



2018 BROWARD LEADERS ROUNDTABLE ON CLIMATE AND RESILIENCE

Summary Report

June 2018

Broward County Environmental Planning and
Community Resilience Division



2018 Broward Leaders Roundtable on Climate and Resilience Summary Report

Broward County Mayor Beam Furr and Senator Nan Rich, Broward County Commissioner, hosted the 2018 Broward Roundtable on Climate and Resilience on Thursday, May 24, at the Long Key Nature Center in Davie.

Fifty-nine people attended, specifically:

- 32 municipal representatives from 21 different cities, including 14 elected officials and 18 staff.
- 9 business representatives.
- 18 representatives of Broward County, media organizations, observers, and others.

Top Themes

- Sea level rise and flooding are current challenges, not future problems.
- Noteworthy developments are on the horizon:
 - Recommendations for new seawall height standards will be released later this year.
 - Broward County's future conditions 100-year flood map will be developed over the next 12-18 months.
 - Risk-based insurance rates, both from FEMA and the private market, are coming.
- We are moving from planning to action. Broward County government will lead development of a resilience plan over the next two years, in collaboration with city governments, the business community, and other stakeholders.
- Cities and the business community are engaged, but even more engagement is needed.
- The regional sea level rise projection must be considered in every relevant investment, including Florida Department of Transportation (FDOT) projects.
- Communication and coordination is key.
 - Umbrella messaging should be developed to counteract negative narratives and share success stories. (e.g., a #ResilientTogether campaign)
 - Individual city investments should be coordinated and linked into a larger-scale county-wide plan to ensure compatibility in project design and function.
 - Cities are the front lines of service delivery and are closest to our residents. Their educational and advocacy efforts on resiliency issues are critical.

Detailed Report

Opening Presentation

Following introductory remarks from Mayor Furr, Senator Rich, and Assistant County Administrator Alan Cohen, meeting facilitator Steve Adams (Director of Urban Resilience for the Institute of Sustainable Communities), **Dr. Jennifer Jurado, Chief Resilience Officer and Director of the Environmental Planning and Community Resilience Division, Broward County**, delivered an opening presentation outlining the main challenges facing Broward County.



- Broward faces a growing flood risk, associated with rising seas and groundwater levels, storm surge, and more intense rainfall events.
 - While other long-term pressures, such as saltwater intrusion of the Biscayne Aquifer, are more gradual processes that require long-term solutions, flood risk is acute and immediate.
 - County-wide vulnerability to flood hazards is increasing. Evidence includes:
 - Regional sea level rise projection developed by the Southeast Florida Regional Climate Change Compact.
 - Groundwater level data showing a foot or more increase in coastal areas in the last several decades.
 - Modeled infrastructure exposures based on changes in hydrology and development trends, revealing vulnerable assets in coastal and inland communities.
 - The overall implications are impacts to the functionality of drainage systems, wastewater collection systems, septic systems, and water management operations, with level-of-service implications for interconnected and interdependent systems (e.g., neighborhood drainage limited by discharge capacity of canals, and increased flooding of critical roadways and commercial centers).
- The Broward community is engaging in diverse sustainability and resiliency planning efforts.
 - Efforts include those undertaken by the County, its cities, and the Broward Metropolitan Planning Organization.
 - Regional coordination and standards needed to maximize these efforts
 - Site-specific design standards.
 - Project standards.
 - System-based approaches.
- Resiliency planning has been a process of evolution
 - Advancement and application of tools.
 - Integration of science.

- The County has embarked on a formal process for advancing regional resilience standards over multiple years in collaboration with local governments, the private sector, and community stakeholders. It will address a 2-foot increase in sea level rise projected for the year 2060 (relative to 1992). To advance these priorities, the County has:
 - Established a future conditions map series as part of the Broward County Code of Ordinances.
 - Approved a future conditions average wet season groundwater table map for drainage and water management system design.
 - Partnered with the U.S. Army Corps of Engineers in a hydrodynamic study to develop a recommended top elevation for seawalls.
 - Commissioned a modeled update of the 100-year flood elevation map to inform finished floor elevations and design elevations for critical infrastructure.

- Climate change has economic implications.
 - Forthcoming reform of the National Flood Insurance Program is expected to include restructuring of flood policy rates based on individual risk of parcels.
 - A study, “Risk-Rating 2.0,” is underway and is expected to provide the basis of proposed rate adjustments.
 - A risk-based approach to NFIP policy pricing is expected to result in sizeable increases in the cost of flood insurance in Broward County and across the State absent demonstrable efforts by local governments to reduce flood risk through resilient standards, community design, infrastructure upgrades, and water management improvements.
 - There is a strong economic basis for owning and addressing flood and climate risk based on interconnected regional economics, involving
 - Credit bureau ratings
 - Cost of private sector financing
 - Availability and cost of flood insurance
 - Implications for real estate values and the overall tax base.
 - Recent FEMA authorized flood hazard mitigation studies have revealed a minimum 1:6 return on investment for flood reduction improvements
 - With Florida serving as a donor state in the NFIP, we will benefit by directing more of our financial resources to flood improvements that reduce local exposures and losses and provide immediate benefit in keeping the cost of flood insurance in check.

- A regional risk assessment informed by the future conditions flood modeling will be completed in the next 12 months.
 - This modeling will reveal county-wide future conditions flood risk.
 - It accounts for the influence of sea level rise and rising groundwater levels on the performance of regional drainage canals and water management systems, upon which western communities rely for flood protection.
 - As water levels rise, system storage is reduced, discharge capacity is reduced, and flood levels will increase. This study will be the first comprehensive analysis integrating each of these influences on the performance of the water management system.
 - The modeling will provide insight as to flood risk in space and time, and when combined with an analysis of infrastructure, is expected to provide a solid foundation for a phased infrastructure improvement plan based on immediate, mid-term, and long-term flood risk.

This presentation sparked the [first roundtable discussion of the day](#) among participants, who were invited to respond to the presentation and share their personal observations and experiences. Primary discussion points are summarized:

- **Funding:** Many communities are already experiencing flooding. Areas of older development are landlocked. There is no discharge of flood water if water control structures are not opened, and we understand that some of these gates won't function as designed with just 6 more inches of sea level rise.

What is the status of funding? Are there funding opportunities?



Discussion: While

FEMA may be looking to expand support for hazard mitigation funding, and there is an opportunity to inform disaster recovery projects through the Local Mitigation Strategy, ultimately there is no organized source of readily identifiable funding.

A comprehensive plan will aid our collective lobbying for state and federal funding, and we need to work closely with and leverage the influence of the business community. One option may be a green bond initiative or something similar in the future, but there's no proposal yet.

Cities, along with County, each have a capital budget process. We all need to work to maximize resilient project opportunities as part of our respective budgets and ensure all projects are designed in accordance with future conditions and resiliency standards.

- **Bridges:** Is the issue of bridge clearance being addressed?

Discussion: We are generally aware that this is an outstanding need that will need to be coordinated.

- **Coordination:** Projects are often advanced through processes where the resiliency question remains unasked. How do we coordinate so that we don't lose project opportunities?

Discussion: City staff needs to ask this question of project applications and with agency partners. Direction needs to be provided by each of our commissions regarding resiliency planning. Is this question embedded in each organization's planning and budget process? If not, it needs to be.

- **Real Estate:** Individuals ask the question, “When do I sell my house?” We need to have consistent messaging as how we address these types of questions. What’s the answer?

Discussion: Residents do not need to sell their homes, but they do need to understand the necessary improvements in community and regional infrastructure required to protect their individual investments. We will continue to coordinate with one another to advance these improvements. As a community, we will better understand the amount of flood risk reduction that can be achieved with this coordinated approach. Then, individual risk tolerance will need be considered, similar to the purchase of properties located in flood hazard areas, hurricane evacuation zones, and FEMA flood zones today.

- **Agency Partners:** There is a need to coordinate with the federal government, possibly through the Florida League of Cities and the Florida Association of Counties. Local governments need more direct engagement; mayors are locally responsible and will oversee what happens with projects, planning, and economics. Who are likely partners?

Discussion: The Broward MPO is an important partner working to embed resilience in the 2045 Community Transportation Plan. The South Florida Water Management District is an obvious and well-positioned partner given the agency responsibility and taxing authority.

- **Advocacy:** There is a need for an action-oriented paradigm with greater state and federal engagement.

Discussion: The Economic Resilience Work Group organized in support of the Southeast Florida Regional Climate Change Compact is expected to play a strong role in advocating for plans and funding. The Hollywood Chamber signed the “Statement of Regional Collaboration on Economic Resilience” as part of the Coastal Coalition and recognizes the need to plan and act regionally. Part of this can include advocacy for the top 3 flood projects that cities were asked to submit to the County and the Coastal Coalition as examples of immediate opportunities and needs.

- **Resilient Project Planning:** What types of resiliency projects are being considered?

Discussion: Slide 24 of Dr. Jurado’s presentation included a summary of the top 3 priority flood projects submitted by Broward municipalities in response to this call, which included seawalls, canal improvements, and stormwater improvements. These could be starting points for a regional infrastructure improvement plan, as examples of where dollars would go and the benefits to be achieved.

- **Groundwater Storage:** Is groundwater storage of flood waters a possibility?

Discussion: The geology in Biscayne Aquifer is too porous to provide for long-term groundwater storage; water moves laterally too easily, and it would also influence the groundwater table. The Lower Floridan Aquifer has been targeted for Aquifer Storage and Recovery, but ASR wells in Broward County have performed inconsistently, and it is unlikely the wells could accommodate the expected volume of flood waters.

Instead, water utilities and local governments in Palm Beach and Broward County have been collaborating for 11 years to plan, design, and fund the construction of

the C51 Reservoir, a large surface water reservoir in western Palm Beach County where the tighter geologic formation can support long-term water storage. It will capture and redistribute surface water runoff for environmental, drainage, flood control, and water supply purposes.

- **General:**

- **Water Supply and Management:** There is a need for long-term coordination and engagement, to retain knowledge and interest. Many millions of dollars are being spent on stormwater improvements. The last rain event revealed additional areas of need, and rains are becoming heavier and more frequent. System maintenance is an issue and likely contributed to the flooding at Sawgrass Mills. Water supply, and infiltration and inflow into wastewater collection systems, are other critical issues.
- **Drainage:** Drainage is a major issue, requiring coordination with the drainage and water control districts, yet they are not present. Staff acknowledged that the drainage/water control districts should have been invited to the Roundtable. However, this important stakeholder group is engaged through the Water Advisory Board, Technical Advisory Committee, and forthcoming modeling study. Future roundtables will include drainage/water control district representatives.
- **Communications and Finance:** This is not just a coastal issue, as evidenced by both the flooding at Sawgrass Mills and the importance of the gravity-based stormwater management system that serves the entire county. We need to own this risk, meaning be prepared to fund. We can't just look to the federal government, we need to be prepared to participate financially, such as the cost-share model supporting the beach nourishment program. The business community is now at the table, but they want to know what they should do, and we need to manage the conversation responsibly, counterbalance negativity with success stories and solutions to future challenges.
- **Role of FDOT:** Many roadway projects are being advanced. They all have drainage components, these can work for or against communities. 595 expansion impacted drainage negatively. FDOT projects need to incorporate our design standards and be compatible with local planning. Communities should ask about the future conditions assumptions FDOT is or is not using, in addition to the questions typically raised during planning and public hearings.
- **Property owners:** Forty percent of runoff comes from individual properties. Elected officials need to enact and enforce codes requiring onsite retention and individual resilience. For example, forthcoming recommendations on seawall top elevations will serve as the basis for public policy decisions. Ultimately these and other investments need to be coordinated.
- **Site design:** As buildings are elevated, roads and driveways will also be elevated. We will need the collective upgrade of infrastructure. Decades from now the first floor may become an uninhabited level, recognizing occasional flood and focus on water management through adjacent infrastructure. We need to recognize implications for structures below new design elevation (e.g., designation as "basement" per Miami Beach example).

Business Panel and RMS Presentation

Assistant Broward County Administrator Alan Cohen then moderated a panel discussion among James Donnelly, Chair of the Broward Workshop; Dan Lindblade, CEO of the Greater Fort Lauderdale Chamber of Commerce, and Bob Swindell, President and CEO of the Greater Fort Lauderdale Alliance. Among the key points that emerged from this discussion are the following:

- Business community involvement in resilience is vital, especially given their influence with state and federal governments.
- Business leaders are understanding that south Florida won't have an economy if we don't deal with this issue.
- Government is rightly taking the lead, but business should be and wants to be a partner.
- There is a lot of business opportunity in resilience investments, which alone would motivate the private sector to be involved.
- A few years ago, this issue may have been on the radar, but down the list. It has moved to the top or will be there soon.
- Messaging is a primary concern. We can't become alarmist. There are indications that property values may already be declining in the more vulnerable areas of Miami Dade County.
- Investors want to see the region acting with confidence to solve this problem; that will help instill confidence in businesses looking to locate or expand in south Florida.
- Companies want predictability and a level playing field. Even if certain things cost more—for example, the South Florida Building Code—businesses can incorporate that into their cost equation as they relocate, build, invest. Businesses also won't mind necessary regulation if they see there's a level playing field.
- Many companies have educated themselves. After storms, they were asking for Category 5 buildings and generators. What's the "Category 5" version of resiliency?
- Business wants a call to action—e.g., top 3 things the business community can do to help move economic resilience forward.
- If we can demonstrate return on investment, that will convince the business community. What does that look like? Insurance rates that aren't skyrocketing, real estate values that are holding steady or increasing.
- It may be more difficult to convince businesses and residential property owners to invest to protect what's already there, as opposed to a return.
- Politics melts away the more local the discussion, and when resilience is addressed as an economic issue. A consensus is slowly forming at the state level, not only between Democrats and Republicans, but between northern and southern parts of Florida.
- The state funded a return-on-investment study for the Segment 2 beach renourishment several years back. An ROI analysis for resilience investments would be a powerful tool.



From left: James Donnelly, Chair, Broward Workshop; Bob Swindell, President and CEO, Greater Fort Lauderdale Alliance; Alan Cohen, Assistant County Administrator, Broward County; Dan Lindblade, CEO, Greater Fort Lauderdale Chamber of Commerce

- The media needs to hear from elected officials and other stakeholders about the areas to focus on as they cover sea level rise and resilience. They plan on asking about candidate's views and plans in endorsement interviews.

Michael Schmidt, Senior Account Executive with Risk Management Solutions (RMS), then spoke to the Roundtable about the importance of understanding the risk models used by the finance and insurance industries and engaging early to ensure that projects and plans advanced by local governments to address resilience will be analyzed favorably, allowing for the continued funding from capital markets of affordable insurance.

A working lunch evolved into the [second roundtable discussion](#) among the attendees. Additional top themes included:

Sea level rise and flooding are current challenges, not future problems.

- Countless examples of high-tide flooding and localized flooding from heavy rain events are available.
- Some recent major government investments have made things worse, e.g., flooding in Davie exacerbated by the Interstate 595 expansion.
- Six inches of sea level rise eliminates much of the effectiveness of the county's existing gravity-based drainage system; we need to invest in pumps.
- Residents need benefits today, not just in the future.

Noteworthy developments are on the horizon:

- Recommendations for new seawall height standards will be released later this year.
- Broward County's future conditions 100-year flood map will be developed over the next 12-18 months.
- Risk-based insurance rates, both from FEMA and the private market, are coming.
 - A FEMA report due in 2020 will inform changes to flood insurance rates.
 - Analysis of resilience plans must use industry-standard insurance models.

We are moving from planning to action. Broward County government will lead development of a resilience plan over the next two years, in collaboration with city governments, the business community, and other stakeholders.

- The county is shifting to a locally-based, action-oriented paradigm but will continue to advocate for long-range plans on the state and federal level.
- We cannot ask for funding now because the South Florida Water Management District (SFWMD) and federal plans do not consider sea level rise.
- The new economic resilience working group led by the Compact and the business community will advocate for plans and funding. This may include the development of common talking points that cities can use in discussions with credit rating agencies.

Cities and the business community are engaged, but even more engagement is needed.

Cities

- Mayor Furr expressed the hope that in one year, cities will have completed or be in the process of completing vulnerability assessments, including consideration of

policies and future conditions maps advanced by the County, and the Roundtable can reconvene to plan and coordinate resilience projects.

- He also suggested that each city devote at least a significant percentage of one staff position, if not one or more full positions, to resilience issues.
- Each city capital budget should maximize the benefits of investment—sea level rise, flooding, and resilience must be considered.
- New projects should be considered for their impact on the tax base.
- More frequent meetings of this kind are needed.
 - Annual Roundtable (late spring/early summer) and gathering at annual Compact Summit (fall/early winter) at a minimum, but perhaps as often as quarterly.
 - Established forums (League of Cities, etc.) could function as one of these additional meetings.

Business community

- The business community is at the table and wants to know specifically what it should do.
- There is a need to counterbalance negative stories by highlighting successes in cities, etc.
- Businesses like predictable costs.
- Investors need to think ahead of time about these issues to protect their investments; this in turn would protect the tax base.
- Cities' role in resilience is important and resonates with business because owners and businesses frequently identify with their location.

The regional sea level rise projection must be considered in every relevant investment, including Florida Department of Transportation (FDOT) projects.

- Florida Department of Transportation projects, particularly drainage plans, must be revisited considering sea level rise projections.
- FDOT must be asked to show how the sea level rise projection was applied to their plans.
- One joint mission for Broward County, Broward cities, and the business community could be to approach FDOT to formally adopt the Regional SLR projection.
- Forty percent of runoff comes from private property, so property owners have responsibility to act as well. This must be communicated to them.
- Elected officials may need to enact codes to require private investment in resilience.

Communication and coordination are key.

Umbrella messaging should be developed to counteract negative narratives and share success stories.

- The region needs to manage the conversation around sea level rise responsibly. We do not want to scare investors.
- Negative stories need to be counterbalanced by success stories in cities and the county.
- A communications campaign with a regional brand (e.g., #ResilientTogether) focused on solutions and success stories is needed.
- The news media is eager to publish stories on resilience, as the attention devoted to sea level rise through the unprecedented “Invading Sea” editorial series published jointly by the South Florida Sun-Sentinel, Palm Beach Post, and Miami Herald demonstrates.
- A positive regional story will aid in securing state and federal funding.

- Cities are the front lines of service delivery and are closest to our residents. Their educational and advocacy efforts on resiliency issues are critical.

Individual city investments should be coordinated and linked into the larger-scale countywide plan.

- A common methodology for city-level vulnerability assessments would be useful.
- Broward County and its cities may wish to consider creating a database of resilience investments to aid in coordination and information-sharing, particularly to fill in the municipal-scale pieces of a countywide resilient investment plan.
- Coordination may also take the form of multi-city projects. Water utilities serving multiple cities already do this as part of their enterprise operations.

Summary of Immediate Next Steps

Broward County will:

- Provide a written summary of the Roundtable discussion for distribution to all attendees, municipal officials, and administrators.
- Develop a resiliency checklist for project review of regional plans and capital project plans to ensure resilience is formally addressed in all public and private planning and investment decisions in Broward County.
- Solicit a resilient-projects point person from each municipality to help inform a regional resilient infrastructure improvement plan, beginning with a catalog of current challenges and infrastructure needs

Cities will:

- Consider integrating resiliency requirements across their respective planning processes, with emphasis on capital project planning and budgeting.
- Assign a resilient-projects point of contact.

For additional information about the Broward Leaders Roundtable on Climate and Resilience, contact the Environmental Planning and Community Resilience Division at 954-519-1270 or resilience@broward.org.

Cover photo: Sawgrass Mills, Sunrise, Florida, taken June 9, 2017. Photographer: Paul Krashefski.



Broward County Mayor Beam Furr conducts an on-camera interview during the Roundtable.