



ONE LAGOON

ONE COMMUNITY · ONE VOICE

INDIAN RIVER LAGOON
NATIONAL ESTUARY PROGRAM

Board of Directors IRL Council

Susan Adams

Chair, Indian River County
Commission

Stacey Hetherington

Vice-chair, Martin County
Commission

Curt Smith,

Secretary, Brevard
County Commission

Billie Wheeler

Volusia County Council

Chris Dzadovsky

St. Lucie County Commission

Aaron Watkins

Director, Central District,
Florida Department of
Environmental Protection

Doug Bournique

Governing Board, St. Johns
River Water Management
District

Jacqui Thurlow-Lippisch

Governing Board, South
Florida Water Management
District

César Zapata

U.S. Environmental
Protection Agency, Region 4

September 2, 2020

Attention: Ms. Georganna Gillette, Executive Director, Space Coast
Transportation Planning Organization (SCTPO)

Mr. Jared Perdue, Secretary, Florida Department of
Transportation (FDOT), District 5

On February 8, 2019, the IRL Council, an independent special district of Florida, and host of the Indian River Lagoon National Estuary Program (IRLNEP), passed Resolution 2019-03 supporting FDOT's efforts to study and evaluate infrastructure improvement options to SR 528 and SR 520. The resolution encouraged the inclusion of "*any and all infrastructure improvements that will benefit the Lagoon, the economy and the resiliency of essential transportation corridors and infrastructure*".

To provide due diligence support for the discussion, the IRL Council contracted for water flow modeling from Dr. Gary Zarillo, Florida Institute of Technology. Results from those model runs showed that by expanding the bridge opening at the SR 528 Causeway on the Banana River section, water flow improvements between 9-17% could be realized, if coupled with similar future improvements to the south at SR 520 Causeway. This range of water flow improvement was influenced by a variety of wind and freshwater flow conditions. The models demonstrate a significant water flow improvement that should not be ignored. Compartmentalization of the Banana River, created by original dredge and fill causeway construction decades ago, is significant. The resulting decrease in water flow has increased the vulnerability of this section of the lagoon to nutrient pollution and other detrimental inputs.

In addition to the Florida Tech hydrology modeling, the St. Johns River Water Management District (SJRWMD) made a significant investment to have their modeling team expand the scope of their Indian River Lagoon hydrological model to include projections of water quality parameters. While results from these SJRWMD model runs did not demonstrate significant water quality improvements based on flow alone, they

verified the importance to reduce nutrient loads from land-based sources to attain water quality improvements. The SJRWMD hydrological model aligned well in the area of the SR 528 Causeway with the work of Dr. Zarillo.

All of these data were shared with FDOT and the SCTPO Governing Board. The SJRWMD models for water quality provided a new tool for data-driven decision-making regarding nutrient loads and project evaluation. It promises to be a valuable evaluation tool for FDOT and local partners to guide mitigation planning and decision-making. The bottom line is that we will need to accomplish both water flow improvements and aggressive nutrient reduction interventions to achieve desired water quality improvements in the Banana River.

In addition to hydrological modeling, Dr Zarillo provided sea level rise data that considered both global sea level trends and important regional water level trends for Florida's east coast. A detailed review of infrastructure risk exposure to sea level rise and climate change was not considered in the FDOT analysis. To fully understand infrastructure vulnerabilities, analyses must integrate global trends, regional and seasonal sea level variability, and storm surge vulnerabilities. The current linear trend methodology used by FDOT to estimate future sea level rise is both outdated and not supported by recent coastal infrastructure resilience planning. Dr. Zarillo's work has been presented to SCTPO and FDOT. These comprehensive, science-based projections deserve additional consideration.

In 2017, SCTPO took a strong leadership role in resiliency planning by completing a Sea Level Rise Vulnerability Assessment. SCTPO also participated in the creation of the East Central Florida Regional Planning Council's Regional Resiliency Action Plan and adopted that plan in March 2019. The FDOT sea level rise analysis does not align with these local plans.

In July 2020, the SCTPO moved toward decision-making on the existing design of SR 528. Presentations were made to SCTPO advisory committees and the Governing Board that included the SJRWMD hydrology-biological response findings; IRL Council summary of Dr. Zarillo's findings and other IRL considerations; and a current update from FDOT regarding a nutrient reduction mitigation strategy.

The IRLNEP applauds FDOT staff for reexamining mitigation strategies that focus on quantifiable nutrient reductions. FDOT's comparisons to traditional stormwater approaches clearly showed the limitations of our past mitigation thought process related to water quality. However, important questions were posed by the SCTPO Governing Board members that remained unanswered or were answered with insufficient detail. After more than 3 years of discussions, potential options to current design have not been fully considered.

On July 31, 2020 the IRL Council Board of Directors discussed these important infrastructure and water quality issues. Concerns were raised about the lack of attention to consider water flow improvements that could be delivered by a low span bridge extension or other engineered options to improve the current design. As a result of staff discussions with IRL Council Board members and discussion during the July 31, 2020 Board meeting, the IRL Council Board of Directors, respectfully offer the following recommendations:

- Reducing causeway flow restrictions at SR 528 represents a one-time opportunity to restore natural flow to the Indian River Lagoon, decrease vulnerability to nutrients and pollutants and improve an estuary of national significance. Any and all actions that advance those improvements should be fully considered.

- Although direct comparisons are difficult to assess from site to site based on hydrology, tides and flushing characteristics, FDOT has demonstrated its ability to implement water quality improvements in a number of locations throughout the state. Water flow matters to both the hydrology and biology of a healthy estuary. Water flow improvement should be a desired outcome of this transportation corridor improvement.
- A decision to push forward with current design on SR 528 will deliver two extra lanes and improved elevation. At best, this represents an incremental improvement with little consideration for long-range visioning for this critical transportation corridor. We have a historic opportunity to address a long-standing water quality problem caused by causeway construction.
- The importance of SR 528 to the State of Florida grows with delivery of essential services at Port Canaveral, coupled with the historic expansion of both public and commercial space launch capabilities at Kennedy Space Center. Re-imagining this corridor with a 50- to 70-year vision is a historic transportation visioning opportunity that should not be ignored.
- The current and future safety of Florida’s residents and visitors and our economy depend on having coastal infrastructure that is resilient to both sea level rise and storm surge. The best available science and engineering design must be considered as we plan for climate change. The focus of these emerging challenges will be borne first and foremost by fragile barrier island communities.

Governor Ron DeSantis has taken bold, visionary, leadership actions to advance clean water and coastal resilience for the State of Florida. These are historic policy and investment priorities. The IRL Council and IRLNEP support the Governor’s vision for Florida’s future. It is with that vision and spirit that we share the following IRL Council Board of Director’s position:

The current design plan for SR 528 needs to reconsider Indian River Lagoon water quality improvement options, including quantification of costs and benefit values.

- The IRL Council and IRLNEP believe that design options exist that can address these important water quality and coastal vulnerability concerns.
- The IRL Council strongly encourages the SCTPO and FDOT consider innovation and future visioning to integrate transportation and environmental issues with the long-term economic value of the project. The Indian River Lagoon delivers \$7.6 billion annually to the regional economy. Poor IRL water quality threatens that regional economy.
- Risk-based assessments of coastal infrastructure vulnerabilities to sea level rise and storms must be based on the best available science to decrease risks to infrastructure assets, protect public safety and improve coastal resilience.
- Take the time needed to explore design options that can achieve the transportation goals of SCTPO and the larger goals of the State of Florida. An integrated approach can save future dollars, improve an essential transportation corridor and provide an example that by working together, we can identify cross-jurisdictional solutions to address challenging infrastructure issues facing our state, our environment and our economy.

SR 528 decisions should be driven by one question and one question only: What is the right thing to do to secure Florida's clean water future and optimize multiple benefits over the life of this essential corridor project?

The IRL Council and IRLNEP stand ready and willing to assist the SCTPO, FDOT and our local partners in any way that we can to advance discussions about design options to address these important water quality concerns.

A decision to move forward, as designed and without these option considerations, will remove a once in a generation opportunity to make a transportation legacy decision for Florida that will serve our citizens and our quality of life as we move through this 21st century.

I have been authorized to submit this letter to SCTPO and FDOT with the unanimous support of the IRL Council Board of Directors. On behalf of the IRL Council Board of Directors, we thank you for your time and thoughtful consideration.

Regards,

A handwritten signature in blue ink that reads "Duane E. De Freese". The signature is written in a cursive style.

Duane E. De Freese, Ph.D.
Executive Director, IRL Council and Indian River Lagoon National Estuary Program

Copies:

Ms. Loreen Bobo, Director of Transportation, FDOT District 5
Captain John W. Murray, Port Canaveral Director and Chief Executive Officer
Robert Musser, Port Canaveral Senior Director, Environmental