



Joint Groundwater Planning

The Basics

Groundwater Division, TWDB

Updated January 2024

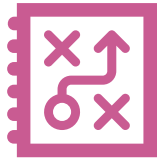
This presentation was created by TWDB Groundwater Division staff for general educational purposes.

We hope this slide deck is useful in communicating the joint groundwater planning process, and the steps required to get from desired future conditions to modeled available groundwater.

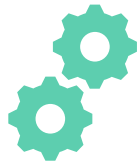
We'll cover...



Groundwater management areas



What is joint groundwater planning?



What does the desired future condition process look like?

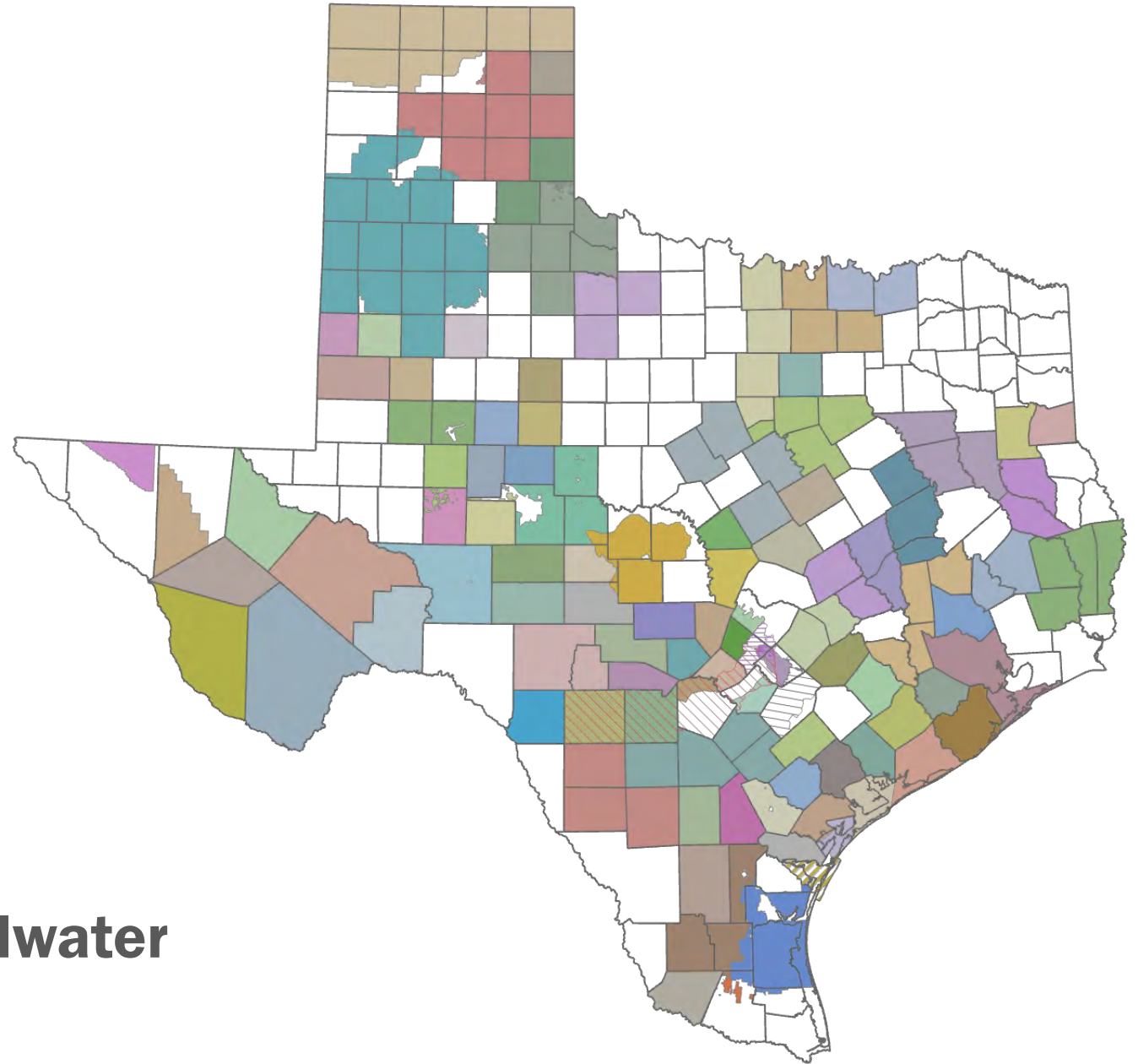
GMAs, GAMs, MAGs...OMG!

- GCD** Groundwater conservation district
- GMA** Groundwater management area
- DFC** Desired future condition
- TWDB** Texas Water Development Board
- GAM** Groundwater availability model
- MAG** Modeled available groundwater
- RWPG** Regional water planning group

Groundwater management areas

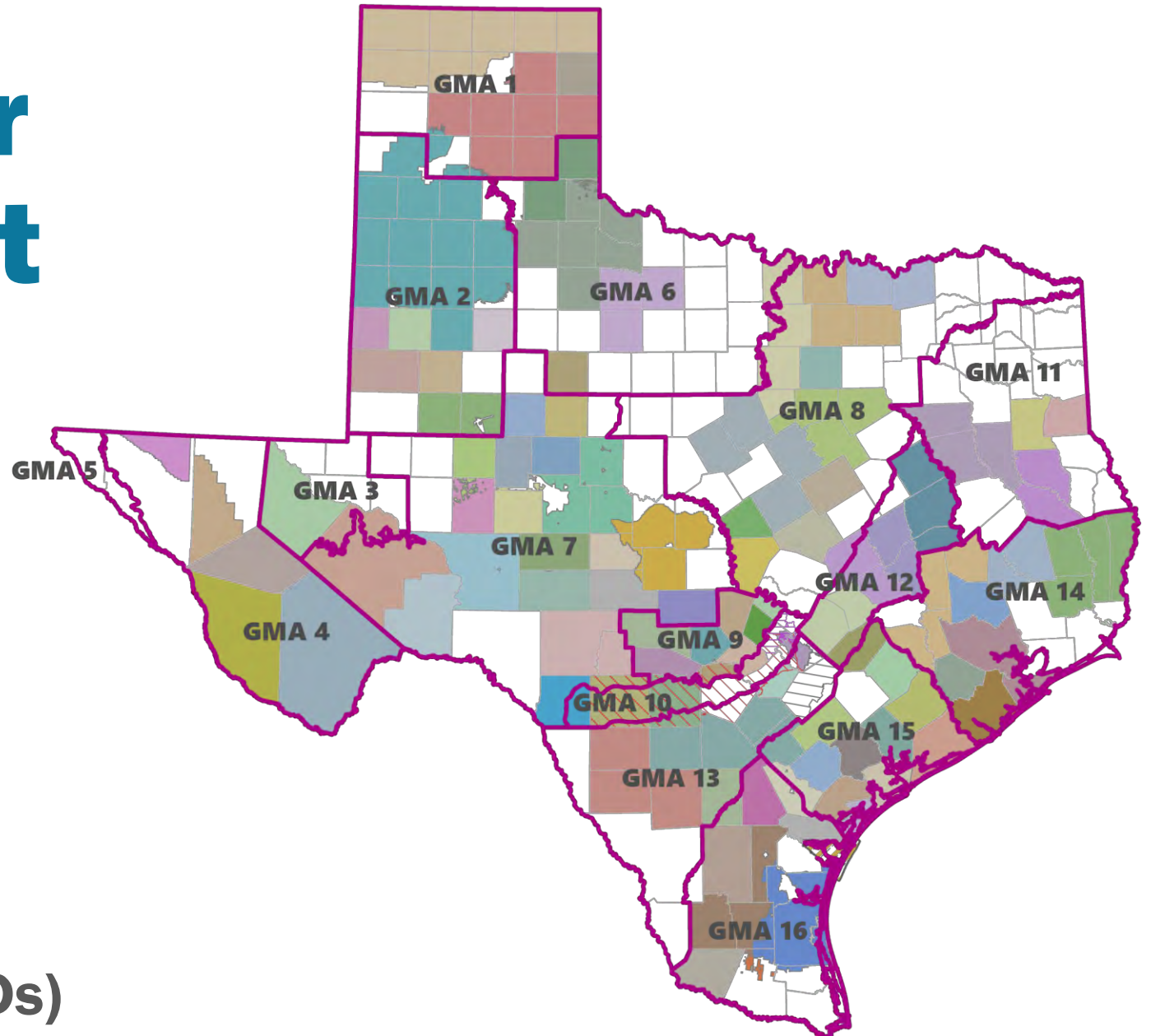


Groundwater conservation districts (GCDs)



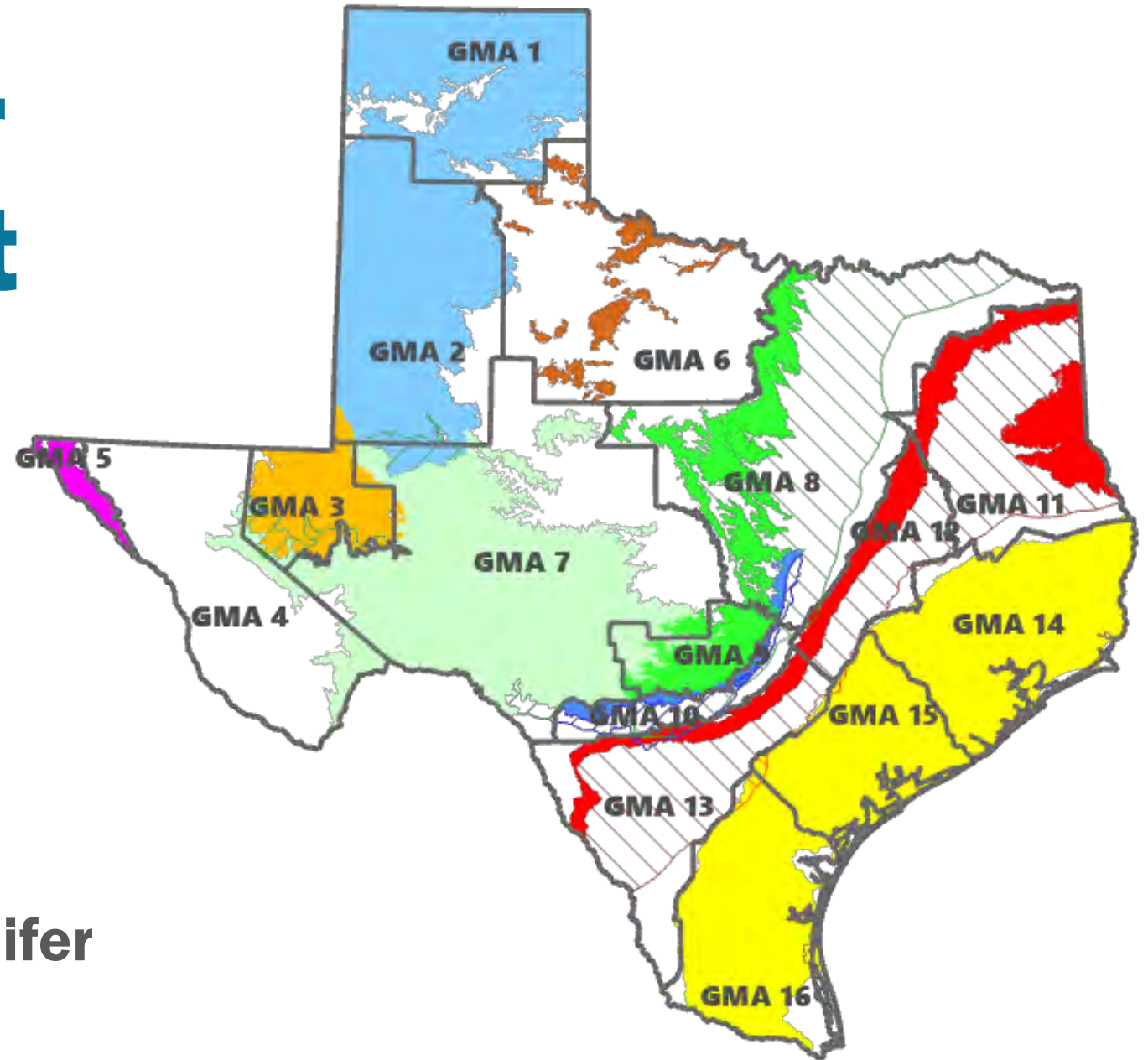
Preferred method of groundwater
management in Texas

Groundwater management areas (GMAs)



Groups of groundwater conservation district (GCDs)

Groundwater management areas (GMAs)

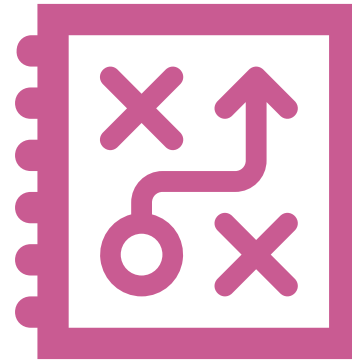


Generally follow major aquifer boundaries

The TWDB maintains webpages for each groundwater management area.

And many GMAs also have their own websites to share information with the public.

Joint Groundwater Planning



What is joint planning?

District representatives in a GMA meet at least annually to:

- conduct joint planning
- propose to adopt new or amended desired future conditions
- review management plans and GMA accomplishments

Most joint planning activities are
related to
desired future conditions (DFCs)

Desired future conditions

DFCs

Broad policy goal

Quantitative description

Updated at least every 5 years

Used to determine future groundwater availability

Desired future conditions

DFCs

Drawdown, springflow, storage volume, etc.

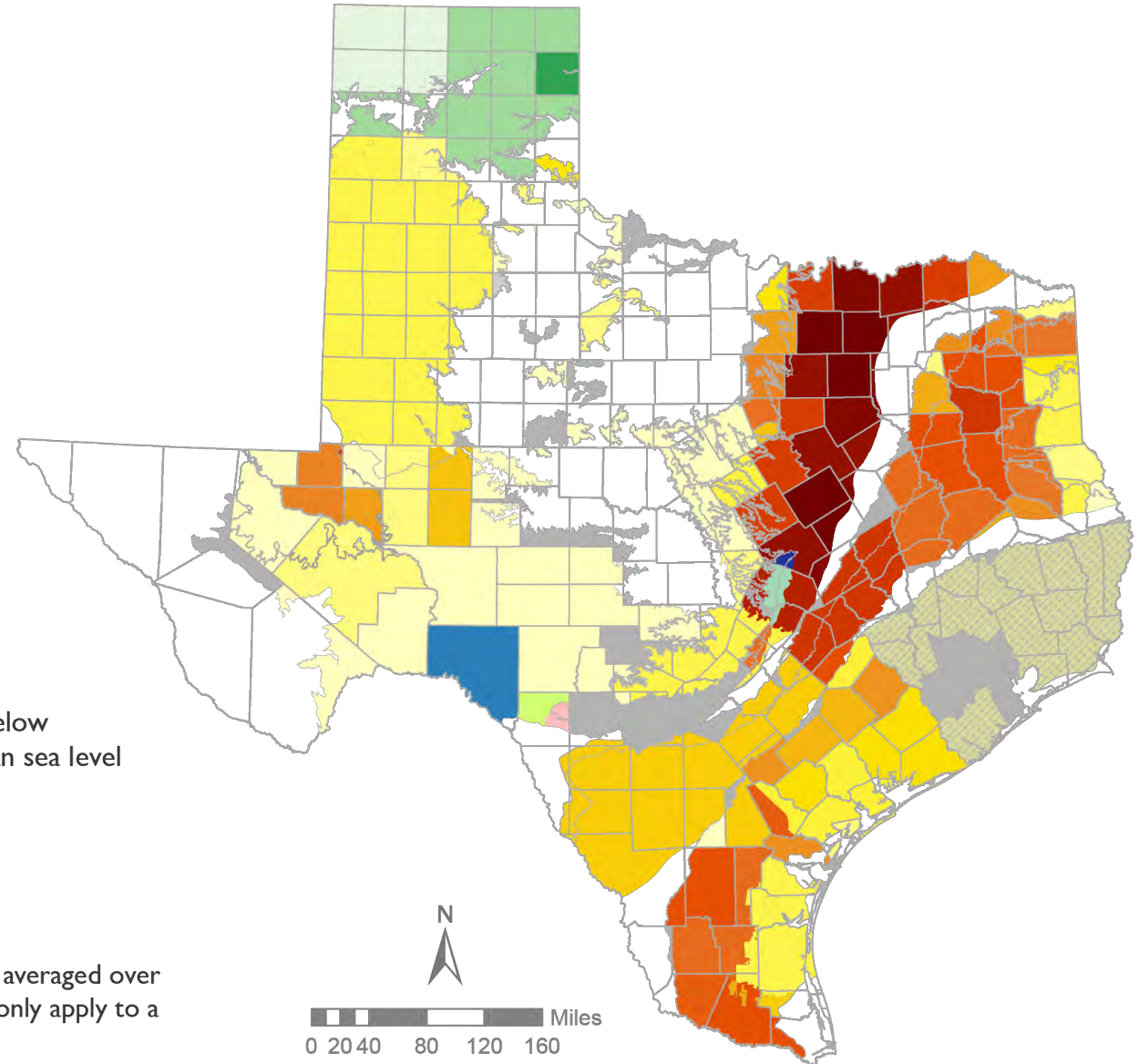
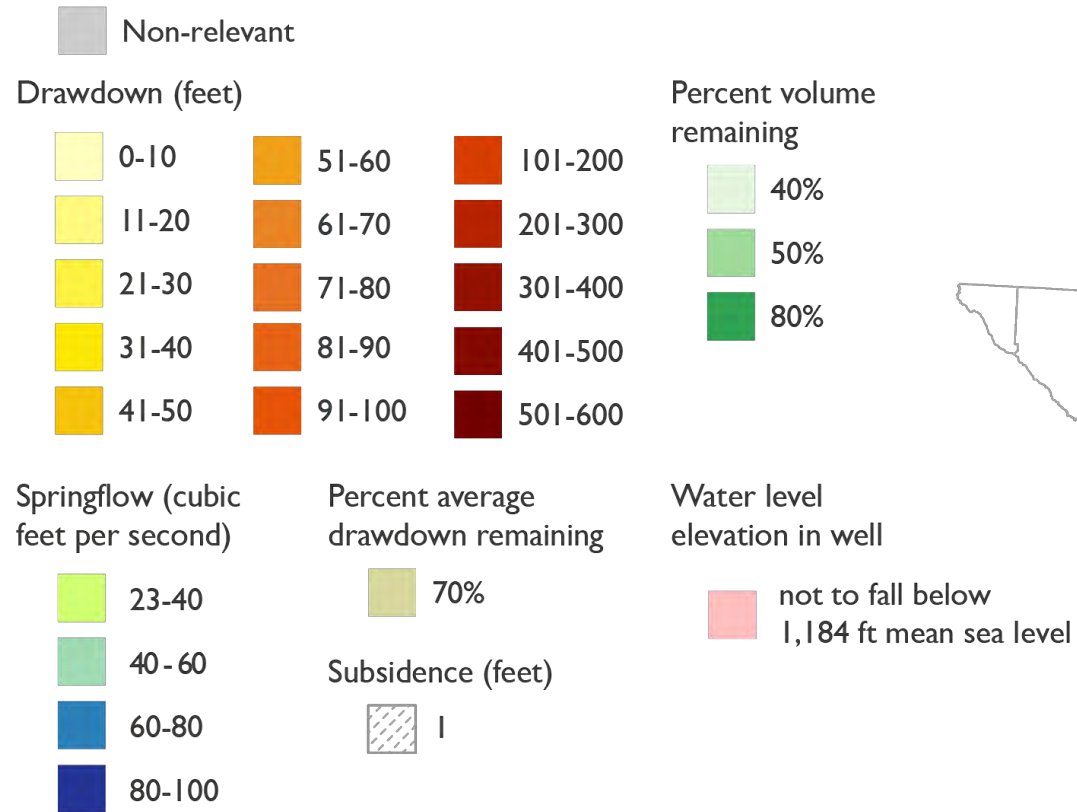
For relevant aquifers

May be established for:

- aquifer
- aquifer subdivision
- geologic strata
- geographic area

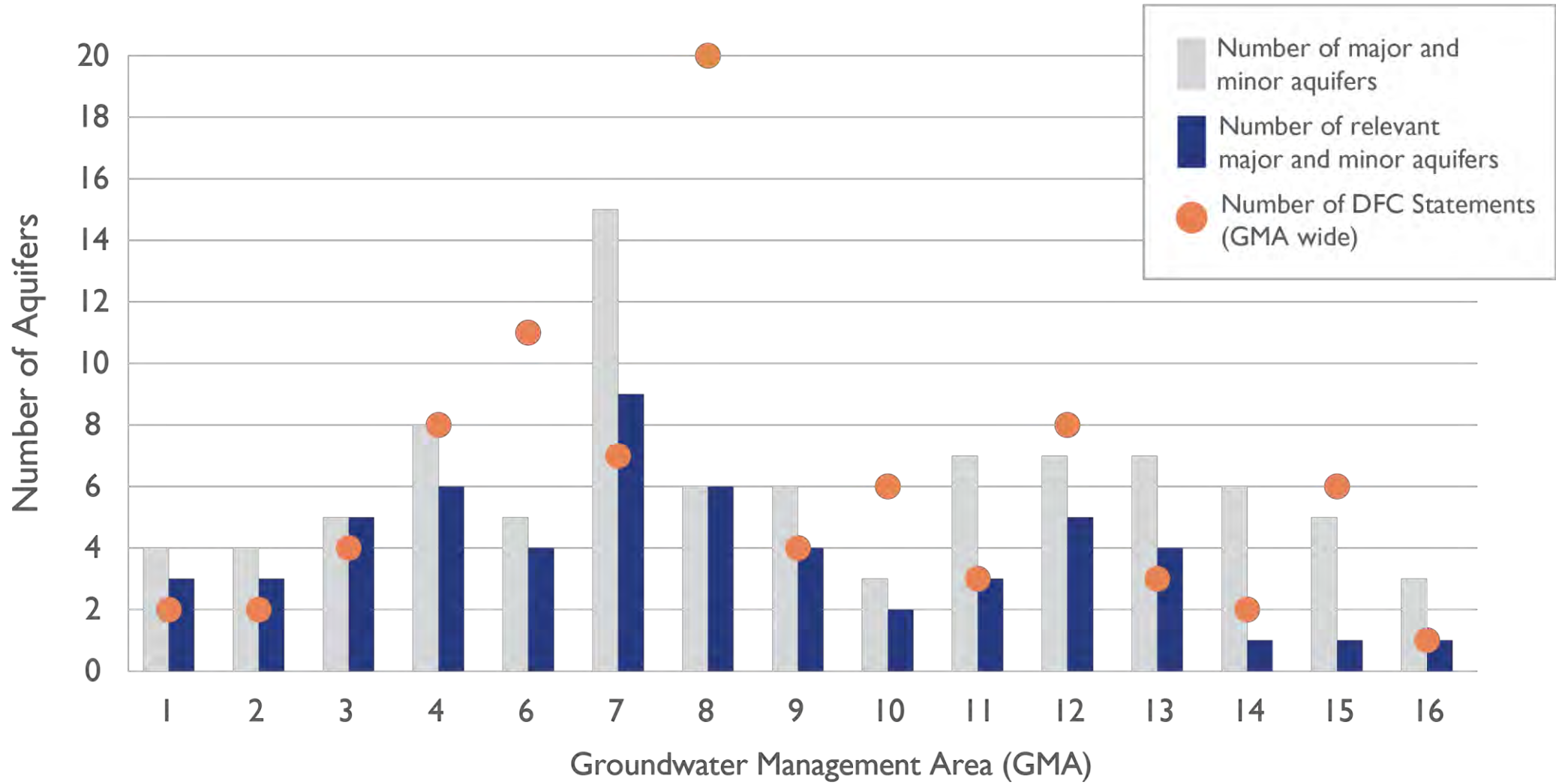
2021 DESIRED FUTURE CONDITIONS BY COUNTY

ADOPTED FOR MAJOR AQUIFERS



Important note: Some of the desired future conditions depicted here are averaged over multiple counties, may include additional aquifers or formations, and/or may only apply to a single formation within the aquifer.

NUMBER OF AQUIFERS WITH DESIRED FUTURE CONDITIONS BY GROUNDWATER MANAGEMENT AREA



Relevant vs. Non-relevant for joint planning purposes

Relevant

Official major or minor aquifers or any local aquifers deemed relevant by GMA

Non-relevant

Parts of a relevant aquifer that do not warrant a DFC based on aquifer characteristics, GW demands, and current GW uses

Non-relevant an unfortunate name

Technical justification required

Local aquifer management is still happening

Regional water planning groups determine groundwater availability

Why DFCs matter

Districts must manage production to achieve desired future conditions

A criteria for GCD planning and rule making

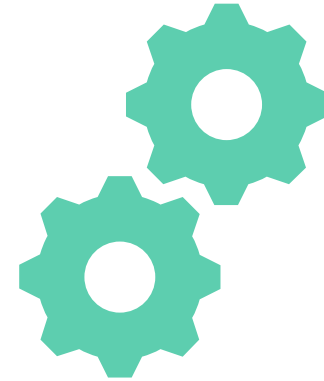
Results in modeled available groundwater that can be used to evaluate permit applications

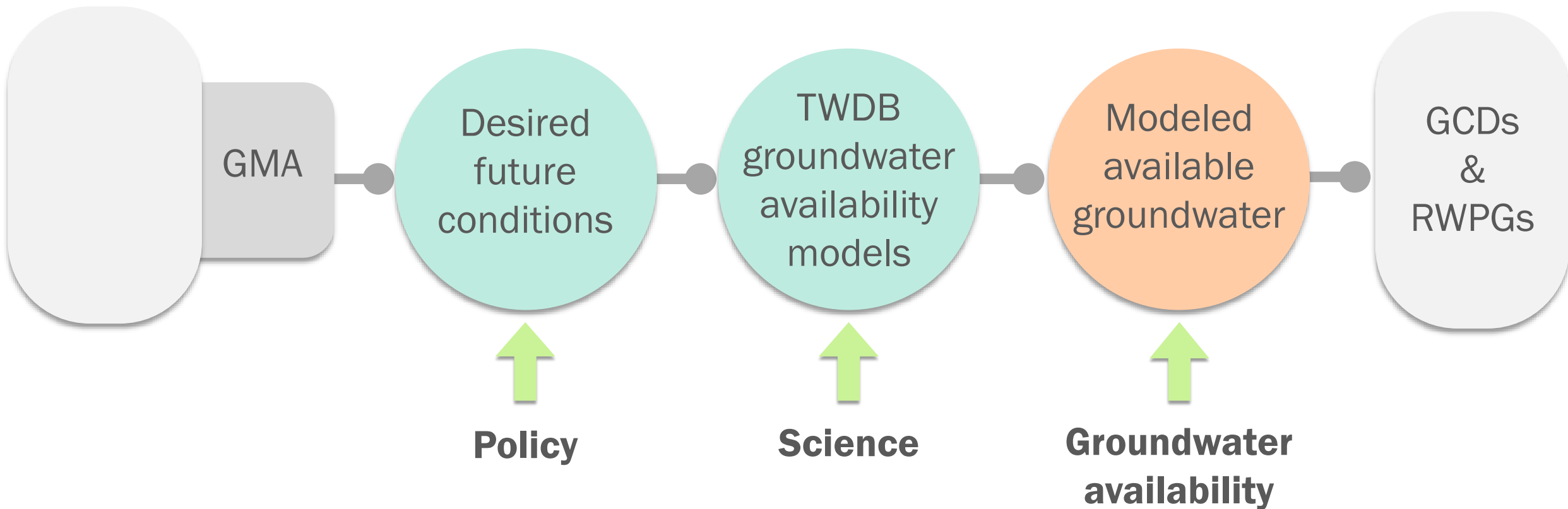
Why DFCs matter

Modeled available groundwater = water availability components that feed into regional water plans and state water plan

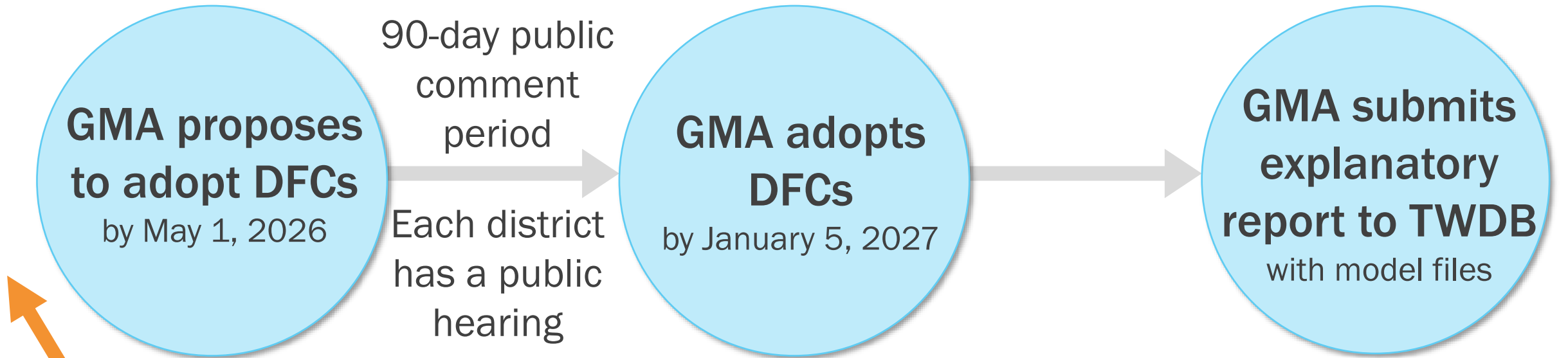
Influence policy and resource management decisions that affect all Texans

DFC Process









Joint planning meetings leading up to DFC proposal

★ Good time for stakeholder involvement is now, at the beginning of joint planning round, far before any DFC proposals happen

**GMA proposes
to adopt DFCs**
by May 1, 2026

9 factors

Aquifer uses and conditions	Environmental impacts	Property rights
State water plan	Land subsidence	Feasibility
Hydrologic conditions	Socioeconomics	Any other information

**GMA proposes
to adopt DFCs**
by May 1, 2026

A balancing act

**Highest practicable level of
groundwater production**

**Conservation, preservation,
protection, recharging,
prevention of waste of
groundwater, and control of
subsidence**

**GMA proposes
to adopt DFCs**
by May 1, 2026

Assessing DFC scenarios

GMA often hire consultants to use groundwater availability models to assess various DFC scenarios

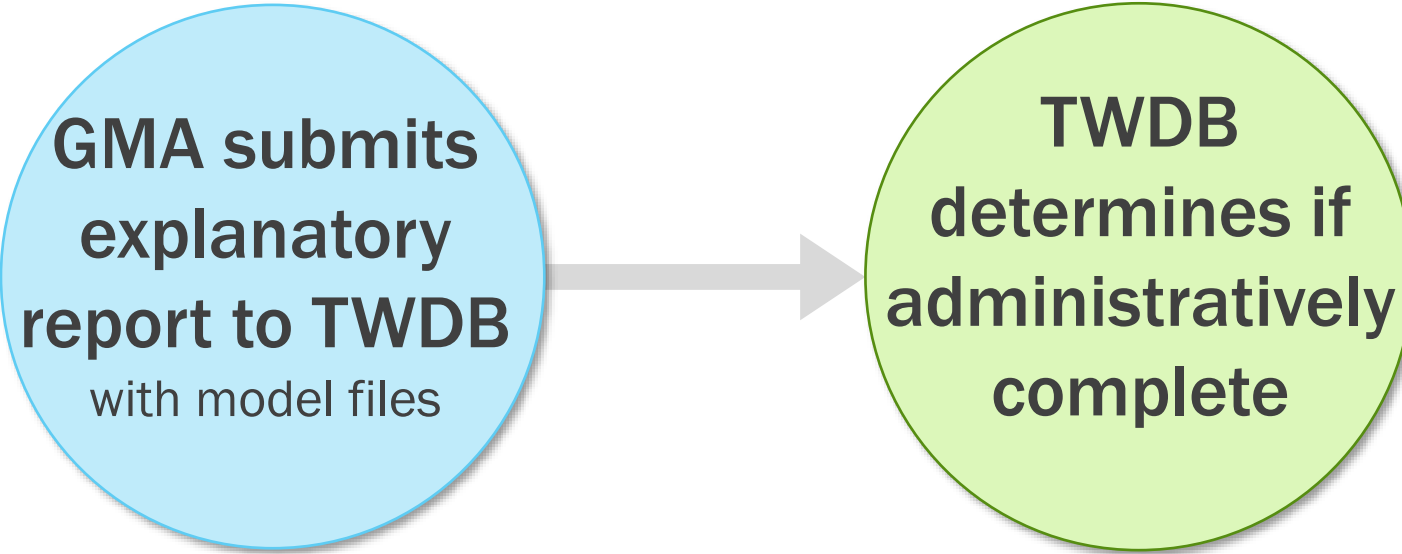
★ Active participation in the process could get a scenario you want to see on the decision table.

**GMA submits
explanatory
report to TWDB**
with model files

DFC Explanatory Report

Needs to include

- Each desired future condition
- Policy and technical justification
- Consideration of 9 factors
- Other desired future conditions considered and why those were not adopted
- Discussion of recommendations from advisory committees and relevant public comments
- Non-relevant aquifer documentation



**TWDB
determines if
administratively
complete**



MAGs

Modeled available groundwater MAG

Amount of water that may be produced on an average annual basis to achieve a desired future condition

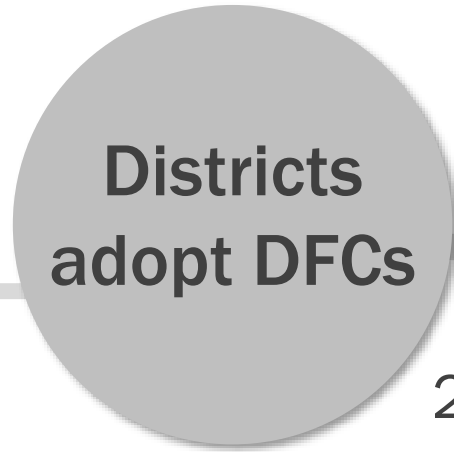
Calculated by the TWDB using GAMs

Used in permitting decisions, among other information

Provided to regional water planning areas as groundwater availability



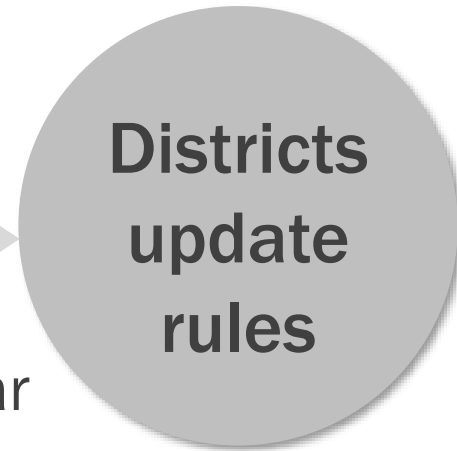
GMA notified

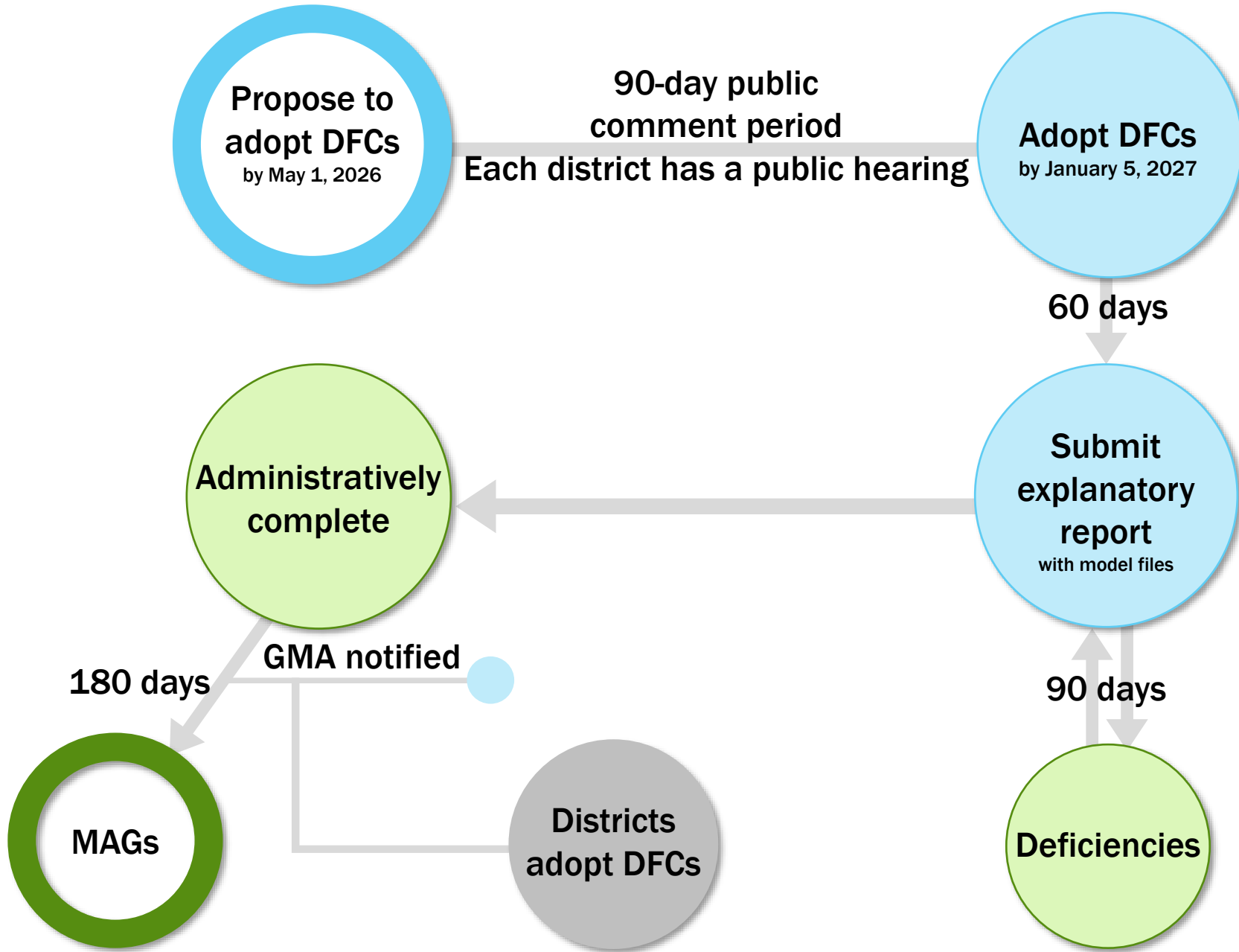
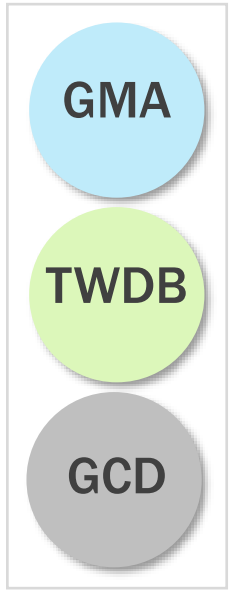


2 years



1 year





TWDB DFC Resources

[DFC webpage](#)

[Guidance documents](#)

[2021 joint planning documents](#)

[Groundwater Technical Assistance staff](#)

Slides prepared by

Natalie Ballew, P.G.

Groundwater Division Director, TWDB

512-463-2779

natalie.ballew@twdb.texas.gov