Funding Nature-Based Solutions - Enhancing Wetlands for Floodplain Storage in Panama City

Panama City, Florida

October 30, 2024

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Introductions

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The City of Panama City

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Hurricane Michael

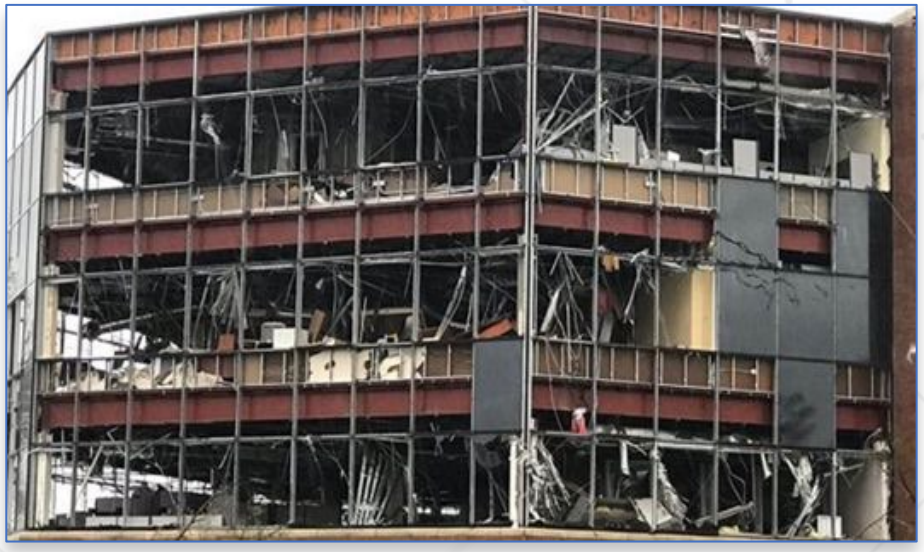
October 10, 2018

Category Five Hurricane

Maximum sustained winds of 161 mph

5-19 feet of storm surge

10-13 inches of rain



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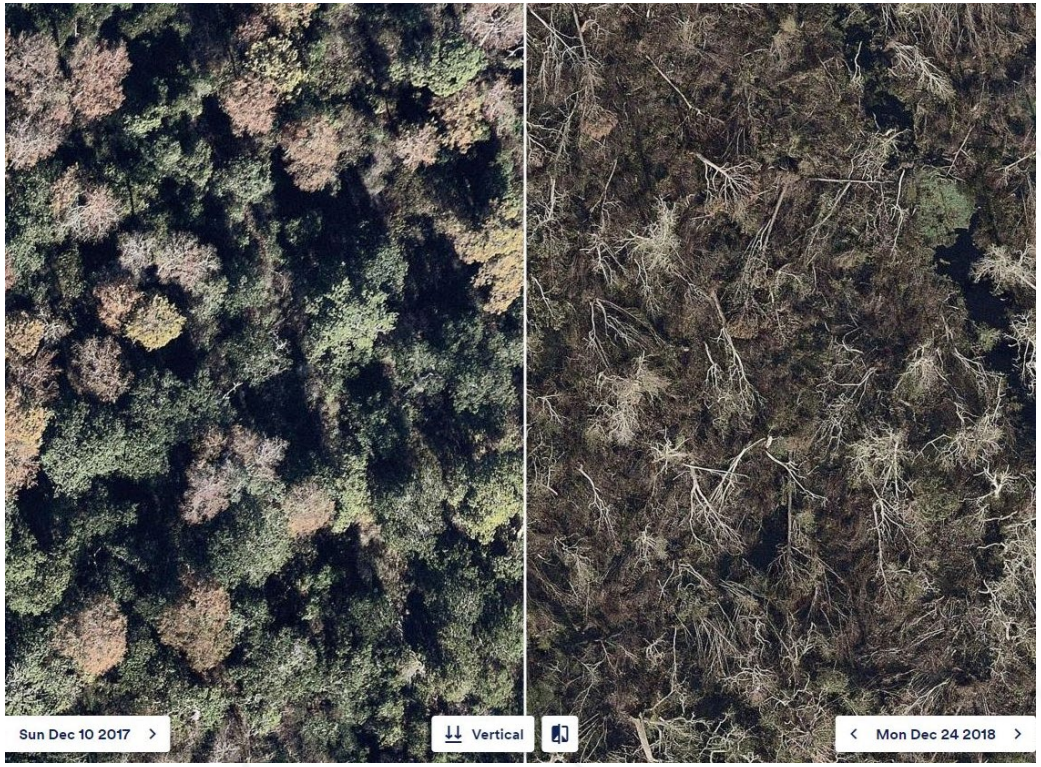
Post-Hurricane Michael Actions



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Project Background – Project Development

Robinson Bayou Basin

90% Tree loss

1-2 foot increase in natural water table

Significant increase in invasive species

City desired to rebuild natural floodplain

Project Background - Primary and Secondary Benefits

- Reduced flood risk to property and infrastructure
- Increase in quality and quantity of wetland area
- Implementation of nature-based solutions
- Improved water quality
- Reduced wildfire risk
- Enhance wildlife habitat

Project Background – Grant Award

FEMA Approves $2.7 Million for Robinson Bayou Drainage Improvement Study

Release Date: December 15, 2021

PENSACOLA, Fla. — FEMA has approved a hazard mitigation grant of $2,785,238 for the city of Panama City to examine a drainage improvement proposal for the Robinson Bayou Basin that will reduce water levels before, during and after rain events, and reduce downstream flood elevations.

FEMA's Hazard Mitigation Grant Program (HMGP) will fund the study, which will include surveying, engineering, design, permitting and bidding for the proposed work. Data collection will be gathered for validation of the Hydrologic and Hydraulic (H&H) modeling, establishing a baseline for permitting and conducting an environmental assessment. The H&H modeling will become the basis of design for the hydraulic modifications to the system used in permitting and is a requirement of the HMGP drainage project to show no adverse impacts.

Robinson Bayou HMGP Grant

Approved: Phase 1, December 2021

FEMA Funded: $2,611,161

HUD CDBG-DR Funded: $870,387

Phase 1 Total: $3,481,548

Benefits of Project: $26,396363

Phase 2 Total: $19,678,905

Scope

Phase IA - Complete

Data Collection

Existing conditions Assessments

Proposed conditions Assessment and Recommendations

Early Permit Agency Coordination

Phase IB - Current

Design and Construction Plans

Permitting

Environmental Assessment to FEMA

Phase II - Future

Right of Way and Easement Acquisition

Bidding

Construction

Phase 1A

- Understand existing conditions
- Map wetland conditions
- Initial H&H modeling
- Optimizing flood risk reduction
- Permitting coordination

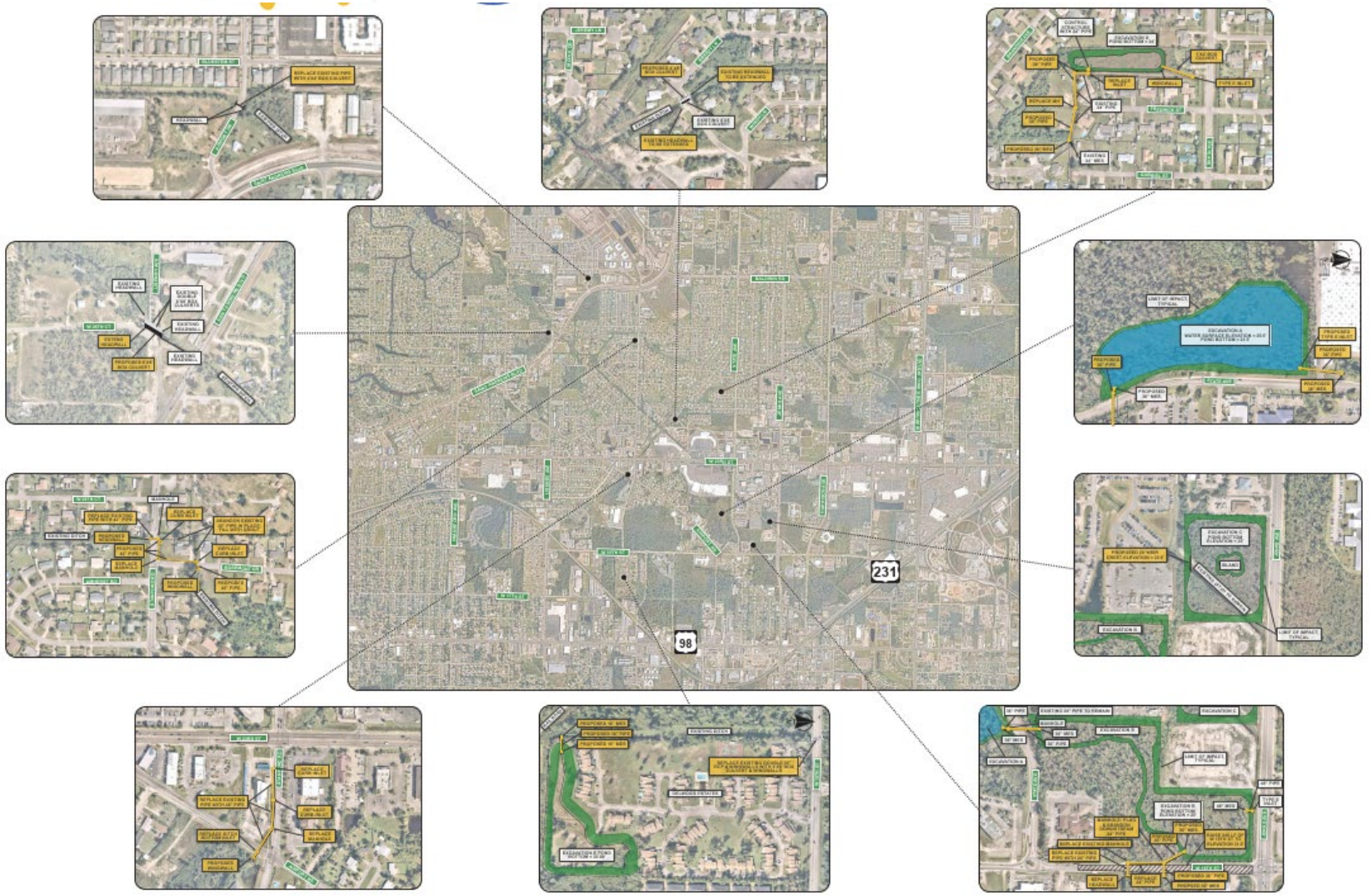
Recommended Improvements

- Airport Drive Culvert Upgrade
- Breezy Lane Culvert Upgrade
- Frederick Street Drainage Improvements
- Jenks Avenue Wetland Storage Area
- State/Jenks/19th Street Wetland Storage Area
- 19th Street Improvements
- Doctors Pond Wetland Storage Area
- Delwood Estates Drainage Improvements
- Stanford Road Drainage Improvements
- Stanford Road and Rosemont Drive Drainage Improvements
- Lisenby Avenue Culvert Upgrade

Opinion of Cost

- Construction: $18,750,000
- Right of Way: $400,000

Recommended Improvements



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Public Meeting

Held: February 6, 2024

Hosted by three City Commissioners, City Staff, and Consultants

Resulted in public attendance and media interviews

https://www.mypanhandle.com/video/robinson-bayou-drainage-improvement-project-set-to-be-completed-by-2026/9408409/

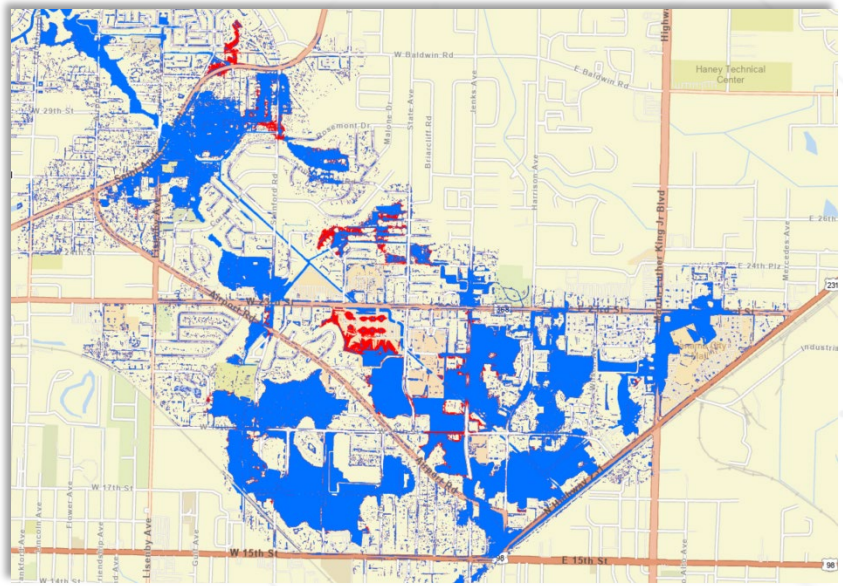
Next steps – Phase 1B and Construction

Design Construction Plans
Permitting
Deliver Bid Package
Timeline – Complete in October and
Permits issued 2025

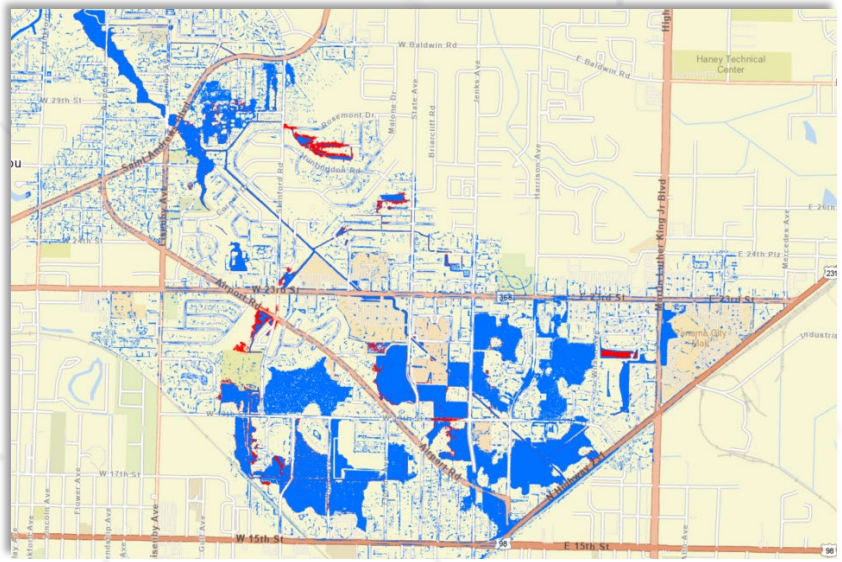
Deliverables to be reviewed by FDEM and
FEMA
Environmental review

RW/Easement Acquisition
Bidding and Construction
Two Year Timeline

Flood Risk Reduction



100-year inundation area



5-year inundation area

37.61 Acres of 100-year flood inundation area removed post mitigation.

25 Residences and several major commercial spaces removed from 100-flood area post mitigation

Up to 6” of change in flood depth.

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Floodplain Improvements

Purposeful design to include littoral areas, seasonal wetlands, open water

Increase Panama City Crawfish habitat

City has implemented a new floodplain ordinance to maintain current floodplain

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Floodplain Improvements

Alteration of severely degraded wetlands and surface waters along upland fringes to create storage.

No purchase of mitigation credits.

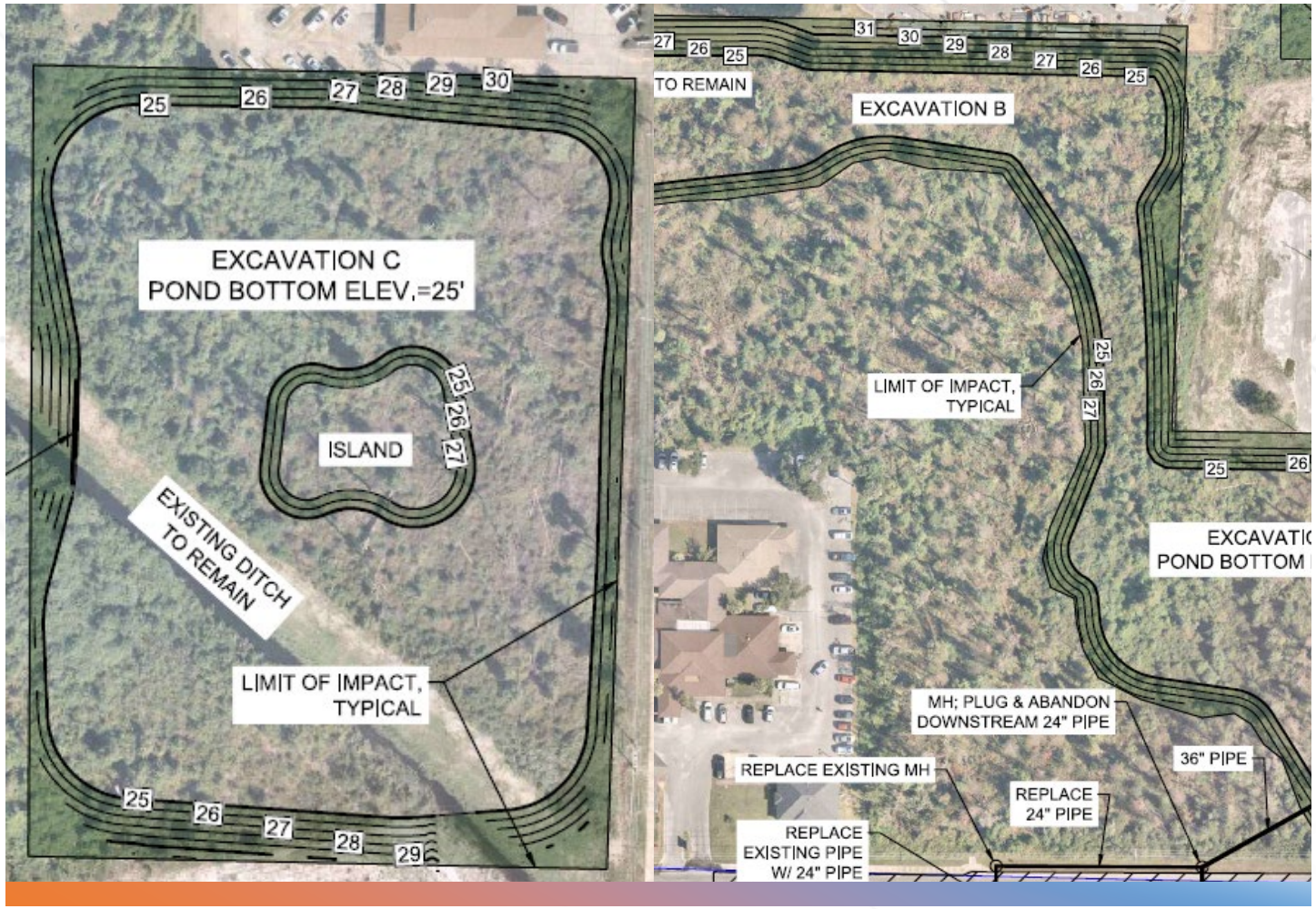
Work with local partners to remove invasive species within the watershed

Conclusion

Loss of trees can cause significant flood impacts

Post-Disaster can be an opportunity

Panama City developing a large-scale project to improve floodplain areas



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