This meeting is open to the public

Tuesday, July 28, 2020
1:30 pm
Virtual Meeting held on Zoom
Zoom Web Link: https://us02web.zoom.us/j/87838329439

The order of items appearing on the agenda is subject to change during the meeting and is at the discretion of the presiding officer. Anyone wishing to speak on any item is requested to complete a speaker’s card.

1. **Call to Order and Pledge of Allegiance** (Dr. Chuck Jacoby, Chair)

2. **Agenda Revisions** (Dr. Chuck Jacoby, Chair)
   Note any known changes and inquire if any members have suggested revisions.

3. **Introductions** (Dr. Chuck Jacoby, Chair)

4. **Minutes Approval** (Dr. Chuck Jacoby, Chair)
   **Requested Action:** Approval of Minutes from STEM meeting on February 4, 2020.

5. **Public Comment**

6. **Water Quality Reports**
   a. Central and northern Lagoon (Dr. Chuck Jacoby, SJRWMD)
   b. Southern Lagoon (Dianne Hughes, Martin County)

7. **Presentations/Panel Discussion:**
   a. Harmful Algae Blooms –Panel Discussion
      i. Ed Phlips, University of Florida, Update on sampling in the northern and central IRL
      ii. Malcolm McFarland, HBOI/FAU, Update on sampling in the central and southern IRL
      iii. Tom Frazer, FDEP, Update on the Blue-green Algae Task Force (invited)
      iv. Charles Jacoby, SJRWMD, Update on the Red Tide/Harmful Algal Bloom Task Force
b. Planning Documents – (Speed Round Three Slides – Three Minutes)
   i. Monitoring Plan; Dr. Dennis Hanisak, HBOI
   ii. Habitat Restoration Plan, Rob Baron, Tetra Tech, Inc.
   iv. Boaters Guide; Dr. Leesa Souto, MRC
   v. Climate Ready Estuary; Dr. Duane De Freese, IRLNEP
   vi. Strategy for Financing the CCMP; Dr. Duane De Freese, IRLNEP
   vii. Science 2030 Draft (Duane De Freese)

8. Old Business
   a. FY 2022 RFPs (Duane De Freese)
      **Requested Action:** Recommend that the IRL Council Board of Directors authorize staff to develop and issue FY 2022 RFPs pursuant to tentative FY 2022 budget allocation amounts for each RFP.
   b. COVID Bridge Funding Grants – Update (Kathy Hill)
   c. IRL Project Update (Daniel Kolodny)
   d. SR528 Update (Duane De Freese)

9. New Business
   a. EPA Competitive Grants Program administered by Restore America’s Estuaries Staff recommendation of projects for IRLNEP partnering (Duane De Freese)
      **Requested Action:** Approval of IRLNEP participation as a partner in Letters of Intent.
   b. Meeting Calendar for 2021 (Kaylene Wheeler)

10. IRLNEP Executive Director Report

11. Final Comments (Committee, Staff, Public)

12. Adjourn

**NOTE:** If a person decides to appeal any decision made by the Board with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. Section 286.0105, Florida Statutes (2014).

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Kaylene Wheeler at (772) 532-8811. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800) 955-8771 (TDD) or 1(800) 955-8770 (Voice). For more information, you may contact: Kaylene Wheeler, IRL Council, 1235 Main St, Sebastian, FL 32958, (772) 532-8811, or by email at wheeler@irlcouncil.org.


Agenda Item 1: Call to Order and Pledge of Allegiance (Dr. Chuck Jacoby, Chair)
Dr. Jacoby called the meeting to order at 1:33 p.m. and led the Pledge of Allegiance

Kaylene Wheeler read the rules for the Zoom meeting, how to be recognized to speak, how to vote and how to offer public comment.

Agenda Item 2: Agenda Revisions (Dr. Chuck Jacoby, Chair)
None

Agenda Item 3: Introductions and New Member Welcome (Dr. Chuck Jacoby, Chair)
Kaylene Wheeler verbally conducted a roll call of all present participants.

Agenda Item 4: Minutes Approval (Dr. Chuck Jacoby, Chair)
Requested Action: Approval of Minutes from STEM meeting on February 4, 2020.
MOTION WAS MADE FOR APPROVAL OF MINUTES FROM MANAGEMENT BOARD MEETING ON NOVEMBER 5, 2019 WITH CHANGES/CORRECTIONS. MADE BY MITCH ROFFER, SECONDED BY RICH PAPERNO, MOTION CARRIED UNANIMOUSLY.

Agenda Item 5: Public Comment
None

Agenda Item 6: Water Quality Reports
a. Central and Northern Lagoon (Dr. Chuck Jacoby, SJRWMD)
b. Southern Lagoon (Katie Bowes, Martin County)

Agenda Item 7: Presentations/Panel Discussion:
a. Dr. Edward Buskey, National Estuarine Research Reserve Director, University of Texas at Austin, “Everything is bigger in Texas; Saga of an 8-year Brown Tide Bloom in Baffin Bay, TX. Dr. Busky summarized an 8-year study that coincided with the 8-year brown tide bloom in Laguna Madre, TX. He noted similarities between the Texas brown tide and the ones that have occurred in the IRL, noting particularly that the Texas bloom was preceded by a large freeze that also caused an extensive fish kill; algal grazers were disrupted by the freeze event and subsequent massive bloom of algae.

b. Planning Documents – Brief Progress Updates
a. Monitoring Plan - Dr. Dennis Hanisak, HBOI: Reviewed to date, the steering committee members and tasks completed. There were two Steering Committee meetings held discussing clarification of scope in regard to various vital signs, table of contents, criteria for inclusion in the plan, process for compiling monitoring activities for inclusion and finally workshop plans to be possibly be held in August.
b. Habitat Restoration Plan - Rob Baron, Tetra Tech, Inc.: reviewed the scope of work and progress made so far. The next tasks are a draft due May 31, 2020, which will incorporate IRLNEP Staff and Management Conference partner feedback to the plan. The second draft plan will incorporate comments from the task force.
i. State of the Lagoon Technical Report: Dr. Listopad reviewed progress made in the 2nd quarter, and discussed the challenges of creating vital signs indicators..
ii. Asset Mapping: Dr. Listopad reviewed completed wetlands and vacant lands maps within the IRL watershed along with branded map templates.
d. Boaters Guide; Dr. Leesa Souto – MRC: presented the status of the surveys completed and currently underway, and the FWC tool utilized by participants to gather information.

Agenda Items 7: Old Business
a. Sewell’s Point Project Funding (Duane De Freese)
   Requested Action: Motion to recommend inclusion of the Sewell’s Point project on FY 2020-2021 funded project list and in FY 2020-2021 Business Plan pursuant to adoption of Resolution 2020-03 under New Business Item b. Authorize staff to negotiate and enter into contract pursuant to budget authority and availability of funds.

   MOTION MADE BY CHRIS DE BODISCO, SECONDED BY LISA KRIMSKY, TO RECOMMEND INCLUSION OF THE PROJECT ON FY 2020-2021 FUNDED PROJECT LIST AND IN FY 2020-2021 BUSINESS PLAN PURSUANT TO ADOPTION OF RESOLUTION 2020-04 UNDER NEW BUSINESS ITEM B. AUTHORIZE STAFF TO NEGOTIATE AND ENTER INTO CONTRACT PURSUANT TO BUDGET AUTHORITY AND AVAILABILITY OF FUNDS. MOTION CARRIED UNANIMOUSLY.
Agenda Item 8: New Business

a. Budget Amendment FY 2019-2020 (Daniel Kolodny)
   Requested Action: Motion to recommend that the IRL Council Board of Directors adopt Resolution 2020-02 amending the FY 2019-2020 budget based on annual audit reconciliation.

   MOTION WAS MADE BY ANNE BIRCH, SECONDED BY KEVIN JOHNSON TO RECOMMEND TO THE IRL COUNCIL BOARD OF DIRECTORS APPROVAL OF RESOLUTION 2020-02 AMENDING THE BUDGET FOR FY2019-2020 BASED ON ANNUAL AUDIT RECONCILIATION. MOTION CARRIED UNANIMOUSLY.

b. Final Adopted Budget Resolution FY 2020-2021 (Daniel Kolodny)
   Requested Action: Motion to recommend that the IRL Council Board of Directors adopt Resolution 2020-03 adopting the final budget for FY 2020-2021 pursuant to IRL Council policy and Florida Statutes 200.065.

   MOTION WAS MADE BY MITCH ROFFER, SECONDED BY CHRIS DE BODISCO TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS APPROVE RESOLUTION 2020-03 ADOPTING THE FINAL BUDGET FOR FY2020-2021 PURSUANT TO IRL COUNCIL POLICY AND FLORIDA STATUTES 200.065. MOTION CARRIED UNANIMOUSLY.

c. 2020 Small Grants Program Proposal Scores and Funding (Kaylene Wheeler)
   Requested Actions: (By separate motions):
   • Motion to recommend that the IRL Council Board of Directors accept the IRLNEP Management Conference recommendations and approve the final ranked list of proposals.

     MOTION WAS MADE BY MITCH ROFFER, SECONDED BY LISA KRIMSKY TO RECOMMEND TO THE IRL COUNCIL BOARD OF DIRECTORS ACCEPT THE IRLNEP MANAGEMENT CONFERENCE RECOMMENDATIONS AND APPROVE THE FINAL RANKED LIST OF PROPOSALS BY THE CAC. MOTION CARRIED UNANIMOUSLY.

   • Motion to recommend that the IRL Council Board of Directors accept the IRLNEP Management Conference recommendations to fund the top proposals contingent and consistent with available funds and budgetary authority. Authorize staff to negotiate and enter into contracts with those applicants.

     MOTION WAS MADE BY MITCH ROFFER, SECONDED BY RICH PAPERNIO TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS ACCEPT THE MANAGEMENT CONFERENCE RECOMMENDATIONS TO FUND THE TOP PROPOSALS CONTINGENT AND CONSISTENT WITH AVAILABLE FUNDS AND BUDGETARY AUTHORITY. AUTHORIZE STAFF TO NEGOTIATE AND ENTER INTO CONTRACTS WITH THOSE APPLICANTS. MOTION CARRIED UNANIMOUSLY.

Kathy Hill offered an update on the Small Grant process and that the CAC will be revisiting the application criteria and funding priorities at their next meeting to ensure the program is meeting its goals and engaging the intended target audiences.
d. FY 2021-2022 Request for Proposals – Categories and Priorities (Duane De Freese)
   Requested Action: Motion to recommend that the IRL Council Board of Directors authorize staff to develop and issue RFPs on or before November 1, 2020 pursuant to Management Conference recommendations.

   MOTION WAS MADE BY MITCH ROFFER, SECONDED BY BOB DAY TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS AUTHORIZE STAFF TO DEVELOP AND ISSUE RFPs ON OR BEFORE NOVEMBER 1, 2020. MOTION CARRIED UNANIMOUSLY.

   e. Coastal Resilience Partnerships (Duane De Freese)
      i. Requested Action: Motion to recommend that the IRL Council Board of Directors adopt Resolution 2020-04 to join the Southeast and Caribbean Disaster Resilience Partnership (SCDRP) as an advisory board member.

         MOTION WAS MADE BY ANNE BIRCH, SECONDED BY MEGAN STOLEN TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS ADOPT RESOLUTION 2020-04 TO JOIN THE SOUTHEAST AND CARIBBEAN DISASTER RESILIENCE PARTNERSHIP (SCDRP) AS AN ADVISORY BOARD MEMBER. MOTION CARRIED UNANIMOUSLY.

      ii. Requested Action: Motion to recommend that the IRL Council Board of Directors adopt Resolution 2020-05 to join the East Central Florida Regional Resilience Collaborative Infrastructure Technical Advisory Committee.

         MOTION WAS MADE BY ANNE BIRCH, SECONDED BY RICH PAPERNO, TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS ADOPT RESOLUTION 2020-05 TO JOIN THE EAST CENTRAL FLORIDA REGIONAL RESILIENCE COLLABORATIVE INFRASTRUCTURE TECHNICAL ADVISORY COMMITTEE. MOTION CARRIED UNANIMOUSLY.

   f. COVID-19 Response – Bridging the Gap with Summer Internships (Duane De Freese)
      Requested Action: Motion to recommend that the IRL Council Board of Directors approve funding 10 internships contingent and consistent with available funds and budget authority already approved.

         MOTION WAS MADE BY CHRIS DE BODISCO, SECONDED BY ANNE BIRCH TO RECOMMEND THAT THE IRL COUNCIL BOARD OF DIRECTORS APPROVE AND FUND 10 INTERNSHIPS CONTINGENT AND CONSISTENT WITH AVAILABLE FUNDS AND BUDGET AUTHORITY ALREADY APPROVED. MOTION CARRIED UNANIMOUSLY.

   Agenda Item 9: IRLNEP Executive Director Report
      • COO Dan Kolodny has submitted the mid-year progress report and the 2021 Work Plan to the EPA. The work plan was the first submitted by any NEP.
      • Kathy Hill is working on the communications plan and it is expected to be available for review in August.
      • The science 2030 discussion plan has been revived and will be brought to the STEMAC in draft form in July.
• As of May 30, 2020, onelagoon.org will be the only website of the IRLNEP. The IRLcouncil.com website will be archived and will redirect users to the onelagoon.org website.
• Both Duane De Freese and Kathy Hill are participating as part of the Mobile Bay NEP’s 5-year program evaluation with EPA region 4 and Headquarters staff.

**Agenda Item 10: Final Comments (Committee, Staff, Public)**
None

**Agenda Item 11: Adjourn**
Dr. Jacoby adjourned the meeting at 3:47 p.m.
SR 528 Expansion and the Indian River lagoon Water Quality Discussion

Presentations by:
Mike Register, SJRWMD and
Duane De Freese, Ph.D., Indian River Lagoon National Estuary Program
SR 528 Expansion - How did we get here?

• Space Coast TPO and FDOT have been in planning, design and engineering process for many years.
• Stakeholder questions arose during the FDOT environmental look-around regarding IRL water quality and causeway impacts.
• Port Canaveral and IRLNEP combined funds to contract for hydrological modeling by Dr. Gary Zarillo, FIT.
• SJRWMD offered to apply their data and hydrological model to consider potential causeway influences on nutrients and algal bloom conditions (chl a).
• Model findings are presented herein by Tom Frick, SJRWMD.
• Other considerations presented by Duane De Freese, IRLNEP.
• The collective goal – make SR 528 expansion decisions decision based on the best available scientific data.
Thank you!

FDOT

SPACE COAST TPO

Brevard COUNTY

PORT CANAVERAL

FLORIDA TECH

FLORIDA’S STEM UNIVERSITY

ONE LAGOON
ONE COMMUNITY – ONE VOICE
Indian River Lagoon National Estuary Program
Results of SJRWMD Model Runs

Mike Register, Director
Water Supply Planning & Assessment
SJRWMD
What Can We Expect to Learn From The Model?

• What, if any, water quality benefits would be realized with causeway reduction or removal?
• Multiple scenarios will be explored
  – Existing conditions
  – Partial causeway removal
  – Full causeway removal
• Impacts on nutrient levels, salinity, water temperature, and water clarity
WQMN Stations - North

SR 528 Causeway

SR 520 Causeway
Total Phosphorus: Simulated vs Observed
Chlorophyll: Simulated vs Observed
Chlorophyll Change: SR528 Causeway Removed

- Existing Condition
- SR528 Bridge

![Graph showing chlorophyll levels over time](image_url)
Monthly Averaged Chlorophyll for June, 2011

Current Condition

SR528 & SR520 Bridges
Comparison of Residence Time (Days) for Causeway Scenarios

Current Condition

SR528 Bridge

SR528 & SR520 Bridges
Monthly Averaged Chlorophyll for June, 2011

Current Condition

TMDL Condition
What do we know?
What don’t we know?
Making a decision
SCTPO/FDOT/Local Municipalities

Duane De Freese, Ph.D.
IRL Council and IRLNEP
What do we know: IRL Hydrology

- Lagoons by nature are poorly flushed
- Past causeway dredge and fill projects have compartmentalized the IRL, further reducing flushing and altering natural water flow.
- Examples from other locations (i.e. Tampa Bay, FL Keys, Mobile Bay, etc.) really don’t apply.
Impacts to water flow are not just by causeways...

The IRL has been impacted by many engineered features including:

- Infrastructure at KSC.
- Watershed alteration.
- Inlet creation and management.
- Channel dredging, including the ICW.
- Armored bulkheads, docks and canals.
What do we know: Storm surge and wave action

Causeways are physical barriers to natural water flow that change water turbulence, wave patters and energy dissipation (from refraction and reflection).
What do we know: IRL Hydrology

Dr. Gary Zarillo, IRL Numerical Model Flushing Experiments (September 2018 and June 2019 Addendum Reports)

A SR 528 bridge span alone was predicted to provide almost no flushing benefits.

However, when combined with a bridge span on the Banana River section of SR 520, the flushing benefit was substantially improved.

Long bridge spans across the Banana River on both SR 528 and 520 were predicted to improve flushing action by 9.3% - 17% with greatest benefit during events.
What do we know:
Florida must plan and build with consideration for sea level rise and coastal infrastructure resilience.
Sea Level Rise Considerations (Dr. Gary Zarillo)

- Fig 1. Sea Level data filtered to show inter-annual trend of sea level rise of about than 2 cm per year between 2010 and 2016. Sea level rise is preceded and followed by periods of sea level fall.

- Fig 2. 90+ year monthly average sea level record at Mayport, FL showing a trend of about a foot of sea level rise per century. Seasonal variations, such as those cause by the Gulf Stream, are removed.

- The interannual shift in sea level at the decadal time scale can be as much as 1-foot, even when seasonal variations are removed from the record.

WHAT DOES IT ALL MEAN?

- IRL sea level rise has been 10cm (2006-2015)
- FDOT will have to raise existing IRL causeways in 50 years.
- If Banana River was a tidal system, FDOT would have to elevate now.
- Inter-annual cycles and events must be considered to evaluate vulnerability and risk.
What we don’t know...

How to accurately predict ecological and biological response (data collection structured to the development of forecast models is essential)

Full understanding of the water quality and ecological triggering conditions for blooms of the Texas brown tide organism, *Aureoumbra lagunensis*. 
What do we know?
Every action that benefits lagoon water quality is progress

• To restore the Lagoon billions of dollars of infrastructure improvements will be necessary.
• There are no silver bullets for IRL restoration.
• Every opportunity to reduce ecosystem stress must be carefully considered.
Challenge
Forward Looking Decisions?
Space Coast TPO

State Road (S.R.) 528 Update

Loreen Bobo, P.E.
District Five
Director of Transportation Development
S.R. 528 Current Status

• **PD&E Study**
  - From east of S.R. 524 (Industry Road) to Port Canaveral Interchange
  - Widen from four to six lanes
  - Completed 2006

• **Design Segments**
  - (-3) US 1 to East of SR 3
    - Design - started 2016, 60% Complete
    - R/W Programmed 2024
    - Construction not funded in 5 year work program
  - (-4) East of SR 3 to Port Canaveral Interchange
    - Design - started 2016, 60% Complete
    - R/W Programmed 2024
    - Construction not funded in 5 year work program
S.R. 528 ELA Process (Project #407402-4)

- Environmental-Look-Around (ELA) Completed in 2019
- ELA Process Involved:
  - Engaged Regional Stakeholders
    - Brevard County Natural Resources
    - Brevard County Planning and Development
    - Brevard County Mosquito Control
    - Indian River Lagoon – National Estuary Program
    - St. Johns River Water Management District
    - Florida Department of Environmental Regulation
    - City of Cape Canaveral
    - City of Cocoa
    - Canaveral Port Authority
    - Palmetto HOA
  - Explored Regional & Watershed Opportunities
  - Evaluated Compensatory Treatment Opportunities
  - Identified Non-Traditional Approach Opportunities While Minimizing Environmental Impacts
S.R. 528 ELA Process (Project #407402-4)

- **ELA Results:**
  - **Stormwater**
    - Eliminated Offsite Ponds and Right of Way Acquisition
    - Incorporated Dry Swales and Nutrient Separating Baffle Boxes at Outfalls
    - Increased in TN = 6.5 kg/yr
    - Reduction in TP = 0.5 kg/yr
S.R. 528 ELA Process (Project #407402-4)

• ELA Results Cont’d:
  – FDOT Participation in Septic to Sewer Conversion Project (Sykes Creek “M”)
    – JPA is needed between FDOT and Brevard County
    – Allows for advancing additional SOIRL projects
    – TN increase of 6.5 kg/yr goes to a reduction of 706.4 kg/yr
    – Other Optional projects are Merritt Island – Zones C and F

Table 4-19: Opportunities for Septic System Removal in Banana River Lagoon

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Number of Lots</th>
<th>Cost</th>
<th>TN Reduction (lbs/yr)</th>
<th>TN Cost per Pound per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merritt Island – Zone F*</td>
<td>71</td>
<td>$1,100,000</td>
<td>1,292</td>
<td>$851</td>
</tr>
<tr>
<td>Sykes Creek - Zone N*</td>
<td>78</td>
<td>$2,603,016</td>
<td>2,784</td>
<td>$935</td>
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<tr>
<td>Sykes Creek - Zone M*</td>
<td>56</td>
<td>$1,868,832</td>
<td>1,798</td>
<td>$1,039</td>
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<tr>
<td>Merritt Island - Zone C*</td>
<td>43</td>
<td>$1,580,000</td>
<td>1,419</td>
<td>$1,113</td>
</tr>
<tr>
<td>Sykes Creek – Zone R*</td>
<td>192</td>
<td>$3,500,000</td>
<td>2,925</td>
<td>$1,197</td>
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<tr>
<td>North Merritt Island – Zone E*</td>
<td>195</td>
<td>$3,635,000</td>
<td>2,541</td>
<td>$1,431</td>
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<td>Sykes Creek - Zone T*</td>
<td>148</td>
<td>$4,939,056</td>
<td>3,360</td>
<td>$1,470</td>
</tr>
<tr>
<td>South Banana - Zone B*</td>
<td>41</td>
<td>$1,368,252</td>
<td>915</td>
<td>$1,495</td>
</tr>
<tr>
<td>Total</td>
<td>824</td>
<td>$20,594,156</td>
<td>17,034</td>
<td>$1,209 (average)</td>
</tr>
</tbody>
</table>

Florida Department of Transportation
July 6, 2020
S.R. 528 ELA Process (Project #407402-4)

- ELA Results Cont’d:
  - Environmental
    - Eliminating Offsite Ponds results in minimal Wetland Impacts
    - Mitigation of remaining project impacts could be accomplished through conservation, mitigation, and enhancement of Mosquito Impoundment Area
    - FDOT investigating the Purchase of Approximately 129 acres of Private Land
    - FDOT would then transfer ownership through SJRWMD to Brevard County
    - Brevard County has been acquiring similar lands in other Impoundment Areas
### Stormwater Evaluation Summary

<table>
<thead>
<tr>
<th>Traditional Approach</th>
<th>ELA Approach (Recommended)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Offsite Ponds – Water Quality</td>
<td>Compensatory Treatment - Water Quality</td>
</tr>
<tr>
<td>27.59 Acres Right of Way Estimated</td>
<td>Minimal Right of Way Required</td>
</tr>
<tr>
<td>26.59 Acres of Wetland Impacts Estimated</td>
<td>Minimal Wetland Impacts</td>
</tr>
<tr>
<td>Total Nitrogen Estimated Reduction = 4.4 kg/yr</td>
<td>Total Nitrogen Estimated Reduction = 706.4 kg/yr <strong>(160x better than Traditional)</strong></td>
</tr>
<tr>
<td>Total Phosphorous Estimated Reduction = 3.7 kg/yr</td>
<td>Total Phosphorous Estimated Reduction = 0.5 kg/yr</td>
</tr>
<tr>
<td></td>
<td>Mosquito Impoundment Outparcel Purchase</td>
</tr>
<tr>
<td></td>
<td>FDOT Participation in Funding of Sykes Creek “M” SOIRL Project</td>
</tr>
<tr>
<td></td>
<td>Ultimately Improves Water Quality in Indian River Lagoon (IRL)</td>
</tr>
</tbody>
</table>
Sea Level Rise Analysis

- **FDOT CRITERIA**
  - 2020 FDOT Design Manual (Section 211.9)
    - For Limited Access Facilities, travel lanes above 100-year flood elevation
  - 2020 FDOT Drainage Manual (Section 4.4 and 4.5)
    - Use Section 3.4.1 for Sea Level Rise methodology

### 211.9 Vertical Alignment

The profile grade line defines the vertical alignment for roadway and bridge construction. The profile grade line is a series of tangents connected by vertical curves. For undivided highways, the profile grade line is typically located at the horizontal centerline of the roadway. For divided highways, a profile grade line should be established for each direction of travel.

Meeting vertical alignment criteria assures proper transitions, sight distances, and clearances.

**LA facilities** play a critical role during hurricane evacuation and re-entry in the aftermath. Designing the mainline travel lanes to be above the 100-year flood plain elevation (established by FEMA or other pertinent studies) is a requirement for LA facilities. See FDM 210.19 for all other vertical clearance requirements.

Minimum vertical clearances for bridges structures is given in FDM 290.8.

### 4.4 BACKWATER

Hydraulically design cross drains to meet the following backwater conditions:

1. Backwater created by the structure will be consistent with flood insurance study requirements adopted by the local community in accordance with the National Flood Insurance Program and FEMA guidelines in addition to other relevant sources.

2. Acquire flood rights where afflute stages increase and impact land use values.

3. Keep the backwater design frequency conditions at or below the travel lanes.

### 4.5 TAILWATER

For the sizing of cross drains and the determination of headwater and backwater elevations, use the highest tailwater elevation coincident with the design storm event and that can be reasonably expected to occur.

For culverts with highly influenced tailwaters, adjust the MHW elevation for sea level rise using the methodology in Section 3.4.1.
Sea Level Rise Analysis

• FDOT CRITERIA (Continued)
  – 2020 FDOT Drainage Manual (Section 3.4.1)
    • This location may experience a rise of 0.091 in/year

Table 3.2: Sea Level Rise Data

<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name</th>
<th>MSL Trends (in/yr)</th>
<th>±95% CI (in/yr)</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>872030</td>
<td>Fernandina Beach, FL</td>
<td>0.083</td>
<td>0.01</td>
<td>30.6717</td>
<td>-81.4856</td>
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<tr>
<td>872218</td>
<td>Mayport, FL</td>
<td>0.102</td>
<td>0.01</td>
<td>30.3687</td>
<td>-81.43</td>
</tr>
<tr>
<td>8721120</td>
<td>Daytona Beach Shores, FL</td>
<td>0.091</td>
<td>0.02k</td>
<td>29.1467</td>
<td>-80.5630</td>
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<tr>
<td>8723170</td>
<td>Miami Beach, FL</td>
<td>0.094</td>
<td>0.02</td>
<td>25.7583</td>
<td>-80.1317</td>
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<tr>
<td>8725700</td>
<td>Vero Beach, FL</td>
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<td>8724590</td>
<td>Key West, FL</td>
<td>0.025</td>
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<td>8725110</td>
<td>Naples, FL</td>
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</tr>
<tr>
<td>8725630</td>
<td>Fort Myers, FL</td>
<td>0.122</td>
<td>0.03</td>
<td>26.5677</td>
<td>-81.2742</td>
</tr>
</tbody>
</table>
Sea Level Rise Analysis

• ANALYSIS
  
  - FDOT completed Bridge Hydraulics Report (BHR) in 2018
  - Mean Sea Level rise was addressed in BHR
  - From BHR, 100-year flood elevation (Relief Bridge) = +1.8’ NAVD
  - From BHR, 100-year flood elevation (Main Bridge) = +1.7’ NAVD

- Construction (FY2030) + Bridge Life (75 yrs) = Target Year (2105)
- Target Year (2105) – Tidal Epoch (1992) = 113 years
- **MSL Rise = 113 yrs x 0.091 in/yr = 0.86 feet**
Sea Level Rise Analysis

• RESULTS
  – Based upon the criteria in the 2020 FDOT Design Manual and 2020 FDOT Drainage Manual, the proposed roadway elevations meet this criteria.

<table>
<thead>
<tr>
<th>Critical 100-Year Elevation (NAVD)</th>
<th>Mean Sea Level Rise (Feet)</th>
<th>Minimum Allowable Roadway Profile Elevation (NAVD)</th>
<th>Lowest Proposed Roadway Elevation (NAVD)</th>
<th>Conclusion</th>
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<td>+1.80</td>
<td>0.86</td>
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<td>+6.37</td>
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Typical Bridge Slope Protection Details
Space Coast TPO

State Road (S.R.) 528 Update

THANK YOU!
# 2021 Meeting Calendar

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<th>March</th>
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**Timeline for 2021:**

- **End of October 2021:**
  RFPs issued for FY2021-2022

- **Early January 2021:**
  Proposals due

- **February BOD Meeting:**
  Approve Preliminary Budget prior to March 1 deadline

- **May BOD Meeting:**
  Approve Final Budget, annual Work Plan and Business Plan prior to June 1 deadline

- **Treasury Draws:**
  March and September

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**Board of Directors’ Meetings** are held on Friday's at Sebastian City Hall from 9:30 a.m. - 12:30 p.m.
- February 12, 2021
- May 14, 2021
- August 13, 2021
- November 19, 2021

**CAC Meeting**
- February 9, 2021
- May 11, 2021
- February 12, 2021
- May 14, 2021

**STEMAC, Management Board and Financial Subcommittee** meetings are held on Tuesdays at Up the Creek Farms in Grant-Valkaria
- February 9, 2021
- May 11, 2021
- August 10, 2021
- November 16, 2021

**Financial Subcommittee**
- 9:00 a.m. - 10:00 p.m.

**Management Board**
- 10:15 a.m. - 1:00 p.m.

**STEM Advisory Committee**
- 1:30 p.m. - 4:30 p.m.

**Citizens’ Advisory Committee** meetings are held on Thursday's at Sebastian City Hall from 1:30 - 4:30 p.m.
- February 11, 2021
- May 13, 2021
- August 12, 2021
- November 18, 2021