

RESILIENCY, ADAPTATION, & SUSTAINABILITY AT THE CITY OF ST. AUGUSTINE

**PRESENTED AT FLORIDAWCA WORKSHOP,
DECEMBER 20, 2018**

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PROGRESSION OF PLANNING FOR RESILIENCY / ADAPTATION / SUSTAINABILITY

- ❖ **Stormwater Master Plan – 1995 (Utility – 1993)**
- ❖ **Stormwater Master Plan Update – February, 2013**
- ❖ **Avenida Menendez Seawall – 1st HMGP project in St. Johns County (completed in 2013)**
- ❖ **Coastal Vulnerability Assessment – June, 2016**
- ❖ *Hurricane Matthew – October 7, 2016*
- ❖ **Florida Community Resiliency Initiative – May 2017**
- ❖ *Hurricane Irma - September 10, 2017*



PROGRESSION OF PLANNING FOR RESILIENCY / ADAPTATION / SUSTAINABILITY

- ❖ **Resiliency Workshop and Scorecard – May and June, 2018**
- ❖ **Historic Preservation Master Plan – October, 2018**
- ❖ *10th Annual Southeast Florida Climate Leadership Summit – Oct, 2018*
- ❖ *Fourth National Climate Assessment – Washington D.C., Nov, 2018*
- ❖ **Keeping History Above Water Conference (KHAW) – May, 2019**
- ❖ **Comprehensive Plan Update – December, 2019**

STORMWATER MASTER PLAN UPDATE – FEBRUARY, 2013

STORMWATER UTILITY FEE UPDATE

NEW STORMWATER RATES ON UTILITY BILLS

Stormwater rates will be changing starting on your April 2014 utility bill. Some rates will be lower, some higher, depending on the size of your home or developed property.

Residential customers will pay a flat rate, while non-residential properties are computed based on developed, impervious area.

Small home (average residential lot)	\$3.66/month
Average home (average residential lot)	\$7.66/month
Large home (residential lots over 40,000 sq. ft.)	\$18.20/month
Multi-family unit (condo or townhome)	\$2.66/month
Mobile home	\$1.91/month
Non-residential customers	\$7.66/half acre/month

Why does the city need a stormwater fee? The fee goes to cover the cost of maintaining and improving the City's stormwater collection and treatment system.

What is an impervious area? An impervious area is any surface that does not allow infiltration of water to occur and includes roofs, driveways, patios, sidewalks, and other paved areas. In St. Augustine a single family unit (SFU) is defined as 7,520 square feet and is the basis for assessing non-residential rates.

NON-RESIDENTIAL RATE EXAMPLE

Existing
9,000 sq. ft.

Proposed
10,000 sq. ft.

$$\frac{9,000 \text{ sq-ft} + 10,000 \text{ sq-ft}}{2,752 \text{ sq-ft}} = 6.90 \text{ SFUs}$$

$$6.90 \text{ SFUs} \times \$7.00/\text{month} = \$48.32/\text{month}$$

For more information on stormwater and other water resource services, please visit www.STAugSW.com or contact us at 904-825-1040.

MARCH 2014

Our Mission
The Department of Public Works is responsible for operating and maintaining our stormwater infrastructure to meet the objectives of the permit administered by the Florida Department of Environmental Protection. Your fees pay for repairs of roadway drainage, new projects, equipment, and administration of the program.

- ❖ Developed Watershed Models to Evaluate Options
- ❖ Defined Level of Service
- ❖ Stormwater Utility Evaluation and Recommendations
 - Updated Stormwater Utility Fee (effective March, 2014) – New fee structure based on actual impervious area; Discount for permitted stormwater treatment facilities
- ❖ 3 Pilot Projects Featured
 - Lake Maria Sanchez Stormwater Management
 - South Dixie Highway
 - Sidney Street

COASTAL VULNERABILITY ASSESSMENT – JUNE 2016

- ❖ Community Resilience Initiative Pilot Projects - Dept of Economic Opportunity (DEO) funded by NOAA
- ❖ Evaluated total area flooded, roads, bridges, buildings, 2,550 historic and archeological resources, water and wastewater plants, groundwater supply
- ❖ 3 Scenarios
 - Mean Higher High Water – daily inundation about 2' NAVD88
 - Nuisance Flooding – 12-17 times per year, 3.75' NAVD88
 - 1% annual chance flood event – 26% chance in 30 years, 6-10' NAVD88





HURRICANE MATTHEW –

OCTOBER 7, 2016





FLORIDA COMMUNITY RESILIENCY INITIATIVE

– MAY 2017

ACHIEVED PROGRESS...

- ❖ **Educate the Public about SLR and Policy Responses**
- ❖ **Develop Baseline Budgets – Stormwater, Utility and Paving CIP's**
- ❖ **Learn from Matthew and Irma – Work with FEMA**
- ❖ **Targeted Upgrades to City's Stormwater System –**
 - Tide Flex Valves Installed
 - Neighborhood Stormwater Designs – Lake Maria Sanchez, Court Theophelia, Seminole Drive
 - Include Stormwater Improvements in Utility Upgrade Projects
- ❖ **Wastewater Treatment Plant Options for Resiliency**
- ❖ **Lift Station Resiliency Designs**
- ❖ **Historic Preservation Comp Plan for Hazard Mitigation**

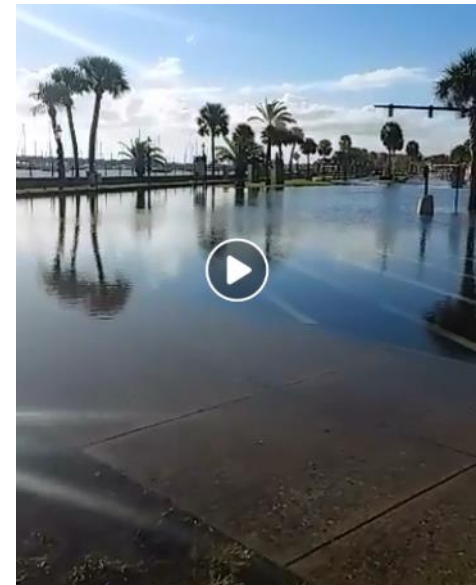


FLORIDA COMMUNITY RESILIENCY INITIATIVE

– MAY 2017

STILL NEEDS WORK...

- ❖ **FDOT Roadway Improvements that are Somewhat Resilient**
 - More Tide Flex Valves being installed
 - Roadways restored at same elevation
- ❖ **Adopt Policies to Limit Spending in Susceptible areas**
 - Actually doing the opposite; Court Theophelia and Seminole Drive stormwater
- ❖ **Design Adaptation Action Areas**
 - Will Include in Comprehensive Plan Update
- ❖ **Install Low Impact Development/Green Infrastructure on Public Lands**
 - Maintain pervious surfaces under flood-proofing for structures
- ❖ **Base Decisions on FEMA's Updated Flood Maps**
 - New maps effective December 7, 2018





HURRICANE IRMA – SEPTEMBER 10, 2017





RESILIENCY WORKSHOP – MAY 8, 2018

Stakeholder Organizations Represented at Workshop



RESILIENCY SCORECARD

	Resilience Score	Benefits Score	Implementation Score	Overall Score
<i>Capital Improvement Project</i>	<i>Resilience to Shocks and Stresses</i>	<i>Contribution to Overall City Resiliency</i>	<i>Feasibility of Project Implementation</i>	
Seawall Project (Replace In Kind)	33%	25%	53%	37%
Seawall Project II (Current Scope)	83%	51%	68%	65%
Seawall Project III (Improve Valves)	100%	61%	79%	77%
Lake Maria Sanchez FEMA (Current Scope)	84%	54%	69%	67%
Lake Maria Sanchez (Upgrade Water/Sewer)	67%	31%	54%	48%
Lake Maria Sanchez (Add Mobility/Historic)	75%	52%	75%	66%

Expertise Utilized to Rank Projects:

Public Works	Planning & Building	Mobility
Engineering	Historic Resources	Mobility
Environmental	Planning & Zoning	
Geology	Building	

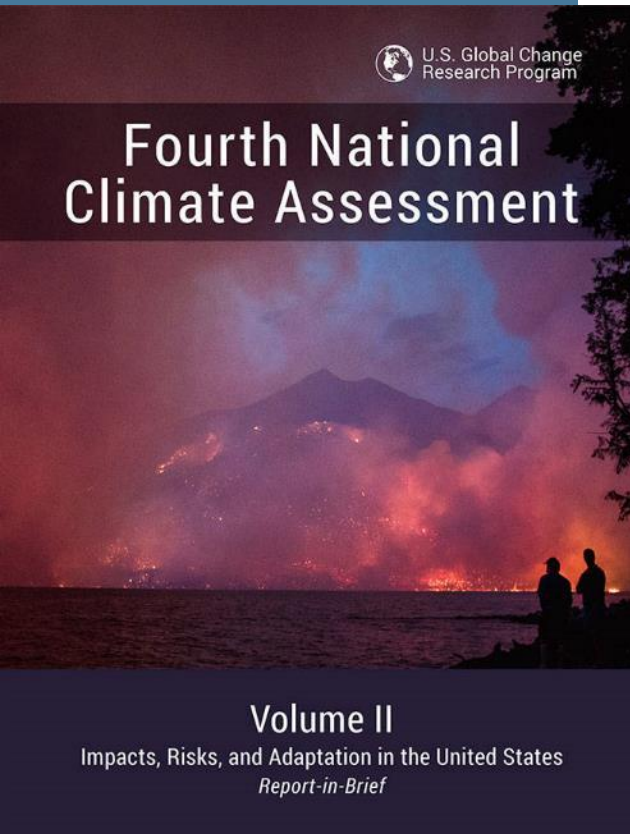
Draft Scorecard Received on June 21, 2018

10TH ANNUAL SOUTHEAST FLORIDA CLIMATE LEADERSHIP SUMMIT – OCTOBER 2018

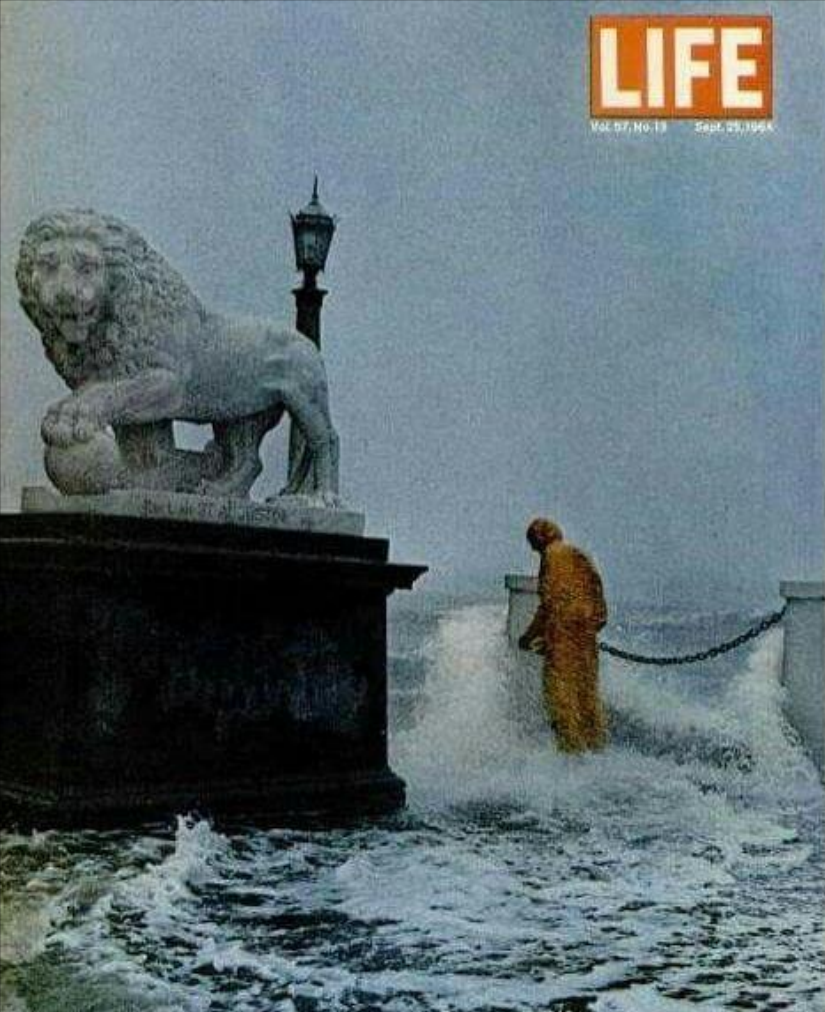
- ❖ 10 Years of Summits – Focus on Planning and CIP's Key Takeaways:
- ❖ Ongoing Need to Maintain Public Education and Awareness, KHAW, May 5-8, 2019, Newp, St. Augustine
- ❖ Each County/City has Sustainability Division/Director
- ❖ Speakers from the Kresge Foundation and 100 Resilient Cities Program
 - Both Stressed Social Equality for Application of Resiliency
- ❖ **Lincolville Community Redevelopment Agency (CRA)**
 - Lincolville 1, 2 & 3 Stormwater and Utility Improvements
- ❖ **West Augustine CRA**
 - St. Johns and Duval Streets - Septic to Sewer
 - South Dixie Culvert Stormwater Improvement
 - South Whitney/West King Street Stormwater Improvement



FOURTH NATIONAL CLIMATE ASSESSMENT WASHINGTON D.C. – NOVEMBER, 2018



- ❖ 16 Chapters, Ranging from Global greenhouse gas emissions to...
- ❖ Communities – Emphasizing lack of economic equality for lower-income and marginalized communities to...
- ❖ Aging and deteriorating infrastructure
 - ❖ (CoSA is *the* poster child) to...
- ❖ Oceans and Coasts – Most applicable to CoSA
 - Due to historical emissions, SLR through mid-2100's are locked in
 - Atlantic and Gulf Coasts are facing above average risk
 - High-tide flooding, coastal erosion, higher storm surge, heavier precipitation
 - Emphasizes shoreline protection, conservation of coastal ecosystems to achieve...
 - >50% of coastal damages are avoidable through well-timed adaptation measures



CITY OF ST. AUGUSTINE HISTORIC PRESERVATION PLAN — OCTOBER, 2018

- ❖ Sea Level Rise and Increased Vulnerability to Flooding
- ❖ Historic Buildings Typically do not meet current Floodplain Requirements
- ❖ Over 30 Historic Buildings Demolished Due to Matthew and Irma
- ❖ Rising Water impacts archaeological sites



CITY OF ST. AUGUSTINE HISTORIC PRESERVATION PLAN – OCTOBER, 2018

❖ Preservation Plan Developed a Strategy for Hazard Mitigation

- Establish flood mitigation design guidelines that balances preservation and adaptation, Street scape, main entryways
- Educate historic building owners and debris collectors about the resiliency of historic building materials, private vs. public coordination
- Develop new or use existing incentives for flood mitigating rehabilitations to encourage preservation versus demolition, advalorem tax exemption, replacement mitigation
- Collaborate with disaster response officials and formalize volunteer response policy





SUMMARY AND CONCLUSIONS

- ❖ **The City of St. Augustine – Has Been Planning for Resiliency and Adaptation > 25 years**
- ❖ **Capital Improvement Plan is committed to Annually....**
 - Improve Stormwater Treatment and Nuisance Flood Protection
 - Protect Utilities (Raise pump stations, Armor WWTP)
 - Maintain Roadways
- ❖ **Addressing Social Equality for Implementing Resiliency**
- ❖ **Moving Forward on Large Scale Catastrophic Flood Protection Planning**
 - USACE – Back Bay Feasibility Study - Authorized
 - Dutch Consultants
 - Resilient Heritage in the Nations Oldest City





ADDITIONAL QUESTIONS

COMMISSION DISCUSSION



KEEPING HISTORY ABOVE WATER



-
- Add Slide
 - Newport, RI 2016?
 - Annapolis, MD 2017?
 - 2019 Conference Sponsors