



RESILIENT HAMPTON

Joint Subcommittee on Coastal Flooding

January 6, 2020

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Director, Community Development

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Resiliency Officer

HAMPTON VA



RESILIENT HAMPTON

Dutch Dialogues



Resilient Hampton Report



Newmarket Creek Pilot

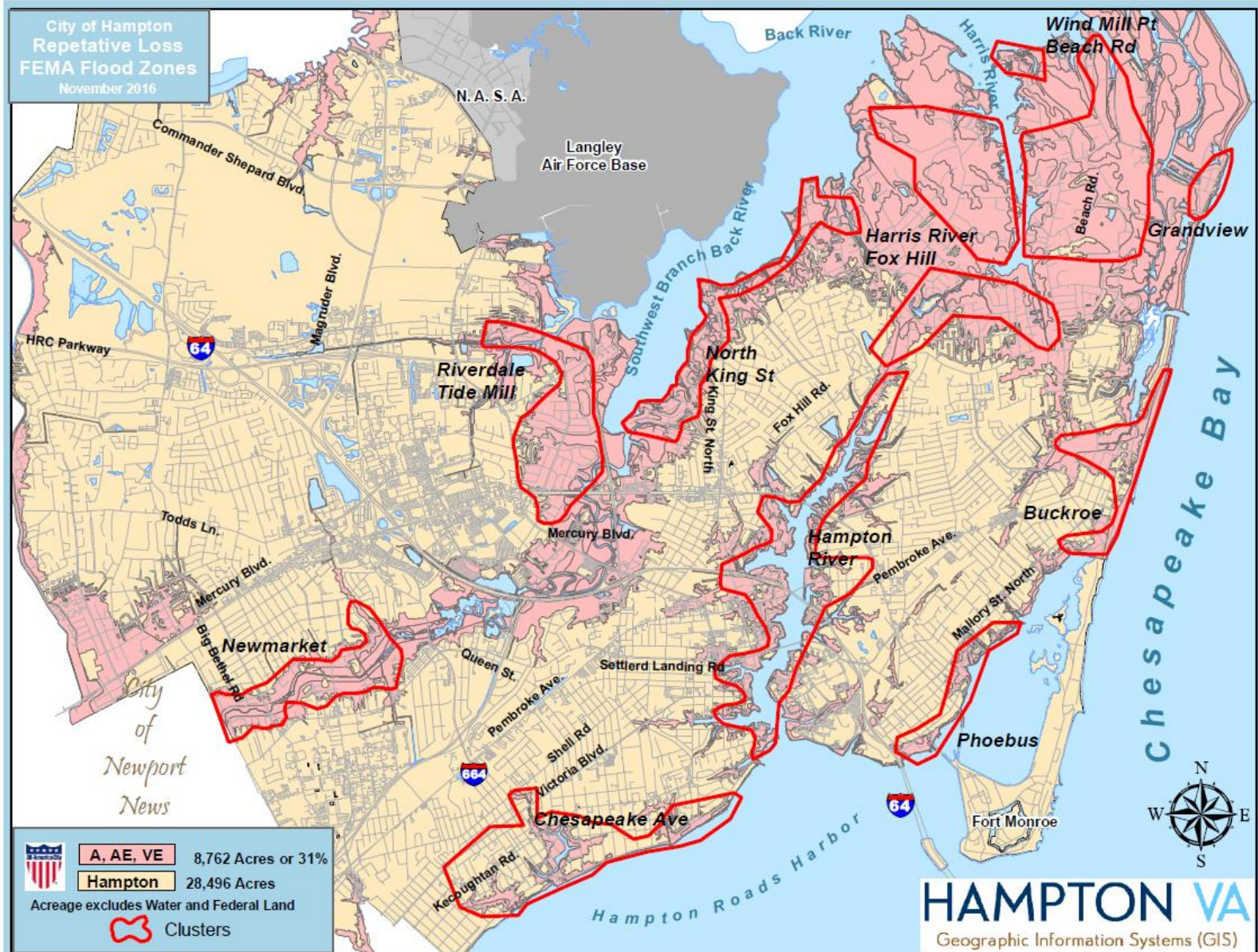
Catalyst
Living with Water
Commitment

Guiding Principles
Goals
Values

Water Plan
Pilot Projects
Education

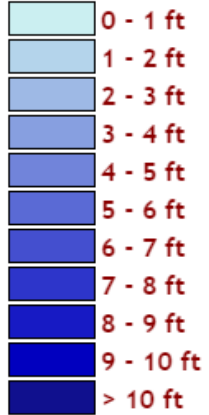


The Challenge



Sea Level Rise Projection

Depth



(mean high water)



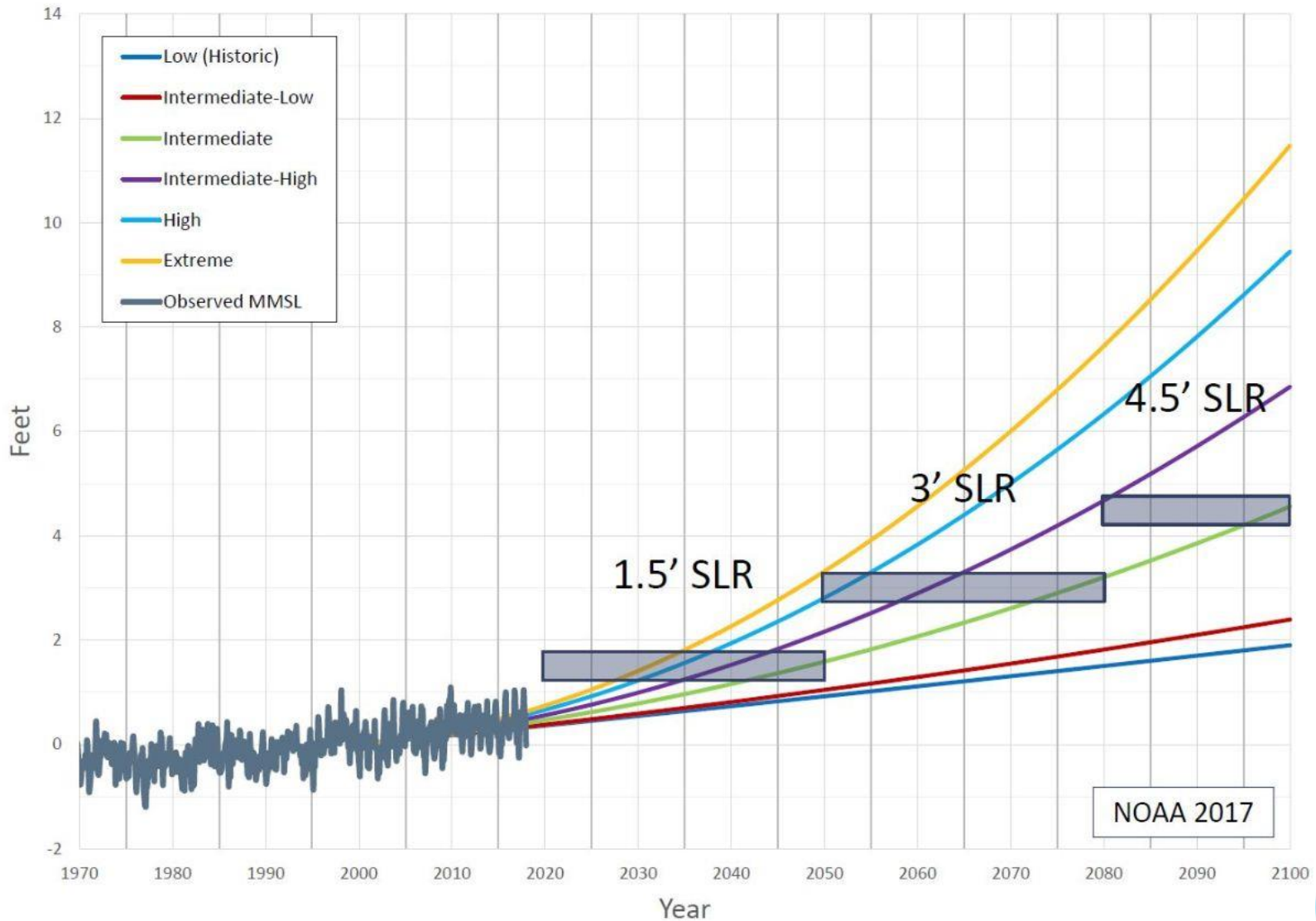
ADAPTVA

VIMS WILLIAM & MARY
VIRGINIA INSTITUTE OF MARINE SCIENCE



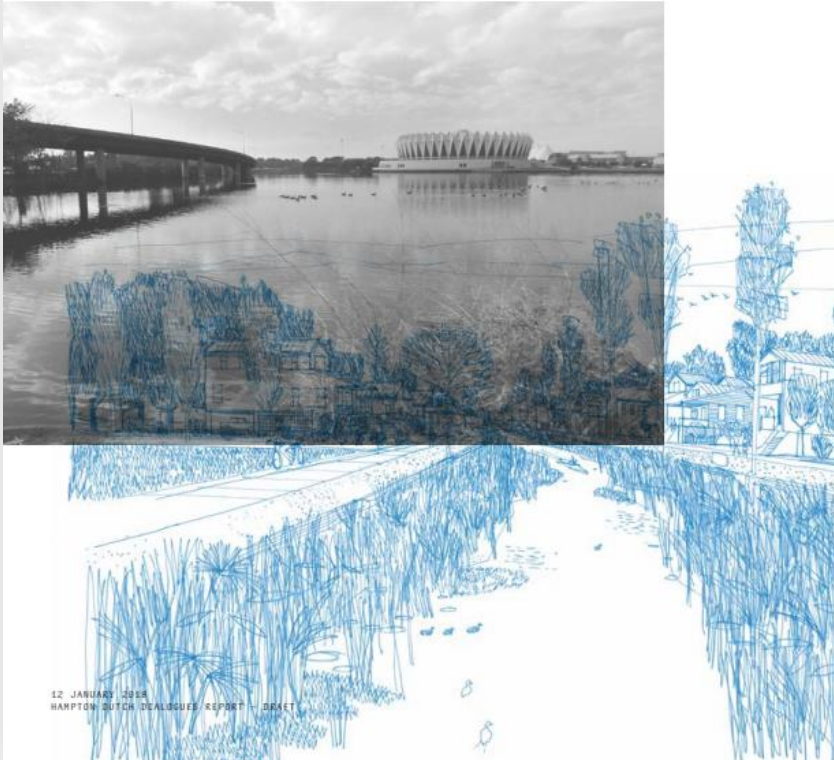
Sea Level Rise Planning Horizons

Projected Relative Sea Level Change at Sewell's Point, Virginia - 2000-2100



Resilient Hampton's Approach

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



SOLUTIONS BASED ON VALUES

REINFORCE ASSETS

LAYER BENEFITS

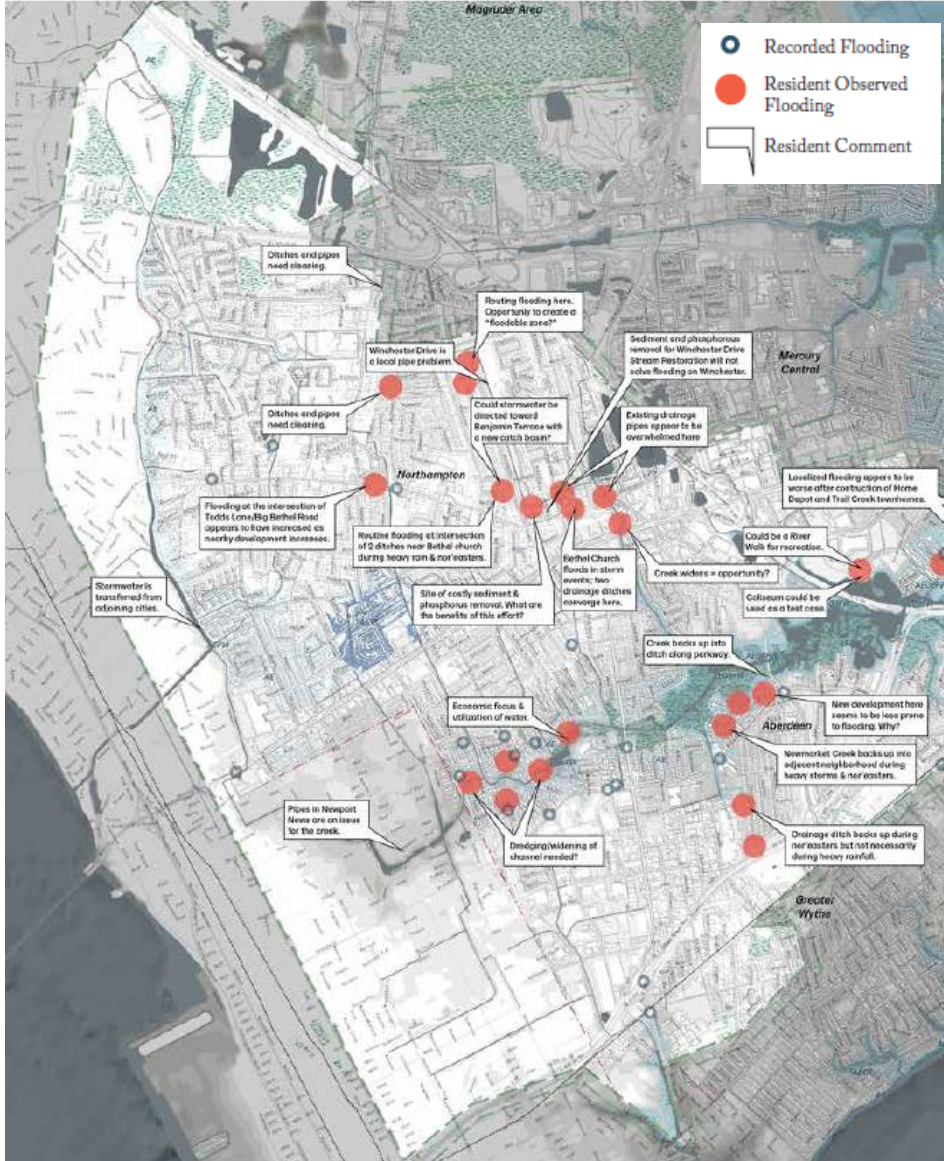
STRENGTHEN PARTNERSHIPS

USE BEST DATA

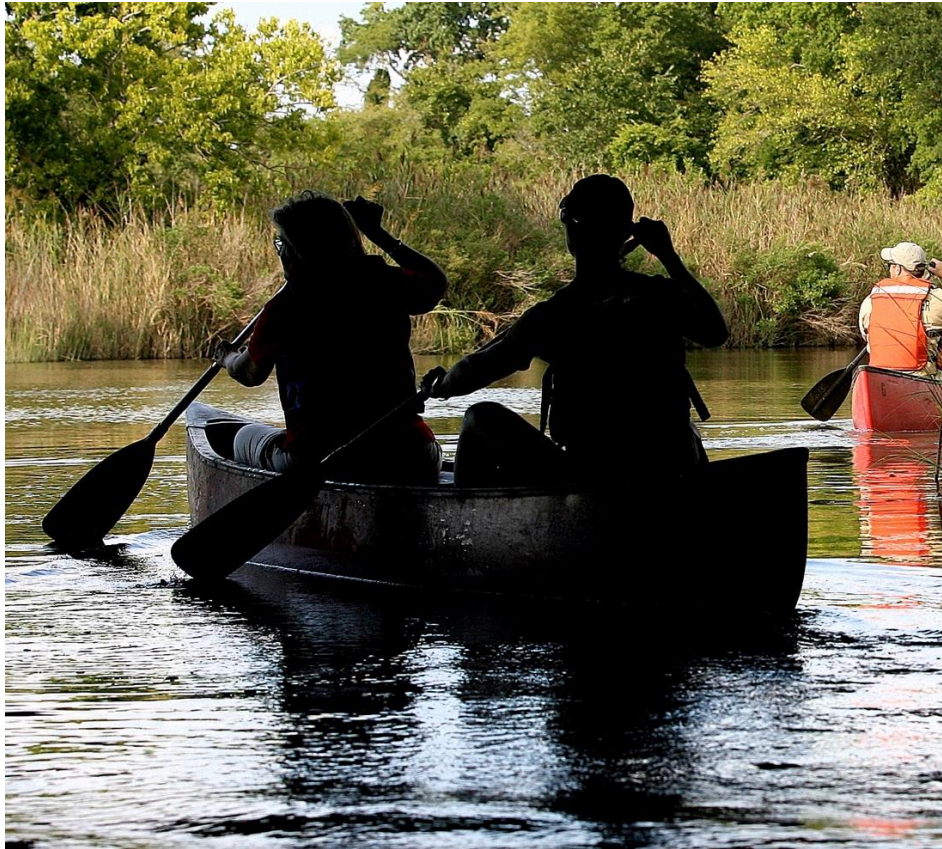
SHARE KNOWLEDGE &
RESOURCES



Community Engagement



Community Defined Values



SAFE – REDUCE RISK

EQUITABLE – DISTRIBUTION OF BENEFITS

NATURAL – PROTECT ECOSYSTEMS

HERITAGE – HISTORY AND CULTURE

INTEGRATED – CONNECT SYSTEMS

SUFFICIENT – LEVERAGE INVESTMENTS

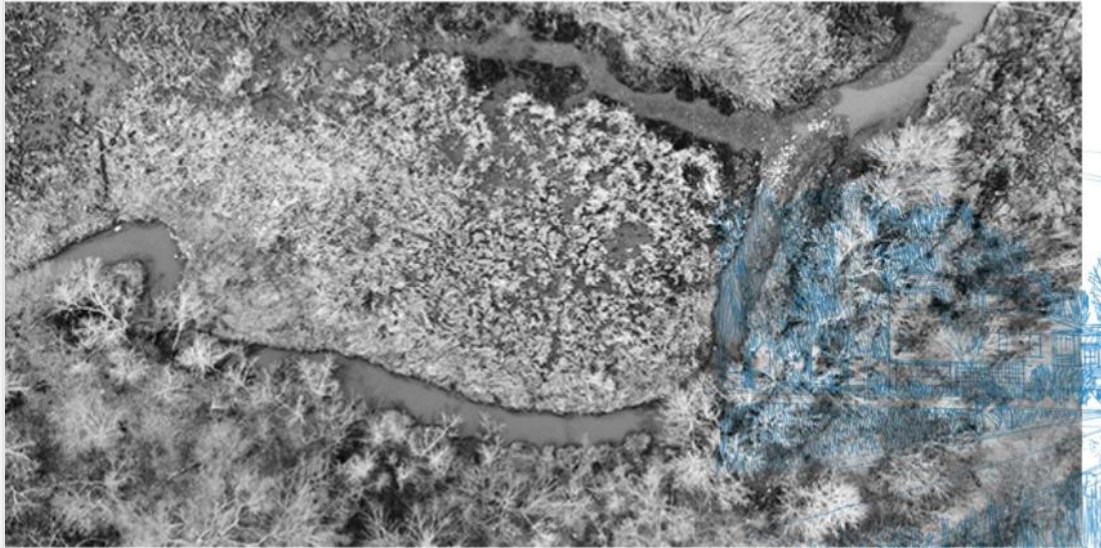
NIMBLE – BE ABLE TO ADAPT

INNOVATIVE – FORWARD THINKING



Phase 2 Pilot

Resilient Hampton
Newmarket Creek Pilot Project
Water Plan



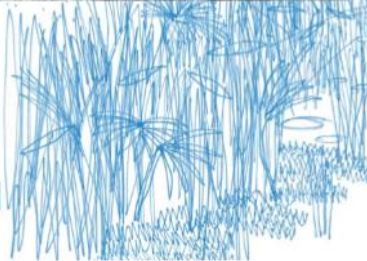
JUNE 2019
DRAFT



HAMPTON VA

WAGGONNER
& BALL

Bosch
Slabbers

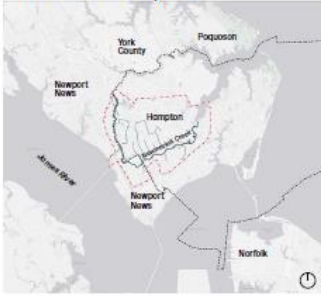


OUTREACH PLAN
WATER PLAN
CONCEPTUAL DESIGNS
IMPLEMENTATION PLAN
POLICIES &
ORDINANCES



Newmarket Creek Pilot Area

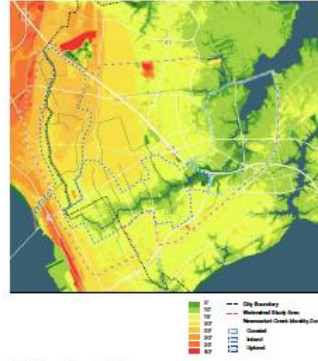
City of Hampton Boundary with Newmarket Creek Watershed Study Area



1907 Map



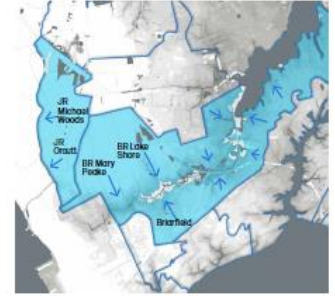
Digital Elevation Model



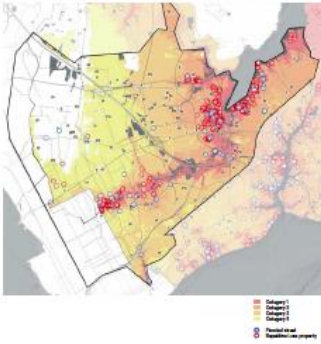
Surface Water



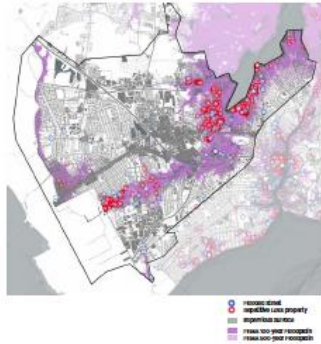
Drainage Watersheds



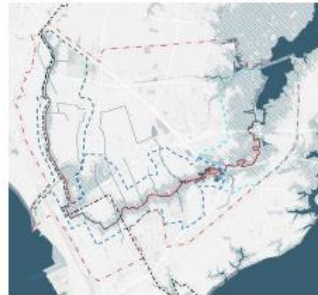
Repetitive Loss Flooding Areas and Storm Surge



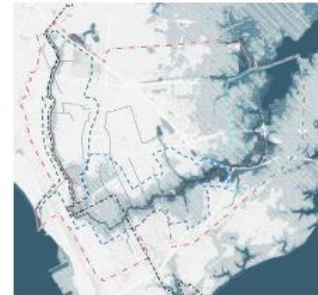
Impervious Surfaces & Flood Risk



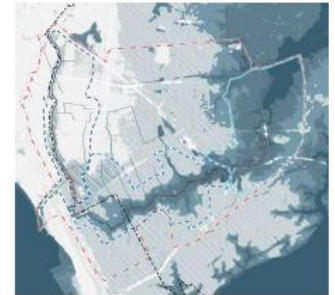
Existing Floodplain



Projected Floodplain with 4.5' of Sea Level Rise



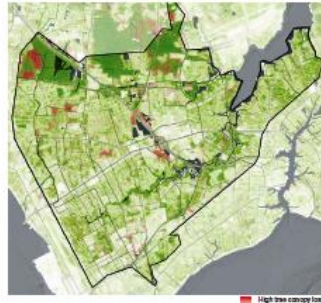
Projected Floodplain with 9.5' of Sea Level Rise



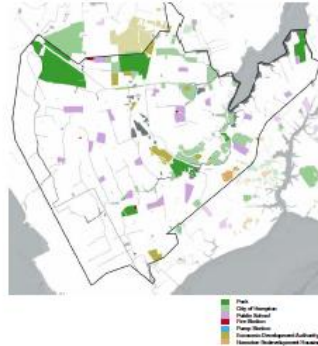
Land Surface Temperature



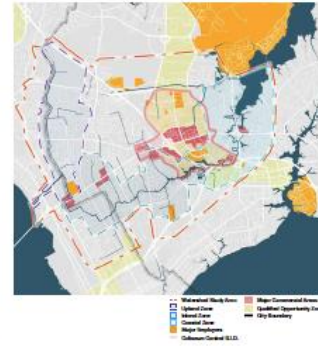
Tree Canopy 2015; Tree Canopy Loss, 2000-2015



Publicly Owned Parcels, Rights of Way, Easements



Economic Development



Dutch Dialogues Strategy for Hampton



Pilot Area Design Workshop



Community Meeting



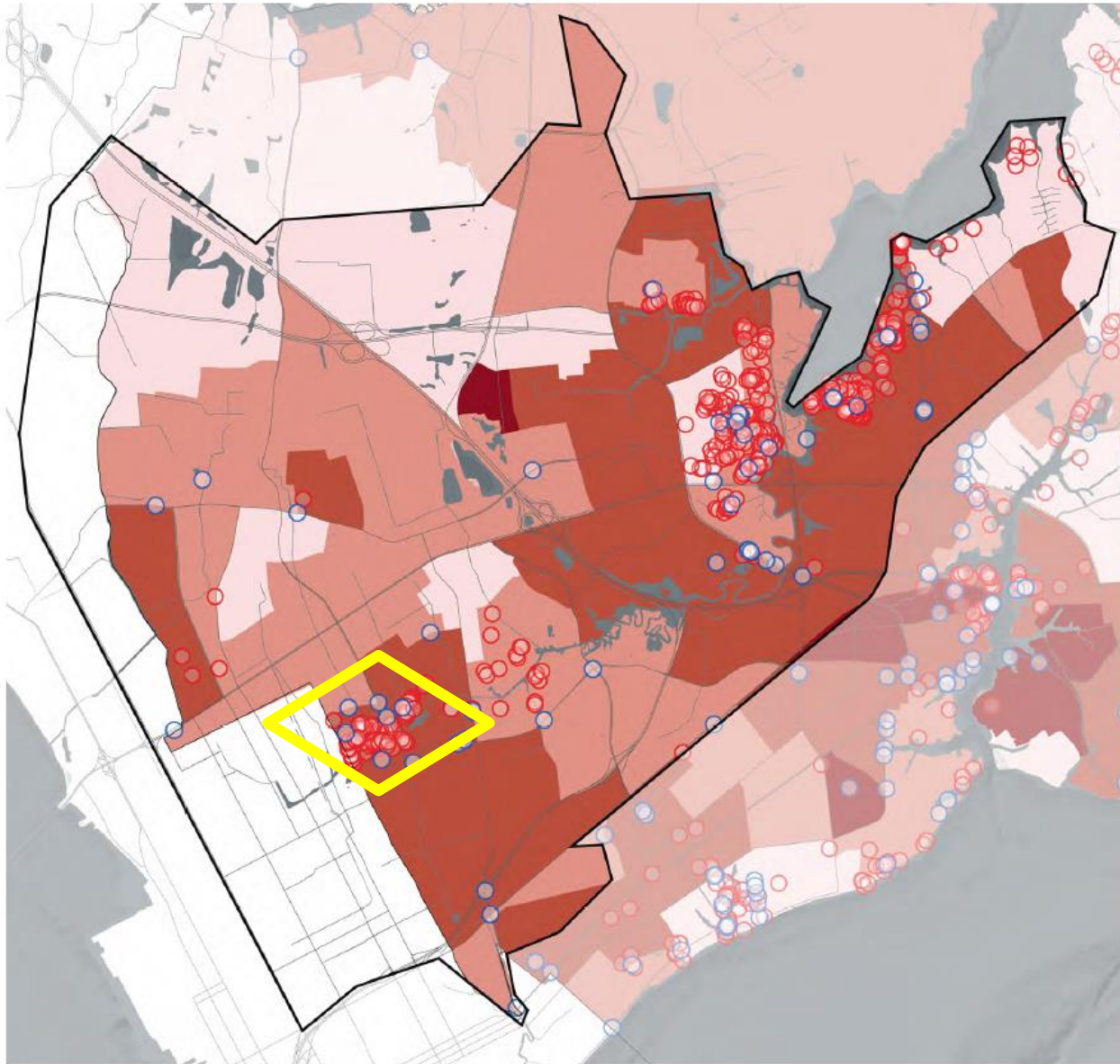
Briarwood Terrace



Briarwood Terrace



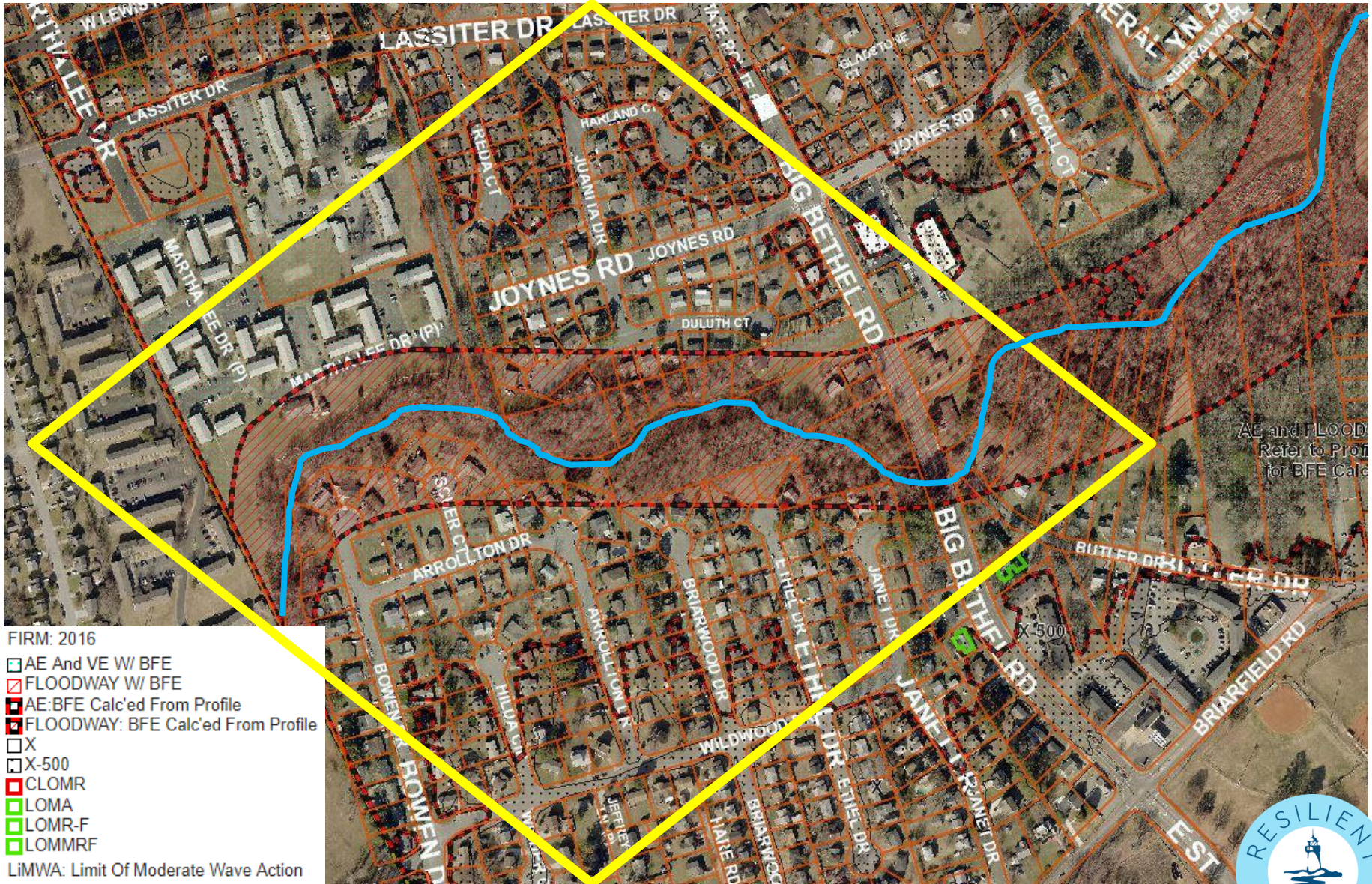
Flood Risk & Income



- 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



Tides, Surge, Sea Level Rise, Rain



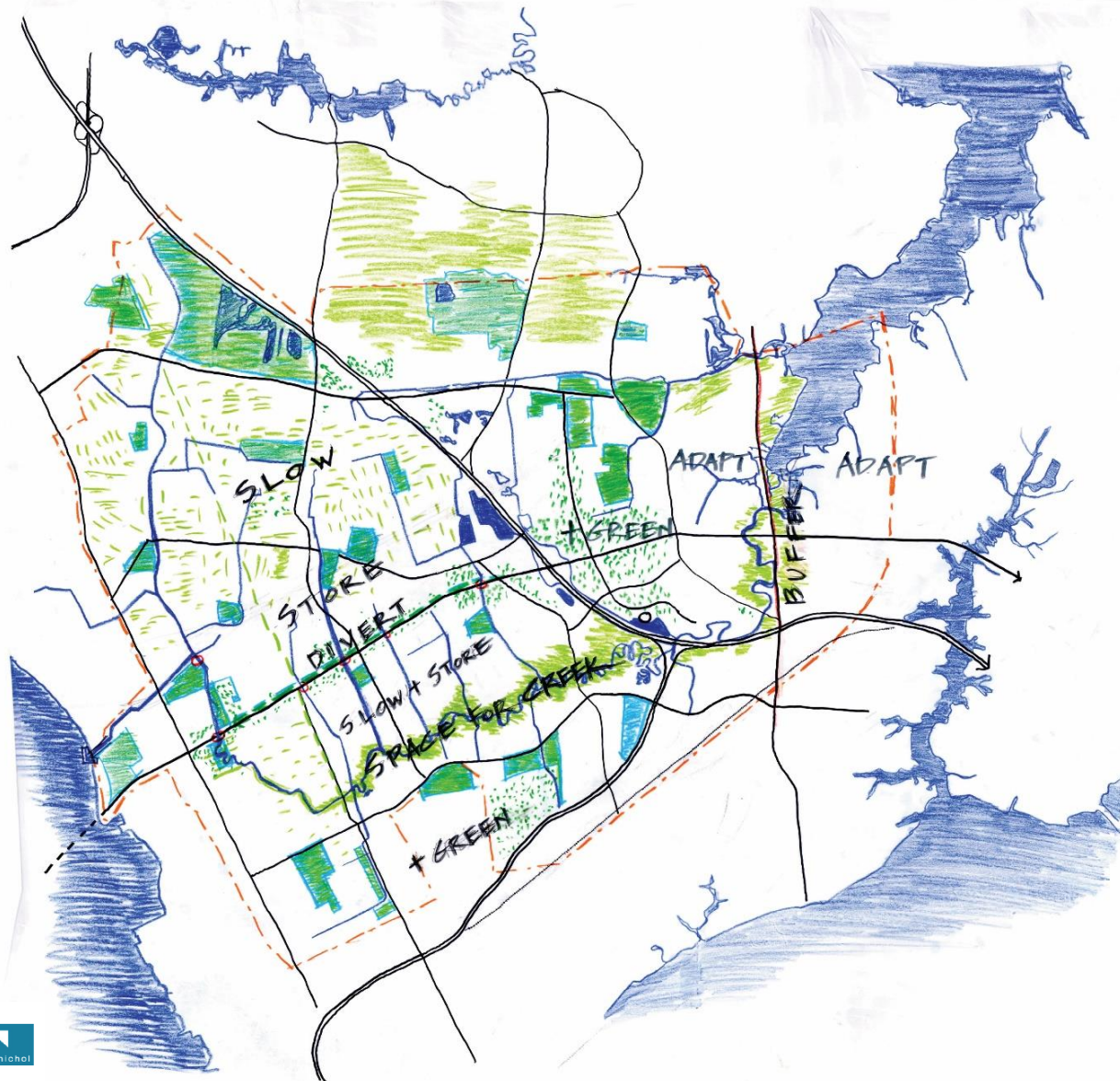
Resulting Themes

SLOW

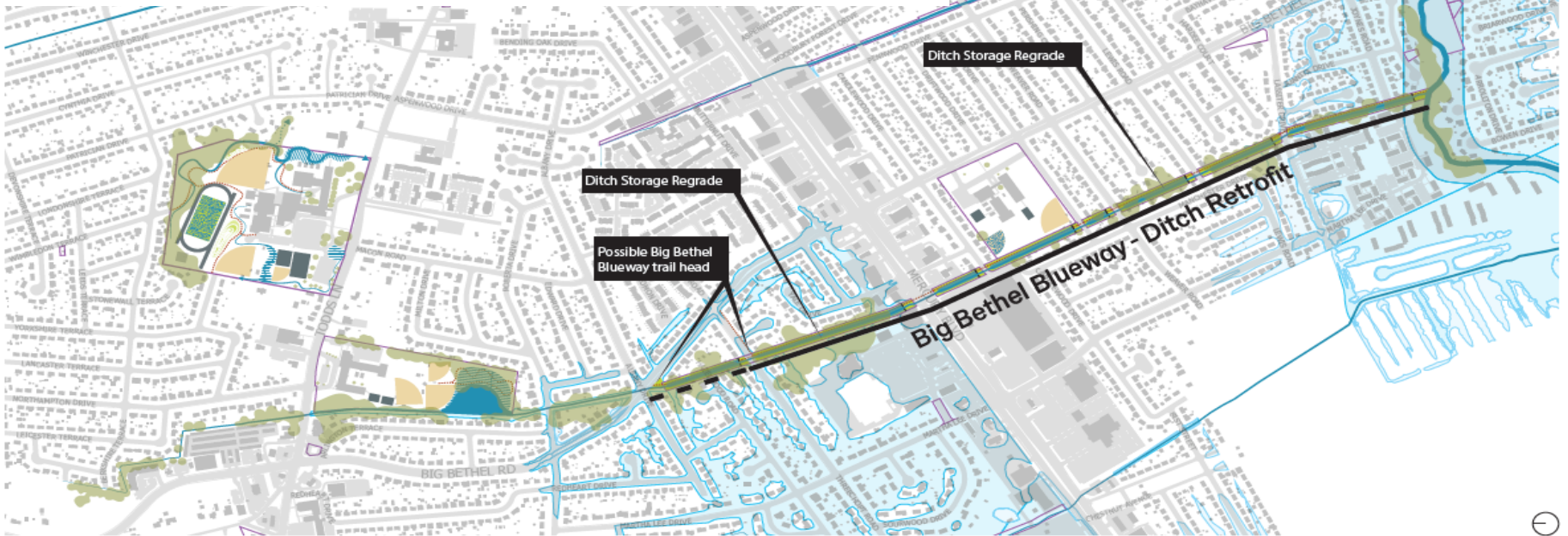
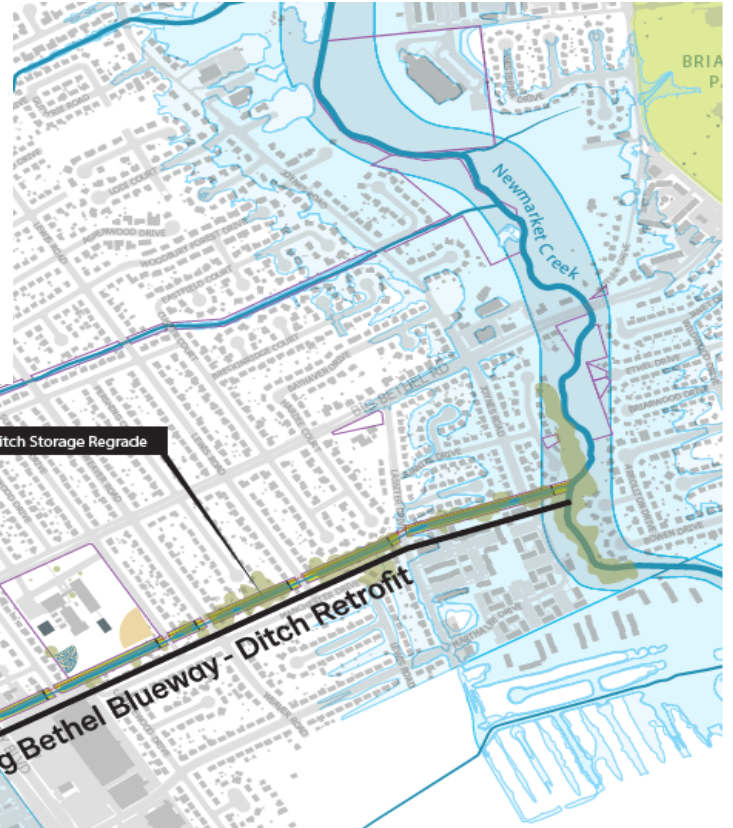
STORE

REDIRECT

ADAPT



Big Bethel Blueway

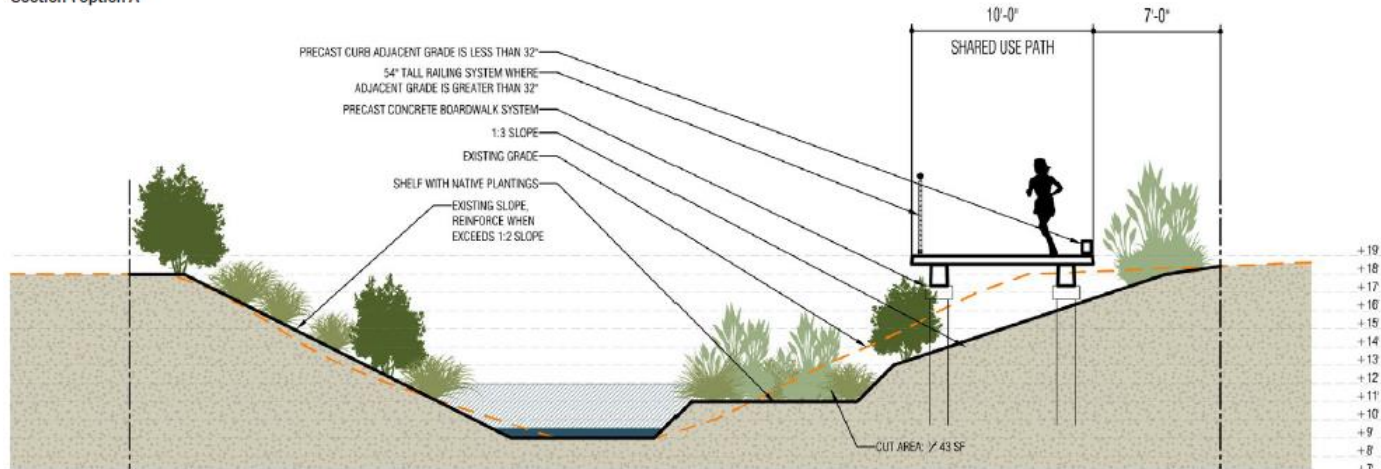


Big Bethel Blueway



Example of Boardwalk Trail in Residential Neighborhood
Credit: PermaTrax

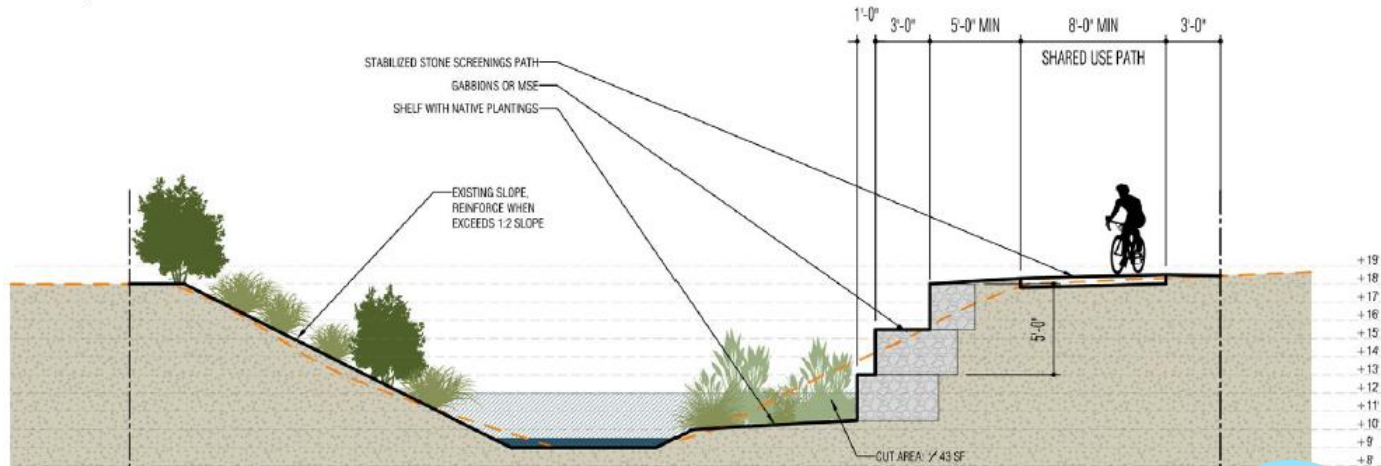
Section 1 option A



North of Mercury Blvd, the existing waterway has a steeper slope that requires substantial stabilization. Option A stabilizes the bank through a shallower regrading with wetland shelves. To achieve this shallower regrading, the path becomes a boardwalk made from precast concrete.



Section 1 option B



Option B stabilizes the existing steep slope with a gabion system. The path remains on grade. Both options A and B provide additional stormwater storage in addition to bank stabilization.

The path is at grade along the Blueway, in the waterway. Most of the Blueway has sufficient depth for the recommended shared use path with the standards accessed here: <http://www.fdot.com/resources/LocDes/RDM/Appendix1.pdf>





CULTURE & HERITAGE

INNOVATION

PROPERTY VALUES

PARKS & OPEN SPACE

HEALTH

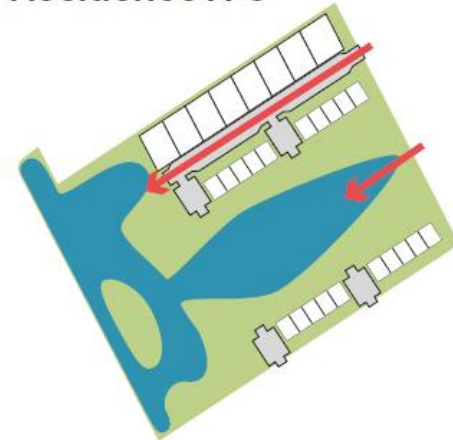
PUBLIC ACCESS

ENVIRONMENT






WATER QUALITY

FLOOD RISK REDUCTION

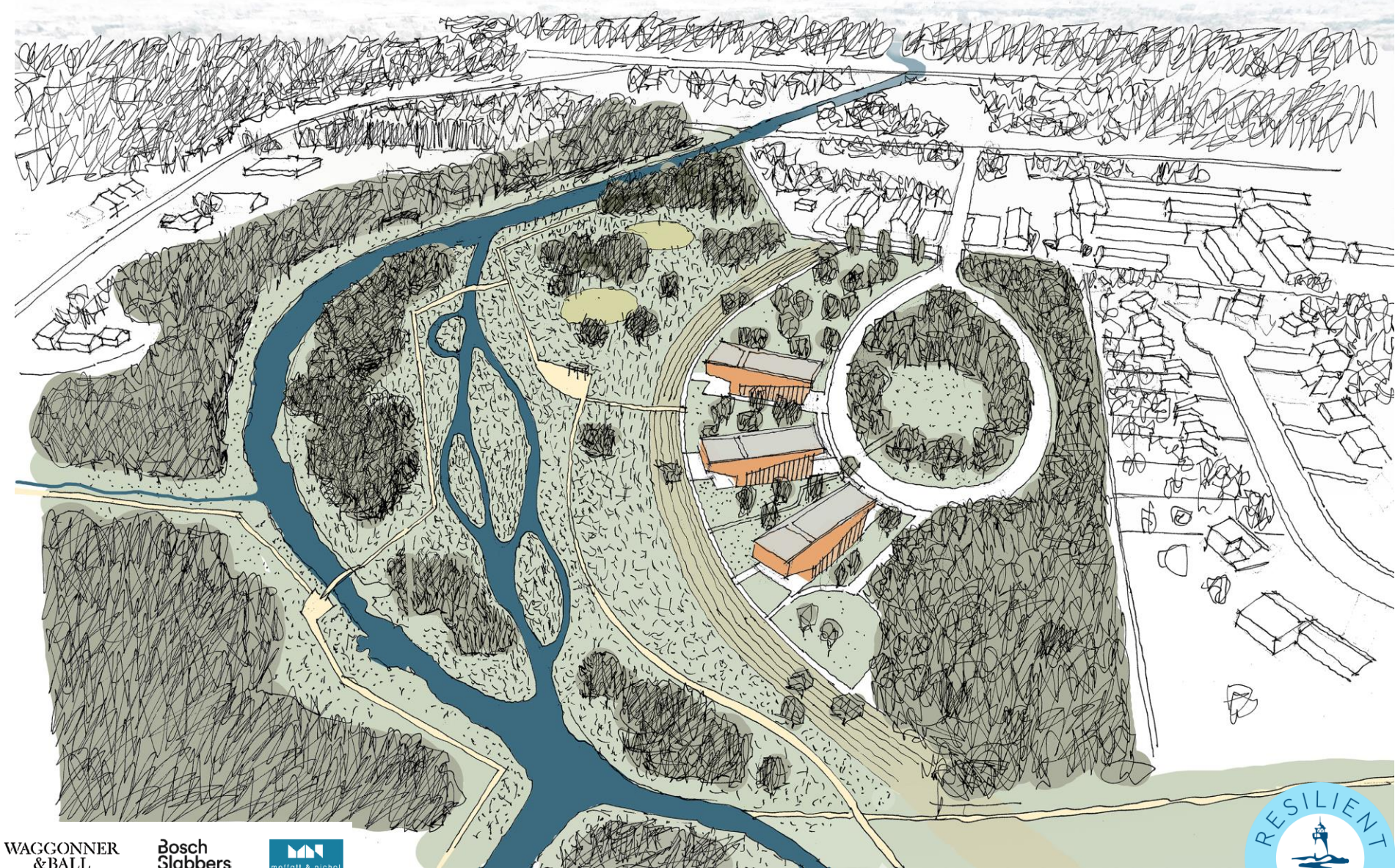
Multifamily Residential MD-1 & Single Family Residence R-9



MD-1 Townhouse:	total units:	20
	parcel size:	TBD when subdivided
	unit size:	1,700 sf min. (per adjacent single-family district)
R-9 Single Family:	total units:	8
	parcel size:	6,000 sf
	unit size:	1,500 sf
total building area:		51,000 sf

-  Proposed Parcel
-  Proposed Unit
-  Proposed Paved Area
-  Swales
-  Path

Creek Walk & Patriot Center



WAGGONNER
& BALL

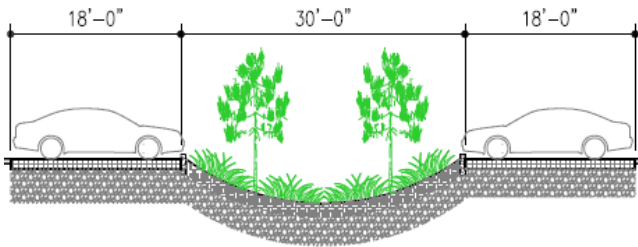
Bosch
Slabbers



Armistead Ave



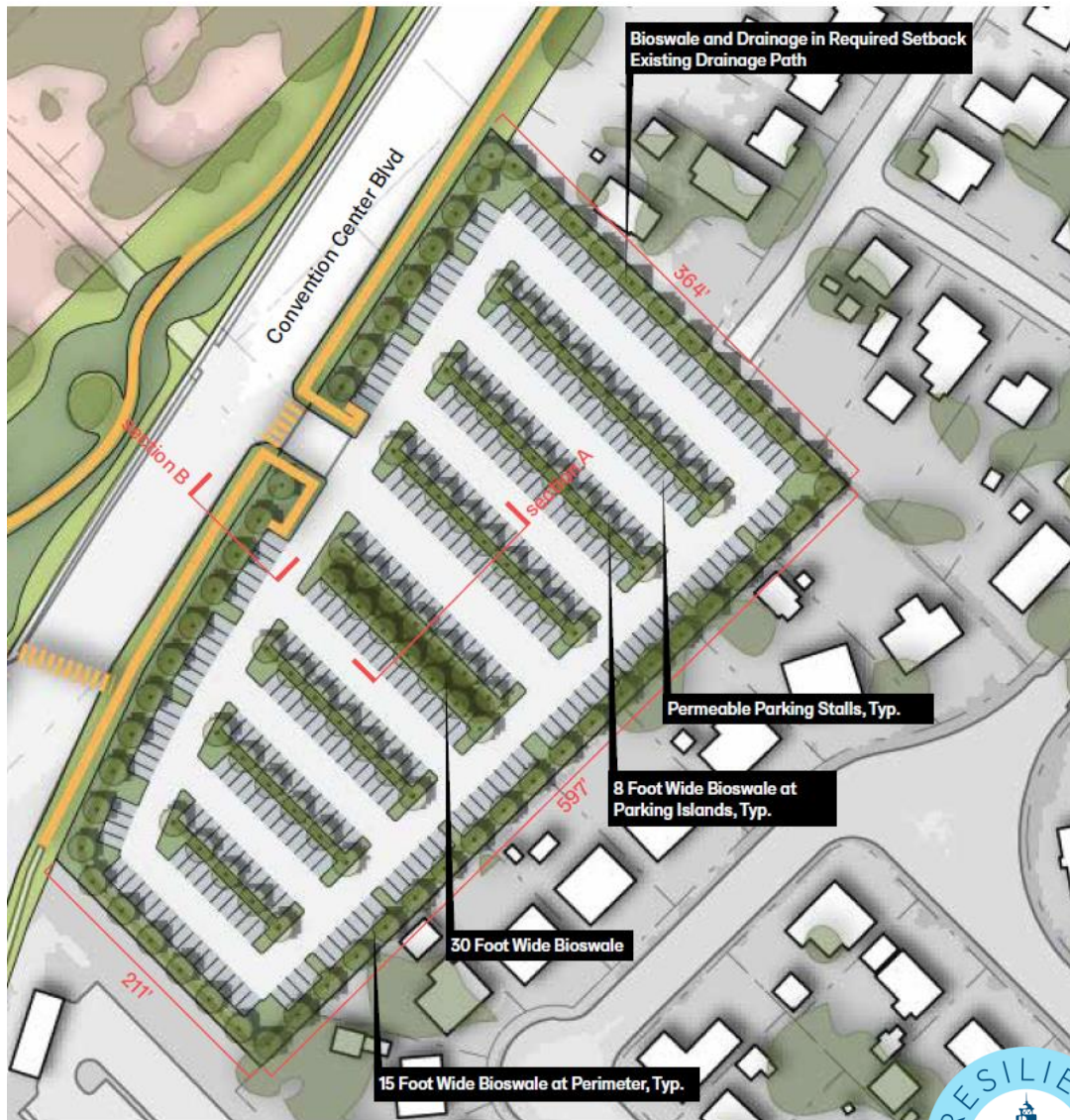
Crossroads Resilient Parking



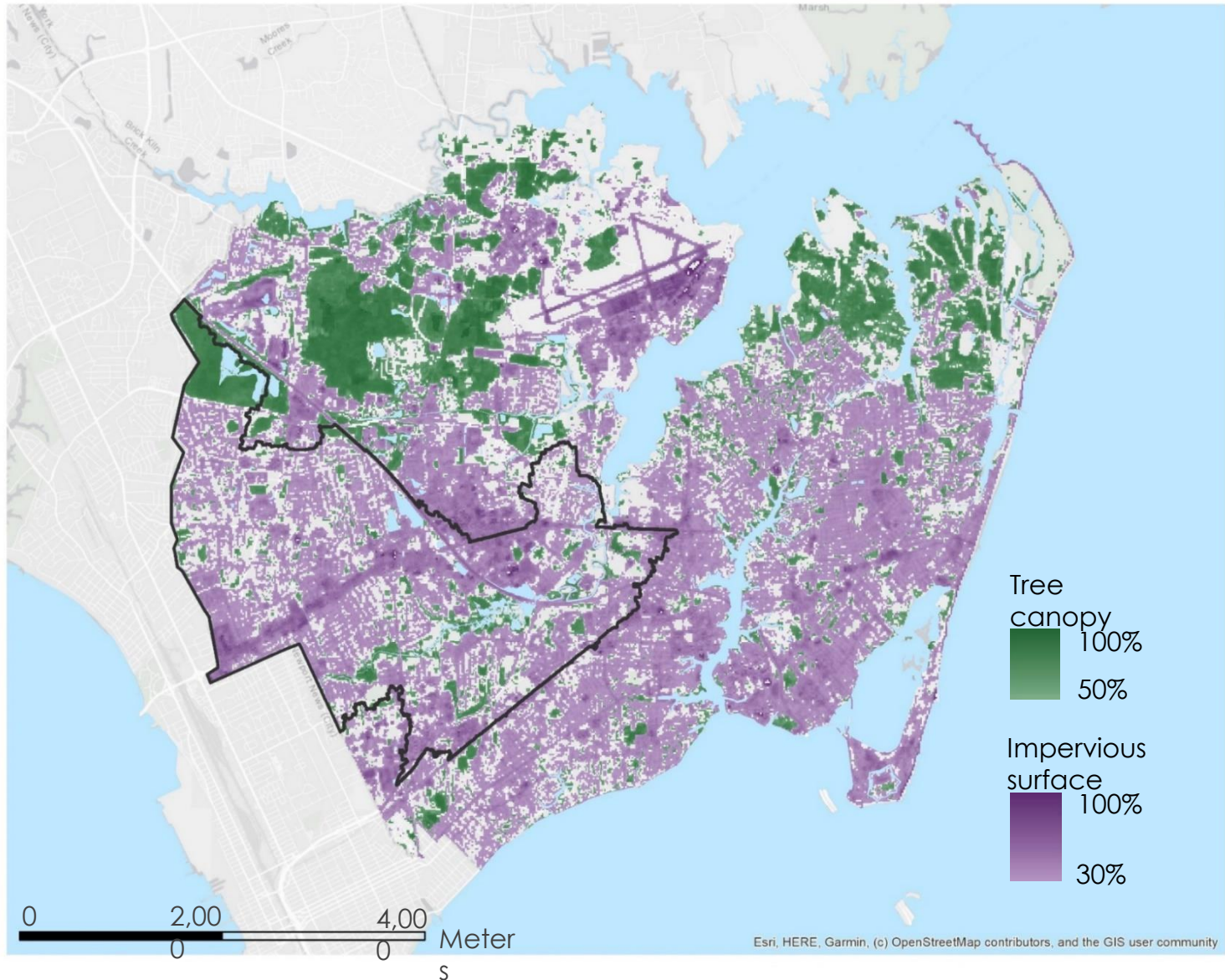
Parking Lot with Bioswale, Charleston, SC
Credit: Waggonner & Ball



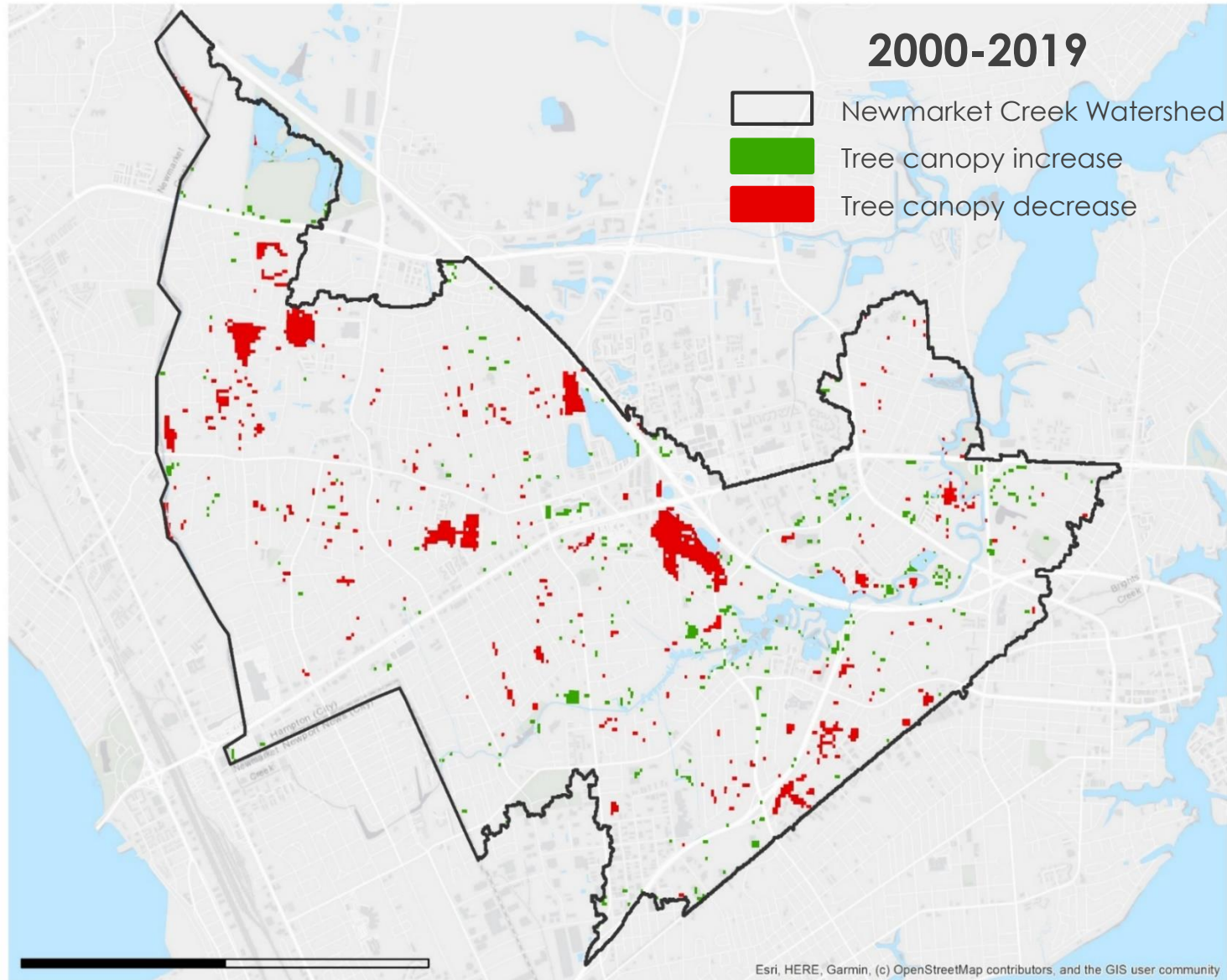
PaveDrain Parking Lot Installation, Cedar Rapids, IA
Credit: Besser Company



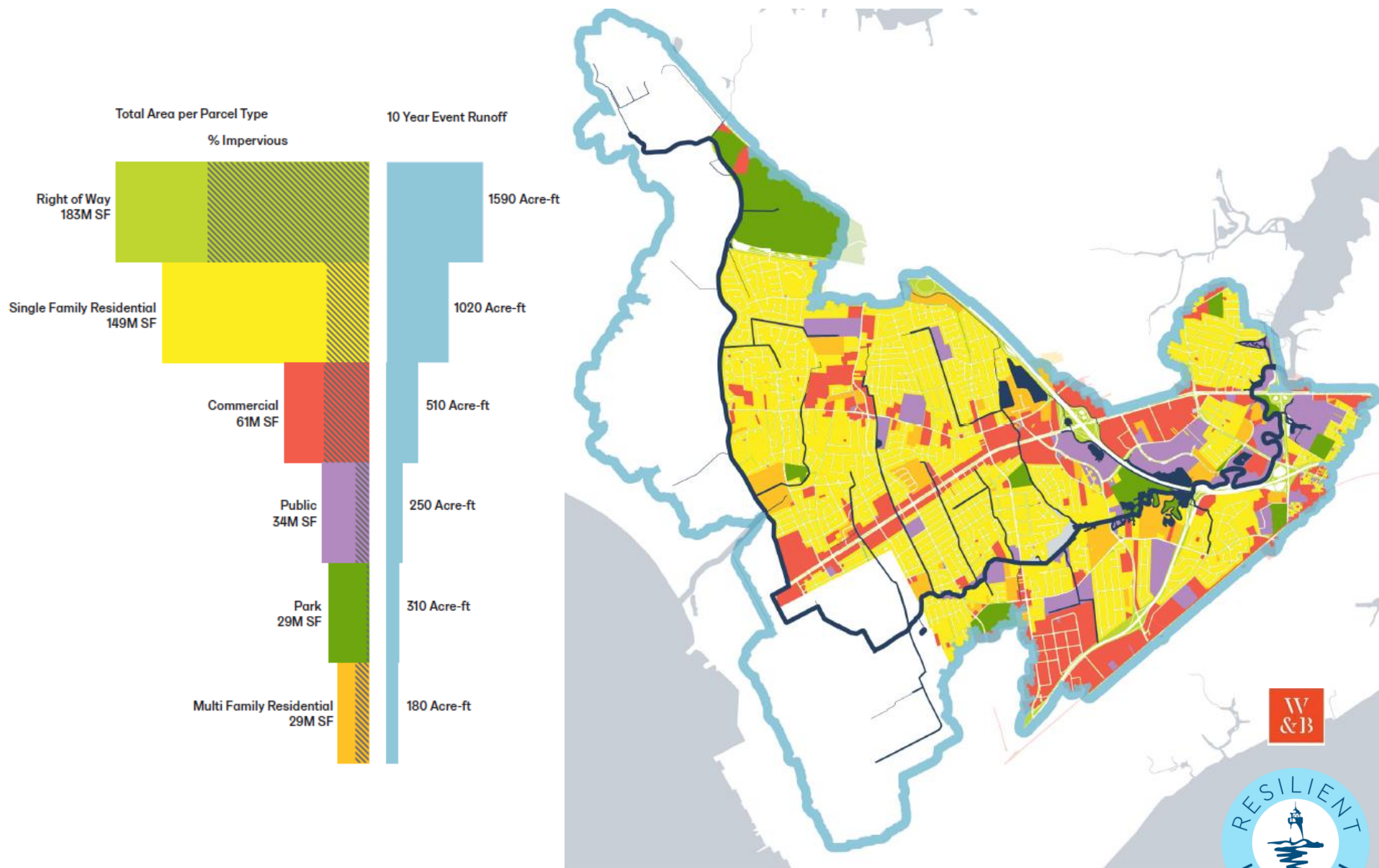
Tree Canopy and Impervious



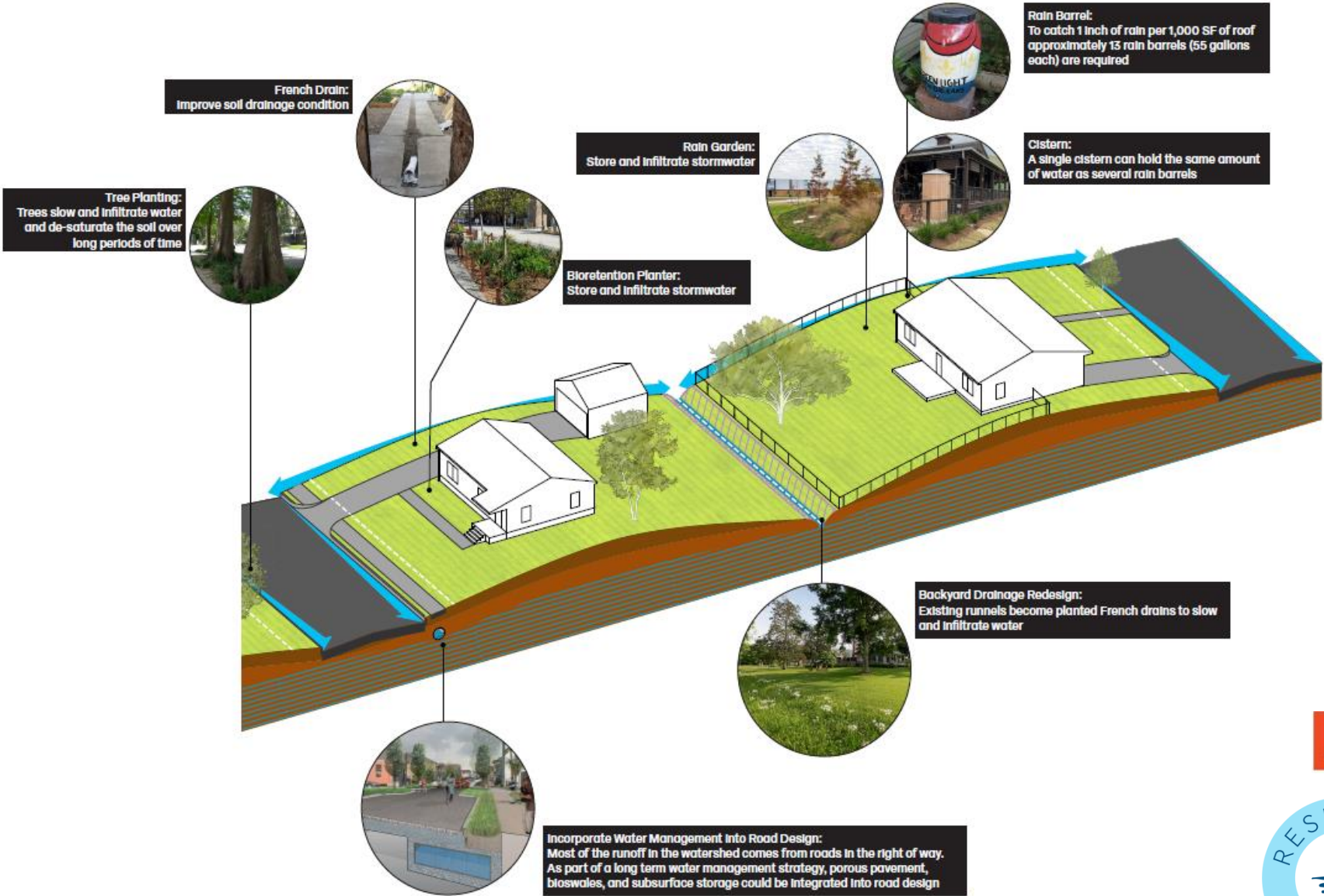
Pilot Area Tree Canopy Change



Runoff in Newmarket Creek



Resilient And Innovative Neighborhoods



Funding and Partnering



PARTNERSHIPS

- ENVIRONMENTAL IMPACT BOND
- GRANTS
- IN-KIND STUDIES AND WORK

STORMWATER FEE INCREASE
CAPITAL IMPROVEMENT PLAN
STATE & FEDERAL \$



Legislative Priorities

- GIVE FUNDING PRIORITY TO LOCALITIES AND REGIONS THAT DEMONSTRATE REGIONAL AND INTERGOVERNMENTAL COOPERATION AND COLLABORATION
- CREATE INCENTIVES TO PROMOTE DEVELOPMENT OF NEW TECHNOLOGIES AND JOBS TO SUPPORT RESILIENCY EFFORTS, PARTICULARLY SOLUTIONS WHICH ARE REPLICABLE
- CONTINUE TO ALIGN AND INTEGRATE PROGRAMS, DEPARTMENTS, REGULATIONS, ETC. TO REMOVE BARRIERS AND MOVE FORWARD IN A COORDINATED EFFORT FOR MAXIMUM BENEFIT
- ALLOW BOTH STRUCTURAL AND NON-STRUCTURAL RESILIENCY PROJECTS AND PROGRAMS TO BE ELIGIBLE FOR MORE EXISTING PRE-DISASTER FUNDING SOURCES
- INCLUDE A SOCIAL VULNERABILITY INDEX IN FUNDING FORMULAS AND COST/BENEFIT ANALYSIS REQUIREMENTS AND INCLUDE FEMA'S CRS RATINGS IN EVALUATIONS OF FUNDING ELIGIBILITY





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