DEPARTMENT OF ENVIRONMENTAL PROTECTION
Progress Report Form
Exhibit A

DEP Agreement No.:	**R2149**		
Grantee Name:	Tampa Bay Regional Planning Council		
Grantee Address:	4000 Gateway Centre Blvd. Pinellas Park, FL, 33782		
Grantee's Grant Manager:	CJ Reynolds	**Telephone No.:**	727-570-5151 ext 30
Project Title:	Resilient Shorelines Guidance to Support Comprehensive Planning and Regional Collaboration		
Reporting Period:	04/01/2021– 06/31/2021	**Report Type:**	Quarterly update

INSTRUCTIONS: Provide the following information for **all tasks and deliverables identified in the Grant Work Plan**: a summary of project accomplishments for the reporting period; a comparison of actual accomplishments to goals for the period; if goals were not met, provide reasons why; provide an update on the estimated time for completion of the task and an explanation for any anticipated delays and identify by task; indicate the percentage of the task that has been completed to date.

NOTE: Use as many pages as necessary to cover all tasks in the Grant Work Plan.

The following format should be followed:

Task 1: An outline and table of contents will be developed to define the content for specific plans, plan elements, policy parameters and model language needs. The Outline will be presented to the TAC, Workgroup and Coalition members to collect input on user priorities**.**

Progress for this reporting period:

Contracts with subcontractors were executed. TBRPC and subcontractors had the first working meeting on June 18 to identify key resources; plan the stakeholder meeting and develop the first draft of the Policy Guide Table of Contents and Outline which defines 7 key sections (descriptions/goals for each section) and proposed categories for model language.

TBRPC held the virtual workshop on June 29th, 9:00-10:30 which was attended by 77 participants (3 FDEP staff included). Attendees included staff from Hillsborough, Manatee, Pinellas, Pasco Counties, and multiple cities, engineering firms, environmental organizations and FWC. The topics included a regional backgrounding, recommendations from the Workgroup (hierarchy of shoreline policies, sea level rise scenarios and timeframes and increase in high tide flooding) and sections of the draft Policy Guide. The participants provided extensive input and defined their concerns, priorities and recommendations via chat and a poll. The following documents are submitted:

1. Agenda and Sign-in sheet
2. Presentation
3. Meeting Summary which includes log of the meeting chat
4. Draft Policy Guide -- Table of Contents (1 page) and outline which includes expands on the TOC by providing a description and copy goals for each section.

Identify any delays or problems encountered: No delay or problems were encountered.
Percentage of task completed: 100%

This report is submitted in accordance with the reporting requirements of DEP Agreement No. **Agreement No.** and accurately reflects the activities associated with the project.

Signature of Grantee's Grant Manager

Date

Tampa Bay Regional Planning Council: Project R2149 Task 1

The TBRPC held a virtual workshop on June 29th, 9:00-10:30 to collect input from stakeholders. The workshop was attended by 77 professionals representing staff from Hillsborough, Manatee, Pinellas, Pasco Counties, and Clearwater, Largo, St. Petersburg and St. Pete Beach, engineering consulting firms, environmental advocacy organizations and FWC. The meeting was facilitated by CJ Reynolds and Cara Serra and project subcontractors Tom Ries and Erin Deady also participated.

Presentation Background: TBRPC presented background information on several shoreline projects, including the FWRI Living Shorelines Suitability Model, FWC Marine Contractors Training Program and the Tampa Bay Estuary Program's Comprehensive Conservation Management Plan model language. Then, TBRPC provided a brief overview of the key technical parameters and policy recommendations defined by the Resilient Shorelines Workgroup in 2020. The topics included defining a hierarchy of shoreline policies and recommendations for heights for sea walls and bulkheads based on future sea level rise scenarios and tidal flooding. Erin Deady presented a brief overview of updated shoreline policy for Broward County and Miami. Then, the TBRPC shared the main sections of the Shorelines Police Guide.

Stakeholder Input
The participants provided extensive input and defined their concerns, priorities and recommendations. Comments were collected via chat and discussions (at the end of this document) and polling questions were implemented to get a sense of regional activities and perceptions. Approximately 68 of the 77 attendees responded.

> **Q1** Does your jurisdiction plan to update shoreline policy in Comp plans, LDR, code in the next 2 years? Yes, 37%, No 0, Don't Know 20%, Not applicable to me 47%
>
> **Q2** Have living shorelines or seawalls been a topic of discussion at council or committee meetings? Yes, 84%, Not yet but expecting 6%, No 10%
>
> **Q3** Would a regionally uniform standard for SLR and seawall heights, that also considers local risk factors and land-use, be beneficial to property owners? Strongly agree 57%, somewhat agree 41%, neutral 2%.
>
> **Q4** The region should adopt and encourage hierarchy of shoreline protection strategies, which support community resilience and TBEP goals. strongly agree 70%, somewhat agree 28%, neutral 2%.

Topics that were raised by participants (verbally, email and chat) include;

- **Incentives:** The policy guide should include economic incentives for living shoreline creations. Suggestions from participants included: "Permit fee reductions; density credits. Expedited reviews won't work in some jurisdictions (I.e., the whole coastline of Pasco is already in an expedited review mode). Would development

of something like a PVAS program work for living shorelines? Via a LS PVAS, a community could do a LS together, instead of just one parcel at a time."

- **Policies related to fill:** need to be discussed, many local governments prohibit fill and do not allow for variances; and there is a need to coordinate with Florida Flood plain managers on policies and CRS points,
    - "Struggling with the balance of sea wall height vs. FEMA limits for fill in the flood plain."
    - FYI... the issue of fill in the coastal areas (v-zones, coastal A's etc) as well as CRS implications is the focus of the next FFMA regulatory subcommittee meeting. Lisa Foster (Pinellas) has brought up the issue and we have some input from Rebecca Quinn (contractor to FDEM) on some of the regulatory language/approaches different communities are using.
- **Technical Parameters**
    - **Creating standardized shoreline land-use categories/zones**: "land elevations (low versus higher elevations behind shoreline) should also be considered. Much more of a technical challenge with low lying lands."
    - "incorporation of new alternative methods of shoreline stabilization"
- **Lifespan of sea walls**:
    - "Regarding longer than 40 to 50 years, one school of thought is to limit due to uncertainty in data and extremely high cost of higher elevation."
    - "There were some changes in standards associated with concrete used with sea walls. The update is referenced within the FBC if I recall correctly (G. Henry.) "
    - "Need to analyze seawall design standards (including design life) that are set with local govs' capital planning programs."
- **Other stakeholders to involve:**
    - engage FEMA early, consider how this will support/coordinate with Local Mitigation Strategies.
    - Port of Tampa and Port Manatee
    - Future suggestions – look at LEED, ENVSION certification programs which also include living shorelines

Immediately after the meeting, TBRPC received emails Pasco County Resilience Planner Mary Helen Duke sent revisions to the goals language; Gene Henry, Applied Risk sent recommendations for additional stakeholder engagement to define potential recommendations for the Local Hazard Mitigation Strategy and Joe Foster, Foster Marine sent comments.

Meeting Outcomes:

The workshop created awareness of the regional initiatives, and brought together professionals with a broad range of knowledge and expertise to begin discussing the critical issues. The meeting indicated that attendees see the value of recommendations

of creating a hierarchy of shoreline preferences which can support community resilience and natural resource goals. However, the poll also identified the need to understand stakeholder attitudes about the benefits of

Based on the meeting, TBRPC will implement the following activities:

- Compile leading reports and technical references which define expected lifespan of sea walls and bulk heads under various conditions and materials;
- redefine the SLR scenarios and timeframes developed by the Workgroup in 2020 to align with new Florida Resilience requirements for vulnerability assessments and get local government input on the revisions.

TBRPC Workshop Summary Report

Chat Log

00:33:24 Janet Bowman: Terrific!

00:34:31 TampaBay RPC: https://docs.google.com/spreadsheets/d/1n6Ypvelmt6AqMoCFrgmqWeDPBQUR3Hito7j17lQT_x4/edit?usp=sharing

00:35:07 TampaBay RPC: Please use the link above to sign in. Thank you all.

00:36:34 Mary Helen Duke: FYI, in the sheet, people are typing over other peoples names.

00:38:09 CJ Reynolds: https://docs.google.com/spreadsheets/d/1n6Ypvelmt6AqMoCFrgmqWeDPBQUR3Hito7j17lQT_x4/edit?usp=sharing

00:40:24 Eugene Henry: May you identify where to download documents?

00:47:44 Fara Ilami: We are in the process of working on the schedule for the remainder of this year and next year.

00:49:18 Brooke Hansen: Have any of the plans or resources incorporated the UN Sustainable Development Goals (the basis of LEED for Cities and Communities), especially the Decade on Ecosystem Restoration that kicked off this month and includes a lot of focus and global models of estuary protection and restoration?

00:49:20 Eugene Henry: Thank-you!

00:49:59 Mary Helen Duke: How does FWC advertise the Marine Contractor workshops?

00:50:42 Paul Smith: This will be very helpful. I think example criteria will need to take into account common to our region when land elevations are low versus higher elevations behind shoreline. Much more of a technical challenge with low lying lands

00:50:48 Angela Schedel: USACE's Engineering With Nature program has been publishing guidance and research recently on living shorelines: https://ewn.el.erdc.dren.mil/

00:52:12 Cheryl Hapke: Can you add the attendees of this workshop to the announcement list? I think the workshop might have broader value to other types of consultants.

00:53:08 J Foster Consulting: Is the group looking at any economic incentives for living shoreline creations? (i.e tax credit or grant specifically for Single Family properties?)

00:54:52 Mary Helen Duke: There must be built in incentives. The profit incentive is stronger for contractors to do grey solutions vs. lining shorelines.

00:55:50 Mary Helen Duke: *living

00:58:26 Brooke Hansen: Are the materials for contractors aligned with sustainability certification platforms that they may use such as Envision, WELL, USGBC, Florida Green Building Coalition, etc.?

01:03:12 Jessica Bibza: Mary Ellen Duke: Do you have any thoughts on how to incentivize them? We included opportunities such as monitoring as a related service to offer.

01:03:45 Jessica Bibza: Also that it is in their best interest to be able to offer LS as a service since more and more homeowners are requesting them

01:04:20 Eugene Henry: This is great information. Obviously, future conditions are a part of analyses, which includes changes to erosion, elevations, loss of habitat . . . Is there a summary of changes to existing conditions that are needed to be consider with respect to future conditions and as we move forward?

01:04:42 Mary Helen Duke: Permit fee reductions; density credits. Expedited reviews really won't work in some jurisdictions (I.e., the whole coastline of Pasco is already in an expedited review mode). Would development of something like a PVAS program work for living shorelines?

01:04:44 Elizabeth Abernethy: Struggling with the balance of sea wall height vs. FEMA limits for fill in the flood plain. Curious how others are handling this... we need to maintain our CRS rating!

01:06:07 Mary Helen Duke: Via a LS PVAS, a community could do a LS together, instead of just one parcel at a time.

01:06:33 Elizabeth Abernethy: did you want me to unmute and speak?

01:07:10 Elizabeth Abernethy: thanks Eugene!

01:07:13 Mary Helen Duke: PVAS _ community based assessment district, so it would be a LSAD, that the community petitions for and votes in.

01:07:30 TampaBay RPC: Liz - feel free to unmute and speak if you would like to add to/clarify comment.

01:07:32 Mary Helen Duke: PVAS is for paving.....just taking the concept and applying to Living Shorelines.

01:08:07 Paul Smith: Thanks Eugene, you got it.

01:09:21 Chris Zambito: FYI... the issue of fill in the coastal areas (v-zones, coastal A's etc) as well as CRS implications is the focus of the next FFMA regulatory subcommittee meeting. Lisa Foster has brought up the issue and we have some input from Rebecca Quinn (contractor to FDEM) on some of the regulatory language/approaches different communities are using.

01:09:57 Brooke Hansen: Are there any policies in the region to acquire available properties and remove any development or structures to revert to living shorelines and restore ecosystems?

01:10:34 Elizabeth Abernethy: Thanks Chris. We have been working with Rebecca on our FPM update, which goes to adoption hearing 07/15

01:10:37 J Foster Consulting: It is important to understand that increasing seawall heights does not mean that fill has to be brought in to the lot. Structurally it can be done.

01:11:22 Mary Helen Duke: environmental land acquisition programs in numerous counties.

01:14:07 Mary Helen Duke: Pasco County is doing acquisition of repetitive loss properties along the Anclote River along Elfers Parkway via a HUD CDBG DR grant.

01:15:02 Eugene Henry: Regarding fill and changes to lots, there are some folks working with FEMA now with respect to technical assistance. Information and guidance from FEMA will work well with work of this group and FFMA. It may also add a voice to work with FEMA for the Tampa Bay area.

01:18:17 Kevin Moran: If the County dictates a height and the Tidal Barrier does not meet the Code (is not high enough) can the County cite a property owner?

01:18:17 Eugene Henry: Great to hear inclusion of legal issues. There is a very good resource regarding understanding legal consequences. There is a new book published under the American Bar Association, which is "The Community Resilience Handbook", George Huff and Edward Thomas, and Nancy McNabb.

01:19:10 Erin Deady: City of Miami Ordinance (Chapter 29 which pairs fill and waterfront improvement policy):
https://library.municode.com/fl/miami/codes/code_of_ordinances?nodeId=PTIITHCO_CH29LAWAIM

01:19:54 Erin Deady: Broward County Resiliency Standards for Tidal Flood Protection (located within the Zoning Code):
https://library.municode.com/fl/broward_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH39ZO_ARTXXVRESTTIFLPR

01:23:25 Erin Deady: Broward Resilience standards

01:23:30 Erin Deady: https://www.broward.org/Climate/Pages/USACE.aspx

01:24:44 Mary Helen Duke: Bay or Gulf waters

01:27:58 Eugene Henry: These are great principles! May some, as appropriate, be included as reference within Local Mitigation Strategies as action/mitigation items if requested by communities?

01:28:28 Michael Barnett: 2070 or even later in the future might be a better goal (a 50-yr design life for a replacement structure would, I think, be an expectation of the Owner)

01:29:24 Fara Ilami: How about incorporation of new alternative methods of shoreline stabilization? Should any of these be included?

01:30:27 J Foster Consulting: The shown values are referencing datums which needs to be clarified.

01:30:55 Erin Deady: Yes Fara, this type of approach I think is included in both the ordinances I forwarded.... encouraging out of the box thinking, environmental enhancements etc. City of Miami's ordinance has a specific variance process to facilitate that type of thinking.

01:31:19 Paul Smith: Regarding longer than 40 to 50, one school of thought is to limit due to uncertainty in data and extremely high cost of higher elevation

01:33:19 Eugene Henry: There were some changes in standards associated with concrete used with sea walls. The update is referenced within the FBC if I recall correctly. I have worked with some

forensic engineers regarding some issues. Some of these engineers may be a good source of information.

01:34:10 Hank Hodde: Need to analyze seawall design standards (including design life) that are set with local govs' capital planning programs.

01:35:31 Mary Helen Duke: Would be helpful to see what Tampa Bay communities are now using as their projections. Could TBRPC do a poll?

01:35:52 Hank Hodde: Agreed. Pinellas is using 2040, 2070, and 2100.

01:35:57 Amy Hyler: is this tool accessible to the public?

01:36:40 Hank Hodde: Pinellas is building an online tool to analyze SLR in capital planning projects. Seawalls could be included.

01:37:02 Erin Deady: CJ's Keys reference in the Stillwright Point Neighborhood:

01:37:06 Erin Deady: https://www.nytimes.com/2019/11/24/us/florida-keys-flooding-king-tide.html

01:37:48 Janet Bowman: What is the citation for the NATURE study?

01:38:51 Eugene Henry: Please compare changes in elevation identified within Florida Statutes (380 I believe) and what our teams use within Tampa Bay.

01:40:06 Erin Deady: Eugene what changes are you describing do you mean Section 380.093, the new Resilient Florida program? If so, their high end projection (as well as that for the SLIP study requirements in Section 161.551, F.S.) is NOAA Intermediate High. Not sure if that's what you mean.

01:41:57 Eugene Henry: Yes, and thanks Erin!

01:42:52 Erin Deady: 10-4

01:46:04 Brooke Hansen: The Envision certification platform for building projects and infrastructure includes living shorelines -- we need to add these third party certifications to municipal development project approvals so sustainable development is integrated throughout the region from the planning and permitting process. https://sustainableinfrastructure.org/about-isi/ WELL (being used for the Water St. Tampa development) also includes living shorelines:

01:46:35 Brooke Hansen: ..here's a link to WELL Building Institute and living shoreline inclusion: https://resources.wellcertified.com/articles/international-well-building-institutes-new-well-community-standard-unveiled-to-strong-demand/

01:46:43 Eugene Henry: Have folks from the Port Tampa and Manatee be included with the attendees? They also work with sea walls . . .

01:46:59 Dawn Velsor: Would like other Staff not able to attend today to be able to review your PowerPoint. This will be available on the TBRPC website?

01:47:21 Dawn Velsor: Thank you.

01:47:27 Kyle Hicks: Thank you!

01:47:27 Hank Hodde: Within the Guide, can you include an inventory of living shoreline projects from the region?

01:49:25 Cheryl Hapke: What is the July 14 webinar?

01:51:26 Mary Helen Duke: Thank you!

01:51:43 David Lafontant: For more information in regards to the FDEP FRCP July 14th Webinar Please reach-out to Resilience@floridadep.gov

01:52:32 Eugene Henry: Thank-you for an excellent session!

01:52:33 Scott Deitche: thank you

01:52:36 Tammy Vrana: Thanks!

01:52:37 Thomas Ries: Hank FDEP is compiling such as list right now...FYI

01:52:39 Brandon Johnson: Thanks!

01:52:46 Cheryl Hapke: Thanks!

01:52:46 Marshall Hampton: Thank you!

01:52:52 Emma Huggins: Thanks, all!

01:52:52 fatima sohrabi: Thank you

01:52:55 evan birk: Thank you

01:52:58 David Lafontant: Thank you!

01:53:12 Jenna Phillips: Thank you!

01:53:33 Janet Bowman: Thank you so much. Great Kick Off!

01:54:08 Fara Ilami: Will the guide include any section/info for suggestions on the new required SLIP studies?

01:54:13 Dawn Velsor: Appreciate the work being done!

01:54:46 Paul Smith: Thank you, excellent discussion.

01:55:19 Brian Cook: Thanks CJ ---

02:00:21 Erin Deady: 176 b. At least two local sea level rise scenarios, which must
177 include the 2017 National Oceanic and Atmospheric Administration
178 intermediate-low and intermediate-high sea level rise
179 projections.
180 c. At least two planning horizons that include planning
181 horizons for the years 2040 and 2070.
182 d. Local sea level data that has been interpolated between

183 the two closest National Oceanic and Atmospheric Administration
184 tide gauges. Local sea level data may be taken from one such
185 gauge if the gauge has a higher mean sea level. Data taken from
186 an alternate tide gauge may be used with appropriate rationale
187 and department approval, as long as it is publicly available or
188 submitted to the department pursuant to paragraph (b).

Resilient Shorelines Policy Guide
Stakeholder Meeting

June 29, 2021
9:00-10:30 am
Virtual Meeting

Funded by a Grant from the FDEP
Florida Resilient Coastlines Program

Agenda

1. Welcome
2. Project Overview
3. Update on Related Projects and Resources
4. Working Group -- Technical Principles
5. Overview New Guide TOC and Review Process

TAMPA BAY
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StPete
City of Largo
Hillsborough Co.
Stetson University College of Law
City of Tarpon Springs
Manatee County Government
FDEP FRCP
J Foster Consulting
Manatee County Government
EDF
USF
Hillsborough Planning Commission
J Foster Consulting
FDEP FRCP
Vrana Consulting Inc
Hillsborough County
City St. Pete
TBEP
City of St. Petersburg
Retired HC; Applied Sciencs part-time
City of St.Petersburg
FWC
Taylor Engineering
City of Oldsmar
Pinellas County
City of Tampa
City of Sarasota
National Wildlife Federation
Pasco County
City of St. Petersburg
City of St Petersburg
Moffatt & Nichol
FDEP, FRCP
Pasco County PDD
CLEO Institute
ESA
Mead & Hunt
Hernando County
Freese & Nichols
GHD
Hillsborough Cty
Patel College of Global Sustainability USF
City of St. Petersburg
Pinellas County Government
City of St. Petersburg
Stetson Law Institute for Biodiversity Law and Policy
GHD
City of Tarpon Springs
Atkins

HDR
GPI
City of Sarasota
Pinellas County
National Wildlife Federation
The Nature Conservancy
Integral Consulting
Hillsborough County
City of Clearwater
Stantec
Pasco County
USF
Five DM
City of St. Petersburg
Hillsborough County
City of St. Petersburg
City of Largo

Halff Associates

City of St. Petersburg
Pasco County

Resilient Shorelines Policy Guide Stakeholder Meeting

June 29, 2021
Virtual Meeting
9:00-10:30

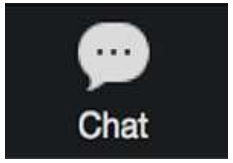
CJ Reynolds *cjreynolds@tbrpc.org*

Cara Woods Serra, AICP, CFM *cara@tbrpc.org*

Funded by a Grant from DEP
Florida Resilient Coastlines Program

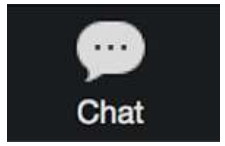
Housekeeping

This meeting is being recorded to help capture your suggestions.



If you have technical difficulties, send us a message using the chat button

How do I ask a question?



Please type your comments and questions in the chat window. This helps us to capture your ideas and suggestions.

Raise your hand to be unmuted.

TAMPA BAY
REGIONAL PLANNING COUNCIL

Agenda

1. Welcome/Purpose
2. Update on Related Projects and Resources
3. Technical Principles
4. Model Language Discussion
5. Overview New Guide TOC and Review Process
6. Breakout groups for input/comment

TAMPA BAY
REGIONAL PLANNING COUNCIL

Today's Goals

Provide input to the TBRPC and team… l

1. Regional and state initiatives for shoreline installation, policy and permitting
2. Review the Resilient Shorelines Policy Guide and Model Language -- discuss priorities
3. Identify categories of technical information which need further discussion by experts or stakeholders

TAMPA BAY
REGIONAL PLANNING COUNCIL

Project Team

CJ Reynolds
Director of Resiliency & Engagement

Cara Serra, ACIP, CFM
Comprehensive Resiliency Planner

Erin Deady
Erin Deady PA

Tom Ries
Ecosphere Restoration Institute/ESA

TAMPA BAY
REGIONAL PLANNING COUNCIL

Shorelines Policy Guide and Model Language

Funded by a Grant from DEP
Florida Resilient Coastlines Program

Support adoption of best practices for creating and maintaining living shorelines, enhanced shorelines, and hardened shorelines including seawalls/bulkheads, to achieve a greater level of resilience in the region.

Document will define recommendations for:

- establishing a hierarchy of shoreline policies and principles to support resilient adaptation, and habitat preservation and restoration;
- establishing uniform heights for bulkheads and seawalls for SLR and predicted tidal flooding up to 2070;
- coordinated installation, maintenance, repair, oversight, enforcement and permitting of living shorelines or seawall enhancement options;
- avoiding negative impacts, liability;
- model language options for Comp plan, LDR, Code.

TAMPA BAY
REGIONAL PLANNING COUNCIL

Shorelines Policy Guide and Model Language

Subcontractors:

Tom Ries, Ecosphere Restoration, national living shoreline expert and experience with USACE Nationwide Standard 54 (permitting).

Erin Deady, Erin L. Deady, P.A., extensive public policy expertise related to climate and coastal impacts.

Additional Experts:

TBEP, FWC, TNC, Sea Grant, Coalition Partners, Coalition MPC

Create a Guide and Appendix with Model Language

POLICY GUIDE SECTIONS

Introduction

1: Technical Principles

2: Local Plans and Policy

3: Zoning and Overlay Zones

4: Permitting

5: Charter Counties and Coordination

6: Community Considerations

7: Updating Processes and Documents

Appendix Model Language

- Existing CCMP Model Language
- New language per topic

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Proposed Process

Grant deadline: draft submitted by August 30

Actions/next steps:

- Initial stakeholder review and input meeting,
- Special teams for key topics – rapid review and recos
- Present key recommendations to SC, MPC/Workgroup, stakeholders in August to collect input
- Revise draft in Sept-Nov
- Final draft Dec and review webinar

Projects and Resources

Update on tools, policy discussions and technical recommendations

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Overview of Projects and Resources (partial)

- Florida Fish and Wildlife Conservation Commission: Living Shorelines Suitability Model for Tampa Bay (2017)
- Florida Fish and Wildlife Conservation Commission: Marine Contractors Training Course (2020)
- Tampa Bay Estuary Program: Model Language Guide to support the TBEP Comprehensive Conservation Management Plan (2020)
- Resilient Coalition Shorelines and Open Spaces Workgroup: Comp Plan reviews, initial recommendations for policy, uniform height (2020)
- National Wildlife Federation: Softening Our Shorelines (2020)
- The Nature Conservancy -- Permitting Working group (2021)

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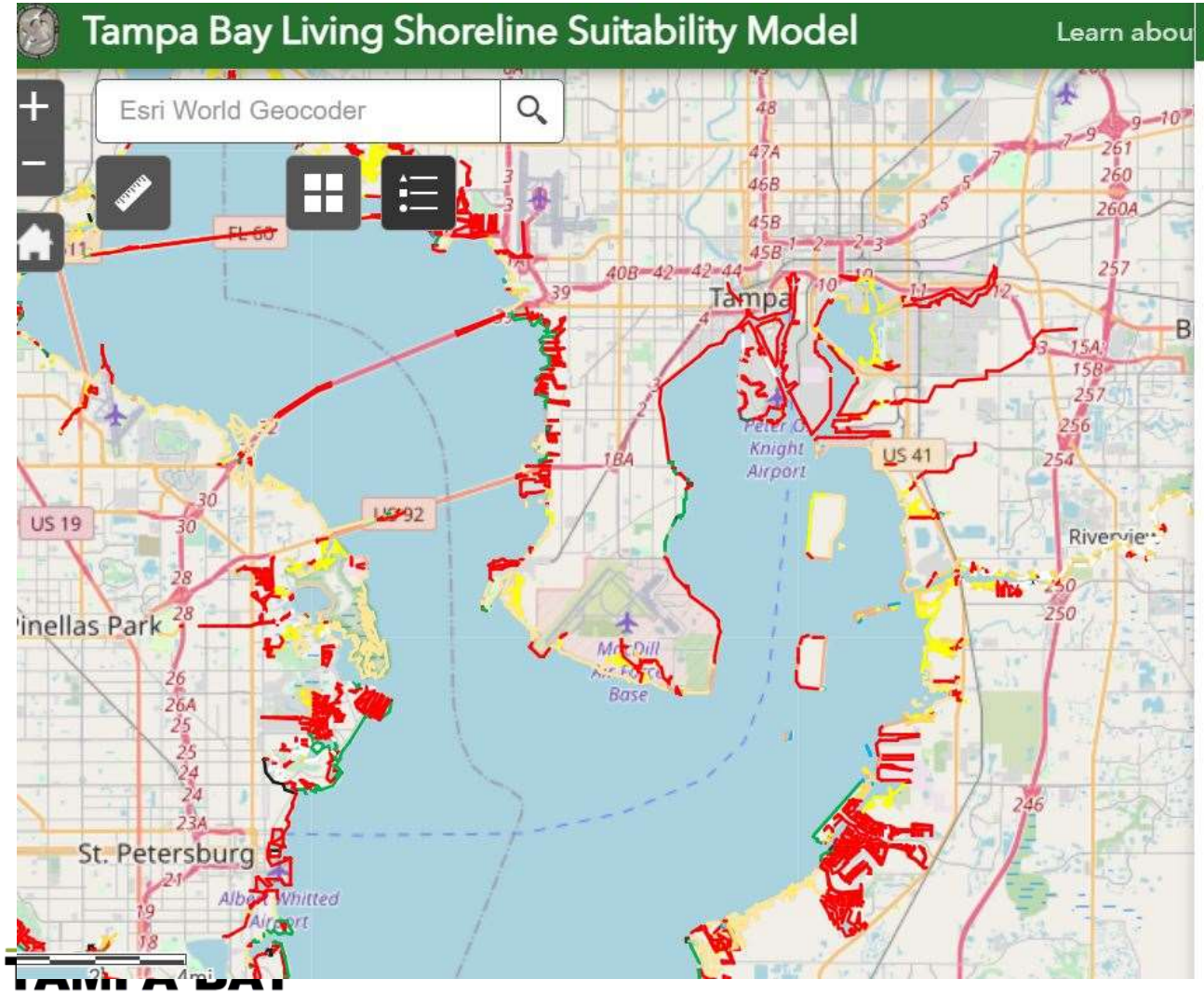
FWRI/FWC Living Shoreline Suitability Model



The Fish and Wildlife Research Institute's Center for Spatial Analysis applied the Virginia Institute of Marine Science's Living Shoreline Suitability Model (LSSM) to the Tampa Bay region.

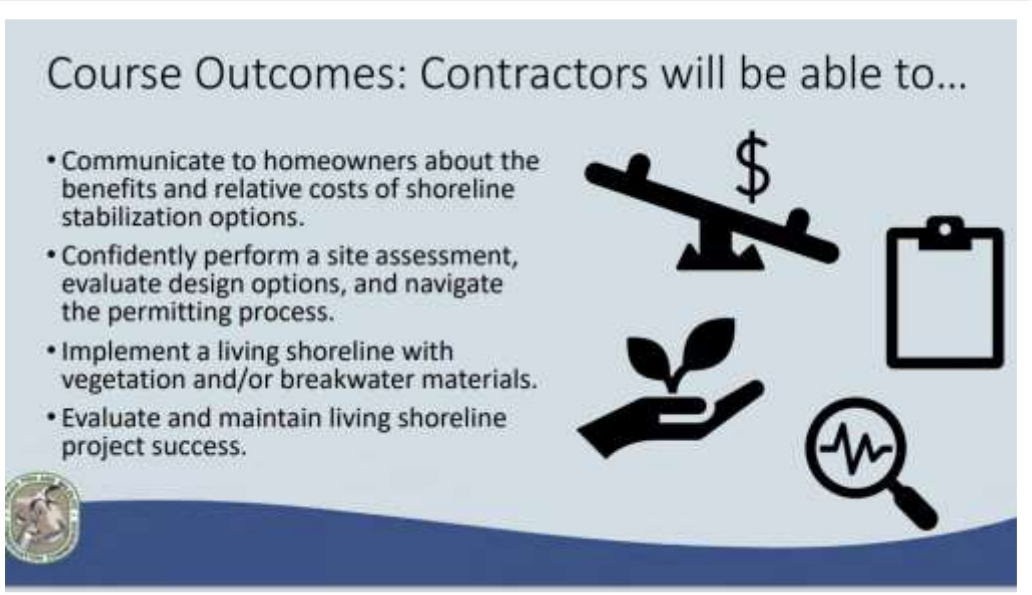
The LSSM requires information about existing environmental conditions to **correctly apply a decision tree,** such as existing habitat, slope of coastal waters, environmental conditions, and potential construction barriers. Based upon the decision tree, the LSSM provides best management practices of shoreline protection techniques to property owners and management entities.

- Tampa Bay Living Shoreline Suitability Model (arcgis.com)
- Story Map: Suitable Sites for Living Shorelines in Tampa Bay (arcgis.com)

Contact: Kathleen.OKeife@MyFWC.com. Funded by TBERF and *GOMA Grant No.: 121623-00)*

FWC Florida's Living Shorelines Training for Marine Contractors

- Interactive 2-day course develop skills to design, permit, implement, monitor, and maintain living shorelines, either alone or in addition to, an existing seawall or other structure.
- Courses in Oct. 2019, Jan.19-20, 2021, FL Sea Grant offered virtual version



Contact: Fara Ilami, Fara.Ilami@MyFWC.com

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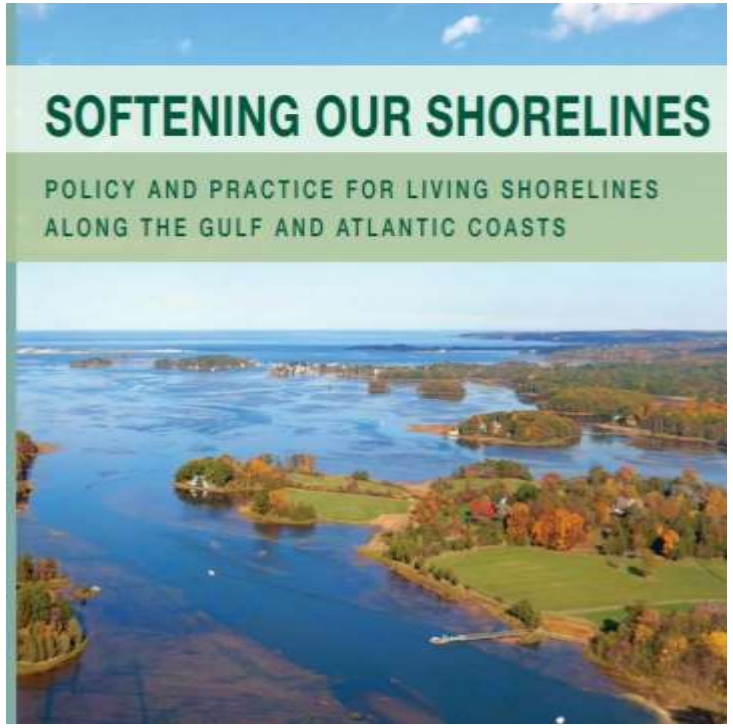
NWF Softening Our Shorelines



Many useful recommendations and ideas to achieve policy parity

- Federal and state level recommendations but could be applied regionally
- Ex: “Enable Disaster Mitigation Dollars to Support Living Shorelines”
- Ex: Details of how obtaining a general permit authorization for a LS can be more burdensome

Issues and Impacts

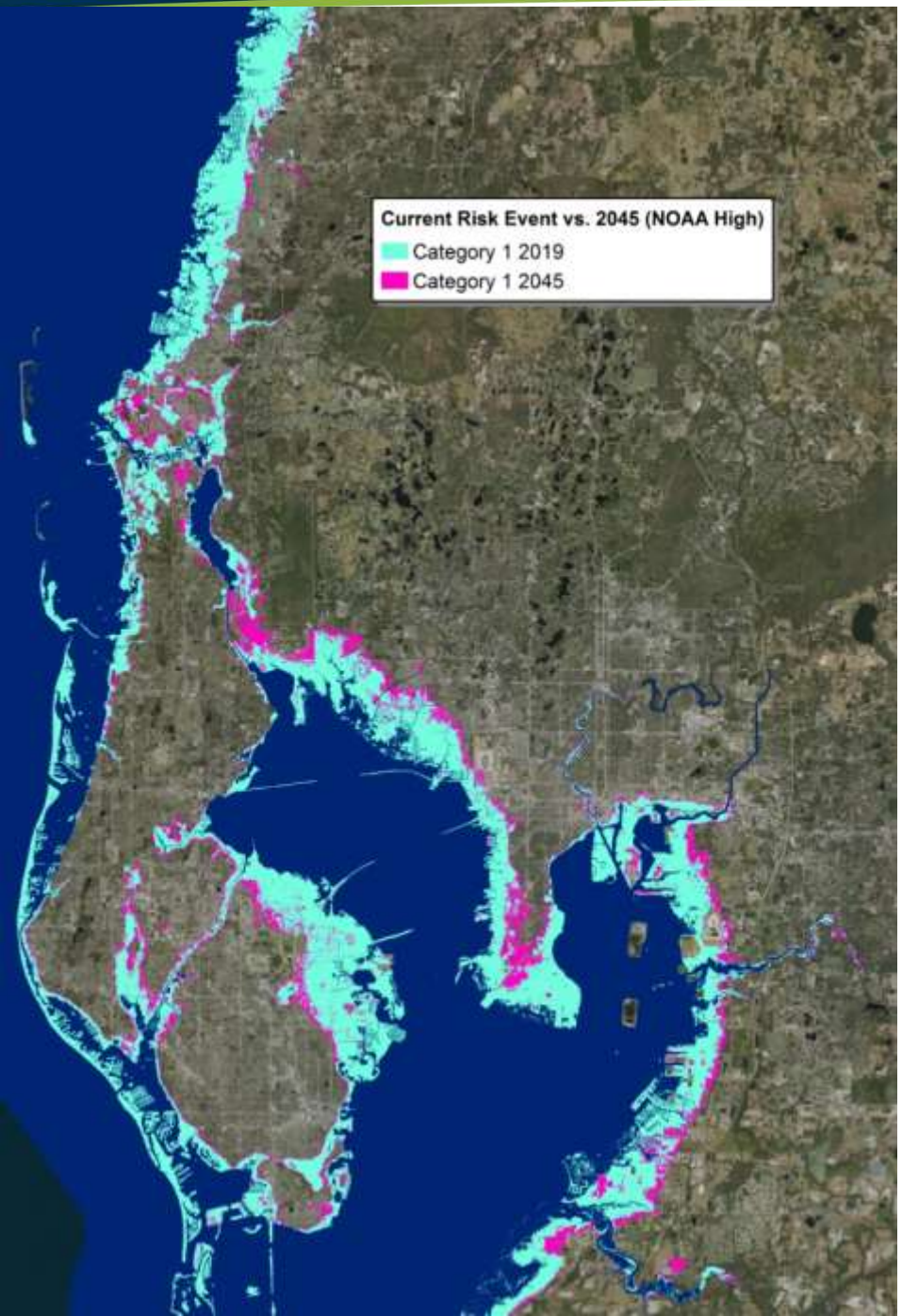
NWF review – ways that obtaining a general permit authorization for a LS can be more burdensome than for a hardened approach:

- Requiring more detailed design documents in the permit application
  Requiring more expensive professional services (e.g. an engineer's stamp, a property survey, etc.)
- Requiring different or additional permits
- Longer review times

Discussion #1

Form a Technical Team

- FWC LSSM -- support development of shoreline criteria for zoning/categories or standards
- FWC Marine Contractor Training -- Review permitting content, learn from Contractors about barriers, inconsistencies.
- NWF and TNC -- Review policy and program recommendations



Overview of Resilient Shoreline Plans, Policies and Model Language

TBEP Comprehensive Conservation Management Plan "Cross-walk and Model Language Guide "

In 2019-2020, TBRPC created the **CCMP- Comprehensive Plan Crosswalk Tool** and a **Comprehensive Plan Model Language Guidelines** that aligns with the priority actions of the CCMP.

- Pinellas County
- Manatee County
- Hillsborough County
- Pasco County
- City of Clearwater
- City of Tampa
- City of St. Petersburg

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Comprehensive Plan Review and Model Language Development

1. Review of Comprehensive Plans in Florida and nationwide for 8 Priority Action Plans
2. Stakeholders selected 3 Priority Actions (CC-1, SW-10, and BH-6)
3. Comprehensive Plans trends
   - streamlined, themes and more public oriented
   - broader, more general language to allow more flexibility to implement policies in other regulatory mechanisms.

Highest CCMP Priority Actions for TBEP

Stormwater 10

Expand use of Green Infrastructure Practices
p. 28 of the CCMP

Bay Habitats 6

Encourage habitat enhancement along altered waterfront properties
p. 81 of the CCMP

Climate Change 1

Improve ability of bay habitats to adapt to a changing climate
p. 141 of the CCMP

Stakeholder Committee (TBEP Staff & County/City Staff) prioritized 8 of 39 Actions for development of model language

Water and Sediment Quality Goals
WQ-1 | Implement the Tampa Bay nutrient management strategy
SW-1 | Reduce nitrogen runoff from urban landscapes
SW-10 | Expand use of Green Infrastructure practices
Bay Habitats
BH-1 | Implement the Tampa Bay Habitat Master Plan
BH-6 | Encourage habitat enhancement along altered, waterfront properties
BH-9 | Enhance ecosystem values of tidal tributaries
BH-10 | Implement the Tampa Bay Freshwater Wetland Habitat Master Plan
Climate Change
CC-1 | Improve ability of bay habitats to adapt to a changing climate

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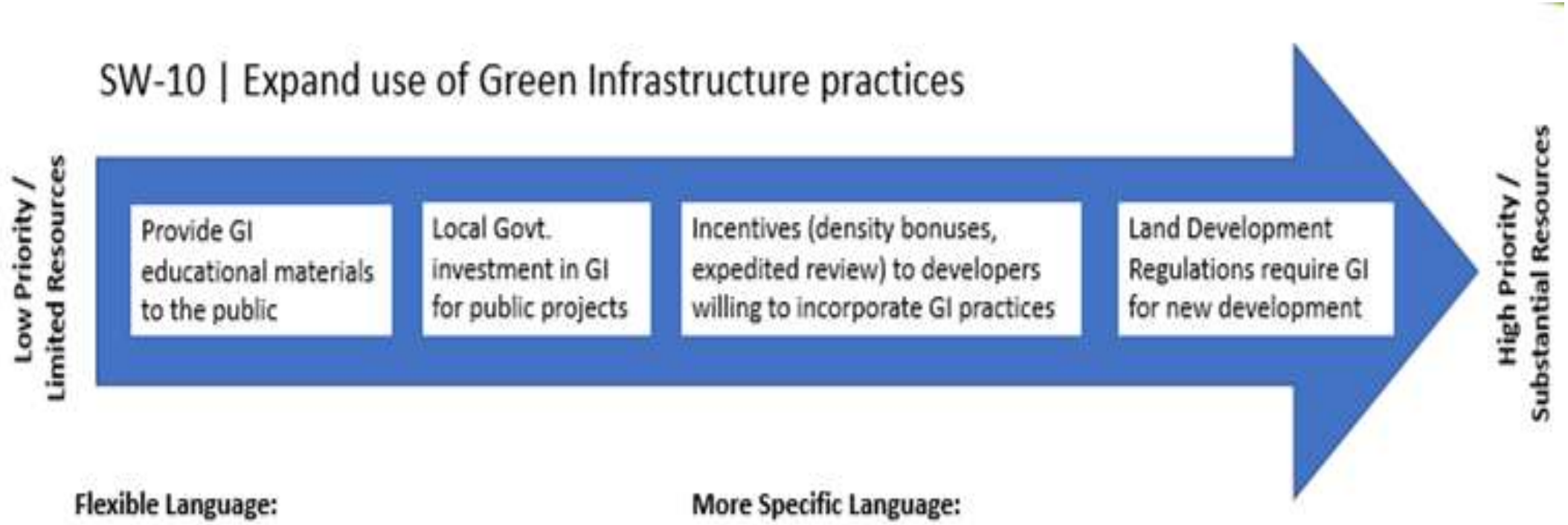

Broad or General Language example:
The jurisdiction will ***encourage*** the use of "Low Impact Development" techniques for stormwater management, ***such as*** minimal land disturbance, the preservation of native vegetation, and the minimization of impervious cover, through site plan and internal review processes.

Stringent or Specific Language example:

Require that impervious surface within the Watershed Overlay District be minimized through the use of ***one or more*** of the following strategies: (…)

By ***December 2020***, for new County construction and in the redevelopment of County properties, the County ***will*** utilize low impact development principles, to the extent practicable, to address stormwater management needs and to model innovative techniques.

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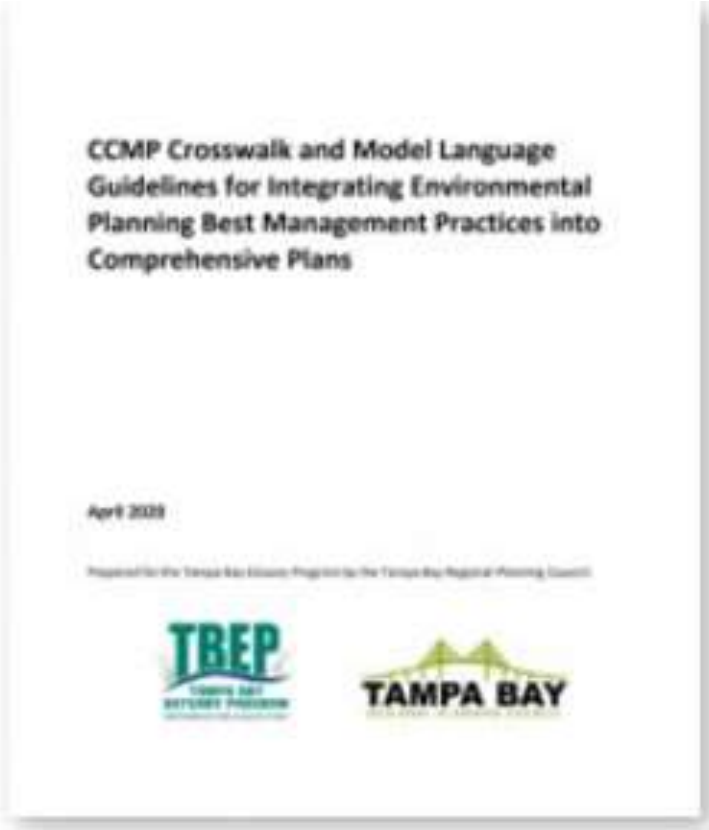

Comprehensive Plan Model Language Guidelines

CCMP Project Outcomes

Project Outcomes

- Crosswalk local government comprehensive plans
- Model language for local governments to use in long range planning
- Regional workshop with APA Suncoast (May 2020)

Summary of local planning

- Jurisdictions need flexibility in model language to make it more implementable
- Policy development will be updated based on changes
- Regional consistency in shoreline hardening

https://www.tbrpc.org/wp-content/uploads/2020/07/CCMP-Model-Language-Guidelines.pdf

Resilient Shorelines Workgroup Recap Oct. 2019-May 2020

Four meetings, supported by Gary Raulerson, Mike Bauer, diverse attendees/expertise

- Discussed, defined common issues, barriers, information needs
- Reviewed Broward County policy, process, guide (Dec 2019)
- Discussed technical parameters, resilience needs/benefits, lifespan of seawalls, timeframes, SLR scenarios, exceptional/king tides
- UF Levin College of Law conducted assessment of Coalition member plans

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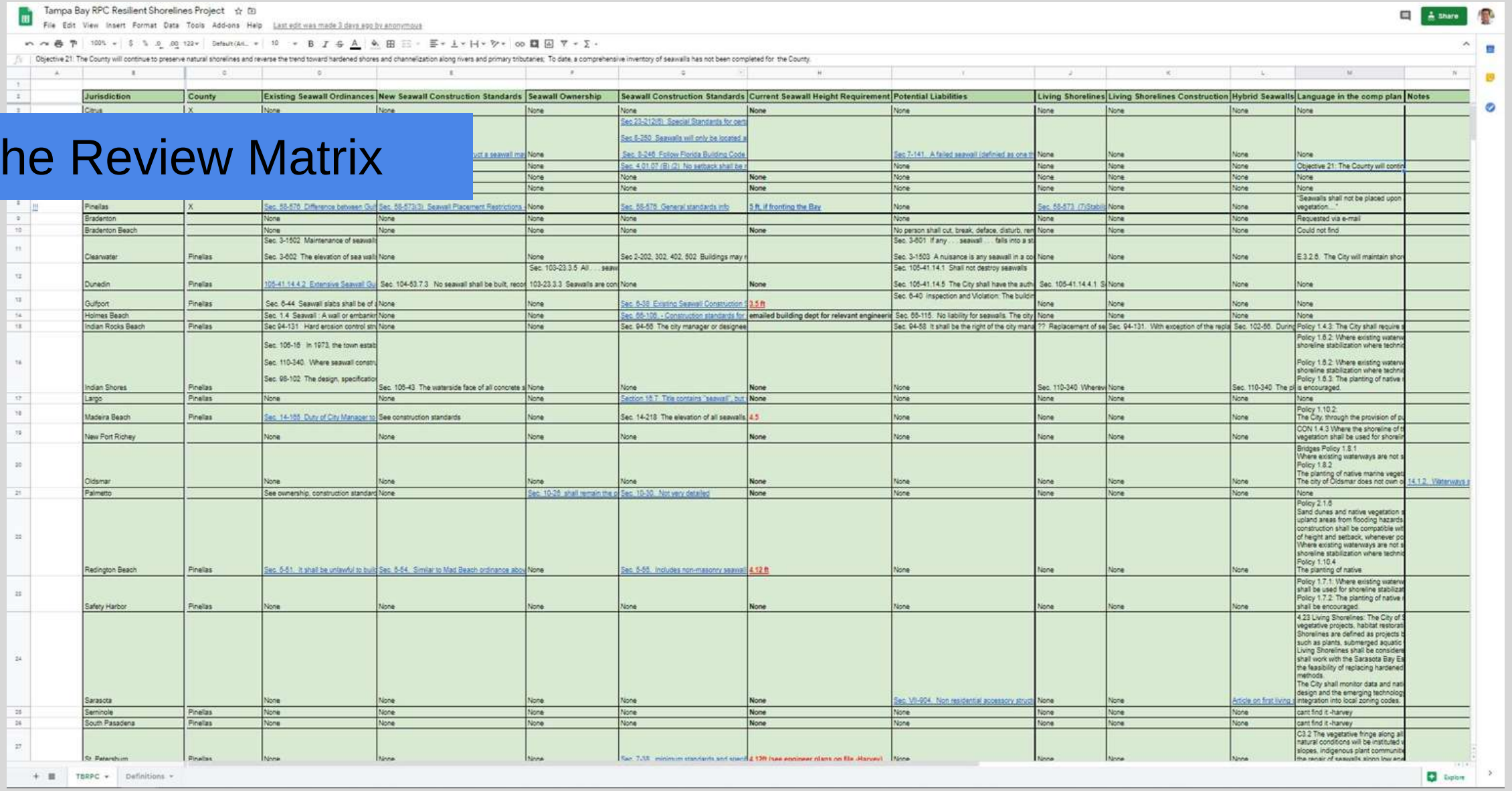
The State of Shoreline Protection in Comprehensive Plans and Land Development Regulations in the Jurisdiction of the Tampa Bay region (TBRPC/Resilience Coalition)

Presentation April/May 2020 prepared for the Shorelines Workgroup

Harvey Halprin & J.W. Glass, Student Associates

Thomas Ankersen, Legal Skills Professor and Director Conservation Clinic, Levin College of Law

The Review Matrix



Tampa Bay RPC Resilient Shorelines Project

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Objective 21: The County will continue to preserve natural shorelines and reverse the trend toward hardened shores and channelization along rivers and primary tributaries; To date, a comprehensive inventory of seawalls has not been completed for the County.

Jurisdiction	County	Existing Seawall Ordinances	New Seawall Construction Standards	Seawall Ownership	Seawall Construction Standards	Current Seawall Height Requirement	Potential Liabilities	Living Shorelines	Living Shorelines Construction	Hybrid Seawalls	Language in the comp plan	Notes
Citrus	X	None	None	None	None	None	None	None	None	None	None	
					Sec 23-212(8): Special Standards for certi Sec 6-250. Seawalls will only be located a							
			uct a seawall ma	None	Sec. 6-246. Follow Florida Building Code		Sec 7-141. A failed seawall (defined as one th	None	None	None	None	
				None	Sec. 4.01.07 (B) (2). No setback shall be r		None	None	None	None	Objective 21: The County will contin	
				None	None	None	None	None	None	None	None	
				None	None	None	None	None	None	None	None	
III	Pinellas	X	Sec. 66-576. Difference between Gui	Sec. 66-573(3). Seawall Placement Restrictions -	None	Sec. 66-575. General standards info	5 ft. if fronting the Bay	None	Sec. 66-573. (7)Stabili	None	None	"Seawalls shall not be placed upon vegetation..."
	Bradenton		None	None	None	None		None	None	None	Requested via e-mail	
	Bradenton Beach		None	None	None	None	None	No person shall cut, break, deface, disturb, ren	None	None	None	Could not find
	Clearwater	Pinellas	Sec. 3-1502. Maintenance of seawalls Sec. 3-602. The elevation of sea walls	None	None	Sec 2-202, 302, 402, 602. Buildings may r		Sec. 3-601. If any . . . seawall . . . falls into a st Sec. 3-1503. A nuisance is any seawall in a co	None	None	None	E.3.2.6. The City will maintain shor
	Dunedin	Pinellas	105-41.14.4.2. Extensive Seawall Gu	Sec. 104-53.7.3. No seawall shall be built, recon	Sec. 103-23.3.5. All . . . seaw 103-23.3.3. Seawalls are con	None	None	Sec. 105-41.14.1. Shall not destroy seawalls Sec. 105-41.14.5. The City shall have the auth	Sec. 105-41.14.4.1. S	None	None	None
	Gulfport	Pinellas	Sec. 6-44. Seawall slabs shall be of a	None	None	Sec. 6-38. Existing Seawall Construction S	3.5 ft	Sec. 6-40. Inspection and Violation: The buildin	None	None	None	None
	Holmes Beach		Sec. 1.4. Seawall : A wall or embankr	None	None	Sec. 66-106. - Construction standards for	emailed building dept for relevant engineerir	Sec. 66-115. No liability for seawalls. The city	None	None	None	None
	Indian Rocks Beach	Pinellas	Sec 94-131. Hard erosion control str	None	None	Sec. 94-56. The city manager or designee		Sec. 94-58. It shall be the right of the city mana	?? Replacement of se	Sec. 94-131. With exception of the repla	Sec. 102-66. During	Policy 1.4.3: The City shall require s
	Indian Shores	Pinellas	Sec. 106-16. In 1973, the town estab Sec. 110-340. Where seawall constru Sec. 98-102. The design, specificatio	Sec. 106-43. The waterside face of all concrete s	None	None	None	None	Sec. 110-340. Where	None	Sec. 110-340. The pl	Policy 1.6.2: Where existing waterw shoreline stabilization where technic Policy 1.6.2: Where existing waterw shoreline stabilization where technic Policy 1.6.3: The planting of native is encouraged.
	Largo	Pinellas	None	None	None	Section 18.7. Title contains "seawall", but	None	None	None	None	None	None
	Madeira Beach	Pinellas	Sec. 14-185. Duty of City Manager to	See construction standards	None	Sec. 14-218. The elevation of all seawalls	4.5	None	None	None	None	Policy 1.10.2: The City, through the provision of pu
	New Port Richey		None	None	None	None	None	None	None	None	None	CON 1.4.3 Where the shoreline of t vegetation shall be used for shorelir
	Oldsmar		None	None	None	None	None	None	None	None	None	Bridges Policy 1.8.1 Where existing waterways are not s Policy 1.8.2 The planting of native marine veget The city of Oldsmar does not own o
	Palmetto		See ownership, construction standard	None	Sec. 10-28. shall remain the p	Sec. 10-30. Not very detailed	None	None	None	None	None	None
	Redington Beach	Pinellas	Sec. 5-51. It shall be unlawful to build	Sec. 5-54. Similar to Mad Beach ordinance abov	None	Sec. 5-55. Includes non-masonry seawall	4.12 ft	None	None	None	None	Policy 2.1.6 Sand dunes and native vegetation s upland areas from flooding hazards. construction shall be compatible wit of height and setback, whenever po Where existing waterways are not s shoreline stabilization where technic Policy 1.10.4 The planting of native
	Safety Harbor	Pinellas	None	None	None	None	None	None	None	None	None	Policy 1.7.1: Where existing waterw shall be used for shoreline stabilizat Policy 1.7.2: The planting of native shall be encouraged.
	Sarasota		None	None	None	None	None	Sec. VII-904. Non residential accessory struct	None	None	Article on first living	4.23 Living Shorelines: The City of S vegetative projects, habitat restorati Shorelines are defined as projects t such as plants, submerged aquatic Living Shorelines shall be considere shall work with the Sarasota Bay Es the feasibility of replacing hardened methods. The City shall monitor data and nati design and the emerging technolog integration into local zoning codes.
	Seminole	Pinellas	None	None	None	None	None	None	None	None	None	cant find it -harvey
	South Pasadena	Pinellas	None	None	None	None	None	None	None	None	None	cant find it -harvey
	St. Petersburg	Pinellas	None	None	None	Sec. 7-38. minimum standards and specifi	4.139 (see engineer plans on file -Harvey)	None	None	None		C3.2 The vegetative fringe along all natural conditions will be instituted slopes, indigenous plant communit the repair of seawalls along low ene

TBRPC Definitions

Explore

Shoreline Protection by the Numbers: Living Shorelines

- 15 of 30 address “Living Shorelines” or functional equivalent in Comp Plans
  - Counties – 2 (Hillsborough, Pinellas)
  - Municipalities - 13
- 4 have ordinances
  - Counties – 1 (Pinellas)
  - Municipalities – 3

Shoreline Protection by the Numbers: Sea Walls

19 of 30 address “Seawalls” in Ordinances

- Counties – 3
- Municipalities – 16

7 of 19 define seawall heights in Ordinances

- Manatee County (4’)
- Pinellas County (5’)
  - Gulfport (3.5’)
  - Madeira Beach (4.5’)
  - Reddington Beach (4.12’)
  - St. Pete Beach (5’)
  - Treasure Island (5’)
  - *St. Petersburg on file with engineering (4.12’)

UF Key Takeaways

SEAWALLS

- most local governments have NO min. height
- Varied minimum height and description references (NAVD or USGC)
- 1 County and 2 Cities have set 5 feet
- Design criteria, failing wall liability (nuisance) and maintenance requirements vary significantly, if they exist
- Some authorize periodic inspections and fines but also vary

LIVING SHORELINES

- Addressed in comprehensive plans far more often than they are addressed in local codes
- Most local governments appear to indicate a policy preference for living shorelines or natural shorelines
- Design criteria are largely absent for living shorelines policy

Examples of Living Shoreline Comprehensive Plan Language (2020)

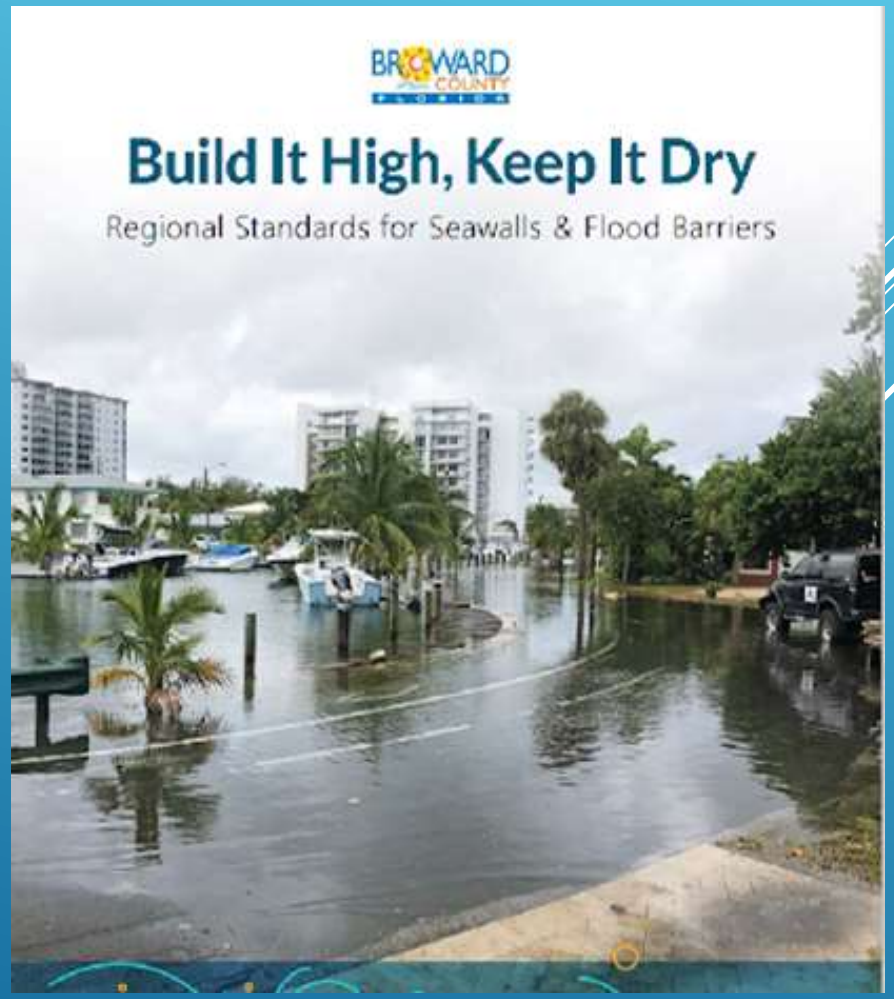
- Objective 21: The County **will** continue to preserve natural shorelines and **reverse the trend toward hardened shores** and channelization along rivers and primary tributaries; (Hillsborough)
- Policy 1.6.2: Where existing waterways are not seawalled, **native marine vegetation shall be used for shoreline stabilization where technically feasible** (Indian Shores)
- CON 1.4.3 Where the shoreline of the Pithlachascotee River is not seawalled **native vegetation shall be used for shoreline stabilization** (New Port Richey)
- 4.23 Living Shorelines: The City of Sarasota **shall encourage shoreline softening** through vegetative projects, habitat restoration planting, and **Living Shorelines**. (Sarasota)
- ENV Policy 1.11.1: Continue to implement a program of shoreline improvement and restoration **on publicly-owned or controlled** riverfront lands including: The creation or restoration of vegetated shorelines on public lands; The **replacement of existing seawalls and rip-rap with naturally sloped and vegetated shorelines.** (Tampa)

SEAWALL REGULATIONS (ONLY TWO EXAMPLES)

BROWARD SEAWALL NOTICE REQUIREMENT

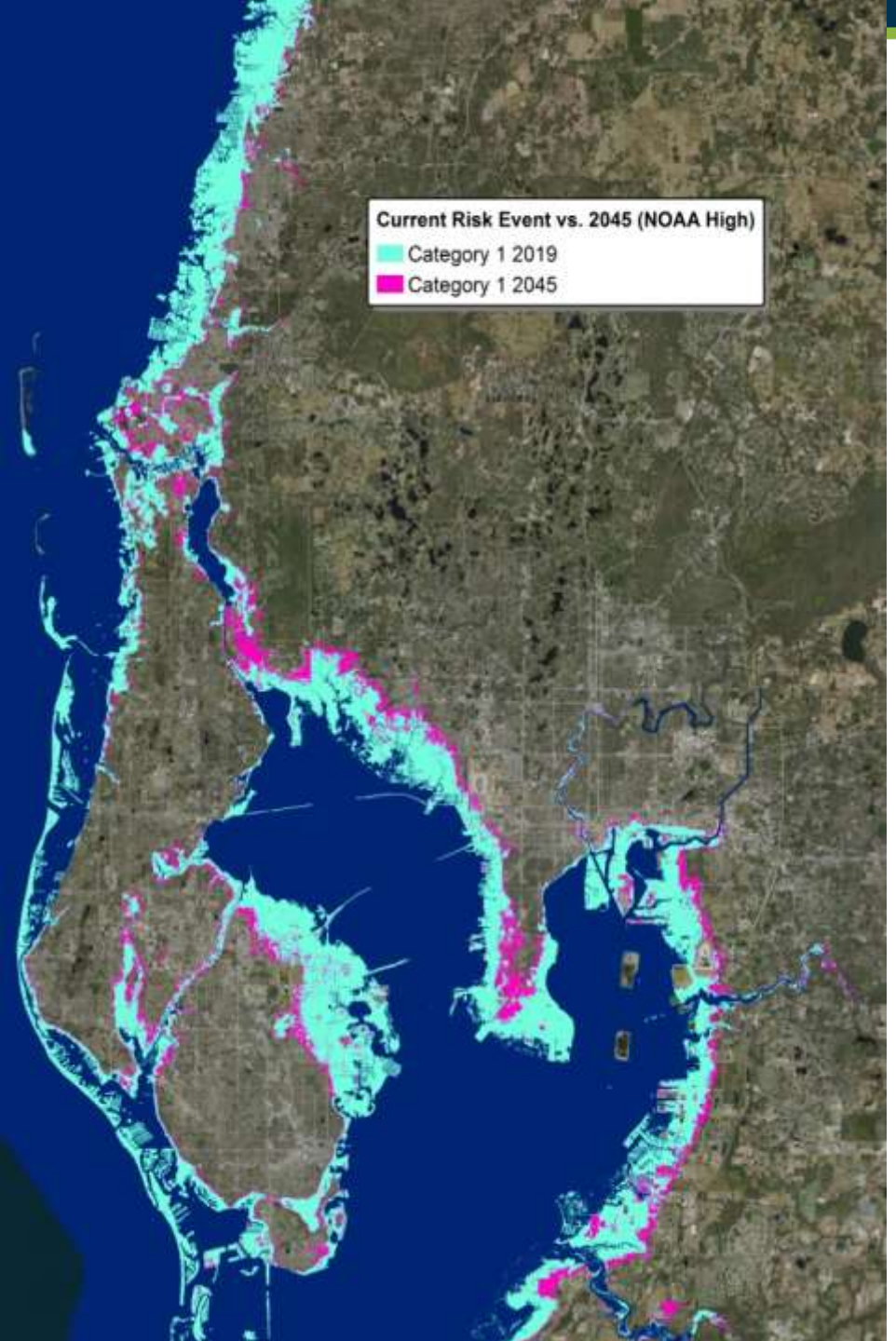
"Sec. 39-408. - Required disclosure in contracts for sale of real estate.

- In any contract for the sale of real estate located in tidally influenced areas of Broward County executed after December 31, 2020, the seller shall include in the contract or a rider to the contract the following disclosure in not less than fourteen-point, capitalized, bold-faced type:
  - THIS REAL ESTATE IS LOCATED IN A TIDALLY INFLUENCED AREA. THE OWNER MAY BE REQUIRED BY COUNTY OR MUNICIPAL ORDINANCE TO MEET MINIMUM TIDAL FLOOD BARRIER ELEVATION STANDARDS DURING CONSTRUCTION OR SUBSTANTIAL REPAIR OR SUBSTANTIAL REHABILITATION OF SEAWALLS, BANKS, BERMS, AND SIMILAR INFRASTRUCTURE OR WHEN REQUIRED TO ABATE NUISANCE FLOODING."



Other Seawall Height

- **Broward County -** 4 feet NAVD88 by 2035 and 5 feet NAVD88 by 2050
- **Delray Beach -** 3.9 - 4.4 feet NAVD by 2048 and a 5.3 – 7.4 feet NAVD by 2093
- **Ft. Lauderdale** - min. height of 3.9 ft. NAVD and a max height of 5 ft. NAVD or base flood elevation of the property (does not mention timeline)
- **Hillsboro Beach** - In July 2020, approved a minimum allowable seawall elevation of 5 ft. NAVD by 2035
- **Longboat Key** - barriers up to 4.5 ft. NAVD - a foot and a half higher than currently allowed no timeline
- **Miami Beach -** interim elevation of 4.0 ft. NAVD is included as an option for private seawalls where raising the seawall to the recommended 5.7 ft. NAVD
- **Flagler County** - section of Kahana Beach is under negotiations with the County to repair their seawalls from hurricane damage. The proposed sea wall is to be 16 feet tall
- **North Bay Village** - min. standards require new seawalls be designed to last for at least 25 years, and that they be built to a 5.94 feet NAVD elevation standard.



Overview of DRAFT recommendations from Working Group --Technical Factors

Work Group Draft Recommendations

In 2020, TBRPC created recommendations based on the workgroup input, which will support direction of the new Policy Guide

Draft Resilience Goal:
Ensure that local shorelines are resilient to changing sea levels and tidally influenced flooding through 2060 to provide community flood protection benefits and ensure the ecological integrity of coastal habitats and shorelines on baywaters and riverine systems.

(Gulf-facing sea walls and other forms of shoreline management are regulated by the State's Coastal Construction Control Line Program.)

Working Group draft Technical Principles

Technical Principles Guiding Shoreline Policy Development

1) Natural and Living Shorelines are the preferred option where circumstances permit because they provide ecological benefits, inclusive of improved water quality characteristics;
2) Living shorelines can incorporate elements of hardening (e.g. rip rap & breakwaters) where circumstances require it;
3) Seawalls and revetments are a last resort against the landward encroachment of the sea; they will not protect property from projected storm surge from most hurricanes;
4) Seawalls can incorporate components of living shorelines where circumstances allow to extend the life of the seawall and provide ecological benefits;

draft Technical Principles cont.

5.) Recommendations for uniform seawall heights should consider sea level rise and king tides over the design life of the seawall;
6) Depending on biophysical characteristics, gaps between sea walls can exacerbate erosion, induce flooding and result in upland property damage;
7) Depending on biophysical characteristics, properly engineered living shorelines can be constructed in gaps between adjacent seawalls to replicate the protection offered by sea walls;
8) Low elevation sea walls comprise the functionality of adjacent higher elevation sea walls and shorelines;
9) Failing sea walls compromise the integrity of the adjacent shorelines and uplands.

Hierarchy of Shoreline Protection Strategies and Policies

Based on the technical principles, the Workgroup recommended that the region establish a policy preference for preserving underdeveloped and natural shorelines, followed by installing living/enhanced shoreline, where biophysical conditions require an intervention.

Protect and Preserve Natural Shorelines.
Undeveloped or natural shorelines should be maintained as the first level of action, wherever possible. This should be the policy preference within the region and supported via regulatory rules (local level at a minimum)

Promote Living Shorelines and Hybrid Shorelines
When shoreline intervention is required to prevent erosion, Living and Hybrid Shorelines should be the preferred engineering options. Where shoreline hardening is required, or when existing hardening must be repaired or replaced, softening/natural components should be incorporated into the sea wall/shoreline design and construction, when possible.

Define Appropriate Locations and Land-use for Implementing Hardened Structures
Installation of new sea walls and revetments should be appropriate for the land-use, and should be accompanied by living shoreline features where circumstances permit.

Proposed Recommendations for Establishing Uniform, Coordinated Seawall Elevation

Recommend that the region establish a uniform, coordinated heights for new and replacement seawalls and bulkheads, based on science.

- New seawall heights should consider sea level rise projections and exceptional high tides over the average expected life of a sea wall, between 40 and 50 years.
- use the TB-CSAP NOAA High scenario of 3.48 feet for sea level rise for 2060, which would be near the end of the estimated lifespan of a seawall constructed in 2020.
- High Tide Flooding -- NOAA defines 1.74 feet through 2050.
- Combining heights = a new standard height of 5.22 feet in 2060.
- Local governments require that new and replacement sea walls be constructed to an elevation of 5 feet. (Rounding slightly downward/ uncertainties and ease of use)
- Pinellas County and Broward County have adopted 5 feet.

Walls and Sea Level Rise (St. Pete tide)

NOAA Int. High

2040 = 1.41

2060 = 2.62

2070 =

2080 = 4.20

2100 = 6.17

Year	NOAA Int-Low (feet)	NOAA Intermediate (feet)	NOAA High (feet)
2000[3]	0	0	0
2030	0.56	0.79	1.25
2040	0.72	1.08	1.77
2050	0.95	1.44	2.56
2060	1.15	1.87	3.48
2070	1.35	2.33	4.56
2080	1.54	2.82	5.71
2090	1.71	3.38	7.05
2100	1.90	3.90	8.50

evel Change Relative to the Year 2000 for St. Petersburg, Florida in Fee
a Level (LMSL)

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Exceptional Tides

TBRPC model: 1.74 feet

NOAA Tides & Currents

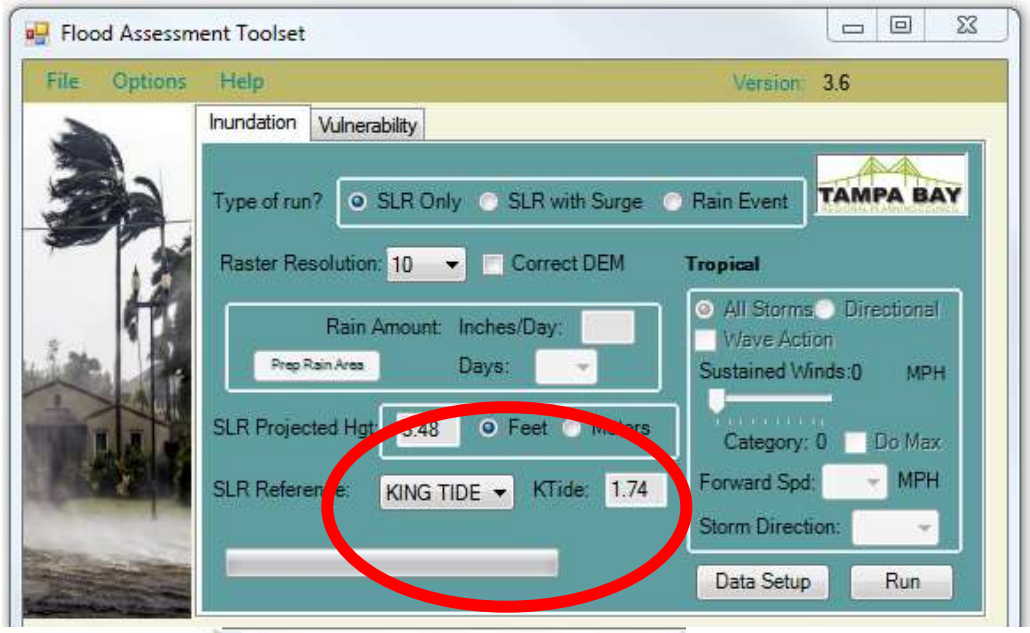
St. Petersburg, Clearwater, Cedar Key

2050 – farthest future date

Range 15-85 projected days

85 days = nearly 3 months

https://tidesandcurrents.noaa.gov/HighTideFlooding_AnnualOutlook.html



Cedar Key, FL

Year	Flood Days
2019	11 (Broke Record)

Projected High Tide Flood Days

Year	Flood Days
2020	4-7
2030	5-10
2050	20-70

Average No. of flood days in 2000: 2
Record No. of flood days: 11

Flood threshold is 0.55m above MHHW

Clearwater, FL

Year	Flood Days
2019	4

Projected High Tide Flood Days

Year	Flood Days
2020	4-6
2030	2-5
2050	10-55

Average No. of flood days in 2000: 0
Record No. of flood days: 5

Flood threshold is 0.54m above MHHW

St. Petersburg, FL

Year	Flood Days
2018	4 (Tied Record)

Projected High Tide Flood Days

Year	Flood Days
2019	1-3
2030	3-4
2050	15-85

Average No. of flood days in 2000: 1
Record No. of flood days as of 2017: 4

Flood threshold is 0.53m above MHHW

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NATURE new study on High Tide Flooding

Researchers used established SLR scenarios and flooding thresholds to demonstrate how combined effects of SLR and nodal cycle modulations of tidal amplitude lead to acute inflections in projections of future HTF.

- mid-2030s may see the onset of rapid increases in the frequency of HTF in multiple US coastal regions.
- annual cycles and sea-level anomalies lead to extreme seasons or months --many days of HTF cluster together.
- Clustering can lead to critical frequencies of HTF occurring during monthly or seasonal periods one to two decades prior to being expected on an annual basis.

Other Issues Identified

Contractors comments....

- **Local permitting** hasn't yet promulgated rule changes to create incentives or streamline permitting practices.
  - Federal regulations have been rewritten to expedite the implementation of living shorelines and seawall enhancement designs.
  - State permitting also modified rules to mimic the federal exceptions.
- **Local policies that prohibit fill,** and do not allow for variance, are barriers to implementing living shorelines.

Other Issues Identified

Consider language to address the following:

- Policy to mitigate existing, non-conforming and failing seawalls and revetments
- Ensuring integrity of shoreline defenses where seawalls tie into natural and living shorelines
- “water trespass” – e.g. liability for flooding from compromised and non-conforming structures, as well as gaps between sea walls.
- Provisions to address the potential for “freshwater” flooding due to higher seawalls and SLR conditions (pumps and generators)
- Relationship to existing water-dependent infrastructure (docks, piers, etc.)

Poll #2

1. support standardized shoreline categories based on the wave energy, depth of near shore water, and land-use types.
2. define a hierarchy of shoreline protection strategies and policies which support resilient adaptation, habitat preservation and restoration, and are enforceable.
    a. Maryland and Virginia legislation -- very explicit preference for soft shoreline stabilization techniques.

SECTION 2: Plans and Policy Recommendations

This section will define plans, sections/elements) and documents to be updated.

- **Comprehensive Plan:** Coastal Management, Future Land-Use, other elements
- **Local Mitigation Strategy**
- **Waterfront Revitalization**
- **Shoreline Conservation and Restoration Plans,**
- **Ordinances,**
- **Land Development Regulations/Code**

SECTION 1: Technical Recommendations

The Stakeholders, building on previous Workgroup and other scientific data and recommendations, will develop and establish technical recommendations for shorelines, bulkheads and seawalls that:

1. considers local hydrological (depth, wave energy, tidal), geographic or location factors (i.e. bay, riverine), infrastructure, facilities and habitats
2. address threats and impacts from future sea level rise and exceptional tidal flooding up to 2070;
3. supports standardized shoreline categories based on the wave energy, depth of near shore water, and land-use types.
4. defines the hierarchy of shoreline protection strategies and policies which support resilient adaptation, habitat preservation and restoration, and are enforceable.

SECTION 2: Plans and Policy Recommendations

Policy Guidance (recommendations/explanation of what and why, NOT actual language.)

1. Describe standardized shoreline categories (from Section 1)
2. Describe hierarchy of shoreline priorities and strategies;
3. Coordinated installation strategies -- prioritize category of risk, ecosystems;
4. Maintenance and repair -- define expectations of safety and physical improvements; responsible for actions, payment;
5. Compliance and enforcement -- policy or triggers, time frames, requirements for improvements to meet new standards;
6. Communitications: property owner notices, real estate sales transactions;

SECTION 3: Zoning and Overlays

This section will provide recommendations and guidance on the development of local overlay zones to support consistency.

The criteria will be developed using information from standardized shoreline categories, technical parameters and LSSM suitability factors.

This section will provide the technical/legal justification which can be used by local governments to establish the need or purpose for creating zones/district.

SECTION 4 and 5 Descriptions

SECTION 5: Permitting

This section will review NWP 54 and State General Permits, and provide guidance related to updating local permitting applications, documents and procedures to reduce barriers and increase ease, timeliness.

SECTION 5: Charter Counties and Coordination

Hillsborough, PInellas and Sarasota are charter counties. This section will clarify issues related to County and municipal authority to promulgate local regulations related to shorelines and sea level rise. It will also address other enforcement or notification provisions and strategies.

SECTION 6 and 7 Descriptions

SECTION 6: Community Considerations

This section will provide an overview of socio-economic factors that staff and decision makers should consider when updating processes, policies and documents. It will identify specific interconnected social vulnerability factors and property owner rights. It will define recommendations to reduce or prevent unintended consequences and negative impacts.

SECTION 7: Updating Your Processes and documents

This section will provide an overview of next steps for staff to review existing plans, programs, technical documents and permitting processes to determine what needs to be modified or updated to support the local implementation, i.e change documents, applications or review and approval processes.

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Table of Contents

Introduction and Purpose

One of the advantages of adopting a regional land use policy is uniformity and coordination. Local governments are most familiar with the unique geography, infrastructure, habitat and social conditions of their jurisdictions. Therefore, when creating and instituting regional planning guides, municipal authorities must actively direct a broad coordinated effort and provide input on local knowledge.

As of 2021, there are 31 members of the Tampa Bay Regional Resilience Coalition working together to effectively plan and implement resilient strategies. Regional coordination is demonstrated through three categories: guided planning through state statute; cooperative planning at the intermunicipal level; and county coordinated planning for municipalities within county borders.

The TBRPC proposes to support local governments in their efforts through the development of a new Resilient Shoreline Policy Guidance Document and an Appendix which will provide model policy recommendations for tidally influenced coastal and riverine public and private shorelines (excluding Gulf of Mexico beach front). The Resilient Shorelines Policy guide will support coordinated land use planning by defining uniform policy and strategies. It will help neighboring municipalities manage shared resources, and counties more easily coordinate with the cities and towns within their jurisdictions.

This guide builds on and incorporates recommendations from two regional projects coordinated by the TBRPC in 2019-2020: the Resilient Shorelines working group recommendations and Tampa Bay Estuary Program Comprehensive Conservation Management Plan “Crosswalk Tool” and Model Language Guidelines for local comprehensive plans.

Project Background

Toward a Resilient Shorelines Policy Framework for the Tampa Bay Region

Protecting communities and managing shorelines in an era of rising seas and extreme weather requires carefully considered policy that both protects property, upland infrastructure and maintains natural shoreline processes. Coastal communities around the state of Florida and in other states are beginning to grapple with the difficulties of this dynamic challenge.

Many communities in the Tampa Bay region have shorelines that are dominated by hardened structures (sea walls, bulkheads, revetments). Most public infrastructure installed in the past decades was not designed with sea level rise in mind. As sea walls have a lifespan of 40-50 years under various conditions, many older communities have miles of walls that need repairs, and are nearing the end of their effective lifespan.

In the past 10 years, nature-based engineering solutions have been added to the mix of shoreline defense options and are now supported by FEMA. This includes living shorelines, enhanced shorelines which combine sea walls, vegetation and use of natural materials, also referred to as seawall enhancement options.

In Fall of 2019, the Resilient Shorelines and Spaces workgroup was formed, The workgroup included representatives from local governments, natural resources managers, shoreline engineers and other experts. The workgroup met four meetings between October 2019 and January 2020. The group reviewed the following: 1) Broward County scientific and policy rationale, and process for establishing the uniform shoreline height; 2) discussed the sea level rise projections provided by the TB Climate Science Advisory Panel and storm surge; and 3) reviewed modelling and flood calculations developed by the TBRPC GIS director for future tidal flood risks.

The group discussed Broward County and Ft. Lauderdale ordinances which included uniform sea wall elevations and addressed failing and non-conforming structures. The group also discussed shoreline construction factors, sea wall lifespans and mechanical risks due to increased storm surge, and engineering and infrastructure strategies that will be necessary to support seawalls. The limitations of seawalls in defined locations were recognized. The workgroup also raised issues related to consistency among contiguous areas and residential, commercial and industrial property owners, in addition to municipally owned parcels.

Review of Muni-Code and Comp Plans

Following these meetings in March-May 2020, TBRPC collaborated with Coalition Partner, the University of Florida Conservation Law Clinic Law. Under the guidance of Clinic Director Tom Ankerson, law students conducted a review of 29 of 31 Coalition member local governments and developed a baseline matrix to compare current shoreline management policies.

The UF review of comprehensive plans and land development regulations revealed an ad hoc approach to shoreline policy that varies markedly across jurisdictions. Most regulations addressing seawalls and revetments defined a static height with varying regulatory elevations. Several cities defined sea level rise heights which were lower than their County. This patchwork of shoreline treatments and local regulations creates barriers to developing resilient communities.

Add summary data from PPT - CJR

Resilient Shorelines Workgroup Recommendations

The Shoreline workgroup recommendations provided the foundational direction for this Guide and the recommendations were updated in 2021, to reflect new data, as a part of the FDEP grant process.

Resilience Goal

Ensure that local shorelines are resilient to changing sea levels and tidally influenced flooding through 2070 to provide community flood protection benefits and ensure the ecological integrity of coastal habitats and shorelines on bay and Gulf waters and riverine systems.

(*Gulf-facing sea walls and other forms of shoreline management are regulated by the State's Coastal Construction Control Line Program.)

Technical Principles Guiding Shoreline Policy Development

- Natural and Living Shorelines are the preferred option where circumstances permit because they provide ecological benefits, inclusive of improved water quality characteristics;
- Living shorelines can incorporate elements of shoreline hardening (e.g. rip rap & breakwaters) where circumstances require it;
- Seawalls and revetments are a last resort against the landward encroachment of the sea; they will not protect property from projected storm surge from most hurricanes;
- Seawalls can incorporate components of living shorelines where circumstances permit to extend the life of the seawall and provide ecological benefits;
- Recommendations for uniform seawalls heights should consider sea level rise and king tides over the design life of the seawall;
- Depending on biophysical characteristics, gaps between sea walls can exacerbate erosion, induce flooding and result in upland property damage
- Depending on biophysical characteristics, properly engineered living shorelines can be constructed in gaps between adjacent seawalls to replicate the protection offered by sea walls.
- Low elevation sea walls comprise the functionality of adjacent higher elevation sea walls and shorelines.
- Failing sea walls compromise the integrity of the adjacent shorelines and uplands.

Hierarchy of Shoreline Protection Strategies and Policies

The Region supports a policy framework for preserving underdeveloped and natural shorelines, followed by installing living shorelines where biophysical conditions require an intervention, and then hardened strategies where necessary .

Protect and Preserve Natural Shorelines.
Undeveloped or natural shorelines should be maintained as the first level of action, wherever possible. This should be the policy preference within the region and mimicked via the regulatory rules (local level at a minimum)

Promote Living Shorelines and Hybrid Shorelines
When a shoreline intervention is required to prevent erosion, Living and Hybrid Shorelines should be the preferred engineering options. Where shoreline hardening is required, or existing hardening must be repaired or replaced, softening/natural components should be incorporated into the sea wall/shoreline design and construction, when possible.

Define Appropriate Locations and Land-use for Implementing Hardened Structures
Installation of new sea walls and revetments should be appropriate for the land-use, and should be accompanied by living shoreline features where circumstances permit.

Proposed Recommendations for Establishing Uniform, Coordinated Seawall Elevation

The Workgroup recommended that the region establish a uniform, coordinated heights for new and replacement seawalls and bulkheads, based on science.

- New seawall heights should consider sea level rise projections and exceptional high tides over the average expected life of a sea wall, between 40 and 50 years.
- The Resilient Shorelines Working Group recommends using the TB-CSAP NOAA High scenario of 3.48 feet for sea level rise for the year 2060, which would be near the end of the estimated lifespan of a seawall constructed in 2020.
- NOAA tidal data defines an additional 1.74 feet for tides up through 2050.
- Combining these define a new standard of 5.22 feet in 2060.
- Rounding slightly downward for uncertainties and ease of use, **t**he Working Group recommended that local governments require that new and replacement sea walls be constructed to an elevation of 5 feet.
- Pinellas County and Broward County have adopted 5 feet. .

Other issues identified by attorneys with expertise in climate policy, planning (Ankerson, Jerry Murphy, Erin Deady) during phone conversations with TBRPC

The region will need to consider recommendations for language to address the following:

- Policy to mitigate existing, non-conforming and failing seawalls and revetments
- Ensuring the integrity of shoreline defenses where seawalls tie into natural and living shorelines
- “water trespass” – e.g. liability for flooding from compromised and non-conforming structures, as well as gaps between sea walls.
- Provisions to address the potential for “freshwater” flooding due to higher seawalls and SLR conditions (pumps and generators)
- Relationship to existing water-dependent infrastructure (docks, piers, etc.)
- Financing mechanisms for privately owned sea walls

Issues identified by coastal marine contractors and permitting staff.

- Local policies that prohibit fill and do not allow for variance, are barriers to implementing living shorelines
- Local permitting hasn’t yet promulgated any rule changes to create incentives or streamline their permitting practices, yet. Federal regulations have been rewritten to expedite the implementation of living shorelines and seawall enhancement designs. State permitting also modified their rules to mimic the federal exceptions

Tampa Bay Estuary Program

Comprehensive Conservation Management Plan

The Shoreline Policy Guide builds on previous policy guides developed by TBRPC with regional partners. In April of 2020 TBRPC published CCMP- Comprehensive Plan Crosswalk Tool and a Comprehensive Plan Model Language Guidelines. The policy guidelines were developed in an effort to improve the implementation of the Comprehensive Conservation Management Plan (CCMP) through a partnership with the Tampa Bay Estuary Program and several local government stakeholders.

TBRPC staff assessed existing planning documents throughout the region to establish a baseline. Local government stakeholders then prioritized the CCMP priority actions that could be better integrated into their comprehensive plans. Based on these priorities, TBRPC and stakeholders developed and refined model language that aligned with the priority actions of the CCMP.
Model language copy is included in the Appendix

SECTION 1: Policy and Technical Frameworks

1. **Federal Requirements and Nationwide Permit 54**
   copy from Tom

2. **Overview of Florida laws**
   a. **Erin and Tom** --summarize key Florida statute that we are "aligning with and building on... Florida supports NWP 54 -- the State Programmatic General Permit is available for all projects that qualify for small-scale LSL permit exemption. Projects that don't fit size limitation go to NWP. However, Florida state law and regulations do not preference living shorelines over hard approach, according to the NWF_SOS_2020 report.
   b. state seawall regs…..

3. **Other State Regulations (Arsum could be a good source -- edit this paragraph and add one more to create a brief summary of progressive policy at the state, examples drawn from your SOS report.)** National Wildlife Federation conducted extensive research between June 2018-October 2019 into the living shorelines policy permitting status in 18 Atlantic and Gulf Coast states. Of states surveyed, the majority had some form of regulations or guidance that directly or indirectly indicated a preference for soft shoreline stabilization approaches. This took a range of forms: direct, formal language in laws or regulations; indirect preference created by raising the standards for use of hard shoreline stabilization approaches; or, a suggested preference for soft approaches communicated via permitting guidelines or application materials (checklists, website materials, etc.) (Source: Softening Our Shores report 2020).

4. **State Scientific Agencies --** FWC, LS

5. **Scientific Bodies**: Summaries from NOAA, TBEP, National Wildlife, TNC

Matrix of Shoreline Categories and Land-use Zones

Description of needs and goals for this section:*This section describes the narrative of the workgroup recommendations to establish zoning and hierarchy. .*

Regional Framework and Technical Recommendations

The Shoreline workgroup identified the need to develop regionally consistent standards that could allow for local context when defining recommendations for shorelines, bulkheads and seawalls. The workgroup acknowledge the need to:

1. consider local hydrological (depth, wave energy, tidal), geographic or location factors (i.e. bay, riverine), infrastructure, facilities and habitats
2. address threats and impacts from future sea level rise and exceptional tidal flooding up to 2060 or 2070;
3. support development of standardized shoreline categories based on the wave energy, depth of near shore water, and land-use types.
4. define a hierarchy of shoreline protection strategies and policies which support resilient adaptation, habitat preservation and restoration, and are enforceable.

TOM and Erin -- the MATRIX goes here

SECTION 2: Plans and Policy Recommendations

Description of Needs/Goals for this section: this section will define specific plans (sections/elements) which should be updated and define the policy CATEGORIES.

Erin to redefine the outline for this section

1. Sea level rise primer (Erin --what do you mean by this? Heights/scenarios will be defined earlier
2. Policy overview
3. Legal overview (nuisance, torts and takings)
4. Case studies from Erin's Shoreline memo
5. Distill down to categories of response so far by local governments
6. Any additional categories we need for this region (ie; the hierarchy/matrix of response by location/condition)
7. Define how this relates to Matrix/Hierarchy

- **Comprehensive Plan:** Coastal Management, Future Land-Use, other elements
- **Local Mitigation Strategy**: Hazard Assessment -- Coastal Erosion with links to transportation/roads and other
- **Waterfront Revitalization**
- **Shoreline Conservation and Restoration Plans**
- **Ordinances**
- **Land Development Regulations/Code**

Regional Policy Guidance *(these are recommendations, with explanation of what is needed and why, not actual language. Model language options will be in the Appendix.*)

1. Standardized shoreline categories (from Section 1)
2. Hierarchy of shoreline priorities and strategies
3. Coordinated installation strategies -- prioritize category of risk, ecosystem,
4. Maintenance and repair -- define expectations of safety and physical improvements; responsible for actions, payment
5. Compliance and enforcement -- policy or triggers, time frames, requirements for improvements to meet new standards (similar to Building Code 50% rule etc.)

6. Communitications: property owner notices, real estate sales transactions

Specific points to address:

Other comments:

SECTION 3: Harmonizing Shoreline and Land-Use Policies

Description of Needs/Goals for this section*:* this section provides recommendations and guidance on the need to harmonize local and-use and shorelines.

Erin writes the narrative, "importance" and this is based on Tom's Matrix defined in Section 1. The zones will be based on the regionally standardized shoreline categories, technical parameters and LSSM suitability factors.

This section will also provide the technical justification which can be used by local governments to establish the need or purpose for creating specific shoreline zones.

Specific points to address:

Other comments:

SECTIONS 4: Permitting

Description of Needs/Goals for this section this section will review NWP 54/State General Permits and provide specific recommendations for updating local permitting applications, documents and procedures to reduce barriers and increase ease, timeliness.

Specific points to address:

Other comments:

SECTIONS 5: Charter Counties and Coordination

Description of Needs/Goals for this section*:* This section will clarify issues related to County and municipal authority to promulgate local regulations related to shorelines and sea level rise . It will also address other enforcement/notification provisions and strategies. Hillsborough, PInellas and Sarasota are charter counties.

Specific points to address:

Other comments:

SECTION 6: Updating Your Processes and documents

Description of Needs/Goals for this section*:* This section will provide an overview of next steps for staff to review existing plans, programs, technical documents and permitting processes to determine what needs to be modified or updated to support the local implementation, i.e change documents, applications or review and approval processes. It will include bad examples of process: i.e. 1 person looks at application and signs off and changes such as: included in DRC activities and then need to amend that code section to look at shoreline applications multi-step process)

Specific points to address:

Other comments:

Section 7: Community Considerations

Description of Needs/Goals for this section*:* This section will provide an overview of socio-economic factors that staff and decision makers should consider when updating processes, policies and documents. It will identify specific interconnected social vulnerability factors (household income, age, race), policy change and property owner rights. It will propose recommendations for future regional and local action to reduce or prevent unintended consequences and negative impacts.

Specific points to address:

Other comments:

Technical Terms and Definitions

Attenuation - to lessen the amount, magnitude, or weaken a force. Usually referring to wave energy reduction, i.e., to weaken waves to minimize erosion.

Bio-swales - are landscape elements designed to concentrate or remove debris and pollution out of surface runoff water. They consist of a depressional drainage feature with gently sloped sides which can be filled with vegetation.

Benthic – the ecological region at the lowest level of a body of water such as an ocean, estuary, lake, river or stream, including the sediment surface and some sub-surface layers.

Breakwater/sills - Hybrid living shoreline design alternatives include structures (oyster bags, rock, oyster domes, etc.) to change physical wave conditions, to support vegetation growth and/or to protect shorelines from erosion.

Bulkheads and seawalls - usually vertical structures built to prevent waves from eroding shoreline, or to level off a yard sloping toward water's edge. A seawall with sufficient riprap and filter cloth placed at the toe is not considered a vertical seawall.

Cap – The top of a seawall which is usually formed and poured with concrete and rebar.

Coalescence - to grow together or into one body: plants growing into a solid bed covering the sediment.

Community Rating system[ed2]

Crest – highest portion of a shoreline feature.

Deadmen - an object buried in or secured to the ground for the purpose of providing anchorage or leverage.

Datum[ed3]

Estuary – an area where salt and freshwater mix that has high importance for fisheries and plant communities like seagrass and mangroves with valuable spawning areas and habitat for juvenile fish and crustaceans.

Erosion – the process of losing soil to wind, water or other natural processes.

Fetch – the distance of open water over which wind blows or waves propagate unobstructed.

Geotextile Fabric – a synthetic fabric that can be impervious or semi-pervious to water and soil. Used in conjunction with rip rap and plantings to stabilize slopes.

Grade (slope, incline, gradient, pitch) – a physical feature of a landform which is described by the tangent of the angle the surface makes to horizontal. Typically described by the ratio of "rise over run" or vertical to horizontal distance.

King tide – exceptionally high tides which occur seasonally around a new or full moon when the Moon is at its perigee (closest point to Earth).

ICWW – Intracoastal Waterway – a federally maintained channel that is typically situated between the barrier island (beach) and mainland.

Invert elevation – refers to the base interior level of a pipe or trench; it can be considered the "floor" level. This elevation controls the amount of flow (water) and is important element in designing conveyance systems.

Living shoreline[ed5]

Load – forces acting on an object (sea wall or shoreline stabilization) can be from ground water, other structures, soil, or waves. **Note: Also, a single dump truck worth of material is referred to one load. **

JaxBO – Jacksonville Biological Opinion – a predetermined assessment of biological conditions for the State of Florida. If the project meets these conditions, then it avoids the necessity for comments from USFWS and NMFS.[ed6] needs more explanation, link to page? remove?

MHWL – Mean High Water Line – Average of the two high tides per day for a site over a tidal epoch (18-year timeframe).

MHHWL -- Mean Higher High Water Line]

MLWL – Mean Low Water Line - Average of the two low tides each day for a site over a tidal epoch (18-year timeframe).

Modular concrete units/planters – pre-cast concrete units that come in a variety of shapes and weights that can be used to dissipate wave energy and can incorporate plants.

NAVD 88 - North American Vertical Datum of 1988 - a network of benchmarks that are referenced to a single point in Quebec, Canada and used to establish uniform control elevations across the continent.

- **Nearshore waters?[ed8]**
- **Outfall [ed9]**

Overtopping – When water levels or waves are elevated above the crest height of a shoreline treatment or seawall.

<u>Oyster Bags</u> – 35-40 lb. of 2”-3” oyster shell placed in mesh bags. This holds the shell together resisting wave action while trapping oyster spat (larva), giving new oysters a place to attach and grow.

<u>Rebar</u> – steel rod with ridges used for structural reinforcement in concrete.

– **Resiliency**

Resilient Shoreline[ed10]

<u>Revetments</u> - usually made of large, loose, irregularly shaped stone or other material such as limerock or clean concrete rubble and have a slope on the waterward face.

<u>Rip Rap/Armor Stone</u> – generally rounded, limestone or granite that is placed on a slope to interlock and dissipate wave energy. Also, very good at retaining sediment when used in conjunction with geotextile fabric.

<u>Sea level rise</u> – the projected rise in water level without the influence of a storm.

Sea level rise projection[ed11] (just what a “projection” is not naming one

Seawall[ed12]

<u>Sheet Pile</u> – planks of various materials (wood, concrete, vinyl or steel) which are driven to designated depths into the ground and interlock with adjacent planks to form a wall.

Shoreline[ed13]

<u>Storm Surge</u> – abnormal rise in the water elevation caused by a combination of effects from a storm including the atmospheric pressure changes, wind effects, the Earth’s rotation, shallow water depth and increased rainfall.

[ed1]I think seawall should have its own definition

[ed2]I recall people asking questions about relationship between this project and open space provisions of CRS. I think the relationship is minimal, but we should define it

[ed3]Add as different from NAVD 88 since we will be getting a new datum in a couple of years. NAVD 88 will be going away.

Agencies

FDEP – Florida Department of Environmental Protection

FDEM FLorida Department of Emergency Managemt

FDEO

FEMA -- Federal Emergency Management Administration

IPCC – Intergovernmental Panel on Climate Change

NMFS – National Marine Fisheries

NOAA - National Oceanic and Atmospheric Administration

USACE -- US Army Corp of Engineers

Appendix A: Model Language

Description of needs and goals for this section: the appendix will include example policy language that can be incorporated into comprehensive plans, Land Development Regulations or code. It will reflect the guidance defined in previous Sections.

Policy language options will be provided that range from stringent and specific to broader language, to support use and adoption by all participating jurisdictions.

Guidance will also be included on the types of language that may have a negative result on overall resilient shoreline policy implementation and identify them. Under this grant scope, language will not be developed for individual jurisdictions, but the language will serve as a model that can be considered and adopted under those jurisdiction's local procedures, at a later time. It will provide integrated context for shorelines to support goals, objectives or policies to establish Adaptation Action Areas should a local government chose to do so;

Specific points to address:

Other comments:

RESOURCES/REFERENCES (need to integrate all previous resources)

LOCAL LAND USE RESPONSE TO SEA LEVEL RISE, Land Use Law Center, Pace University School of Law 2008 (https://coast.noaa.gov/data/digitalcoast/pdf/long-island-land-use-law.pdf)

Softening Our Shorelines 2020, National Wildlife Federation
http://nwf.org/-/media/Documents/PDFs/NWF-Reports/2020/Softening-Our-Shorelines.ashx