

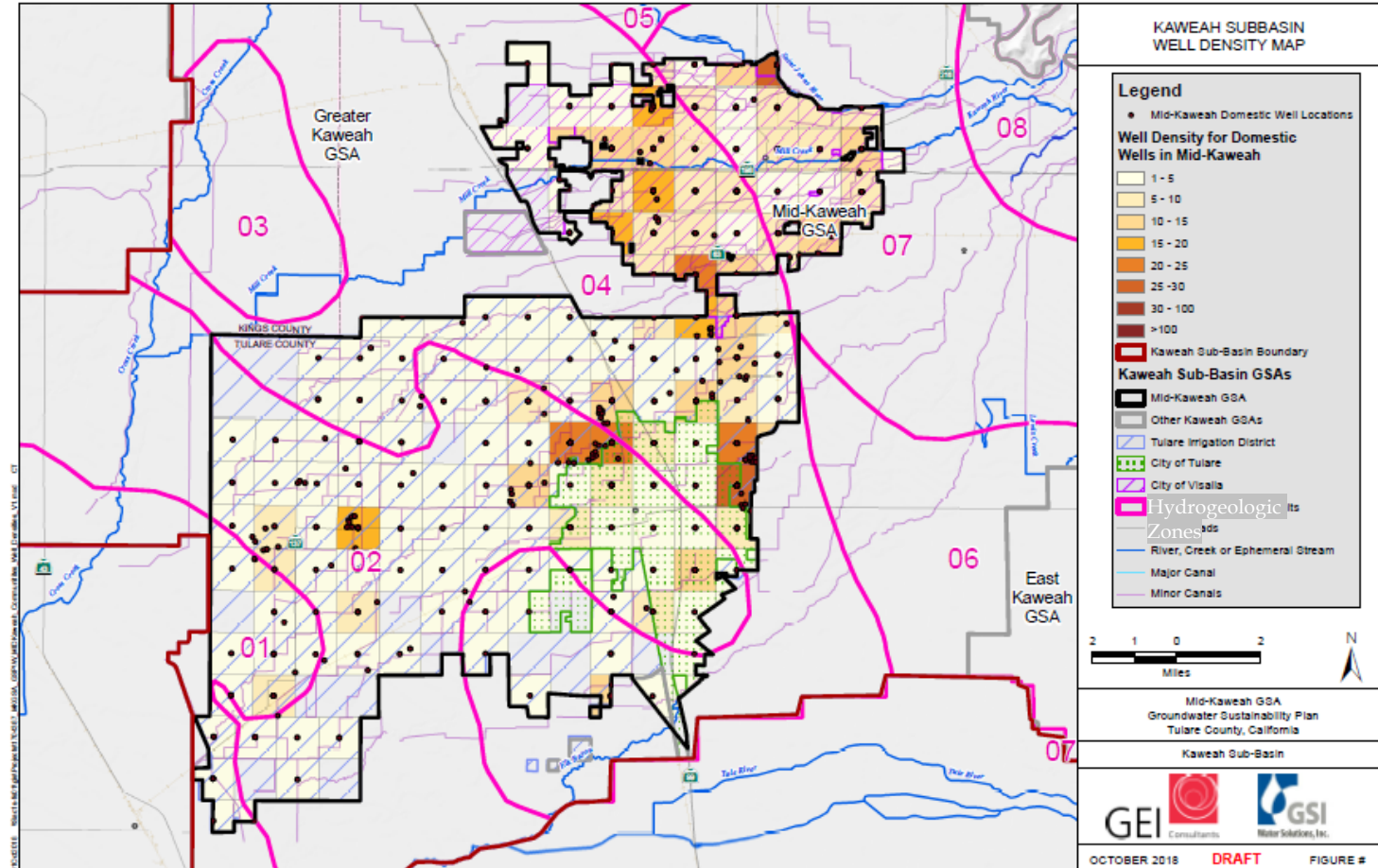
Minimum Thresholds

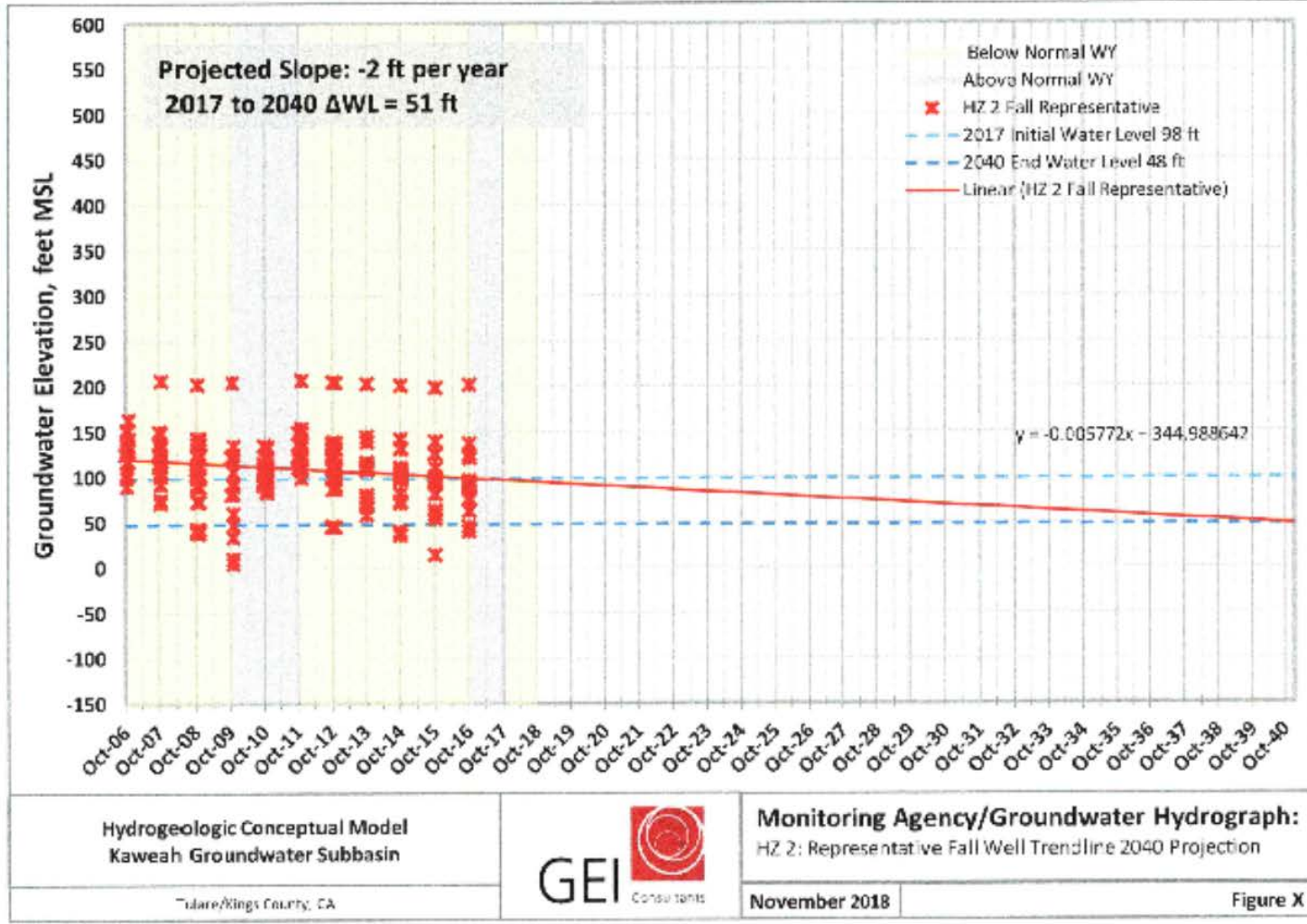
GSP Chapter 5 Confirmation of Approach



Advisory Committee
February 5, 2019

Hydrogeologic Zones and Mid-Kaweah GSA Management Areas

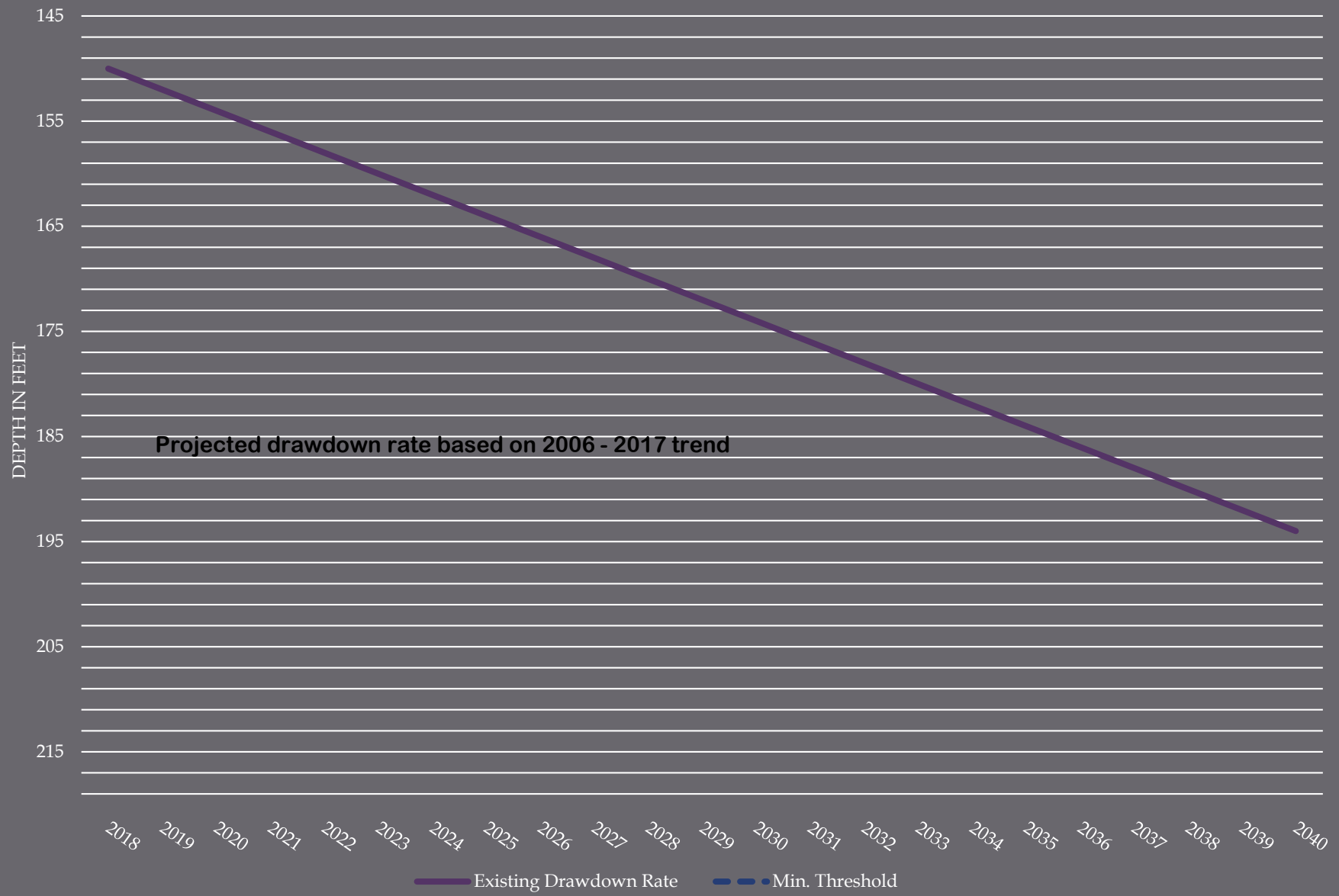




Drawdown in Zone 2



Projected Minimum Threshold



Projects & Management Actions

GSP Chapter 7



Advisory Committee
February 5, 2019

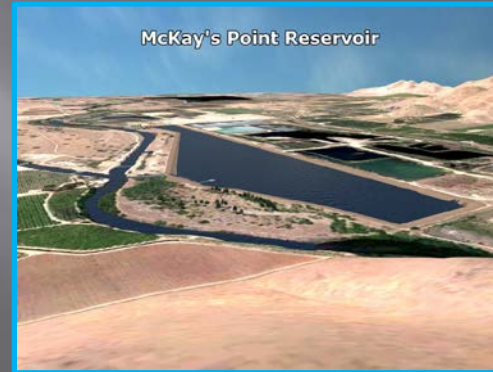
Projects Generalized



Flood Irrigation
On-Farm



Sinking Basin



Surface Storage



Friant Exchanges

Mid-Kaweah Area Projects

- ▣ Okieville Recharge Basin – completion by summer 2020; 20-ac facility w/ monitored water quality benefits to Okieville-Highland Acres CSD. Quantifiable recharge benefits for levels, storage, subsidence and water quality
- ▣ Cordeniz Recharge Basin – completed; 60-ac facility, est. 25 AF per day absorption rate. Quantifiable recharge benefits for levels, storage, subsidence and water quality
- ▣ Private Recharge Facilities – farmer pits/ponds (existing and new) for locally-assigned recharge. Benefits for levels, storage, subsidence and water quality
- ▣ On-Farm Projects – Mandatory and voluntary programs to incentivize farmers to take delivery of surplus water for below root-zone infiltration; some may involve crop buy-out provisions. Quantifiable recharge benefits for levels, storage, subsidence and water quality
- ▣ Vadose Zone Injection Wells – recharge into shallow zones for ready access to water table; est. 300-500 gpm flow rate per well

Mid-Kaweah Area Projects (cont.)

- ▣ TID/GSA Recharge Basin – est. completion by 2026; 160-ac facility w/ joint Member participation. Quantifiable recharge benefits for levels, storage, subsidence and water quality.
- ▣ TID/Visalia Exchange – completed. Quantifiable recharge benefits for levels, storage, subsidence and water quality
- ▣ TID/Sun World Exchange – completed; net water for direct or in-lieu recharge. Quantifiable benefits for levels, storage, subsidence and water quality
- ▣ TID/Friant Exchanges – leveraged exchanges, wet year direct or in-lieu recharge for dry-year returns

Mid-Kaweah Area Projects (cont.)

- ▣ Upstream Infiltration Basin – est. completion by 2030; project(s) pursued jointly by multiple GSAs for land acquisition and facility construction, served by Kaweah River and its distributaries; quantifiable recharge benefits for levels, storage
- ▣ River Siphon Rehabilitation – Inverted siphon structure rehab under St. Johns, Lower Kaweah rivers for added conveyance capacity in wet seasons and increased reliability
- ▣ GRAT – for application in locating and sizing recharge projects

Local/Regional Surface Storage Projects (cont.)

- ▣ McKay Pt Reservoir – est. completion by 2030; 4 taf off-stream reservoir served by Kaweah River being pursued by Tulare ID, Consolidated Peoples DC and Visalia-Kaweah WC as property owners. Possible expansion into adjacent mining pits for additional storage. Quantifiable net yield for direct or in-lieu recharge benefits.
- ▣ Temperance Flat Reservoir – 1.2 maf reservoir on San Joaquin River upstream of Millerton Lake. Being pursued by Friant Water Authority for regulation of flood releases and Class 1/Class 2 Friant contract supplies. To be described as potential future project at the outer end of the SGMA-mandated 50-yr Planning Horizon.

Mid-Kaweah Area Projects (cont.)

- ▣ Storm water detention/retention basins
- ▣ Dedicated sinking basins
- ▣ Tulare WWTP future effluent disposition
- ▣ Others
- ▣ Project Funding by Members

Management Actions

- ▣ Pumping Allocations – TBD based on MKGSA *projected* water budget; phased in over time as may be needed.
- ▣ Groundwater Market – no new water yield, only relocation of pumping allotments within the Mid-Kaweah area
- ▣ Urban Conservation – per latest AB 1668 and SB 606 for indoor and future outdoor/landscaping applications. Comparisons to be made with current 20X2020 goals in UWMPs

Management Actions (cont.)

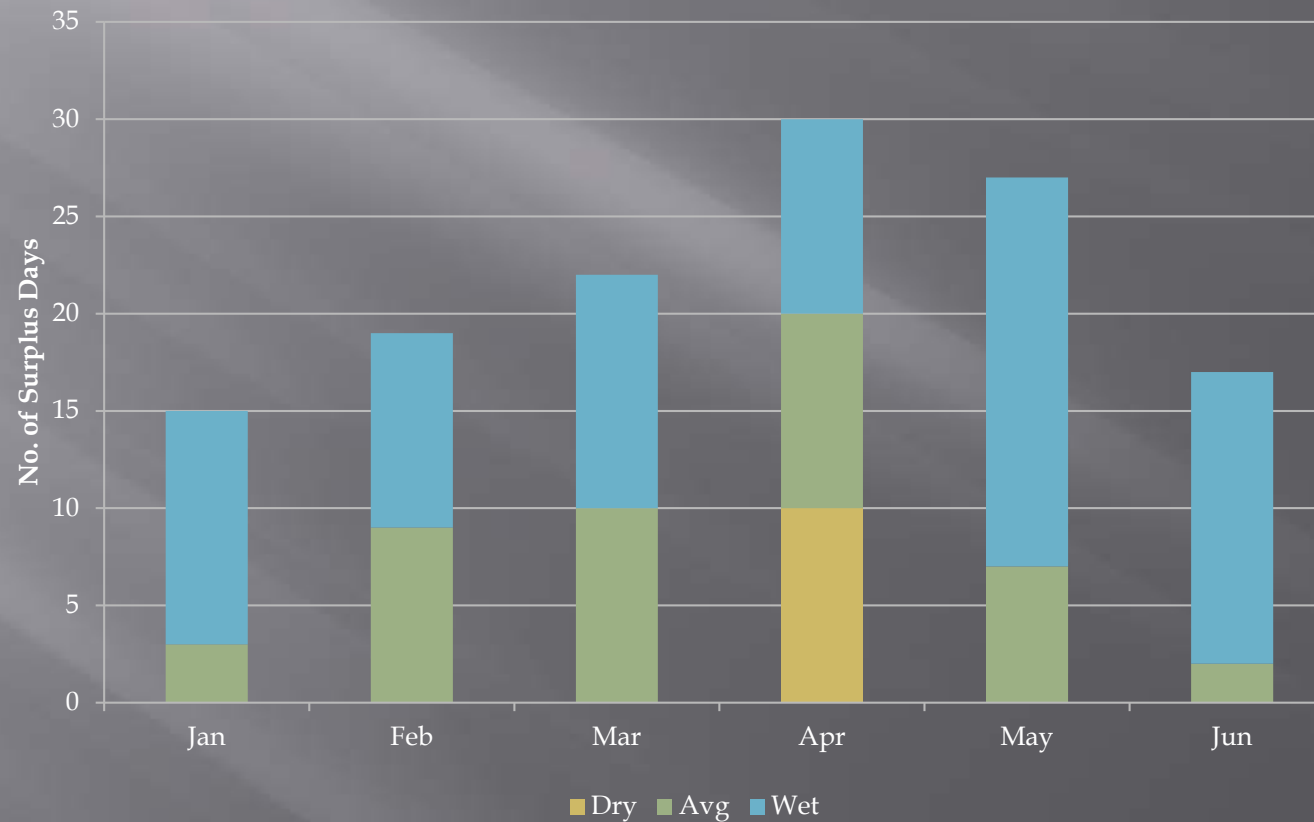
- ▣ Extraction Measurement Pgm – TID analyses for most feasible means to measure groundwater pumping as required by SGMA
- ▣ Geophysical Data Survey – Synopsis of SkyTEM data collection project in Nov 2018 and applications for future sub-basin groundwater management and sub-basin numerical model
- ▣ Domestic Well Mitigation – extent to be determined; may include omission from GSA regulatory actions, technical consultation, assistance w/ RO installations; water quality sampling, etc.

Balance of Chapter 7

- ▣ **Implementation Plan**
 - Completion Schedule
 - Cumulative Accomplishments
 - Relationship to Measurable Objectives
- ▣ **Benefits Analysis**
 - For Surface Water Recharge
 - For Flood Flow Capture

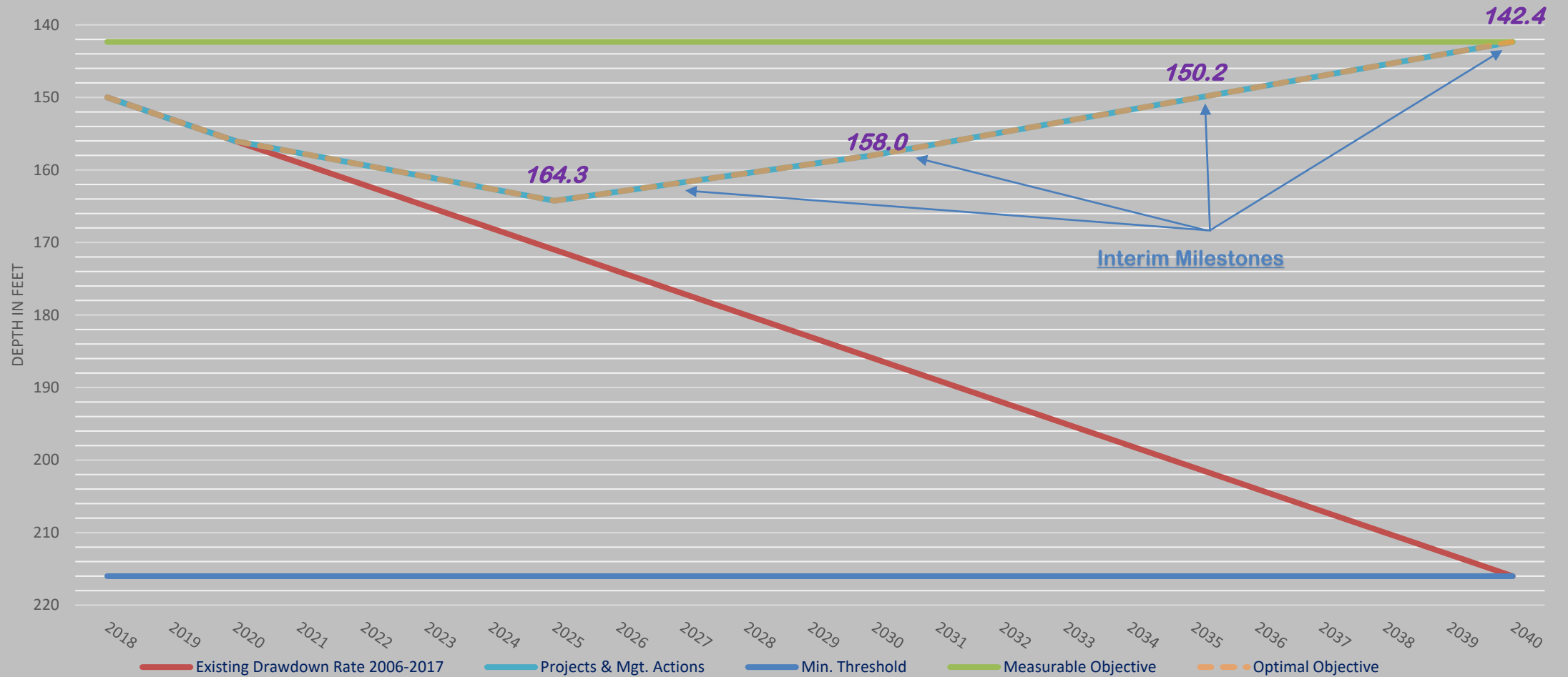
Surplus Water for Recharge

Surplus Water Available to TID



Preliminary results – TID surplus water *on average* 50 to 60 days/yr; aggregate new water 30-40 taf/yr

Project Benefits Accrual



Next Steps

- ▣ Review with Technical Sub-Committee
- ▣ Incorporation of Mid-Kaweah Water Budget to Define Project Implementation
- ▣ Review with Management Committee
- ▣ Review with GSA Board
- ▣ Inclusion as draft in Groundwater Communications Portal, GSA Website

KSB Basin Setting Status

- KSB Managers and GSA TAC recently completed review of December 1, 2019 Draft Basin Setting
- GEI Team plans to incorporate KSB Managers' comments by end of February addressing these issues:
 1. Decrease Kaweah River and CVP Water deliveries
 2. Decrease Mountain Front Recharge in EKGSA and portions of GKGSA
 3. Recalculate percolation or precipitation and applied water during period 1981-1999 using different methodology
 4. Improve boundary flux estimates using numerical groundwater model
 5. Document the specific yield method for calculating change in groundwater basin storage
- GSA tech. representatives determining the hydrologic period to be used in describing the Current Water Budget

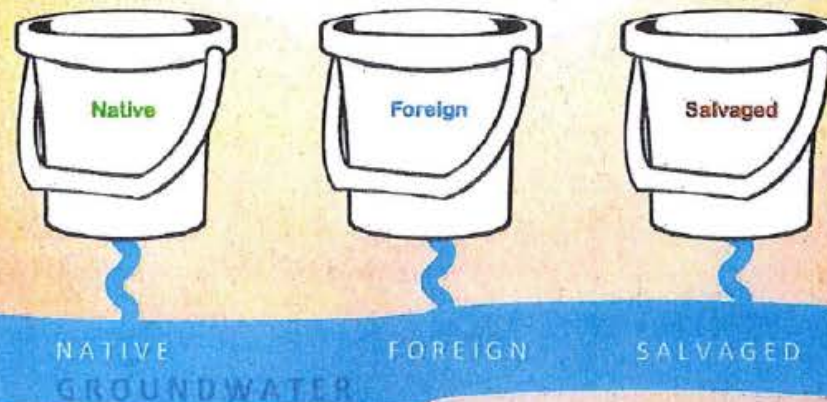
Next Step - Water Budget Allocation

Groundwater Budget Components – Overlay w/ Native/Foreign/Salvaged Concepts GEI Analysis Task

- Natural, man-made channel seepage from imported sources
- Sinking basin infiltration from imported sources
- Irrigation return flows from imported sources

Segregation by Appropriator method

Greater Kaweah Legal Memo “Three Buckets”



- Precipitation
- Natural channel seepage from Kaweah sources
- Irrigation return flows from pumped local groundwater
- Mountain front inflows

Segregation by Common (GSA acreage) method

- Man-made channel seepage from Kaweah sources
- Storm water return flows
- WWTP return flows
- Sinking basin infiltration from Kaweah sources
- Irrigation return flows from appropriated Kaweah sources

Segregation by Appropriator method