



Monroe County Canals and Resilience

FKNMS Steering Committee Meeting

March 4, 2026

**Rhonda Haag
Chief Resilience Officer**



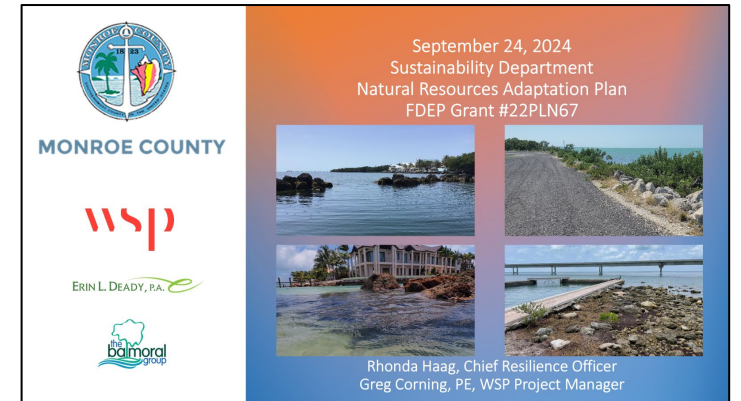
PLANS FOR RESILIENCE

Natural Resources Adaptation Plan \$90,000 DEP grant to develop a **Natural Resources Adaptation Plan** with cost benefit analysis. This Plan identifies actions addressing the natural resource vulnerabilities found a list of projects was prepared for future grant submission. Completed.

Harry Harris Park Resilient Redesign \$200,000 DEP grant for the **Harry Harris park resilient redesign**. The County is preparing conceptual plans for a resilient shoreline and other features. State and federal grant funding opportunities will be applied for. Due 06/30/26.

Vulnerability Assessment \$93,350 DEP grant to update the County's **vulnerability assessment** so it meets the new requirements under the Resilient Florida program and the County can submit projects for grant funding. Due 2026.

Watershed Management \$120,843 DEM grant to update the County's **Watershed Master plan** as required so the County can maintain its Community Rating Score rating of 3, which helps with discounts on flood insurance. Due 2026.



PLANS FOR RESILIENCE

U.S. Army Corp of Engineers / FDOT / Monroe County/ Municipal FL Keys Coastal Storm Risk Project Includes:

- ❑ **U.S. 1 shoreline stabilization** (revetment) in 6 areas – \$1,465,000 Design Agreement. County Share \$513,000, FDOT reimburse.
- ❑ Nonstructural measures for residential and non-residential structures at risk:
 - Elevation** of residential properties 4,698
 - Floodproofing** of commercial 1,052 & gov't 53 facilities
 - The plan does not include *structure acquisition*
- ❑ Floodproofing critical infrastructure at risk

Estimated Project Costs and Benefits:

- ❑ Total Estimated Project Cost (65/35 cost share):
\$2,772,359,000
 - 65% federal funding of project = \$1,802,033,000
 - 35% non-federal funding of project = \$970,326,000
- ❑ Total Average Annual Benefit: \$131,603,000

FLORIDA KEYS COASTAL STORM RISK MANAGEMENT FEASIBILITY PROGRAM

Rachel Haug
Senior Planner and Study Lead
Norfolk District
U.S. Army Corps of Engineers

Six Sites Recommended for Shoreline Stabilization by USACE



NONSTRUCTURAL MEASURES INCLUDED IN RECOMMENDED PLAN

Reduce storm damage to structures identified at risk by implementing one of the following measures based on structure type and risk:

- ❑ Elevation of residential structures
 - 4,698 structures
- ❑ Floodproofing of commercial properties and critical infrastructure
 - 1,052 commercial structures
 - 53 critical infrastructure buildings



Flooding is Impacting the Keys in Different Ways



Frank Walmer

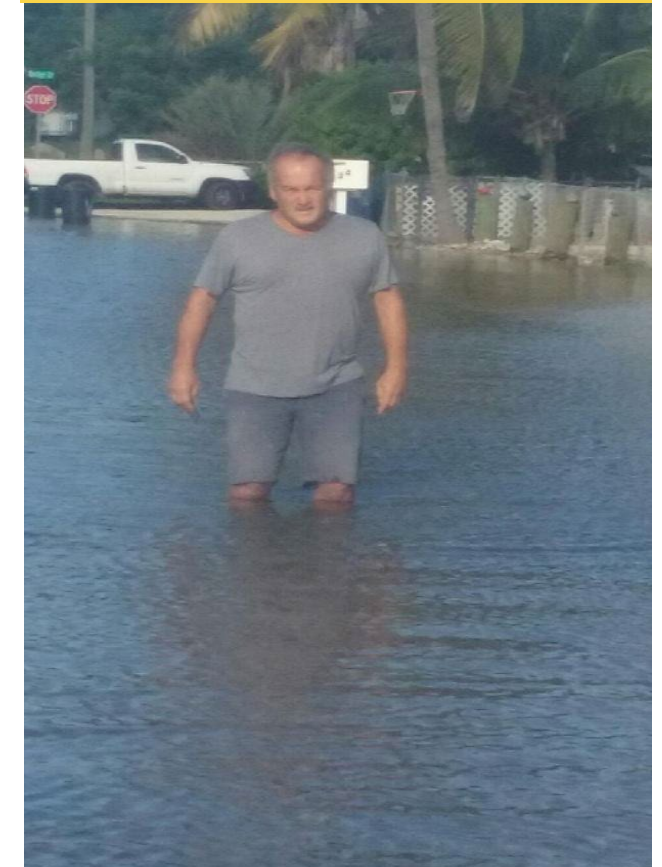
Avenue G - Big Pine (2020)



Kristen Key Szpak

Mahogany & Valencia - Key Largo (2020)

King Avenue - Key Largo (2016)



Stillwright Point – N Blackwater Lane (2020)

Monroe Resilience & Environmental Design and Construction Projects

Road Project Currently under construction:

- Twin Lakes Road Adaptation

Road Projects currently under design:

- Winston Waterways Road Elevation
- Big Coppitt Road Elevation
- Conch Key Road Elevation
- Flagler Avenue Road Adaptation

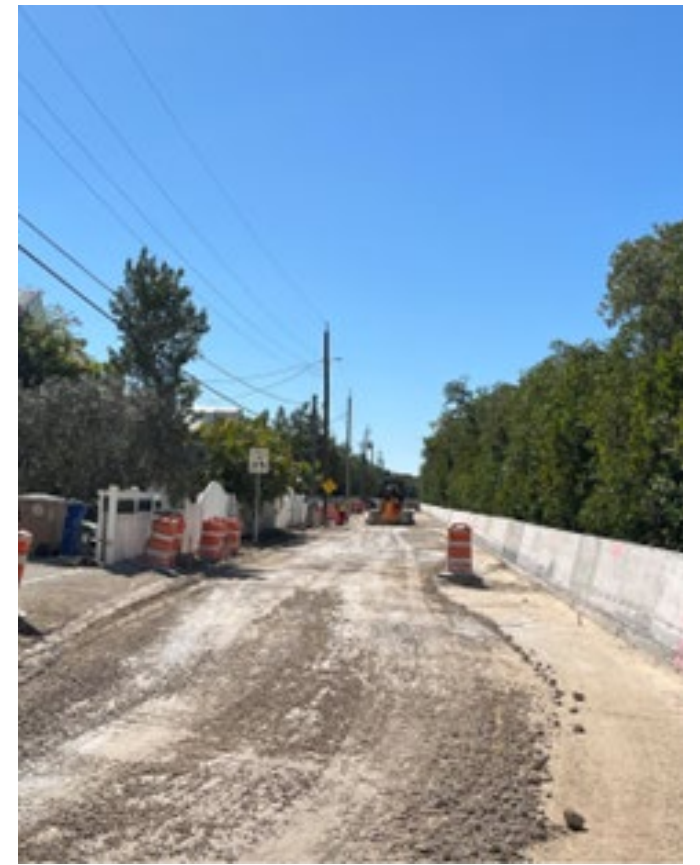
Resilience and Canal Projects about to construct:

- Long Key Living Shoreline Adaptation
- Duck Key Living Shoreline Adaptation
- Tavernier Breakwater Repair
- Rock Harbor Breakwater Repair
- Canal 82 restoration Rock Harbor

Construction: Twin Lakes Road Elevation – Crane Street Pump Station & Injection Well Key Largo



South Roosevelt Blvd – Aboveground



Twin Lakes – Retaining Wall - Shaw Drive Key Largo

Under Design - Big Coppitt Road Elevation & Adaptation



Road Raising Approach

- Elevate Roadways to **minimum 2.26 ft** NAVD88
- Higher roads change how the water flows; this water now needs to be collected.
- **Driveway and private property harmonization** will be required including gravel and decorative pavers, drainage and utility coordination and relocation.

Modern Engineered Drainage System

- A closed stormwater system to **collect rainfall and mitigate king tides**, replacing gravity infiltration which does not function with high ground water conditions.
- The Drainage System includes a collection system with inlets and pipes, a pump station and backup generator, and injection wells.

Grant Funds

- **Florida Department of Environmental Protection (FDEP) Resilient Florida Grant -** **\$23,661,605**
- **FEMA Hazard Mitigation Grant Program (HMGP) Phase II Federal Grant -** **\$60,906,616***
- **Total Potential Grant Funding -** **\$84,568,221**
*HMGP Phase II funds will be available upon completion of the design and successful FEMA benefit cost analysis outcome.
- **Current Construction Estimate -** **\$85 Million**
- **MSBU:** BOCC decided individuals who are benefitting from the project will fund shortfall, if any; residents will vote on whether to proceed when final costs are known.

BIG COPPITT ROAD ELEVATION RESILIENCY AND ADAPTATION PROJECT

BIG COPPITT KEY STAKEHOLDER ENGAGEMENT MEETING



— February 18, 2026 —

County Staff:

Judith Clarke, P.E.
Director of Engineering Services

Rhonda Haag
Chief Resilience Officer

Leonel Montiel
Sr Project Manager



MONROE COUNTY



Under Design: Winston Waterways Key Largo Road Elevation and Adaptation Project



Grant Funds

Road Raising Approach

- Elevate Roadways to minimum **2.26 ft NAVD88**
- Higher roads change how the water flows; this water now needs to be collected.
- **Driveway and private property harmonization** and utility relocation will be required.

Modern Engineered Drainage System

- A closed stormwater system to collect rainfall and mitigate king tides, replacing gravity infiltration.
- The Drainage System includes a collection system with inlets and pipes, a pump station and backup generator, and injection wells.

- **FL Department of Environmental Protection (FDEP) Resilient Florida** **\$ 14,859,975**
- **FEMA Hazard Mitigation Grant Program (HMGP) Phase II** **\$ 36,644,277**
- HMGP Phase II funds will be available upon completion of the design and successful FEMA benefit cost analysis outcome.
- **Total Potential Grant Funding - \$51,504,252**
- **Current Construction Estimate Underway**
- MSBU: BOCC decided individuals who are benefitting from the project will fund shortfall, if any; residents will vote on whether to proceed when final costs are known.

Key Largo



WINSTON WATERWAYS ROAD ELEVATION AND STORMWATER DESIGN AND PERMITTING PROJECT

STAKEHOLDER ENGAGEMENT MEETING

February 10, 2026



County Staff:
Judith Clarke, P.E.
Director of Engineering Services
Rhonda Haag
Chief Resilience Officer

Leonel Montiel
Project Manager



Under Design: Flagler Avenue – Key West Road Adaptation Project



Road Adaptation Approach

- ~~• Elevate Roadways to minimum 2.26 ft NAVD88 Not an elevation~~
- Full roadway reconstruction over 2 miles with a resilient asphalt base (replacing vulnerable lime rock).
- Complete removal and replacement of the outdated, gravity-based stormwater system, currently hydrologically connected to the ocean.
- Construction of:
 - Two pump stations and force mains
 - Injection wells for stormwater disposal and infiltration
 - Storm sewer collection and treatment systems
 - Nature-based stormwater attenuation areas (.43 acres on City-owned property)

Modern Engineered Drainage System

- A closed stormwater system to collect rainfall and mitigate king tides, replacing gravity infiltration.
- The Drainage System includes a collection system with inlets and pipes, a pump station and backup generator, and injection wells.

Grant Funds

- FL Department of Environmental Protection (FDEP) Resilient Florida (\$22M applied for) **\$ 0**
- FEMA Hazard Mitigation Grant Program (HMGP) Phase II **\$54,394,037**
- HMGP Phase II funds will be available upon completion of the design and successful FEMA benefit cost analysis outcome.
- **Total Potential Grant Funding - \$ 76,394,037**
Current Construction Estimate Underway
- MSBU: BOCC decided individuals who are benefitting from the project will fund shortfall, if any; residents will vote on whether to proceed when final costs are known.
- CITY OF KEY WEST – Partner, contributing land, O&M cost

Road Adaptation Project Benefits

- Proactively addresses drainage and flooding conditions that will worsen as climate change impacts increase.
- Makes community more resilient to future impacts
- Preserves and improves long term access to homes
- Reduces/eliminates standing water on roads
- Increases value of homes and desirability of community
- Level of grant funding is very significant; may not be available in the future.





Federally-Funded Breakwater Repairs

Rock Harbor Breakwater Repairs:

- DEO Grant IR036 for **\$1,353,986**
- Repair the Rock Harbor Breakwater in Key Largo damaged from Hurricane Irma
- Improve resiliency for the waterfront homes
- Improving the water quality in the canals behind the breakwater by keeping out the floating sargassum in addition to an air curtain to be installed
- Construction starts February 2026

Tavernier Breakwater Repairs:

- DEO Grant IR045 for **\$2,194,599.00** executed in March 2022
- Repair the Tavernier breakwater damaged from Hurricane Irma
- Improving resilience for the homes
- Improv the water quality in Canals 82, 83 and 84 by keeping out the floating sargassum (in addition to an air curtain to be installed).
- Construction starts February 2026.





Federally-Funded Living Shorelines / Breakwater Repair

Long Key Living Shoreline

DEP Grant 22FRP131 **\$900,000**

Construct a living shoreline of 1,282-feet of structural and nature-based solutions.

Provide designed breaks to create essential wetland habitat, mangrove planting to increase shoreline stabilization, and seagrass plantings.

Starts February 2026

Duck Key – Jetty Repair / Living Shoreline

DEP Grant 22FRP132 **\$ 3,327,266.00**

Rebuild and enhance 10,650-linear feet of existing breakwater wall and rehabilitate it as a Living Shoreline and provide resilience to homes.

Includes natural vegetated aspects from mangrove plantings, seagrass beds, and other living shoreline applications to reduce climate risks while enhancing habitat and benefiting the environment.

Anticipate start March 2026





Canal Restoration



Canal Restoration Program Benefits

- A. Removal of organic muck to **improve dissolved oxygen concentrations**
- B. Air curtain to **reduce future seaweed accumulation**
- C. Improved water quality
- D. Increased Benthic Resources
- E. Increase in marine life
- F. Reduction of dead zones within the canal
- G. Increased enjoyment by residents.



Recent Canal Projects Completed – FDEP Stewardship Grant Funded

- **Canal 90 in Tavernier Backfill** – **\$1.3 Million.** Work completed June 2024. DEP Grant LPA0248
- **Canal 278 Injection Well Pilot Project** in Eden Pines in Big Pine Key. **\$324,000.** Work completed June 2024. DEP Grant LPA0248
- **Canal 475 Geiger Key Culvert installation**– **\$1.6 Million.** Work was completed January 2024. DEP Grant LPA0249.



New FDEP Stewardship Canal Grants 2026 to Monroe County

Canal #82 Rock Harbor Key Largo

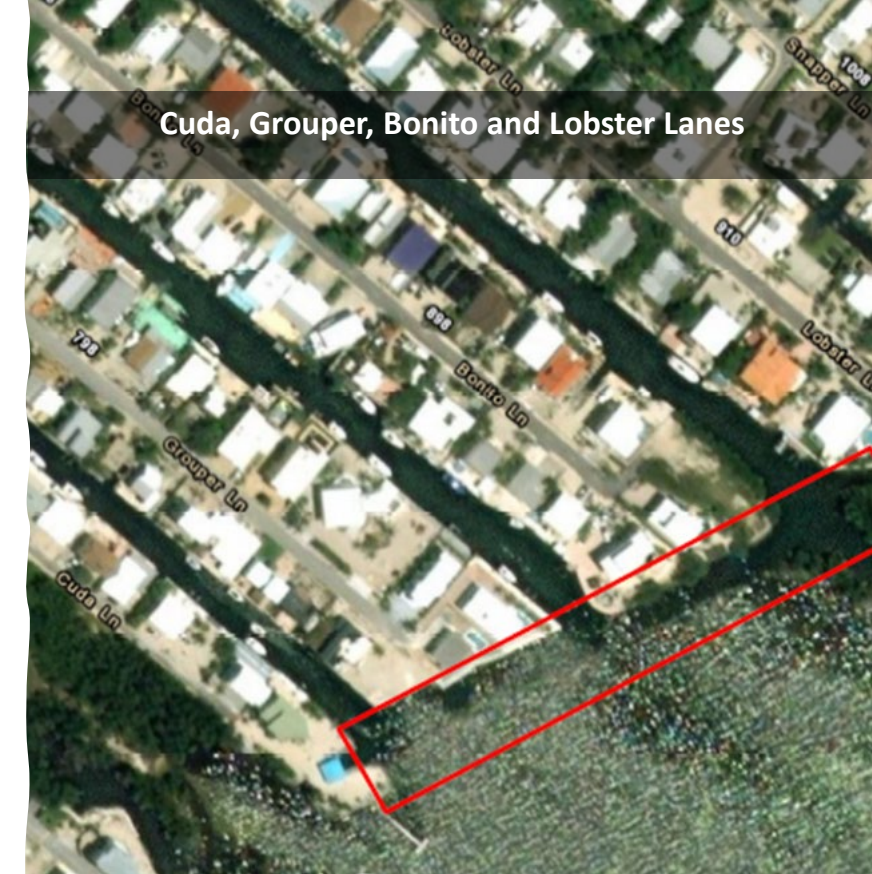
- **\$3 Million**
- Organic removal and backfill.
- Construction

Canal #266 Phase 2 - Big Pine Key

- **\$2 Million**
- Initial demonstration project for organic muck removal. Requires restoration for backfill and larger capacity air curtain and pumps. Residents already funding O&M via an MSBU.

Canal #255 Big Pine Key

- **\$1.4 Million**
- Organic muck removal, backfilling, an air curtain, and an injection well. Community approval for MSBU is in place.

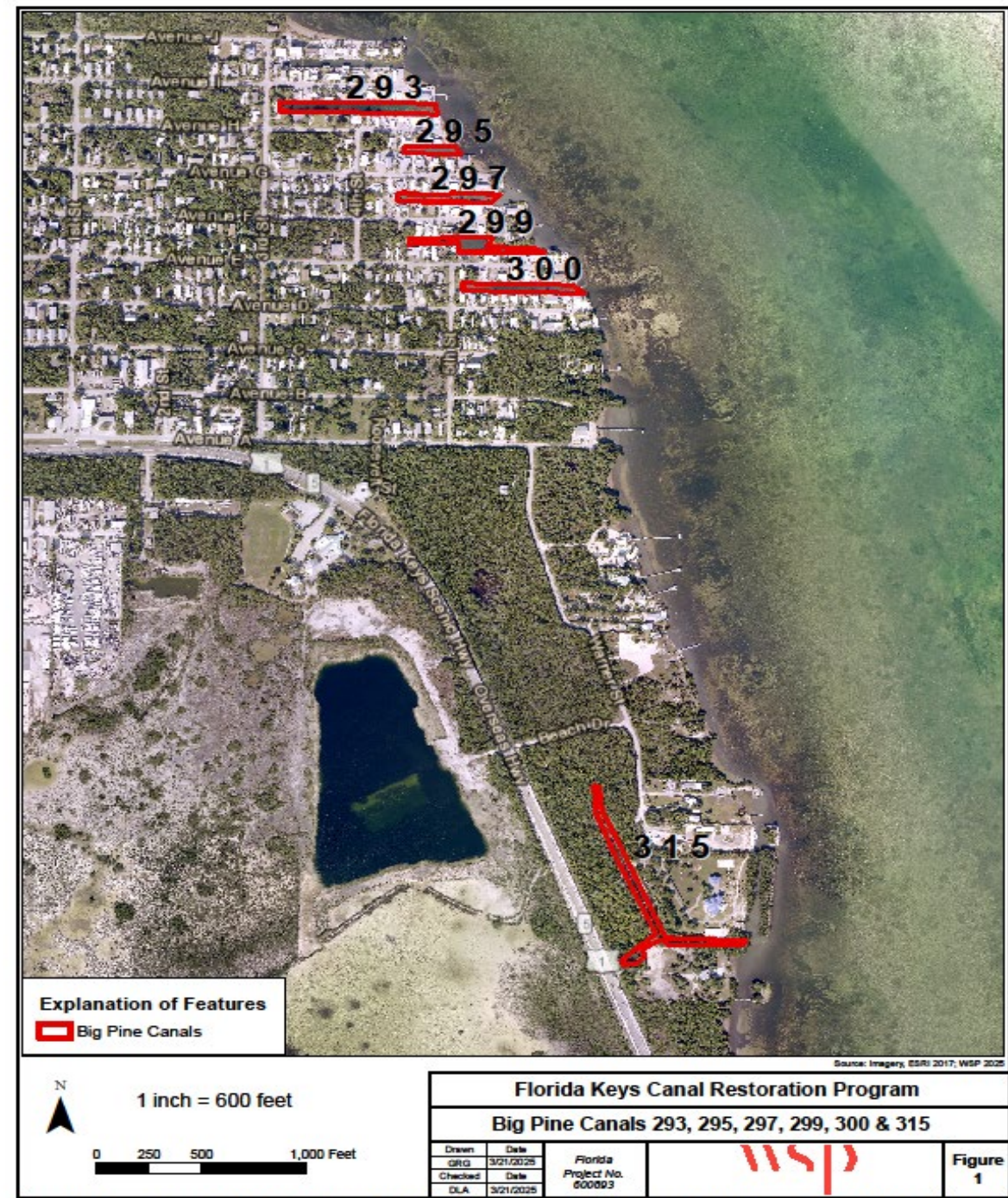


CANAL RESTORATION DETAILS CANAL 266 BIG PINE KEY



Federal \$12.4 Million RESTORE Funds for 6 Canals

- **\$12.4 M Subrecipient Award** to County received 03/17/25
- **Canals 293, 295, 297, 299, 300, 315** in the “Avenues” area of **Big Pine Key**
- **Shovel-Ready** Design and permitting nearing completion
 - Design funded by FDEP Stewardship funds





Outreach

Public outreach is included to inform and engage the communities and receive feedback.

MUNICIPAL PARTICIPATION

County assists municipalities with planning for regional resilience.

Resilience Planning:

- Mobile Lidar – all 5 municipalities. Complete
- Street Elevation Planning – 4 municipalities, Key West not included, local funded. In process.

Vulnerability Assessment Grants

- Layton & Key Colony Beach \$137,875 23PLN97 03/31/25
- Marathon \$240,000 22PLN65

Watershed Management Plan Grant (CRS)

- Layton, Key Colony Beach, Marathon \$399,506 H0856

New! Monroe County Municipal Update to Vulnerability Assessment for Statutory Compliance & Adaptation Plan

- 25PLN38 \$700,000 DEP Grant to complete an Adaptation Plan and a list of prioritized projects for each asset class. In process of grant development.

Bi-weekly coordination meetings



**RESIDENTIAL
NEIGHBORHOOD
IMPROVEMENTS
PROGRAM**
**proposed revisions to
Ordinance 02-2021,
Article VII**

ASSESSMENTS FOR IMPROVEMENTS

1. The **County may advance and expend monies** at its option toward a potential project - but even if such project does not move forward all **monies shall be reimbursed** to the County by the property owners.
2. **Assessments shall be initiated** by the County to fund project costs and may be implemented in advance of a project to **build-up capital funds**, to **reimburse** the County for all expended funds related to a project and to **fund long-term O&M** costs.
3. County to **apply for grant funds** as applicable and available. Cost of grant preparation, design, permitting and other related expenses to be borne by property owners. Grant awards are not guaranteed.
4. County shall **set up special assessments on properties benefiting** by the project in proportion to the special benefits received, to be determined and prorated according to the **methodology to be determined by the County**.

COLLABORATIVE PARTNERSHIP

RESIDENTS

- a) **Residents can request an improvement beyond basic level of service.**
- b) **Residents** collaborate with County on special project. Can move forward quickly.
- c) Residents **receive a special benefit and** will fund projects with assistance from grants if available
- d) **Costs** are spread out over the entire benefit area and **paid back to the County over a several year period.** Everyone in a benefit area pays, not just a few.
- e) Residents not receiving a benefit **will not pay** for benefits to others.

COUNTY

- a) **Providing an opportunity for projects** above core services **without overall tax increases** to all residents.
- b) **County fronts project costs**, at its option, to move project forward. Receive reimbursement through assessment.
- c) Strengthening County commitment to **financial stability.**
- d) **County collaborating with residents** on neighborhood requests.

EXAMPLES OF AN EXTRA SERVICE: CANAL SERVICES

- 1) County's *Canal Restoration List* contains 96 canal restoration projects for a cost of \$538 Million, ranging from \$200,000 to \$50 million per project.
- 2) Canal Restoration program is based on requirements in the Canal Workplan and funded 100% by grants. Only 2-4 canals are restored per year, based on grant funds availability.
- 3) This initiative would allow a canal to be restored without waiting for a grant
 - Could be a partial restoration, such as installation of a weed gate to prevent floating vegetation from clogging the canal. Residents would fund the work through an assessment where all benefitting parties would pay. Could be short-term assessment
- 4) Mangrove trimming in canals is currently performed only in front of County-owned lots. Residents could request a program for regular (licensed) trimming in an entire canal or in front of private lots.
- 5) Multi-year assessments not needed for all projects, short-term 1-5 year assessments possible for lower cost projects with no O&M costs.
- 6) **Note: RESIDENTS ON PLUGGED CANALS ARE INTERESTED IN THE PROGRAM TO ASSIST IN OPENING UP THEIR CANALS**

Thank you



CANAL RESTORATION IS A PRIORITY ACTIVITY

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Florida was one of the nation's most vulnerable regions. Many, before the Homestead-Miami Defense Area was pieced together, referred to Florida as the nation's "Achilles' heel."

HM-69 was once home to a base that included 22 buildings and 140 personnel. The site, in 2004, was placed on the National Register of Historic Places.

During its 14-year tenure, HM-69 housed 18 anti-tactical ballistic

nuclear, were kept at each of the three barns.

During the March 7 festival, young visitors can participate in hands-on science and history activities, such as building and launching water rockets or completing the new Junior Nike Cadet activity book.

For a detailed schedule, event descriptions or to register for the auto show, visit the Nike Site Festival webpage at nps.gov/ever/planyourvisit/nike-site-festival.htm.



FILE PHOTO BY BRIAN BOWDEN/FREE PRESS

This Launcher Control Indicator would alert soldiers stationed in the HM-69 battery when to begin a launch sequence.

Sewer board learns of state funding opportunities

JILL ZIMA BORSKI
Contributor

KEY LARGO — Peter Rosasco, general manager of the Key Largo Wastewater Treatment District, shared an update with the district board about his recent meeting with officials in Tallahassee during Florida Keys Days to discuss appropriations that could help fund local projects.

Rosasco met with the budget analyst for the Florida House of Representatives and Department of Environmental Protection (DEP) representatives who were knowledgeable about the district's wastewater projects.

He said the Senate requires an interlocal agreement for the allocation of stewardship funds between the various Keys-wide groups seeking this state funding for regulatory permits and water quality projects.



DEP is most interested in reducing and eliminating nutrients from wastewater and that canal restoration projects in the Keys are not a high priority for these funds. However, the county previously expended stewardship funds in Big Pine Key on canals to increase tidal flushing and water quality to reduce odor and installed air curtains to manage floating seaweed.

A new round of \$20 million in state stewardship funding is expected July 1.

Regarding federal funding,

Rosasco said representatives at the Jacksonville office of the U.S. Army Corps of Engineers said \$930,000 in funds is to be available in the next few months.

Also during the board's meeting, Finance Director Connie Fazio reviewed the finance report. The district has about \$5,184,334 remaining on its state revolving fund loan used to install a centralized sewage collection and treatment system in Key Largo. The next payment of \$799,500 is due in July.

Total revenue for the district from February 2025 through January 2026 was \$8,139,405 compared to \$7,338,506 from February 2024 through January 2025.

The Florida Keys National Marine Sanctuary's Water Quality Protection Program Steering Committee is set to meet March 4-5 at Marathon City Hall regarding water quality projects and priorities in the Keys.