

**INDIAN RIVER COUNTY
BOARD OF COUNTY COMMISSIONERS**

INTER-OFFICE MEMORANDUM

TO: Members of the Board of County Commissioners

DATE: March 29, 2017

SUBJECT: Lagoon Legacy Project

FROM: Commissioner Bob Solari

COVB Councilmember Lange Sykes has proposed a number of Lagoon remediation projects calling the collection the Lagoon Legacy Project. His proposal calls for the COVB and the County to work together on the projects, which given the nature of the projects, the differing expertise of the parties and the fact that the Lagoon knows no political boundaries makes eminent good sense.

Most of the projects would be relatively inexpensive and should be able to be done reasonably easily. Two of them will be longer term and more expensive, but deal with storm water discharges into the Lagoon, which will eventually need to be addressed.

Most of the projects seem ready made for grants from various agencies like the FDEP, SJRWMD, Find and even the IRL-Council.

I would like to discuss the projects with the Board to gage the Boards interest. I will not be seeking authorization for any specific project at this time.

Thank you.

Lagoon Legacy Project

- Lagoon Legacy Project (LLP) – A collaborative initiative between the City of Vero Beach, Florida, The county of Indian River, Florida and its great citizens to take action with both immediate and long-range Indian River Lagoon restoration projects.
- These projects address and remediate a multitude of negative environmental factors contributing to the overall degradation of the Indian River Lagoon.
- *"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased; and not impaired in value."
-Theodore Roosevelt*

Lagoon Legacy Project : A

- The County had an oyster reef built off the FDOT outfall that borders the north side of Spoonbill Marsh. This Reef has been successful in growing oysters, which have been up taking nitrogen (N) and phosphorus (P) from the waters of the Lagoon. Proposed is one new oyster reef project, within COVB limits, mirroring the 53rd-57th Street FDOT Outfall Project.
- Cost estimate: \$25,000 to \$50,000 per Oyster Reef.
- Benefits: Increase of nitrogen (N) and phosphorus (P) absorbing Oysters and increased fish habitat.

Lagoon Legacy Project : A



Lagoon Legacy Project : B

- Lost Tree Island Cuts. This project would break the dike at two points on the island. This would allow for a much greater, and more natural flow of water helping the Lagoon with special benefits to the areas around Cache Cay.
- Benefit: Water flow, which would improve water quality.
- Cost: Approximately \$100,000
- Permit required from FDEP, which would take perhaps one year.
- * ORCA KILROY, located nearby.

Lagoon Legacy Project : B



Lagoon Legacy Project : C

- COVB Island Outfall Redesign. The COVB has a number of outfalls that remove water from Orchid Island to the Lagoon. Three outfalls by the Dog Park, Greytwig and the Acacia Boat ramp have a lot of rock rubble by the outfall. The rock rubble could be redesigned to support both tidal and sub-tidal oyster recruitment.
 - Cost estimate for the three locations: Approximately \$25,000.
 - Benefits :Increase of nitrogen (N) and phosphorus (P) absorbing Oysters, which would help clean the waters of the Lagoon.
 - Permit required by FDEP.
- Volunteer Friendly Project.

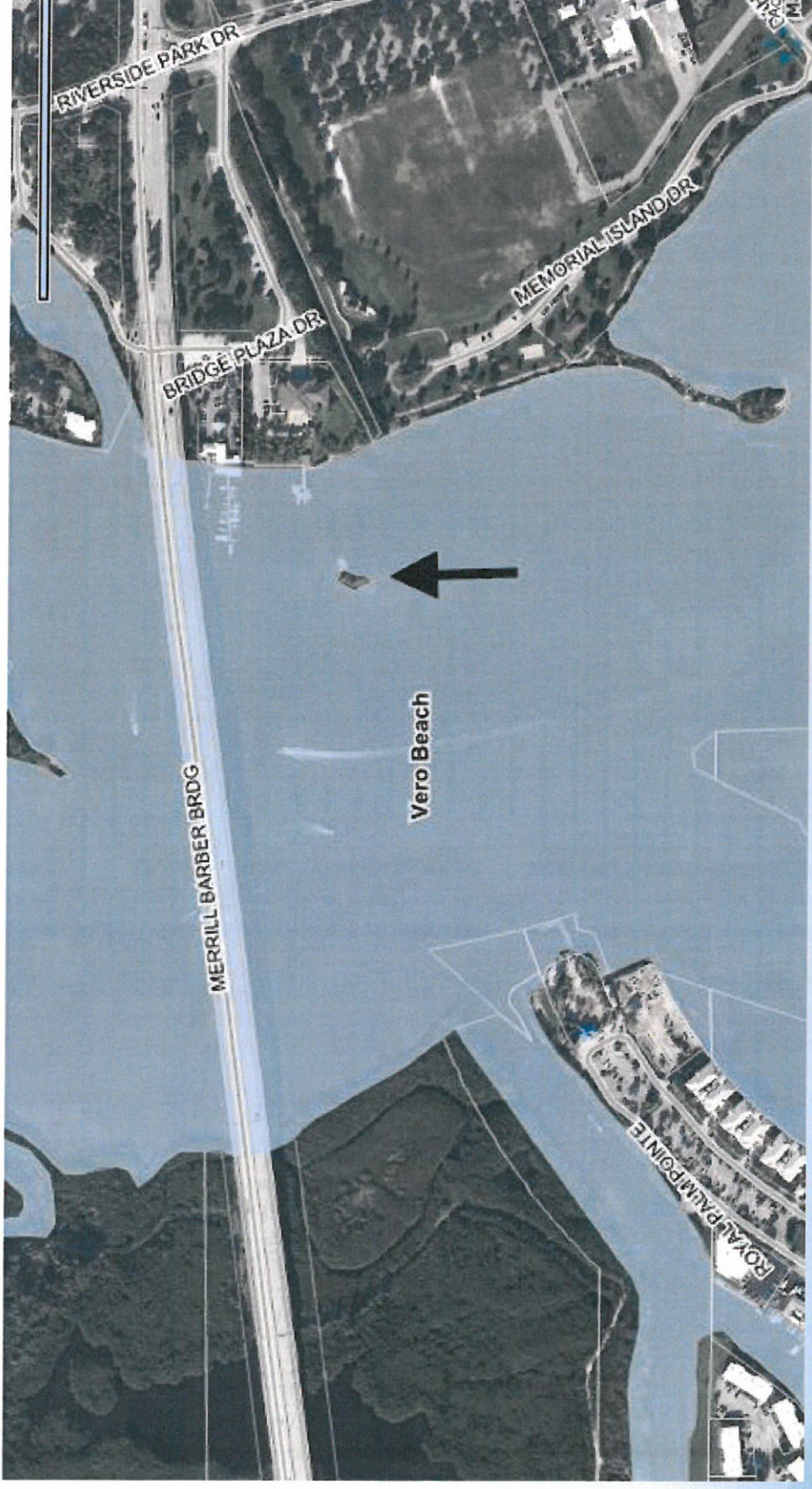
Lagoon Legacy Project : C



Lagoon Legacy Project : D

- Foot Island Merrill Barber Bridge Stabilization Project. The old Miller Barber Bridge had a support structure at the Southeast side of the bridge, which sat on a small island. The action of waves and boat wakes is steadily eroding the island. If remediation work is not done soon, the island will disappear. A shoreline stabilization project is proposed, which would include oyster mats, natural rock and some plantings.
- Cost estimate for the shoreline stabilization between \$25,000 and \$60,000.
- Benefits: Island preservation, oyster recruitment nitrogen (N) and phosphorus (P) removal and additional fish habitat.
- Permit required by FDEP, which would take perhaps one year to obtain.
- Volunteer Friendly Project.

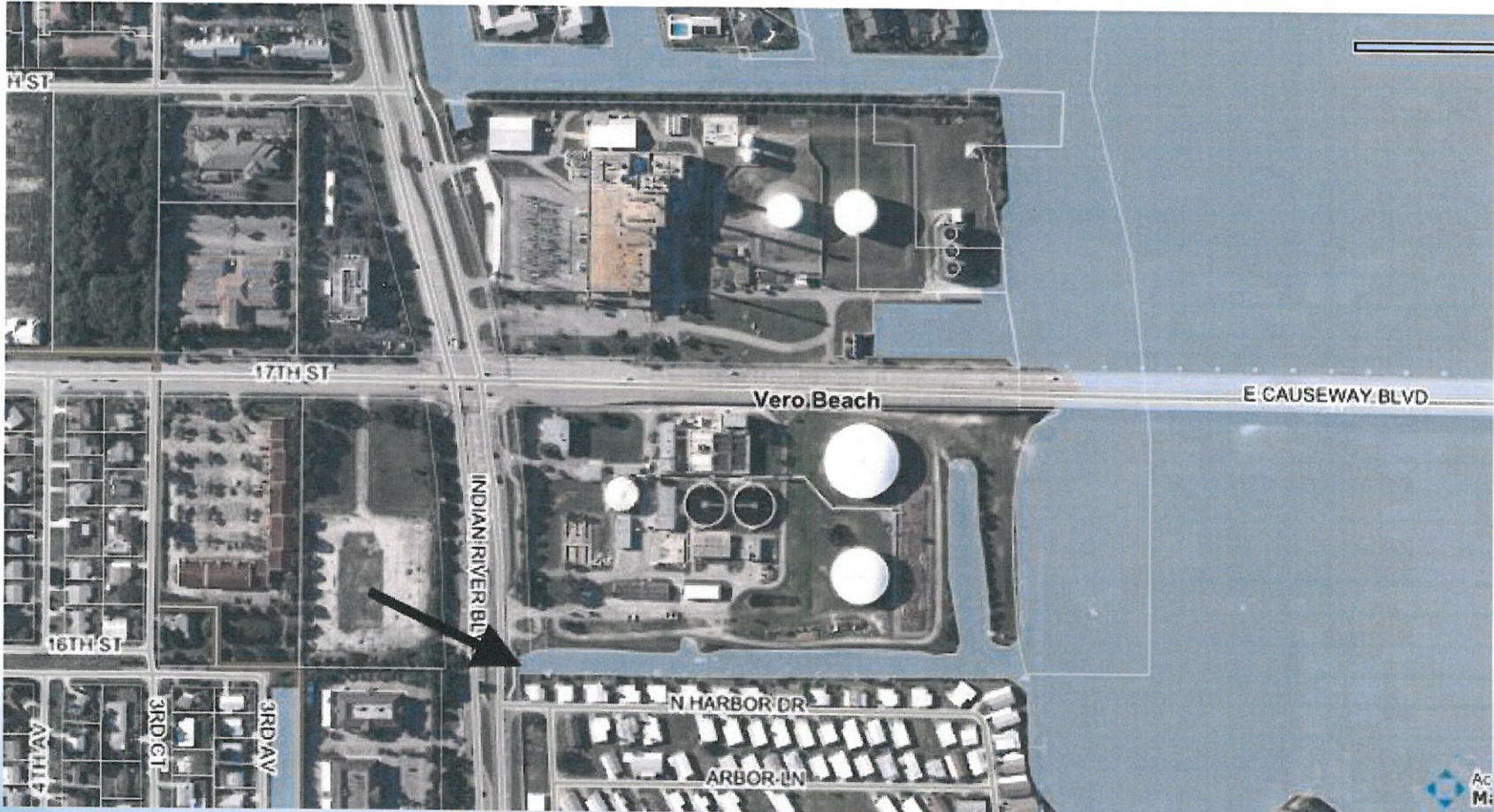
Lagoon Legacy Project : D



Lagoon Legacy Project : E

- Rockridge Aeration Pilot Project. Aeration has been proposed as one possible method to start addressing the problem of legacy N and P in the muck in the Lagoon. There is a canal between the COVB wastewater treatment plant and Fairlane Harbor, which would be a great location for a pilot project especially, as COVB electricity is located nearby.
- Cost estimate, under \$20,000.
- Benefits: Removal of nitrogen (N) from the muck and starting to learn about and build experience in dealing with the legacy nitrogen (N) and phosphorus (P) in the Lagoon.
- Permit required by FDEP.

Lagoon Legacy Project : E



Lagoon Legacy Project : F

- South Vero Storm Water Treatment Project. A lot of the water from the Rockledge-South Vero area presently flows untreated, into the Lagoon after rain events. This project would require that some of the drainage in the area be redesigned and would use gravity and perhaps one or two pumps to get the water into the existing salt Marsh to the east of the drainage basin and then use the flow of water through the salt marsh to remove sediment and nitrogen (N) and phosphorus (P).
- Cost: Significant
- Benefits: remove nitrogen (N) and phosphorus (P) sediment and other pollutants from storm water from the water before it gets into the Lagoon and slows down the flow of water going into the Lagoon.
- Permits: Yes, and they may take a year or more.

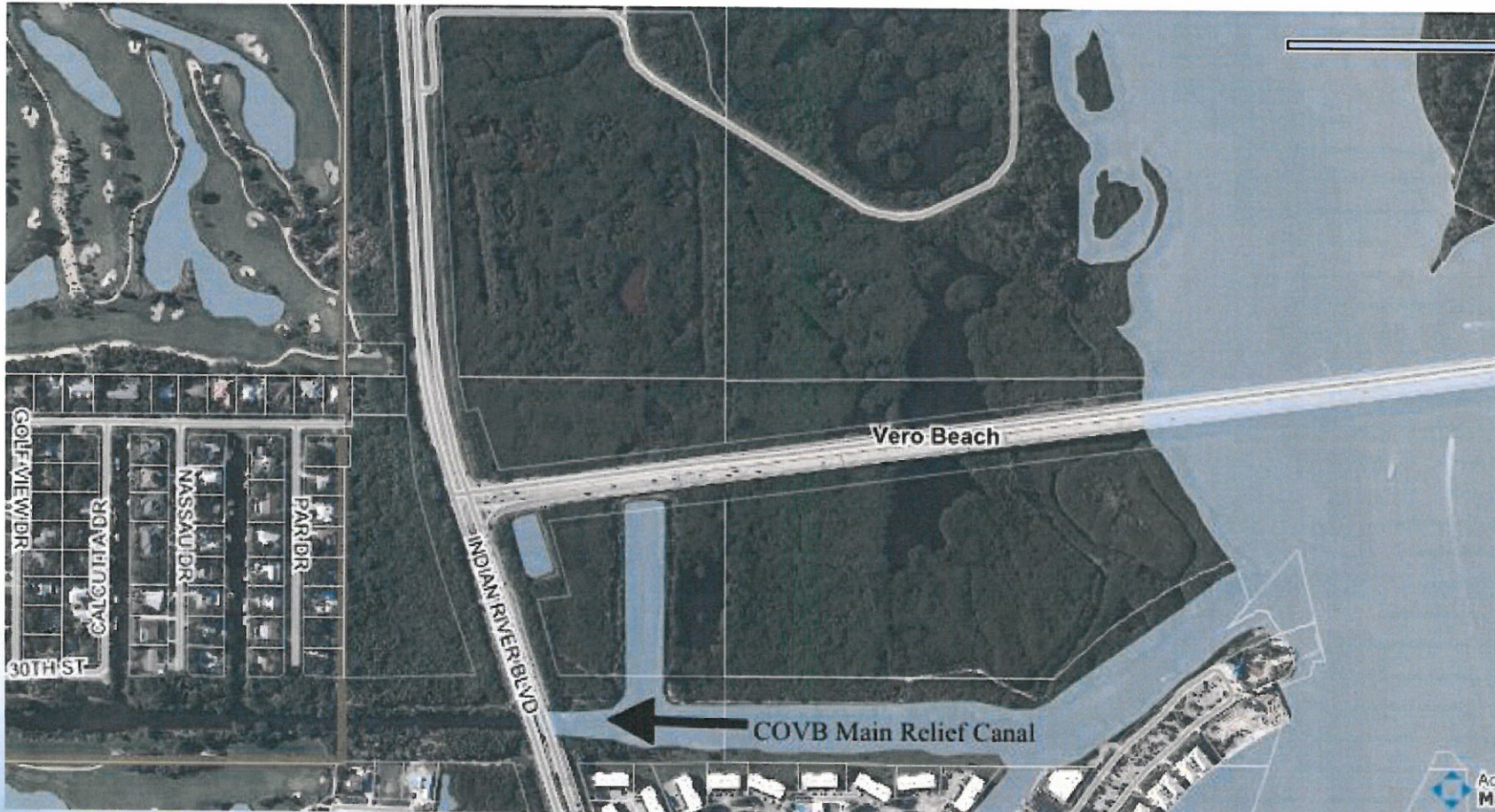
Lagoon Legacy Project : F



Lagoon Legacy Project : G

- Main Relief Canal Storm Water Treatment Area. Presently storm water from the COVB flows, without any significant treatment, into the Main Relief Canal and then to the Indian River Lagoon. There is a significant area of Salt Water Marsh where the Main Relief Canal drains into the Lagoon. (*The area under, and to the north and south, of the Miller Barber Bridge where it leaves the mainland and begins its ascent towards the Lagoon.*)
- The salt water marsh under the bridge already has a number of roads and paths which would be ideal for redesign with pumps and structures to slow the flow of water and divert it through passive remediation areas. This allows sediment to drop out of the water, (and periodically be mechanically removed) and for nitrogen (N.) removal by plant uptake (as well as for the nitrogen (N) and phosphorus (P) to be periodically harvested and removed).
- Cost: Significant
- Benefits: remove nitrogen (N) and phosphorus (P) sediment and other pollutants from storm water from the water before it gets into the Lagoon and slows down the flow of water going into the Lagoon.
- Permits: Yes, and they may take a year or more.

Lagoon Legacy Project : G



* Images courtesy of ircpa.org and Google Maps