

# PROTECTING OUR WATER

A Watershed Protection Plan  
for the East Fork San Jacinto  
River Watershed



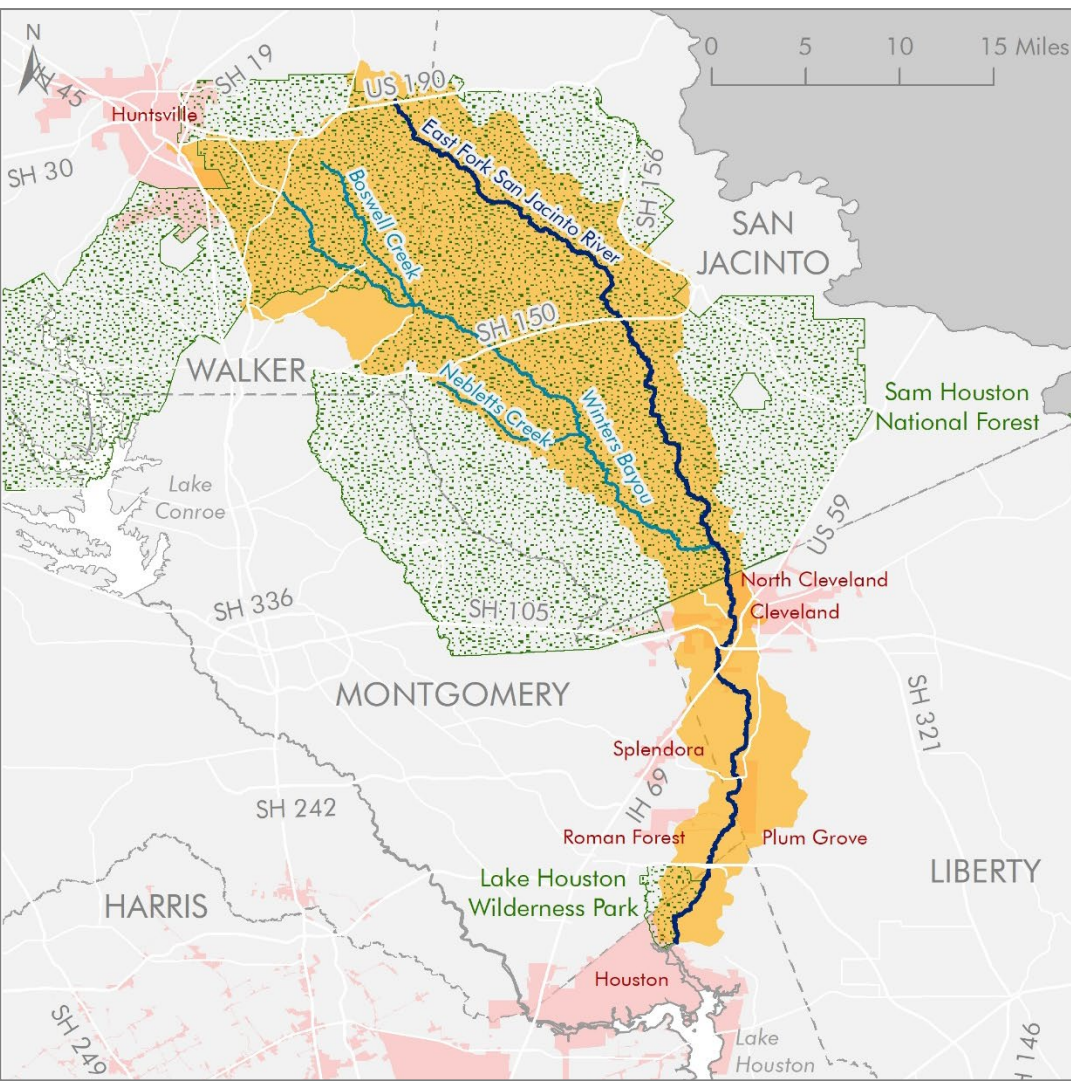
EAST FORK SAN JACINTO RIVER  
WATERSHED PARTNERSHIP

# ABOUT THE PROJECT

**East Fork San Jacinto River** flows south from its headwaters in Walker County toward its eventual confluence with Lake Houston—an important drinking water reservoir for the region. The river connects many local communities across a largely forested landscape with smaller areas of pasture and developed land.

Approximately 410 square miles of land covering parts of Walker, San Jacinto, Liberty, Montgomery, and Harris counties form the drainage area or **watershed** of the East Fork of the San Jacinto River. This watershed supports local economies, recreation, and a diverse ecology. Everything that happens in the watershed affects the water quality and uses of the waterway.

Water quality challenges in the East Fork San Jacinto River watershed include elevated levels of fecal bacteria which can impact public health. To address this challenge, the Houston-Galveston Area Council (H-GAC) worked with local stakeholders to form the East Fork San Jacinto River Watershed Partnership (Partnership) that worked closely with the Texas Commission on Environmental Quality (TCEQ) and the U.S. Environmental Protection Agency (EPA) to create and implement a Watershed Protection Plan (WPP).



## Legend

- Parks and National Forest
- East Fork San Jacinto River (1003)
- Major Tributaries
- Watershed Area
- Other Water Bodies
- Cities
- Project Counties
- Other Counties





Waterways in Texas have a variety of uses. They provide drinking water, offer recreational opportunities, and support aquatic life. The State of Texas establishes water quality standards for waterways based on the uses they serve. If water quality samples show that a waterway is unable to support one of these uses, it is considered to have an **impairment**. When waterways have impairments, the State is required to take action to bring the waterway into compliance with the applicable standard. Some pollutants or conditions do not have specific criteria but may be serious enough to warrant a **concern**.

## FECAL WASTE POLLUTION

The most common impairments in the East Fork San Jacinto River watershed are elevated levels of *Escherichia coli* (*E. coli*) bacteria exceeding the water quality standard for contact recreation. Bacteria such as *E. coli* are found in the digestive systems of warm-blooded animals and indicate the presence of fecal waste in waterways when detected in surface water samples. Sources of fecal waste pollution include human waste sources, such as overflows from sanitary sewers and on-site sewage facilities; waste from domestic animals, such as pets and livestock; and natural influences, such as waste from wildlife and invasive species. Harmful pathogens associated with fecal waste can endanger public health during contact recreation, such as swimming or wading.

Technical analyses informed by local knowledge are shown on the following page. These charts show observed (2022) and projected (2040) contributions from fecal waste sources. The primary focus of the Partnership is to address sources of fecal waste pollution, but the WPP considers a number of other water quality issues.

## OTHER CHALLENGES



**Nutrients & Dissolved Oxygen** - Nutrients (nitrogen and phosphorus) from fertilizers, fecal waste, and other sources can lead to algal blooms that reduce oxygen levels, limiting aquatic life and causing fish kills.



**Trash** - Trash from stormwater runoff and illegal dumping can affect aquatic life, degrade the beauty of our local communities, and expose people to hazardous substances.

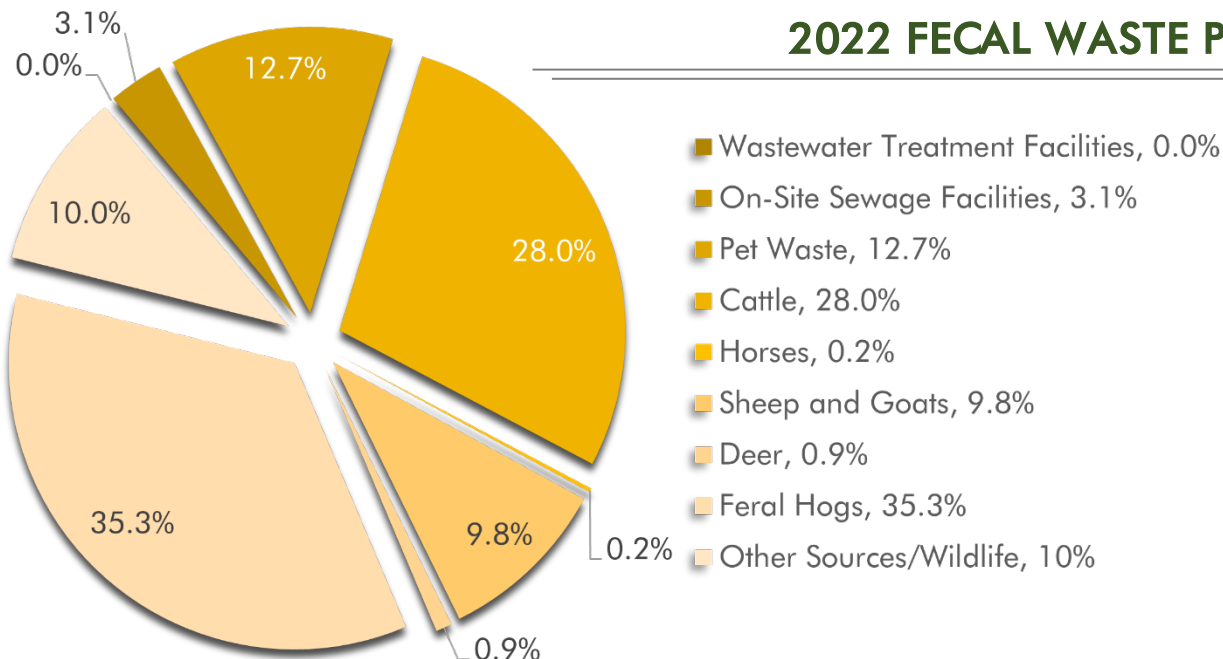


**Sediment** - Sediment in the waterways from erosion, development, and mining operations can have a significant impact on aquatic life, drinking water, and flooding.



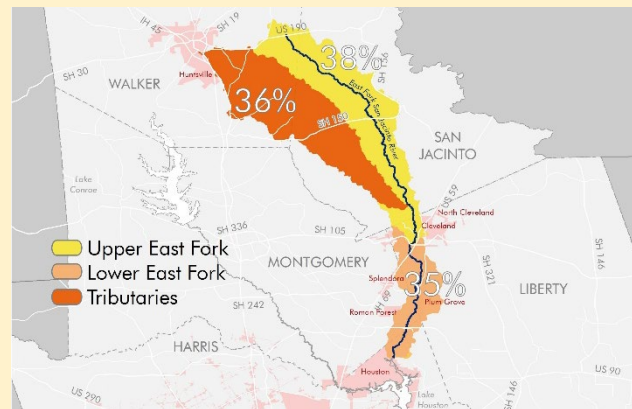
**Growth** - H-GAC estimates that the region's population will grow by 4 million by the year 2045. This will bring additional bacteria sources (onsite sewage facilities, pets, etc.) and increased paved surfaces. With careful planning, the impacts of growth on future water quality can be mitigated.

## 2022 FECAL WASTE POLLUTION

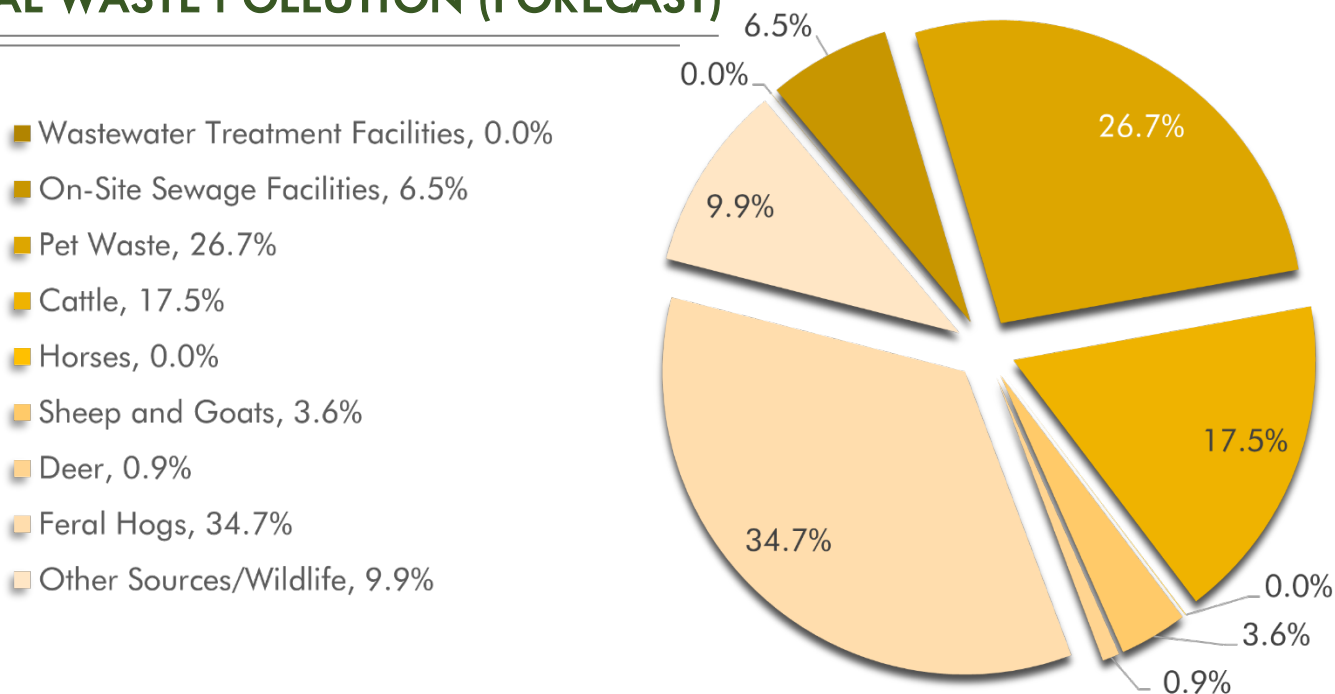


While water quality influences vary spatially, livestock and feral hog waste are the major contributors to fecal waste pollution throughout the East Fork San Jacinto River watershed. According to estimates based on observed data, a **38% reduction** in pollution is needed in the Upper East Fork area to meet the state water quality standard for contact recreation. To meet the standard in the Lower East Fork portion of the watershed, a **35% reduction** in pollution is needed. The area surrounding the Tributaries requires a **36% reduction**. Pollutant sources related to human activity will continue to increase in the watershed. Without action, the combined estimated pollution from wastewater, on-site sewage facilities and pet waste could increase as much as 112% by 2040, the WPP’s goal year.

## PERCENT REDUCTION NEEDED



## 2040 FECAL WASTE POLLUTION (FORECAST)



## LOCAL KNOWLEDGE, LOCAL SOLUTIONS

Local concern over water quality issues and the future of the East Fork of the San Jacinto River led to the formation of the **East Fork San Jacinto River Watershed Partnership**—a group of local stakeholders representing residents, government, industry, agricultural producers, community groups, and other local partners. Supported by H-GAC and TCEQ, the Partnership used a variety of methods to evaluate the causes and sources of water quality issues. Then, the Partnership identified voluntary, cost-effective solutions to address fecal waste sources and other concerns reflecting community priorities. While specific focus was given to reducing fecal waste which can directly impact human health, many of the solutions are intended to have multiple water quality benefits.

The Partnership's strategies will empower local decision-making, accent outreach and education, and make good use of existing, proven programs and resources. Because pollutant sources are diverse, the Partnership's recommendations represent a flexible range of solutions designed to adapt to changing conditions.



## ENSURING SUCCESS

Implementation of the WPP will require the continued coordination, cooperation, and commitment of the local partners. The solutions in the WPP are designed to **coordinate** with flood mitigation, conservation, and other efforts in the watershed to broaden the plan's reach. The Partnership will evaluate ongoing water quality testing and periodically review the success of WPP actions as they relate to serving the communities of the watershed, reducing risks to human and environmental health, and bringing water quality closer to compliance. The timeline on page 5 is a guide to the contents of the WPP, including various recommendations, responsible parties, and general timeframes for implementation.

## STRATEGIES FOR HUMAN WASTE

G	Support local utility improvements	Early, Ongoing
G	Recommend increased testing to better characterize effluent	Early, Ongoing
G, C	Minimize fats, oils, and grease in sewage through education and outreach	Early, Ongoing
G, R, C	Remediate collection system infrastructure; increase public reporting	Early, Ongoing
G, R	Remediate failing onsite sewage facilities	Ongoing
G	Improve onsite sewage facility spatial data	Early, Ongoing
G, R, C	Convert onsite sewage facilities to sanitary sewer where appropriate	Ongoing

## STRATEGIES FOR URBAN STORMWATER

G, R, C	Install stormwater inlet markers	Early, Ongoing
C, G	Investigate drainage channels in urban areas for potential pollutant sources	Early, Ongoing
G, B, C	Promote and implement low impact development practices	Early, Ongoing
G, R, B, C	Promote urban forestry as a stormwater solution	Ongoing

## STRATEGIES FOR PET WASTE

G, B, C	Install pet waste stations	Early, Ongoing
G, B	Expand dog parks	Late
G, C	Promote spay and neuter events	Ongoing
G	Consider increased enforcement	Ongoing

## STRATEGIES FOR AGRICULTURE, WILDLIFE, AND FERAL HOG MANAGEMENT

G, R, B	Implement voluntary agricultural plans and technical assistance	Ongoing
G, R, B, C	Restore/maintain/enhance riparian buffers, upland habitat, and tree canopy	Ongoing
G, R, B	Support efforts to remove feral hogs	Ongoing
R, C	Manage wildlife feeding and deter feral hogs	Ongoing

## COORDINATION AND EDUCATION

G, R, B, C	Continue to foster the East Fork San Jacinto River Watershed Partnership	Ongoing
G, R, B, C	Support existing outreach programs and partnerships in the watershed	Ongoing
G, C	Hold educational workshops for major strategies and train volunteers	Ongoing
G, R, B, C	Hold trash clean-up events	Ongoing
G, C	Provide educational materials for major strategies online	Ongoing

G: Government • R: Residents / Landowners • B: Business / Industry • C: Community Organizations

Early: 2024 - 2030 • Ongoing: 2024 - 2040 • Late: 2035 - 2040

Note: The responsible parties for each strategy represent categories of local partners that may be involved with these voluntary measures, not specific entities. The actual participants in any specific project may vary based on resources and location. Some strategies are ongoing through the project term and some are specific to certain time periods. All will be subject to opportunities as they arise.

# MAKE A DIFFERENCE

## RESIDENTS

- ✓ Pick up after your pet to keep waste out of the storm sewer.
- ✓ Maintain your septic or aerobic system.
- ✓ Become a volunteer Texas Stream Team Monitor or report pollution in your community.
- ✓ Reduce your fertilizer use on lawns and consider planting native vegetation.
- ✓ Support water quality initiatives in your local government decision-making.

## LOCAL GOVERNMENTS AND DISTRICTS

- ✓ Consider ordinances or incentives to reduce sources of waste in your jurisdiction.
- ✓ Address wastewater treatment challenges, especially sanitary sewer overflows; consider participation in the Texas Commission on Environmental Quality's Sanitary Sewer Overflow Initiative.
- ✓ Consider green infrastructure, urban forestry, riparian buffers, and other development practices for government facilities and design codes.

## AGRICULTURAL COMMUNITIES

- ✓ Work with U.S. Department of Agriculture Natural Resources Conservation Service, Texas State Soil and Water Conservation Board, and Texas A&M AgriLife Extension to implement voluntary land management practices and plans.
- ✓ Get support in managing feral hog activity on your property.
- ✓ Consider voluntary conservation, especially in riparian areas, to preserve rural character and water quality.

## BUSINESSES AND INDUSTRY

- ✓ Where applicable, ensure all permit requirements for wastewater discharge are being met.
- ✓ Consider green infrastructure, riparian buffers, and low impact development in site design.
- ✓ Support community water quality initiatives through involvement and sponsorship.

## COMMUNITY ORGANIZATIONS

- ✓ Promote and implement voluntary land conservation projects.
- ✓ Provide or participate in public education and outreach campaigns.



EAST FORK SAN JACINTO RIVER  
WATERSHED PARTNERSHIP

CE1224

Funding for the development of this watershed protection plan was provided by the United States Environmental Protection Agency through a Clean Water Act Section 319(h) grant to the Houston-Galveston Area Council, administered by the Texas Commission on Environmental Quality.

