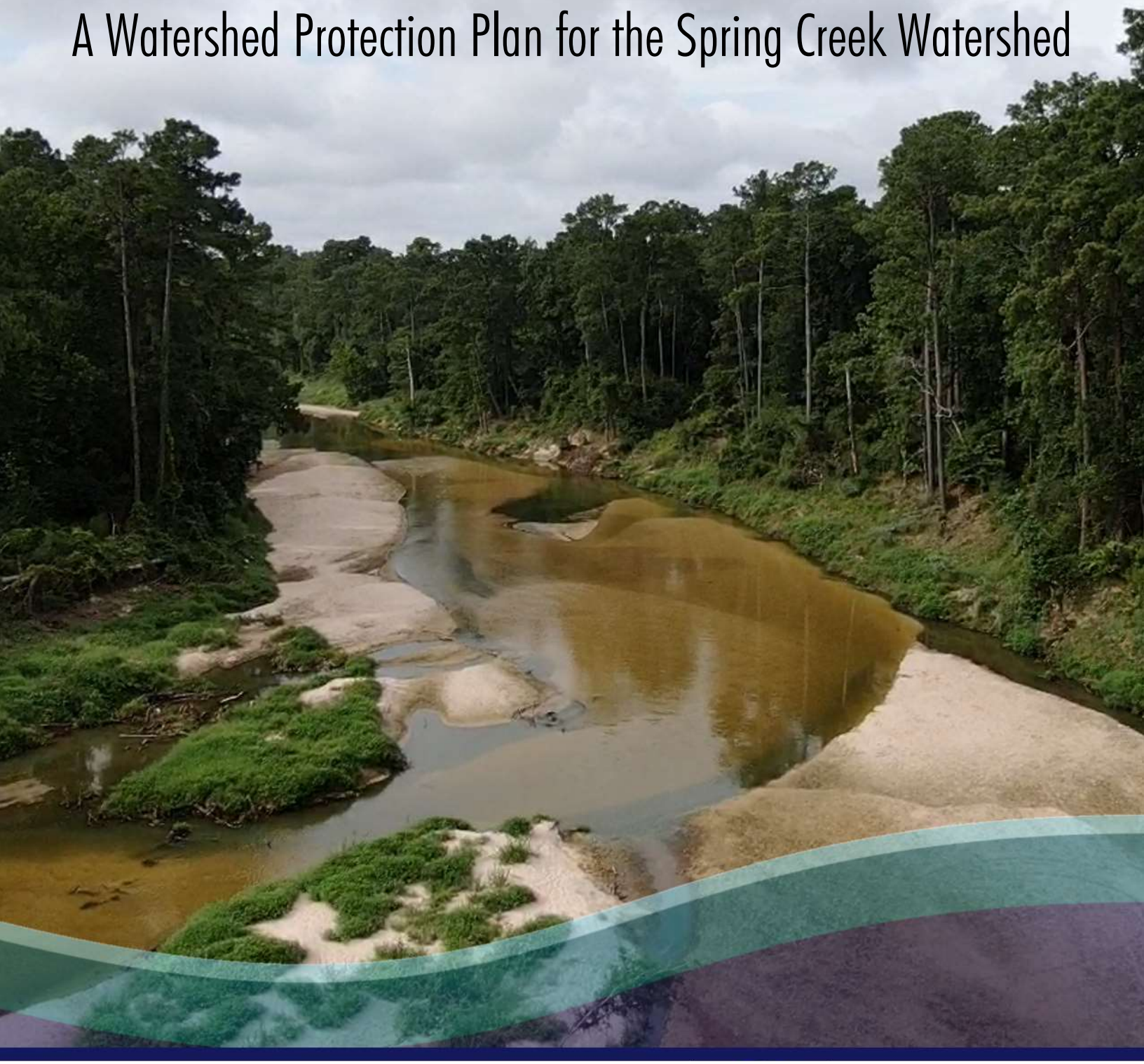
PROTECTING OUR WATER

A Watershed Protection Plan for the Spring Creek Watershed



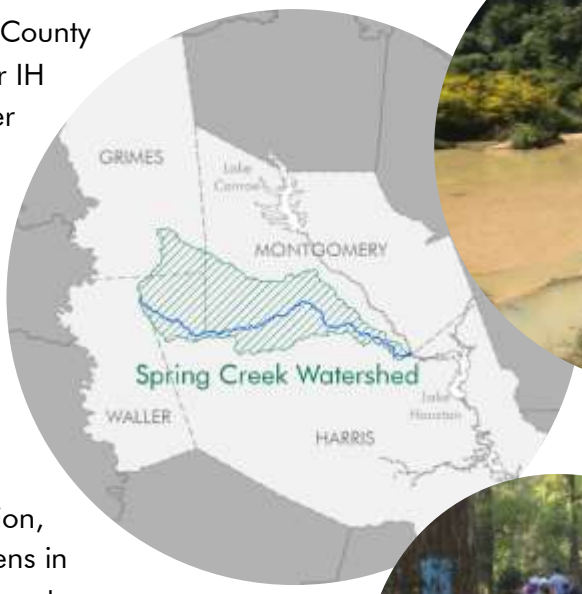
SPRING CREEK
WATERSHED PARTNERSHIP

Houston-Galveston Area Council

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

EPA
United States
Environmental Protection
Agency

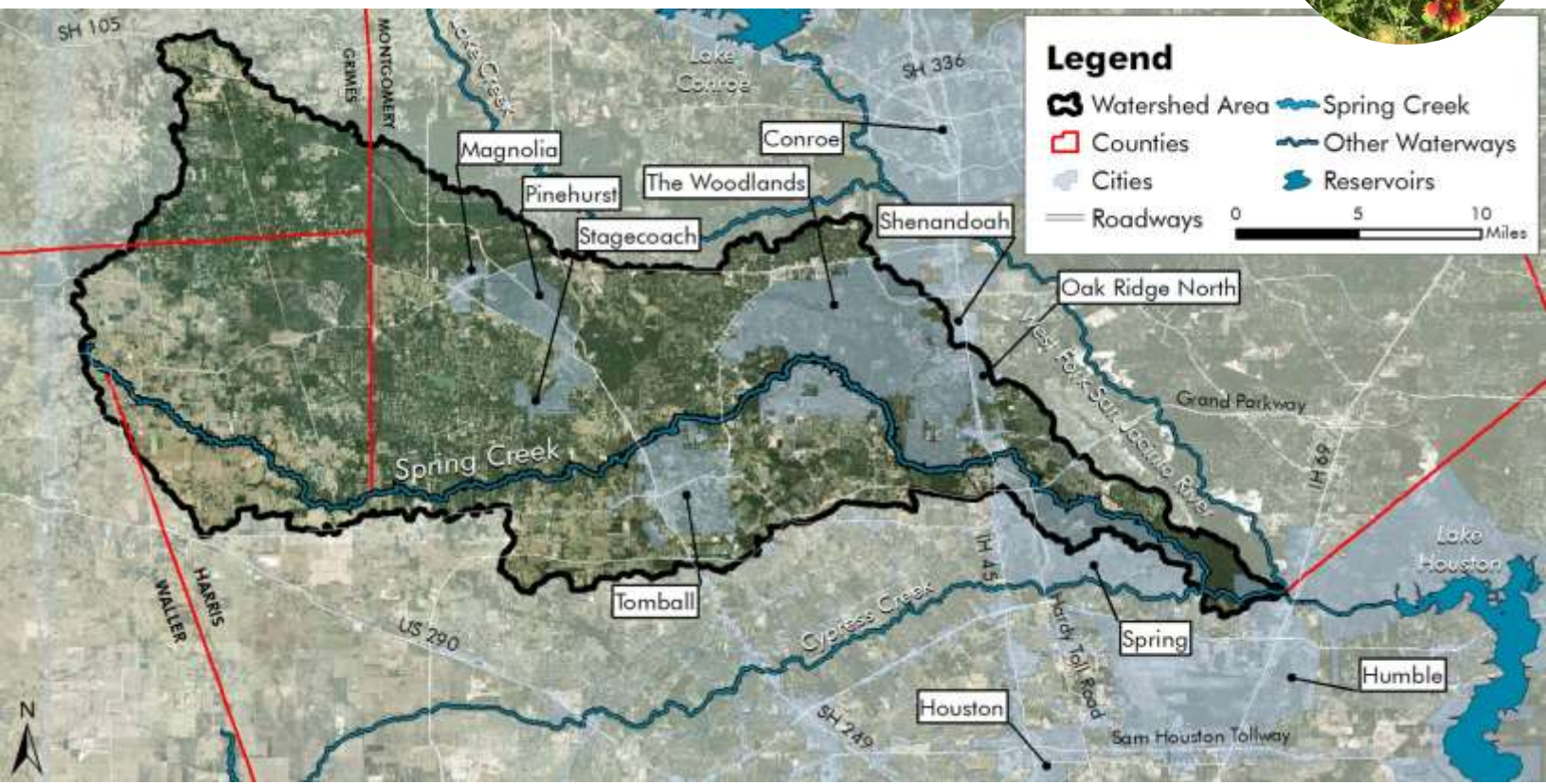
ABOUT THE PROJECT



Spring Creek runs east from its origin in Waller County to join with the West Fork of the San Jacinto River near IH 69. Along the way, it joins with Cypress Creek, another major water body to the south of Spring Creek. These waterways combined represent an appreciable part of the flow entering Lake Houston which is an important drinking water source for the region.

Approximately 440 square miles of land covering parts of Grimes, Montgomery, Harris, and Waller counties form the drainage area or **watershed** of Spring Creek. This watershed is essential to supporting local communities and economies, recreation, fisheries, and a diverse ecology. Everything that happens in the watershed affects the water quality and uses of the waterway, including regional water supply.

The Spring Creek watershed faces several water quality challenges. Elevated levels of fecal bacteria and other concerns can impact public health, ecological health, and the area's economy. To address these challenges, the Houston-Galveston Area Council (H-GAC) worked with local stakeholders to form the Spring Creek 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).



WATER QUALITY

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 Spring Creek watershed are elevated levels of *Escherichia coli* (*E. coli*) bacteria exceeding the water quality standard for contact recreation. *E. coli* are common in the digestive systems of warm-blooded animals and can indicate the presence of fecal waste in waterways. This can result from 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 (2018) and projected (2030) 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.

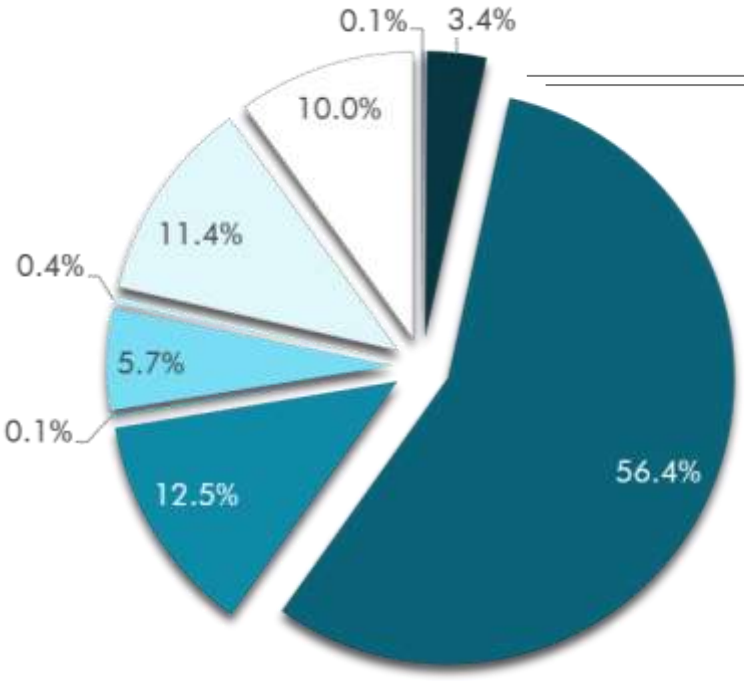
Trash - Trash from stormwater runoff and illegal dumping can affect aquatic life, degrade the beauty of our local communities, and expose people to hazardous substances.

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.

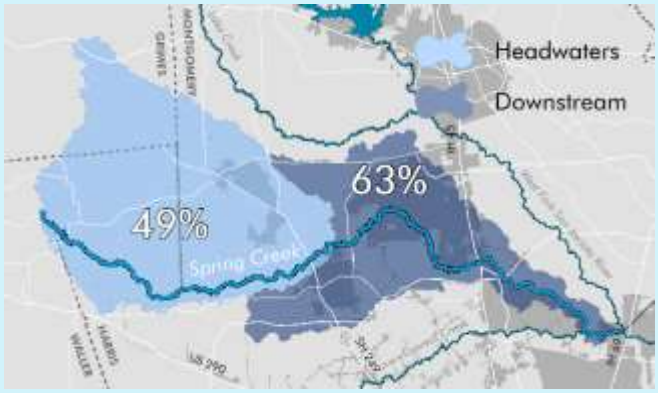
POLLUTION SOURCES

2018 FECAL WASTE POLLUTION

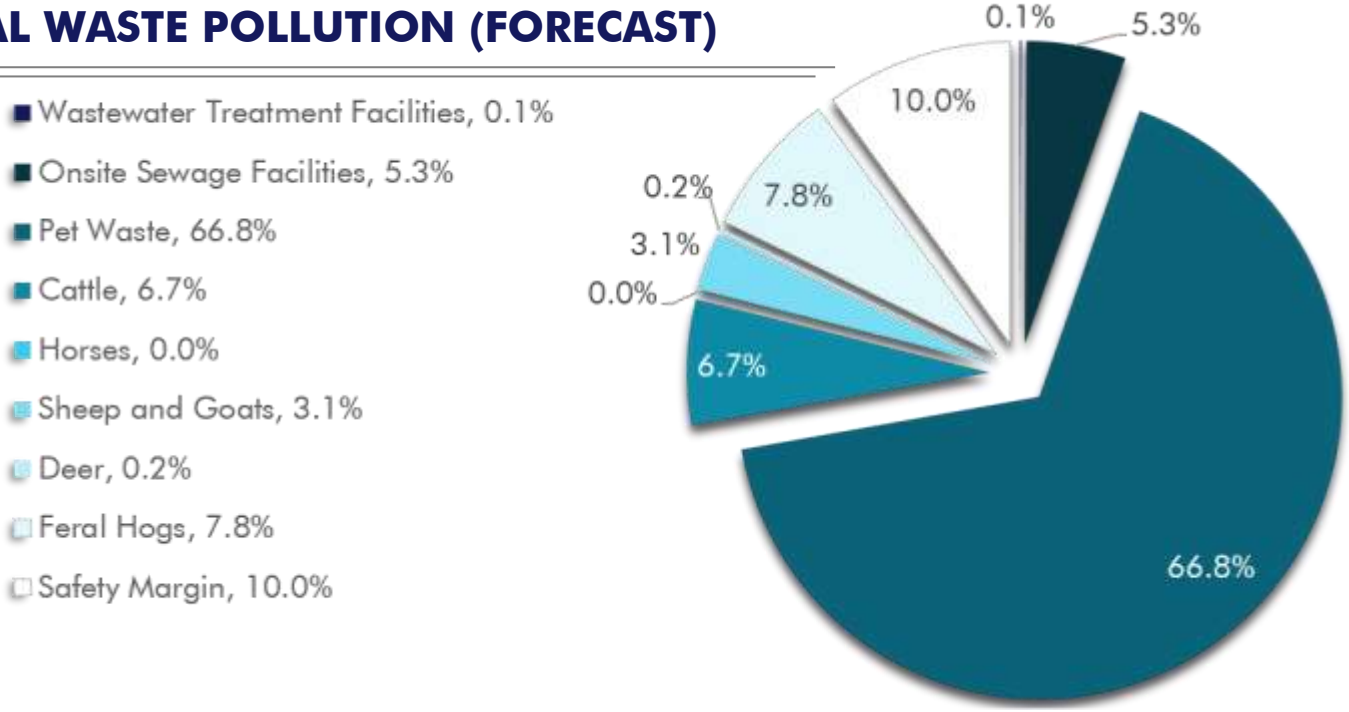


While water quality instream varies from place to place, pet waste and waste from livestock and invasive feral hogs are the major contributors to fecal waste pollution throughout the Spring Creek watershed. According to estimates based on observed data, a **49% reduction** in pollution is needed in the more rural and natural headwaters area west of SH 249 to meet the state water quality standard for contact recreation. To meet the standard in the more developed downstream area east of SH 249, a **63% reduction** in pollution is needed. Pollutant sources related to human activity will continue to increase with future development in the watershed. Without action, this could lead to pollution levels nearly doubling by 2030, the WPP's goal year.

PERCENT REDUCTION NEEDED



2030 FECAL WASTE POLLUTION (FORECAST)



TAKING ACTION

LOCAL KNOWLEDGE, LOCAL SOLUTIONS

Local concern over water quality issues and the future of Spring Creek led to the formation of the **Spring Creek 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 worked to address fecal waste sources and other concerns by identifying voluntary, cost-effective solutions 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.

TIMELINE

STRATEGIES FOR HUMAN WASTE

G	Address problem wastewater plants and consider regionalization	Early, Ongoing
G	Recommend increased testing to better characterize effluent	Early, Ongoing
G	Remediate collection system infrastructure; consider preventative measures	Ongoing
G, R	Remediate failing onsite sewage facilities	Ongoing
G, R, C	Convert onsite sewage facilities to sanitary sewer where appropriate	Ongoing
G, C	Minimize fats, oils, and grease in sewage through education and outreach	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, R, B, C	Promote maintenance and restoration of riparian buffers	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	Early, Late
G, C	Promote spay and neuter events	Ongoing (Periodic)
G	Consider increased enforcement	Ongoing
C	Distribute handheld pet waste bag dispensers at local events	Ongoing

STRATEGIES FOR AGRICULTURE, WILDLIFE, AND FERAL HOG MANAGEMENT

G, R, B	Implement voluntary agricultural plans and technical assistance	Ongoing
G, R, B, C	Maintain or restore rural riparian buffers and upland habitat	Ongoing
B, C	Implement horse manure composting program	Early, 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 Spring Creek 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: 2021 - 2026 • Late: 2026 - 2030 • Ongoing: 2021 - 2030

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 Environment 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.

EPA United States Environmental Protection Agency

Texas Commission on Environmental Quality

H-GAC Houston-Galveston Area Council

CE1021

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.

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