Technical Discussion of Desired Future Conditions for 4th Round of Joint Planning

Presentation to the

GMA 14

January 28, 2026

Note:

- This presentation is based largely on the presentation from the LSGCD Board Meeting on January 13, 2026

- Presentation is appropriate for GMA 14 because other GCDs have indicated no significant changes in projected pumping for this round of joint planning.

Outline

01	Joint planning summary
02	Modeling Approach
03	Modeling Results
04	DFC Committee Recommendation
05	Next Steps

EXECUTIVE SUMMARY

LSGCD DFC Committee Recommendation

- No change to the adopted DFC: Minimum 70% median available drawdown remaining in 2080, Scenario 2026.14-3 (200,000 AFY)
- Evaluation approach
  - Maintain available drawdown calculation approach from previous round of joint planning
  - Update the TWDB well dataset for determining the median available drawdown remaining from 2018 to 2080
- We support GMA 14 Member Districts selecting a DFC that is appropriate for their aquifer management (i.e. – different or additional metrics allowed for each GCD)

Joint Planning Process and Timeline

Propose

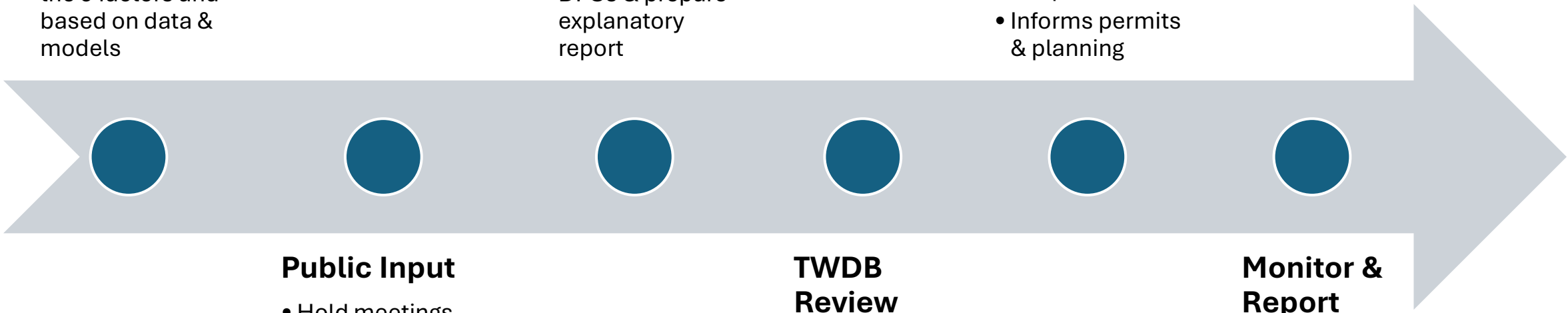
- GCDs in a GMA develop proposed DFCs considering the 9 factors and based on data & models

Adopt

- GMA representatives vote to adopt DFCs & prepare explanatory report

MAG

- Derived from adopted DFCs
- Informs permits & planning



Public Input

- Hold meetings, gather comments & revise

TWDB Review

- Reviews materials & develop MAGs

Monitor & Report

- Use monitoring data to compare to DFCs

Desired Future Conditions (“DFCs”) TWC 36.108(d-2)

Highest Practicable Level
of Groundwater Production

Conservation,
Preservation, Protection,
Recharging, and Prevention
of Waste of Groundwater
and Control of Subsidence

DFC Considerations TWC 36.108(d)

(1) Aquifer Uses or Conditions

(2) Supply Needs and Management Strategies

(3) Hydrological Conditions

(4) Environmental Impacts

(5) Subsidence Impacts

(6) Socioeconomic Impacts

(7) Private Property Rights

(8) Feasibility

(9) Other Relevant Information

LSGCD principles for 4th Round of Joint Planning

- After balancing the factors, DFC committee recommends that the DFC should allow for groundwater use to meet projected demands
- Continuation of no subsidence metric for Montgomery County
- Exploring 3 potential production scenarios that consider
  - Existing permits
  - 2026 Regional Water Plan (RWP) demand projections
  - Uncertainty in surface water availability and conversion in Montgomery County
- Catahoula Aquifer and other aquifers will continue to be designated as Non-Relevant for Joint Planning purposes, as they were in prior round of planning

Technical Approach for 4th Round of Joint Planning

- GMA-14 is using updated GMA-14 GAM
- Other GCDs provided input on pumping, and most preferred to use the same volume of pumping as the last round with redistribution (2018 well distribution and outcrop)
- Using the same approach for calculating DFCs from model outputs (water levels)
  - Retain the same DFC metric (water level) - remaining median available drawdown
  - Calculation period is 2018 to 2080
  - All wells in TWDB databases where the total depth is reported
  - Updated the dataset with wells completed thru 2025

LSGCD - Historically Adopted Desired Future Conditions ("DFCs")

Cycle	Baseline → Horizon	Unit	Adopted DFC in Montgomery County
2010	2008 → 2016; then 2060	Chicot	≤ 3 ft drawdown by 2016; then ≤ 6 ft additional (2016–2060)
		Evangeline	≤ 13 ft by 2016; then ≤ 25 ft additional (2016–2060)
		Burkeville	≤ 10 ft by 2016; then ≤ 23 ft additional (2016–2060)
		Jasper	≤ 61 ft by 2016; then ≈ +38 ft water-level rise by 2060
2016	2010 → 2070	Chicot	≤ 26 ft average drawdown
		Evangeline	4 ft average rise
		Burkeville	4 ft average rise
		Jasper	≤ 34 ft average drawdown **mediated settlement of petition of DFCs*
2021	2010 → 2080	Gulf Coast Aquifer System	≥ 70% median available drawdown remaining in 2080

2021 Joint Planning
Median Remaining Available Drawdown

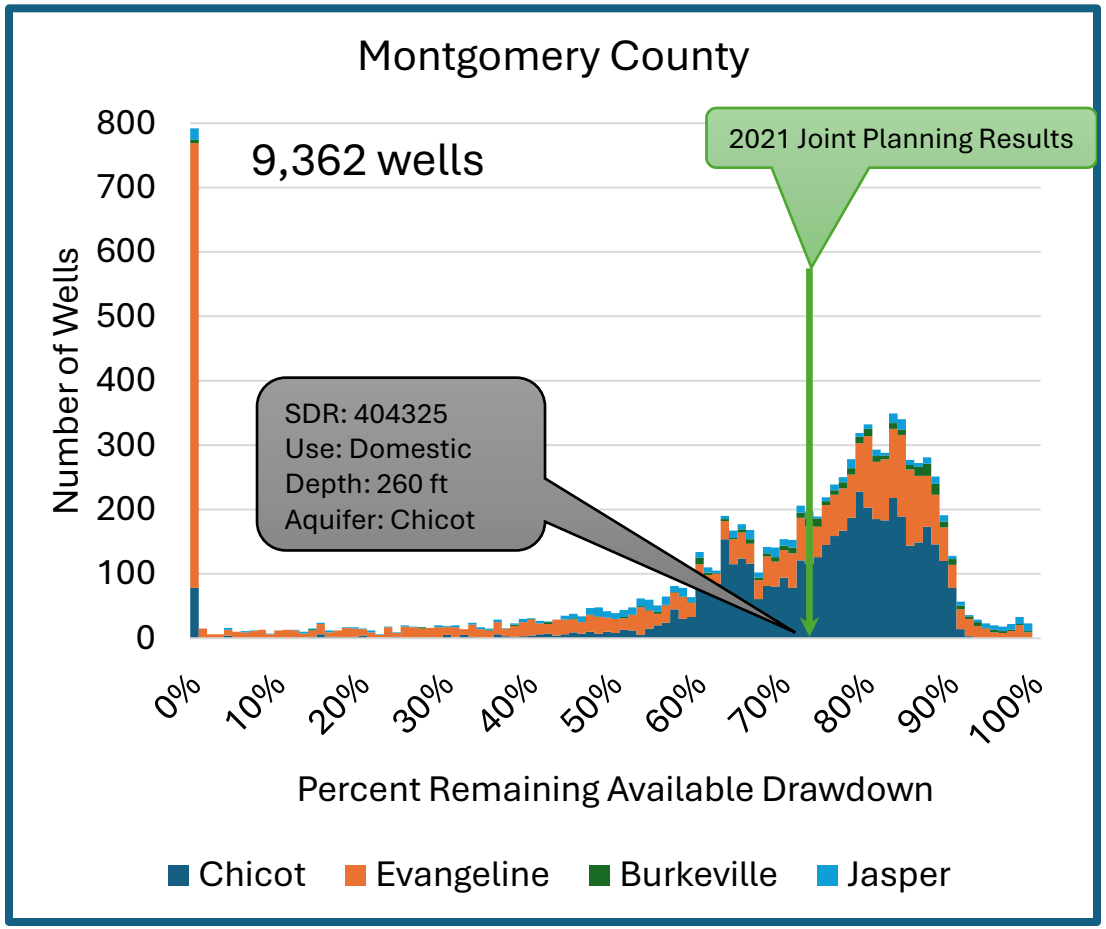
2021 Joint Planning
Available Drawdown =
WL above Bottom of Well

2009 WL

2080 WL

Percent Remaining =
2080 Avail. DD /
2009 Avail. DD

Bottom of Well

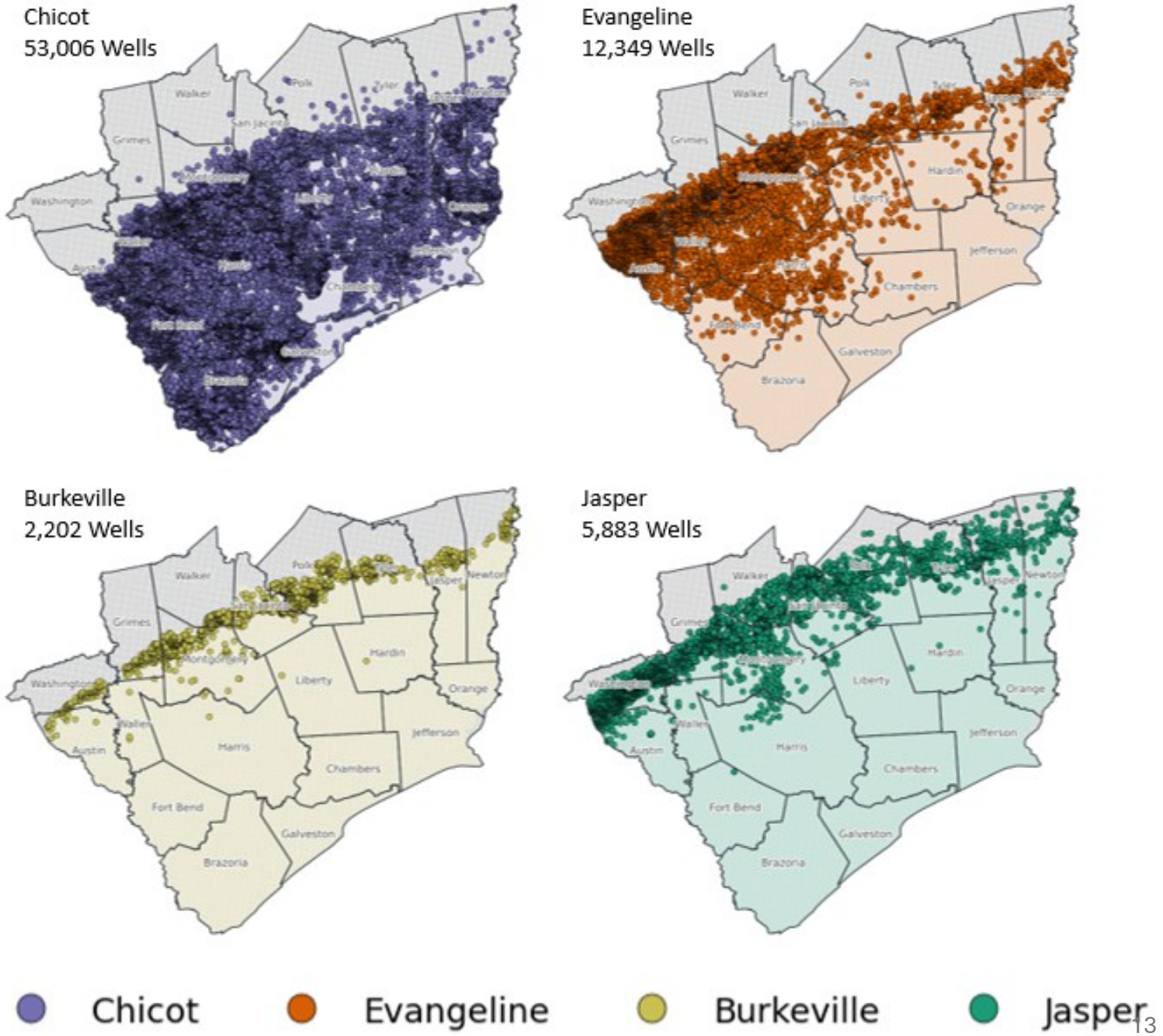


Updated Dataset for Calculating Median Remaining Available Drawdown

- Current DFC: Dataset includes all wells from the TWDB Groundwater Database and Submitted Driller's Report Database through 2021

- Proposed DFC: Dataset includes all wells from the TWDB Groundwater Database and Submitted Driller's Report Database through 2025
  - Model layer assignments based on:
    - TWDB GWDB assigned aquifer
    - Well screen interval and model layer depths

Wells in TWDB Databases used to calculate proposed DFCs



Modeling Evaluations

- Using draft GMA 14 model for predictive scenarios
- Updated pumping in GMA 14 GCDs based on input from their technical consultants
- Subsidence district pumping from Scenario E7 from the HGSD 2023 Joint Regulatory Plan Review (Task D - Conversion Scenarios) dated June 10, 2025
- Updated LSGCD pumping to evaluate:
  - Current DFC and modeled available groundwater (MAG) (~97,000 AFY)
  - Current permitted volumes (150,000 AFY)
  - Based on projected demands from the 2026 Regional Water Plan – two other scenarios were developed to address uncertainty in surface water supplies and conversion
    - 200,000 AFY
    - 225,000 AFY (RWP demand projection)

Pumping Scenarios

Held Constant in All Scenarios

Scenario Name	LSGCD* Montgomery County Pumping (AFY)	Subsidence Districts 2080 Pumping (AFY)	Other GCD Pumping (AFY)
2026.14-1	97,000 2021 MAG Run Pumping	2021 MAG Run Pumping	BGCD = 200,628 BCGCD = 54,925 LTGCD = 77,549 SETGCD = 192,860
2026.14-2	150,000	HGSD Scenario E7 Harris – 287,901 Fort Bend – 232,647 Galveston – 2,633	
2026.14-3	200,000		
2026.14-4	225,000		

*LSGCD pumping values do not include Catahoula pumping. Catahoula pumping (10,868 afy) is included in the DFC runs, but not included in the volumed above because it is designated as Non-Relevant for Joint Planning purposes

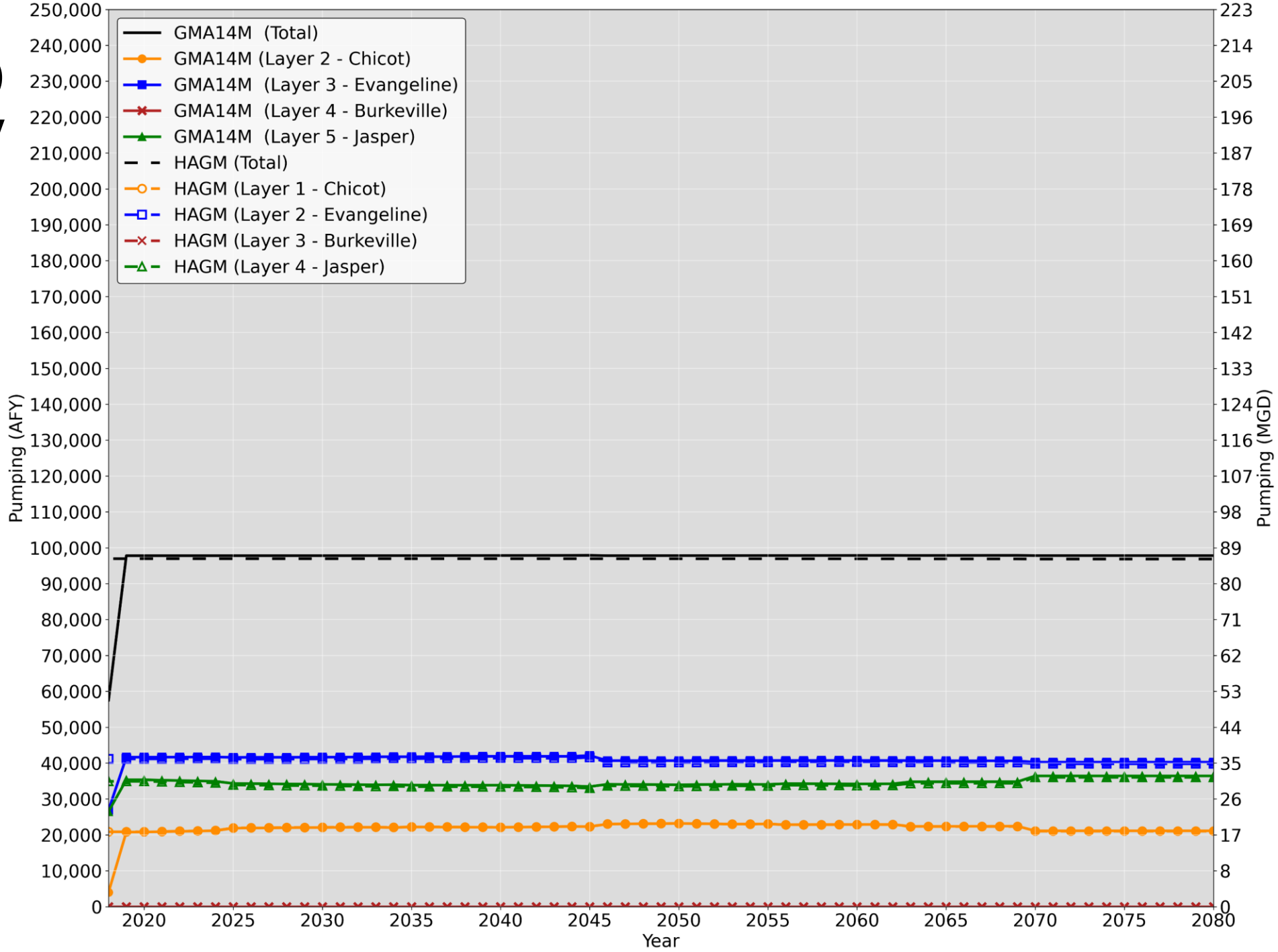
**Non-substantive adjustments to some outcrop well locations was required for model convergence,

2080 Montgomery County Pumping by Hydrogeologic Unit

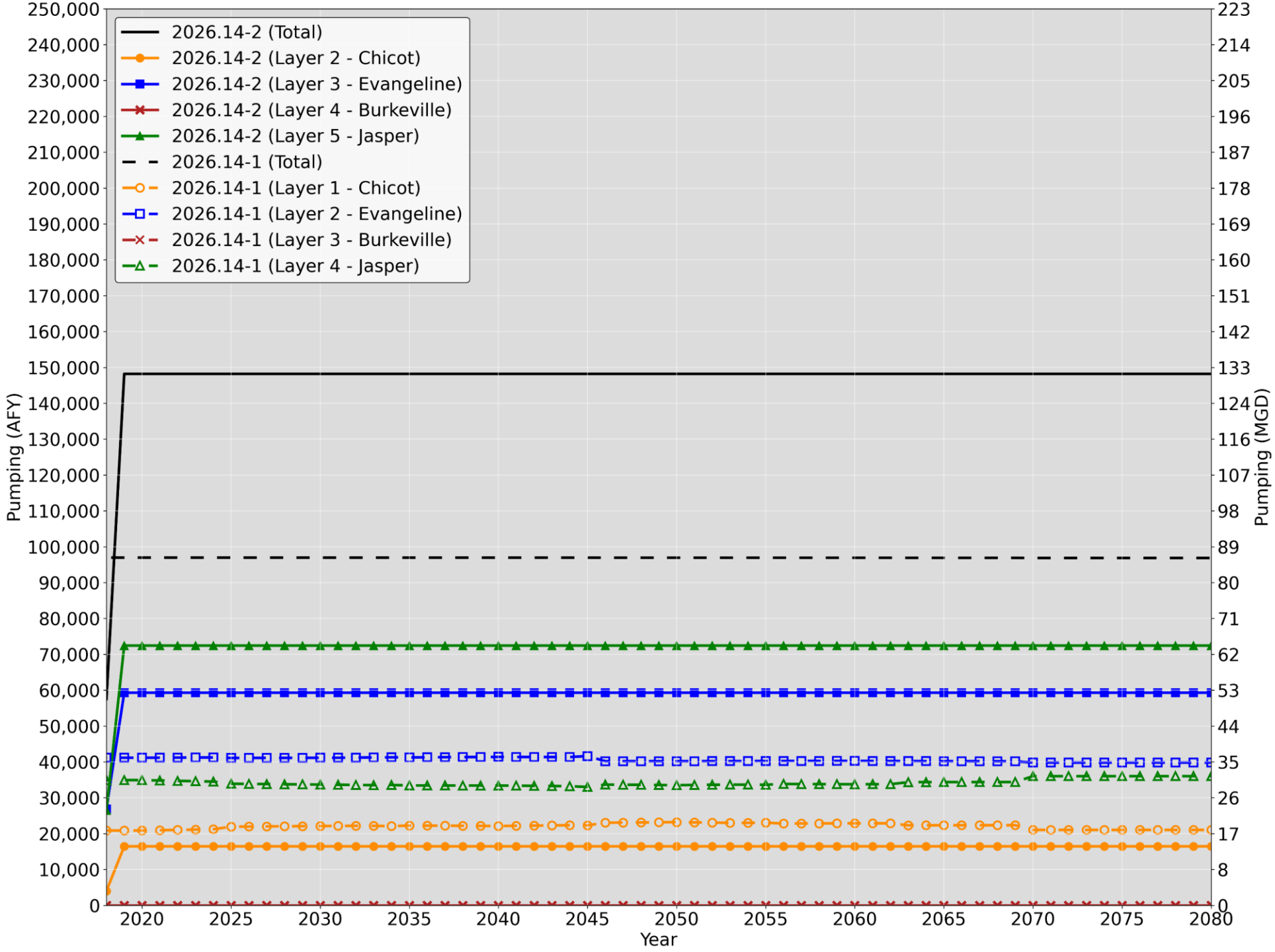
Hydrogeologic Unit	2026.14-1	2026.14-2	2026.14-3	2026.14-4
Chicot, AFY	20,488	19,356	24,616	27,476
Evangeline, AFY	40,133	61,545	79,994	90,029
Jasper, AFY	36,226	73,149	95,402	107,506
Catahoula, AFY	0	10,868	10,868	10,868
Total, AFY	96,847	164,918	210,880	235,880

LSGCD will consider the Catahoula Non-Relevant for Joint Planning Purposes

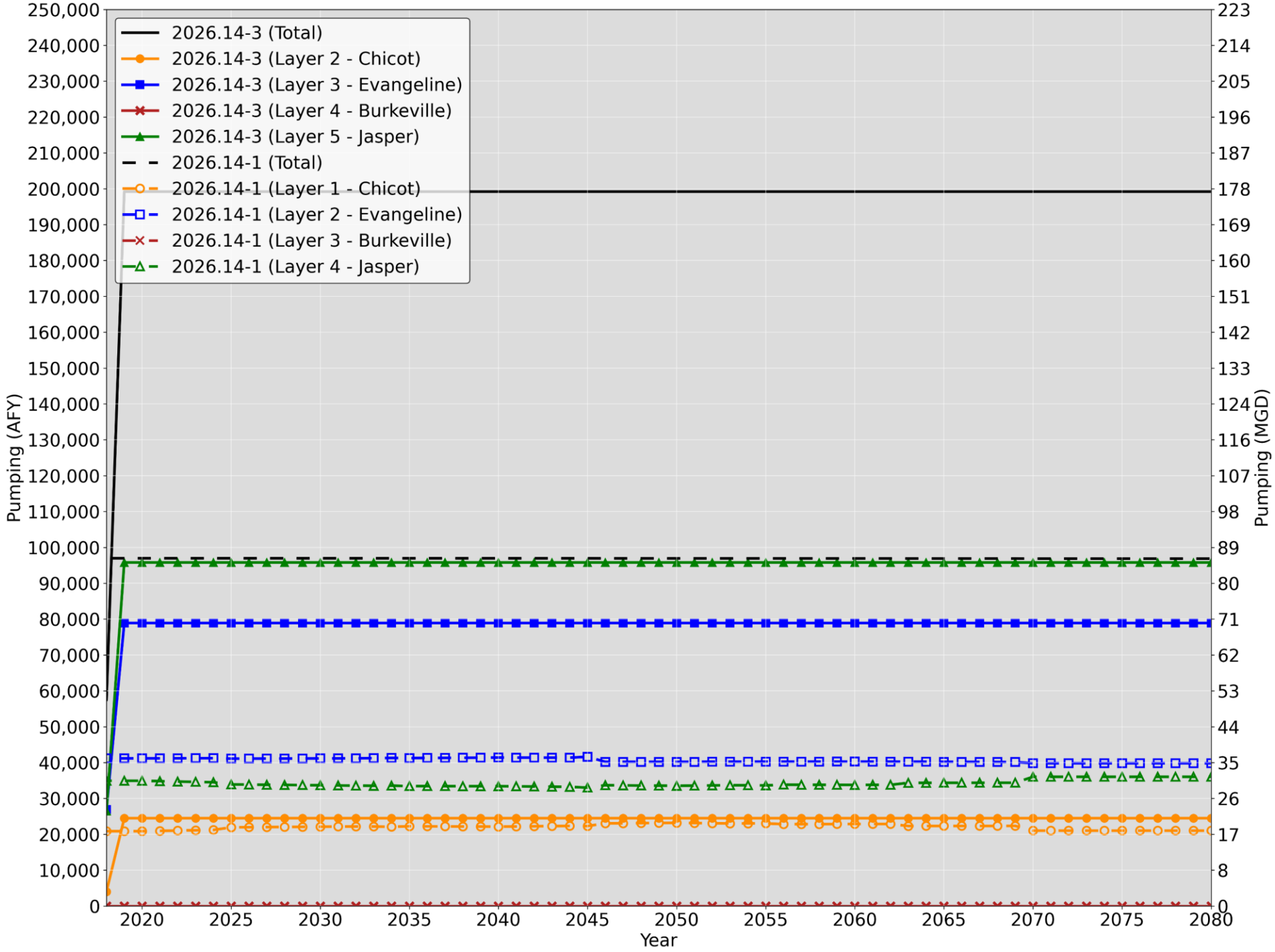
2026.14-1 (~97,000 afy) Montgomery County Pumping



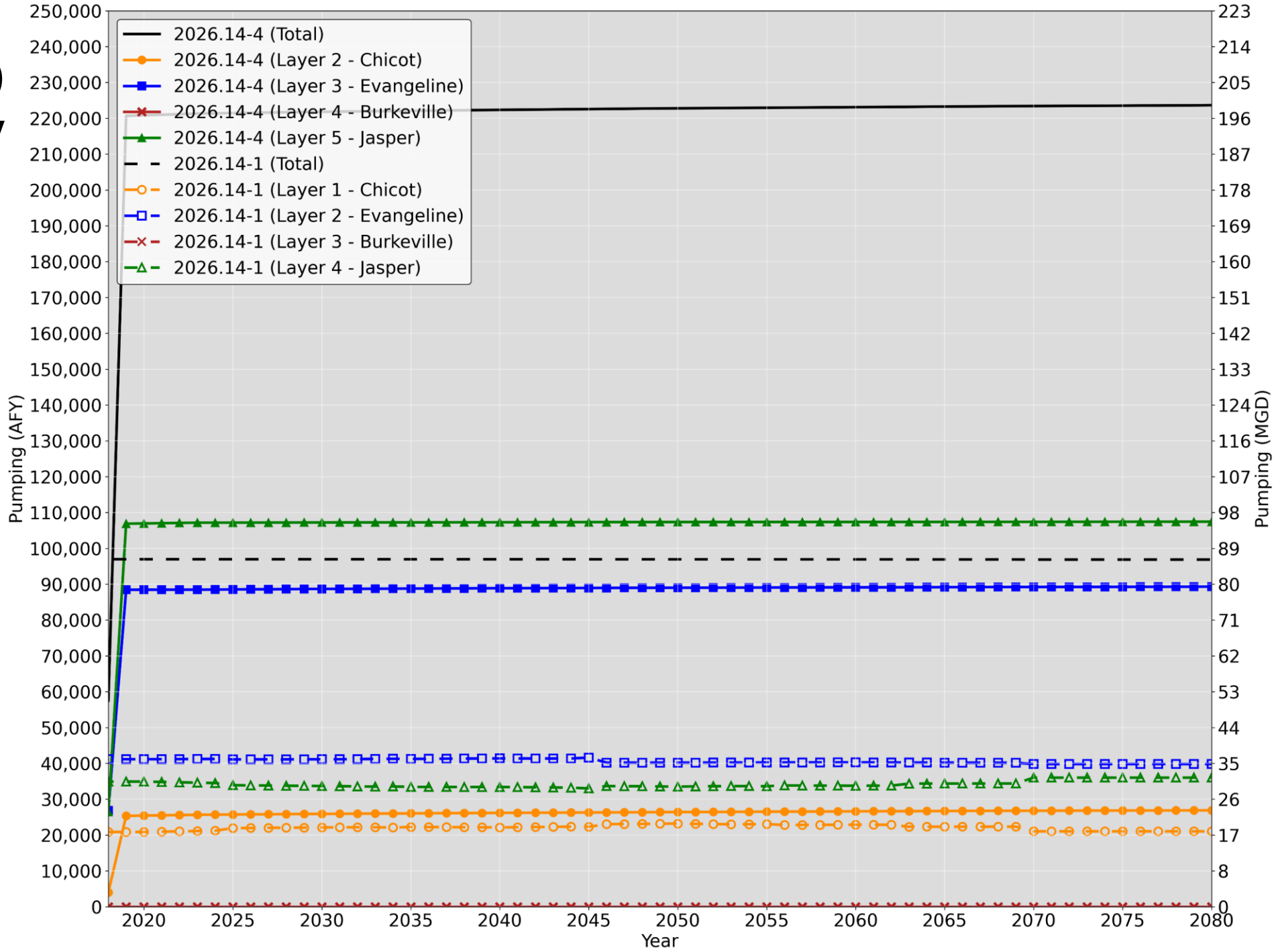
2026.14-2 (150,000 afy) Montgomery County Pumping



2026.14-3 (200,000 afy) Montgomery County Pumping

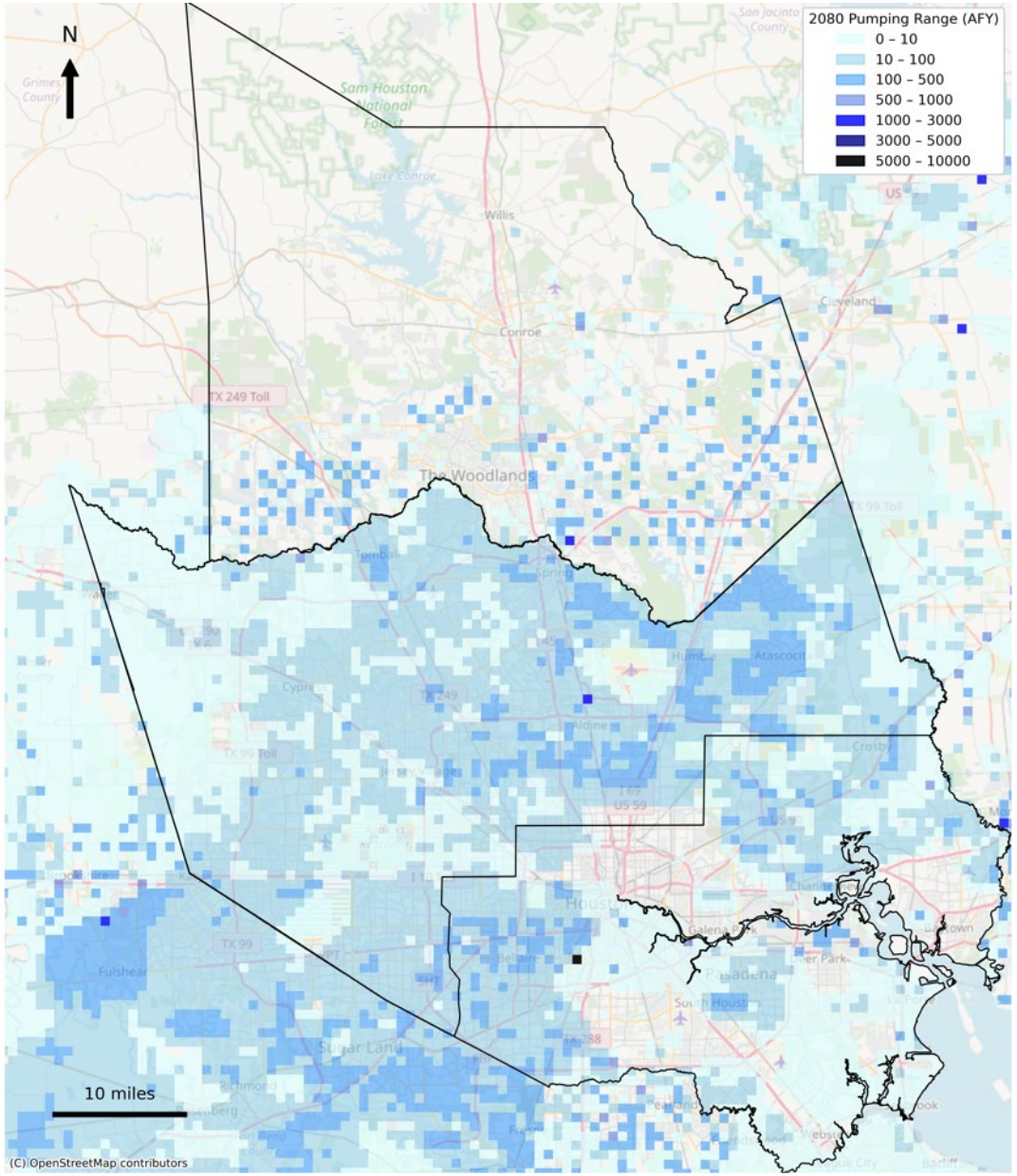


2026.14-4 (225,000 afy) Montgomery County Pumping

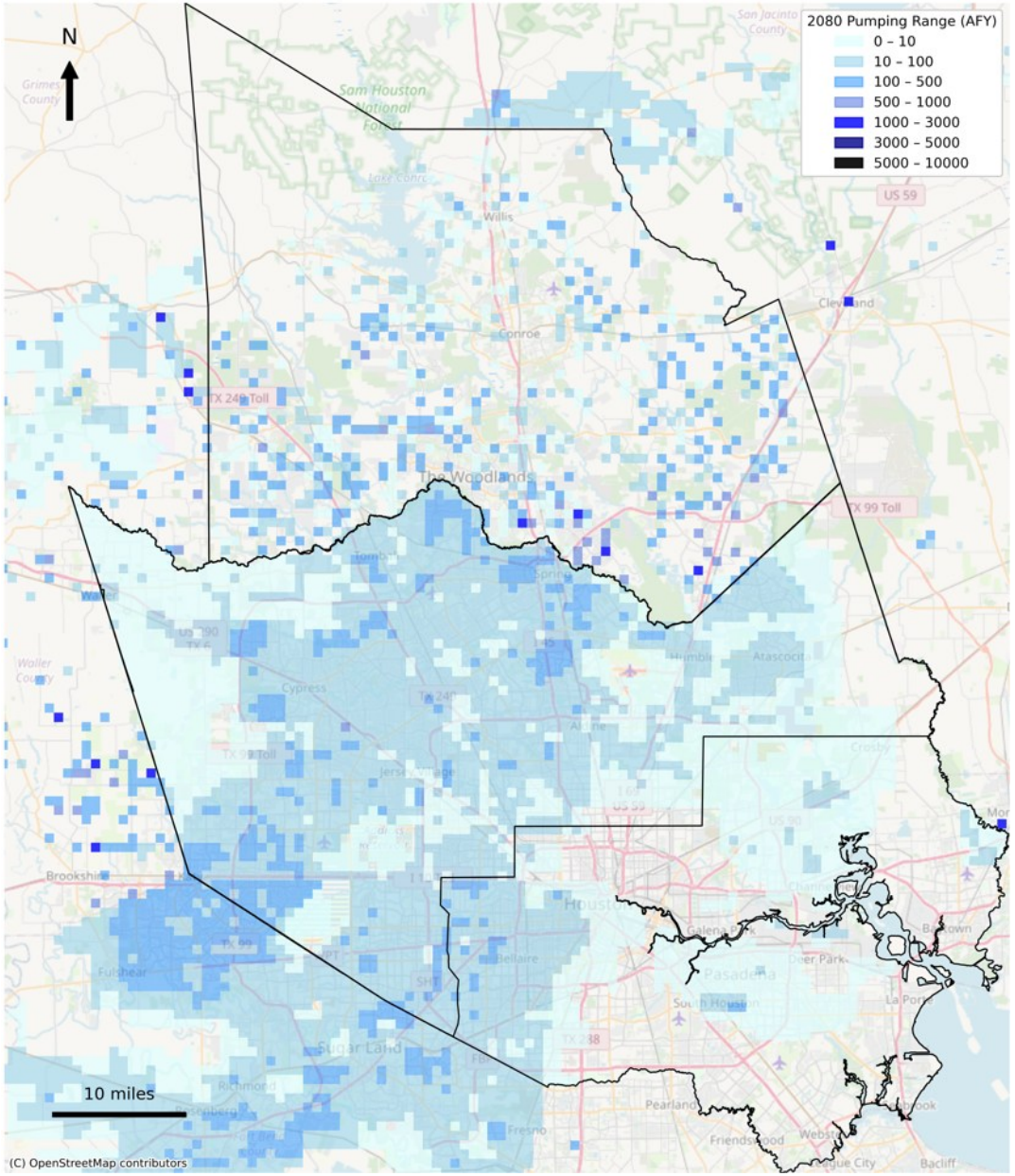


2026.14-3: 2080 Pumping Distribution

Chicot Aquifer

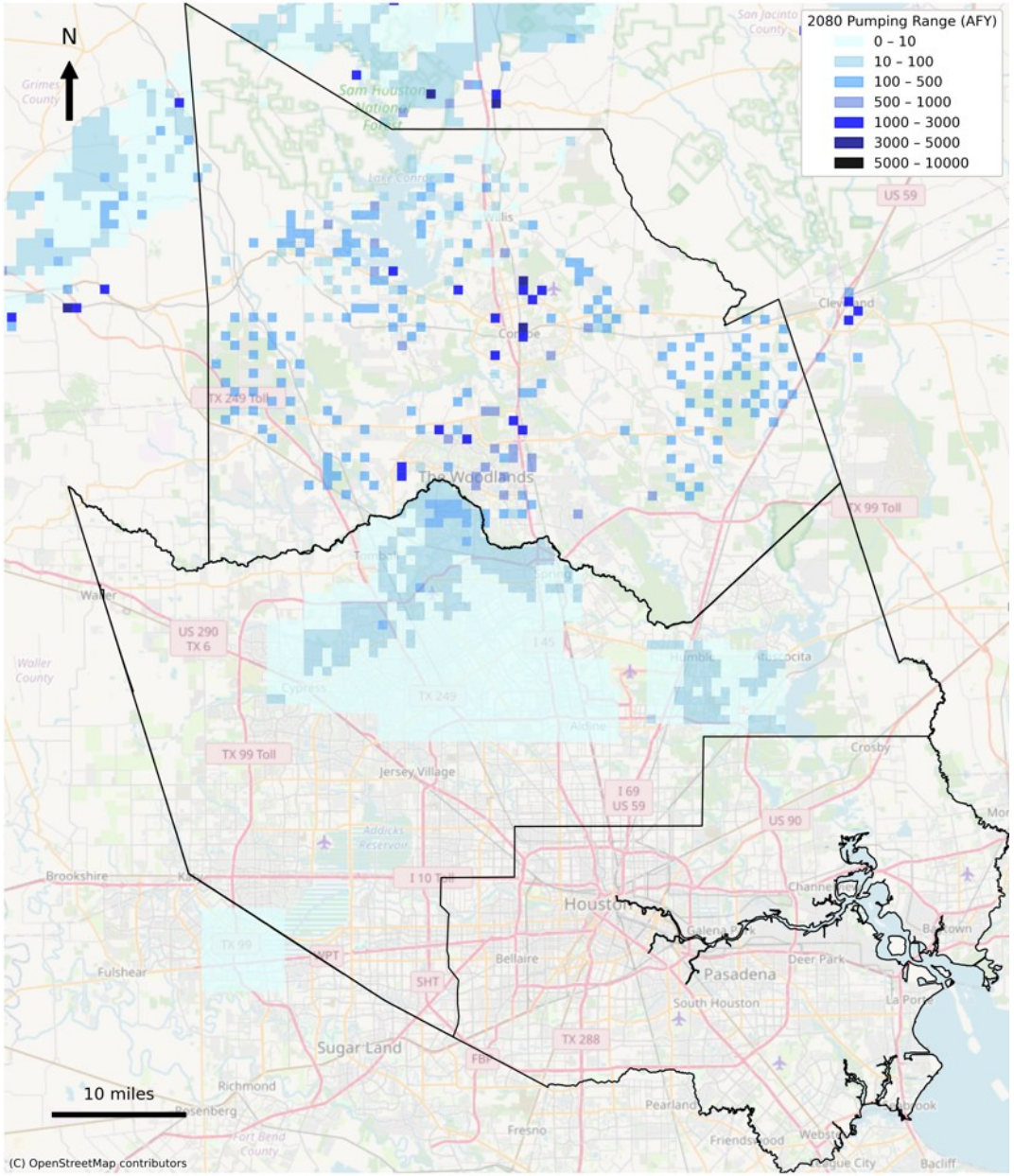


Evangeline Aquifer

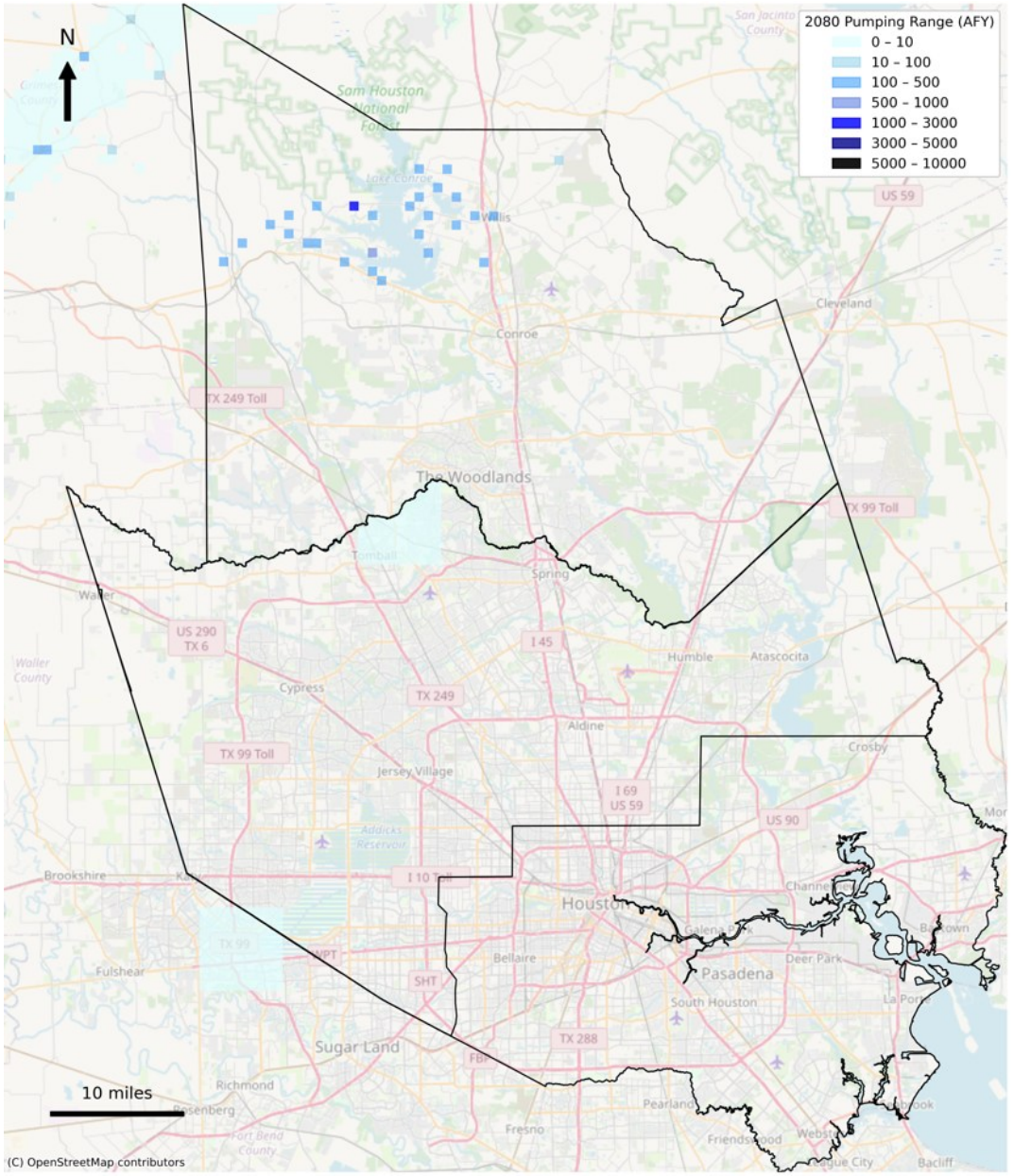


2026.14-3: 2080 Pumping Distribution

Jasper Aquifer



Catahoula Aquifer

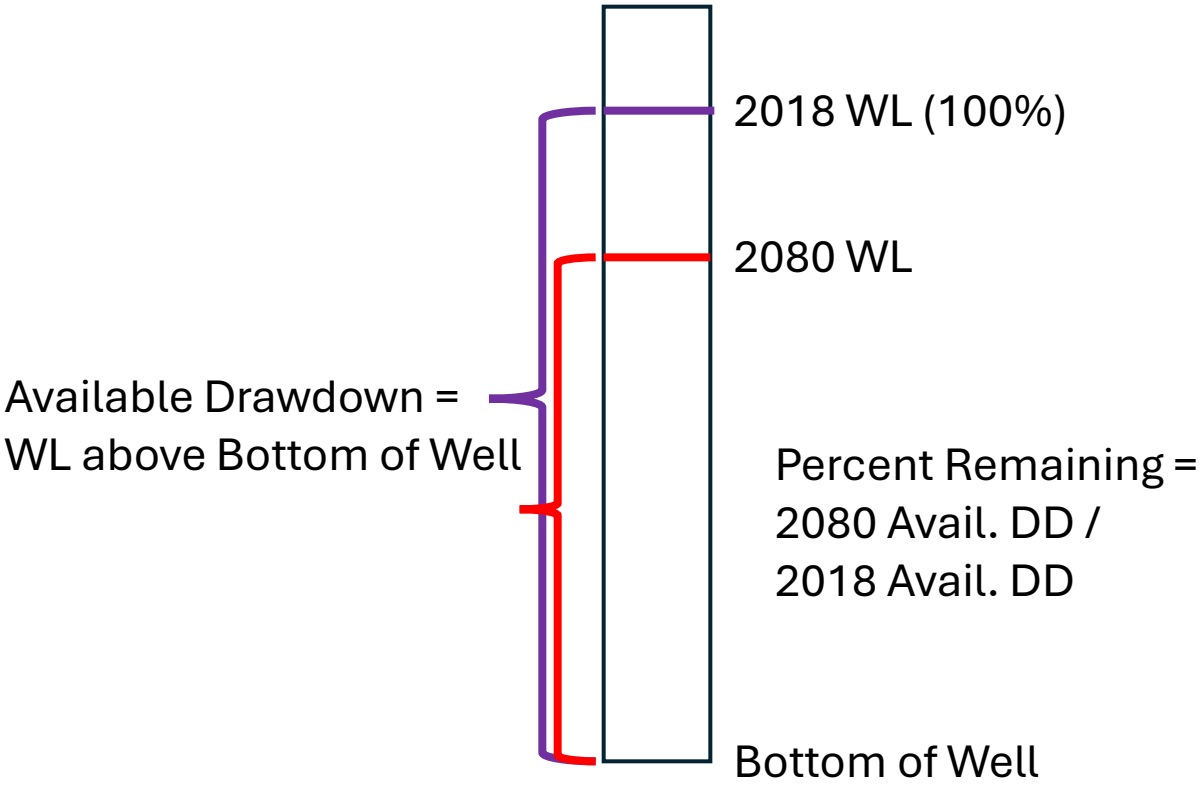


2080 Median Percent Remaining Available Drawdown

County	# of Wells	2026.14-1 Current MAG pumping With New Model	2026.14-2 150,000 AFY	2026.14-3 200,000 AFY	2026.14-4 225,000 AFY
Austin (BGCD)	3,152	78	78	78	78
Brazoria (BCGCD)	10,428	79	78	78	78
Chambers	1,458	78	77	77	77
Fort Bend	6,326	36	36	35	35
Galveston	2,803	88	88	87	87
Grimes (BGCD)	1,390	63	59	56	55
Hardin (STGCD)	2,094	80	80	80	80
Harris	11,011	57	54	51	49
Jasper (STGCD)	1,489	72	72	72	72
Jefferson	1,020	84	84	84	84
Liberty	2,576	71	69	68	68
Montgomery (LSGCD)	12,097	78	78	73	72
Newton (STGCD)	751	73	73	73	73
Orange	1,897	88	88	88	88
Polk (LTGCD)	1,683	82	82	81	81
San Jacinto (LTGCD)	1,687	82	81	80	79
Tyler (STGCD)	1,113	79	79	79	79
Walker (BGCD)	853	32	27	20	18
Waller (BGCD)	3,742	72	72	72	72
Washington	2,850	71	71	71	71

Values are for combined Chicot, Evangeline, Burkeville, and Jasper. Median percent remaining available drawdown uses 2018 as the baseline.

Median Remaining Available Drawdown



Average Additional Subsidence, feet

County	2026.14-1	2026.14-2	2026.14-3	2026.14-4
Austin (BGCD)	0.5	0.5	0.6	0.6
Brazoria (BCGCD)	0.9	0.9	0.9	0.9
Chambers	1.1	1.1	1.2	1.2
Fort Bend	1.3	1.4	1.4	1.4
Galveston	0.7	0.7	0.7	0.8
Grimes (BGCD)	0.5	0.6	0.7	0.7
Hardin (STGCD)	0.8	0.9	0.9	0.9
Harris	1.5	1.7	1.9	2.0
Jasper (STGCD)	0.6	0.6	0.6	0.6
Jefferson	0.5	0.5	0.5	0.5
Liberty	1.1	1.3	1.5	1.5
Montgomery (LSGCD)	1.3	2.2	2.9	3.2
Newton (STGCD)	0.4	0.4	0.4	0.4
Orange	1.0	1.1	1.1	1.1
Polk (LTGCD)	0.2	0.3	0.3	0.3
San Jacinto (LTGCD)	0.7	1.0	1.1	1.2
Tyler (STGCD)	0.2	0.2	0.2	0.2
Walker (BGCD)	0.5	0.6	0.6	0.7
Waller (BGCD)	1.3	1.4	1.5	1.5
Washington	0.2	0.2	0.2	0.2

Average additional subsidence uses 2018 as the reference year.

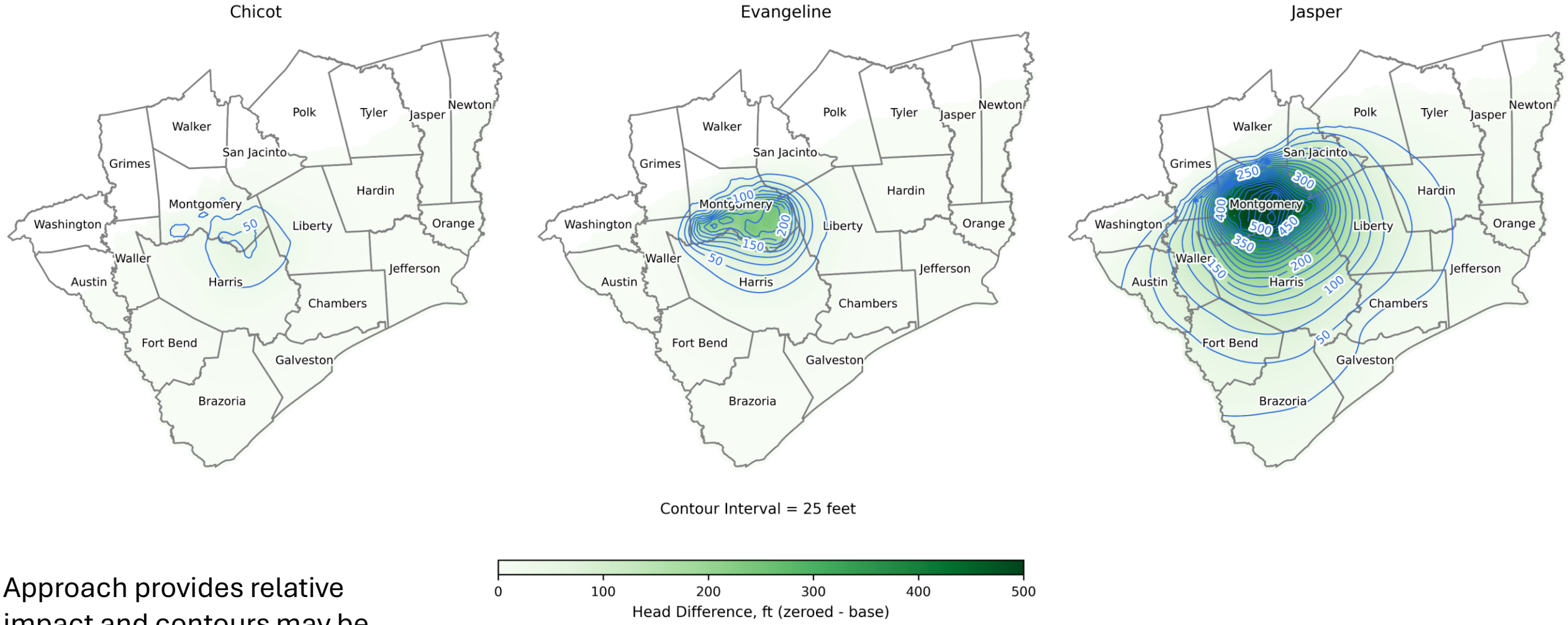
Scenario 2026.14-3

County with no pumping 2019 - 2080	Increase in Median Percent Remaining Available Drawdown from Baseline Simulation																			
	Austin	Brazoria	Chambers	Fort Bend	Galveston	Grimes	Hardin	Harris	Jasper	Jefferson	Liberty	Montgomery	Newton	Orange	Polk	San Jacinto	Tyler	Walker	Waller	Washington
Austin	13	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1
Brazoria	—	12	—	6	6	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Chambers	—	—	10	—	—	—	—	2	—	1	3	—	—	—	—	—	—	—	—	—
Fort Bend	2	14	1	61	6	—	—	11	—	—	—	—	—	—	—	—	—	—	4	—
Galveston	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grimes	—	—	—	—	—	19	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Hardin	—	—	1	—	—	—	12	—	3	4	1	—	1	2	—	—	2	—	—	—
Harris	—	12	12	23	10	—	—	56	—	—	11	7	—	—	—	—	—	—	5	—
Jasper	—	—	—	—	—	—	9	—	23	4	—	—	11	9	—	—	4	—	—	—
Jefferson	—	—	1			—	1	—	—	7	—	—	—	1	—	—	—	—	—	—
Liberty	—	—	7	—	—	—	3	4	—	3	19	—	—	—	1	2	—	—	—	—
Montgomery	—	—	1	1	—	12	—	11	—	—	5	19	—	—	1	5	—	13	1	1
Newton	—	—	—	—	—	—	—	—	4	—	—	—	18	2	—	—	—	—	—	—
Orange	—	—	—	—	—	—	1	—	2	2	—	—	2	6	—	—	—	—	—	—
Polk	—	—	—	—	—	—	1	—	—	—	—	—	—	—	10	1	1	—	—	—
San Jacinto	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	9	—	1	—	—
Tyler	—	—	—	—	—	—	1	—	2	—	—	—	—	—	1	—	16	—	—	—
Walker	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	27	—	—
Waller	2	—	—	3	—	1	—	2	—	—	—	—	—	—	—	—	—	—	15	—
Washington	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21

Example: Liberty County has a 7% impact on Chambers County

Impact of LSGCD pumping : 2026.14-3

Montgomery Co Pumping Sensitivity



Approach provides relative impact and contours may be influenced by historical pumping and drawdown

LSGCD Board Recommendation (1/13/2026)

- No change to the adopted DFC: Minimum 70% median available drawdown remaining in 2080, Scenario 2026.14-3
- Evaluation approach
  - Maintain available drawdown calculation approach from previous round of joint planning
  - Update the TWDB well dataset for determining the median available drawdown remaining from 2018 to 2080
- We support GMA 14 Member Districts selecting a DFC that is appropriate for their aquifer management (i.e. – different or additional metrics allowed for each GCD)

Next Steps

- Discuss Scenarios
- Evaluate scenarios to consider for potential DFCs
- Discuss 9 factors for potential DFCs
- Vote on proposed DFC
- Mail proposed DFCs to the GCDs, open 90-day comment period and hold hearings at local GCDs

Questions and Discussion

Thank you!