

# HSDRRS Permanent Canal Closures and Pumps Grand Isle West Shore Lake Pontchartrain New Orleans to Venice

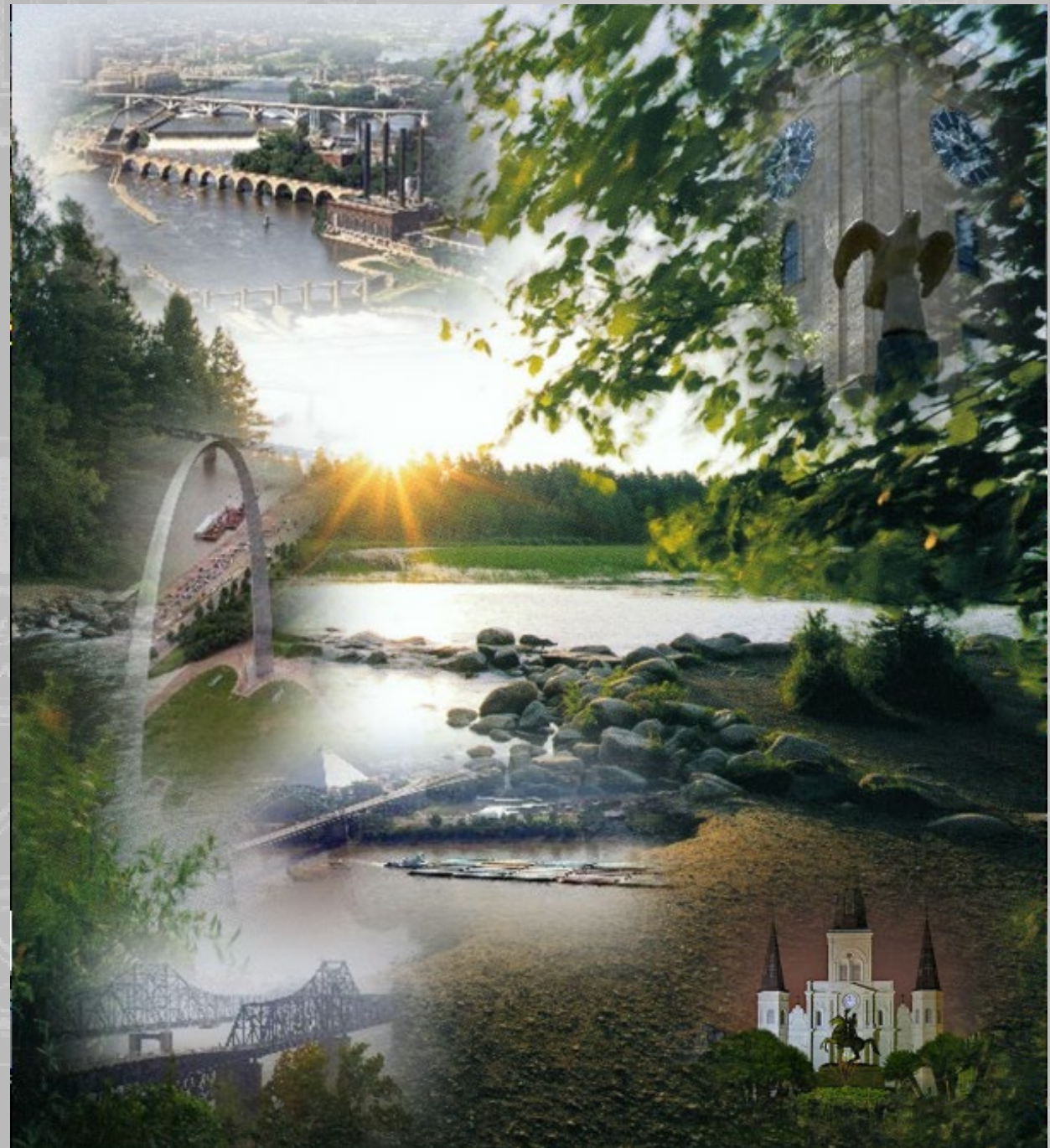
## CPRA Board Meeting

COL Cullen A. Jones, P.E., PMP  
65<sup>th</sup> Commander & District Engineer  
New Orleans District  
U.S. Army Corps of Engineers

15 Mar 2023



US Army Corps  
of Engineers®







# HSDRRS PERMANENT CANAL CLOSURES AND PUMPS







# HSDRRS PERMANENT CANAL CLOSURES AND PUMPS



① 17<sup>th</sup> St. PCCP



② Orleans Ave. PCCP



③ London Ave. PCCP

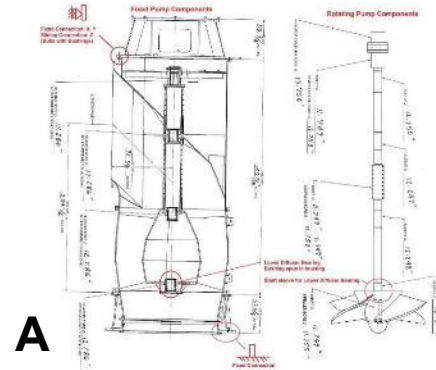


- ❑ Design-Build project began in 2013; NCC issued in 2018.
- ❑ Constructed as permanent and sustainable features for preventing surge from entering three outfall canals while allowing discharge of internal drainage into Lake Pontchartrain.
- ❑ Pumps designed to have a 35-year design life.





# LONDON AVENUE PCCP



## PCCP at London Ave. Canal Operational Status

- Designed pumping capacity: 9,000 cfs (four 1,800 cfs pumps, two 900 cfs pumps). Current capacity: 7,200 cfs.
- Maximum (nameplate) Sewerage and Water Board of New Orleans discharge capacity: 7,980 cfs.
- Required PCCP capacity for a 10-year rain event: 5,211 cfs.

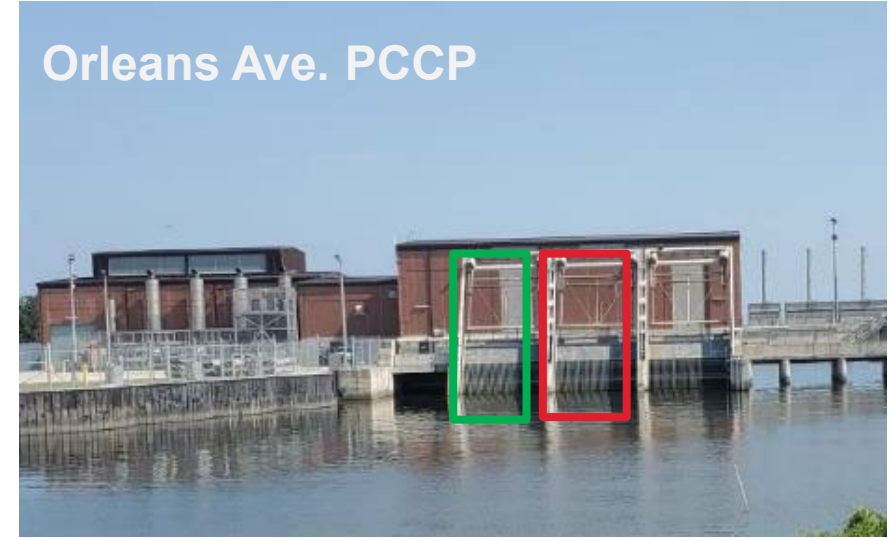
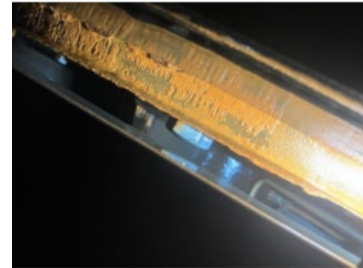
- ❑ Pump #1 removed to determine cause for overheating during maintenance and test operations. Assessment identified advanced corrosion as primary cause of overheating.
- ❑ USACE has issued a contract to repair and return Pump #1 to service.
- ❑ Additional inspections will be undertaken to assess status and reliability of remaining five pumps. Pump #3 is showing increased temperatures and will be the priority inspection.



A. 1,800 pump cross section  
 B. Diffuser section removal  
 C. Lower diffuser bearing housing with missing bolts  
 D. Lower diffuser bearing housing with loose bolts  
 E. Lower bearing housing with corrosion and edge loss



# 17<sup>TH</sup> ST. AND ORLEANS AVE. PCCP



## PCCP at 17th St. Canal Operational Status

- Designed pumping capacity: 12,600 cfs (six 1,800 cfs pumps, two 900 cfs pumps)
- Maximum (nameplate) Sewerage and Water Board of New Orleans discharge capacity: 10,330 cfs
- Existing PCCP pumping capacity: 12,600 cfs.
- Required PCCP capacity for a 10-year rain event: 9,527 cfs.

## PCCP at Orleans Ave. Canal Operational Status

- Designed pumping capacity: 2,700 cfs (three 900 cfs pumps)
- Maximum (nameplate) Sewerage and Water Board of New Orleans discharge capacity: 2,690 cfs
- Existing PCCP pumping capacity: 2,700 cfs.
- Required PCCP capacity for a 10-year rain event: 2,455 cfs.

- ❑ Inspection of 900 cfs pumps at Orleans Avenue to be completed week of March 13, 2023. Inspections of 1,800 pumps will begin with arrival of 1,800 cfs stoplogs (anticipate the week of March 20, 2023).
- ❑ Initial inspections at 17<sup>th</sup> St. and Orleans Ave. do not indicate same level of corrosion as with London pump #1 nor potential failure risk for the 2023 Hurricane Season.





# CONTINGENCY ALTERNATIVES



Evaluation of options if PCCP pump capacity is less than Sewerage and Water Board pumping discharge

## Alternative 1: Modified Operations

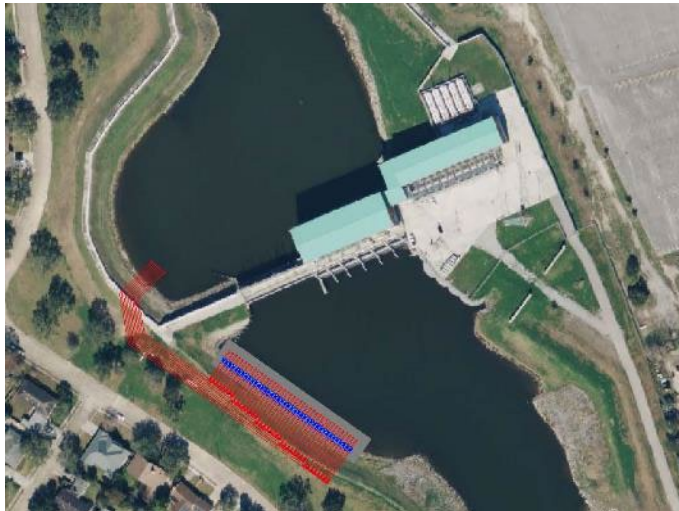
- London Ave.: Increase gate close trigger from 3' to 4.5' and rising in Lake Pontchartrain.
- 17<sup>th</sup> St.: Increase gate close trigger from 4' to 5' and rising in Lake Pontchartrain
- Orleans Ave.: Increase gate close trigger from 4' to 5' and rising in Lake Pontchartrain.

## Alternative 2: Temporary Pump Support

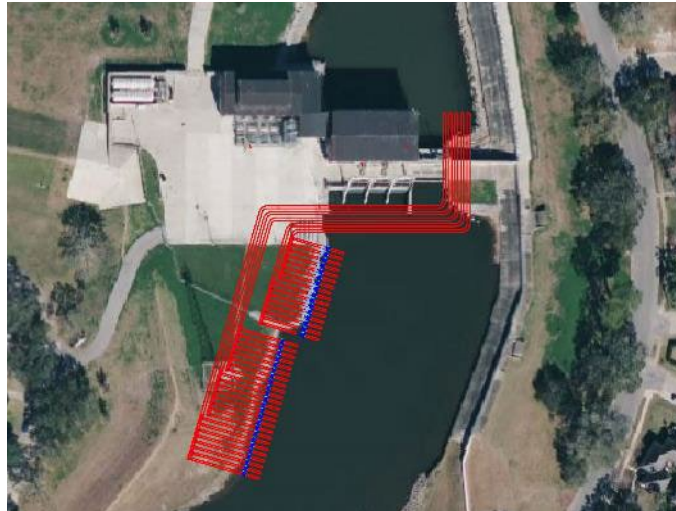
- Preliminary concept requiring design and geotechnical evaluation.
- Forty 25 cfs submersible hydraulic pumps (640 to 1000 cfs of additional pump capacity).

## Alternative 3: Combination of alternatives 1 and 2.

London Ave. PCCP



Orleans Ave. PCCP



17<sup>th</sup> St. PCCP





# PATH FORWARD



## Inspection and assessment

- Complete inspection assessments (being accomplished by the design-builder).
- Identify root cause for advanced corrosion.
- Obtain HQUSACE concurrence with revised Design Deficiency.

## Temporary repairs

- Complete temporary repairs prior to 01 June 2023.

## Long-term repairs

- Develop scope and estimate for design.
- Solidify funding for permanent fix.
- Complete design for permanent fix to ensure 35-year life.
- Execute contract (anticipate construction to potentially last >2 years due to likely limiting of work outside hurricane season).

## Contingency operations

- Finish refinement of plan (keep flexible as ground situation changes).



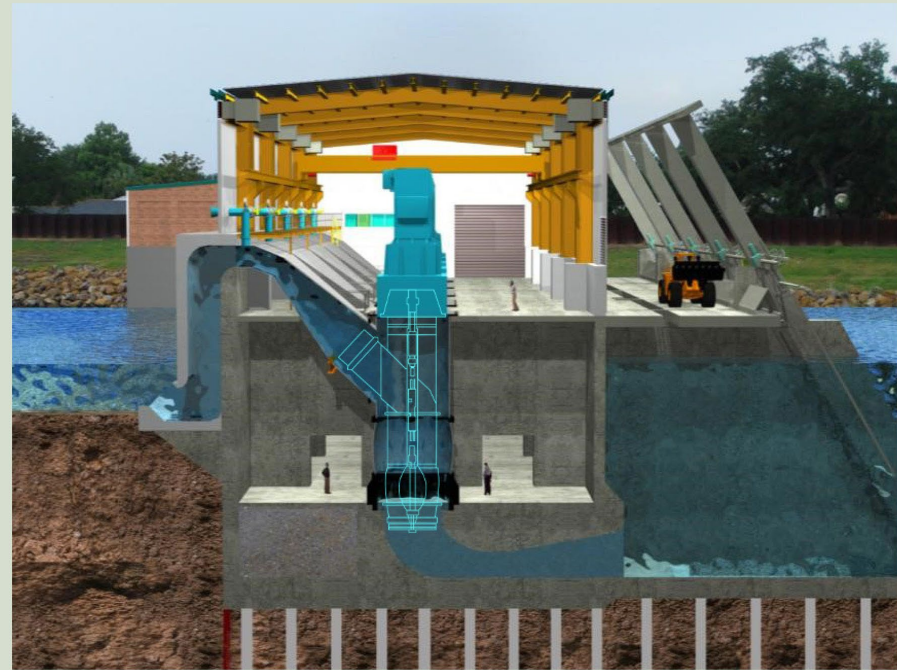
# OUTREACH AND ENGAGEMENT



## Inspection and repair timeline (subject to change)

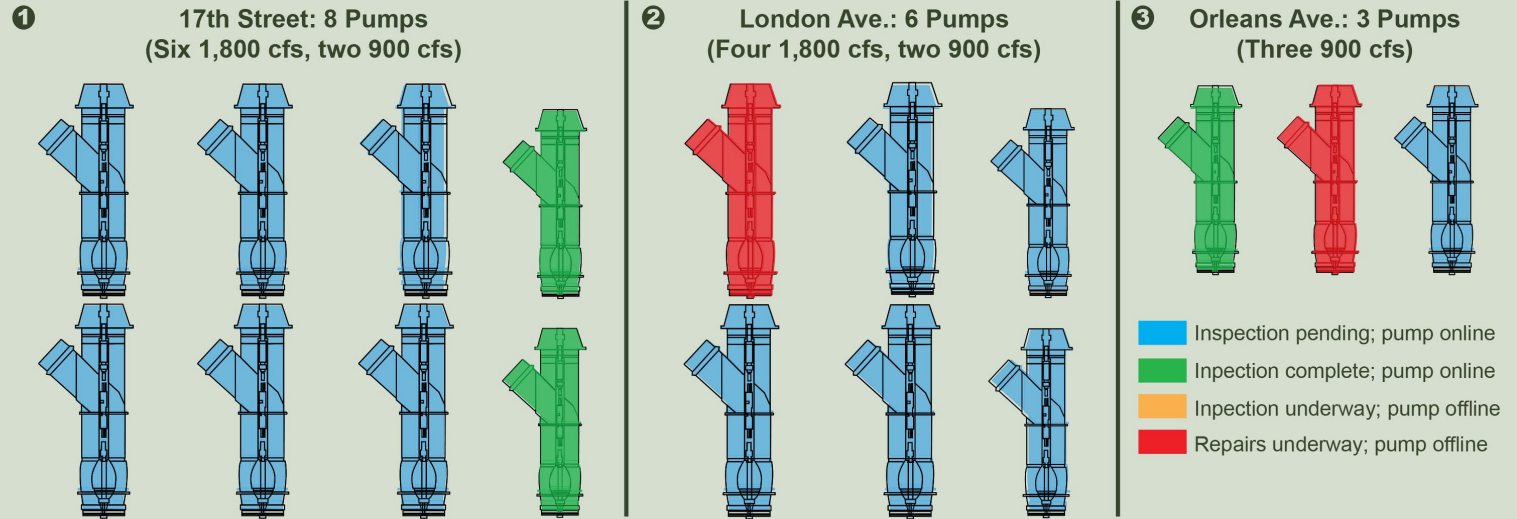
900cfs pump inspections underway (Orleans and 17th)

900cfs pump inspections complete



### Pump Inspection and Repair Tracker

USACE and its partners are inspecting each of the 16 remaining PCCP pumps for deterioration and the ability to perform as designed this hurricane season. Once visual inspection of each pump is complete, USACE will work with its partners to identify the best path forward. Concurrently, USACE has issued a contract for full repair of London Ave. Pump #1.



As of 09 March 2023

## Cooperation, Collaboration and Communication

- ❑ Ensure open and transparent communication throughout the process.
- ❑ Provide regular and recurring updates to partners, stakeholders and the public directly as well as through traditional and social media channels.





# GRAND ISLE POST-HURRICANE IDA REPAIRS



## Ongoing Repairs

- Interim repairs to 12 locations are nearing completion.
  - Repairs included installation of supersack sandbags and restoring the dune section at 12 locations. Anticipated Completion – end of March 2023.
  - The interim repairs will remain in place until the upcoming dune repair work is completed.

## Upcoming Repairs

- Stone Repair Contract:
  - Installation of 2,200 LF of stone dune core, repairs to existing breakwaters, repairs to the western jetty.
  - Anticipated Contract Award – early April 2023; Anticipated Construction Start - June 2023.
  - Anticipated Construction Duration – 270 days.
- Dune Core Construction / Beach Nourishment Contract:
  - Installation of 21,000 LF of clay-filled geotextile core (western half of the project), repairs to the sand-filled geo-tube (eastern half of the project) and restoration of the 7-mile dune and beach.
  - Anticipated Contract Award – late May 2023; Anticipated Construction Start - July 2023.
  - Anticipated Construction Duration – 400 days.



# GRAND ISLE INTERIM REPAIRS

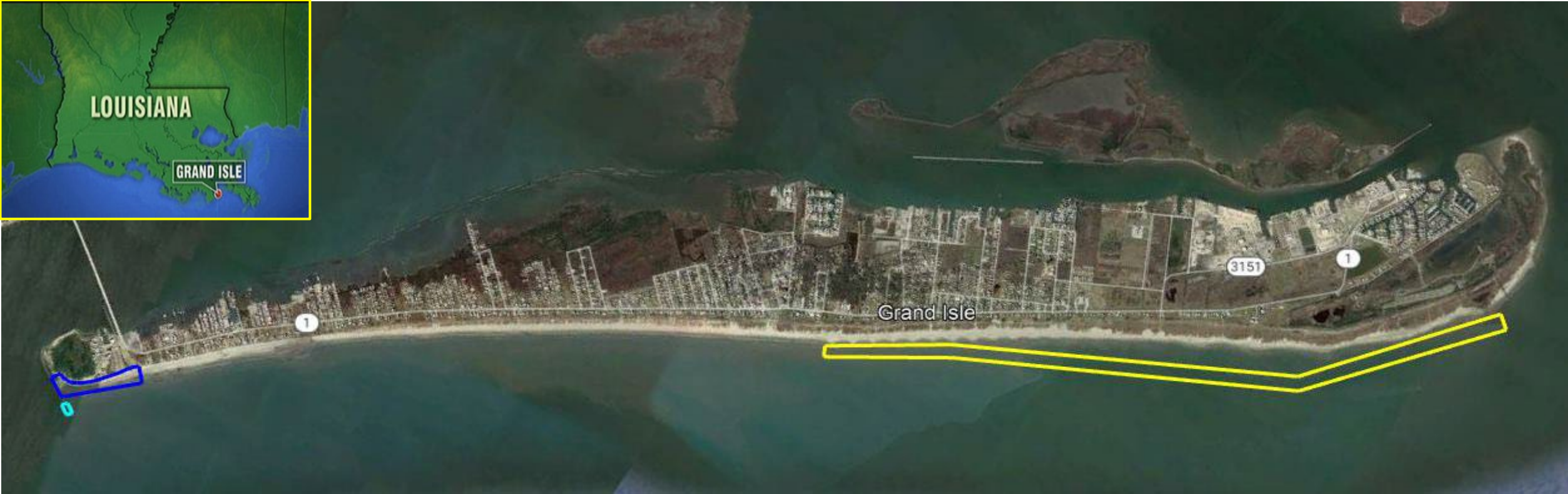


**INTERIM REPAIRS**  
12 Locations  
Repairs to dune foundation w/  
installation of supersack sandbags





# GRAND ISLE UPCOMING REPAIRS (STONE CONTRACT)

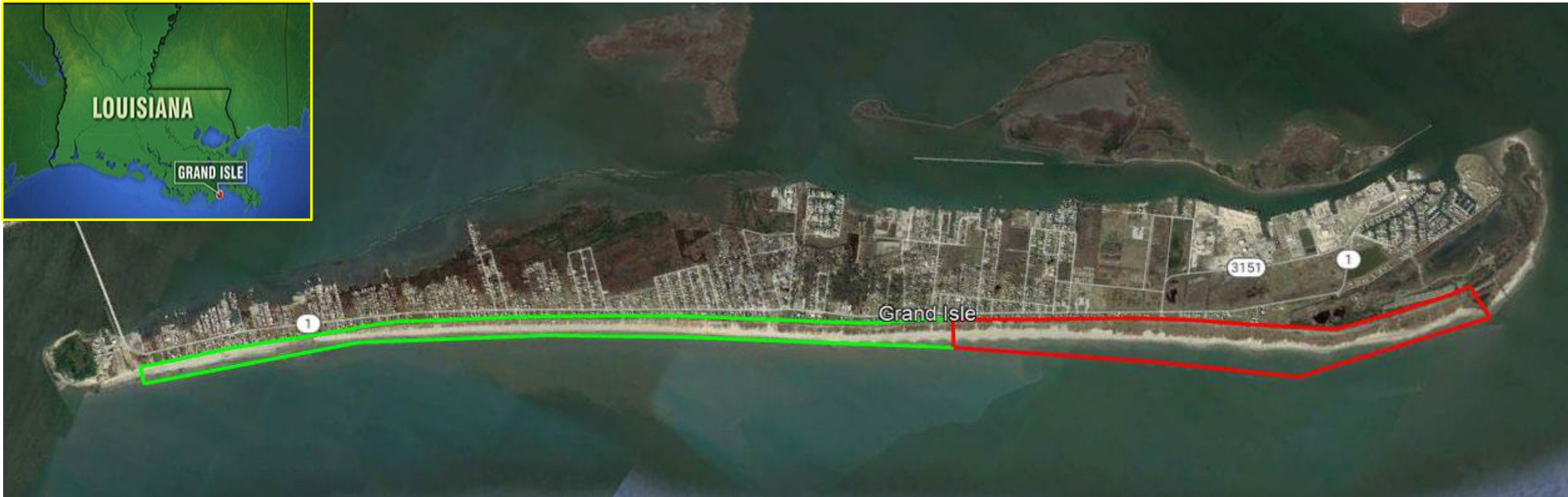


### Upcoming Repair/Construction Actions

- Reach 1:** Sand Dune with Stone Core
- Breakwaters:** Repair existing breakwaters
- West Jetty:** Repair existing jetty



# GRAND ISLE UPCOMING REPAIRS (DUNE CORE REPAIRS/BEACH NOURISHMENT CONTRACT)



### Upcoming Repair/Construction Actions

- Reach 2:** Sand Dune with Clay Core
- Reach 3:** Repair/Cover existing Geo-tube with sand



# GRAND ISLE PROJECT RE-EVALUATION

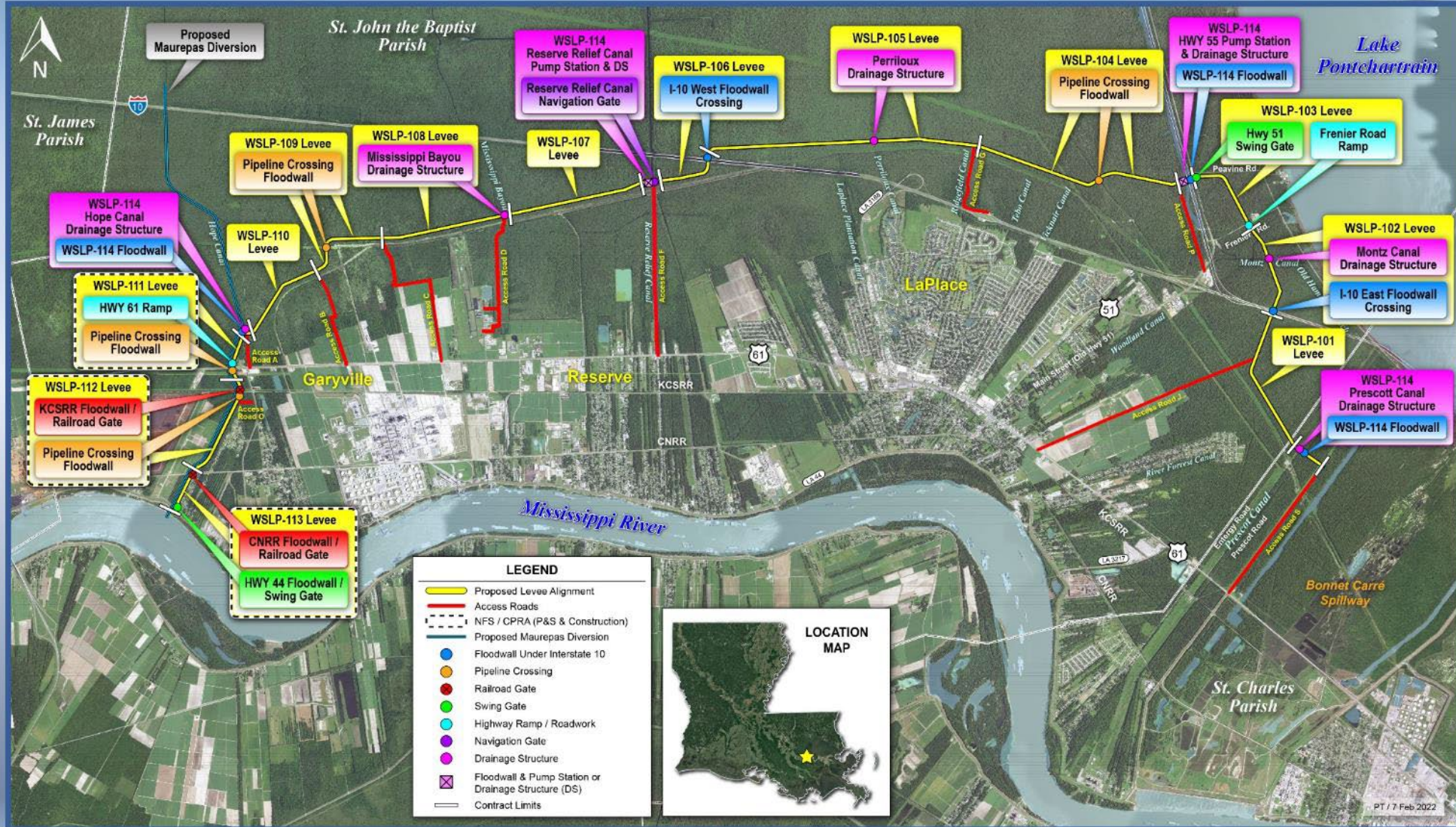


- Evaluate alternatives to further reduce the flood risk for Grand Isle as well as increase performance of the existing project.
- Timeline to completion of the Re-Evaluation ~ 3 years.
- Potential alternatives include but are not limited to the following:
  - New offshore breakwaters
  - Extension of West Jetty
  - Periodic nourishment
  - Seawall
  - Modify Caminada Pass
  - Sand engines
  - Increase dune elevation and cross-section
  - Jetties and groins





# West Shore Lake Pontchartrain







# WEST SHORE LAKE PONTCHARTRAIN



## Construction Status Update

- Completed Work
  - WSLP-101 Test Section Contract – Completed June 2022.
  - Access Road Contract – Completed March 2023.
  - Sand Placement 1 and 2 – Completed in December 2022/January 2023.
  - Stockpile Contracts – two of the three complete.
  - Pile Load Test Contract – Contractor has mobilized to the site.
  
- Additional Construction Contracts
  - WSLP 110 contract was awarded on December 21, 2022.
  - WSLP-107 is scheduled for award on March 16, 2023.
  - WSLP-101a was Advertised on February 22, 2023.
  
- Other Items
  - St. James Parish – Surveys and Borings complete, beginning geotechnical analysis/design.
  - Port of South Louisiana Airport runway extension – design funds received from CPRA/PLD.



# WSLP CONSTRUCTION PHOTOS



SP2 Sand base placed along levee alignment



Clay Stockpile 1 on access Road J

Previously cleared levee alignment





# WSLP PRELIMINARY LEVEE CONSTRUCTION SCHEDULE

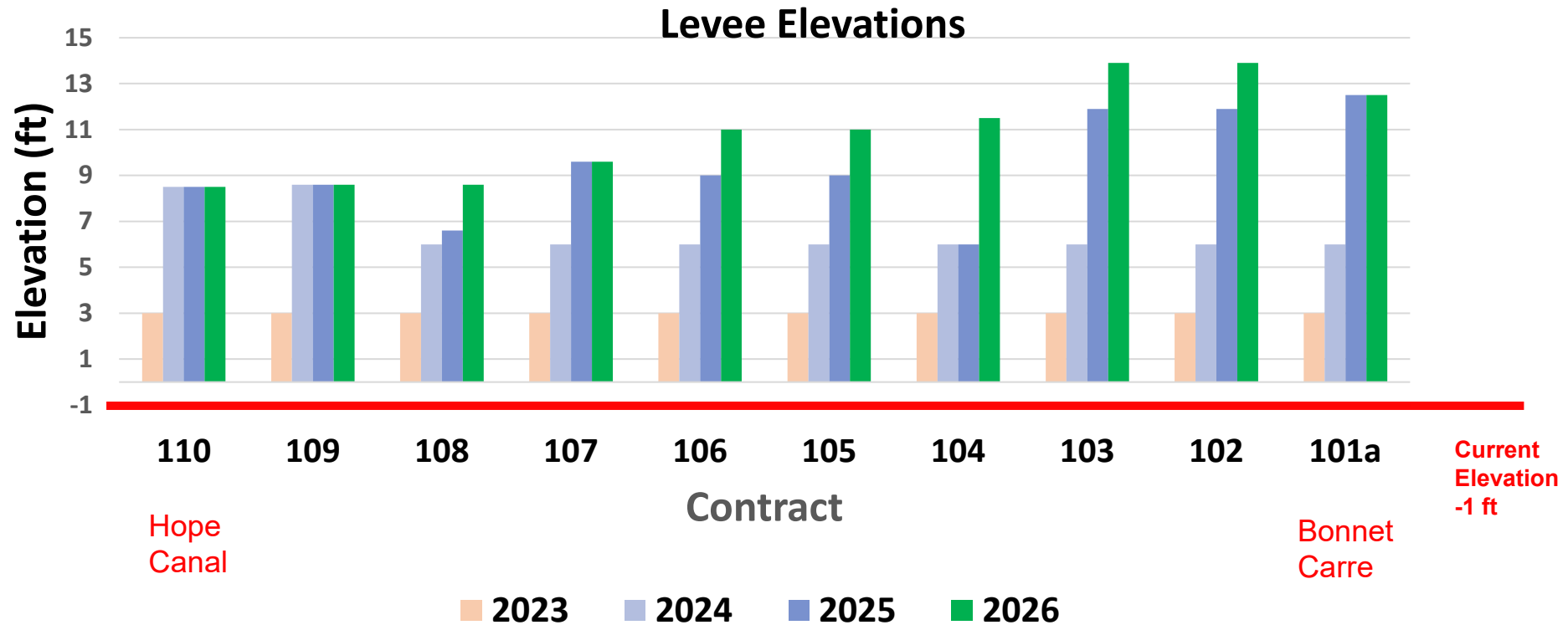
Existing elevation approx. -1 feet

2023: Construct 3 foot sand base and begin levee construction

2024: Levee built to heights around +6 feet

2025: Levee built to heights ranging +6.6 to +12.5 feet

2026: Levee built to full heights





# WSLP PROJECT RE-EVALUATION



- Focused on resiliency for entire project.
- Feasibility Cost Share Agreement (FCSA) executed on February 27, 2023.
- \$450M set aside for future use.
  - Recommended plan must be economically justified and environmentally acceptable.
  - Potential to look at additional alternatives in St. James Parish that are economically justified.
  - Met with St. James Parish personnel on February 1, 2023 to discuss the parishes plans to connect the ring levees.









# NOV – FUTURE WORK



DRSAA will fund the construction completion of:

- 10 contracts to authorized grade (50-yr LORR) at full Federal expense.
- Some previously/being constructed to 25-yr LORR.

Includes \$783 M for:

- Levee construction on 7 levee reaches:
  - NOV-NF-W-05a.1, Levee
  - NOV-NF-W-05a.2, Levee
  - NOV-NF-W-06a.1, Levee
  - NOV-NF-W-06a.2, Levee
  - NOV-NF-W-06a.3, Levee
  - NOV-10, Levee
  - NOV-11, Levee
- Fronting Protection (FP) at Pumping Stations (PS):
  - NOV-02, FP Floodwall @ PS
  - NOV-06b, FP Floodwall @ PS
- Replacement of I-walls with T-walls:
  - NOV-15, T-Wall

Regional Work performed by MVM:

- MVN maintains lead for sponsor coordination.
- PDT initiating surveys and borings on 4 contracts.

