

# Section 1

# Project Background



## Background

The Spring Creek Watershed Partnership (Partnership) developed this watershed protection plan (WPP) to address water quality issues in Spring Creek and its tributaries. The purpose of this planning effort is to use a watershed approach to identify and reduce sources of contamination in the watershed through effective, voluntary solutions.

### *A Watershed Approach*

A watershed is generally defined as all the area of land that drains to a common body of water. Watersheds can range in size from the drainage basins of large rivers, to small catchments that may cover a few square miles of a local neighborhood. Regardless of the scale, they are more than just drainage boundaries. Watersheds are dynamic systems and represent the sum of everything that happens on that land. The way we use the land, the natural processes that take place on it, the way these things change over time; everything that takes place within a watershed influences the quality of the water that flows over it and into its water bodies (**Figure 1**<sup>1</sup>).

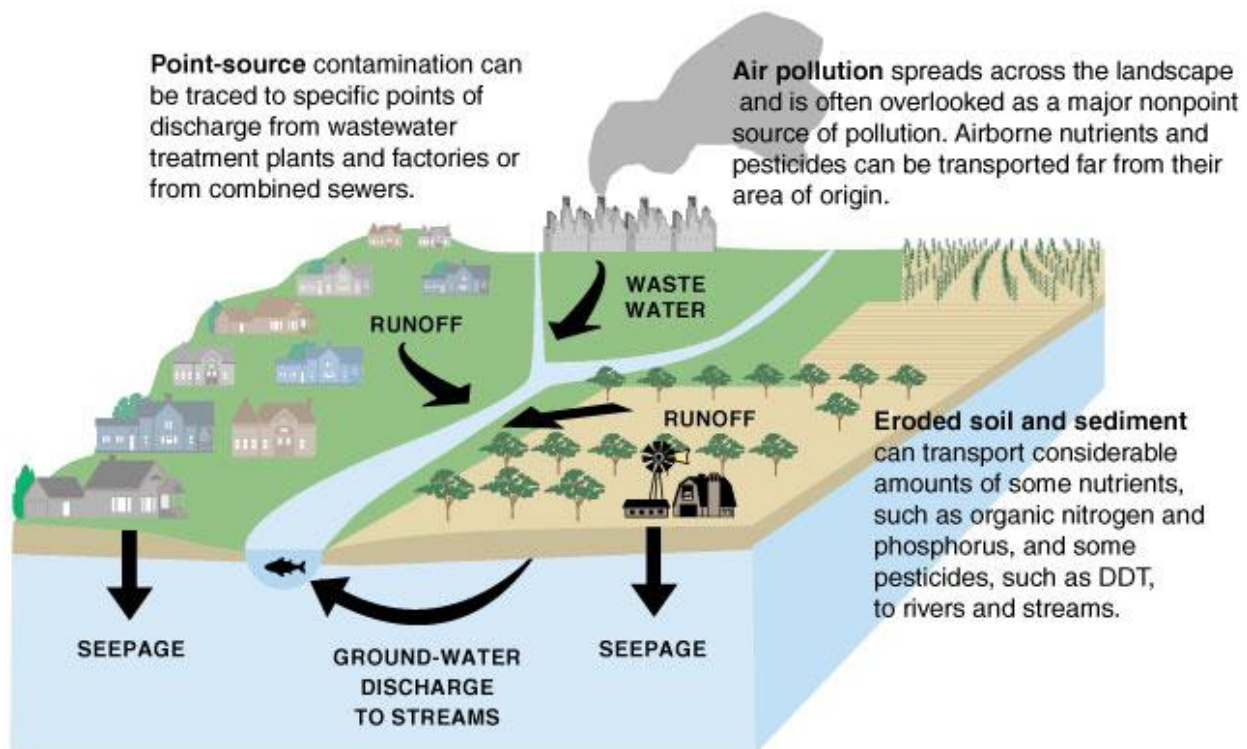


Figure 1. Pollution sources in a watershed

<sup>1</sup> Image courtesy of United States Geologic Survey (USGS)

Because watersheds are determined by the topography of the land rather than political boundaries, they often cross multiple political jurisdictions. Water is not bound by political geography; contaminants in the water can travel freely across borders. Pollution entering the waterway in one part of the watershed can impact other areas downstream. This fundamental aspect of watersheds limits the ability of individual political entities to wholly address sources of contamination in their waterways.

A **watershed approach** addresses water quality issues by focusing on both the waterways and their watershed as a linked system in which the drainage area's mix of land uses and potential sources of pollution are considered. Benefits of a watershed approach include:

- Reflecting the connection between land and water,
- Coordinating multi-jurisdictional efforts to focus on shared priorities, and
- Helping stakeholders understand potential future impacts to waterways based on the changing character of their watershed.

In Texas, the watershed approach to address water quality issues is often employed through the development of a WPP.

### *Watershed Protection Plans*

**WPPs** are planning documents that serve as a road map for local communities to take active stewardship of their surface water resources. In Texas, most WPPs are built on the United States Environmental Protection Agency's (EPA) nine element model<sup>2</sup>, which outlines several key steps to characterizing a watershed, understanding its water quality challenges, and devising appropriate solutions. Developed through locally led planning projects, WPPs use scientific analysis and stakeholder knowledge to identify and characterize water quality priorities and identify voluntary solutions to meet specific goals. Unlike regulatory actions to restore water quality, the WPP process is a non-regulatory approach based on the use of voluntary management measures employed by local communities who have a stake in their waterways<sup>3</sup>. At the heart of the WPP process is a recognition of the value of natural benefits ("ecosystem services") provided by the watersheds.

Public participation is a core component of the WPP process because the successful implementation of a WPP relies on an engaged and committed stakeholder group. **Stakeholders** are defined as any person or group in the watershed who has a defined

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<sup>2</sup> More information on EPA's guidance for developing watershed-based plans can be found at: <https://www.epa.gov/nps/handbook-developing-watershed-plans-restore-and-protect-our-waters>

<sup>3</sup> While there are no mandatory elements recommended by this WPP, local partners currently engage in regulatory activities that are supplemental to this project as part of their normal operations (e.g. enforcement of municipal pet waste ordinances).

interest in the waterway or who may be impacted by the water quality issues or the WPP recommendations. Stakeholders can include residents, elected officials, local governments, landowners, agricultural producers, recreation enthusiasts, businesses, and community groups. WPPs are best served by a diverse group of stakeholders who can represent the different interests in the watershed. The stakeholder group is often facilitated by state or regional organizations like the Texas Commission on Environmental Quality (TCEQ) and Texas State Soil and Water Conservation Board (TSSWCB) who use their expertise in watershed management to guide the stakeholders' efforts. Funding for WPPs is often provided through federal Clean Water Act (CWA) grants, some of which require matching funds or in-kind time from local stakeholders.

### *A Watershed Protection Plan for Spring Creek*

Water quality issues in the Spring Creek system (Segment 1008) and local concern over the impact of future changes in the watershed were the impetus for undertaking a watershed based plan. Previous projects in the greater Lake Houston Watershed area, including the Lake Conroe WPP<sup>4</sup>, the East and West Forks of the San Jacinto River Total Maximum Daily Load (TMDL)<sup>5</sup>, the West Fork San Jacinto River and Lake Creek Watershed Protection Plan<sup>6</sup>, and the Cypress Creek Watershed Protection Plan<sup>7</sup> established widespread local interest and commitment to address water quality. The desire to evaluate these areas on a local level for Spring Creek, and to consider other local concerns, led to the formation of the Partnership in 2020. The WPP model was chosen for its ability to address other local concerns in addition to state water quality standard (SWQS) impairments and for its voluntary nature. Additionally, the intent to coordinate water quality issues with community concerns about hydrologic issues and sedimentation were at the forefront of local considerations.

### **The Spring Creek Watershed Partnership**

The Partnership is a group of local stakeholders from various interests and partner agencies committed to protecting the public health, economy, and environment of their communities. Local facilitation of the Partnership was supported by the Houston-Galveston Area Council (H-GAC) as part of a joint project with TCEQ, funded through a CWA §319(h) grant from EPA. The Partnership is a voluntary association of stakeholders, holding no regulatory power. This WPP is a summary of the multi-year planning effort conducted by the Partnership and serves as

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<sup>4</sup> More information on this project can be found at:

<http://www.sjra.net/wp-content/uploads/2014/12/Lake-ConroeWatershed-Protection-Plan.pdf>

<sup>5</sup> More information on this project can be found at:

<https://www.h-gac.com/watershed-based-plans/east-and-westforks-of-the-san-jacinto-river-tmdl-and-implementation-plan>

<sup>6</sup> More information on this project can be found at: <http://www.westfork.weebly.com>

<sup>7</sup> More information on this project can be found at <http://www.cypresspartnership.com/>



guidance for future implementation activities. Using the watershed planning model, this plan is based on local decision-making supported by local knowledge, robust public participation, and technical and scientific analysis. The Partnership held **six full Partnership meetings** and two sets of topical Work Group meetings between July 2020 and August 2021 to discuss and provide feedback on a variety of water quality issues<sup>8</sup> (**Table 1**). Representation from a diverse range of local stakeholders ensured that recommendations of the group were vetted from multiple viewpoints and interests. All meetings were open to the public, and materials were disseminated on the project website and via email. A core group of stakeholders served as a Steering Committee, and the meetings operated under a set of ground rules spelled out in the project’s public participation plan<sup>9</sup>. Topical Work Group meetings were held as needed throughout the project to allow for detailed conversation on specific topics. Work Groups made recommendations to the full Partnership for items that required more detailed knowledge or deeper deliberation.

**Table 1.** Meetings of the Spring Creek Watershed Partnership

| Date             | Meeting Type   | Topics   |
|------------------|--|--|
| Jul. 29, 2020    | Partnership (virtual)  | Project introduction, water quality data review, and invitation to nominate Steering Committee   |
| Oct. 8, 2020     | Partnership (virtual)  | Steering Committee formation, water quality analysis, and pollution source model review and discussion   |
| Dec. 10, 2020    | Partnership (virtual)  | Discussion of model revisions, and invitation to join Work Groups  |
| Feb. 8 & 9, 2021 | Work Groups (virtual) <ul style="list-style-type: none"> <li>• Human Sources &amp; Pet Waste</li> <li>• Agriculture, Wildlife &amp; Invasives</li> </ul> | Review of water quality improvement strategies commonly implemented throughout the region, and call for suggestions of new implementation measures/ opportunities for collaboration      |
| Mar. 1 & 2, 2021 | Work Groups (virtual) <ul style="list-style-type: none"> <li>• Human Sources &amp; Pet Waste</li> <li>• Agriculture, Wildlife &amp; Invasives</li> </ul> | Discussion of project timeline, reduction targets, and water quality improvement solution logistics to recommend to Partnership  |
| Apr. 4, 2021     | Partnership (virtual)  | Discussion of Work Group recommendations, approval of project timeline, tentative approval of reduction targets and water quality improvement solutions to include in first draft of WPP |
| Jun. 3, 2021     | Partnership (virtual)  | Discussion of WPP draft and suggestions for revision   |
| TBD              | Partnership (virtual)  | Approval of WPP draft for submission to TCEQ and EPA   |

<sup>8</sup> More information on the individual meetings and process can be found in the project documents at: <http://www.springcreekpartnership.com/> and summarized in the project’s Stakeholder Outreach Report at: [\[provide link\]](#)

<sup>9</sup> See: [https://springcreekpartnership.weebly.com/uploads/1/3/0/7/130710643/10159\\_5.1\\_ppp.pdf](https://springcreekpartnership.weebly.com/uploads/1/3/0/7/130710643/10159_5.1_ppp.pdf)

In addition, project staff held meetings with local stakeholders and groups to gather more local knowledge and seek additional feedback. Local agencies and other organizations (e.g., local Soil and Water Conservation Districts) served as non-voting technical advisors who helped provide expert knowledge and guidance to support the Partnership and coordinate its efforts with other local projects. Project staff further supported the efforts of the Partnership by engaging the public at local outreach events throughout the project.

### **Water Quality Goals**

As part of developing the WPP, the Partnership developed a set of water quality goals that shaped their approach. Subsequent sections of this WPP expand on the details of how the Partnership established recommendations to meet these aims, and how they will be implemented, but the broad water quality goals for the Partnership are:

- *Plan for 2030* — The stakeholders balanced the need to account for future growth in this developing watershed with the potential uncertainty of future projections past a 10-year window. Based on the level of water quality issues, the likely path of development in the watershed, and the need to phase implementation over time to reduce local burden, 2030 was selected as the end of the planning horizon. The stakeholders and project staff consider this a viable timeframe based on WPPs approved for similar developing areas.
- *Reduce fecal waste* — Potential fecal pathogens, as measured by the bacteria species *Escherichia coli* (*E. coli*)<sup>10</sup> as an indicator of fecal waste, are the primary focus of the Partnership due to their potential impact on human health, presence as an impairment for many of the segments of the watershed, and relationship to causes and sources within the scope of the voluntary WPP effort. The focus of this WPP is to reduce excess levels of human and animal waste in the water for the sake of public health, recreational economy, and regulatory compliance with the *E. coli* geomean SWQS for contact recreation (126 colony forming units (cfu) per every 100 milliliters (mL)). This goal involves identifying and quantifying causes and sources of fecal waste and developing recommended best practices sufficient to meet modeled reduction goals. **The priority goal of the WPP is to improve and maintain *E. coli* levels at or below the contact recreation standard (primary contact recreation 1).**

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<sup>10</sup> Throughout this WPP, “bacteria” or “*E. coli*” should be taken to mean *E. coli* in its role as an indicator of fecal waste and its associated pathogens in water rather than specifically attributing potential health impacts to *E. coli*.

- *Improve dissolved oxygen* — Dissolved oxygen (DO) levels are important for maintaining aquatic communities. The goal is to recommend solutions to improve DO levels.
- *Reduce excessive nutrients* — Nutrients (phosphorus and nitrogen compounds) are potential sources of depressed DO due to their role in algal blooms. Nutrients do not have water quality standard numeric criteria associated with them though they may lead to a DO impairment. Because no DO impairment exists for the assessed water bodies of this system, the stakeholders elected to make nutrients a secondary concern. Efforts to reduce nutrients are not modeled or quantified, but instead expected as a secondary benefit from many fecal waste reduction solutions.
- *Address other stakeholder concerns* — The WPP model allows for the consideration of other local water quality issues outside SWQS impairments and concerns. No modeling or specific quantification was conducted for stakeholder concerns, but the goal of the project remains to support or selectively implement related best practices to reduce issues as appropriate. Specific concerns include trash and illegal dumping, sediment, and impacts from hydrologic issues in the watershed.

### **Guiding Principles**

In addition to the water quality goals, the Partnership detailed some guiding principles throughout the development of the WPP. Those principles include an emphasis on:

- *Distinct areas* — While the various elements of the Cypress Creek Watershed are part of a single system, areas within the system are unique in character and challenges. The consideration of the differing needs of these watershed areas is built into this WPP process and recommendations.
- *Locally-led decisions* — While project staff and other parties may provide information and guidance to the stakeholders, the ultimate decisions for the WPP, within the bounds of the WPP model, will be made by local stakeholders.
- *Voluntary solutions* — The WPP will only include recommendations that are voluntary. Neither the Partnership nor H-GAC will exercise any regulatory mandate through this WPP.
- *Use what works* — Where existing programs with proven success are available, they should be used. The Partnership will seek to coordinate efforts with similar

projects to ensure a limitation to redundant efforts. The Partnership recognizes and respects the efforts of local agencies, organizations and individuals and seeks to support rather than supplant them.

- *Coordination is key* — an extensive amount of activity is occurring in the watershed, both in terms of development and mitigation activities for hydrologic and environmental factors. Because of the density of actions and actors, this WPP seeks to the highest degree practicable to coordinate its aims and recommendations with related or adjacent efforts.
- *Education and outreach are vital* — Education and outreach are an important part of fostering the implementation of the WPP, and an essential element in its future success. The Partnership will seek to be transparent and build relationships with the community at every feasible opportunity.

Based on these water quality goals, and guided by the principles, the Partnership developed the recommendations and considerations contained in this WPP.



Photo Credit: Rachel Windham

**Figure 2.** Spring Creek running through the George Mitchell Preserve