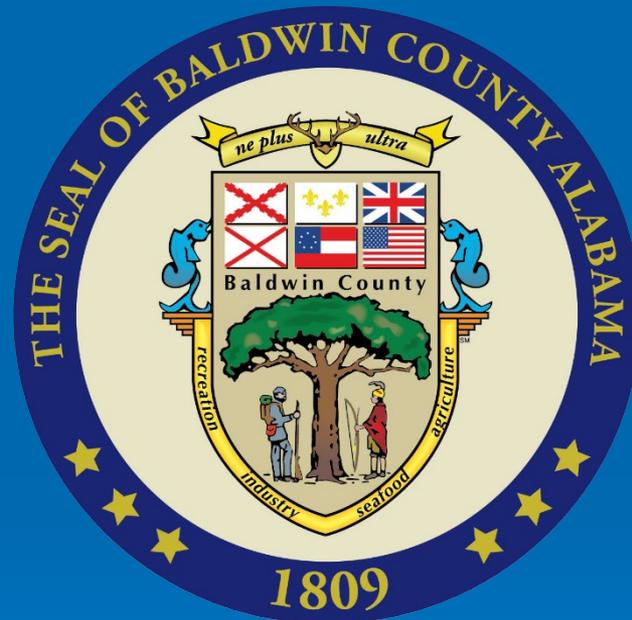


Overview of Automated GSSHA Watershed Analysis (AGWA) Stormwater Modeling



Baldwin County



AGWA

□ Objectives

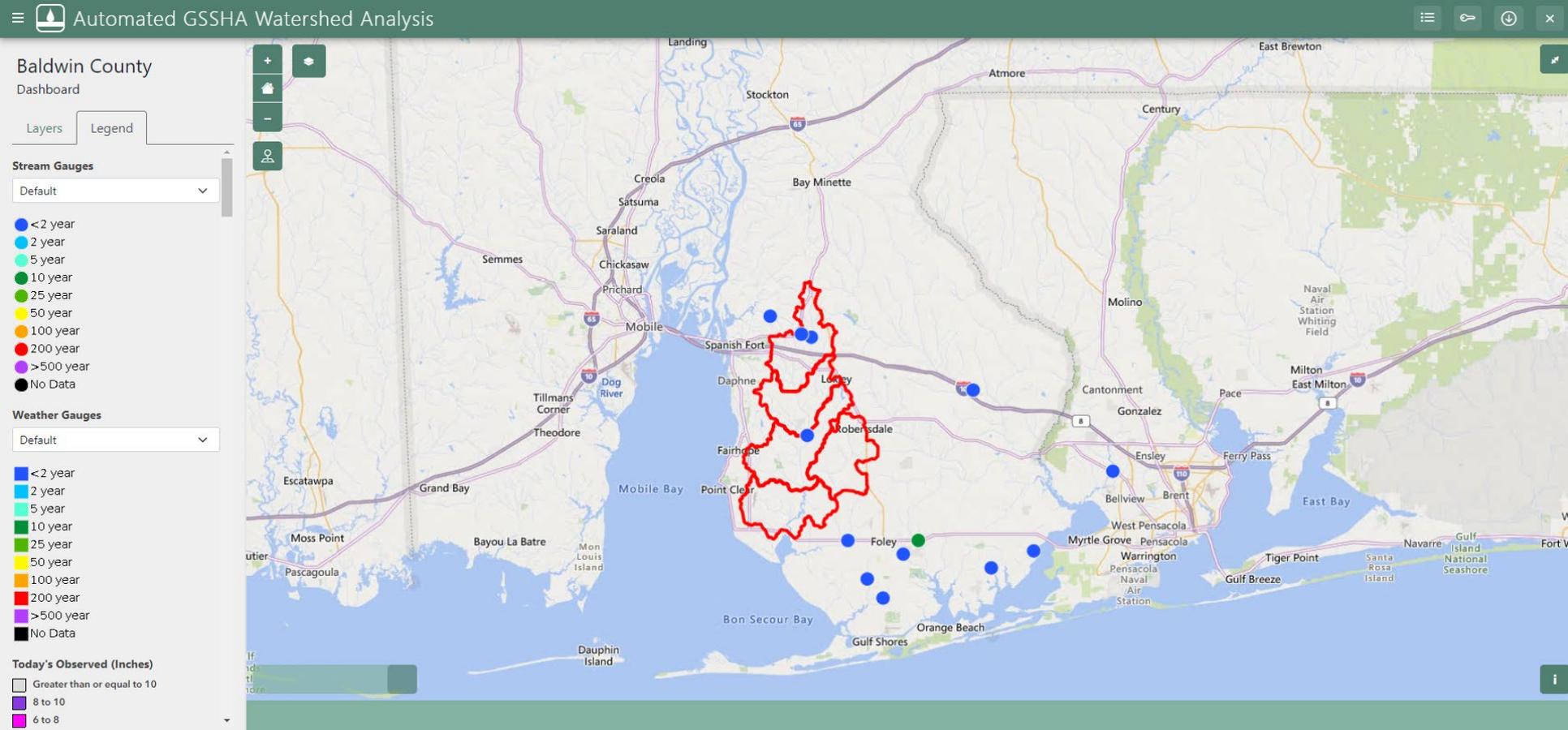
- Classifying storm and discharge events
- GSSHA stormwater modeling overview
- Stormwater management
 - GSSHA operations performed manually
 - AGWA
- Information needed for evaluating designs by County



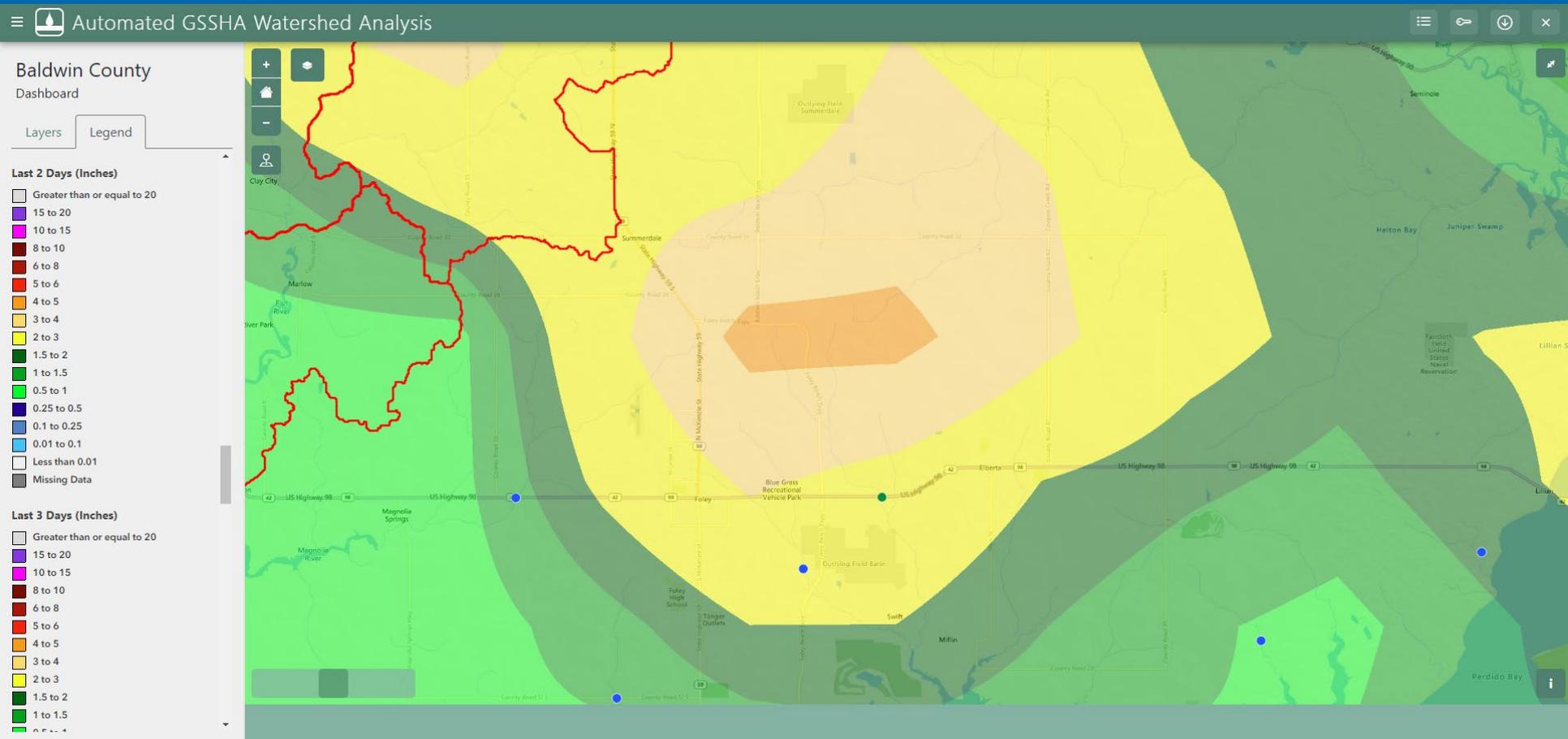
Storm and Discharge Classification



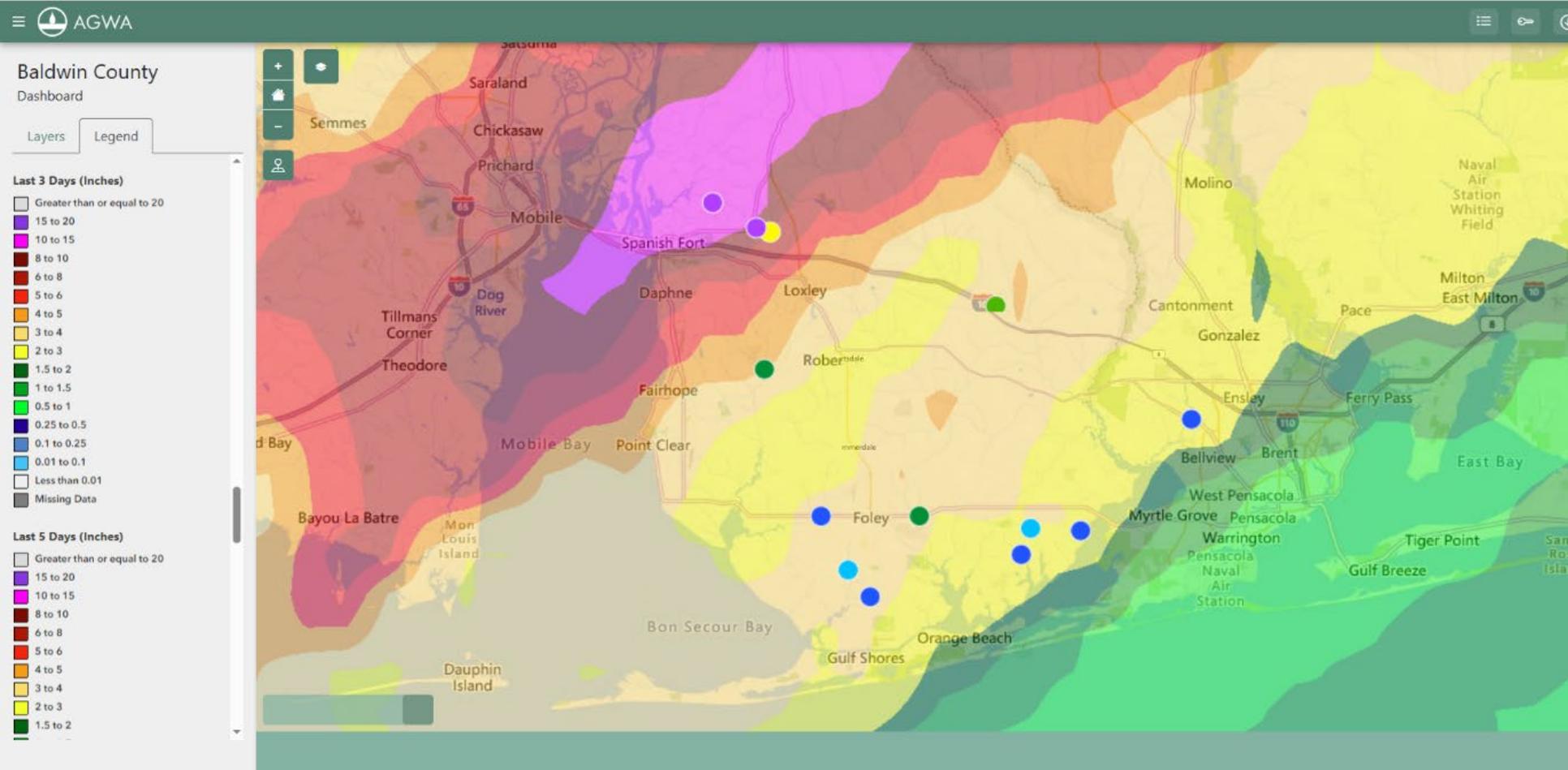
June 2nd and 3rd Event 2024



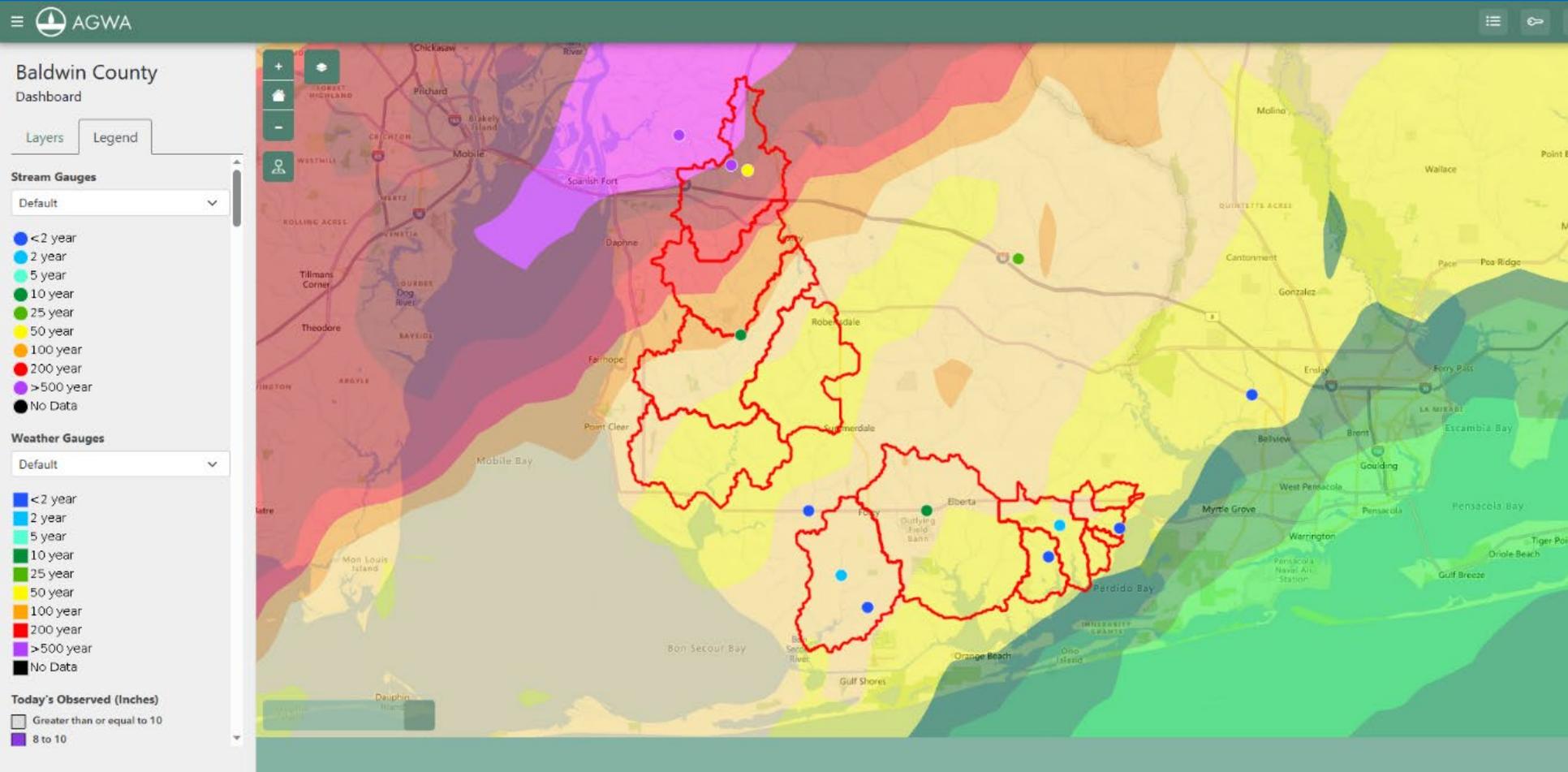
June 2nd and 3rd Event 2024



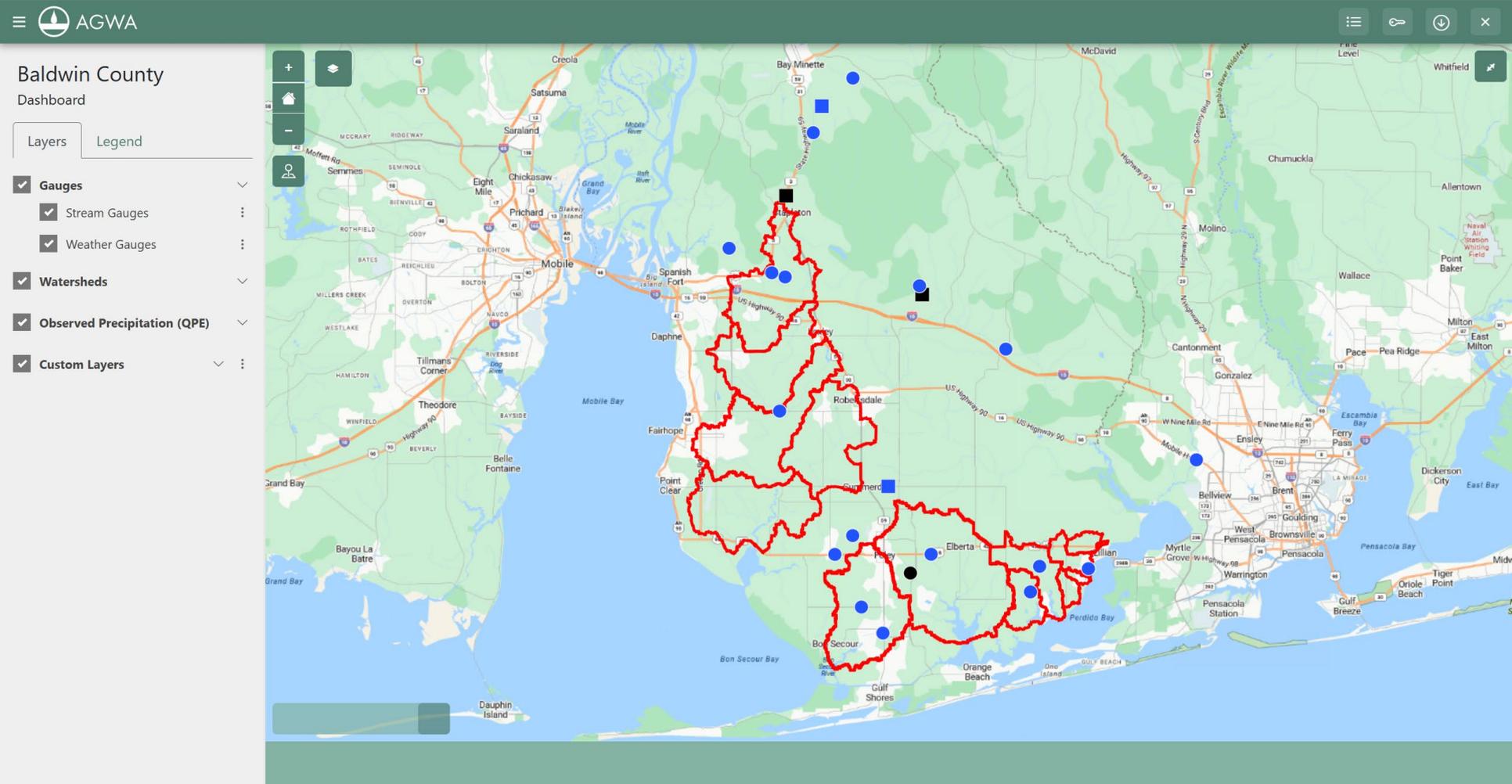
April 6th 2025 Storm Event



April 6th 2025 Discharge Event



Current Stream Gauges and Weather Stations



GSSHA Models

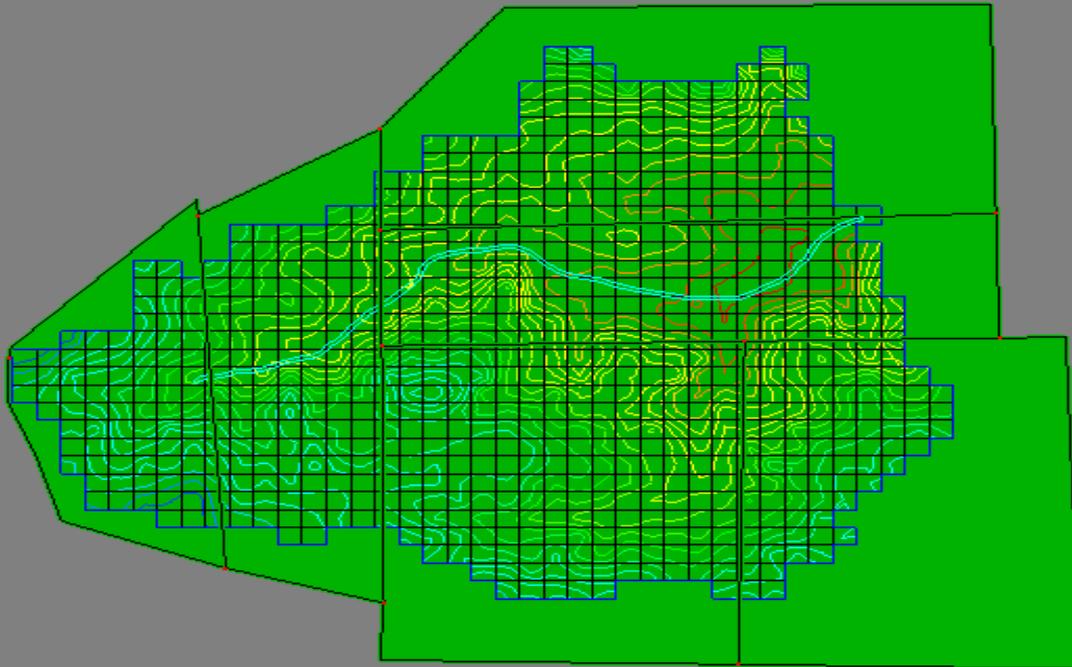


GSSHA

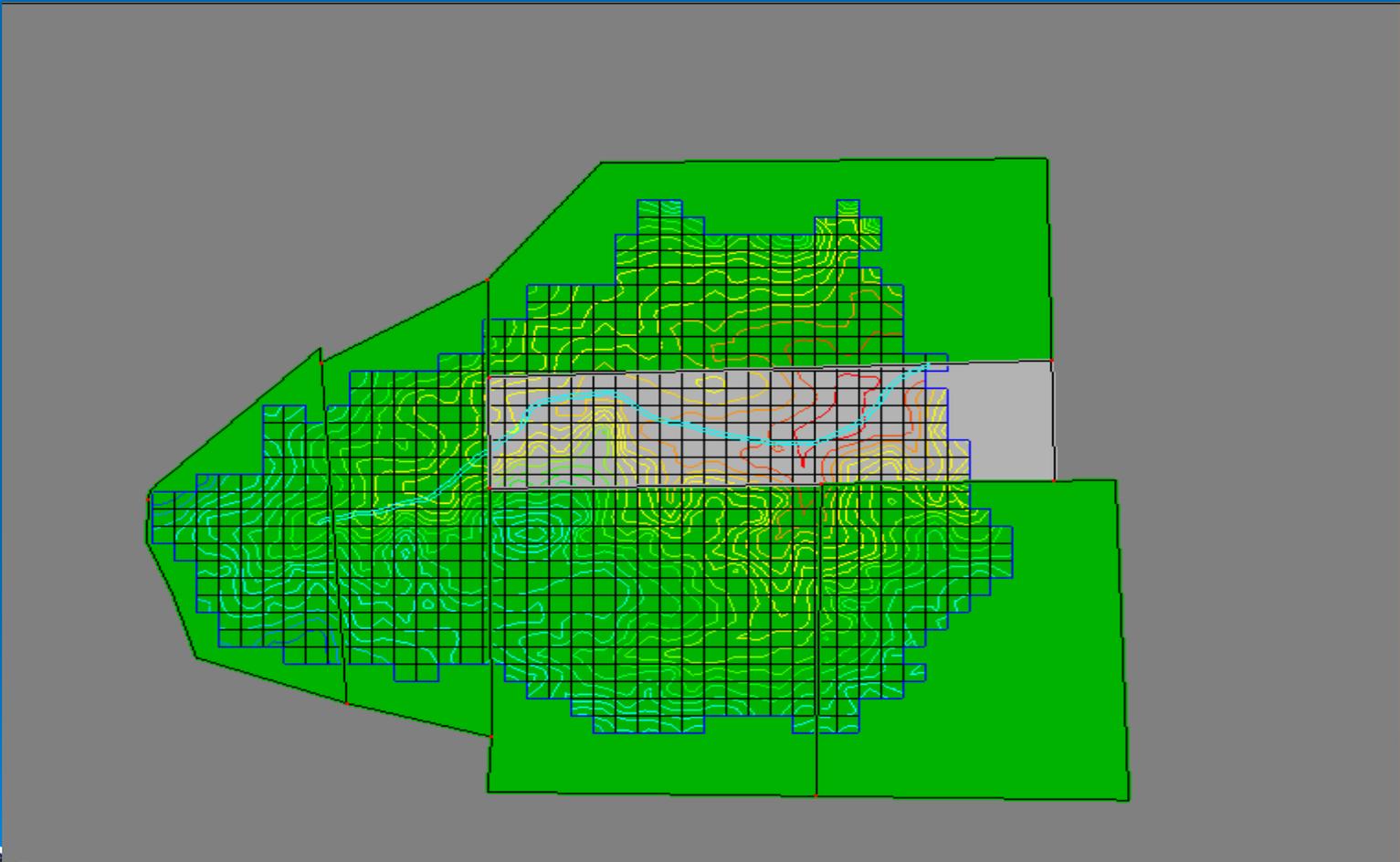
- Distributed, physics-based hydrologic model
- Developed and supported by the USACOE
- Simulates a watershed's response to meteorological inputs
- Ability to simulate extended periods of time
- Accounting for soil moisture between precipitation events (antecedent moisture conditions)



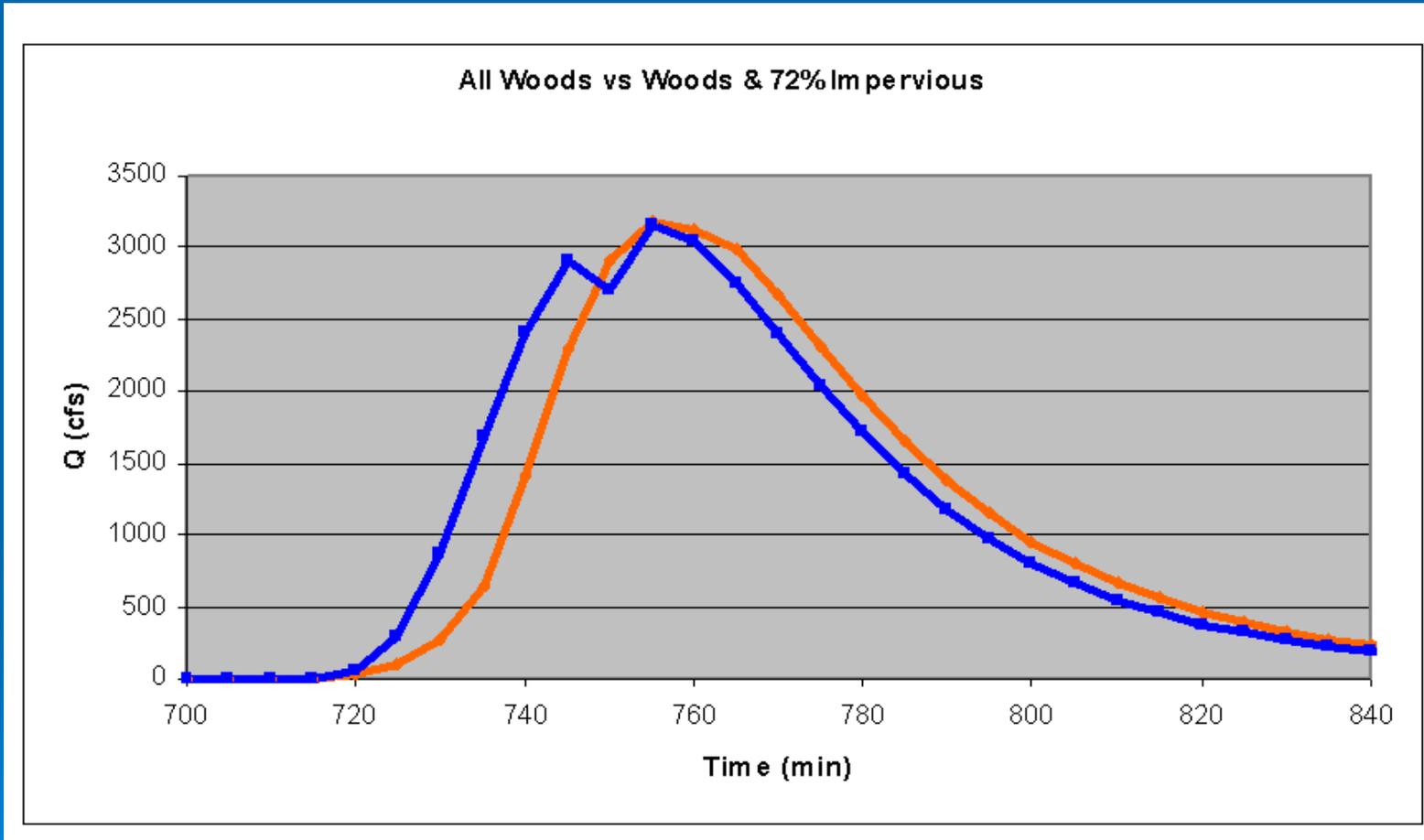
ALL WOODS



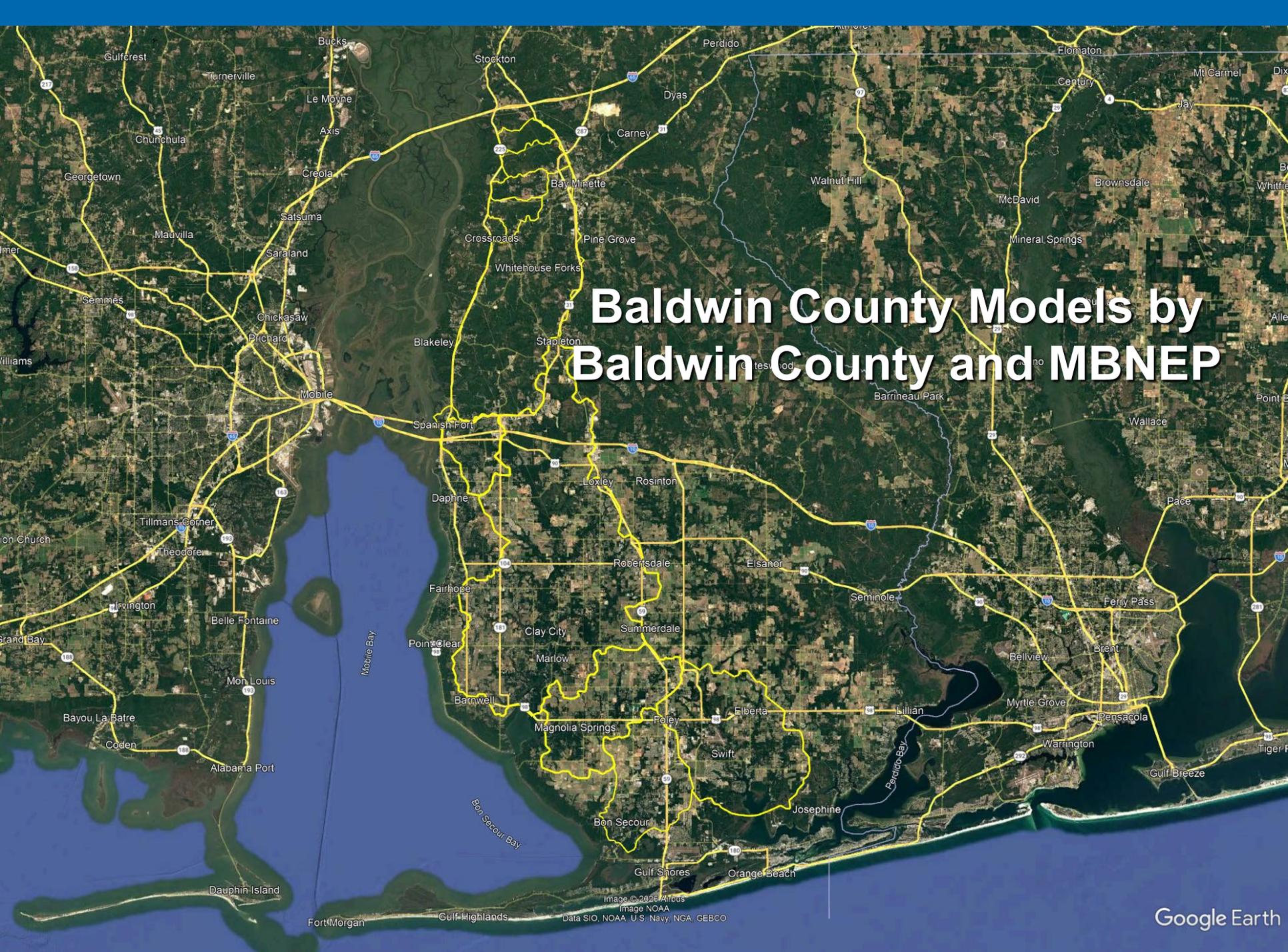
WOODS WITH DEVELOPMENT ALONG STREAM



HYDROGRAPHS



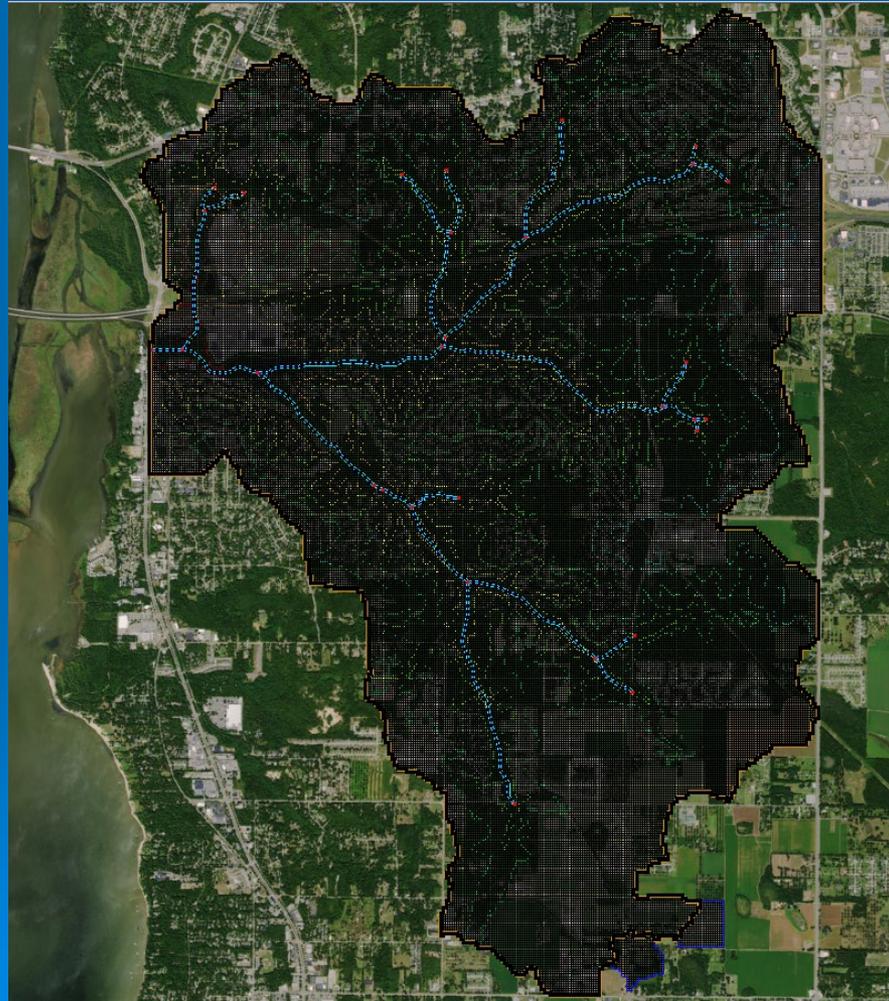
Baldwin County Models by Baldwin County and MBNEP



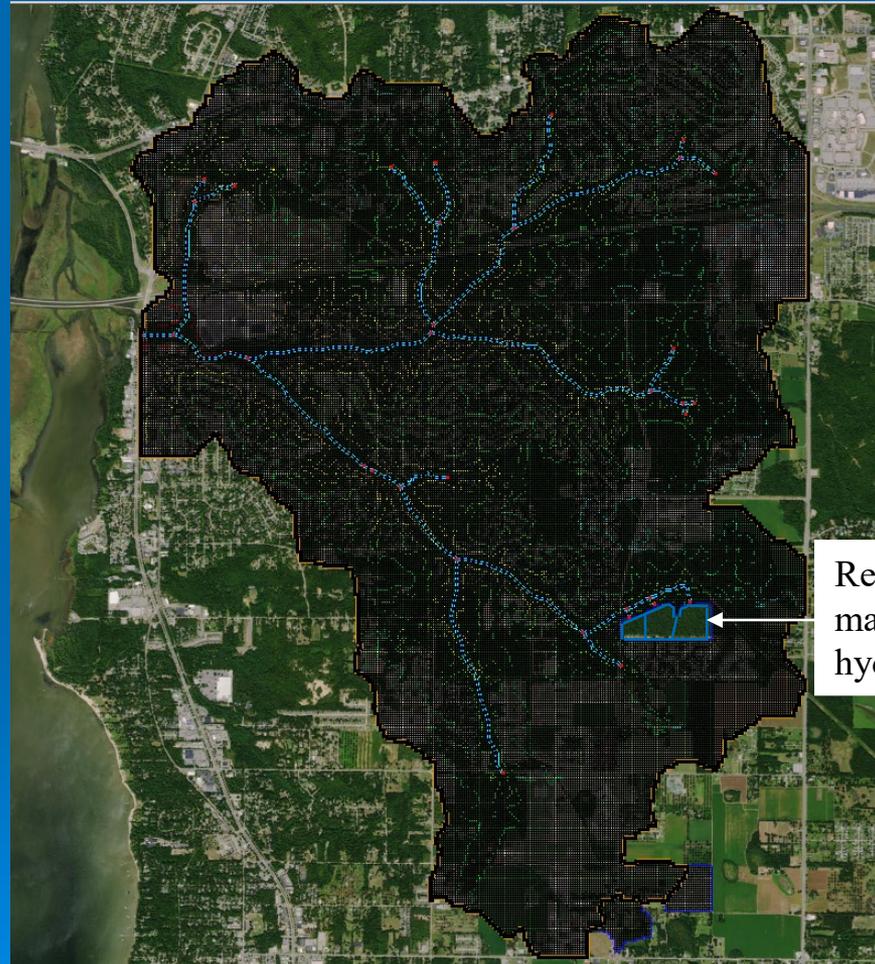
Stormwater Management Examples



Original GSSHA Model



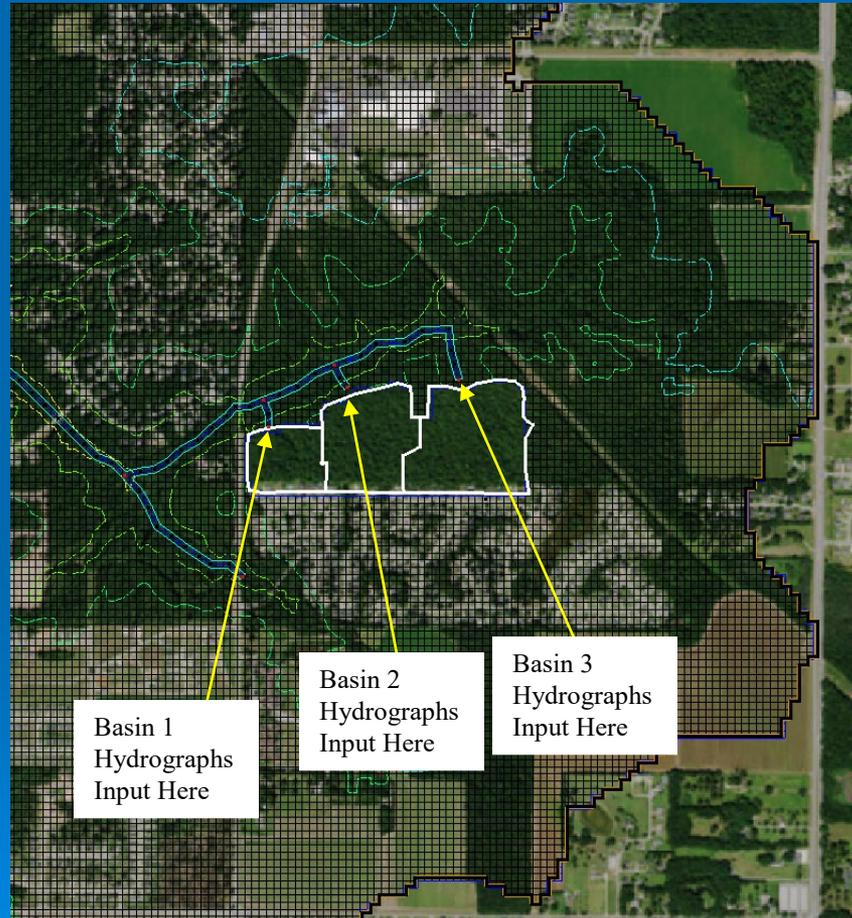
Modified GSSHA Model



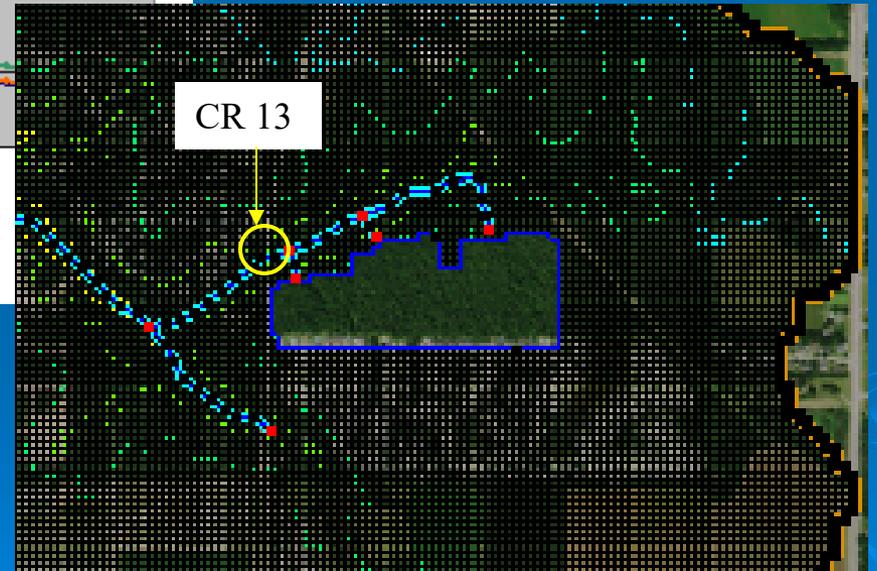
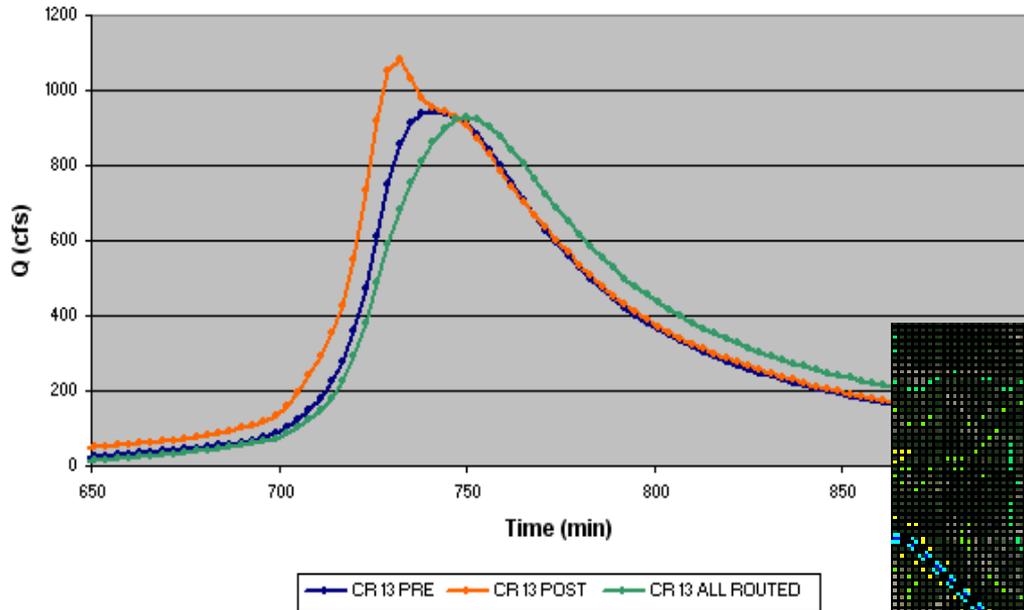
Remove grid cells and manually enter hydrographs at nodes



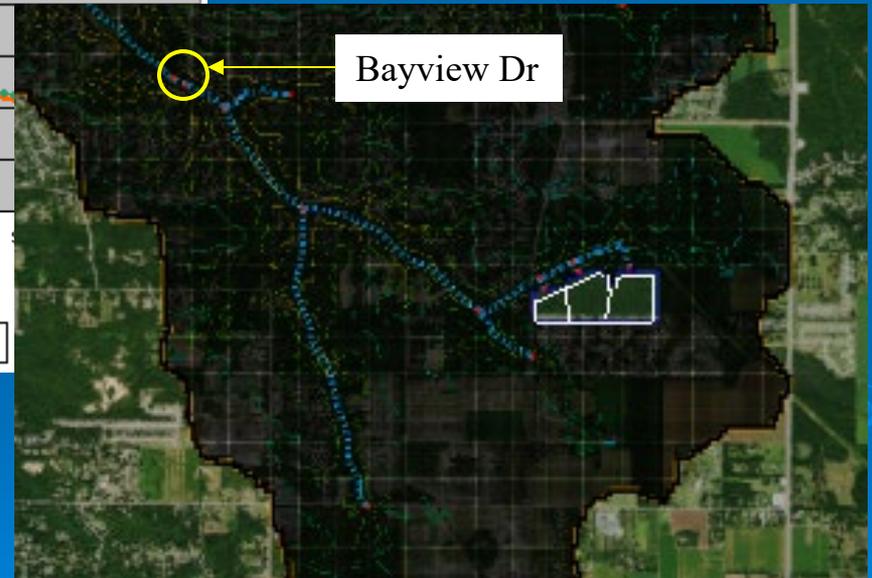
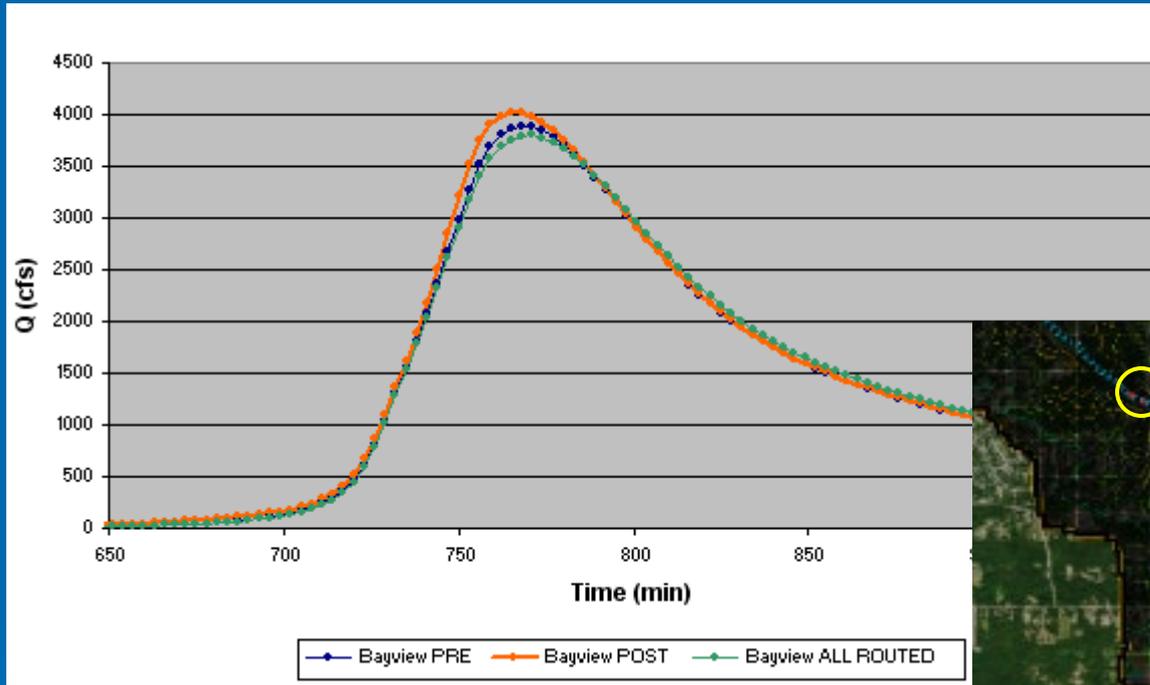
Modified GSSHA Model



Hydrographs at CR 13

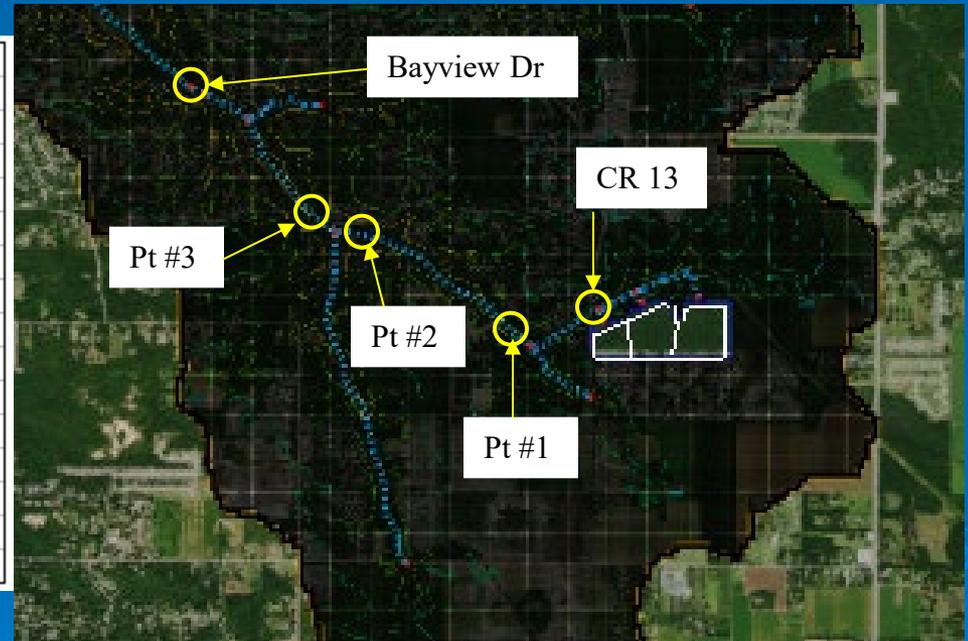


Hydrographs at Bayview Drive



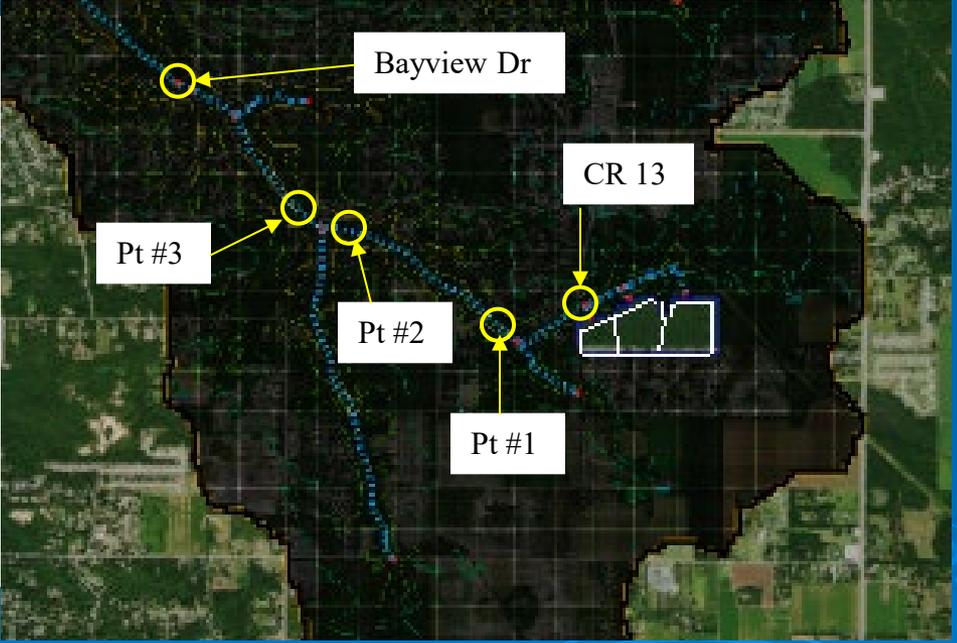
100 Year Discharge Comparisons

Diamante Subdivision Watershed Results 100 Year Discharges			
Location	Pre (cfs)	Post (cfs)	All Ponds Route (cfs)
CR 13	943	1081	930
Pt #1	1679	1818	1580
Pt #2	2129	2316	2007
Pt #3	3454	3564	3360
Bayview Bridge	3893	4020	3800



2 Year Discharge Comparisons

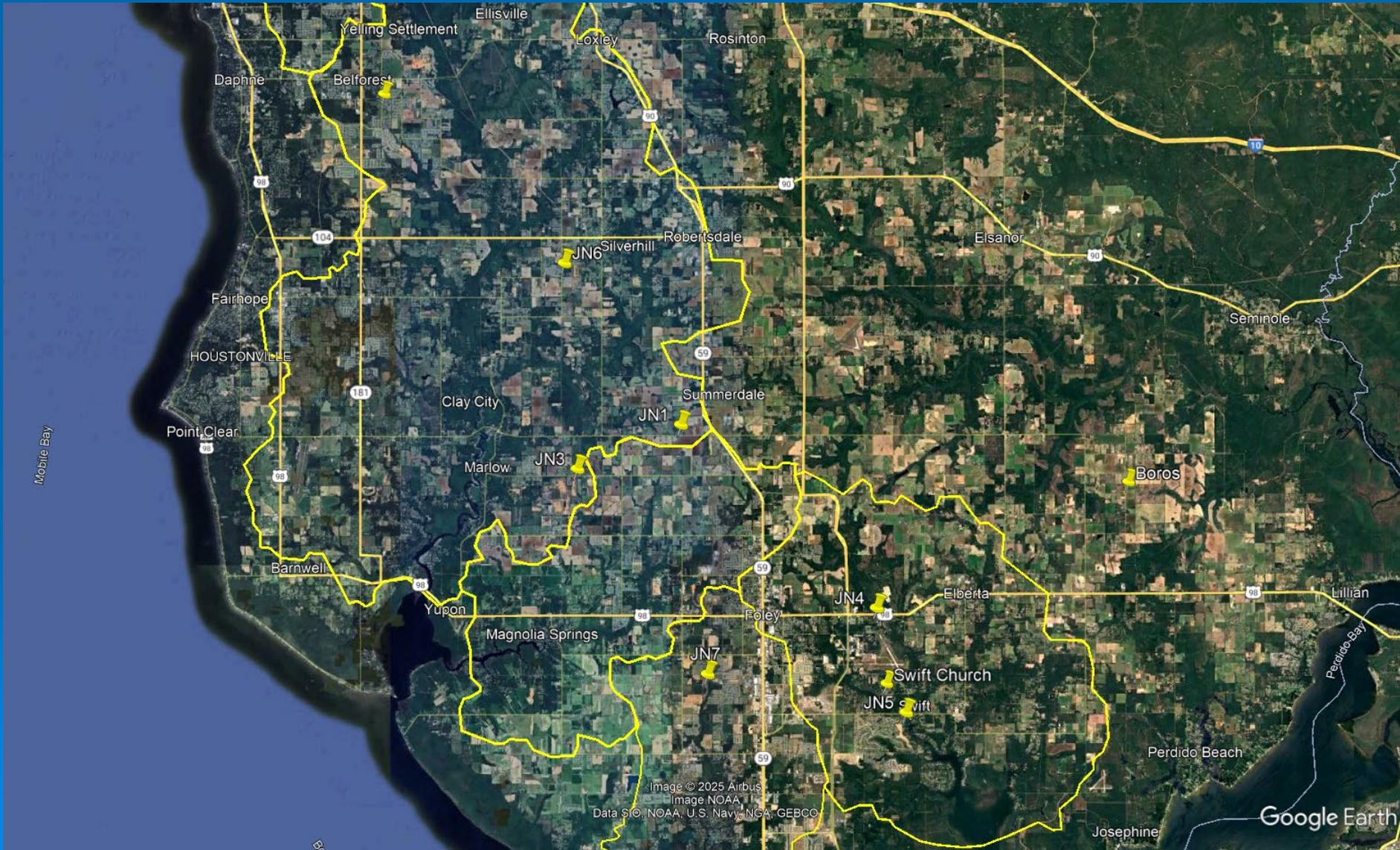
Diamante Subdivision Watershed Results			
2 Year Discharges			
Location	Pre (cfs)	Post (cfs)	All Ponds Route (cfs)
CR 13	283	307	275
Pt #1	570	640	539
Pt #2	762	857	727
Pt #3	1226	1309	1192
Bayview Bridge	1416	1507	1387



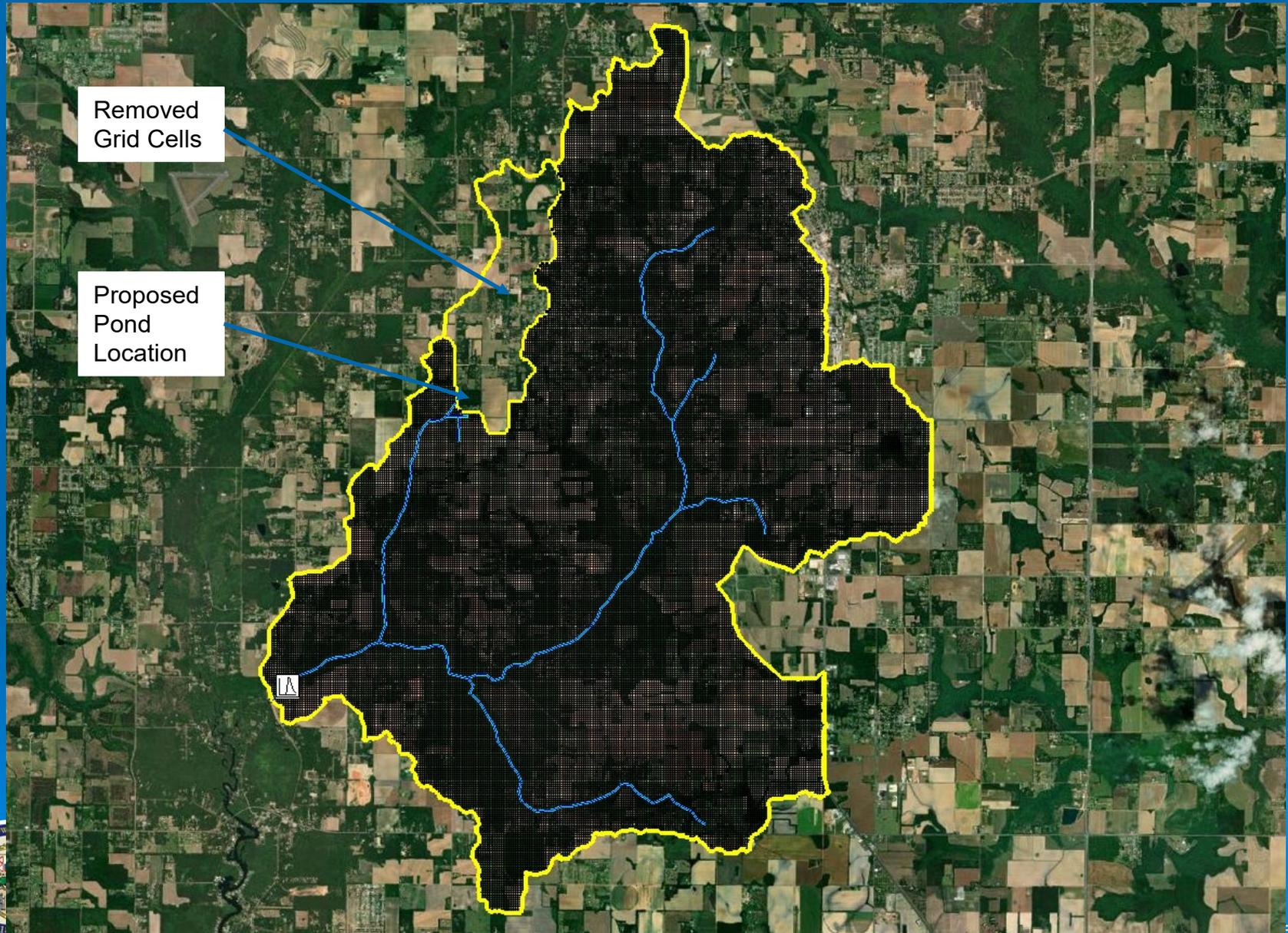
Baldwin County Stormwater Examples



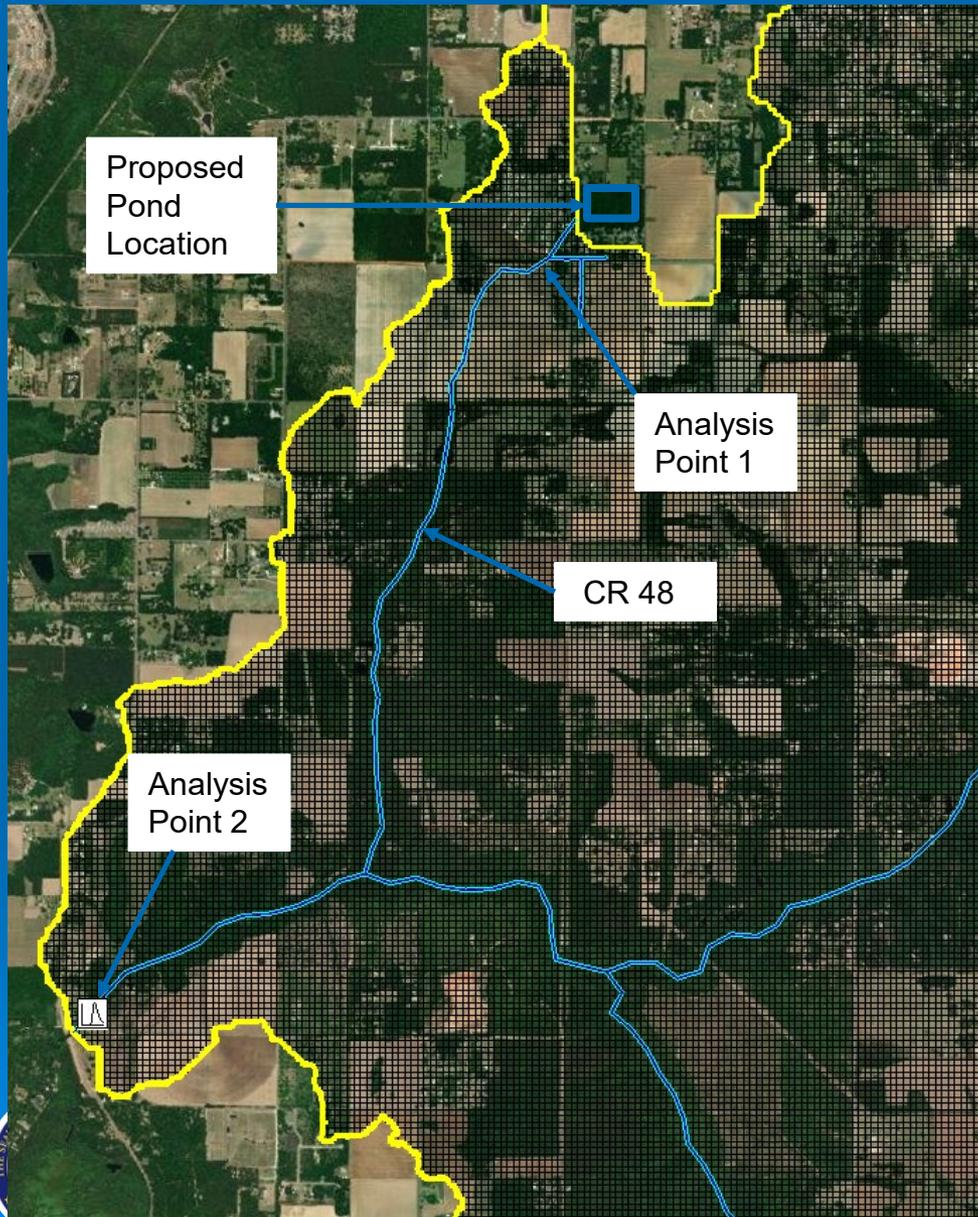
Stormwater Project Locations That Made Use of GSSHA Models Funded by MBNEP and Baldwin County



JN 6 Modified GSSHA Model

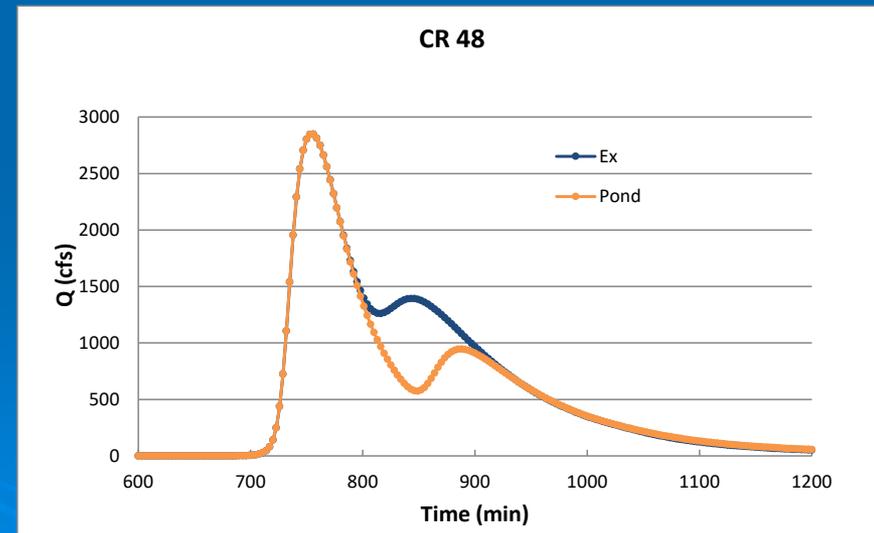
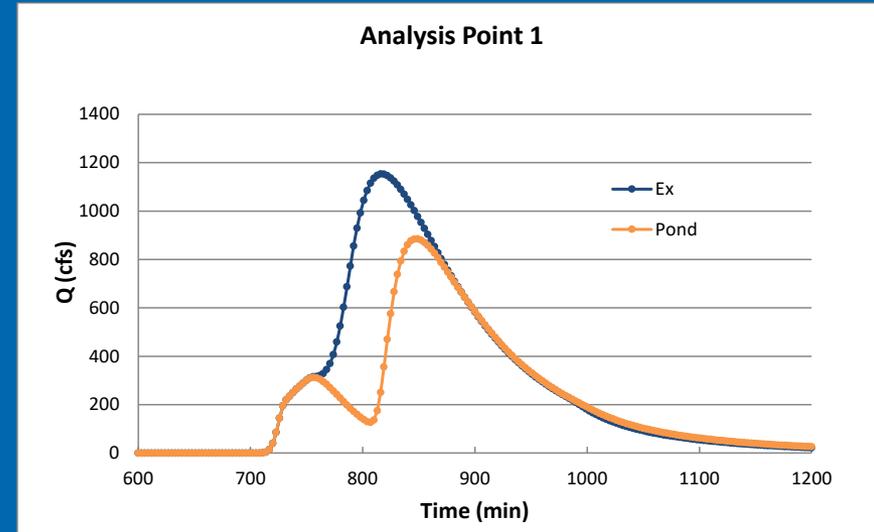
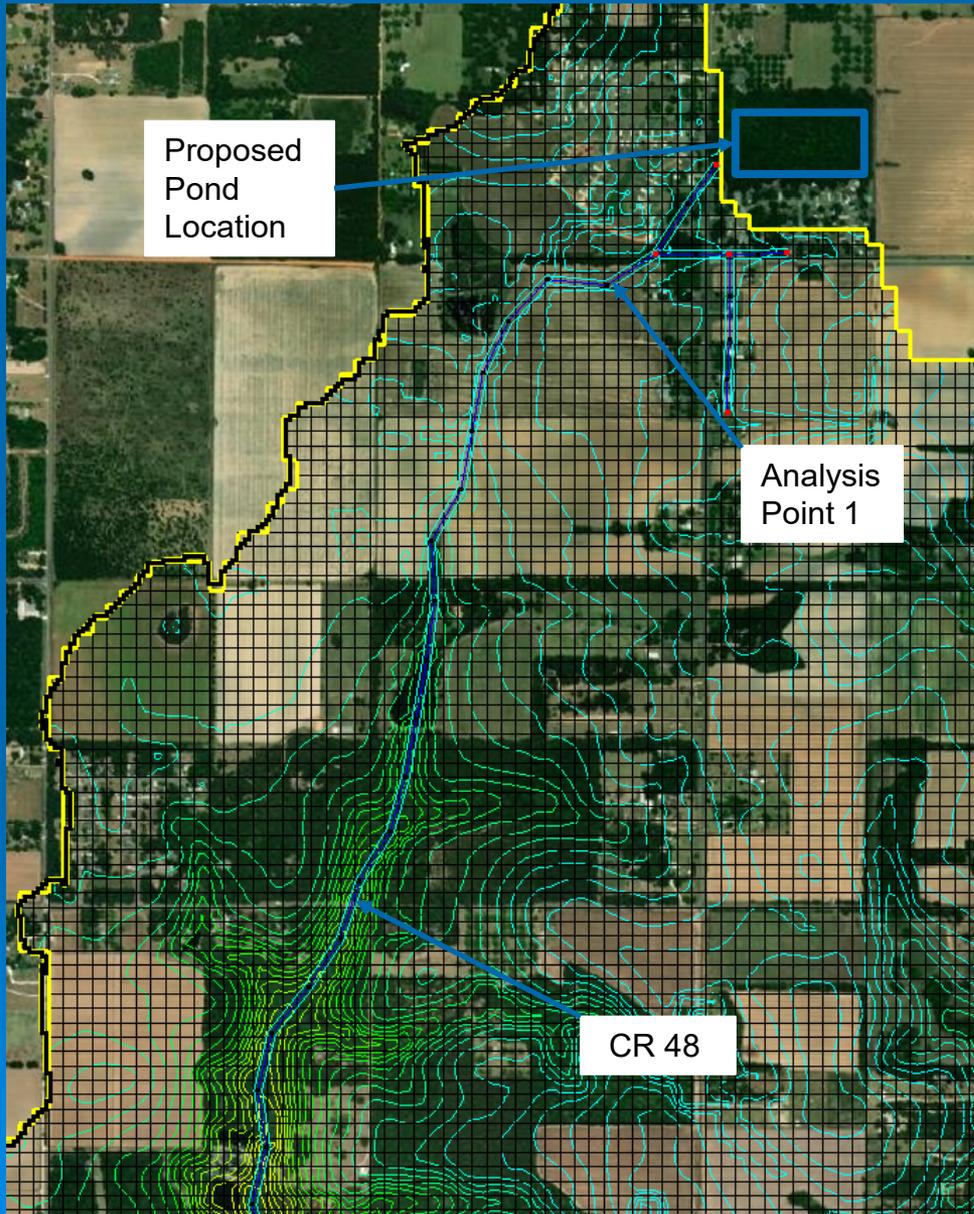


JN 6 Proposed Pond – Discharge Summary



	2 Year		100 Year	
	Ex	Pond	Ex	Pond
Pt 1	16	14	1154	885
CR 48	377	377	2849	2849
Pt 2	1448	1443	10393	10322

JN 6 Proposed Pond – 100 Year



Land Use Changes



Land Use Green Space Reclamation

AGWA

Bon Secour: Green Space Reclamation
Landuse Change Workflow

The workflow is locked for editing for all users.

Layers Workflow

- Define Areas to Change
Use the Polygon or Box tool or upload a shapefile to define areas of changing landuse classifications, or import a polygon shapefile.
- Choose Evaluation Points
- Select Flow Simulation Options
- Compute Flows
- Review Results

1000 m

Upload Shapefile Upload Image Reset Next

The image shows a satellite map of the Bon Secour area in South Carolina. A red polygon boundary is drawn around a central urban and agricultural area, including the town of Foley. Blue lines represent flow simulation paths, likely for water runoff, originating from the top and bottom of the polygon and moving towards the coast. The map includes labels for various roads (US Highway 98, County Road 12 S, County Road 10, Magnolia Springs Hwy, State Highway 59, Coastal Gateway Blvd, Main St, County Road 183) and landmarks (Foley High School, Blue Grass Recreational Vehicle Park, Magnolia Springs, Miflin). The interface includes a top navigation bar with the AGWA logo, a left sidebar with a workflow menu, and a bottom toolbar with navigation and action buttons.

Trailer Park

Bon Secour: Green Space Reclamation

Landuse Change Workflow

 The workflow is locked for editing for all users.

Layers | Workflow

Define Areas to Change

Use the Polygon or Box tool or upload a shapefile to define areas of changing landuse classifications, or import a polygon shapefile.

Choose Evaluation Points

Select Flow Simulation Options

Compute Flows

Review Results



Convert to Woods

AGWA

Bon Secour: Green Space
Reclamation
Landuse Change Workflow

The workflow is locked for editing for all users.

Layers Workflow

- Define Areas to Change
Use the Polygon or Box tool or upload a shapefile to define areas of changing landuse classifications, or import a polygon shapefile.
- Choose Evaluation Points
- Select Flow Simulation Options
- Compute Flows
- Review Results

Landuse Change Area

Location Name (required)
GS Reclamation

Landuse Classification
32: Woods - Good

Save

100 m

Upload Shapefile Upload Image Reset Next

Evaluation Points

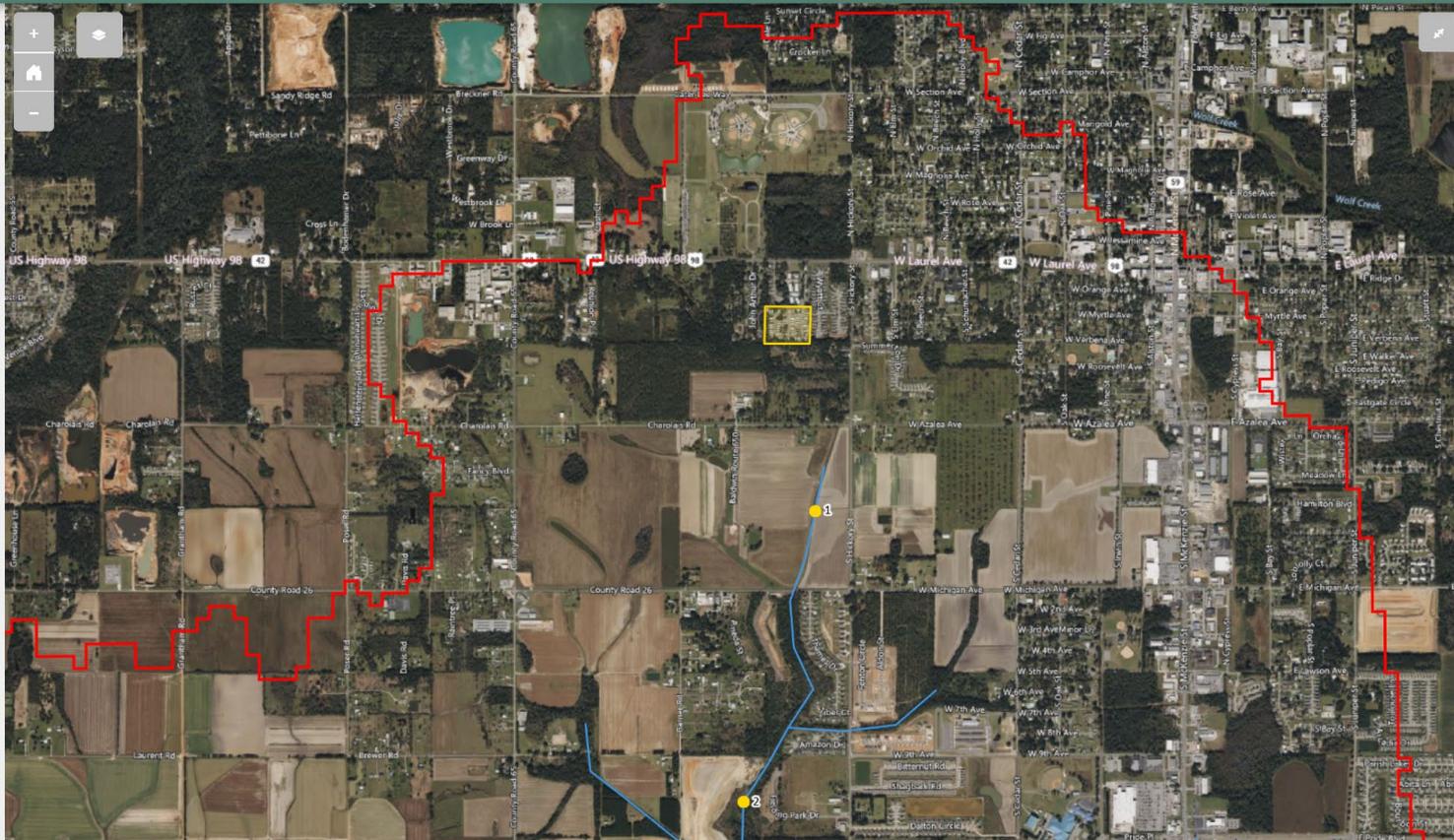
Bon Secour: Green Space
Reclamation
Landuse Change Workflow

The workflow is locked for editing for all users.

Layers Workflow

- Define Areas to Change
- Choose Evaluation Points
- Select Flow Simulation Options
- Compute Flows
- Review Results

Review the results from the route flows runs.



100 Year Change

Bon Secour: Green Space
Reclamation
Landuse Change Workflow

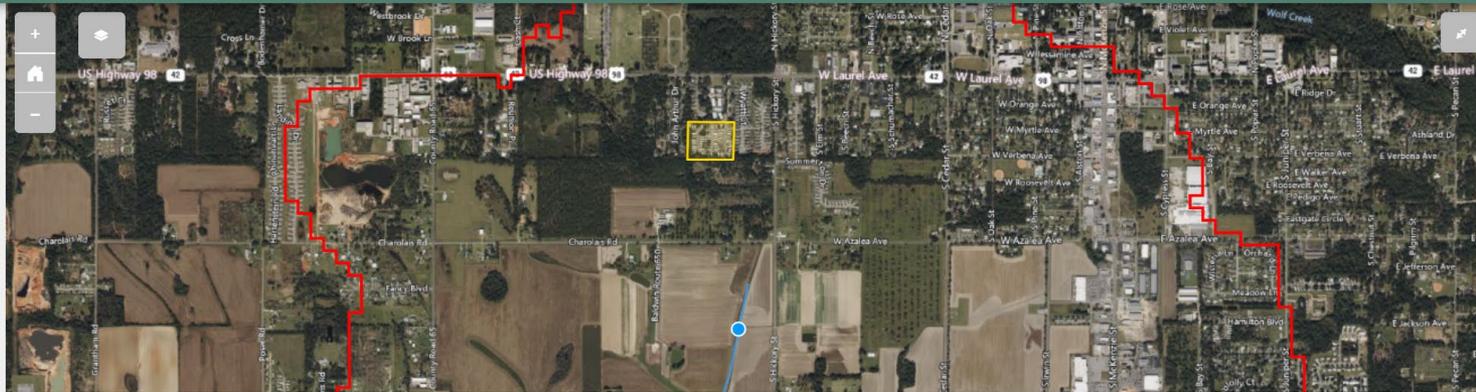
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Layers Workflow

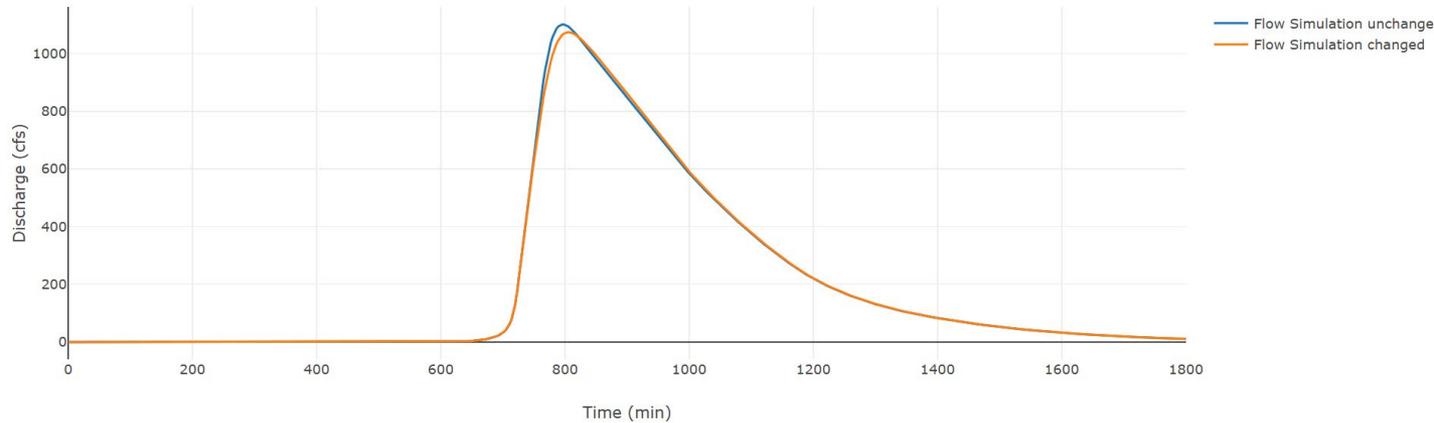
- Define Areas to Change
- Choose Evaluation Points
- Select Flow Simulation Options
- Compute Flows

Review Results

Review the results from the route flows runs.



Bon Secour 100YR2 Hydrographs for 1



100 Year Further Downstream

Bon Secour: Green Space

Reclamation

Landuse Change Workflow

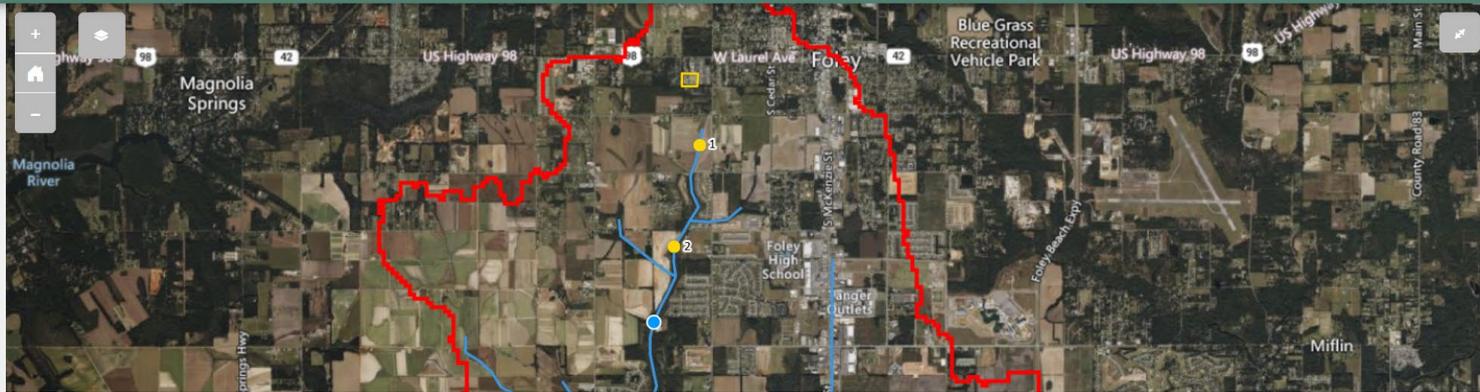
The workflow is locked for editing for all users.

Layers Workflow

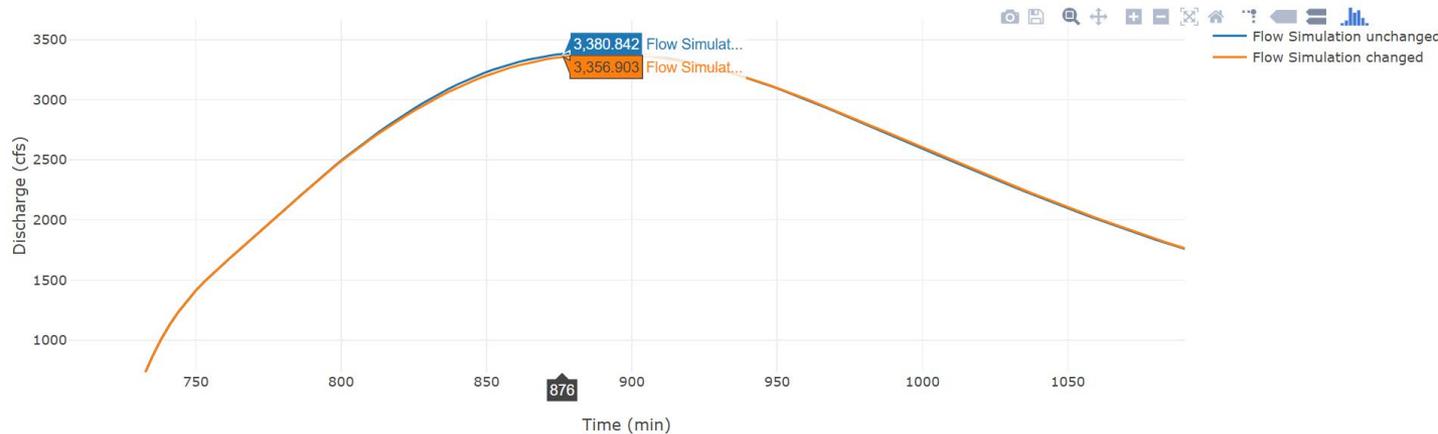
- Define Areas to Change
- Choose Evaluation Points
- Select Flow Simulation Options
- Compute Flows

Review Results

Review the results from the route flows runs.



Bon Secour 100YR2 Hydrographs for 3



Needed Data for Post Construction Review

- ❑ Drainage Area to the detention pond
 - Shape files zipped up WGS84 format
 - KMZ WGS84 format
 - CAD WGS84 format
- ❑ Tabular Hydrographs (same ordinates for example 3-min increments)
 - Pre 2, 25, 100-Year
 - Post 2, 25, 100-Year



QUESTIONS

