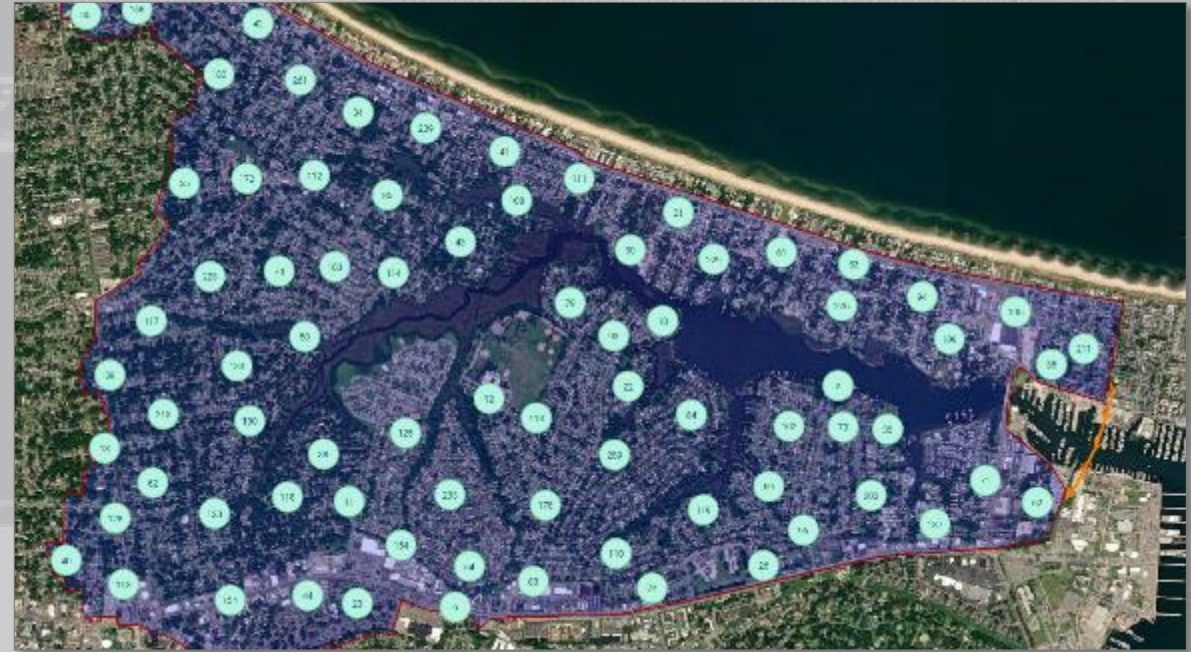


LIFE SAFETY RISK INDICATOR & THE RAPID FRAMEWORK



Susie Byrd
Econ & Risk NTS
FRM PCX | RMC
LSRI Planning Lead

June 2026



RI

Life Safety Risk Indicator 2 (LSRI2)

User ID [Request an account](#)

Password [Forgot password?](#)

Save User ID

LOG IN

Users from outside USACE will receive a username and password after approved by the LSRI management.

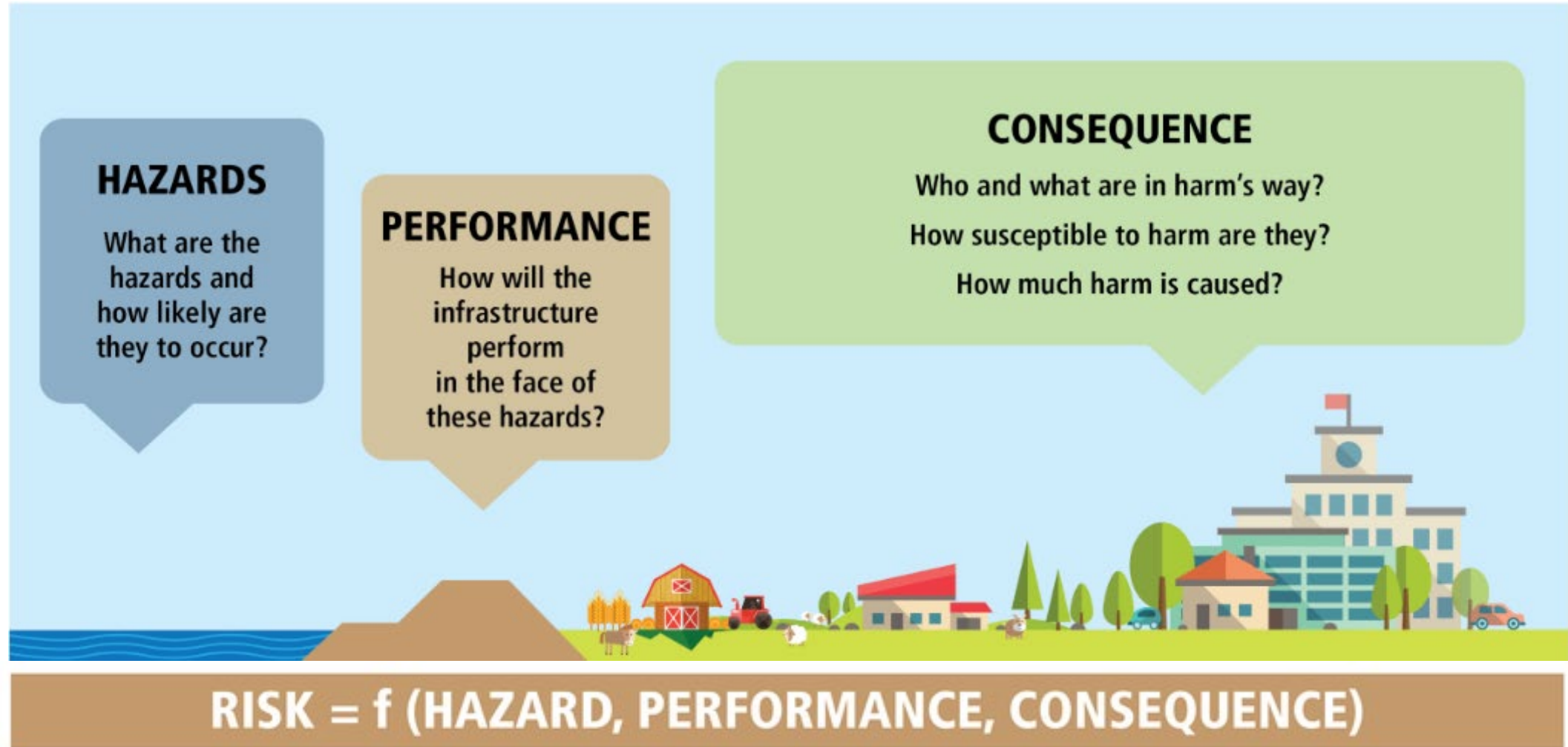
Version 2.2.6



US Army Corps
of Engineers®



RISK AND THE LSRI



Problem Statement:

What is the lowest level-of-effort that can be applied to generate credible risk results?



WHAT IS THE LSRI?



Purpose: Efficient methodology to answer the question:
How much will a proposed measure reduce risk to life and property?

LSRI: A web-based application utilizing cloud computing for risk analysis that employs state-of-the-art methods and tools.



HEC-RAS



LifeSim



Part of a suite of web-based screening tools including the Levee Screening Tool and Dam Screening Tool

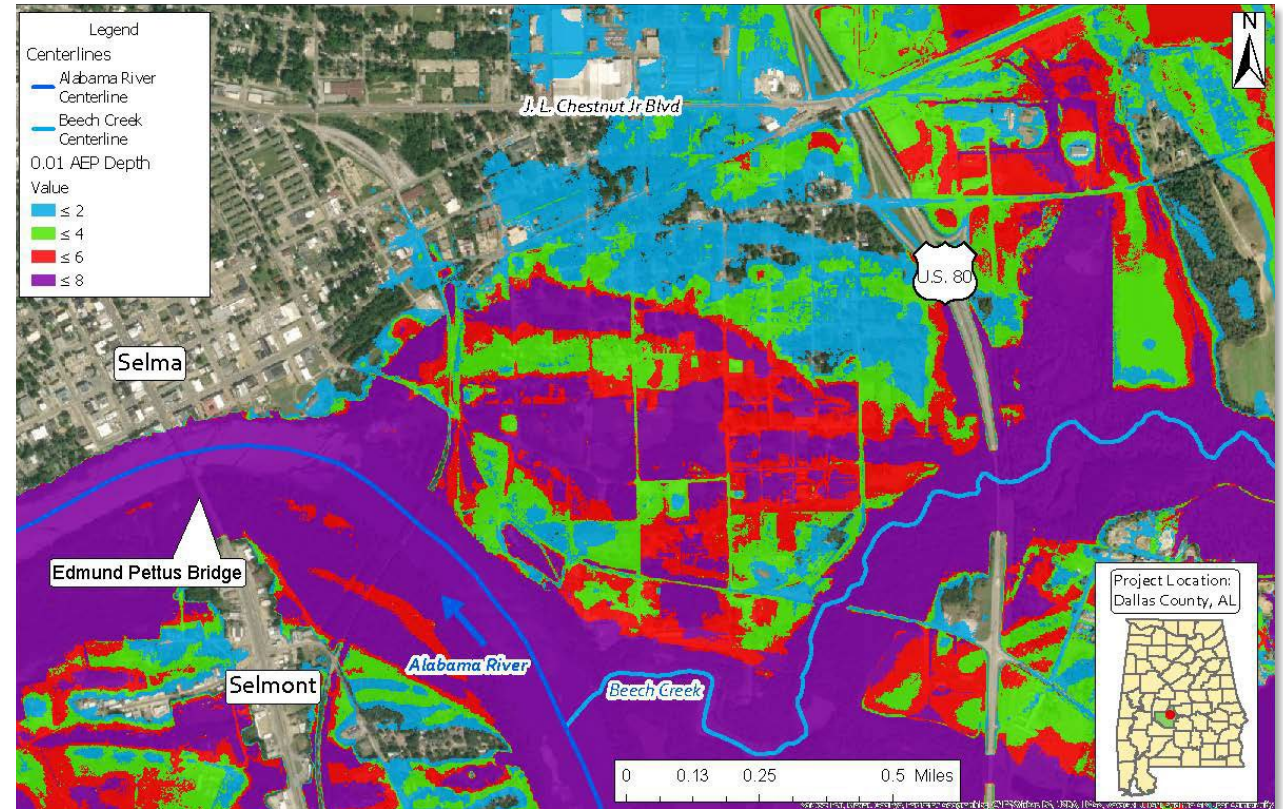


RIVERINE APPLICATION EXAMPLE – SELMA, AL



Risk management alternatives:

- Existing condition
- New levee



Using the LSRI, how quickly can we get from no data to screening level inundation, consequences, and risk?



PROJECT SETUP



Flood Scenario Editor

Name: 0.01 AEP (100-yr)

Description: Enter description

Terrain: Alabama River channel mod (Mod)

Boundary Conditions

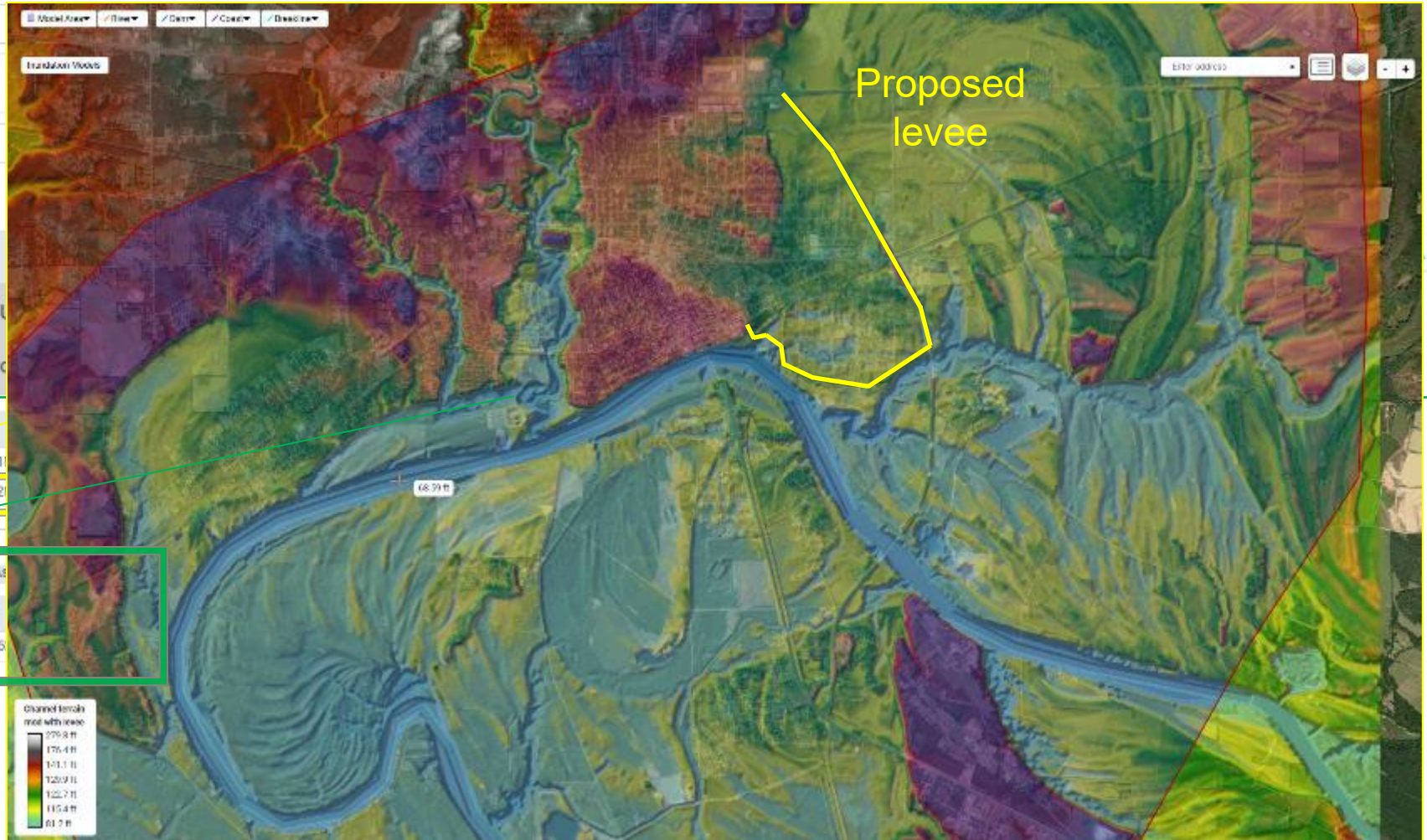
NAME	TYPE
Alabama River	River Reach

TERRAIN MOD NAME	BASE TERRAIN	MOD STATUS
Channel terrain mod	Base terrain	Success: 5/28/2025 15:1
Channel terrain mod with levee	Base terrain	Success: 5/29/2025 15:2

Flood Scenarios

+ ADD FLOOD SCENARIO UPLOAD

FLOOD SCENARIO NAME	MODEL CREATION	LAST COMPUTED
0.01 AEP (100-yr)	LSRI Data Entry	Success: 5/30/2025 12:5

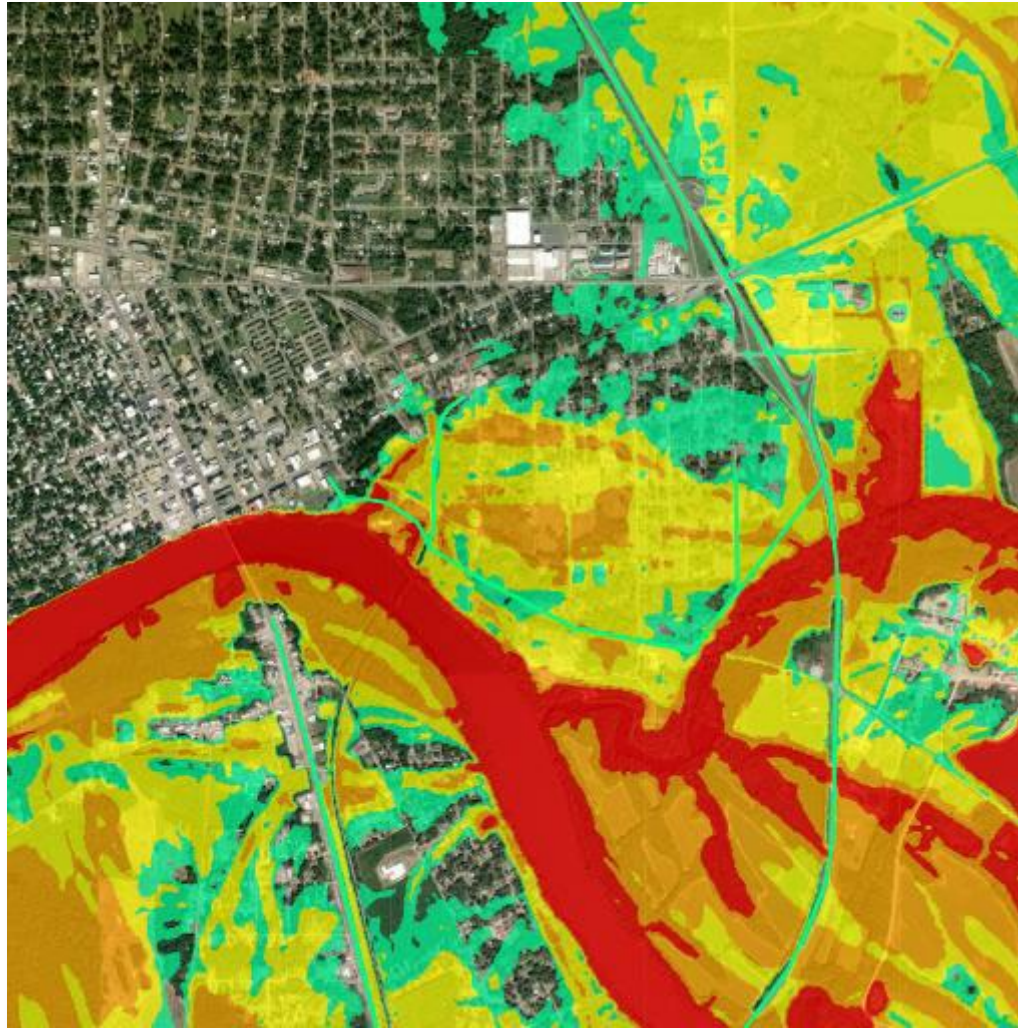




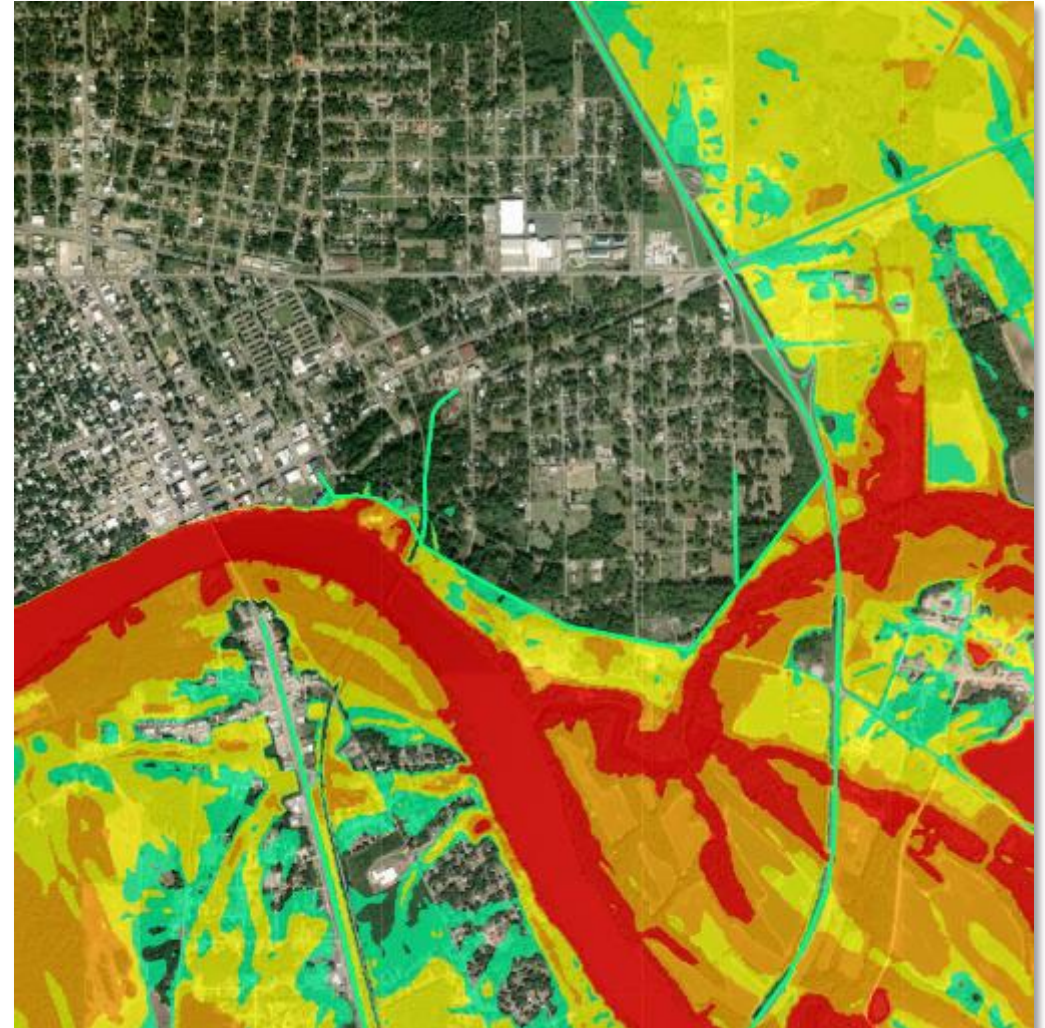
ADD FLOOD SCENARIO AND RUN HEC-RAS FOR PROPOSED LEVEE SCENARIO (0.01 AEP EVENT)



FWOP



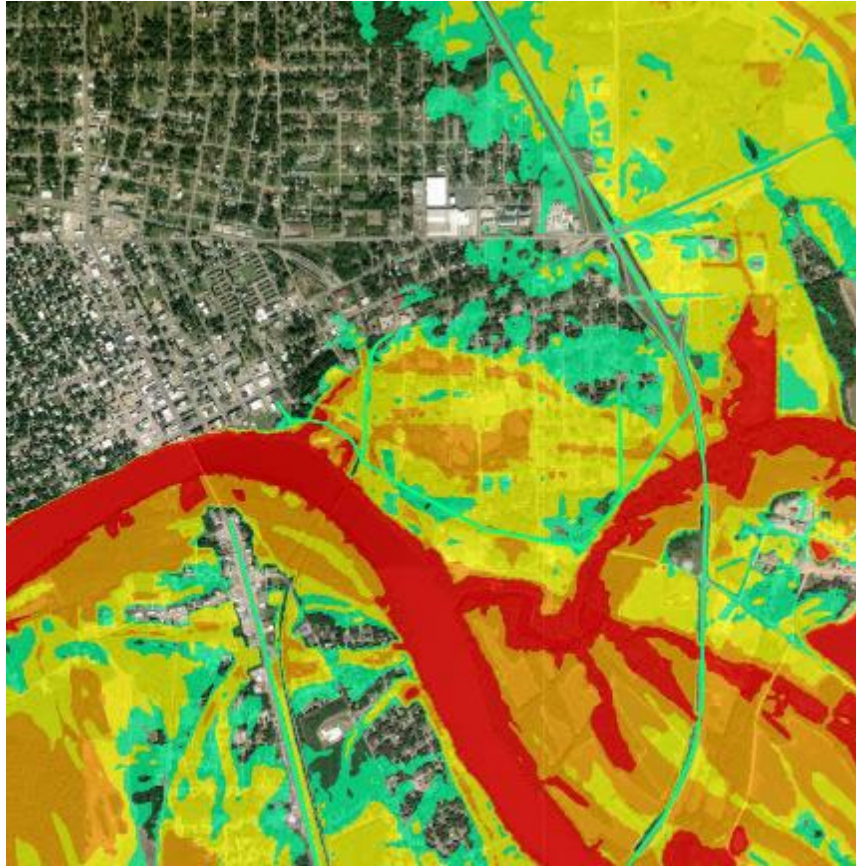
FWP (with levee)





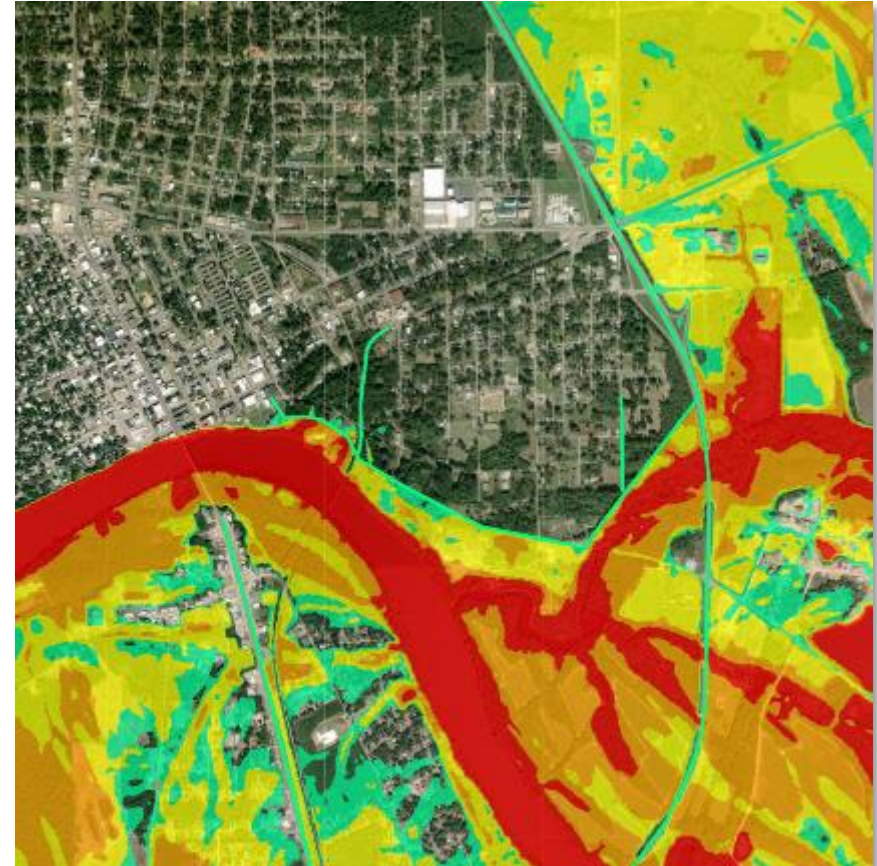
VIEW CONSEQUENCE RESULTS

FWOP



Population at Risk: 1,960
Property Damage: \$80M
Structures Inundated: 849

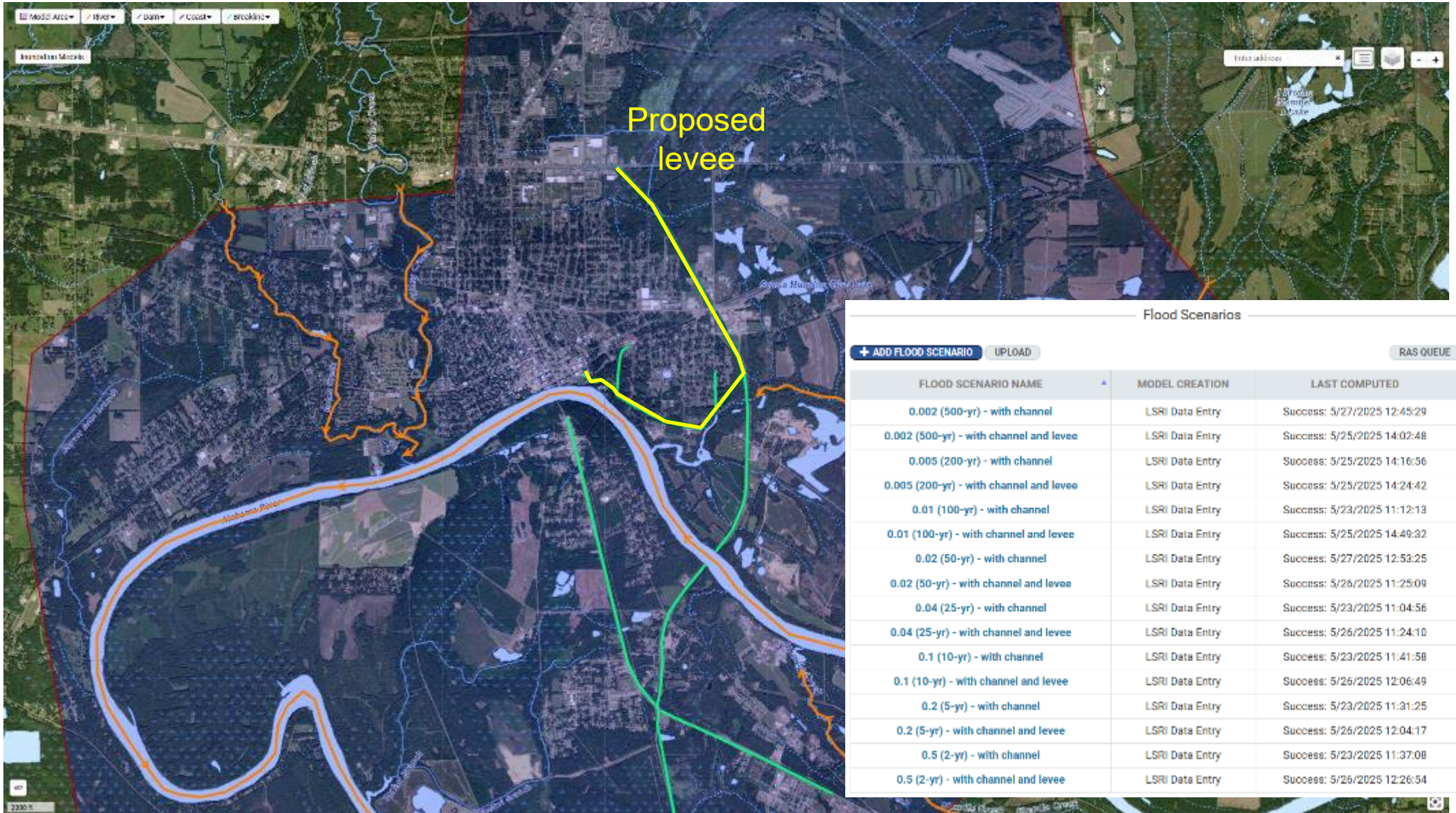
FWP (with levee)



Population at Risk: 1,391
Property Damage: \$63M
Structures Inundated: 626



REFINE MODEL AND ADD INUNDATION SCENARIOS



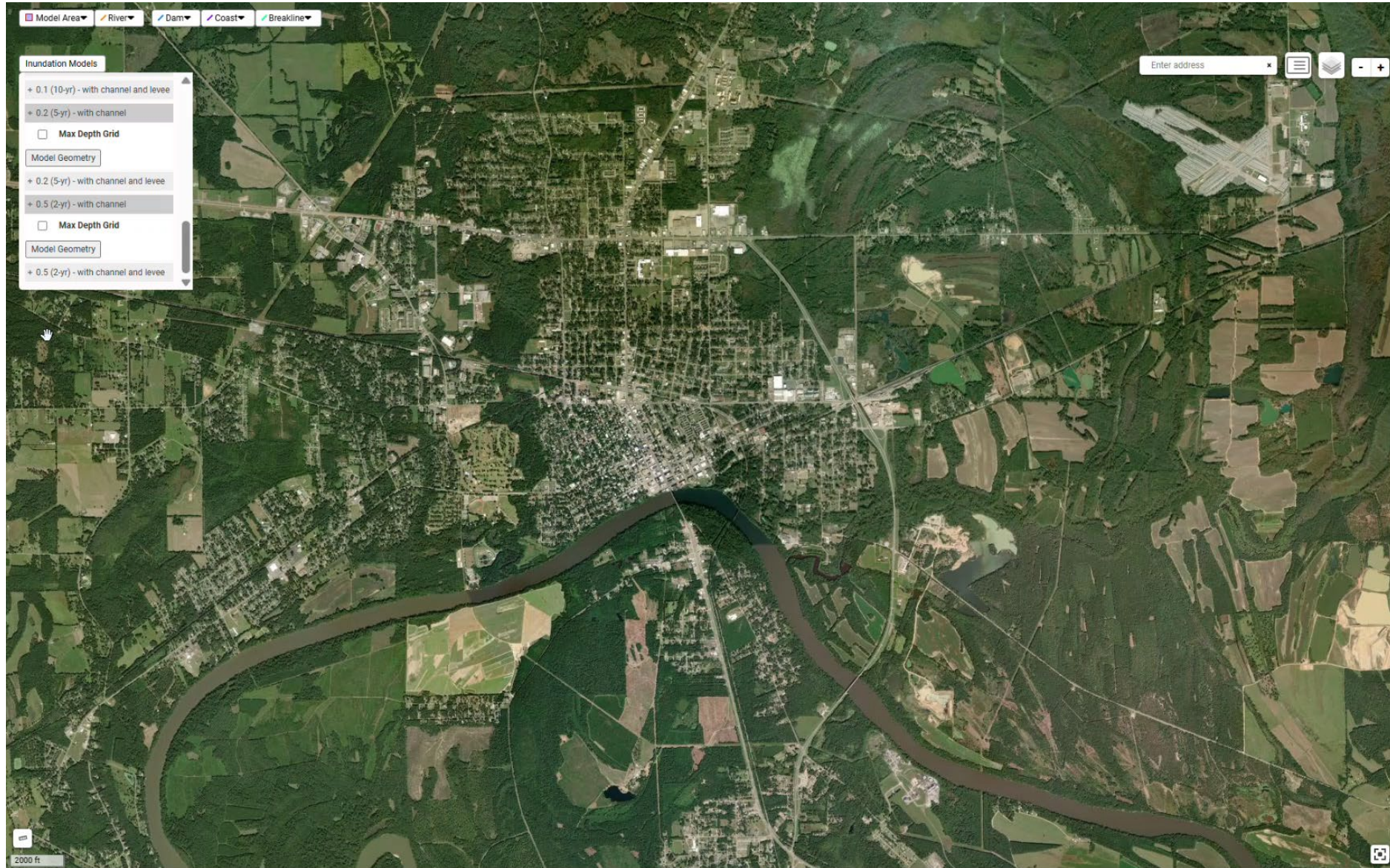
Flood Scenarios

+ ADD FLOOD SCENARIO UPLOAD RAS QUEUE DOWNLOAD

FLOOD SCENARIO NAME	MODEL CREATION	LAST COMPUTED	ACTION(S)
0.002 (500-yr) - with channel	LSRI Data Entry	Success: 5/27/2025 12:45:29	
0.002 (500-yr) - with channel and levee	LSRI Data Entry	Success: 5/25/2025 14:02:48	
0.005 (200-yr) - with channel	LSRI Data Entry	Success: 5/25/2025 14:16:56	
0.005 (200-yr) - with channel and levee	LSRI Data Entry	Success: 5/25/2025 14:24:42	
0.01 (100-yr) - with channel	LSRI Data Entry	Success: 5/23/2025 11:12:13	
0.01 (100-yr) - with channel and levee	LSRI Data Entry	Success: 5/25/2025 14:49:32	
0.02 (50-yr) - with channel	LSRI Data Entry	Success: 5/27/2025 12:53:25	
0.02 (50-yr) - with channel and levee	LSRI Data Entry	Success: 5/26/2025 11:25:09	
0.04 (25-yr) - with channel	LSRI Data Entry	Success: 5/23/2025 11:04:56	
0.04 (25-yr) - with channel and levee	LSRI Data Entry	Success: 5/26/2025 11:24:10	
0.1 (10-yr) - with channel	LSRI Data Entry	Success: 5/23/2025 11:41:58	
0.1 (10-yr) - with channel and levee	LSRI Data Entry	Success: 5/26/2025 12:06:49	
0.2 (5-yr) - with channel	LSRI Data Entry	Success: 5/23/2025 11:31:25	
0.2 (5-yr) - with channel and levee	LSRI Data Entry	Success: 5/26/2025 12:04:17	
0.5 (2-yr) - with channel	LSRI Data Entry	Success: 5/23/2025 11:37:08	
0.5 (2-yr) - with channel and levee	LSRI Data Entry	Success: 5/26/2025 12:26:54	



VIEW INUNDATION SCENARIOS





STRUCTURE INVENTORY



LSRI Life Safety Risk Indicator 2.2.6 PROJECTS SUSANNAH BYRD | ADMINISTRATOR ▾ HELP LOGOUT

Project Information **Consequences** Risk

Inundation Structure Inventory LifeSim Compute Consequence Results

+ ADD NEW STRUCTURE INVENTORY Base Inventory (Updated 6/10/2025 09:54:15) 📄 🗑️

Project Area Information

[Map](#) | [Structure Summary](#)

Base Data	
Day population in Project Area	27,212
Night population in Project Area	24,656
Number of Structures in Project Area	9,537
Property Value in Project Area (\$1000s)	4,811,747

Index Factors	
Population Day Index Factor *	<input type="text" value="1.0"/>
Population Night Index Factor *	<input type="text" value="1.0"/>
Property Value Index Factor *	<input type="text" value="1.0"/>

Indexed Data (Used In Compute)	
Daytime Population Estimate	27,212
Nighttime Population Estimate	24,656
Number of Structures in Project Area	9,537
Property Value in Project Area (\$1000s)	4,811,747

Enter address

2 mi | Project Area: 56.81 sq mi, River Centerline: 5.70 miles, Lat: 32.48394, Lng: -86.82006

Comments

Enter Comment



LIFESIM PARAMETERS



LSRI Life Safety Risk Indicator 2.2.6 PROJECTS SUSANNAH BYRD | ADMINISTRATOR HELP LOGOUT

Project Information **Consequences** Risk

Inundation Structure Inventory LifeSim Co

Flood Warning Effectiveness ?

SELECT THE RATING THAT BEST DESCRIBES THE THREATENED COMMUNITY'S FLOOD WARNING PROCEDURE EFFECTIVENESS FOR A FLOOD SCENARIO. CONTACT THE EMA FOR INFORMATION. RATE FLOOD WARNING EFFECTIVENESS USING THE FOLLOWING GUIDELINES:

- **Fast** – The community's EMA has a written warning plan and standard operating procedures for issuing warnings. Responsibility for issuing a warning are clearly defined, warning thresholds are in place that relate the flood threat to the recommended public protective action, and SOP drills are regularly conducted. Additionally, the EMA has access to multiple warning systems or channels (e.g., auto-dial telephones, Wireless Emergency Alert, sirens, etc) that would be use in the case of a major flood event.
- **Medium** – The community's EMA has an emergency evacuation plan with general guidance on warning procedures. However, roles are not clearly defined, and SOP drills are not conducted regularly. The warning process relies primarily on emergency responders to spread the warning. The procedures are reviewed and updated at regular intervals.
- **Slow** – An emergency action plan does not exist or has not been updated at regular intervals. Flood warning procedures do not exist or are outdated.

Which category best describes the flood warning effectiveness in the impacted area?

Legend: Flood Specific (Grey), All Hazards (Blue), None or Outdated (Dark Grey)

Legend: Flood Specific (Grey), All Hazards (Blue), None or Outdated (Dark Grey)

90% Confidence Interval
Mean

Hazard Advanced Notice

How would you describe the amount of warning time available prior to first structure getting wet?

Moderate



SETUP AND VIEW RISK CALCULATIONS



Project - Selma FRM - Full analysis - SB clone

Switch



Project Information Consequences **Risk**

+ ADD NEW RISK

RISK CALCULATION NAME ▲	EXPECTED ANNUAL LIFE LOSS	EXPECTED ANNUAL DAMAGE	COMPARE WITH	EALL REDUCED	EAD REDUCED	ACTION(S)
Existing NSI with channel	0.12	\$8,610,239.26	Select one... ▾	N/A	N/A	
Existing NSI with channel and levee	0.12	\$7,283,489.49	Existing NSI with channel ▾	0	\$1,326,749.77	



OKAY... BUT WHEN SHOULD TEAMS USE IT?



Instances the LSRI could be the most helpful tool:

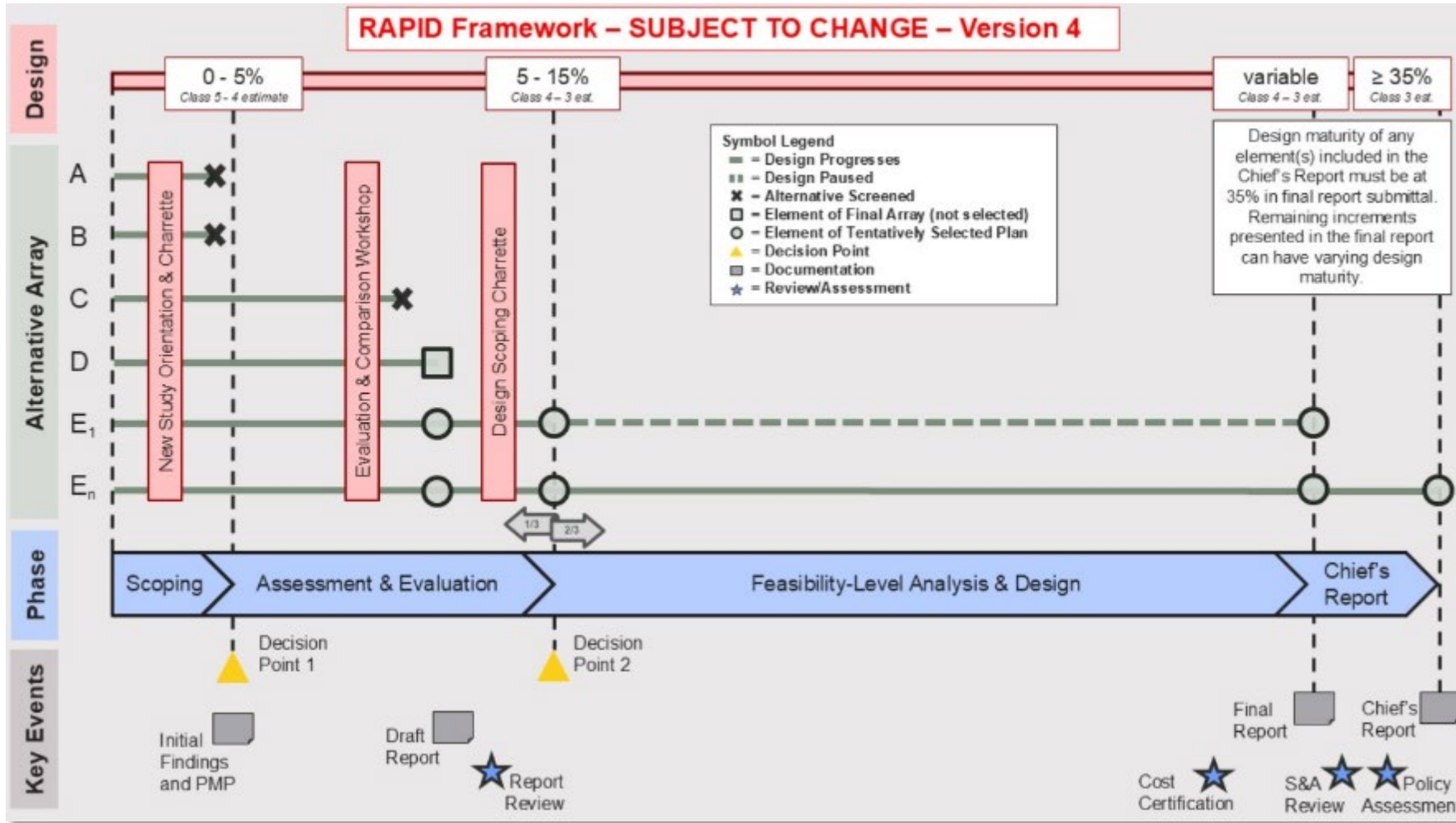
- *Very limited to no H&H data:*
 1. No current RAS model available
 2. Have enough information to create simplified hydrographs
 3. Need to demonstrate the flood risk in the area
- *Team wants to quickly model FWOP & measures:*
 1. Can quickly model levees, floodwalls, channel improvements
 2. Can understand where flood risk is concentrated
 3. Model some nonstructural measures:
 - Buyouts/relocations
 - FWEPP
 - Elevations
- *Econ team member newer/not confident in “creative” screening using other tools*

Instances other tools might be better:

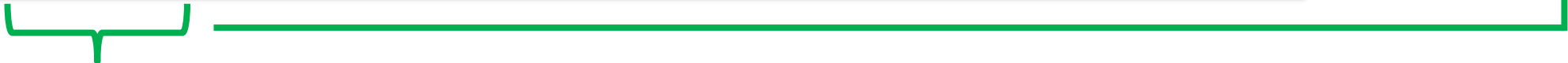
- *Recent RAS models are available:*
 1. Modelers can make the same rough assumptions in RAS that they can in the LSRI
 - No need to add an extra step if you already have a RAS model
 2. Can use LifeSim or HEC-FDA for quick screening
- *Team wants to model more complex measures/alternatives:*
 1. Dry dams, pump stations, etc. cannot be easily modeled in the LSRI
- *Recent HEC-FDA and/or LifeSim models are available:*
 1. If there are existing RAS models *and* econ models available, use those tools for screening



OKAY... BUT WHEN SHOULD TEAMS USE IT?



A: Teams should use certified models once they have identified their final array





LSRI 2.0 CONTACT INFORMATION



Planning Lead:

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Economics and Life Risk NTS

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Technical Lead:

Woody Fields

Lead Consequence Specialist

IWR | RMC

Request access and general questions: [DLL-CWBI-LSRI-Support](#)

LSRI2 URL: <https://lsri.sec.usace.army.mil/>