



***Board of County Commissioners***  
***Public Works Department***  
***1801 27th Street, Building A***  
***Vero Beach, Florida 32960-3388***  
***Telephone: (772) 226-1379***

June 9, 2020

**VIA EMAIL**

Ted Saltos, Ph.D.  
Environmental Consultant  
Division of Environmental Assessment and Restoration  
Florida Department of Environmental Protection  
[Theodore.Saltos@floridaDEP.gov](mailto:Theodore.Saltos@floridaDEP.gov)

Subject: FDEP Draft Basin Management Action Plan (BMAP) Allocation Study  
Indian River County Objections to FDEP Model Usage for BMAP Allocations

Dr. Saltos,

Indian River County (County) staff has partially reviewed the draft BMAP allocations and methodology used by the Florida Department of Environmental Protection (FDEP) in computing its total nitrogen and total phosphorus starting load determinations assigned to the County, which were presented to the County by FDEP on April 23, 2020. In your email of June 8, 2020, you stated that if the County does not respond to FDEP by 5:00 pm Tuesday, June 9, 2020, FDEP will make the assumption that the “jurisdictional boundary on record is accurate and that you have no comments regarding the allocations discussed on April 23, 2020.” A thorough review of a major portion of the information was performed and the review efforts by the County to date have revealed that the information has flaws and does not accurately represent the land areas and uses within the County, creating a significantly inaccurate and excessive starting load that produces inaccurate results. As such, the County respectfully requests FDEP investigate in detail, the items below in order to update the information contained in the Indian River County Draft Allocations April 2020 document issued by your Division.

As we have discussed, the draft allocation information that you presented to the County on April 23, 2020 was in stark contrast to information previously supplied regarding proposed BMAP starting loads and Total Maximum Daily Loading (TMDL) values (initially presented to the County in draft form by FDEP in December 2015). The County is aware that FDEP has changed models used in the determination of the loadings, which was alleged to provide a more accurate representation of the land uses and associated loadings within the subject area. The Spatial Watershed Iterative Loading (SWIL) model used by FDEP was developed by Applied Ecology for Brevard County’s approach at scientifically addressing TMDLs. The County believes that FDEP must ground truth the input data and verify model results against real world data in Indian River County, comparing model runs to various actual rainfall duration and frequency events in Indian River County. This is extremely important because the computer model’s results and FDEP’s

resulting pollutant load allocations will produce tremendous financial burdens on the County and other governmental entities along the Lagoon amounting to hundreds of millions of dollars. Fortunately, a large part of the County drains into the Lagoon via only three distinct Indian River Farms Water Control District relief canals through well-defined watersheds, and therefore such real world validations should be relatively simple to accomplish and should be the *minimum* standard for a computer model whose results will produce such significant financial implications to the County and its citizens.

The County, along with other stakeholders within the Central Indian River Lagoon Basin Management Action Plan, have grave concerns over the validity of County Property Appraiser data being used for purposes other than what it was intended for. County Property Appraiser data should not replace “aerial photointerpretation” or ground validation (SWIL Report 2015) as the basis in the development of the SWIL model to determine the Event Mean Concentrations (EMC), and ultimately the starting loads for the County. FDEP should not utilize unvalidated data in a computer analysis that produces important policy results.

Discrepancies in land use application has cascading effects in the SWIL model for stakeholders. Property incorrectly classified adjusts the EMCs which drive the loading allocated to the property. As seen in attached Exhibit A, the small basin subsection that the County Geospatial Information System (GIS) Department focused on for truthing the model assumptions for the Water Consolidated Land Use Code, demonstrated a significant change in acreage and land use when more closely reviewed. In this one-mile by two-mile randomly reviewed section, the *unverified* model assumptions for the Water Consolidated Land Use Codes were found to be off by nearly 31% in the lands assigned to the County.

Ten distinct Consolidated Land Use Codes were incorrectly used in areas that should have been identified as Water (see the list of incorrectly used Consolidated Land Use Codes in attached Exhibit B). That correction alone lowers the starting load in that small section of the County by 1,075.41 lbs. of total nitrogen (TN) and 170.25 lbs. of total phosphorus (TP).

When spot checking Consolidated Land Use Codes against the Event Mean Concentrations in that sample area, County staff discovered inconsistencies on the EMCs and thus the calculated loadings. The SWIL model showed 41.07 acres of Water with associated TN and TP loadings of 53.95 lbs. and 7.69 lbs., respectively. Page 37 of the 2015 SWIL Report shows that the EMC for Water to be zero (0) for both TN and TP, therefore the calculated loading for the 41.07 acres of Water should have been zero (0) for TN and TP.

In addition to land use issues in the SWIL model, County staff also identified Indian River Farms Water Control District rights-of-way that were initially not allocated to that entity. Correcting that information moves some of the allocation incorrectly assigned to the County back onto the appropriate entity.

The topic of Natural Lands and the property use codes that go into Natural Lands is unclear to the County. FDEP tables represent significant loadings attributed to Natural Lands, yet we are unable to find a Consolidated Land Use category identified as Natural Lands, and therefore are unable to find the EMC values used for loading calculations. As Natural Lands have no anthropogenic loadings associated with them, the requirement proposed in the draft allocations to have a required reduction for Natural Lands passed on to the entity in which the Natural Land resides contradicts rationale used in recently issued BMAPs in other regions. For example, the St. Lucie River and Estuary BMAP (January 2020), which has been pointed to by FDEP as a reference for County review, asserts certain assumptions in their model, such as: “The allocations do not include required load reductions from areas identified as *natural land use areas* in the 2012 SFWMD land use coverage. *These loads are considered uncontrollable, background sources,*

*and the stakeholders are not required to make reductions on natural lands. The focus of the BMAP allocations is on urban and agricultural stormwater sources and septic tanks in the watershed.”*

Since our April 23, 2020 meeting, County staff has accrued well over one hundred man hours in its cursory review of the Draft Allocations presented by FDEP and reached out to model developer Applied Ecology in search of Technical Memos referenced in the SWIL Report. We appreciate that FDEP is developing the BMAP, but the initial County cursory investigation identified important and significant errors and questionable assumptions by FDEP, which produced incorrect results. In order to proceed with further review, the County respectfully requests that these issues be resolved.

County staff looks forward to receiving FDEP’s review and model verification schedule in the near future. This allocation study has far reaching ramifications to all stake holders and has the potential to cost hundreds of millions of taxpayer dollars to address, therefore accuracy of the Allocation Study is a key component to efficient expenditure of tax dollars to address this issue.

Regards,



Richard B. Szyrka, P.E.  
Indian River County  
Public Works Director

Attachments: Exhibit A  
Exhibit B

Cc: Jason E. Brown, County Administrator  
Dylan Reingold, County Attorney  
Vincent Burke, Utilities Director  
Keith McCully, P.E., Stormwater Engineer  
Eric Charest, Natural Resources Manager  
Brian Sullivan, Legislative Affairs and Communications Manager

# Exhibit A

## Review of Central Indian River Lagoon Basin Management Action Plan Draft Allocations for Indian River County

Figure 1

Overlay of Water confirmed in subsection of Indian River County area  
■ represents field verified Water



Review of this 1 mile X 2 mile sample section of the County by IRC GIS staff identified 133.4 Acres of Consolidated Land Use Code Water.

Based on Event Mean Concentrations, the TN Loading should equal 0 lbs, and the TP loading should equal 0 lbs

Total Indian River County draft allocation for this sample section was presented to be approximately 12,489 lbs TN and 1,868 lbs TP (including Natural Lands). Correctly identifying Consolidated Land Use Code Water reduced the TN loading by 1,075.4 lbs TN and a TP reduction of 170.25 lbs for Indian River County and Natural Lands assigned properties.

A reduction of 8.6% TN and 9.1% TP based on that single incorrectly identified Consolidated Land Use Code.

Figure 2

FDEP Consolidated Land Use Code Water  
■ represents FDEP correctly identified Water



FDEP SWIL Model data for this same section only showed 41.07 Acres correctly identified as Water, but with a TN Loading of 53.95 lbs and a TP Loading of 7.69 lbs.

Based on Event Mean Concentrations, the TN Loading should have been equal to 0 lbs, and the TP loading should have been equal to 0 lbs

# Exhibit B

## Review of Central Indian River Lagoon Basin Management Action Plan Draft Allocations for Indian River County

FDEP BMAP Data Consolidated Land Use Code		IRC Verified Water Consolidated Land Use Code		Suggested Revision Consolidated Land Use Code (2015 SWIL Report)	
23	Water	3	Commercial	23	Water
		4	Dry Prarie		
		5	High Density Residential		
		9	Low Density Residential		
		10	Medium Density Residential		
		15	Recreational 1		
		16	Recreational 2		
		21	Upland Flatwoods		
		23	Water		
		24	Wet Flatwoods		
41.07	Acres	133.4	Acres	133.4	Acres
53.95	TN Loading (lbs)	1075.4	TN Loading (lbs)	0	TN Loading (lbs)
7.69	TP Loading (lbs)	170.25	TP Loading (lbs)	0	TP Loading (lbs)