

Chapter 5: Bicycle and Pedestrian Master Plan

What is a Bicycle and Pedestrian Master Plan?

A Bicycle and Pedestrian Master Plan is a long-range plan for expanding bicycle and pedestrian infrastructure. It establishes a vision for the future bicycle and pedestrian networks, provides a comprehensive assessment of existing bicycle facilities and the pedestrian environment, and establishes a robust long-term network for bicyclists and pedestrians across the entire city, with high level recommendations for improvements.

Norfolk's Bicycle and Pedestrian Master Plan

The Bicycle and Pedestrian Master Plan in this chapter presents a vision for a future bicycle network. It is based on the Bicycle/Scooter Modal Emphasis map established in the previous chapter as the long-term network envisioned to provide safe and comfortable facilities for bicycling and scootering throughout all areas of Norfolk.

It also is based on the Pedestrian Modal Emphasis map, and it builds on the analysis of sidewalk needs that the City conducted previously. The Bicycle and Pedestrian Master Plan informs the multimodal needs assessment in Chapter 12 and program of projects in Chapter 13, which provide specific recommendations for implementation.

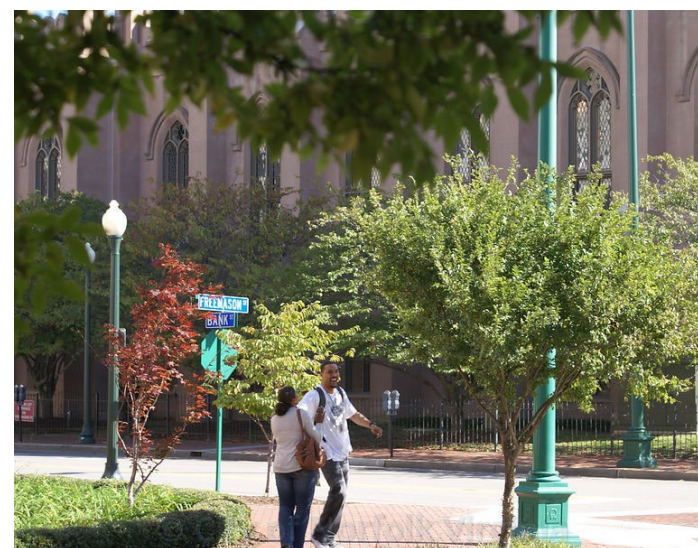
The City of Norfolk prepared a comprehensive bicycle plan in 1981. The current map of Bicycle/Scooter Modal Emphasis is very similar to the 1981 comprehensive bicycle plan.

How is the Bicycle and Pedestrian Master Plan related to the Bicycle and Pedestrian Strategic Plan?

In 2015, the City Council of Norfolk adopted the City's Bicycle and Pedestrian Strategic Plan ("Strategic Plan"), which recommends specific bicycle and pedestrian facilities on 12 key corridors. These 12 key corridors represent the foundation for the broader comprehensive bicycle plan. The goal of the Strategic Plan was to complete the 12 key corridors in the short term. Once the 12 key corridors were completed, the intention was to go back to the other recommendations from the 1981 plan and continue building out the City's network of bicycle facilities.



Scooter riders in Norfolk.



Improving pedestrian safety is a top priority.

The Strategic Plan goes into more detail for each corridor as appropriate to its strategic function than a typical master plan. The Strategic Plan identifies the specific facility type (bike lane, sharrows, priority shared lane, shared use path, buffered bike lane, or separated bike lane) for each block on 12 key corridors. The Strategic Plan defines these recommended improvements in sufficient detail so that they are ready for preliminary engineering and can be placed directly into the City's Capital Improvement Program or funded by other funding sources.

The Bicycle and Pedestrian Master Plan – both the one prepared in 1981 and the one in this chapter - by contrast, expands beyond these 12 key corridors to comprise a true citywide master plan. This Master Plan incorporates the 12 key corridors from the Strategic Plan and the network of existing facilities as a starting point. The Bicycle and Pedestrian Master Plan connects the network of existing facilities and proposed facilities from the Strategic Plan with the Multimodal Centers identified in the previous chapter. This Master Plan shows connections to fill in a finer grained network across the entire City.

The Bicycle and Pedestrian Master Plan also adds a focus to the pedestrian network. It identifies a separate network of Pedestrian Modal Emphasis that is independent of the Bicycle/Scooter Modal Emphasis network.

The Bicycle and Pedestrian Master Plan uses the components of the Multimodal System Plan in the prior chapter to create a long-term network vision for walking and bicycling in the city. The multimodal needs assessment in Chapter 12 and the program of projects in Chapter 13 also provide specific projects for implementation based on anticipated available funding. These recommendations incorporate the specific projects from the Strategic Plan and offer an updated timeframe for implementation.

The 2015 Bicycle and Pedestrian Strategic Plan remains an active and relevant plan, and the City will continue to use the Strategic Plan in its decision-making processes. The Strategic Plan is included in this Multimodal Norfolk Master Plan as Appendix I. The Strategic Plan contains important information including public comments from an interactive mapping exercise and focus group meetings, as well as detailed plans and conceptual cost estimates for each facility type. This information greatly complements the Bicycle and Pedestrian Master Plan in this chapter and should be used in the implementation of the recommendations.

12 Key Corridors from the Bicycle and Pedestrian Strategic Plan



The City of Norfolk Bicycle and Pedestrian Strategic Plan, adopted in 2015, recommends specific facilities on 12 key corridors. The Strategic Plan serves as a starting point for the Bicycle and Pedestrian Master Plan described in this chapter.

Norfolk's Bicycle Network Vision

The vision, goals, and objectives presented in Chapter 2 speak to the overall intentions of the process to develop the Multimodal Norfolk transportation master plan.

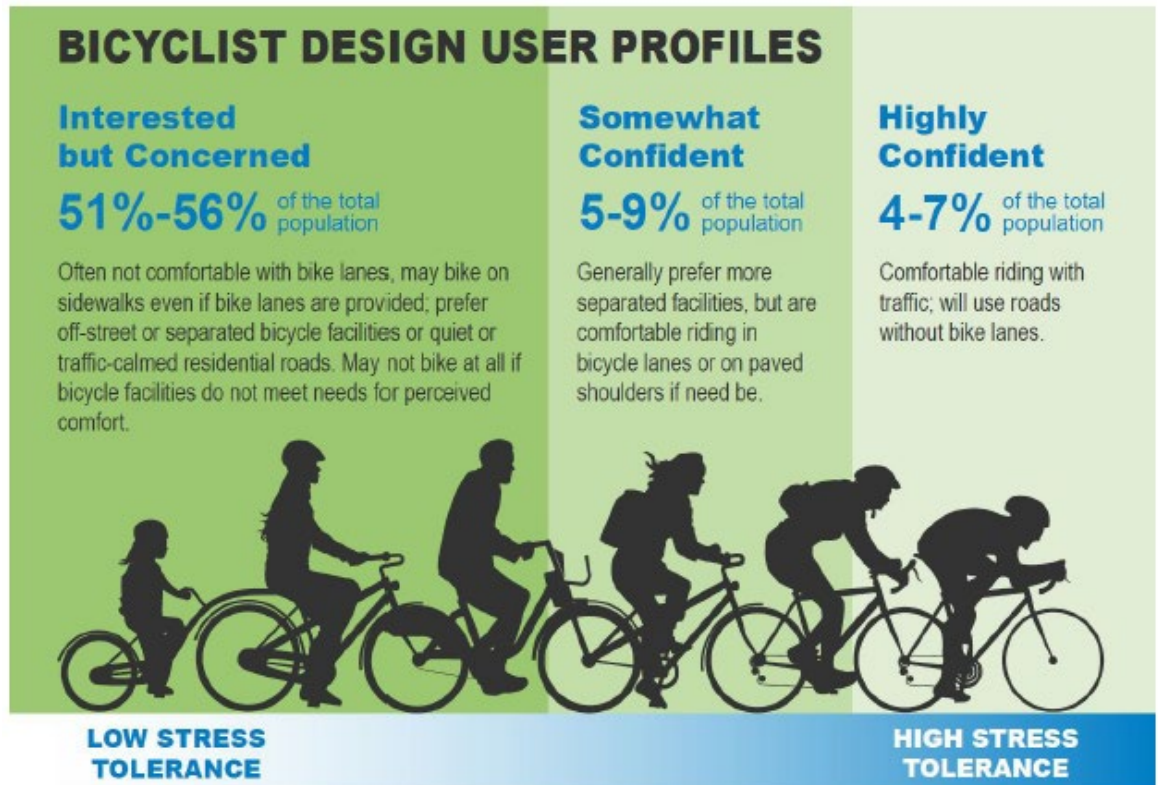
A more specific vision for Norfolk's future bicycle network can be considered as:

Norfolk's future transportation system will include a connected network of low-stress facilities for bicyclists of all ages and abilities.

This vision is consistent with the overarching vision and values of Multimodal Norfolk and the goal of working toward zero traffic deaths in the City's Vision Zero policy.

Norfolk's future bicycle network should not be designed just for highly confident bicyclists who are comfortable riding in mixed traffic. It should also be designed for bicyclists who are interested in bicycling but too concerned about safety to ride in mixed traffic or even in conventional bike lanes except on very low-volume streets.

This design intention to create a low-stress network of bicycle facilities for riders of all ages and abilities is incorporated in the corridor design framework presented in Chapters 6 and 7.



Only a slim minority of adults who have stated an interest in bicycling are considered to be highly confident and are comfortable riding with traffic and using roads without bike lanes. The vast majority are considered to be interested but concerned and will avoid bicycling except on very low-stress bikeways. The vision for Norfolk's bicycle network is to design for the interested but concerned type of bicyclist, which will accommodate the somewhat confident and highly confident types too. Image Source: Federal Highway Administration, 2019. *Bikeway Selection Guide*.

Existing Facilities for Bicycling and Scootering

In 2015, the League of American Bicyclists recognized the City of Norfolk as a Bicycle Friendly Community with a Bronze Award, which was renewed again in 2019. The City has a goal of achieving the Gold Award.

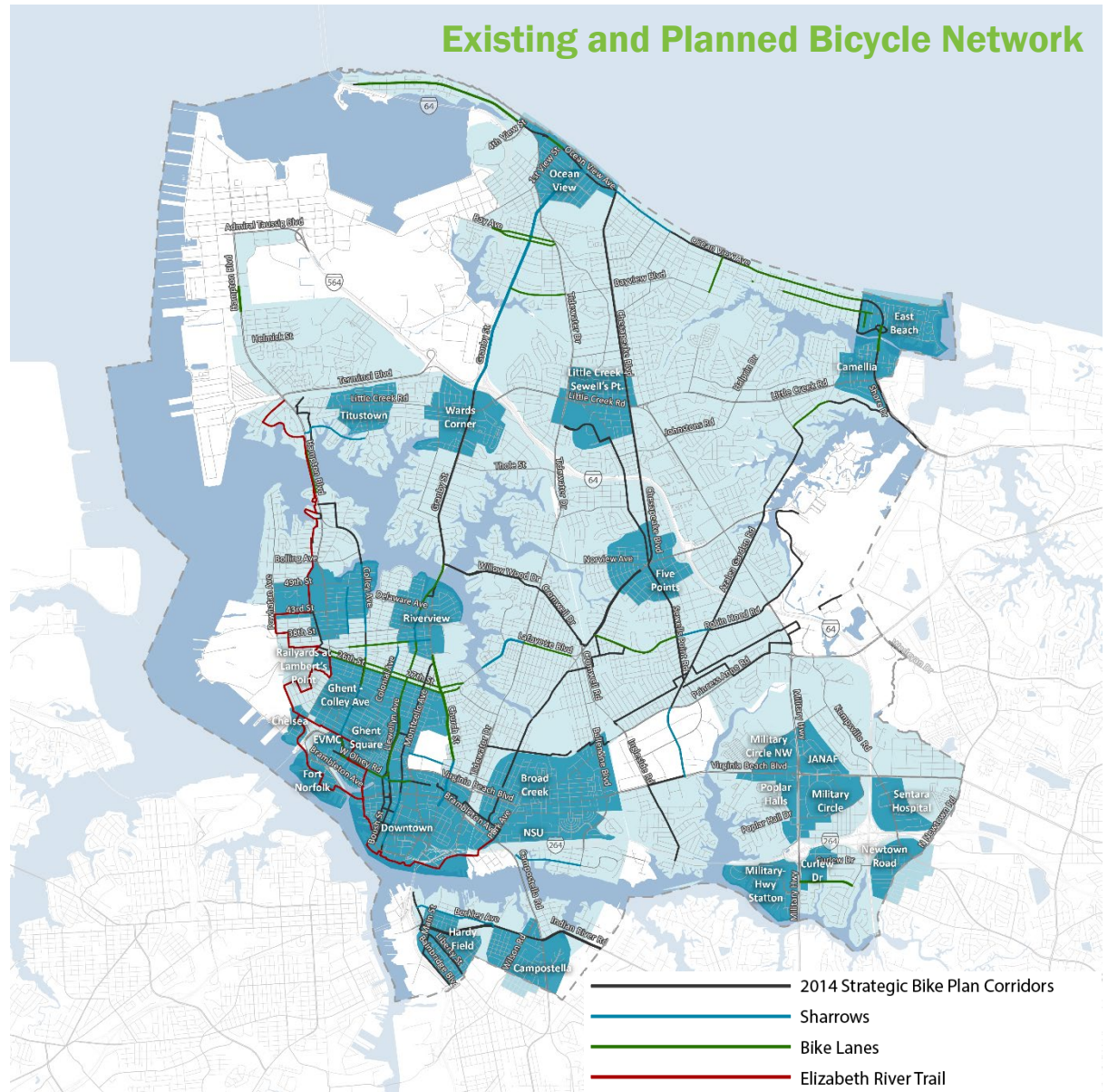
Over the past two decades, the City of Norfolk and other partners have made a number of investments and improvements to expand the network of facilities for bicycling and scootering in the city.ⁱ The city currently has 35.3 miles of bike lanes and 31.6 miles of shared lane markings (sharrows).

The Elizabeth River Trail, which spans 10.5 miles, was developed in 1994 and has been continually improved with new sections, the most recent of which was completed at Fort Norfolk in Summer 2021.

Prior to the 2015 Bicycle and Pedestrian Strategic Plan, the City added bike lanes and shared lane markings to several streets, including Church Street, W. Ocean View Avenue, and E. Bayview Boulevard among others.

Since 2015, the City has been working to implement the recommendations on several of the key corridors from the Strategic Plan. Recommendations that have already been constructed include:

- Buffered bike lanes on E. Ocean View Avenue,



Over the past two decades, the bicycle network within Norfolk has grown yet remains limited. The 2015 Bicycle and Pedestrian Strategic Plan proposes new connections on key corridors, but the proposed network remains sparse and does not connect to all major destinations across the city.

- Buffered bicycle lanes on Olney Road,
- Shared lane markings on Granby Street,
- Protected bicycle lanes on Llewellyn Avenue,
- Bicycle lanes on portions of Colley Avenue, and
- Bicycle lanes on 26th and 27th Street from Hampton Boulevard to Leo Street.

Recommendations from the Strategic Plan that are currently in progress include:

- Bicycle facilities on E. Ocean View Avenue from 1st View Street to Pretty Lake Avenue,
- Protected bicycle lanes on Granby Street from Willow Wood Road to Admiral Taussig Boulevard, and
- Bicycle lanes and shared lane markings on Robin Hood Road and Miller Store Road.

Other bicycle facilities and markings recently constructed include:

- Mountain bike trails at Northside Park and
- Shared lane markings on Water Street

The City is currently working on other bicycle facility projects including:

- The Granby Street Bike Bypass multi-use path through Lafayette Park,
- Bicycle lanes on Princess Anne Road from Church Street to Armistead Avenue and shared lane markings on Princess Anne Road from Armistead Avenue to Colley Avenue, and
- Shared lane markings on Columbus Avenue to 42nd Street

Bicycle parking has been added downtown and in commercial corridors such as Colley Avenue and Colonial Avenue.

The City has worked with Lime, other City departments, Downtown Norfolk Council, and several civic leagues to install scooter parking corrals at various locations throughout downtown and in other areas. The City is continuing its efforts to expand the corral locations to provide safe and convenient parking for both scooters and bikes. Bike racks have also been installed in the existing corrals downtown.

The City's zoning ordinance, since amended in 1992, requires most new development to provide bicycle parking.

The City's Department of Transit also initiated a Bike-Pedestrian Counter program in March 2021 to provide a reliable method of data collection. This data will be used to advance the goal of making biking and

walking more comfortable and more connected in Norfolk by better understanding the trends of pedestrians and cyclists in the city. 15 counters have been installed along existing bike lanes and 6 counters have been installed at various locations along the Elizabeth River Trail.

These efforts all represent a promising start for improving bicycling in Norfolk. These efforts build on the City's assets that have the potential to make bicycling an attractive form of transportation, which include:ⁱⁱ

- A compact shape (it is only eight miles east-to-west and north-to-south)
- A fairly well-connected street grid
- Flat terrain
- A strong share of the region's jobs and accessible employment sites
- Commercial land uses that are dispersed throughout the city
- A traditional downtown that is strengthening its mix of commercial and residential land uses
- Recreation and entertainment destinations including the Virginia Zoo, Elizabeth River and Chesapeake Bay waterfronts, Norfolk Botanical Garden, and various performing arts centers and sports venues
- Large universities and other public institutions
- Neighborhood-based school boundaries

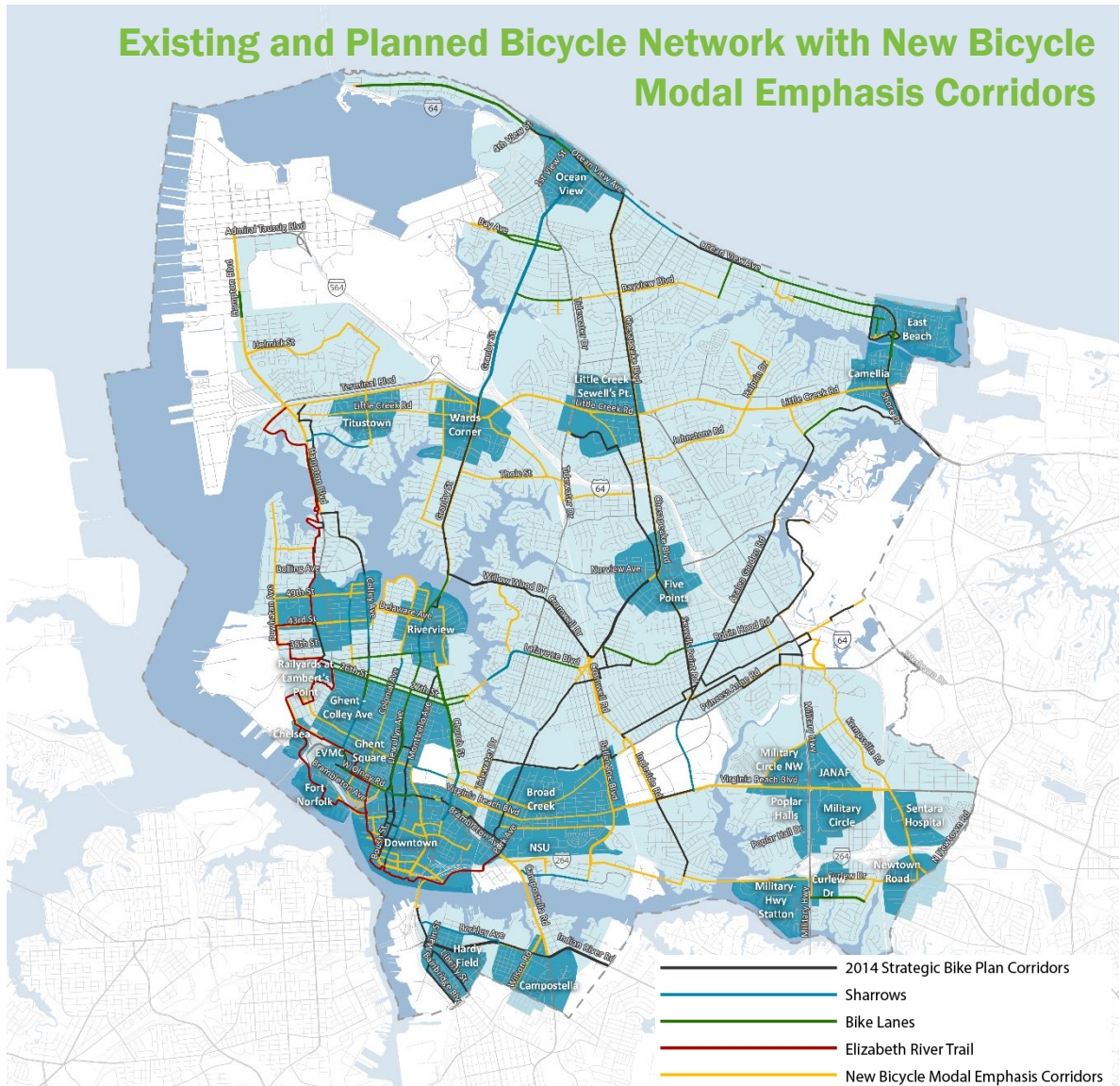
Bicycle/Scooter Modal Emphasis Network

As described in Chapter 1, the future vision of transportation in Norfolk is one where everyone has safe and affordable choices for meeting their daily needs without having to drive their own car. In order to make bicycling a viable option for everyday trips, a robust network of facilities that are safe and comfortable for riders of all ages and abilities is needed across the entire city.

The long-term network envisioned in this Bicycle and Pedestrian Master Plan and shown in the map to the right provides safe facilities for anyone to get where they need to go by riding a bicycle or scooter. It expands the network from the 2015 Strategic Plan to include connections between all Multimodal Centers. It provides a finer-grained network of bicycle facilities within the most intense Multimodal Centers, where the density of destinations and mix of uses makes an even finer-grained network critical.

As noted above, the Bicycle/Scooter Modal Emphasis network incorporated the 12 key corridors from the Strategic Plan as a base. It was expanded to include key connections between and within Multimodal Centers. It also incorporates and updates the Downtown Norfolk Multimodal System Plan, which was developed in 2018 in conjunction with the Downtown Master Plan Update. Further, it also reflects input from public and stakeholders,

Existing and Planned Bicycle Network with New Bicycle Modal Emphasis Corridors



The Bicycle/Scooter Modal Emphasis network is a future vision of a fully connected network of streets and paths that bicyclists and scooter riders can use to travel safely and comfortably across the entire city. The map above shows the existing and planned bicycle facilities along with the corridors that have bicycle/scooter modal emphasis.

including the City's Bicycle and Pedestrian Trails Commission and other bicyclists and scooter riders throughout the Multimodal Norfolk public engagement process.

The City recognizes that maintenance funding will need to be increased periodically as more bicycle lanes get added to the network to ensure the safe upkeep of the bicycle network.

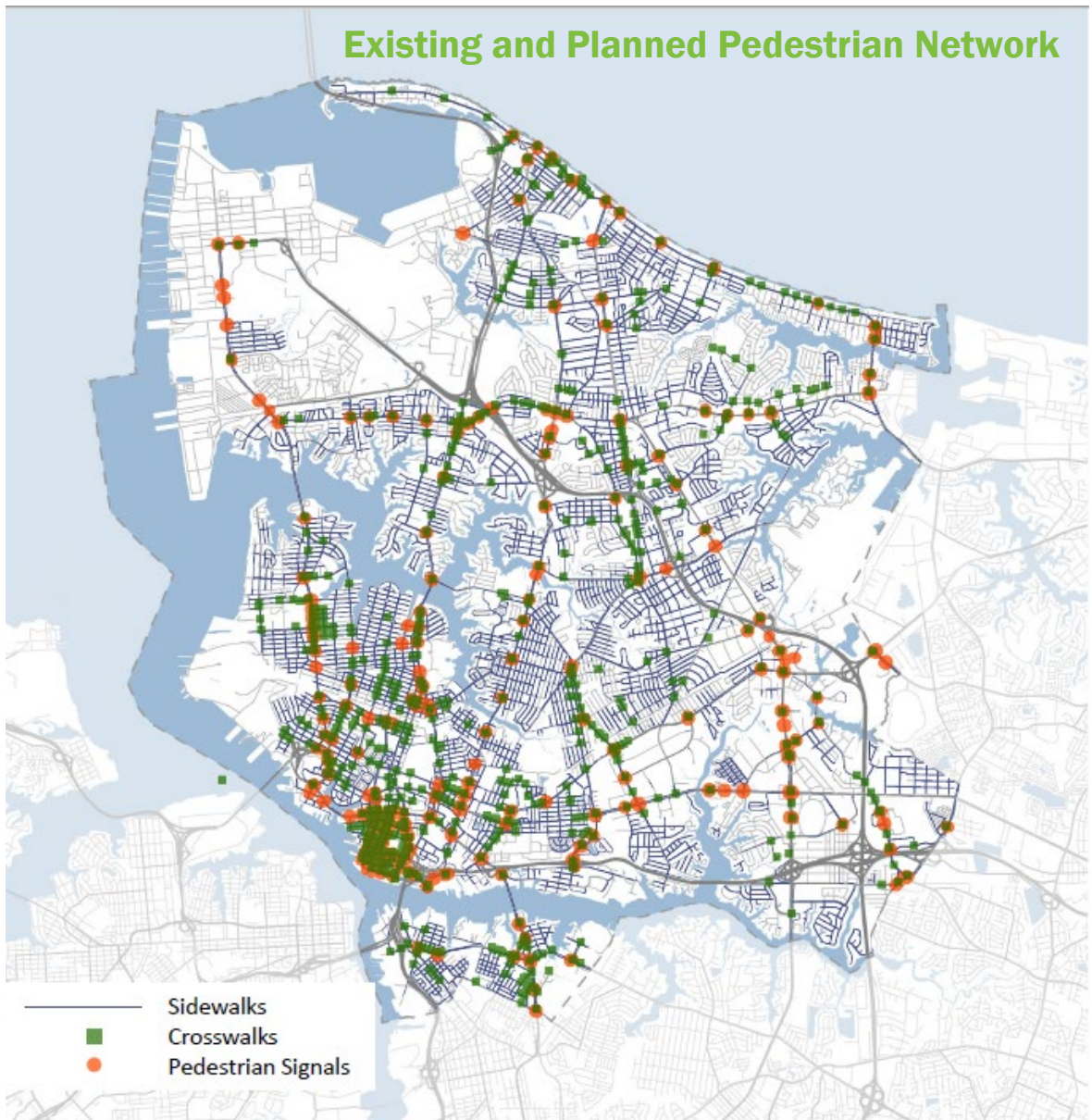
Existing Facilities for Pedestrians

The existing network of facilities for pedestrians in Norfolk today consists of sidewalks, marked crosswalks, pedestrian signals, which are shown in the map to the right, as well as several off-street paths.

Sidewalks exist along many of Norfolk's streets and in many neighborhoods. There are, however, several neighborhoods with very few or no sidewalks, like Camellia Gardens, Roosevelt Area, Hewlitt Farms, South Bayview, East Ocean View, Oakdale Farms, Chesapeake Gardens, Azalea Acres, and others. Most neighborhoods have at least some gaps in the sidewalk network.

There are sidewalk gaps along many of the arterial streets that serve major destinations like Military Highway, Virginia Beach Boulevard, Little Creek Road, Princess Anne Road, and Chesapeake Boulevard. Sidewalk gaps also exist on most arterial streets at the interstate interchange areas.

There are also many streets where marked crosswalks are spaced far apart, forcing pedestrians to cross the street at unmarked locations. Most pedestrian crashes occur at locations where there is no marked pedestrian crossing.ⁱⁱⁱ



The City of Norfolk's existing pedestrian facilities include sidewalks on many streets, marked crosswalks, pedestrian signals, and off-street paths. Data source: City of Norfolk. Sidewalk data is current as of 2017. Crosswalk data is current as of 2013.

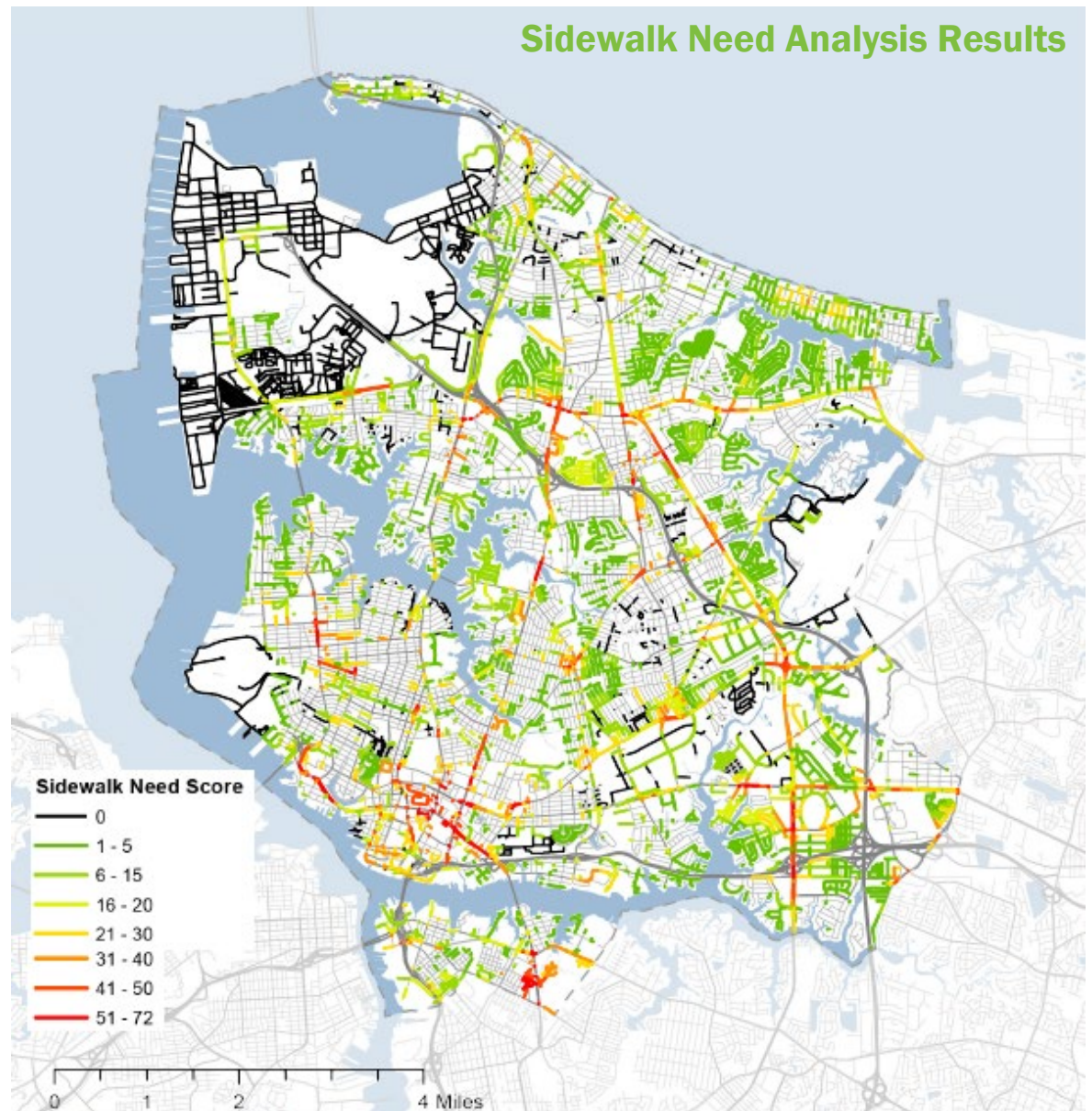
The City is currently undertaking several projects to improve facilities for pedestrians, including:

- Sidewalk improvements on Easy Street, Princess Anne Road, Indian River Road, and Sewell's Point Road
- Adding crosswalks and filling in sidewalk gaps on Little Creek Road between Chesapeake Boulevard and Carlton Street
- Crosswalk and sidewalk improvements at the intersection of Little Creek Road and Shore Drive as part of an intersection improvements project
- Citywide pedestrian accommodations and countdown signals

The City conducted an analysis of sidewalk need in 2017, which identified which streets that lacked sidewalks at the time had the greatest need for sidewalks, based on a variety of factors including:

- Distance to schools, grocery stores, parks, libraries, and other facilities
- Distance to transit stops
- Pedestrian crashes
- Households with zero vehicles
- Households with incomes below the poverty line
- Population below age 18 and over age 60
- Road type

This analysis was used in the development of the multimodal needs assessment in Chapter



In 2017, the City of Norfolk identified sidewalk gaps and determined the level of sidewalk need based on a variety of factors.

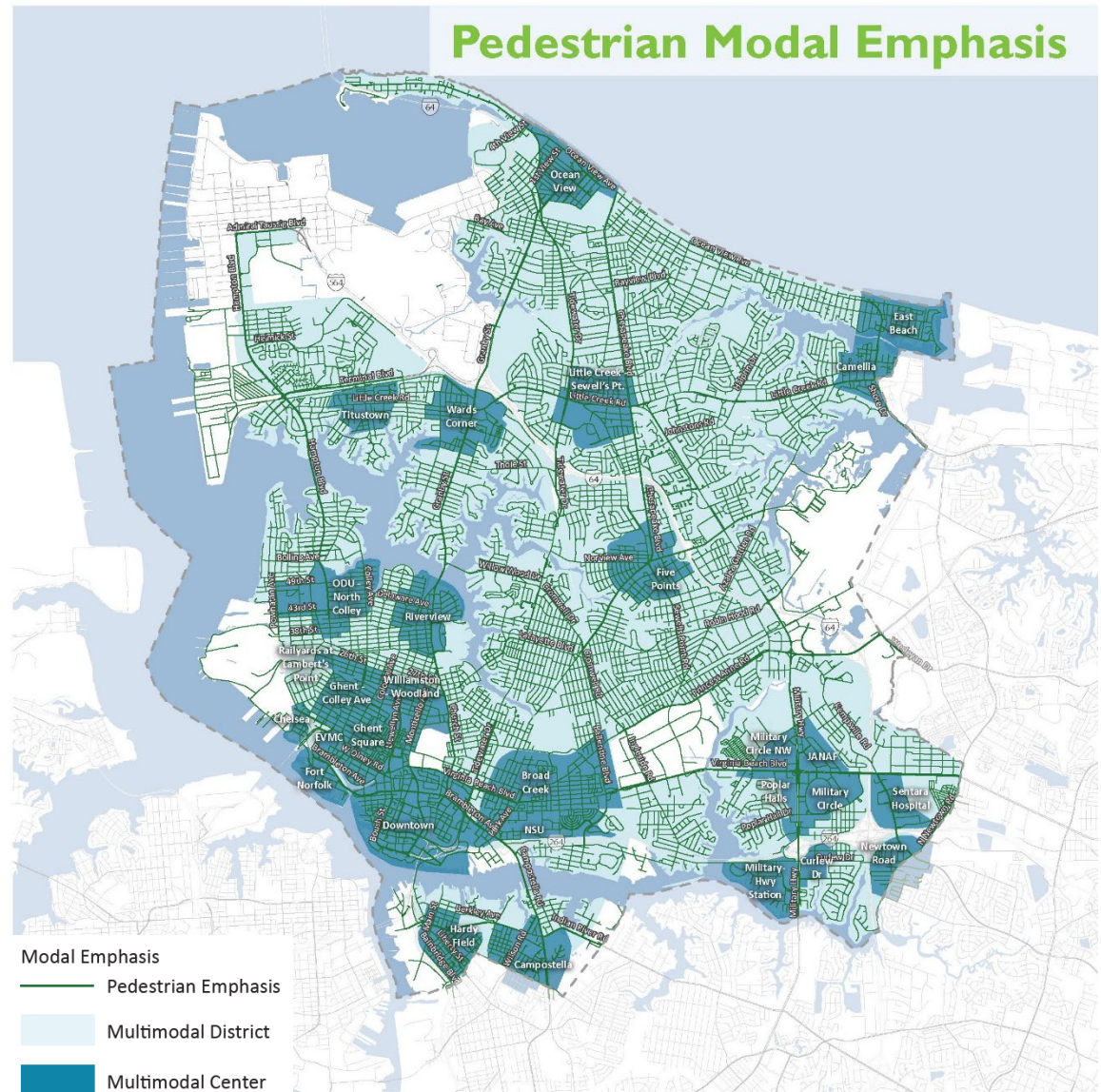
12, which identifies the most critical needs for multimodal improvements throughout the city.

Pedestrian Modal Emphasis Network

As explained in Chapter 4, pedestrian safety is the top priority for all Multimodal Corridors. The Pedestrian Modal Emphasis map designates Pedestrian Modal Emphasis on all Multimodal Corridors. Only the interstates and other limited-access highways are exempt.

This map is important because it clearly shows the intention to emphasize pedestrian facilities to the maximum extent practical and feasible whenever an opportunity for a street improvement arises.

Areas and corridors of highest need for pedestrian improvements are identified in the multimodal needs assessment in Chapter 12. Specific recommendations for new and improved pedestrian facilities are included in the program of projects in Chapter 13.



Pedestrian Modal Emphasis is designated on all Multimodal Corridors, reflecting the focus on pedestrian safety as the top priority.

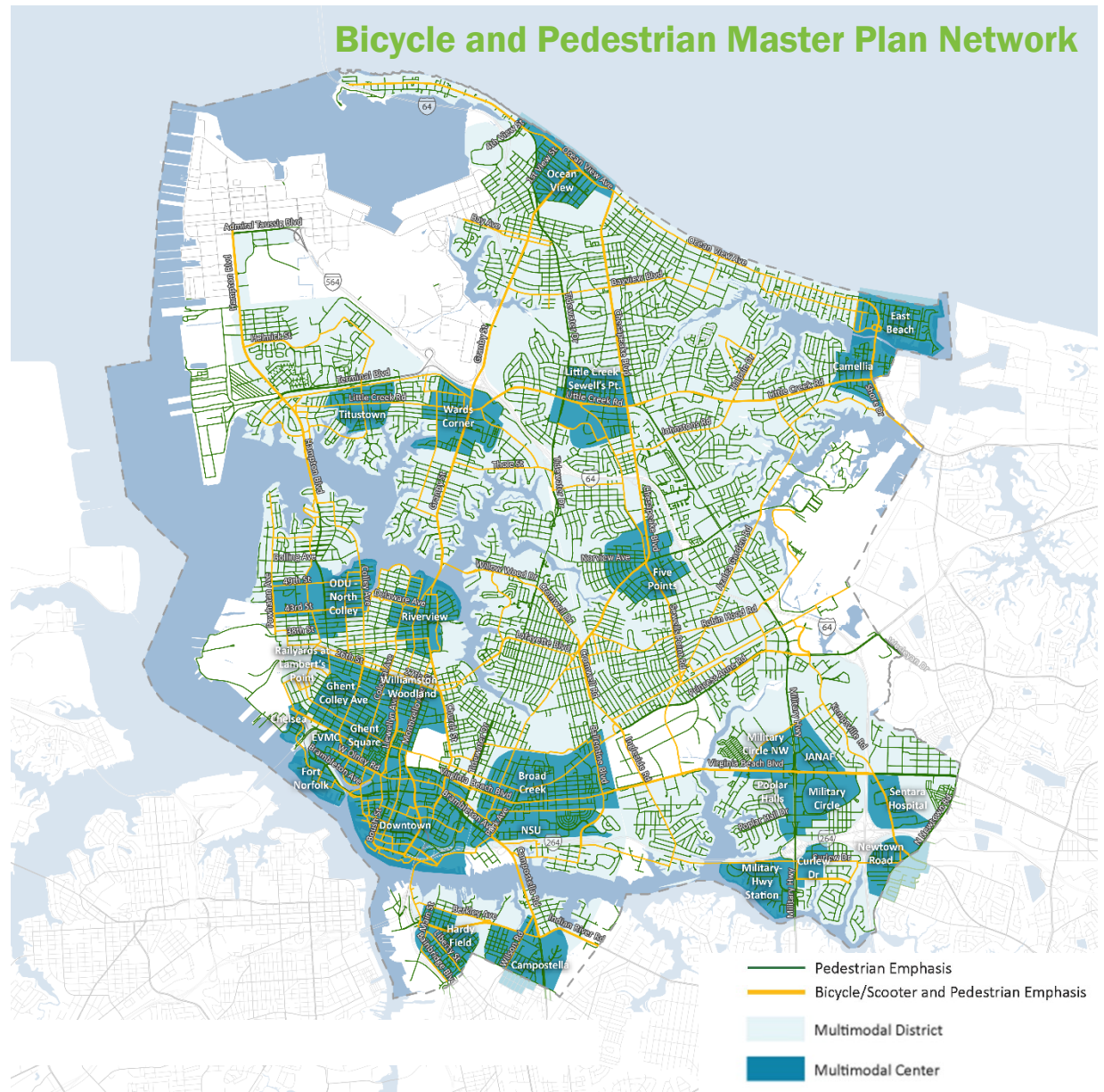
Bicycle and Pedestrian Networks Combined

The map to the right represents the long-term vision for these modes. It shows the Bicycle/Scooter Modal Emphasis network together with the Pedestrian Modal Emphasis network, overlaid on the Multimodal Centers and Multimodal Districts.

This map represents the Bicycle and Pedestrian Master Plan. It shows a robust long-term network for bicyclists, scooter riders, and pedestrians across the entire city. It connects all of the Multimodal Centers and major destinations throughout Norfolk.

This map should guide design decisions and ensure that the incremental changes to improve Norfolk’s transportation system work towards achieving the envisioned network for non-motorized modes.

By using this map in the corridor design process, the City of Norfolk should work towards its vision of a future transportation system that has safe and affordable choices for everyone to meet their daily needs without having to rely on their car.



The Bicycle/Scooter Modal Emphasis Network together with the Pedestrian Modal Emphasis Network represents the long-term vision for these modes, providing connections across the entire city and between all Multimodal Centers and major destinations.

ⁱ The list of facilities and improvements for bicycling and scootering was taken from the City of Norfolk Bicycle and Pedestrian Strategic Plan and updated to include improvements since that plan was adopted in 2015.

ⁱⁱ The City of Norfolk Bicycle and Pedestrian Strategic Plan identifies Norfolk's assets that can be key to building strong bicycle and walking mode shares for daily transportation. These assets are reiterated here.

ⁱⁱⁱ VDOT Pedestrian Safety Action Plan, 2018.