This meeting is open to the public

Tuesday, July 28, 2020
10:15 am
Virtual Meeting held on Zoom
Zoom Web Link: https://us02web.zoom.us/j/82451903816

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 (Bob Ulevich, Chair)

2. Agenda Revisions (Bob Ulevich, Chair)

3. Introductions and New Member Welcome (Bob Ulevich, Chair)
   Matthew Mitts, P.E., City of Vero Beach (New Member)

4. Minutes Approval (Bob Ulevich, Chair)
   Requested Action: Approval of Minutes from Management Board meeting on May 5, 2020.

5. Public Comment

6. Finance Subcommittee Report (Stu Glass)

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

8. Presentations (Speed Round, Three Slides - Three Minutes)
   a. Planning Documents – Brief Progress Updates
      i. Monitoring Plan; Dr. Dennis Hanisak, HBOI
      ii. Habitat Restoration Plan, Rob Baron, Tetra Tech, Inc.
      iv. Boaters Guide; Dr. Leesa Souto, MRC
9. 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)

10. 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)

11. IRLNEP Executive Director Report

12. Final Comments (Management Board, Staff, Public)

13. 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._
Minutes from the Meeting of Tuesday, May 5, 2020

Zoom Web Meeting

Members in Attendance: Jeff Beal, Mel Bromberg, Tom Campenni, Tom Carey, Anthony Catanese, Donald Dankert, Sara Davis, Jennifer DeMaio, Jason Evans, Joe Falzone, Ed Fielding, Dave Fuss, Stu Glass, Layne Hamilton, Chris Hendricks, Dianne Hughes, Dr. Chuck Jacoby, Gretchen Kelly, Bill Kerr, Vince Lamb, Mike McCabe, Kelli McGee, Mike Middlebrook, Bob Musser, Judy Orcutt, Kevin Shropshire, James Sullivan, Laurilee Thompson, Bob Ulevich, Charles Vogt, Greg Wilson, Gary Ritter

Guests in Attendance: Abby Johnson, Claudia Listopad, Katie Bowes, Janet Zimmerman, John Windsor, Rob Baron, Matt Mitts, Leesa Souto, Kristen Kneifl, Nick Murdock, Ed Buskey, Danielle Huffman

Agenda Item 1: Call to Order and Pledge of Allegiance (Bob Ulevich, Chair)
Called to order at 10:18 am

The Chair recognized Stu Glass. Mr. Glass asked for a moment of silence in recognition of the recent passing of State Representative, Kristín Jacobs, an advocate for the Lagoon who will be missed.

The Chair also recognized and offered a prayer and well wishes for all members and family members that have been affected by COVID-19

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 (Bob Ulevich, Chair)
None

Agenda Item 3: Introductions and New Member Welcome (Bob Ulevich, Chair)
Kaylene Wheeler verbally conducted a role call of all present participants.

Agenda Item 4: Minutes Approval (Bob Ulevich, Chair)
Requested Action: Approval of Minutes from Management Board meeting on February 4, 2020.
MOTION WAS MADE FOR APPROVAL OF MINUTES FROM THE MANAGEMENT BOARD MEETING ON NOVEMBER 5, 2019 WITH CHANGES/CORRECTIONS. MADE BY CHUCK JACOBY, SECONDED BY TOM CAMPENNI, MOTION CARRIED UNANIMOUSLY WITH CHANGES NOTED BELOW.

Kevin Shopshire requested that on item 12 to clarify his comment at the meeting to read: that we add a point value question parameter as a Yes/No question if the project can accept partial funding. For example: “If full funding is not available, can this project move forward under partial funding (Yes/No) 2 pts?”

**Agenda Item 5: Public Comment**
None

**Agenda Item 6: Finance Subcommittee Report** (Stu Glass)
Stu Glass reported that the Financial Subcommittee met earlier today and reviewed the annual audit with James Moore and Co, which contained no findings.

**Agenda Item 7: Water Quality Reports**
- a. Central and northern lagoon (Dr. Chuck Jacoby, SJRWMD)
- b. Southern lagoon (Katie Bowes, Martin County)

**Agenda Item 8: Presentations**
- 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
  i. Monitoring Plan - Dr. Dennis Hanisak, HBOI reviewed progress 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.
  ii. 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.
• State of the Lagoon Technical Report: Dr. Listopad reviewed progress made in the 2nd quarter, and discussed the challenges of creating vital signs indicators.

• Asset Mapping: Dr. Listopad reviewed completed wetlands and vacant lands maps within the IRL watershed along with branded map templates.

iv. 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 Item 9: Old Business**

a. Sewell’s Point Project Funding (Duane De Freese)

   **Requested Action:** Motion 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 MADE BY TOM CAMPENNI, SECONDED BY TOM CAREY, 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.**

Discussion regarding the RFP process to clarify that no other project was bypassed to fund this project.

**Agenda Item 10: 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 TOM CAMPENNI, SECONDED BY STU GLASS 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 FY2020-2021 pursuant to IRL Council policy and Florida Statutes 200.065.

   **MOTION WAS MADE BY VINCE LAMB, SECONDED BY TOM CAMPENNI TO RECOMMEND TO THE IRL COUNCIL BOARD OF DIRECTORS APPROVAL OF RESOLUTION 2020-03 ADOPTING THE FINAL BUDGET FOR FY2020-2021 PURSUANT TO IRL COUNCIL POLICY AND FLORIDA STATUTES 200.065. MOTION CARRIED UNANIMOUSLY.**
Clarification was requested on why the West Wabasso project came in so far under budget. Mr. Kolodny advised that the contractor came in under budget significantly less for services than originally anticipated. Additionally, the question was asked on why Fellsmere withdrew their request. Mr. Kolodny replied that they were unable to meet the match requirements at this time.

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 TOM CAMPENNI, SECONDED BY KEVIN SHROPSHIRE TO RECOMMEND THAT 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, KELLI MCGEE AND GREG WILSON RECUSED.

   Question was asked if there was an attempt to balance the funding across counties. Ms. Hill responded that the IRLNEP process is to allow the best projects to rise to the top for funding, so geography is not part of the scoring criteria. Additionally, she noted that the CAC will be reviewing the process and making recommendations at the next meeting, so if the committee felt that geographical considerations should be included, that would be up for discussion. Additionally, the question was asked how we can assure that the notifications for the Small Grants Proposals are reaching the entire region. Ms. Hill responded that staff relies heavily on the Management Conference to help distribute the information in their respective areas and will continue that process going forward.

   • Motion 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 WAS MADE BY ED FIELDING, SECONDED BY STU GLASS TO RECOMMEND TO 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, KELLI MCGEE AND GREG WILSON RECUSED.

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 ED FIELDING, SECONDED BY KELLI MCGEE TO RECOMMEND TO THE IRL COUNCIL BOARD OF DIRECTORS AUTHORIZE STAFF TO DEVELOP AND ISSUE RFPS ON OR BEFORE NOVEMBER 1, 2020. MOTION CARRIED UNANIMOUSLY.
Discussion was had whether to change the RFP process in the next cycle, several members expressed that they fell the process and categories need to be left as they are since all are valuable to the Lagoon. Additionally, it was recommended that the IRLNEP continues to get high value for our projects. An updated economic update was also discussed, and many feel it is an important tool to have.

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 TOM CAREY, SECONDED BY KEVIN SHROPSHIRE 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.

   Discussion was had on the relationship of the SCDRP to water quality not only in Florida but also in the Caribbean as a whole.

   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 ED FIELDING, SECONDED BY TOM CAREY 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 and fund 10 internships contingent and consistent with available funds and budget authority already approved.

   MOTION WAS MADE BY STU GLASS, SECONDED BY TOM CAREY TO RECOMMEND TO THE IRL COUNCIL BOARD OF DIRECTORS ACCEPT THE APPROVAL OF 10 INTERNSHIPS AN FUNDING CONTINGENT AND CONSISTENT WITH AVAILABLE FUNDS AND BUDGET AUTHORITY ALREADY APPROVED. MOTION CARRIED UNANIMOUSLY.

**Agenda Item 11: IRLNEP Executive Director Report**

- FL Legislative Update: The House and the Senate have not submitted the budget to the governor yet. Due to COVID-19, there is a good deal of uncertainty regarding budget and funding considerations.
- Federal Legislative Update: NEP reauthorization Bills (HB4044 and SB3171) both provide a significant increase in authorized funding and would bring total revenues $750,000 per NEP. The WRDA bill is also moving toward reauthorization. The NEPs are
working closely to help move these bills forward. Congress is contemplating a third and possibly fourth stimulus infrastructure bill which may include water. The IRLNEP submitted projects from this region that were included in the proposal.

- The OneLagoon.org website is now active and is ADA compliant, IRLCouncil.com will be deactivated and archived on May 31.

**Agenda Item 12: Final Comments (Management Board, Staff, Public)**
Mr. Fielding requested that consideration be made to the renewal and request bids for our accounting and legal services.

**Agenda Item 13: Adjourn**

MOTION WAS MADE TO ADJOURN THE MEETING BY TOM CAREY, SECONDED KELLI MCGEE. MOTION CARRIED UNANIMOUSLY.

Meeting adjourned at 1:05 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.
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
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 patterns and energy dissipation (from refraction and reflection).
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.

Maximum percent reduction in percent tracer concentrations during 366 days of simulations under (A) the existing causeway configurations in the Banana River and (B) under hypothetical bridge spans along State Roads 528 and 520 across the BR. Model boundary conditions include water level forcing at the north end of Mosquito Lagoon.
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 at 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 do we know: Water flow matters

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>
</tr>
<tr>
<td>Sykes Creek - Zone M*</td>
<td>56</td>
<td>$1,868,832</td>
<td>1,798</td>
<td>$1,039</td>
</tr>
<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>
</tr>
<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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<tr>
<td>Sykes Creek - Zone T*</td>
<td>148</td>
<td>$4,939,056</td>
<td>3,360</td>
<td>$1,470</td>
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<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
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
**S.R. 528 Design Project (#407402-4)**

- 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 (160x better than Traditional)</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*

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**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 adverse stages increase and impact land use values.

3. Keep the backwater for 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.

Florida Department of Transportation

July 6, 2020
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>5720030</td>
<td>Fernandina Beach, FL</td>
<td>0.083</td>
<td>0.01</td>
<td>30.6717</td>
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<tr>
<td>5722218</td>
<td>Mayport, FL</td>
<td>0.012</td>
<td>0.01</td>
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<td>-81.417</td>
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<tr>
<td>5721112</td>
<td>Daytona Beach Shores, FL</td>
<td>0.0910</td>
<td>0.02k</td>
<td>29.1467</td>
<td>-80.5630</td>
</tr>
<tr>
<td>5723170</td>
<td>Miami Beach, FL</td>
<td>0.094</td>
<td>0.02</td>
<td>25.7583</td>
<td>-80.1317</td>
</tr>
<tr>
<td>5723970</td>
<td>Vero Key, FL</td>
<td>0.144</td>
<td>0.02</td>
<td>24.7117</td>
<td>-81.165</td>
</tr>
<tr>
<td>5724530</td>
<td>Key West, FL</td>
<td>0.025</td>
<td>0.01</td>
<td>24.5557</td>
<td>-81.6079</td>
</tr>
<tr>
<td>5725140</td>
<td>Naples, FL</td>
<td>0.112</td>
<td>0.02</td>
<td>26.1317</td>
<td>-81.8079</td>
</tr>
<tr>
<td>5725500</td>
<td>San Marco, FL</td>
<td>0.132</td>
<td>0.03</td>
<td>26.5877</td>
<td>-81.5742</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

### Table 1: Hydraulic Design Data on the Relief Bridge

<table>
<thead>
<tr>
<th>Data Field</th>
<th>Design</th>
<th>Flood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage Elevation (Ft/NAVD)</td>
<td>+1.5</td>
<td>+2.5</td>
</tr>
<tr>
<td>Mean Velocity (fps)</td>
<td>3.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Average Velocity (fps)</td>
<td>4.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Discharge (cfs)</td>
<td>55</td>
<td>90</td>
</tr>
</tbody>
</table>

### Table 2: Hydraulic Design Data on the Relief Bridge

<table>
<thead>
<tr>
<th>Data Field</th>
<th>Design</th>
<th>Flood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage Elevation (Ft/NAVD)</td>
<td>+1.6</td>
<td>+2.6</td>
</tr>
<tr>
<td>Mean Velocity (fps)</td>
<td>2.5</td>
<td>2.9</td>
</tr>
<tr>
<td>Average Velocity (fps)</td>
<td>3.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Discharge (cfs)</td>
<td>40</td>
<td>60</td>
</tr>
</tbody>
</table>

**2.8 Sea Level Rise**

According to the FDOT Drainage Manual, "The design of coastal projects (including new construction, reconstruction, and projects rehabilitating drainage systems) must incorporate sea level rise analysis and assess the vulnerability of flooding over the design life of the facility." The mean present sea level rise data based on historical tidal records gathered by the National Water Level Observation Network (NWLO) and managed by the NOAA. The station nearest to the project location is the Flagler Beach Shores, FL station (8522120). The annual rate of rise for the station is estimated at 0.091 in/yr. Using a multiplier from the model of the previous tidal epoch (1992), a 75-year life, the project is expected to experience a 0.86 ft of sea level rise by 2022.

- 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>
</tr>
</thead>
<tbody>
<tr>
<td>+1.80</td>
<td>0.86</td>
<td>+2.66</td>
<td>+6.37</td>
<td>OK! ✓</td>
</tr>
</tbody>
</table>
Space Coast TPO

State Road (S.R.) 528 Update

THANK YOU!
2021 Meeting Calendar

**Board of Directors Meeting**

**Financial Subcommittee**

**Management Board Meeting**

**STEMAC Meeting**

**CAC Meeting**

<table>
<thead>
<tr>
<th>Timeline for 2021:</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of October 2021:</td>
</tr>
<tr>
<td>RFPs issued for FY2021-2022</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Early January 2021:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposals due</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>February BOD Meeting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approve Preliminary Budget prior to March 1 deadline</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>May BOD Meeting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approve Final Budget, annual Work Plan and Business Plan prior to June 1 deadline</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treasury Draws:</th>
</tr>
</thead>
<tbody>
<tr>
<td>March and September</td>
</tr>
</tbody>
</table>

**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

**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