COJ Special Committee on Resiliency

**Infrastructure and Continuity of Operations for Essential Services Subcommittee**

Observations and Action Steps

January 22, 2021

**Mandate**

The subcommittee “would focus its attention on critical infrastructure within Duval County, such as bridges, hospitals, grocery stores, roadways, and drainage systems. The focus of this discussion would also be on maintaining continuity of operations before, during, and after a disaster.”

As part of its work, the subcommittee also reviewed the Adaptation Action Area (AAA) Working Group’s report. In some instances, the subcommittee proposed modifications to the working group’s recommendations before forwarding the recommendations to the Special Committee for approval.

This following observations and suggested action steps are derived from Subcommittee topics and discussion points made by citizen subject matter experts and City Council members from July through December 2020. These observations and suggested action steps merit additional research and consideration by the City of Jacksonville and community partners.

Observations and Action Steps

**Quantify the magnitude of Jacksonville’s resilience requirements**

* The foremost requirement is to identify the totality of the city’s resilience needs associated with sea-level rise, rainfall runoff, local flooding and storm surge. This need ranges from the local neighborhood level, to critical public and private infrastructure, to the interconnectedness of key industry sectors that drive Northeast Florida’s economy. While this is primarily a government function, its success requires a “whole of community” effort to capture the current and future needs of our city and to identify solutions and paths forward.
* Decision-makers need to consider what is a big hurricane problem, as opposed to a summer thunderstorm problem or a weekly high tide problem (e.g., recognize that some problems are more of an irritant or inconvenience than threats to life or livelihood).
* The City and JEA are currently conducting vulnerability assessments that will drive future resilience decisions. While these are major steps forward, this is not the end to assessing Jacksonville’s vulnerability to sea level rise and storm surge. Resilience-related vulnerability issues across individual City departments, City agencies, independent authorities, neighborhoods, etc., need to be identified and examined to provide a comprehensive picture of the City’s current and future vulnerability.
* Every proposed Capital Improvement Project (CIP) should be examined using a resilience lens
* The City needs to better understand how St. Johns River dredging potentially compounds the effects of storm surge, rainfall runoff and sea level rise. The Army Corps of Engineers (ACOE) did not include rainfall runoff input in their storm surge model for the river dredging project; however, their report stated that rainfall runoff “can increase the peak water level by 10 or 20 percent.” In their report, the ACOE also estimated that the dredging project “could increase the maximum water levels associated with high frequency events by 12 percent.” The ACOE’s estimated increase in storm surge and water levels must be included in vulnerability assessments of those areas of the City that are potentially affected by St. Johns River flooding.
* Resilience planning also includes considerations of what it takes to help a community bounce back after a significant event. Certain industries make a disproportionately large contribution to the region’s economy, so assessments should also examine the degree of vulnerability of critical industry sectors and business enterprises that are most central to the City’s economy and functionality. This speaks to Jacksonville’s economic resilience following a severe water event/hurricane by assessing the ability of key industries and activities, especially those within the projected limits of the Category 3 storm surge zone and the contiguous areas of the 500-year flood zone, to withstand and recover from storm surge. These industries/businesses will be central to Jacksonville’s recovery following a disaster.
* The future Chief Resilience Officer will need to lead a comprehensive effort to craft Jacksonville’s Resilience Strategy. This strategy will combine current and future capital improvement planning, vulnerability assessments, adaptation strategies, etc., – and include a broad range of stakeholders – to craft a comprehensive resilience path for the City.

**Adopt one sea level rise figure to guide infrastructure project planning and construction across the City**

* Evaluate ranges of future possibilities for resiliency impacts (hurricanes, sea-level rise, storm surge, etc.)
* Identify what figure FDOT/State of Florida uses for resilience planning purposes
* Northeast Florida Regional Council uses the National Oceanic and Atmospheric Administration data forecasting 2-3 feet of sea level rise over the next 50 years
* The AAA working group used an estimate of 2 feet over the next 40 years
* The ACOE assumed a sea level rise of just 0.39 feet over the next 50 years
* Perform storm surge modeling for areas vulnerable to St. Johns River flooding

**Update Building Code**

* Review building codes of other Florida cities and counties for resilience-related elements to see if Jacksonville’s building code should reflect similar elements.
* The subcommittee reviewed practices to reinforce building roofs against the effects of hurricane winds and discussed the likely need for our City to update the building code for roofs.

**Incorporate neighborhood-specific criteria while prioritizing resilience decisions**

* Adaptation strategies will differ throughout the city and will require balancing today’s flooding issues with tomorrow’s increasing needs.
* For current issues, decision-making criteria should include examining how long people have been affected by the current situation. Similarly, it is useful to “map the impact” of an individual project as part of prioritizing projects (e.g., “if we do this, how many residents will be positively affected, how will it positively affect property values, etc.).

**Promote the private sector business case for resilience**

* The city, along with partner organizations such as the Chamber of Commerce and business leaders, can play a key role in educating the business community on the business case for private-sector resiliency efforts.
* A *Southeast Florida Regional Climate Change Compact* model for 2040 predicts $4.2 billion in property exposed to daily tidal inundation, 720 jobs impacted, and $28 million in fiscal losses from daily tidal inundation in South Florida. By 2070, impacts grow to a predicted $53.6 billion in property exposed to daily tidal inundation, 17,800 jobs impacted, and $384 million in fiscal losses from daily tidal inundation.
  + The focus is on higher frequency flooding events (rain and tide-influenced) rather than on hurricanes because that’s a more constant problem and the costs are less well understood.
  + Community-wide adaptation uses a combination of soft and hard engineering investments at the open coast, Intracoastal and inland areas which provide regional benefits.
  + Community-wide adaptation strategies will produce $37.9 billion in benefits at a cost of $18.2 billion for a benefit-cost ratio of 2.08:1 and would support 85,000 job-years (1 job times 10 years).
  + Building-level adaptation makes structural improvements to protect individual properties.
  + Building-level adaptation will produce $17.6 billion in benefits at a cost of $4.4 billion (benefit-cost ratio of 3.97:1) and would support 56,000 job years.
  + Recommendations range from developing actionable funding and financing plans to pay for resilience and investing in key vulnerable and emerging industries to making social vulnerability a priority during adaptation decision-making and conducting further in-depth analysis at the county and project level to optimize benefits and costs.

**Promote developer/property owner resilience roles**

* Craft policies that do not disincentivize property owners from making repairs and renovations for resiliency purposes because it would trigger a requirement for full compliance with all current codes.
* Encourage better private development practices with a broader, long-term resilience vision in mind.
* Address the lack of space for retention ponds in densely developed areas, which poses a problem for expansion or redevelopment.
* Reinforce the value of trees for absorbing stormwater runoff and encourage modeling that incorporates tree canopy effects into development permitting.
* Create a mechanism to help provide City resources to incentivize private owners of seawalls, bulkheads, and related facilities to upgrade them (e.g., repair and replace) for the community’s benefit.

**Explore ways to disclose flood zone and prior flooding information on real estate transactions and on lease agreements**

* Require a seller or landlord to disclose in writing the fact that a property has previously flooded
* Model this disclosure in the same way as a radon gas disclosure, which is required as a standard part of a real estate transaction
* Disclosure of flood potential/flood history to renters can be a significant equity issue for low-income renters whose landlord may not have insurance
* Plan for the inevitability of flooding displacing some city residents from their homes.
  + Many households and people are in the new AAA boundaries in low, medium, and high hazard scenarios; sea level rise may force some numbers of them to displace from their current homes.
  + Affordable housing is an issue in Jacksonville and some of the city’s most vulnerable residents will be adversely affected by future flooding. Planning should begin now to determine where they go when displaced.

**Examine how the North Florida Land Trust could potentially acquire land to provide flood storage capacity**

**Identify flood-prone areas where people and homes are the most vulnerable and recommend solutions to protect those neighborhoods**

* The “Riverfront Parks Now” initiative offers a once in several generations opportunity to plan for stormwater storage as the downtown waterfront is redeveloped.
* The City’s Emergency Preparedness Division tracks damage caused by disasters and can provide related information, along with storm-related citizen input data from the 630-CITY complaint line (flooding complaints, downed trees, etc.).
* Review Building Resilient Infrastructure and Communities grant opportunities.
* The CDBG Mitigation program managed by Rebuild Florida is another potential funding source
  + Jacksonville is eligible for multi-year funding because of its previous storm damage history.
* Explore the utility of the Ken Knight Drive CDBG-DR (Community Development Block Grant-Disaster Recovery program) grant through the Florida Department of Economic Opportunity.
  + Properties must become public green space after the demolition of the buildings.
  + More assistance can be provided to homeowners (closing costs and relocation expenses) than renters.
  + Funding is a one-time allocation from Congress for Hurricane Irma relief and is not a continuing funding source.

**Publicize the drainage system’s 92 outfall spot cleanings locations in a way that the general public is aware of where the work is taking place to prepare for potential heavy rains**

* Regular annual cleaning of the major drainage outfalls is important for the overall functioning of the system and is a good first step to improving system operation.
* Identify additional funding to maintain the minor outfalls further upstream in the drainage system, which would substantially help prevent flooding.
* Groundwater levels are rising so road underdrain projects are necessary and rainfall intensity seems to be increasing (heavier rains more often) so increased drainage system capacity is needed to alleviate flooding.
* While outside its direct purview, the City should better understand the Florida Department of Transportation’s (FDOT) resilience planning and storm preparations, as they directly affect large portions of the City.

**Submit projects for inclusion in the 2022 Water Projects Bill**

* The City must begin now to aggressively seek resilience funding through the next federal water projects authorization bill.
* One consideration is to be the local sponsor for a dredging mitigation study.
  + The City would pay a portion of the cost of a dredging mitigation study and the ACOE will pay the remainder if Congress authorizes it in the water bill.
  + Once a federally supported study is completed, there is an opportunity to get federal funding for the remediation that the study recommends.
* For particularly urgent needs, the City should seek legislative support ahead of and independent of the biennial Water Bill.

**Assess private sector assets such as grocery stores, gas stations, hospitals, etc. to see how vulnerable they are and their impact on the community if damaged**

**Review the Master Stormwater Management Plan (MSMP) update**

* Determine the percentage of the City that has been mapped for flood impacts, how often the maps are updated, how areas not yet mapped are prioritized for mapping, etc.
* MSMP needs greater specificity regarding the balance between the need to map previously unmapped areas versus re-studying previously mapped areas that have undergone substantial development and changed conditions.

**Pursue creative funding measures to address the City’s resilience needs**

* Various mechanisms can be explored to help fund resilience, including:
  + Citizen referendum:
    - The largest revenue stream available to back a large drainage infrastructure bond is a half-cent sales tax for the infrastructure still available to the City.
    - At current collections, it would produce $93 million per year, which could be bonded for 30 years to produce $1.1 billion.
    - The next opportunity for a sales tax referendum would be in November 2022 and it could be used to fund facility maintenance as well as new construction projects.
* General obligation bond:
  + Would require an additional property tax dedicated to a project. A 1 mill levy would produce $65-69 million currently (which varies as property values change over time), producing $850 million in bonding capacity over 30 years.
  + The City’s annual debt affordability study looks at how much is prudent to borrow using 6 debt ratios. The City is currently at or better than each of those parameters.
  + Issuing big bonds would push the City to the limit on one of those parameters, which might impact the debt rating agencies and how they see the City’s financial stability.
* Federal funding as a supplement to funding innovative resilience efforts.
  + The City must first commit to most of the funding for its needs from its local sources.
  + A champion is needed to lead the charge for resilience projects funding.
* The congressionally-funded South Atlantic Coast Study (SACS) is a 3-year study to assess coastal vulnerabilities across the Southeastern US to help guide local governments and community stakeholders in addressing long-term resilience challenges. Northeast Florida was selected as a “Focus Area” in the study where special attention will be given in examining certain tributaries in Duval County as well as parts of the St. Johns River to afford the region a better vulnerability picture. SACS will identify projects that can be substantially funded by the ACOE.

**Consider resilience when appointing JEA Board members**

* Of the four appointments the City Council makes, the Council should seek to have at least one electric and one water/sewer engineering expert among its membership.
* The City Council should appoint JEA board members who are committed to making Jacksonville and the JEA service area more resilient.
* JEA should “double down” on solar and battery technology and should adopt distributed energy resources decentralized throughout our community.

**Inventory of Guest Speakers and Presentations:**

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| Jeff Clements  *Council Research* | Government in the Sunshine Briefing |
| Bill Killingsworth and Kristen Reed  *Planning and Development Department* | Adaptation Action Area Working Group Report |
| Heather Reber  *Council Auditor’s Office* | FY20-21 Capital Improvements Project list |
| Hai Vu  *JEA Water/Wastewater Systems* | JEA Resilience Plan Draft Report |
| Phillip Peterson  *Council Auditor’s Office* | Bond Issue for Infrastructure Development |
| John Pappas  *Public Works Department* | CIP Resilience Priorities |
| Alec Bogdanoff, Ph.D.  *Brizaga, Inc.* | The Business Case for Resilience in Southeast  Florida – Regional Economic Benefits of  Climate Adaptation |
| Kristen Reed  *Planning and Development Department* | Adaptation Action Area Comprehensive Plan  Amendments – Final Review |