Strategies for Conserving the Green Infrastructure of COLONIAL BEACH, VA

Prepared by the Green Lands Class at the University of Virginia

Printed December 2020

UNIVERSITY of VIRGINIA

This is a report prepared by students in the University of Virginia's School of Architecture.

This work was supported by the Green Infrastructure Center Inc.

INTRODUCTION

Green infrastructure is the interconnected network of waterways, wetlands, woodlands, wildlife habitats, and other natural areas that support native species, clean water and contribute to community health and quality of life. Just as localities plan for grey infrastructure, they also need to take care of their green infrastructure to create healthful places for residents and businesses. For example, forests help to filter and absorb rainfall thereby reducing flooding frequency while also protecting streams and facilitating the recharge of groundwater supplies. Green infrastructure planning is a framework for assessing and valuing these environmental assets.

This report was prepared by students in an applied planning class titled Green Lands at the University of Virginia (UVA). This project is a collaborative partnership between the Green Infrastructure Center and UVA. It was funded by the Virginia Department of Forestry (VaDOF). Students proposed strategies for protecting environmental assets and landscape-influenced cultural resources.

Students worked in teams to evaluate the green infrastructure of Colonial Beach, Virginia. Student teams conducted research, utilized natural resource data and town data. The Green Infrastructure Center created the land cover data for the town.

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Goal 2: Use soft engineering structures, such as constructed wetlands and vegetated buffers, to protect coastal properties at risk of inundation and storm surges.

CULTURE

Goal 1: Develop and/or improve connections to cultural resources in and around town to improve access to local tourism opportunities.

Goal 2: Revitalize the boardwalk in order to improve access to outdoor recreation, promote local economic growth, and encourage tourism.

Goal 3: Improve walkability and bikeability to encourage tourism and promote a healthy and accessible town.
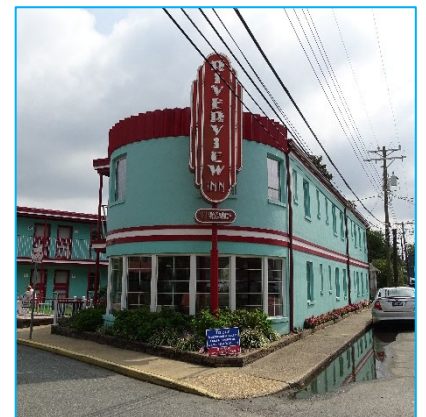
GREEN SPACES

Goal 1: Increase total tree coverage throughout Colonial Beach, to foster sustainability, reduce heat, and increase resident access to green spaces.
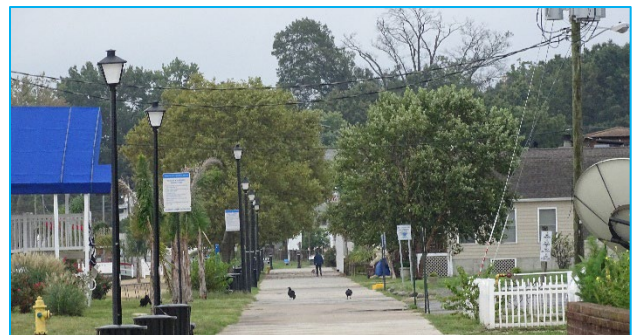
WATER: RECOMMENDED POLICIES AND STRATEGIES

Written by Biyu Chen, Yixuan Li, Jingyi Hu

RATIONALE:

The first goal is to protect the town from floods for increased personal and property safety and to maintain the tourist industry. This goal is supported by efforts to inform and educate residents on stormwater and flood issues and create a private-public flood management network.

The tourism in town relies on the Potomac River and Monroe Bay. The safety of these coastal areas and coastal infrastructure are necessary for life and safety in town. With global warming, the 35 miles of beach along Potomac and private docks along Monroe Bay are threatened by rising sea levels, increasing tidal floods, and hurricane damage. (See map 1: Flooding, map2: Sea Level Rise). About 73 people in Colonial Beach live on land below the 4 ft sea level rise line and are exposed to tidal flood risk. Trees, houses, and electricity poles could be knocked down by floods and erosion; cars and drainage systems could be damaged. The beaches and buildings along the water are key for town tourism, but also are the most vulnerable to flooding.

by: NOAA
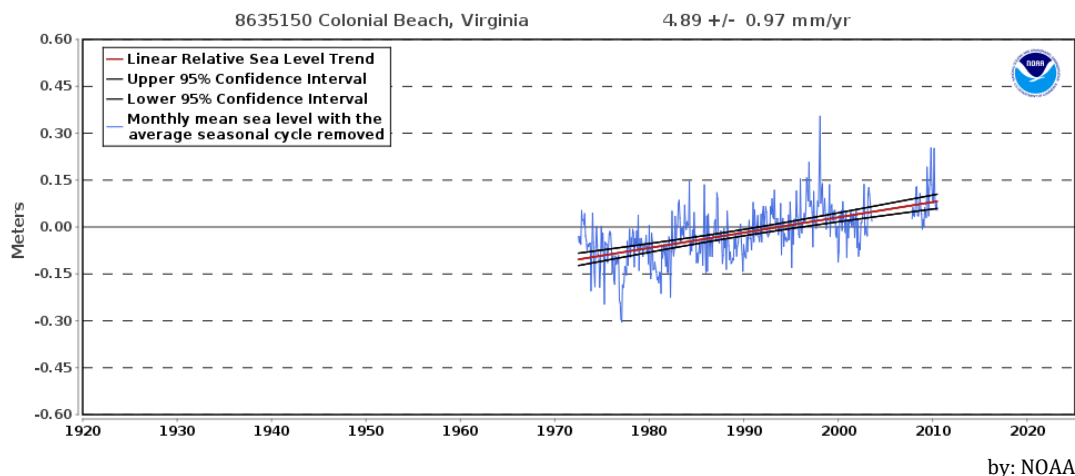
Increasing the permeable surface area and adding more layered plantings are efficient ways to make Colonial Beach more resilient during flooding, and can reduce runoff volume by trapping and slowly releasing precipitation into the ground and evaporating moisture into the atmosphere. Permeable surfaces replenish the groundwater resources, which are more able to maintain healthy aquatic ecosystems. Soil acts as a natural filter, breaking down and removing pathogens and pollutants that may be present in the water. Therefore, it keeps the groundwater free from contaminants and also provides a natural source of irrigation to the surrounding soil, alleviating the need for additional water to be used for irrigating lawns and gardens. At the same time, it will provide a healthy watershed for the community and mitigate the damage to town property during storms.

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Currently, 25.3% of the downtown area is covered by impervious surfaces. 30.9% of the center downtown area is impervious. Many streets lack flood management practices and cannot deal with stormwater causing massive runoff volumes during storms. Problem areas have been identified as Euclid Avenue, Washington Avenue, and Colonial Avenue. Increasing permeable surfaces is a better management practice (BMP) that can help to infiltrate water into the ground and prevent excess flooding. Colonial Avenue and the proposed Town Hill parking area (see Culture goal 2) can serve as a primary demonstration for installation of these management practices (see Map 2: Permeable Surfaces for visualization).
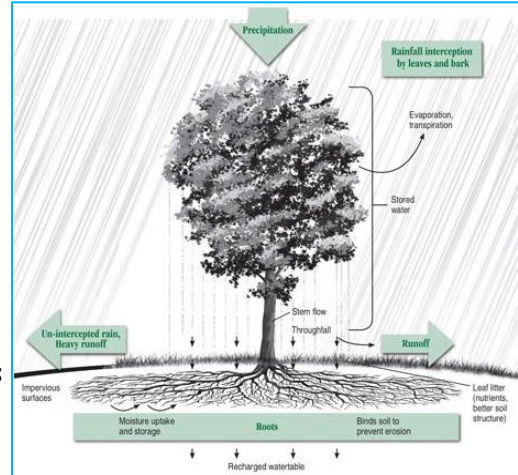
Rosenow, J., Fazio, and J.R., Helm, K. 2010. How Trees Can Retain Storm water Runoff. Tree City

Area propotion Downtown area
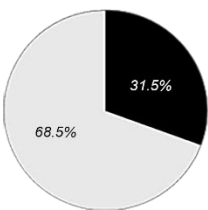
Permeability in downtown area
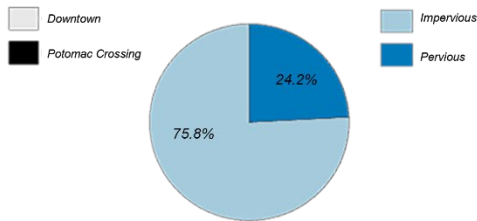
Permeability in centre downtown area
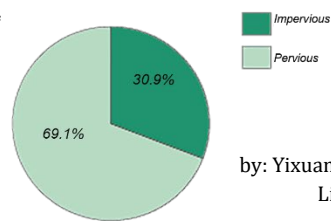
by: Yixuan Li
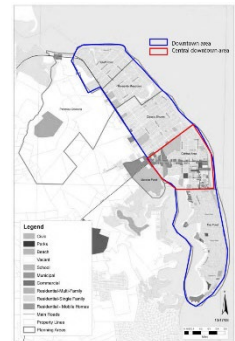
Wetlands function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater, and flood waters and distribute these waters more slowly and evenly over the floodplain, thereby lowering flood heights and dissipating storm surge more effectively. Sand dunes and the vegetation that help hold the dune together can provide substantial protection from storm erosion. Sandy beaches and dunes provide a natural buffer to coastal hazards and coastal-dwelling species, as well as improving water quality through water filtration, nutrient cycling, nutrient uptake, and water storage (see Map 7: Water Assets for locations).

These coastal wetlands are protecting the shoreline in Colonial Beach.

GOAL 1: HOLD EXCESS STORMWATER AND REDUCE SURFACE WATER ACCUMULATION IN NON-FLOOD HAZARD AREAS BY INCREASING PERMEABLE GROUND SURFACES, BUILDING BIOSWALES AND PLANTING STREET TREES.

Objective 1: Promote knowledge and integrate practice of permeable designs in town projects.

> **Action 1**: Develop a demonstration rain garden and community garden in open space around Town Hill using layered plant designs (see Appendix A: Layered Planting Design).

> **Action 2**: Encourage layered planting design in private property by providing resources to interested parties (see resources section).

> **Action 3**: Use permeable paving for the new Town Hill parking lot (see Culture section Goal 2) as a permeable paving demonstration.

Objective 2: Use streets with standing water problems as bioswale demonstrations to increase support for flood mitigation practices.

> **Action 1**: Set up a bioswale demonstration project in schools and on the street side of Colonial Avenue (see Appendix B: Bioswale and Appendix C: Street Section Sample).

> **Action 2**: Set up bioswales along Jackson Street and Washington Avenue.

> **Action 3**: Plant trees or install a bioswale along Euclid Avenue and/or Washington Avenue, using a street parking space, as part of the stormwater collection network. See section on Street System for more information.

Objective 3: Organize volunteer groups for plant maintenance. (See map 4, 5, 6)

> **Action 1**: See "Green Spaces" Appendix C for a Native Plants List customized to Colonial Beach.

> **Action 2**: Engage the local Colonial Beach Garden Club to volunteer to assist with plant maintenance and support.

> **Action 3**: Engage with schools to promote the use of bioswales and engage students in studying their function and as a way for children to volunteer outside.

Responsible parties: Office of the Town Manager, Department of Planning and Community Development, Colonial Beach School District, Department of Public Works

Cost: Plant cost (see Native Plant List) + Construction cost

Timeframe: 1 year for demonstration projects. Long-term for implementation. Objective 3 should be an ongoing project.

GOAL 2: USE SOFT ENGINEERING STRUCTURES, SUCH AS CONSTRUCTED WETLANDS AND VEGETATED BUFFERS, TO PROTECT COASTAL PROPERTIES AT RISK OF INUNDATION AND STORM SURGES.

Objective 1: Seek grant funding to establish marsh restoration areas.

    Action 1: Choose suitable areas to develop marsh restoration projects (See Map 8: Coastal Structure).

    Action 2: In areas of degraded marsh or shallow open water, use existing sediment to build up a platform for new vegetation to grow on. See Native Plants List: Floodplain for ideas.

    Action 3: Install sand fences along the edge of marsh to slow down the loss of sand and soil (See Appendix D: Sand Fences).

Objective 2: Prioritize dune restoration and tree planting programs along the coastline.

    Action 1: Transport sand to tourist hot spots, places severely affected by floods and erosion, and areas with missing trees along the coastline (see Maps 9 and 10).

    Action 2: Plant flood tolerant trees as detailed in the Native Plants List.

    Action 3: Manage coastline by highlighting the cessation of activities that adversely affect the sediment supply of the dunes, planting vegetation, fencing off sensitive areas, creating dune walkways, and providing information to the public regarding the importance of maintaining stable sand dunes (See Appendix E: Dunes).

Responsible parties: Department of Planning and Community Development, Colonial Beach Wetland Board, Chesapeake Bay Preservation Area Board

Cost breakdown:
Marsh $50,000 per h x 12h=$600,000 per year
Dune $200 per m x 32 m=$6,400 per year
ALL: $606,400 per year

Timeframe: Within next 3 years

MAPS

MAP 1: FLOODING
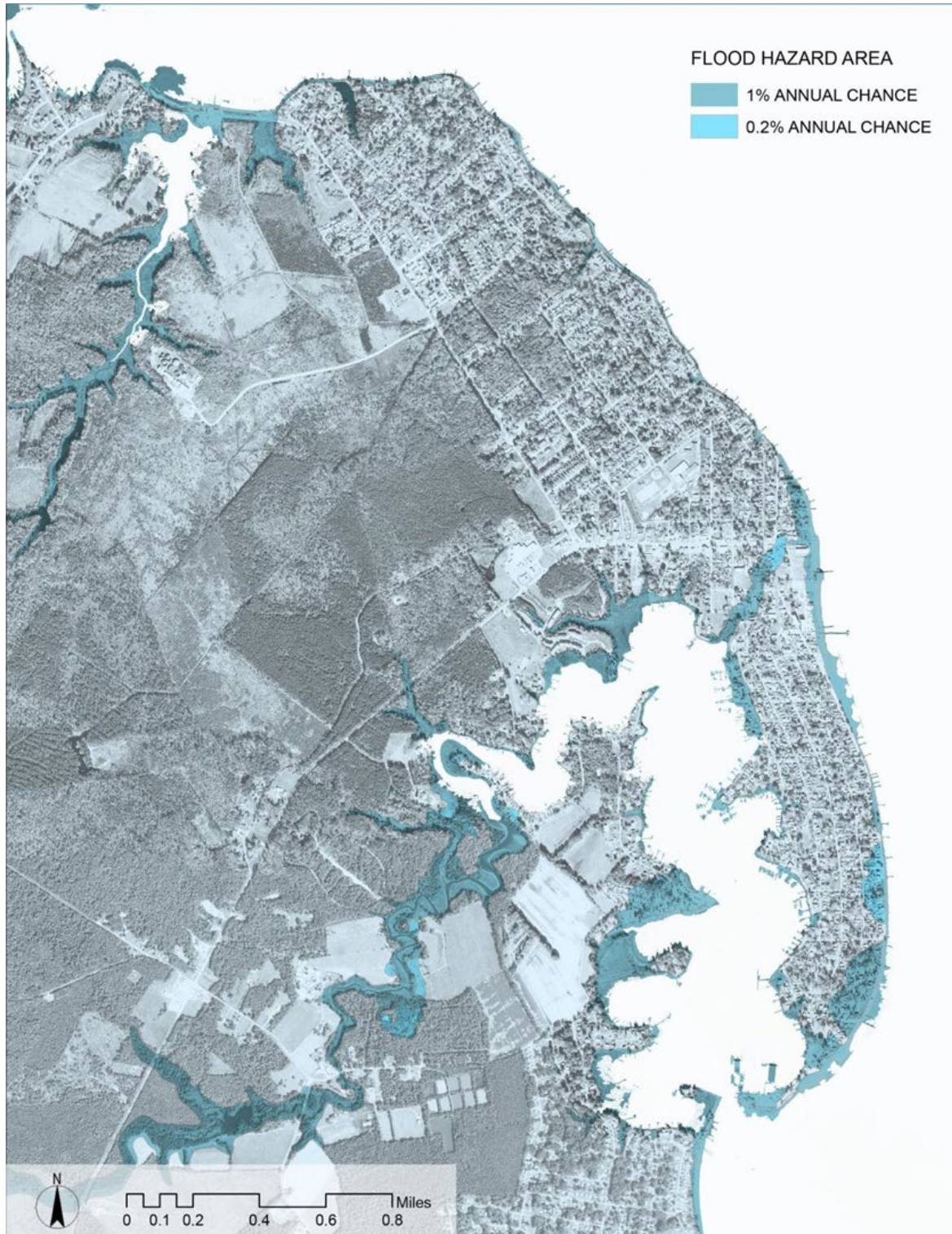
Map 2: Sea Level Rise

Map 3: Permeable Surfaces

PERMEABILITY
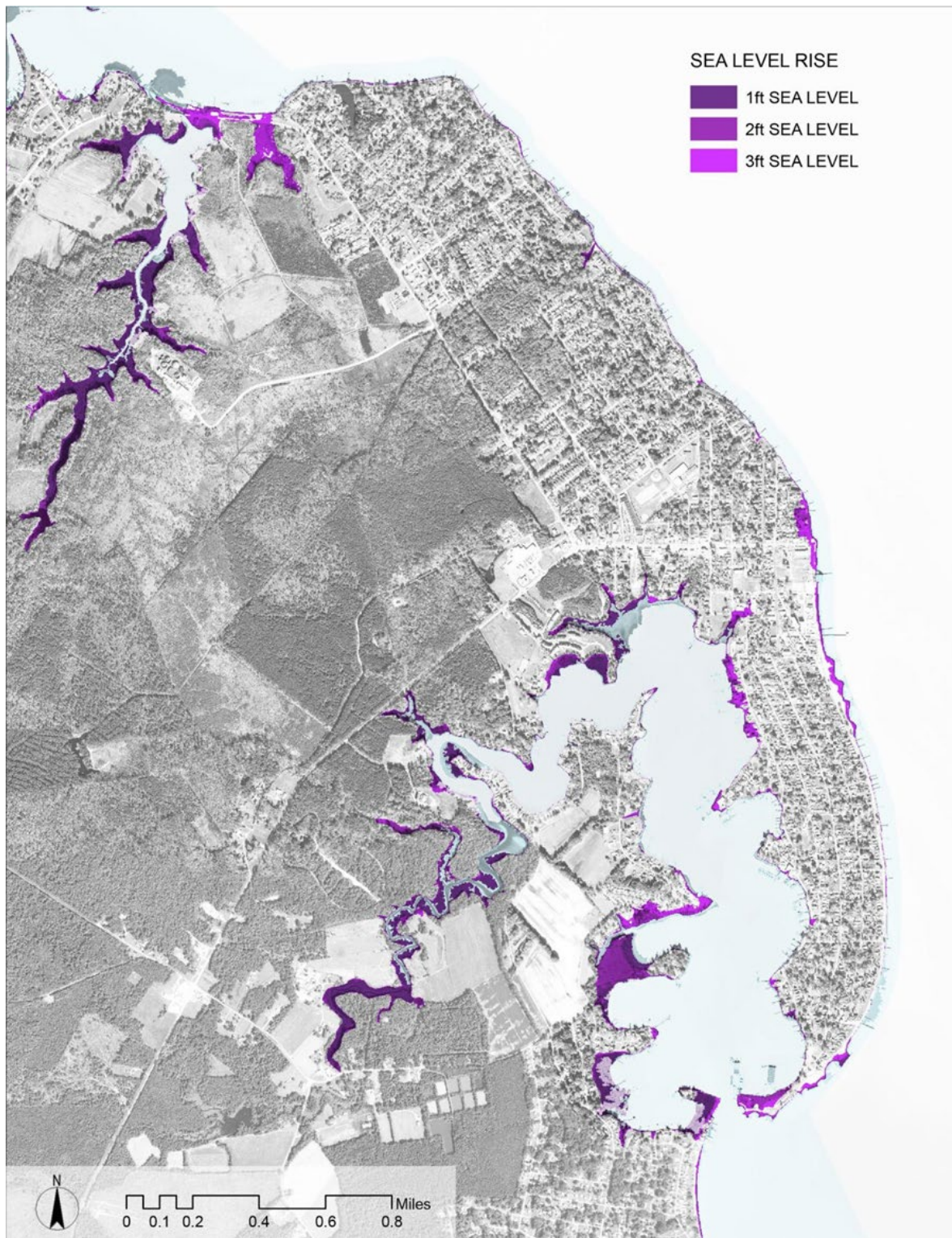
PERMEABLE SURFACE

IMPERMEABLE SURFACE

MAP 4: INCREASING PERMEABILITY STEP 1

MAP 5: INCREASING PERMEABILITY STEP 2

Map 6: Increasing Permeability Step 3
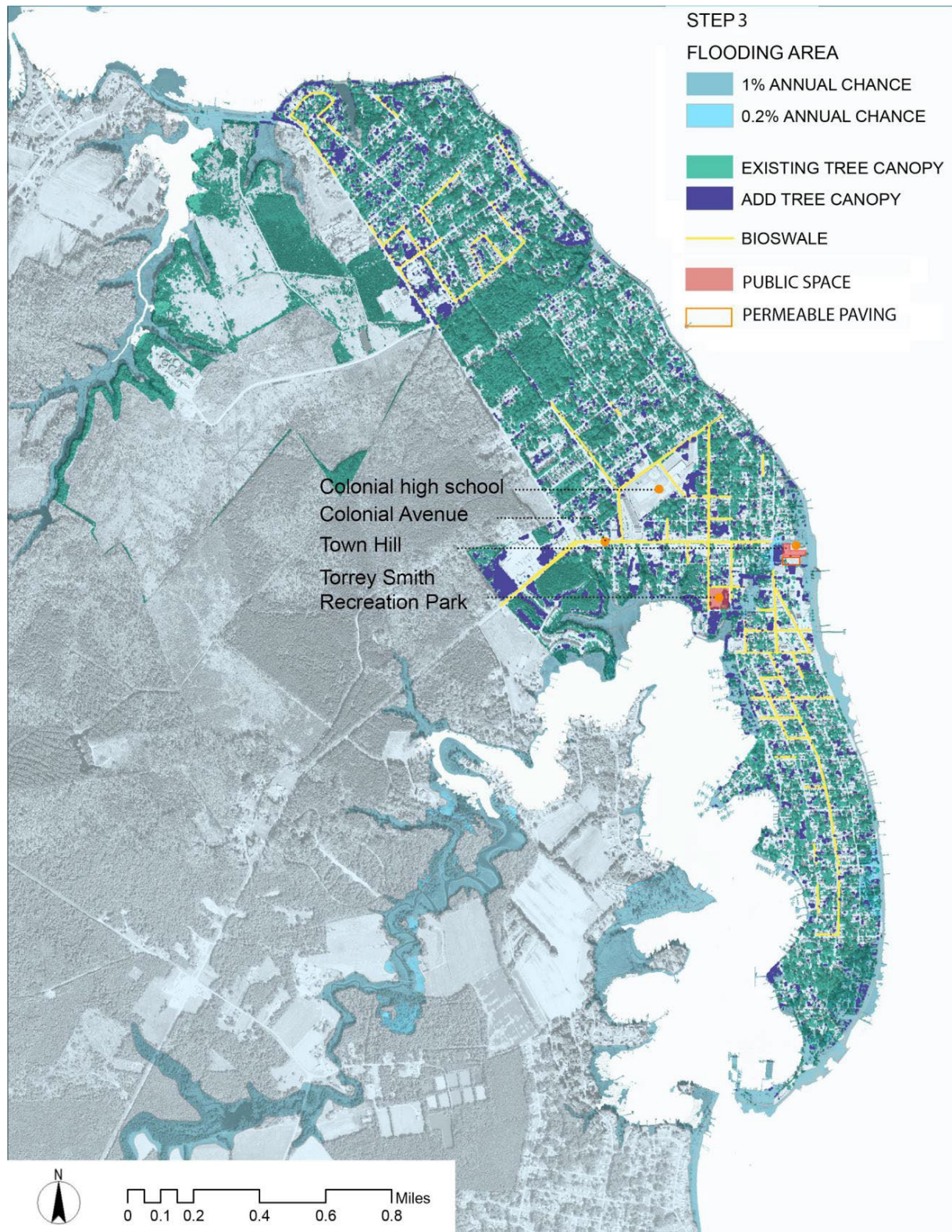
STEP 3
FLOODING AREA
- 1% ANNUAL CHANCE
- 0.2% ANNUAL CHANCE
- EXISTING TREE CANOPY
- ADD TREE CANOPY
- BIOSWALE
- PUBLIC SPACE
- PERMEABLE PAVING

Colonial high school
Colonial Avenue
Town Hill
Torrey Smith Recreation Park

N

0 0.1 0.2 0.4 0.6 0.8 Miles

Map 9: Marsh Restoration Areas

WATER ASSET
- WOODED WETLAND
- WETLAND
- LAKE POND
- SWAMP MARSH
- PROPOSED MARSH
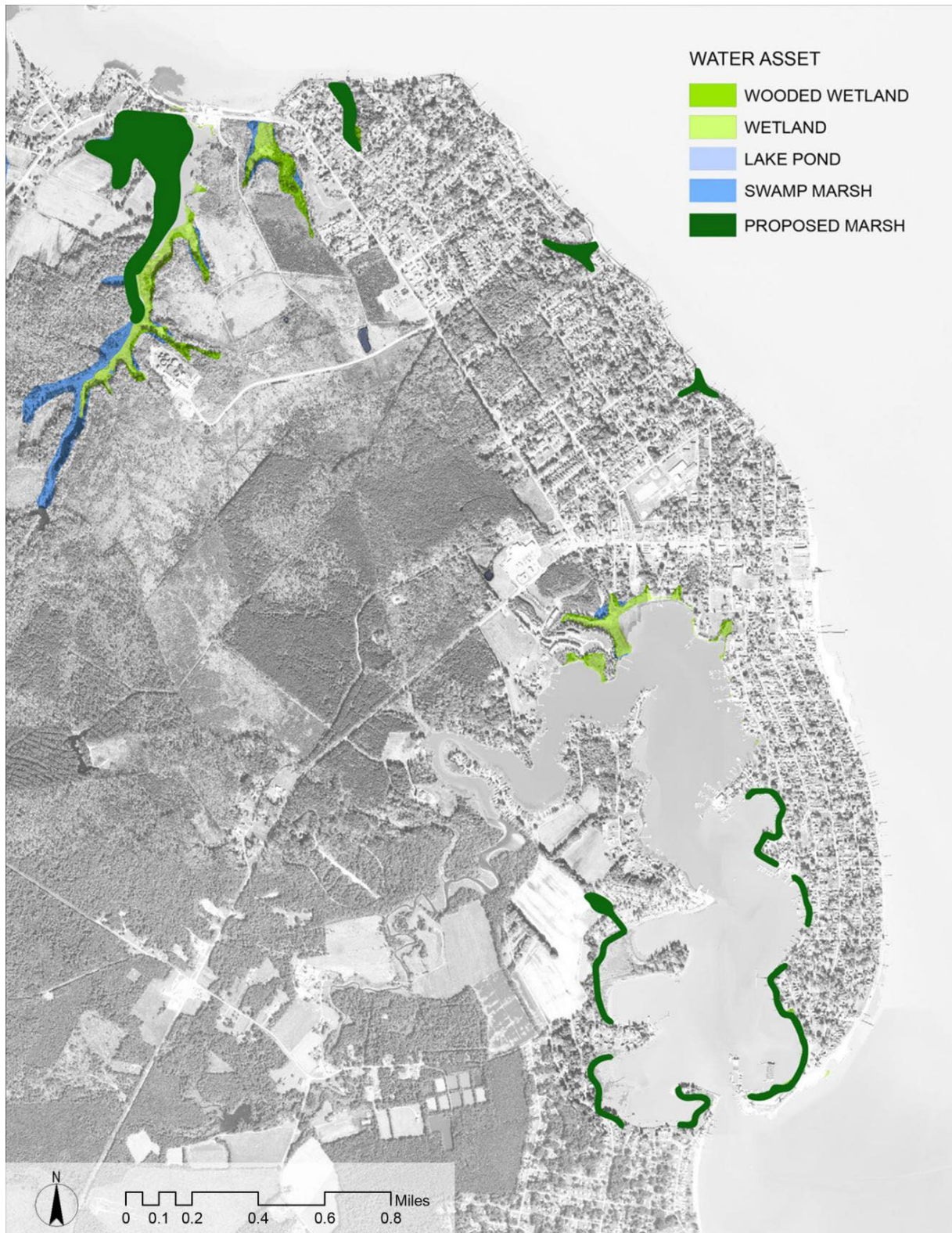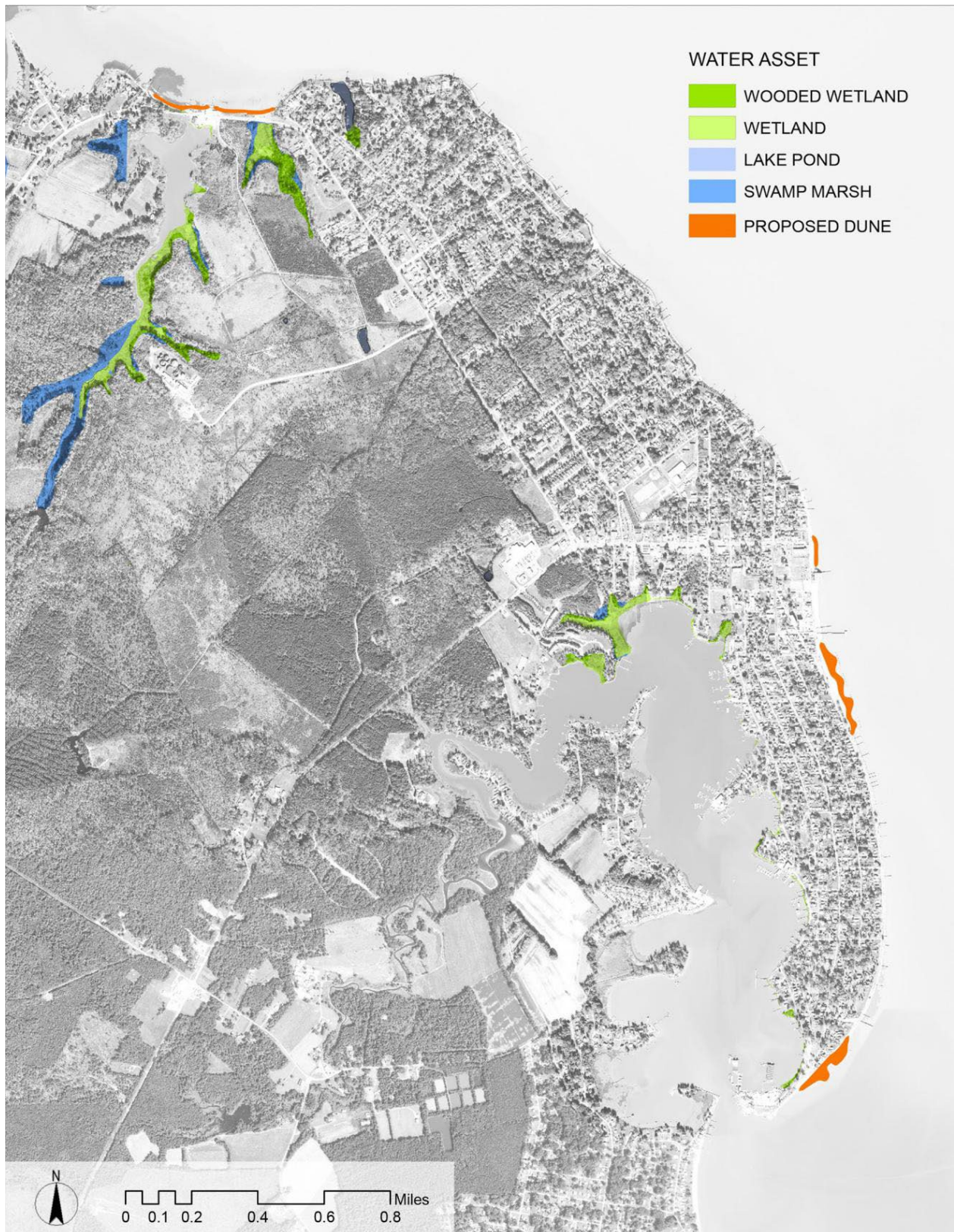
Appendices

APPENDIX A: LAYERED PLANTING
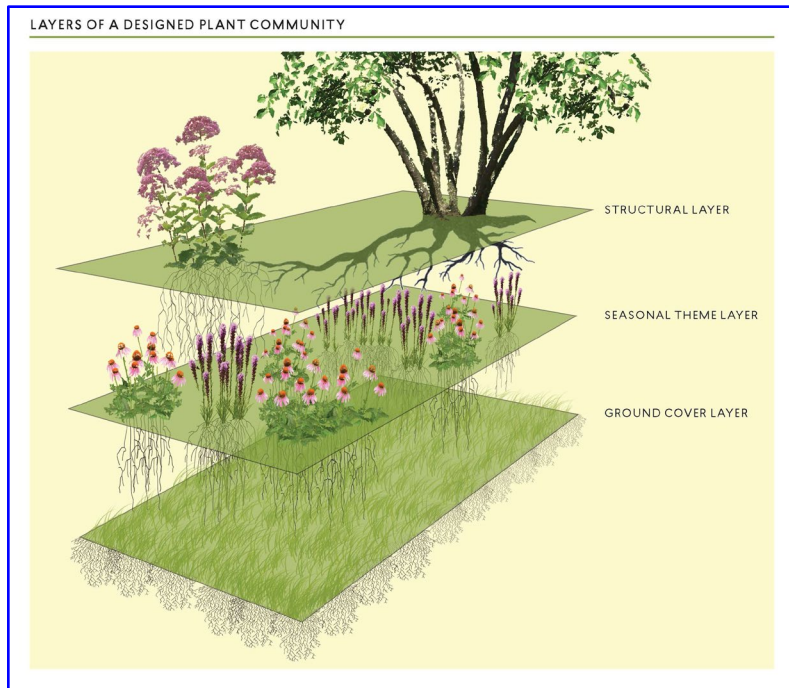
by Thomas Rainer and Claudia West

Layered planting design: using a wide variety of plants arranged into a staggered ground cover layer, understory layer and canopy layer to create a dense planting zone.

APPENDIX B: PERMEABLE PAVEMENT

Image credit: Green Print Denver

Permeable pavers: a combination of interlocking grids that are laid over a prepared subsurface and one of several filler materials, such as gravel or crushed limestone.

APPENDIX C: BIOSWALES
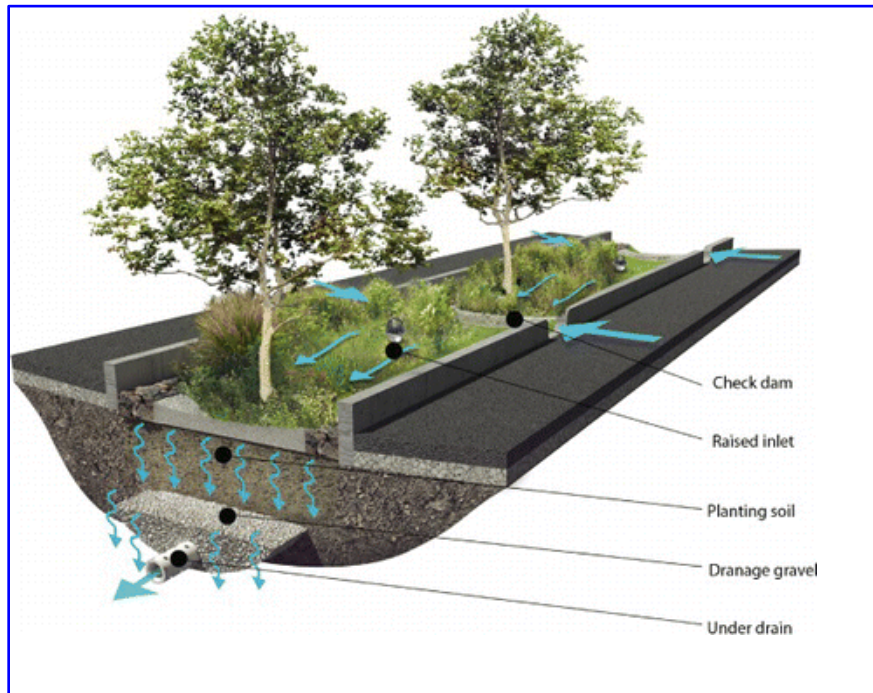
Image credit: Stuart Echols and Eliza Pennypacker

Bioswales are storm water runoff conveyance systems that provide an alternative to storm sewers. They can absorb low flows or carry runoff from heavy rains to storm sewer inlets or directly to surface waters.

APPENDIX D: SAND FENCE

Image credit: NCCOS

A sand fence is a barrier used to force windblown, drifting sand to accumulate in a desired place, much like a snow fence. Sand fences are employed to control erosion, help sand dune stabilization, and to recruit new material in sand areas (NOAA 2020).

Cross Section - Existing sand dune vegetation
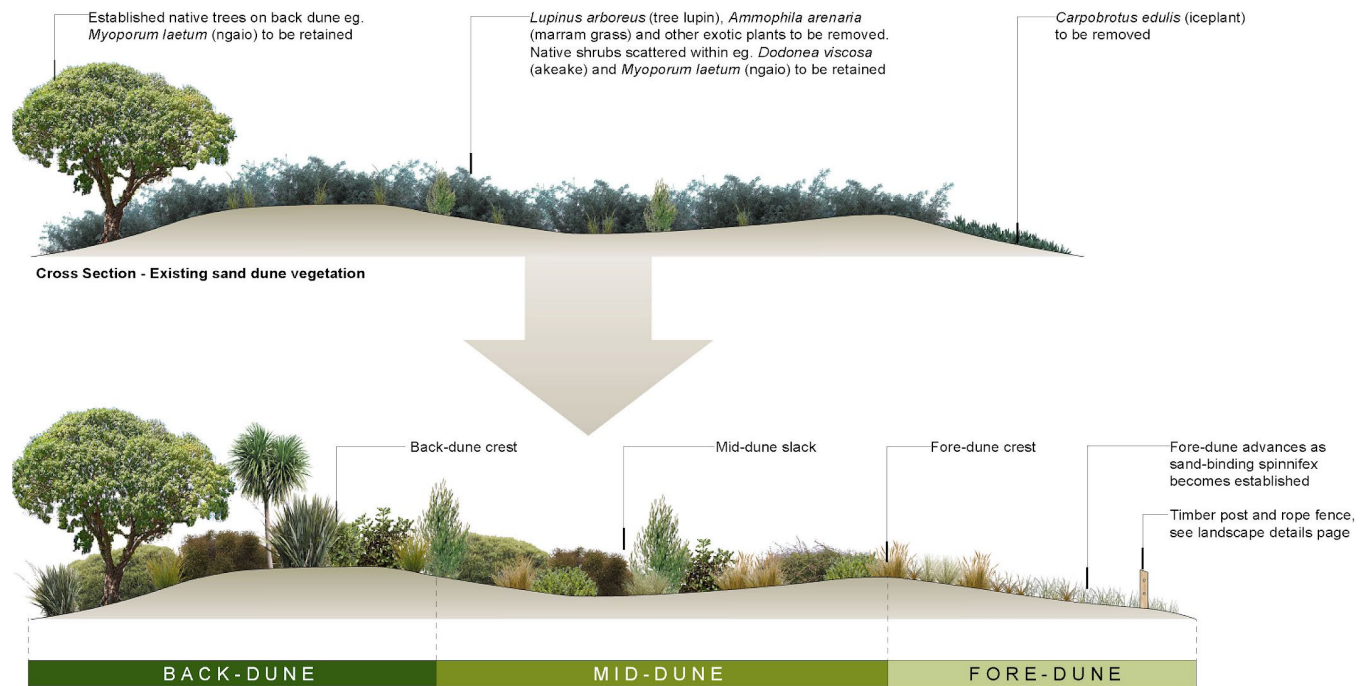
by: roughandmilne.co.nz

Vegetation is critical to dune formation and stabilization. Without vegetation, blowing sand will migrate inland. Selection of plant species is of paramount importance when restoring vegetation in bare areas of existing dunes. Dune plants must be able to survive sandblasting, sand burial, salt spray, saltwater flooding, heat, drought, and a limited nutrient supply.

APPENDIX F: CHESAPEAKE BAY PRESERVATION ACT

The Chesapeake Bay Preservation Act was enacted in 1988 in order to improve water quality in the Chesapeake Bay and other waters in Virginia. Colonial Beach, as a part of Westmoreland County, is subject to the Bay Act and must follow the mandates set forth in order to protect the Chesapeake Bay and its tributaries.

'Healthy state and local economies and a healthy Chesapeake Bay are integrally related; balanced economic development and water quality protection are not mutually exclusive.' (Bay Act, 1988)

Colonial Beach's Zoning Ordinance includes an article (Article 22) that defines the Chesapeake Bay Preservation Overlay District and its provisions. This article was last updated in 2006. Suggestions are made below for how it can be updated for a more current plan regarding the Bay Act. It is important to consider Colonial Beach's goals for the health of its surrounding waters and long-term impact of sea level rise when revising Zoning Ordinance Article 22.

Requirements	What Colonial Beach can do
Incorporate general water quality protection measures into comprehensive plans, zoning ordinances, and subdivision ordinances	● Plans must be kept up to date ● Aim to revise major water quality protection measures at least every 10 years
Establish programs that define and protect certain lands which if improperly developed may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries	● Update Landscaping Plan to require that all plans must include a statement regarding how water quality will be preserved. Water quality must be kept in mind while developing landscapes
Protection of existing high quality state waters and restoration of all other state waters to a condition or quality that will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, that might reasonably be expected to inhabit them	● Identify at-risk habitats and set goals for mitigating harm to these locations ● Promote green recreation and tourism ● Restrict access to habitats during sensitive periods like mating season
Prevention of any increase in pollution	● Update Stormwater Management Plan to consider 10 year predictions of sea level rise
Reduction of existing pollution	● Update Stormwater Management Plan to include new developments and new risk locations based on sea level rise
Preservation of mature trees or planting of trees as a water quality protection tool and as a means of providing other natural resource benefits	● Reference "Native Plant List" and strategies for Water to see recommendations for which native VA trees are ideal for improving water quality ● Ensure compliance to provisions regarding tree restoration
Coastal resilience and adaptation to sea-level rise and climate change	● See Goal 1 for water ● Explore bioswales and permeable paving ● Comprehensive evacuation and shelter planning for floods

Promotion of water resource conservation in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth	● Conduct updated Water Quality Impact Assessments
Have zoning ordinances that incorporate measures to protect the quality of state waters	● Revise Article 22 as new evidence and predictions regarding climate change and sea level rise become public

See Colonial Beach 2009 Comprehensive Plan: https://colonialbeachva.net/wp-content/uploads/2018/06/Chapter-6-Environmental-Addendum.pdf

https://colonialbeachva.net/wp-content/uploads/2018/07/Article-22-Chesapeake-Bay-Preserv-Overlay-Updated-December-2006.pdf

Chesapeake Bay Preservation Act information: https://www.deq.virginia.gov/programs/water/chesapeakebay/chesapeakebaypreservationact.aspx

https://law.lis.virginia.gov/vacodefull/title62.1/chapter3.1/article2.5/

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NOAA. 2020. The Effect of Sand Fencing on the Structure of Natural Dune Systems.

https://coastalscience.noaa.gov/news/the-effect-of-sand-fencing-on-the-structure-of-natural-dune-systems/

Wetlands Watch Citizen Action Program:

http://wetlandswatch.org/citizen-action

Living Shorelines Information:

http://www.vims.edu/ccrm/outreach/living_shorelines/index.php

Sea-Level Curve Calculator:

http://corpsmapu.usace.army.mil/rccinfo/slc/slcc_calc.html

Sea-Level Rise Viewer and Trends:

https://coast.noaa.gov/slr/#/layer/slr/0/-11581024.663779823/5095888.569004184/4/satellite/none/0.8/2050/interHigh/midAccretion

https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=8635150

Surging Sea Risk Finder:

https://riskfinder.climatecentral.org/place/colonial-beach.va.us?comparisonType=place&forecastType=NOAA2017_int_p50&level=4&unit=ft

CULTURE: RECOMMENDED POLICIES AND STRATEGIES

Written by Maria Latimer, Jinzhao Chen

RATIONALE:

The Colonial Beach area has many cultural resources but connections are nonexistent or difficult to navigate. The 2017 Outdoors Demand Survey found that 71% of households participate in visiting natural areas and 67% of households participate in outdoor recreation by driving for pleasure (VA DCR, 2018). By connecting Colonial Beach to state and national tourism systems, including the Potomac Heritage National Scenic Trail and the Virginia Scenic Byway System, Colonial Beach can be promoted as a site for scenic views, cultural sites, and green recreation.

Colonial Beach and James Monroe's birthplace are both stops along the Leedstown Loop section of the Northern Neck (NN) Heritage Trail in the Potomac Heritage National Scenic Trail. This is a bike trail stretching from Pennsylvania to Virginia established by the National Park Service. There is bike access from downtown Colonial Beach to James Monroe's birthplace along Route 205, but this route has not been approved yet for golf cart access. Additionally, Irving Ave and Monroe Bay Ave have been identified as routes to add to the NN Heritage Bicycle Trail to promote tourism within Colonial Beach.

Lack of wayfinding and signage has been identified as an ongoing barrier to tourism and accessibility in Colonial Beach. In order for the previous objectives to become successful, proper signage must be established to ensure that choosing these recreation activities is an easy decision for visitors and residents. Recreation-centered maps should be considered as an economic opportunity to promote tourism and patronage of nearby resources.

Only 7% of the population in Westmoreland County have adequate access to physical recreation, compared to 81% statewide (VA DCR, 2018). Colonial Beach has a significant opportunity to increase this access by utilizing the boardwalk to create locations for physical activity like walking, biking, water sports, and more. Outdoor recreation opportunities improve public health and safety. Colonial Beach should transform the area around Town Hill to encourage pedestrian traffic onto the boardwalk and to make the boardwalk and Town Hill more accessible.

There are numerous vacant lots along the boardwalk that offer opportunities for new business growth, but in their current state, discourage tourists from exploring Colonial Beach. Dodson Development Group (DDG) has a development plan for certain lots, there is still room to encourage local residents to expand their business ventures along the boardwalk by highlighting arts and recreation. Colonial Beach could improve tourism while DDG works on their new development. As part of a plan for economic development, tax breaks can be offered to new business owners who complete at least one of the following efforts of revitalization: provide significant outdoor seating; focus their business on promoting green recreation like biking or kayaking; commission local artists to paint murals outside or inside the building; provide opportunities for local musicians to perform live music for smaller crowds; or fulfill another mutually agreed upon action of promoting local art or green recreation.

GOAL 1: DEVELOP AND IMPROVE CONNECTIONS TO CULTURAL RESOURCES IN AND AROUND TOWN TO FACILITATE TOURIST ACCESS.

Objective 1: Create a golf cart-accessible path to James Monroe's birthplace (see Map 1).

> **Action 1:** Contact the Virginia Department of Transportation to request golf cart access along the Potomac Heritage Northern Neck Heritage Bicycle Trail (Rt 205 from Colonial Beach to Monroe Hall).
>
> > **1a.** Work with the Northern Neck Tourism Commission to petition VDOT (link in resources section).
>
> **Action 3:** Contact the National Park Service to promote the use of the Leedstown Loop from Colonial Beach to James Monroe's birthplace as a golf cart route in addition to a bike path.
>
> **Action 4:** Promote the golf cart access through Colonial Beach and Northern Neck Tourism Commission as a selling point of tourism in Colonial Beach and the surrounding areas.

A map of Virginia's Northern Neck region. Credit: Northern Neck Tourism Commission.

Objective 2: Designate Colonial Ave (Rt 205Y) as a scenic road to promote outdoor tourism.

    Action 1: Express interest to VDOT about designating Colonial Ave as a scenic road (see Appendix A for full process).

    Action 2: VDOT and DCR evaluation and resolution of support submitted to VDOT by Colonial Beach government.

    Action 3: Designation is approved by the Commonwealth Transportation Commission.

    Action 4: Establish signage and add the route to VA Scenic Roads Map.

Objective 3: Create the Heritage Bicycle Trail Spur in Colonial Beach to connect Colonial Beach to the Northern Neck Heritage Trail.

    Action 1: Work with National Park Service and Northern Neck Tourism Commission to add a "Colonial Beach" mini-loop to the Northern Neck Heritage Trail that follows Irving Ave down along the Potomac River and Monroe Bay Ave back up along Monroe Bay.

    Action 2: Establish wayfinding signage and/or marking for the mini-loop.

        2a. Consider painting along streets as a cheaper alternative to creating street signs.

    Action 3: Add information about the loop to Colonial Beach and Northern Neck Tourism sites.

Objective 4: Establish wayfinding signage and mapping for top cultural resources to make recreation easier for visitors.

    Action 1: Work with NPS to ensure any Potomac Heritage Trail signage meets guidelines and matches other signs along the trail.

    Action 2: Identify high traffic spots where informational signage is needed, such as Town Hill and the Town Pier.

        2a: These signs should include information about closest points of interest (e.g. mural locations), directions to areas such as the boardwalk, biking trails, golf cart rentals, and more (see examples below).

        2b: Explore joint projects with students (CBHS, Northern Neck Technical Center, or Rappahannock Community College) to develop a QR code system that will link visitors to maps of the Colonial Beach area and points of interest through their cell phones.

A mock-up of QR code-signage for Colonial Beach.

Note: QR codes eliminate the need for printing physical maps, allow for editing information without needing to reprint, and are accessible by anyone with a smartphone. Using QR codes will save money and allow tourism information to be updated.

Goal 2: Revitalize the boardwalk in order to improve access to outdoor recreation, promote local economic growth, and encourage tourism.

Objective 1: Increase accessibility for Town Hill and offer opportunities for bike and golf cart parking.

> **Action 1:** Install 2-3 bike racks near entrance to Town Hill and/or entrance to the boardwalk.
>
> **Action 2:** Plant native shade trees on lot (see Native Plant List for more information).
>
> **Action 3:** Prioritize golf cart parking spaces by designating areas on grass (cheapest option) or creating parking lot at the intersection of Livingstone St and Washington Ave for golf cart parking.
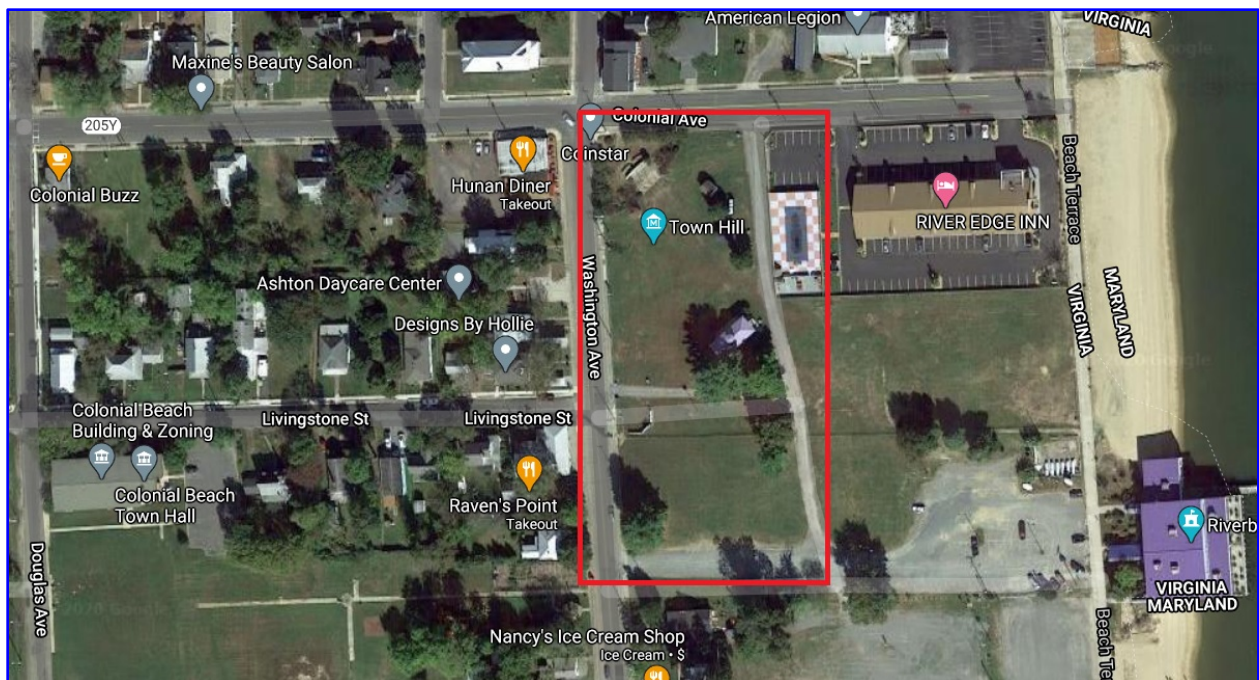
Town Hill and the proposed area for a golf cart and bike lot.

Objective 2: Encourage growth of new businesses along boardwalk by passing tax breaks for businesses that prioritize outdoor areas, promote green recreation, and/or make a distinct effort to promote local art.

> **Action 1:** Identify areas of opportunity within Colonial Beach and Westmoreland County tax codes where economic incentives can be established to promote tourism.

Action 2: Update CB tourism website to include up to date information about art opportunities in Colonial Beach.

Action 3: Set timeline for economic incentives that allow businesses time to become economically sound and for their investment into tourism value to pay off.

Action 4: Promote these incentives through the Colonial Beach Chamber of Commerce.

One of the murals featured throughout downtown Colonial Beach.

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Objective 3: Establish spray park along boardwalk.

A spray park is "any shallow manmade structure...used for spraying humans with water and which has a drainage area designated to remove the water from the shower or spray nozzles" ("Codes & Regulations"), or essentially a playground with sprinklers. Previous surveys have indicated an interest in building a spray park, but this is a project that would require a significant monetary investment.

Note: this outlines the basic tasks regarding establishing a spray park, but an architect and/or engineer specializing in water recreation must be consulted before proceeding. As such, this objective is proposed as a long-term, low priority goal, as extensive outside consultancy is needed.

Action 1: Designate vacant lot (proposed: lot adjacent to Town Hill) as a site to build a small spray park.

Action 2: Plant shade trees along the perimeter of the Town Hill and vacant lots.

Action 3: Implement spray park equipment, including sprinkler nozzles, water treatment, and recirculation system.

Action 4: Establish benches, gravel pathways, and open green spaces for general use on the remaining portions of the lot.

Goal 3: Improve walkability and bikeability to encourage tourism and promote healthy transportation in Colonial Beach.

Objective 1: Enhance the safety of high traffic intersections

Action 1: Identify the most important (e.g. next to schools, churches, parks) and most hazardous (e.g. blind spots, lack of crosswalks) intersections.

Action 2: Trim tree branches that create blind points at intersections.

Action 3: Paint crosswalks that designate safe areas to cross where drivers must be on highest alert.

Action 4: Install crosswalk lights at the highest priority intersections (i.e. surrounding schools).

Defined areas for pedestrians will highlight the importance of yielding to pedestrians and bikers who have right of way.

Objective 2: Rethink street design to enhance the traffic flow and give opportunities for biking, carting, and walking.

Action 1: Identify streets with highest need for renewal. Classify these streets as higher-traffic (downtown) or lower-traffic (residential).

Action 2: Ensure higher trafficked areas have appropriate access to wayfinding signage.

Action 3: Build street design prototypes - mockups are included following and in the appendix.

Prototype 1: This street is located in the downtown area and has higher traffic levels and wider streets.
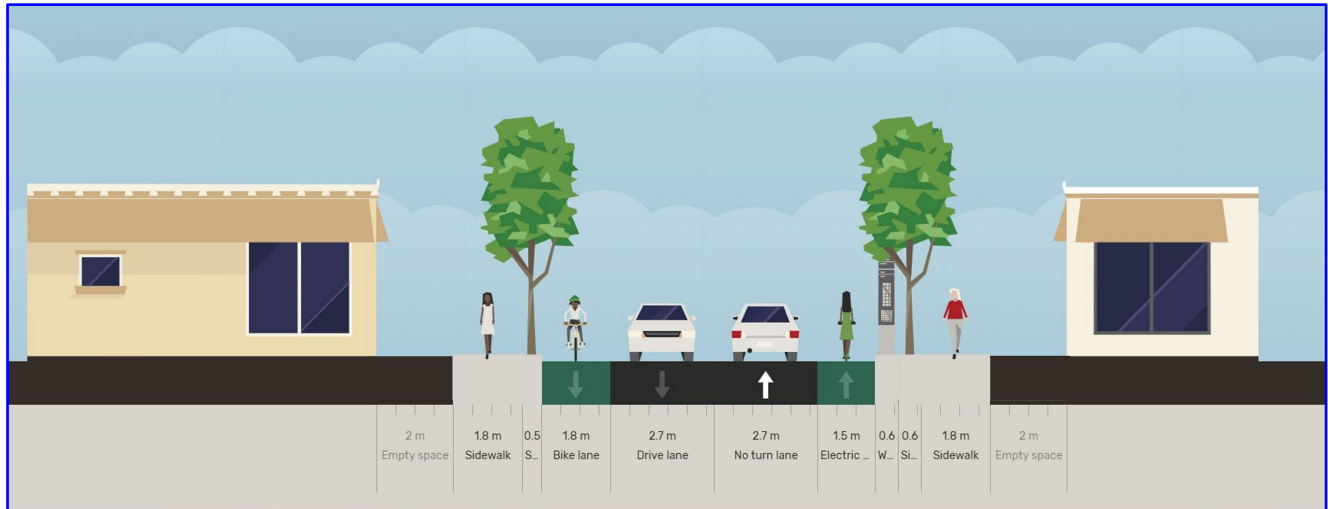
Street Section of prototype 1

Prototype 2: This street is located in a residential area, with lighter traffic and lower speeds. These streets likely are less wide than the road in prototype 1.
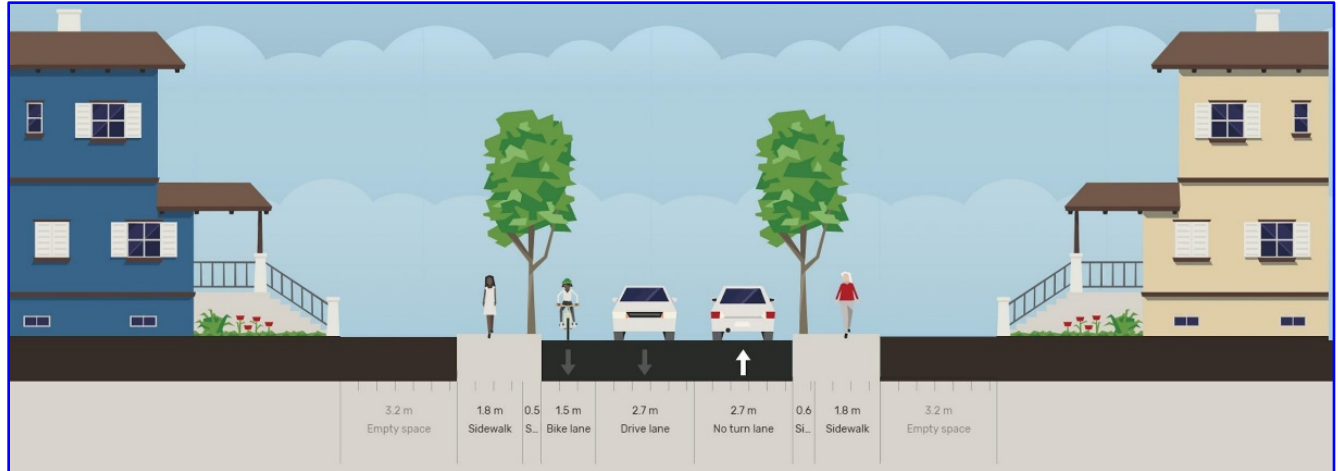
Street section of prototype 2

Action 4: Upgrade street system with proposed focus on accessibility (bike lanes, sidewalks) and greenery (tree planting).

MAPS

MAP 1: TRAILS

Colonial Beach
Bikeways & Trails Plan

Legend
- School Location
- Proposed Bikeway Facility
- Proposed Bikeway-Trail Facility
- Existing Multi-Use Path
- Gravel Road
- Undeveloped Right of Way
- Corporate Limits

Recreation asset

+ Historical points

— sidewalk

■ commercial

■ park

Town Hill

Riverboat on the Potomac

Torrey Smith Recreation Park

Colonial Beach Town Pier

Monroe Point

War Memorial Pavilion

Colonial Beach Historical Society

Colonial beach

Monroe Hall (Monroe birthplace)

Yinkie Doodle Marina

Colonial Beach Community Center

The Boathouse Marina, LLC

Monroe Bay Campground

Rogers Marina

Colonial Beach Yacht Center

N

Miles

0   0.1 0.2   0.4   0.6   0.8

Appendices

Appendix A: Scenic Road Designation

A road segment must substantially meet the following criteria to be considered for designation:	Route 205Y - Colonial Avenue
The route provides important scenic values and experiences.	● VA 205Y is a spur off of Rt 205, which runs through King George and Westmoreland counties in Va. 205Y connects drivers to the beach, the River, and Monroe Bay, as well as all the cultural amenities of Colonial Beach.
There is a diversity of experiences, as in transition from one landscape scene to another.	● VA 205Y connects Rt 205 to the beachfront in Colonial Beach on the Potomac River. ● Rt 205 connects cultural resources like Monroe Hall and 205Y allows easy access to the beach.
The route links together or provides access to scenic, historic, recreational, cultural, natural and archeological elements.	● VA 205Y gives drivers access to both the Potomac riverside and Monroe Bay. VA 205Y terminates at the boardwalk in Colonial Beach along the Potomac River, which is the second largest beach in Va.
The route bypasses major roads or provides opportunities to leave high-speed routes for variety and leisure in motoring.	● Rt 205, Rt 204, and Rt 3 are the large motorways in the area, connecting the biggest cultural attractions, but 205Y, as a highway spur, allows drivers to get off the major roads and take a more leisurely route through a small town.
Landscape control or management along the route is feasible.	● The town already has plans for revitalization and tree planting along VA 205Y.
The route allows for additional features that will enhance the motorist's experience and improve safety.	● There are plans and recommendations for improving the safety of drivers, pedestrians, and bikers along 205Y. ● Plans have been suggested for improving the terminus of 205Y at the beachfront. ● Colonial Beach is a golf cart community and gives drivers the opportunity to switch from their car to a golf cart while driving to enhance their outdoor experience.

Local government(s) has/have initiated zoning or other land-use controls, so as to reasonably protect the aesthetic and cultural value of the highway.	● Colonial Beach staff have identified residential lots along 205Y that are open to improving greenery by planting trees.

Virginia Scenic Roads Byway Designation Process:

- ❏ Interest for designation is expressed to VDOT and/or DCR.
- ❏ An evaluation of the corridor is conducted. The evaluation includes researching local zoning laws, traffic volumes and accident reports and researching places of historical, natural or recreational significance. A joint field Inspection by VDOT and DCR is conducted of the corridor when trees are in full leaf.
- ❏ A decision determining suitability of corridor for designation is made.
- ❏ Local government(s) adopts resolution of support and submits to DCR and VDOT.
- ❏ Based on Evaluation DCR Director recommends qualifying roads to VDOT Commissioner for designation.
- ❏ A public hearing or multiple hearings are held on the proposed byway. VDOT and/or DCR will assist localities with hearing(s), if requested.
- ❏ Commonwealth Transportation Board designates byway.
- ❏ Signage Installed.
- ❏ The newly designated byway is added to the State Official Transportation Map State Map and Scenic Roads & Byways Map.

Information thanks to VDOT: https://www.virginiadot.org/programs/faq-byways.asp

APPENDIX B: RECOMMENDED TIMELINE FOR DEVELOPMENT

Short-term 0-2 years

- Create a golf-cart accessible path to Monroe Hall
- Designate Colonial Ave as scenic road
- Create the Heritage Bicycle Trail Spur
- Establish wayfinding signage and mapping for top cultural resources
- Enhance safety of intersections

Mid-term priority 2-5 years

- Encourage growth of new businesses along boardwalk by passing tax breaks for businesses that prioritize outdoor areas, promote green recreation, and/or make a distinct effort to promote local art
- Increase accessibility for Town Hill

Long-term priority 5+ years

- Establish spray park along boardwalk.
- Update street design

Colonial Beach is enhancing the greenery and beauty of streets to increase tourism value and access to green recreation. Below is a rendering of the street system with emphasis on walkability and comfort.
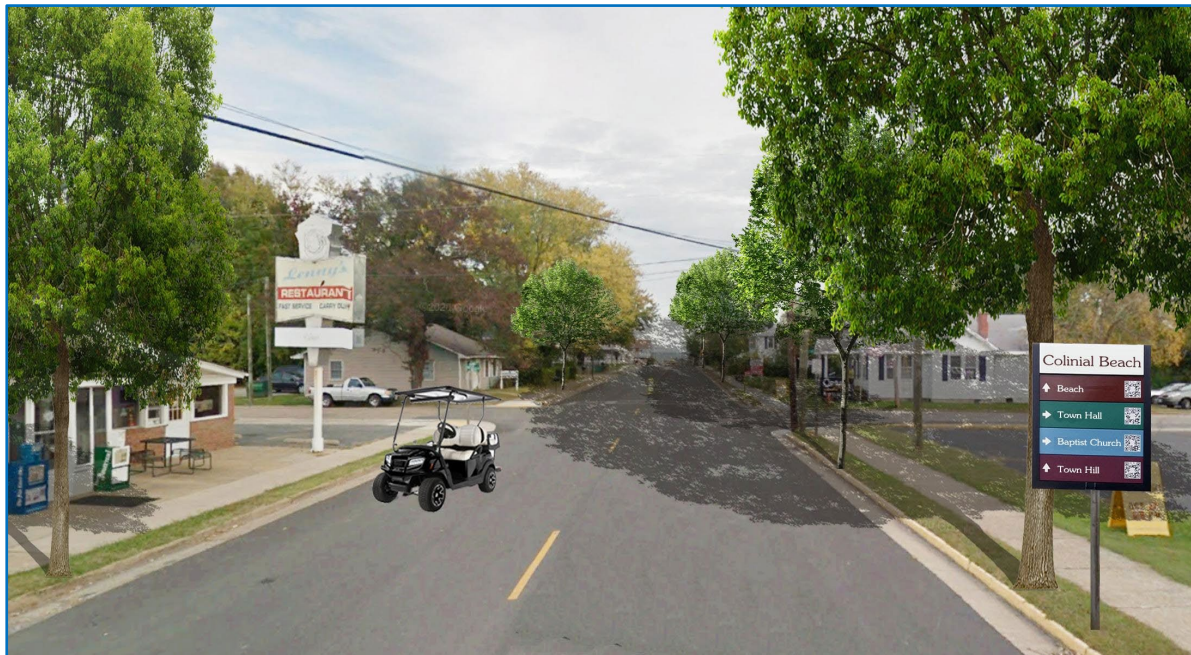
APPENDIX D: STREET SYSTEM PROTOTYPES

Prototype 1 (Higher Traffic Streets):
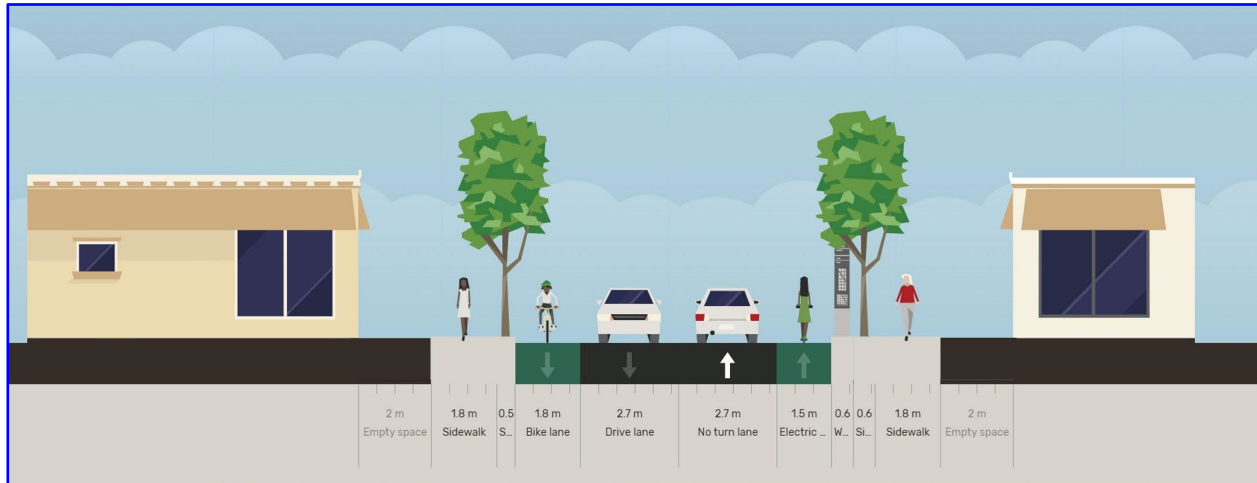
This prototype assumes wider streets, giving room for two-way traffic, a bike lane, scooter/golf cart lane, street trees, and sidewalks.

Prototype 2 (Residential/Lower Traffic Areas):
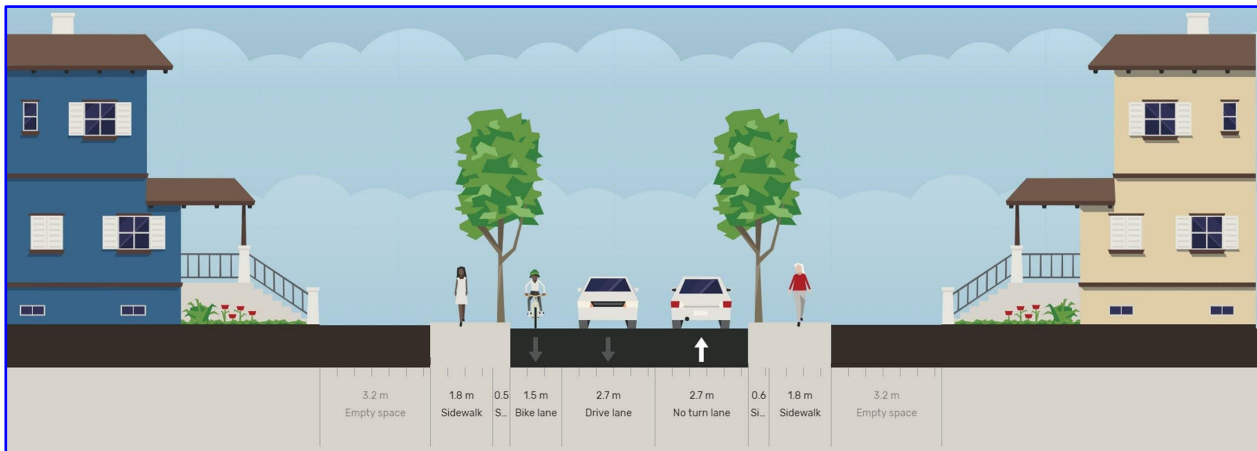
This prototype assumes streets are skinnier and therefore, plans for two-way traffic but only one multi-use lane. There is still a key emphasis on street trees and sidewalks.

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https://www.rceno.com/RCENO/wp-content/uploads/2017/10/101017-Sign-CloseUp.jpg

"Codes & Regulations." Environmental Health | City of Norfolk, Virginia - Official Website. https://www.norfolk.gov/1167/Codes-Regulations

"Northern Neck," 2018. https://www.dcr.virginia.gov/recreational-planning/document/vopchapt02.pdf

"The Northern Neck." Northern Neck Tourism Commission, December 13, 2019. https://www.northernneck.org/the-northern-neck-2/.

"Virginia's Outdoors Demand Survey," 2018. https://www.dcr.virginia.gov/recreational-planning/document/vopchapt02.pdf

"Wayfinding Program". https://www.thewoodlandstownship-tx.gov/DocumentCenter/View/9181/Chapter-6-Wayfinding-Program

WEB LINKS

Virginia's Plan for outdoor recreation and land conservation: https://www.dcr.virginia.gov/recreational-planning/document/vopchapt01.pdf

Virginia Outdoors Plan Park Planning Guidelines: https://www.dcr.virginia.gov/recreational-planning/document/vop-app-07-park-planning-guides.pdf

Spray Park: https://www.norfolk.gov/1167/Codes-Regulations

Virginia Outdoors Sign Plan: https://www.dcr.virginia.gov/recreational-planning/document/vop-app-08-trail-sign-plan.pdf

Virginia Main Street: https://www.dhcd.virginia.gov/vms

USDA Guide to Funding Resources: https://www.nal.usda.gov/ric/funding-resources

RESOURCES

1. **Virginia Scenic Road Designation:**

VA Scenic Roads: https://www.virginiadot.org/programs/prog-byways.asp#:~:text=The%20legislation%20defined%20a%20Scenic,historical%2C%20natural%20or%20recreational%20significance.

Byway Designation Process: https://www.virginiadot.org/programs/faq-byways.asp

2. **Heritage Bicycle Loop:**

Leedstown Loop: https://www.nps.gov/pohe/planyourvisit/leedstown_loop.htm

Northern Neck Heritage Trail map: https://www.nps.gov/pohe/planyourvisit/upload/Northern-Neck-Heritage-Trail-bicycling_17JUN2014_low-res-Access.pdf

3. **Golf Cart Designation:**

VDOT petition for golf cart use: https://www.virginiadot.org/business/resources/land_use_regs/newPermitPackages/LUP-GC.pdf

Code of Virginia Designation of public highways for golf cart and utility vehicle operations: https://law.lis.virginia.gov/vacode/title46.2/chapter8/section46.2-916.2/

4. **Colonial Beach Cultural Resources:**

Town Hill: https://www.colonial-beach-virginia-attractions.com/town-hill.html

Chamber of Commerce: https://www.colonialbeach.org/

Design and Development Guidelines: https://colonialbeachva.net/wp-content/uploads/2018/06/Colonial-Beach-Design-Guidelines-Rev.9.16.13.pdf

Colonial Beach Artists Guild: https://www.colonial-beach-virginia-attractions.com/colonial-beach-artists-guild.html

Colonial Beach Community Foundation: https://www.colonial-beach-virginia-attractions.com/colonial-beach-foundation.html

Boardwalk Arts and Crafts Festival: https://www.colonial-beach-virginia-attractions.com/boardwalk-arts-and-crafts-festival.html

Northern Neck Tourism Commission: https://www.northernneck.org/

Colonial Beach Tourism: https://visitcbva.com/

Historical Society: http://www.museumatcolonialbeach.com/society.html

FUNDING OPPORTUNITIES

KABOOM PARK GRANTS "Helping communities build safe places for kids to play"

https://kaboom.org/grants

VA DEPT OF HOUSING AND COMMUNITY DEVELOPMENT GRANTS
https://www.dhcd.virginia.gov/cdbg-planning-grants

Community Organizing Planning Grants, Community Needs Assessment/Economic Assessment Planning Grants, CDBG Project Planning Grants, *Business District Revitalization Planning Grants*, Regional Project Planning Grants, Telecommunications Planning Grants

VA Dept of Historic Resources Tax Credits

https://www.dhr.virginia.gov/tax-credits/

"Through the federal and state rehabilitation tax credit programs, property owners are given substantial incentives for private investment in preservation, resulting in enormous advantages to the public."

SMALL BUSINESS INVESTMENT GRANTS
https://www.sbsd.virginia.gov/virginia-small-business-financing-authority/

"The Small Business Investment Grant Fund program (SBIG) is designed to encourage Virginia financial investors to contribute investment capital to support Virginia small business growth and expansion."

NATIONAL TRUST PRESERVATION FUNDS
https://forum.savingplaces.org/build/funding/grant-seekers/preservation-funds

"Grants from National Trust Preservation Funds (NTPF) are intended to encourage preservation at the local level by supporting on-going preservation work and by providing seed money for preservation projects. These grants help stimulate public discussion, enable local groups to gain the technical expertise needed for preservation projects, introduce the public to preservation concepts and techniques, and encourage financial participation by the private sector."

PEOPLE, INC. BUSINESS DEVELOPMENT AND LOAN SERVICES
https://www.peopleinc.net/program-community-economic-development.htm

"People Incorporated offers financial assistance, microenterprise loans, business training and technical services to help start or expand businesses, which in turn, creates jobs."

GREEN SPACES: RECOMMENDED POLICIES AND STRATEGIES

Written by Jane Overend

RATIONALE:

Colonial Beach can improve the functionality of green spaces. This includes adding more shade trees to reduce heat and making parks accessible to everyone, while also contributing to beautification and flood control. Currently tree canopy cover is 41.26%. While that is a good percentage, it is not distributed evenly across the town (see Map A)
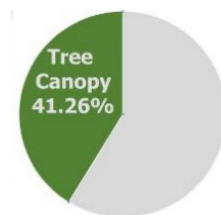
An identified issue in Colonial Beach is a lack of shade trees along the beaches as well as the streets. The lack of trees contributes to a phenomenon referred to as the urban heat island

Current average days above 100°F: 8
Mid-century prediction: 46 days/year
By the end of the 21st century: 76 days/year

effect, in which there is a microclimate created within a city that is not the same as that of the surrounding areas. Within the microclimate of the city, the temperatures are higher. Heat is a significant issue in Colonial Beach. When trees are planted along the roads, they can intercept and absorb some of the sunlight that would otherwise reflect off of the pavement and prevent more heat from being put back into the atmosphere, therefore reducing the urban heat island effect. Without intervention, the town will become hotter. See Map B Heat in Colonial Beach.

A proposed approach for this issue is to plant more vegetation along the beach, specifically trees that provide shade. Palm trees are acceptable for tourism value along the main spots of the beach, such as in front of the hotel, but along the rest of the beach should be shade trees. Throughout the downtown and the neighborhoods there is a need for more trees, as well. This can be done through planting trees along roads and increasing the amount of pocket parks. Trees should be placed along the streets that currently have the least amount of tree cover, as well as the most widely used streets and trails. Priority streets would include downtown, routes to the school, and walkways along the beach.

Green spaces should be available for all residents of Colonial Beach. To address this situation, more pocket parks could be created. Pocket parks are an excellent way to utilize vacant lots for the benefit of the community. In constructing pocket parks, multiple issues are addressed besides the availability of green spaces, such as heat and flood control. **Increasing the amount of green spaces has benefits in many aspects: environmental (more wildlife, reduced heat), economic (reduced costs of flood control), and social (improved health of the residents).**

Although palm trees are popular with some tourists, they do not provide shade or protection from wind for pedestrians.

Additionally, Eleanor Park could be improved upon to make it more accessible, functional, and favored by the town. Community involvement is another benefit of increasing the number of parks. There could be community gardens which would engage members of the community to participate in the effort to keep Colonial Beach green. Development and maintenance of park spaces will pay the town back in improved property values. The existence of a park within 1,500 feet of a home increased its sale price between $845 and $2,262 (in 2000 dollars) (Shoup and Lilly 2010).

GOAL 1: INCREASE TOTAL TREE COVERAGE THROUGHOUT COLONIAL BEACH, TO FOSTER SUSTAINABILITY, REDUCE HEAT, AND INCREASE RESIDENT ACCESS TO GREEN SPACES.

Objective 1: Plant trees along the sidewalks of priority routes, such as downtown, walkways along the beach, and roads to the school.

> **Action 1**: Use maps to determine which streets have the least tree coverage (See Map C: Tree Coverage in Colonial Beach)
>
> **Action 2**: Decide which trees are the most suitable (See Appendix A: Native Plant List)
>
> **Action 3:** Contact property owners along the streets to get permission to plant trees
>
> **Action 4:** Organize a tree care group to plant and maintain trees

Objective 2: Improve upon existing parks, such as Eleanor Park

> **Action 1:** Identify the sites of existing & potential parks
>
> **Action 2:** Engage community members, such as the Garden Club
>
> **Action 3:** Design park improvements, including more trees, benches, and walking/biking paths

Objective 3: Develop a tree planting program

a. Property owners should agree to water the tree
b. Property owners should understand that pruning of the tree will be done by the town
   i. This is in order to maintain the health of the tree, as well as prevent conflicts with pedestrians, cars, and road signage
c. Tree planting will be done in locations where there is enough room for a mature tree and is compatible with utility lines, utility poles, streetlights, and fire hydrants.

Street Trees: Before

Street Trees: After

Maps

Map A: Tree Coverage in Colonial Beach   Total canopy is 41.26%

TREE CANOPY

- EXISTING CANOPY
- POTENTIAL CANOPY

N

0   0.1 0.2   0.4   0.6   0.8   Miles
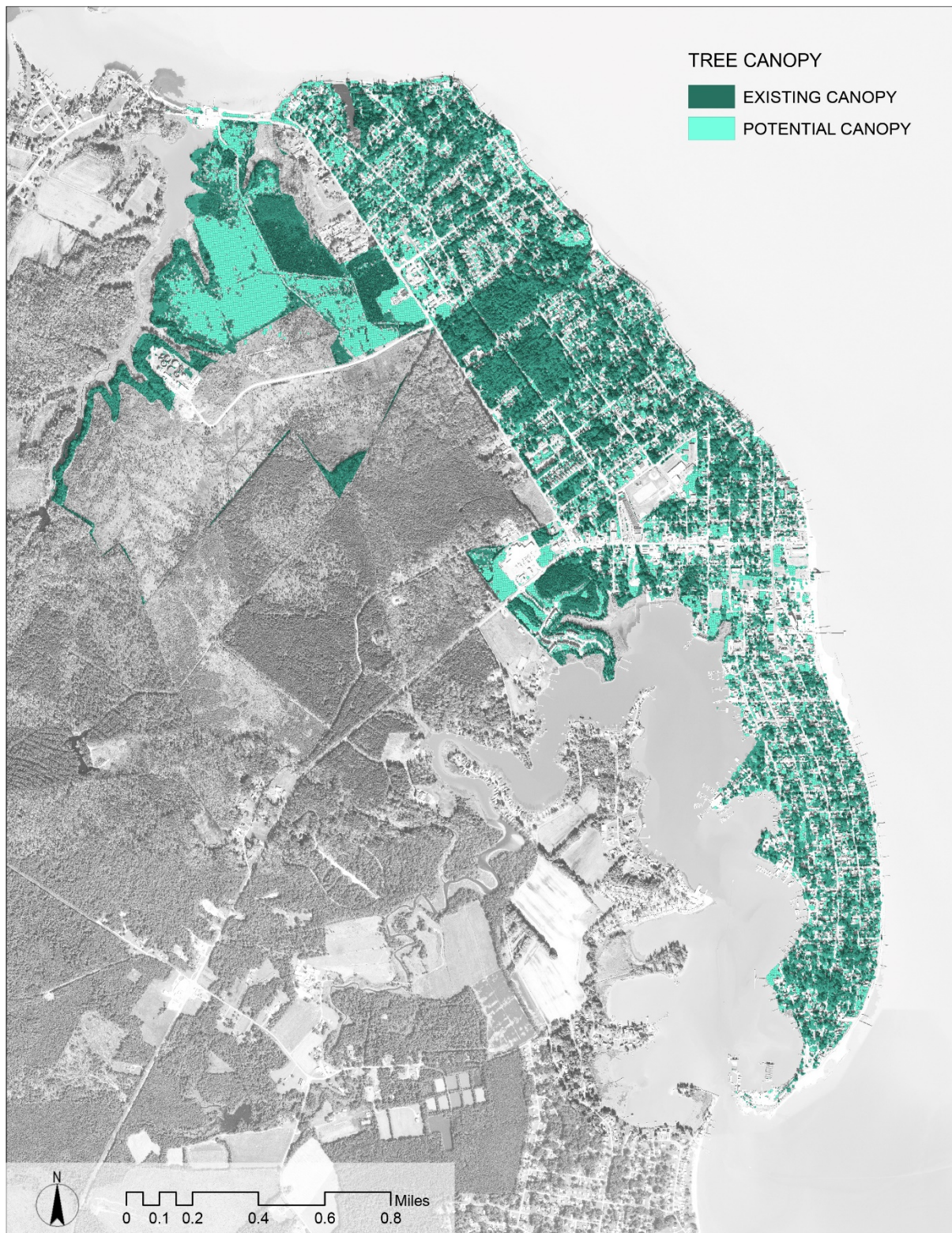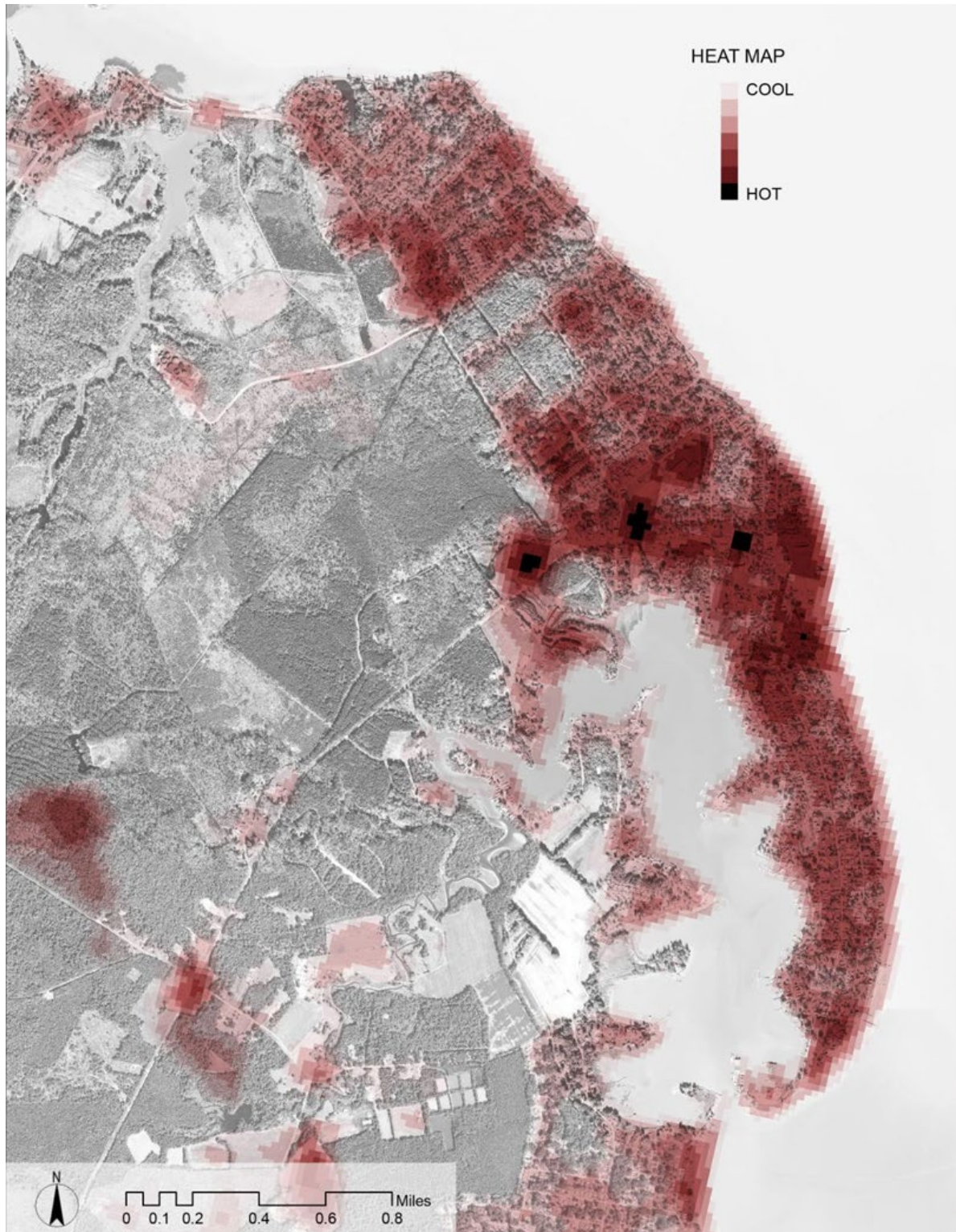
MAP C: STREET TREE COVERAGE IN COLONIAL BEACH

STREET CANOPY COVERAGE

- < 10%
- 10%-20%
- 20%-30%
- 30%-40%
- 40%-50%
- > 50%

N

0   0.1 0.2   0.4   0.6   0.8   Miles
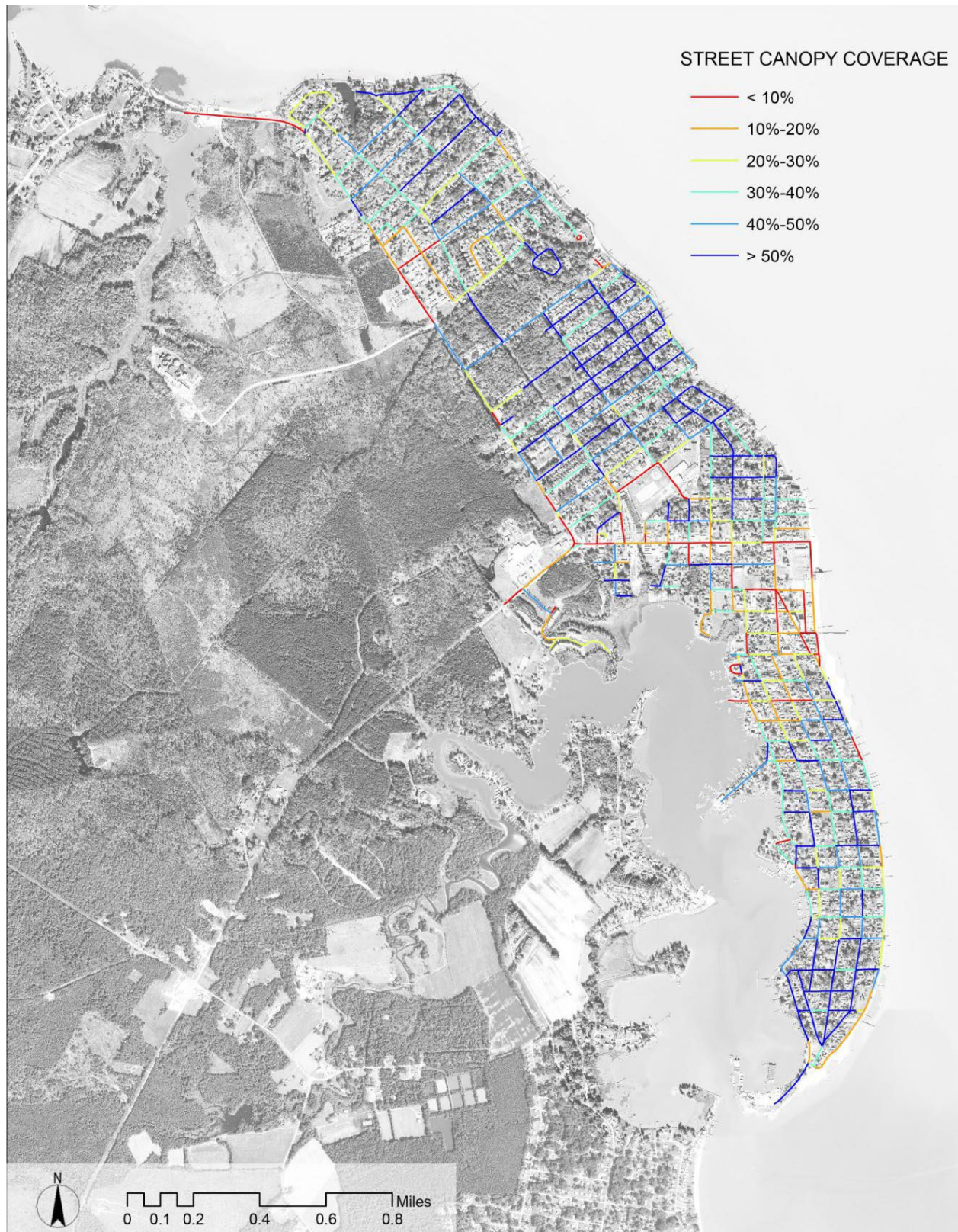
APPENDIX A: NATIVE PLANT LIST

Developed by Jingyi Hu

TREE

Botanical name	Common name	Mature Size: Large/ Medium/ Small	street tree	marsh/dune	bioswale	fruit
Acer barbatum	Southern Sugar Maple	M	○			
Aesculus pavia	Red Buckeye	S	○			
Amelanchier x grandiflora	Serviceberry	S	○			○
Asimina triloba	Pawpaw	S				○
Betula nigra	River Birch	M			○	
Diospyros virginiana	Persimmon	M				○
Ilex opaca	American Holly	M	○			
Ilex vomitoria	Yaupon Holly	M	○			
Liriodendron tulipifera	Tulip Poplar	L	○			
Magnolia grandiflora 'Little Gem'	Little Gem' Magnolia	S	○			
Magnolia virginiana	Sweetbay Magnolia	S	○			
Quercus alba	White Oak	L	○			
Quercus bicolor	Swamp White Oak	L	○		○	
Quercus hemisphaerica	Laurel Oak	L	○			
Quercus nigra	Water Oak	L	○			
Quercus palustris	Swamp Oak	L	○		○	
Quercus palustris	Pin Oak	L	○			
Quercus prinus	Chesnut Oak	L	○			
Quercus virginiana	Live Oak	L	○	○	○	
Taxodium distichum	Bald Cypress	L		○	○	
Ulmus americana	American Elm	L	○			○
Vitex agnus-castus	Chastetree	S	○			

SHRUB

Botanical name	Common name	Mature Size: Height' x Width'	street tree	marsh/dune	bioswale	fruit
Alnus serrulata	Smooth alder	12x12			○	
Baccharis halimifolioa	Sea Myrtle	12x12		○	○	
Cephalanthus occidentalis	buttonbush	12x20		○	○	
Clethra alnifolia	Summersweet	12x 6			○	
Cornus amomum	Silky dogwood	12x12			○	
Itea virginica	Virginia sweetspire	10x10			○	
Lindera benzoin	Spicebush	16x12			○	
Morella cerifera	Waxmyrtle	15x15		○	○	○
Photinia melanocarpa	Black chokeberry	6x6			○	○
Rosa palustris	Swamp Rose	8x8			○	○

GROUND COVER

Botanical name	Common name	Mature size: Height'	street tree	marsh/dune	bioswale	fruit
Peltandra virginica	Arrow Arum	2'		○	○	
Juncus effusus	Soft Rush	4'		○	○	
Iris virginica	Virginia Blue Flag	2'			○	
Hibiscus moscheutos	Rose Mallow	6'		○	○	
Scirpus atrovirens	Dark Green Bulrush	6'		○	○	
Caltha palustris	Marsh Marigold	2'			○	

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https://www.ucsusa.org/resources/killer-heat-interactive-tool?location=westmoreland-county--va

Shoup, Lilly, and Reid Ewing. "The economic benefits of open space, recreation facilities and walkable community design." *A Research Synthesis. Princeton, NJ, Active Living Research, a National Program of the Robert Wood Johnson Foundation* (2010).

RESOURCES

1. Trees Virginia: the state's urban forest council has many resources for community tree planting programs and a free tree stewardship guide. **https://www.treesvirginia.org/**

2. Richmond Urban Forestry Division: Richmond's tree planting program is another good example of how residents can apply to plant trees.

http://www.richmondgov.com/PublicWorks/UrbanForestry.aspx

4. Virginia Statewide Assessment of Forest Resources, 2010: The Statewide Assessment of Forest Resources was published in May of 2010. It is a comprehensive, statewide assessment of the forest resource and any potential threats to that resource. The report includes information on forest benefits, Green Infrastructure planning and an action plan. The data on current trends and conditions are useful for local comparisons.

5. Virginia Conservation Lands Needs Assessment (VCLNA): The VCLNA is a comprehensive green infrastructure planning tool developed by the Department of Conservation & Recreation. There are a total of six GIS (Geographic Information System) models, including the Virginia Natural Landscape Assessment and the Forest Economics Model.

6. Virginia Department of Conservation & Recreation:
http://www.dcr.virginia.gov/natural_heritage/vclna.shtml

FUNDING OPPORTUNITIES

Tree City USA: https://www.arborday.org/programs/treecityusa/index.cfm
Registers the town as a tree city. It requires spending $2 per capita on tree care, adopting a tree ordinance and having a tree board. One advantage of becoming a tree city is access to grants through partners such as the Alliance for Community Trees.

Virginia Department of Forestry: https://www.dof.virginia.gov/forestry/community/index.htm
Has grants for tree planting and education and funded this report.

The Land and Water Conservation Fund (LWCF) Federal program supports the protection of federal public lands and waters – including national parks, forests, wildlife refuges, and recreation areas – and voluntary conservation on private land. LWCF investments secure public access, improve recreational opportunities, and preserve ecosystem benefits for local communities.
https://www.doi.gov/lwcf

PARTNER ORGANIZATIONS FOR LAND CONSERVATION & MANAGEMENT

The Nature Conservancy's Coast Reserve Program

https://www.nature.org/en-us/about-us/where-we-work/united-states/virginia/

DCR- Virginia Natural Heritage Program: Through this program the Department of Conservation & Recreation will manage lands that are donated to be a State Natural Area Preserve

http://www.dcr.virginia.gov/natural_heritage/

Virginia Outdoors Foundation: The Virginia Outdoors Foundation is established to promote the preservation of open-space lands and to encourage private gifts of money, securities, land or other property to preserve the natural, scenic, historic, scientific, open-space and recreational areas of the Commonwealth.

http://www.virginiaoutdoorsfoundation.org/