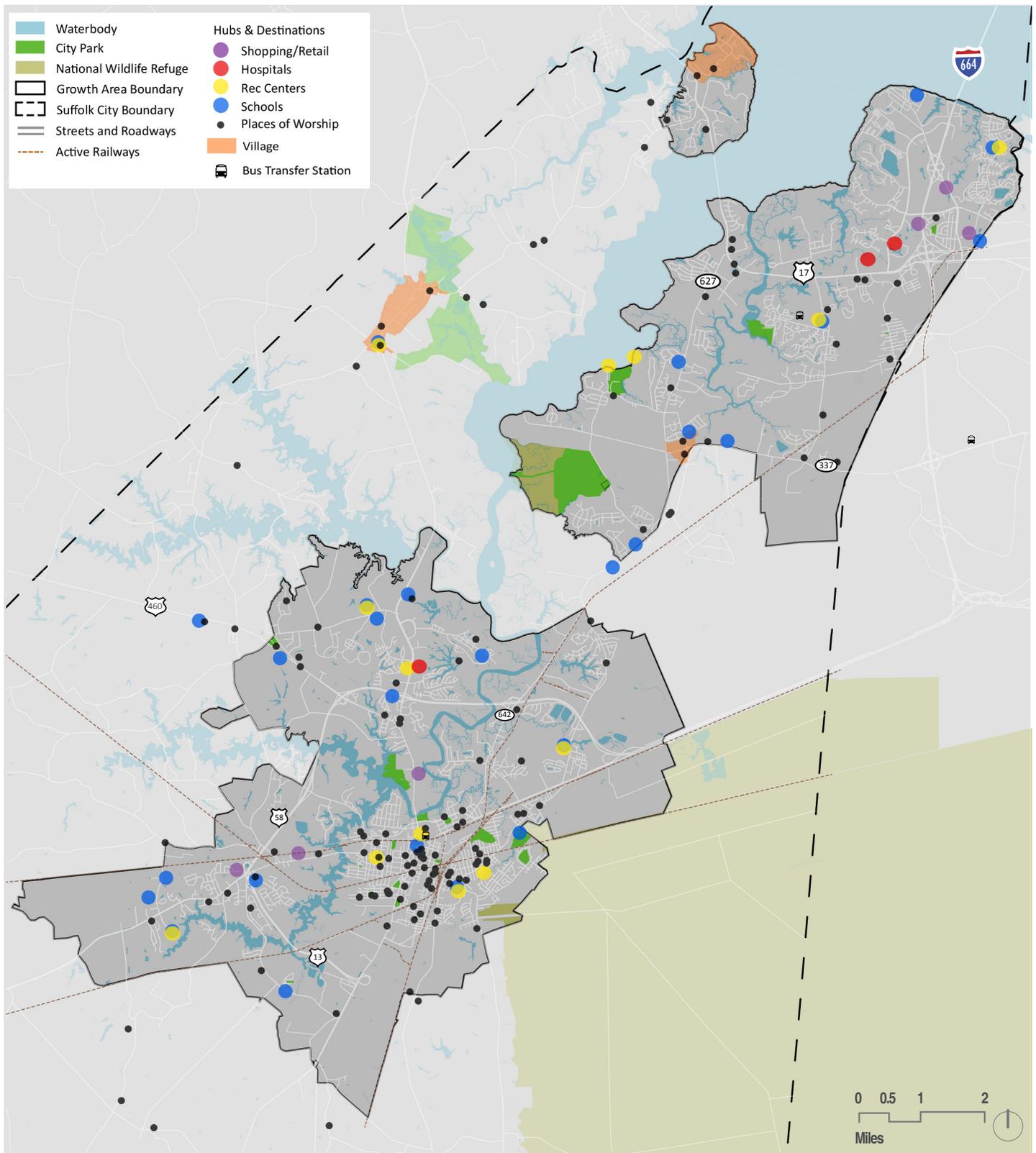
LAND USE

The Central Growth Area has a significant industrial presence, as well as concentrated retail nodes along Holland/Washington and Main. Developed areas in the Northern Growth Area are dominated by retail/commercial uses. Neighborhoods (mostly single family) are scattered throughout both Growth Areas. A mix of uses means that people can access more destinations within a shorter distance, which is conducive to non-motorized travel.



HUBS AND DESTINATIONS

Different people have different places that they go on a regular basis, but there are some destinations that are important for large segments of the population. Mapping key activity hubs and destinations throughout Suffolk helps to designate priority routes.



REGIONAL, STATEWIDE, AND INTER-STATE TRAILS

There are many existing and planned statewide and regional trails, in and adjacent to the city. The City of Suffolk has an opportunity to both connect its residents to these trails, and draw in visitors from other areas, by providing extensions or connections to these trails.

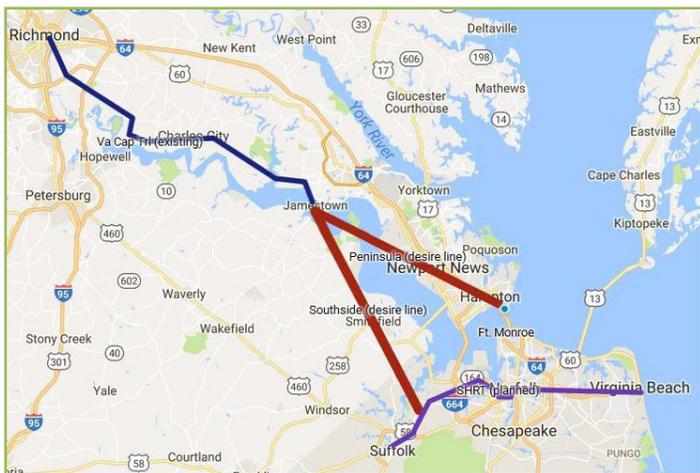
The South Hampton Roads Trail is a 41-mile proposed multi-use/bicycle route between Suffolk and Virginia Beach. The existing portion of the Suffolk Seaboard Coastline Trail from the Northern Growth Area is a part of this trail. The national bike route known as the TransAmerican Bicycle Trail from Oregon currently terminates in Williamsburg. It may be extended to Virginia Beach via this trail.



The Beaches to Bluegrass Trail is a statewide trail being planned by the Virginia Department of Conservation and Recreation. It crosses the entire state, from the Cumberland Gap to the Virginia Beach oceanfront and Eastern Shore.



The Birthplace of America Trail is actually two 30-mile trails, under development. One trail would connect the South Hampton Roads Trail to the Virginia Capital Trail, through Suffolk.

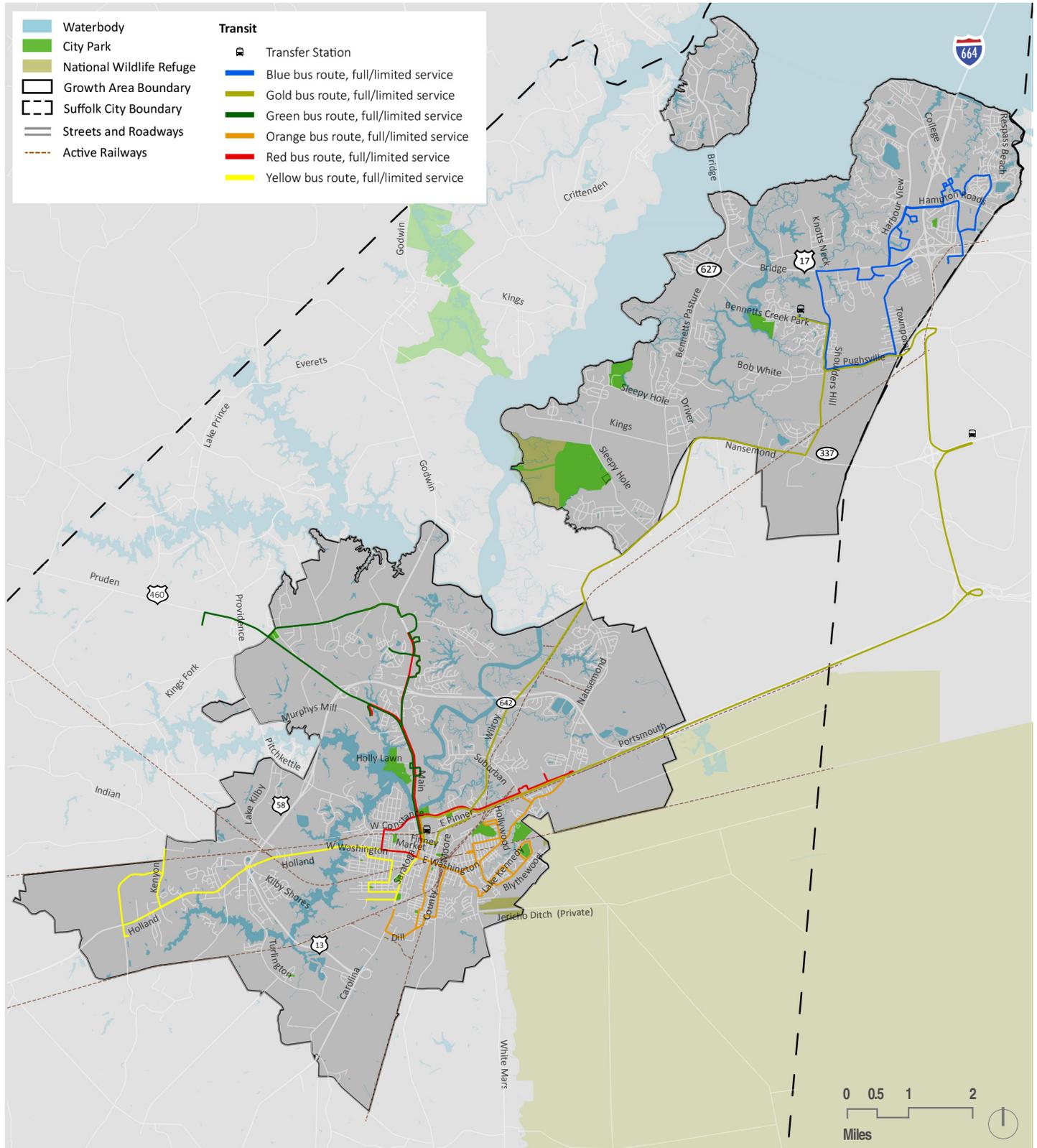


The East Coast Greenway is envisioned as a nearly 3,000 mile route from Maine to Florida. Pieces of the Greenway are already completed. The existing portions of the Seaboard Coastline trail are considered part of the "Historic Coastal Route," an alternate route for the Greenway, which is planned to run into and between both Growth Areas.



TRANSIT

There are several bus routes in Suffolk, and three transfer points where people can switch between local and regional routes. People who use public transportation need to get to and from transit access points. Sidewalks and bike lanes provide a way for passengers to get from origin points to the stops at the beginning of their trip, and from bus stops to destinations at the end. Safe and convenient connections make the overall transit system more usable.



SUMMARY OF CHALLENGES

The most common challenges to walking and riding bicycles that were observed during the preliminary assessment of the existing conditions include:

- > **THE SIZE OF SUFFOLK:** The city's large spatial area and distance between developed areas could provide barriers to walking and riding bicycles to destinations.
- > **LACK OF CONTINUOUS PARALLEL EAST-WEST ROUTES:** The lack of existing parallel roadways means that there are fewer options for places to add new multimodal facilities.
- > **MANY HIGH-TRAFFIC AND HEAVY INDUSTRIAL ROADWAYS:** There are several high-capacity, high-traffic roadways throughout the city. While they provide access to key destinations for people driving vehicles, they generally present a barrier to other modes of travel, particularly if there are few designated crosswalks, sidewalks, or sidepaths.
- > **DISCONNECTED (AND FEW) SIDEWALKS AND/OR BICYCLE FACILITIES AND AMENITIES:** The City is adding new facilities to existing roadways when they are rebuilt, and has built out some portions of off-road trails. However, many existing streets have no bicycle or pedestrian facilities, and no plans for the streets to be rebuilt.
- > **NARROW RIGHTS-OF-WAY IN THE HISTORIC DOWNTOWN:** Downtown is a major destination, and has a good grid network of streets, but the streets are generally narrow, which means that there is not a lot of room to provide new facilities.
- > **FEW CROSSINGS:** There are few bridges across the wetlands, streams, and river, and there are also many at-grade railroads and several interstate and highway crossings that create barriers to continuous non-motorized paths.
- > **LACK OF CLARITY REGARDING MULTI-USE PATHS VS. SIDEWALKS:** An existing City ordinance prohibits riding bicycles on sidewalks, but it is not always easy to differentiate between sidewalks and existing multi-use paths.



High-Traffic Roadways with No Crossings



At-Grade Rail Crossings with No Sidewalk



Disconnected Paths



Lack of Clarity Regarding Multi-use Paths and Sidewalks

SUMMARY OF OPPORTUNITIES

Though it's clear that there are challenges to overcome, it is also evident that the City has many resources that create opportunities for improving multimodal conditions:

- > **THE COMPREHENSIVE PLAN IS SUPPORTIVE:**
The Plan lays the groundwork and rationale for supporting bicycle and pedestrian facilities throughout Suffolk.
- > **PRESENCE OF EXISTING HIGH-QUALITY MULTI-USE PATHS AND TRAILS LOCALLY AND IN REGION:** Having good examples of multimodal infrastructure in the region means that there are precedents, and that the community has already had experience using - and benefiting from - such facilities.
- > **DESIRABLE DESTINATIONS, INCLUDING HISTORIC DOWNTOWN, RETAIL AREAS, ACCESS TO RIVERS, AND OTHER RESOURCES/ ATTRACTIONS:** The City has many resources that draw visitors and new residents alike.
- > **ABANDONED RAILWAYS:** As seen with the Seaboard Coastline Trail portion, these railways provide a fantastic opportunity to provide off-road, significant trails.
- > **PUBLIC WORKS POLICIES INCLUDE THE PROVISION OF MULTI-USE PATHS AS PART OF ROAD RECONSTRUCTION IN MANY INSTANCES:** Having this practice in place means that there are already portions of a network built out.
- > **WIDE RIGHTS-OF-WAY IN MANY PLACES:** While wide rights-of-way can be barriers for people walking and riding bicycles, they also present an opportunity to rethink these facilities and provide new multimodal options.



SUFFOLK

2035: A VISION FOR THE FUTURE

CITY OF SUFFOLK COMPREHENSIVE PLAN
Adopted April 1, 2015



The Current Comprehensive Plan



Existing Trail in Suffolk



Riverfront Park

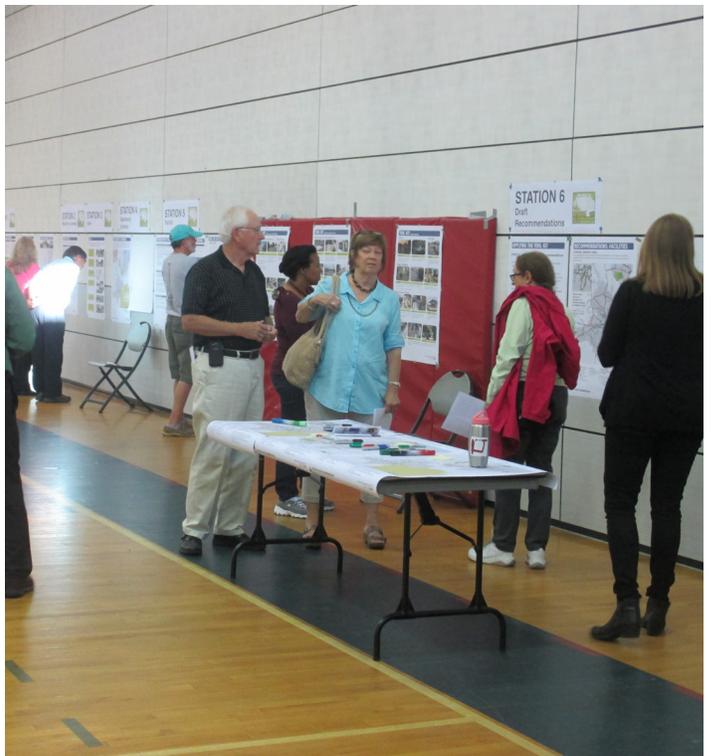
3 COMMUNITY ENGAGEMENT

OVERVIEW

Along with City Staff, members of the community played an important part in driving the need for this plan, establishing opportunities and challenges, and setting goals for the plan. Input was obtained in several ways, as summarized in this section. Strategies included:

- > **EXTERNAL/COMMUNITY STEERING COMMITTEE**
 - » Planning Commission
 - » City Council
 - » Parks and Recreation Advisory Commission
 - » Citizen Advocate
 - » Healthy Suffolk
- > **INTERNAL/TECHNICAL STEERING COMMITTEE**
 - » City Manager's Office
 - » Parks & Recreation
 - » Public Works
 - » Planning
 - » Police Department
 - » Economic Development
- > **WEBSITE** (suffolkva.us/parks/bicycle-and-pedestrian-master-plan)
- > **CITYWIDE PUBLIC MEETINGS**
- > **COMMUNITY SURVEY** (Completed in Feb/March)

Public meetings and the survey are summarized further in the remainder of this section.



COMMUNITY SURVEY

A survey was open on the City of Suffolk website from February 1 through March 14, 2017. The goal of the survey was to gain insight into how, where, and why people walk/run or ride bicycles outside (or not). The survey was also available in a hard copy format at the public meeting. There were 322 responses to the survey.

CHARACTERISTICS OF RESPONDENTS

Both Northern and Central Growth Areas were represented in the survey, though the largest proportion of responses came from the central part of the city.

The age ranges with the greatest number of responses were 45-54 (25%) and 35-44 (21%) years old. 10% of responses came from people aged 34 or younger, with less than 1% from people aged 24 or younger. When similar surveys are conducted in the future, outreach through schools or youth-oriented organizations could be used to reach younger populations.

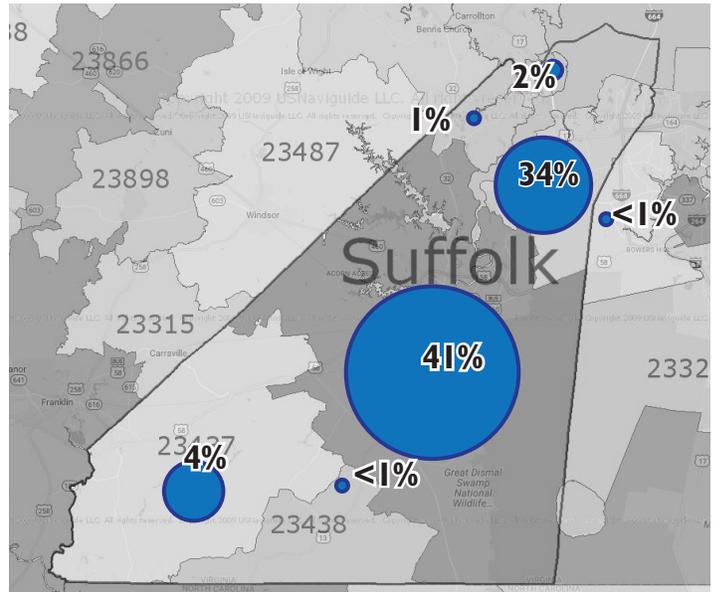
BICYCLING

When asked about their current experience and level of interest in cycling, 15% of respondents indicated that they are “strong and fearless,” meaning that they will ride in most places, under most conditions. Nearly 70% indicated that they are either “moderately experienced,” or a beginner (“interested but concerned” or “new to bicycling”). These latter two sets of cyclists are likely to gain the most from an increase in bicycle-focused and shared-use facilities. However, we assume that people who took this survey are interested in bicycling (and walking) and therefore results may not be representative of the entire community in Suffolk.

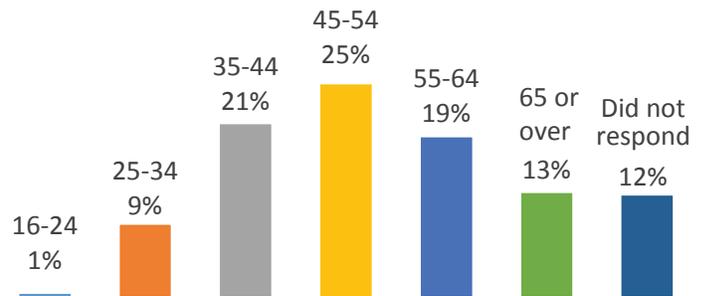
Nearly 100% of survey respondents own or have access to a working motor vehicle, and have driven a vehicle in the past year. About 90% have access to a bicycle, but only about 64% rode a bicycle in the past year.

Survey results show that most respondents do not ride bicycles nearly as frequently as they walk outside. The majority of respondents (57%) ride their bicycle an average of one or zero days per week. Only 8% of respondents report riding their bike, on average, five or more days per week. However, 77% of respondents stated that they wish they were able to ride a bicycle more often.

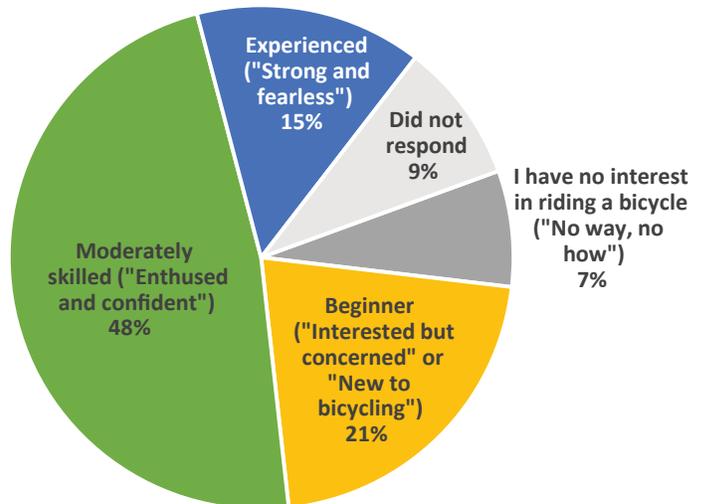
Survey responses by ZIP code



Age range of survey respondents



Respondents' self-classifications as types of bicyclists



When they do ride a bicycle, most respondents ride for exercise (74%) and recreation (73%). When looking at the frequency of riding a bicycle, 41% of respondents report riding for exercise/recreation/racing purposes at least once per week. Social responses (eating, meeting friends) were the second largest reason for riding a bicycle at least once per week (17%).

The largest factors that discourage people from riding bicycles mirror those that discourage people from walking outside: automobile traffic and driver behavior (77%), lack of bicycle lanes or bicycle parking (or facilities in poor condition) (76%), and unsafe intersections (74%).

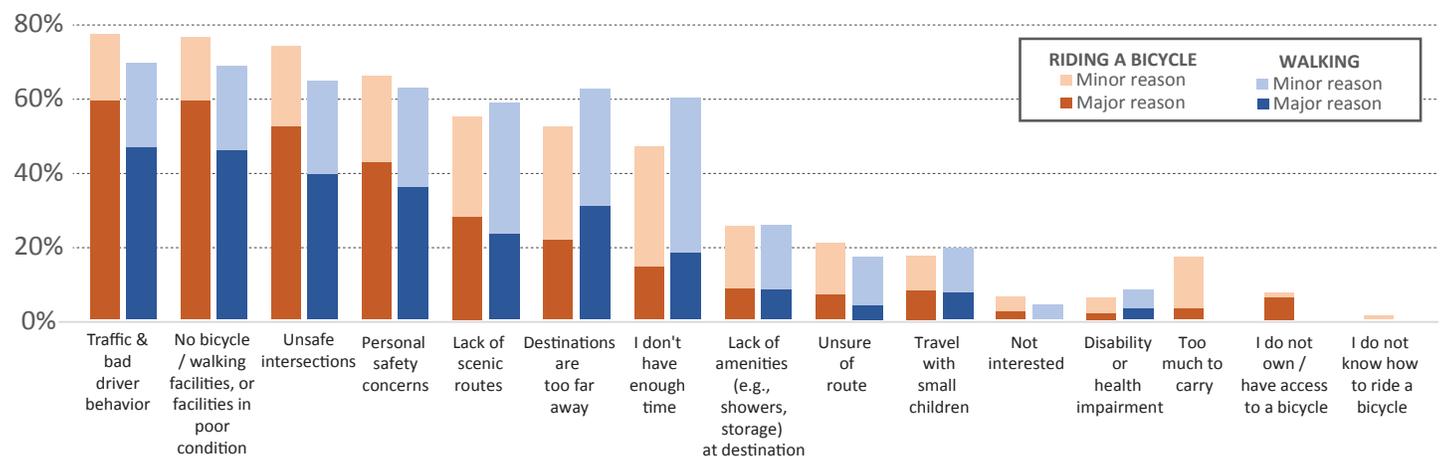
WALKING

Nearly half (49%) of the 322 survey respondents walk outside at least five days per week, and less than 20% walk outside two or fewer days per week. When respondents walk outside, the majority (54%) said that they walk, on average, 1-5 miles. Most respondents (84%) wish that they were able to walk outside more often.

Most respondents who walk outside said that they do so for exercise (89%) and recreation (70%). When looking at the frequency of walking outside, the majority of respondents (86%) said they walk outside for exercise/recreation at least once per week, with 44% citing daily walks. Many respondents also said that they walk outside at least once per week for social events (41%) and shopping/errands/appointments (36%).

When looking at factors that discourage respondents from walking outside, the biggest factors are automobile traffic and driver behavior (70%), lack of sidewalks or sidewalks in poor condition (69%), and unsafe intersections (65%).

Factors that discourage respondents from walking or riding a bicycle more frequently



PLACES PEOPLE WALK/RIDE OR WANT TO WALK/RIDE

When asked about their favorite places or streets/paths for walking and bicycling now, 18% of respondents (58 people) said they enjoy the Seaboard Coastline Trail. Reasons given include the lack of vehicle traffic, high quality of the trail and amenities, natural surroundings, and safety. Other popular responses include local neighborhoods, Dismal Swamp trails, Harbour View, Windsor Castle Park (in Smithfield), local rural roads, and downtown.

When asked about places they wish they could walk or ride a bicycle, where you are currently not able to do so, common locations included Pitchkettle Road, Bridge Road, and Shoulders Hill. Many people responded generally, saying they'd like to see more paths, sidewalks, and trails, in general.

IMPORTANCE OF SAFETY & CONVENIENCE

The majority of respondents think that it is very or somewhat important to have safer and more convenient facilities for walking (85%) and riding bicycles (81%) in Suffolk, and that having improved facilities would make respondents more likely to walk (83%) and ride bicycles (80%).

How important is it to you to have safe and convenient walking and bicycling facilities in Suffolk?		
	Bicycling	Walking
Very important	57%	70%
Somewhat important	24%	15%
Somewhat unimportant	2%	2%
Not very important	5%	2%
Did not respond	12%	12%

If it were more safe and convenient, how likely would you be to walk or ride a bicycle more frequently?		
	Bicycling	Walking
Very likely	62%	67%
Somewhat likely	18%	16%
Somewhat unlikely	1%	2%
Not very likely	6%	3%
Did not respond	12%	12%

DESIRED IMPROVEMENTS

When asked to choose the top three types of improvements they feel would be most supportive to improving walking and bicycling in Suffolk, the top response (84%) was more facilities (sidewalks/bike lanes/multi-use paths). Other top responses include maintenance of these facilities (33%) and better intersections with pedestrian signals and crosswalks (28%).

Please select up to three improvements which you feel would be most supportive to improving bicycling and walking in the City of Suffolk.	
More sidewalks/bike lanes/multi-use paths	84%
Maintenance of sidewalks/bike lanes/multi-use paths	33%
Better intersections (pedestrian signals/crosswalks)	28%
Bicycle route map	19%
Better street lighting	19%
Enforcement for motorists, pedestrians, and bicyclists	18%
Education for motorists, pedestrians, and bicyclists	15%
Secure bicycle parking	13%
Better signage, including wayfinding and/or educational signage	11%
More amenities at destinations (showers, dressing rooms, etc.)	4%
Improved connections to the bus	3%
Other (Connectivity to Seaboard Coastline Trail, shoulders on busier roads, focus on Downtown, improve bus system, support meet up groups for neighborhoods)	2%

NAVIGATION

Most respondents (64%) use a map website or app on a phone to figure out walking and/or bicycling routes to new destinations. Map websites on a computer (46%) and asking friends for recommendations (37%) were also common.

4 STRATEGIC OPPORTUNITY CORRIDORS

OVERVIEW

The Strategic Opportunity Corridors were developed based on the analysis of existing conditions, a workshop with the Internal Committee, existing plans, and use of the project goals. They were then refined using input from the first two public meetings, as well as meetings with both committees. **The corridors shown on the following pages outline a potential network that provides circulation and connectivity within each of the Growth Areas and provides connections between them.**

Designating a street as an Opportunity Corridor in this plan means that this process determined that these corridors have significant needs (based on current use, or potential use), and/or pose significant opportunities. As with the rest of this plan, the corridors should be revisited on a regular basis.

The following maps do not designate specific facilities or route designations for each corridor. **Not all corridors are appropriate for both bicycle and pedestrian facilities.** Future facility design will need to include a full analysis, and should take as guidance the Tool Kit presented in the next section.

OTHER CONSIDERATIONS

There are many places where sidewalks may be missing in neighborhoods, where they could provide vital connections to destinations such as grocery stores, schools, and transit stations. Because many of these sidewalks would provide only neighborhood- or block- level improvements, they may not be included as part of an Opportunity Corridor. However, a small sidewalk could provide a much-needed connection. These improvements need to be identified by the City based on an updated understanding of the current sidewalk network.

Though they are not specifically identified in this plan, there are also many intersections along these corridors where there are opportunities to provide new or enhanced facilities. Need for these improvements should also be explored further by the City.

TYPES OF CORRIDORS

There are three types of Strategic Opportunity Corridors identified on the map:

CORRIDORS ALONG EXISTING STREETS

These corridors comprise the majority of the map. They indicate streets that are optimal routes for pedestrian and bicycle traffic.

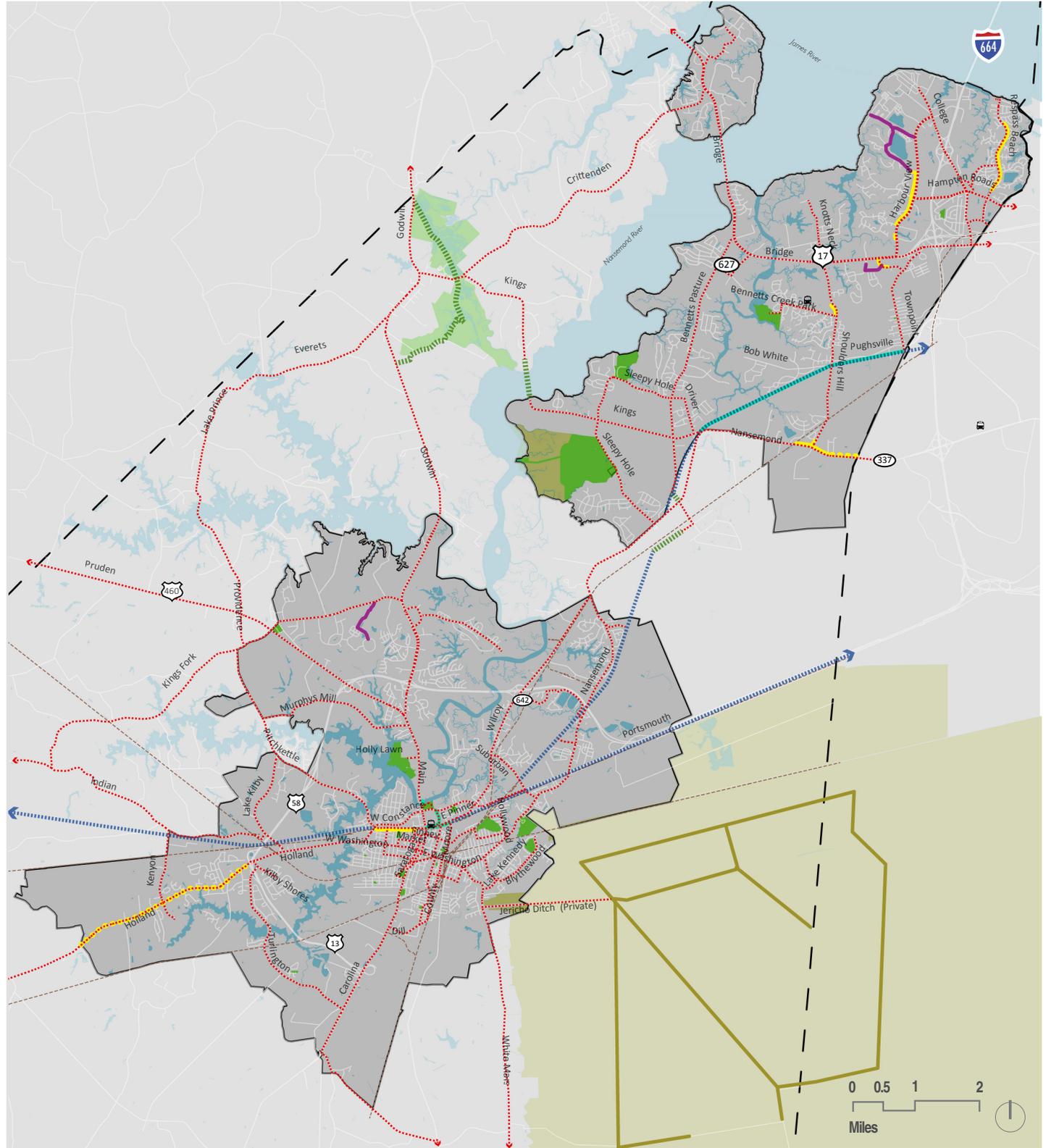
CORRIDORS ALONG ABANDONED RAILWAYS

These corridors include the existing Seaboard Coastline Trail right-of-way, as well as all remaining inactive railways.

CORRIDORS THAT CREATE OTHER CONNECTIONS

These include corridors that create new street connections, corridors that re-establish former bridges, and corridors through parks.

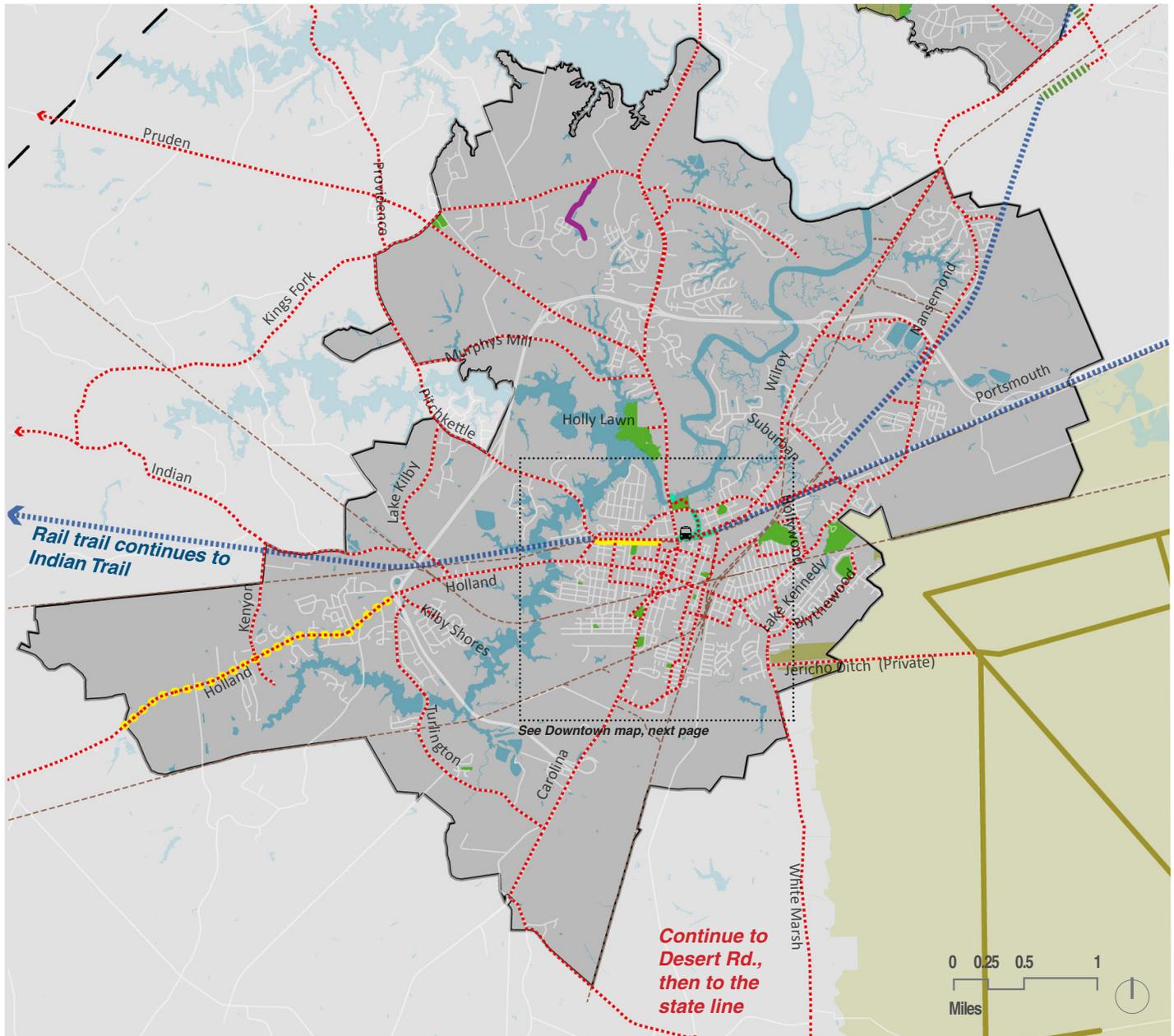
STRATEGIC OPPORTUNITY CORRIDORS



- | | | | |
|---|---|--|--|
| <ul style="list-style-type: none"> Waterbody City Park National Wildlife Refuge Growth Area Boundary Suffolk City Boundary Streets and Roadways Active Railways | <p>Transit</p> <ul style="list-style-type: none"> Transfer Station | <p>Existing Facilities</p> <ul style="list-style-type: none"> Existing Sidepaths (Adjacent to Street) Existing Shared-Use Paths (Not Adjacent to Street) Existing Bike Lanes Existing Unimproved Trails <p><i>Existing sidewalks not shown, for map clarity.</i></p> <p>Planned Or Under Construction Facilities</p> <ul style="list-style-type: none"> Planned Sidepaths | <p>Strategic Opportunity Corridors</p> <ul style="list-style-type: none"> Corridors along Existing Streets/Paths Corridors along Abandoned Railways Corridors that Create Other Connections |
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CENTRAL GROWTH AREA

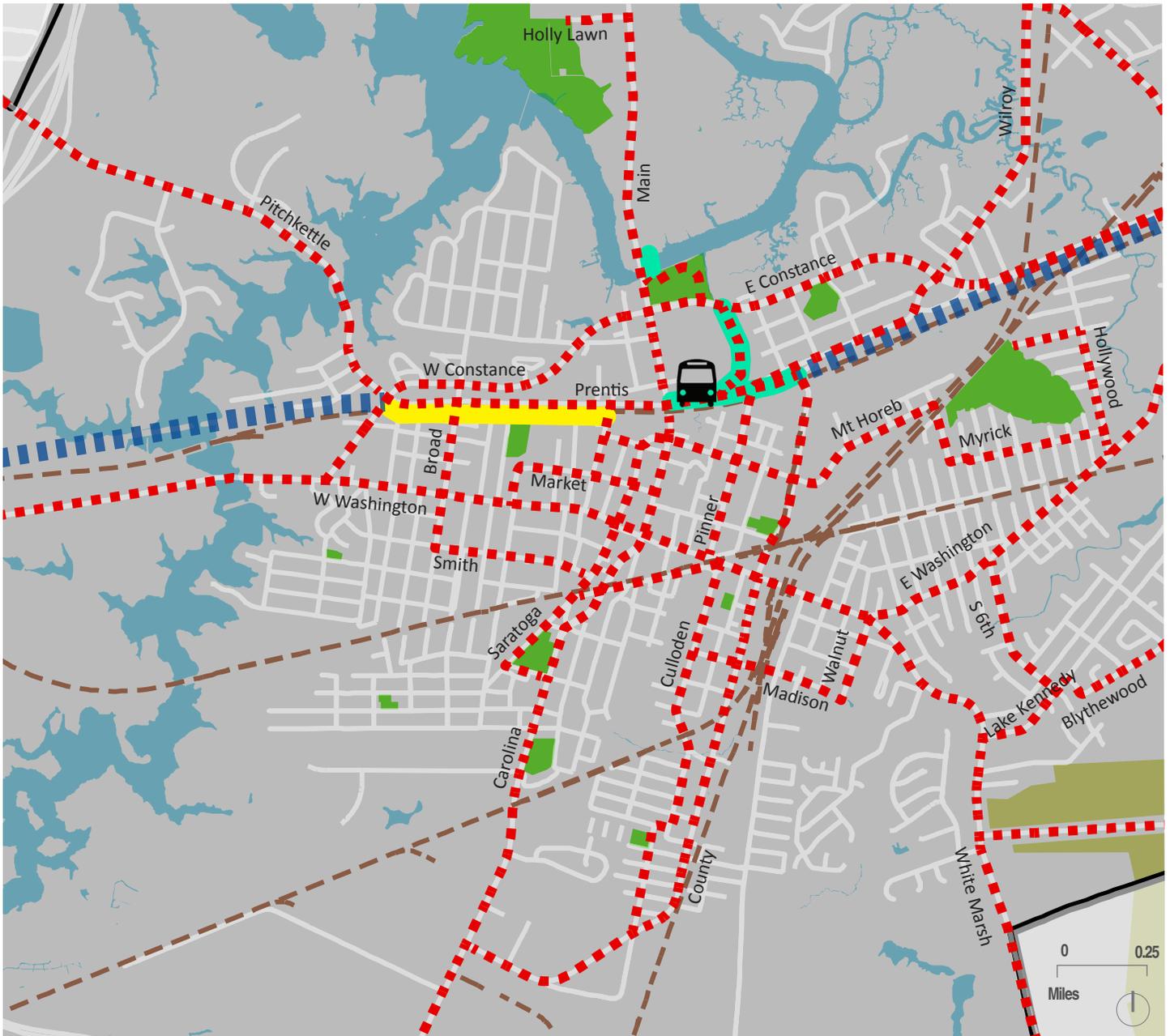
The Central Growth Area has many cultural and natural resources, as well as many other activity hubs, including the historic Downtown, and several retail areas, schools, and parks. The Central Growth Area corridors seek to create connections to existing and future shared-use paths, and connections to Downtown. They also designate heavily-used streets (Main, Washington, etc.) as important connections, though future analyzed are necessary to determine what facilities are possible within the available right-of-way.



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|---|---|---|---|
| <ul style="list-style-type: none"> ■ Waterbody ■ City Park ■ National Wildlife Refuge Growth Area Boundary Suffolk City Boundary Streets and Roadways Active Railways | <p>Transit</p> <ul style="list-style-type: none"> Transfer Station | <p>Existing Facilities</p> <ul style="list-style-type: none"> Existing Sidepaths (Adjacent to Street) Existing Shared-Use Paths (Not Adjacent to Street) Existing Bike Lanes Existing Unimproved Trails <p><i>Existing sidewalks not shown, for map clarity.</i></p> <p>Planned Or Under Construction Facilities</p> <ul style="list-style-type: none"> Planned Sidepaths | <p>Strategic Opportunity Corridors</p> <ul style="list-style-type: none"> Corridors along Existing Streets/Paths Corridors along Abandoned Railways Corridors that Create Other Connections |
|---|---|---|---|

DOWNTOWN ZOOM

Downtown is an active place, and a draw for both local residents and visitors. The corridors outline several loops that could be used to accommodate people walking and/or riding bicycles to, around, and through Downtown. The Downtown Plan (in progress) will also identify potential improvements in this area.

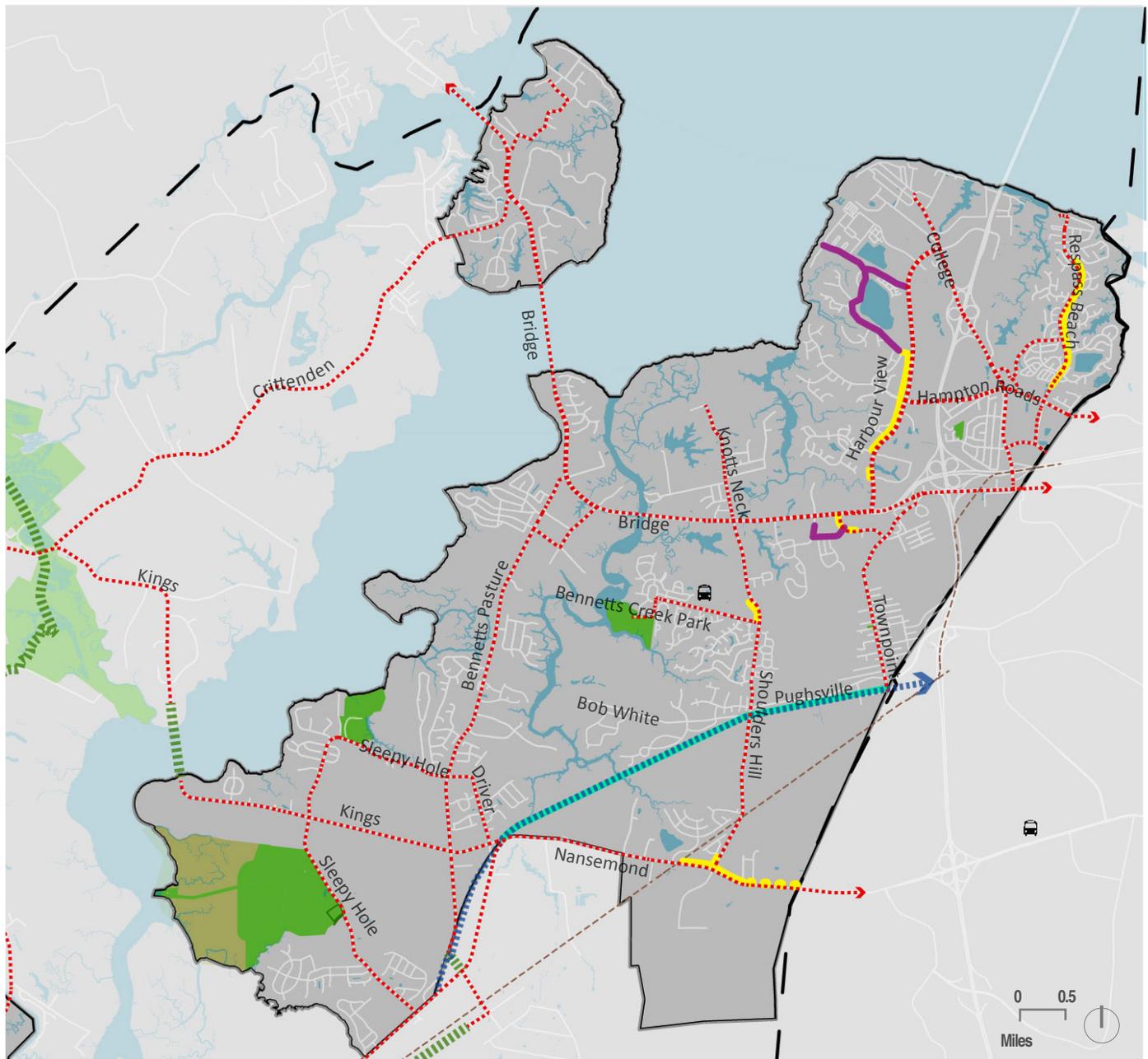


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| <ul style="list-style-type: none"> ■ Waterbody ■ City Park ■ National Wildlife Refuge Growth Area Boundary Suffolk City Boundary Streets and Roadways Active Railways | <p>Transit</p> <ul style="list-style-type: none"> Transfer Station | <p>Existing Facilities</p> <ul style="list-style-type: none"> Existing Sidepaths (Adjacent to Street) Existing Shared-Use Paths (Not Adjacent to Street) Existing Bike Lanes Existing Unimproved Trails <p><i>Existing sidewalks not shown, for map clarity.</i></p> <p>Planned Or Under Construction Facilities</p> <ul style="list-style-type: none"> Planned Sidepaths | <p>Strategic Opportunity Corridors</p> <ul style="list-style-type: none"> Corridors along Existing Streets/Paths Corridors along Abandoned Railways Corridors that Create Other Connections |
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NORTHERN GROWTH AREA

The corridors in the Northern Growth Area provide circulation between several neighborhoods, with routes that connect to the Seaboard Coastline Trail, as well as several neighborhoods and schools. There are also corridors that connect into the northernmost area of Suffolk, where there are several retail areas. Because many of these retail areas are of a suburban scale and design, there is a need to provide enhanced pedestrian and bicycle facilities.

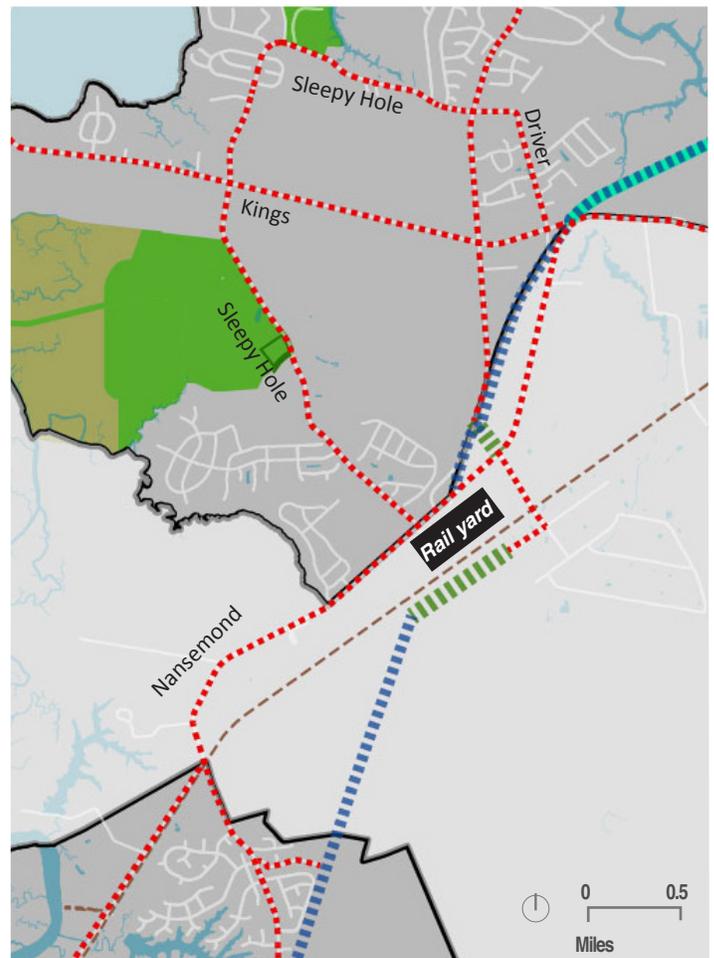
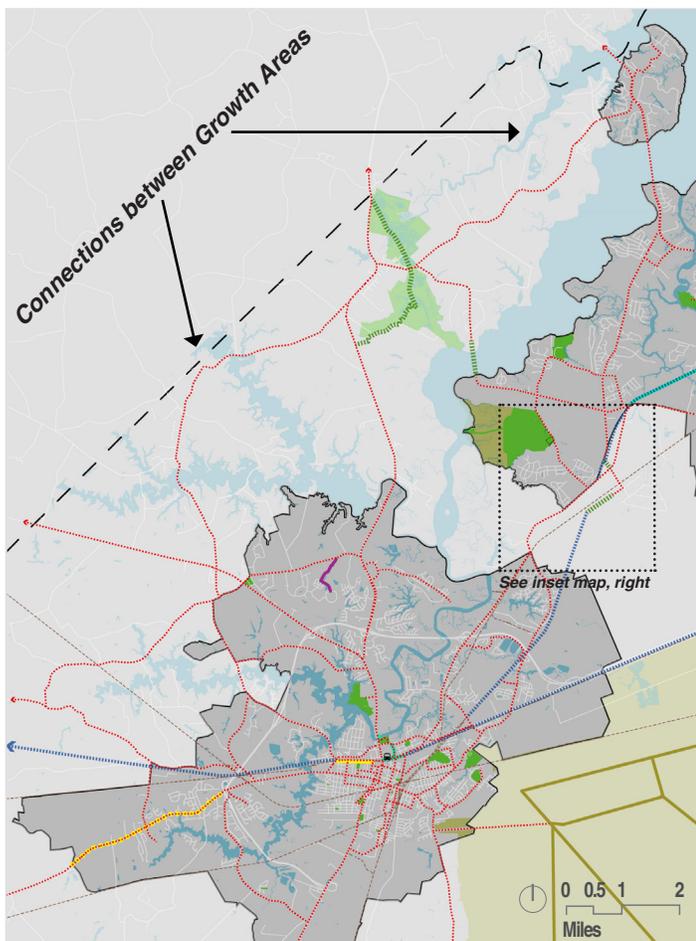


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|---|--|---|--|
| <ul style="list-style-type: none"> Waterbody City Park National Wildlife Refuge Growth Area Boundary Suffolk City Boundary Streets and Roadways Active Railways | <p>Transit</p> <ul style="list-style-type: none"> Transfer Station | <p>Existing Facilities</p> <ul style="list-style-type: none"> Existing Sidepaths (Adjacent to Street) Existing Shared-Use Paths (Not Adjacent to Street) Existing Bike Lanes Existing Unimproved Trails <p><i>Existing sidewalks not shown, for map clarity.</i></p> <p>Planned Or Under Construction Facilities</p> <ul style="list-style-type: none"> Planned Sidepaths | <p>Strategic Opportunity Corridors</p> <ul style="list-style-type: none"> Corridors along Existing Streets/Paths Corridors along Abandoned Railways Corridors that Create Other Connections |
|---|--|---|--|

CONNECTIONS BETWEEN GROWTH AREAS

Though most analyses were focused on the space within both Growth Areas, one goal of the plan was to create connections between the Growth Areas. At public meetings and on the survey, it was clear that many bicyclists currently use routes that connect the two Growth Areas on the west side as routes for longer rides. The corridors seek to formalize some of these connections.

Another area of connection is between the two Growth Areas, where an active railway and rail yard, abandoned railway, and Nansemond Parkway run parallel. There are two corridors provided, either of which could provide an enhanced multimodal connection and provide a connection between segments of the abandoned railway within both of the Growth Areas.



- | | | | |
|--|--|---|---|
| <ul style="list-style-type: none"> ■ Waterbody ■ City Park ■ National Wildlife Refuge Growth Area Boundary Suffolk City Boundary — Streets and Roadways - - - Active Railways | <p>Transit</p> <ul style="list-style-type: none"> ■ Transfer Station | <p>Existing Facilities</p> <ul style="list-style-type: none"> — Existing Sidepaths (Adjacent to Street) — Existing Shared-Use Paths (Not Adjacent to Street) — Existing Bike Lanes — Existing Unimproved Trails <i>Existing sidewalks not shown, for map clarity.</i> <p>Planned Or Under Construction Facilities</p> <ul style="list-style-type: none"> ●●● Planned Sidepaths | <p>Strategic Opportunity Corridors</p> <ul style="list-style-type: none"> - · - · - Corridors along Existing Streets/Paths - · - · - Corridors along Abandoned Railways - · - · - Corridors that Create Other Connections |
|--|--|---|---|

5 TOOL KIT

OVERVIEW

This “Tool Kit” provides **examples of bicycle and pedestrian best practices** that can be used to create a multimodal network in Suffolk and to address the goals of this plan.

THE TOOL KIT INCLUDES:

- > Off-road Facilities
- > On-road Facilities & Treatments
- > Intersection Safety Treatments
- > Facilities for Bridges & Crossings
- > Lighting
- > Furnishings & Comfort Amenities
- > Signage & Wayfinding
- > Bicycle Parking & Storage
- > Other Amenities
- > Programs
- > Built Environment Strategies

TOOL KIT RESOURCES

In 2004, the Commonwealth Transportation Board adopted a policy (“**VDOT Policy To Improve Bicycle and Pedestrian Access**”) for providing bicyclists and pedestrians greater access to safe transportation on roadways across the state. The policy includes a **framework for accommodating bicyclists and pedestrians in the planning, funding, design, construction, operation, and maintenance of Virginia’s transportation network**. It states that bicycle and pedestrian accommodations shall be designed and built using resources listed in the policy, including the VDOT “Road Design Manual,” though it does allow for context-sensitive flexibility in the design.

The Tool Kit takes into account the Design Manual, as well as design guidelines developed by the American Association of State Highway and Transportation Officials (AASHTO), National Association of City Transportation Officials (NACTO), the National Cooperative Highway Research Program (NCHRP), and the Federal Highway Administration (FHWA), to suggest potential facilities.

The City of Suffolk published a traffic calming guide in 2004 (“Traffic Calming Guide for Local Residential Streets”). Because it has not been recently updated, and because traffic calming is not a primary goal, it was not fully incorporated into this plan. However, slowing down traffic can yield a safer and more comfortable non-motorized traveling experience, so this and similar guidance should be utilized during further facility planning.

The Tool Kit is not comprehensive; it highlights examples that can successfully address the needs and conditions presented in Suffolk. It should be updated as new resources become available.

HOW TO USE THE TOOL KIT

The Tool Kit provides a suite of options for addressing needs and opportunities. When planning for bicycle and pedestrian infrastructure in Suffolk, the tools in this section should be considered for implementation.

The Opportunity Corridors presented earlier showcase some of the primary routes that could benefit from enhanced pedestrian and bicycle infrastructure in Suffolk. Other routes may also emerge over time. After it is determined where bicycle and pedestrian facilities should be located, roadway conditions, usage levels, adjacent land uses, etc., should determine which type of facility is most appropriate. On-street improvements are determined primarily by vehicular traffic volume and speed. As volume and speed increase, greater separation between bicycle facilities and vehicular lanes is recommended. For off-road facility types, right-of-way and/or easement availability are key. Pedestrian-focused or shared facilities should be ADA compliant.

The table of **Design Considerations** in this section contains information about the considerations that need to be taken into account when planning for bicycle and pedestrian facilities. These are high-level, summarized design guidelines. Actual facility placement and design depend on the context and conditions of the street or available space, including available right-of-way.

USER TYPES

People walk and ride bicycles for a variety of reasons, including recreational and transportation needs. A connected network of sidewalks and paths will facilitate movement for all purposes.



RECREATION

- > Enjoyment
- > Health



TRANSPORTATION

- > Alternate Mode of Transportation
- > Primary Mode of Transportation
- > Environmental Stewardship

BICYCLE USER CLASSIFICATION



*A. Strong & Fearless
(Advanced experience)*

- > Willing to ride a bicycle in most conditions, whether or not a bicycle facility is present



*B. Enthused & Confident
(Moderately experienced)*

- > Comfortable riding a bicycle on roadways but prefer using a dedicated bicycle facility



C. Interested but Concerned / Children (Beginner)

- > Curious about riding a bicycle but concerned about riding near fast-moving vehicular traffic
- > Would prefer riding on trails or other facilities separated from the roadway



D. No Way, No How! (Not at all interested in riding a bicycle)

- > Not interested, not able to ride a bicycle, or not comfortable riding a bicycle in any condition

Categories based on a publication from Roger Gellar of the Portland Office of Transportation. <https://www.portlandoregon.gov/transportation/article/158497>

PEDESTRIANS

People walking, running, and using mobility devices (e.g., wheelchairs, walkers) - all of whom are considered pedestrians - can all benefit from off-road transportation improvements, as well as intersection improvements and other amenities. Some users may be comfortable walking on a roadway shoulder or shared street, while others may only walk from place to place if a sidewalk or path is provided. Taking into account characteristics such as speed or amount of vehicle traffic when determining pedestrian or shared facility type makes it more likely that a roadway will be designed in a way that feels safer for a greater number of users.

BICYCLE USERS

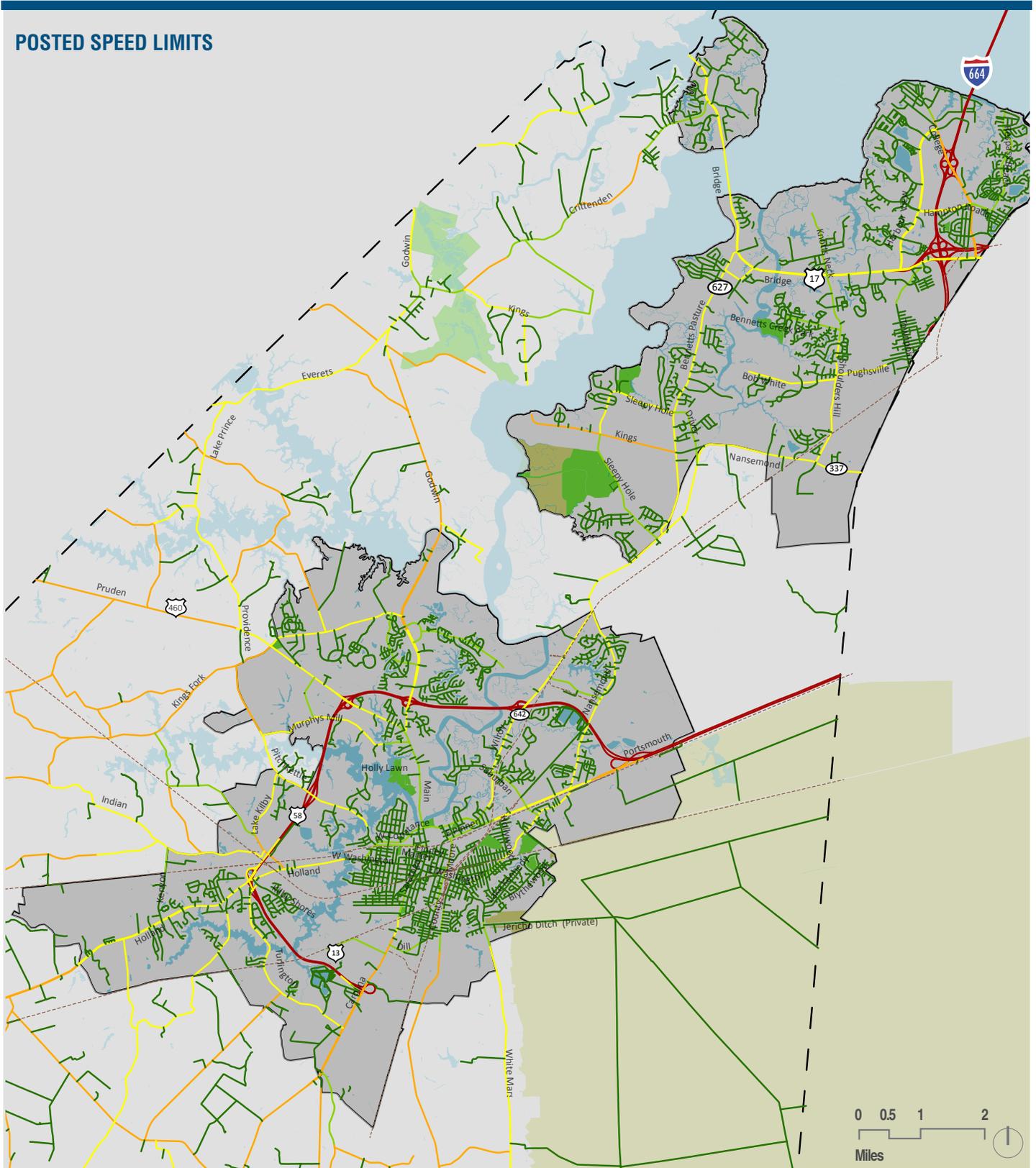
Different types of cyclists have different levels of experience and comfort when riding. One way of looking at different types of bicycle users is to separate them into four categories based on experience, interest, and level of comfort with riding bicycles. By better understanding these user groups, and their presence in Suffolk, facilities can be designed to meet their needs and allow riders to feel safe and comfortable across a range of road conditions.

DESIGN CONSIDERATIONS

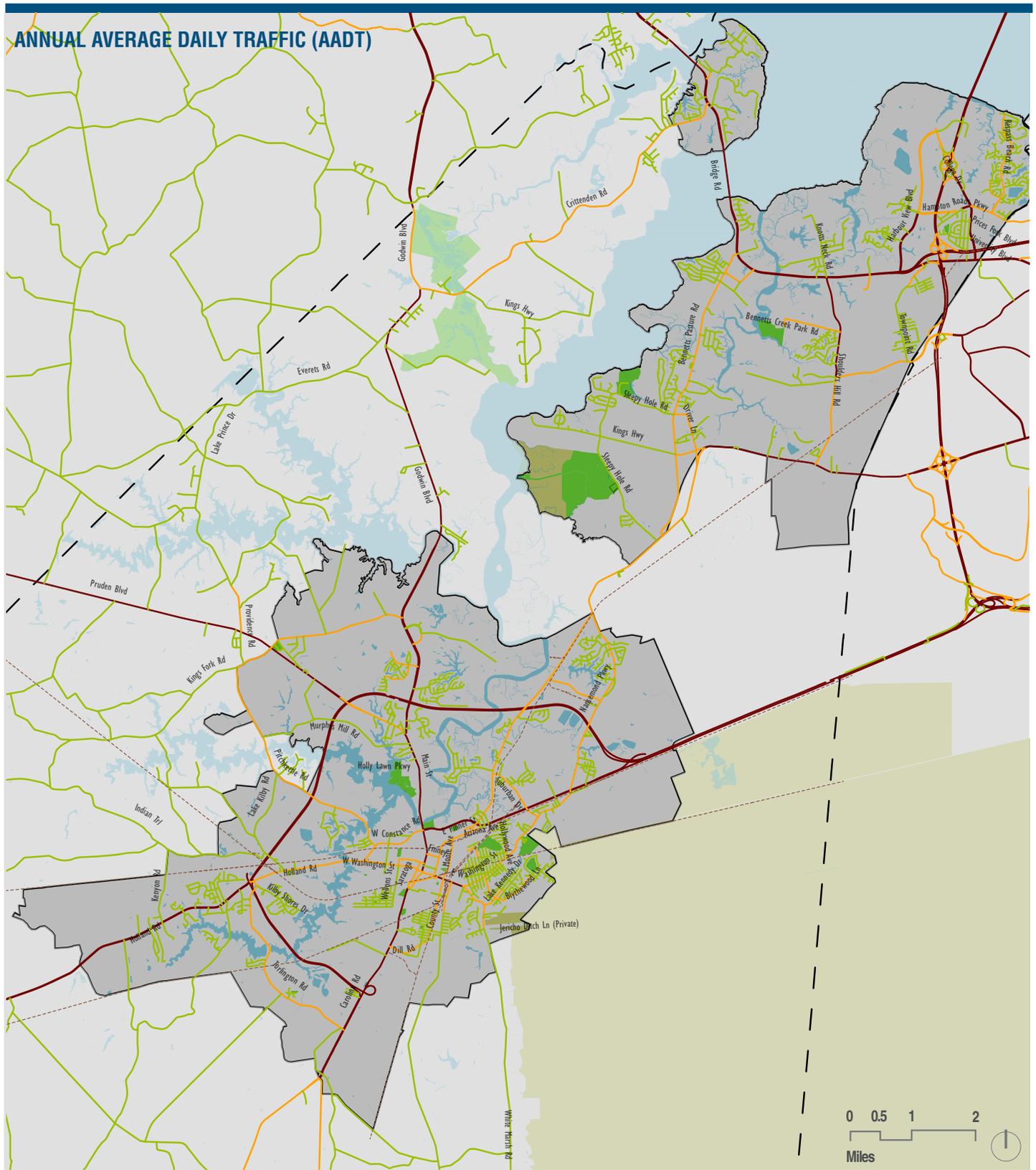
TOOL TYPE	POSTED SPEED LIMITS*	ANNUAL AVERAGE DAILY TRAFFIC (AADT)*	FACILITY WIDTH	USERS WHO MAY PREFER THIS FACILITY (BICYCLE CLASSIFICATION ON PREV. PAGE)
OFF-ROAD FACILITIES - PEDESTRIAN				
Sidewalk	Any	Any	8' minimum for VDOT roads (5' sidewalk and 3' buffer or 8' sidewalk)	Pedestrians Only
OFF-ROAD FACILITIES - SHARED BICYCLE AND PEDESTRIAN				
Shared-use Path <i>Shared bicycle/pedestrian path not adjacent to a roadway.</i>	High (45 mph+) or where on-road facilities are not feasible	Any	14' minimum (10' path, with 2' buffer on both sides). 8' minimum path for constrained corridors.	Pedestrians A / B / C Bicyclists
Sidepath <i>Shared bicycle/pedestrian path adjacent to a roadway.</i>	High (45 mph+) or where on-road facilities are not feasible	Any	15-18' (10' path with 3-6' buffer on street side and 2' buffer on inside). 8' minimum for constrained corridors.	Pedestrians A / B / C Bicyclists
ON-ROAD FACILITIES - BICYCLE				
Separated Bicycle Lane <i>Bicycle lane with vertical, physical buffer between bicycle and motor vehicles.</i>	High (35+ mph)	Moderate-high (>2,000)	One-way: 7' minimum each side of the road (5' lane with 2' buffer) Two-way: 15' (two 6' lanes with 3' buffer)	A / B / C Bicyclists
Buffered Bicycle Lane <i>Bicycle lane with buffer between bicycle and motor vehicles.</i>	Medium-high (30-45 mph)	High (>10,000)	7' minimum each side (5' lane with 2' buffer)	A / B / C Bicyclists
Bicycle Lane <i>Intended to delineate the right of way assigned to bicyclists and motorists and to provide for more predictable movements by each.</i>	Low-medium (25-35 mph)	Low-moderate (≤10,000)	5' minimum each side	A / B Bicyclists
OTHER MARKINGS OR DESIGNATIONS (NOT FACILITIES)				
Shared Lane Marking (Sharrows)	Low (≤25 mph)	Low (≤2,000)	0' additional	A / B Bicyclists
Signed Bicycle Route <i>Designated by bicycle route signs, and sometimes including a paved shoulder. Serve either to provide continuity to other bicycle facilities or designate preferred routes through high-demand corridors.</i>	Wide range depending on roadway characteristics	Low (≤2,000)	4' paved shoulder where space allows	A / B Bicyclists
Paved Shoulders	Medium-high (30-45 mph)	Moderate-high (>2,000)	6.5' minimum each side of the road (5' lane with 1.5' buffer); more space where speeds or AADT are higher	All users
Yield Roadway / Shared Street	Low (≤25 mph)	Low (≤2,000)	12'-20' of total travel width	All can use; likely most comfortable for A / B Bicyclists

* See maps on the following pages.

POSTED SPEED LIMITS



- | | |
|--|--|
| ■ Waterbody | Speed Limit |
| ■ City Park | — 15 - 25 |
| ■ National Wildlife Refuge | — 30 - 35 |
| □ Growth Area Boundary | — 40 - 45 |
| □ Suffolk City Boundary | — 50 - 55 |
| — Streets and Roadways | — 60 - 65 |
| — Active Railways | |



■ Waterbody	Annual Average Daily Traffic (AADT) - Updated August 2016 (VDOT)
■ City Park	— 0 - 2000
■ National Wildlife Refuge	— 2001 - 10000
 Growth Area Boundary	— 10001 - 195000
 Suffolk City Boundary	
 Streets and Roadways	
 Active Railways	

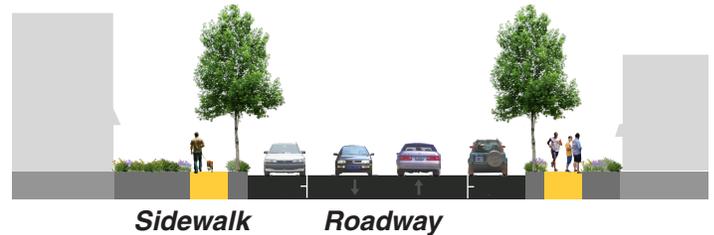


OFF-ROAD FACILITIES

Off-road pedestrian and bicycle facilities provide the highest level of separation from motor vehicle traffic. They offer varying levels of separation between bicycles and pedestrians.

OFF-ROAD: PEDESTRIAN

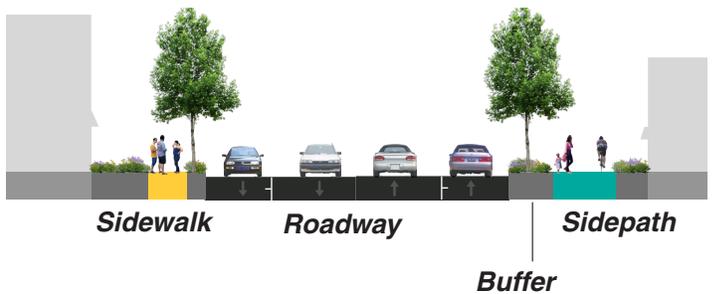
CONTINUOUS SIDEWALKS



- > Sidewalks should be well-maintained and wide enough for anticipated use
- > Should meet American Disability Act standards of width, slope, and surface condition

OFF-ROAD: SHARED (BICYCLE AND PEDESTRIAN)

SIDEPATHS



- > Road-adjacent path shared by people walking and riding bicycles
- > Path is separated from the road by a curb and ideally includes a planted buffer strip between the path and the roadway
- > Center line may be used to divide users by their direction of travel
- > Signage should be used to warn users of constrained conditions, obstacles, or other conflict zones

SHARED-USE PATHS



- > Similar characteristics as sidepaths, except the shared-use path is separated from the roadway (e.g., in a former railway, as with the Seaboard Coastline Trail)

ON-ROAD FACILITIES

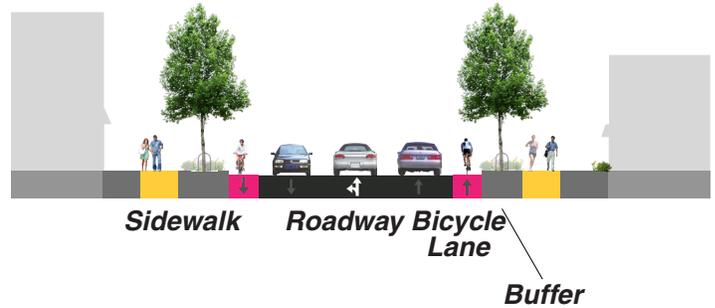
On-road facilities provide varying levels of separation between bicycles and vehicles. The faster the traffic is moving, and the higher the volume, the more separation that should be considered.

ON-ROAD: BICYCLE

BICYCLE LANES



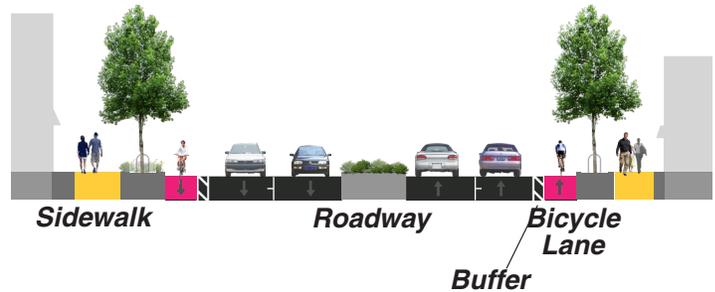
- > Striping separates marked bicycle lane from vehicular traffic
- > Appropriate for streets with posted traffic speeds of 25-35 mph



BUFFERED BICYCLE LANES



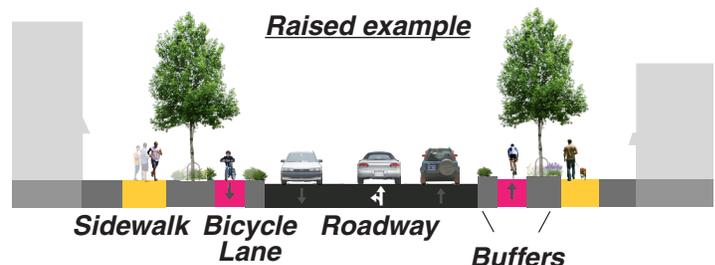
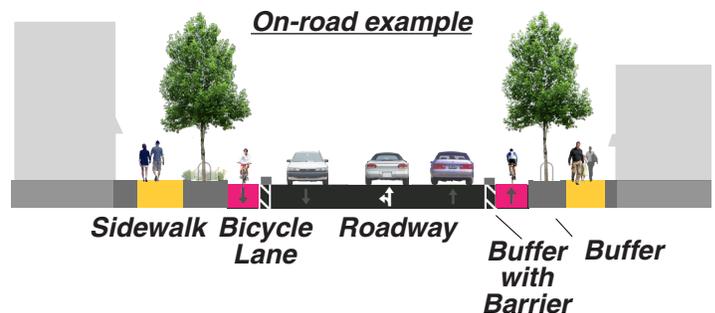
- > Striped buffer zone separates bicycle lane from vehicular traffic
- > Appropriate for streets with high-speed or high-volume traffic



SEPARATED BICYCLE LANES



- > Bicycle lanes are protected by a physical barrier (curb, flexible posts, bollards, planters, a raised median, or parked cars) between the between the lane and vehicular traffic
- > Appropriate for streets with high-speed or high-volume traffic
- > May be on-road or raised



ON-ROAD: SHARED

PAVED SHOULDERS

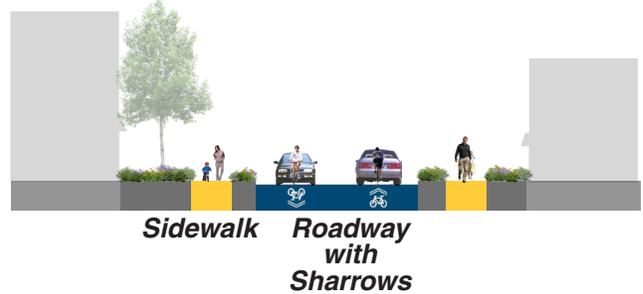


- > On-road markings designate that the roadway is shared by people riding bicycles and driving
- > Appropriate for streets with low-speed and low-volume traffic
- > Can be used where limited road width cannot accommodate other bicycle facilities

OTHER MARKINGS/DESIGNATIONS

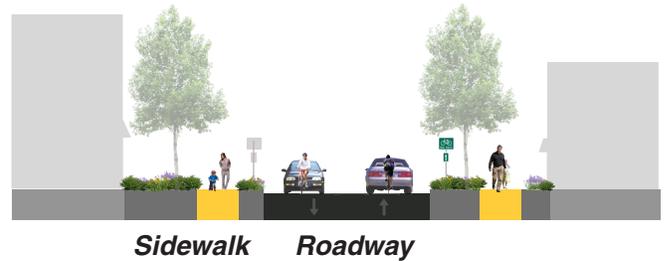
When installation of new facilities is not feasible, due to issues such as lack of available space, other markings or designations could help to clarify routes or spaces available for people riding bicycles or walking.

SHARED LANE MARKINGS (“SHARROWS”)



- > On-road markings reinforce that the roadway is shared by people riding bicycles and driving
- > Can be used to advise people riding bicycles on the best place to ride in the road (e.g., central for more narrow roads, or further to the outside on wider roads)
- > Appropriate for streets with low-speed and low-volume traffic
- > Utilizing a bicycle boulevard or greenway concept with sharrows creates a more pleasant riding experience

SIGNED BICYCLE ROUTES



- > Serve either to provide continuity between bicycle facilities or to designate preferred routes through high-demand corridors
- > Can be used with bike lanes, sharrows, or with no on-road bicycle markings

YIELD ROADWAYS / SHARED STREETS



- > Serves people driving, walking, and riding bicycles in the same area
- > There are no lane markings
- > There may be signage indicating that the space is shared
- > Appropriate for streets with very low-speed and low-volume traffic
- > Used for local residential streets, not for areas with through traffic

INTERSECTION SAFETY TREATMENTS

Intersections are often points of high conflict, and unsafe intersections were called out by many Suffolk community members as a deterrent to riding bicycles and walking in Suffolk.

FOR PEOPLE WALKING AND RIDING BICYCLES

MARKED CROSSWALKS



- > High-visibility striped or textured crosswalks make crossing area more visible to vehicles
- > Standard parallel line crosswalks should be used where high-visibility is not required
- > May be paired with strategies on this page and the following page to enhance safety and visibility

CROSSING SIGNAGE AND/OR RAPID-FLASHING BEACONS



- > The Code of Virginia states that people driving vehicles must stop for any pedestrian at a crosswalk, regular crossing (including ends of sidewalks), or intersection where the legal maximum speed doesn't exceed 35 mph
- > Pedestrian crossing warning signs alert drivers to the potential presence of people walking (and riding bicycles) at crossings
- > Rapid-flashing beacons may be used for increased visibility

ADVANCE STOP OR YIELD MARKINGS



- > Advance yield or stop lines (places 20-50 feet ahead of a crossing) increase pedestrian visibility and reduce the likelihood of pedestrian/vehicle crashes at unsignalized mid-block crossings
- > Crossings for trails/shared-use paths may warrant higher-visibility treatments - for example, VDOT has piloted programs that use zigzag striping to give advanced warning to motorists

CURB EXTENSIONS



- > Extended sidewalks at intersections in higher-density areas reduce crossing distance and make pedestrians more visible to drivers
- > Extensions are often paired with street parking, and can help to slow traffic by reducing the width of the roadway
- > When paired with bicycle lanes, must allow clear space for bicycle passage

ADA-COMPLIANT CURB RAMPS



- > Ramps and curb cuts at driveway and road crossings allow easier access for people with limited mobility, as well as easier access in general
- > Truncated domes provide a detectable warning

MEDIAN REFUGES



- > Waiting areas in the median of wide roadways split crossing distances for pedestrians, and should be wide enough to also accommodate bicycles

INTERSECTION FACILITIES FOR RAISED BICYCLE LANES



- > Where a raised bicycle lane crosses an intersection, one way to make the bicyclist more visible is to move the bike lane toward the travel lanes just before the intersection
- > Protected intersection designs provide an extra barrier for bicyclists and pedestrians at intersections

SIGNAL TIMING / PEDESTRIAN AND BICYCLE SIGNAL HEADS



- > Signal timing may be adjusted to allow all users to safely cross roadways
- > Pedestrian countdown signals help to ensure that people know when they have enough time to cross before the light changes
- > Bicycle signals are timed to prevent conflicts with vehicles at road intersections - for example, a bicycle may have the signal before a vehicle is given a turn signal, rather than giving both vehicle and bicycle a green light simultaneously

BICYCLE-FOCUSED INTERSECTION INFRASTRUCTURE

COLORED/FILLED BICYCLE LANES



- > Bicycle lanes can be painted for higher visibility at potential conflict points (such as driveways and intersections)
- > Solid paint indicates bicycle-only spaces, while hashed paint indicates shared bicycle/vehicle spaces
- > On-ramps, turn lanes, and driveways are a few example of high-conflict points
- > Combined bicycle/turn lanes can also be used

BIKE BOXES



- > Bicycle boxes provide a safe area for riders to stop and make turns at intersections

FACILITIES FOR BRIDGES

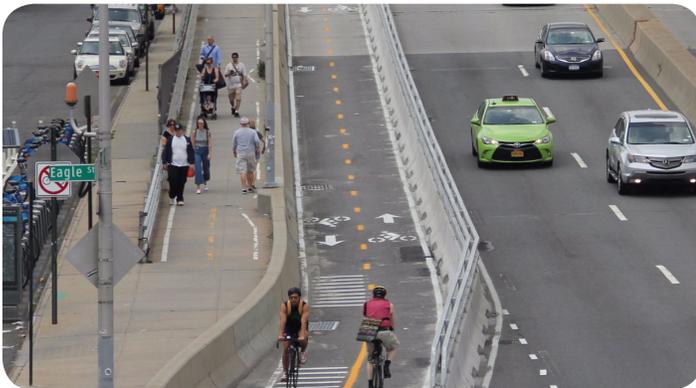
In Suffolk, bridges provide vital connections over water and major transportation infrastructure, but most are not designed to safely accommodate non-motorized traffic. Where it is appropriate to provide multimodal facilities on bridges, railings, fences, or other barriers must meet VDOT height standards, to prevent falls in either direction. In addition, bridge materials should be evaluated for traction under wet/icy conditions, and on-bridge facilities should be continuous with facilities on either side of the bridge.

PROTECTED SIDEPATH



- > A protected sidepath provides a mixed-use facility for bicycles and pedestrians

SEPARATED BICYCLE LANES WITH A SIDEWALK



- > Consider separate bridge facilities for people riding bicycles and walking for routes with high non-vehicle traffic

PARALLEL BRIDGE



- > A separate but parallel bridge provides high separation from vehicle traffic

FACILITIES FOR RAILROAD CROSSINGS

Suffolk’s many active railroads can be a significant barrier to travel for all road users. Few, if any, of the rail crossings currently have pedestrian facilities. Where sidewalks exist on either side of the rail, they do not continue across the railroad. Providing safer, continuous facilities will ensure that it is clear how and when bicyclists and people walking should traverse the crossing, putting them out of harm’s way with regard to both trains and vehicles. There are many tools that can be used to improve railroad crossings for people riding bicycles and walking. Passive and active devices may be used to supplement typical highway-related control devices to improve non-motorist safety.

PASSIVE TOOLS

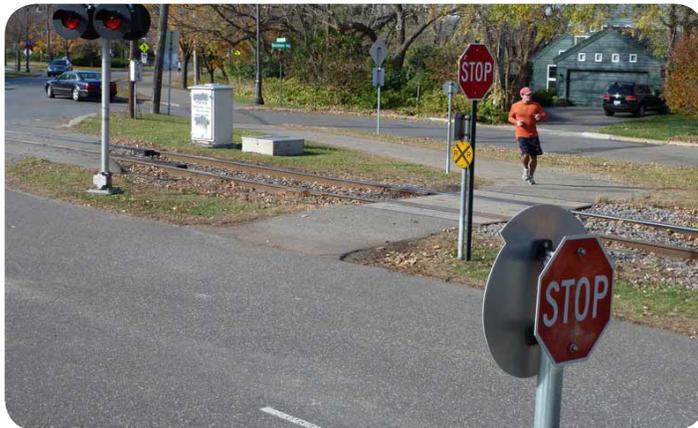


> Pedestrian barriers and signage

ACTIVE TOOLS



> Active barriers, such as moving gates can be used for all travelers



> Path routes that make the railway more visible



> Adding lights to crossing gates makes them even more visible



> Unique paving and texturing

LIGHTING

Lighting improves visibility and should be considered in the design of all facilities. Where facilities are on-road or road-adjacent, pedestrian-scale lighting could be considered to supplement vehicle-scale lighting. As appropriate, off-road facilities may also be lit for safety and visibility.

PATH LIGHTING



- > In areas where lighting is appropriate and desired, human-scale, directed lighting should be used to illuminate bicycle facilities, shared use paths, and sidewalks

UNDERPASS LIGHTING



- > Lighting at underpass routes should be used to ensure safety and visibility

FURNISHINGS & COMFORT AMENITIES

Furnishings along pathways can encourage use by a wide range of users. By providing amenities such as trash bins and pet stations, users are also encouraged to share in the task of keeping the paths clean.

SEATING



- > Furnishings such as benches and/or picnic tables may be appropriate for higher-use areas, and/or longer stretches of pathways

WATER FOUNTAINS



- > Drinking fountains keep people - and pets - hydrated

PET STATIONS AND TRASH BINS



- > Pet stations and frequent trash bins encourage path users to keep the facility clean

TRAILHEADS



Local Example: Seaboard Coastline Trail

- > Amenities such as parking, route maps, and rest rooms are all valued at trailheads

SHADE TREES



- > Trees can provide shade along sidewalks, paths, and bicycle lanes, but care needs to be taken to ensure that they do not impede sight lines

SIGNAGE & WAYFINDING

Signs help to clarify pedestrian and bicycle movements, and can serve important cultural/historic education and economic development functions.

WAYFINDING



- > Wayfinding signage can direct both non-motorized and motorized travelers
- > Displaying distance information may encourage people to leave their car parked and walk to selected destinations
- > Sign design may be coordinated with city-wide branding strategy

TRAIL SIGNAGE



- > Signs can clarify when and how paths are meant to be shared, and provide information about path obstacles, opening hours, etc.

BICYCLE PARKING & STORAGE

BICYCLE RACKS



- > Bicycle racks may be simple or decorative, but should accommodate a range of bicycle designs and sizes
- > Should be provided at recreation areas and near building entrances in retail zones and medium- and high-density residential buildings
- > Users should be able to intuitively secure their frame and one wheel using a U-lock

BICYCLE CORRALS



- > If sidewalk space is limited, a bicycle corral (which takes the place of one vehicle street parking space) could be used to hold up to 12 bicycles

SHELTERS



- > Sheltered bicycle racks protect parked bicycles in inclement weather
- > Should be placed near areas with high bicycle traffic

LONG-TERM STORAGE LOCKERS



- > Storage boxes can be used at locations such as transit stations (e.g., bus transfer stations) and areas frequented by touring trail users for secure day-long storage

BICYCLE RACKS ON BUSES



- > Bicycle racks on the front of buses allow people to bring their bicycle with them, easing not only the connection to the bus, but the connection from the bus to their destination

OTHER AMENITIES

BICYCLE SHARING STATIONS



- > Stations can be located strategically at transit points or key destinations
- > Programs can be large or small, and are often completed as public-private partnerships
- > Some cities have provided reduced cost memberships for low income populations, enhancing access

REPAIR STATIONS



- > Repair stations along bicycle routes allow cyclists to perform basic bicycle repairs and maintenance

PROGRAMS

EDUCATION



- > Educational programs can increase safety for all travelers - people driving, walking, running, riding bicycles, using mobility devices, etc.
- > They can also provide education about proper use of facilities
- > The City of Suffolk currently has police-led, bicycle-focused education programs in schools
- > Other programs could focus on adult bicycle user awareness, driver awareness, pedestrian safety, or other issues

SAFE ROUTES TO SCHOOLS



- > Safe Routes to School (SRTS) is a federal program that is administered at the state-level
- > Its purpose is to ensure that children have safe, non-motorized routes to schools
- > VDOT provides several types of grants to help communities develop programs and infrastructure related to SRTS

BUILT ENVIRONMENT STRATEGIES

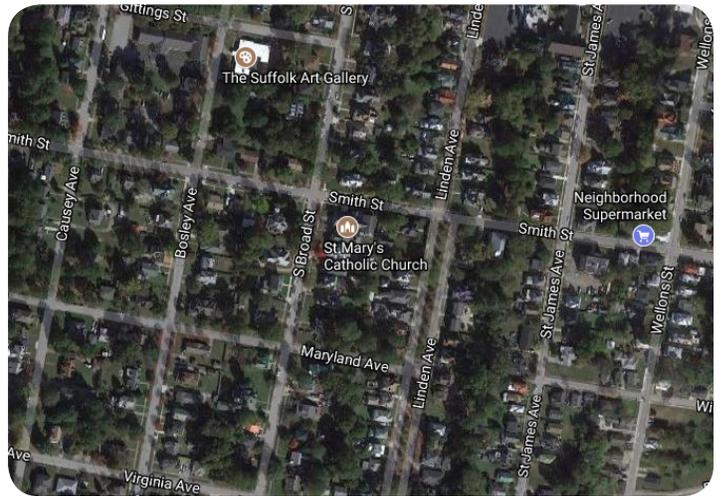
Design of facilities and provision of bicycle- and pedestrian-specific amenities are crucial to supporting the growth of multimodal travel. In addition, there are design strategies related to the built environment (including buildings and development sites) that can also better support the movement of people walking and riding bicycles.

SMALL BUILDING SETBACKS



- > Having small setbacks, rather than large setbacks for parking lots or unusable green spaces, provides a better building envelope and pedestrian scale
- > By placing parking lots behind buildings rather than in front, the building itself is more directly accessible to the street (including street parking) and sidewalk

CONNECTED STREETS



- > A connected grid of streets - rather than a cul-de-sac model of street development or a superblock - allows for more connections and more convenience between adjacent neighborhoods and provides a greater number of route options

SUPPORT FOR MIXED-USE DEVELOPMENT



- > Mixed-use development allows for a wider range of uses in one area, meaning that people walking and riding bicycles do not have to travel as far to reach more destinations, including offices, residences, shopping, dining, parks, schools and recreation opportunities

FACADE TRANSPARENCY



- > Percent transparency requirements for buildings can make a streetscape more inviting and allow for more "eyes on the street"

6 STRATEGIC ACTIONS

OVERVIEW

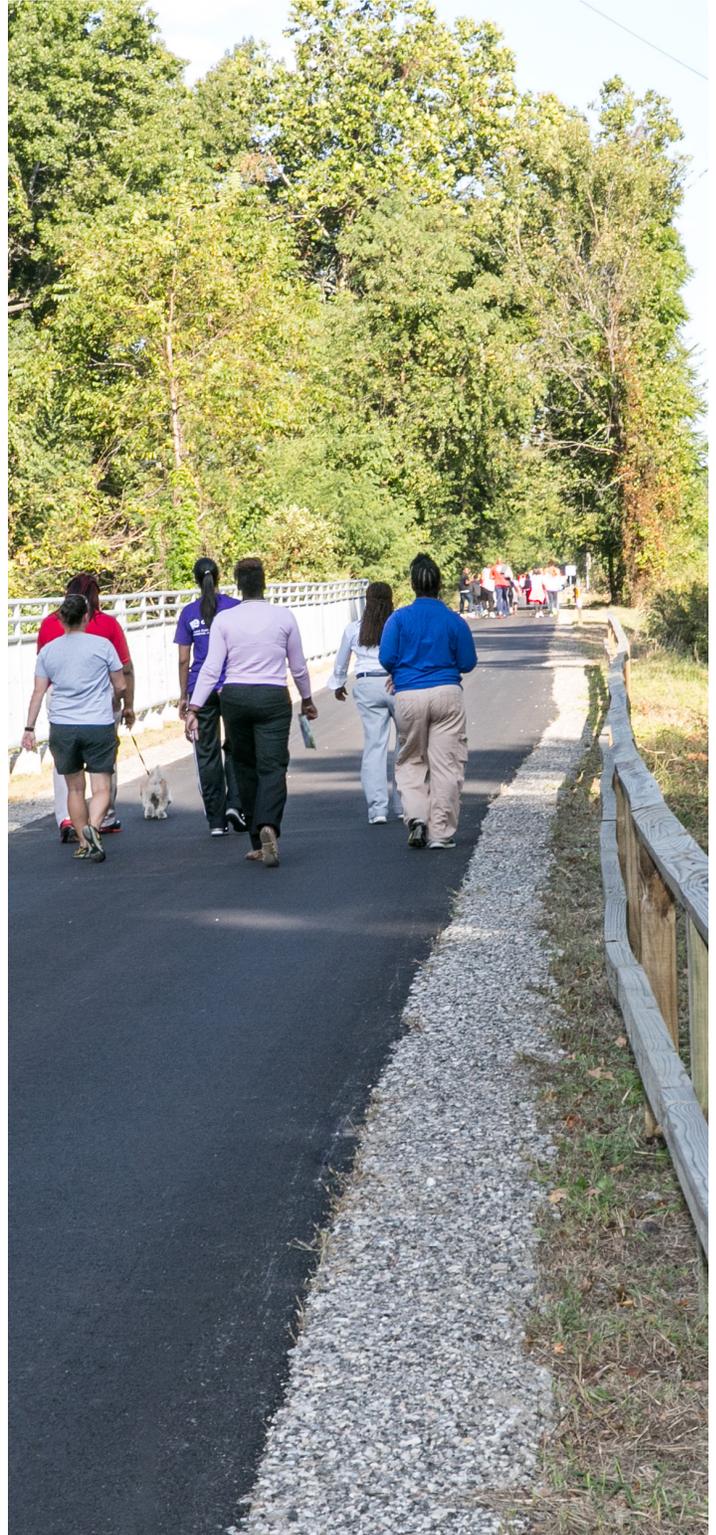
The tools described in the previous section will not all be used at once, and will not be used on all Strategic Opportunity Corridors. In order to move forward with regard to improving conditions for people riding bicycles and walking, the City of Suffolk has created a list of **Strategic Action Items**.

Each Action Item is a high-level statement. The Sub-actions beneath each Action Item provide more detail about specific strategies. Some Action Items are facility-specific, while others outline a strategy for studying specific areas or types of facilities to begin implementation of improvements.

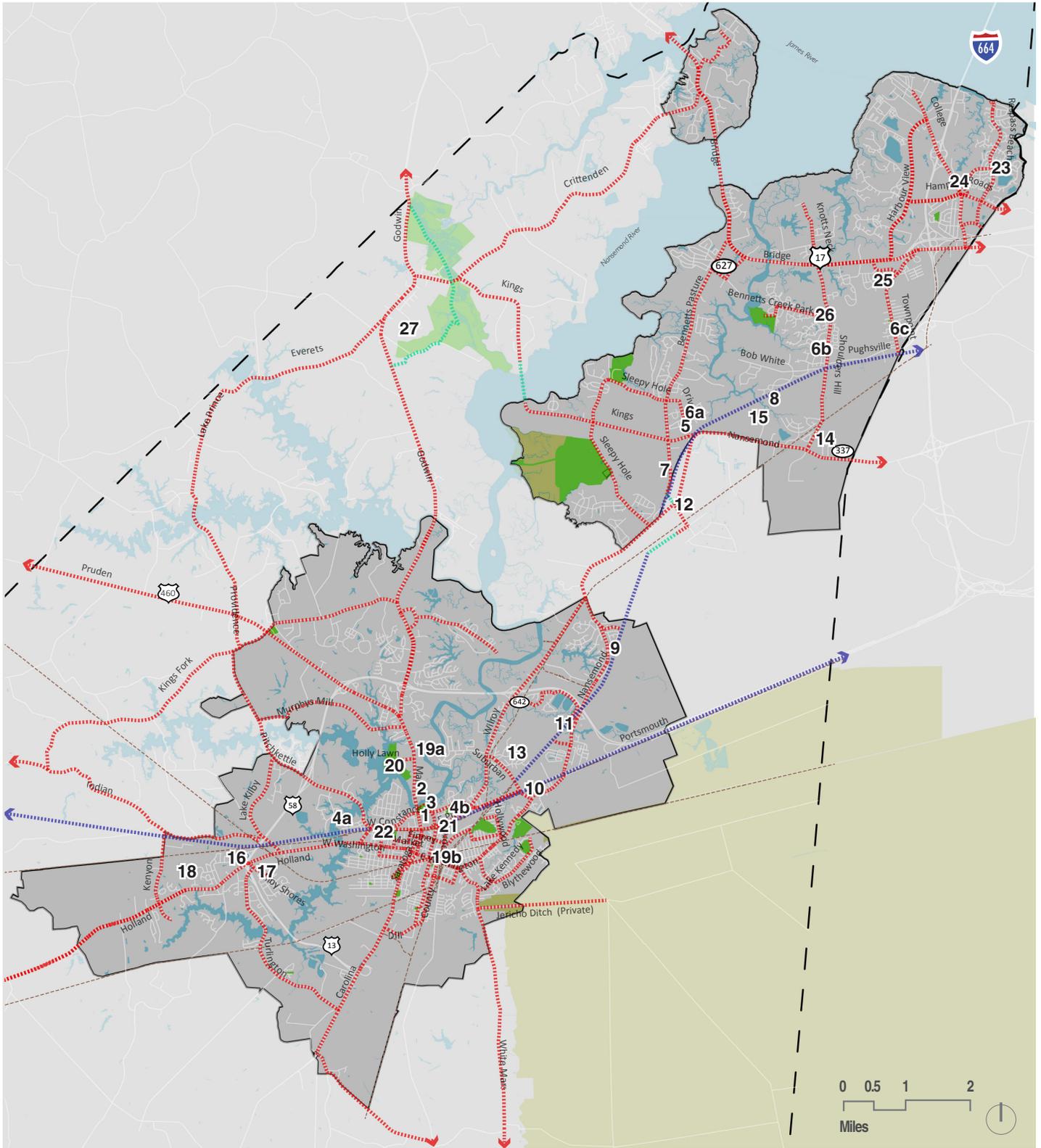
There are three types of Action Items:

- > **PROJECTS:** Actions that describe projects to complete or study
- > **PROGRAMS:** Actions that can improve the safety and viability of non-motorized transportation
- > **POLICIES:** Actions that assess and improve the City's current policy framework to further support bicycling and walking

Project Actions are numbered; those numbers correspond to a location on the following map.



MAP OF PROJECT ACTIONS



- Waterbody
- City Park
- National Wildlife Refuge
- Growth Area Boundary
- Suffolk City Boundary
- Streets and Roadways
- Active Railways

- Strategic Opportunity Corridors**
- ⋯ Corridors along Existing Streets/Path
 - ⋯ Corridors along Abandoned Railways
 - ⋯ Corridors that Create Other Connections

STRATEGIC ACTIONS: PROJECTS

The Project Action Items provide strategies for both short and longer terms. Short-term actions are shown as **bold**.

ACTION: COMPLETE AND IMPROVE THE SEABOARD COASTLINE TRAIL IN THE CENTRAL GROWTH AREA

SUB-ACTIONS:

1. **Improve the existing Downtown section by widening the narrow trail sections on Prentis Street; adding bike/pedestrian-friendly bollards; and defining a path through, as well as signage and amenities at, the train station park.**
2. **Improve the connection to North Main Street by extending the trail from the existing pedestrian bridge (adjacent to the Kimberly Bridge) to the existing sidewalk at Wendy's Restaurant.**
3. **Develop a bike/pedestrian-friendly crossing at East Constance Road to connect the spur trail to Constant's Wharf Park.**
4. Identify funding to design and construct an extension of the trail west from the West Constance Road/Prentis Street intersection (4a) and east from Moore Avenue (4b).

ACTION: COMPLETE AND IMPROVE THE SEABOARD COASTLINE TRAIL IN THE NORTHERN GROWTH AREA

SUB-ACTIONS:

5. **Expand trailhead parking at Driver.**
6. **Study the feasibility of improving connections to adjacent neighborhoods at Driver Village (6a), Bob White Lane/Shoulder Hill Road (6b), and Pughsville (Town Point Road) (6c).**
7. **Identify funding to design and construct an extension of the Seaboard Coastline Trail from Driver to Nansemond River High School.**
8. Study the feasibility of connecting the trail to the new Florence Bowser Elementary School on Nansemond Parkway.

ACTION: CONNECT THE NORTHERN AND CENTRAL GROWTH AREAS WITH EXPANSIONS OF THE SEABOARD COASTLINE TRAIL

SUB-ACTIONS:

9. **Extend the trail from Suburban Drive to Nansemond Parkway and Regency Drive.**
10. **Extend the trail south along Suburban Drive and across Business 58 to the trail and existing sidewalks on the other side of railroad crossing.**
11. Connect Mack Benn Elementary School to the trail.
12. Study the feasibility of extending the trail south from Sportsman Boulevard and across the CSX right-of-way.
13. Study the feasibility of extending a sidepath north along Suburban Drive to existing neighborhoods.

ACTION: COMPLETE IMPROVEMENTS ON NANSEMOND PARKWAY

SUB-ACTIONS:

14. **Complete sidewalk and sidepath improvements concurrent with the Nansemond Parkway road improvements from Helen Street to the Chesapeake City Line.**
15. Study the feasibility of extending a sidepath from Nansemond Parkway to the Suffolk Meadows Neighborhood.

ACTION: COMPLETE IMPROVEMENTS ON HOLLAND ROAD

SUB-ACTIONS:

16. **Complete sidewalk and sidepath improvements with the construction of Route 58 bypass improvements.**
17. Study the feasibility of connecting the sidepath between Holland Road, Kilby Shores Drive, and Turlington Road.
18. Study the feasibility of connecting from Holland to Kenyon Road and the future western portion of the Seaboard Coastline Trail.

ACTION: COMPLETE OTHER CENTRAL GROWTH AREA IMPROVEMENTS

SUB-ACTIONS:

19. **Develop a plan to improve sidewalks and crosswalks on Main Street (19a) and Washington Street (19b).**
20. **Construct a sidepath along Holly Lawn Parkway from Main Street to Lake Meade Park.**
21. Study the feasibility of an on-street bicycle loop through the Historic Downtown area with connections to the Seaboard Coastline Trail at Moore Avenue, Pine Street, and E Constance Road.
22. Develop a bicycling and walking path or route with signage through the Downtown Historic District that includes amenities at important destinations for people walking and riding bicycles.

ACTION: COMPLETE OTHER NORTHERN GROWTH AREA IMPROVEMENTS

SUB-ACTIONS:

23. **Develop a detailed plan to improve a network of bicycle and pedestrian trails connecting residential developments to existing and future commercial development. The plan should identify important missing connections on Respass Beach Road, Harbour View Boulevard, Prices Fork Boulevard, University Boulevard, and Burbage Grant Drive, and recommend improved bicycle and pedestrian connections to existing and future commercial developments.**
24. Study the feasibility of bicycle and pedestrian improvements on College Drive and Hampton Roads Parkway.
25. Study the feasibility of bicycle and pedestrian improvements on Town Point Road.
26. Study the feasibility of bicycle and pedestrian improvements on Shoulder Hill Road.

ACTION: SUPPORT COMPLETION OF REGIONAL, STATEWIDE, AND NATIONAL TRAILS THROUGH SUFFOLK

SUB-ACTIONS:

27. **Support development of the South Hampton Roads Trail, Birthplace of America Trail, Beaches to Bluegrass Trail, East Coast Greenway, and other similar trails.**
28. **Coordinate with the Hampton Roads Transportation Organization to facilitate studies of sidepaths through Lone Star Lakes Park, Godwin Boulevard, Kings Fork Road, and Pitchkettle Road, and the use of the Seaboard Coastline Trail as part of one or more of the regional, statewide, and/or national trails.**

STRATEGIC ACTIONS: PROGRAMS

ACTION: SUPPORT PROGRAMS THAT IMPROVE SAFETY

SUB-ACTIONS:

- > Work with the Director of Suffolk's Public School transportation to develop a Safe Routes to School pilot program for a subset of the City's elementary schools.
- > Develop a bicycle safety awareness program to educate drivers, bicyclists, and pedestrians through public safety & awareness programs with the Suffolk Police Department, Suffolk Tourism, etc.

ACTION: SEEK FUNDING FOR BICYCLE AND PEDESTRIAN IMPROVEMENTS

SUB-ACTION:

- > Develop and monitor a database of grants for bicycle and pedestrian improvements to help fund studies and construction of new facilities and/or amenities.

ACTION: SUPPORT RUNNING/WALKING AND CYCLING EVENTS

SUB-ACTION:

- > Support events through creation of public/private partnerships with various organizations.

STRATEGIC ACTIONS: POLICIES

ACTION: SUPPORT DEVELOPMENT OF BICYCLE AND PEDESTRIAN IMPROVEMENTS

SUB-ACTIONS:

- > Hold periodic meetings of the Internal Committee to review progress on accomplishing the goals of this plan.
- > Develop policies for identifying, prioritizing, marking, signing, and maintaining bicycle lanes, sidewalks, and other pathways.
- > Review policies in the City Ordinances to assess alignment with the corridors, tools, and actions outlined in this document.
- > Consider adoption of a Complete Streets Ordinance.
- > Analyze compatibility and connectivity of plans and projects with regional trails and bicycle/pedestrian plans in adjacent communities.
- > Develop policies regarding the identification and improvement of intersections and railroad crossings for facilitation of safe bicycle and pedestrian travel.
- > Review and improve non-motorized connections to transit lines and transfer stations, in conjunction with the Transit Development Plan.
- > Update the Suffolk Bicycle and Pedestrian Master Plan on a regular basis, potentially in conjunction with the Comprehensive Plan.
- > Ensure that new developments incorporate tools and amenities described in this plan, when relevant.
- > Update the 2004 "Traffic Calming Guide for Local Residential Streets".

7 RESOURCES

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- > Page 40-43, "Intersection Safety Treatments": Google Streetview, U.S. Army, PedBikeSafe, VDOT, NYSDOT, Calmstreetsboston.blogspot.com, Metropolitan Engineering Consulting & Forensics, City of Missoula
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- > Page 47, "Furnishings & Comfort Amenities": TrailLink, Murdock Manufacturing, Trash It
- > Page 48, "Signage & Wayfinding": City of Arlington, <http://policyinstitute.iu.edu>
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- > Page 50, "Other Amenities" and "Programs": M01229 via flickr, Bike Portland, Bike Santa Cruz County, NJBWC, Safe Routes to School NJ
- > Page 51, "Built Environment Strategies": Market Common Clarendon, Google Maps, PedBikeSafe, DALHOFF THOMAS design studio

IMAGE CREDITS

- > Page 9-10, "Existing Conditions": Aerials from Google Maps
- > Page 16, "Regional, Statewide, and Inter-state Trails": South Hampton Roads Trail via Facebook, Virginia Department of Conservation and Recreation, HRTPO, East Coast Greenway
- > Page 18, "Summary of Challenges": First and fourth images from Google Streetview
- > Page 32, "User Types": Mecklenburg County, LADOT, City of Chicago, SF Examiner, Margaret Gibbs, Steigerwaldt, Alex Proimos via Wikimedia Commons

8 APPENDIX

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- > Summary of Public Meeting #1 and Community Survey
- > Summary of Public Meeting #2