



YSGA Working Group Meeting

May 6, 2020

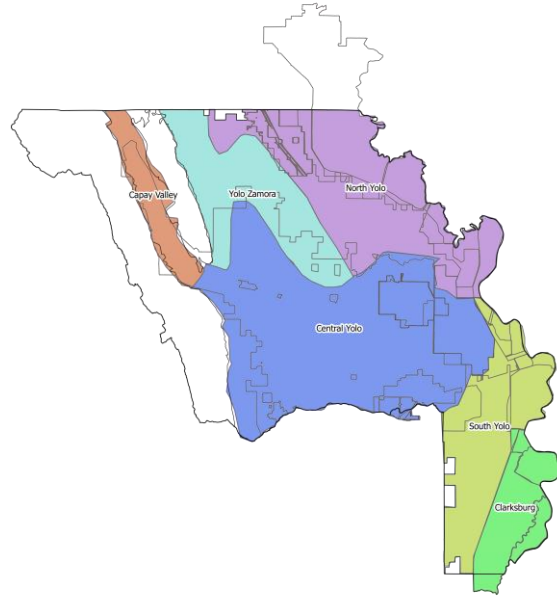


Agenda

- Approve Minutes
- Executive Officer Update – Kristin Sicke
- DWR Update – Barrett Kaasa
- GSP Development
 - Groundwater Monitoring Program – Max Stevenson and Brooke Ely
 - Overview of Water Budgets – Vishal Mehta, Susie Bresney, and Chuck Young
 - Sustainable Management Criteria Development and Workshops – Kristin Sicke and Working Group

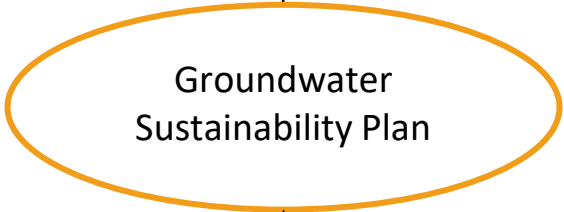
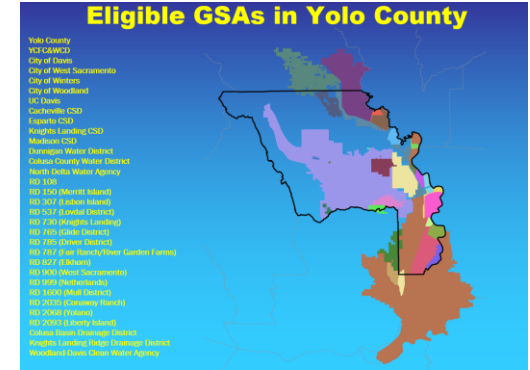
Approve Minutes

Executive Officer Update



Yolo Subbasin Groundwater Agency
 27 Members

- Limited Authority
- For regional planning & reporting
- JPA defines authorities & responsibilities of GSA, Management Areas, and Eligible Entities



Management Areas are used to define sustainability goals and objectives for a hydrogeologic setting.

Capay Valley

YCFC&WCD
 Yocha Dehe Wintun Nation
 Yolo County (white area)
 Yolo County Farm Bureau
 Environmental Representative

North Yolo

Dunnigan WD
 Colusa Drain Mutual Water Co.
 California American Water
 RDs 108, 730, and 787
 Yolo County (white area)
 Yolo County Farm Bureau
 Environmental Representative

Central Yolo

Cities of Davis, Woodland & Winters
 UC Davis
 YCFC&WCD
 RD 2035
 Esparto and Madison CSDs
 Yolo County (white area)
 Yolo County Farm Bureau
 Environmental Representative

Dunnigan Hills

YCFC&WCD
 Yolo County Farm Bureau
 Yolo County (white area)
 Environmental Representative

South Yolo

City of West Sacramento
 RDs 537, 785, 827, and 1600
 Yolo County Farm Bureau
 Yolo County (white area)
 Environmental Representative

Clarksburg

RDs 150, 307, 765, and 999
 Yolo County Farm Bureau
 Environmental Representative

Advisory Committee
 Public

Advisory Committee
 Public

Advisory Committee
 Public

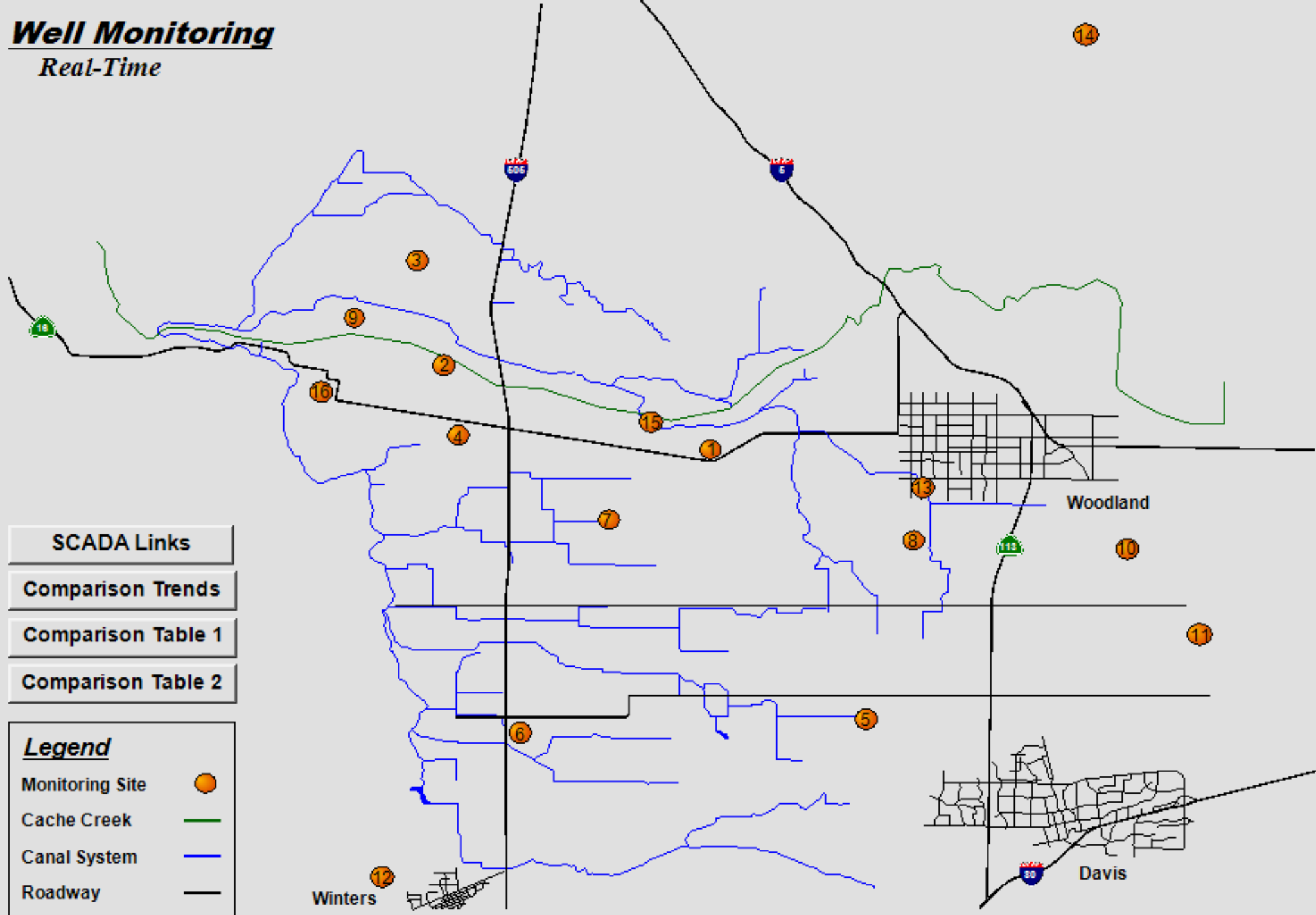
Advisory Committee
 Public

Advisory Committee
 Public

Advisory Committee
 Public

Well Monitoring

Real-Time







SCADA Links

Comparison Trends

Comparison Table 1

Comparison Table 2

Legend

- Monitoring Site 
- Cache Creek 
- Canal System 
- Roadway 

Well Monitoring

Depth to Water Historical Comparison

(Daily Average DTW in feet)

[SCADA Links](#)[Well Map](#)[Select Date](#)

05/06/20

Well	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Δ 2019</u> <u>- 2020</u>	<u>Δ 2015</u> <u>- 2020</u>
1.	80.7	78.4	78.1	87.3	95.3	107.5	101.3	86.7	88.1	88.3	92.0	-3.6	9.3
2.	45.3	40.4	43.9	39.8	54.4	44.9	42.2	24.6	30.7	25.5	31.0	-5.5	11.2
3.		39.1	39.6	42.6	53.7	68.4	57.1	36.2	40.6	36.1	41.2	-5.1	15.9
4.		26.7	29.1	37.8	36.8	51.9	45.9	25.0	29.8	29.4	34.7	-5.4	11.2
5.	15.5	15.5	23.5	18.6	30.1	35.3	37.4	18.9	28.5	14.3	21.4	-7.0	16.1
6.			39.0		68.4	76.4	66.2	36.0	42.8	34.7	44.8	-10.1	21.4
7.					22.5	40.9	29.9	15.5	19.0	16.2	20.2	-3.9	9.7
8.					67.8	81.4	70.8	52.9	49.9	40.5	52.5	-12.1	18.3
9.					53.5	62.6	53.7	34.6	40.0	35.1	42.1	-7.0	11.6
10.						54.3	49.9	14.9	23.8	21.1	50.6	-29.5	-7
11.						20.0	15.0	6.1	9.7	7.7	16.3	-8.6	-1.2
12.										107.9	102.7	5.2	
13.									66.0	58.9	74.2	-15.3	
14.										7.9	10.1	-2.2	
15s.										32.7	36.6	-3.9	
16.										31.2	38.9	-7.7	

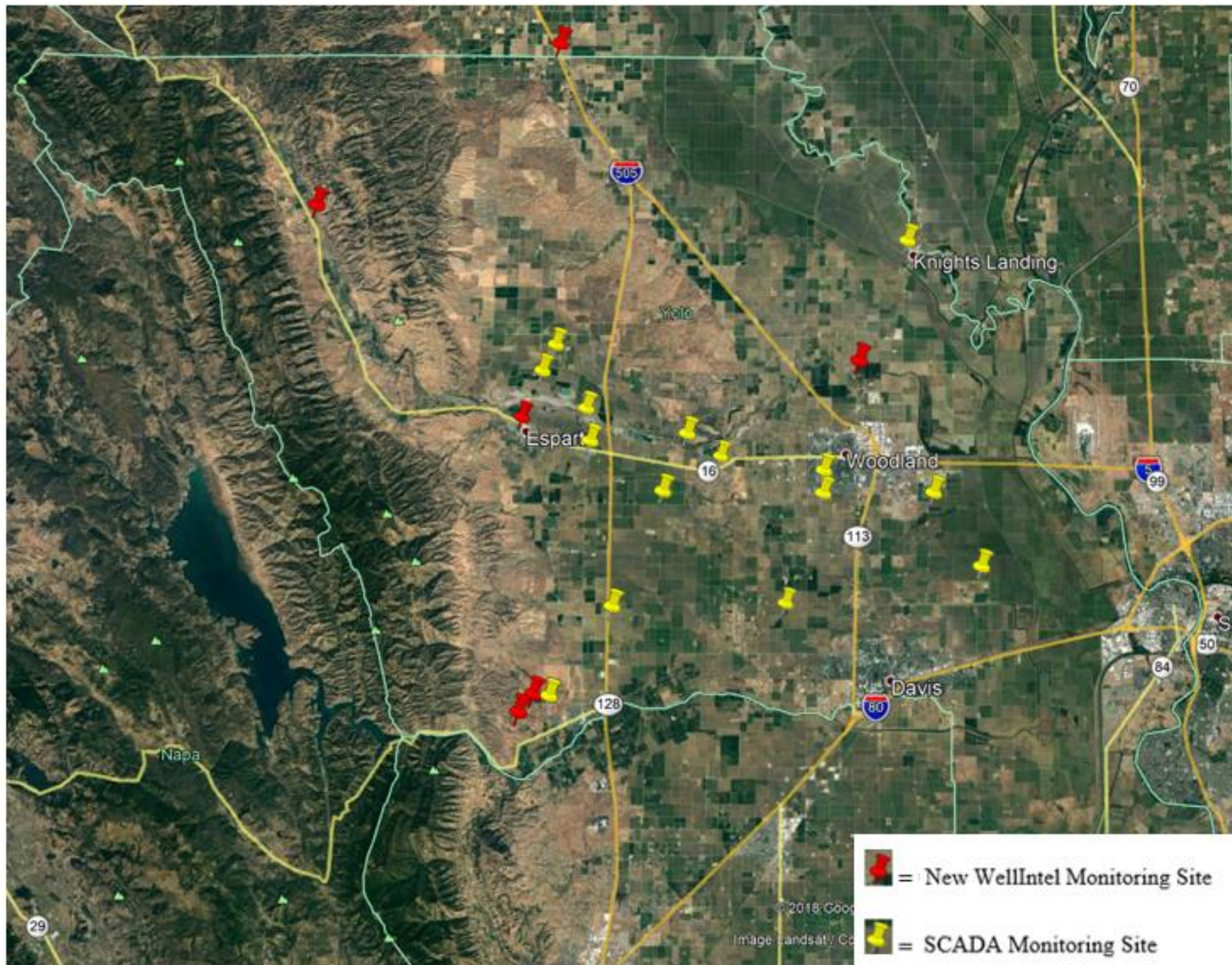
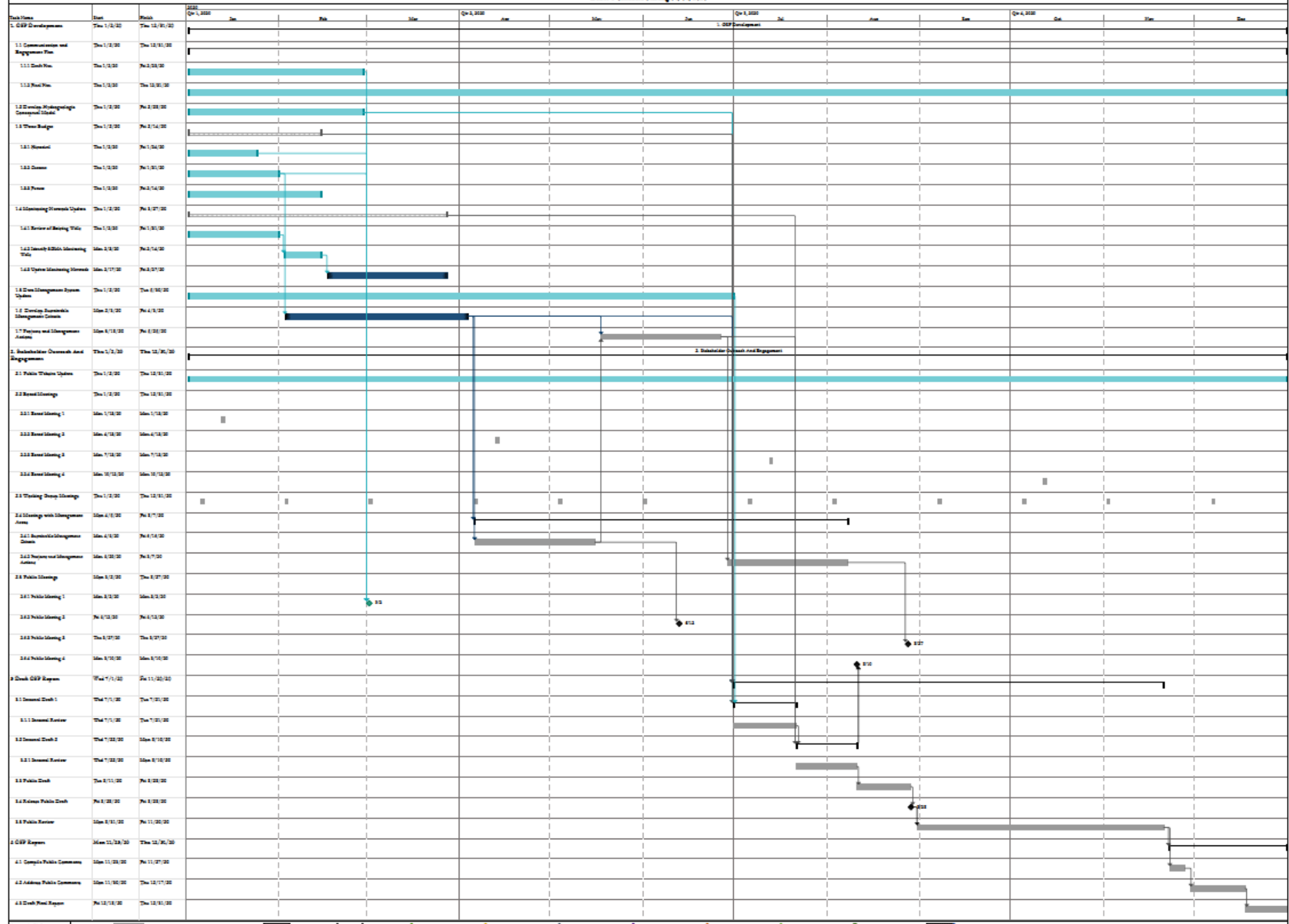


Figure 1. Real-time SCADA Monitoring Sites and New WellIntel Monitoring Sites

Yolo Subbasin GSP Development

DRAFT Schedule Starting 01/01/2020



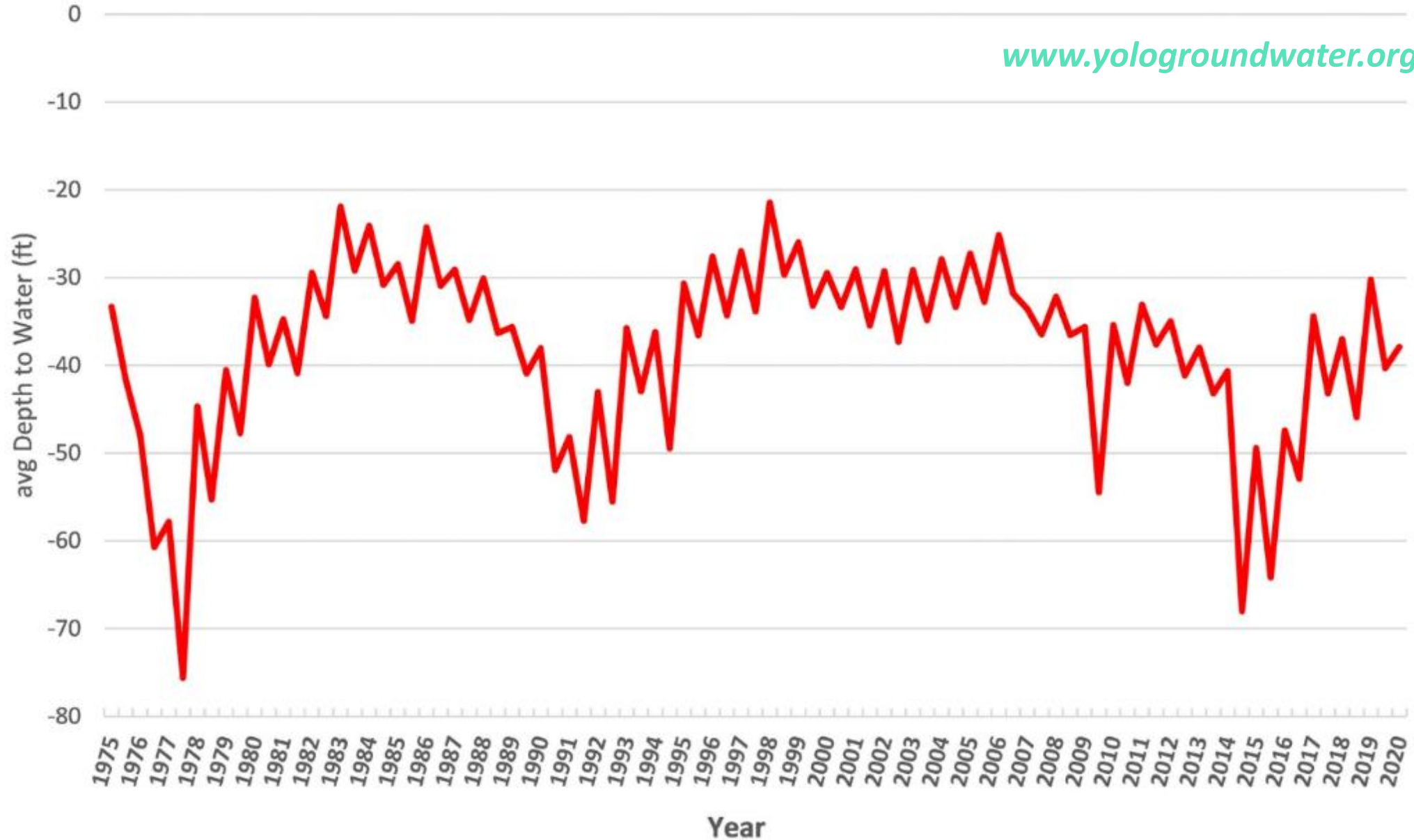
DWR Update

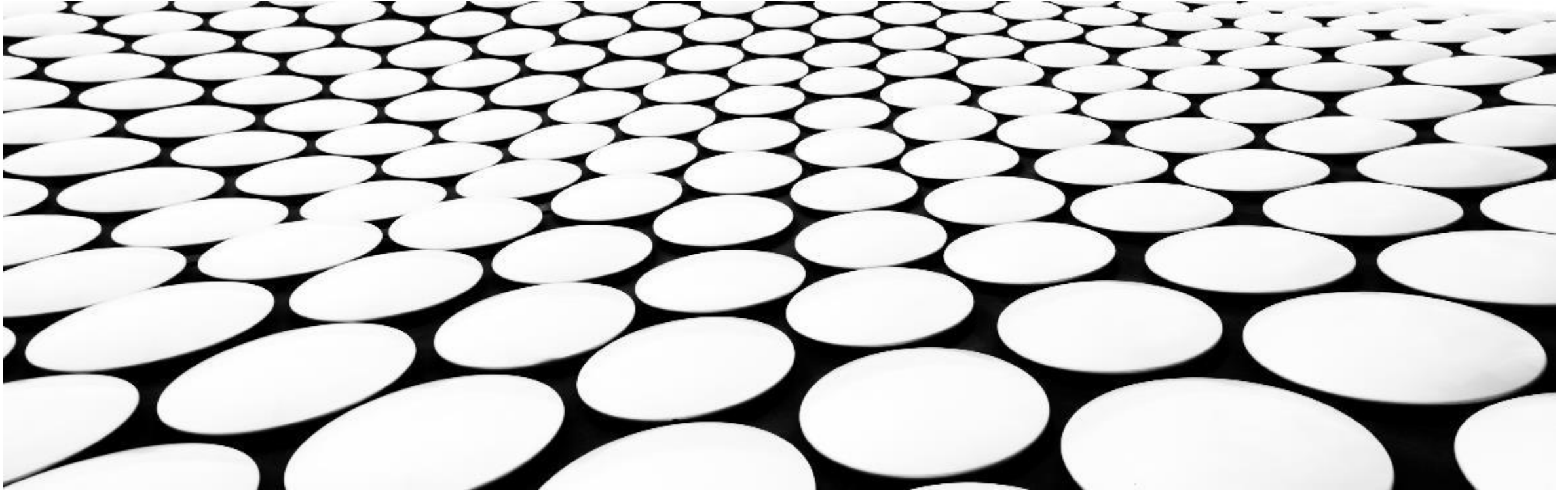
GSP Development – Groundwater Monitoring Program

YFCWCD Average Groundwater

Depth by Season (spring 2020 is 113 wells)

www.yologroundwater.org





YSGA GSP Monitoring Plan Activities 2019-20

Multi Agency Coordination

Brooke ELY –YSGA
CivicSpark Fellow





authorized user login

username

password

keep me logged in

Login



register for account



lost password

**WRID
Monitoring
Data/
CASGEM
reporting**

GIS database

Mobile Data Collection Portal - x Report: YCFC well monitoring ne: x mdc_photo_mdc_efc372_cdv_ph: x

mdc.giscLOUD.com

YCFC well monitoring network 2019

Map Data Share Report To CSV Log Out Help

jim_frame_notes	ID	Staff Name	Book	SWN	Photo	Notes	Time	Username	Label Needed
Delete Edit	34	Brooke	Epsarto	10N02W26P00...		...	10/03/2019 2:...	bely3	No
Delete Edit	35	Brooke	Epsarto	09N01W05B00...		Located on hill ...	10/03/2019 2:...	bely3	Yes
Delete Edit	36	Brooke	S Woodland	10N02E31N50...		...	10/15/2019 1:...	bely3	No
Delete Edit	37	Brooke	S Woodland	10N02E31N50...		Need socket se...	10/15/2019 1:...	bely3	No
Delete Edit	38	Brooke	N Woodland	10N01E15D00...		New lid needed...	10/16/2019 8:...	bely3	

100 / 172 | Show only selected





















Well Seal upgrades





Dedicated monitoring
well





10N02E31N500M

City of Woodland **MW-2B**

Yolo Subasin Groundwater Agency
yologroundwater.org 530-662-0265



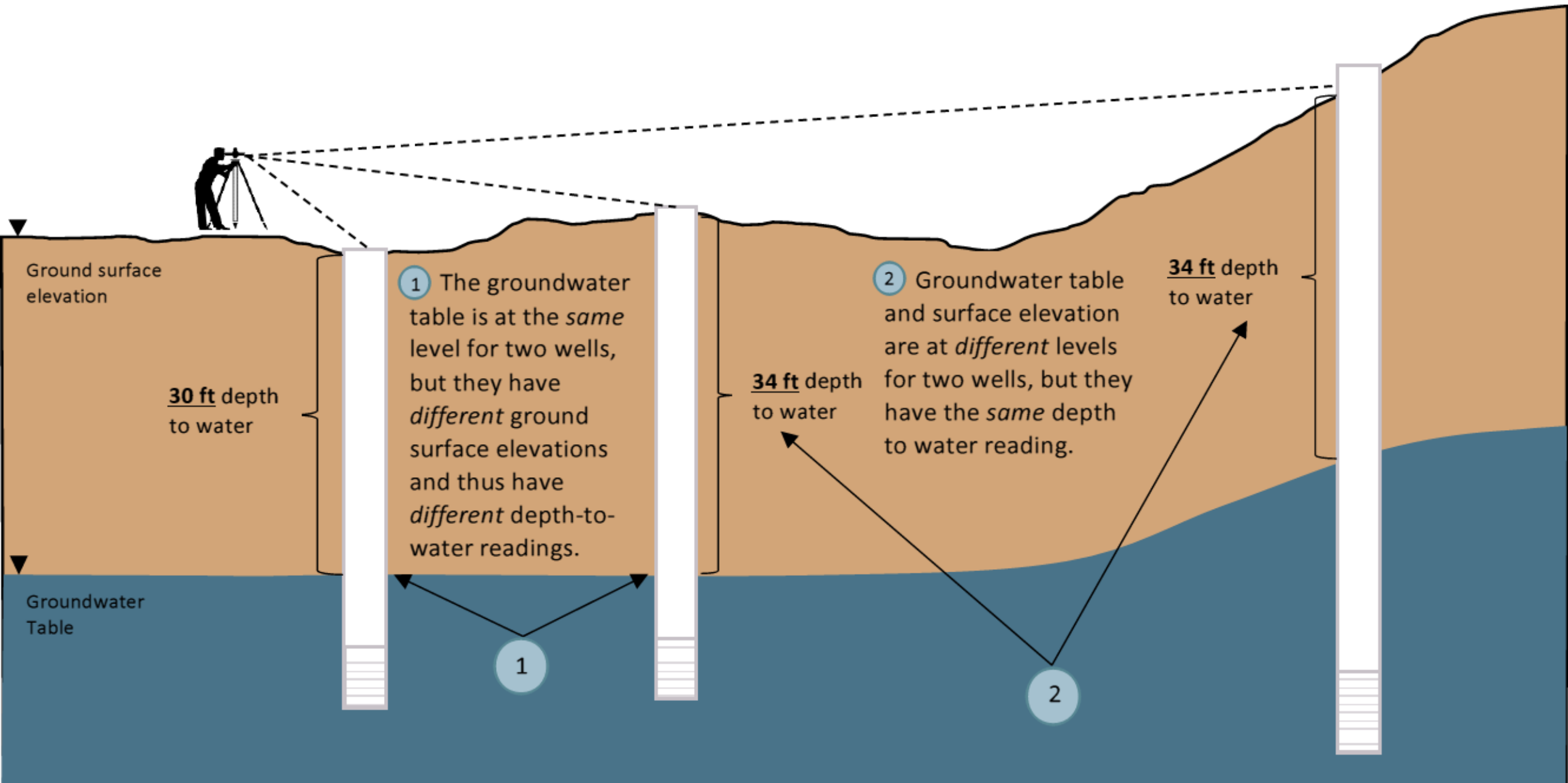
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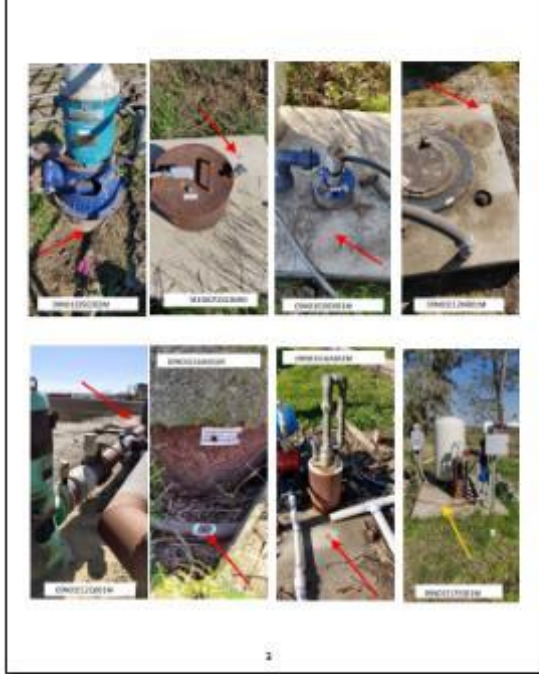
Yolo Subasin Groundwater Agency
530-662-0265 yologroundwater.org



FraMe surveying and Mapping ground surface elevation (GSE) survey

- Phase 1 is complete – 152 wells in YCFCWCD program
- Phase 2 will be additional YSGA Representative Wells from each agency (30 to 75 more wells, maybe some wells already have good quality GSE)





16



17



18



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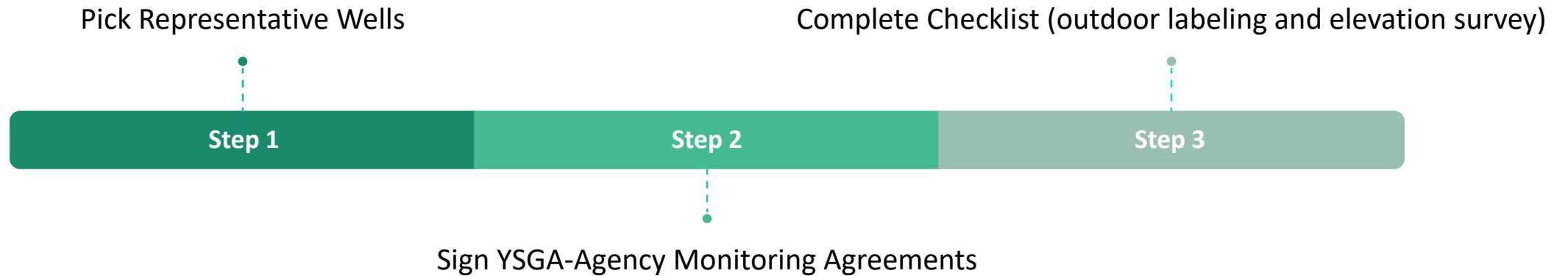


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21

YSGA – Member Agency monitoring Coordination



Entity	Wells in each Entity	Well in each Entity (with 1km buffer)	YSGA Board Member
RD 150	0	0	Yes
RD 307	0	0	Yes
RD 730	0	0	Yes
RD 765	0	0	Yes
RD 785	0	0	Yes
RD 999	0	0	Yes
Cacheville Service District	0	1	No
Knights Landing Community Service District	0	1	No
RD 900	0	1	No
RD 537	0	2	Yes
RD 827	0	2	Yes
Colusa Drain Mutual Water Company	0	10	Yes
Yocha Dehe Wintun Nation	0	14	Yes
Madison Service District	1	2	Yes
RD 1600	1	3	Yes
West Sacramento	1	4	Yes
Esparto Community Service District	1	4	Yes
Dunnigan Water District	2	7	Yes
Dunnigan Cal Am	3	4	Yes
Winters	3	9	Yes
RD 787	4	4	Yes
UC Davis	4	10	Yes
RD 2035	10	11	Yes
RD 108	11	27	Yes
Woodland	13	23	Yes
Davis	16	23	Yes
White Areas (Yolo County)	17	90	Yes
YCFCWCD	102	209	Yes
Private Pumper Representative - Stan Lester	N/A	N/A	Yes
Environmental Party Representative - Ann Brice	N/A	N/A	Yes

Groundwater Monitoring Agreement Form

Between **Yolo Subbasin Groundwater Agency (YSGA)** and **RD 787**

The purpose of this form is to provide both agencies with a formal written agreement, ensuring that groundwater data will be collected and made accessible for incorporation in the Yolo Subbasin Groundwater Sustainability Plan.

I. **Terms of Agreement:** (check one)

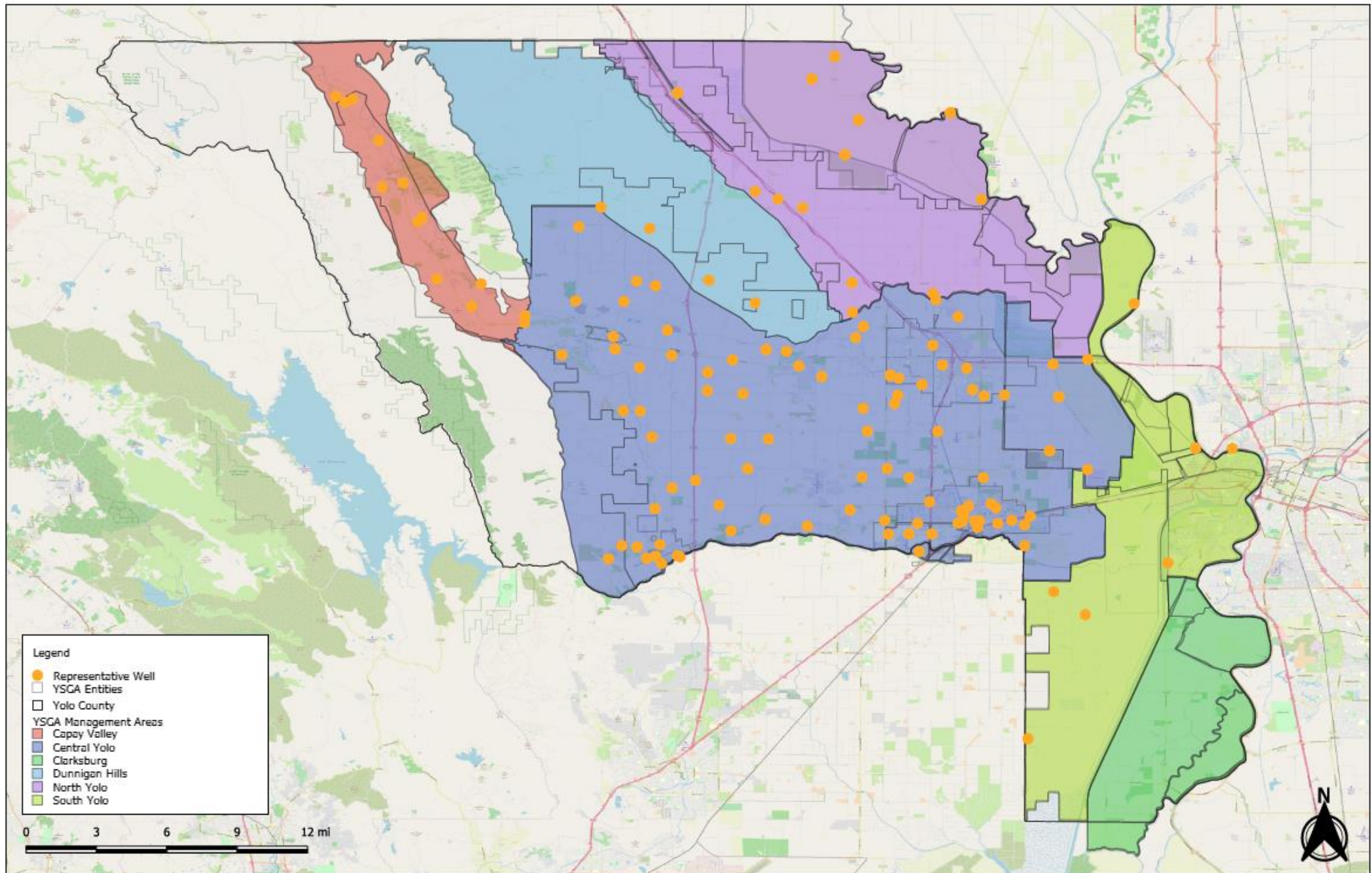
- (1) YSGA will perform all monitoring related to the GSP.
- (2) YSGA will perform all monitoring related to the GSP *and* will perform additional services as requested and agreed upon by both agencies.
- (3) RD 787 will conduct all GSP related monitoring on their own, and submit data to YSGA within the following guidelines:
 - Biannually, spring and fall, at minimum
 - Including State Well Number (SWN) for each well
 - By YSGA official Water Level Data Sheet *or*
 - By direct input into the WRID (*wrid.facilitiesmap.com*)

Next Steps

- Contact each Agency and review list of Representative Wells
- Get contact information for technicians
- Execute Monitoring Agreements
- Label, Survey, GSP, Photograph, Construction information
- Confirm that wells will not be destroyed or the existing monitoring programs (USBoR, DWR, etc.) will continue

- Schedule/Deadline? Brooke leaving for Graduate School in August

YSGA GSP Map



GSP Development – Overview of Water Budgets

YSGA Water Budgets Update

work in progress

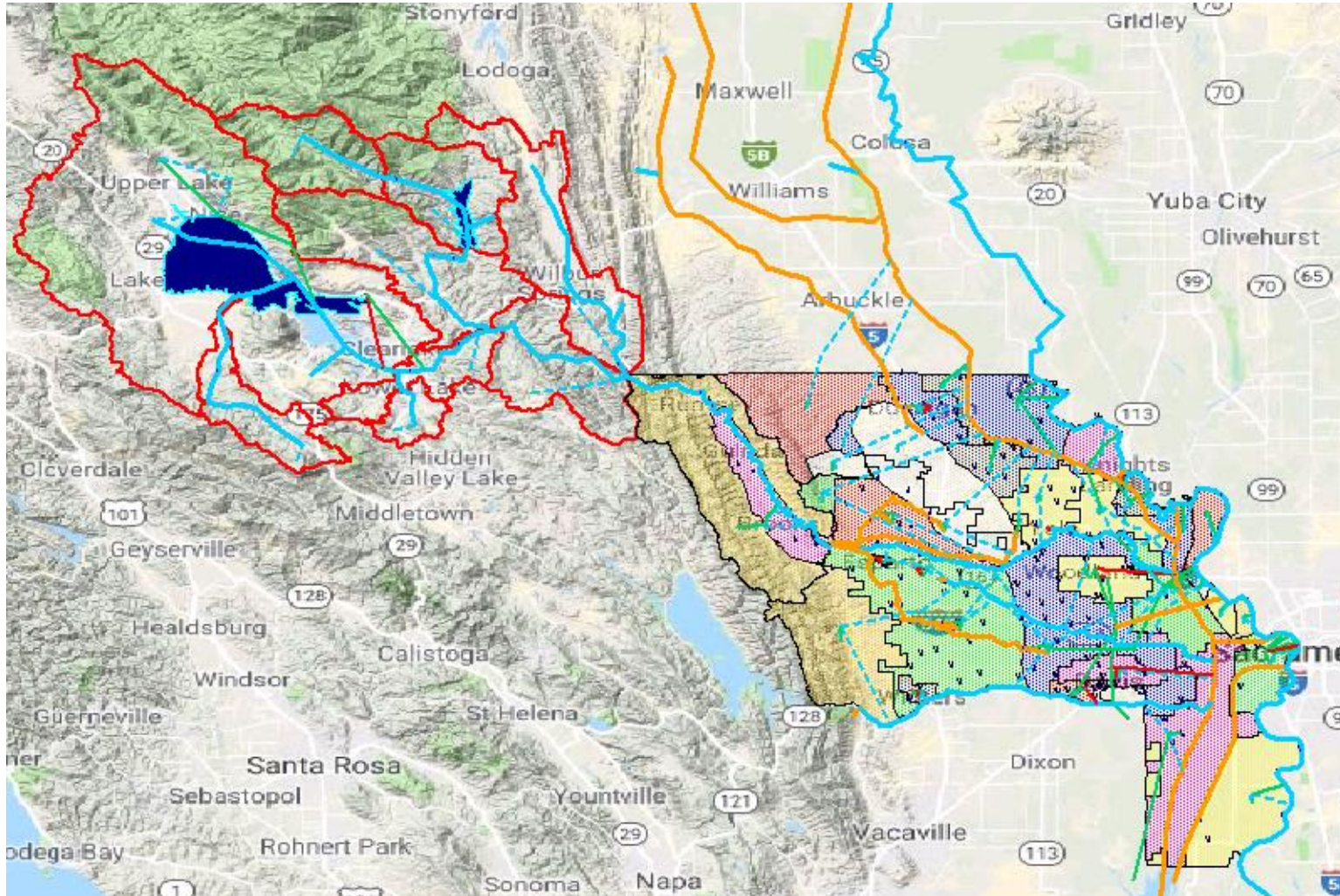
Vishal Mehta

Susie Bresney

Charles Young

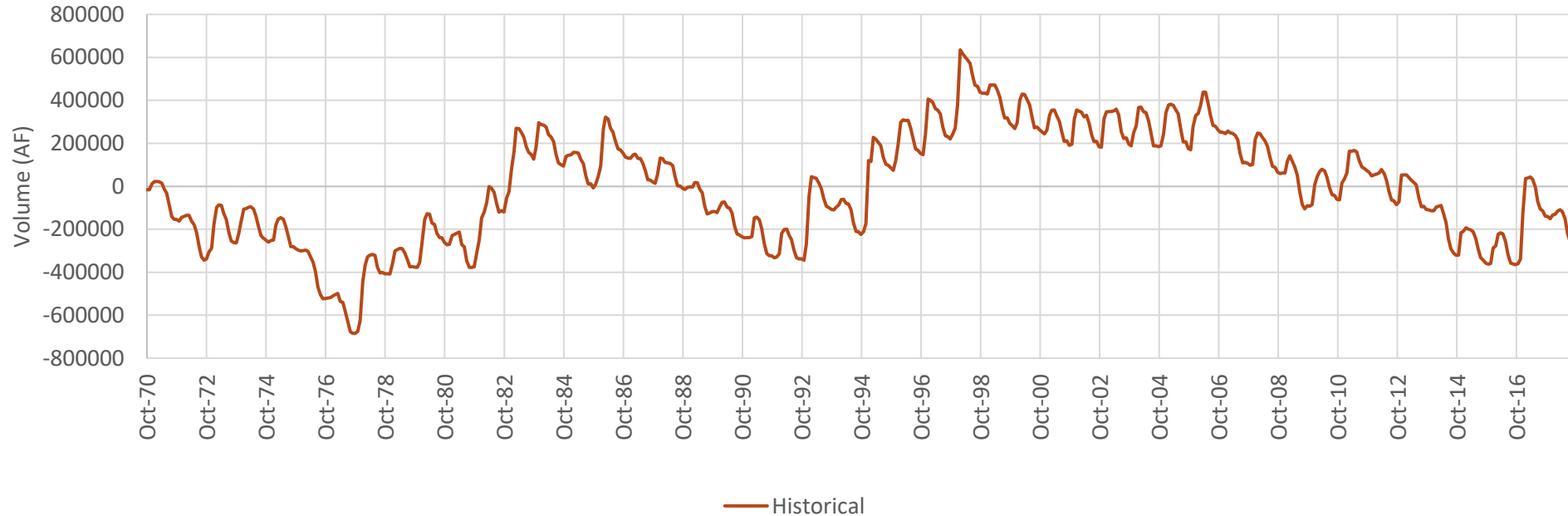
- YSGA model overview
- Historical water budget
- Future scenarios
- Next steps

YSGA model overview



- Includes entire Cache Creek hydrology and reservoir operations
- Valley floor divided into 38 catchments that represent all entities
- Total model area = 1.24 million acres
- Yolo county = 655,400 acres
- Yolo basin = 503,923 acres
- Valley floor groundwater coupled to a MODFLOW model

Yolo Subbasin simulated groundwater storage: Historical



Decade	Change in Storage (AF)
WY 1971-1981	-240,007
WY 1981-1991	14,144
WY 1991-2001	261,589
WY 2001-2011	-178,648
WY 2011-2018	-80,281

<i>Flow></i>	<i>Change in Storage</i>	<i>Pumping</i>	<i>Deep Percolation</i>	<i>Managed aquifer recharge: Woodland</i>	<i>YFCF Canal Recharge</i>	<i>GW-SW Exchange</i>	<i>Lateral Groundwater Flow</i>	<i>Drainage</i>
Annual Avg	-5,394	-318,602	267,030	*37	32,793	30,213	-6,498	-10,366

* operational in recent years, so an average over 1971-2018 is not strictly meaningful.

(Five) Future Scenarios

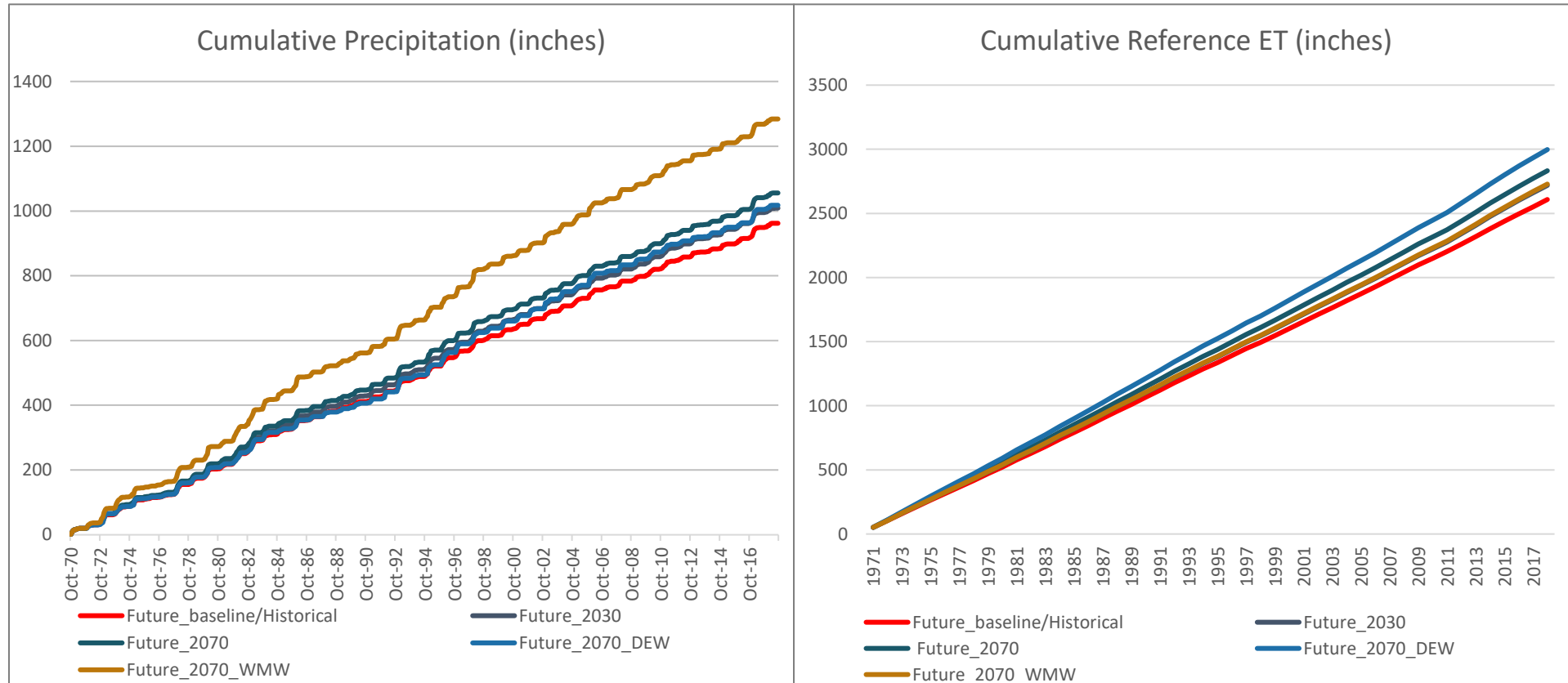
- Historical climate repeating
- Climate projections (4)
- Each scenario includes
 - Urban demand projections
 - Constant recent cropping pattern

Scenario name	Summary
Future Baseline	Historical 1971-2018 climate repeats
Future_2030	Climate representing the central tendency from many downscaled climate models, centered around 2030
Future_2070	Climate representing the central tendency from many downscaled climate models, centered around 2070
Future_2070_DEW	Climate representing dry-extreme warming from many downscaled climate models, centered around 2070
Future_2070_MWM	Climate representing wetter-moderate warming from many downscaled climate models, centered around 2070

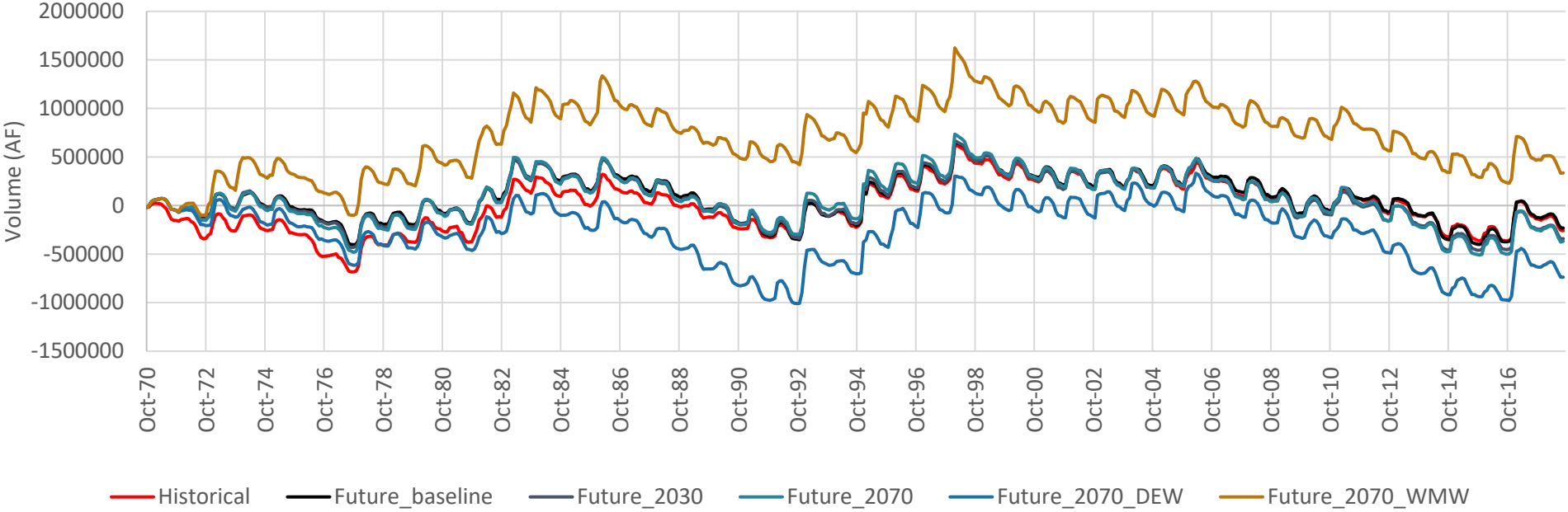
Future Scenarios: Climate

All future projections are slightly wetter, and warmer

Precipitation (inches)		Future_Baseline/ Historical	Future_2030	Future_2070	Future_2070_DEW	Future_2070_WMW
Davis	Sum	962	1009	1055	1018	1285
Davis	Avg	20	21	22	21	27

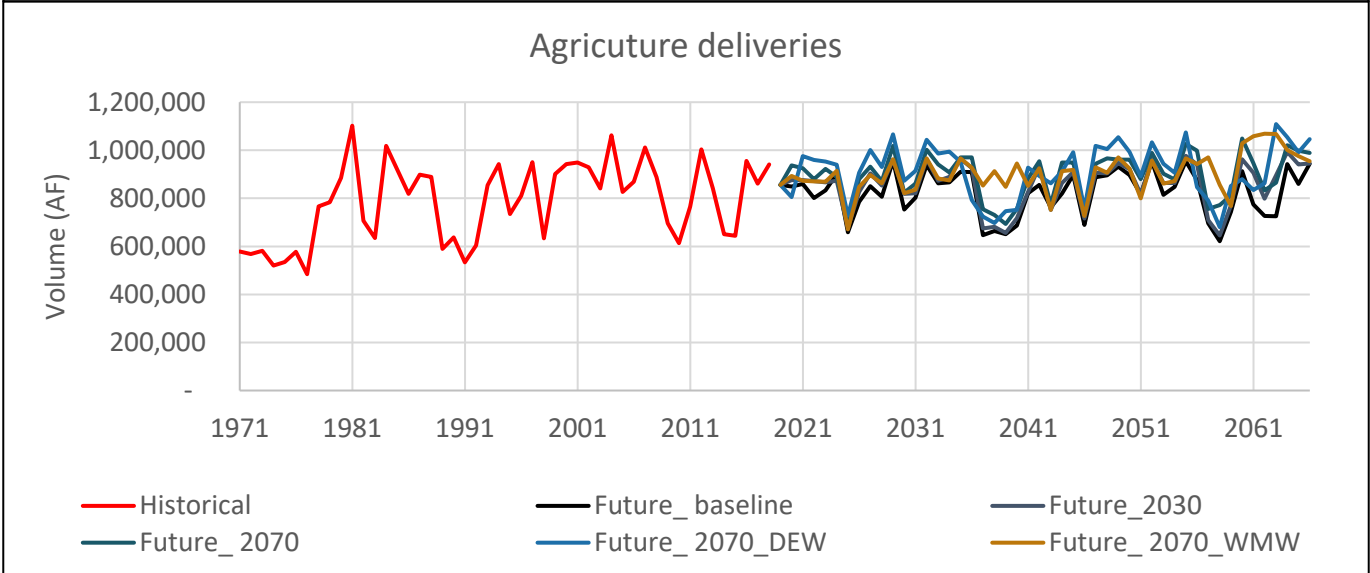
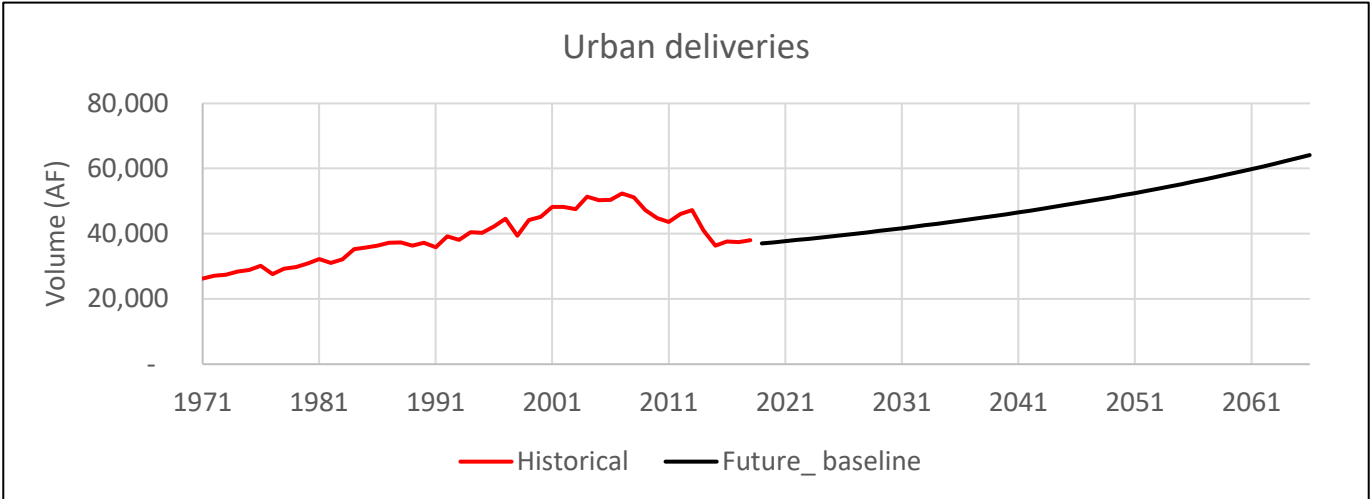


Yolo Subbasin storage: Historical vs Future Scenarios

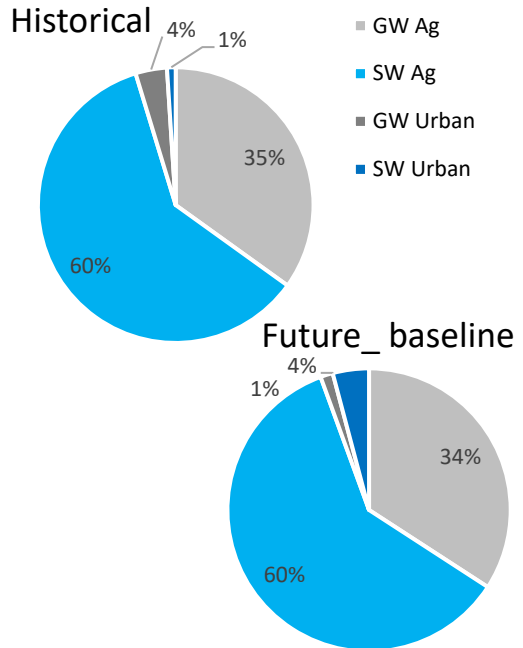


GW Storage follows the trends in precipitation:

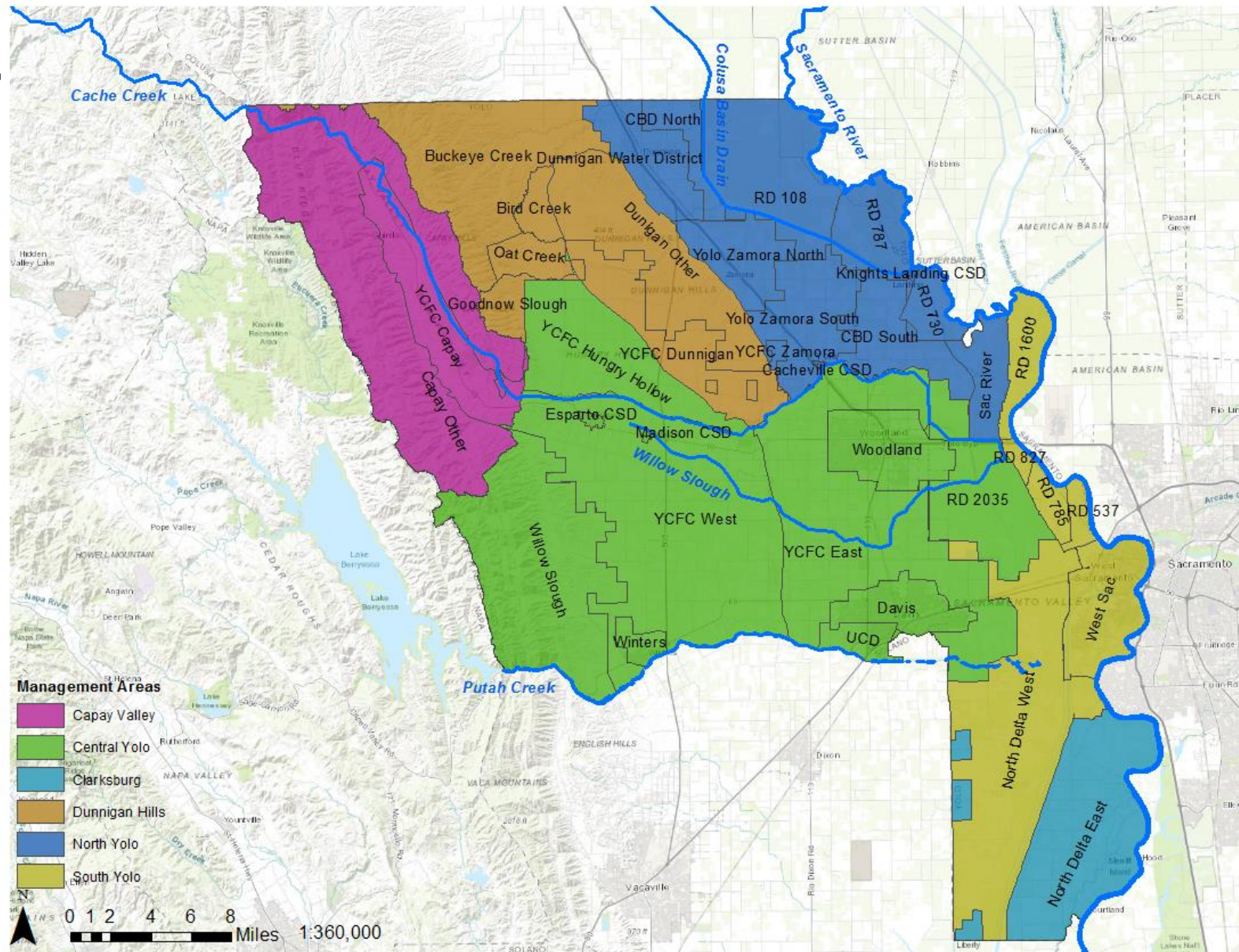
Total Water Deliveries



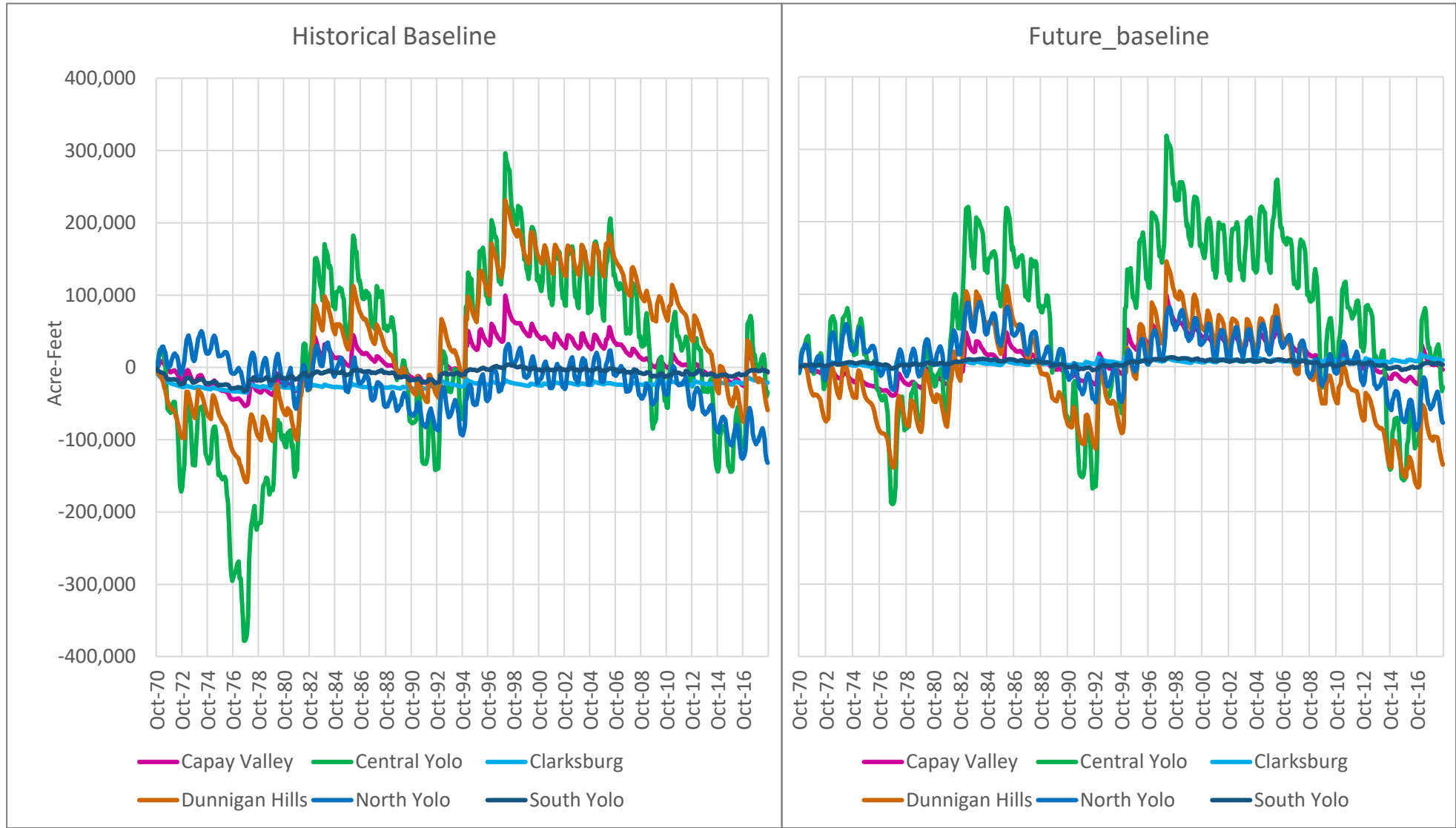
Average Annual Deliveries (Acre Feet)	
Urban	
Historical	38,838
Future(all scenarios are equal)	48,435
Agriculture	
Historical	786,342
Future_baseline	823,035
Future_2030	855,776
Future_2070	896,425
Future_2070_DEW	912,414
Future_2070_WMW	902,089



Model Subdivision: Management Areas



Management Area Storage



Management Areas: Future Baseline

Management Area	Comparison with Historical
Capay, South Yolo and Clarksburg	No remarkable change
Central Yolo	Fares well because of more surface water availability (Indian Valley) Less drawdown in drought
North Yolo	Fares well because of more surface water (TCC and utilization of full water right)
Dunnigan Hills	Fares worse than historically. Drops lower in drought and does not recover as much.

Note that there is variation in outcomes within Management Areas

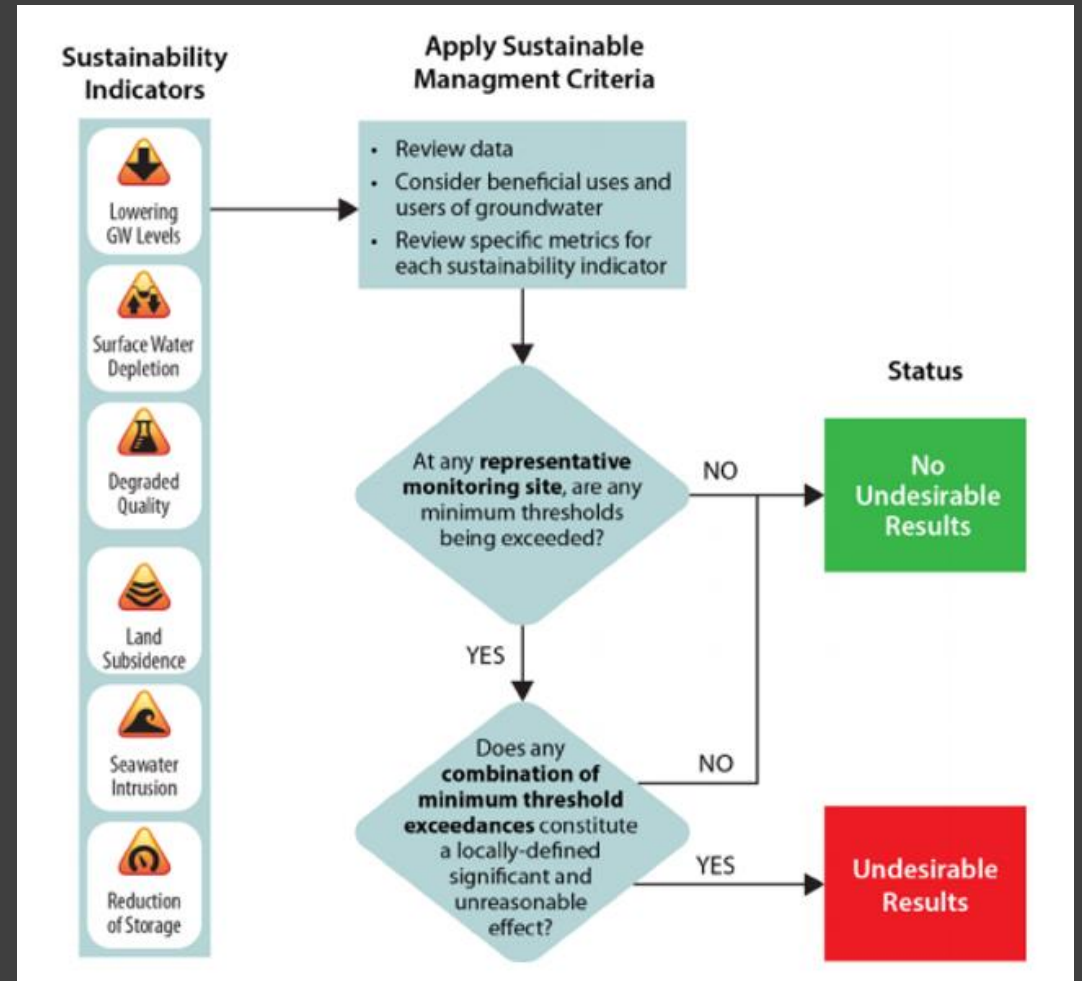
Next Steps

- Defining Sustainable Yield
- Exploring model use for defining Sustainable Management Criteria
- Incorporating landuse change, projects and management actions

GSP Development – SMC Development and Workshops

Sustainable Management Criteria

- Sustainability Goal
- Undesirable Results
- Minimum Thresholds
- Measurable Objectives



Next steps for Developing the SMC

- Selection of representative monitoring sites
- Assessment of **Sustainability Indicators**
- Definition of **Undesirable Results** based on the significant and unreasonable conditions of sustainability indicators
- Setting of **Minimum Thresholds** related to the **Undesirable Results**
- Setting of **Measurable Objectives** and **Sustainability Goal**

Establishing Technical Advisory Committee(s)

Create TAC(s) for

- Sustainability Indicators
 - Groundwater Levels & Storage
 - Subsidence
 - Water Quality
 - Depletions of Interconnected Surface Water
- Management Area Focus
 - Land Use Projections for Future Scenarios
 - Management Actions and Projects
 - Groundwater Monitoring Goals

Next Steps

- TAC Schedule
 - 5/15 – reach out to TAC members
 - 5/22 – receive commitment by members
 - 6/1 – form TAC and have teleconference to develop a plan/proposal of TAC goals for SMC development
- Schedule SMC Workshops – dependent on SIP
- Transition to Quarterly Working Group Meetings – August 5, 2020