Vision of the Future: Developing a Water Quality Master Plan to Advance Economic Goals

Agenda

Project Background



③ Preliminary Selection Review



Project Delivery Team





Project Background

Chesapeake Bay Total Maximum Daily Load (TMDL)



- 1. The Bay TMDL is a comprehensive "pollution diet" to restore clean water in the Chesapeake Bay and the region's streams, creeks, and rivers
- 2. The TMDL set Bay watershed limits to reduce:
 - nitrogen 25 percent,
 - phosphorus 24 percent
 - sediment 20 percent



DOWNTOWN HAMPTON MASTER PLAN

Project Study Area

Hampton, Virginia URBAN DESIGN ASSOCIATES



ADOPTED BY CITY COUNCIL ON 14 JANUARY 2004 AMENDED 14 JUNE 2017

Key Project Goals

- Develop nutrient credits to benefit the City of Hampton's Downtown economic development plan
- 2
- Incorporate Resilient Hampton initiatives and advance the City's Water Plan

Improve local water quality



Hampton Development Plan – Phase II Site Plan





Hampton Development Plan – Phase I



Area of Disturbance Scenarios





Project Selection Framework

Project Selection Prioritization Criteria



WATER QUALITY

FLOOD MANAGEMENT

COMMUNITY NEEDS

CIRCULATION

STUDY AREA

Opportunity Analysis – City-owned Parcels and Streets



Water Quality



What are the Existing Water Conditions?

What is the existing water quality? What is the volume of runoff in the area?

What is the Physically Feasibility for Water Projects?

IS THE AREA....complicated (high groundwater, limited treatment area, etc.), available (vacant/public/open)

What is the level of Partner Agency and Community Acceptance?

ARE THERE.... existing groups advocating for similar projects?, funding potential

data sources

- ✓ Chesapeake Bay TMDL Action Plan
- ✓ National Landcover Database
- ✓ Local TMDLs
- Existing and Planned SW facilities
 Tree Canopy

Developed Phasing and Footprints

 ✓ Tax Assessors Parcel Data Staff Evaluation

Spatial Evaluation - Water Quality Composite Lens



- ✓ Depth to groundwater
- ✓ Drainage areas
- ✓ Soils
- ✓ Slopes



Flood Management



What is the Flood Risk?

WHAT ARE... historical flooding patterns, unmet drainage needs, flood-capacity

What is the Physically Feasibility for Flood Management Projects?

IS THE AREA....complicated (sea level rise, flat topography, utilities, etc.), available (vacant/public/open), next to critical land uses (hospitals, emergency routes, school yards, planned construction, etc.)

What is the level of Partner Agency and Community Acceptance?

ARE THERE.... existing groups advocating for similar projects?, funding potential

- ✓ Desktop analysis
- ✓ FEMA flood maps
- Existing PCSWMM model
- ✓ Zoning and land use
- ✓ Existing projects

- ✓ Tax assessors parcel data
- ✓ Schools
- ✓ Staff evaluation

Spatial Evaluation - Flood Management Composite Lens



- ✓ FEMA flood maps
- ✓ Storm surge
- ✓ Sea level rise



Circulation



What Could be Connected ?

IS THE AREA...Transit-adjacent, next to key destinations, within a bikeway gap, connected to planned projects, within spaces that aren't shaded, within areas that lack access to the waterways?

What is the Need for Circulation?

ARE THERE... a high number of traffic related accidents, zero-vehicle households, residents needing alternative transit

What is the Physically Feasibility for Circulation Projects?

IS THE AREA....complicated (high volume traffic, limited access points, etc.), available (vacant/public/open)

What is the level of Partner Agency and Community Acceptance?

ARE THERE.... existing groups advocating for similar projects?, funding potential

- ✓ Desktop analysis
- ✓ Community surveys
- ✓ Bike/Ped counts

- ✓ Walking and biking studies
- ✓ TREDS collision data
- ✓ Staff evaluation

Spatial Evaluation – Circulation Composite Lens



- ✓ Bike/Ped counts
- ✓ Walking/biking studies
- ✓ Transit stops
- ✓ TREDS collision data

Community Needs



What are the Community's Needs?

HOW MANY PEOPLE .. live in the area, can't walk to a local park, are in disadvantaged communities, are economically insecure, are exposed to pollution, have sensitive health conditions, are homeless?

What is the Physically Feasibility for Community Projects?

IS THE AREA....complicated (traffic, topography, vulnerable, etc.), available (vacant/public/open), next to critical land uses (hospitals, emergency routes, school yards, planned construction, etc.)

What is the level of Partner Agency and Community Acceptance?

ARE THERE.... existing groups advocating for similar projects?, funding potential

potential data sources

- ✓ Planned projects
- ✓ 2010 Census Data
- ✓ Park Needs
 Air Quality
- ✓ Public Health Data (Urban Heat)

Homeless Count Public opinion Discussions with council members Staff evaluation

Spatial Evaluation - Community Composite Lens



data sources

✓ Park Needs✓ Heat Island



Highest priority areas: All categories



Highest potential category



Highest need areas: Nearest with public streets



Highest Priority Project Locations on City Owned Parcels





Preliminary Selection Review

Preliminary Site Selection



Site	Water Quality	Flooding & Drainage	Community	Circulation
Harbor Square Park	6	7	4	5
Honor Park	7	8	3	2
Mill Point Shoreline	9*	5	1	1
N. King Street Green Street	7	8	3	3
Kings Way Green Street	7	7	3	3
N. Armistead Avenue	9	7	4	2
LaSalle Avenue	4	7	4	6
Rudd Lane	8	7	2	2

*Based on seperate assessment of living shoreline benefits

Kings Way



Kings Way Conceptual Design





Final Site Selection: Honor Park

Honor Park



Honor Park



Honor Park – Constructed Wetland and Storage Basin





Stage-Storage Basin



Flow-thru Planter

Honor Park – Subsurface Storage and Bioretention





Bioretention Facilities



Underground Storage Facility

Site Benefits of a Water Quality Plan



	Total Phosphorus (lbs/yr)	Total Nitrogen (Ibs/yr)	Total Suspended Solids (lbs/yr)
Regulatory removal requirement associated with Downtown Master Plan	17.27		
Net reductions achieved			
Honor Park Stormwater Facility	2.75	17.02	1,164.6
Mill Point Living Shoreline	34.4	123.3	54,629.8
TOTAL	35.15	140.32	55,794.4
Excess reduction compared to regulatory removal requirement associated with Downtown Master Plan	17.88		

Questions??

Brown and Ca

Brown AND Caldwell