About the Urban Land Institute

**ULI Mission**: to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide

- A multi-disciplinary membership organization with more than 44,000 members 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 Service Panels
Since 1947, the Advisory Service Panels has assembled well over 700 ULI members to help sponsors find creative, practical solutions for issues on a variety of land use subjects such as downtown redevelopment, land management, strategies.
Urban Resilience at ULI

Bringing the Urban Land Institute’s expertise in land use, real estate, and climate resilience to communities nationwide.
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ULI Panelists

Selected for their subject matter expertise to provide **objective, volunteer** recommendations

**Ladd Keith (Panel Chair)**
Chair of the Sustainable Built Environments Program
University of Arizona

**Michelle Beaman Chang (Vice Chair)**
Founder & CEO
Imby Community Inc.

**Jason Bonnet**
Vice President, Development
Brookfield Properties

**Samia Byrd**
Deputy County Manager
County of Arlington, Virginia

**John Macomber**
Senior Lecturer, Harvard Business School
Harvard University

**Michael Rodriguez**
Leader, Market Research & Insights
CBRE

**Susannah Ross**
Consultant
Landscape Architecture

**Matt Steenhoek**
Vice President, Development
PN Hoffman

**Byron Stigge**
Founder
Level Infrastructure

**Jay Valgora**
Founder & Principal
Studio V Architecture

**ULI Staff**
Lauren Callaghan
Director
Advisory Services

Leah Sheppard
Senior Associate
Urban Resilience

**Gretchen Sweeney**
Senior Director
Awards

Rebecca Hill
Associate
Meetings & Events
Scope for the Panel

Provide strategic recommendations that increase the resilience of the waterfront of downtown Miami, particularly through implementing Bay and Riverwalks that provides all residents with amenities and access to their waterfront and protect them from the impacts of sea level rise, storm surge, and extreme heat.

- With a focus on economic resilience, update waterfront design guidelines that incorporate the City’s resilience goals, align with the City’s Form Based Code and bolster the Baywalk and Riverwalk.
- Define public and private sector roles and recommend financing strategies for green and grey infrastructure improvements along the waterfront.
- Develop a policy direction that informs both private and public property modifications to enhance flooding and storm surge resilience, with a specific focus on high-rises and historic buildings that cannot be elevated and are not likely to be demolished.
- Integrate the above recommendations into an action plan that outlines short-, mid-, and long-term steps.
Panel Considerations

- Resilience and focus on co-benefits
  - Holistic definition considering economic, environmental, and social aspects
  - Focus on recommendations leading to co-benefits

- Responsibility to mitigate greenhouse gas emissions
  - Recommendations must be acted upon with consideration of reducing greenhouse gas emissions
  - A more sustainable Miami will help to reduce emissions and ultimately the impacts climate change

- Ensure that resilience actions are not maladaptive
  - There are no silver bullets or easy answers
  - Consider the interconnected systems that actions will affect
Build from Current Successes

- Economic growth and increasing vibrancy of downtown
- Participation with 100RC and continued support of the CRO and Office of Resilience and Sustainability
- Collaboration with Southeast Florida Regional Climate Change Compact
- Creation of Sea Level Rise Committee
- Launch of Resilient 305
- Amendment to Miami 21 for freeboard elevation
- Update of the Stormwater Master Plan (SWMP)
- Leader in world on wind resistant building codes
Key Recommendations

- Embrace legacy of the waterfront through design to protect from water, live with water, and create value from water
- Return to Miami’s history and embrace sensitive Transit Oriented Development (TOD) on the ridge for future growth
- Bring existing plans and visions together, act on strategies, and evaluate outcomes
- Pursue a portfolio of financial strategies to become the world leader in resilient finance, investment, and construction
- Reduce uncertainty for the community and private market through predictability, transparency, and accountability
- Incremental actions can lead to transformational changes
Miami in Context

- A city from the water
- Building on the ridge
- To become a diverse, global city

Credit: State Library and Archives of Florida
Miami in Context

- A city from the water
- **Building on the ridge**
- To become a diverse, global city
Miami in Context

- A city from the water
- Building on the ridge
- To become a diverse, global city
Miami’s Real Estate

- Strong Growth
- Affordability Challenges

5th
Global investor market returns (CBRE, Inc.)

2nd
Fastest growth in U.S. (Wallethub)

$13.1 B
Real estate investment since 2009 (CBRE, Inc.; Real Capital Analytics)

20%
Commercial real estate investment from abroad (CBRE, Inc.; Real Capital Analytics)

Credit: M. Avareda, Wikimedia
Miami’s Real Estate

- Strong Growth
- Affordability Challenges

<table>
<thead>
<tr>
<th>For-Sale Homes</th>
<th>Apartments</th>
</tr>
</thead>
<tbody>
<tr>
<td>36% growth since 2012</td>
<td>16% growth since 2012</td>
</tr>
<tr>
<td>$345,000 median price</td>
<td>$2,627 / mo. avg. rent</td>
</tr>
</tbody>
</table>

Source: City of Miami

Credit: Flickr, P. Pessar
Commercial Real Estate in Miami
Greater Downtown Market

- 17,955 multifamily units
- 23.1 million sq. ft. office
- 5.4 million sq. ft. retail

Source: CBRE, Inc., CoStar

Credit: M.A. Rodriguez
Commercial Real Estate in Miami
Greater Downtown Market

Miami Hotel Market, Average Daily Revenue and Occupancy

Source: CBRE, Inc., Q4 2018

Credit: M.A. Rodriguez
Commercial Real Estate in Miami
Greater Downtown Market

$4.7 B
Estimated total property tax base in City of Miami*

$3.0 B
Estimated taxable commercial real estate value in Greater Downtown *(CBRE, Inc.; CoStar)**

$0.8 B
Estimated taxable commercial real estate value along the waterfronts *(CBRE, Inc.; CoStar)**

* Estimate of all taxable assessed parcels
** Only includes office, retail, and multifamily rental units. Excludes single family homes, condos, hotels, other commercial spaces, and owner-occupied spaces.

Source: CBRE, Inc.; CoStar

Credit: M.A. Rodriguez
Climate Change Risks

- Sea-Level Rise and Urban Flooding
- Urban Heat

3 - 6 ft
Hurricane Irma storm surge
Source: NOAA

2 - 2.5 ft
Projected Miami sea level rise by 2060
Source: Southeast Florida Regional Climate Change Compact

Source: NOAA

Credit: Wikimedia Commons
Climate Change Risks

- Sea-Level Rise and Urban Flooding
- Urban Heat

#1

Climate-related cause of death in the U.S.

Days of heat in Miami over 90°F.

Miami with greatest heat index in US by 2050.

Source: City of Miami, DDA

Credit: M. Averette, Wikimedia Commons
Design Introduction

- What does resilient mean in a design context? Resilience is complex, contradictory, it evolves over time. There’s no one single answer.
Design Introduction

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• One Waterfront. The panel’s goal for the Baywalk and Riverwalk is to develop a cohesive strategy to address the different needs of these two distinct stretches of waterfront
Design Introduction

• What does resilient mean in a design context? Resilience is complex, contradictory, it evolves over time. There’s no one single answer.

• One Waterfront. The panel’s goal for the Baywalk and Riverwalk is to develop a cohesive strategy to address the different needs of these two distinct stretches of waterfront.

• Resilient design knows no boundaries. The waterfront isn’t the only place where design matters for a resilient city. The high ground also plays a critical role.
Design Introduction

• Bay
• River
• Ridge
The Bay Waterfront

Flood Risk Characteristics

- Flood levels only 4-9 ft above +5.7 ft sea wall elevation (from 2010 FEMA FIRM)
- VE zone nearly throughout the bay side study area
- Flood zone goes only 1-4 blocks into neighborhoods
- Many concrete condo towers with ground floor uses of parking, retail, or non-valuable uses
- New buildings first floor at +11 ft to +18 ft (BFE +1 to +5)
The Bay Waterfront

- Current Waterfront Design Guidelines in Miami 21: Appendix B

Credit: ULI/Ross

Credit: City of Miami, DDA
The Bay Waterfront

- Baywalk Draft Design Guidelines currently in progress which bring many improvements to the current Waterfront Design Guidelines in Miami 21: Appendix B
The Bay Waterfront

- Some components of the draft guidelines are facing significant regulatory obstacles

Draft Proposed Guidelines – Public Access

Credit: DDA
The Bay Waterfront

Draft Proposed Guidelines – Living Shoreline

Credit: ULI/J. Canales

Credit: DDA
The Bay Waterfront

Barrier Island and Mangroves
The Bay Waterfront

Bayfront Commercial Typology
The Bay Waterfront
Street End Typology

Credit: Flickr/Jeffrey Bary
The Bay Waterfront

Recommendations

- Refine and adopt the draft guidelines
- Engage and address the regulatory agencies to make living shorelines a reality
- Recommend testing of certain typologies and a pilot project as a means of breaking the interagency impasse
- Consider future alternatives for building higher and building farther out
- Consider reserving 3 ft of public access zone as potential corridor for seawall
The River Waterfront
Flood Risk Characteristics and Resilience Approach

- Flood levels only 2-3ft above +5.7 ft sea wall elevation (from 2010 FEMA FIRM)
- Flood zone goes 5-20 blocks into neighborhoods
- Thousands of older single family homes at risk in Little Havana, Allapattah, and others built at grades +5 ft to +8 ft
- New buildings predominantly first floor at +8 to +9 (BFE+ 1)
- Continuous flood barrier is very challenging along entire extent of 5 mile length of Miami River
Back Bay Study Opportunity

Major Infrastructure Projects Can Inspire

- Tide / Hurricane barrier study
- Located near entrance to Miami River
- Currently in feasibility stage – no designs have been proposed or developed
- Process tends to focus on functional solutions
- Highest benefit-cost project rises
- Will need to bridge community concerns and impacts with design

Panel sees this infrastructure project has potential to be a truly unique opportunity to create an icon of resilience that dramatically reduces flood risk for major portion of city

Credit: ULI/J. Canales

Singapore Marina Bay Barrage. Credit: Jones

London Thames Barrier. Credit: Hudson
Riverwalk Design Guidelines

Baywalk Guidelines work well for Riverwalk

- ‘Seawall’ requirement along the Miami River could be defined differently than bay-side

- Recommended revisions
  - Bulkhead height to +4 ft or +5 ft to allow boat access and to allow pedestrians to be close to water
  - Potential ecological wall along bulkhead rather than living shoreline
  - Shade trees rather than palm trees
  - Grade up or step up to BFE at edge of buffer zone

Section through Riverwalk bulkhead
Riverfront Mixed-Use Typology
Application of Riverwalk Design Guidelines

- 451 South Miami as typical condition
- Continue graphic design and landscape palate of draft Baywalk Design Guidelines to ensure experiential continuity
- Safety Zone and Bulkhead at +4 ft
- Circulation Zone width: 8 ft – 12 ft
  - Structured seating up to +6 ft
- Planting Zone width: 6 ft
  - Focus on shade trees not palms
- Transition Zone width: 6 in minimum
  - Grade, step, and slope up to BFE to +8 ft (NAVD)

Section through Riverwalk for Riverfront Mixed-Use (AE 9 ft)
Green Infrastructure in River Floodplain

- Continue to focus on green infrastructure throughout Little Havana, Allapattah, and neighborhoods adjacent to Miami River
- Stormwater Master Plan to include requirements for permeable surfaces, planted surfaces, shade trees
- Multiple benefits of green infrastructure
  - Reduce runoff from rain events
  - Slow runoff from rain events
  - Reduce surface and air temperatures
  - Human connection to nature

Credit: Flickr, US Department of Agriculture
Preparedness in River Flood Plan

Resilience for any type of event

- Even if Back Bay study results in a big project to reduce flood risk along river, other types of events may have impacts on neighborhood
- Utilize existing community organizations such as NET, Catalyst Miami, and others
- Back Bay study may not result in flood risk reduction, making community preparedness all the more important

Credit: Catalyst Miami
### Ridge TOD Focus

Build resilience by densifying on the ridge

- Utilize existing urban fabric and existing transit
- Existing transit alignment area on the ridge
  - Metrorail
  - MetroMover
  - SMART Plan – 5 alignments
- Support transit planning with land use policy
  - Increased density within ½ mile of stations
  - Mixed-Use and commercial activity
- Support transit planning with housing policy
  - Affordable housing incentives within ½ mile of stations
  - Preserve existing affordable housing in TOD zone
  - Be sensitive to potential displacement pressure
Northeast Corridor
Utilize SMART Plan progress

- Northeast Corridor line proposed to run along original Flagler rail line alignment
- Downtown to Aventura
  - Passes near Wynwood, Edgewater, Beverly Terrace
  - Access to job center downtown
- Study siting additional stations along the alignment as it nears downtown
Miami’s Approach to Long Range Planning for Downtown and the Waterfront

Downtown Miami Master Plan (1989)
2025 Downtown Miami Master Plan (2009)
Inventory of Planning, Policy and Regulatory Documents

**Adopted Waterfront Standards and Regulations (1979-2019)**

- 1979 – City Charter Waterfront Setback and view corridors
- 1985 – Shoreline Development Design Standards
- 2001 – Miami River Greenway Action Plan
- 2005 – Coconut Grove Waterfront Masterplan
- 2010 – Miami21
- 2013 – City of Miami Baywalk Mobility Plan
- 2019 – Miami21 Section 3.11 Waterfront standards Amended


- 2003 – Miami Transportation Master Plan
- 2004/2006 – CRA Master Plans
  - Southeast Overtown / Park West Community Redevelopment Plan
  - Omni CRA Redevelopment Plan
- 2005 – Brickell Area Streetscape Implementation Guidelines
- 2006 – Parks & Public Spaces Plan
- 2007 – Museum Park Plan
- 2007 – A Greenprint for Our Future: The Miami-Dade Street Tree Master Plan
- 2008 updated – City of Miami Comprehensive Plan
- 2009 – Transportation Enhancement Strategies for Downtown Miami
- 2009 – Miami Bicycle Master Plan
- 2009 – Residential Closings & Occupancy Study
- 2009 – Miami-Dade County Aesthetics Master Plan
- 2009 – Downtown Miami Master Plan Study
- 2009 – “Roadmap to Success” Downtown Master Plan Study
What’s Missing?

- Miami is known as a leader throughout the country for being forward thinking in the area of resilience
- Resilience policies and implementation tools exist or are under development
- Plans, Standards and Guidelines have been developed

A long-range comprehensive/master document that incorporates resilience as a key element to guide land use planning for downtown and the waterfront

Previous and current planning efforts are not coordinated and connected which leads to fragmented and disjointed policy making
Downtown Master Plan

One Direction. One Road Map. One Planning Document. One Policy.

- **EVALUATE** previous studies and planning efforts
- **INTEGRATE** resilience into in the context of existing and future land use planning
- **OVERLAY** guiding principles of resilience based on an updated vision and goals for downtown and the riverfront specifically in the key areas:
  - Equity
  - Land Use
  - Transportation
  - Housing
  - Environment
  - Open Space
  - Historic and Cultural Resources
  - Public Facilities
- **CHECKLIST** for resilience allows for continuous monitoring in achieving plan goals

### Public Health
- Sustainable Communities
- Clean Energy
- Environmental Justice
- Transportation
- Natural Resources
A. Business as usual, no investment in resilience, no event happens

B. Business as usual, no investment in resilience, a bad event happens: Losses are huge

C. Make an investment in resilience, a bad event happens; losses are minimal, it was worth making the investment
But what about investment choices, probabilities, time frame, and range of damage impacts?

In this illustration, there are three courses of action with respect to investing in resilience:

1. Do nothing
2. Invest at one level (in the order of magnitude of $50-100 million for the level of protection indicated in the Baywalk design)
3. Invest at a higher level (in the order of magnitude of $500 million to $1 billion in robust defenses like a tidal gate at the river and high wing walls).

(For all of these investments there are multiple sources of funds ranging from USACE to city to private landowners to philanthropy, as will be presented subsequently).

Source: DDA and City of Miami
Illustration of a probability-adjusted model of three investment levels and three types of floods/storms.

How to get to this…and so what?

1. Do Nothing
   - Investment: 0
   - Median Event Probability: 72.3%
   - Median Event Losses: 500
   - Expected Value Cost: $1,472

2. Midrange
   - Investment: 50
   - Median Event Probability: 72.3%
   - Median Event Losses: 250
   - Expected Value Cost: $1,219

3. Robust
   - Investment: 500
   - Median Event Probability: 72.3%
   - Median Event Losses: 100
   - Expected Value Cost: $683
Underpinning: The Weather and the Losses
(supporting the prior slide)

What could happen?
For the sake of argument, assume for simplicity that three basic weather scenarios could unfold over the next 25 years:
- No important weather events
- A series of king tides, rain bombs, low grade hurricanes
- A big hurricane during a king tide
These all have different probabilities of occurring.

What would the damages be for each investment choice in each storm situation?
Economic costs from uninsured losses would include direct costs of rebuilding, indirect costs of being out of business or displaced from home, and human costs like job loss and public health problems. The vulnerability is largely inland along the Miami River. These impacts are hard to gauge but for a big hurricane during a king tide, history shows that uninsured losses could be in these ranges:

Investment 1 (nothing) these would be huge - probably on the order of $5 - $7 billion in the study area. Consider the market values and economic values discussed above; this is a big deal and the exposure is real.

Investment 2 (something) these would still be huge.

Investment 3 (robust) there is a high level of protection and uninsured losses would be much less.
Next: Probabilities and Additional Research

Bottom line:
The **probabilities are posted** by USACE, NOAA, SE Florida Regional Climate Change Compact, and more

To use this tool, the city needs to **refine costs to build**, and also **refine the uninsured economic and social costs** that would follow a big event

We know the probabilities of each of these events. King tides and minor storms are going to occur for sure. A 100 year flood, on the other hand has by definition a 1% chance of occurring in a single year. Math says that over 20 years the probability goes to 33%...this is substantial.

The thinking should then be that the expected value of each resilience investment, less the value of uninsured losses, is explained in the diagram. Of course if one believes that over time the probability of incidence is increasing, then that would change the investment justification even further.

The flood risk figures are known (if arguable). The costs of uninsured damages are not. Also, our cost figures are only directional.

Therefore, the city should further research the actual possible losses and refine the design, engineering, and costs for the various interventions. Then sources of funds can be rallied, the spending can be allocated, and the city can forge ahead.

Source: DDA and the City of Miami
During the Panel’s time here in Miami, we have talked to or interviewed over 80 people collectively.

Each one has their own story and their own expectation of ROI (return of and on your investment) expended in measurable resources of time and money.

Miamians’ expected qualitative ROI: a better of quality of life.

Miami's future successes in the capital markets will be graded by the ability to attract dollars and retain talent.
Portfolio: Risks & Mitigants

The vitality and diversity of Miami

- It is NOT a question of IF the next natural disaster will occur, but WHEN will the next destructive storm hit and cause damage
- All investors' expectations in the Miami market: predictability and risk mitigation against rising waters, rising cap rates & discounts to land & property values
- Obligation to protect and improve infrastructure, as well as lead in improving regulations and laws around the built environment. These actions will establish a solid foundation for economic resilience.

Credit: Bonnet.
Meet Your “Investors”

- Investors have a choice. Markets are competitive.
- Individuals
  - Waterfront condominium owners visiting for the weather & amenities
  - Millennials moving from other urban cities looking for better work/life/play balance and improved cost of living conditions
  - Family: three generations of Miamians under one roof, the matriarchal figure moving here for the opportunity to achieve a better ROI for future generations
- Institutions
  - Government agencies: facilitators and managers of investments back into the City that originate from individuals and businesses through tax coffers
  - Developers, equity investors, pension funds & banks: investing in the Miami market ownership of assets or bonds backed by the local municipalities
Property Insurance

Housing Affordability Risk. Building code opportunity.

- FEMA’s NFIP (National Flood Insurance Program) aims to reduce the impact of flooding on buildings by providing “affordable” insurance to property owners, renters and businesses

- Program’s “affordability” is a major risk exposure - subsidized at “affordable” levels by the Federal Government. This is not a predictable and secure safety net.

- Over the last two years, there were $200 billion in global losses due to natural disasters and flood insurance claims

- The hard truth = rates will only go up. Never down. This creates a drag on the individuals housing costs/annual budgets.

- Property owners taking the initiative: preparedness & proactive solutions

- Developers and owners are building and renovating above and beyond the minimal building code by taking fortifying measures in their designs and construction standards to be ready for the next flood or storm event.

- Recommendation: Updating the building code to meet the minimums that the real estate market has set as its baseline
Property Values

Residential Properties

• Storm and water damage to homes is not only a financial burden to the homeowner or resident, but also a public burden and cost to social infrastructure such as health care and emergency support systems.

Commercial Properties

• Repairing or replacing building systems and components sooner than the expected manufacturer’s projected life span has a direct correlation to the value’s asset in the saleable marketplace.

• Increased capital expenditures = increased annual expenses. Not only is this a burden to the owner/investor related to decreases in property values, but also translates to losses on the government’s property tax rolls.
Resilient Finance Solutions

**Diversified**
- Remain viable through varying market conditions

**Flexible**
- Nimble & evolve with time and changing needs

**Focused**
- Grounded in mandate & decoupled from politics

**Forward**
- Respond to the future, not just the present

**Renewable**
- Continuous long range sources for long range challenges
Resilient Investment Leader

Mission-based
- Fulfilling a climate & resilience mandate
- Freedom to direct investment with an objective perspective

Independent
- Non-partisan role with term longevity

Coordinated
- Holistic implementation for various funding streams

Entrepreneurial
- Focused on leveraging disparate Millions into productive Billions

Transparent
- Clearly & openly reasoned investments
- Publish annual scorecard & investment summary

Miami should be the preeminent leader in resilient infrastructure finance, investment, & construction
Tax Based Tools

Citywide General Property Tax
- 0.1% increase
- $0.01 on $100 assessed value
- ~$45 million annually

Waterfront Area Property Tax*
- 1.0% increase
- $1.00 on $100 assessed value
- ~$80 million annually

Enhanced Homestead Exemption / Vacancy Fee
- 1.0% fee accessed to vacant property
- Live-in Owners Exempted
- $1.00 on $100 assessed value
- ~$95 million annually

* Calculation based only on values of waterfront office, retail, and multifamily rental properties
Real Estate Based Tools

**Place Based Organization** – Leverage private investment on Bayfront
- support FEMA remapping from VE to AE
- encourage private bulkhead resilience investments

**Conservancy & Commercialization** – Fund Bayfront & Riverfront operations
- generate revenue for ongoing maintenance, operations, & programming
- leverage commercialized revenue generating opportunities
- seek philanthropic and donation based support

**Transit Oriented Development (TOD)** – Ridge creates value for citywide investment
- Rezoning focus density on transit rich and naturally resilient areas
- increase tax base and create jobs
- build affordable/workforce housing for the co-creation of wealth

**Tax Increment Financing (TIF)** – Ridge creates funding for Riverfront investment
- create Bonding source for resilient infrastructure investments
- align with TOD Rezoning opportunities

**Transferable Development Density (TDD)** – Beyond historic property investments
- source of funds for historic & existing buildings for resilient capital investments
- stimulate development and density in transit rich and naturally resilient neighborhoods

**Land Value Capture (LVC) on Public Properties** – Generate citywide investment
- establish clear & transparent goals for each transaction up front
- create upfront capital generation or an ongoing revenue stream
From Vision to Implementation

Proactive and Intentional

- Meet the problem where it is – at the water!
- Thoughtfully design, finance, and act to meet resilience goals
- Multi-layered approaches
  - Small, incremental, short-term
  - Big, visionary, long-term
- Adapt to evolving circumstances
- Government facilitation network embedded in neighborhoods to support information, engagement, and access to resources both in person and online

Credit: ULI/Sweeney
Keys to Successful Collaboration of Multiple Stakeholders

Transparent, Predictable, Accountable

- Transparency will be key to understanding what actions are effective and worth continuing and which ones are not. Successful implementation of a resilience strategy will require measuring and remeasuring whether outcomes meet stated goals and objectives.

- Predictability of process maintains fairness and trust. Some things may fall short of anticipated in an evolving process but processing facts in a predictable manner is critical to successfully meeting the challenge.

- Acknowledge the process is iterative and continuous. Accountability among many stakeholders is crucial to progress and will require a transparent and predictable roadmap with clear roles, responsibilities, and timeframes available to everyone.
Areas along the Baywalk for the most part have met their water risk and resilience challenges to live with water when a storm event occurs through investment already made to protect themselves.

Areas along the Riverwalk are far more vulnerable and will require increased analysis and investment. There is also great opportunity to unlock real estate value along the river and neighborhoods inland. Miami can use existing tools and resources to co-create wealthy for existing residents in community-driven ways.

Focus density and transit oriented development along more naturally water resilient elevations like the ridge. Incentivize the development of affordable housing and public transportation options sensitive to residents.
Balanced Benefits

- Holistic strategy, planning, and implementation will ensure an equitable distribution of resources
- Explore the social, economic, and environmental co-benefits of resilience
- An updated Downtown Master Plan prioritizes community-driven affordable and attainable housing and transportation options that retain a community’s residents, culture, and social fabric while minimizing storm and flood water risk
- Financing options tied to land value creation that prioritize high risk areas and encourage sustainable development
- Locate the government facilitation team physically in neighborhood resilience hubs (such as NET) that operate to provide resources to residents before, during, after a storm and year-round with digital access, renewable energy, and clean water

Credit: Chang
People, Property, Planet

Triple Bottom Line Value Capture

- We heard from over 80 people this week with different backgrounds and perspectives who all want the same thing: a resilient and successful Miami
- Known as a safe place for immigrants in search of the American Dream and foreign investors, Miami has grown into a global city
- The city is diverse and vibrant, but inequality and fragmentation exist
- Concern over climate change risks calls into question future investment and growth
- The panel applauds Miami for taking a stand to be a climate resilient global leader
- To meet these challenges Miami will need a unified front in a system only as strong as its weakest link

What should the future of Miami look like?
What is the cost of not being prepared?

Credit: Chang
Living Shoreline Demonstration Project
Living Shoreline Demonstration Project

- Build consensus across government agencies and communities
- Engage non-profits, scientists, biologists, local universities, children
- Activate the bayfront with signature use for Miami
- Complete one of the most significant gaps in the Bayfront open space network
- Demonstrate dramatic opportunities and effectiveness of living shorelines
Recommended Next Steps of Larger Action Plan

- Update zoning and building codes to incorporate resilience principles
- Update the City's Downtown Master Plan and a plan audit to ensure comprehensiveness
- Create a place-based organization or conservancy to facilitate private investment and management for the urban waterfronts
- Reach out to potential partners and design demonstration projects such as the Living Shoreline Demonstration Project
- Refine and adopt the Miami Baywalk draft design guidelines with needed resilience concepts
- Strengthen community preparedness in vulnerable locations with emergency management and other community partners
- Explore resilient finance tools that leverage the real estate market like TOD rezoning, TIFs, and TDD
- Engage with key agencies to build the case for living shorelines
- Install green infrastructure throughout vulnerable neighborhoods adjacent to the Miami River