

# Comprehensive Stormwater Management in the City of Central, LA

Stokka Brown, Principal - CSRS, a Westwood Company  
Susanna Pho, Co-Founder and COO - Forerunner



- 1 Introduction
- 2 Central, LA
- 3 Q&A

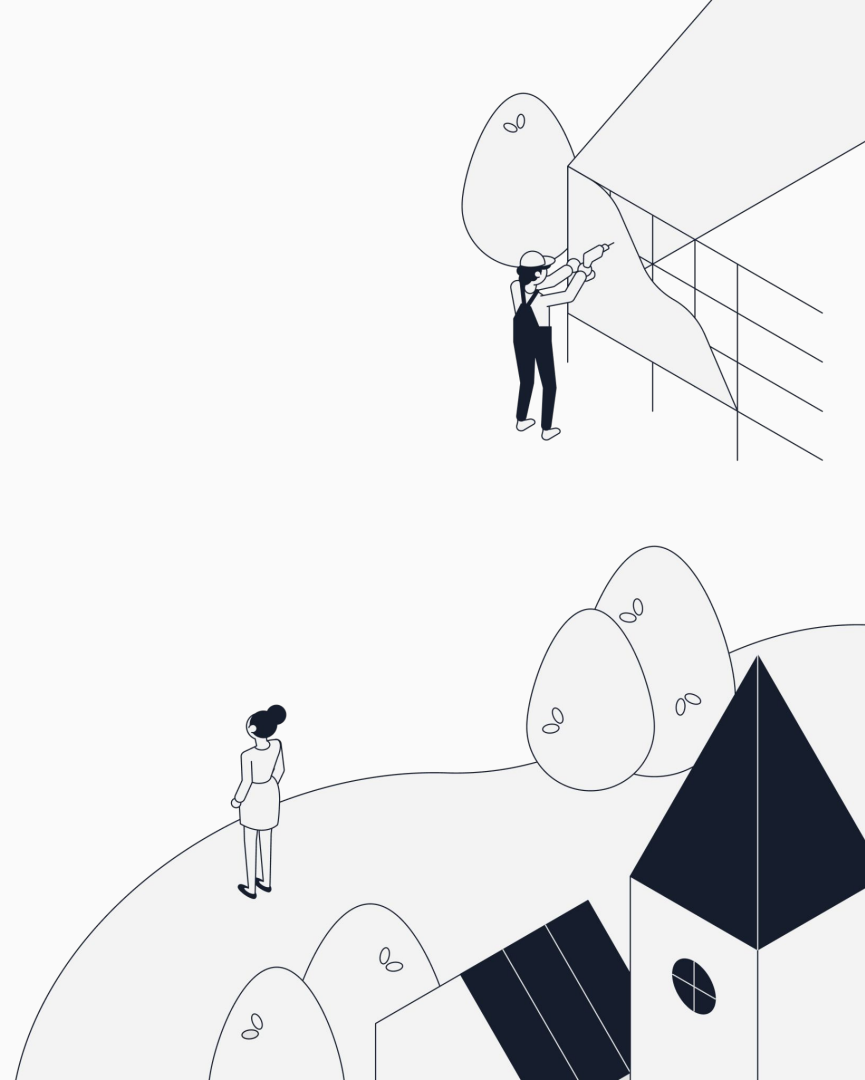
# 1 Introduction

## 2 Central, LA

## 3 Q&A

# Housekeeping

- This presentation is being recorded.
- The recording will be shared via email after the webinar.
- If you have a question, please post it in the chat.
- Complete the post-attendance survey to receive your 1 ASFPM CEC and .10 ICC CEU. The certificates will be sent via email to you, ASFPM, and ICC next week.
- Please reach out after the webinar for additional questions.



We work with  
over 170 of the  
most at-risk  
cities, counties,  
and states  
throughout the  
U.S.



FDEM  
Florida



DWR  
California



MEMA  
Mississippi



Harris County  
Texas



Jefferson Parish  
Louisiana



Tampa  
Florida



Palm Beach County  
Florida



Tangipahoa Parish  
Louisiana



Raleigh  
North Carolina



Livingston Parish  
Louisiana



Cedar Rapids  
Iowa



Terrebonne Parish  
Louisiana



Alexandria  
Virginia



Lincoln  
Nebraska



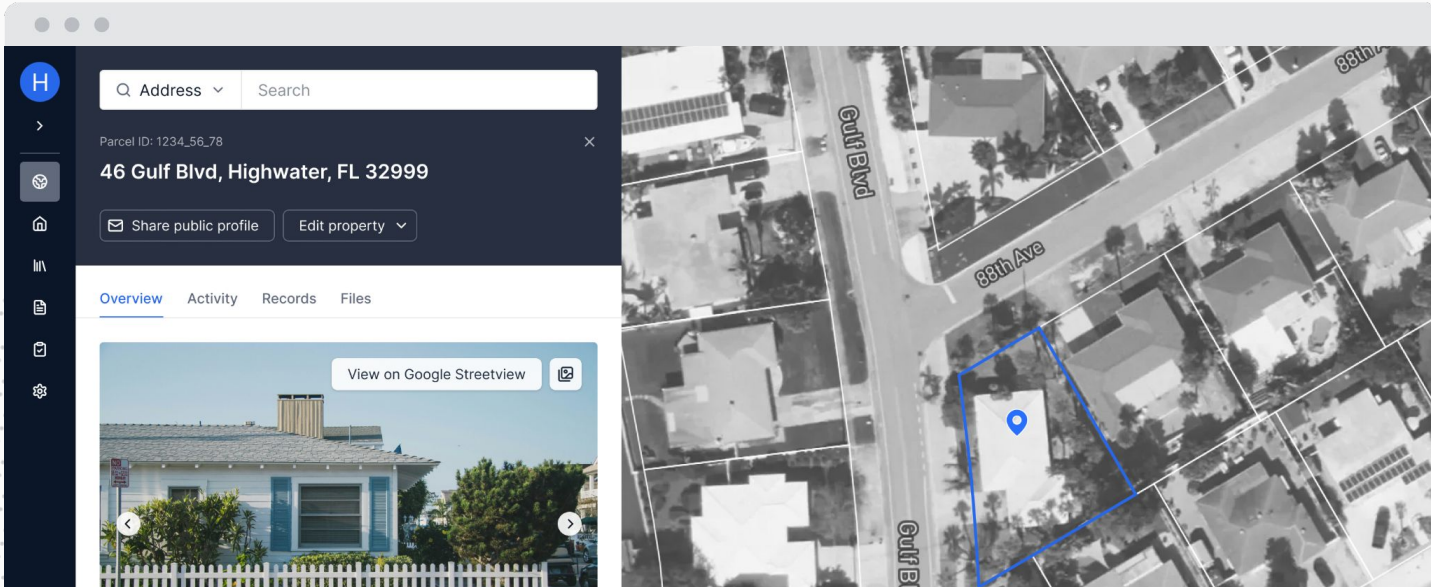
Calvert County  
Maryland



Georgetown County  
South Carolina

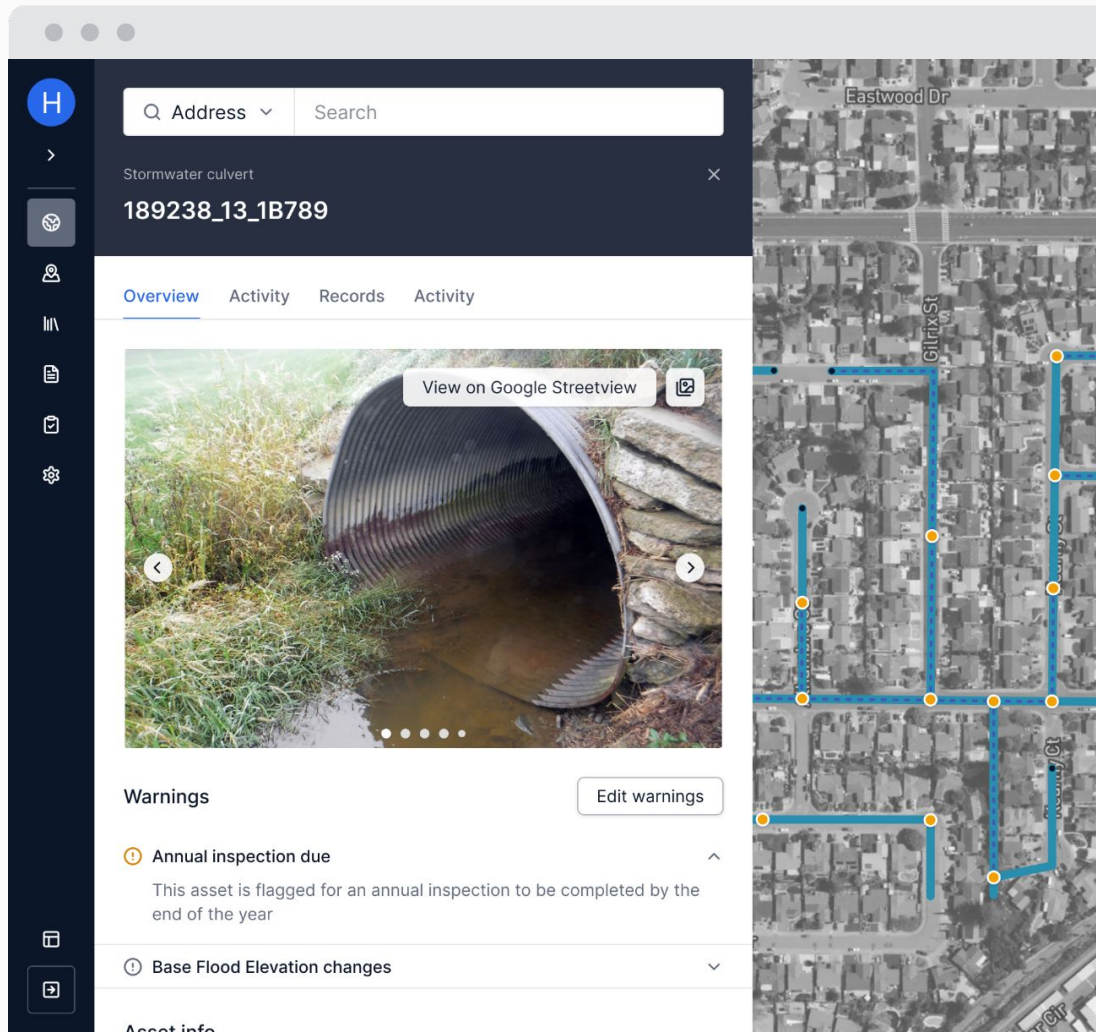
Our solution

# Forerunner empowers gov. agencies to do more.






# Track data, files, and inspections on any community asset.



The screenshot displays the Forerunner web application interface. On the left is a dark sidebar with navigation icons: a home icon (H), a location pin, a person, a list, a document, a calendar, a gear, and a plus icon. The main content area has a dark header with a search bar labeled "Q Address" and "Search". Below the header, the asset name "Stormwater culvert" and ID "189238\_13\_1B789" are shown. A tab bar contains "Overview" (selected), "Activity", "Records", and "Activity". The main content area features a large photo of a culvert with a "View on Google Streetview" button. Below the photo is a "Warnings" section with two items: "Annual inspection due" (with a warning icon) and "Base Flood Elevation changes" (with a warning icon). The right side of the interface shows a map with a blue line representing the asset's location, with yellow dots indicating specific points along the route. The map includes street names like "Eastwood Dr", "Gilrix St", "Lundy St", and "Lundy St".

Product overview

# Track data, files, and inspections on any community asset.

 FORERUNNER

Q Address Search

Stormwater culvert

189238\_13\_1B789

Overview Activity Records Activity

View on Google Streetview

Warnings

Annual inspection due

This asset is flagged for an annual inspection to be completed by the end of the year

Base Flood Elevation changes

Asset info

- 1 Introduction
- 2 **Central, LA**
- 3 Q&A





**Stokka Brown, MS, PE, CFM**

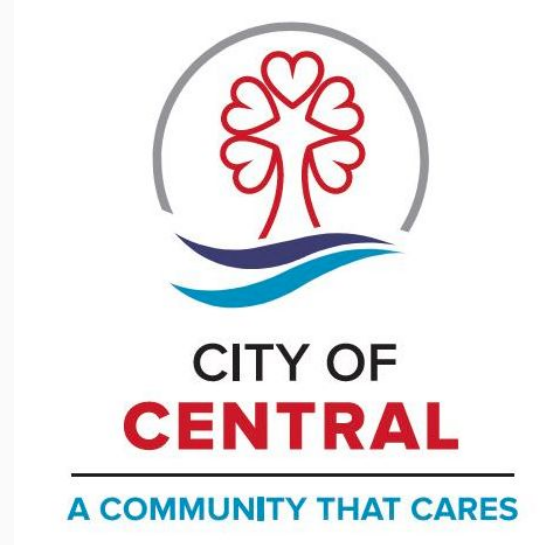
Principal

CSRS, a Westwood Company

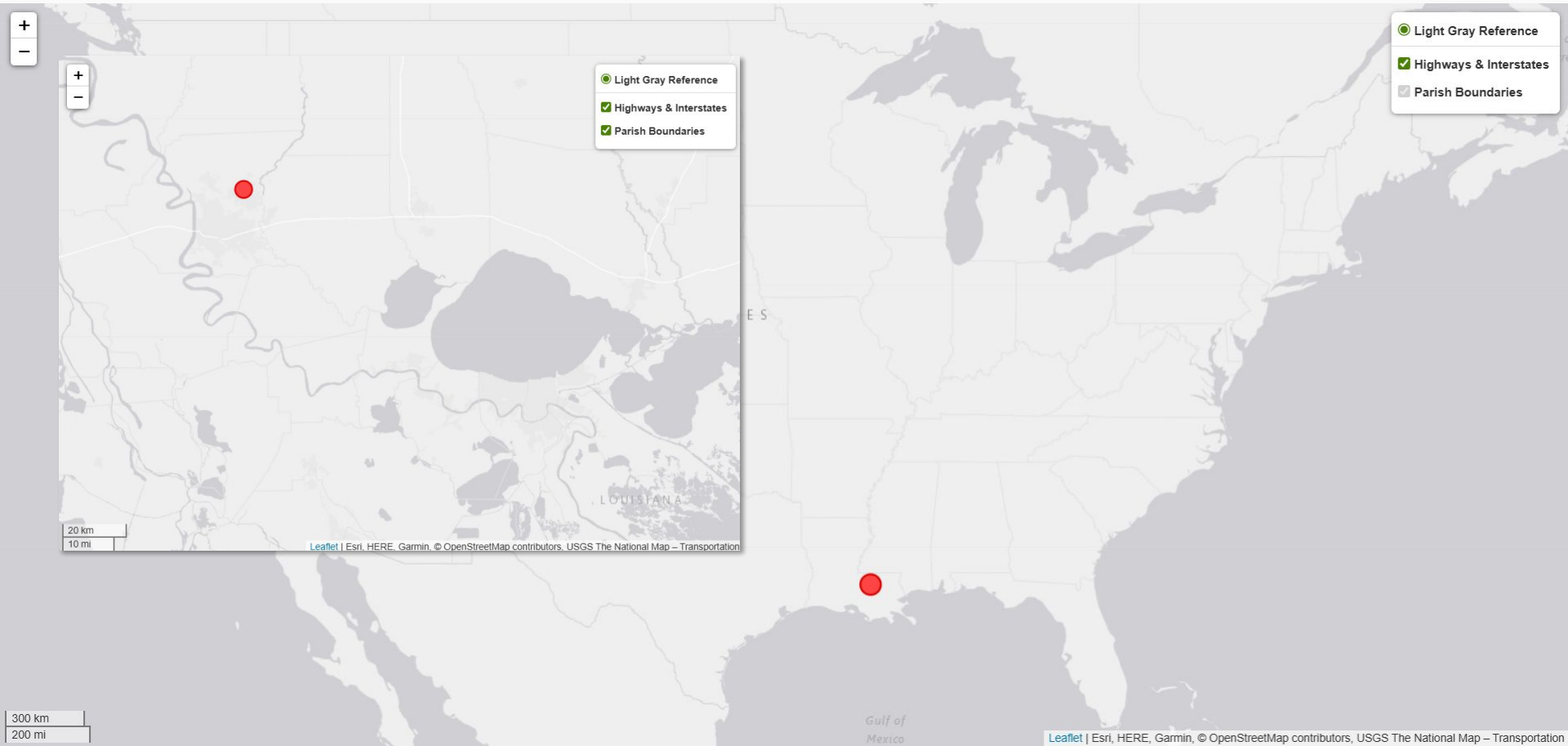
# From Risk to Reward: A Success Story in Community Flood Resilience

*Presenters:*

*Stokka Brown (CSRS, A Westwood  
Company)*



# Where are we



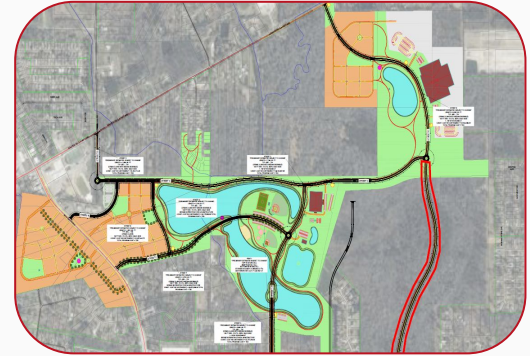
# The Catalyst – August 2016 Flood Event



**Devastating Impact:**  
60% of buildings  
damaged



**Call to Action:**  
Invested in  
comprehensive  
stormwater  
management



**Implementation:**  
Transformed from  
reactive to proactive

# Stormwater Management Framework



Living Data and  
Hydraulic Model  
Management



Stormwater  
System  
Maintenance



Stormwater  
System  
Improvements



Funding  
Strategy/ Grant  
Applications



Regulatory  
Improvements



Community  
Engagement &  
Education



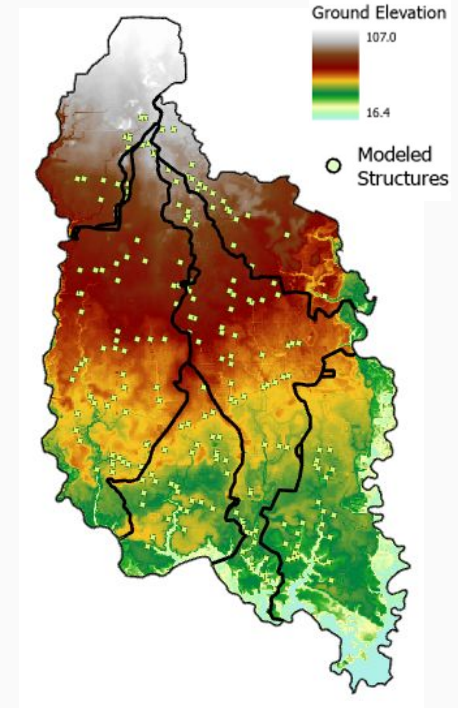
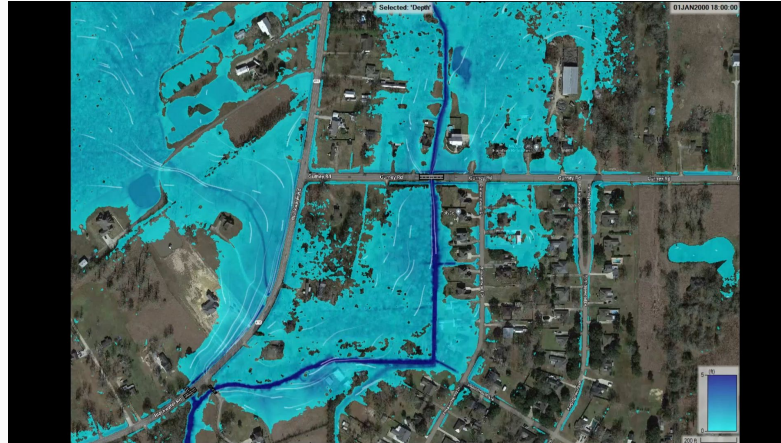
Flood Warning  
System



FEMA  
Community  
Rating System  
(CRS)

# Living Data and Hydraulic Model Management

- LiDAR collected every 2 years to provide the latest, most accurate surface representation.
- Maintain GIS database to track infrastructure improvements.
- Continuous management and update of the 2D hydraulic models
  - Offsite Drainage Assessment Program
  - Infrastructure improvements
  - Updated LiDAR
  - Software updates

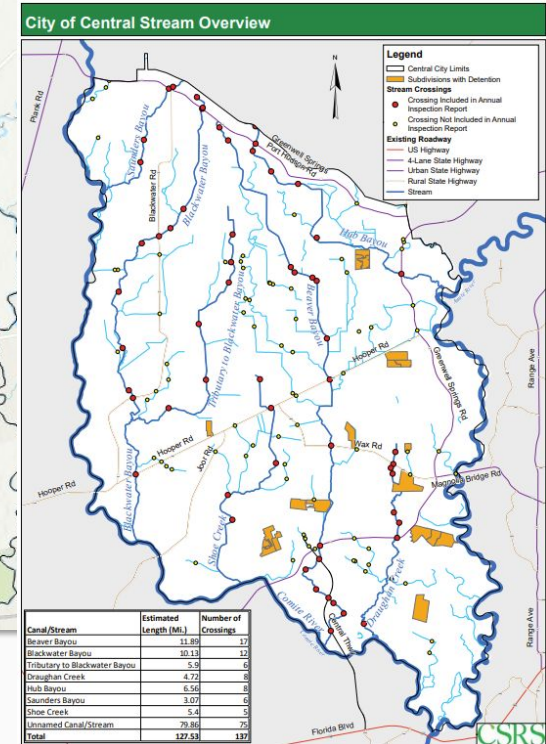
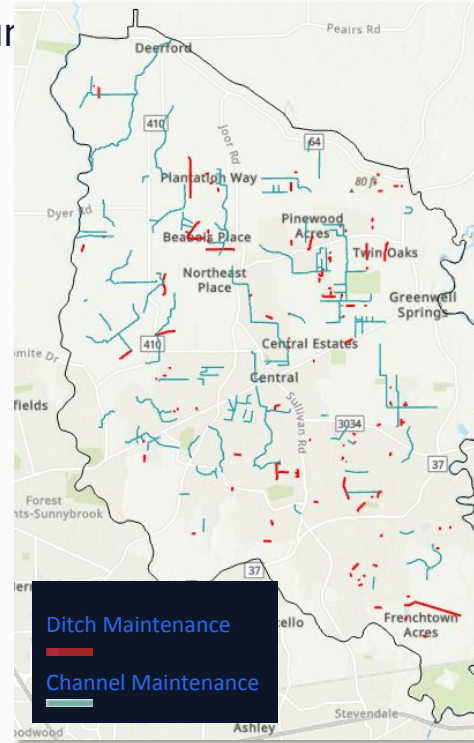




# Stormwater System Maintenance

- Proper upkeep of stormwater infrastructure ensures it operates as designed
- Regular inspections and upkeep of critical infrastructure
  - clearing debris
  - removing sediment buildup
  - repairing any structural damage
- Quick response to citizen reports

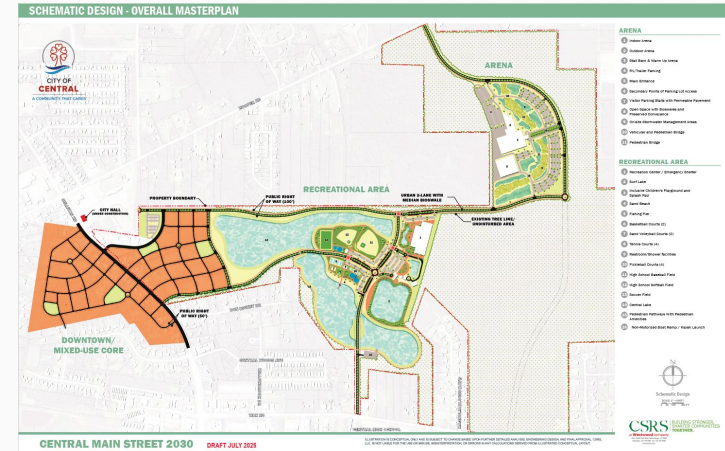
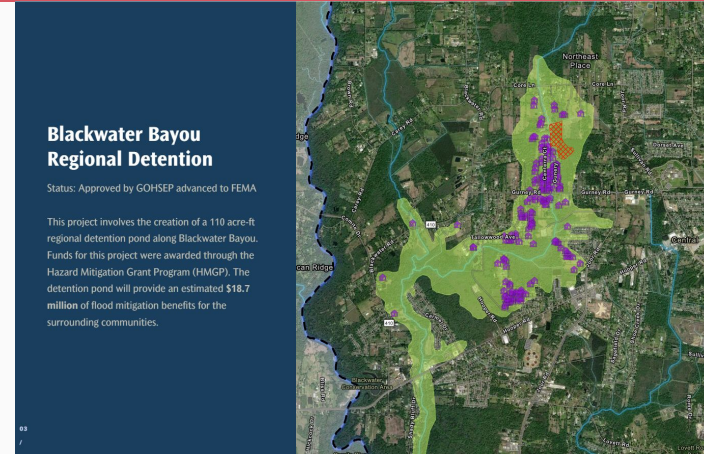
Canal/Stream	Estimated Length (Mi.)	Number of Crossings
Beaver Bayou	11.89	17
Blackwater Bayou	10.13	12
Tributary to Blackwater Bayou	5.9	6
Draughan Creek	4.72	8
Hub Bayou	6.56	8
Saunders Bayou	3.07	6
Shoe Creek	5.4	5
Unnamed Canal/Stream	79.86	75
<b>Total</b>	<b>127.53</b>	<b>137</b>





# Infrastructure System Improvements

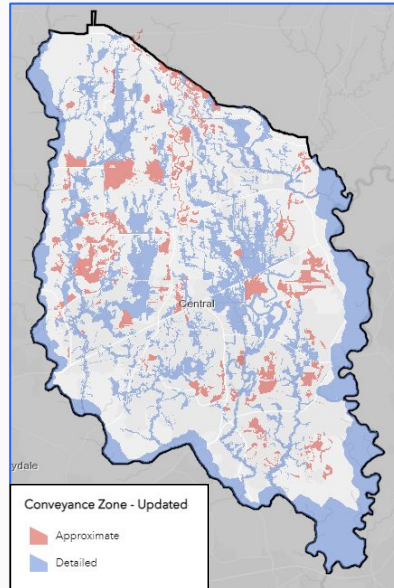
- Expand and modernize infrastructure
  - Reduce existing flood risk
  - Meet demands of more intense and frequent storm events
- Master Plan identified **\$135 million** in proposed improvements
- Continuously looking for new improvement opportunities



# Regulatory Improvements

Enhance flood risk mitigation, improve development practices, and align the city's regulations with current hydraulic models and best practices.

- Community-Defined Flood Hazard Areas (CD SFHA)
- Conveyance Zone (CZ)
- Offsite Drainage Assessments (ODAs)
- Building & Stream Setbacks
- Construction and Elevation Requirements
- Sediment and Erosion Control
- Substantial Damage
- Enclosures in SFHA



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These amendments are proposed. Based on feedback and further review, these proposed amendments may change or new amendments may be proposed. All amendments require City Council approval.

## Offsite Drainage Assessments (ODAs)

Since 2021, Central has required an ODA for certain types of development. **This amendment would change which developments need an ODA, provide for preliminary ODAs, and clarify how ODAs fit in with Stormwater Management Plans.**

Type of Development	Currently Required	Proposed to be Required
<b>In Conveyance Zone</b>		
Single-Family House	–	✓
Subdivision of 6+ res.	✓	✓
Commercial	✓	✓
<b>In or out of Conveyance Zone</b>		
Planned Unit Dev's	✓	✓*
Site Plan (larger com.)	✓	✓*

\*Only when the development is in a conveyance zone.

## Stream Setbacks

**This amendment would establish a setback from streams for all new development. Only certain improvements that have no adverse impact on the stream corridor would be allowed in the setback.**

Examples of allowable improvements: pedestrian trails; recreational fields; decks and gazebos; and others.

## Fill in Building Setbacks

Central allows fill to elevate up to 5,000sqft of building pads with a reasonable transition to grade; buildings must meet minimum setbacks from lot lines but the fill for the transition can be in the setback. **This amendment would prohibit fill in required building setbacks, including fill for transition.**

## Critical Facilities

**This amendment would require new critical facilities in the 500-year floodplain be elevated or protected at least one-foot above the 500-year flood level.**

Examples of critical facilities: emergency operations centers, electric substations, nursing homes, shelters.

20240130

## CODE CHANGES

### Sediment and Erosion Control

Central currently requires sediment and erosion control during construction for all development, including individual homes. **This amendment would clarify that existing requirement.**

### Substantial Damage

Central's current threshold for substantial damage/substantial improvement\* is 50%. **This amendment would set the threshold at 45%.**

\*The value of damage or improvement, compared to the value of the property, that triggers full compliance with floodplain regulations, which may include elevation.

### Enclosures in SFHA

**This amendment would place new requirements on buildings in the SFHA that are elevated more than four feet from grade. These buildings would be allowed to enclose no more than 299sqft of space under the building, and if any space under the building is enclosed, they would be required to record a nonconversion agreement that would allow the City to inspect the property. This would limit potential conversion of space below the base flood elevation to habitable area.**

### Prohibit Buildings in the Floodway

**This amendment would prohibit new buildings, or replacement of substantially damaged buildings, in the floodway\*, and the City wouldn't recognize or approve CLOMR-F's or LOMR-F's in the floodway.**

\*The floodway is the channel of a waterway and the adjacent land areas where floodwaters flow.

### Organizational and Non-Substantive

**These amendments would not change existing requirements, but would change the organization of the code or clarify existing requirements.**

# Funding Strategy/Grant Applications

- Proposed and analyzed cost-effective flood mitigation solutions, including Benefit-Cost Analysis (BCA).
- Submitted and **secured over \$60 million\*** in grant funding for constructing critical stormwater infrastructure improvements within the City.
  - FEMA - Hazard Mitigation Grant Program (HMGP)
  - ~~FEMA - Building Resilient Infrastructure and Communities (BRIC) canceled~~
  - FEMA - Flood Mitigation Assistance (FMA)
  - FEMA - Emergency Operations Center Grant Program
  - LA OCD - Local Government Assistance Program (LGAP)
  - US DOT - Better Utilizing Investments to Leverage Development (BUILD)
  - EPA - Lake Pontchartrain Basin Restoration Program
  - NRCS USDA - Natural Resources Conservation Service (Conservation Operations)
  - EPA Department of Interior - State and Tribal Assistance Grants
  - Delta Regional Authority - Community Infrastructure Fund
  - US DOT - Promoting Resilient Operations for Transformative, Efficient, and Cost-savings Transportation Program (PROTECT)



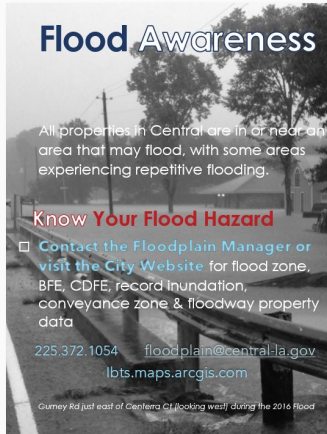
*\*BRIC Program award of ~\$40M canceled*



# Community Engagement & Education

Keep residents informed of flood risk and ongoing flood mitigation efforts by providing clear, accessible, and up-to-date information

- Online Stormwater Information Hub
- Online ESRI Story Map of All Projects
- Bi-Annual Drainage Summit
- Annual Postcards (in SFHAs)



## Protect Your Property... ...by Building Responsibly

- Implement flood protection measures, which could include elevating, drainage improvements around the home, raising utilities, etc.
- Review FEMA's "Homeowner's Guide to Retrofitting."
- Call the City of Central for property protection advice, or to request a free visit to your property to review problems and discuss solutions.
- FEMA Hazard Mitigation Assistance provides funding for eligible mitigation measures that reduce disaster losses. To learn more about FEMA's HMGP, FMA or BRIC programs please contact MOHSEP at 225.389.2100.



## Spring 2025 City of Central Drainage Summit

The Spring 2025 Drainage Summit, scheduled for **Wednesday, April 30<sup>th</sup>, 2025**, from 6:00 to 7:30 PM, builds upon a new initiative by the City of Central to enhance community engagement and transparency in flood risk management. As the second in a series of bi-annual summits—held each fall and spring—this event provides a platform for City officials to share vital information about the City's flood risk and drainage systems with residents, developers, and stakeholders.

The summit will cover a range of topics, including the use of communication tools to keep the public informed, updates on drainage system maintenance and improvements, and the processes behind maintaining and updating the City's hydraulic models. Attendees will also hear about recent changes in regulatory standards related to flood risk, progress on major infrastructure projects, and an overall review of how the City is managing flood risk to protect its residents.

By hosting these summits regularly, the City of Central aims to foster a collaborative environment where the community can stay informed, ask questions, and contribute to shaping the future of flood resilience in the City.

## Community Rating System - Class Improvement

The Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the [National Flood Insurance Program \(NFIP\)](#). In CRS communities, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community's efforts that address the three goals of the program:

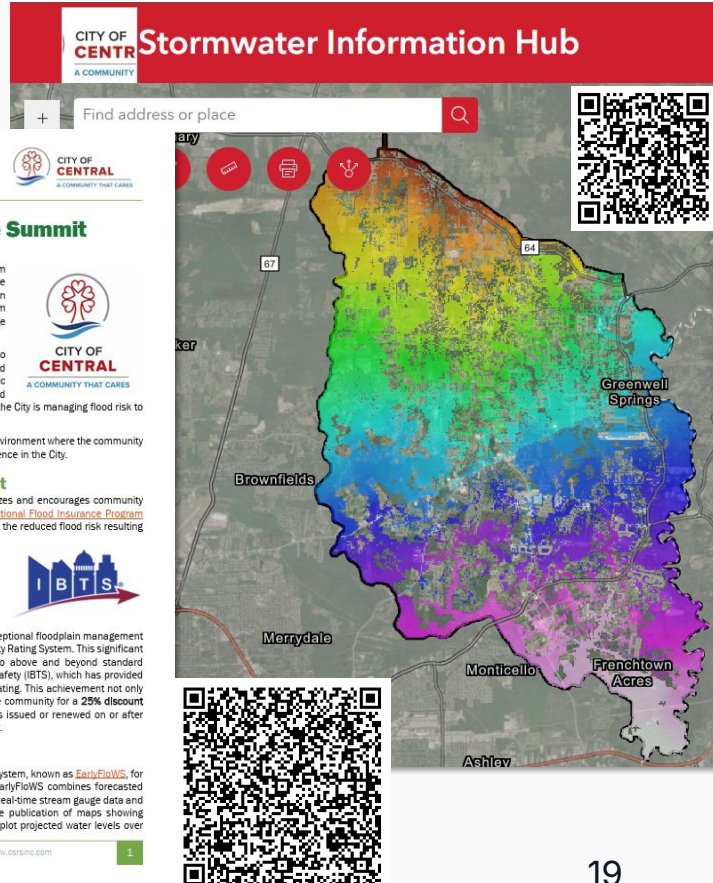
1. Reduce and avoid flood damage to insurable property,
2. Strengthen and support the insurance aspects of the National Flood Insurance Program, and
3. Foster comprehensive floodplain management.



Since the Fall 2024 Drainage Summit, FEMA has recognized the City of Central's exceptional floodplain management activities by upgrading the City's classification from Class 7 to Class 5 in the Community Rating System. This significant advancement highlights Central's commitment to implementing measures that go above and beyond standard requirements in floodplain management. The Institute for Building Technology and Safety (IBTS), which has provided municipal services for the City since 2011, led this effort to improve Central's CRS rating. This achievement not only demonstrates the City's dedication to effective flood mitigation but also qualifies the community for a 25% discount (up from the previous 15% discount) on flood insurance premiums for NFIP policies issued or renewed on or after October 1st, 2025. This brings the total savings to over **\$786,000** for the community.

## Early Flood Warning System - EarlyFloods

Since the Fall 2024 Drainage Summit, CSRS has published the Early Flood Warning System, known as **EarlyFloods**, for the City of Central which can be accessed from the City's [homepage](#) (Figure 1). EarlyFloods combines forecasted precipitation from the National Oceanic and Atmospheric Administration (NOAA) with real-time stream gauge data and a City-wide 2D hydraulic model. The system automates the generation and online publication of maps showing projected flood depths and extents along with forecasted hydrographs—charts that plot projected water levels over



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## Stormwater Information Hub

Find address or place

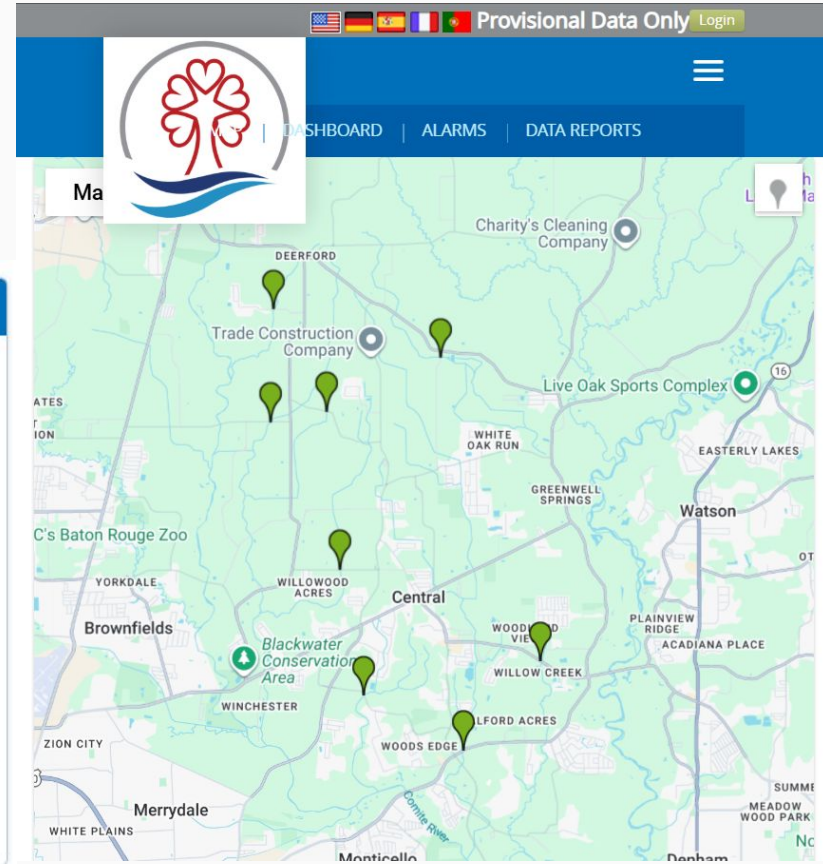
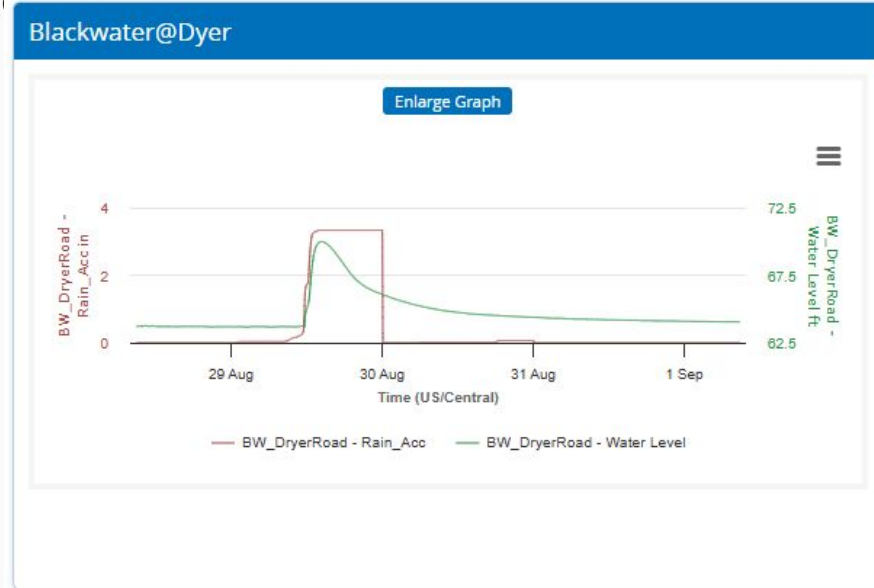
Greenwell Springs  
Brownfields  
Merrydale  
Monticello  
Frenchtown Acres  
Ashley

QR Code

# Flood Warning Systems

## Early Flood Warning Systems

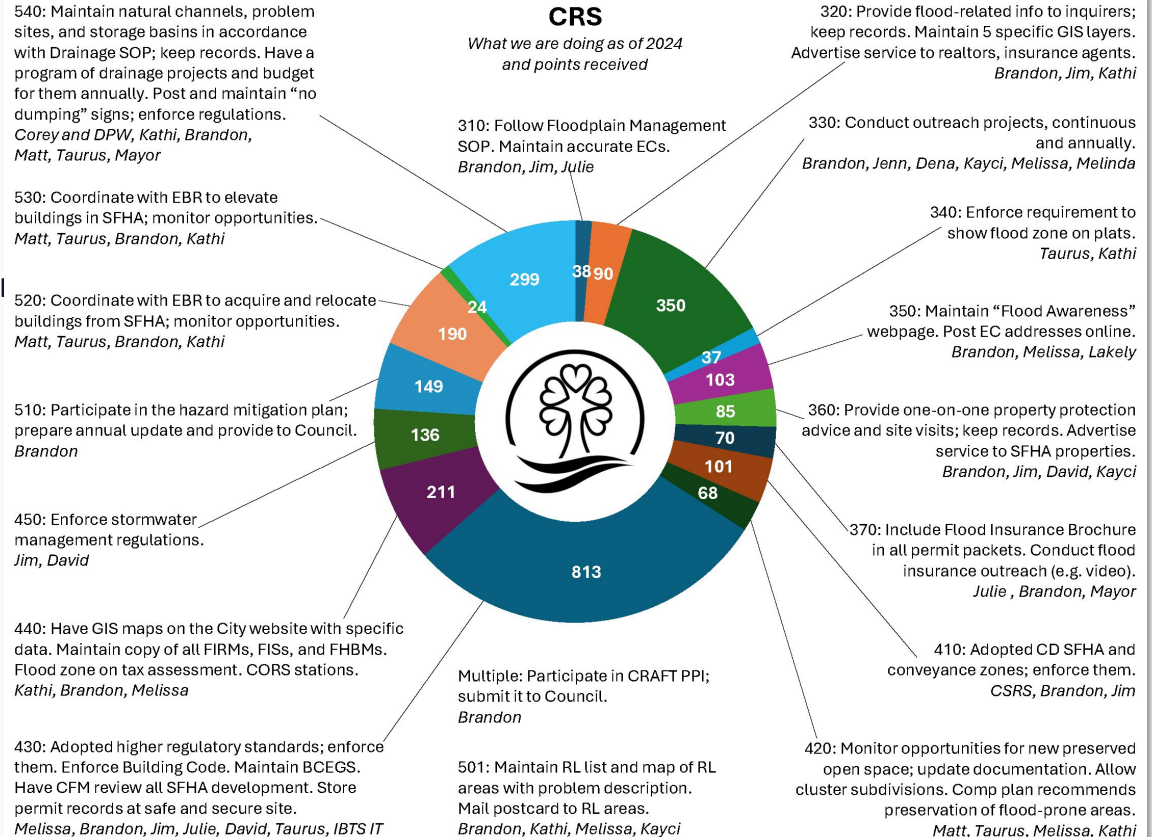
- Provides residents, emergency responders, and local governments with additional information to help make critical decisions to save lives and reduce damage



# FEMA Community Rating System (CRS)

## Improving CRS Class from 7 to 5!

- Over 1200 additional points
- 25% discount on flood insurance, a saving of nearly **\$1 million/year**.
- Potential to achieve a CRS Class 4 and an additional saving of nearly **\$200,000/year** with Flood Warning System.



# Questions?



Living Data and  
Hydraulic Model  
Management



Stormwater  
System  
Maintenance



Stormwater  
System  
Improvements



Funding  
Strategy/ Grant  
Applications



Regulatory  
Improvements



Community  
Engagement &  
Education



Flood Warning  
System



FEMA  
Community  
Rating System  
(CRS)



Stormwater  
Information  
Hub



Drainage  
Summit



Infrastructure  
Projects



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**Thank you!**

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