

REGION H

Water Planning Group

GROUNDWATER SUPPLY COMMITTEE MEETING MATERIALS

September 25, 2023

Common Region H Terms and Conversion Factors

List of Abbreviations

CRU	Collective Reporting Unit
DCP	Drought Contingency Plan
DFC	Desired Future Condition
DOR	Drought of Record
EA	Executive Administrator
EPA	Environmental Protection Agency
FWSD	Fresh Water Supply District
GAM	Groundwater Availability Model
GCD	Groundwater Conservation District
GMA	Groundwater Management Area
GPCD	Gallons Per Capita Per Day
GRP	Groundwater Reduction Plan
IFR	Infrastructure Finance Report
IPP	Initially Prepared Plan
MAG	Modeled Available Groundwater
MPC	Master Planned Community
MUD	Municipal Utility District
MWP	Major Water Provider
PCS	Plumbing Code Savings
PDSI	Palmer Drought Severity Index
PWS	Public Water Supply
RFPG	Regional Flood Planning Group
RHWPG	Region H Water Planning Group
ROR	Run-of-River
RWP	Regional Water Plan
RWPA	Regional Water Planning Area
RWPG	Regional Water Planning Group
SWIFT	State Water Implementation Fund for Texas
SWP	State Water Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TWC	Texas Water Code
TWDB	Texas Water Development Board
UCM	Unified Costing Model
URS	Unique Reservoir Site
USS	Unique Stream Segment
WAM	Water Availability Model
WCID	Water Control and Improvement District
WCP	Water Conservation Plan
WMS	Water Management Strategy
WRAP	Water Rights Analysis Package
WUG	Water User Group
WWP	Wholesale Water Provider

Water Measurements

1 acre-foot (AF) = 43,560 cubic feet = 325,851 gallons

1 acre-foot per year (ac-ft/yr) = 325,851 gallons per year = 893 gallons per day

1 gallon per minute (gpm) = 1,440 gallons per day = 1.6 ac-ft/yr

1 million gallons per day (mgd) = 1,000,000 gallons per day = 1,120 ac-ft/yr

**Region H Water Planning Group
Groundwater Supply Committee
10:00 AM Monday
September 25, 2023
Freese and Nichols Houston Office
10497 Town and Country Way, Suite 500, Houston, TX 77024**

AGENDA

1. Call to order.
2. Introductions.
3. Review and approve minutes of March 26, 2018 meeting.
4. **Receive public comments on specific issues related to agenda items 5 through 9.** (Public comments limited to 3 minutes per speaker)
5. Discuss Committee activities and schedule.
6. Receive update on Groundwater Management Area process and activities.
7. Receive update from Consultant Team regarding Modeled Available Groundwater (MAG) in the Region H Water Planning Area.
8. Receive update from Consultant Team regarding MAG Peak Factors and consider development of Peaking Factors for groundwater supplies in the Region H Water Planning Area.
9. Receive update from Consultant Team regarding evaluation of existing groundwater supplies in portions of aquifers deemed non-relevant by the Joint Planning process and consider making recommendations to the Region H Water Planning Group (RHWPG) to approve supply estimates.
10. **Receive public comments.** (Public comments limited to 3 minutes per speaker)
11. Adjourn.

Persons with disabilities who plan to attend this meeting and would like to request auxiliary aids or services are requested to contact Philip Taucer at (713) 600-6835 at least three business days prior to the meeting so that appropriate arrangements can be made.

Agenda Item 3

Review and approve minutes of March 26, 2018 meeting.

**REGION H WATER PLANNING GROUP
GROUNDWATER SUPPLY COMMITTEE
MINUTES OF COMMITTEE MEETING
MARCH 26, 2018**

A meeting of the Region H Water Planning Group Groundwater Supply Committee was held at 9:30 a.m., March 26, 2018, at the Lone Star Groundwater Conservation District office. A notice of said meeting was posted as required by law.

MEMBERS PRESENT: Mike Turco (chair), David Bailey, Kathy Jones

DESIGNATED ALTERNATES: No alternates present.

MEMBERS ABSENT: James Morrison, Bill Teer

NON-VOTING MEMBERS PRESENT: Mark Evans

NON-MEMBERS PRESENT: John Burke (Region K WPG), Ken Kramer (Sierra Club), Rodney Craddock

CONSULTANT TEAM: Jason Afinowicz, Philip Taucer, Courtney Corso

The meeting was called to order at 9:35 a.m.

1. INTRODUCTIONS

Mr. Turco welcomed the committee members and guests to the meeting.

2. RECEIVE PUBLIC COMMENTS ON SPECIFIC ISSUES RELATED TO AGENDA ITEMS 3 THROUGH 7

There were no public comments.

3. DISCUSS COMMITTEE ACTIVITIES AND SCHEDULE

Mr. Afinowicz provided an update to the 2021 Regional Water Plan schedule referencing various due dates.

4. RECEIVE UPDATE ON GROUNDWATER MANAGEMENT AREA PROCESS AND ACTIVITIES.

Ms. Jones provided an update on recent activity in GMA 14 related to the consideration of new or amended desired future conditions (DFCs). She said that a formal request to GMA 14 to amend the DFCs in Lone Star Groundwater Conservation District will be presented at the GMA 14 meeting on March 27, 2018. Mr. Turco asked about the effect of amended DFCs on the regional water planning

process; Mr. Afinowicz explained that if new or amended DFCs were adopted at this point, the regional water planning group would have the flexibility to update supplies accordingly; however, any changes to MAG values would require coordination with TWDB.

Mr. Bailey informed the Committee that GMA 12 had adopted DFCs, for which the Texas Water Development Board had published associated Modeled Available Groundwater (MAG) values in GAM Run 17-030. To Mr. Bailey's knowledge, no appeals to the updated MAG values have been submitted.

Mr. Turco also informed the Committee that the Harris-Galveston Subsidence District is studying additional strategies, but that changes to the District's Regulatory Plan would not be incorporated in time to affect the 2021 RWP.

5. RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING MODELED AVAILABLE GROUNDWATER IN REGION H WATER PLANNING AREA.

Mr. Afinowicz shared the TWDB's updated Modeled Available Groundwater values for aquifers and counties within Region H and noted that most MAGs were similar to those in the 2016 RWP, with a few exceptions. Mr. Bailey explained that the reduced MAG for the Yegua-Jackson Aquifer in Madison County was due to a reduction in pumping related to oil and gas production.

The reduction in MAG in Trinity County was also discussed; Mr. Afinowicz suggested that the supplies available from the Yegua-Jackson Aquifer and surface water sources would likely be sufficient to make up for this reduction.

6. RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING EVALUATION OF EXISTING GROUNDWATER SUPPLIES IN PORTIONS OF AQUIFERS DEEMED NON-RELEVANT BY THE JOINT PLANNING PROCESS, AND CONSIDER MAKING RECOMMENDATIONS TO THE REGION H WATER PLANNING GROUP TO APPROVE SUPPLY ESTIMATES.

Ms. Corso presented options by which the Region H Water Planning Group could determine available supplies for aquifers which have been deemed non-relevant to the Joint Planning process. Mr. Bailey made a motion to recommend to the RWPG to use the available supply numbers in the Region H 2016 Regional Water Plan; the motion was seconded by Ms. Jones, and the Committee voted in agreement.

7. RECEIVE UPDATE FROM CONSULTANT TEAM REGARDING THE ADDITION OF MAG PEAKING FACTORS TO THE RWP PROCESS, AND CONSIDER DEVELOPMENT OF PEAKING FACTORS FOR GROUNDWATER SUPPLIES IN THE REGION H WATER PLANNING AREA.

Ms. Corso explained the MAG Peaking Factor option available to regional water planning groups and how this option might be used in Region H. The Committee requested that the Consultant Team provide more detailed information on how Peaking Factors would be developed and approved.

8. RECEIVE PUBLIC COMMENTS.

Mr. Ken Kramer asked for clarification on the selection of a MAG peaking factor which would not violate desired future conditions. Mr. Afinowicz explained that development of peaking factors would be dependent on how each groundwater conservation district considered MAGs in their year-to-year management.

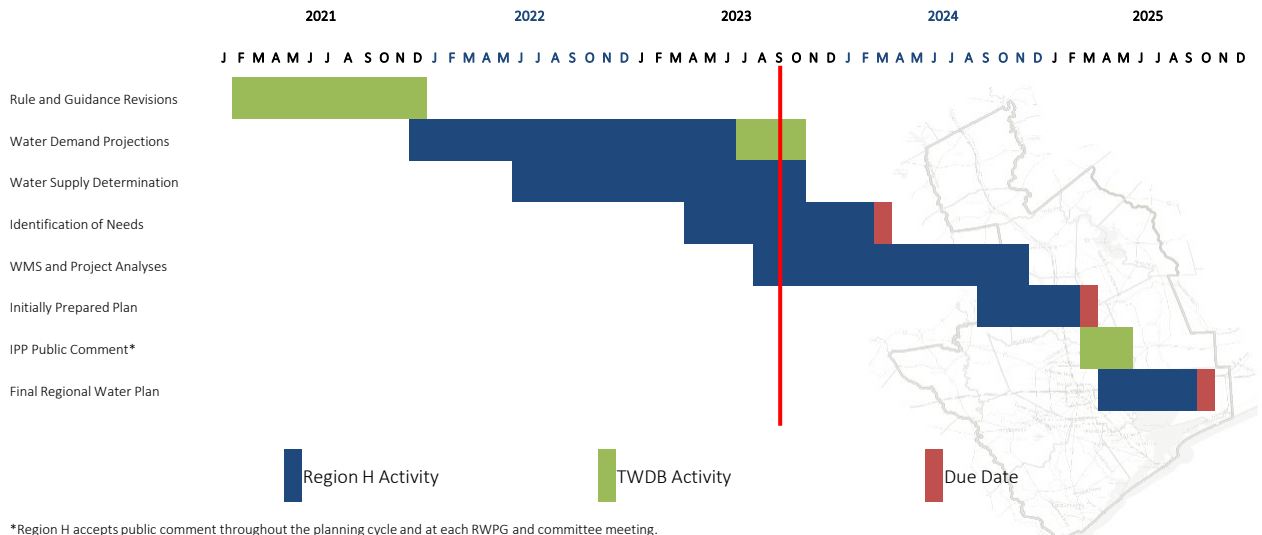
9. ADJOURN.

Without objection, the meeting was adjourned at 10:35 a.m.

Agenda Item 5

Discuss Committee activities and schedule.

Agenda Item 5 Committee Activities and Schedule



Agenda Item 5 Committee Activities and Schedule

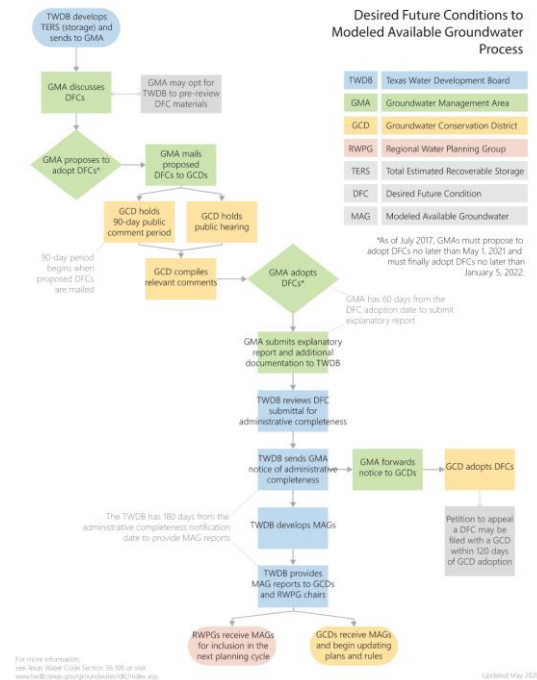
Date	Scheduled Events/Tasks
09/2023	Groundwater Supply Committee Meeting
10/2023	RWPG Meeting
10/2023	TWDB adoption of projections
02/2024	RWPG Meeting
03/2024	Technical Memorandum due to TWDB

Agenda Item 6

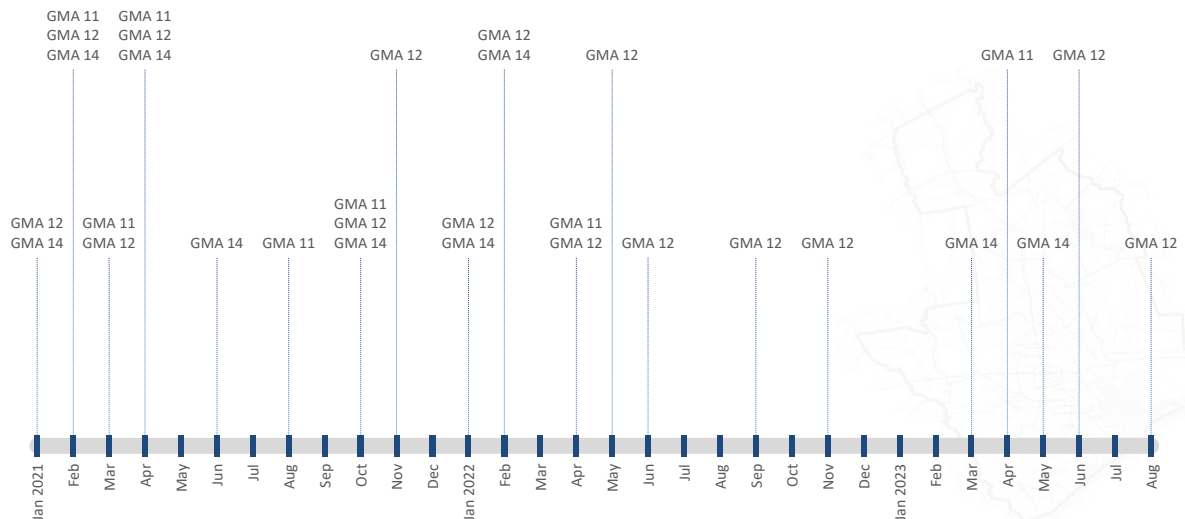
Receive update on Groundwater Management Area process and activities.

Agenda Item 6 GMA Process and Activities

- GMAs completed 2021 (3rd) Joint Planning cycle
- Key resource for RWP process
- Modeled Available Groundwater as basis for RWP availability



Agenda Item 6 GMA Process and Activities



Agenda Item 6 GMA Process and Activities

GMA 11

**MAG
Aquifers:**

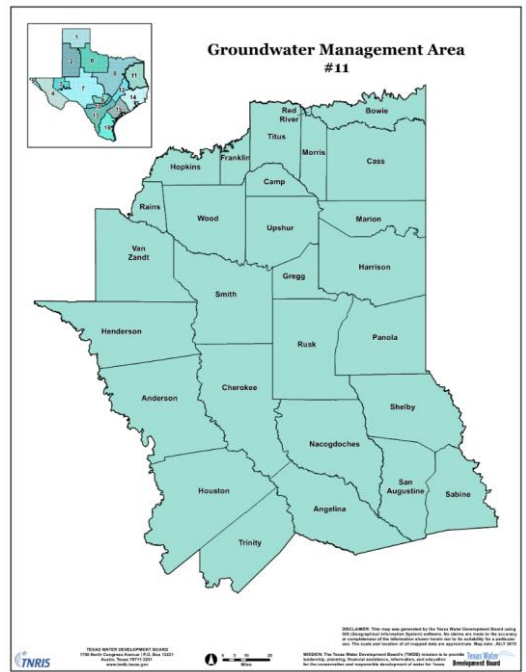
Carrizo-Wilcox, Queen City,
Sparta

**DFC
Basis:**

2013-2080 average drawdown

**RHWP
Counties:**

Trinity



Agenda Item 6 GMA Process and Activities

GMA 12

**MAG
Aquifers:**

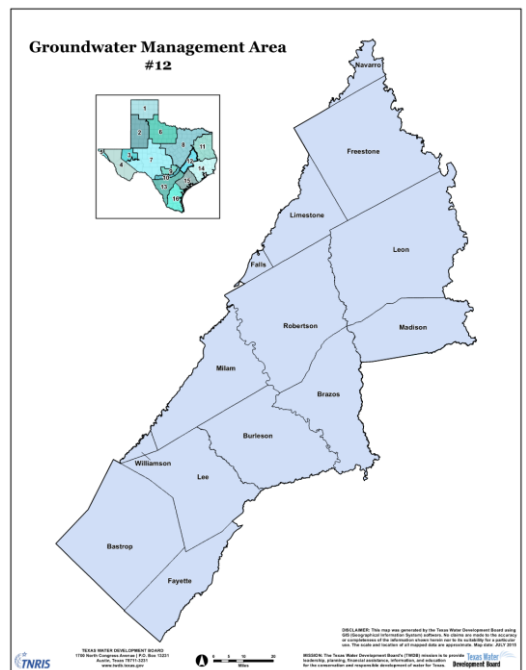
Carrizo, Calvert Bluff, Hooper,
Queen City, Simsboro, Sparta

**DFC
Basis:**

2011-2070 average drawdown

**RHWP
Counties:**

Madison, Leon



Agenda Item 6

GMA Process and Activities

GMA 14

**MAG
Aquifers:**

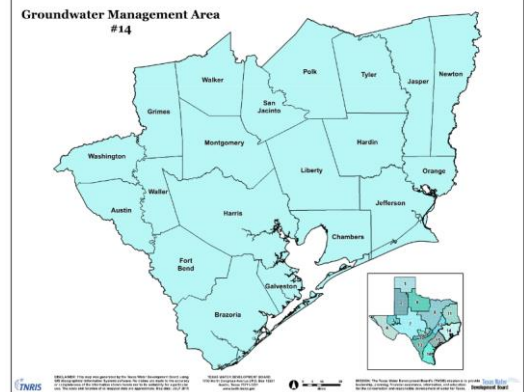
Carrizo, Calvert Bluff, Hooper,
Queen City, Simsboro, Sparta

**DFC
Basis:**

2011-2070 average drawdown

**RHWPA
Counties:**

Madison, Leon



Agenda Item 7

Receive update from Consultant Team regarding Modeled Available Groundwater (MAG) in the Region H Water Planning Area.

Agenda Item 7

Modeled Available Groundwater

GMA 11

County	Aquifer	Modeled Available Groundwater (ac-ft/yr)						2021 RWP Value (2020 MAG)
		2030	2040	2050	2060	2070	2080	
Trinity (H)	Carrizo-Wilcox	1	1	1	1	1	1	99
Trinity (H)	Queen City	0	0	0	0	0	0	0
Trinity (H)	Sparta	0	0	0	0	0	0	29

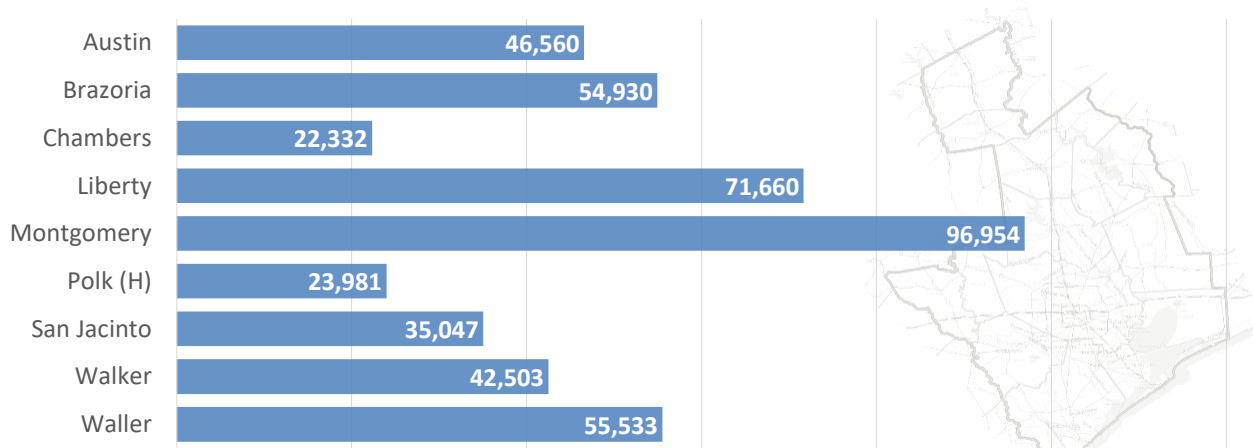
GMA 12

County	Aquifer	Modeled Available Groundwater (ac-ft/yr)						2021 RWP Value (2020 MAG)
		2030	2040	2050	2060	2070	2080	
Leon	Carrizo-Wilcox	9,550	11,092	12,635	14,179	15,568	15,568	14,288
Leon	Queen City	919	967	1,014	1,063	1,106	1,106	594
Leon	Sparta	248	249	251	253	254	254	21
Leon	Yegua-Jackson	0	0	0	0	0	0	0
Madison	Carrizo-Wilcox	0	0	0	0	0	0	2,862
Madison	Queen City	264	308	351	394	433	433	380
Madison	Sparta	1,900	2,211	2,523	2,834	3,115	3,115	3,320
Madison	Yegua-Jackson	1,122	1,122	1,122	1,122	1,122	1,122	810

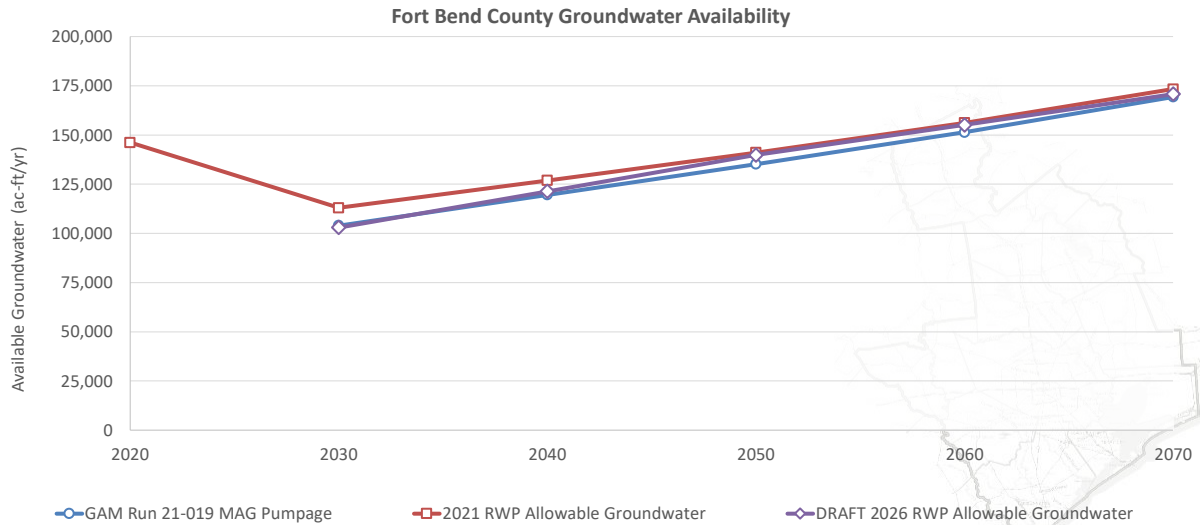
Agenda Item 7

Modeled Available Groundwater

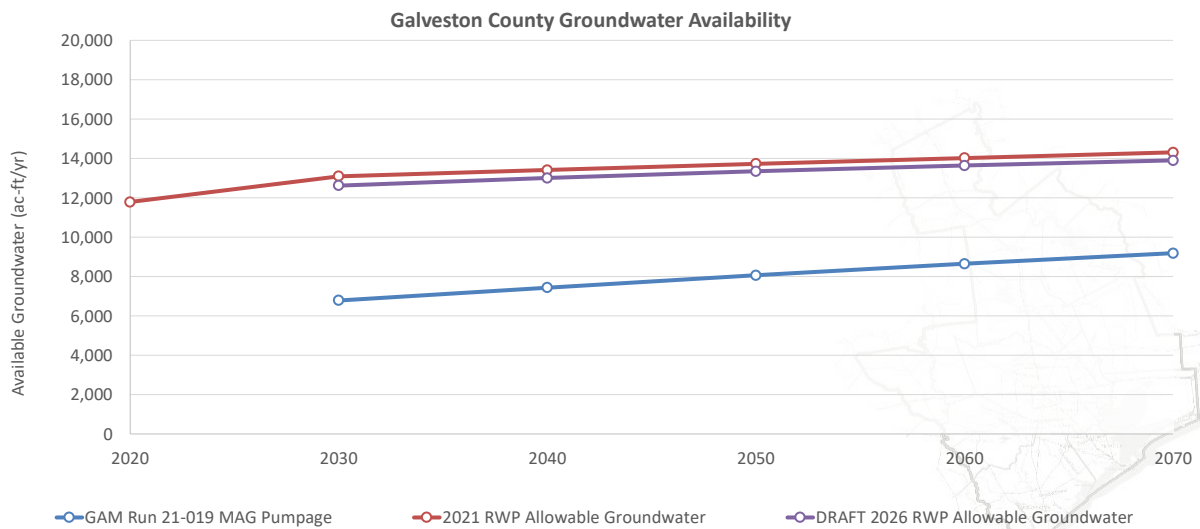
Gulf Coast Aquifer - GMA 14 MAG 2030 (ac-ft/yr)



Agenda Item 7 Modeled Available Groundwater

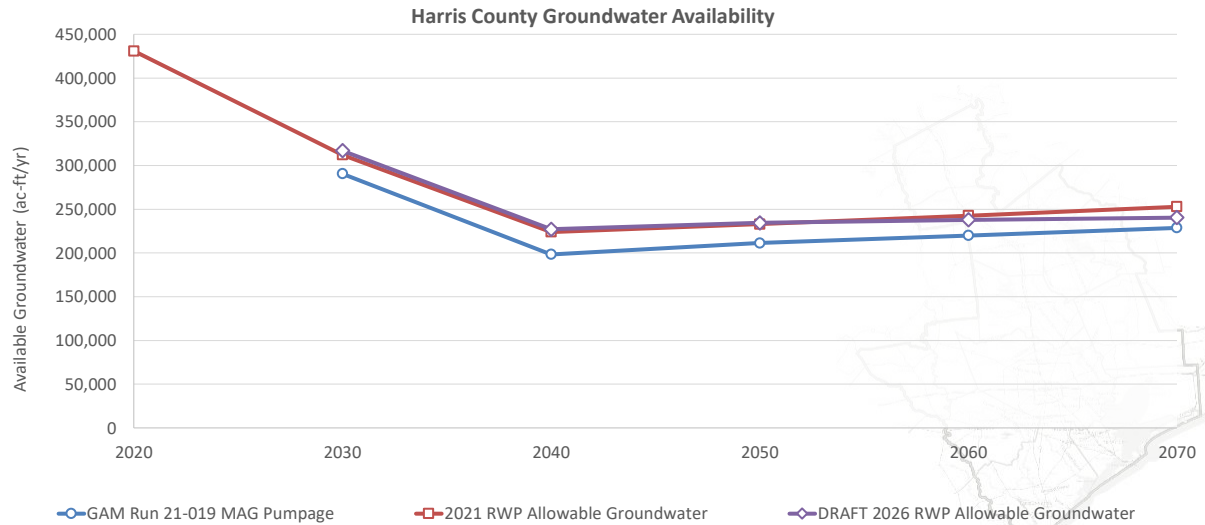


Agenda Item 7 Modeled Available Groundwater



Agenda Item 7

Modeled Available Groundwater



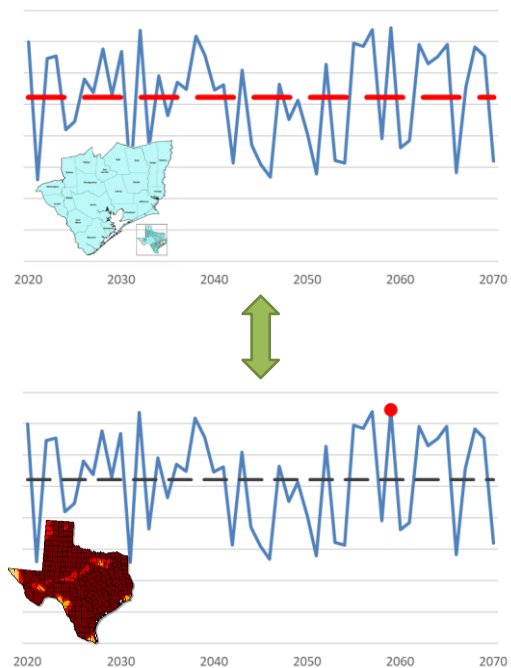
Agenda Item 8

Receive update from Consultant Team regarding MAG Peak Factors and consider development of Peaking Factors for groundwater supplies in the Region H Water Planning Area.

Agenda Item 8 MAG Peak Factors

The What and the Why

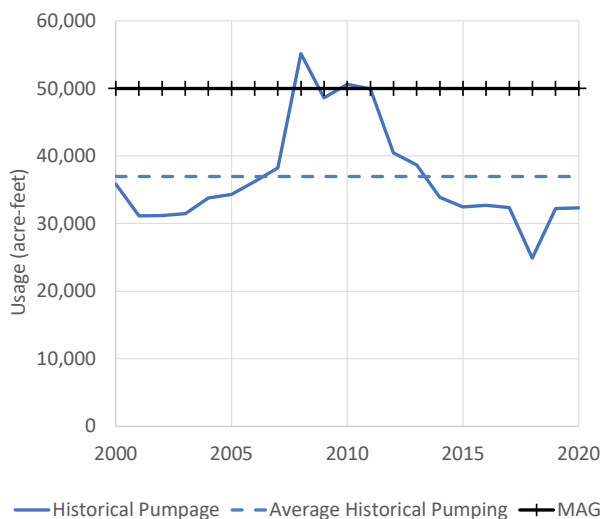
- Bridges differences in planning processes
- Allows for pumping > MAG in drought years
- RWP-specific adjustment
- Does not impact regulation or management
- Should not prevent GCDs from achieving DFCs



Agenda Item 8 MAG Peak Factors

The How

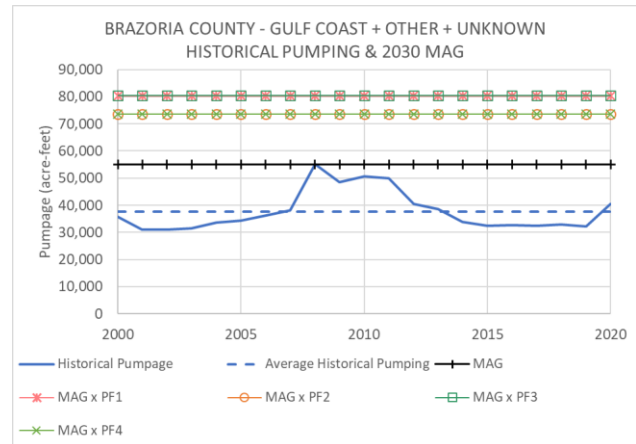
- Percentage factor (>100%) applied to MAG volumes
- Applied for each decade
- Confirmation through adjusted GAM run
- Requires approval prior to IPP
 - From GCD (if applicable), GMA, and EA



Agenda Item 8 MAG Peak Factors

Proposed methodology based on
historical pumping (2000 – 2020)

- PF_1 = largest pump volume / average
- PF_2 = 2nd largest pump volume / average
- PF_3 = largest pump volume / linear prediction
- PF_4 = 2nd largest pump volume / linear prediction



Agenda Item 8 MAG Peak Factors

Recommendations?

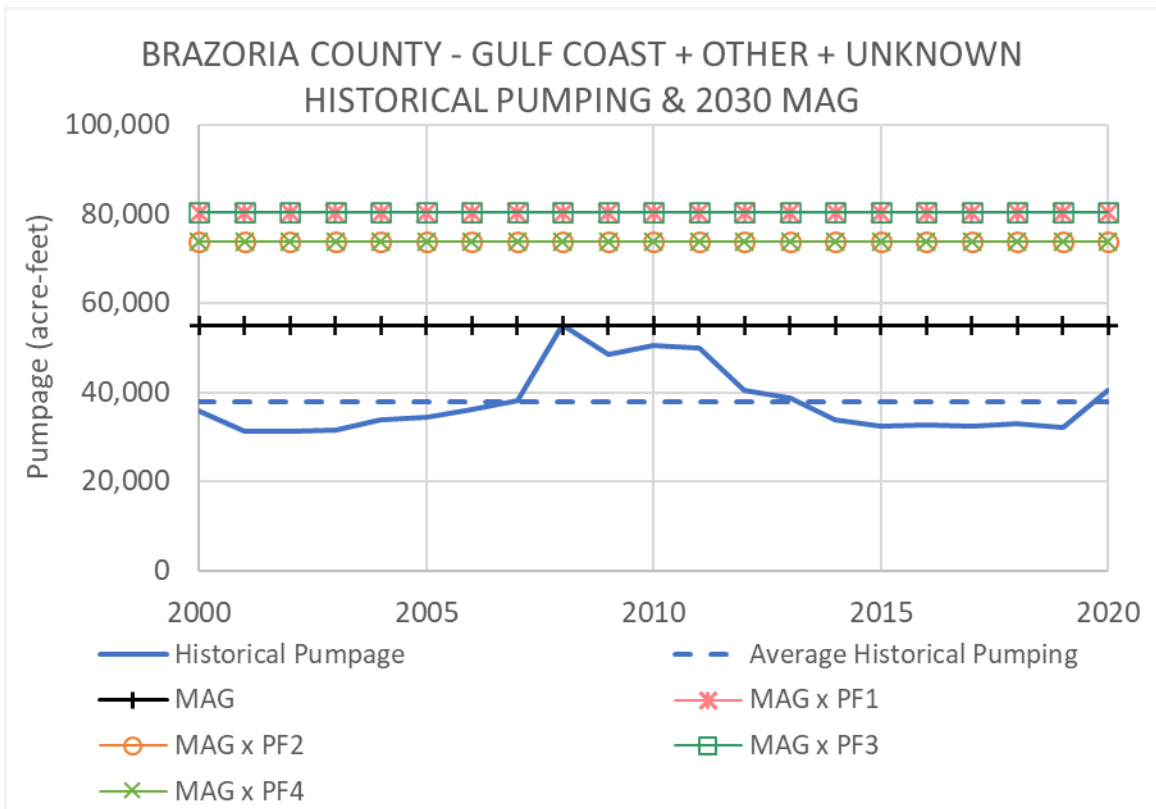
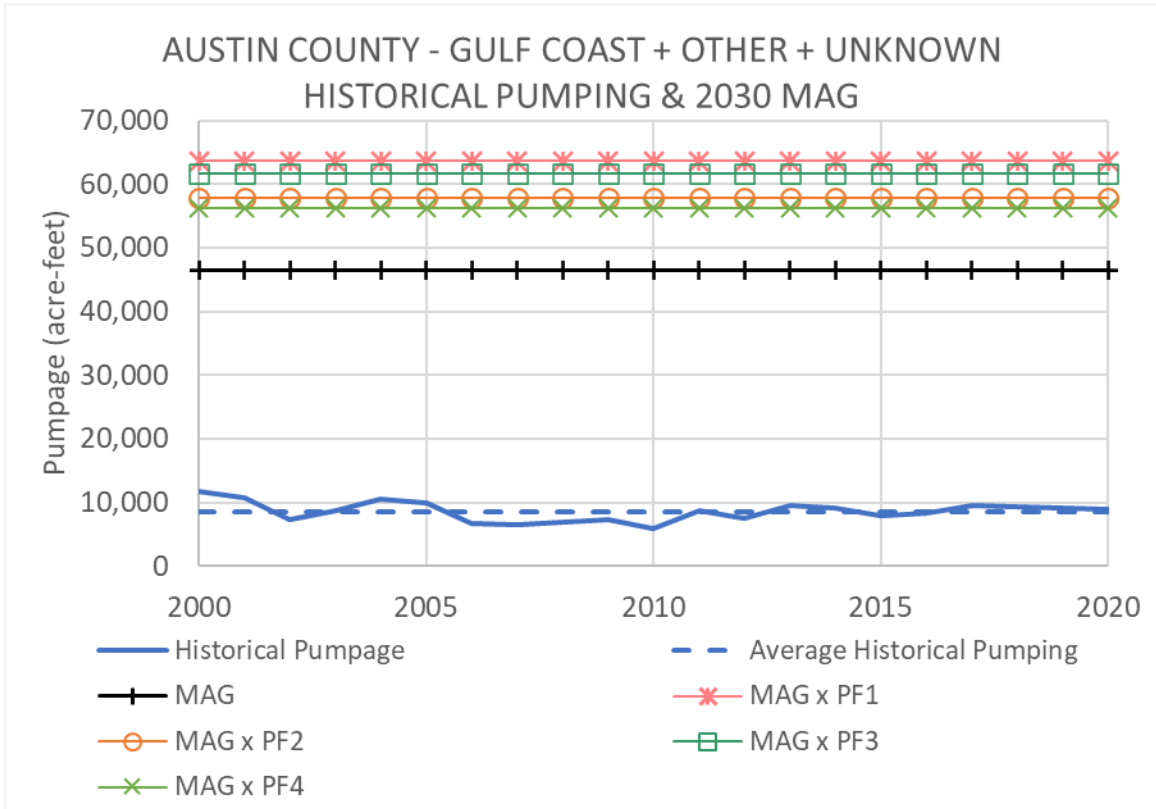


2026 Region H RWP
Potential MAG Peak Factor Methodology

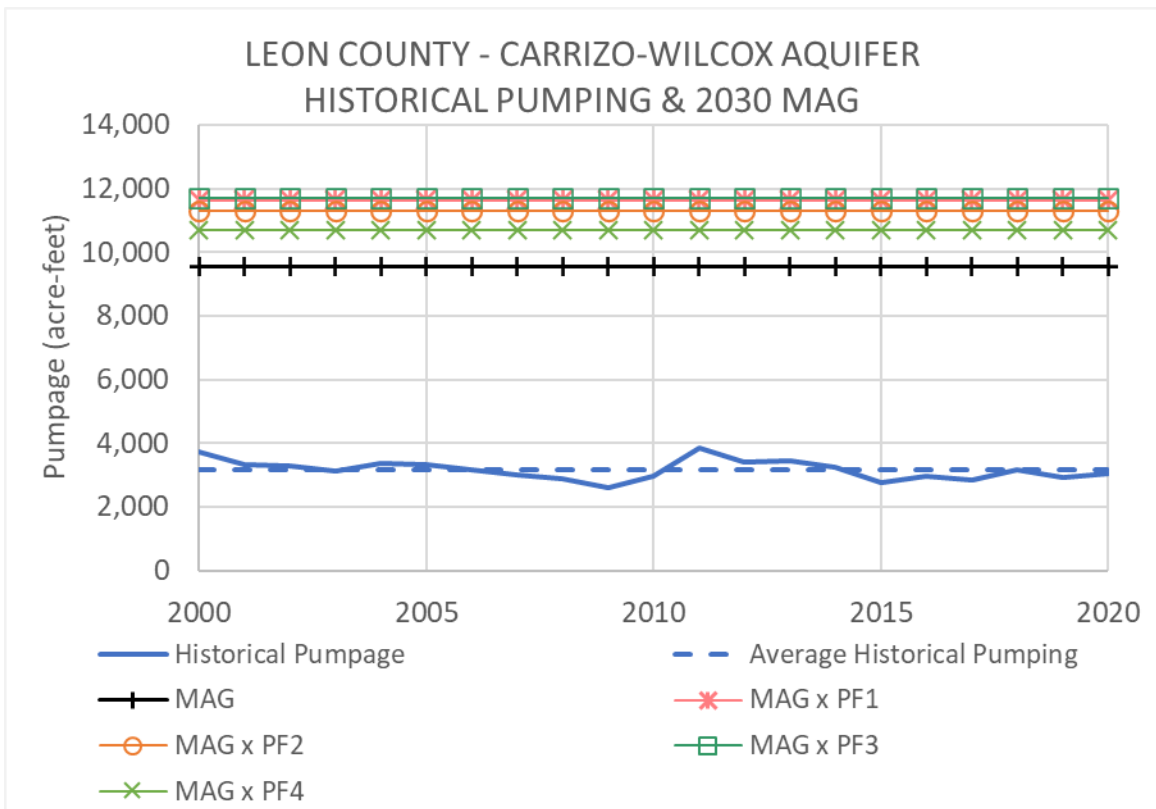
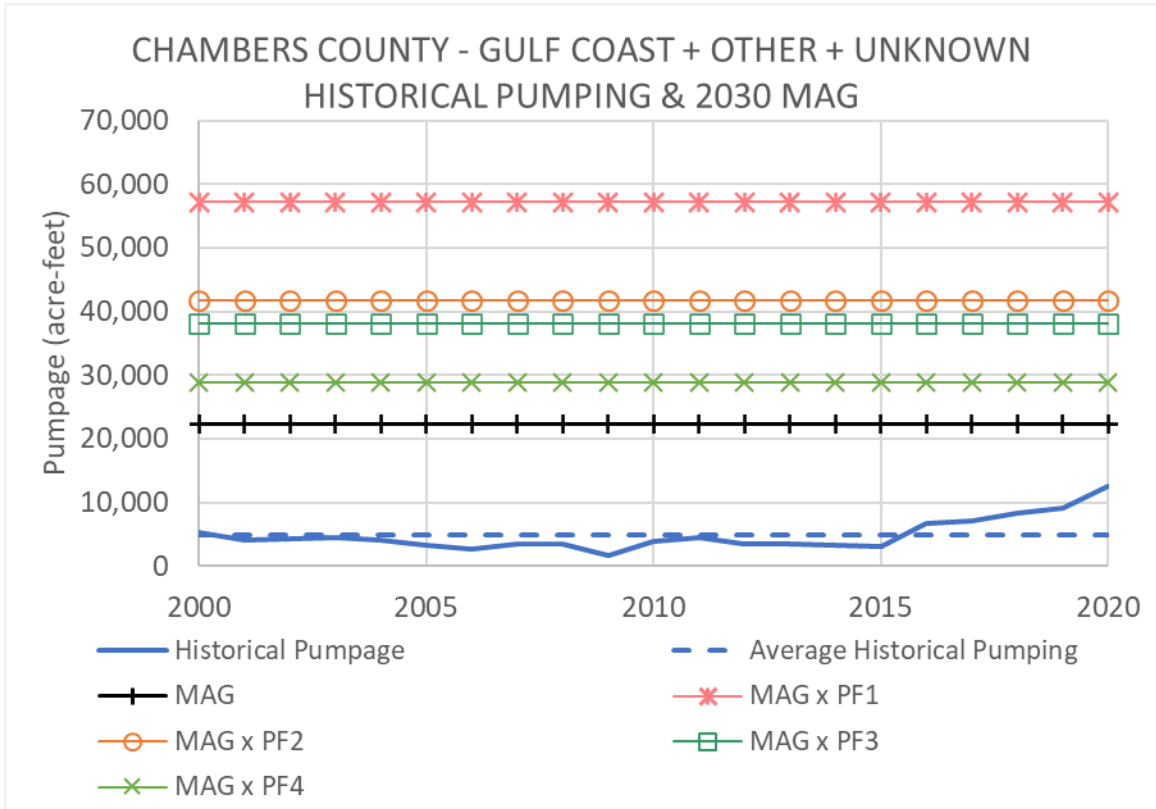
GMA	County	Aquifer	Peaking Factor Options*			
			PF1	PF2	PF3	PF4
14	AUSTIN	GULF COAST + OTHER + UNKNOWN	1.37	1.24	1.32	1.21
14	AUSTIN	GULF COAST AQUIFER	1.39	1.26	1.30	1.19
14	BRAZORIA	GULF COAST + OTHER + UNKNOWN	1.46	1.34	1.46	1.34
14	BRAZORIA	GULF COAST AQUIFER	1.65	1.45	1.60	1.43
14	CHAMBERS	GULF COAST + OTHER + UNKNOWN	2.56	1.87	1.71	1.29
14	CHAMBERS	GULF COAST AQUIFER	1.52	1.51	1.30	1.68
12	LEON	CARRIZO-WILCOX AQUIFER	1.22	1.18	1.23	1.12
12	LEON	QUEEN CITY AQUIFER	1.63	1.51	1.11	1.18
12	LEON	SPARTA AQUIFER	4.78	1.39	3.28	2.55
12	LEON	YEGUA-JACKSON AQUIFER	0.00	0.00	0.00	0.00
14	LIBERTY	GULF COAST + OTHER + UNKNOWN	1.33	1.29	1.12	1.11
14	LIBERTY	GULF COAST AQUIFER	1.57	1.52	1.08	1.09
12	MADISON	CARRIZO-WILCOX AQUIFER	1.80	1.75	1.02	0.94
12	MADISON	QUEEN CITY AQUIFER	1.69	1.46	1.61	1.16
12	MADISON	SPARTA AQUIFER	1.27	1.22	1.24	1.14
12	MADISON	YEGUA-JACKSON AQUIFER	2.02	1.87	1.90	1.66
14	MONTGOMERY	GULF COAST + OTHER + UNKNOWN	1.51	1.28	1.49	1.25
14	MONTGOMERY	GULF COAST AQUIFER	1.41	1.35	1.38	1.29
14	POLK	GULF COAST + OTHER + UNKNOWN	1.24	1.18	1.14	1.11
14	POLK	GULF COAST AQUIFER	1.28	1.27	1.16	1.13
14	SAN JACINTO	GULF COAST + OTHER + UNKNOWN	1.45	1.10	1.41	1.16
14	SAN JACINTO	GULF COAST AQUIFER	1.72	1.30	1.42	0.96
11	TRINITY	CARRIZO-WILCOX AQUIFER	0.00	0.00	0.00	0.00
11	TRINITY	QUEEN CITY AQUIFER	0.00	0.00	0.00	0.00
11	TRINITY	SPARTA AQUIFER	0.00	0.00	0.00	0.00
14	WALKER	GULF COAST + OTHER + UNKNOWN	1.37	1.36	1.12	1.52
14	WALKER	GULF COAST AQUIFER	1.72	1.56	1.21	0.92
14	WALLER	GULF COAST + OTHER + UNKNOWN	1.37	1.35	1.40	1.10
14	WALLER	GULF COAST AQUIFER	1.39	1.38	1.10	1.07

*Values in blue reflect non-Subsidence District counties with historical pumpage exceeding the MAG for one or more years.

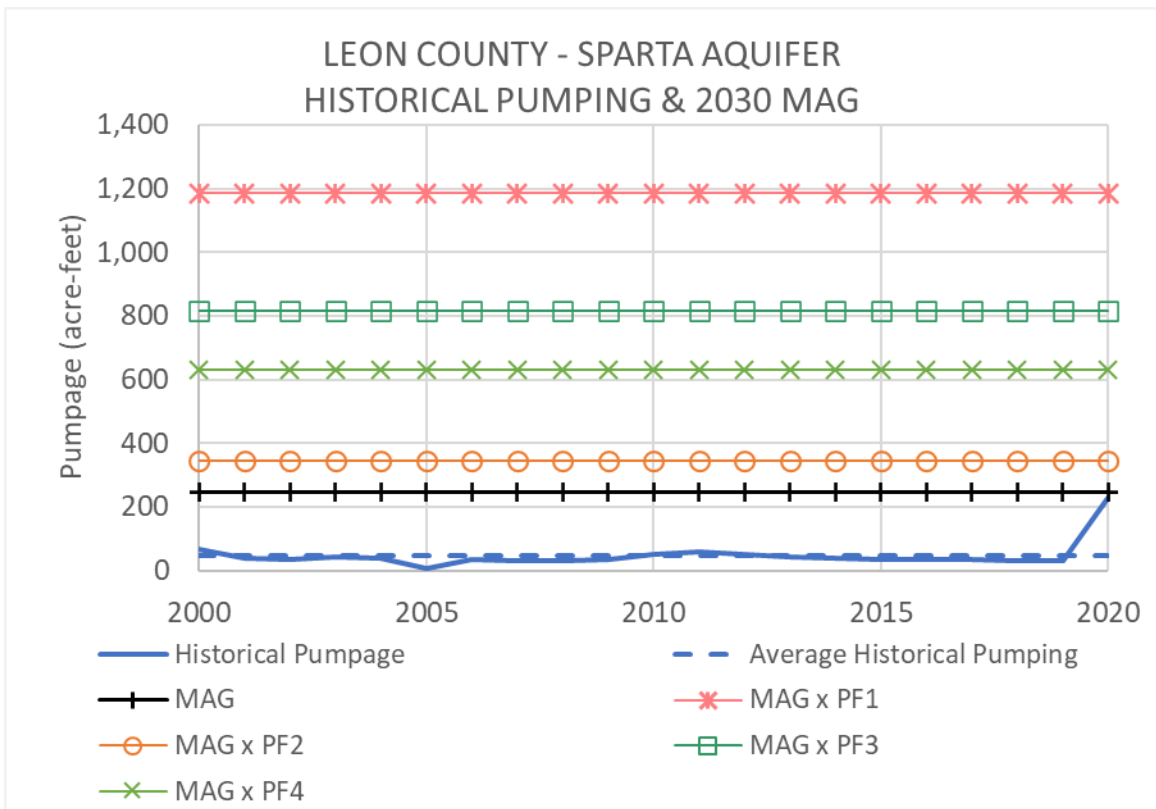
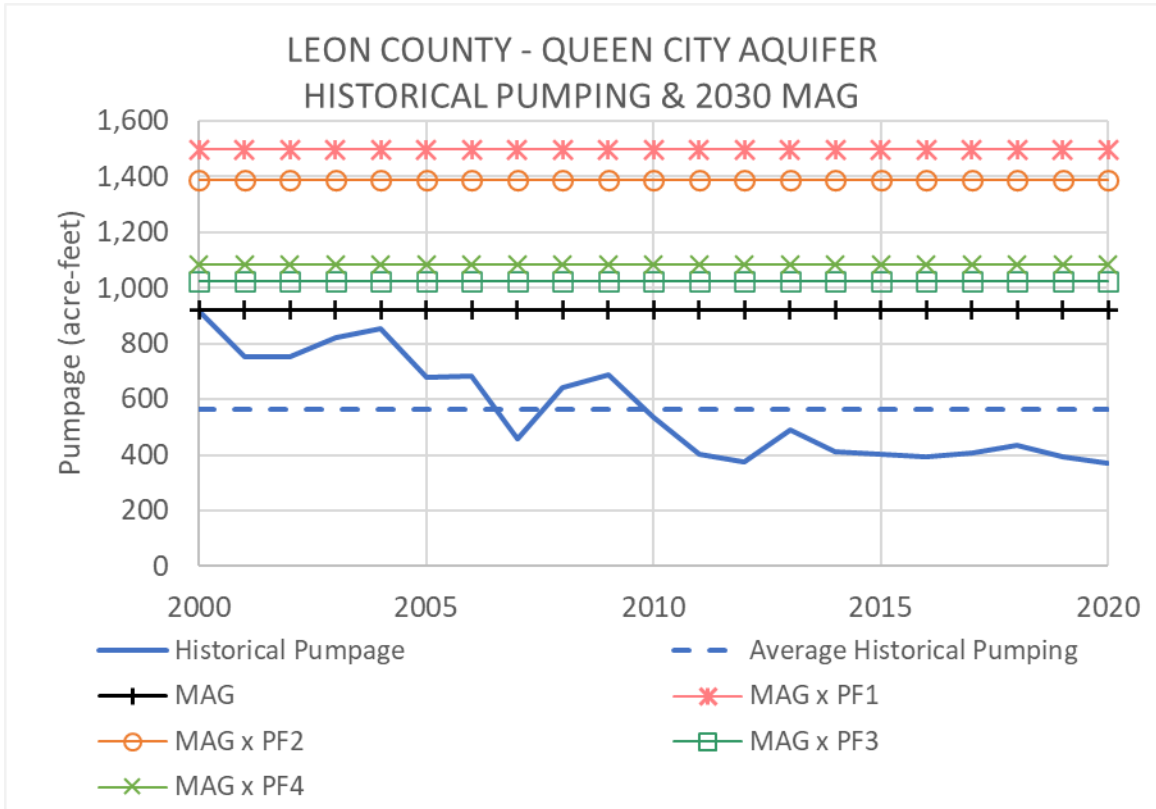
2026 Region H RWP
Potential MAG Peak Factor Methodology



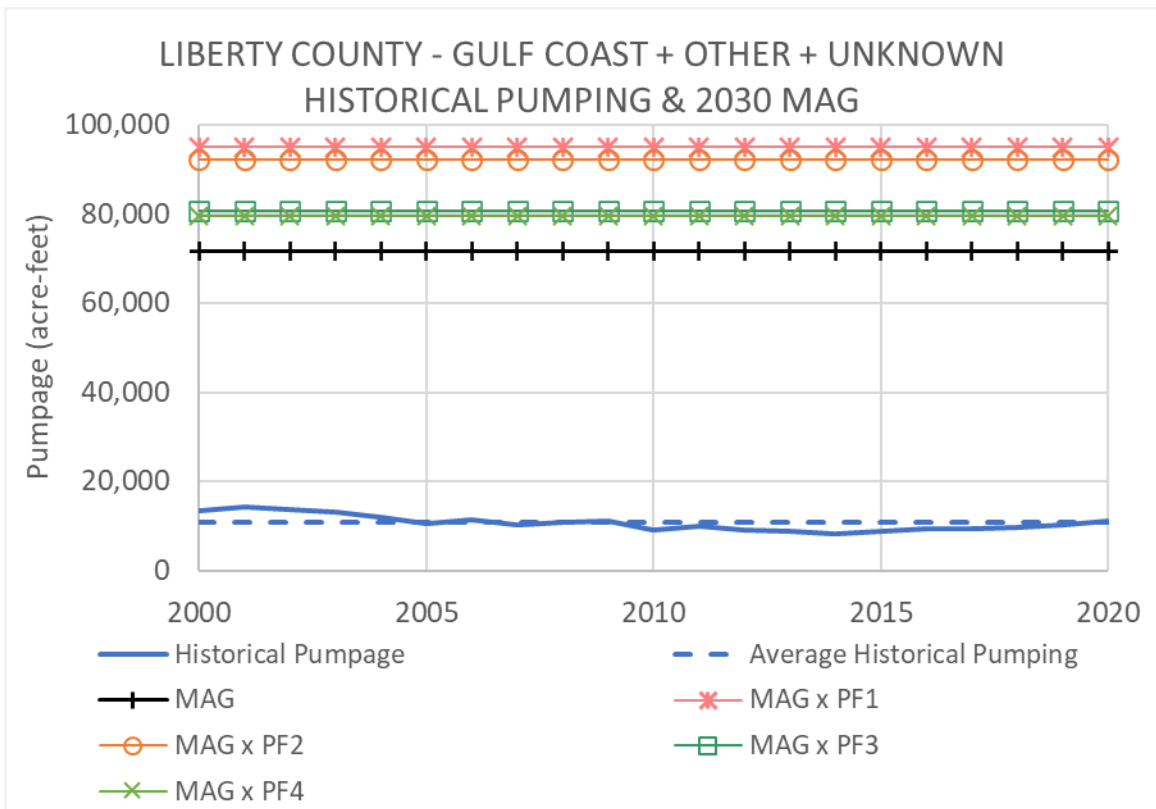
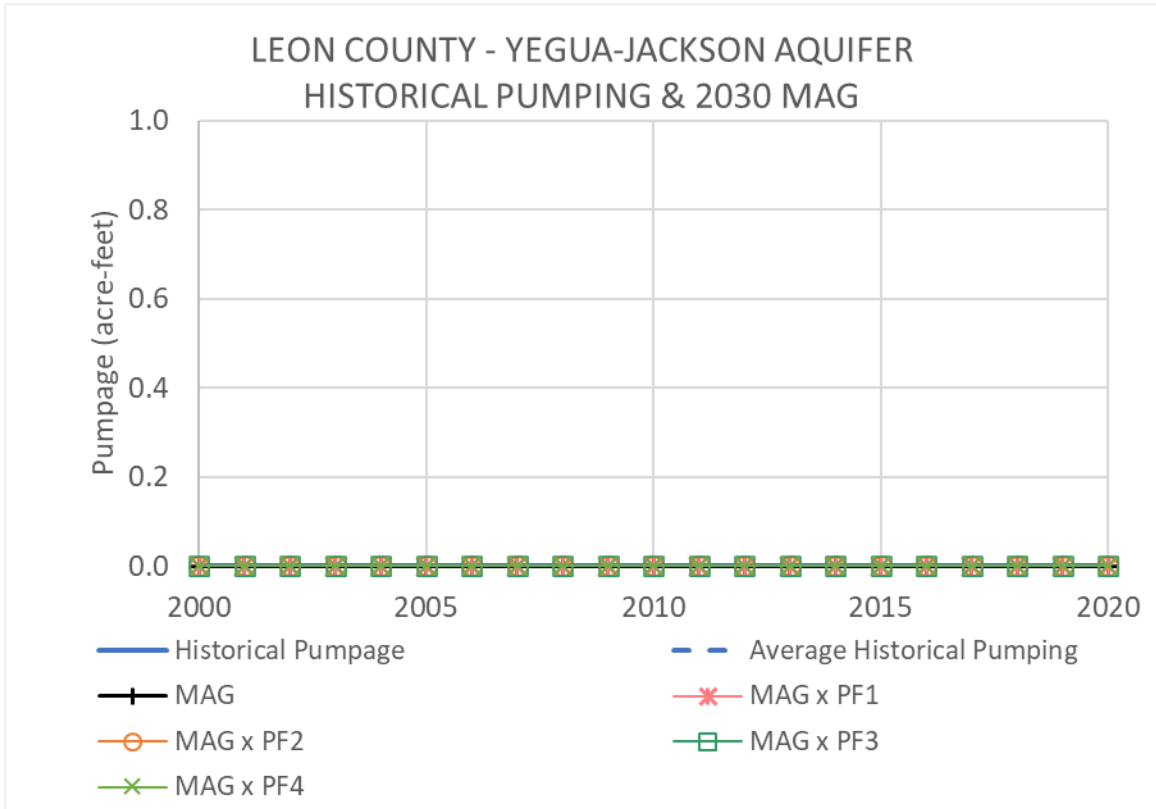
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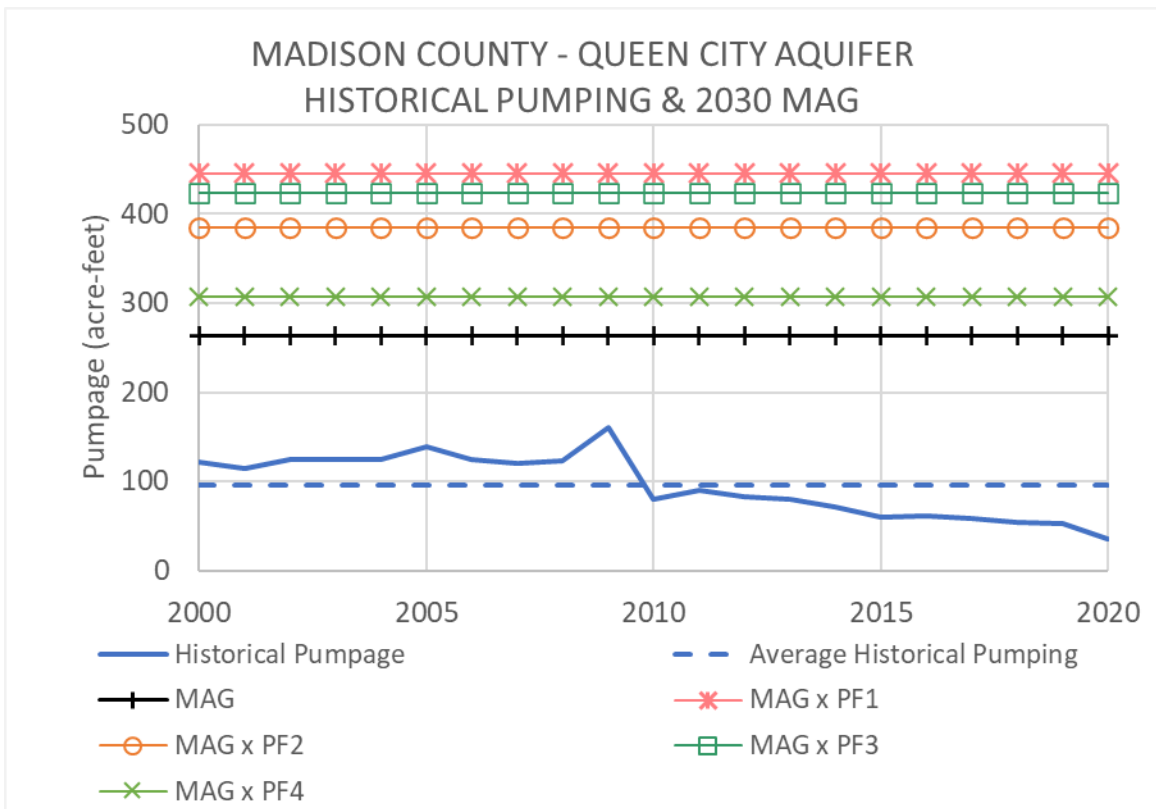
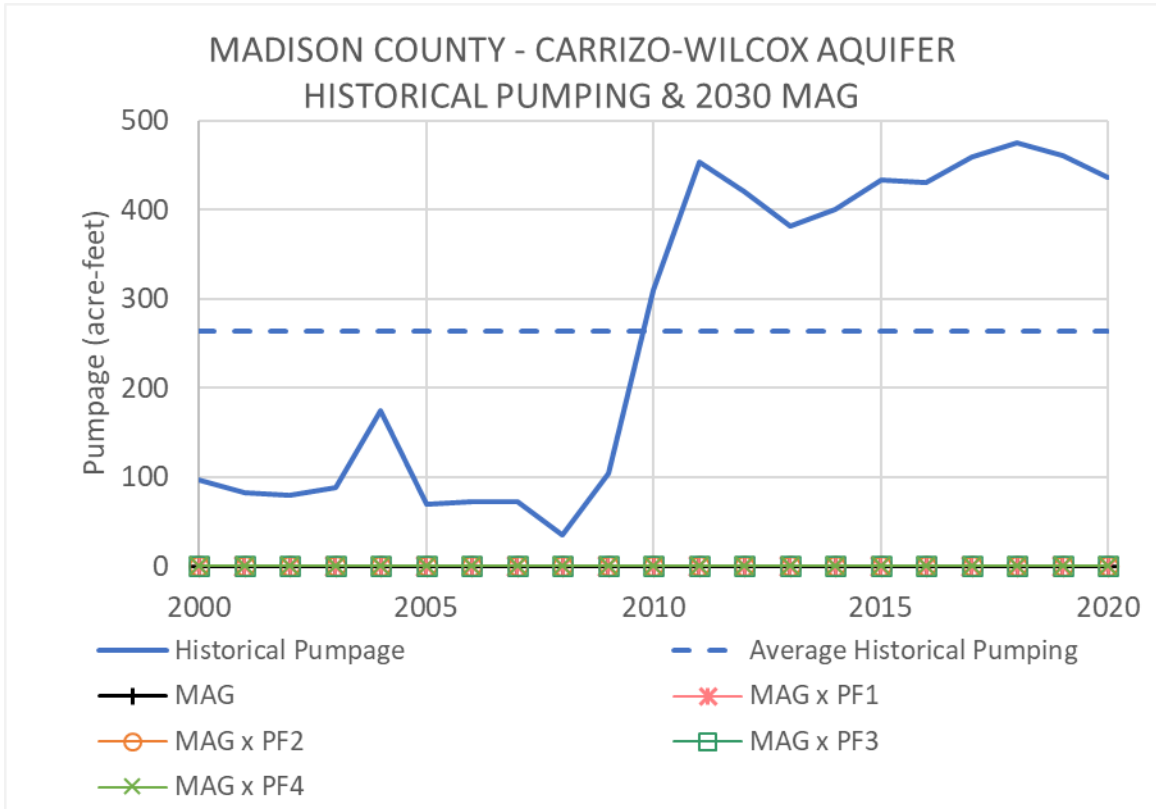
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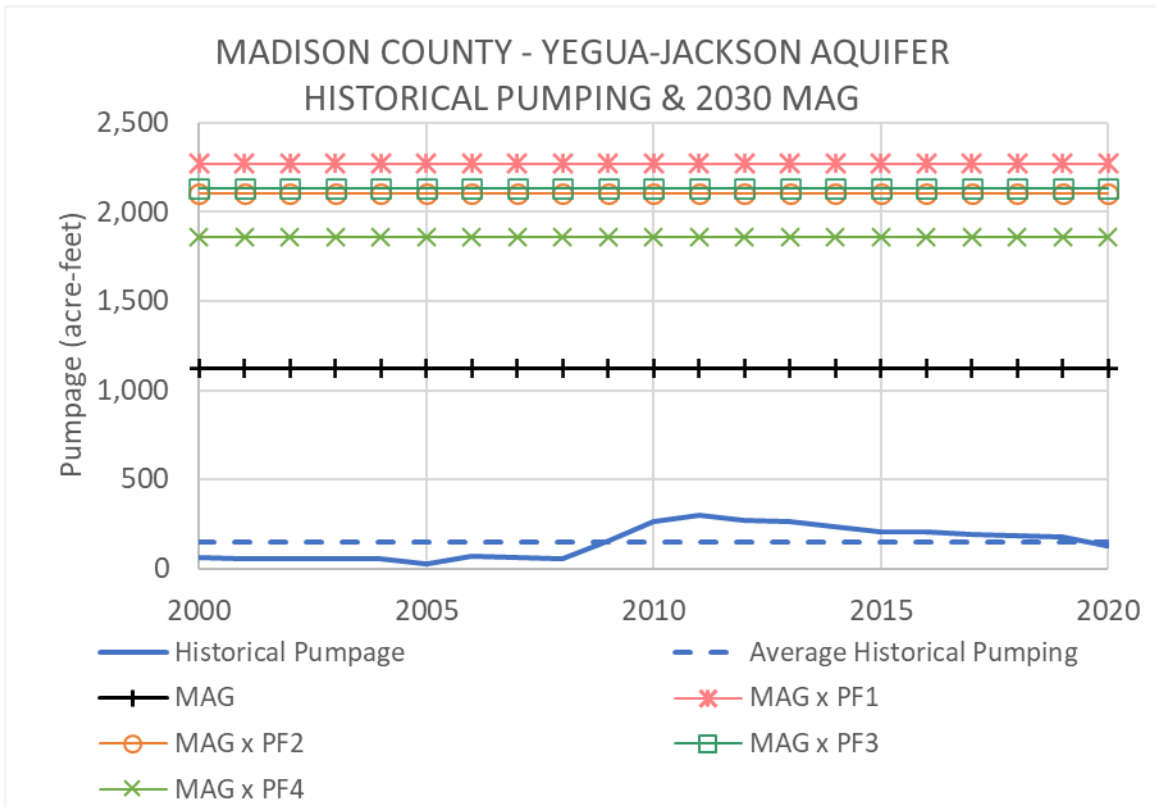
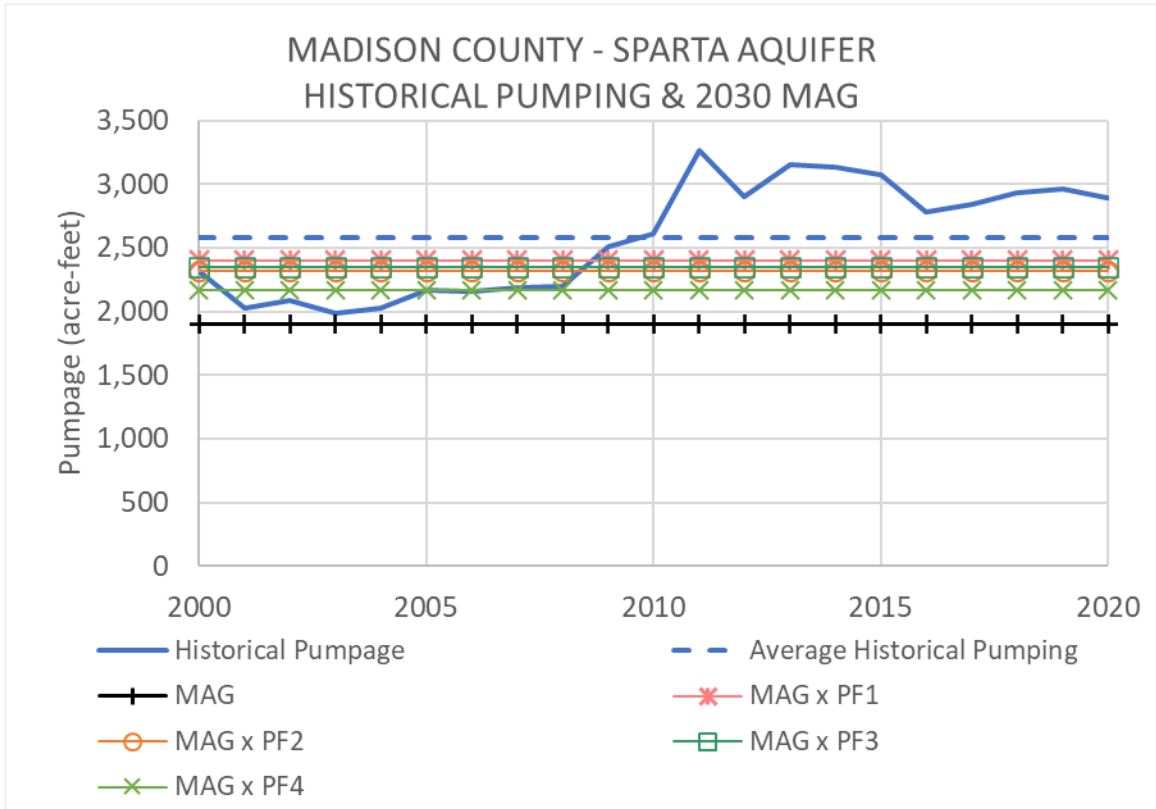
2026 Region H RWP
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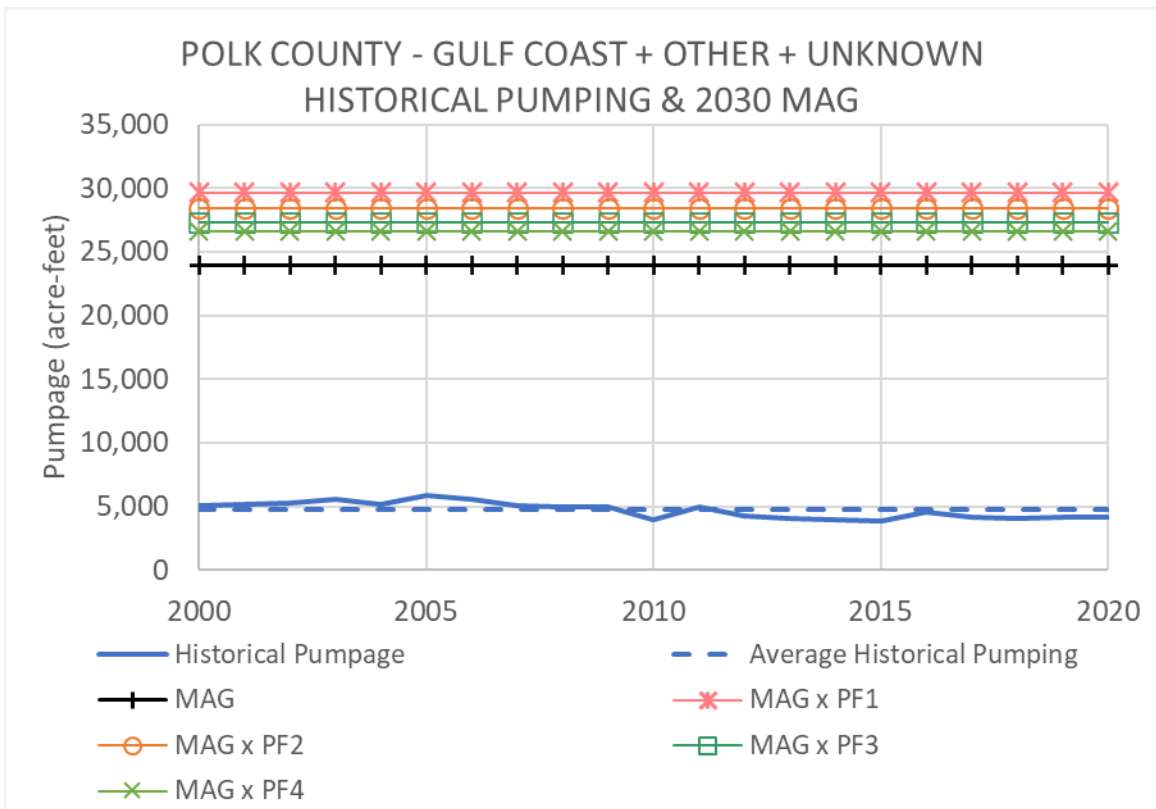
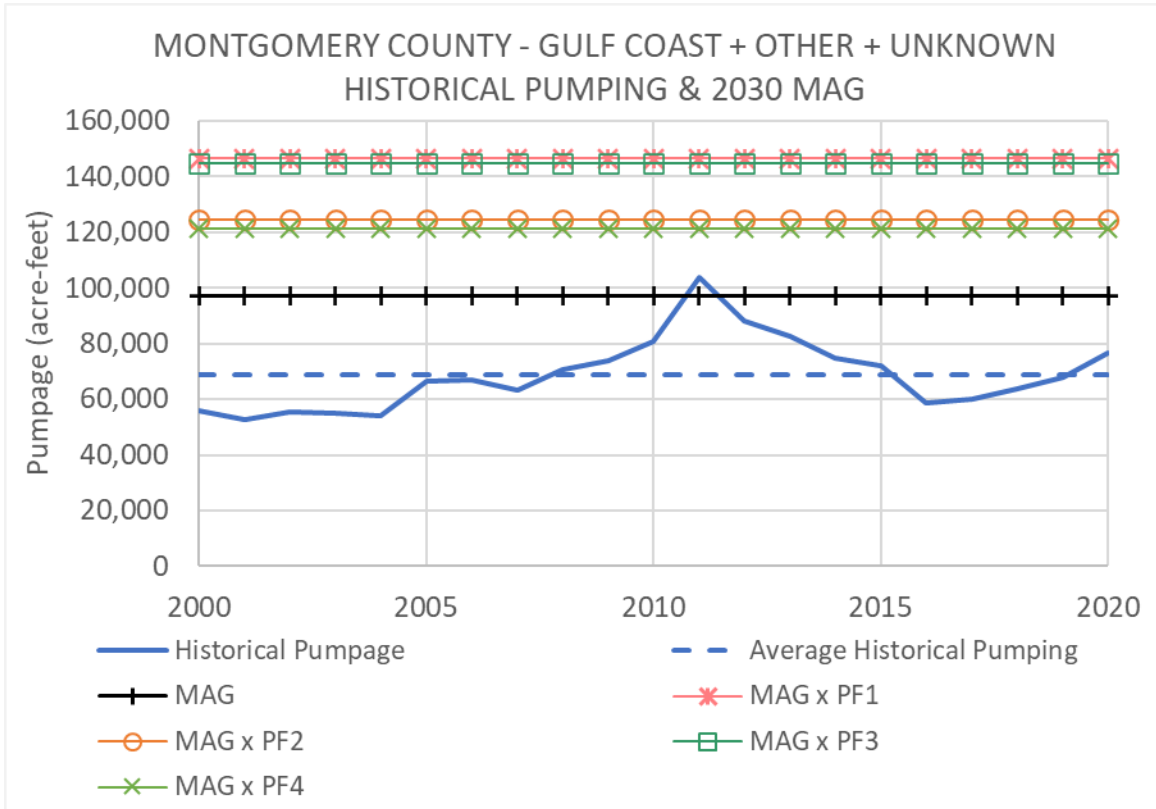
2026 Region H RWP
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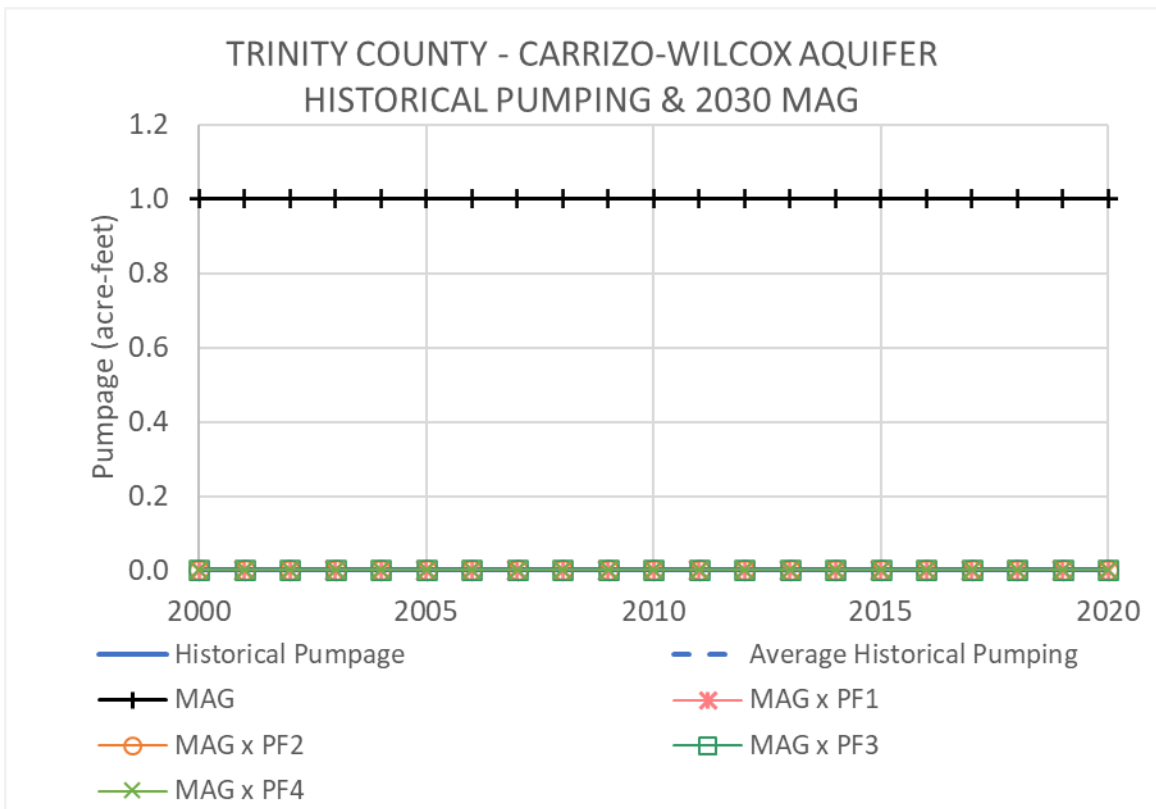
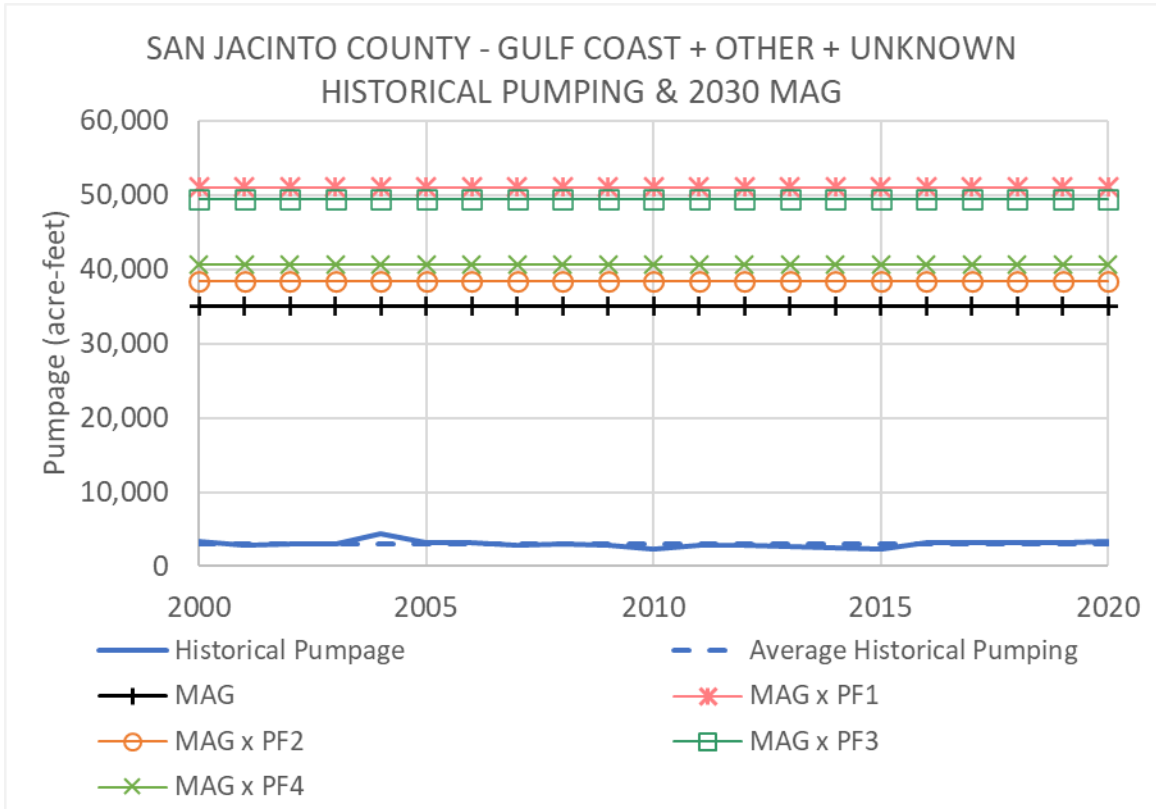
2026 Region H RWP
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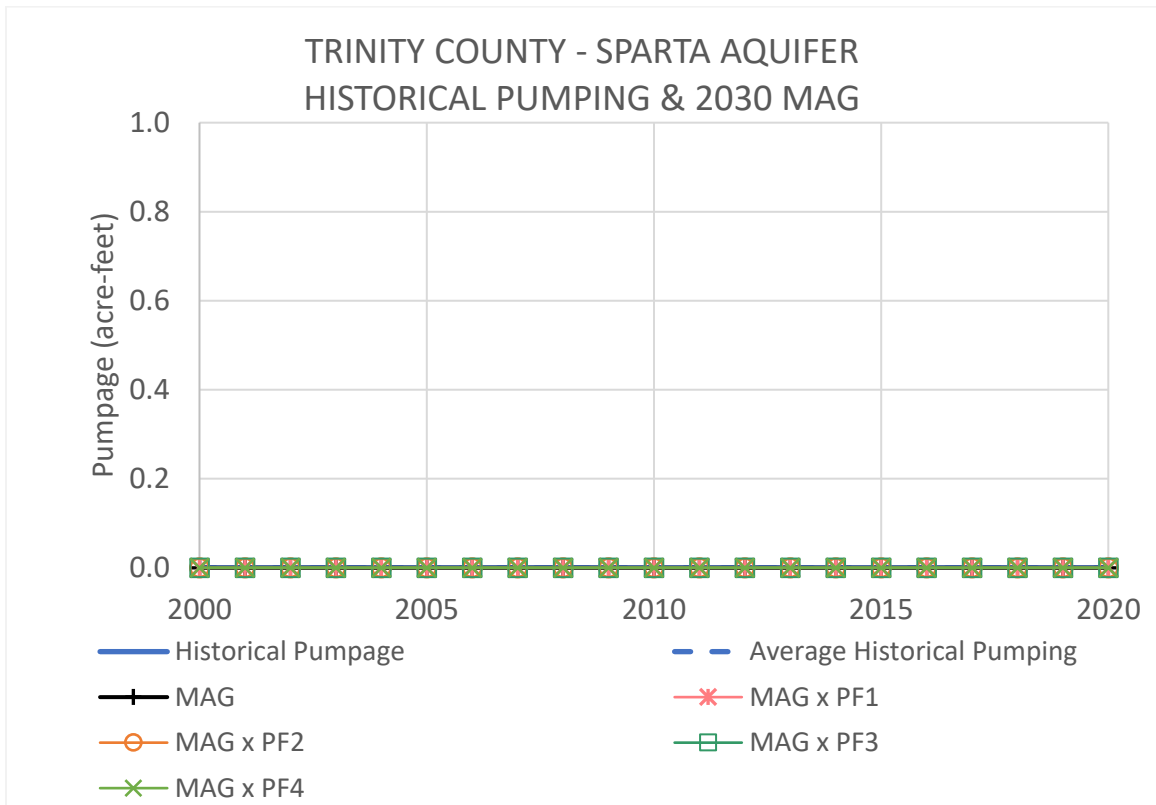
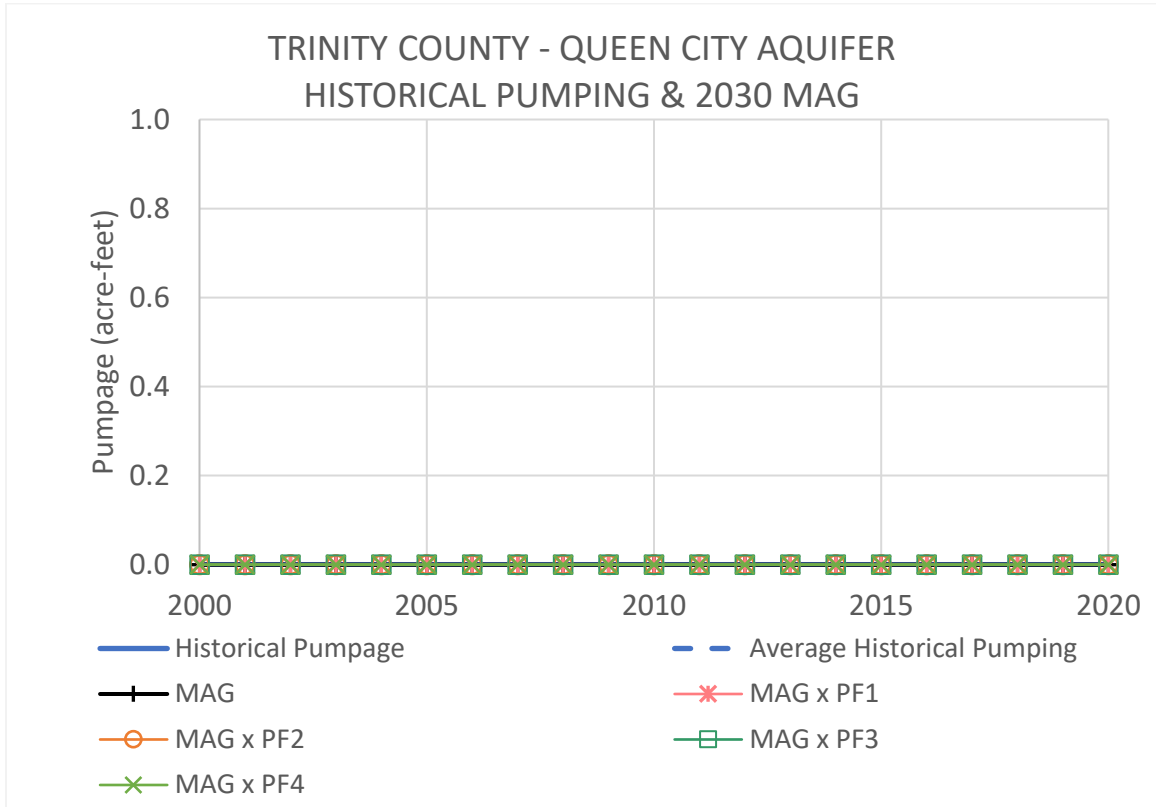
2026 Region H RWP
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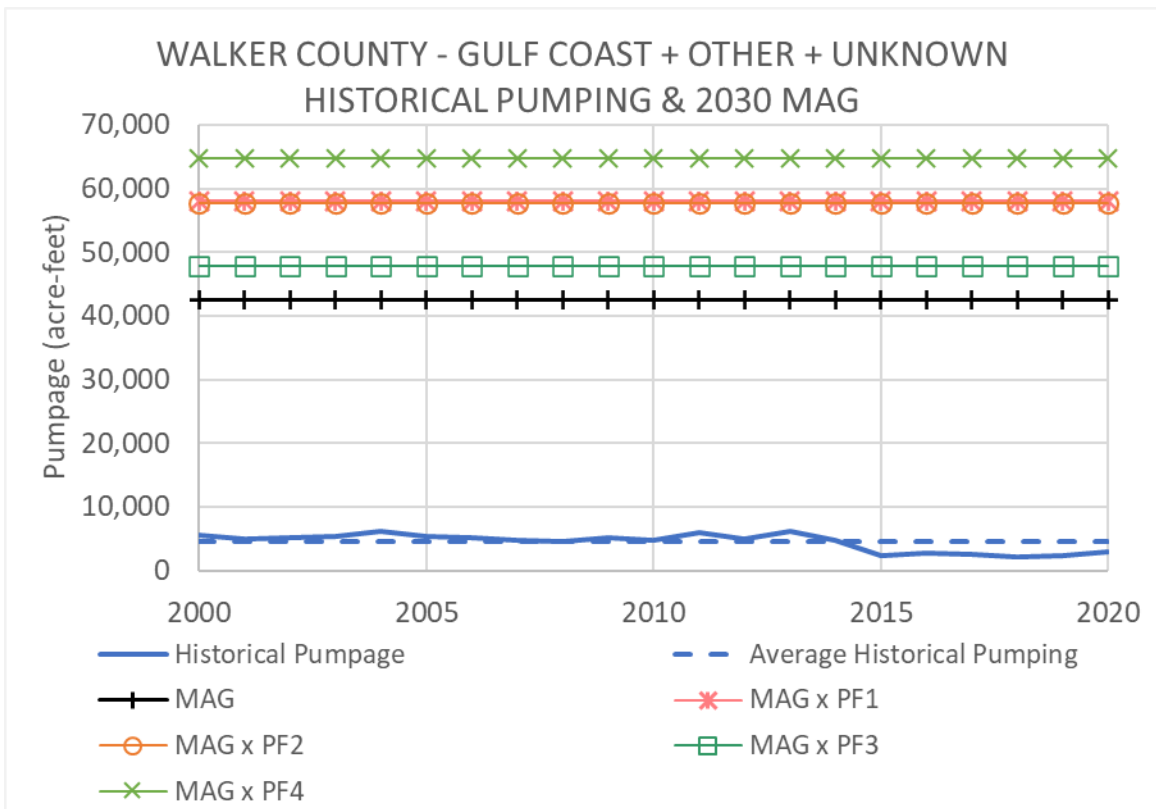
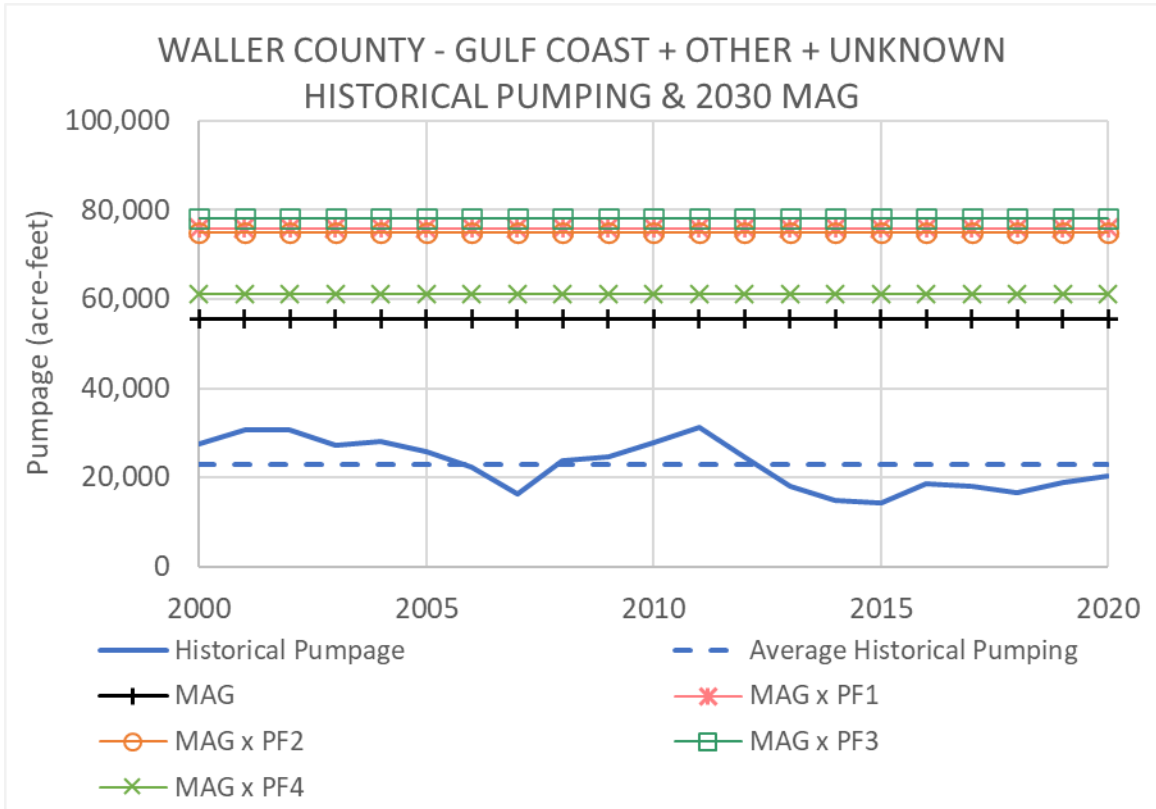
2026 Region H RWP
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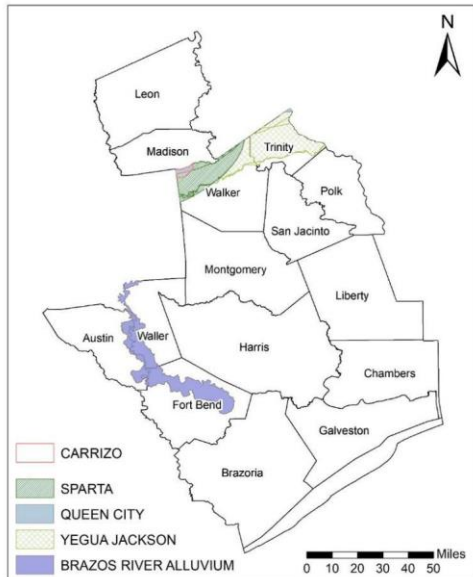
2026 Region H RWP
Potential MAG Peak Factor Methodology



Agenda Item 9

Receive update from Consultant Team regarding evaluation of existing groundwater supplies in portions of aquifers deemed non-relevant by the Joint Planning process and consider making recommendations to the Region H Water Planning Group (RHWPG) to approve supply estimates.

Agenda Item 9 Non-MAG Availability



Austin County

- Brazos River Alluvium and other alluvium

Montgomery County

- Catahoula Formation

Polk County

- Yegua-Jackson Aquifer (brackish)

Trinity County

- Gulf Coast Aquifer and Yegua-Jackson Aquifer

Walker County

- Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson Aquifers and other alluvium

Waller County

- Brazos River Alluvium

Agenda Item 9 Non-MAG Availability

Non-MAG Supplies – up to RWPG determination

- Portions of aquifers excluded from DFC process
- Local supplies

Data sources

- Local GCD management plans
- TWDB GAMs
- Previous RWP estimates



Agenda Item 9

Non-MAG Availability

2021 RWP Supplies

Aquifer	County	Available Groundwater (ac-ft/yr)					
		2020	2030	2040	2050	2060	2070
Brazos River Alluvium	Austin	7,944	7,944	7,944	7,944	7,944	7,944
Brazos River Alluvium	Waller	12,027	12,027	12,027	12,027	12,027	12,027
Carrizo-Wilcox	Walker	2,099	2,099	2,099	2,099	2,099	2,099
Gulf Coast Catahoula Formation*	Montgomery	8,760	8,760	8,760	8,760	8,760	8,760
Queen City	Walker	229	229	229	229	229	229
San Bernard River Alluvium	Austin	520	520	520	520	520	520
San Jacinto River Alluvium	Walker	1,450	1,450	1,450	1,450	1,450	1,450
Sparta	Walker	2,350	2,350	2,350	2,350	2,350	2,350
Trinity River Alluvium	Walker	3,913	3,913	3,913	3,913	3,913	3,913
Yegua-Jackson	Polk	N/A	N/A	N/A	N/A	N/A	N/A
Yegua-Jackson	Trinity	2,191	2,191	2,191	2,191	2,191	2,191
Yegua-Jackson	Walker	4,174	4,174	4,174	4,174	4,174	4,174

* Catahoula Aquifer supplies based on permitted production.

Agenda Item 9

Non-MAG Availability

- **Brazos River Alluvium Aquifer**
 - Option: use values in 2021 RWP (from 2011 GTA Aquifer Assessment)
 - Option: extract pumping from GAM Run 21-017 MAG (GMA 12)
- **Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson**
 - Option: use values in 2021 RWP (GAM Run 10-0XX MAG Version 2)
 - Option: extract pumping from GAM Run 21-016 MAG (GMA 11) and/or 21-017 MAG (GMA 12)
- **Catahoula Formation of Gulf Coast Aquifer**
 - Option: use values in 2021 RWP (permitted production)
 - Option: use current permitted production
- **Other alluvium formations**
 - Option: use values in 2021 RWP (from 2011 GTA Aquifer Assessment)