



# RESILIENT HAMPTON



# History

## Resilient Hampton, 2015 - now

Resilient Hampton is an opportunity for the City of Hampton, its residents, and its partners to advance leadership in the resilience field.

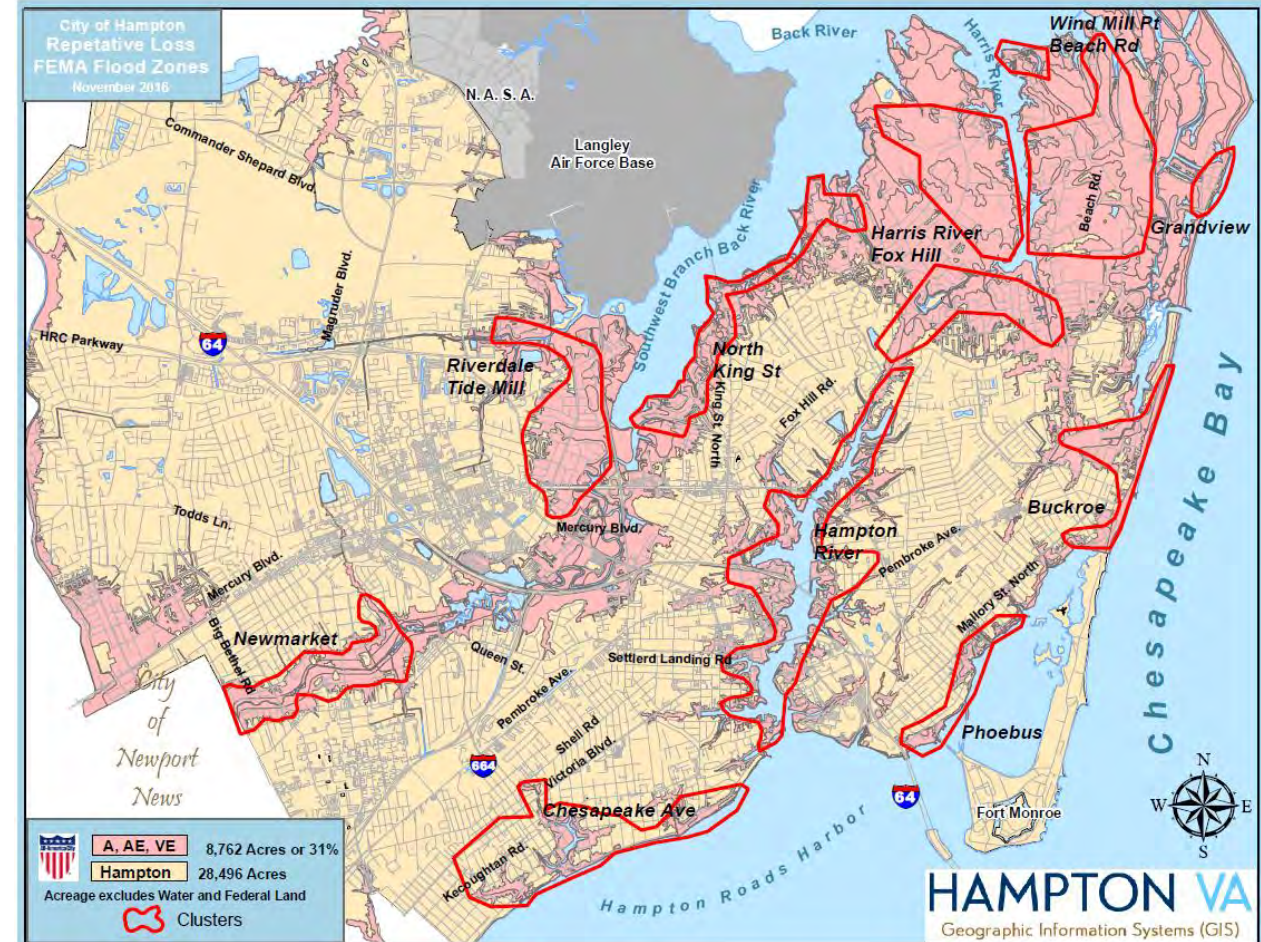
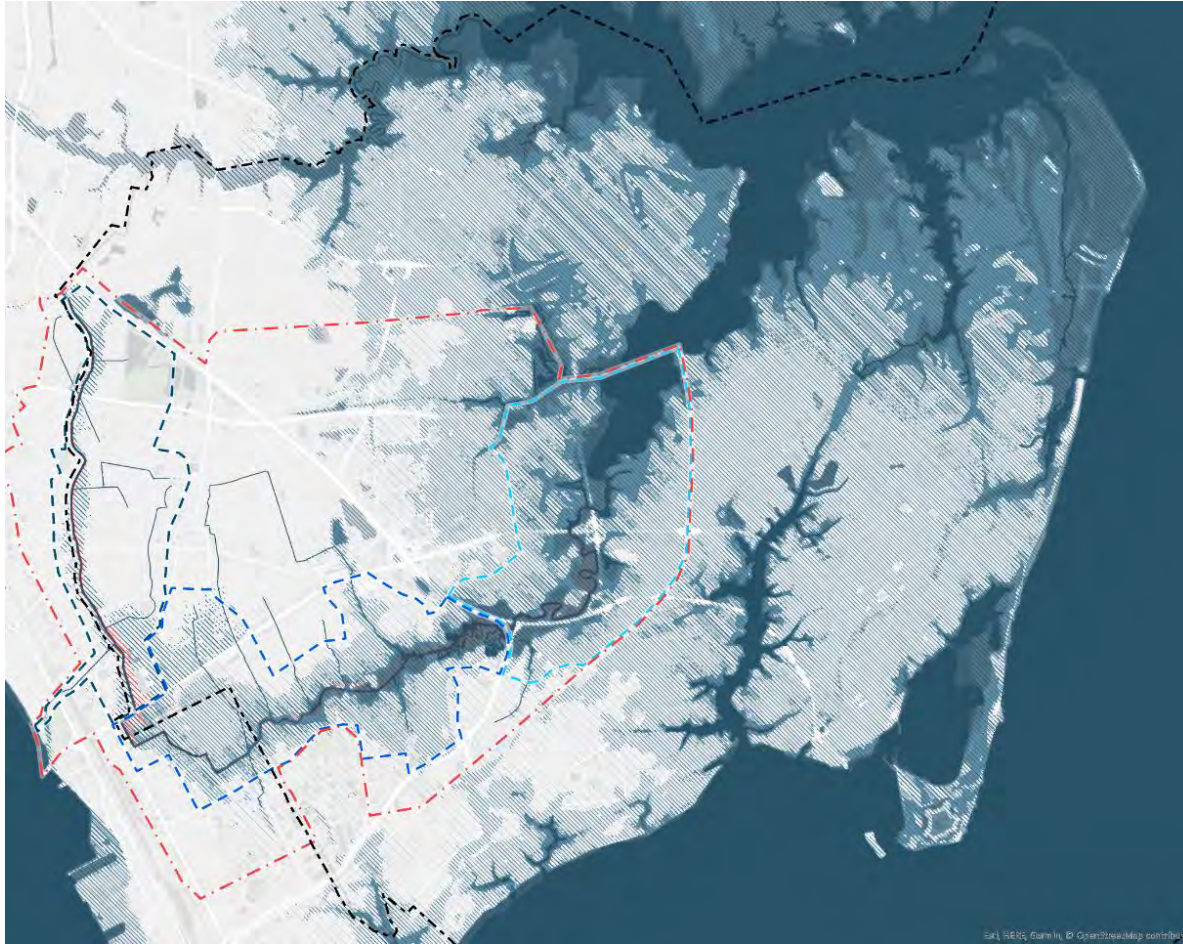
- **Dutch Dialogues Virginia (2015)**
- **Resilient Hampton Phase I (2018)**
- **Hampton-Langley JLUS Addendum (2018)**
- **Resilient Hampton Phase II (2018 - current)**
- **Resilient Hampton Phase III (2021 – current)**





# Impacts of Sea Level Rise

Floodplain with 4.5 feet of Sea Level Rise per HRPDC projection for 2100

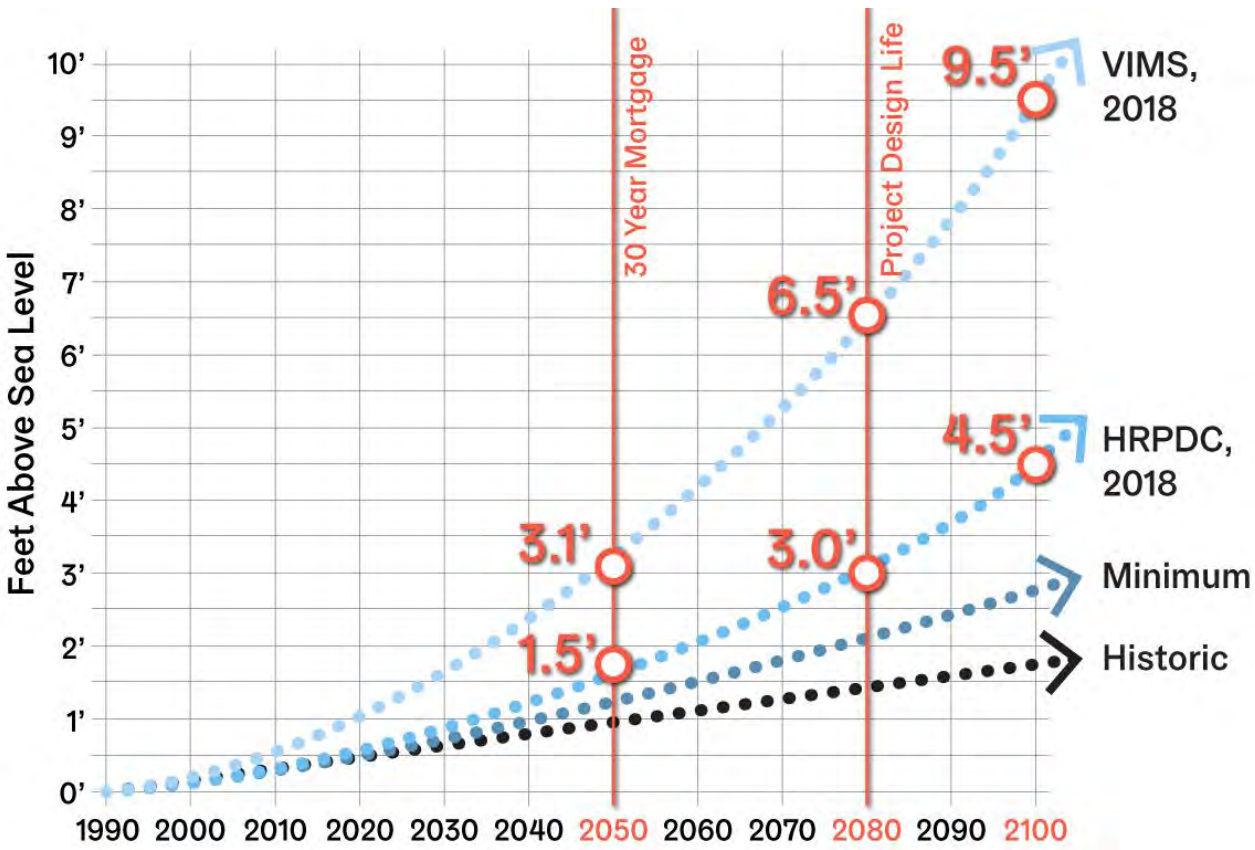


Today's flooding properties (in red)



# The Science of the Challenge

## Forces of Water and Sea Level Rise





# Places & People





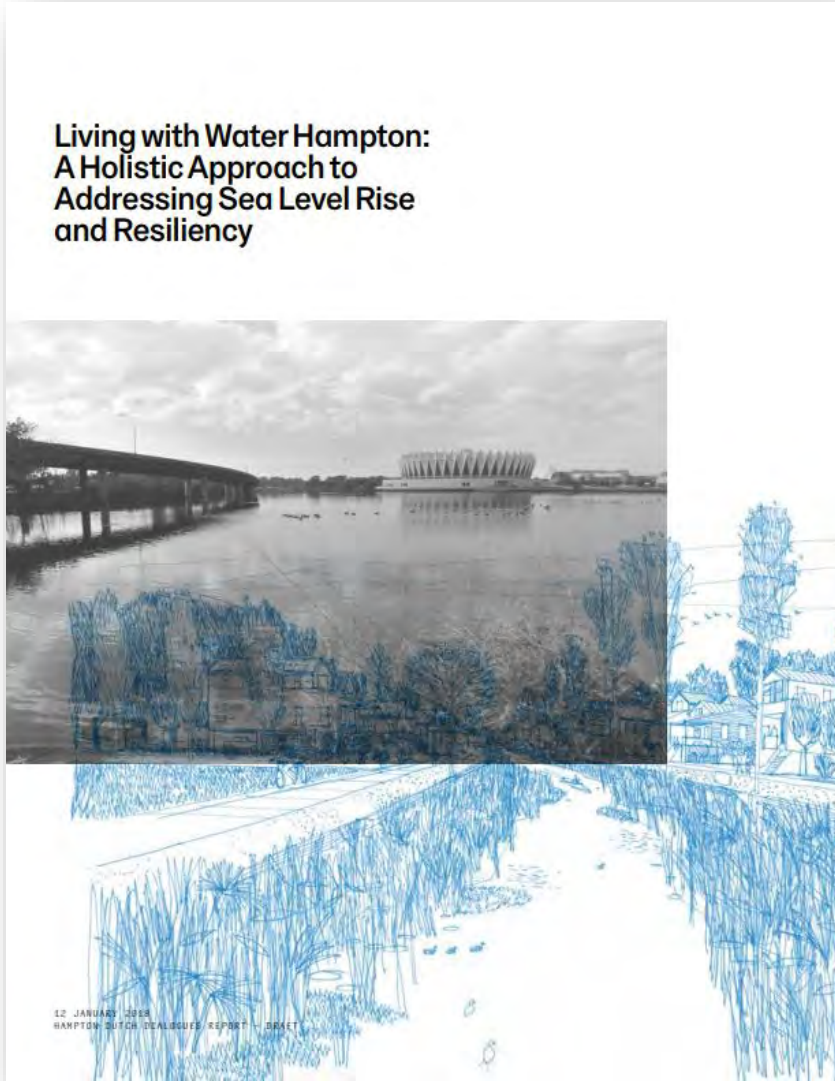
# Resilient Hampton

Living with Water Hampton:  
A Holistic Approach to  
Addressing Sea Level Rise  
and Resiliency



ADDRESS THE CHALLENGE  
EMBRACE THE INITIATIVE  
ADOPT RESILIENCE STANDARDS  
SOLUTIONS AT MULTIPLE SCALES  
EDUCATE COMMUNITY  
FOLLOW GUIDING PRINCIPLES  
EVALUATE  
LEAD THE WAY

# Principles



CREATE VALUE DRIVEN SOLUTIONS

REINFORCE ASSETS

LAYER PUBLIC BENEFITS

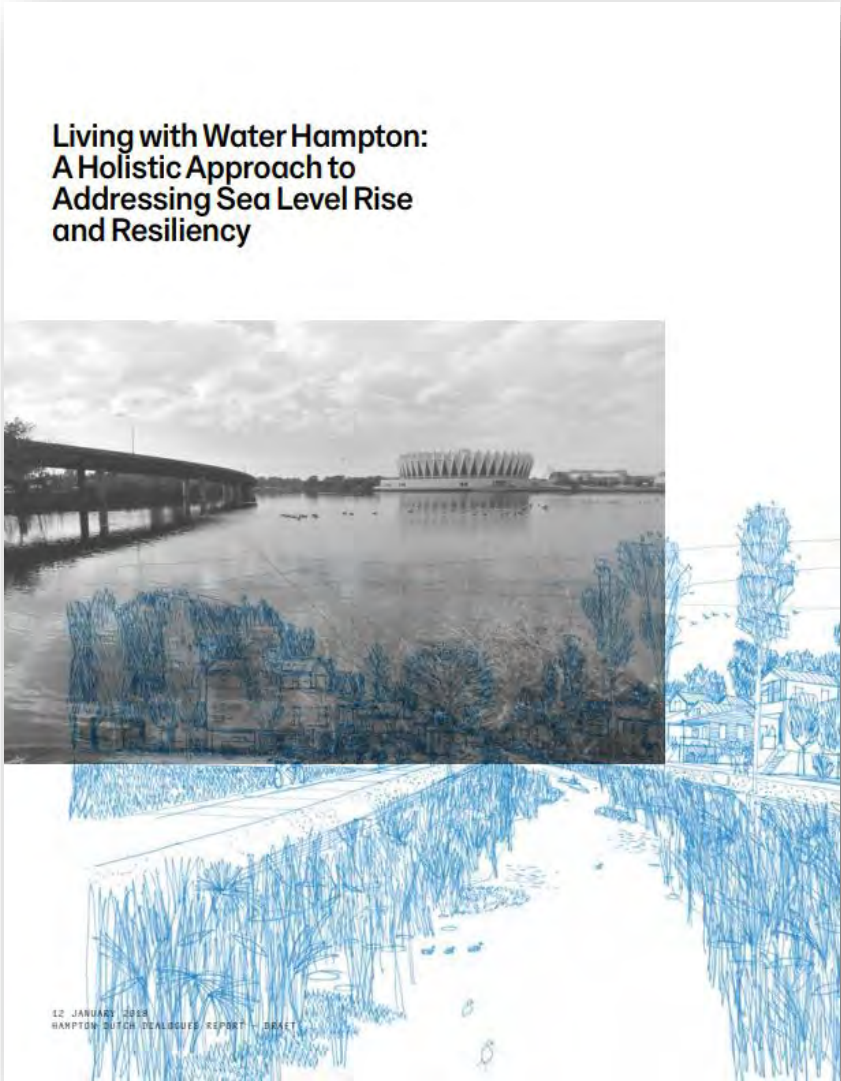
STRENGTHEN PARTNERSHIPS

USE BEST DATA

SHARE KNOWLEDGE AND RESOURCES



# Values



SAFE

EQUITABLE

NATURAL

HERITAGE

INTEGRATED

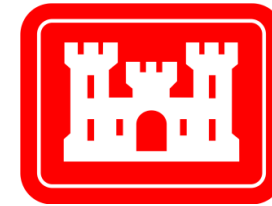
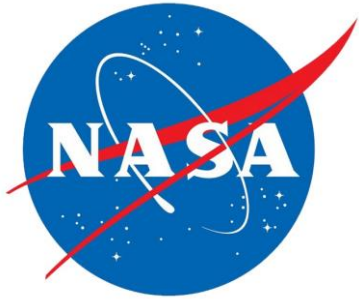
SUFFICIENT

NIMBLE

INNOVATIVE



# Partnerships





# Phase II Community Outreach



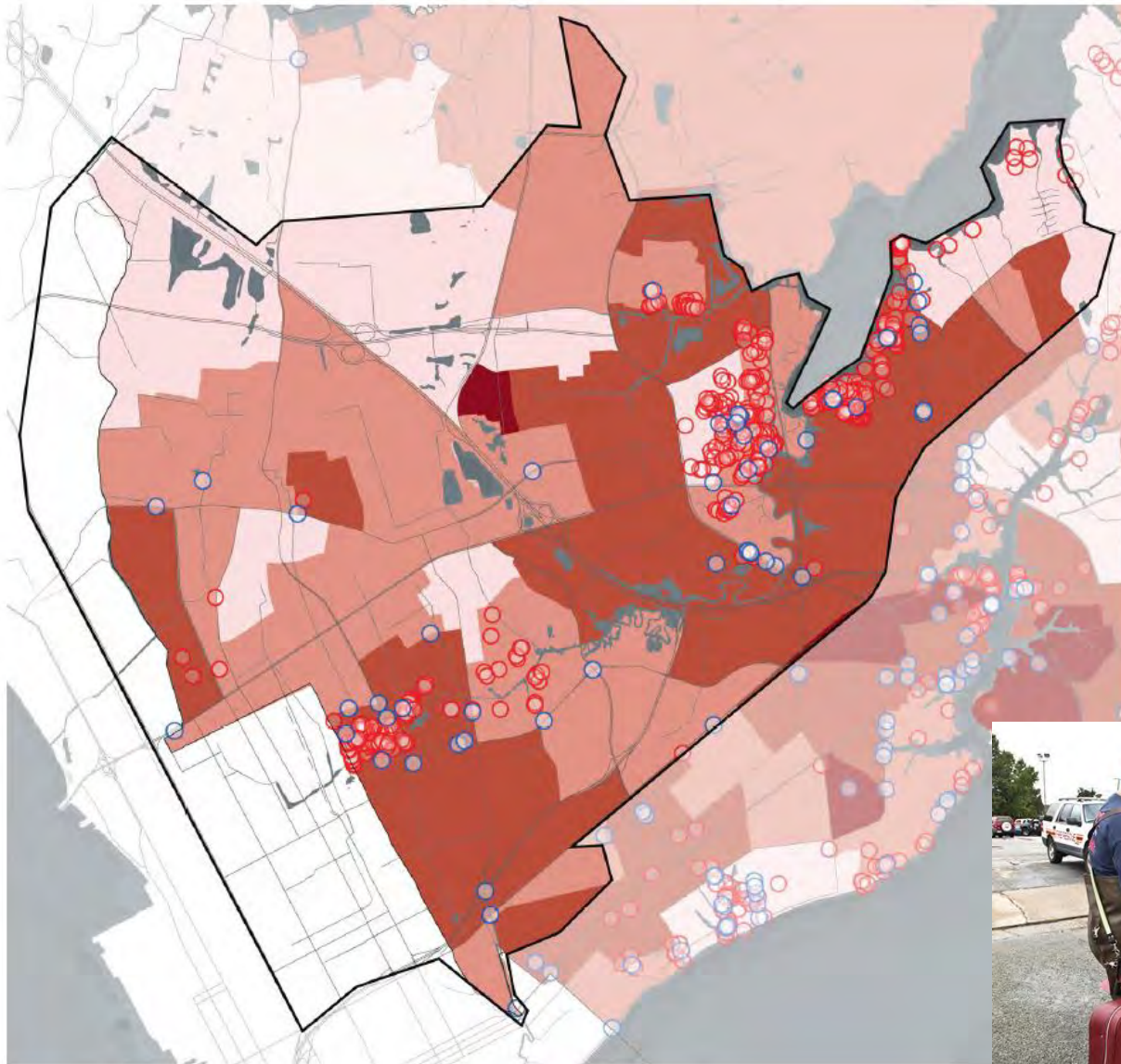
Design Workshop, January 2019



Community Meeting, January 2019



# Flood Risk and Income



- Flooded street
  - Repetitive Loss property
  - 75-82%\* Low-Moderate Income
  - 50-75% Low-Moderate Income
  - 25-50% Low-Moderate Income
  - 0-25% Low-Moderate Income
- \*maximum value





# Slow, Store, Redirect & Adapt



## **SLOW**

Tree canopy, rain gardens, rain barrels, less impervious

## **STORE**

Space for water as community assets

## **REDIRECT**

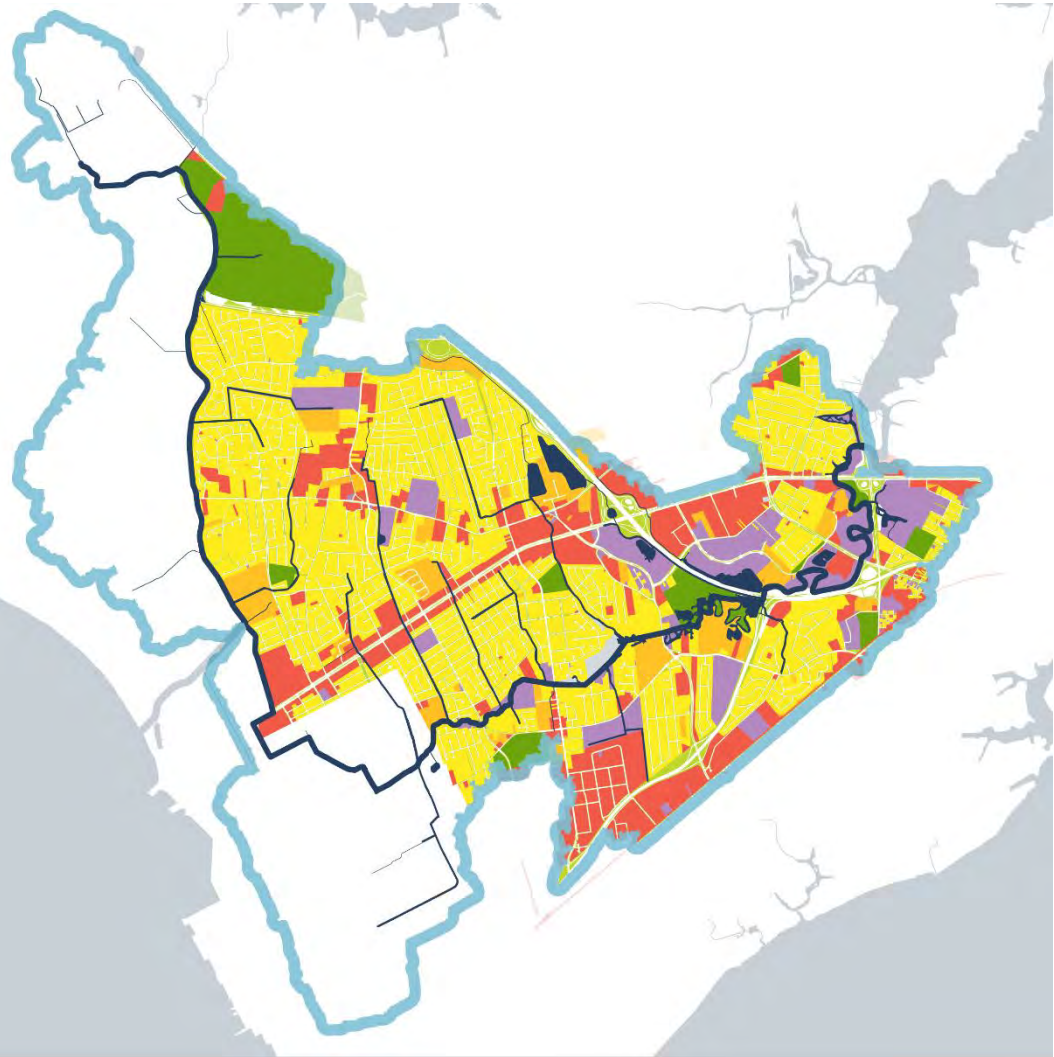
During high tide, temporary

## **ADAPT**

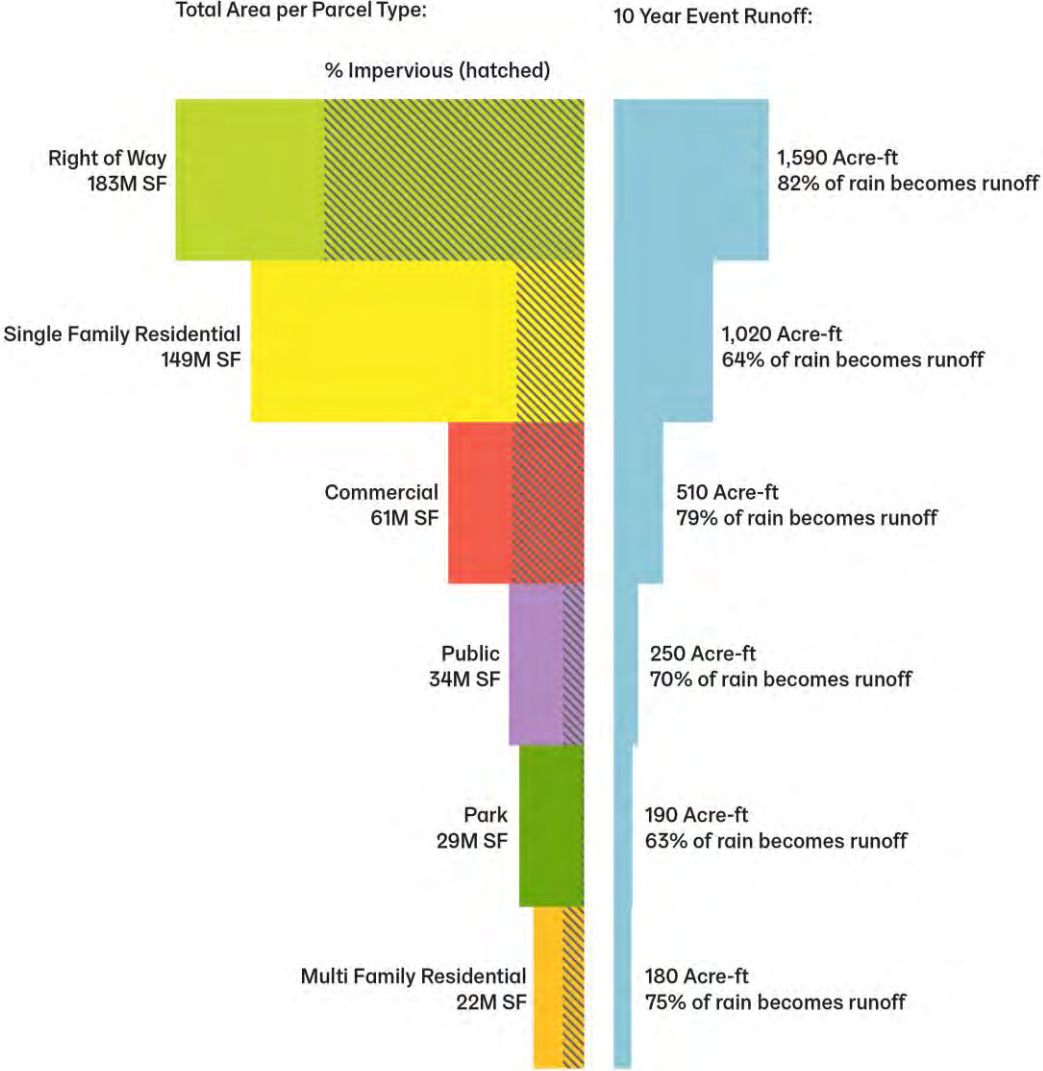
Where water wants to go, avoid future flooding



# Runoff

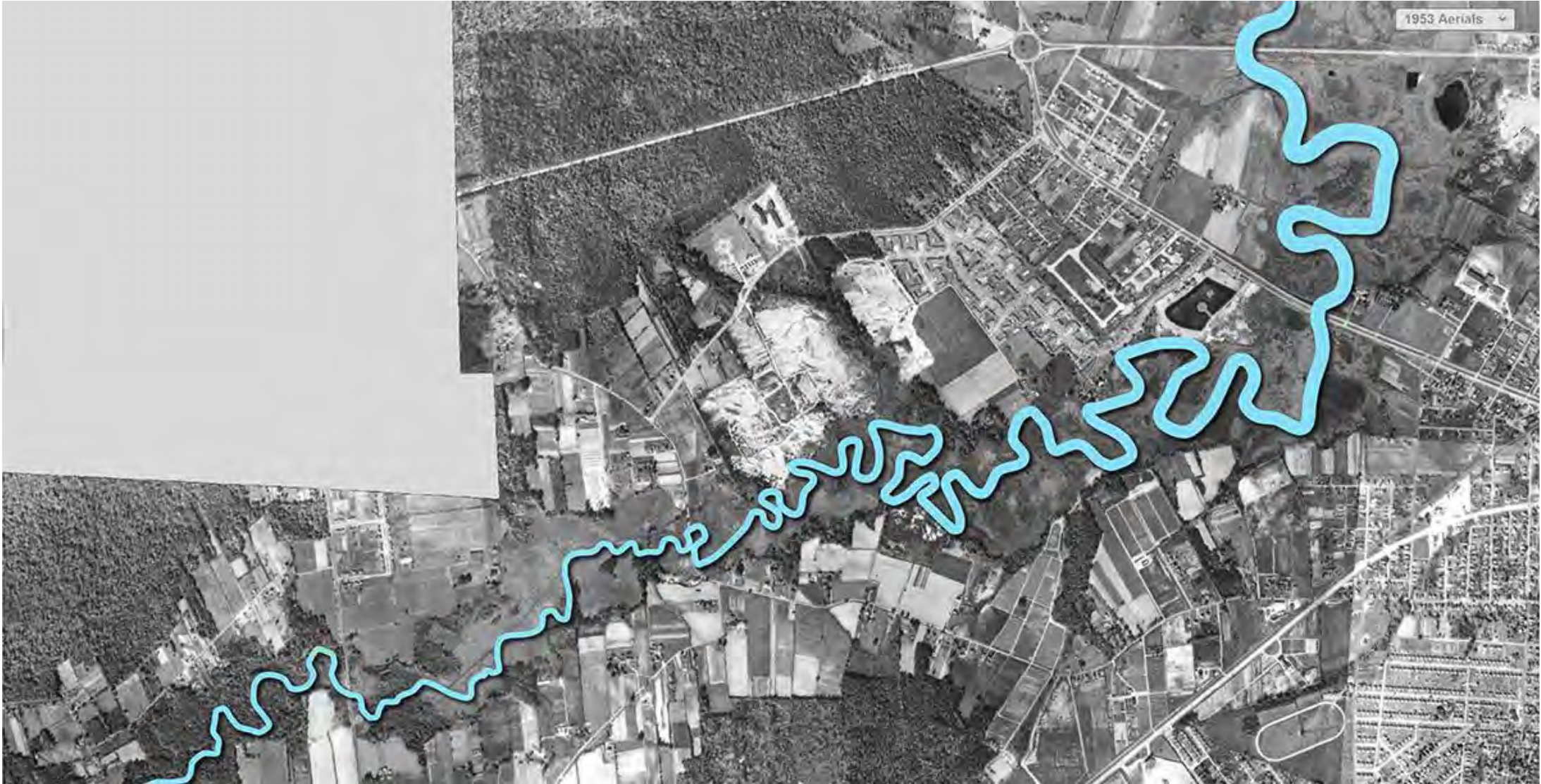


Land Use in  
Newmarket  
Creek  
Watershed





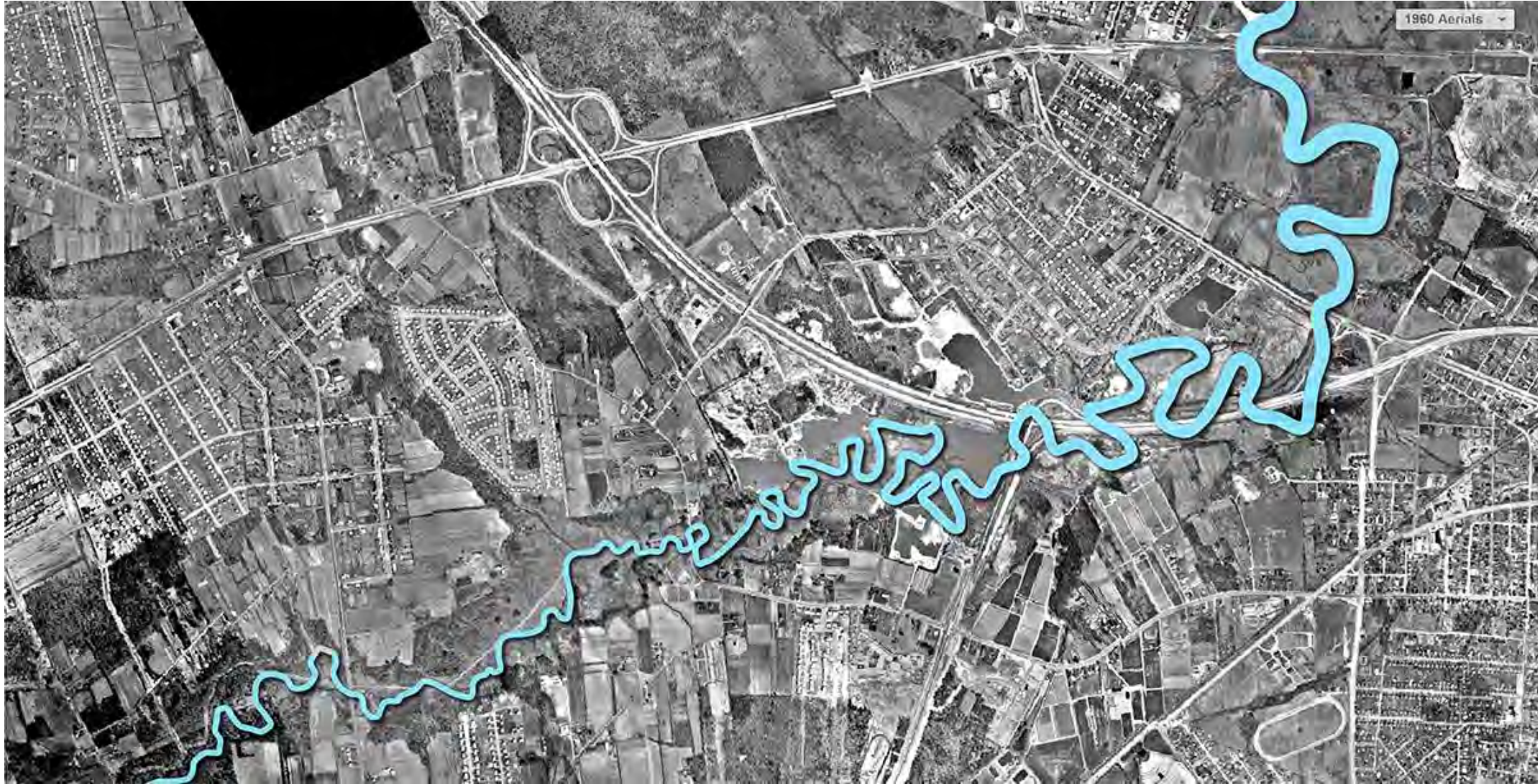
# History of Development



1953



# History of Development



1960



# History of Development



2013



# Pilot Project: Big Bethel Blueway



- **Slow & store water**
- **Water quality**
- **Green infrastructure**
- **Shared use path**
- **Replicable within existing easements**



# Pilot Project: Armistead Avenue



- Elevate major street
- Slow & store water
- Birthplace of America Trail
- Treat water with Lake Hampton
- Green infrastructure
- Replicable for other streets



# Pilot Project: Public spaces



- Public spaces to slow & store water
- Water quality
- Green infrastructure
- Waterwalk loop & park



# Pilot Project: Resilient And Innovative Neighbors

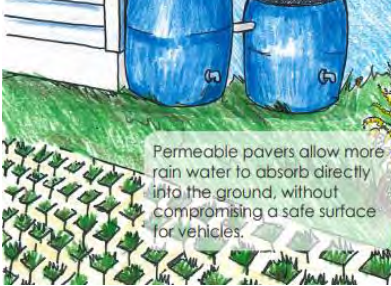
## Anatomy of a RAIN yard

Rain barrels capture water coming off a house's roof through its gutter system. This collected water is prevented from becoming stormwater runoff, and can be used for non-drinking purposes such as watering the garden. A smaller, secondary rain barrel can be connected for additional storage.

A 55 gallon rain barrel can collect nearly **7,700 gallons of stormwater** per year.



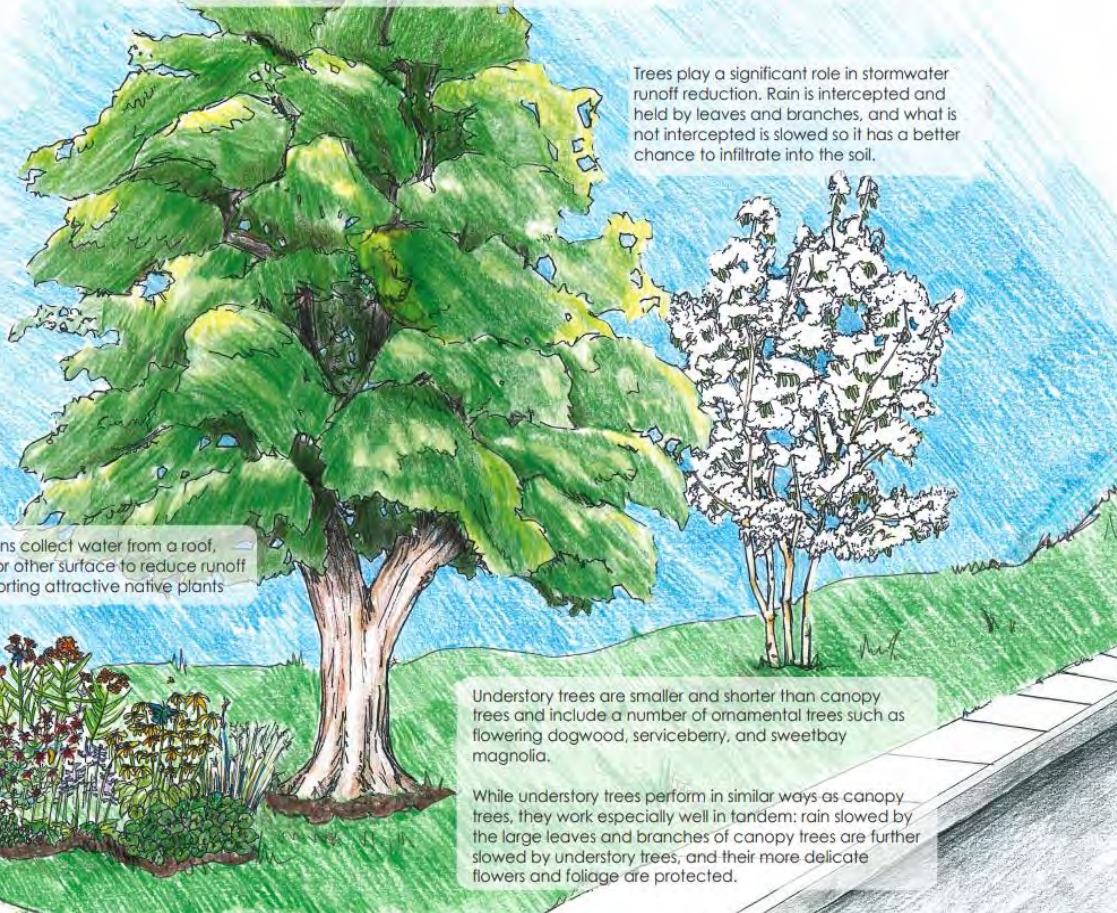
Rain gardens collect water from a roof, driveway, or other surface to reduce runoff while supporting attractive native plants.



Permeable pavers allow more rain water to absorb directly into the ground, without compromising a safe surface for vehicles.

Canopy trees are also known as shade trees; they are large trees with thick canopy or foliage covering. Examples around Hampton include oak trees, birch trees, and loblolly pine trees.

A mature canopy tree can capture and retain upwards of **330 gallons of water** in a rain event!



Trees play a significant role in stormwater runoff reduction. Rain is intercepted and held by leaves and branches, and what is not intercepted is slowed so it has a better chance to infiltrate into the soil.

Understory trees are smaller and shorter than canopy trees and include a number of ornamental trees such as flowering dogwood, serviceberry, and sweetbay magnolia.

While understory trees perform in similar ways as canopy trees, they work especially well in tandem: rain slowed by the large leaves and branches of canopy trees are further slowed by understory trees, and their more delicate flowers and foliage are protected.

Together, let's:

- reduce flooding
- improve waterways of the Chesapeake Bay
- help our downstream neighbors
- enhance your property





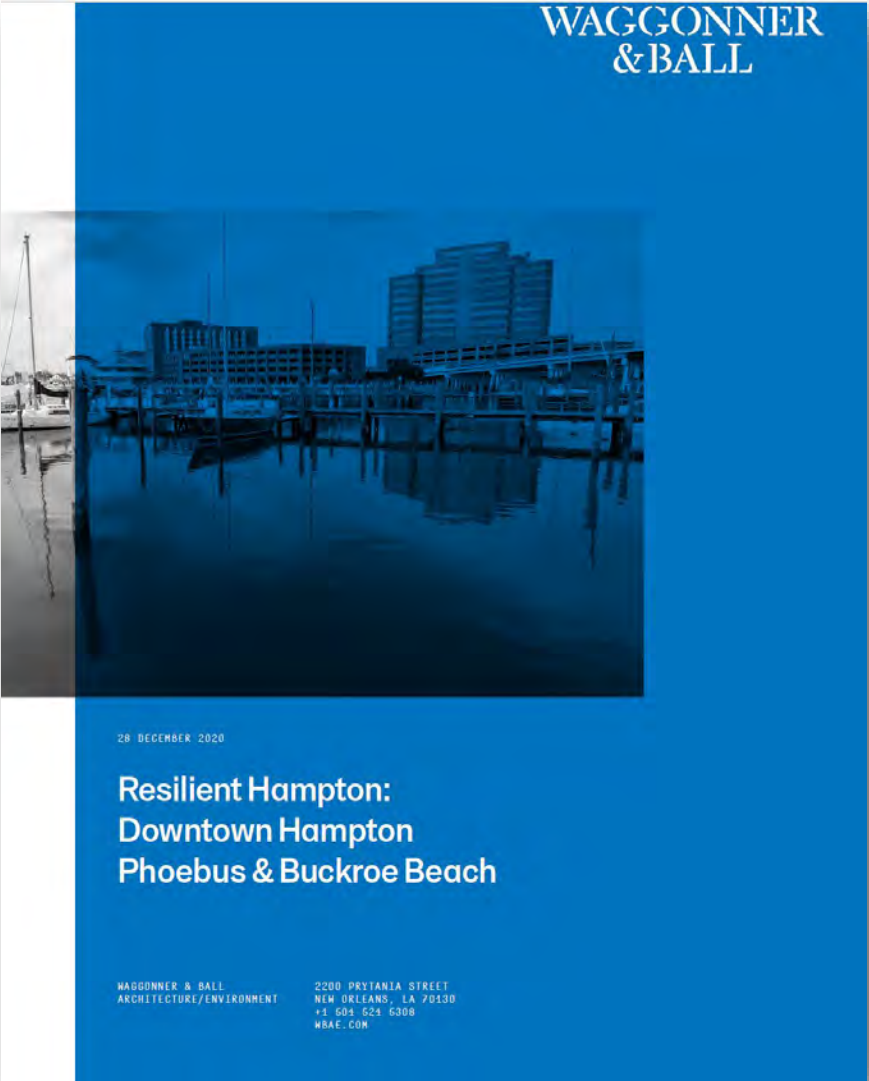
# Environmental Impact Bonds



## Investing in Green Infrastructure to Save the Bay and Improve the Quality of Life in a Waterfront Community



# Resilient Hampton Phase III





# Photo Tour





# Phoebus & Fort Monroe





# Phoebus & Fort Monroe





# Phoebus & Fort Monroe





# Phoebus & Fort Monroe





# Places & People





# Buckroe Beach & Salt Ponds





# Buckroe Beach & Salt Ponds





# Buckroe Beach & Salt Ponds





# Buckroe Beach & Salt Ponds





# Buckroe Beach & Salt Ponds





# Fox Hill & Grandview Island





# Fox Hill & Grandview Island





# Fox Hill & Grandview Island





# Fox Hill & Grandview Island





# Fox Hill & Grandview Island





Resilient Hampton	<a href="http://www.hampton.gov/resilienthampton">www.hampton.gov/resilienthampton</a>
Living with Water report	<a href="#">Resilient Hampton: Living with Water (Phase I report)</a>
RAIN grant	<a href="http://www.hampton.gov/RAINgrant">www.hampton.gov/RAINgrant</a>
Hampton GIS Portal	<a href="http://webgis.hampton.gov/sites/ParcelViewer/Account/Logon">http://webgis.hampton.gov/sites/ParcelViewer/Account/Logon</a>
Environmental Impact Bond	<a href="https://www.cbf.org/news-media/newsroom/2020/virginia/city-of-hampton-fights-flooding-with-issuance-of-vas-first-eib.html">https://www.cbf.org/news-media/newsroom/2020/virginia/city-of-hampton-fights-flooding-with-issuance-of-vas-first-eib.html</a>
New green area ordinance	<a href="https://hampton.gov/CivicAlerts.aspx?AID=4753">https://hampton.gov/CivicAlerts.aspx?AID=4753</a>
Community & Master Plans	<a href="https://hampton.gov/2007/Hampton-Community-Master-Plans">https://hampton.gov/2007/Hampton-Community-Master-Plans</a>
Chesapeake Bay Preservation Overlay District	<a href="https://library.municode.com/va/hampton/codes/zoning?nodeId=CH9OVDI_ARTIIPDIHEBAPROV">https://library.municode.com/va/hampton/codes/zoning?nodeId=CH9OVDI_ARTIIPDIHEBAPROV</a>
Flood Zone Overlay District	<a href="https://library.municode.com/va/hampton/codes/zoning?nodeId=CH9OVDI_ARTIVDILOZOOV">https://library.municode.com/va/hampton/codes/zoning?nodeId=CH9OVDI_ARTIVDILOZOOV</a>
Community Meetings	<ul style="list-style-type: none"> <li>• April 4 – Fox Hill, Harris Creek, and Grandview neighborhoods <ul style="list-style-type: none"> <li>• <a href="#">Consultant presentation</a></li> <li>• <a href="#">Community comments</a></li> </ul> </li> <li>• April 6 – Buckroe, Fort Monroe, and Bayside neighborhoods <ul style="list-style-type: none"> <li>• <a href="#">Consultant presentation</a></li> <li>• <a href="#">Community comments</a></li> </ul> </li> </ul>





# RESILIENT HAMPTON



HAMPTON VA

WAGGONER  
& BALL

Bosch  
Slabbers



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