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January 1999
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Priority Groundwater Management Areas and Groundwater Conservation Districts; Report to the 76th Legislature

Jointly Prepared by the

Texas Natural Resource Conservation Commission
Texas Water Development Board

Water Quality Division

printed on
recycled paper

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Priority Groundwater Management Areas and Groundwater Conservation Districts; Report to the 76th Legislature

Prepared by

Texas Natural Resource Conservation Commission
Texas Water Development Board

SFR-053/99
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ERRATA

The temporary board of the Haskell/Knox County Underground Water Conservation District has verbally reported to the TNRCC that the District was confirmed by election on January 26, 1999. The temporary board reported that the confirmation of the District was passed by the voters in each county thus creating the district. The temporary board also reported that the voters approved a tax rate not to exceed \$0.05 per \$100 of assessed valuation at the election. The two county commissioners courts are to appoint initial directors for the District prior to filing the election results with the TNRCC. The temporary board was scheduled to officially canvass the election results at a January 27, 1999 meeting.

This information was received by the TNRCC during the printing of this report and is not reflected in the report as presented.

EXECUTIVE SUMMARY

This report provides information to the legislative leadership on activities undertaken during the preceding two years relating to the designation of priority groundwater management areas (PGMAs), the creation of groundwater conservation districts, and the operation of districts. The report also identifies and addresses groundwater management issues and recommends changes to Chapters 35 and 36 of the Water Code. This report has been prepared by the Texas Natural Resource Conservation Commission (TNRCC) and the Texas Water Development Board (TWDB) with assistance from the Texas Parks and Wildlife Department (TPWD) and the Texas Agricultural Extension Service (TAEX) for submittal to the 76th Texas Legislature. It fulfills the requirement of §35.018 of the Water Code.

Priority Groundwater Management Area Program: The PGMA program (known as the “critical area” program prior to Senate Bill 1, 1997) was actively pursued between 1987 and 1991. During this period, 16 PGMA studies were initiated; 14 were completed (Figure 1, page 18). Of the completed studies, four study areas were designated as PGMAs by the Texas Water Commission (TWC) in 1990 (Table 2, page 19). Locally initiated district creation or annexation activities have occurred in all of the designated PGMAs but there remain areas in each PGMA that have not yet been added to a groundwater conservation district. The TNRCC has developed a procedure and plan to address these areas as required under Chapter 35, Water Code. The TNRCC is ready to initiate this effort in early 1999.

Senate Bill 1 (SB 1) specifically required that two PGMA studies pending in 1991 (North Texas Alluvium and Paleozoic Outcrop Area and El Paso County Area) be completed in 1998. The TWDB completed updated studies and the TPWD completed new studies for the two areas. Based on data gathered during the PGMA studies, available information and stakeholder comments, it was determined in August 1998 that the North Texas Alluvium and Paleozoic Outcrop Area should not be designated as a PGMA. The El Paso County Area was, after evidentiary hearing, designated as a PGMA in December 1998. The designation order recommended against TNRCC creation of a district at this time under the constraints of Chapter 36, Water Code. Due to interstate and international concerns over shared aquifers, the TNRCC order and report stated that legislative action may be needed to empower a special regional authority to address the identified groundwater problems.

The agencies have taken action to coordinate and implement the PGMA program as revised by SB 1. Five study areas were determined not to be PGMAs by the TWC in 1990 and 1991. Five other study areas also were determined not to be PGMAs by the TWC in 1990; however, it was determined that updated studies were needed in these areas in five years (Table 2, page 19). Interagency meetings have been held to coordinate pending and updated studies, educational needs, legislative reporting, and management plan certification and enforcement. At the 1998 PGMA meeting, the Executive Director of TNRCC and Executive Administrator of TWDB identified the PGMA work plan for Fiscal Year 1999. The plan includes completing the five updated PGMA studies. The TWDB and TPWD have initiated efforts to

prepare their studies for TNRCC consideration. No new areas will be identified for PGMA study until

information from the state's regional water plans becomes available.

New Groundwater Conservation Districts: The 75th Legislature created five new groundwater conservation districts and validated one existing district. Two of these districts were confirmed by voters in elections held in 1998, but the attempt to confirm a third district was defeated by voters in 1998. To date, confirmation elections have not been held in the remaining two districts created by the 75th Legislature. The enabling legislation of these two districts places no time limits for holding the confirmation elections. Two other districts created during previous legislative sessions were also confirmed by voters in elections held in 1997 and 1998 (Table 3, page 38). Two district annexations also occurred during the biennium. As a result of these actions, there are now a total of 44 groundwater conservation districts which have been created and confirmed in the state. These 44 districts cover 26 percent of the state and include all or part of 84 of the state's counties (Figure 4, page 39).

There are five districts created by legislative action prior to 1997 that still remain unconfirmed. These districts are required by SB 1 to either be confirmed by election before September 1, 1999 or face dissolution. In May 1998, the TNRCC notified the temporary board members in each of the five districts of the impending deadline. To date, three of these districts have indicated plans to hold confirmation elections in 1999.

Educational Activities: Educational programming and assistance are vitally important in the effective management of the state's water resources and the voter's decisions on district creation. The agencies were actively involved in organizing and providing educational assistance to residents of areas interested in establishing new groundwater conservation districts or attempting to confirm existing districts. In 1998, at the request of local citizens and officials, educational meetings were held by representatives of the various state agencies in numerous counties. Information on Texas water law, the PGMA process, methods of forming groundwater conservation districts and other related issues were presented and discussed at these meetings. The TAEX has developed a fact sheet on groundwater management and methods of groundwater district creation and has created audio-visual material for use in educational programming in the designated PGMAs.

Groundwater Management Planning: Groundwater conservation districts are required by SB 1 to develop and submit a groundwater management plan to the TWDB for certification of administrative completeness. Each district develops its own management plan in accordance with requirements specified in the Water Code and the TWDB's management plan certification rules. The TWDB has facilitated training with the groundwater districts on certification rules and requirements. Forty districts were expected to submit plans to the TWDB before September 1, 1998. However, only 34 submitted their plans by this deadline, and one district submitted it after the deadline. All plans that were submitted have been certified. The TNRCC has proposed rules which include provisions for enforcement procedures for the failure of a district to submit for certification or implement a management plan.

Groundwater Management Issues: SB 1 significantly improved and streamlined the PGMA process. A few procedural issues remain; however, these could be clarified to more fully accomplish and facilitate

groundwater management within designated PGMA. These issues include: TNRCC-initiated district creation procedure in designated PGMA; time limits for landowner action in designated PGMA; the timing of educational programming within the PGMA designation process; and, the burden of the evidentiary hearing process for PGMA designation. Similarly, there are several issues concerning groundwater management areas that need to be better defined. These include the limited authority presently available to Commission-created districts to manage additional aquifers within their geographic boundaries, and simplification of the groundwater management area designation process. Other issues are: exemptions from district well permitting requirements; county authority in designated PGMA; and, time limits for holding confirmation elections in districts created by the 75th, and subsequent, legislatures.

Recommended Changes to Texas Water Code, Chapters 35 and 36:

The following priority groundwater management area recommendations are respectfully submitted for legislative consideration:

- **replace the general reference to Subchapter B, Chapter 36 with references to procedural provisions in Chapter 36 for Commission-initiated district creation in a designated PGMA**
- **clarify procedures for landowner-initiated district creation in designated PGMA**
- **provide for the initiation of educational programming following a PGMA designation; and**
- **replace the evidentiary hearing process with a public meeting process**

Also presented for consideration are the following recommendations related to groundwater management:

- **combine the Chapter 35 petition process for the designation of a groundwater management area with the Subchapter B, Chapter 36 district creation process**
- **authorize groundwater districts, through publicly open rulemaking, to establish their own well-permitting exemption rules based on local needs; and**
- **provide statutory time frames for newly created groundwater districts to hold confirmation elections**

INTRODUCTION

This report has been prepared for the 76th Legislature by the Texas Natural Resource Conservation Commission (hereinafter TNRCC or Commission) and the Texas Water Development Board (hereinafter TWDB) as required by Senate Bill 1 (SB 1) of the 75th Legislature, 1997. The introduction describes the purpose and scope of the legislative report, presents a brief history of the evolution of groundwater district and groundwater management law, and describes the process by which the mandates of SB 1 have been implemented. It also presents a summary of educational programming activities undertaken in this effort.

Purpose and Scope

The purpose of the report is to provide updated information on the designation of priority groundwater management areas (PGMAs) and the creation and status of new groundwater conservation districts (hereinafter GWCDs or districts). The report describes state agency efforts to implement the groundwater management and PGMA education provisions of SB 1. The report provides information on the implementation of the state's PGMA program as amended by SB 1, details the PGMA studies and designations that were completed during the biennium, and discusses state agency and local activities that have occurred in the previously designated PGMAs. The report presents information on state activity in other PGMA study areas and on educational programming that has been conducted in designated PGMAs and in other areas where landowners have requested groundwater conservation district creation education.

The report describes recently created groundwater conservation districts and additions of territory into existing districts. Information is presented on elections held for the confirmation of new groundwater districts and describes new district activities. The report identifies areas that have annexed into an existing groundwater district and identifies significant issues for existing districts. State agency efforts to implement the groundwater management planning requirements as amended by SB 1 are described along with the status of district management plans for all groundwater districts. Additionally, the report identifies and discusses groundwater management issues and recommends changes to Chapters 35 and 36 of the Texas Water Code (hereinafter the Water Code) for legislative consideration.

The 76th legislative report is the first on this subject that has been prepared jointly by the TNRCC and TWDB. The report has been prepared in accordance with §35.018 of the Water Code, as established by SB 1 in 1997. The Texas Parks and Wildlife Department (hereinafter TPWD) and the Texas Agricultural Extension Service (hereinafter TAEX) also assisted in the preparation of this report. Six previous reports on groundwater conservation districts and groundwater management issues have been prepared by the TNRCC and its predecessor agency, the Texas Water Commission (hereinafter TWC). These reports, spanning the years 1985 to 1997, were presented to the 70th (1987) through 75th (1997) legislatures (TWC, 1987, 1989, 1991 and 1993; TNRCC, 1995 and 1997). The previous reports were prepared under

Chapter 133 (General and Special Laws), Regular Session, 69th Legislature, 1985, which was repealed by SB 1 and replaced with §35.018, Water Code.

Background and Historical Perspective

State law pertaining to the creation of groundwater conservation districts and the management of groundwater resources has been amended many times over the past 50 years. Table 1 presents a summary of the evolution of groundwater districts and groundwater management law. The creation of groundwater conservation districts and the designation of underground reservoirs for the purpose of groundwater management were first made possible by House Bill (HB) 162 (51st Legislature, 1949), codified as Article 7880-3c, Vernon's Civil Statutes. The Act provided the petition process for management area designation and authorized district creation. It also defined the powers, duties, and responsibilities for operating a district, outlined procedures for confirmation elections and defined the duties of the boards of directors of districts. The Act established procedures for annexation, consolidation and dissolution of districts. Amendments in 1955 authorized the Texas Board of Water Engineers (one of TNRCC's predecessor agency) to designate underground reservoirs and subdivisions on its own motion or on landowner petition. In 1971, this law was incorporated into the Water Code as Chapter 52 (Underground Water Conservation Districts).

With the enactment of HB 2 in 1985, the 69th Legislature made substantial changes to Chapter 52. The concept of an underground reservoir was changed to that of a management area. HB 2 allowed the Commission to consider boundaries of political subdivisions, in addition to aquifer boundaries, in delineating management areas. Prior to 1985, Chapter 52 required the boundaries of groundwater conservation districts to be coterminous with a designated underground reservoir.

The critical-area program was also established by HB 2 in 1985. The 69th Legislature recognized that certain areas of the state were experiencing, or may experience in the future, critical groundwater problems. HB 2 defined critical areas as being those areas that are experiencing or are likely to experience significant groundwater problems such as water shortages, land subsidence, significant water level declines, groundwater contamination (including saltwater intrusion), or wastage of groundwater supplies. HB 2 authorized the state's water agencies to study, identify and delineate critical areas and initiate the creation of groundwater conservation districts within these areas. The critical area program established a procedure by which the state's water agencies could monitor and study groundwater conditions on an on-going basis within these critical areas and aid local citizens in addressing groundwater problems that may arise within the next 20 years.

Critical areas were intended primarily to function as management areas for Commission-initiated groundwater conservation districts but could also function as management areas for landowner-initiated districts. Critical areas may fall within or overlap with management areas or underground reservoirs previously delineated by the Commission or its predecessor agencies.

Table 1
Groundwater District and Groundwater Management Legislative History

Legislative Act	Legislature	Major Provisions or Changes
HB 162	51st, 1949	<ul style="list-style-type: none"> • Authorized the petition process for designating underground water reservoirs and creating underground water conservation districts. • Amended in 1955 to authorize the Texas Board of Water Engineers to designate underground water reservoirs on its own motion. • Codified as Chapter 52, Water Code in 1971.
HB 2	69th, 1985	<ul style="list-style-type: none"> • Changed underground water reservoirs to management areas. • Required that boundaries of groundwater districts be coterminous with a management area and allowed the TWC to consider using political boundaries to delineate management areas. • Established the critical area process.
SB 1212	71st, 1989	<ul style="list-style-type: none"> • Changed management areas to underground water management areas. • Required the TWC to designate underground water management areas by agency-rulemaking procedures. • Clarified agency roles, time-schedules and procedures for conducting critical area studies. • Repealed underground water management area delineation requirements for legislatively-created districts. • Required groundwater districts to develop comprehensive management plans.
HB 1744	72nd, 1991	<ul style="list-style-type: none"> • Provided local opportunity for landowners in designated critical areas to establish underground water conservation districts.
HB 2294	74th, 1995	<ul style="list-style-type: none"> • Replaced references to underground water conservation districts, underground water management areas, and underground water reservoirs with groundwater conservation district, groundwater management areas, and groundwater reservoirs, respectively. • Recodified sections specific to groundwater management areas and critical areas into Chapter 35, Water Code. • Recodified sections specific to groundwater conservation districts into Chapter 36, Water Code. • Repealed Chapter 52 (Water Code) and provisions requiring groundwater district actions under Chapter 50 (now Chapter 49, Water Code).

SB 1	75th, 1997	<ul style="list-style-type: none"> • Provided contents for groundwater district comprehensive management plans and required consistency with regional water plans. • Provided for the TWDB to certify management plans if administratively complete, the State Auditor to determine if districts were actively implementing management plans, and the TNRCC to ensure district compliance. • Replaced the concept of a critical area with a priority groundwater management area (PGMA) as designated by TNRCC order; extended PGMA study evaluation period from 20 to 25 years. • Involved the TPWD in the PGMA study process and the TAEX in the PGMA district creation educational process. • Removed denial of state assistance for areas within PGMA which have failed to establish a groundwater district. • Required initial public notification and evaluation of comments in the PGMA study process.
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SB 1212, passed by the 71st Legislature in 1989, further modified management area provisions. The law changed the term "management area" to "underground water management area" and required the Commission to use procedures in accordance with agency rulemaking when designating underground water management areas. SB 1212 required that the boundaries of groundwater districts created by the Commission through the petition process provided in Chapter 52 be coterminous with or within the boundaries of a designated underground management area or critical area. The requirement for delineation of an underground water management area for district creation was not extended to legislatively created districts as in prior law. SB 1212 made significant changes to the critical area process by clarifying the critical area process in light of water agency reorganizations. The amendments clarified the roles of the TWDB and the Commission, placed time constraints on the agencies for developing and submitting critical-area reports, and defined procedures for conducting critical-area studies, designating critical areas and creating districts in critical areas. The act also provided for the consolidation of existing districts.

HB 1744, passed in 1991 by the 72nd Texas Legislature, further amended and clarified the critical-area provisions of Chapter 52 by encouraging local action to create groundwater conservation districts within designated critical areas. These provisions allowed landowners in designated critical areas to create one or more districts through the petition or legislative process or have the area annexed into an existing district. An area failing to establish a district either through the petition or legislative process, or through annexation, would then become subject to inclusion in a proposed delineation of a district for Commission consideration.

HB 2294, passed by the 74th Legislature in 1995, recodified Chapter 52 into new Chapters 35 and 36. It replaced the terms "underground water conservation district," "underground water reservoir," and "underground water management area" with "groundwater conservation district," "groundwater reservoir," and "groundwater management area," respectively. It also repealed provisions requiring groundwater district actions under Chapter 50 of the Water Code (Provisions Generally Applicable to Districts) and repealed Chapter 52. The bill recodified portions of Chapter 52 that addressed groundwater management areas and critical areas into new Chapter 35 (Groundwater Studies). Some language in the critical area process was amended by HB 2294, but no major changes were made. The act also recodified much of Chapter 52 dealing specifically with district powers, authorities, and administration into new Chapter 36 (Groundwater

Conservation Districts).

SB 1, the omnibus water bill passed by the 75th Legislature in 1997, renamed critical areas as priority groundwater management areas (PGMA), significantly amended the PGMA process in Chapter 35, and placed a renewed emphasis on the PGMA program. It also changed the TNRCC designation of a PGMA from an agency-rulemaking procedure to a TNRCC order, and added the involvement of local stakeholders in a notification and comment process. SB 1 further required that the TNRCC's PGMA report include an evaluation and consideration of the comments provided by the stakeholders in the decision-making process.

In addition, SB 1 extended the PGMA planning horizon from 20 to 25 years and formally included the TPWD in the study process to evaluate the potential effects of the designation of a PGMA on an area's natural resources. It also amended the schedules for the agency studies and directed the TAEX to develop and implement a water education program to aid in the district-creation process. Furthermore, SB 1 removed the provision that denied state financial assistance to areas within designated PGMA that failed to confirm a TNRCC-initiated district. The act requires the TNRCC to recommend legislative action for future management of the PGMA if voters in the area fail to confirm the creation of a district or the addition of the area to an existing district as initiated by the TNRCC. These recommended legislative actions could include creation of a district or addition of the area to an existing district or providing for the management of the PGMA by the TNRCC's nearest regional office. It also added a provision in Chapter 35 allowing county commissioner courts within a designated PGMA to adopt certain water availability requirements in an area where platting is required.

SB 1 made numerous changes to groundwater district law in Chapter 36 of the Water Code. Groundwater conservation districts were recognized as the state's preferred method of determining, controlling, and managing groundwater resources. The bill clarified groundwater management planning requirements for districts and required accountability for the implementation of these plans. It established procedures for the TWDB to administratively certify district management plans and required districts to notify the TWDB of any modifications made to the management plans. Furthermore, SB 1 authorized the State Auditor's Office (SAO) to determine if a district was actively engaged in implementing its management plan, and established procedures for the TNRCC to take action to ensure districts implemented these plans. SB 1 also empowered districts to permit the transfer of groundwater out of the district, outlined procedures for the appointment of temporary directors in TNRCC-created districts in designated PGMA, and authorized the TWDB to allocate funds to groundwater districts for collecting data and developing management and regional plans.

Senate Bill 1 Implementation Process

The provisions of SB 1 are implemented by several state agencies that are charged by the Legislature with specific duties and responsibilities. The following section describes the SB 1 implementation process related to interagency participation in the PGMA program, provides a broad overview of the PGMA program itself,

and outlines state agency and groundwater district management planning activities. A description of pertinent sections of the Memorandum of Agreement (MOA) signed by the executives of the TNRCC, TWDB and the TPWD in September 1997 to implement the mandates of SB 1, is also presented.

Interagency Participation

Several state agencies have responsibilities for and are involved in implementing the groundwater management plan requirements of the Water Code. The TNRCC is responsible for delineating and designating groundwater management areas and PGMA and creating groundwater conservation districts by petition or through the PGMA process. It is also responsible for addressing non-compliant or dormant/inactive districts, and for providing technical assistance to groundwater districts when requested.

The TWDB provides technical and administrative support to groundwater districts in the development of their groundwater management plans, reviews and certifies district management plans, and performs PGMA water-availability and water-use studies at the request of the TNRCC. It also provides financial assistance to groundwater conservation districts to gather groundwater data, develop and implement long-term management plans, and participate in regional water-planning efforts.

The TPWD is the state agency with primary responsibility for protecting the state's fish and wildlife resources. The TPWD also conducts natural resource evaluations when requested by the TNRCC in the PGMA process and provides follow-up assistance as needed. The TPWD may allocate funds to districts to carry out the objectives of Chapters 35 and 36 of the Water Code. For example, the TPWD may allocate funds for the purpose of assessing fish and wildlife resource habitat needs as they apply to overall management plan goals and objectives of the district.

The role of the TAEX in the PGMA process is to provide educational opportunities to the public. The TAEX is charged with conducting educational programs in designated PGMA on the area's water resources and the management options available for these resources.

The SAO is required to review district activities (with the assistance of the TNRCC, TWDB and TPWD), to determine if a district has been implementing its management plan. The first review is required to be conducted after the first anniversary of the plan's certification by the TWDB with subsequent reviews on a five-year basis. The SAO reports its findings to the TNRCC and the Legislative Audit Committee.

The Texas Alliance of Groundwater Districts (TAGD) is a non-profit organization established to provide groundwater conservation districts the opportunity to exchange ideas and to develop or influence programs for the management, conservation, protection, and development of groundwater in the state. Although not required by statute, members of the TAGD routinely assist state agencies through their participation in educational programming efforts.

Memorandum of Agreement

An MOA was signed by the TNRCC, TWDB, and the TPWD in September 1997 to implement the mandates of SB 1. The MOA addresses four areas: water planning, data collection and dissemination, state water bank, and groundwater. An overview of the groundwater section of the MOA is presented below.

SB 1 provides the TNRCC's Executive Director and the TWDB's Executive Administrator to meet annually to identify areas that may need to be studied further under the priority groundwater management

area process. The MOA provided for the development of the procedures and time lines for conducting this annual agency executive meeting. These procedures were developed in December 1997.

SB 1 also provides that no later than January 31 of each odd-numbered year, the TNRCC in conjunction with the TWDB, prepare and deliver to the Governor, Lieutenant Governor, and the Speaker of the House of Representatives a comprehensive report detailing activities (related to the designation of PGMAs by the TNRCC and the creation and operation of groundwater conservation districts) undertaken during the preceding two years. The MOA procedures and time lines for the preparation and submission of this joint agency report were developed in December, 1997.

The MOA further provides for the coordination of the TWDB and the TNRCC in providing technical assistance to groundwater conservation districts in the development of their groundwater management plans. Rules for certifying the groundwater management plans were developed and adopted by the TWDB, in coordination with the TNRCC, in December, 1997. Performance reviews of groundwater conservation districts would be conducted by the SAO with assistance from the TWDB, TNRCC and TPWD.

Priority Groundwater Management Area Process

To enable effective management of the state's groundwater resources in critical areas, the Legislature authorized the TNRCC, TWDB, and the TPWD to study, identify and delineate PGMAs, and initiate the creation of groundwater conservation districts within those areas, if necessary. The following is a description of the PGMA process and the steps involved in the TNRCC-initiated formation of a groundwater conservation district.

The process of identifying, delineating, and designating a PGMA originates at the annual meeting of the TNRCC and TWDB executives. Chapter 35 of the Water Code requires such a meeting to identify for study, areas of the state which face or will face "critical groundwater problems" within the next 25 years. "Critical groundwater problems" are defined as shortages of surface water or groundwater, land subsidence resulting from withdrawal of groundwater, or contamination of groundwater. Once such areas have been identified,

PGMA studies may then be initiated by the TNRCC's Executive Director and supporting studies requested from the TWDB and the TPWD. However, prior to initiating these studies, the TNRCC must notify county governments, municipalities, river authorities, adjacent groundwater conservation districts, regional water planning groups, water districts, and entities that supply public drinking water. The aim of the notice is to solicit comments from the area's water stakeholders and to request data on and information about existing studies related to water supply, groundwater availability, groundwater level trends, and groundwater quality. Stakeholders who receive such a notice are allowed 45 days to provide comments to the TNRCC's Executive Director.

The Executive Director's PGMA report evaluates the available data and information and provides a recommendation as to whether the Commission should or should not designate an area as a PGMA. If an area is not recommended for designation as a PGMA, no further action is required by the Executive Director or the Commission. The Executive Director notifies the area's stakeholders of the completion and availability of the report and lists the reasons for the non-designation determination. Any stakeholder may request that the recommendation be reconsidered.

In areas recommended for PGMA designation, the Commission is required to conduct an evidentiary hearing before determining the designation of the area and if it would benefit from district creation or annexation. The level of resource commitment, procedural burden of becoming a party, and presentation of evidence associated with the hearing is burdensome for both the public and state agencies. After considering all available information, including that obtained during the hearing, the Commission issues an order stating its findings and conclusions on the designation of the area and its recommendations on district creation. It may determine that landowners in an area would not benefit from the creation of a district (no further action needed by the Commission), or recommend that one or more districts need to be created in the area or that the area would most benefit by being added to an existing district.

If district creation or annexation is recommended, an unspecified time frame is allotted for local action to establish a district either through legislative, petition or annexation processes. After the opportunity for locally initiated action has lapsed, the Executive Director identifies areas in the PGMA that are not part of any existing district and delineates the proposed boundaries of the district. The statutory procedure for accomplishing these actions is unclear. Following an evidentiary hearing in the area and consideration of the evidence at public hearing, the Commission issues an order that either creates one or more districts in the area or proposes adding the area to an adjacent district. Upon the Commission order to create a district, the TAEX begins an educational program in the area to inform the residents of the management options available to them. This educational program is somewhat late in the process as it occurs after landowners are provided the opportunity to attempt district creation.

Landowners in the area are provided the opportunity through a voter-election process either to confirm the district and elect members to serve on the board of directors of the district or have the area added to an adjoining district. If the voters elect to not create a district or have it annexed into an adjoining district, the

Commission is required to include this information in the biennial legislative report and also provide recommendation for future management of the area. Management options for legislative consideration could include district creation or annexation or management of the PGMA by one of the TNRCC's regional offices.

Changes to TNRCC rules were necessary to implement the groundwater management provisions of SB 1. The rules are needed to address changes to the PGMA process outlined in Chapter 35 of the Water Code, and define TNRCC's jurisdictional and oversight responsibility issues contained in Chapter 36 of the Water Code. The proposed rules were published in the *Texas Register* on October 9, 1998 (TNRCC Rule Log No. 97146-297-WT) and were adopted by the Commission on January 20, 1999. The rules, as proposed, can be accessed at: http://www.tnrcc.state.tx.us/oprd/rule_lib/pc97146.txt. The adopted rule is currently being loaded to the Commission's homepage.

The adopted rules address issues related to the creation of groundwater conservation districts in areas which have been designated as PGMAs, and outline procedures for creating a district, appointing temporary directors and for Commission action if a district does not submit or implement a management plan. In addition, the adopted rules make changes to the names of the previously designated PGMAs and outline procedures for the designation of PGMAs by the TNRCC. The adopted rules also describe procedures for a Commission-created groundwater conservation district to expand its management authority within its territory.

Groundwater Conservation District Management Planning

Water Code §36.1071 requires that a groundwater conservation district, in coordination with surface water management entities, develop a comprehensive management plan that addresses groundwater management goals for the district. These goals include: providing the most efficient use of groundwater; controlling and preventing waste of groundwater; controlling and preventing subsidence; addressing conjunctive surface water management issues; and, addressing natural resource issues that impact the use and influence the availability of groundwater.

Water Code §36.1072 requires that the Executive Administrator of the TWDB certify groundwater conservation district management plans as being administratively complete when the plans have met certain statutory requirements. The TWDB adopted Title 31 TAC Chapter 356 in November 1997, concerning procedures and requirements for TWDB certification of the administrative completeness of groundwater management plans. Title 31 TAC Chapter 356 includes the following sections: Scope of Chapter; Definition of Terms; Required Management Plan; Consistency with Regional Water Plans; Required Content of Management Plan; Plan Submittal; Certification; Appeal of Denied Certification; and Certification of Amendments. Each section is briefly described here. A copy of Chapter 356 is included as Appendix 1 and can also be found on the World Wide Web at <http://www.twdb.state.tx.us/rules/rules.html>.

Scope of Chapter. An introductory section indicating that it is to be used for reviewing and certifying management plans as administratively complete.

Definition of Terms. This section defines the terms used in Chapter 356 and explains the terms necessary to understand and comply with the requirements for completing a management plan.

Required Management Plan. This section discusses submission deadlines for the management plans for both the district and the TWDB. Exceptions to the deadlines are detailed in this section as are plan review and readoption.

Consistency with Regional Water Plans. This section indicates that district management plans developed after TWDB approval of regional water plans must not be in conflict with the approved

regional water plan. Furthermore, the management plans must not be in conflict with the regional water plan for each region in which any part of the district is located.

Required Content of Management Plan. The required content of a management plan, necessary for certification, includes:

- The time period of 10 years for the plan
- Actions, procedures, performance, and avoidance necessary to effectuate the plan
- Estimates of
 1. Existing total usable amount of groundwater within the district
 2. Amount of groundwater being used within the district annually
 3. Annual amount of groundwater recharge, and annual amount of additional natural or artificial recharge that could result from implementation of feasible methods for increasing natural or artificial recharge
 4. Projected water supply and demand
 5. Details of how the district will manage its groundwater including the methodology indicating how the district tracks its progress towards achieving management goals
- District-established management goals, objectives, and performance standards; district-chosen information and data
- The plan shall be consistent with an approved regional water plan for each region that the district covers

Plan Submittal. This section lists the requirements of districts submitting plans for review. Documents required for certification of administrative completeness include:

1. A copy of the adopted management plan
2. A certified copy of the district's resolution adopting the plan

3. Evidence that the plan was adopted after notice and hearing
4. Evidence that, following notice and hearing, the district coordinated in the development of its management plan with surface water management entities
5. Evidence of consistency with and of any conflict between the management plan and an approved regional water plan for any part of the area that the district may be located in

Certification. The requirements for the Executive Administrator regarding certification deadlines, notification procedures, and denial of certification for noncompliance with requirements as defined in §36.1072 of the Water Code and §356.5 of the Administrative Code are discussed in this section. The review and certification of a revised plan are also addressed in this section.

Appeal of Denial of Certification. The necessary procedures for appealing the denial of certification and specifications regarding the written and oral appeal are outlined in this section.

Certification of Amendments. Procedures for districts to follow concerning plan amendments are discussed as are deadlines, procedures, and applicability.

Educational Efforts

Education is a vital component in the effective management of the state's water resources. The TAEX is specifically charged with providing educational assistance to residents in designated PGMA's on issues related to groundwater management. In this regard, the TAEX has been active in providing educational programming in PGMA study areas, in areas planning to hold confirmation elections, and in counties that recognize the need to manage their groundwater resources.

A comprehensive program is necessary to provide education on water-related issues. The TAEX approach to this educational effort has been to utilize its network of local county agents to cooperate with local stakeholders and state agencies to hold local meetings, distribute fact sheets, deliver presentations on local water resources, publish news releases in local papers, and present information on local radio shows. This ensures effective, factual delivery of vital water management information to the local clientele. During 1998, the TAEX conducted the following educational activities:

<u>Program Title/Location/Date</u>	<u>Topic (Attendance)/PGMA Study Area</u>
TAEX Water Conflict Training/College Station/ July 20-22, 1998	County Extension Agent Water Conflict Training (50)

Informational Water Meeting/Burnet/ September 29, 1998	Groundwater Conservation Districts (120)/ Williamson and Parts of Adjacent Counties PGMA Study Area
Informational Water Meeting/Nacogdoches/ October 13, 1998	Groundwater Conservation Districts (50)/ East Texas Area PGMA Study Area
Informational Water Meeting/Haskell/ October 26, 1998	Groundwater Conservation Districts (35)/ North Texas Alluvium and Paleozoic Outcrop PGMA Study Area
Informational Water Meeting/Munday/ October 27, 1998	Groundwater Conservation Districts (37)/ North Texas Alluvium and Paleozoic Outcrop PGMA Study Area

The July 20-22, 1998 training was sponsored by the TAEX as a Water Conflict Training Seminar for all county agents in designated PGMA's. It helped county agents acquire skills in the facilitation and mediation of water conflict issues. Extension Specialists from the TAEX and TNRCC, TWDB, TPWD and TAGD representatives provided information on water law and agency involvement in water policy.

The other training events listed above were hosted by the TAEX in cooperation with the TNRCC, TWDB, TPWD, and TAGD. These informational meetings provided local residents with information on their water resources and options for management of these resources.

The TNRCC also made numerous presentations during the biennium on topics related to the creation and authority of groundwater conservation districts, and the PGMA study and designation process. In addition to the public meetings coordinated by the TAEX, and interaction with the North Texas Alluvium and Paleozoic Outcrop PGMA Study Advisory Committee, the TNRCC made educational presentations to interested parties (primarily landowners and county and municipal governments) in Comal, De Witt, Dimmitt, Hays, Kinney, Matagorda, Refugio, Robertson and Val Verde counties. The TNRCC and TWDB also provided similar information to the TPWD's Private Land Advisory Board and quarterly status updates of PGMA implementation efforts to the Texas Groundwater Protection Committee.

PRIORITY GROUNDWATER MANAGEMENT AREA PROGRAM

This chapter describes PGMA activities that have been undertaken since the last legislative session (75th Legislature, 1997). Initially, a brief overview is presented of the status of PGMA studies at the commencement of the 75th legislative session and the priorities and mandates which arose from it. Detailed descriptions of recently completed PGMA studies, TNRCC action in designated PGMA's, other current and future PGMA activities, and information about other delineated and designated groundwater management areas are presented in the sections that follow.

Background

The PGMA program was actively pursued from 1987 to 1991 during which time 16 critical area (now PGMA) studies (Figure 1) were initiated of which 14 were completed. Of the completed studies, four study areas (Reagan, Upton, and Midland County; Briscoe, Swisher, and Hale County; Dallam County; and Hill Country; Figure 2) were designated as PGMA's by the TWC. Five study areas were determined not to be PGMA's. These include the Lower Rio Grande Valley Area, Fort Bend County Area, Orange-Jefferson Counties Area, Wintergarden Area and the Southernmost High Plains Area (Figure 1). Five other areas also were determined not to be PGMA's, but were deemed to require groundwater monitoring for a period of five years to further assess the severity of groundwater problems. These areas, shown in Figure 1, include Williamson and Parts of Adjacent Areas, Central Texas (Waco) Area, East Texas Area, Trans-Pecos Area and the North-Central Texas Area. The two study areas for which Commission action were not completed were the El Paso County Area and the North Texas Alluvium and Paleozoic Outcrop Area (Figure 1).

SB 1 placed a renewed emphasis on the responsibilities of state agencies in the PGMA process and required that the two unfinished PGMA reports be completed on or before September 1, 1998. The El Paso County Area and the North Texas Alluvium and Paleozoic Outcrop Area reports were completed and filed with the TNRCC's Chief Clerk on August 25, 1998 and August 31, 1998, respectively. It was determined that the North Texas Alluvium and Paleozoic Outcrop Area was not a PGMA. The El Paso County Area was recommended for Commission-designation as a PGMA and was so designated by the Commission on December 2, 1998. Detailed information on each of the 16 study areas is presented in Table 2.

Figure 1. Priority Groundwater Management Area Studies

**Table 2. Status of Priority Groundwater Management Area Studies
(Designated PGMAs, Update Study Areas, and Study Areas Not Designated)**

PGMA Study Area	Major Aquifer(s) ¹	Starting Date of Study	TWDB ² Study	TPWD ³ Study	TNRCC Report Filing Date ⁴	TNRCC or Executive Director Action	Study Status
Area 2 - Hill Country Area	Trinity	04/01/87	R339	NA	02/26/90	Designation 06/06/90	a
Area 3 - Reagan, Upton, Midland County Area	Edwards-Trinity	10/01/87	R312	NA	02/22/90	Designation 06/13/90	a
Area 4 - Briscoe, Swisher, Hale County Area	Ogallala	01/01/88	R313	NA	02/22/90	Designation 06/06/90	a
Area 9 - Dallam County Area	Ogallala	09/01/89	R315	NA	02/22/90	Designation 06/06/90	a
Area 13 - El Paso County Area	Hueco and Mesilla Bolsons	09/01/89	R324	NA	02/22/90	06/20/90	b
		01/29/98	OFR 98-02	6/03/98	08/25/98	Designation 12/2/98	a
Area 1 - Williamson and Parts of Adjacent Counties	Edwards (BFZ) Trinity	04/01/87	R326	NA	04/02/90	10/17/90	c
Area 5 - Central Texas (Waco) Area	Trinity	09/01/89	R319	NA	03/30/90	10/17/90	c
Area 6 - East Texas Area	Carrizo-Wilcox	09/01/89	R327	NA	03/30/90	10/17/90	c
Area 8 - Trans-Pecos Area	Cenozoic Pecos Alluvium	09/01/90	R317	NA	03/30/90	10/17/90	c
Area 11 - North-Central Texas Area	Trinity	09/01/89	R318	NA	03/27/90	10/17/90	c
Area 7 - Lower Rio Grande Valley Area	Gulf Coast	09/01/89	R316	NA	03/12/90	09/19/90	d
Area 10 - Fort Bend County Area	Gulf Coast	09/01/89	R321	NA	03/12/90	09/19/90	d
Area 12 - Orange-Jefferson Counties Area	Gulf Coast	09/01/89	R320	NA	03/12/90	09/19/90	d
Area 14 - Wintergarden Area	Carrizo-Wilcox	10/04/90	R334	NA	05/06/91	05/06/91	e
Area 15 - Southernmost High Plains Area	Ogallala	01/07/91	R330	NA	08/05/91	08/05/91	e
Area 16 - North Texas Alluvium and Paleozoic Outcrops	Seymour, Blaine and Dockum	10/16/91	R337	NA	----	----	----
		10/6/97	OFR 98-03	4/16/98	08/31/98	08/31/98	e

¹ Maps of major and minor aquifers obtained from the TWDB are included as Appendix 1.

² Texas Water Development Board (TWDB) PGMA Studies - R signifies published report in the Board's numbered Report Series; OFR signifies Open File Report; listed by area in Appendix 2.

³ Indicates date Texas Parks and Wildlife Department study provided to Commission; studies are listed by area in Appendix 2; NA signifies that studies not required under previous statute.

⁴ Texas Natural Resource Conservation Commission (TNRCC) PGMA reports are listed by area in Appendix 2.

Status: a) Designated as a PGMA by the Commission on date given; b) Designation recommended by Executive Director, PGMA decision deferred by Commission until completion of a regional water supply study; c) Determined not to be a PGMA by the Commission, continued monitoring and reporting requested; d) Determined not to be a PGMA by the Commission, no further action requested; e) Determined not to be a PGMA by the Executive Director, no further action required.

Agency Coordination

Pursuant to the requirements of the September, 1997 MOA, a staff meeting between the three signatory agencies was held on December 16, 1997. In addition to other issues, staff discussed and developed proposed procedures and time lines for the TNRCC and the TWDB to conduct their annual PGMA meeting. Staff from the three MOA agencies met again on January 23, 1998, as a precursor to the Executive Director/Executive Administrator PGMA meeting, to finalize discussions and actions of the December 16, 1997, meeting and to identify PGMA issues and develop recommendations for agency management consideration. A final TNRCC/TWDB staff summary report and recommendations pertaining to the PGMA planning was provided to the management of the two agencies on February 5, 1998.

The annual meeting of the agency executives was held on April 27, 1998. At this meeting, staff of the TNRCC and the TWDB recommended that no new PGMA areas be identified for study until information from the state's regional water planning process identifying groundwater needs and availability issues became available. The staff also recommended that the five previous PGMA studies for which the TWC had requested five-year updates in 1990 be initiated in Fiscal Year 1999. The initiation of TNRCC action for district creation or annexation efforts in the four designated PGMA's was also recommended for Fiscal Year 1999. At the conclusion of the April 27, 1998 meeting, the Executive Director and the Executive Administrator concurred with the staff's recommendations and agreed to the following Fiscal Year 1998-2000 PGMA work schedule:

Fiscal Year	Work Schedule
1998	<ul style="list-style-type: none">• Complete the North Texas Alluvium and Paleozoic Outcrop PGMA Study• Complete the El Paso County PGMA Study• Continue development of necessary agency rules to implement SB 1• Coordinate SB 1 PGMA efforts and education
1999	<ul style="list-style-type: none">• Initiate TNRCC action in the designated PGMA's. These PGMA's include: Briscoe, Swisher, and Hale County PGMA; Reagan, Upton, and Midland County PGMA; Dallam County PGMA; and, Hill Country PGMA• Complete update reports for five PGMA study areas. These areas include Williamson and Parts of Adjacent Counties, Central Texas (Waco) Area, East Texas Area, Trans-Pecos Area, and North-Central Texas Area• Prepare the biennial legislative report
2000	<ul style="list-style-type: none">• Identify and delineate new areas for PGMA studies based on assessment of groundwater needs identified through the regional water planning process

On January 8, 1998, representatives from the TNRCC, TWDB, TAEX, TPWD and the TAGD met to discuss educational programming strategies in designated PGMA's. Participants agreed that the development of a new publication explaining the process of creating a groundwater conservation district was of utmost importance and assigned a high priority for its preparation. It was felt that the publication would help districts that have

pending confirmation elections, and the public in areas interested in forming a district, and in areas in designated PGMA. The participants also decided to update TAEX's publication B-1612 (Underground Water Conservation Districts) to reflect the legislative changes made by SB 1, especially that related to the PGMA process. Additionally, the group also requested the TAEX to develop educational materials targeted to designated PGMA. It was also agreed that the TAEX would develop fact sheets highlighting Texas' groundwater resources and discussing success stories in current districts. All educational materials are to be developed in Fiscal Year 1999 with educational programming in designated PGMA beginning soon thereafter.

The inseparable nature of groundwater and surface water dictates that water management plans consider connections between groundwater and surface water and are protective of all uses, including environmental water needs. Nowhere is this more apparent than in unique spring ecosystems dependent upon maintenance of groundwater levels. Under Chapter 12.0011 of the Parks and Wildlife Code, the TPWD is the state agency with primary responsibility for protecting the state's fish and wildlife resources. Duties under TPW Code Section 12.0011 include providing information on fish and wildlife resources to any agency making decisions affecting those resources. The formal inclusion of the TPWD in the PGMA process under SB 1 further reinforced this responsibility. The TPWD has participated in coordination meetings for all PGMA phases.

Coordination meetings with staff of the TWDB, TNRCC and the SAO were conducted in June 1998 to discuss the procedures that the SAO would use to review district performance, to outline the roles of the other agencies in this process and SAO's reporting of findings to the TNRCC. Also discussed at the meeting was the issue of the initiation of TNRCC's oversight activities if districts were found to be noncompliant with their management plans. The first SAO review of certified management plans are planned to commence in July 1999.

PGMA Studies Completed During the Biennium

As reported to the 75th Legislature (TNRCC, 1997) and discussed above, TNRCC action was pending on the El Paso County PGMA study and the North Texas Alluvium and Paleozoic Outcrop PGMA study which were originally initiated in 1990. The TWDB's El Paso County study and the TWC's El Paso County PGMA report had been completed, and under the then-existing statute, the TWC's report and proposed rules had recommended designating the area as a PGMA. However, the El Paso County PGMA designation decision remained pending before the TWC while awaiting the completion of a regional water supply study. The TWDB had also completed its study for the North Texas Alluvium and Paleozoic Outcrop PGMA study but, the Executive Director had not completed the PGMA report and recommendations. These two studies were completed during the past biennium and are discussed in detail below.

El Paso County PGMA Study

The El Paso County area was identified for a PGMA study in October 1987. The study was initiated in February 1989 and the required reports were completed by the TWDB and the TWC in 1990. The Executive Director's 1990 report recommended that the area be designated as a PGMA. The proposed rules for designating and delineating the El Paso County PGMA were published in the May 6, 1990, *Texas Register* and a hearing was held in El Paso on May 16, 1990. After public hearings on June 13 and 20, 1990, the TWC postponed final decision on the designation until a regional water supply study, then underway in the El Paso area, was completed. The statutory rulemaking procedure employed for TWC consideration of the study ended with the expiration of the six-month time frame allotted for rule adoption under the Administrative Procedures and Texas Register Act.

The designation effort was resumed in 1998 to meet the requirement of SB 1 which mandated that the two remaining PGMA studies be completed before September 1, 1998. In accordance with criteria established in Chapter 35, Water Code, notice of the 1998 El Paso County PGMA designation effort was mailed by the Executive Director on January 9, 1998, to approximately 150 stakeholders identified in the study area. The general categories of stakeholder interests included area legislators, planning entities, county officials, municipalities, river authorities, groundwater conservation districts, water districts, other entities that supply public drinking water, agricultural interest groups, selected federal and state agencies, and environmental interest groups. The notice included a request for comments and for any other information deemed relevant to the study. Comments were received from the City of El Paso and the Rio Grande Compact Commission. Additionally, information on water use, regional planning and water project feasibility and implementation was provided by the City of El Paso. The U.S. Geological Survey provided recent unpublished information on the shallow aquifer in the El Paso area.

On January 29, 1998, the Executive Director requested an updated study of El Paso County from the TWDB and the TPWD in their respective areas of expertise. These reports were received on April 22, 1998 (TWDB) and June 3, 1998 (TPWD). The Executive Director's PGMA report and recommendations for the study area were filed with the TNRCC's Chief Clerk on August 25, 1998. In accordance with Chapter 35, Water Code, the Executive Director's report was distributed to the El Paso county clerk, TWDB regional water planning groups, TNRCC's regional office, El Paso Main Library and libraries at the UTEP campus and Fort Bliss. The Executive Director's El Paso County PGMA report contained the following conclusions and recommendations:

- Critical groundwater conditions existed in El Paso County as evidenced by declining water levels and deteriorating water quality in the Hueco Bolson aquifer (shown in Appendix 2), and by current and projected groundwater pumpage in excess of the average annual recharge.
- Based on the projected population growth and the resultant increase in projected water demands for the study area, the critical groundwater conditions would continue to exist and likely would worsen over the next 25-years.
- The locally available supplies of groundwater and surface water are inadequate to meet the present demand as well as the increased projected demand without significant efforts to acquire additional supplies of

groundwater and surface water.

- The area underlain by the Hueco Bolson in El Paso County should be designated as a PGMA.
- The El Paso County PGMA should include the area of the Hueco Bolson within the political boundary of El Paso County, including the outcrop of the Hueco Bolson and its subcrop beneath the Rio Grande Alluvium.
- The El Paso County PGMA should not include land in the Hueco Mountains in northeastern El Paso County nor land in and west of the Franklin Mountains in northwestern El Paso County where the Hueco Bolson is absent.
- The creation of a groundwater conservation district by the TNRCC under the constraints of Chapter 36 of the Water Code was not recommended. This conclusion was based on an evaluation of then-existing statutory provisions, funding mechanisms, governing board representation, and comments received from the City of El Paso.
- A regional approach would be needed to address issues relating to the management of groundwater resources in the Hueco Bolson and Rio Grande Alluvium aquifers (shown in Appendix 2). These issues included reducing the amount of water being pumped, minimizing further groundwater quality degradation and mitigating land subsidence resulting from groundwater withdrawal.
- The regional approach should consider the formation of a governmental organization or entity that would be responsible for coordinating management strategies with entities outside the boundaries of the study area and implementing those strategies within the designated PGMA.
- Sufficient time should be allowed for completing the present groundwater modeling and data collection efforts, so that appropriate management requirements and authorities may be established for use in the region.

On August 26, 1998, the Executive Director requested that the Commission refer the evidentiary hearing for the designation of the El Paso County PGMA to the State Office of Administrative Hearings (SOAH). Accordingly, an interim order was issued to remand the hearing to SOAH. An evidentiary hearing was conducted on October 5, 1998, at the offices of the El Paso Water Utilities Public Service Board. Testimony was provided by the Executive Director's staff and TWDB and TPWD staff.

Eleven parties were originally named in the hearing. However, an agreement of the parties on specific issues and designation submitted to the Administrative Law Judge (ALJ) allowed limited testimony and limited scope of agency PGMA reports admitted into evidence. The agreement resulted in a greatly reduced hearing time and procedural burden on parties and the affected agencies. The ALJ presented a pre-filed draft order recommending designation that generally supported the Executive Director's report recommendations to the Commission for hearing and consideration on December 2, 1998. The Commission approved the ALJ's recommendation with minor changes and issued an order designating the El Paso PGMA and deferring district creation to the legislative process.

North Texas Alluvium and Paleozoic Outcrop PGMA Study

The North Texas Alluvium and Paleozoic Outcrop PGMA Study Area (study area) included Archer, Baylor, Childress, Clay, Collingsworth, Cottle, Dickens, Fisher, Foard, Hall, Hardeman, Haskell, Jack, Jones, Kent, King, Knox, Motley, Palo Pinto, Shackelford, Stephens, Stonewall, Throckmorton, Wichita, Wilbarger, and Young counties. The TWC and the TWDB identified the 26-county area for a PGMA study in September 1990. The study was initiated in October 1991 and the TWDB completed its initial study in March 1992. The TWC's report, however, could not be completed.

Notice for the re-initiation of the study was sent to more than 430 stakeholders in the study area on September 17, 1997 to solicit comments, data, existing studies, or any other pertinent information in the study area related to water supply, groundwater availability, aquifer water-level trends, and groundwater quality. Two major comments were received. One comment supported the U.S. Army Corps of Engineer's Red River Chloride Control Project within the study area and the other apprised the TNRCC of the City of Stamford's current water supply planning effort.

On October 6, 1997, the Executive Director requested an updated PGMA study for the study area from the TWDB and the TPWD in their respective areas of expertise. These reports were received in April 1998. In addition, the TNRCC established an ad hoc regional advisory committee to assist in the preparation of the Executive Director's PGMA report. Eleven individuals representing water conservation, groundwater district, water utility, city management, council of government, agricultural, cattle raising, oil and gas, and power industry interests were selected to serve on the advisory committee.

The regional advisory committee provided feedback on the TWDB and TPWD reports, advice regarding the assessment of the data and information analyzed and the problems identified by the Executive Director, and feedback on draft report conclusions and recommendations prepared by the Executive Director. The advisory committee unanimously supported the federal chloride control projects, acknowledged that water quality concerns were of primary importance within the study area, and agreed that groundwater supplies are sufficient currently and for the 25-year planning horizon. The majority opinion of the advisory committee generally recommended that the state should not take action to designate the study area or to directly create groundwater districts, especially prior to the efforts of the regional water planning groups and the implementation of SB 1. Committee members believed the regional water planning effort would serve to provide public education opportunities and would identify potential areas where groundwater management should be considered locally.

The Executive Director's PGMA report and recommendations for the study area were filed with the TNRCC's Chief Clerk on August 31, 1998. The Executive Director's North Texas PGMA report contained the following conclusions and recommendations:

- The problems identified in the study area were not critical problems.
- The North Texas Alluvium and Paleozoic Outcrop Study Area should not be designated a PGMA.
- The regional water planning efforts would provide important opportunities to locally identify water supply

and quality issues, coordinate local planning efforts, and provide a forum for public education.

- The regional water plans would develop options to address supply, quality, and comprehensive planning.
- Pursuant to SB 1, the Collingsworth County and Salt Fork groundwater conservation districts which already exist within the PGMA should develop and seek certification of their comprehensive management plans, and present their tax propositions to the voters for funding of operational expenses of the districts.
- The Haskell/Knox County Underground Water Conservation District (UWCD) should be presented to the voters for confirmation before September 1, 1999 so that it could begin to address issues related to water quality, drought and seasonal effects on groundwater supply within the Seymour aquifer (Appendix 2).
- The residents of Fisher, Foard, Hardeman, Jones and Wilbarger counties should consider creating groundwater conservation districts through local initiative and should seek educational opportunities for district creation and the local management of groundwater resources.
- Drought contingency plans should be developed by municipalities and other water suppliers as required by SB 1 and should be implemented during times of water shortages or drought.
- The Crowell Brine Lake control structure in Foard County was being supported for continued funding and operation to reduce the natural salt pollution in the Red River and its reservoirs.
- The proposed Croton, Dove and Kiowa Peak brine-retention reservoir projects were slated for construction (pending availability of federal or state funds) in the upper Brazos River Basin to reduce salinity and improve water quality.
- The effects of proposed chloride control facilities on the area's natural resources should continue to be evaluated and monitored by the U.S. Army Corps of Engineers, the Red River Authority of Texas, and federal and state natural resource agencies for effectiveness and impacts on natural resources and ecological habitat.
- Water users and suppliers should assess their current and projected water demands, proactively plan to address future water needs, and coordinate these efforts through SB 1 Regional Water Planning Groups.

In accordance with Chapter 35, Water Code, the Executive Director's North Texas PGMA report was distributed on September 1, 1998, to county clerks, TWDB regional water planning groups, groundwater conservation districts within and adjacent to the study area, TNRCC regional offices and public libraries in each county. At the request of the regional advisory committee, the report was also provided to all county judges within the study area. A notice containing the findings, recommendations and determinations of the Executive Director's report and its availability was distributed to more than 400 people on September 2, 1998. The notification provided a 20-day opportunity for recipients to file a motion for reconsideration (under Title 30 TAC §50.39) of the TNRCC decision. The 20-day opportunity for filing a motion for reconsideration expired on September 21, 1998, and no motions were received by the TNRCC.

Status and Commission Action in Designated PGMAs

SB 1, 1997, specified that an area designated as a critical area under Chapter 35, Water Code, or under other prior law, would be known and referred to as a PGMA on or after September 1, 1997. Four study areas

(Reagan, Upton, and Midland County PGMA; Briscoe, Swisher, and Hale County PGMA; Dallam County PGMA; and Hill Country PGMA; Figure 2) were designated as PGMA's by the TWC in 1990 under previous statutory provisions of Chapter 52, Water Code.

Following the completion of the PGMA studies, evidentiary and public hearings, and TWC consideration, the four areas were designated as PGMA's by agency-rulemaking procedures. The designated PGMA's and their delineations are contained in Title 30, Texas Administrative Code, Chapter 294, and are described in detail below. Since 1987, four new districts have been created through local initiative by the legislature (and confirmed through election) in two of the designated PGMA's, and a fifth district, created by the TNRCC through the local-initiative petition process provided in Chapter 36, Water Code, failed to be confirmed. Landowners within the other two designated PGMA's have petitioned for joining adjacent districts and large portions of these areas have been annexed into existing districts. District creation and annexation status is illustrated in Figure 2.

Reagan, Upton, and Midland County PGMA Study and Designation History

The Reagan, Upton, and Midland County area (Figure 2) was identified and nominated for study by the TWC and the TWDB in January 1987. The TWC requested a study from the TWDB in October 1987 and received it in February 1989. In May 1988, the TWC established a seven-member advisory committee to provide local input into the study process and to review and comment on the Executive Director's PGMA report and recommendations. The Executive Director's PGMA report was filed with the TWC's Chief Clerk in February 1990.

The TWC proposed rules for designating the Reagan, Upton, and Midland County PGMA which were published in the May 4, 1990 *Texas Register* (15 TexReg 2577). An evidentiary hearing on the designation of the area was then conducted in Midkiff on May 15, 1990. After considering all evidence, the TWC approved the rules at a public hearing on June 13, 1990 to delineate and designate the area. These rules which were published in the June 29, 1990 *Texas Register* (15 TexReg 3741) became effective on July 16, 1990.

Some district creation or annexation activity in the Reagan, Upton and Midland County PGMA occurred prior to, during, and after designation of the PGMA. For example, a portion of the PGMA in Reagan County was annexed into the Glasscock County UWCD and the remaining portion of the PGMA in that county was annexed into the Santa Rita UWCD. In November 1991, there was an unsuccessful attempt by

Figure 2. Designated Priority Groundwater Management Areas

landowners in the Midland County portion of the PGMA to join the Permian Basin UWCD (Martin County). Voters defeated the annexation attempt by a 3 to 2 margin (see Table 5). The TNRCC is unaware of any other locally-initiated district creation or annexation efforts within Midland County since the unsuccessful 1991 effort. Presently, there are areas of the PGMA in Midland and Upton Counties that have not been incorporated into any district.

Briscoe, Swisher, and Hale County PGMA Study and Designation History

The Briscoe, Swisher, and Hale County area (Figure 2) was identified and nominated for study by the TWC and the TWDB in January 1987. The TWC requested a study from the TWDB in January 1988 and received it in February 1989. In January 1989, the TWC established a nine-member advisory committee to provide local input into the study process and to review and comment on the Executive Director's PGMA report. The Executive Director's PGMA report was filed with the TWC's Chief Clerk in February 1990.

The TWC proposed rules for designating the Briscoe, Swisher, and Hale County PGMA which were published in the May 4, 1990 *Texas Register* (15 TexReg 2577). A hearing on the designation of the area was then conducted in Plainview on May 15, 1990. After considering all evidence, the TWC approved the rules at a public hearing on June 6, 1990 to delineate and designate the area. These rules which were published in the June 29, 1990 *Texas Register* (15 TexReg 3741) became effective on July 16, 1990.

Some locally-initiated annexation efforts occurred in the Briscoe, Swisher, and Hale County PGMA both during and after the designation of the area. In 1988, landowners in Swisher County and portions of Briscoe and Hale Counties petitioned the High Plains UWCD No. 1 for annexation into the district. After hearings in November 1988, the board of the High Plains UWCD No. 1 rejected the petition. The board's reasons for rejecting the petition included low attendance at and interest in the public meetings, and the high cost of conducting elections and setting up and providing services in the petitioning counties where projected revenue generation was perceived to be low. A portion of the PGMA in Hale County was, however, annexed into the High Plains UWCD No. 1 following a landowner petition, board acceptance, and an August 14, 1993 confirmation election.

The TNRCC is unaware of any other landowner-initiated annexation effort since the addition of the PGMA in Hale County to the High Plains UWCD No. 1 in 1993. Presently, there are areas of the PGMA in Briscoe and Swisher Counties that have not been incorporated into any district.

Dallam County PGMA Study and Designation History

The Dallam County area (Figure 2) was identified and nominated for study by the TWC and the TWDB in January 1987. In May 1989, the TWC established a ten-member advisory committee to provide local input into

the study process and to review and comment on the Executive Director's PGMA report. The TWC requested a study from the TWDB in September 1989 and received it in November 1989. The Executive Director's PGMA report was filed with the TWC's Chief Clerk in February 1990.

The TWC proposed rules for designating the Dallam County PGMA which were published in the May 4, 1990 *Texas Register* (15 TexReg 2577). A hearing on designating the area was then conducted in Dalhart on May 17, 1990. After considering all evidence, the TWC approved the rules at a public hearing on June 6, 1990 to delineate and designate the area. The TWC rules adopting the PGMA designation were published in the June 29, 1990 *Texas Register* (15 TexReg 3741) and became effective on July 16, 1990.

A significant portion of the Dallam County PGMA has been added to adjacent districts since the designation of the area. The northeastern portion of the county was annexed into Dallam County UWCD No. 1 on September 19, 1992 following landowner petition, board acceptance and confirmation election. Similarly, another portion of Dallam County within the PGMA was annexed into the North Plains GWCD No. 2 on May 1, 1993 following landowner petition, board acceptance and confirmation election.

The TNRCC is unaware of any other landowner-initiated annexation effort since 1993. A portion of the PGMA in the northwestern part of Dallam County and another in the eastern part of the county still remain to be incorporated into a district.

Hill Country PGMA Study and Designation History

The Hill Country area was identified and nominated for study by the TWC and the TWDB in January 1987. In April 1987, the TWC formed a 15-member advisory committee to provide local input into the study process and to review and comment on the Executive Director's PGMA report and recommendations. The TWC also requested a study from the TWDB in April 1987 and received it in November 1989. The Executive Director's PGMA report was filed with the TWC's Chief Clerk in February 1990.

The TWC proposed rules for designating the Hill Country PGMA which were published in the May 4, 1990 *Texas Register* (15 TexReg 2577). A hearing on designating the area was then conducted in Fredericksburg on May 16, 1990. After considering all evidence, the TWC approved the rules at a public hearing on June 6, 1990 to delineate and designate the area. The TWC rules adopting the PGMA designation were published in the June 29, 1990 *Texas Register* (15 TexReg 3741) and became effective on July 16, 1990.

Locally-initiated district creation efforts occurred in the Hill Country PGMA both during and after the designation of the area. In Gillespie County, the creation of the Hill Country UWCD (enabled by Chapter 865, Acts of the 70th Legislature) was confirmed by voters at an August 8, 1987 election. The authority of the Springhills Water Management District in Bandera County was amended by Chapter 654, Acts of the 71st Legislature to include groundwater conservation district powers. This amended authority was confirmed by

voters at a November 7, 1989 election. In Kerr County, the creation of the Headwaters UWCD (was enabled by Chapter 693, Acts of the 72nd Legislature) was confirmed by voters on November 5, 1991. Utilizing the landowner petition process provided in Chapter 36, Water Code, the Comal County UWCD was enabled by TWC order on November 30, 1994. However, voters defeated the attempt by a vote of 8 percent for to 92 percent against (Table 5).

Presently, portions of the PGMA in Blanco, Kendall, Comal, Hays and Travis counties still have not been incorporated into any district. During the 1997-1998 biennium, TNRCC staff made numerous presentations to various interest groups within the PGMA regarding the need for groundwater management in the area. TNRCC staff is aware that Blanco and Hays counties are implementing water availability requirements as stipulated by §35.019, Water Code.

Current Activities of State Agencies

At the April 1998 annual PGMA meeting, the agency executives prioritized the initiation of TNRCC action for district creation or annexation in the four designated PGMA's as a Fiscal Year 1999 work effort. In October 1998, the Executive Director's staff identified areas within these PGMA's which had not been incorporated into a district, and proposed a general process for TNRCC action. The Executive Director approved a three-phase process to address the areas within the designated PGMA's which have not yet incorporated into a district. The process will include initial stakeholder input, public meetings conducted by the Executive Director, and the preparation of an Executive Director's report and recommendations for each area. Final Commission action in each area will depend on the conclusions arrived at and recommendations made in the Executive Director's report.

As guided by Chapter 35, Water Code, the Executive Director will review the four designated PGMA's and determine if district creation or annexation efforts should be initiated in a PGMA, or if the Commission should make specific groundwater management recommendations for legislative consideration. This process will generally involve the solicitation of information or comments from water-stakeholders in the areas which will be evaluated along with other available information, and input from the TWDB and TPWD. This evaluation will be presented at a public meeting in each area for further comment and stakeholder input. The Executive Director will provide notice for the public meeting.

After evaluating the public comments, the Executive Director will prepare a report based on the available information. The report will include recommendations to the Commission on appropriate strategies to manage groundwater resources in the PGMA. After the report is filed with the TNRCC's Chief Clerk, copies will be made available for public inspection through county clerks, public libraries, regional water planning groups and TNRCC Regional Offices within each area. If the Executive Director recommends creating a district or adding the PGMA to an existing district, an evidentiary hearing will be held in each county covered by the PGMA. The Commission will then consider evidence from the hearings,

information contained in the Executive Director's reports and supporting information, and will determine the final management action that needs to be taken in the area.

The Executive Director plans to initiate the outlined process in the Hill Country PGMA and the Reagan, Upton, and Midland County PGMA in January, 1999. Efforts will be initiated in the Dallam County PGMA and the Swisher, Briscoe, and Hale County PGMA in February and March, 1999, respectively.

The TWDB is currently completing a hydrogeologic characterization and availability modeling project of the Upper and Middle Trinity aquifers in the Hill Country area in support of the SB 1 regional water planning initiative. The model will cover all or parts of Bexar, Bandera, Blanco, Comal, Gillespie, Hays, Kendall, Kerr, Medina, Travis and Uvalde counties. The Availability Section of the TWDB has committed an extensive level of staff resources to develop the information necessary for this project.

The numerical model for the Trinity aquifer will be developed in two phases and a report prepared for each phase. Phase I will focus primarily on the Middle Trinity aquifer. Regional Water Planning Groups (RWPGs) can use the model to comparatively evaluate potential water management strategies in the process of developing their Regional Water Plans. It will be constructed using commercially available PC-based software. The calibrated and verified version is scheduled for delivery to the RWPGs in November 1999. The TWDB plans to train the RWPGs to use the model after it has been developed. Phase II will focus on refining the model to make it more useful for local groundwater management purposes.

The TAEX is developing slide presentations of PGMA information for educational programming purposes. These presentations highlight findings in filed PGMA reports and water demand and population projections from the TWDB. Currently, slide presentations are available for the East Texas and the North Texas Alluvium and Paleozoic Outcrop PGMA Study Areas, and for the Hill Country PGMA (a designated PGMA). Slide presentations for the Reagan, Upton, and Midland County PGMA; Briscoe, Swisher, and Hale County PGMA; and the Dallam County PGMA are being developed and will be available in January 1999.

Other Current and Future PGMA Activity

Five previous PGMA study areas (Williamson and Parts of Adjacent Counties, Central Texas (Waco) Area, East Texas Area, Trans-Pecos Area, and North-Central Texas Area; Figure 1 and Table 2) were determined by the TWC in June 1990 not to be PGMA's. However, the TWC requested that it be updated on the status of these areas in five years. At the April 1998 annual TNRCC/TWDB meeting, the agency executives prioritized this task as a Fiscal Year 1999 work effort. Staff of the three agencies that signed the MOA will cooperatively review current status and information on water supply, groundwater levels, natural resources, and local management activities in each of the five areas and prepare memorandum reports in Fiscal Year 1999. These reports which will be prepared before the annual meeting of the agency executives in the year 2000 will serve as a basis for assessing future action in these areas.

In addition, the agency executives agreed at the April 1998 annual PGMA meeting that the identification and delineation of future PGMA study areas would primarily be based on the assessment of groundwater needs identified through the state's regional water planning process. The identification of potential new PGMA study areas will be further discussed at the Fiscal Year 1999 and 2000 annual PGMA meetings.

Groundwater Management Areas

As discussed in the introductory section of this report, the terms, definitions, and procedures for delineating and designating groundwater management areas have been changed many times over the past 50 years. Under Article 7880-3c, the Texas Board of Water Engineers designated and delineated the first groundwater reservoir in 1950. Between 1950 and 1985, the Texas Board of Water Engineers and its successor agencies, designated 15 more groundwater reservoirs, or subdivisions thereof. Since 1985, the TNRCC or its predecessor agencies have designated four groundwater management areas and four PGMA's under Chapter 52, Water Code. Groundwater management areas designated since 1985 are described in Title 30, Texas Administrative Code, Chapter 294 and are shown in Figure 3. The TNRCC has not designated any new, or modified any existing, groundwater management areas during the 1997-1998 biennium; however, the Commission did designate and delineate the El Paso County PGMA on December 2, 1998.

TNRCC rules (Title 30, §§293.21 through 293.25 of the Administrative Code) outline the process for designating groundwater management areas. In accordance with §35.004 of the Water Code, the TNRCC on its own motion or on receiving a petition, determines whether or not to designate a groundwater management area. The TNRCC also determines the boundaries of such a management area with the aim of providing the most suitable area for managing groundwater resources in the part of the state where a groundwater conservation district is or may be located. To the extent possible, the management area is delineated to coincide with the boundaries of a groundwater reservoir or a hydrologic subdivision of a reservoir. Under the law, the TNRCC can also use boundaries of political subdivisions to delineate a management area including boundaries of political subdivisions and the size and configuration of the management area in relation to a groundwater conservation district's performance of its duties.

At the request of the Commission or any person interested in submitting a petition to designate a groundwater management area, the Executive Director gathers available evidence (including information about the presence and characteristics of any groundwater reservoir or a hydrologic subdivision of a reservoir) relating to the configuration of the management area. The Executive Director's evidence is prepared and presented to the Commission through agency-rulemaking procedures as required under §35.004, Water Code. The Commission then considers this evidence and all other evidence admitted in the proceeding to decide whether or not to designate a groundwater management area and the boundaries of such a management area. The designation of a groundwater management area is a separate process from that of the creation of a groundwater conservation district.

Figure 3. Groundwater Management Areas (11 X 17" INSERT)

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The TNRCC is currently entertaining a September 30, 1998 request from the City of Grey Forest to include the Trinity Group aquifer portion of northern Bexar County in the Hill Country PGMA. The Executive Director notified the City of Grey Forest on November 12, 1998 that the request will be processed as a motion to amend the TNRCC action which designated the Hill Country PGMA. The Hill Country PGMA was delineated and designated in 1990 by rule under statutory provisions which have been repealed. The PGMA process in Chapter 35 of the Water Code now requires stakeholder notice and input, PGMA studies by the TWDB and TPWD, Executive Director PGMA report and recommendations, evidentiary hearing, and PGMA designation by Commission order. The Executive Director required the City of Grey Forest to file a certified copy of receipt indicating that a copy of the request for TNRCC action had been provided to the Edwards Aquifer Authority. The City of Grey Forest supplied this receipt to the Executive Director on December 11, 1998.

Bexar County was not included in the 1990 Hill Country PGMA study and designation as the subject area was, at that time, within the Edward Underground Water District's boundaries and jurisdiction and expressly exempt from the PGMA process. The subject area is now located within the Edwards Aquifer Authority which does not have authority to manage the Trinity Group aquifer. The Edwards Aquifer Authority has indicated that it is not interested in pursuing authority to also manage the Trinity Group aquifer at this time. These scenarios have currently rendered this portion of Bexar County as a no-man's-land regarding the management of the Trinity Group aquifer. If the Commission grants the petition and adds the area to the PGMA, then the Bexar County Commissioners Court would be authorized to require groundwater availability demonstrations for certain land development as granted in §35.019, Water Code.

DISTRICT ACTIVITIES

A description of the new groundwater conservation districts created by the 75th Legislature and the status of unconfirmed and failed districts is presented below. No new districts were created by the TNRCC either through the petition process or the PGMA district creation process. The activities of existing districts are analyzed and district management planning efforts as well as other legislative acts affecting districts are discussed. Districts created by the 75th Legislature and confirmed through voter election, as well as the existing groundwater conservation districts, are shown on Figure 4. Contact information for the state's groundwater conservation districts is included as Appendix 4.

New Districts Created and Validated by the 75th Legislature

Seven bills for the creation of groundwater conservation districts were introduced during the Regular Session of the 75th Legislature. Six of these bills were passed by the Legislature and led to the creation of five new groundwater conservation districts and the validation of one existing district. HB 3606 which proposed to create the Roher Springs Groundwater Conservation District in portions of Henderson and Van Zandt counties failed to pass during the 75th Session. The five new districts and the validated district are listed here and described below:

- San Patricio Groundwater Conservation District (created)
- Wintergarden Groundwater Conservation District (created)
- Bee Groundwater Conservation District (created)
- Guadalupe County Groundwater Conservation District (created)
- Culberson County Groundwater Conservation District (created), and
- Garza County Underground and Fresh Water Conservation District (validated).

San Patricio Groundwater Conservation District

HB 3590 (Chapter 1451, Acts of the 75th Legislature, Regular Session, 1997) created the San Patricio Groundwater Conservation District covering much of San Patricio County. Certain areas of the county, and the cities of Mathis and Taft, were excluded from the district's jurisdiction. The Act authorized the district with the powers and duties of Chapters 36 and 49 of the Water Code, named a temporary board of directors, and provided for the confirmation of the district through a voter election and the election of permanent board members. The ad valorem tax rate of the district was limited to \$0.05 per \$100 valuation of taxable property. HB 3590 became effective on September 1, 1997. Voters, however, failed to confirm the creation of the district

in a January 17, 1998 election. The proposal was defeated by a vote of 66

Table 3
Groundwater Conservation Districts Created or Validated During the 1997-1998 Biennium

Enabling Legislation With (Chapter Listed)	District	County *	Confirmation Election			Tax Rate (per \$100)	Board of Directors
			Date	Vote (%) For/Against	Confirmed		
HB 3590, 75th Legislature (1451)	San Patricio GWCD	San Patricio	01/17/98	34/66	No	N/A	Temporary
HB 3602, 75th Legislature (1149)	Wintergarden GWCD	Zavala, La Salle, Dimmit	01/17/98	90/10	Yes	\$0.04	Initial
SB 16, 75th Legislature (678)	Bee County GWCD	Bee	None to date	N/A	No	N/A	Temporary
SB 1582, 75th Legislature (1066)	Guadalupe County GWCD	Guadalupe	None to date	N/A	No	N/A	Temporary
SB 1942, 75th Legislature (1075)	Culberson County GWCD	Culberson	05/02/98	76/24	Yes	\$0.10	Initial
HB 3607, 75 Legislature (Validation; 610)	Garza County UFWCD	Garza	11/05/96	76/24	Yes	NE	Permanent
HB 1493, 74th Legislature (157)	Hemphill County GWCD	Hemphill	11/04/97	87/13	Yes	\$0.035	Initial
HB 530, 72nd Legislature (183)	Llano-Estacado UWCD	Gaines	11/03/98	52/48	Yes	\$0.02	Initial

NOTES: GWCD Groundwater Conservation District
 UWCD Underground Water Conservation District
 UFWCD Underground and Fresh Water Conservation District
 N/A Not Applicable
 NE Not Established To Date by the District
 * The district may or may not cover an entire county, or may cover more than one county.

Figure 4. Groundwater Conservation Districts -- (11 x 17' INSERT)

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percent against to 34 percent for. The temporary board reported that the election failed primarily because of voter apprehension that additional taxes would be imposed on the residents (many of whom obtain their water from surface water sources) if the district was confirmed and lack of information on the district and its purposes.

Wintergarden Groundwater Conservation District

HB 3602 (Chapter 1149, Acts of the 75th Legislature, Regular Session, 1997) created the Wintergarden Groundwater Conservation District covering all of Zavala, Dimmit and La Salle counties. The Act authorized the district with the powers and duties of Chapters 36 and 49, Water Code, named a temporary board of directors and provided for the confirmation of the district through a voter election and the election of permanent board members. HB 3602 became effective on June 19, 1997. Voters confirmed the creation of the district at the January 17, 1998 election by a vote of 90 percent for to 10 percent against. The voters also elected seven initial directors (two from each county and one at-large) and approved a tax rate not to exceed \$0.04 per \$100 valuation of taxable property. Permanent directors will be elected at a May 1999 election and will draw lots to serve staggered two-year and four-year terms. The initial board reports that it has been holding monthly public meetings and is actively pursuing a weather modification program for the district. The district's comprehensive management plan will be due for certification in January 2000.

Bee Groundwater Conservation District

SB 16 (Chapter 678, Acts of the 75th Legislature, Regular Session, 1997) created the Bee Groundwater Conservation District covering much of Bee County. The City of Beeville, Pettus Municipal Utility District and the Tynan Water Corporation service area were excluded from the district. The Act authorized the district with the powers and duties of Chapters 36 and 49, Water Code, named a temporary board of directors and provided for the confirmation of the district through a voter election and the election of initial and subsequent permanent board members. The ad valorem tax rate of the district was limited to \$0.05 per \$100 valuation of taxable property. SB 16 became effective on September 1, 1997. To date, a confirmation election has not been held in the district. The district's temporary board did not respond to TNRCC requests for information on the current status of the district.

Guadalupe County Groundwater Conservation District

SB 1582 (Chapter 1066, Acts of the 75th Legislature, Regular Session, 1997) created the Guadalupe County Groundwater Conservation District covering all of Guadalupe County. The Act authorized the district with the powers and duties of Chapters 36 and 49, Water Code, provided for the appointment of a temporary board of directors and provided for the confirmation of the district through a voter election and

the election of initial and subsequent permanent board members. The Act specifically denies the district the authority to impose ad valorem taxes or fees. SB 1582 became effective on September 1, 1997. To date, a confirmation election has not been held in the district. The district's temporary board did not respond to TNRCC requests for information on the current status of the district.

The northern half of the Guadalupe County district overlying the Edwards aquifer is included in the Edwards Aquifer Authority's (EAA) jurisdiction. The EAA's enabling legislation (Chapter 626, Acts of the 73rd Legislature, Regular Session, 1993) clearly establishes the EAA as the regional planning and management authority for the Edwards aquifer. The EAA's enabling legislation also authorizes the EAA to establish relationships with local or county groundwater districts within its jurisdiction.

Culberson County Groundwater Conservation District

SB 1942 (Chapter 1075, Acts of the 75th Legislature, Regular Session, 1997) created the Culberson County Groundwater Conservation District covering the southwestern portion of Culberson County. The Act authorized the district with the powers and duties of Chapters 36 and 49, Water Code, provided for the appointment of a temporary board of directors by the county commissioners court, and for the confirmation of the district through a voter election and the election of initial and subsequent permanent board members. In addition, the Act authorizes the district to contract with a water import authority to sell and distribute water. SB 1942 specifically required the confirmation election be conducted within 30 days of the effective date of the Act which became effective on June 19, 1997.

An election held on May 2, 1998, confirmed the creation of the Culberson County district by a vote of 76 percent for to 24 percent against. Five initial directors were also elected during this election. The voters approved an ad valorem tax not to exceed \$0.10 per \$100 of taxable property. This election was not held within the 30-day time frame provided in the district's enabling legislation. Similar situations in the past have been addressed through legislative validation of the district, its confirmation election, and the actions of the temporary and initial boards of directors.

The Culberson County district's initial board reports that efforts are underway to develop a management plan for the district and rules for its implementation. The management plan is being developed with assistance from the TAGD and will be based on the management plans of other confirmed districts. The first step in the process of developing this management plan was discussed in a board meeting held on November 4, 1998. The district's management plan will be due for certification in May 2000. In accordance with SB 1942 and the May 2, 1998 election, permanent directors are scheduled to be elected in May 1999. The three permanent directors receiving the most votes will serve four-year terms. Subsequent elections will be held every two years in May.

Garza County Underground and Fresh Water Conservation District

HB 3607 (Chapter 610, Acts of the 75th Legislature, Regular Session, 1997) validated the November 5, 1996, election confirming the creation of the district and the election of initial directors. The district was confirmed by a vote of 76 percent for to 24 percent against. The Garza County district was created by HB 846 during the 74th Legislature (Chapter 188, Acts of the 74th Legislature, Regular Session, 1995). The district has not established a tax rate and is currently being funded by the Garza County Commissioners Court. The district's management plan was certified by the TWDB on October 14, 1998, and the district has formulated rules and regulations to implement the plan. These rules and regulations were adopted and became effective on October 6, 1998. Permanent directors for the district were elected on May 5, 1998. Three of these directors will serve four-year terms and two will serve two-year terms. Subsequent director elections will be conducted every two years.

Other New Districts Confirmed During the 1997-1998 Biennium

Two groundwater conservation districts (Hemphill County and the Llano-Estacado) created in previous sessions of the legislature were confirmed during the 1997-1998 biennium. These districts are shown on Figure 4 and described in Table 3.

Hemphill County Underground Water Conservation District

The Hemphill County Underground Water Conservation District was created in 1995 by HB 1493 (Chapter 157, Acts of the 74th Legislature, Regular Session, 1995) with an effective date of August 28, 1995. The district was confirmed by election on November 4, 1997, by a vote of 87 percent for to 13 percent against. Five initial directors were also elected to the governing board at the November 1997 election. The voters of the district approved a tax rate not to exceed \$0.035 per \$100 valuation at a May 1998 election. The district reports that it is currently developing its management plan (due for certification before November 4, 1999) and rules and regulations to implement the plan. The district is prohibited from exercising the power of eminent domain.

Five permanent directors are to be elected to the board of directors in May 1999. Three of these directors will serve four-year terms and two will serve two-year terms. Subsequent director elections will be conducted every two years to elect the appropriate number of directors.

Llano-Estacado Underground Water Conservation District

The Llano-Estacado Underground Water Conservation District in Gaines County was created by HB 530 (Acts of the 72nd Legislature, Regular Session, 1991). Voters confirmed the creation of the district at a November 3, 1998 election by a vote of 52 percent for to 48 percent against. Five initial directors were elected to serve on the district's board at the confirmation election. The voters also approved an ad valorem tax not to exceed \$0.02 per \$100 valuation of taxable property. The district's management plan will be due for certification in November 2000.

Five permanent directors are to be elected to the board of directors in May 2000. Three of these directors will serve four-year terms and two will serve two-year terms. Subsequent director elections will be conducted every two years to elect the appropriate number of directors.

Annexations and Withdrawals

Two counties (Wheeler County and Karnes County) joined adjacent groundwater conservation districts during the biennium. All the territory in Wheeler County was added to the Panhandle Ground Water Conservation District No. 3. The residents of Wheeler County had petitioned the Panhandle district for annexation in accordance with §36.328 of the Water Code. The addition of territory was approved by the voters in Wheeler County at an August 13, 1997 election by a margin of 72 percent for to 28 percent against. At the same election, one new director was elected to represent Wheeler County on the Panhandle district's board. The Wheeler County voters also approved the levying of an ad valorem tax not to exceed \$0.05 per \$100 valuation of taxable property to pay the proportional share for the operation and maintenance of the district.

All the territory in Karnes County was added to the Evergreen Underground Water Conservation District in January 1998. The Commissioners Court of Karnes County petitioned to have the entire county added. Karnes County voters approved the annexation at a January 17, 1998 election by a margin of 89 percent for to 11 percent against. At the same election, two new directors from Karnes County were elected to represent their county on the Evergreen district board. The voters also approved a tax rate not to exceed \$0.03 per \$100 valuation of taxable property.

The Barton Springs/Edwards Aquifer Conservation District was petitioned by residents in March 1998 for the dissolution of the district and the withdrawal of Bastrop County from the district. Withdrawal petitions and actions are provided by the district's enabling legislation and require a 75 percent voting margin for passage. Following the verification of petition signatures, the district's board ordered that the two propositions be presented to voters at a May 2, 1998 directors election. The dissolution proposition was defeated with approximately 60 percent voting in favor of the continued existence of the Barton Springs district. The proposition for the withdrawal of Bastrop County from the district's jurisdiction was also

defeated by a tie vote.

Unconfirmed Districts (Since 1989)

Five groundwater conservation districts (Clearwater UWCD and Menard, Haskell/Knox, Presidio, and Oldham County UWCDs) created by previous legislatures since 1989 have not held confirmation elections. The unconfirmed groundwater districts are shown in Figure 5 and listed in Table 4. Provisions of SB 1 specify that enabling legislation for groundwater conservation districts created during the 71st through 74th legislative sessions (1989 to 1995) would be automatically repealed unless the districts are confirmed by election before September 1, 1999. HB 2563 essentially has the same provisions as Section 9.06 of SB 1, but does not include districts created by the 74th Legislature. Districts created by the 75th Legislature are not subject to confirmation deadlines.

The TNRCC sent letters on May 26, 1998 to the temporary board members named in the enabling legislation of each of the five districts informing the districts of the statutory confirmation election deadline. Additionally, as previously discussed, two districts (Bee County and Guadalupe County) created by the 75th Legislature have not held confirmation elections to date. These districts, however, are not subject to any election deadlines.

Clearwater Underground Water Conservation District

The Clearwater Underground Water Conservation District in Bell County was created in 1989 by HB 3172 (Acts of the 71st Legislature, Regular Session, 1989). The Act did not name temporary directors but authorized the Bell County Commissioners Court to appoint temporary directors to schedule and conduct the district's confirmation election. The legislation creating this district did not, however, establish time limits for the appointment of a temporary board or a confirmation election. The Commissioners Court has not appointed a temporary board or held a confirmation election. However, the County Judge reports that the Commissioners Court is expected to make a decision on activating the district and holding a confirmation election in early 1999.

Menard County Underground Water Conservation District

The Menard County Underground Water Conservation District was created in 1991 by SB 1465 (Acts of the 72nd Legislature, Regular Session, 1991). The district includes all of Menard County with the exception of the portion of the county within the boundaries of the Hickory Underground Water Conservation District. The Menard County district is governed by a board of five temporary directors. If the Menard County district is confirmed by voters, the district's initial and subsequent permanent directors

will also serve as the directors for the currently existing Menard County Water Control and Improvement District (WCID) No. 1. Members of the TAGD presented groundwater district creation and operation

Figure 5. Unconfirmed Groundwater Conservation Districts (Since 1989) -- INSERT

Table 4
Unconfirmed Groundwater Conservation Districts (Since 1989)

District	Method of Creation				County ¹	Comments
	Bill	Legislature	Year	Chapter Listed		
Guadalupe County GWCD ²	S.B. 1582	75th	1997	1066	Guadalupe	Possible spring 1999 election. No educational activities to date.
Bee County GWCD ²	S.B. 16	75th	1997	678	Bee	No information available on confirmation election.
Oldham County UWCD	S.B. 1714	74th	1995	720	Oldham	Discussing amendment to enabling legislation.
Presidio County UWCD	H.B. 2817	73rd	1993	453	Presidio	Planning election in spring 1999. Limited educational activities.
Haskell/Knox County UWCD	H.B. 2862	73rd	1993	1028	Haskell and Knox	Confirmation election scheduled for January 26, 1999.
Menard County UWCD	S.B. 1465	72nd	1991	180	Menard	No confirmation election to date.
Clearwater UWCD	H.B. 3172	71st	1989	524	Bell	Legislation allows Commissioners Court to appoint directors to hold election. Election planned for early 1999. No educational activities, to date.

- NOTES:**
- 1 The district may or may not cover the entire county, or may cover more than one county.
 - 2 Not subject to the September 1, 1999 dissolution deadline mandated by SB 1, 1997.
- GWCD Groundwater Conservation District
 UWCD Underground Water Conservation District

information to the temporary board and the board of the Menard County WCID No. 1 at an October 14, 1998 meeting. A confirmation election has not been held to date.

Haskell/Knox County Underground Water Conservation District

The enabling legislation for the Haskell/Knox County district (Chapter 1028, Acts of the 73rd Legislature, 1993) named the existing county commissioners court from each county as the temporary board of directors for the district. The Act also provided subsequent procedures for the replacement of directors by appointment from each of the county commissioners courts. In September 1998, each county commissioners court appointed five temporary directors to the district's temporary board and drew lots to determine which court would appoint the temporary board's president.

Ten initial-board-members are to be appointed by the two commissioners courts prior to filing election results with the TNRCC if the district is confirmed at election. Initial board members will draw lots to determine an equal number of four- and two-year terms. Permanent directors are to be appointed by the commissioners courts as the terms of the initial directors expire.

Soon after being appointed, the temporary board's president contacted the TNRCC, TAEX, and TAGD for technical and educational assistance. In response, the TAGD presented information on groundwater district authorities and operations to the temporary board at a September 28, 1998 meeting. Public educational meetings coordinated by the temporary board and TAEX were then conducted in Haskell and Munday on October 26 and 27, 1998, respectively. The meetings were advertised in the local media (radio and newspapers). The temporary board presented information on the creation of the district, the appointment of the temporary board, and its responsibilities. The TAEX, TNRCC and the TAGD presented information on the duties and operations of groundwater districts.

Additional public educational programming was planned through the local radio stations as part of a Haskell County 4H project. At last contact, the temporary board indicated that it was conferring with the Secretary of State's Election Division to schedule and conduct a confirmation election. The election has been tentatively scheduled for January 26, 1999. The district will be created only if the majority of the voters in each county favor the creation of the district. If voters in either county fail to confirm the creation of the district, the creation of the district will be defeated.

Presidio County Underground Water Conservation District

The Presidio County Underground Water Conservation District was created in 1993 by HB 2817 (Acts of the 73rd Legislature, Regular Session, 1993). The district is governed by a board of five initial directors appointed by the Presidio County Commissioners Court. One vacancy on the initial board exists which will

need to be filled by the commissioners court. The court will appoint permanent directors as the two- and four-year terms of the initial directors expire. State agency staff and the TAGD presented information on groundwater district authorities and responsibilities at a groundwater seminar in Alpine in August 1998. Members of the TAGD described the process of groundwater district creation and operation at a public meeting in Alpine on September, 17, 1998. A confirmation election has not been scheduled to date; however, the County Judge has indicated that the election may be held in spring 1999.

Oldham County Underground Water Conservation District

The Oldham County Underground Water Conservation District was created in 1995 by SB 1714 (Acts of the 74th Legislature, Regular Session, 1995). The district is presently governed by a board of five temporary directors. The district's board reports that there are currently no plans to hold a confirmation election. Instead, the district is studying the possibility of merging with the existing Llano Estacado Water District. The Llano Estacado Water District is a water supply district which encompasses 389 square miles in Oldham and Deaf Smith Counties. To this end, the two districts have been consulting with TAGD, legal advisors, and legislators and plan to have legislation introduced during the 76th Session to effect a merger. There have been no formal educational programs in connection with the confirmation of the district: all educational activities have been informal.

Failed District Elections

As reported to the 75th Legislature (TNRCC, 1997), three legislatively created groundwater conservation districts (Central Texas, Llano Uplift, and Rolling Plains) and one Commission-created district (Comal County) have failed confirmation elections since 1989. Additionally, the San Patricio district created by the 75th Legislature also failed its confirmation election in 1998. The San Patricio district apparently failed largely because of a poorly conducted educational program prior to the election and partially because a large portion of the tax burden would have been borne by citizens who utilized surface water supplies and believed they would not have benefitted from the creation of the district. The failed groundwater districts are shown on Figure 6 and described in Table 5.

The most commonly referenced reasons for the failure of the voters to confirm these districts have been the reluctance to pay more taxes and the unwillingness to add an additional layer of governmental involvement in their affairs. The failure of adequate educational opportunities has also been blamed. Voters who have not had the opportunity to evaluate accurate information regarding the value of locally managing groundwater resources and the benefit of supporting a district have nearly always voted against district creation.

Figure 6. Failed Groundwater Conservation Districts (Since 1989) -- INSERT

Table 5
Failed Groundwater Conservation Districts (Since 1989)

District	Method of Creation				County ¹	Confirmation Election	
	Bill	Legislature	Year	Chapter Listed		Date	Vote % For/Against
San Patricio GWCD	H.B. 3590	75th	1997	1451	San Patricio	01/17/98	34/66
Comal County UWCD	Landowner Petition Process Provided in Chapter 36, Water Code. Created by Commission Order, 1994.				Northwestern Portion of Comal County within the Hill Country PGMA	05/06/95	8/92
Rolling Plains UWCD	H.B. 2820	73rd	1993	1027	Borden, Mitchell, Scurry	06/07/94	25/75
Llano Uplift UWCD	H.B. 1491	73rd	1993	301	Llano	05/14/94	15/85
Central Texas UWCD	H.B. 3099	71st	1989	514	Burnet	01/20/90	12/88

NOTES: 1 The district may or may not cover an entire county, or may cover more than one county. Districts are shown in Figure 6.
 UWCD Underground Water Conservation District

Activities of Existing Districts

SB 1 requires that each groundwater conservation district develop and implement a management plan for effective management of its groundwater resources. The management plan identifies the programs and activities to be implemented or accomplished by the district. Each groundwater district plans its activities according to rules and goals developed and adopted by the locally governed board. Table 6 summarizes general district activities. An “X” in the activities column indicates that the district is performing at least one of the activities described in the following descriptions. The information presented in Table 6 is a summary of activities listed in a district’s groundwater management plan, in the *Texas Alliance of Groundwater Districts, Membership Directory and District Activities* (TAGD, 1997), and data obtained from a phone survey conducted by the TWDB.

Water Quality Monitoring and Protection. The district implements a program for analyzing water quality or other projects for water well protection. The projects may include providing sample collection and laboratory services for water analyses.

Aquifer Storage Monitoring. The district has established a network of observation wells to monitor changes in groundwater storage in an aquifer. The water levels in individual wells in the network are measured on a regular basis.

Water Well Inventory. The district maintains an inventory of water wells within its boundaries. This inventory is used to create a database to monitor the development of the aquifer, and to provide information for future aquifer investigations.

Well Spacing, Permitting, and Construction. Through adoption of rules, the district may require permits for new wells or regulation of wells. Requirements may include well location and spacing restrictions, permit requirements, well construction standards, and production regulations. Authority for well location and spacing, permit requirements, and production regulations rest solely with the district. Well construction standards may be established by each district, but often refer to regulations established by the Texas Department of Licensing and Regulations Water Well Drillers Program.

Education/Public Outreach. The district may provide pamphlets, newsletters, videos, newspaper articles, scholarships, workshops, public meetings and hearings, reports, and classes emphasizing water conservation principles and encouraging efficient groundwater use. The districts may also maintain an informational booth at local or regional agricultural events promoting irrigation and domestic efficiency programs. In districts with weather modification programs, local tours demonstrating project equipment may be provided to the public.

Water Conservation. The district may address improving irrigation efficiency by funding loans, encouraging conservation practices through educational programs, performing irrigation efficiency

evaluations, conducting pivot flow tests, and providing mapping and leveling equipment.

Table 6. Groundwater Management/District Activities -- INSERT; 2 Pages

Table 6. Groundwater Management/District Activities -- INSERT; 2 Pages

Districts provide guidance and rules for identifying and regulating wasteful practices regarding groundwater use. Many districts rely on public input and cooperation to identify potential wasteful practices and resolve incidents of groundwater waste. Possible projects may include water metering, drought management plans, and establishing triggers for implementing drought and conservation plans.

Recycling Waste Oil. The district organizes and/or operates, and monitors used oil and oil filter collection centers.

Surface Water Programs. Surface water programs may include surface water quality monitoring, coordination with surface water management entities, and creation of maps showing surface water quality. Some districts attend public meetings of the surface water entity in their district.

Weather Modification. The district may participate in regional weather modification programs to enhance precipitation. Currently, most groundwater districts in the western part of the state are participating in some form of weather modification program.

Transporting Groundwater. District rules may impose limitations on or outline requirements for the transport of groundwater extracted from wells within the district to out-of-district users.

Grants Applications. Any district can apply for TWDB funding for grants. The grants program provides 75 percent matching funds to districts to purchase equipment and promote, demonstrate, or evaluate water conservation practices. Another program provides low interest loans to districts, which in turn provide low interest loans to irrigators to purchase and install more efficient irrigation systems.

Special Projects and Research. Special projects and research include groundwater modeling, groundwater recharge through infiltration or injection, area subsidence measurements, production of groundwater level maps, and recharge enhancement through weather modification programs. Projects may involve cooperative funding through federal and state or local agencies.

Summary of Activities of New Districts

Four new districts were confirmed during the biennium. The Culberson County, Hemphill County, and Wintergarden districts are conducting regularly scheduled meetings and report that the development of management plans and district rules are underway. The Wintergarden district is also actively pursuing a weather modification program for the district. The TNRCC is unsure of the current activity being conducted by the Llano-Estacado district which was only recently created in November, 1998.

District Management Planning Efforts

Prior to September 1, 1997, groundwater districts were required by Chapter 36 of the Water Code to develop and adopt management plans and rules to implement the plan and file the plans and rules with the TNRCC. Districts were further required to readopt the management plan at least once every five years. As reported to the 75th Legislature (TNRCC, 1997), the TNRCC had management plans on file for 30 of the 40 districts that existed at that time; however, only three of the plans clearly identified their planning horizon as being current and in compliance with Chapter 36 requirements.

SB 1 prioritized the importance of a district's management plan to guide district operations and activities and made major changes to district management plan requirements. By amending Chapter 36, the statute now outlines the general contents of a district management plan and requires coordination with surface water entities on a regional basis. Chapter 35 also requires that district management plans be submitted to the TWDB for administrative certification and outlines procedures for the TWDB's certification of the plans.

Development and Certification of Plans

Each groundwater district develops its management plan according to requirements specified in §36.1072 of the Water Code and the TWDB's groundwater management plan certification rules (Title 31, Texas Administrative Code, Chapter 356). The TWDB's management plan certification rules are summarized in the introduction and included as Appendix 1.

Based on the statutory requirements for groundwater district management plans, staff of the TWDB developed a hypothetical management plan that included all the required elements for certification of administrative completeness. This hypothetical management plan was distributed to all groundwater conservation districts in November 1997. In addition, TWDB staff reviewed the groundwater management plan certification rules and developed a checklist (Table 7) for required plan content. The checklist was also submitted to the groundwater conservation districts for their use. Included with the checklist was a letter indicating the availability of TWDB staff to assist in the development of plans. Seminars on the required content of management plans and plan development were conducted by TWDB in Manchaca, Castroville, and San Angelo in association with the TAGD and the West Texas Alliance of Groundwater Districts (WTAGD).

Table 7

Texas Water Development Board			
UWCD Management Plan - Administrative Completeness Checklist			
District Name:			
Reviewing Staff:		Date:	
	Present in plan and administratively complete	Absent from plan and not complete	Quotation of estimate source or method
1. Is an estimate of the existing total useable amount of groundwater in the District included? 31TAC §356.5 (a)(4)(A)			
2. Is an estimate of the amount of groundwater being used within the District on an annual basis, included? 31TAC §356.5 (a)(4)(B)			
3. Is an estimate of the annual amount of recharge to the groundwater resources within the District included? 31TAC §356.5(a)(4)(C)			
4. Is an estimate included, of the annual amount of additional natural or artificial recharge of groundwater within the District, that could result from implementation of feasible methods for increasing the natural or artificial recharge? 31TAC §356.5(a)(4)(C)			
5. Is an estimate of the projected water supply within the District included? 31TAC §356.5(a)(4)(D)			
6. Is an estimate included of the projected water demand within the District? 31TAC §356.5(a)(4)(D)			
7. Does the plan include details of how the District will manage groundwater supplies in the District? 31TAC §356.5(a)(5)			
8. Are the actions, procedures, performance and avoidance necessary to effectuate the management plan, including specifications and proposed rules, all specified in as much detail as possible, in the plan. 31TAC §356.5(a)(3)			
9. Does the District's management plan use a planning period of at least ten (10) years? 31 TAC §356.5(a)			
10. Was a certified copy of the District's Resolution adopting the plan included? 31TAC §356.6(a)(2)			
11. Was evidence that the plan was adopted after notice and hearing included? 31TAC §356.6(a)(3)			
12. Was evidence that, following notice and hearing, the District coordinated in the development of it's management plan with surface water management entities, included? 31TAC §356 (a)(4)			
13. Was evidence of consistency with and any conflict between the proposed management plan and the regional water plan (developed by regional water planning groups formed under authority of TWC §16.053(c)) for each region in which any part of the District is located, if such regional water plan has been approved by the Board included? 31TAC §356.6(a)(5)			

Individual districts can receive assistance for the development of the plan by contacting TWDB. TWDB staff have assisted in plan development by providing the following:

- explanations of management plan content requirements;
- education in planning concepts;
- supporting data for estimates required in the plan; and
- technical assistance in developing required estimated values, and assistance in developing plan language.

In an effort to provide the greatest efficiency of service to the districts, TWDB provided much of the assistance by telephone. If personal contact was desired or warranted by the district, TWDB staff either visited the district or met with the district at the TWDB offices.

Districts were offered the opportunity to submit draft management plans for an informal review by TWDB staff prior to adoption of the plan by the district board of directors. When such drafts were received, TWDB staff reviewed the documents, noted deficiencies with respect to administrative completeness, and transmitted it back to the district. Follow-up contacts were initiated by TWDB staff to provide the appropriate assistance required for plan certification.

During the preparation of management plans in the district's adoption process and after notice and public hearing, districts were required to consult with appropriate surface water management entities on the development of the plan. Following this consultation, district boards of directors adopted their management plan. The adopted plan was then submitted to TWDB for administrative completeness certification.

Plans received by the TWDB were logged to ensure that an administrative review would be completed within the 60-day statutory review period. All plans received to date have been reviewed within the prescribed period. Each submitted plan was reviewed by at least three staff members for their recommendations. The Executive Administrator, after consideration of staff recommendations and additional review of the plan, determined the administrative completeness of the plan. Although a process for appeal of the denial of certification is provided in Chapter 36 and TWDB rules, all plans submitted to date have met certification requirements, and no plan has been denied administrative completeness certification.

Current Status

Table 6 shows the certification status of all groundwater conservation district management plans as of November 1, 1998. Forty districts had been expected to submit plans by September 1, 1998. However, only 34 had submitted plans by this deadline. All 34 plans have been certified. One plan received after the September 1, 1998 deadline has also been certified.

The following five districts, required to submit a management plan by September 1, 1998, had not submitted a plan to the TWDB as of October 29, 1998:

- Anderson County Underground Water conservation District,
- Dallam Underground Water Conservation District No.1,
- Plum Creek Conservation District,
- Real-Edwards Conservation and Reclamation District, and
- Salt Fork Underground Water Conservation District.

The TNRCC is currently working to achieve cooperative agreements with the boards' of the noncompliant districts to have management plans developed and certified. The level of TNRCC oversight for each district will be determined on a case-by-case basis and will depend on the level of cooperation received from the district. The TNRCC hopes to achieve the necessary groundwater management within each district through this process; however, if a district is uncooperative, TNRCC action may be expected as early as spring 1999.

In addition, the TNRCC and TWDB will be working with the SAO, as requested, in the review of district implementation to achieve objectives of certified management plans. Coordination of this effort has been initiated and will continue over the year; however, the majority of this effort will be initiated in the fall of 1999 and conducted over the following months.

Additionally, four groundwater conservation districts (Culberson County, Hemphill County, Llano Estacado, and Wintergarden), have held confirmation elections after the September 1, 1997 activation date referenced in statute. These districts have two years after their confirmation election to submit a management plan.

State Assistance

The TNRCC, TWDB, TPWD, and TAEX are responsible for providing assistance to the public under Chapters 35 and 36 of the Water Code. Other entities such as the state's institutions of higher education and the TAGD can also play pivotal roles in providing these services.

SB 1 authorized the TWDB to conduct a groundwater sample-testing program as part of the Network Optimization program. The TWDB provides water-quality sampling equipment, training, laboratory services, and data results to the participants. In turn, participants collect water samples for the program. Groundwater conservation districts currently participating in the program are Barton Springs/Edwards Aquifer Conservation Districts, Edwards Aquifer Authority, and Gonzales County Underground Water Conservation District.

The TWDB has also assisted districts with special requests such as the following:

- database design and development;
- demonstration and use of software applications;
- creation of illustrations and images;
- processing and delivery of water information data;
- assistance with Website design and development;
- purchase of computer hardware and software for use by districts that cooperate in the network optimization program; and
- technical assistance with solving problems concerning drought-induced water shortages.

A water research study for the development of a model “Water Management Plan” was conducted by the TAGD and funded by a contract with the TWDB. The model management plan software was developed by the Barton Springs/Edwards Aquifer Conservation District. This study resulted in the preparation of a CD ROM disk and user’s manual for a graphical user interface (GUI) to be used by groundwater districts in the preparation of their management plans. Districts requesting information on deadlines, submittal of management plans, numbers of copies required, and other administrative details were appropriately assisted by TWDB personnel.

Other Legislative Acts Affecting Groundwater Districts

In addition to SB 1 and other acts related to district creation and validation, the 75th Legislature passed two bills that affect groundwater conservation districts. SB 15 (Chapter 677, Acts of the 75th Legislature, Regular Session, 1997) limited the ad valorem tax rate for the Live Oak County Underground Water Conservation District, and HB 2563 (Chapter 785, Acts of the 75th Legislature, Regular Session, 1997) placed a deadline for created, but unconfirmed districts to schedule and hold confirmation elections.

SB 15 amended the enabling legislation of the Live Oak Underground Water Conservation District (Chapter 715, Acts of the 71st Legislature, Regular Session, 1989) by placing an ad valorem tax rate cap of \$0.05 per \$100 of assessed valuation on the district as opposed to the general law (§36.201, Water Code) allowance of up to \$0.5 per \$100 of assessed valuation.

HB 2563 partially addresses TNRCC concerns raised in 1997 (TNRCC, 1997) by requiring that all groundwater conservation districts which were created during the 71st, 72nd and 73rd legislatures hold a confirmation election no later than September 1, 1999 or be dissolved. The five districts which HB 2563 affect (also previously discussed under “Unconfirmed Districts”) include the Clearwater district (created in 1991), the Llano Estacado and Menard County districts (both created in 1992), and the Haskell/Knox and Presidio County districts (both created in 1993). The TNRCC sent out notifications on May 26, 1998 to

each of these districts advising them of the impending deadline and encouraging them to hold confirmation elections to avoid dissolution.

A provision similar to HB 2563 was included in SB 1 (§9.06; Chapter 1010, Acts of the 75th Legislature, Regular Session, 1997). However, the SB 1 provision includes unconfirmed groundwater conservation districts created by the 74th Legislature as well. This provision affects Oldham County Underground Water Conservation District which was created by the 74th Legislature but still remains unconfirmed. As with the five districts affected by HB 2563, the TNRCC sent out a notification letter to the Oldham County district advising them of the September 1, 1999 deadline and encouraging them to hold a confirmation election.

GROUNDWATER MANAGEMENT ISSUES

This chapter recognizes some of the issues which the state still faces regarding the management of groundwater resources. The issues are categorized under general headings pertaining to PGMA process implementation and groundwater management.

PGMA Process Issues

With the passage of SB 1 in 1997, the 75th Legislature significantly streamlined the PGMA process in Chapter 35 of the Water Code. A few procedural issues remain, however, that could be clarified to more fully accomplish and facilitate groundwater management within designated PGMA's.

Commission Action in a Designated PGMA

The PGMA process provided in Chapter 35 of the Water Code should be a seamless process, continuing through PGMA designation to district creation. In practice, the process moves as intended up to the point of a Commission PGMA designation order. After this point the procedure is somewhat vague and implementation of the process halts for potential landowner actions. Statutory guidance is not sufficiently clear on issues regarding the allowable opportunity for local action to establish the needed management actions in the PGMA, the appropriate timing of educational programming, and the process whereby the Commission initiates and creates districts when local efforts have failed or not been taken.

Several portions of the process for Commission action in a designated PGMA after the opportunity for local action has passed are unclear. The provisions in §35.012 (d) for triggering the identification of areas not incorporated into districts, for Commission proposal of district boundaries, and for Commission proposal of district creation are not sufficiently outlined for the Commission to take or set out specific actions in its rules. Specifically, the reference for Commission action to Subchapter B of Chapter 36 for district creation procedures can be interpreted to require a landowner petition and does not clearly indicate authority for Commission-initiated district creations.

Time Period for Landowner Action in a PGMA

The time period allowed in §35.012 (c) for landowner-initiated actions in a designated PGMA is not clear. Clarification of an allowable time period for local action would provide clear guidance to local governments and landowners in a designated PGMA so that actions may be considered and initiated. Too

long a time frame, however, impedes the establishment of needed management actions and limits the Commission's flexibility for action.

Educational Programming Following PGMA Designation

As required in §35.012 (d), the educational program conducted by the TAEX, in conjunction with other state agencies, is initiated prior to Commission-initiated action to create a groundwater district in a designated PGMA or upon request from an existing district if annexation of the designated PGMA is being pursued. The section can be read to provide that the educational program be initiated late in the designated PGMA district creation process with implementation not occurring until after the time frame allowed for local initiative to create a groundwater district in the designated PGMA. Initiating educational programming upon PGMA designation would benefit area landowners as well as close a gap in the process through continued communication with stakeholders.

TAEX education would benefit landowners and local governments if implemented immediately following a Commission PGMA designation order. This educational effort would provide landowners with the findings (including water availability, supply, and critical problems) from the Executive Director's PGMA report, information pertaining to what actions the landowners can take to establish a district, and time lines required for Commission actions if landowners do not establish a district. Education at this point in the process would also serve to give landowners the appropriate agency contacts for further educational or informational purposes. More flexibility in Chapter 35 would provide the opportunity for education throughout the PGMA district creation process. This change to Chapter 35 would clarify that the educational program be administered for the benefit of the local population to encourage local initiative to create a groundwater district.

Burden of an Evidentiary Hearings in a PGMA

There are several problems that have arisen in conducting an evidentiary hearing in the PGMA designation process. The level of resource commitment, procedural burden of becoming a party, and presentation of evidence through expert witness testimony associated with evidentiary hearings is a major burden to landowners, small businesses, and small organizations. The evidentiary hearing process actually discourages participation of small stakeholders and has discouraged full examination of the Executive Director's report and recommendations for larger organizations due to the costs of legal representation and the need for expert witnesses. Similar burdens are experienced by the participating state agencies. The hearing process has added considerable time delays to an already lengthy PGMA designation schedule as a result of discovery requests and filing of legal motions, especially if more than a few parties are named. As the Administrative Procedures Act does not apply to the PGMA process, a public meeting and comment process with prior availability of the reports would elicit more comments and useful input from

stakeholders. This process would also provide a substantial comment record for Commission consideration of the PGMA designation.

Groundwater Management Issues

Issues discussed under this heading pertain to the designation of groundwater management areas and other issues which the agencies believe affect or may affect the ability of groundwater conservation districts to manage groundwater resources within their jurisdictions.

District Management of Underlying Aquifers

During the biennium, the TNRCC was approached by two Commission-created groundwater districts seeking to expand the authority that had been granted in their enabling orders. The districts sought the authority to manage additional aquifers within their boundaries but outside of their mandated jurisdiction. The general reasons given by the districts for the need to manage other aquifers were related to changes in pumping practices and water quality conditions and the hydrologic connection of the other aquifer directly affecting water levels in the primary managed aquifer. In response to the district requests, the TNRCC has adopted rules to provide a process to allow a district created by the Commission to amend its order to provide for the expansion of authority to manage other aquifers which have not been explicitly referenced.

Simplification of Groundwater Management Area Designation

The designation of a management area is required prior to a Commission district creation action but has not been a part of the legislative creation process since 1989. Its purpose is to define a physically manageable area of an aquifer to facilitate district management activities. Generally, management area boundaries are delineated to coincide with aquifer boundaries; however, the TNRCC may also consider the boundaries of political subdivisions.

The designation of groundwater management areas is often viewed as unnecessarily burdensome and complex. Groundwater management areas are delineated and designated by TNRCC rule, either on its own motion or in conjunction with district creation petitions. The designation of a management area is a separate action from the district creation proceeding. Upon petition in the district creation process, it is administratively burdensome for the TNRCC to conduct rule development and the district creation process and order concurrently. In addition, Chapter 36 limits a district created through the petition process to an area within or coterminous with a designated management area. In contrast however, groundwater districts created by legislative action are not linked to or require a management area delineation.

While management area delineation is a hydrologically sound concept and practice, political considerations are often primary considerations in establishing district boundaries. In the landowner district creation petition process, the boundaries preferred by petitioners do not always coincide with nature's hydrogeologic boundaries or management areas already set by the TNRCC. Limitations thus placed on district boundaries have, on occasion, hindered developing the necessary local support for district creation. Chapter 36 provisions require coordination of groundwater district management plans to address the concerns of aquifer-wide management. Some aquifers, though, do not have sufficient groundwater district coverage to accomplish aquifer-wide coordinated management. As such, county district boundaries would limit the district's ability to manage groundwater resources in the same aquifer in adjacent counties.

There are several options for simplifying the management area designation process. The process could be repealed without replacement and the management of groundwater resources could rely on districts and the required regional coordination between districts which share a common aquifer. Alternatively, the management area designation process could be combined with the district creation petition process into a single, simplified Commission action. A third option providing only minimal statutory changes would include maintaining the present management area process with amendments to change it from an agency rulemaking procedure to a Commission order and public comment process.

Exemptions for Groundwater District Permitting

Water Code, §36.117 provides exemptions, exceptions, and limitations related to groundwater conservation district water well permitting authority. This section of the Water Code has been repeatedly amended over numerous sessions as the powers and duties of groundwater conservation districts have evolved. The resulting language is confusing and difficult to interpret.

Most groundwater districts are created by local citizens with the expectation that the district will manage the groundwater resources for the benefit of all within its jurisdiction. Fulfilling this expectation may fall short in any given district because of the exemptions that are provided in §36.117. Currently allowed exemptions from district permitting include wells incapable of producing more than 25,000 gallons per day; domestic wells supplying 10 or fewer households; livestock wells; wells supplying water for exploration, production, and other activities permitted by the Railroad Commission of Texas; and jet wells used for domestic need. A number of aquifers within the state are not capable of producing 25,000 gallons per day and the pumpage limit often prevents the protective measures for which local districts have been created. These aquifers, because of low productivity, are susceptible to drought conditions and to heavy or dense land development. This "floor of regulation" has also discouraged the creation of groundwater conservation districts in some parts of the state, as most of the wells would be outside of a potential district's authority to protect, conserve, and preserve the groundwater resource.

County Authority in Designated PGMA's

SB 1 provided authority for counties in designated PGMA's to require certain actions to demonstrate water availability in order to obtain plat approval for land development. Counties in the Hill Country PGMA in south central Texas are attempting to exercise this authority. Counties, including Kendall and Hays counties, have used this authority in conjunction with either platting authority or on-site wastewater authority. Some difficulties are being experienced due to provisions of the Local Government Code limiting the types of developments that are subject to county platting authority.

Unconfirmed Groundwater Districts

SB 1 (§9.06) specifies that the enabling legislation for the groundwater districts created during the 71st through 74th Legislative Sessions would be automatically repealed unless the districts were confirmed by election before the second anniversary of the effective date of the Act (September 1, 1999). As such, SB 1 provides these districts two years to schedule and conduct their confirmation elections or the authority for the districts would be removed. No such time restriction was placed on the districts created during the 75th Legislative Session. Similar problems with confirmation elections may be expected unless specific time allowances are provided for conducting confirmation elections within either Chapter 36 or district-specific enabling legislation.

Fain v. Great Spring Water of America, Inc.; Groundwater Law

The Texas Supreme Court is currently considering a case, Fain v. Great Spring Waters of America, Inc. (No. 12-97-00044-CV, Tyler 1998 WL 39425, January 29, 1998, writ granted), with potential impact to Texas groundwater law. The Supreme Court has taken jurisdiction of an appeal and heard oral arguments regarding the rule of capture as related to this case on November 19, 1998. By accepting the case for review, the Supreme Court has indicated that at least some of its members may want to reconsider the rule of capture.

In late 1995, the bottling company of Great Spring Water of America, Inc. began withdrawing groundwater near Roher Springs in Van Zandt County to bottle and sell. The adjacent landowners in Henderson County sued contending that the company's pumpage had lowered water tables and caused them harm. The plaintiffs argued that withdrawing the groundwater was negligence and constituted nuisance and malice.

In 1996, the trial court granted summary judgment for the bottling company on the grounds that Texas law did not recognize a cause of action for plaintiff's claims because of the rule of capture. In January 1998, the 12th Court of Appeals in Tyler, in an unpublished opinion, affirmed and upheld the rule of capture. The plaintiffs argued that the rule of capture is outdated. The Court of Appeals stated that it had sympathy for

the landowners, but it could not overturn such well settled law. It stated that it would be more appropriate for the Texas Supreme Court or the legislature to "fashion a new rule if it should be more attuned to the demands of modern society."

RECOMMENDED CHANGES TO TEXAS WATER CODE, CHAPTERS 35 AND 36

The Texas Natural Resource Conservation Commission respectfully submits the following recommendations regarding changes to Chapter 35, Groundwater Studies and Chapter 36, Groundwater Conservation Districts. The recommendations are categorized under issue headings related to PGMA process clarification and groundwater management.

PGMA Process Clarification Recommendations

The Commission creation of a groundwater district in a designated PGMA, after the opportunity for local action, should be clarified. The provisions in §35.012 (d) for triggering the identification of areas not incorporated into districts, for Commission proposal of district boundaries, and for Commission proposal of district creation are not sufficiently outlined for the Commission to take or set out specific actions in its rules. The general reference in §35.012 (d) to Subchapter B, Chapter 36 for Commission district creation procedure is problematic. **It is recommended that the general reference should be replaced with specific references for Commission-initiated district creation authority and procedure.**

The time period allowed for landowner-initiated actions in a designated PGMA is not clear. **It is recommended that the opportunities for landowner actions in a designated PGMA should be separated as a specific section in Chapter 35 in order to clarify the procedure. It is suggested that language should be added to provide that the Commission may not consider a groundwater district creation in a designated PGMA until the conclusion of the next regular session of the Texas Legislature following the designation of the PGMA.**

Following the Commission designation of a PGMA, educational programming administered by the TAEX is timed too late for the education needs of local governments and landowners to carry out local district establishment options. Therefore, the statute should be clarified to provide that education occurs before and during the local initiative time frame. The availability of TAEX educational programming should be maintained throughout the PGMA process whereby the Executive Director identifies areas within the PGMA that have not been incorporated into a district and initiates efforts to either create a district or have area incorporated into an existing district. **It is recommended that Chapter 35 be amended to provide that the TAEX educational program be conducted following a Commission PGMA designation order if the Commission has determined that a groundwater district is needed.**

The requirement for an evidentiary hearing in the PGMA designation process does not encourage stakeholder participation, adds significant time delays in a contested case, and is resource intensive for both

the participating parties and affected state agencies. The Administrative Procedures Act does not apply to the PGMA process as the Commission's designation decision is not appealable. **It is recommended that the evidentiary hearing be replaced with a public meeting process for the Commission to receive comments on the Executive Director's PGMA report and recommendations. At the very least, the procedure for evidentiary hearings should be clarified specifically related to the criteria for determining party status.**

Groundwater Management Recommendations

The designation of groundwater management areas is often viewed as unnecessarily burdensome and complex. The designation of a management area is required prior to a Commission district creation action but has not been a part of the legislative creation process since 1989. The designation of a management area is a separate action from the district creation proceeding. **It is recommended that the petition process for the designation of groundwater management areas in Chapter 35 should be combined with the district creation process as provided in Subchapter B, Chapter 36. At the least, the rulemaking process for establishing management area boundaries should be replaced with a public hearing and order process.**

The language of §36.117 of the Water Code is confusing and difficult to interpret. Also, exemptions from water well permitting under this section limit the ability of locally created and governed groundwater conservation districts to manage their groundwater resources. Groundwater district rulemaking is subject to public hearings and input and would be appropriate for determining district-specific exemption needs based on district-specific groundwater conditions. **It is suggested that modifications to §36.117 are needed and should accomplish at least two objectives: (1) simplify the language so it can be easily understood, and (2) revise or eliminate the exemptions in favor of district rulemaking to establish exemptions.**

It is important for enough time to be given to the temporary boards of newly created districts to become organized and educated on the issues and to conduct the necessary public education prior to the scheduling and holding of the confirmation election. SB 1 placed a two-year time frame for previously created groundwater district to conduct confirmation elections or face repeal. Generally, enabling acts do not provide a specified time frame for conducting a confirmation election. No time restrictions requiring scheduling and conducting confirmation elections are placed on the groundwater districts which were created during the 75th Legislative Session. **It is recommended that Chapter 36 be amended to provide a definitive time frame for the temporary boards of these and any subsequently created districts to schedule and conduct the confirmation election. At a minimum, a confirmation election time frame should be included in district-specific enabling legislation.**

REFERENCES

Texas Agricultural Extension Service, 1998; *Groundwater Conservation Districts; Managing Texas Groundwater Resources*, Texas Agricultural Extension Service Publication No. B1612, October, 1998.

Texas Alliance of Groundwater Districts, 1997; *Texas Alliance of Groundwater Districts, Membership Directory and District Activities*, February 1997.

Texas Natural Resource Conservation Commission, 1995; *Underground Water Conservation Districts; Report to the 74th Legislature*, TNRCC Publication No. SFR-13, January, 1995.

_____, 1997; *Groundwater Conservation Districts; Report to the 75th Legislature*; TNRCC Publication No. SFR-053, February, 1997.

Texas Water Commission, 1987; *Activities of Underground Water Conservation Districts; Report to the 70th Legislature*, Texas Water Commission Report, January, 1987.

_____, 1989; *Underground Water Conservation Districts; A Report to the 71st Legislature*, Texas Water Commission Report, January, 1989.

_____, 1991; *Underground Water Conservation Districts; A Report to the 72nd Legislature*, Texas Water Commission Report, January, 1991.

_____, 1993; *Underground Water Conservation Districts; Report to the 73rd Legislature*, Texas Water Commission Report GP 93-05, January, 1993.

Texas Water Development Board, 1987; *Investigation of Alternative Methods of Financing Underground Water Districts*, TWDB Report No. LP-207, January, 1987.

APPENDIX 1. Texas Water Development Board Management Plan Certification Rules

CHAPTER 356 GROUNDWATER MANAGEMENT PLAN CERTIFICATION

- §356.1 Scope of Chapter
- §356.2 Definition of Terms
- §356.3 Required Management Plan
- §356.4 Consistency with Regional Water Plans
- §356.5 Required Content of Management Plan
- §356.6 Plan Submittal
- §356.7 Certification
- §356.8 Appeal of Denied Certification
- §356.9 Certification of Amendments

GROUNDWATER MANAGEMENT PLAN CERTIFICATION

Texas Administrative Code §§356.1 - 356.9

These rules are adopted under the authority of the Texas Water Code, §6.101, which provides the Texas Water Development Board with the authority to adopt rules necessary to carry out the powers and duties in the Texas Water Code and other laws of the State, including the requirement in Texas Water Code, §36.1072 for the Board to certify the administrative completeness of groundwater management plans.

§356.1. Scope of Chapter. This chapter shall govern the board's procedures for reviewing and certifying management plans as administratively complete.

§356.2. Definitions of Terms. The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise. Words defined in Texas Water Code, Chapter 36 and not defined here shall have the meanings provided in Chapter 36.

Amount of groundwater being used - The quantity of groundwater withdrawn or flowing from an aquifer naturally or artificially on an annual basis.

Approved regional water plan - A water plan developed pursuant to Texas Water Code, §16.053 and which has been approved by the board.

Artificial recharge - Increased recharge accomplished by the modification of the land surface, streams, or lakes to increase seepage or infiltration rates or by the direct injection of water into the subsurface through wells.

Board - Texas Water Development Board.

Conjunctive surface water management issues - Issues relating to the active use of both surface water and groundwater to achieve increased water supply or enhanced water quality.

District - Any district or authority created under Texas Constitution, Article III, §52 or Article XVI, §59 that has the authority to regulate the spacing of water wells, the production from water wells, or both.

Estimates - Calculations using best available data and methodologies specified in the management plan such that the quantifications will be reasonable for use by the district and can be tracked over time.

Executive administrator - The executive administrator of the board.

Management goals - The qualitative and quantitative ends toward which a district directs its efforts.

Management objectives - Specific, quantifiable, and time-based statements of desired future accomplishments or outcomes, each linked to a management goal, which set the individual priority for district strategies.

Management plan - The groundwater management plan required pursuant to Texas Water Code, §36.1071.

Most efficient use of groundwater - Those practices, techniques and technologies that the district determines will provide the least consumption of groundwater for each type of use balanced with the benefits of using groundwater.

Performance standards - Indicators or measures, each of which is linked to a management objective, used to evaluate effectiveness and efficiency of district activities by quantifying the results of actions and the impact of the results of activities. Evaluation of the effectiveness of district activities measures the accomplishments of the district. Evaluation of the efficiency of district activities measures how well resources are used to produce an output, such as the amount of resources devoted per unit of accomplishment.

Projected water demand - The quantity of water needed per annum for beneficial use during the period covered by the management plan. The demands shall be projected for the types of use that are included in the state water plan. Each type of use may be subdivided into sub-types by the district.

Projected water supply - The usable amount of groundwater available per annum under the district's management plan and the quantity of surface water available per annum during the period covered by the management plan.

Recharge - The addition of water from precipitation or runoff by seepage or infiltration to an aquifer from the land surface, streams, or lakes directly into a formation or indirectly by way of leakage from another formation.

Regional water plan - Regional water plan developed by a regional water planning group in each regional water planning area as provided by Texas Water Code, §16.053.

Surface water management entities - Political subdivisions as defined by Texas Water Code, Chapter 15, and identified from Texas Natural Resource Conservation Commission records which are granted authority to store, take, divert, or supply surface water either directly or by contract under Texas Water Code, Chapter 11, for use within the boundaries of a district.

Usable amount of groundwater - The quantity of groundwater of acceptable quality that is contained within the portion of an aquifer covered by a district's management plan and which is economically and legally retrievable for beneficial use.

§356.3. Required Management Plan. As required by Texas Water Code, §36.1071 and §36.1072, a district shall submit to the executive administrator a management plan that meets the requirements of §356.5 of this title (relating to Required Content of Management Plan). The management plan shall be submitted by existing districts not later than September 1, 1998. For districts created after or which require a confirmation election after September 1, 1997, the management plan shall be submitted not later than two years after the creation of the district or, if the district requires confirmation, not later than two years after the election confirming the district. The district may review the plan annually, and shall readopt the plan with or without revisions at least once every five years.

§356.4. Consistency with Regional Water Plans. Management plans developed after the board approval of a regional water plan, or amendments to management plans developed after the approval of a regional water plan must be consistent with the approved regional water plan for each region in which any part of the district is located. If approval of a regional water plan makes the management plan inconsistent, the district shall revise its management plan within the five-year rotation specified in §356.3 of this title (relating to Required Management Plan).

§356.5. Required Content of Management Plan.

- (a) The executive administrator shall certify a management plan as administratively complete if it uses a planning period of at least ten years and contains the following:
 - (1) management goals, as applicable:
 - (A) providing the most efficient use of groundwater;
 - (B) controlling and preventing waste of groundwater;
 - (C) controlling and preventing subsidence;
 - (D) addressing conjunctive surface water management issues; and
 - (E) addressing natural resource issues which impact the use and availability of groundwater, and which are impacted by the use of groundwater;
 - (2) performance standards and management objectives that the district will use to achieve the management goals in paragraph (1) of this subsection;
 - (3) actions, procedures, performance, and avoidance, necessary to effectuate the management plan, including specifications and proposed rules, all specified in as much detail as possible; and
 - (4) estimates of:
 - (A) the existing total usable amount of groundwater in the district;
 - (B) the amount of groundwater being used within the district on an annual basis;
 - (C) the annual amount of recharge to the groundwater resources within the district and annual amount of additional natural or artificial recharge that could result from

implementation of feasible methods for increasing the natural or artificial recharge;
and

- (D) the projected water supply and demand within the district;
 - (5) details of how the district will manage groundwater supplies in the district, including a methodology by which a district will track its progress on an annual basis in achieving its management goals.
- (b) The management goals, performance standards and management objectives required in subsections (a)(1) and (2) of this section and the actions, procedures, performance and avoidance specified in subsection (a)(3) of this section are to be established by each district based on specific needs of that district. Each district may use any information available to it, including an existing groundwater management plan of the district, to make the estimates required in subsection (a) of this section and to develop the plan required by these rules. The district may use information available from other sources, including the board, if such information is sufficient in the district's judgment to make acceptable estimates. The district determines the level of data that is sufficient to satisfy these requirements. The district may require different levels of data for aquifers or for portions of aquifers over which that the district has management authority, compared with aquifers over which the district has no management authority, and also may determine the levels of data necessary based on the level of importance of the aquifer.
- (c) In addition to the requirements of subsection (a) of this section, the management plan shall address water supply needs in a manner that does not conflict with an approved regional water plan for each region in which any part of the district is located.
- (d) The requirement of subsection (c) of this section may be waived if the executive administrator determines that conditions justify such waiver. Waiver will only be granted upon the written request of the district accompanied by evidence acceptable to the executive administrator in form and substance of conditions justifying such waiver.

§356.6. Plan Submittal.

- (a) A district requesting review and certification of the administrative completeness of its management plan shall submit to the executive administrator the following:
- (1) a copy of the adopted management plan;
 - (2) a certified copy of the district's resolution adopting the plan;
 - (3) evidence that the plan was adopted after notice and hearing;
 - (4) evidence that, following notice and hearing, the district coordinated in the development of its management plan with surface water management entities; and
 - (5) evidence of consistency with and any conflict between the proposed management plan and an approved regional water plan for each region in which any part of the district is located, if such regional water management plan has been approved by the board. To meet the requirements of this paragraph, the district shall send, by certified mail, return receipt requested, to the chair of each regional water planning group formed under Texas Water Code, §16.053(c) for each region in which any part of the district is located, a letter

asking the regional water planning group to review the management plan for consistency with the regional water plan, and asking the regional water planning group to specify any areas of conflict between the management plan and the regional water plan. The district shall provide to the board a copy of any comments on the management plan provided by the regional water planning group. The executive administrator, with input from the regional water planning groups, will determine if there are any conflicts between the management plan and the regional water plans.

- (b) The plan or revised plan under §356.7 of this title (relating to Certification) shall be considered submitted to the board when it is received in the Austin offices of the board.

§356.7. Certification. Within 60 days of receipt of a management plan, the executive administrator shall certify the plan as administratively complete if it complies with the requirements of §356.5 of this title (relating to Required Content of Management Plan) or shall deny certification of the plan if it does not comply with such requirements. Within five days of making a certification determination, the executive administrator shall notify the district in writing of the determination. If certification is denied, the executive administrator shall include written reasons for the denial with the notice of denial. If the executive administrator denies certification, the district may submit a revised management plan for review and certification within 180 days from receipt of notice that the executive administrator has denied certification. The review and certification of a revised management plan must comply with all the requirements of this chapter pertaining to the review and certification of originally submitted management plans.

§356.8. Appeal of Denied Certification.

- (a) If the executive administrator denies certification of a management plan or a revised management plan, the district submitting the plan may appeal the denial to the board by notifying the executive administrator in writing of its intent to appeal, not later than 60 days after receipt of the executive administrator's written notice of denial. Not later than 30 days after filing its notice of intent to appeal, a district shall submit to the executive administrator in writing points of appeal addressing each of the executive administrator's reasons for denial of certification. The written points of appeal shall not exceed 50 pages (double spaced, single sided, 8.5" x 11"). The board shall hear the appeal at the first regularly scheduled meeting of the board to occur after the expiration of 30 days from the receipt of the district's written points of appeal. Written notice of appeal and written points of appeal shall be considered to be received by the executive administrator when received in the Austin offices of the board. The executive administrator may file a written response to the district's points of appeal.
- (b) The district shall designate one or more representatives to present the appeal to the board. The district's representatives shall have not more than 20 minutes total to orally present the district's points of appeal to the board at the appropriate time during the meeting set to consider the appeal. After the district presents points the executive administrator or the executive administrator's designee may present an oral response not to exceed 20 minutes in length. The board may extend the presentation time limits. At the close of the executive

administrator's response, the district's representative shall be allowed up to five minutes of rebuttal. At the close of rebuttal the board may discuss the matter and direct the executive administrator to either certify or withhold certification of the management plan. The board's decision shall be the final action on certification of the management plan and may not be appealed.

§356.9. Certification of Amendments. A district shall submit all amendments to the management plan to the board within 60 days of adoption. Within 60 days of receipt of amendments to the management plan, the executive administrator either shall notify the district that the amendments do not substantially affect the management plan, or shall provide the district with written notification of certification or denial of certification of the plan as amended as administratively complete. The requirements of this chapter apply to any amendment to a district's management plan that substantially affects the management plan.

APPENDIX 2. Major and Minor Aquifers Maps

Major Aquifer Map - INSERT

Force Odd Page - Back of Major Aquifer Map

Minor Aquifer Map - INSERT

Force Odd Page - Back of Minor Aquifer Map

The Major and Minor Aquifer Maps of Texas, by the Texas Water Development Board, are produced in order to illustrate, in a regional context, the lateral extent of various aquifers, and are not intended as a substitute for site-specific, hydrogeologic evaluations. On a continuing basis, independent, hydrogeologic investigative efforts such as the groundwater resource evaluation currently in progress in Andrews County, may result in new data which could justify revisions to projections delineating the lateral extent of both major and minor aquifers.

APPENDIX 3. Priority Groundwater Management Area Studies and Reports

Area 1; Williamson and Parts of Adjacent Counties

Duffin, Gail L., and S.P. Musick, 1989, *Critical Area I, Part I: Evaluation of Ground-Water Resources Within Bell, Burnet, Travis, Williamson and Parts of Adjacent Counties, Texas*; Texas Water Development Board and Texas Water Commission joint file report, August 1989, 57 pp.

Duffin, G. and S. Musick, 1991, *Evaluation of Ground-Water Resources in Bell, Burnet, Travis, Williamson and Parts of Adjacent Counties, Texas*; Texas Water Development Board Report 326, January 1991, 105 pp.

Area 2; Hill Country Area

Cross, Brad L., and B. Bluntzer, 1990, *Ground Water Protection and Management Strategies for the Hill Country Area: A Critical Area Ground Water Study*; Texas Water Commission and Texas Water Development Board joint file report, February 1990, 18 pp.

Bluntzer, Robert L., 1992, *Evaluation of the Ground-Water Resources of the Paleozoic and Cretaceous Aquifers in the Hill Country of Central Texas*; Texas Water Development Board Report 339, 130 pp.

Area 3; Reagan, Upton, and Midland County Area

Kohler, Dale P., 1990, *Ground Water Protection and Management Strategies for Reagan, Upton, and Midland Counties*; Texas Water Commission file report, March 1990, 28 pp.

Ashworth, J.B. and P.C. Christian, 1989, *Evaluation of Ground-Water Resources in Parts of Midland, Reagan, and Upton Counties, Texas*; Texas Water Development Board Report 312, February 1989, 52 pp.

Area 4; Briscoe, Swisher, and Hale County Area

Hart, Margaret, 1990, *Briscoe, Hale, and Swisher Counties, Texas: A Critical Area Ground Water Study*; Texas Water Commission file report, February 1990, 34 pp.

Nordstrom, Phil L. and J.A.T. Fallin, 1989, *Evaluation of Ground-Water Resources in Briscoe, Hale, and Swisher Counties, Texas*; Texas Water Development Board Report 313, February 1989, 33 pp.

Area 5; Central Texas (Waco) Area

Nelson, Katherine H., and S.P. Musick, 1990, *Ground Water Protection and Management Strategies for the Central Texas (Waco) Area*; Texas Water Commission file report, March 1990, 39 pp.

Baker, Bernard, Duffin, G., Flores, R., and T. Lynch, 1990, *Evaluation of Water Resources in Part of Central Texas*; Texas Water Development Board Report 319, January 1990, 67 pp.

Area 6; East Texas Area

Weegar, Mark A., 1990, *Ground Water Protection and Management Strategies for East Texas*; Texas Water Commission file report, March 1990, 34 pp.

Preston, Richard, and S. Moore, 1991, *Evaluation of Ground-Water Resources in the Vicinity of the Cities of Henderson, Jacksonville, Kilgore, Lufkin, Nacogdoches, Rusk, and Tyler in East Texas*; Texas Water Development Board Report 327, February 1991, 51 pp.

Area 7; Lower Rio Grande Area

Russell, Jimmie N., 1990, *Ground Water Protection and Management Strategies for Cameron, Hidalgo, Starr, and Willacy Counties: A Critical Area Ground Water Study*; Texas Water Commission file report, March 1990, 32 pp.

McCoy, T. Wesley, 1990, *Evaluation of Ground-Water Resources in the Lower Rio Grande Valley, Texas*; Texas Water Development Board Report 316, January 1990, 48 pp.

Area 8; Trans-Pecos Area

Williamson, John A., 1990, *Ground Water Protection and Management Strategies for the Trans-Pecos Area*; Texas Water Commission file report, March 1990, 65 pp.

Ashworth, John B., 1990, *Evaluation of Ground-Water Resources in Parts of Loving, Pecos, Reeves, Ward, and Winkler Counties, Texas*; Texas Water Development Board Report 317, January 1990, 51 pp.

Area 9; Dallam County Area

Hart, Margaret A., 1990, *Dallam County: A Critical Area Ground Water Study*; Texas Water Commission file report, February 1990, 35 pp.

Christian, Prescott, 1989, *Evaluation of Ground-Water Resources in Dallam County, Texas*; Texas Water Development Board Report 315, March 1989, 27 pp

Area 10; Fort Bend County Area

Williamson, John A., 1990, *Ground Water Protection and Management Strategies for Fort Bend County*; Texas Water Commission file report, March 1990, 54 pp.

Thorkildsen, David, 1990, *Evaluation of Water Resources of Fort Bend County, Texas*; Texas Water Development Board Report 321, January 1990, 21 pp.

Area 11; North-Central Texas Area

Ambrose, Mary L., 1990, *Ground-Water Protection and Management Strategies for North-Central Texas: A Critical Area Ground-Water Study*; Texas Water Commission file report, March 1990, 45 pp.

Baker, Bernard, Duffin, G., Flores, R., and T. Lynch, 1990, *Evaluation of Water Resources in Part of North Central Texas*; Texas Water Development Board Report 318, January 1990, 67 pp.

Area 12; Orange-Jefferson Counties Area

Weegar, Mark, 1990, *Ground Water Protection and Management Strategies for Orange and Jefferson Counties*; Texas Water Commission file report, March 1990, 27 pp.

Thorkildsen, David and R. Quincy, 1990, *Evaluation of Water Resources of Orange and Eastern Jefferson Counties, Texas*; Texas Water Development Board Report 320, January 1990, 34 pp.

Area 13; El Paso County Area

Estepp, John D., 1990, *Ground Water Protection and Management Strategies for El Paso County: A Critical Area Ground Water Study*; Texas Water Commission file report, February 1990, 32 pp.

Ashworth, John B., 1990, *Evaluation of Ground-Water Resources in El Paso County, Texas*; Texas Water Development Board Report 324, March 1990, 25 pp.

El-Hage, Albert and Daniel W. Moulton, 1998, *Evaluation of Selected Natural Resources in El Paso County, Texas*; Texas Parks and Wildlife file report, May 1998, 24 pp.

Musick, Steven P., 1998, *El Paso County Priority Groundwater Management Area Report*; Texas Natural Resource Conservation Commission PGMA file report, August 1998, 46 pp.

Preston, Richard D., Coker, Douglas, Mathews, Jr., Raymond C., April 1998, Changes in Groundwater Conditions in El Paso County, Texas 1988-1998; Texas Water Development Board, Open-File Report 98-02, 19 pp.

Area 14; Wintergarden Area

Stengl, Burgess, 1991, *Ground Water Protection and Management Strategies for the Wintergarden Area*; Texas Water Commission file report, May 1991, 56 pp.

McCoy, T. Wesley, 1991, *Evaluation of the Ground-Water Resources of the Western Portion of the Winter Garden Area, Texas*; Texas Water Development Board Report 334, October 1991, 64 pp.

Area 15; Southernmost High Plains Area

Oswalt, Jack, 1991, *Ground Water Protection and Management Strategies for the Southernmost High Plains Area, Texas*; Texas Water Commission file report, August 1991, 55 pp.

Ashworth, J.B., Christian, P.C., and T.C. Waterreus, 1991, *Evaluation of Ground-Water Resources in the Southernmost High Plains of Texas*; Texas Water Development Board Report 330, July 1991, 39 pp.

Area 16; North Texas Alluvium and Paleozoic Outcrops

Bradley, R.G. and Petrini, H., 1998; *Priority Groundwater Management Area Update on Area 16, Rolling Prairies Region of North Central Texas*, Texas Water Development Board Open File Report 98-03, April 1998, 20 pp.

Duffin, Gail L., and Barbara E. Beynon, 1992, *Evaluation of Water Resources in Parts of the Rolling Prairies Region of North Central Texas*; Texas Water Development Report 337, March 1992, 93 pp.

El-Hage, Albert and Daniel W. Moulton, 1998, *Evaluation of Selected Natural Resources in Parts of the Rolling Plains Region of North-Central Texas*; Texas Parks and Wildlife file report, April 1998, 65 pp.

Mills, Kelly W., 1998, *North Texas Alluvium and Paleozoic Outcrop Priority Groundwater Management Area Report*; Texas Natural Resource Conservation Commission PGMA file report, August 1998, 95 pp.

APPENDIX 4. Groundwater Conservation District Contacts

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Phone No. (915) 469-3988
FAX No. (915) 469-3989
(Member - Texas Alliance of Groundwater
Districts)

Mr. Lonnie Stewart, Manager
**Live Oak Underground Water Conservation
District**

P.O. Box 980
George West, Texas 78022
Phone No. (512) 449-1151
FAX No. (512) 449-2780
(Member - Texas Alliance of Groundwater Districts)

The Honorable Max Townsend
Gaines County Judge
**Llano-Estacado Underground Water
Conservation District**

County Courthouse
Seminole, Texas 79360
Phone No. (915) 758-
FAX No. (915) 758-4031

Ms. Luana Buckner, Manager
**Medina County Underground Water
Conservation District**

1613 Avenue K, Suite 105
Hondo, Texas 78861
Phone No. (830) 741-3162
FAX No. (830) 741-3162
(Member - Texas Alliance of Groundwater Districts)

Mr. Harvey Everheart, Manager

Mesa Underground Water Conservation District

P.O. Box 497
Lamesa, Texas 79331
Phone No. (806) 872-9205
FAX No. (806) 872-2838
(Member - Texas Alliance of Groundwater Districts)

Mr. Richard S. Bowers, Manager
**North Plains Groundwater Conservation District
No. 2**

P.O. Box 795
Dumas, Texas 79029
Phone No. (806) 935-6401
FAX No. (806) 935-6633
(Member - Texas Alliance of Groundwater Districts)

Mr. C. E. Williams, Manager
**Panhandle Ground Water Conservation District
No. 3**

P.O. Box 637
White Deer, Texas 79097
Phone No. (806) 883-2501
FAX No. (806) 883-2162
(Member - Texas Alliance of Groundwater Districts)

Manager
**Permian Basin Underground Water Conservation
District**

P.O. Box 1314
Stanton, Texas 79782
Phone No. (915) 756-2136
FAX No. (915) 756-2068
(Member - Texas Alliance of Groundwater Districts)

Ms. Cindy Cawley, Manager
**Plateau Underground Water Conservation &
Supply District**

P.O. Box 324
Eldorado, Texas 76936
Phone No. (915) 853-2121
FAX No. (915) 853-3821
(Member - Texas Alliance of Groundwater Districts)

Mr. James A. Holt, Jr., President
Plum Creek Conservation District

P.O. Box 328
Lockhart, Texas 78644
Phone No. (512) 398-2383
FAX No.

Real-Edwards Conservation and Reclamation District

Mr. Buddy Baldrige

Salt Fork Underground Water Conservation District

P.O. Box 6
Jayton, Texas 79528
Phone No. (806) 237-9125

Mr. Gary Walker, Independent Contractor

Sandy Land Underground Water Conservation District

P.O. Box 130
Plains, Texas 79365
Phone No. (806) 456-2155
FAX No. (806) 456-5655
(Member - Texas Alliance of Groundwater Districts)

Mr. Eugene Vinson, Manager

Santa Rita Underground Water Conservation District

P.O. Box 849
Big Lake, Texas 76932
Phone No. (915) 884-2893
FAX No. (915) 884-2445
(Member - Texas Alliance of Groundwater Districts)

The Honorable Norris Monroe

Saratoga County Judge
Saratoga Underground Water Conservation District

P.O. Box 231
Lampasas, Texas 76550
Phone No. (512) 556-8271

Mr. Lee Arrington, Manager

South Plains Underground Water Conservation District

P.O. Box 986
Brownfield, Texas 79316
Phone No. (806) 637-7467
FAX No. (806) 637-4364
(Secretary - Texas Alliance of Groundwater Districts)

Mr. Cameron Cornett, Manager

Springhills Water Management District

P.O. Box 771
Bandera, Texas 78003
Phone No. (830) 796-7260

FAX No. (830) 796-8262
(Parliamentarian - Texas Alliance of Groundwater Districts)

Mr. Bob Jennings, Manager

Sterling County Underground Water Conservation District

P.O. Box 359
Sterling City, Texas 76951
Phone No. (915) 378-2704
FAX No. (915) 378-2030
(Member - Texas Alliance of Groundwater Districts)

Ms. Cindy Cawley, Manager

Sutton County Underground Water Conservation District

P.O. Box 707
Sonora, Texas 76950
Phone No. (915) 387-2369
FAX No. (915) 387-5737
(Member - Texas Alliance of Groundwater Districts)

Ms. Helen D. Cates, Office, Manager

Uvalde County Underground Water Conservation District

P.O. Box 1419
Uvalde, Texas 78802
Phone No. (830) 278-8242
FAX No. (830) 278-1904
(Member - Texas Alliance of Groundwater Districts)

Mr. Ed Walker, Manager

Wintergarden Groundwater Conservation District

P.O. Box 1433
Carrizo Springs, Texas 78834
Phone No. (830) 876-3801
FAX No. (830) 876-3782
(Non-voting Member - Texas Alliance of Groundwater Districts)

The Honorable Jake Brisbin, Jr.
Presidio County Judge
**Presidio County Underground Water
Conservation District**
P.O. Box 606
Marfa, Texas 79843-0606
Phone No. (915)-729-4452
FAX No. (915) 729-4453

CREATED BUT UNCONFIRMED DISTRICTS

The Honorable Jon H. Burrows
Bell County Judge (from January 1, 1999)
**Clearwater Underground Water Conservation
District**
P.O. Box 768
Belton, Texas 76513-0768
Phone No. (817) 933-5105
FAX No. (817) 933-5179

Mr. Richard Albus, Chairman
**Haskell/Knox Underground Water Conservation
District**
P.O. Box 214
Munday, Texas 76371
Phone No. (940) 422-4577
FAX No. (940) 422-4601

Mr. Mark Jones, Temporary Director
**Menard County Underground Water
Conservation District**
P.O. Box 185
Menard, Texas 76859
Phone No. (915) 396-4524
FAX No. (915) 396-4429

Mr. Robert Jacobson, President
**Oldham County Underground Water
Conservation District**
Rt 1, Box 9
Adrian, Texas 79001
Phone No. (806) 538-6345
FAX No.

The Honorable Jimmy Martinez
Bee County Judge
Bee County Groundwater Conservation District
105 West Corpus Christi
Beeville, Texas 78102
Phone No.
FAX No.

Mr. Edward Springs, Temporary Director
**Guadalupe County Groundwater Conservation
District**
307 West Court Street
Seguin, Texas 78155
Phone No.
FAX No.

DISTRICTS CREATED BUT FAILED CONFIRMATION

**Central Texas Underground Water Conservation
District**
(Failed August 28, 1989 election)

**Llano-Uplift Underground Water Conservation
District**
(Failed August 30, 1993 election)

**Rolling Plains Underground Water Conservation
District**
(Failed June 19, 1994 election)

San Patricio Groundwater Conservation District
(Failed January 17, 1997 election)

DISSOLVED DISTRICTS

Martin County Underground Water Conservation
District No. 1

(Dissolved by Legislature in 1985)

ABOLISHED DISTRICTS

Edwards Underground Water District
(June 28, 1996)