Item 4.
Discussion and Recommendation regarding Local Management Levels and related topics including non-dry year and minimum thresholds

Vina GSA Stakeholder Advisory Committee

October 28, 2026

Presentation by: Christina Buck, Ph.D.
Assistant Director, Butte County
Dept. of Water and Resource Conservation
[Providing technical staff support to the Vina GSA]

Requested: SHAC Recommendation

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Requested Action: Discuss and provide a recommendation to the Vina GSA Board regarding the draft Periodic Evaluation and amended Groundwater Sustainability Plan, specifically related to Local Management Levels and how they are set and what action must be taken if LMLs were reached.



SHAC
Recommendation

Joint GSA Boards
Confirm and provide direction → revised draft of the PE and amended GSP

SHAC
Final recommendations

Joint GSA Boards
Consider adoption

The Building Blocks (Plain Language)

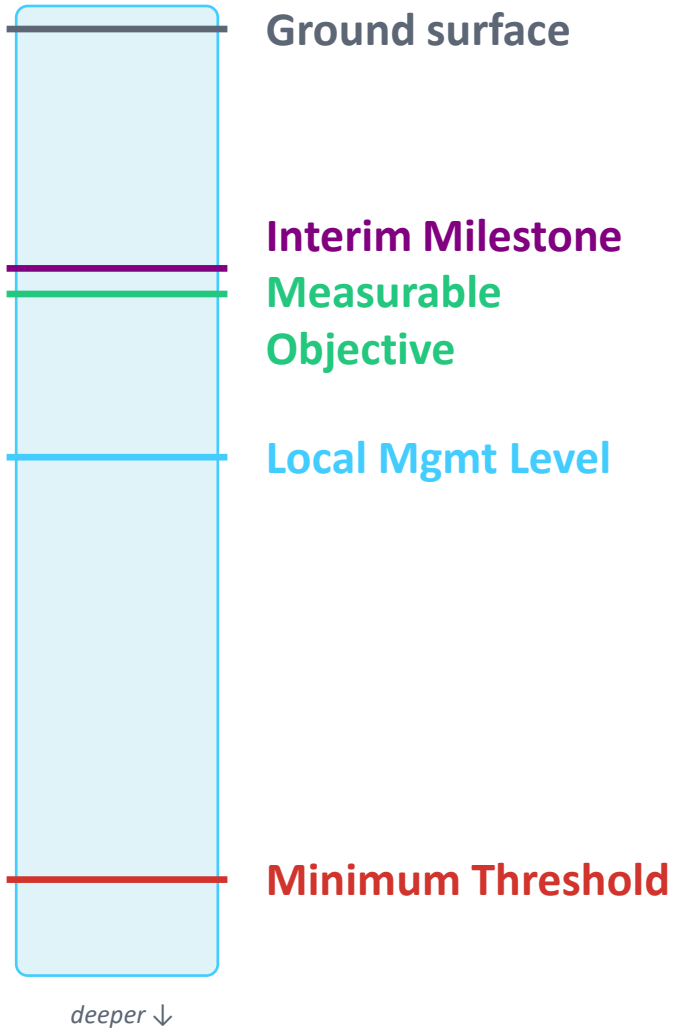
RMS wells — The specific wells we watch — the subbasin's "gauges." (31 wells, 26 areas in 3 Management Areas)

Interim Milestone (IM)— A 5-year checkpoint (2027) that tracks progress toward the MO; in Vina it sits right about at the MO.

Measurable Objective (MO) — The level we manage toward — the goal. Sits well above the MT (avg ~62 ft). Mostly below historical lows.

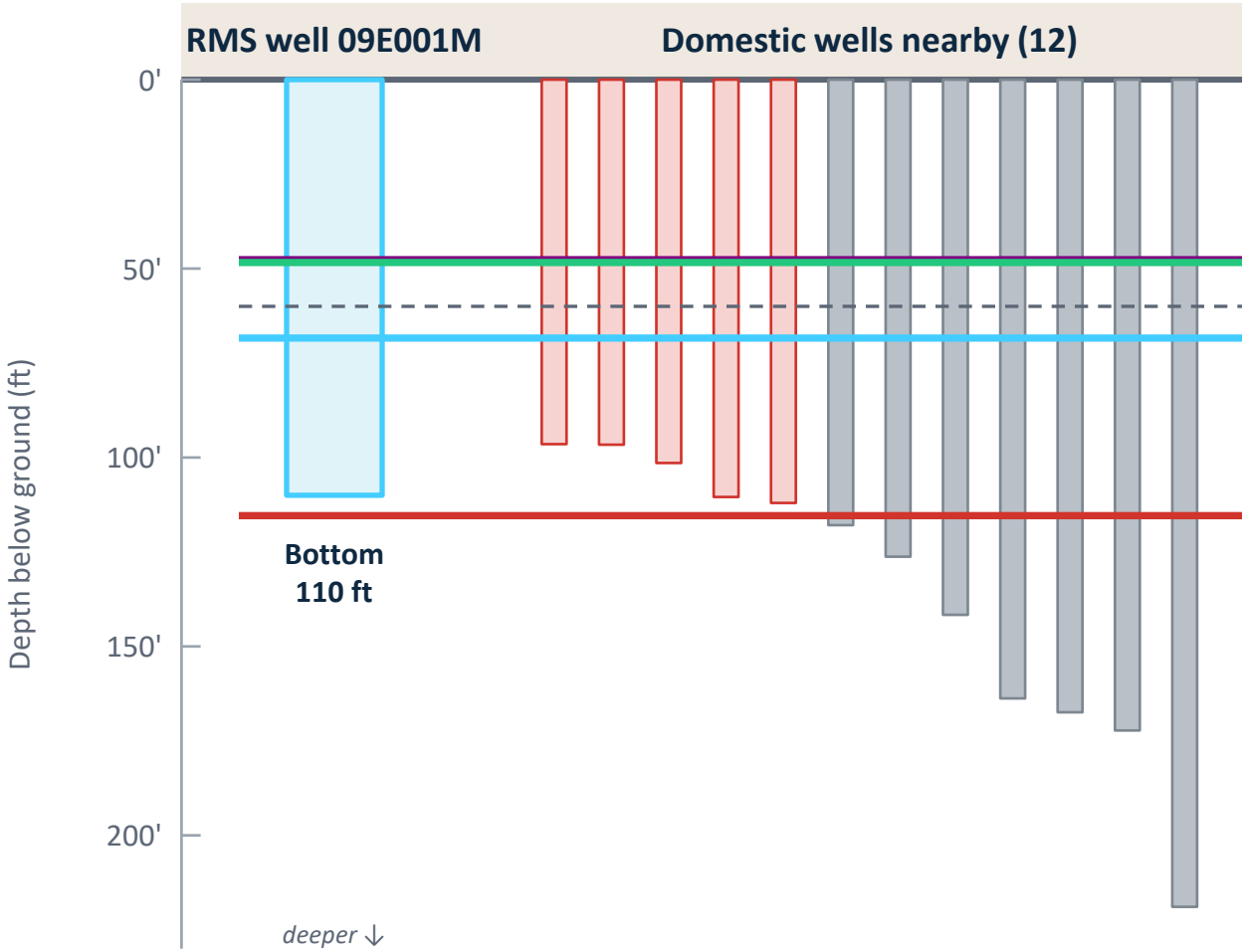
Local Management Level (LML) — An early-warning trigger below the MO — prompts investigation, evaluation of impacts and Board action

Minimum Threshold (MT) — The regulatory "low line." Two RMS wells (w/in a management area) crossing it for two straight years defines when an undesirable result occurs



RMS Well Depth in relation to MT

Example (well 09E001)



8 of 31

RMS wells with MT that sits below the bottom of the RMS well itself

RMS Wells selected

- **To align/be representative of nearby domestic wells**
- **Historical record, good quality measurements**
- **Geographic distribution**

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Summary of Options Under Recent Discussion

	Public Review Drafts (Sept 15, 2026)	Alternative 3 (Dr. Todd Greene)
Origin and status	Joint Board direction Aug 12 (Vina 3-2; RCRD 6-0)	Public comment Aug 3; motion to adopt failed Oct 14 (2-3)
MTs – North & South MAs (25 wells)	2022 GSP MTs; comparable MTs for new wells (MO-to-MT 53–84 ft)	MT 40 ft below the MO at every RMS well
MTs – Chico MA (6 wells)	Added GDE related shallow wells: CMW-102A, SWMW-06A: MT 30 ft below ground surface; Cal Water wells unchanged	Unchanged
LMLs – North & South MAs	20 ft below the MO at 14 RMS wells	15 ft below the MO at all 25 RMS wells
LMLs – Chico MA	None	None
RMS wells with LMLs	14 of 31	25 of 31
Action when an LML is reached	Report; investigate cause; technical report; Boards consider and direct actions	Not specified

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Board Direction

Aug 12, 2026

Joint GSA Boards

- Alternative 1 MTs (2022 GSP)
- LMLs 20 ft below the MO
- Prescriptive language on “what would happen if we hit the LMLs”
- Vina 3-2; RCRD 6-0

Sept 15, 2026

Public Review Drafts

- PE and Amended GSP released
- LMLs at 14 of 31 RMS wells

Oct 14, 2026

Vina GSA Board

- Alternative 3 for MTs did not pass (2-3)
- Consensus: LMLs 15 ft below the MO, “excluding wells within the Chico Management Area”
- Remove “non-dry year” language (4-1)
- Refer LMLs and interrelated issues to SHAC (5-0)

Oct 28, 2026

SHAC

- Discuss and recommend

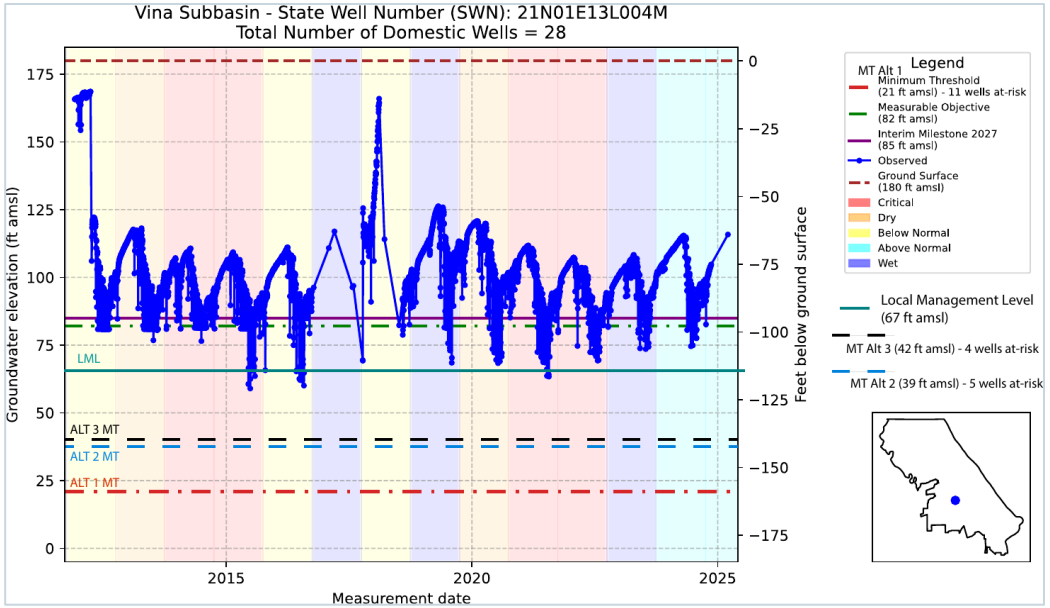
With the MTs unchanged, the LMLs are the GSAs’ early-warning tool within the “margin of operational flexibility.”

Rock Creek Reclamation District GSA Letter (Oct 23)

SUPPLEMENTAL

RCRD GSA letter and proposed LML language:

- **Keep the 2022 MTs** and keep the non-dry year provision
- **LMLs at every RMS well** except the Chico MA
- **LMLs 20 ft below the MO**, not 15 — 20 ft "would sit below every hand reading at those 25 wells since 2001"
- **Confirm** a static reading within two weeks
- **Trigger** when below the LML through the year to the same season
- **Technical Committee** investigates each sustainability indicator; report within 180 days
- **Boards decide actions** through a public process



21N01E13L004M with LML 15 ft below the MO (67 ft amsl) — RCRD's example well

All Subbasins are Managing to the Measurable Objective

ITEM 4.2.3

Vina Approach

Circumstances and approach differ in different subbasins

Applicable to other subbasins

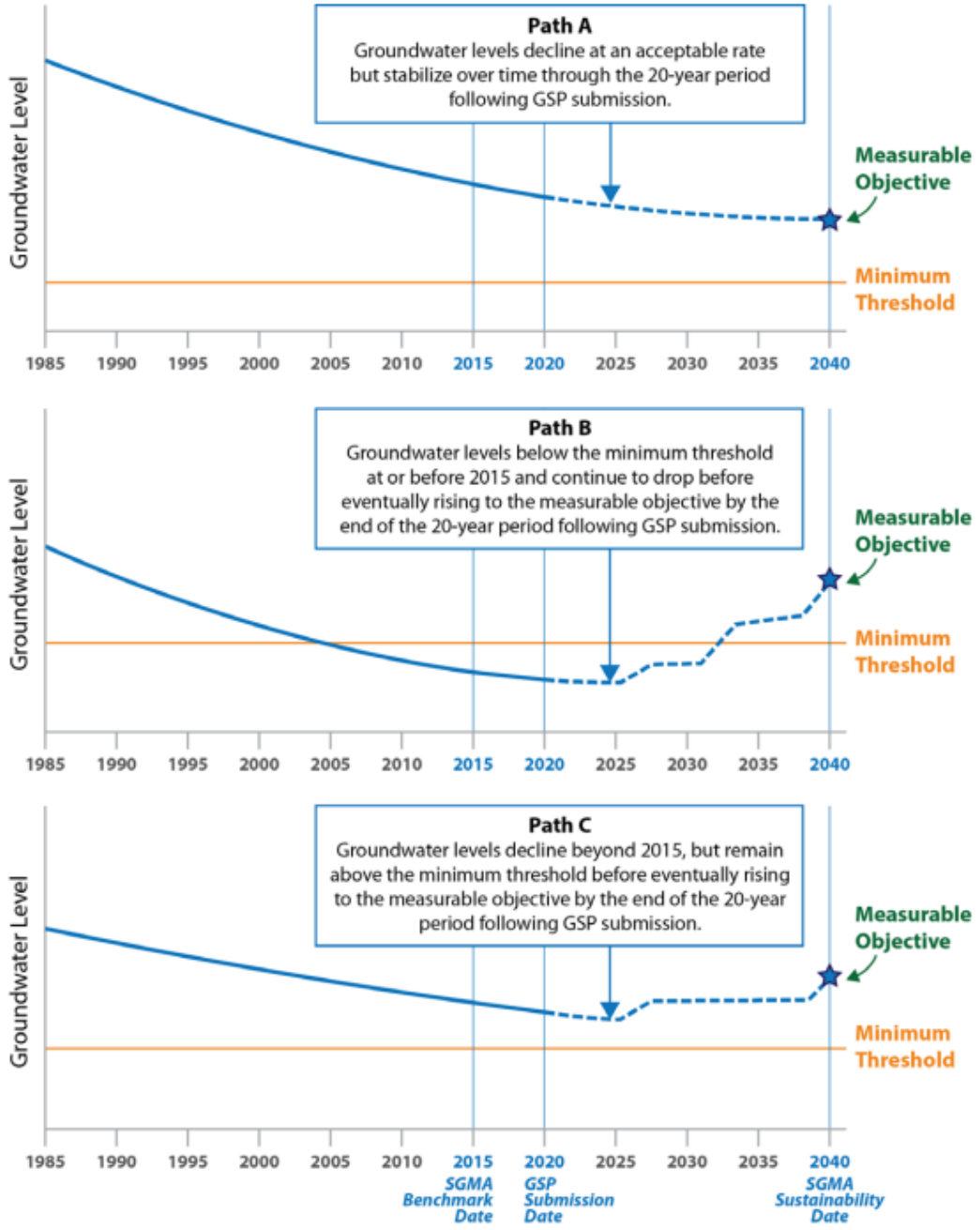


Figure 15. Potential Paths to Sustainability

Figure 15 is from DWR's Sustainable Management Criteria Best Management Practices document

Issues for SHAC Discussion: Quick Reference

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1 Which wells, and how deep? *slide 10*

A 14 wells, 20 ft below the MO (as drafted)

B All 25 N & S wells, 15 ft (Alt 3; Oct 14)

C All 25 N & S wells, 20 ft (RCRD)

2 When is an LML triggered? *slide 11*

A As drafted: multiple measurements across differing seasons

B Confirm static reading; below the LML through the year: fall-spring-fall measurement (RCRD)

C Spring LML reading starts monthly measurements until the MO (public comment)

3 What must happen once triggered? *slide 12*

A As drafted: report, investigate, technical report; Board "could consider or direct"

B RCRD: confirm in 2 weeks; Technical Committee; report in 180 days; Boards decide

C Link to PMAs (next card)

4 Linking PMAs to LMLs *slide 13*

A As drafted: allocation may be considered (§5.3.7)

B New PMA: monitoring & outreach (public comment): monthly readings, notify well owners

C Define groundwater level conditions for specific PMAs (ex. Colusa)

5 Chico MA & Urban Forest *slide 14*

A No Chico MA LMLs; Urban Forest:

A1 20K001 · A2 remove LML reference · A3 different trigger

B Chico MA LMLs at half MO–MT; GDE wells trigger the evaluation

Letters match the options on slides 10–14.

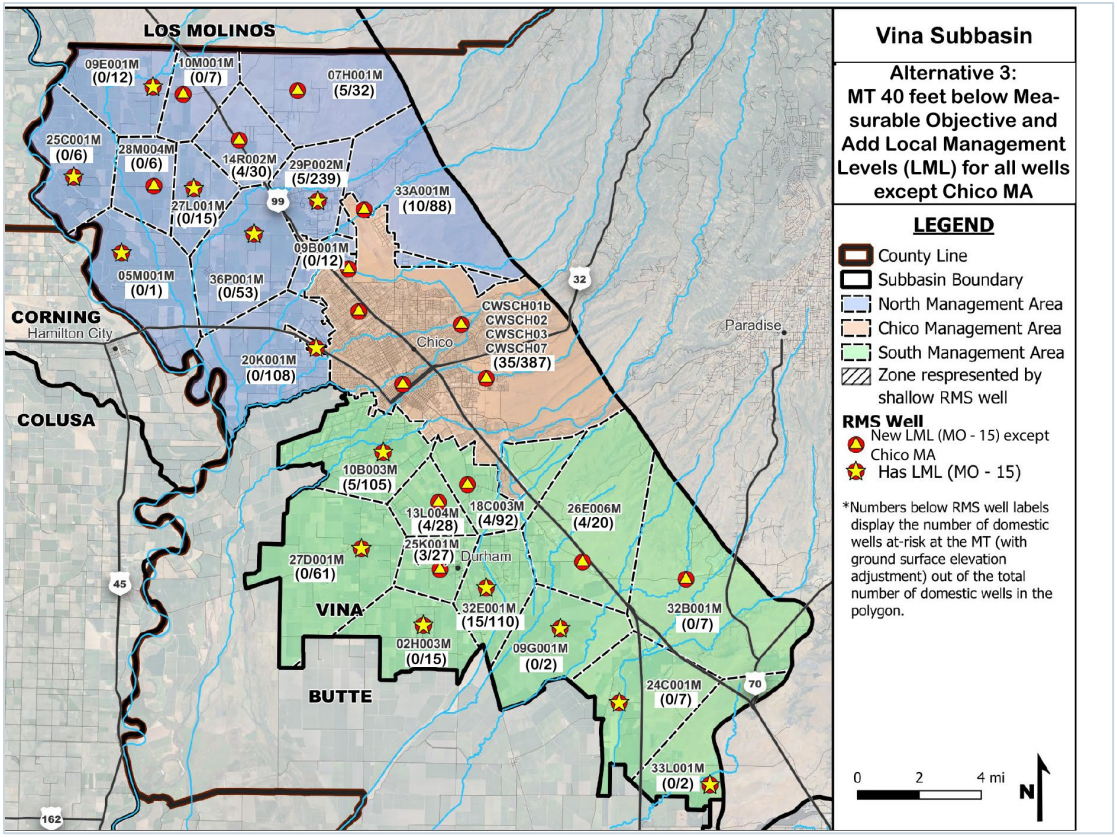
1. North & South Management Areas: Which RMS Wells Receive LMLs & at What Depth are they Set?

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A **as drafted -** 14 wells selected for GDE and shallow-well areas, subbasin boundaries, and high domestic well density; set 20 feet below MO

B **All 25 North and South MA RMS wells set at 15 ft below MO** — (as in Alternative 3; Vina GSA Board preference Oct. 14)

C **All 25 North and South MA RMS wells set at 20 ft below MO** — (RCRD letter)



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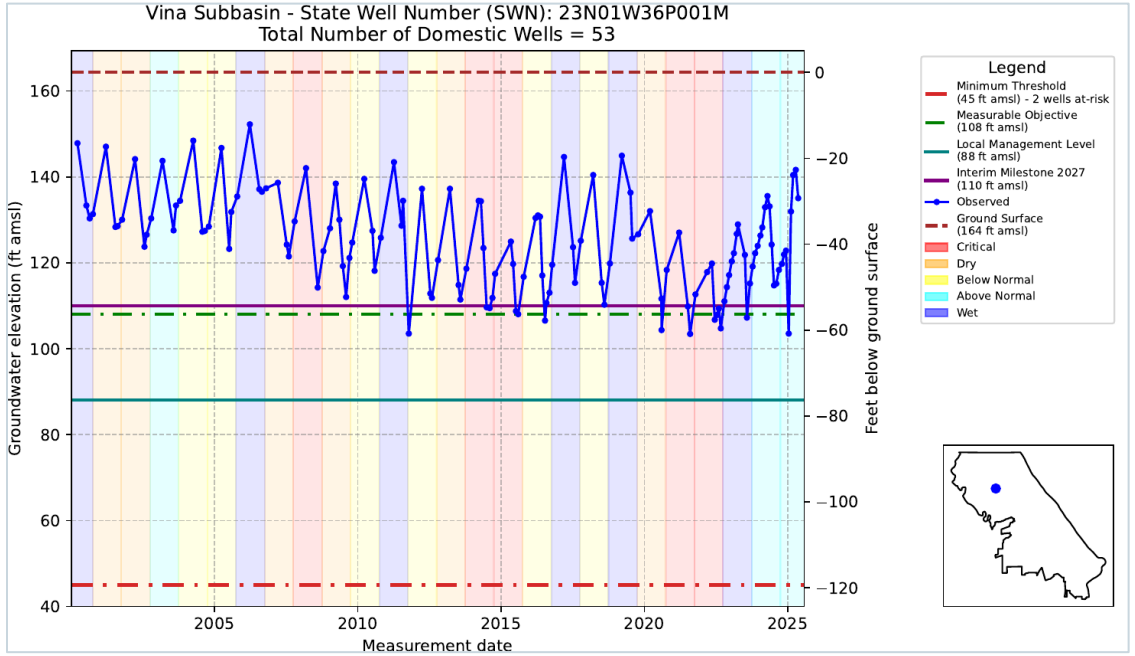
2. When Is an LML Triggered?

Draft: measurements reach the LML and “persist through multiple observed groundwater measurements across differing seasons.”

A **As drafted** — multiple measurements across differing seasons

B **Confirm a static reading, then trigger** when below the LML through the year to the same season: fall–spring–fall (RCRD input)

C **Spring measurement trigger** — an LML reached in a spring measurement starts monthly measurements until the MO is reached (public comment)



23N01W36P001M

3. What Must Happen Once an LML Is Triggered?

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A Public Review Draft

- Report hydrograph to the SHAC and Boards
- Investigate cause (localized or broader)
- Technical report to the Boards
- Board “consider or direct” actions (expanded monitoring, impact evaluation, causation, activate PMA)

C Link to PMAs

Tie specific Projects and Management Actions to LMLs — next slide

B RCRD Submission (Oct 23 redline)

- **Within two weeks:** confirm the reading reflects static conditions; report to the Management Committee, SHAC and Boards
- **Trigger:** confirmed reading below the LML persists through the year to the same season (e.g., fall–spring–fall)
- **Technical Committee** of qualified credentialed professionals, set up by the GSA Management Committee
- **Investigate** cause and potential impacts for each sustainability indicator
- **Within 180 days:** report findings and recommendations to the SHAC and Boards
- **Boards decide** at their next regular meeting
- **Close out** in the Annual Report

Which steps should be required, and on what timeline?

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4. Linking PMAs to LMLs

Draft §5.3.7: if levels "persistently reach LMLs in two contiguous RMS wells," staff may bring forward groundwater allocation for consideration by the Boards.

A **As drafted** — groundwater allocation may be considered; no other PMAs specifically called out - case by case

B **New PMA: Monitoring & Outreach** (public comment)

- **If LML reached in spring:**
  - **Conduct** monthly measurements until the MO is reached
  - **Notify** well owners in the polygon

C **Define the groundwater level conditions** under which specific PMAs are implemented — an LML trigger initiates a PMA (Colusa example). This would take more discussion. Would need to tackle for next Periodic Evaluation, 2032

Which PMAs, if any, should be tied to LMLs?

GDM TRIGGERS AND ACTIONS

GDM Program triggers will be based on groundwater level and subsidence thresholds designed to support adaptive management before undesirable results occur. In response to these triggers, the GSAs will implement a range of actions, beginning with voluntary measures that incentivize groundwater use reductions (i.e., GDM Actions 0 and 1) and progressing, if necessary, to mandatory measures such as groundwater fees and allocations (i.e., GDM Actions 2 and 3). This adaptive approach provides flexibility while ensuring groundwater demand reductions align with basin conditions and sustainability objectives.

DRAFT SUSTAINABILITY INDICATOR TRIGGER AND GDM ACTION SUMMARY

Sustainability Indicator	GDM Action 0	Trigger 1	GDM Action 1	Trigger 2	GDM Action 2	Trigger 3	GDM Action 3	SWRCB Intervention
Groundwater Levels/Storage	Implement WAS; continue PMAs, maximize State & Federal funds; coordinate voluntary landowner efforts; implement GDM outreach program, and fully prepare for GDM Action 2 and Action 3.	12.5% (6) RMS Wells reach the early warning level (50% between MO and MT) for 2 consecutive fall measurements.	Continue GDM outreach and education; encourage voluntary GDM actions; implement other strategic actions to prepare for GDM Action 2.	12.5% (6) RMS wells below 75% between MO and MT for 2 consecutive fall measurements.	Implement groundwater fees for GDM actions; continue GDM outreach and education; implement other strategic actions to prepare for GDM Action 3.	12.5% (6) RMS wells below MT for 2 consecutive fall measurements.	Implement groundwater allocation of sustainable yield, including considerations that may include transitional water, carryover, penalties, water markets, and related policies.	**Administrative fees:** $300/Well/Year and $20/AF of Groundwater Extracted (Probationary Subbasin). **Enforcement** - Including consideration of extraction limits, large penalties, and unknown SWRCB actions.
Cumulative Subsidence *(Since January 2024)*		> 0.5 ft at 3 contiguous sections within 1,000 ft of critical infrastructure.		> 1.0 ft at 2 contiguous sections within 1,000 ft of critical infrastructure.		> 2.0 ft for any sections.		
Annual Subsidence	Same as above.	> 0.10 ft/year at 6 contiguous sections for 2 consecutive years.	Same as above.	> 0.10 ft/year at 8 contiguous sections for 2 consecutive years.	Continue GDM outreach and education with specific focus on contiguous sections experiencing >0.10 ft/year of annual subsidence.	> 0.10 ft/year at 10 contiguous sections for 2 consecutive years.	Continue GDM outreach and education with specific focus on contiguous sections experiencing >0.10 ft/year of annual subsidence.	

FREQUENTLY USED ABBREVIATIONS

AF - Acre Feet
CGA - Colusa Groundwater Authority
DWM - Domestic Well Mitigation
DWR - Department of Water Resources
FT - Feet or Foot
GDM - Groundwater Demand Management
GGA - Glenn Groundwater Authority
GSA - Groundwater Sustainability Agency
GSP - Groundwater Sustainability Plan
MO - Measurable Objective
MT - Minimum Threshold
NGWI - Net Groundwater Impact
PMA - Project & Management Actions
RMS - Representative Monitoring Site
SGMA - Sustainable Groundwater Management Act
SWRCB - State Water Resources Control Board
WAS - Water Accounting System

Colusa Subbasin Demand Management Program triggers (Attachment C)

5. Chico MA and Urban Forest Vulnerability Assessment

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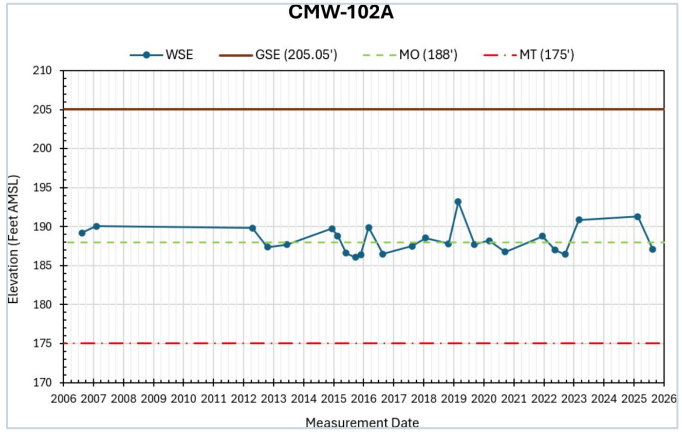
Narrow MO-to-MT range: 10 to 23 ft at the Cal Water wells; 13 ft at CMW-102A and SWMW-06A. 15 ft below the MO would fall below the MT at three of six wells.

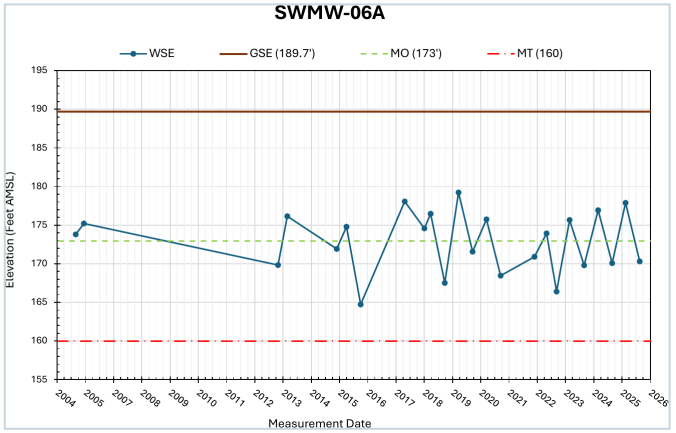
PE §4.5.6: Urban Forest evaluation is triggered "if a Chico-area or GDE well reaches its LML," but no Chico MA RMS well has an LML.

A **No LMLs in the Chico MA** (as drafted; Oct 14 direction; RCRD letter), and for the Urban Forest evaluation:

- **A1** **Clarify "Chico-area well"** means 20K001 (North MA; has an LML)
- **A2** **Remove the LML reference** from the Urban Forest evaluation
- **A3** **Tie the evaluation** to a different trigger – MT exceedance instead

B **Set LMLs in the Chico MA** at half the distance between the MO and MT (public comment); CMW-102A and SWMW-06A trigger the Urban Forest evaluation





Chico MA GDE wells: CMW-102A (MO 188, MT 175) and SWMW-06A (MO 173, MT 160) — Attachment D

Should the Chico MA have LMLs, and what triggers the Urban Forest evaluation?

Example SHAC Recommendation(s)

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1. Set LML on all wells (25) in North and South Management Area
2. Defer to GSA Boards whether to set LML at 15 or 20 feet, or make a recommendation
3. LML is triggered when static groundwater level measurement is below the LML through the year to the same season: fall–spring–fall
4. Accept the RCRD LML language (however, revise consistent with other SHAC recommendations as specified)
5. Create a new PMA: LML Outreach and Monitoring
6. Do not assign LMLs in Chico MA – instead, have LML exceedance language apply to Chico Management Area, but for MT exceedance.
7. Change trigger in Urban Forest Vulnerability Assessment to MT exceedance, rather than LML.

Additional Slides For Reference

New Other Projects in draft PE

Local Refinement of GDE Mapping *Provided by Audubon*

- Develop and begin implementing a place-based monitoring plan for priority GDEs building from shallow-groundwater monitoring wells identified by Vina GSA
- Refine GDE maps — capturing oak woodlands and urban canopy the state data misses.
- Establish baseline ecological conditions, field + NDVI vegetation-health indicators, and help identify groundwater-driven impacts to GDEs
- Define potential timing or response triggers tied to LMLs and ecological thresholds
- Integrates best available science (incl. Traditional Ecological Knowledge); volunteers, schools & partners add ground-truthing.

Chico Urban Forest Vulnerability Assessment *Provided by Audubon in coordination with City of Chico*

- Fills a data gap on how dependent Chico's unirrigated, deep-rooted trees are on groundwater vs. soil moisture/creek recharge — helping address DWR Corrective Action 3 for environmental users.
- Two-Tiered Vulnerability Assessment- Tier 1: satellite z-NDVI greenness screening (Rohde et al. method); Tier 2: City tree inventory + field checks near shallow, GDE-sensitive RMS wells.
- Baseline begins now; formal evaluation only if a Chico-area/GDE well reaches its LML.
- Partners: City of Chico Urban Forestry, County, possibly CSU Chico.

Related concept under discussion: a Community Science / watershed stewardship program (CA Urban Streams Alliance) — possibly standalone or part of the GDE mapping effort.

New Other Projects in draft PE

Lindo Channel Recharge — Multi-Benefit Plan for Five Mile *ESA in coordination with Butte County*

- Builds on the June 2026 Lindo Channel recharge feasibility report and efforts in progress by Butte County Public Works; benefits require operational changes at the Big Chico Creek gates at Five Mile.
- Pairs recharge with the County's deferred maintenance — one-time channel/vegetation work to set a template, then ongoing TEK-informed monitoring and upkeep.
- Balances flood conveyance, fish passage, habitat, and recharge; a new governance/funding structure needed to align costs with beneficiaries. Potential funding: DWR Prop 4.

Biomass & Biochar Utilization *Provided by Audubon*

- Biochar on farmland for soil health, water retention & water quality; cultural burning reduces invasive species and fuels while converting biomass to biochar.
- On-farm recharge & demand management pilots with before/after monitoring to document soil, water quality, recharge and other hydrologic outcomes.
- California Open Lands led partnership could include CalFIRE, growers, and local agencies. Potential funding: CalFIRE, DWR, Prop 4.

Related concept under discussion: a Lindo Channel Multi-Benefit Stormwater Recharge Initiative (CA Urban Streams Alliance) — possibly standalone or part of the Lindo Channel project.