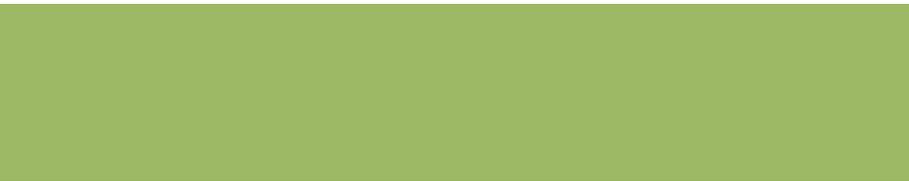


Riverwalk Activation and Climate Adaptation

Technical Assistance Panel

for the City of Fort Lauderdale, Florida



June 24 and 25, 2014
Fort Lauderdale, Florida



**Urban Land
Institute**

Southeast Florida/Caribbean

CAM 15-1223
Exhibit 2
Page 1 of 41

Table of Contents

Urban Land Institute Southeast Florida/Caribbean District Council	1
Technical Assistance Panels.....	1
What Are Technical Assistance Panels (TAPs)?	1
How Do TAPs Work?	1
Who Is ULI?	1
Sponsors and Panel Members	2
Panel Process and Agenda.....	4
Background: The City of Fort Lauderdale Riverwalk	7
A Brief History: A Legacy of Planning	7
Climate Change and the Riverwalk.....	11
The Riverwalk: In the Words of Those Familiar with It	11
Issues for the TAP: Adapting the Riverwalk to a Changing Climate	12
Panel Response to the City of Fort Lauderdale Questions	15
Identifying Existing Conditions and Potential Opportunities	15
Establishing Pedestrian-Oriented Streets Connecting and Celebrating the Riverwalk	18
Creating <i>Places</i> Along the Riverwalk	20
Designing for Different Elevations and Heights with an Awareness and Accommodation for Seasonal Changes.....	23
Designing Transitional Spaces.....	24
Understanding and Planning for the Relationship Between Water and Land Elevations	26
Looking Toward Implementation	30
Conclusions.....	33
Appendix A: TAP Agenda.....	35
Appendix B: Fort Lauderdale Riverwalk Chronology	37

Urban Land Institute Southeast Florida/Caribbean District Council Technical Assistance Panels

What Are Technical Assistance Panels (TAPs)?

Since 1947, the Urban Land Institute's (ULI) Advisory Services Program has been assisting communities by bringing together week-long panels of seasoned real estate, planning, landscape architecture, financing, marketing, and development experts to provide unbiased pragmatic advice on complex land use and development issues. Several years ago, the ULI Southeast Florida/Caribbean District Council began providing panel services of one or two days to address specific local government issues in areas such as housing, parking, redevelopment, and future land use development. The District Council has 750 members spread along the east coast of Florida from Indian River County through the Florida Keys and from Puerto Rico.

How Do TAPs Work?

A sponsor requests the services of a TAP with regard to a specific issue that can be addressed by a panel of experts in one or two days. The District Council assists the sponsor in refining the scope of the assignment and convenes a panel to address those specific issues. The sponsor works within ULI guidelines to provide background information to ULI panelists prior to the panel's convening. When convened, members of the TAP view the subject site, hear from public and private stakeholders, and then deliberate on the assigned issues. At the conclusion of its work, the panel presents an oral report to stakeholders; that is followed by a written report within approximately six weeks. To ensure objectivity, panel members cannot be involved in matters pending before the sponsor, be working for the sponsor, or solicit work from the sponsor during the panel's assignment period. Panel members volunteer their services to the project.

Who Is ULI?

ULI was founded in 1936 as a non-profit institute to facilitate the open exchange of ideas and information among local, national, and international real estate industry leaders and policy makers dedicated to creating better places. Today it has more than 32,000 members worldwide. The ULI does not lobby or act as an advocate for any single industry. It is committed to providing leadership in the responsible use of land and creating and sustaining thriving communities.

Sponsors and Panel Members

Sponsor

City of Fort Lauderdale Florida

City Council

John P. “Jack” Seiler
Mayor

Bruce G. Roberts
Commissioner, District 1

Dean J. Trantalis
Commissioner, District 2

Bobby B. DuBose
Commissioner, District 3

Romney Rogers
Vice Mayor and Commissioner, District 4

City of Fort Lauderdale Staff

Susanne M. Torriente
Assistant City Manager

Nancy J. Gassman, Ph.D., LEED Green Associate
Assistant Public Works Director – Sustainability

Ella Parker, AICP
Urban Design and Planning Manager,
Urban Design and Planning Division

Randall C. Robinson, Jr.,
Planner II, Department of Sustainable Development

Special Thanks To ~

The City of Fort Lauderdale, The Urban Land Institute Foundation, and Kresge Foundation for supporting the TAP.

The Broward Center for the Performing Arts for generously hosting the TAP.

B-Cycle, a bike sharing program, for making its bicycles available to the TAP for its Riverwalk tour using a donation from the City of Fort Lauderdale Transportation and Mobility Department.

Panel Members

Chair

Dr. Charles Bohl,
Associate Professor and Director,
Graduate Program in Real Estate Development and Urbanism
University of Miami, School of Architecture

Panelists

Muayad Abbas
Founder and Managing Partner
Urbanis Advisors

Anthony Abbate, AIA, NCARB
Professor and Associate Provost for Broward Campuses
Florida Atlantic University

Esteban L. Biondi
Associate Principal
Applied Technology and Management, Inc.

Marcela Cambolor-Cutsaimanis, AICP
Principal, Marcela Cambolor & Associates, Inc.

Marta Canaves, ASLA, IIDA
Graduate Faculty, Landscape Architecture Department
College of Architecture + the Arts
Florida International University

Robert M. Dugan, PLA, CLARB
Principal, EDSA

Jamie Telchin
President of Development, Luxury Resorts & Hotels

Intern

Eleni Andris
Senior, Ranson Everglades School

ULI Southeast Florida/Caribbean District Council

TAP Vice Chairs

Dr. Charles Bohl

Charles W. DeSanti, Managing Partner
Kitson & Partners

District Council Staff

Julie Medley
Executive Director

Carla Coleman
Florida Director

Jean Scott
TAP Report Preparation

ULI Southeast Florida/Caribbean District Council

3170 North Federal Highway, Suite 106
Lighthouse Point, FL 33064
Phone: 954-783-9504

Panel Process and Agenda

Panel Process

The City of Fort Lauderdale Riverwalk TAP process centered on the following five steps:

- Representatives from the ULI Southeast Florida/Caribbean District Council met with city staff to discuss issues related to developing long-term strategies for the Riverwalk District's resiliency in the face of climate change.
- ULI Southeast Florida/Caribbean District Council staff researched the city's goals for the TAP and, based on that research, selected the TAP members who had the expertise most tailored to addressing the issues raised by city staff.
- The TAP received a complete set of pre-meeting briefing materials about the Riverwalk and its planning history.
- The TAP session extended over two days. Its work sessions were held at the Broward Center for the Performing Arts, and its public comment meetings were held in the City of Fort Lauderdale's City Commission Chambers.
- The TAP, under the leadership of the ULI Southeast Florida/Caribbean District Council, prepared a report on its recommendations and conclusions.

Panel Agenda

The agenda (included as Appendix A) for the two-day TAP was organized as follows.

On June 24, the panel began its orientation with a lunch meeting and bicycle tour of the study area. Fort Lauderdale staff used the tour to acquaint the panel with the Riverwalk area and demonstrate the specific challenges of the area related to mobility, economic development, land use, area activation, and climate change. Following the tour, the TAP heard a presentation on climate change and sea level rise impacts on the city's downtown and the Riverwalk. After that, the panel held an organizational discussion. It then reconvened in the City of Fort Lauderdale's Commission Chambers to learn from stakeholder comments. That evening, panel members and city staff participated in a dinner meeting.

On June 25, the panel spent the morning and afternoon addressing the questions and issues that city staff had identified (see page 15 for TAP questions). In the late afternoon, the panel members presented their observations and recommendations to an audience of interested citizens and community groups.



Figure 1



Figure 2



Figure 3

The TAP spent a lot of its initial time on getting to know the Riverwalk. That included a study of the Riverwalk's planning history (Figure 1, far left) and a bike tour to get a first-hand look at the Riverwalk today (Figure 3, above). The TAP also presented its ideas to interested stakeholders and learned from their views (Figure 2, near left). The stakeholders included Genia Duncan Ellis, President and CEO, Riverwalk Fort Lauderdale, Inc. and Go Riverwalk Magazine.

Background: The City of Fort Lauderdale Riverwalk

A Brief History: A Legacy of Planning

Fort Lauderdale's history¹ with the New River goes back to 1838 when Tennessee Volunteers, under Major William Lauderdale, constructed Fort Lauderdale on the banks of the river. Frank Stranaham arrived 55 years later and, over the following years, established a permanent trading post at the site of the historic Stranahan House. That marked the beginning of the City of Fort Lauderdale.

The river and the Riverwalk linear park along it continue to play an important role in the city's life, as reflected in the city's planning history:

1926 The city's first master plan proposed the idea of a waterfront parkway along the river to secure public access.

1984 A community visioning process identified the New River as the centerpiece for building the downtown and led to the development of the first Riverwalk Master Plan.

1986 Voters approved a General Obligation Bond that enabled the development of the Riverwalk, along with other projects.

1988 and 1989 Construction of the Riverwalk began, and the city established the Riverwalk Trust to advocate and raise money for it. The trust continues today as Riverwalk Fort Lauderdale and is responsible for the programming, beautification, and promotion of the Riverwalk.

1990s Construction of the Riverwalk continued, and voters approved a \$35 million Parks Bond making additional expansions possible. In 1999, the Riverwalk Arts and Entertainment District (composed of the Broward Center for the Performing Arts, Nova Southeastern University's Museum of Art/Fort Lauderdale, Florida Grand Opera, and Historic Stranahan House Museum) was established.

2000s In 2006 the city initiated the development of a new plan for the river: the Downtown New River Master Plan. Approved by the City Commission in 2008, the plan met the charge to "think big again" and create a "compelling vision for the riverfront." The plan (Figures 7 and 8) calls for linking the north and south sides of the river."



Figure 4



Figure 5



Figure 6

The Stranahan House (Figure 4, top) connotes the site of Fort Lauderdale's first development, which was on the river. As the city evolved, the river remained its centerpiece (Figures 5 and 6, above).

¹Much of the information in this section was taken from the Fort Lauderdale Chronology (Appendix B), prepared by the City of Fort Lauderdale.

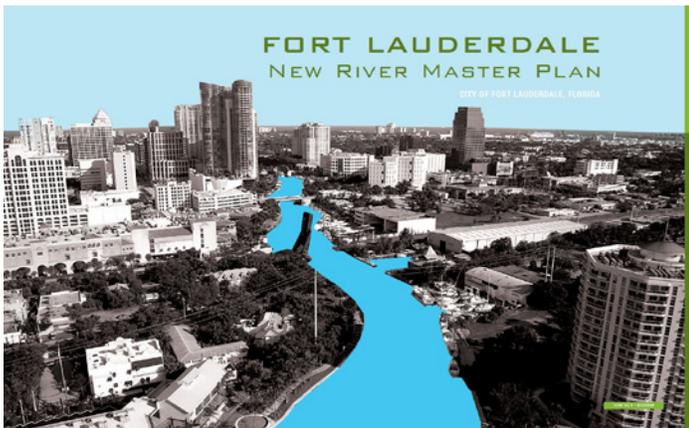


Figure 7

The study area for the Downtown New River Master Plan (Figure 7, above) is generally bounded by Broward Boulevard, SW 2nd Street, and Las Olas Boulevard to the north; SE 8th Avenue and Federal Highway to the east; SE 6th Street and SW 7th Street to the south; and SW 7th and 4th Avenues to the west (as seen in Figure 8, below).

It also established the following guiding concepts:

- Envision the river as a center (not as a barrier) by connecting clusters of uses and destinations to and across the river.
- Encourage daily life and activity to complement special events, serving both locals and tourists.
- Allow for a variety of experiences along the Riverwalk, balancing river-based activities (boating, maritime uses, and transportation) with land-based ones (culture, housing, recreation, entertainment, and commerce).
- Strengthen links to surrounding neighborhoods and destinations.
- Improve the visual experience with exceptional architectural, landscape, and streetscape design.



Figure 8

The early part of the 2000s also saw:

- Construction of more than 30 commercial, residential, and mixed-used developments that reshaped the city's skyline (Figure 9).
- The city's approval in 2003 of a Downtown Master Plan that sets forth its vision for the future of the downtown and is designed to transform the city into a livable and active urban center. In 2007, chapter four of the plan, Design Guidelines, was updated and refined based on stakeholder input. The refinements place an emphasis on high quality architecture, improvements to streetscape design, and building relationships to each other and the public realm.



Figure 9: "The Riverwalk now serves as the crown that holds together the jewels of art, history, entertainment, culture, education, and business in our urban setting along the historic New River. As Downtown Fort Lauderdale emerges as a pedestrian-friendly world-class city, look for Riverwalk to play an increasingly important role as a quiet oasis in the hustle and bustle of City life and a vibrant gathering place for our emerging community. (Source: Riverwalk Fort Lauderdale, <www.goriverwalk.com/riverwalk>).

By the late 2000, downtown Fort Lauderdale was showing the impacts of the recession on the businesses that lined the Riverwalk. That included closing of the Las Olas Riverfront complex.

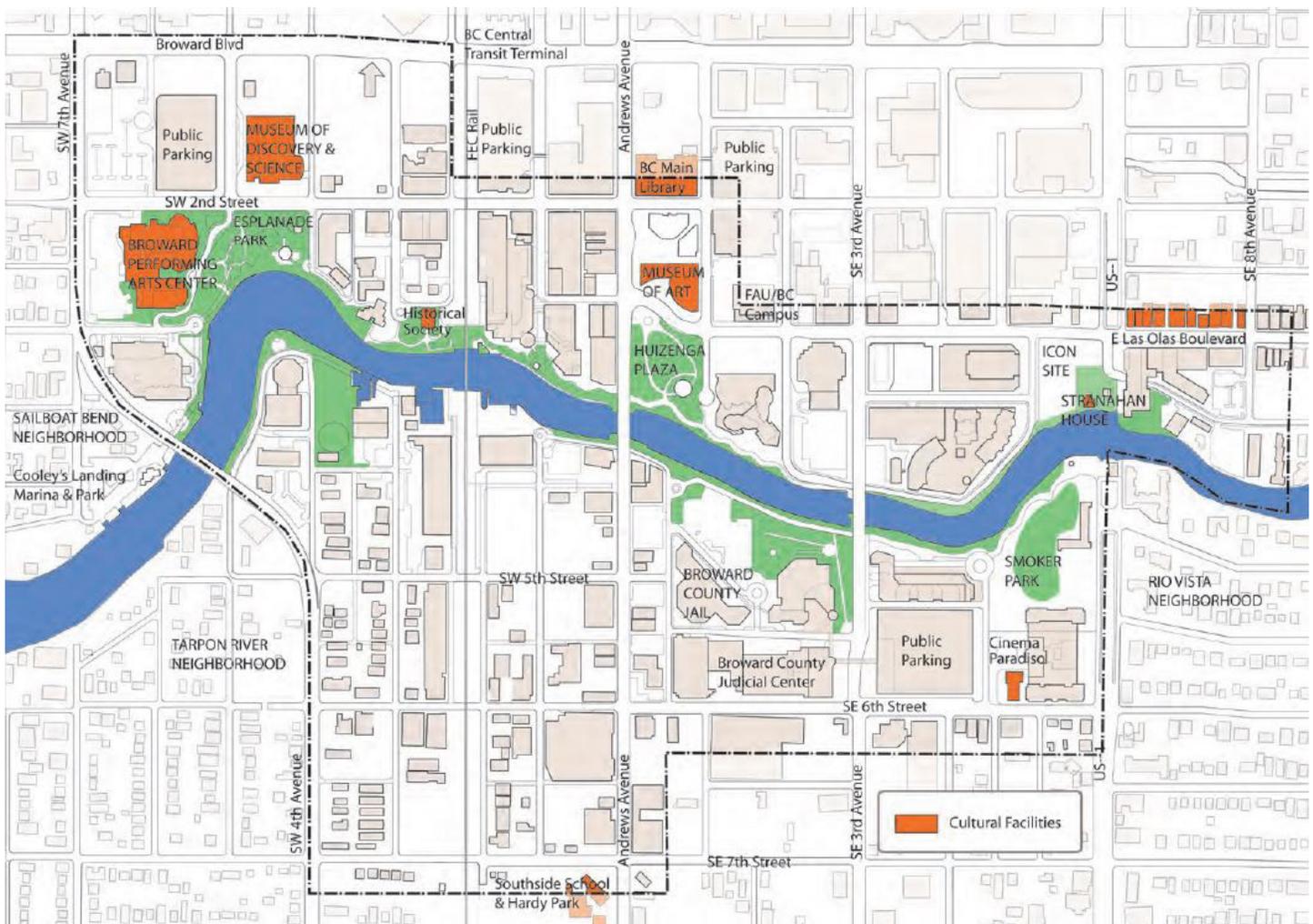


Figure 10: Outline of the Riverwalk Study Area (from the Riverwalk Arts and Entertainment (A & E)/Public Realm Plan.



Figure 11: Bisecting downtown Fort Lauderdale, the river and Riverfront Park serve as Fort Lauderdale's Central Park – what the A & E/Public Realm Plan describes as the city's “premier open space. . . .providing a signature setting for cultural amenities and civic presence.”

2010s The current decade began with the development of the Riverwalk District Arts & Entertainment (A & E)/ Public Realm Plan. Building on the Downtown New River Master Plan, the plan:

- Uses boundaries (Figure 10) that are consistent with those used in the Master Plan. The boundaries extend beyond the river and the Riverwalk to allow opportunities to visually and physically tie them to the downtown.
- Envisions the Riverwalk District “as the urban center of Broward County, providing a unique South Florida destination and a cosmopolitan experience for all to enjoy. . . .”

The intent is to improve and enhance the Riverwalk and the blocks north and south of the river by:

- Strengthening and expanding the identity and presence of arts and cultural and entertainment uses within the Riverwalk District.
- Creating lively, safe, attractive, and comfortable public spaces that draw people and activity to the river.

- Introducing a management strategy for operating, marketing, programming, evaluating, improving, and ensuring the sustainability of the Riverwalk District.

The plan looks at the Riverwalk as:

- A series of sub-areas: the Arts and Science District the Broward Center for the Performing Arts and the Museum of Discovery and Science), Broward Judicial Campus, and Old Fort Lauderdale Historic District.
- The link that ties together three downtown parks on the river: Esplanade Park, Huizenga Plaza, and Smoker Park.

Building on Fort Lauderdale's 2011 centennial celebration, the city took action in 2013 to prepare a vision plan that lays the foundation for what Fort Lauderdale will look like in 2035. The plan, *Fast Forward Fort Lauderdale: Our Vision 2035*, is the result of extensive community outreach that occurred over a two-and-a-half year period and gathered 1,562 unique ideas. The city immediately followed the Vision Plan with a five-year strategic plan, *Press Play Fort Lauderdale 2018*, that provides city staff with a roadmap of actions to move the city toward 2035.

Climate Change and the Riverwalk

Downtown Fort Lauderdale attractions include restaurants, marinas, parks, specialty events, and culture centers. Those attractions as well as the amenities of the Riverwalk have the potential to be altered because of climate change. Located directly on the tidal portion of the New River, Riverwalk's seawalls and brick walkway are inundated by extreme high tides that occur seasonally in the fall. Additionally, river traffic furthers the reach of the water onto dry land and the flooding caused by those extreme high tides impact parking, enjoyment of the path, use of the area for events and vendors, marine facilities, and water-based commerce such as the Water Taxi and boat traffic. As South Florida experiences greater fluctuations in temperatures, visitors will continue to value shaded areas where the live oak tree canopy currently exists and will also look for additional shelter from the sun. Shelter will also be a concern for more extreme precipitation events.

The Riverwalk: In the Words of Those Familiar with It

The collective comments to the TAP by those who use or have a stake in the Riverwalk brought out a number of common themes about the Riverwalk and its potential for the future.

Activating the Space More programs and events are needed to activate the Riverwalk. Events and programming should be visible and planned to functionally connect the Riverwalk and draw visitors and residents of the area to it. Events should also be coordinated and involve more collaboration and partnerships. People need to know that no matter when they go, something interesting will be happening.

Marketing a Unique Asset The Riverwalk should be marketed as a total experience: "a place to make a day and evening of it." The availability of the arts (important to residents and attracting visitors) should play an important role in that marketing. Marketing should extend internationally and promote Fort Lauderdale's three jewels: the beach, Las Olas Boulevard, and the river and Riverwalk along it, several commented. Fort Lauderdale should also be promoted as an important arts center to visit in the middle of an arts coast that extends from Miami to West Palm Beach.

Getting Around on the Water (the City's Original Road) The river is key to moving people. Water taxis should be a viable option for getting around, and that includes being affordable for those who want to make a quick trip from one Riverwalk destination to another, on both the north and south side of the New River. To make traveling by boats easier, more boat dockage and storage on the river are also important.

Updating the Infrastructure and Making It More Resilient The Riverwalk is showing its years, a stakeholder commented. In addition, it needs to be prepared for a changing climate. Trees destroyed by storms should be replaced to provide shade to reduce the impacts of a warming climate and future landscaping needs to consider both design and more extreme weather conditions. Currently, sea walls are in poor condition. Repairs and replacements of this barrier must consider sea level rise and look for opportunities to work with the water. The reality of more flooding needs to be incorporated into Riverwalk plans. "If a property is inaccessible, we can't have people on it," sums up several of the comments about flooding.

Addressing Concerns About Safety Visitors to and residents living along the Riverwalk, particularly seniors, need to feel safe using it. They need to feel it is safe for them to get out and walk along the Riverwalk, including across the river. Concerns include lighting and conflicts with fast moving bicycles. Seniors also need reasons to be out and about.



Figure 12: The New River at one, two, and three feet of sea level rise.

Capturing the Benefits of More Density The new residential units coming on line will bring an influx of new people to the area who will be looking for things to do. That underscores the importance of more programming and events to attract folks to the area. More people living in the area will also contribute to the feeling of safety.

Improving Parking, Walking, and Locating More parking (structure and improved lots) is needed to allow visitors to park and stay for the day and/or evening. Getting around once parked and locating the area's amenities is also important. The trolleys and water taxis are two ways to address mobility. Better signage and gateways will also allow a more connected experience. Reaching destinations by foot is also important. In a sunny, sub-tropical climate, that means providing more shade between buildings. Trees are key to keeping people in South Florida walking, a stakeholder observed. Interactive wayfinding signs to and along the Riverwalk; more lighting, including the emergency blue light that is used on college campuses, is also important.

Thinking Big Now is the time to think big about the Riverwalk and its potential. Ideas are needed that people can say "yes" to. That includes how to bring together all the current initiatives related to the Riverwalk in a way that moves it to a higher level and accomplishes more than individual organizations can on their own.

Issues for the TAP: Adapting the Riverwalk to a Changing Climate

The TAP was asked to focus on a number of critical issues (highlighted in the questions below) related to developing long-term strategies for the Riverwalk District's resiliency in the face of climate change. The next section of this report covers the TAP's recommendations in response to those questions. The recommendations underscore the Riverwalk's vulnerability to sea level rise and the impacts of the hotter temperatures and more intense rainfall that come with a changing climate.

The questions for the TAP:

- How will climate change issues including sea level rise and more extreme weather (hotter temperatures and more intense rainfall) impact uses on the Riverwalk?
- How can we address buildings and land uses that are currently affected in the Riverwalk District by seasonal tidal inundation (e.g. Stranahan House)?
- What infrastructure improvements and adaptation strategies could be considered to address existing and planned development along the Riverwalk Corridor to ensure climate resiliency?
- What controls (design standards, zoning, building codes) could be changed to improve climate resiliency of future development?
- What redevelopment strategies can be used to activate more sections of the Riverwalk corridor to allow the corridor to reach its full potential and how can climate adaptation be incorporated?

The Riverwalk's extreme vulnerability to sea level rise is illustrated in the collage of photos below. They show the impacts already affecting the Riverwalk and the natural and built environments along it.



Figure 13: The October 2010 high tides along the Riverwalk, as seen (clockwise from top-left) along the New River, at the Stranahan House, in front of the Museum of Science and Discovery, and along the Riverwalk.

Panel Response to the City of Fort Lauderdale Questions

As outlined in the prior section, the TAP was asked to focus on a number of key issues related to preparing the Riverwalk for a changing climate and, in particular, sea level rise. The convening of the TAP, its members observed, is testimony to the city's commitment to preparing for the impacts of climate change and looking for new ideas and practices related to that issue.

Identifying Existing Conditions and Potential Opportunities

As outlined in the prior section, the TAP was asked to focus on a number of key issues related to preparing the Riverwalk for a changing climate and, in particular, sea level rise. The convening of the TAP, its members observed, is testimony to the city's commitment to preparing for the impacts of climate change and looking for new ideas and practices related to that issue.

Planning for sea level rise and storm events is a part of Fort Lauderdale's future, a fact that the city's leadership and staff have already embraced and are addressing. The City of Fort Lauderdale is a model for integrating planning for a changing climate in all areas of the city's work.

The ULI Technical Assistance Panel

Existing Conditions

The Riverwalk, an attractive, linear park-like promenade, makes downtown Fort Lauderdale unique and is loved by both residents and visitors. As illustrated in the images below (Figure 14), the Riverwalk area includes a broad range of major attractions that draw people to downtown Fort Lauderdale and a variety of special events throughout the year. However, connectivity between the attractions and the Riverwalk is mixed. The Riverwalk is also served by water taxi service and three B-cycle bike share stations. The Wave street car, which will stop at the Riverwalk, is planned to be in operation by 2017.

For the Riverwalk to thrive in the future, the TAP continued, there are a number of obstacles to address. Despite its close proximity, the Riverwalk cannot be seen from the downtown and the streets that run by it and towards it. A passerby would not know that the gems that comprise the Riverwalk are there or how to get to them, TAP members commented. Even promotional brochures do not show the variety of experiences that the Riverwalk offers.

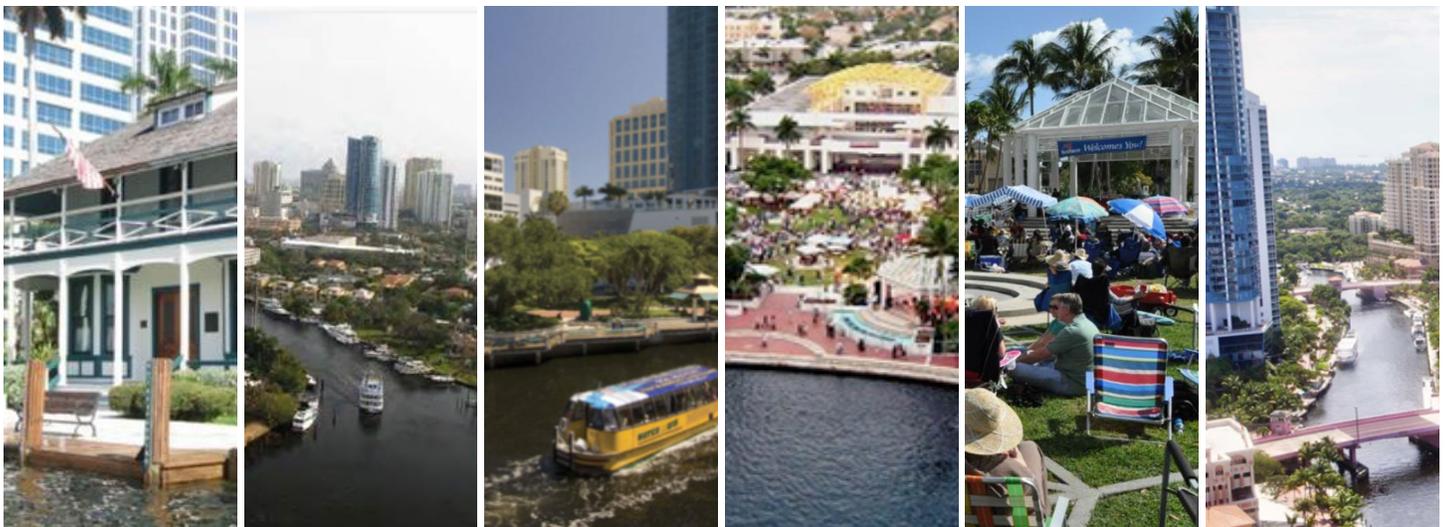


Figure 14: A snapshot collage of the Riverwalk's many assets.

Other obstacles include:

- A lack of pedestrian connectivity. That includes pathways along the riverfront that are disconnected from nearby streets and the challenge of crossing from one side of the river to the other.
- Limited, spreadout points of interest and destinations as pedestrians connect to the Riverwalk throughout the downtown area and Las Olas Boulevard.
- Disjointed programming along the Riverwalk and the roads leading to it.
- Major development projects on the south side of the river where there are no good connections to the Las Olas commercial district.
- Unclear pedestrian access points to the riverfront.
- Inactive uses, including several surface lots located along the riverfront.
- Vacant structures that remain inactive or are slated for redevelopment.
- Gaps of residual space, such as under bridge infrastructures, and underutilized and undeveloped property.
- Lack of variety of dining, entertainment, and retail uses fronting the Riverwalk.

Since Fort Lauderdale's founding days, the river has been the city's front door and the heart of its economic, social, and community life. The problem today, however, is that the river is no longer the downtown's front door and is mostly invisible. Reversing that is a core challenge that must be addressed.

The ULI Technical Assistance Panel

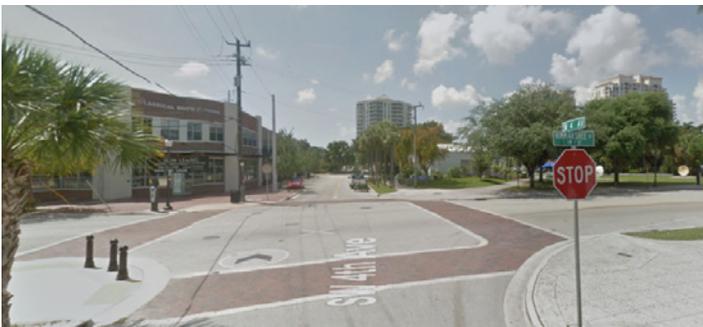
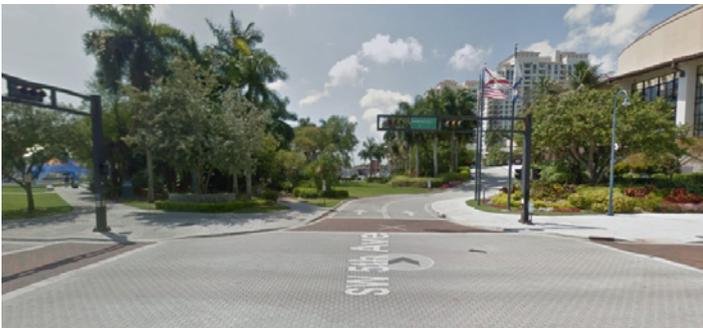


Figure 15: The river is largely invisible from the streets that run by it. Looking south there is no street view of the Riverwalk and its proximity is not marked or announced to visitors, even though they are only a couple of blocks from the river.



Figure 16: The Treasure Coast Regional Planning Council's master plan for the Intracoastal Waterway in Palm Beach County shows how more than a dozen communities have established or are pursuing marina villages and waterfront destinations to make the water a key community asset. The combination of the Riverwalk and downtown Fort Lauderdale holds tremendous potential as the most significant waterfront destination north of Miami.

Potential Opportunities

With its multiple assets, the Riverwalk presents many opportunities to become a truly great waterfront. The TAP expressed a serious caution with regard to seizing on those opportunities: the Riverwalk is long, so actions to enhance it should be strategic, focused, and carefully implemented for gaining the greatest impact.

Opportunities presented by the Riverwalk include:

- Creating innovative ways to engage and activate the riverfront, such as:
 - Locating commercial uses (cafés, restaurants, and other food and beverage venues) with outdoor seating to activate some of the existing parks and elevated terraces and capitalize on river views.
 - Using residential development to enhance the scale and character of the riverfront. Urban houses with ground-level access and lofts above ground floor commercial are two possibilities.
 - Coordinating public uses to increase traffic in the downtown and riverfront area (public art).



Figure 17: Great urban waterfronts like Vancouver's are designed to provide a safe, attractive public realm for residents, downtown workers, and visitors both day and night.

- Establish clear and safe connection points for pedestrians to experience the Riverwalk. Examples include providing:
 - Easily-accessible parking areas with clear directional signage.
 - Iconic elements to orient people as to the districts and how to connect from one side of the river to the other.
 - Safe and attractive pathways day and night.
- Complete established districts to create a destination. That could include filling in gaps with existing and adaptive reuses and creating a destination with a cohesive offering of programs.
- Capitalize on all surrounding uses such as the successful arts venues that line the Riverwalk and the presence of educational uses that could be integrated with existing uses through programming. Locations for student housing and retail targeted at students and specific to existing subjects taught (art and design) are other examples.

Establishing Pedestrian-Oriented Streets Connecting and Celebrating the Riverwalk

A big issue, the TAP stressed, is getting foot traffic to the Riverwalk. That requires making the streets leading there from downtown Las Olas are high quality, pedestrian-oriented streets designed to celebrate access to the Riverwalk and draw visitors to them as a destination. The goal should be to make the Riverwalk the front, not back yard, for Las Olas shops. Connections to the arts and cultural institutions along the Riverwalk are also needed.

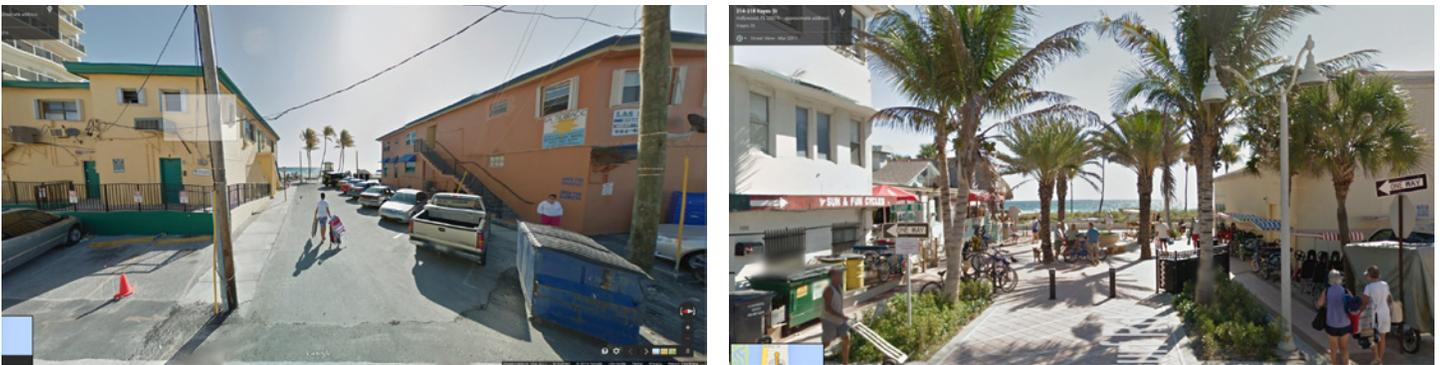


Figure 18: A comparison of unimproved and improved beach gateway streetscapes in Hollywood, Florida.



Figure 19: Indianapolis treats the waterfront as its **front** door and an amenity that adds value. That contrasts with the Huizenga Plaza amphitheater that faces downtown Fort Lauderdale and turns its back to the Riverwalk.



Figure 20: Seaside, Florida, and other examples of how streets leading to and terminating at waterfronts can incorporate pavilions, public art, lighting, and streetscaping to celebrate destination points and draw travelers to the Riverwalk.

Creating Places Along the Riverwalk

The Riverwalk, in order to become the dynamic economic catalyst it can be, should be flanked by interesting places along the way so that people want to go there. Public access that makes the Riverwalk and river belong to the entire community is essential, as is programming that pulls people to different areas along the walk.

Assets of the Riverwalk to build on include:

- Major anchors at both ends – arts district to the west and the Riverside Hotel and Las Olas shops to the east.
- The three outdoor rooms along the Riverwalk: Esplanade Park at the west edge of the Riverwalk on SW 2nd Street, Huizenga Plaza on the southeast corner of Las Olas and Andrews Avenue, and Smoker Family Park just east of SE 5th Avenue.

Attention needs to be given to addressing the natural and built barriers between the experience of being on the waterfront and being in touch with the water. The city should embrace the water, recognizing that it will continue to rise over time.

The ULI Technical Assistance Panel

The TAP offered a series of ideas to make the Riverwalk and its assets more accessible. They include:

- Better connecting the three parks to the Riverwalk.
- Redesigning Huizenga Plaza so that it faces and engages, rather than turning its back on, the Riverwalk and river. Looking south from the plaza, the water is not visible. From the Riverwalk looking north all that is visible is the blank amphitheater wall. Similar blank walls that prevent visual and actual connections are found in other areas of the Riverwalk. There should also be more places for people to see into the plaza, which is important to safety.

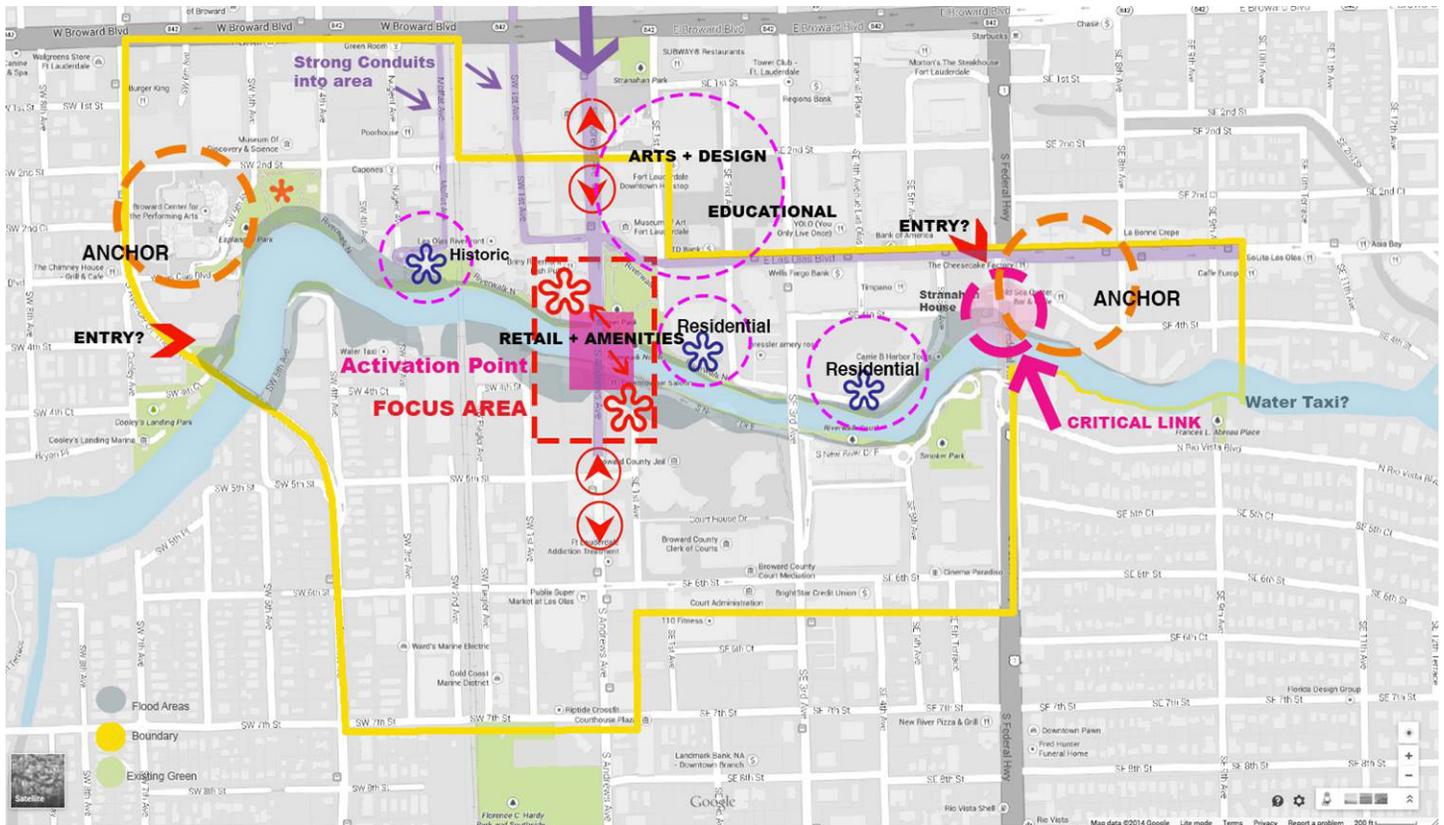


Figure 21: The Riverwalk should feature a series of linked stops along the way that draw people from one destination to another. Coordinated programming is another way to draw residents and visitors to the Riverwalk and keep them there for an afternoon or evening.

- Putting East Las Olas Boulevard between Andrews and SE 3rd Avenue (Figure 22) on a road diet to narrow the width that a pedestrian must cross. The road should be one lane in each direction, with parallel parking on one side protecting the pedestrians from through traffic. Raising travel lanes and creating shared-space in the right-of-way areas where the street intersects these public spaces would signal the presence of an important moment within the Riverfront and create an environment suitable for special events. That would allow activities occurring in the museums to “spill over” into the park areas and consequently activating the riverfront, creating a unique stage for special events and social interaction. Such treatment, the TAP emphasized, will signal drivers that they need to slow down. An example of such shared space is Rosemary Avenue in West Palm Beach (Figure 24). There the sidewalk and road are at the same grade. A street that is easier to cross will help link Nova Southeastern University’s Museum of Art/Fort Lauderdale to the Riverwalk. A more pedestrian-friendly street will create an atmosphere conducive to an art festival in front of the museum.
- Rebuilding SE 1st Avenue south of Las Olas Boulevard to allow for wider sidewalk and outdoor seating or expansion of active space on the ground floor of a future building. Also prioritize the pedestrian experience between the parking lot on SE 1st Street and the Riverwalk.
- Activating the space under Andrews Avenue within Huizenga Park (under the bridge) and incorporating an element that indicates that this is a gateway to the Riverwalk and helps pedestrians turn the corner.
- Lining the garage on the east side of the Laura Ward Plaza with active uses such as a small market, kiosks, and unique retail spaces.



Figure 22



Figure 23



Figure 24

Blank walls (Figure 22, top) disrupt visual and actual connectivity and work against walking from designation to destination. Wide streets (Figure 23, middle) also work against pedestrian connections. In West Palm Beach (Figure 24, bottom), Rosemary Avenue provides an example of an easy to cross street for pedestrians.



Figure 25: Lessons from Venice – use of monumental spaces and adapting to natural changes by living with and designing for the water.



Figure 26: Connectivity – as bridges are rebuilt, create inviting pathways under the bridge that bring in light instead of a ramp across river.



Figure 27: Activity – retail uses that allow for activity within the venue and beyond.



Figure 28: Commercial Riverfront – same level sidewalk and riverfront promenade and multi-level sidewalk and riverfront promenade.



Figure 29: The Seine embankment in Paris, France – use of urban transitions from the river to development on higher ground above it. That approach becomes necessary where there is not enough land for gradual step backs to transition between the river and development on higher ground.



Figure 30: Connectivity –innovative and simple ways to create a connected waterfront.



Figure 31: New York City's Highline – creative active programming, engaging the resources, and vertical pedestrian access.

Designing for Different Elevations and Heights with an Awareness and Accommodation for Seasonal Changes

Planning for rising water levels needs to focus on the transitional edge where water meets the land. The new design norm should incorporate water level variations and making them valuable and attractive elements of design. Future designs should celebrate the presence, flows, and fluctuations of water to heighten the experience along the Riverwalk and the properties that front it.

For the Riverwalk, planning for the transitional edge means:

- Designing for different elevations and heights based on seasonal and tidal fluctuations and rising water levels (Figure 32).
- Incorporating high quality building materials that signify the edges and create connections between them (Figure 33). Using quality materials will reduce maintenance while allowing for cycles of inundation and dryness, permitting public access, and improving the urban experience. Engineered solutions alone will not necessarily attract visitors or help revitalize the Riverwalk.
- Commissioning talented artists and landscape architects to create high quality places that signify the water's edge (Figure 34), and an attraction and enhancement to the Riverwalk.
- Building resiliency, not resistance, when working with water. A piecemeal approach (Figure 35) for building resistance to rising waters will result in discontinuity, fragmentation, and degradation of the surrounding environment, the TAP noted.
- Celebrating water and tides through design elements (Figures 36 and 37) that accommodate and feature changes in water level.
- Designing for the flood plain by creating high quality places (Figure 38) that can be flooded with rising water levels and resilient buildings designed for first level flooding by locating parking, for example, on the ground level (Figure 39).

When planning for sea level rise, the edges where the built environment and water meet are the critical area. Design attention must be paid to creating a transitional edge that works at varying water elevations.

The ULI Technical Assistance Panel



Figure 32



Figure 33



Figure 34



Figure 35



Figure 36



Figure 37



Figure 38



Figure 39



Figure 40



Figure 41



Figure 42

- Using water sensitive urban design that integrates water cycle management into land planning and engineering design (Figure 40), along with low impact development (Figure 41) to minimize impacts on the environment while creating desirable places. Low impact design can be used as part of redoing stormwater management structures by creating natural ways to hold and filter water through landscape design.
- Activating residual spaces (Figure 42), such as the spaces under bridge infrastructures, through placemaking should also be part of design.

Designing Transitional Spaces

Attention needs to be paid to the transitional spaces along the Riverwalk and how they can contribute to its social and economic re-activation. The goal should be to create a vital, active, and resilient urban place, energized by mixed-use developments, residential areas, and art and educational institutions both on and near the waterfront.

Recommended strategies include:

- Designing structures that open up and lead to the Riverwalk and embrace the river (Figure 43).
- Designing the Riverwalk to respond to tidal, flood, and sea level fluctuations by using strategies that accommodate rising water levels (also discussed in other sections) (Figure 44). Such strategies could include raised walkways and planting areas at varying height and slope combinations. In the Green Bay, Wisconsin, example, the city had turned its back on its riverfront. The redesign activates the waterfront by using decking that can be flooded at times of higher water levels. Even when water covers the lower level, events can take place on higher levels.

The transitional spaces along the Riverwalk could be used to create a strong sense of place – a desirable destination to visit.

The ULI Technical Assistance Panel

- Creating a cohesive design that treats the Riverwalk as a single place, not a piecemeal series of separate parts, (Figures 45) and builds in elements that respond to fluctuating water levels. One way (Figure 46) is to use raised areas for plantings to avoid the damaging impacts of salt water. Using consistent landscaping and scales can help tie together the different areas of the Riverwalk. Shade, both natural and artificial, is one strategy. Shade protects visitors from the sun during events and can be used to create enticing passive areas for quieter uses. Using appropriate selection and design of on-site furnishings and secure lighting systems throughout the riverfront is another option.



Figure 43



Figure 44



Figure 45

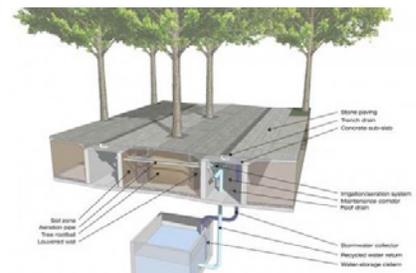


Figure 46



Figure 47



Figure 48

Shade should be part of the Riverwalk's basic infrastructure. That will require reforestation in areas where trees have been lost or there is no shade. The result should be a green necklace of shade running through and connecting the Riverwalk. The same shade should be added to the streets that come into or run by the Riverwalk.

The ULI Technical Assistance Panel

- Investing in infrastructure designed to work with water, such as water parks (Figures 47 and 48) and other flexible spaces that can be used for a variety of activities and are designed to hold water and slowly release it during periods of flooding. Bridges (Figure 49) can also be designed to work with changing water levels. Also related to infrastructure, standby power should be considered for the two stormwater pump stations near the Riverwalk.
- Exploring the use of soft natural and landscape infrastructure systems to protect the riverfront edges. Use of natural elements such as plantings, rocks, and sand can assist in the detention, retention, and filtration of water, reducing temperature, and improving air quality.
- Connecting structures above the water flood line for circulation and gathering places and designing structures such as seating areas (Figure 50) to provide an effective drainage system that works with water fluctuations and protection from flooding in times of high water events.



Figure 49

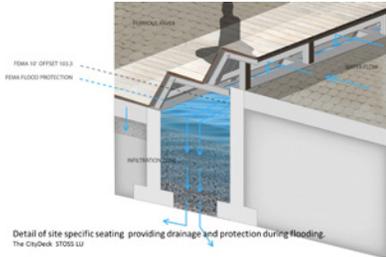


Figure 50



Figure 51

- Capitalizing on diverse program opportunities. That could include allowing unprogrammed “free zones” to be used for festivals, vendors, performances, and temporary installations that can change and adapt to climate and water fluctuations.
- Providing a variety of experiences (Figure 51), including an interesting mix of retail and eating establishments (restaurants, cafes, kiosks, and street vendors). Local small business, as opposed to franchise, establishments should be encouraged to provide authenticity of experience, emphasis on buy-local, or “Made in Broward” for instance. Riverplace in Greenville, South Carolina is an example.
- Identifying a range of typologies for hard and soft spaces, gathering and circulation, and active and leisure activities that offer flexibility and opportunity for adaptation.
- Adopting an overall, unified approach to resilient placemaking for the Riverwalk that focuses on activating and transforming dead zones and overlying long uninterrupted passive areas and forging stronger connections to cultural anchors and the Las Olas shops. Investments and placemaking interventions should concentrate on those few nodes of activity and primary access points along the Riverwalk as starting points.

Understanding and Planning for the Relationship Between Water and Land Elevations

The interaction between the river’s changing water levels and its shoreline requires a careful understanding of elevations. Elevations are measured relative to different “zeros” (called datum) for different purposes. For example, the height of the tide is measured against the low water mark while the height of the land is measured against a vertical benchmark on land. The “zeros” don’t match because the elevations are effectively in different languages. As a result a house that is at seven feet elevation is not necessarily seven feet above sea level. However, a fundamental component of planning for a resilient and lasting Riverwalk requires that agencies charged with planning use the same vocabulary for measuring land and water elevations and combine information from different sources.

Story of Sea Level Rise Maps

It is very common to generate flood maps to visualize high-risk areas. For example, FEMA has a standard procedure for hurricane (storm surge and wave action); however, there are different approaches and assumptions when generating flood maps for sea level rise. That was the case when the TAP investigated the data behind the maps supplied by different departments. It was also the case when the TAP asked for information about water elevations, sea level rise flood maps, and seawall and road elevations to prepare a conceptual sketch (similar to the illustration in Figure 52) showing land and water elevations without values. Each department (building,

Agencies use different ‘languages’ for measuring elevations for different purposes. To consider the interaction between the land and the water – especially sea level rise – a common language is needed. Living with water requires understanding where it is and where it could be in the future.

construction permits, engineering, stormwater, etc.) had the requested information, but their data did not match because they were all using different baselines. The process led the TAP and staff involved to conclude that, as a starting point for resiliency and sea level rise analysis, information must be compiled (converted into one single datum) in order to “see” water level dynamics and potential impacts. Inundation maps are a useful first approach, the TAP noted, but they must be fully described and their assumptions clearly stated, so that proper interpretation and effective use are possible.

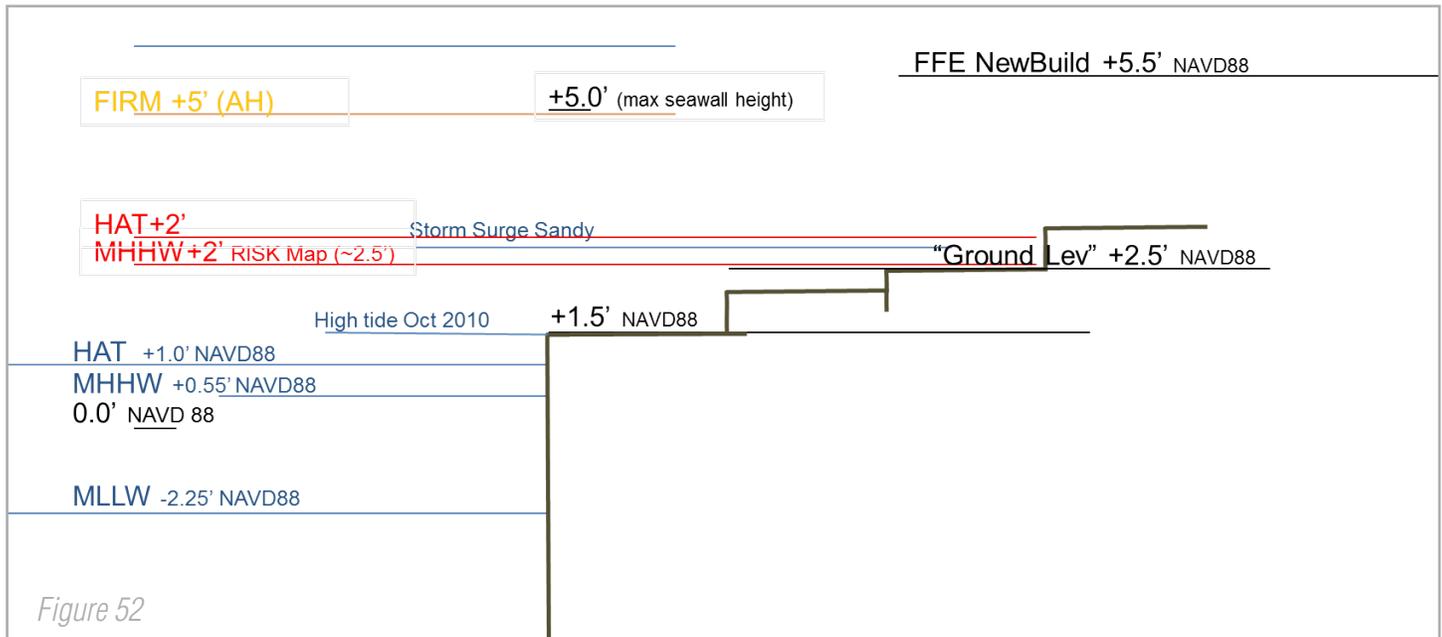


Figure 52

First Analysis Using a Cross Section Sketch

In Figure 52, above, the blue lines to the left show the water levels (average high and low water marks, as well as experienced extreme conditions), with the black lines representing the sea wall. The impacts of flooding at high tide events (such as high tides in the fall) are clear but expected for the lowest portions of the Riverwalk as they were designed so that pedestrians can be closer to the water under most normal conditions. The analysis shows that, in the short term, there is only a management need – i.e., coordinating Riverwalk events with a tide table in hand. If, for example, an extreme high tide is predicted, vendors and events should be moved away from the lowest steps, which are designed to flood.

However, the TAP observed, there is one certainty: the current water levels will change over time with greater rises in sea level. As illustrated in Figure 53, below, conditions 30 to 40 years from now will be different from today. Understanding the relation of the water to the shoreline today and in the future requires a precise evaluation of specific locations.

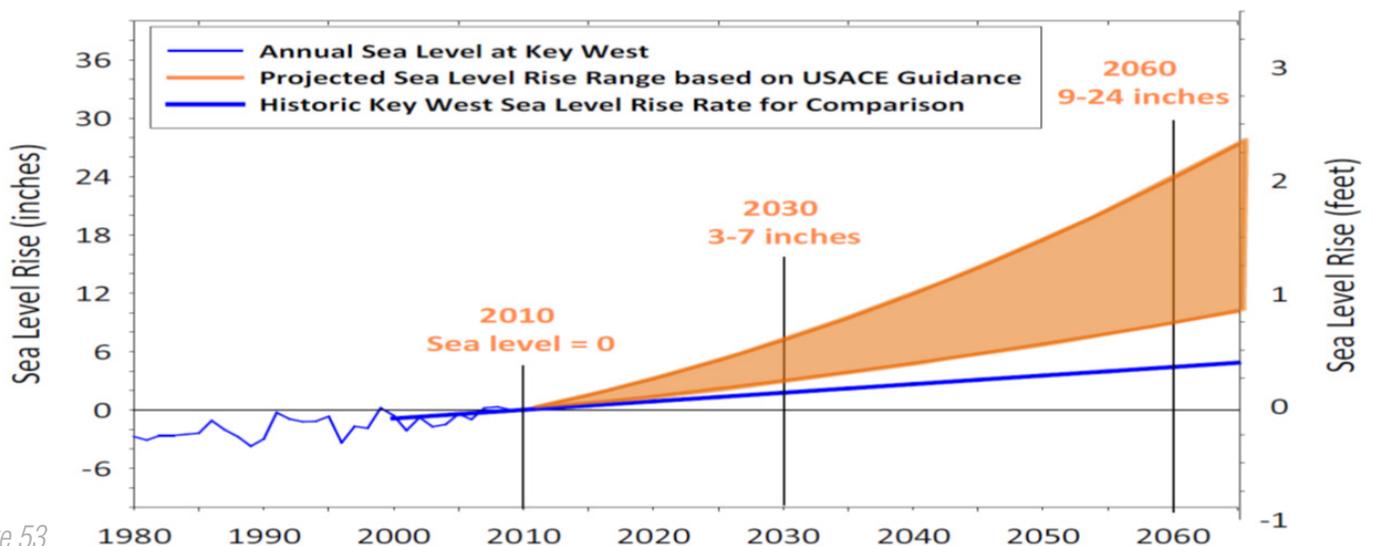


Figure 53

Scaled drawings of water levels in normal and extreme weather events are requisite to understanding and visualizing issues. Water levels (Figure 54, below) will also be dramatically impacted by higher storm surges in the future, a factor that should be planned for. But there is a high degree of scientific uncertainty regarding exact values at this point.

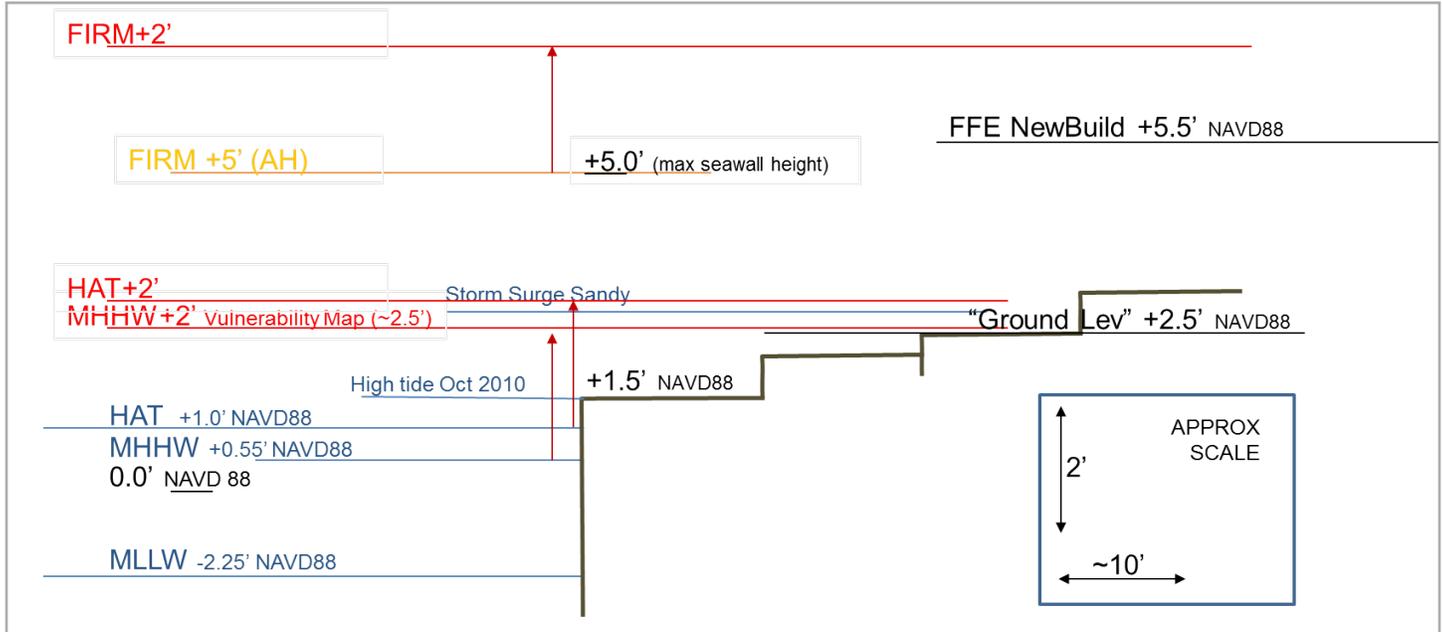


Figure 54



Figure 55



Figure 56



Figure 57

Looking at a Range of Solutions

One solution is to start raising habitable space and structures over the next 50 years to adapt to changing water levels. Shoreline solutions, both for public and private uses, include:

- Modifying the shoreline through environmental features such as the use of vegetation that helps absorb water (Figure 55).
- Elevating the shoreline through, for example, raising structures (Figure 56) and creating promenades with elevation transitions (Figures 57, 58, and 59).
- Using stormwater management techniques (Figure 60).
- Embracing flooding conditions (Figure 61).



Figure 58



Figure 59



Figure 60



Figure 61

The River Is Also for Boats

The river is also the navigable bloodline of a rich recreational system and a major industrial sector, both of significant economic value to Fort Lauderdale.

Boats and their navigation requirements must be considered when planning for the future of the Riverwalk. The river in the area of the Riverwalk has a complex boating system that allows for different types of boats and uses. The river:

- Contributes significantly to Fort Lauderdale's position as "The Megayacht Capital" of the world (Figure 62).
- Has a well-developed infrastructure system for serving boats (Figure 63) and a strong boating industry (Figure 64).
- Offers opportunities for commercial dockage (Figure 65), public access from the water (day use docks), and public access to the river (water taxi and tour boat docks).



Figure 62



Figure 63



Figure 64

The intense boat use on the river underscores the importance of keeping it navigable and easy for boats to move around, the TAP noted. For the Riverwalk and the businesses along it to capitalize on the number of boats on the river, more and better use of public docks may be desirable. The city has done a great job building day-use docks and water taxi stops, but additional improvements may still be achieved by integrating those facilities with the public uses along the Riverwalk. It should be easy for someone traveling by boat of any kind



Figure 65

with more authority to curate the Riverwalk corridor should be done carefully and collaboratively with all the interested organizations, starting with the Riverwalk Trust and Downtown Development Authority as the core and adding other interested parties. It should also involve investigating and learning from the experiences of other such organizations where there are successful waterfronts. The investigation into other such organizations should involve a systematic survey of best practices to collect the best ideas for Fort Lauderdale including those gathered in the recommended Great Riverfronts Symposium. Three good examples for such a role are the Bryant Park Restoration Corporation in New York City that is responsible for park activities and events as well as ongoing security, maintenance, and marketing; Waterfront Toronto that is charged with waterfront revitalization; and Waterfront Partnership of Baltimore that is dedicated to improved waterfront maintenance, beautification, and visitor services.

Conclusions

The Riverwalk is a highly valuable amenity that the community has not taken full advantage of, the TAP concluded. It adds value to the public, those who use it, and the development along it. However, the Riverwalk is not a static amenity. It will have to evolve and adapt over time to a changing climate and water levels due to sea level rise. Walling it off or vacating it will kill the goose that laid the golden egg. Instead, it is necessary to accept that change will happen and plan for it.

Common themes to consider when moving forward:

- Emphasize pedestrian connectivity into and along the Riverwalk. That should include features that not only help move pedestrians to the Riverwalk but also celebrate it. Pedestrian connectivity between area parking facilities, SE 2nd Street, Las Olas Boulevard, Riverwalk, and SE 6th Street need to be simple to locate, identify, and use in terms of spatial, functional and material design. Wayfinding elements should complement the ease of access and be designed so that information is presented to users in proper sequence for safe and convenient movement and decision-making.
- Focus on creating distinctive, inviting places along the Riverwalk. Those places should open up to and embrace what is now a largely invisible and hard to reach river and should be designed to work with changing water levels.
- Understand and recognize that living with the water is the new mantra. That means accommodating it where possible and fortifying it as is appropriate. It also means designing for the transitional edge where the water meets the built environment. Solutions focus on using elevations where parts of structures are raised to higher elevations and lower levels are designed for more passive uses that can be flooded and still retain value. Pursuing an Adaptation Action Area designation for the Riverwalk could be part of creating a Riverwalk that is designed to live with the water.
- Activate the Riverwalk by creating focal points for coordinated events and different types of activities sponsored by multiple organizations working through collaborations. Daily activities, along with big events, should be part of the package. Someone considering going to the Riverwalk should know that something interesting should be going on.
- Look into creating and research best practices for forming a single entity (a Riverwalk “urban curator”) to coordinate activities and improvements. That could include hosting a great waterfronts symposium to bring new eyes and ideas related to enhancing the Riverwalk and the area around it.

The Riverwalk and the river it runs along should once again be the downtown's front door. To do that, the investment plan should focus on making the Riverwalk one of the world's great waterfronts – a place that provides more daily variety in landscape, activities, and amenities for residents, downtown workers, and everyday visitors and that people from all over the world want to visit. It should also be designed to the new reality that the water will come and it will recede.

The ULI Technical
Assistance Panel

Appendix A: TAP Agenda

ULI Southeast Florida/Caribbean
Technical Advisory Panel (TAP) Workshop
Fort Lauderdale Riverwalk Corridor Agenda
June 24 & 25, 2014

Tuesday, June 24

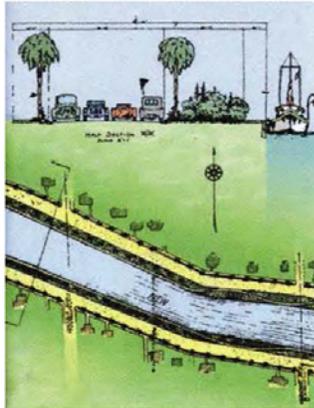
- 12:00 – 1:30 pm Panel arrives, meets over lunch, Tarpon Bend Restaurant - upstairs, 200 SW 2nd Street, Fort Lauderdale
- 1:30 – 3:00 pm Bicycle tour of Riverwalk corridor, Please dress casually, Leaving from Esplanade Park, midway between Tarpon Bend & Broward Center
- 3:00 – 4:00 pm Presentation on sea level rise/climate impacts & panel organizational discussion, Broward Center for Performing Arts Workroom, 201 SW 5th Avenue, Fort Lauderdale
- 4:00 – 5:00 pm Hotel check-in (if needed) and break, Riverside Hotel, 620 E. Las Olas, Fort Lauderdale
- 5:00 – 5:30 pm Travel to Fort Lauderdale City Hall for meeting with stakeholders
- 5:30 – 6:30 pm Panel discussion with stakeholders, Fort Lauderdale City Hall Commission Chambers, 100 N. Andrews Ave. This meeting is open to the public.
- 7:00 – 9:00 pm Dinner & discussion, Grille 401- upstairs , 401 E. Las Olas, Fort Lauderdale, (2 blocks from hotel)

Wednesday, June 25

- 7:30 – 8:30 am Breakfast at hotel for those staying onsite Riverside Hotel
- 8:30 – 10:00 am Panel work session, Broward Center for the Performing Arts Workroom
- 10:00 – 10:30 am Break
- 10:30 am – 12:30 pm Panel work session
- 12:30 -1:30 pm Working lunch
- 1:30 -3:00 pm Panel work session
- 3:00 -3:30 pm Break
- 3:30 – 5:00 pm Panel review of draft report & power point prep
- 5:30 – 6:30 pm Presentation of draft report; Questions & Answers, Fort Lauderdale City Hall Commission Chambers, 100 N. Andrews Ave. This meeting is open to the public

Appendix B: Fort Lauderdale Riverwalk Chronology

Fort Lauderdale Riverwalk Chronology



- 1838** Tennessee Volunteers, under Major William Lauderdale, construct “Fort Lauderdale” on the banks of the New River.
- 1893-1895** Frank Stranahan arrives to run an overnight camp and ferry crossing that serves stages traveling south to Lemon City (Miami). He establishes a permanent trading post at the site of today’s historic Stranahan House (top photo), which marks the beginnings of the City of Fort Lauderdale.
- 1896** FEC Railway arrives, linking Palm Beach to Miami, bridging the New River, and spurring agricultural growth.
- 1904** Andrews Avenue Bridge constructed over the New River, spurs growth of Brickell Avenue as a business center.
- 1911** Town of Fort Lauderdale incorporated.
- 1920-1925** Land Boom. Fort Lauderdale begins to change from an agricultural community to a resort town. City grows to 12,000 residents and with thousands of visitors.
- 1926** Richard Schemmerhorn, Jr. develops City’s first Master Plan, proposing “waterfront parkways” along the river to secure public access (second photo from top). Great Miami Hurricane strikes South Florida, setting an early start to the Great Depression.
- 1941-1945** World War II. Development slowly returns to the City’s core, with uses along the River’s edge primarily geared toward industry (center photo).
- 1956-1960** Voters approve construction of the Henry E. Kinney tunnel under the New River at Federal Highway. In 1960 Florida’s first vehicular tunnel is complete.
- 1960-1970** City’s population increases by over 65% from 83,648 to 139,590.
- 1970-1980** Businesses leave downtown Fort Lauderdale for growing western suburbs.
- 1984** Fort Lauderdale sets out to become the “Best City of its Size by 1994”. A community visioning process identifies the New River as the City’s centerpiece around which to build a new downtown. A Riverwalk Master Plan is developed.
- 1986** Voters pass a \$47 million General Obligation Bond that paves the way for development of the Riverwalk and other large-scale redevelopment projects.
- 1988-1989** City establishes the Riverwalk Trust to develop fundraising and advocacy efforts for planned linear park. Construction of the Riverwalk begins.
- 1991** The Broward Center for the Performing Arts opens, providing an anchor for cultural programming and serving as a catalyst for downtown revitalization.
- 1993** Riverwalk construction continues on the north side of the New River from the FEC railroad tracks east to NE 5th Avenue (second photo from bottom).
- 1996** Voters pass a \$35 million Parks Bond, enabling further expansion of the Riverwalk.
- 1998** Construction continues on the south side of Riverwalk from SE 3rd Avenue east to the Kinney Tunnel and from the 7th Avenue Bridge east to 4th Avenue.
- 1999** Riverwalk Arts & Entertainment District established, consisting of the Broward Center for the Performing Arts, Museum of Art, Florida Grand Opera, and Stranahan House.
- 2003** City approves the Downtown Master Plan outlining design guidelines for future development to transform downtown into a livable and active urban center with walkable, tree-lined streets, a multi-modal circulation system, distinct public spaces, and high quality buildings, helping to create an exceptional urban environment.
- 2000-2008** Downtown’s rebirth is the catalyst for more than 30 commercial, residential and mixed-use developments that reshape Fort Lauderdale’s skyline, bring thousands of new residents and employees to the City, and create a 24-7 downtown (bottom photo).
- 2006** The City begins work on a New River Master Plan, an initiative to link the two sides of the River and create a seamless zone for public recreational and cultural activity.
- 2007** Thousands line Riverwalk as it hosts the nationally recognized Winterfest™ Boat Parade for the first time.
- 2008-2010** The impacts of the recession are felt as vacancies rise in downtown condos and businesses along the Riverwalk and at the Las Olas Riverfront complex close.
- 2011** City’s Centennial! The Riverwalk Trust, Downtown Development Authority, Broward Center for the Performing Arts, and City of Fort Lauderdale join efforts to initiate and produce the Riverwalk District Plan, and further the legacy of our landmark destination.