Status of HSDRRS and NOV Mitigation Projects in St. Tammany Parish

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LPV/WBV/NOV Mitigation Overview

- USACE-led mitigation for wetland damages incurred during construction of the Hurricane & Storm Damage Risk Reduction System (HSDRRS) and New Orleans to Venice (NOV) levee systems.
  - Lake Pontchartrain and Vicinity (LPV)
  - West Bank and Vicinity (WBV)
  - New Orleans to Venice (NOV)

- Per WRDA 2007 and Section 404 of the Clean Water Act, compensatory 'in kind' mitigation required:
  - Replacement of lost habitat functions with same habitat type – marsh, bottomland hardwood forest (BLH), swamp
  - Replacement within the same watershed where impacts occurred

- Mitigation acres ≠ impacted acres; WVA process used to determine quality (AAHUs) of acres impacted vs. acres mitigated

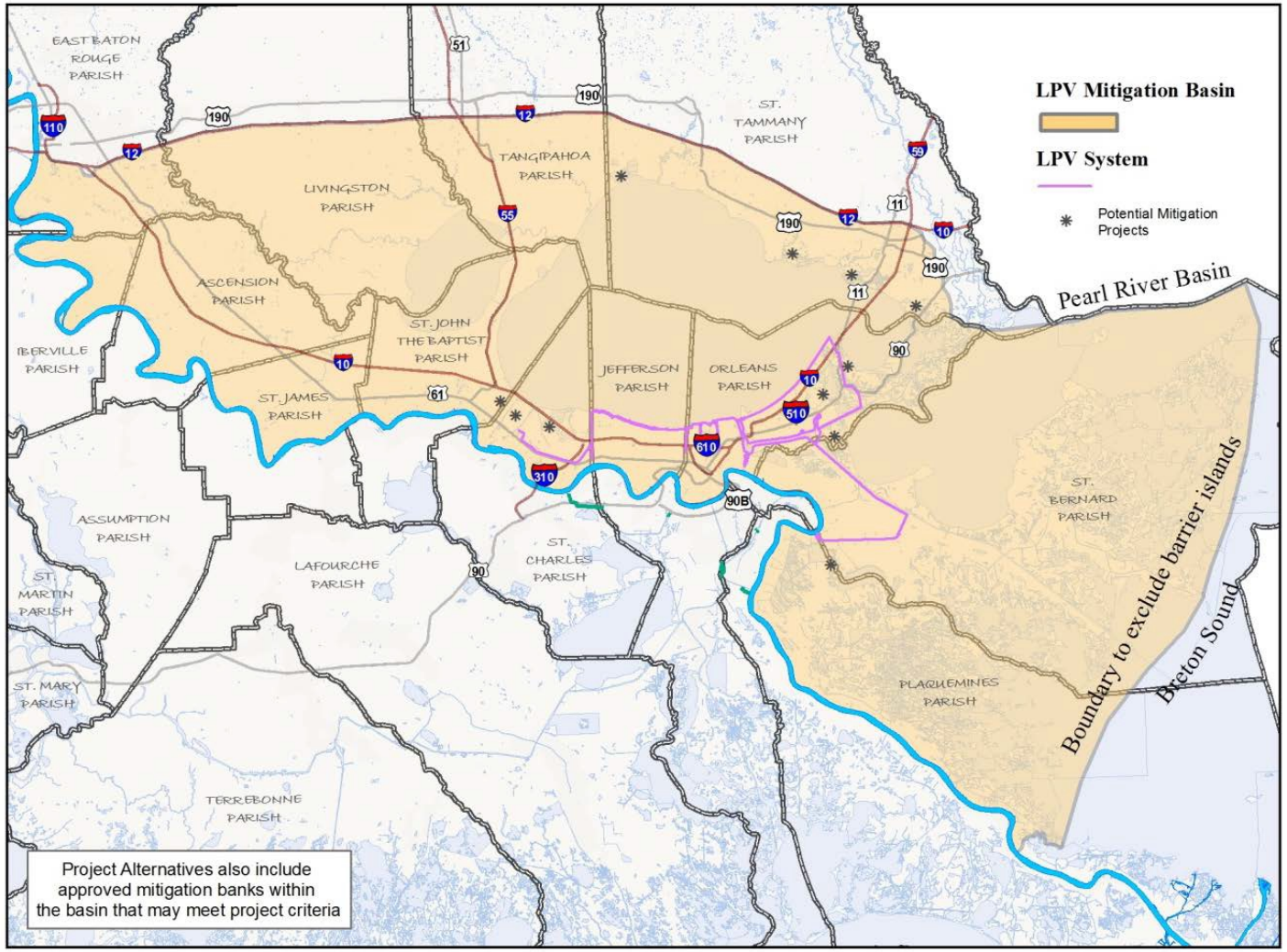
Why mitigate for south shore impacts in St. Tammany Parish?

- Coastal zone areas within St. Tammany are within the same watershed where impacts occurred

- Tiered approach for selecting projects:

  1) mitigation bank purchase
     - limited by availability in required watershed, required habitat, and cost

  2) USACE-constructed mitigation -- habitat creation, restoration, or enhancement



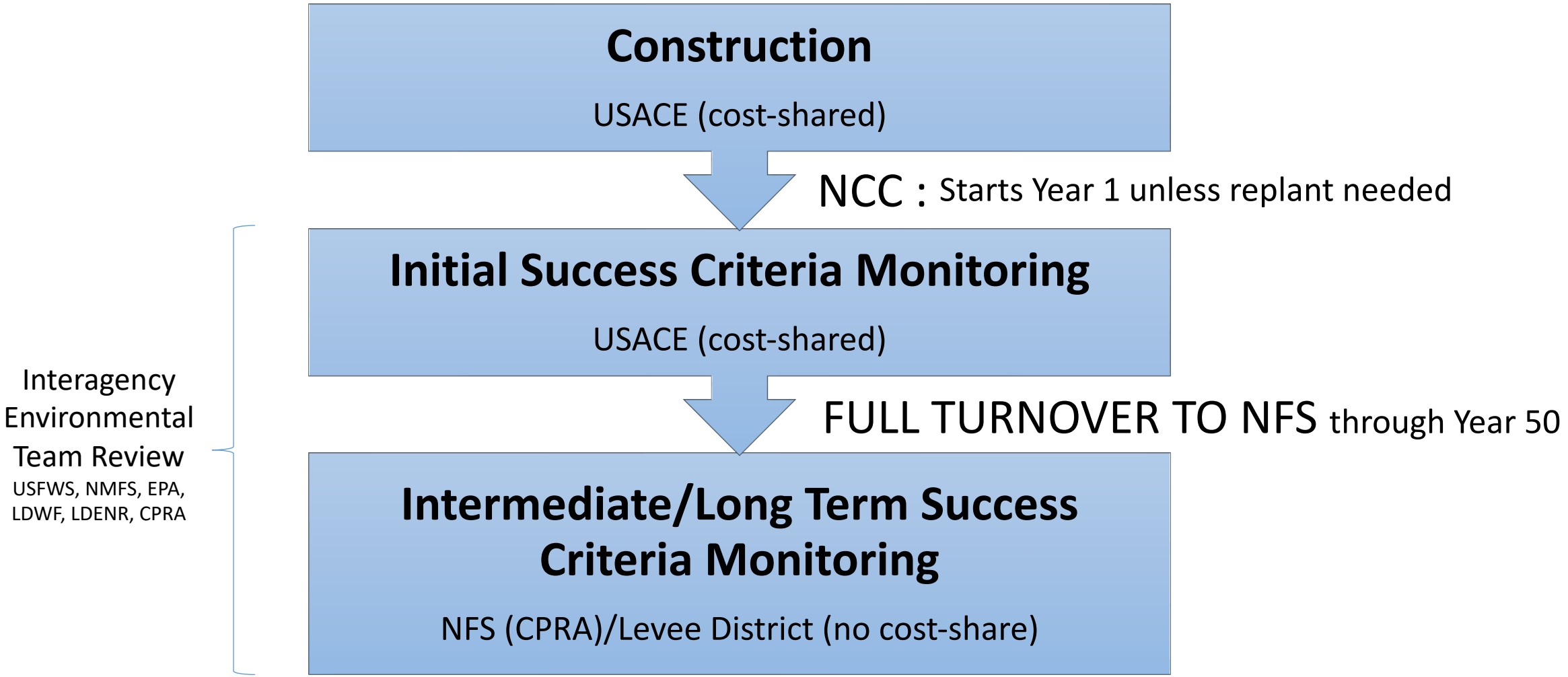
LPV Mitigation Watershed

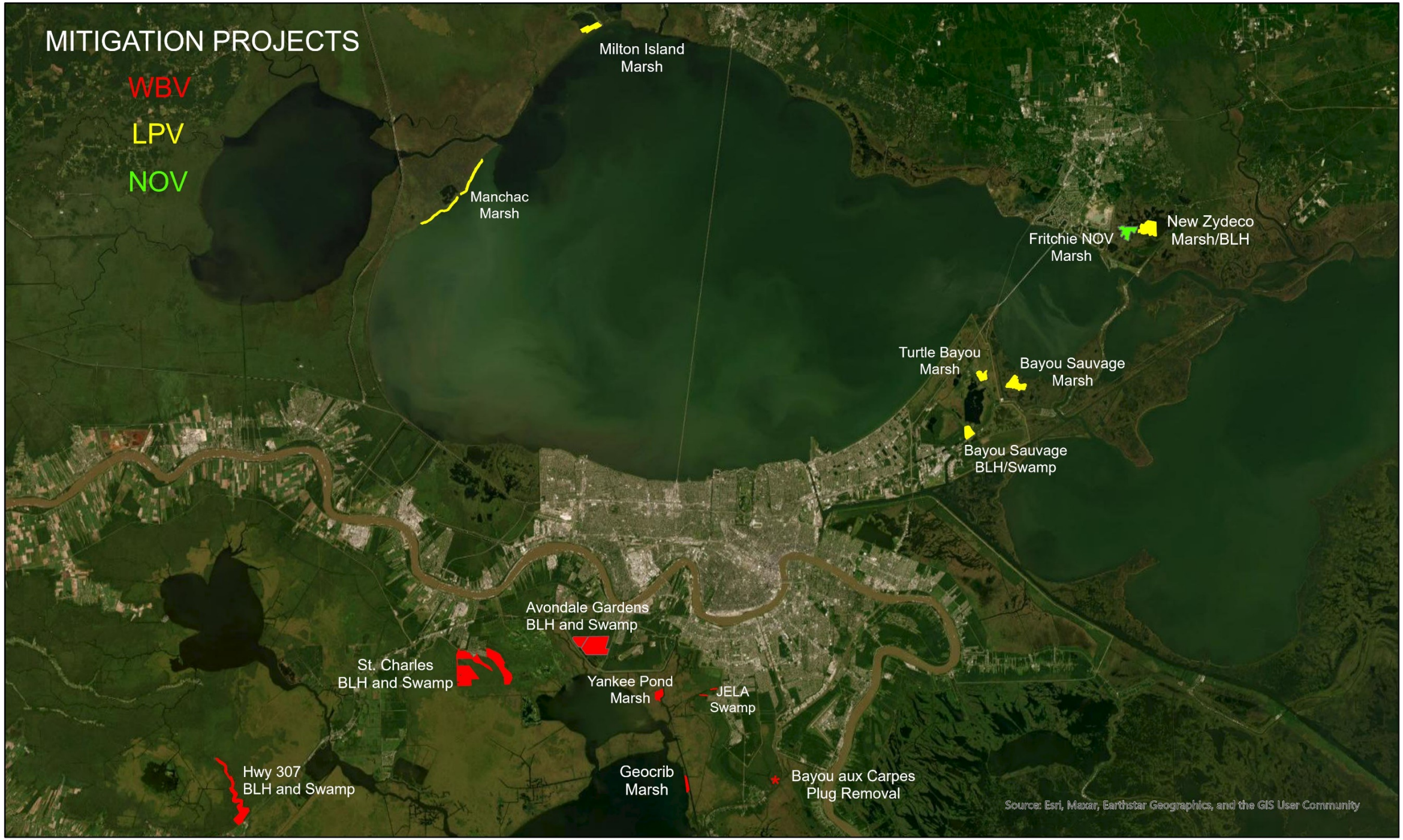
Source: PIER#36 USACE

What is CPRA's role?

- As Non-Federal Sponsor, CPRA is required to ensure that all mitigation success criteria are achieved following turnover (oversight agency) for the 50-year project life.
- Similar to the process for levees, each local levee authority is responsible for implementation/funding of required post-turnover O&M and monitoring for mitigation projects associated with impacts within their district.

Construction and Turnover Process

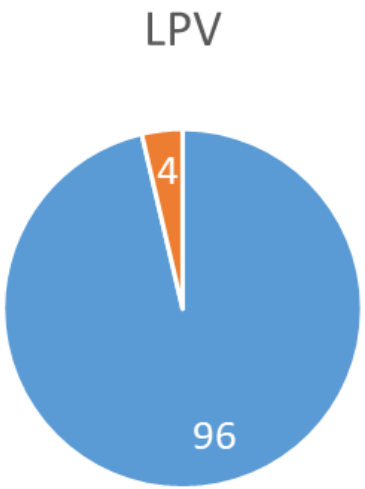


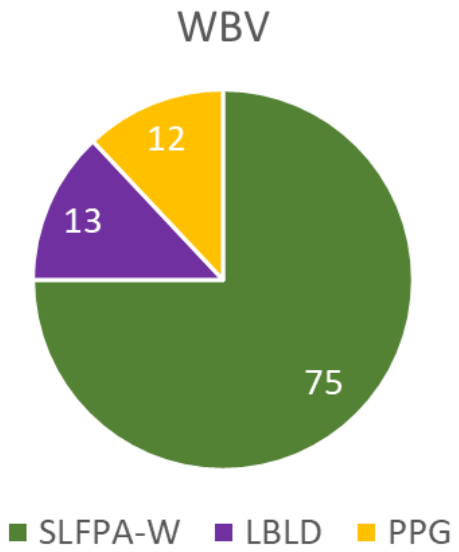

MITIGATION PROJECTS
WBV
LPV
NOV
Milton Island Marsh
Manchac Marsh
Fritchie NOV Marsh
New Zydeco Marsh/BLH
Turtle Bayou Marsh
Bayou Sauvage Marsh
Bayou Sauvage BLH/Swamp
Avondale Gardens BLH and Swamp
St. Charles BLH and Swamp
Yankee Pond Marsh
JELA Swamp
Hwy 307 BLH and Swamp
Geocrib Marsh
Bayou aux Carpes Plug Removal
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

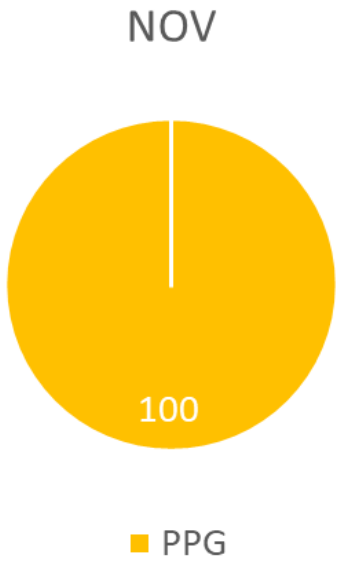
WBV/LPV/NOV Mitigation Scorecard

Status	*# of WBV Projects*	*# of LPV Projects*	*# of NOV Projects*
Bank Purchases	**1** **+ 2 in progress**	**2**	**15**
Active Constructed Projects	**6** **excluding 2 failed**	**7**	**1**
Turnover Complete	**3**	**6**	**0**

District Responsibility for OMRR&R







- % responsibility based on relative quantity of impacts within each district
- CPRA has been working with the local levee districts regarding OM&M responsibilities

Major OMRR&R Items and Estimated 50-yr Cost

1. **Vegetation Monitoring**
   - Most projects; every 5 years once intermediate success is achieved
2. **Herbicide Treatments (as needed)**
   - To control invasive/nuisance plants; greatest need early in project life, particularly for forested projects
3. **Topographic Surveys**
   - Spoil bank gaps, shoreline protection structures
4. **Site-Specific O&M**
   - Dike lifts
   - Perimeter mowing
   - Clearing of culverts, ditches, fish dips & gaps
   - Replacement/repair of access bridges and roads
   - Security
5. **Potential Remedial Actions**
   - Tree thinning, vegetative plantings

	# of Projects	Post-Turnover OM&M (+35% contingency) *	Avg. OM&M cost/yr*
LPV	7	$41,006,712	$891,450
WBV	6	$47,767,018	$1,038,413
NOV	1	$3,807,104	$82,763

*Approximate turnover at Year 4 (46 years of OMRR&R)

Milton Island Intermediate Marsh Creation

Milton Island Marsh Restoration Mitigation Project (LPV-EVM-08/08a)

Project Boundary
Culverts (5)
Fish Dips (3)
Staff Gauge (3)
Vegetation Quadrats (60)

300 150 0 300 Meters

1,000 500 0 1,000 Feet

Map Source:
CPRA New Orleans Regional Office
Background imagery: DOQQ 2018
Map Date: November 28, 2023

- 143 acres of intermediate marsh creation using ~1M CY borrow from Lake Pontchartrain
  - 5 culverts
  - 3 fish dips
  - 1,000’ shoreline reinforcement
- 2015-2017: Marsh construction to +3’ initial fill with settled target 1’ to 1.5’
- 2018: Dike degrade/culverts/ fish dips/NCC
- 2019: USACE Initial Success Vegetation Monitoring
- 2023: Turnover

Milton Island Intermediate Marsh Creation

Milton Island Intermediate Marsh Creation

Mitigation Success Criteria

Topography

- Initial Success: 80% of the marsh platform within +0.5 to -0.25 ft of the design settlement curve.

Native Vegetation

- Initial Success: At least 50% coverage native, herbaceous vegetation
- Intermediate/Long Term Success: At least 60% coverage native, herbaceous vegetation

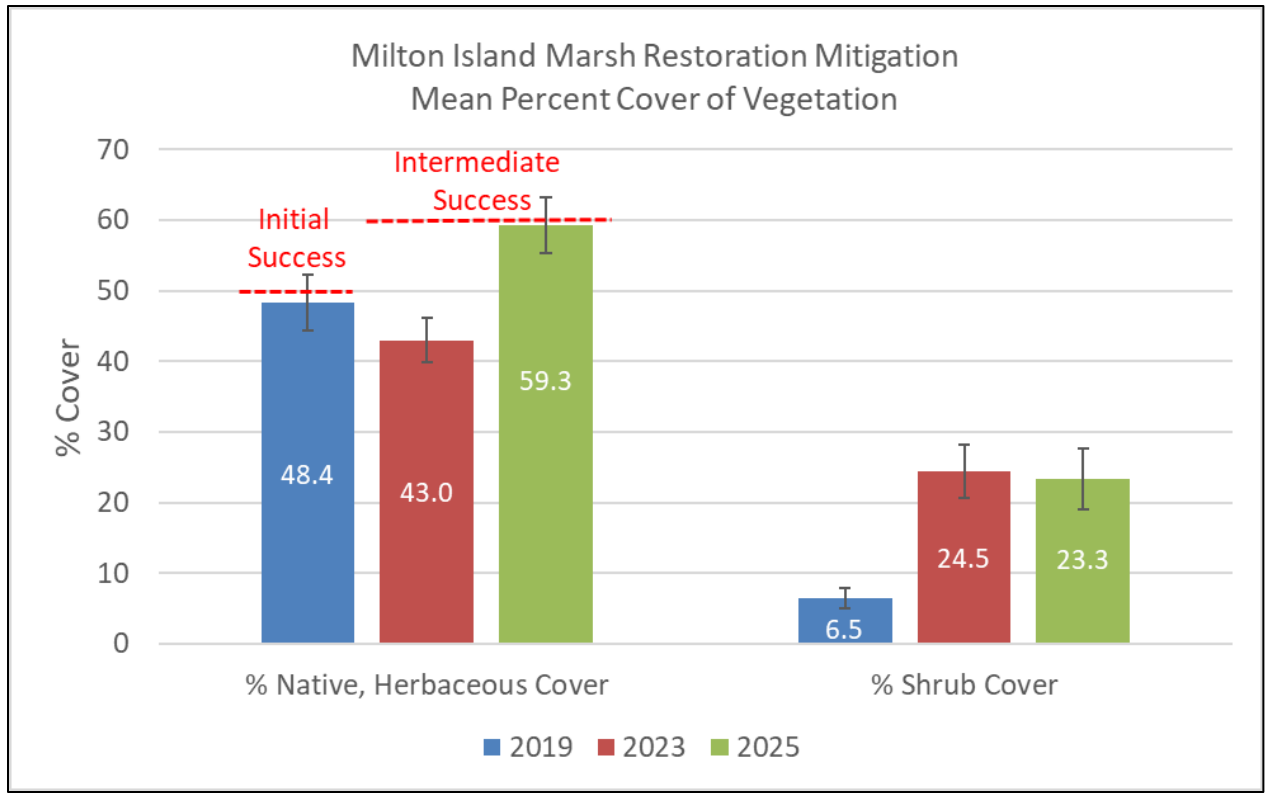
Invasive and Nuisance Vegetation

- Initial/Intermediate/Long Term Success: Invasive and nuisance vegetation cover <5% of total plant cover

Topography Success Criterion

- 2020 topographic survey (mean +1.4’) showed significant elevation variation across the site
- Initial Success Criterion: only 43% within successful range based on settlement curve; less than 80% required
- Re-evaluation of benefits based on functional marsh range (CRMS intermediate marsh range) showed project would still meet the mitigation need (45.7 AAHUs)
- Potential concern for meeting vegetation criterion in high/low areas

Vegetation Success Criterion

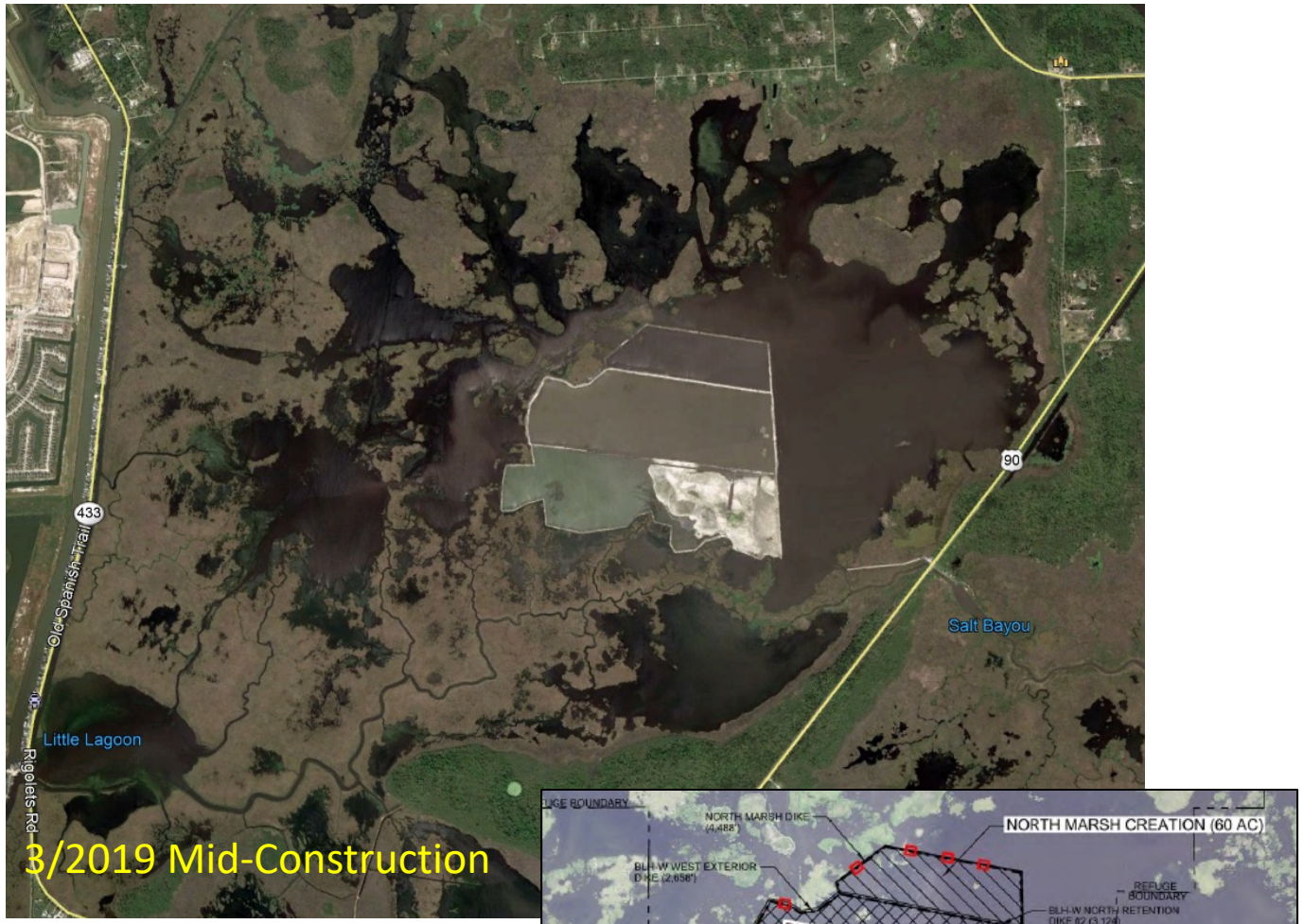


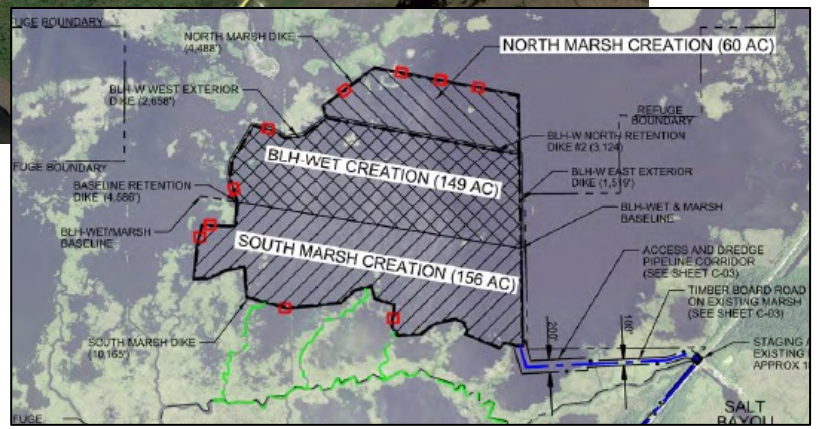
- Plant cover estimated within 60 plots in 2019 (USACE), 2023 (CPRA), 2025 (CPRA)
- Initial Success achieved by margin of error in 2019
- Intermediate Success not achieved in 2023; extreme drought and woody vegetation were potential factors
- Shrub cover (Baccharis, wax myrtle) increased sharply by 2019, but stabilized by 2023
- Intermediate success achieved by margin of error in 2025
- Invasive/nuisance cover has remained <1%; USACE herbicide treatment in 2020

Milton Island Marsh Creation Facing East

Milton Island Marsh Creation Facing West

New Zydeco Ridge BLH & Marsh Creation Project



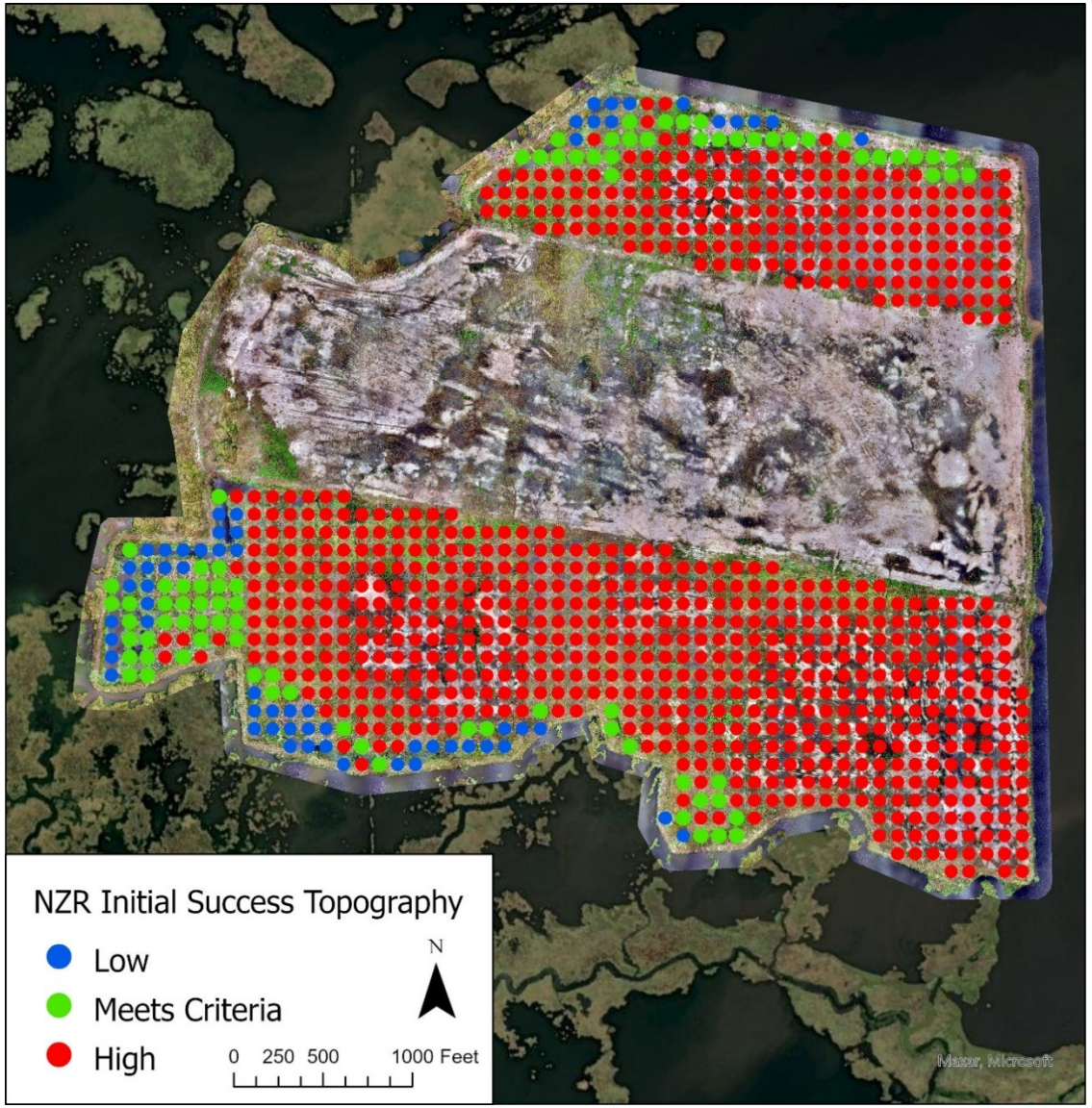


- 220 acres intermediate/brackish marsh and 160 acres BLH creation in Big Branch NWR using ~3.3M CY borrow from L. Pontchartrain

- **2017-2020:** Marsh fill to +2.75', BLH fill to +5.25', and degrade of exterior dikes
- **2020 March:** BLH planting (~61,000 trees/shrubs)
- **2020 June:** NCC
- **2022:** Failed Initial Success (marsh veg <50% and very low BLH planting survival)
- **2024:** Additional dike degrading/gapping
- **2023/2024:** USACE achieved Initial Success Vegetation Criteria (marsh only)
- **2025:** Turnover of marsh area

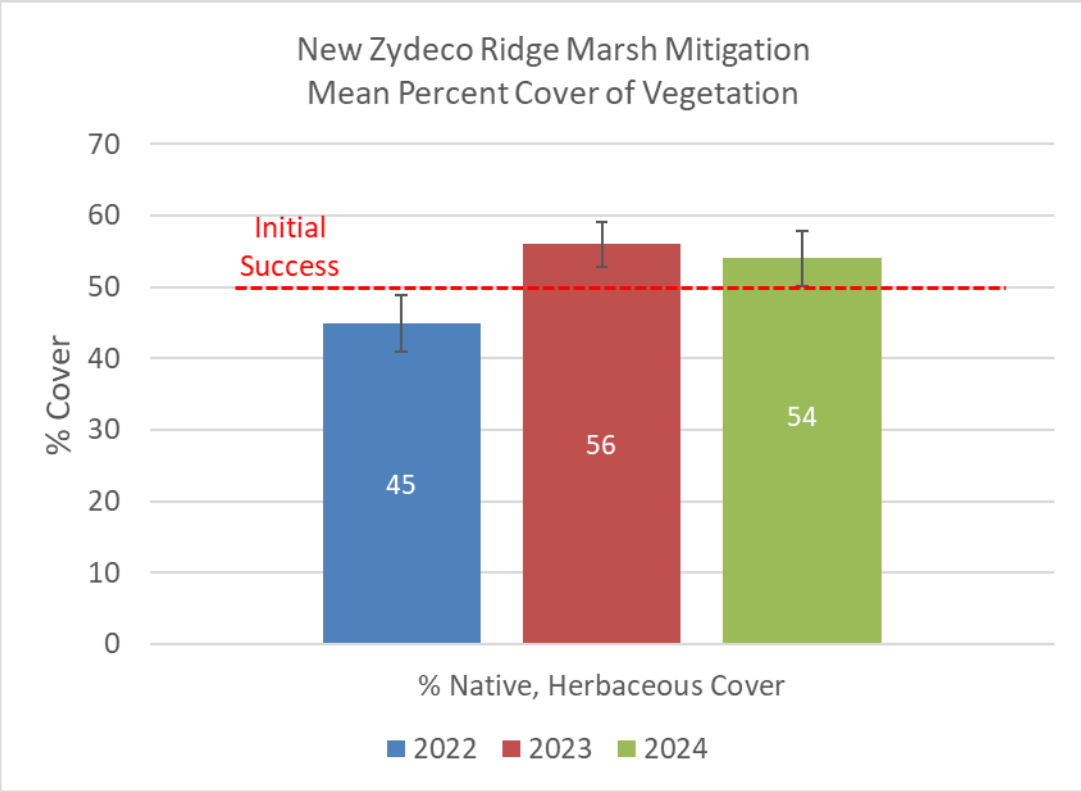
New Zydeco Ridge BLH & Marsh Construction

NZR Marsh Topography Success Criterion



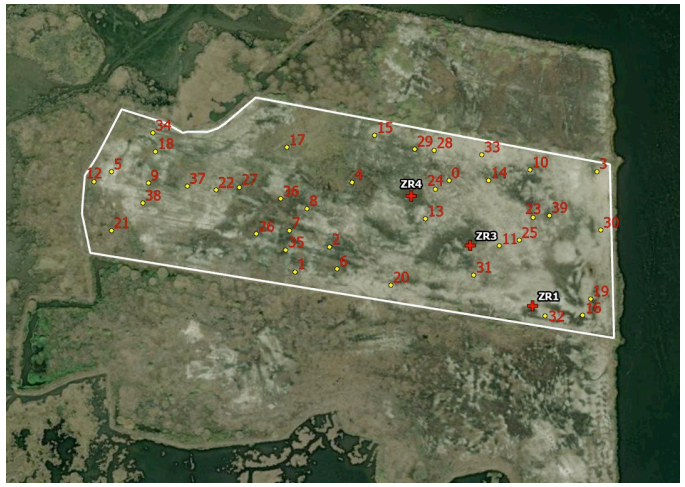
- 2021 elevation survey showed higher elevations than anticipated by the settlement curve
- Failed Initial Success Criterion: only 10% of points within range; 80% required
- Re-evaluation of habitat benefits based on functional marsh range (CRMS tidal range) showed a reduction in project benefits from 65.99 to 52.26 AAHUs

NZR Marsh Vegetation Success Criterion



- Plant cover estimated by USACE within 60 plots in 2022, 2023, 2024
- Despite elevation issues, native, herbaceous vegetation coverage was over the 50% required in 2023/2024, so vegetation success was achieved.
- Invasive/nuisance cover was <1% for all sample events; herbicide treatment was conducted in May 2021
- CPRA/FPA-E will sample vegetation in 2026 for intermediate success

NZR Bottomland Hardwood Creation



- Replant needed due to low seedling survival
- USACE soil chemistry and water table monitoring is ongoing to determine when replant can occur
- Soil salinity is improving, but pH remains too high and organic matter is very low
- 15,000 grass plugs planted in 2023 to improve soil condition
- Earliest possible replant next winter 2026/2027; turnover ??

NOV Fritchie Marsh Creation

- Project will satisfy remaining NOV mitigation need (106.9 AAHUs) besides bank purchases
- 294 ac intermediate/brackish marsh creation
  - 2.75’ max fill height
  - Dikes degraded
  - 8 gaps to improve water exchange
  - ~2.1 M CY dredging
- Contract Award: 9/29/24
- NTP: 10/16/2024
- Final Inspection: 9/25/25
- USACE plans to construct a trenasse feature ~late 2026/early 2027
- USACE vegetation sampling in 2027

NOV Fritchie Brackish Marsh Creation

NOV Fritchie Brackish Marsh Creation

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