

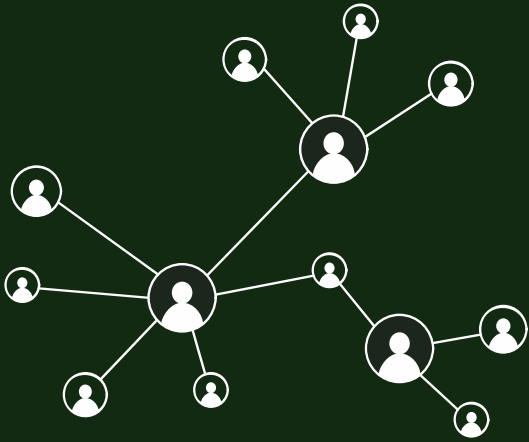
# Expanding Finance for Conservation and Restoration of Natural Assets

Rowan Schmidt, Program Director  
Earth Economics



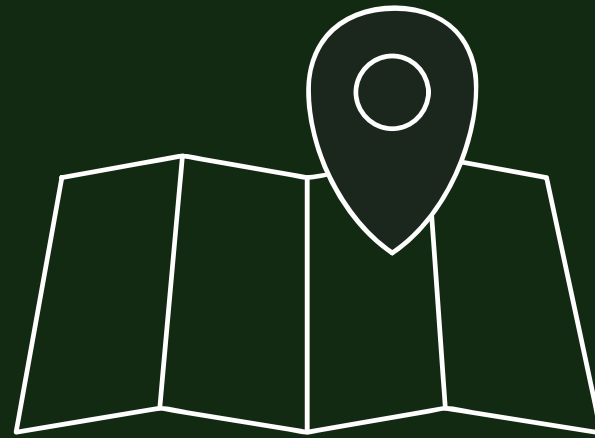
# Our Approach

---



Awareness  
Building

...



Place-Based  
Analysis

...



Policy and  
Finance



# Economy

A nighttime photograph of a city skyline, likely New York City, with numerous skyscrapers illuminated. A large, vibrant green leaf with prominent veins is overlaid on the lower right portion of the image. The word 'Economy' is written in white, sans-serif font in the upper left, and 'Environment' is written in white, sans-serif font on the green leaf.

# Environment



# Types of Capital



Built Capital



Social Capital



Human Capital



Natural Capital



Financial Capital



# Pre- and Post-Disaster Funding Opportunities for Conservation and Restoration

Natural disasters cost the United States a record **\$306 billion** in 2017.

The previous record was \$215 billion in 2005.





# HAZARD MITIGATION

Any action taken to reduce or eliminate long term risk to people and property from natural disasters.





# FEMA Advances: 2013



## FEMA

### MITIGATION POLICY – FP-108-024-01

**I. TITLE:**

Consideration of Environmental Benefits in the Evaluation of Acquisition Projects under the Hazard Mitigation Assistance (HMA) Programs

**II. DATE OF ISSUANCE:**

JUN 18 2013

**III. POLICY STATEMENT:**

FEMA will allow the inclusion of environmental benefits in benefit-cost analyses (BCA) to determine cost effectiveness of acquisition projects.

**IV. PURPOSE:**

The purpose of this policy is to identify and quantify the types of environmental benefits that FEMA will consider in the BCA for acquisition projects.



# FEMA Advances: 2016


U.S. Department of Homeland Security  
Washington, DC 20472



**FEMA**

May 12, 2016

MEMORANDUM FOR: Mitigation Division Directors  
FEMA Regions I-X

FROM: Michael M. Grimm   
Assistant Administrator for Mitigation  
Federal Insurance and Mitigation Administration

SUBJECT: Benefit Cost Analysis Tools for Drought, Ecosystem Services, and  
Post-Wildfire Mitigation for Hazard Mitigation Assistance

In September 2015, FEMA released three new activities eligible for the Hazard Mitigation Assistance (HMA) programs: Aquifer Storage and Recovery, Floodplain and Stream Restoration, and Flood Diversion and Storage, known as the Climate Resilient Mitigation Activities (CRMA). These activities can be used for any hazard when appropriate and leverage traditional risk reduction benefits and applicable ecosystem services. Additionally, FEMA developed pre-calculated benefits for cost effectiveness evaluation of soil stabilization, flood diversion, and reforestation projects in wildfire impacted areas to support expedient implementation of post-wildfire mitigation actions. With this memorandum, FEMA is releasing the following additions





# Flood Protection





# Flood Protection+

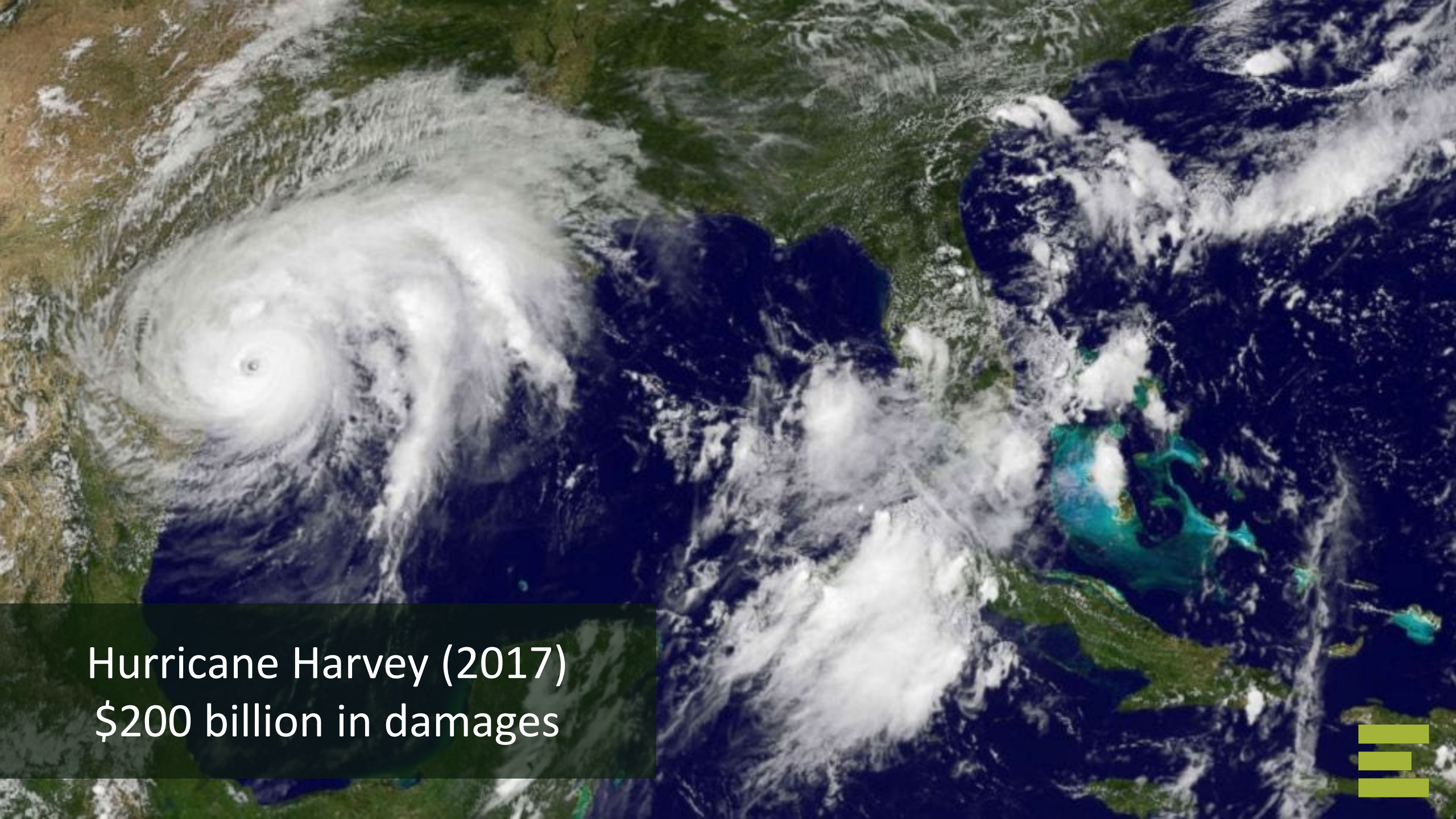


# Eligible Project Types

- Acquisition and Relocation
- Flood Diversion and Storage
- Post-Wildfire Mitigation
- Riparian Restoration
- Aquifer Storage & Recovery
- Green Infrastructure





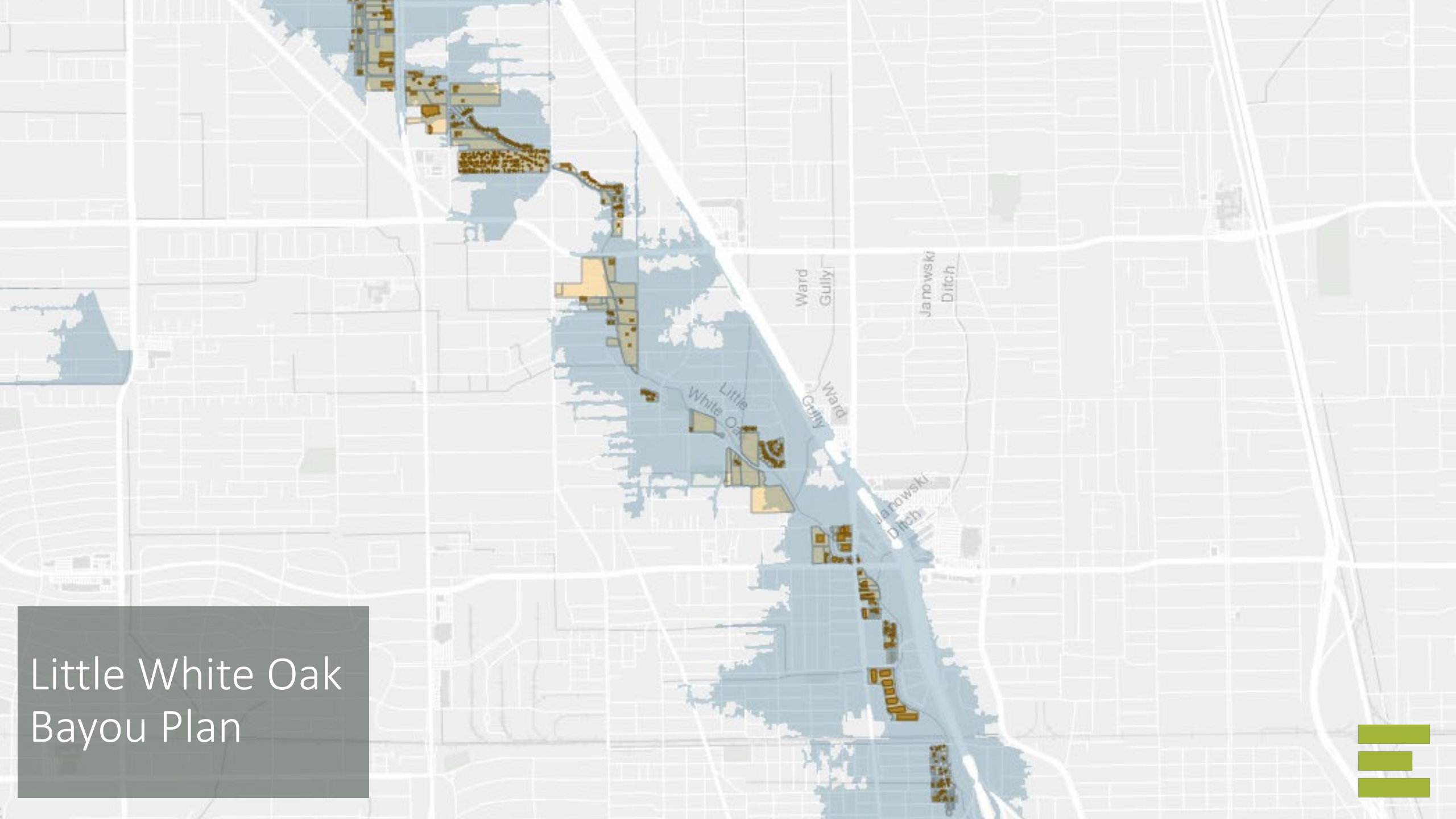


Hurricane Harvey (2017)  
\$200 billion in damages

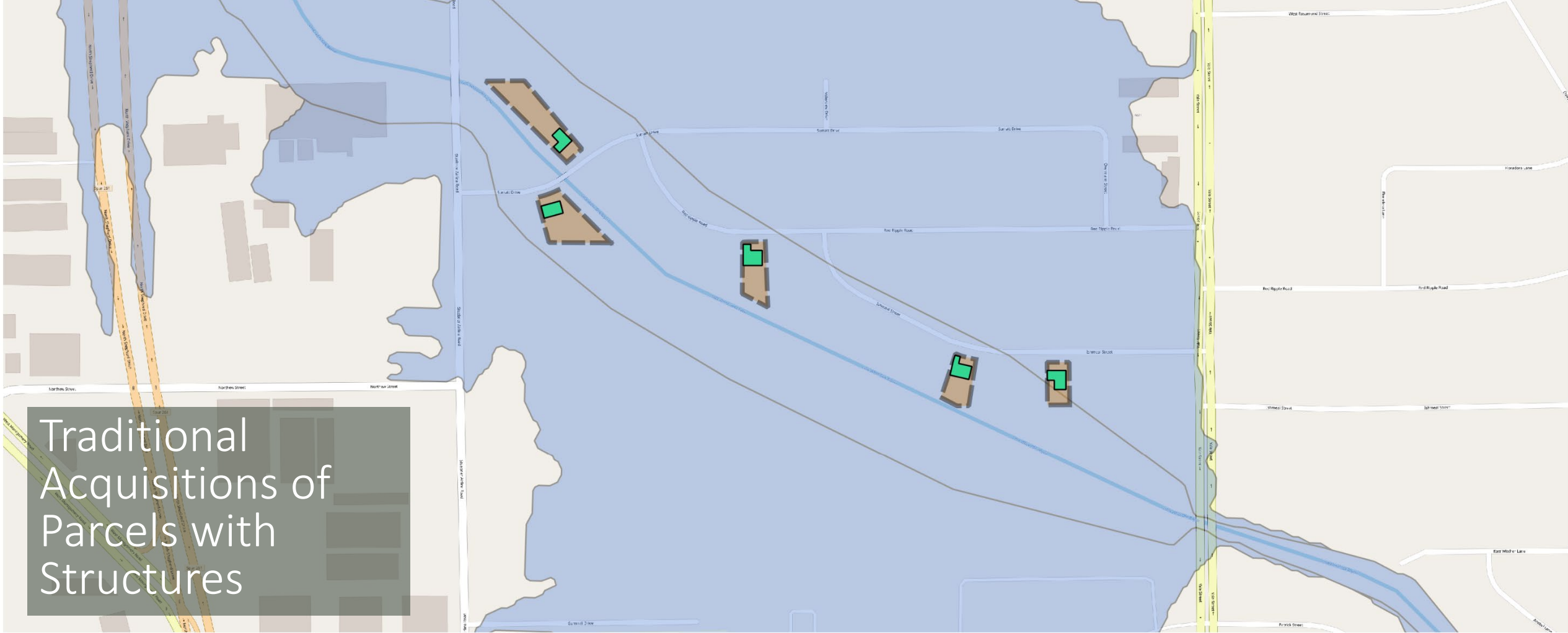




# Little White Oak Bayou Plan








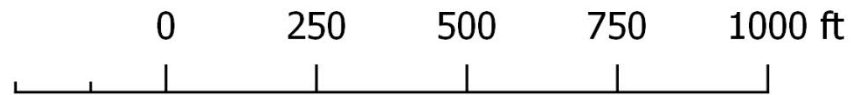


Traditional Acquisitions of Parcels with Structures

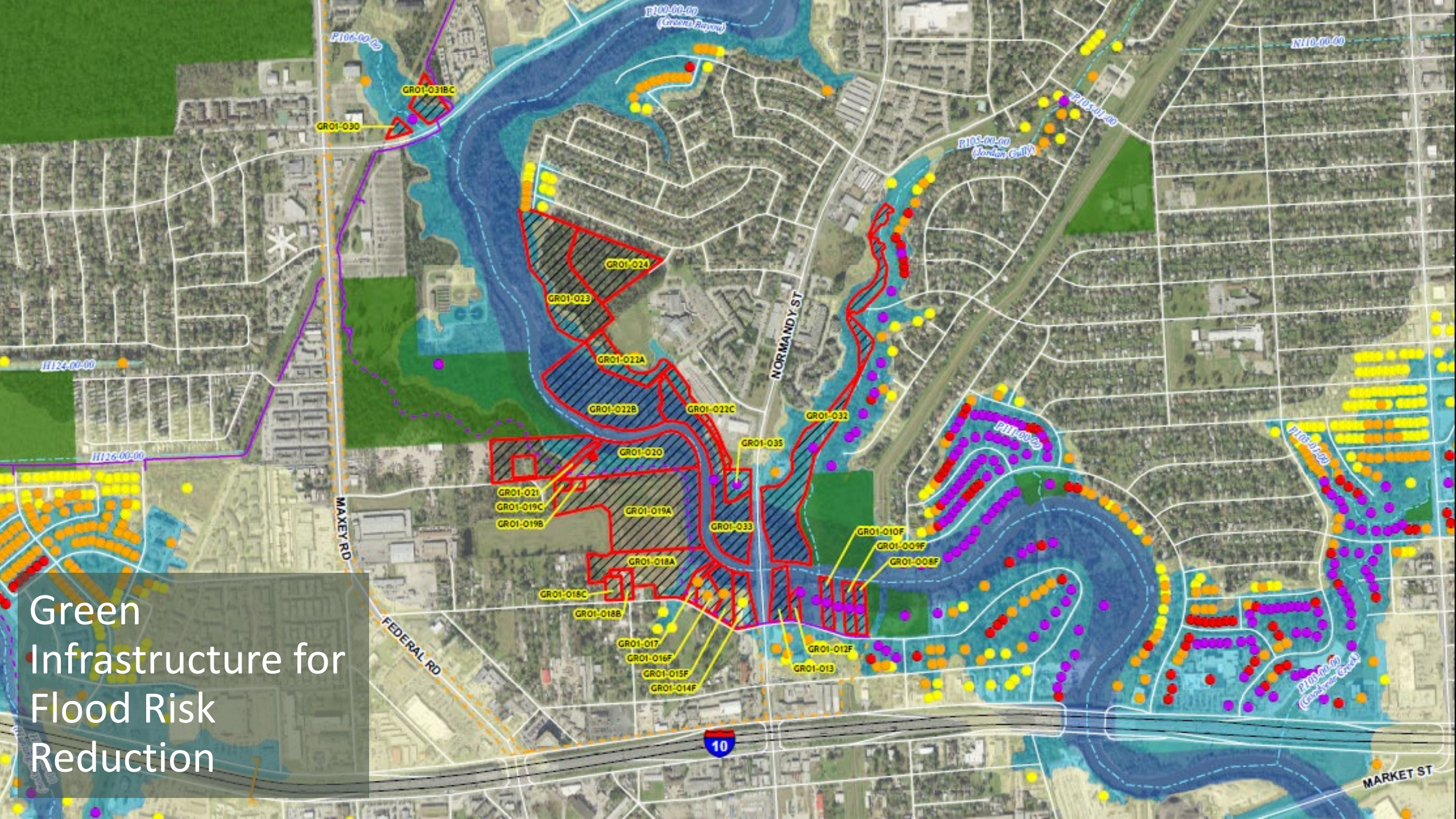
Sources:  
 FEMA Floodplains NFHL 2015  
 Harris County Parcels  
 Date: 11/2/2018

Legend

-  Structures Damaged During Harvey
-  Parcels
-  100 Year Floodplain





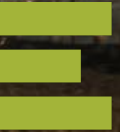


Green  
Infrastructure for  
Flood Risk  
Reduction





Thomas Fire (2018)  
>\$2.2 billion in damages

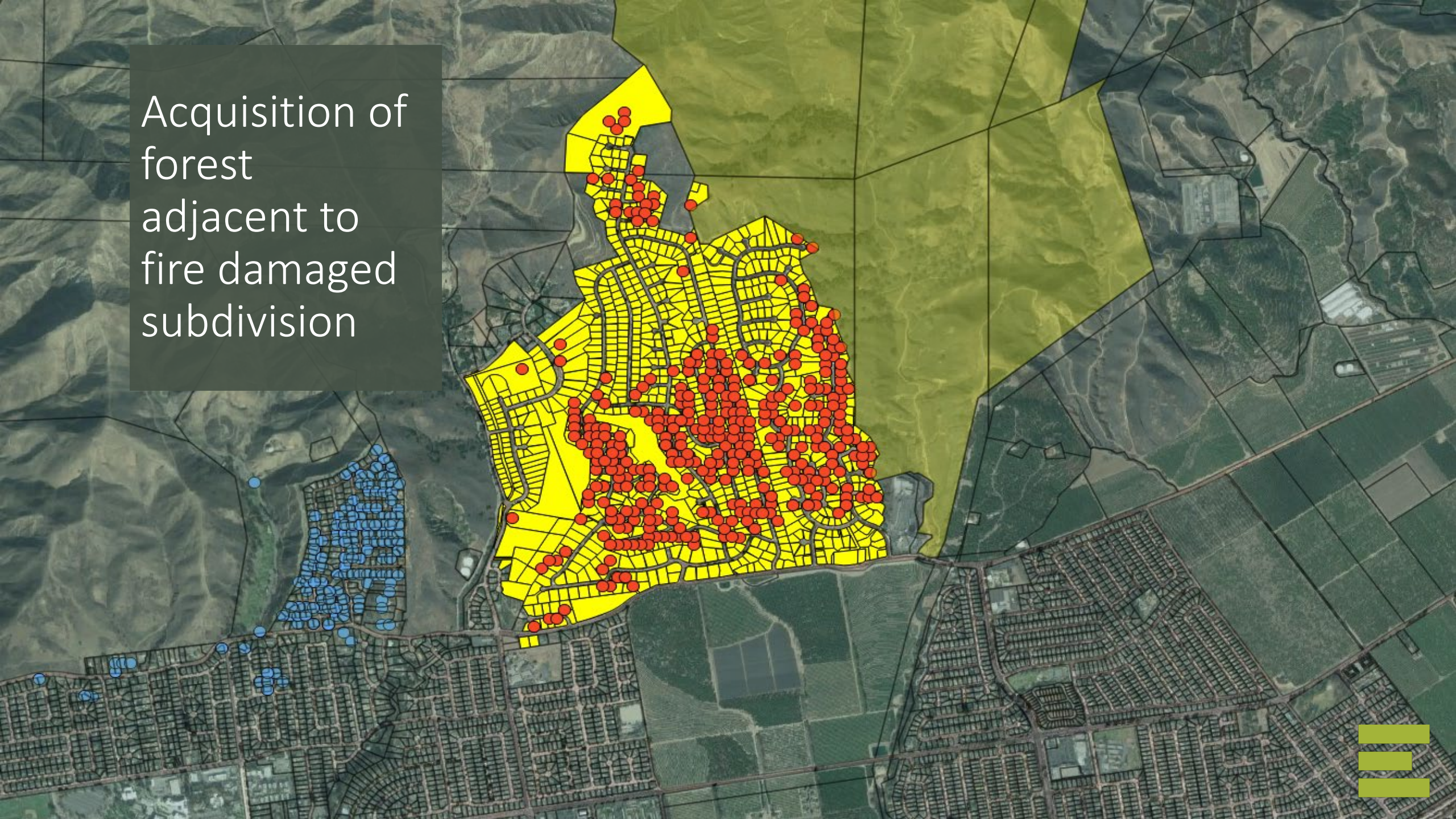








Acquisition of forest adjacent to fire damaged subdivision





# FEMA: Pre-Disaster Mitigation

- New law passed by Congress
- Similar process/projects to HMGP
- Annual, nationally competitive program, not tied to disaster
- PDM funding will increase from ~\$200 million/year to \$billions in 2019





# Muni Bond Finance for Green and Distributed Infrastructure



# Green and Distributed Infrastructure

- Not a luxury
- Supports service targets and co-benefits
- Practical and cost-effective solution
- Supports resilience and equity





# Common Utility Goals

- Conserve water and use it more effectively.
- Avoid stormwater flooding.
- Prepare for sea level rise and droughts.
- Preserve local open space and streams.
- Keep water clean, safe, and healthy.







# Permeable Pavement

---

Stormwater treatment

Water supply

Less severe heat waves

Quieter neighborhoods

Educational opportunities







# Green Roofs

Stormwater treatment

Lower utility bills

Cooler cities

Cleaner air

Neighborhood beautification





# Urban Trees

- Stormwater management
- Lower asthma rates
- Cooler cities
- Better quality of life
- Walkable cities



# GI and DI: Other examples

- **Water Efficiency Programs**
- **Recycling and Water Reuse Programs**
- **Green Infrastructure and Nature-Based Solutions**



# What's the Problem?

Utility finance folks often believe that you can only pay for these things **out of annual operating cash...**

...but annual rate revenue is not sufficient to cover large scale investments.

**There is an alternative financing choice available that water agencies are often unfamiliar with.**



# What's the Solution?

GASB 62 says an entity **with rate setting ability** can capitalize 'business-type activity costs' that would otherwise be expensed.

Creation of regulatory "asset" supports bond-finance of green and distributed infrastructure.





# GO GREEN

MUNI BOND FINANCING FOR CONSUMER REBATES  
AND OTHER DISTRIBUTED WATER INVESTMENTS

*A PRIMER FOR WATER LEADERS ON HOW TO DEBT-FINANCE DISTRIBUTED  
INFRASTRUCTURE PROJECTS AND CONSUMER REBATES*

EARTH  
ECONOMICS





# Who is Doing this Now?



**Seattle and King County**



**Los Angeles**



# Co-benefits can Inform Financing and Partners

## Co-Benefit

## Partner/Financing

---

Disaster Risk Reduction	----->	FEMA; HUD
Water Quality/Supply, Energy Efficiency	----->	Municipal Bond Market
Economic Uplift	----->	HUD
Public Health	----->	Healthcare Systems
Carbon Sequestration	----->	Carbon markets
Recreation/Tourism	----->	Economic Development Dept.







# THANK YOU

[rschmidt@earthconomics.org](mailto:rschmidt@earthconomics.org)