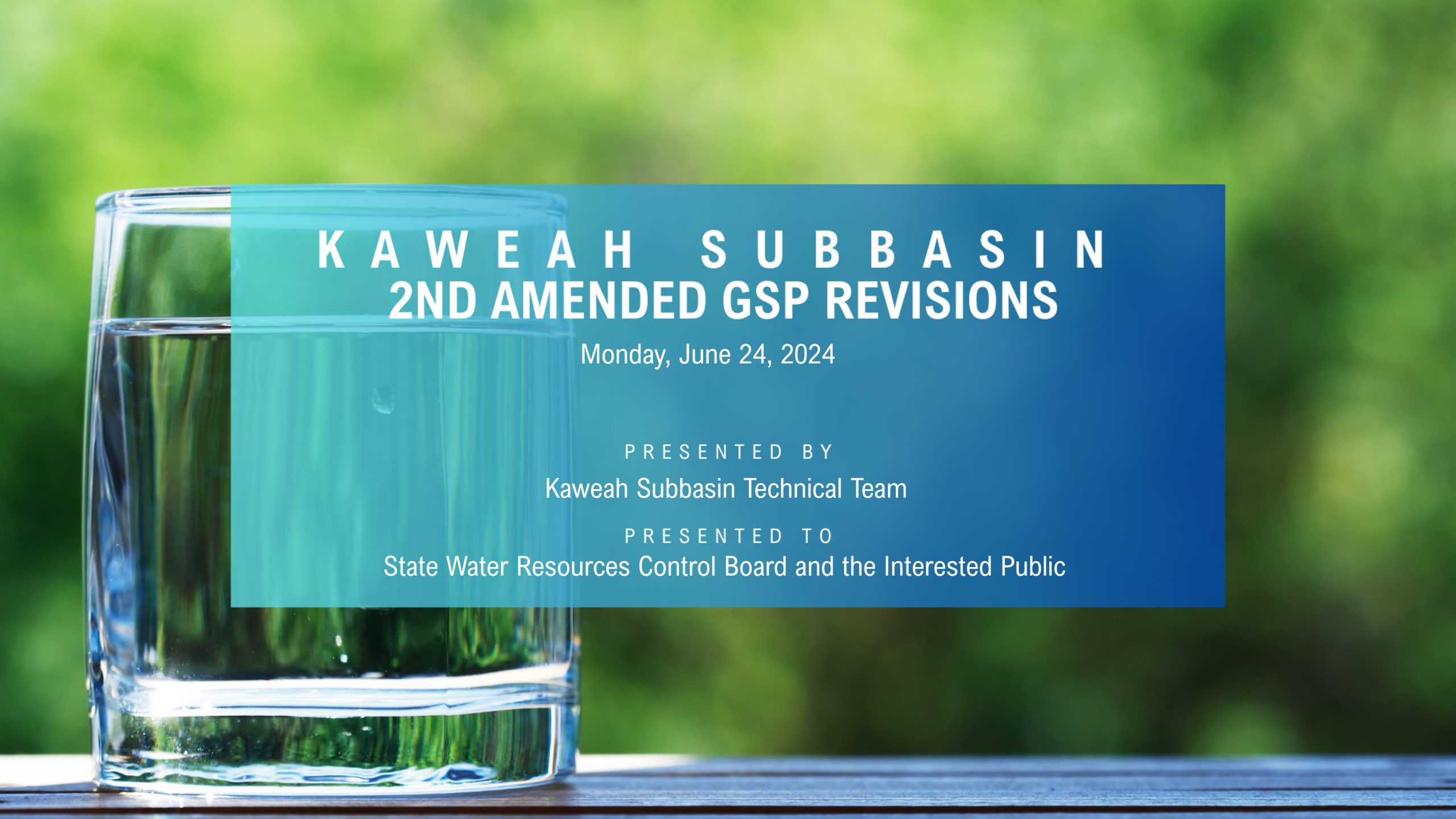


KAWEAH SUBBASIN
2ND AMENDED GSP REVISIONS

Monday, June 24, 2024

PRESENTED BY

Kaweah Subbasin Technical Team

PRESENTED TO

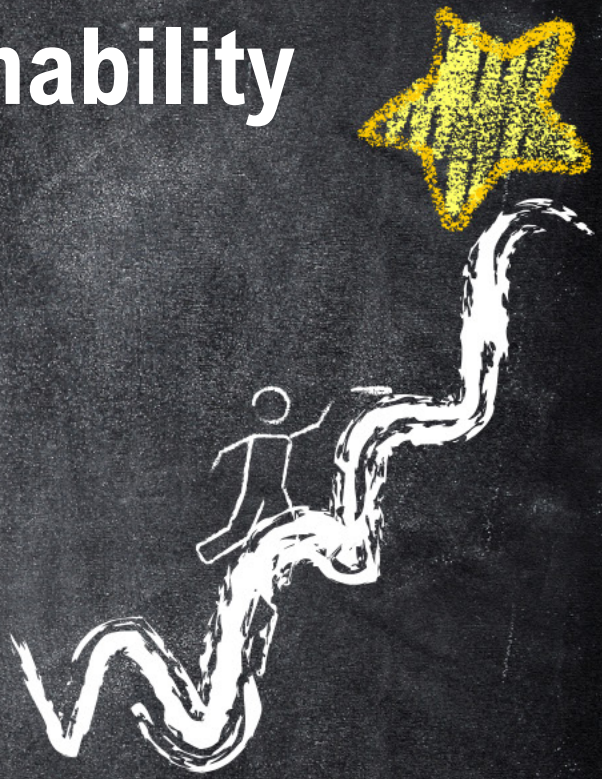
State Water Resources Control Board and the Interested Public

Kaweah Subbasin Path to Sustainability

Sustainability Strategy

The Revised GSPs Address All DWR Deficiencies

Addressing SWRCB New Deficiencies

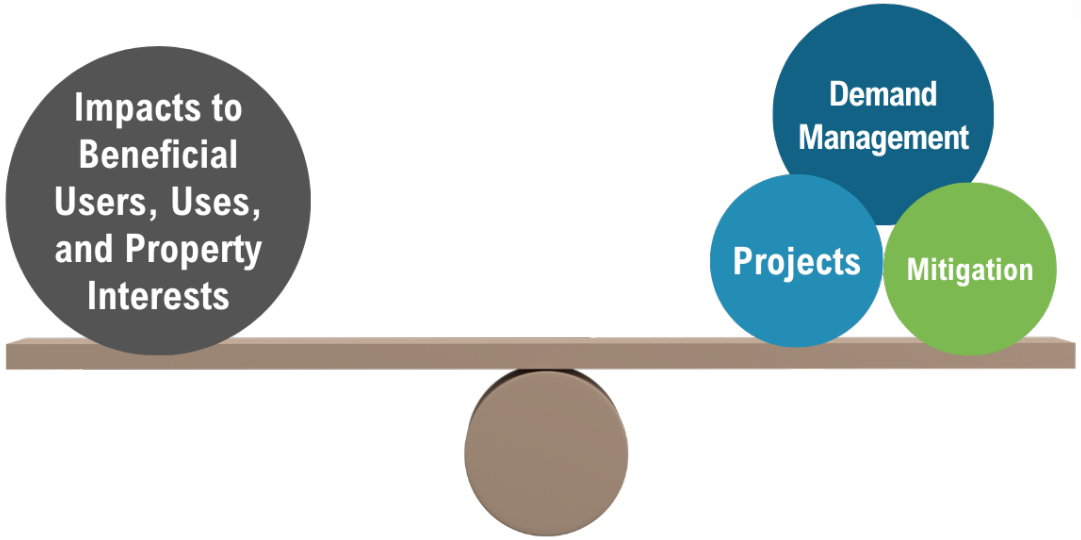


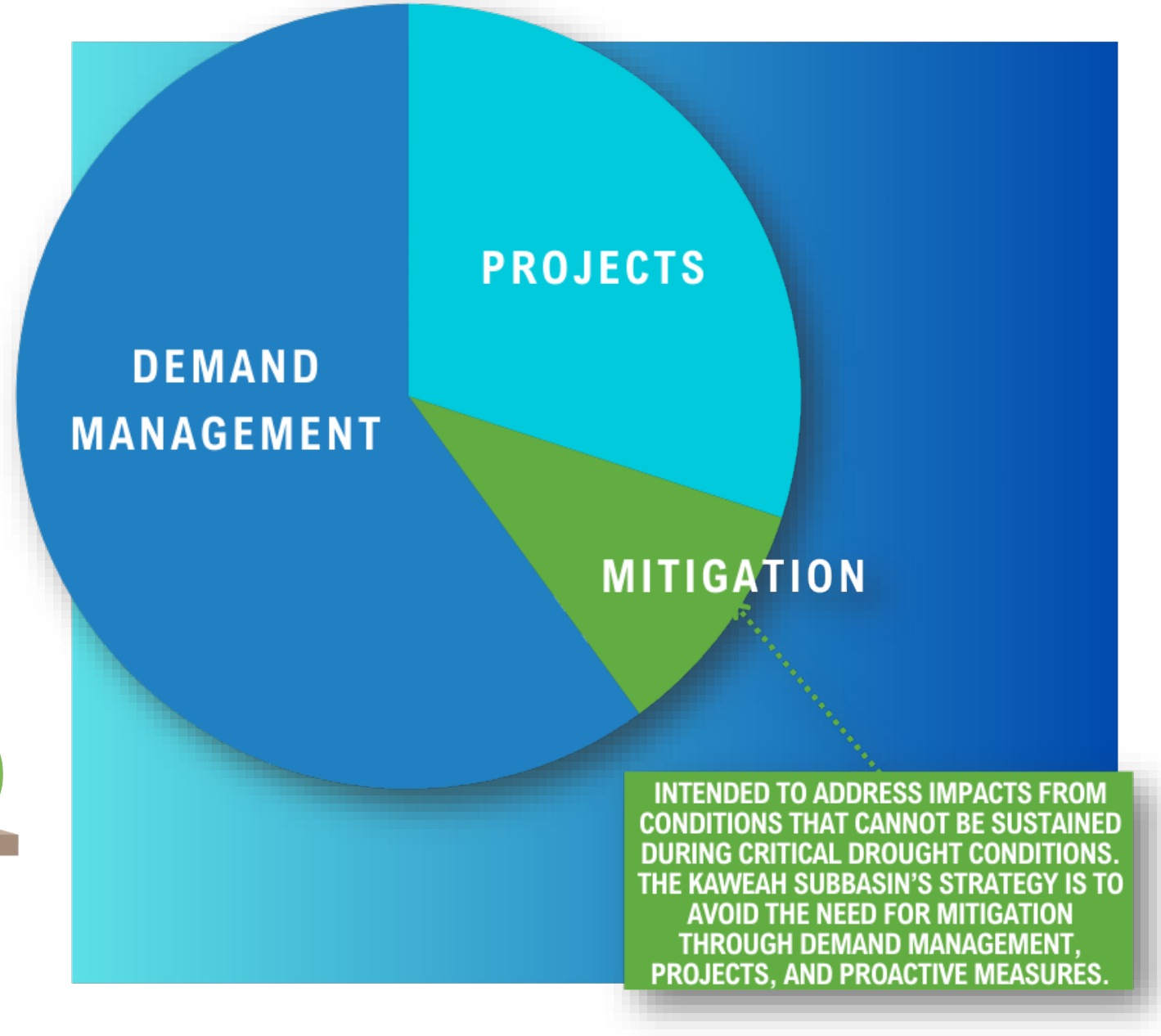
Continuing Our Path to Sustainability


SUSTAINABILITY
STRATEGY

Sustainability can't wait.

The 3 GSAs have continued to implement projects & management actions while drafting the 2nd Amended GSPs.





DEMAND MANAGEMENT

Allocation and Groundwater Cap Programs

Indicates if the activity has been implemented

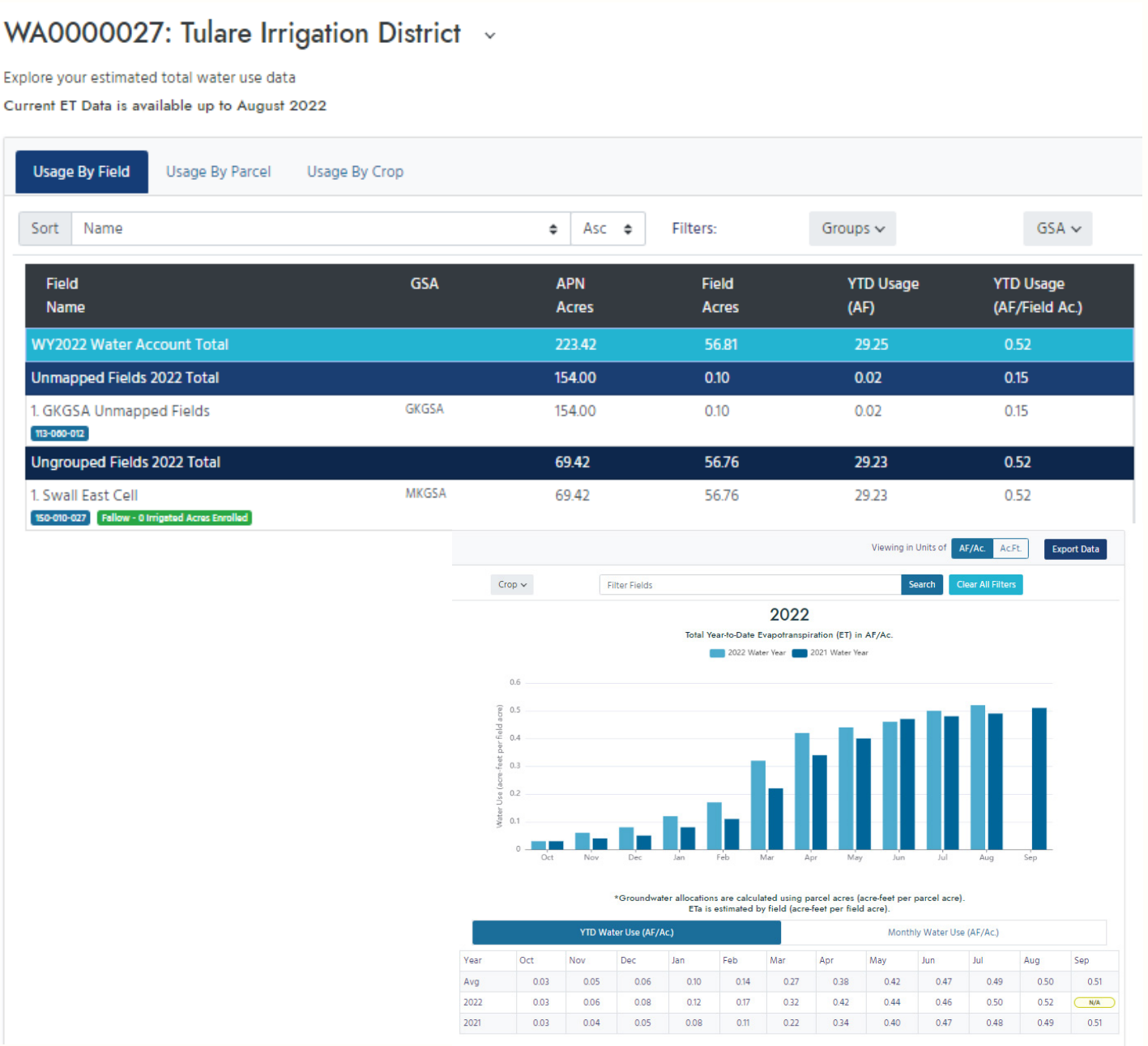
Water Dashboard

Developed by Kaweah Subbasin GSAs

- **Tracks Evapotranspiration (ET)**
  - Incorporates Land IQ data
- **Tracks Water Use**
  - Surface Water Use
  - Groundwater Use
  - Precipitation Use
- **Allows growers to see allocation**
  - Tracks monthly ET
  - Invoices growers
  - Informs growers on their water use
- **Implemented Features**
  - Water Marketing Strategy

Future Features

- Crop Planning Tool
- Other Agronomic Tools



The Kaweah Subbasin GSAs is implementing demand management policies now.

- Tiered pricing structures incentivize and enforce water conservation
- Increased interest and engagement with land repurposing opportunities
- Developed and currently testing a water market (DAC and SMC Protections imbedded)
- Early Results
  - *Average annual fallowing of 5,000 acres in EKGSA*
  - *13% reduction in consumptive use from 2021 to 2022 in MKGSA*

The Kaweah Subbasin GSAs do not take demand reduction policy decisions lightly, recognizing the ripple effects across multiple beneficial users.

PROS	CONS
Demand management achieves…	**& negatively affects our communities'**
1. Sustainability 2. Long-term water security 3. Climate resiliency	1. Economic potential 2. Funding for public health, safety, and education (loss in tax revenue) 3. Culture & heritage conservation 4. Presence of small family farms

PROJECTS

Groundwater recharge, banking, surface water supply, and water-use efficiency investments

The Kaweah Subbasin has implemented numerous projects to achieve sustainability.

Kaweah Subbasin Projects Implemented as of June 2024	
Lakeland Canal Deliveries	Cordeniz Recharge Basin
Recharge Basin Improvement	Okieville Recharge Basin
Paregien Expansion Flood Control Project	KDWCD/Visalia/Tulare ID Packwood Creek Linear Recharge Project
Greater Fallowing Program	City of Visalia/TID Exchange Program
Lower Lewis Creek Recharge	Sun World International / TID Exchange
Lindsay Recharge Basin	TID/Friant Leveraged Exchange Program
Lindmore Irrigation District Recharge Basins	Visalia Eastside Regional Park/Groundwater Recharge Project

The Kaweah Subbasin has implemented numerous other activities to increase groundwater supply.

- On-Farm Recharge
- Private Recharge Basins (100+)
- TID Existing Recharge Capacity Evaluation
- Existing Conveyance Facilities Rehabilitation or Expansion
- Efficiency Improvements
- DWR LandFLEX Fallowing

Mitigation

The Kaweah Subbasin Mitigation Program is being implemented now.

More information on this program is expanded on later in the presentation.


The Kaweah Subbasin is proactively implementing its plan now in order to be sustainable by 2040.


THE REVISED GSPs
ADDRESS ALL DWR
DEFICIENCIES

Sustainable Management Criteria Priorities

Public Review Draft: 2nd Amended GSPs

01 Address all DWR deficiencies

02 Use of best available data and analytical tools

03 Revise to be even more protective of all beneficial users, uses, and property interests.

04 Stakeholder Support

05 Subbasin-wide Consistency

Sustainable Management Criteria Methodology

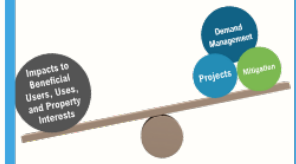
1 → 2 → 3 → 4 → 5 → 6

1 — IDENTIFY BENEFICIAL USERS, USES, & PROPERTY INTERESTS

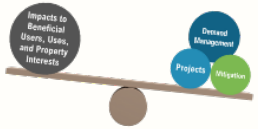
2 — DEFINE 'SIGNIFICANT AND UNREASONABLE EFFECTS'

3 — IDENTIFY BASIN-WIDE GROUNDWATER CONDITIONS THAT COULD LEAD TO SIGNIFICANT & UNREASONABLE EFFECTS

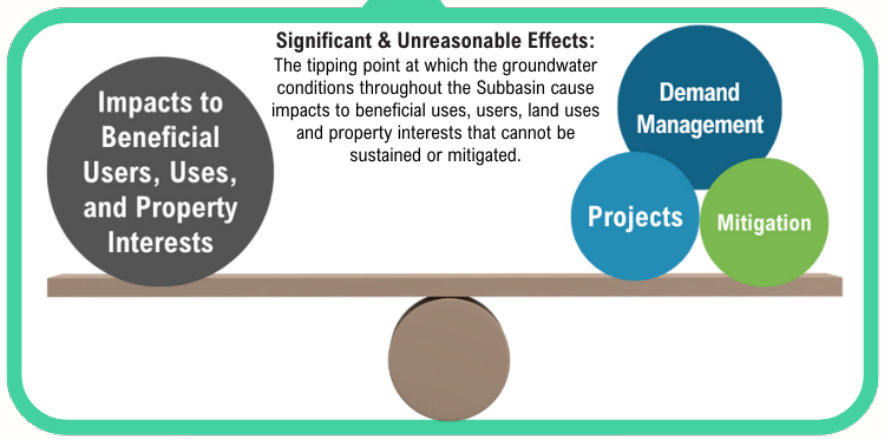
4 — DEFINE AND QUANTIFY UNDESIRABLE RESULTS

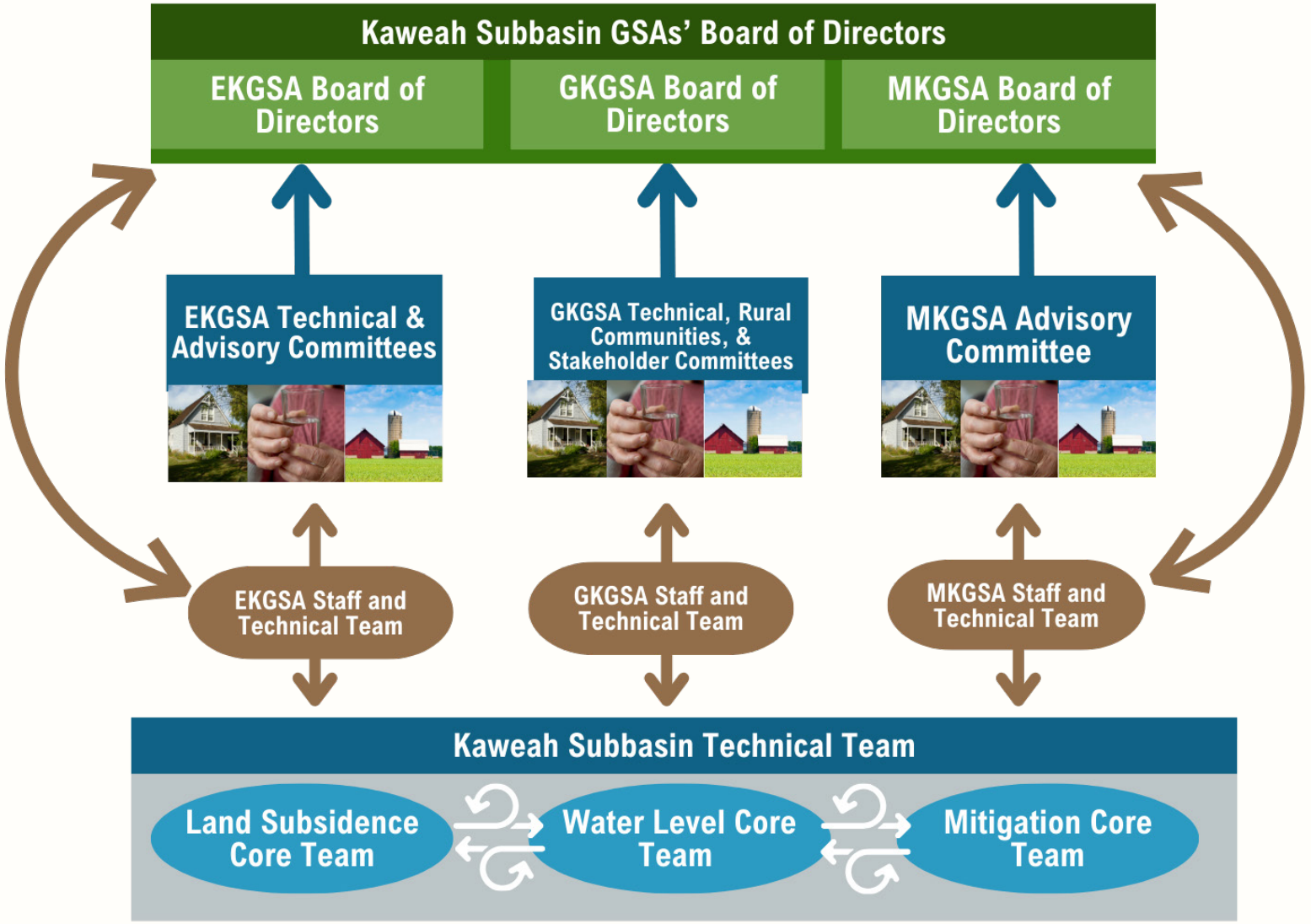


5 — ASSESS AND DEFINE SMC THAT PROTECT AGAINST SIGNIFICANT AND UNREASONABLE EFFECTS ON BENENFICIAL USERS, USES, AND PROPERTY INTERESTS



6 — REVIEW ALL SUSTAINABILITY INDICATOR SMC TO CONFIRM THEY ARE CONSISTENT WITH ONE ANOTHER, CLEARLY COMMUNICATED, AND INCLUDE STAKEHOLDER CONSIDERATION





The Kaweah Subbasin GSAs have hosted

108

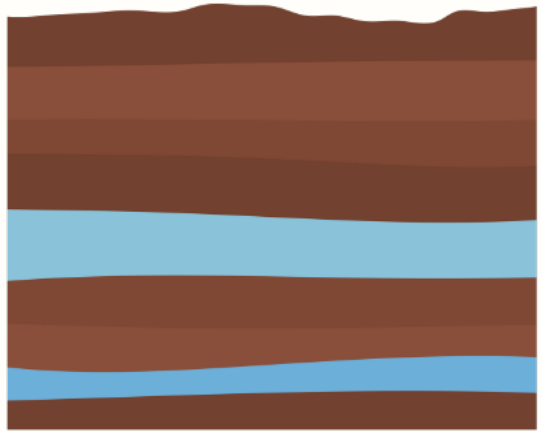
Public Engagement Meetings

since May 2023

Regular attendees include representation from:
City of Exeter, City of Farmersville, City of Lindsay, City of Tulare, City of Visalia, Community Water Center, Delta-View Water Association (groundwater dependent growers), Growers, Kaweah Delta Water Conservation District, Leadership Council for Accountability & Justice, Milk Producers Council, produce packing industry, Self-Help Enterprises, Sequoia Riverlands Trust, Tulare County, and interested members of the public.

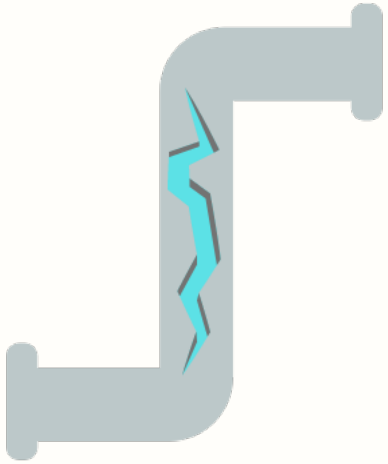
DWR Deficiencies

1st Amended GSPs (2022)



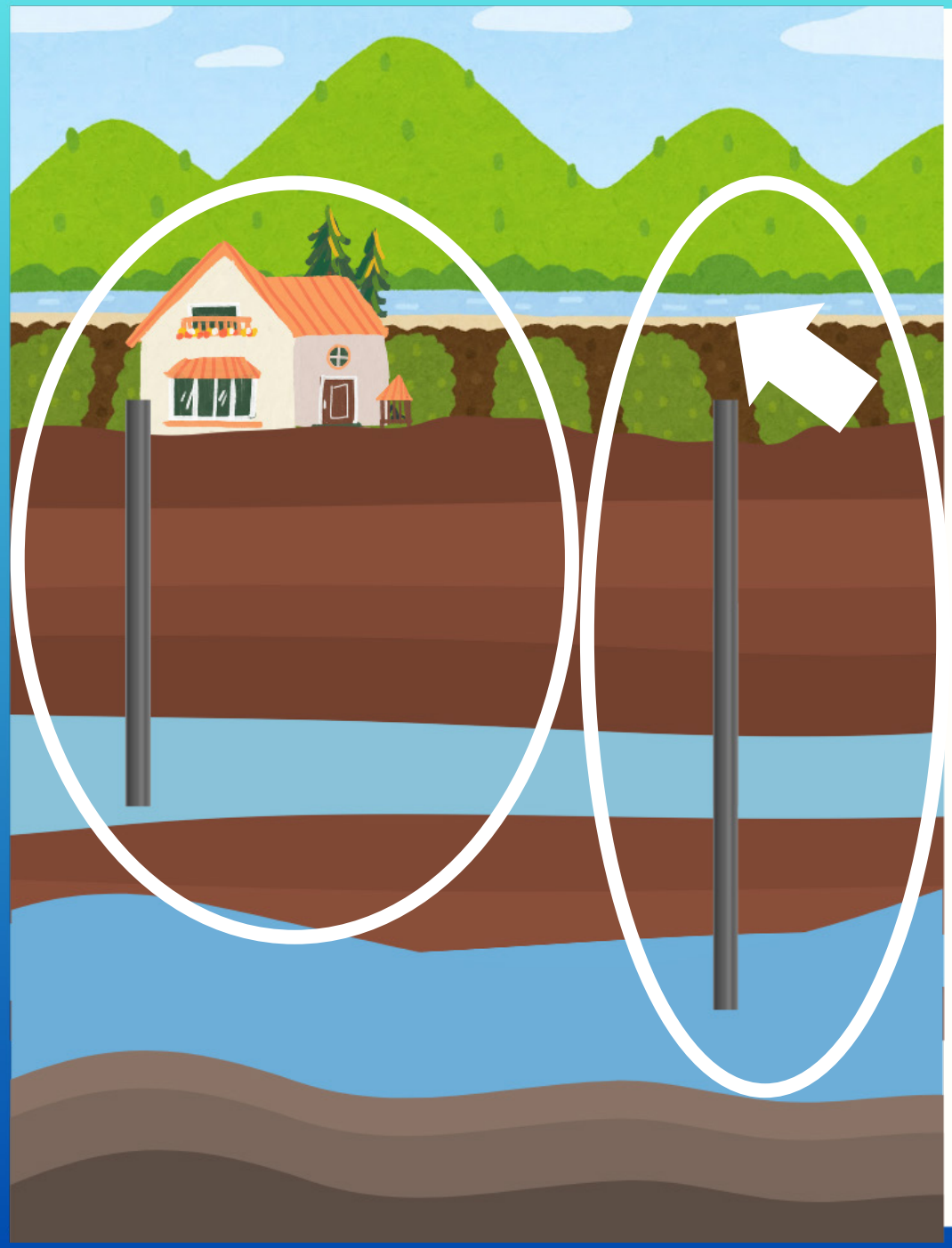
The Plan does not set minimum thresholds to avoid undesirable results and significant and unreasonable impacts on beneficial use

The Plan does not have sufficient clarity in Mitigation Framework and Plans



The Plan does not set subsidence sustainable management criteria that would avoid substantial interference with land surface use and critical infrastructure

The Plan does not consider how minimum thresholds for one sustainability indicator affect minimum thresholds for another



Upper Aquifer vs. Lower Aquifer

Different Approaches and Sustainable Management Criteria

Upper Aquifer

Domestic wells are generally the shallowest and most vulnerable beneficial user in the upper aquifer.

Lower Aquifer

Critical infrastructure is the most vulnerable beneficial user/property interest affected by declining lower aquifer groundwater levels.

Undesirable Result

Upper Aquifer Water Levels

1. If more than 17 upper aquifer RMS wells in the Kaweah Subbasin exceed their minimum threshold in any given water year;

AND

2. More than 30 domestic wells in the Kaweah Subbasin are impacted due to overdraft and require mitigation in any given water year. If 30 wells require mitigation for multiple years, no more than 350 wells shall be impacted cumulatively by 2040;

350 wells equates to 10% of total drinking water wells

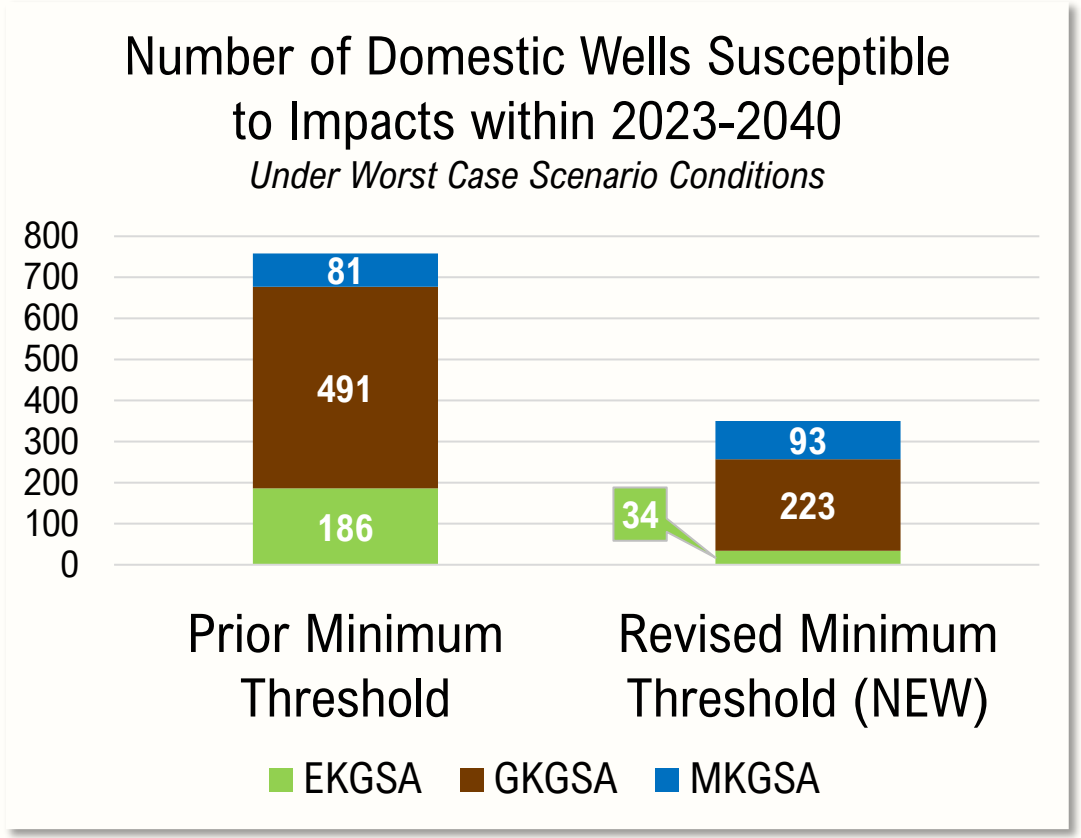
OR

3. If a GSA is unable to meet mitigation needs.

Minimum Thresholds

Upper Aquifer Water Levels

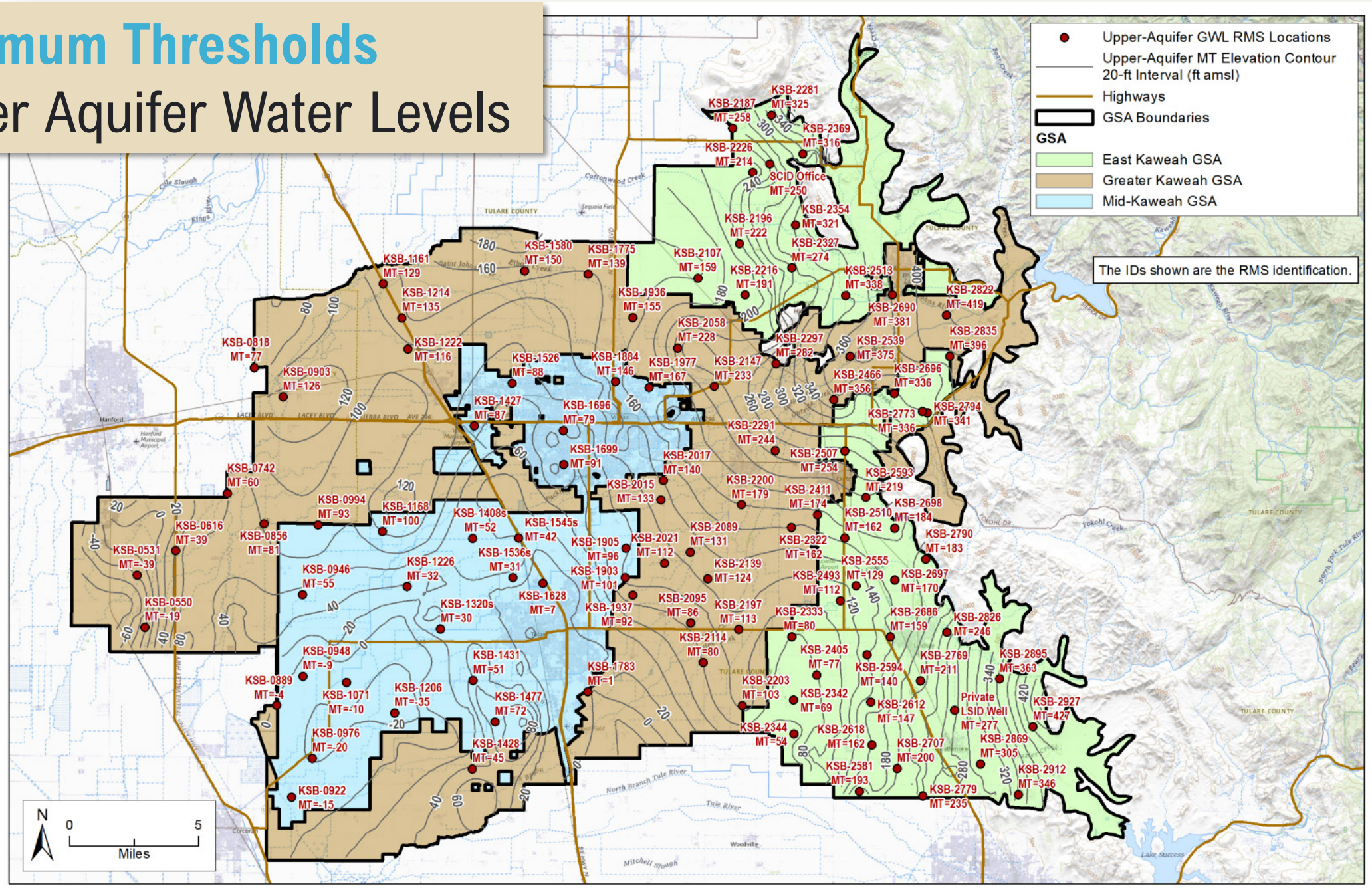
1. Informed by a Dry Well Susceptibility Analysis, with the most vulnerable beneficial user (domestic wells) being the determining factor.
2. Revised minimum thresholds are more protective of all beneficial users, uses, and property interests.
3. Kaweah Subbasin Technical Team engaged in a coordinated methodology, analyses, and decision process.
4. Dry Well Susceptibility Analysis results informed the GSAs' mitigation budgets.



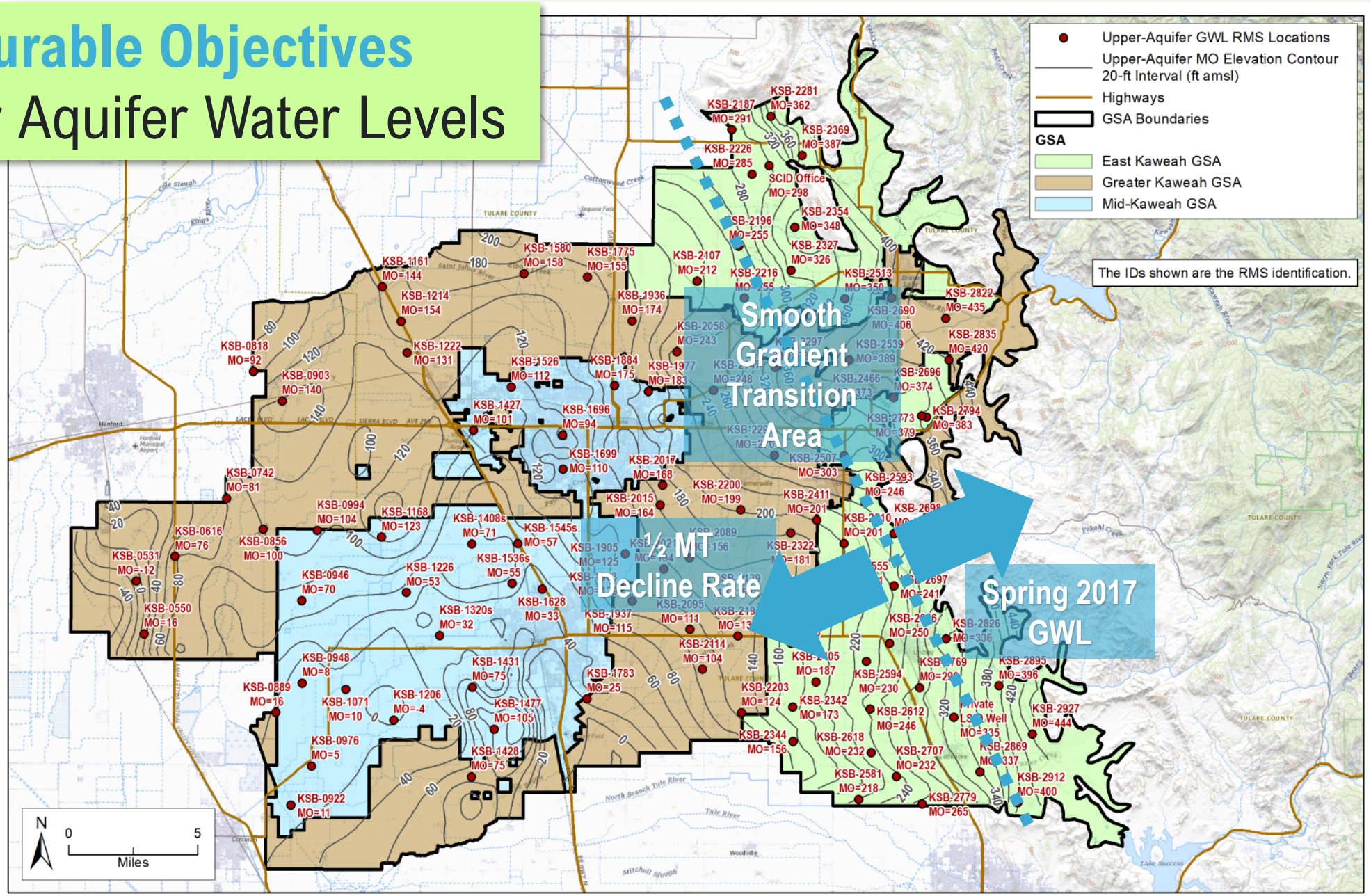
Impacts between the period of 2015-2022 were also included in the analysis which informed both the groundwater level SMC and the mitigation cost estimates (budgets). The period of 2023-2040 is presented to show a current/forward-looking estimate of potential mitigation needs.

Minimum Thresholds

Upper Aquifer Water Levels

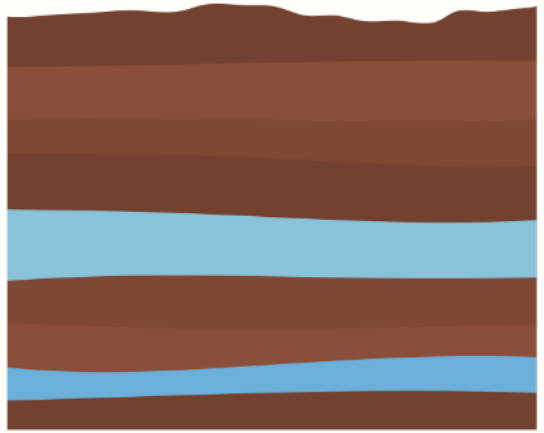


Measurable Objectives
Upper Aquifer Water Levels



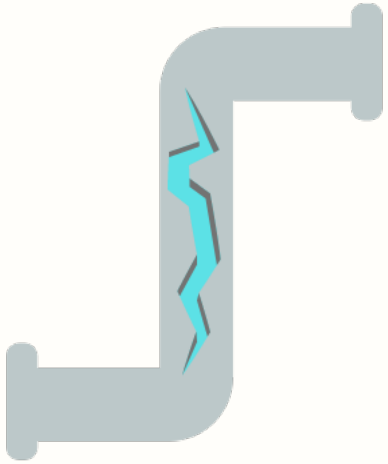
DWR Deficiencies

1st Amended GSPs (2022)



The Plan does not set minimum thresholds to avoid undesirable results and significant and unreasonable impacts on beneficial use

The Plan does not have sufficient clarity in Mitigation Framework and Plans



The Plan does not set subsidence sustainable management criteria that would avoid substantial interference with land surface use and critical infrastructure

The Plan does not consider how minimum thresholds for one sustainability indicator affect minimum thresholds for another

Kaweah Subbasin Mitigation Program

being implemented now

Mitigation services and technical assistance for those impacted by groundwater overdraft conditions funded by the GSAs.

Important Note:

Mitigation is a temporary measure to bridge the gap until we achieve sustainability by 2040. Impacts may occur as groundwater levels have potential to decline below historic lows. The need for mitigation related to overdraft/groundwater management is not expected to be necessary beyond the implementation period.

Self-Help Enterprises

Partnered with Self-Help Enterprises to administer domestic well mitigation

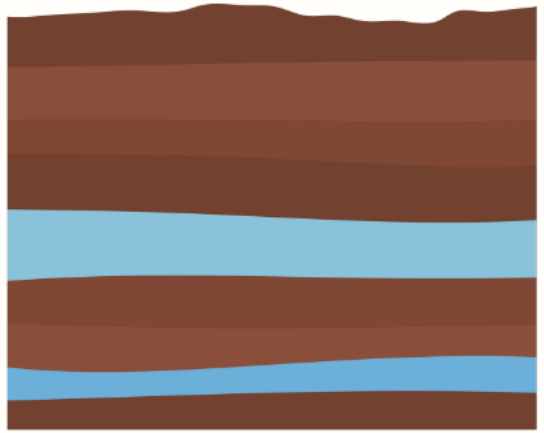
- 24-hour turnaround for emergency supplies
- 72-hour turnaround interim supplies
- Long-term mitigation solutions (including groundwater quality testing and treatment)

New Management Actions Associated with the Mitigation Program:

1. Small Community Proactive & Protective Action Plan
2. Well Registration Program
3. Domestic Well Permit Application Review

DWR Deficiencies

1st Amended GSPs (2022)



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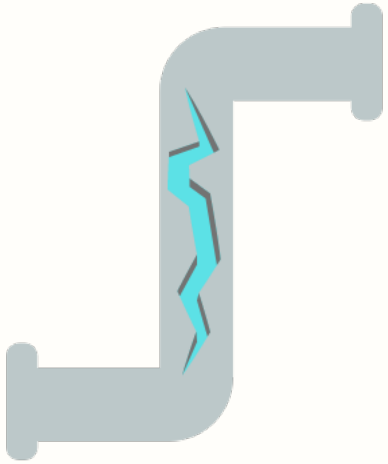

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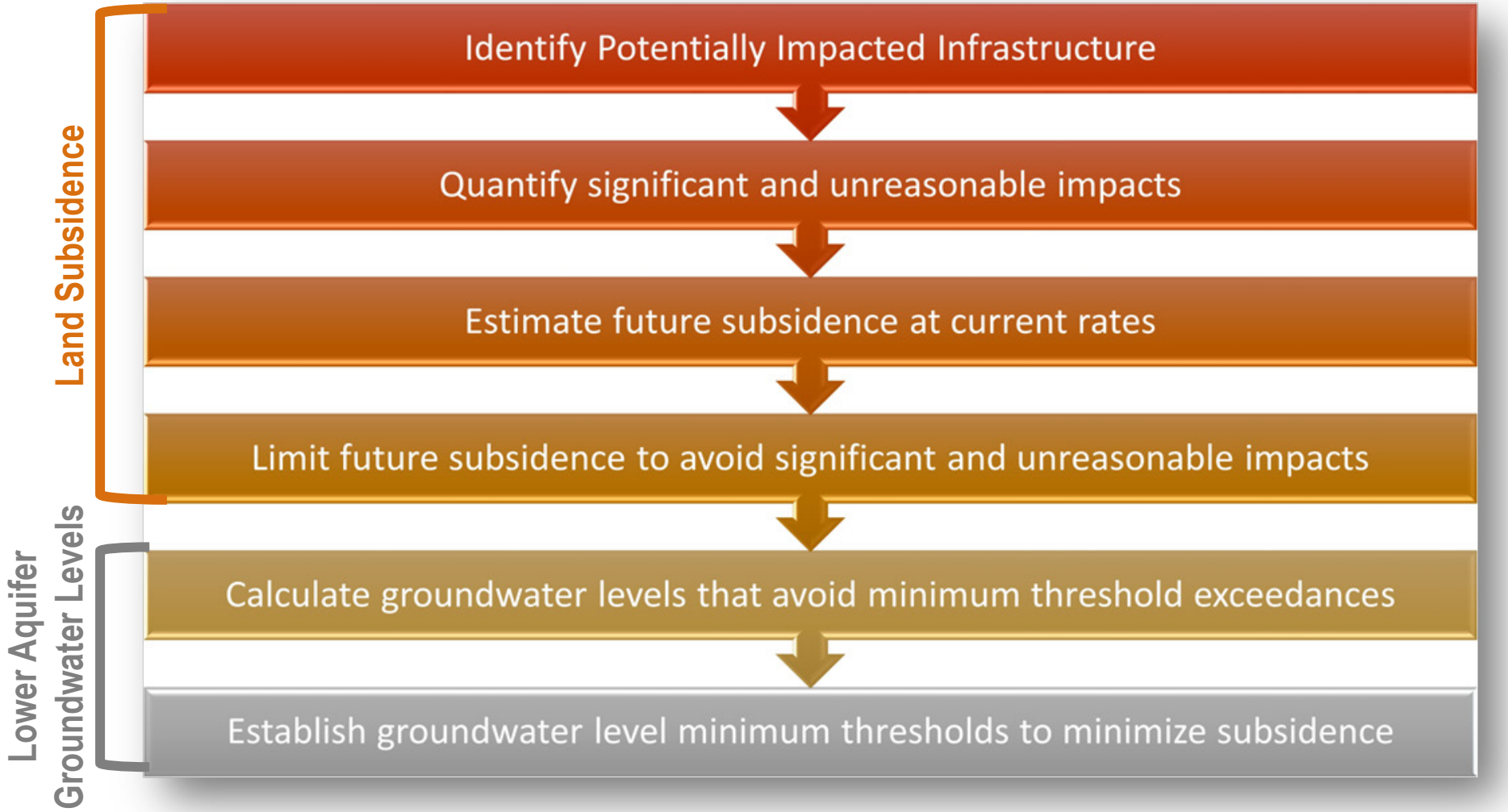
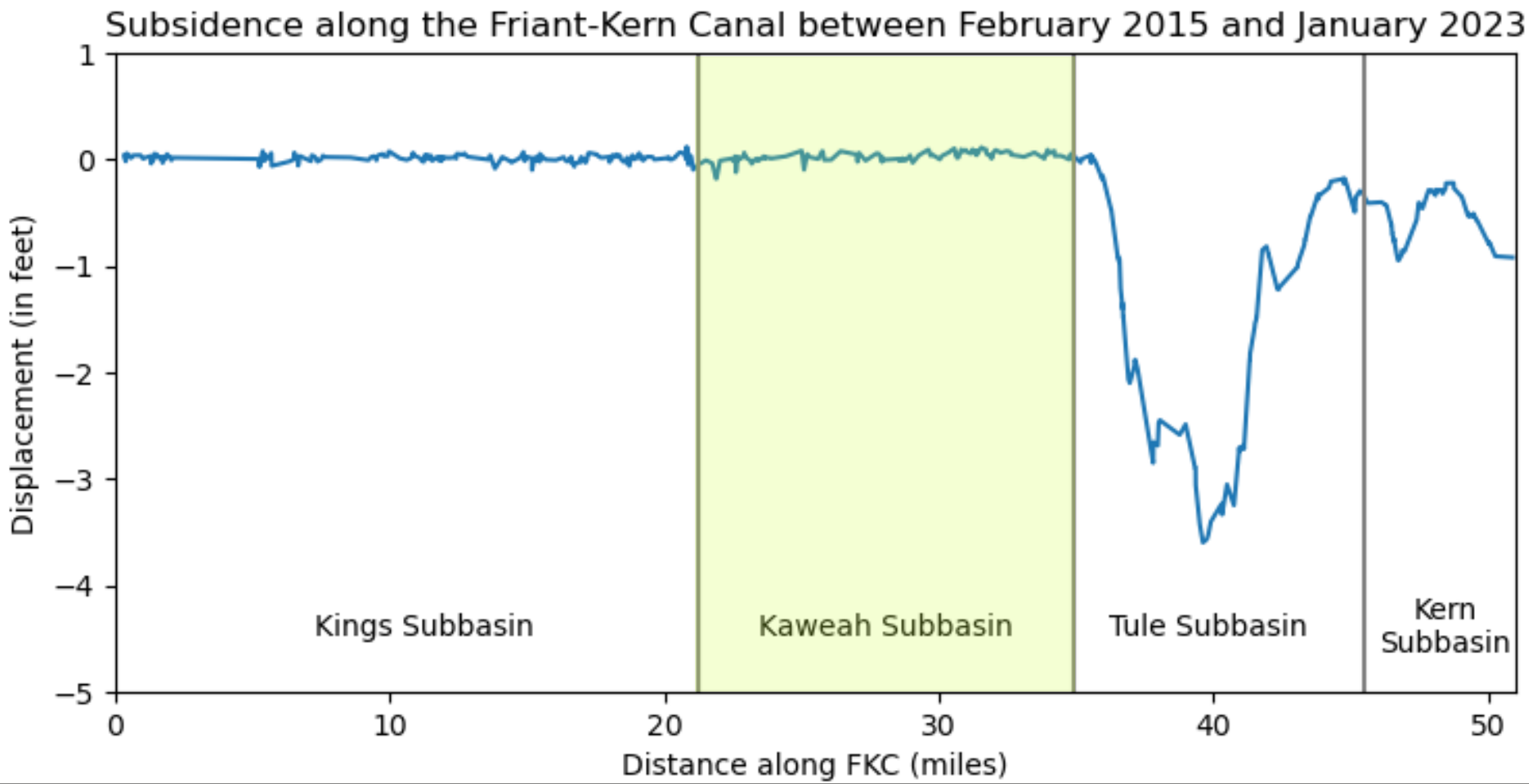
Approach for Coupling Subsidence and Lower Aquifer Groundwater Level SMC



Identify Potential Impacted Infrastructure

Infrastructure / Beneficial Use	Significant & Unreasonable Impact	Agency or Group Contacted Regarding Historical Subsidence Impacts
Flood Control	Capacity loss in stream channels from reduced land slope leading to increased risk of flooding	Tulare County Flood Control District Kaweah Delta WCD Tule Subbasin GSAs Tulare Lake Subbasin GSAs
Friant-Kern Canal	Capacity loss from reduced canal slope and cracks	Friant Water Authority
Local Canals	Capacity loss from reduced canal slope and cracks	Tulare Irrigation District Kaweah Delta WCD Other local ditch companies
Gravity Pipelines	Capacity loss from reduced pipeline slope or failure from overpressure	Lindmore Irrigation District
Supply Wells	Collapse of deep wells that prevents use and requires repair or replacement	Self Help Enterprise Local Drillers Local landowners with wells
Other Infrastructure	Uneven settlement that requires repairs or replacement	Tulare County Resources Management Agency – Road Dept. California High Speed Rail

The Friant Kern Canal has not been impacted by land subsidence in the Kaweah Subbasin.



INTERA

Undesirable Result

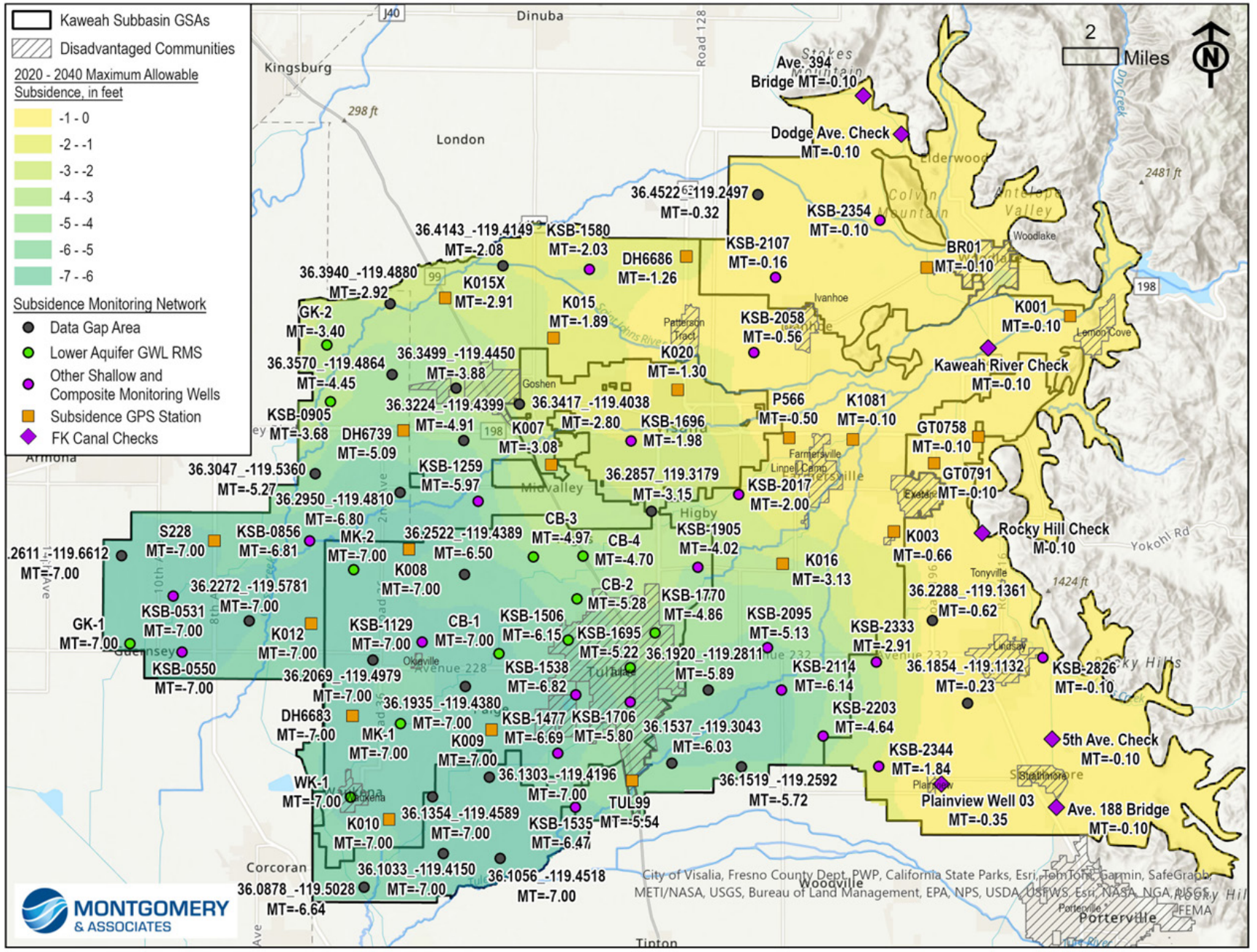
Land Subsidence

When the cumulative subsidence minimum threshold is exceeded at any single Representative Monitoring Site

Minimum Thresholds

Land Subsidence

1. No new subsidence
2. Coordinated across the Kaweah Subbasin (& with neighbors)
3. Revised minimum thresholds are more protective of all beneficial users, uses, and property interests
4. Minimized residual subsidence (average 3.1 ft subsidence across subbasin from 2020)
5. Coupled land subsidence and lower aquifer groundwater level sustainable management criteria

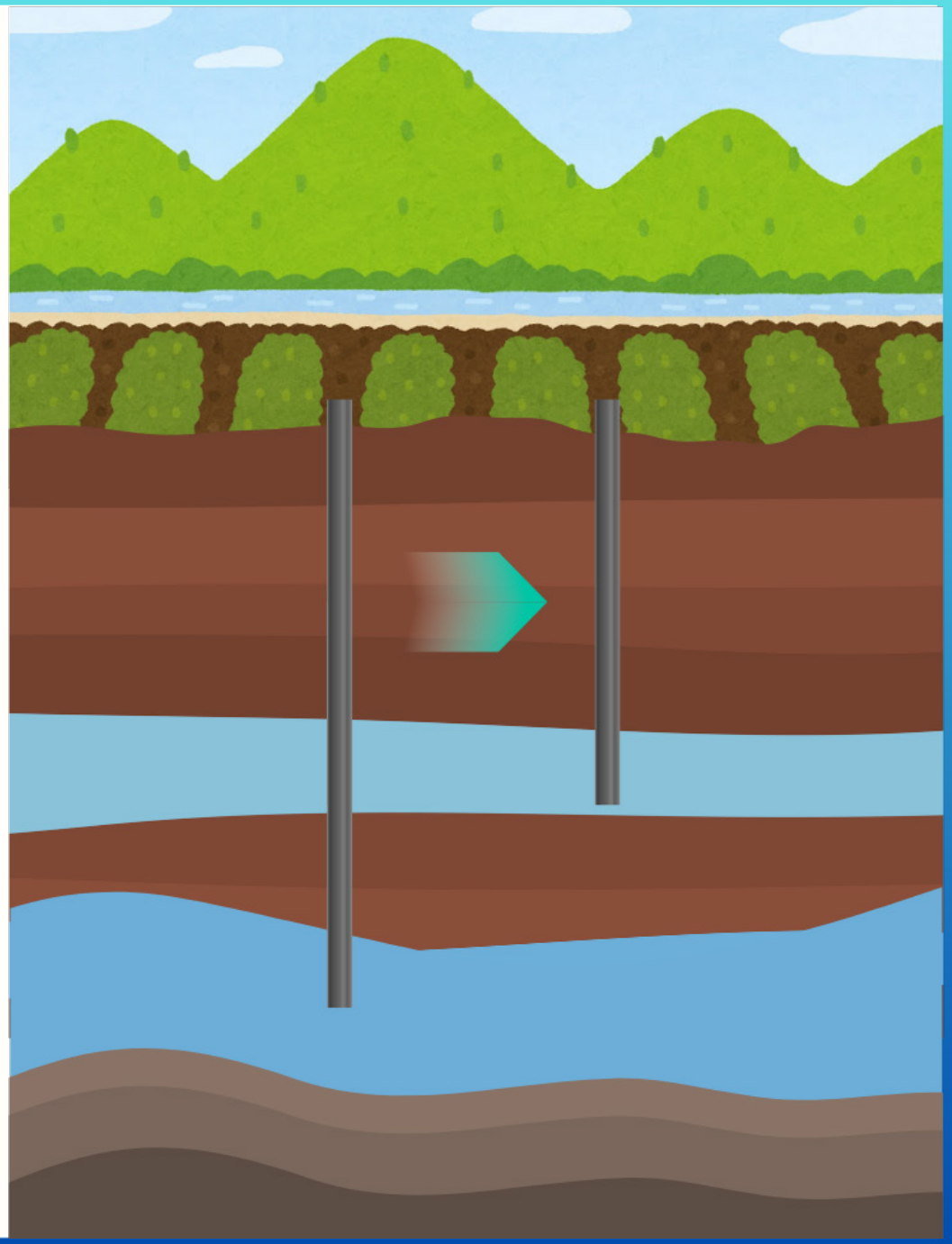


Measurable Objective

Land Subsidence

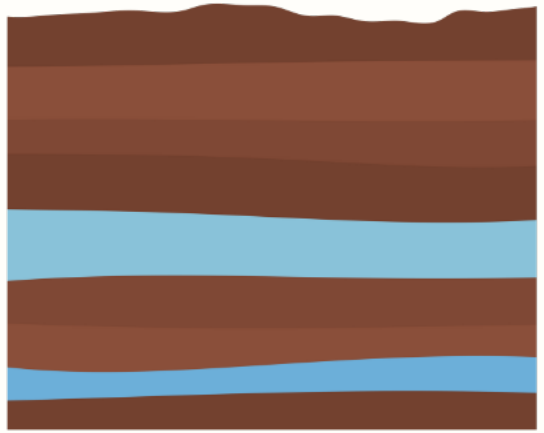
1. No subsidence

2. Requires the challenge of transitioning of groundwater pumping from the lower aquifer to the upper aquifer



DWR Deficiencies

1st Amended GSPs (2022)



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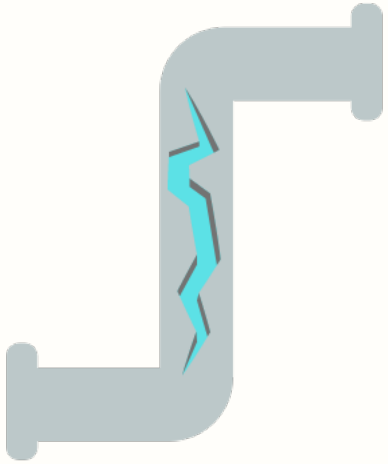


The Plan does not set subsidence sustainable management criteria that would avoid substantial interference with land surface use and critical infrastructure

The Plan does not consider how minimum thresholds for one sustainability indicator affect minimum thresholds for another

Undesirable Result

Lower Aquifer Groundwater Levels

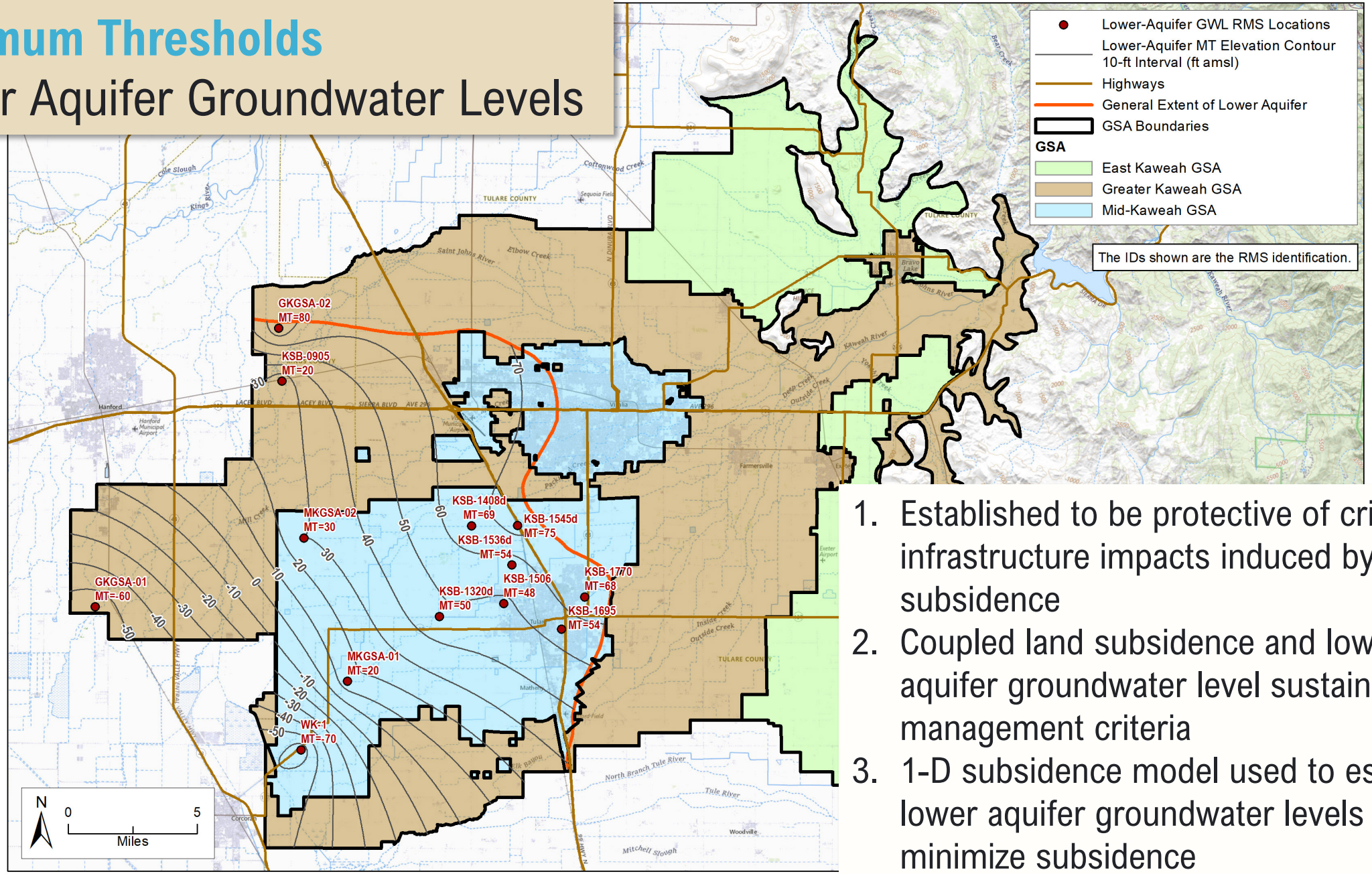
A lower aquifer groundwater level minimum threshold is exceeded at any single Representative Monitoring Site

AND

The corresponding subsidence minimum threshold (cumulative OR rate) is exceeded at any Representative Monitoring Site

Minimum Thresholds

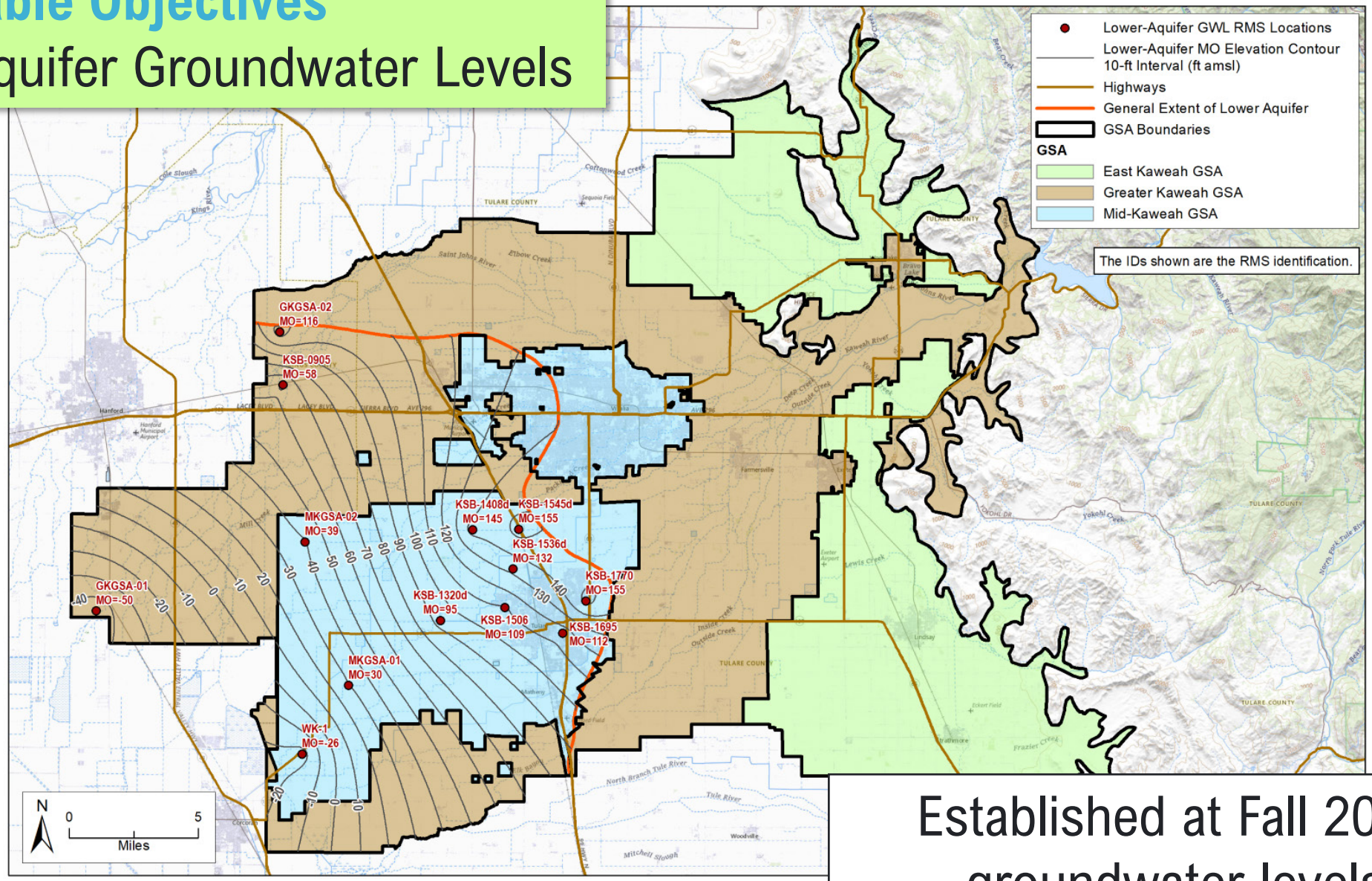
Lower Aquifer Groundwater Levels



1. Established to be protective of critical infrastructure impacts induced by land subsidence
2. Coupled land subsidence and lower aquifer groundwater level sustainable management criteria
3. 1-D subsidence model used to establish lower aquifer groundwater levels that minimize subsidence

Measurable Objectives

Lower Aquifer Groundwater Levels



Established at Fall 2012 groundwater levels


ADDRESSNG
SWRCB NEW
DEFICIENCIES

All deficiencies listed are in reference to the 2022 1st Amended GSP.

The Kaweah Subbasin has since made substantial improvements, as indicated by the status update.

DWR Deficiencies Released in March 2023	Status
1.A Groundwater Level SMC	Addressed
1.B SMC Relationships	Addressed
1.C Mitigation	Addressed
2. Land Subsidence SMC	Addressed

SWRCB Draft Staff Report Deficiencies Released in May 2024	Status
(GL)-1 Groundwater Level UR	Addressed
(GL)-2 Groundwater Level MT	Addressed
(GL)-3 SMC Relationships	Addressed
(GL)-4 Mitigation	Addressed
(LS-1) Land Subsidence SMC/Identification of Beneficial Users and Property Interests	Addressed
(LS-2) SMC Relationships	Addressed
(LS-3) Land Subsidence URs and Risk of Impacts	Addressed
(GWQ)-1 Groundwater Quality UR	In-process
(GWQ)-2A-C Groundwater Quality SMC	In-process
(GWQ)-3A-3B Groundwater Quality Monitoring	In-process
(GWQ)-4A-B Groundwater Quality Management Actions	Addressed
(ISW)-1 Interconnected Surface Water Impacts	In-process
(ISW)-2 Interconnected Surface Water MT	In-process
(ISW)-3 Interconnected Surface Water Monitoring	In-process

SMC = Sustainable Management Criteria
UR = Undesirable Result
MO = Measurable Objective
MT = Minimum Threshold


CONTINUING OUR
PATH TO
SUSTAINABILITY


2040
SUSTAINABILITY ACHIEVED
SEPTEMBER 2024
2ND AMENDED GSP SUBMITTAL
WITH SWRCB NEW DEFICIENCIES ADDRESSED
JUNE 2024
RELEASE OF DRAFT 2ND AMENDED GSP
FOR PUBLIC REVIEW
WITH DWR DEFICIENCIES ADDRESSED
2020
INITIAL GSP
SUBMITTAL
2022
1ST AMENDED
GSP SUBMITTAL
IMPLEMENTATION COMMENCES
2016
GSA
FORMATION
2015
SGMA ENACTED

The Kaweah Subbasin has projects being implemented now and more projects actively in the queue.

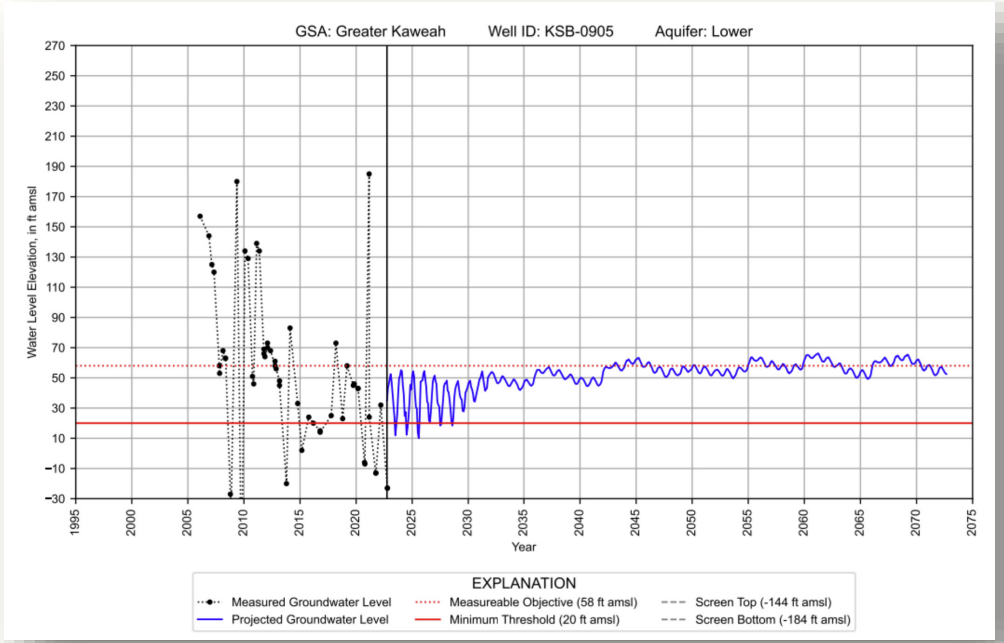
Projects Implemented as of June 2024		Projects In-Progress (Planning, Design, Construction)		Upcoming
Lakeland Canal Deliveries	Cordeniz Recharge Basin	Upper Lewis Creek Recharge	Hannah Ranch Flood Control Project	Wutchumna Ditch Recharge
Recharge Basin Improvement	Okieville Recharge Basin	Cottonwood Creek Recharge	Cross Creek Layoff Basin	Stone Corral Surface Storage
Paregien Expansion Flood Control Project	KDWCD/Visalia/Tulare ID Packwood Creek Linear Recharge Project	Yokohl Creek Recharge	New Recharge Basins	Ketchum Flood Control and Recharge Project
Greater Fallowing Program	City of Visalia/TID Exchange Program	Rancho de Kaweah Water Management & Banking Project	Kings River Surplus Water	Delta View Canal
Lower Lewis Creek Recharge	Sun World International / TID Exchange	Lindmore/Exeter Dry Wells	Greater Fallowing Program	Kings River Floodwater Arrangement
Lindsay Recharge Basin	TID/Friant Leveraged Exchange Program	Flying Dragon Recharge Basin	On-Farm Recharge	Tulare ID/City of Tulare Catron Basin
Lindmore Irrigation District Recharge Basins	Visalia Eastside Regional Park/Groundwater Recharge Project	Lindmore Irrigation District Recharge Basins	Visalia/Tulare ID Cameron Creek Linear Recharge Project	Vadose Zone Well Battery Project
		Sentinel Butte Flood Capture	MKGSA Groundwater Banking Operations	Kaweah Subbasin Multi-Benefit Recharge Facility
			McKay Point Reservoir	TID/GSA Multi-Benefit Land Repurposing Recharge Basin
				Seaborn Reservoir

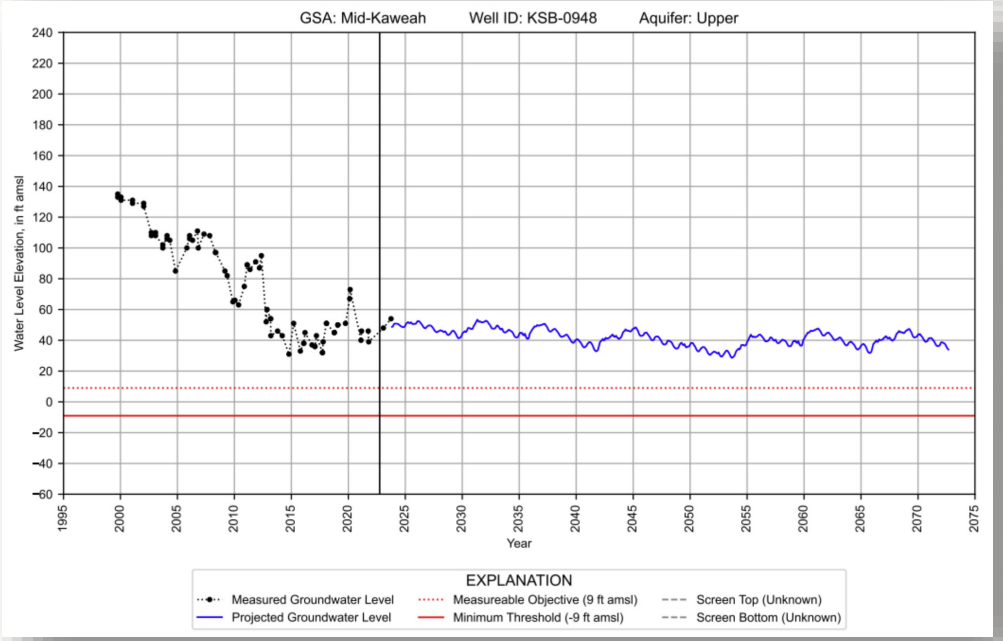
Predictive modeling can tell us if the Kaweah Subbasin's strategy will achieve the sustainability goal by 2040 and if the strategy is feasible.

Predictive Modeling Considers:

- Demand management policies (and timeline to implement)
- Implementation of Reliable Projects (and timeline to operation)
- Climate Change
- Transition of pumping from the lower aquifer to the upper aquifer

Kaweah Subbasin Technical Team has performed 97 predictive model runs





The Kaweah Subbasin will be sustainable by 2040.