

# Priority



## *Groundwater Management Areas*

Overview and Frequently Asked Questions



# **Priority Groundwater Management Areas**

## **Overview and Frequently Asked Questions**

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### **Disclaimer**

The purpose of this publication is to present useful information about the priority groundwater management area (PGMA) process. It is not intended to furnish specific legal advice or to render a legal opinion. If you are seeking specific legal advice, please consult with an attorney.



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# *Basic PGMA process*

## *10 steps for creating a PGMA in Texas*

1. Areas with groundwater concerns are identified by the Texas Commission on Environmental Quality (TCEQ) and the Texas Water Development Board (TWDB).
2. The public in the area is asked to participate in the process.
3. Studies are requested from the TWDB and the Texas Parks and Wildlife Department.
4. The executive director of the TCEQ completes a report on the area.
5. Recommendations are made for or against designating the area as a PGMA and for management of the groundwater resources in the area.
6. The public is notified of the TCEQ report and recommendations.
7. If the area is recommended for designation as a PGMA, a hearing is held and citizens are allowed to enter evidence for consideration.
8. The hearing's judge presents recommendations to the TCEQ on the proposed designation and district creation.
9. The three-member TCEQ commission determines whether the area will be designated as a PGMA and makes a recommendation on groundwater management.
10. The TCEQ recommendation is provided to the affected counties and some form of groundwater management must be created by affected citizens (local voters).



**T**he State of Texas has set up a process to identify priority areas where the groundwater is at greatest risk and to establish management of the groundwater through local governance.

This process, known as the Priority Groundwater Management Area (PGMA) process, is designed to protect the interests of Texans and to address the security of our water supplies.

Because supplies are limited in many areas of the state, competition for water is rising among groups and individuals in Texas. Also, severe water quality problems in certain areas are prompting the state to step in to make sure that measures are being taken to improve the water.

To better protect their own interests as well as those of the state, Texas residents need to understand:

- Where their water comes from, how it is used, and how supplies are replenished
- Whether their local water supplies are expected to be adequate and safe in the future
- How the state is addressing problems of water shortages, subsidence, and contamination

- How to participate in decisions regarding and the management process for local water supplies

## Texas water sources and uses

Most freshwater used in Texas comes from groundwater or surface water. Groundwater filters down from the earth's surface and accumulates underground in aquifers. Surface water is found in ponds, lakes, rivers, streams, and bays. Of the 16.5 million acre-feet of water we use annually in Texas, about 60 percent comes from groundwater and 40 percent comes from surface water.

Most of the groundwater—about 80 percent—used in Texas is for agriculture. Although most cities depend on surface water, groundwater is used by several large cities such as San Antonio, Houston, El Paso, and Lubbock. Until subsidence became an issue in the 1970s, Houston relied heavily on groundwater.

# Aquifers

**T**exas aquifers are diverse in their geological structure, the amount of water they store, the amount of water that can be replenished, and the rate at which water moves through the porous rock, sand, and gravel. The water in an aquifer can either be stored there or be transmitted to a well or spring.

There are two types of aquifers: confined and unconfined. The two types respond differently to pumping (water leaving) and infiltration (water entering).

## Confined aquifers

A confined aquifer is a layer of permeable material that contains water held between two layers of impermeable materials, such as dense clay (Fig. 1).

Confined aquifers can have a limited recharge area, which is the land surface area where the groundwater is replenished. In the recharge area, permeable aquifer material—such as porous rock, sand and gravel—is near or exposed to the surface and allows rainfall to percolate into the aquifer.

Confined aquifers are often slow to recharge. When a well is drilled into a confined aquifer, the water will rise in the well and can even rise to the surface under artesian conditions—that is, when there is enough pressure underground to force the water to flow upward, as in a fountain.

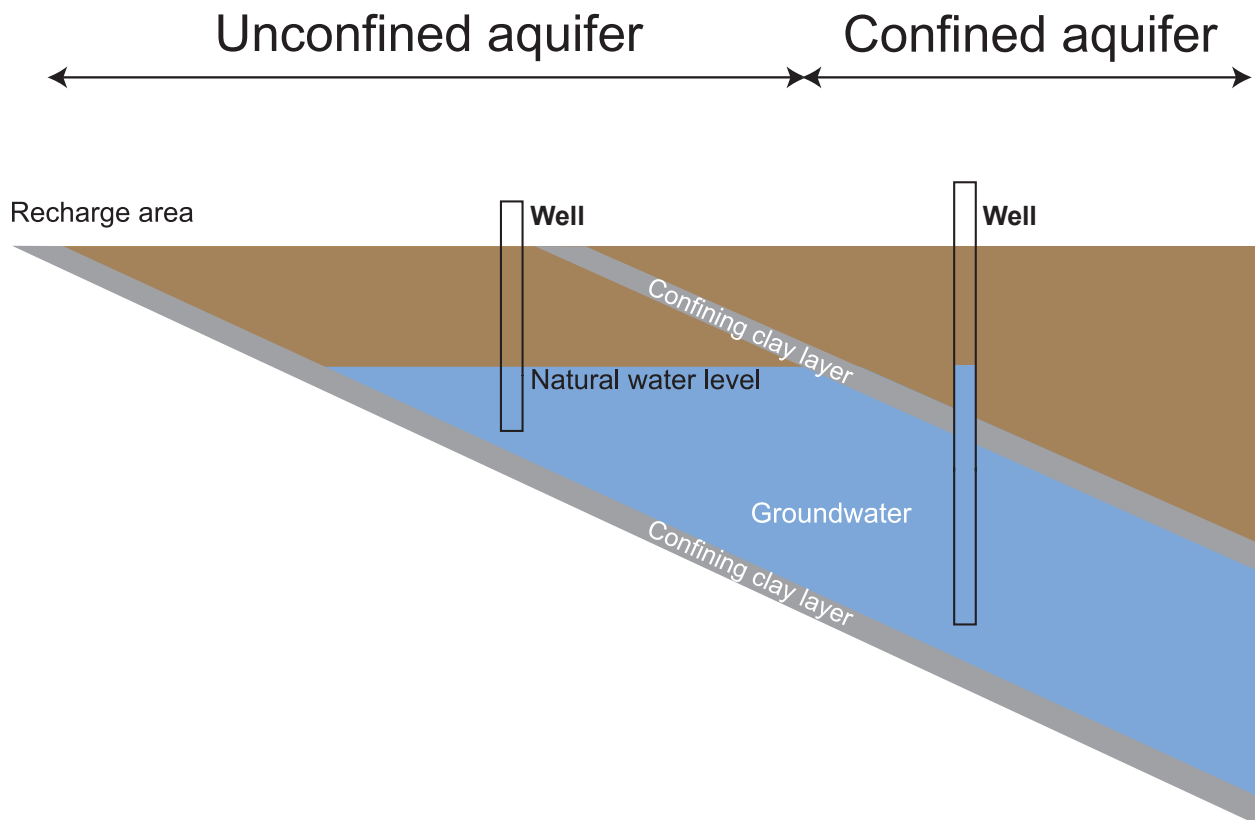
## Unconfined aquifers

An unconfined aquifer is a layer of permeable water-bearing material that has a confining layer of material beneath it and permeable soil above it. These aquifers are more easily replenished, as the permeable land surface materials on top allow water to seep into all segments of the aquifer.

Some aquifers are readily replenished by rainfall; others are not. Aquifers that are easily recharged are more vulnerable to contamination by foreign materials. If an aquifer is depleted or changing, it is also susceptible to encroachment by other water masses, such as mineralized or salty water.

An aquifer can become depleted if more water is pumped out than is replenished. An example is the Ogallala aquifer, which underlies most of the High Plains of West Texas and provides two-thirds of all groundwater used in the state. It is becoming depleted because it is extremely slow to recharge, yet its pumping demands are very high.

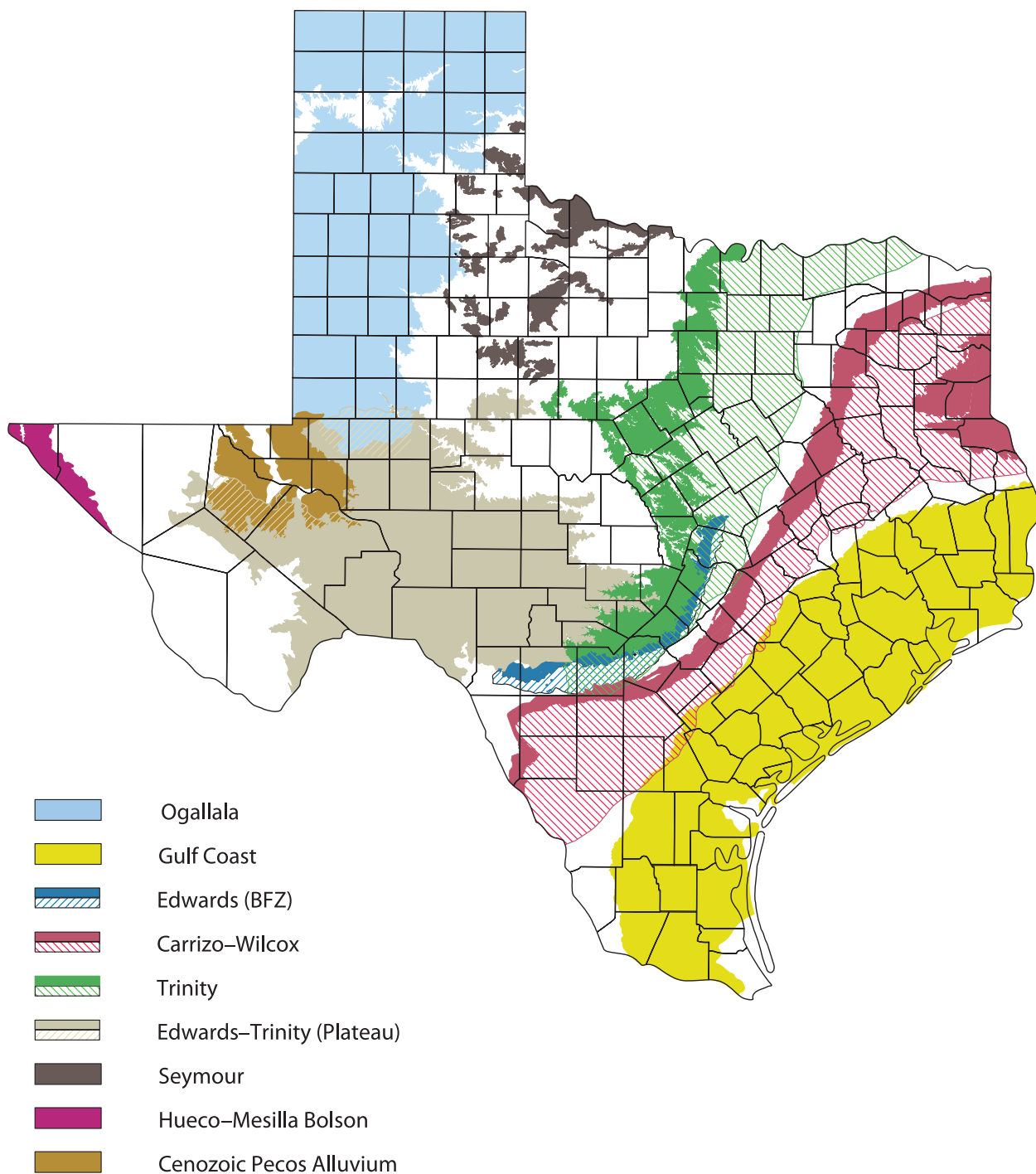




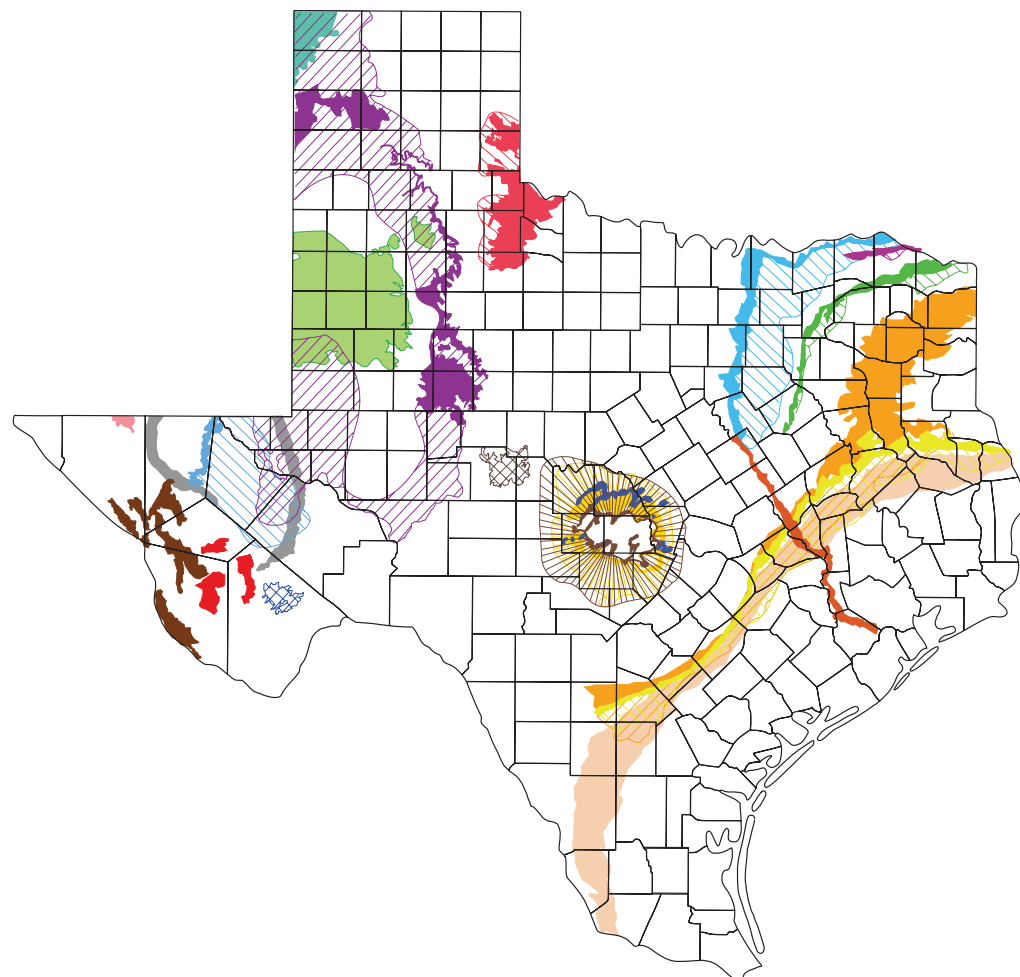
**Figure 1: Confined and unconfined aquifers. A confined aquifer has a restricting layer on top and bottom. There is no restricting layer on top of an unconfined aquifer, which allows water from the ground surface to recharge the aquifer.**

According to the Texas Water Development Board (TWDB), nine aquifers supply about 96 percent of the groundwater we use in Texas. The water board has identified three types of aquifers according to the amount of water they supply and on their geographical size:

- Major aquifers supply water to large areas of the state (Fig. 2).
- Minor aquifers supply water to small areas or relatively small amounts of water to large areas of the state (Fig. 3).
- Locally significant aquifers supply small amounts of water to a few users.



**Figure 2: Major aquifers in Texas. Nine major aquifers account for more than 96 percent of all groundwater withdrawals in Texas.**



- |                    |                               |
|--------------------|-------------------------------|
| Brazos River       | Rita Blanca                   |
| West Texas Bolsons | Edwards–Trinity (High Plains) |
| Lipan              | Dockum                        |
| Yegua Jackson      | Rustler                       |
| Ingeous            | Capitan Reef Complex          |
| Sparta             | Blaine                        |
| Queen City         | Bone Spring–Vicorio Peak      |
| Nacatoch           | Marble Falls                  |
| Blossom            | Marathon                      |
| Woodbine           | Ellenburger–San Saba          |
|                    | Hickory                       |

**Figure 3: Minor aquifers in Texas. Twenty-one minor aquifers account for almost 4 percent of all groundwater withdrawals.**



# Groundwater issues

## Shortages

**W**ater shortages occur when more water is used to meet the demands (such as for drinking, industry, and agriculture) than is available annually through rainfall and recharge of lakes and aquifers.

Shortages of surface water can affect the groundwater supply because they can lead to greater dependency on and demand for groundwater.

The process of removing more groundwater than is being replenished is called water mining. Water mining may not affect users much in the short term, but over time as the aquifer becomes depleted, the impacts can become significant. The stress on the water supply can also impair the aquifer's ability to supply all users during a drought.

## Subsidence

Occasionally, groundwater withdrawals cause the land to sink, or subside. Land subsidence can greatly affect areas close to the Gulf of Mexico, where the land elevation above sea level is relatively small.

Subsidence has been a serious issue for several counties in Texas, including Harris (Houston), Galveston, and Fort Bend counties, which have special water conservation districts to more effectively prevent subsidence.

## Contamination

Groundwater becomes contaminated when undesirable substances enter or are concentrated in the groundwater supply. In unconfined and shallow aquifers or those that are recharging rapidly (such as the Edwards Aquifer in Central Texas), contaminants can move quickly from the soil surface into the groundwater system.

Aquifers can also become contaminated through wells that have been abandoned or improperly cased (such as water wells and oil-field wells). These wells can provide a conduit for contaminants to move from the surface to groundwater, or allow co-mingling of poor-quality water and fresh water zones.

A major contaminant for groundwater sources is saltwater. Saltwater intrusion occurs when a freshwater aquifer is connected with a mineralized or saltwater source. As more water is removed from the groundwater source than is replenished, the mineralized or saltwater begins to move into the freshwater zone.

# Groundwater management

**I**n Texas, water rights depend on whether the water is surface water or groundwater.

Surface water belongs to the State of Texas. Without a permit, landowners can use surface water only for domestic and livestock purposes. Other uses such as irrigation, manufacturing, or power generation require the state's permission through an appropriated water right, which is granted through a permit.

Groundwater is governed by the rule of capture, which grants a landowner the right to capture the water beneath his or her property. This right of capture extends to whatever water is available, regardless of the effects of that pumping may have on neighboring water wells, unless the landowner is wasting the water or is negligently causing land subsidence.

Groundwater may be managed either by individual landowners under the rule of capture or by locally governed bodies called groundwater conservation districts (GCDs) (Fig. 4).

Several other legal institutions also influence groundwater management:

- **Regional water planning groups** are responsible for determining the needs and potential water supply for their planning areas.
- **Groundwater management areas** provide boundaries to encourage the cooperation of management agencies and research in suitable areas.
- **PGMAs** are designated as regions with problems or potential problems with water quantity or quality.

## Regional water planning groups

Since Senate Bill 1 was passed in 1997, Texas has been using a regional water planning process to develop a state water plan. Each of the 16 regions in the state is represented by at least 11 interest groups that work together to create that region's 50-year water plan. The first set of regional plans has been incorporated into a state water plan, *Water for Texas-2002*.

The state requires that each region work on a 5-year cycle to identify future water demands and develop a plan to meet those needs. Each region works with water suppliers, cities, state and federal agencies, river authorities, and other stakeholders to determine water demands by municipalities, industry, and agriculture. Regions use local management plans from river authorities and GCDs, groundwater availability models, and other research sources to determine the suitability and availability of potential water supplies.

## Groundwater management areas

The TWDB has designated 16 groundwater management areas to cover all major and minor aquifers in the state. When feasible, the bound-

aries of the groundwater management area coincide with the boundaries of an aquifer or related aquifers. Some political boundaries were also considered when the groundwater management areas were delineated (Fig. 5).

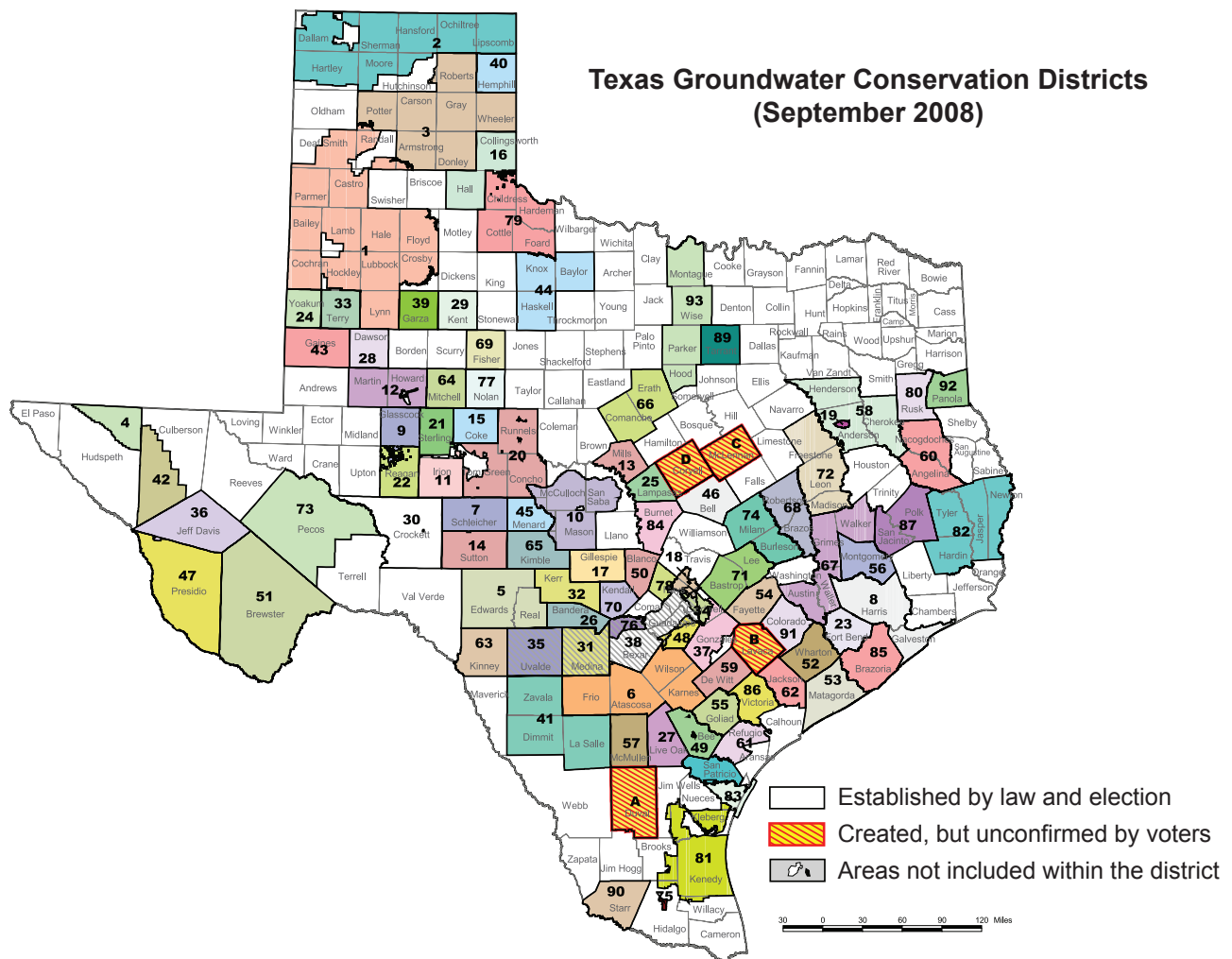
If a groundwater management area includes more than one groundwater conservation district, those districts must engage in a joint planning process, including at least an annual meeting. The districts must jointly determine the desired future conditions for the management area. The results of this joint

planning process are provided to TWDB to determine groundwater availability in the management area.

Groundwater management areas are identified to coordinate groundwater management and planning.

## Groundwater conservation districts

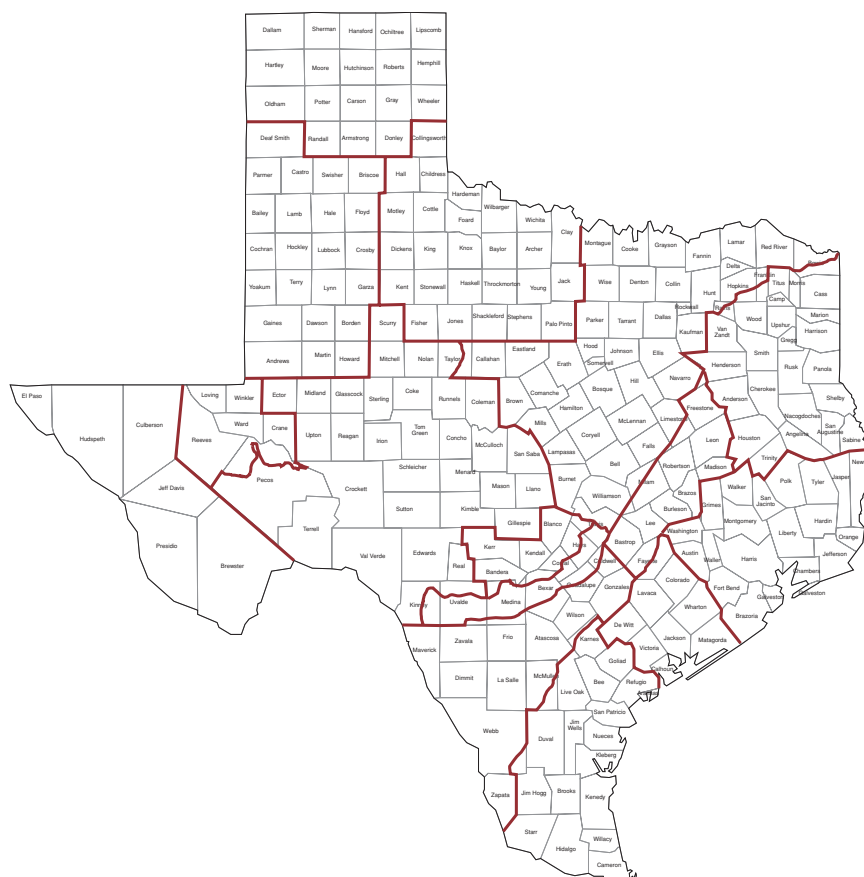
Groundwater conservation districts are units of local government with locally elected boards that develop and implement



**Figure 4: Groundwater conservation districts in Texas. These districts are locally governed bodies elected to manage groundwater.**



- 1 High Plains UWCD No 1 – 9/29/1951
  - 2 North Plains GCD – 1/2/1955
  - 3 Panhandle GCD – 1/21/1956
  - 4 Hudspeth County UWCD No. 1 – 10/5/1957
  - 5 Real Edwards CRD – 5/30/1959
  - 6 Evergreen UWCD – 8/30/1965
  - 7 Plateau UWCD – 3/4/1974
  - 8 Harris-Galveston Subsidence District – 4/23/1975
  - 9 Glasscock County GCD – 8/22/1961
  - 10 Hickory UWCD No. 1 – 8/14/1982
  - 11 Irion County WCD – 8/21/1985
  - 12 Permian Basin UWCD – 9/21/1985
  - 13 Fox Crossing WD – 4/4/1986
  - 14 Sutton County UWCD – 4/5/1986
  - 15 Coke County UWCD – 11/4/1986
  - 16 Mesquite GCD – 11/4/1986
  - 17 Hill Country UWCD – 8/8/1987
  - 18 Barton Springs/Edwards Aquifer CD – 8/13/1987
  - 19 Anderson County UWCD – 10/17/1987
  - 20 Lipan-Kickapoo WCD – 11/3/1987
  - 21 Sterling County UWCD – 11/3/1987
  - 22 Santa Rita UWCD – 11/3/1989
  - 23 Fort Bend Subsidence District – 8/28/1989
  - 24 Sandy Land UWCD – 11/7/1989
  - 25 Saratoga UWCD – 11/7/1989
  - 26 Bandera County RA & GWD – 11/7/1989
  - 27 Live Oak UWCD – 11/7/1989
  - 28 Mesa UWCD – 1/20/1990
  - 29 Salt Fork UWCD – 5/5/1990
  - 30 Crockett County GCD – 1/26/1991
  - 31 Medina County GCD – 8/26/1991
  - 32 Headwaters UWCD – 11/5/1991
  - 33 South Plains UWCD – 2/8/1992
  - 34 Plum Creek CD – 5/1/1993
  - 35 Uvalde County UWCD – 9/1/1993
  - 36 Jeff Davis County UWCD – 11/2/1993
  - 37 Gonzales County UWCD – 11/2/1994
  - 38 Edwards Aquifer Authority – 6/28/1996
  - 39 Garza County UFWCD – 11/5/1996
  - 40 Hemphill County UWCD – 11/4/1997
  - 41 Wintergarden GCD – 1/17/1998
  - 42 Culberson County GCD – 5/2/1998
  - 43 Llano Estacado UWCD – 11/3/1998
  - 44 Rolling Plains GCD – 1/26/1999
  - 45 Menard County UWCD – 8/14/1999
  - 46 Clearwater UWCD – 8/21/1999
  - 47 Presidio County UWCD – 8/31/1999
  - 48 Guadalupe County GCD – 11/14/1999
  - 49 Bee GCD – 1/20/2001
  - 50 Blanco-Pedernales GCD – 1/23/2001
  - 51 Brewster County GCD – 11/6/2001
  - 52 Coastal Bend GCD – 11/6/2001
  - 53 Coastal Plains GCD – 11/6/2001
  - 54 Fayette County GCD – 11/6/2001
  - 55 Goliad County GCD – 11/6/2001
  - 56 Lone Star GCD – 11/6/2001
  - 57 McMullen GCD – 11/6/2001
  - 58 Neches & Trinity Valleys GCD – 11/6/2001
  - 59 Pecan Valley GCD – 11/6/2001
  - 60 Pinewoods GCD – 11/6/2001
  - 61 Refugio GCD – 11/6/2001
  - 62 Texana GCD – 11/6/2001
  - 63 Kinney County GCD – 1/12/2002
  - 64 Lone Wolf GCD – 2/2/2002
  - 65 Kimble County GCD – 5/3/2002
  - 66 Middle Trinity GCD – 5/4/2002
  - 67 Bluebonnet GCD – 11/5/2002
  - 68 Brazos Valley GCD – 11/5/2002
  - 69 Clear Fork GCD – 11/5/2002
  - 70 Cow Creek GCD – 11/5/2002
  - 71 Lost Pines GCD – 11/5/2002
  - 72 Mid-East Texas GCD – 11/5/2002
  - 73 Middle Pecos GCD – 11/5/2002
  - 74 Post Oak Savannah GCD – 11/5/2002
  - 75 Red Sands GCD – 11/5/2002
  - 76 Trinity Glen Rose GCD – 11/5/2002
  - 77 Wes-Tex GCD – 11/5/2002
  - 78 Hays Trinity GCD – 5/3/2003
  - 79 Gateway GCD – 5/3/2003
  - 80 Rusk County GCD – 6/5/2004
  - 81 Kennedy County GCD – 11/2/2004
  - 82 Southeast Texas GCD – 11/2/2004
  - 83 Corpus Christi ASRCD – 6/17/2005
  - 84 Central Texas GCD – 9/24/2005
  - 85 Brazoria County GCD – 11/8/2005
  - 86 Victoria County GCD – 11/8/2005
  - 87 Lower Trinity GCD – 11/7/2006
  - 88 San Patricio County – 5/12/2007
  - 89 North Trinity GCD – 6/15/2007
  - 90 Starr County GCD – 11/6/2007
  - 91 Colorado County GCD – 11/6/2007
  - 92 Panola County GCD – 11/6/2007
  - 93 Upper Trinity GCD – 11/6/2007
- Unconfirmed**
- A – Duval County GCD
  - B – Lavaca County GCD
  - C – McLennan County GCD
  - D – Table Rock GCD



**Figure 5: Groundwater management areas in Texas. These areas are identified to coordinate groundwater management and planning.**

management plans to conserve and protect groundwater resources. GCDs try to maintain a balance between protecting the rights of private landowners and protecting the water resources of the state.

A locally elected board of directors governs each GCD. Most districts use county lines as perimeters. The district is generally funded by either property taxes or user fees.

GCDs are required to:

- Have water management plans that estimate the amount of groundwater currently in the district and that set goals for the amount and condition of groundwater resources desired in the future.

- Set rules to help achieve the district objectives. Districts are authorized to adopt rules on well spacing, well production and other groundwater management programs to achieve objectives.
- Adopt rules for obtaining well permits and registrations.
- Many districts work to prevent waste, collect well data, educate citizens about water conservation and prevent irreparable harm.

For more detailed information on GCDs, please see Texas AgriLife Extension Service publication B-6120, *Questions about Groundwater Conservation Districts in Texas*.

# PGMA process

**T**he Texas Commission on Environmental Quality (TCEQ) defines a priority groundwater management area as a region that is experiencing critical groundwater problems or is expected to have such problems within the next 25 years.

As defined by state law, “critical groundwater problems” include shortages of surface or groundwater, land subsidence resulting from withdrawal of groundwater, or contamination of groundwater supplies.

A region is designated to be a PGMA in a formal process with clear timelines for implementation. The PGMA process can be divided into three phases (Fig. 6):

- I. The study and recommendations
- II. Administrative hearing and proposals
- III. The GCD development process

## Phase I. The study and recommendations

### *TCEQ calls for a PGMA study*

After considering the available information, such as the regional water plans as compiled in the State Water Plan and groundwater availability models, the executives of the TCEQ and Texas Water Development Board (TWDB) identify the need for a PGMA study. The TCEQ executive director will take action to begin a PGMA study if an area of the state appears to face critical groundwater problems.

### *Stakeholder comments are solicited*

Before beginning a study, the TCEQ must notify several groups, including:

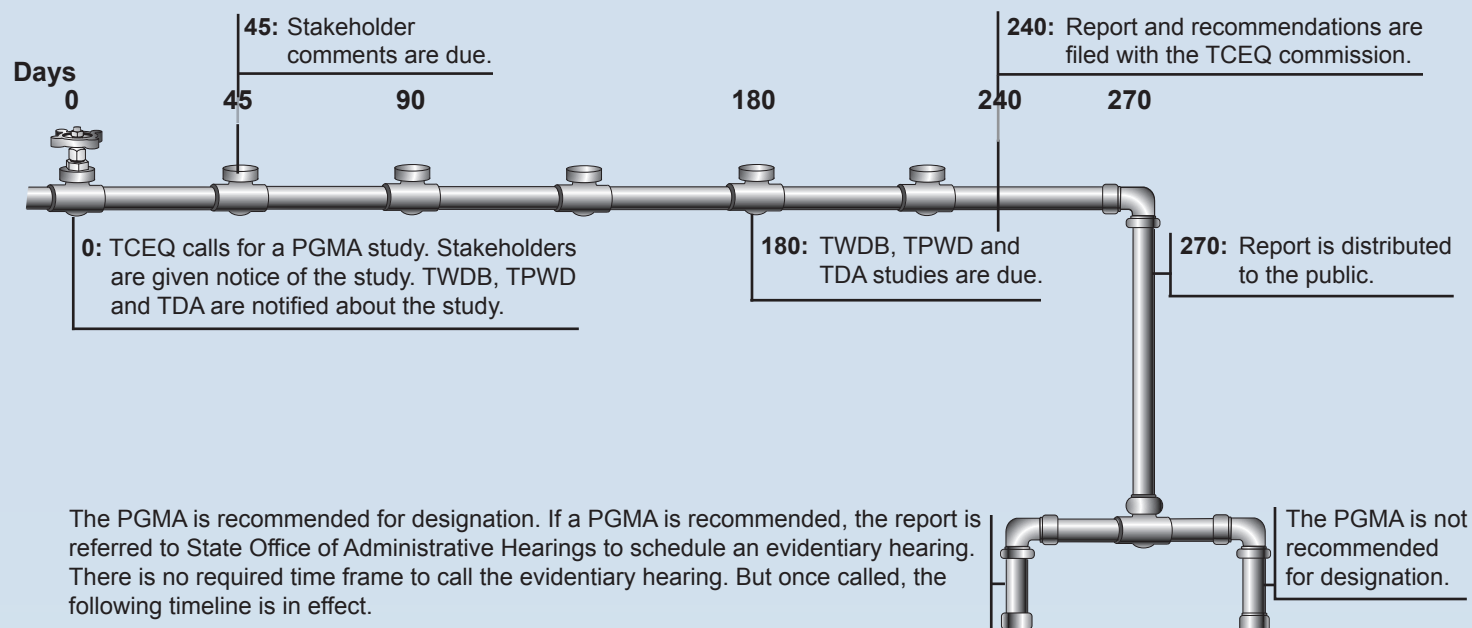
- The governing body of each county
- Regional water planning groups
- Adjacent groundwater conservation districts
- Municipalities
- River authorities
- Water districts and other public water supply entities
- Irrigation districts
- Texas Department of Agriculture
- Texas AgriLife Extension Service
- Area legislators

These groups are asked to submit comments, data, and information about existing studies on water supply, groundwater availability, groundwater level trends, and groundwater quality.

Once notified, the stakeholders have 45 days to submit information to the TCEQ, which must use the information in developing its final PGMA report and recommendations.



## Phase I. Study and recommendations



## Phase II. Administrative hearings and proposals

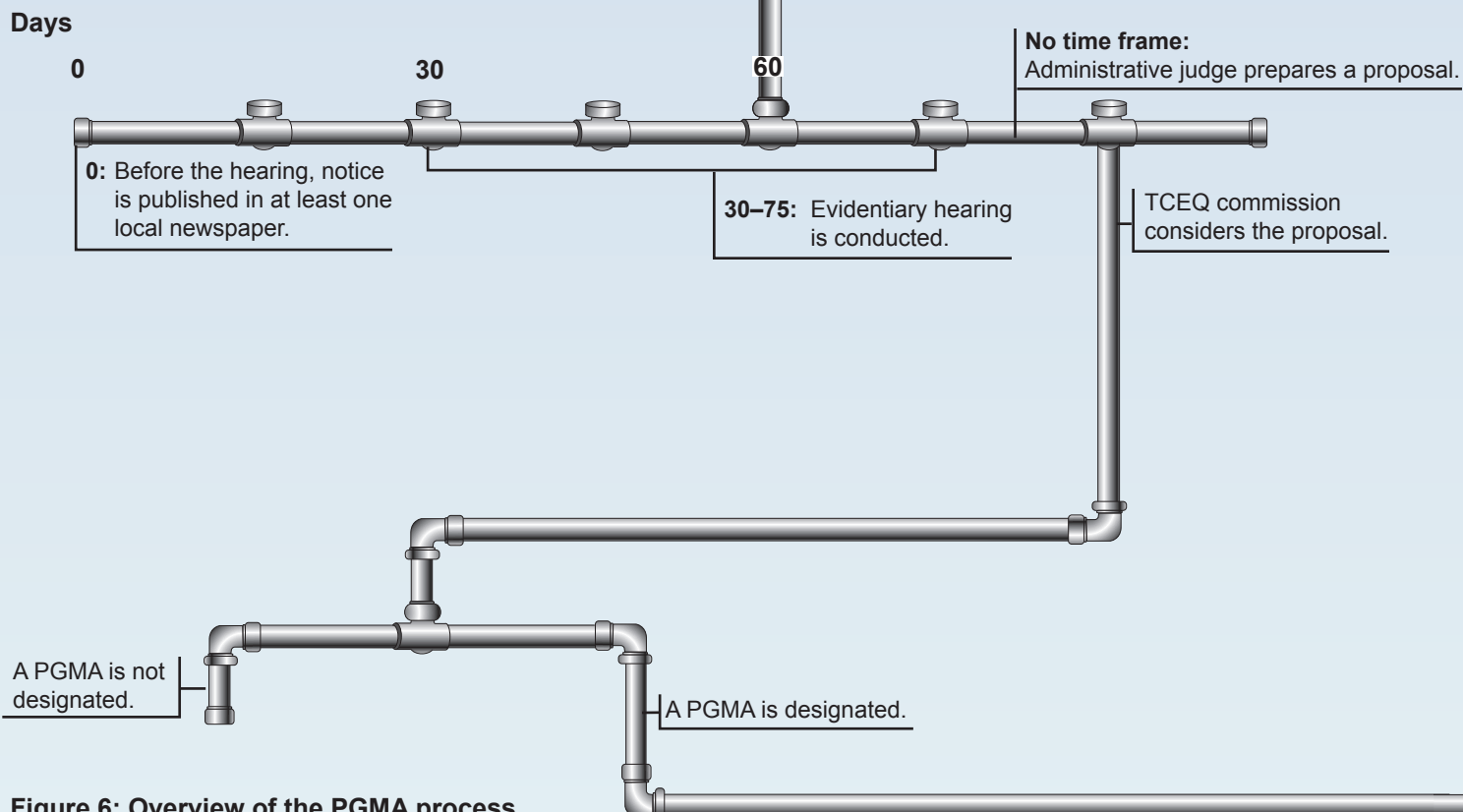
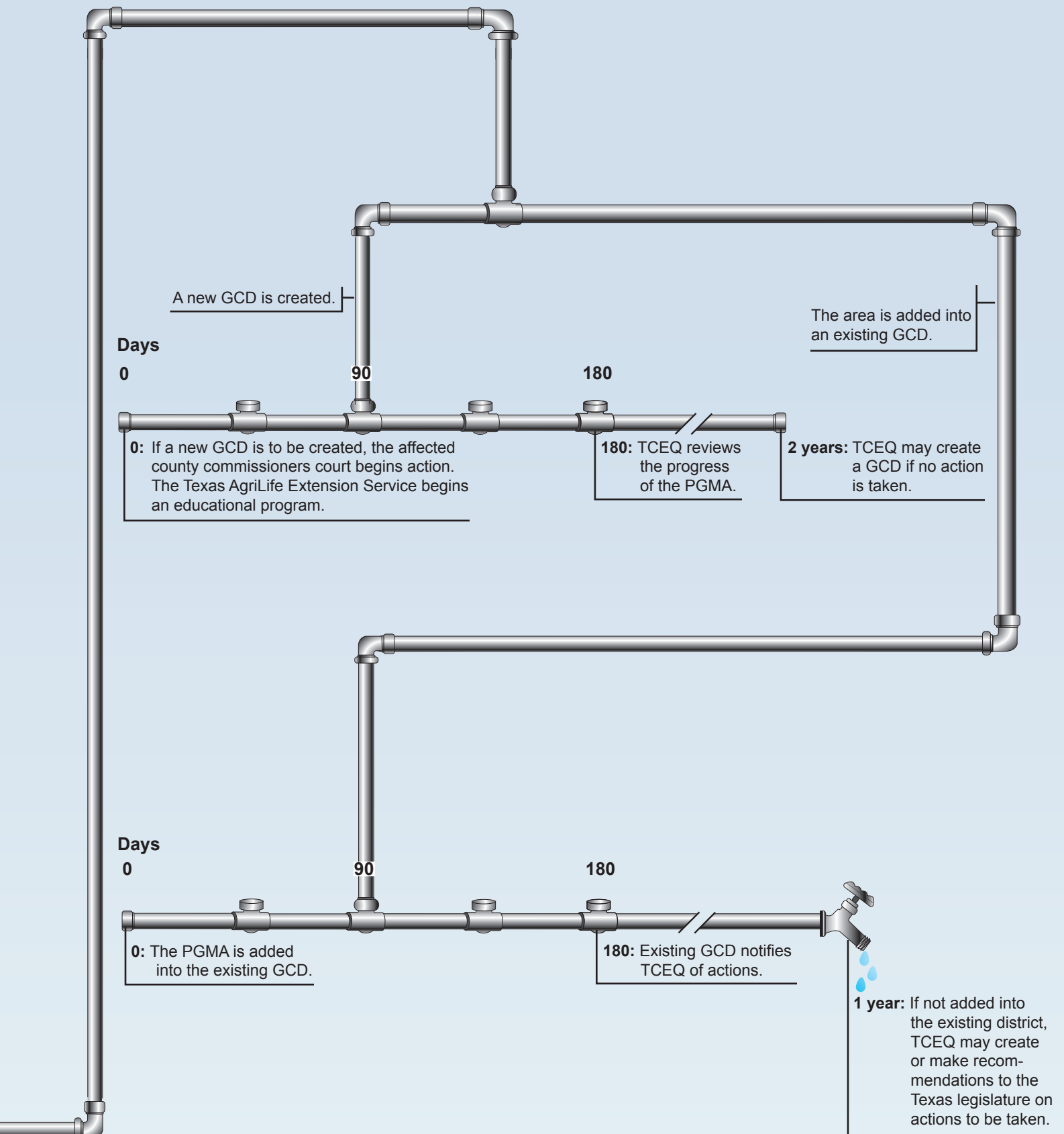


Figure 6: Overview of the PGMA process.

## Phase III. GCD development process



### *Studies are requested*

The TCEQ executive director will also request information and studies from:

- Texas Water Development Board (TWDB), on the area's hydrology and water needs and supplies
- Texas Parks and Wildlife Department (TPWD), on the area's natural resources
- Texas Department of Agriculture (TDA), on related information if that agency chooses to participate

The agencies must submit their information to the TCEQ within 180 days after the request for a study or information (Fig. 7).

Simultaneously, the executive director will begin a study to evaluate:

- The authorities and management practices of existing water users and management entities
- The comments and information provided by stakeholders
- The information provided by TWDB, TPWD, and TDA
- Independent research

### *Study report is filed and recommendations made*

The TCEQ executive director completes a PGMA report that:

- Evaluates information and studies submitted previously by agencies, scientists and stakeholders
- Examines the reasons and supporting information for or against designating the study area as a PGMA
- If a PGMA is recommended, makes a proposal regarding the boundaries of a GCD, the creation of a new GCD by local citizens, or addition into a neighboring GCD

- Evaluates the necessary management, planning and regulatory functions to be addressed by the GCD
- Makes recommendations regarding funding to finance a GCD
- Recommends conservation measures for the natural resources within the study area
- Includes other relevant information

The executive director must file the report and recommendations with the three-member commission within 240 days of the request for the TWDB study (but after the 45 days for public comment).

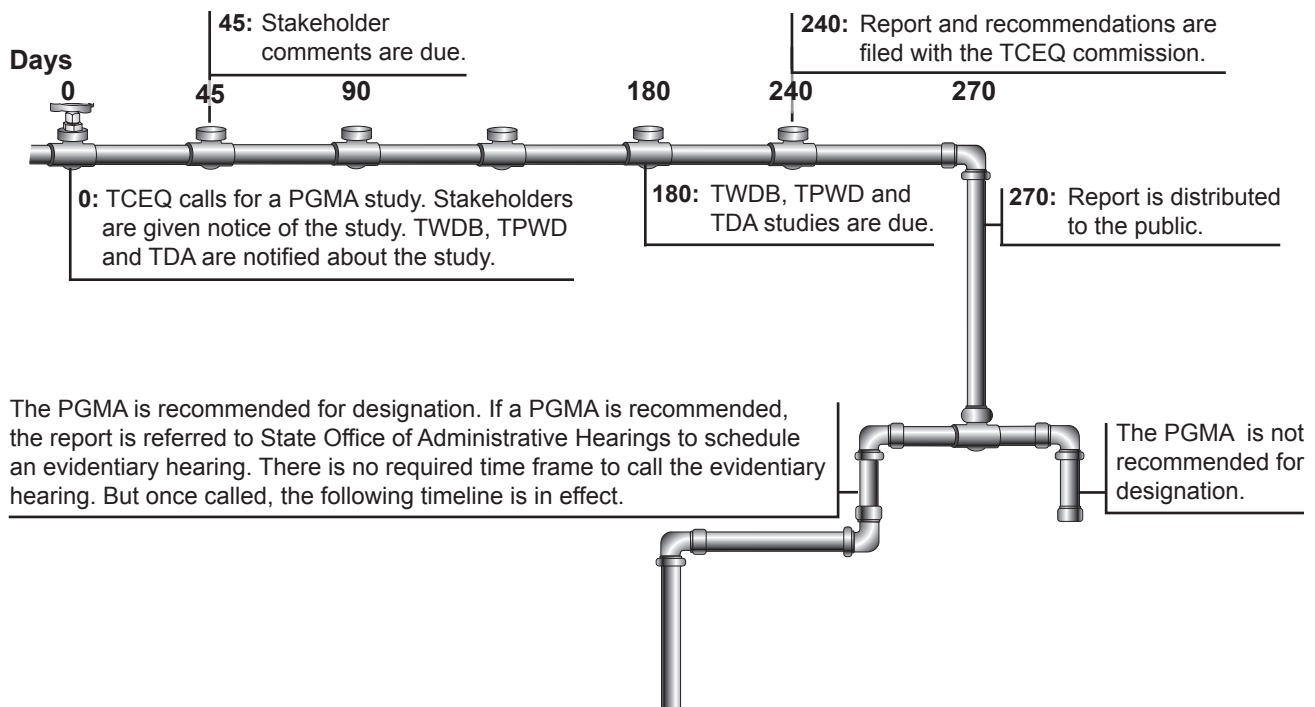
### *Study report is made available to the public*

The TCEQ executive director's report and recommendations will be provided to:

- At least one public library in each county considered in the study
- The county clerk's office in each county considered in the study
- GCDs next to the study area
- The TCEQ Web site
- The nearest TCEQ office

Within 30 days of filing, the TCEQ may publish a notice of the report in the Texas Register and present a summary of findings, recommendations, and locations where copies of the report are available. If a notice is published, it must also be sent to the same people who received the initial notice before the study.

If the executive director of the TCEQ determines that the area studied is not a PGMA, no further action by the TCEQ is necessary. However, under the agency's rules, any person may file a motion to overturn the determination.



**Figure 7: Timeline for PGMA study and recommendations.**

## Phase II. Evidentiary hearing and proposal

If the executive director of the TCEQ recommends that an area be designated as a PGMA, the agency must hold an evidentiary hearing in one of the affected counties to consider:

- The PGMA designation
- Boundary recommendations
- Management strategies for creating a new GCD, adding into an existing GCD, or devising a combination of the two
- The feasibility and practicality of the GCD recommendation
- Funding methods and levels to support groundwater management by the recommended GCD

At least 30 days before the evidentiary hearing, the TCEQ must publish a notice about it in at least one newspaper in the proposed area and also send the notice to all of the identified study area stakeholders. The preliminary hearing must be conducted within 75 days of that notice (Fig. 8).

### *Evidentiary hearing is held*

As the purpose of this hearing is to examine evidence of the need for a GCD, it is known as an evidentiary hearing. The State Office of Administrative Hearings (SOAH) usually conducts evidentiary hearings.

The SOAH administrative judge identifies people and groups who could be affected by the determination, sets hearing schedules, hears testimony and receives evidence from affected parties, and considers reports and supporting information.



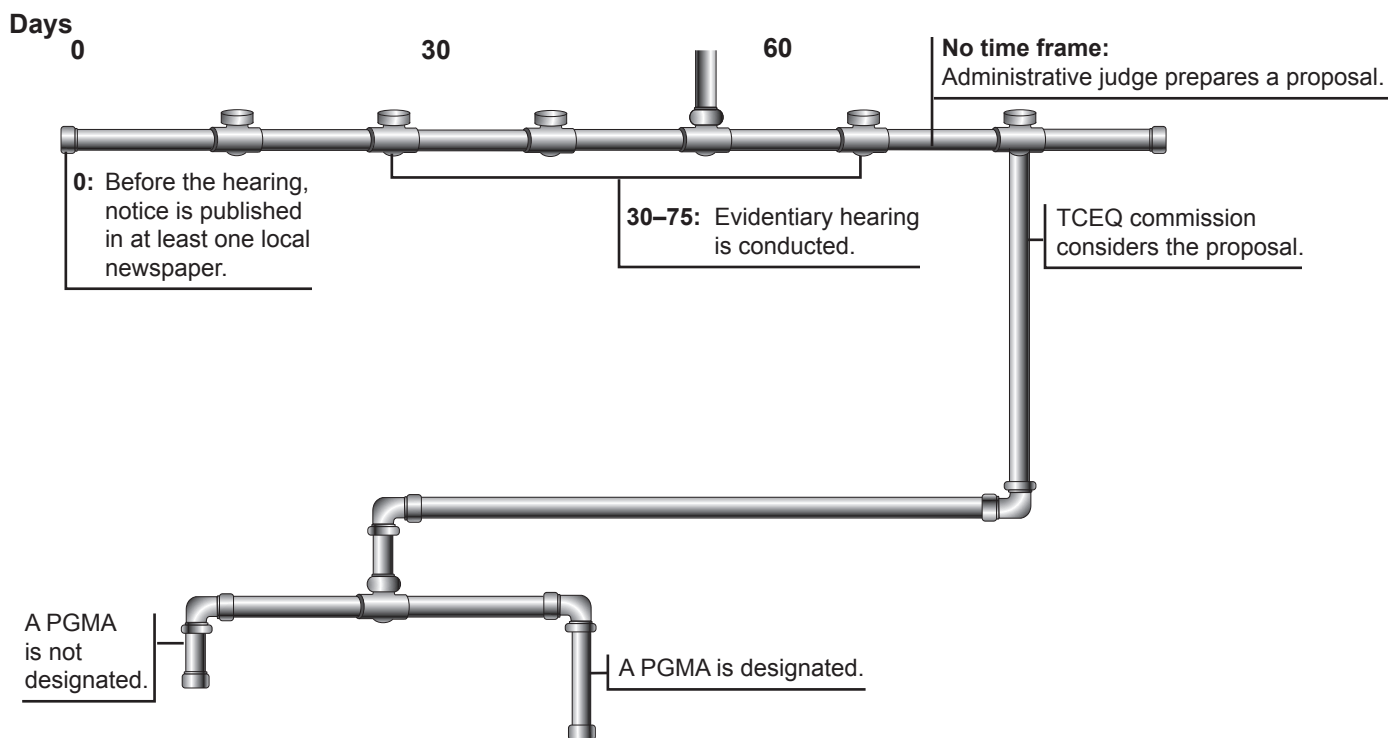
After the hearing, the judge will prepare a proposal for the TCEQ decision based on the evidence presented.

### *TCEQ action on proposal*

Next, a public hearing is scheduled in Austin. At this hearing, the TCEQ three-member commission will consider the judge's proposal not to designate the study area as a PGMA. The commission will also consider

any recommendation in the judge's proposal to either create one or more GCDs or add the recommended area to an existing GCD. These TCEQ decisions are documented in the form of a written TCEQ order.

There is no required time frame in which to call the evidentiary hearing. But once the hearing is called, the following timeline is in effect.



**Figure 8: Timeline for a PGMA evidentiary hearing and proposal.**

## **Phase III. If a PGMA is designated: GCD development process**

### *Process for a new GCD*

Once a PGMA has been designated, copies of the TCEQ order are sent to the commissioners courts in the affected counties. The Texas AgriLife Extension Service is notified to assist

in educational efforts, and adjacent GCDs are notified.

If a new GCD is recommended, local action generally begins with the appointment of a steering committee by the county commissioners court. The steering committee will work with the Texas AgriLife Extension Service to educate the public on the groundwater issues, the GCD creation and funding options.

There are several ways to create a new GCD:

**Action of the legislature:** Special legislation can create a groundwater conservation district. The legislative bill can address financing, names of temporary board directors, and procedures for elections. Each bill can be customized to fit the needs and wishes of the communities involved.

**Petition by property owners:** Local landowners may file a petition with TCEQ to form a GCD. The petition must be signed by a majority of landowners or at least 50 landowners if there are more than 50 in the described area. The petition must include detailed information on the district.

**Addition of territory to an existing GCD:** The commissioners court of a county in a PGMA for the entire county or landowners in the PGMA can petition an existing GCD's board of directors to have the area added to the existing district.

**Initiation by TCEQ:** When the need for a PGMA has been found, the TCEQ can take

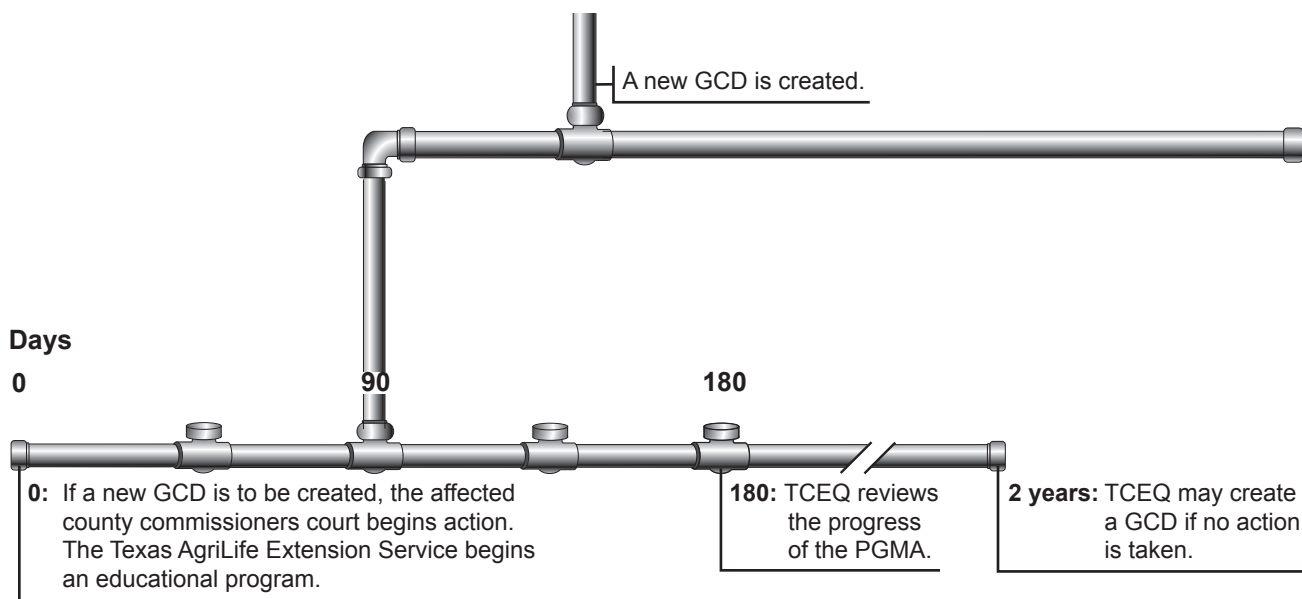
action to create a GCD if local action is not undertaken or is unsuccessful.

One hundred eighty days after a PGMA has been designated, the TCEQ will review the status of the locally initiated GCD creation efforts (Fig. 9).

#### *Addition of territory*

If it is recommended that the designated area be added to an existing GCD, the existing GCD board of directors must vote to accept the area, hold public meetings and hearings, and hold an election in the affected area. If the board of directors approves the addition of an area to the GCD, the costs of the election to add the area will be paid by the existing GCD if the area is successfully added. If the election fails, the costs will be paid by TCEQ.

If the board of directors does not approve the addition of the PGMA or if the election defeats the proposed addition to the GCD, the TCEQ must either create one or more GCDs or recommend to the legislature actions to address groundwater management in the PGMA.



**Figure 9: Timeline for GCD development.**

The existing GCD will advise the TCEQ of the outcome of its activities within 180 days of the TCEQ's recommendation on adding the territory to the GCD (Fig. 10).

Under state law, if local actions do not result in a GCD or the addition of the area to an existing GCD within 2 years, the TCEQ must delineate the affected areas and recommend creation of a GCD.

A TCEQ order will be issued to the county commissioners court in the affected area to appoint a temporary GCD board of directors. The temporary GCD board of directors will be charged with scheduling an election to elect GCD board members, to set terms, and to approve taxing authority. If taxing authority is not approved, the GCD will be funded by revenue from well production fees.

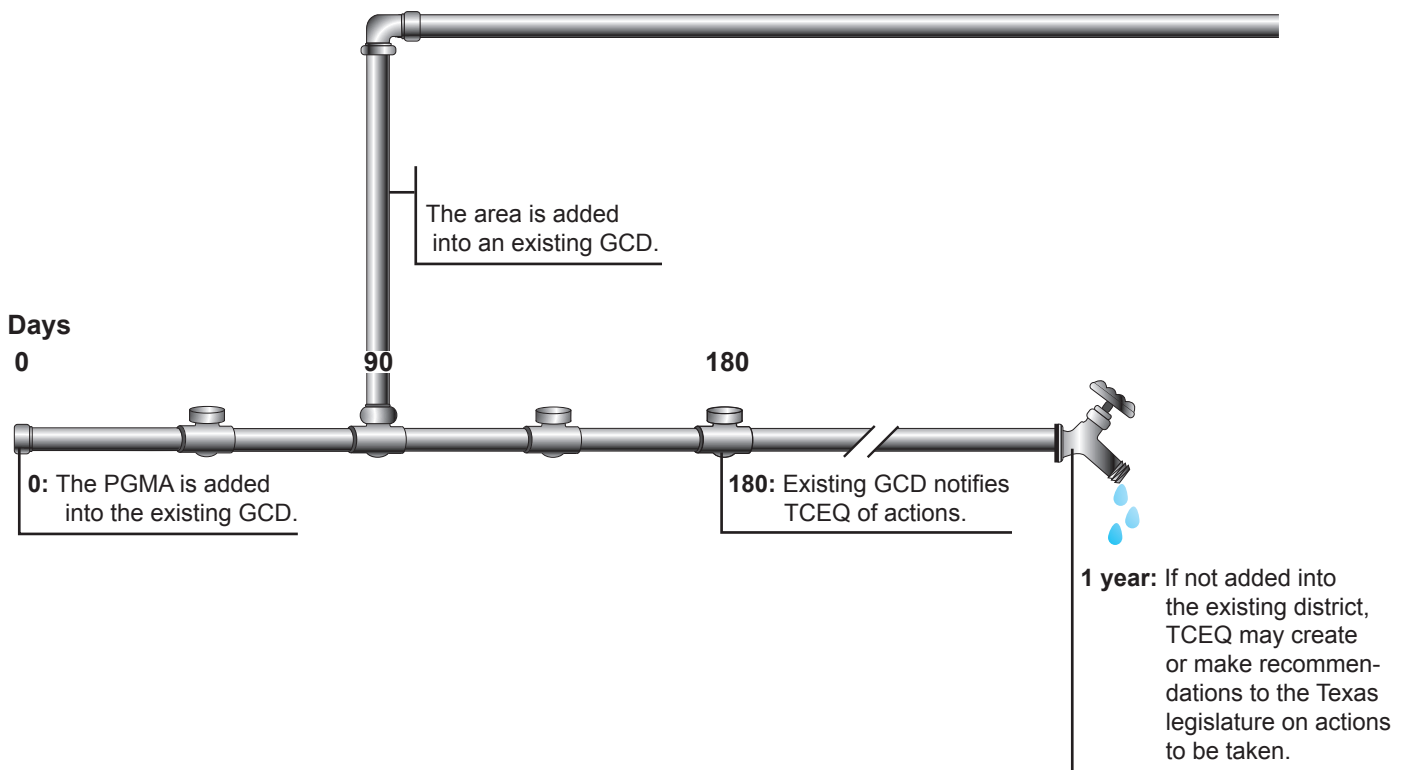


Figure 10: Timeline for adding area to an existing district.

# PGMA history

**T**he legislature has recognized the importance of significant groundwater areas for many years. State law authorized the creation of groundwater conservation districts in 1949. Between 1985 and 1995, legislation was enacted and refined to authorize the study of critical areas—the predecessors to PGMA.

With the passage of Senate Bill 1 in 1997, the Texas Legislature recognized that GCDs are the state's preferred method of groundwater management.

In 2001, Senate Bill 2 changed the PGMA designation and GCD creation process and the authority of GCDs. The process now requires the TCEQ to include in its PGMA report specific GCD creation considerations and recommendations.

As of September 2008, 18 PGMA studies and three update studies have been completed. Six study areas were designated as PGMA (The numbers by the locations below correspond to Figure 11):

2. Bandera, Blanco, Gillespie, Kendall, and Kerr and parts of Comal, Hays, and Travis Counties (Hill Country area)
3. Parts of Reagan, Upton, and Midland Counties.
4. Swisher and parts of Briscoe and Hale Counties.
9. Part of Dallam County
13. Part of El Paso County
17. Part of Bexar County (added to Hill Country)

Ten study areas were determined not to be PGMA:

1. Williamson, Burnet, and northern Travis Counties area
6. East Texas area
7. Lower Rio Grande Valley
8. Trans-Pecos area
10. Fort Bend County area
12. Orange-Jefferson Counties area
14. Wintergarden area
15. Southernmost High Plains area
16. North Texas Alluvium and Paleozoic Outcrop area
18. Hudspeth County area

The two remaining Trinity aquifer study areas were evaluated and recommended for designation as PGMA.

5. Central Texas (Waco) area
11. North-Central Texas area

## ***GCD action in designated PGMA***

Since 1987, the question of whether to create groundwater conservation districts in PGMA has been considered in several areas of Texas:

- In four of the five designated PGMA, action was taken to create GCDs in at least part of the designated area.
- In each PGMA, areas remain that are not covered by a GCD.



- Between 1987 and 2005, nine GCDs were created through local initiative and confirmed by voters in two of the PGMA.

- Eight GCDs were created by the legislature.
- One GCD was created by the TCEQ through the landowner petition process.

- Portions of two areas petitioned to join adjacent GCDs.
- No activity has been undertaken to create a GCD in the El Paso County 1 PGMA.

#### Priority groundwater management study areas

- Williamson and parts of adjacent counties
- Hill Country area
- Reagan, Upton, Midland County area
- Briscoe, Swisher, Hale County area
- \*5 Central Texas area
- East Texas area
- Lower Rio Grande area
- Trans-Pecos area
- Dallam County area
- Fort Bend County area
- \*11 North-Central Texas area
- Orange-Jefferson County area
- El Paso County area
- Wintergarden area
- Southernmost High Plains area
- North Texas Alluvium and Paleozoic Outcrop area
- Hudspeth County area

\*  These areas are currently being recommended for designation.

#### Designated priority groundwater management areas

- Hill Country PGMA (includes 17 Northern Bexar County Area)
- Reagan, Upton, and Midland County PGMA
- Briscoe, Swisher, and Hale County PGMA
- Dallam County PGMA
- El Paso County PGMA

 Areas within a designated PGMA incorporated into a groundwater conservation district

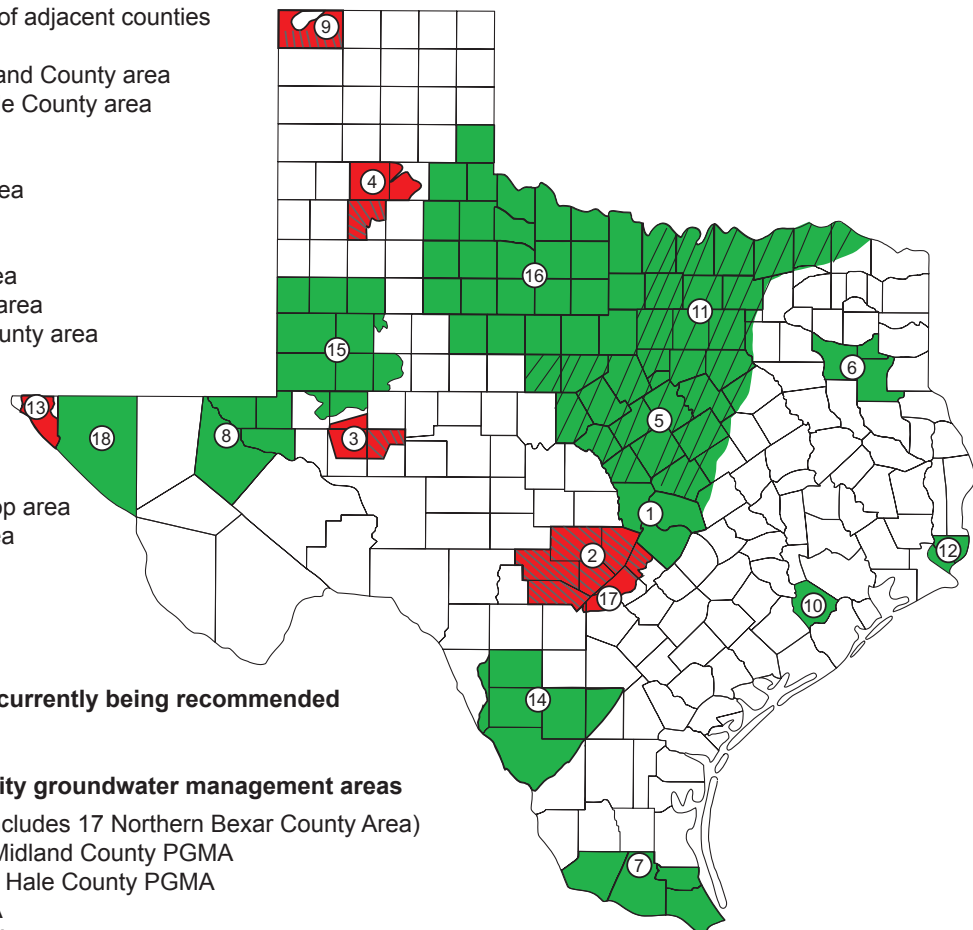


Figure 11: Priority groundwater management study and designated areas.

# Questions about PGMA's

## *What is a PGMA?*

*Texas Water Code (TWC) 35.007 (a)*

**P**riority groundwater management areas (PGMA's) are regions that are experiencing critical groundwater problems or are expected to experience them within the next 25 years. Examples of critical groundwater problems are surface or groundwater shortages, land subsidence or water contamination. The Texas Commission on Environmental Quality (TCEQ) designates these areas after a PGMA study.

The law calling for PGMA studies and designation was passed in 1997. That year, the Texas Legislature enacted Senate Bill 1, a major water planning and management bill that reconfirmed and strengthened provisions for creating GCDs by state initiative in "critical areas." The process was revised by SB 2 in 2001, and the areas were renamed PGMA's.

## **2. *How does an area become a PGMA study area?***

The executive director of the TCEQ and the executive administrator of the Texas Water Development Board (TWDB) examine the water planning data available. They then use that information to identify potential PGMA study areas. The decision to start a PGMA study is made by the executive director of the TCEQ.

Several state and many local agencies collect water data. Information on the amount and quality of water is not comprehensive or evenly understood, but indications of problems, concerns, and potential issues often become apparent to the TWDB or TCEQ staff.

Data may be available from many sources:

- Regional water planning groups must determine the amount of water currently available and estimate future demands.
- Local water suppliers, including all cities, must test water quality.
- Hydrologists and geologists from universities and consulting firms work with water availability models and water quality issues.

## **3. *What is the basic PGMA process?***

*TWC 35.007–35.012*

There are 10 steps for creating a PGMA in Texas:

1. Areas with groundwater concerns are identified by the TCEQ and the TWDB. A PGMA study is requested for the identified area.
2. The residents in the area are asked to participate in the process.
3. Studies and information are requested from the TWDB and the Texas Parks and Wildlife Department (TPWD) and the Texas Department of Agriculture (TDA).
4. The executive director of the TCEQ completes a report on the area.
5. Recommendations are made for or against designating the area as a PGMA and for management of the groundwater resources in the area.

6. The public is notified of the TCEQ report and recommendations.
7. If the area is recommended for designation as a PGMA, an evidentiary hearing is held and citizens are allowed to enter evidence for consideration.
8. The evidentiary hearing's judge presents recommendations to the TCEQ on the proposed designation and GCD creation.
9. The three-member TCEQ commission determines whether the area will be designated as a PGMA and makes a recommendation on groundwater management.
10. The TCEQ recommendation is provided to the affected counties and some form of groundwater management must be created by affected citizens (local voters).

#### 4. *What is the PGMA timeline?*

*TWC 35.007*

- Groundwater areas of concern are identified. (Clock starts.)
- The public in the area is notified. (45 days to reply)
- Studies by the TWDB and the TPWD begin. (180 days to complete)
- A TCEQ executive director report and recommendations are made for management of the area. (240 days to be complete)
- The public is notified of the report findings and availability. (30 days for review)
- If PGMA designation is recommended, an evidentiary hearing is called. (no later than the 75 days after the notice of the hearing is published)
- A PGMA is recommended or not recommended by the TCEQ. If recom-

mended, some form of groundwater management must be created by affected citizens (local voters) within 2 years from the TCEQ's designation order.

#### 5. *What is a PGMA study?*

*TWC 35.007 d-e*

A PGMA study is an investigation into whether an area is experiencing or is expected to experience critical groundwater problems within the next 25 years. These problems can involve water quality or quantity. The study must include:

- An appraisal of the hydrogeology of the area and matters within the TWDB planning expertise relevant to the area
- An assessment of the area's immediate, short-term, and long-term water supply and needs
- An evaluation by the TPWD on the potential effects of the designation of a PGMA on an area's natural resources
- An evaluation by the TDA of data and information

#### 6. *Where do the data come from?*

Scientific data are collected by the TWDB, the U.S. Geological Survey, local GCDs, regional water planning groups, groundwater availability models, universities, and consultants' studies.

Information is derived from monitored water wells, water sampling, computer models of groundwater availability, water supply and demand data, and other water and geological research.

#### 7. *What does a PGMA report include?*

*TWC 35.007 f*

The report will include:

- Delineation of the boundaries of the proposed PGMA

- Reasons for or against and supporting information about designating the area as a PGMA
- Recommendations on whether one or more GCDs should be created in the PGMA, whether the PGMA should be added to an existing district, or whether a combination of those actions should be taken
- Recommendations on actions that should be considered to conserve natural resources
- Evaluation of information or studies submitted by stakeholders and agencies
- Any other information that the executive director considers helpful to the commission

**8. *Who must TCEQ send the PGMA report to?***

The TCEQ must provide the report to:

- At least one public library in each county in which the proposed PGMA is located
- The county clerk's office in each county in which the proposed PGMA is located
- GCDs adjacent to the area of the proposed PGMA
- The TCEQ Web site
- The nearest TCEQ office

TCEQ can make available studies, hold hearings, solicit and collect information, and use information already prepared by the TCEQ, TWDB or other agencies.

**9. *What happens after the PGMA report is complete?***

**TWC 35.008**

If critical water problems are apparent, TCEQ must call an evidentiary hearing in one of the counties of the proposed PGMA to consider whether:

- A PGMA should be designated
- One or more GCDs should be created over all or part of the area
- The area should be added to an existing district
- A combination of these actions should be taken
- Whether a district is feasible and practicable

At the hearing, the TCEQ will hear testimony and receive evidence from affected people, including landowners, well owners, and other users of groundwater in the proposed PGMA. The TCEQ will consider the executive director's report and supporting information, and the testimony and evidence received at the hearing.

If the commission determines that more information is needed, it may request that information from any source.

**10. *What is an evidentiary hearing?***

An evidentiary hearing is a session in which evidence and witnesses are presented before a judge or other magistrate in support of the recommendations. Citizens have the right to question the witnesses and the evidence as well as to present their own evidence and witnesses.

**11. *What is the result of an evidentiary hearing?***

At the end of the hearing, the judge will present his or her findings and make a proposal to the TCEQ commission on whether a PGMA should be designated in the area. The judge also will make recommendations regarding district creation.

At a public hearing in Austin, the three-member TCEQ commission will consider the judge's proposal and determine whether a PGMA designation is warranted.



If the TCEQ order designates a PGMA for an area, it will recommend that the area be covered by a district in any of the following ways:

- Create one or more new districts
- Add the land in the PGMA to one or more existing districts
- Take a combination of actions

The TCEQ will also recommend that boundaries of the GCD be made the same as those of the PGMA. However, agency may recommend district boundaries along existing political subdivision boundaries (such as a county line) to facilitate district creation and confirmation.

#### ***12. What if I disagree with the PGMA report findings and recommendations?***

You can become a party at the evidentiary hearing to present your case to the administrative law judge, and you can address the TCEQ at a public appeals hearing in Austin. If the executive director recommends that the area not be designated as a PGMA, you may file a motion to overturn the decision within 23 days of receiving notice.

#### ***13. What are the steps after a PGMA is designated?***

**TWC 35.008**

After a PGMA designation is ordered, landowners in the area must act on the TCEQ recommendations.

Generally, the county commissioners court of the recommended area takes the lead in this process. The Texas AgriLife Extension Service will begin an educational program in cooperation with the Texas Water Development Board, Texas Commission on Environmental Quality, Texas Department of Agriculture, other state agencies and existing districts to inform the residents of the status of the area's water

resources and management options including possible formation of a district.

#### ***14. What is the role of the county commissioners court in the PGMA process?***

The counties affected by the PGMA designation generally rely on the county commissioners court to:

- Listen to local stakeholders
- Appoint a steering committee for education and to choose a GCD option
- Provide direction to the Texas AgriLife Extension Service on education
- Help devise a strategy to develop a GCD

#### ***15. How is a new GCD created?***

A GCD can be created through four procedures:

**Action of the legislature:** Special legislation can create a district. The bill can address financing, names of temporary board directors and procedures for elections. Each bill can customize the powers and duties of a GCD to fit the needs and wishes of the communities involved.

**Petition by property owners:** Local landowners may file a petition with TCEQ to form a GCD. The petition must be signed by a majority of landowners or at least 50 landowners if there are more in the described area. The petition must include detailed information on the district.

**Addition of territory by an existing GCD:** Landowners can petition an existing GCD board of directors to request that their area be added to the GCD.

**Initiation by TCEQ:** When a PGMA is designated, the TCEQ can take action to create a GCD if local action is not undertaken or is unsuccessful.

**16. What does the election after a PGMA designation cover?**

**TWC 35.012**

Once the TCEQ rules that a PGMA has been designated, the landowners in the area must begin the process of following the recommendations on the management of the area. The landowners have 2 years to propose and create a GCD or have the area added to an existing GCD.

Generally, the county commissioners court appoints a temporary steering committee, which can then determine the best way to form and fund a GCD.

If a local petition or legislation calls for the creation of a new district, the temporary board of directors must call an election to confirm a GCD creation, choose a board of directors, and decide how the district will be funded.

If the recommendation is to add the area to an existing GCD, then the existing GCD's board of directors must vote to include the new area and then host an election for approval of the addition by the affected voters.

**17. What if the election for a GCD does not pass?**

**TWC 35.013**

If the landowners do not adhere to the TCEQ recommendations, then within 2 years, (but no sooner than 120 days from the date on which the commission issues an order designating a PGMA), the TCEQ will:

- Create one or more new districts under Section 36.0151
- Recommend that the areas or part of the areas be added to an existing district under Section 35.013
- Take any combination of these actions

If a locally initiated proposition is defeated or if the board of the existing district votes to not add the area to the district, the TCEQ will create one or more districts covering the

PGMA. The new district or districts will be created no later than the first anniversary of the date on which the locally proposed district is defeated or the board of the neighboring GCD votes not to accept the area.

The TCEQ will ask the county commissioners court to appoint temporary directors to be responsible for holding an election. The election will be for a board of directors and a yes-or-no vote on taxing authority.

**18. What are the exceptions?**

**TWC 35.008, 35.018**

If it is not feasible for one or more districts to be created as determined in the PGMA report, the TCEQ will make recommendations for the future management of the PGMA to the legislature.

**19. What if the election for tax support for a GCD does not pass?**

If a tax does not pass, the GCD is authorized to assess fees based on well production or groundwater export. A tax proposition can be offered again to the voters after a 1-year period.

**20. Who can help the public/community understand the process?**

Once a PGMA has been designated, Texas Cooperative Extension will begin an educational program in the area with the assistance and cooperation of the TWDB, TCEQ, TDA, other state agencies and existing districts to inform the residents of the status of the area's water resources and management options, including the possible formation of a district.

The county commissioners court of each county in the area will form a steering committee to help the Texas AgriLife Extension Service educate residents of the area.

**21. Can the state take over my groundwater rights?**

No. The preferred method of groundwater management is a locally controlled GCD.

GCDs have duties and limitations outlined in TWC Chapter 36 Groundwater Conservation Districts.

The state can impose additional limitations on GCDs through special legislation, but it cannot take your groundwater rights. A GCD may modify the conditions under which those rights are managed.

Even if TCEQ is forced to create a GCD, locally elected directors will govern the district.

***22. How does a GCD help resolve the problems identified in the PGMA process?***

The Texas Legislature has set parameters for and limitations on GCDs. Within those laws, a GCD can set objectives for its area, establish rules to meet those objectives, conduct educational programs, and perform services for the public. A locally elected board of directors sets the objectives of the GCD.

***23. Do wells under a PGMA designation need to be registered or permitted?***

Yes, at some point, GCDs must register and issue permits for large-capacity wells, unless the wells are exempt by legislation or GCD rules. Standard exemptions are for permitting one well for domestic or livestock purposes.

Generally, wells with the capacity to pump more than 25,000 gallons per day are registered. But it is up to the local board of directors to determine that rule.

***24. What if our county or area does not want a GCD?***

If the state determines that an area needs to be managed by a GCD, the area must have one. The designation of a PGMA may not be appealed nor may it be challenged.

***25. What is the Texas Water Code?***

The Texas Water Code is a revision of the state law that governs the use of water in Texas. The revision was made to make the law more accessible and understandable to citizens.

Once a bill has passed the legislative and executive branches of government, it becomes a law. It is then placed into the code books for easy reference. Most legislation is then interpreted by the associated agency, and rules are drafted to implement the law.

Texas organizes laws by topical areas, such as Texas Statutes, Water Code. Chapters are organized by subtopics (such as Chapter 35, Groundwater Studies, and Chapter 36, GCDs). The entire Texas Water Code is available online at: <http://www.capitol.state.tx.us/statutes/wa.toc.html>.

The Texas Administrative Code contains state agency rules to implement laws and provide guidance for implementation. TCEQ rules pertaining to the study and designation of PGMA are in Title 30, Texas Administrative Code, Chapter 294. [http://www.info.sos.state.tx.us/pls/pub/readtac\\$ext.viewtac](http://www.info.sos.state.tx.us/pls/pub/readtac$ext.viewtac).





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