CONNECTING
Chesapeake Beach

CONNECTIVITY STUDY

February 2021

ACKNOWLEDGMENTS

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Chapter 1
Introduction

A Destination Primed for Improved Connectivity

The Town of Chesapeake Beach is located on the western shore of Maryland's Chesapeake Bay. One of two municipalities in Calvert County, the 2.7 square mile jurisdiction of Chesapeake Beach is home to approximately 6,000 residents. Initially established as a plan for a grand resort on the shores of the Chesapeake Bay in the late 1890s, the Town became a flourishing coastal community by the early 1900s. Tourists would travel via steam ship from Baltimore or board a train from Washington, DC for weekend visits to the beautiful beaches, thriving boardwalk, and pristine park areas. On the boardwalk visitors found entertainment in casinos, theatres, restaurants, live entertainment, and games. Development in Chesapeake Beach continued throughout the first half of the 20th century with additional lodging and the construction of Seaside Park, eventually renamed Chesapeake Beach Amusement Park.

Today, Chesapeake Beach continues to attract tourists from the states of Delaware, Maryland, and Virginia. Visitors flock to the boardwalk trails, beaches, and restaurants serving local seafood from the Chesapeake Bay. The Chesapeake Beach Water Park is a major destination for families looking to cool off and relax in the summer heat. The Town is also home to top-quality piers, marinas, and fishing shops that support a wide variety of outdoor recreational activities. In
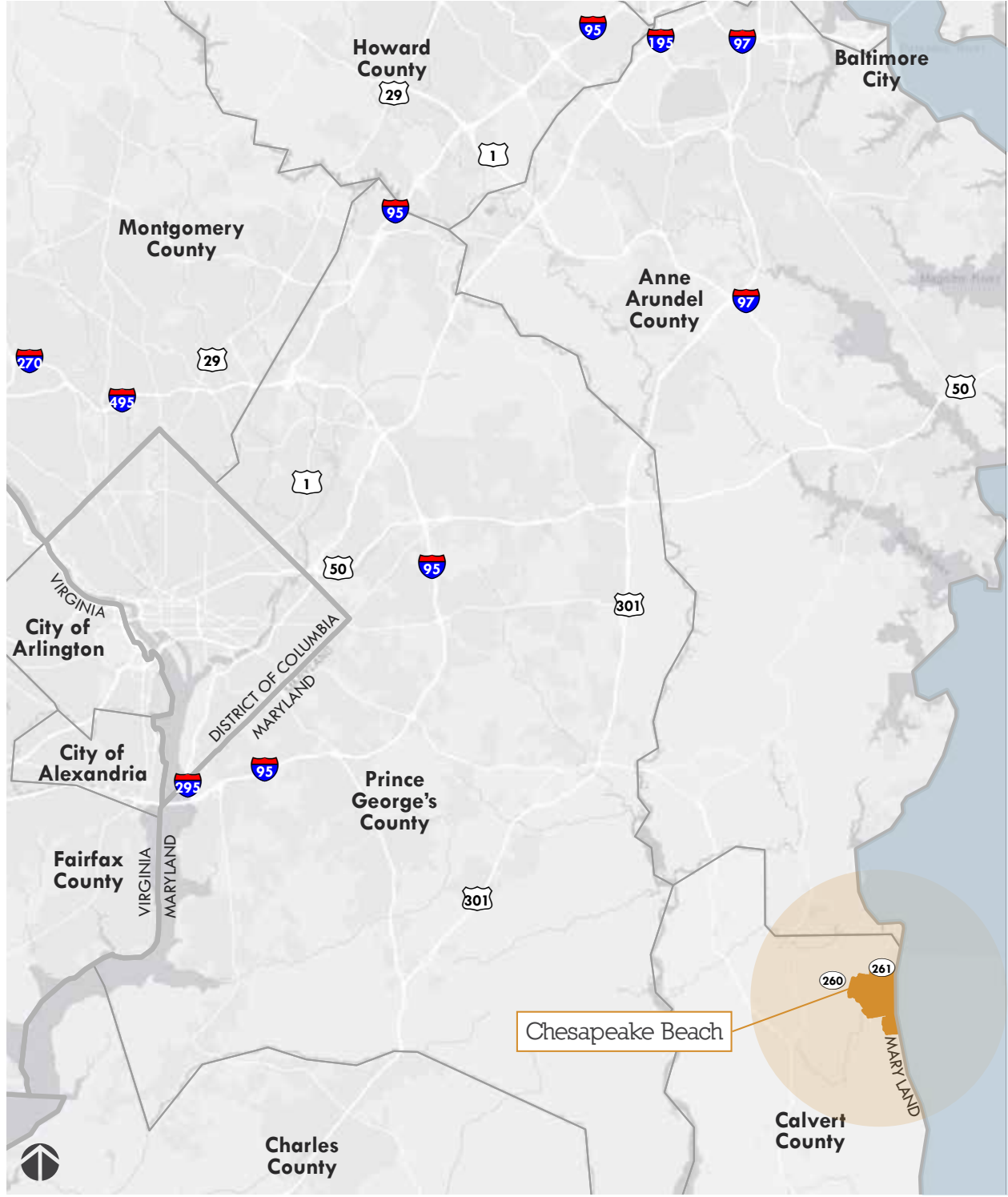
FIGURE 1.   Map of Chesapeake Beach and the Surrounding Areas

addition to the many tourist attractions, just south of the limits of Chesapeake Beach is the home of the United States Naval Research Laboratory Chesapeake Bay Detachment, which tests and analyzes various military radar systems.

The rich history and vibrant community led to the Town being designated on the National Register of Historic Places in 1980. With so much to offer, Chesapeake Beach remains an attractive tourist destination and exceptional community for the 6,000 residents who call the Town home.

The Theory of Connectivity

Each destination in Chesapeake Beach has a "reach" that connects it to other places. The Town itself is a destination for visitors across the region. Parks, waterfront access, and scenic overlooks "reach" across town and should be connected via safe walking and bicycling routes. Neighborhoods thrive by reaching out into the community via sidewalks, trails, and other facilities that provide a web of connected routes. This diagram illustrates the reach concept with large bubbles around regional destinations and lines connecting neighborhoods, boardwalks, trails, waterfront access, civic resources, dining, and entertainment. Understanding reach provides a foundation for creating a "spine network" and "neighborhood connectors."
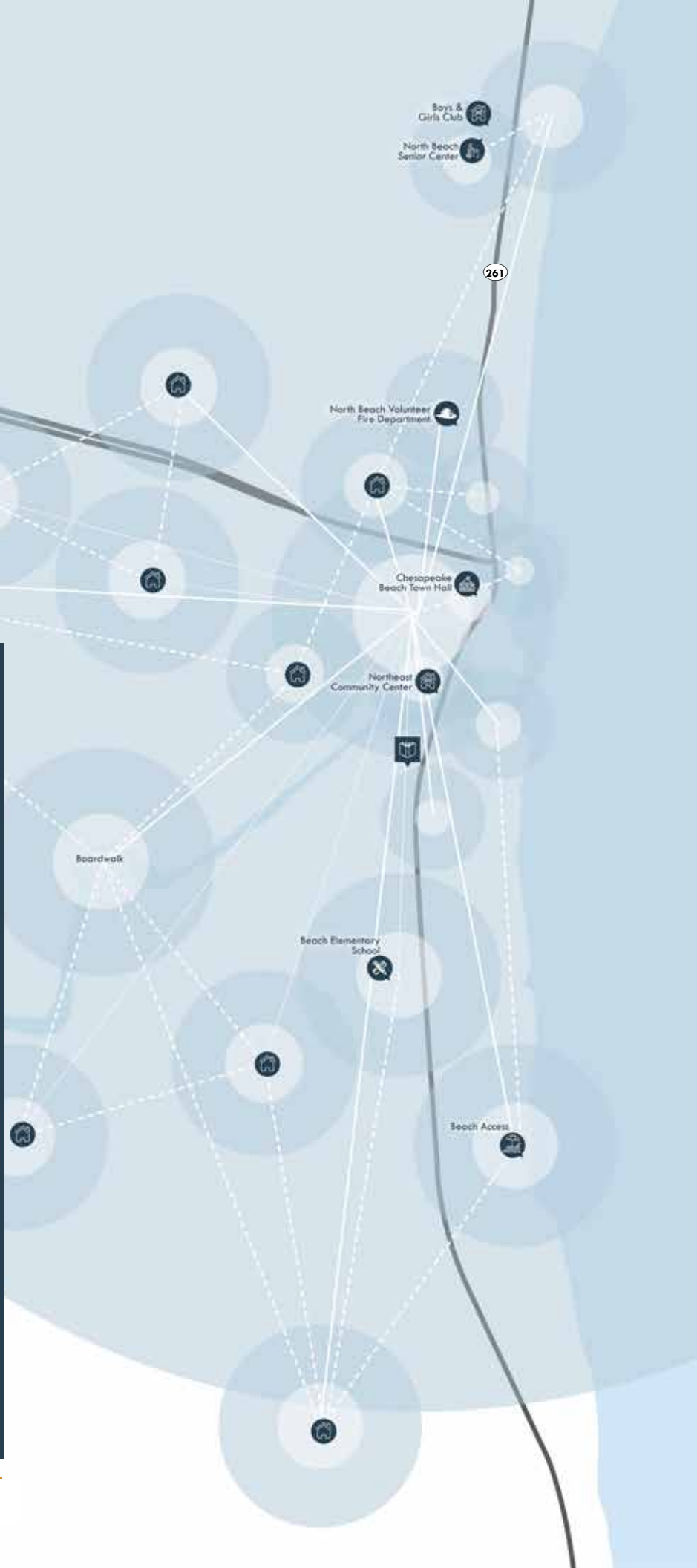
Boys & Girls Club

North Beach Senior Center

North Beach Volunteer Fire Department

Chesapeake Beach Town Hall

Northeast Community Center

Boardwalk

Beach Elementary School

Beach Access

260

261

FIGURE 2.   Conceptual Connectivity

WALKABLE COMMUNITY ADVISORY GROUP

İn 2016, the Town began to envision how businesses, neighborhoods, services, and other destinations in the community could be served by improvements to the area's overall walkability. That is, how well the Town accommodates moving around on foot. İn Chesapeake Beach, walkability improvements can contribute to the existing small-town character, improve the health of residents, and alleviate mobility and connectivity challenges. Such challenges include safety at pedestrian crossings, improving access to destinations, and developing an overall network of pedestrian and bicycle facilities.

Under Mayor Patrick J. Mahoney's administration, Chesapeake Beach formed the Town Walkable Communitiy Advisory Group (WCAG) in (2017), with Councilman Derek Favret leading the effort as Chair. The Walkable Community Advisory Group is a public committee made up of residents who volunteer their time to identify opportunities for improved walkability throughout the Town. İn collaboration with community members, the WCAG solicited feedback through multiple forums; to include, public meetings, pop up engagement sessions and surveys with the goal of creating a list of priority projects for Town leaders to implement. With the goal of creating a more walkable and bikeable Chesapeake Beach, the WCAG gathered public input and formulated a preliminary plan to provide increased ease of access for pedestrians and cyclists and promote open spaces for events and gatherings of the community members.

İn spring 2019 the WCAG prepared "A Vision for a More Walkable Community." This included a package of priority connectivity projects, including two major grant-funded projects and seven additional urban walkability improvement projects.

With WCAG's concepts identified, the Town initiated a planning study to complete the design of ADA compliant improvement plans for pedestrian walkways, sidewalks, bike paths, nature trails, and boardwalks to promote safety and accessibility for residents and visitors. The initial ten projects are illustrated on the map to the right.

THE TEN PRİORİTY PROJECTS
OF THE WALKABLE COMMUNİTY ADVİSORY GROUP

1. Multi-purpose path from town center to Beach Elementary School
2. Crosswalk at intersection of MD Rte260/261
3. Safe Routes to School (SRTS) sidewalk phase İİ
4. Chesapeake Beach to North Beach connection east side MD Rte261
5. Bayfront Park extension with parking and safe crossing
6. Bay viewing sites and connecting wayfaring paths
7. Multi-purpose path, gateway extension along MD Rte260
8. Bayfront Park wayfaring and sidewalk connection from Rod-n-Reel
9. North side wayfaring path to town center
10. Sidewalk along Cox Road
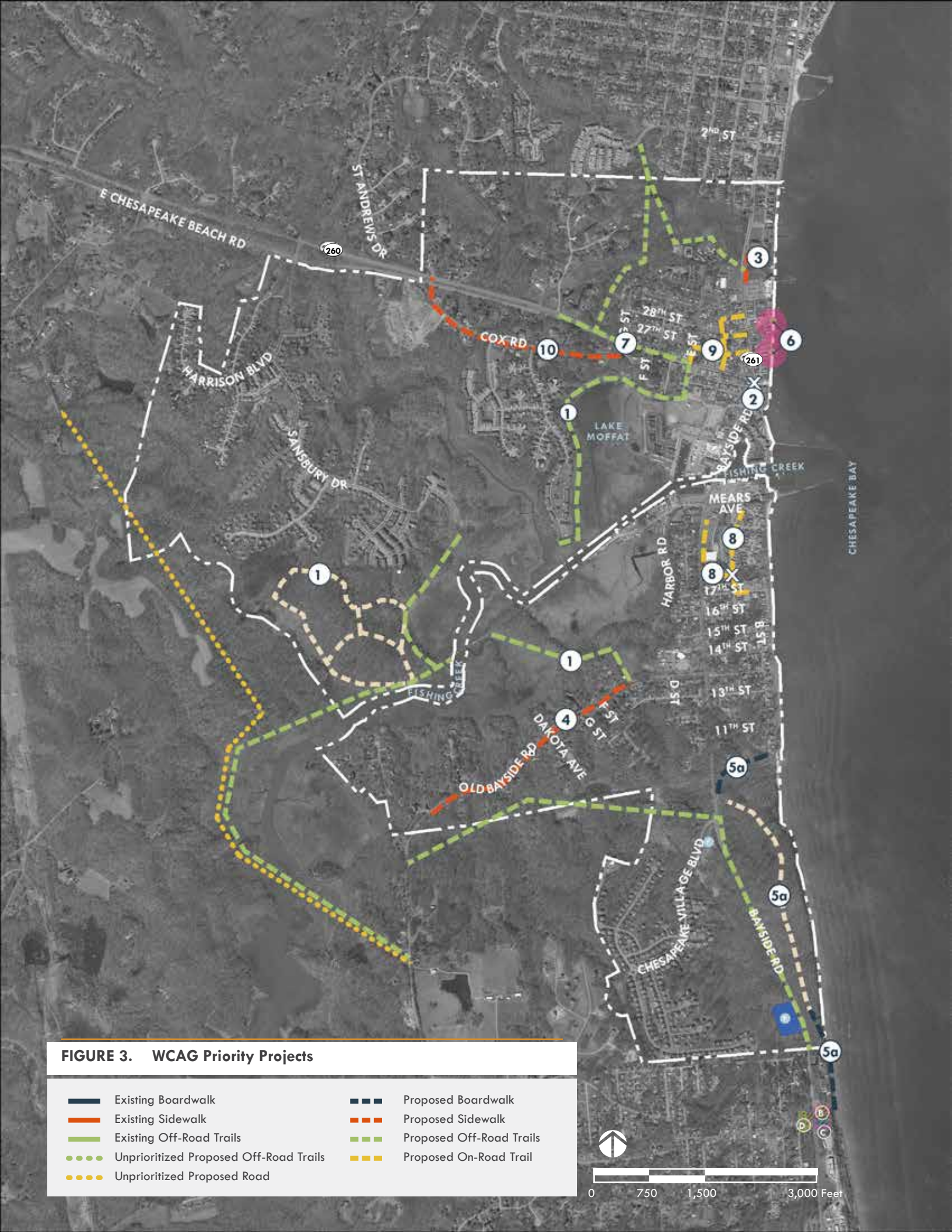
FIGURE 3.   WCAG Priority Projects

Legend:
- Existing Boardwalk
- Existing Sidewalk
- Existing Off-Road Trails
- Unprioritized Proposed Off-Road Trails
- Unprioritized Proposed Road
- Proposed Boardwalk
- Proposed Sidewalk
- Proposed Off-Road Trails
- Proposed On-Road Trail

0   750   1,500   3,000 Feet

Map labels: E CHESAPEAKE BEACH RD, ST ANDREWS DR, 260, COX RD, HARRISON BLVD, SANSBURY DR, 2ND ST, 28TH ST, 27TH ST, F ST, 261, LAKE MOFFAT, BAYSIDE RD, FISHING CREEK, MEARS AVE, HARBOR RD, 17TH ST, 16TH ST, 15TH ST, 14TH ST, 13TH ST, 11TH ST, B ST, D ST, F ST, G ST, DAKOTA AVE, OLD BAYSIDE RD, CHESAPEAKE VILLAGE BLVD, BAYSIDE RD, CHESAPEAKE BAY

A History Of Promenades, A Future of Connectivity

While the packed Boardwalk, lively amusements, and direct train routes are no longer present, the community of Chesapeake Beach continues to celebrate the story of their bayside treasure - past and present. The WCAG's list of future projects pair perfectly with the history of walkable connectivity to key destinations and the enjoyment of waterfront views.

Today, the Town harnesses the draw of the Bay with stories of how people explored, lived, and gathered in the early 1900's. Historic Heritage Trail Maps can be found around Town illustrating historic walking routes and places for visitors, residents, and school children to learn more about how Chesapeake Beach was born, grew, and changed over the years. This map is a programmatic tool that encourages people to walk, instead of drive, to visit cultural and natural resources.

Inspired by the early Boardwalk, the Town constructed new walking routes along the shore of the Chesapeake Bay and along internal waterways that interact with the historic rail alignment. These structures provide a precedent for accomplishing connectivity via a network of future boardwalks and trails in areas that are sensitive habitats and wetlands.

This foundation will propel the Town through a process to explore future connectivity via multiple facility types. Starting with the existing routes and known origins and destinations through Town, a planning process will lead to additional opportunities that will enable residents to connect with friends and family, provide safe routes to school for neighborhood children, expand recreational activity by completing loops, encourage visitors to walk and

This is a copy of a colorized panoramic photograph of the Boardwalk at Chesapeake Beach taken so

bike by providing clear paths and wayfinding signs, and improve livability for current and future residents by creating active transportation options steps from their front doors.

This process began with establishing a vision and goals, and concludes with recommended actions that focus on overlapping stages of project feasibility, funding, and implmentation. The end result will enhance safety and circulation for residents and visitors.

ometime before the Belvedere Hotel (in the background, on the left) burned down on March 30, 1923.

VISION

To İmplement a connected network of walking and biking facilities, spurring transportation and recreation benefits and fostering a sense of community pride.

GOALS

To enhance ACCESS, SAFETY, and PLACEMAKİNG.

- Extending or connecting pedestrian walkways to provide access to all town residents
- Extending or connecting existing boardwalks and trails, creating new access points
- İdentifying opportunities to create a circuit of wayfaring pathways to connect nature, recreation and commercial points-of-interest within town limits
- Extending or creating a series of interconnecting nature trails

ACCESS

- Vision for a pedestrian friendly "main street" along 260 to foster economic development and create a sense of pride in the community.
- Clear connections between the beach access and key destinations.
- İmproved connections to the boardwalk through infrastructure improvements or signing as well as awareness and marketing (ex: walking maps)

SAFETY

- Safe connections from residences to nodes of activity.
- Safe crossings of Bayside Road for pedestrians.
- Traffic calming treatments (ex: modifications to the intersection of 260 and Bayside Rd, and pedestrian crossing signs)

PLACEMAKING

- Community branded signage that celebrates the character of the community while directing residents and visitors along safe biking and walking paths.
- Simple, low cost solutions for biking and walking paths that do not change the character of the community.
- Placemaking and aesthetic elements to enhance the existing parking area near Kellam's Field.

These identified needs were the first step in a discovery process that began with data collection and previous plan review (including an in-depth exploration of the Advisory Group goal projects). Our team layered available data to create a series of GİS maps, complete desktop level analyses, conduct fieldwork, and, most importantly, engage stakeholders, staff, the Advisory Group, and the public to establish goals, challenges, desires, and needs relative to pedestrian and bicycle connectivity, the creation of green spaces, enhanced Complete Streets, and the celebration of community character.

Furthermore, it is a goal of this plan to serve as a guide for grant applications and feasibility studies, final design, and implementation of the recommendations identified later.

PLANNING PROCESS

The Town used a multifaceted approach to establish a clearly defined network of walking and biking facilities. A field assessment provided a clear picture of the community's existing walking and biking facilities, development and infrastructure constraints, and opportunities based on daily use and special event circulation. Through public engagement opportunities, the team introduced and vetted initial network recommendations with community members and key stakeholders.

Founded in a comprehensive understanding of Chesapeake Beach's landscape and community, the final recommendations outlined in this document represent realistic, implementable actions to propel the community forward and reap the benefits of increased walking and biking.

REPORT STRUCTURE

Guided by the vision and goals of the project, the assessment that follows in chapter 2 summarizes the existing pedestrian, bicycle, and vehicular network in Chesapeake Beach. Layered with public input, the assessment led to the identification of key opportunities, as discussed in detail in the recommendations chapter (chapter 3).

Strategies and resources for implementation (chapter 4) provide the Town of Chesapeake Beach with the tools it needs to create a connected network of walking and biking facilities that will spur benefits beyond transportation and recreation. These new facilities will foster a sense of community pride and contribute to an already thriving and picturesque bayside town.
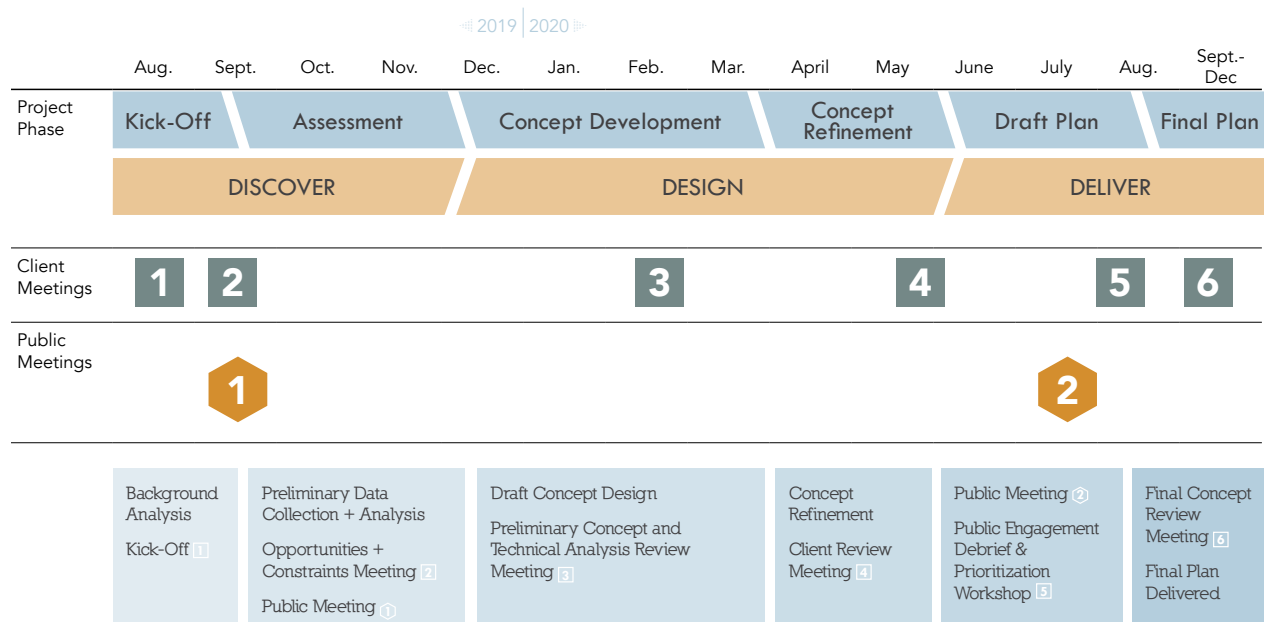
FIGURE 4.   Project Schedule

Chapter 2
Assessment

This assessment pairs an analysis of Chesapeake Beach's physical landscape with an inventory of the community's desires and needs gathered through public input. By analyzing the existing landscape relative to these desires, the team sets a foundation for identifying potential solutions to address infrastructure needs and create opportunities to improve the community's quality of life.

Assessment Methods

As a starting point, the team dedicated significant time to reviewing and examining the recommendations of the WCAG published in the ''Vision for a More Walkable Community'' plan.

Additional steps included documenting existing conditions and soliciting community input and buy-in.

Natural and man-made features can change significantly from year-to-year due to weather patterns, erosion, development, and project implementation. Having an up-to-date understanding of infrastructure, facilities, and conditions through field investigation and GIS-mapping helps illustrate needs and opportunities for improvements. An understanding of existing conditions also informs the design of solutions that are both sustainable in the long-term and effective in improving the connectivity of Chesapeake Beach.

PEOPLE

By understanding the residents of Chesapeake Beach and key aspects of their daily lives, the team can establish relevant goals and objectives, conduct effective outreach, and target areas of need that would benefit from the project's recommendations.

Population Overview

Chesapeake Beach is a Census Designated Place (CDP) with a population of approximately 6,000 living within the 2.7 square mile Town limit. A count from 2018 estimates that residents of Chesapeake Beach are 84% white, 7% African American, 1% Asian, with 7% identifying as two or more races. This data was derived from the American Community Survey (ACS), Table DP05. That same count estimated that 0.8% of residents identify as Hispanic or Latino.

84% white

7% black/african american

0.8% hispanic

1% asian

7% two+ races
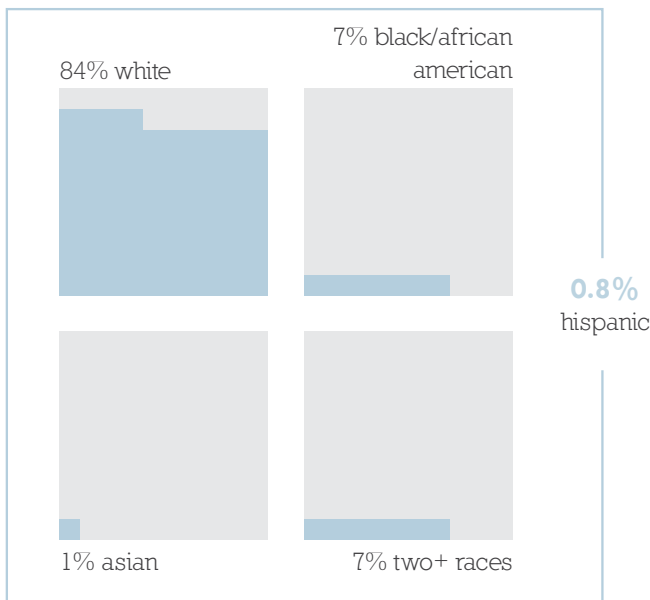
Source: 2018 American Community Survey, DP05

FIGURE 1.   Population by Race

w/ children under 18 years old **45.1%**

w/ adults over 65 years old **23.4%**

1,397 Family Households
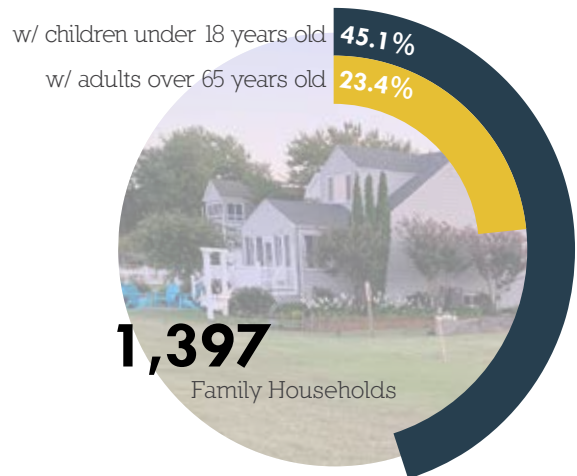
Source: 2018 American Community Survey, DP02

FIGURE 2.   Children and Seniors in Family Households

Vulnerable Populations

When considering the safety of a transportation network, vulnerable groups warrant special attention. Vulnerable groups include the very young, the elderly, and people with disabilities.

The median age of the population in 2018 was estimated at 38, and an estimated 23% of residents were under the age of 18. Household composition is important when considering very young and elderly residents. Of over 2,000 households, 45% had family members under 18 years of age and 23% had members over 65 years of age (ACS Table DP02). In addition, 30% of residents are enrolled in school and 11% are elementary school students.

In 2018, an estimate of nearly 8% of residents were managing some form of disability (ACS Table DP02). This group is comprised of 5% with ambulatory disabilities, 3% with a hearing disability, 3% with an inability to live independently, 2% with cognitive disabilities, and 1% with a vision disability.

Source: 2018 American Community Survey, DP02

FIGURE 3.   Percentagesof Residents with a Form of Disability

Chesapeake Beach's local economy includes restaurants, admission and amusement activities, marina, public ramps a municipal water park and other destinations frequented by residents and visitors.

Photography by Angel Beil
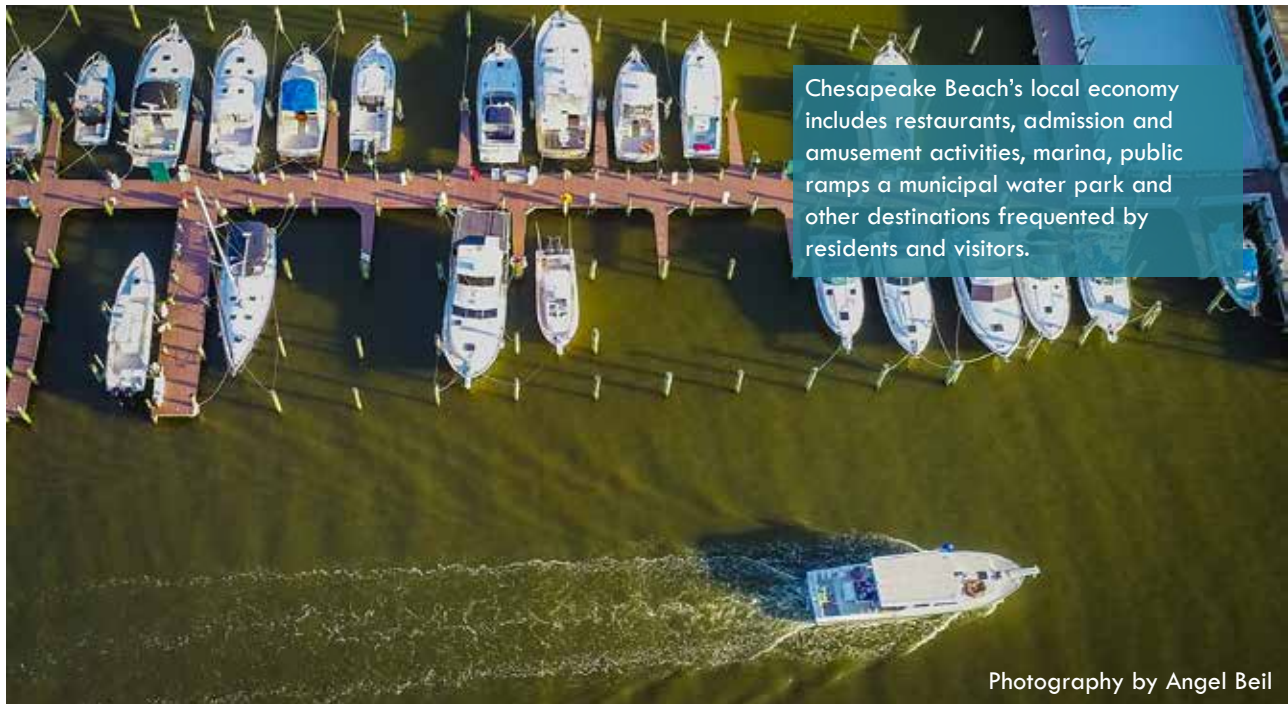
Socio-Economic Trends

The median household income in 2018 (Table DP03) was estimated at about $82,500, which is significantly higher than the U.S. median. Evaluating 2017 employment data from the Longitudinal Employer-Household Dynamics (LEHD) "On the Map" tool revealed that significant employment sectors in Chesapeake Beach include Accommodations and Food Service (34%), Retail (24%), and Arts, Service, and Entertainment (13%). Most local job opportunities are found between Chesapeake Beach Road (Maryland Route 260) and 16th Street. While over a quarter of employed residents work within a 10 mile range LEHD commute data revealed that 36% travel between 10-24 miles, 29% travel between 25 and 50 miles, and 8% travel 50 or more miles. At the same time that over 1,000 residents leave the area for work, 558 non-residents commute to Chesapeake Beach from other places.
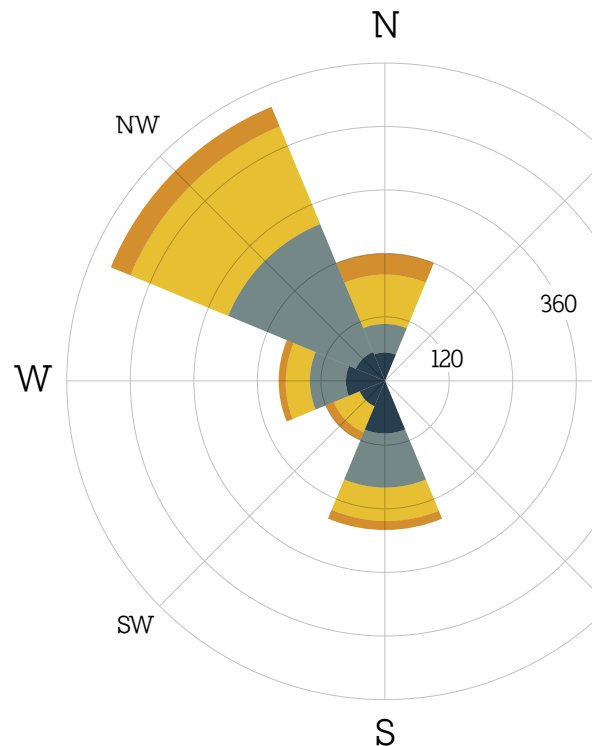
FIGURE 4. **Direction and Distance for Work**
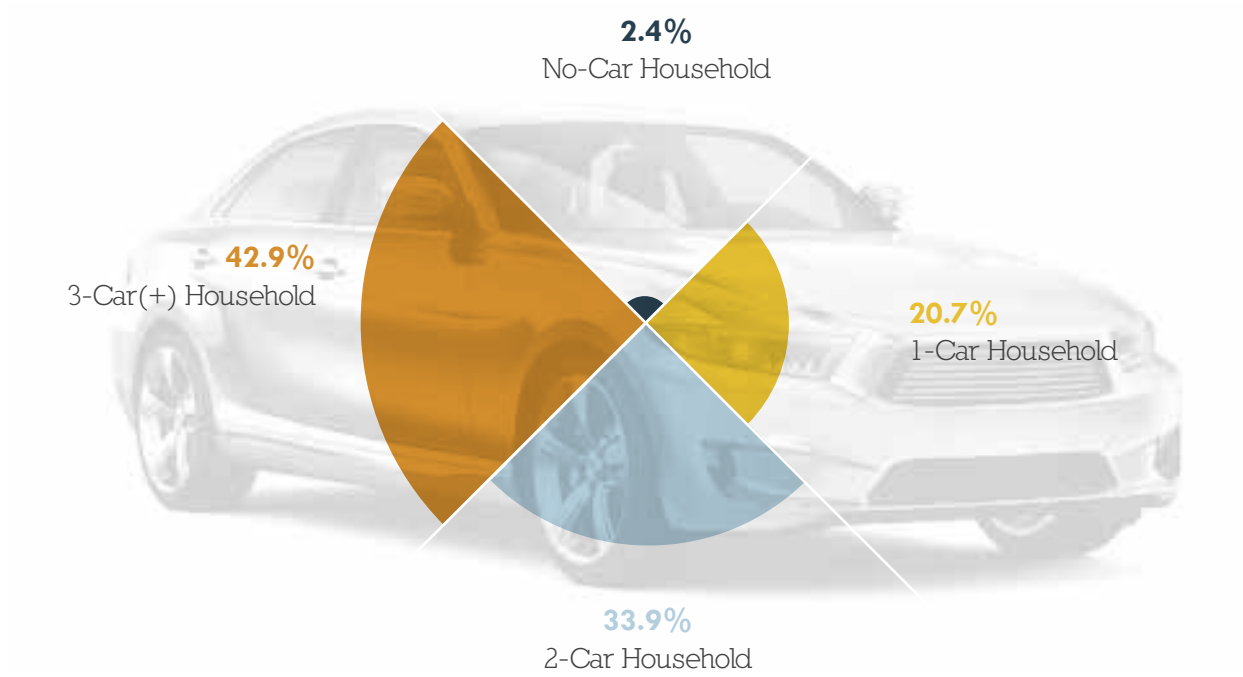
Source: 2018 S2504, Data for Calvert County

FIGURE 5.   Car Access by Percent of Households

Commuting and Transportation Trends

Knowing that residents commuting to other places outnumber residents that work within Chesepeake Beach, it is important to consider how those commuters are getting to work. The team used 2018 ACS data to evaluate residents' commuting habits. According to ACS Table DP03, approximately 77% of residents drive alone, 11% carpool, 5% use a form of public transportation, 2% walk, 1% using some other mode (including bikes), and about 5% of residents work from home. Although walking has seen an increase over the past several years, driving remains the dominant form of transportation for work commutes.

The same data showed that the majority of households in Chesapeake Beach have access to at least one car. Only 2% of households do not have a car, while 21% are one-car households,
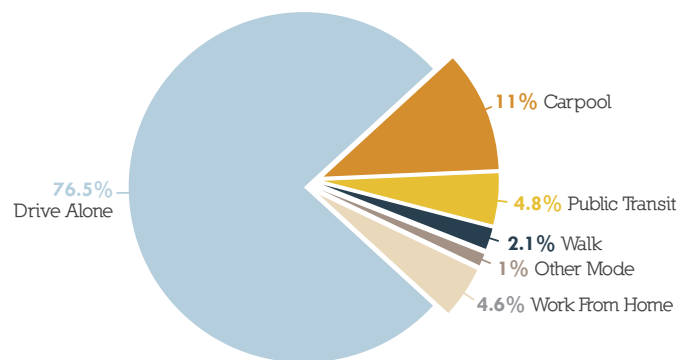
ource: 2018 American Community Survey, DP03

FIGURE 6.   Mode of Travel to Work

This broad-brush portrait of the community and its characteristics provided context for understanding the social landscape. Additional studies would evaluate the cultural and physical landscapes.

EXISTING CONDITIONS

The Town has several excellent resources to enhance connectivity around, including the Boardwalks along Fishing Creek and the waterfront, and good sidewalk connectivity along Bayside Road from the Elementary School to the municipal boundary with North Beach.

While topography and sensitive environmental areas represent challenge to connectivity, they also have provided a network of low volume streets within the town core that afford opportunities for travel, away from busy traffic.
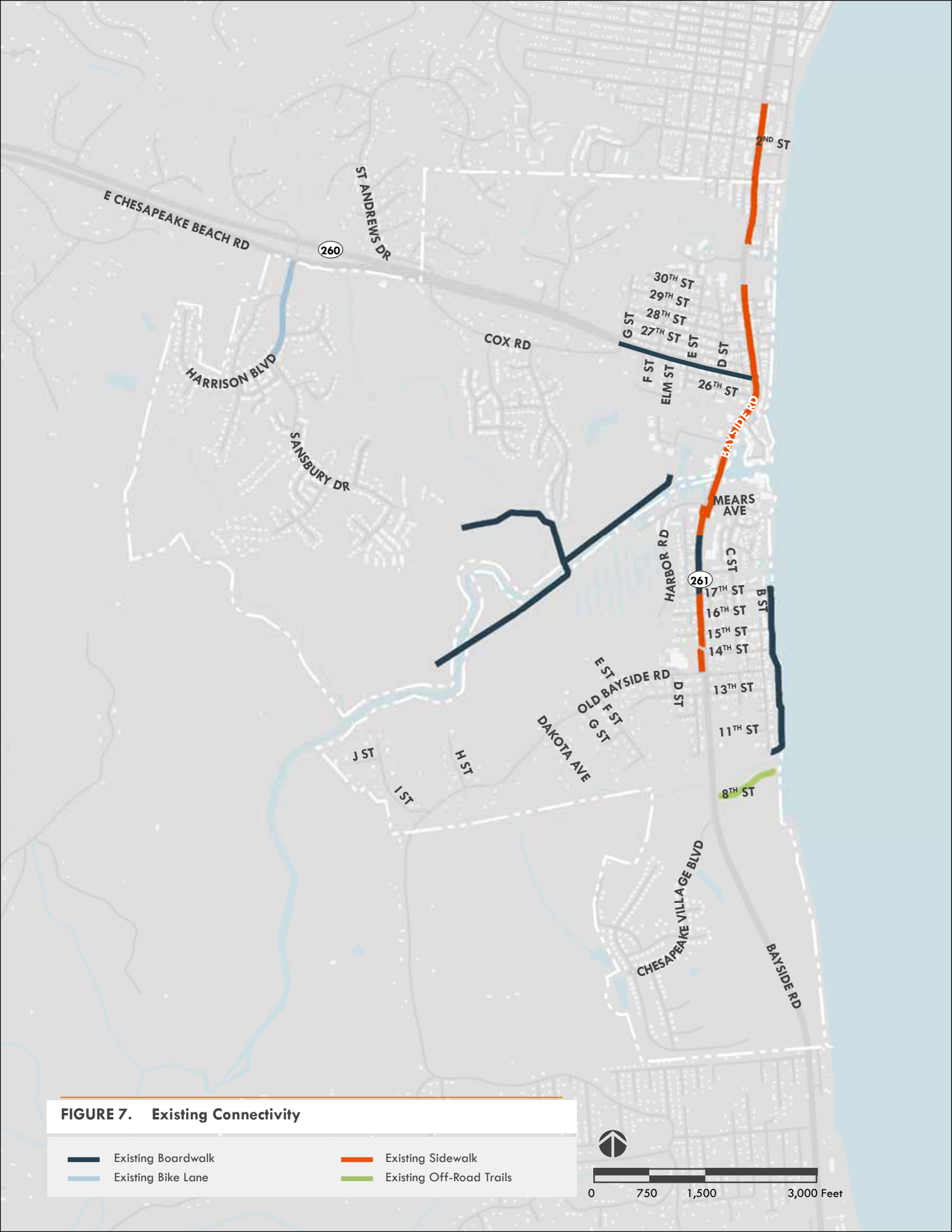
FIGURE 7. Existing Connectivity

E CHESAPEAKE BEACH RD

260

ST ANDREWS DR

HARRISON BLVD

SANSBURY DR

COX RD

2ND ST

30TH ST
29TH ST
28TH ST
27TH ST
26TH ST

G ST
F ST
ELM ST
E ST
D ST

BAYSIDE RD

MEARS AVE

HARBOR RD

261

C ST

B ST

17TH ST
16TH ST
15TH ST
14TH ST
13TH ST
11TH ST

E ST
F ST
G ST
D ST

OLD BAYSIDE RD

DAKOTA AVE

J ST

I ST

H ST

8TH ST

CHESAPEAKE VILLAGE BLVD

BAYSIDE RD

Existing Boardwalk

Existing Bike Lane

Existing Sidewalk

Existing Off-Road Trails

0   750   1,500   3,000 Feet
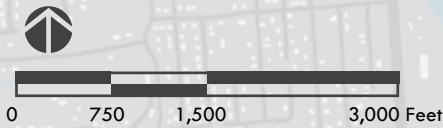
PLACE & CONTEXT

While the desires and needs of Chesapeake Beach's population form the cornerstone of Master Plan Development, any proposed projects included in the Master Plan must be feasible given the physical environment of the community. Understanding the natural characteristics and environmental context that define Chesapeake Beach are critical steps to understanding the types of existing conditions and constraints analysis that will prove most useful in the Master Plan development.

Field Notes

Field Field investigation provides an opportunity to further vet recommendations and explore feasibility. Natural and man-made features can change significantly from year-to-year due to weather patterns, erosion, and development. Having an up-to-date understanding of infrastructure and facilities helps to better inform recommendations and their phasing or priority level.

During field visits, the team walked along the existing pathway and pedestrian networks. The team observed gaps in connectivity, for example where existing sidewalks end before reaching key destinations such as Beach Elementary School, or where the Fishing Creek boardwalk ends. The team also observed flooding challenges, such as near Kellam Field and at the north near North Beach, and natural features like crumbling cliffs in Bayside Park or steep slopes that may limit opportunities.

The team also identified a need for traffic calming. This was particularly the case for Bayside Road (Maryland Route 261), and Chesapeake Beach Road (Maryland Route 260) within the town core

east of G Street. Similarly, the team noted areas where crossing as a pedestrian became difficult or potentially unsafe. These areas included crossing Bayside Road near the school.

Additionally, the team visited the sites for all of the WCAG recommendations and noted potential feasibility concerns. For instance, while the WCAG initially proposed a sidewalk on Old Bayside Road, the team noted that the underlying terrain and limited visibility along portions of this roadway present challenges. The team also used these visits to identify new opportunities and ideal locations for making connections in the overall pedestrian and connectivity network.

Physical and Natural Characteristics

The town of Chesapeake Beach is situated in a unique and complex environment, given its proximity to the Chesapeake Bay shoreline. The town has a total area of 2.79 square miles, of which 2.71 square miles is land and 0.08 square miles is water. Originally formed from the intersection of Fishing Creek and the Chesapeake Bay, the creek has been expanded significantly over the past century to support larger boating vessels that include commercial fishing ships, US Navy vessels, and privately-owned recreational boats.

There is major commercial and residential activity along Bayside Road (Maryland Route 261), the main north/south road passing through Chesapeake Beach, and the town also contains several large parks, beaches, and natural areas frequented by residents and visitors. Fishing Creek bisects the town, surrounded by low marsh areas and woodlands on both sides. The creek is bordered by Lynwood T. Kellam Memorial Recreational Park on the north near the shoreline. To the south, Bayfront Park and Bayfront Beach buffer existing residential communities from the coast line. Many areas remain heavily wooded, particularly those further inland from the coast.

FEDERAL LANDS

Federal lands are areas that are owned and maintained by the United States Federal Government. These lands, which cover approximately 640 million acres, are typically managed by one of several federal government agencies including the Bureau of Land Management (BLM), the U.S. Fish & Wildlife Service (FWS), the National Park Service (NPS), and the U.S. Forest Service (FS). When working in areas designed as Federal Lands, it will be critical to coordinate with the relevant agency stakeholders early on in the process. Obtaining input from these agencies early in the process will help secure buy-in at later stages of project development and fully understand specific constraints that may limit infrastructure opportunities in certain areas.

DEFINITIONS OF CRITICAL AREA CATEGORIES

INTENSELY DEVELOPED AREAS (IDA)

İntensely Developed Areas (İDAs) are defined as areas of twenty of more adjacent acres where residential, commercial, institutional or industrial land uses predominate. İDAs are areas of concentrated development where little natural habitat occurs. İn İDAs, the main focus of the Critical Area Program is on improving water quality. The Law requires that new development and redevelopment include techniques to reduce pollutant loadings associated with stormwater runoff.

LIMITED DEVELOPMENT AREAS (LDA)

Unlike İDAs, Limited Development Areas (LDAs) are locations characterized by low or moderate intensity development, but that also contain areas of natural plant and animal habitats. Generally, the quality of runoff from these areas has not been substantially altered or impaired. İn order for an area to be classified as LDA at the time it was mapped, it had to have housing density between one dwelling unit per five acres and four dwelling units per acre; have public water or public sewer or both; or have İDA characteristics but consist of fewer than 20 acres. [MD DNR]

RESOURCE CONSERVATION AREAS (RCA)

Resource conservation areas have the least amount of development of the three areas and are often classified as wetlands, forests, or other natural resource environments. Some activities still occur in resource conservation areas, such as farming and fishing, but they have limited effect on the runoff to the Chesapeake Bay. RCAs make up approximately 80% of the Critical Area and are characterized by natural environments or areas where resource-utilization activities are taking place. Resource-utilization activities include agriculture, forestry, fisheries activities, and aquaculture, which are considered "protective" land uses. İn order for an area to be classified as RCA at the time it was mapped, the area would have been developed at a residential density less than one dwelling unit per five acres or be dominated by agricultural uses, wetlands, forests, barren land, surface water, or open space. [MD DNR]

When working on any projects within the CBCA, there are several regulations and requirements that will have a direct effect on any proposed projects. The following are a few examples of such regulations:

» All vegetation removal with in the CBCA must be permitted.
» Mitigation is required for permanent impacts.
» Approved planting plans and/or buffer management plans are required.
» A 2-year maintenance agreement and refundable bond are required to ensure success of mitigation plantings.
» Projects within an İDA need to demonstrate 10% reduction in phosphorous levels post-development.

As the Connectivity Study and associated recommendations developed, it has been critical to remain aware of the CBCA designation and associated requirements to ensure any proposed projects are fully compliant with Maryland's environmental laws.
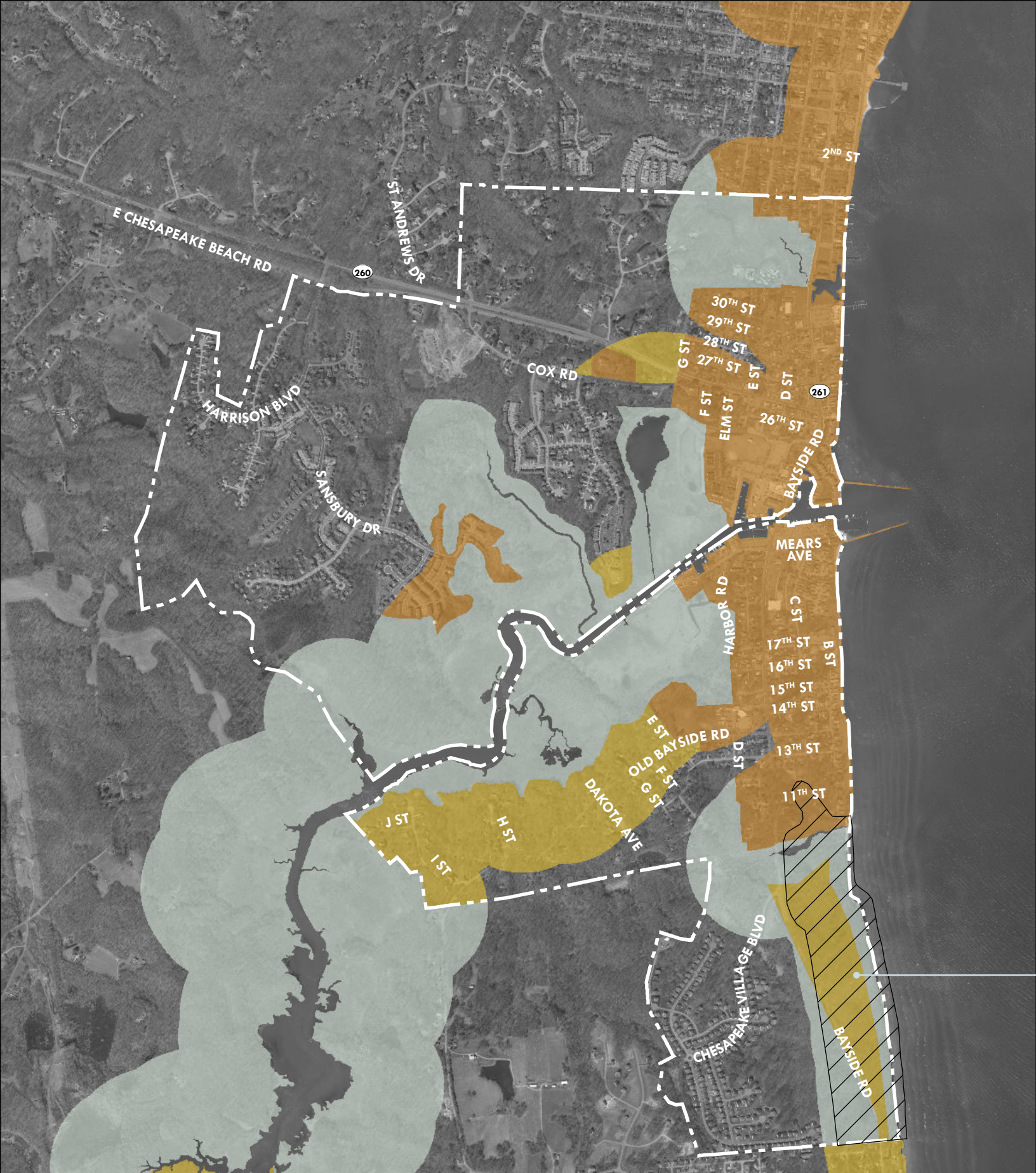
FIGURE 8. Critical Areas

Legend:
- Intensely Developed Area
- Limited Development Area
- Resource Conservation Area
- Natural Heritage Area

Map labels:
E CHESAPEAKE BEACH RD, 260, ST ANDREWS DR, COX RD, 2ND ST, 30TH ST, 29TH ST, 28TH ST, 27TH ST, G ST, E ST, D ST, 261, F ST, ELM ST, 26TH ST, HARRISON BLVD, SANSBURY DR, BAYSIDE RD, MEARS AVE, HARBOR RD, C ST, 17TH ST, 16TH ST, 15TH ST, 14TH ST, B ST, E ST, OLD BAYSIDE RD, F ST, G ST, D ST, 13TH ST, DAKOTA AVE, J ST, H ST, I ST, 11TH ST, CHESAPEAKE VILLAGE BLVD, BAYSIDE RD

0   750   1,500   3,000 Feet

CHESAPEAKE BAY CRITICAL AREAS

The Chesapeake Bay is an incredible resource not only for the town of Chesapeake Beach but for a multitude of states, industries, and wildlife that depend on the health and well-being of the ecosystem for their success. Because the land around the Chesapeake Bay and its tributaries have the largest affect on the water quality and health of the surrounding habitat, the Maryland General Assembly passed the Chesapeake Bay Critical Area Law in 1984 to designate a geographical area around the bay as a "Critical Area". The law, which aims to improve the water quality and natural resources health of the bay, establishes the Chesapeake Bay Critical Area Boundary (CBCA) and categorizes land in the Critical Area (CA) into one of the three categories described below.

WETLANDS & WETLANDS OF SPECIAL STATE CONCERN

Wetlands, or areas where water covers the soil for a period of time each year, are present throughout the Chesapeake Beach area and are afforded special protection under local, state, and federal laws. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and near shore coastal waters. Similar to the CBCAs, any project work that could directly affect nearby wetlands is subject to requirements and regulations, such as:

- No work can occur within a 100 ft. buffer around a designated wetland.
- Any project near a wetland must demonstrate avoidance and minimization of impacts.
- Ground and surface water quality must be preserved during construction.

In order to ensure proposed recommendations included in the Master Plan are compliant with all wetland requirements, the Maryland Department of Environment and other relevant agencies should be engaged early in the project development process. Input from these agencies will be critical in determining the types and extent of infrastructure that can be included in any Master Plan recommendations.

NATURAL HERITAGE AREAS

In the state of Maryland, natural heritage areas are designated in the state's Threatened and Endangered Species regulations (COMAR 08.03.08). To be designated a natural heritage area, the location must meet the following criteria:

1. Contain one or more threatened or endangered species or wildlife species in need of conservation.
2. Be a unique blend of geological, hydrological, climatological or biological features.
3. Be considered to be among the best Statewide examples of its kind.

RANDLE CLIFF BEACH NATURAL HERITAGE AREA (CRITICAL AREA SITE CT NHA-13)

The Randle Cliff Beach has been designated a Natural Heritage Area (Critical Area Site CT NHA-13). As a result, Calvert County has established a 100 ft. buffer to remain undisturbed, protecting the cliff face from excessive runoff and erosion. This buffer also helps maintain the cool, mesic microclimate of the associated ravine system. This designation prohibits activities that include development (structures, roads, parking areas, impervious surfaces), clearing of natural vegetation, farming, and commercial tree harvesting.

The Maryland Department of Natural Resources (MDNR) works to conserve and maintain natural heritage areas throughout the state. Coordination with MDNR at an early stage will be critical for any projects around the natural heritage area to ensure they do cause adverse impacts. Working with MDNR may can also provide valuable information of how existing wildlife and natural features that could be of interest to Chesapeake Beach residents may be highlighted.

Sea Level Rise and Resiliance

As a coastal town on the Chesapeake Bay, the Town of Chesapeake Beach is subject to tidal flooding. With storm events increasing in frequency and the impacts of sea level rise, new public facilities must account for both current and future conditions to minimize the impact of flood events and to ensure that the investment is resilient to climate change.

The Eastern Shore Regional GIS Cooperative developed sea level rise forecasting for 2050 and 2100. The forecast uses US Army Corps of Engineers Sea Level Curve SLC projections, US Geological Survey studies, and National Oceanic and Atmospheric Administration tidal observations. Based on this analysis, it is expected that sea levels will rise by 2.1 feet and 5.7 feet by 2050 and 2100, respectively.

SOUTH CREEK

Located near the northern Town boundary, South Creek passes under Bayside Road between the Firehouse, the Wastewater Treatment Plant, and Bay Creek Subdivision. In this area, the team observed a gap in the sidewalk network along the east side of Bayside Road. This gap would ideally be closed with a boardwalk to limit impact to sensitive environmental areas and to allow the pathway to be elevated above the floodplain.

FISHING CREEK

Extension of the Chesapeake Beach Railway Trail and connectivity improvements around the Town Core will be influenced by the Fishing Creek floodplain. New boardwalks should be designed at an elevation that accounts for sea level rise to avoid the impacts of nuisance flooding. Sidewalk and trail improvements around the Town Core (including Kellams Field) would occur within the flood prone areas, so they should be designed to accommodate innundation or elevated above the flood plain if possible.

BROWNIES CREEK

Brownies Creek separates the southern neighborhood of Chesapeake Village and Brownies Beach from the central part of the Town. New facilities linking these areas with the Town core would likely include a combination of boardwalks in sensitive environmental areas and sidewalks or pathways above the floodplain elevation.

ENVIRONMENTAL PERMITTING

Because of wetlands present in the Town, wetland-specific permits will be required for projects impacting tidal or non-tidal wetlands. A Joint Permit Application (JPA) will be filed with the Maryland Department of the Environment (MDE), including review and approval by the U.S. Army Corps of Engineers (USACE). Public notice may be required, depending on the impacts and location of the project. Early coordination with these agencies will be critical during project development, especially given the long lead times that may be required to obtain the permit.
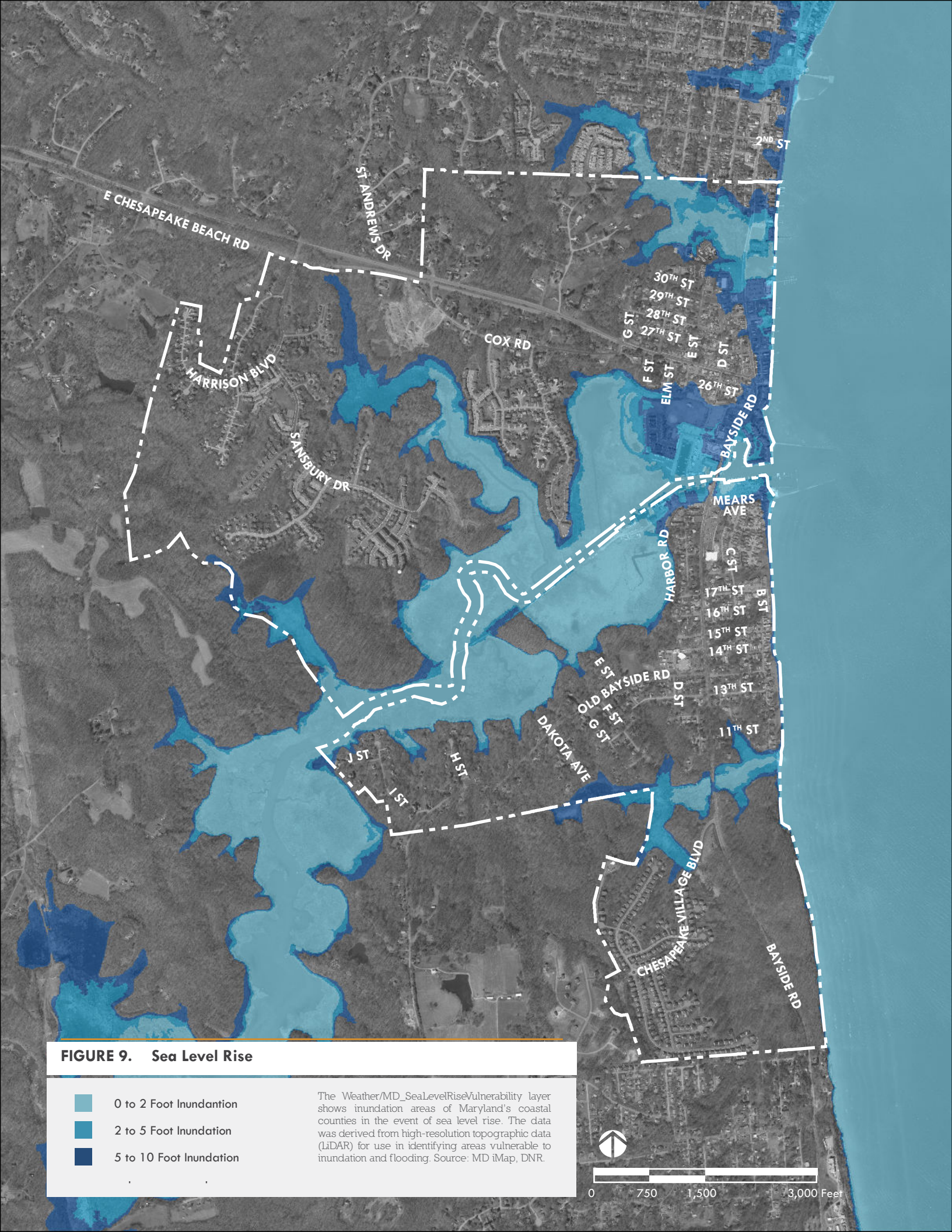
FIGURE 9.   Sea Level Rise

0 to 2 Foot Inundantion	
2 to 5 Foot Inundation	
5 to 10 Foot Inundation	

The Weather/MD_SeaLevelRiseVulnerability layer shows inundation areas of Maryland's coastal counties in the event of sea level rise. The data was derived from high-resolution topographic data (LiDAR) for use in identifying areas vulnerable to inundation and flooding. Source: MD iMap, DNR.
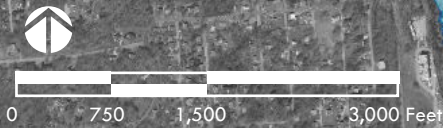
0   750   1,500   3,000 Feet

The Maryland Department of Natural Resources (MDNR) works to conserve and maintain natural heritage areas throughout the state. Coordination with MDNR at an early stage will be critical to ensure that any proposed projects do not negatively affect existing natural heritage areas. Working with MDNR may can also provide valuable information in terms of how potential projects could highlight existing wildlife and natural heritage area features that could be of interest to Chesapeake Beach residents.

COMMUNİTY İNPUT

A connectivity plan for the Town of Chesapeake Beach would be incomplete without input from the community members who move about the area every day. Their local understanding, concerns, and desires inform the recommendations of this

plan, and set the tone for future investment and implementation in the community.

Guiding this process were Town Staff, elected officials and members of the WCAG. As the plan was developed, the public was engaged at two key milestones in the planning process, the first during the needs assessment phase to identify desires and needs, and the second during the recommendations review to aid in plan review and prioritization of the connectivity improvements. Each of the key community input milestones that shaped the recommendations of this connectivity plan are summarized below.

Kickoff Meeting & Walking Tour (August 29, 2019)

Town staff and WCAG members met to discuss aspirations and vision for the plan. Key themes that emerged included maintaining a small

Local Experts

The most knowledgable experts on the Town of Chesapeake Beach are members of the community who live, work and recreate here. Listening to input recieved throughout the process directed the attention of the project team, helped refine the network and facility recommendations, and concluded with establishing your priorities for the community.

town character, building on the existing identity of the Town's assets, providing new alternative routes for travel away from heavily trafficed main streets, improving safety, and setting a clear path for implementation. The Town's priority projects were reviewed and discussed, to inform the field investigation by the project team. At conclusion of the meeting, a field walk was conducted to explore opportunities and desires for connectivity improvements within several portions of the study area.

Taste the Beaches (September 14, 2019)

Initial public input was solicited at the Town's popular Taste the Beaches festival to reach a broad audience and secure diverse input. A pop-up informational booth located in the vending space provided information about the

project. There were also several engagement activities, including a map on which community members could suggest specific connectivity recommendations, a voting exercise where they could indicate preferences for different amenities or facility types and identify needs and assets within the community.

WCAG Recommendation Review Meeting (October 5, 2020)

Draft plan recommendations were presented to the WCAG in advance of securing community input, both to confirm agreement with the network recommendations and to screen initial priorities. Key findings from the Existing Conditions review were highlighted with special attention to locations where desirable network connections would be challenging or infeasible. The network recommendations map and cut sheets for each

project were then presented and discussed to answer questions and identify any needs or desires from the perspective of the Committee. The meeting concluded with a prioritization exercise, both for the Committee to become acquainted with the network recommendations map and to identify initial priorities. Projects that attracted the greatest interest included an improved town gateway along Maryland Route 260, safer crossings along Maryland Route 261, and an overlook and boardwalk improvements along the east side Maryland Route 261 at South Creek.

Town Council Presentation (October 15, 2020)

The project team briefed the Town Council to preview the draft plan materials, including design guidelines, the network recommendations map and project cut sheets. Feedback from elected

Flexibility in Times of Covid-19

Following the Taste the Beaches piggyback engagment event, the team planned additional public participation opportunities to introduce the community to emerging recommendations and solicit their feedback. However, growing concerns over the spread of Covid-19 presented a bump in the road. The project team went back to the drawing board.

Concerns about inclusivity and accessibility in virtual engagement often reference the **digital divide**, which is the barrier created when individuals have different levels of access to information due to technological barriers. Those barriers can be due to limited or no access to technology or internet services, or an individuals technological proficiency. This was an important consideration as the team reassessed participation opportunities.

Analyzing 2018 American Community Survey (ACS) estimates, the team knew that 94% of Chesapeake Beach households have access to a computer (Table DP02). Additionally, an estimated 89% of households have access to internet. Online outreach was promising in light of this data. To account for the fact that some may be less comfortable participating online, the team also considered participation via telephone. According to the 2018 ACS, an estimated 99% of households in Chesapeake Beach are estimated to have telephone service (Table S2504).

COMMUNITY PROJECT PRIORITIES			
RANK	NAME	NUMBER OF VOTES	PROJECT ID
1	Safe Crossings	93	#2
2	Richfield Station Connector	91	#13
3	Old Bayside Sidewalk	90	#10
4	Fishing Creek Hiking Loop Trails	74	#14
5	Railway Trail Neighborhood Connector	73	#11
6	Bayview Trail Loop	69	#12
7	Chesapeake Beach Gateway Trail	58	#1
8	Stinnett Trail	44	#16
9	Chesapeake Beach Off-Road Trail	41	#6
10	Bayside Boardwalk & Overlook	40	#15
11	Kellam's Field Trail	39	#3
12	Cox Road Neighborhood Greenway & Sidewalk	34	#7
13	Harbor Road Path	32	#4
14	C Street Neighborhood Greenway	15	#8
15	North Side Residential Greenway	10	#9
16	Richfield Station Neighborhood Greenways	6	#5
17	29th Street Overlook	1	17
18	B Street Overlook	0	18

officials shared during the meeting provided additional input as plan materials were edited and finalized.

Recommendations Review Public Meeting (October 22, 2020)

The second key public input milestone was a recommendations review meeting, which was conducted online via Zoom in response to the Covid-19 pandemic. There was also an extended public comment period. The recommendations review meeting presentation was similar to the WCAG and Town Council presentations, with more time given to detailed review of each project cut sheet. At the conclusion of the meeting, a voting exercise was conducted so that community members could indicate their top 5 priorities.

A total 3 week review and comment period was provided, with materials available both online at the Town's website and in person at the Library or Rolands. Similar voting exercises were conducted online using Survey Monkey and via in-person display boards. The above table summarizes input recieved from the meeting and the public comment period.

Chapter 3
Recommendations

As Chesapeake Beach plans for a future that will foster community pride and welcome visitors, the Town is embracing the power of safe, well-connected pedestrian and bicycle facilities. Residents will enjoy new sidepaths that allow their families to leave the car at home and walk or bike to restaurants, friends' homes, and recreation areas. Visitors will enjoy breathing in the bay breezes and meandering around town along bicycle boulevards and new boardwalks. To set the stage for envisioning this new future, the vision and goals of this plan focus on ACCESS, SAFETY, and PLACEMAKING. Achieving this vision will be accomplished through a mix of treatments inspired by community needs and desires. For the purpose of continuing to build a healthy and sustainable future, the recommendations of this plan are accompanied by design guidelines that can be used as new opportunities emerge – even after the completion of this plan. The design guidelines and network recommendations are organized as three key strategies: BUILDING a Connected Core, ENHANCING Neighborhood Mobility, and EXPANDING Recreational Amenities.

FIGURE 1. A Vision For Connectivity

Legend:
- Connected Core
- Neighborhood Mobility
- Recreational Amenities

Map labels:
E CHESAPEAKE BEACH RD
ST ANDREWS DR
2ND ST
260
261
COX RD
30TH ST
29TH ST
28TH ST
27TH ST
26TH ST
G ST
F ST
E ST
D ST
ELM ST
HARRISON BLVD
SANSBURY DR
BAYSIDE RD
MEARS AVE
HARBOR RD
C ST
B ST
17TH ST
16TH ST
15TH ST
14TH ST
13TH ST
11TH ST
E ST
D ST
F ST
G ST
OLD BAYSIDE RD
DAKOTA AVE
J ST
I ST
H ST
CHESAPEAKE VILLAGE BLVD
BAYSIDE RD

Scale: 0 — 750 — 1,500 — 3,000 Feet
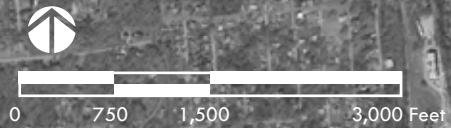
BUILDING A CONNECTED CORE

will establish a "spine" of connectivity. This main line of circulation will branch out across the Town to establish routes suitable for users of all ages and abilities. As the route suitable for users who desire separation and protection, these facilities will likely be high investment projects that, in some cases, will require coordination with MDOT SHA. Some of these recommendations will be suitable for immediate feasibility studies and further exploration with MDOT SHA and the new State guidelines for building a context sensitive roadway. This new and inspiring strategy at the state level focuses on pairing suitable facilities with the anticipated access and mobility of users. Given the number of destinations and nature of Chesapeake Beach, pedestrians are likely to be circulating in the area and therefore, their mobility and safety is critical while vehicular movement can be calmed. Therefore, within the Connected Core will be enhanced Pedestrian Safety Zones. These zones signify additional pedestrian trip density due to the presence of a school, cluster of commercial land uses, or critical crossings. Connected Core routes may also overlap with those identified as Recreation Amenities to accomplish connectivity to key destinations in this coastal and topographically challenging setting.

This diagram provides a quick glance of how the Connected Core will support the branches of Neighborhood Mobility and Recreational Amenities. The Design Guideline section will illustrate which typical treatments can be used in each area to improve safety and circulation.

ENHANCING NEIGHBORHOOD MOBILITY

provides the arms from the circulation spine that reach out into residential areas and provide spurs to key destinations. These treatments vary in capital cost and utilize low vehicular volume routes to direct bicyclists and pedestrians along calm roads that are enhanced with signage and traffic calming to signify the presence of all users and pedestrian safety priority. While the majority of these networks will have small treatments, the links between Connected Core and Neighborhood Mobility areas may include higher capital cost treatments to delicately transition from one environment to the next.

EXPANDING RECREATIONAL AMENITIES

is key to livability and tourism for Chesapeake Beach. The addition of boardwalks and trails will close gaps in daily use trails that support the health of the community. Scenic boardwalks are also a draw for tourists and provide an opportunity to educate the public about the sensitive habitats, natural resources, and changing coastal setting of Maryland's shoreline. In some cases, these recreational amenities will also become critical in the spine network as some users will prefer a trail or boardwalk to less separated facilities.

Exploring further into this chapter, the strategic map expands into facility types that employ the Design Guidelines to foster design development. As the Town uses this tool to explore funding, feasibility, and design, the facilities depicted on the network map will be further refined based on site discoveries, opportunities, and constraints. To jump-start this feasibility process, cut sheets for 16 projects are included as a deeper dive into facility recommendations that can be used in immediate grant applications, or to support design development and move quickly toward implementation.

261 TRAFFIC CALMING

2ND ST

30TH ST
29TH ST
28TH ST
27TH ST

G ST
E ST
F ST
D ST
ELM ST
26TH ST

BAYSIDE

MEARS AVE

TOWN CENTER PEDESTRIAN PRIORITY AREA

CONSERVATION AND INTERPRETATION AREA

HARBOR RD

C ST

17TH ST
16TH ST
15TH ST
14TH ST
13TH ST
11TH ST

B ST

E ST
OLD BAYSIDE RD
F ST
G ST
D ST

DAKOTA AVE

SCHOOL PEDESTRIAN PRIORITY AREA

J ST
I ST
H ST

E CHESAPEAKE BEACH RD

260

ST ANDREWS DR

COX RD

HARRISON BLVD

SANSBURY DR

CHESAPEAKE VILLAGE BLVD

BAYSIDE RD

FIGURE 2. **Specialized Treatment Areas + Design Guidance**

Intersection Improvements

Overlooks

0   750   1,500   3,000 Feet

SUPPORTING THE NETWORK - CREATING HEALTHY PLACES

To realize this new environment of connectivity, several treatments, amenities, and design elements will be combined to create a safer, more walkable Chesapeake Beach. As the Town creates new retail spaces, connects key destinations, and works with residents to enhance safety on neighborhood streets, design guidelines provide a host of options that can be implemented by the Town's staff or used in the design development process as projects emerge in the next few years.

The map on the left illustrates priority areas for Pedestrian Accommodations, End of Trip Bicycle Facilities, Intersection Improvements, Traffic Calming, and Placemaking. Pages 44 - 57 provide a host of design treatments that should be considered in future roadway projects, site development, and enhancements to growth areas.
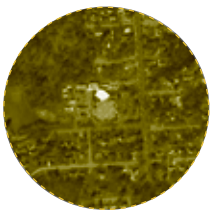
> Within the School Pedestrian Priority Area, safe pedestrian connections are paramount. Any future projects should include sidewalks (p.36), on- and off-road trails (p.42), safe crossings (p.43), traffic calming (p.47), and placemaking elements (p.48), particularly lighting and shade trees.

> In the Town Center Pedestrian Priority Area and 261 Traffic Calming, access to areas of civic use and economic development are key. Wide sidewalks (p.36), safe crossings (p.43), traffic calming (p.47), wayfinding (p. 48), plazas, benches, trees, and bicycle parking (p. 79) are key to connecting people with places to dine, shop, and recreate.

> Safe Intersections and Crossings (p.43) are integral to a connected and safe network of pedestrian and bicycle facilities. A variety of treatments should be explored and coordinated with SHA to improve visibility and organization.
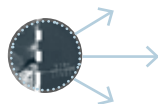
> Overlooks (p.73) connect residents and visitors with the scenic view of the Chesapeake and present an opportunity for interpretive signage and environmental education.
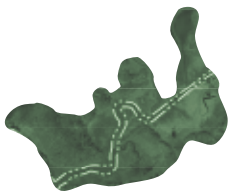
> Conservation and Environmental Awareness should be incorporated into every improvement given the coastal environment. In particular, boardwalks and trails in this area are opportunities to bring awareness to sea level rise, endangered species, and sensitive habitats.

Following the Design Guidelines are more specific network recommendations by treatment type with nine key catalyst projects that are ripe for seeking grant funding, rolling into the design process, or initiating conversation with project partners, including SHA.

DESİGN GUİDELİNES

Each recommendation within this plan, and any design in the future, should consider the land use, context, and users prior to selecting facility types and completing design. The guidelines below are organized categorically as: Designing for Pedestrians, Designing for Bicyclists, Designing Shared-use Facilities, Creating Safe Crossings and İntersections, Calming Traffic, and Placemaking. Since many of the treatments and facilities are applicable for use in the Connected Core, Pedestrian Safety Zones, Neighborhood Mobility Zones, and as Recreational Amenities, icons will signify where each is typically used. As always, through engineering exploration and design development, additional facilities, experimental treatments, and modifications are expected.

Designing For Pedestrians

> Treatments Suitable For

PEDESTRIAN PRIORITY ZONES

TOWN CENTER PEDESTRIAN PRIORITY AREAS

A safe and well-connected network should accommodate pedestrians of all ages and abilities. This affects pedestrians' physical ability, walking speed, and environmental perception. Children have lower eye height and walk at slower speeds than adults. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assistive devices for walking stability, sight, and hearing.

The Manual of Uniform Traffic Control Devices (MUTCD) recommends a normal walking speed of three and a half feet per second when calculating the pedestrian clearance interval at traffic signals. Typical walking speeds can drop to three feet per second in areas with older populations and persons with mobility challenges. While the type and degree of mobility challenges varies greatly across the population, the transportation system should accommodate these users to the greatest reasonable extent.

SIDEWALKS

As the most fundamental element of the walking network, sidewalks provide a zone for pedestrian travel that is separated from vehicle traffic, typically by a curb and gutter as the most basic element of division. Attributes of well-designed sidewalks include the following:

Accessibility: A network of sidewalks should be accessible to all users. Roadway crossing distances and distances between crossings

should be minimized to integrate and encourage pedestrian travel. Features that are compliant with the Americans with Disabilities Act (ADA), such as curb ramps, are necessary to improve accessibility.

Safety: Design features of the sidewalk should allow pedestrians to have a sense of security and predictability. Sidewalk users should not feel at risk of harm due to the presence of adjacent traffic. Edge conditions play a large role in either contributing to or detracting from an overall sense of safety.

Continuity: Walking routes should be obvious and should not require pedestrians to travel out of their way unnecessarily.

Landscaping: Plantings and street trees contribute to the overall psychological and visual comfort of sidewalk users and should be designed in a manner that contributes to the safety of pedestrians.

Drainage: Sidewalks and curb ramps should be designed so that standing water is eliminated or minimized.

Social space: There should be places for standing, walking, and sitting. The sidewalk area should be a place where adults and children can safely participate in public life.

Quality of place: Sidewalks should contribute to the character of neighborhoods and business districts.

Width: Two people should be able to walk side-by-side along a sidewalk—either as a pair walking together or as one person passing another. In areas of high pedestrian use, sidewalks should accommodate the larger volume of walkers.

TOWN CENTER SIDEWALK ZONES

The sidewalk area can be segmented into four distinct zones. The concept of sidewalk zones should be followed for a sidewalk to function properly and provide safe passage for all users. Other important considerations include sidewalk obstructions, driveways, roadway width, and access through construction zones.

In the Town Center, streetscape elements are key to providing safe and comfortable spaces for people to walk, gather, and enter places of business. Frontage zones are the welcome mats for businesses and can be populated with planters, special paving, café tables, and benches. The through zone should be clear and follow general sidewalk guidelines. The street furniture zone is a place where lighting, wayfinding, kiosks, benches, trash and waste receptacles, and bicycle amenities may be located. Buffer zones can include the pedestrian through zone or may be small separations between the sidewalk area and vehicular movement or parking. (See Placemaking for sidewalk amenities.)

FRONTAGE ZONE

PEDESTRIAN THROUGH ZONE

STREET FURNITURE ZONE

BUFFER ZONE
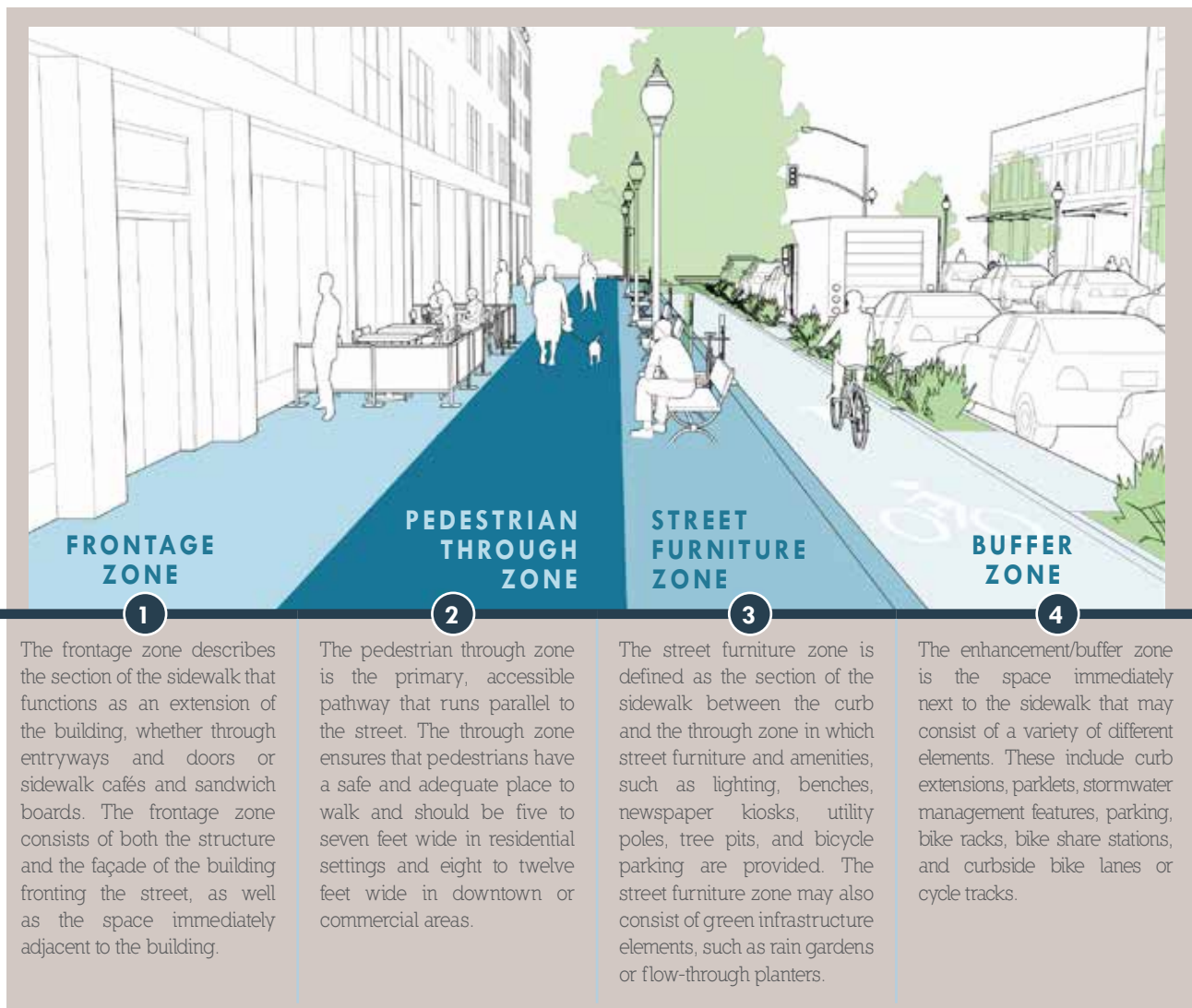
1 The frontage zone describes the section of the sidewalk that functions as an extension of the building, whether through entryways and doors or sidewalk cafés and sandwich boards. The frontage zone consists of both the structure and the façade of the building fronting the street, as well as the space immediately adjacent to the building.

2 The pedestrian through zone is the primary, accessible pathway that runs parallel to the street. The through zone ensures that pedestrians have a safe and adequate place to walk and should be five to seven feet wide in residential settings and eight to twelve feet wide in downtown or commercial areas.

3 The street furniture zone is defined as the section of the sidewalk between the curb and the through zone in which street furniture and amenities, such as lighting, benches, newspaper kiosks, utility poles, tree pits, and bicycle parking are provided. The street furniture zone may also consist of green infrastructure elements, such as rain gardens or flow-through planters.

4 The enhancement/buffer zone is the space immediately next to the sidewalk that may consist of a variety of different elements. These include curb extensions, parklets, stormwater management features, parking, bike racks, bike share stations, and curbside bike lanes or cycle tracks.

Designing For Bicyclists

> Treatments Suitable For

**PEDESTRIAN
PRIORITY ZONES**

**TOWN CENTER
PEDESTRIAN
PRIORITY AREAS**

Bicyclists are much more affected by poor facility design, construction, and maintenance practices than motor vehicle drivers. By understanding the unique characteristics and needs of bicyclists, a design can provide high-quality facilities and reduce threats to bicyclists.

It is important to consider bicyclists of all skill levels. A bicyclist's skill level greatly influences expected speeds and behavior—both in separated and shared facilities. Bicycle infrastructure should accommodate a range of users, making decisions for facilities with the goal of providing a comfortable experience for people of various abilities.

In Chesapeake Beach, the Connected Core should include low-stress facilities, where possible, or alternative "one-off" routes should be provided to connect the same key destinations. These "one-off" routes of the neighborhood mobility network consist of facilities like neighborhood greenways that are in-road and located on very low volume, low-speed streets that act as more of a shared roadway environment for all users. Traffic calming measures and wayfinding help enhance the sense of place while alerting motorists that these routes are for pedestrians, bicyclists, and non-motorized transportation choices, as well as vehicles.

Areas adjacent to existing or future schools, community centers, retail establishments, and cultural destinations should also accommodate residents and visitors who pedal for daily

FIGURE 3.   **Nearby Bicycle Facilities in North Beach**

transportation or as a recreational activity. When planning for and designing bicycle facilities, it is important to understand the types of bicyclists in the area, where they will be interested in traveling to, and the level of comfort they require in a facility.

The bicycle planning and engineering industry uses several systems to classify bicyclists and assist in understanding their needs and infrastructure preferences. The conventional framework classifies riding levels of a "design cyclist" as Advanced, Basic, or Children. However, a more nuanced understanding of the bicycling population was developed by Roger Geller in Portland, Oregon, and is supported by data collected nationally since 2005. This classification provides the following alternative categories for understanding varying attitudes towards bicycling in the United States:

Strong and Fearless (about 1%): Characterized by bicyclists that will typically ride anywhere, regardless of roadway conditions or weather. These bicyclists can ride faster than other user types, prefer direct routes, and will typically choose roadway connections—even if shared with vehicles—over separate bicycle facilities such as shared-use paths.

Enthused and Confident (about 7%): This user group encompasses bicyclists who are comfortable riding on all types of bikeways but usually choose low-traffic streets or shared-use paths, when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists such as commuters, recreationalists, racers, and utilitarian bicyclists.

Interested, But Concerned (about 60%): This user type comprises the bulk of the cycling population and represents bicyclists who typically only ride a bicycle on low-traffic streets or multi-use trails under favorable weather
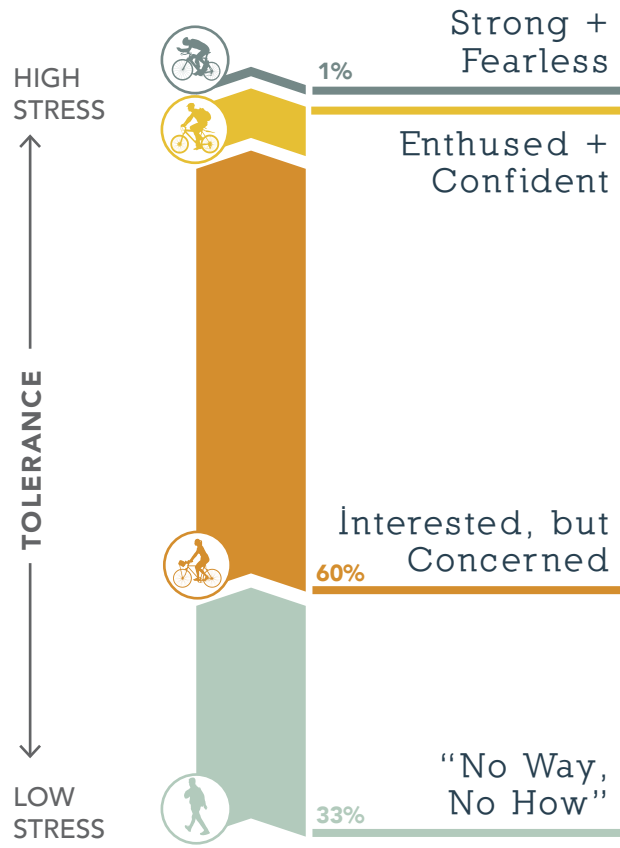
FIGURE 4.   **Bicyclist Level of Comfort**

conditions. These bicyclists perceive significant barriers to their increased use of cycling, specifically traffic and other safety issues. These people may become "Enthused & Confident" with encouragement, education and experience, and higher-level facilities, such as buffered and protected bike lanes.

No Way, No How (about 30%): Persons in this category are not bicyclists and perceive severe safety issues with riding in traffic. Some people in this group may eventually become regular cyclists with time and education. A significant portion of these people will not ride a bicycle under any circumstances.

END OF TRIP FACILITIES

No matter the type of facility or level of experience, end of trip facilities are critical in completing the bicycle network. End of trip facilities include safe access, bicycle parking or lockers, toilets, showers, repair stations, drinking water, and home delivery services. In Chesapeake Beach, the key end of trip facilities are bicycle parking and, as the tourism industry grows, home delivery service to enable visitors to ship packages home. Parking may include racks, or bicycle corrals—multiple racks in a marked space within the street.

BICYCLE FACILITIES

Consistent with bicycle facility classifications throughout the nation, the facility types presented in the these images identify classes of facilities by degree of separation from motor vehicle traffic.

In general, the wider the roadway, the higher the traffic volume, and the greater the traffic speed, the more separation is necessary to provide safe and comfortable riding conditions for bicyclists. In Chesapeake Beach, along roadways that are not in low-volume neighborhoods, the maximum level of separation possible should be explored to accommodate young, retired, and visiting bicyclists.

The following section provides a sample photograph and short description of facilities. Not every facility is recommended in Chesapeake Beach in the short-, mid-, and long-term, however, as the area grows, those facilities included below that do not appear in the recommended network can be explored for feasibility and design. It should be noted that the least separated facilities do not necessarily indicate a trade-off in safety. On low-volume, low-speed roadways with residential land use, shared spaces and neighborhood greenways are suitable for accommodating all levels of bicyclists.

Neighborhood Greenways

▬ ▬ ▬ ▬ Recommended In This Plan

Neighborhood Greenways are a type of shared roadway designated with pavement markings, signage, and other treatments (e.g., directional signage, traffic diverters, chicanes, chokers) that effectively reduce vehicle speeds or volumes. These facilities are easy to implement with signage and pavement markings and low cost, and are applicable to many residential streets. A branded wayfinding sign package should be developed to guide users along a safe route with slopes that are manageable for a variety of fitness levels. A variety of these "quick-win" projects are illustrated in the recommendation cut sheets within this chapter.

Bike Lanes and Separated Bikeways

While not recommended in this current plan, a variety of in-road facilities may be appropriate one day. Providing dedicated space for bicyclists in a lane, buffered lane, or separated facility enables predictable movements by both bicyclists and motorists when operating in the same space.

Off-Road Trails

▬▬▬ Recommended In This Plan

These dedicated pedestrian and bicycle travelways are similar to on-road trails in width and surface type. Off-road trails may also be crushed stone, mulch, permeable pavers, permeable concrete, or permeable rubber composite. The surface type should be selected based on soil condition, maintenance, and potential for inundation.

On-Road Trails, Shared Use Paths, and Sidepaths

▬▬▬ Recommended In This Plan

These minimum 10' wide paths can take shape in many ways, but typically are separated from the roadway with a vegetated buffer. Striping may or may not be present to separate direction of travel or modes of transportation. Often these on-road trails connect to other bicycle facilities, sidewalks, or off-road trails and may be asphalt or concrete.

Boardwalks

▬▬▬ Recommended In This Plan

Boardwalks are useful extensions of on- and off-road trail systems or sidewalk networks. In conditions where sensitive environments, challenging topography, or water levels prohibit surface trails, these systems can be built to preserve light for subaquatic vegetation and construction methods can reduce impacts to sensitive environments.

Creating Safe Crossings and Intersections

CORNERS AND CROSSINGS

The point where a person comes to cross a roadway is a critical moment for ensuring pedestrian safety. Attributes of pedestrian-friendly corner and crossing design include:

Clear Space: Roadway corners should be clear of obstructions. They should have enough room for ADA-compliant curb ramps, for transit stops (where appropriate), and for street conversations where pedestrians might congregate.

Accessibility: All corner features, such as curb ramps, landings, call buttons, signs, symbols, markings, and textures should meet accessibility standards.

Visibility: It is critical that pedestrians on the corner have a clear view of vehicle travel lanes and that motorists in the travel lanes can easily see waiting pedestrians.

Legibility: Symbols, markings, and signs used at corners should clearly indicate what actions the pedestrian should take.

Separation from Traffic: Corner design should effectively discourage turning vehicles from driving over the pedestrian area. Crossing distances should be minimized.

Lighting: Good lighting contributes significantly to overall visibility, legibility, and accessibility.

These attributes will vary with context but should be considered in all design processes.

MD 260 and MD 261 must accommodate truck turning movements and safe crossings. See recommendations cut sheets for improvement options.

INTERSECTION IMPROVEMENTS

The quality of treatments at an intersection can significantly affect the efficiency, comfort, and safety of all modes as they pass through the area. The treatments needed to improve an intersection will depend on factors such as vehicle traffic, the importance of the connection, and the age and abilities of users. Special attention should be paid to the design and material treatments to provide comfortable and safe bicycle and pedestrian crossings. Intersection improvements include:

Minimize Curb Radius: The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance, and requires vehicles to slow down more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances. One effective way of minimizing the curb ramp radius is by adding curb extensions.

Continental Crosswalks: A marked crosswalk signals to motorists that they must stop for pedestrians. It also encourages pedestrians to cross at designated locations. Installing crosswalks, alone, will not necessarily make crossings safer, especially on multi-lane roadways. However, continental crosswalks make crossings more visible to motorists and add a sense of security for pedestrians. Continental crosswalks should be combined with advanced stop bars and other tools to increase safety. At mid-block locations, crosswalks can be marked where there is a demand for crossing and there are no nearby marked crosswalks.

Median Pedestrian Refuge: Median pedestrian refuges at intersections provide pedestrians with a secure place to stand in case they are

unable to walk the entire distance of the crossing in one movement. This is especially important for young, elderly, and disabled users in areas where crossing distances are great. Refuge islands allow pedestrians to cross one direction of traffic at a time, minimizing pedestrian exposure by shortening the crossing distance.

Curb Extension/Bulb-Outs: Curb extensions minimize pedestrian exposure during crossing by shortening crossing distance and giving pedestrians a better chance to see and be seen before committing to crossing. They are appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.

Intersection Parking Control: Parking control involves restricting or reducing on-street parking near intersections with high pedestrian activity. Locating parking away from the intersection improves motorists' visibility on the approach to the intersection and crosswalk. Improved sight lines at intersections reduces conflicts between motorists and pedestrians. This can be accomplished, in part, through the use of bulb-outs.

ADA-Compliant Curb Ramps: Curb ramps are design elements that allow all users to make the transition from the street to the sidewalk. There are several factors to be considered in the design and placement of curb ramps at corners. Properly designed curb ramps ensure that the sidewalk is accessible from the roadway. A sidewalk without a curb ramp can be useless to someone in a wheelchair, forcing them back to a driveway and out into the street for access.

MID-BLOCK CROSSING TREATMENTS

Active Warning Beacons: Active warning beacons are pedestrian or bicyclist-actuated illuminated devices designed to increase motor vehicle yielding compliance at crossings of multi-lane or high-volume roadways. Types of active warning beacons include conventional circular yellow flashing beacons, in-roadway warning lights, or Rectangular Rapid Flash Beacons (RRFB).

Example of bulbout reducing pedestrian crossing distance.

Example of Rapid Flashing Beacon.
Photo credit Stacy Barefoot.

In-Street Pedestrian Crossing Signs: In-street pedestrian crossing signs reinforce the presence of crosswalks and remind motorists of their legal obligation to yield for pedestrians in marked or unmarked crosswalks. This signage is often placed at high-volume pedestrian crossings that are not signalized. This is a low-cost treatment that has shown significant improvements to driver slowing and yielding rates at crosswalks.

BICYCLE AND PEDESTRIAN SIGNALIZED CROSSINGS

Countdown Pedestrian Signals: Pedestrian signal indicators demonstrate to pedestrians when to cross at a signalized crosswalk. Ideally, all traffic signals should be equipped with pedestrian signal indications except where pedestrian crossing is prohibited by signage.

Countdown pedestrian signals are particularly valuable for pedestrians, as they indicate whether a pedestrian has time to cross the street before the signal phase ends. Countdown signals should be used at all signalized intersections. Designers should allow greater signal timing for crossing along large roadways, areas with a high frequency of pedestrian crossing, and areas where seniors or disabled persons are expected.

Accessible pedestrian signals should be used in locations where visual or hearing-impaired individuals can be expected. A leading pedestrian interval can be used where pedestrians are allowed in the intersection three seconds in advance of vehicles in areas with frequent motor vehicles and pedestrian traffic.

Calming Traffic

Traffic calming measures should be used in all pedestrian priority zones, such as where traffic may be traveling faster than the indicated speed limit, where there is an abundance of bicycle and pedestrian movements, at crossings, and along neighborhood greenways. Below is a mix of treatments that can be used as needed and as appropriate for the context.

Motor vehicle speeds affect the frequency and severity of bicycle and pedestrian crashes that can occur on a roadway. Slower vehicular speeds improve a motorist's ability to see and react to non-motorized users, minimize conflicts at driveways and other turning locations, and, in many cases, improve vehicular throughput. Maintaining slower motor vehicle speeds and reducing traffic in areas where pedestrian and bicycle traffic are typically high can greatly improve comfort and safety for non-motorized users on a street.

Traffic calming treatments can be segmented into two categories. ''Hard'' traffic calming refers to engineered measures taken with the sole intent of slowing traffic and reducing conflict. ''Soft'' traffic calming includes educational and enforcement measures, as well as placemaking design measures that have the added effect of traffic calming.

HARD TRAFFIC CALMING TREATMENTS

- **Lane narrowing:** Lane narrowing is when roadway lane width is reduced through the striping of a shoulder or the addition of bike lanes. This helps reduce traffic speed and adds dedicated space for bicyclists.
- **Pinchpoints/neckdowns:** These are curb extensions placed on both sides of the street, narrowing the travel lane and encouraging all road users to slow down.

When placed at intersections, pinchpoints are known as chokers or neckdowns. They reduce curb radii and further reduce motor vehicle speeds.

- **Bicycle-friendly speed humps:** these raised, in-road bumps are used in primarily residential areas. When bicycle-friendly (or school bus-friendly) speed humps are provided, a street-level cut out is provided to allow bicycles or buses to pass through at street grade, but passenger vehicles would encounter the vertical bump in the street.

SOFT TRAFFIC CALMING TREATMENTS

- **Street trees, landscaping, and beautification:** Street trees, landscaping, and other aesthetic elements such as art or banners produce a feeling of enclosure and add visual stimuli along a roadway corridor. Green elements often have added environmental benefits.
- **Street surface material:** Textured street materials, such as pavers, create visual stimuli and a feeling of a special district or pedestrian-oriented area which can help to calm traffic.
- **Appropriately-scaled street lighting:** Appropriately-scaled street lighting can provide a safer, more inviting and more visible environment for all roadway users. Pedestrian-scaled street lighting, along with other improvements such as street trees, can alert motorists to a potential presence of pedestrians and bicycles, slowing down traffic in these areas.
- **Enforcement and awareness measures:** Enforcement and awareness measures—such as signage, speed traps, and educational programs—can help to reduce speeding in problem areas. However, the

effectiveness of these programs depends on adequate frequency and duration.

Placemaking

The elements below should be incorporated into every trail, pedestrian priority zone, and roadway improvement. Each connectivity project will have varying levels of opportunity and feasibility for adding these elements that contribute to resident pride, user comfort, safety for all modes of travel, community identity, and economic vitality.

STREET TREES

A robust tree canopy is one of the great contributors to a healthy and livable small town landscape. Trees provide many ecological benefits in terms of stormwater flow regulation and water quality treatment. Mechanisms for these benefits include interception, transpiration, and increased infiltration. Additional benefits provided by trees include enhancing the visual and spatial character of a place; improving air quality; reducing noise and light pollution; traffic-calming; reducing the heat island effect; and encouraging foot traffic in commercial areas. Trees provide numerous habitat benefits, including refuge from predators, habitat patches, and food and nesting resources. Trees enhance the quality of open space and provide visual relief within the urban environment, leading to stress reduction and other health benefits. A healthy urban forest also increases property values. Because trees can take many years to develop a full canopy, preserving healthy existing trees wherever practicable is a cost effective and efficient way to obtain the most value from trees.

LIGHTING

Pedestrian-scale lighting improves visibility for both pedestrians and motorists, particularly at intersections. Light poles and banners should be selected to enhance the surrounding context and complement existing architecture or natural surroundings. It is appropriate to use pedestrian-scale lighting in all areas of high pedestrian activity unless the area is a trail or facility located in a sensitive habitat where lighting would disturb migration, mating, or other patterns of activity for wildlife.

Pedestrian-scale lighting should be in the Street Furniture Zone so as not to impede pedestrian traffic in the through area. Lamp fixtures should be at a height of about 12-14 feet, and poles should be spaced approximately 25-50 feet apart depending on the intensity of lights. Lamp fixtures should be shaded so as to project light downward and provide sufficient illumination of the sidewalk while limiting excess light pollution. Illumination should be warm and moderate, rather than dim or glaring, and provide a balanced coverage of the corridor and surrounding area for comfort and security.

SITE FURNISHINGS

Site furnishings are critical components of a socially and economically vibrant streetscape, accommodating a wide range of needs and activities. Providing benches at key rest areas and viewpoints encourages people of all ages to use the walkways by ensuring that they have a place to rest along the way. Bike racks accommodate bicyclists traveling to their destinations. Trash and recycle receptacles promote cleanliness and sustainability. Landscaped planters and movable furniture also offer aesthetic and placemaking benefits to the sidewalk. Site furnishing packages should be standardized depending on the context (trails and boardwalks may use different styles from areas that are "in town".)

WAYFINDING

The ability to navigate through a place is informed by landmarks, natural features, and

other visual cues. Signs along a corridor exist to raise awareness for key destinations and to assist out-of-town users in building confidence in their travel choices. Wayfinding should be designed as a family of sign types for motorists, bicyclists, and pedestrians. On-road and off-road signs can be designed differently, but should have a unifying symbol, color palette, or style. Trail wayfinding signage should indicate the location of destinations, the travel distance/time to those destinations, and the location of travel. Wayfinding signage can also improve the safety and awareness of bicyclists and pedestrians by alerting motorists that they are driving along a bicycle route or pedestrian emphasis area.

Wayfinding signs are typically placed at key locations leading to and along important transportation routes. It is recommended that these signs be posted at a level where the intended users may best view the information. As such, pedestrian, bicyclists, and motor vehicle wayfinding signs should be posted at various reading heights.

Gateway signage is also an important component to a wayfinding system. A gateway sign reflects the City's brand and should be designed to reflect the historical roots and vibrant future.

BIORETENTION

Bioretention facilities use amended soils and vegetation to collect, convey, and clean polluted runoff from the streets. By reducing the peak rate and the total runoff volume, these facilities decrease the negative downstream or downslope impacts of storm events. With the right underlying geologic conditions, bioretention systems can be designed to clean stormwater then allow it to infiltrate, thus decreasing transport of some pollutants and recharging groundwater supply. In the right-of-way, bioretention systems can be integrated into site design as linear features (e.g., bioretention swales) or as cells (e.g., rain gardens and stormwater planters). Additional community benefits from bioretention facilities can include improved property values, increased habitat, a better environment for walking, and traffic calming.

Opportunity areas for using bioretention systems in streets include areas within traffic calming curb bulb-outs, in roadside bioswales, and in place of standard landscape plantings on streets. The ground water level will dictate if bioretention facilities are appropriate in Chesapeake Beach.

BIORETENTION PLANTERS

Bioretention planters have a defined shape and vertical sides, and may employ an impermeable bottom layer or enclosure. The planters are often constructed of concrete, making them well-suited for in-town applications where water needs to be directed away from building foundations. Stormwater planters consist of a planter box made of sturdy material, amended soils, a gravel drainage layer, and plants. An overflow is incorporated to manage higher flows and convey runoff to the public storm drain system, either via a perforated pipe or via surface flow. They are particularly effective at handling low-intensity storms.

In the right-of-way, stormwater planters are recommended adjacent to buildings, sidewalks, and pedestrian plazas where flow control is a significant concern and space is at a premium. Planters can also be designed to serve a conveyance function in the right-of-way where there is insufficient width to provide sloped sides (i.e., a swale) or the grade would be too steep. Stormwater planters provide aesthetic benefits and, depending on plant selection and design, can provide water, food, and nesting materials for birds.
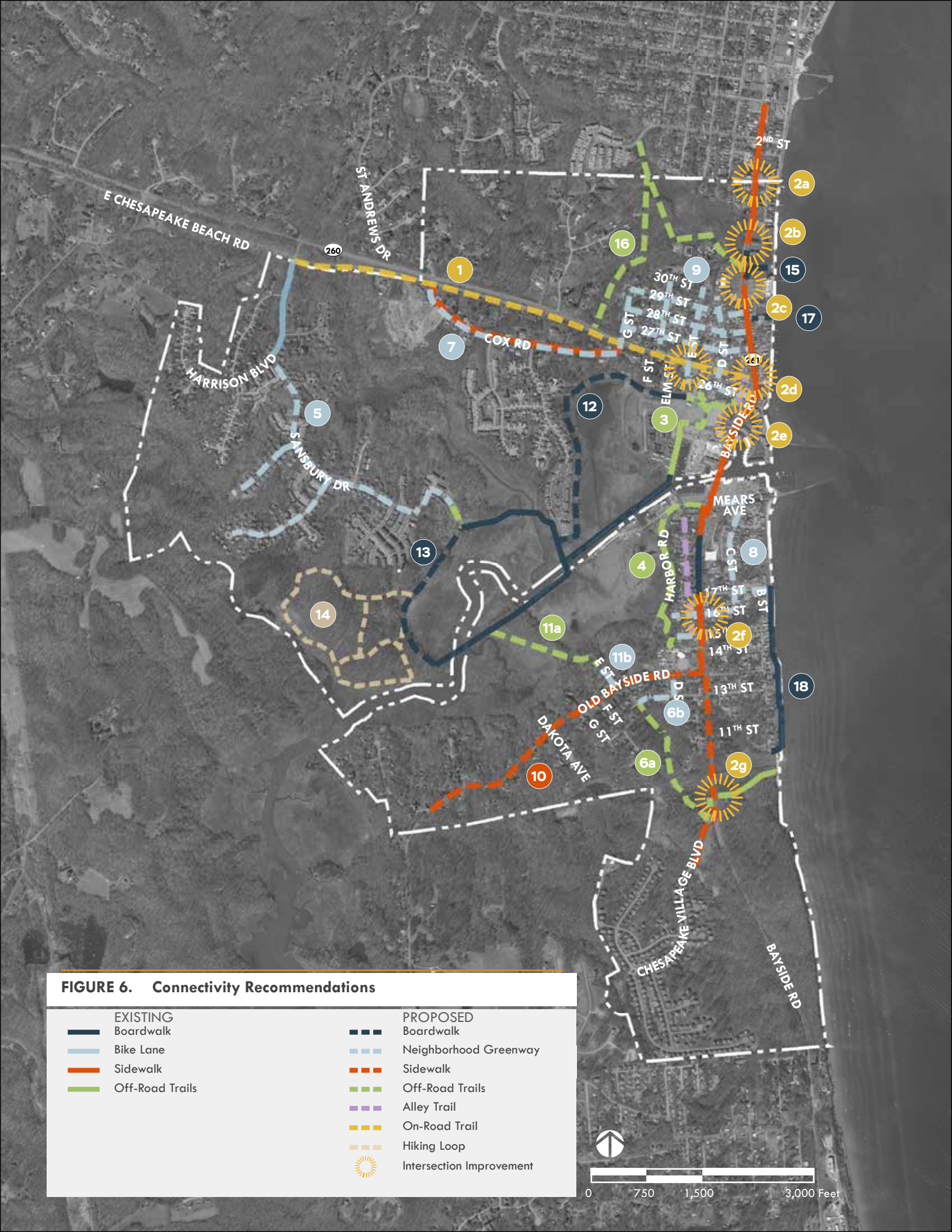
FIGURE 6. Connectivity Recommendations

EXISTING

- Boardwalk
- Bike Lane
- Sidewalk
- Off-Road Trails

PROPOSED

- Boardwalk
- Neighborhood Greenway
- Sidewalk
- Off-Road Trails
- Alley Trail
- On-Road Trail
- Hiking Loop
- Intersection Improvement

0   750   1,500   3,000 Feet
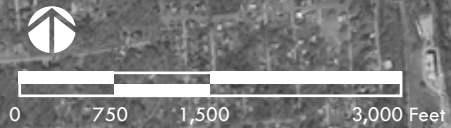
IMPLEMENTING DESIGN GUIDELINES

Planning for a safe and well connected network begins with understanding key destinations, evaluating space available, creatively working around natural features and environmental challenges, identifying opportunities for using space differently, and collaborating with the community to understand their vision for the future of Chesapeake Beach.

Expanding upon the theoretical network of Connected Core, Neighborhood Mobility, and Recreational Amenities, the map to the left (Connectivity Recommendations) illustrates network recommendations for walking and bicycling. Facilities vary from on-road neighborhood greenways along slow, low-volume residential streets to fully separated on- and off-road trails that provide the highest level of perceived comfort for users of all ages and abilities - and are particularly attractive for tourists.

A variety of design resources are available to guide the Town through the design process for each facility, including Federal Highway Administration's **Small Town and Rural Multimodal Network** guide. Standard manuals including the Association of State Highway and Transportation Officials (AASHTO) and MUTCD should also be referenced by design professionals to provide a design that is safe and follows industry best practices for engineering.

Implementing groups of projects can be efficient and is budget conscious - creating economies of scale for labor, mobilization, and material transport. The following table illustrates project groupings; a phasing chart is located in the Implementation Chapter. In addition to the facility map and project table, nine catalyst projects (illustrated on the following pages) were selected for further exploration of opportunities, constraints, and community impacts.

FROM	TO	IMPROVEMENT	TOTAL COST	
			LOW	HIGH
1 - CHESAPEAKE BEACH GATEWAY TRAIL				
Harrison Blvd.	G St.	Asphalt Trail (12'), Wayfinding, Amenities	$$$	$$$$$
2 - SAFE CROSSINGS				
MD 261 @ Chesapeake Village Blvd.	MD 261 @ First St.	Intersection Improvements	$$$	$$$
3 - KELLAM'S FIELD TRAIL				
Gordon Stinnett Ave.	MD 261 @ 26th St.	Asphalt Trail (12'), Wayfinding, Amenities	$$$	$$$$
4 - HARBOR ROAD PATH				
Harbor Rd.	15th St. @ 16th St.	Asphalt Trail (12')	$$$	$$$
5 - RICHFIELD STATION NEIGHBORHOOD GREENWAYS				
Harrison Blvd.	Railway Trail	Wayfinding, Traffic Calming	$	$
6 - CHESAPEAKE VILLAGE OFF-ROAD TRAIL				
Chesapeake Village Blvd.	Old Bayside Rd.	Asphalt Trail (12'), Wayfinding, Traffic Calming, Amenities	$$$	$$$

FROM	TO	IMPROVEMENT	TOTAL COST	
			LOW	HIGH
7 - COX ROAD NEIGHBORHOOD GREENWAY AND SIDEWALK				
St Andrews Dr.	G St.	Sidewalk, Wayfinding, Traffic Calming	$$$	$$$
8 - C STREET NEIGHBORHOOD GREENWAY				
Boardwalk	Mears Ave.	Wayfinding, Traffic Calming	$	$
9 - NORTH SIDE RESIDENTIAL GREENWAY				
MD 260 @ Cox Rd.	MD 261 @ 29th St.	Wayfinding, Traffic Calming	$$	$$
10 - OLD BAYSIDE TRAIL				
I St.	MD 261	Asphalt Trail (12'), Amenities	$$$$$	$$$$$
11 - RAILWAY TRAIL NEIGHBORHOOD CONNECTOR				
Bayside Rd.	Railway Trail	Asphalt Trail (12'), Wayfinding, Traffic Calming, Amenities	$$$	$$$
12 - BAYVIEW TRAIL LOOP				
Railway Trail	Kellam's Field	Boardwalk, Amenities	$$$$	$$$$$
13 - RICHFIELD STATION CONNECTOR				
Railway Trail	Neighborhood Connector Trail (Crest View Ln.)	Boardwalk, Amenities	$$$$	$$$$$
14 - FISHING CREEK HIKING LOOP TRAILS				
Railway Trail	Fishing Creek Area	Natural Surface Trails, Trailblazing	$	$
15 - BAYSIDE BOARDWALK & OVERLOOK				
Bay Crest Ct.	Seagate Sq.	Boardwalk, Overlook, Wayfinding, Amenities	$$$	$$$$
16 - STINNETT TRAIL				
MD 260 & MD 261	Glouster Dr.	Asphalt Trail (12'), Wayfinding, Traffic Calming	$$$	$$$
17 - 29TH STREET OVERLOOK				
29th St. at Waterfront	N/A	Asphalt Trail (12'), Wayfinding, Traffic Calming	$$	$$$
18 - B STREET OVERLOOK				
Between Old Bayside Road and 13th Street	N/A	Asphalt Trail (12'), Wayfinding, Traffic Calming	$$	$$$

Notes

> At the time of this Plan's adoption, the Maryland Department of Natural Resources (DNR) had not provided an official opinion on the addition of a boardwalk from the existing bayside boardwalk to Brownies Beach. Currently, the regulations do not support this addition. Further official documentation with DNR can be explored, however, initial coordination was not favorable.

> Project 1 is a conceptual design intended to connect all neighborhoods along MD 260 (see cut sheet on following pages). Depending on the selected design, crossings and connections should be included for neighborhoods north and south of MD 260. It is recommended that the Town begin coordination with MDOT SHA in the immediate term.

TOWN GATEWAY

LOCATION:
South Side of MD 260, West of the Town Center

TIMEFRAME:	PROJECT COSTS:
long-term	$$$

DESCRIPTION:
Three alternatives for an on-road trail along south side of MD 260 between Harrison Boulevard and Town Center. Cost estimate includes trail and roadway improvements, lighting, vegetation and trail amenities.

NOTED CHALLENGES: FLOODPLAIN, TRAFFIC, COST

PARTNERS: MDOT SHA, NEIGHBORS, BUSINESS OWNERS

1 Project Number

Project Area

Connected Core

remove two-way left-turn lane and construct median at town gateway

TOWN CENTER PEDESTRIAN PRIORITY AREA

see options a-c for sidepath connection to Harrison boulevard

repurpose median lane to provide a 10 ft sidepath with grass buffer along south side of street

A PATHWAY TO MAIN STREET

MD Route 260 (Chesapeake Beach Road) is a state highway that welcomes residents and visitors to the Town of Chesapeake Beach by car, but currently lacks a dedicated space for residents to walk or bike into the Town Center. A new pathway linking Richfield Station, Highlands, Heritage Woods, Bayview Hills and surrounding neighborhoods will offer a safe and comfortable environment for residents of the western neighborhoods to recreate and travel along the Town's western gateway.

Within the Town Center, a pedestrian priority area will be created by narrowing the street, and by repurposing existing median space to provide a wide sidepath with grass buffers. Attention to pedestrian crossing locations will be highlighted using horizontal alignment shifts at intersections that discourage speeding, supplemented by high-visibility crosswalks, signs, and rapid flashing beacons.

West of the Town Center, MD Route 260 is a divided highway, offering more potential opportunities to construct a sidepath, but with varying degrees of complexity and cost. Three alignment options are presented on the following pages, highlighting the benefits and challenges of each.

BENEFITS

- Repurposes existing road space to introduce a sidepath
- Visually informs a transition from highway to main street entering the town center, calming traffic
- Provides opportunities for safe recreation and travel on foot or by bicycle

CONSIDERATIONS

- Vegetated medians and left-turn lanes would be eliminated. Landscaping opportunities should be explored.
- Design to accommodate drainage and stormwater
- Maintain utilities and avoid impacts where possible

construct sidewalk along E Street supporting neighborhood greenway

shift travel lanes approaching intersections to discourage speeding and promote yielding at crosswalks and bike boulevard crossings

shorter crosswalks reduce crossing times and exposure to traffic
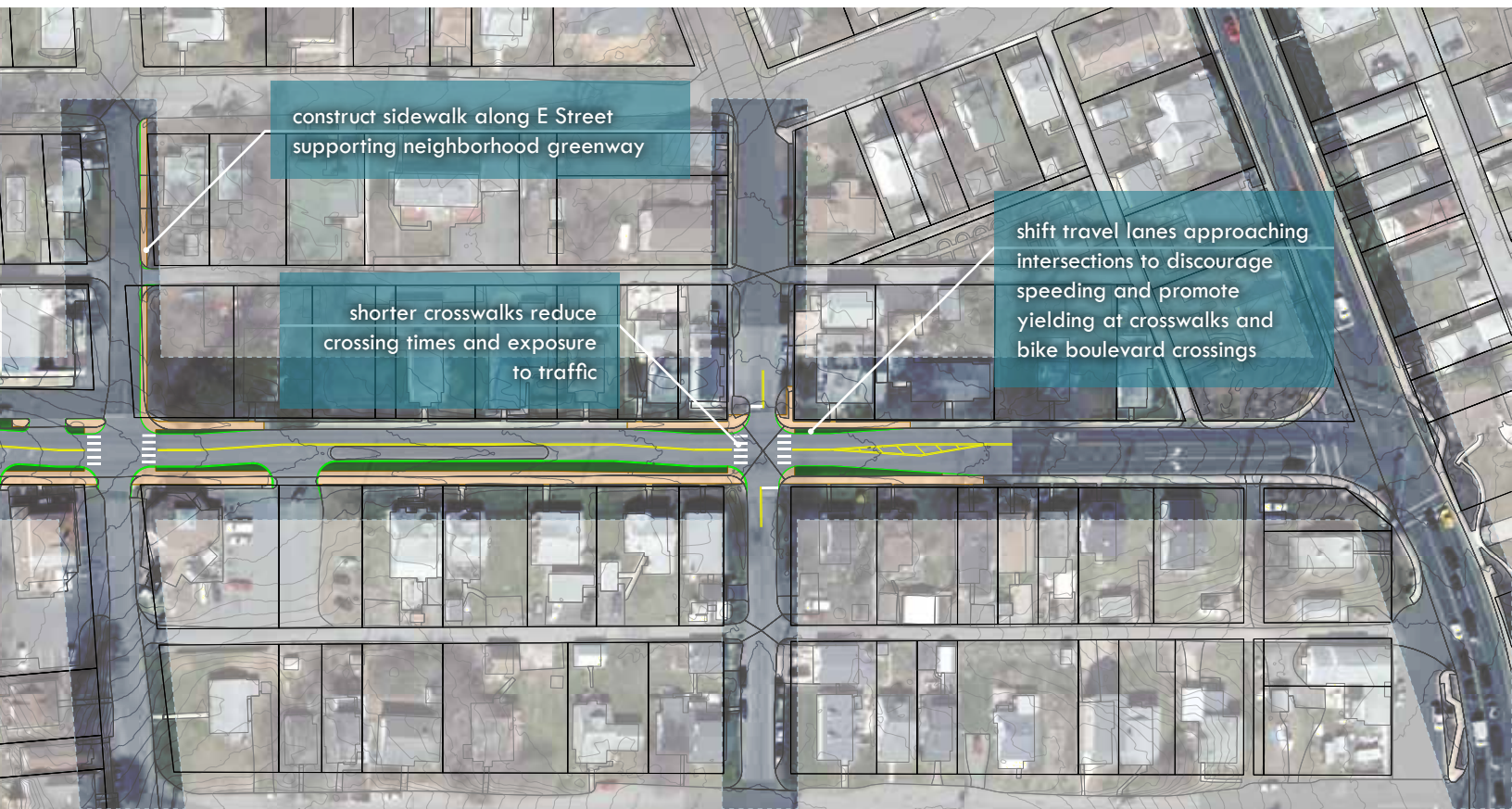
TOWN GATEWAY

OPTION A: On-Road Trail
Vehicular flow remains the same. A sidepath is added to the eastbound side of MD 260 to provide separate circulation for pedestrians and bicyclists.
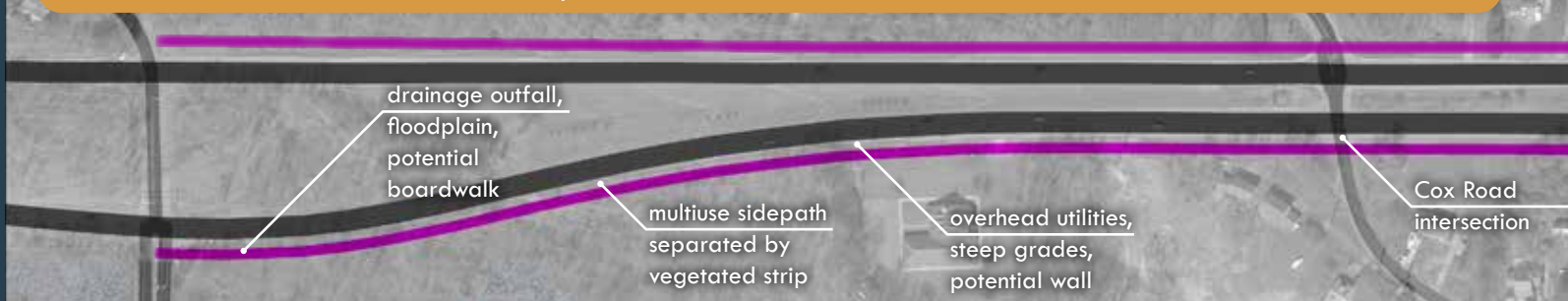
drainage outfall, floodplain, potential boardwalk

multiuse sidepath separated by vegetated strip

overhead utilities, steep grades, potential wall

Cox Road intersection

TYPICAL SECTION DIMENSION AND CONDITIONS WILL VARY

EXISTING EASTBOUND 260

2' | 12' Travel Lane | 12' Travel Lane | 2'

PROPOSED EASTBOUND 260

10' Shared Use Path | 2' | 12' Travel Lane | 12' Travel Lane | 2'
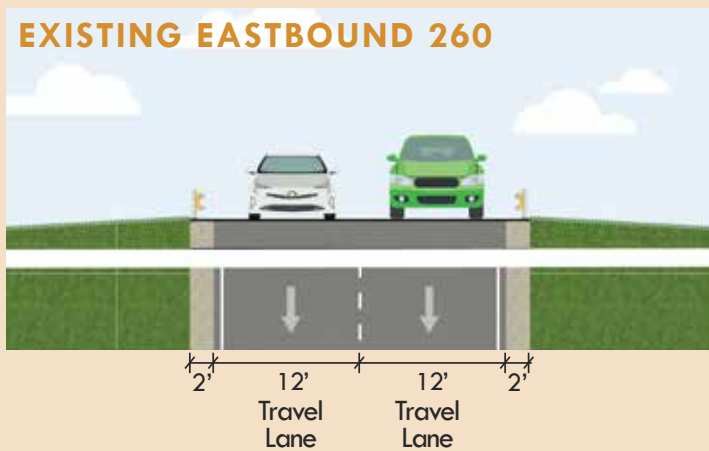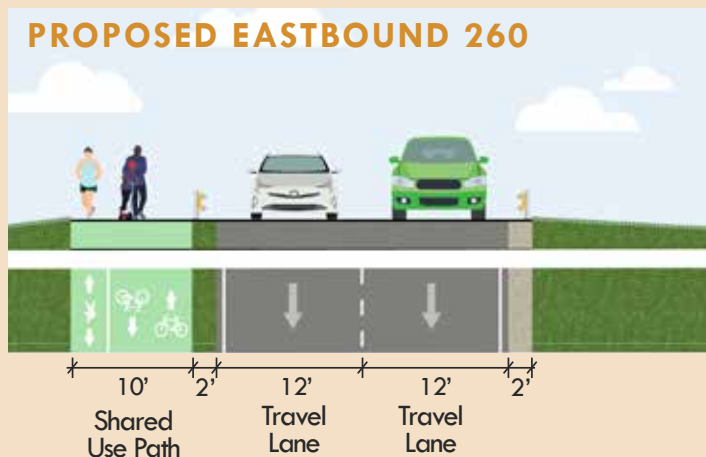
BENEFITS
- No impacts to existing traffic
- Comfortable facility, with opportunities for wide buffer and sidepath

CONSIDERATIONS
- Impacts natural resource areas
- May require right-of-way
- Higher capital cost

OPTION B: Reclaim One Lane
Eastbound vehicular circulation reduces to one lane to adaptively reuse the second eastbound lane of MD 260 for bicycle and pedestrian circulation.

lane reduction required before Harrison boulevard

narrow facility at drainage outfall

safe crossing at driveway

safe crossing Cox Road

road narrows,
steep grades

steep grades,
potential
boardwalk

steep grades,
potential wall

TYPICAL SECTION DIMENSION AND CONDITIONS WILL VARY

EXISTING EASTBOUND 260

2' | 12'
Travel
Lane | 12'
Travel
Lane | 2'

PROPOSED EASTBOUND 260

10'
Bike Path
(or shared-use path) | 2' | 12'
Travel
Lane | 2'
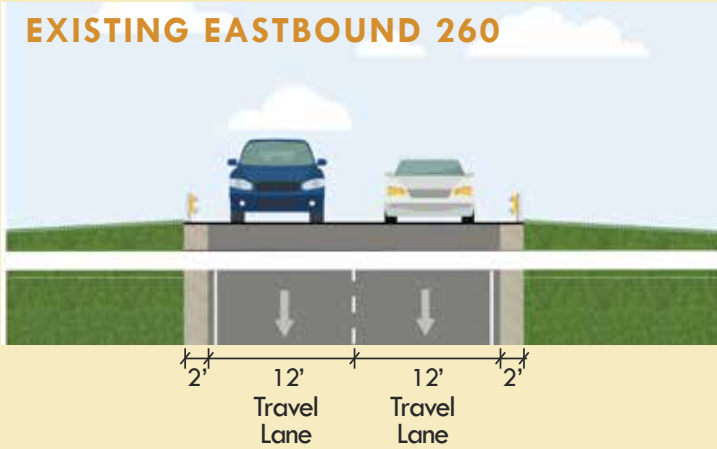
BENEFITS

- Reduces impervious surface
- Environmental impacts limited
- Low capital cost
- Temporary "Pilot Project"
  use jersey barriers or construction barrels to test
  idea and observe circulation

CONSIDERATIONS

- Traffic impacts need to be explored
- Coordination required with SHA
- Vertical separation options
  jersey barrier, guardrail, fence, etc.

safe crossings at
driveways

TOWN GATEWAY

OPTION C: Reclaim Entire Eastbound Side | Walkable and bikable transformation providing maximum separation and comfort.

transition eastbound traffic to westbound roadway

repurpose eastbound roadway as trail

extend driveway to westbound roadway

reconfigure intersection

TYPICAL SECTION DIMENSION AND CONDITIONS WILL VARY

EXISTING EASTBOUND 260

2' | 12' Travel Lane | 12' Travel Lane | 2'

EXISTING WESTBOUND 260

2' | 12' Travel Lane | 12' Travel Lane | 2'

PROPOSED EASTBOUND 260

2' | 12' Pedestrian Path | 12' Bike Path | 2'

PROPOSED WESTBOUND 260

2' | 12' Travel Lane | 12' Travel Lane | 12' Travel Lane | 2'

extend driveways
to westbound
roadway

reconfigure
intersection
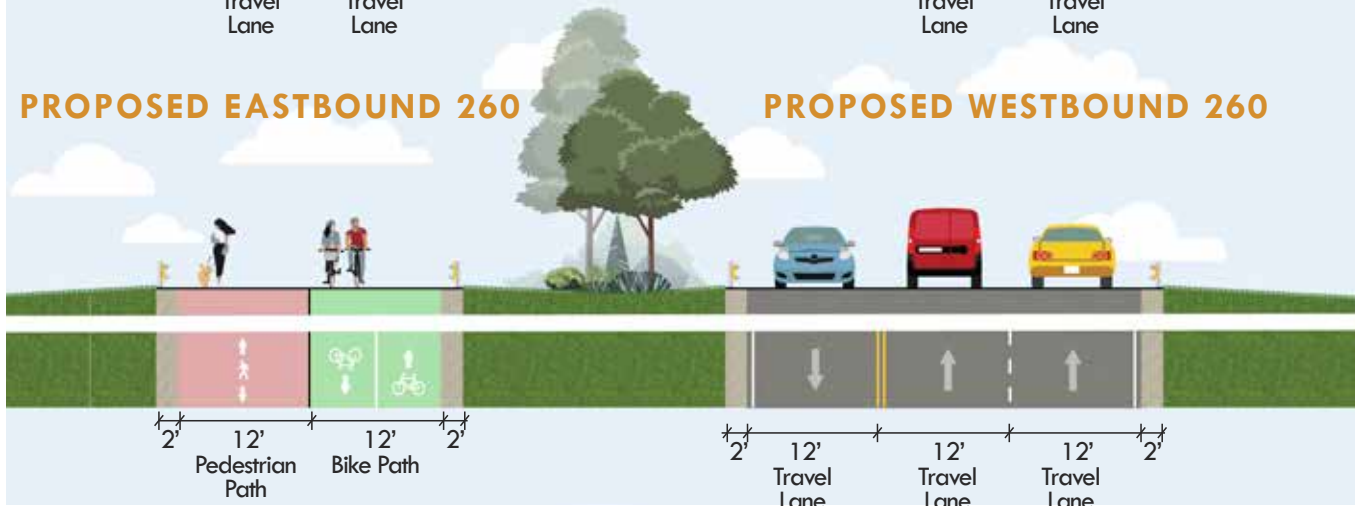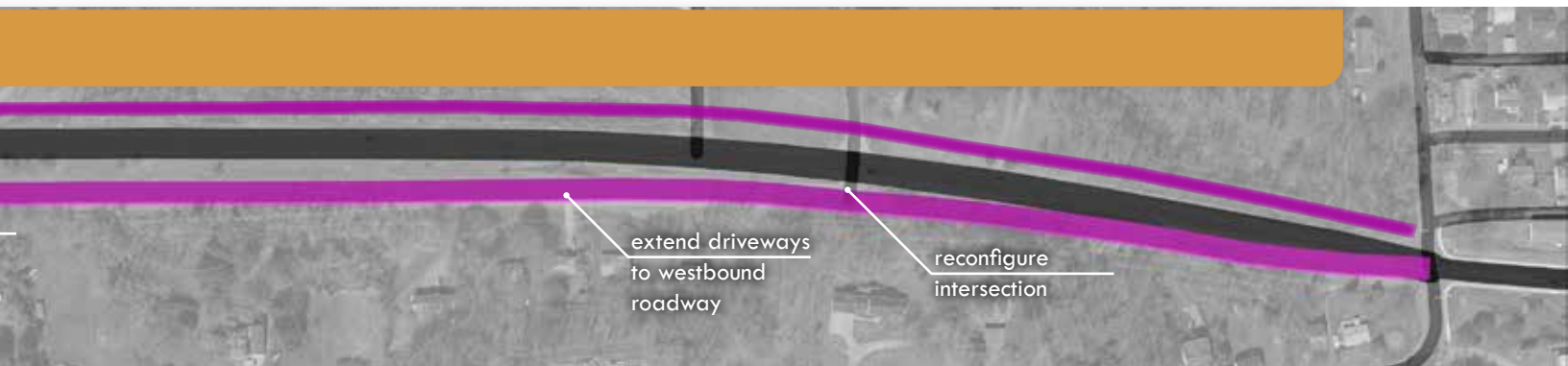
SIDEPATH OPTIONS

A range of options are available to install an on-road trail between Harrison Boulevard and the Town Center. Determining a preferred approach will require further study and coordination with SHA.

OPTİON 1

A new trail would be constructed adjacent to the existing roadway. Due to grading and natural resources, it is anticipated that some portions of the trail may need to be constructed as boardwalk, and retaining walls may be required in some locations. Some utility relocations may be required.

OPTİON 2

The on-road trail would be constructed by repurposing one of the two eastbound travel lanes, maintaining a shoulder and right-turn lanes where currently provided. The reduction to one eastbound travel lane would require agreement by SHA, who owns and maintains the road.

OPTİON 3

The on-road trail would be provided within the existing eastbound roadway. Based on feasibility and project goals, unused portions of the existing roadway would be removed, reducing the existing impervious area to provide a stormwater benefit (not shown in section to left). The westbound roadway would be widened to accommodate eastbound travel. The reduction to one travel lane would require agreement by SHA, who owns and maintains the road. The reduction to one eastbound travel lane and determination of the transition between the existing eastbound roadway and westbound roadway would require agreement by SHA, who owns and maintains the road.

BENEFITS
- Significant reduction in impervious surface
- Greatest separation between trail users and the road

CONSIDERATIONS
- Traffic impacts need to be explored
- Coordination required with SHA
- Higher capital cost

Note
- Options A through C should consider safe crossings and connections to north- and south-side neighborhoods.

Building a Connected Core

Neighborhood Mobility

Recreational Amenities

TRAFFIC CALMING
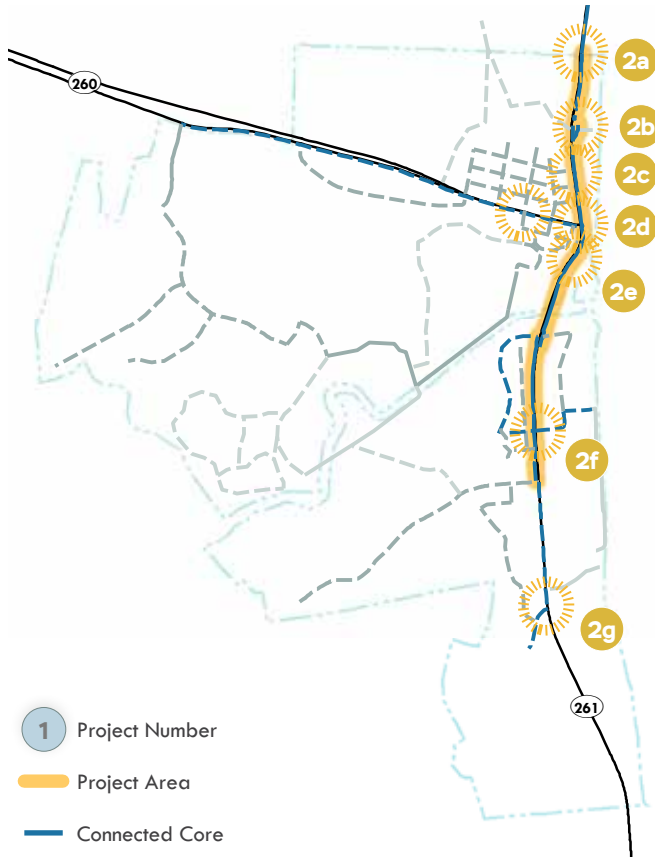
LOCATION:
MD 260 and MD 261

TIMEFRAME:	PROJECT COSTS:
Varies	$$

DESCRIPTION:
Narrow roadway and intersections to provide shorter crossings and calm traffic along the main roads through Town.

NOTED CHALLENGES: DESIGN, TRAFFIC, COST

PARTNERS: MDOT SHA

1 Project Number

Project Area

Connected Core

Encouraging appropriate speeds and providing safe crossings is accomplished through a combination of lane narrowing and visibility enhancements. At Town Hall, a pedestrian refuge island, high-visibility crosswalks and rectangular flashing beacons will provide safe crossing opportunities, while also encouraging reduced travel speeds.

IMPROVE INTERSECTION at 1st Street
- Remove right-turn lane
- Construct curb bulb-out
- Improve pathway access
- Add high-visibility crosswalks
- Add rapid flashing beacons

IMPROVE INTERSECTION at Seagate Square
- Remove right turn lane
- Construct curb bulb-out
- Explore adding sidewalk connections into neighborhood

IMPROVE CROSSWALK at Firehouse
- Construct curb bulb-out in southbound shoulder

ADD CURB BULBOUTS between 27th and MD 260
- Narrow travel lanes
- Add vegetation

IMPROVE CROSSING at E Street
- Improve crossing
- Add high-visibility crosswalk

*Included in Project 1

IMPROVE CROSSING at MD 260
- Add high-visibility crosswalks

INSTALL CROSSWALK at Town Hall
- Construct curb refuge island
- Provide high-visibility crosswalk with rapid flashing beacons

INSTALL CROSSWALK at 16th Street
- Install in-street pedestrian crossing sign
- Provide high-visibility crosswalk with rapid flashing beacons
- Evaluate sight lines

IMPROVE INTERSECTION at Chesapeake Village
- Construct curb refuge island
- Provide high-visibility crosswalk with rapid flashing beacons
- Construct sidewalk connection to Brownies Beach

Project Number — **1**

Project Area

Connected Core

KELLAM'S FIELD TRAIL

LOCATION:

Kellam's Field, 26th Street, and Gordon Stinnett Ave.

TIMEFRAME:	PROJECT COSTS:
Short	$$

DESCRIPTION:

12' asphalt trail around Kellam's Field with additional park/plaza space at the intersection of the trail and neighborhood greenway, lighting, parking lot optimizing, addition of shade trees, and controlled stop at Gordon Stinnett Ave.

NOTED CHALLENGES: ENVIRONMENTAL CHALLENGES WITH DRAINAGE, SEA-LEVEL RISE AND SINKING FIELD

PARTNERS: SPECIAL USE ORGANIZERS

Neighborhood Connections
connect trail to neighborhood greenway network through a new gateway parklet and trailhead along 26th Street and by expanding the sidewalk adjacent to the Town Hall building

Parking Lot Improvements
provide safe crossings for pedestrians at key trail crossings and optimize parking lot to provide space for trees and vegetation while maintaining the parking supply

Intersection Improvement
create all-way stop to provide safer crossing for trail users

Add Shade Trees and Planting Areas
green the parking area, create pervious surfaces, and combat the heat island effect by addition large shade trees and planting beds to parking lot

CONNECTING RECREATION AND MOBILITY

Kellam's Field is a key destination for both residents and visitors of Chesapeake Beach. As a connected network is implemented, this new path will tie the Neighborhood Greenway system to the recreational boardwalk loops with safe crossings, an ADA-accessible path, lighting to enhance visibility and improve safety, shade trees to provide user comfort, and a controlled stop at Gordon Stinnett Avenue. A small green space/plaza between the parking area and 26th Street creates a transition from the Neighborhood Greenway with lighting, benches, and bicycle parking.

Responding to a request for additional shade in the parking area, optimizing striping and layout provides the same amount of parking spaces while creating opportunities to add space for trees and other vegetation. This will reduce the heat island effect in the lot and add pervious surfaces for stormwater infiltration.

The southern section of the Kellam's Field Trail draws users toward the boardwalk system. As trail users tend to include small children and senior adults, an enhanced crossing and all-way stop alerts drivers of the presence of people walking and biking across the street.

A small park area along 26th Street will provide a place to gather, sit, and park bicycles.

Expand sidewalk adjacent to Town Hall and connect through to 26th Street and the Neighborhood Greenway system.
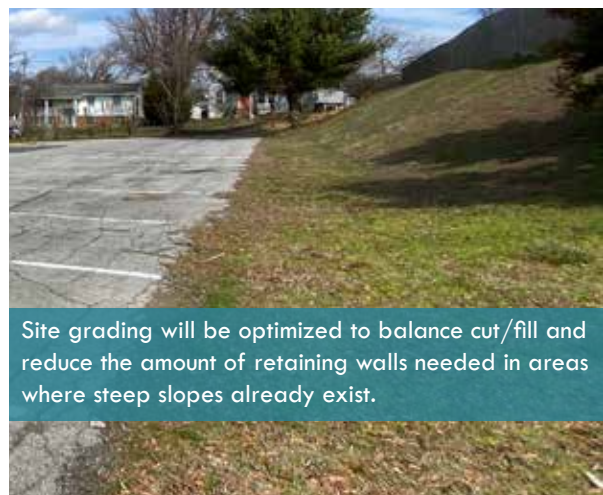
Site grading will be optimized to balance cut/fill and reduce the amount of retaining walls needed in areas where steep slopes already exist.

Building a
Connected Core

Neighborhood
Mobility

Recreational
Amenities

HARBOR ROAD PATH

LOCATION:

Harbor Road and extension to Beach Elementary, 15th Street and 16th Street

TIMEFRAME:	PROJECT COSTS:
Mid	$$$

DESCRIPTION:

Conversion of Harbor Road to a shared-use path to coincide with the utility relocation. New trail connections to the school and 15th Street or 16th Street provide opportunities to connect with the Neighborhood Greenway and Boardwalk along the Chesapeake Bay.

NOTED CHALLENGES: TOPOGRAPHY, ADA ACCESS

PARTNERS: SCHOOL AND NEIGHBORS

① Project Number

▬ Project Area

▬ Connected Core

With the relocation of the well at the end of Harbor Road, this service road will no longer be used for vehicular access. This provides a perfect opportunity to convert this roadway into a greenway. With minimal effort along the existing roadway, users can begin to enjoy this waterside path.

NOTE: Coordinate improvements with current school plans to improve sidewalk connectivity. Create links to the new access to Fishing Creek Trail and tie into projects under development or constructed (depending on the timing of project implementation).

A QUICK WIN OPPORTUNITY

This service road, at quick glance, could be identified as a greenway. Today, this road provides access to an active well that the Town anticipates retiring in exchange for a more suitable location. With the utility relocation, the roadway can easily be converted to a place for bicyclists and pedestrians to enjoy water and wildlife views with little to no capital cost. This also provides an alternate alignment for north/south circulation off the main vehicular path - providing a sense of safety and comfort.

To complete this connection, a new path will be required to ascend the slope from the existing roadway to Beach Elementary and 15th Street or 16th Street. A survey of the existing topography and further feasibility should be explored to determine the following: an appropriate alignment, if the path can ascent the slope with earthwork, or if a structure will be required to enable the change in elevation. ADA access is paramount to the success of this transition and can be accomplished with a run of approximately 1,100 linear feet (to be further explored in a feasibility study).

While the grade change is significant, the well site provides ample space to curve a trail along the perimeter to ascend the grade with a manageable, comfortable slope.

Clearings adjacent to the wetland and open space provide opportunities to design places to rest with trail amenities, such as benches and interpretive signs.

1 Project Number

Project Area

Neighborhood Mobility

NEIGHBORHOOD GREENWAYS

LOCATION:
Neighborhood Streets (as shown on map)

TIMEFRAME:	PROJECT COSTS:
Varies	$

DESCRIPTION:
Calm traffic using bicycle-friendly speed bumps and all-way stop control at intersections. Provide directional wayfinding signing to direct bicyclists and pedestrians to safe intersection crossings of MD 260 and MD 261. Plant street trees to shade greenways and enhance natural character.

NOTED CHALLENGES: ON-STREET PARKING, DRIVEWAYS

PARTNERS: RESIDENTS, BUSINESS OWNERS, RICHFIELD STATION (PROJECT 5)

Neighborhood Greenways employ a variety of tools to remind vehicles to slow their speed, watch for bicyclists and pedestrians, and provide direction to bicyclists and pedestrians for remaining on optimal routes or guiding them toward key destinations.

ELEMENTS OF A NEIGHBORHOOD GREENWAY

Low-speed / low-volume roads can be great places to walk and bike with small enhancements to let motorists know to keep an eye out "greenway" activity.

III	Bicycle-Friendly Speed Hump	⬡	Wayfinding Sign
- - -	Sidewalk	⬡	Street Trees
🔴	All way STOP		

BAYSIDE RD

BAY CREST C

28TH ST

DAVID LN

ADD SIDEWALK
to connect with pedestrian priority area
*cost included in Project 1

WINDWARD KEY DR

Note

> During neighborhood-wide improvement projects - like this neighborhood greenway - additional community needs can be addressed. Consider incorporating green infrastructure, placemaking, and stormwater improvements that will solve existing challenges. Seeking funding sources through multiple lenses can be beneficial by achieving multiple objectives through one project.

OLD BAYSIDE

LOCATION:

Old Bayside Road from Beach Elementary to I Street

TIMEFRAME:	PROJECT COSTS:
Future	$$$$

DESCRIPTION:

Sidewalk (or if space allows, off-road trail) to connect residents to Beach Elementary.

NOTED CHALLENGES: TOPOGRAPHY, EXISTING TREES, RIGHT-OF-WAY, SIGHTLINES

PARTNERS: NEIGHBORS, BEACH ELEMENTARY

1 Project Number

Project Area

Neighborhood Mobility

10

260

261

Steep Slopes
each red-dashed band indicates a steep drop off from the side of the roadway and the presence of guardrail. Constructing a path will require significant fill or structure to provide space for pedestrians and/or bicyclists

H ST

I ST

OLD BAYSIDE RD

Existing Structures
each white-dashed circle represents a structure that is currently sited near the roadway and may require the future path to be narrowed to provide continuous connectivity

PLANNING FOR FUTURE CONNECTIVITY

A sidewalk or trail along Old Bayside Road would close a gap in the walking and or bicycling system for residents along E Street, F Street, G Street, Dakota Avenue, H Street, and I Street. This path would provide access to Beach Elementary and connect to Chesapeake Village via the future off-road path from 13th Street to Chesapeake Village Boulevard. Building this alignment supports Safe Routes to School efforts and completes a key connection to Kellam's Field and the core of Town after the Harbor Road Trail and school connector are complete.

This project is projected as long-term to enable the Town to continue public engagement relative to the design of this path and step through an in-depth feasibility process. Key challenges to constructing this path include steep slopes and drop-offs immediately adjacent to the roadway (where guardrail is present today - illustrated below as red-orange dashed lines); existing vegetation (drawn in green below); and the presence of existing structures close to the existing roadway, which may preclude the path from remaining the same width throughout the corridor. Exploring feasibility will include a topographic survey of the area, assessment of methods to compensate for steep slopes (including the construction of boardwalks), and understanding the needs, concerns, and wishes of the residents along Old Bayside Road.

As the project evolves, site development progress and new connections around the school should be the tie-in point for any facility along Old Bayside Road.

Sidewalk or On-Road Trail
explore the potential of adding a sidewalk or on-road trail to the north or south side of Old Bayside Road

Existing Forest or Significant Landscape Tree
each green band indicates the presence of dense vegetation with trees or significant landscape trees along the roadway. Clearing 14' for construction will result in a loss of tree cover.

Building a Connected Core | Neighborhood Mobility | Recreational Amenities

TRAILS + GREENWAYS

future trail conceptual connectivity

16

14

11a

6a

1 Project Number

Project Area

Recreational Amenities

LOCATION:
Throughout Chesapeake Beach

TIMEFRAME:
Varies

PROJECT COSTS:
$$$$

DESCRIPTION:
6a is a 12' asphalt trail with boardwalk as needed (pairs with 6b - neighborhood greenway)

11a is a 12' asphalt trail with boardwalk as needed (pairs with 11b - neighborhood greenway)

14 is a network of soft-surface hiking trails

NOTED CHALLENGES: TOPOGRAPHY, WETLANDS, ENVIRONMENTAL IMPACTS, ACCESS

PARTNERS: NEIGHBORS, CHESAPEAKE VILLAGE HOA

The existing Railway Trail is a series of asphalt, stamped concrete, and boardwalk that celebrate the history of train service to Chesapeake Beach and connect people with the coastal environment, education, wildlife observation, and health benefits of a trail system. Completing additional loops and spurs to neighborhoods will encourage the community to walk and bike to local destinations and provide fitness loops for residents and visitors of all ages and abilities. Future design should involve consultation with public works and Town leadership to complete final design for each trail with standards commensurate to the existing trail network, and should be based on lessons learned from maintaining each pathway. *Additional design considerations are found on the pages following the Boardwalk cut sheet.*

BOARDWALKS + OVERLOOKS

LOCATION:

West of Kellam's Field (12) and Completing the Railway Trail Loops (13)

Across from the Fire House (15), 29th Street (17), B Street between Old Bayside Road and 13th Street (18)

TIMEFRAME:	PROJECT COSTS:
Varies	$$$$

DESCRIPTION:

12'-14' Boardwalk with overlooks, benches, lighting, and security cameras to align with design standards for existing boardwalks

NOTED CHALLENGES: WETLANDS, ENVIRONMENTAL IMPACTS, FUTURE SEA LEVEL RISE

PARTNERS: NEIGHBORS, RICHFIELD STATION, HORIZON ON THE BAY, RITORI LLC
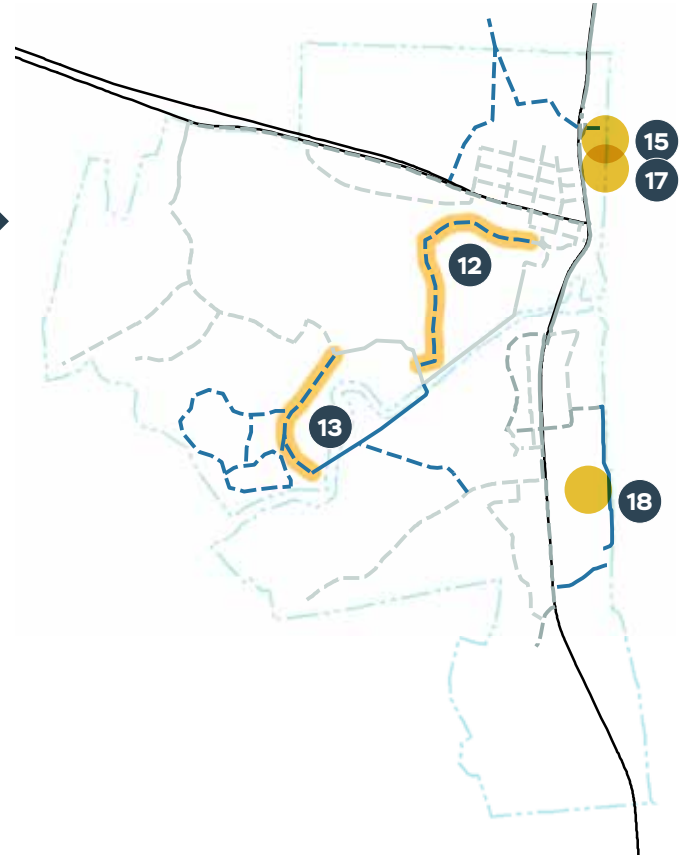
The existing boardwalk system is an incredible asset to the community providing recreational amenities for residents and becoming a draw for visitors. Completing the loops will satisfy requests from the community to provide better circulation and alleviate the monotony of current "out and back" recreational routes. As conceptual and final designs move forward, attention to sea level rise, species disturbance, safety, and maintenance should be discussed with the Town. Design should be based on lessons learned in boardwalk development and maintenance. *Additional design considerations are found on the following pages.*

The existing boardwalk can easily be extended at this point to lead to future hiking trails and a new boardwalk loop.

TRAILS + GREENWAYS

A new trail along the tree line will complete a connection from E Street to the existing Railway Trail. Considerations include habitat impact, wetland impacts, and future sea level rise. This segment will extend from the existing Railway Trail to E Street, tying into a neighborhood greenway. In the future, if a sidewalk or on-road trail is constructed along Old Bayside Road (Project 10), this Railway Trail Neighborhood Connector will open access to Beach Elementary from Richfield Station and the neighbors living along Cox Road.

Existing Railway Trail

Once constructed, the Chesapeake Village Off-Road Trail will carry residents from the south side of Chesapeake Beach to all points within the Town Center (via the Harbor Road Trail). This game changing path will allow citizens to enjoy car-free circulation to events at Kellam's Field and gain access to the recreational boardwalk system. Dense vegetation, wetlands, and sensitive habitats should be explored during the feasibility stage to determine how to build a sustainable trail with boardwalk variations to traverse the wetland areas.

BOARDWALKS + OVERLOOKS

Create a boardwalk that connects to the Chesapeake Bay from MD 261 (south of Seagate Square).

PROPOSED ALIGNMENT

HORIZON ON THE BAY PROPERTY

Chesapeake Bay
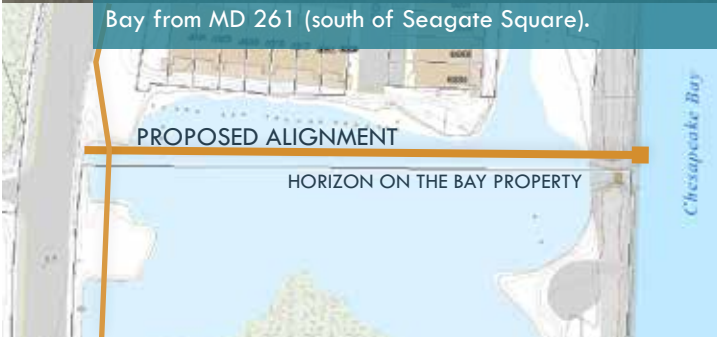
29th Street, adjacent to Momma Lucia's, is already an activated space and is most suitable for a new, publicly accessible overlook. Coordination with the restaurant owners would be paramount to discuss patron use, public parking for non patrons, and alcoholic beverage consumption on the overlook.
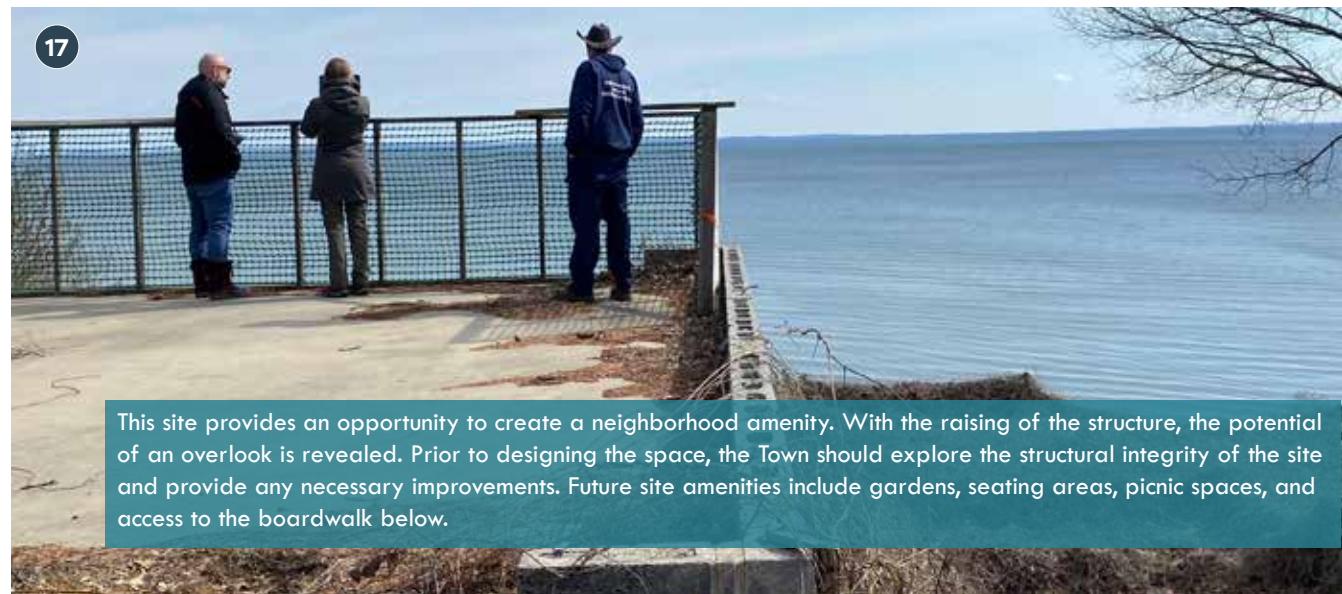
This site provides an opportunity to create a neighborhood amenity. With the raising of the structure, the potential of an overlook is revealed. Prior to designing the space, the Town should explore the structural integrity of the site and provide any necessary improvements. Future site amenities include gardens, seating areas, picnic spaces, and access to the boardwalk below.

74 CHESAPEAKE BEACH
CONNECTIVITY STUDY

Building a
Connected Core | Neighborhood
Mobility | Recreational
Amenities

DESIGN GUIDELINES FOR TRAILS, GREENWAYS + BOARDWALKS

With the Chesapeake Bay as a front porch amenity of the Town, residents will enjoy the respite of their homes and visitors will continue to flock to this Bayside Town for years to come. Increasingly, residents and visitors seek meaningful ways to interact with nature and marvel at shoreside natural resources. The wetlands, rocky cliffs, wildlife, and bay breezes are a draw for many who wish to live and recreate within this climate. Greenways, trails, and boardwalks provide human access while providing sensitive integration into the existing environment. While amenities, best practices, and guidelines exist, context-sensitive design is paramount to weaving through and along wetlands and shorelines. Boardwalks should be selected to traverse wetlands with special attention to minimize impacts by using methods, such as helical piles and spacing deck boards, to allow light to reach vegetation. Sensitivity paired with a consistent user experience will be key to establish a sense of safety and comfort. Maintenance of existing surface types - from stamped concrete to asphalt - and lumber choices for boardwalks should be considered prior to executing design. Learning from the last implementation is key to building successful new facilities that suit the capability of the Town's maintenance crews. Design will also be influenced by funding sources. Federal and state money are typically tied to state and national guidelines, as well as compliance with the ADA.
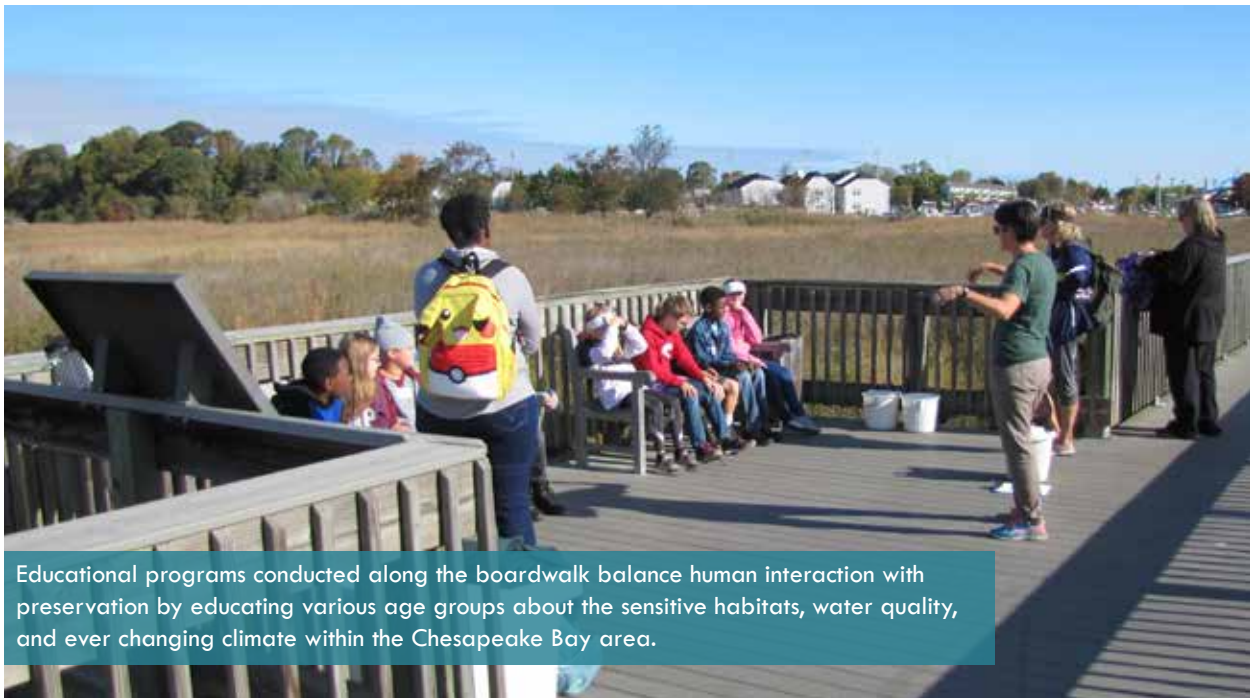
Educational programs conducted along the boardwalk balance human interaction with preservation by educating various age groups about the sensitive habitats, water quality, and ever changing climate within the Chesapeake Bay area.

During feasibility exploration, a survey of the proposed alignment area should be completed to provide an accurate base of topography and potential natural resource impacts. In additional to these considerations, the below items illustrate technical considerations, access, and amenities that will enhance the current trail experience.

STATE & NATIONAL DESIGN GUIDELINES & STANDARDS

At the state and national levels, there are existing guidelines that apply to shared-use paths, pedestrian facilities, and bicycle facilities. Guidelines indicate minimum conditions for key dimensions including slope, horizontal and vertical clearances, surface condition, signage, and pavement markings. Additional local design and construction standards are also applicable. Key standards and organizational guidelines for consideration include AASHTO, the U.S. Department of Transportation (USDOT), and the MUTCD.

UNIVERSAL DESIGN/ADA ACCESS

Universal design and ADA guidelines ensure access for users of all abilities. In addition, all greenway paths and other trails that receive funding from state or federal sources must conform to the ADA guidelines, and Public Rights of Way Accessibility Guidelines (PROWAG). The Federal Highway Administration published a guidebook entitled, Designing Sidewalks and Trails for Access.

Ramps, handrails, and smooth transitions from parking areas to the boardwalk (as seen here) are critical for creating an equitable experience.

Security cameras installed along the existing Railway Trail have provided a sense of security for residents who may be enjoying the boardwalk system alone or near the dawn and dusk hours of the day. As the boardwalk system is expanded, this element should be included to provide a sense of security, and to deter inappropriate behavior.

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

Personal safety, both real and perceived, heavily influences a trail user's decision to use a trail and a community's decision to embrace a trail system. Proper design must address both the perceived safety issues (i.e., personal security and fear of crime) and actual safety threats (i.e., infrastructure failure and criminal acts). Creating a safe trail environment goes beyond design and law enforcement and should involve the entire community. The concept of "eyes on the trail" enhances safety by the presence of people and activity as well as the ownership a community takes of a trail and its condition. Crime Prevention Through Environmental Design (CPTED) is defined as "the proper design and effective use of the built environment that can lead to a reduction in the fear and incidence of crime and an improvement in the quality of life." When all spaces have a defined use and the use is clearly legible in the landscape, it is easier to identify undesired behavior. The following 4 principals guide CPTED: Natural Surveillance, Natural Access Control, Territorial Reinforcement, and Maintenance.

LANDSCAPE

Landscape is often used to enhance user experience, provide screening buffers, and create or maintain nearby habitats. Vegetation that obstructs natural surveillance and allows entrapment areas or "hiding" places should be avoided.

> Groundcover and shrubs to be trimmed to a max. of 36" above ground-level height.
> Trees should be trimmed up to provide a minimum of 8' of vertical clearance within the trail corridor.
> Hostile landscaping material (e.g., vegetation with thorns) can be used in

strategic areas to discourage off-path use and eliminate entrapment areas.

> Invasive species should be avoided - the Town should educate any volunteer groups or adjacent communities about the importance of maintaining a healthy growing environment for native species that support habitat.

> Maintenance should be considered prior to selecting species and planting areas along trails - coordinate with the public works staff to understand maintenance capabilities and resources.

> Tree species that drop seeds or fruits that could cause a tripping hazard should be avoided.

> Trees with excessive leaf drop should be avoided to prevent slipping hazards in wet conditions.

> Pollinator gardens, rain gardens, and native specimen plantings are preferred over ornamental planting areas.

> Seasonal color and interest should be considered to enhance user experience.

> Consider adding species tags or signs along greenways, boardwalks, and trails to educate the community about native species, habitat, and food supply for wildlife.

LIGHTING

Adequate pedestrian-scaled lighting helps trail users observe their surroundings and respond to potential threats. Lighting should be used at access points to trails and boardwalk but should not be overused along the trails in a manner that will interfere with migration patterns, habitat, and other wildlife behaviors. Where lighting is installed the illumination should:

> Be adequate to identify a face up to 20 yards away.

The new trail around Kellam's Field and parking area is an example of a place that is appropriate for pedestrian-scale lighting. Neighbors should be consulted and sensors for dimming and motion detection should be considered.

> Have full cut-off fixtures to reduce light pollution.
> Provide uniform coverage and eliminate dark pockets.
> Provide good color rendition (the measure of light quality to replicate colors as viewed on a typical sunny day).
> Not be obstructed by tree canopies or other elements, like signage or shade.

WASTE AND RECYCLING RECEPTACLES

Litter along a trail can lead to a perception of the space not safe or well maintained. Volunteer groups can help monitor the entire alignment during programmed clean-up days. Waste and recycling receptacles should be placed at access points such as trailheads and intersections with other access points. Prior to installation, there should be a maintenance agreement with adjacent neighborhoods and maintenance schedule for the Town to plan for removal of trash and recycling as overflowing containers

can contribute to a sense of perceived unsafe environments.

> Locate receptacles at each trailhead and each seating area (one per every picnic table, one per every two benches).
> In areas with adequate sunlight, consider compacting receptacles for trash and recyclables that use smart technology.
> Receptacles need to be accessible to maintenance personnel and trail users.
> Receptacles should be vandal- and animal-proof.
> Receptacles should be set back a minimum of 3 feet from the edge of the trail.

WAYFINDING, DIRECTIONAL SIGNAGE, KIOSKS, AND INTERPRETIVE SIGNS

The goal of a signage program is to provide a sense of identity and utility for the existing trail network. Signage types include informational, directional, regulatory, confidence markers, access identification, and interpretive panels.

Kiosk — Area Map — Directional — Vehicular Trailhead — Regulatory Signage — Mile Marker (Front / Side)
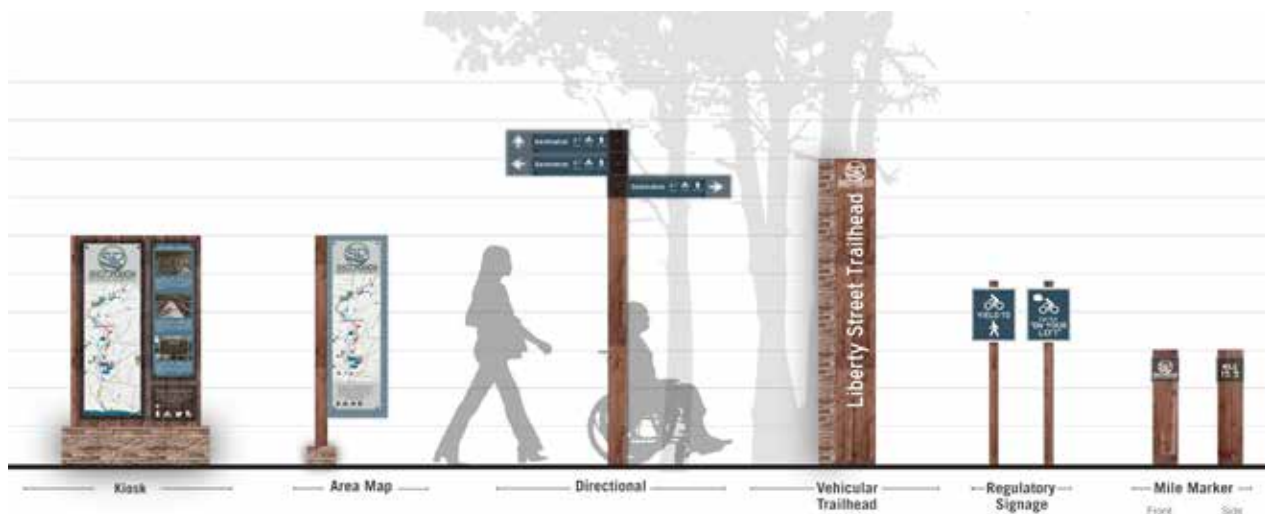
Chesapeake Beach should establish a brand and logo for the trail system, including boardwalks, off-road trails, and on-road trails. A comprehensive wayfinding package with a variety of sign types will help orient users, instill confidence in their path choice, and enable fitness users to track mileage.

The program should adhere to a consistent, selective, and strategic implementation plan so as not to clutter or dominate the visual character of the trails. Signage may inform users of locations to access water and restroom facilities, provide interpretive information for visitors and local school children, and provide a sense of security for new users.

BICYCLE REPAIR STATIONS

Bicycle repair stations are small kiosks designed to offer a complete set of tools necessary for routine bicycle maintenance. Popular locations for placement include major or minor trailheads and rest stops along trails. Repair stations should be placed in areas of high activity to prevent vandalism.

BICYCLE PARKING

Bicycle parking should be placed to avoid user conflict. Securing bicycle parking on hardscape surfaces provides adequate installation contact points. Placement should not interfere with emergency or maintenance vehicle access to the trail. Potential locations include restrooms, trailheads, points of interest, and rest stops. Guidance for bicycle parking includes:

> The bicycle rack should support the bicycle in at least two places, preventing it from falling over.
> The bicycle rack should allow locking of the frame and one or both wheels with a U-lock.

Bicycle repair station (above) come in a variety of styles with a stand and tools that trail users can rely on if they need to perform a repair while on the trail. They should be placed in highly visible locations.

Bicycle parking can be whimsical or branded to complement the logo and wayfinding sign package.

- When installing racks on concrete surfaces, use 3/8-inch anchors to plate mount. Shim as necessary to ensure vertical placement.
- When installing racks on pavers or other non-stable surfaces, embed into base. Core holes should be no less than 3 inches in diameter and 10 inches deep.
- Ensure the rack is securely anchored to ground.
- Consider bicycle racks that resist cutting, rusting, bending, and deformation.

SEATING

Benches should be placed along the trail to provide resting places and at strategic locations with views or interpretive opportunities. Seating along the trail should include backs to provide the opportunity for users of all ages and abilities to fully take a break, if exerted. Picnic tables at trailheads and in adjacent parks provide places for trail users to congregate for meals or relax. Benches should:

- Be securely anchored to the ground.
- Be placed in areas offering shade and/or shelter.
- Be located every ½ mile to enable families and aging populations to rest frequently.
- Be located a minimum of 3 feet from the edge of the trail.
- Be located a minimum of 4 feet from restrooms and drinking fountains and a minimum of 2 feet from trash and recycling receptacles, lighting poles, and sign posts.
- Enable wheelchair access. Provide access with a hardened surface such as concrete or asphalt at both benches and picnic tables.
- Include drainage that slopes away from the bench and the trail.

The Town should select a furnishing package that is suitable for the Town Center, on-road trails, boardwalks, and natural / riparian trails. The character may vary slightly for each and all materials and maintenance requirements should be reviewed by the Town to ensure care and longevity comply with the needs of the community and environmental conditions.

PUBLIC ART AND SCULPTURE

Public art engages the community through artists' work and creates a memorable experience for trail users. Art and sculpture can create an identity for the trail and strengthen the emotional connection between the neighborhood and trail users. Public art can be aesthetic and/or functional, while doubling as sitting or congregational areas. İnstallation may be permanent or rotational depending on the budget available and involvement from the community.

Chapter 4
Implementation
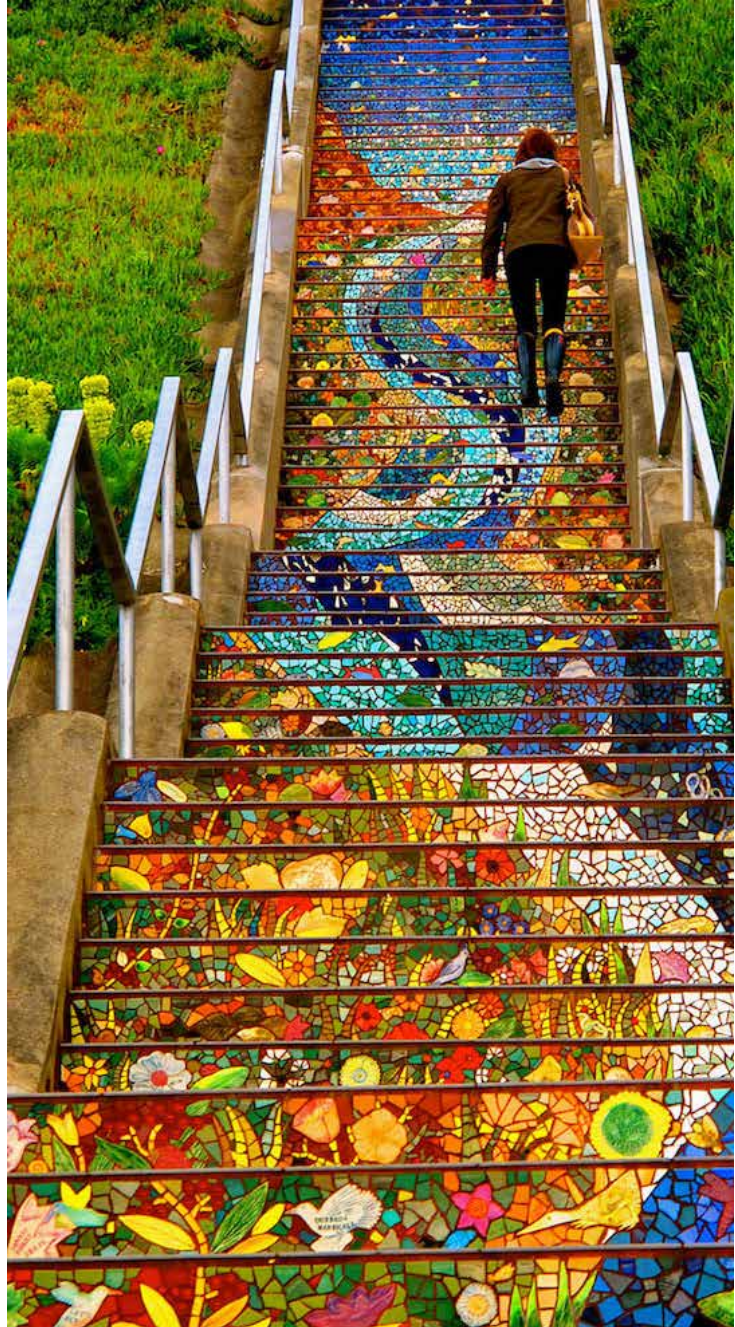
This plan is a framework to guide growth and enhancements in the Town of Chesapeake Beach over the next ten years and beyond. Implementation of the recommendations will occur incrementally through a partnership of public and private entities and individuals, as outlined throughout the report and below. It is important to note that the master plan is intended to be a flexible guiding document. Many of the concepts illustrated will be further refined and vetted as they evolve from planning to design. Additionally, it is important to view the master plan as a "menu" of projects. As a complement to the Comprehensive Plan, as public and priviate development occurs, the projects within this Plan may be reshaped or accelerated through the implementation process. Critical to the implementation of any project is the time needed for additional feasibility (8-16 months), design (8-24 months), funding and grant deadlines, permitting, and construction. Setting realistic expectations for project timelines with community members is an important role the Council, Mayor, and Town staff will play. Education, transparency, and continued engagement create a sense of collaboration and partnership with community members that will maintain momentum for project support and implementation.

COLLABORATİON + CHAMPİONS: ROLES AND RESPONSİBİLİTİES OF PARTNERS

The potential implementation partners vary by project. Most projects will require a partnership among several partners, with one partner having primary implementation responsibility. İmplementation partners for the Chesapeake Beach Connectivity Study include:

- Walkable Community Advisory Group (WCAG)
- The Town of Chesapeake Beach
- Chesapeake Beach Planning and Zoning Committee
- Calvert County, Maryland
- Maryland Department of Transportation State Highway Association (MDOT SHA)
- The Town of North Beach
- North Beach Volunteer Fire Department
- Beach Elementary School
- Residents
- Community Groups
- Business Owners

Projects along MD 260 and MD 261 will requre coordinate with MDOT SHA. This coordination with MDOT SHA should be immediately to inform MDOT SHA of the desires of the community and gain an understanding of how the Town can partner with MDOT SHA to move projects forward. Sharing this plan with the Office of Planning and Preliminary Engineering and scheduling a meeting to discuss the improvements will be one of the first steps. Depending on the priorities of State, funding availability, and contribution by Chesapeake Beach the timing of projects will vary.

FUNDİNG NEEDS AND OPPORTUNİTİES

When implementing bicycle and pedestrian networks, it is common to pursue funding from multiple sources for design and construction. Bicycle and pedestrian funding can be awarded by federal, state, local, and private sources. The following table identifies a variety of grant programs that may provide funding for portions of the network.

Opinion of Probable Cost

A planning-level cost estimate is included with the recommendations in this report as a magnitude of potential cost illustrated by dollar signs - one dollar sign being the most economical projects and multiple dollar signs indicating higher capital costs. Planning for implementation includes segmenting project costs into categories to create more manageable yearly budget allocation. The funding sources used should be explored to determine if funds require a match, may be used for planning, are only for design, or if they source is appropriate for construction.

PHASİNG

Prioritizing and phasing projects allows the various agencies and community champions involved to plan for grant writing, budget funds for implementation, and plan future maintenance activities. A workbook follows the funding chart that will allow the Town to plan for and track process. Yearly summits are recommended to reevaluate progress. The workbook can be printed and revised as project phasing changes with the progress of the Comprehensive Plan, collaboration with MDOT SHA, and private development.

HOW TO USE THE IMPLEMENTATION WORKBOOK

Each numbered project (refer to the maps in chapter 3) has a row within the Implementation Workbook. Each year, the Council, Town Staff, and other leaders should evaluate the progress of each project and determine how to advance toward construction. Available funding is key to initial planning and the first meeting should begin with an understanding of the existing budget for the current year, budget projections for subsequent years, and potential funding awarded through grant applications. Some projects may require further feasibility studies (including project 10 - Old Bayside Trail) while others may advance into final design immediately.

The table is organized by Immediate, Short, Mid, Long, and Future term. The Town will decide the time frame for each. Immediate is recommended as the first two years, short is recommended to be complete in year five. Within each timeframe for each project is a table as seen below. The workbook is designed to track progress and plan, therefore, the suggested method for tracking is to fill in the current term, indicated planned progress with circles, and when complete, shade in the boxes.

KEY

GRANT	This row is for tracking planning grant applications or progress. "W" indicates when to write a grant, "D" indicates that it is due in the current timeframe.	W	D				
PLAN	Use this space to indicate progress on feasibility studies or other planning efforts.						
DESIGN	Circle or shade the progress of design, 30%, 60%, etc. through to when the Town plans or has complete the Bidding (BID) process for construction.	30	60	90	100	BID	
BUILD	During construction, indicate if the project is Starting (S), In Progress (IP), or Complete (C).	S	IP	C			
$	This row provides space to indicate the budget for the CURRENT stage of planning or design. This may include planning or design fees as well as the construction budget. Also, note if funds are Town funds or from another source.						

SAMPLE OF WORKBOOK IN SHORT TERM

		IMMEDIATE						SHORT-TERM					
SAMPLE PROJECT	**GRANT**	W	(shaded)				**GRANT**	W	D ⟵ *2023*				
	PLAN						**PLAN**						
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100 ⟵ *2022*	BID	
	BUILD	S	IP	C			**BUILD**	S	IP	C			
	$	$5,000					**$**	$40,000					
	NOTES	Grant due 10/31! Budget 20% match for next year (2022). $5k for grant writer.					**NOTES**	Grant Awarded! Complete 100% Design this year (2022) and work on new grant for construction next year.					

TYPE	GRANT PROGRAM NAME	TYPE OF WORK FUNDED					AWARDS				PROGRAM DESCRIPTION
		BICYCLE	PEDESTRIAN	TRAILS	STREET IMPROVE.	OTHER	AVAIL. FUNDING	LUMP SUM	REIMBURS.	FUNDING - MATCH	
Federal	Transportation Alternatives Program	x	x	x	x		$$ - $$$$$		x	80 - 20	Funds transportation-related community projects that strengthen the intermodal transportation system.
	Safe Routes to School	x	x		x		$$ - $$$$$		x	80 - 20	Supports projects that enable and encourage children to safely walk, roll, or bicycle to school.
	Recreational Trails Program	x	x	x			$ - $$$		x	80 - 20	Funds community-based motorized and non-motorized recreational trail projects.
	Federal Lands Access Program	x	x	x	x		$$$ - $$$$		x	80 - 20	Improves transportation facilities that provide access to, are adjacent to, or are located within Federal lands.
	Community Development Block Grants	x	x		x		$ - $$$$$	x	x	N/A	Funds housing, public facility, or economic development projects that either benefits persons of low- and moderate-income, eliminates slum and blight, or meets an urgent need of recent origin that threatens public health and safety.
	Surface Transportation Block Grant Program	x	x		x		$$$ - $$$$$		x	80 - 20; 83 - 17; 90 - 10; 100 - 0	Provides flexible funding for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge, and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects.
	BUILD Discretionary Grants	x	x	x	x	x	$$$$$		x	80 - 20	Provides investments in surface transportation infrastructure and can support roads, bridges, transit, rail, ports, or intermodal transportation.
	INFRA Grants (Infrastructure for Rebuilding America)	x	x	x	x	x	$$$$$		x	60 - 40	Provides dedicated, discretionary funding for projects that address critical issues facing our nation's highways and bridges.
	Congestion Mitigation and Air Quality Improvement (CMAQ) Program	x	x	x	x	x	$$$ - $$$$$		x	80 - 20; 83 - 17; 90 - 10; 100 - 0	Supports surface transportation projects and other related efforts that contribute air quality improvements and provide congestion relief. Funding is available for nonattainment areas and maintenance areas.
	National Highway Performance Program (NHPP)					x	$$$ - $$$$$		x	80 - 20; 83 - 17; 90 - 10; 100 - 0	Provides support for the condition and performance of the National Highway System (NHS); provides support for the construction of new facilities on the NHS; and ensures that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS.
State	Maryland Bikeways Program	X		X	X		$$ - $$$$		X	80 - 20	Funds projects within a Priority Funding Area, within 3 miles of a rail station or major bus hub, in the State Trails Plan, or included in the annual transportation priority letter submitted to MDOT.
	Bicycle and Pedestrian System Preservation Funds	X	X		X					75 - 25	Constructs and upgrades bicycle and pedestrian facilities to provide accessible facilities and a connected network. Comprised of Sidewalk Reconstruction for Pedestrian Access (Fund 33), New Sidewalk Construction for Pedestrian Access (Fund 79), and Bicycle Retrofit (Fund 88).
	Community Legacy Program	X	X		X		$ - $$$		X	50 - 50	Provides local governments and community development organizations with funding for essential projects aimed at strengthening communities through activities such as business retention and attraction, encouraging homeownership, and commercial revitalization. Forest Heights is eligible as a designated Sustainable Community.

TYPE	GRANT PROGRAM NAME	TYPE OF WORK FUNDED					AWARDS				PROGRAM DESCRIPTION
		BICYCLE	PEDESTRIAN	TRAILS	STREET IMPROVE.	OTHER	AVAIL. FUNDING	LUMP SUM	REIMBURS.	FUNDING - MATCH	
Private	Wal-mart Local Community Grants					X	$	X		N/A	Provides funding directly from Wal-mart facilities to local organizations in the U.S.
	Home Depot Community Impact Grants					X	$	X		N/A	Awards grants to entities using the power of volunteers to improve the community. Grants are given in the form of The Home Depot gift cards for the purchase of tools, materials, or services.
	National Fish and Wildlife Foundation Five Star and Urban Waters Restoration Grant Program					X	$ - $$	X		1:1 match ratio	Seeks to develop nation-wide community stewardship of local natural resources, preserving these resources for future generations and enhancing habitat for local wildlife. Projects seek to address water quality issues in priority watersheds, such as erosion, pollution from stormwater runoff, and degraded shorelines.
	Abell Foundation - Community Development Grants					X	$ - $$$	X			Encourages initiatives that attract resident investment in neighborhoods, promote sustainability, increase economic development opportunities, and further entrepreneurial talent to increase the livability of neighborhoods, the number of residents, the number of jobs, and the size of the tax base.
	Million Mile Greenway			X			$	X		$1,500	Awards micro-grants to young nonprofits at the early stages of planning, promoting, and building greenways and trails. Provides $1,500 in funding and up to $10,000 in pro bono marketing and technology consulting services.
	Partners for Places (The Funders' Network for Smart Growth and Livable Communities)					X	$$	X		1:1 match ratio	Creates opportunities for cities and counties to improve communities by building partnerships between local government sustainability offices and place-based foundations.
	Bank of America Charitable Foundation					X	$ - $$	X		N/A	Focuses on building pathways to economic mobility by addressing the issues of workforce development, education, basic needs, and community development. Committed to advancing a more diverse and inclusive society by expanding opportunities and supporting equitable solutions that will enable low-income communities to grow and prosper.
	PeopleForBikes Community Grant Program	X		X	X		$	X		49 - 51	Provides funding for projects that build momentum for bicycling in communities across the US.

FUNDING KEY

$	less than $25k
$$	$25k-$100k
$$$	$100k-$500k
$$$$	$500k - $1,000,000

TABLE 1. **Implementation Workbook**

	IMMEDIATE						SHORT-TERM					
1 - CHESAPEAKE BEACH GATEWAY TRAIL	**GRANT**	W	D				**GRANT**	W	D			
	PLAN						**PLAN**					
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**					
	NOTES						**NOTES**					
2 - SAFE CROSSINGS	**GRANT**	W	D				**GRANT**	W	D			
	PLAN						**PLAN**					
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**					
	NOTES						**NOTES**					
3 - KELLAM'S FIELD TRAIL	**GRANT**	W	D				**GRANT**	W	D			
	PLAN						**PLAN**					
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**					
	NOTES						**NOTES**					

MID-TERM		LONG-TERM		FUTURE

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

	IMMEDIATE						SHORT-TERM					
4 - HARBOR ROAD PATH	**GRANT**	W	D				**GRANT**	W	D			
	PLAN						**PLAN**					
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**					
	NOTES						**NOTES**					
5 - RICHFIELD STATION NEIGHBORHOOD GREENWAYS	**GRANT**	W	D				**GRANT**	W	D			
	PLAN						**PLAN**					
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**					
	NOTES						**NOTES**					
6 (A + B) - CHESAPEAKE VILLAGE OFF-ROAD TRAIL	**GRANT**	W	D				**GRANT**	W	D			
	PLAN						**PLAN**					
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**					
	NOTES						**NOTES**					

MID-TERM						LONG-TERM						FUTURE
GRANT	W	D				**GRANT**	W	D				
PLAN						**PLAN**						
DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID	
BUILD	S	IP	C			**BUILD**	S	IP	C			
$						**$**						
NOTES						**NOTES**						

GRANT	W	D				**GRANT**	W	D				
PLAN						**PLAN**						
DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID	
BUILD	S	IP	C			**BUILD**	S	IP	C			
$						**$**						
NOTES						**NOTES**						

GRANT	W	D				**GRANT**	W	D				
PLAN						**PLAN**						
DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID	
BUILD	S	IP	C			**BUILD**	S	IP	C			
$						**$**						
NOTES						**NOTES**						

	IMMEDIATE					SHORT-TERM				

7 - COX ROAD NEIGHBORHOOD GREENWAY AND SIDEWALK

	IMMEDIATE						SHORT-TERM					
GRANT	W	D					W	D				
PLAN												
DESIGN	30	60	90	100	BID		30	60	90	100	BID	
BUILD	S	IP	C				S	IP	C			
$												
NOTES												

8 - C STREET NEIGHBORHOOD GREENWAY

	IMMEDIATE						SHORT-TERM					
GRANT	W	D					W	D				
PLAN												
DESIGN	30	60	90	100	BID		30	60	90	100	BID	
BUILD	S	IP	C				S	IP	C			
$												
NOTES												

9 - NORTH SIDE RESIDENTIAL GREENWAY

	IMMEDIATE						SHORT-TERM					
GRANT	W	D					W	D				
PLAN												
DESIGN	30	60	90	100	BID		30	60	90	100	BID	
BUILD	S	IP	C				S	IP	C			
$												
NOTES												

MID-TERM	LONG-TERM	FUTURE

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
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GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
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GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

GRANT W D
PLAN
DESIGN 30 60 90 100 BID
BUILD S IP C
$
NOTES

	IMMEDIATE						SHORT-TERM				
10 - OLD BAYSIDE TRAIL	**GRANT**	W	D				**GRANT**	W	D		
	PLAN						**PLAN**				
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**				
	NOTES						**NOTES**				
11 (A + B) - RAILWAY TRAIL NEIGHBORHOOD CONNECTOR	**GRANT**	W	D				**GRANT**	W	D		
	PLAN						**PLAN**				
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**				
	NOTES						**NOTES**				
12 - BAYVIEW TRAIL LOOP	**GRANT**	W	D				**GRANT**	W	D		
	PLAN						**PLAN**				
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C			**BUILD**	S	IP	C		
	$						**$**				
	NOTES						**NOTES**				

	MID-TERM					LONG-TERM					FUTURE
GRANT	W	D				W	D				
PLAN											
DESIGN	30	60	90	100	BID	30	60	90	100	BID	
BUILD	S	IP	C			S	IP	C			
$											
NOTES											

GRANT	W	D				W	D				
PLAN											
DESIGN	30	60	90	100	BID	30	60	90	100	BID	
BUILD	S	IP	C			S	IP	C			
$											
NOTES											

GRANT	W	D				W	D				
PLAN											
DESIGN	30	60	90	100	BID	30	60	90	100	BID	
BUILD	S	IP	C			S	IP	C			
$											
NOTES											

	IMMEDIATE					SHORT-TERM				
13 - RICHFIELD STATION CONNECTOR	**GRANT** W	D				**GRANT** W	D			
	PLAN					**PLAN**				
	DESIGN 30	60	90	100	BID	**DESIGN** 30	60	90	100	BID
	BUILD S	IP	C			**BUILD** S	IP	C		
	$					**$**				
	NOTES					**NOTES**				
14 - FISHING CREEK HIKING TRAILS	**GRANT** W	D				**GRANT** W	D			
	PLAN					**PLAN**				
	DESIGN 30	60	90	100	BID	**DESIGN** 30	60	90	100	BID
	BUILD S	IP	C			**BUILD** S	IP	C		
	$					**$**				
	NOTES					**NOTES**				
15 - BAYSIDE BOARDWALK & OVERLOOK	**GRANT** W	D				**GRANT** W	D			
	PLAN					**PLAN**				
	DESIGN 30	60	90	100	BID	**DESIGN** 30	60	90	100	BID
	BUILD S	IP	C			**BUILD** S	IP	C		
	$					**$**				
	NOTES					**NOTES**				

MID-TERM						LONG-TERM						FUTURE
GRANT	W	D				GRANT	W	D				
PLAN						PLAN						
DESIGN	30	60	90	100	BID	DESIGN	30	60	90	100	BID	
BUILD	S	IP	C			BUILD	S	IP	C			
$						$						
NOTES						NOTES						

GRANT	W	D				GRANT	W	D				
PLAN						PLAN						
DESIGN	30	60	90	100	BID	DESIGN	30	60	90	100	BID	
BUILD	S	IP	C			BUILD	S	IP	C			
$						$						
NOTES						NOTES						

GRANT	W	D				GRANT	W	D				
PLAN						PLAN						
DESIGN	30	60	90	100	BID	DESIGN	30	60	90	100	BID	
BUILD	S	IP	C			BUILD	S	IP	C			
$						$						
NOTES						NOTES						

	IMMEDIATE					SHORT-TERM				
16 - STINNETT TRAIL	**GRANT**	W	D			**GRANT**	W	D		
	PLAN					**PLAN**				
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C		**BUILD**	S	IP	C	
	$					**$**				
	NOTES					**NOTES**				
17 - 29TH STREET OVERLOOK	**GRANT**	W	D			**GRANT**	W	D		
	PLAN					**PLAN**				
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C		**BUILD**	S	IP	C	
	$					**$**				
	NOTES					**NOTES**				
18 - B STREET OVERLOOK	**GRANT**	W	D			**GRANT**	W	D		
	PLAN					**PLAN**				
	DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
	BUILD	S	IP	C		**BUILD**	S	IP	C	
	$					**$**				
	NOTES					**NOTES**				

MID-TERM						LONG-TERM						FUTURE
GRANT	W	D				**GRANT**	W	D				
PLAN						**PLAN**						
DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID	
BUILD	S	IP	C			**BUILD**	S	IP	C			
$						**$**						
NOTES						**NOTES**						

MID-TERM						LONG-TERM					
GRANT	W	D				**GRANT**	W	D			
PLAN						**PLAN**					
DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
BUILD	S	IP	C			**BUILD**	S	IP	C		
$						**$**					
NOTES						**NOTES**					

MID-TERM						LONG-TERM					
GRANT	W	D				**GRANT**	W	D			
PLAN						**PLAN**					
DESIGN	30	60	90	100	BID	**DESIGN**	30	60	90	100	BID
BUILD	S	IP	C			**BUILD**	S	IP	C		
$						**$**					
NOTES						**NOTES**					

CONNECTING
Chesapeake Beach