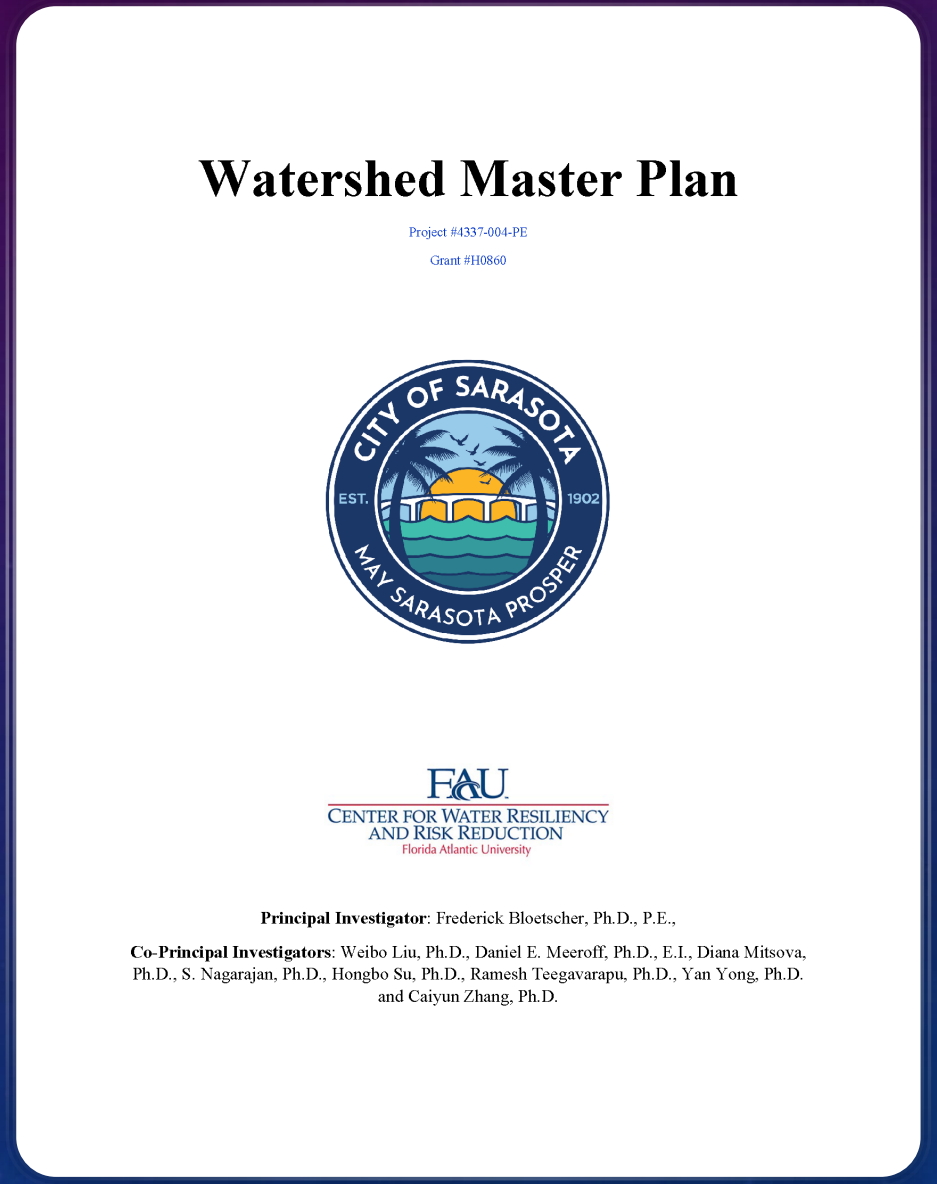
CITY OF SARASOTA WATERSHED MASTER PLAN PRESENTATION

BUILDING RESILIENCE INTO THE FUTURE

PRESENTED BY DEVELOPMENT SERVICES

NOVEMBER 2025



Watershed Master Plan

Project #4337-004-PE

Grant #H0860

CITY OF SARASOTA EST. 1902 MAY SARASOTA PROSPER

FAU CENTER FOR WATER RESILIENCY AND RISK REDUCTION Florida Atlantic University

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WATERSHED MASTER PLAN BACKGROUND

City applied for FEMA Hazard Mitigation Grant in 2022

- Total Grant Awarded $200,091
- 75% FEMA ($150,072)
- 25% City in-kind match ($50,024)

Developed with Florida Atlantic University (FAU)

- Grant closeout deadline: December 30, 2025
- County and City WMPs developed concurrently

WATERSHED MASTER PLAN SUPPORTS COMMUNITY RATING SYSTEM (CRS)

WMP is a prerequisite for achieving CRS Class 4

- WMP expected to earn 125–175 CRS points (out of 290 possible)

Only 27 points needed to reach Class 4

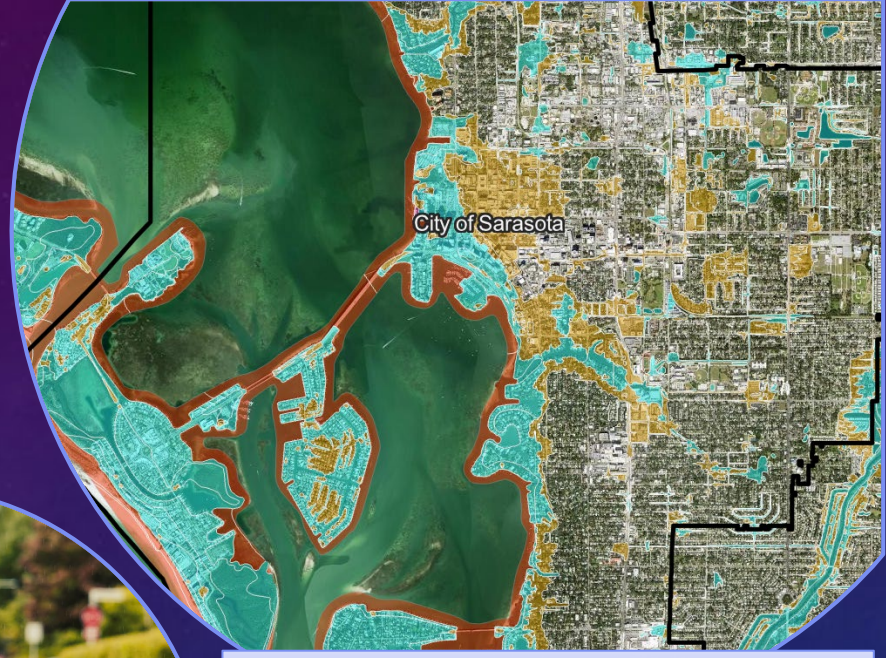
- City earned 2,973 points in last verification (2023)
- 3,000 points are required for Class 4

Class 4 = 30% discount on NFIP flood insurance

- $306 average savings per policy
- $1.8M+ annual savings for the community

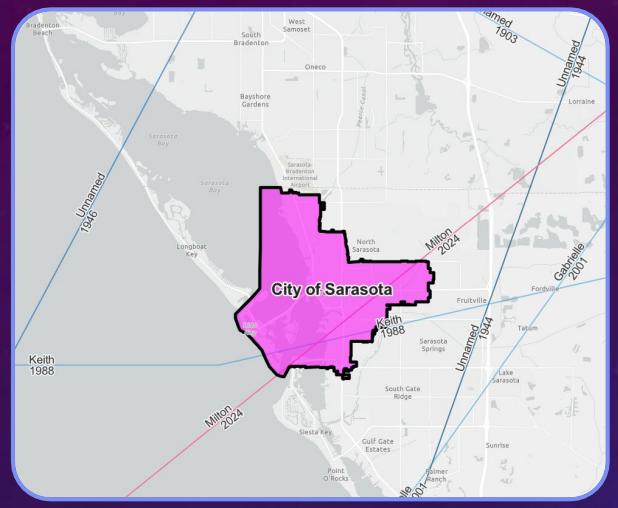
PURPOSE OF THE WATERSHED MASTER PLAN

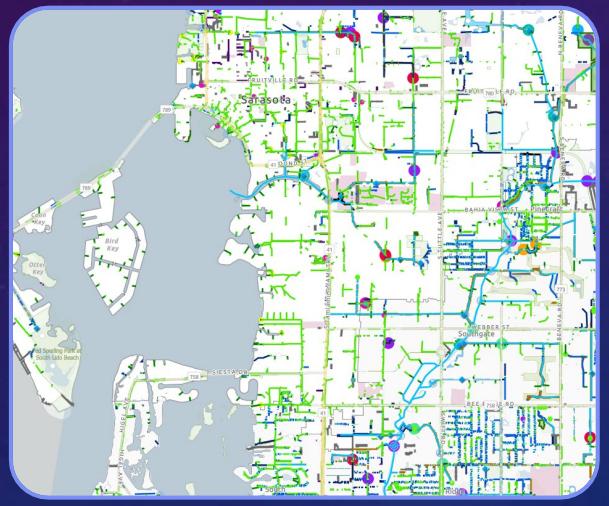
Reduce	flood risk and improve water quality by identifying large scale risk factors and modelling for future conditions
Guide	sustainable development and infrastructure investment to build long-term resilience
Support	the City's mission to protect life and property while maintaining FEMA, NFIP, and CRS compliance
Position	the City for CRS Class 4 and FEMA grant eligibility



The WMP is a foundational roadmap for reducing flood risk, improving water quality, and guiding responsible development.

WATERSHED MODELING PROCESS





Initiation

Identified as a requirement for CRS class 4.

Funded by FEMA's Hazard Mitigation Grant Program.

Developed with Florida Atlantic University (FAU).

Mapping

Utilized best practices in GIS-based modeling with Cascade 2001 and ArcHydro extension.

Modelling

Modeled 100-year, 25-year, and 10-year storm events including a 3-day, 25-year rainfall scenario.

Identified hot spots and utilized drill down techniques for neighborhood level analysis.

Planning

Incorporated Sea Level Rise (SLR), King Tide, and future buildout scenarios.

Evaluated potential solutions and funding frameworks.

Alignment

Guides public outreach and stakeholder engagement.

Enables long range planning through collaborative monitoring and improvement.

Results

Provides an array of available solutions.

Recommends Capital Improvements

Recommends potential actions.

WATERSHED CHARACTERISTICS

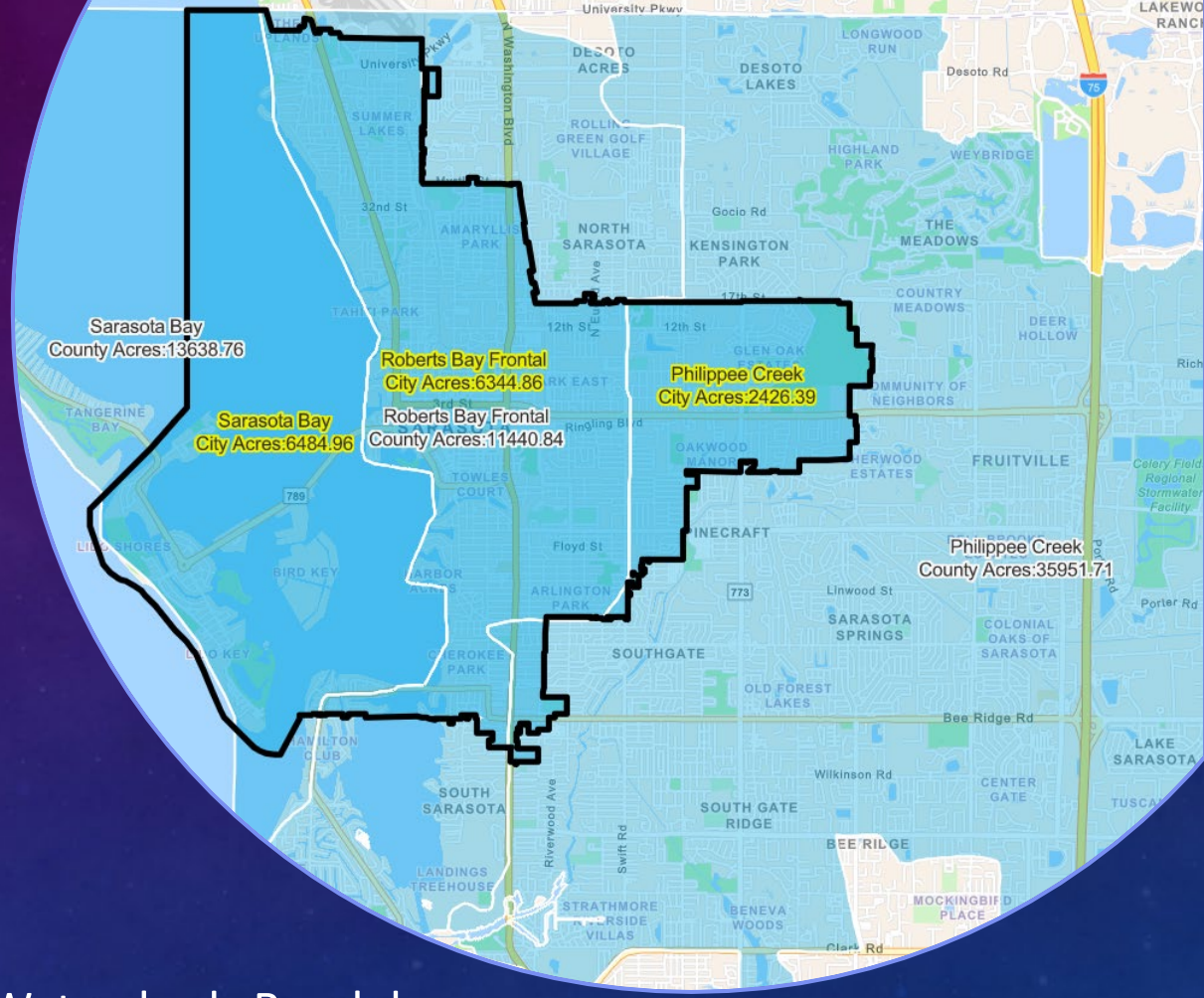
Covers 3 HUC-12 watersheds: Sarasota Bay, Roberts Bay Frontal, & Phillippi Creek

Total Watershed area:
82,787 acres
City area: 15,403 acres

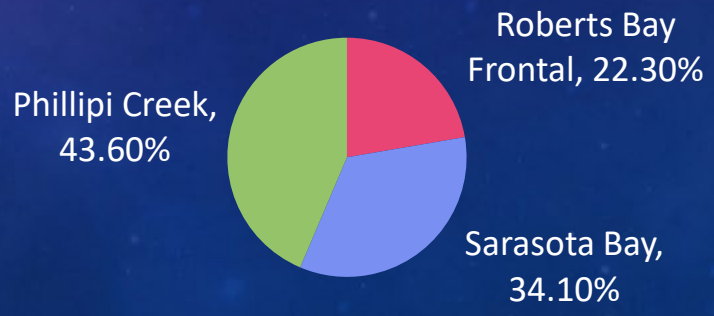
Key features: barrier islands, bayous, low-lying coastal zones, flat topography

Primary flood risks: coastal surge, rainfall-induced flooding, backflow from bay

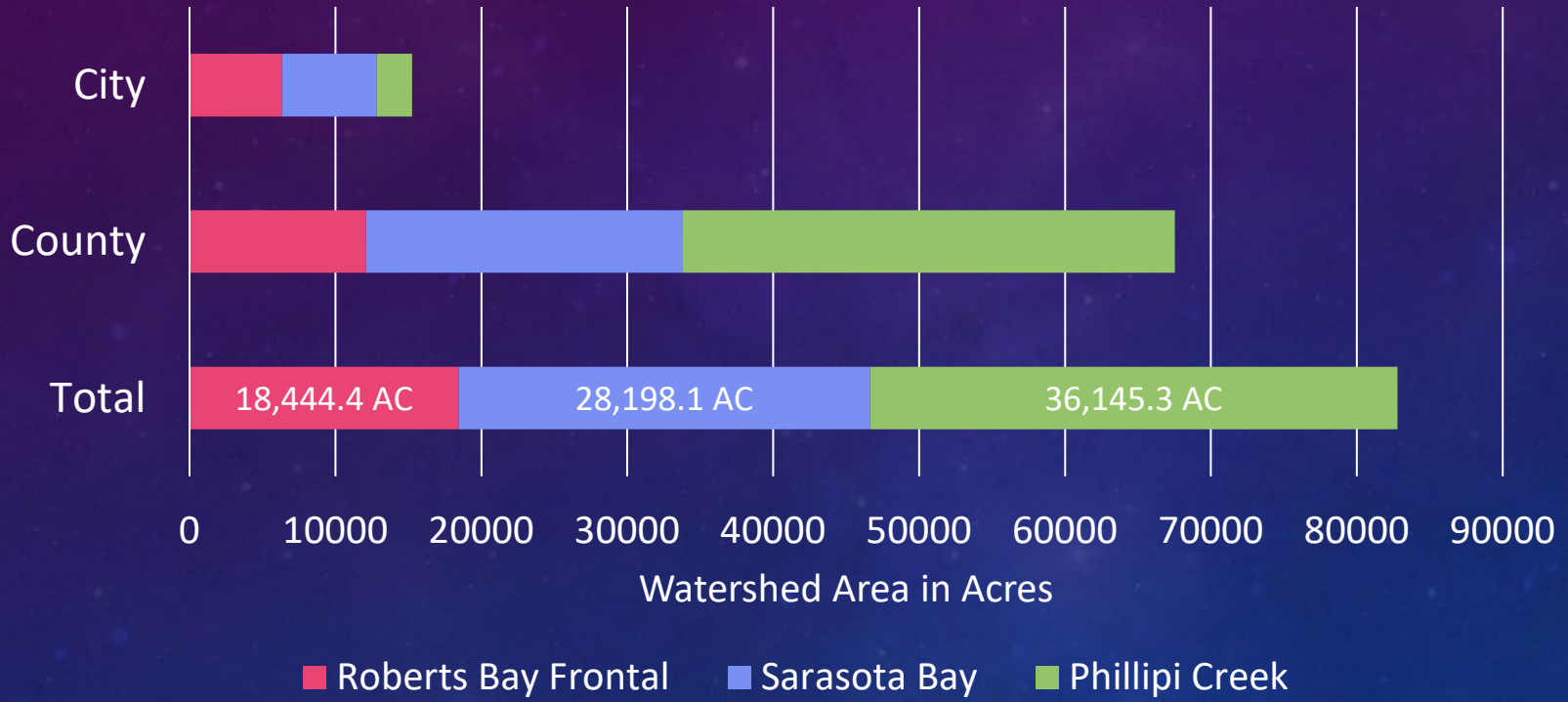
Ground elevations range from 5 - 15 ft NAVD88



Watersheds Breakdown

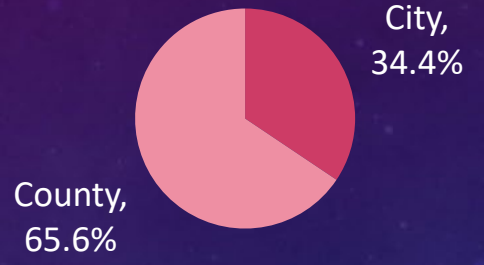


WATERSHEDS BREAKDOWN

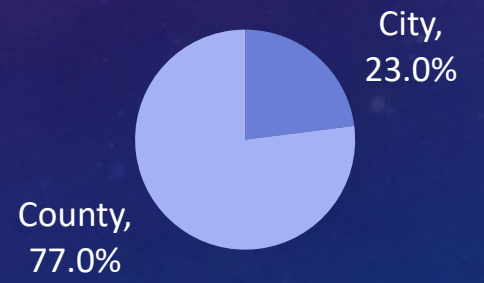


Total Watershed Area = 82,787 AC

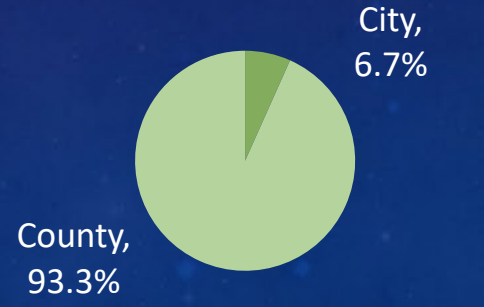
Roberts Bay Frontal



Sarasota Bay



Phillipi Creek



WMP KEY FINDINGS

Seawalls	Existing bulkheads were constructed many years ago and are below future flood levels.
Pipe Backflow	Existing stormwater pipes to open water can allow reverse flow of seawater during flood events.
Localized flooding	Certain low-lying areas can not drain due to existing topography and density of development.
Inland migration of water	Whitaker Bayou and Phillippi Creek require long term planning to mitigate flood hazards.
Open Space	Wetlands and open space are critical for volume control and water quality in our area.
Stormwater	Existing stormwater infrastructure is aging and undersized in key areas.

WMP CONCLUSIONS

The WMP integrates scientific modeling, regulatory frameworks, and community engagement to ensure resilience to current and future environmental hazards.

Short-term risks

- Rainfall and storm surge are the primary flood risks to the City

Long-term challenges

- Sea level rise will exceed current seawall and infrastructure capacity

Modeling Results

- Indicate a tipping point between 2–3 ft of sea level rise, where most existing seawalls will be overtopped.

Capital Improvements

- Long-term improvements require a balanced approach utilizing both structural and non-structural solutions.

Seawall standards updated

- While the WMP was modeled prior to the 2024 storms, the conclusions and modeling are consistent with observed impacts, reinforcing the need for higher seawalls.*

Policy implication

- Gradual, adaptive elevation and seawall standards are necessary, but require measured long-term planning for success.

WMP RECOMMENDATIONS

FAU identified four recurring themes that should be addressed:

1. Seawall elevations are too low
2. Stormwater pipes can backflow seawater
3. Isolated localized flooding on mainland
4. Inland migration of water

* These recommendations represent long-term strategies that can be phased in as redevelopment occurs or as sea level rise thresholds are reached.

The City of Sarasota Engineering Design Criteria Manual (EDCM) works in conjunction with other state and local standards to provide a comprehensive guide for design, construction, and reconstruction within the City; EDCM goals include mitigating climate change impacts and sea level rise with resilient solutions. EDCM requirements include lot drainage plans and minimum seawall elevations, in order to reduce flood risks and impacts of development on adjacent properties.

Increase resiliency

- Increase minimum finished floor elevation for all new construction to 2 ft freeboard above the base flood elevation.*
- Develop a policy to match observed sea level rise to increased minimum finished floor elevations.*

Improve shoreline protection

- Raise seawall elevations to match minimum finished floor elevation requirements.*
- Continue implementing the adopted seawall ordinance, which allows seawalls to be raised and encourages biologically enhanced and hybrid shoreline designs.*

Reduce Flood Hazard

- Develop a backflow prevention solution and program for stormwater pipes draining to open water.*
- Whittaker Bayou and Phillipi Creek require long term planning and control measures to reduce flooding impacts.

POLICY ALIGNMENT IN ACTION

2022	2023	2024	2024	2025
City of Sarasota applies for and is awarded FDEM grant for WMP	FAU is selected to develop the WMP, and performs data collection and modeling	Draft WMP report recommends establishing minimum of 6.0 ft NAVD for all seawalls	Hurricane Season significantly impacts City of Sarasota highlighting the need for increased flood hazard resiliency	Ordinance 25-5552 adopted providing for seawalls up to maximum of 7.27 ft NAVD88*

CRS ALIGNMENT

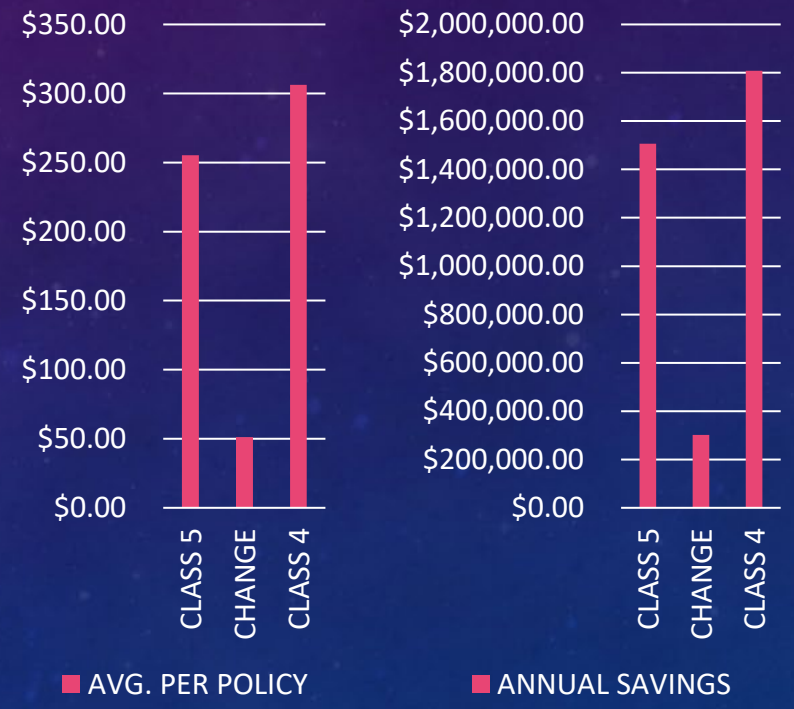
RESULTS OF ADOPTING THE WATERSHED MASTER PLAN

CRS CLASS 5

- 25% DISCOUNT ON FLOOD INSURANCE POLICIES
- $255.24 ANNUAL SAVINGS PER POLICY
- $1,506,452 ANNUAL SAVINGS FOR OUR COMMUNITY

CRS CLASS 4

- 30% DISCOUNT ON FLOOD INSURANCE POLICIES
- $306.29 SAVED PER POLICY
- $1,807,743 ANNUAL SAVINGS FOR OUR COMMUNITY



Note: Dollar amounts are estimates based on the best available data

The WMP is a CRS requirement to apply for a Class 4 community rating modification and achieve a 30% discount in 2026. The Plan must be adopted by the community to apply for the credit. We have coordinated with the County, and they are preparing to present their plan to the governing body by December 2025. Both communities need to close out their grants by December 31,2025 and the plan must be adopted to close out the grant.