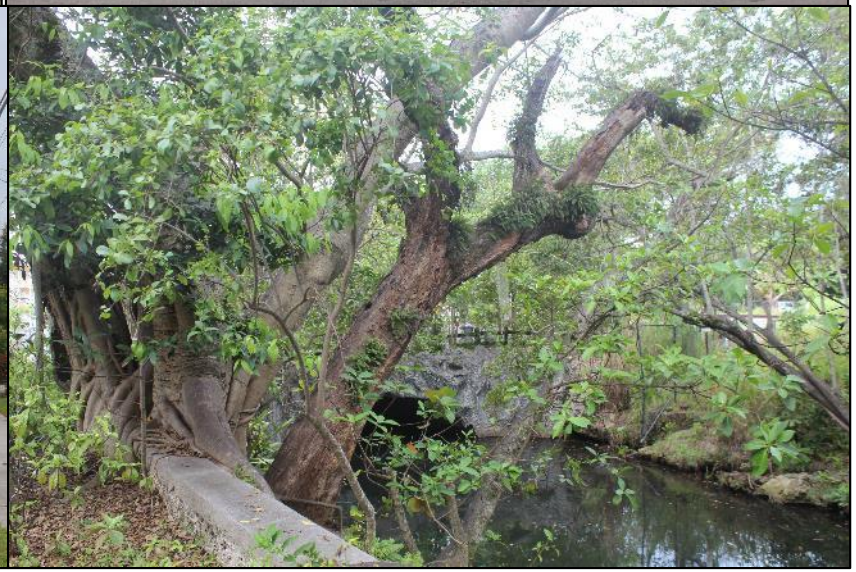


Urban Land Institute

Advisory Services Program

# Arch Creek Basin – Miami, FL

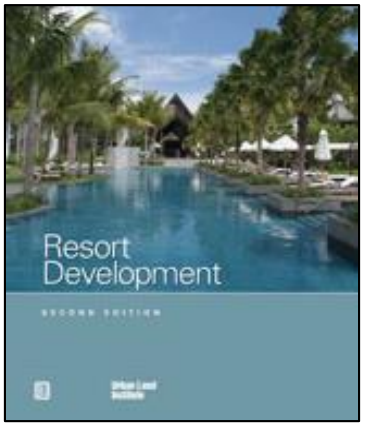
## May 22 – 27, 2016

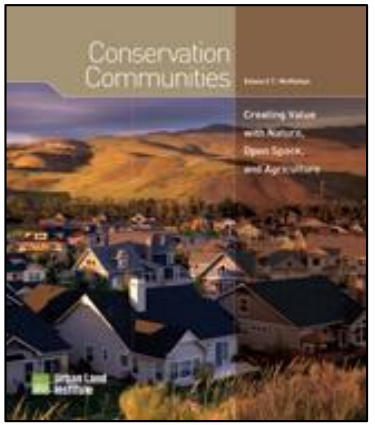
# About the Urban Land Institute

- The mission of the Urban Land Institute is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide.

- ULI is a membership organization with nearly 38,000 members, worldwide representing the spectrum of real estate development, land use planning and financial disciplines, working in private enterprise and public service.

- What the Urban Land Institute does:
  - Conducts Research
  - Provides a forum for sharing of best practices
  - Writes, edits and publishes books and magazines
  - Organizes and conducts meetings
  - Directs outreach programs
  - Conducts Advisory Services Panels



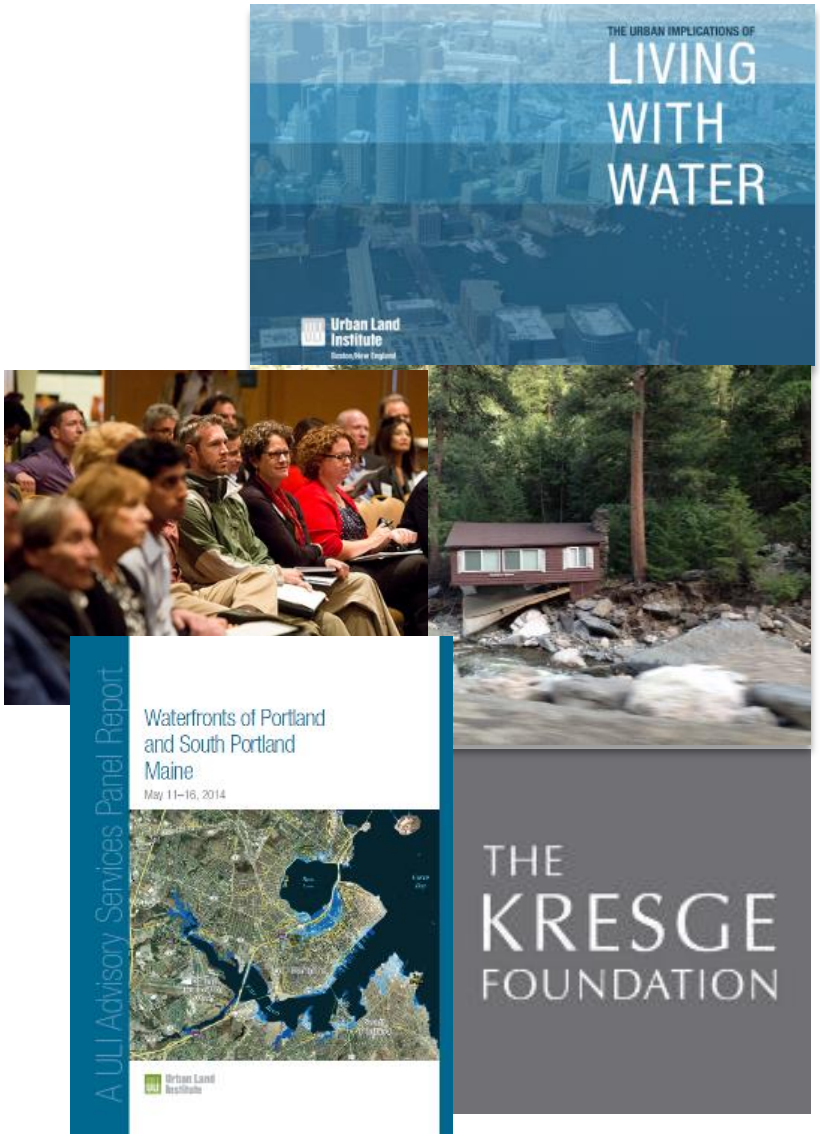

# The Advisory Services Program

- Since 1947
- 15 - 20 panels a year on a variety of land use subjects
- Provides independent, objective candid advice on important land use and real estate issues
- Process
  - Review background materials
  - Receive a sponsor presentation & tour
  - Conduct stakeholder interviews
  - Consider data, frame issues and write recommendations
  - Make presentation
  - Produce a final report

# ULI's Urban Resilience Program

- Helping communities prepare for and reduce vulnerabilities to increased climate risk, and to thrive going forward.
  - Advising Communities in Need
  - Research and Reports
  - Convenings
  - District Council Activities

- ULI received a generous grant from the Kresge Foundation, which is helping support this and other Urban Resilience Advisory Services Panels.
  - Portland, ME
  - Northern Colorado
  - Norfolk, VA
  - Seattle, WA
  - Duluth, MN
  - St. Tammany Parish, LA



# Thanks to the panel sponsors:

MIAMI-DADE COUNTY

THE KRESGE FOUNDATION

*And the many members of the community who contributed their time, knowledge, and experience!*

# The Panel

**Dave Stebbins, Chair**
Vice President
Buffalo Urban Development Corp.
Buffalo, NY

**James Lima, Vice Chair**
President
James Lima Planning + Development
New York, NY

**Wendi Goldsmith**
CEO
Sustainability Visions, LLC
Manchester-by-the-Sea, MA

**Walter Meyer**
Principal
Local Office Landscape & Urban Design
Brooklyn, NY

**Manual Ochoa**
Senior Analyst and Program Director
Enterprise Community Partners
Washington, DC

**Judi Schweitzer**
Founder and President
Principal and Chief Sustainability Advisor
Lake Forest, CA

**Julie Ulrich**
Director of Urban Conservation
The Nature Conservancy
Philadelphia, PA

**Bob van der Zande**
Director, Residential Markets
City of Amsterdam
The Netherlands

**Ron Williams**
Deputy City Manager
City of Norfolk, VA
Norfolk, VA

**ULI Staff:**
**Sarene Marshall**
Executive Director
Center for Sustainability

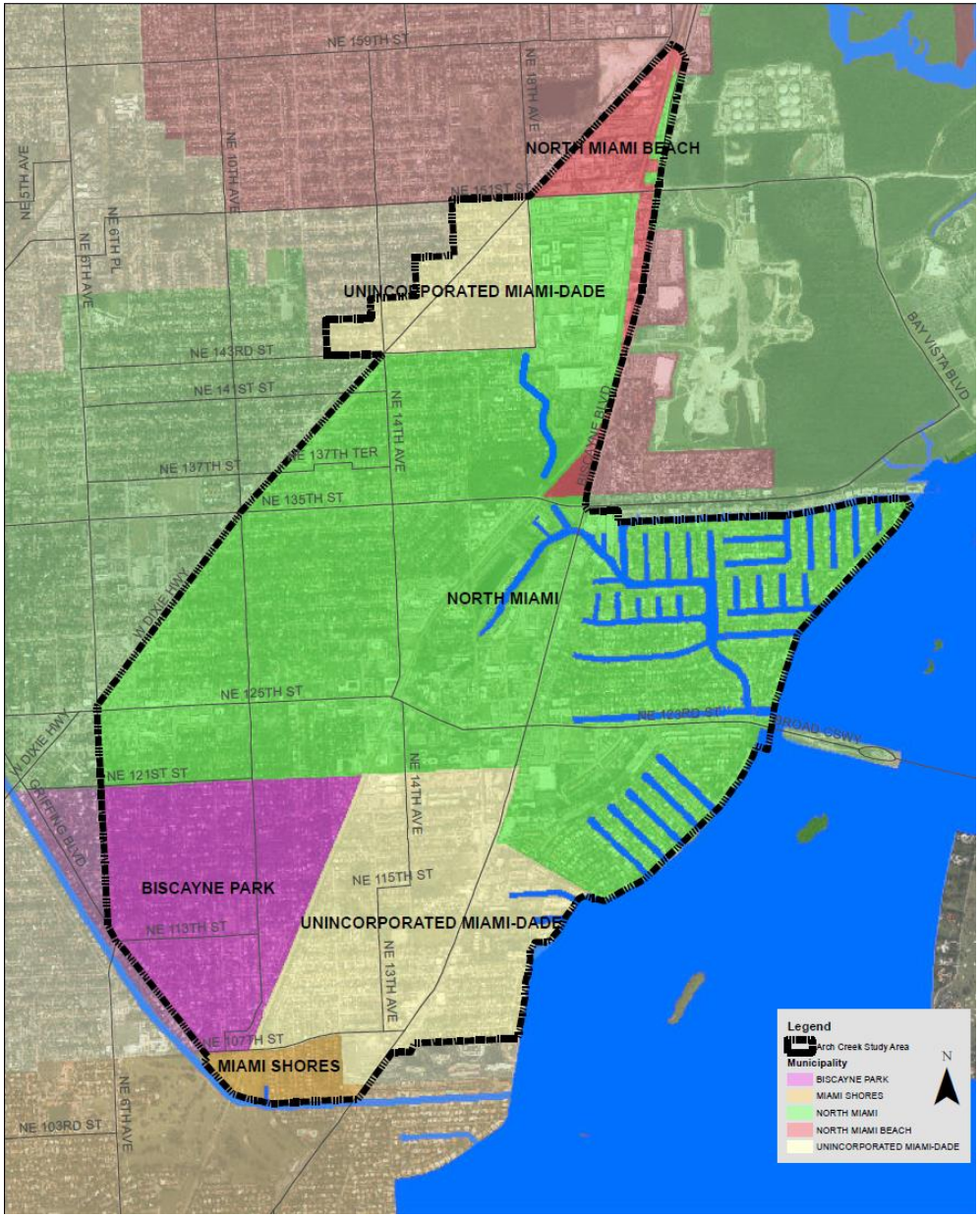
**Katharine Burgess**
Director, Urban Resilience

**Kathryn Craig**
Senior Associate, Advisory Services

# The Study Area

Arch Creek Basin

- 2,838 Acres
- 5 Municipalities
- Economically diverse
- Adaptation Action Area



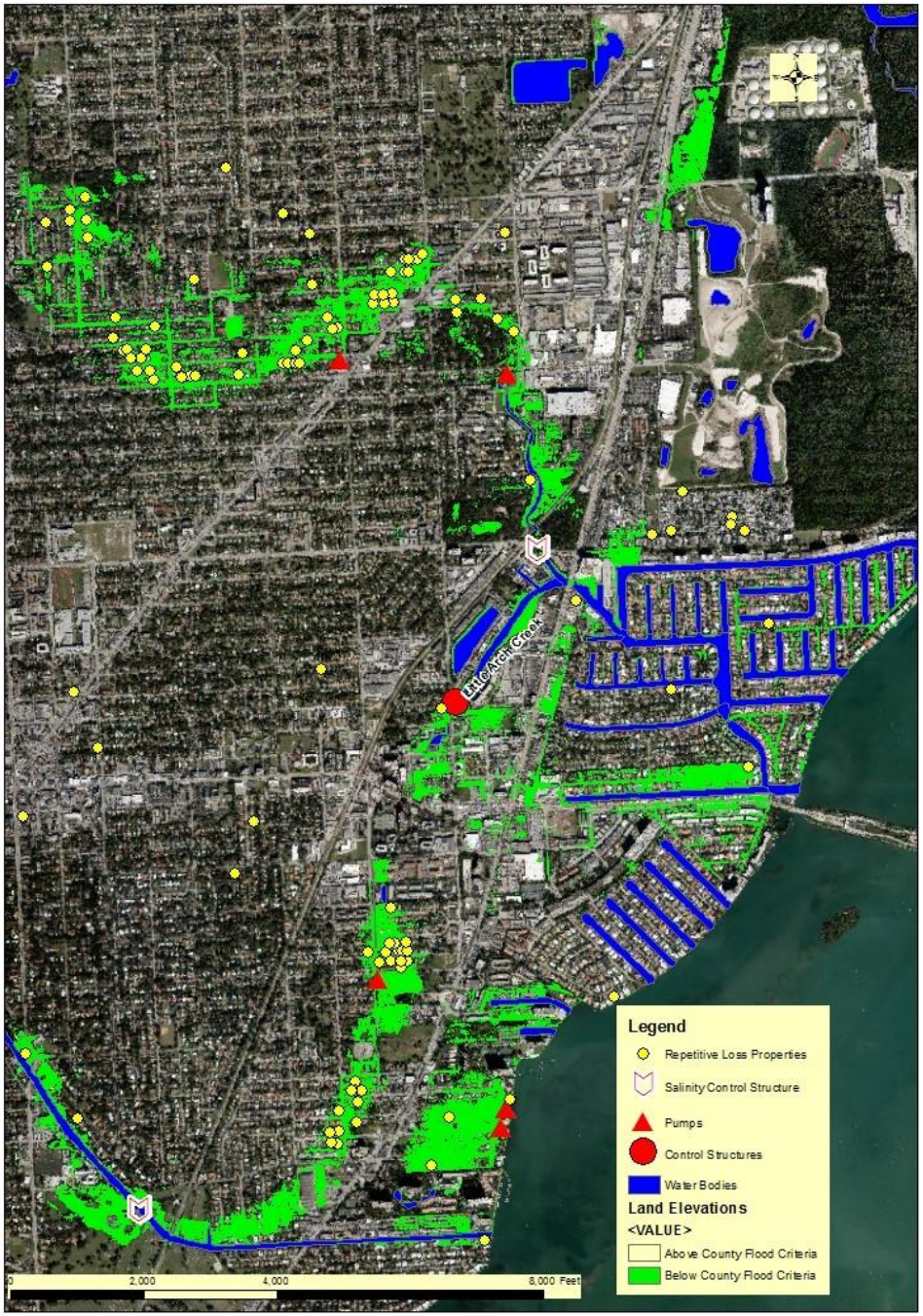
# The Study Area

3 Focus Areas:

1. Transit-oriented Development Site
2. Sans Souci Estates
3. Arch Creek Estates

# The Study Area

- Persistent flooding
- Repetitive Loss Properties
- Rainfall events
- Storm Surge
- Sea level rise



# The Panel Assignment: Key Questions

**Arch Creek Basin – Adaptation Access Area**

- What opportunities exist to incrementally move toward a more **sustainable development** pattern in the study area?
- How can **housing affordability** concerns be addressed simultaneously?
- How **vulnerabilities to storm events** can be addressed before such an event and to reduce these disproportionate impacts?
- What opportunities exist to implement more sustainable design and land use for the area around the **proposed transit station site**?
- What **capital and/or operational improvements** are needed to make the area more resilient?
- What "**green infrastructure**" should be planned and implemented, particularly along waterways and shorelines?
- How best to manage implementation and funding of a plan for this **multi-jurisdictional drainage basin**?

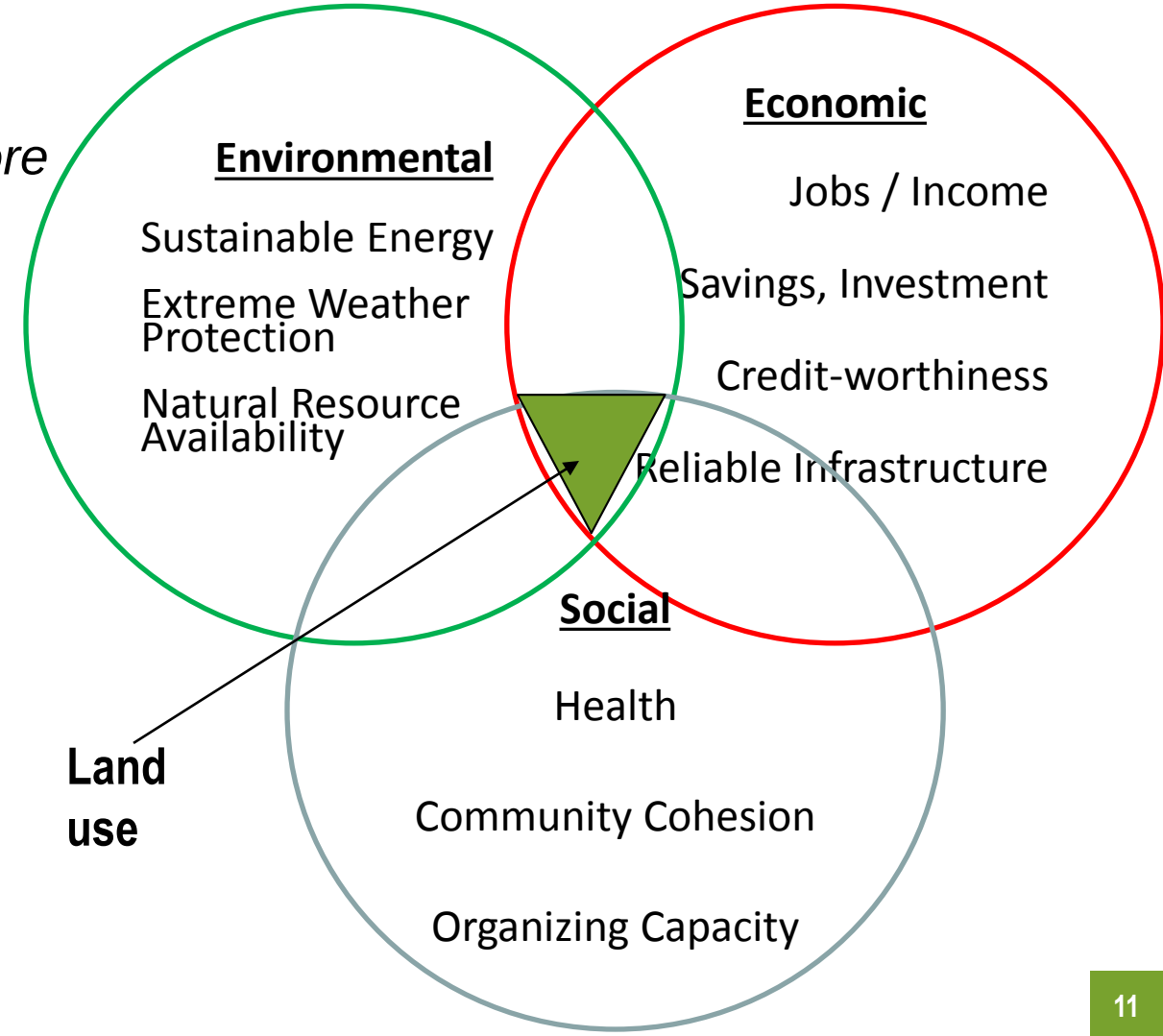
# Building Social, Environmental, Economic Resilience

## Resilience is….

- *"the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events"*
- *Dealing with shocks and stressors*

*….. bouncing forward*

## … a three-legged stool



# Building Social, Environmental, Economic Resilience

## Arch Creek Basin: Vulnerabilities

**Environmental**

Drinking water risks
Stormwater flooding
Sea level rise
Storm surge
Water Contamination
Energy Use

*Emblematic of other parts of the county, region*

**Economic**

Low education levels
Unemployment
Housing affordability
Transportation / accessibility

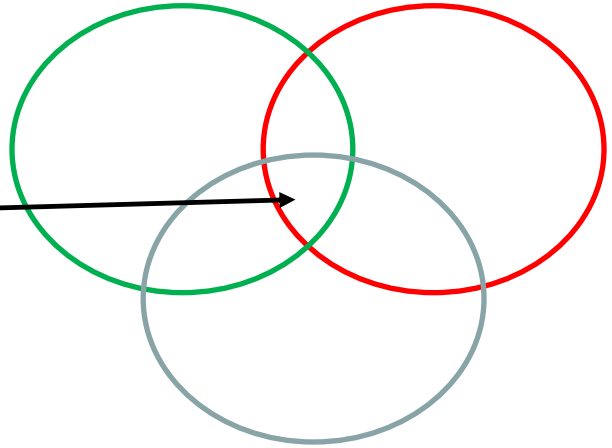
**Social**

Mobility challenges
Limited gathering / recreation Spots
Language barriers
Lack of power / inclusion

# Building Social, Environmental, Economic Resilience


## Advice: Begin Preparing for the Future - Now

- **Take the Long View**
  - Climate change, economic/social patterns move slowly
  - Incremental improvements are important and useful
- **Don't delay action**
  - The long-view can be scary; don't be paralyzed
  - Build momentum, confidence, learning
- **Shift the paradigm**
  - Resilience runs through everything
  - Accept what cannot be changed
- **Seek win-win-win solutions**
  - Resources are scarce, needs are high
  - Make every dollar do double or triple duty



# Continue the Great Work

## Build on Existing Leadership / Efforts


SOUTHEAST FLORIDA
REGIONAL COMPACT
CLIMATE CHANGE

ICLEI Local Governments for Sustainability

THE CLEO INSTITUTE

CATALYST MIAMI

100 RESILIENT CITIES
NETWORK MEMBER

100RESILIENTCITIES.ORG
PIONEERED BY THE ROCKEFELLER FOUNDATION

# Building Social, Environmental, Economic Resilience

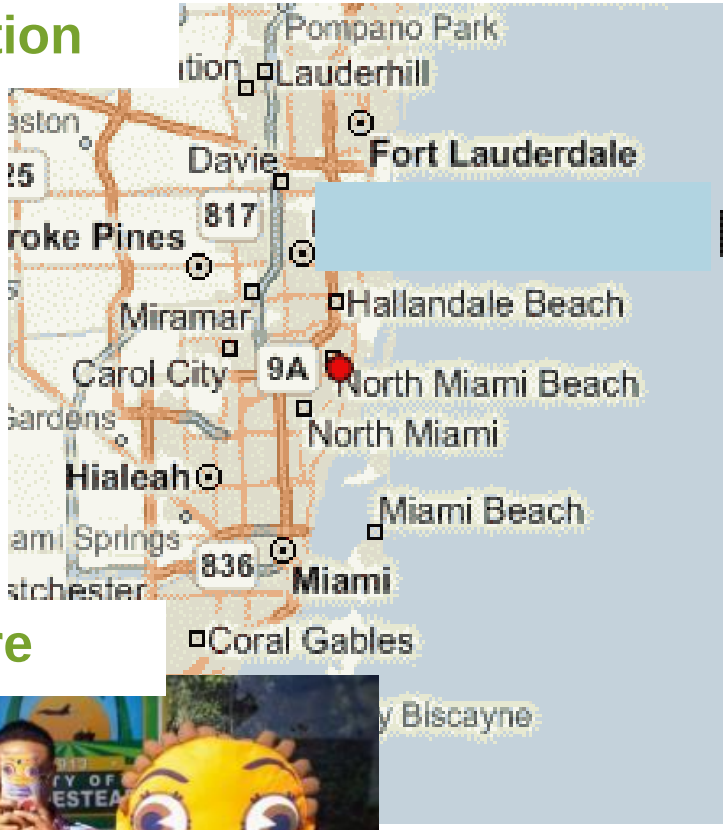
## Multiple Win Strategies: Low-Hanging Fruit

- **Increase resource efficiencies (water, energy)**
  - Save money, alleviate grid stress, decrease flooding
- **Protect and expand green space**
  - Retain stormwater, reduce flood risk, promote recreation, enhance community
- **Inclusive and diverse development model**
  - Enhances human connections, enables economic mobility, cushions shocks to one group
- **Enhance multi-modal transportation**
  - Reduces $CO_2$ emissions, enhance health/quality of life, ease evacuation, provide access to opportunity

# LEVERAGE THE ASSETS YOU HAVE

## Physical


## Location




## Institutions

FIU

JOHNSON & WALES UNIVERSITY


## Culture

# LANDFORMS AND INFRASTRUCTURE

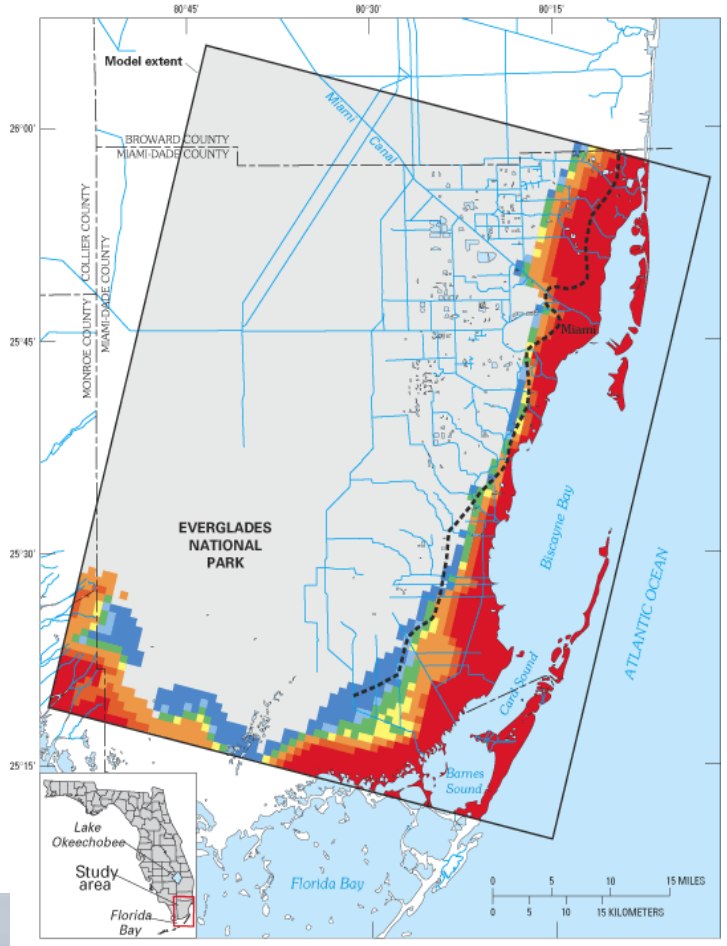
## Underlying Influences and Constraints

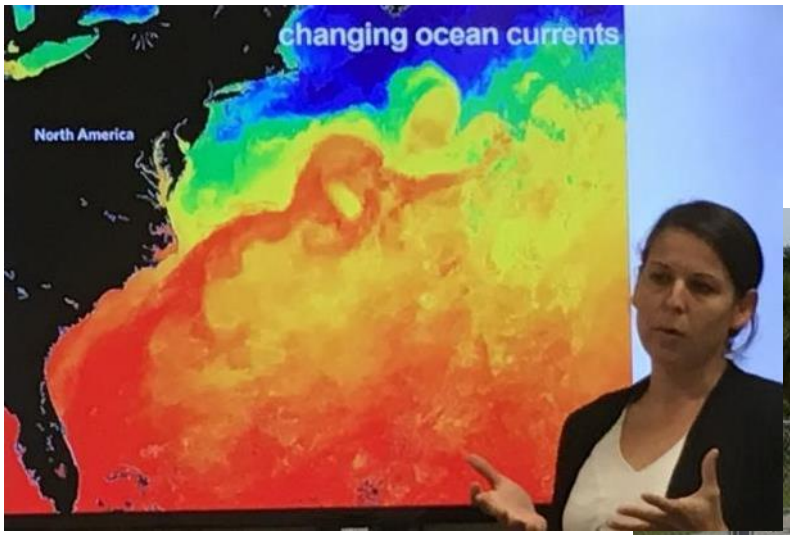
- Low-Lying Land; Porous Limestone Underlay
- Elevated Ridges of Resistant Material
- Freshwater to West
- Saltwater to East
- Drinking Water vs. Flooding
- Difficult Trade-offs to Balance
- Eventually Study Area will Resemble Keys

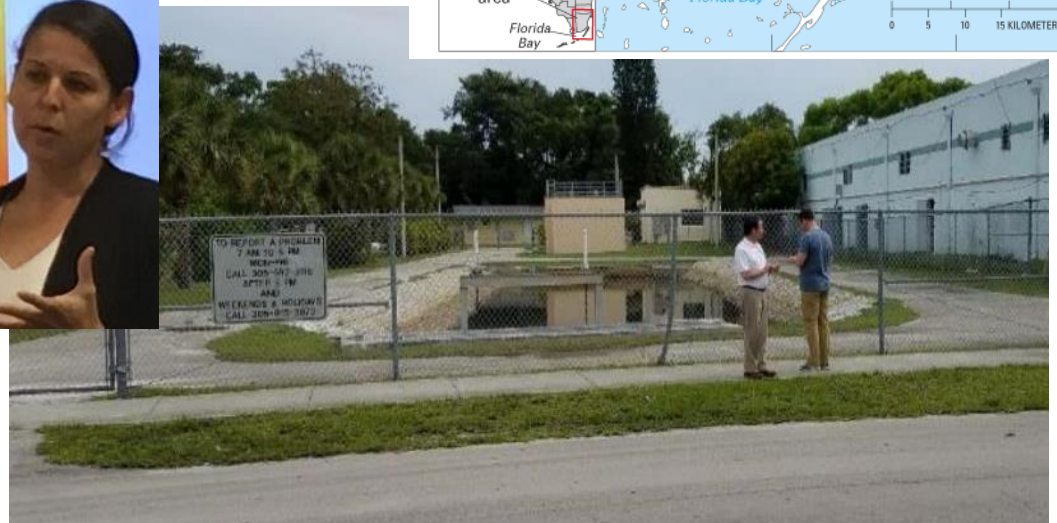
# LANDFORMS AND INFRASTRUCTURE

## Climate Change as a Forcing Factor

- Old Flood Infrastructure is Inadequate Now
- Future Conditions Worsen Impacts
- Water Supply Jeopardized by Salt
- Higher Flood Risks with SLR
- Trade-offs Become More Extreme



Urban Land Institute
Advisory Services Program

# LANDFORMS AND INFRASTRUCTURE

## Transportation and Mobility

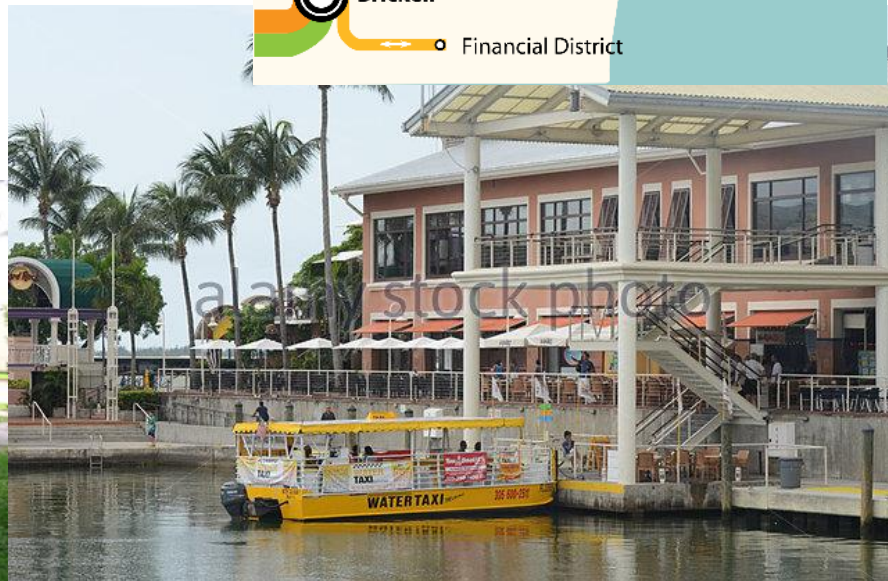
- History and Layout
- Elevated Ridges Hold Transportation Corridors
- Future Multi-modal Linkages Also High
- Critical Functions and Access Equity

# LANDFORMS AND INFRASTRUCTURE

## Resilient Mobility Strategies

- Flexible Transportation Networks
- Informal Private Solutions
  - Haitian Jitney Operators
  - Jitneys Best After Hurricane Andrew
- Water-Borne Options
  - Miami Boat Show
  - Water Taxi
- Adaptable to Sea Level Rise (Stress)
- Operable Pre/Post-Storm (Shock)
- Great Local Examples to Expand

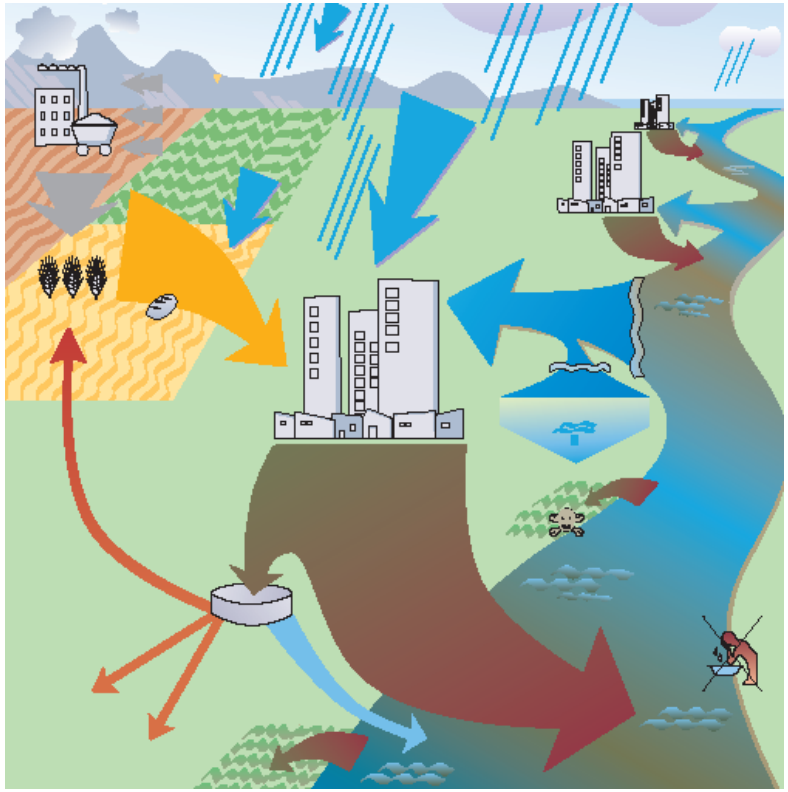




# LANDFORMS AND INFRASTRUCTURE

## Culture Change for Integrated Resource Management

Current: water/energy/materials used once (tax payer costs)



Open linear system: waste management

Future: integrated resource recovery (tax payer revenues)

Closed loop system: resource recovery

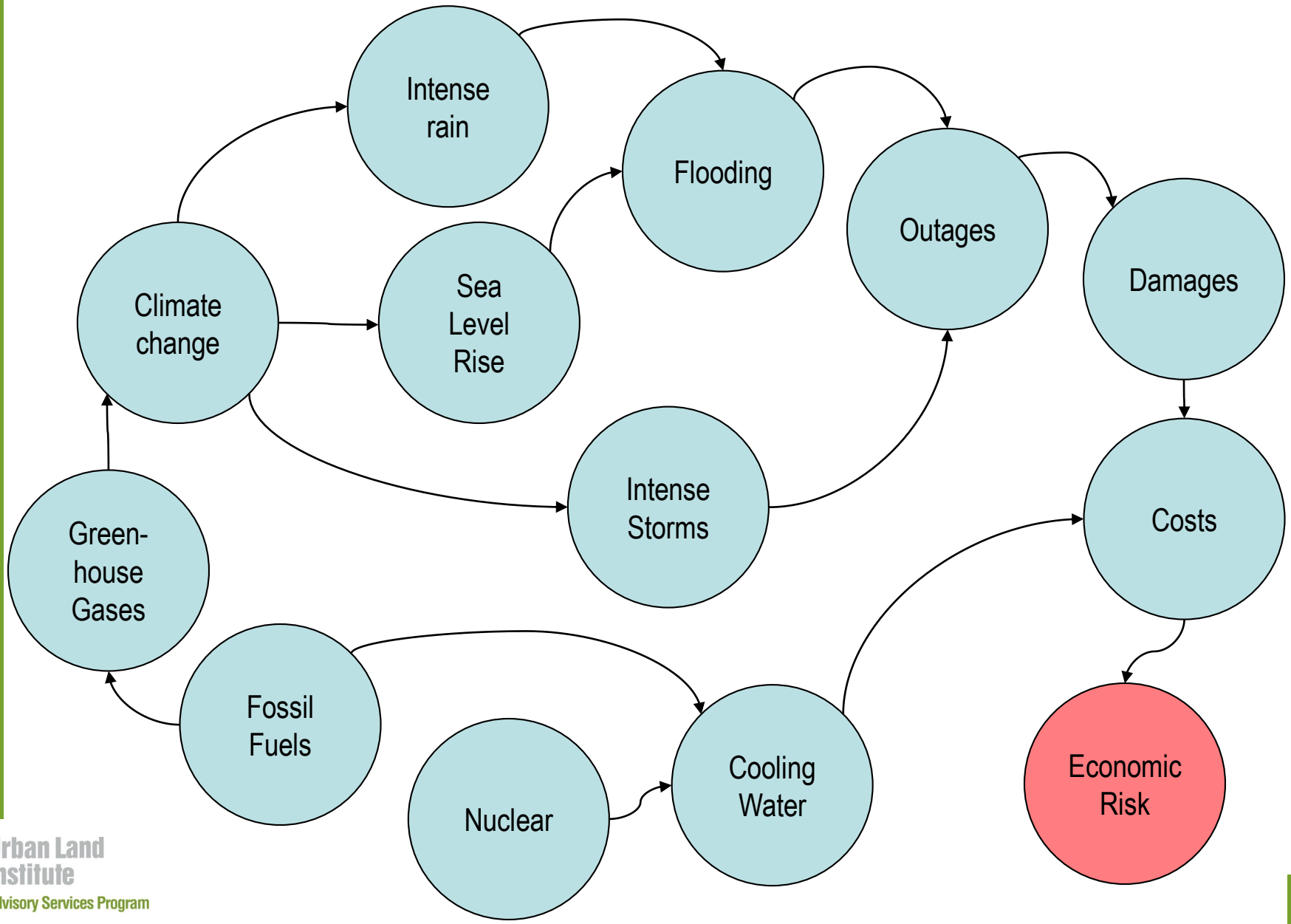
Modified from Dr. Nicholas Ashbolt, EPA

# LANDFORMS AND INFRASTRUCTURE

## Water Management Strategies

- Stormwater Maintained at Elevation
- Natural Waterways Restored/Enhanced
- Wastewater Reuse ⇔ Freshwater Balance
- New Construction Covers Much Cost


# The Energy-Resilience Connection = Economic Risk



# The Energy-Resilience Connection

## Issues

- Fossil Fuels => Climate Change => Storms / Floods / Sea-Level Rise
- Storms/Floods => Outages => Damages => Costs => Economic Risk
- Water Management => Energy Use => Cost

## Solutions

- Energy Efficiency => Cost Savings => Reduced Grid Stress
- Renewable Energy => Lower $CO_2$ => Reduced Climate Change Risk => Self-Sufficiency
- Recent Agreement => Reuse of Treated Wastewater => Reduced Fresh Water Loss

# The Energy-Resilience Connection

## Opportunities, and challenges

- **The "Sunshine State" but… in US, FL Ranks:**
  - #3 for Rooftop Solar Potential
  - #14 for Installed Capacity

- **Florida Power & Light is Utility**
  - Uses Fossil Fuel, Nuclear, PV, more
  - Burning Fossil Fuels Emits GHG
  - Generation Consumes Water (Cooling, etc.)

- **Economic Motivators**
  - Cheap Power
  - Externalized Impacts
  - Reliability Beyond Normal Cost Decisions
  - Critical Service Loss Affects Communities

# The Need for Change

## Synchronized "Rowing" Together

- **Economics**
  - Lower "Total Costs" with Clean Renewable/Alternative Energy
  - Pricing Signals Should Incentivize "Least Total Cost" Solutions
  - Incentives Should Stimulate Investment in Efficiency & Clean Energy Technologies

- **Energy Resilience**
  - Lower Overall Energy Demand
  - Reduce Peak Loads
  - Distributed Generation (e.g., Rooftop & Community PV)
  - Clean Back-up Power
  - Local Renewable for Base Power Generation With Grid Backup

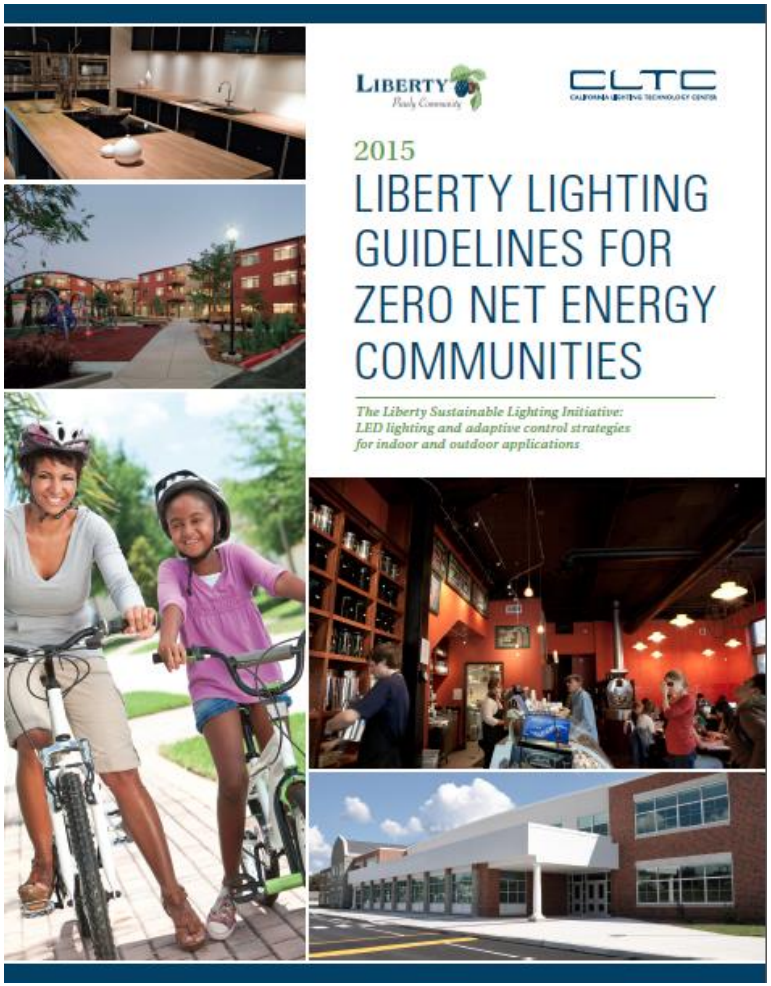
- **Policy**
  - Need to Overcome Policy Barriers
    - Renewable Portfolio Standard
    - Power Purchase Agreements

# Near Term Actions

## Existing Pathways to Net Zero Energy

ZERO ENERGY READY HOME
U.S. DEPARTMENT OF ENERGY

energy
ENERGY STAR



# US DOE Zero Ready Homes in Hot + Humid Climate

## 6 Projects Built in FL (2013 – 2015)

**WHY?**

- Reduced energy bills
- Fresh air system for cleaner, healthier indoor air
- High-efficiency comfort system
- Comprehensive draft protection
- High-efficiency appliances and advanced lighting technology for energy and water savings


**AFFORDABLE AND MARKET RATE HOMES**

# Future-Proofing Opportunities – What can be done?

| Stakeholder | Short-Term (1-3 Years) | Mid-Term (3-10 Years) | Long-Term (10-60 Years) |
|---|---|---|---|
| Miami-Dade County<br><br>North Miami<br>Biscayne Park<br>North Miami Beach<br>Miami Shores | Adopt a Green Building Standards Code with voluntary low and Net Zero Energy / Carbon Neutral Buildings as part of ACB Adaptation Area.<br>Provide carrots, such as density bonuses, for installation of solar PV. | Update Green Building Standards Code and require all new Residential Buildings be Net Zero Energy by 2020. | Require all new Nonresidential buildings be Net Zero Energy by 2030. |
| Florida Power & Light | Analyze ACB Substation as a priority.<br>Pilot a Local Energy Resiliency Program and incentivize for ratepayers (EE, DG, DR, battery storage, plug-loads management, V2G) | Create local smart micro-grid in the ACB Area to enhance local resiliency. Incentivize local low carbon renewable energy, such as geothermal, and expand Local Energy Resiliency Program and incentivize Net Zero Energy Residential. | Develop innovative business models to incentivize investment in the resiliency of the electrical grid.<br><br>Carbon neutral electrical utility by 2030. |
| Residents | Install high efficiency cooling systems such as geothermal ground source heat pumps.<br>Purchase EnergyStar appliances. Use only LED lights. Manage plug-loads with smart power strips. | Hard-wire all solid state LED lighting. Hard-wire ceiling fans and in living spaces. Install motion sensors. Design LED hard-wired LED lighting in layers, with circadian sensitive lighting. | Zero Net Homes become mainstream for self-sufficient energy and water use. |
| Business / Institutions | Utilize occupancy-based control solutions. Install only exterior and interior LED lighting. | Install bi-level adaptive controlled LED lighting in all corridors, stairwells, and parking lots and structures. | Install all bi-level adaptive controlled LED lighting for exterior and interior lighting. |

# Building Community Resilience


***SOCIAL RESILIENCE is about PEOPLE….***

*PEOPLE and their HEALTH*

mental health and wellbeing
physical health in recreation and lifestyle

*PEOPLE and their SENSE OF BELONGING*

services, outreach, inclusion
community engagement

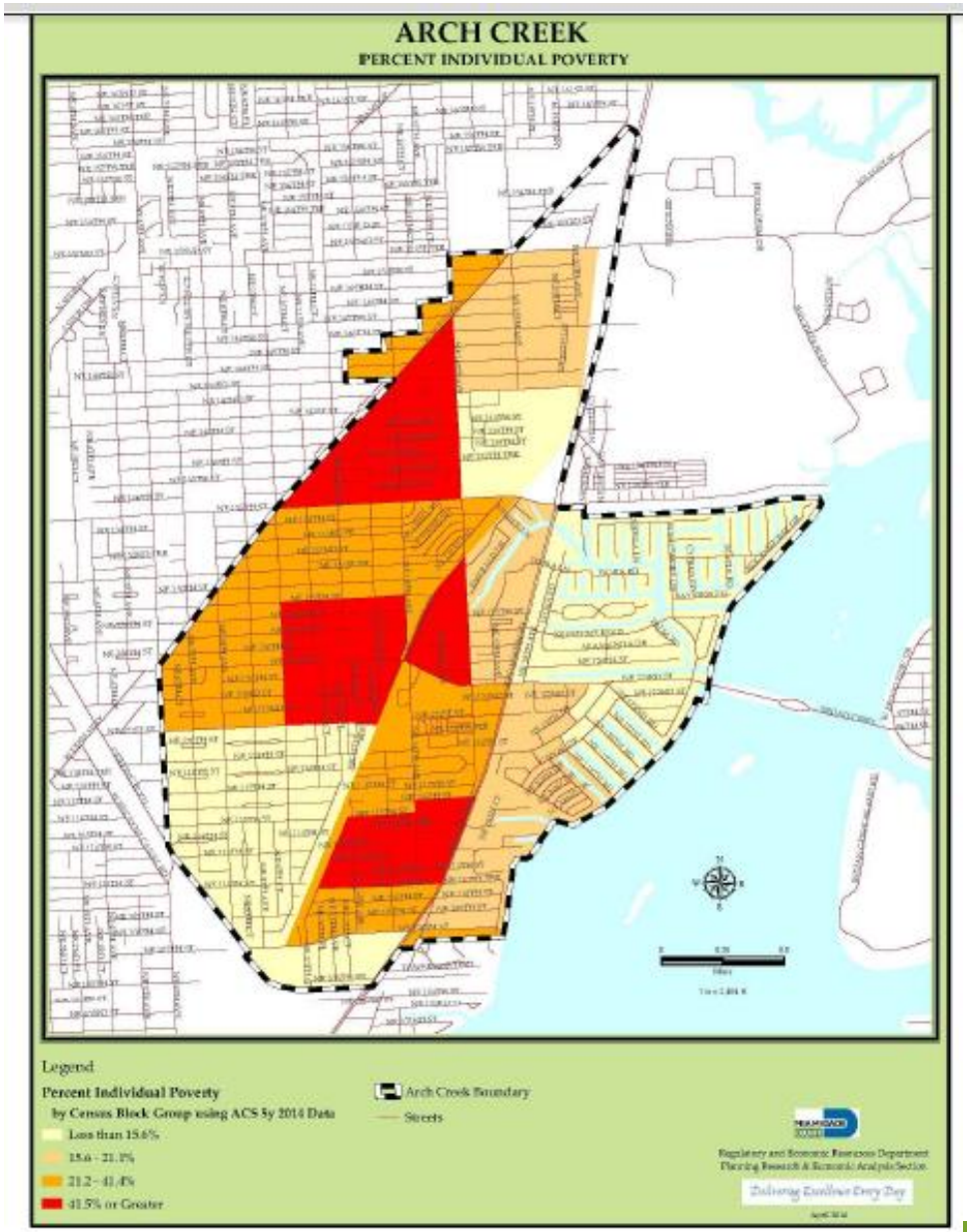
*PEOPLE and OPPORTUNITIES*

variety of housing and jobs
multi-generational community

# Building Community Resilience

## Defining the Problem

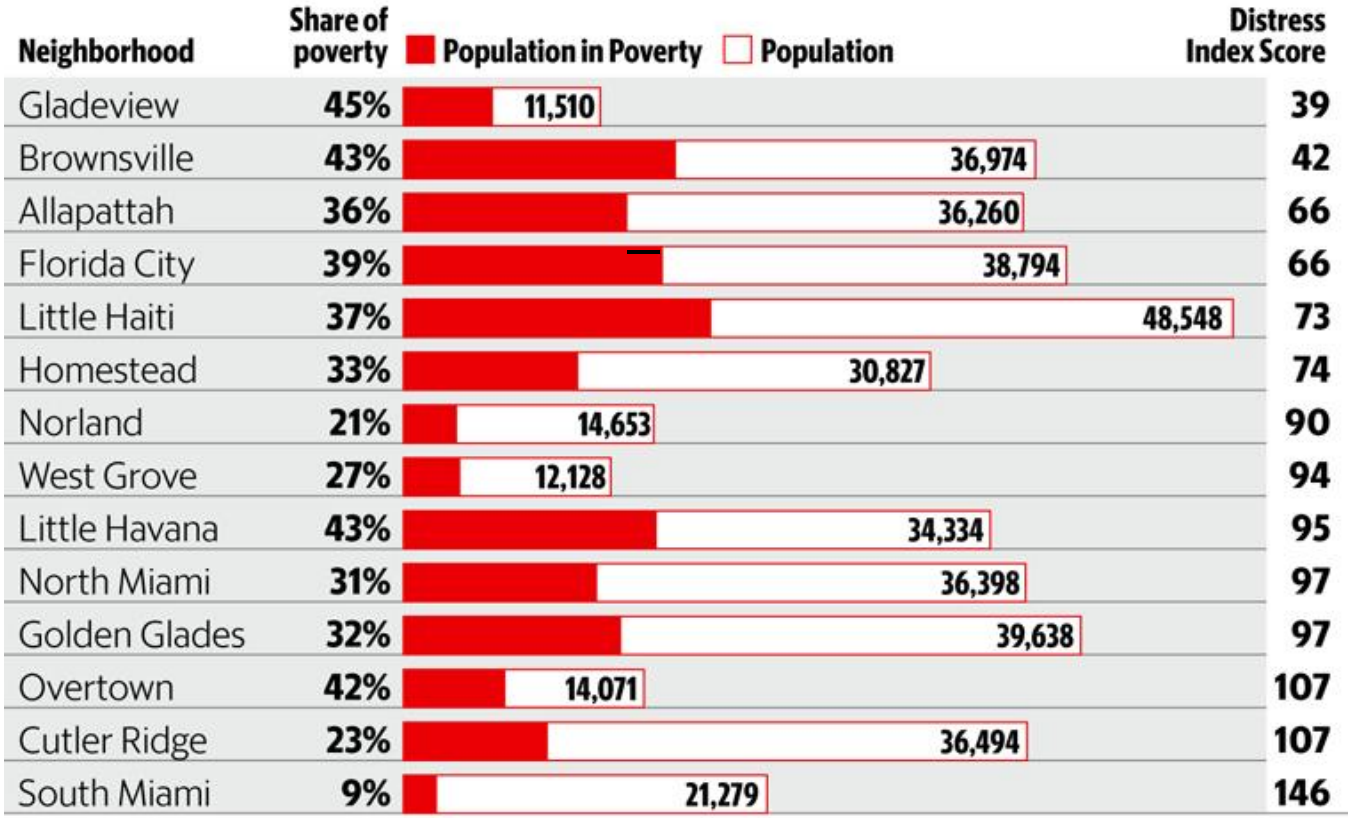
- According to FIU's Distressed Neighborhood Index, 31% of North Miami's residents are below the poverty line
- 51.3% of all household in Miami-Dade spend more than 50% of their income on housing costs making Miami-Dade the third most cost-burdened place in the nation.
- Miami-Dade has one of the largest income gaps in the nation. High-income residents earn $40 for every $1 earned by a low-income family



# Building Community Resilience

## Distressed Neighborhoods in Miami-Dade

This chart summarizes a **'Neighborhood Distress Index'** created by the FIU Metropolitan Center for its recent report on prosperity in Miami-Dade County. The center analyzed dozens of economic indicators for 519 Census tracts, and used that to score Miami- Dade's 14 most distressed neighborhoods. **The lower the score, the more distressed the neighborhood.**




Source: FIU Metropolitan Center

MARCO RUIZ mruiz@miamiherald.com

# Building Community Resilience

## The Need for Change

- Climate change action cannot succeed without social equity
- Of 28 Climate Action Plans, emerging trends of equity do not translate into concrete, tangible steps *(Source: Journal of Planning Education & Research, 2015)*
- From the community: Action, not process. Now, not later.
- Build on impressive existing community climate organizing infrastructure in Miami
- Arch Creek study area could become a model of leading with social equity in climate resilience planning

# Building Community Resilience

## Actions: Engagement, Representation & Policy

- Translate and print climate and resilience information for all communities
- Support marginalized residents having representation on government committees such as the City of Miami Sea Level Rise committee
- Fund a County staff position to work in neighborhoods on climate preparedness and resiliency
- Hold Climate 101 workshops in target area neighborhoods, building on existing efforts
- Support the development of Resilience Action Plans and a resilience resource center
- Adopt land use and affordable housing policies to prevent climate gentrification


# Building Community Resilience

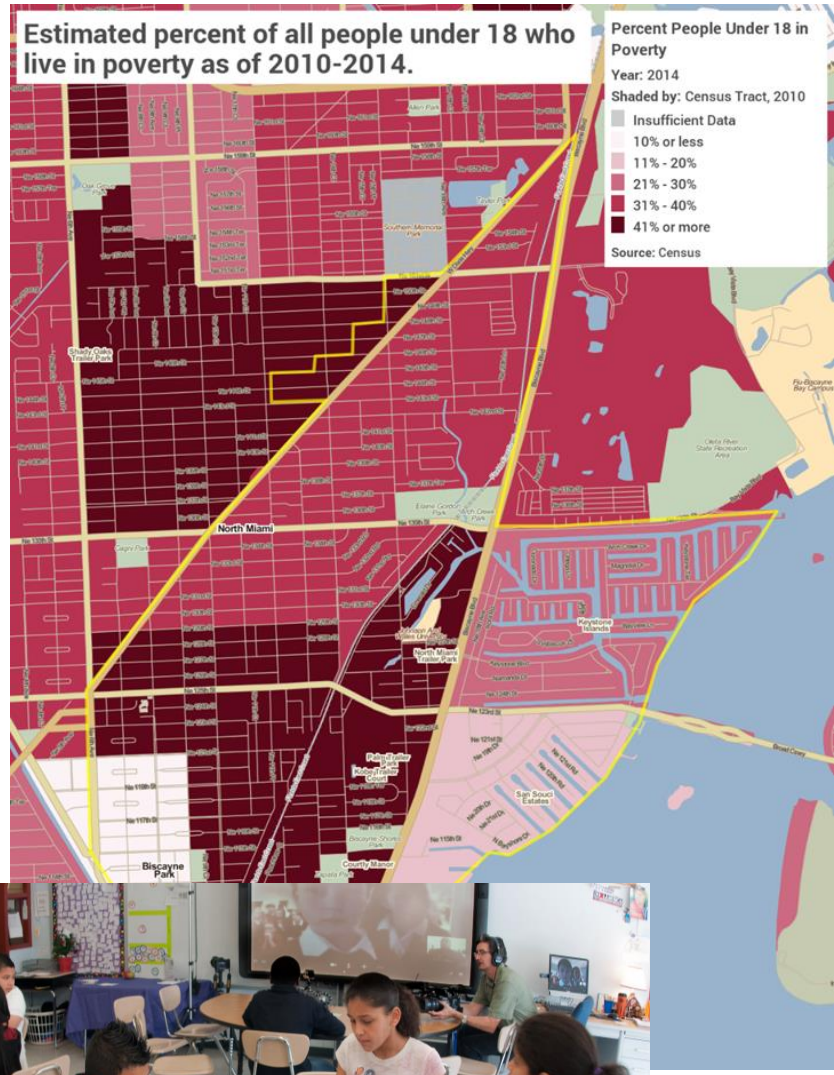
## Actions: Physical Design

- Seed funding for high-impact, small-scale neighborhood solutions such as green stormwater infrastructure
  - Rain barrels, Rain gardens, Tree plantings, bioswales

# Provide Economic Opportunities for All

## "Mobility for Mobility"

- Disparity in public investments creates a vicious cycle that perpetuates poverty
- Concentrating low-income residents in flood prone areas is a social justice issue that undermines economic success
- Low-poverty neighborhoods offer children better chances for success.
- Greater transit & mobility options increase community resilience
- Vibrant, diverse communities that people live in by choice create a pathway to success

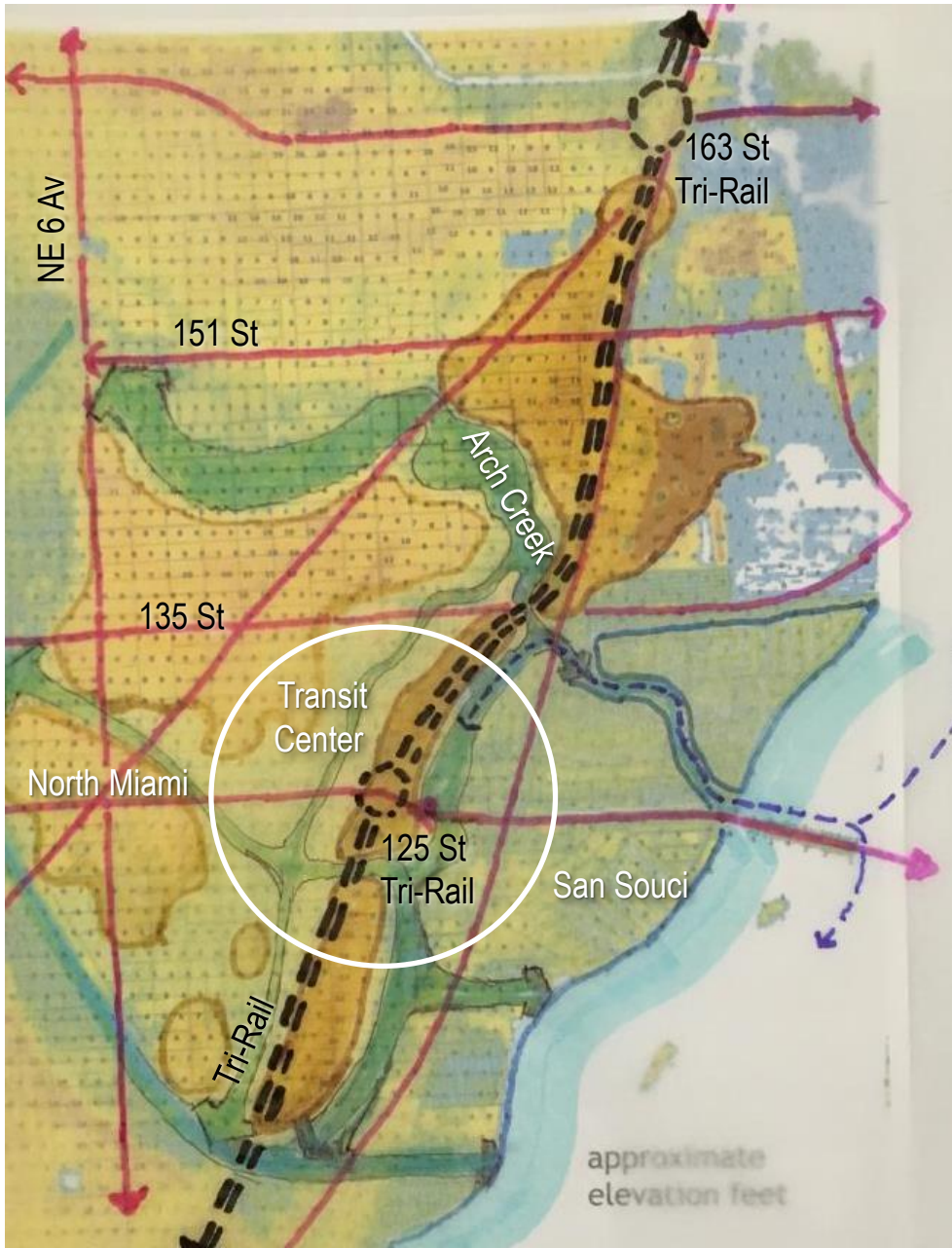



# Building the Future for the Community

## Reorient towards the Ridge

- Higher ground – protection from flooding
- Create greater social connections
- Leverage existing institutions
- Connect – to jobs, transit, services
- Revitalize & Regenerate underutilized space

❑ Creating a more economic resilient future.



# Placemaking and Connecting

## Create an urban hub @ NE 125th Street

- A new center that connects two axes: Downtown Miami and Beaches
- Multi-modal service – foot, bus, rail, bike, boat?
- Vibrant, human-scale, with good quality design
- Well-designed public space (water, green areas, street furniture)
- A range of housing choices with a mix of people
- Mix of businesses: shops, services, affordable working space for breeding places (start-ups)
- Culture: MOCA, events, music industry space

- Not just a park-and-ride; live-work-play district
- An Equitable Transit-Oriented Development

# An Equitable Development Strategy

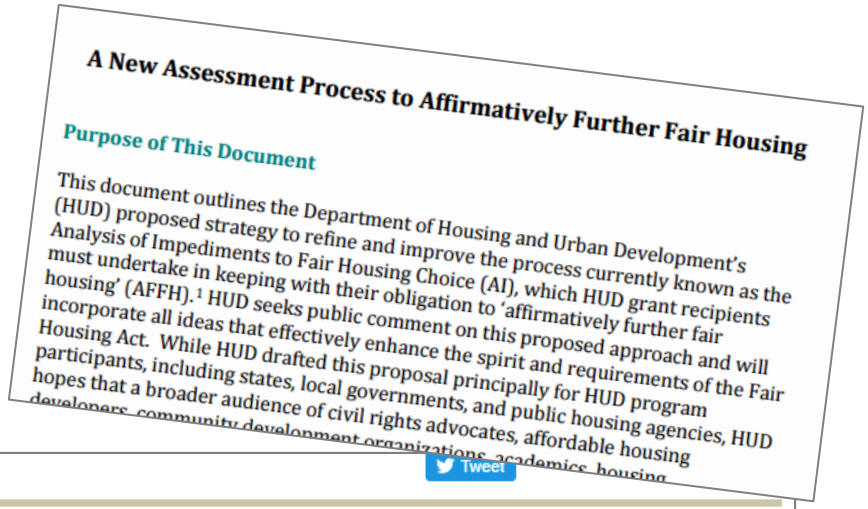
## Balanced and Inclusive

- A unified public-private-community effort
- Include all stakeholders
- Use existing public lands strategically – for housing, community and economic development
- Employ “tactical urbanism”
- Visible short term actions (trees, bike lanes
- Temporary place-making: pop-ups, community events
- Exemplary joint design process: creativity, flexibility, local ownership


# Tools for Equitable Development

## Elements of a Collective Impact Strategy

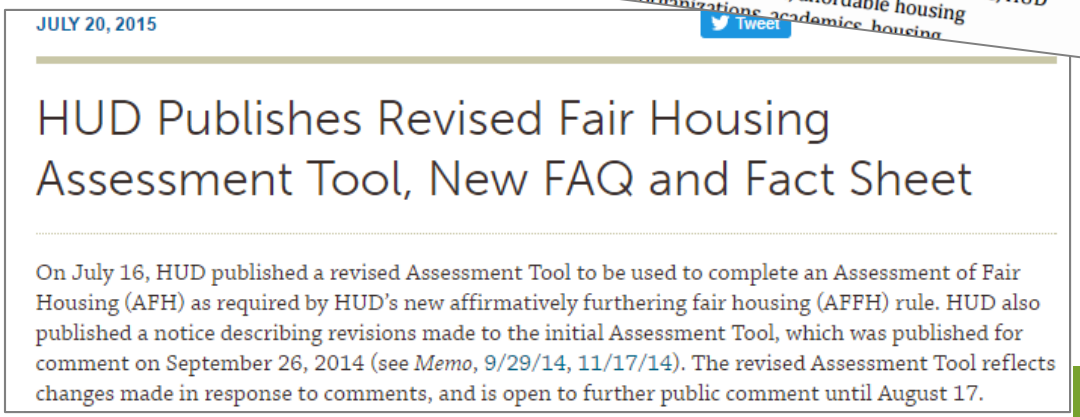
- Cross-departmental / cross-jurisdictional approach
- Reorient local government resources towards eTOD
- A concerted effort to finance affordable and workforce housing
- Include housing in Community Benefit Agreements
- Include climate gentrification risk in the Assessment of Fair Housing



**A New Assessment Process to Affirmatively Further Fair Housing**

**Purpose of This Document**

This document outlines the Department of Housing and Urban Development's (HUD) proposed strategy to refine and improve the process currently known as the Analysis of Impediments to Fair Housing Choice (AI), which HUD grant recipients must undertake in keeping with their obligation to 'affirmatively further fair housing' (AFFH).[1] HUD seeks public comment on this proposed approach and will incorporate all ideas that effectively enhance the spirit and requirements of the Fair Housing Act. While HUD drafted this proposal principally for HUD program participants, including states, local governments, and public housing agencies, HUD hopes that a broader audience of civil rights advocates, affordable housing



JULY 20, 2015

Tweet

HUD Publishes Revised Fair Housing Assessment Tool, New FAQ and Fact Sheet

On July 16, HUD published a revised Assessment Tool to be used to complete an Assessment of Fair Housing (AFH) as required by HUD's new affirmatively furthering fair housing (AFFH) rule. HUD also published a notice describing revisions made to the initial Assessment Tool, which was published for comment on September 26, 2014 (see *Memo*, 9/29/14, 11/17/14). The revised Assessment Tool reflects changes made in response to comments, and is open to further public comment until August 17.

# Tools for Equitable Development

## Arch Creek Estates

- Community engagement to ensure choice
- Consider swapping vulnerable properties with other county-owned foreclosures on higher ground
- Use county HOME funds for voluntary relocations
- Enable interested homeowners to pursue voluntary buy-outs for properties in Arch Creek Estates
  - Opportunity to partner with FEMA?
- Create a community land trust or partner with existing organization to preserve open space

# Tools for Equitable Development

## 125th Street Station eTOD

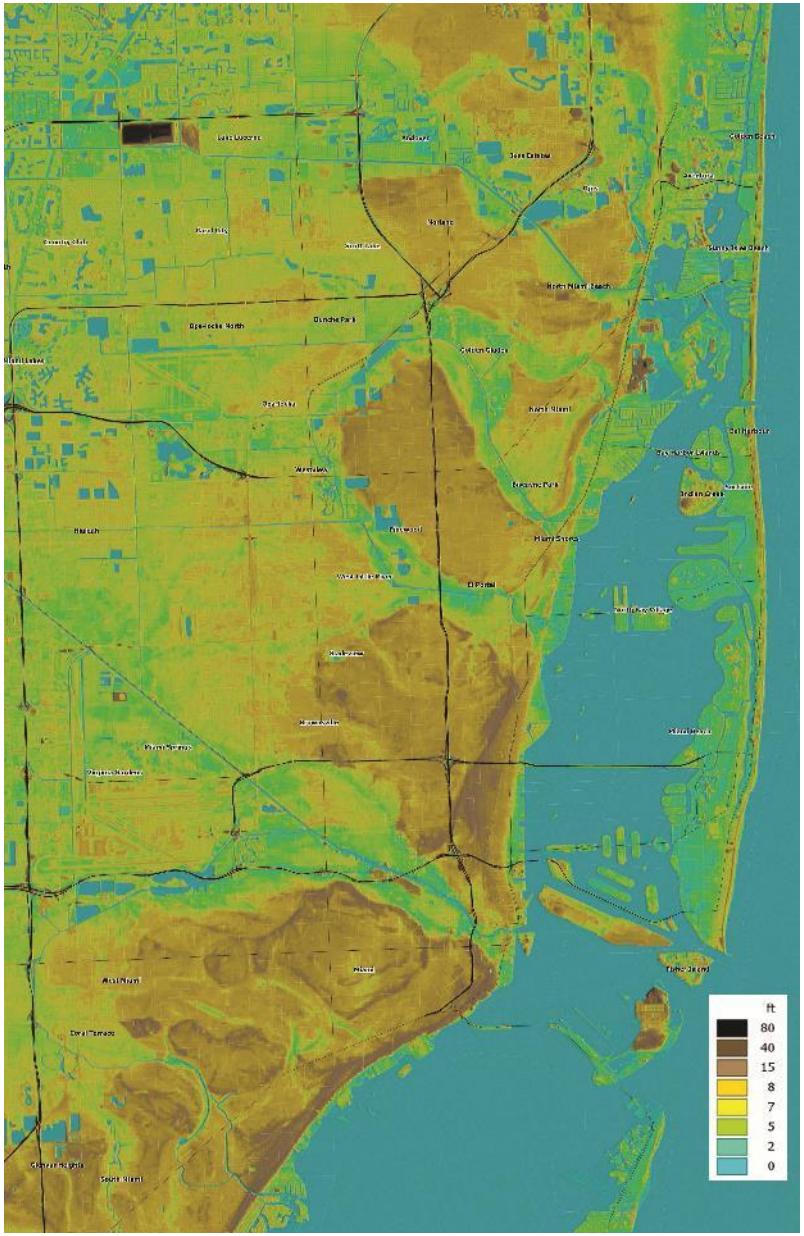
- Adopt a mixed-use, mixed income housing strategy within a ½ mile of the rail station
- Increase percentage of CRA TIF funds for affordable housing from 10% to 20%
- Create density bonuses for affordable housing within the TOD zone
- Use CDBG funds to improve streetscape, strengthening connection with TOD zone
- Incentivize greenest development standards

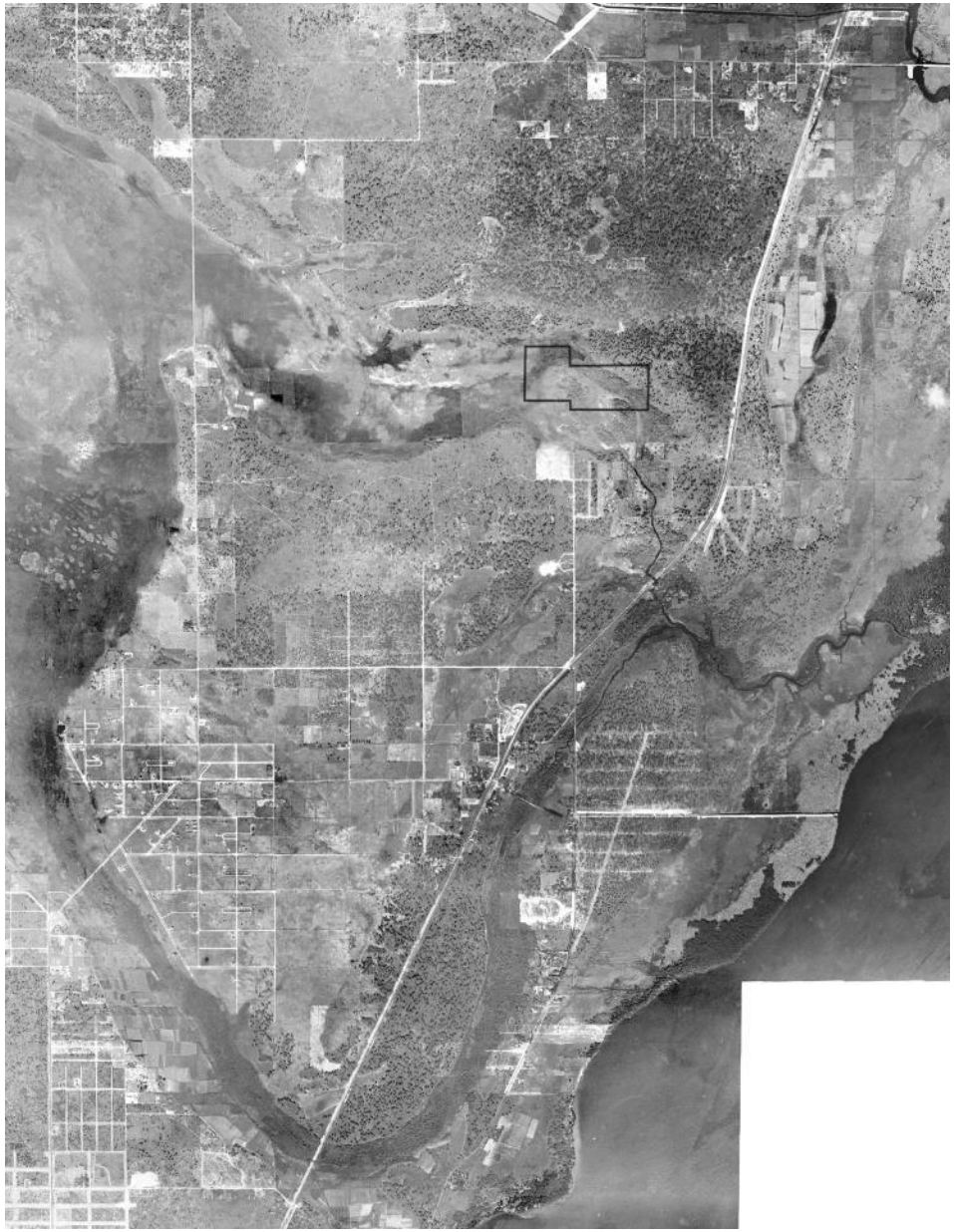
# Resilient Transit Oriented Development Center

## Concept developed by U of Miami, then Augmented

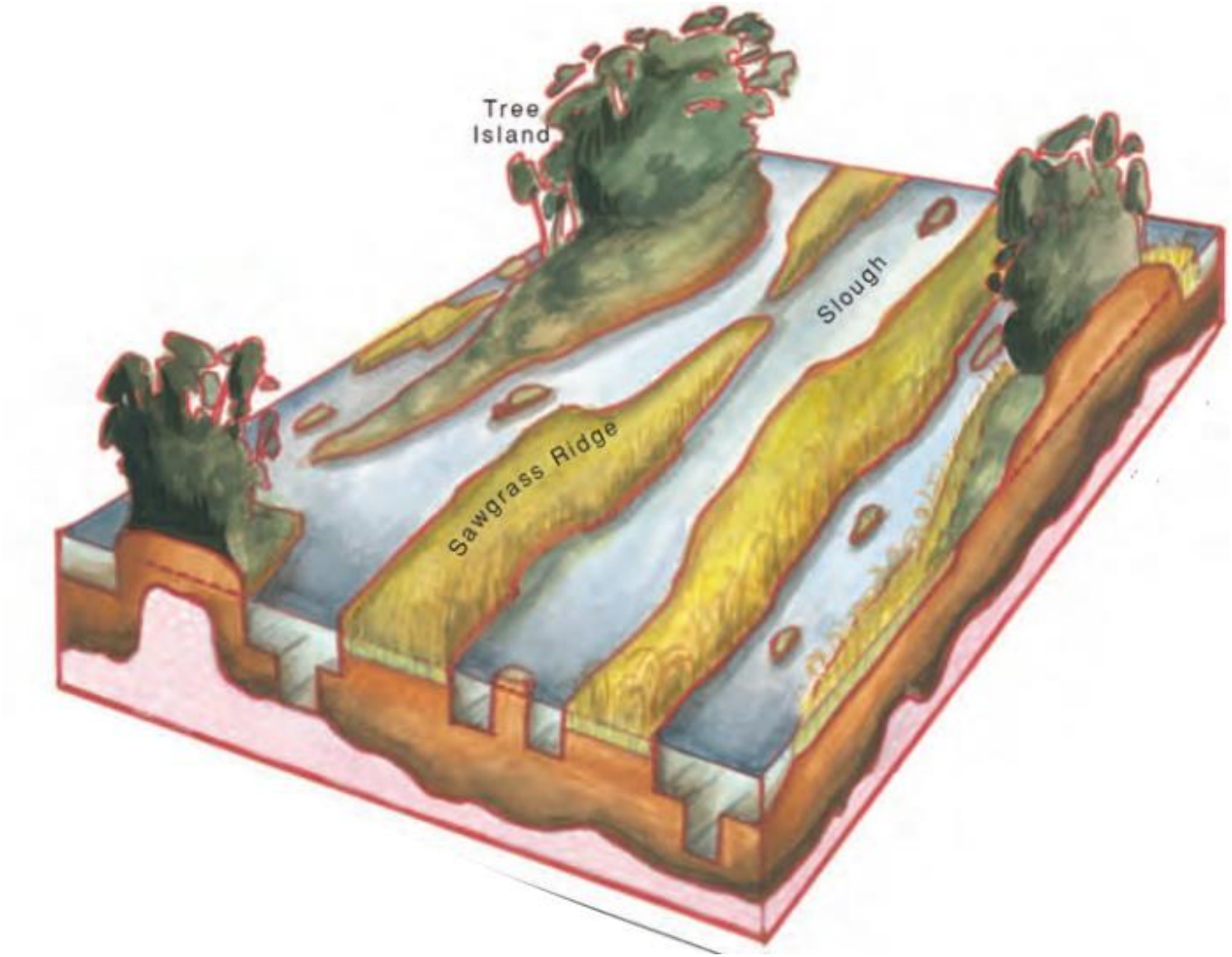
- During Everyday Conditions
  - Multi-modal Transit Hub
  - Public Resource Offices Co-located
  - Public Space for Farmer's Market
  - Features Zero Net Energy, Circular Economy
- During Disaster Conditions
  - People Already Know and Use it
  - Collection/Evacuation point
  - Shelter-in-Place Options
  - Depot of Critical Supplies
  - Re-supply by Rail
  - Self-Sufficient Energy Supply

# Arch Creek Basin – Miami, Florida– May 22 - 27, 2016

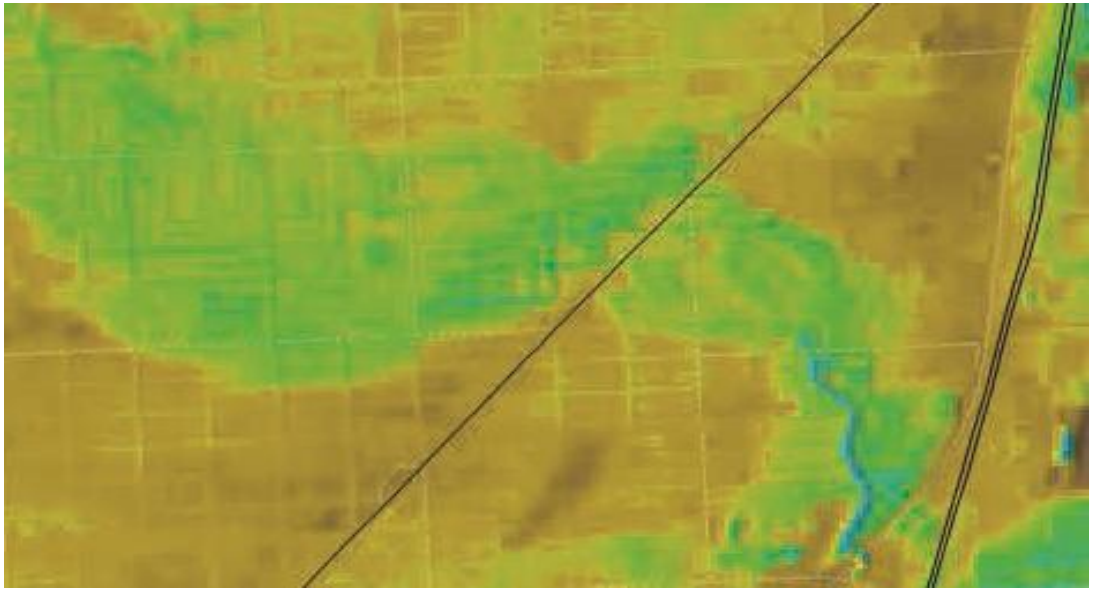


# Sloughs used to connect the Everglades to the ocean before Miami was urbanized.

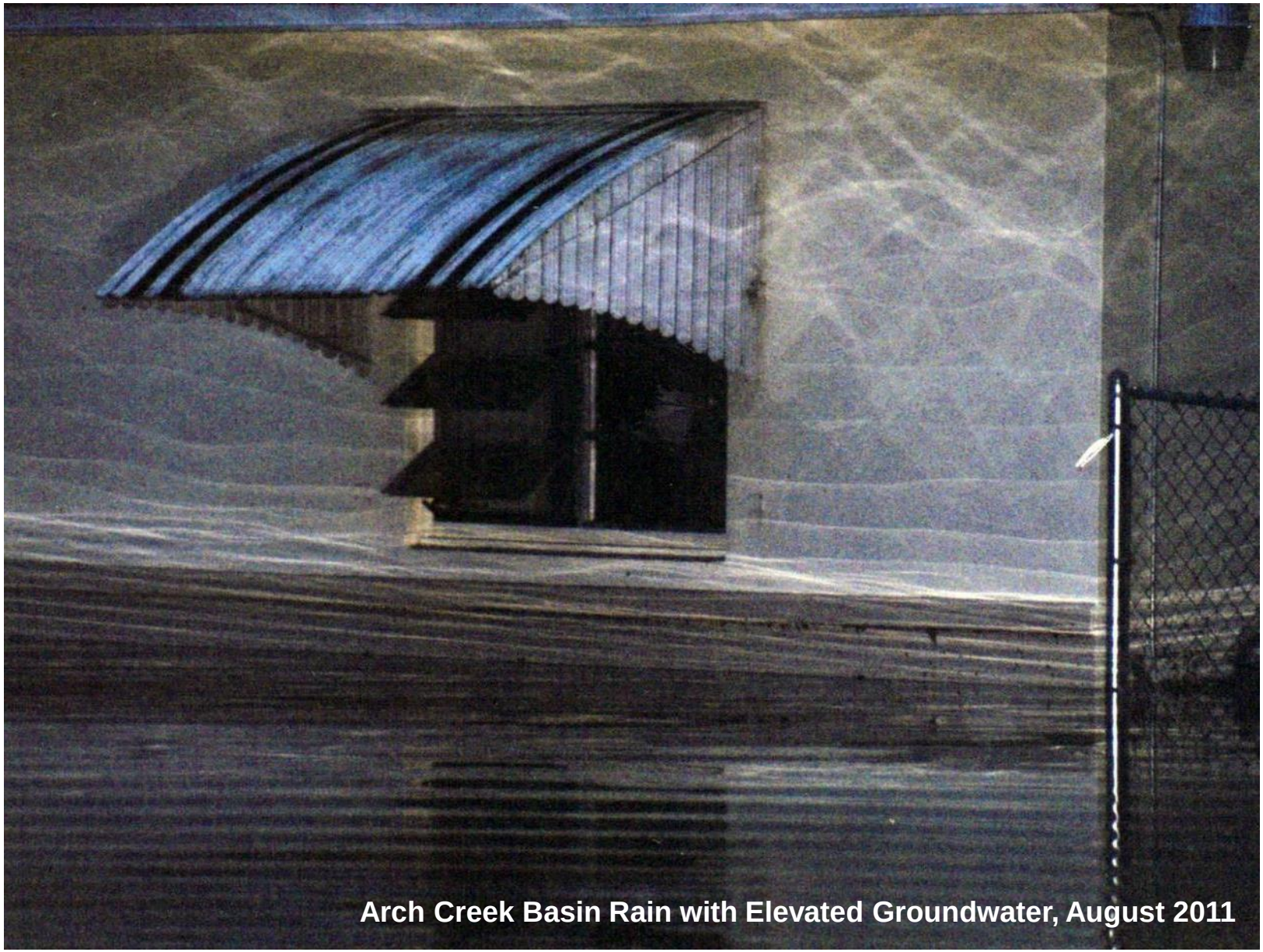



**Source: National Parks Service, Sally Colbert**



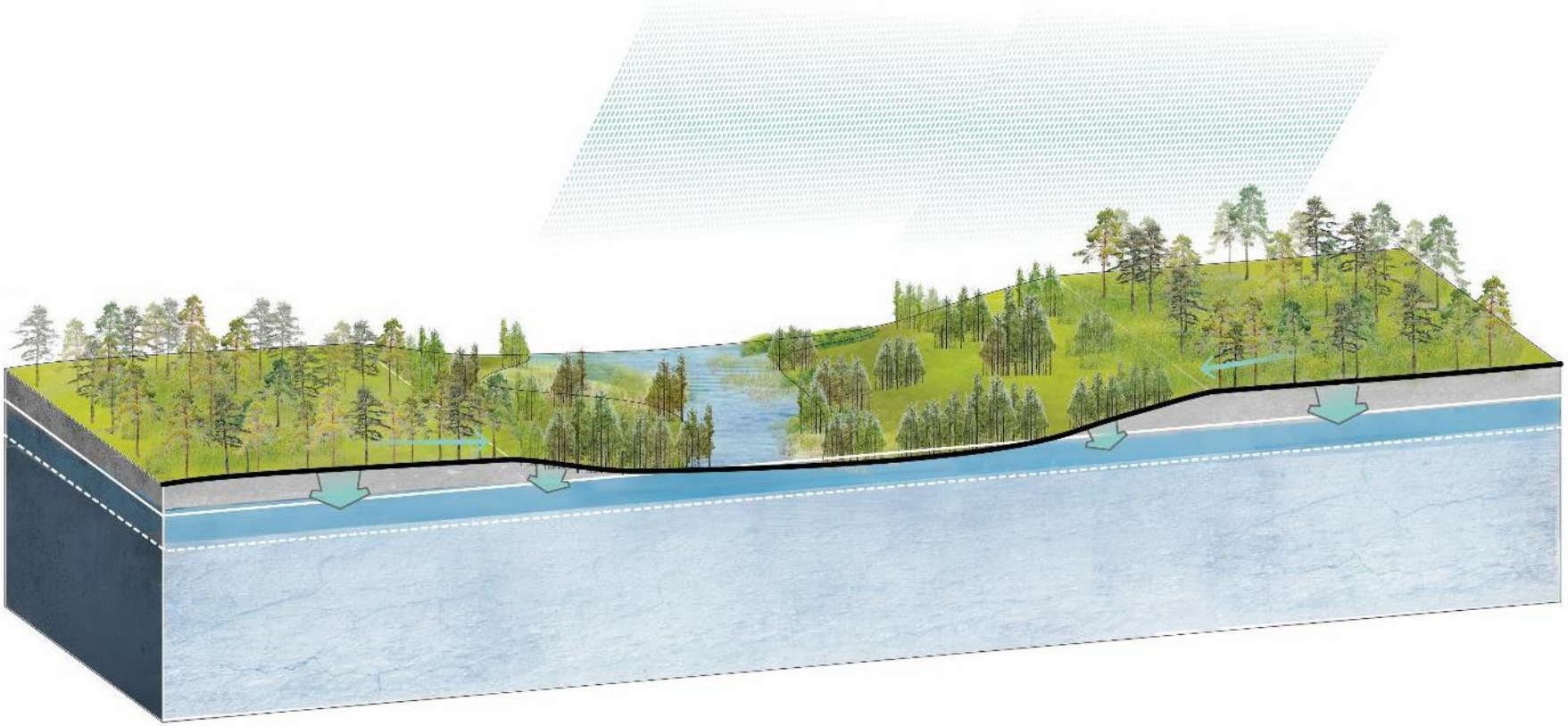
**Arch creek and slough basin**

**Chronic flooding and repetitive loss properties in the Arch Creek basin**

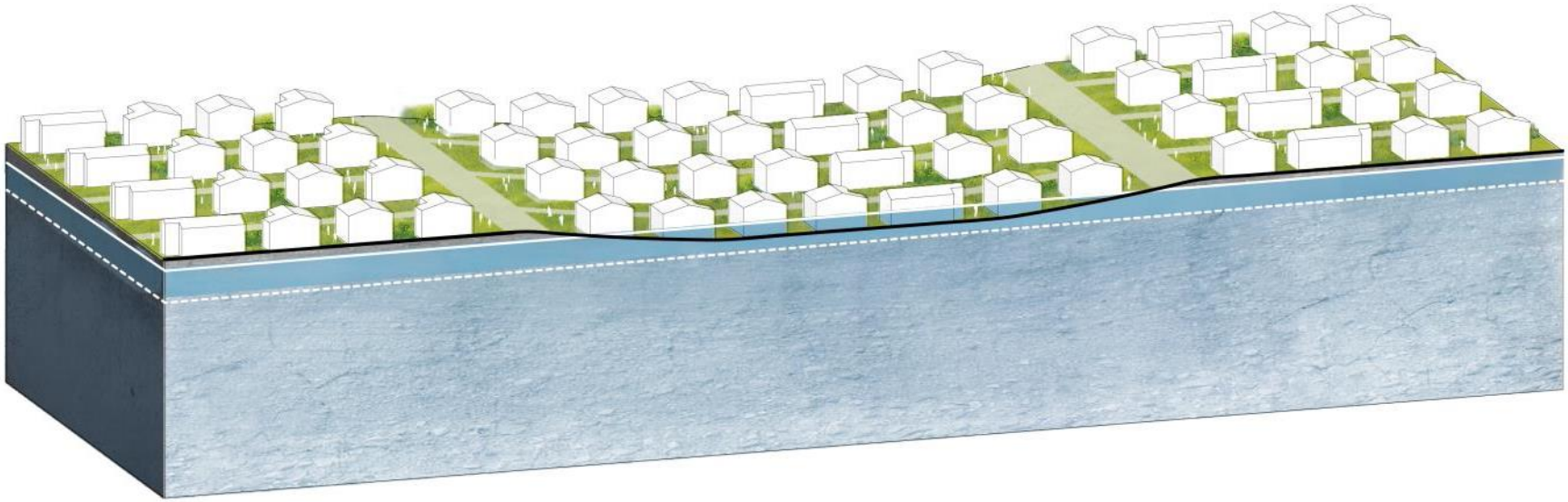


Arch Creek Basin Rain with Elevated Groundwater, August 2011

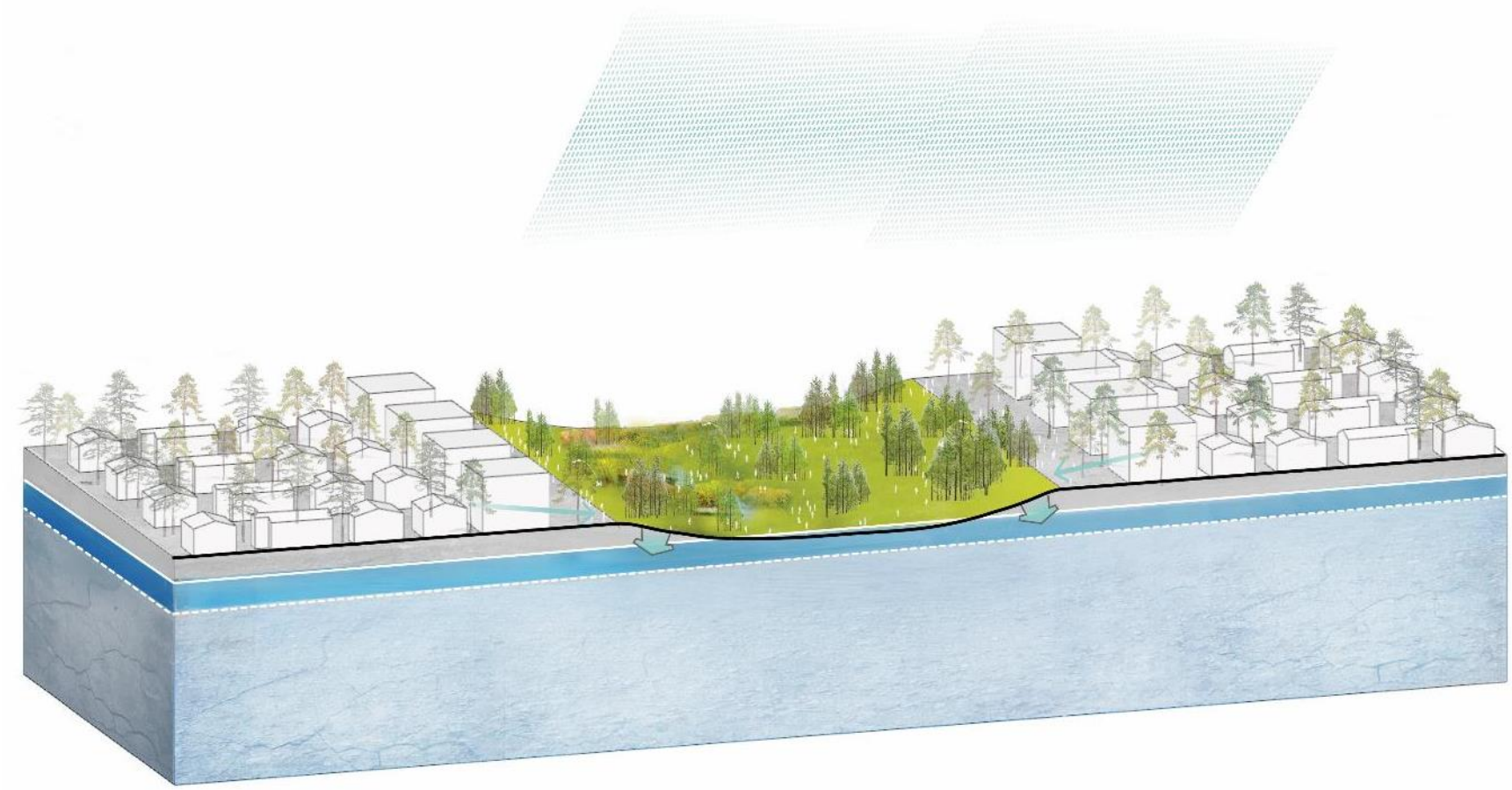
# 19th Century Habitat: Nature handles water



# 20th Century Development:
# Put people and property in harm's way

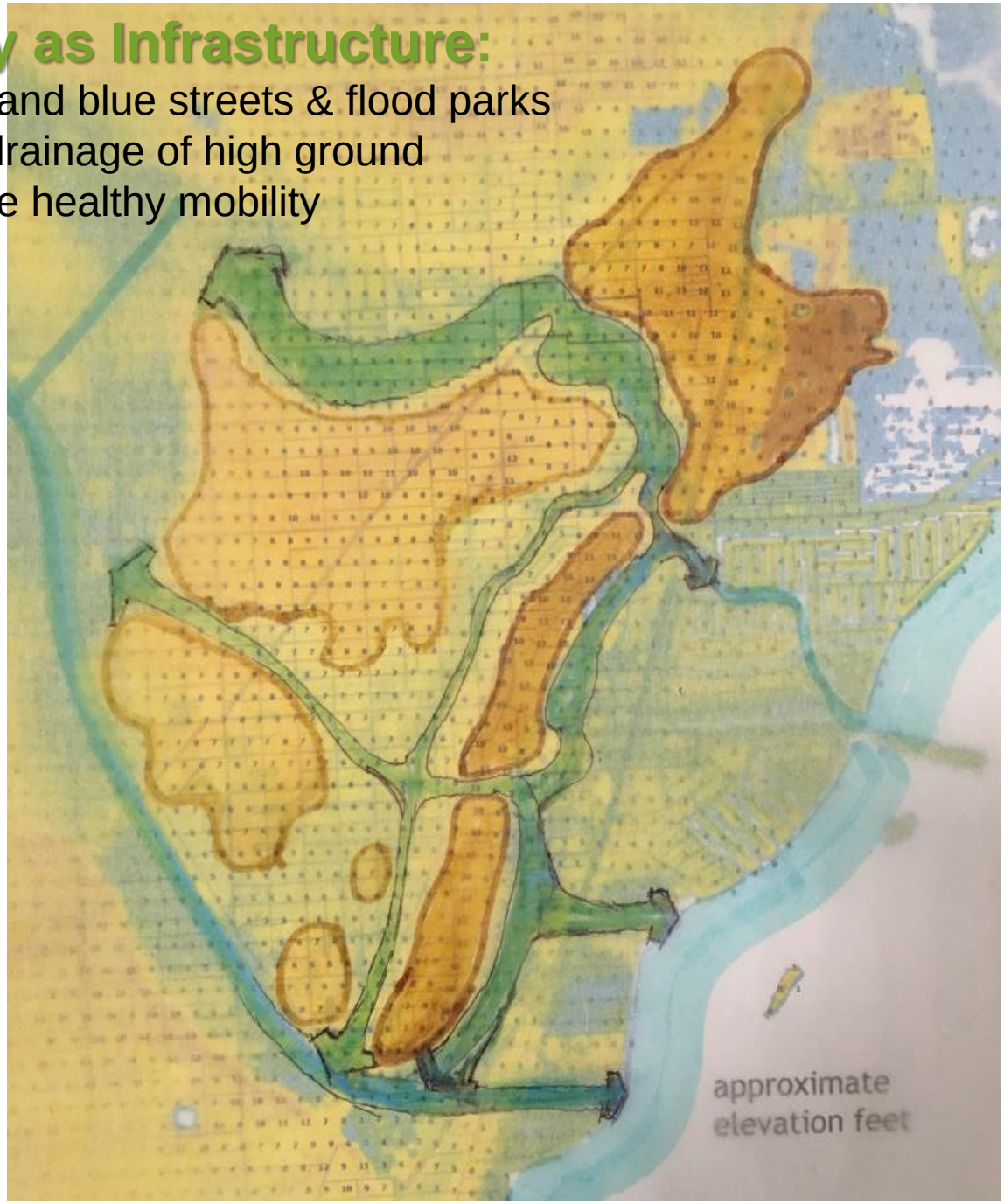


# Future Slough:
# Balances people, water, nature



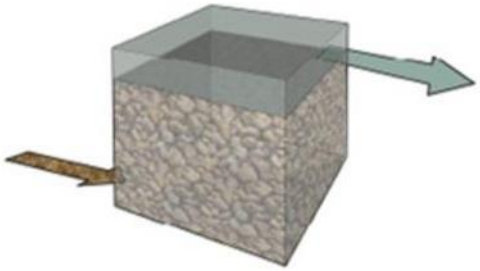
# Ecology as Infrastructure:

A network and blue streets & flood parks
improves drainage of high ground
and provide healthy mobility

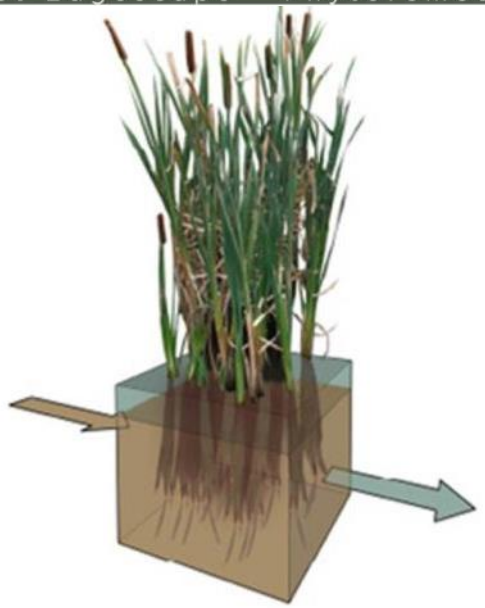



Golden Glades
Park & Ride
NE 6 Av
163 St
Tri-Rail
151 St
Music & Media
Tech Studios
FIU
North
Arch Creek
135 St
Transit
Center
JWU
WaterTaxi
Water
Taxi
North Miami
125 St
Tri-Rail
San Souci
Beaches
Barry
Univeristy
Tri-Rail
approximate
elevation feet
Biscayne Creek / C8 Canal

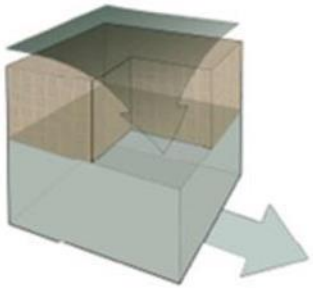
# T.O.D. Central Flood Park

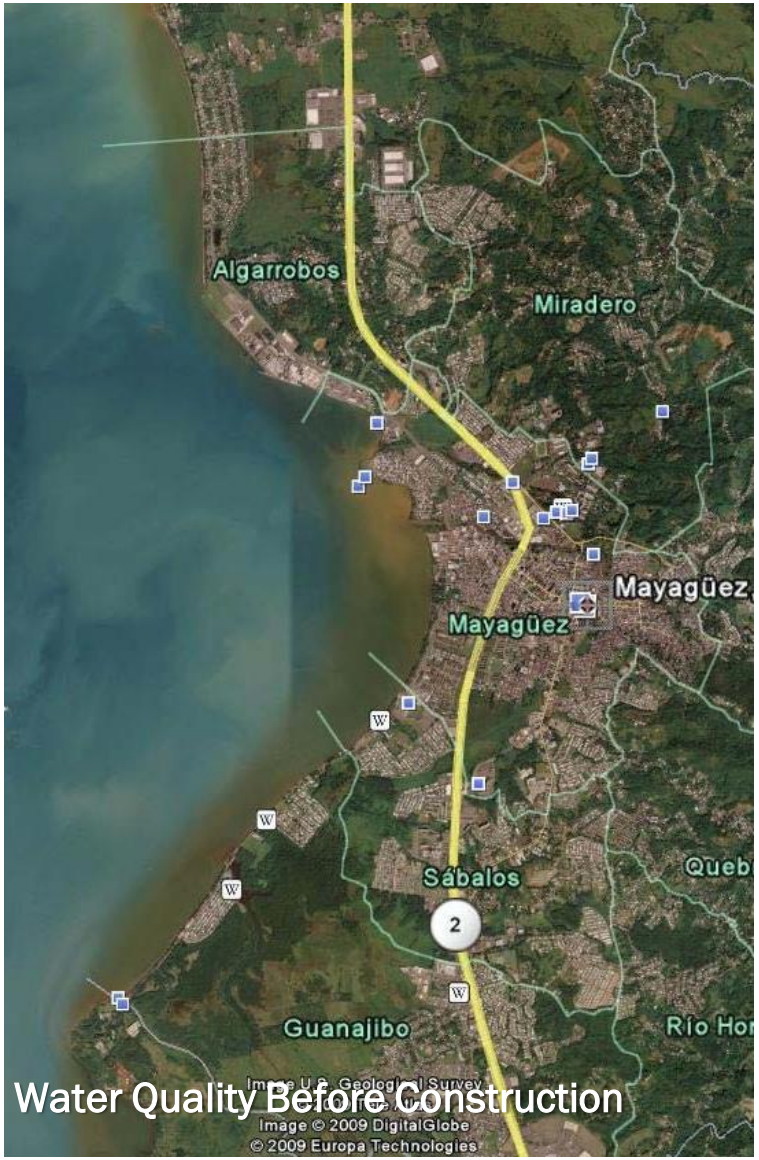
Sedimentation Of Particles



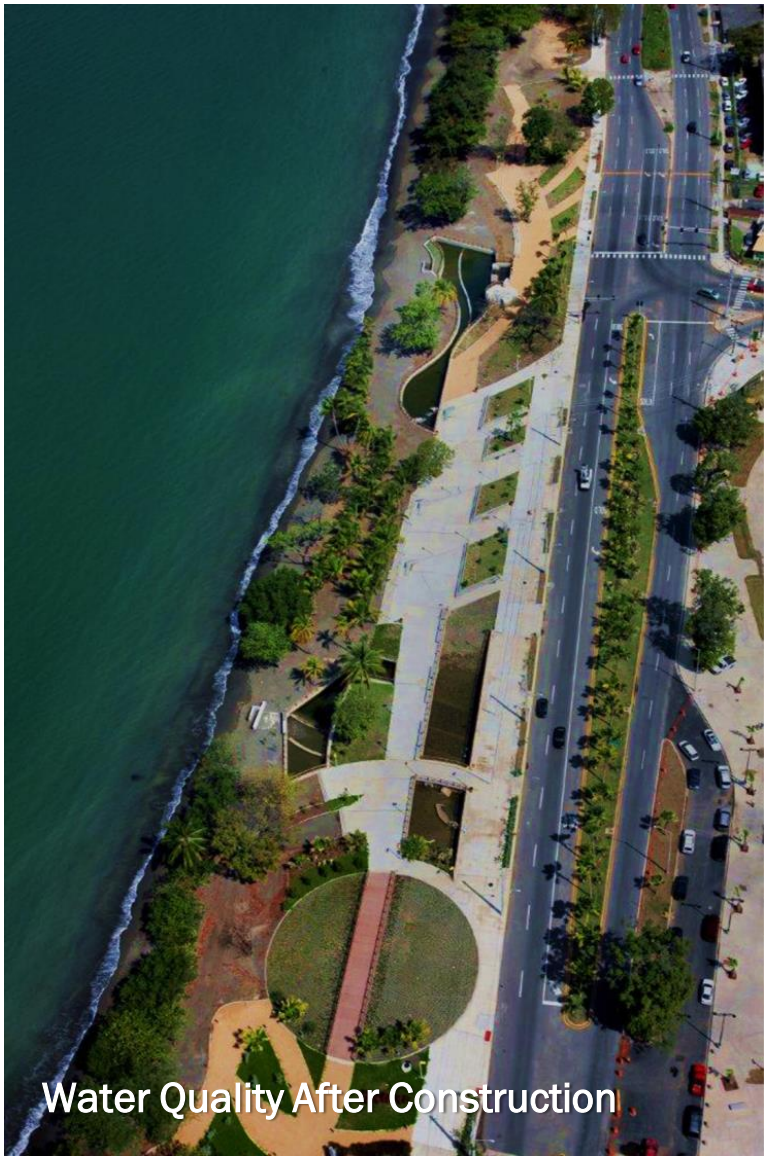
Extraction By Plant Roots



Dilution With Ground Water




Water Quality Before Construction

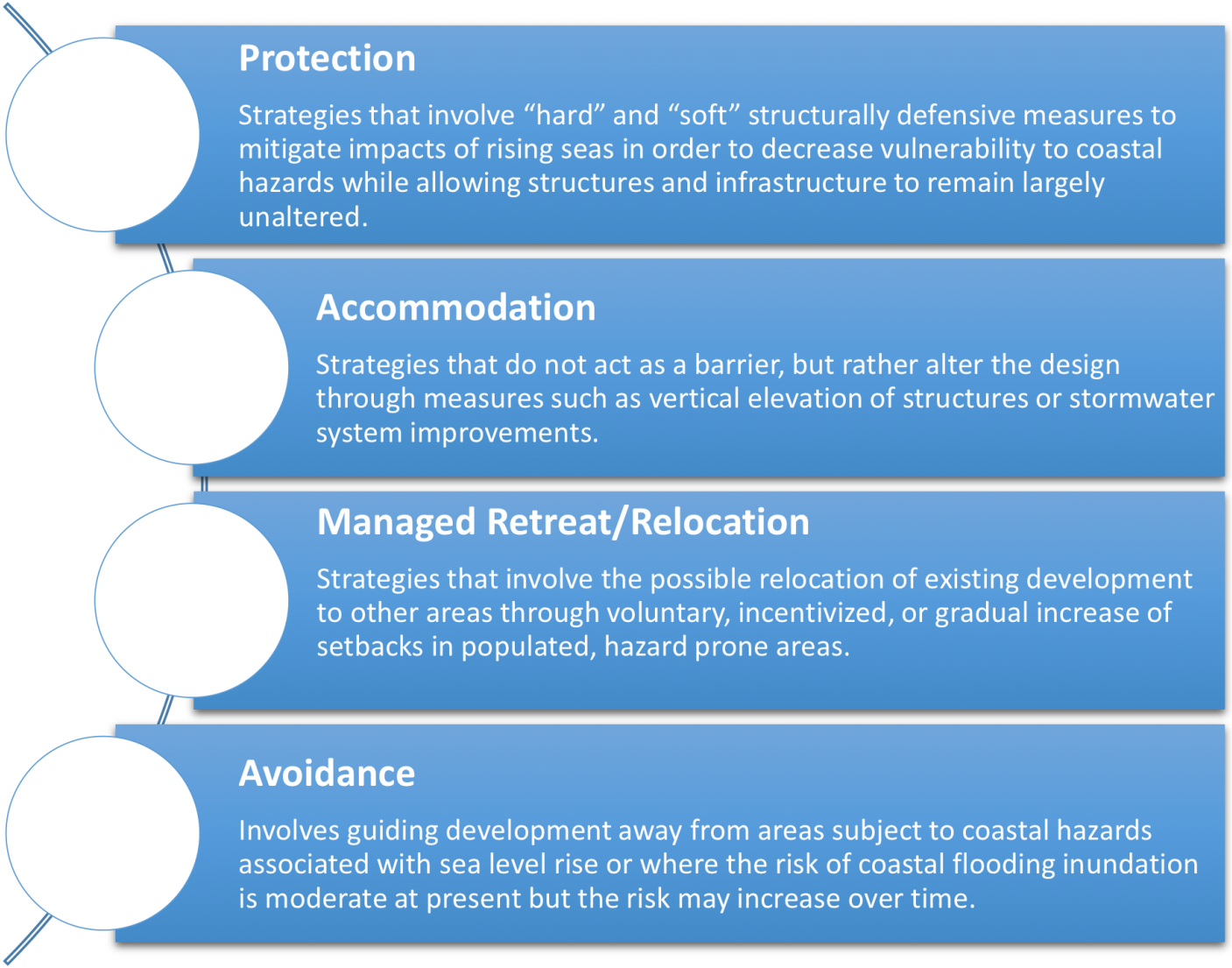


Water Quality After Construction

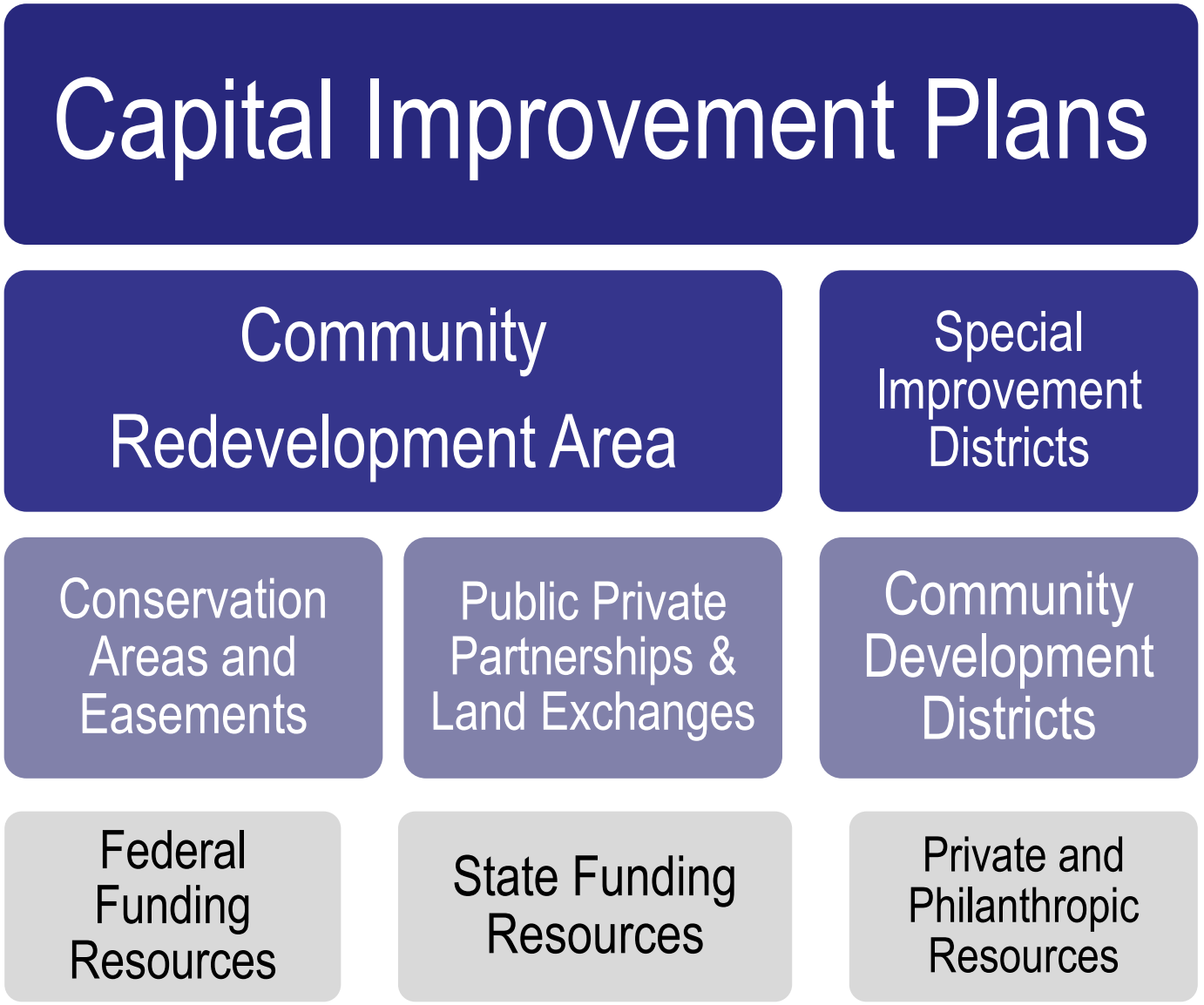
# Should the Study Area Be Designated An Adaptation Action Area?

- Excellent framework for regional cooperation to establish a more **comprehensive resiliency strategy** in the Arch Creek Basin
- Localities should **designate the area** as an Adaptation Action Area
- Establish an **Adaptation Steering Committee** at the South Florida Regional Council
- **Identify a capable lead organization** that has the ability to manage intergovernmental coordination, public-private partnerships, infrastructure coordination, financing and further policy development

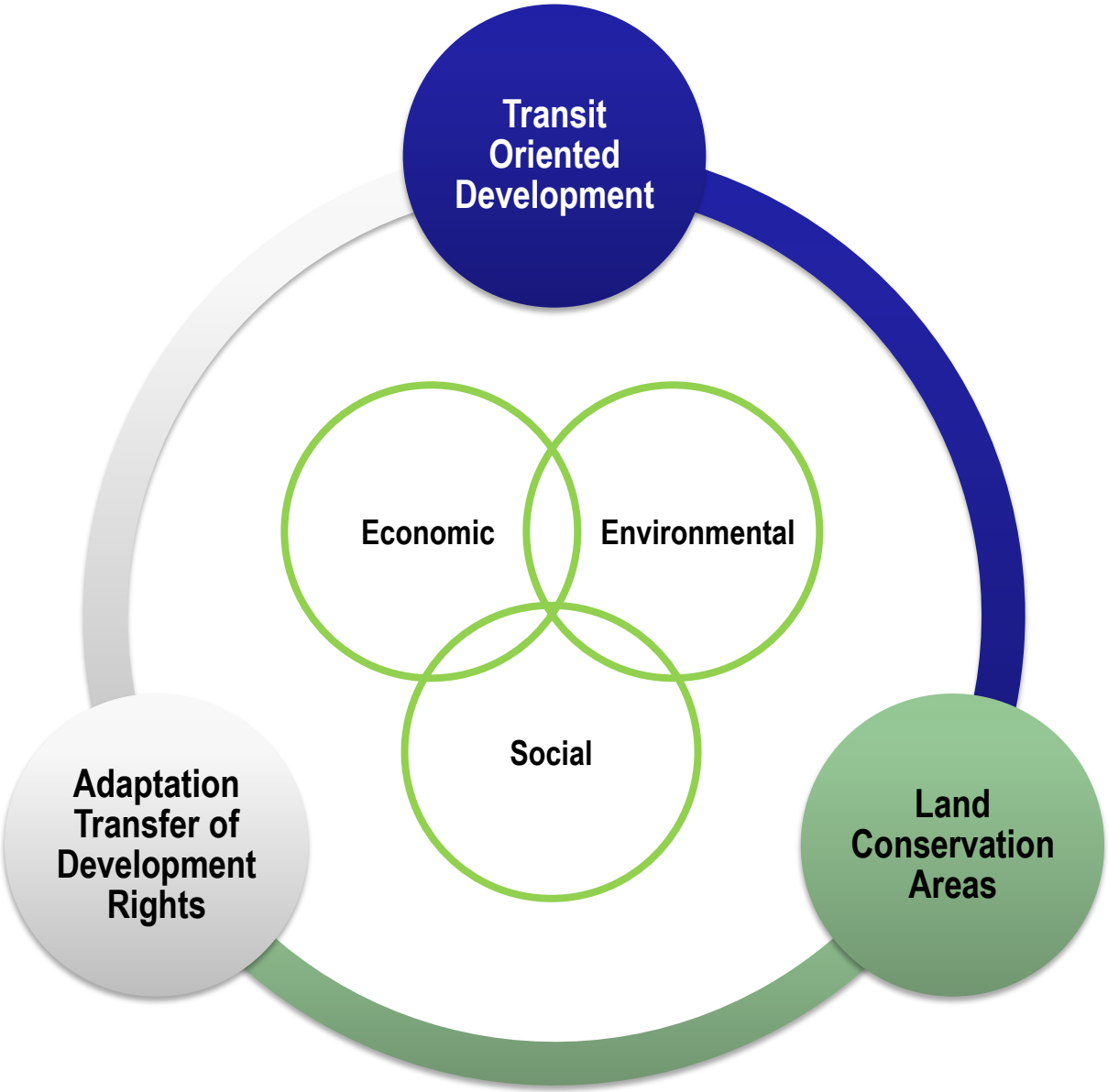
# Adaptation Action Area Implementation Strategies



# Adaptation Action Area Funding Mechanisms



# Adaptation Action Area Land Management Mechanisms



# ECONOMIC DEVELOPMENT STRATEGY

**CONNECT**

**CREATE**

**UNLOCK**

**CAPTURE**

**REDIRECT**

# SUMMARY

OVERLAY **FLOOD PROTECTION** INFRASTRUCTURE WITH A NEW **SOCIAL** INFRASTRUCTURE

**MANAGE WATER**: RESTORE NATURAL SYSTEMS

**SOCIAL, ECONOMIC + ENVIRONMENTAL** RESILIENCE

BUILD **HIGHER DENSITY** HOUSING AND SUPPORTING USES ON HIGH GROUND

IMPLEMENT RECOMMENDATIONS USING **ADAPTATION ACTION AREA** FRAMEWORK

# A Selection of Actions and Interventions

| | Short-term (1-3 yrs) | Medium-term (3-10 yrs) | Long-term (10-60 yrs) |
|---|---|---|---|
| **Community Groups & Residents** | Continue climate organizing and education work; work in partnership to implement household-scale mitigation improvements, such as rain barrels, rain gardens | Develop Community Action Plans for resilience and community preparedness; establish community resource centers for resilience and emergency preparedness | Continue and expand community support for Adaptation Area community; use TOD as emergency preparedness hub |
| **Miami-Dade County** | Make critical resilience information easily accessible and readily understandable for all communities; include local residents on committees such as SLR | Consider relocation and climate resilience as an eligible bond activity; develop a program that supports the development of equitable TOD around the proposed 125th St station | Implement Adaptation Area plans and initiatives; work with DOT and other transportation stakeholders to improve east/west transportation linkages within Study Area |
| **All Localities** | Designate the Arch Creek Basin as an Adaptation Action Area in respective Comprehensive Plans | Implement Adaptation Area plans and initiatives | Periodic review and amendment as needed of Comprehensive Plans |
| **South Florida Regional Planning Council** | Support and establish the Adaptation Steering Committee | Support Adaptation Steering Committee to coordinate amongst the participating local governments when amending Comp Plans, Ordinances, etc. | Continue to develop Adaptation Area tool and evaluate effectiveness |

# IMPLEMENTATION

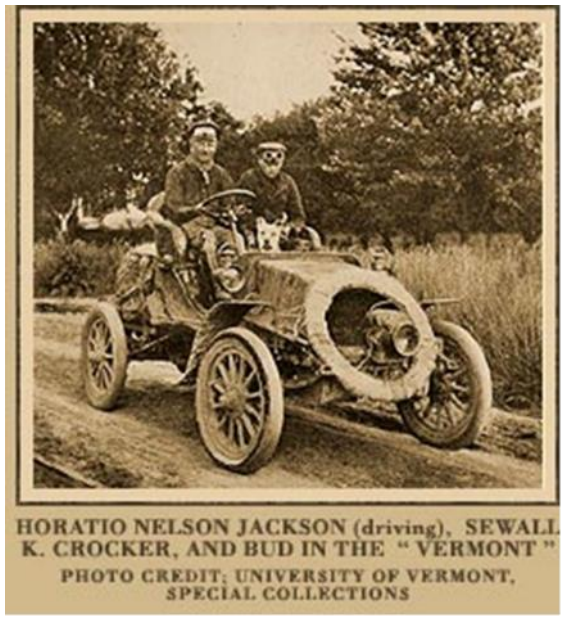
## Success Requires Three Things:

- **LEADERSHIP**
- **SHARED VISION**
- **RESOURCES**

THE FIRST TWO UNLOCK THE THIRD

# Wrap-up: Summary Recommendations

## Horatio Nelson Jackson's Road Trip



HORATIO NELSON JACKSON (driving), SEWALL K. CROCKER, AND BUD IN THE "VERMONT"

PHOTO CREDIT: UNIVERSITY OF VERMONT, SPECIAL COLLECTIONS

# Thank you!