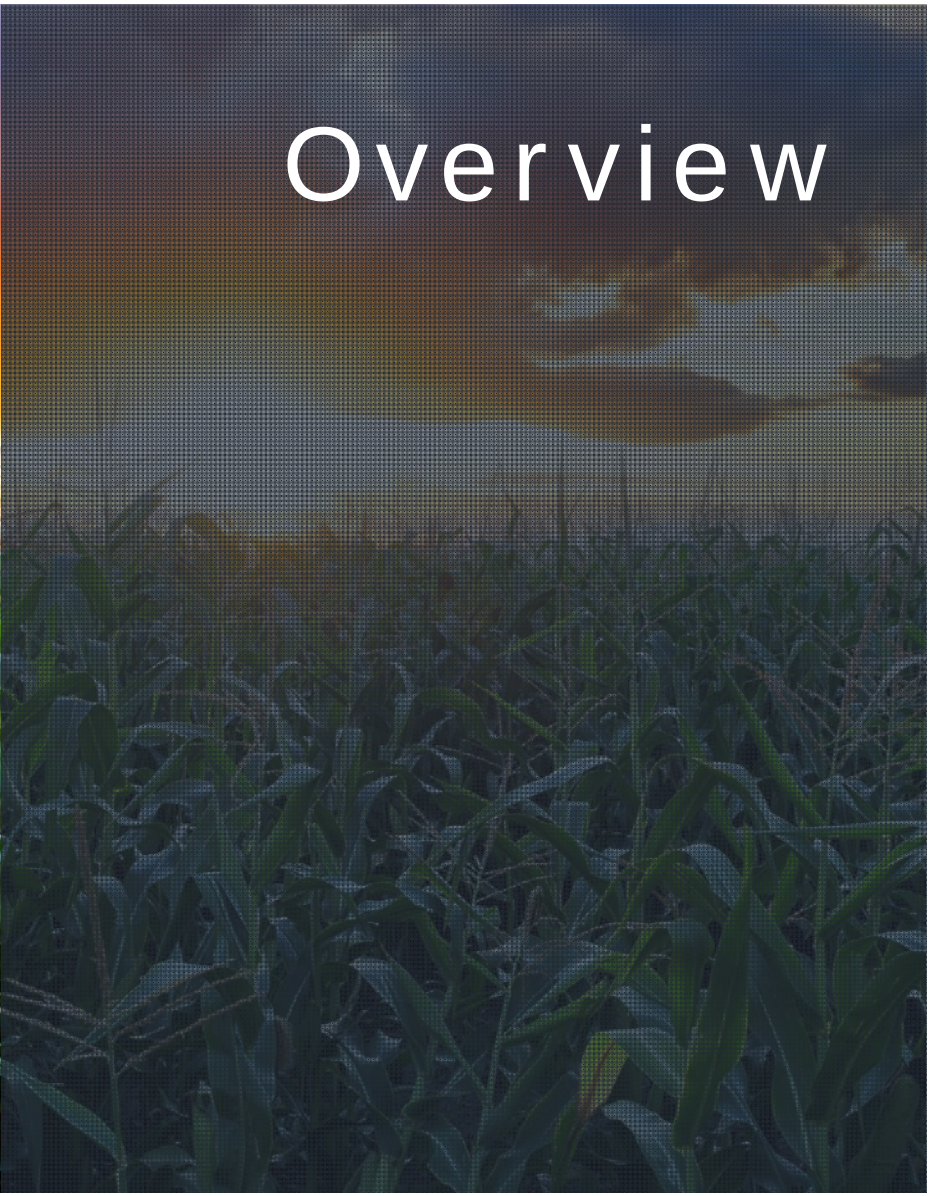
Tule Subbasin:

Sustainable Groundwater Management Act (SGMA)

August 24, 2016

David De Groot, Professional Engineer
4Creeks, Inc.



Overview

1 SUSTAINABLE GROUNDWATER MANAGEMENT ACT

2 TECHNICAL OVERVIEW OF TULE SUBBASIN

3 GSA FORMATION STATUS OF TULE SUBBASIN

4 GSP PREPARATION FOR TULE SUBBASIN

5 NEXT STEPS FOR TULE SUBBASIN

6 CONTACT INFORMATION

About SGMA

Signed into Law **September 16, 2014**

OBJECTIVE

Ensure the long-term reliability of our groundwater resources and connected surface water resources by requiring "sustainable" management

CORE PRINCIPAL: **LOCAL CONTROL**

SGMA OVERVIEW

-Law Applies to all Groundwater Basins in the State of California

-State has prioritized groundwater basins for implementing law

-515 GW Basins, 43 are high priority

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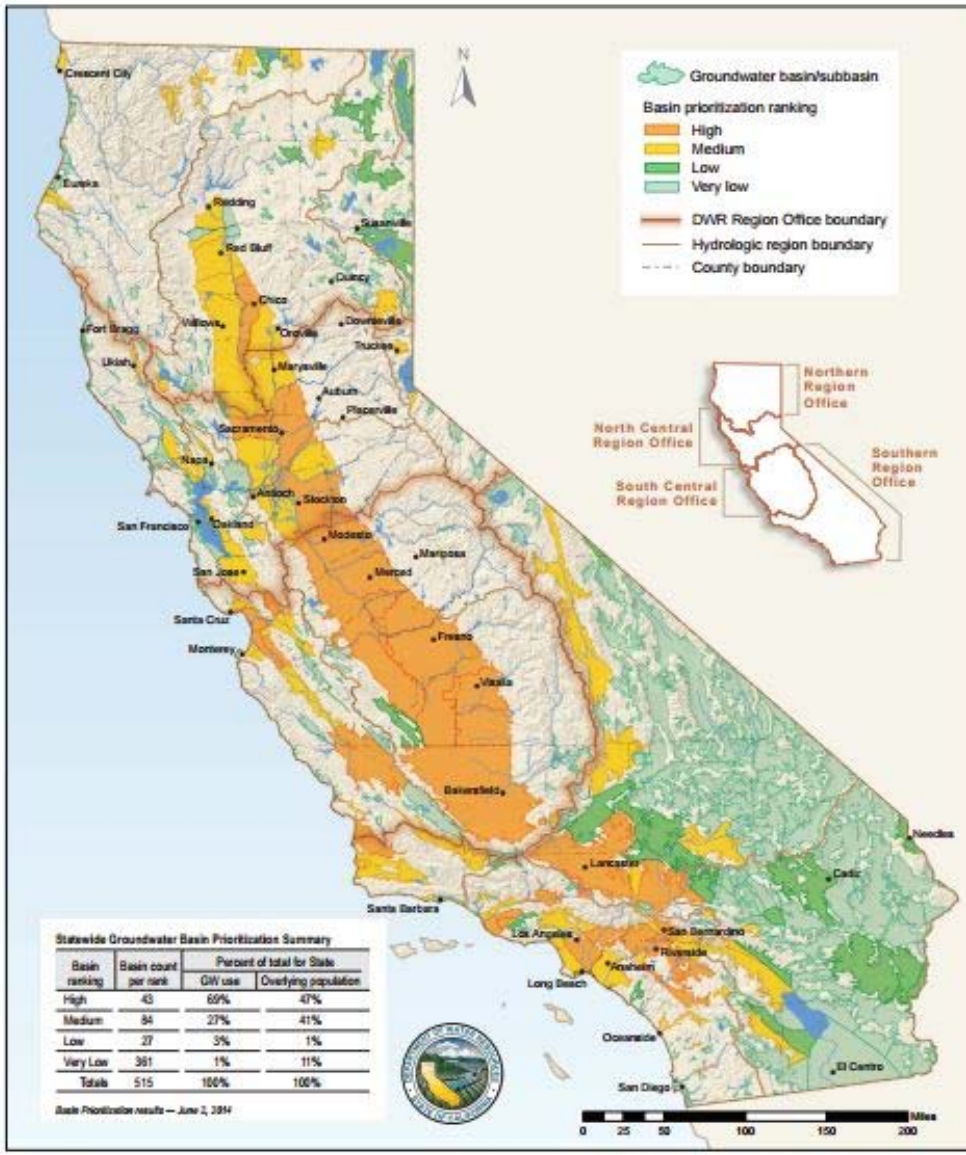
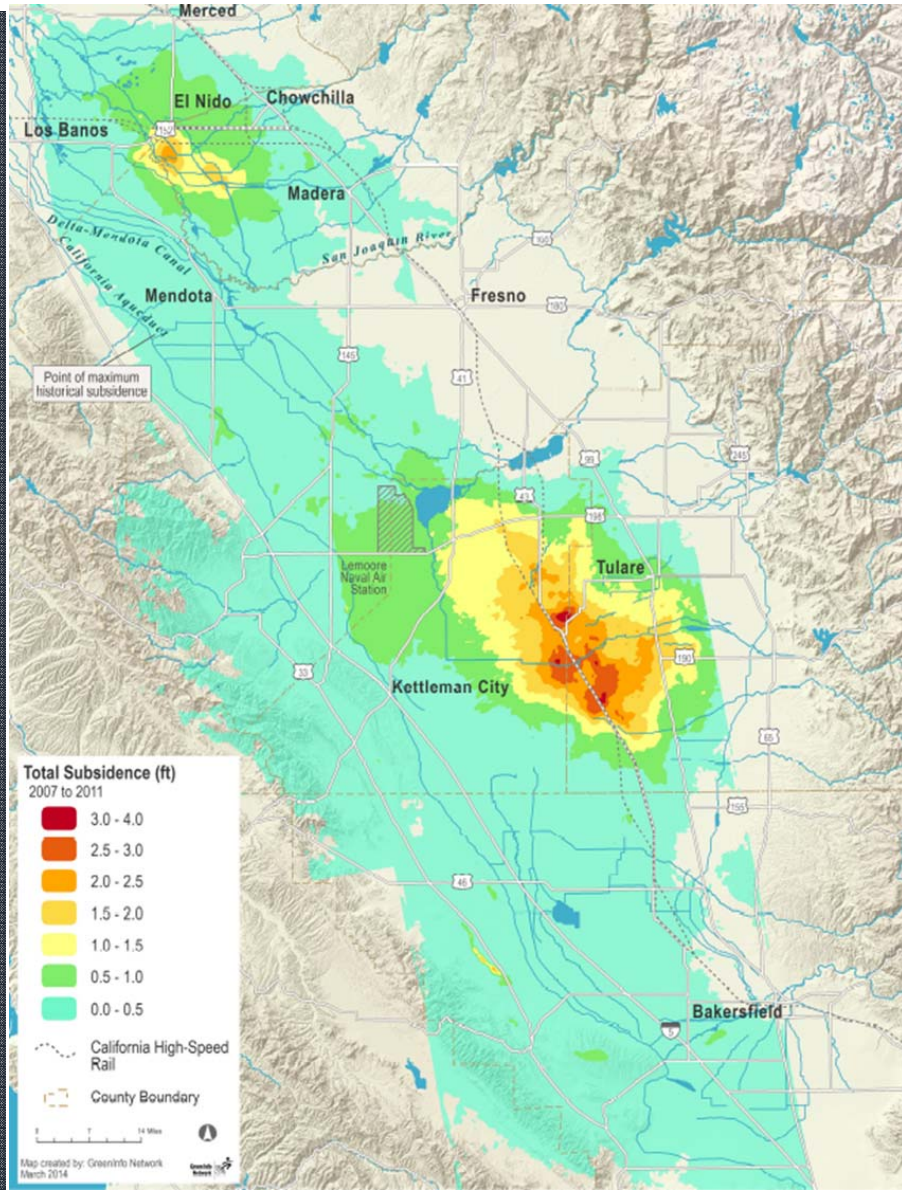


SGMA OVERVIEW

Primary Reasons for Adopting SGMA Into Law (avoid undesirable results):

- **Over pumping of groundwater, or overdraft**
- **Drought/Volatility in Water resources**
- **Declining groundwater levels**
- **Impacts to surface water**
- **Land Subsidence**



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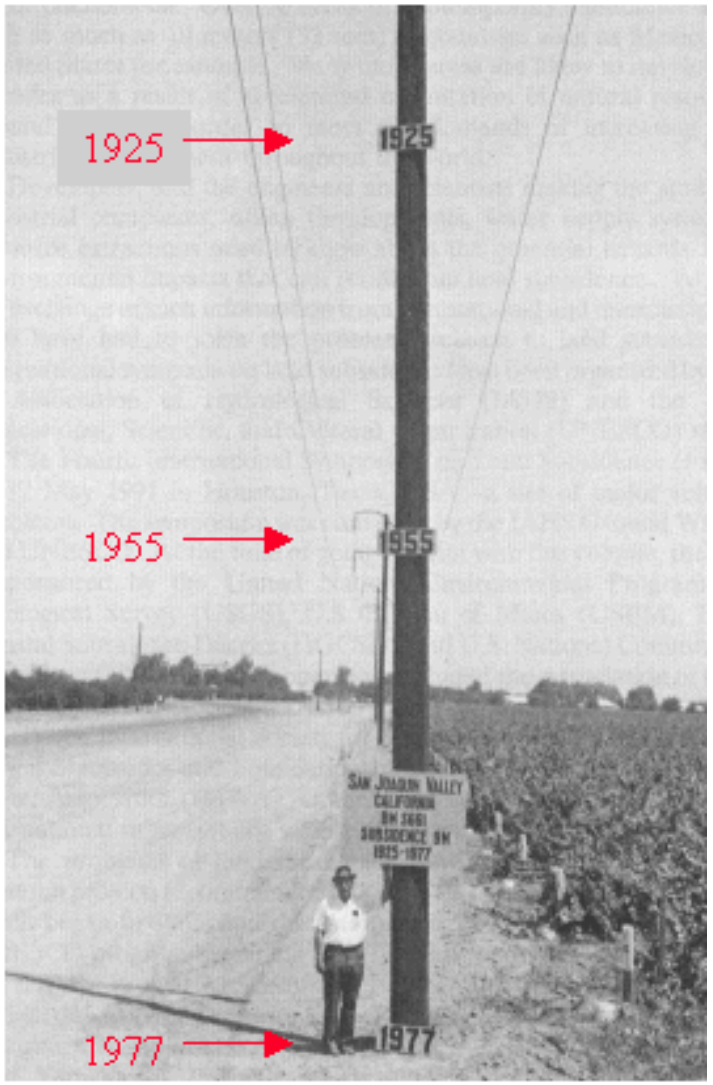


SGMA Overview

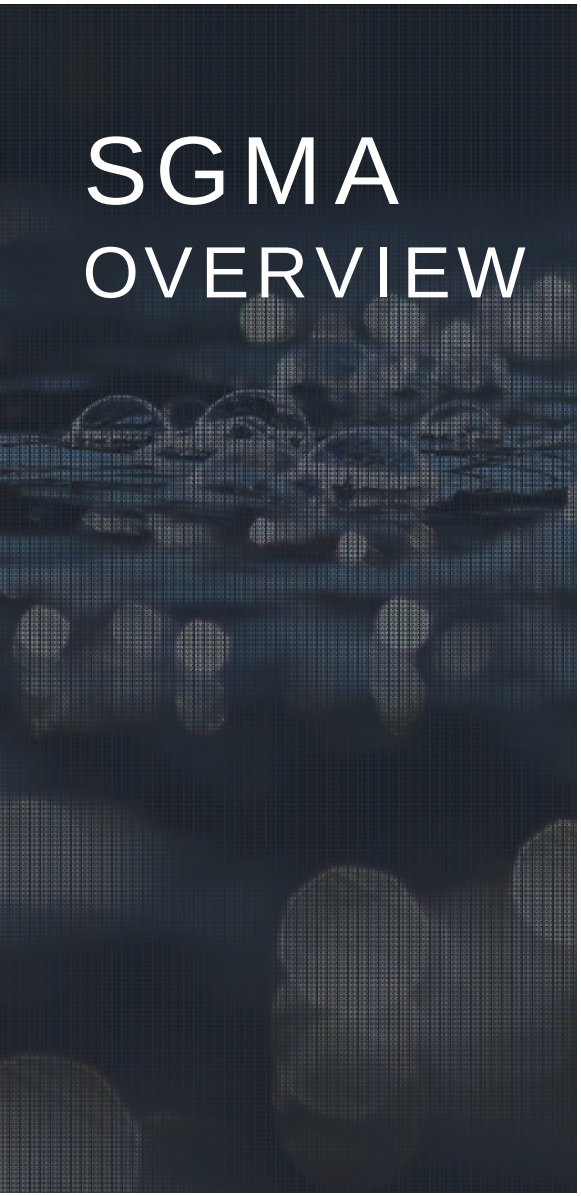
Three steps for implementation:

1. FORM GROUNDWATER SUSTAINABILITY AGENCIES (GSAS) – JUNE 30, 2017

2. DEVELOP GROUNDWATER SUSTAINABILITY PLANS – JANUARY 31, 2020

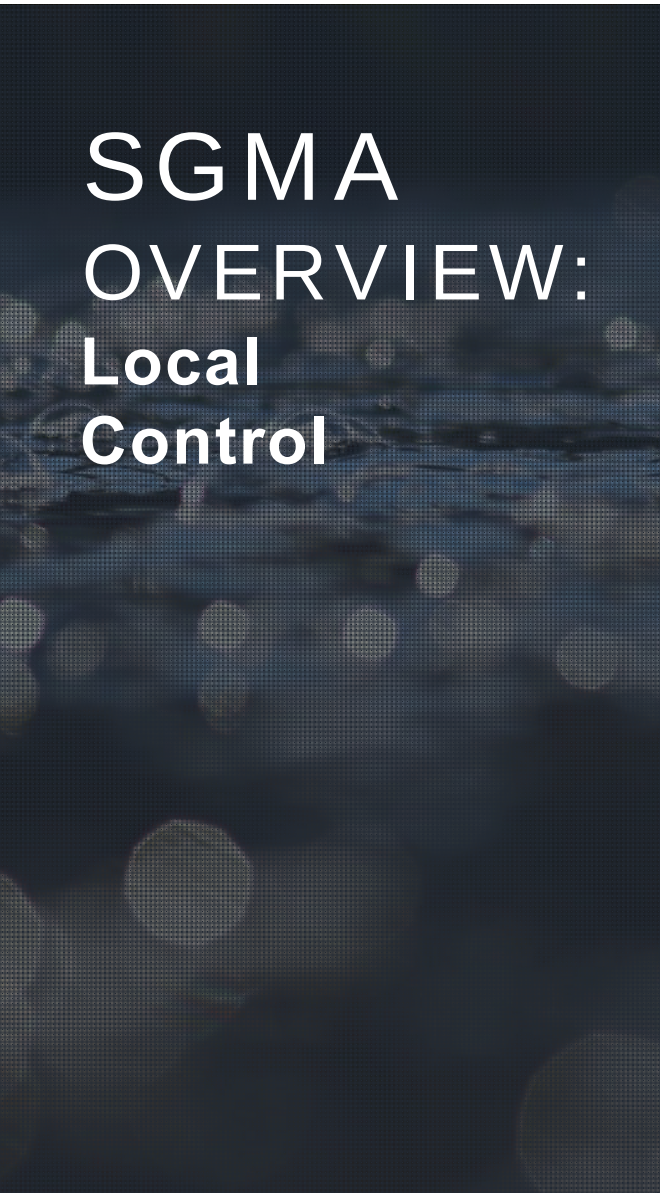
3. IMPLEMENT GSPS TO ACHIEVE SUSTAINABILITY – JANUARY 31, 2040

with 5 year audits during GSP implementation. Planning Horizon is 50 years



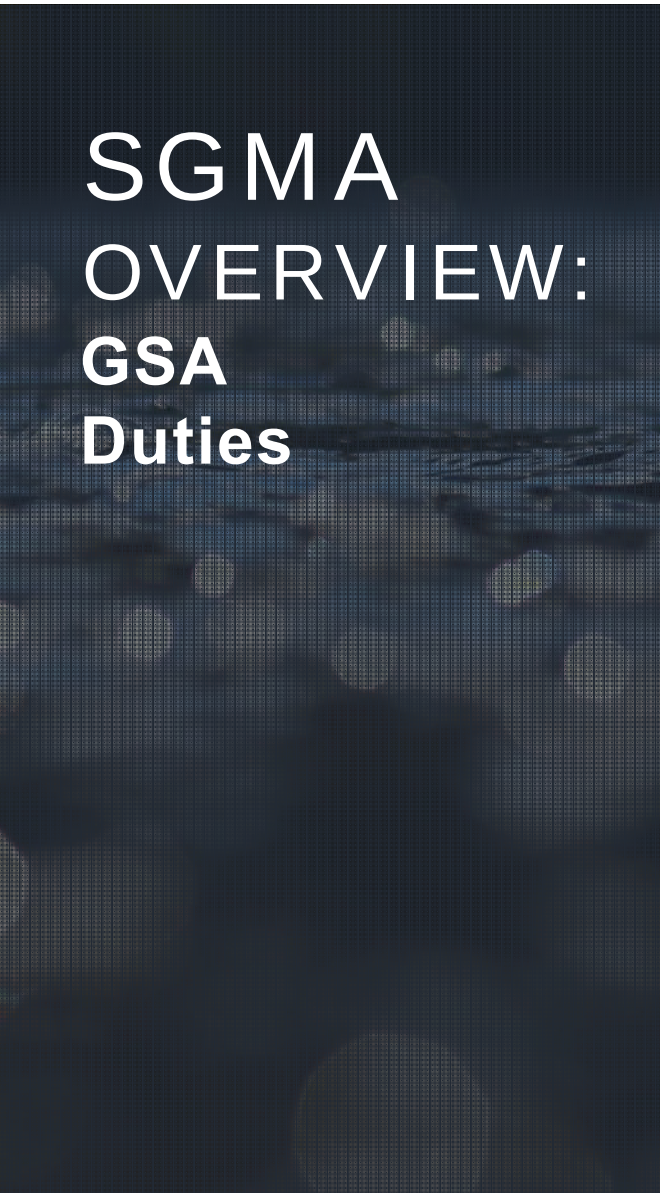
WHAT HAPPENS IF WE DON'T MEET THESE REQUIREMENTS?

- PROBATIONARY STATUS
  - GIVES STATE OVERSITE OF ALL WATER SOURCES, INCLUDING SURFACE WATER RIGHTS.
- STATE IMPOSED MANAGEMENT PLANS AND METERING ON WELLS
- GROUNDWATER EXTRACTION REPORTING DIRECT TO THE STATE
- FEES FOR GROUNDWATER PUMPING PAID TO STATE DIRECTLY



GroundwaterSustainability Agencies (GSA)

- GSA WILL IMPLEMENT SGMA
  - *GSA CAN BE ANY LOCAL PUBLIC AGENCY, OR COMBINATION OF LOCAL PUBLIC AGENCIES*
- GSA MUST BE FORMED BY JUNE 30, 2017 OR STATE WILL INTERVENE
- EACH SUBBASIN CAN HAVE MULTIPLE GSA'S WITH COORDINATION AGREEMENT



Groundwater Sustainability Plan (GSP)

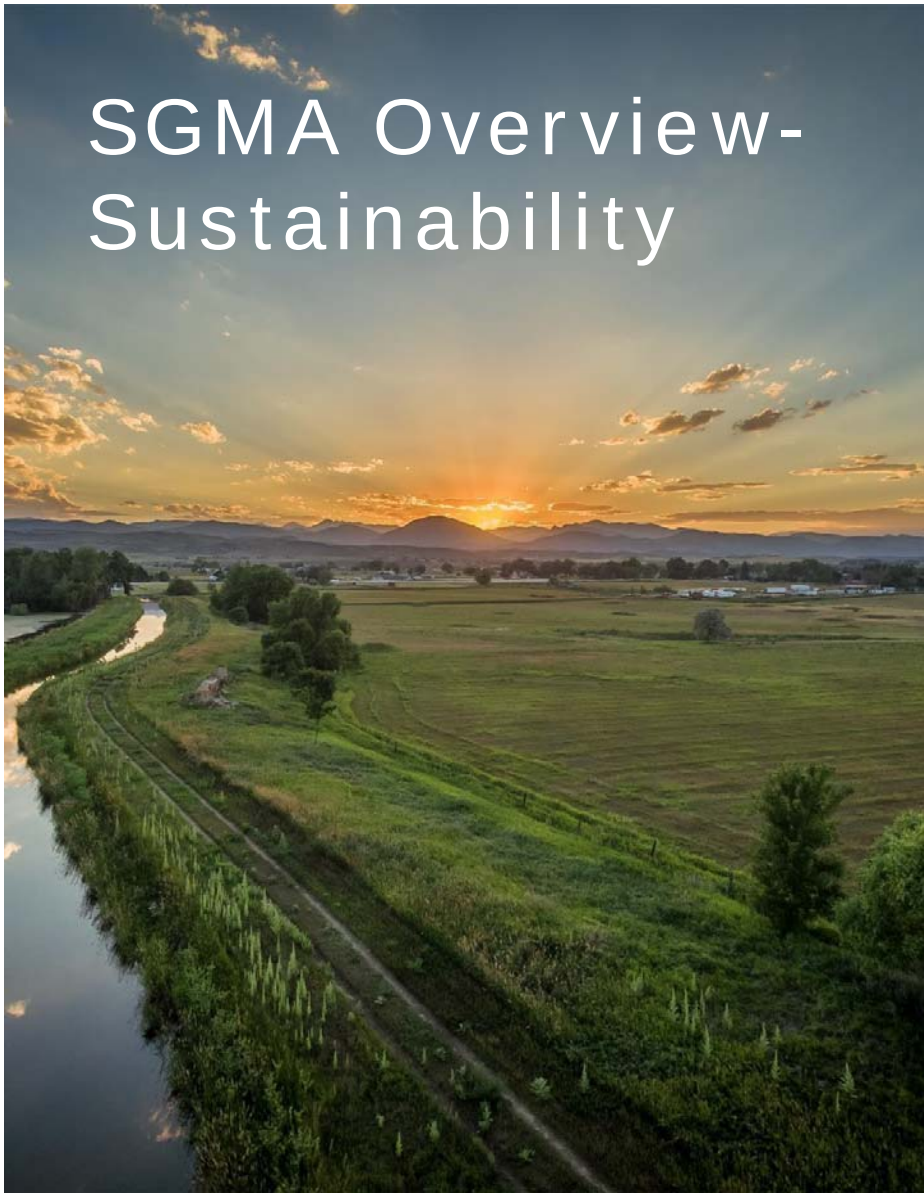
- REGULATIONS BECAME AVAILABLE JUNE 1, 2016
- 206 TOTAL REQUIREMENTS IN REGULATIONS & LAW
- GSP TO BE CONSISTENT WITHIN ENTIRE SUBBASIN THROUGH A COORDINATION AGREEMENT

Primary Groundwater Inputs (Water Supply)

- Net Effective Precipitation
- Natural River Channel Loss
- Groundwater Underflow / Outflow
- Appropriated Surface Water Rights (local pre-1914 water rights)
- Imported Surface Water (state/federal project water rights)

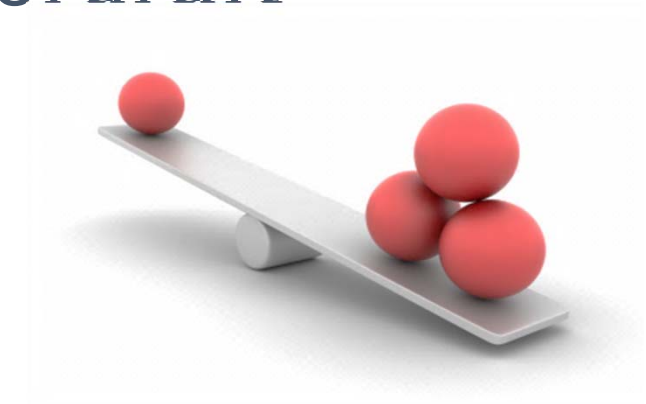
Primary Groundwater Outputs (Consumptive Water Demands)

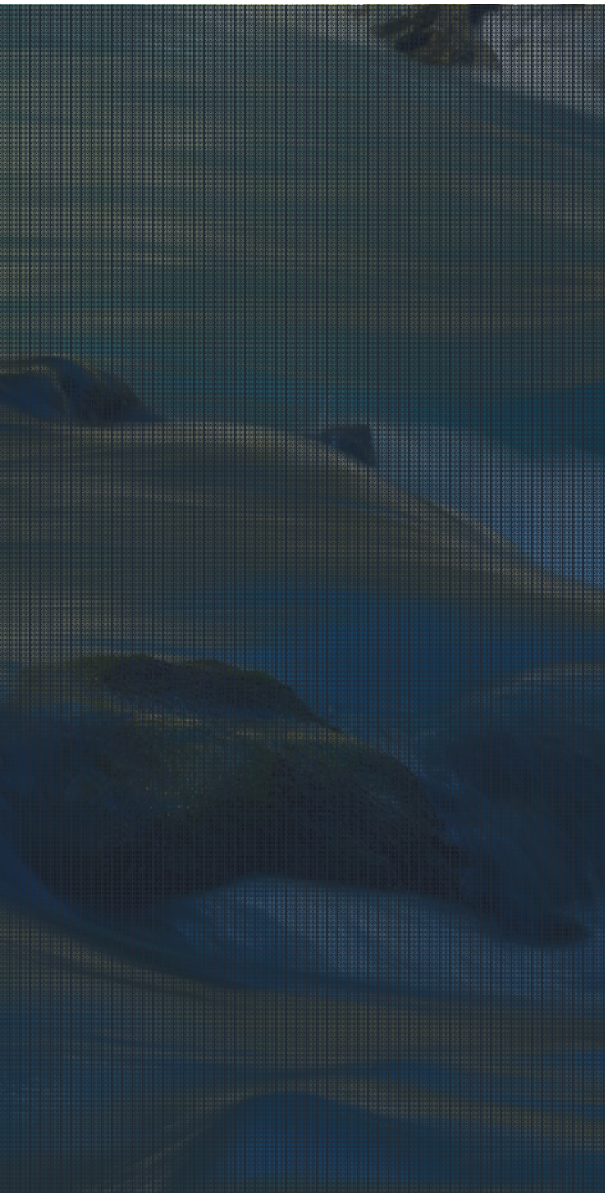
- Crop Demand (Evapotranspiration)
- Urban/Industrial Demand



Supply / Acreage = Sustainable Yield per acre

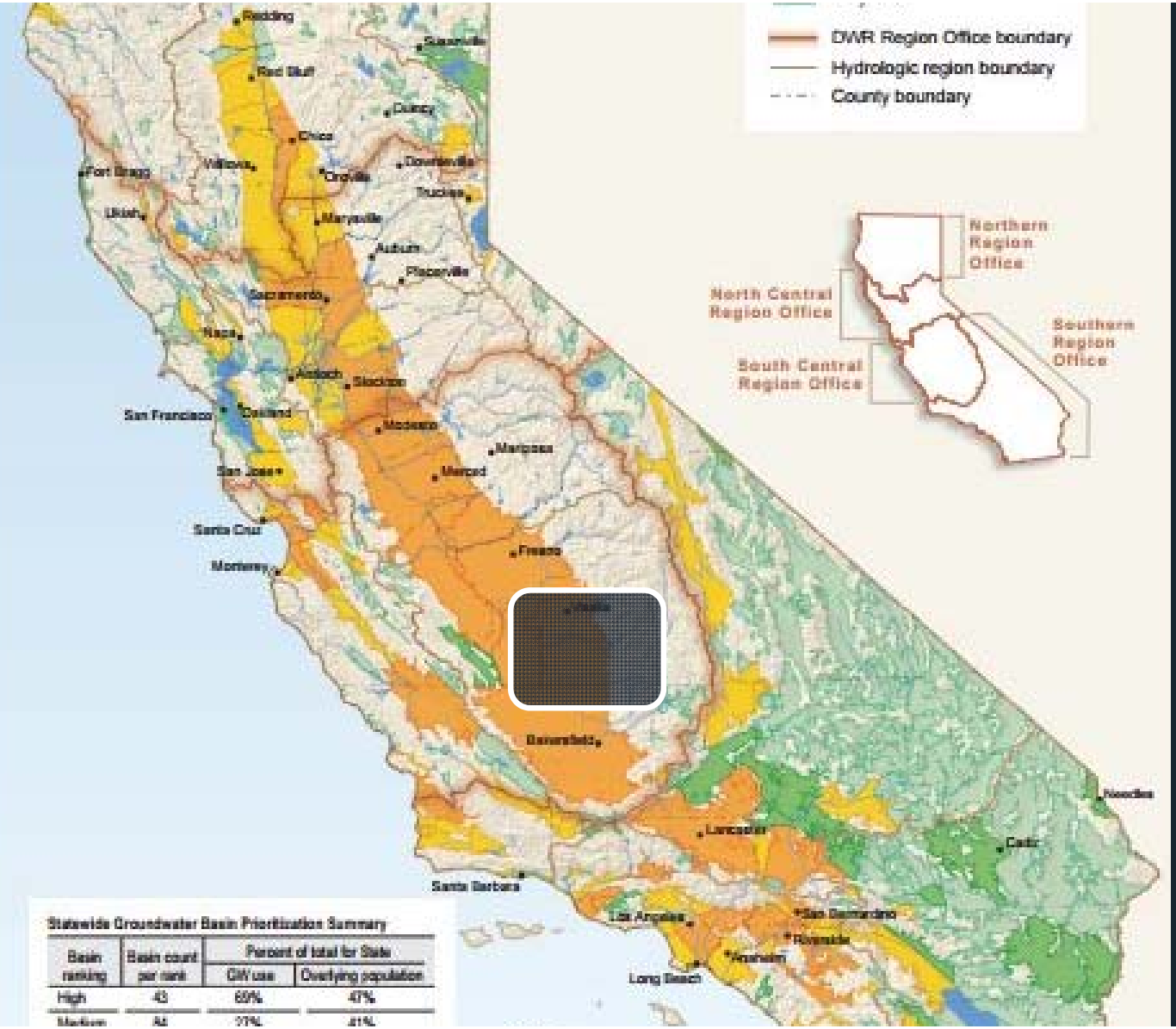
Supply < Demand : Overdraft





ACHIEVE SUSTAINABILITY BY 2040

- OPTIONS TO MEET SUSTAINABILITY
  - **INCREASE WATER SUPPLIES (NEW STORAGE, NEW IMPORTS)**
  - **WATER EFFICIENCY / CONSERVATION**
    - *WATER DELIVERY SYSTEMS*
    - *ON-SITE IRRIGATION SYSTEMS*
  - **GROUNDWATER BANKING**
  - **REDUCE GROUNDWATER PUMPING**
  - **LAND FALLOWING / LAND RETIREMENT**



Tule Subbasin

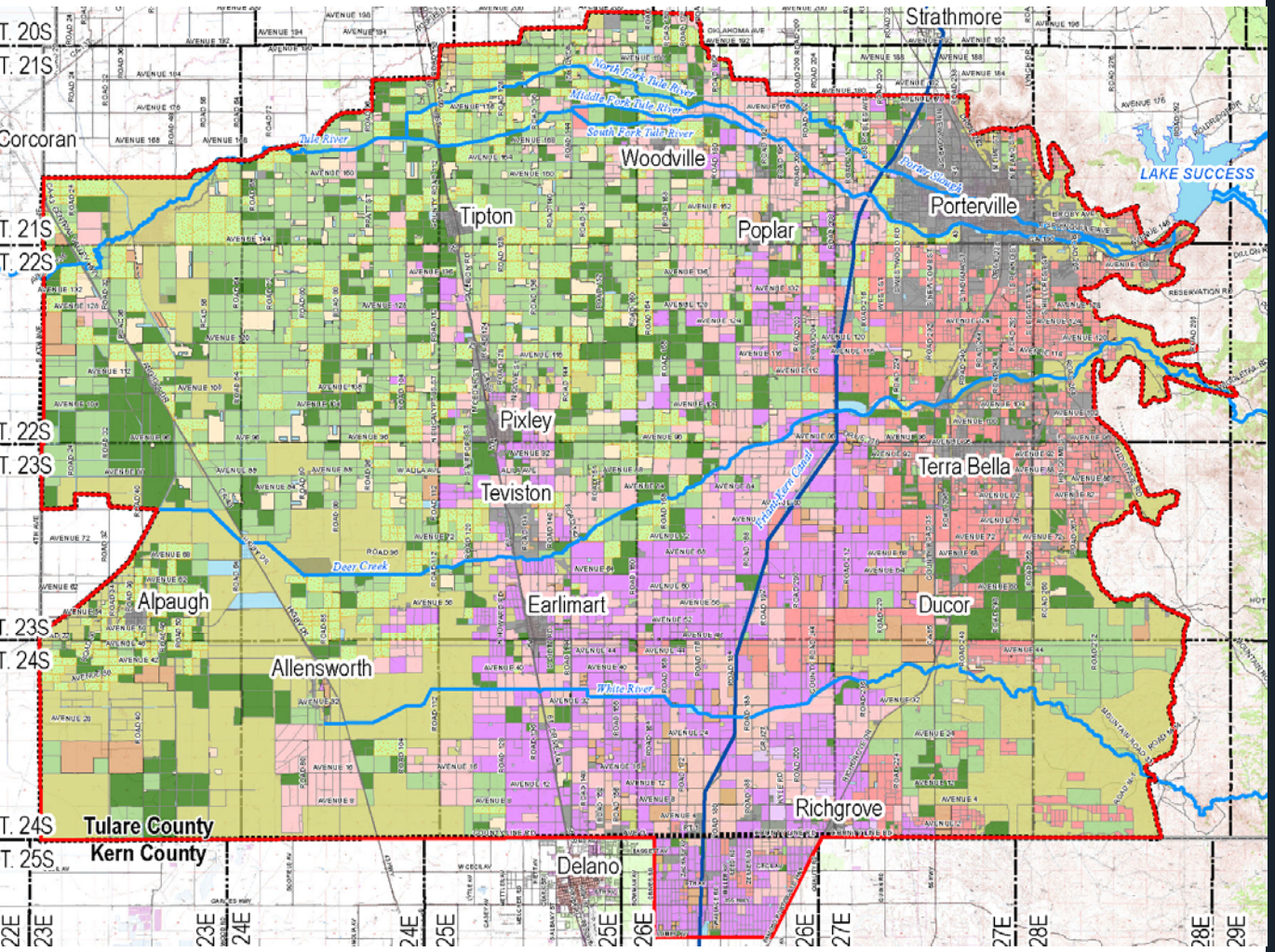
Total Area:
~480,000 acres

Urban/Commercial/ Industrial Acres:
~30,000 acres

Estimated Agriculture Area:
~325,000 acres

Native/Undeveloped Area:
~130,000 acres

Total Population:
~95,000 people



Tule Subbasin

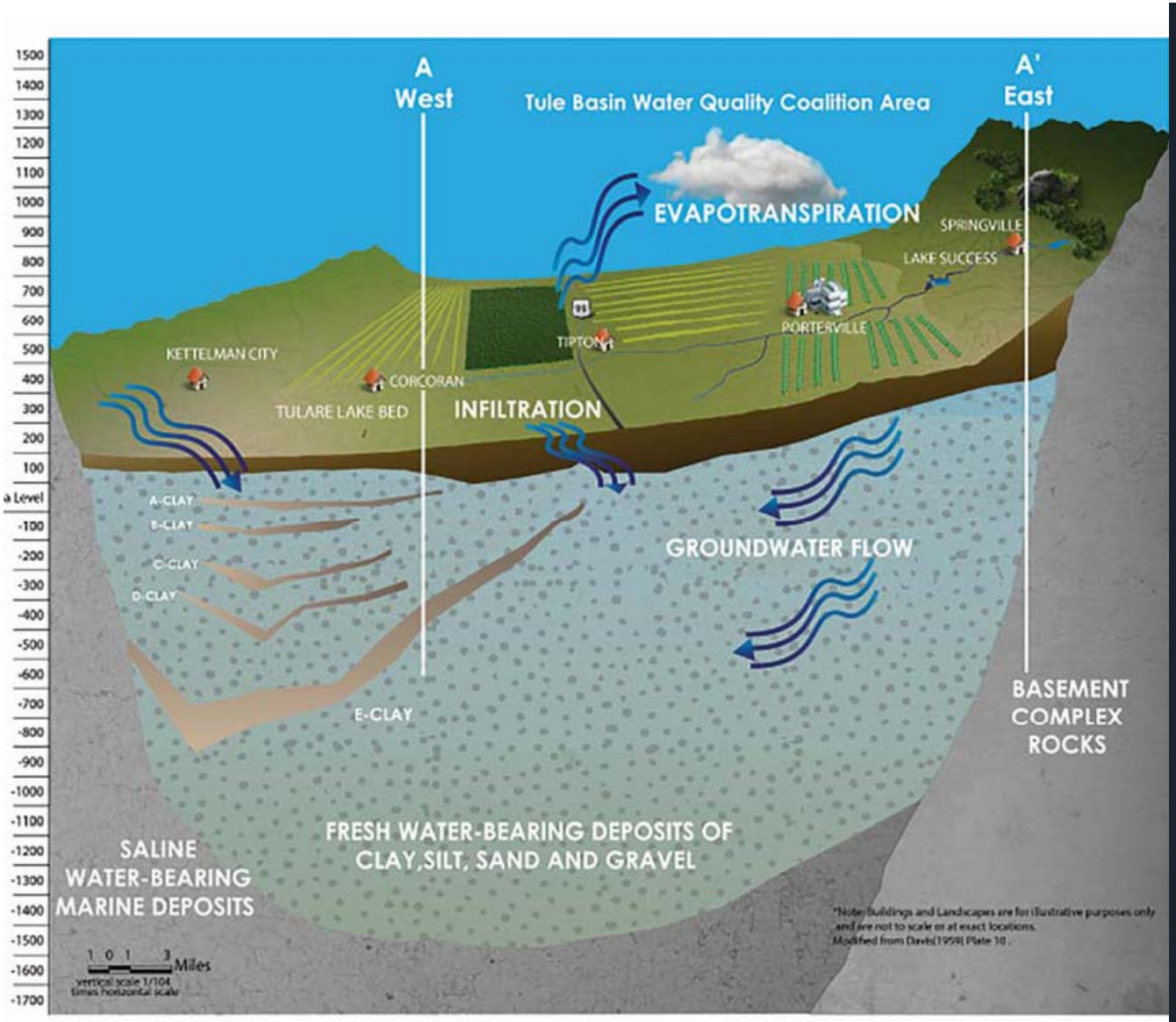
Total Area:
~475,000 acres

Urban/Commercial/ Industrial Acres:
~30,000 acres

Estimated Agriculture Area:
~320,000 acres

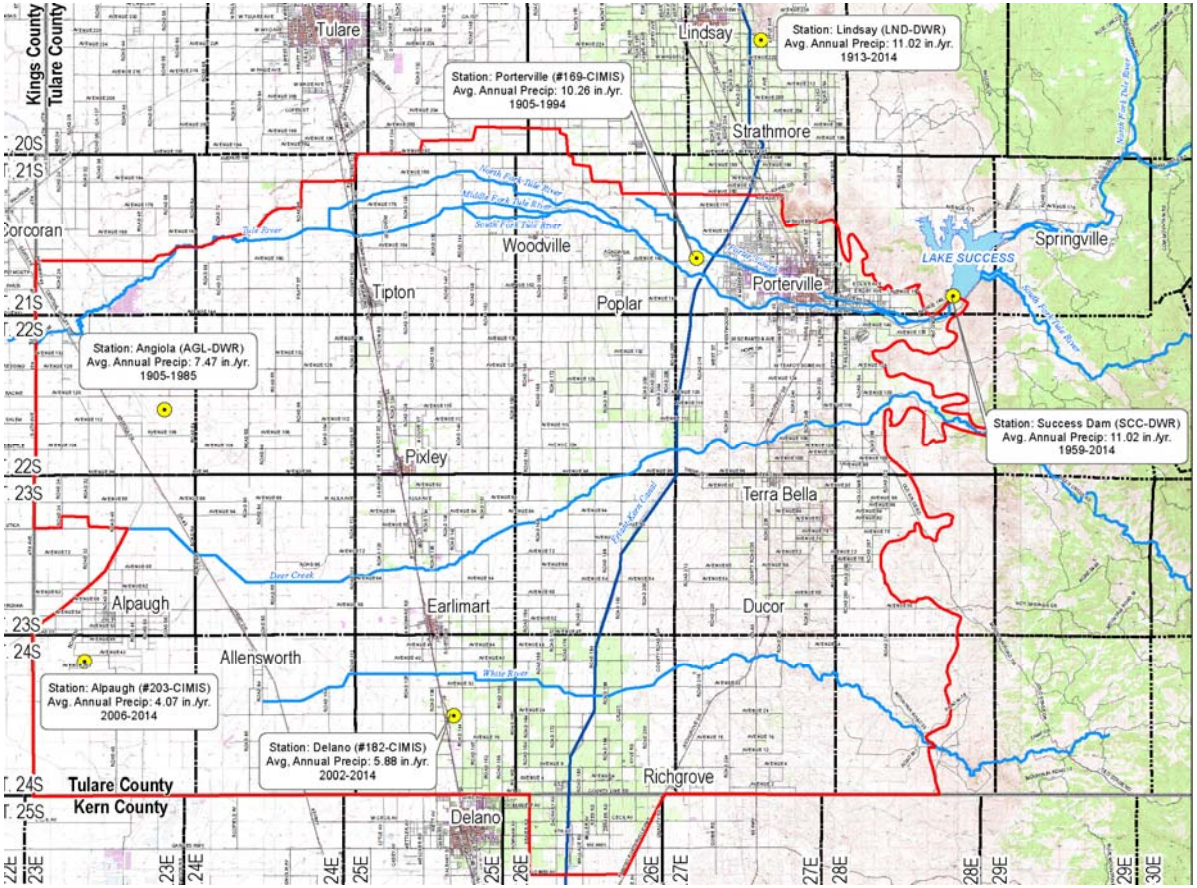
Native/Undeveloped Area:
~125,000 acres

Total Population:
~95,000 people



Tule Subbasin Cross Section

Eastern Boundary:
Edge of the alluvium (water bearing formations) with the rock layers from the mountains



Tule Subbasin

Primary Water Sources

- **Average Precipitation: ~9in.**
- **Underflow / Outflow: ??**
- **Surface Water Average Runoff***
  1. **Tule River: ~140,000 af/yr**
  2. **Deer Creek: ~22,000 af/yr**
  3. **White River: ~6,000 af/yr**
  4. **Friant Kern Canal (imported water supply): ~ 350,000 af/yr**

Surface Water Supplies not equally distributed to all lands

Tule Subbasin Groundwater Demand

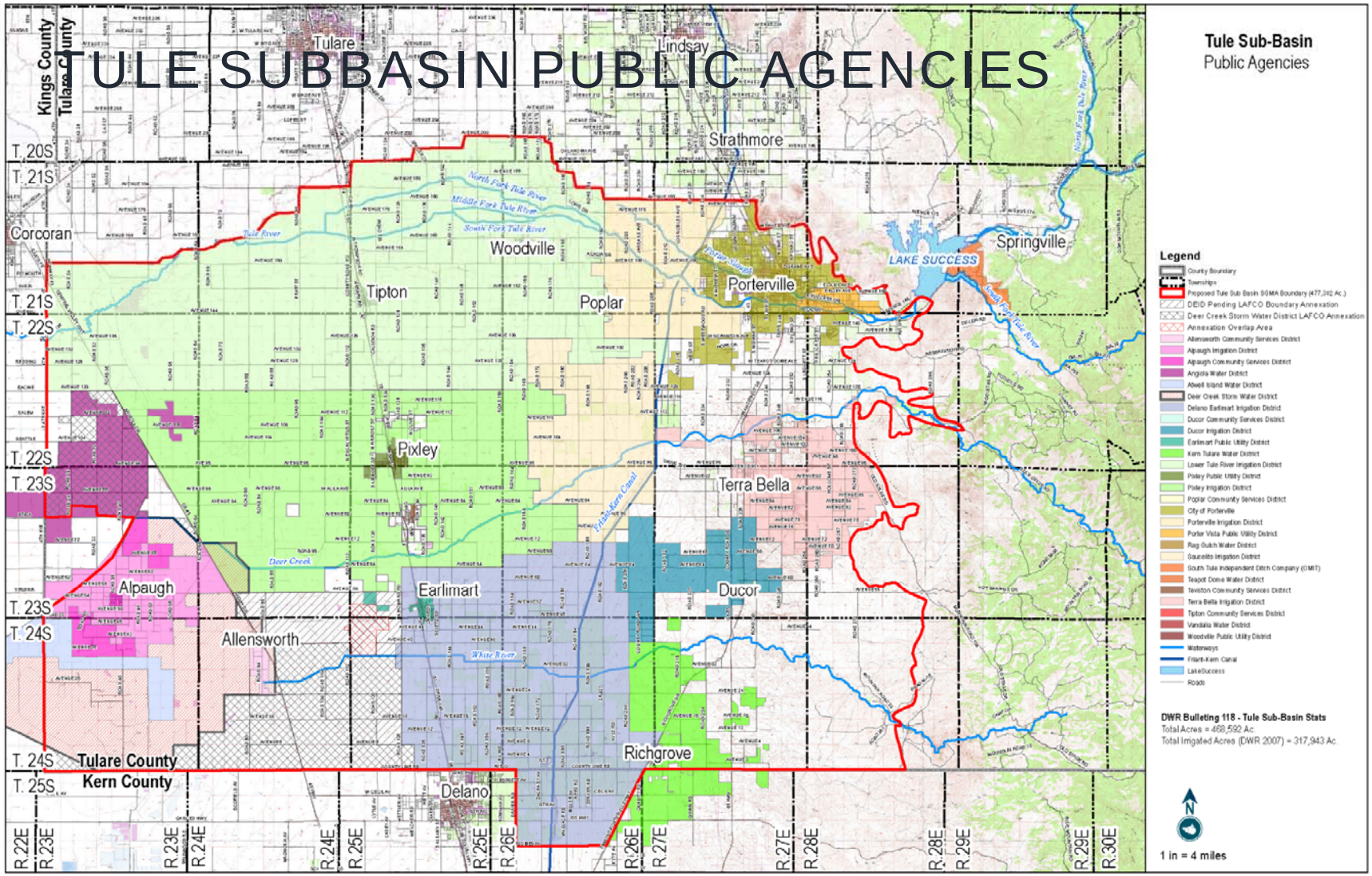
- **Urban Demand: Cities / Communities**
- **Agricultural Demand: (Evapotranspiration)**
  - **Range:** *2 ac-ft./acre to 4 ac-ft/acre depending on the crop*

TULE SUBBASIN CURRENT STATUS

13 Public Agencies within Tule Subbasin have signed a MOU to begin work on SGMA Requirements

- **Stakeholder meetings: Discuss Overall Subbasin Governance**
- **Technical Advisory Meetings: Begin identifying methods and framework for the Coordination Agreement & GSP's**
- **Outreach Committee: Engage with the public to keep everyone informed**

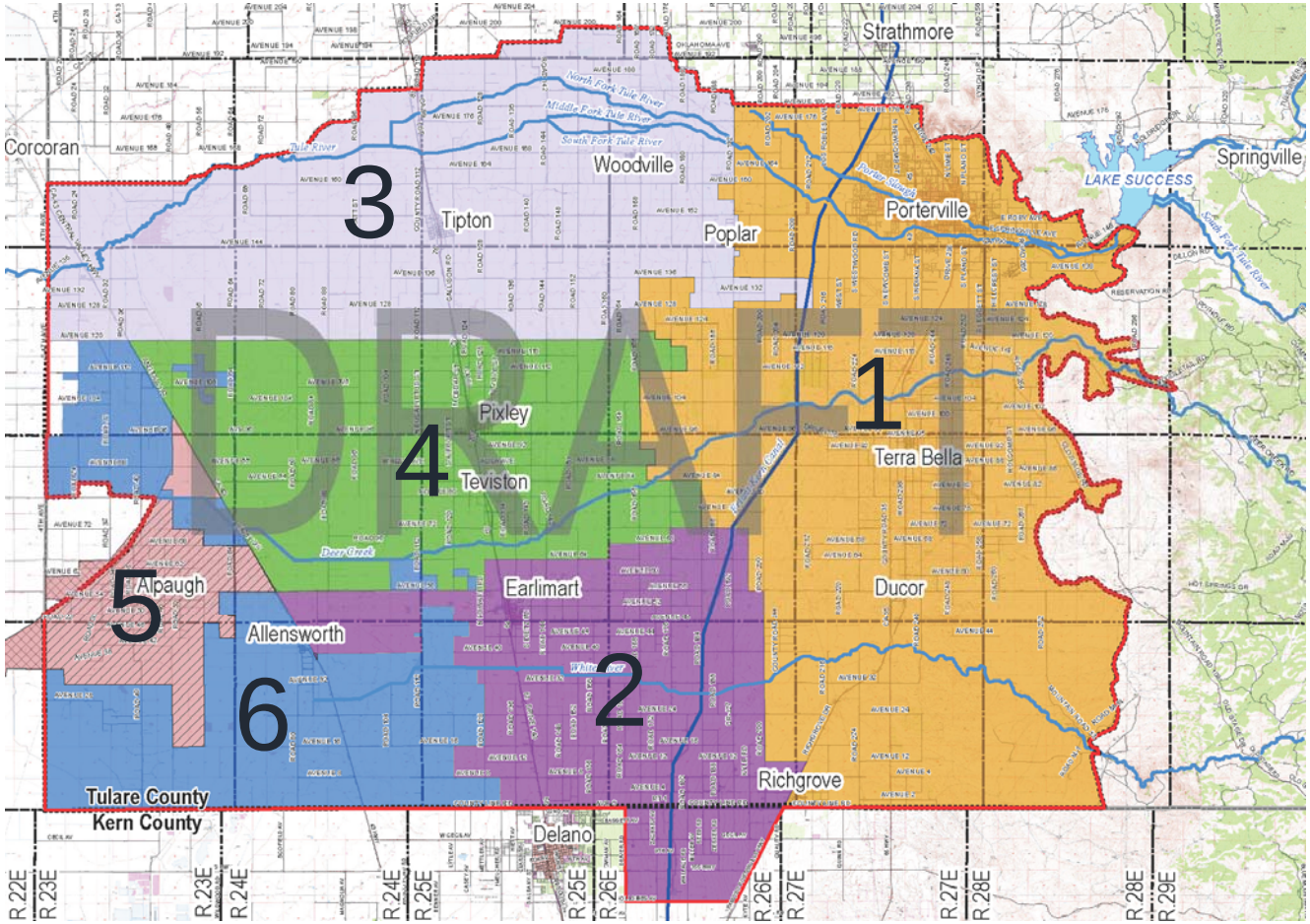
TULE SUBBASIN PUBLIC AGENCIES



TULE SUBBASIN

PROPOSED GSA'S:

1. EAST TULE JPA GSA
2. DELANO EARLIMART IRRIGATION DISTRICT GSA - *FILED*
3. LOWER TULE RIVER IRRIGATION DISTRICT GSA - *FILED*
4. PIXLEY IRRIGATION DISTRICT GSA - *FILED*
5. ALPAUGH GSA - *FILED*
6. TRI-COUNTY WATER AUTHORITY GSA - *FILED*



TULE SUBBASIN

FILED GSA'S (Filings include many CSD/PUD Involvement):

2. DELANO EARLIMART IRRIGATION DISTRICT GSA - *FILED*
3. LOWER TULE RIVER IRRIGATION DISTRICT GSA – *FILED*
4. PIXLEY IRRIGATION DISTRICT GSA - *FILED*
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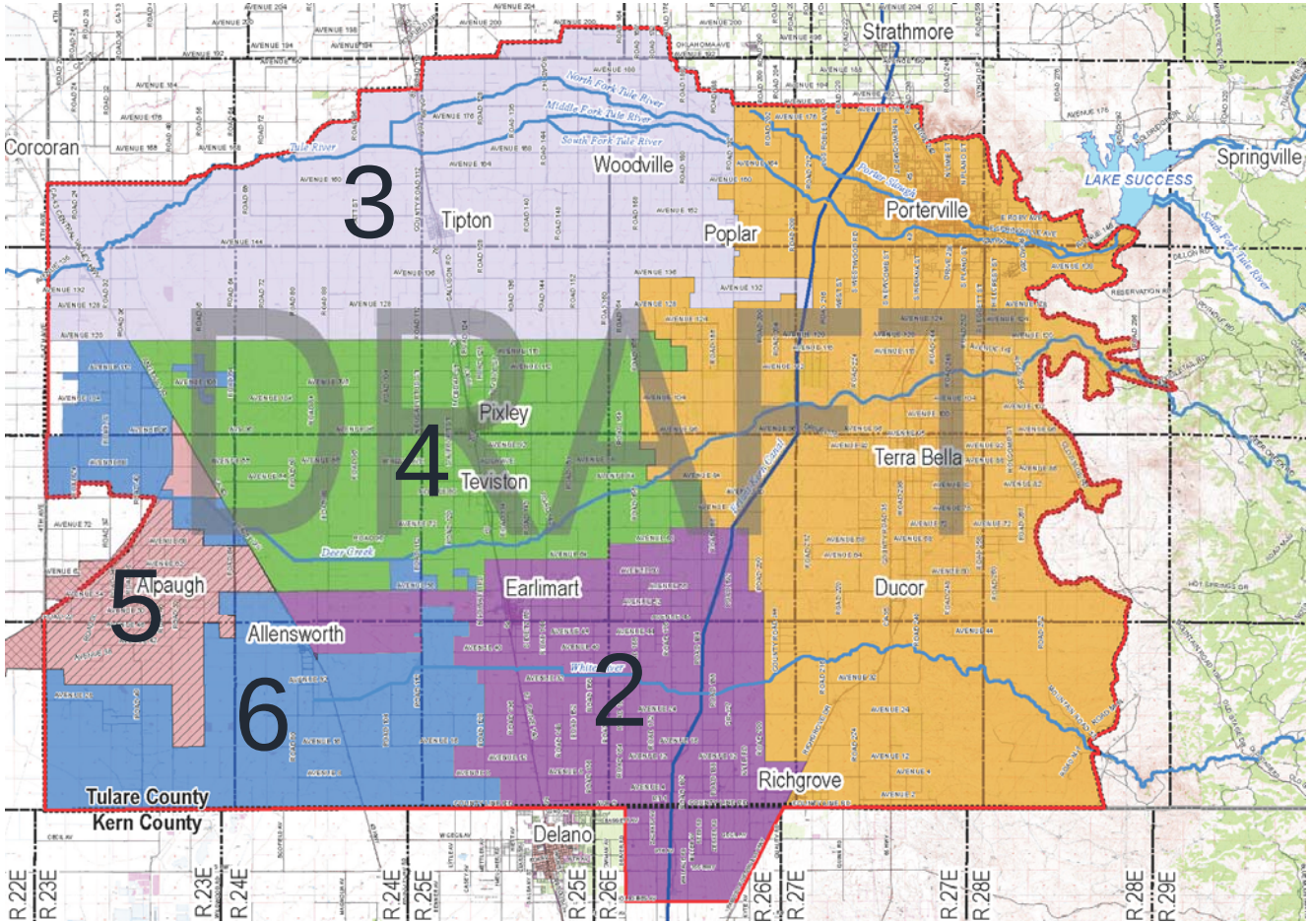

GROUNDWATER SUSTAINABILITY PLAN DUE JANUARY 31, 2020

- **Tule Subbasin – Multiple GSA's with Multiple GSP's**
  - Each GSP to be consistent within entire Subbasin under Coordination Agreement
  - MOU Group of Public Agency Stakeholders actively working on Coordination Agreement criteria (rules and framework for each GSP)
  - Applying for Grant Funding to help fund initial work

TULE SUBBASIN COORDINATION AGREEMENT

- **Establish Criteria and Common Methodology for:**
  - **Groundwater Elevation Data**
  - **Groundwater Extraction Data**
  - **Total Water Use**
  - **Change in Groundwater Storage**
  - **Groundwater Sustainable Yield: Estimated Baseline for Each GSA~ 0.5 af/ac**
  - **Subbasin Water Budget: Water Supply compared to Water Demands**

Next Steps for Tule Subbasin:

Timeline for Implementation

GROUNDWATER SUSTAINABILITY AGENCIES

Form by June 30, 2017

COORDINATION AGREEMENT FOR TULE SUBBASIN

Prepare 2016 - 2020

CONTINUE WITH OUTREACH & STAKEHOLDER ENGAGEMENT

- *PRESENTLY WORKING TO ESTABLISH TULE SUBBASIN WEBSITE*

2016 - ……..

APPLY FOR GRANT FUNDS TO HELP PREPARE GSP & GROUNDWATER MODEL

2016 - 2020

GROUNDWATER SUSTAINABILITY PLANS

Submit to State By: Jan 30, 2020

BEGIN IMPLEMENTATION OF GSP / ANNUAL REPORTING / MONITORING

- *ADDITIONAL FACT GATHERING*
- *REFINE REGULATORY SYSTEM*

January 30, 2020 - ……

ACHIEVE SUSTAINABILITY BY 2040

WHAT ARE YOUR OPTIONS TODAY

- Get involved in local GSA
  - *Attend stakeholder meetings*
- Understand the existing water usage on your farm/property
- Understand the Local Water Systems and Operations
- Learn More about the SGMA Law: **http://www.water.ca.gov/cagroundwater**

CONTACT INFORMATION

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Tule Subbasin Tech. Lead:

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(559) 802-3052

Tulare County Website:

www.tularelakebasin.com/alliance

East Tule JPA GSA

Contact: TBD

Alpaugh GSA

Bruce Howarth
(559) 949-8323

Tri-County Water Authority GSA

Matt Hurley
(559) 762-7240
www.tcwater.org

Pixley Irrigation District GSA

Dan Vink / Eric Limas
(559) 686-4716
www.ltrid.org

Lower Tule River Irrigation District GSA

Dan Vink / Eric Limas
(559) 686-4716
www.ltrid.org

Delano – Earlimart Irrigation District GSA

Dale Brogan
(661) 725-2556
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