GREEN INFRASTRUCTURE
LANDSCAPE STUDY AND PLAN
City of Hampton, VA

Prepared by the Green Infrastructure Center Inc. with the City of Hampton

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EXECUTIVE SUMMARY

In the fall of 2015, the City of Hampton received a grant from the Green Infrastructure Center (GIC) through the Virginia Department of Forestry and USDA Forest Service to create a Green Infrastructure Plan. Hampton possesses many sensitive environmental areas, including the Chesapeake Bay, that provide benefits to the economy and health of its residents. As such, Hampton has an interest in protecting its natural assets and managing the impacts from stormwater, flooding, and sea level rise. This plan studies green infrastructure, which refers to the natural environment that supports the city (tree canopy, water bodies, marshes and wetlands, for example).

This project focused primarily on the area in the Downtown Master Plan and Kecoughtan Road Corridor Master Plan boundaries, which happen to closely align with watershed boundaries. One reason this area was selected is because it is a densely developed part of the city. Being fully developed makes the integration of green infrastructure more challenging, but important, because in some areas the natural landscape has been completely removed. While the document is specific to this area, many of the objectives and goal statements are relevant city-wide.

An interdepartmental technical team was formed to provide insight from many perspectives. Green infrastructure is impactful to the work done in many departments; trees in particular influence housing, open space, economics, water and air quality, and reduced crime, among other things. Stakeholders were also engaged to understand their values and concerns related to green infrastructure. This feedback helped drive the resulting goals and objectives.

The technical team met several times over the course of the project. An important reason to meet frequently was to get buy-in from all departments, including those that may not realize green infrastructure impacts their work, or those that do not typically work with natural assets. Goals, objectives, and tasks were developed that are supported by all the participating departments to help improve green and blue infrastructure within the city.

The result of this work is this report, which includes a set of goals and objectives, as well as a work plan in the form of the tasks needed to achieve each objective through a variety of city departments and partnerships. However, to fully cement this work and vision in the city, this report must be integrated into City regulatory and policy documents. The first step will be creating an amendment to the Community Plan, which provides the strongest policy guidance for the city.

KEY TERMS TO KNOW

BEST MANAGEMENT PRACTICE (BMP) - Practices that can be implemented to protect water quality.

BLUE INFRASTRUCTURE - the aquatic resources that support the health and vitality of a city.

BUFFER - a piece of land along a sensitive environmental feature that should be vegetated to help control air, soil, and water quality.

CHESAPEAKE BAY TMDL - a “pollution diet” that limits the Total Maximum Daily Load of pollutants running into the Chesapeake Bay.

COMPLETE STREET - streets that are designed for safe access for all users.

GREEN INFRASTRUCTURE - the natural environment that supports the health and vitality of a city.

GREY INFRASTRUCTURE - engineered projects that support a city using materials such as concrete, asphalt and steel (e.g. roads, pipes, and pumps).

IMPERVIOUS SURFACE - a surface that is compacted or covered with a layer of material so that it is highly resistant to infiltration by water.

STORMWATER RUNOFF - rainfall that flows over the ground surface that is not absorbed into the ground.

WATERSHED - an area of land where all of the water that falls in it and drains off of it flows to a common outlet.
SUMMARY OF GOALS

TREES

Goal 1: Hampton has a robust system for sustaining and increasing tree canopy.
Objective 1.1: Create or curate a collection of reference documents that promote planting the “right tree in the right place.”
Objective 1.2: Publish a Hampton State of the Urban Forest report.
Objective 1.3: Implement standardized, best-practice maintenance standards for the Hampton urban forest.
Objective 1.4: Create green streets by improving streetscape elements such as medians and bump-outs.
Objective 1.5: Re-establish Hampton as a designated Tree City USA.

Goal 2: The community embraces the environmental, economic, social, and health benefits provided by trees
Objective 2.1: Foster environmental education opportunities to learn and expand on the Virginia Standards of Learning Assessment Science Standards.
Objective 2.2: Incorporate environmental awareness signage and activities around the city and create an interactive website/app.
Objective 2.3: Develop a Great Trees program.
Objective 2.4: Encourage private tree planting as a way to engage the community in tree stewardship.

WATER

Goal 1: The Chesapeake Bay is healthy enough to support Hampton’s economy, public use, and aquatic life.
Objective 1.1: Promote a reduction in impermeable surfaces by implementing two pilot green parking lot retrofits, and modifying relevant ordinances to address constraints.
Objective 1.2: Review site plan and subdivision ordinances and supporting standards for changes that allow for multi-benefit spaces with nutrient reduction in mind.
Objective 1.3: Promote Chesapeake Bay Landscape Professional (CBLP) certifications to improve the quality of projects in the Chesapeake Bay Preservation Overlay District.
Objective 1.4: Implement a comprehensive stormwater master plan for the city that includes both grey and green infrastructure.
Objective 1.5: Design and implement five demonstration sites that enhance or re-establish the Resource Protection Area buffer (or Intensely Developed Area) with native vegetation to showcase opportunities to private property owners.

VIBRANCY

Goal 1: Hampton has vibrant communities that integrate commercial, recreational, and cultural uses.
Objective 1.1: Create interactive nodes for historical and cultural appreciation.
Objective 1.2: Create a signature path that fosters connectivity throughout the downtown.
Objective 1.3: Introduce a regional BMP downtown.

Goal 2: Cultural and historic resources contribute to understanding and experiencing the city
Objective 2.1: Designate one historic neighborhood as a local conservation district.
Objective 2.2: Digitize and publish Hampton’s histories that have not been formally mapped.
Objective 2.3: Inform citizens of the effects and value of green infrastructure on flood reduction.

RECREATION

Goal 1: Green and blue spaces are welcoming and accessible.
Objective 1.1: Increase accessibility to parks and public open space by establishing standards for access and public amenities.
Objective 1.2: Establish a Crime Prevention Through Environmental Design (CPTED) review process.
Objective 1.3: Improve kayaking and canoeing opportunities and experience to create community interest and engagement along Hampton waterways.
Objective 1.4: Create or enhance 5 points of public access to waterways connecting to Hampton River and Hampton Roads Harbor by FY 2020.
Objective 1.5: Research and implement available regulatory or incentive options to maintain viewsheds and water access.

Goal 2: Parks, recreation facilities, and green spaces are well connected
Objective 2.1: Extend and enhance the downtown waterfront walkway.
Objective 2.2: Adopt a Complete Streets policy that includes street trees.
Objective 2.3: Create wayfinding system to increase pedestrian and bicycle connectivity.

Goal 3: Hampton citizens have pride and ownership in our green and blue spaces
Objective 3.1: Improve the system that allows for community gardens
Objective 3.2: Create a community green/blue space adoption process.
INTRODUCTION

A green infrastructure plan links multiple objectives together and surfaces the priorities. The maps speak to the overarching goals and highlight sites that are significant to Hampton and that depend on the landscape for their interpretation or protection, such as the waterfront walkway and historic buildings. Hampton is facing natural impacts from recurrent flooding and sea level rise, as well as man-made impacts from being a built-out city with many redevelopment opportunities, but few opportunities for new development. As such, Hampton has pledged to be a leader in resilience. This document supports that pledge and all efforts to redevelop in a smart, resilient way.

This report describes the Green Infrastructure assets in the Kecoughtan Road and Downtown areas of the City of Hampton. The process to create this report entailed mapping and cataloging the area’s highest value natural assets and development of strategies to conserve or restore them. While the boundaries of this project are only for a portion of the city, many of the resulting goals and objectives are applicable to the entire city.

Why Study and Map Natural Assets?
Natural assets include trees, water, soils, trails, parks, open space, habitat, and connecting landscapes. These natural features are ‘assets’ because they help keep the city cleaner, cooler, and more attractive, provide recreation, absorb and filter stormwater, and support native wildlife, as well as thriving businesses, tourism, and residential districts. These natural assets are called green infrastructure because, just like roads and bridges, they are part of the ‘infrastructure’ that supports a vibrant, healthy city.

Just as the city plans for sidewalks or streetlights, there also needs to be a plan to support Hampton’s trees, parks, creeks, rivers, coast, and other open spaces. In order to take care of these assets, the city needs to know their extent, condition, impacts, and whether action is needed to restore or protect them. One outcome of this study is a map of areas of natural landscapes and cultural and historical assets across the Hampton Downtown and Kecoughtan Road areas. Additional maps break out these assets into a variety of “themes” (e.g. water-related assets). However, this is just one aspect of a green infrastructure plan.

History of Green Infrastructure
The term “Green Infrastructure” was coined in 1994 in a Florida report to explain to the governor that nature is part of ‘infrastructure’ because it supports our existence just as roads and utilities do. They developed a model to locate and depict the state’s best habitats for wildlife, water recharge, recreation uses, scenic views, and other benefits. Other states, such as Maryland, Virginia, Montana, and California also created state models of green infrastructure.

In 2006, the U.S. Environmental Protection Agency expanded the definition of green infrastructure to also include constructed stormwater best management practices using green features, such as green rooftops, rain gardens, or cisterns. Today, the Virginia model of habitat cores and corridors is used to show the best habitats statewide as well as how they may connect to localities and the Chesapeake Bay. Within cities, additional analysis is needed to show finer grained details of land use, potential impacts and opportunities to re-green and improve urban health for people, wildlife, and the Chesapeake Bay. For example, smaller patches of trees that might show up as negligible at the state or regional level become key patches of habitat for urban areas.

The key is to first protect the natural landscape when possible and to restore it where it has been lost. For developed areas, such as those studied in this plan, it is also good to consider using smaller scale best management practices to retrofit green stormwater treatment to mitigate impacts from the already constructed landscape. In short, focus first on conservation, then restoration, and lastly, mitigation to offset unavoidable impacts.

TECHNICAL COMMITTEE
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How This Plan was Created

In Fall 2015, the City of Hampton partnered with the Virginia Department of Forestry and the Green Infrastructure Center (GIC) to create the city’s Green Infrastructure (GI) Landscape Study. The Green Infrastructure Center follows a six-step process for developing a green infrastructure plan:

1. SET GOALS
2. REVIEW DATA
3. MAKE ASSET MAPS
4. ASSESS RISKS
5. DETERMINE OPPORTUNITIES
6. IMPLEMENT OPPORTUNITIES

An interdepartmental technical committee (see Figure 2) guided the work over the length of the project. The city established initial goals based on ongoing efforts and concerns, which were verified through stakeholder input. The GIC assisted Hampton in developing data and maps for the study. The technical team refined the project goals and objectives and reviewed maps and data utilized to inform the study. Additional input was sought from the community in different ways.

The first step was to identify neighborhood and community leaders for the project area who could represent their neighborhood’s opinions and concerns (e.g., a neighborhood association president). A short survey (see the Appendix on page 28 for the survey questions) was sent to these leaders asking for their top priorities for their neighborhood, what they worried may be lost without additional efforts, and what information they desired. These stakeholders were also invited to a meeting to identify on maps the assets that can be found in their neighborhoods and discuss what is special to them. Finally, a community meeting was held to get input and provide information on the value of green infrastructure. The technical committee used this input to help to inform development and prioritization of the final goals and objectives. Additionally, maps of assets were generated. Maps of assets highlight areas for opportunity.

Residents discuss their neighborhood

Residents highlight important areas in their neighborhood

landscape-scale green infrastructure - its natural assets such as trees, parks, creeks, rivers, and historic sites. However, in some densely developed areas, such as the Downtown commercial district, which has large parking lots and roadways, site-scale (which is more specific than landscape-scale) existing green infrastructure may not be sufficient to treat stormwater runoff or meet other needs of the community. Retrofitting the city with new green areas may be necessary in addition to protecting and enhancing what already exists.

Fig. 3

This report is divided into four categories; Trees, Water, Recreation, and Heritage and Culture. Each of these topic areas affects the condition and vitality of the City of Hampton, and the success of one inevitably impacts the success of the others. A healthful environment supports the wellbeing of residents and visitors alike as well as the city’s economic and social vitality. These topics are all interrelated; for example, creating a regional BMP in a dense commercial area provides water retention and treatment potential. It also allows for walkable, urban development, which positively impacts the Downtown economy. In addressing each topic, Hampton focuses on specific strategies that support its vision of being the most livable city in Virginia. Following a description of each focal area are strategies developed by the committee to help advance the need to better protect, enhance, or restore that resource.
GREEN INFRASTRUCTURE IN HAMPTON

TREES
In urban areas, landscapes are evaluated at smaller scales than rural regions as even small patches of green space become important to the community and ecosystem. Together, these small areas of green make a large cumulative difference. Smaller urban spaces, such as linear stream valleys, pocket parks, and even backyards contribute to the connected green landscape. When evaluating the ecological health of an urban area, urban tree canopy is a key green asset.

The study areas in Hampton have a total tree canopy coverage of 33.5%. For comparison, many cities with tree canopy coverage goals aim for 40% city-wide - a goal generated based on research conducted by American Forests. Coverage varies throughout the project area. Less coverage can be seen in the commercial downtown area, especially where large surface parking lots exist. There is also one particular residential area where tree canopy is small, but further review indicated this is a new development where trees have been planted, they simply have not yet matured, making them difficult to see on aerial imagery. A good tree canopy exists in the established residential neighborhoods, especially in the historic neighborhood districts. The largest patches are scattered throughout the area, but several of them are sites slated for future development.

Benefits
Cities are beginning to recognize the importance of their urban trees because they provide tremendous benefits. For example, trees are a strategic way to reduce excess stormwater runoff and flooding. Trees can also be fit into tight spaces around development. Studies have shown that urban canopy can reduce a city’s stormwater runoff by anywhere from two to seven percent (Fazio 2010). During a rainfall event of one inch, one acre of forest will release 750 gallons of runoff, while a parking lot will release 27,000 gallons; this is 36 times more runoff (Penn State Extension).

Individual trees provide many benefits, but when grouped together can provide even more. An urban tree canopy does not constitute a forest per se, but when taken all together, play a vital role in keeping developed areas cool, along with many other services. Even one tree can play an important role in stormwater management. For example, estimates for the amount of water a typical street tree can intercept in its crown ranges from 760 gallons to 4000 gallons per tree per year, depending on the species and age (Firehock 2013). By calculating the total tree canopy square footage in the project area, it can be estimated that the trees within the project area can provide an annual stormwater interception of 120,154,420 gallons.

This is especially important for cities, such as Hampton, that must manage their urban stormwater to prevent excess stormwater runoff in order to comply with the city’s Municipal Separate Storm Sewer System Permit (MS4) and to prevent surface waters from becoming impaired or declining further. Hampton is also under additional regulations from the Chesapeake Bay Preservation Act to reduce pollutants entering the Chesapeake Bay.
How do TREES BENEFIT The City of Hampton?

**LOWER UTILITY COSTS!**
Just 3 strategically placed trees can decrease utility bills by 50%.

**FEWER AUTO ACCIDENTS!**
Street trees can decrease automobile accidents by 46%.

**COOLER SUMMERS!**
Evapotranspiration can help reduce peak summer temperatures by 2°F - 9°F.

**LESS CRIME!**
Apartment buildings with high levels of green landscaping have up to 52% fewer crimes.

**BETTER FITNESS!**
People living near greenery are 40% more active than people in less green areas.

**BETTER BUSINESS!**
When trees are present, shoppers will spend 9 to 12% more for products.

**HIGHER PROPERTY VALUES!**
Trees can increase residential property values by up to 37%.

**LESS ASTHMA!**
Childhood asthma is up to 25% less prevalent in well-treed areas of cities.

**LESS POLLUTION!**
Mature trees absorb 120 to 240 lbs of particulate pollution each year.

**LESS FLOODING!**
One mature tree can store 50 to 100 gallons of water during a storm.
Tree Canopy and Wetlands

Legend
- Parks and Open Space
  1: Armstrong
  2: Old Hampton
  3: Mill Point
  4: Carousel Park
  5: Sunset Boat Ramp
  6: American Legion Post 31
  7: Bassette
  8: Robinson Park
  9: James M. Eason Memorial
  10: River Street Park
  11: Andrews Pre-K Thru 8

- Rail Line
- Pavement
- Study Area
- Open Space (Parks and Schools)
- Tree Canopy
- Water
- Marsh/Wetland
- Other Wetlands (NWI)
- Building Footprint

Historic neighborhood - high tree canopy
Downtown - low tree canopy
Like other landscape elements, trees need to be properly maintained. This means proper pruning and maintenance, removing dead or diseased trees, and having a plan for succession replacement as large groups of older trees planted around the same time age out. There are a number of examples of poor tree management that can be found around the city. Some of this occurs from private property owners lacking experience and education in proper tree care. However, there are also some issues that arise from many competing needs taking public time and energy. A coordinated maintenance plan could help the city work more efficiently, instead of having to react to problems as they become known.

Thus, despite the benefits of trees, over time, tree loss can occur from a variety of factors. A lack of replacement tree plantings is a subtle way in which tree canopy can deteriorate over time. Even if no land conversions occur, failure to replant trees as they age and die will lead to canopy loss over time. Land conversion is another distinct threat to tree cover. Even when already developed areas are redeveloped, trees may not be replaced or may be removed. Trees planted poorly (wrong site), not well managed (inadequate care), or planted inappropriately (wrong tree for the site or climate) can also lead to tree canopy losses.

In urban environments, many trees do not survive to their full potential life span. Factors such as lack of watering or insufficient soil volume put stresses on urban trees, stunt their growth, or reduce their lifespans. For every 100 street trees planted, only 50 will survive 13-20 years (Roman 2014). Survival rates vary greatly due to differences in planting conditions, species (some simply experience greater stress in an urban environment), and other factors, such as susceptibility to storms. This means that, where possible, when planting new trees, Hampton should plant more than are necessary to account for future mortality. It is also important to recognize that an older, well-treed neighborhood of today may not have good coverage in the future unless more young trees – the next generation – are planted today.

Urban trees especially should be selected for the right conditions, such as for tolerance to drought, flooding, or pollution. If they are planted in rain gardens or along streams, they should be able to thrive under periodic saturation. Also, trees should not be planted under power lines, in places where their roots will interfere with underground utilities (there are tools and materials to reduce this likelihood) or where they will push up sidewalks and cause danger to pedestrians – or traffic. Large canopy trees will do best in open areas, whereas smaller spreading trees can often thrive in tight spaces.

The simple rule is right tree, right place. This can be modeled in GIS to estimate how many trees might be fit into an urban landscape. Figure 6, the Possible Planting Area (PPA) map estimates areas that are feasible to plant trees — but it is not a suitability map or a tree planting plan. For example, next to a wide sidewalk may be initially identified as a feasible place to plant a tree, but low power lines or an abundance of underground utilities may prohibit planting.

Thus, any PPA still needs to be field checked and compared against unseen barriers, such as underground utilities, and against Hampton’s development plans: you might not want to plant trees alongside an avenue that is due to be widened, or in a vacant lot that will soon be developed.

Additionally, the PPA shows all possible areas, which is more than would reasonably be planted. For example, an entire parking lot may be a potential planting area, but the city cannot eliminate its parking lots, so perhaps a portion of the lot can be converted to green space to aid runoff reduction. The PPA helps to guide that decision-making.
The PPA can be the first step in determining if it is appropriate to add street trees to either side of Settlers Landing Road in the Downtown commercial area. When trees are not present, distances are perceived to be longer and destinations farther away, making people less inclined to walk than if streets and walkways are well treaded (Wolf 2008). This can be an important factor in the commercial success of this walkable area.
As Habitat
Taken together, clusters of trees along with other native vegetation such as shrubs, native grasses, and flowers, provide important habitats for wildlife. Even in developed areas, smaller habitats add up and provide myriad benefits for wildlife, such as salamanders, birds, pollinators, and beneficial insects. While this is not always the benefit that developed cities are trying to capture with increased vegetation, it is an important one.

Patches of vegetation accumulate to provide habitat for pollinators – which are needed to protect the food supply. Wild bees (not raised commercially) are less susceptible to disease and can travel to more areas so it is important to support their needs. Even in a city like Hampton, improving the habitat of the backyard can make a huge difference. Smaller habitat patches also provide stepping stones to larger areas, such as Sandy Bottom Nature Park and Grandview Nature Preserve, by allowing animals and birds to move and forage while being protected.

Habitat patches in localities add up. As mentioned before, a cluster of trees is better than individual trees, as habitat patches provide more benefits than isolated trees. Some patches and connections may be green streets (primarily people connections) while other areas are larger and provide additional benefits for wildlife, water infiltration, or cleaning the air. And creating habitat patches provides environmental exposure that humans need for wellbeing too.

Influencing the Economy
There is an economic benefit to increased tree canopy as well; developments that have green spaces sell faster and for greater profit per sale (US Association of Realtors). Similarly, studies across the country show that both residential and commercial property values increase, and commercial spaces rent faster, when mature trees are present (Firehock 2013). People will also shop longer and spend up to 12% more in tree-lined shopping districts (Firehock 2016).

Once trees are well-established and do not require the same level of care or maintenance required of new trees, the economy will benefit from trees without much effort. In this way, trees can pay for themselves and more. One way to calculate this is be using the i-tree tools resource which allows the city to estimate the benefits of different tree types at specific locations. For example, at 1 W Queens Way a crape myrtle is estimated to provide roughly $20 per year in ecosystem services (see appendix for more details). Another species tested at that location is estimated to provide almost double that amount.
This map summarizes the important features of Hampton’s blue and green network. Natural features include trees buffering water (features of the Chesapeake Bay), wetlands, overall tree canopy, and water. These overlay important cultural and community features such as historic districts, historic religious facilities, parks and open space, the waterfront walkway, and scenic views. These assets make Hampton unique, and should be considered when changes are made to the City landscape.
WATER

When water bodies are healthy, they are an enormous boon to the economy, health, and daily experience. In Hampton, the Downtown supports a working waterfront that is based on crabbing and fishing and provides channels for industrial transportation. Visitors and residents alike are drawn to Hampton’s iconic coastal wetlands and waters to canoe, kayak, fish, and enjoy rest and relaxation provided by views out over the water. As such, these supportive waters are called “blue infrastructure.”

This project area was defined by the boundaries of two of the city’s watersheds: the Wythe watershed and the Southampton watershed. Both are part of the larger Hampton Roads basin. The Wythe watershed drains south into the Hampton Roads. The Southampton watershed drains both south to the Hampton Roads and east to the Hampton River.

Imperviousness and Marine Health

The health of local waters is vital to a coastal lifestyle. However, at certain levels of urban development and the related imperviousness of city-building, aquatic life (macroinvertebrates, fish, salamanders, and other aquatic-dependent species) begin to decline. The rate of decline is affected by factors such as land cover and land use types, as well as the locations of imperviousness within the watershed. When roofs, downspouts, parking lots, streets, and pipes are connected to each other, rainfall is directed too quickly to the drainage system or creek, resulting in neighborhood flooding and reduced water quality. Excessive urban runoff results in pollutants such as oil, metals, lawn chemicals, pet waste, and other pollutants reaching surface waters. High stormwater flows result in channel and bank scouring, releasing sediments that smother aquatic life and reduce stream depth, leading to yet more bank scouring.

A key determinant of stream health is how well buffered the stream is with natural vegetation. A woody, vegetated buffer of 100 feet wide can remove more than 90% of the nitrogen, phosphorus and sediment from overland runoff. If stormwater pipes bypass the buffer by running underground and discharge to the stream directly, then many of the buffer benefits for mitigating polluted runoff are lost. A general rule of thumb is that impacts to aquatic life tend to be seen at impervious levels just above 10% (Schueler 2003). Of course, many cities have much higher levels of impervious surface. This is not to say development should not occur, or that impervious surfaces need to go away; it simply highlights that additional strategies to intercept and clean stormwater flows are needed. Reducing impervious area, disconnecting impervious surfaces, and increasing green area can all work to infiltrate rain into the ground to reduce stormwater runoff. When runoff is reduced, water quality improves and neighborhood flooding from rain events is lessened.

All of these concerns can be seen in existing local, state, and federal regulations on stormwater management and natural buffering of tidally influenced waters and the Chesapeake Bay. However, where most of these regulations focus on future development, Hampton can do more work to retroactively improve sites to protect water quality.

As noted, a key determinant of the health of a stream is how forested and vegetated its watershed is, not just along the stream, but overall, throughout the drainage network. The project area for Hampton is made up of the Wythe and Southampton watersheds. Some drainage systems in these watersheds are well vegetated, and some, including the east runoff of the Southampton watershed into the Hampton River, have very little opportunity for natural infiltration and treatment. In urban areas, vacant and underutilized parcels often provide opportunities for revegetation and infiltration. As discussed in the Trees section of this report, vegetated areas are ideal for intercepting rain, slowing runoff, and treating pollutants in an urban setting. A map of vacant parcels which shows places that are still undeveloped or empty might provide options for re-forestation or low-impact developments that have smaller footprints and more open space.

Access

Despite being surrounded by water on three sides, accessing water is not easy for all Hampton residents. In certain areas of the city, private property owners control the shoreline and water access, and many individual ramps and docks are private. This presents a challenge for the city to provide amenities all along the water. However, many stakeholders expressed that they enjoy being near the water and walking along streets that have water views. Hampton has already completed some projects to enhance the experience along the water, such as adding porch swings along Mill Point Park downtown. These placemaking projects enhance the best parts of the city. There is room to continue making these improvements, and to provide more opportunities for citizens to feel welcome and able to spend time near the water.
This stream does not have a natural buffer to protect it. Grass has been mowed on one side, and left to grow unattended on the other. Ideally, a managed, planted buffer will provide environmental benefits and make the space feel more friendly and welcoming to residents.
Much of the waterfront on Chesapeake Avenue is privately owned and are often marked with “no trespassing” and similar signs. The City controls landings at the terminus of each street, permitting public access. The City has placed benches and informational signs at the landings.
Flooding

One concern is ubiquitous among coastal cities: flooding. Project stakeholders, particularly those that represented interests and communities adjacent to the water, also noted that recurrent flooding is a big concern for them. Sometimes, as during a hurricane, flooding is unavoidable. However, green infrastructure can provide benefits in wave action flooding and stormwater flooding. As noted, trees can both store and slow significant amounts of water. For example, estimates for the amount of water a typical street tree can intercept in its crown ranges from 760 gallons to 4000 gallons per tree per year, depending on the species and age. During a large rain event when water floods streets, trees can relieve some of the burden on the stormwater system.

Well-vegetated shorelines have the ability to reduce wave action flooding and prevent erosion, particularly during harsh weather events. Hampton has undergone projects such as the living shoreline in Phoebus (outside of the project area) to retrofit shorelines back to a more natural, protective, vegetated state. As a bonus, these projects often rely on volunteers and double as community building and educational efforts. The provided flooding and water management map can provide direction as to where future endeavors can produce the greatest impact.

When it comes to green and blue infrastructure, vacant parcels can be viewed as both a problem and an opportunity. Clearly, they are a problem when there is so much vacancy that visitation to business districts is reduced or loitering or trash dumping ensue. However, if development is not coming to the vacant areas, an opportunity exists when they are located such that the land can be used to expand a park area, replanted to buffer a stream, or coastline or provide land for a community garden. These enhanced vacant lands can then provide aesthetic and community benefits to the rest of the area.

Changes can also be made to active land. The city can be an important partner with private property owners by providing education and directing them to resources that can re-buffer their lands. The more contiguous the buffer, the better, and by getting more private property owners to consider re-vegetating their Chesapeake Bay buffer area, the greater the impact that may be seen on water quality.

BENEFITS OF A LIVING SHORELINE
- Absorbs wave energy and storm surge
- Increases flood storage capacity
- Stabilizes the shoreline and traps sediment
- Maintains connections between land and water ecosystems

Source: Systems Approach to Geomorphic Engineering (SAGE)
Some residents have access to nature right in their backyards. However, concerns about recurrent flooding sometimes make these natural areas seem like a threat rather than an asset.
RECREATION AND HEALTH

Today Hampton supports numerous parks for a wide diversity of uses including canoeing, kayaking, biking and walking, camping, grilling, and picnicking, among others. Outside the project area are even more “specialty features”: Bluebird Gap Farm provides animal interaction, gardens, and an arboretum. Buckroe is home to a public bayfront beach. Within the project area, Carousel Park holds a historic wooden carousel, and Mill Point Park hosts an amphitheater space that is the staging ground for many festivals and fairs. Hampton’s green infrastructure supports a variety of recreation opportunities, both by buffering them from urban settings as well as providing some of the truly special nature experiences that abound within Hampton’s boundaries. Newmarket Creek, which traverses much of the city, is a great example of a natural water asset that needs to be protected and buffered by wetlands, trees, and other environmental assets to keep it safe, clean, and special.

Access and Connections

It is important to ensure that residents have access to nature where they live. For example, as populations age in place, people look for walks they can take within their neighborhoods, comfortable resting points for scenic viewing, and ways to simply enjoy being outside. Similarly, students who live near and can walk to school should be able to do so safely and comfortably.

Not everyone in Hampton has equal access to parks or open spaces. By creating new green spaces, or enhancing the existing ones to support all users, Hampton can ensure all of its residents reap the benefits of exercise, nature, and sense of community. The map on page 21 shows all of the parks and recreation amenities in the project area with a quarter mile buffer. A quarter mile is the generally accepted distance that a person will walk to get somewhere (although in some communities this number may be higher or lower). This map shows the places in the project area that do not have access to at least one formal park/open space within the quarter mile buffer. Downtown is well-served by strategically located parks on the water, and the middle residential area is served by the green spaces of the schools. However, there are distinct deficits of park space, particularly in the northwest area around Shell Road and the southeast residential community.

One way the city is already expanding access is through its community gardens program. Community gardens give residents the opportunity to get to know their neighbors, take ownership of the public spaces they live near, and grow healthy food. These resources may be able to be expanded to even more locations around the city.

In addition to having parks for recreation, the amount of well shaded and protected bike lanes and sidewalks affect whether or not people experience their neighborhoods as pedestrians and take fewer trips by automobile. Even within a quarter mile buffer area, if the walk is unpleasant either to school or a park, residents will take a different mode of travel if it is available to them. This plan can work in conjunction with the City’s adopted bike and pedestrian plan, Bike Walk Hampton, to forward initiatives in both documents that create safe, comfortable experiences for people on City sidewalks, bike lanes, and paths. Figure 13: Tree Canopy Near Streets already gives a good indication of which streets lack the tree canopy to provide adequate shade and coverage.

One consideration here is leaf litter - more maintenance will be necessary to keep streets and drains clear. There is also ongoing research about the impacts of leaf litter adding nutrients back into the stormwater system that the city should be an active partner in understanding.
Mill Point Park’s amphitheater overlooks the water and is the focal point of many Hampton events.
Creating a new green space in this section of the Shell Road corridor could provide access to many people who currently are not within close walking distance.
Victoria Boulevard is a wide street running through the project area. It is an entrance to the city from Newport News, and fronts a school. It would benefit tremendously from median landscaping and street trees along the sidewalk. Bike lanes and on-street parking have already been added to reduce the number of vehicle lanes.
CULTURE AND HERITAGE

Hampton History
The City of Hampton has a rich culture stemming from its 400-year history. Over that time, events of local and national significance have occurred which continue to impact the city today. Important events in history regarding emancipation, human space flight, and national defense occurred here. The influence of these events persist in the city’s culture and sense of place.

The city’s present landscape adds to and supports the setting for historical and cultural sights. This includes creeks, lakes, promenades, parks, historic neighborhoods, and iconic places, such as Fort Monroe. All depend upon a healthy environment supported by mature trees, scenic vistas, clean water, and pathways to maintain their historic character. Some of these landscape features, such as Emancipation Oak (where newly freed men and women were first offered free education by Mary Peake, and where the first reading of the Emancipation Proclamation occurred in the South), are important places themselves. Other historic features the city has invested significant effort into saving include War Memorial Stadium, a ballfield that opened in the 1940s and is still an active field for the Peninsula Pilots, and Wythe Elementary School, a former school with important art deco architectural features that the city believes deserves reuse.

Through stakeholder meetings, it also surfaced that religious facilities play an important role in the historical understanding of the study area. These buildings are integrated into residents’ daily lives, whether for services, as landmarks and entryways, or aesthetics. Several of these buildings are historically significant in their own right, such as the Little England Chapel, which marks the Newtown area; it was founded around 1878 and at least by 1982 was the only extant African-American missionary chapel in Virginia. These resources are specially marked in the green infrastructure network map to highlight their importance to the community.

Hampton is also home to eight national and/or state historic districts, four of which are primarily residential, with thousands of contributing historic homes, buildings, and accessory structures. For residents in the project area, including the two residential historic districts that fall into the project area, maintaining historical integrity is very important. This sentiment came through strongly in the survey stakeholders took at the beginning of the project. The landscape associated with these neighborhoods and historic spots are important to maintaining their integrity and sense of place. If the natural environment surrounding these areas is lost, or a view is blocked, the historical context is diminished. There is also the service green infrastructure provides in water retention: several historic neighborhoods experience concerns related to flooding and stormwater runoff; managing these issues will help ensure these structures will last for another lifetime.
This sign marks the view of the first battle of ironclads, a seminal naval battle during the American Civil War. The city should consider if there are additional ways this important history can be showcased and appreciated.
Heritage Tourism and Economy

Hampton's rich history and culture are a key attractor that drives not only tourism, but a special kind of tourist: the heritage tourist. Heritage tourists spend nearly $7.7 billion a year in Virginia (Accordino and Fasulo 2017). Heritage tourists spend, on average, about 2.5 times more than all other tourists. With key attractions such as Fort Monroe and the Air and Space Center, heritage tourists are already making their way to Hampton. However, this economy can be further tapped. The key is to not only attract tourists but to give them multiple activities and options to extend their stays. Heritage tourists are more sensitive to their landscapes and are less likely to want to travel through unattractive areas. Additionally, unattractive areas disincentivize economic development and lead to feelings of insecurity and fear of crime. (Firehock 2013) Efforts to maintain a positive natural landscape in tourist areas will go a long way to enhancing their experience. Further, by creating a niche market for heritage tourists, there may also be greater incentive to invest in protecting, enhancing, or restoring other historic places.

One thing the technical team learned through working together and learning more about the project area is that there is more Hampton history than what is well-documented and well-preserved. In some cases, the history is well known, but Hampton could do more to recognize it; for instance, the first ironclads battle site can be seen from Chesapeake Avenue, but all that marks it is a state historic marker. In other cases, the history is less famous (Hampton has one of less than 200 antique wooden merry-go-rounds left in the United States), or is passed down orally. Exposing and celebrating these histories will benefit the heritage tourist economy, as these “hidden” histories can be just as fascinating to tourists. It is also important for Hampton residents who have experienced this local history to be able to share and celebrate it.

There are other economic impacts besides tourism. Landscaping and vegetation, especially trees, significantly impact the economy and commercial environment. When trees are not present, distances are perceived to be longer and destinations farther away, making people less inclined to walk than if streets and walkways include trees (Wolf 2008). Businesses often depend on pedestrian traffic to get new customers, so the more people walking by, the more likely street front store displays will be able to lure new shoppers. Trees can certainly enhance this experience and make walking both physically and psychologically more pleasant. This is especially true in the historic core of Hampton's downtown where streets are narrow and meant to be pedestrian friendly.
APPROACH TO SUCCESS

Committee members developed the following goals and objectives to realize the vision for protecting, restoring and expanding natural spaces in the City of Hampton, and connecting them to cultural and historical resources. There are four categories of goals followed by objectives and actions to achieve them. Some of these require funding, while others require a change in practice, policy, or cross agency coordination. Over time, more goals may be added or altered as circumstances change. This should be treated as a living document and updated as needed to reflect new ideas, priorities, or opportunities. It is an ambitious and significant agenda to help create a city which is clean, green, healthful, and thriving.

While most of the goals and objectives presented here are new, many of the ideas behind them are not. Presented first are the guiding principles developed by the project team to be considered for all work going forward. All goals and objectives find common ground in these principles. On the following page are the goals and associated objectives to achieve them.

GUIDING PRINCIPLES

Throughout the planning process, several key themes came up repeatedly in discussions. They were often found in aspects of goals, objectives, and actions. Ultimately, it became clear to the technical team that these themes are essential to the success of each goal and objective, and are considered guiding principles. They are:

COMMUNITY ENGAGEMENT

MULTIPLE BENEFITS

ALIGNMENT WITH PLANS AND POLICIES

INTERDEPARTMENTAL ACTION

Community Engagement
How the city’s work impacts the community is at the forefront of every project undertaken in Hampton. If the goal is to provide benefits to citizens beyond water treatment and containment, it is imperative the city understands what Hampton citizens want and need. Every project undertaken related to introducing multi-benefit green infrastructure should be done with the input and feedback of the community members it will impact, support, and serve. This is in keeping with Hampton’s priorities and current practice related to excellent citizen engagement.

Multiple Benefits
There are many ways to reduce flooding and treat stormwater runoff, including both grey and green infrastructure. Green infrastructure already has additional benefits that grey infrastructure does not: it can provide habitat, clean the air, cool its surroundings, and provide shade. When implemented thoughtfully, green infrastructure can provide even more benefits to a community. It can provide attractive landscaping (in park or non-park spaces), provide education, boost the local economy, and reduce crime. Not all projects can provide all benefits; however, before any project is implemented, the opportunity to add in these other benefits needs to be considered. For example, can a constructed wetland also provide education about the benefits of wetlands, or could benches be included for an attractive passive green space?

Alignment with Plans and Policies
Many plans and policies currently exist that guide the development of the city. Where necessary, existing ordinances should be amended to facilitate the implementation of multi-benefit green infrastructure. Policy documents should also be reconciled with the desire to integrate natural water management solutions. Finally, as a coastal city that also borders the Chesapeake Bay, the city deals with a number of regulations that protect the Chesapeake Bay and property (including TMDL and FEMA floodplain regulations). Work done to move forward green infrastructure in the city should also advance the ability to continue to meet those regulations.

Interdepartmental Action
Green infrastructure touches many departments in the city. Parks, Recreation, and Leisure Services, which cares for city trees and open spaces, will clearly play an important role in implementing the goals and objectives of this plan. However, there are many more departments whose influence will make the realization of “multiple benefits” a success. For example, in order to capitalize on CPTED (Crime Prevention Through Environmental Design, a multi-disciplinary approach that enhances safety through smart design practices such creating “eyes on the street”) benefits, Hampton’s CPTED-trained Police Department should be included. The Housing and Neighborhood Services Division will be important in engaging community members, and connecting them with resources for advancement of the cultural goals.

The creation of this plan has already gone a long way to creating the level of interdepartmental teamwork that is needed in order to be successful. Some team members did not realize they were critical players, while others did not know who to go to for certain questions or concerns within the city. By breaking down the silos that government workers sometimes find themselves in, the city stands to create projects that truly provide all the benefits green infrastructure has to offer.
GOALS

City goals fit broadly into the four categories related to Hampton’s green infrastructure assets: tree canopy, water, culture and vibrancy, and recreation. These categories and the associated goals are described in more detail below.

Tree Canopy

Tree canopy is inarguably important to the health and wellbeing of a city and its citizens. The study area for this plan actually had a more significant tree canopy coverage than was anticipated, which was positive news for the city. However, based on information from the GIC’s mapping efforts, it is likely that many of these trees are older (and correspond with some existing historic neighborhoods). Not only does the city need to plant new trees to create canopy, Hampton needs to make sure existing trees are maintained. The city also needs to have a succession plan as those trees ultimately age and die. Therefore, the following goals do not include just adding new trees, but creating a system that makes sure they can be maintained with best practices over time.

Additionally, the city has added a goal that speaks to creating a culture of tree appreciation. In order to protect the tree canopy, Hampton citizens need to understand and appreciate the value trees provide. Many have seen the negative consequences of having a tree (for instance, a limb falling during a hurricane and damaging a home or vehicle), but do not see all the values trees are providing every day. Creating that culture will help encourage individuals to plant and care for their own trees.

Goal 1: Hampton has a robust system for sustaining and increasing tree canopy.

Objective 1.1: Create or curate a collection of reference documents that promote planting the “right tree in the right place.”
Objective 1.2: Publish a Hampton State of the Urban Forest report.
Objective 1.3: Implement standardized, best-practice maintenance standards for the Hampton urban forest.
Objective 1.4: Create green streets by improving streetscape elements such as medians and bump-outs.
Objective 1.5: Re-establish Hampton as a designated Tree City USA.

Goal 2: Our community embraces the environmental, economic, social, and health benefits provided by trees.

Objective 2.1: Foster environmental education opportunities to learn and expand on the Virginia Standards of Learning Assessment Science Standards.
Objective 2.2: Incorporate environmental awareness signage and activities around the city and create an interactive website/app.
Objective 2.3: Develop a Great Trees program.
Objective 2.4: Encourage private tree planting as a way to engage the community in tree stewardship.

Water

Hampton is surrounded by water, of varying types, on three sides. The water is important in every way to Hampton. It is a part of Hampton’s history, culture, economy, and environmental resources. These waters are also of regional significance. It is incredibly important that the waters associated with the Chesapeake Bay are clean and un-polluted. There are some strict regulations associated with this very goal, and Hampton is governed by stormwater management and Total Maximum Daily Load (TMDL) regulations. The objectives under this goal are meant to support existing programs and policies, and increase the momentum behind stormwater retrofits, private water quality treatments, and support for a comprehensive stormwater management plan.

Goal 1: The Chesapeake Bay is healthy enough to support Hampton’s economy, public use, and aquatic life.

Objective 1.1: Promote a reduction in impermeable surfaces by implementing two pilot green parking lot retrofits, and modifying relevant ordinances to address constraints.
Objective 1.2: Review site plan and subdivision ordinances and supporting standards for changes that allow for multi-benefit spaces with nutrient reduction in mind.
Objective 1.3: Promote Chesapeake Bay Landscape Professional (CBLP) certifications to improve the quality of projects in the Chesapeake Bay Preservation Overlay District.
Objective 1.4: Implement a comprehensive stormwater master plan for the city that includes both grey and green infrastructure.

Design and implement five demonstration sites that enhance or re-establish the Resource Protection Area buffer (or Intensely Developed Area) with native vegetation to showcase opportunities to private property owners.
Vibrancy
Hampton has an incredible history, spanning back over 400 years. This history has shaped the city’s physical environment, community, and culture. Historic districts from different eras exist across the city, and include residential neighborhoods, commercial districts, churches, and other cultural buildings. Some aspects of the city’s history are widely shared and celebrated, but others are quieter, more informal, and less well-known. These unique histories should be celebrated and shared as well as the traditional ones. Hampton also has a growing interest in placemaking and maintaining the aspects that make Hampton unique. This includes an urban downtown corridor, walkable neighborhoods, and special recreational amenities. A few of these ideas are furthered in the objectives of this plan.

Goal 1: Hampton has vibrant communities that integrate commercial, recreational, and cultural uses.
Objective 1.1: Create interactive nodes for historical and cultural appreciation.
Objective 1.2: Create a signature path that fosters connectivity throughout the downtown.
Objective 1.3: Introduce a regional BMP downtown.

Goal 2: Cultural and historic resources contribute to understanding and experiencing the city.
Objective 2.1: Designate one historic neighborhood as a local conservation district.
Objective 2.2: Digitize and publish Hampton’s histories that have not been formally mapped.
Objective 2.3: Inform citizens of the effects and value of green infrastructure on flood reduction.

Recreation
Hampton is filled with opportunities for outdoor recreation and passive enjoyment of blue and green spaces. A public sand beach, miles of waterfront, marinas and docks, a creek and rivers that cut through the city, a large nature preserve (Sandy Bottom), and numerous parks are all part of Hampton’s landscape. These amenities are a huge part of what makes Hampton “Hampton.” However, some of these amenities are underused and not as well-loved as they could be. These goals seek to connect community members to existing spaces, make spaces more welcoming and accessible (and therefore more likely to be used), and generate pride and ownership of public spaces. Parks and open spaces are for Hampton’s citizens - if they are not using them, the city needs to consider the ways in which they have been inadvertently been made inaccessible or unwelcoming, and enhance those spaces, or create new ones where appropriate. These goals also dovetail with the tree and water goals. It is much easier to achieve positive results in those areas when residents appreciate the trees and want to be near the water and interact with those features.

Goal 1: Green and blue spaces are welcoming and accessible.
Objective 1.1: Increase accessibility to parks and public open space by establishing standards for access and public amenities.
Objective 1.2: Establish a Crime Prevention Through Environmental Design (CPTED) review process.
Objective 1.3: Improve kayaking and canoeing opportunities and experience to create community interest and engagement along Hampton waterways.
Objective 1.4: Create or enhance 5 points of public access to waterways connecting to Hampton River and Hampton Roads Harbor by FY 2020.
Objective 1.5: Research and implement available regulatory or incentive options to maintain viewsheds and water access.

Goal 2: Parks, recreation facilities, and green spaces are well connected.
Objective 2.1: Extend and enhance the downtown waterfront walkway.
Objective 2.2: Adopt a Complete Streets policy that includes street trees.
Objective 2.3: Create wayfinding system to increase pedestrian and bicycle connectivity.

Goal 3: Our citizens have pride and ownership in our green and blue spaces.
Objective 3.1: Improve the system that allows for community gardens.
Objective 3.2: Create a community green/blue space adoption process.
MOVING FORWARD

Hampton now has all of the data created for this project to use for daily and long range planning. As development and redevelopment occurs, this document can help inform where greenspace is desired or key connections could be kept open across parcels to allow for future trails or habitat paths. This information should also be used internally as the City constructs its own projects. Whether preparing for housing developments or retrofitting land for improved stormwater infiltration, it can form the basis for grant proposals and funding applications. Maps generated from this data can help citizens and neighborhood organizations to target tree planting or backyard habitats in their neighborhoods. It can guide where more trees may be needed to shelter a key community walkway or safe route to school. Land trusts can use the information to identify key parcels to protect in order to connect a green corridor or buffer an adjacent land use.

Some aspects of this plan are long-term, and represent large physical improvements that will take time to implement. Other aspects of this document can be woven into daily work completed across multiple departments. Several objectives call for re-examining existing processes, ordinances, and regulations to determine how the city is currently operating that is counterproductive to the protection and restoration of green infrastructure. Since these processes and regulations are used daily, they will have a subtler, but more encompassing impact on the city. There is also the opportunity to create new processes.

Further, the guiding principles and policies found within this report need to be formally adopted into our Hampton Community Plan (2006, as amended). As the guiding policy document for the city, this plan drives policy-making decisions, and would ultimately outlast other stand-alone reports and documents. By adopting the important policies into the Hampton Community Plan (2006, as amended), it is more likely that the importance of green infrastructure will be fixed in decision-making far into the future.

By protecting natural habitats, reconnecting them and adding more areas over time, Hampton can create a healthier environment for both nature and people. Our goals show how the network of green spaces can be connected, restored, expanded, and integrated into our daily lives.
The following survey was used to gain a high-level understanding of the priorities, concerns, and resources from neighborhood leaders and stakeholders.

**City of Hampton Natural and Neighborhood Assets**

The purpose of this project is to develop a map of prioritized natural and neighborhood assets and strategies for protecting or restoring those assets. As part of this process, we are public seeking input on places and assets that are important and at-risk in our study area neighborhoods which include Downtown and the Kecoughtan Corridor up to Pembroke Avenue.

1. For this project, we are interested in both natural assets (trees, wetlands, animal habitat) and neighborhood assets (things that make your neighborhood special such as places of historical significance, public parks and open space). Which of the following are most important to you? Please select up to 5.

- [ ] Trees/trees cover
- [ ] Street trees
- [ ] Wetlands
- [ ] Working waterfront (marina, fishery, research, industry)
- [ ] Water quality
- [ ] Wildlife habitat
- [ ] Stream buffers/flood protection
- [ ] Public or private open space
- [ ] Public shoreline access (including boats)
- [ ] Recreation
- [ ] Ecotourism
- [ ] Walkways/trails
- [ ] Floodplains
- [ ] Places of historical/cultural significance
- [ ] Other (please specify)

2. Thinking about the list above, is there anything in our project area that might go away if no effort were made to make sure it stays (for example, demolition of historic homes or loss of trees and green space due to development)? Be as specific as you would like.

3. Are there maps/information relating to the natural and neighborhood assets above that you wish you had access to that you currently don’t?

4. Is there any work you or your organization have done/are interested in doing regarding documenting any natural or neighborhood assets?

5. Is there anyone else we should be sure to engage in this process?
SOURCES CITED

Tree Benefits Graphic


Other


This map highlights sidewalks and the tree canopy covering them. If bright orange (the sidewalk) is showing, it means there is not tree canopy coverage of that path.
FUNDING OPPORTUNITIES

1. Forestry Legacy Program, Virginia Department of Forestry: The Forest Legacy Program (FLP), a program of the USDA Forest Service in partnership with States, supports State efforts to protect environmentally important forest lands. The program is designed to purchase land, or conservation easements, in an effort to protect private land that is threatened by conversion to non-forest uses. FLP is an entirely voluntary program that utilizes Federal grant funds to assist states in conserving lands that provide public benefits including sustainable forest resources, clean water, clean air, wildlife habitat, and forested scenic views, as well as protecting sensitive sites and habitats utilized by threatened and endangered species.


2. Tree Steward Mini-Grant: The Tree Steward Mini-Grant program is intended to help Trees Virginia help Virginia’s Tree Steward groups fulfill their urban forestry responsibilities to their communities.

   Tree Steward Mini-Grant: http://treesvirginia.org/outreach/tree-stewards

3. American ReLeaf Program, American Forests: American ReLeaf funds tree planting projects across the United States. From kickstarting forest regeneration after severe wildfires in the American West, to working in Michigan to restore habitat for an endangered bird species and planting trees along waterways in the Northeast damaged by Hurricane Sandy, our American ReLeaf projects are making a difference across the country.

   American ReLeaf Program: http://www.americanforests.org/discover-american-forests/our-work/american-releaf

4. TD Green Streets Grant Information: TD Green Streets supports innovative practices in community forestry. Through this grant program, municipalities are eligible to receive one of ten $20,000 grants in support of local forestry projects in low- to moderate-income (LMI) neighborhoods.

   TD Green Streets Grant Information: https://www.arborday.org/programs/tdgreenstreets/

5. Virginia Trees for Clean Water Grant: Administered by the Virginia Department of Forestry, this program aims to plant trees that restore and improve the waters of the Chesapeake Bay for the benefit of current and future citizens of the Commonwealth. Types of eligible projects include riparian buffer tree planting as well as community and neighborhood tree plantings. Successful proposals demonstrate “on-the-ground accomplishments” to obtain clean water in the Chesapeake Bay; the merit of the project and how the trees will be maintained in perpetuity. Funding is available on a 50/50 match basis. In-kind match, including volunteer time, is permissible.

   Specifics will be accessible through Virginia Trees for Clean Water Grant: http://dof.virginia.gov/financing/grants.htm

6. Urban and Community Forestry Assistance Grant: The Urban and Community Forestry Grant Assistance Program is designed to encourage projects that promote tree planting, the care of trees, the protection and enhancement of urban and community forest ecosystems, and education on tree issues in cities, towns and communities across the nation. Grants are awarded through this program to encourage local government and citizen involvement in creating and supporting long-term and sustained urban and community forestry projects and programs at the local level.

   Urban and Community Forestry Assistance Grant: http://dof.virginia.gov/financing/grants.htm

7. Green STEM Integration Grant for Educators: The National Environmental Education Foundation offers funding for teachers, after-school programs, and nature organizations for projects that support integration of Greening STEM into current or new programming or curriculum. The average grant amount is between $500-$1,000.

   Green STEM Integration Grant for Educators: https://www.neefusa.org/greening-stem-integration-grant-educators

8. Hands on the Land Mini-Grants Program: The National Environmental Education Foundation is partnering with Partners in Resource Education to support efforts to deliver high-quality place-based environmental education and STEM programming that is aligned with national K-12 education standards. The average award is between $500-$5000.

   Hands on the Land Mini-Grants Program: https://www.neefusa.org/resource/2017-hands-land-mini-grants-program

9. The National Fish and Wildlife Foundation: NFWF provides funding on a competitive basis to projects that sustain, restore, and enhance the nation’s fish, wildlife, plants, and their habitats. Each of their initiatives has a business plan developed by scientists and other experts and approved by the Board of Directors. Grants are available to support the actions identified in the business plan. Additional programs support diverse projects for wildlife and habitat conservation across the country. NFWF supports more than 70 grant programs to protect and restore our nation’s wildlife and habitats. Federal, state, and local governments, educational institutions, and nonprofit organizations are welcome to apply twice annually for matching grants from the conservation priority programs.

   http://www.nfwf.org/whatwedo/grants/Pages/home.aspx

10. Global Water Foundation: Grants are offered for projects strictly relating to water and sanitation. Local initiatives are prioritized through direct grants, based on reviewed project proposals, which include clear guidelines on monitoring and evaluating the project.
processes. Both new and existing local projects are considered for direct grants: existing projects are supported with the clear understanding of scaling them up by using unique or innovative methodologies; new projects are supported depending on whether they fulfil the criteria set out for specific project types. Replication projects are supported through direct grants, where innovative ideas have been successful and need funding for expansion. This applies to implementation projects as well as product development. Grant amounts are determined by the scope of the project, and matching funding is encouraged.

http://www.globalwaterfoundation.org/index.php?page=grant

11. Global Greengrants Fund: Over 10,000 projects have been funded, totaling $63,000,000 in grant awards in 167 countries. Terra Viva Grants provides a database of funding opportunities for grant seekers and is an interesting online listing of diverse international grant opportunities for the environment and natural resources. This is a great database to search updated current opportunities, which include monthly updates of grant opportunities.

https://www.greengrants.org/programs/information-for-grantseekers/

12. NASA & Virginia's Center for Innovative Technology: CIT GAP Funds places near-equity and equity investments in Virginia-based technology and life science companies. CIT GAP Funds invests in companies with a high potential for achieving rapid growth and generating significant economic return for entrepreneurs, co-investors and the Commonwealth of Virginia.

Article: Hampton company wins $800k in grants to treat water – on Earth and in space.


13. HRSD Environmental Improvement Fund Grants: HRSD Environmental Improvement Fund Grants have included the following:

Virginia Living Museum for environmental education and Virginia Water Environment Association (VWEA) for an environmental education program for engineering students at Virginia’s colleges and universities.

http://www.hrsd.com/envirofundgrants.shtml

14. VDOT / Virginia Safe Routes to School: VDOT provides Safe Routes funding for infrastructure, mini-programs, walkabouts and coordinators.

http://www.virginiadot.org/programs/srsm_srts_all_website_resources.asp

15. Virginia Land Conservation Foundation: Helps to fund permanent conservation easements and to purchase open spaces and parklands, lands of historic or cultural significance, farmlands and forests, and natural areas.

### MyTree Benefits

**Serving size: 1 Hornbeam, American (Carpinus caroliniana)**

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Value (left)</th>
<th>Value (right)</th>
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<tbody>
<tr>
<td><strong>Carbon Dioxide (CO$_2$)</strong></td>
<td>$0.62</td>
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<tr>
<td>CO$_2$ absorbed each year</td>
<td>62.00 lbs</td>
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<td><strong>Storm Water</strong></td>
<td>$16.84</td>
<td>$17.19</td>
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<td>Rainfall intercepted each year</td>
<td>3722 gal</td>
<td>1736 gal</td>
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<td><strong>Air Pollution removed each year</strong></td>
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<td>Ozone</td>
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<tr>
<td>Sulfur dioxide</td>
<td>0.00 oz</td>
<td>0.00 oz</td>
</tr>
<tr>
<td>Large particulate matter**</td>
<td>10.72 oz</td>
<td>8.32 oz</td>
</tr>
<tr>
<td><strong>Energy Usage each year</strong></td>
<td>$1.26</td>
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<tr>
<td>Electricity savings (A/C)</td>
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<td>7.97 kWh</td>
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<td>Fuel savings (NG, Oil)</td>
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<tr>
<td><strong>Avoided Emissions</strong></td>
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<tr>
<td>Carbon dioxide</td>
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<td>Sulfur dioxide</td>
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<tr>
<td>Large particulate matter**</td>
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<td>0.16 oz</td>
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</table>

Benefit values are estimates based on USDA Forest Service research and are meant for guidance only. [i-tree tools](http://www.itreetools.org/mytree/)

*Positive energy values indicate savings or reduced emissions. Negative energy values indicate increased usage or emissions.

**Greater than 10 microns**
## HISTORIC SITES

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<th>Category</th>
<th>Feature Type</th>
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<td>AAH</td>
<td>Point/Polygon</td>
<td>AAH = African American History</td>
</tr>
<tr>
<td>23651</td>
<td>Fort Monroe</td>
<td>AAH, WH</td>
<td>Point</td>
<td>WH = War History</td>
</tr>
<tr>
<td>23669</td>
<td>Emancipation Oak</td>
<td>AAH</td>
<td>Point</td>
<td>NH = Natural History</td>
</tr>
<tr>
<td>23669</td>
<td>Federation House</td>
<td>AAH</td>
<td>Point</td>
<td>O = Other</td>
</tr>
<tr>
<td>23669</td>
<td>Hampton History Museum</td>
<td>AAH</td>
<td>Point</td>
<td>AH = Architectural History</td>
</tr>
<tr>
<td>23669</td>
<td>Little England Chapel</td>
<td>AAH</td>
<td>Point</td>
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</tr>
<tr>
<td>23669</td>
<td>Hampton University Museum</td>
<td>AAH, WH, NH, O</td>
<td>Point</td>
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<tr>
<td>23669</td>
<td>Virginia Air and Space Center</td>
<td>O</td>
<td>Point</td>
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</tr>
<tr>
<td>23669</td>
<td>Buckroe Beach Carousel</td>
<td>O</td>
<td>Point</td>
<td></td>
</tr>
<tr>
<td>23669</td>
<td>Reuben Clark House</td>
<td>AH</td>
<td>Point</td>
<td></td>
</tr>
<tr>
<td>23669</td>
<td>Hampton Downtown Historic District</td>
<td>AH</td>
<td>Polygon</td>
<td></td>
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<tr>
<td>23669</td>
<td>Hampton National Cemetery</td>
<td>O</td>
<td>Polygon</td>
<td></td>
</tr>
<tr>
<td>23666</td>
<td>Hampton National Guard Armory</td>
<td>WH</td>
<td>Point</td>
<td></td>
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<tr>
<td>23669</td>
<td>Herbert House</td>
<td>AH</td>
<td>Point</td>
<td></td>
</tr>
<tr>
<td>23669</td>
<td>Blackbeard's Point</td>
<td>O</td>
<td>Point</td>
<td></td>
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<tr>
<td>23669</td>
<td>St. John's Church</td>
<td>AH</td>
<td>Point</td>
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<td>23669</td>
<td>Victoria Boulevard Historic District</td>
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<td>Polygon</td>
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<tr>
<td>Multiple</td>
<td>Chesapeake Avenue</td>
<td>AAH, WH, NH, O</td>
<td>Line</td>
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<td>23669</td>
<td>Scott House</td>
<td>AH</td>
<td>Point</td>
<td></td>
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<tr>
<td>23667</td>
<td>Hampton Military Hospital (Veterans Medic WH, AH</td>
<td>WH</td>
<td>Point</td>
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<tr>
<td>23669</td>
<td>Villa Maragot Marker</td>
<td>WH</td>
<td>Point</td>
<td></td>
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<tr>
<td>23669</td>
<td>Hampton Courthouse</td>
<td>AH, WH</td>
<td>Point</td>
<td></td>
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<tr>
<td>23669</td>
<td>Burning of Hampton and Grand Contraban WH</td>
<td>WH</td>
<td>Points</td>
<td></td>
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<tr>
<td>23669</td>
<td>Historic Post Office</td>
<td>AH</td>
<td>Point</td>
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<td>23669</td>
<td>Mary Peak Cemetery</td>
<td>AAH</td>
<td>Polygon</td>
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<td>23661</td>
<td>Battle of the Ironclads</td>
<td>WH</td>
<td>Point</td>
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<td>23669</td>
<td>Black Business District</td>
<td>AAH</td>
<td>Line</td>
<td></td>
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<tr>
<td>23663</td>
<td>The Trusty House</td>
<td>AAH, AH</td>
<td>Point</td>
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<td>23669</td>
<td>Queen Street Baptist Church</td>
<td>AAH, AH</td>
<td>Point</td>
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<tr>
<td>23669</td>
<td>First Baptist Church</td>
<td>AH</td>
<td>Point</td>
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<tr>
<td>23669</td>
<td>Ruppert L. Sargent building</td>
<td>WH, AH</td>
<td>Point</td>
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<tr>
<td>23669</td>
<td>Hampton Maritime Center</td>
<td>NH</td>
<td>Point</td>
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<tr>
<td>23669</td>
<td>Miss Hampton II Harbor Cruises</td>
<td>NH</td>
<td>Point</td>
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</table>
Hampton
VIRGINIA

Downtown Hampton Walking Tour

Begin your tour at the Hampton Visitor's Center, 120 Old Hampton Lane. Free parking is available in the garage for the day on Hampton Museum Way. Two-hour parking is available as posted in downtown Hampton.

1. The Hampton Visitor Center is located inside the Hampton History Museum where you can find maps, brochures and the Hampton Museum Gift Shop.

2. The Hampton History Museum interprets Hampton's unique past spanning from its inhabitation by the Kecoughtan Indians through the 20th Century. Nine permanent galleries showcase our city's 400 years of history as the oldest continuous English-speaking settlement in America, a story with strong parallels to American history relevant and of interest to all. Purchase admission tickets in the Visitor Center lobby.

3. St. John's Church and Cemetery – Depart through the Hampton History Museum Gift Shop and cross Queens Way to St. John's Church and Cemetery. St. John's is the oldest continuous Anglican Parish in the United States. Although this is still a working church, the sanctuary and its adjacent museum are open to visitors. One of the beautiful stained-glass windows inside the sanctuary depicts the baptism of the Indian princess Pocahontas. Stroll through the churchyard and see the memorial to Virginia Laydon, the first surviving child born in the New World. See the historical sign on St. John's in front of the church.

4. Kings Way and Queens Way – Since Hampton's earliest settlement, the corner of King and Queen Streets has served as the commercial hub for downtown Hampton. Take a few minutes to read the bronze historical markers affixed to the current buildings on this site.

5. The Sclater Building – (Located at the corner of King and Queens Way) The oldest surviving commercial structure in Old Hampton was built by William S. Sclater following the War Between the States. The lot is part of an original one-half acre on which, by the 1750's, was a large brick house belonging to a Captain Alexander Hamilton, gentleman merchant. During the Revolutionary War it was owned and operated as an ordinary by John Paul. The present building was occupied by retail stores, including Lemuel H. Sclater's Drugstore as early as 1881, H. R. Booker's Hardware Store (1895) and Wyatt Brothers, men's clothiers (1930-1969). It then became the offices of the law firm of E. Sclater Montague, grandson, and David N. Montague, great-grandson of Lemuel H. Sclater.
6. **First United Methodist Church** — (Located at the corner of Wine Street and Queens Way) Founded in 1800, the First United Church was the forerunner of Methodism on the lower Virginia Peninsula. The existing church was built in 1887.

7. **Mill Point Park** — (Located at the corner of Queens Way/Queen Street and Eaton Street) This tranquil waterfront is the site of many Hampton festivals and special events.

8. **Waterfront and Hampton University** — Just across the river is the waterfront campus of Hampton University, site of six National landmarks and the renowned Hampton University Museum.

9. **Miss Hampton II Dock** — Located in front of the Crowne Plaza Marina Hotel parking garage. You will pass the dock where the Miss Hampton II tour boat is berthed. This 65 foot two decked vessel transports visitors from the downtown waterfront to Fort Wool, a pre-Civil War island fortress in the middle of Hampton Roads Harbor. Visitors can take a guided tour of the island before continuing their cruise to the Norfolk Naval Base, the largest naval facility in the world. The public boat piers are located in this marina also.

10. **Customs House Marina** — This marina in front of the Crown Plaza Marina Hotel provides space for both resident and transient boaters. Behind the marina you may see the masts of several commercial fishing boats. These vessels ply the waters of the Chesapeake Bay daily, harvesting scallops, crabs, fish and oysters.

11. **Hampton Carousel** — (Located at Settlers Landing Road and King Street) was built in 1920. This antique merry-go-round features 48 intricately carved horses and tow stately chariots. Recently restored to its original beauty, the carousel was a featured attraction at Hampton's Buckroe Beach Amusement Park for nearly 65 years. Stop in for a ride or just listen to the original calliope.

12. **Virginia Air and Space Center** — (Located at Settlers Landing Road and King Street) Opened in 1992, this facility is the official visitor center for Hampton's NASA Langley Research Center. The building houses a 3 billion year old moon rock, a dozen full-size aircraft and an IMAX Theatre. (Across the street from the Virginia Air and Space Center is a historical marker).
INSPIRATION PROJECTS

Huntley Meadows Park (Fairfax, VA)

As the headwaters of the Little Huntington Creek, this park contains the largest freshwater wetland in Fairfax County. The half mile boardwalk, which runs through the central wetland, is the most popular spot in the 1600 acre park. Overall, the park is known as "a natural island in a suburban sea." The diverse wildlife habitat is a rare gem in the urban landscape of Northern Virginia. Thus, a small yet dedicated staff, with the help of its volunteer group, Friends of the Huntley Meadow Park, work to preserve its quality and to fight off threats of urbanization takeover.

Tanner Springs Park (Portland, OR)

Three of the sides of the one acre sunken park are lined with steps allowing a terraced, permeable edge for visitors to enter, exit, and sit. The east side of the park is lined with an art installation and a boardwalk spanning two blocks. Overall, the site serves as a sponge for urban stormwater, which is further filtered through the constructed wetland.

"ArtoberVA" in Richmond, Virginia is month-long celebration of arts and culture held annually during the month of October. The goal of the event is to "increase awareness and participation in arts and culture offerings across the region" and involves over 150 arts and culture organization and countless artists throughout the Richmond and Tri-Cities area ("ABOUT ArtoberVA").

"Cities of Service" is a national, non-profit organization that supports mayors and city executives throughout the United States in organizing citizen-led, citizen-powered initiatives. "Love Your Block, Love Your City" in Birmingham, Alabama is an example of one such event in which the concept of civic recruitment is used to give residents the opportunity to create projects that they believe will have the biggest impact on improving their community. "Through Love Your Block Birmingham, thousands of volunteers in the city cleaned over 26,000 square feet of graffiti, disposed of more than 135,000 pounds of trash and debris, and planted over 500 trees" ("Cities of Service").
## POTENTIAL ACTIONS

The following potential actions represent one possible way of achieving the goals and objectives within this report.

<table>
<thead>
<tr>
<th>Objective: Create or curate a collection of reference documents that promote planting the &quot;right tree in the right place.&quot;</th>
<th>Objective: Publish a Hampton State of the Urban Forest report.</th>
<th>Objective: Implement standardized, best-practice maintenance standards for the Hampton urban forest.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task 1:</strong> Identify existing documents and resources appropriate for Hampton. Also identify gaps.</td>
<td><strong>Task 1:</strong> Once standardized, best-practice maintenance standards are created, the Urban Forest report can follow. City Arborist surveys and analyzes Hampton’s key asset areas urban canopy structure and composition using i-Tree Eco.</td>
<td><strong>Task 1:</strong> Create a Landscape Management division of Hampton’s Parks and Recreation department.</td>
</tr>
<tr>
<td><strong>Task 2:</strong> Establish a dedicated and maintained website for reference documents and other resources by archetypes such as coastal/RPA, yard, street, urban, etc. Update as new information is available.</td>
<td><strong>Task 2:</strong> Create map of assets, goal-focus areas, and all city-maintained trees, including species, health, size and height, dieback, canopy coverage and fullness.</td>
<td><strong>Task 2:</strong> Hire an ISA-certified arborist to lead Hampton’s Landscape Management division.</td>
</tr>
<tr>
<td><strong>Task 3:</strong> Assign a specific staff role to regular maintenance of the website and materials.</td>
<td><strong>Task 4:</strong> Consider forming a tree board, advisory council, or oversight committee to help guide goal setting in Task 5.</td>
<td><strong>Task 3:</strong> Create an Urban Forest Management Plan, including tree replacement schedules and seasonally-appropriate pruning and tree health assessments (to be incorporated into the State of the Urban Forest report).</td>
</tr>
<tr>
<td><strong>Task 4:</strong> Promote the website. (e.g. e-news, HCCC, Arbor Day and other events).</td>
<td><strong>Task 5:</strong> Create short and long-term urban forestry goals with input from Task 4 group. Goals should include increasing public tree planting in prioritized areas to help increase the overall tree canopy coverage.</td>
<td><strong>Task 4:</strong> Train Parks and Recreation landscaping staff in new tree management practices.</td>
</tr>
<tr>
<td><strong>Task 5:</strong> From gaps identified in Task 1, prioritize development of new documents or resources. Prioritization should be given to those which forward multiple objectives in this plan.</td>
<td><strong>Task 6:</strong> Arborist identifies areas for goal-based planting efforts and specific planting plans.</td>
<td><strong>Task 5:</strong> Include relevant portions of Urban Forest Management Plan into city Landscape Guidelines.</td>
</tr>
<tr>
<td><strong>Task 6:</strong> Collaborate with regional partners to fund and develop new documents or resources for the region.</td>
<td><strong>Task 7:</strong> Publish and do outreach marketing for Hampton State of the Urban Forest report.</td>
<td></td>
</tr>
<tr>
<td>Objective: Create green streets by improving streetscape elements such as medians and bump-outs.</td>
<td>Objective: Re-establish the City of Hampton as a designated Tree City USA.</td>
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<td><strong>Task 1:</strong> Collect maps and GIS data to locate focus areas. Hampton should prioritize major circulation routes and popular pedestrian destinations such as Victoria Blvd, Settler’s Landing Road, and downtown Hampton.</td>
<td><strong>Task 1:</strong> Establish a group to provide advice and guidance on tree care. It should include the City Arborist, and may include other City staff and citizens. This role may be able to be integrated into Clean City Commission board.</td>
<td></td>
</tr>
<tr>
<td><strong>Task 2:</strong> Identify soil type and plant species to plant in medians and bump-outs. Select plants based on criteria being created through other objectives in this plan.</td>
<td><strong>Task 2:</strong> Create a Tree Care Ordinance that provides clear guidance for planting, maintaining and removing trees from streets, parks and other public spaces as well as activities that are required or prohibited. Review model ordinances (Fairfax has been suggested) to prevent &quot;reinventing the wheel.&quot; Consider opportunities to apply for a grant to assist with ordinance writing.</td>
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</tr>
<tr>
<td><strong>Task 3:</strong> Develop conceptual design to educate public about changes. Identify nutrient, TSS, bacteria reduction that can be achieved.</td>
<td><strong>Task 3:</strong> Confirm how much money the City is currently spending towards the annual $2 per capita requirement via existing expenditure reports and budgets. If insufficient, develop plan to shift funding and consider money being spent that is not &quot;easily&quot; categorized as tree care.</td>
<td></td>
</tr>
<tr>
<td><strong>Task 4:</strong> Collaborate with appropriate agencies (landscape architecture firms, green infrastructure organizations, volunteers) to plant bump-outs and medians.</td>
<td><strong>Task 4:</strong> Host an annual Arbor Day ceremony. Options include a planting event, honoring tree planters, and celebrating the benefits of community trees. A proclamation is required. Work with Clean City Commission to partner on this event. Consider holding Arbor Day in the fall - trees will be successful, easier to get state reps, comfortable weather. Note: applications to be a Tree City are due in December every year.</td>
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</tr>
<tr>
<td>Task 1: Work with Hampton Public Schools Facilities Manager to determine level of interest at each school in establishing new educational opportunity. Identify a champion. Consider a pilot project to serve as demonstration site and develop interest.</td>
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<td>Task 1: Identify interesting sites or events around the city. Consider both flora and fauna.</td>
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<td>Task 2: Consult with the community and experts, including volunteer Master Gardeners, local teaching professionals, and school administrators to rank their needs and prioritize a list of prospective ideas for the interactive outdoor learning opportunities.</td>
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<td>Task 2: Divide features into either permanent (a huge, lovely tree), or seasonal (baby ducks). Permanent signage can be placed for a few special features, and can also direct people to other information on website or apps (Hampton nature/outdoor App) for seasonal features.</td>
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<td>Task 3: Design classroom space. Consider: Inventory school grounds and identify interesting features; complete an assessment to determine how friendly it is for native plants and animals.</td>
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<td>Task 3: Fabricate and install the educational signage at designated locations. Create marketing materials for seasonal attractions (direct people to website/app).</td>
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<td>Task 4: Consult with local businesses, organizations, and groups for in-kind donations and submit grant applications for additional financial support.</td>
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<td>Task 4: Develop a website and app to display all the information from the educational signage for the residents, students, and visitors of Hampton to learn additional information about the benefits of urban forestry.</td>
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<td>Task 5: Implement and monitor school testing for improved SOL achievement, so classroom and lessons can be tweaked if necessary.</td>
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**Objective:** Foster environmental education opportunities to learn and expand on the Virginia Standards of Learning Assessment Grade 5 Science Standards.

**Objective:** Incorporate environmental awareness signage and activities around the city and create interactive website/app.

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**Our community embraces the environmental, economic, social, and health benefits provided by trees**

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**Our community embraces the environmental, economic, social, and health benefits provided by trees**
<table>
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<tr>
<th>Task 1:</th>
<th>Task 1: Review other existing (state or national) programs that highlight great trees (e.g. Champion Trees register). What benefits do they provide?</th>
<th>Task 1: Create incentives for developers to increase the number of trees preserved and planted during the development process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 2:</td>
<td>Task 2: Work with parks to create Hampton's own criteria of what makes a tree great (size, age, historic significance, etc.)</td>
<td>Task 2: Re-establish a yard tree planting program to encourage local homeowners to plant trees on their residential properties. Investigate both a one-time-a-year event (e.g. month-long tree giveaway) and permanent year-round assistance (e.g. grant to help elderly or disabled residents plant their trees)</td>
</tr>
<tr>
<td>Task 3:</td>
<td>Task 3: Create display for private property owners to showcase great trees in their yard or property.</td>
<td>Task 3: City Arborist will offer to engage with Registered Neighborhood Serving Organizations to advise/consult on neighborhood tree issues or concerns.</td>
</tr>
<tr>
<td>Task 4:</td>
<td>Task 4: Look for any other incentives that can be applied to great trees (e.g. if a new development preserves previously designated great trees can they receive a greater landscaping credit)</td>
<td>Task 4: Incorporate tree planting into Arbor Day celebrations.</td>
</tr>
<tr>
<td>Task 5:</td>
<td>Task 5: Use documents curated for &quot;right tree right place&quot; objective to provide additional information to property owners on how to keep their great tree healthy.</td>
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<tr>
<td><strong>Objective:</strong> Promote a reduction in impermeable surfaces by implementing two pilot green parking lot retrofits, and modifying relevant ordinances to address constraints.</td>
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<tr>
<td><strong>Task 1:</strong> Collect maps and GIS data to identify which parking lots to prioritize. Criteria could be based on size of parking lot, or percent coverage of permeable surfaces. Hampton should prioritize areas with high levels of pedestrian accessibility, such as downtown.</td>
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<td><strong>Task 1:</strong> Review site plan &amp; subdivision ordinances and supporting standards for changes that allow for multi-benefit spaces with nutrient reduction in mind.</td>
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<tr>
<td><strong>Task 2:</strong> Identify soil type, plant species, and storm water management practices to implement in parking lots. Look to other successful cities for models that are aesthetically pleasing, safe, and are good for water management.</td>
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<td><strong>Task 2:</strong> Research incentives such as cluster or dense development, conservation areas, reduction of impervious area, fire lanes, etc.</td>
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<td><strong>Task 3:</strong> Collaborate with appropriate agencies (landscape architecture firms, green infrastructure organizations, volunteers) to implement. Develop conceptual design to educate public about changes.</td>
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<td><strong>Task 3:</strong> Identify impacts of varying land use classification and current nutrient loading rates. Reassess with the new model anticipated to be released in draft version, July 2017 and by final in December 2017.</td>
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<td><strong>Task 4:</strong> Review expert panel reports on tree canopy and leaf litter and assess impacts and maintenance needs.</td>
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<td><strong>Task 5:</strong> Adopt revisions of site plan &amp; subdivision ordinances.</td>
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</table>

**NOTES**

The Chesapeake Bay is healthy enough to support Hampton’s economy, public use, and aquatic life.
| **Objective:** Promote Chesapeake Bay Landscape Professional (CBLP) certifications to improve the quality of projects in the Chesapeake Bay Preservation Overlay District. |
| **Objective:** Implement a comprehensive stormwater master plan for the city that includes both grey and green infrastructure. |
| **Objective:** Design and implement five demonstration sites that enhance or re-establish the Resource Protection Area buffer (or Intensely Developed Area) with native vegetation to showcase opportunities to private property owners. |

| Task 1: Provide CBLP certification information to professions who submit plans to the Development Services Center. |
| Task 1: Create an interdepartmental team to develop a scope for Task 3. Scope should include infrastructure elements as well as land use and policy elements. |
| Task 1: Select sites which ideally have A) a lack of vegetation in the RPA/IDA buffer, B) good accessibility and visibility, C) proximity to impaired waters, D) vacant lots, and E) are within established communities. |

| Task 2: Host training workshop(s) in Hampton. |
| Task 2: Evaluate existing stormwater management watershed studies to identify suitable locations for extension of study recommendations. |
| Task 2: Develop a project plan and obtain funding for design, implementation, and some period of maintenance. Apply for grants or other innovative funding. If none received, look to Hampton’s Capital Improvement Plan and Structure Encroachment Permit fees (§33.2-17). Research taxation benefits for residences or commercial sites under 2,500 square feet seeking to restore or create riparian buffers or implement best management practices. |

| Task 3: Work with procurement to specify CBLP as a preferred qualification on city contracts. |
| Task 3: Contract with consultant that is proficient in green infrastructure and multi-benefit public investment. |
| Task 3: Design site plans utilizing a certified Chesapeake Bay Landscape Professional and community stakeholders. |

| Task 4: Near term—provide link/list of CBLPs to applicants within the Chesapeake Bay Preservation Overlay District. |
| Task 4: Develop maintenance agreements/documents that can offer guidance for privately owned infrastructure. |
| Task 4: Implement and construct the plans. Involve stakeholders and volunteers in planting vegetation. |

| Task 5: Longer term—require CBPL certification for mitigation projects once there is a sufficient number of certified professionals locally. |
| Task 6: Work with interested stakeholders to adopt the site for long term maintenance. |

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*The Chesapeake Bay is healthy enough to support Hampton’s economy, public use, and aquatic life*
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<tr>
<th>Objective: Create interactive nodes for historical and cultural appreciation.</th>
<th>Objective: Create a signature path that fosters connectivity throughout the downtown.</th>
<th>Objective: Introduce a regional BMP downtown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: Using Comprehensive Plan and results of associated objectives (i.e. digitize histories that have not been formally mapped), pinpoint open spaces where there is room to install public art and infrastructure relating to Hampton's heritage and culture, potential for temporal programmed events, and utilization for recurring activities.</td>
<td>Task 1: Utilize this document, Downtown Hampton Master Plan, Bike Walk Hampton plan, and Birthplace of American Trail study to inform alignment of signature path through downtown; Use Bicycle &amp; Pedestrian Advisory Committee as primary steering committee for signature path alignment.</td>
<td>Task 1: Work with attorney's office to determine how to best implement a stormwater BMP for use by private development.</td>
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<td>Task 2: Devise plans for displaying heritage and culture in these spaces. Plans should be specific to the space but can include murals, sculptures, street furniture, etc. Work with businesses near these areas to promote the spaces.</td>
<td>Task 2: Identify themes that reflect Hampton's current or past culture identities to aid in forming a name for the trail.</td>
<td>Task 2: Identify potential sites. Criteria may include: city-owned property, most treatment, core or corridor connection, community benefit (location and type of BMP), cost, multi-benefit, etc.</td>
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<td>Task 3: Work with local artists, schools, and other groups to implement the individual plans and partake in cultural works and murals.</td>
<td>Task 3: Work with Downtown neighborhood organizations, businesses, students and residents to obtain input on path alignment and proposed path naming.</td>
<td>Task 3: Design BMPs with site-specific information for feasibility analysis. Ensure the TMDL for MS4 is met. Excess credit must first be applied to meet TMDL before banking.</td>
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<td>Task 4: Develop budget for capital expenditures. Use financial and social capital of local businesses, developers, and property owners to sponsor wayfinding signage and amenities and promote the path as a downtown lifestyle amenity.</td>
<td>Task 4: Utilize modeling such as SWAT to demonstrate benefits on a large watershed scale.</td>
<td>Task 5: Jointly market the signature path with other Bike Walk Hampton efforts.</td>
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<td>Task 5: Market to developers an incentive to densely develop in downtown.</td>
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Hampton has vibrant communities that integrate commercial, recreational, and cultural uses.
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<thead>
<tr>
<th><strong>Objective:</strong> Designate one historic neighborhood as a local conservation district.</th>
<th><strong>Objective:</strong> Digitize and synthesize Hampton's histories that have not been formally mapped.</th>
<th><strong>Objective:</strong> Inform citizens of the effects and value of green infrastructure on flood reduction.</th>
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</thead>
<tbody>
<tr>
<td><strong>Task 1:</strong> Review Hampton’s existing nationally registered historic places and their zoning conditions. What is allowed to be done in those districts now? Does the existing zoning conflict with development or improvements that would fit historically? A conservation district will be less strict than a typical historic district.</td>
<td><strong>Task 1:</strong> Research and identify “alternative” or “hidden” histories to be mapped and recognized. This can include African American history, natural history, Native American history, pirate history, and others. Various resources should include: Residents and neighborhoods, the Hampton History Museum, and institutions (HU, Fort Monroe, VAMC, etc.). Housing and Neighborhoods Division will be a good resource for connecting to the historians of communities.</td>
<td><strong>Task 1:</strong> Develop a flier with fun facts and suggested green infrastructure activities appropriate at the parcel level.</td>
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<td><strong>Task 2:</strong> Research and utilize community input in and around these places to identify which areas contribute the most and are regarded as most valuable to enhancing the heritage historic and cultural richness of Hampton. Focus in on this neighborhood as a prototype for others.</td>
<td><strong>Task 2:</strong> Record history and context (audio recording, photos, historical compilations). Determine best format for each history - is it mappable, is there actually something at the site to be seen that people can be directed to, etc. Prioritize getting people out to the site if physically possible (e.g. not private land or unsafe landform).</td>
<td><strong>Task 2:</strong> Include Task 1 flier in regular city distribution of informational packets and other marketing efforts about reducing flood risks.</td>
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<td><strong>Task 3:</strong> Work with neighborhood groups that have expressed interest in preserving historical character to find interest in obtaining the zoning overlay - without willing neighborhood partner, this zoning overlay cannot realistically be implemented. Subtask: generate “marketing” materials that explain the difference between Historic and Local Conversation designations, along with benefits and considerations for designation.</td>
<td><strong>Task 3:</strong> Make histories available: online, in print (distribution at city hall, other places that are specifically relevant to the history), tour groups, on existing or amended signage, etc. Through interactive online maps, people who are unable to visit Hampton can take a “virtual” historical tour.</td>
<td><strong>Task 3:</strong> Create “Going Coastal” webpage that introduces and welcomes residents to coastal living.</td>
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<td><strong>Task 4:</strong> Review Charlottesville as model for implementing Conservation District. See “Charlottesville Historic Conservation Districts Design Guidelines and Ordinance” as guidance. Look for additional models, particularly waterfront localities.</td>
<td><strong>Task 4:</strong> Work with Visitor and Convention Bureau to develop digital walking tours (similar to the one created for Old Wythe) that can be accessed and listened to via smartphone, and to research current use of QR codes in the City and whether or not they can be applied here.</td>
<td><strong>Task 4:</strong> Work with area plant nurseries to create, from the Task 1 flier, a tag to put on trees at area nurseries.</td>
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<td><strong>Task 5:</strong> Work with Zoning division to determine required steps for implementing new Zoning overlay. Redline ordinance will require multiple input sessions and iterations.</td>
<td><strong>Task 5:</strong> At flood mitigation or stormwater management project sites, include signage about the effects and value of green infrastructure on flood reduction.</td>
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<td><strong>Task 6:</strong> Write Zoning Ordinance Amendment with input from neighborhood that will have the district applied to them. Adoption will be required by Planning Commission and City Council.</td>
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<td>Task 1: Utilize community input from the Bike Walk Hampton plan and input from neighborhood organizations to understand the most desired and needed access points, connections, and amenities (i.e. benches, sidewalk connections) in parks and public open spaces.</td>
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<td>Task 2: Review &amp; update City ordinances and standards to require or incentivize pedestrian connections to and within parks and public open spaces.</td>
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<td>Task 3: Develop a menu of pedestrian and bicycle amenities specific to existing park and open spaces to include benches, garbage receptacles, lighting, bike racks, etc. When relevant, coordinate with appropriate neighborhood or business district for feedback on style of amenities.</td>
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<td>Task 4: Develop standards for new parks and public open space.</td>
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<td>Task 5: Ensure park and open space design is Americans with Disabilities Act (ADA) compliant and considers special needs audiences.</td>
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<td>Task 6: Retrofit existing public open spaces with necessary amenities as funds are available, and replace amenities in the priority order identified by community and city staff.</td>
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<td>Task 7: Encourage enforcement action on projects that do not maintain the minimal standards set by</td>
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**Objective:** Increase accessibility to parks and public open space by establishing standards for access and public amenities.

**Objective:** Establish CPTED review process.

**Task 1:** Create indepartmental group (either assigned by Department heads, or role integrated into existing group such as site plan review committee).

**Task 2:** Require CPTED Training for City of Hampton Employees that review site plans and enforce codes.

**Task 3:** Check lighting guidelines, landscape guidelines, Public Works standards, and other existing policies for CPTED conflicts or missing pieces. Recommend revisions as applicable (short term may be incentivizing CPTED enhancements, longer terms may lead to requirements).

**Task 4:** Adopt higher CPTED standards for city projects, and make CPTED review for higher standards available to developers.

**Task 5:** Provide CPTED standards and information to citizens, or groups who are concerned about safety in their communities. (outreach materials)

**Task 6:** Encourage enforcement action on projects that do not maintain the minimal standards set by
**Objective:** Improve kayaking and canoeing opportunities and experience to create community interest and engagement along Hampton waterways.

**Task 1:** Determine the best paddling pit stops - historic sites, scenic views, etc., and map them.

**Task 2:** Install a large map of paddling pit stops along Hampton River on the floating dock with a dispenser for pocket-sized maps. Look into other locations as useful.

**Task 3:** Extend Hampton’s existing geocaching network into its waterways, using Mississippi River’s geocaching as a prototype (See Resources -- National Park Service).

**Task 4:** Include a treasure map/scavenger hunt associated with an existing Hampton waterfront event (e.g. Blackbeard Festival or Freaky Contiki) to inaugurate Hampton’s waterborne geocaching.

**Objective:** Research and implement available regulatory or incentive options to maintain viewsheds and water access.

**Task 1:** Coordinate with City Attorney’s Office to determine Virginia restrictions on regulating viewsheds and water access.

**Task 2:** Research other localities that regulate or incentivize viewsheds, particularly in coastal communities.

**Task 3:** Determine if incentivizing, regulating, or both is the appropriate way for Hampton to achieve better maintained viewsheds and access to water.

**Task 4:** Work with regulatory staff to draft ordinance language for City Council briefing and feedback. Seek out community interested in “piloting” a viewshed overlay if one is created.

**Task 5:** Through an iterative process, adjust ordinance and get approval from Planning Commission and City Council.

**Task 6:** Create marketing material (primarily city website) on the benefits of access to water/viewsheds.

**Objective:** Create or enhance 5 points of public access to waterways connecting to Hampton River and Hampton Roads Harbor by FY 2020.

**Task 1:** Create interdepartmental team to develop criteria for site identification. Include investigation of potential grantors’ criteria for qualifying sites and improvements / amenities (e.g. Capt. John Smith Trail).

**Task 2:** Identify sites and corresponding amenities based on Task 1 criteria and public engagement. Amenities include benches, kayak launch, fishing spots, signs, etc.

**Task 3:** Develop budget including grant opportunities. Likely budget source is Parks, Recreation & Leisure Services Department.

**Task 4:** Design and implement selected sites. Incorporate public input and grant criteria.

**Task 5:** Update ‘Hampton Blueways’ map to reflect access points and any trails/blueways.

Green and blue spaces are welcoming and accessible.
<table>
<thead>
<tr>
<th>Objective: Extend and enhance the waterfront walkway</th>
<th>Objective: Adopt a Complete Streets policy that includes street trees</th>
<th>Objective: Create wayfinding system to increase pedestrian and bicycle connectivity.</th>
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<tbody>
<tr>
<td>Task 1: Transform the Lincoln Street terminus into an inviting entrance to the waterfront walkway.</td>
<td>Task 1: Form team with Public Works and Parks and Recreation (who maintains street trees) to develop policy. Alternatively, team can utilize on-call consulting firm to help develop policy.</td>
<td>Task 1: Utilize the Bike Walk Hampton plan to identify a network of bicycle and pedestrian routes, as well as places of origin, destinations, shopping and employment areas, and tourist attractions. Seek additional input from businesses and residents.</td>
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<tr>
<td>Task 2: Soften the boundary where the gate divides Mill Point Park and the northern section of the waterfront walkway.</td>
<td>Task 2: Investigate similar localities as model for Complete Streets policy. Consider working with Hampton Roads Planning District Commission to create language that could be template for other Hampton Roads localities.</td>
<td>Task 2: Identify routes &amp; signage types for recreational cycling/running/walking, as well as locations of signage to direct pedestrians and cyclists in urban environments who are seeking a destination (i.e. Air &amp; Space Center) rather than following a specific route.</td>
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<tr>
<td>Task 3: Increase vegetation along the waterfront walkway.</td>
<td>Task 3: Adopt into Public Works standards and align any affected codes or standards.</td>
<td>Task 3: Work with Marketing INC to develop a series of wayfinding and route signage that stylistically works with the City of Hampton and Bike Walk Hampton brands.</td>
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<tr>
<td>Task 4: Provide more seating along the waterfront walkway.</td>
<td>Task 4: Select and retrofit a street section as demonstration site for new policy. Selection criteria may include width of road (for easier implementation), need for additional facilities, and public visibility.</td>
<td>Task 4: Obtain input from Bicycle &amp; Pedestrian Advisory Committee on proposed routes and wayfinding signage.</td>
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<td>Task 5: Install more signage at the beginning, end, and throughout the waterfront walkway to better orient visitors.</td>
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<td>Task 5: Develop budget for capital expenditures. Use financial and social capital of local businesses, property owners, and healthcare institutions to sponsor wayfinding signage and promote routes as part of a lifestyle choice.</td>
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Parks, recreation facilities, and green spaces are well connected.
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<tr>
<th>Task 1</th>
<th>Task 2</th>
<th>Task 3</th>
<th>Task 4</th>
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<td>Develop an temporary interdepartmental team (quality circle) from Parks, City Attorney’s Office, Planning, and HNS to assist with standardization of the program elements including: update ordinance, develop desired outcomes, measures of success, site selections by community, and what is currently working.</td>
<td>Create group of community gardeners to support the Community Garden Coordinator (marketing, how to classes, etc.).</td>
<td>Publish a citizen guide to the process and selection criteria to assist communities in establishing community gardens.</td>
<td>Post before and after pictures of adopted spaces on the City webpage to promote interest and celebrate community champions.</td>
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<tr>
<td>Task 1: Develop very brief application for adopting spaces - contact information, space to be adopted, what they would like to do.</td>
<td>Task 2: Develop MOU template that serves as the agreement with the City to adopt the space.</td>
<td>Task 3: Work with applicants to understand important aspects of their site and manage in a sustainable way. For example, &quot;this spot is frequently covered in litter because of the tide&quot; or &quot;this is an invasive plant, keep removing it&quot; or &quot;this is a good spot for an oyster bed.&quot;</td>
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