

# North Texas GCD Board Meeting

June 9, 2020

# Agenda Item 9

- 💧 Consider and act upon authorizing the District's GMA 8 representative to approve participation in Groundwater Availability Model Run 11.

# GMA 8 Schedule to Discuss Nine Factors

November 2019		
Environmental Impacts	Subsidence Impacts	Hydrological Conditions
February 2020		
Aquifer Uses or Conditions	Supply Needs & Management Strategies	Private Property Rights
May 2020		
Socioeconomic Impacts	DFC Feasibility	Other Relevant Information

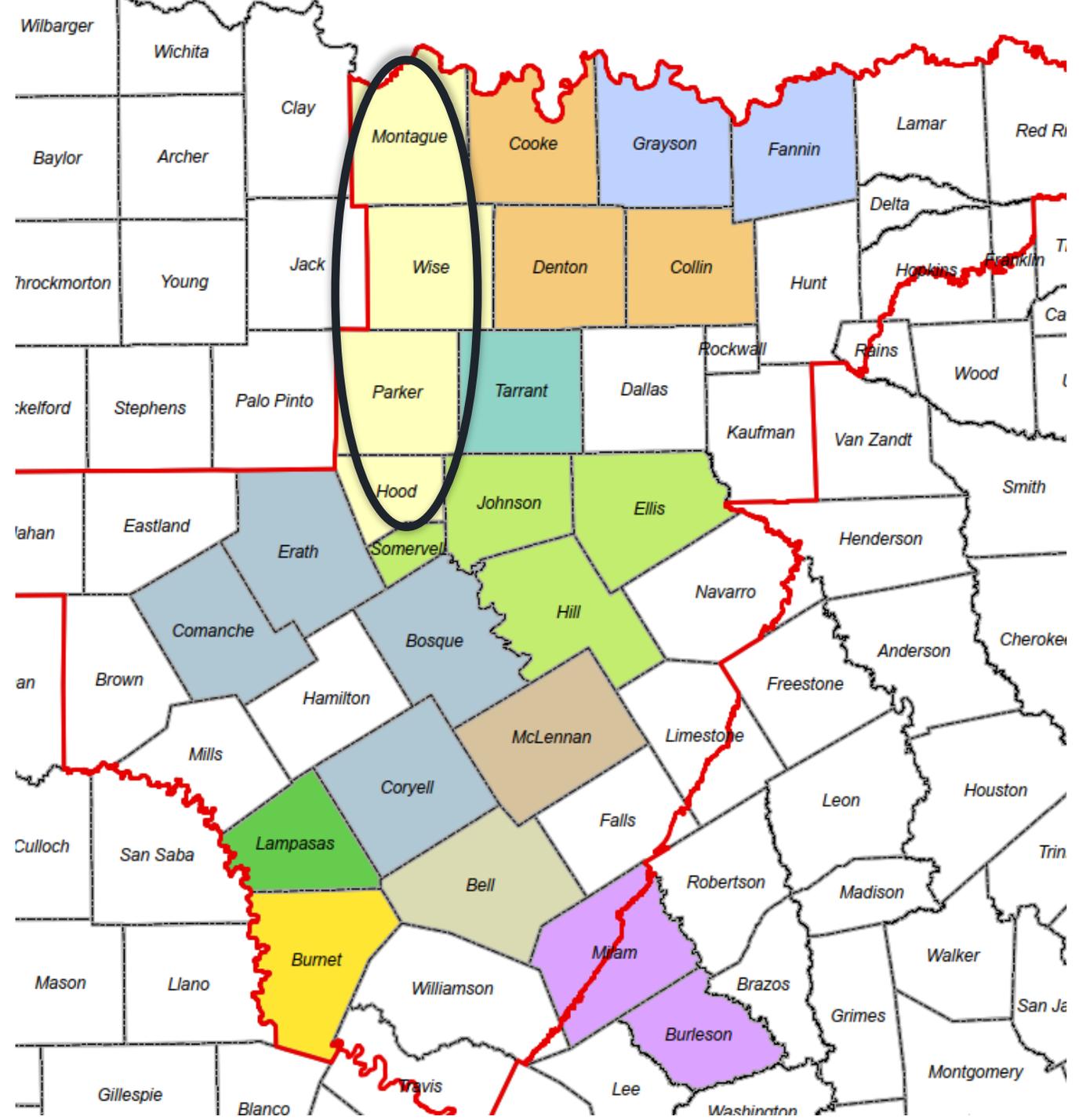
# Run 11 Results – Pumping Changes

- The changes to pumping are shown for each GCD or county
- Changes are shown in terms of adjustment from Run 10 pumping
  - Positive values indicate increased pumping, and negative indicates reduced pumping
- All pumping is held constant at the MAG pumping levels, except for the first 10 years of Southern Trinity GCD, but then change back to constant values starting in 2020.
- In addition to the 4 GCDs, both Williamson and Travis County have had changes made to their pumping rates from Run 10.

# Run 11 Results - DFC

- Stress periods were extend out another 10 years to run through 2080.
- Stress periods were all set to 365.25 days, Run 10 used 365 days plus leap year of 366.
- Average recharge (same as Run 10) was used from the start of the run until the end of 2077. From 2078 through end of 2080 the drought of record recharge was used.
- Pumping was altered for 4 GCDs, and two counties.

# GMA 8 Changes to pumping for proposed Run 11



# Upper Trinity GCD Pumping

Aquifer	O/D	County	Run 10 AFY	Adjustment	Run 11 AFY
Glen Rose	Outcrop	Hood	654	138	792
Glen Rose	Downdip	Hood	103	22	125
Paluxy	Outcrop	Hood	159	0	159
Twin Mountains	Outcrop	Hood	3,674	1,351	5,025
Twin Mountains	Downdip	Hood	7,854	2,914	10,768
Antlers	Outcrop	Montague	3,878	2,236	6,114
Antlers	Downdip	Montague			
Antlers	Outcrop	Parker	2,899	6	2,905
Antlers	Downdip	Parker			
Glen Rose	Outcrop	Parker	2,290	1,394	3,684
Glen Rose	Downdip	Parker	874	532	1,406
Paluxy	Outcrop	Parker	2,609	5	2,614
Paluxy	Downdip	Parker	50	0	50
Twin Mountains	Outcrop	Parker	1,074	220	1,294
Twin Mountains	Downdip	Parker	2,083	444	2,527
Antlers	Outcrop	Wise	7,702	1,404	9,106
Antlers	Downdip	Wise	2,058	381	2,439
-	-	Total	37,961	11,048	49,009



# Southern Trinity GCD Pumping

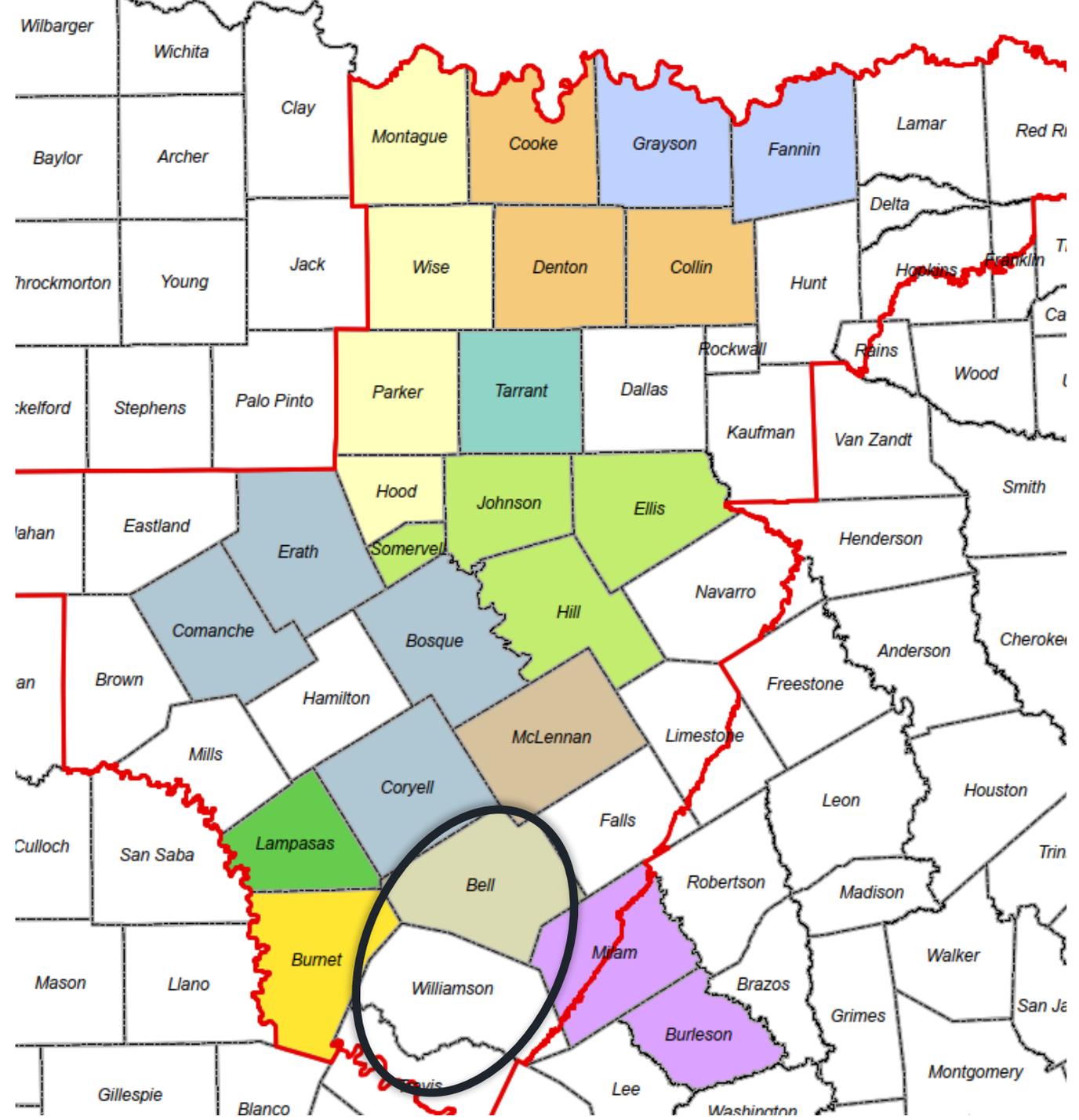
<b>Year</b>	<b>Hosston Run 10 AFY</b>	<b>Adjustement for Hosston</b>	<b>Hosston Run 11 AFY</b>
<b>2010</b>	15,937	-4,135	11,802
<b>2011</b>	15,937	-4,635	11,302
<b>2012</b>	15,937	-5,361	10,576
<b>2013</b>	15,937	-6,978	8,959
<b>2014</b>	15,937	-8,424	7,513
<b>2015</b>	15,937	-7,565	8,372
<b>2016</b>	15,937	-7,074	8,863
<b>2017</b>	15,937	-7,929	8,008
<b>2018</b>	15,937	-8,130	7,807
<b>2019</b>	15,937	-8,135	7,802
<b>2020-2070</b>	15,937	0	15,937



# Prairielands GCD Pumping

<b>Aquifer</b>	<b>Run 10 AFY</b>	<b>Adjustment</b>	<b>Run 11 AFY</b>
<b>Hensell</b>	3,603	-3,207	397
<b>Pearsall</b>	98	1,848	1,946
<b>Hosston</b>	13,237	1,358	14,596

# GMA 8 Changes to pumping for proposed Run 11



# Clearwater UWCD Pumping

<b>Aquifer</b>	<b>Run 10 AFY</b>	<b>Adjustment</b>	<b>Run 11 AFY</b>
<b>Glen Rose</b>	972	-697	275
<b>Hensell</b>	1,097	3	1,100
<b>Hosston</b>	7,179	721	7,900



# Central Texas GCD Pumping

<b>Aquifer</b>	<b>Run 10 AFY</b>	<b>Adjustment</b>	<b>Run 11 AFY</b>
<b>Glen Rose</b>	424	-276	148
<b>Hensell</b>	1,891	773	2,664
<b>Hosston</b>	1,381	-493	888

# Run 11 Results – DFC Difference from Run 10

- To compare how the model results differed from Run 10, DFC values were extracted at the end of 2070 and compared to the Run 10 DFC values
- **Negative blue values** indicate higher water levels
- **Positive red values** indicate greater drawdown

## Difference in DFC Drawdown between Run 10 and Run 11 (feet in 2070)

County	Woodbine	Paluxy	Glen Rose	Twin Mnts	Travis Peak	Hensell	Hosston	Antlers
Bell	-	-1	-4	-	32	4	37	-
Bosque	-	0	3	-	18	8	27	-
Brown	-	0	0	-	0	0	0	0
Burnet	-	-	0	-	2	1	-1	-
Callahan	-	-	-	-	-	-	-	0
Collin	1	4	7	16	-	-	-	11
Comanche	-	0	0	-	1	0	0	0
Cooke	0	-	-	-	-	-	-	9
Coryell	-	0	0	-	6	3	8	-
Dallas	2	5	10	34	45	12	48	-
Delta	-	2	3	-	3	-	-	-
Denton	0	1	6	22	-	-	-	11
Eastland	-	-	-	-	-	-	-	0

## Difference in DFC Drawdown between Run 10 and Run 11 (feet in 2070)

County	Woodbine	Paluxy	Glen Rose	Twin Mnts	Travis Peak	Hensell	Hosston	Antlers
Ellis	3	6	13	66	57	13	63	-
Erath	-	0	0	1	4	-1	2	1
Falls	-	8	15	-	33	16	34	-
Fannin	0	3	4	9	6	-	-	4
Grayson	0	3	4	10	-	-	-	5
Hamilton	-	0	0	-	1	0	2	-
Hill	1	2	9	-	55	17	64	-
Hunt	3	4	5	10	8	-	-	-
Johnson	0	1	3	23	43	-11	86	-
Kaufman	9	13	16	25	28	20	30	-
Lamar	0	1	1	-	2	-	-	2
Lampasas	-	0	0	-	0	0	0	-
Limestone	-	7	19	-	27	20	28	-

## Difference in DFC Drawdown between Run 10 and Run 11 (feet in 2070)

County	Woodbine	Paluxy	Glen Rose	Twin Mnts	Travis Peak	Hensell	Hosston	Antlers
McLennan	0	3	9	-	26	15	30	-
Milam	-	-	18	-	54	20	54	-
Mills	-	0	0	-	2	0	0	-
Navarro	6	6	20	-	36	26	35	-
Red River	0	0	0	-	1	-	-	0
Rockwall	5	9	11	20	-	-	-	-
Somervell	-	-1	-1	18	11	-10	35	-
Tarrant	0	1	9	26	-	-	-	26
Taylor	-	-	-	-	-	-	-	0
Travis	-	-	0	-	68	12	69	-
Williamson	-	-	-3	-	39	10	40	-

## Difference in DFC Drawdown between Run 10 and Run 11 (feet in 2070)

County	O/D	Paluxy	Glen Rose	Twin Mnts	Antlers
Hood	Downdip	-	7	24	-
Hood	Outcrop	0	1	8	-
Montague	Downdip	-	-	-	-
Montague	Outcrop	-	-	-	21
Parker	Downdip	0	18	17	-
Parker	Outcrop	0	6	5	31
Wise	Downdip	-	-	-	9
Wise	Outcrop	-	-	-	23

# Run 11 Results – Proposed DFC Values for Run 11

- Proposed DFC values are calculated the same as Run 10
- Proposed DFC is the average drawdown from the start of the model run (2010) until the end of the model run (2080)
- The proposed DFC drawdown values are averaged over each county and GCD

## Run 11 Results – Average Drawdown Values in 2080

County	Woodbine	Paluxy	Glen Rose	Twin Mnts	Travis Peak	Hensell	Hosston	Antlers
Bell	-	17	83	0	333	145	375	0
Bosque	-	6	53	0	189	139	232	0
Brown	-	2	1	0	2	1	1	2
Burnet	0	0	2	0	19	7	21	0
Callahan	-	0	0	0	0	0	0	1
Collin	482	729	366	560	-	0	0	596
Comanche	-	2	2	0	4	2	3	12
Cooke	2	0	0	0	0	0	0	191
Coryell	-	5	15	0	107	70	141	0
Dallas	137	346	288	515	415	362	419	0
Delta	-	279	198	0	202	0	0	0
Denton	20	558	367	752	0	0	0	416
Eastland	-	0	0	0	0	0	0	4

## Run 11 Results – Average Drawdown Values in 2080

County	Woodbine	Paluxy	Glen Rose	Twin Mnts	Travis Peak	Hensell	Hosston	Antlers
Ellis	76	128	220	413	380	290	390	0
Erath	-	6	6	8	25	12	35	14
Falls	-	159	238	0	505	296	511	0
Fannin	259	709	305	400	291	0	0	269
Grayson	163	943	364	445	0	0	0	364
Hamilton	-	2	4	0	26	14	38	0
Hill	20	45	149	0	365	211	413	0
Hunt	631	610	326	399	350	0	0	0
Johnson	4	-57	66	184	235	120	329	0
Kaufman	242	311	305	427	372	349	345	0
Lamar	42	100	107	0	125	0	0	132
Lampasas	-	1	1	0	6	1	11	0
Limestone	-	199	301	0	433	214	445	0

## Run 11 Results – Average Drawdown Values in 2080

County	Woodbine	Paluxy	Glen Rose	Twin Mnts	Travis Peak	Hensell	Hosston	Antlers
McLennan	6	41	148	0	504	242	582	0
Milam	0	0	241	0	412	261	412	0
Mills	-	1	1	0	9	2	13	0
Navarro	110	139	266	0	343	295	343	0
Red River	2	24	40	0	57	0	0	15
Rockwall	275	433	343	466	-	0	0	0
Somervell	-	4	4	50	64	17	120	0
Tarrant	6	105	163	348	0	0	0	177
Taylor	-	0	0	0	0	0	0	0
Travis	0	0	83	0	219	68	226	0
Williamson	0	0	78	0	220	89	225	0
McLennan	6	41	148	0	504	242	582	0

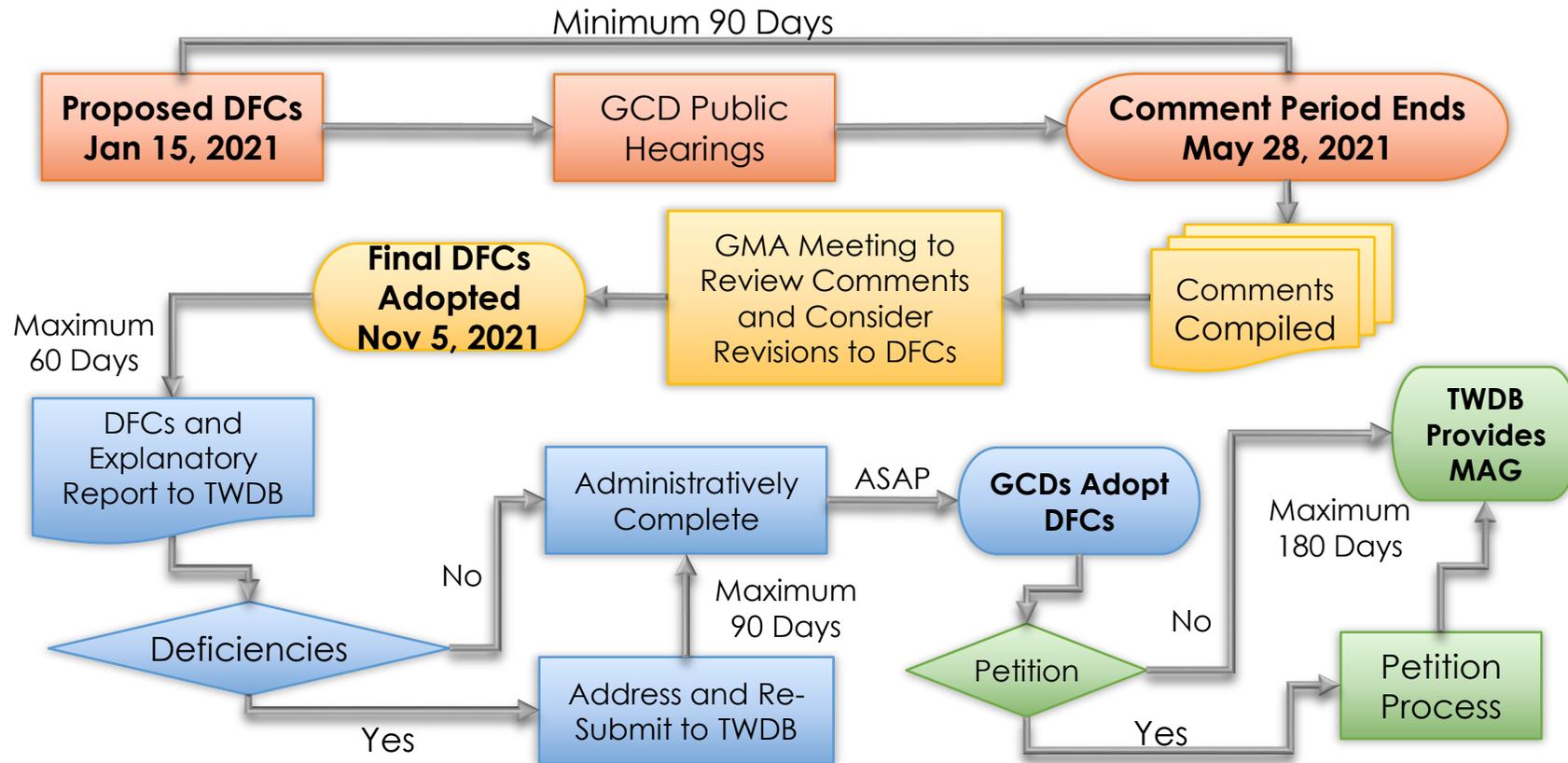
## Run 11 Results – Average Drawdown Values in 2080

County	O/D	Paluxy	Glen Rose	Twin Mnts	Antlers
Hood	Downdip	-	39	72	0
Hood	Outcrop	6	9	13	0
Montague	Downdip	0	0	0	-
Montague	Outcrop	0	0	0	40
Parker	Downdip	2	50	68	-
Parker	Outcrop	6	20	7	42
Wise	Downdip	0	0	0	154
Wise	Outcrop	0	0	0	59

# GMA 8 Path Forward

- Next GMA 8 meeting is August 7, 2020
- Discussion and possible action regarding Run 11 results be the Proposed DFCs for GMA 8 for the Northern Trinity and Woodbine Aquifers
- Discussion may also include:
  - Possible minor changes
  - Appropriate statement of differences to be included with submission to TWDB
  - Other aquifers, nonrelevant aquifers, etc.
- Today: Asking that the NTGCD GMA 8 representative be able to make decisions regarding minor changes to the proposed DFCs or statements at the August 7 meeting

# Anticipated Timeline for GMA 8 DFC Process



Thank you!

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