

TEXAS A&M AGRILIFE

# Exploration Green: A case study of green infrastructure and community resilience

TEXAS A&M  
**AGRILIFE**  
EXTENSION  

---

DISASTER ASSESSMENT  
AND RECOVERY

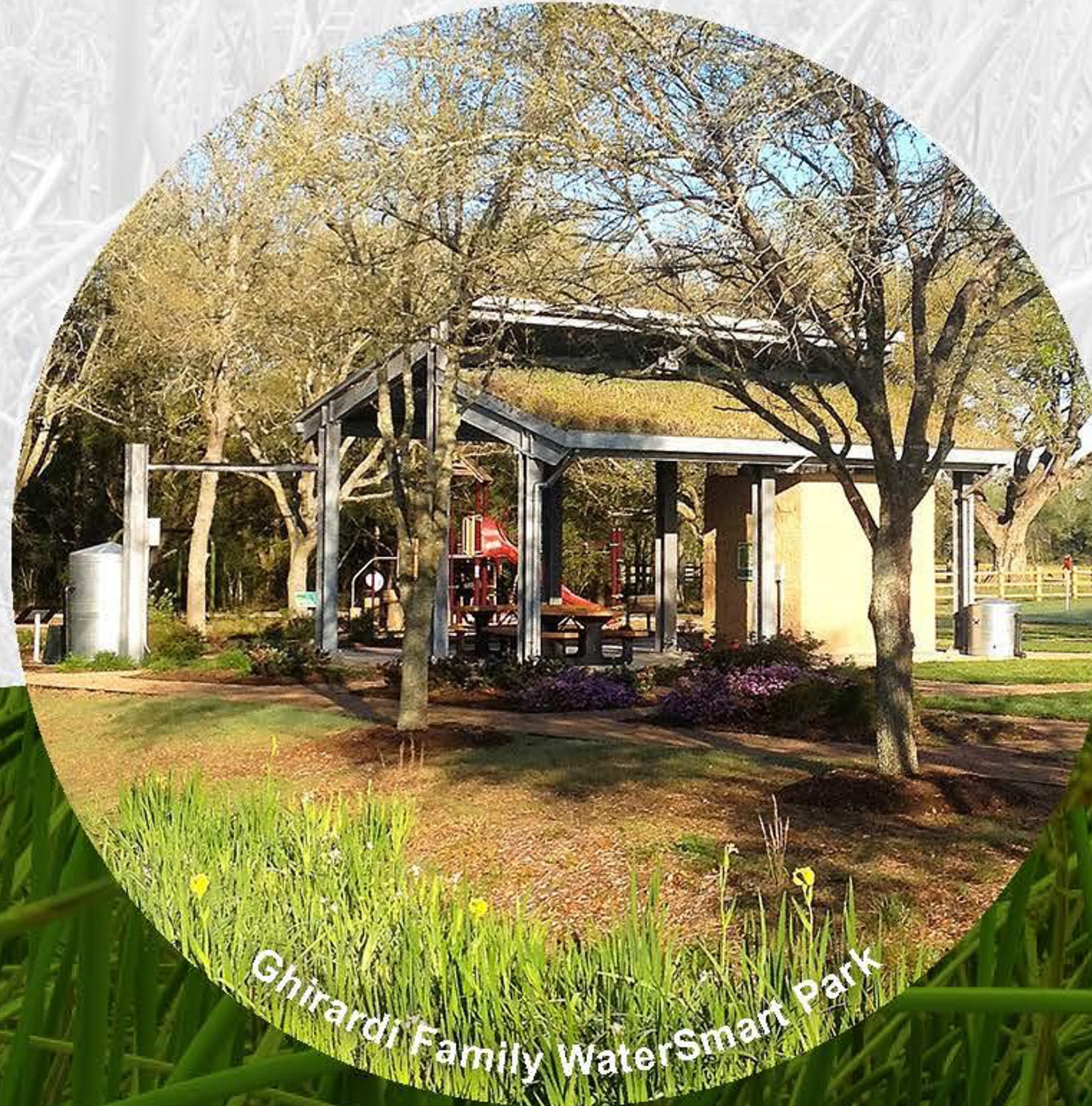
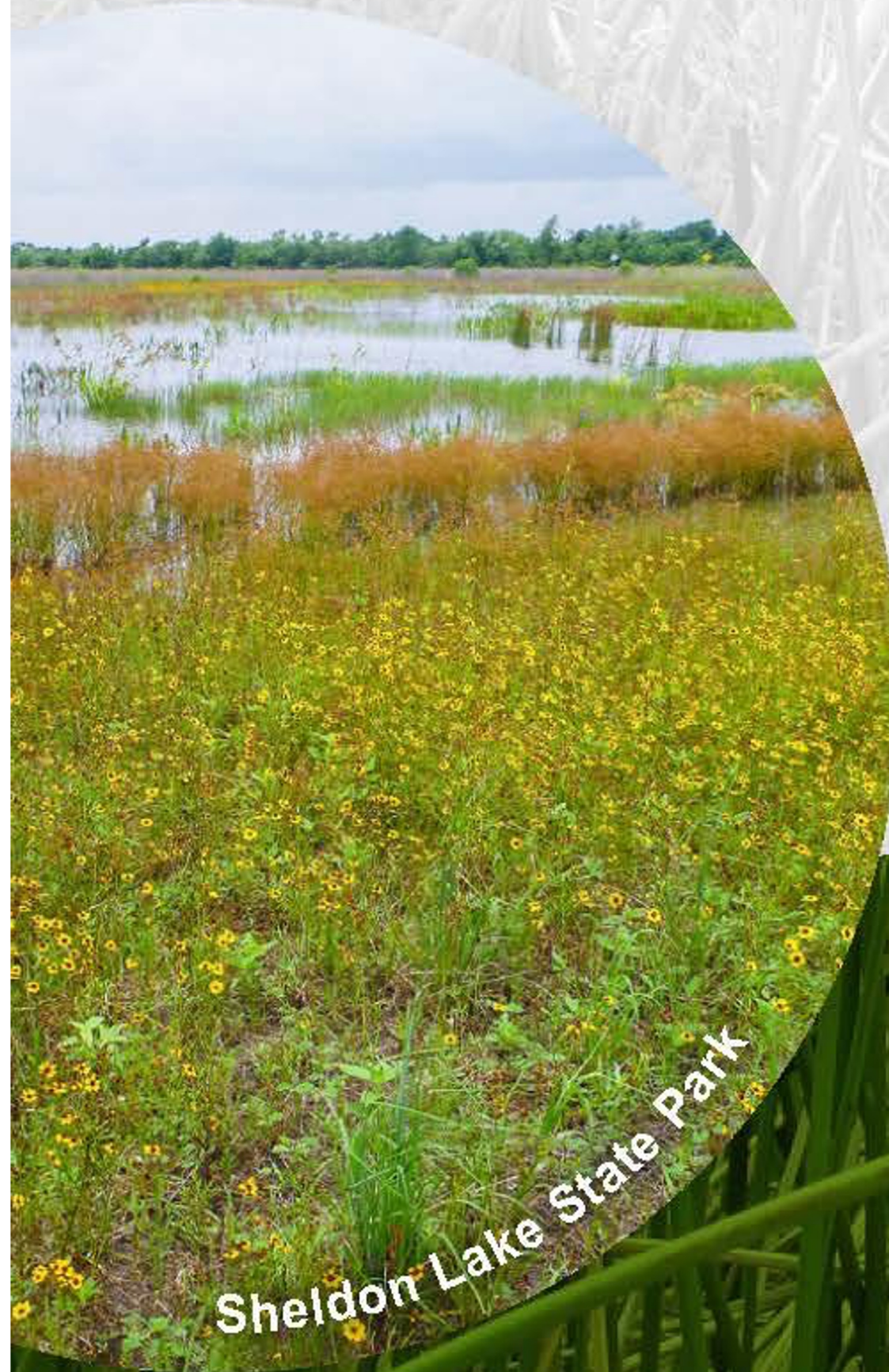
**Charriss York**  
**charriss.york@ag.tamu.edu**



# GIFT

## GREEN INFRASTRUCTURE FOR TEXAS

[agrilife.org/gift](http://agrilife.org/gift)

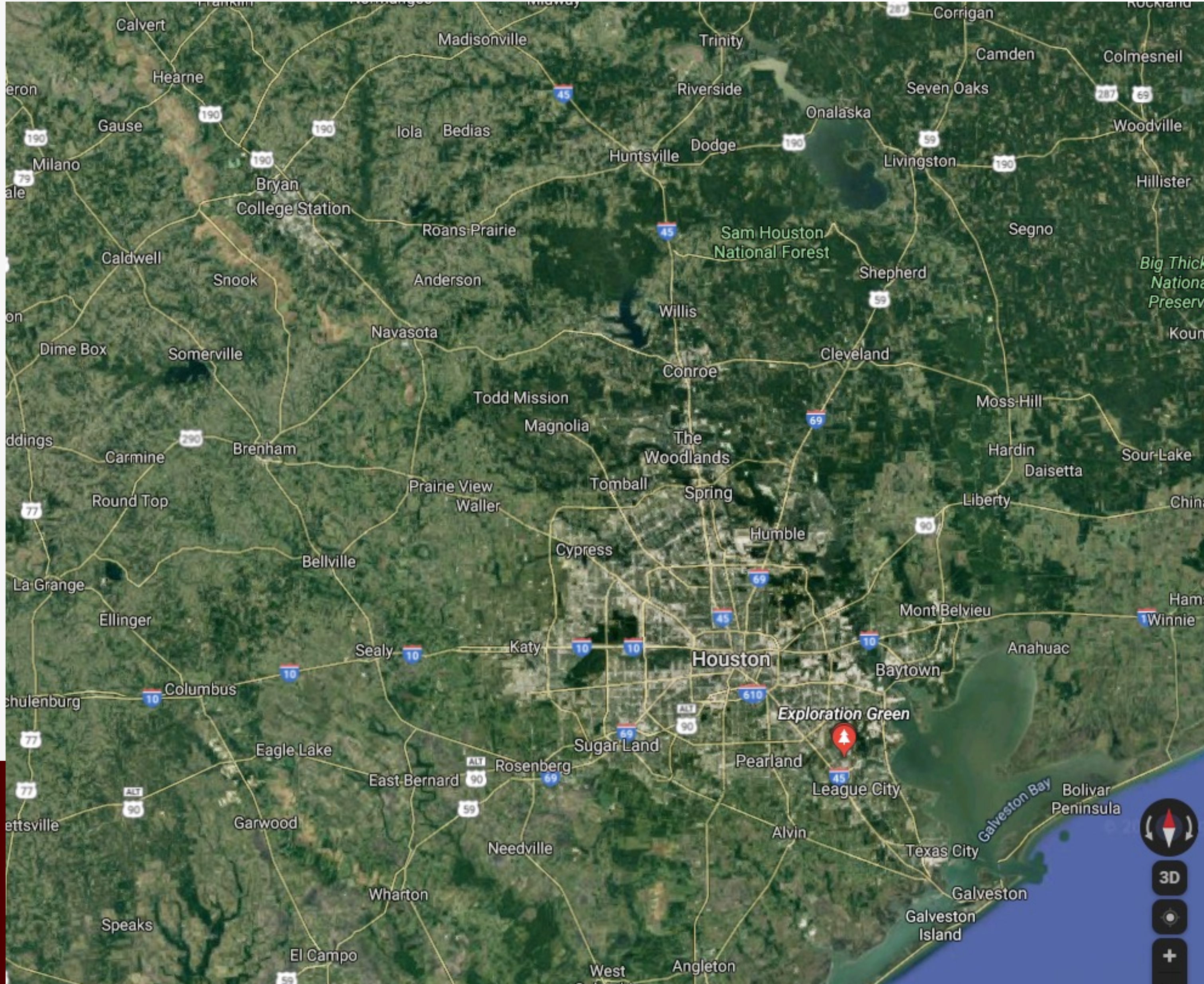


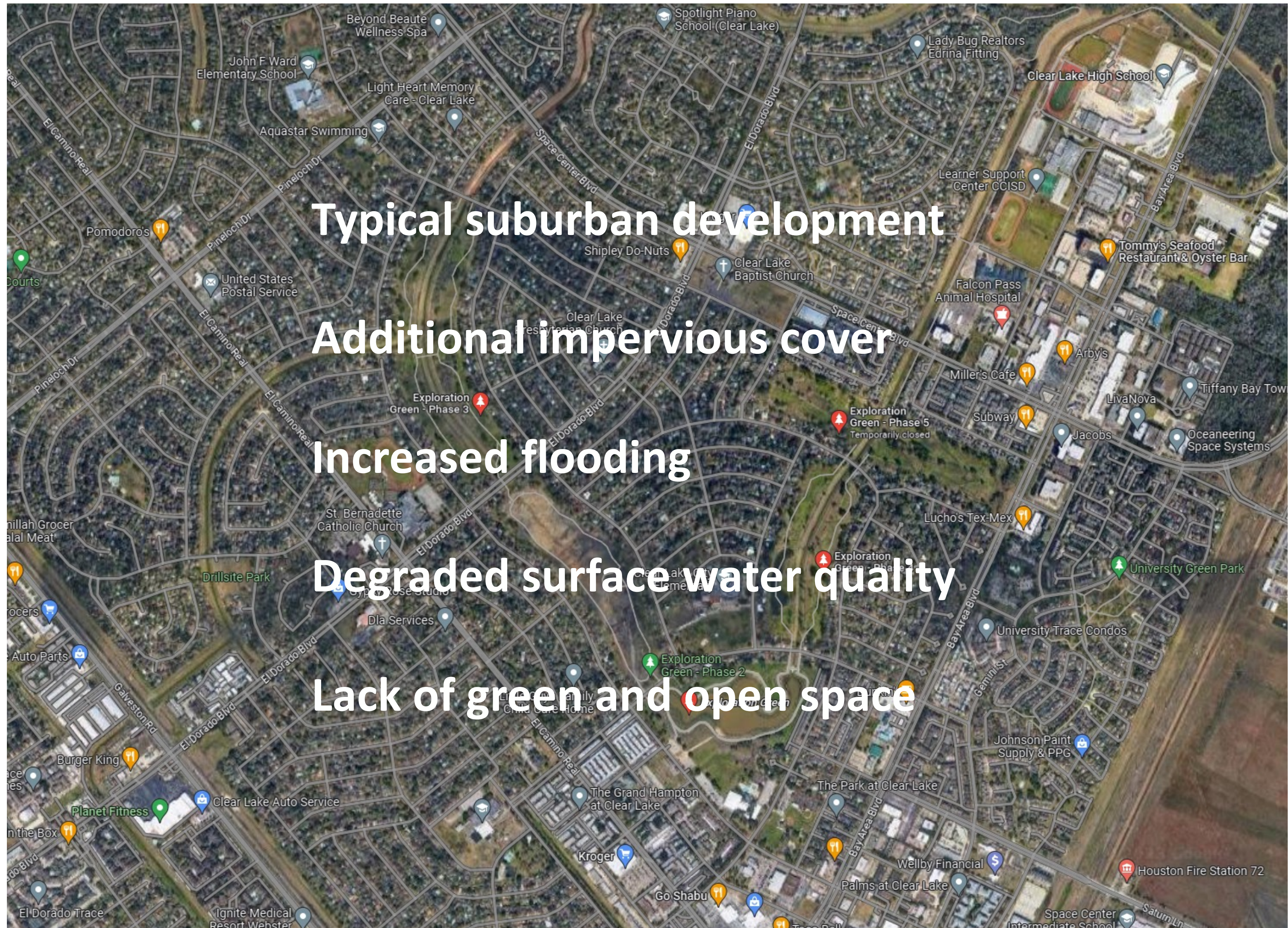
*Empowering Texans to build resilient communities adaptable to social, economic, and environmental change.*

**AgriLife.org/GIFT**



# Exploration Green





Typical suburban development

Additional impervious cover

Increased flooding

Degraded surface water quality

Lack of green and open space



Master plan: [www.clcwa.org/images/CLCWAmasterplan.pdf](http://www.clcwa.org/images/CLCWAmasterplan.pdf)



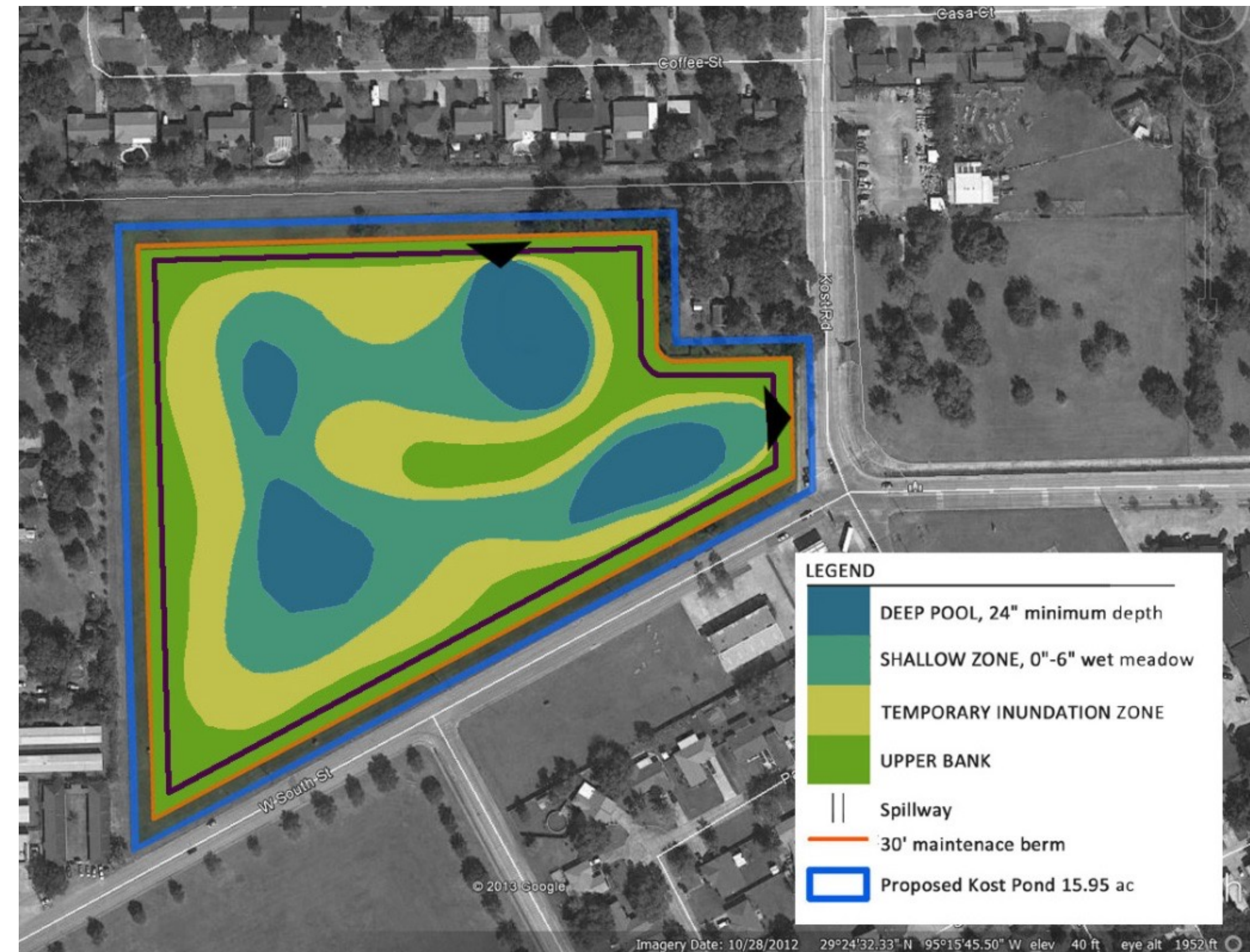
# Constructed Stormwater Wetlands

Engineered, designed wetland, integrated into the drainage system

- Stormwater detention
- Water quality
- Multiple uses

## Considerations

- Contributing watershed
- Multiple depth zones, intentional flow paths, long residence time
- Controlled outflow
- Aesthetic based planting







Phase 4 Post-Construction, 2023



Phase 5, 2023  
In construction



Phase 4, 2023  
Post-construction  
vegetation in progress



Phase 1, 2023  
Post-construction  
Vegetation established



**Location:** Houston (Clear Lake City)


**Watershed:** Clear Creek

**Size at completion:** 40-acre wetland  
within 200 acres of parkland

**Major Partners:**

- Clear Lake City Water Authority
- Exploration Green Conservancy
- Texas A&M AgriLife Extension
- Texas Master Naturalist Program
- Galveston Bay Foundation





**Local Problem**  
**Local Solution**  
**Local Funding**

**Cost:** \$43 million

**Funding:**

- Local taxpayer bond
- No federal flood control funding
- 15,000 volunteer hours
- Accelerated construction timeline

**Community:**

- Manages stormwater from an 8,000 acre watershed
- 16,000 homes & businesses
- 30,000 people

**Conservation Easement:** held by Galveston Bay Foundation

September  
2019



August  
2017



During **Hurricane Harvey** the partially constructed wetland:

- Collected water from 2,000 acres
- Held 100 million gallons of water
- Protected 150 previously flooded homes

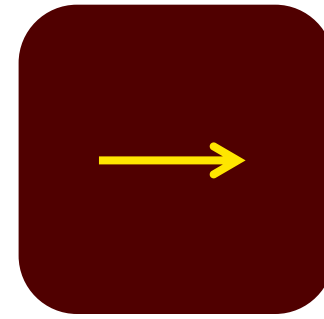


# Changing a Paradigm



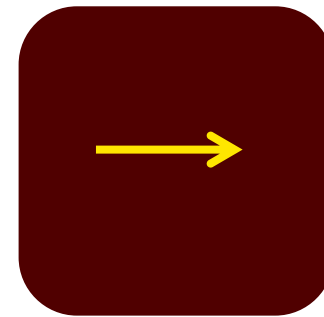


# What's Next?



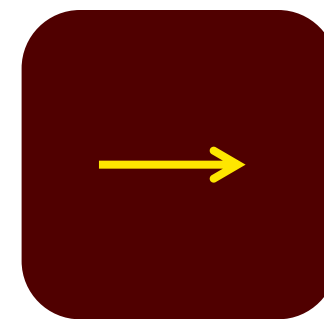
## 2023

Complete Phase 5 Excavation  
Plant Phases 4 & 5  
Increase educational programming



## 2024-2025

Complete wetland and tree  
planting



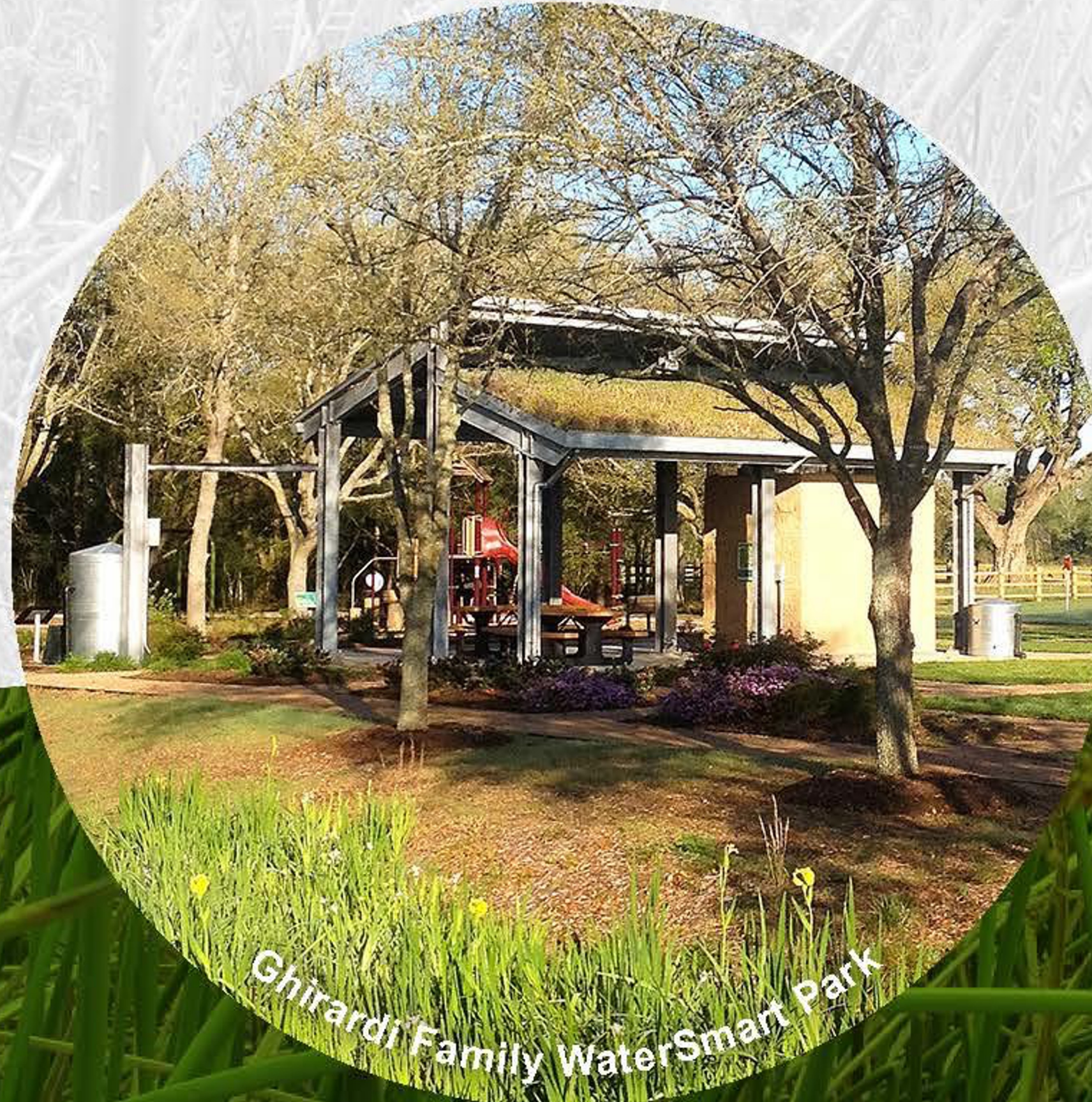
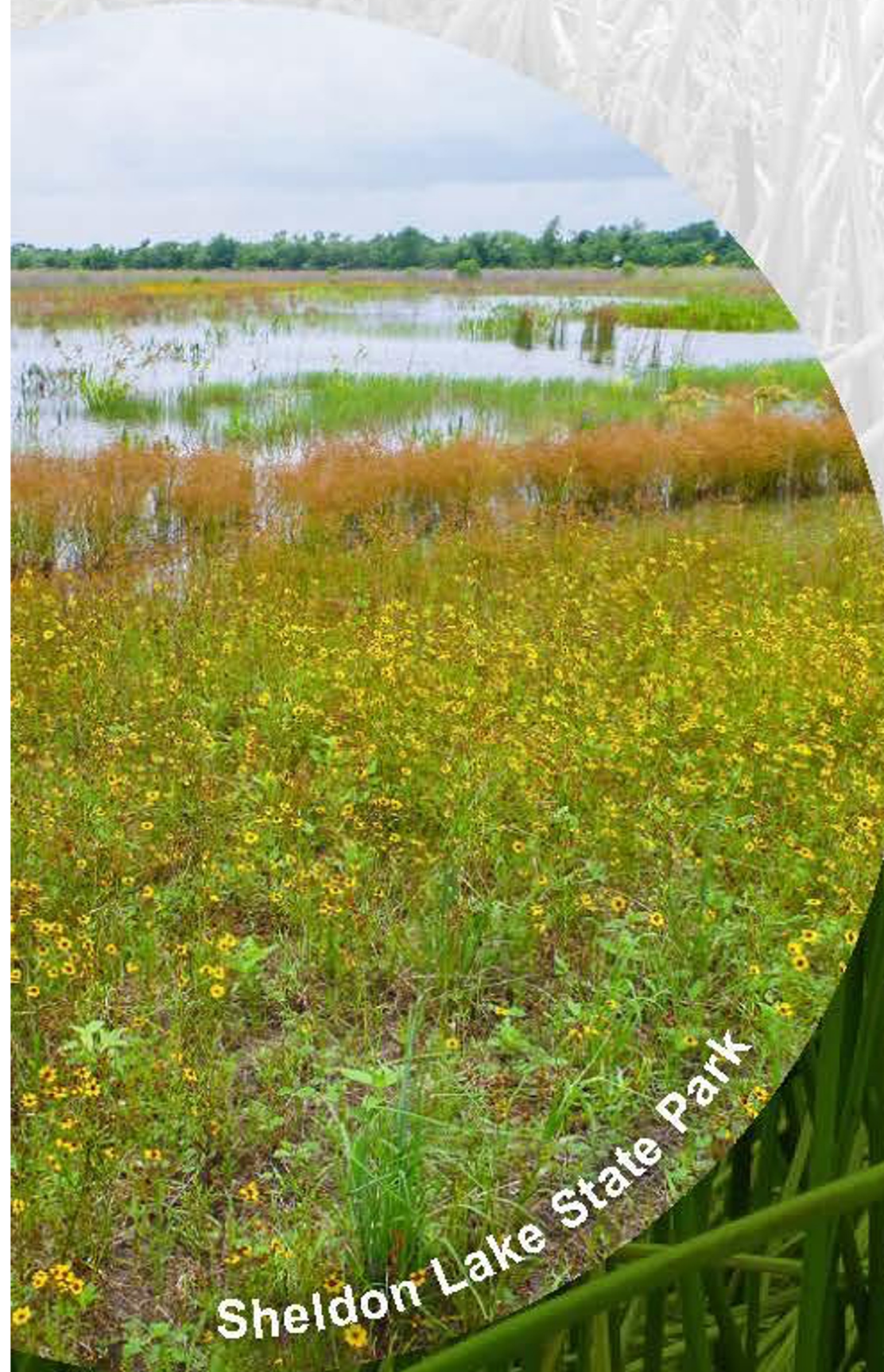
## Beyond

Educational programming  
On-going Maintenance

# GIFT

## GREEN INFRASTRUCTURE FOR TEXAS

[agrilife.org/gift](http://agrilife.org/gift)



*Empowering Texans to build resilient communities adaptable to social, economic, and environmental change.*



**Charriss York**  
[charriss.york@ag.tamu.edu](mailto:charriss.york@ag.tamu.edu)

**[AgriLife.org/GIFT](http://AgriLife.org/GIFT)**