GSP PUBLIC REVIEW

Borrego Valley Groundwater Basin
Borrego Springs Subbasin
Summary of Draft Groundwater Sustainability Plan (GSP)
Key Concept Slides

Updated March 22, 2019

Public Review Process

The County of San Diego (County) and the Borrego Water District (BWD), as the groundwater sustainability agency (GSA) for the Borrego Valley Groundwater Basin (BVGB), have developed a Groundwater Sustainability Plan (GSP, Plan) in compliance with the 2014 Sustainable Groundwater Management Act (SGMA) (California Water Code Section 10720–10737.8, et al.) and the Department of Water Resources (DWR) GSP Regulations (California Code of Regulations, Title 23, Section 350 et seq.). The GSP is required to be adopted by January 31, 2020.

SGMA does not require any public review period prior to adoption. The GSA, however, has added a 60-day public review period to ensure stakeholders and other interested parties have an opportunity to review and comment on the GSP prior to adoption. The public review period of the draft GSP is open from March 22, 2019 – May 21, 2019 (60 calendar days). It is available for review at the following locations:

- Internet: https://www.sandiegocounty.gov/content/sdc/pds/SGMA/borrego-valley.html

- Hard Copy (for on-site review only):
  - County of San Diego, Planning & Development Services, 5510 Overland Avenue, First Floor, San Diego, California
  - Borrego Water District, 806 Palm Canyon Drive, Borrego Springs, CA
  - Borrego Springs Library, 2580 Country Club Road, Borrego Springs, CA

Comments on the draft GSP must be received by the GSA **no later than May 21, 2019**. Please be sure to reference the project name and send comments via e-mail or US Mail to:

- E-mail: PDS.LUEGGroundWater@sdcounty.ca.gov

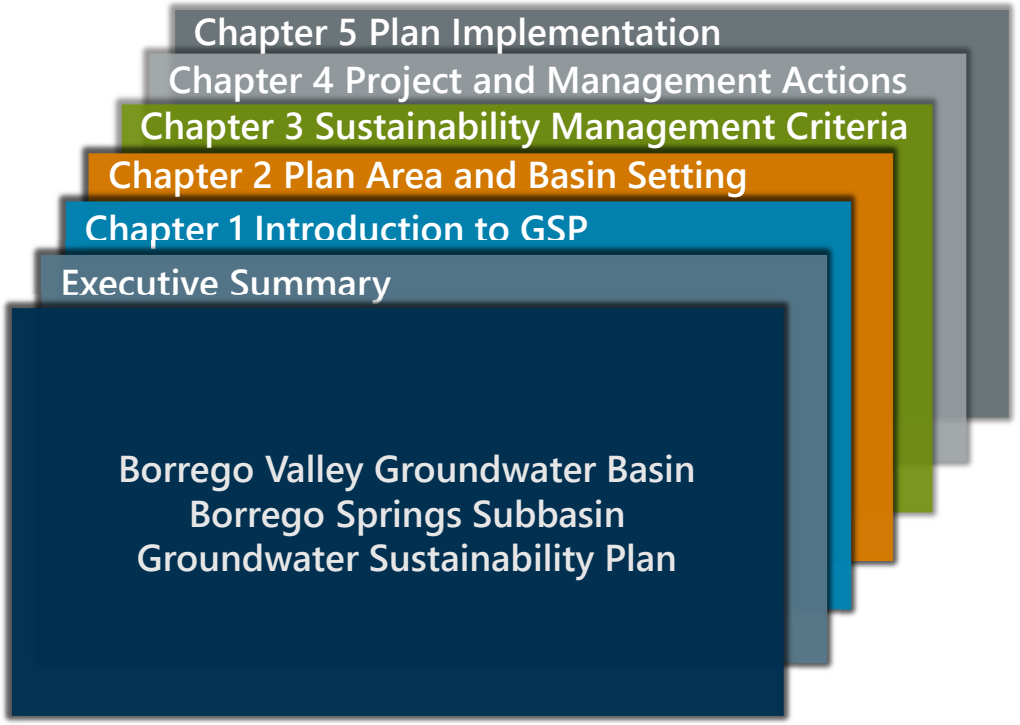
- US Mail: County of San Diego
  Planning & Development Services
  C/O: Jim Bennett
  5510 Overland Avenue, Suite 310
  San Diego, CA 92123

GSP Organization

This presentation provides key concepts of information contained within the Groundwater Sustainability Plan (GSP) broken down by chapter. Please refer to the specific GSP chapter for more information.

The GSP is organized as follows:

- ES — Executive Summary
- 01 — Chapter 1 Introduction to GSP
- 02 — Chapter 2 Plan Area and Basin Setting
- 03 — Chapter 3 Sustainable Management Criteria
- 04 — Chapter 4 Projects and Management Actions
- 05 — Chapter 5 Plan Implementation



Chapter 1: Introduction to GSP

Chapter 1 describes the intent of SGMA, the purpose of the GSP, the GSA structure, and SGMA Legal Authority.

Purpose of GSP: Achieve groundwater sustainability by 2040 in compliance with SGMA and its regulations; the GSP is to adopted no later than 1/31/2020 to avoid State Water Resources Control Board intervention

Groundwater Sustainability Agency (GSA): County of San Diego and Borrego Water District (BWD), co-equal partnership in management of the Borrego Springs Subbasin

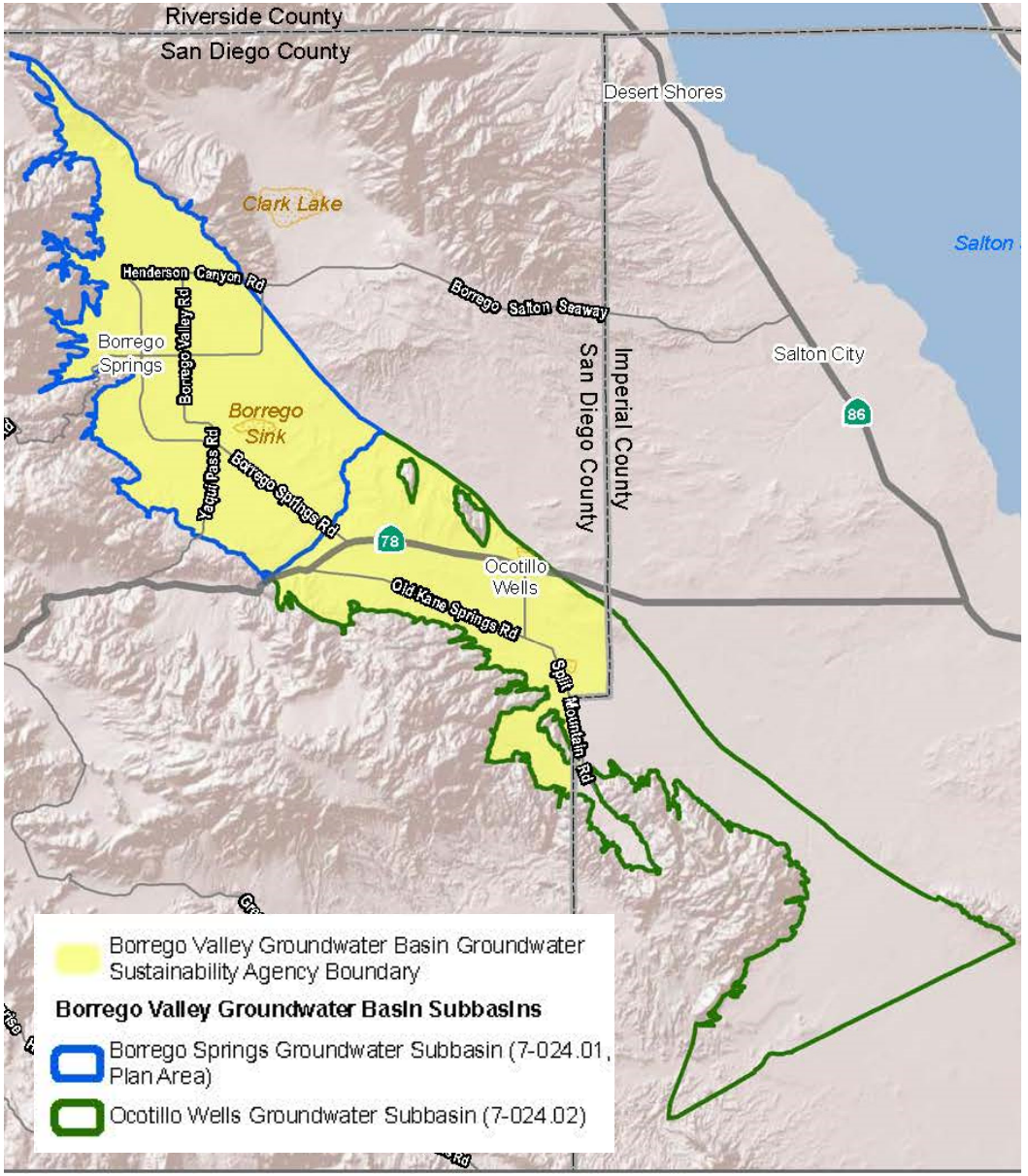
Nine Member GSP Advisory Committee:

- ❑ Borrego Water Coalition (four members, one agricultural, one recreation, one independent pumper, and one at-large member)
- ❑ Anza-Borrego Desert State Park
- ❑ Borrego Springs Community Sponsor Group
- ❑ Borrego Stewardship Council
- ❑ Borrego Water District Ratepayer Representative
- ❑ San Diego County Farm Bureau

SGMA Legal Authority: Governor Brown signed SGMA into law 9/16/2014, effective 1/1/2015

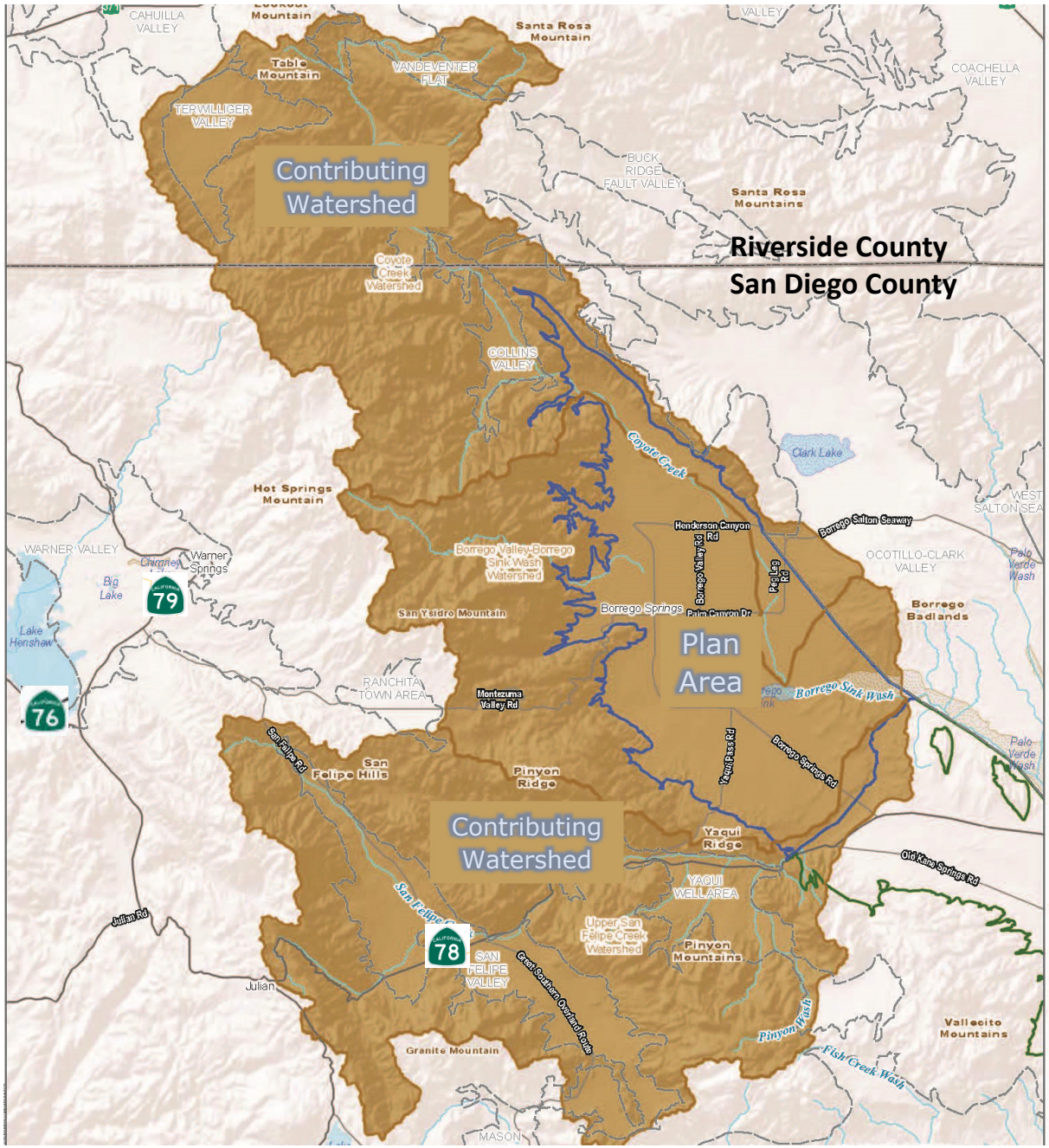
Chapter 1: Introduction to GSP

The Borrego Valley Groundwater Basin is subdivided into two separate subbasins, the Borrego Springs Subbasin (outlined in blue) and the Ocotillo Wells Subbasin (outlined in green). This GSP was prepared to sustainably manage the Borrego Springs Subbasin, which is designated by the Department of Water Resources (DWR) as high priority and critically overdrafted. The Ocotillo Wells Subbasin is designated very low priority and is not required by DWR to be sustainably managed.



Chapter 2: Description of Plan Area

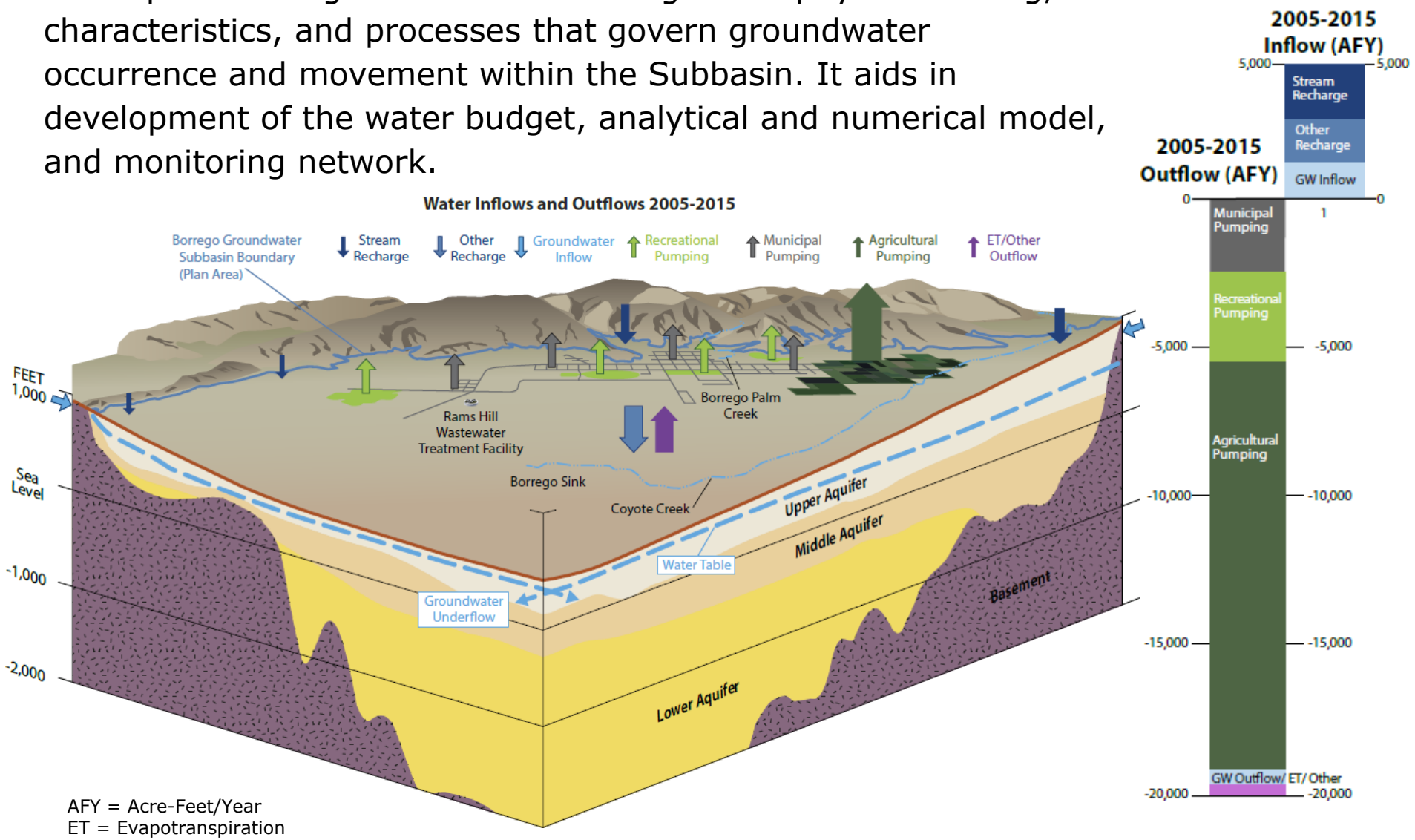
Description of Plan Area: Section 2.1 describes the Plan Area defined as the Borrego Springs Subbasin and the contributing watersheds which provide the majority of groundwater recharge to the Plan Area. It also includes jurisdictional areas, existing water resource monitoring and management programs, land use, and additional components.



Chapter 2: Basin Setting: Hydrogeologic Conceptual Model

Section 2.2.1 describes the **Hydrogeologic Conceptual Model** which provides a general understanding of the physical setting, characteristics, and processes that govern groundwater occurrence and movement within the Subbasin. It aids in development of the water budget, analytical and numerical model, and monitoring network.

DRAFT WORKPRODUCT

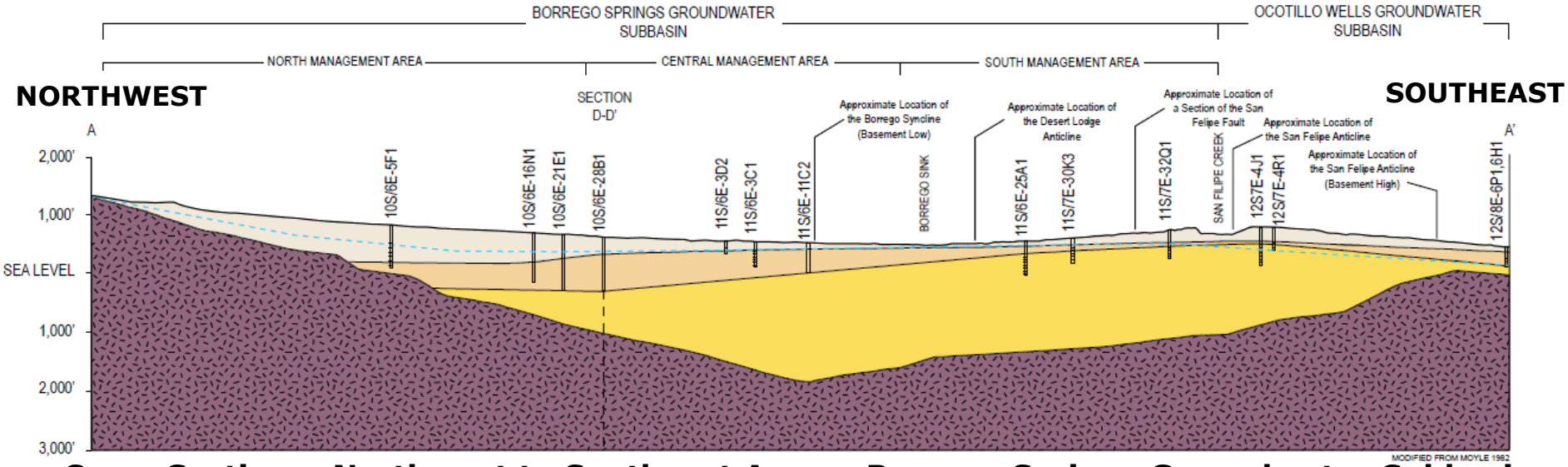


AFY = Acre-Feet/Year
ET = Evapotranspiration
GW = Groundwater

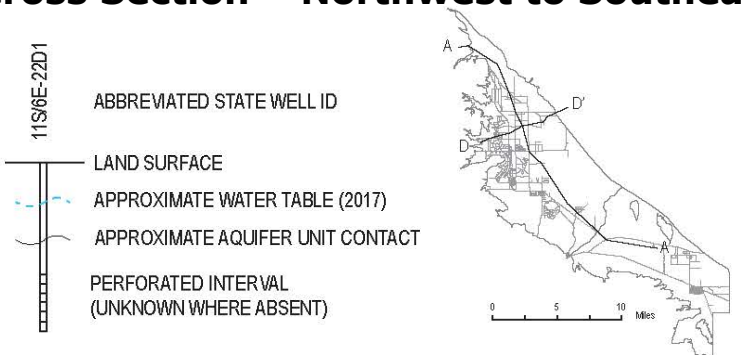
Chapter 2: Basin Setting: Hydrogeologic Conceptual Model

Section 2.2.1.3 describes the three aquifers in which groundwater is obtained:

- UPPER AQUIFER: Coarse unconsolidated sediments, highest yielding wells up to 2,000 gallons per minute
- MIDDLE AQUIFER: Moderately consolidated gravel to silty sediments
- LOWER AQUIFER: Partly consolidated gravel, sand, silt/clay, lower yielding wells than middle/upper aquifers
- BEDROCK



Cross Section – Northwest to Southeast Across Borrego Springs Groundwater Subbasin

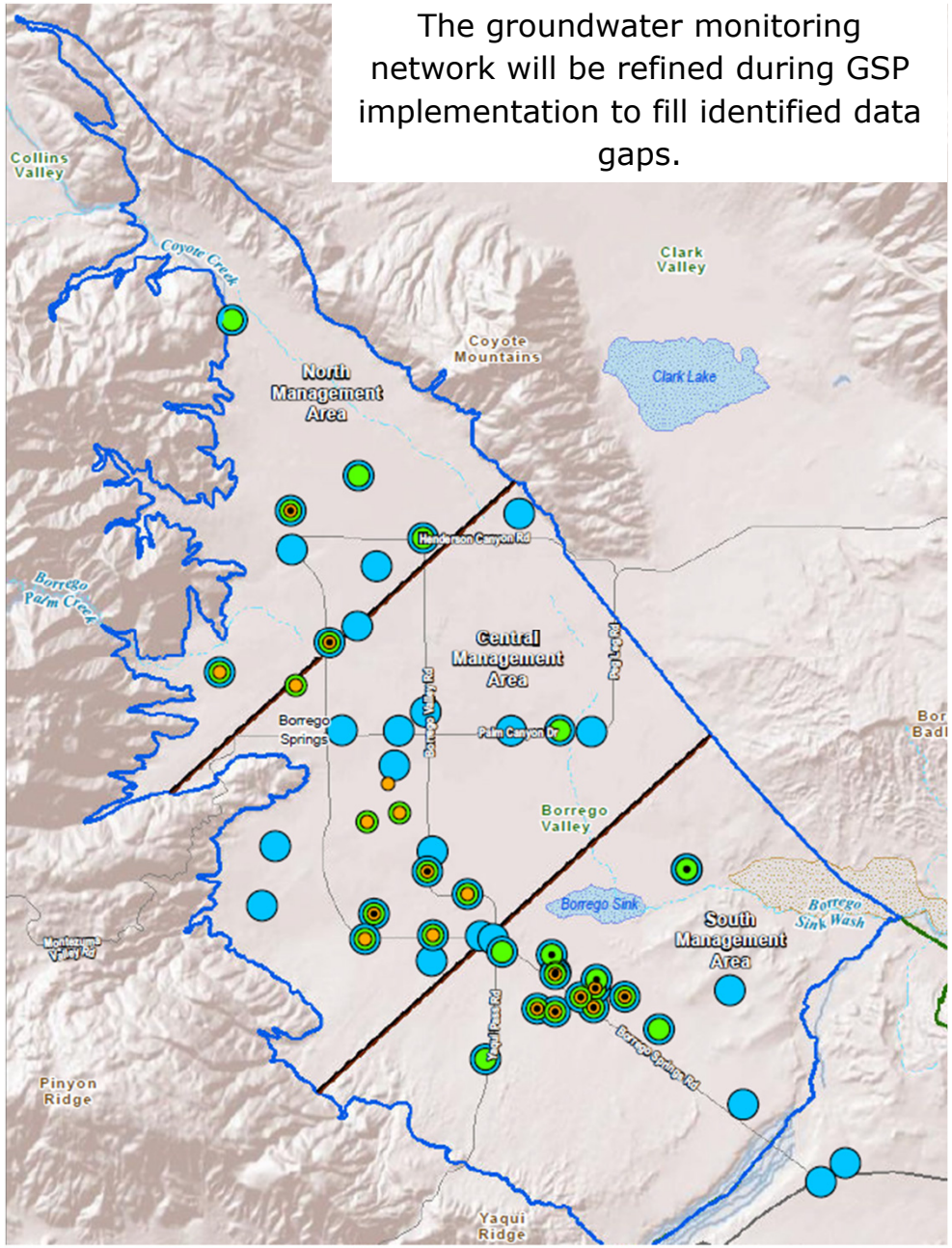


Chapter 2: Groundwater Monitoring Network

Section 2.2.2 describes the groundwater monitoring network that has been established by the GSA to track progress towards sustainability goals outlined in Chapter 3 of the GSP. The following provides the number of wells being monitored as of the Fall of 2018:

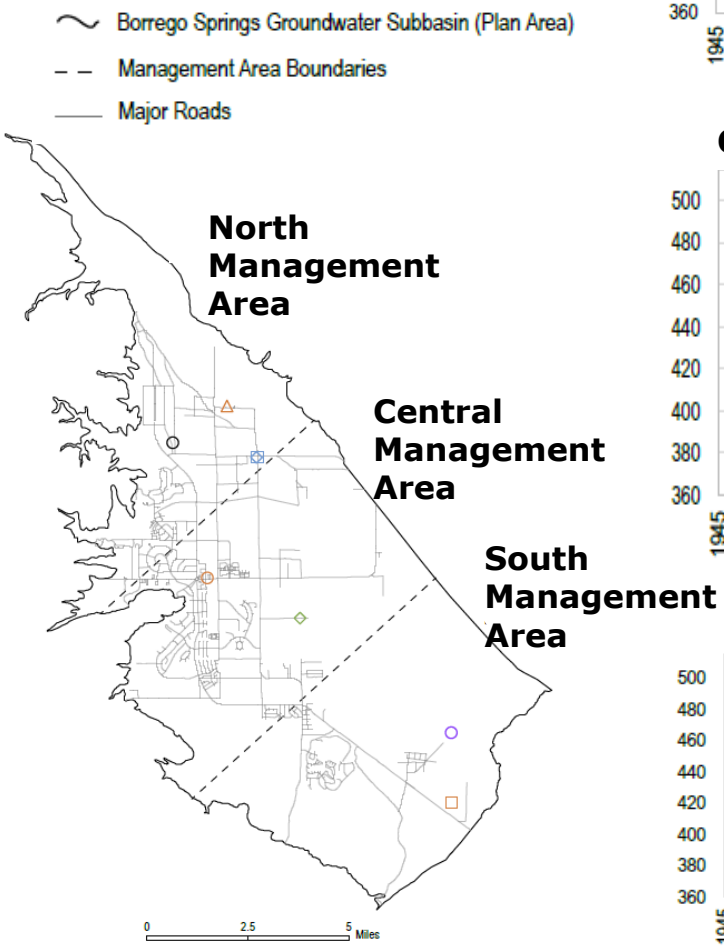
- **Groundwater Production:** 19 wells to track quantity produced (Note: At GSP implementation, all wells using >2 acre-feet/year will be required to report production to the GSA).
- **Groundwater Quality:** 30 wells monitored semi-annually to track water quality.
- **Groundwater Elevations:** 46 wells monitored semi-annually to track groundwater levels.
- **Pressure Transducers:** 17 wells are equipped to collect groundwater levels at frequencies as high as every 15 minutes.

The groundwater monitoring network will be refined during GSP implementation to fill identified data gaps.

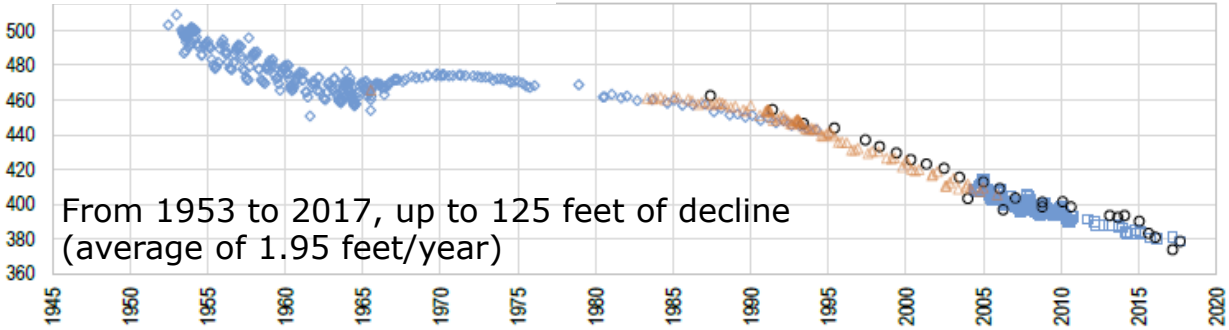


Chapter 2: Historical Groundwater Levels

Section 2.2.2.1 describes current and historical groundwater levels in the Subbasin.

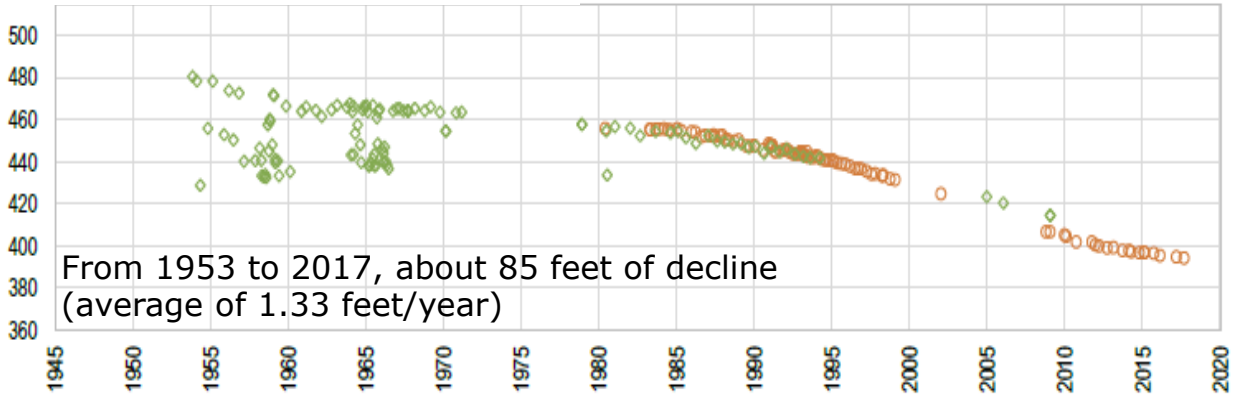


North Management Area:



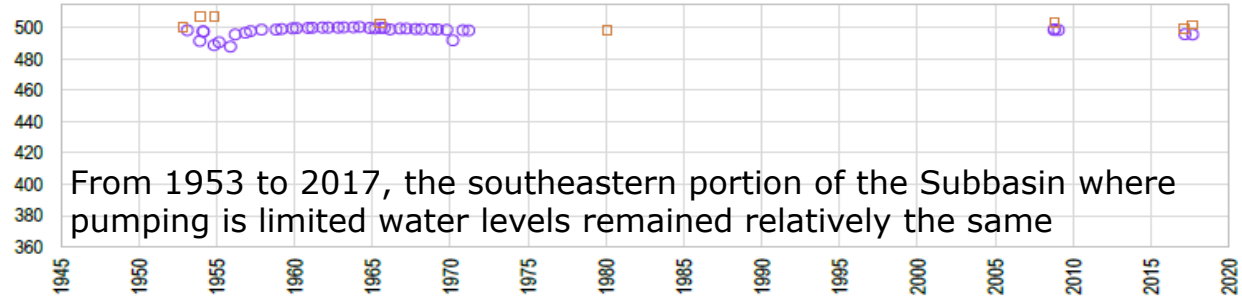
From 1953 to 2017, up to 125 feet of decline (average of 1.95 feet/year)

Central Management Area:



From 1953 to 2017, about 85 feet of decline (average of 1.33 feet/year)

South Management Area:

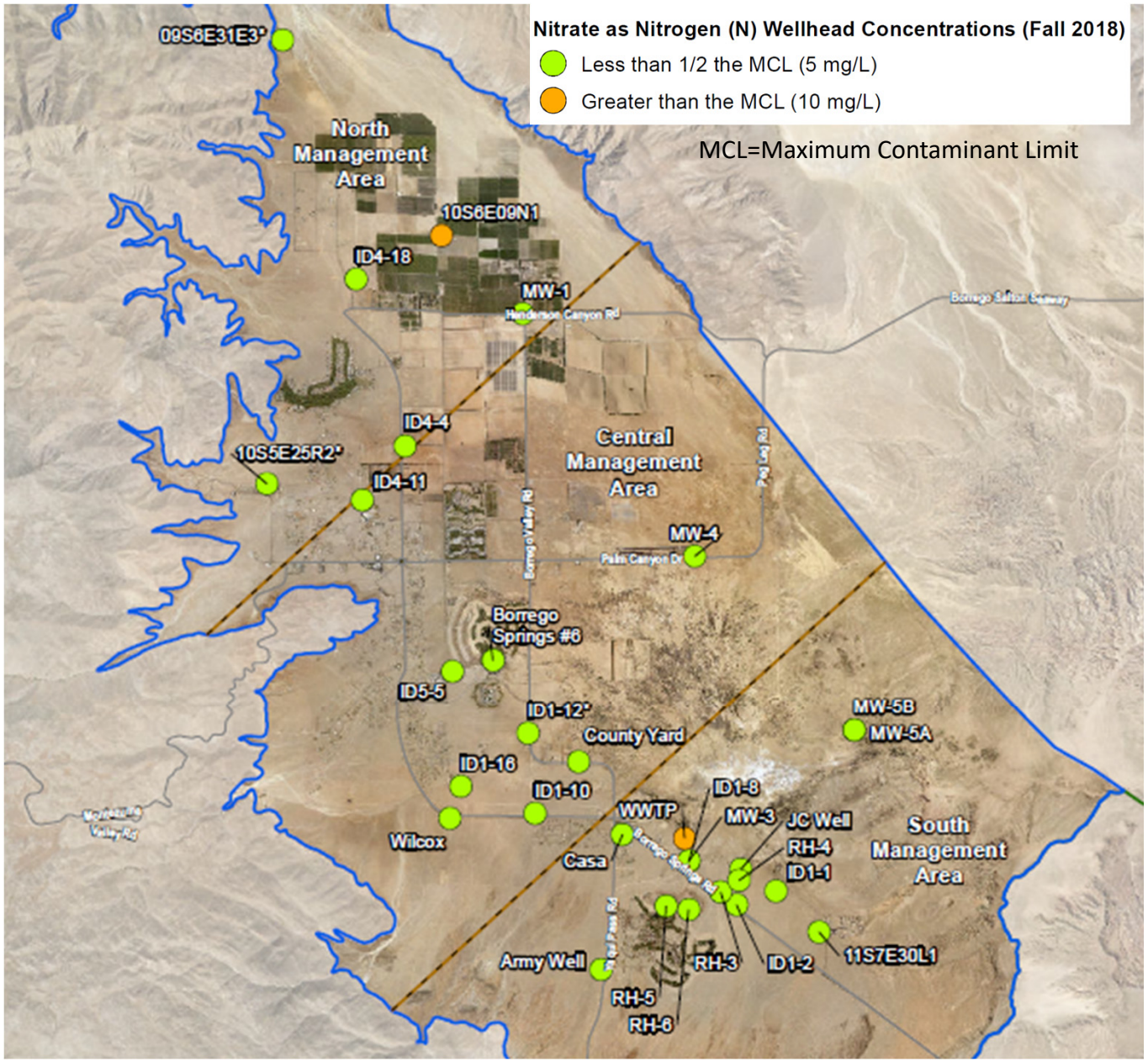


From 1953 to 2017, the southeastern portion of the Subbasin where pumping is limited water levels remained relatively the same

Chapter 2: Groundwater Quality

Section 2.2.2.4 summarizes groundwater quality conditions within the Subbasin for water quality constituents of concern. This figure shows nitrate concentrations from the Fall 2018 water quality sampling event.

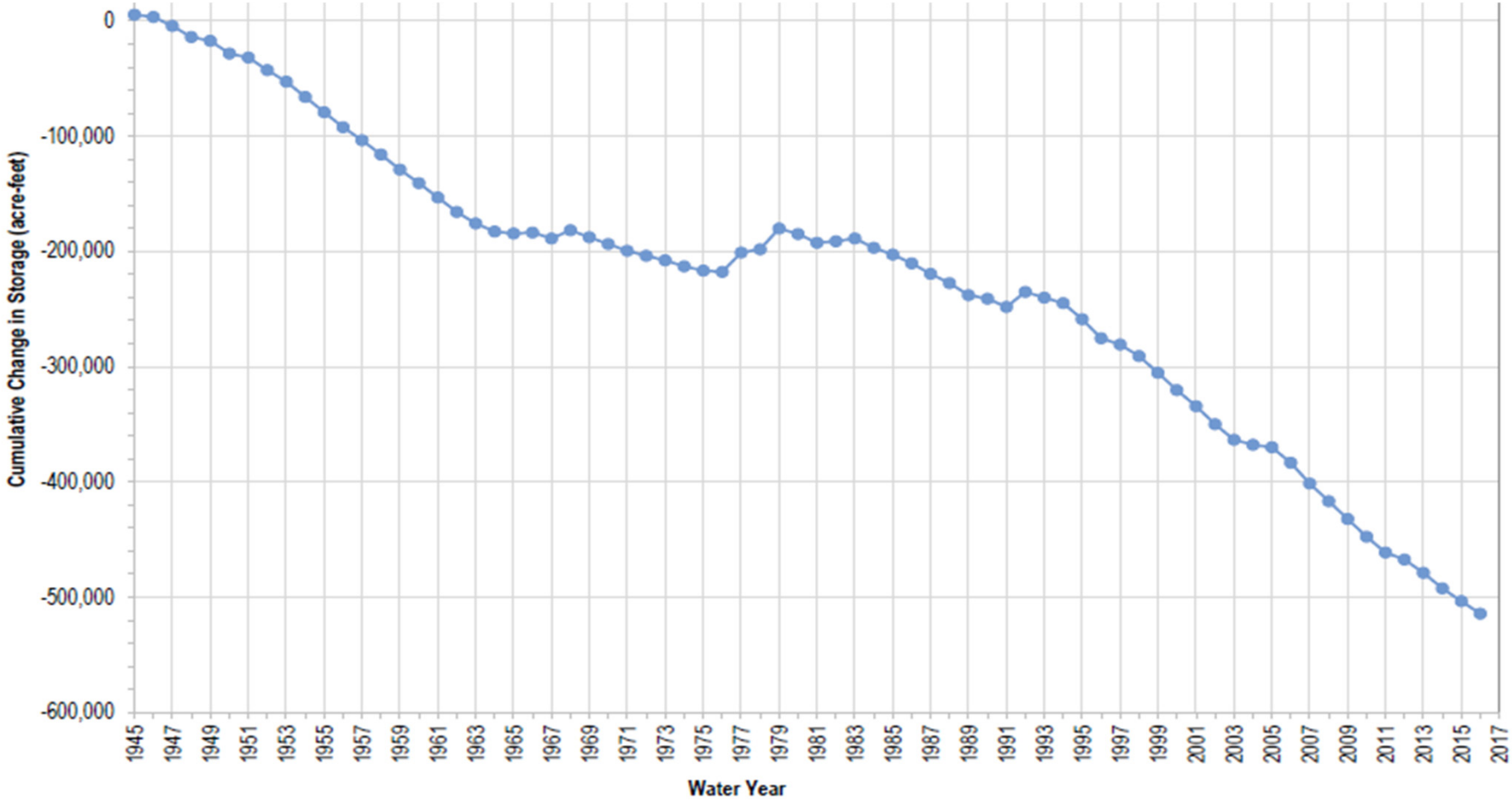
While historically groundwater quality has generally been good within BWD wells, nitrate has been an issue in a few wells and high salinity, poor-quality water is thought to occur in deeper materials in select portions of the Subbasin.



Note: The one well in the southern management area denoted as orange (exceeds the MCL for nitrate) is a monitoring well adjacent to a wastewater treatment plant.

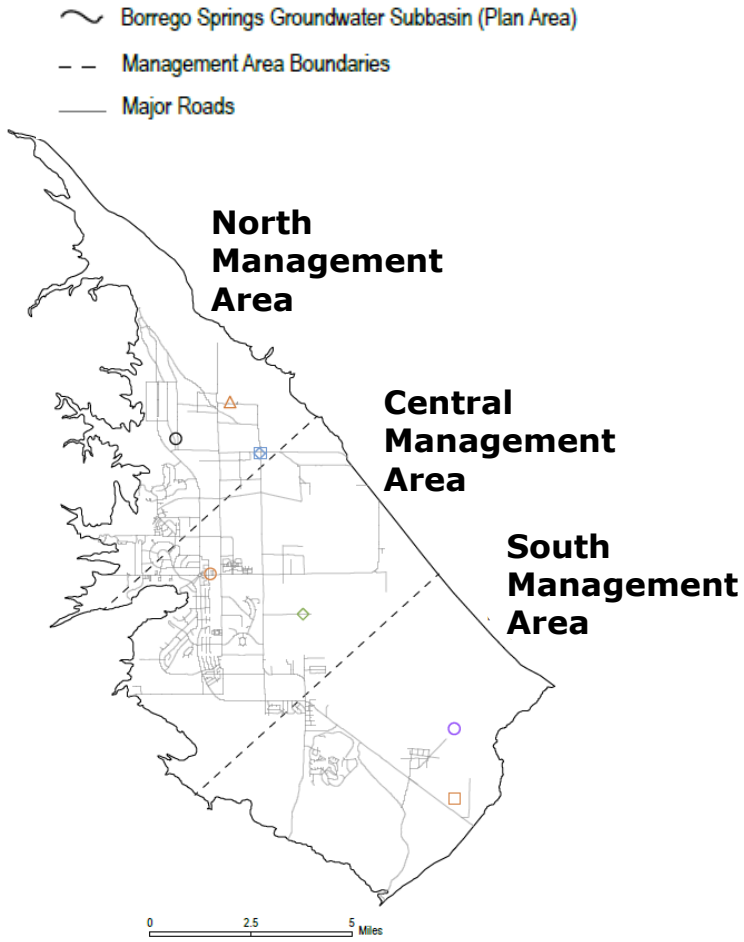
Chapter 2: Water Budget

Section 2.2.3 describes the water budget for the Subbasin which provides an accounting and assessment of the average annual volume of groundwater and surface water entering and leaving the Subbasin from 1945 through 2016. The following figure depicts the cumulative change in storage by year. It is estimated that approximately 520,000 acre-feet have been removed from storage, indicating a long-term overdraft condition. 2018 pumping of approximately 19,656 acre-feet exceeds the estimated sustainable yield of 5,700 acre-feet/year.



Chapter 2: Management Areas

SGMA allows the use of management areas to sustainably manage the Subbasin. As described in Section 2.2.4, the GSP includes three management areas.



Chapter 3: Sustainability Goal

Section 3.1 describes the overarching sustainability goal for the Subbasin which is to ensure that by 2040, and thereafter, the Subbasin is operated within its sustainable yield and avoids undesirable results as defined within the GSP.

Sections 3.3 and 3.4 include development of "minimum thresholds" and "measurable objectives" to avoid undesirable results for the following sustainability indicators:

1. Chronic Lowering of Groundwater Levels
2. Reduction of Groundwater Storage
3. Degraded Water Quality

The term "measurable objective" is the ideal target for meeting the sustainability goal, and the "minimum threshold" would be the absolute limit to avoid an undesirable result.

Chapter 3: Chronic Lowering of Groundwater Levels

The following summarizes Sections 3.2 through 3.4 approach to address chronic lowering of groundwater levels in the Subbasin.

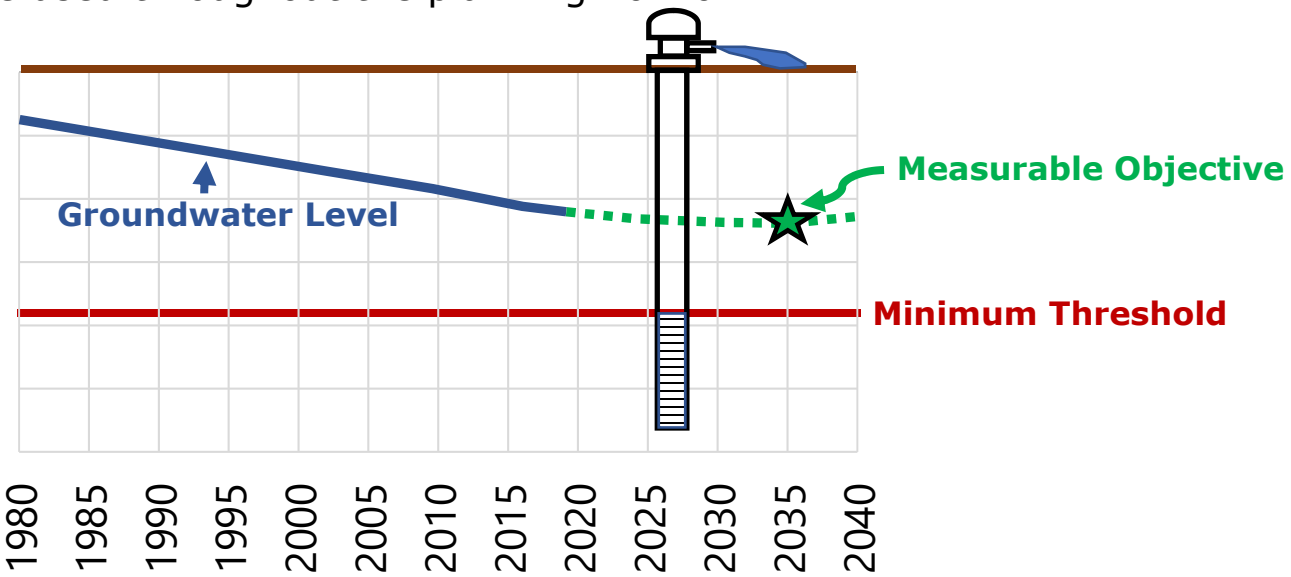
GSA Sustainability Goals:

- Groundwater levels stabilize or improve
- Maintain groundwater above minimum threshold (saturated screened intervals of key municipal wells

Undesirable Results: if water levels drop to levels no longer able to support groundwater production wells (overlying beneficial uses)

Measurable Objective: Maintain groundwater levels within modeled groundwater levels from the Borrego Valley Hydrogeologic Model. This is based on reaching sustainable yield within 20 years and includes required climate change factors.

Minimum Threshold: Maintain groundwater above saturated screened intervals of key municipal wells to be used throughout the planning horizon.



Note: this graphic is not in the GSP and is intended to clarify the concepts presented.

Chapter 3: Reduction of Groundwater in Storage

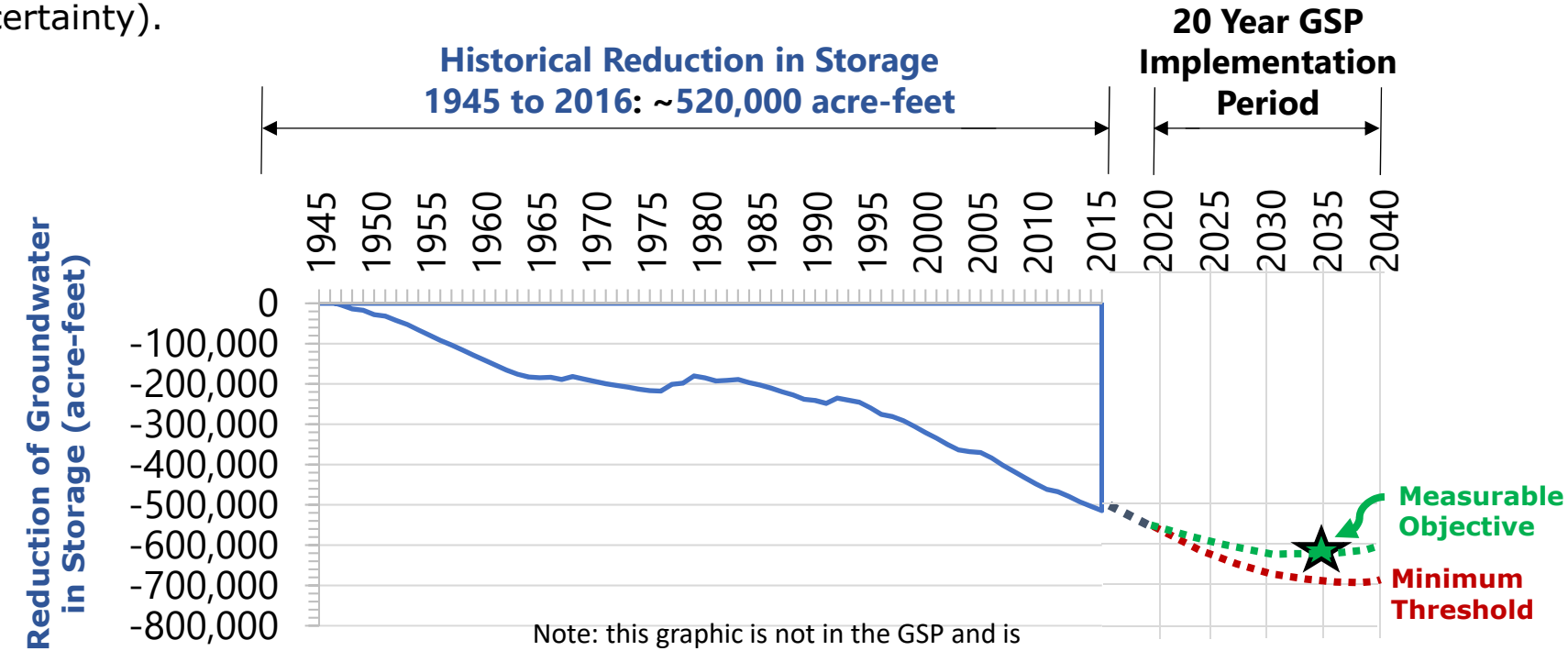
The following summarizes Sections 3.2 through 3.4 approach to address reduction of groundwater storage in the Subbasin.

GSA Sustainability Goal: Long-term use less than or equal to sustainable yield (~5,700 acre-feet/year)

Undesirable Results: Reduction in storage is at a level no longer able to support groundwater production wells (overlying beneficial uses)

Measurable Objective: From 2020 to 2040, allow no more than ~72,000 acre-feet additional reduction in storage (simulated using the Borrego Valley Hydrogeologic Model).

Minimum Threshold: From 2020 to 2040, allow no more than ~145,000 acre-feet additional reduction in storage (provides operational flexibility taking into account future climate uncertainty).



Note: this graphic is not in the GSP and is intended to clarify the concepts presented.

Chapter 3: Degraded Water Quality

The following summarizes Sections 3.2 through 3.4 approach to address water quality in the Subbasin.

GSA Sustainability Goal: For municipal and domestic wells, generally exhibit stable or improving trend for identified constituents of concern: (arsenic, nitrate, sulfate, & total dissolved solids), or meets State of California Title 22 drinking water standards

Undesirable Results: Degraded water quality no longer able to support groundwater production wells (overlying beneficial uses)

Measurable Objective: For municipal and domestic wells, generally exhibit stable or improving trend for identified constituents of concern. For irrigation wells, generally suitable for agricultural use.

Minimum Threshold: For municipal and domestic wells, meets California Title 22 drinking water standards. For irrigation wells, generally suitable for agricultural use.

Chapter 4: Projects and Management Actions

The following are project and management actions proposed to achieve the sustainability goal of the Subbasin:

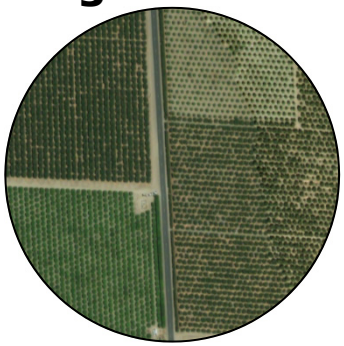
Section 4.2: Project and Management Action #1 – Water Trading Program

- The Program would enable permanent transfer and potentially long-term or short-term lease of Baseline Pumping Allocations.
- The Program would replace the existing Borrego Water District Water Credits Program.

Section 4.3: Project and Management Action #2 – Water Conservation

The Program would consist of separate components for the three primary sectors to maximize water conservation and water efficiency:

Agriculture



Municipal

Golf Courses

Section 4.4: Project and Management Action #3 – Pumping Reduction

Program The Program would develop a schedule to reduce Subbasin pumping to the estimated sustainable yield by the year 2040.

Section 4.5: Project and Management Action #4 – Voluntary Fallowing of Agricultural Land

The Program would develop the method to convert existing irrigated agriculture to fallowed land (or other low water uses).

Section 4.6: Project and Management Action #5 – Water Quality Optimization

As needed in the future, both direct treatment and indirect options are included in the GSP to optimize groundwater quality and its use.

Section 4.7: Project and Management Action #6 – Intra-Subbasin Water Transfers

As needed in the future, the Program would mitigate reductions in groundwater storage and groundwater quality impairment by establishing the ability to transfer water in the Subbasin.

Chapter 5: Plan Implementation

Section 5.1 and 5.3 describe annual reporting required to be submitted to the Department of Water Resources through the 20 year implementation period.

The annual report will include:

- ❑ General Information
- ❑ Description and Graphical Representations of Groundwater Information
  - Semi-Annual Groundwater Elevation Data
  - Semi-Annual Groundwater Quality Data
  - Groundwater Extraction Per Sector/Total Water Use
  - Changes in Groundwater Storage
- ❑ Plan Implementation Progress

Chapter 5: Plan Implementation

Section 5.1 and 5.4 describe the five year evaluation reports required to be submitted to the Department of Water Resources through the 20 year implementation period.

The five year evaluation will include:

- Current Groundwater Conditions
- Status of Implementation of Projects or Management Actions
- Plan Elements
- Subbasin Evaluation including Water Balance Review
- Monitoring Network
- Pumping Allowance
- New Information
- Relevant Actions
- Enforcement and Legal Actions
- Groundwater Sustainability Plan Amendments
- Summary of Coordination

Chapter 5: Plan Implementation

Section 5.1.1 through 5.1.6 discusses estimated costs to implement the GSP. It includes the GSA annual budget, reserves and contingencies, and potential funding sources.

2020 Sample Cost to Use One Acre-Foot: ~$35

Assumptions:

- ~19,000 acre-feet of pumping
- Based on proportional rate structure; actual apportionment costs to each pumper may vary
- Doesn't include costs to develop and implement projects and management actions

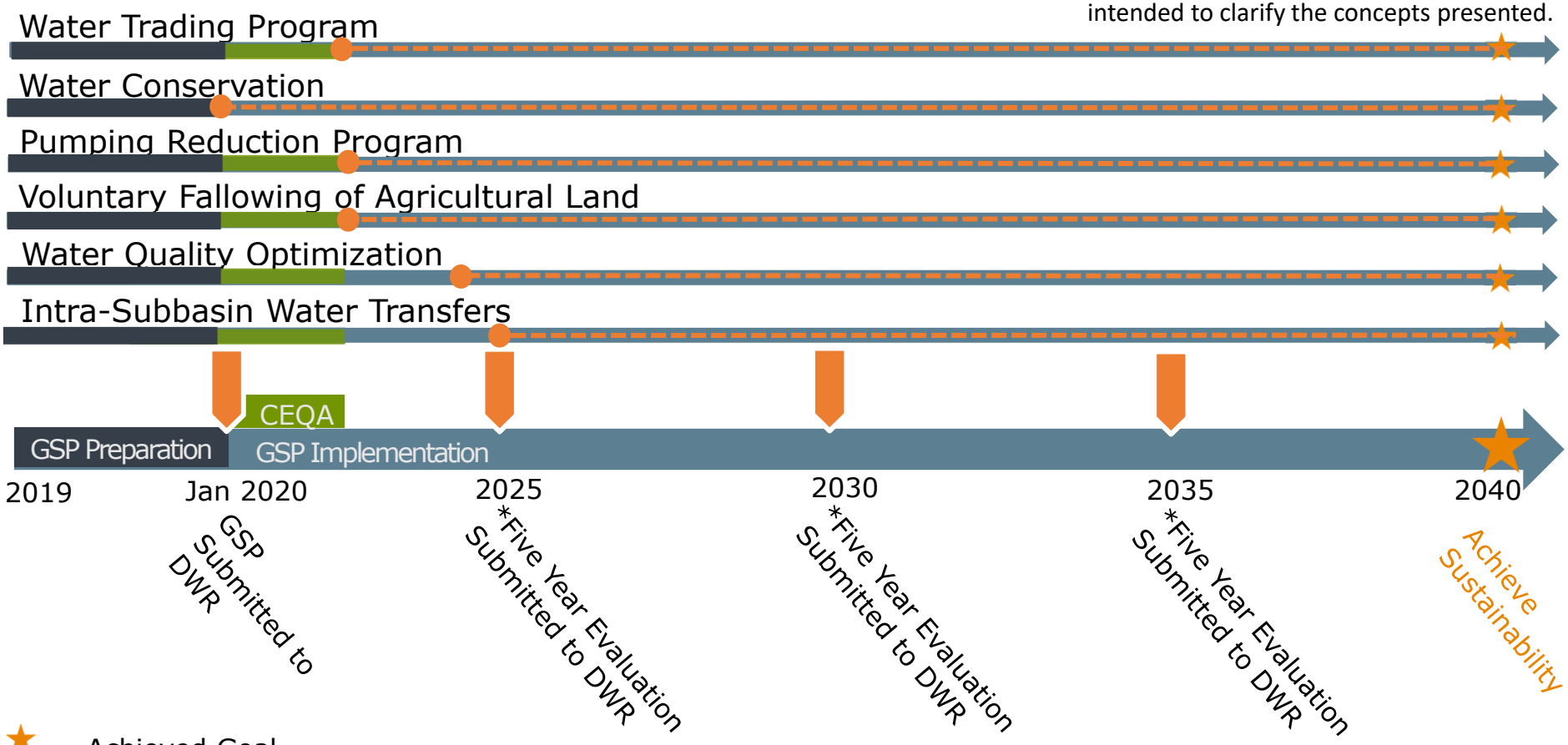
Note: Cost per acre-foot to cover GSA expenses is expected to continue to increase through 2040 as required revenue is spread over less groundwater extraction as a result of pumping ramp down. By 2030, the GSP estimates that costs per acre-foot would increase to $50 per acre-foot on annual basis.

Chapter 4: Projects and Management Actions

Section 5.2 provides the GSP implementation timeline.

SGMA Anticipated Timeline

Note: this graphic is not in the GSP and is intended to clarify the concepts presented.



★ = Achieved Goal
● = Implementation

DWR = Department of Water Resources
*In additional to five year evaluations, annual reporting to DWR will also be required through the 20 year GSP implementation.

GSP Appendices

The GSP appendices include:

- DWR Preparation Checklist for GSP Submittal
- GSA Formation and Interagency Agreements
- Stakeholder Engagement
- Technical Reports and Hydrographs
- GSP Monitoring Network Documents
- Baseline Pumping Allocation Methodology
- GSP Comments and Responses to Comments

GSP Appendices: Baseline Pumping Methodology

Appendix F provides the approach used to assign baseline pumping allocation to each groundwater pumper in the Subbasin. The allocation is the amount of water a pumper is allowed to use prior to any reductions required by SGMA. Total maximum annual production of each sector is 21,962 acre-feet.

Groundwater pumpers by sector include:

Municipal Pumpers: 1 (Borrego Water District)

Agricultural Pumpers: 30

Golf Course Pumpers: 6

Other Pumpers: 4 (State Park, Air Ranch, Borrego Elementary, and La Casa Del Zoro)

De Minimis Pumpers (less than 2 acre-feet/year): 52

Key Definitions

For a list of definitions of SGMA terms used in this presentation, please visit the following website:
https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Sustainable_Management_Criteria_2017-11-06.pdf
Definitions can be found on Pages 34 and 35.