

7. Ground/Source Water Protection Strategy – Preserving Flows

During the five year process to develop the Watershed Protection Plan, the Cypress Creek Stakeholder Committee was deeply concerned about Cypress Creek becoming an intermittent stream and the effects this would have on water quality. Recent monitoring data indicate the creek flows are below 1 cfs. Addressing flow from the headwaters of Cypress Creek will help mitigate and potentially prevent stormflow pollution sources in the karst terrain. Because surface water quality is directly affected by low spring flows, and after considering all the scientific information available, the Cypress Creek Stakeholder Committee determined that water quality in Cypress Creek will continue to be impaired and will worsen in the future without sufficient flows from Jacob’s Well.

In the fall of 2013, a technical committee composed of stakeholders and regional scientists formed to determine what is needed to preserve base-flows, identify artesian and recharge zones for the local springs, develop localized groundwater/surface water interaction models, and to discuss how best to use the emerging science for decision-support. Gaps in available science, methods and approaches, and preliminary goals for ground/source water protection and flow regime preservation are presented below.

In order to pursue Clean Water Act 319 funds, to develop additional watershed protection plan elements pertaining to the flow target in the WPP, and to provide ground/source water protection management recommendations the following items were considered:

- What literature, data, and information exist?
- What data/research activities would benefit the Stakeholder Committee in developing a list of recommendation for management activities?
- What potential methodologies exist and what known components or criteria are required for a successful plan (especially ones with EPA involvement)?
- What activities are underway that can support management and management recommendations?
- What recommendations can be made for designing and implementing a special groundwater management area if it is determined to be an appropriate tool?
- What recommendations can be made for designing and implementing a source-water protection plan?
- Prioritized Goals and Potential Funding Sources

Prioritized Goals for Spring Flow and Ground Water Quality Protection

The Stakeholder Committee recognized that future development could negatively impact surface water quality from above and below the ground. The Committee voted to adopt a suite of management measures to address surface water quality issues while protecting ground/source water flows. Ground/source water protection strategies will enhance efforts of a collaborative management and governance scenario for local water resources.

The Stakeholder Committee identified several potential components that are critical and will be included in a ground/source water protection strategy for their watershed (see Technical Reference Document). Goals are listed below, with the primary purpose of preserving flows (See Dissolved Oxygen section above).

- 1. Preserving Cypress Creek headwaters and flow regime at or above WPP target of 6 cfs**
This strategy is an attempt at preserving (or recovering) the hydrologic regime for the health of the creek and its designated uses. The rationale for including a target spring-flow of 6 cfs as a goal is based on the Dissolved Oxygen criteria described in the DO section above. Additionally, for managing potential nutrient loading, maintaining flow conditions at or above a target flow level under a variety of conditions is a nutrient pollutant management strategy under the build-out development scenario. Thus, maintaining flow is a valued surface water target.
- 2. Launch coordinated water conservation campaign between water suppliers and cities to effectively reduce demand for groundwater during drought stages 2 and 3 (Year 1)**
- 3. Determine strategies for water suppliers to implement tiered pricing and market-based conservation efforts that will sufficiently incentivize demand reduction (Year 1)**
- 4. Establish science process, proposals, and estimated budget needed for determining recharge and artesian area affecting the Springs of the Wimberley Valley (Year 1-3)**
This scientific process would include consideration of:
 - Modeling – study inputs, revisions, uncertainty, land use change
 - Analysis - Artesian flow and artesian pressure flow regime analysis
 - Monitoring – Monitoring plan, Measuring flow in target reaches
 - Incorporating – EAA, USGS, MCWE and other hydrologic study efforts
 - Recommending - management recommendations for flow and protection of recharge features to prevent pollution entering into ground/source water