ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT

BUILDING A SUSTAINABLE WATER SUPPLY TO HELP OUR COMMUNITY THRIVE

SPECIAL MEETING OF THE BOARD OF DIRECTORS
ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
849 ALLEN ROAD, BAKERSFIELD, CA 93314

AGENDA

July 25, 2023
1:00 p.m.

1. CALL TO ORDER / ROLL CALL

2. MANAGER'S REPORT

a. Consideration of Groundwater Sustainaibility Plan Initial Notice (Cal. Wat. Code §10727.8)
b. Discussion of Water Charge Policies and Procedures
c. GSP Deficiency Update

3. OLD OR NEW BUSINESS

4. PUBLIC COMMENT

5. CLOSED SESSION

a) Conference with legal counsel – Anticipated Litigation: Significant Exposure to Litigation – *Government Code Section 54956.9(d)(2):* Two (2) Matters

b) Conference with legal counsel – Anticipated Litigation: Initiation of Litigation – *Government Code Section 54956.9(d)(4):* Two (2) Matters

c) Conference with legal counsel – Pending Litigation – *Government Code Section 54956.9 (d)(1):*
   i. State Water Resources Control Board – Applications to Appropriate Kern River Water
   ii. Rosedale-Rio Bravo Water Storage District, et al. vs. Kern County Water Agency, et al. (CVC Litigation)
   iii. Buena Vista Water Storage District, et al. v. Rosedale-Rio Bravo Water Storage District (Three Separate Suits) (Onyx Ranch CEQA Litigation)
   iv. Rosedale-Rio Bravo Water Storage District v. Buena Vista Water Storage District, et al. (Onyx Ranch Declaratory Relief Litigation)

d) Conference with real property negotiator – *Government Code Section 54956.8* – Negotiators:

Dan Bartel / Dan Raytis

i. Property: Water Supply (2023 Supplies). Negotiating parties: Various parties and Rosedale-Rio Bravo Water Storage District. Under negotiation: Price & Terms of Payment
ii. Property: Various Parcels – Potential District Projects. Negotiating parties: Various parties and Rosedale-Rio Bravo Water Storage District. Under negotiation: Price & Terms of Payment
iii. Property: APNs: 104-260-08 and 104-270-28. Negotiating Parties: Marc McCaslin and Rosedale-Rio Bravo Water Storage District. Under negotiations: Price & Terms of Payment.

6. ADJOURNMENT

DECLARATION OF POSTING: I, Rachelle Echeverria, declare under penalty of perjury, that I am employed by the Rosedale-Rio Bravo Water Storage District and I posted the foregoing Agenda at the District Office and on the District's website (www.rrbwsd.com) on or before July 24, 2023. ***Requests for disability related modifications or accommodations, including auxiliary aids or services may be made by telephoning or contacting Megan Misuraca at mmisuraca@rrbwsd.com. Please attempt to make such requests known at least 24 hours before the scheduled meeting.***

ROSEDALE-RIO BRAVO
WATER STORAGE DISTRICT

July 26, 2023

VIA POSTING ON WWW.RRBWSD.COM
Public

VIA U.S. MAIL
Department of Water Resources
Name/Title
Address
Address

County of Kern
Clerk of the Board of Supervisors
1115 Truxtun Avenue, 5th floor
Bakersfield, CA 93301

Re: Notice of Intent to Prepare a Groundwater Sustainability Plan (Wat. Code §10727.8)

To the public, the Department of Water Resources, and the County of Kern:

Pursuant to Water Code Section 10727.8 and the Title 23, Section 353.6 of the California Code of Regulations, the Rosedale-Rio Bravo Water Storage District Groundwater Sustainability Agency ("Rosedale GSA") hereby provides notice that it intends to initiate development of a Groundwater Sustainability Plan ("GSP") for the lands within its boundaries covering a portion of the Kern County Subbasin (Basin No. 5-022.14) (the "Basin").

As a member of the Kern Groundwater Authority Groundwater Sustainability Agency ("KGA"), the Rosedale-Rio Bravo Water Storage District ("District") has previously submitted a GSP to DWR through the KGA. On March 2, 2023, the Department of Water Resources determined that the revised GSP for the Basin (including KGA's GSP) was inadequate. Since DWR's determination, the District has formed the Rosedale GSA, which intends to prepare a new/revised GSP ("Rosedale GSP") that addresses the deficiencies identified by DWR but that is independent of the KGA. The Rosedale GSP will cover those lands within the boundaries of the Rosedale GSA.

The development of the Rosedale GSP will be in coordination with all of the groundwater sustainability agencies overlying the Basin. The Rosedale GSA anticipates entering into a coordination agreement with such other GSA's and participating in Basin coordination committee meetings.

The Rosedale GSP will be discussed, considered, and ultimately adopted by the Rosedale GSA at meetings that will normally be held at the same time as the District's Board of Directors meetings, which are open to the public and conducted pursuant to the California Open Meeting

Law (the "Brown Act"). Regularly scheduled District Board meetings are held on the 2nd Tuesday of each month at 8:00 a.m. at the District's office.

Interested parties are encouraged to participate in the development and implementation of the GSP. Information about groundwater resources, the development of the GSP, and Rosedale GSA meetings will be published on Rosedale's website (www.rrbwsb.com). This Notice will also be made available to the public via Rosedale's website.

Sincerely,

Dan Bartel, Engineer-Manager
Rosedale-Rio Bravo Water Storage District

ROSEDALE-RIO BRAVO
WATER STORAGE DISTRICT

PROPOSED
Water Charge Policy & Procedures

July 25, 2023
DRAFT FOR CONSIDERATION BY BOARD OF DIRECTORS
NOT APPROVED

Definitions

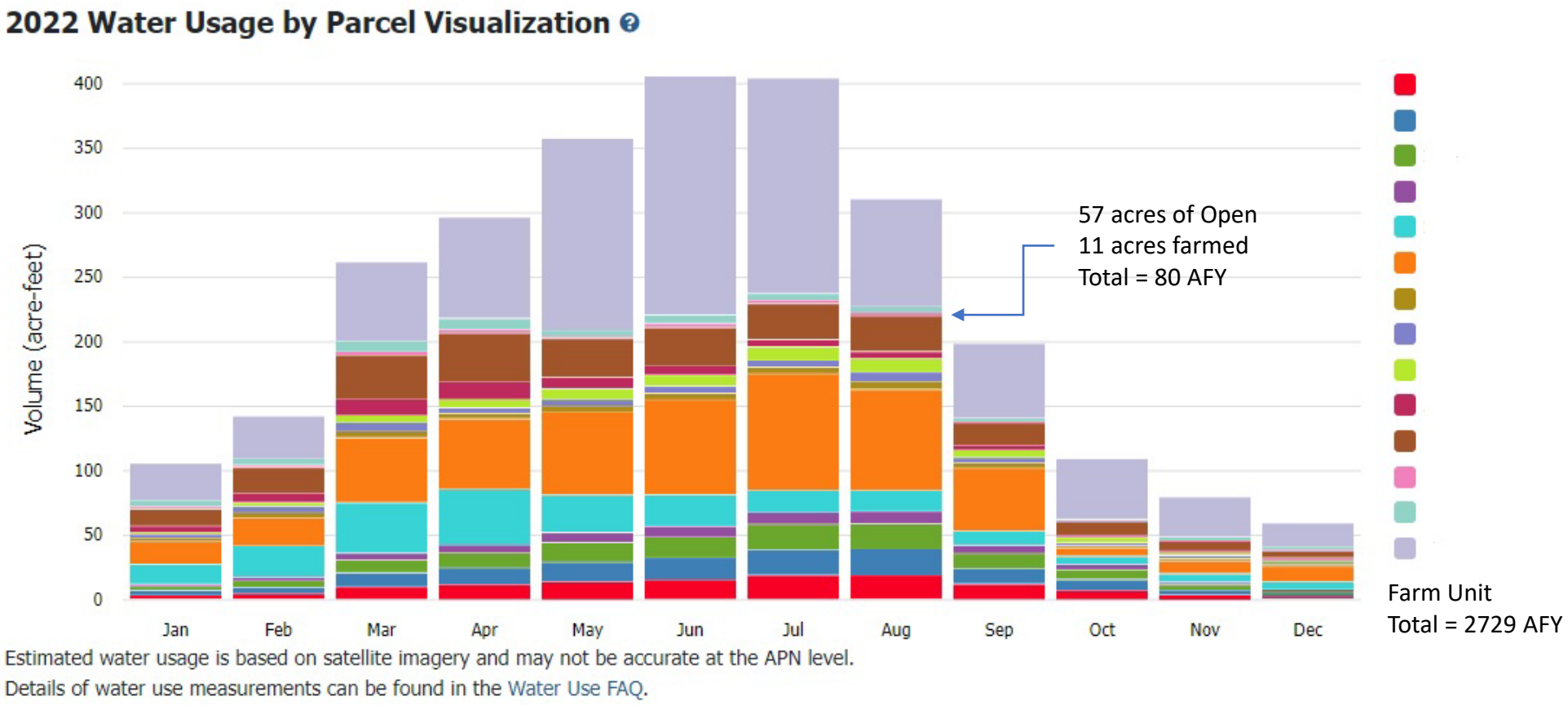
- Farming Unit – A group of APN's within RRBWSD that are zoned for agricultural uses and are owned or controlled by an entity for the benefit of combining the water supply (Project Water and Native Yield) for Water Charge purposes within the District water budget accounting platform.
- Demand – The amount of consumptive-use (total evapotranspiration) from a Farming Unit as calculated by the District's technical services provider, currently LandIQ. No manual adjustments by staff will be made.
- Precipitation – Currently 0.42 AF/AC as stated in RRBWSD GSA GSP. The Shafter #5 CIMIS Station reported an annual range of 2.6 inches up to 13.05 inches for the 2005-2015 period with an average of 5.04 inches (0.42 ft). Precipitation is not transferrable and only applicable to the land(s) on which it fell.
- Native Yield – The amount of "native" groundwater available to a landowner for overlying use within a Farming Unit. In coordination with other GSA's. RRB's initial estimate of Native Yield is 0.15 AF/Acre and may be revised in the future as studies are completed.
- Project Water – The amount of available surface water supplies that have been recharged by Rosedale into the groundwater basin for the benefit of its landowners. The amount is determined by taking the average annual net recharge attributable to the Rosedale Project, less 3rd party obligations, over a running 20-year period. Project Water is allocated proportional to acreage within the RRBWSD.
- Stored Water - The amount of surface water supplies that have been recharged by Rosedale into the groundwater basin for the benefit of specific landowner(s) by agreement. Stored Water is generally either landowner supplies that were recharged in District facilities or District supplies that were recharged in landowner facilities.
- Water Charge Quantity – The amount of consumptive-use above the allowable water supply (Precipitation, Native Yield, Project Water, and Stored Water) that will be subject to the Water Charge Rate.
- Water Charge Rate – The rate adopted by the Rosedale Board of Directors each year that is developed by calculating the projected expenses applicable to the Water Charge divided by the projected annual demand subject to the estimated Water Charge Quantity. The maximum rate will be set through a rate study and protest hearing.

Access to “Real-Time” Information

- The District water budget accounting platform provides all landowners and/or Farming Units with access to their water supply and total demand.
- Consumptive use demand metrics are uploaded to the platform monthly and reflect the preceding month’s demand data. For example, May demand will be uploaded by the end of June.
- Landowners and Farming Units can track all APN and supply changes through this system as they happen and when they occur.
- District will send alerts/statements to Farming Units periodically to the email addresses associated with each individual account.

Example of Water Budget Accounting Platform Supply and Usage Overview

Example of Usage by Parcel



Ag Parcel Acreage Size

- Through the Water Charge Rate Analysis (2022 data), Staff and AECOM identified three potential Options for setting the minimum parcel size:
- 383 parcels < 5.0 acres (904 acres of agricultural parcels)
  - 29 parcels would have been subject to a Water Charge, with an average Water Charge Quantity of **0.70 AF** per parcel **(20 AF).**
  - 354 parcels used less than their allocated water supply, with an average unused water supply of 2.14 AF per parcel.
- 423 parcels < 9.5 acres (1,168 acres of agricultural parcels)
  - 31 parcels would have been subject to a Water Charge, with an average Water Charge Quantity of **0.84 AF** per parcel **(26 AF).**
  - 392 parcels used less than their allocated water supply, with an average unused water supply of 2.57 acre-feet per parcel.
- 194 parcels >= 9.5 acres (32,889 acres of agricultural parcels)
  - 95 parcels would have been subject to a Water Charge, with an average Water Charge Quantity of **239.4 AF** per parcel (**22,747 AF)**.
  - 99 parcels used less than their allocated water supply, with an average unused water supply of 67.12 acre-feet per parcel.

- Staff recommends the minimum parcel size subject to Water Charge and than can be included within a Farming Unit be greater than 9.5 acres

Farming Unit

- Creating a Farming Unit?
  - Annually the District will initially group APN's into a Farming Unit within the District water budget accounting platform by name (i.e., all parcels that are listed as owned under the same exact name as determined by the Kern County Assessor's tax roll).
  - Landowner may add APN's to the Farming Unit for the benefit of combining the water supply (Project Water, Stored Water, and Native Yield).
    - APN's to be added should be submitted by November 30 for the upcoming calendar year for ease of administration. Changes can be made throughout the year and up until March 15 of the following calendar year. Both Landowners must sign off on changes.
      - District is investigating the ability to provide Landowners the ability to assign APN's to other landowners utilizing the existing District water budget accounting platform.
      - District will require Landowners to submit APN's to District staff. Staff will then be able to change APN assignments directly within the District water budget accounting platform.

Water Market

- Final Water Charge Quantities for the calendar year (January 1 through December 31) will be available to each individual Farming Unit on or around February 15th of the following year.
- By no later than March 15th, each Farming Unit may transfer Project Water for the prior water year to and from from other Farming Units with notice to the District. This applies only to Project Water.
  - The District will need to receive written verification of each transaction, including signatures/acknowledgements from both Farming Units, prior to March 15th
  - The District will move the Project Water between Farming Unit accounts and prepare Water Charge Quantity Invoices, which will be sent to all applicable Farming Units by April 15.

Water Charge Calculation (Farming Unit)

Farming Units will be invoiced for the sum of all the APN's in the Farming Unit as follows:

Water Charge Quantity =

Demand (Consumptive Use) – Precipitation – Native Yield – Project Water – Stored Water

Water Charge =

Water Charge Quantity x Water Charge Rate

Limitations of Transferring Water

- Access to Project Water is provided to all landowners within the District through the annual assessment process, for the use and benefit of District landowners. Project Water may only be transferred within District boundaries and will not be allowed to be transferred to undistricted lands (i.e., “White Lands”) or to any other property outside of District boundaries.
- Stored Water may only be transferred consistent with conditions of the applicable Board policy terms and/or agreements.

Dispute Resolution Process and Timeline

- Following issuance of the Water Charge invoices in April, Landowner will have 30 days to submit a written protest.
- Staff will review the protest and information provided and other gathered information and make a recommendation to the Board at a public hearing at the next regularly schedule District Board Meeting.
- Board will review and consider all data, evidence and Staff recommendations and make a final decision regarding the protest.
- Following Board recommendation and final decision, landowner will have a period of time set by the Board to submit final payment or be subject to the delinquency assessment for unpaid Water Charge invoices.

Delinquent Water Charge Payments

- Water Charge invoices will be due on date determined by the Board following the previous water charge calendar year.
- Delinquent invoices (i.e., not paid within 30 days of becoming due) will be assessed a 10% penalty and bear interest at 12% a year.
- Each year, the Board will consider delinquencies (if any) and choose one of the following:
  - Record a list of delinquencies, which will become a lien on the listed APN's; or
  - Bring suit again the delinquent landowner(s) to collect the delinquent Water Charge Quantity invoice amount.

Schedule for Proposed Water Charge for Water Year 2024

2023

- July-August – Presentation to Board/Stakeholders
- September Board Meeting – Feedback to Board from Stakeholders
- October – Notice to Landowners – 60 days to submit APN's to be assigned to Farming Units for 2024.
- November Board – Protest Hearing / Adoption of Water Charge / Determine 2024 Water Charge Rate & Project Water for 2024.

2024

- January 1 – Official Monitoring of Farming Unit demand begins.
- June – Mid-year status update sent to all Farming Units
- October – Notice to Farming Units – 60 days to submit all associated APN's to be assigned to Farming Unit for 2025.
- December 31 – 2024 demand ends; final accounting of prior year demand will be uploaded by end of January.

2025

- February 15 – 2024 demand and water charge quantity available to all Farming Units on water budget platform.
- March 15 – Water market supply acquisitions uploaded to the water budget platform and Water Charge finalized.
- April – 2024 Invoices are sent to all Farming Units that accrued a Water Charge Quantity for prior calendar year.
- May-July – Protests, collections, and, if necessary, consideration of delinquencies.

Technical Working Group Groundwater Level Sustainable Management Criteria Approach Recommendations

Kern County Subbasin

July 19, 2023, 3pm

Overview

- Groundwater Level Sustainable Management Criteria (SMC) Development Process
- Identification of Beneficial Users
- Minimum Threshold (MT) Options
- Measurable Objective (MO) Options
- Undesirable Results (UR) Definition
- Next Steps

DWR Deficiencies

1. **The GSPs do not establish Undesirable Results (URs) that are consistent for the entire Subbasin.**
2. **The Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.**
3. The Subbasin's land subsidence sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.

TWG Groundwater Level SMC Development Process

- Alt-MT subcommittee met numerous times to discuss potential groundwater level SMC approaches and technical screening criteria that would inform the SMC justification
- Identified eight alternative approaches, not including variations
- Calculated subbasin-wide groundwater level MTs for each approach
- Conducted subbasin-wide well impacts analysis for six groundwater level MT approaches
- Developed "MT Approach Packets" for the TWG to review and develop informed technical recommendations
- TWG met multiple times to collectively develop formal recommendations

Process Required to Justify SMCs

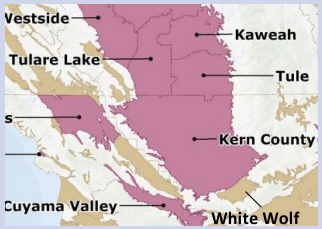
Undesirable Results (URs) (CCR §354.26)

- Identify beneficial uses/users that are impacted by URs
- Describe the causes and effects of URs
- Describe what constitutes "significant and unreasonable" effects
- Define quantitative criteria relating URs to MT exceedances

Minimum Thresholds (MTs) (CCR § 354.28)

- Describe information and criteria used to establish and justify the MTs
- Describe relationship between MTs for each SI, and how URs are avoided
- Describe how MTs avoid impacts to adjacent basins
- Describe how MTs may affect beneficial uses/users, land uses and property interests
- Discuss related state, federal or local standards

Groundwater Level SMC Development Process

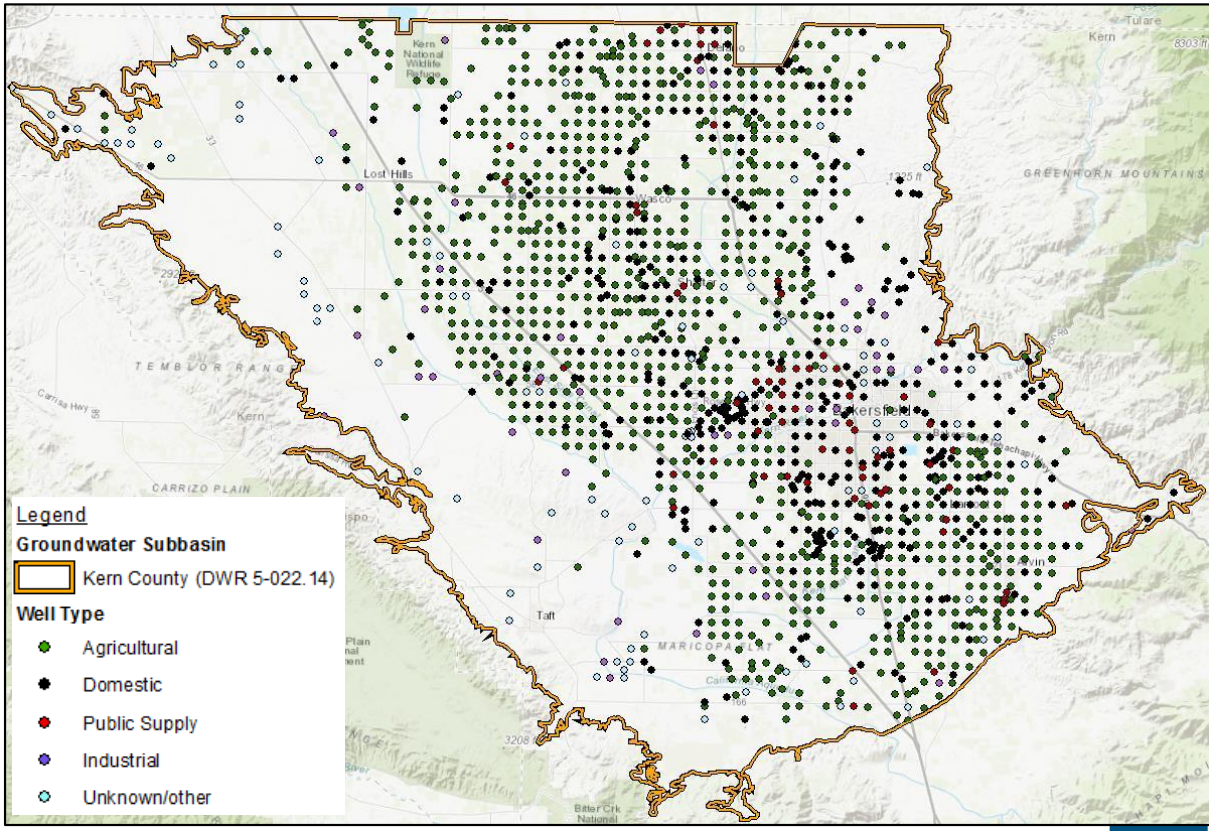
ID Beneficial Users	Impacts to Beneficial Users	Consideration of Adjacent Basins	Relationships with Other Sustainability Indicators	State, Federal, and Local Standards
• Holders of overlying GW rights (ag users, domestic well owners) • Municipal Well Operators	• Well impacts analysis to assess vulnerability of well dewatering, with a focus on drinking water wells	• Compare MOs/MTs to those in adjacent basins/GSP areas to assess potential impacts to GW gradients 	• GW Storage • Subsidence • Water Quality 	• Not applicable for water levels

Identification of Beneficial Users

Subbasin Well Dataset Count by Type:

- Agricultural: 1,747
- Domestic: 1,125
- Public Supply: 131
- Industrial: 82
- Unknown: 170
- Other: 27

Total: 3,282 wells



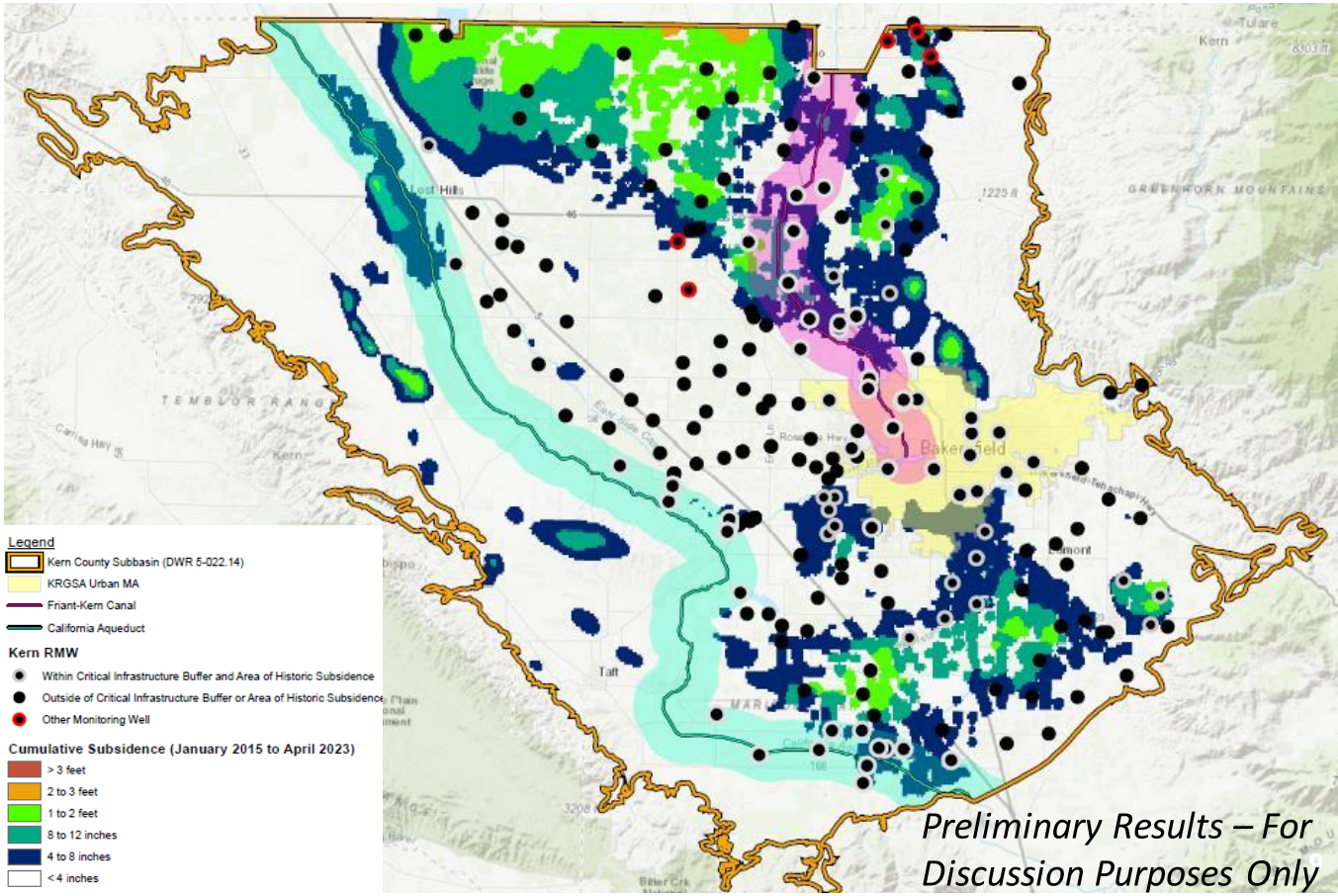
**Excludes wells dewatered in 2015 and older than 70 years in 2040*

Top Three MT Options

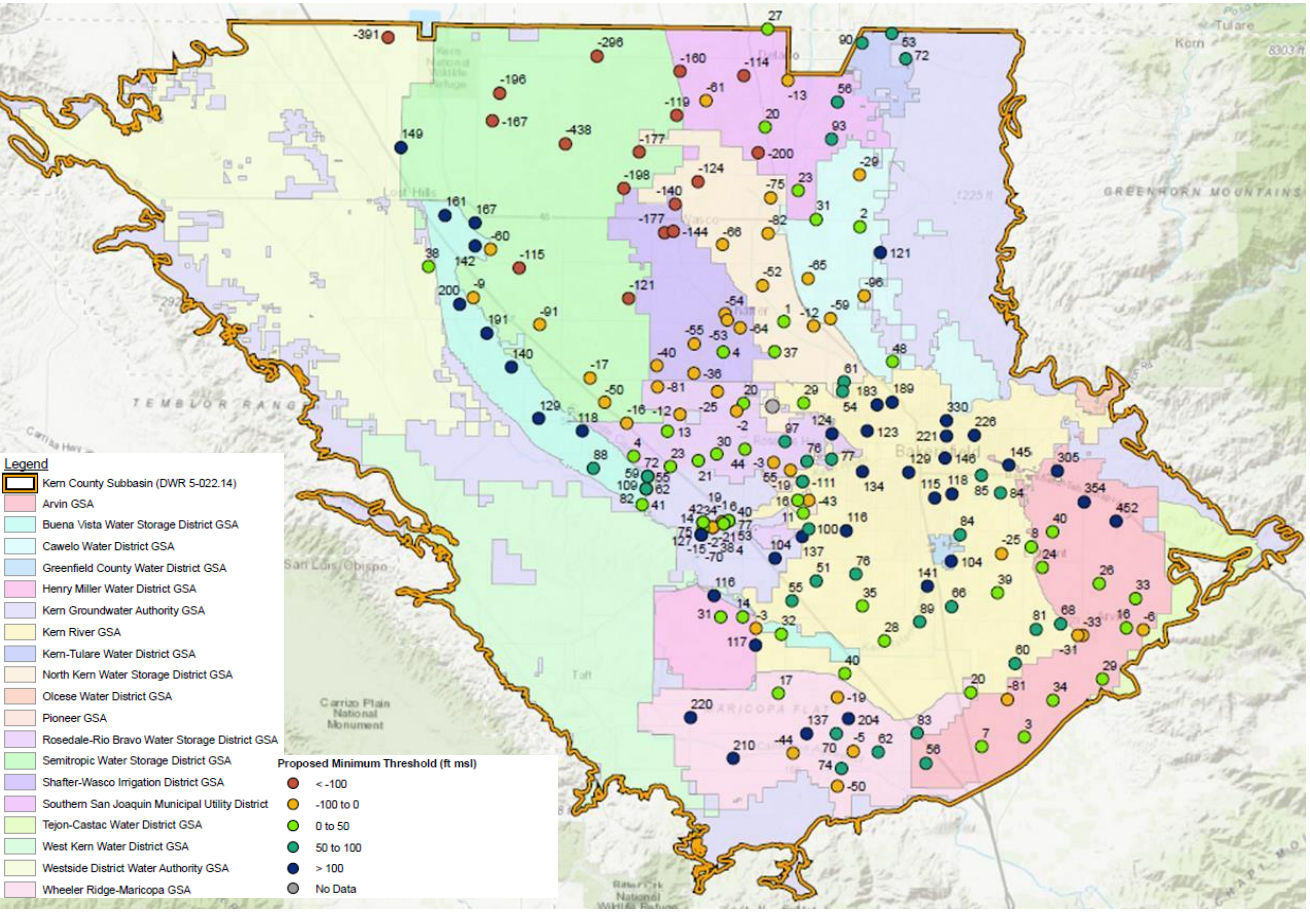
1. Recent Drought Low with 5-year Trend Continuation
   - A trend calculated from Fall 2009 through Fall 2022 projected to continue for 5-years from the “recent drought low” (see below)
2. “Recent Drought Low”
   - Lowest Spring/Fall groundwater level measurement between 2013-2016 or 2021-2022 drought periods
3. SOKR Algorithm
   - Minimum of either the historical low groundwater level minus a variability correction factor or the recent low groundwater level minus the maximum of either the variability correction factor or the trend continuation factor
   - All dates listed in the SOKR GSP have been extended through Fall 2022

Potential MT Adjustment Areas to Address Subsidence / Critical Infrastructure

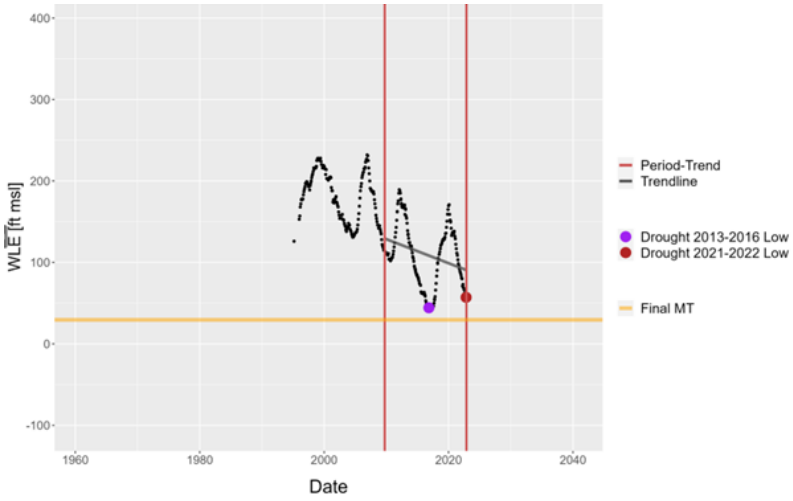
- In consideration of the Land Subsidence Sustainability Indicator, cap the MT at the historical low when within vicinity of Critical Infrastructure / Subsidence prone areas:
  - 5-mile buffer (2.5 miles on each side) of Regional Critical Infrastructure
  - 2-mile buffer (1 mile on each side) of Management Area Critical Infrastructure and where InSAR suggests subsidence has been > 4 inches since 2015



Option 1: Recent Drought Low with 5-year Trend Continuation – MT Values

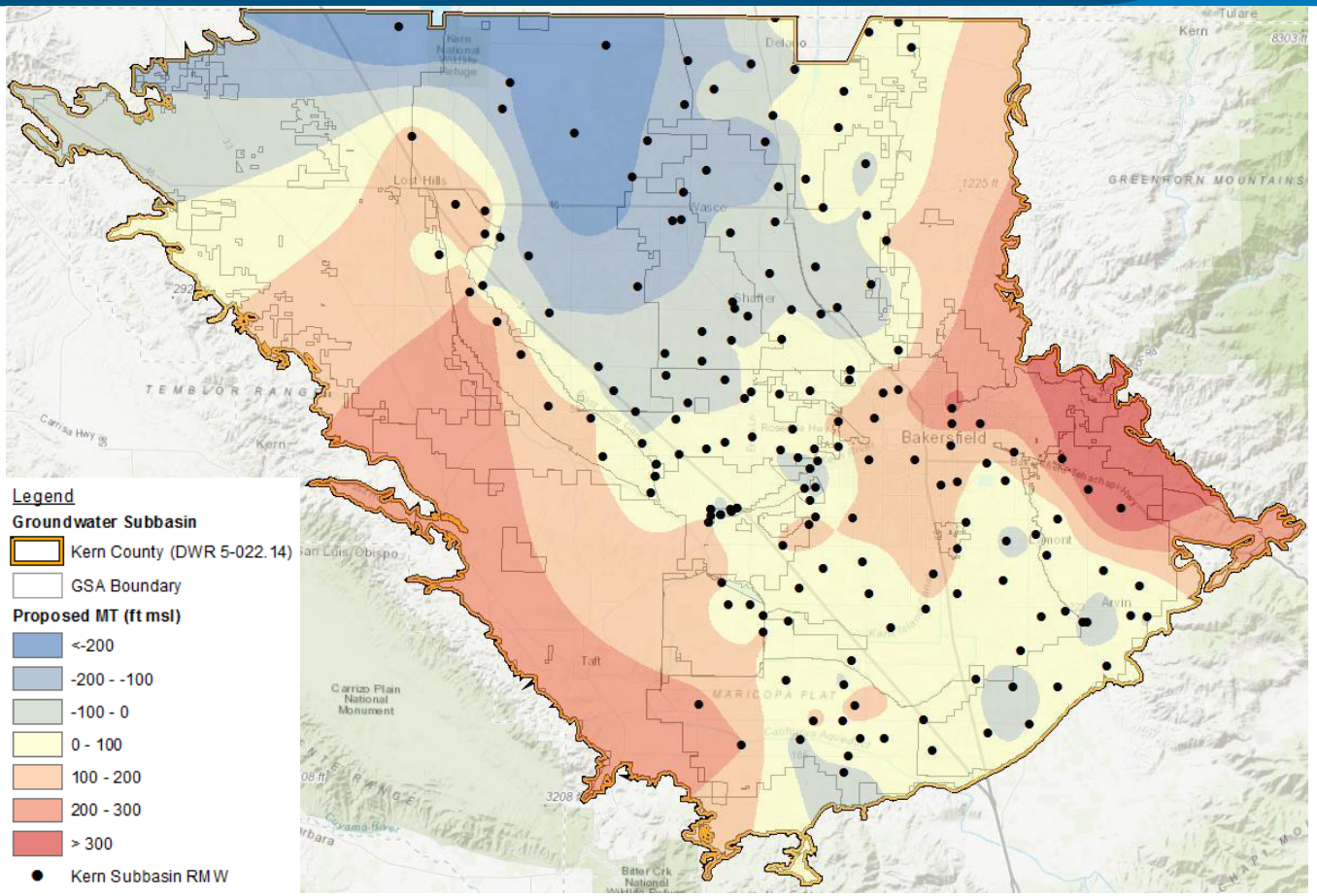


Example Hydrograph:



Preliminary Results – For Discussion Purposes Only

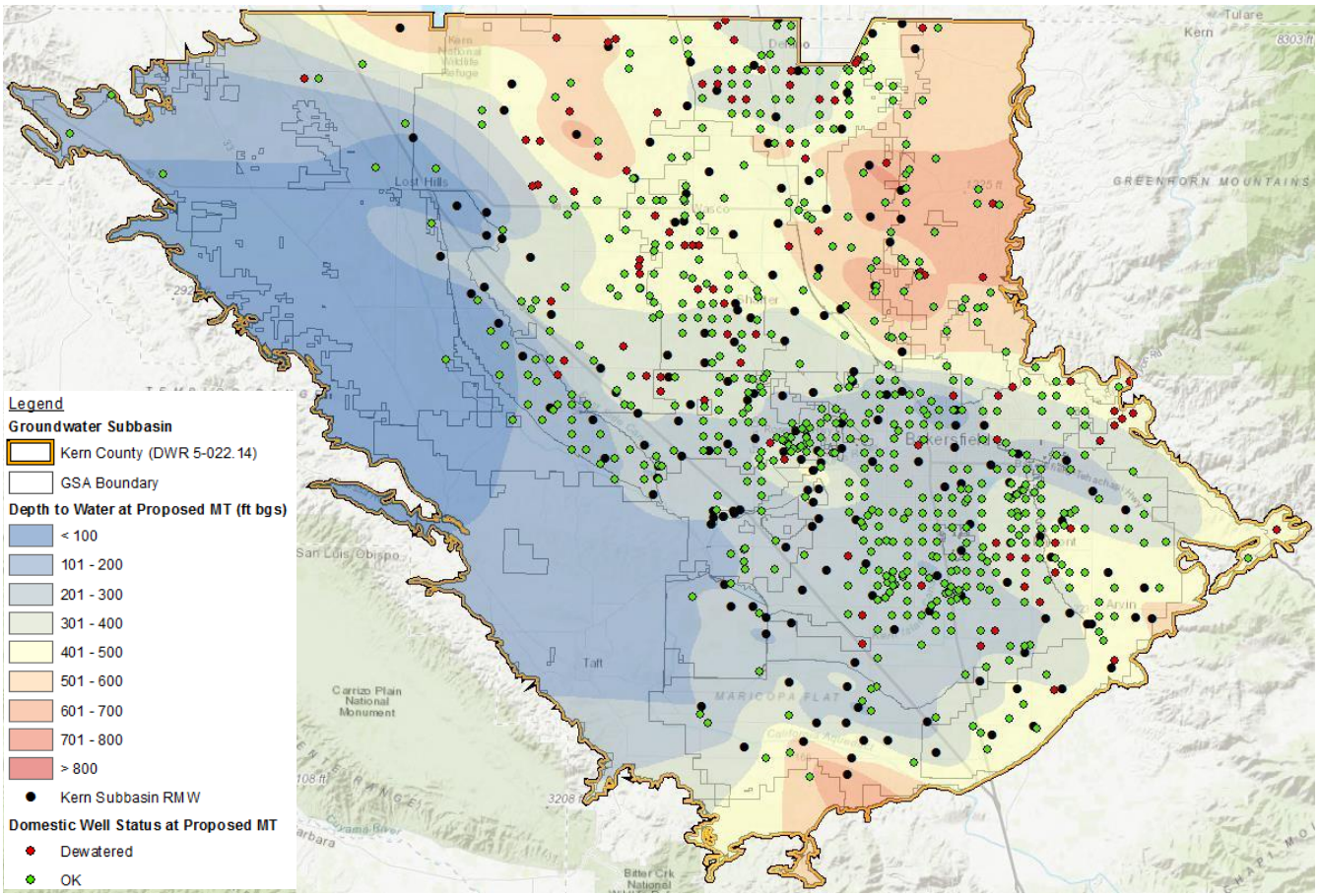
Option 1: Recent Drought Low with 5-year Trend Continuation – Spatial Interpolation of MTs



- Several RMWs located on the east side of the Subbasin that are screened in deeper principal aquifers (KTWD, EWMA, and Olcese) have been removed and/or replaced with other shallower monitoring wells.

Preliminary Results – For Discussion Purposes Only

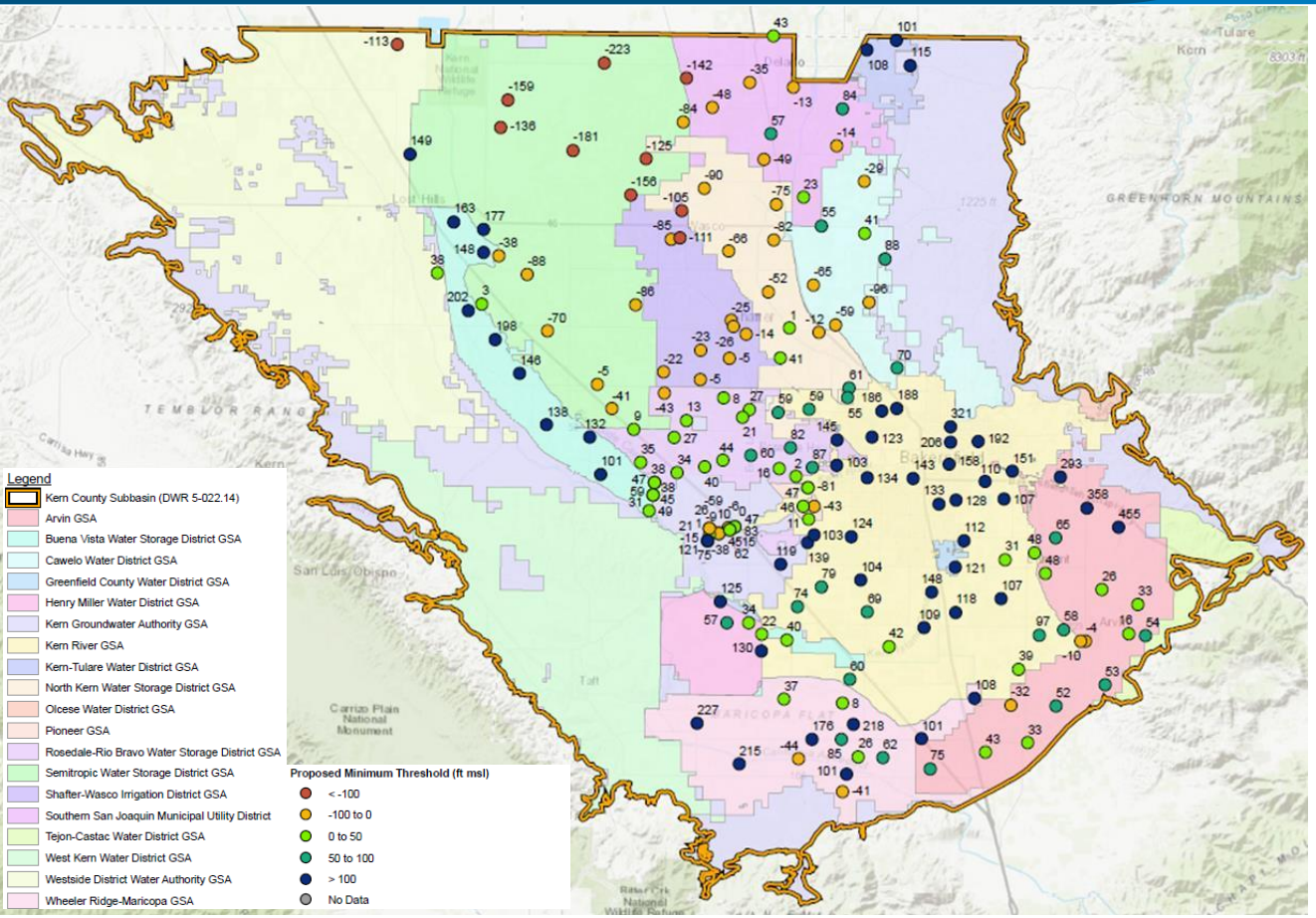
Option 1: Recent Drought Low with 5-year Trend Continuation – Anticipated Well Impacts



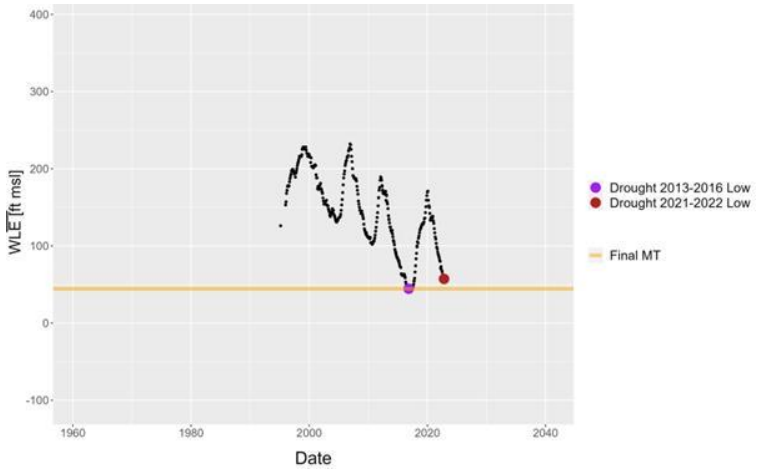
Well Type	Total Count	Recent Drought Low with 5-yr trend continuation	
		Dewatered	%
Domestic	**1,125**	**202**	**18%**
Other	27	4	15%
Public	131	3	2%
Unknown	170	13	8%
Ag	1,747	56	3%
Industrial	82	1	1%
Total	***3,282***	***279***	***9%***

Preliminary Results – For Discussion Purposes Only

Option 2: Recent Drought Low – MT Values

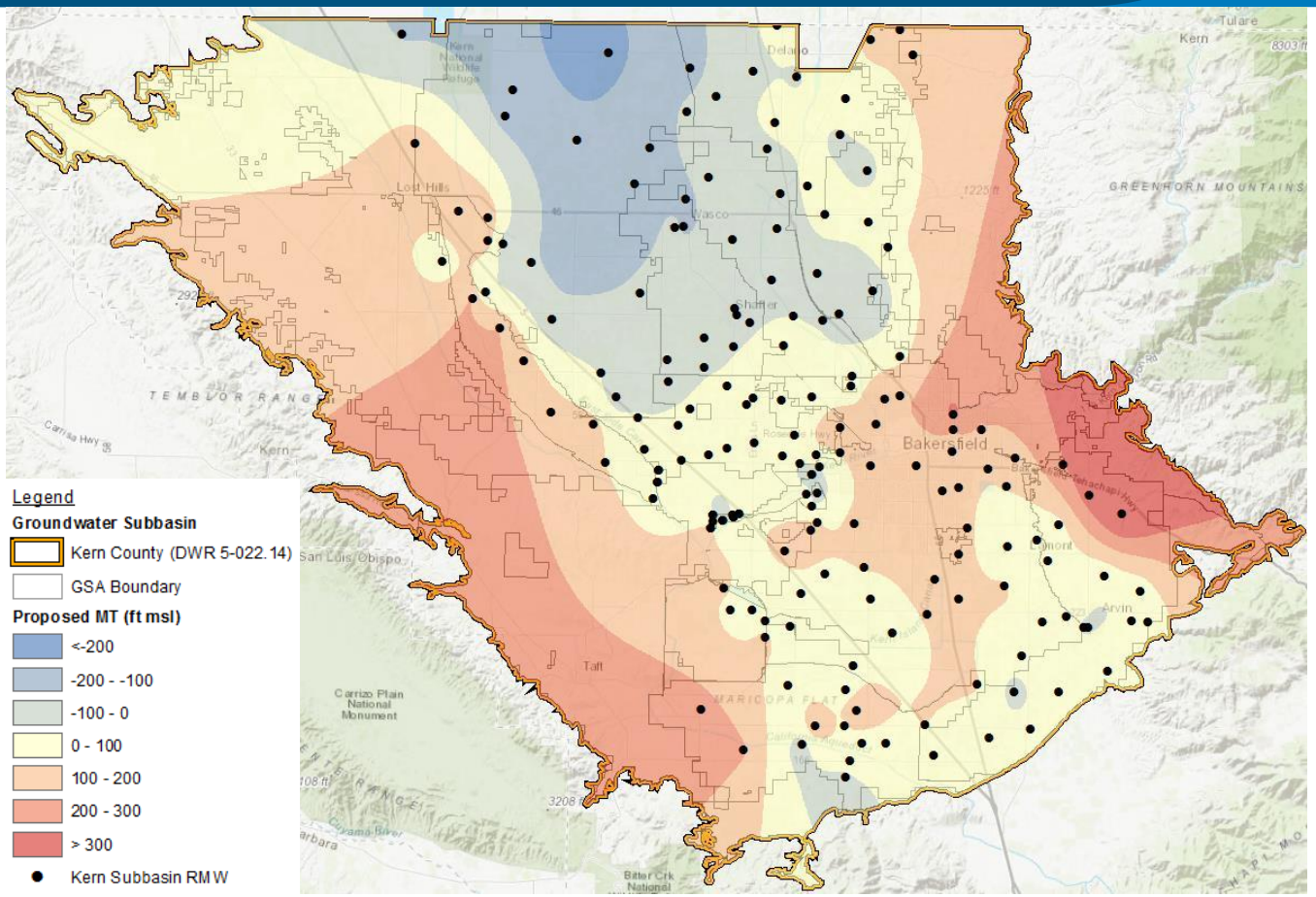


Example Hydrograph:



Preliminary Results – For Discussion Purposes Only

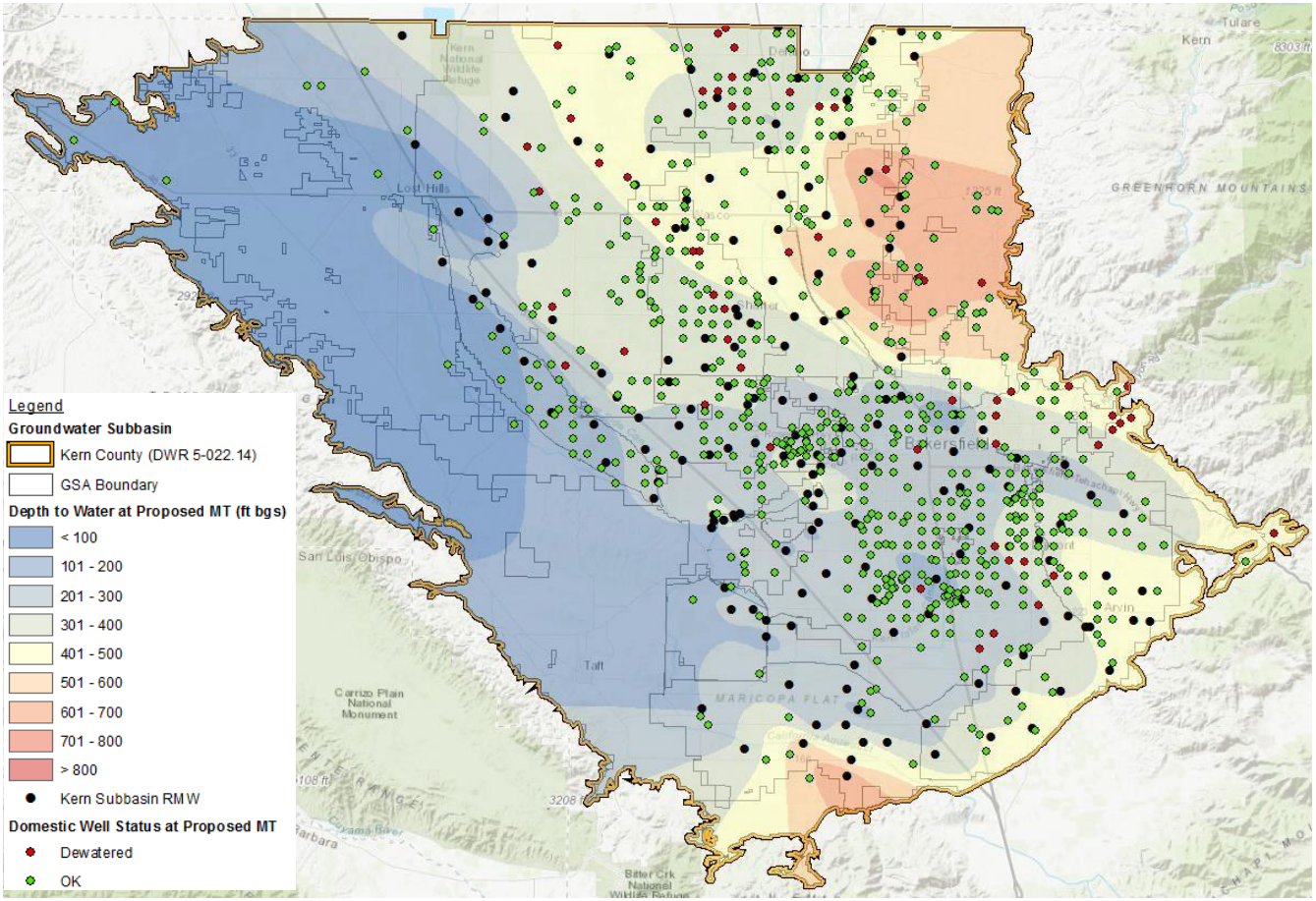
Option 2: Recent Drought Low – Spatial Interpolation of MTs



- Several RMWs located on the east side of the Subbasin that are screened in deeper principal aquifers (KTWD, EWMA, and Olcese) have been removed and/or replaced with other shallower monitoring wells.

Preliminary Results – For Discussion Purposes Only

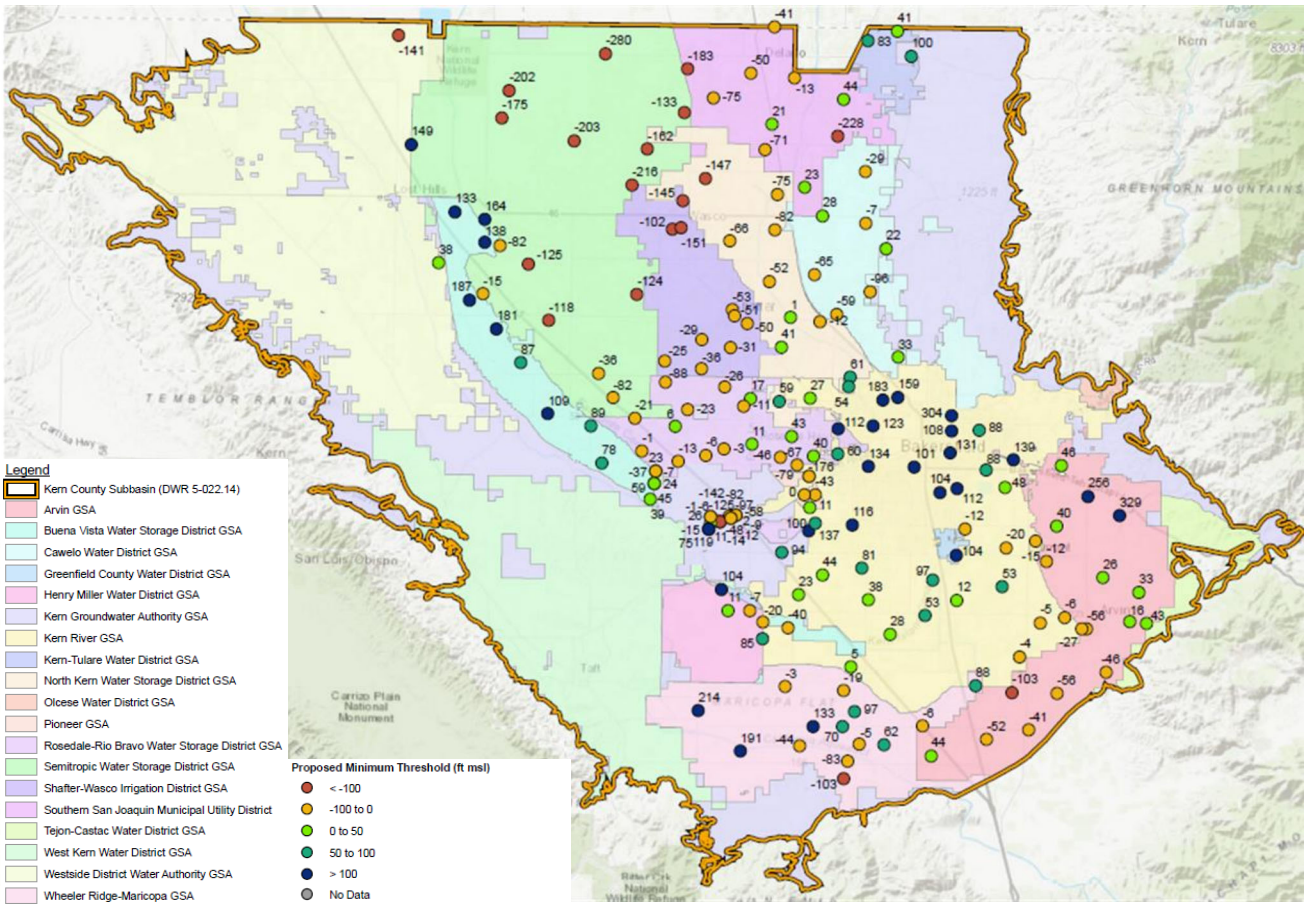
Option 2: Recent Drought Low – Anticipated Well Impacts



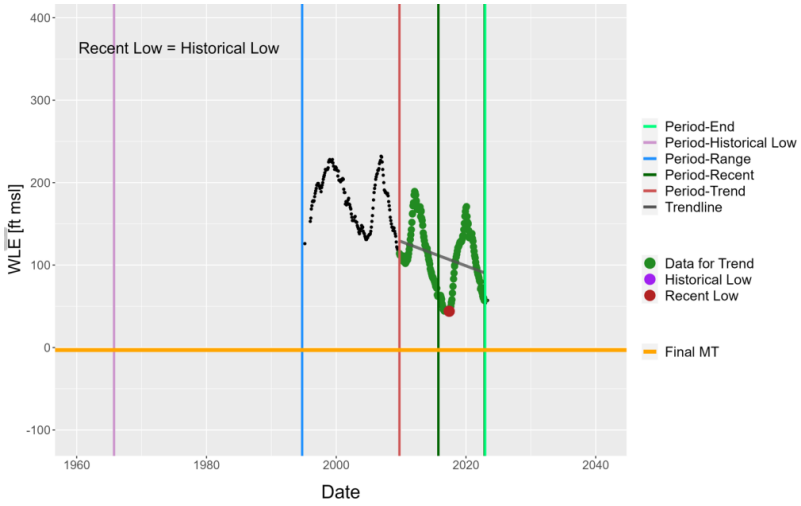
Well Type	Total Count	Recent Drought Low	
		Dewatered	%
Domestic	**1,125**	**116**	**10%**
Other	27	3	11%
Public	131	3	2%
Unknown	170	8	5%
Ag	1,747	21	1%
Industrial	82	1	1%
Total	***3,282***	***152***	***5%***

Preliminary Results – For Discussion Purposes Only

Option 3: SOKR Algorithm – MT Values

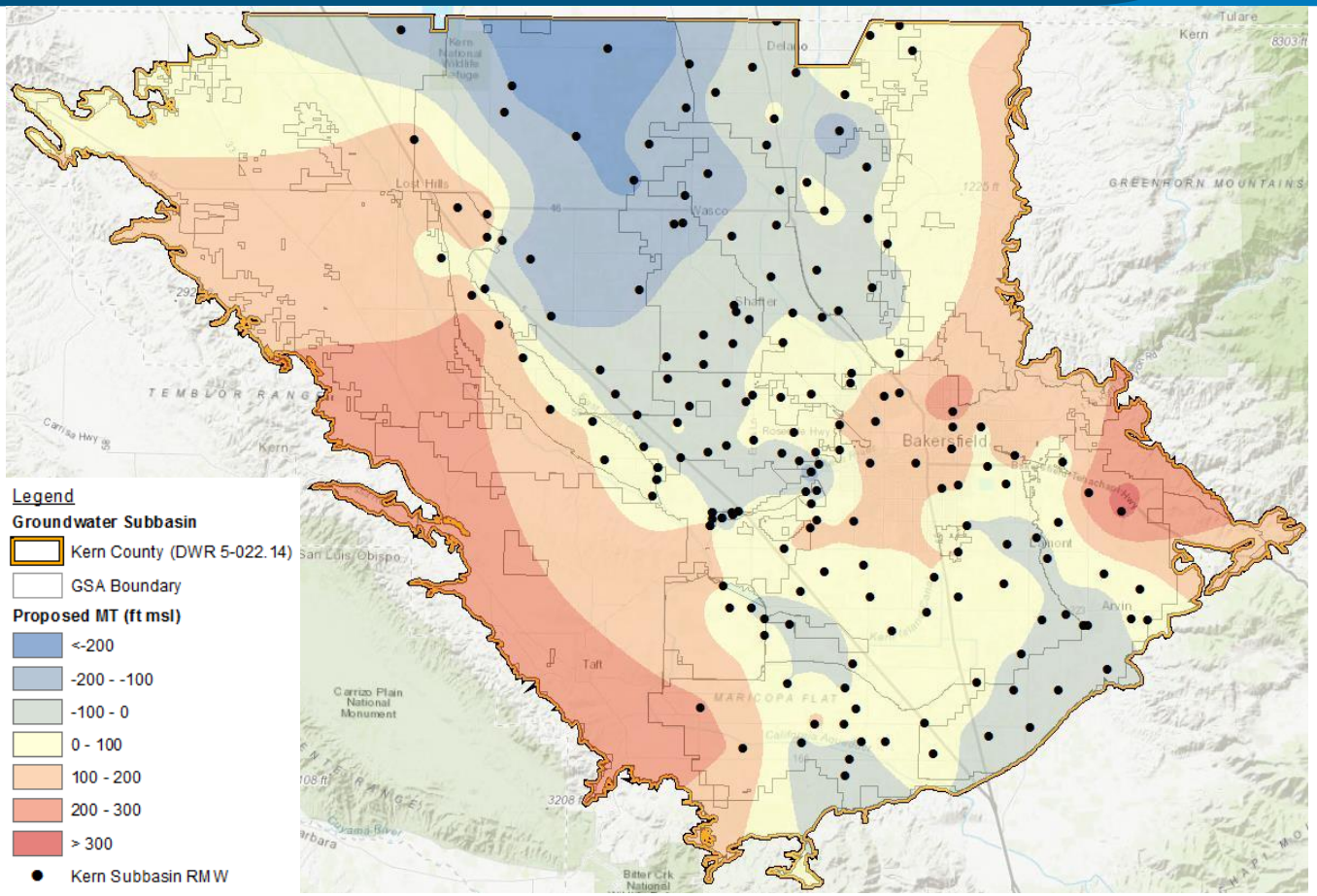


Example Hydrograph:



Preliminary Results – For Discussion Purposes Only

Option 3: SOKR Algorithm – Spatial Interpolation of MTs



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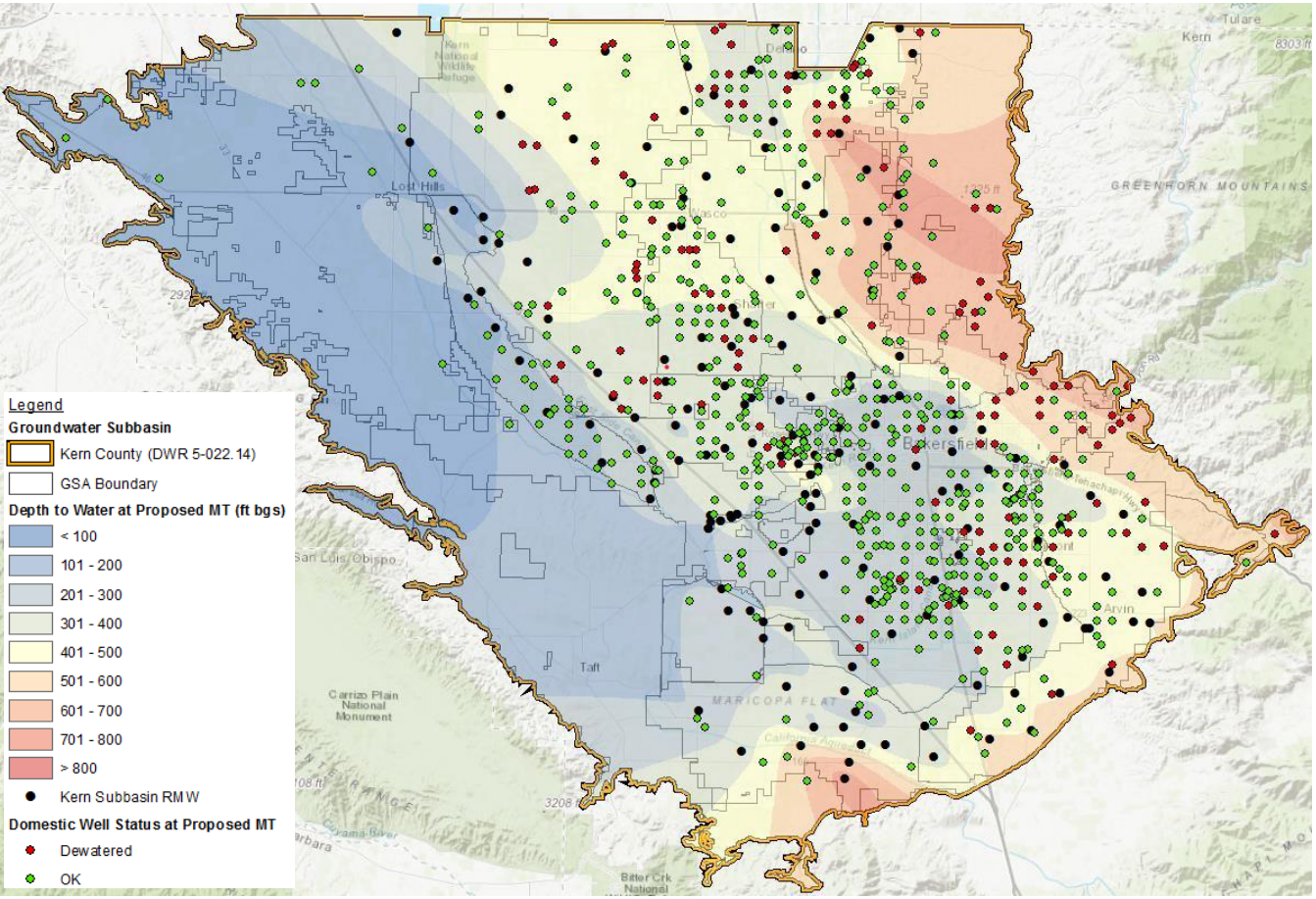
Preliminary Results – For Discussion Purposes Only

Option 3: SOKR Algorithm – Anticipated Well Impacts



Well Type	Total Count	SOKR Algorithm	
		Dewatered	%
Domestic	**1,125**	**314**	**28%**
Other	27	4	15%
Public	131	6	5%
Unknown	170	12	7%
Ag	1,747	52	3%
Industrial	82	3	4%
Total	***3,282***	***391***	***12%***

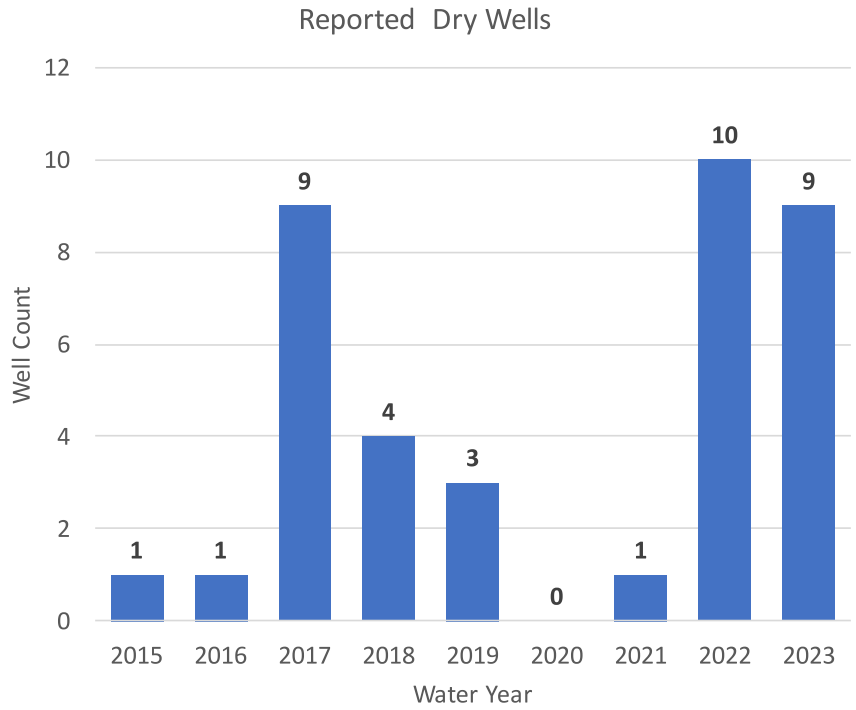
Preliminary Results – For Discussion Purposes Only

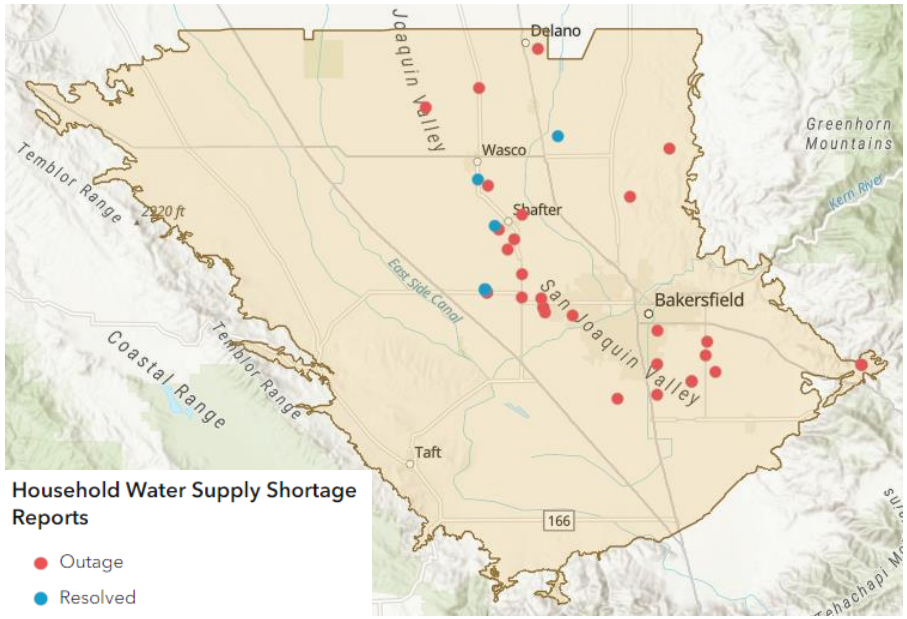
Comparison of Potential Impacts to Beneficial Users

Well Type	Total Count	Option 1: Recent Drought Low with 5-year Trend Continuation		Option 2: Recent Drought Low		Option 3: SOKR Algorithm	
		Dewatered	%	Dewatered	%	Dewatered	%
Domestic	1,125	202	18%	116	10%	314	28%
Other	27	4	15%	3	11%	4	15%
Public	131	3	2%	3	2%	6	5%
Unknown	170	13	8%	8	5%	12	7%
Agricultural	1,747	56	3%	21	1%	52	3%
Industrial	82	1	1%	1	1%	3	4%
Total	***3,282***	***279***	***9%***	***152***	***5%***	***391***	***12%***

Preliminary Results – For Discussion Purposes Only

Reality Check: Dry Wells Reported to DWR





Total of 37 reported dry wells post-2015

https://storymaps.arcgis.com/stories/f2b252d15a0d4e49887ba94ac17cc4bb

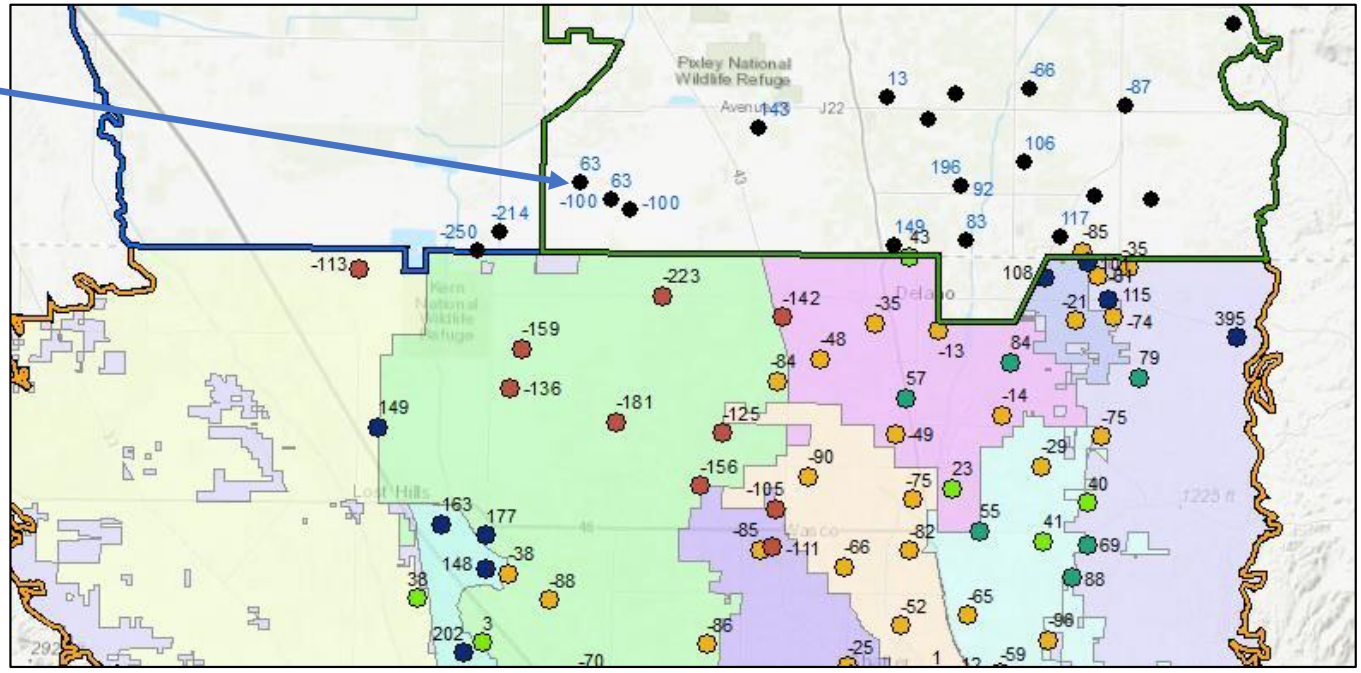
Pros and Cons of MT Approaches

MT Approach	Pros	Cons
Option 1: Recent Drought Low with 5-year Trend Continuation	- Simple to explain and apply - Generally consistent results across RMWs and retention of historic gradients - Provides some additional operational flexibility	- May require modification to the trend continuation assumptions (especially for wells with stable to increasing trends) - Maintains existing steep west-to-east gradient between Buena Vista and neighbors - Well impacts would need to be justified
Option 2: Recent Drought Low	- Simple to explain and apply - Most protective of drinking water wells - Generally consistent results across RMWs and retention of historic gradients - Capped at drought low to prevent additional subsidence from GW pumping	- Limits the depth of aquifer storage available above MTs that could restrict well / water bank operational flexibility - Maintains existing steep west-to-east gradient between Buena Vista and neighbors
Option 3: SOKR Algorithm	- Provides some additional operational flexibility - Generally consistent results across RMWs and retention of historic gradients	- More complicated to describe, but was understood by DWR - Capping at historic lows creates discrepancies in MT values between near RMWs in some cases - More significant well impacts

Impacts to Adjacent Subbasins: Northern Boundary Tulare Lake and Tule Subbasins

- Example analysis with Recent Drought Low:

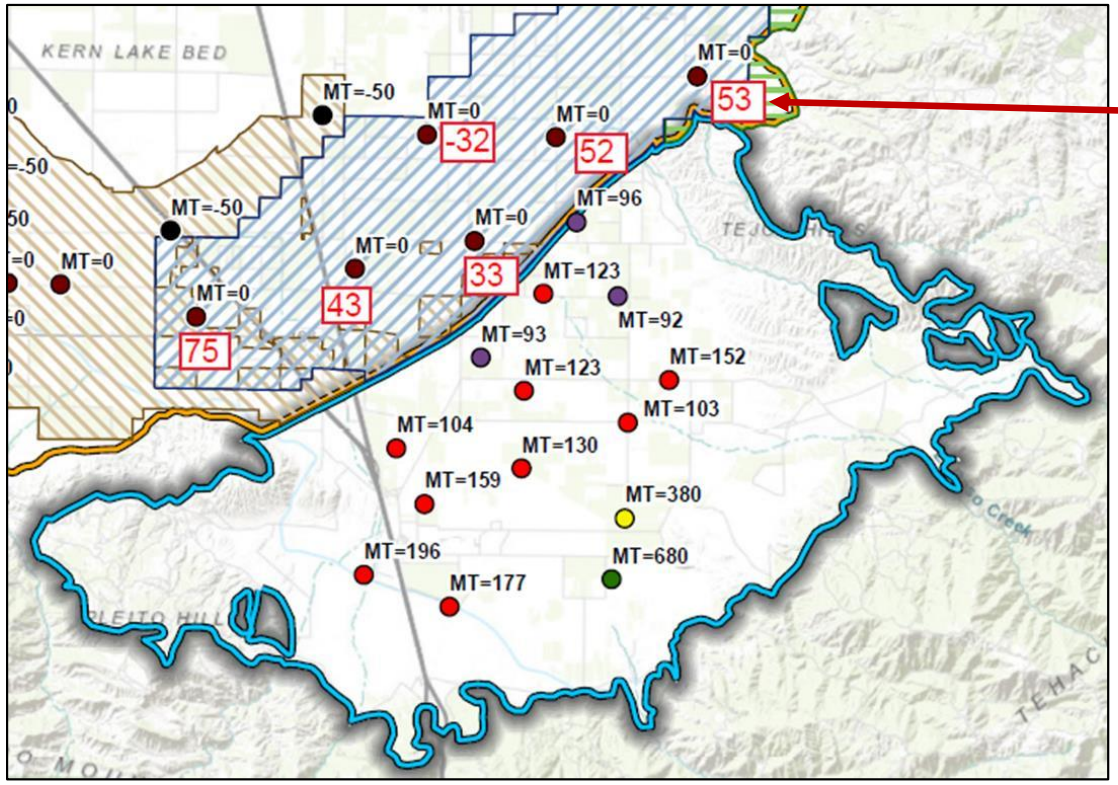
MTs for wells in northern adjacent subbasins are differentiated into upper and lower aquifers, and may be revised in the upcoming months.



Preliminary Results – For Discussion Purposes Only

Impacts to Adjacent Subbasins: Southern Boundary White Wolf Subbasin

- Example analysis with Recent Drought Low:



Recent Drought Low values result in an increase in MTs, improving cross-boundary gradients

Preliminary Results – For Discussion Purposes Only

Assessment of Related Sustainability Indicators

- GW Storage: Do GW level MTs allow for adequate flexibility for operation of the basin during drought periods? → Analyze volume of GW available above MTs and compare to volume extracted during past/foreseeable multi-year drought; requires application of GW Model
- Subsidence: Do GW level MTs prevent GW levels from exceeding historical lows near critical infrastructure in areas with historical subsidence, thus theoretically preventing new subsidence from groundwater pumping? YES if capped at historic lows
- Water Quality: Do GW level MTs prevent GW levels from exceeding depths with known water quality degradation, thus theoretically preventing new water quality degradation related to groundwater extractions? YES if capped at historic lows

Process Required to Justify MOs

- **Measurable Objectives (MOs)** (CCR § 354.30)
  - Uses the same metrics to define MTs, providing a reasonable margin of operational flexibility
- Sustainable Groundwater Management Act (CWC § 10727.2(b)(4))
  - The plan may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015. […] a groundwater sustainability agency has discretion as to whether to set measurable objectives and the timeframes for achieving any objectives for undesirable results that occurred before, and have not been corrected by, January 1, 2015.

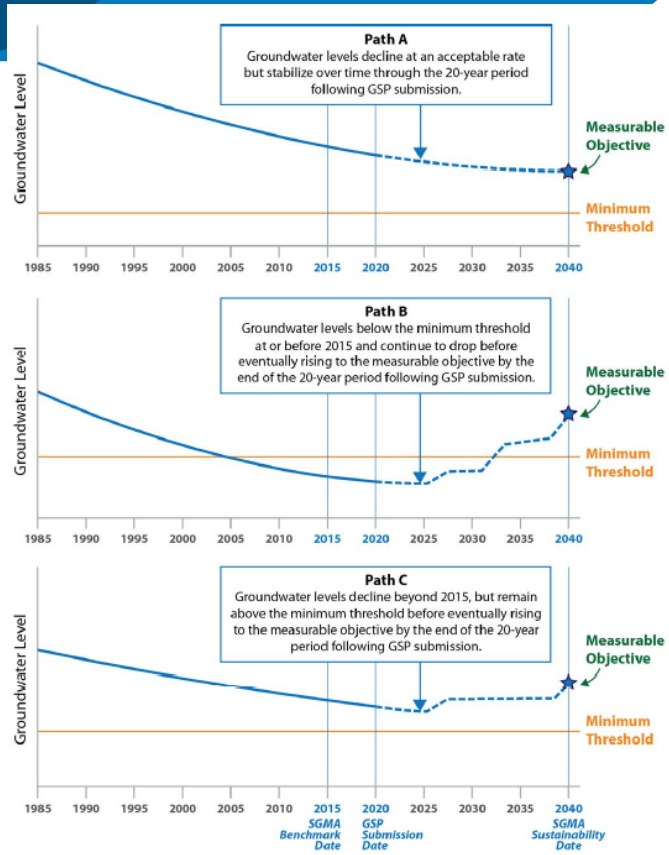


Figure 15. Potential Paths to Sustainability

Source: DWR (2017) Sustainable Management Criteria Best Management Practice

Top Three MO Options

1. **Fall 2015** (or closest Fall where available)
   - Justifiable per CWC § 10727.2(b)(4)
2. **Fall 2020**
   - In general, higher water levels than in 2015
   - Provides more operational flexibility in some areas of the Basin
3. **Spring 2015**
   - Justifiable per CWC § 10727.2(b)(4)
   - Provides more operational flexibility in some areas of the Basin

Subbasin Average Margin of Operational Flexibility	Fall 2015	Fall 2020	Spring 2015
Option 1: Recent Drought Low with 5-year Trend Continuation	74	90	56
Option 2: Recent Drought Low	42	58	24
Option 3: SOKR Algorithm	74	90	56

Define Undesirable Results Criteria

Sustainability Indicator	Beneficial Uses/Users				
	Agricultural/ Industrial Users	Domestic / Small Community Users	Municipal Users	Environmental Users	Critical Surface Infrastructure
Chronic Lowering of Groundwater Levels	Questions: • **How much well dewatering is significant & unreasonable?** • **In other words, what percentage of wells being dewatered is significant & unreasonable, and why?** Translate answer to MT exceedances at RMW locations: MT exceedances at X% of RMW locations over XX period				

Need justification for choices

Recommended Undesirable Results Definition for Coordination Committee Consideration

Sustainability Indicator	Beneficial Uses/Users				
	Agricultural/ Industrial Users	Domestic / Small Community Users	Municipal Users	Environmental Users	Critical Surface Infrastructure
Chronic Lowering of Groundwater Levels	Questions: • **How much well dewatering is significant & unreasonable?** • **In other words, what percentage of wells being dewatered is significant & unreasonable, and why?** Translate answer to MT exceedances at RMW locations: MT exceedances at X% of RMW locations over XX period				

Recommendation: MT exceedances at 25% (TBD) of RMW locations over 2 consecutive years

- Basin-wide definition
- Eliminates two-tiered definition and all Management Area plan definitions
- Straight-forward for GSAs and reviewers to quantify and assess
- 25% = 50 RMWs

Potential Justification for 25% in UR Definition

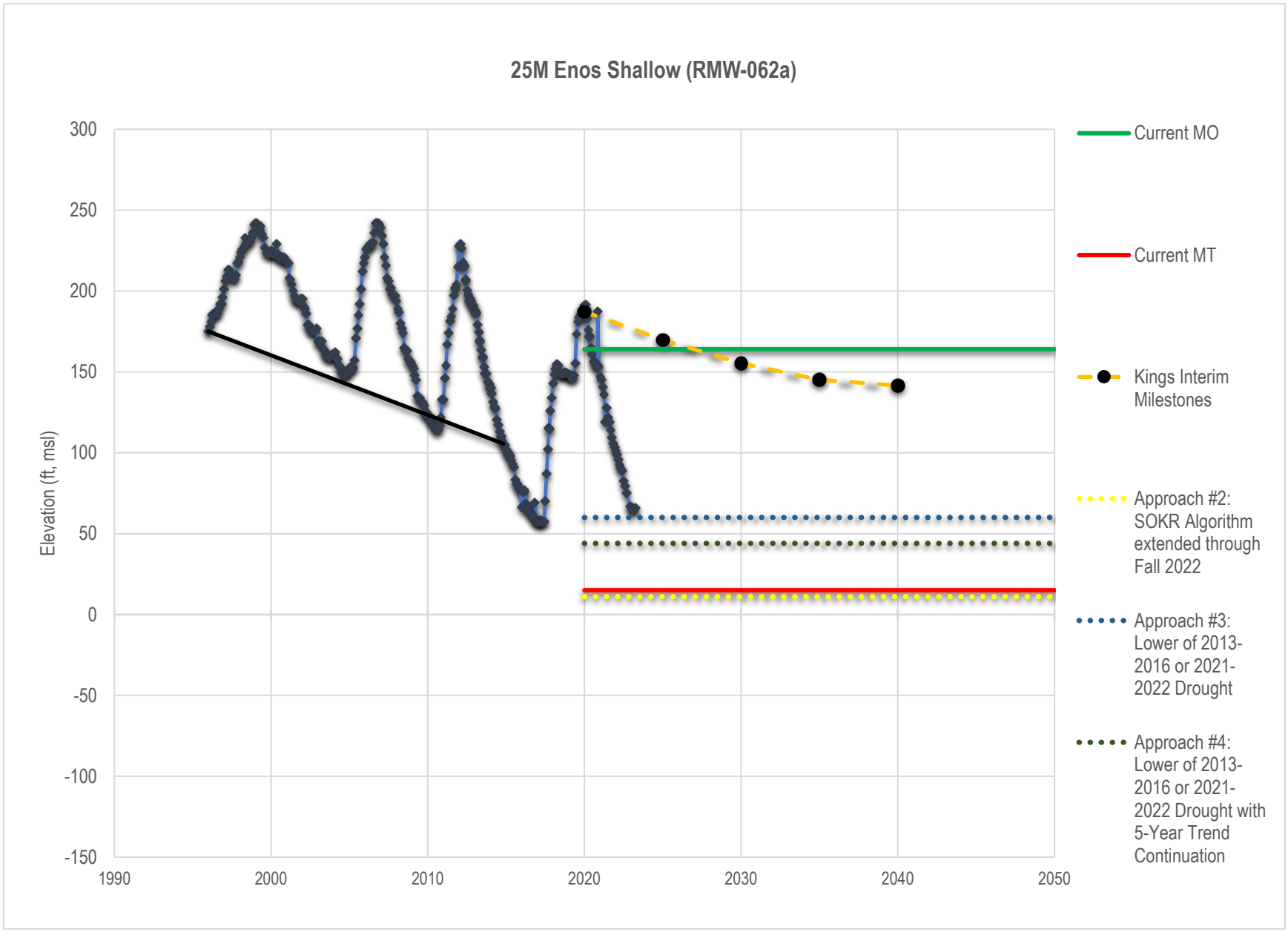
- Even if MTs were exceeded in ALL RMS, a relatively small number of domestic wells would be impacted; fewer wells would be impacted at the UR criterion of 25% of RMS.
- A percentage much lower than 25% suggests a primarily local impact, whereas much larger percentage suggests a widespread impact inconsistent with the Sustainability Goal for the Basin.
- Older wells tend to be much shallower in the Basin. Impacts are not significant and unreasonable because, based on current age of wells, approximately 31% of domestic wells (and 38% of all wells) are more than 70 years old and would likely have to be replaced anyway before 2040.
- Basin planning a comprehensive domestic well mitigation program.

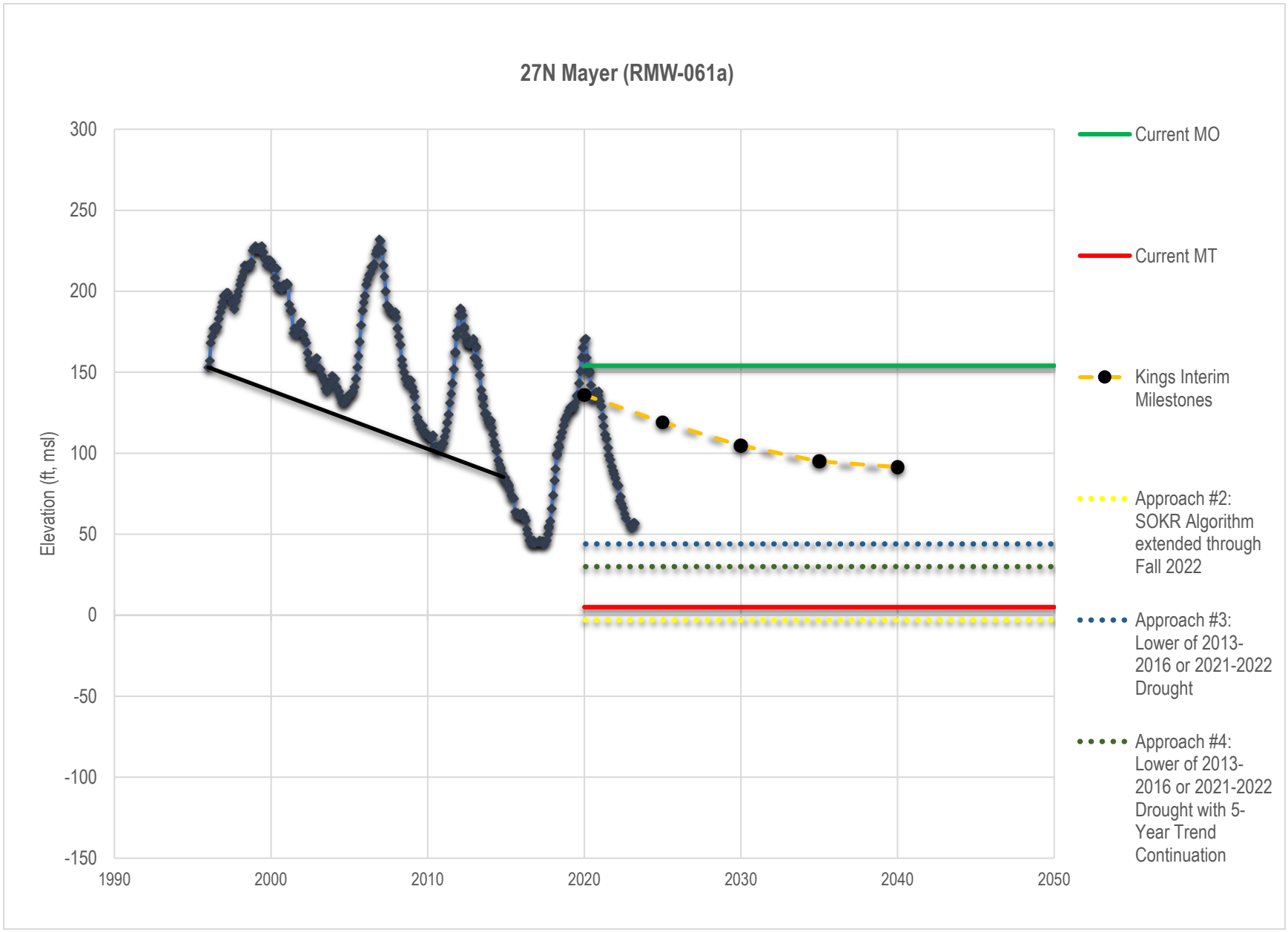
Next Steps

- Potential "hybrid" approaches currently under consideration
- EKI to finalize and distribute “SMC Approach TM” to Coordination Committee members for dispersal to GSAs:
  - Technical Memorandum
  - Excel file summarizing MT / MO values at each RMW for each option
  - Basin scale maps showing (1) RMWs labeled with MTs, (2) the spatial interpolation of MTs as groundwater elevation, and (3) the spatial interpolation of MTs as depth to groundwater paired with the anticipated domestic well impacts
  - RMW hydrographs w/ historical data, time periods (if applicable), and resultant MT
- GSAs and GSP groups to discuss approaches and recommendations during July-August
- Coordination Committee to consider adoption of one consistent groundwater level SMC approach at September 20th meeting

Thank You

Upper Kern River, May 2023


25M Enos Shallow (RMW-062a)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
Approach #2: SOKR Algorithm extended through Fall 2022
Approach #3: Lower of 2013-2016 or 2021-2022 Drought
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


27N Mayer (RMW-061a)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
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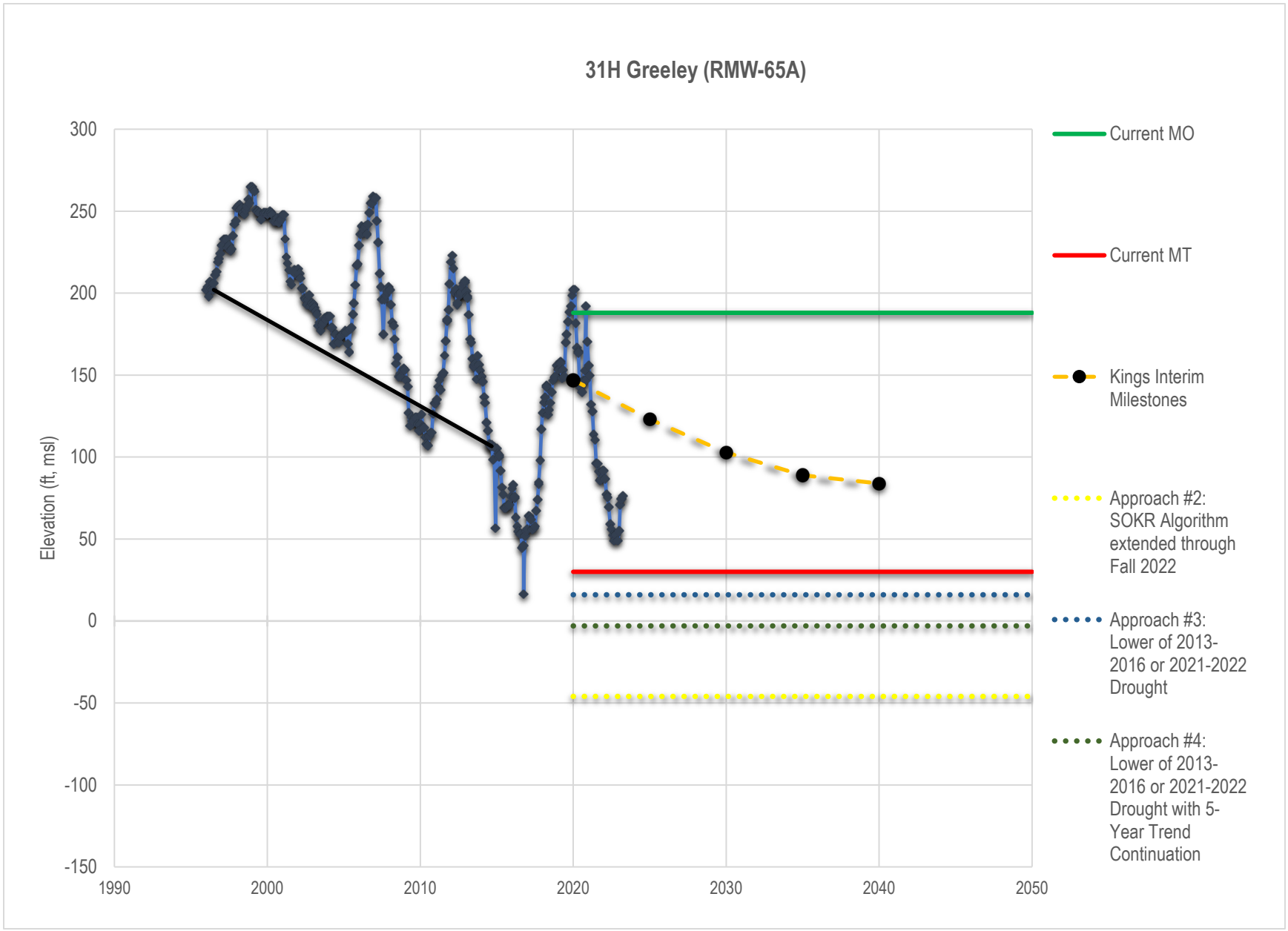
31H Greeley (RMW-65A)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
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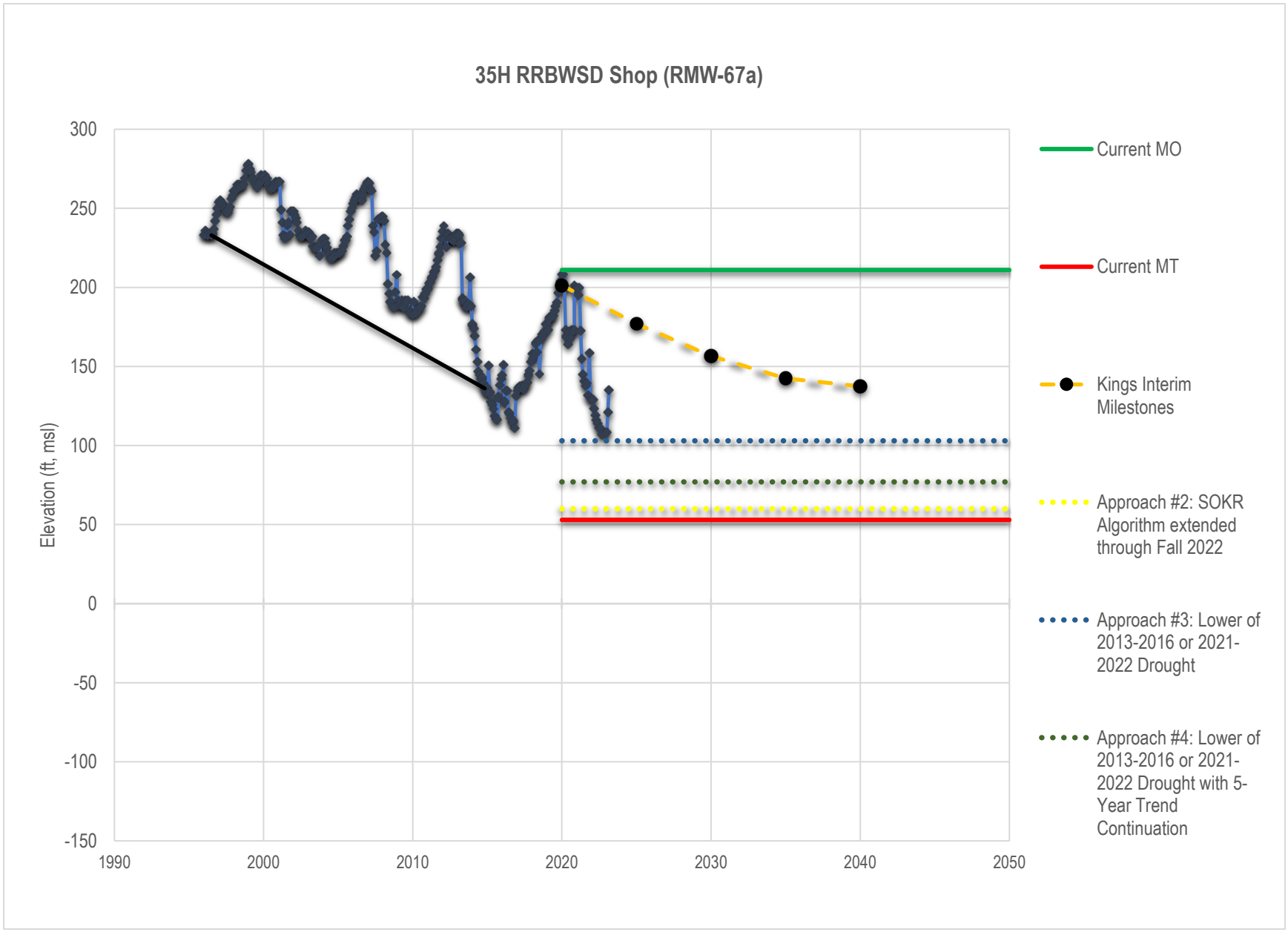
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


35H RRBWSD Shop (RMW-67a)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
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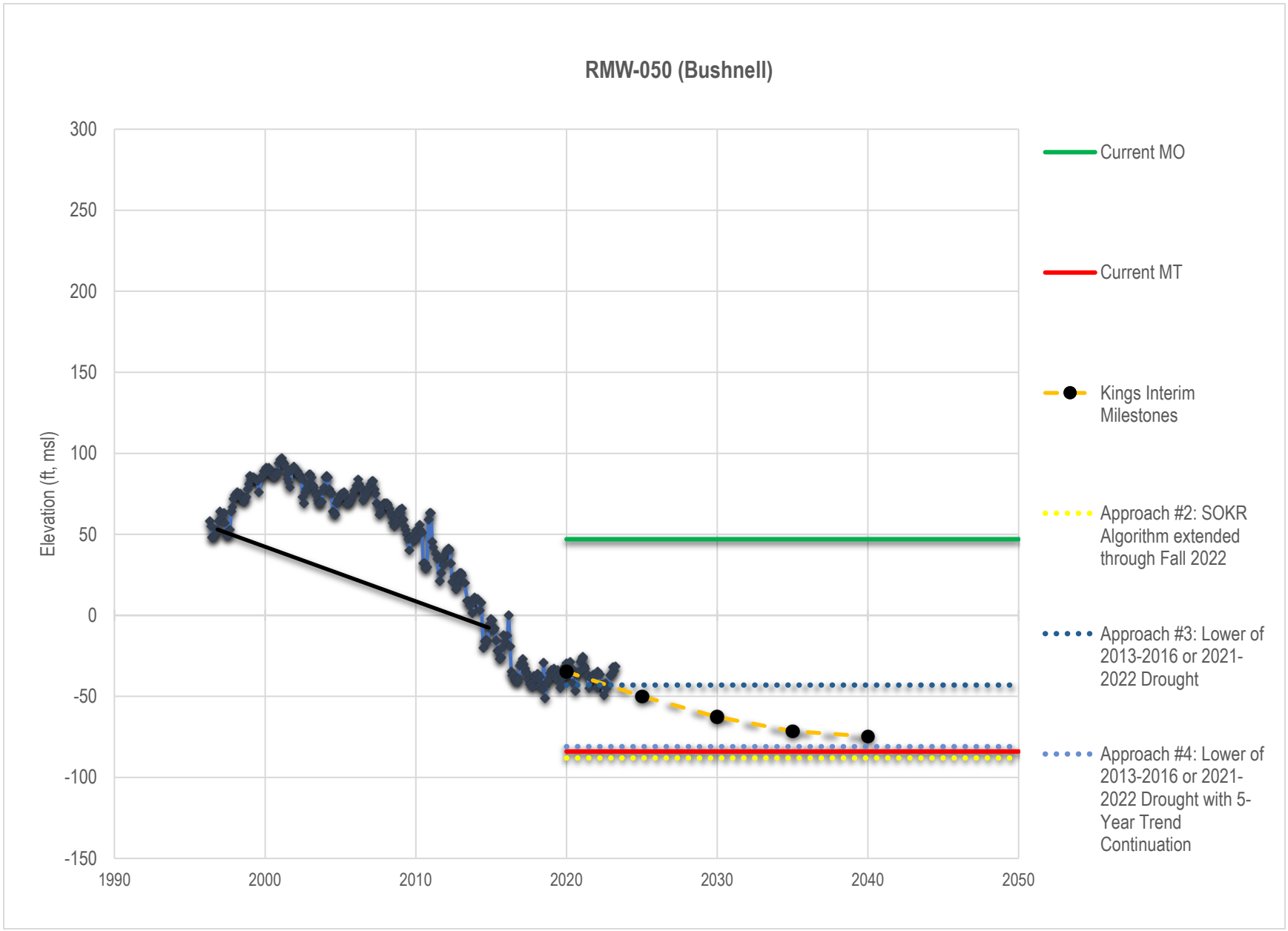
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


RMW-050 (Bushnell)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
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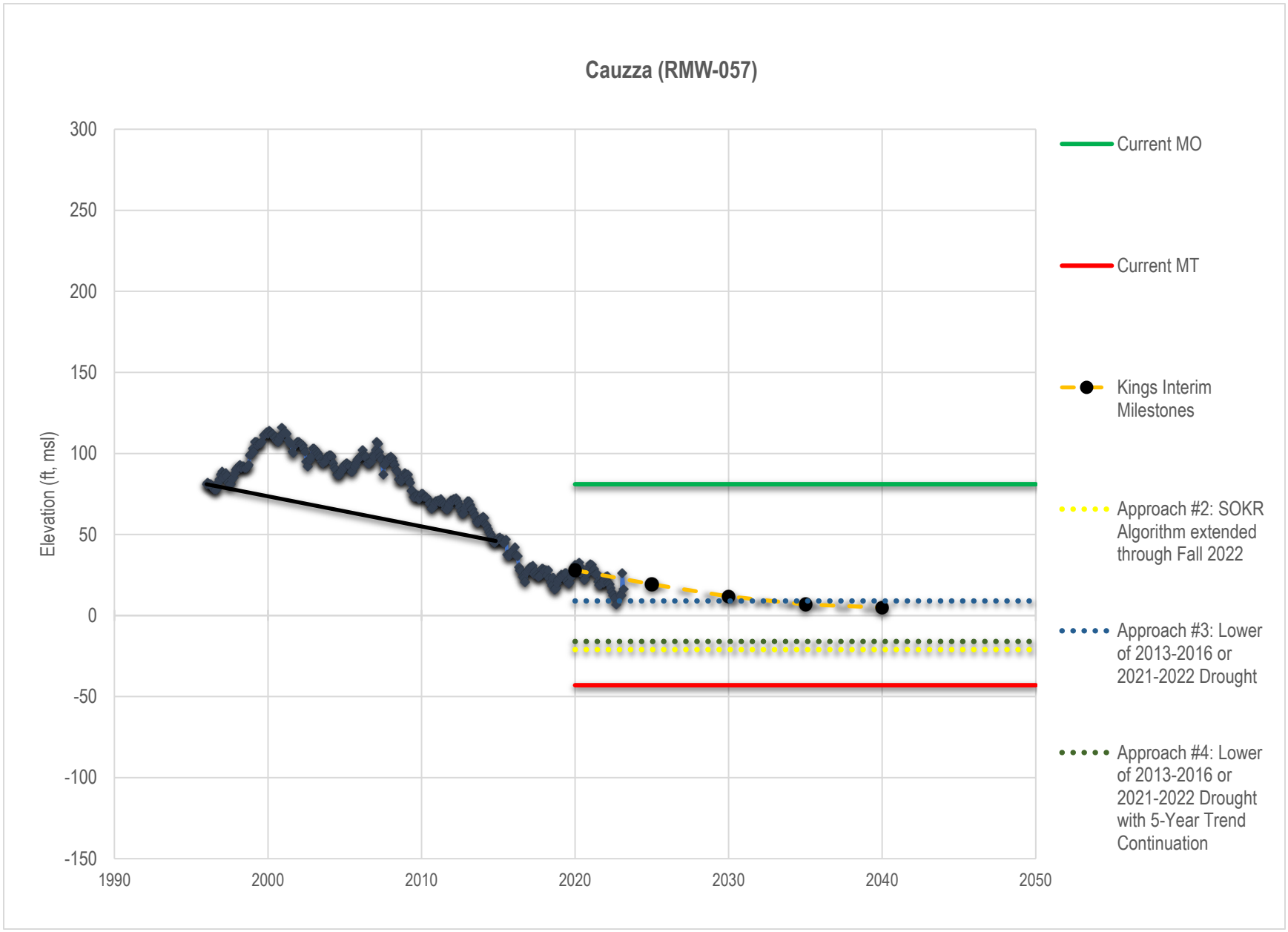
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


Cauzza (RMW-057)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
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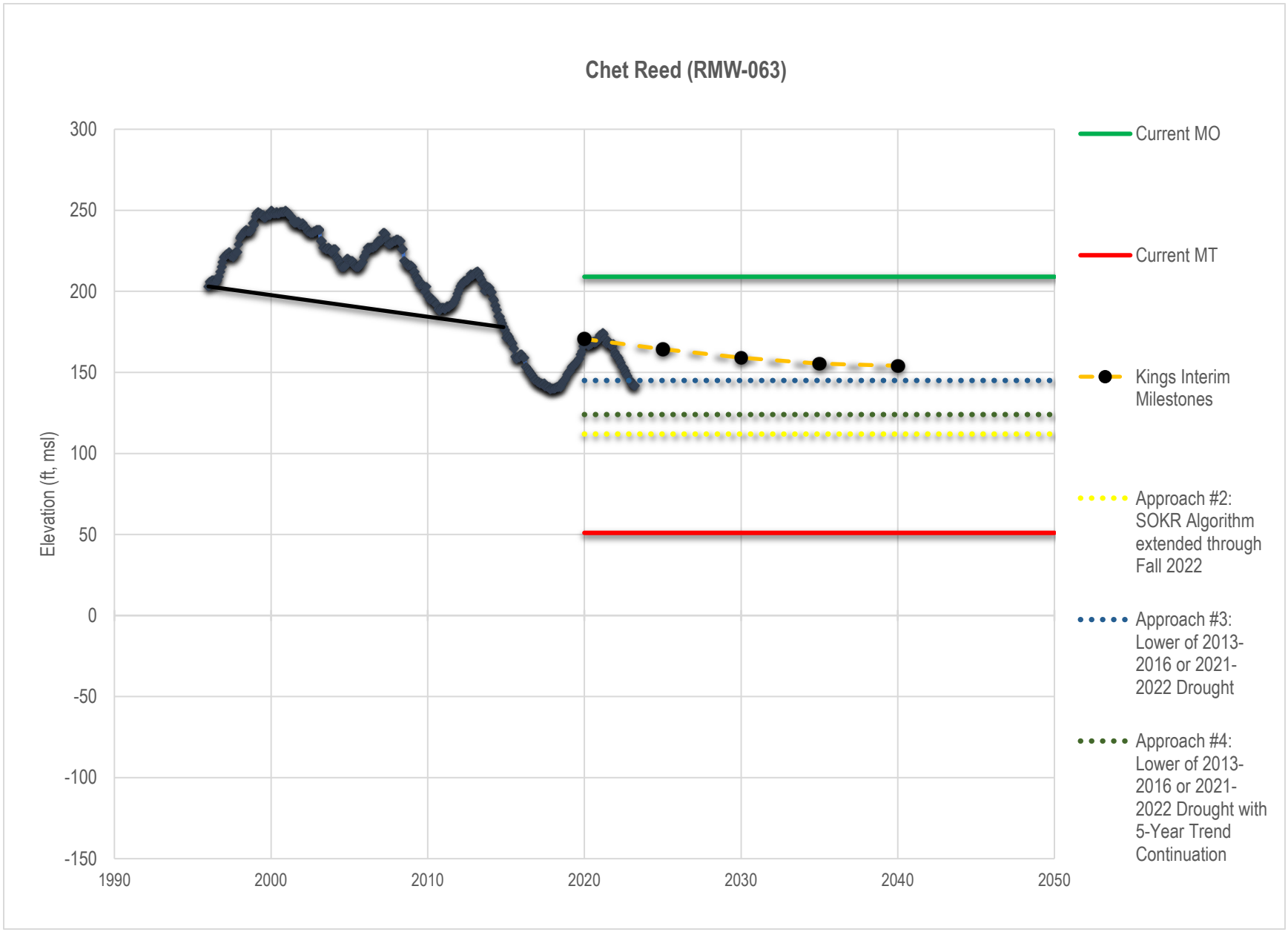
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


Chet Reed (RMW-063)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
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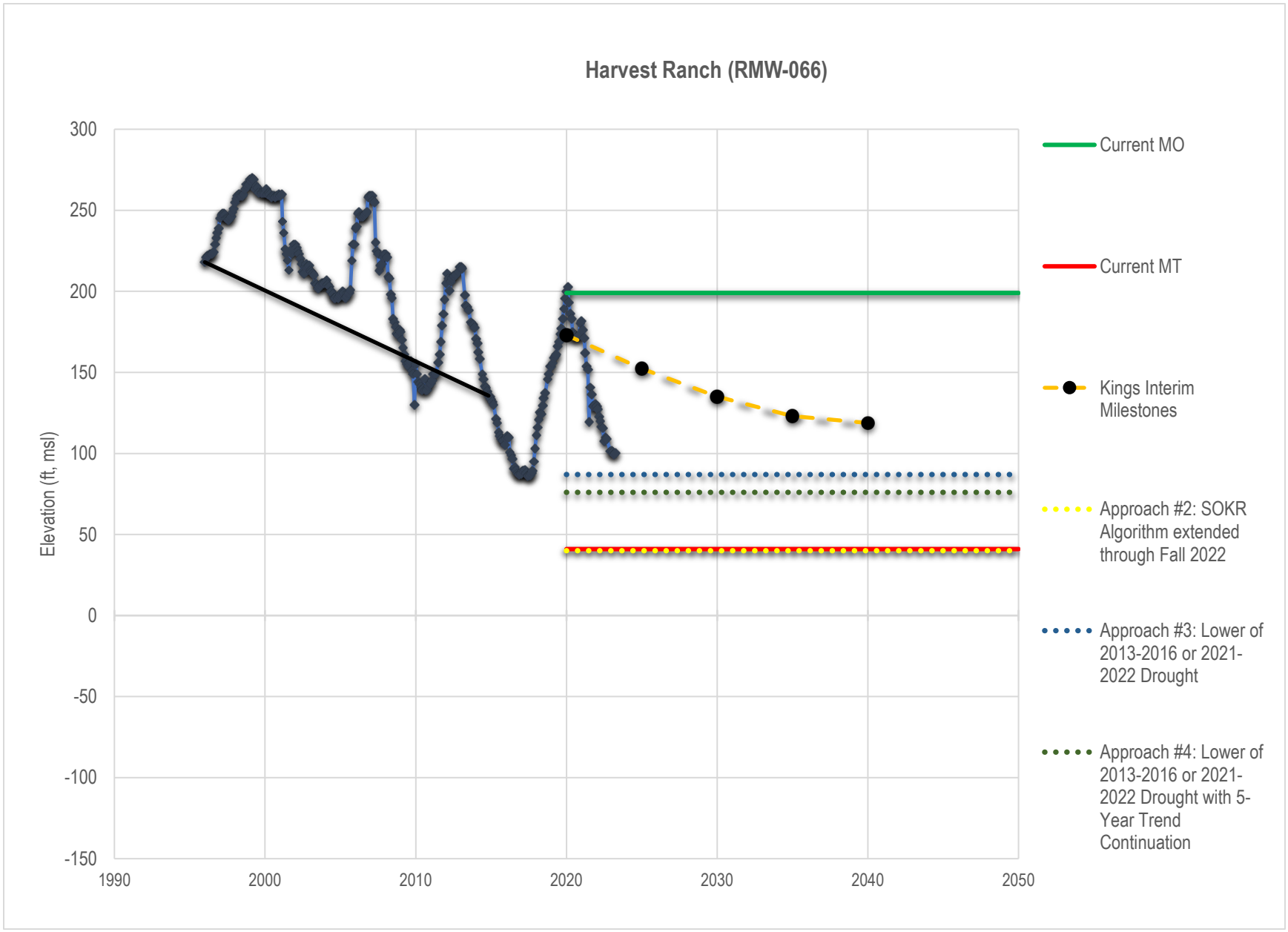
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


Harvest Ranch (RMW-066)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
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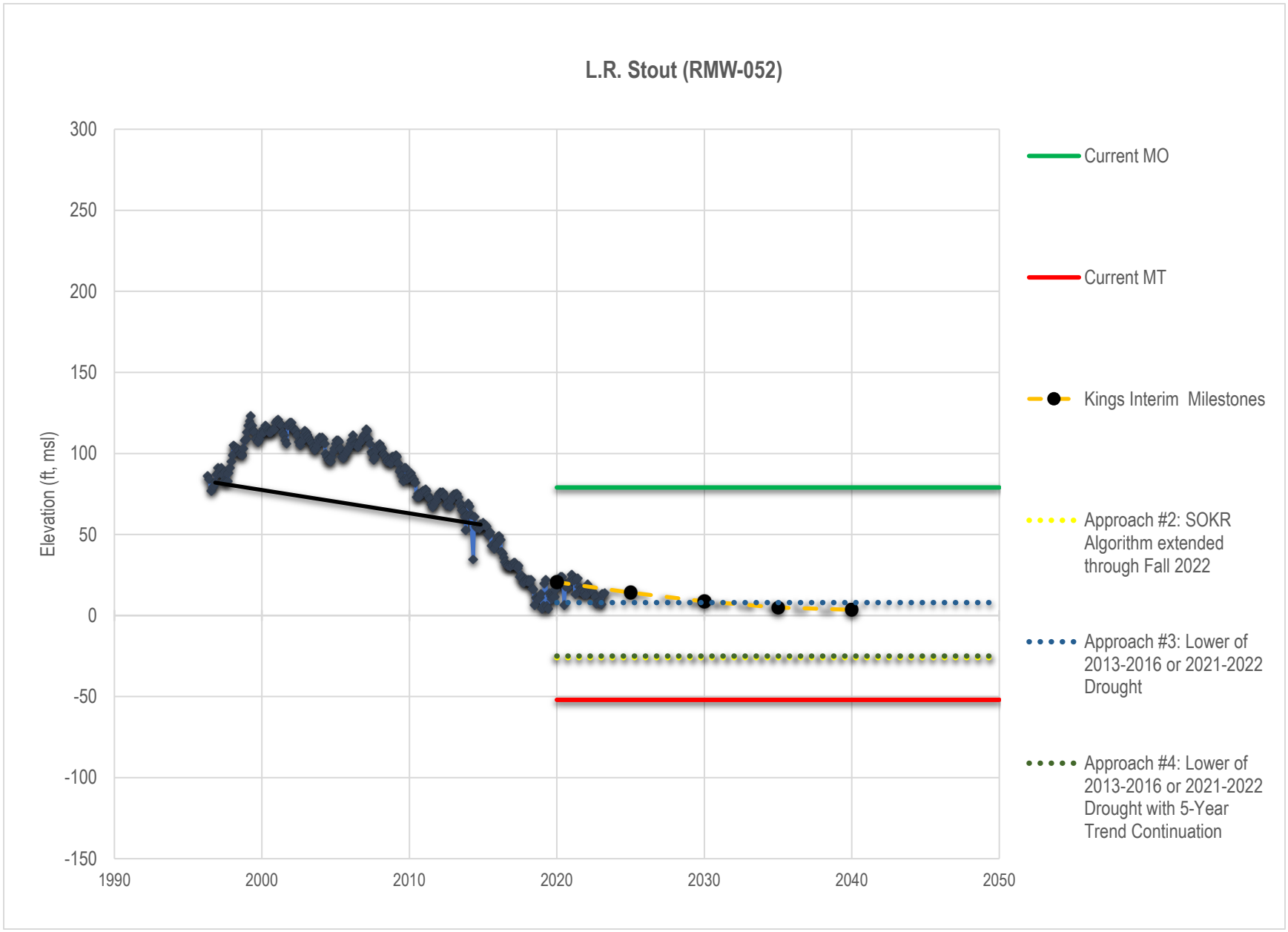
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


L.R. Stout (RMW-052)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
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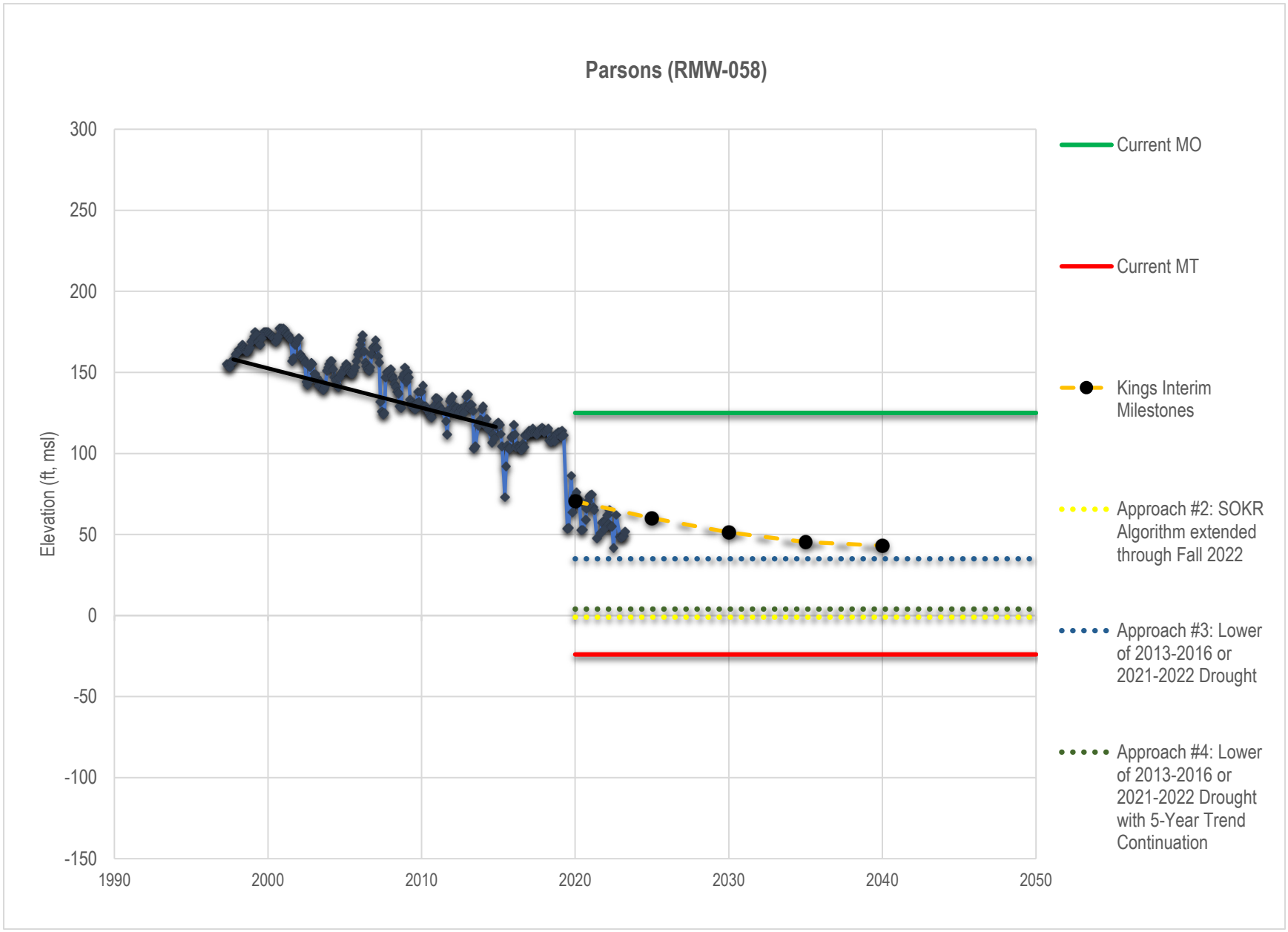
Parsons (RMW-058)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
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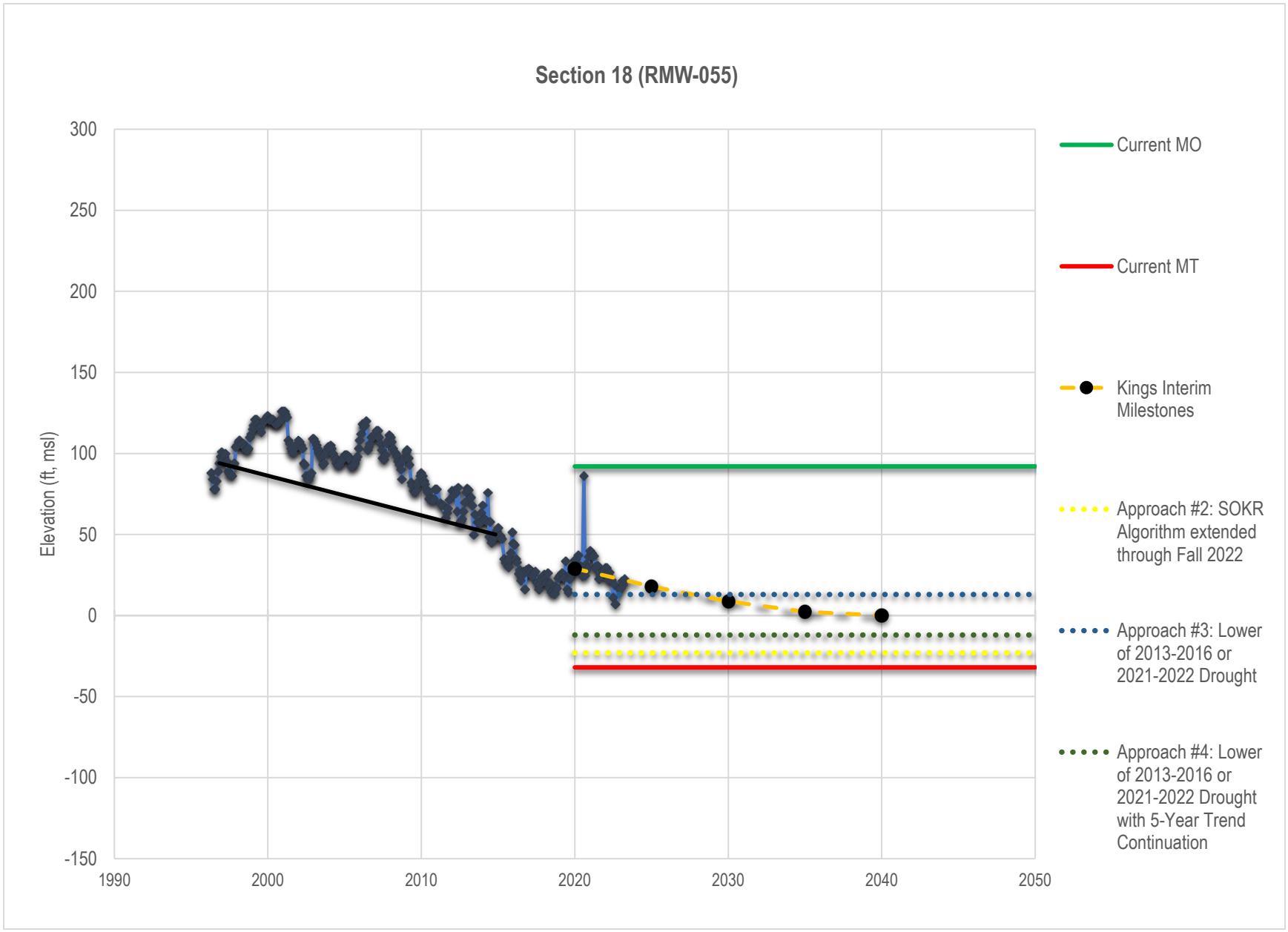
Approach #4: Lower of 2013-2016 or 2021-2022 Drought with 5-Year Trend Continuation


Section 18 (RMW-055)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
Kings Interim Milestones
Approach #2: SOKR Algorithm extended through Fall 2022
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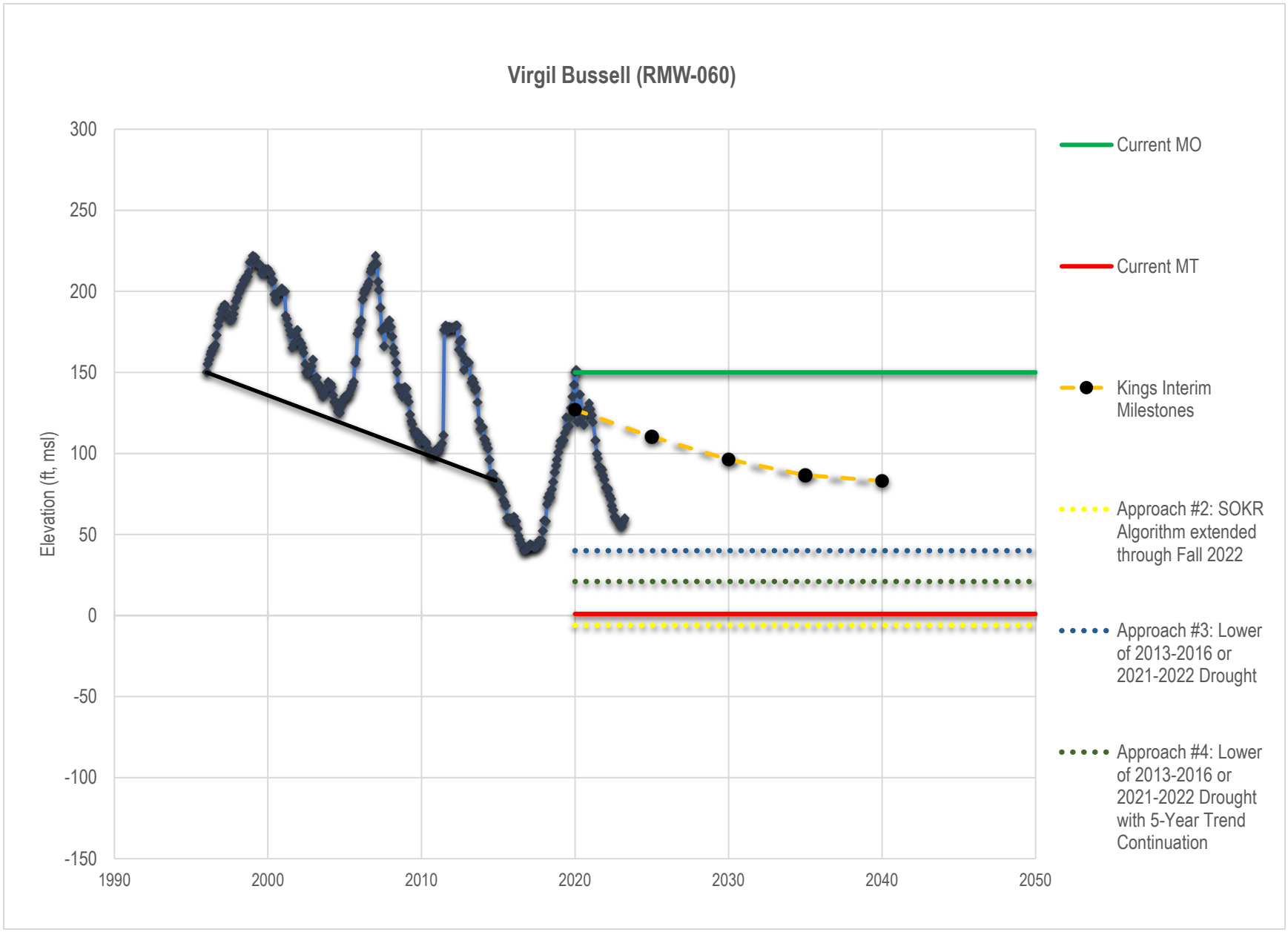
Virgil Bussell (RMW-060)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
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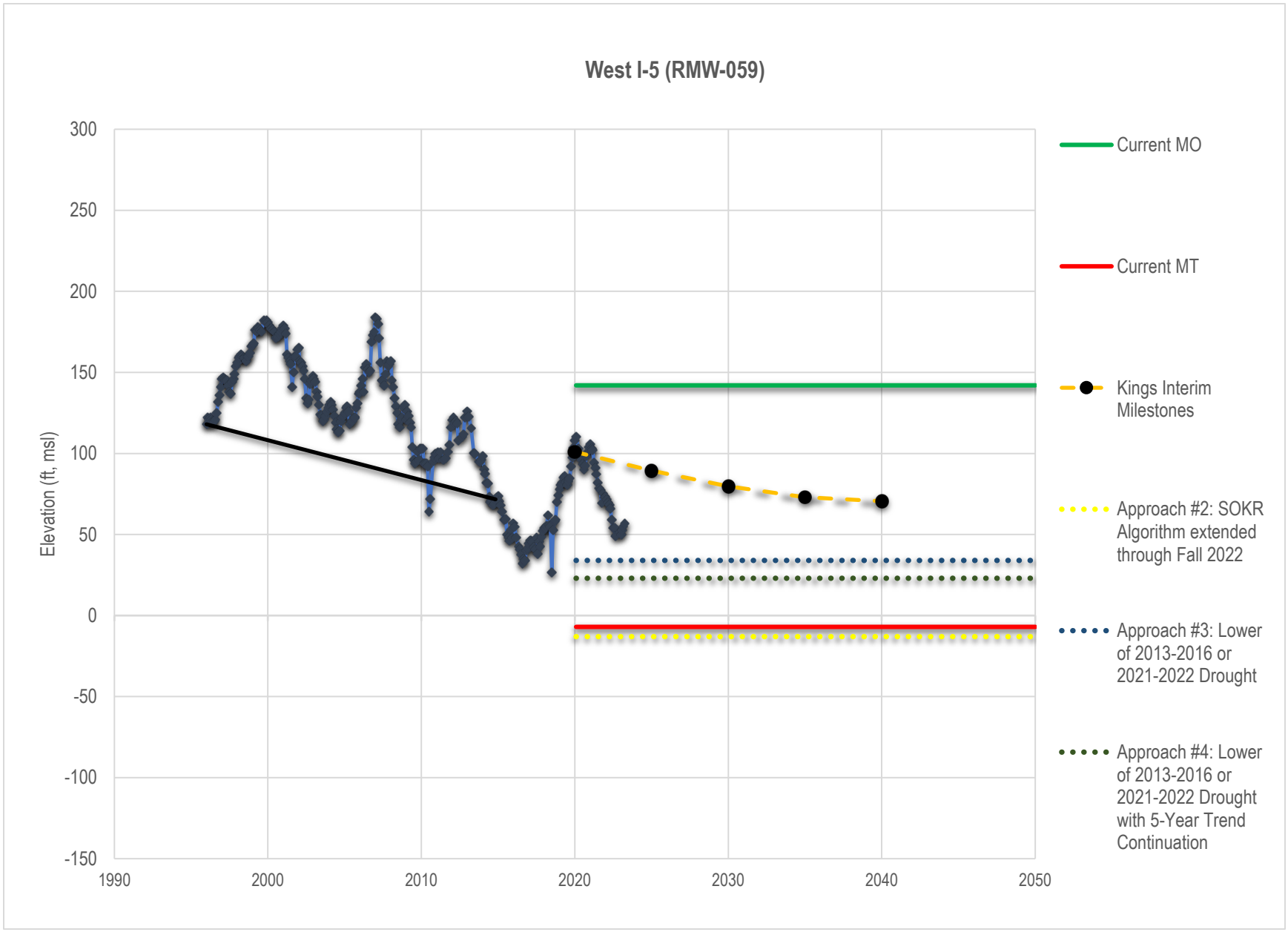
West I-5 (RMW-059)
Elevation (ft, msl)
300
250
200
150
100
50
0
-50
-100
-150
1990
2000
2010
2020
2030
2040
2050
Current MO
Current MT
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Table 1 - Anticipated Domestic Well Dewatering Statistics by Groundwater Sustainability Agency for Alternative Minimum Threshold Approaches

Kern County Subbasin, Kern County

GSA	Domestic Well Count	Approach #1 Fall 2022		Approach #2b: SOKR Algorithm extended through Fall 2022 Capped for Regional CI + MA CI with >4 inches subsidence		Approach #3 Recent Drought Low		Approach #4b: Recent Drought Low with 5-Year Trend Continuation Capped for Regional CI + MA CI with >4 inches subsidence		Approach #4c: Approach #4b, with no increasing trends		Approach #4e: Approach #4c, with KRGSA Urban MA Capped at Historical Low	
		Dewatered	%	Dewatered	%	Dewatered	%	Dewatered	%	Dewatered	%	Dewatered	%
Arvin GSA	73	5	7%	22	30%	5	7%	12	16%	12	16%	12	16%
Buena Vista Water Storage District GSA	30	0	0%	1	3%	0	0%	1	3%	1	3%	1	3%
Cawelo Water District GSA	27	4	15%	5	19%	4	15%	4	15%	4	15%	4	15%
Greenfield County Water District GSA	6	0	0%	3	50%	0	0%	2	33%	2	33%	1	17%
Henry Miller Water District GSA	5	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Kern Groundwater Authority GSA	112	9	8%	56	50%	20	18%	27	24%	27	24%	26	23%
Kern River GSA	450	18	4%	115	26%	37	8%	63	14%	66	15%	66	15%
Kern-Tulare Water District GSA	8	0	0%	1	13%	0	0%	1	13%	0	0%	0	0%
North Kern Water Storage District GSA	17	1	6%	1	6%	1	6%	1	6%	1	6%	1	6%
Olcese Water District GSA	2	0	0%	1	50%	1	50%	1	50%	1	50%	1	50%
Pioneer GSA	1	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Rosedale-Rio Bravo Water Storage District GSA	150	7	5%	40	27%	9	6%	23	15%	24	16%	24	16%
Semitropic Water Storage District GSA	76	11	14%	30	39%	16	21%	29	38%	29	38%	29	38%
Shafter-Wasco Irrigation District GSA	69	12	17%	19	28%	11	16%	19	28%	21	30%	21	30%
Southern San Joaquin Municipal Utility District	70	10	14%	19	27%	12	17%	18	26%	19	27%	19	27%
Tejon-Castac Water District GSA	2	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West Kern Water District GSA	4	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Westside District Water Authority GSA	9	0	0%	0	0%	0	0%	1	11%	1	11%	1	11%
Wheeler Ridge-Maricopa GSA	14	0	0%	1	7%	0	0%	0	0%	0	0%	0	0%
TOTAL	**1125**	**77**	**7%**	**314**	**28%**	**116**	**10%**	**202**	**18%**	**208**	**18%**	**206**	**18%**
RRB GSP Study	149			21	14%	7	5%					15	10%

Abbreviations:

CI = critical infrastructure
DWR = California Department of Water Resources
GSA = groundwater sustainability agency
MA = management area
MT = minimum threshold
RMWs = representative monitoring wells
SOKR = South of Kern River
SWRCB = State Water Resources Control Board
W&C = Woodard & Curran

Notes:

1. Red text indicates numbers have not been updated to reflect reconciled domestic well location in KTWD/KGA.
2. "Dewatered" is defined as when the depth to water exceeds 80% of the total well depth, consistent with the DWR/SWRCB Dry Domestic Well Susceptibility Tool definition.
3. Domestic wells that were estimated to be dewatered in 2015 were excluded from the dataset.
4. Domestic well counts only include wells that will be less than 70 years old in 2040.
5. Depth to groundwater at the RMWs were interpolated across the subbasin and intersected with the well dataset. Wells were identified as dewatered when the depth to groundwater exceeded the dewatered depth.

Sources:

1. Subbasin-wide well dataset, provided by GEI.