ARANSAS COUNTY STORMWATER MANAGEMENT PLAN

March 21, 2011

OPEN HOUSE

PROJECT TEAM

ARANSAS COUNTY

- *DAVID VYORAL – COUNTY ENGINEER*
- *DAVID REID – ASSISTANT COUNTY ENGINEER*

CONSULTANTS

- *NAISMITH ENGINEERING, INC.*
  - John Michael (Project Manager)
  - Craig Thompson (Assistant Project Manager/Project Engineer)
  - Dave Sullivan (Sr. Environmental Scientist/Ecology/Grants)
- *LIPPKE, CARTWRIGHT & ROBERTS CONSULTING ENGINEERS*
  - Jim Roberts (Project Engineer) – Tule Creek Watershed

PROJECT TEAM

CONSULTANTS – *cont.*

- *LDP CONSULTANTS, INC.*
  - Linda Pechacek (Water Quality Engineer)
  - Dr. Charles Rowney (Sr. Environmental Scientist / Water Quality)
- *URS CORPORATION*
  - Jeff Irvin (Sr. Project Engineer / Hydrologist)
  - Matt Segura (Project Engineer / Hydrologist)
- *GRIFFITH & BRUNDRETT SURVEYING & ENGINEERING*
  - Jerry Brundrett (RPLS)
- *KRM CONSULTING*
  - Karen R. Mella (Marketing – Open House)

PROJECT TEAM

STORMWATER ADVISORY COMMITTEE (SWAC)

- De McLallen, Chair
- Curtis Attaway (City of Aransas Pass)
- Mayor Russel Cole (Town of Fulton)
- Pat McKelvey (At-Large)
- Commissioner Ron Outen (AC Navigation District)
- Frank Reilly (City of Rockport)
- Commissioner Charles Smith (Aransas County)

TECHNICAL COMMITTEE

- Tom Callan
- Nan Jackson
- Ray Kirkwood
- Earl Matthew

ARANSAS COUNTY STORMWATER MANAGEMENT PLAN

BACKGROUND

- Importance of Stormwater Management in Aransas County
- Where We Started - *"Three Legged Stool"*
- Natural Assets in Aransas County
- Quality of Life
- Assets at Risk

IMPORTANCE OF STORMWATER MANAGEMENT

Aransas County 2008 Proposition #1

- Passed 70% - 30%
- Support based on concerns about water quality, habitat conservation, drainage and flood control
- All entities agreed to a need for a multi-jurisdictional, uniform approach to Stormwater Management

Purpose Statement

"Aransas County is an important coastal area…residents desire to maintain the character of their communities…quality of life… protection of the environment … preservation of Aransas County's unique aquatic ecosystem…"

Integrated Approach *"Three Legged Stool"*

- Drainage / Flood Protection
- Natural Resource Protection
  - *Ecological / Habitat Integrity*
- Stormwater Quality

Aransas County Regional Stormwater Management Plan

WHERE WE STARTED

Public Policy Objectives

- Be consistent…with Aransas County Stormwater Management Policy
- Protect lives and property…with proper stormwater management
- Protect public infrastructure…from damage and flooding
- Reduce runoff of silt, pollutants and nutrients into bays with BMPs…both during construction and long term…using natural and man-made features to reduce peak runoff
- Minimize long term maintenance costs

xpected and encouraged

reserve, and enhance the natural environment, the County

ounty face more immediate threats from flooding rts of the County have different physical and may be developed and implemented in phases.

ARANSAS COUNTY NATURAL ASSETS

The Bays, Estuaries, Harbors and Marinas

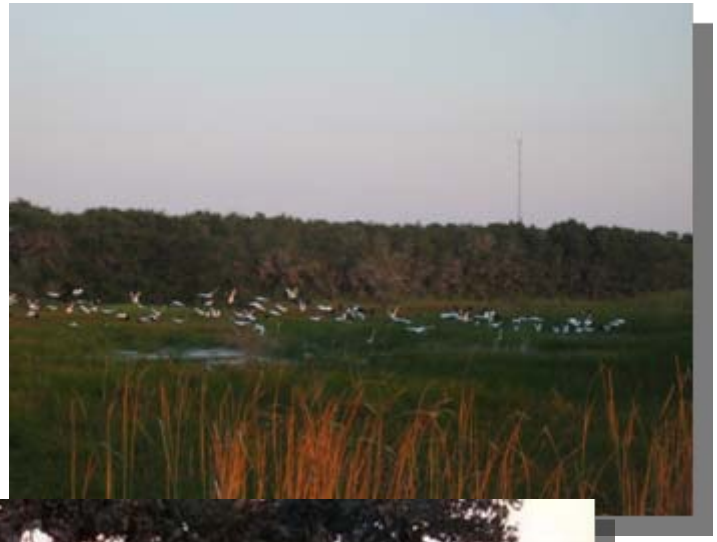
Live Oak Woodlands

Fishing and Hunting

Birding and EcoTourism

QUALITY OF LIFE

These natural assets are the reason why most of us live, play and work in this beautiful coastal environment, they are also the reason why people support the #1 industry in Aransas County – TOURISM!



Tourist come here to enjoy these natural resources and spend money in our community.

ASSETS AT RISK

Our growth puts these assets and existing infrastructure at risk…

…and with the increase of urban activity the need for proper stormwater management is imperative.

ARANSAS COUNTY STORMWATER MANAGEMENT PLAN

STEPS TOWARD PROPER STORMWATER MANAGEMENT

- Data Gathering / Interim Documents
- Tule Creek Watershed Project
- Natural Resource Protection
- Water Quality
- Drainage and Flood Protection

DATA GATHERING / INITIAL DOCUMENTS

SWAC monthly meetings for project updates, document reviews, policy guidance, etc.

DATA GATHERING

- Commissioners and Judge, County Staff
- Open Houses, public workshops, etc.
- SWAC / Tech Committee
- Agencies / Public Entities– TAMUCC, TxGLO, TCEQ, TPWD, USFWS, USACE, etc,
- Aerials / LiDAR / GIS-Digital information
- On-the-ground surveys (very extensive)

INITIAL DOCUMENTS

- Interim Development and Construction Guidelines
- Initial Water Quality Design Criteria
  - BMP designs
  - LID
  - Credits
- Open Houses
- SWAC / Technical Committee

NATURAL RESOURCES

- Indentified as a major component of the ***"Three Legged Stool"*** Concept throughout the County's policy and guiding principles
- Most visible component of the SWMP
- Underlying value in overall stormwater management with reduction of runoff, natural drainage corridors, depressions, wetlands, etc.

NATURAL RESOURCES

Aransas County habitats

- Live Oak Woodlands – upland portions of the Live Oak and Lamar peninsulas
- Estuarine Wetlands
- Riparian wetlands – *"Blue Corridors"*
- Bays – Submerged aquatic vegetation, oyster reefs, etc.

Red Bobcat – Photo by H. Dickson Hoese

EcoTourism is a major economic force

- Fishing / Hunting
- Birding
- Whooping Cranes

Natural Resources Plan Developed

- Regulatory Requirements
- Habitats
- Structural/Non-Structural Controls
- Planning Tools

WATER QUALITY CONCERNS / BMP'S

Stormwater Pollutants of Concern:

- Sediments and Pollutants associated with Sediment
- Nutrients (significant sources discharged in dry conditions)
- Pathogens
- Pesticides

Proposed Stormwater BMPs:

- Sediment and Erosion Control Plan
  (Mitigate erosion along creek banks, headwalls and pipes)
- Public Education / LID Guidance Documents

BMP'S (cont.)

West Tule Creek Water Quality Enhancement Project

- 1.0+ acre Sediment Pond
- Habitat Enhancement Areas

Monitoring Program and Water Quality Data Inventory

Low-Impact Development (LID) - Disconnect Impervious Surfaces (diverting runoff to pervious areas decreases volume, increase infiltration)

Preservation of Existing Swales

- Slowly conveys and stores stormwater to depressions, ponds, bays
- Allows stormwater to infiltrate back into ground
- Promoted settling of sediment, solids, sand and grit

BLUE CORRIDORS

Blue Corridors naturally provide flow routes and should be preserved as they balance flow between precipitation, runoff, infiltration, evaporation and evapotranspiration processes.

- Promote a tendency toward water balance
- Provide storage for flood flows that minimizes uncontrolled flooding
- Capture, store and slowly convey sheetflow
- Provide high quality habitat corridors and have the potential to become a recreational amenity
- Exist in near natural state in many watersheds
- Are rich examples of what ***proposed stormwater treatment system designs try to emulate***. This is how stormwater was managed prior to development
- Let **"NATURE WORK FOR FREE"**

DRAINAGE AND FLOOD CONTROL

Predevelopment Conditions

- Typically sandy soils along Live Oak and Lamar Peninsulas
- Relatively flat contouring - 1' of elevation drop every 500'
- Dense vegetation and undergrowth
- Natural depressions

Natural Stormwater Management Regime

- Abstraction by trees, undergrowth and soils
- Runoff collected in natural depressions
- Cascaded along *"Blue Corridors"* at a slow rate

Due to these natural runoff conditions there is an absence of typical creeks or streams

Aransas County Regional Stormwater Management Plan

DRAINAGE AND FLOOD CONTROL

Depressions

Depth > 2’

Size > 10 Acres

Aransas County Regional Stormwater Management Plan

DRAINAGE AND FLOOD CONTROL

Depressions

Depth > 2’

Size > 5 Acres

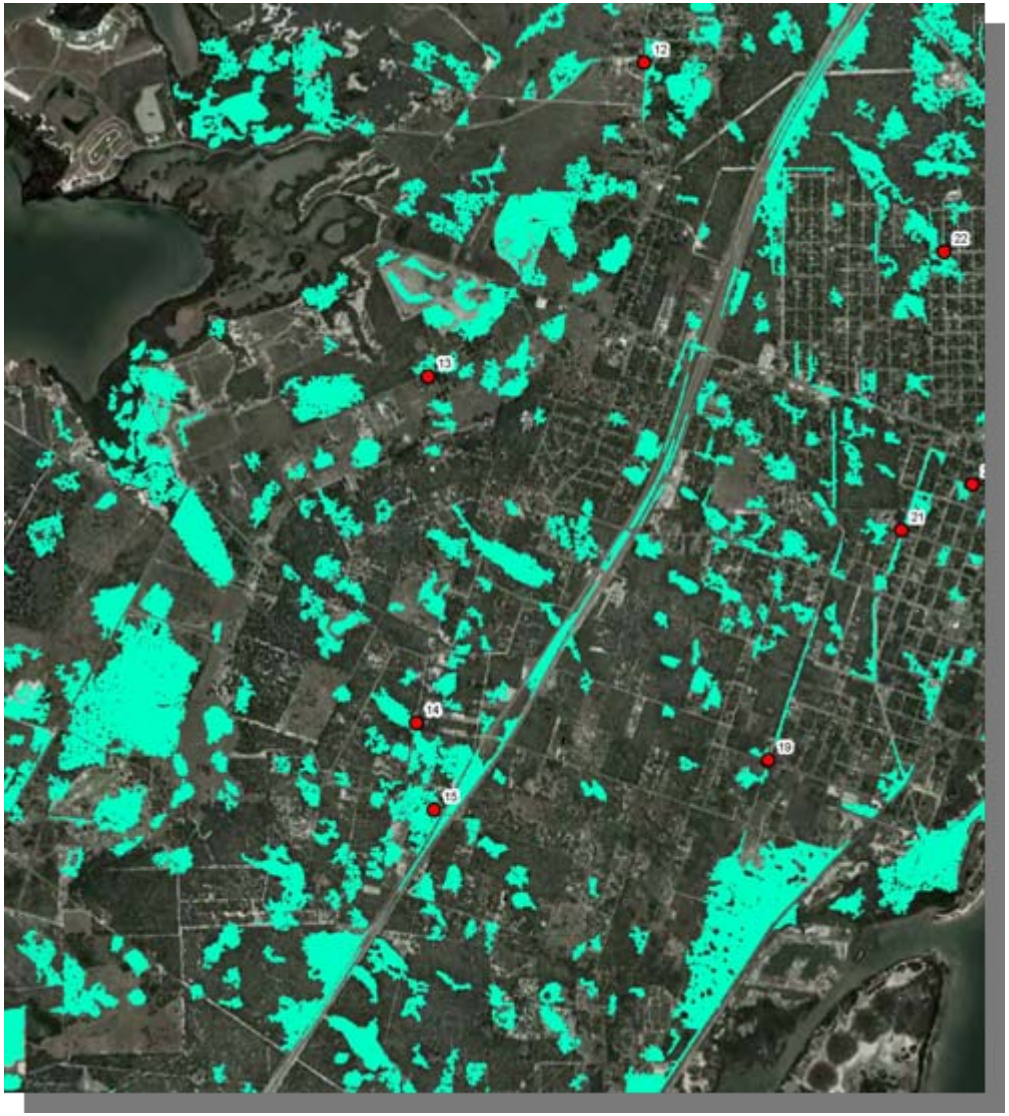
Aransas County Regional Stormwater Management Plan

DRAINAGE AND FLOOD CONTROL

Depressions

Depth > 2’

Size > 1 Acre

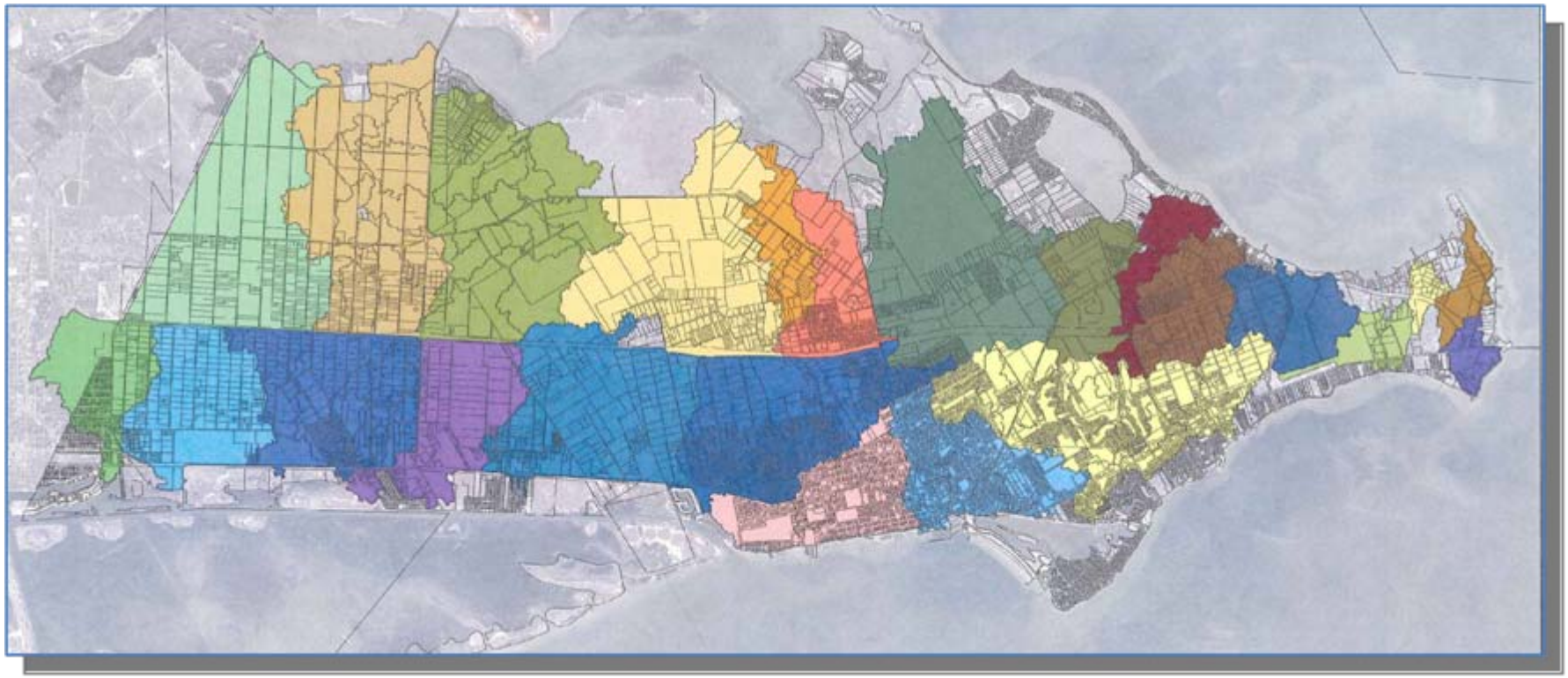


Aransas County Regional Stormwater Management Plan

WATERSHEDS

Live Oak Peninsula

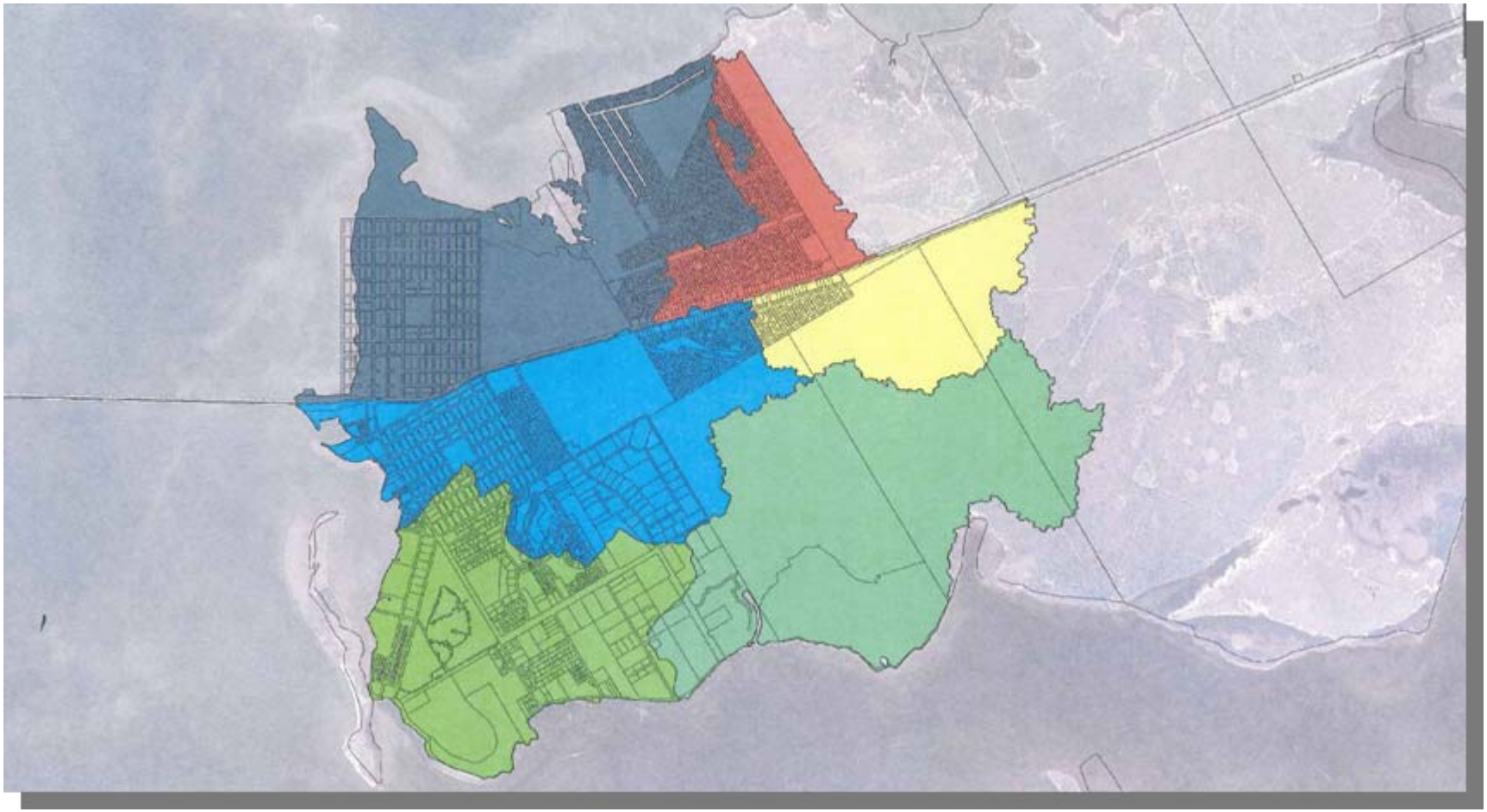
- 23 Watersheds, 150+ Sub-basins



WATERSHEDS

Lamar Peninsula

- 6 Watersheds



Aransas County Regional Stormwater Management Plan

PROJECT OUTCOMES

SWMP Guidance Document

- Drainage Criteria Manual
- Natural Resources Plan
- Stormwater Quality Plan
- BMP Design Criteria
- LID Techniques
- Development and Construction Guidelines (Checklist)

Existing Conditions Model

- Flood Inundation Maps – *FLO2D*
- Hydrologic Conditions Map – *HEC-HMS*

Tule Creek Watershed Project Report

***"Blue Corridors"* Mapping**

Capital Improvement Plan

Aransas County Regional Stormwater Management Plan

TULE CREEK WATERSHED REPORT

Priority identified due to impacts to Little Bay, center of development, on-going work in the watershed, multi-jurisdictional

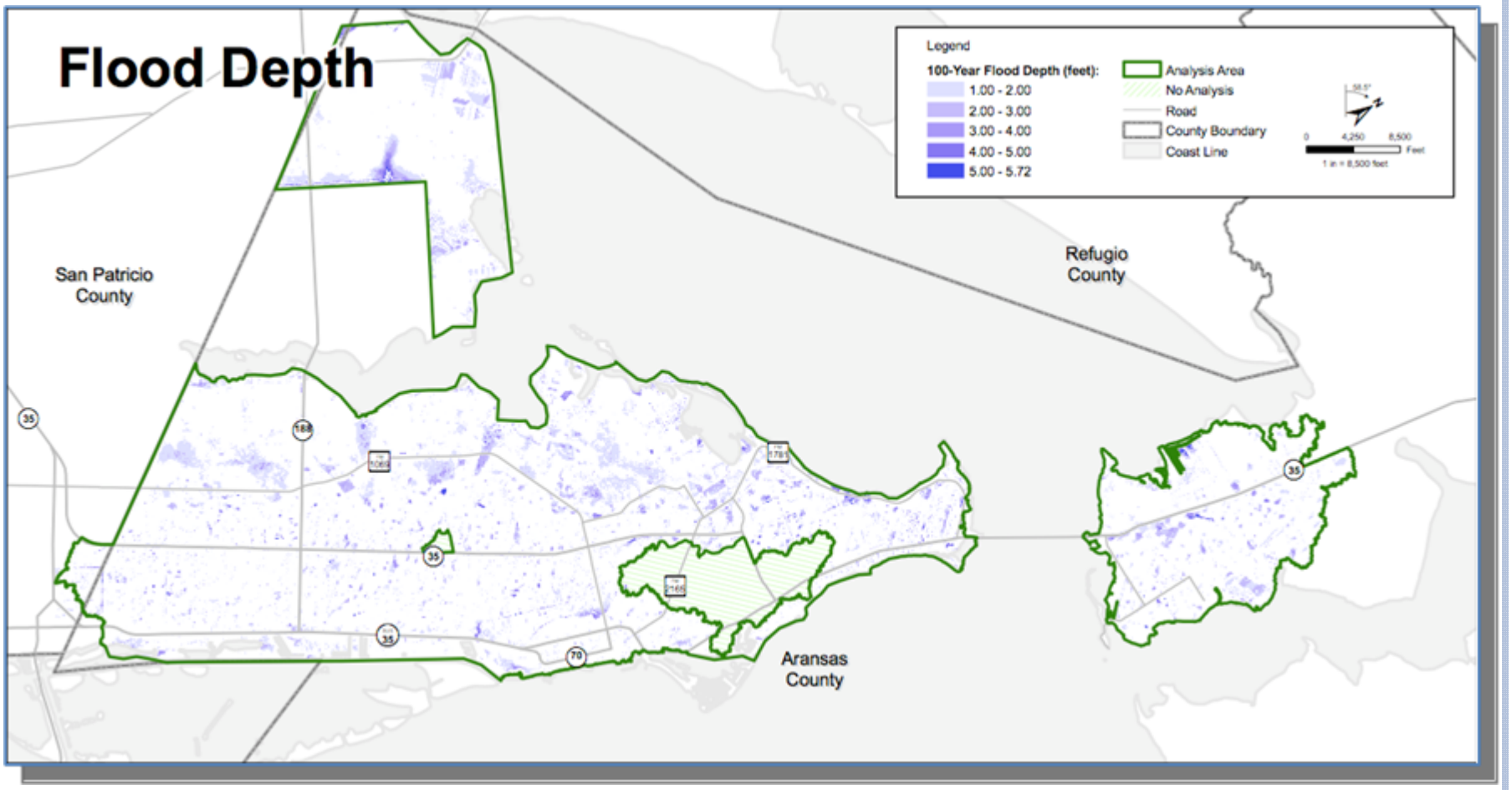
H/H – Water Quality – Ecological Study

- ICPR Model
- Existing Conditions / Flood Mapping
- Sensitive areas
- Constraints / Opportunities

Identified Several Stormwater Management Opportunities

- Mesquite Street Bypass
- West Tule Creek Sediment Pond / Channel Widening
- Henderson Street Tract
- East Tule Creek Marsh
- Lowering of Road Profiles – Tule Park/Picton/Sorenson

COUNTYWIDE FLOOD INUNDATION MAP - FLO2D



WHERE DO WE GO FROM HERE?

Prioritize Critical CIP Projects

- Public Input
- Funding
- Construction

Prioritize Stormwater Management Opportunities

- Critical parcels
- Funding / Grants
- Management

Continue Aransas County's Stormwater Management Principles

ARANSAS COUNTY STORMWATER MANAGEMENT PLAN

ARANSAS PATHWAYS

ARANSAS PATHWAYS

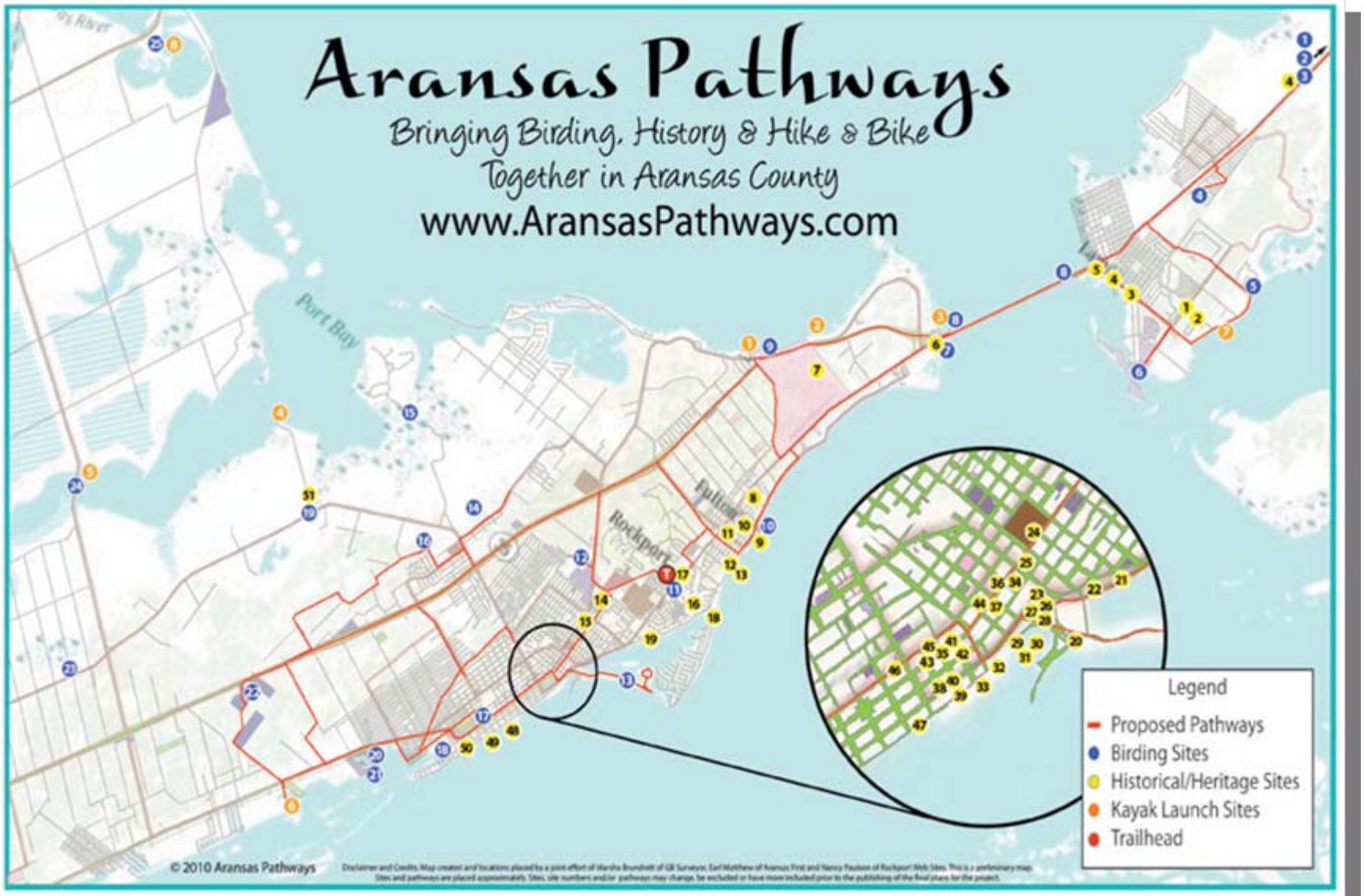
Aransas Pathways is a venue tax project that will increase eco-tourism within Aransas County.

If approved on May 14, the Pathways project is intended to use some of these funds to:

- Establish, develop, document and showcase historical sites, birding, kayaking, fishing and other nature-related, and recreational sites which will attract tourists and residents of Aransas County.
- Link these sites by a Countywide network of clearly marked, signed and well maintained trails, pathways, roads and sidewalks.
- By developing and showcasing these resources in the manner described above it is expected that tourism and commerce in the County will be enhanced.

Venue tax is paid by visitors to the County. No additional taxes are required to fund the Pathways Project.

ARANSAS PATHWAYS



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QUESTIONS / COMMENTS?