



# Escambia County Infrastructure Needs Assessment

Jack Brown, County Administrator

# Roads and Stormwater

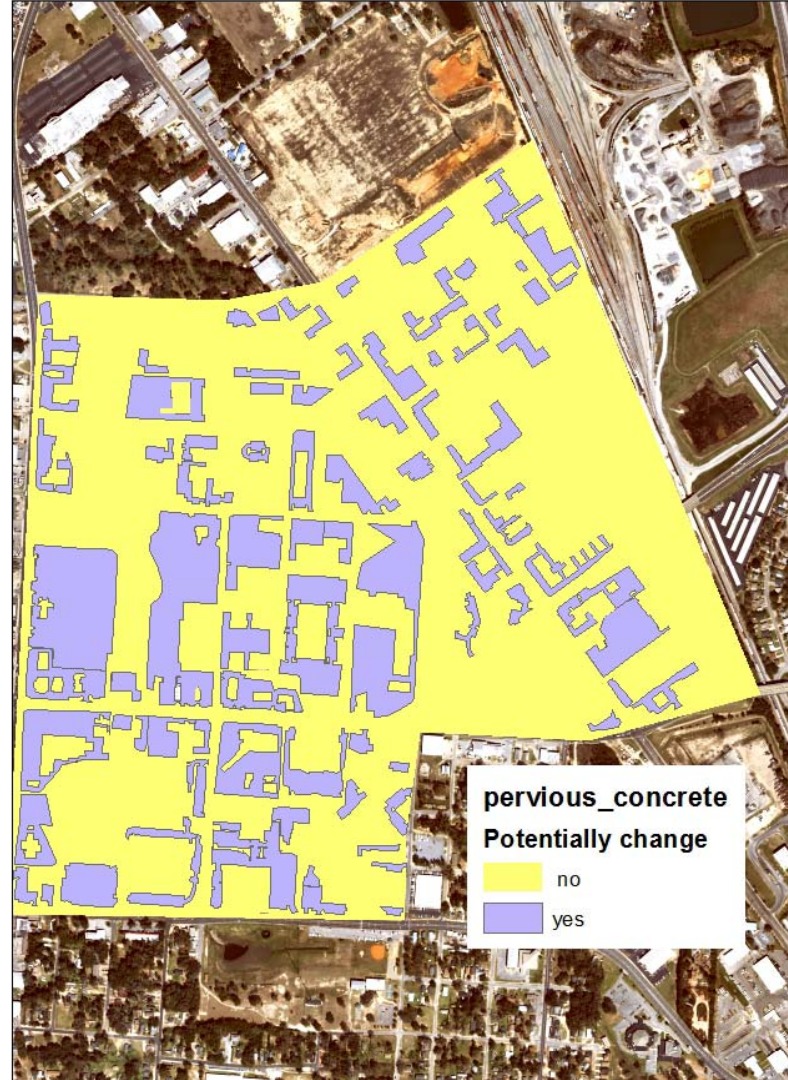
## Prior purpose

- Drain storm water runoff as fast as possible to prevent structural flooding

## Current purpose

- Reduce storm water generation through LID
- Drain storm water runoff to prevent structural flooding
- Restore natural functions of streams and wetland floodplains
- Provide for water quality and habitat

# Pervious Versus Impervious Surfaces



# Infrastructure Environmental Integration

- Increase bridge spans to open floodplains
- Remove treated wood supports
- Reduce erosion
- Provide for runoff collection
- Integrate
  - Dirt road paving – sediment removal
  - Regional retention ponds
  - Floodplain restoration
  - Water Quality

# Areas of Unmet Needs

## Bridges

- **\$49,000,000 through 2028**
  - Replacement \$30M
  - Planned Repair \$5M
  - Emergency Repair \$5M
  - New Bridges \$5M
  - Maintenance \$4M

## Dirt Roads

- **\$35,000,000 through 2028**
  - Planned and prioritized projects
    - **DRP Committee Ranking**
    - **District 5 input**
    - **Right of way**
    - **Maintenance scheduling**



# Escambia County Damage Assessments

(April 2014 Flood)

Eleven Mile

Creek

**Citizen Survey Flooding Reports 2014**

Citizen Survey Flooding Reports

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**Building Inspection Damage Assessment**

DAMAGE ASSESSMENT BUILDING INSPECTIONS

- DESTROYED
- MAJOR
- MINOR

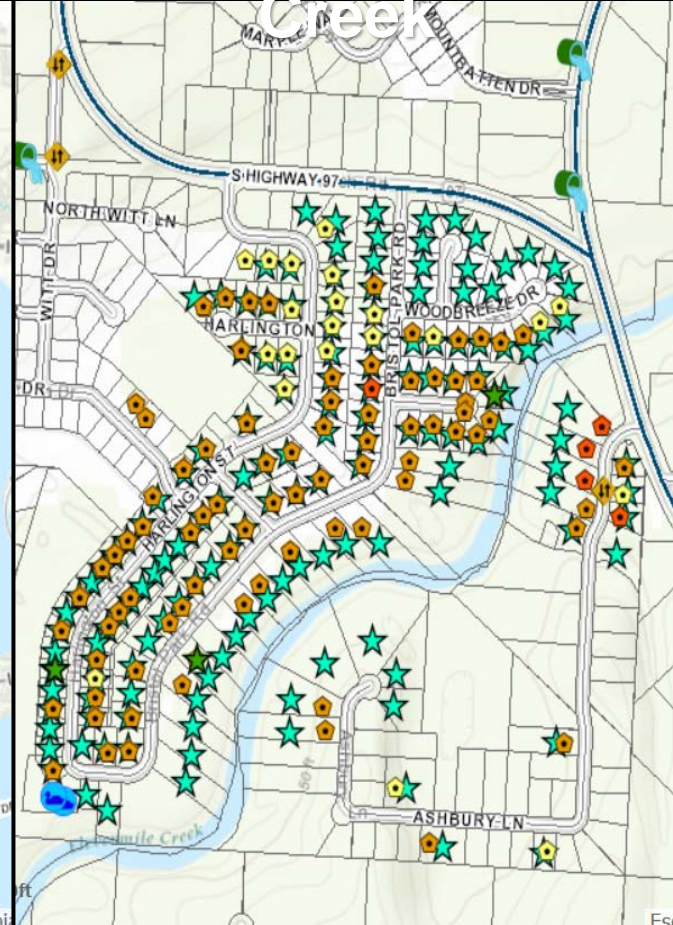
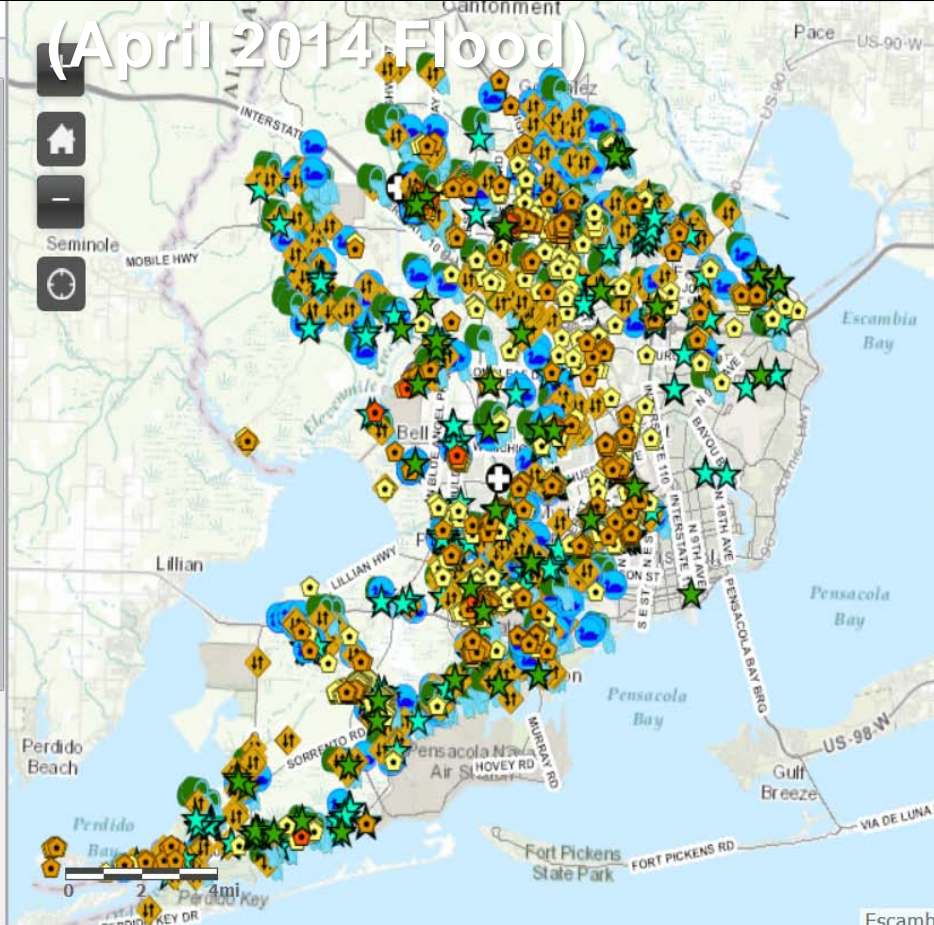
**Public Works Damage Assessment**

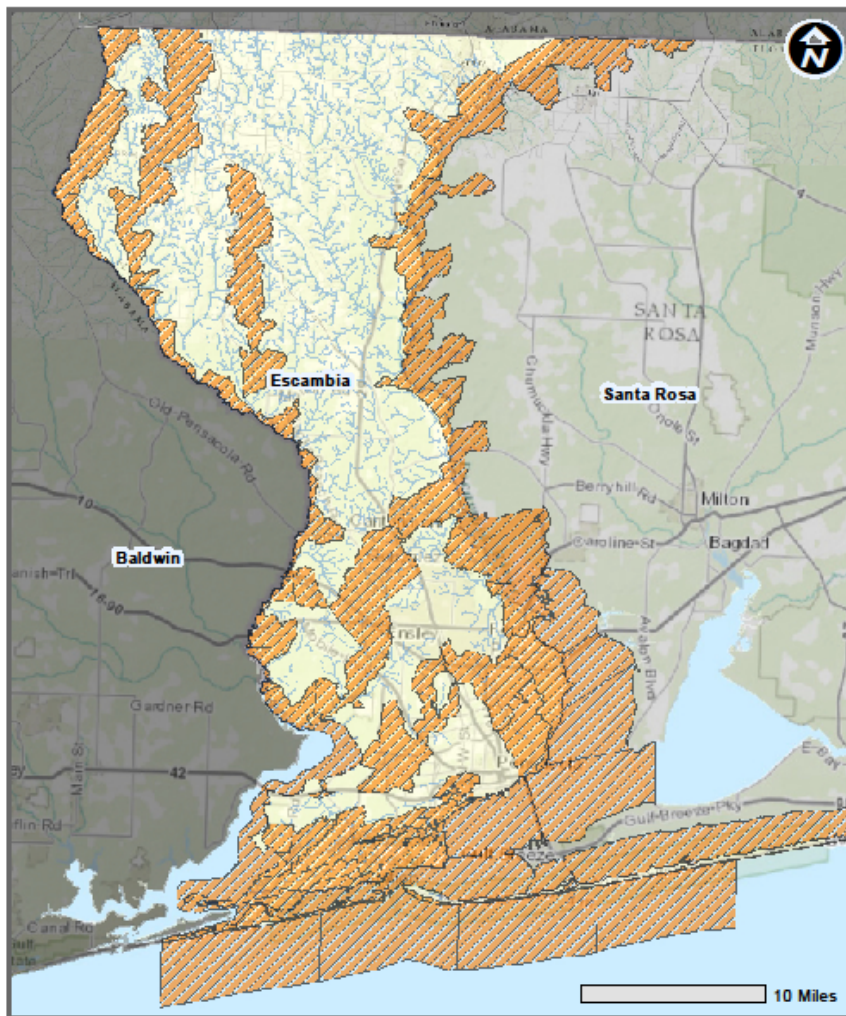
Engineering Damage Assessments

- BRIDGE
- DRAINAGE
- FLOODING
- POND
- ROAD

**Major Roads**

Major Roads





## Verified Impaired Waters Identified by WBID Escambia County, FL

Parameter	Number of WBIDs
Bacteria	7
Dissolved Oxygen	3
Fecal Coliform	13
Mercury (in fish tissue)	43
Nutrients (Chlorophyll-a)	4
Turbidity	1

### Bacteria (Beach Advisories, in Shellfish, Shellfish Harvesting)

Bayou Chico Beach (546CB)	Panacosta Bay (North Squamul) (546C)
Big Lagoon State Park (5009C)	Sanctor Beach (546DA)
Escambia Bay (South Squamul) (546B)	South Santa Rosa (915)
Escambia Bay (North Shellfish) (546AC)	

### Dissolved Oxygen

Bayou Mearns Creek (507)	Escambia Creek (489)
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### Fecal Coliform

Bayou Chico Drain (546C)	Escambia River (109)
Bayou Grande (546B)	McDonald Creek (149)
Boyd Creek (Tidal Portion) (572B)	Portside Bay (South Beach) (463B)
Bowling Creek (4)	Red Area Run (243)
Cowley Creek (474)	South Santa Rosa (915)
Daniel Russell to Bay (519)	Texas Bayou (735)
Escambia Bay (South Squamul) (546B)	

### Mercury (in fish tissue)

Bayou Chico (546)	Gulf of Mexico (5003)
Bayou Chico Drain (546C)	Gulf of Mexico (5004)
Bayou Grande (546B)	Panacosta Bay (Middle Squamul) (546D)
Bayou Grande (546B)	Panacosta Bay (North) (546E)
Big Lagoon (1094)	Panacosta Bay (South Squamul) (546C)
Boyd Creek (Tidal Portion) (572B)	Portside Bay (Lower Squamul) (572A)
Daniel Russell to Bay (574)	Portside Bay (Upper Squamul) (739)
Daniel Russell to Bay (5014)	Portside River (Middle A) (733)
Daniel Russell to Bay (5015)	Portside River (Middle B) (732)
Daniel Russell to Gulf (502)	Portside River (Middle C) (463C)
Deer to Bayou Grande (740)	Portside River (North A) (39)
Escambia Bay (North Squamul) (546AA)	Portside River (North B) (712)
Escambia Bay (South Squamul) (546B)	Portside River (North C) (713)
Escambia Bay (North Shellfish) (546AC)	Portside River (South Beach) (463B)
Escambia River (109)	Portside River (South Mearns) (463A)
Escambia River (50A)	South Santa Rosa (915)
Escambia River (10C)	Turbidity Bayou (945)
Escambia River (10D)	Texas and Wilcox Lakes (734)
Escambia River (10E)	Texas Bayou (735)
Escambia River (10F)	Wetland Bayou (935)
Gulf of Mexico (5003)	Wetland Springs Lake (501A)
Gulf of Mexico (5004)	

### Nutrients (Chlorophyll-a)

Bayou Chico (546)	Escambia Bay (North Squamul) (546AA)
Bayou Chico Drain (546C)	Escambia Bay (North Shellfish) (546AC)

### Turbidity

Red Area Run (243)	
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# TMDLs for Bacteria: 14 WBIDs

- 2 Bayou Chico: 61% reduction
- Jackson Creek: 61% reduction
- Jones Creek: 61% reduction
- Sanders Beach: 61% reduction
- 2 Escambia Bay North: 55% reduction
- Escambia Bay South: 55% reduction
- Escambia River: 5% reduction
- Carpenters Creek: 28% reduction
- Bayou Texar: 49% reduction
- Eleven Mile Creek: 65% reduction
- Ten Mile Creek: 43% reduction
- Brushy Creek: 64% reduction



# TMDLs for Nutrients: 3 WBIDs

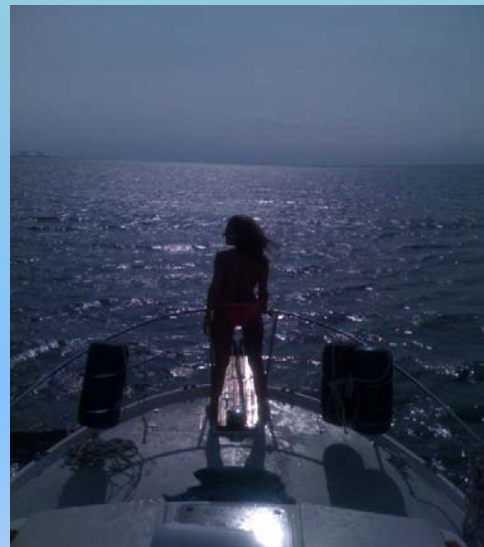
- **2 Bayou Chico: 30% TN, 30% TP reductions**
- **Escambia Bay: 23% TN, 35% TP reductions**

# **TMDLs for Dissolved Oxygen: 1 WBID**

- **Eleven Mile Creek: 0% reduction, at threshold**

# Escambia County Impaired Waters

- **Bacteria: 20 WBIDs**
- **Nutrients: 4 WBIDs**
- **Dissolved Oxygen: 2 WBIDs**
- **Turbidity: 1 WBID**
- **Mercury: 43 WBIDs**



## What is Clean Water Worth?



# What Does Clean Water Cost?

- Estimates: average \$20,000,000 per TMDL
- >\$2,000,000 to reduce nutrient loading by 5%
- >\$2,000,000 to reduce fecal bacteria by 5%
- Escambia County: \$360,000,000
- Santa Rosa County: \$260,000,000



# Suggested Evaluation Criteria

- Reduce number of flooded structures
- Meet Total Maximum Daily Load (TMDL) and 303d listed water body requirements for water quality improvements
- Address Basin Management Area Plan (BMAP) project priorities and requirements
- General reduction of storm water runoff quantity
- General improvement of storm water runoff quality
- Integrate multiple solutions into each project

Questions?

