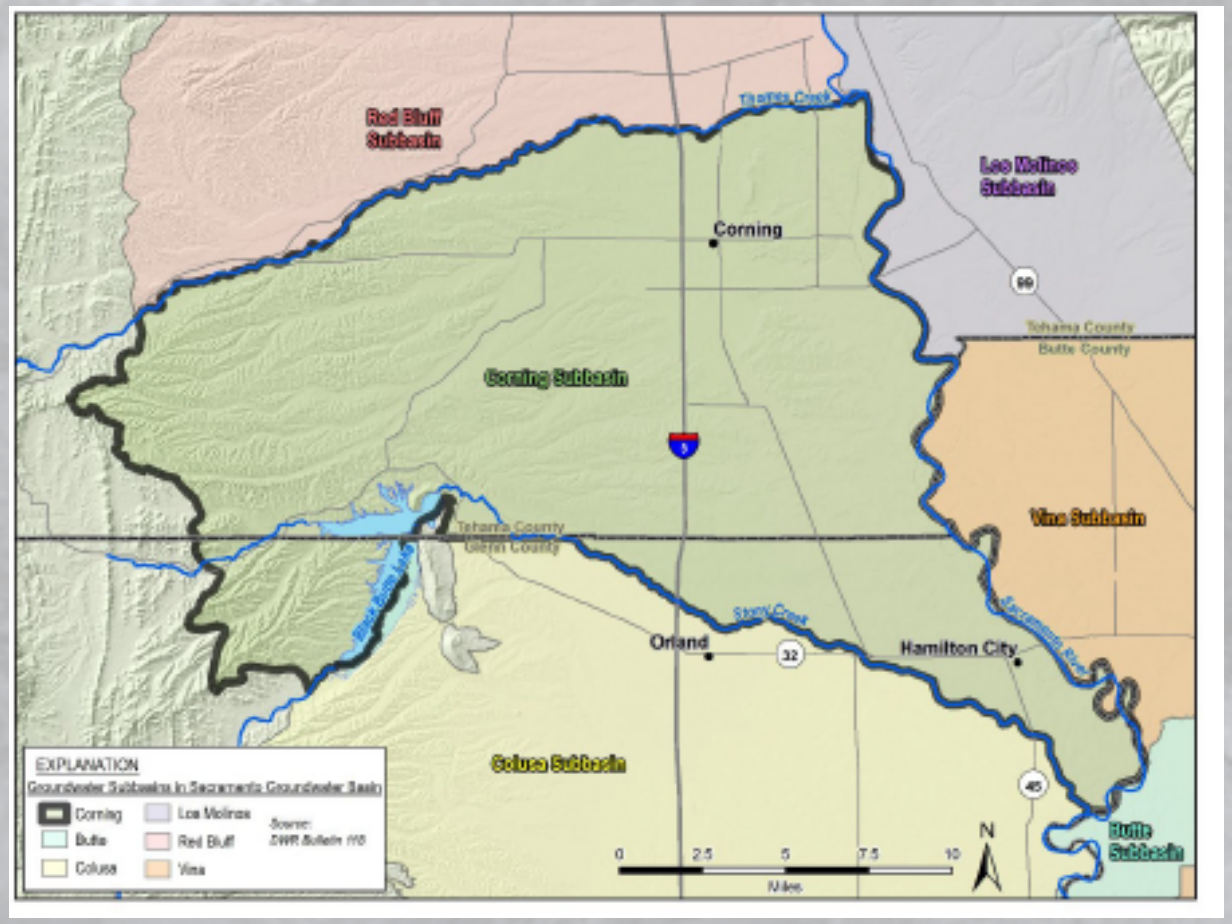
TEHAMA COUNTY
Flood Control and Water Conservation District

Public Webinar

Progress Update On Development of the GSP for the Corning Subbasin

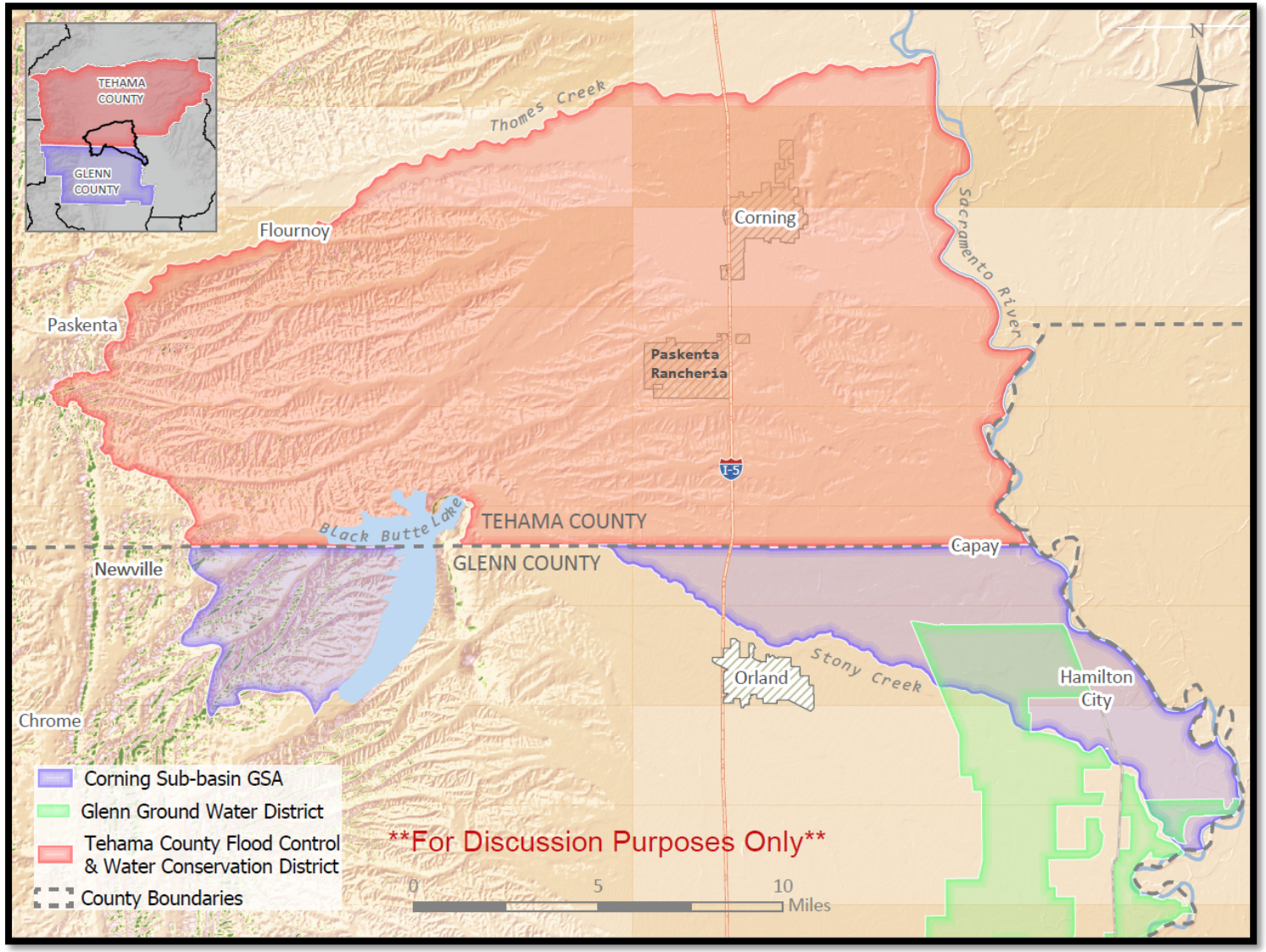


December 9, 2020

Corning Subbasin - Governance

TEHAMA COUNTY
Flood Control and Water Conservation District

- 2 GSA Agencies
- Co-Management of the Subbasin
- Develop 1 GSP
- Separate Prop 1 Grant



Corning Subbasin - Governance

TEHAMA COUNTY
Flood Control and Water Conservation District

Corning Subbasin Advisory Board (CSAB)

Purpose:

- Make advisory recommendations to the Members concerning development and implementation of the GSP.
- All decision-making authority resides with each Member's governing bodies.

Membership:

Tehama County Flood Control and Water Conservation District GSA

- **Bob Williams,** Board of Director, Flood Control and Water Conservation District
- **Steven Gruenwald**, Grower, Capay
- **David Lester**, Groundwater Commissioner

Alternates

- **Ian Turnbull**, Member of the AB3030 TAC for the District

Corning Sub-basin GSA

- **John Viegas**, Supervisor, Glenn County Board
- **Lisa Hunter**, Water Resources Coordinator, Glenn County
- **Julia Violich**, Board member, Monroeville Water District

Alternates

- **John Amaro,** Glenn Colusa Irrigation District

Memorandum of Understanding to jointly develop the Corning Subbasin GSP

Tehama County Subbasins Groundwater Sustainability Plans

TEHAMA COUNTY
Flood Control and Water Conservation District

Describe the Basin Conditions
Plan Area, Subbasin Setting & Water Supplies

What water sources are used in the basin and what are the basin conditions related to those uses?

Define Basin Sustainability
Sustainable Management Criteria & Monitoring

What is sustainable groundwater management?

Develop Projects/Management Actions & Implementation Plans

How can we ensure groundwater sustainability?

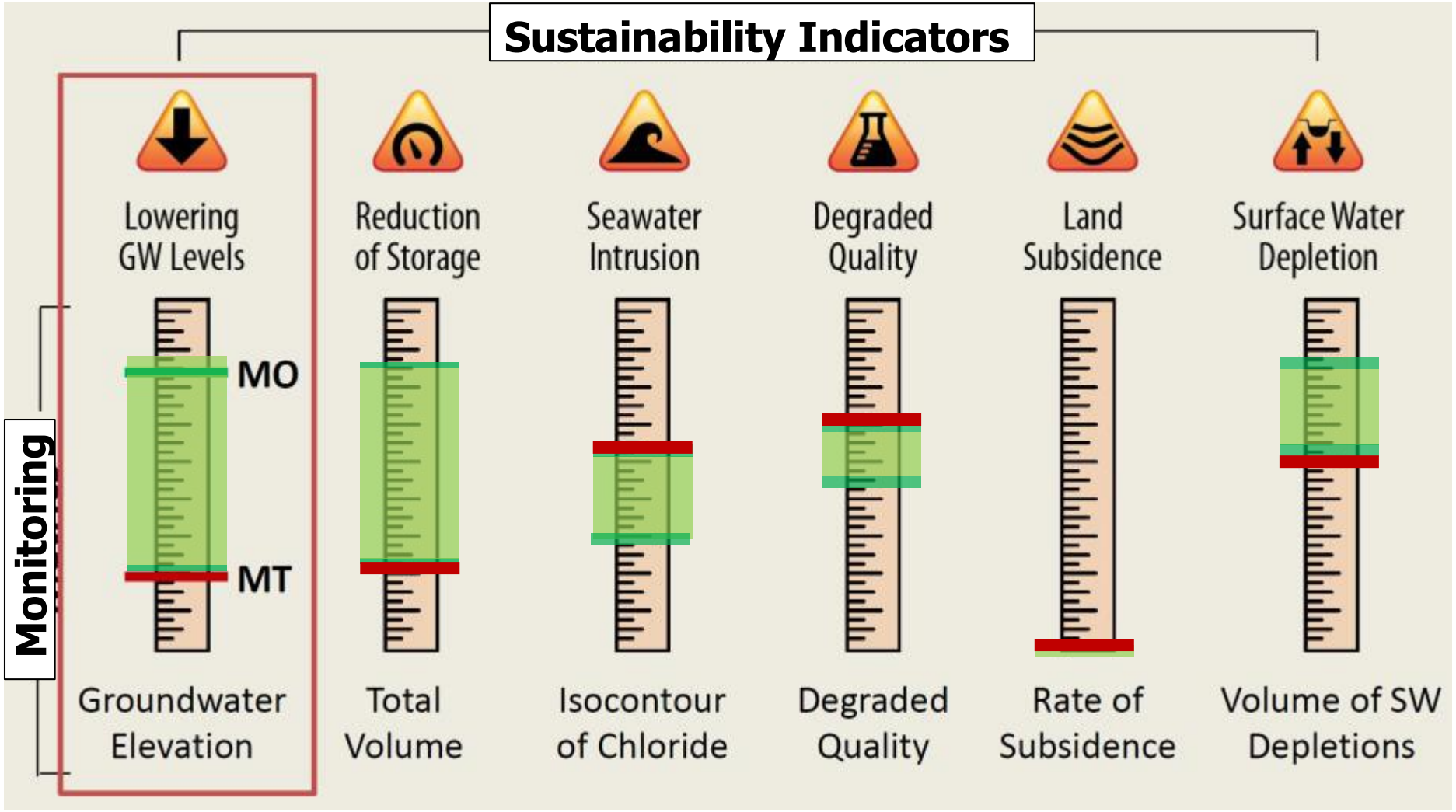
Develop & Adopt GSPs
Submit GSP to DWR: January 31, 2022

Will this plan meet our sustainability goals?

SGMA Terms Explained

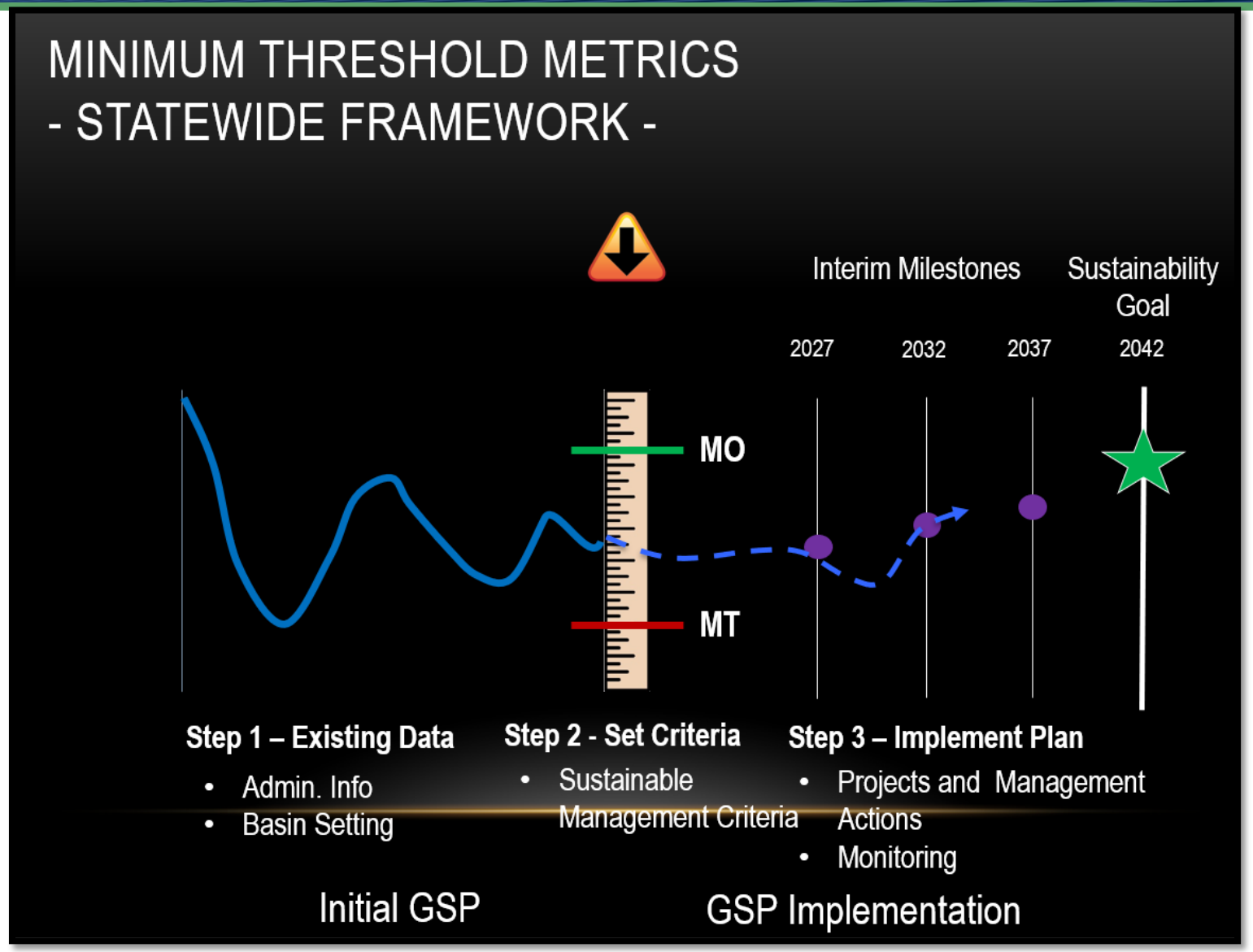
TEHAMA COUNTY
Flood Control and Water Conservation District

Sustainable Management Criteria for
all applicable Sustainability Indicators



SGMA Terms Explained

TEHAMA COUNTY
Flood Control and Water Conservation District



Presentation Outline

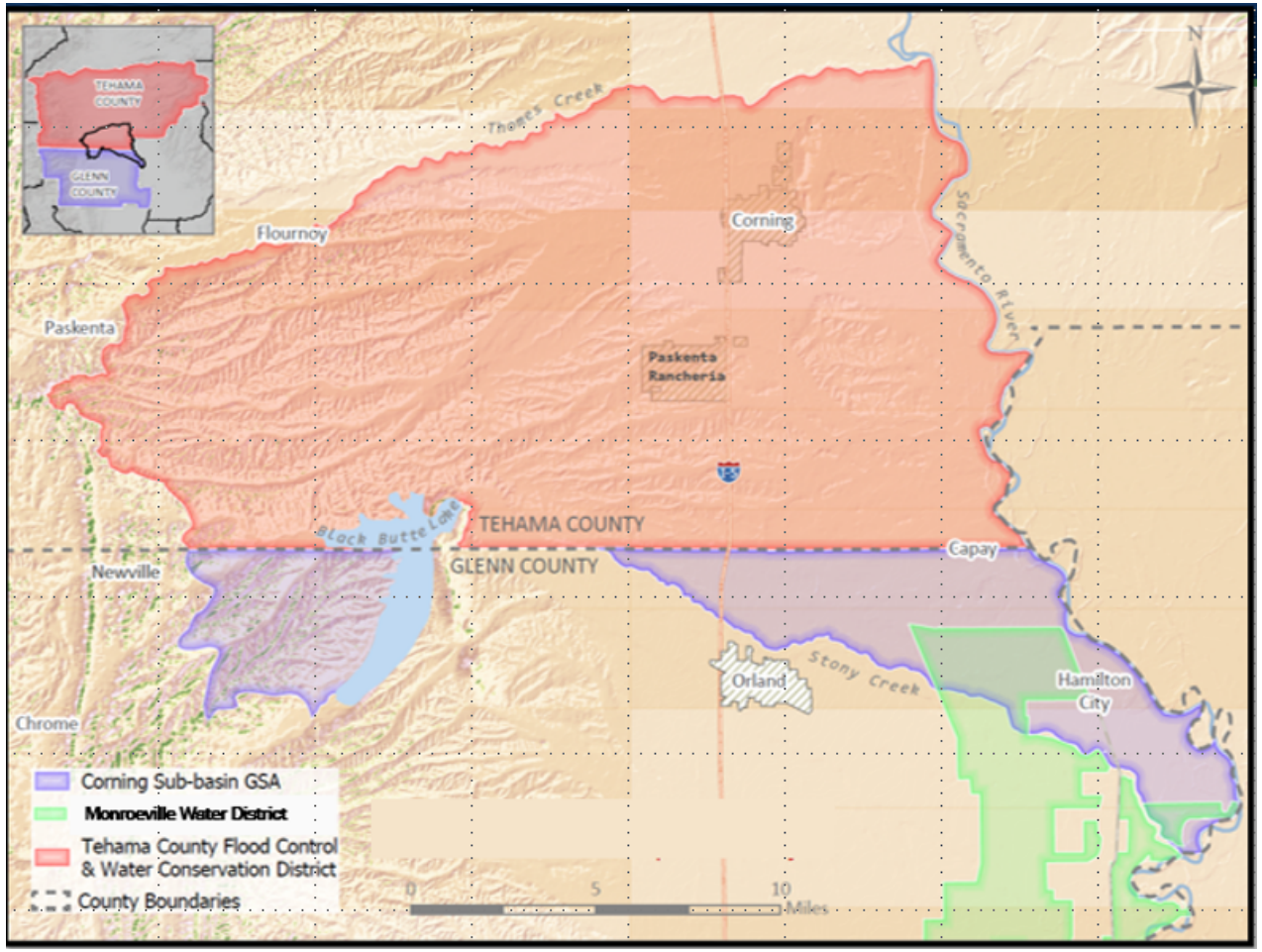
TEHAMA COUNTY
Flood Control and Water Conservation District

Introduction
- Antelope Subbasin
- Sustainability Goal

Plan Area
- General Area
- Existing Land Use Designation
- Existing Land Use
- Existing Water Sources & Users
- Density of Wells
- Existing Monitoring Networks – Water Level
- Existing Monitoring Networks – Water Quality
- Existing Monitoring Networks – Land Subsidence
- Well Construction Policies
- Well Abandonment Policies
- Notice and Communication

Basin Setting
- Cross-sections
- Topography info
- Surficial geology
- Soil characteristics
- Existing recharge areas
- Surface water bodies
- Current and Historical Groundwater Conditions
  - Elevation data
  - Groundwater quality
  - Land Subsidence

Water Budget Information

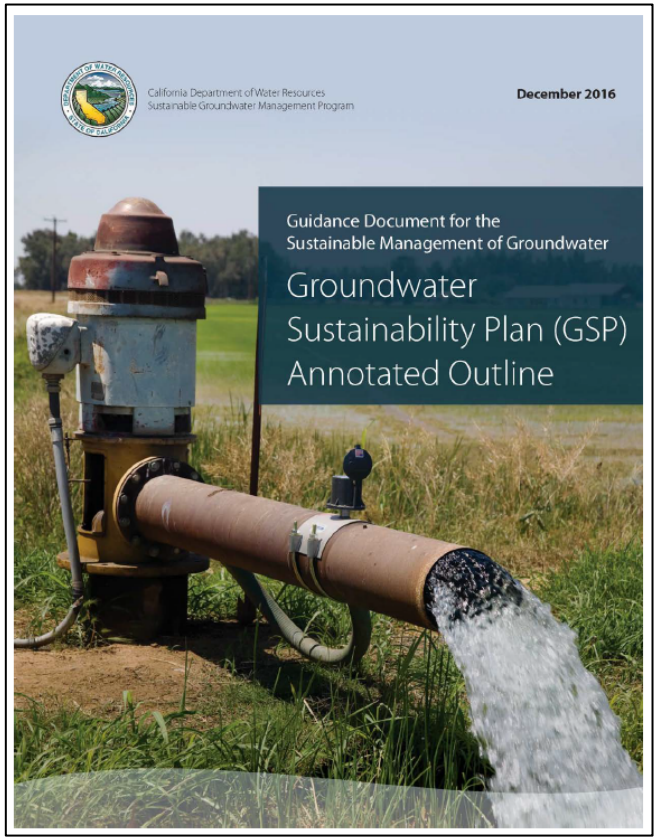


GSP Development – Technical Foundation

TEHAMA COUNTY
Flood Control and Water Conservation District

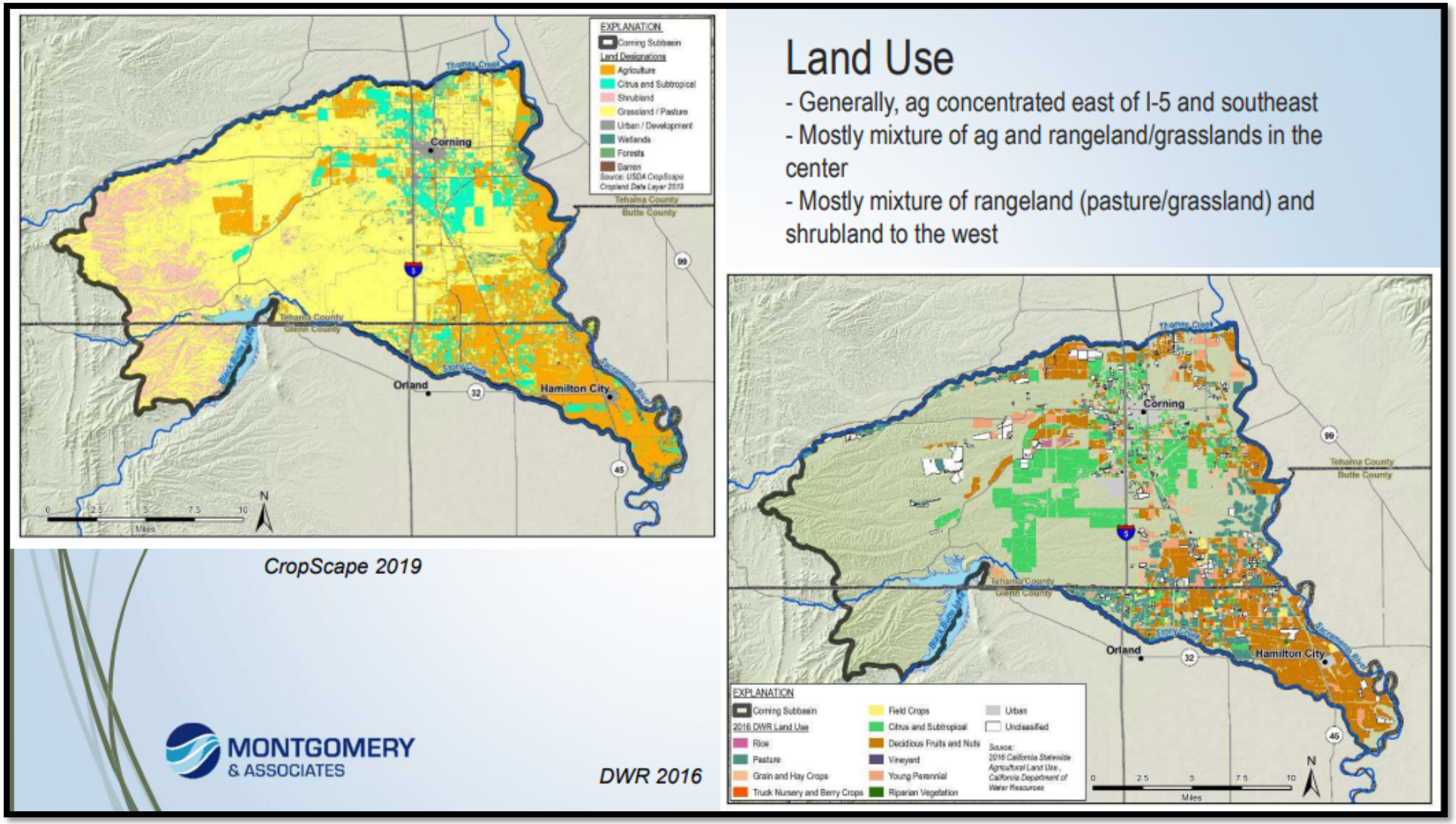
GSP Sections

- **Executive Summary**
- **Section 1**: Introduction
- **Section 2**: Plan Area
- **Section 3**: Basin Setting (HCM and GW conditions)
- **Section 4**: Water Budgets (with description of modeling tools)
- **Section 5**: Monitoring Networks
- **Section 6**: Sustainable Management Criteria
- **Section 7**: Projects and Management Actions
- **Section 8**: Plan Implementation



Existing Land Use Designation

TEHAMA COUNTY
Flood Control and Water Conservation District



Existing Water Sources & Users

TEHAMA COUNTY
Flood Control and Water Conservation District

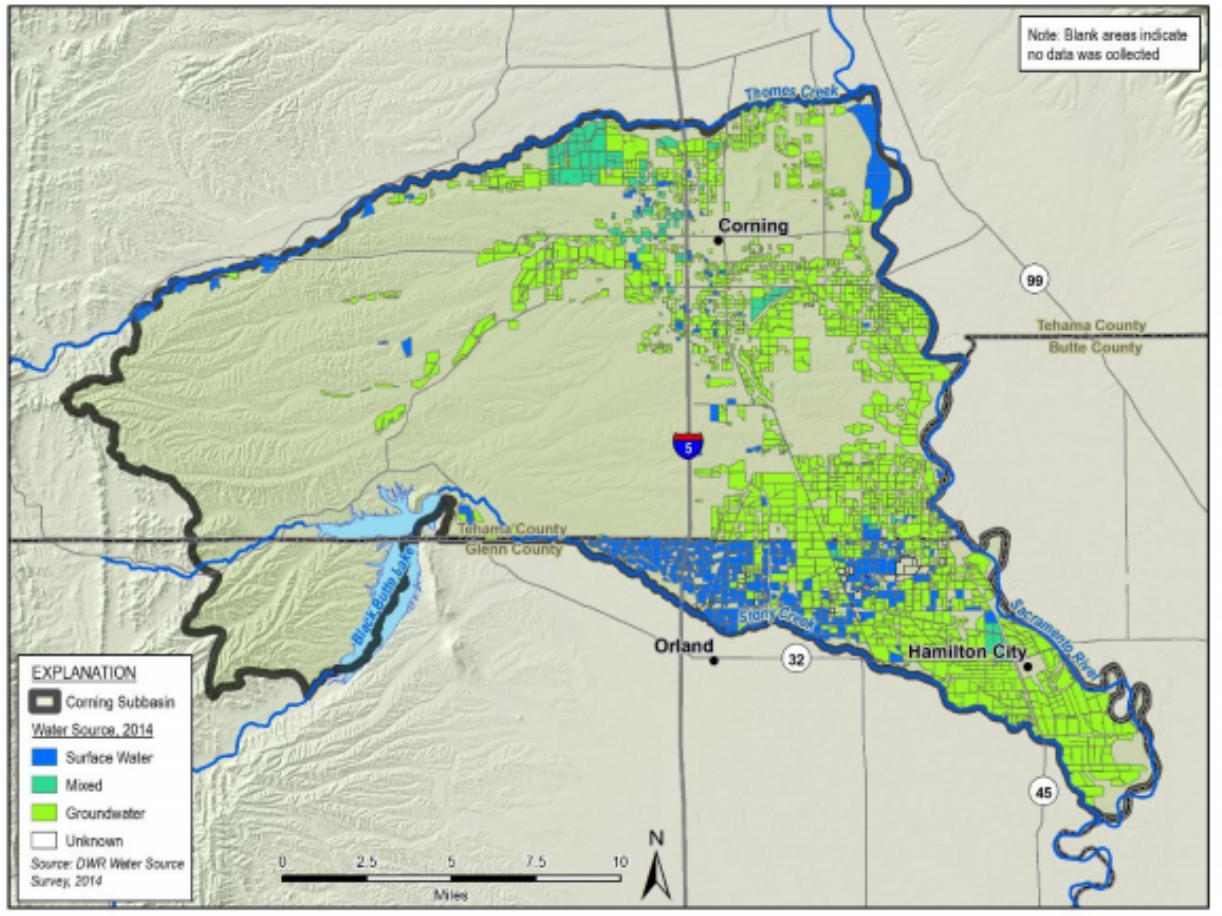


Figure 2-8. Water Source Types in the Subbasin Prior to 2014 (from DWR)

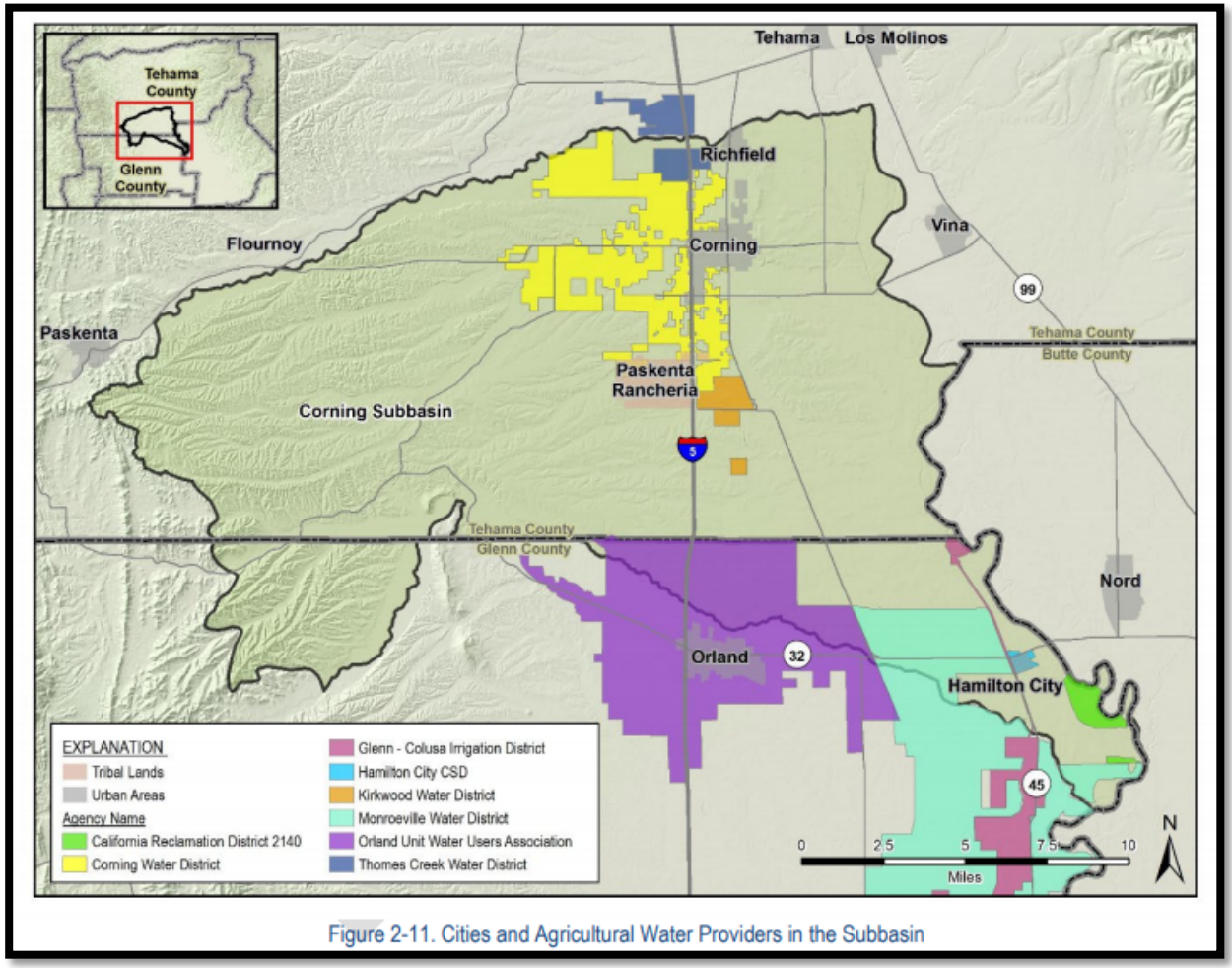
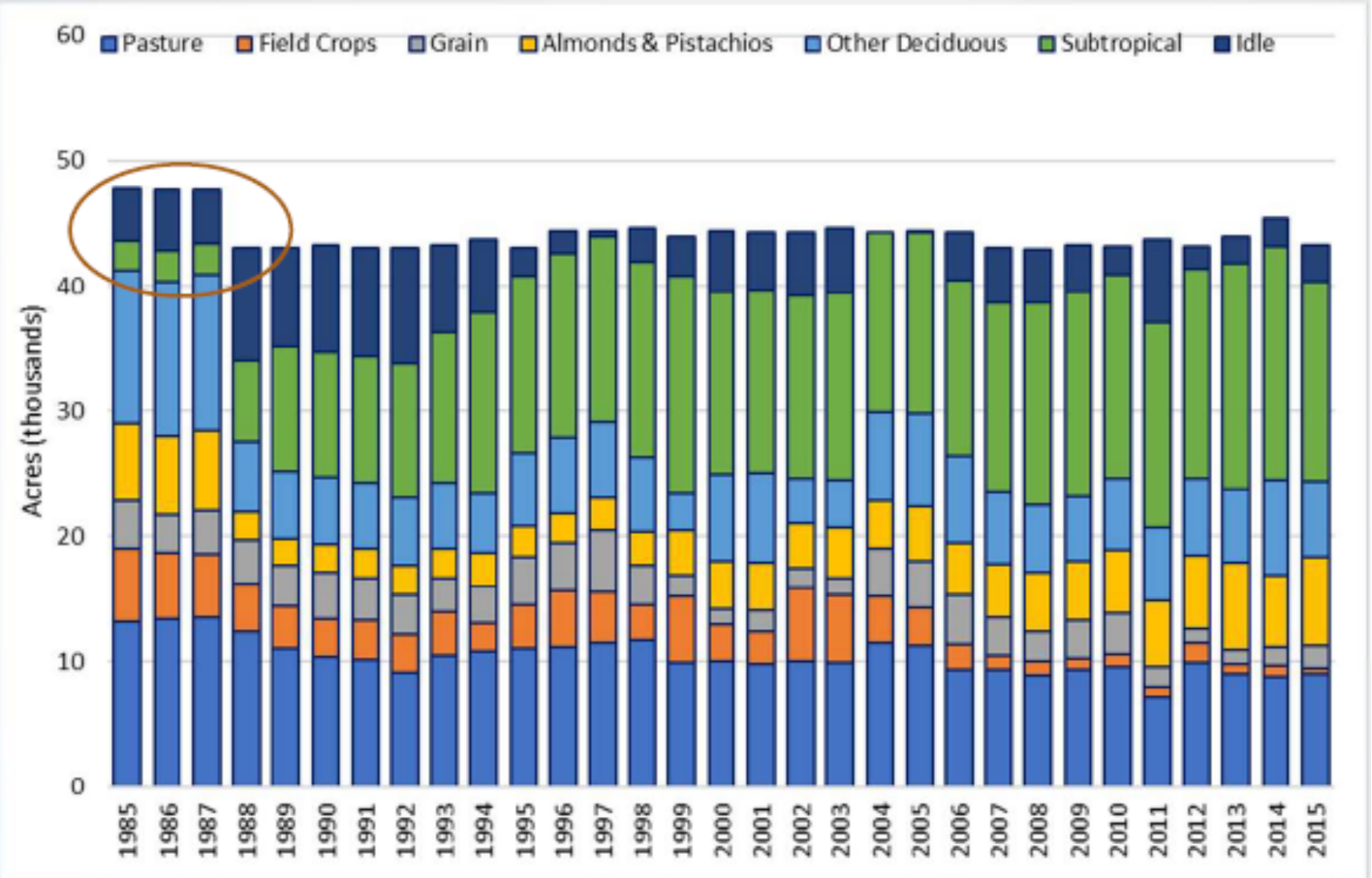


Figure 2-11. Cities and Agricultural Water Providers in the Subbasin

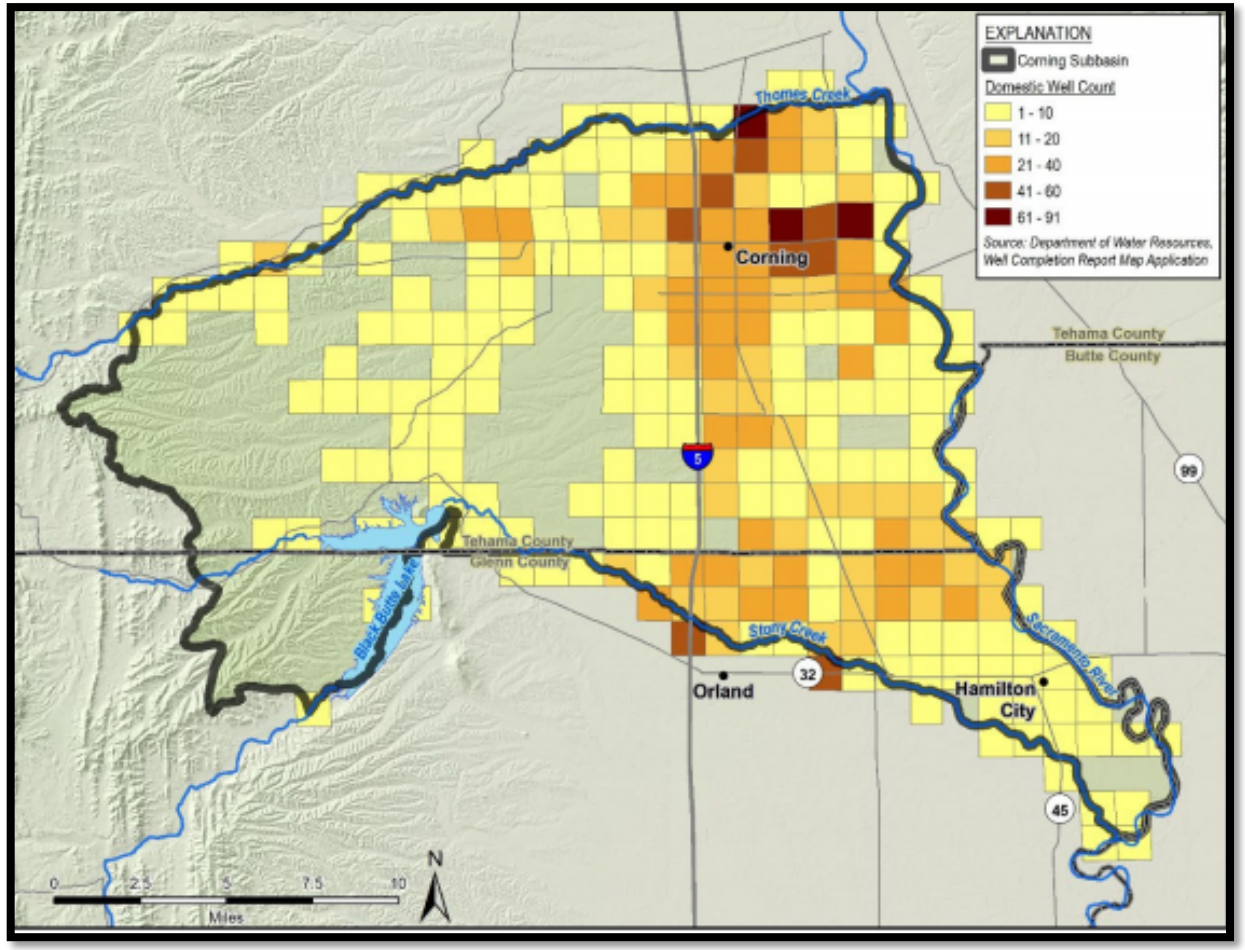
Existing Water Sources & Users

TEHAMA COUNTY
Flood Control and Water Conservation District

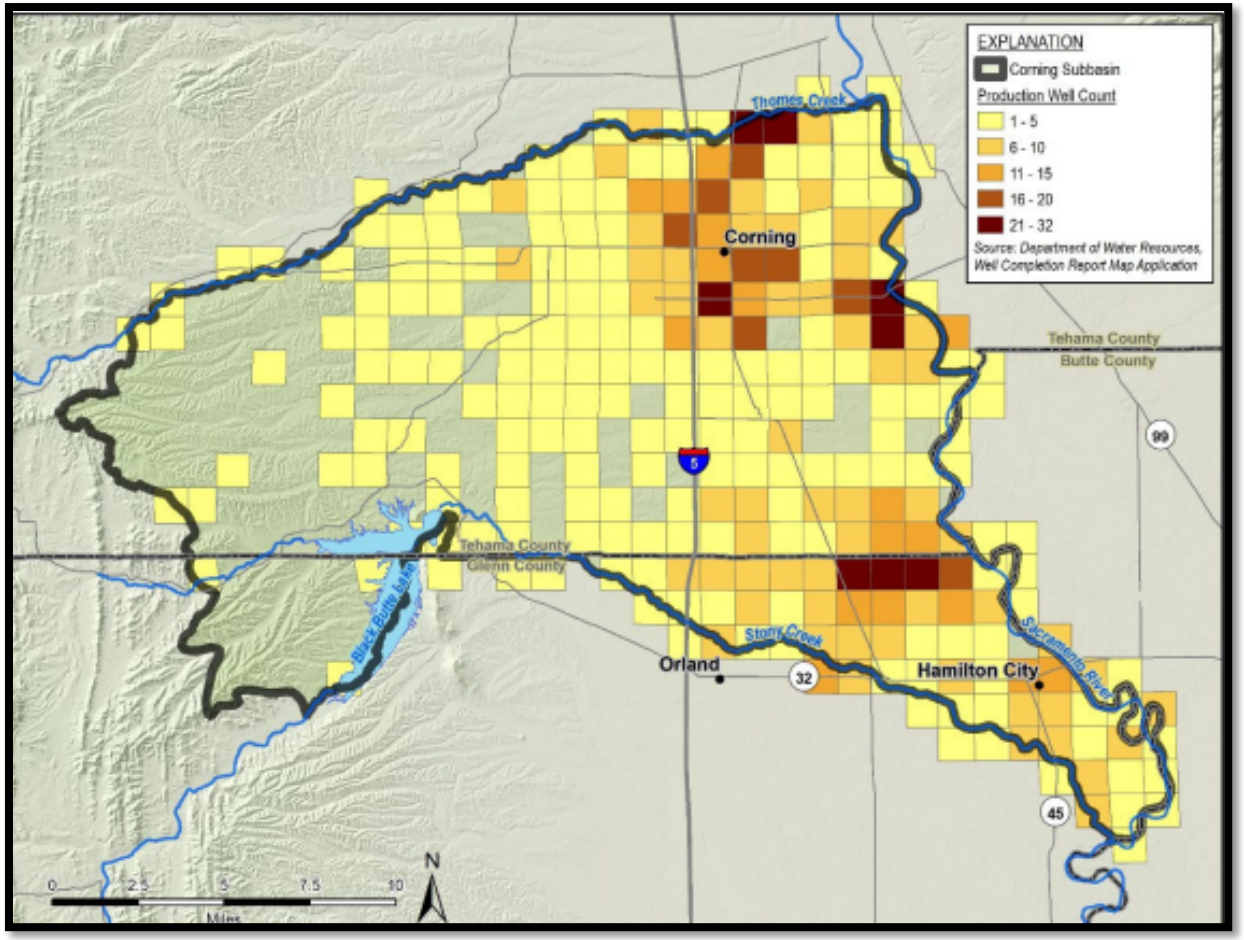


Density of Wells

TEHAMA COUNTY
Flood Control and Water Conservation District



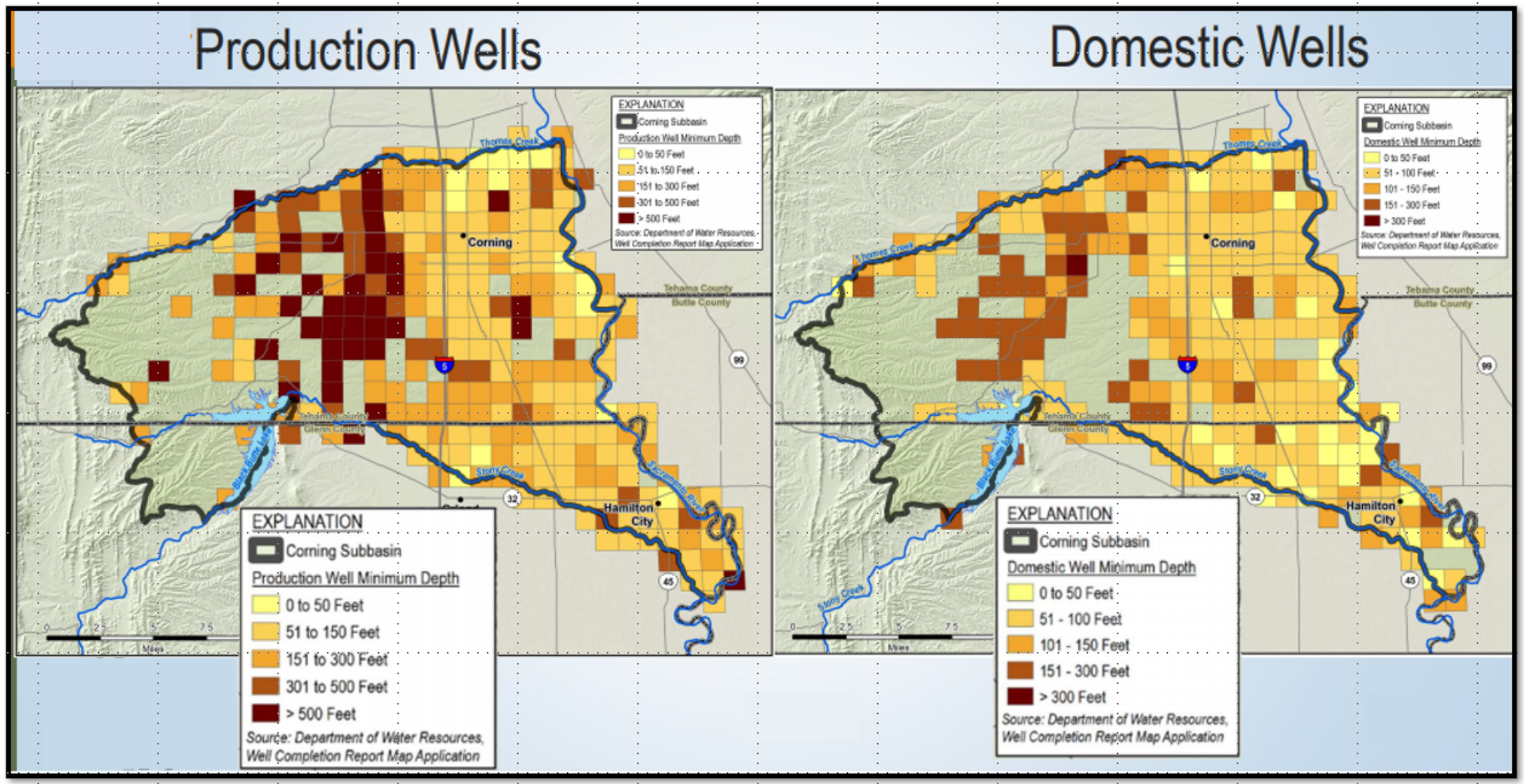
Density of Domestic Wells (Number of Wells per Square Mile)



Density of Production Wells (Number of Wells per Square Mile)

Depth of Wells

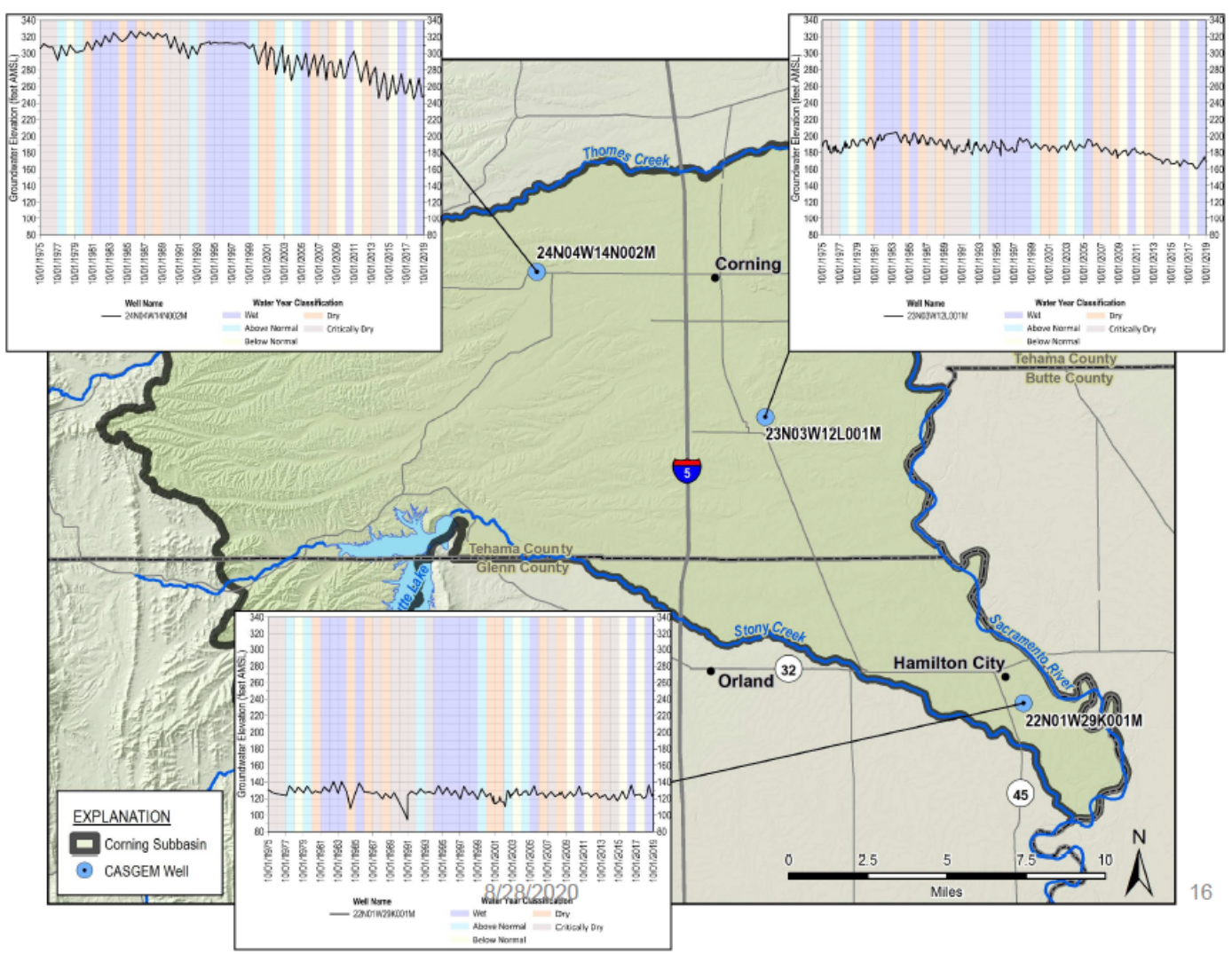
TEHAMA COUNTY
Flood Control and Water Conservation District



Existing Monitoring Networks – Water Level

TEHAMA COUNTY
Flood Control and Water Conservation District

Groundwater Levels



8/28/2020

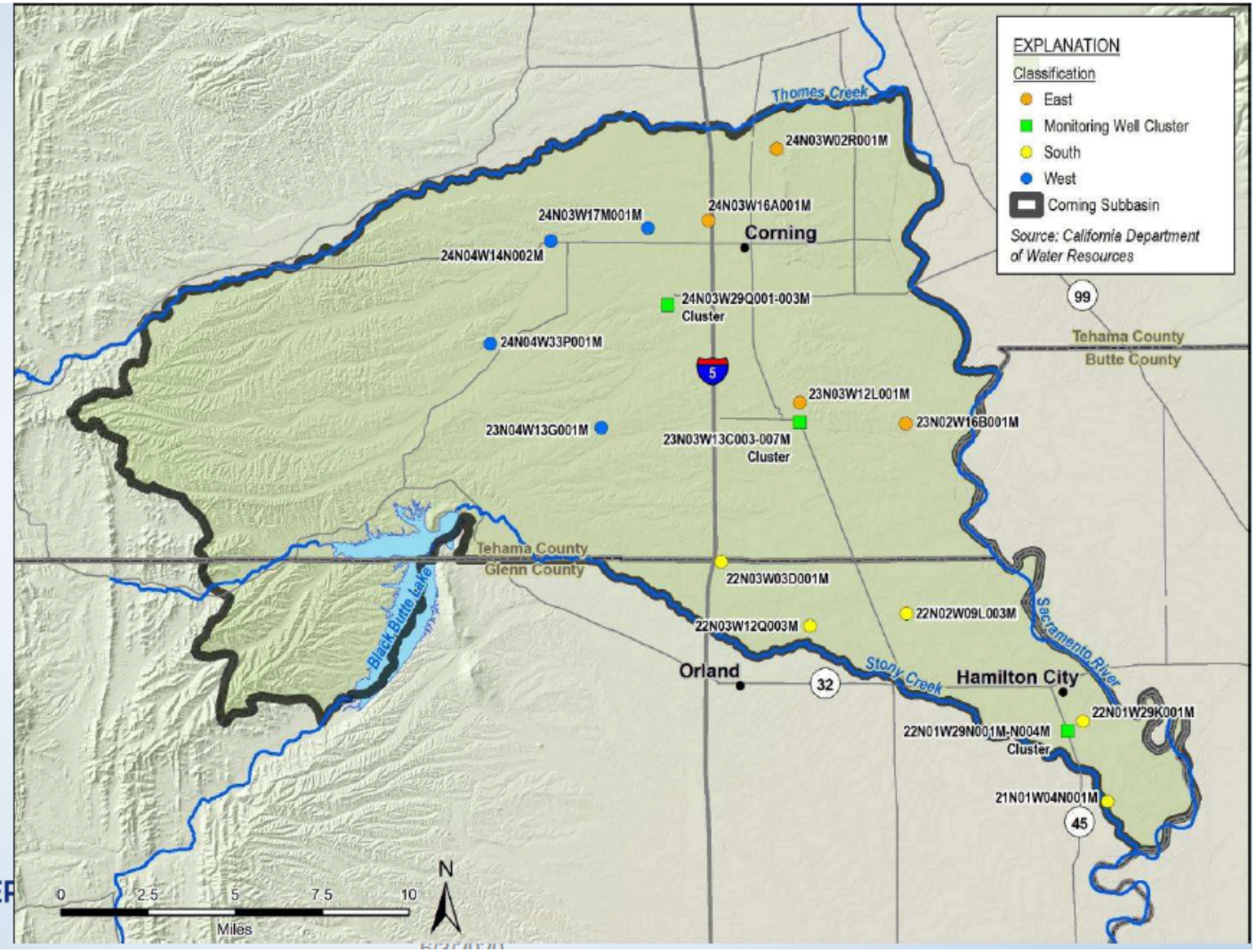
16

Existing Monitoring Networks – Water Level

TEHAMA COUNTY
Flood Control and Water Conservation District

Key Wells for Water Level Analysis

- Dispersed across Subbasin
- Variety of well depths
- Clusters for measuring vertical gradients

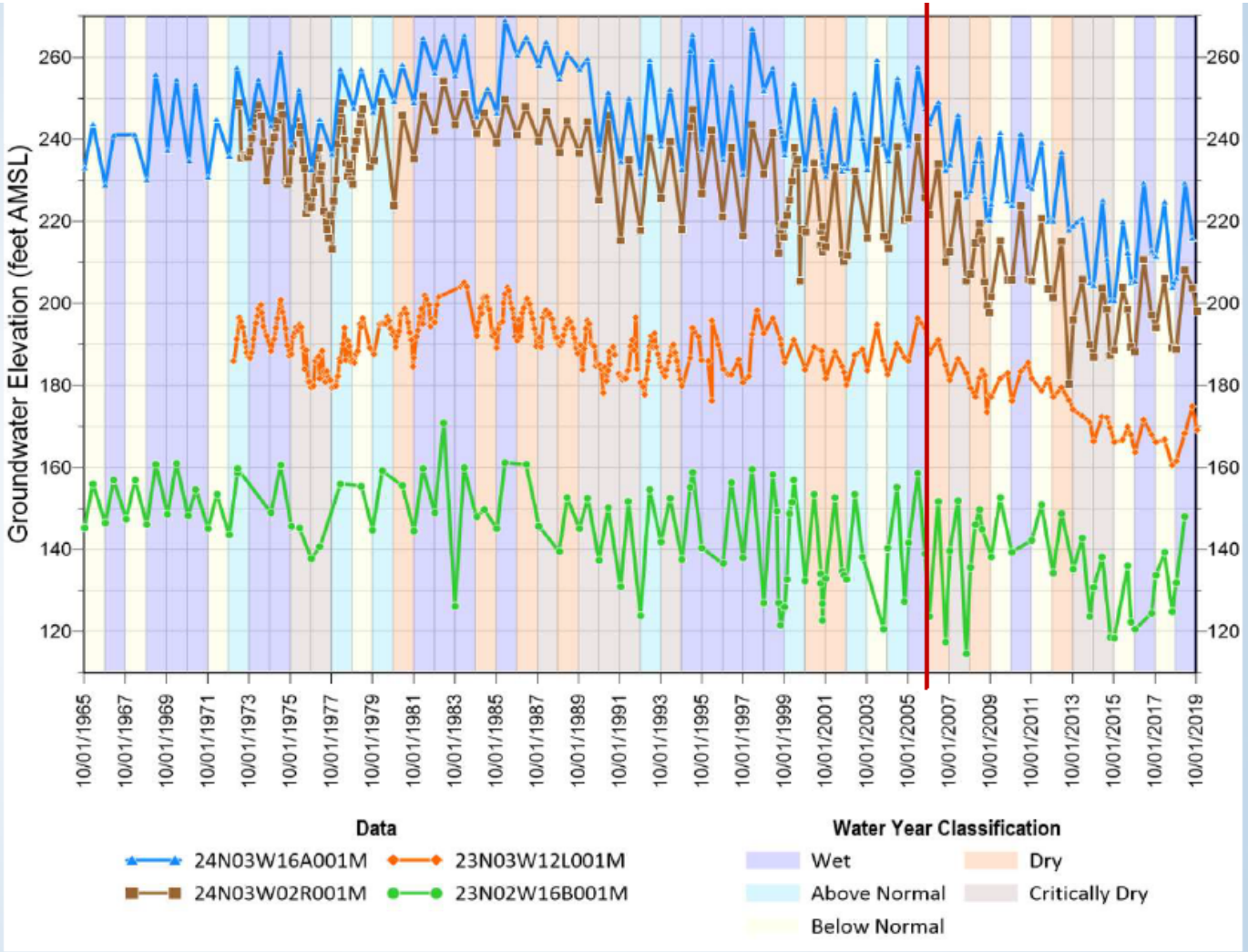


Existing Monitoring Networks – Water Level

TEHAMA COUNTY
Flood Control and Water Conservation District

Water Level Trends - East

- Seasonal and annual response
- Declining water level trend in many wells since 2006

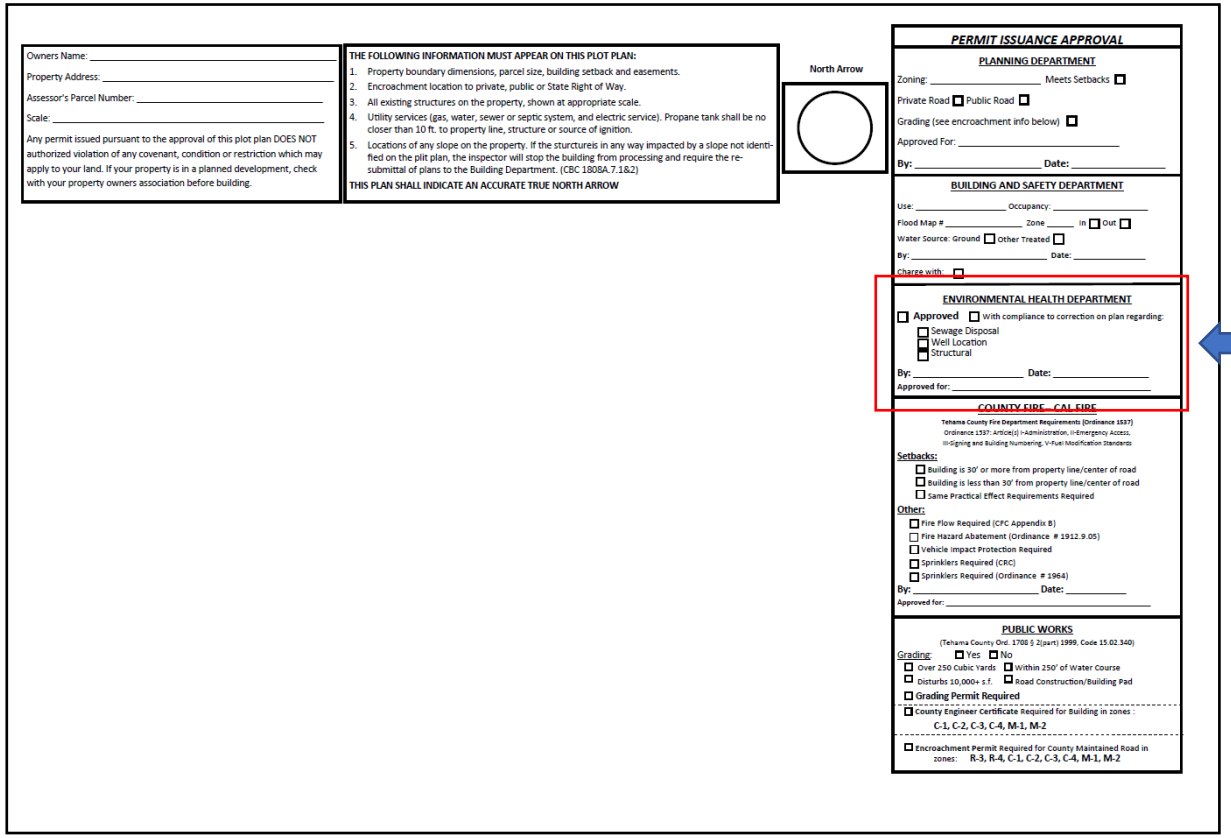


MONTGOMERY & ASSOCIATES

Well Construction Policies

TEHAMA COUNTY
Flood Control and Water Conservation District

Well Permitting



Owners Name: _____

Property Address: _____

Assessor's Parcel Number: _____

Scale: _____

Any permit issued pursuant to the approval of this plot plan DOES NOT authorized violation of any covenant, condition or restriction which may apply to your land. If your property is in a planned development, check with your property owners association before building.

THE FOLLOWING INFORMATION MUST APPEAR ON THIS PLOT PLAN:

1. Property boundary dimensions, parcel size, building setback and easements.
2. Encroachment location to private, public or State Right of Way.
3. All existing structures on the property, shown at appropriate scale.
4. Utility services (gas, water, sewer or septic system, and electric service). Propane tank shall be no closer than 10 ft. to property line, structure or source of ignition.
5. Locations of any slope on the property. If the sturctureis in any way impacted by a slope not identified on the plit plan, the inspector will stop the building from processing and require the re-submittal of plans to the Building Department. (CBC 1808A.7.1&2)

THIS PLAN SHALL INDICATE AN ACCURATE TRUE NORTH ARROW

North Arrow

PERMIT ISSUANCE APPROVAL

PLANNING DEPARTMENT

Zoning: _____ Meets Setbacks ☐

Private Road ☐ Public Road ☐

Grading (see encroachment info below) ☐

Approved For: _____

By: _____ Date: _____

BUILDING AND SAFETY DEPARTMENT

Use: _____ Occupancy: _____

Flood Map # _____ Zone _____ In ☐ Out ☐

Water Source: Ground ☐ Other Treated ☐

By: _____ Date: _____

Charge with: ☐

ENVIRONMENTAL HEALTH DEPARTMENT

☐ Approved ☐ with compliance to correction on plan regarding:

- ☐ Sewage Disposal
- ☐ Well Location
- ☐ Structural

By: _____ Date: _____

Approved for: _____

COUNTY FIRE - CAL FIRE

Tehama County Fire Department Requirements (Ordinance 1537)
Ordinance 1537: Article(s) I-Administration, II-Emergency Access, III-Signing and Building Numbering, V-Fuel Modification Standards

Setbacks:

- ☐ Building is 30' or more from property line/center of road
- ☐ Building is less than 30' from property line/center of road
- ☐ Same Practical Effect Requirements Required

Other:

- ☐ Fire Flow Required (CFC Appendix B)
- ☐ Fire Hazard Abatement (Ordinance # 1912.9.05)
- ☐ Vehicle Impact Protection Required
- ☐ Sprinklers Required (CRC)
- ☐ Sprinklers Required (Ordinance # 1964)

By: _____ Date: _____

Approved for: _____

PUBLIC WORKS

(Tehama County Ord. 1708 § 2(part) 1999, Code 15.02.340)

Grading: ☐ Yes ☐ No

- ☐ Over 250 Cubic Yards ☐ Within 250' of Water Course
- ☐ Disturbs 10,000+ s.f. ☐ Road Construction/Building Pad
- ☐ Grading Permit Required

☐ County Engineer Certificate Required for Building in zones : C-1, C-2, C-3, C-4, M-1, M-2

☐ Encroachment Permit Required for County Maintained Road in zones: R-3, R-4, C-1, C-2, C-3, C-4, M-1, M-2

Well Permits are reviewed by the Tehama County Environmental Health Department and DWR

Additional Review may be Required by the Tehama County:

- Planning Department (Zoning)
- Building Department (Flood Hazard Areas)
- Fire Department (Parcels created after January 1992)
- Department of Drinking Water (Public Supply Wells)

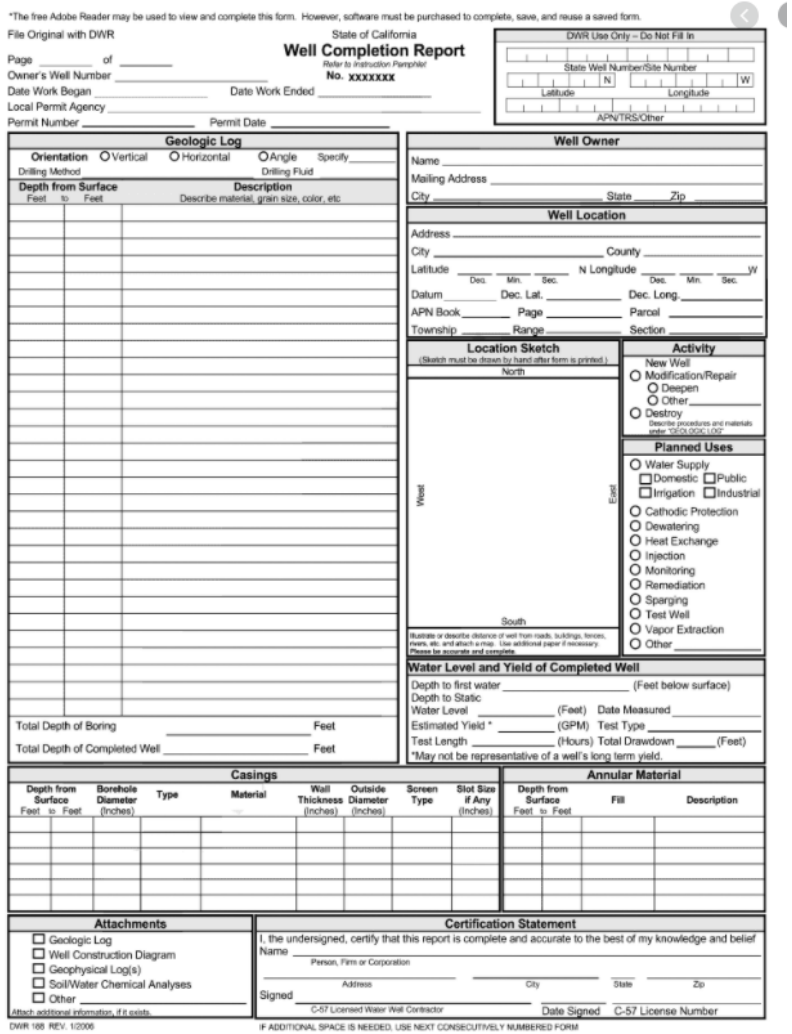
Well Construction Policies

TEHAMA COUNTY
Flood Control and Water Conservation District

Well Permitting

Tehama County Code of Ordinances Section 9.42 includes requirements for:

- Well Location
- Annular Seal
- Surface Construction Features
- Well Labeling
- Disinfection and Sanitary Requirements
- Sealing off Strata
- Casing
- Well Development, Redevelopment, and Conditioning
- Water Quality Testing
- Large Diameter Shallow Wells
- Driven Wells
- Rehabilitation, Repair, or Deepening of Wells
- Inspection
- Well Driller's Report
- Well Maintenance



*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. xxxxxxx

DWR Use Only – Do Not Fill In

Page ____ of ____

Owner's Well Number

Date Work Began ____ Date Work Ended ____

Local Permit Agency

Permit Number ____ Permit Date ____

State Well Number/Site Number

Latitude ____ N ____ Longitude ____ W

APN/TRS/Other

Geologic Log

Orientation ○ Vertical ○ Horizontal ○ Angle Specify

Drilling Method ____ Drilling Fluid ____

Depth from Surface (Feet to Feet) | Description (Describe material, grain size, color, etc)

Total Depth of Boring ____ Feet

Total Depth of Completed Well ____ Feet

Well Owner

Name

Mailing Address

City ____ State ____ Zip ____

Well Location

Address

City ____ County ____

Latitude ____ (Deg. Min. Sec.) N Longitude ____ (Deg. Min. Sec.) W

Datum ____ Dec. Lat. ____ Dec. Long. ____

APN Book ____ Page ____ Parcel ____

Township ____ Range ____ Section ____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North / West / East / South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc.; and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

New Well

○ Modification/Repair
- ○ Deepen
- ○ Other ____

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
- ☐ Domestic ☐ Public
- ☐ Irrigation ☐ Industrial

○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other ____

Water Level and Yield of Completed Well

Depth to first water ____ (Feet below surface)

Depth to Static

Water Level ____ (Feet) Date Measured ____

Estimated Yield * ____ (GPM) Test Type ____

Test Length ____ (Hours) Total Drawdown ____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface (Feet to Feet)	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)

Annular Material

Depth from Surface (Feet to Feet)	Fill	Description

Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other ____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name ____ (Person, Firm or Corporation)

Address ____ City ____ State ____ Zip ____

Signed ____ (C-57 Licensed Water Well Contractor) Date Signed ____ C-57 License Number ____

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Well Abandonment Policies

TEHAMA COUNTY
Flood Control and Water Conservation District

Managed by the Tehama County Department of Environmental Health

Destruction Requirements are provided in Section 9.42 of the Tehama County Code of Ordinances for:

- Preliminary Work
- Filling and Sealing Conditions
- Placement of Material

Abandoned or Unused Wells

Anyone knowing the location of an abandoned or permanently inactive well is urged to Please contact the Tehama County Environmental Health Department:

633 Washington street Rm. 36

Red Bluff, Ca. 96080

Phone (530) 527-8020

Under California law it is a misdemeanor not to properly destroy an abandoned or permanently inactive well if:

It is dangerous to anyone legally on the premises, Or dangerous to any child under the age of 12
or, It constitutes a pathway for groundwater pollution, contamination, or poor water quality through vertical movement of water.

Tehama County Code Chapter 9.42 states:

A well that is no longer useful (including exploration and test holes) shall be destroyed in order to:

1. Assure that the groundwater supply is protected and preserved for future use;

2. Eliminate potential physical hazard.

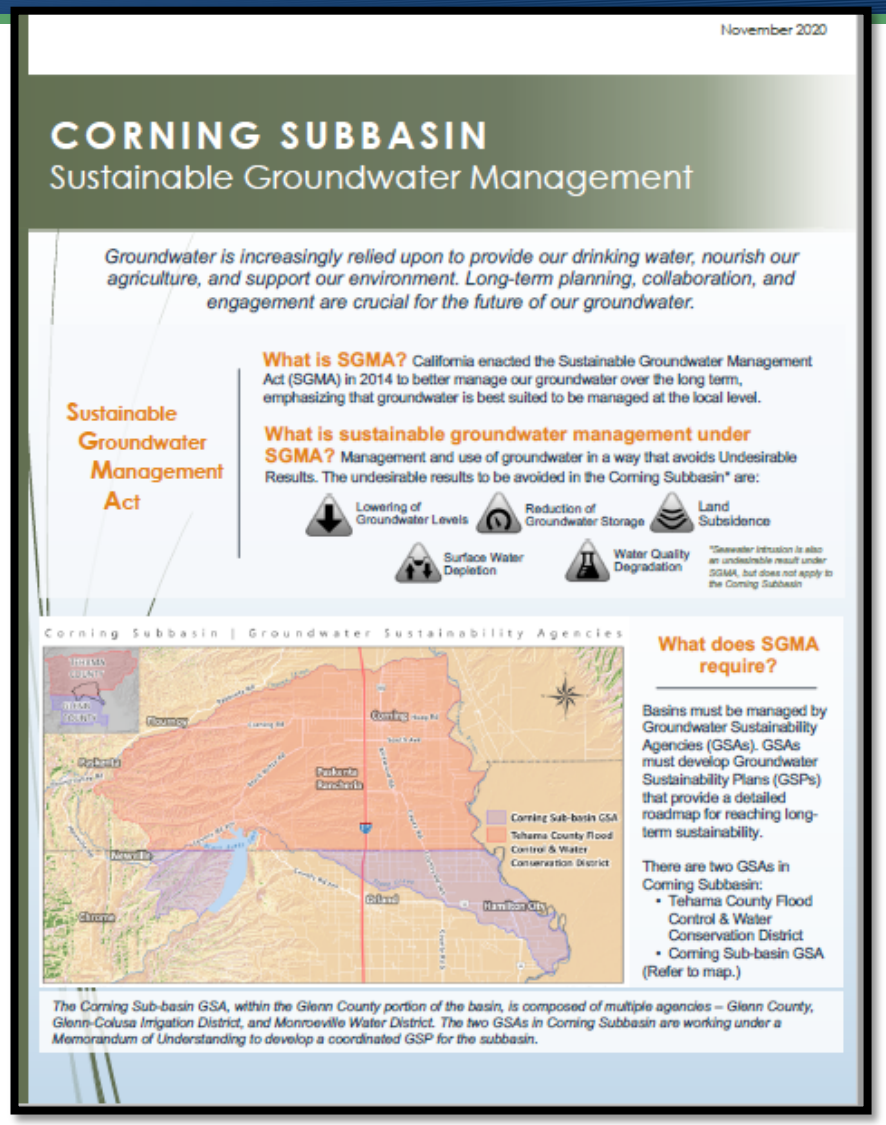
Abatement of abandoned wells.

All persons owning an abandoned well as defined in this chapter, except those excluded by California Health and Safety Code Section 24440, shall destroy it according to the standards contained in this article.

https://www.co.tehama.ca.us/env-health-header/abandoned-or-unused-wells

Notice and Communication

TEHAMA COUNTY
Flood Control and Water Conservation District



November 2020

CORNING SUBBASIN
Sustainable Groundwater Management

Groundwater is increasingly relied upon to provide our drinking water, nourish our agriculture, and support our environment. Long-term planning, collaboration, and engagement are crucial for the future of our groundwater.

Sustainable Groundwater Management Act

What is SGMA? California enacted the Sustainable Groundwater Management Act (SGMA) in 2014 to better manage our groundwater over the long term, emphasizing that groundwater is best suited to be managed at the local level.

What is sustainable groundwater management under SGMA? Management and use of groundwater in a way that avoids Undesirable Results. The undesirable results to be avoided in the Corning Subbasin* are:

- Lowering of Groundwater Levels
- Reduction of Groundwater Storage
- Land Subsidence
- Surface Water Depletion
- Water Quality Degradation

*Seawater intrusion is also an undesirable result under SGMA, but does not apply to the Corning Subbasin

Corning Subbasin | Groundwater Sustainability Agencies

What does SGMA require?

Basins must be managed by Groundwater Sustainability Agencies (GSAs). GSAs must develop Groundwater Sustainability Plans (GSPs) that provide a detailed roadmap for reaching long-term sustainability.

There are two GSAs in Corning Subbasin:
- Tehama County Flood Control & Water Conservation District
- Corning Sub-basin GSA

(Refer to map.)

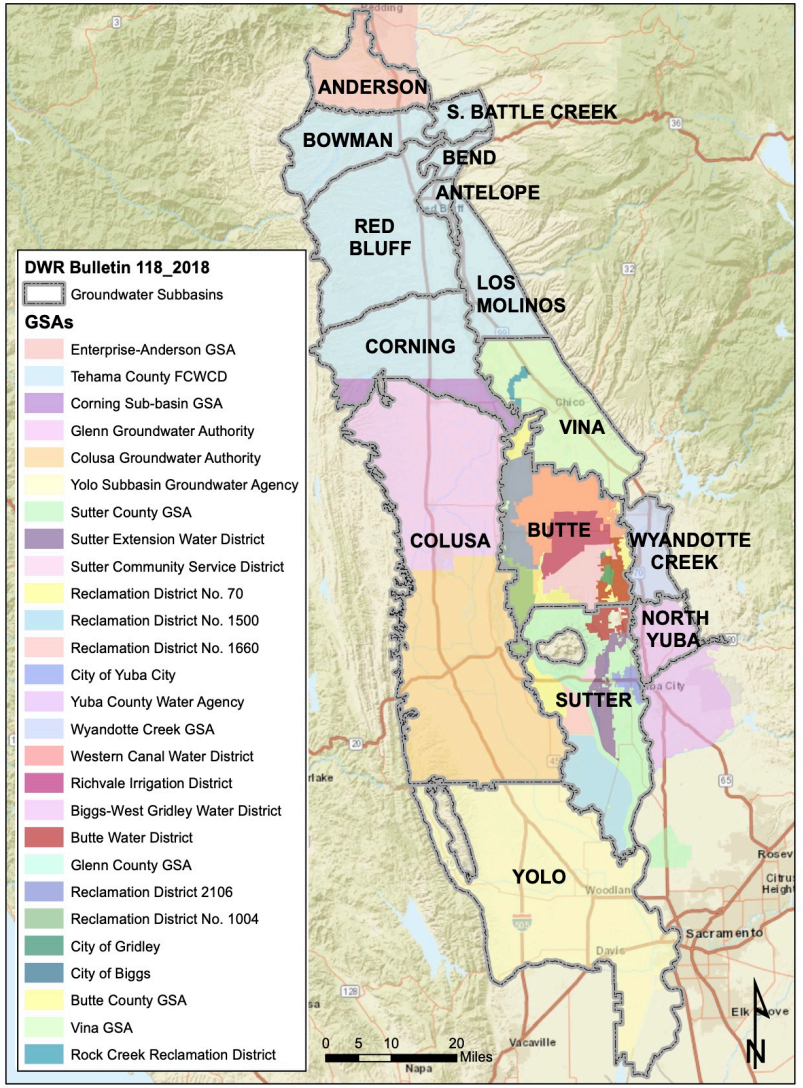
The Corning Sub-basin GSA, within the Glenn County portion of the basin, is composed of multiple agencies – Glenn County, Glenn-Colusa Irrigation District, and Monroeville Water District. The two GSAs in Corning Subbasin are working under a Memorandum of Understanding to develop a coordinated GSP for the subbasin.

- Public Meeting in November 2019
- CSAB monthly meetings starting in April 2020/ Website Launch (CorningSubbasinGSP.org)
- Small group outreach events (Capay Landowners Association, City of Corning, Thomas Creek Estates Tailgate)
- October 2020 Webinar (can be viewed at TehamaCountyWater.org)
- Facilitation Support with CBI funded by DWR FSS program October 2020
- December 2020 Webinar
- Quarterly Newsletter starting in December 2020
- Outreach Flier December 2020

Inter-basin Coordination

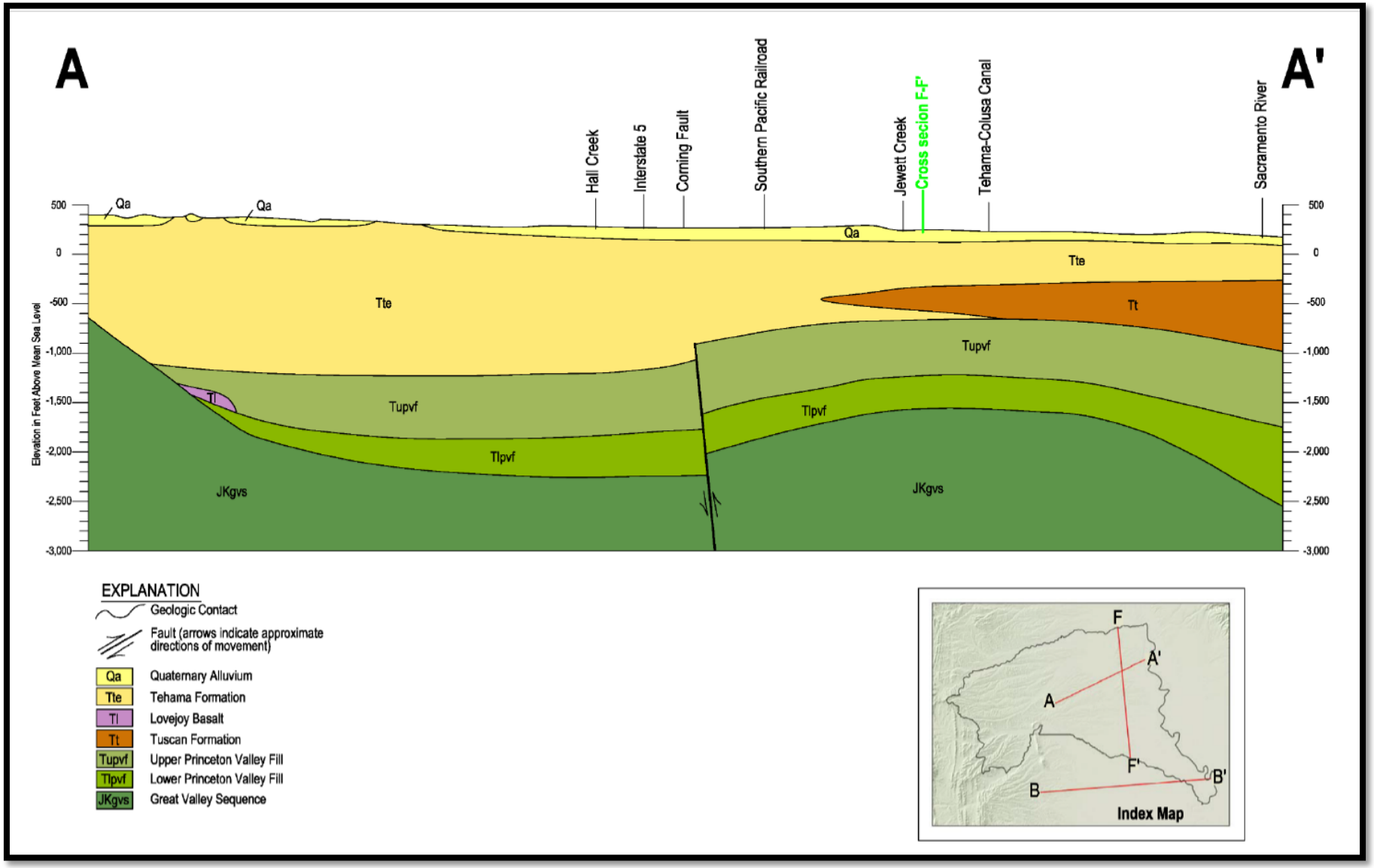
TEHAMA COUNTY
Flood Control and Water Conservation District

- Northern California Water Agencies
  - November 3, 2020
    - Groundwater Quality
    - Interconnected GW/SW white paper
  - December 1, 2020
    - Groundwater Dependent Ecosystems
    - Subsidence
- Corning Subbasin
  - November 12, 2020
    - Land Use Changes
    - GDEs along Thomes Creek
    - SMCs
    - Projects and Management Actions
    - DMS development for the GSPs and the County
    - Modeling/water budgets
- Northern Sacramento Valley
  - December 1, 2020
    - Interbasin Flow
    - Surface water/groundwater interaction



Geologic Cross-sections

TEHAMA COUNTY
Flood Control and Water Conservation District



Topography

TEHAMA COUNTY
Flood Control and Water Conservation District

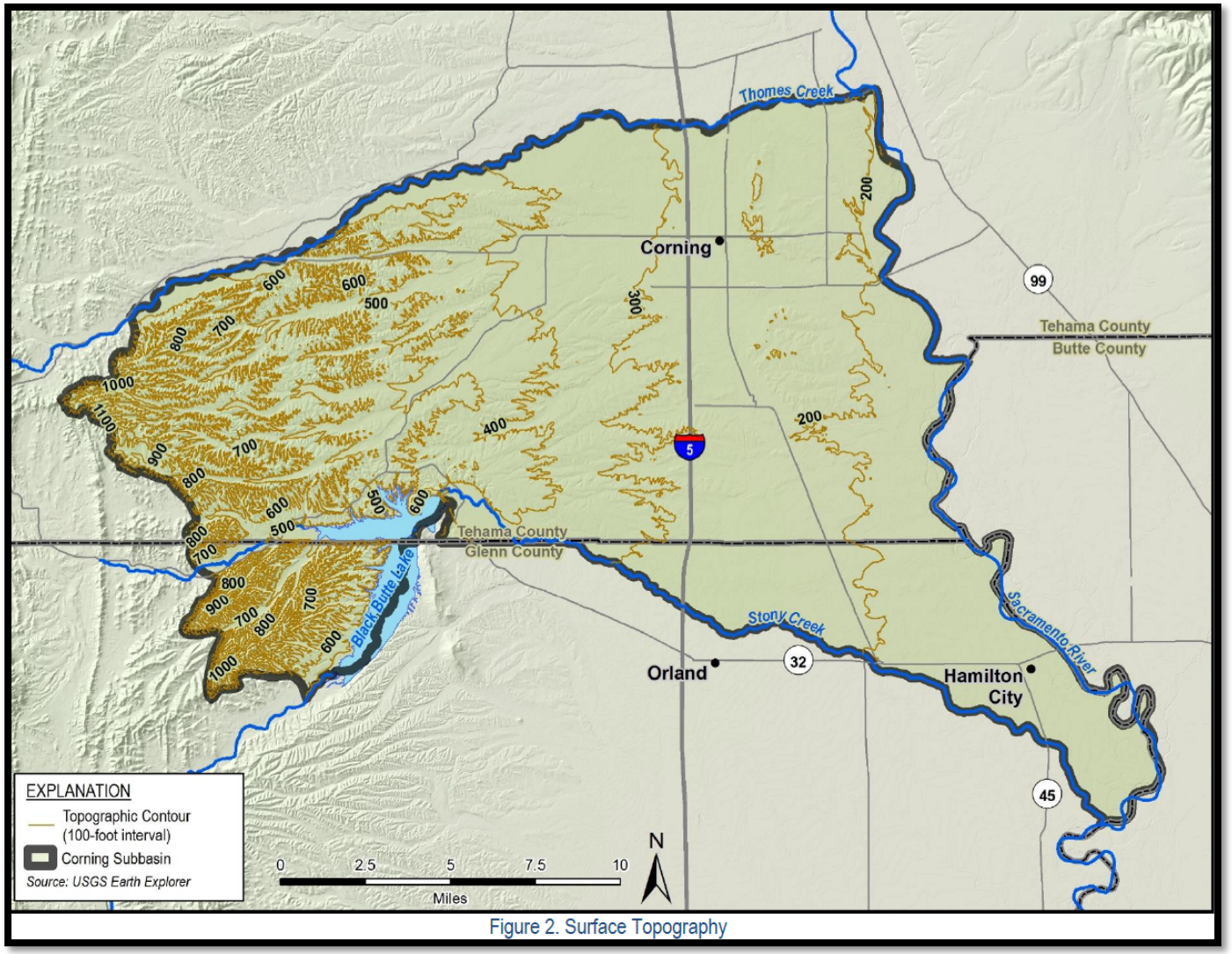
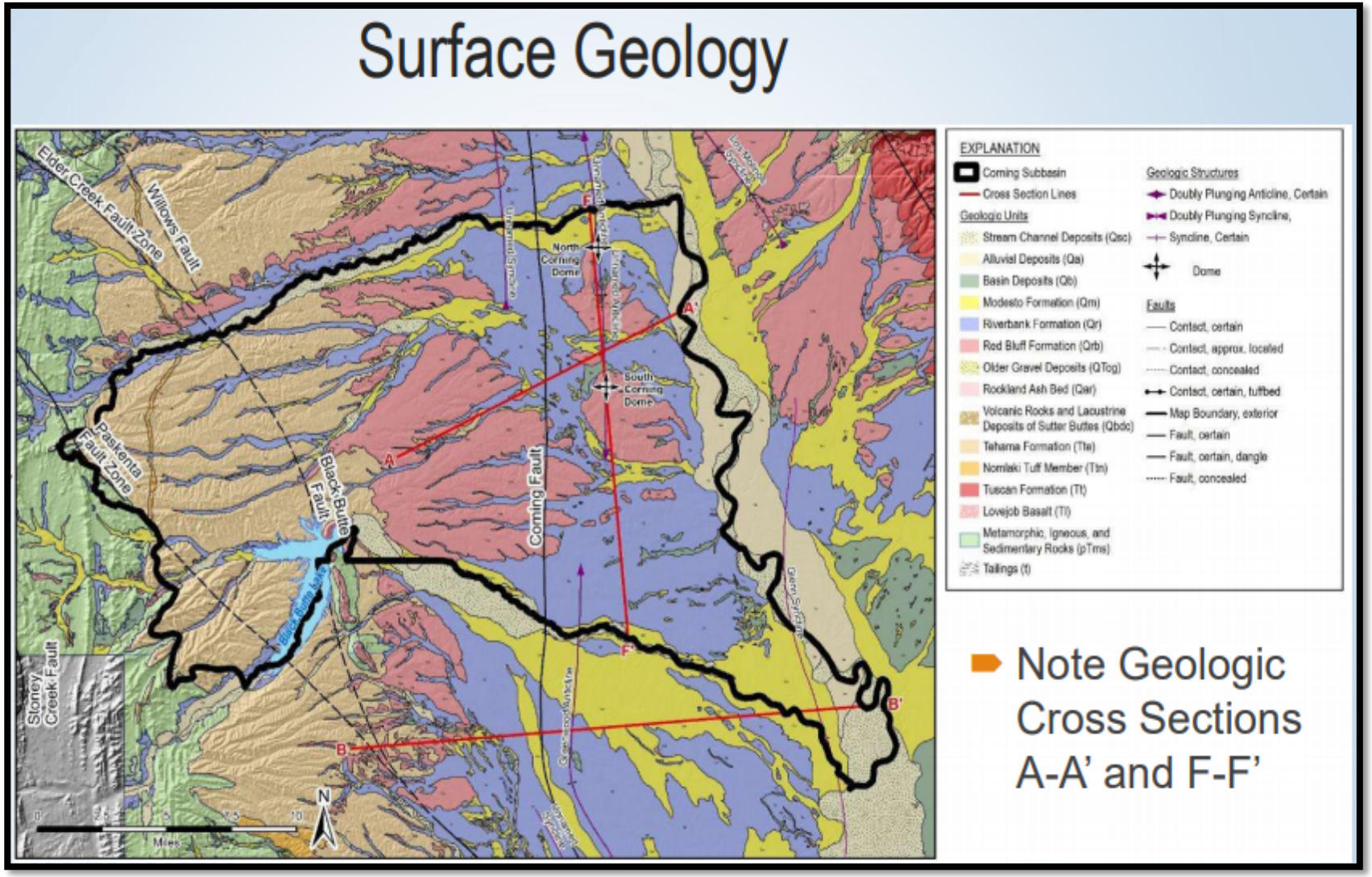


Figure 2. Surface Topography

Ground Surface Elevation

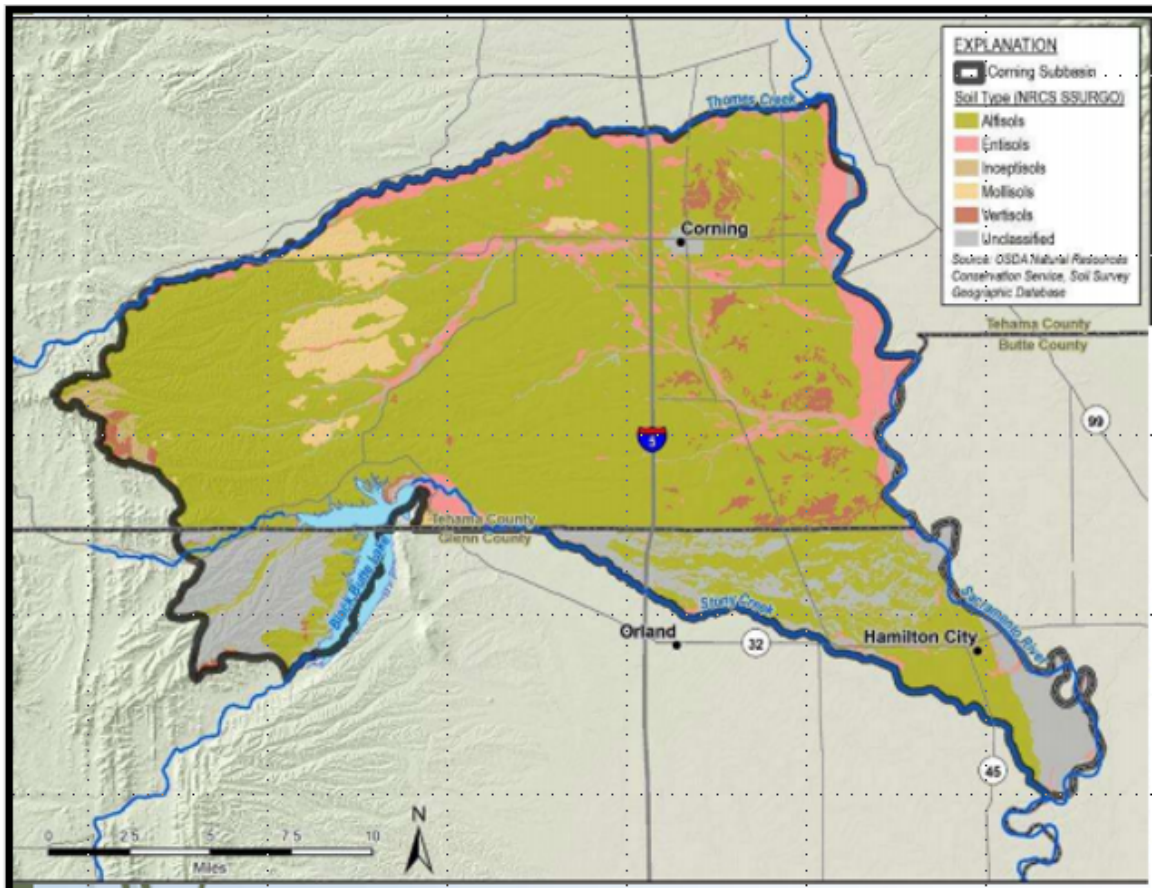
Surficial Geology

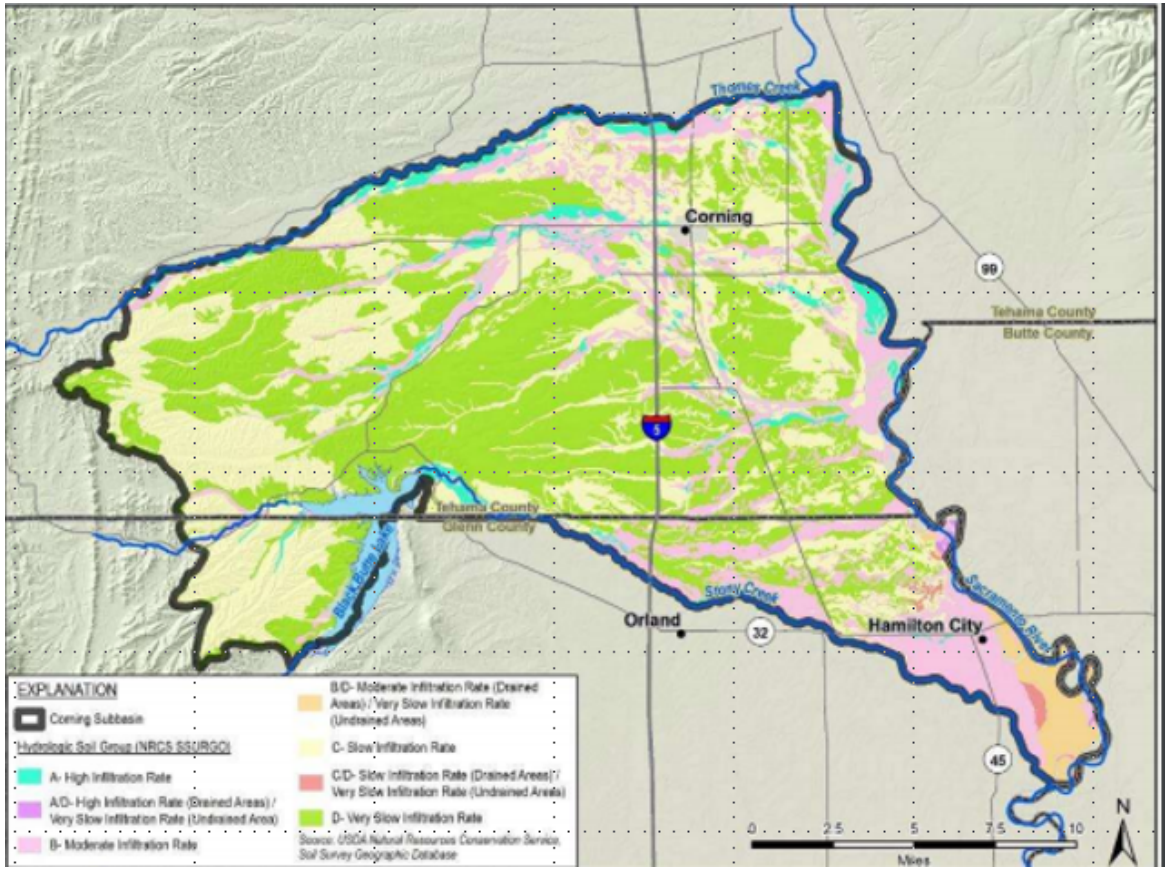
TEHAMA COUNTY
Flood Control and Water Conservation District



Characteristics of Soil

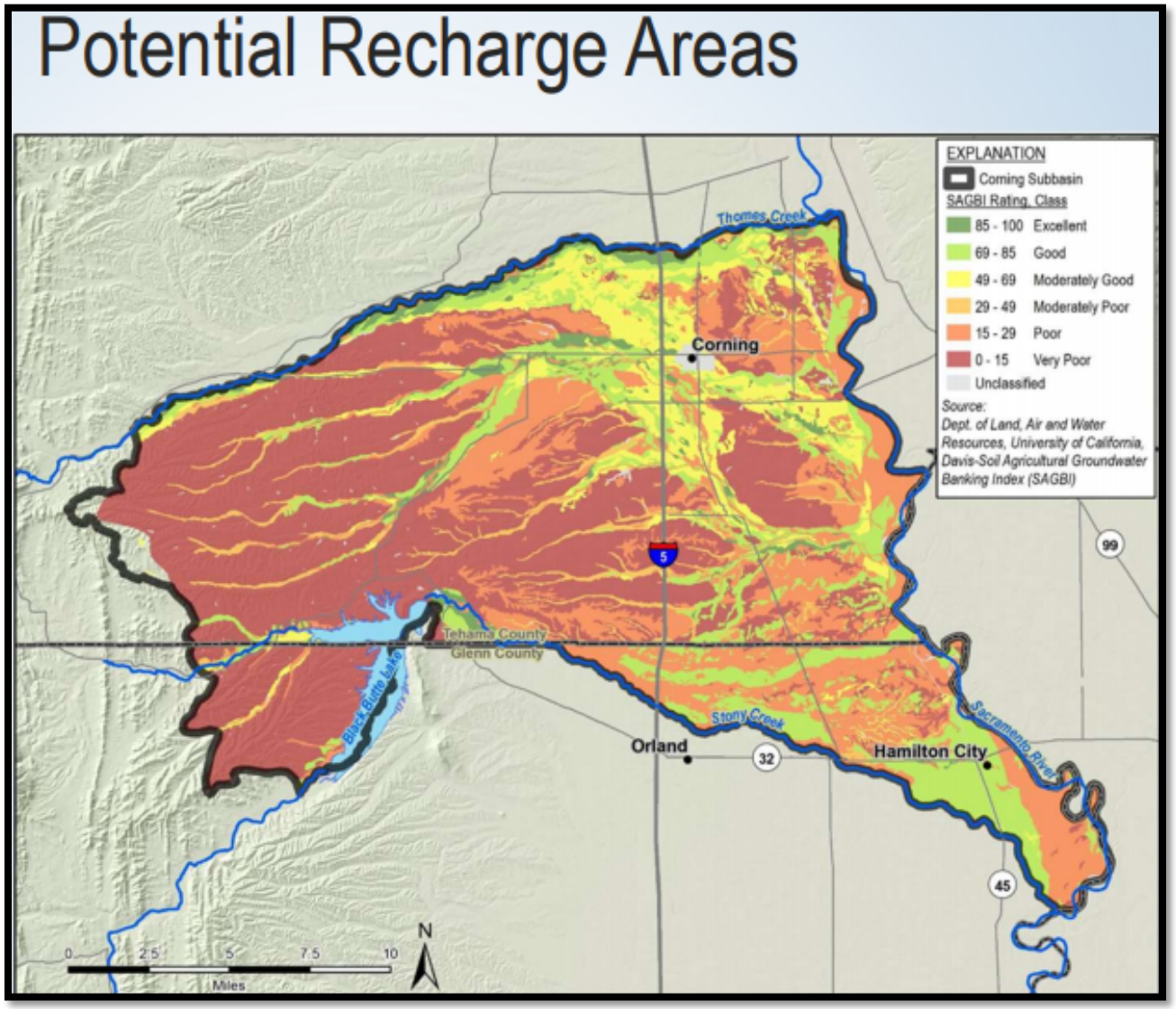
TEHAMA COUNTY
Flood Control and Water Conservation District





Groundwater Recharge Areas

TEHAMA COUNTY
Flood Control and Water Conservation District



Groundwater Quality

TEHAMA COUNTY
Flood Control and Water Conservation District

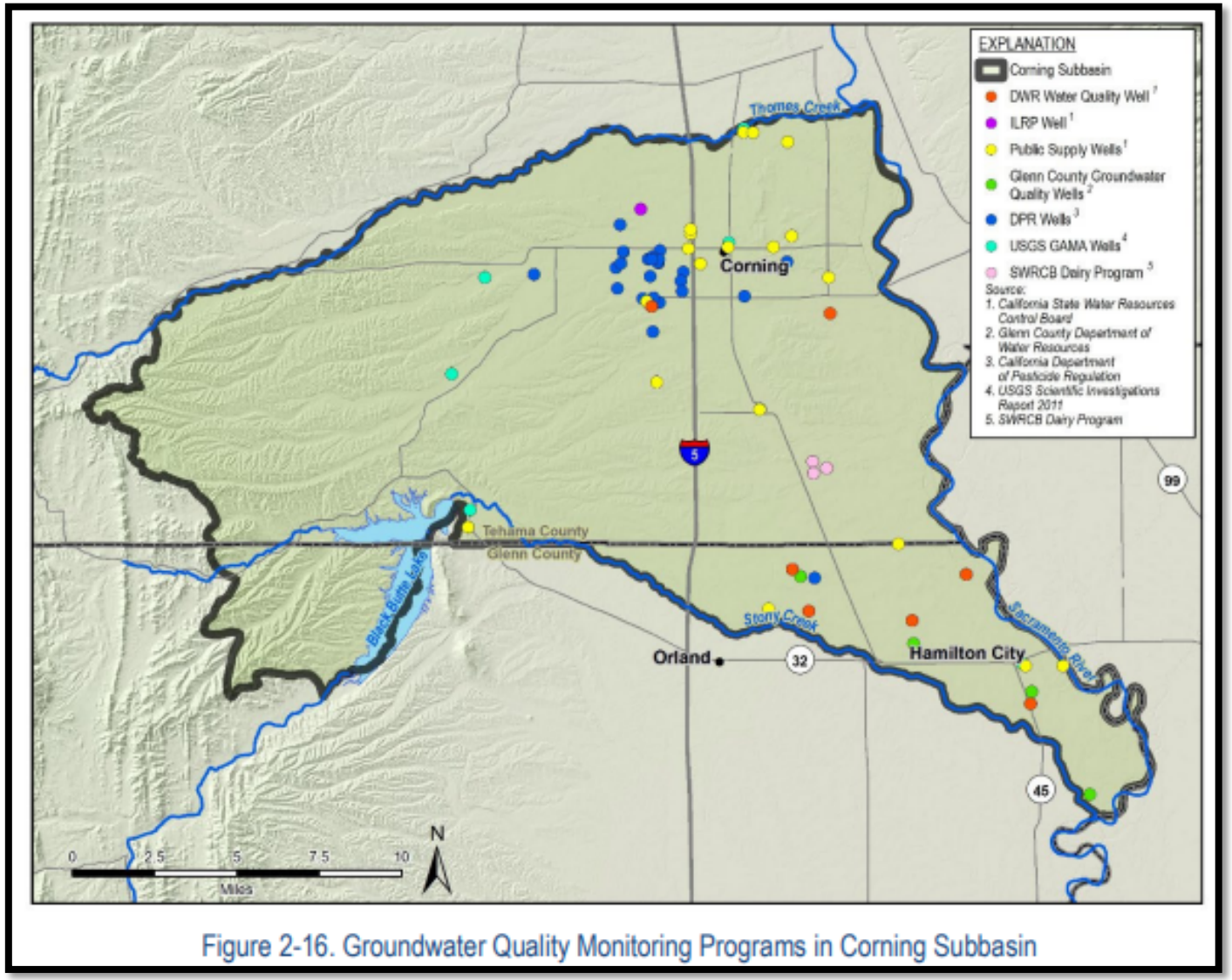
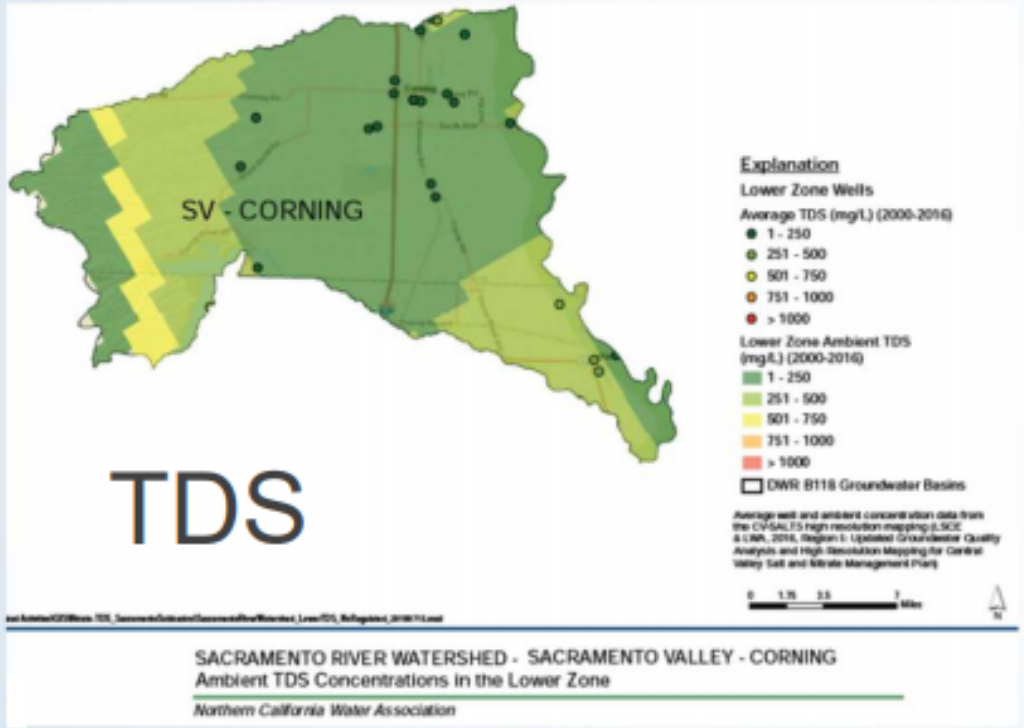


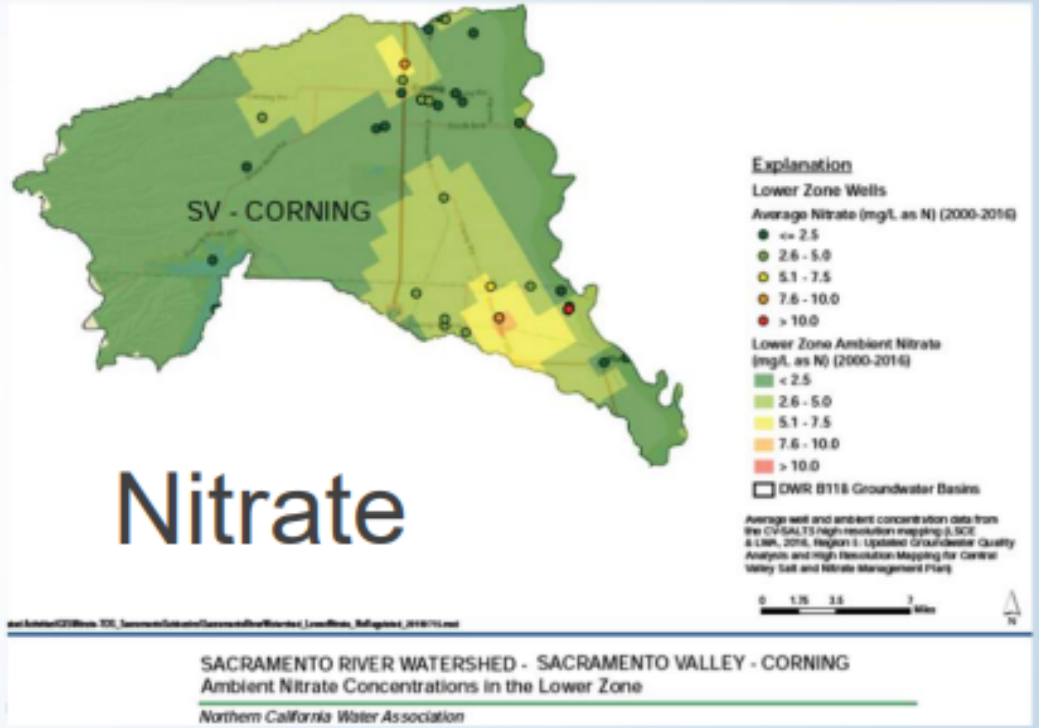
Figure 2-16. Groundwater Quality Monitoring Programs in Corning Subbasin

Groundwater Quality

TEHAMA COUNTY
Flood Control and Water Conservation District

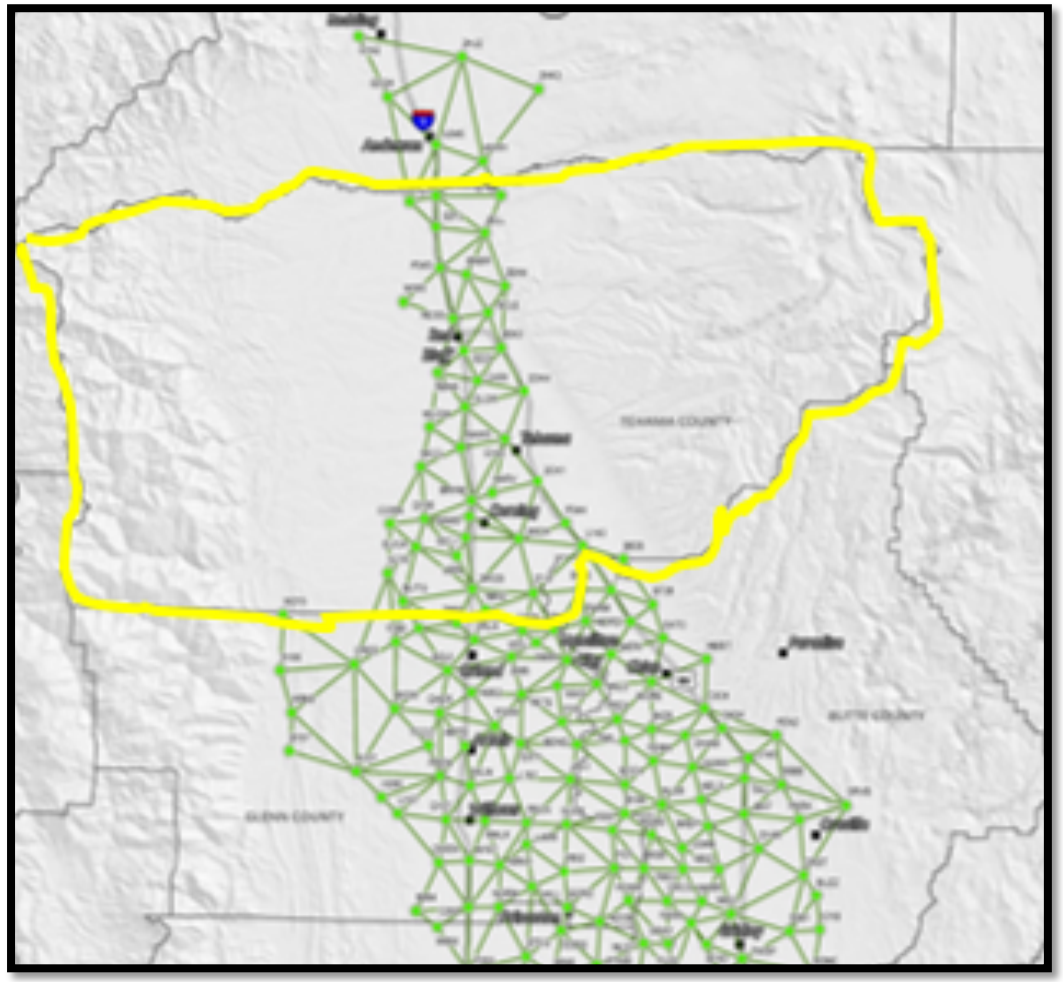
Nonpoint Source Pollution: Lower Zone Total Dissolved Solids (TDS) and Nitrate

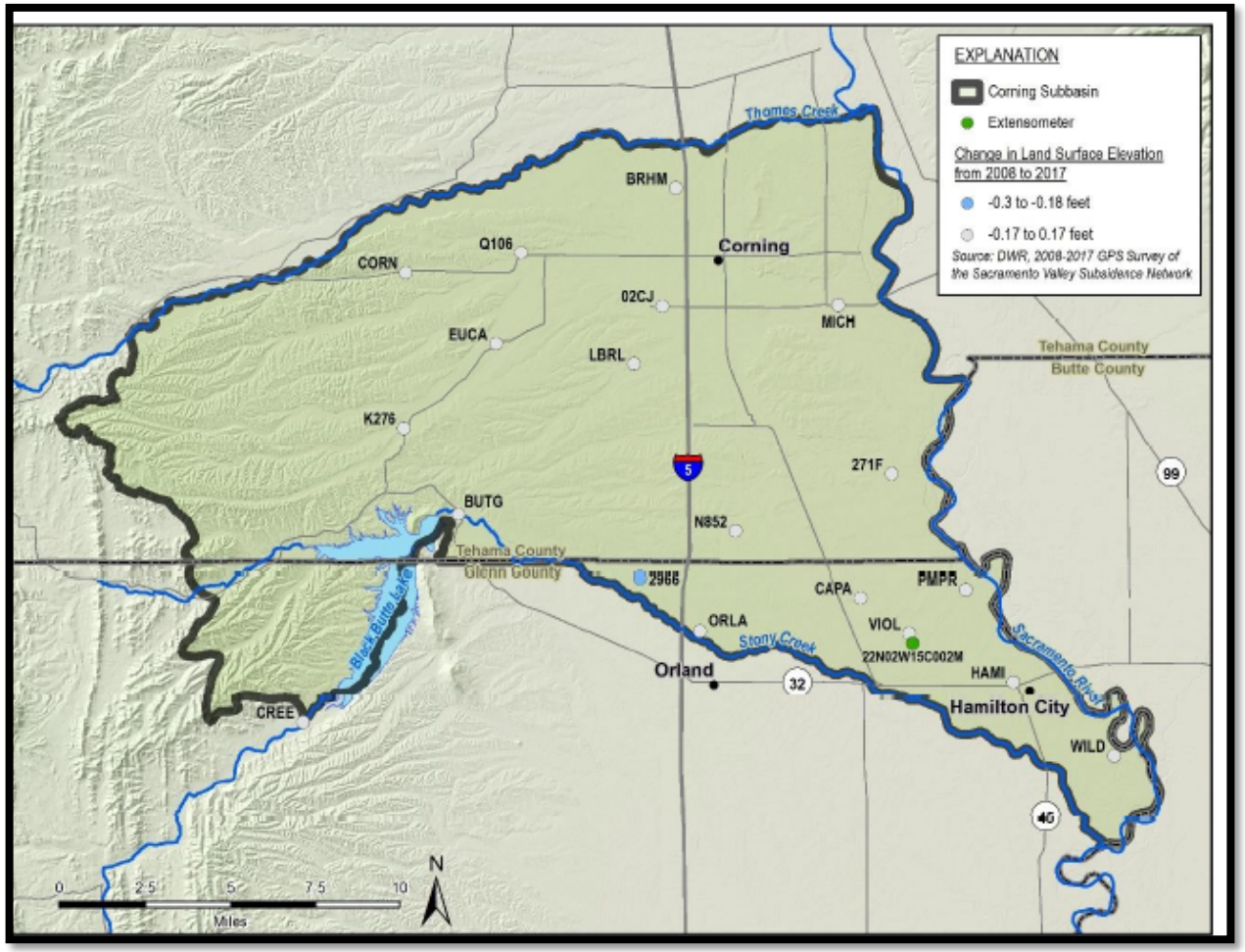




Land Subsidence

TEHAMA COUNTY
Flood Control and Water Conservation District





Subsidence Measurements Between 2008 and 2017 (DWR 2018)

Land Subsidence

TEHAMA COUNTY
Flood Control and Water Conservation District

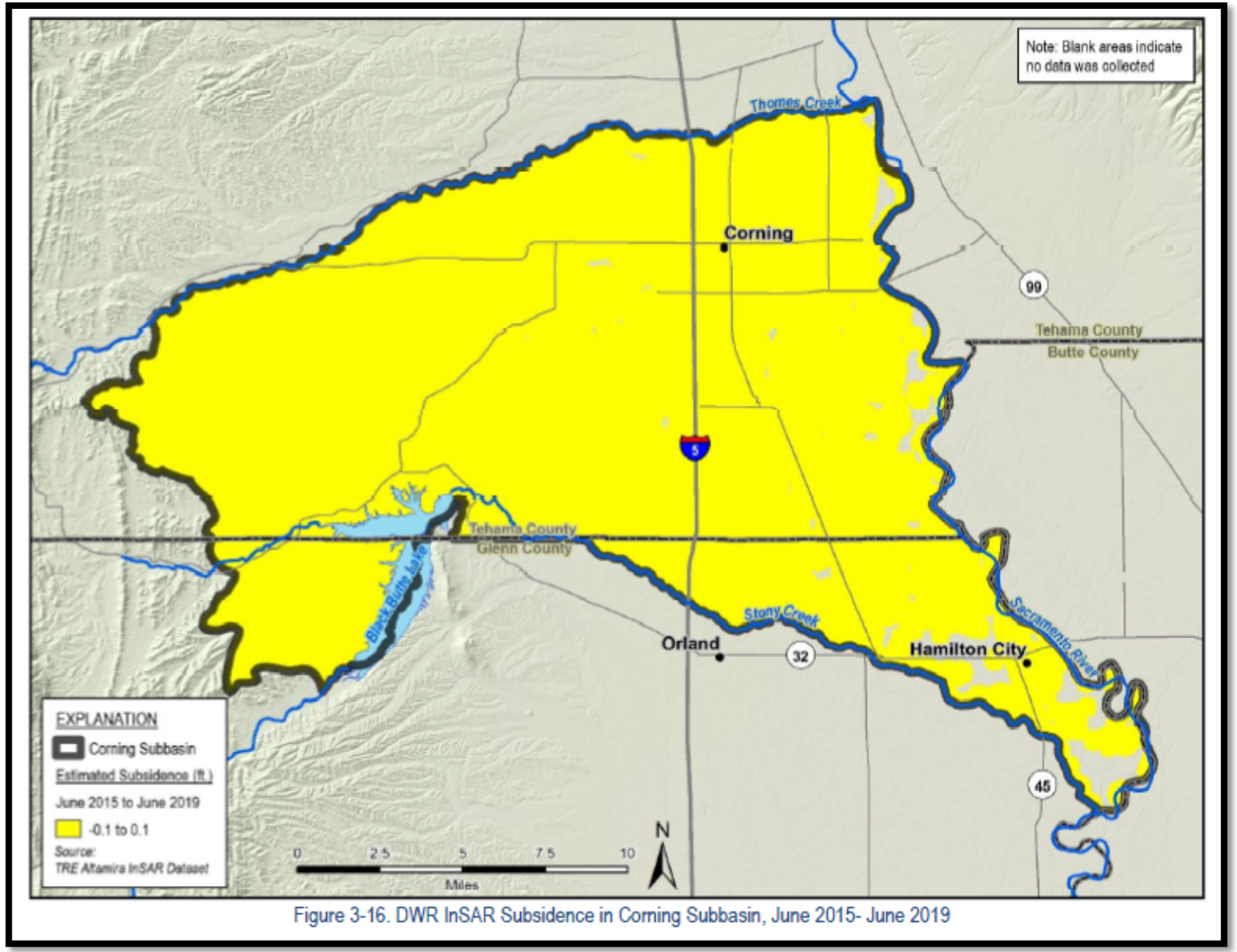
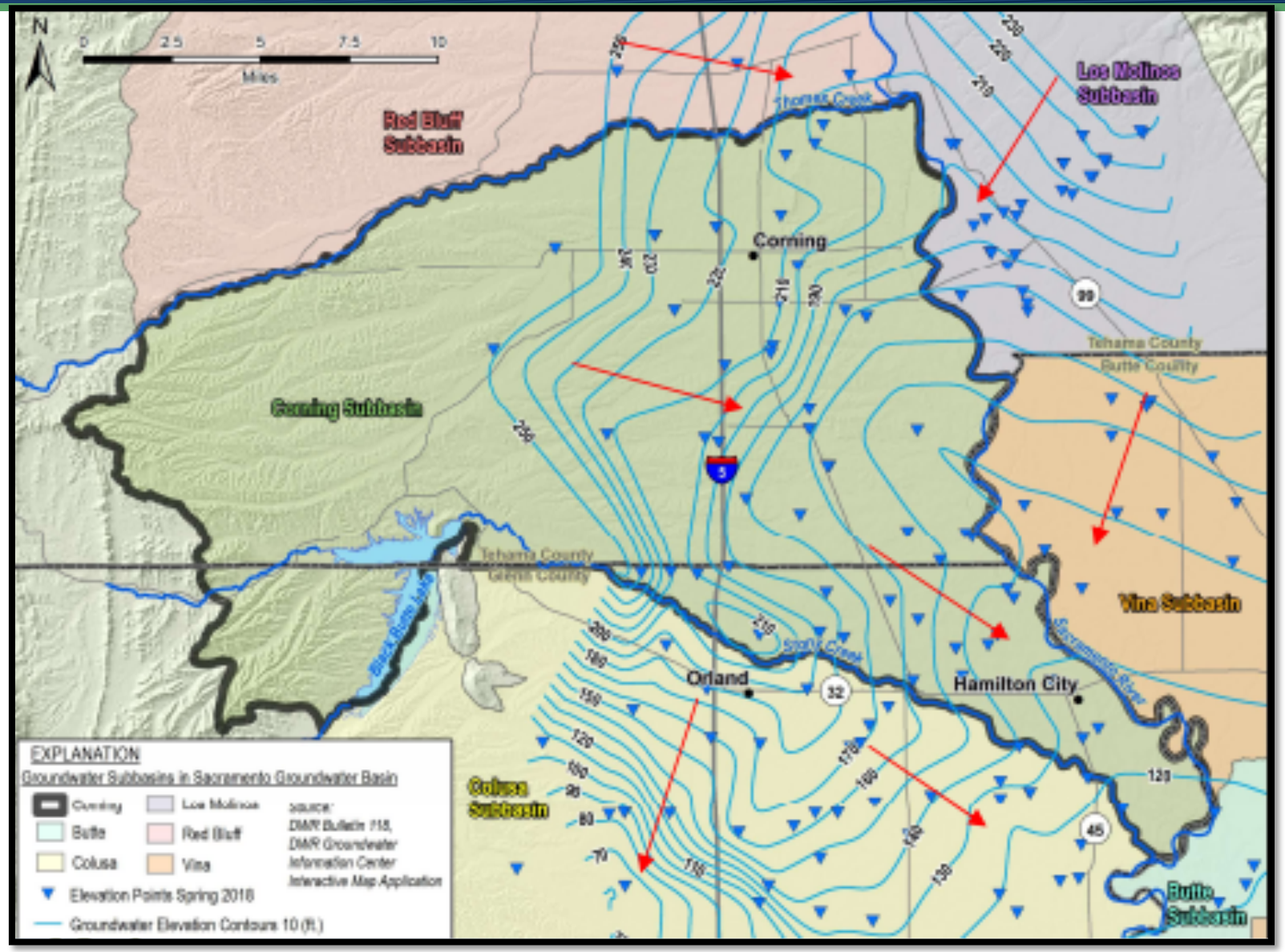


Figure 3-16. DWR InSAR Subsidence in Corning Subbasin, June 2015- June 2019

Groundwater Levels

TEHAMA COUNTY
Flood Control and Water Conservation District



Groundwater Elevation Change

TEHAMA COUNTY
Flood Control and Water Conservation District

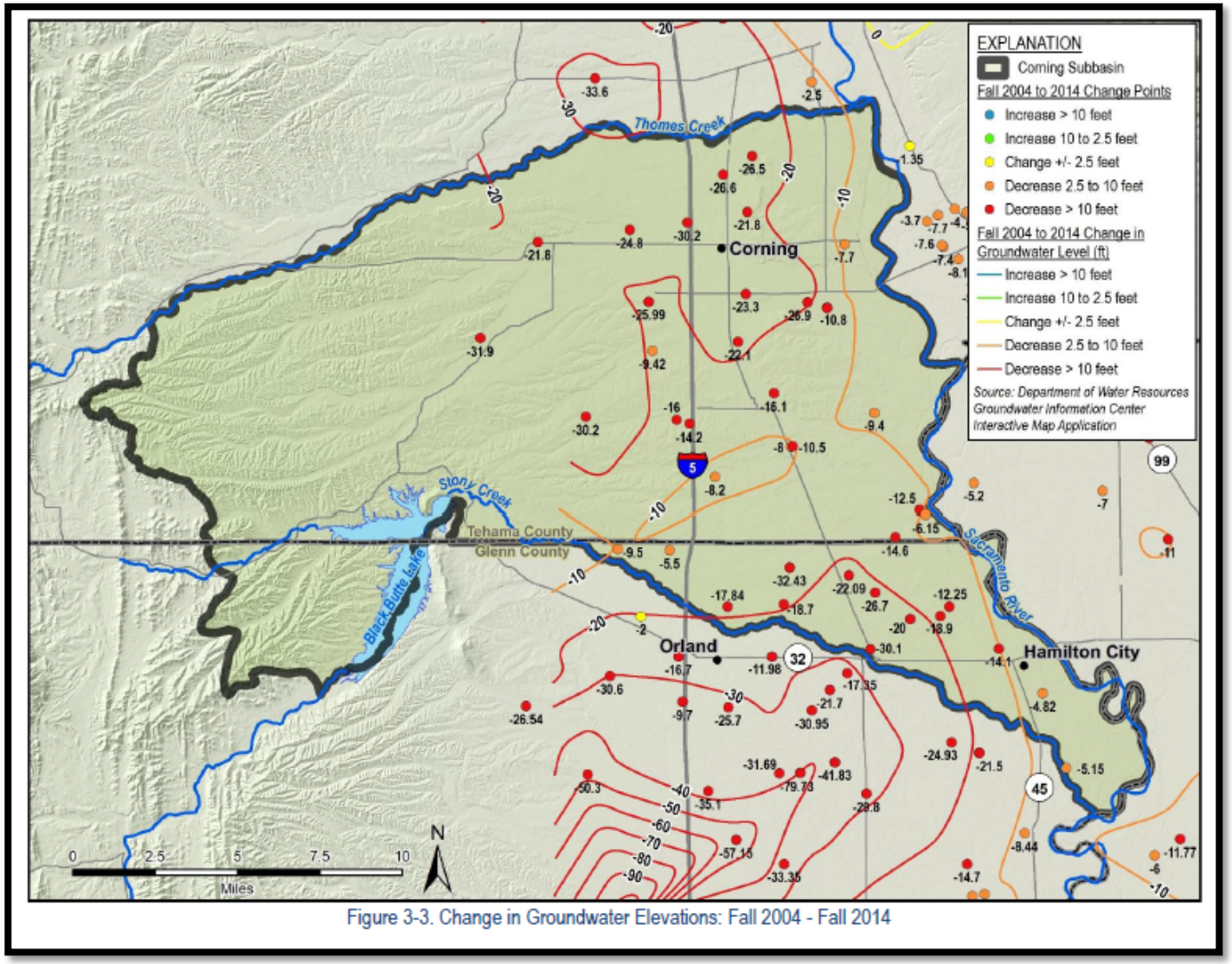


Figure 3-3. Change in Groundwater Elevations: Fall 2004 - Fall 2014

Groundwater Elevation Change

TEHAMA COUNTY
Flood Control and Water Conservation District

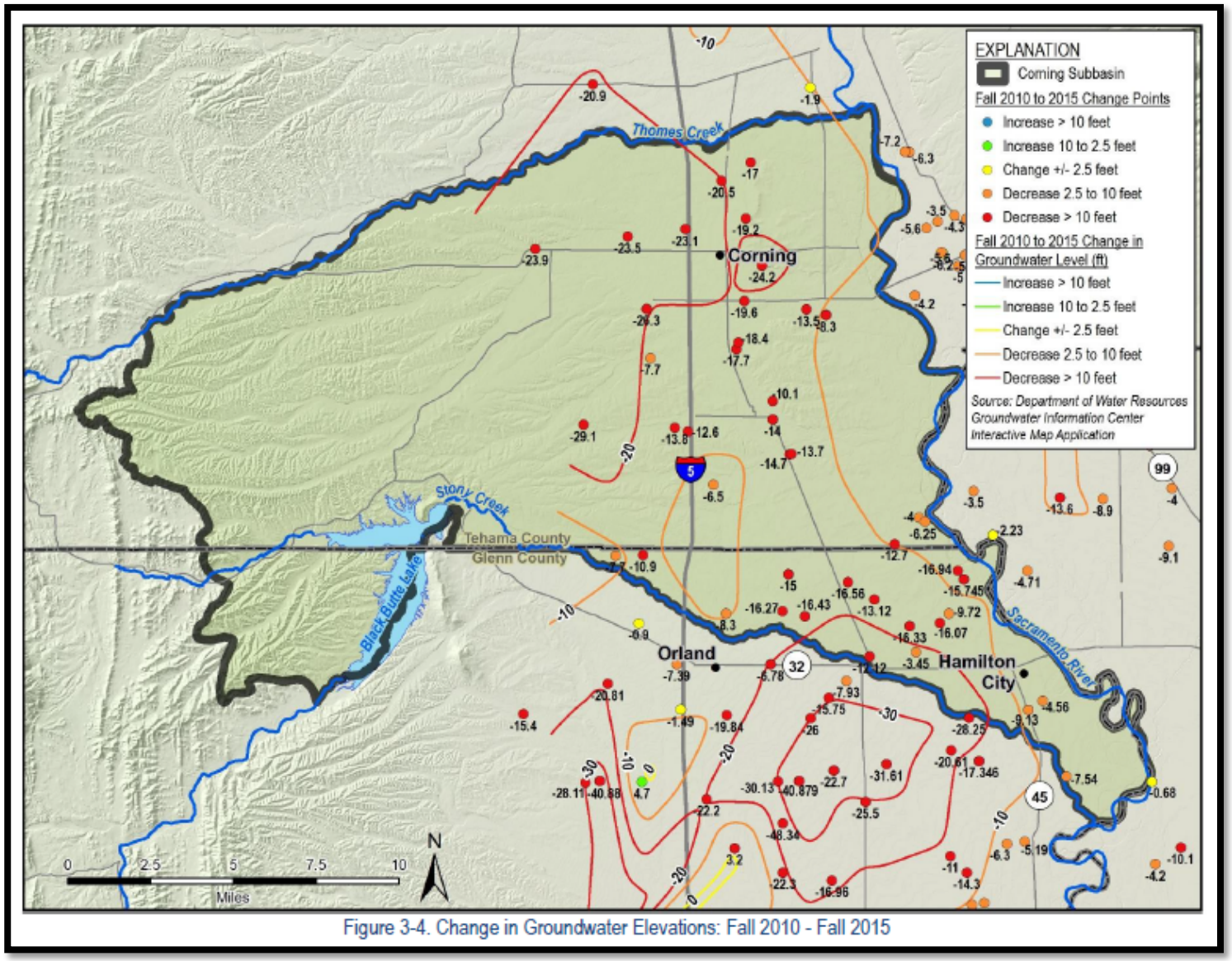


Figure 3-4. Change in Groundwater Elevations: Fall 2010 - Fall 2015

Groundwater Elevation Change

TEHAMA COUNTY
Flood Control and Water Conservation District

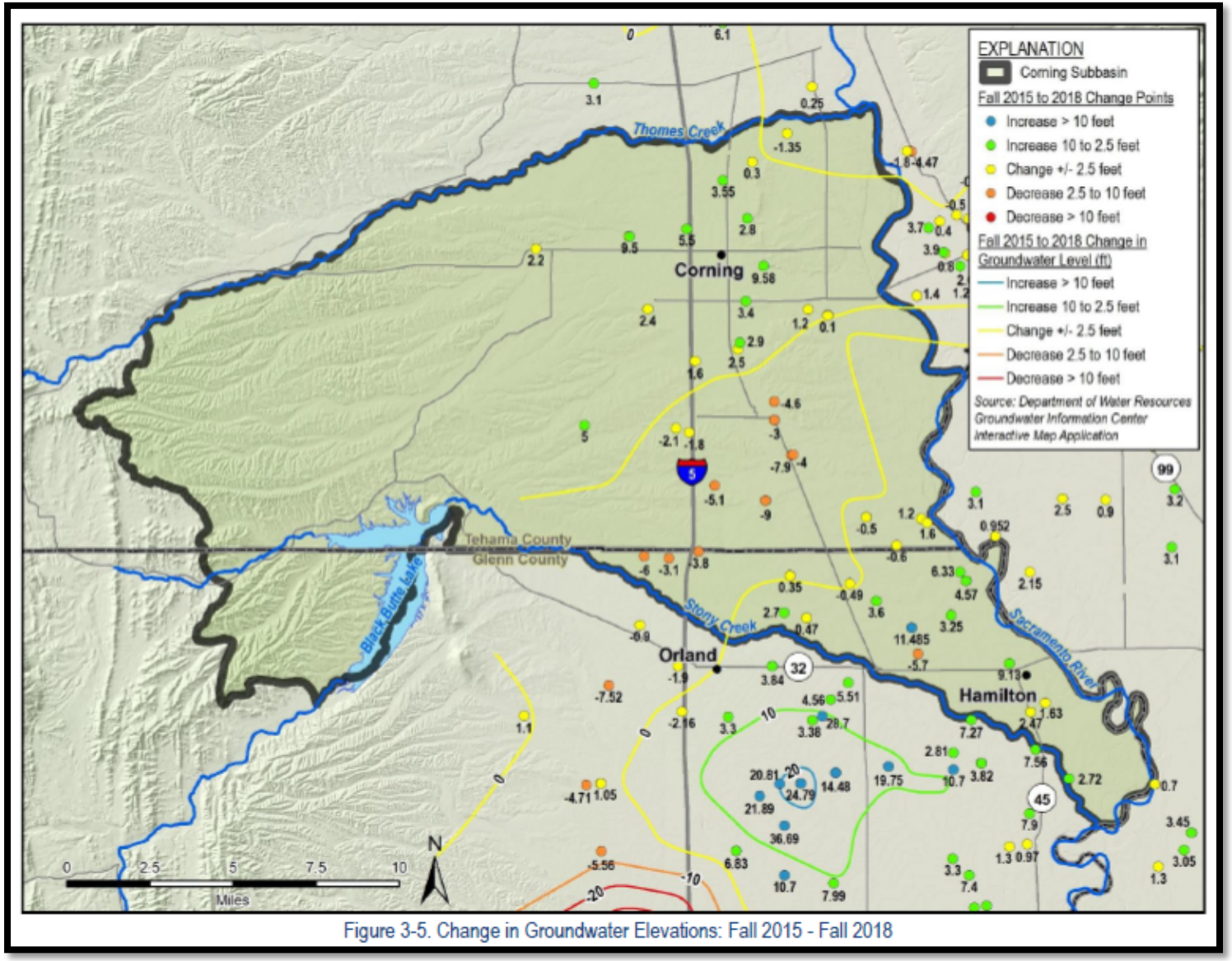


Figure 3-5. Change in Groundwater Elevations: Fall 2015 - Fall 2018

Groundwater Contaminated Sites

TEHAMA COUNTY
Flood Control and Water Conservation District

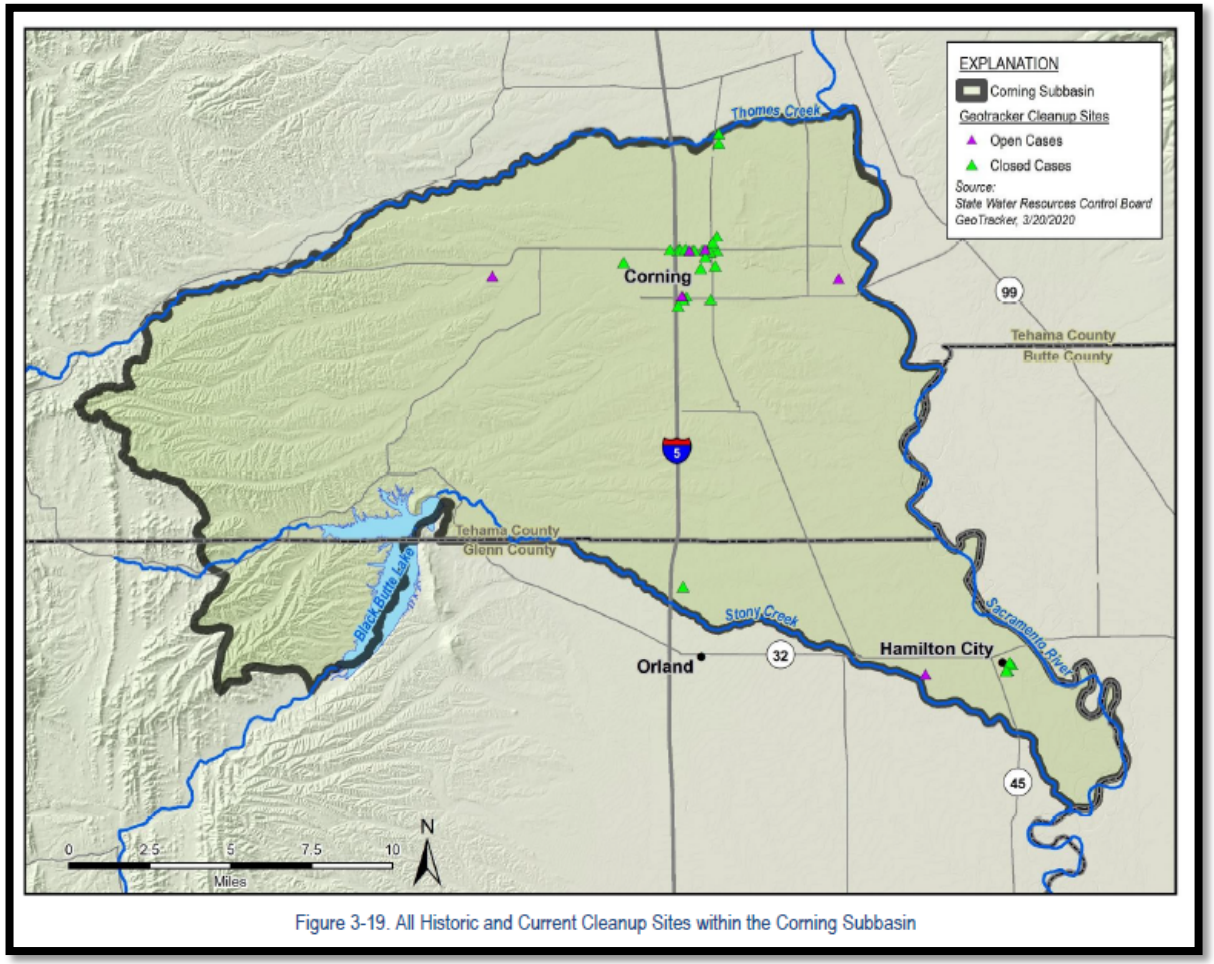


Figure 3-19. All Historic and Current Cleanup Sites within the Corning Subbasin

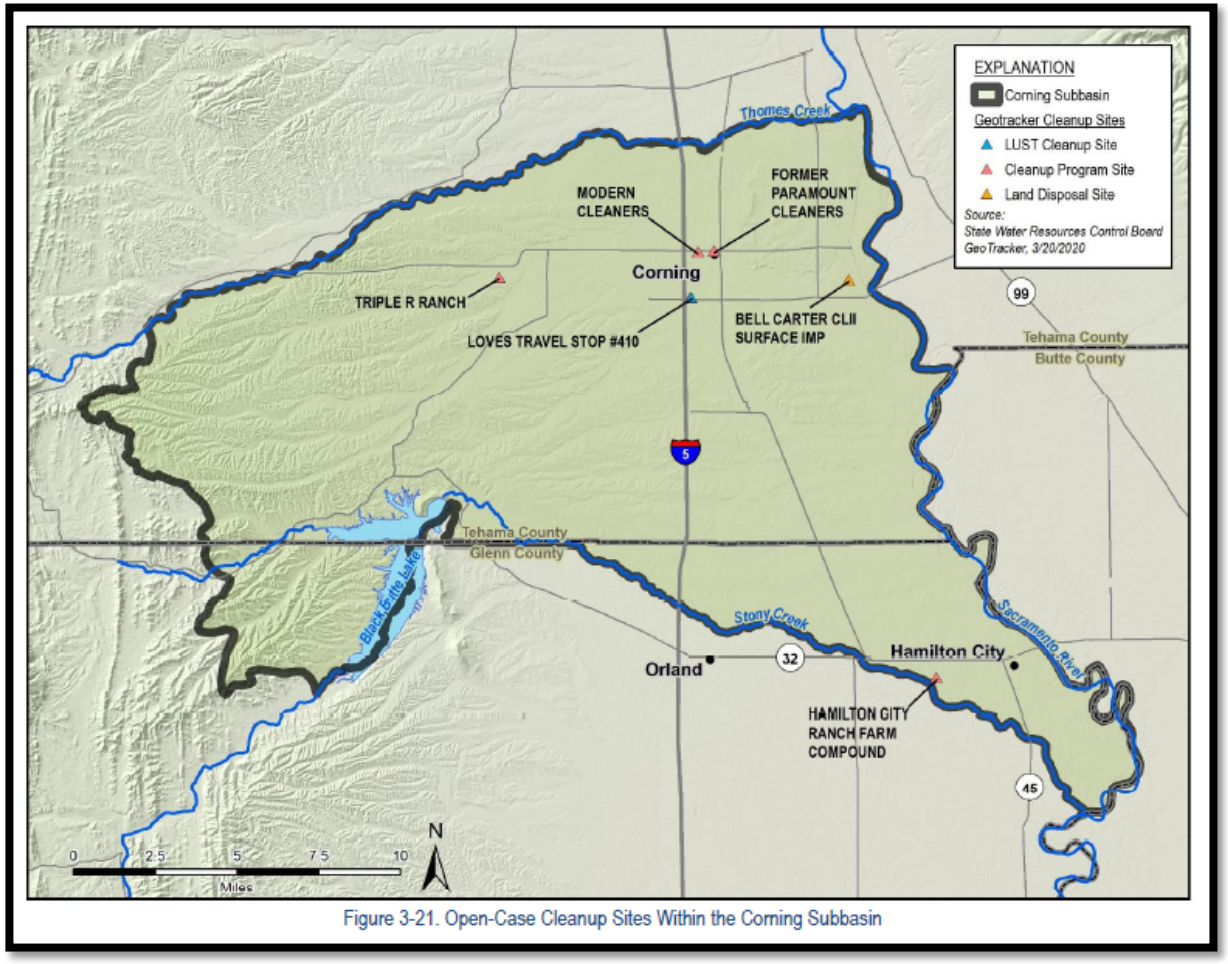


Figure 3-21. Open-Case Cleanup Sites Within the Corning Subbasin

Introduction :
What Are Groundwater Dependent Ecosystems?

- GDE definition from SGMA: “ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface.”



Sacramento River

Groundwater Dependent Ecosystems

TEHAMA COUNTY
Flood Control and Water Conservation District

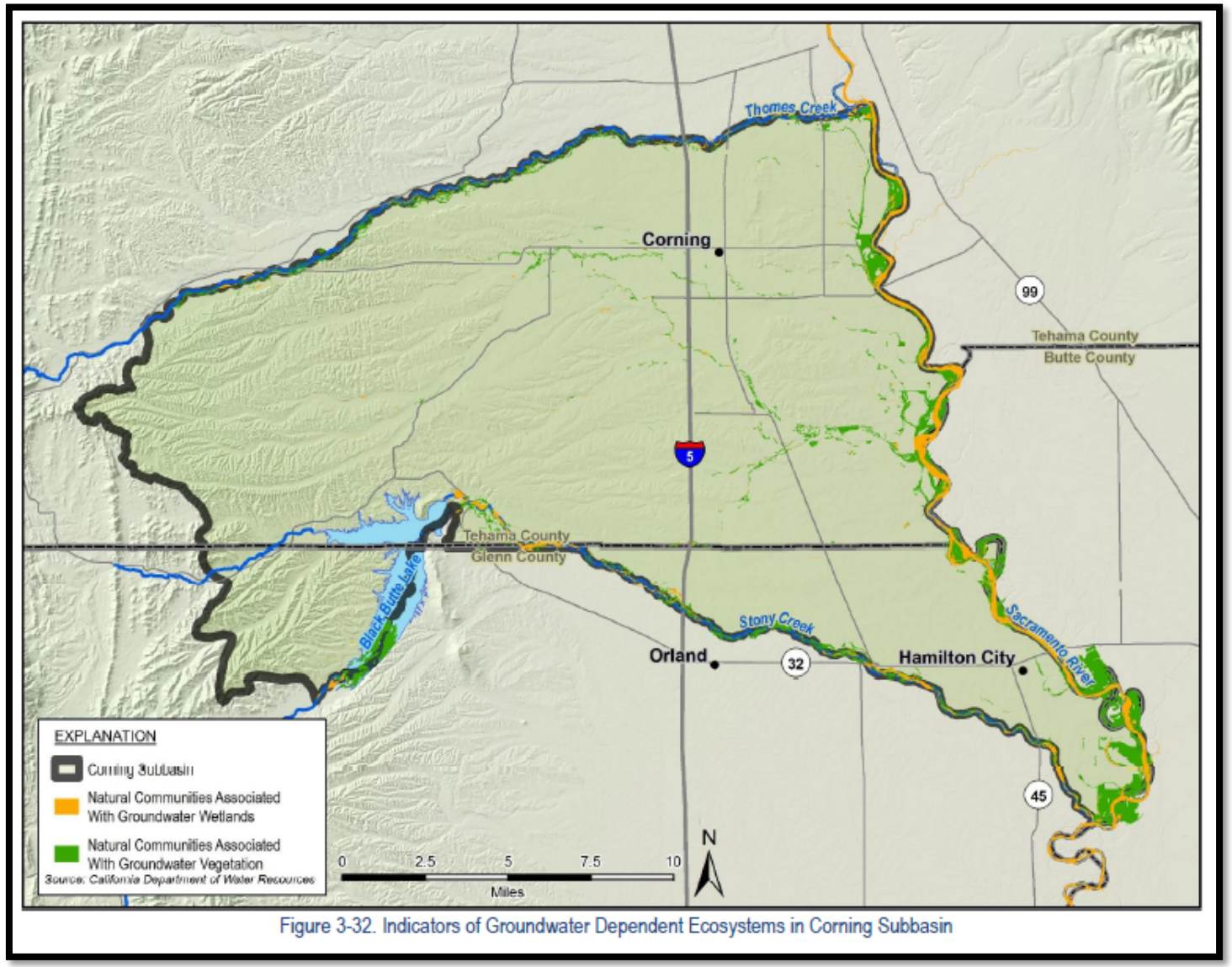


Figure 3-32. Indicators of Groundwater Dependent Ecosystems in Corning Subbasin

Account for Water with a "Budget"

Inflows

- Precipitation;
- SW inflow & infiltration;
- Intentional recharge (ponds, ditches, etc.);
- Applied water, net recharge (e.g., irrigation);
- Unintentional recharge (leaky pipelines);
- Subsurface inflows from outside basin.

Outflows

- GW extraction by wells;
- GW discharge to SW/springs;
- Evapotranspiration; and
- Subsurface outflow from basin.

Inflows **–** ***Outflows*** **=** **Δ** ***S***

Change in GW Storage

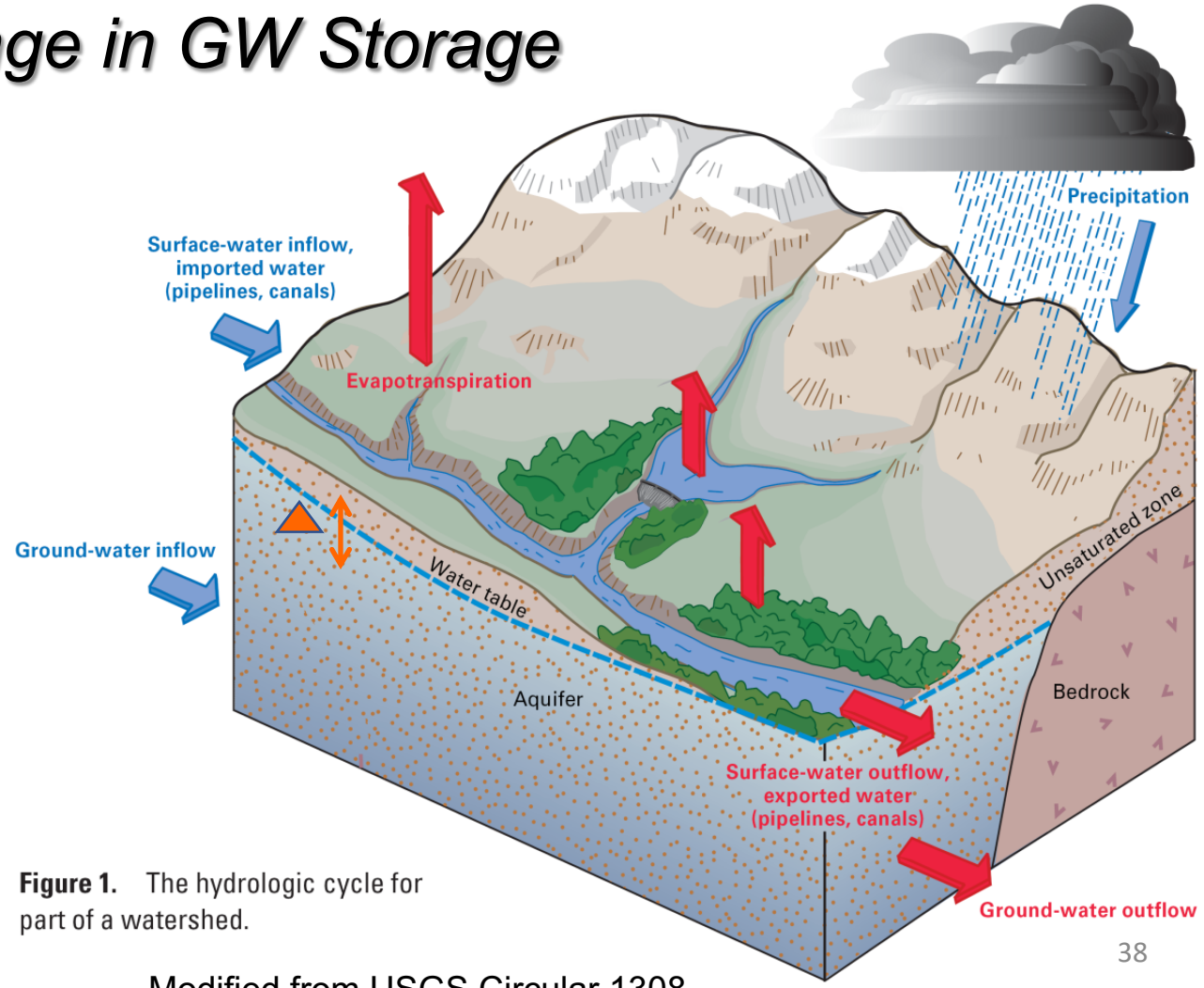
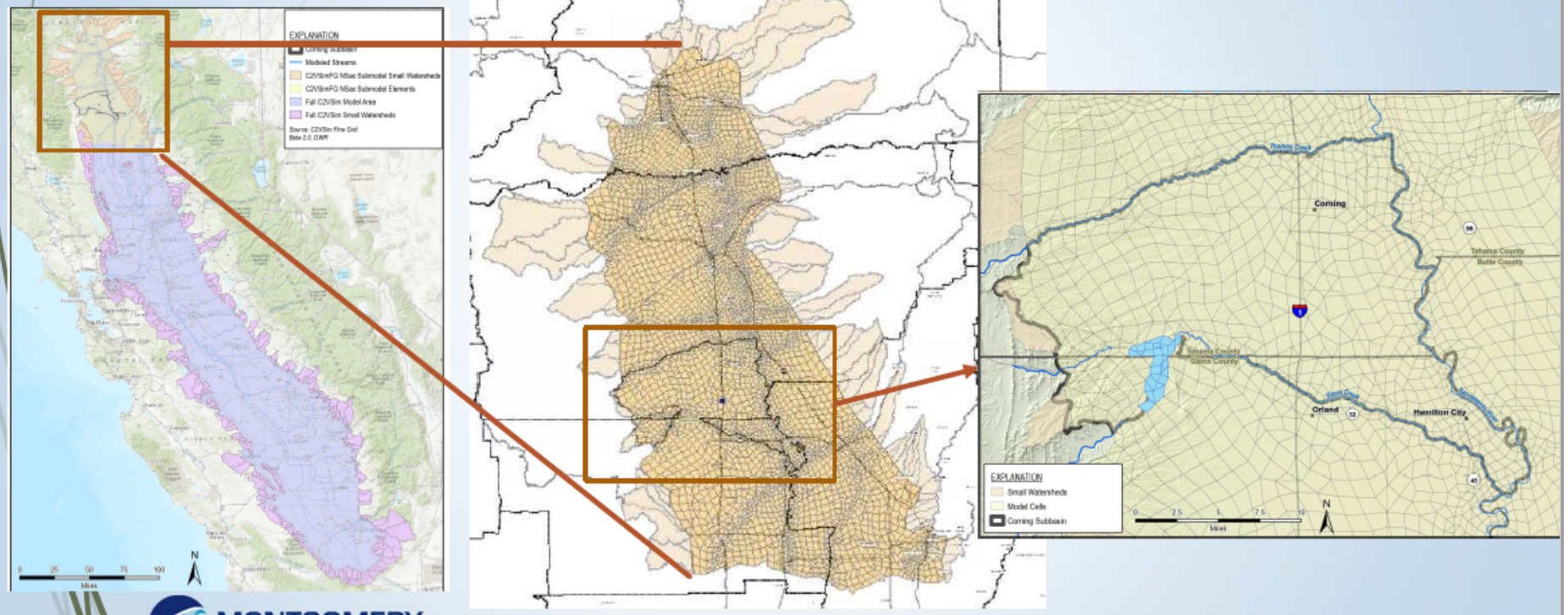


Figure 1. The hydrologic cycle for part of a watershed.

Modified from USGS Circular 1308

Groundwater Flow Model

Northern Sacramento Valley Model Extent



MONTGOMERY & ASSOCIATES

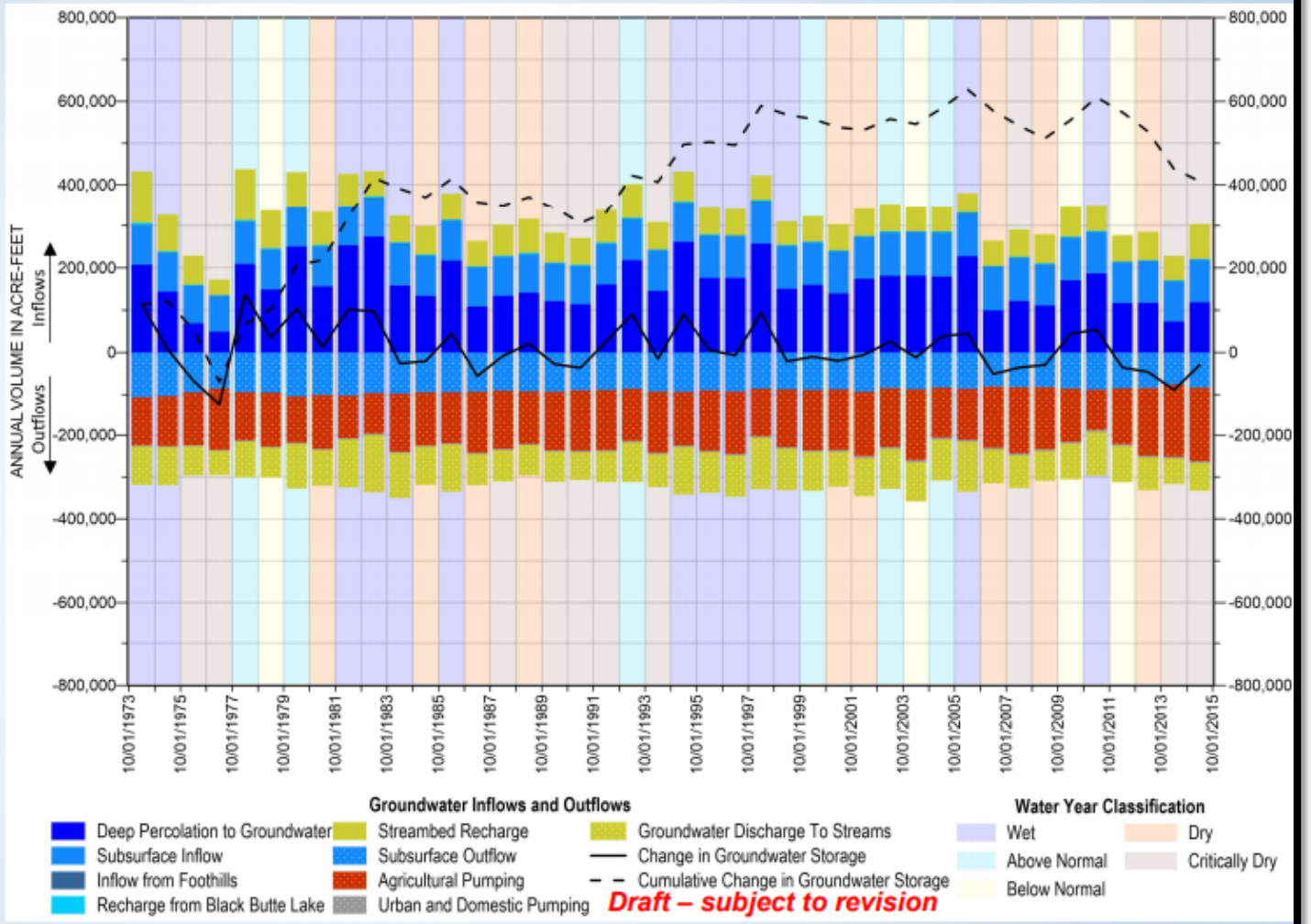
10/29/2020

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Account for Water with a "Budget"

DRAFT

Draft Historical Groundwater Budget



MONTGOMERY & ASSOCIATES

What's Next?

TEHAMA COUNTY
Flood Control and Water Conservation District

1. Calibrate Groundwater Flow Model
2. Develop Monitoring Network
3. Develop Sustainable Management Criteria
4. Finalize New Monitoring Well Locations
5. Additional Webinars Planned for Spring/Summer 2021



