

House Committee on Natural Resources

Interim Charge 3 Written Testimony

Texas Water Development Board

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Joint Planning Process for Groundwater and Achievement of Desired Future Conditions

Background

Texas manages its groundwater resources primarily at the local level through groundwater conservation districts. Groundwater conservation districts (districts) are the state's preferred method of groundwater management in order to protect property rights, balance the conservation and development of groundwater to meet the needs of the state, and use the best available science in the conservation and development of groundwater (Texas Water Code §36.0015(b)). Coordination of groundwater management by districts is also accomplished on a regional scale where districts manage common, shared aquifers. This regional planning is called joint planning and is important to the state because regional water planning groups are required to use groundwater availability estimates that are generated through this process.

Groundwater Management Areas

A management area is defined by Texas Water Code §35.002(11) as an area designated and delineated by the Texas Water Development Board (TWDB) that is suitable for management of groundwater resources. Groundwater management areas were designated with the objective of providing the most suitable area for the management of the groundwater resources. To the extent feasible, groundwater management areas coincide with the boundaries of a groundwater reservoir or subdivision of a groundwater reservoir, that is, the designated major and minor aquifers of the state. The TWDB was also enabled to consider other factors, including the boundaries of political subdivisions (see Texas Water Code § 35.004).

Figure 1 shows the boundaries of the 98 districts and 16 groundwater management areas. The boundaries of these districts are mostly drawn along political rather than hydrologic boundaries. However, the boundaries of the groundwater management areas approximately coincide with hydrologic boundaries—the boundaries of major aquifers. These boundaries have generally stayed the same since 2001 except for very minor administrative adjustments. Texas uses the joint planning process in groundwater

Figure 1. Groundwater conservation districts and groundwater management areas



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When reviewing management plans, the district representatives are to consider the goals of each management plan and their impact on planning throughout the management area. They also review the effectiveness of the measures established by each plan for conserving and protecting groundwater and preventing waste, the general effectiveness of these measures in the management area, and the degree to which each management plan achieves the desired future conditions. Desired future conditions are a quantitative description of the desired condition of the groundwater resources in a management area at one or more specified future times. Desired future conditions are policy goals to which each district must manage their groundwater resources. Desired future conditions may be expressed in different ways, such as changes in groundwater levels (the most common desired future conditions in the Texas), springflows (Central Texas), storage volumes (High Plains), and subsidence (northern Gulf Coast).

Figure 2 illustrates the joint planning process that districts follow to propose and adopt desired future conditions. Districts are required to consider several scientific and policy factors when proposing desired future conditions. These factors include:

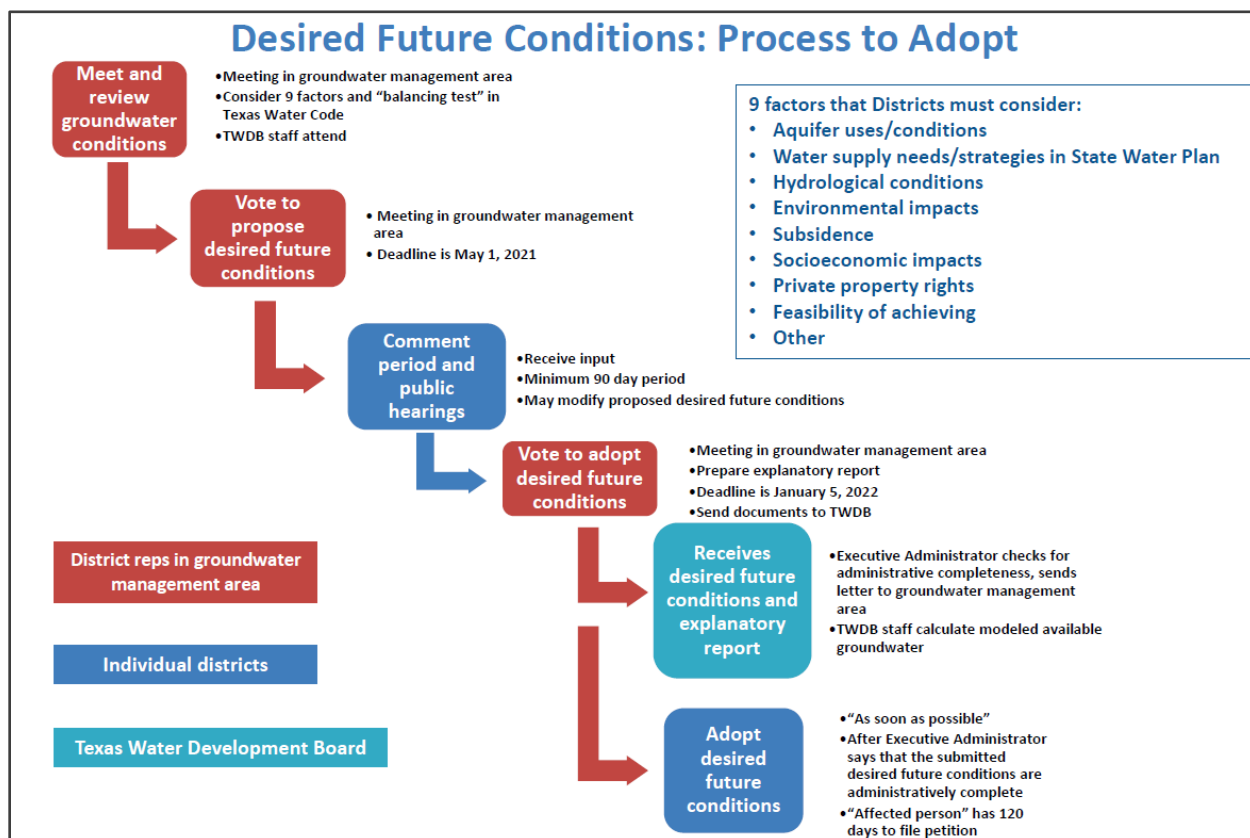
- aquifer uses or conditions;
- water supply needs and water management strategies included in the state water plan;
- hydrological conditions (including the total estimated recoverable storage provided by the TWDB Executive Administrator);
- other environmental impacts, including springflow and groundwater-surface water interaction;
- subsidence;
- socioeconomic impacts;
- impacts on interests and rights in private property;
- feasibility of achieving the desired future condition; and
- other information.

The desired future conditions must also provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevention of waste of groundwater and control of subsidence. Districts are required to meet and discuss these factors, and eventually vote on proposed desired future conditions. For the current cycle of joint planning, the deadline for proposing desired future conditions is May 1, 2021. Each individual district is then required to hold a public hearing and receive comments from the general public. The districts then reconvene and vote to finally adopt the desired future conditions. Adopted desired future conditions must be approved by a two-thirds vote of districts in a groundwater management area. The deadline for this action is January 5, 2022. Finally, each individual district must adopt the

desired future conditions that apply to that district and must modify its management plan to incorporate the new desired future condition(s) within two years.

The districts in the management area provide their adopted desired future conditions, along with an explanatory report, to the TWDB, which calculates modeled available groundwater estimates. Modeled available groundwater is the amount of groundwater that may be produced in a year to achieve a desired future condition. The TWDB uses groundwater availability models (or the best available scientific method if a model is not available) to determine the modeled available groundwater. The modeled available groundwater includes both permitted and exempt pumping. The desired future condition may not be achieved if pumping volumes exceed the modeled available groundwater volume over the long term. Regional water planning groups are required to use modeled available groundwater volumes as the groundwater availability estimates in their regional water plans which ultimately get incorporated into the state water plan.

Figure 2. Diagram of the joint planning process for districts to propose and adopt desired future conditions in a management area



Achievement of Desired Future Conditions

The achievement of desired future conditions is the responsibility of the districts. Districts are required by Texas Water Code §36.108 to manage groundwater resources in their

jurisdiction to achieve desired future conditions. Furthermore, Texas Water Code §36.1085 requires that each district in a management area prepare a management plan that contains goals and objectives consistent with achieving the desired future conditions of the relevant aquifers. Texas Water Code §36.108(c)(4) requires districts to consider the degree to which each management plan achieves the desired future condition established during the joint planning process. The districts address this requirement as part of their review of management plans in the groundwater management area which is an ongoing part of the joint planning process.

Pursuant to Texas Water Code §36.1132(b), districts are required to issue permits to the point that the total volume of groundwater production on a long-term basis will achieve an applicable desired future condition. Texas Water Code §36.1071 requires the districts to “address desired future conditions” in the district management plans and Texas Water Code §36.101 enables the districts to make and enforce rules to regulate well spacing, to limit groundwater production, and to implement other measures to manage groundwater to achieve the desired future conditions. To support these management decisions, the districts are required to use groundwater availability modeling information and other data provided by the TWDB to develop and implement their management plans.

Districts have a variety of tools and approaches to assess compliance with achieving desired future conditions. Most districts rely on direct measurement of groundwater levels in dedicated monitoring wells and compare these data to the adopted desired future conditions. In 2019, water levels in nearly 9,000 wells in the state were measured by the TWDB, districts, and the U.S. Geological Survey. These data are available to districts to monitor the impact of groundwater production on aquifer conditions relative to the adopted desired future conditions and measure the effectiveness of their groundwater management programs and strategies. Some districts estimate how much groundwater remains in storage from year to year, and other districts maintain records of springflow and groundwater levels that relate to adopted desired future conditions. During joint planning meetings, districts present their methods, the results of their groundwater monitoring evaluation, and how those results compare to the adopted desired future conditions. These meetings are required at least on an annual basis, with most groundwater management areas holding meetings more frequently.

State law (Texas Water Code §36.3011) also provides a process to file a petition to investigate districts that do not engage in joint planning or fail to manage groundwater resources consistent with adopted desired future conditions. A district may also be subject to a Texas Commission on Environmental Quality inquiry if it fails to participate in the joint planning process, fails to adopt the applicable desired future condition adopted by the management area in joint planning, fails to update its management plan before the second anniversary of the adoption of the desired future condition by the management area, or

fails to update its rules to implement the applicable desired future conditions from the first anniversary of the date it updated its management plan with the adopted desired future conditions.

As of September 2020, two five-year cycles of joint planning have been completed. The first cycle was completed in 2010 and districts adopted a total of 415 individual desired future conditions for 72 major and minor aquifers and subdivisions of these aquifers. Three desired future conditions were adopted for brackish or saline aquifers. The second cycle was completed in 2016, resulting in a total of 511 desired future conditions adopted by districts in 71 major and minor aquifers and subdivisions of these aquifers. In each cycle districts have revised desired future conditions, changed the status of some aquifers from relevant to non-relevant, and considered different subdivisions of aquifers for desired future conditions based on hydrological data.

The third cycle of joint planning will continue through 2021, with a deadline of January 5, 2022 for the districts to adopt new or amended desired future conditions or readopt existing desired future conditions.