



# Formal Consideration of Nine Factors & Balancing Test in Section 36.108 of Texas Water Code

Desired Future Condition Adoption Process

March 8, 2016

# Statutory Definition of DFC

- “Desired future condition” means a quantitative description, adopted in accordance with Section 36.108, of the desired condition of the groundwater resources in a management area at one or more specified future times.

# DFC Currently Under Consideration

- Chart on next slide

Table 14. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Bottom of Aquifer Remaining on December 31, 2070

GCD	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers
Central Texas GCD	—	—	99%	—	91%	96%	87%	—
Clearwater UWCD	—	93%	93%	—	81%	89%	79%	—
Middle Trinity GCD	—	97%	92%	96%	78%	79%	69%	90%
North Texas GCD	61%	58%	85%	80%	—	—	—	66%
Northern Trinity GCD	96%	55%	77%	55%	—	—	—	71%
Post Oak Savannah GCD	—	—	92%	—	92%	92%	92%	—
Prairielands GCD	93%	96%	91%	70%	84%	87%	81%	—
Red River GCD	71%	72%	91%	89%	94%	—	—	86%
Saratoga UWCD	—	—	99%	—	97%	99%	93%	—
Southern Trinity GCD	98%	96%	90%	—	66%	80%	60%	—
Upper Trinity GCD	—	96%	92%	86%	80%	86%	53%	87%

Table 15. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Top of Aquifer Remaining on December 31, 2070

GCD	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers
Central Texas GCD	—	—	—	—	70%	94%	80%	—
Clearwater UWCD	—	92%	87%	—	73%	89%	74%	—
Middle Trinity GCD	—	95%	41%	77%	51%	70%	59%	—
North Texas GCD	30%	54%	81%	74%	—	—	—	17%
Northern Trinity GCD	4%	33%	53%	22%	—	—	—	—
Post Oak Savannah GCD	—	—	89%	—	87%	92%	88%	—
Prairielands GCD	89%	95%	85%	28%	77%	86%	77%	—
Red River GCD	48%	69%	89%	86%	92%	—	—	72%
Saratoga UWCD	—	—	—	—	82%	98%	90%	—
Southern Trinity GCD	98%	96%	82%	—	52%	79%	52%	—
Upper Trinity GCD	—	96%	46%	41%	44%	78%	41%	—

Table 16. NTGCD Run 10 - Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)

GCD	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers
Central Texas GCD	—	—	2	—	16	7	20	—
Clearwater UWCD	—	19	83	—	300	137	330	—
Middle Trinity GCD	—	6	27	6	88	72	111	10
North Texas GCD	278	671	341	569	—	—	—	290
Northern Trinity GCD	7	101	148	315	—	—	—	148
Post Oak Savannah GCD	—	—	212	—	345	229	345	—
Prairielands GCD	39	35	126	142	258	190	289	—
Red River GCD	204	699	283	377	269	—	—	304
Saratoga UWCD	—	—	1	—	6	1	11	—
Southern Trinity GCD	6	35	133	—	471	220	542	—
Upper Trinity GCD	—	4	17	29	80	43	141	30

# Required Considerations (Overview)

- Districts in a GMA shall consider 9 factors before voting to propose DFC ✓
  - This means that individual districts need to consider these factors prior to voting to approve the DFC that will be proposed by the GMA
  - Reminder: GMA 8 will propose the DFC by May 1, 2016, and then the District will hold a hearing, prepare a summary report, GMA 8 will then formally adopt, and the District will ultimately adopt the DFCs
- Also must consider a balancing test described in the statute ✓
- Must consider Groundwater Availability Model (GAM) and other data ✓

# Factor 1

- Aquifer uses and conditions within the management area, including conditions that differ substantially from one geographic area to another
  - District specific considerations include whether there is:
    - Difference in pumping in counties within District
    - Predominant surface water use in some areas versus heavy groundwater use in others
    - Registration and current pumping figures

# Factor 2

- Water supply needs and water management strategies included in the state water plan
  - Detailed description in Management Plan adopted in 2012 (Last State Water Plan officially adopted in 2012)
  - Reviewed 2016 Regional Water Plan (State Water Plan to be adopted in 2017)
  - Strategies from 2012 SWP and 2016 RWP show that:
    - Water suppliers in Collin and Cooke counties do not intend to rely on groundwater to meet additional water demands; and
    - Denton County water suppliers expect that groundwater will make up a small portion of their additional supply.

# Factor 3

- Hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage (TERS) as provided by the [TWDB] executive administrator, and the average annual recharge, inflows, and discharge
  - TERS as estimated by TWDB (charts on next 2 slides):
  - Recharge, Inflows, Discharge figures: Management Plan and GAM Run 10 Memo



**TABLE 7. TOTAL ESTIMATED RECOVERABLE STORAGE BY COUNTY FOR THE TRINITY AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. COUNTY TOTAL ESTIMATES ARE ROUNDED TO TWO SIGNIFICANT FIGURES.**

<i>County</i>	<i>Total Storage (acre-feet)</i>	<i>25 percent of Total Storage (acre-feet)</i>	<i>75 percent of Total Storage (acre-feet)</i>
Bell	59,000,000	14,750,000	44,250,000
Bosque	40,000,000	10,000,000	30,000,000
Brown	2,600,000	650,000	1,950,000
Burnet	11,000,000	2,750,000	8,250,000
Callahan	1,800,000	450,000	1,350,000
<b>Collin</b>	<b>88,000,000</b>	<b>22,000,000</b>	<b>66,000,000</b>
Comanche	8,300,000	2,075,000	6,225,000
<b>Cooke</b>	<b>45,000,000</b>	<b>11,250,000</b>	<b>33,750,000</b>
Coryell	34,000,000	8,500,000	25,500,000
Dallas	77,000,000	19,250,000	57,750,000
Delta	11,000,000	2,750,000	8,250,000
<b>Denton</b>	<b>64,000,000</b>	<b>16,000,000</b>	<b>48,000,000</b>

# TERS Charts Continued...

**TABLE 11. TOTAL ESTIMATED RECOVERABLE STORAGE BY COUNTY FOR THE WOODBINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. COUNTY TOTAL ESTIMATES ARE ROUNDED TO TWO SIGNIFICANT FIGURES.**

<i>County</i>	<i>Total Storage (acre-feet)</i>	<i>25 percent of Total Storage (acre-feet)</i>	<i>75 percent of Total Storage (acre-feet)</i>
Collin	32,000,000	8,000,000	24,000,000
Cooke	1,200,000	300,000	900,000
Dallas	30,000,000	7,500,000	22,500,000
Denton	8,900,000	2,225,000	6,675,000

# Factor 4

- Other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water
  - No specific spring flow impacts, as shown in GAM Run 10 Memo
  - Interactions between groundwater and surface water present in alluvial wells, and taken into consideration.

# Factor 5

- The impact on subsidence
  - No known/measured subsidence in area
  - Consistent with Management Plan, which states that subsidence is not an issue for the District at this time (Goal 3)

# Factor 6

- Socioeconomic Impacts Reasonably Expected to Occur
  - A balancing test between considering historic use of groundwater, and new users that have not yet drilled
  - Consider investment backed expectations of those that have already drilled and are using wells
  - Consider need to meet future demand with groundwater supply (only projected for Denton County at this time)
  - Consider economic impacts of water wells going dry
    - Costs to lower pumps, drill new wells, etc...
  - Other considerations

# Factor 7

- The impact on the interests and rights in private property, including ownership and the rights of management area landowners and their lessees and assigns in groundwater as recognized under Section 36.002
  - Section 36.002 says (paraphrased):
    1. Landowner owns the groundwater under his/her property as real property
    2. Landowners are entitled to:
      - Drill and produce groundwater subject to a groundwater district's reasonable regulations
    3. These ownership rights do not entitle a landowner to a specific amount of groundwater or affect any defenses to liability under the rule of capture (malice, waste, etc...)

# Factor 7 Continued

- Balance of groundwater ownership rights with District's reasonable regulation (that is based on the DFC)
- Other considerations

# Factor 8

- The feasibility of achieving the desired future condition.
  - Consider whether the DFC is something that can actually be accomplished
  - This requirement ended up in the statute based on the last round of joint planning (in 2010)—because some districts initially selected DFCs that were physically impossible to achieve
  - Current DFC under consideration is physically possible to achieve according to updated GAM model runs

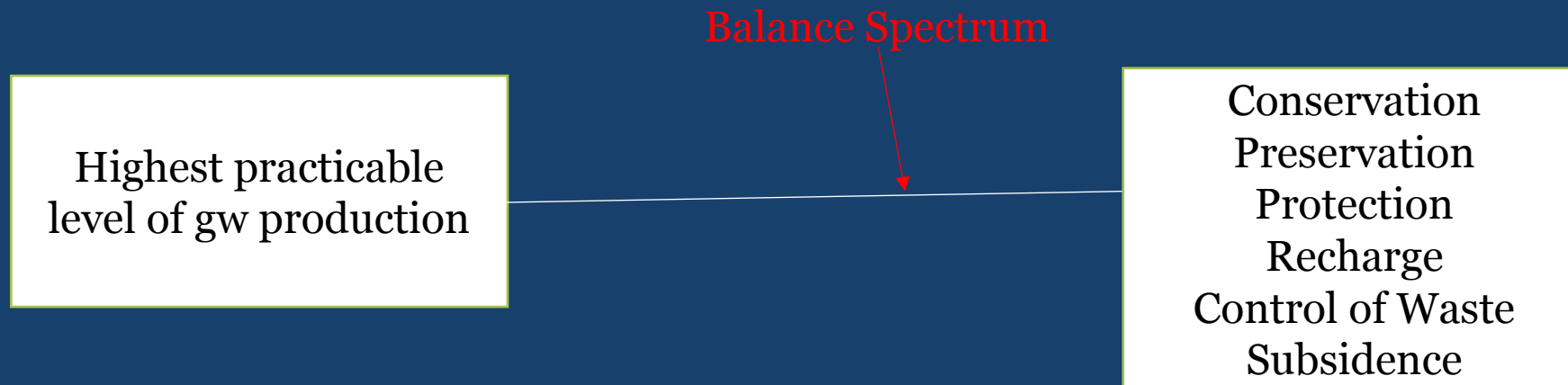


# Factor 9

- Any other information relevant to the specific DFC.
  - Catchall category
  - Allows flexibility to consider other topics not specifically mentioned in the “list of 9” that is in the statute
  - One important consideration is the unique position the District is in of having many surface water suppliers and additional projected surface water supplies available in the future

# Other Considerations in Statute

- Statute also says that the DFCs must provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevent of waste of groundwater and control of subsidence in the GMA
- Multiple model runs helped establish a balance



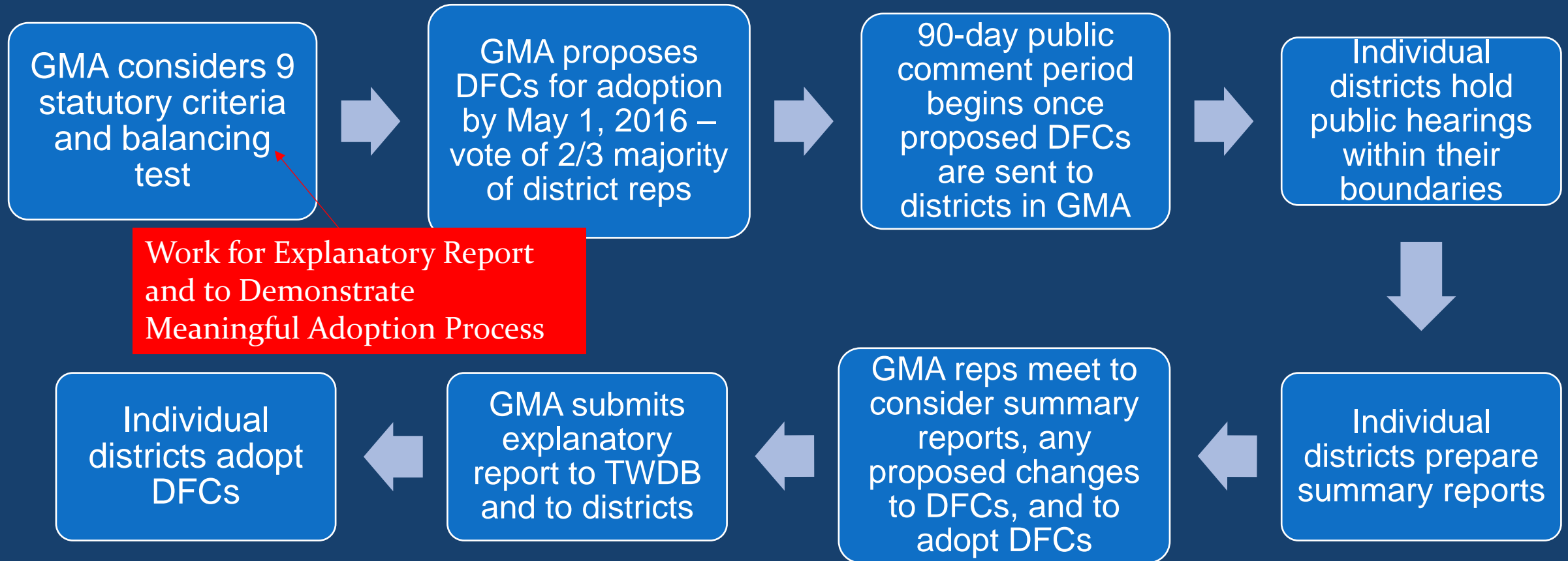
# Other Considerations in Statute

- Consider Groundwater Availability Models (GAM) and other data relevant to the management area
  - District met this particular criteria through consideration of:
    1. New GAM created in large part by funding from the District;
    2. Multiple GAM runs completed in 2015, and selection of DFC is based on these GAM runs along with consideration of other criteria discussed over many months; and
    3. Additional hydrogeological information created and presented by consultant, including but not limited to drawdown maps and figures and projections on impacts to wells.

# Summary

- Consideration of all the factors and topics discussed previously and also today meets the statutory criteria for adopting a DFC
- This round of joint planning is the first time districts and GMAs have had to consider these factors and topics discussed today and have proof of doing so (based on legislative changes made in 2011)
- Path Forward:
  1. Your District rep votes to propose the DFCs by the May 1 deadline
  2. A 90 day public comment period begins shortly thereafter, and District holds a hearing on its DFCs
  3. District prepares and sends summary report to GMA
  4. GMA 8 votes to formally adopt DFCs
  5. District formally adopts DFCS at district-level

# Adoption Process Overview





Questions?